



City of Barre, Vermont

October 27, 2022, 5:30 PM

Special Meeting of the
Planning Commission

Venue Options:

Council Chambers, City Hall

Zoom <https://us06web.zoom.us/j/83604836326?pwd=SVR0TjNySy9hRE5pY2duUFZ6bE95dz09>

Meeting ID: 836 0483 6326 Passcode: 381819

Phone: 1 (929) 205-6099 US (New York – Long distance rates will apply)

Agenda

1. Call to order - 5:30 PM
2. Adjustments to the agenda
3. Approval of minutes
 1. September 22, 2022 [view draft minutes](#)
4. Public comment (for something not on the agenda)
5. Old business
 1. Approval of council's Bylaw Modernization Grant Resolution for application.
 2. Review of final draft of [Bylaw Modernization Grant](#) application.
6. New business
 1. Consider options for [Municipal Planning Grant](#) application, providing guidance for initial draft.
7. Confirm date of next meeting
 1. November 10, 2022
8. Staff updates
9. Roundtable
10. Adjourn

Barre City Planning Commission

September 22, 2022 Meeting Minutes

Present: Michael Hellein (Chair), Amanda Gustin (Vice Chair), Joe Reil (Secretary), Rosemary Averill, Raylene Meunier, David Sichel, Becky Wigg

Absent: None

Staff: Janet Shatney (Director of Planning, Permitting & Assessing)

Visitors: Peter Anthony

1. Call to Order.

5:30pm.

2. Adjustments to the Agenda.

None.

3. Approval of Minutes.

- i. August 25, 2022, draft minutes.
- ii. September 8, 2002, draft minutes.

Reil notes minor formatting corrections to 8/25 Minutes. Sichel moves to approve minutes for both meetings, Wigg seconds, unanimous in favor.

4. Public Comment (for something not on agenda).

None.

5. New Business.

- i. Set future meeting schedule, proposed one meeting per month.

Suggestion to move to one meeting per month to occur on the second Thursday of the month. Sichel notes a conflict with the next available date, but otherwise general consensus is positive.

Gustin moves to approve, Reil seconds, unanimous in favor.
- ii. Review of zoning possibilities discussed during neighborhood visits.

Further discussion on previous topic about updating existing zoning, revisiting specific zoning suggestions on the areas that were visited previously.

Gustin opens discussion around whether this should be a larger project where we suggest large changes all at once or piece by piece. Consensus is to possibly propose minor map changes to make small adjustments while the larger review is in progress.

Discussion items proposed for October and November meetings, possibly identifying additional sites to visit to complete an initial set of proposed map changes together to propose to City Council, as well as discussion around outreach to the Community, including the Housing Task Force, which meets the 2nd Monday of each month (Oct. 10 is the next meeting) and Front Porch Forum (Gustin will write to FPF, Shatney will review prior to posting). Further discussion around other places to post this information, including Facebook, City Website, BADC, the Times Argus.

iii. Review of first draft of bylaw modernization grant application.

Application due Nov. 1. Discussion around getting initial approval from City Council to submit application, including discussion about getting it to Council before the next Planning Commission meeting. Some initial review of specific items. Beginning Public Outreach step, suggesting reaching out to BADC, Housing Task Force, Homelessness Task Force, Good Samaritan Haven, Capstone.

6. Confirm date of next meeting.

i. October 13, 2022.

7. Staff Updates.

i. St. Monica went to Development Review Board to request to demolish building on West St. DRB denied and the Church is appealing.

8. Roundtable.

None.

9. Adjourn.

6:24pm, **Gustin moves to adjourn, Reil seconds, unanimous in favor.**

Barre City Resolution 2022-10

FY23 Municipal Resolution for Bylaw Modernization

WHEREAS, the Municipality of the City of Barre, VT is applying for funding as provided for in the FY23 Budget Act 182 and may receive an award of funds under said provisions; and

WHEREAS, the Department of Housing and Community Development may offer a Grant Agreement to this Municipality for said funding; and

WHEREAS, the municipality is maintaining its efforts to provide local funds for municipal and regional planning purposes or that the municipality has voted at an annual or special meeting to provide local funds for municipal and regional planning purposes,

Now, THEREFORE, BE IT RESOLVED

1. That the Legislative Body of this Municipality enters into and agrees to the requirements and obligations of this grant program including a commitment to match funds in accordance with the program's requirements;

2. That the Municipal Planning Commission recommends applying for said Grant;

Michael Hellein

(Name of Planning Commission Chair)

(Signature)

3. That (Name) Janet E. Shatney Title Planning Director

is hereby designated as the Grant Administrator, the person with the overall Administrative responsibility for the Bylaw Planning Grant program activities related to the application, and any subsequent Grant Agreement provisions.

4. If the grant application is successful, and funds are awarded, the following individual will be the signatory on behalf of the municipality:

Name: R. Nicolas Storellicastro

Title: City Manager

Email: citymanager@barrecity.org

Phone: (802) 476-0240

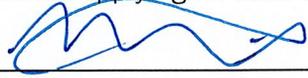
Note: The signatory must either the Chief Executive Officer (CEO), as defined by 10 VSA §683(8), or is a Select Board Member, the Town Manager, the City Manager, or the Town Administrator, is hereby designated to execute the Grant Agreement and other such Documents as may be necessary to secure these funds.

Passed this 4th day of October, 2022.

- Check the box if the municipality authorizes its regional planning commission to serve as the 'agent' for the applicant municipality, or multi-town applicant municipalities, by assisting with the preparation of the application, supporting grant administration, and being exempt from competitive selection if serving as project consultant.

5. That the Municipal Legislative Body recommends applying for said Grant.

Michael Boutin, Acting Mayor
(Legislative Body Chair)


(Signature)

INSTRUCTIONS FOR RESOLUTION FORM

- A. The Legislative Body of the Municipality must adopt this resolution or one that will have the same effect. This Form may be filled in or the adopted Resolution may be issued on municipal letterhead, filling in the name of the municipality, the Legislative Body (e.g. Selectboard), and the name and title of the Grant Administrator and Municipal signatory.
- B. Following formal adoption, the Chair of the Planning Commission and Legislative Body must sign upon endorsement by vote of the Planning Commission and Legislative Body.
- C. This form must be submitted with the grant application.

CONSORTIUM APPLICATIONS: For a multi-town application, each municipality must complete a separate Resolution form. All municipalities in a consortium must designate the same Grant Administrator, and signatory from the primary grant municipality.

Bylaw Modernization Grant Application | 2023

Vermont Department of Housing & Community Development

Application deadline: November 1, at 6 p.m. Refer to the [Program Description](#) for full details.
E-mail complete application forms to jennifer.lavoie@vermont.gov.

GENERAL INFORMATION

Single Municipality Application

Name of municipality _____

Multi-Town Application

Name of lead municipality _____

Name(s) of other applicant municipalities

Regional Planning Commission (RPC) Agent Status *(check one; see program description for 'agent status' details)*

- RPC **is not** serving as agent for the application
- RPC **is** serving as agent for the application & RPC staff is listed as the primary contact below.

Primary Contact for Application *(this includes single and multi-town applications)*

Name _____

Organization _____

Complete mailing address _____

Email _____

Phone _____

Financial Summary *(refer to the [Program Description](#) for maximum grant amounts)*

Grant Funding Requested _____

+ Minimum Applicant Match _____
(10% of total project costs; eligible for forgiveness)

= **Total Project Cost:** _____

Municipal Signer *(Person who has the authority to sign a grant agreement on behalf of the lead municipality if the application is funded)*

Name _____

Title _____

Email Address _____

Phone Number _____

Project Title

Project Description & Summary Overview

Provide a very brief and high-level summary of the issue, general approach to solving the problem, project deliverables, and intended long-term outcomes. Applicants can go into more detail in the sections below.

ELIGIBILITY VERIFICATION

Does the project meet the eligibility criteria, eligible activities, and mapping requirements in the [Program Description](#)?

Yes No (*project is not eligible for a grant*)

Do the applicant municipalities in this application all have an adopted municipal plan and planning process confirmed by the RPC under Chapter 117 of Title 24?

Yes No (*project is not eligible for a grant*)

RESPONSES TO COMPETITIVE CRITERIA

Please keep responses brief and legible for grant scorers. Use the space provided, and do not reduce font size.

Community Need (25 points)

Describe the community issues, problems, challenges, obstacles the project will address; how updates to the bylaws will help achieve state, regional, and local housing goals; and why the project is timely.

Public Outreach (25 points)

Describe who supports this project and the work plan's approach to outreach to partner organizations and the broader public. This should include necessary coordination with State agencies affected by the project, stakeholders impacted by the project, and any and under-served, historically discriminated, under-represented, cost-burdened, and lower-resourced populations in the community.

Project Location (25 points)

Describe the geographic areas and zoning districts the project will address and the project's consistency with areas planned for pedestrian-oriented smart growth and Vermont's Smart Growth Principles, listed in the [Program Description](#). If possible, please provide a link to a zoning map or attach a copy of the map to your application submission.

Which of the following location-based criteria does this project meet?

(check all that apply, and explain how this applies)

Municipalities with high-demand housing market with limited affordability and cost-burdened household based on information from www.housingdata.org. *(Please explain if checked)*

Projects that relate to [state designated areas](#) in accordance with [24 V.S.A. Chapter 76A](#) *(List all applicable designated areas: downtown, village, new town center, growth center & neighborhood development area if checked)*

Projects that relate to redevelopment-ready and infill-ready areas served by unconstrained water and wastewater infrastructure *(Please explain if checked)*

Projects that relate to areas likely to result in near-term housing development *(Please explain if checked)*

Projects that relate to areas eligible for [Neighborhood Development Area](#) (NDA) designation (also known as ‘neighborhood planning’ areas viewable on [Vermont’s Planning Atlas by clicking the ‘buffer’ in the Atlas layers](#)).

Municipalities that will use funding to prepare for and pursue [Neighborhood Development Area](#) designation

FINANCIAL MANAGEMENT

Financial Management

Please note that responses to the following questions will not impact the competitiveness of your application and will be used for grant administration purposes only.

Does your organization have an accounting system that will allow you to completely and accurately track the receipt and disbursements of funds related to the award?

- Yes
- No

What type of accounting system does your municipality use?

- Automated
- Manual
- Combination of both

If 1) an applicant municipality received a Municipal Planning Grant last year, 2) intends to apply for a Municipal Planning Grant this year (deadline December 1st), or 3) the project is part of a larger or phased project – please explain your capacity to complete all projects.

ATTACHMENTS

- [Municipal Resolution](#) authorizing application (*required*)
- Others (*optional, please list below*)

For questions about the competitive criteria or application questions, please contact [Jacob Hemmerick](#) at 802-828-5249. For questions regarding the granting process, or administration, please contact [Jenni Lavoie](#) at 802-828-1948.

Program Overview

Awarded annually and administered by the Department of Housing and Community Development (DHCD), the program works to strengthen Vermont communities. Since 1998, the Municipal Planning Grant Program has provided over \$13 million to 237 cities and towns across Vermont to help breathe new life into communities, plan for future growth and investment, and improve the quality of life.

This year's Municipal Planning Grants, range from \$8,960 to \$23,527 with total requests exceeding \$851,165. Competitively awarded, 50 total applications were reviewed with 24 recipients selected.

Funded projects range from streetscape and village center master planning, to a water system study, infrastructure needs for increasing childcare, public art plan, and amending zoning rules to expand housing choice using the [Enabling Better Places neighborhood zoning guide](#). Grants continue to help towns revitalize by adopting useful and relevant municipal plans and capital infrastructure and facility plans, charting the way for strong communities and a better future.

FY 2022 Grant Recipients

- | | | | |
|---------------|---------------|--------------|---------------|
| ■ Arlington | ■ Hardwick | ■ Orange | ■ South |
| ■ Bennington | ■ Hartford | ■ Orwell | ■ Burlington |
| ■ Brattleboro | ■ Irasburg | ■ Pawlet | ■ South Hero |
| ■ Cambridge | ■ Middlebury | ■ Richford | ■ Springfield |
| ■ Craftsbury | ■ Mount Holly | ■ Rockingham | ■ Thetford |
| ■ Danville | ■ Northfield | ■ Royalton | ■ Vergennes |
| | | | ■ Winooski |

“Excellent program for small rural towns, who don’t have the resources to investigate or research solutions to community needs. My experience is that needs far outpace resources.”

2019 MPG Survey Respondent

By the Numbers [2017-2021]

 **\$3.8 m**
in grant funds requested

 **\$2.3 m**
in grant funds awarded

 **\$435,049**
in local match funds

 **167**
better connections grants awarded

 **352,045**
people engaged in the planning process

 **99%**
of survey respondents say MPGs are important to achieve planning goals



For more information, please contact:
Jacob Hemmerick: jacob.hemmerick@vermont.gov
802.828.5249

A Picture is Worth a Thousand Words

Illustrated plans for specific locations galvanize public engagement around concrete changes and communicate with a broad range of people. The resulting visual plans and drawings help the community envision possibilities, align goals, and give the municipality useful leverage for obtaining public facility funding. The following projects, funded by Municipal Planning Grants, used simple illustrations to big effect.

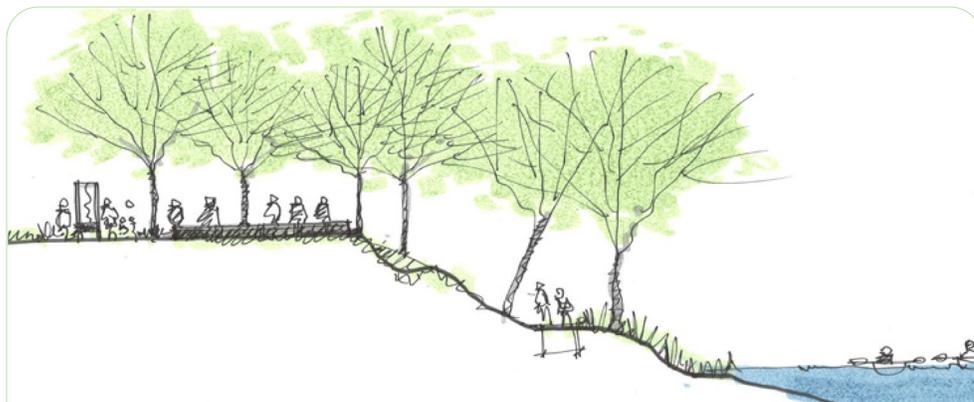


Fair Haven Downtown Streetscape Improvement Plan

Fair Haven

With the goal of increasing economic activity in the downtown, Fair Haven is taking steps large and small to implement the vision of making the downtown more walkable and vibrant for businesses and visitors. **Grant Award: \$16,000**
Project Year: 2018

[Streetscape Plan](#) →



St. Johnsbury Riverfront Conceptual Access Study

St. Johnsbury

With strong community interest in redeveloping the downtown Passumpsic riverfront for recreational uses, St. Johnsbury discovered opportunities to gain public access to the river from the downtown and developed an action plan for future projects, now underway incrementally. **Grant Award: \$8,000**
Project Year: 2016

[Concept Study](#) →



Vernon Village Center Master Plan

Vernon

Residents sought to envision a village center that brings residents together and reflects the identity of the community. The resulting plan for the village sets the stage for Vernon's post-Vermont Yankee redevelopment. **Grant Award: \$20,000**
Project Year: 2018

[Master Plan](#) →

Staff Report for week ending October 28, 2022:

- Been assisting in the training of the Asst. to the City Manager for Facebook postings, and any work related to the city website;
- Permitting has maintained its pace;
- We have been very busy with wrapping up the draft for the documents by consultants for the city's Strategic Plan as well as the Capital Improvement Plan;
- DRB had no applications for their November meeting, so they will not meet on Nov. 3. I notified them via mail to accommodate those members that struggle with their email;
- Finished drafting the bylaw grant application for the PC review;
- Many people and MUCH time has been spent with people at the counter, asking for copies out of files, inquiries regarding outstanding violations for properties;
- The consultant is finishing the first draft of the Capital Improvement Plan for the City for management staff review;
- Working on the North End Hazard Mitigation Grant application;
- Teaching Asst. to City Manager to input my Rental Registrations so that a second follow-up billing can be completed;
- I need to create a budget presentation for my department as I am in front of Council for my two budgets this coming Tuesday night;
- Participated in HUD Grant Funding, new funds under their new program called Distressed Cities & Persistent Poverty Technical Assistance Program;
- Have spent a good chunk of time with applicants who have applied for a State Cannabis License, and ensuring they understand the process by which our local Cannabis Control Commission (our City Council) must participate and approve;
- Spent time with the owner of the Italian Baptist Church Property, 10 Brook Street, and his desire to do something with it (he wants to tear down) as its constraints are no land for any associated off-street parking; does not have a parking lot or any driveway; he is unclear if the whole building, or just the original building section is that which is in the historic register, so I suggested he do some homework on his property;
- Dominoes is under a new regional manager, and has asked about covering the windows with something;
- Writing enforcement letters and going on site visits;
- Have received the Allen Street 45-day notice for a solar community out on Allen Street. Letter is attached, must be a future PC meeting for discussion.



October 13, 2022

City of Barre
City of Barre Planning Commission
Central Vermont Regional Planning Commission

Re: **I Love Cows Solar, LLC's 45-Day Notice to Persons and Entities Entitled to Notice Pursuant to Public Utility Commission Rule 5.402(A), for a Proposed 2.5 MW Solar Array to be located off Allen Street in the City of Barre, VT.**

Dear Sir or Madam:

I Love Cows Solar, LLC (the "Applicant"), is pleased to provide you with this 45-Day notice in advance of filing a petition for a Certificate of Public Good with the Vermont Public Utility Commission ("Commission" or "PUC"), for a 2.5 MW solar electric generation facility to be known as the "I Love Cows Solar Project" (the "Project"). The Applicant proposes to construct the Project on property located off of Allen Street in the City of Barre, Vermont (the "Site"). This notice is provided in accordance with 30 VSA § 248, Vermont Statutes Annotated ("Section 248"), and Public Utility Commission Rule 5.402.

Pursuant to Commission Rule 5.402, the following letter includes information sufficient to understand the overall Project including the location of the facility, a description of the proposed Project, construction plans and equipment to be used. This letter also describes the rights of the noticed parties to comment on the Project plans and participate in the Section 248 review process.

This letter contains descriptions of the following:

- I. 30 V.S.A. § 248 Process Information;
- II. Project Description;
- III. Site Selection and Consideration of Alternatives
- IV. Construction and Transportation
- V. Preliminary Assessment of Environmental and Aesthetic Impacts;
- VI. Project Benefits;
- VII. Expected Filing Date.

Included as attachments to this letter are:

- I. Location Map / Preliminary Site Plan

- II. Preliminary Natural Resources Map
- II. Representative Equipment Specifications

I. 30 V.S.A. Section 248 Petition and Notice

The state permitting process for electric generation facilities requires the Applicant to provide notice to certain entities and persons 45-days prior to a formal filing with the PUC. These include:

- The affected municipal legislative bodies;
- The affected municipal and regional planning commissions; and
- The Public Utility Commission.

The Applicant has also provided this 45-day notice to:

- The Department of Public Service
- The Agency of Natural Resources

Per Commission Rule 5.402(A), the municipal and regional planning commissions shall make recommendations, if any, at least seven (7) days prior to the intended filing date, which filing date is expected to be 45 days from the date of this notice.

Affected municipal and regional planning commissions may also provide revised recommendations within 45 days of the date on which the Applicant files its petition with the Commission, if the petition contains new or more detailed information that was not previously included in the original filing with the municipal and regional planning commissions pursuant to Section 248(f).

Recommendations made to the Commission pursuant to Section 248(f), or the lack of such recommendations, shall not preclude municipal or regional planning commissions from presenting evidence during technical hearings if granted party status.

Please send all recommendations during this 45-Day notice period to:

Vermont Public Utility Commission
c/o Clerk of the Commission
112 State Street
Montpelier, VT 05620-2701

AND

Encore Renewable Energy
Attn: Phillip D. Foy
PO Box 1072
Burlington, VT 05402

Tel: (802) 861-3023
phillip@encorerenewableenergy.com

For additional information regarding this process, including your commission's right to participate in the Public Utility Commission proceeding, please refer to the "Citizen's Guide to the Vermont Public Utility Commission's Section 248 Process," which can be found at <https://puc.vermont.gov/document/citizen-guide-public-utility-commission>.

II. Project Description

The Applicant is proposing a 2.5 MW solar project on property located off of Allen Street in Barre, Vermont. The array will occupy roughly 12 acres of the greater 45-acre parcel. The electricity generated by this Project will flow to GMP's electric grid.

The Site location, array footprint, and approximate property boundaries are shown in the preliminary site plan attached as Exhibit 1. Portland St is to the west and Allen St is to the east of the Project. In summary, the Project will consist of:

- Approximately 5,000 solar panels installed on ground-mounted racking systems across roughly 12 acres of the Site:
 - Coated with non-reflective glazing;
 - Approximately 10-15 feet off the ground at their highest point.
 - Modules are to be mounted on Fixed Tilt racking systems with rows running east-west
- A network of string inverters dispersed across the array connected with underground cables installed in protective conduit;
- A 7-8 ft agricultural style perimeter fence;
- Temporary laydown area for delivery and short-term storage of materials; and
- An approximate 430 ft extension of 3-phase power to the Site for interconnection into GMP's grid, from the existing three phase service on Allen St; and
- Necessary transformer(s) and associated interconnection equipment

III. Site Selection and Consideration of Alternatives

This site was selected because of the site's proximity to substation infrastructure, access to three phase transmission infrastructure, workable topography, and limited environmental impacts.

The applicant worked with its consultants to configure the Project in a way that would maximize the potential energy generation benefits while minimizing environmental and aesthetic impacts. The Applicant will continue working with all stakeholders prior to filing the CPG petition and thereafter to address any concerns.

IV. Construction & Transportation

The Applicant proposes to deliver materials for the Project using trucks, and state and local roads, which are accustomed to the type of traffic representative of the proposed daily delivery of materials. Deliveries will be made to a temporary construction staging area on the Site, located off the proposed access drive. Most transportation activity will occur during the construction phase, which would last between three and five months.

The Project is not expected to require oversize or overweight deliveries. Access to and from the Site will be restricted by perimeter fencing in order to secure the Site and prevent the public from entering the facility. All equipment associated with the Project will be installed in accordance with all applicable regulations and electrical codes.

V. Preliminary Impact Assessment

i. Aesthetics

In preparation for this 45-Day Notice, the Applicant engaged T.J. Boyle Associates of Burlington, Vermont to perform a preliminary review of potential aesthetic impacts resulting from the Project. The Project is proposed within an existing agricultural field and would be setback approximately 430 feet from Allen St, which is east of the Project.

Overall, preliminary findings by TJ Boyle indicated that the Project would not result in undue impacts to the aesthetic and scenic and natural beauty of the area. The Applicant will continue to work with the City of Barre, adjoining property owners, and T.J. Boyle Associates in order to address any potential aesthetic impacts. The Applicant will file the complete TJ Boyle aesthetic report, and final mitigation measures, where warranted, with the complete petition.

ii. Environmental

The Applicant has engaged VHB, Inc. to perform preliminary due diligence as well as detailed natural resource assessments and delineations, including both database and field surveys. Results of those studies will be provided in the final petition.

Given that the project is located within an existing agricultural field, the likelihood of impacts to most natural resources is low. VHB will conduct natural resource assessments, and impact analyses (where applicable) will be completed for criteria considered under Section 248 and as relevant to any additional necessary environmental permitting.

The Applicant will consult with state and federal agency staff as necessary pending results of detailed natural resource studies, which will inform Project design to avoid resources where possible and/or secure necessary permits, reviews, and approvals.

VI. Project Benefits

The Project is being developed in cooperation with GMP to provide locally generated renewable energy to a Vermont based GMP customer. The Project will contribute to the customer's achievement of its renewable energy objectives by providing a mechanism for the customer to procure locally generated renewable energy. The Project will also contribute to the achievement of GMP's and the State of Vermont's renewable energy objectives.

VII. Conclusion

The Project is not expected to result in undue adverse impacts to the applicable criteria. The Applicant looks forward to submitting the full Section 248 petition package, which will contain all of the information required by the PUC to evaluate the merits of the Project for potential award of a Certificate of Public Good and inform others of the Project's impacts and value.

The Applicant intends to file a Section 248 Petition and supporting materials with the PUC soon after the expiration of this 45-day notice period, which is expected to be no sooner than November 30th, 2022.

We look forward to receiving any input or suggestions you may have as we move through the Section 248 process. If you have any questions you may direct them to the Applicant by phone at 802-861-3023 or by email at phillip@encorerenewableenergy.com.

Sincerely,



Phillip D. Foy
General Counsel
Encore Renewable Energy

- Attachment 1 – Preliminary Site Plan
- Attachment 2 – Preliminary Natural Resources Map
- Attachment 3 – Representative Equipment Specifications

Copy to:

Vermont Public Utility Commission
112 State Street
Montpelier, Vermont 05620-2701

Agency of Agriculture and Food Markets
Secretary Anson Tebbetts
116 State Street
Montpelier, Vt 05620-2901

Department of Public Service
James Porter, Director for Public Advocacy
112 State Street - Third Floor
Montpelier, Vermont 05620-2601

Encore Renewable Energy
PO Box 1072
Burlington, VT 05402

Agency of Natural Resources
Secretary's Office
1 National Life Drive, Davis 2
Montpelier, Vermont 05620-3901

Department of Historic Preservation
Laura V. Trieschmann
1 National Life Drive
Deane C. Davis Building, 6th Floor
Montpelier, VT 05620-0501

Green Mountain Power
163 Acorn Lane
Colchester, VT 05446

Central Vermont Regional Planning Commission
29 Main St, Suite 4
Montpelier, VT 05602

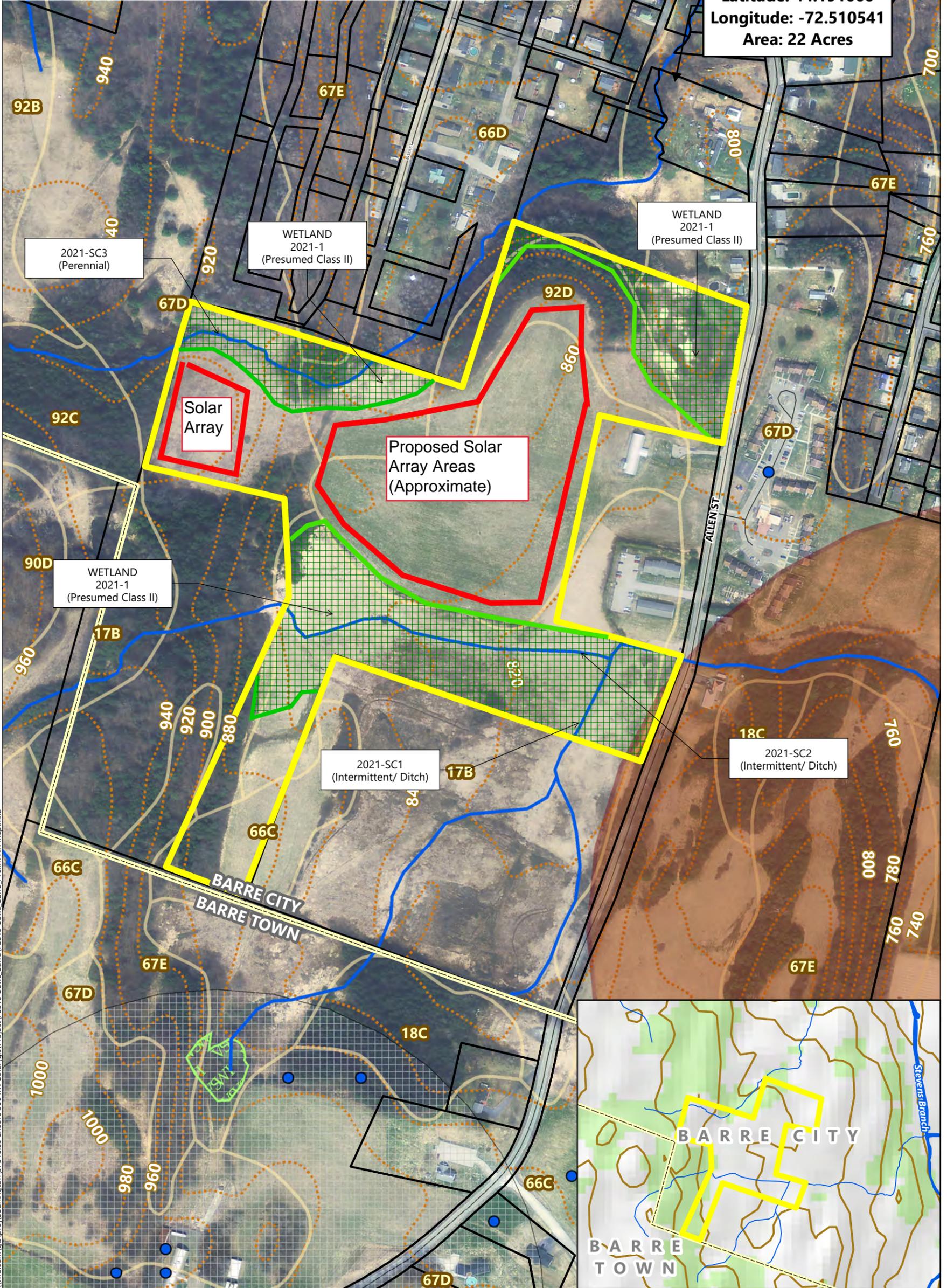
The Barre City Council
6 North Main Street
PO Box 418
Barre, VT 05641

The Barre City Planning Commission
c/o Janet E. Shatney, Director
Planning, Permitting, & Assessing Services
6 North Main St. Ste 7
Barre, VT 05641

Natural Resources Board
District #5 Environmental Commission
10 Baldwin Street
Montpelier, VT 05633-3201

NRCS Soils Information				
Soil Abbreviation	Soil Map Unit	Vermont Farmland Classification	Erodibility Ranking	Area (acres)
66D	Vershire-Dummerston complex, 15 to 25 percent slopes, rocky	NPSL	highly erodible	2.3
92D	Buckland loam, 15 to 25 percent slopes	NPSL	highly erodible	2.4
92C	Buckland loam, 8 to 15 percent slopes	statewide	potentially highly erodible	10.0
67D	Glover-Vershire complex, 15 to 35 percent slopes, very rocky	NPSL	highly erodible	0.8
17B	Cabot silt loam, 3 to 8 percent slopes	statewide (b)	potentially highly erodible	6.5

Study Area
Latitude: 44.191000
Longitude: -72.510541
Area: 22 Acres



\\vhb.com\gis\proj\SBurlington\57818.00 Encore 500 kW Solar\gis\Project\Love Cows_Barre\Love Cows_Barre_Prelim_NR_Map.mxd



Encore Renewable Energy
I Love Cows Solar Project

Barre, Vermont

- Study Area (VHB)
- Approximate Wetland (VHB)
- Approximate Wetland Buffer (VHB)
- VSWI Wetland (ANR)
- VHD Stream (VCGI)
- Deer Wintering Area (ANR)*
- Bear Habitat (FWD)*
- Bear Crossing (FWD)*
- NHI Uncommon Occurrence (FWD)
- River Corridor (ANR)*
- VHD Waterbody (VCGI)*
- Public Well (ANR)*
- Private Well (ANR)
- FEMA Zone A (VHB/FEMA)*
- Ground Water Protection Area (ANR)
- Surface Water Protection Area (ANR)*
- NRCS Soil Boundary (VCGI)
- 50' Contours (VCGI)
- Interstate*
- US Highway*
- State Highway*
- Town Road

Preliminary Natural Resources Map

Sources:
Background Imagery by VCGI (Collected in 2016)
VCGI (Vermont Center for Geographic Information - Various Dates)
ANR (Vermont Agency of Natural Resources - Various Dates)
FWD (Vermont Fish and Wildlife Department - 2018)
VHB (2021)
Wetland Boundary is approximate via desktop screening.

* Not present within map extent.

100/125kW, 1500Vdc String Inverters for North America



CPS SCH100/125KTL-DO/US-600

The 100 & 125kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box includes touch safe fusing for up to 20 strings. The CPS FlexOM Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2014 and 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA Headroom yields 100kW @ 0.9PF and 125kW @ 0.95PF
- Generous 1.87 and 1.5 DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years



100/125KTL Standard Wire-box



100/125KTL Centralized Wire-box

Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV Power	187.5kW	
Max. DC Input Voltage	1500V	
Operating DC Input Voltage Range	860-1450Vdc	
Start-up DC Input Voltage / Power	900V / 250W	
Number of MPP Trackers	1	
MPPT Voltage Range ¹	870-1300Vdc	
Max. PV Input Current (Isc x1.25)	275A	
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box) 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
AC Output		
Rated AC Output Power	100kW	125kW
Max. AC Output Power ²	100kVA (111KVA @ PF>0.9)	125kVA (132KVA @ PF>0.95)
Rated Output Voltage	600Vac	
Output Voltage Range ³	528-660Vac	
Grid Connection Type ⁴	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @600Vac	96.2/106.8A	120.3/127.0A
Rated Output Frequency	60Hz	
Output Frequency Range ³	57-63Hz	
Power Factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. Fault Current Contribution (1-cycle RMS)	41.47A	
Max. OCPD Rating	200A	
AC Disconnection Type	Load-rated AC switch	
AC Surge Protection	Type II MOV (with indicator/remote signaling), Up=2.5kV, In=20kA (8/20uS)	
System		
Topology	Transformerless	
Max. Efficiency	99.1%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<4W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +113°F / +45°C)	
Non-Operating Temperature Range ⁵	-40°F to +158°F / -40°C to +70°C maximum	
Operating Humidity	0-100%	
Operating Altitude	8202ft / 2500m (no derating)	
Audible Noise	<65dBA@1m and 25°C	
Display and Communication		
User Interface and Display	LED Indicators, WiFi + APP	
Inverter Monitoring	Modbus RS485	
Site Level Monitoring	CPS FlexOM Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box	
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box); 33lbs / 15kg (Centralized Wire-box)	
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)	
AC Termination	M10 Stud Type Terminal [3Φ] (Wire range: 1/0AWG - 500kcmil CU/AL, Lugs not supplied) Screw Clamp Terminal Block [N] (#12 - 1/0AWG CU/AL)	
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box Busbar, M10 Bolts (Wire range: #1AWG - 500kcmil CU/AL [1 termination per pole], #1AWG - 300kcmil CU/AL [2 terminations per pole], Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	20A fuses provided (Fuse values of 15A or 20A acceptable)	
Safety		
Safety and EMC Standard	UL1741-SA-2016, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt	
Warranty		
Standard ⁶	5 years	
Extended Terms	10, 15 and 20 years	

1) See user manual for further information regarding MPPT Voltage Range when operating at non-unity PF

2) "Max. AC Apparent Power" rating valid within MPPT voltage range and temperature range of -30°C to +40°C (-22°F to +104°F) for 100KW PF ≥0.9 and 125KW PF ≥0.95

3) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.

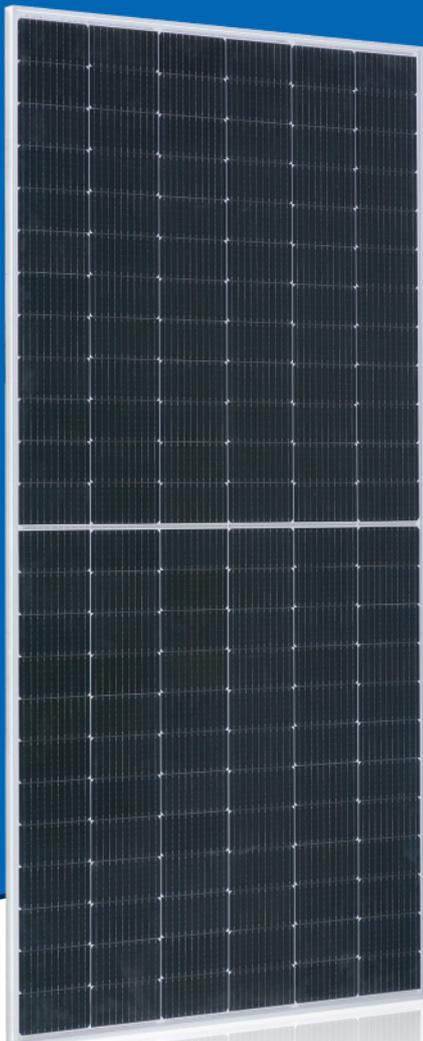
4) Wye neutral-grounded, Delta may not be corner-grounded.

5) See user manual for further requirements regarding non-operating conditions.

6) 5 year warranty effective for units purchased after October 1st, 2019.

AstroTwins™

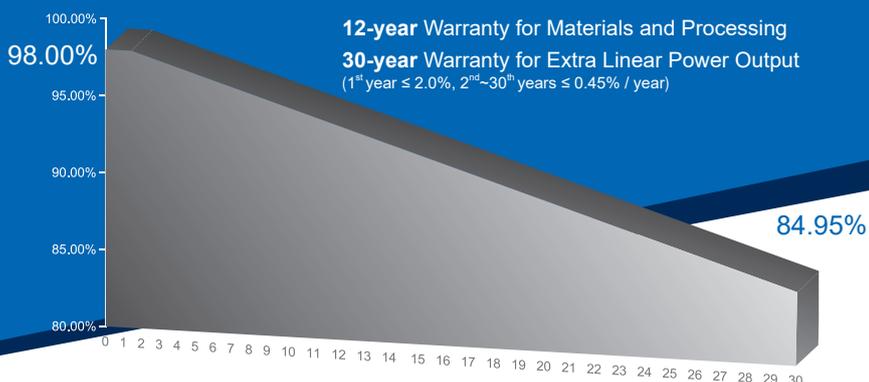
Enjoy the Energy of the Universe



520W~540W

P-type Monocrystalline PV Module
CHSM72M(DG)/F-BH Series (182)

CHSM72M(DG)/F-BH is bifacial module with white glazed glass



KEY FEATURES

- +5W OUTPUT POSITIVE TOLERANCE**
Guaranteed 0~+5W positive tolerance ensures power output reliability.
- EXCELLENT WEATHER RESISTANCE**
Reduces the cell micro-crack and extended product warranty.
- BIFACIAL POWER**
The backside makes use of the reflected and scattered light from the surroundings, the modules can yield up to 5%~25% power more, depending on the albedo.
- REDUCE INTERNAL MISMATCH LOSS**
Reduces mismatch loss and improves output.
- APPLICABLE FOR MULTI DIFFERENT ENVIRONMENTS**
The wide range of applications, such as BIPV, vertical installation, snow area, high humidity area and strong sandstorm area, etc.
- SNAIL TRAIL RESISTANCE**
Reduces the probability of snail trails with zero water vapor transmittance.

COMPREHENSIVE CERTIFICATES



First solar company which passed the TUV Nord IEC/TS 62941 certification audit.

Preliminary
For Global Market



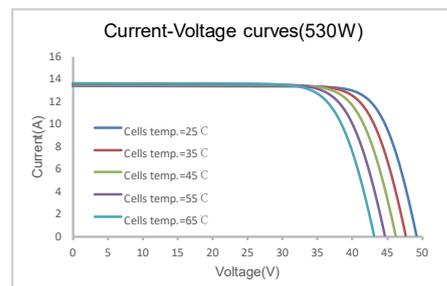
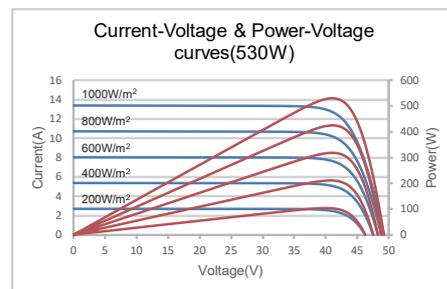
ASTRONERGY
A CHNT COMPANY

ELECTRICAL SPECIFICATIONS

Power rating (front)	520 Wp		525 Wp		530 Wp		535 Wp		540 Wp	
Testing Condition	Front	Back	Front	Back	Front	Back	Front	Back	Front	Back
STC rated output (P_{mpp}/Wp)*	520	364	525	368	530	371	535	375	540	378
Rated voltage (V_{mpp}/V) at STC	41.26	41.31	41.43	41.48	41.60	41.65	41.76	41.81	41.93	41.98
Rated current (I_{mpp}/A) at STC	12.60	8.82	12.67	8.87	12.74	8.92	12.81	8.97	12.88	9.01
Open circuit voltage (V_{oc}/V) at STC	49.10	49.05	49.30	49.25	49.50	49.45	49.70	49.65	49.90	49.85
Short circuit current (I_{sc}/A) at STC	13.32	9.22	13.40	9.27	13.48	9.33	13.57	9.39	13.66	9.45
Module efficiency	20.3%	14.2%	20.5%	14.4%	20.7%	14.5%	20.9%	14.7%	21.1%	14.8%
Temperature coefficient (P_{mpp})					- 0.350%/°C					
Temperature coefficient (I_{sc})					+0.045%/°C					
Temperature coefficient (V_{oc})					- 0.270%/°C					
Nominal module operating temperature (NMOT)					45±2°C					
Maximum system voltage (IEC/UL)					1500V _{DC}					
Number of diodes					3					
Junction box IP rating					IP 68					
Maximum series fuse rating					30 A					

STC: Irradiance 1000W/m², Cell Temperature 25°C, AM=1.5

CURVE



ELECTRICAL SPECIFICATIONS (Integrated power)

P_{mpp} gain	P_{mpp}	V_{mpp}	I_{mpp}	V_{oc}	I_{sc}
5%	557 Wp	41.60 V	13.38 A	49.50 V	14.16 A
10%	583 Wp	41.60 V	14.02 A	49.50 V	14.83 A
15%	610 Wp	41.61V	14.65 A	49.51 V	15.50 A
20%	636 Wp	41.61 V	15.29 A	49.51 V	16.18 A
25%	663 Wp	41.61 V	15.92 A	49.52 V	16.85 A

Electrical characteristics with different rear power gain (reference to 530 W)

PACKING SPECIFICATIONS

① Weight (module only)	32.3 kg
② Packing unit	31 pcs / box
Weight of packing unit (for 40'HQ container)	1040 kg
Number of modules per 40'HQ container	620 pcs

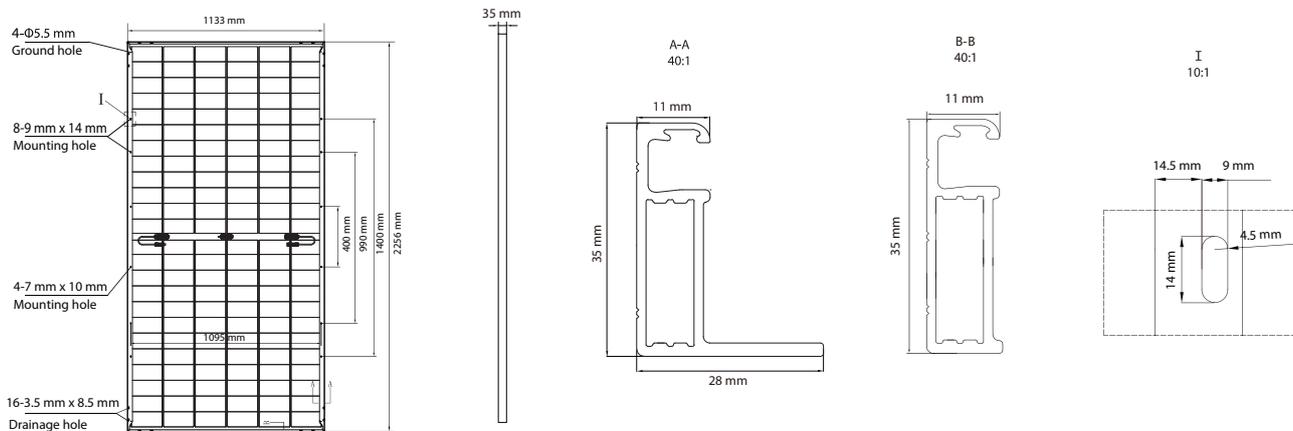
① Tolerance +/- 1.0kg
② Subject to sales contract

MECHANICAL SPECIFICATIONS

Outer dimensions (L x W x H)	2256 x 1133 x 35 mm
Frame technology	Aluminum, silver anodized
Glass thickness	2.0 mm
Cable length (IEC/UL)	Portrait: 300 mm Landscape: 1400 mm
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	MC4 compatible

① Refer to Astronergy crystalline installation manual or contact technical department.
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

MODULE DIMENSION DETAILS



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