



Record Summary for Conditional Use Permit Application

Record Detail Information

Record Type: Conditional Use Permit Application **Record Status:** In Review **File Date:** September 27, 2018

Record Number: PLN-USE-2018-042

Expiration Date:

Description:

Record Name: Hickory Solar Farm Amendment

Amendment to Conditional Use Permit PLN-USE-2017-003. Approved with stipulations by City Council on February 13, 2017.

Parent Record Number:

Hickory Solar Farm: 3284Watt solar photovoltaic electric generating farm on .1544 acre Newborn Farms property on Ballentine Road in Hickory, VA. Applicant requests amendment to the Conditional Use Permit as follows: 1) modify Stipulation #12 to allow the use of thin-film PV technology as well as mono-crystalline or poly-crystalline photovoltaic (PV) technology; and 2) change the name of the applicant/owner from New Energy Ventures, Inc. to Caden Energix Hickory LLC.

Address: Ballentine Road 00004

Owner Information

Primary	Owner Name	Owner Address	Owner Phone
Yes	Newborn Farms LLC	999 WATERSIDE DRIVE, Norfolk, VA 23510	(757) 477-3911

Parcel Information

Parcel No:
09700000000600

Contact Information

Name	Organization Name	Contact Type	Phone
Kenneth Niemann	Caden Energix Hickory LLC	Applicant	(703) 801-0412
Address Caden Energy, 611 NW 72nd Street, Miami, FL 33150			

Application Specific Information

ADDITIONAL ADDRESS INFORMATION

Unit Number -

PERMIT INFORMATION

Expiration Date -

Number of Signs 2

ACKNOWLEDGEMENT

Does any member of the Planning Commission or City Council own or have any personal or financial interest in the land which is subject to this application, or has any personal or financial interest in the outcome of the decisions, as defined by the Virginia Conflict of Interest Act?

If yes, please explain

I, the owner (or agent), certify that all statements in this application are true and correct to the best of my knowledge, are accurate and complete and includes all required information and submittals. I also certify that the list of adjacent property owners, if required, is complete and correct as of the date of this application submittal. I understand that if the list of adjacent property owners is determined to be incomplete at a later date, any action taken on this application may become null and void.

I, the applicant, understand that the cost of newspaper advertising for public hearing notification purposes is my responsibility and agree to pay all notices of payment due and bills associate with advertising costs for this application. Advertising cost will be billed separately.

Party Responsible for Advertising Cost

I, the applicant, consent to entry upon the subject property by public officers, employees, and agents of the City of Chesapeake wishing to view the site for purposes of processing, evaluating or deciding this application.

No

-

CHECKED

CHECKED

Applicant

CHECKED

DESCRIPTION OF PROPERTY

Common Description

Borough

Legal Description of the Property

Physical description of the property including location of its boundaries to the north, south, east, and west. State the street frontage, depth, and overall size in square feet/acreage:

Zoning Sheet(s)

Current Zoning Classification(s), acreage of each zoning classification, and present use of the property:

Proposed Zoning reclassification(s) and acreage of each proposed zoning reclassification(s):

Special Overlay District

Land Use Overlay District

Land use designation of the property as contained in the City's Comprehensive Plan

Planning Area

Will the application involve land disturbance for residential, assembly, day care, group home, recreation, school, library, or similar land use?

Census Tract

Statistical Area

Newbern Farms parcel at the end of Ballentine Road near Hickory Butte Road

NR HICKORY 145 AC Tax parcel # 0970000000660 NOTE: The City of Chesapeake real estate and tax records indicate that the parcel is 145 acres. However, a legal survey performed in 1999 by K-G Engineering identifies the parcel as 154.4 acres (see attached).

154.4 acre parcel (d 725,000 sf) northeast of Ballentine Rd. and 4,074 ft. east of Battleground Blvd. There is no street frontage. All of the land is currently being farmed.

-

A-1

Not applicable

-

-

-

S - Chesapeake

No

211.02

92310

CBPA

Is the property located within the Chesapeake Bay Preservation Area?

No

If within CBPA, submit an RPA and RMA delineation meeting the requirements of Section 26, Article X, of the Chesapeake City Code.

-

NATURE OF PROPOSED USE

Describe the nature of the proposed use as listed in the Chesapeake Zoning Ordinance, including the SIC Code (see the Zoning Administration in Development and Permits).

Solar PV electric generating farm

Standard Industrial Classification

4911

Provide a detailed description of the proposed use including hours of operation, number of employees, projected number of daily customers, etc.

Solar photovoltaic electric farm that will operate year-round and generate power during daylight hours only. There are no permanent employees on-site, and a small crew will visit the site 1-2 times per month to perform routine maintenance and repairs.

Describe any and all special conditions for the use, construction, layout, landscaping and screening, or appearance of the site which are offered to be made conditions of the use permit for purposes of assuring its compatibility with the surrounding neighborhood.

Will conform to stipulations in approved PIN-USE-2017-003.

Describe whether the proposed conditional use will be consistent with the adopted policies in the Comprehensive Plan of the City.

The proposed conditional use is consistent with adopted City policies in that it is a low-impact development activity that will not harm the land for future re-purposing. The project will use no water in the solar electric generation process, and will generate no air emissions and no noise. There will be no additional burden to the County's infrastructure including roads, water and sewer service, schools or fire/police. The proposed use will add to the county tax base but requires little to no public services. Many individuals and contractors from the community will have an opportunity to benefit during the construction of the solar farm. The construction of the project will not prevent any adjacent land from being developed in accordance with the adopted land use plans or zoning ordinances.

Are there any stipulations from a previous Conditional Use Permit that still apply to the property?

Yes

Existing Proffers

No

Previous Application Number

PIN-USE-2017-003

New Stipulations

No

PLANNER LEGAL DESCRIPTION

Planner Legal Description

-

ADVERSE EFFECTS DESCRIPTION

The noise characteristics of the proposed use, and whether they exceed the maximum sound levels that are typical of uses permitted as a matter of right in the district.

None

The anticipated glare from vehicular and stationary lights, and the extent to which such lights will be visible from any residential district.

None

The vulnerability of the proposed use to fire and related safety hazards.

Minimal

The interference by the proposed use with any easements, roadways, rail lines, utilities and public or private rights of way.

None

The possible destruction, loss or damage of a natural, scenic or historic feature of significant importance.

None

The adequacy of proposed landscaping and buffering measures to screen the site from neighboring properties zoned for or containing less intensive uses.

The nearest residential property, located to the north on Head of River Road, is 1,250 ft. from the property boundary line. Therefore visual impacts to neighboring properties will be minimal. Landscaping and buffering will adhere to stipulations in approved CUP.

TRAFFIC IMPACT

What is the current average daily traffic count of the adjacent roadways?

-

Date of Count

-

Count Source

-

Describe how traffic ingress and egress would be provided between the subject property and the existing abutting and intersecting roads (Are U-turns necessary? Is there a proposed median break? Is there shared access? Etc.)

Vehicular traffic will enter Ballentine Road off Battlefield Blvd. north and south. No traffic devices such as signals and turn lanes are required. During the construction phase, car parking and laydown areas for construction and equipment storage will be available adjacent to the project site.

State whether traffic devices, such as signals and turn lanes, would be required to provide safe ingress and egress.

Is a Traffic Impact Analysis required?

No

DRAINAGE IMPACT ANALYSIS (DIA)

What off-site easements and/or improvements are required?

None required

What steps have been taken to ensure that these easements can be obtained and that improvements can be constructed?

Address the current adequacy of the existing drainage receiving facility.

Project will utilize existing drainage systems.

Is this development subject to tidal impacts? How will the tides associated with a hurricane or northeaster affect the drainage system?

No tidal impacts.

What steps have been taken to ensure no property damage will result from a 100-year tidal or rainfall event?

The area is not within any floodplain, and existing drainage is adequate to handle storm water from 100-year rainfall events.

WATER AND SEWER IMPACT

State the estimated water and sewer demand to be generated by the development including the basis for the water and sewer demands estimated for the project (i.e. GPD per acre or dwelling). For office and institutional, commercial, and industrial rezoning, identify peak demands in addition to average demands.

Zero

Compare the water and sewer demands generated by the proposed development with the demands generated by development under existing zoning, and the demand generated by development at highest density allowed under the proposed zoning.

N/A

Describe the plan for meeting the anticipated water and sewer demands including methodologies used to determine that existing facilities will be able to provide or handle the additional flows (see Public Utilities for assistance).

N/A

Submit a conceptual plan identifying the proposed routing of off-site water lines and sewer force mains and the proposed location of pump station(s), if needed, to serve the project.	N/A
State the location of the nearest water and sewer lines which could accommodate flows generated by the proposed development.	-
Proposed Septic Tanks and Private Wells	No
If yes, provide a soil analysis for the subject property and documentation from the Chesapeake Health Department approving the site for septic tank use.	-

OPEN SPACE AND RECREATION

Is the development subject to Section 19-700 et seq. (Open Space and Recreational Area requirement)?	No
No. of Lots	-
Public Park/Open Space	-
Provide Parks and Recreation fee amount (\$500.00 per unit with park site or \$1000.00 per lot without park site):	-
If private park/open space is being offered, provide a description of the private park/open space including acreage and itemized listing of improvements including cost of the improvements.	-
If private park/open space meets minimum acreage and improvement criteria as specified in Section 19-709 (B) of the Zoning Ordinance, Parks and Recreation fee amount is \$250.00 per unit.	-

COMMON OWNERSHIP

Are any features of the development proposed to be held in common ownership by the persons residing in or owning lots in the development and not to be dedicated to and accepted by the City or other public entity?	No
By checking this box I agree to submit as part of this application a detailed plan for the establishment and perpetual maintenance of all such common open space and common improvements. The absence of sufficient bonding, escrow account, or other financial measures to ensure the proper construction and perpetual maintenance of such common areas shall be grounds for the denial of this application. All documentation shall meet the requirements of the Chesapeake Zoning Ordinance.	CHECKED

MAP CREATION

Zoning Map	-
Vicinity Map	-

FENTRESS OVERLAY DISTRICT

Fentress Restrictive Easement	No
Fentress ACUZ	-

DESCRIPTION OF PROPERTY

1	13 Digit Tax Map Numbers Owner	0970000000060 Newbern Farms LLC
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ADJ PROPERTY ZONING AND USES

1	Direction Adjacent Zoning Designation or Uses	East A-1
2	Direction Adjacent Zoning Designation or Uses	North A-1
3	Direction Adjacent Zoning Designation or Uses	South A-1
4	Direction Adjacent Zoning Designation or Uses	West A-1

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application** do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Caden Energix Hickory LLC

Ken Niemann

Nov 19, 2018

Company, Title: _____

Company, Title: SVP, Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Fatehi A. Mohammed, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 19 day of November, 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



FATEHI A. MOHAMMED
NOTARY PUBLIC 7523096
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES JUNE 30, 2020

Fatehi A. Mohammed

Notary Registration No: 7523096

My Commission Expires: 06/30/2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2018-042

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Applicant : Caden Energix Hickory LLC

Ken Neumann

Nov 19, 2018

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NOTARY PUBLIC 7523096
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES JUNE 30, 2020

Fatehi A. Mohammed

Notary Registration No: 7523096

My Commission Expires: 06/30/2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached CONDITIONAL USE PERMIT do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
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Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : Newbern Farms LLC

Applicant : _____

R. C. Burrroughs 9/26/18

Richard C. Burrroughs

Company, Title: Managing Member

Company, Title: _____

Commonwealth/State of VA City of Norfolk

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26th day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires Jun 30, 2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

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Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Hickory Solar LLC

Chris Wilman Sept 27, 2018

Company, Title: _____

Company, Title: SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomer, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomer

Notary Registration No: 7118907

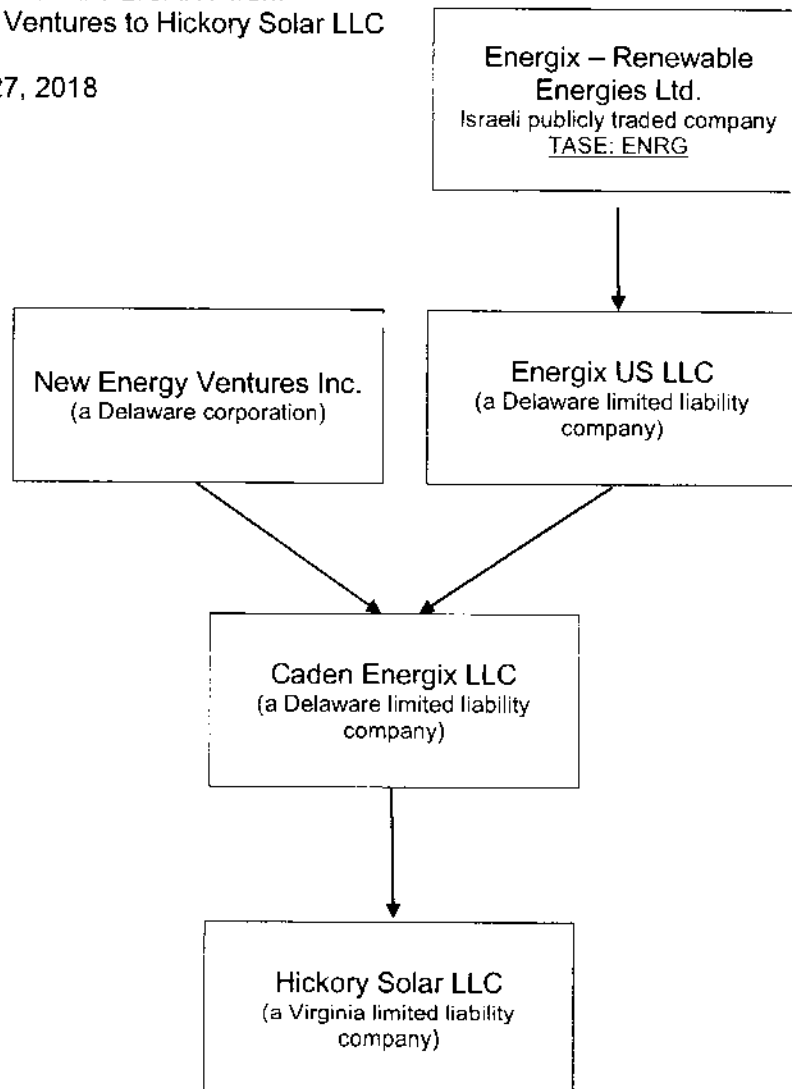
My Commission Expires: 12/31/2020

HICKORY SOLAR LLC

PLN-USE-2017-003

AMENDMENT of APPLICANT from
New Energy Ventures to Hickory Solar LLC

September 27, 2018



RECEIVED

DEC 06 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

neventures

New Energy Ventures, Inc.
611 NW 72nd St.
Miami, FL 33150
USA

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake, Caden Energix LLC, Caden Energix Hickory LLC, New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, NEV agreed to provide the City of Chesapeake with confirmation of its duly authorized officers and director, which is noted below:

Officers

Name	Title
Robert Kampf	Chief Executive Officer
Tanja Schoor	Chief Financial Officer, Secretary

In addition, please note that the sole director of NEV is Robert Kampf.

Please do not hesitate to contact us with any further questions or concerns.

Sincerely,


Robert Kampf

Caden Energix Hickory LLC
611 NW 72nd Street
Miami, FL 33150

RECEIVED

DEC 05 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake and representatives of Caden Energix LLC ("Caden Energix"), Caden Energix Hickory LLC ("Company"), New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, the Company agreed to provide the City with confirmation of the following information, which is duly confirmed by an authorized representative of each of the Company, Caden Energix and Energix US LLC ("Energix US"), as noted below:

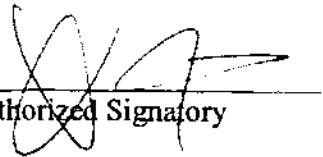
1. Pursuant to that certain Limited Liability Company Agreement by and between Energix US and NEV dated January 16, 2018, Energix US was duly appointed as the sole managing member of Caden Energix, and as such is authorized to direct, manage and control the business and affairs of Caden Energix.
2. Caden Energix is the sole member and manager of the Company, duly authorized to direct, manage and control the business and affairs of the Company. The actions of Caden Energix are directed by Energix US, its managing member.
3. Pursuant to the November 14, 2018 authorized resolutions of Energix US, as the sole managing member of Caden Energix, Energix US authorized and approved that the joint signatures of Mr. Asa Levinger and Ms. Moran Birman, together with Company's printed name or stamp, will bind the Company.

Please do not hesitate to contact us with any further questions or concerns.

Sincerely,

CADEN ENERGIX HICKORY LLC

by CADEN ENERGIX, LLC (managing member of Caden Energix Hickory LLC),
by ENERGIX US LLC (managing member of Caden Energix LLC),

By: 
Its: Authorized Signatory

Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF
DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT
COPY OF THE CERTIFICATE OF FORMATION OF "CADEN ENERGIX HICKORY
LLC", FILED IN THIS OFFICE ON THE EIGHTEENTH DAY OF OCTOBER,
A.D. 2018, AT 3:27 O'CLOCK P.M.




Jeffrey W. Bullock, Secretary of State

7108661 8100
SR# 20187211455

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 203641830
Date: 10-18-18

Commonwealth of Virginia



STATE CORPORATION COMMISSION

Richmond, November 27, 2018

*This certificate of registration to transact business in Virginia is
this day issued for*

Caden Energix Hickory LLC

*a limited liability company organized under the laws of
DELAWARE and the said company is authorized to transact
business in Virginia, subject to all Virginia laws applicable to the
company and its business.*



*State Corporation Commission
Attest:*

Joel H. Beck
Clerk of the Commission

Certificate of Formation

Of

Caden Energix Hickory LLC

Pursuant to Section 18-201 of the Delaware
Limited Liability Company Act:

1. The name of the limited liability company is Caden Energix Hickory LLC.
2. The registered office of Caden Energix Hickory LLC in the State of Delaware is located at 251 Little Falls Drive, Wilmington, Delaware 19808. The name of the registered agent at such address upon whom process against this limited liability company may be served is Corporation Service Company.

IN WITNESS WHEREOF, an authorized person has executed this Certificate of Formation on the 18 of October, 2018.

By: /s/ Robert Kampf

Name: Robert Kampf

Title: Authorized Person

State of Delaware
Secretary of State
Division of Corporations
Delivered 03:27 PM 10/18/2018
FILED 03:27 PM 10/18/2018
SR 20187211455 - File Number 7108661

Limited Liability Company Agreement

of

Caden Energix Hickory LLC

This Limited Liability Company Agreement ("**Agreement**") of Caden Energix Hickory LLC (the "**Company**"), effective as of October 18, 2018 (the "**Effective Date**"), is entered into by CadenEnergix LLC, as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on October 18, 2018 by the filing of a Certificate of Formation with the Secretary of State of the State of Delaware pursuant to and in accordance with the Delaware Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Caden Energix Hickory LLC.
2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, construct and carry on all acts or other things that may be incidental or necessary to carry on the business of that certain solar project located in the City of Chesapeake, Virginia (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.
3. Principal Office; Registered Agent.
 - (a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.
 - (b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. Members.

(a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name	Address
CadenEnergix LLC	Atrium Building 2 Jabotinsky Street Ramat Gan, 5250501 Israel

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary. In connection with such admission, the Company shall update Schedule A to this Agreement.

(c) Membership Interests: Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "**Officer**"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority

delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state

income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

CadenEnergix LLC
(sole member and manager)

5

SCHEDULE A

Schedule of Members

Member	Percentage of Membership	Capital Contribution	Address
CadenEnergix LLC	100%	[•]	Atrium Building 2 Jabotinsky Street Ramat Gan, 5250501 Israel

CADEN ENERGIX HICKORY LLC

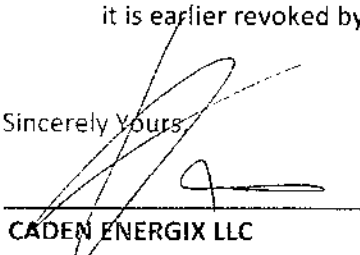
To whom it may concern,

Signatory Rights Confirmation

The undersigned, being the sole member of **Caden Energix Hickory LLC**, a company incorporated under the Delaware (the "**Company**"), hereby confirm that Mr. Kenneth Niemann of 2701 Farm Road, Alexandria, VA 22302, (the "**Attorney**"), is authorize to:

1. act on behalf of and for the Company before all government and local authorities, communities, municipalities and utilities in all matters related to obtaining administrative decisions, resolves, certificates, permits, acceptances, approvals, and such other documents necessary for the development and construction of a photo-voltaic solar project located in Chesapeake, Virginia.
2. The Attorney however is not entitled to incur any financial obligations on behalf of the Company.
3. This Signatory Rights Confirmation shall remain in force for a period of 12 months unless it is earlier revoked by the Company.

Sincerely Yours,



CADEN ENERGIX LLC

By Asa Levinger Moran Birman

Commonwealth of Virginia



STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Peck

Clerk of the Commission

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
Members	
Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
TOTAL	100.00%

Commonwealth of Virginia



STATE CORPORATION COMMISSION

Richmond, January 30, 2017

This is to certify that the certificate of organization of

HICKORY SOLAR LLC

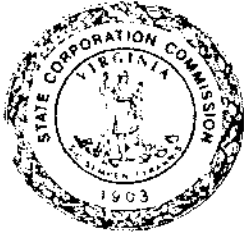
was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: January 30, 2017



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission



**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

Office of the Clerk

January 30, 2017

LEGALINC CORPORATE SERVICES INC.
1900 CAMPUS COMMONS DRIVE
SUITE 100
RESTON, VA 20191

RECEIPT

RE: HICKORY SOLAR LLC

ID: S6606752

DCN: 17-01-30-6297

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is January 30, 2017.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, JANUARY 30, 2017

The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR LLC

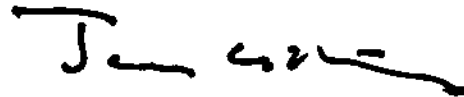
to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective January 30, 2017.

STATE CORPORATION COMMISSION

By

A handwritten signature in black ink, appearing to read 'J. C. Dimitri', written over a horizontal line.

James C. Dimitri
Commissioner

DLLCACPT
CISECOM
17-01-30-6297

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is LEGALINC CORPORATE SERVICES INC. The initial registered agent is a Virginia stock corporation.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 1900 CAMPUS COMMONS DRIVE, SUITE 100, RESTON, VA 20191. The initial registered office is located in Fairfax City (Filed In Fairfax County), Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 15 SOUTH 5TH STREET, STE 500, MINNEAPOLIS, MN 55402.

ORGANIZER:

/s/ MARSHA SIHA Date: January 30, 2017
MARSHA SIHA



DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 02-06-2017

Employer Identification Number:
81-5236296

Form: SS-4

Number of this notice: CP 575 G

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 81-5236296. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is HICK. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

(IRS USE ONLY)

575G

02-06-2017 HICK O 9999999999 SS-4

Keep this part for your records.

CP 575 G (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 G

9999999999999

Your Telephone Number Best Time to Call
() -

DATE OF THIS NOTICE: 02-06-2017

EMPLOYER IDENTIFICATION NUMBER: 81-5236296

FORM: SS-4

NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

Limited Liability Company Agreement

of

Hickory Solar LLC

This Limited Liability Company Agreement ("**Agreement**") of Hickory Solar LLC (the "**Company**"), effective as of January 4, 2018 (the "**Effective Date**"), is entered into by New Energy Ventures, Inc., as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on January 30, 2017 by the filing of a Certificate of Formation with the Secretary of State of the State of Virginia pursuant to and in accordance with the Virginia Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Hickory Solar LLC.

2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, and carry on all acts or other things that may be incidental or necessary to carry on the business of, that certain solar project known as Hickory Solar LLC (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.

3. Principal Office; Registered Agent.

(a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.

(b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. Members.

(a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name

New Energy Ventures Inc.

Address

927 Lincoln Road, Suite 200

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "**Officer**"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim

or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

New Energy Ventures Inc.

By: _____

Its:

EXHIBIT A

Schedule of Members

Member	Percentage of Membership	Capital Contribution
New Energy Ventures Inc.	100%	\$100

Commonwealth of Virginia



STATE CORPORATION COMMISSION

Richmond, September 26, 2018

This is to certify that the certificate of organization of

HICKORY SOLAR 1, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: September 26, 2018



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

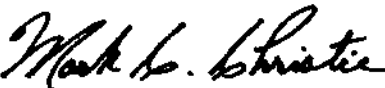
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 1, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6531

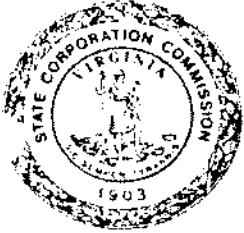
**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 1, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 1, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
 Mansour Khatib



**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

Office of the Clerk

September 26, 2018

CORPORATION SERVICE COMPANY
100 SHOCKOE SLIP, 2ND FLOOR
RICHMOND, VA 23219

RECEIPT

RE: HICKORY SOLAR 2, LLC

ID: S7786744

DCN: 18-09-26-6710

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is September 26, 2018.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

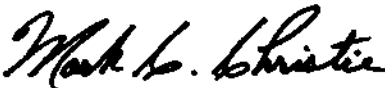
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 2, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6710

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 2, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 2, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib

STATE of VIRGINIA
STATEMENT *and* RESIGNATION of the ORGANIZER
A LIMITED LIABILITY COMPANY

The undersigned, the Organizer of HICKORY SOLAR LLC, who signed and filed its Articles of Organization (or similar organizing document) with the Virginia Secretary of State (or other appropriate state office), appoints the following individuals to serve as members of the limited liability company:

Name and address of each initial member:

NEW ENERGY VENTURES, INC.
927 LINCOLN ROAD, SUITE 200,
MIAMI BEACH, FL 33139

Additionally, the undersigned does hereby tender his/her resignation as Organizer for the LLC, and from any and all involvement with, control of, or authority over the LLC, real or perceived, effective immediately.

Dated: February 6th, 2017

Marsha Siha

Marsha Siha, Organizer

BAYVILLE FARMS ASSOCIATES, L.C.
CONSENT TO ADMISSION

The undersigned Member of Bayville Farms Associates, L.C., a Virginia limited liability company (the "Company"), pursuant to Section 15D(2)(d) of the Operating Agreement of the Company dated November 9, 1994, as amended by a First Amendment to Operating Agreement dated November 11, 1994, a Second Amendment to Operating Agreement dated June 28, 1996, a Third Amendment to Operating Agreement dated January 1, 2009, a Fourth Amendment to Operating Agreement dated June 1, 2015, a Fifth Amendment to Operating Agreement dated May 22, 2017, and a Sixth Amendment to Operating Agreement dated October 1, 2018 (as amended, the "Operating Agreement"), hereby consents to the admission of the following assignees of an Interest as Members of the Company with respect to the corresponding Interests upon the complete execution of the applicable Assignment of Membership Interest Agreement dated as of October 1, 2018, pursuant to which the following assignee received the Interest set forth opposite its name:

Assignee	Interest
William Mackenzie Jenkins, III	12.45575%
Jean Tyler Jenkins	12.45575%

Capitalized terms used herein and not otherwise defined shall have the meanings assigned to them in the Operating Agreement.

Date: 10/15/2018



Thomas Burroughs Babcock (4.5696%)

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We) Richard C. Burroughs, Newbern Farms, LLC am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Caden Energix Hickory LLC my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner: Newbern Farms, LLC

Applicant: _____

R. C. Burroughs 10/22/18
RICHARD C. BURROUGHS

Company Title: Managing Member

Company Title: _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, Anne B. [Signature], a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 23rd day of October, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



[Signature]

Notary Registration No: 192294

My Commission Expires: January 31, 2021

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE 2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Borough

Nature of Application: Conditional Use Permit for solar electric farm

I (We), Richard C. Burroughs, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Hickory Solar LLC, Applicant, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 26 day of Sept, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

R-C-B 9/26/18

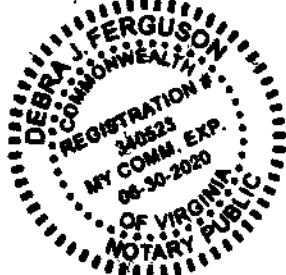
Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VA City of York

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26 day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: June 30, 2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Hickory Solar LLC, am (are)

☒ the applicant(s) for the above referenced application; ☐ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Kenneth Niemann and North Ridge Resources LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 27 day of September, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : _____

Applicant : Hickory Solar LLC, Kenneth Niemann

Company, Title : _____

Company, Title : SVP - Caden Energy

Commonwealth/State of Virginia

City of Alexandria

I, Christopher Gomez, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomez

Notary Registration No: 7118907

My Commission Expires: 12/31/2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Butts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Richard C. Burroughs, Newbern Farms, LLC, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Caden Energix Hickory LLC my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

Richard C. Burroughs 10/22/18
RICHARD C. BURROUGHS

Company Title : Managing Member

Company, Title : _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, ANNE BROWN KENNEY, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 22nd day of OCTOBER, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Anne Brown Kenney

Notary Registration No: 192294

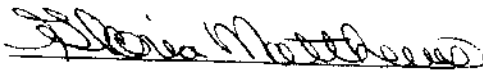
My Commission Expires: JANUARY 31, 2021

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria Matthews

Title: Customer Service III Date: 9/25/18

ADJACENT PROPERTY OWNERS LIST OF ADDRESSES
(Application for Hickory Solar LLC Solar Farm Project)

Bayville Farms Associates
999 Waterside Drive, Suite 1400
Norfolk, VA 23510-3300

Lyle and Molly Pugh
2220 Bishop Road
Blacksburg, VA 24060-8820

Strategic Development, LLC
700 Independence Blvd., #202
Virginia Beach, VA 23455-6201

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Don H. Higginson
815 Waterfall Way
Chesapeake, VA 23322-9605

Mark Higginson
1157 Indian Creek Road
Chesapeake, 23322-2056

Barry W. Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Christopher Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Joseph Tunstra
901 Head of River Road
Chesapeake, VA 23322-1947

Phyllis Leary
909 Head of River Road
Chesapeake, VA 23322-1947

Trent and Rachel Kelly
917 Head of River Road
Chesapeake, VA 23322-1947

Danielle Ingram
929 Head of River Road
Chesapeake, VA 23322-1947

David and Teresa Harcum
629 Narcova Dr.
Chesapeake, VA 23320-2949

James Parron
637 Head of River Road
Chesapeake, VA 23322-1917

David and Malaine Larena
649 Head of River Road
Chesapeake, VA 23322-1917

Michael and Barbara Dell
1245 Sir George Circle
Virginia Beach, VA 23452-4622

David and Donna Alderman
760 Sanderson Road
Chesapeake, VA 23322-2072

Michael and Coleen Goldsberry
633 Head of River Road
Chesapeake, VA 23322-1917

Leo and Cleary Lewis
625 Head of River Road
Chesapeake, VA 23322-1917

Randal and Barbara Werber
724 Head of River Road
Chesapeake, VA 23322-1951

Gardner and Janice Stanford
736 Head of River Road
Chesapeake, VA 23322-1951

DEBRANGO JAMES M
3645 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2435

BAILEY KAY & THOLANDER JOHN R JR
2740 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

HICKORY RURITAN CLUB
DIANNE EDWARDS
2756 BLACKSMITH TRL
CHESAPEAKE, VA 23322-3010

IVEY WILLIE E JR & CHARLOTTE F
2705 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2302

HICKORY METHODIST CHURCH
2708 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

SMITH ANNETTE RIDDICK
509 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

GAYHEART RICHARD B & DAWN M
517 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

SMITH JEFFREY W & DOREEN N
525 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

VANDERLIP DOUGLAS B
533 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA PETER P JR & BRENDA C
541 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA MICHELLE A
549 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

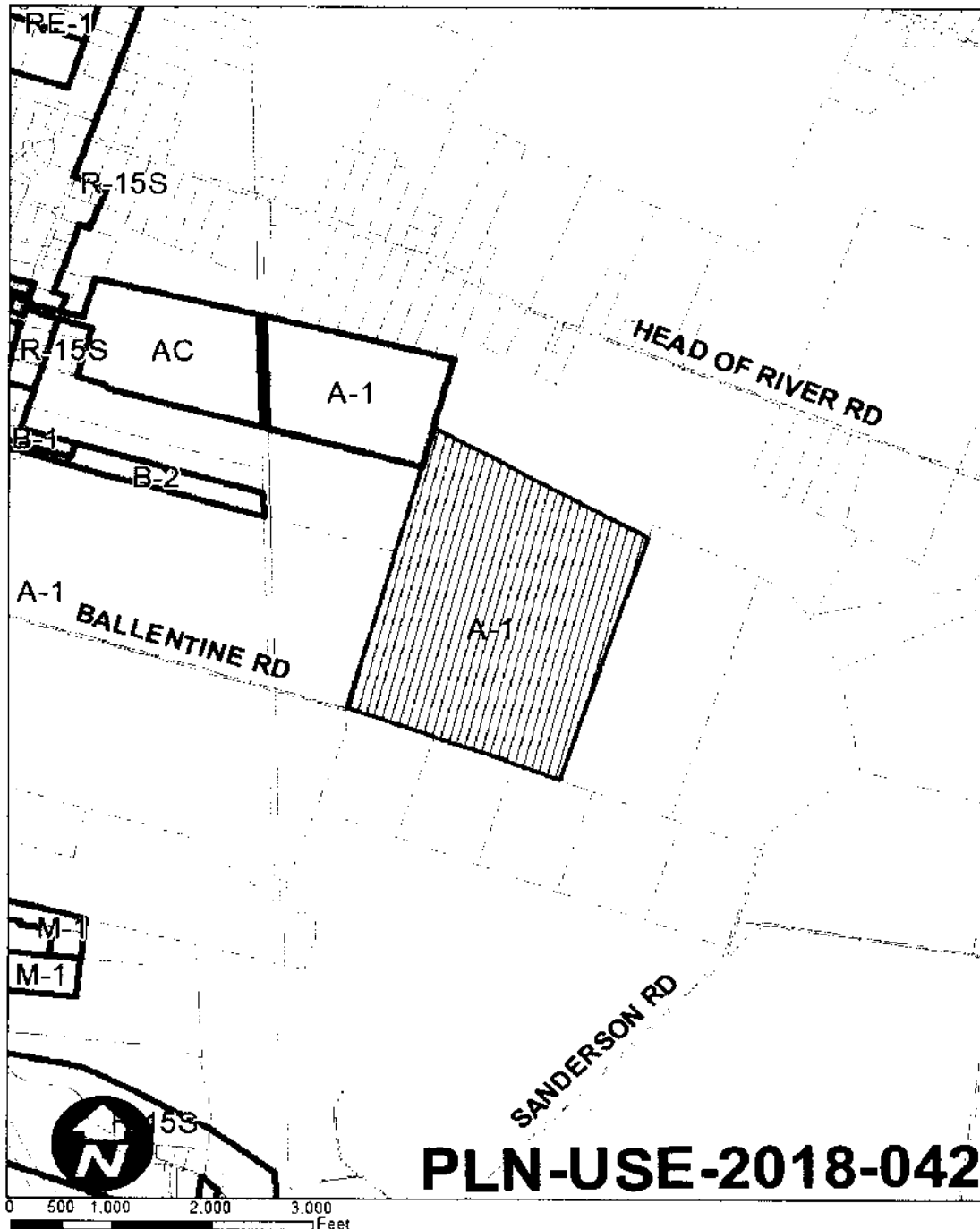
HOLCOMB WILLIAM C & SHELLEY L
601 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

DUNCAN JAMES J JR & CATHRYN E
609 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

SOVRAN ACQUISITION LTD PTNRSHIP
6467 MAIN ST
WILLIAMSVILLE , NY 14221-5856

MO INVESTMENT PROPERTIES L L C
441 NETWORK STATION DR #A
CHESAPEAKE, VA 23320-3862

September 25, 2018

**PLN-USE-2018-042****Hickory Solar Farm Amendment**

APPLICANT: Caden Energix Hickory LLC **OWNER:** Newbern Farms LLC **PROPOSAL:** A conditional use permit to amend stipulations number 7 and 12 of a previous approved application (PLN-USE-2017-003) for a solar farm facility. **ZONE:** A-1, Agricultural District **LOCATION:** On Ballentine Road, approximately 5000 ft. east from the intersection of Ballentine Road and Battlefield Blvds. **TAX MAP SECTION/PARCEL:** 0970000000660 **BOROUGH:** Butts Road

PLANNER
H. Dao

PLANNING COMMISSION MEETING
January 09, 2019



Record Summary for Conditional Use Permit Application

Record Detail Information

Record Type: Conditional Use Permit Application	Record Status: In Review	File Date: September 27, 2018
Record Number: PLN-USE-2018-042	Expiration Date:	
Description: Amendment to Conditional Use Permit PLN-USE 2017-003 Approved with stipulations by City Council on February 13, 2017.	Record Name: Hickory Solar Farm Amendment	Parent Record Number:

Hickory Solar Farm. 32MWac solar photovoltaic electric generating farm on 154.4 acre Newbern Farms property on Ballentine Road in Hickory, VA. Applicant requests amendment to the Conditional Use Permit as follows: 1) modify Stipulation #12 to allow the use of thin-film PV technology as well as mono-crystalline or poly-crystalline photovoltaic (PV) technology; and 2) change the name of the applicant/owner from New Energy Ventures, Inc. to Caden Energix Hickory LLC..

Address: Ballentine Road 00034

Owner Information

Primary	Owner Name	Owner Address	Owner Phone
Yes	Newbern Farms LLC	999 WATERSIDE DRIVE, Norfolk, VA 23510	(757) 477-3911

Parcel Information

Parcel No:
0970000000660

Contact Information

Name	Organization Name	Contact Type	Phone
Kenneth Niemann	Caden Energix Hickory LLC	Applicant	(703) 801-0412
Address			
Caden Energy, 611 NW 72nd Street, Miami, FL 33150			

Application Specific Information

ADDITIONAL ADDRESS INFORMATION

Unit Number	-
-------------	---

PERMIT INFORMATION

Expiration Date	-
Number of Signs	3

ACKNOWLEDGEMENT

Does any member of the Planning Commission or City Council own or have any personal or financial interest in the land which is subject to this application, or has any personal or financial interest in the outcome of the decisions, as defined by the Virginia Conflict of Interest Act?

No

If yes, please explain

-

I, the owner (or agent), certify that all statements in this application are true and correct to the best of my knowledge, are accurate and complete and includes all required information and submittals. I also certify that the list of adjacent property owners, if required, is complete and correct as of the date of this application submittal. I understand that if the list of adjacent property owners is determined to be incomplete at a later date, any action taken on this application may become null and void.

CHECKED

I, the applicant, understand that the cost of newspaper advertising for public hearing notification purposes is my responsibility and agree to pay all notices of payment due and bills associate with advertising costs for this application. Advertising cost will be billed separately.

CHECKED

Party Responsible for Advertising Cost

Applicant

I, the applicant, consent to entry upon the subject property by public officers, employees, and agents of the City of Chesapeake wishing to view the site for purposes of processing, evaluating or deciding this application.

CHECKED

DESCRIPTION OF PROPERTY

Common Description

Newbern Farms parcel at the end of Ballentine Road near Hickory

Borough

Butts Road

Legal Description of the Property

NR HICKORY 145 AC. Tax parcel # 0970000000660. NOTE: The City of Chesapeake real estate and tax records indicate that the parcel is 145 acres. However, a legal survey performed in 1999 by K-G Engineering identifies the parcel as 154.4 acres (see attached).

Physical description of the property including location of its boundaries to the north, south, east, and west. State the street frontage, depth, and overall size in square feet/acreage:

154.4 acre parcel (6,725,000 sf), northeast of Ballentine Rd. and 4,074 ft east of Battlefield Blvd. There is no street frontage. All of the land is currently being farmed.

Zoning Sheet(s)

-

Current Zoning Classification(s), acreage of each zoning classification, and present use of the property:

A-1

Proposed Zoning reclassification(s) and acreage of each proposed zoning reclassification(s):

Not applicable

Special Overlay District

-

Land Use Overlay District

-

Land use designation of the property as contained in the City's Comprehensive Plan

-

Planning Area

S. Chesapeake

Will the application involve land disturbance for residential, assembly, day care, group home, recreation, school, library, or similar land use?

No

Census Tract

211.02

Statistical Area

92310

CBPA

Is the property located within the Chesapeake Bay Preservation Area?

No

If within CBPA, submit an RPA and RMA delineation meeting the requirements of Section 26, Article X, of the Chesapeake City Code.

-

NATURE OF PROPOSED USE

Describe the nature of the proposed use as listed in the Chesapeake Zoning Ordinance, including the SIC Code (see the Zoning Administration in Development and Permits).

Solar PV electric generating farm

Standard Industrial Classification

4911

Provide a detailed description of the proposed use including hours of operation, number of employees, projected number of daily customers, etc.

Solar photovoltaic electric farm that will operate year-round and generate power during daylight hours only. There are no permanent employees on-site, and a small crew will visit the site 1-2 times per month to perform routine maintenance and repairs.

Describe any and all special conditions for the use, construction, layout, landscaping and screening, or appearance of the site which are offered to be made conditions of the use permit for purposes of assuring its compatibility with the surrounding neighborhood.

Will conform to stipulations in approved PLN-USE-2017-003.

Describe whether the proposed conditional use will be consistent with the adopted policies in the Comprehensive Plan of the City.

The proposed conditional use is consistent with adopted City policies in that it is a low-impact development activity that will not harm the land for future re-purposing. The project will use no water in the solar electric generation process, and will generate no air emissions and no noise. There will be no additional burden to the County's infrastructure including roads, water and sewer service, schools or fire/police. The proposed use will add to the county tax base but requires little to no public services. Many individuals and contractors from the community will have an opportunity to benefit during the construction of the solar farm. The construction of the project will not prevent any adjacent land from being developed in accordance with the adopted land use plans or zoning ordinances.

Are there any stipulations from a previous Conditional Use Permit that still apply to the property?

Yes

Existing Proffers

No

Previous Application Number

PLN-USE-2017-003

New Stipulations

No

PLANNER LEGAL DESCRIPTION

Planner Legal Description

-

ADVERSE EFFECTS DESCRIPTION

The noise characteristics of the proposed use, and whether they exceed the maximum sound levels that are typical of uses permitted as a matter of right in the district.

None.

The anticipated glare from vehicular and stationary lights, and the extent to which such lights will be visible from any residential district.

None

The vulnerability of the proposed use to fire and related safety hazards.

Minimal

The interference by the proposed use with any easements, roadways, rail lines, utilities and public or private rights of way.	None
The possible destruction, loss or damage of a natural, scenic or historic feature of significant importance.	None
The adequacy of proposed landscaping and buffering measures to screen the site from neighboring properties zoned for or containing less intensive uses.	The nearest residential property, located to the north on Head of River Road, is 1,250 ft. from the property boundary line. Therefore visual impacts to neighboring properties will be minimal. Landscaping and buffering will adhere to stipulations in approved CUP.

TRAFFIC IMPACT

What is the current average daily traffic count of the adjacent roadways?	-
Date of Count	-
Count Source	-
Describe how traffic ingress and egress would be provided between the subject property and the existing abutting and intersecting roads (Are U-turns necessary? Is there a proposed median break? Is there shared access? Etc.) State whether traffic devices, such as signals and turn lanes, would be required to provide safe ingress and egress.	Vehicular traffic will enter Ballentine Road off Battlefield Blvd. north and south. No traffic devices such as signals and turn lanes are required. During the construction phase, car parking and laydown areas for construction and equipment storage will be available adjacent to the project site.
Is a Traffic Impact Analysis required?	No

DRAINAGE IMPACT ANALYSIS (DIA)

What off-site easements and/or improvements are required? What steps have been taken to ensure that these easements can be obtained and that improvements can be constructed?	None required
Address the current adequacy of the existing drainage receiving facility.	Project will utilize existing drainage systems.
Is this development subject to tidal impacts? How will the tides associated with a hurricane or northeaster affect the drainage system?	No tidal impacts.
What steps have been taken to ensure no property damage will result from a 100-year tidal or rainfall event?	The area is not within any floodplain, and existing drainage is adequate to handle storm water from 100-year rainfall events.

WATER AND SEWER IMPACT

State the estimated water and sewer demand to be generated by the development including the basis for the water and sewer demands estimated for the project (i.e. GPD per acre or dwelling). For office and institutional, commercial, and industrial rezoning, identify peak demands in addition to average demands.	Zero
Compare the water and sewer demands generated by the proposed development with the demands generated by development under existing zoning, and the demand generated by development at highest density allowed under the proposed zoning.	N/A
Describe the plan for meeting the anticipated water and sewer demands including methodologies used to determine that existing facilities will be able to provide or handle the additional flows (see Public Utilities for assistance).	N/A

Submit a conceptual plan identifying the proposed routing of off-site water lines and sewer force mains and the proposed location of pump station(s), if needed, to serve the project. N/A

State the location of the nearest water and sewer lines which could accommodate flows generated by the proposed development. -

Proposed Septic Tanks and Private Wells No

If yes, provide a soil analysis for the subject property and documentation from the Chesapeake Health Department approving the site for septic tank use. -

OPEN SPACE AND RECREATION

Is the development subject to Section 19-700 et seq. (Open Space and Recreational Area requirement)? No

No. of Lots -

Public Park/Open Space -

Provide Parks and Recreation fee amount (\$500.00 per unit with park site or \$1000.00 per lot without park site): -

If private park/open space is being offered, provide a description of the private park/open space including acreage and itemized listing of improvements including cost of the improvements. -

If private park/open space meets minimum acreage and improvement criteria as specified in Section 19-709 (B) of the Zoning Ordinance, Parks and Recreation fee amount is \$250.00 per unit. -

COMMON OWNERSHIP

Are any features of the development proposed to be held in common ownership by the persons residing in or owning lots in the development and not to be dedicated to and accepted by the City or other public entity? No

By checking this box I agree to submit as part of this application a detailed plan for the establishment and perpetual maintenance of all such common open space and common improvements. The absence of sufficient bonding, escrow account, or other financial measures to ensure the proper construction and perpetual maintenance of such common areas shall be grounds for the denial of this application. All documentation shall meet the requirements of the Chesapeake Zoning Ordinance. CHECKED

MAP CREATION

Zoning Map -

Vicinity Map -

FENTRESS OVERLAY DISTRICT

Fentress Restrictive Easement No

Fentress ACUZ -

DESCRIPTION OF PROPERTY

1	13 Digit Tax Map Numbers Owner	0970000000660 Newbern Farms LLC
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ADJ PROPERTY ZONING AND USES

1	Direction Adjacent Zoning Designation or Uses	East A-1
2	Direction Adjacent Zoning Designation or Uses	North A-1
3	Direction Adjacent Zoning Designation or Uses	South A-1
4	Direction Adjacent Zoning Designation or Uses	West A 1

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application** do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Caden Energix Hickory LLC

Ken Niemann

Nov 19, 2018

Company, Title: _____

Company, Title: SVP, Caden Energy

Commonwealth/State of Virginia

City of Alexandria

I, Fatehi A. Mohammed, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 19 day of November, 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



FATEHI A. MOHAMMED
NOTARY PUBLIC 7523096
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES JUNE 30, 2020

Fatehi A. Mohammed

Notary Registration No: 7523096

My Commission Expires: 06/30/2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application** do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Caden Energix Hickory LLC

Ken Niemann

Nov 19, 2018

Company, Title: _____

Company, Title: SVP, Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Fatehi A. Mohammed, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 19 day of November, 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



FATEHI A. MOHAMMED
NOTARY PUBLIC 7523096
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES JUNE 30, 2020

Fatehi A. Mohammed

Notary Registration No: 7523096

My Commission Expires: 06/30/2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached CONDITIONAL USE PERMIT, do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : Newbern Farms LLC

Applicant : _____

R. C. Burroughs 9/26/18

Richard C. Burroughs

Company, Title: Managing Member

Company, Title: _____

Commonwealth/State of VA City of Norfolk

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26th day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: Jun 30, 2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application**, do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Hickory Solar LLC

Chris Gomer Sept 27, 2018

Company, Title: _____

Company, Title: SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomer, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomer

Notary Registration No: 7118907

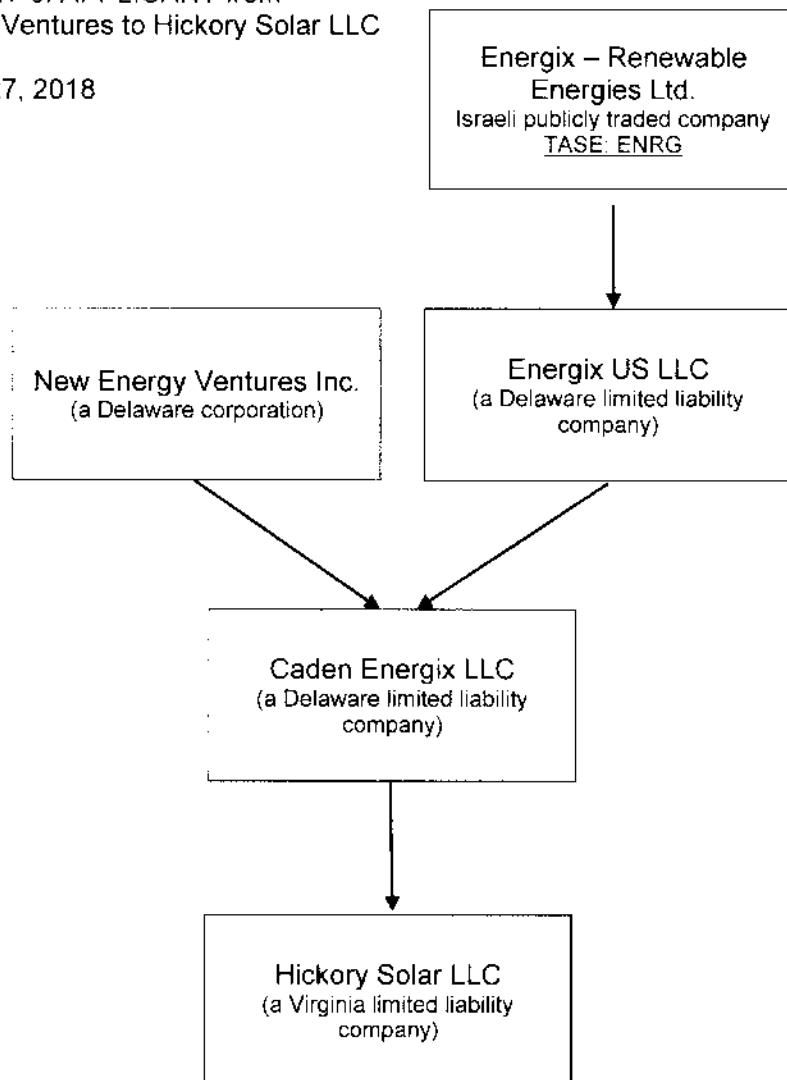
My Commission Expires: 12/31/2020

HICKORY SOLAR LLC

PLN-USE-2017-003

AMENDMENT of APPLICANT from
New Energy Ventures to Hickory Solar LLC

September 27, 2018



RECEIVED

DEC 06 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

neVentures

New Energy Ventures, Inc.
611 NW 72nd St.
Miami, FL 33150
USA

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake, Caden Energix LLC, Caden Energix Hickory LLC, New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, NEV agreed to provide the City of Chesapeake with confirmation of its duly authorized officers and director, which is noted below:

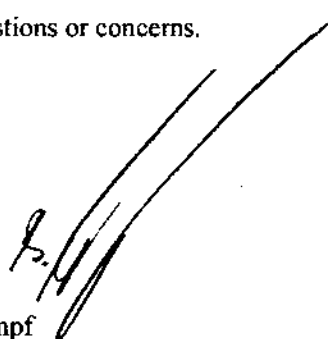
Officers

Name	Title
Robert Kampf	Chief Executive Officer
Tanja Schoor	Chief Financial Officer, Secretary

In addition, please note that the sole director of NEV is Robert Kampf.

Please do not hesitate to contact us with any further questions or concerns.

Sincerely,


Robert Kampf

Caden Energix Hickory LLC
611 NW 72nd Street
Miami, FL 33150

RECEIVED

DEC 05 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake and representatives of Caden Energix LLC ("Caden Energix"), Caden Energix Hickory LLC ("Company"), New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, the Company agreed to provide the City with confirmation of the following information, which is duly confirmed by an authorized representative of each of the Company, Caden Energix and Energix US LLC ("Energix US"), as noted below:

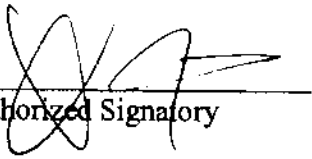
1. Pursuant to that certain Limited Liability Company Agreement by and between Energix US and NEV dated January 16, 2018, Energix US was duly appointed as the sole managing member of Caden Energix, and as such is authorized to direct, manage and control the business and affairs of Caden Energix.
2. Caden Energix is the sole member and manager of the Company, duly authorized to direct, manage and control the business and affairs of the Company. The actions of Caden Energix are directed by Energix US, its managing member.
3. Pursuant to the November 14, 2018 authorized resolutions of Energix US, as the sole managing member of Caden Energix, Energix US authorized and approved that the joint signatures of Mr. Asa Levinger and Ms. Moran Birman, together with Company's printed name or stamp, will bind the Company.

Please do not hesitate to contact us with any further questions or concerns.

Sincerely,

CADEN ENERGIX HICKORY LLC

by CADEN ENERGIX, LLC (managing member of Caden Energix Hickory LLC),
by ENERGIX US LLC (managing member of Caden Energix LLC),

By: 
Its: Authorized Signatory

Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF
DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT
COPY OF THE CERTIFICATE OF FORMATION OF "CADEN ENERGIX HICKORY
LLC", FILED IN THIS OFFICE ON THE EIGHTEENTH DAY OF OCTOBER,
A.D. 2018, AT 3:27 O`CLOCK P.M.



Jeffrey W. Bullock, Secretary of State

7108661 8100
SR# 20187211455

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 203641830
Date: 10-18-18

Commonwealth of Virginia



STATE CORPORATION COMMISSION

Richmond, November 27, 2018

This certificate of registration to transact business in Virginia is this day issued for

Caden Energix Hickory LLC

a limited liability company organized under the laws of DELAWARE and the said company is authorized to transact business in Virginia, subject to all Virginia laws applicable to the company and its business.



*State Corporation Commission
Attest:*

Joel H. Beck
Clerk of the Commission

Certificate of Formation

Of

Caden Energix Hickory LLC

Pursuant to Section 18-201 of the Delaware
Limited Liability Company Act:

1. The name of the limited liability company is Caden Energix Hickory LLC.
2. The registered office of Caden Energix Hickory LLC in the State of Delaware is located at 251 Little Falls Drive, Wilmington, Delaware 19808. The name of the registered agent at such address upon whom process against this limited liability company may be served is Corporation Service Company.

IN WITNESS WHEREOF, an authorized person has executed this Certificate of Formation on the 18 of October, 2018.

By: /s/ Robert Kampf

Name: Robert Kampf

Title: Authorized Person

State of Delaware
Secretary of State
Division of Corporations
Delivered 03:27 PM 10/18/2018
FILED 03:27 PM 10/18/2018
SR 20187211455 - File Number 7108661

Limited Liability Company Agreement

of

Caden Energix Hickory LLC

This Limited Liability Company Agreement ("**Agreement**") of Caden Energix Hickory LLC (the "**Company**"), effective as of October 18, 2018 (the "**Effective Date**"), is entered into by CadenEnergix LLC, as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on October 18, 2018 by the filing of a Certificate of Formation with the Secretary of State of the State of Delaware pursuant to and in accordance with the Delaware Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Caden Energix Hickory LLC.
2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, construct and carry on all acts or other things that may be incidental or necessary to carry on the business of that certain solar project located in the City of Chesapeake, Virginia (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.
3. Principal Office; Registered Agent.
 - (a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.
 - (b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. Members.

(a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name	Address
CadenEnergix LLC	Atrium Building 2 Jabotinsky Street Ramat Gan, 5250501 Israel

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary. In connection with such admission, the Company shall update Schedule A to this Agreement.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "**Officer**"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority

delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state

income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

CadenEnergix LLC
(sole member and manager)

By: 
Name: _____
Title: _____

SCHEDULE A

Schedule of Members

Member	Percentage of Membership	Capital Contribution	Address
CadenEnergix LLC	100%	[•]	Atrium Building 2 Jabotinsky Street Ramat Gan, 5250501 Israel

CADEN ENERGIX HICKORY LLC

To whom it may concern,

Signatory Rights Confirmation

The undersigned, being the sole member of **Caden Energix Hickory LLC**, a company incorporated under the Delaware (the "**Company**"), hereby confirm that Mr. Kenneth Niemann of 2701 Farm Road, Alexandria, VA 22302, (the "**Attorney**"), is authorize to:

1. act on behalf of and for the Company before all government and local authorities, communities, municipalities and utilities in all matters related to obtaining administrative decisions, resolves, certificates, permits, acceptances, approvals, and such other documents necessary for the development and construction of a photo-voltaic solar project located in Chesapeake, Virginia.
2. The Attorney however is not entitled to incur any financial obligations on behalf of the Company.
3. This Signatory Rights Confirmation shall remain in force for a period of 12 months unless it is earlier revoked by the Company.

Sincerely Yours



CADEN ENERGIX LLC

By Asa Levinger Moran Birman



STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Peck

Clerk of the Commission

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
Members	
Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
TOTAL	100.00%



STATE CORPORATION COMMISSION

Richmond, January 30, 2017

This is to certify that the certificate of organization of

HICKORY SOLAR LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: January 30, 2017



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

Office of the Clerk

January 30, 2017

LEGALINC CORPORATE SERVICES INC.
1900 CAMPUS COMMONS DRIVE
SUITE 100
RESTON, VA 20191

RECEIPT

RE: HICKORY SOLAR LLC

ID: S6606752

DCN: 17-01-30-6297

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is January 30, 2017.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, JANUARY 30, 2017

The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR LLC

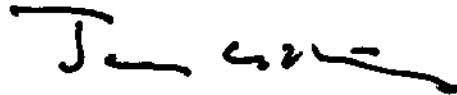
to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective January 30, 2017.

STATE CORPORATION COMMISSION

By

A handwritten signature in black ink, appearing to read 'J. C. Dimitri', written over a horizontal line.

James C. Dimitri
Commissioner

DLLCACPT
CISECOM
17-01-30-6297

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is LEGALINC CORPORATE SERVICES INC. The initial registered agent is a Virginia stock corporation.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 1900 CAMPUS COMMONS DRIVE, SUITE 100, RESTON, VA 20191. The initial registered office is located in Fairfax City (Filed In Fairfax County), Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 15 SOUTH 5TH STREET, STE 500, MINNEAPOLIS, MN 55402.

ORGANIZER:

/s/ MARSHA SIHA Date: January 30, 2017
MARSHA SIHA



DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 02-06-2017

Employer Identification Number:
81-5236296

Form: SS-4

Number of this notice: CP 575 G

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 81-5236296. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is HICK. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

02-06-2017 HICK O 9999999999 SS-4

CP 575 G (Rev. 7-2007)

CP 575 G

999999999999

DATE OF THIS NOTICE: 02-06-2017
EMPLOYER IDENTIFICATION NUMBER: 81-5236296
FORM: SS-4 NOBOD

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

Limited Liability Company Agreement

of

Hickory Solar LLC

This Limited Liability Company Agreement ("**Agreement**") of Hickory Solar LLC (the "**Company**"), effective as of January 4, 2018 (the "**Effective Date**"), is entered into by New Energy Ventures, Inc., as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on January 30, 2017 by the filing of a Certificate of Formation with the Secretary of State of the State of Virginia pursuant to and in accordance with the Virginia Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Hickory Solar LLC.

2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, and carry on all acts or other things that may be incidental or necessary to carry on the business of, that certain solar project known as Hickory Solar LLC (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.

3. Principal Office; Registered Agent.

(a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.

(b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. Members.

(a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name

New Energy Ventures Inc.

Address

927 Lincoln Road, Suite 200

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "**Officer**"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim

or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

New Energy Ventures Inc.

By: _____

Its:

EXHIBIT A

Schedule of Members

Member	Percentage of Membership	Capital Contribution
New Energy Ventures Inc.	100%	\$100



STATE CORPORATION COMMISSION

Richmond, September 26, 2018

This is to certify that the certificate of organization of

HICKORY SOLAR 1, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: September 26, 2018



*State Corporation Commission
Attest:*

Joel H. Beck
Clerk of the Commission

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

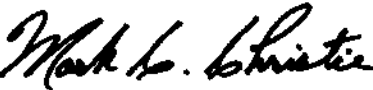
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 1, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6531

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 1, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 1, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

Office of the Clerk

September 26, 2018

CORPORATION SERVICE COMPANY
100 SHOCKOE SLIP, 2ND FLOOR
RICHMOND, VA 23219

RECEIPT

RE: HICKORY SOLAR 2, LLC

ID: S7786744

DCN: 18-09-26-6710

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is September 26, 2018.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

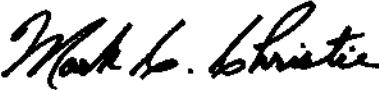
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 2, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6710

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 2, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 2, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib

STATE of VIRGINIA
STATEMENT *and* RESIGNATION *of the* ORGANIZER
A LIMITED LIABILITY COMPANY

The undersigned, the Organizer of HICKORY SOLAR LLC, who signed and filed its Articles of Organization (or similar organizing document) with the Virginia Secretary of State (or other appropriate state office), appoints the following individuals to serve as members of the limited liability company:

Name and address of each initial member:

NEW ENERGY VENTURES, INC.
927 LINCOLN ROAD, SUITE 200.
MIAMI BEACH, FL 33139

Additionally, the undersigned does hereby tender his/her resignation as Organizer for the LLC, and from any and all involvement with, control of, or authority over the LLC, real or perceived, effective immediately.

Dated: February 6th, 2017

Marsha Siha

Marsha Siha, Organizer

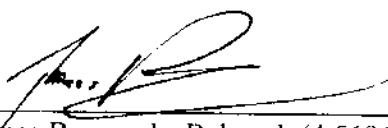
BAYVILLE FARMS ASSOCIATES, L.C.
CONSENT TO ADMISSION

The undersigned Member of Bayville Farms Associates, L.C., a Virginia limited liability company (the "Company"), pursuant to Section 15D(2)(d) of the Operating Agreement of the Company dated November 9, 1994, as amended by a First Amendment to Operating Agreement dated November 11, 1994, a Second Amendment to Operating Agreement dated June 28, 1996, a Third Amendment to Operating Agreement dated January 1, 2009, a Fourth Amendment to Operating Agreement dated June 1, 2015, a Fifth Amendment to Operating Agreement dated May 22, 2017, and a Sixth Amendment to Operating Agreement dated October 1, 2018 (as amended, the "Operating Agreement"), hereby consents to the admission of the following assignees of an Interest as Members of the Company with respect to the corresponding Interests upon the complete execution of the applicable Assignment of Membership Interest Agreement dated as of October 1, 2018, pursuant to which the following assignee received the Interest set forth opposite its name:

Assignee	Interest
William Mackenzie Jenkins, III	12.45575%
Jean Tyler Jenkins	12.45575%

Capitalized terms used herein and not otherwise defined shall have the meanings assigned to them in the Operating Agreement.

Date: 10/15/2018



Thomas Burroughs Babcock (4.5696%)

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Butts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Richard C. Burroughs, Newbern Farms, LLC, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Gaden Energix Hickory LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

Richard C. Burroughs 10/22/18
RICHARD C. BURROUGHS

Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, ANNE BROWN DENNEY, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 22nd day of OCTOBER, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Anne Brown Denney

Notary Registration No: 192294

My Commission Expires: JANUARY 31, 2021

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE_2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Borough

Nature of Application: Conditional Use Permit for solar electric farm

I (We), Richard C. Burroughs, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Hickory Solar LLC, Applicant, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 26 day of Sept, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

R. C. Burroughs 9/26/18

Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VA City of York

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26 day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: June 30, 2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Hickory Solar LLC, am (are)

☒ the applicant(s) for the above referenced application; ☐ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Kenneth Niemann and North Ridge Resources LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 27 day of September, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : _____

Applicant : Hickory Solar LLC, Kenneth Niemann

Ken Niemann Sept 27, 2018

Company, Title : _____

Company, Title : SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomez, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomez

Notary Registration No: 7118907

My Commission Expires: 12/31/2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Richard C. Burroughs, Newbern Farms, LLC, am (are)

☐ the applicant(s) for the above referenced application, ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Caden Energix Hickory LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

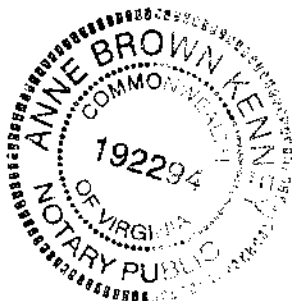
Owner : Newbern Farms, LLC

Applicant : _____

R C Burroughs 10/22/18
RICHARD C. BURROUGHS
Company Title: Managing Member Company, Title: _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, ANNE BROWN KENNEY, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 22nd day of OCTOBER, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Anne Brown Kenney

Notary Registration No: 192294

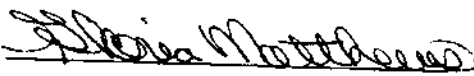
My Commission Expires: JANUARY 31, 2021

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria Matthews

Title: Customer Service III Date: 9/25/18

ADJACENT PROPERTY OWNERS LIST OF ADDRESSES
(Application for Hickory Solar LLC Solar Farm Project)

Bayville Farms Associates
999 Waterside Drive, Suite 1400
Norfolk, VA 23510-3300

Lyle and Molly Pugh
2220 Bishop Road
Blacksburg, VA 24060-8820

Strategic Development, LLC
700 Independence Blvd., #202
Virginia Beach, VA 23455-6201

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Don H. Higginson
815 Waterfall Way
Chesapeake, VA 23322-9605

Mark Higginson
1157 Indian Creek Road
Chesapeake, 23322-2056

Barry W. Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Christopher Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Joseph Tunstra
901 Head of River Road
Chesapeake, VA 23322-1947

Phyllis Leary
909 Head of River Road
Chesapeake, VA 23322-1947

Trent and Rachel Kelly
917 Head of River Road
Chesapeake, VA 23322-1947

Danielle Ingram
929 Head of River Road
Chesapeake, VA 23322-1947

David and Teresa Harcum
629 Narcova Dr.
Chesapeake, VA 23320-2949

James Parron
637 Head of River Road
Chesapeake, VA 23322-1917

David and Malaine Larena
649 Head of River Road
Chesapeake, VA 23322-1917

Michael and Barbara Dell
1245 Sir George Circle
Virginia Beach, VA 23452-4622

David and Donna Alderman
760 Sanderson Road
Chesapeake, VA 23322-2072

Michael and Coleen Goldsberry
633 Head of River Road
Chesapeake, VA 23322-1917

Leo and Cleary Lewis
625 Head of River Road
Chesapeake, VA 23322-1917

Randal and Barbara Werber
724 Head of River Road
Chesapeake, VA 23322-1951

Gardner and Janice Stanford
736 Head of River Road
Chesapeake, VA 23322-1951

DEBRANGO JAMES M
3645 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2435

BAILEY KAY & THOLANDER JOHN R JR
2740 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

HICKORY RURITAN CLUB
DIANNE EDWARDS
2756 BLACKSMITH TRL
CHESAPEAKE, VA 23322-3010

IVEY WILLIE E JR & CHARLOTTE F
2705 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2302

HICKORY METHODIST CHURCH
2708 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

SMITH ANNETTE RIDDICK
509 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

GAYHEART RICHARD B & DAWN M
517 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

SMITH JEFFREY W & DOREEN N
525 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

VANDERLIP DOUGLAS B
533 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA PETER P JR & BRENDA C
541 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA MICHELLE A
549 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

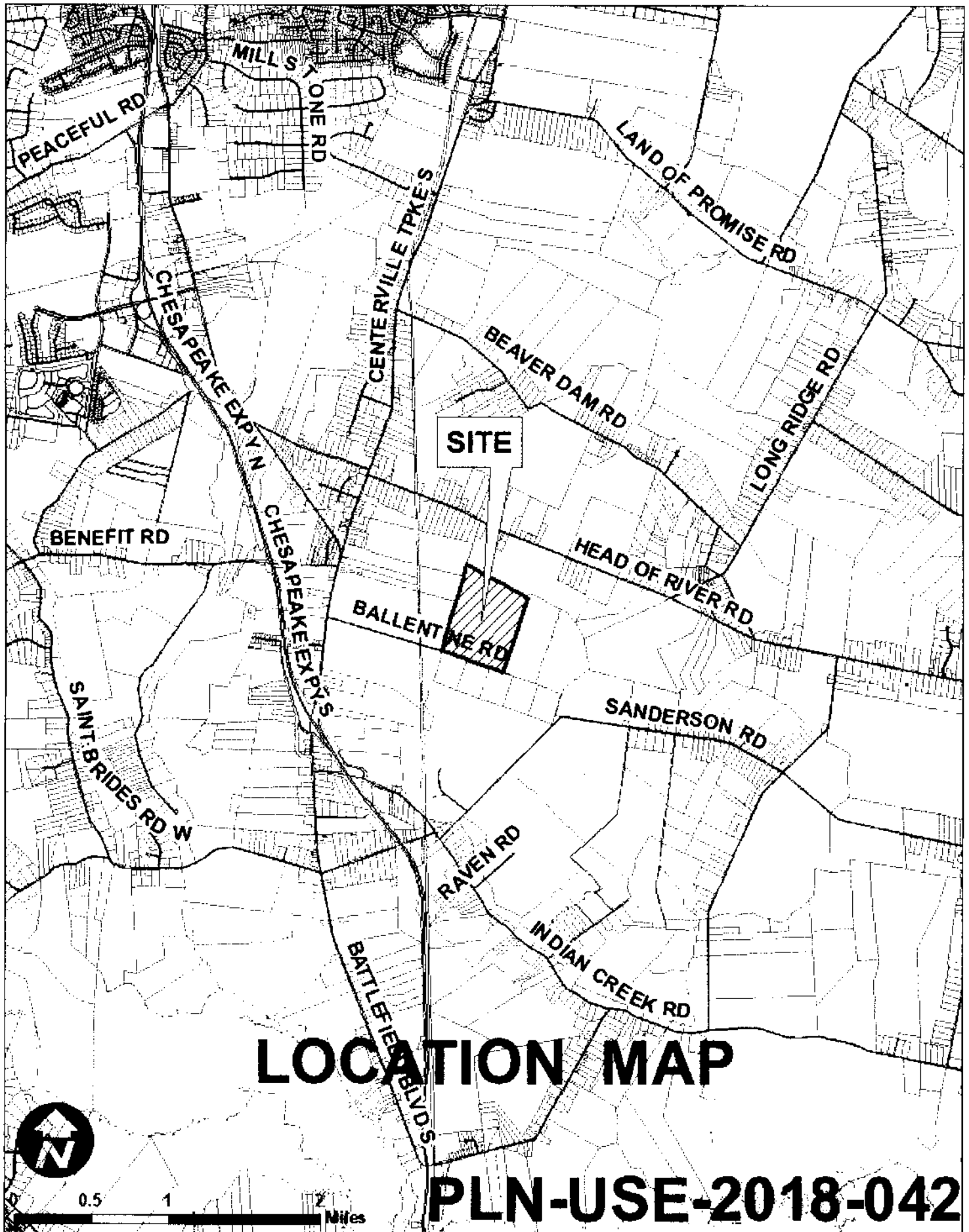
HOLCOMB WILLIAM C & SHELLEY L
601 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

DUNCAN JAMES J JR & CATHRYN E
609 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

SOVRAN ACQUISITION LTD PTNRSHIP
6467 MAIN ST
WILLIAMSVILLE , NY 14221-5856

MO INVESTMENT PROPERTIES L L C
441 NETWORK STATION DR #A
CHESAPEAKE, VA 23320-3862

September 25, 2018





Record Summary for Conditional Use Permit Application

Record Detail Information

Record Type: Conditional Use Permit Application

Record Status: Open

File Date: September 27
2018

Record Number: PLN-USE-2018-042

Expiration Date:

Description:

Record Name: Hickory Solar LLC

Amendment to Conditional Use Permit PLN USE 2017 003. Approved with stipulations by City Council on February 13, 2017.

Parent Record Number:

Hickory Solar Farm: 32MWac solar photovoltaic electric generating farm on 154.4 acre Newbern Farms property on Ballentine Road in Hickory, VA. Applicant requests amendment to the Conditional Use Permit as follows: 1) modify Stipulation #12 to allow the use of thin-film PV technology as well as mono-crystalline or poly-crystalline photovoltaic (PV) technology, and 2) change the name of the applicant/owner from New Energy Ventures, Inc. to Hickory Solar LLC.

Address: Ballentine Road 00004

Owner Information

Primary	Owner Name	Owner Address	Owner Phone
Yes	Newbern Farms LLC	999 WATERSIDE DRIVE, Norfolk, VA 23510	(757) 477-3911

Parcel Information

Parcel No:
0970000000660

Contact Information

Name	Organization Name	Contact Type	Phone
Kenneth Niemann Address Caden Energy, 611 NW 72nd Street, Miami, FL 33150	Hickory Solar LLC	Applicant	(703) 801-0412
Ken Niemann Address Caden Energy, 611 NW 72nd Street, Miami, FL 33150	Caden Energy / New Energy Ventures	Developer	(954) 661-0162

Application Specific Information

ADDITIONAL ADDRESS INFORMATION

Unit Number -

PERMIT INFORMATION

Expiration Date -

Number of Signs

-

ACKNOWLEDGEMENT

Does any member of the Planning Commission or City Council own or have any personal or financial interest in the land which is subject to this application, or has any personal or financial interest in the outcome of the decisions, as defined by the Virginia Conflict of Interest Act?

No

If yes, please explain

-

I, the owner (or agent), certify that all statements in this application are true and correct to the best of my knowledge, are accurate and complete and includes all required information and submittals. I also certify that the list of adjacent property owners, if required, is complete and correct as of the date of this application submittal. I understand that if the list of adjacent property owners is determined to be incomplete at a later date, any action taken on this application may become null and void.

CHECKED

I, the applicant, understand that the cost of newspaper advertising for public hearing notification purposes is my responsibility and agree to pay all notices of payment due and bills associate with advertising costs for this application. Advertising cost will be billed separately.

CHECKED

Party Responsible for Advertising Cost

Applicant

I, the applicant, consent to entry upon the subject property by public officers, employees, and agents of the City of Chesapeake wishing to view the site for purposes of processing, evaluating or deciding this application.

CHECKED

DESCRIPTION OF PROPERTY

Common Description

Newborn Farms parcel at the end of Ballentine Road near Hickory.

Borough

Bulbs Road

Legal Description of the Property

NR HICKORY 145 AC. Tax parcel # 0970000000660 NOTE: The City of Chesapeake real estate and tax records indicate that the parcel is 145 acres. However, a legal survey performed in 1999 by K-G Engineering identifies the parcel as 154.4 acres (see attached).

Physical description of the property including location of its boundaries to the north, south, east, and west. State the street frontage, depth, and overall size in square feet/acreage.

154.4 acre parcel (6,725,000 sf) northeast of Ballentine Rd and 4,074 ft. east of Battlefield Blvd. There is no street frontage. All of the land is currently being farmed.

Zoning Sheet(s)

-

Current Zoning Classification(s), acreage of each zoning classification, and present use of the property:

A-1

Proposed Zoning reclassification(s) and acreage of each proposed zoning reclassification(s):

Not applicable

Special Overlay District

-

Land Use Overlay District

-

Land use designation of the property as contained in the City's Comprehensive Plan

-

Planning Area

S. Chesapeake

Will the application involve land disturbance for residential, assembly, day care, group home, recreation, school, library, or similar land use?

No

Census Tract	211.02
Statistical Area	92310

CBPA

Is the property located within the Chesapeake Bay Preservation Area?	No
If within CBPA, submit an RPA and RMA delineation meeting the requirements of Section 26, Article X, of the Chesapeake City Code.	UNCHECKED

NATURE OF PROPOSED USE

Describe the nature of the proposed use as listed in the Chesapeake Zoning Ordinance, including the SIC Code (see the Zoning Administration in Development and Permits).	Solar PV electric generating farm
--	-----------------------------------

Standard Industrial Classification	4911
------------------------------------	------

Provide a detailed description of the proposed use including hours of operation, number of employees, projected number of daily customers, etc.	Solar photovoltaic electric farm that will operate year-round and generate power during daylight hours only. There are no permanent employees on-site and a small crew will visit the site 1-2 times per month to perform routine maintenance and repairs.
---	--

Describe any and all special conditions for the use, construction, layout, landscaping and screening, or appearance of the site which are offered to be made conditions of the use permit for purposes of assuring its compatibility with the surrounding neighborhood.	Will conform to stipulations in approved PLN-USE-2017-003.
---	--

Describe whether the proposed conditional use will be consistent with the adopted policies in the Comprehensive Plan of the City.	The proposed conditional use is consistent with adopted City policies in that it is a low-impact development activity that will not harm the land for future re-purposing. The project will use no water in the solar electric generation process and will generate no air emissions and no noise. There will be no additional burden to the County's infrastructure including roads, water and sewer service, schools or fire/police. The proposed use will add to the county tax base but requires little to no public services. Many individuals and contractors from the community will have an opportunity to benefit during the construction of the solar farm. The construction of the project will not prevent any adjacent land from being developed in accordance with the adopted land use plans or zoning ordinances.
---	---

Are there any stipulations from a previous Conditional Use Permit that still apply to the property?	Yes
---	-----

Existing Proffers	No
-------------------	----

Previous Application Number	PLN-USE-2017-003
-----------------------------	------------------

New Stipulations	-
------------------	---

PLANNER LEGAL DESCRIPTION

Planner Legal Description	-
---------------------------	---

ADVERSE EFFECTS DESCRIPTION

The noise characteristics of the proposed use, and whether they exceed the maximum sound levels that are typical of uses permitted as a matter of right in the district.	None
--	------

The anticipated glare from vehicular and stationary lights, and the extent to which such lights will be visible from any	None
--	------

residential district.

The vulnerability of the proposed use to fire and related safety hazards.

Minimal

The interference by the proposed use with any easements, roadways, rail lines, utilities and public or private rights of way.

None

The possible destruction, loss or damage of a natural, scenic or historic feature of significant importance.

None

The adequacy of proposed landscaping and buffering measures to screen the site from neighboring properties zoned for or containing less intensive uses.

The nearest residential property located to the north on Head of River Road is 1,250 ft. from the property boundary line. Therefore visual impacts to neighboring properties will be minimal. Landscaping and buffering will adhere to stipulations in approved CUP.

TRAFFIC IMPACT

What is the current average daily traffic count of the adjacent roadways?

-

Date of Count

-

Count Source

-

Describe how traffic ingress and egress would be provided between the subject property and the existing abutting and intersecting roads (Are U-turns necessary? Is there a proposed median break? Is there shared access? Etc.) State whether traffic devices, such as signals and turn lanes, would be required to provide safe ingress and egress.

Vehicular traffic will enter Ballentine Road off Battleground Blvd. north and south. No traffic devices such as signals and turn lanes are required. During the construction phase, car parking and laydown areas for construction and equipment storage will be available adjacent to the project site.

Is a Traffic Impact Analysis required?

No

DRAINAGE IMPACT ANALYSIS (DIA)

What off-site easements and/or improvements are required? What steps have been taken to ensure that these easements can be obtained and that improvements can be constructed?

None required

Address the current adequacy of the existing drainage receiving facility.

Project will utilize existing drainage systems.

Is this development subject to tidal impacts? How will the tides associated with a hurricane or northeaster affect the drainage system?

No tidal impacts.

What steps have been taken to ensure no property damage will result from a 100-year tidal or rainfall event?

The area is not within any floodplain and existing drainage is adequate to handle storm water from 100-year rainfall events.

WATER AND SEWER IMPACT

State the estimated water and sewer demand to be generated by the development including the basis for the water and sewer demands estimated for the project (i.e. GPD per acre or dwelling). For office and institutional, commercial, and industrial rezoning, identify peak demands in addition to average demands.

Zero

Compare the water and sewer demands generated by the proposed development with the demands generated by development under existing zoning, and the demand generated by development at highest density allowed under the proposed zoning.

N/A

Describe the plan for meeting the anticipated water and

N/A

sewer demands including methodologies used to determine that existing facilities will be able to provide or handle the additional flows (see Public Utilities for assistance).

Submit a conceptual plan identifying the proposed routing of off-site water lines and sewer force mains and the proposed location of pump station(s), if needed, to serve the project.

N/A

State the location of the nearest water and sewer lines which could accommodate flows generated by the proposed development.

UNCHECKED

Proposed Septic Tanks and Private Wells

No

If yes, provide a soil analysis for the subject property and documentation from the Chesapeake Health Department approving the site for septic tank use.

UNCHECKED

OPEN SPACE AND RECREATION

Is the development subject to Section 19-700 et seq. (Open Space and Recreational Area requirement)?

No

No. of Lots

-

Public Park/Open Space

-

Provide Parks and Recreation fee amount (\$500.00 per unit with park site or \$1000.00 per lot without park site):

-

If private park/open space is being offered, provide a description of the private park/open space including acreage and itemized listing of improvements including cost of the improvements.

-

If private park/open space meets minimum acreage and improvement criteria as specified in Section 19-709 (B) of the Zoning Ordinance, Parks and Recreation fee amount is \$250.00 per unit.

-

COMMON OWNERSHIP

Are any features of the development proposed to be held in common ownership by the persons residing in or owning lots in the development and not to be dedicated to and accepted by the City or other public entity?

No

By checking this box I agree to submit as part of this application a detailed plan for the establishment and perpetual maintenance of all such common open space and common improvements. The absence of sufficient bonding, escrow account, or other financial measures to ensure the proper construction and perpetual maintenance of such common areas shall be grounds for the denial of this application. All documentation shall meet the requirements of the Chesapeake Zoning Ordinance.

CHECKED

MAP CREATION

Zoning Map

-

Vicinity Map

-

FENTRESS OVERLAY DISTRICT

Fentress Restrictive Easement

No

DESCRIPTION OF PROPERTY

1	13 Digit Tax Map Numbers Owner	0970000000680 Newbern Farms LLC
---	-----------------------------------	------------------------------------

ADJ PROPERTY ZONING AND USES

1	Direction Adjacent Zoning Designation or Uses	East A-1
2	Direction Adjacent Zoning Designation or Uses	North A-1
3	Direction Adjacent Zoning Designation or Uses	South A-1
4	Direction Adjacent Zoning Designation or Uses	West A-1

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2017-003

Tax Map Number(s): 09700C0000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Butts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Hickory Solar LLC am (are)

☒ the applicant(s) for the above referenced application; ☐ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Kenneth Niemann and North Ridge Resources LLC my (our) true and lawful attorney-in-fact and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property including limitations on its use, and to modify or amend any documents in whole or in part relating to the application

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 27 day of September, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified

Owner _____

Applicant: Hickory Solar LLC, Kenneth Niemann

Kenneth Niemann Sept 27, 2018

Company Title _____

Company Title SVP - Caden Energy

Commonwealth/State of Virginia

City of Alexandria

I, Christopher Gomes, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomes

Notary Registration No. 7118907

My Commission Expires 12/31/2020

STATEMENT OF OWNERSHIP

Application No: PLN-USE-2017-003

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application** do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and, if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees, or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Hickory Solar LLC

Chris Newman Sept 27, 2018

Company Title: _____

Company Title: SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomes, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the

27th day of September 20 18, has (have) acknowledged the same before me in my City and State aforesaid



Christopher Gomes

Notary Registration No: 7118907

My Commission Expires 12/31/2020

STATEMENT OF OWNERSHIP

Application No PLN-USE-2017-003

The owner(s) and/or applicant(s) listed on the attached do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application CONDITIONAL USE PERMIT APPLICATION

- 1 All applicants, title owners, contract purchasers, and lessees of the property, and if any of the foregoing is a trustee, each beneficiary having an interest in the property
- 2 Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation
- 3 Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company
- 4 Where any of those listed in (1) above is a church, provide a list of all such trustees, or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above

Owner Newbern Farms LLC Applicant

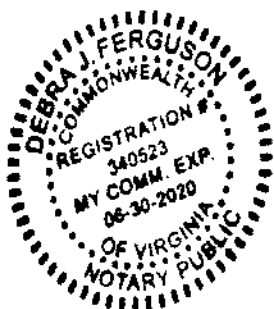
Richard C. Burroughs 9/26/18
Richard C. Burroughs

Company Title: Managing Member Company Title:

Commonwealth/State of VA City of Norfolk

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26th day of Sept 2018 has (have) acknowledged the same before me in my City and State aforesaid



Debra J. Ferguson

Notary Registration No: 370523

My Commission Expires: Jun 30, 2020

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
--------	----------

Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
---	--------

Members

Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
---	--------

Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
--	-------

Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
--	-------

Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
--	-------

Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
---	--------

Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
--	--------

TOTAL	100.00%
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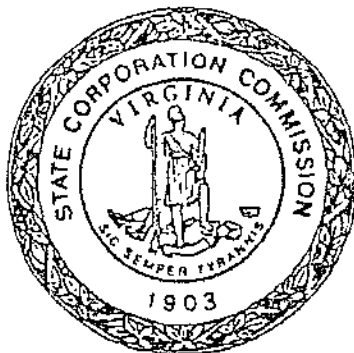
STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said-limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Beck

Clerk of the Commission

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE_2017-003

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Borough

Nature of Application: Conditional Use Permit for solar electric farm

I (We), Richard C. Burroughs, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Hickory Solar LLC, Applicant, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 26 day of Sept, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

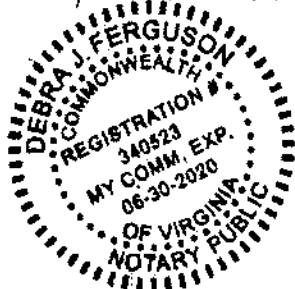
R-C-B 9/26/18

Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VA City of York

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26 day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires June 30, 2020

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
--------	----------

Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
---	--------

Members

Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
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Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
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Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
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Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
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Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
---	--------

Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
--	--------

TOTAL	100.00%
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STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Beck

Clerk of the Commission



STATE CORPORATION COMMISSION

Richmond, September 26, 2018

This is to certify that the certificate of organization of

HICKORY SOLAR 1, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: September 26, 2018



State Corporation Commission

Attest:

Joel H. Peck
Clerk of the Commission

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 1, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 1, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
 Mansour Khatib

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: Gloria Matthews

Treasurer's Employee Name: Gloria Matthews

Title: Customer Service III Date: 9/25/18

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria W Matthews

Title: Customer Service Clerk III Date: 1/4/17

1.- EXECUTIVE SUMMARY

First Solar has previously conducted 14 peer review studies regarding its CdTe PV module technology, with a strong focus on the environmental, health, and safety aspects. To that end, independent specialists from Brazil, Chile, China, the European Commission (Joint Research Centre), France, Germany, India, Japan, the Middle East, South Africa, Spain, Thailand and the USA have been invited to participate.

The present peer review has been carried out by specialists from Fraunhofer CSP (Germany), CNRS (France) and Oxford Brookes University (England) in a joint project coordinated by CENER (Spain).

The purpose of the present joint work is to review and evaluate, from an independent point of view, the performance and the environmental, health, and safety aspects of First Solar's CdTe PV technology. Although the report focuses on the European Union utility scale PV market, some aspects of the review are more broadly applicable.

The methodology applied for working out the present report is based on a thorough data mining of publicly available sources. Articles and reports published by recognized scientists, international agencies and research and development institutions have been reviewed, as well as confidential information provided by First Solar on their specific technology and management procedures. The information has been subjected to a critical analysis, based on the experience and know-how of the experts participating in this peer review. In addition, the experts from each institution visited First Solar's facility in Perrysburg (USA) and met with key plant staff and corporate management. In that visit, several presentations with confidential information were shared and discussed. This information exchange provided an in-situ scrutiny to address key technical questions and procedures of environmental, health, and safety aspects of the manufacturing and recycling processes, as well as the waste management systems to supplement data in publications. The main findings and conclusions extracted from the literature review and the site visit are summarized in the following paragraphs.

First Solar's thin-film CdTe PV technology accomplished a remarkable increase in cell efficiency of about 5 percentage points in 5 years, from 17.3% to the 22.1% achieved in 2015. In the mid-term, First Solar's technology roadmap has a goal of 24% cell efficiency that is projected to render 19% efficiency at module level. First Solar's PV modules are produced according to advanced standards with respect to product lifetime, reliability, quality and performance as documented in this report. An elaborate quality control and reliability testing program is maintained close to production and reliability testing outdoors is also available at various test sites representing different climatic conditions from arid to hot and humid. Long-term field performance monitoring programs have led to valuable data and know-how on manufacturing PV modules with extended lifetime. First Solar is active in the complete value chain of CdTe PV technology adding valuable benefits with their developments and improvements in the utility-scale PV power plant monitoring and performance analysis, operations and maintenance activities, and grid integration aspects.

guideline levels. Because most of the Cd content is not emitted to air and remains in the module and module debris, it was recommended to accordingly dispose the contaminated residues and replace the soil, which is a normal procedure following building fires. Water used to extinguish the fires was reported to contain similar quantities of Cd assumed in a prior fate and transport study, which found insignificant impacts to soil and groundwater, where the latter could be confirmed with soil analysis. Peer-reviewed fate and transport investigations regarding leaching of broken or defective CdTe PV modules suggest that the potential risk is minimal based on worst-case modeling, experimental data, and O&M practices (routine inspections and power output monitoring) that detect and remove broken modules. Independent research, published in peer-reviewed scientific journals would contribute to support First Solar's experimental results. These scientific studies should include both, broken modules representative of field exposures and modules with integrity issues resembling possible situations encountered towards the end of life. For example, independent broken module leaching studies have historically been conducted by Fraunhofer Institute in Germany and NEDO in Japan on older generation CdTe PV modules with results below health and environmental screening limits.

Improper disposal and recycling as well as non-intended uses of CdTe PV modules is a controversial issue for the long-term deployment of CdTe PV technology. CdTe has a high chemical and thermal stability and is insoluble in water, which limits its leachability and bioavailability. The in-depth analysis of the available scientific documents suggests that the health risk associated with the disposal of CdTe PV modules in uncontrolled landfills is minimal at the present usage rates. More specifically, the screening level cumulative non-carcinogenic hazard index could exceed 1.0 only if the waste volume amounted to over 14 million modules over 20 years or over 5 million modules in 1 year (which would equal the disposal of an installation well above 500 MW peak in 1 year), assuming the disposal into a single, unlined landfill. The disposal of a multi 100 MW PV installation in a single uncontrolled landfill is already an upper bound case. Uncontrolled disposal of such a system is highly unlikely, considering that an installation of that size is a billion dollar investment, requiring extensive planning and impact assessment as well as construction and operating permits, which in all cases, foresee dismantling and disposal requirements.

High-value recycling (recovery of glass and semiconductor materials) is the ideal option for the end-of-life management of PV modules, including CdTe PV, but it must be entrusted to companies with the required knowledge and best environmental, health and safety practices, such as those being documented by CENELEC in support of the WEEE Directive (draft Standard EN50625-2-4). However, even in the case of informal recycling, unlike household consumer electronics, there would be few components in a monolithic thin film module valuable for being dismantled, aside from the junction box and cables.

First Solar is leading the PV industry in the establishment of collection and recycling programs that ensure the end-of-life recycling with a proven technology. In the EU, the inclusion of all PV technologies in the WEEE directive, which requires collection and recycling according to minimum standards, together with First Solar's recycling facility (in Frankfurt/Oder, Germany)

ADJACENT PROPERTY OWNERS LIST OF ADDRESSES
(Application for Hickory Solar LLC Solar Farm Project)

Bayville Farms Associates
999 Waterside Drive, Suite 1400
Norfolk, VA 23510-3300

Lyle and Molly Pugh
2220 Bishop Road
Blacksburg, VA 24060-8820

Strategic Development, LLC
700 Independence Blvd., #202
Virginia Beach, VA 23455-6201

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Don H. Higginson
815 Waterfall Way
Chesapeake, VA 23322-9605

Mark Higginson
1157 Indian Creek Road
Chesapeake, 23322-2056

Barry W. Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Christopher Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Joseph Tunstra
901 Head of River Road
Chesapeake, VA 23322-1947

Phyllis Leary
909 Head of River Road
Chesapeake, VA 23322-1947

Trent and Rachel Kelly
917 Head of River Road
Chesapeake, VA 23322-1947

Danielle Ingram
929 Head of River Road
Chesapeake, VA 23322-1947

David and Teresa Harcum
629 Narcova Dr.
Chesapeake, VA 23320-2949

James Parron
637 Head of River Road
Chesapeake, VA 23322-1917

David and Malaine Larena
649 Head of River Road
Chesapeake, VA 23322-1917

Michael and Barbara Dell
1245 Sir George Circle
Virginia Beach, VA 23452-4622

David and Donna Alderman
760 Sanderson Road
Chesapeake, VA 23322-2072

Michael and Coleen Goldsberry
633 Head of River Road
Chesapeake, VA 23322-1917

Leo and Cleary Lewis
625 Head of River Road
Chesapeake, VA 23322-1917

Randal and Barbara Werber
724 Head of River Road
Chesapeake, VA 23322-1951

Gardner and Janice Stanford
736 Head of River Road
Chesapeake, VA 23322-1951

DEBRANGO JAMES M
3645 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2435

BAILEY KAY & THOLANDER JOHN R JR
2740 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

HICKORY RURITAN CLUB
DIANNE EDWARDS
2756 BLACKSMITH TRL
CHESAPEAKE, VA 23322-3010

IVEY WILLIE E JR & CHARLOTTE F
2705 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2302

HICKORY METHODIST CHURCH
2708 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

SMITH ANNETTE RIDDICK
509 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

GAYHEART RICHARD B & DAWN M
517 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

SMITH JEFFREY W & DOREEN N
525 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

VANDERLIP DOUGLAS B
533 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA PETER P JR & BRENDA C
541 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA MICHELLE A
549 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

HOLCOMB WILLIAM C & SHELLEY L
601 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

DUNCAN JAMES J JR & CATHRYN E
609 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

SOVRAN ACQUISITION LTD PTNRSH
6467 MAIN ST
WILLIAMSVILLE , NY 14221-5856

MO INVESTMENT PROPERTIES L L C
441 NETWORK STATION DR #A
CHESAPEAKE, VA 23320-3862

September 25, 2018

Limited Liability Company Agreement

of

Hickory Solar LLC

This Limited Liability Company Agreement ("**Agreement**") of Hickory Solar LLC (the "**Company**"), effective as of January 4, 2018 (the "**Effective Date**"), is entered into by New Energy Ventures, Inc., as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on January 30, 2017 by the filing of a Certificate of Formation with the Secretary of State of the State of Virginia pursuant to and in accordance with the Virginia Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. **Name**. The name of the Company is Hickory Solar LLC.

2. **Purpose**. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, and carry on all acts or other things that may be incidental or necessary to carry on the business of, that certain solar project known as Hickory Solar LLC (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.

3. **Principal Office; Registered Agent**.

(a) **Principal Office**. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.

(b) **Registered Agent**. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. **Members**.

(a) **Initial Member**. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name

New Energy Ventures Inc.

Address

927 Lincoln Road, Suite 200

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "Officer"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim

or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

New Energy Ventures Inc.

By: _____

Its:

EXHIBIT A

Schedule of Members

Member	Percentage of Membership	Capital Contribution
New Energy Ventures Inc.	100%	\$100

STATE of VIRGINIA
STATEMENT *and* RESIGNATION of the ORGANIZER
A LIMITED LIABILITY COMPANY

The undersigned, the Organizer of HICKORY SOLAR LLC, who signed and filed its Articles of Organization (or similar organizing document) with the Virginia Secretary of State (or other appropriate state office), appoints the following individuals to serve as members of the limited liability company:

Name and address of each initial member:

NEW ENERGY VENTURES, INC.
927 LINCOLN ROAD, SUITE 200,
MIAMI BEACH, FL 33139

Additionally, the undersigned does hereby tender his/her resignation as Organizer for the LLC, and from any and all involvement with, control of, or authority over the LLC, real or perceived, effective immediately.

Dated: February 6th, 2017

Marsha Siha

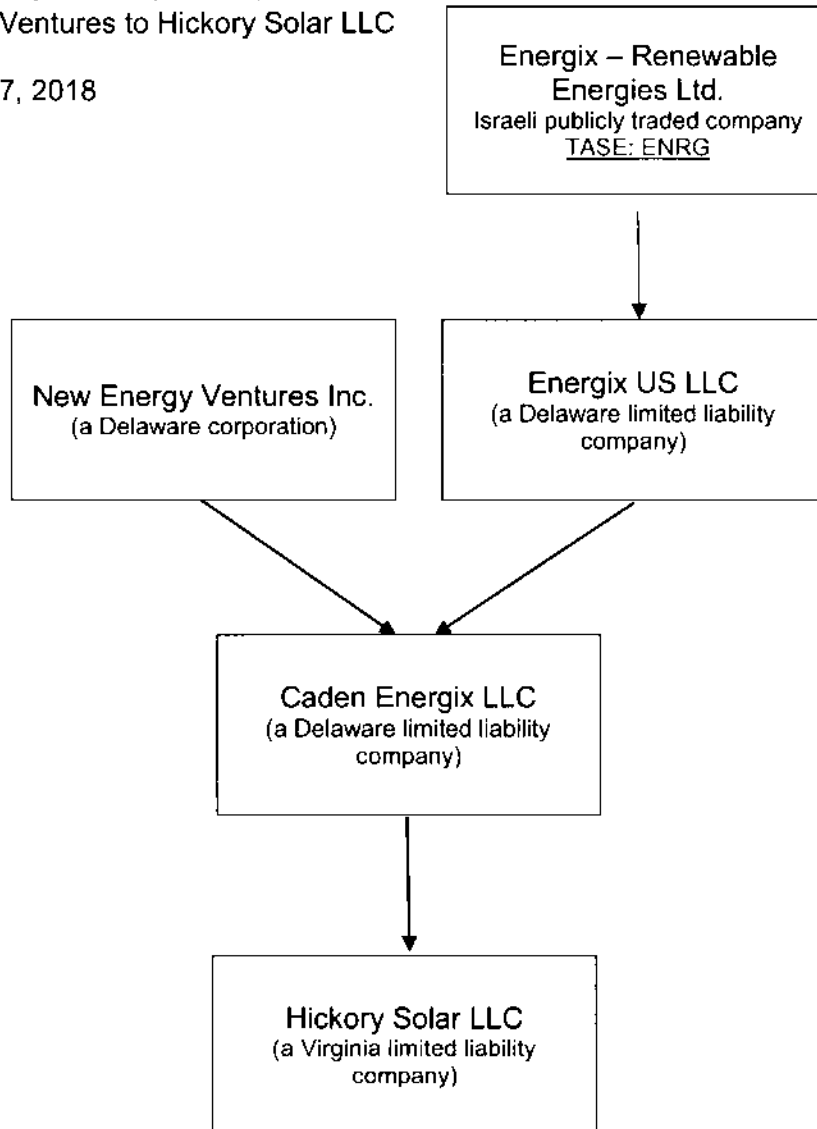
Marsha Siha, Organizer

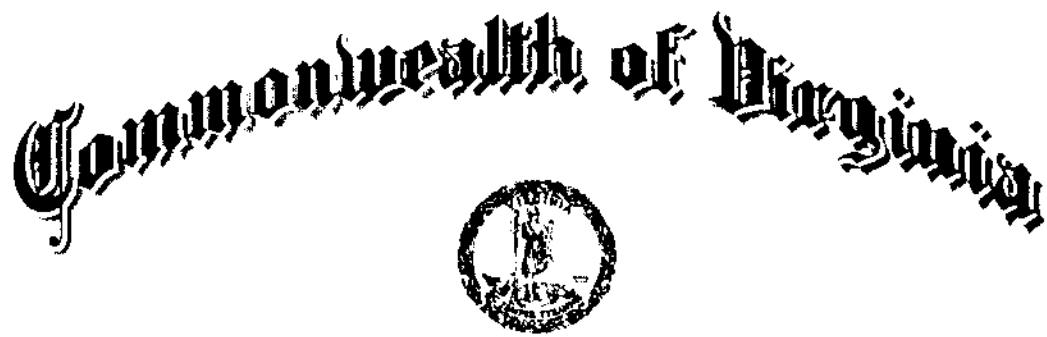
HICKORY SOLAR LLC

PLN-USE-2017-003

**AMENDMENT of APPLICANT from
New Energy Ventures to Hickory Solar LLC**

September 27, 2018





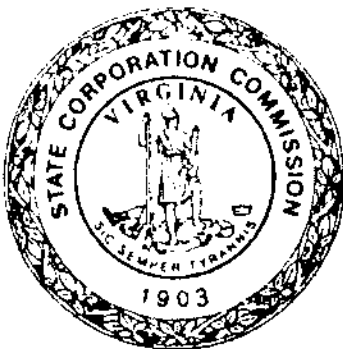
STATE CORPORATION COMMISSION

Richmond, January 30, 2017

This is to certify that the certificate of organization of

HICKORY SOLAR LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: January 30, 2017



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

Office of the Clerk

January 30, 2017

LEGALINC CORPORATE SERVICES INC.
1900 CAMPUS COMMONS DRIVE
SUITE 100
RESTON, VA 20191

RECEIPT

RE: HICKORY SOLAR LLC

ID: S6606752

DCN: 17-01-30-6297

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is January 30, 2017.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is LEGALINC CORPORATE SERVICES INC. The initial registered agent is a Virginia stock corporation.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 1900 CAMPUS COMMONS DRIVE, SUITE 100, RESTON, VA 20191. The initial registered office is located in Fairfax City (Filed In Fairfax County), Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 15 SOUTH 5TH STREET, STE 500, MINNEAPOLIS, MN 55402.

ORGANIZER:

/s/ MARSHA SIHA Date: January 30, 2017
MARSHA SIHA

Date of this notice: 02-06-2017

Employer Identification Number:
81-5236296

Form: SS-4

Number of this notice: CP 575 G

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 81-5236296. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is HICK. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

02-06-2017 HICK O 9999999999 SS-4

CP 575 G (Rev. 7-2007)

CF 575 G

9999999999

DATE OF THIS NOTICE: 02-06-2017
EMPLOYER IDENTIFICATION NUMBER: 81-5236296
FOR: SS-4 NOBOD

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402



**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

Office of the Clerk

September 26, 2018

CORPORATION SERVICE COMPANY
100 SHOCKOE SLIP, 2ND FLOOR
RICHMOND, VA 23219

RECEIPT

RE: HICKORY SOLAR 2, LLC

ID: S7786744

DCN: 18-09-26-6710

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is September 26, 2018.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

A handwritten signature in black ink that reads "Joel H. Peck". The signature is written in a cursive style with a large, stylized "J" and "P".

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

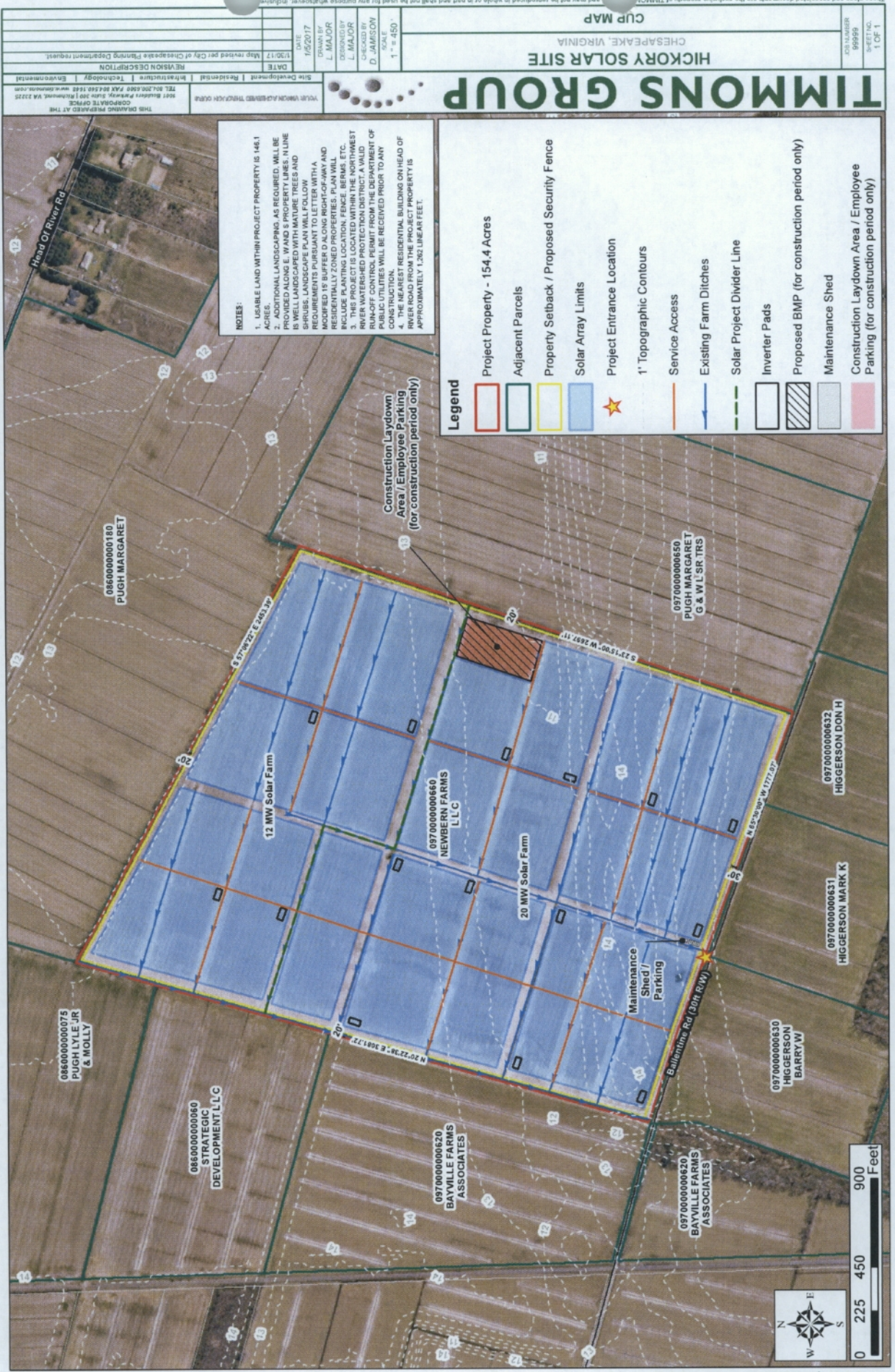
**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 2, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 2, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib





TETRA TECH BAS

March 21, 2013

Dr. Parikhit (Ricky) Sinha, Ph.D.
First Solar
350 West Washington Street, Suite 600
Tempe, Arizona 85281

Subject: Photovoltaic (PV) Solar Panel Experiment Results

Dear Dr. Sinha:

Tetra Tech BAS (Tt BAS) has been retained by First Solar to conduct an experiment to determine if First Solar panels would produce hazardous leachate if disposed of in a municipal solid waste landfill. Of particular concern was the leaching potential of heavy metals, such as cadmium, from the PV panels after disposal. This experiment involved preparation of a test pad at a local landfill, crushing the panels with a typical municipal solid waste compactor, recovering all of the crushed pieces of the panels, performing grain size analyses of the pieces, performing TCLP and STLP laboratory testing of representative samples of the crushed panels, and preparation of this report.

A total of five photovoltaic solar panels manufactured by First Solar in Perrysburg, Ohio were chosen as subject panels. These panels were 2 feet by 3 feet 11 inches in size and weighed approximately 26.5 pounds each. The panels were model number 387. The panels consisted of three layers of different material and series of electrical connections. In the panel design, the semiconductor layer was encapsulated between two sheets of protective glass, and a polymeric adhesive was used to laminate the two sheets of glass together (Fig. 1). Based on gradation testing of the crushed panels, on average approximately one-quarter of panel pieces were smaller than 1 cm, and less than 5% of panel pieces were smaller than 1 mm. The glass-laminate-glass bond of individual broken panel pieces was maintained (i.e., individual panel pieces remained laminated). Based on TCLP and STLC test results for cadmium, lead, and other standard analytes, the crushed CdTe PV panels are non-hazardous.

Tetra Tech BAS

3822 E. University Drive | Phoenix, AZ 85034

Tel: 602.267.0336 Fax: 602.267.0446 www.tetrattech.com

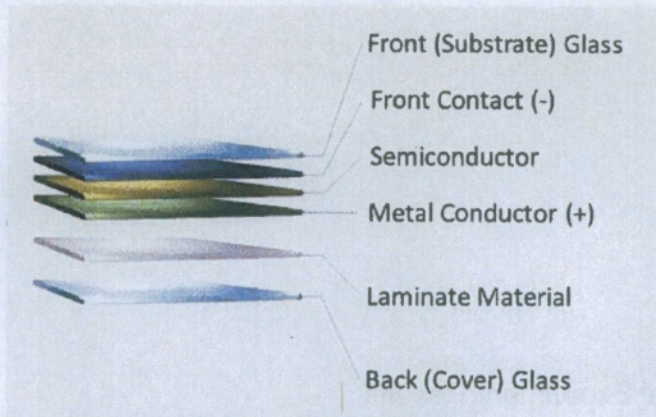


Figure 1. First Solar PV panel design

PV Panel Crushing

Five photovoltaic solar panels were crushed at the top of City of Glendale, Arizona, Municipal Solid Waste Landfill utilizing a compactor on December 6, 2012. The compactor used was a sheep's foot roller manufactured by Aljon, model 91K, with Caron cleats having a contact load of approximately 100,000 pounds (Picture #1). The PV panels were placed on top of a 22.5 x 40 foot tarp consisting of 60 mil. linear low density polyethylene (LLDPE) liner. The compactor made six passes over the test installation. The ground surface underlying the test installation consisted of loose soil which was firmer than the typical mixed waste conditions at the active face of a landfill. The residue from the crushed PV panels was collected and separately bagged for testing. This liner material is very flexible, however some puncturing of the liner did occur when the compactor rolled over the panels and a small amount of the crushed fines could not be recovered.



Picture #1 – Aljon model 91K compactor used to crush PV panels.

The procedure used to crush the PV panels may be considered a "worst case" for panel loading as the City of Glendale's landfill compactor is one of the largest and

heaviest compactors available on the market today. Landfills outside the United States typically do not have compaction equipment, and if landfill compaction equipment is available, the equipment is typically a track mounted dozer rather than a compactor. A dozer is typically used when the landfill can only afford one piece of equipment because the dozer can push the waste as well as compact the waste once it has been pushed into the active face. A track mounted dozer would be lighter than the City of Glendale's landfill compactor and therefore cause less damage to the PV panels.

After crushing the PV panels appeared as shown in Picture #2 (Additional pictures in Appendix A). Delamination of the panels did not occur unless impacted by one of the compactor's feet. The compactor's feet created a punch-out in the panel the approximate size of the foot. The PV panel material punched-out of the panels was recovered to the extent possible and consisted of the finer fraction of the overall sample.



Picture #2 – Crushed PV Panel with Compactor Foot Punch-out

After the PV panels were crushed the residues were brought to Hoque & Associates, Inc. (HA) soils laboratory for testing.

Gradation Tests

HA provided laboratory testing of the panel residue consisting of gradation tests. HA's laboratory received the crushed panel in two basic forms. The crushed PV panels consisted of fines that were not attached to the panel and larger pieces of broken glass (top and bottom layers) held together by the middle lamination. The upper layer was observed to be crushed more than the lower layer. It appeared that the material fractures followed the stress pattern imparted by the compactor feet.

In order to develop a gradation test procedure, HA adopted the particle count procedure of the Bureau of Reclamation known as a "Pebble Count" on a six inch by six inch section of crushed panels. All the pieces were very sharp and angular requiring great care during handling. The crushed particles attached to the panels were counted with an assignment of maximum dimension of 1/2 inches, as most of the particles were smaller than 1/2 inch minimum dimension. Some particles were elongated and the dimensions in longer axis were in some cases much larger than a few inches.

The residual particles were subject to the American Society for Testing and Materials (ASTM) method specified in ASTM D 422 without hydrometer analysis.

The results of the tests including pebble counts and gradation tests are attached in graphical form (Appendix B). Note that for Panels 4 and 5 in Appendix B, the size distribution stabilized at a value above 0 because the sample included a small quantity of soil mixed with the panel pieces. On average, approximately one-quarter of panel pieces were smaller than 1 cm and less than 5% of panel pieces were smaller than 0.1 mm. Since waste characterization leaching tests use sample sizes smaller than 1 cm, leachate potential derived from these tests represents a fraction of the total volume of landfilled CdTe PV panel waste.

Particle Size Distribution Results

		Leaching Tests			
		TCLP	STLC	EN 12457	Availability
Test method sample size (SS)		9.5 mm (3/8")	2 mm (#10)	4 mm (#4)	0.1 mm (#100)
Observed proportion of panel pieces finer than SS	Panel #1	12%	1%	6%	0
	Panel #2	27%	1%	6%	1%
	Panel #3	13%	0%	0%	0%
	Panel #4	40%	8%	19%	2%
	Panel #5	44%	10%	20%	3%

Test America Laboratory Analysis

After gradation testing was completed by HA a representative sample of the PV panels was selected from bag #2 (PV Panel 2) and bag #5 (PV Panel 5). This representative sample consisted of (by weight) approximately two thirds intact panel (crushed but in one piece) and one third loose fragments. In both cases, the glass-laminate-glass bond of individual broken panel pieces was maintained (i.e., individual panel pieces remained laminated). PV Panels 2 and 5 were chosen on the basis of their location in the test installation (in the center and perimeter, respectively). Once the samples were received by the Test America laboratory they were not altered in any way. The Test America laboratory report dated January 24, 2013 is attached as Appendix C. The results indicate that the crushed panels are non-hazardous.


Test America Laboratory Results

	EPA HW #	TCLP Reg. Limit (mg/L)	PV Panel 2 TCLP (mg/L)	PV Panel 5 TCLP (mg/L)	PV Panel 2 STLC (mg/L)	PV Panel 5 STLC (mg/L)
Lead	D008	5.0	ND	ND	ND	ND
Cadmium	D006	1.0	0.19	ND	0.57	0.91

(TCLP Reg. Limit based on 40 CFR 261.24 Toxicity Characteristics, Table 1)

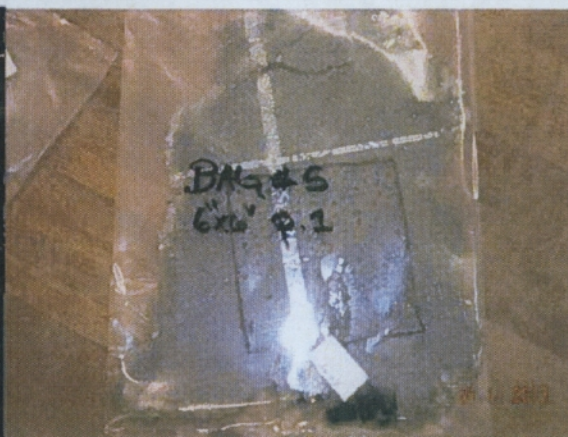
Tetra Tech BAS appreciates working with you on this challenging project. If you have any comments or questions please advise.

Since I am a Professional Engineer
Tetra Tech BAS

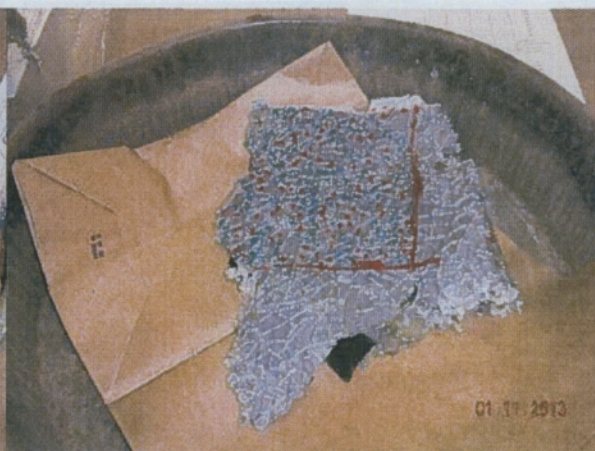

Keith A. Johnson, P.E.
Office Manager
APR 1 2015
EX-3-21-15

Attachments: Appendices A, B and C

Appendix A
First Solar PV Panel Experiment



Appendix A
First Solar PV Panel Experiment



Appendix B

Gradations

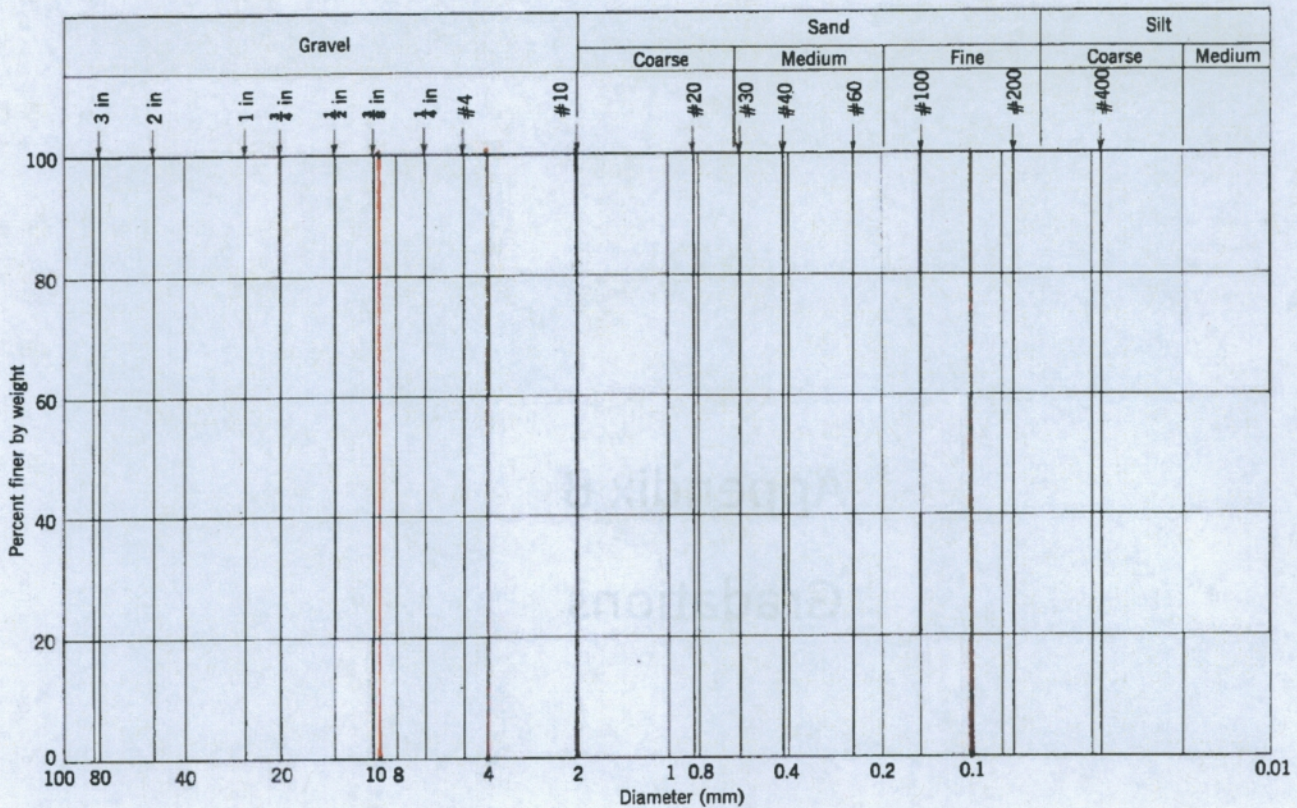


Fig. P3.10

3.8 Prove $G_w = S_e$

3.9 A sample of parallel kaolinite particles (all have the size shown in Fig. 5.6) is saturated. The water content is 30%. What is the average particle spacing?

3.10 A sieve analysis on a soil yields the following results:

Sieve	3 in.	2 in.	1 in.	1/2 in.	#4	#10
Percentage passing	100	95	84	74	62	55
Sieve	#20	#40	#60	#100	#200	
Percentage passing	44	32	24	16	9	

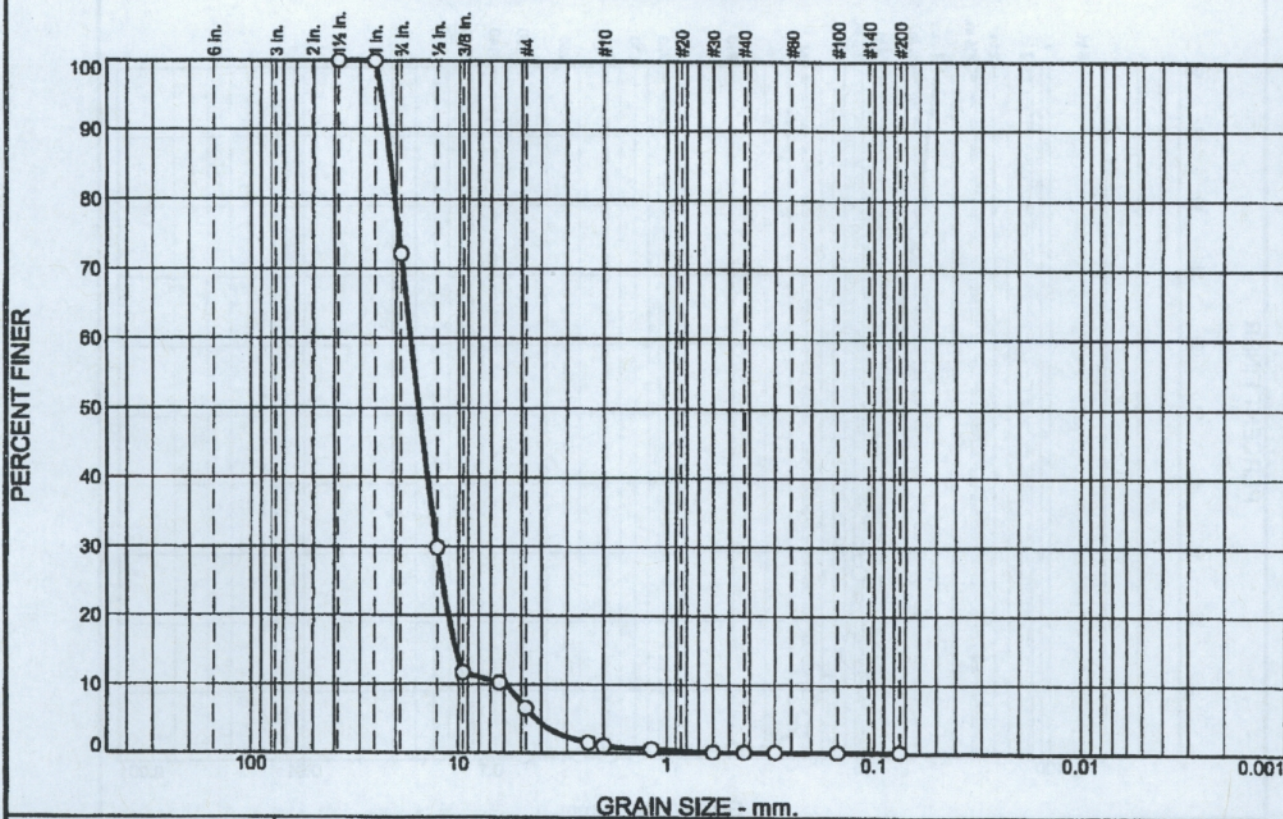
a. Plot the particle size distribution of this soil on Fig. P3.10 and classify the soil on the basis of the scale shown in the figure.

b. Comment on the suitability of this soil as drainage material behind a concrete retaining wall.

Hints. (a) Use Tables 3.5–3.7 to predict whether or not soil will be pervious, easy to work as construction material, etc. (b) A common guide for frost susceptibility is percentage finer than 0.02 mm must be less than 3% for material to be nonfrost susceptible.

3.11 Prove that the identity given by Eq. 3.1 is correct.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	28	66	5	1	0	0	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100		
1"	100		
3/4"	72		
1/2"	30		
3/8"	12		
1/4"	10		
#4	6		
#8	2		
#10	1		
#16	1		
#30	0		
#40	0		
#50	0		
#100	0		
#200	0.2		

(no specification provided)

Soil Description

Atterberg Limits
 PL= LL= PI=
Coefficients
 D₉₀= 22.4028 D₈₅= 21.3420 D₆₀= 17.1149
 D₅₀= 15.6170 D₃₀= 12.7270 D₁₅= 10.3065
 D₁₀= 6.0642 C_u= 2.82 C_c= 1.56
Classification
 USCS= GP AASHTO=

Remarks

Location: Bag #1
 Sample Number: 12L0449

Date: 12-6-12

Hoque & Associates, Inc.
 4325 South 34th Street
 Phoenix, Arizona 85040

Client: Tetra Tech BAS
 Project: Solar Panel Crush Samples

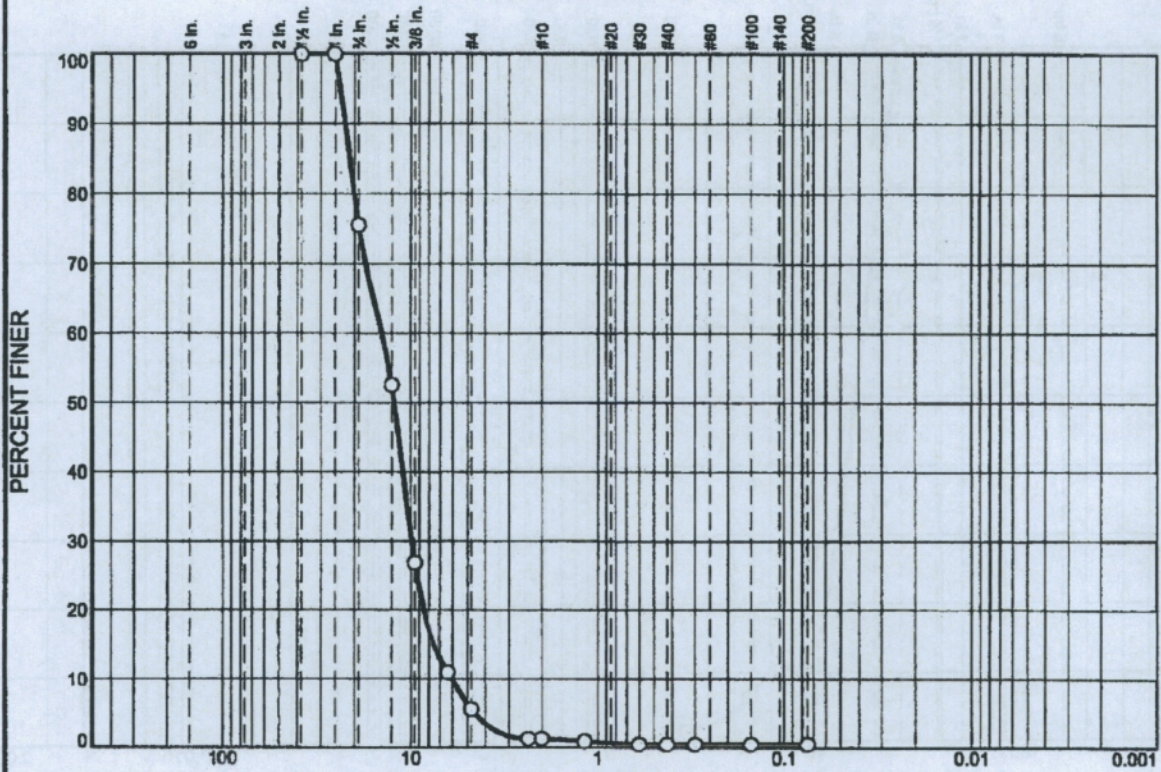
Project No: 12084

Lab Number 12L0449

Tested By: AJ

Checked By: TT

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	24	70	5	0	0	1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100		
1"	100		
3/4"	76		
1/2"	53		
3/8"	27		
1/4"	11		
#4	6		
#8	1		
#10	1		
#16	1		
#30	1		
#40	1		
#50	1		
#100	1		
#200	0.5		

* (no specification provided)

Soil Description

PL= Atterberg Limits LL= PI=

Coefficients

D₉₀= 22.3628 D₈₅= 21.2035 D₆₀= 14.3232

D₅₀= 12.2929 D₃₀= 9.9004 D₁₅= 7.5300

D₁₀= 6.0524 C_u= 2.37 C_c= 1.13

Classification

USCS= GP AASHTO=

Remarks

Location: Bag #2
Sample Number: 12L0450

Date: 12-6-12

Hoque & Associates, Inc.
4325 South 34th Street
Phoenix, Arizona 85040

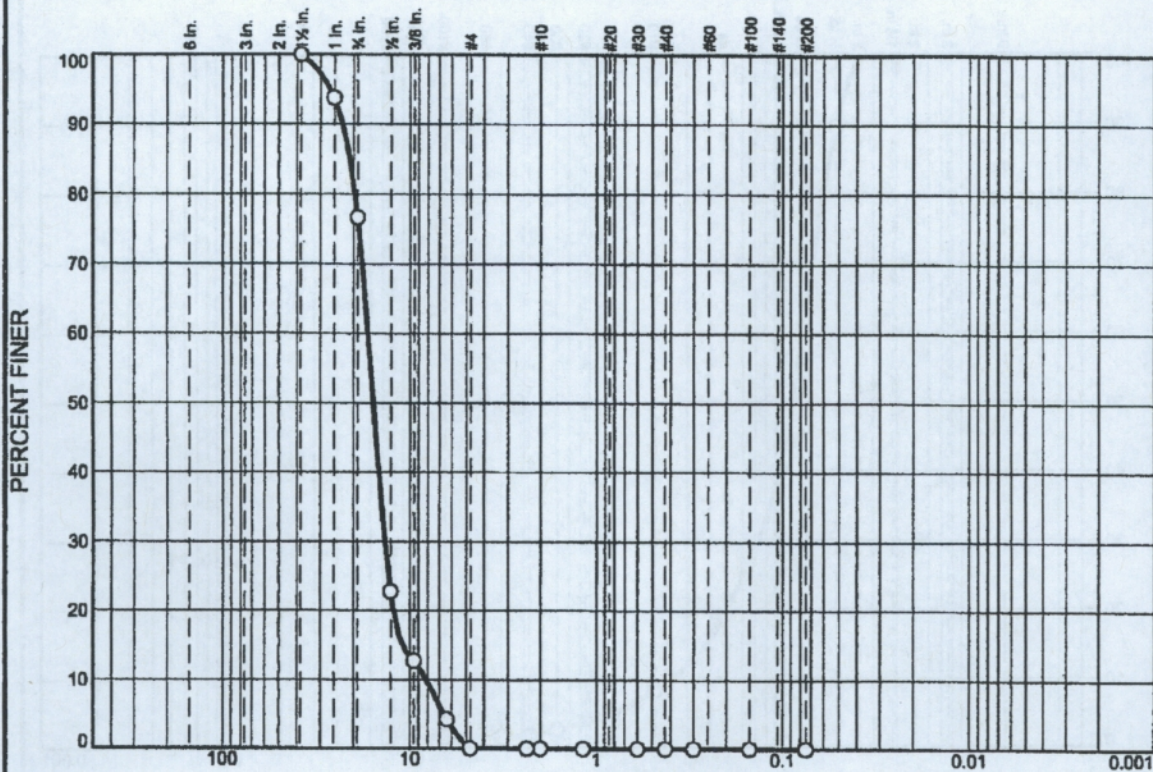
Client: Tetra Tech BAS
Project: Solar Panel Crush Samples

Project No: 12084

Lab Number 12L0450

Tested By: AJ Checked By: t

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	23	77	0	0	0	0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100		
1"	94		
3/4"	77		
1/2"	23		
3/8"	13		
1/4"	4		
#4	0		
#8	0		
#10	0		
#16	0		
#30	0		
#40	0		
#50	0		
#100	0		
#200	0.0		

* (no specification provided)

Soil Description

PL= Atterberg Limits PI=

LL=

Coefficients

D₉₀= 22.8526 D₈₅= 20.9307 D₆₀= 16.7818

D₅₀= 15.7000 D₃₀= 13.6109 D₁₅= 10.9392

D₁₀= 8.1913 C_u= 2.05 C_c= 1.35

USCS= GP **Classification** AASHTO=

Remarks

Location: Bag #3
Sample Number: 12L0451

Date: 12-6-12

Hoque & Associates, Inc.
4325 South 34th Street
Phoenix, Arizona 85040

Client: Tetra Tech BAS
Project: Solar Panel Crush Samples

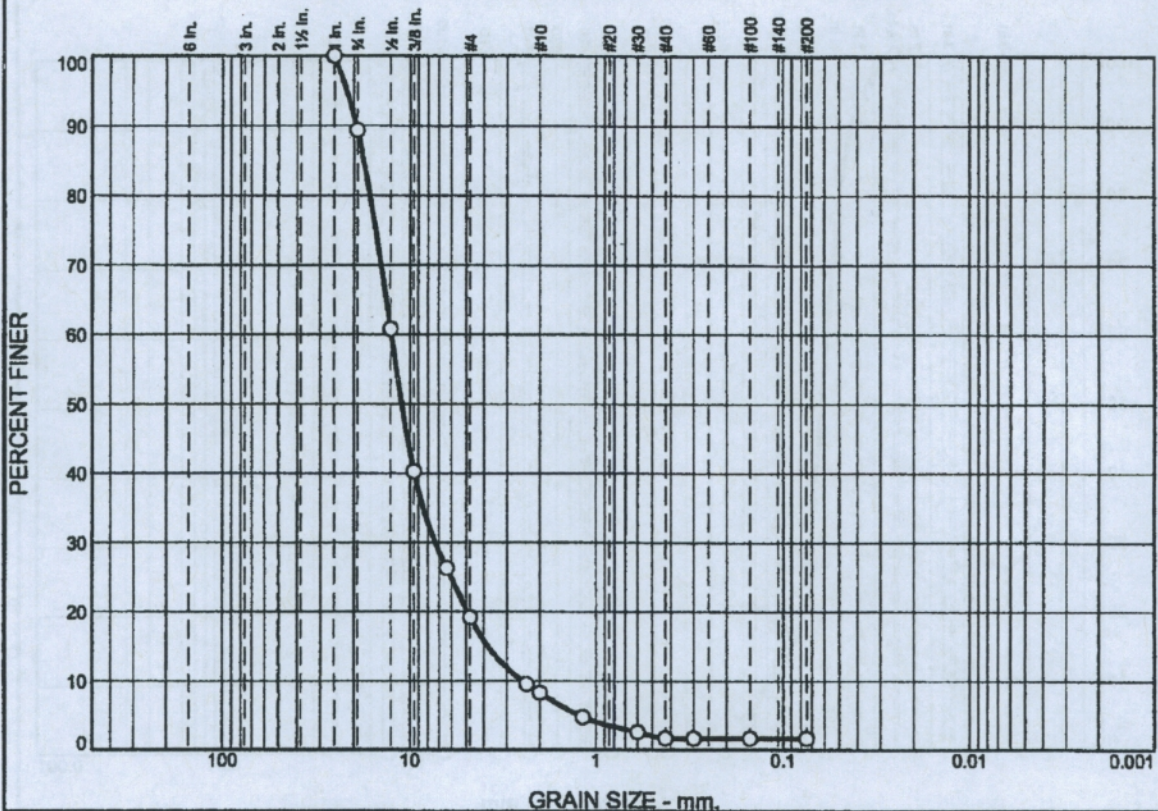
Project No: 12084

Lab Number 12L0451

Tested By: AJ

Checked By: TT

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	11	70	11	6	0	2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	89		
1/2"	61		
3/8"	40		
1/4"	26		
#4	19		
#8	10		
#10	8		
#16	5		
#30	3		
#40	2		
#50	2		
#100	2		
#200	1.7		

* (no specification provided)

Soil Description

PL= **Atterberg Limits** PI=

LL=

Coefficients

D₉₀= 19.2928 D₈₅= 17.6295 D₆₀= 12.5750

D₅₀= 11.0502 D₃₀= 7.3258 D₁₅= 3.7950

D₁₀= 2.4776 C_u= 5.08 C_c= 1.72

Classification

USCS= GW AASHTO=

Remarks

Location: Bag #4
Sample Number: 12L0452

Date: 12-6-12

Hoque & Associates, Inc.
4325 South 34th Street
Phoenix, Arizona 85040

Client: Tetra Tech BAS
Project: Solar Panel Crush Samples

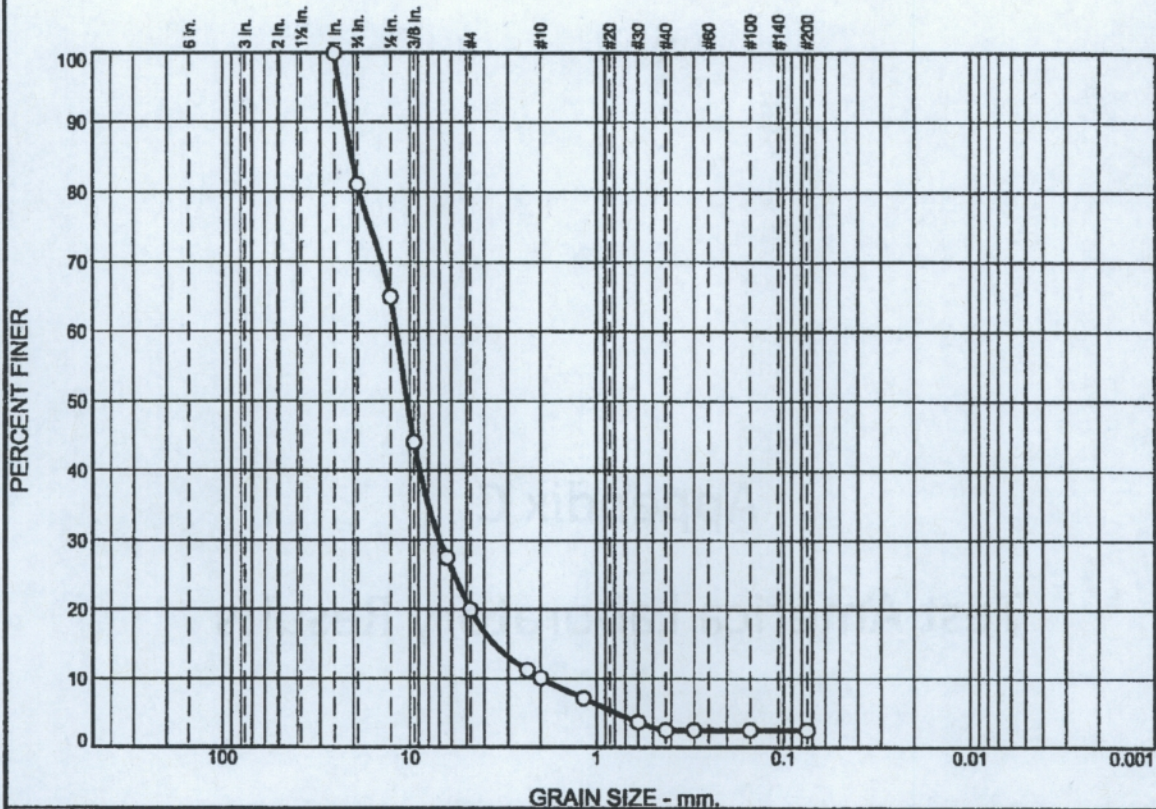
Project No: 12084

Lab Number 12L0452

Tested By: AJ

Checked By: TT

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	19	61	10	7	0	3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	81		
1/2"	65		
3/8"	44		
1/4"	27		
#4	20		
#8	11		
#10	10		
#16	7		
#30	4		
#40	3		
#50	3		
#100	3		
#200	2.5		

* (no specification provided)

Soil Description

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 22.1117

D₈₅= 20.4542

D₆₀= 11.7852

D₅₀= 10.3369

D₃₀= 6.9300

D₁₅= 3.5401

D₁₀= 1.9788

C_u= 5.96

C_c= 2.06

Classification

USCS= GW

AASHTO=

Remarks

Location: Bag #5
Sample Number: 12L0453

Date: 12-6-12

Hoque & Associates, Inc.
4325 South 34th Street
Phoenix, Arizona 85040

Client: Tetra Tech BAS
Project: Solar Panel Crush Samples

Project No: 12084

Lab Number 12L0453

Tested By: AJ

Checked By: TT

Appendix C

Test America Laboratory Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWA0759
Client Project/Site: [none]
Client Project Description: Soils

For:
Tetra Tech BAS, Inc.
3822 E. University Dr., Ste. 2
Phoenix, AZ 85034

Attn: Keith Johnson

Carlene McCutcheon

Authorized for release by:
1/24/2013 3:42:17 PM

Carlene McCutcheon
Project Manager
carlene.mccutcheon@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?

**Ask
The
Expert**

Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Qualifiers

Metals

Qualifier	Qualifier Description
M1	Matrix spike recovery was high; the associated blank spike recovery was acceptable.
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.
R1	RPD/RSD exceeded the method acceptance limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
✧	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Job ID: PWA0759

Laboratory: TestAmerica Irvine

Narrative

Job Narrative

440-35105-1

Comments

No additional comments.

Receipt

The samples were received on 1/15/2013 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2° C.

Metals

Method(s) 6010B: The matrix spike / matrix spike duplicate (MS/MSD) precision for batch 79125 was outside control limits for Ba. Non-homogeneity of the sample matrix is suspected. The samples associated with this batch were non-detects for the affected analyte; therefore, the data have been reported.

Method(s) 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Ba , Sb for batch 79125 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 7471A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for mercury in batch 440-78983 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

Detection Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Client Sample ID: Crushed Solar Panel #2

Lab Sample ID: PWA0759-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	220		0.50		mg/Kg	5		6010B	Total/NA
Chromium	1.4		1.0		mg/Kg	5		6010B	Total/NA
Molybdenum	9.0		2.0		mg/Kg	5		6010B	Total/NA
Selenium	0.14		0.10		mg/L	1		6010B	TCLP
Cadmium	0.19		0.10		mg/L	1		6010B	TCLP
Cadmium	0.57		0.10		mg/L	20		6010B	STLC Citrate

Client Sample ID: Crushed Solar Panel #5

Lab Sample ID: PWA0759-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	800		0.50		mg/Kg	5		6010B	Total/NA
Cadmium	0.91		0.10		mg/L	20		6010B	STLC Citrate

This Detection Summary does not include radiochemical test results.

TestAmerica Phoenix

Client Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Client Sample ID: Crushed Solar Panel #2

Lab Sample ID: PWA0759-01

Date Collected: 12/06/12 08:00

Matrix: Soil

Date Received: 01/14/13 08:57

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		10		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Arsenic	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Barium	ND		1.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Beryllium	ND		0.50		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Cadmium	220		0.50		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Chromium	1.4		1.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Cobalt	ND		1.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Copper	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Lead	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Molybdenum	9.0		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Nickel	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Selenium	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Thallium	ND		10		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Vanadium	ND		1.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Zinc	ND		5.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5
Silver	ND		1.0		mg/Kg		01/16/13 08:42	01/16/13 14:16	5

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Selenium	0.14		0.10		mg/L		01/16/13 13:07	01/17/13 12:39	1
Lead	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:39	1
Chromium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:39	1
Cadmium	0.19		0.10		mg/L		01/16/13 13:07	01/17/13 12:39	1
Barium	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:39	1
Arsenic	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:39	1
Silver	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:39	1

Method: 6010B - Metals (ICP) - STLC Citrate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Antimony	ND		0.20		mg/L			01/22/13 11:29	20
Arsenic	ND		0.20		mg/L			01/22/13 11:29	20
Barium	ND		0.20		mg/L			01/22/13 11:29	20
Beryllium	ND		0.080		mg/L			01/22/13 11:29	20
Cadmium	0.57		0.10		mg/L			01/22/13 11:29	20
Chromium	ND		0.10		mg/L			01/22/13 11:29	20
Cobalt	ND		0.20		mg/L			01/22/13 11:29	20
Copper	ND		0.20		mg/L			01/22/13 11:29	20
Lead	ND		0.10		mg/L			01/22/13 11:29	20
Molybdenum	ND		0.40		mg/L			01/22/13 11:29	20
Nickel	ND		0.20		mg/L			01/22/13 11:29	20
Selenium	ND		0.20		mg/L			01/22/13 11:29	20
Thallium	ND		0.20		mg/L			01/22/13 11:29	20
Vanadium	ND		0.20		mg/L			01/22/13 11:29	20
Zinc	ND		0.40		mg/L			01/22/13 11:29	20
Silver	ND		0.20		mg/L			01/22/13 11:29	20

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.0020		mg/L		01/16/13 14:55	01/16/13 17:51	1

TestAmerica Phoenix

Client Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Client Sample ID: Crushed Solar Panel #2

Lab Sample ID: PWA0759-01

Date Collected: 12/06/12 08:00

Matrix: Soil

Date Received: 01/14/13 08:57

Method: 7470A - Mercury (CVAA) - STLC Citrate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		01/18/13 10:20	01/18/13 16:05	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020		mg/Kg		01/16/13 10:25	01/16/13 12:03	1

Client Sample ID: Crushed Solar Panel #5

Lab Sample ID: PWA0759-02

Date Collected: 12/06/12 08:00

Matrix: Soil

Date Received: 01/14/13 08:57

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.9		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Arsenic	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Barium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Beryllium	ND		0.50		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Cadmium	800		0.50		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Chromium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Cobalt	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Copper	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Lead	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Molybdenum	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Nickel	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Selenium	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Thallium	ND		9.9		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Vanadium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Zinc	ND		5.0		mg/Kg		01/16/13 08:42	01/16/13 14:19	5
Silver	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 14:19	5

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:44	1
Lead	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:44	1
Chromium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:44	1
Cadmium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:44	1
Barium	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:44	1
Arsenic	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:44	1
Silver	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:44	1

Method: 6010B - Metals (ICP) - STLC Citrate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.20		mg/L			01/22/13 11:32	20
Arsenic	ND		0.20		mg/L			01/22/13 11:32	20
Barium	ND		0.20		mg/L			01/22/13 11:32	20
Beryllium	ND		0.080		mg/L			01/22/13 11:32	20
Cadmium	0.91		0.10		mg/L			01/22/13 11:32	20
Chromium	ND		0.10		mg/L			01/22/13 11:32	20
Cobalt	ND		0.20		mg/L			01/22/13 11:32	20
Copper	ND		0.20		mg/L			01/22/13 11:32	20
Lead	ND		0.10		mg/L			01/22/13 11:32	20

TestAmerica Phoenix

Client Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Client Sample ID: Crushed Solar Panel #5

Lab Sample ID: PWA0759-02

Date Collected: 12/06/12 08:00

Matrix: Soil

Date Received: 01/14/13 08:57

Method: 6010B - Metals (ICP) - STLC Citrate (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Molybdenum	ND		0.40		mg/L			01/22/13 11:32	20
Nickel	ND		0.20		mg/L			01/22/13 11:32	20
Selenium	ND		0.20		mg/L			01/22/13 11:32	20
Thallium	ND		0.20		mg/L			01/22/13 11:32	20
Vanadium	ND		0.20		mg/L			01/22/13 11:32	20
Zinc	ND		0.40		mg/L			01/22/13 11:32	20
Silver	ND		0.20		mg/L			01/22/13 11:32	20

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.0020		mg/L		01/16/13 14:55	01/16/13 17:59	1

Method: 7470A - Mercury (CVAA) - STLC Citrate

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.0020		mg/L		01/18/13 10:20	01/18/13 16:13	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Mercury	ND		0.020		mg/Kg		01/16/13 10:25	01/16/13 12:06	1

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-79125/1-A ^5
Matrix: Solid
Analysis Batch: 79264

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 79125

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
	Result	Qualifier							
Antimony	ND		9.9		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Beryllium	ND		0.50		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Barium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Cadmium	ND		0.50		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Arsenic	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Chromium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Cobalt	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Copper	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Lead	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Molybdenum	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Nickel	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Selenium	ND		2.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Thallium	ND		9.9		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Vanadium	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Zinc	ND		5.0		mg/Kg		01/16/13 08:42	01/16/13 13:41	5
Silver	ND		0.99		mg/Kg		01/16/13 08:42	01/16/13 13:41	5

Lab Sample ID: LCS 440-79125/2-A ^5
Matrix: Solid
Analysis Batch: 79264

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 79125

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Antimony	49.8	45.4		mg/Kg		91	80 - 120	
Beryllium	49.8	46.8		mg/Kg		94	80 - 120	
Barium	49.8	48.0		mg/Kg		97	80 - 120	
Cadmium	49.8	46.3		mg/Kg		93	80 - 120	
Arsenic	49.8	45.7		mg/Kg		92	80 - 120	
Chromium	49.8	45.6		mg/Kg		92	80 - 120	
Cobalt	49.8	46.3		mg/Kg		93	80 - 120	
Copper	49.8	46.0		mg/Kg		93	80 - 120	
Lead	49.8	45.7		mg/Kg		92	80 - 120	
Molybdenum	49.8	44.8		mg/Kg		90	80 - 120	
Nickel	49.8	47.3		mg/Kg		95	80 - 120	
Selenium	49.8	40.9		mg/Kg		82	80 - 120	
Thallium	49.8	47.4		mg/Kg		95	80 - 120	
Vanadium	49.8	45.8		mg/Kg		92	80 - 120	
Zinc	49.8	44.8		mg/Kg		90	80 - 120	
Silver	24.9	23.1		mg/Kg		93	80 - 120	

Lab Sample ID: 440-35153-A-1-G MS ^5
Matrix: Solid
Analysis Batch: 79264

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 79125

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	
Antimony	ND	M2	49.5	17.6	M2	mg/Kg		36	75 - 125	
Beryllium	0.71		49.5	47.8		mg/Kg		95	75 - 125	
Barium	110	M1 R1	49.5	165		mg/Kg		119	75 - 125	
Cadmium	ND		49.5	44.2		mg/Kg		89	75 - 125	

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 440-35153-A-1-G MS ^5

Matrix: Solid

Analysis Batch: 79264

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 79125

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Arsenic	5.2		49.5	49.9		mg/Kg		90	75 - 125	
Chromium	26		49.5	76.0		mg/Kg		100	75 - 125	
Cobalt	9.0		49.5	54.3		mg/Kg		91	75 - 125	
Copper	24		49.5	70.0		mg/Kg		94	75 - 125	
Lead	7.1		49.5	51.5		mg/Kg		90	75 - 125	
Molybdenum	ND		49.5	44.0		mg/Kg		86	75 - 125	
Nickel	19		49.5	65.7		mg/Kg		94	75 - 125	
Selenium	ND		49.5	41.8		mg/Kg		84	75 - 125	
Thallium	ND		49.5	49.5		mg/Kg		91	75 - 125	
Vanadium	47		49.5	102		mg/Kg		110	75 - 125	
Zinc	57		49.5	103		mg/Kg		93	75 - 125	
Silver	ND		24.8	18.8		mg/Kg		76	75 - 125	

Lab Sample ID: 440-35153-A-1-H MSD ^5

Matrix: Solid

Analysis Batch: 79264

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 79125

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits		RPD	Limit
Antimony	ND	M2	50.0	16.4	M2	mg/Kg		33	75 - 125		7	20
Beryllium	0.71		50.0	48.6		mg/Kg		96	75 - 125		2	20
Barium	110	M1 R1	50.0	237	M1 R1	mg/Kg		261	75 - 125		36	20
Cadmium	ND		50.0	45.4		mg/Kg		91	75 - 125		3	20
Arsenic	5.2		50.0	50.5		mg/Kg		91	75 - 125		1	20
Chromium	26		50.0	77.5		mg/Kg		102	75 - 125		2	20
Cobalt	9.0		50.0	57.1		mg/Kg		96	75 - 125		5	20
Copper	24		50.0	72.5		mg/Kg		98	75 - 125		4	20
Lead	7.1		50.0	52.5		mg/Kg		91	75 - 125		2	20
Molybdenum	ND		50.0	45.0		mg/Kg		87	75 - 125		2	20
Nickel	19		50.0	67.3		mg/Kg		96	75 - 125		2	20
Selenium	ND		50.0	39.6		mg/Kg		79	75 - 125		5	20
Thallium	ND		50.0	49.9		mg/Kg		91	75 - 125		1	20
Vanadium	47		50.0	109		mg/Kg		124	75 - 125		7	20
Zinc	57		50.0	109		mg/Kg		104	75 - 125		6	20
Silver	ND		25.0	19.0		mg/Kg		76	75 - 125		1	20

Lab Sample ID: MB 440-79060/1-B

Matrix: Solid

Analysis Batch: 79525

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 79214

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Barium	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:35	1
Cadmium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:35	1
Arsenic	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:35	1
Chromium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:35	1
Lead	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:35	1
Selenium	ND		0.10		mg/L		01/16/13 13:07	01/17/13 12:35	1
Silver	ND		0.20		mg/L		01/16/13 13:07	01/17/13 12:35	1

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-79060/2-B

Matrix: Solid

Analysis Batch: 79525

Client Sample ID: Lab Control Sample

Prep Type: TCLP

Prep Batch: 79214

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Barium	2.00	2.04		mg/L		102		80 - 120
Cadmium	2.00	2.11		mg/L		105		80 - 120
Arsenic	2.00	2.13		mg/L		106		80 - 120
Chromium	2.00	2.05		mg/L		102		80 - 120
Lead	2.00	2.08		mg/L		104		80 - 120
Selenium	2.00	2.08		mg/L		104		80 - 120
Silver	1.00	0.896		mg/L		90		80 - 120

Lab Sample ID: 440-35105-1 MS

Matrix: Solid

Analysis Batch: 79525

Client Sample ID: PWA0759-01

Prep Type: TCLP

Prep Batch: 79214

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
Barium	ND		2.00	2.06		mg/L		95		75 - 125
Cadmium	0.19		2.00	2.28		mg/L		105		75 - 125
Arsenic	ND		2.00	2.08		mg/L		104		75 - 125
Chromium	ND		2.00	2.03		mg/L		101		75 - 125
Lead	ND		2.00	2.06		mg/L		103		75 - 125
Selenium	0.14		2.00	1.97		mg/L		92		75 - 125
Silver	ND		1.00	0.896		mg/L		90		75 - 125

Lab Sample ID: MB 440-79063/1-A ^20

Matrix: Solid

Analysis Batch: 80253

Client Sample ID: Method Blank

Prep Type: STLC Citrate

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	ND		0.20		mg/L			01/22/13 12:36	20
Beryllium	ND		0.080		mg/L			01/22/13 12:36	20
Barium	ND		0.20		mg/L			01/22/13 12:36	20
Cadmium	ND		0.10		mg/L			01/22/13 12:36	20
Arsenic	ND		0.20		mg/L			01/22/13 12:36	20
Chromium	ND		0.10		mg/L			01/22/13 12:36	20
Cobalt	ND		0.20		mg/L			01/22/13 12:36	20
Copper	ND		0.20		mg/L			01/22/13 12:36	20
Lead	ND		0.10		mg/L			01/22/13 12:36	20
Molybdenum	ND		0.40		mg/L			01/22/13 12:36	20
Nickel	ND		0.20		mg/L			01/22/13 12:36	20
Selenium	ND		0.20		mg/L			01/22/13 12:36	20
Thallium	ND		0.20		mg/L			01/22/13 12:36	20
Vanadium	ND		0.20		mg/L			01/22/13 12:36	20
Zinc	ND		0.40		mg/L			01/22/13 12:36	20
Silver	ND		0.20		mg/L			01/22/13 12:36	20

Lab Sample ID: LCS 440-79063/2-A ^20

Matrix: Solid

Analysis Batch: 80253

Client Sample ID: Lab Control Sample

Prep Type: STLC Citrate

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Antimony	20.0	19.6		mg/L		98		80 - 120

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-79063/2-A ^20

Matrix: Solid

Analysis Batch: 80253

Client Sample ID: Lab Control Sample
Prep Type: STLC Citrate

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Beryllium	20.0	19.4		mg/L		97	80 - 120
Barium	20.0	19.2		mg/L		96	80 - 120
Cadmium	20.0	18.8		mg/L		94	80 - 120
Arsenic	20.0	19.6		mg/L		98	80 - 120
Chromium	20.0	19.1		mg/L		95	80 - 120
Cobalt	20.0	19.0		mg/L		95	80 - 120
Copper	20.0	20.0		mg/L		100	80 - 120
Lead	20.0	18.2		mg/L		91	80 - 120
Molybdenum	20.0	20.5		mg/L		103	80 - 120
Nickel	20.0	19.1		mg/L		95	80 - 120
Selenium	20.0	18.4		mg/L		92	80 - 120
Thallium	20.0	17.4		mg/L		87	80 - 120
Vanadium	20.0	19.9		mg/L		99	80 - 120
Zinc	20.0	19.0		mg/L		95	80 - 120
Silver	10.0	9.27		mg/L		93	80 - 120

Lab Sample ID: 440-34737-A-1-J MS ^20

Matrix: Solid

Analysis Batch: 80253

Client Sample ID: Matrix Spike
Prep Type: STLC Citrate

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
Antimony	0.32		20.0	20.2		mg/L		99	75 - 125
Beryllium	ND		20.0	19.7		mg/L		99	75 - 125
Barium	3.3		20.0	21.7		mg/L		92	75 - 125
Cadmium	ND		20.0	18.2		mg/L		91	75 - 125
Arsenic	0.26		20.0	20.6		mg/L		101	75 - 125
Chromium	0.44		20.0	19.2		mg/L		94	75 - 125
Cobalt	0.22		20.0	18.7		mg/L		92	75 - 125
Copper	ND		20.0	19.6		mg/L		98	75 - 125
Lead	0.46		20.0	18.5		mg/L		90	75 - 125
Molybdenum	ND		20.0	20.8		mg/L		103	75 - 125
Nickel	0.26		20.0	17.6		mg/L		87	75 - 125
Selenium	0.22		20.0	18.7		mg/L		92	75 - 125
Thallium	ND		20.0	17.4		mg/L		87	75 - 125
Vanadium	0.46		20.0	20.2		mg/L		99	75 - 125
Zinc	15		20.0	33.5		mg/L		92	75 - 125
Silver	ND		10.0	9.10		mg/L		91	75 - 125

Lab Sample ID: 440-34737-A-1-J MSD ^20

Matrix: Solid

Analysis Batch: 80253

Client Sample ID: Matrix Spike Duplicate
Prep Type: STLC Citrate

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec. Limits	RPD	
				Result	Qualifier					RPD	Limit
Antimony	0.32		20.0	19.1		mg/L		94	75 - 125	6	20
Beryllium	ND		20.0	18.7		mg/L		93	75 - 125	5	20
Barium	3.3		20.0	20.7		mg/L		87	75 - 125	4	20
Cadmium	ND		20.0	17.5		mg/L		88	75 - 125	4	20
Arsenic	0.26		20.0	19.4		mg/L		96	75 - 125	6	20
Chromium	0.44		20.0	18.3		mg/L		90	75 - 125	4	20

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 440-34737-A-1-J MSD ^20
Matrix: Solid
Analysis Batch: 80253

Client Sample ID: Matrix Spike Duplicate
Prep Type: STLC Citrate

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	0.22		20.0	17.9		mg/L		88	75 - 125	4	20
Copper	ND		20.0	18.7		mg/L		93	75 - 125	5	20
Lead	0.46		20.0	17.5		mg/L		85	75 - 125	5	20
Molybdenum	ND		20.0	19.6		mg/L		98	75 - 125	6	20
Nickel	0.26		20.0	17.0		mg/L		83	75 - 125	4	20
Selenium	0.22		20.0	17.8		mg/L		88	75 - 125	5	20
Thallium	ND		20.0	16.5		mg/L		82	75 - 125	6	20
Vanadium	0.46		20.0	19.4		mg/L		95	75 - 125	4	20
Zinc	15		20.0	32.0		mg/L		84	75 - 125	5	20
Silver	ND		10.0	8.72		mg/L		87	75 - 125	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 440-79060/1-C
Matrix: Solid
Analysis Batch: 79334

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 79260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		01/16/13 14:55	01/16/13 17:46	1

Lab Sample ID: LCS 440-79060/2-C
Matrix: Solid
Analysis Batch: 79334

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 79260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0800	0.0830		mg/L		104	80 - 120

Lab Sample ID: 440-35105-1 MS
Matrix: Solid
Analysis Batch: 79334

Client Sample ID: PWA0759-01
Prep Type: TCLP
Prep Batch: 79260

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.0800	0.0826		mg/L		103	70 - 130

Lab Sample ID: 440-35105-1 MSD
Matrix: Solid
Analysis Batch: 79334

Client Sample ID: PWA0759-01
Prep Type: TCLP
Prep Batch: 79260

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0800	0.0829		mg/L		104	70 - 130	0	20

Lab Sample ID: MB 440-79063/1-B
Matrix: Solid
Analysis Batch: 79817

Client Sample ID: Method Blank
Prep Type: STLC Citrate
Prep Batch: 79666

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		01/18/13 10:20	01/18/13 16:00	1

TestAmerica Phoenix

QC Sample Results

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 440-79063/2-B
Matrix: Solid
Analysis Batch: 79817

Client Sample ID: Lab Control Sample
Prep Type: STLC Citrate
Prep Batch: 79666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0800	0.0807		mg/L		101	80 - 120

Lab Sample ID: 440-35105-1 MS
Matrix: Solid
Analysis Batch: 79817

Client Sample ID: PWA0759-01
Prep Type: STLC Citrate
Prep Batch: 79666

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.0800	0.0794		mg/L		99	70 - 130

Lab Sample ID: 440-35105-1 MSD
Matrix: Solid
Analysis Batch: 79817

Client Sample ID: PWA0759-01
Prep Type: STLC Citrate
Prep Batch: 79666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.0800	0.0801		mg/L		100	70 - 130	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 440-78983/1-A
Matrix: Solid
Analysis Batch: 79203

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 78983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020		mg/Kg		01/16/13 10:25	01/16/13 11:48	1

Lab Sample ID: LCS 440-78983/2-A
Matrix: Solid
Analysis Batch: 79203

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 78983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.800	0.760		mg/Kg		95	80 - 120

Lab Sample ID: 440-34927-A-7-M MS
Matrix: Solid
Analysis Batch: 79203

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 78983

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.054	M1	0.816	1.14	M1	mg/Kg		133	70 - 130

Lab Sample ID: 440-34927-A-7-N MSD
Matrix: Solid
Analysis Batch: 79203

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 78983

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.054	M1	0.800	1.09		mg/Kg		129	70 - 130	5	20

TestAmerica Phoenix

QC Association Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Metals

Prep Batch: 78983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-34927-A-7-M MS	Matrix Spike	Total/NA	Solid	7471A	
440-34927-A-7-N MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
LCS 440-78983/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 440-78983/1-A	Method Blank	Total/NA	Solid	7471A	
PWA0759-01	Crushed Solar Panel #2	Total/NA	Soil	7471A	
PWA0759-02	Crushed Solar Panel #5	Total/NA	Soil	7471A	

Leach Batch: 79060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	TCLP	Solid	1311	
440-35105-1 MSD	PWA0759-01	TCLP	Solid	1311	
LCS 440-79060/2-B	Lab Control Sample	TCLP	Solid	1311	
LCS 440-79060/2-C	Lab Control Sample	TCLP	Solid	1311	
MB 440-79060/1-B	Method Blank	TCLP	Solid	1311	
MB 440-79060/1-C	Method Blank	TCLP	Solid	1311	
PWA0759-01	Crushed Solar Panel #2	TCLP	Soil	1311	
PWA0759-02	Crushed Solar Panel #5	TCLP	Soil	1311	

Leach Batch: 79063

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-34737-A-1-J MS ^20	Matrix Spike	STLC Citrate	Solid	CA WET Citrate	
440-34737-A-1-J MSD ^20	Matrix Spike Duplicate	STLC Citrate	Solid	CA WET Citrate	
440-35105-1 MS	PWA0759-01	STLC Citrate	Solid	CA WET Citrate	
440-35105-1 MSD	PWA0759-01	STLC Citrate	Solid	CA WET Citrate	
LCS 440-79063/2-A ^20	Lab Control Sample	STLC Citrate	Solid	CA WET Citrate	
LCS 440-79063/2-B	Lab Control Sample	STLC Citrate	Solid	CA WET Citrate	
MB 440-79063/1-A ^20	Method Blank	STLC Citrate	Solid	CA WET Citrate	
MB 440-79063/1-B	Method Blank	STLC Citrate	Solid	CA WET Citrate	
PWA0759-01	Crushed Solar Panel #2	STLC Citrate	Soil	CA WET Citrate	
PWA0759-02	Crushed Solar Panel #5	STLC Citrate	Soil	CA WET Citrate	

Prep Batch: 79125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35153-A-1-G MS ^5	Matrix Spike	Total/NA	Solid	3050B	
440-35153-A-1-H MSD ^5	Matrix Spike Duplicate	Total/NA	Solid	3050B	
LCS 440-79125/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
MB 440-79125/1-A ^5	Method Blank	Total/NA	Solid	3050B	
PWA0759-01	Crushed Solar Panel #2	Total/NA	Soil	3050B	
PWA0759-02	Crushed Solar Panel #5	Total/NA	Soil	3050B	

Analysis Batch: 79203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-34927-A-7-M MS	Matrix Spike	Total/NA	Solid	7471A	78983
440-34927-A-7-N MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	78983
LCS 440-78983/2-A	Lab Control Sample	Total/NA	Solid	7471A	78983
MB 440-78983/1-A	Method Blank	Total/NA	Solid	7471A	78983
PWA0759-01	Crushed Solar Panel #2	Total/NA	Soil	7471A	78983
PWA0759-02	Crushed Solar Panel #5	Total/NA	Soil	7471A	78983

TestAmerica Phoenix

QC Association Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Metals (Continued)

Prep Batch: 79214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	TCLP	Solid	3010A	79060
LCS 440-79060/2-B	Lab Control Sample	TCLP	Solid	3010A	79060
MB 440-79060/1-B	Method Blank	TCLP	Solid	3010A	79060
PWA0759-01	Crushed Solar Panel #2	TCLP	Soil	3010A	79060
PWA0759-02	Crushed Solar Panel #5	TCLP	Soil	3010A	79060

Prep Batch: 79260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	TCLP	Solid	7470A	79060
440-35105-1 MSD	PWA0759-01	TCLP	Solid	7470A	79060
LCS 440-79060/2-C	Lab Control Sample	TCLP	Solid	7470A	79060
MB 440-79060/1-C	Method Blank	TCLP	Solid	7470A	79060
PWA0759-01	Crushed Solar Panel #2	TCLP	Soil	7470A	79060
PWA0759-02	Crushed Solar Panel #5	TCLP	Soil	7470A	79060

Analysis Batch: 79264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35153-A-1-G MS ^5	Matrix Spike	Total/NA	Solid	6010B	79125
440-35153-A-1-H MSD ^5	Matrix Spike Duplicate	Total/NA	Solid	6010B	79125
LCS 440-79125/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	79125
MB 440-79125/1-A ^5	Method Blank	Total/NA	Solid	6010B	79125
PWA0759-01	Crushed Solar Panel #2	Total/NA	Soil	6010B	79125
PWA0759-02	Crushed Solar Panel #5	Total/NA	Soil	6010B	79125

Analysis Batch: 79334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	TCLP	Solid	7470A	79260
440-35105-1 MSD	PWA0759-01	TCLP	Solid	7470A	79260
LCS 440-79060/2-C	Lab Control Sample	TCLP	Solid	7470A	79260
MB 440-79060/1-C	Method Blank	TCLP	Solid	7470A	79260
PWA0759-01	Crushed Solar Panel #2	TCLP	Soil	7470A	79260
PWA0759-02	Crushed Solar Panel #5	TCLP	Soil	7470A	79260

Analysis Batch: 79525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	TCLP	Solid	6010B	79214
LCS 440-79060/2-B	Lab Control Sample	TCLP	Solid	6010B	79214
MB 440-79060/1-B	Method Blank	TCLP	Solid	6010B	79214
PWA0759-01	Crushed Solar Panel #2	TCLP	Soil	6010B	79214
PWA0759-02	Crushed Solar Panel #5	TCLP	Soil	6010B	79214

Prep Batch: 79666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	STLC Citrate	Solid	7470A	79063
440-35105-1 MSD	PWA0759-01	STLC Citrate	Solid	7470A	79063
LCS 440-79063/2-B	Lab Control Sample	STLC Citrate	Solid	7470A	79063
MB 440-79063/1-B	Method Blank	STLC Citrate	Solid	7470A	79063
PWA0759-01	Crushed Solar Panel #2	STLC Citrate	Soil	7470A	79063
PWA0759-02	Crushed Solar Panel #5	STLC Citrate	Soil	7470A	79063

TestAmerica Phoenix

QC Association Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Metals (Continued)

Analysis Batch: 79817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-35105-1 MS	PWA0759-01	STLC Citrate	Solid	7470A	79666
440-35105-1 MSD	PWA0759-01	STLC Citrate	Solid	7470A	79666
LCS 440-79063/2-B	Lab Control Sample	STLC Citrate	Solid	7470A	79666
MB 440-79063/1-B	Method Blank	STLC Citrate	Solid	7470A	79666
PWA0759-01	Crushed Solar Panel #2	STLC Citrate	Soil	7470A	79666
PWA0759-02	Crushed Solar Panel #5	STLC Citrate	Soil	7470A	79666

Analysis Batch: 80192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
PWA0759-01	Crushed Solar Panel #2	STLC Citrate	Soil	6010B	79063
PWA0759-02	Crushed Solar Panel #5	STLC Citrate	Soil	6010B	79063

Analysis Batch: 80253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-34737-A-1-J MS ^20	Matrix Spike	STLC Citrate	Solid	6010B	79063
440-34737-A-1-J MSD ^20	Matrix Spike Duplicate	STLC Citrate	Solid	6010B	79063
LCS 440-79063/2-A ^20	Lab Control Sample	STLC Citrate	Solid	6010B	79063
MB 440-79063/1-A ^20	Method Blank	STLC Citrate	Solid	6010B	79063

Lab Chronicle

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Client Sample ID: Crushed Solar Panel #2

Date Collected: 12/06/12 08:00

Date Received: 01/14/13 08:57

Lab Sample ID: PWA0759-01

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			78983	01/16/13 10:25	MM	TAL IRV
Total/NA	Analysis	7471A		1	79203	01/16/13 12:03	DB	TAL IRV
Total/NA	Prep	3050B			79125	01/16/13 08:42	DT	TAL IRV
Total/NA	Analysis	6010B		5	79264	01/16/13 14:16	EN	TAL IRV
TCLP	Leach	1311			79060	01/15/13 19:29	SN	TAL IRV
TCLP	Prep	7470A			79260	01/16/13 14:55	MM	TAL IRV
TCLP	Analysis	7470A		1	79334	01/16/13 17:51	DB	TAL IRV
TCLP	Prep	3010A			79214	01/16/13 13:07	SN	TAL IRV
TCLP	Analysis	6010B		1	79525	01/17/13 12:39	DT	TAL IRV
STLC Citrate	Leach	CA WET Citrate			79063	01/15/13 19:41	SN	TAL IRV
STLC Citrate	Prep	7470A			79666	01/18/13 10:20	MM	TAL IRV
STLC Citrate	Analysis	7470A		1	79817	01/18/13 16:05	DB	TAL IRV
STLC Citrate	Analysis	6010B		20	80192	01/22/13 11:29	EN	TAL IRV

Client Sample ID: Crushed Solar Panel #5

Date Collected: 12/06/12 08:00

Date Received: 01/14/13 08:57

Lab Sample ID: PWA0759-02

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			78983	01/16/13 10:25	MM	TAL IRV
Total/NA	Analysis	7471A		1	79203	01/16/13 12:06	DB	TAL IRV
Total/NA	Prep	3050B			79125	01/16/13 08:42	DT	TAL IRV
Total/NA	Analysis	6010B		5	79264	01/16/13 14:19	EN	TAL IRV
TCLP	Leach	1311			79060	01/15/13 19:29	SN	TAL IRV
TCLP	Prep	7470A			79260	01/16/13 14:55	MM	TAL IRV
TCLP	Analysis	7470A		1	79334	01/16/13 17:59	DB	TAL IRV
TCLP	Prep	3010A			79214	01/16/13 13:07	SN	TAL IRV
TCLP	Analysis	6010B		1	79525	01/17/13 12:44	DT	TAL IRV
STLC Citrate	Leach	CA WET Citrate			79063	01/15/13 19:41	SN	TAL IRV
STLC Citrate	Prep	7470A			79666	01/18/13 10:20	MM	TAL IRV
STLC Citrate	Analysis	7470A		1	79817	01/18/13 16:13	DB	TAL IRV
STLC Citrate	Analysis	6010B		20	80192	01/22/13 11:32	EN	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TestAmerica Phoenix

Certification Summary

Client: Tetra Tech BAS, Inc.

TestAmerica Job ID: PWA0759

Project/Site: [none]

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		154268	07-01-13
Arizona	State Program	9	AZ0728	06-09-13
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-13
New York	NELAP	2	11898	04-01-13
Oregon	NELAP	10	AZ100001	03-08-13
USDA	Federal		P330-09-00024	09-14-13

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-13
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-13
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-13
Hawaii	State Program	9	N/A	01-31-13
Nevada	State Program	9	CA015312007A	07-31-13
New Mexico	State Program	6	N/A	01-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-13
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

Method Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL IRV
7470A	Mercury (CVAA)	SW846	TAL IRV
7471A	Mercury (CVAA)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: Tetra Tech BAS, Inc.
Project/Site: [none]

TestAmerica Job ID: PWA0759

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWA0759-01	Crushed Solar Panel #2	Soil	12/06/12 08:00	01/14/13 08:57
PWA0759-02	Crushed Solar Panel #5	Soil	12/06/12 08:00	01/14/13 08:57

TestAmerica Phoenix

Thin Film Photovoltaic Technology FAQ



1. What makes First Solar's thin film PV modules competitive?

First Solar thin film modules are manufactured using a fully integrated and resource efficient process which enables affordable, high volume production with the lowest environmental impacts in the industry. In addition, First Solar's high efficiency thin film modules are proven to deliver more usable energy per watt than conventional silicon-based modules, resulting in a lower levelized cost of electricity (\$/MWh).

Source: Dirnberger et al., "On the impact of solar spectral irradiance on the yield of different PV technologies," Solar Energy Materials & Solar Cells, vol. 132 pp. 431-442, 2015.



2. What are the environmental benefits of thin film PV technology?

First Solar's advanced thin film PV solutions are the industry's leading eco-efficient technology due to their superior energy yield, competitive cost and smallest life cycle environmental impacts. By using less grid electricity during manufacturing, First Solar modules have the smallest carbon footprint, fastest energy payback time and lowest life cycle water use and air pollutant emissions of any PV technology.

Sources: Seitz et al., Eco-Efficiency Analysis of Photovoltaic Modules, Bavarian State Ministry of Environment and Health, 2013. M. de Wild-Scholten, Energy Payback Time and Carbon Footprint of Commercial Photovoltaic Systems, Solar Energy Materials & Solar Cells, vol. 119, pp. 296-305, 2013.



3. How does CdTe differ from cadmium?

First Solar modules contain cadmium telluride (CdTe) which is a stable compound that is insoluble in water and has an extremely high chemical and thermal stability. These properties limit its bioavailability and potential for exposure. First Solar modules contain very little CdTe. The semiconductor layer in First Solar modules is a few microns thick, equivalent to 3% the thickness of a human hair. Additionally, the thin film semiconductor is encapsulated between two sheets of glass and sealed with an industrial laminate, further limiting the potential for release into the environment in the event of fire or breakage.

Source: Kaczmar, "Evaluating the Read-Across Approach on CdTe Toxicity for CdTe Photovoltaics," in SETAC North America 32nd Annual Meeting, Boston, 2011.



4. Are thin film modules durable in the field?

Yes. First Solar modules are tested for safety during breakage, fire, flooding and hail storms, and meet rigorous long-term durability and reliability testing standards. Module breakage is rare and occurs in ~1% of modules over 25 years (0.04% per year), with more than one-third of breakages occurring during shipping and installation. During operation, breakages typically consist of impact fractures whereby the module remains bound together by the industrial laminate.

Source: Sinha, P, and A. Wade. 2015. Assessment of leaching tests for evaluating potential environmental impacts of PV module field breakage. IEEE J. of Photovoltaics, Vol. 5(6), 1710-1714.



5. Is thin film PV technology safe for the environment?

Yes. More than 40 researchers from leading international institutions have confirmed the environmental benefits and safety of First Solar's thin film PV technology over its entire life cycle; during normal operation, exceptional accidents such as fire or module breakage, and through end-of-life recycling and disposal. First Solar provides the PV technology of choice for leading utilities and power buyers such as Southern Power Co., NRG Energy, and Capital Dynamics. With more than 17,000 MW installed worldwide, First Solar modules have a proven record of safe and reliable performance.

Source: <http://www.firstsolar.com/Resources/Sustainability-Documents?ty=Peer+Reviews&re=&ln=>



6. Can First Solar modules be recycled at end-of-life?

Yes. First Solar offers global, competitively-priced and flexible PV module recycling services. First Solar has a long-standing leadership position in PV recycling with over a decade of experience in operating high-value PV recycling facilities on a global and industrial scale. First Solar's high-value recycling process recovers more than 90% of a PV module for reuse in new modules and glass products.

Source: <http://www.firstsolar.com/en/Resources/Sustainability-Documents?ty=Recycling&re=&ln=>

Are thin-film modules double in the field?



Yes. Thin-film modules are rated for early degradation rates, typically 1% per year, and that's based on the first 10 years of life. After that, the degradation rate is expected to be 0.5% per year. This means that after 20 years, the modules should still be producing 90% of their original power. This is a significant improvement over the 80% that is expected for crystalline silicon modules after 20 years.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

Is thin-film PV technology safe for the environment?



Yes. Thin-film PV technology is safe for the environment. It is made from non-toxic materials and does not contain any hazardous substances. The manufacturing process is also safe and does not produce any harmful emissions. Thin-film PV modules are also safe to handle and install. They are lightweight and flexible, making them easy to transport and install. They are also resistant to fire and theft, making them a safe choice for residential and commercial applications.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

Can thin-film PV produce as much as crystalline silicon?



Yes. Thin-film PV technology can produce as much as crystalline silicon. In fact, thin-film PV modules can produce more power per square foot than crystalline silicon modules. This is because thin-film PV modules are made from a single layer of semiconductor material, while crystalline silicon modules are made from multiple layers. Thin-film PV modules are also lighter and more flexible than crystalline silicon modules, making them easier to install and transport. They are also resistant to fire and theft, making them a safe choice for residential and commercial applications.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

What makes thin-film PV different from crystalline silicon?



Thin-film PV is made from a single layer of semiconductor material, while crystalline silicon is made from multiple layers. Thin-film PV modules are lighter and more flexible than crystalline silicon modules, making them easier to install and transport. They are also resistant to fire and theft, making them a safe choice for residential and commercial applications. Thin-film PV modules can produce more power per square foot than crystalline silicon modules, making them a more efficient choice for solar power generation.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

What are the environmental benefits of thin-film PV technology?



Thin-film PV technology has several environmental benefits. It is made from non-toxic materials and does not contain any hazardous substances. The manufacturing process is also safe and does not produce any harmful emissions. Thin-film PV modules are also safe to handle and install. They are lightweight and flexible, making them easy to transport and install. They are also resistant to fire and theft, making them a safe choice for residential and commercial applications.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

How does thin-film PV technology work?



Thin-film PV technology works by converting light energy into electrical energy. It is made from a single layer of semiconductor material, which is deposited on a substrate. When light hits the semiconductor, it creates electron-hole pairs. These pairs are then separated by an electric field, creating a current. The current is then collected by electrodes and sent to a load. Thin-film PV technology is a simple and efficient way to generate solar power.

Source: First Solar, Inc., "Thin-Film Solar Modules: A New Generation of Power," 2012.

December 1, 2013

Environmental risk assessment of CdTe PV systems to be considered under catastrophic events in Japan

Dr. Yasunari Matsuno, Associate Prof., The University of Tokyo, Japan

1. The Goal and Scope

The purpose of this report is to summarize the environmental risk assessment of CdTe PV systems to be considered under potential catastrophic events in Japan. Earthquakes, tsunami and big fires caused by tsunami are some of the catastrophic events which are of most concern in Japan. So, the potential environmental risks caused by these disasters should be considered for CdTe PV systems, and the mitigation method to minimize the risks should be clarified. This review is undertaken at the request of First Solar.

2. Huge disasters to be considered for CdTe PV systems in Japan:

An earthquake is a potential catastrophic event of particular concern in Japan. It is still fresh in our minds that a massive earthquake hit the north-east of Japan and triggered a tsunami that had caused extensive damage on March 11th, 2011. In addition, the tsunami caused big fires at 177 places in Japan. These big fires also had occurred in the big earthquakes and subsequent tsunami in the past¹⁾. The main sources of the big fires were the reservoirs of fuel and liquefied petroleum gas (LPG) located along the coast that had been damaged by the tsunami²⁾.

Since many cities are located along the coast, earthquakes, subsequent tsunami and fires are catastrophic events of particular concern in Japan, which should be considered for CdTe PV systems.



Fig. 1 Large fire caused by tsunami in Kesenuma City on March 11, 2011²⁾

3. Hazard map data for earthquakes and tsunami

Ministry of Land, Infrastructure and Transport and Tourism, Japan releases "Hazard Maps" for earthquakes, and tsunami, etc. which cover many regions in Japan. They are available on Web site^{3, 4)} (in Japanese):

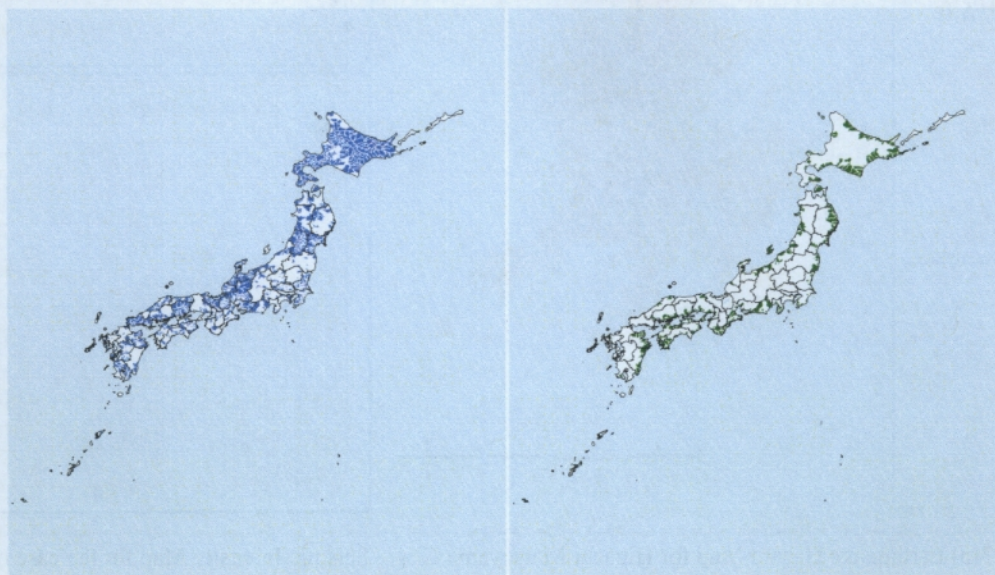


Fig. 2 Hazard map availability for earthquake (left) and Tsunami (right)

東松島市防災マップ

地震

① 揺れやすさマップ（宮城県沖地震（単独型）の場合の震度分布図）

震度階級

- 震度7
- 震度6強
- 震度6弱
- 震度5強
- 震度5弱
- 震度4
- 震度3
- 震度2以下

凡 例

- 大学界
- 緊急輸送道路（消防用自動車道）
- 緊急輸送道路（国道）
- 緊急輸送道路（その他の道路）
- 市役所・支所等
- 交番・駐在所
- 消防署
- 避難所（数字は避難所番号）

●この揺れやすさマップは、宮城県沖地震（単独型）を想定した場合の震度を100メートルメッシュ毎に表現しています。

●この地図は、平均すると37年に一度、1978年の宮城県沖地震と同様の場所と規模で同じように繰り返していると考えられているものです。今後30年間の発生確率は9.9%といわれています。マグニチュード 7.6 を想定しています。

●なお、ここに示した震度は、地震の規模や震源の距離から予想される平均的な揺れの強さです。地震の発生の仕方によっては、揺れはこれより強くなったり、弱くなったりすることがあります。

●皆様が地震の災害に備え、また地域の防災活動に役立てていただくために作成したものです。

もよりの避難所を確かめてください！

1 下町地区学習センター	31 大田地区体育館
2 大田地区公民館	32 区生活センター
3 大田地区小学校	33 大田地区公民館
4 大田地区中学校	34 大田地区小学校
5 大田地区小学校	35 大田地区公民館
6 大田地区中学校	36 大田地区公民館
7 大田地区公民館	37 大田地区公民館
8 大田地区公民館	38 大田地区公民館
9 大田地区公民館	39 大田地区公民館
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11 大田地区公民館	41 大田地区公民館
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16 大田地区公民館	46 大田地区公民館
17 大田地区公民館	47 大田地区公民館
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27 大田地区公民館	57 大田地区公民館
28 大田地区公民館	58 大田地区公民館
29 大田地区公民館	59 大田地区公民館
30 大田地区公民館	60 大田地区公民館

Fig. 3(a) Earthquake Hazard Map for Higashi-Matsuyama City – Seismic Intensity Map for the case of Reoccurrence of the 1978-type Miyagiken-Oki Earthquake



Fig. 3(b) Hazard Map for Tsunami of Miyako city

4. Evaluation of environmental risks of potential catastrophic events and the mitigation methods to minimize the risks

Environmental risk assessment is the standard scientific method for evaluating potential health and environmental impacts from exposure to chemicals in the environment (Fig. 4).

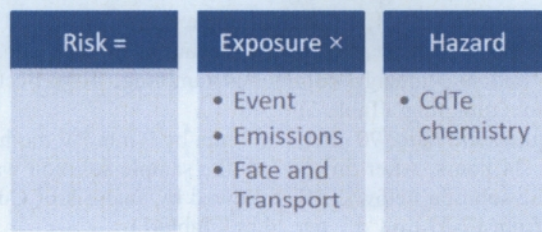


Fig. 4 Environmental risk assessment framework

Use of heavy metals (e.g., Pb, Cr, Cd compounds) is commonplace in the PV industry. The environmental risk related to each catastrophic event involving CdTe PV systems is discussed below.

4.1 Earthquake

Environmental risks for PV modules impacted by an earthquake would be related to the breakage of the modules in the impacted geographic area.

CdTe is classified as insoluble in water due to an extremely low solubility product (9.5×10^{-35}). Even if modules become broken or damaged, CdTe would not mobilize from the glass and into the environment except under very specific conditions. One condition would be if glass modules are crushed to fine pieces (< 1 cm) and then subjected to agitation in an acidic environment. These conditions would not occur in the field during any project operations⁵⁾.

Experimental evaluation of CdTe mobility in pure compound form has been conducted with transformation and dissolution testing. The testing is designed to determine the rate and extent to which sparingly soluble metal compounds can produce soluble available ionic species in aqueous media under a set of standard laboratory

conditions representative of those generally occurring in the environment. Specifically, the testing measured the concentration of Cd resulting from a 1 mg/L loading of CdTe after 28 days in a standard aqueous medium at pH 6. 15 µg/L Cd resulted from 1 mg/L CdTe loading, corresponding to approximately 1.5% solubility⁶⁾.

Note that the transformation and dissolution test results are for the pure CdTe compound, whereas in CdTe PV, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment under normal conditions, and greatly reducing potential exposure under broken-module conditions.

In addition, First Solar's PV Module Performance Detection and Handling Plan that have been used in the large-scale CdTe PV projects in the western U.S.⁷⁾ may be able to identify, handle, and remove broken PV modules after the earthquake. Specifically, routine inspections and power output monitoring can diagnose broken modules for prompt removal. These measures will further mitigate the environmental risks of CdTe PV systems.

4.2 Tsunami

Potential risks for PV modules impacted by a tsunami would be related to the scattering of the modules over the impacted geographic area. For metals in general, environmental mobility is a function of pH, with decreased mobility at higher pH. Because sea water is alkaline (Fig. 5) with pH in the global ocean surface waters ranging from 7.9 to 8.2⁸⁾, metal solubility would be expected to be limited for modules dispersed in sea water. In addition, even when fully dissolved (at aquatic saturation), aquatic toxicity testing of CdTe showed no ecological health effects on the standard zebrafish test species⁶⁾. To further quantify the potential impacts of tsunami on CdTe PV modules, First Solar conducted leaching tests with seawater as a solvent⁹⁾.

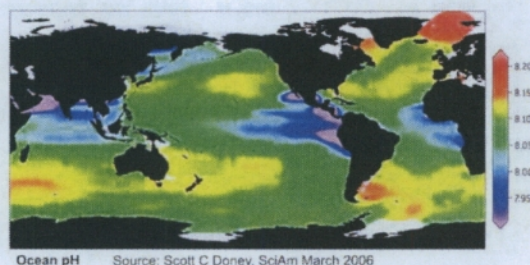


Fig. 5 Variations in pH in sea water

4.2.1 Seawater Leaching Test⁹⁾

The experimental method for the seawater leaching test made use of the DIN standard batch leaching test modified with synthetic seawater as a solvent. The potential impacts are considered for module fragments in still sea water conditions, such as a flooded inland area of low elevation. In such condition, there is no current so module fragments would settle and not undergo continuous tumbling. To reflect this scenario, the seawater leaching test was conducted without tumbling. (Table 1)

In accordance with a 10:1 liquid/solid ratio, 90 grams of 9 mm by 9 mm PV module samples were subjected to 900 mL of seawater solution for 24 hours. After this period, the sample solution was filtered (45 µm filter) and acidified using HNO₃ to bring the solution below 2 pH, followed by analysis of Cd with ICP-MS. Five samples were tested with results ranging from 17-37 µg Cd/L per 24 hr. (Table 1)

Table 1 Analytical results of seawater leaching test for CdTe PV modules with DIN batch leaching test modified with synthetic seawater as a solvent and with no tumbling for closed sea water scenario

LAB #	Sub ID	Cd (ppb)	Pb (ppb)	specific gravity	Temp before (deg C)	pH before	conductivity before (uS)	Post Temp	post pH	post conductivity (uS)
AA63862	130925261888	17	<5	1.0225	20.7	8.17	46400	21	8	42900
AA63863	130925261885	37	<5	1.0225	20.7	8.18		20.4	8.22	43600
AA63864	130925261886	19	<5	1.0215	20.3	8.17		20.5	8.22	42800
Acid Blank		<10	<5	1.0215	20.3	8.17		20.5	8.18	43600

With the measured Cd concentration in seawater leachate ranging from 17-37 µg Cd/L, the percentage of dissolved Cd to the total CdTe was estimated as approximately 0.03%/day.

4.2.2 Interpretation of potential environmental risks caused by tsunami

In the case of tsunami, broken module pieces may be dispersed in seawater. To evaluate the potential environmental risks caused by tsunami from the results of the leaching tests, a scenario of 1 MW of PV module fragments in closed sea water was considered.

The potential impacts were estimated based on the following equation.

$$C = (T \times E) / V$$

C: Incremental Cd concentration ($\mu\text{g/L/day}$)

T: Total CdTe content (μg)

E: Cd emissions fraction ($\%/day$)

V: Volume of seawater (L)

For parameter "T" based on 13% efficient PV modules, there is approximately 0.127 g CdTe per W (1.27×10^{11} μg CdTe per MW). For parameter "E", the measured Cd concentration in seawater leachate in Table 1 corresponds to a percentage of dissolved Cd to the total CdTe of approximately 0.03%/day. For parameter "V", a 1 MW installation requires approximately 2 hectares (20,000 m^2). If this area is flooded with 2 m of seawater, the total volume of seawater is 40,000 m^3 (40,000,000 L). Based on these parameters and the equation, the average incremental concentration of dissolved Cd in the total volume of closed seawater is approximately 0.95 $\mu\text{g/L/day}$. However, it should be noted that these results can be considered to reflect the worst case scenario in which all of the PV modules would be broken into small pieces, i.e. 9 mm by 9 mm pieces, by tsunami and submerged in a closed seawater. Therefore, it is likely that the average incremental concentration of dissolved Cd in the closed seawater is significantly lower than 0.95 $\mu\text{g/L/day}$.

In Japan, environmental quality standards for water pollutants - environmental quality standards for the human health has been set as 3.0 $\mu\text{g/L}$ for Cd. This standard is based on the annual mean and can be considered for chronic (long-term) exposure. The environmental quality standard for Cd to conserve aquatic life has been discussed, but not established in Japan¹⁰. In addition, there is no distinction in the standards for acute (short-term) exposure and chronic (long-term) exposure. In contrast, US EPA has established national recommended water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants including Cd, in which criteria have been distinguished for acute and chronic as well as freshwater and saltwater¹¹. Since leaching of Cd from broken PV modules by tsunami is an accidental release, it can be considered as an acute (short-term) exposure. Therefore, if we compare with U.S. EPA's acute limit of 40 $\mu\text{g/L}$, Cd concentration in sea water which contain submerged PV module after tsunami will not exceed the aquatic screening criteria for a certain (long) period.

Nonetheless, it should be recommended that the prompt recovery of submerged PV modules should be conducted to minimize the leaching of Cd.

4.3 Big fires caused by tsunami

Beckmann and Mennenga investigated¹² the effects of CdTe modules on the neighborhood and the general public in the case of fire. They estimated Cd concentrations in air on the surface around the burning CdTe PV modules. In the worst case, the Cd concentration in air from a fire with the largest area (1,000 m^2) with the maximum Cd contents (66.4 g/m^2) and at the shortest calculable distance (100 m) from the emission site was calculated. However, the result (0.66 mg/m^3) was still substantially below the acute exposure guideline level, AEGL-2 (10 min.) of cadmium, 1.4 mg/m^3 , which is the peak concentration value for the threshold to irreversible effects or other severe, long-lasting health effects¹³.

It should also be noted that they assumed in their calculations that all Cd contained in the module was released completely from the CdTe compound as Cd fumes. Reaction with CdO or a possible diffusion of cadmium in the molten glass was not considered in determining the Cd emission concentrations. Fthenakis et al. investigated CdTe modules, which were heated to temperatures ranging from 760° C to 1,100° C, typical for fires in residences and service buildings, and showed that more than 99% of the Cd remained within the molten glass matrix¹⁴. In addition, as mentioned in 4.2.2, First Solar's 13% efficient PV modules contain significantly small Cd content, approximately 7.7 g/m^2 . Therefore, it is quite likely that Cd concentration in air on the surface around the burning CdTe PV modules will be quite small compared with the acute exposure guideline level.

There are uncertainties whether and where big fires will occur after tsunami, how long they last, and whether CdTe PV modules will be subject to the big fires or submerge in sea water. So, PV modules may not necessarily be subject to the big fires. Therefore, the environmental risks of CdTe PV systems by big fires caused by tsunami can be considered very small.

4.4 Other previous works related to the environmental risks of CdTe PV systems

Central Research Institute of Electric Power Industry, Japan investigated the environmental risks of CdTe PV systems in the fiscal year of 1998 with the financial support by NEDO, in which Cd emissions in cases of fire and leaching of Cd from broken modules were investigated¹⁵.

The combustion tests were conducted to measure the volatilization rate of Cd from various CdTe thin-film PV

modules at 750-1000 centigrade. The volatilization rates of Cd from the modules were measured as <0.25% at 800-1000 centigrade. These results were used to estimate the Cd concentration in a plume generated in a wooden house on fire as well as those on surfaces around the house. It was concluded that the estimated concentration was lower than the legally regulated value in either case.

The batch leaching tests were conducted with broken CdTe PV modules in the acid rain atmosphere (pH = 4.8, 40 centigrade) with continuous tumbling for 10 minutes to 72 hours. It was found that the Cd concentrations were below the minimum detectable quantity in all leaching tests. So, it was concluded that Cd leaching from broken CdTe PV modules in an ordinary atmosphere would be negligible.

From the all results mentioned above, it was concluded that there would be no problem to use CdTe PV systems from the view point of the environmental risks.

5. Conclusion

In this report, environmental risks of CdTe PV systems under catastrophic events in Japan were considered with a focus on earthquakes, tsunami and big fires caused by tsunami. There is a big uncertainty on how many CdTe PV modules will be broken in earthquakes, and in a subsequent tsunami, how many will be subject to big fires or be submerged in sea water. However, even in the worst case scenarios, it is unlikely that the Cd concentrations in air and sea water will exceed the environmental regulation values. So, the environmental risks of CdTe PV systems under catastrophic events can be considered small.

For commercial reasons, power systems are not likely to be constructed in tsunami hazard areas; nevertheless, the prompt recovery of broken and submerged PV modules should be conducted to minimize the leaching of Cd after earthquakes and tsunami.

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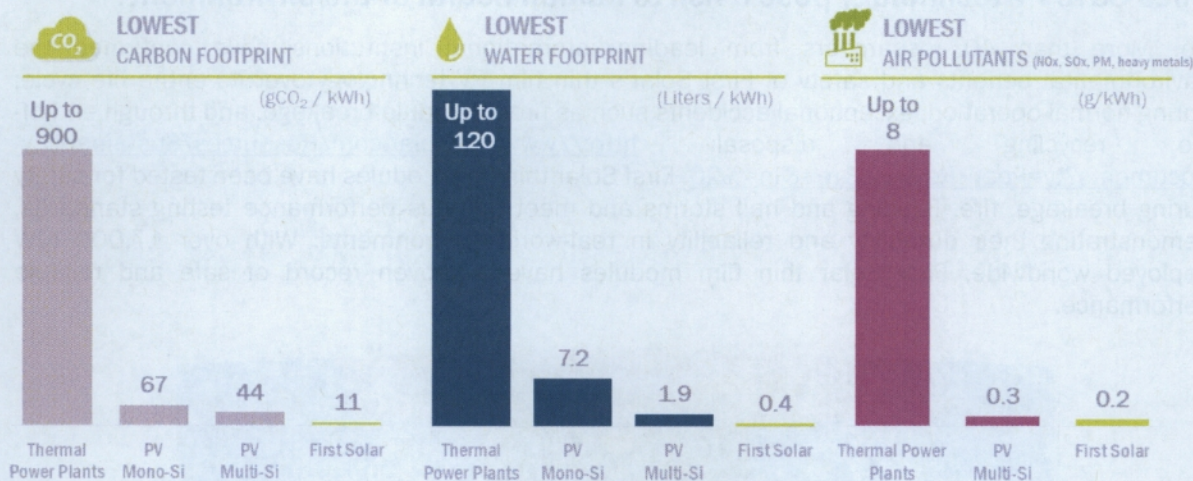
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CdTe PV FAQ



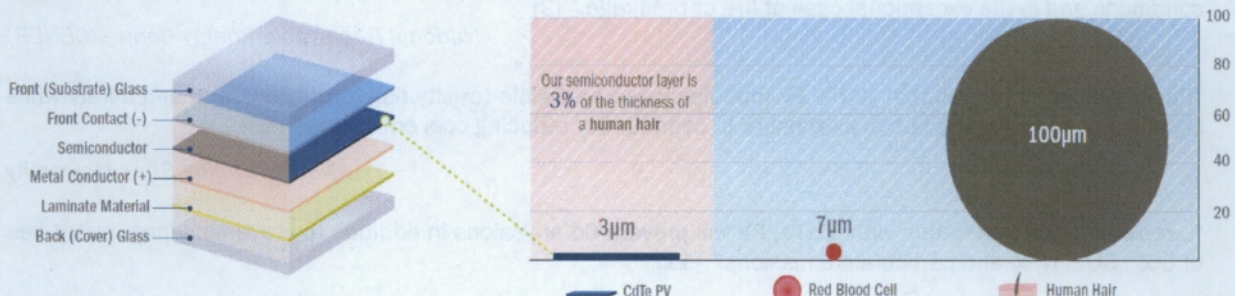
What are the environmental benefits of First Solar's thin film PV technology?

First Solar's advanced thin film PV solutions are the industry's leading eco-efficient technology due to their superior energy yield, competitive cost and smallest life cycle environmental impacts. [1] By using less grid electricity during manufacturing, First Solar thin film modules have the smallest carbon footprint and lowest life cycle water use and air pollutants of any PV technology on the market. [2] [3] [4] [5] [6] According to a study by UNEP, CdTe PV has the lowest life cycle human health and ecological impacts of all PV technologies per kWh of electricity produced. [7]



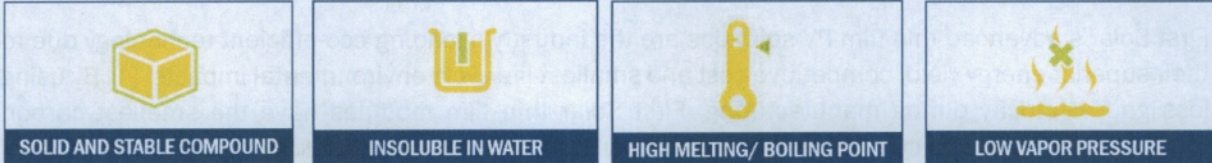
What is cadmium telluride (CdTe)?

CdTe is a semiconductor material used in First Solar PV modules that is ideal for absorbing and converting sunlight into electricity. Because CdTe is almost perfectly matched to the solar spectrum, First Solar modules require 98-99% less semiconductor material than conventional crystalline silicon modules. The semiconductor layer in First Solar modules is a few microns thick, equivalent to 3% the thickness of a human hair or less than half the thickness of a red blood cell.



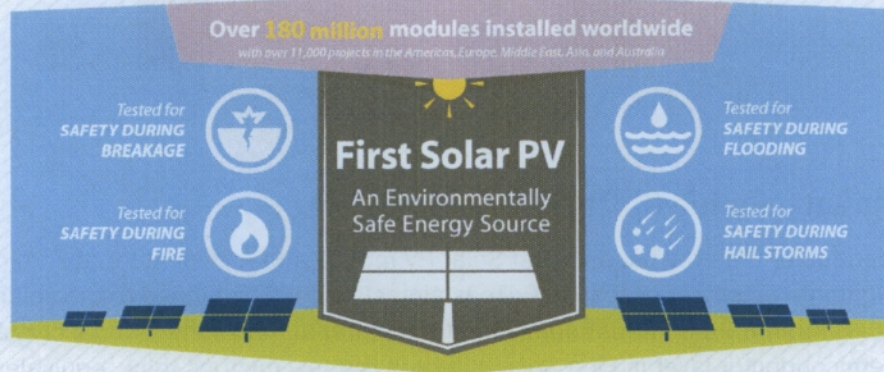
Is CdTe the same as cadmium?

No, third-party research studies have shown that CdTe differs from cadmium (Cd) due to its extremely high chemical and thermal stability. [8] CdTe is a stable compound that is insoluble in water, has a melting point (1041°C) and boiling point (1050°C), and a low evaporation rate. In addition, First Solar's thin film semiconductor is encapsulated between two sheets of glass and sealed with an industrial laminate, which further limits the potential for release into the environment in the event of fire or breakage.



Does CdTe PV technology pose a risk to human health or the environment?

No. More than 40 researchers from leading international institutions have confirmed the environmental benefits and safety of First Solar's thin film PV technology over its entire life cycle; during normal operation, exceptional accidents such as fire or module breakage, and through end-of-life recycling and disposal: <http://www.firstsolar.com/Resources/Sustainability-Documents?ty=Peer+Reviews&re=&ln=%20>. First Solar thin film modules have been tested for safety during breakage, fire, flooding and hail storms and meet rigorous performance testing standards, demonstrating their durability and reliability in real-world environments. With over 17,000 MW deployed worldwide, First Solar thin film modules have a proven record of safe and reliable performance.



"CdTe modules do not represent any risk for human health nor for the environment, during normal operating conditions and in the exceptional case of fire or breakage." [9]

- National Renewable Energy Centre (CENER)

"Research demonstrates that [CdTe PV modules] pose negligible toxicity risk to public health and safety while significantly reducing the public's exposure to cadmium by reducing coal emissions." [10]

- North Carolina State University

"...replacing coal generation with [CdTe] PV will prevent Cd emissions in addition to preventing large quantities of CO₂, SO₂, NO_x, and particulate emissions." [11]

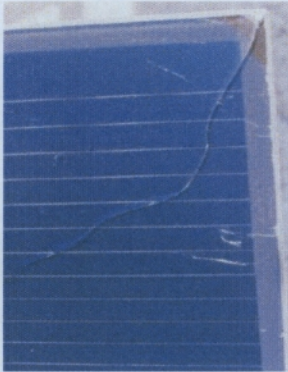
- National Renewable Energy Laboratory and Brookhaven National Laboratory

Are First Solar modules certified to EHS, quality and durability standards?

All First Solar manufacturing plants are certified to ISO 14001 for Environmental Management, ISO 9001 for Quality, and OHSAS 18001 for Occupational Health and Safety. First Solar modules are certified to regional standards including UL for North America, CEC for Australia, Golden Sun for China, MCS for the U.K. and JET for Japan. First Solar PV modules also meet rigorous performance testing standards, demonstrating their durability and reliability in real-world environments.

Test	Description	Results
IEC 61646/ IEC 61730 Certification	Basic industry market entry certifications	PASS 1500V certification level
UL 1703	PV module electrical safety and flammability	PASS Class A rating
ThresherTest	Multiplies basic IEC 61730/61646 test cycles and durations 2X to 4X	PASS <5% Power Output drop
Long-Term Sequential Test	6-month accelerated protocol to evaluate long-term harsh climate durability	PASS 1st thin film module, and one of only 5 modules in the
Atlas 25+ Certification	12-month weathering-intensive certification through projected 25+ year harsh climate field lifetimes	PASS One of only 4 modules in the world to pass.
IEC 62804 PID-Resistant Certification	Demonstrates high resistance to potential induced degradation at extreme $\pm 1500V$ voltages at most extreme 192hr 85C/85% RH test levels, enabling confident floating and grounded applications	PASS 1500V
IEC 60068 Certification Desert Sand Resistance	Demonstrates minimal power loss and package integrity resistant to wind-blown particulates	PASS
Fraunhofer PV Durability Initiative	Durability benchmarking program rates modules according to their likelihood of performing reliably over their expected service life based on accelerated stress testing and long-term outdoor exposure	PASS Best-in-class long term durability
VDE Quality Tested	Quality certification for entire PV power plant enhances performance, ensures electrical and mechanical safety of the system and provides independent verification to investors, lenders and insurance companies.	PASS 1st PV company to achieve certification

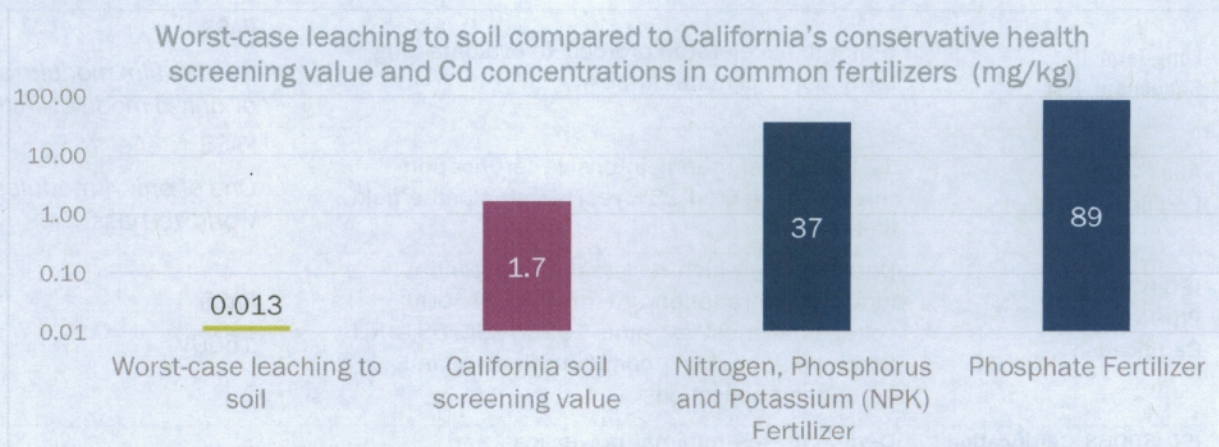
What could happen if modules break?



Module breakage is rare and occurs only in approximately 1% of modules over 25 years or 0.04% per year. More than one-third of breakages occur during shipping and installation, therefore the broken modules are removed prior to plant operation. During operation, most breakages consist of impact fractures in which the module is still bound together by the industrial laminate.

Even in a worst-case leaching scenario, which assumes all the CdTe from broken modules were to leach as cadmium into the rainfall, Cd concentrations in soil, air, and groundwater are still below conservative human health screening levels in California. [12]

Modelled results for worst-case leaching to soil are up to 7,000 times lower than cadmium concentrations in common fertilizers.



What could happen in the event of a fire?

Independent analysis indicates potential Cd emissions from CdTe PV modules involved in a fire would be negligible as the majority of CdTe would remain encapsulated in glass. Heating experiments simulating residential fires showed that 99.96% of the Cd content of CdTe PV modules would be encapsulated in molten glass under the high temperatures of a building fire (800 to 1100 °C). [13] For ground-mount systems, the short-lived maximum fire temperatures (1000 °C) are below the melting point of CdTe (1041 °C), limiting release. [14] Even in a worst-case scenario that assumes a maximum Cd content (66.4 g/m²) more than four times the amount of CdTe contained in First Solar modules, a large fire area, and the shortest distance from the emission site, the calculated Cd emission concentration is still below conservative air pollution exposure limits for the public and emergency responders. [15]

For perspective, potential accidental emissions occurring during fires are up to three orders of magnitude lower than routine emissions from coal and oil power plants. [16]

What could happen in the event of a natural disaster?

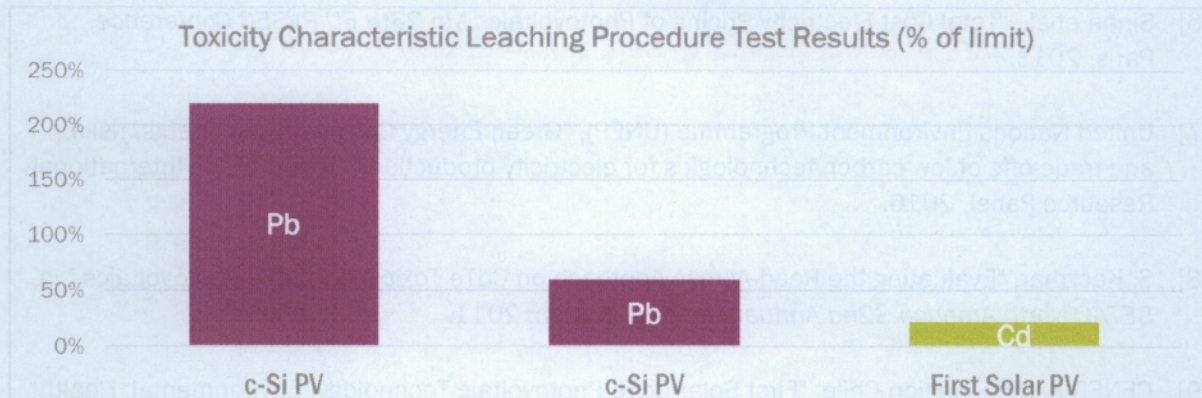
A 2013 study by The University of Tokyo evaluated the potential environmental, health and safety risks of CdTe PV systems in the event of a natural disaster such as an earthquake, tsunami, or large fire. The study concluded that even in worst case scenarios, the environmental risks from CdTe PV systems impacted by an earthquake, tsunami or fire would be minimal due to CdTe's insolubility in water, limited emissions in case of fire, the robust design of a First Solar module as well as its low CdTe content.

Does CdTe PV lead to an increase of cadmium in the environment?

No. Cadmium is generated as an unavoidable by-product of zinc production for steel products, regardless of its use in PV. Increased steel demand for building, construction and automobiles is expected to lead to a potential oversupply of cadmium. [17] When combined with tellurium, cadmium is converted into a stable compound, which is used to generate clean electricity for 25+ years. Cadmium exposure to the general population primarily occurs via smoking, followed by ingestion of Cd-containing food. Phosphate fertilizers represent the major source of cadmium in agricultural soils and the combustion of fossil fuels represents the primary source of Cd emissions to air. [18] [19] Whenever CdTe PV replaces coal in power generation it lowers the associated Cd emissions to air by 100–360 times. [20]

Does CdTe PV technology have unique end-of-life management requirements?

No. Responsible end-of-life management is important to the whole PV sector in order to maximize resource recovery and manage environmentally sensitive materials which are common in the industry. Both CdTe and crystalline silicon PV modules contain comparable quantities of heavy metals. Leaching tests results found that crystalline silicon PV modules released a range of 3-11mg/L of lead (Pb), which corresponds to 60%-220% of the federal U.S. waste characterization test (TCLP) limit. [21] Potential environmental impacts from end-of-life disposal of crystalline silicon PV modules are therefore comparable to or greater than that of CdTe PV.



Can First Solar modules and PV power plants be recycled at end-of-life?

Yes. Over 90% of a First Solar PV power plant is recyclable. First Solar has a long-standing leadership position in PV recycling and provides global PV module recycling services that enable PV power plant owners to meet their decommissioning and end-of-life (EOL) requirements simply, cost effectively and responsibly. First Solar's high-value recycling process recovers approximately 90% of the glass for reuse in new glass products and over 90% of the semiconductor material for reuse in new modules. The remainder of the recycled module scrap (approximately 5 to 10%) which cannot be used in secondary raw materials is handled using other responsible waste treatment and disposal techniques. Due to the shredding, crushing and heating typically involved in recycling processes, material losses are inevitable and the recovery ratio is always less than 100%. [22]

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Spotsylvania Solar Energy Center

White Paper

April 2018

Response to Concerned Citizens of Fawn Lake and Spotsylvania County (CCFLSC)

Prepared By: Adam Furman, Sustainable Power Group (sPower)

1.0 OBJECTIVE

Sustainable Power Group (sPower) prepared this White Paper in response to the questions, comments, and concerns from Concerned Citizens of Fawn Lake and Spotsylvania County (CCFLSC) regarding sPower's proposed Spotsylvania Solar Energy Center Project. The White Paper is structured in such a way that addresses each topic with information based on existing and collected scientific data, industry standards and practices, and project-specific details and information. This is the first of two White Papers that will be provided to CCFLSC. The second White Paper will address topics related to water use, hydrology, erosion and stormwater management, and other issues that were not addressed in the initial White Paper. sPower is currently conducting extensive hydrology and geotechnical studies and will provide the conclusions of those studies in the second White Paper. sPower has already reduced water use requirements at the Project Site and will be pleased to present methods and calculations in our second White Paper.

2.0 INTRODUCTION

The Spotsylvania Solar Energy Center Project (Project) is a 500-megawatt (MW) photovoltaic (PV) solar energy facility proposed in Western Spotsylvania County, Virginia. The Project consists of approximately 6,350 acres of timbered land (of which approximately 3,500 acres will be developed for the Project) separated into three non-contiguous boundaries. Sustainable Power Group (sPower) submitted three (3) Special Use Permit (SUP) applications (SUP18-0001, SUP18-0002, SUP18-0003) to the Spotsylvania County Planning Department. The SUP applications were reviewed and deemed complete by the Spotsylvania County Planning Department on March 30, 2018. The Project is currently in the design and engineering phase with final plans to be ready by June 2018.

3.0 TOPICS OF CONCERN

3.1 Visual Impact of Project

Section 23-4.5.7(d)(6) of the Spotsylvania County Code of Ordinances states:

SEFs (solar energy facilities) shall be screened as determined by the Board of Supervisors in order to minimize visibility and aesthetic impacts to neighboring uses and roadways.

The Project is being designed with the goal of shielding the Project from neighboring properties. This goal will be achieved through a combination of setbacks from property lines, maintaining existing vegetative buffers, installing landscaped berms of sufficient height, and replanting native vegetation. sPower submitted a Viewshed Analysis for the Project as part of the SUP application package.

3.1.1 Setbacks

Spotsylvania County and sPower agreed that aesthetic impacts need to be considered while siting the solar facility boundaries. While the SUP applications propose a minimum 50-foot setback around the entire project perimeter, the Project is currently being designed to allow for maximum setbacks (greater than 50 feet) from adjacent property owners. sPower intends to achieve a minimum 300-foot setback from all Fawn Lake property lines and will use berms and vegetation to shield the facility from view. Setbacks from other residences will vary with the intent to block direct views of the Project. Final setback designs will be completed in June 2018.

3.1.2 Vegetative Buffers

Current site conditions include timbered land near many property boundaries while portions of the Project Site remain forested in their current state. While the SUP applications propose a minimum 50-foot vegetative buffer, the Project is currently being designed to allow for a maximum vegetative buffer (greater than 50 feet) from adjacent properties. sPower does not own the property at this point and does not have discretion over timbering practices at the Project Site. sPower recognizes that replanting may be required in areas near residences around the periphery of the Project as discussed in Section 3.1.4. During operation, vegetative buffers will be maintained during the lifetime of the Project by sPower's operations and maintenance staff. Final vegetative buffer designs will be completed in June 2018.

3.1.3 Berms

In areas where vegetative buffers have been removed or do not provide adequate visual shielding for adjacent properties, sPower will evaluate terrain, stormwater control and visual aesthetic suitability for installation of landscaped berms. Approximately six (6)-foot tall landscaped berms will be installed where applicable for visual shielding. Final berm designs will be completed in June 2018.

3.1.4 Replanting Native Vegetation

In areas where vegetative buffers have been removed or do not provide adequate visual shielding for adjacent properties, sPower will replant native vegetation, in consultation with the applicable State and County agencies, as an option for visual shielding. Final landscaping designs will be completed in June 2018.

3.1.5 Viewshed Analysis

sPower retained the services of Kimley-Horn to perform a Viewshed Analysis for the Project. The Viewshed Analysis was submitted with sPower's SUP application package and is available at the County Planning Department. The results of the Viewshed Analysis indicate that the vast majority of the Project will not be visible from adjoining properties, including the Fawn Lake Community. This is largely due to vegetative buffers and the existing topography near the border of the Fawn Lake Community and the Project Site. Based on final setback distances, sPower will complete additional visual simulations if necessary.

sPower is conducting additional analyses for select locations in the Fawn Lake Community and will make these available to the community upon completion. The analysis will include visual simulations from Brandermill Park, Waterstone Place, and Fawn Lake Parkway, as well as an aerial simulation at Fawn Lake's property boundary with the Project Site. The results of the analysis will help with design of setbacks, vegetative buffers, and potential berms.

3.1.6 Panel and Racking System Dimensions

The Project is expected to utilize First Solar Series 6 and Jinko PV panels that will be installed on a DuraTrack HZ v3 racking system developed by Array Technologies, Inc. The PV panels are approximately 4' x 6.5', while the DuraTrack HZ v3 racking system stands at 4.5' tall with a $\pm 52^\circ$ standard range of motion. Therefore, at the peak height, the panel and racking system will reach a typical height of approximately six to eight feet. It should be noted that the panels will only reach a peak height two times in one day and will remain flat (approximately 4.5') when not generating power.

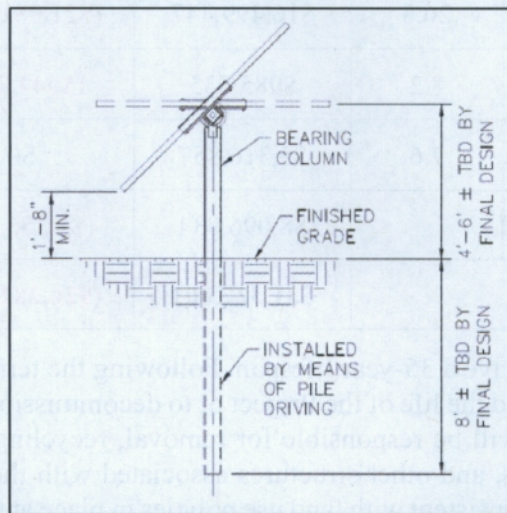


Image 1: Typical Dimensions for Panel and Racking System

3.2 Open Burning

The Project Site is undergoing logging operations by the current landowners. sPower and its general contractor, Swinerton Renewable Energy, will mulch leftover wood debris and stumps into

mulch at the Project Site. Most of the mulch will be used at the Project Site for erosion control, construction of berms, and dust suppression. sPower is evaluating local mulching and/or logging companies to collect and remove excess mulch if necessary. In the event minimal burning is done at the Project Site for excess mulch, sPower will coordinate with relevant agencies and ensure that burning does not take place within 2,000 feet of a residence and is completed in a clean and efficient manner to reduce smoke. Additionally, sPower will coordinate any burns with County Fire Marshall.

3.3 Project Decommissioning

Section 23-4.5.7(d)(11) of the Spotsylvania County Code of Ordinances requires a Decommissioning Plan be submitted to the County for the Project. The Decommissioning Plan will detail all measures and obligations needed to safely decommission the Project and restore the Project Site. Based on modifications to design, sPower is currently revising its initial draft Decommissioning Plan that was submitted with the SUP application package. The revised cost estimate from sPower's general contractor for decommissioning the Project is provided in Table 1. It should be noted that these cost estimates are not final and are still subject to approval.

Table 1
Conceptual Cost Estimate for Project Decommissioning

Description	Duration	Labor, Equipment, Materials	Net Recycling	Total Cost
SWPPP & Dust Control Measures	30.6	\$428,328	\$0	\$428,328
Removal of Equipment	26.8	\$16,499,447	(\$21,981,586)	(\$5,482,139)
Site Demolition	8.2	\$985,535	(\$944,867)	\$40,668
Site Reclamation	7.6	\$5,316,857	\$0	\$5,316,857
Contingency, Escalation, PM, Insurance, Fees		\$8,096,834	(\$3,356,468)	\$4,740,366
Opinion of Probable Gross Decommissioning Cost		\$31,327,001	(\$26,282,921)	\$5,044,080

The Project is anticipated to have a 35-year lifespan. Following the term of the Project contract, a decision will be made to extend the life of the Project or to decommission the Project. If the Project is decommissioned, sPower will be responsible for removal, recycling, and disposal of all solar arrays, inverters, transformers, and other structures associated with the Project. The Project Site will be restored in a manner consistent with land use policies in place at that time and in accordance with Spotsylvania County regulations.

sPower will post a Decommissioning Bond to ensure the availability of funds to cover sPower decommissioning and restoration obligations. sPower will deliver the Decommissioning Bond to Spotsylvania County upon receipt of the SUPs and prior to the start of construction. In accordance

with Spotsylvania County Code of Ordinances, the Decommissioning Plan and Bond will need to be reevaluated and adjusted, if necessary, every two (2) years.

3.4 Hazardous Materials from Broken Panels

The Project will utilize First Solar Series 6 and Jinko PV panels for the Project.¹ The First Solar PV panels contain a chemical compound known as cadmium telluride (CdTe). The common misconception regarding health and safety concerns for CdTe is the potential introduction of cadmium (Cd), a known carcinogen, into the environment from broken PV panels. CdTe greatly differs from elemental Cd in that CdTe has an exceptionally strong bond that leads to extremely high stability, insolubility, and a very high melting point (1,042°C / 1,908°F). This means that the Cd contained within the CdTe will not dissolve in water and/or melt in the unlikely event of a fire. Under normal operation, CdTe PV panels do not pose a threat to human health or the environment, because during the manufacturing process, the CdTe semiconductor layer is bound under high temperature to one sheet of glass, coated with an industrial laminate material, and then encapsulated between a second sheet of glass.² Additionally, the CdTe layer is only 2-8 µm thick, or about a tenth the diameter of a human hair.³

Panel breakage is rare, occurring in approximately 1% of panels over the 25-year warranty operating life (0.04% per year), including the shipping and installation period.⁴ Of these breakages, over one-third occurs during shipping and installation and are removed for takeback and recycling. Broken panels typically include chipped or cracked glass that is contained within the panel's aluminum frame and does not affect the CdTe semiconductor layer. During operation of the Project, panels are monitored 24/7 and regularly inspected by sPower's operations and maintenance staff and replaced if breakage occurs.



Image 2: Broken panels during operation as a result of a tractor.

¹ The Jinko PV panels are silicon based and do not contain CdTe.

² Sinha, P., Balas, R., Krueger, L., and Wade, A. Fate and Transport Evaluation of Potential Leaching Risks from Cadmium Telluride Photovoltaics. *Environmental Toxicology and Chemistry*. doi: 10.1002/etc. 1865. (2012).

³ National Renewable Energy Laboratory (NREL). *Cadmium Telluride Solar Cells*.

<https://www.nrel.gov/pv/cadmium-telluride-solar-cells.html>. 2018.

⁴ Refer to Id 2.

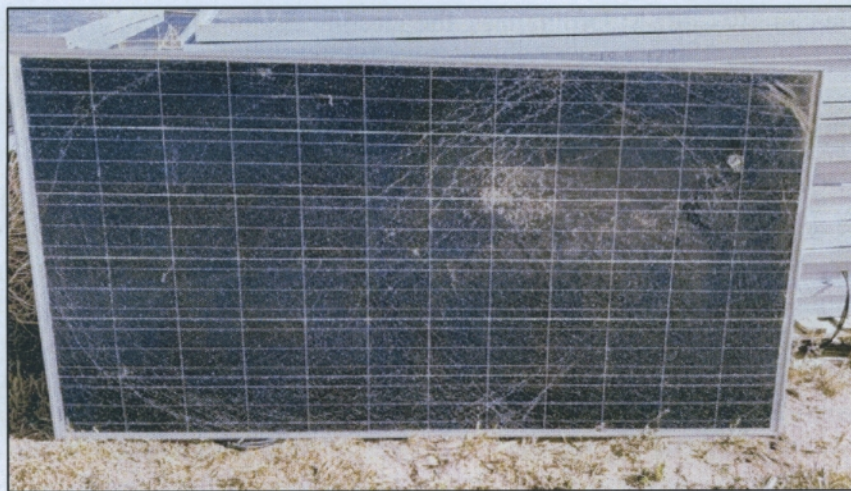


Image 3: Broken panel during shipping.

The First Solar Series 6 and Jinko PV panels undergo intense weather testing to determine their mechanical integrity in accordance with standards established by the American Section of the International Association for Testing Materials (ASTM). Weather testing determines a panel's ability to withstand the mechanical loads, stresses and deflections used to simulate, on an accelerated basis, high wind conditions, heavy snow and ice accumulation, and non-planar installation effects. Both the First Solar Series 6 and Jinko PV panels meet the ASTM standard wind load of 2400 Pa (130 mph) and snow load of 5400 Pa (113 pound-force per square foot), meaning the panels are designed to withstand extreme weather events.

In the unlikely event of a catastrophic weather event that results in damage to multiple panels, the risk of Cd exposure to the environment, particularly surface water and ground water, is highly unlikely due to the insolubility of CdTe. Because CdTe is insoluble, aggressive extraction methods are required to leach CdTe from a PV panel. Such methods are used, for example, in the recycling process for CdTe PV modules. They involve crushing the panels into millimeter-scale pieces and agitating it in sulfuric acid or similar acidic solution.⁵ These extraction methods in no way mimic the actual environment or broken or cracked panels at solar energy facilities. Therefore, the assumption of Cd release into the environment from broken panels at a solar energy facility will not occur.

Recent studies reveal that health risks to humans and the environment as a result of exposure to Cd from broken PV panels is highly unlikely. Leaching tests indicate that if panels were ground and pulverized at the site into millimeter size pieces, potential Cd release is exceptionally low and concentrations from broken PV panels would be safe in the environment and 1-5 orders of magnitude below conservative human health screening levels in the U.S. Additionally, modelled worst-case scenarios are 3,000-7,000 times lower than Cd concentrations in commonly used fertilizers.^{6, 7}

⁵ Held, M. Life cycle assessment of CdTe module recycling. *Proceedings*, 24th European Photovoltaic Solar Energy Conference, Hamburg, Germany, September 21-25, pp 2370-2375. (2009).

⁶ Refer to Id 2.

⁷ Fthenakis, M. Vasilis. Life cycle impact analysis of cadmium in CdTe PV production. *Renewable and Sustainable Energy Review* 8 (2004) 303-334. Doi: 10.1016/j.rser.2003.12.001. (2003).

3.5 Hazardous Materials from Panel Washing

sPower does not use cleaning agents or chemical solutions to wash panels, as the application of such materials would void the panel warranties. Panel washing for the Project consists of natural precipitation. While a small amount of water was proposed for spot panel washing and our operations and maintenance facilities, sPower anticipates the natural precipitation in the region will more than satisfy panel washing needs during operations. sPower recognizes the soil and pollen that is generated in this region. The Project and panels are designed to accommodate soiling from the environment and operate in these conditions with intermittent precipitation of varying intensity in Spotsylvania County. Images below depict operating panels at two of sPower's North Carolina sites that have not required cleaning beyond natural precipitation since they began operation in 2014.



Image 4. Operating panels at one of sPower's North Carolina sites.



Image 5. Operating panels at one of sPower's North Carolina sites.

3.6 Noise Impacts

The Project is anticipated to result in temporary noise impacts during construction. Noise impacts associated with construction include increased traffic, pile driving, and general construction activities. Pile driving will result in the loudest noise impacts and thus a noise analysis has been conducted for pile driving in the vicinity of the Fawn Lake Community. Exhibit 1 on the following page shows a worst-case scenario for pile driving near the property line of the Fawn Lake Community under the current Project design. The worst-case scenario assumes 15 pile drivers operating simultaneously in a solar array section that consists of approximately 50 acres. The results indicate that the loudest noise levels that would occur at the nearest Fawn Lake residence during pile driving is 70.4 dBA, which is equivalent to a gas lawn mower operating on a neighbor's lawn. The noise levels rapidly attenuate with distance into the Fawn Lake Community, where most residents live. It should be noted that a 50-acre section of solar arrays can be pile driven in 2-3 days. sPower will notify residents of the Fawn Lake Community when pile driving is scheduled to occur.

3.7 Corporate Structure of Project Applicant and Separate Entities

sPower was acquired by a joint venture between AES Corporation and AIMCo in early 2017. AES Corporation is an electrical power distribution company based in Arlington, Virginia and AIMCo is an investment management company based in Edmonton, Canada.

3.7.1 Project Applicant

Sustainable Power Group (sPower) is the owner and operator of the Project. The SUP applications were filed under the applicant name sPower Development Company, LLC. sPower Development Company, LLC is part of sPower and holds all project companies that are within sPower. The sPower Development Company is responsible for developing, constructing, operating and maintaining all sPower projects.

Sustainable Property Holdings, LLC is sPower's land holding entity that purchases and holds land where projects are located. Sustainable Property Holdings, LLC leases the land back to the project companies for operation. This process is done to simplify business processes within sPower.

3.7.2 Project LLC Subsidiaries

While the Project is being developed as a single, 500-MW solar energy facility, it is separated into four (4) individual projects for financing purposes and obligations. Separate LLC subsidiaries were created by sPower for the individual projects and will be owned and operated by sPower. A separate fifth LLC, Highlander IA, LLC, was created as is required for interconnection of the Project into Dominion's substation. As is typical and sometimes necessary with renewable energy projects, other entities may be created to address renewable energy purchaser and financier needs.



Kimley»Horn

NOTE: This exhibit shows a panel area of about 50 acres. For each 50 acre area, it will take around 2-3 days to install the H-pile steel beams.

**WORST CASE PILE-DRIVING NOISE SCENARIO
EXHIBIT 1**

The LLC subsidiaries and their corresponding MWs are as follows:

LLC Subsidiary	MWs
Pleinmont Solar 1, LLC	75
Pleinmont Solar 2, LLC	240
Highlander Solar Station 1, LLC	165
Richmond Spider Solar LLC	20

3.7.3 Common Practice

The practice of generating subsidiaries and independent LLCs for each project or business is very common and is used in commercial developments, retail establishments, government practices and other circumstances. sPower, our financing partners, and those entities purchasing the renewable energy require independent project LLCs, both contractually and operationally.

3.7.4 Renewable Energy Offtaker Requirements

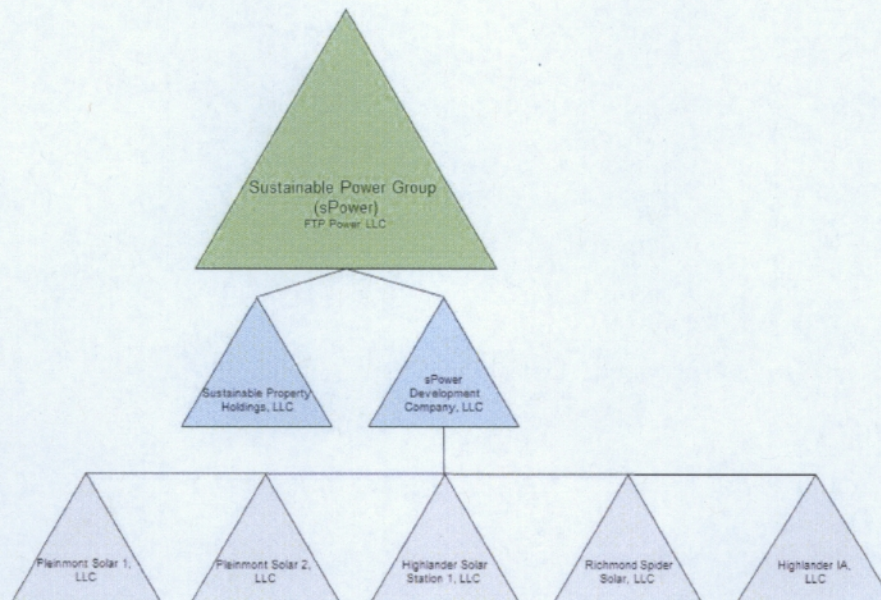
Entities that purchase renewable energy require that their projects are independent of other entities. Each project is required to generate a certain amount of renewable energy over a period of time. The renewable energy purchaser then makes a payment at an agreed upon contract price. Adding to the complexity, each renewable energy purchaser may structure their contract to pay for renewable energy at different rates throughout the day. This requires sPower to own and operate projects independently so that we can calculate production and meet the demands of our sales contracts.

3.7.5 Investor Requirements

The reason for creating separate LLC subsidiaries is because power purchasers and banks that invest in solar energy projects (e.g., JP Morgan, Wells Fargo, Goldman Sachs, Citigroup, U.S. Bank, PNC Financial, Keybank, etc.) specifically request a special kind of financing called “structured financing” for separate portions of an overall solar energy facility. Structured financing is a general term that refers to financing individual projects one at a time. It is commonly used by public entities and private companies for airports, tollways, ballparks, powerplants, or other projects that have dedicated revenue streams.

For the proposed Project, the banks that provide financing want each individual project in the name of its own LLC. This allows the individual projects to be supported by their own revenue contracts, permits, maintenance budgets, easements, financing, and contracts. By structuring each project in its own LLC with separate entitlements, maintenance reserves, and budgets, the projects are able to financially and operationally perform individually without the need for additional investment on a long-term basis.

sPower's commitment to the banks in structured financing is that sPower will construct and maintain the projects to a standard agreed upon by an independent engineer, pay the projects' bills, and comply with State and local permits. This commitment to the banks essentially layers on another separate level of commitment by sPower to comply with the contractual commitments and permit requirements in Spotsylvania County.



- Sustainable Power Group (sPower) - Owner and operator of all land, development and project assets and was originally founded as FTP Power LLC.
- Sustainable Property Holdings - sPower's land holding company that purchases land assets for renewable energy projects
- sPower Development Company - Subsidiary of sPower that holds all development and project assets in sPower's portfolio
- Project Companies - Individual project companies responsible for independent contracts with power purchasers, financiers and utilities specific to that individual project.

Image 6. Corporate Structure for Spotsylvania Solar Energy Center Projects

First Solar Series 6™ Thin Film Modules

NEXT GENERATION SOLAR TECHNOLOGY



Higher Energy Yield. Lower LCOE. Superior Return.

First Solar Series 6™ photovoltaic (PV) modules deliver the highest power output for large-scale solar projects. This landmark module features our proven thin film technology to deliver more energy, more efficiently than ever before. For asset and power generation owners, engineers and installers, this means more power per module, reduction of balance of system costs and enabling a lower Levelized Cost of Electricity (LCOE) for a superior return on investment.



NEW DESIGN MEANS MORE BENEFITS FOR YOUR BOTTOM LINE

The Series 6 thin film module was developed using over a decade of engineering expertise and a track record of more than 17 gigawatts (GW) of modules produced. This experience, combined with input from customers and industry experts allows us to provide our proven module technology in a larger form factor with a more economical design. The results deliver more benefits and cost-efficiencies for your application, including:

More Watts Per Module

These easy-to-install, thin film modules deliver more watts per connection (420+ watts) than 72-cell silicon modules (<400 watts).

Reduced Shipping Costs

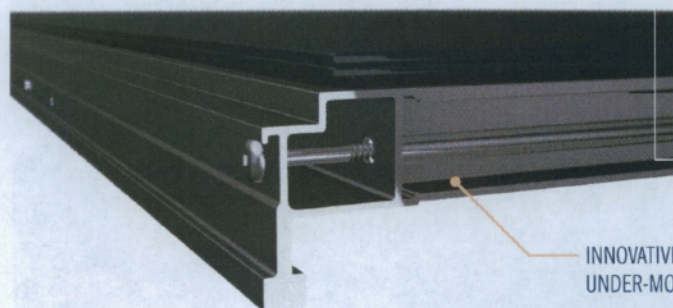
The under-mount frame is designed to enable a horizontal stacking configuration, optimizing shipping density, reducing breakage and minimizing waste.

Best Environmental Profile

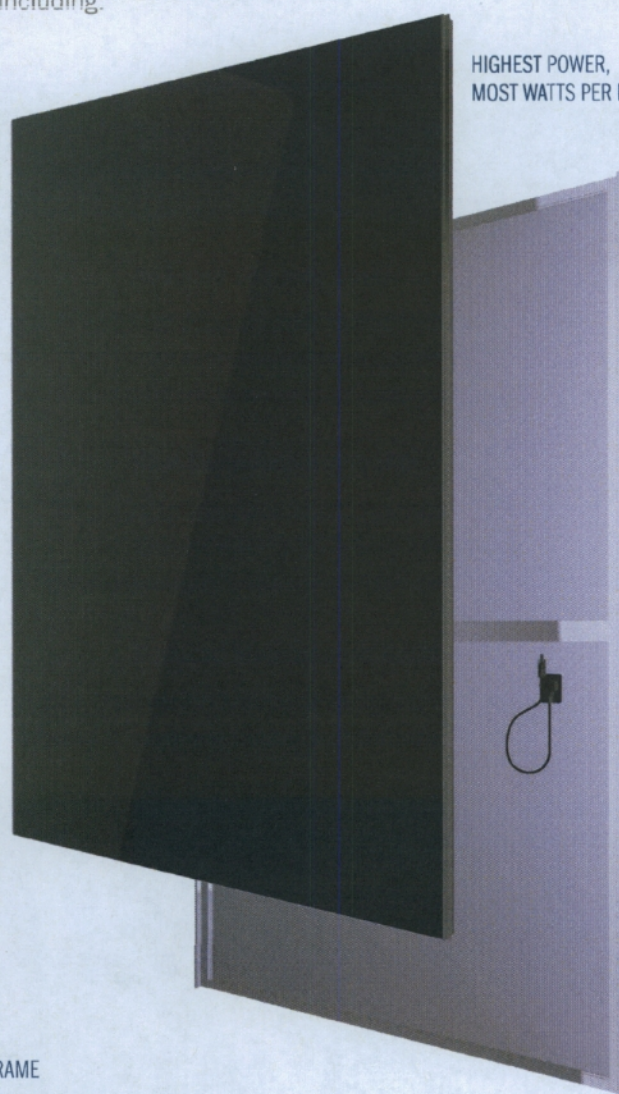
With the smallest CO₂ footprint, lowest water use and fastest energy payback, Series 6 modules are the industry's most eco-efficient PV solution.

Reduced Maintenance Costs

The innovative under-mount frame design provides the cleaning benefits of a frameless module.



INNOVATIVE
UNDER-MOUNT FRAME



HIGHEST POWER,
MOST WATTS PER MODULE

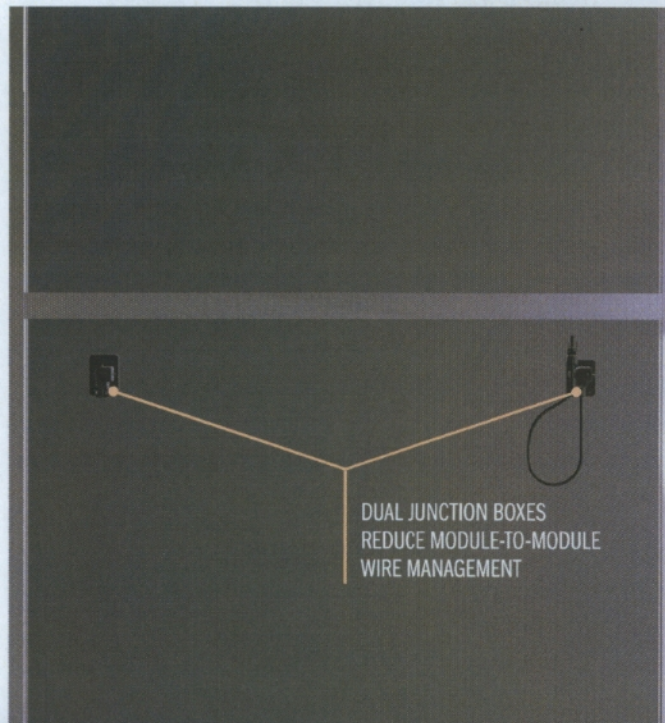


MOUNTING SLOT ALLOWS
FOR QUICK INSTALLATION



LOWER INSTALLATION COSTS

Series 6 modules are designed for a quick and easy, two-person installation. The under-mount frame allows for versatile mounting to common fixed-tilt and tracking systems to minimize onsite engineering to reduce material costs, while enabling more watts per lift. Additionally, the dual junction box design eliminates the need for wire management for module-to-module connections.



DUAL JUNCTION BOXES
REDUCE MODULE-TO-MODULE
WIRE MANAGEMENT

MORE ENERGY IN REAL WORLD CONDITIONS

First Solar Series 6 modules offer exceptional performance that delivers on the financial promise of your project, with:

More MWh per Installed MW

Series 6 modules deliver up to 8% more energy per watt installed than conventional silicon modules in many climates.

Superior Temperature Coefficient and Spectral Response

Our innovative thin film technology features a low temperature coefficient of $-0.32\%/^{\circ}\text{C}$, resulting in more annual energy, especially in hot climates.

First Solar modules are also less sensitive to the reductions of specific wavelengths of available light in humid climates. As a result, these modules have a superior spectral response behavior compared to c-Si modules that translates into up to 4% more annual energy in high humidity conditions.

Better Shading Response

Series 6 modules are less sensitive to power loss from shading through their unique cell design. With Series 6, only the shaded area is impacted; typical silicon modules turn off disproportionately large portions due to their electrical design.

Industry-Leading Long-Term Reliability

First Solar Series 6 modules are built with methods and processes adapted from Series 4, one of the most tested solar modules in the industry. This technology is independently tested and certified for reliable performance beyond IEC standards in high temperature, high humidity, extreme desert, coastal applications, and passes the industry PID tests to ensure robust performance in the harshest environments.



THE ADVANTAGE OF COLLABORATIVE DESIGN

Developing next-generation technology required a next-generation approach. First Solar launched an extensive listening campaign with leading mounting structure providers, our partners in the field, to identify controlling factors that would help define maximum watts-per-lift while retaining two-person installation teams. We also turned to these partners for direct input on every aspect of the module to ensure we designed and built a superior product for the market.

The result is a module that will have among the lowest costs per-watt-installed in the market, optimized for more than 40 fixed-tilt and tracker mounting systems.

40+ STRUCTURE PROVIDERS
With more on the way!

FIRST SOLAR IS YOUR PROVEN ENERGY PARTNER

At First Solar, innovation is at the core of everything we do. Through an unwavering commitment to research and development we are continually discovering new and inventive solar energy solutions, while making today's PV technologies more efficient. Our Series 6 modules are the latest technological achievement in our long history of industry advancements.

As your energy partner, we maintain a strong balance sheet that is backed by a lengthy track record of meeting or exceeding performance expectations. That is why First Solar solutions are widely recognized as the most bankable in the industry.

MIT TECHNOLOGY REVIEW

TOP 50
2017 SMARTEST
COMPANIES



SECURE YOUR NEXT GENERATION OF ENERGY PROFITABILITY

Learn how First Solar Series 6 modules will deliver a superior return on your energy investment with higher yields, reduced risk and a lower LCOE. For more information, contact us and let's start the conversation.

firstsolar.com/S6 | info@firstsolar.com

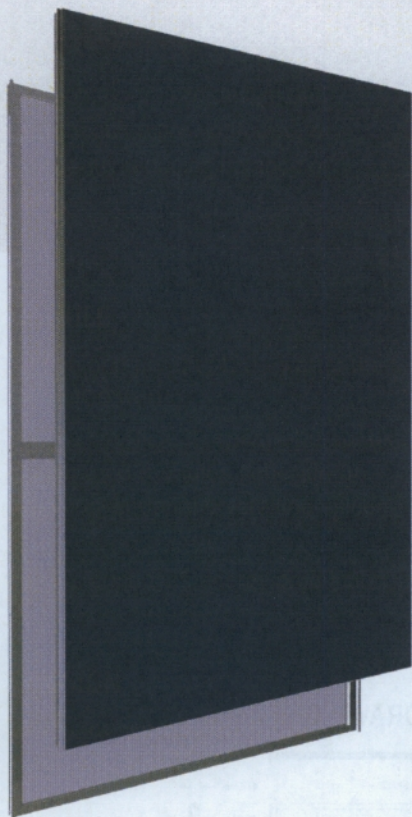
firstsolar.com



First Solar Series 6™

NEXT GENERATION THIN FILM SOLAR TECHNOLOGY

MODULE DATASHEET



HIGH-POWER PV MODULES

First Solar Series 6™ photovoltaic (PV) module sets a new industry benchmark for reliable energy production, optimized design and environmental performance. Series 6 modules are optimized for every stage of your application, significantly reducing balance of system, shipping, and operating costs.



MORE ENERGY PER MODULE

- More watts per connection and per lift (420+ watts) than 72-cell silicon modules (<400 watts)
- With superior temperature coefficient, spectral response and shading behavior, Series 6 modules generate up to 8% more energy than conventional crystalline silicon solar modules
- Anti-reflective coated glass enhances energy production



INNOVATIVE MODULE DESIGN

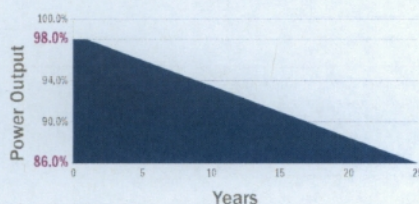
- Under-mount frame allows for simple and fast installation
- Dual junction box optimizes module-to-module connections
- Under-mount frame provides the cleaning and snow-shedding benefits of a frameless module, protects edges against breakage and enables horizontal stacking

420-445 Watts
17%+ Efficiency

INDUSTRY-LEADING MODULE WARRANTY¹

98% WARRANTY START POINT

0.5% WARRANTED ANNUAL DEGRADATION RATE



- 25-Year Linear Performance Warranty
- 10-Year Limited Product Warranty



PROVEN LONG-TERM RELIABILITY

- Manufactured using methods and process adapted from Series 4 modules – the most tested solar modules in the industry
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications



BEST ENVIRONMENTAL PROFILE

- Fastest energy payback time and smallest carbon and water footprint in the industry
- Global PV collection and recycling services available through First Solar or customer-selected third-party

FIRST SOLAR SERIES 6™

MODEL TYPES AND RATINGS AT STANDARD TEST CONDITIONS (1000W/m², AM 1.5, 25°C)²

NOMINAL VALUES		FS-6420 FS-6420A	FS-6425 FS-6425A	FS-6430 FS-6430A	FS-6435 FS-6435A	FS-6440 FS-6440A	FS-6445 FS-6445A
Nominal Power³ (-0/+5%)	P _{MAX} (W)	420.0	425.0	430.0	435.0	440.0	445.0
Efficiency (%)	%	17.0	17.2	17.4	17.6	17.8	18.0
Voltage at P _{MAX}	V _{MAX} (V)	180.4	181.5	182.6	183.6	184.7	185.7
Current at P _{MAX}	I _{MAX} (A)	2.33	2.34	2.36	2.37	2.38	2.40
Open Circuit Voltage	V _{OC} (V)	218.5	218.9	219.2	219.6	220.0	220.4
Short Circuit Current	I _{SC} (A)	2.54	2.54	2.54	2.55	2.55	2.56
Maximum System Voltage	V _{SYS} (V)	1500⁵					
Limiting Reverse Current	I _R (A)	6.0					
Maximum Series Fuse	I _{CF} (A)	6.0					

RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m², 20°C air temperature, AM 1.5, 1m/s wind speed)²

Nominal Power	P _{MAX} (W)	317.2	320.9	324.7	328.5	332.4	336.0
Voltage at P _{MAX}	V _{MAX} (V)	168.7	169.8	170.9	172.0	173.1	174.1
Current at P _{MAX}	I _{MAX} (A)	1.88	1.89	1.90	1.91	1.92	1.93
Open Circuit Voltage	V _{OC} (V)	206.3	206.6	207.0	207.3	207.7	208.0
Short Circuit Current	I _{SC} (A)	2.04	2.05	2.05	2.06	2.06	2.06

TEMPERATURE CHARACTERISTICS

Module Operating Temperature Range	(°C)	-40 to +85
Temperature Coefficient of P _{MAX}	T _K (P _{MAX})	-0.32%/°C (Temperature Range: 25°C to 75°C)
Temperature Coefficient of V _{OC}	T _K (V _{OC})	-0.28%/°C
Temperature Coefficient of I _{SC}	T _K (I _{SC})	+0.04%/°C

MECHANICAL DESCRIPTION

Length	2009mm
Width	1232mm
Thickness	48.5mm
Area	2.47m²
Module Weight	35kg
Leadwire⁶	2.5mm², 720mm (+) & Bulkhead (-)
Connectors	MC4-EVO 2
Bypass Diode	N/A
Cell Type	Thin film CdTe semiconductor, up to 264 cells
Frame Material	Anodized Aluminum
Front Glass	2.8mm heat strengthened Series 6A™ includes anti-reflective coating
Back Glass	2.2mm heat strengthened
Encapsulation	Laminate material with edge seal
Frame to Glass Adhesive	Silicone
Wind Load⁷	2400Pa
Snow Load⁷	5400Pa

PACKAGING INFORMATION

Modules Per Pallet	26	Pallet Dimensions (L x W x H)	2200 x 1300 x 1150mm (86 x 51 x 45in)
Pallet Weight	1025kg	Pallets per 40' Container	18

Disclaimer

The information included in this Module Datasheet is subject to change without notice and is provided for informational purposes only. No contractual rights are established or should be inferred because of user's reliance on the information contained in this Module Datasheet. Please refer to the appropriate Module User Guide and Module Product Specification document for more detailed technical information regarding module performance, installation and use.

The First Solar logo, First Solar™, and all products denoted with * are registered trademarks, and those denoted with a ™ are trademarks of First Solar, Inc.

CERTIFICATIONS AND TESTS¹

IEC

61215 & 61730 1500V⁵, CE
61701 Salt Mist Corrosion
60068-2-68 Dust and Sand Resistance

UL

UL 1703 1500V Listed⁵

REGIONAL CERTIFICATIONS

CSI Eligible JET
FSEC SII
MCS InMetro
CEC Australia

EXTENDED DURABILITY TESTS

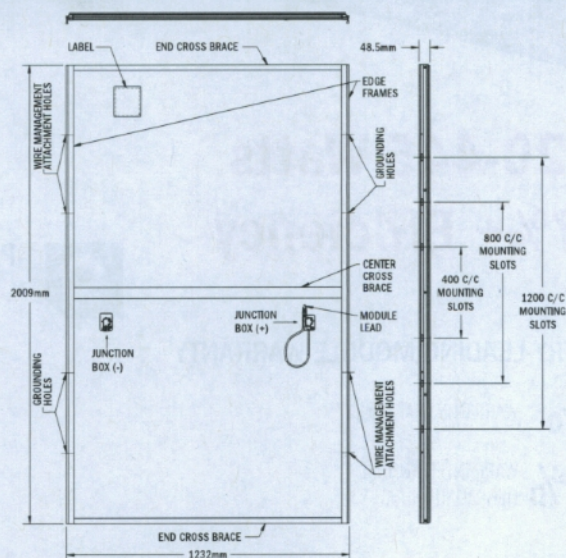
Long-Term Sequential
Thresher Test
PID Resistant

QUALITY & EHS

ISO 9001:2008 & 14001:2004
OHSAS 18001:2007



MECHANICAL DRAWING



Install in portrait only

- 1 Limited power output and product warranties subject to warranty terms and conditions
- 2 All ratings ±10%, unless specified otherwise. Specifications are subject to change
- 3 Measurement uncertainty applies
- 4 Testing Certifications/Listings pending
- 5 IEC 61730-1: 2016 Class II | UL 1703 1000V listed
- 6 Leadwire length from junction box exit to connector mating surface
- 7 See User Guide



THE RECYCLING ADVANTAGE

COST EFFECTIVE. SUSTAINABLE.

OVERVIEW

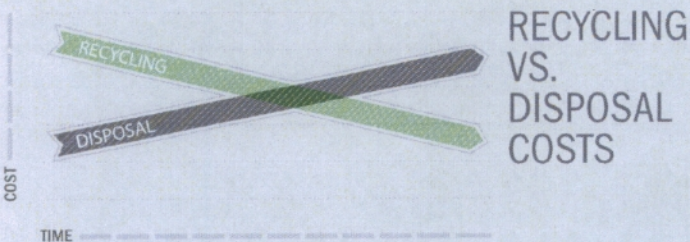
First Solar leads the industry with a proven recycling solution that fulfills solar's promise as a clean and sustainable renewable energy. We believe that powering the future requires a commitment to responsible product life cycle and end-of-life management.

WHY RECYCLE WITH FIRST SOLAR?

Recycling offers economic and environmental benefits over disposal and is the most environmentally sustainable and responsible solution for managing photovoltaic (PV) modules at end-of-life (EOL). Recycling can also help ensure compliance with various e-waste regulations and permitting requirements around the world.

First Solar realizes that our customers' decisions to recycle must make economic sense. We continuously invest in recycling innovation to drive down costs and help our customers maximize their return on investment.

As the availability of sites and land for disposal become scarcer, and regulatory disposal requirements become more burdensome for all PV technologies, disposal costs will likely increase above costs for recycling.



RECYCLING WITH FIRST SOLAR

- ✓ Is a commercially attractive option for responsible EOL management
- ✓ Reduces carbon footprint and energy payback time of PV modules¹
- ✓ Recovers valuable raw materials and increases the sustainability of solar PV

FLEXIBLE SOLUTIONS TO MEET YOUR NEEDS

First Solar provides customers a flexible, commercially attractive and environmentally responsible recycling service for managing First Solar modules at EOL.

Our recycling service can be easily included in all First Solar sales and service agreements including operations and maintenance (O&M), engineering, procurement, and construction (EPC), PV power plant and module sales agreements.

- ✓ Convenient and globally available—one source for all your solar PV needs
- ✓ Competitive and cost-effective
- ✓ Flexibility offered through contracts with renewable pricing
- ✓ No up-front fees. Pay-as-you-go model enables you to recycle on a per-module basis.
- ✓ Scalable from construction through decommissioning
- ✓ Responsible recycling you can trust—First Solar operates to sound and responsible global standards

GLOBAL, PROVEN, INDUSTRY-LEADING EXPERTISE

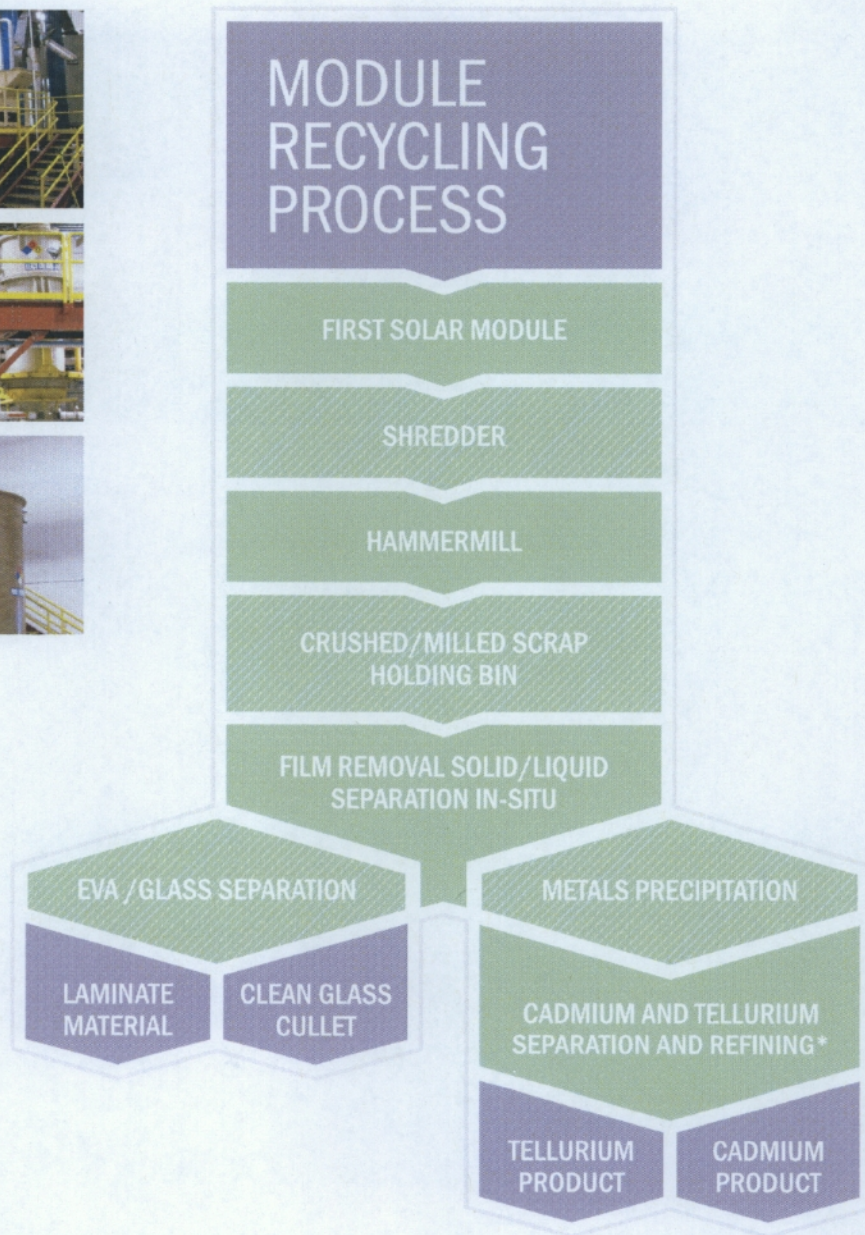
First Solar's long-standing leadership in PV life-cycle management and recycling gives system owners confidence in knowing that their modules will be managed to sound and responsible global standards. First Solar pioneered the first global and comprehensive module recycling program in the PV industry in 2005. Our state-of-the-art recycling facilities are operational at all our manufacturing plants and have a scalable capacity to accommodate high volume recycling as more modules reach the end of their 25+ year life. Our experience in recycling has allowed us to continuously improve processes, technology, and reduce operational costs.

Our proven, state-of-the-art module recycling process achieves high recovery rates; more than 90% of the semiconductor material and 90% of the glass can be reused in new modules and products.



90%+
RECYCLING OF
SEMICONDUCTOR
MATERIAL

~90%
RECYCLING
OF GLASS



*Cadmium and tellurium separation and refining are conducted by a third-party.



KNOW YOUR OPTIONS / SUSTAINABILITY MADE SIMPLE

Learn more about how First Solar can help you meet your module EOL management needs at a cost advantage. Our affordable recycling services are globally available today for a cleaner, more sustainable tomorrow.

recycling@firstsolar.com Website: www.firstsolar.com/recycling

¹Held, Michael, and Robert Ilg. "Update of Environmental Indicators and Energy Payback Time of CdTe PV Systems in Europe." *Progress in Photovoltaics: Research and Applications* 19, no. 5 (August 2011): 614-626. doi:10.1002/pip.1068.

Date of this notice: 02-06-2017

Employer Identification Number:
81-5236296

Form: SS-4

Number of this notice: CP 575 G

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 81-5236296. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is HICK. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

575G

02-06-2017 HICK C 9999999999 SS-4

Keep this part for your records.

CP 575 G (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 G

999999999999

Your Telephone Number Best Time to Call
() -

DATE OF THIS NOTICE: 02 06-2017
EMPLOYER IDENTIFICATION NUMBER: 81-5236296
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

Limited Liability Company Agreement

of

Hickory Solar LLC

This Limited Liability Company Agreement ("**Agreement**") of Hickory Solar LLC (the "**Company**"), effective as of January 4, 2018 (the "**Effective Date**"), is entered into by New Energy Ventures, Inc., as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on January 30, 2017 by the filing of a Certificate of Formation with the Secretary of State of the State of Virginia pursuant to and in accordance with the Virginia Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Hickory Solar LLC.
2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, and carry on all acts or other things that may be incidental or necessary to carry on the business of, that certain solar project known as Hickory Solar LLC (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.

3. Principal Office; Registered Agent.

(a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.

(b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.

4. Members.

(a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name

New Energy Ventures Inc.

Address

927 Lincoln Road, Suite 200

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "**Officer**"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim

or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

New Energy Ventures Inc.

By: _____

Its:

EXHIBIT A

Schedule of Members

Member	Percentage of Membership	Capital Contribution
New Energy Ventures Inc.	100%	\$100



STATE CORPORATION COMMISSION

Richmond, September 26, 2018

This is to certify that the certificate of organization of

HICKORY SOLAR 1, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: September 26, 2018



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

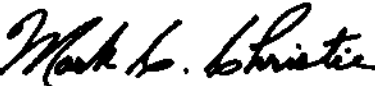
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 1, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6531

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 1, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 1, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

Office of the Clerk

September 26, 2018

CORPORATION SERVICE COMPANY
100 SHOCKOE SLIP, 2ND FLOOR
RICHMOND, VA 23219

RECEIPT

RE: HICKORY SOLAR 2, LLC

ID: S7786744

DCN: 18-09-26-6710

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is September 26, 2018.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

AT RICHMOND, SEPTEMBER 26, 2018

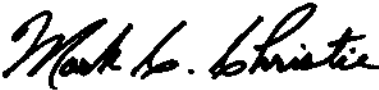
The State Corporation Commission has found the accompanying articles submitted on behalf of
HICKORY SOLAR 2, LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it
is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the
Commission, effective September 26, 2018.

STATE CORPORATION COMMISSION

By 

Mark C. Christie
Commissioner

DLLCACPT
CISECOM
18-09-26-6710

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 2, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 2, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib

STATE of VIRGINIA
STATEMENT *and* RESIGNATION *of the* ORGANIZER
A LIMITED LIABILITY COMPANY

The undersigned, the Organizer of HICKORY SOLAR LLC, who signed and filed its Articles of Organization (or similar organizing document) with the Virginia Secretary of State (or other appropriate state office), appoints the following individuals to serve as members of the limited liability company:

Name and address of each initial member:

NEW ENERGY VENTURES, INC.
927 LINCOLN ROAD, SUITE 200,
MIAMI BEACH, FL 33139

Additionally, the undersigned does hereby tender his/her resignation as Organizer for the LLC, and from any and all involvement with, control of, or authority over the LLC, real or perceived, effective immediately.

Dated: February 6th, 2017

Marsha Siha

Marsha Siha, Organizer


BAYVILLE FARMS ASSOCIATES, L.C.
CONSENT TO ADMISSION

The undersigned Member of Bayville Farms Associates, L.C., a Virginia limited liability company (the "Company"), pursuant to Section 15D(2)(d) of the Operating Agreement of the Company dated November 9, 1994, as amended by a First Amendment to Operating Agreement dated November 11, 1994, a Second Amendment to Operating Agreement dated June 28, 1996, a Third Amendment to Operating Agreement dated January 1, 2009, a Fourth Amendment to Operating Agreement dated June 1, 2015, a Fifth Amendment to Operating Agreement dated May 22, 2017, and a Sixth Amendment to Operating Agreement dated October 1, 2018 (as amended, the "Operating Agreement"), hereby consents to the admission of the following assignees of an Interest as Members of the Company with respect to the corresponding Interests upon the complete execution of the applicable Assignment of Membership Interest Agreement dated as of October 1, 2018, pursuant to which the following assignee received the Interest set forth opposite its name:

Assignee	Interest
William Mackenzie Jenkins, III	12.45575%
Jean Tyler Jenkins	12.45575%

Capitalized terms used herein and not otherwise defined shall have the meanings assigned to them in the Operating Agreement.

Date: 10/15/2018



Thomas Burroughs Babcock (4.5696%)

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Richard C. Burroughs, Newbern Farms, LLC, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Caden Energix Hickory LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

Richard C. Burroughs 10/22/18
RICHARD C. BURROUGHS

Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, ANNE BROWN KENNEY, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 22nd day of OCTOBER, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Anne Brown Kenney

Notary Registration No: 192294

My Commission Expires: October 31, 2021

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE_2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Borough

Nature of Application: Conditional Use Permit for solar electric farm

I (We), Richard C. Burroughs, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Hickory Solar LLC, Applicant, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 24 day of Sept, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

R. C. Burroughs 9/26/18

Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VA City of York

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26 day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: Aug 30, 2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2017-003 / PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Butts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Hickory Solar LLC, am (are)

☒ the applicant(s) for the above referenced application; ☐ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Kenneth Niemann and North Ridge Resources LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 27 day of September, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : _____

Applicant : Hickory Solar LLC, Kenneth Niemann

Ken Niemann Sept 27, 2018

Company, Title : _____

Company, Title : SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomez, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomez

Notary Registration No: 7118907

My Commission Expires: 12/31/2020

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE-2018-042

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Burrough

Nature of Application: Amended Conditional Use Permit for solar PV electric farm

I (We), Richard C. Burroughs, Newbern Farms, LLC, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Ken Niemann and Caden Energix Hickory LLC, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 22 day of October, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

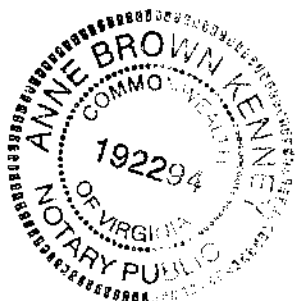
R C B 10/22/18
RICHARD C. BURROUGHS

Company Title: Managing Member

Company Title: _____

Commonwealth/State of VIRGINIA City of VIRGINIA BEACH

I, ANNE BROWN KENNEY, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 22nd day of OCTOBER, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Anne Brown Kenney

Notary Registration No: 192294

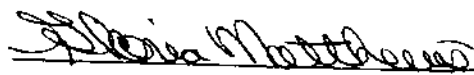
My Commission Expires: JANUARY 31, 2021

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria Matthews

Title: Customer Service III Date: 9/25/18

ADJACENT PROPERTY OWNERS LIST OF ADDRESSES
(Application for Hickory Solar LLC Solar Farm Project)

Bayville Farms Associates
999 Waterside Drive, Suite 1400
Norfolk, VA 23510-3300

Lyle and Molly Pugh
2220 Bishop Road
Blacksburg, VA 24060-8820

Strategic Development, LLC
700 Independence Blvd., #202
Virginia Beach, VA 23455-6201

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Don H. Higginson
815 Waterfall Way
Chesapeake, VA 23322-9605

Mark Higginson
1157 Indian Creek Road
Chesapeake, 23322-2056

Barry W. Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Christopher Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Joseph Tunstra
901 Head of River Road
Chesapeake, VA 23322-1947

Phyllis Leary
909 Head of River Road
Chesapeake, VA 23322-1947

Trent and Rachel Kelly
917 Head of River Road
Chesapeake, VA 23322-1947

Danielle Ingram
929 Head of River Road
Chesapeake, VA 23322-1947

David and Teresa Harcum
629 Narcova Dr.
Chesapeake, VA 23320-2949

James Parron
637 Head of River Road
Chesapeake, VA 23322-1917

David and Malaine Larena
649 Head of River Road
Chesapeake, VA 23322-1917

Michael and Barbara Dell
1245 Sir George Circle
Virginia Beach, VA 23452-4622

David and Donna Alderman
760 Sanderson Road
Chesapeake, VA 23322-2072

Michael and Coleen Goldsberry
633 Head of River Road
Chesapeake, VA 23322-1917

Leo and Cleary Lewis
625 Head of River Road
Chesapeake, VA 23322-1917

Randal and Barbara Werber
724 Head of River Road
Chesapeake, VA 23322-1951

Gardner and Janice Stanford
736 Head of River Road
Chesapeake, VA 23322-1951

DEBRANGO JAMES M
3645 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2435

BAILEY KAY & THOLANDER JOHN R JR
2740 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

HICKORY RURITAN CLUB
DIANNE EDWARDS
2756 BLACKSMITH TRL
CHESAPEAKE, VA 23322-3010

IVEY WILLIE E JR & CHARLOTTE F
2705 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2302

HICKORY METHODIST CHURCH
2708 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

SMITH ANNETTE RIDDICK
509 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

GAYHEART RICHARD B & DAWN M
517 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

SMITH JEFFREY W & DOREEN N
525 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

VANDERLIP DOUGLAS B
533 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA PETER P JR & BRENDA C
541 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA MICHELLE A
549 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

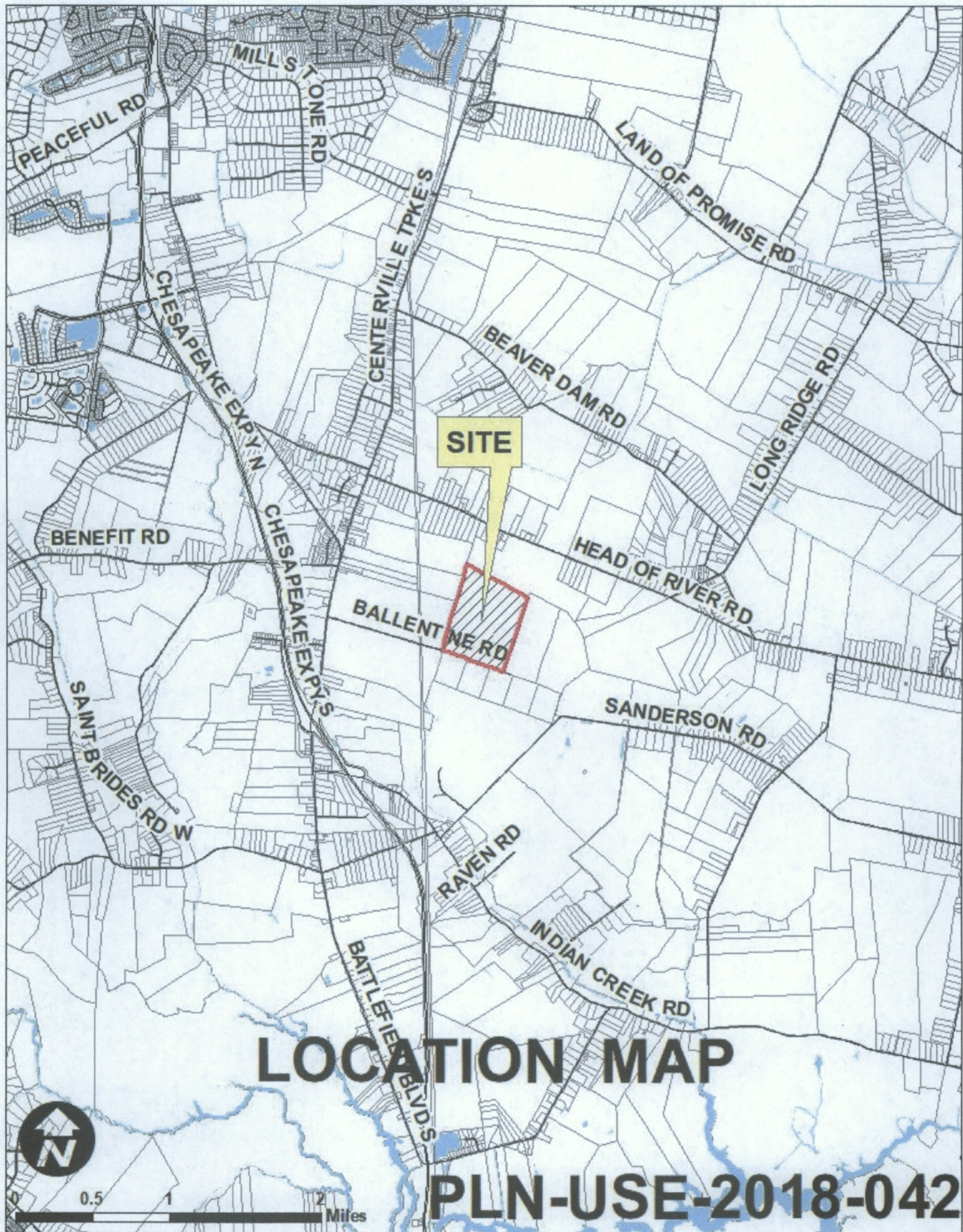
HOLCOMB WILLIAM C & SHELLEY L
601 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

DUNCAN JAMES J JR & CATHRYN E
609 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

SOVRAN ACQUISITION LTD PTNRSHIP
6467 MAIN ST
WILLIAMSVILLE , NY 14221-5856

MO INVESTMENT PROPERTIES L L C
441 NETWORK STATION DR #A
CHESAPEAKE, VA 23320-3862

September 25, 2018



LOCATION MAP

PLN-USE-2018-042



Record Summary for Conditional Use Permit Application

Record Detail Information

Record Type: Conditional Use Permit Application

Record Status: Open

File Date: September 27,
2018

Record Number: PLN-USE-2018-042

Expiration Date:

Description:

Record Name: Hickory Solar LLC

Amendment to Conditional Use Permit PLN-USE-2017-003. Approved with stipulations by City Council on February 13, 2017.

Parent Record Number:

Hickory Solar Farm. 32MWac solar photovoltaic electric generating farm on 154.4 acre Newbern Farms property on Ballentine Road in Hickory, VA. Applicant requests amendment to the Conditional Use Permit as follows: 1) modify Stipulation #12 to allow the use of thin-film PV technology as well as mono-crystalline or poly-crystalline photovoltaic (PV) technology; and 2) change the name of the applicant/owner from New Energy Ventures, Inc. to Hickory Solar LLC..

Address: Ballentine Road 00004

Owner Information

Primary	Owner Name	Owner Address	Owner Phone
Yes	Newbern Farms LLC	999 WATERSIDE DRIVE, Norfolk, VA 23510	(757) 477-3911

Parcel Information

Parcel No:
0970000000660

Contact Information

Name	Organization Name	Contact Type	Phone
Kenneth Niemann Address Caden Energy, 611 NW 72nd Street, Miami, FL 33150	Hickory Solar LLC	Applicant	(703) 801-0412
Ken Niemann Address Caden Energy, 611 NW 72nd Street, Miami, FL 33150	Caden Energy / New Energy Ventures	Developer	(954) 661-0162

Application Specific Information

ADDITIONAL ADDRESS INFORMATION

Unit Number -

PERMIT INFORMATION

Expiration Date -

Number of Signs

-

ACKNOWLEDGEMENT

Does any member of the Planning Commission or City Council own or have any personal or financial interest in the land which is subject to this application, or has any personal or financial interest in the outcome of the decisions, as defined by the Virginia Conflict of Interest Act?

No

If yes, please explain

-

I, the owner (or agent), certify that all statements in this application are true and correct to the best of my knowledge, are accurate and complete and includes all required information and submittals. I also certify that the list of adjacent property owners, if required, is complete and correct as of the date of this application submittal. I understand that if the list of adjacent property owners is determined to be incomplete at a later date, any action taken on this application may become null and void.

CHECKED

I, the applicant, understand that the cost of newspaper advertising for public hearing notification purposes is my responsibility and agree to pay all notices of payment due and bills associate with advertising costs for this application. Advertising cost will be billed separately.

CHECKED

Party Responsible for Advertising Cost

Applicant

I, the applicant, consent to entry upon the subject property by public officers, employees, and agents of the City of Chesapeake wishing to view the site for purposes of processing, evaluating or deciding this application.

CHECKED

DESCRIPTION OF PROPERTY

Common Description

Newbern Farms parcel at the end of Ballentine Road near Hickory.

Borough

Butts Road

Legal Description of the Property

NR HICKORY 145 AC. Tax parcel # 0970000000660. NOTE: The City of Chesapeake real estate and tax records indicate that the parcel is 145 acres. However, a legal survey performed in 1999 by K-G Engineering identifies the parcel as 154.4 acres (see attached).

Physical description of the property including location of its boundaries to the north, south, east, and west. State the street frontage, depth, and overall size in square feet/acreage:

154.4 acre parcel (6,725,000 sf), northeast of Ballentine Rd. and 4,074 ft. east of Battlefield Blvd. There is no street frontage. All of the land is currently being farmed.

Zoning Sheet(s)

-

Current Zoning Classification(s), acreage of each zoning classification, and present use of the property:

A-1

Proposed Zoning reclassification(s) and acreage of each proposed zoning reclassification(s):

Not applicable

Special Overlay District

-

Land Use Overlay District

-

Land use designation of the property as contained in the City's Comprehensive Plan

-

Planning Area

S. Chesapeake

Will the application involve land disturbance for residential, assembly, day care, group home, recreation, school, library, or similar land use?

No

Census Tract
Statistical Area

211.02
92310

CBPA

Is the property located within the Chesapeake Bay Preservation Area?

No

If within CBPA, submit an RPA and RMA delineation meeting the requirements of Section 26, Article X, of the Chesapeake City Code.

UNCHECKED

NATURE OF PROPOSED USE

Describe the nature of the proposed use as listed in the Chesapeake Zoning Ordinance, including the SIC Code (see the Zoning Administration in Development and Permits).

Solar PV electric generating farm

Standard Industrial Classification

4911

Provide a detailed description of the proposed use including hours of operation, number of employees, projected number of daily customers, etc.

Solar photovoltaic electric farm that will operate year-round and generate power during daylight hours only. There are no permanent employees on-site, and a small crew will visit the site 1-2 times per month to perform routine maintenance and repairs.

Describe any and all special conditions for the use, construction, layout, landscaping and screening, or appearance of the site which are offered to be made conditions of the use permit for purposes of assuring its compatibility with the surrounding neighborhood.

Will conform to stipulations in approved PLN-USE-2017-003.

Describe whether the proposed conditional use will be consistent with the adopted policies in the Comprehensive Plan of the City.

The proposed conditional use is consistent with adopted City policies in that it is a low-impact development activity that will not harm the land for future re-purposing. The project will use no water in the solar electric generation process, and will generate no air emissions and no noise. There will be no additional burden to the County's infrastructure including roads, water and sewer service, schools or fire/police. The proposed use will add to the county tax base but requires little to no public services. Many individuals and contractors from the community will have an opportunity to benefit during the construction of the solar farm. The construction of the project will not prevent any adjacent land from being developed in accordance with the adopted land use plans or zoning ordinances.

Are there any stipulations from a previous Conditional Use Permit that still apply to the property?

Yes

Existing Proffers

No

Previous Application Number

PLN-USE-2017-003

New Stipulations

-

PLANNER LEGAL DESCRIPTION

Planner Legal Description

-

ADVERSE EFFECTS DESCRIPTION

The noise characteristics of the proposed use, and whether they exceed the maximum sound levels that are typical of uses permitted as a matter of right in the district.

None.

The anticipated glare from vehicular and stationary lights, and the extent to which such lights will be visible from any

None

residential district.

The vulnerability of the proposed use to fire and related safety hazards.

Minimal

The interference by the proposed use with any easements, roadways, rail lines, utilities and public or private rights of way.

None

The possible destruction, loss or damage of a natural, scenic or historic feature of significant importance.

None

The adequacy of proposed landscaping and buffering measures to screen the site from neighboring properties zoned for or containing less intensive uses.

The nearest residential property, located to the north on Head of River Road, is 1,250 ft. from the property boundary line. Therefore visual impacts to neighboring properties will be minimal. Landscaping and buffering will adhere to stipulations in approved CUP.

TRAFFIC IMPACT

What is the current average daily traffic count of the adjacent roadways?

-

Date of Count

-

Count Source

-

Describe how traffic ingress and egress would be provided between the subject property and the existing abutting and intersecting roads (Are U-turns necessary? Is there a proposed median break? Is there shared access? Etc.) State whether traffic devices, such as signals and turn lanes, would be required to provide safe ingress and egress.

Vehicular traffic will enter Ballentine Road off Battlefield Blvd. north and south. No traffic devices such as signals and turn lanes are required. During the construction phase, car parking and laydown areas for construction and equipment storage will be available adjacent to the project site.

Is a Traffic Impact Analysis required?

No

DRAINAGE IMPACT ANALYSIS (DIA)

What off-site easements and/or improvements are required? What steps have been taken to ensure that these easements can be obtained and that improvements can be constructed?

None required

Address the current adequacy of the existing drainage receiving facility.

Project will utilize existing drainage systems.

Is this development subject to tidal impacts? How will the tides associated with a hurricane or northeaster affect the drainage system?

No tidal impacts.

What steps have been taken to ensure no property damage will result from a 100-year tidal or rainfall event?

The area is not within any floodplain, and existing drainage is adequate to handle storm water from 100-year rainfall events.

WATER AND SEWER IMPACT

State the estimated water and sewer demand to be generated by the development including the basis for the water and sewer demands estimated for the project (i.e. GPD per acre or dwelling). For office and institutional, commercial, and industrial rezoning, identify peak demands in addition to average demands.

Zero

Compare the water and sewer demands generated by the proposed development with the demands generated by development under existing zoning, and the demand generated by development at highest density allowed under the proposed zoning.

N/A

Describe the plan for meeting the anticipated water and

N/A

sewer demands including methodologies used to determine that existing facilities will be able to provide or handle the additional flows (see Public Utilities for assistance).

Submit a conceptual plan identifying the proposed routing of off-site water lines and sewer force mains and the proposed location of pump station(s), if needed, to serve the project.

N/A

State the location of the nearest water and sewer lines which could accommodate flows generated by the proposed development.

UNCHECKED

Proposed Septic Tanks and Private Wells

No

If yes, provide a soil analysis for the subject property and documentation from the Chesapeake Health Department approving the site for septic tank use.

UNCHECKED

OPEN SPACE AND RECREATION

Is the development subject to Section 19-700 et seq. (Open Space and Recreational Area requirement)?

No

No. of Lots

-

Public Park/Open Space

-

Provide Parks and Recreation fee amount (\$500.00 per unit with park site or \$1000.00 per lot without park site):

-

If private park/open space is being offered, provide a description of the private park/open space including acreage and itemized listing of improvements including cost of the improvements.

-

If private park/open space meets minimum acreage and improvement criteria as specified in Section 19-709 (B) of the Zoning Ordinance, Parks and Recreation fee amount is \$250.00 per unit.

-

COMMON OWNERSHIP

Are any features of the development proposed to be held in common ownership by the persons residing in or owning lots in the development and not to be dedicated to and accepted by the City or other public entity?

No

By checking this box I agree to submit as part of this application a detailed plan for the establishment and perpetual maintenance of all such common open space and common improvements. The absence of sufficient bonding, escrow account, or other financial measures to ensure the proper construction and perpetual maintenance of such common areas shall be grounds for the denial of this application. All documentation shall meet the requirements of the Chesapeake Zoning Ordinance.

CHECKED

MAP CREATION

Zoning Map

-

Vicinity Map

-

FENTRESS OVERLAY DISTRICT

Fentress Restrictive Easement

No

DESCRIPTION OF PROPERTY

1	13 Digit Tax Map Numbers Owner	0970000000660 Newbern Farms LLC
---	-----------------------------------	------------------------------------

ADJ PROPERTY ZONING AND USES

1	Direction Adjacent Zoning Designation or Uses	East A-1
2	Direction Adjacent Zoning Designation or Uses	North A-1
3	Direction Adjacent Zoning Designation or Uses	South A-1
4	Direction Adjacent Zoning Designation or Uses	West A-1

SPECIAL POWER OF ATTORNEY

Application No. PLN-USE-2017-003

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough)

Newbern Farms LLC, Ballentine Road 00004, Butts Road Burrough

Nature of Application Amended Conditional Use Permit for solar PV electric farm

I (We), Hickory Solar LLC, am (are)

☒ the applicant(s) for the above referenced application. ☐ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Kenneth Niemann and North Ridge Resources LLC my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 27 day of September, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner _____

Applicant: Hickory Solar LLC, Kenneth Niemann

Kenneth Niemann Sept 27, 2018

Company, Title: _____

Company, Title SVP - Caden Energy

Commonwealth/State of Virginia

City of Alexandria

I, Christopher Gomez, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomez

Notary Registration No: 7118907

My Commission Expires: 12/31/2020

STATEMENT OF OWNERSHIP

Application No PLN-USE-2017-003

The owner(s) and/or applicant(s) listed on the attached **Conditional Use Permit Application** do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application:

1. All applicants, title owners, contract purchasers, and lessees of the property; and if any of the foregoing is a trustee, each beneficiary having an interest in the property.
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation.
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company.
4. Where any of those listed in (1) above is a church, provide a list of all such trustees, or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above.

Owner : _____

Applicant : Hickory Solar LLC

in Verma Sept 27, 2018

Company Title: _____

Company Title: SVP - Caden Energy

Commonwealth/State of Virginia City of Alexandria

I, Christopher Gomez, a Notary Public in the City and State aforesaid,

do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 27th day of September 20 18, has (have) acknowledged the same before me in my City and State aforesaid.



Christopher Gomez

Notary Registration No: 7118907

My Commission Expires 12/31/2020

STATEMENT OF OWNERSHIP

Application No PLN-PSE-2017-003

The owner(s) and/or applicant(s) listed on the attached do hereby affirm that the listing attached to, and hereby made a part of this Statement of Ownership, identifies the name(s) and last known addresses of all of the following persons and entities in regard to the property that is the subject of the Application. CONDITIONAL USE PERMIT APPLICATION

1. All applicants, title owners, contract purchasers, and lessees of the property, and, if any of the foregoing is a trustee, each beneficiary having an interest in the property
2. Where any of those listed in (1) above is a corporation, all shareholders owning ten per cent (10%) or more of any class of stock issued by said corporation and where any of those listed in (1) above is a corporation having ten (10) or fewer shareholders, all such shareholders. This requirement may be waived by the Planning Director where the owner or applicant, as applicable, is a publicly-held corporation
3. Where any of those listed in (1) above is a partnership, or limited liability company, all such partners, both general and limited, in a partnership, and all members of a limited liability company
4. Where any of those listed in (1) above is a church, provide a list of all such trustees, or if no trustees, then identify the president or vice-president of the corporation or association of the church.

Attach the listing of names and addresses on business letterhead of either the applicant, owner or agent, as required above

Owner Newbern Farms LLC Applicant _____

Richard C. Burroughs 9/26/18 _____
Richard C. Burroughs

Company Title: Managing Member Company Title: _____

Commonwealth/State of VA City of Markham

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26th day of Sept 2018 has (have) acknowledged the same before me in my City and State aforesaid



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: Jun. 30, 2020

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
--------	----------

Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
---	--------

Members

Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
---	--------

Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
--	-------

Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
--	-------

Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
--	-------

Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
---	--------

Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
--	--------

TOTAL	100.00%
-------	---------



STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said-limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Peck

Clerk of the Commission

SPECIAL POWER OF ATTORNEY

Application No: PLN-USE_2017-003

Tax Map Number(s): 0970000000660

Property Description (Street Address, if assigned, or Common Description, Borough):

Newbern Farms LLC, Ballentine Road 00004, Buts Road Borough

Nature of Application: Conditional Use Permit for solar electric farm

I (We), Richard C. Burroughs, am (are)

☐ the applicant(s) for the above referenced application; ☒ the owner(s) of the property described above and I (we) do hereby make, constitute, and appoint Hickory Solar LLC, Applicant, my (our) true and lawful attorney-in-fact, and grant unto my attorney-in-fact full power and authority to make application for the application described above, and to perform all acts and make all representations as such person shall deem necessary or appropriate in regard to said application, without any limitation whatsoever, including but not limited to the following authority: to submit and/or modify conditions/proffers that would constitute binding conditions on the property, including limitations on its use, and to modify or amend any documents in whole or in part relating to the application.

☒ CONDITIONAL USE PERMIT APPLICATION

☐ REZONING APPLICATION

☐ PUD CREATION / MODIFICATION APPLICATION

☐ STREET CLOSURE APPLICATION

CHESAPEAKE BAY PRESERVATION AREA: ☐ APPEAL APPLICATION ☐ EXCEPTION APPLICATION

The rights, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on the 26 day of Sept, 2018, and shall remain in full force and effect thereafter until actual notice, by certified mail, return receipt requested is received by the Planning Department of the City of Chesapeake stating that the terms of this power have been revoked or modified.

Owner : Newbern Farms, LLC

Applicant : _____

R-C-B 9/26/18

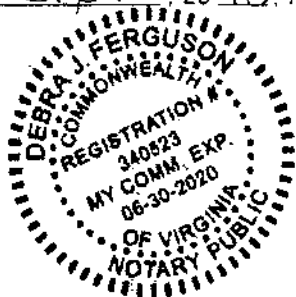
Company, Title : Managing Member

Company, Title : _____

Commonwealth/State of VA

City of Maryland

I, Debra J. Ferguson, a Notary Public in the City and State aforesaid, do hereby certify that the person(s) whose name(s) is (are) signed to the above writing bearing date on the 26 day of Sept, 2018, has (have) acknowledged the same before me in my City and State aforesaid.



Debra J. Ferguson

Notary Registration No: 340523

My Commission Expires: June 30, 2020

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
Members	
Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
TOTAL	100.00%

Commonwealth of Virginia



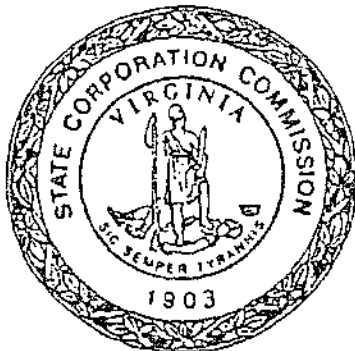
STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Beck

Clerk of the Commission



STATE CORPORATION COMMISSION

Richmond, September 26, 2018

This is to certify that the certificate of organization of

HICKORY SOLAR 1, LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: September 26, 2018



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 1, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 1, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

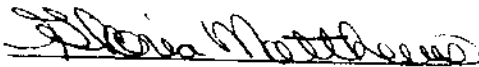
/s/ Mansour Khatib Date: September 26, 2018
 Mansour Khatib

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria Matthews

Title: Customer Service III Date: 9/25/18

Real Estate Tax Demonstration Form

Name of Property Owner: Newbern Farms LLC

Control Number(s) of Property: 0970000000660

Per section §16-102 and §17-102 of the Zoning Ordinance, this document is to certify that according to records held by the Treasurer Office, no delinquent real estate taxes are currently due on the above property.

Treasurer's Employee Signature: 

Treasurer's Employee Name: Gloria W. Matthews

Title: Customer Service Clerk III Date: 1/4/17

1.- EXECUTIVE SUMMARY

First Solar has previously conducted 14 peer review studies regarding its CdTe PV module technology, with a strong focus on the environmental, health, and safety aspects. To that end, independent specialists from Brazil, Chile, China, the European Commission (Joint Research Centre), France, Germany, India, Japan, the Middle East, South Africa, Spain, Thailand and the USA have been invited to participate.

The present peer review has been carried out by specialists from Fraunhofer CSP (Germany), CNRS (France) and Oxford Brookes University (England) in a joint project coordinated by CENER (Spain).

The purpose of the present joint work is to review and evaluate, from an independent point of view, the performance and the environmental, health, and safety aspects of First Solar's CdTe PV technology. Although the report focuses on the European Union utility scale PV market, some aspects of the review are more broadly applicable.

The methodology applied for working out the present report is based on a thorough data mining of publicly available sources. Articles and reports published by recognized scientists, international agencies and research and development institutions have been reviewed, as well as confidential information provided by First Solar on their specific technology and management procedures. The information has been subjected to a critical analysis, based on the experience and know-how of the experts participating in this peer review. In addition, the experts from each institution visited First Solar's facility in Perrysburg (USA) and met with key plant staff and corporate management. In that visit, several presentations with confidential information were shared and discussed. This information exchange provided an in-situ scrutiny to address key technical questions and procedures of environmental, health, and safety aspects of the manufacturing and recycling processes, as well as the waste management systems to supplement data in publications. The main findings and conclusions extracted from the literature review and the site visit are summarized in the following paragraphs.

First Solar's thin-film CdTe PV technology accomplished a remarkable increase in cell efficiency of about 5 percentage points in 5 years, from 17.3% to the 22.1% achieved in 2015. In the mid-term, First Solar's technology roadmap has a goal of 24% cell efficiency that is projected to render 19% efficiency at module level. First Solar's PV modules are produced according to advanced standards with respect to product lifetime, reliability, quality and performance as documented in this report. An elaborate quality control and reliability testing program is maintained close to production and reliability testing outdoors is also available at various test sites representing different climatic conditions from arid to hot and humid. Long-term field performance monitoring programs have led to valuable data and know-how on manufacturing PV modules with extended lifetime. First Solar is active in the complete value chain of CdTe PV technology adding valuable benefits with their developments and improvements in the utility-scale PV power plant monitoring and performance analysis, operations and maintenance activities, and grid integration aspects.

guideline levels. Because most of the Cd content is not emitted to air and remains in the module and module debris, it was recommended to accordingly dispose the contaminated residues and replace the soil, which is a normal procedure following building fires. Water used to extinguish the fires was reported to contain similar quantities of Cd assumed in a prior fate and transport study, which found insignificant impacts to soil and groundwater, where the latter could be confirmed with soil analysis. Peer-reviewed fate and transport investigations regarding leaching of broken or defective CdTe PV modules suggest that the potential risk is minimal based on worst-case modeling, experimental data, and O&M practices (routine inspections and power output monitoring) that detect and remove broken modules. Independent research, published in peer-reviewed scientific journals would contribute to support First Solar's experimental results. These scientific studies should include both, broken modules representative of field exposures and modules with integrity issues resembling possible situations encountered towards the end of life. For example, independent broken module leaching studies have historically been conducted by Fraunhofer Institute in Germany and NEDO in Japan on older generation CdTe PV modules with results below health and environmental screening limits.

Improper disposal and recycling as well as non-intended uses of CdTe PV modules is a controversial issue for the long-term deployment of CdTe PV technology. CdTe has a high chemical and thermal stability and is insoluble in water, which limits its leachability and bioavailability. The in-depth analysis of the available scientific documents suggests that the health risk associated with the disposal of CdTe PV modules in uncontrolled landfills is minimal at the present usage rates. More specifically, the screening level cumulative non-carcinogenic hazard index could exceed 1.0 only if the waste volume amounted to over 14 million modules over 20 years or over 5 million modules in 1 year (which would equal the disposal of an installation well above 500 MW peak in 1 year), assuming the disposal into a single, unlined landfill. The disposal of a multi 100 MW PV installation in a single uncontrolled landfill is already an upper bound case. Uncontrolled disposal of such a system is highly unlikely, considering that an installation of that size is a billion dollar investment, requiring extensive planning and impact assessment as well as construction and operating permits, which in all cases, foresee dismantling and disposal requirements.

High-value recycling (recovery of glass and semiconductor materials) is the ideal option for the end-of-life management of PV modules, including CdTe PV, but it must be entrusted to companies with the required knowledge and best environmental, health and safety practices, such as those being documented by CENELEC in support of the WEEE Directive (draft Standard EN50625-2-4). However, even in the case of informal recycling, unlike household consumer electronics, there would be few components in a monolithic thin film module valuable for being dismantled, aside from the junction box and cables.

First Solar is leading the PV industry in the establishment of collection and recycling programs that ensure the end-of-life recycling with a proven technology. In the EU, the inclusion of all PV technologies in the WEEE directive, which requires collection and recycling according to minimum standards, together with First Solar's recycling facility (in Frankfurt/Oder, Germany)

ADJACENT PROPERTY OWNERS LIST OF ADDRESSES
(Application for Hickory Solar LLC Solar Farm Project)

Bayville Farms Associates
999 Waterside Drive, Suite 1400
Norfolk, VA 23510-3300

Lyle and Molly Pugh
2220 Bishop Road
Blacksburg, VA 24060-8820

Strategic Development, LLC
700 Independence Blvd., #202
Virginia Beach, VA 23455-6201

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Margaret G. Pugh
1755 Centerville Tpke.
S. Chesapeake, VA 23322-1904

Don H. Higginson
815 Waterfall Way
Chesapeake, VA 23322-9605

Mark Higginson
1157 Indian Creek Road
Chesapeake, 23322-2056

Barry W. Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Christopher Higginson
PO Box 1128
Chesapeake, VA 23327-1128

Joseph Tunstra
901 Head of River Road
Chesapeake, VA 23322-1947

Phyllis Leary
909 Head of River Road
Chesapeake, VA 23322-1947

Trent and Rachel Kelly
917 Head of River Road
Chesapeake, VA 23322-1947

Danielle Ingram
929 Head of River Road
Chesapeake, VA 23322-1947

David and Teresa Harcum
629 Narcova Dr.
Chesapeake, VA 23320-2949

James Parron
637 Head of River Road
Chesapeake, VA 23322-1917

David and Malaine Larena
649 Head of River Road
Chesapeake, VA 23322-1917

Michael and Barbara Dell
1245 Sir George Circle
Virginia Beach, VA 23452-4622

David and Donna Alderman
760 Sanderson Road
Chesapeake, VA 23322-2072

Michael and Coleen Goldsberry
633 Head of River Road
Chesapeake, VA 23322-1917

Leo and Cleary Lewis
625 Head of River Road
Chesapeake, VA 23322-1917

Randal and Barbara Werber
724 Head of River Road
Chesapeake, VA 23322-1951

Gardner and Janice Stanford
736 Head of River Road
Chesapeake, VA 23322-1951

DEBRANGO JAMES M
3645 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2435

BAILEY KAY & THOLANDER JOHN R JR
2740 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

HICKORY RURITAN CLUB
DIANNE EDWARDS
2756 BLACKSMITH TRL
CHESAPEAKE, VA 23322-3010

IVEY WILLIE E JR & CHARLOTTE F
2705 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2302

HICKORY METHODIST CHURCH
2708 BATTLEFIELD BLVD S
CHESAPEAKE, VA 23322-2301

SMITH ANNETTE RIDDICK
509 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

GAYHEART RICHARD B & DAWN M
517 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

SMITH JEFFREY W & DOREEN N
525 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

VANDERLIP DOUGLAS B
533 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA PETER P JR & BRENDA C
541 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

DUDA MICHELLE A
549 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1949

HOLCOMB WILLIAM C & SHELLEY L
601 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

DUNCAN JAMES J JR & CATHRYN E
609 HEAD OF RIVER RD
CHESAPEAKE, VA 23322-1917

SOVRAN ACQUISITION LTD PTNRSHIP
6467 MAIN ST
WILLIAMSVILLE , NY 14221-5856

MO INVESTMENT PROPERTIES L L C
441 NETWORK STATION DR #A
CHESAPEAKE, VA 23320-3862

September 25, 2018

Limited Liability Company Agreement

of

Hickory Solar LLC

This Limited Liability Company Agreement ("**Agreement**") of Hickory Solar LLC (the "**Company**"), effective as of January 4, 2018 (the "**Effective Date**"), is entered into by New Energy Ventures, Inc., as the sole member of the Company (the "**Member**").

WHEREAS, the Company was formed as a limited liability company on January 30, 2017 by the filing of a Certificate of Formation with the Secretary of State of the State of Virginia pursuant to and in accordance with the Virginia Limited Liability Company Act, as amended from time to time (the "**Act**"); and

WHEREAS, the Member agrees that the membership in and management of the Company shall be governed by the terms set forth herein.

NOW, THEREFORE, the Member agrees as follows:

1. Name. The name of the Company is Hickory Solar LLC.
2. Purpose. Subject to the provisions of this Agreement, the purpose of the Company is solely to own and operate, and carry on all acts or other things that may be incidental or necessary to carry on the business of, that certain solar project known as Hickory Solar LLC (the "**Project**"). The Company is not authorized to, and shall not, engage in any business other than as described in this section.
3. Principal Office; Registered Agent.
 - (a) Principal Office. The location of the principal office of the Company shall be at such location as the Member may from time to time designate.
 - (b) Registered Agent. The registered agent of the Company for service of process in the State of Delaware and the registered office of the Company in the State of Delaware shall be that person and location reflected in the Certificate of Formation. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Member shall promptly designate a replacement registered agent or file a notice of change of address, as the case may be, in the manner provided by law.
4. Members.
 - (a) Initial Member. The Member owns 100% of the membership interests in the Company. The name and the business, residence or mailing address of the Member are as follows:

Name

New Energy Ventures Inc.

Address

927 Lincoln Road, Suite 200

(b) Additional Members. One or more additional members may be admitted to the Company with the consent of the Member. Prior to the admission of any such additional members to the Company, the Member shall amend this Agreement to make such changes as the Member shall determine to reflect the fact that the Company shall have such additional members. Each additional member shall execute and deliver a supplement or counterpart to this Agreement, as necessary.

(c) Membership Interests; Certificates. The Company will not issue any certificates to evidence ownership of the membership interests.

5. Management.

(a) Authority; Powers and Duties of the Member. The Member shall have exclusive and complete authority and discretion to manage the operations and affairs of the Company and to make all decisions regarding the business of the Company. Any action taken by the Member shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of the Member as set forth in this Agreement. The Member shall have all rights and powers of a manager under the Act, and shall have such authority, rights and powers in the management of the Company to do any and all other acts and things necessary, proper, convenient or advisable to effectuate the purposes of this Agreement.

(b) Election of Officers; Delegation of Authority. The Member may, from time to time, designate one or more officers with such titles as may be designated by the Member to act in the name of the Company with such authority as may be delegated to such officers by the Member (each such designated person, an "Officer"). Any such Officer shall act pursuant to such delegated authority until such Officer is removed by the Member. Any action taken by an Officer designated by the Member pursuant to authority delegated to such Officer shall constitute the act of and serve to bind the Company. Persons dealing with the Company are entitled to rely conclusively on the power and authority of any officer set forth in this Agreement and any instrument designating such officer and the authority delegated to him or her.

6. Liability of Member; Indemnification.

(a) Liability of Member. Except as otherwise required in the Act, the debts, obligations, and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, obligations and liabilities of the Company, and the Member shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being the Member or participating in the management of the Company.

(b) Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim

or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions (whether or not constituting negligence or gross negligence) performed or omitted by the Member on behalf of the Company; provided, however, that any indemnity under this Section 6(b) shall be provided out of and to the extent of Company assets only, and neither the Member nor any other person shall have any personal liability on account thereof.

7. Term. The term of the Company shall be perpetual unless the Company is dissolved and terminated in accordance with Section 11.

8. Initial Capital Contributions. The Member hereby agrees to contribute to the Company such cash, property or services as determined by the Member.

9. Tax Status; Income and Deductions.

(a) Tax Status. As long as the Company has only one member, it is the intention of the Company and the Member that the Company be treated as a disregarded entity for federal and all relevant state tax purposes and neither the Company nor the Member shall take any action or make any election which is inconsistent with such tax treatment. All provisions of this Agreement are to be construed so as to preserve the Company's tax status as a disregarded entity.

(b) Income and Deductions. All items of income, gain, loss, deduction and credit of the Company (including, without limitation, items not subject to federal or state income tax) shall be treated for federal and all relevant state income tax purposes as items of income, gain, loss, deduction and credit of the Member.

10. Distributions. Distributions shall be made to the Member at the times and in the amounts determined by the Member.

11. Dissolution; Liquidation.

(a) The Company shall dissolve, and its affairs shall be wound up upon the first to occur of the following: (i) the written consent of the Member or (ii) any other event or circumstance giving rise to the dissolution of the Company under Section 18-801 of the Act, unless the Company's existence is continued pursuant to the Act.

(b) Upon dissolution of the Company, the Company shall immediately commence to wind up its affairs and the Member shall promptly liquidate the business of the Company. During the period of the winding up of the affairs of the Company, the rights and obligations of the Member under this Agreement shall continue.

(c) In the event of dissolution, the Company shall conduct only such activities as are necessary to wind up its affairs (including the sale of the assets of the Company in an orderly manner), and the assets of the Company shall be applied as follows: (i) first, to creditors, to the extent otherwise permitted by law, in satisfaction of liabilities of the Company (whether by payment or the making of reasonable provision for payment thereof); and (ii) thereafter, to the Member.

(d) Upon the completion of the winding up of the Company, the Member shall file a Certificate of Cancellation in accordance with the Act.

12. Miscellaneous.

(a) Amendments. Amendments to this Agreement may be made only with the consent of the Member.

(b) Governing Law. This Agreement shall be governed by the laws of the State of Delaware.

(c) Severability. In the event that any provision of this Agreement shall be declared to be invalid, illegal or unenforceable, such provision shall survive to the extent it is not so declared, and the validity, legality and enforceability of the other provisions hereof shall not in any way be affected or impaired thereby, unless such action would substantially impair the benefits to any party of the remaining provisions of this Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned has executed this Agreement to be effective as of the date first above written.

New Energy Ventures Inc.

By: _____

Its:

EXHIBIT A

Schedule of Members

Member	Percentage of Membership	Capital Contribution
New Energy Ventures Inc.	100%	\$100

STATE of VIRGINIA
STATEMENT *and* RESIGNATION of the ORGANIZER
A LIMITED LIABILITY COMPANY

The undersigned, the Organizer of HICKORY SOLAR LLC, who signed and filed its Articles of Organization (or similar organizing document) with the Virginia Secretary of State (or other appropriate state office), appoints the following individuals to serve as members of the limited liability company:

Name and address of each initial member:

NEW ENERGY VENTURES, INC.
927 LINCOLN ROAD, SUITE 200,
MIAMI BEACH, FL 33139

Additionally, the undersigned does hereby tender his/her resignation as Organizer for the LLC, and from any and all involvement with, control of, or authority over the LLC, real or perceived, effective immediately.

Dated: February 6th, 2017

Marsha Siha

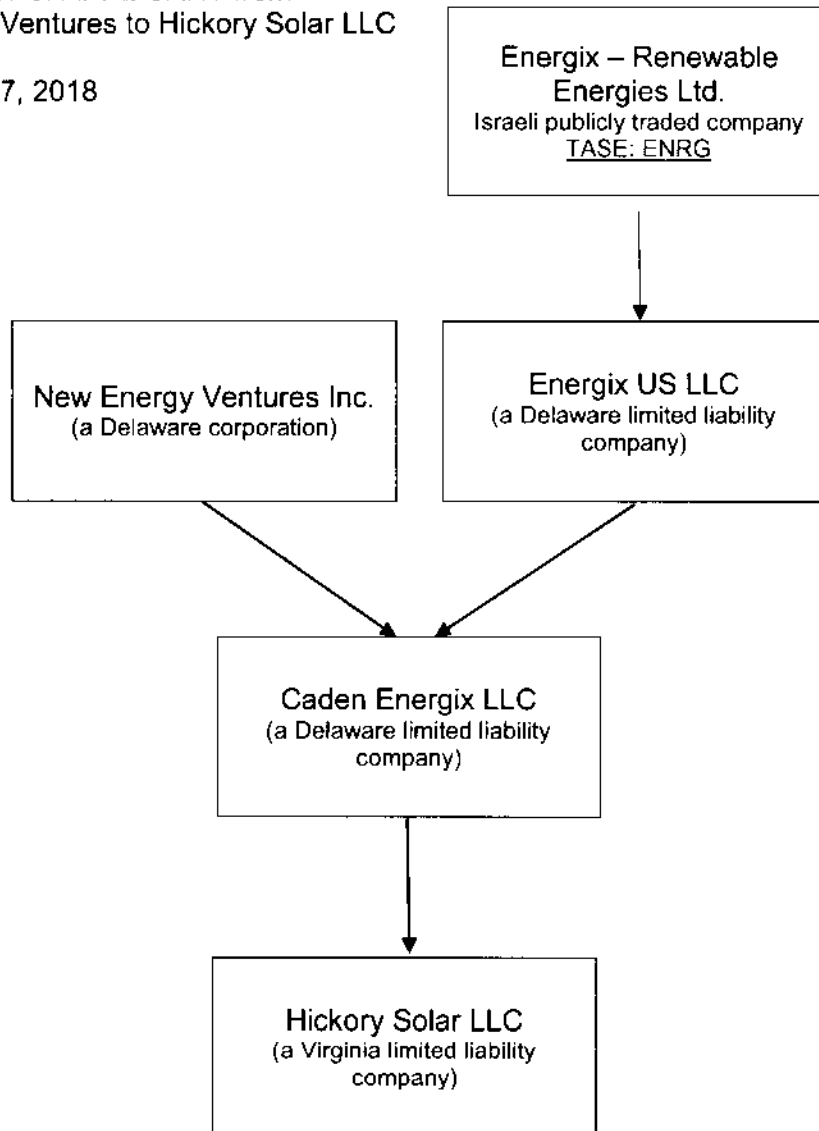
Marsha Siha, Organizer

HICKORY SOLAR LLC

PLN-USE-2017-003

AMENDMENT of APPLICANT from
New Energy Ventures to Hickory Solar LLC

September 27, 2018





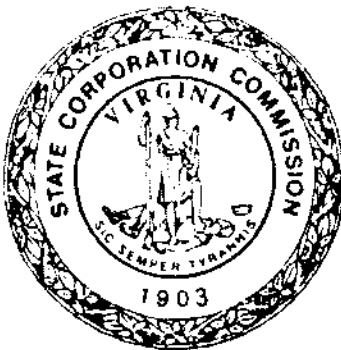
STATE CORPORATION COMMISSION

Richmond, January 30, 2017

This is to certify that the certificate of organization of

HICKORY SOLAR LLC

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all Virginia laws applicable to the company and its business. Effective date: January 30, 2017



State Corporation Commission

Attest:

Joel H. Beck
Clerk of the Commission



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

Office of the Clerk

January 30, 2017

LEGALINC CORPORATE SERVICES INC.
1900 CAMPUS COMMONS DRIVE
SUITE 100
RESTON, VA 20191

RECEIPT

RE: HICKORY SOLAR LLC

ID: S6606752

DCN: 17-01-30-6297

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is January 30, 2017.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

A handwritten signature in black ink that reads "Joel H. Peck". The signature is written in a cursive style with a large, stylized "J" and "P".

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is LEGALINC CORPORATE SERVICES INC. The initial registered agent is a Virginia stock corporation.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 1900 CAMPUS COMMONS DRIVE, SUITE 100, RESTON, VA 20191. The initial registered office is located in Fairfax City (Filed In Fairfax County), Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 15 SOUTH 5TH STREET, STE 500, MINNEAPOLIS, MN 55402.

ORGANIZER:

/s/ MARSHA SIHA Date: January 30, 2017
MARSHA SIHA

Date of this notice: 02-06-2017

Employer Identification Number:
81-5236296

Form: SS-4

Number of this notice: CP 575 G

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN 81-5236296. This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is HICK. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

C2-06-2017 HICK O 9999999999 SS-4

CP 575 G (Rev. 7-2007)

CP 575 G

99999999999999

DATE OF THIS NOTICE: 02-06-2017
EMPLOYER IDENTIFICATION NUMBER: 81-5236296
FORM: SS-4 NOBOD

HICKORY SOLAR LLC
PATRICK SHANNON SOLE MBR
15 S 5TH ST STE 500
MINNEAPOLIS, MN 55402



**COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION**

Office of the Clerk

September 26, 2018

CORPORATION SERVICE COMPANY
100 SHOCKOE SLIP, 2ND FLOOR
RICHMOND, VA 23219

RECEIPT

RE: HICKORY SOLAR 2, LLC

ID: S7786744

DCN: 18-09-26-6710

Dear Customer:

This is your receipt for \$100.00 to cover the fee(s) for filing articles of organization for a limited liability company with this office.

The effective date of the filing is September 26, 2018.

If you have any questions, please call (804) 371-9733 or toll-free in Virginia, (866) 722-2551.

Sincerely,

A handwritten signature in black ink that reads "Joel H. Peck". The signature is written in a cursive style with a large, stylized "J" and "P".

Joel H. Peck
Clerk of the Commission

RECEIPTLC
LLNCD
CISECOM

**ARTICLES OF ORGANIZATION
OF
HICKORY SOLAR 2, LLC**

The undersigned, pursuant to Chapter 12 of Title 13.1 of the Code of Virginia, states as follows:

1. The name of the limited liability company is HICKORY SOLAR 2, LLC.
2. The purpose for which the limited liability company is formed is to engage in any lawful business, purpose or activity for which a limited liability company may be formed under the Virginia Limited Liability Company Act.
3. The name of the limited liability company's initial registered agent is CORPORATION SERVICE COMPANY. The initial registered agent is a foreign stock corporation authorized to transact business in Virginia.
4. The address of the limited liability company's initial registered office, which is identical to the business office of the initial registered agent, is 100 Shockoe Slip, 2nd Floor, Richmond, VA 23219. The initial registered office is located in Richmond City, Virginia.
5. The address of the limited liability company's principal office where the records of the limited liability company are to be kept is 611 NW 72nd Street, Miami, FL 33150.

ORGANIZER:

/s/ Mansour Khatib Date: September 26, 2018
Mansour Khatib



City of Chesapeake
Department of Planning
(757) 382-6176

www.cityofchesapeake.net/planning

In accordance with Section 16-105(A)(5) of the Chesapeake Zoning Ordinance:

"It shall be the responsibility of the applicant to post on the property for which the application is filed one or more signs, provided by the City, so that at least one sign is facing and clearly visible from each public right-of-way, the location of the sign shall be specified by the Planning Department. Where the subject property abuts more than one right-of-way and is one acre or more in size, signs shall be placed on all rights-of-way at every five hundred (500) feet of road frontage. As used in the subsection, the term "right-of-way" shall not include interstates. In the case of a proposed conditional rezoning, in which proffers are made for the extension of an existing public street, signs shall be posted at the beginning and terminus of the proposed street extension. All signs required under this subsection shall be erected not less than fourteen (14) days prior to the date of the first scheduled public hearing before the Planning Commission and shall include notice of the time and place of that first hearing and the specific nature of the matter involved. The signs will not be posted on buildings or structures unless the application pertains to the reconstruction, renovation, or expansion of the building or structure. The signs shall be continually maintained by the applicant on the site to the conclusion of the public hearing by City Council. Applicants shall be required to pay the sum of twenty-five (\$25) dollars for the first sign which is required, and twenty (\$20) dollars for each additional required sign. In the event it is shown to be satisfaction of the Planning Commission or City Council, as the case may be, that improper posting or removal of required signs has occurred, the hearing on the application may be continued at the direction of the Commission or Council. Nothing in this subsection shall be construed to invalidate any subsequently adopted amendment or ordinance because of failure to post signs in accordance with the requirements herein so long as all notice procedures in Virginia Code Section 15.2-2204 are met. All signs shall be removed from the property within five (5) days of the final determination of the matter by City Council. Any sign remaining on a property more than five (5) days after final City Council action on the rezoning application to which it refers shall be an illegal sign and a violation of this ordinance."

The sign(s) shall be removed from the property within (2) weeks of

☐ **Planning Department Final Action Letter**

The sign(s) shall be removed from the property within five (5) days of

☐ **Planning Commission Action**

☒ **City Council Action**

Failure to remove the sign(s) constitutes a violation of the Chesapeake Zoning Ordinance and will result in action taken by the Zoning Administrator, including possible court action and penalties. City forces have the right to enter the property and retrieve all signs.

In accordance with Section 14-707 of the Chesapeake Zoning Ordinance, the attachment of public hearing signs to trees, communication towers, utility poles or fence posts is prohibited. The attachment of signs to trees, communication towers, utility poles or fence posts may result in the continuance or denial of an application, and may also result in action taken by the Zoning Administrator, including possible court action and penalties.

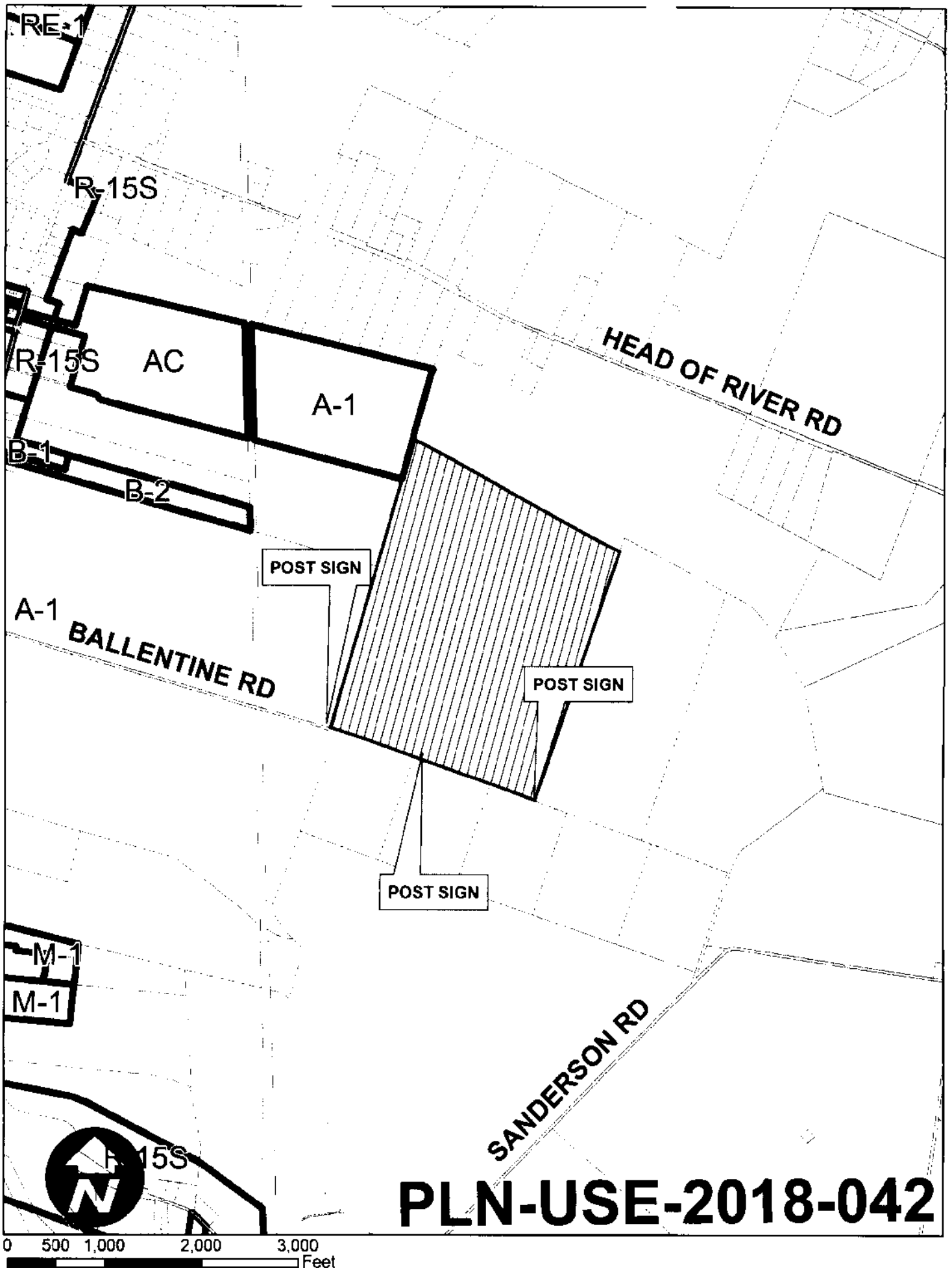
Signature of the applicant signified that he/she has received 3 sign(s) and has knowledge of the legal requirements and the enforcement of the same.

It shall be the responsibility of the applicant to have someone present at the Planning Commission public hearing to represent the application. Failure to do so may result in the continuation or denial of the application.

R. J. C.
Signature of Applicant

12/18/18
Date

Application # PLN-USE-2018-042 Hickory Solar Farm amendment





1001 Boulders Parkway
Suite 300
Richmond, VA 23225

P 804.200.6500
F 804.560.1016
www.timmons.com

October 17, 2018

Hoa Dao
Chesapeake Planning Department
306 Cedar Road
Chesapeake, VA 23322

**Re: Solar PBR Application
Hickory Solar**

Ms. Dao,

On behalf of Hickory Solar, LLC, Timmons Group would like to thank you for agreeing to hold the Hickory Solar Permit By Rule (PBR) application at your office. Per the PBR requirements, please have the enclosed binder available for public viewing from October 22 until November 21, 2018 during normal business hours.

Thank you for your support of this project. If you have any questions, please contact me at 804.200.6577 or julia.campus@timmons.com.

Thank you,

Julia Campus
Environmental Scientist

Cc: Rick Thomas

Hoa N. Dao

From: Duda Michelle <michdud@yahoo.com>
Sent: Wednesday, January 02, 2019 3:47 PM
To: Hoa N. Dao
Subject: Fw: PLN-USE-2018-042

Dear Mr. Dao,

I am writing to you regarding a letter I received in the mail. I am going to try to come to the Planing Commission meeting on Jan 9, but in case I don't make it I wanted you to know my thoughts and pass them along to the Commission. I am in full favor of the Hickory Solar Farm Amendment. This project will produce tax revenue without putting any strain on city services. Housing developments put strain on schools and services; businesses put strain on roads. This project has none of those challenges. I have lived here my entire life, and what I know is that you cannot prevent a farmer from selling his land. People who disagree with a proposal like this don't realize that the farmland will be sold, it will be used, no matter how much they want it to remain open space. The question is, what's the best use of the land? Businesses, houses, or a project like this? The best way to retain the rural landscape of Hickory is a solar project, which creates no more traffic than there is currently. Please pass along my request to the Planning Commission to vote YES to the Hickory Solar Farm Amendment. Thank you.

Michelle Duda
549 Head of River Rd.

EXHIBIT A
TO OPERATING AGREEMENT OF
NEWBERN FARMS, LLC

Manger	Interest
Richard C. Burroughs 1081 S Bayshore Drive Virginia Beach, VA 23451	33.34%
Members	
Charles F. Burroughs, III 5506 Atlantic Avenue Virginia Beach, VA 23451	33.33%
Luke M. Babcock Saybrook Capital P O Box 4 Sag Harbor, NY 11963	6.66%
Thomas Burroughs Babcock 955 Lexington Avenue New York, NY 10021	6.67%
Richard C. Burroughs, Jr. 1234 N Bayshore Drive Virginia Beach, VA 23451	6.66%
Mary B. Yuill 1016 Ditchley Road Virginia Beach, VA 23451	6.667%
Charles E. Burroughs 1124 Abington Road Virginia Beach, VA 23451	6.667%
TOTAL	100.00%

Commonwealth of Virginia



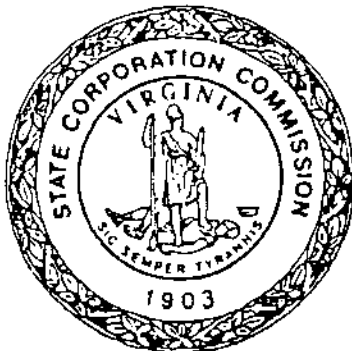
STATE CORPORATION COMMISSION

Richmond, September 30, 1999

This is to Certify that a certificate of organization of

NEWBERN FARMS L.L.C.

was this day issued and admitted to record in this office and that the said limited liability company is authorized to transact its business subject to all the laws of the State applicable to the company and its business.



State Corporation Commission

Attest:

Joel H. Beck

Clerk of the Commission

RECEIVED

DEC 06 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

neventures
New Energy Ventures, Inc.

New Energy Ventures, Inc.
611 NW 72nd St.
Miami, FL 33150
USA

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake, Caden Energix LLC, Caden Energix Hickory LLC, New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, NEV agreed to provide the City of Chesapeake with confirmation of its duly authorized officers and director, which is noted below:

Officers

Name	Title
Robert Kampf	Chief Executive Officer
Tanja Schoor	Chief Financial Officer, Secretary

In addition, please note that the sole director of NEV is Robert Kampf.

Please do not hesitate to contact us with any further questions or concerns.

Sincerely,


Robert Kampf

Caden Energix Hickory LLC
611 NW 72nd Street
Miami, FL 33150

RECEIVED

DEC 05 2018

**CITY OF CHESAPEAKE
CITY ATTORNEY'S OFFICE**

Jamie S. Berardi, Esq.
Assistant City Attorney
Office of the City Attorney
City of Chesapeake
306 Cedar Road
Chesapeake, Virginia 23322

December 3, 2018

Dear Ms. Berardi:

Further to the November 30, 2018 telephonic conversation between the Office of the City Attorney and Planning Department for the City of Chesapeake and representatives of Caden Energix LLC ("Caden Energix"), Caden Energix Hickory LLC ("Company"), New Energy Ventures Inc. ("NEV") and Baker & Hostetler LLP, the Company agreed to provide the City with confirmation of the following information, which is duly confirmed by an authorized representative of each of the Company, Caden Energix and Energix US LLC ("Energix US"), as noted below:

1. Pursuant to that certain Limited Liability Company Agreement by and between Energix US and NEV dated January 16, 2018, Energix US was duly appointed as the sole managing member of Caden Energix, and as such is authorized to direct, manage and control the business and affairs of Caden Energix.
2. Caden Energix is the sole member and manager of the Company, duly authorized to direct, manage and control the business and affairs of the Company. The actions of Caden Energix are directed by Energix US, its managing member.
3. Pursuant to the November 14, 2018 authorized resolutions of Energix US, as the sole managing member of Caden Energix, Energix US authorized and approved that the joint signatures of Mr. Asa Levinger and Ms. Moran Birman, together with Company's printed name or stamp, will bind the Company.

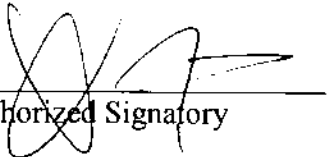
Please do not hesitate to contact us with any further questions or concerns.

Sincerely,

CADEN ENERGIX HICKORY LLC

by CADEN ENERGIX, LLC (managing member of Caden Energix Hickory LLC),

by ENERGIX US LLC (managing member of Caden Energix LLC),

By: 
Its: Authorized Signatory

Kimley»Horn

October 1, 2018

Mr. Mark Hobbs, Senior Planner
Chesapeake Department of Planning
City Hall Building, 2nd Floor
306 Cedar Road
Chesapeake, Virginia 23322

**RE: *Conditional Use Permit Application for Day Care Facility for Proposed
Primrose School
213 Carmichael Way
Kimley-Horn # 116689000***

Dear Mr. Hobbs,

Please find enclosed the required original-signature forms for the aforementioned Conditional Use Permit (CUP) Application:

- Statement of Ownership forms:
 - CDM Real Estate, LLC (Applicant)
 - XB Holdings I, LLC (Owner)
- Three Special Power of Attorney forms:
 - From Owner to Applicant
 - From Owner to Agent
 - From Applicant to Agent

Also enclosed are an Adjacent Property Owner List with associated stamped envelopes with the name and mailing address of each adjacent property owner and a check for \$2,020 for the combined CUP and Phase I ESA review fees.

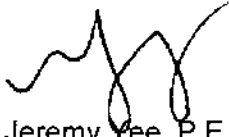
Please note that the Applicant is waiting to receive her operating agreement from her attorney. We will email it to you as soon as it is completed.

Electronic copies of the above-listed documents, as well as the other required documents, plan and fee, were submitted earlier today through eBUILD. By virtue of our submittal on this date, provided there are no delays, we should be scheduled for the December 12th Planning Commission and January 15th City Council hearings.

Please contact me at (757) 213-8600 or Jeremy.Yee@kimley-horn.com should you have any questions or desire additional information.

Sincerely,

KIMLEY-HORN

A handwritten signature in black ink, appearing to read 'Jeremy Yee', with a stylized, flowing script.

Jeremy Yee, P.E.

Project Engineer

cc: Matt Taylor / Primrose Schools
Claudia Macon / CDM Real Estate, LLC
Kristen Mack / CASCO R5

