City of Lockport
Best Use of Compost Plant
RFP Submission

Solar Liberty
6500 Sheridan Drive, Suite 120
Buffalo, NY 14221

Contact information:
Nathan VerHague, Market Development Manager
Phone: 716-634-3780 ext. 106
Email: nathan.verhague@solarliberty.com

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Sarah Lanzo
City Clerk
City of Lockport
1 Locks Plaza # M14
Lockport, NY 14094

RE: Request for Proposals – Best Use of Compost Plant

Dear Sarah Lanzo:

Solar Liberty is pleased to submit this proposal, in partnership with our Power Purchase Agreement financing partner DSD Connect, regarding the Best Use of Compost Plant RFP and would be honored to become the partner of choice on this exciting opportunity. We confirm that all elements of the proposal have been read and understood and Solar Liberty agrees to be bound by the terms of the quote. We would like to note that all financial information, pricing, site plans/designs and the commissioning procedure are confidential and proprietary.

Solar Liberty provides an unparalleled understanding of how to develop solar projects and knowledge to navigate the idiosyncrasies of each customer's needs. We have a tremendous amount of experience working on various projects. This experience best positions our team to ensure a successful installation for the City of Lockport. The following pages detail our qualifications to design, construct, install, finance, operate, maintain, and decommission the solar photovoltaic (PV) system. In teaming with Solar Liberty, you will benefit from:

- 20+ years of experience in solar engineering, procurement, and construction development.
    - Development of over 350MW worth of solar PV with over 4,500 project installations.
- Utilization of cutting-edge technology with industry leading Tier-1 products.
- In-house staff to handle the full turnkey development process.
- Local service for operations and maintenance out of our Buffalo, NY offices and warehouse.

We are confident that our proposal meets the City of Lockport's highest standards, and that our experience and deployment plan clearly differentiate us from other solar energy developers. Thank you for this opportunity to present our qualifications.

Very truly yours,

Adam K. Rizzo – President

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Solar Liberty Information

Solar Liberty Energy Systems, Inc.
6500 Sheridan Drive, Suite 120
Buffalo, NY 14221
716.634.3780 | info@solarliberty.com

NEW YORK STATE | NYSERDA Quality Solar Installer 2024

Since our inception in 2003, Solar Liberty has been continually expanding and reinvesting in New York State. Our focus is on solar energy, while utilizing proprietary equipment and processes. Solar Liberty's business model of inhouse engineering, full-time solar crews, and strict attention to detail leverages innovation and solar industry expertise to install, own, operate and maintain PV systems, with lower costs and more value-added services than our competition. Solar Liberty is licensed in NYS and the organization is owned and operated by brothers, Adam and Nathan Rizzo.

Solar Liberty is a turnkey solar energy developer, which means we handle all aspects of solar electric installations from concept through ownership. We believe our approach sets us apart from other solar installation companies and enables us to provide a value-added service to our customers that are second-to-none. The record number of installations, coupled with the number of pleased repeat customers, is a testament to our attention to detail. We consistently execute a finely tuned systematic approach from the initial sale of a project and its in-house design, right through to the completed installation and ownership.

With over 4,500 solar PV systems installed, we have learned through experience both the idiosyncrasies that are inherent to every application, and the similarities that foster an efficient process built over the last 20 years in New York State. NYSERDA and the Department of Energy awarded the "Outstanding Achievement Award" to Solar Liberty for being the Largest Solar Electric Installer in New York State. In 2008, Inc. Magazine recognized Solar Liberty as the fifth fastest growing private company in the United States energy sector and the number one fastest growing solar energy company in the country. In 2018, Solar Power World recognized Solar Liberty as the #1 "Top Solar Contractor" in New York State. In addition, we recently received the distinction of "Quality Solar Installer" by NYSERDA. The entire Solar Liberty team is committed to promoting energy independence through the widespread installation of grid-tied PV solar energy systems.

As a large volume purchaser of solar equipment from top-tier manufacturers, Solar Liberty has the ability to negotiate the best pricing and pass the savings along to their customers. Solar Liberty has installed and distributed more than 325 megawatts of solar (over 1,000,000 panels) to date and that number continues to grow every day. In addition, our sister company's proprietary solar panel mounting solution, DynoRaxx, is one of the "go to" mounting solutions for solar installers throughout the entire United States. Designed and patented by our Vice President, Nathan Rizzo, DynoRaxx has allowed Solar Liberty to become vertically integrated for maximum efficiency and quality control with our racking systems.

Dedicated to being a leader in the solar energy sector, Solar Liberty draws on New York State resources and is committed to creating New York State jobs. The majority of our talented team of engineers and office personnel has graduated from New York State colleges and universities. Simultaneously, our installation teams represent the perfect example of transforming traditional blue-collar trades into modern green-collar professionals while producing a new skill set for the future.

Office & Staff

Solar Liberty currently has 86 full- and part-time employees that are all dedicated to growing solar power across New York State and its surrounding areas. Below is the contact information for all Solar Liberty employees:

<u>Headquarters:</u>
6500 Sheridan Dr., Suite 120
Buffalo, NY 14221
P: (716) 634-3780
F: (716) 634-3756

Fed Tax ID: 20-0242309
NYSERDA Installer ID: 4116
Ownership Structure: S-Corporation
Web: www.solarliberty.com
NABCEP Certification: 031310-187

Solar Liberty staff routinely carries out the following services:

- Financing- Adam Rizzo (President)
    - Solar Liberty internally funds and has multiple established relationships with a variety of financial entities that fund PPAs, leases and the procurement of solar electric systems. We work as a conduit between our customer and financial partner to ensure successful funding of projects at the agreed to cost.
- Engineering – Nathan Rizzo (Vice President/NABCEP Certified) and Lance Lombardo (Lead Electrical Engineer/NABCEP Certified)
    - Our in-house engineering staff completes all mechanical and electrical related designs.
- Project Management- Carter Powell (Senior Project Manager)
    - Organize on-going meetings with all stakeholders to ensure an adherence to agreed to milestones and timelines.
    - Responsible for securing all permits, environmental assessments, and approvals from involved AHJ agencies and the utility.
    - All third-party inspections (ex: Professional Engineering services).
- Procurement/ Warehousing- Brian Leiser (Warehouse Manager)
    - Solar Liberty will procure and warehouse all the materials required for the solar arrays we install. This includes, but is not limited to, solar panels, inverters, racking/ mounting systems, wiring, grounding mechanisms, and all other Balance of System components.
    - We have a 65,000 sq. ft. warehouse located in Buffalo, NY.
- Construction- Aaron Caccamise (Construction Manager)
    - Solar Liberty has five solar installations and electrical teams to deploy.
        - We are in the process of hiring several more teams.
    - We will partner with various companies as dictated by the project scope and application. For example, a common partner to Solar Liberty is Allegro Power, a leader in solar installations.
    - We arrange all the construction equipment necessary for the site.
- Safety – Joe Vigneron (Safety Officer)
    - Solar Liberty's Safety Officer is a certified OSHA 500 instructor who requires that all Solar Liberty field staff are OSHA 30 certified and provides ongoing safety training at our weekly safety meetings.

- Operations and Maintenance – Colosimo (Service Coodinator)

- As a New York based company with teams deployed throughout the state, Solar Liberty is a local service provider to anywhere in the State.
- Our dedicated team is involved with the ongoing operational and maintenance support of over 4,000 solar installations in New York State. Our Operations and Maintenance team consists of mechanical engineers, electrical engineers, system performance monitoring technicians, electricians, installers, and customer support staff.

Case Studies

PSEG LONG ISLAND

Solar Liberty is selling the power from this system to PSEG LI through the Long Island Feed-In-Tariff program for a 34,272 310-Watt panel installation.

According to Newsday (Released 5/13/14) – *"The cemetery will host 10 megawatts of capacity that will be spread over 34,000 photovoltaic panels, making it the second-largest array in New York State after the 32-megawatt project at Brookhaven National Lab… The Annex is one of 69 projects recently awarded by PSEG under a program to encourage commercial solar development on Long Island. The utility guarantees purchase of 100 megawatts Island wide at a fixed price for 20 years, said Michael Voltz, director of energy efficiency and renewables for PSEG."*

PSEG Long Island Solar
2018

Babylon, NY

10,600 kW

Offsets 11,329 tons of CO_2 per year

Contact: John Westphal, P.E., P.M.P.
Director of Engineering and Operations Support
PSEG Solar Source LLC
Ph: 973-430-7566
Email: John.Westphal@pseg.com

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TOWN OF TONAWANDA LANDFILL

The Town of Tonawanda has turned a brownfield into a brightfield, by leasing their landfill to offset its electric bills through an 8,138 320-watt solar panel installation. Financing for the system was provided through a PPA.

According to www.wivb.com (Released 6/12/19) – *"Solar Liberty is working on a joint project with the town to install a solar farm, more than 8,500 solar panels…The town gets the power at a rate lower than what National Grid charges. "We produce the power and then we will sell our power to the Town of Tonawanda at a lesser rate than the credit that the utility company will provide," Nathan Rizzo, Solar Liberty VP said. Turning what would have otherwise been useless property into a productive, 10-acre solar farm is a win for Solar Liberty and the Town of Tonawanda…Officials estimate the solar project will cut the town's electric bill by about $60,000 in the first year and gradually grow after that."*

Town of Tonawanda Solar
2020

Tonawanda, NY

2,604.16 kW

Offsets 2,288 tons of CO_2 per year

Contact: Matt Sutton, Town Engineer
Town of Tonawanda
Ph.: 716-957-1570Email:
msutton@tonawanda.ny.us

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NEW YORK STATE PARKS

The NYS Parks system is receiving PPA financing for the construction and operation of 3 solar arrays throughout Hudson Valley. The projects are in progress and will feature approximately 3.5 megawatts of panels to help the state meet its goal of 70% renewables by 2030.

According to https://parks.ny.gov (Released 3/25/20) – *"The four solar arrays at Parks locations are expected to produce about 4.6 gigawatt hours of energy a year, to be added to the 2.2 gigawatt hours currently produced at 29 current solar projects developed at State Parks since 2012. Acting as renewable energy advisor and leading the project, NYPA has been working with State Parks as part of an ongoing effort to combat climate change.*

Once the new arrays are completed this year, State Parks will be covering 15 percent of its total statewide energy consumption through solar power, up from the current 4 percent figure. This will offset all the power demand in the Park's Taconic Region on the eastern side of the Hudson River, which includes 14 parks and eight historic sites in Columbia, Dutchess, Putnam and Westchester counties."

NYS Parks Solar
2021

Copake Falls, Carmel & LaGrange, NY

3,477.63 kW

Offsets 3,585 tons of CO_2 per year

Michael Wise
Director, Energy and Sustainability
NYS Parks, Recreation & Historic Preservation
Ph: 518-474-4621
Email: michael.wise@parks.ny.gov

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TOWN OF WAWARSING

The Town of Wawarsing is receiving financing through a PPA for this ballasted landfill system. The solar array features 3,456 325-Watt ballasted panels.

According to Spectrum News Hudson Valley (Released 11/1/17) – *"The town is having 3,500 panels installed at its transfer station. The $2 million installation is being done at no cost to the town by Solar Liberty of Buffalo. The panels will be used to help power town-run buildings. Town Supervisor Leonard Distel said once the project is complete, the town will save about $31,000 in the first year. 'This is a huge savings, especially when our electrical bills are over a quarter-million dollars a year,' he said."*

Town of Wawarsing Solar
2017

Wawarsing, NY

1,123.2 kW

Offsets 1,153 tons of CO_2 per year

Contact: Holly Behnke
Town Clerk, Supervisor's Office
Town of Wawarsing
Ph.: 845-647-6570 ext. 6
E-mail: wawsupervisor@hvc.rr.com

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MONROE COUNTY

The Solar Liberty team installed this 36,500 335-Watt panel installation to offset the electric bills of Monroe County through a PPA. According to the Rochester Business Journal (Released in 2018) –

"Standing before a field of tens of thousands of solar panels in Hilton, Monroe County Executive Cheryl Dinolfo announced on Wednesday that she has created a sustainability team to carry on work like the solar array energy-saving projects recently launched in the county.

…the projects are saving the county about $1 million a year through reduced energy cost projects required no investment from the county."

Monroe County Solar
2018

Penfield and Hilton, NY

13,398 kW total (5 systems)

Offsets 12,470 tons of CO_2 per year

Contact: Michelle Virts
Monroe County
Ph.: 585-753-7523
Email: michellevirts@monroecounty.gov

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UNIVERSITY AT BUFFALO-MILLERSPORT SOLAR ARRAY

The Millersport Solar Array is a groundbreaking solar array, consisting of 16,770 400-Watt panels, spanning more than 24 acres. This stunning application will provide power to more than 1,350 homes on an annual basis.

"After a lot of planning, analysis, and work, we are looking forward to dramatically increasing the amount of clean energy we generate here at UB for our students, staff and faculty. In addition to lowering our carbon emissions, this work will assist with decreasing volatility in the energy prices we pay and increase stability in our university budgeting." - Laura Hubbard, VP for Finance and Administration, UB

Millersport Solar Array
2019

Getzville, NY

6,570 kW

Offsets 4,656 tons of CO_2 per year

Contact: Don Erb
Facilities Sustainability and Energy Management
University at Buffalo
Ph.: 716-645-5619
Email: erb@buffalo.edu

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VALLEY SAND & GRAVEL

Valley, Sand & Gravel chose Solar Liberty after a highly vetted process to partner and construct a 1.7MW ground mounted solar array consisting of 4,824 (360 Watt) panels in the Town of Caledonia, NY.

The array will utilize Remote Net Metering to offset various electric bills. The annual savings, based on NYSERDA's VDER Calculator, will come to over $175,000 annually.

Contact: Tom 'Murph' Murphy
Vice President
Power & Construction Group
Ph.: 585-704-1988
E-mail: murph@pandcg.com

Valley Sand & Gravel Solar
2020

Caledonia, NY

1,736.64 kW

Offsets 1,644 tons of CO_2 per year

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DSD Connect Statement of Qualifications

DSD

Transforming the Energy Sector

DSD at a Glance:

Owned by BlackRock

Headquartered in Schenectady, NY

National Experience

200+ full time employees nationwide

DSD CONNECT

About DSD

Our Backing

DSD is backed by one of the largest clean energy investment platforms in the world, **BlackRock Real Assets**, and has raised **over $1B in project funds** from trusted investors.

With this backing, DSD is in a unique position to not only design, build, and operate solar installations but finance and own them for the long-term as well. **This gives customers a level of certainty that is often amiss in the solar industry.**

BLACKROCK

CREDIT SUISSE Morgan Stanley BANK OF AMERICA Rabobank ARES

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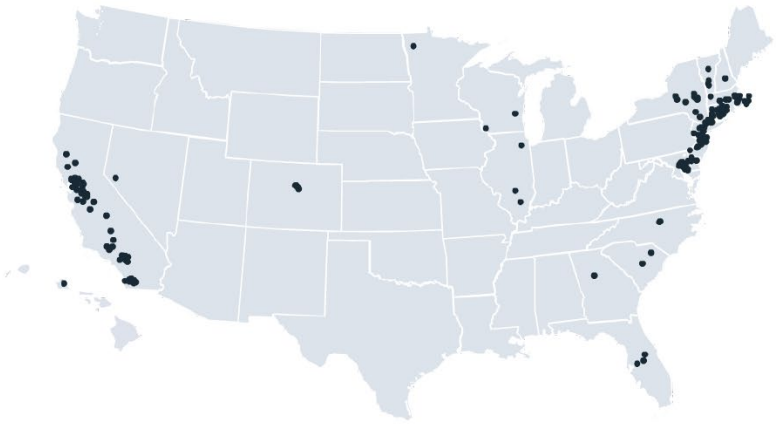
DSD

DSD Experience

805 MW



Experience

805 MW of contracts signed to date:

- 366 MW under development across 25 states
- 149 MW under construction
- 290 MW in operation across

DSD CONNECT

Experience

New York

- 100 MW of solar and energy storage projects operational across NY state
- 80 MW of solar projects under construction and expected to reach completion in 2022-2023.

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DSD CONNECT

Experience

Trusted by Fortune 500 Companies and many others...

"The community solar arrangement saves money for the County and the community and helps the environment. Schenectady County might be the only county that can say its governments are fully solar-powered."

Chris Gardner, Schenectady County Attorney

- Size (DC): **4.45 MW Solar + 10 MWh ESS**
- Portfolio Size: **24 MW Solar + 20MWh ESS**
- Generation: **28,254,869 kWh/year**
- **22,072 tons of CO_2 avoided/year**

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"The City partnered with New York Power Authority (NYPA) and DSD to create a successful 6.8 MW community solar portfolio that will not only benefit residents today, but future generations."

White Plains Mayor Roach

476.85 kW
Size (DC)

6.8 MW Solar + 1.7 MW ESS
Portfolio Size

8,150,584 kWh/year
Generation

6,367 tons of CO_2 avoided/year

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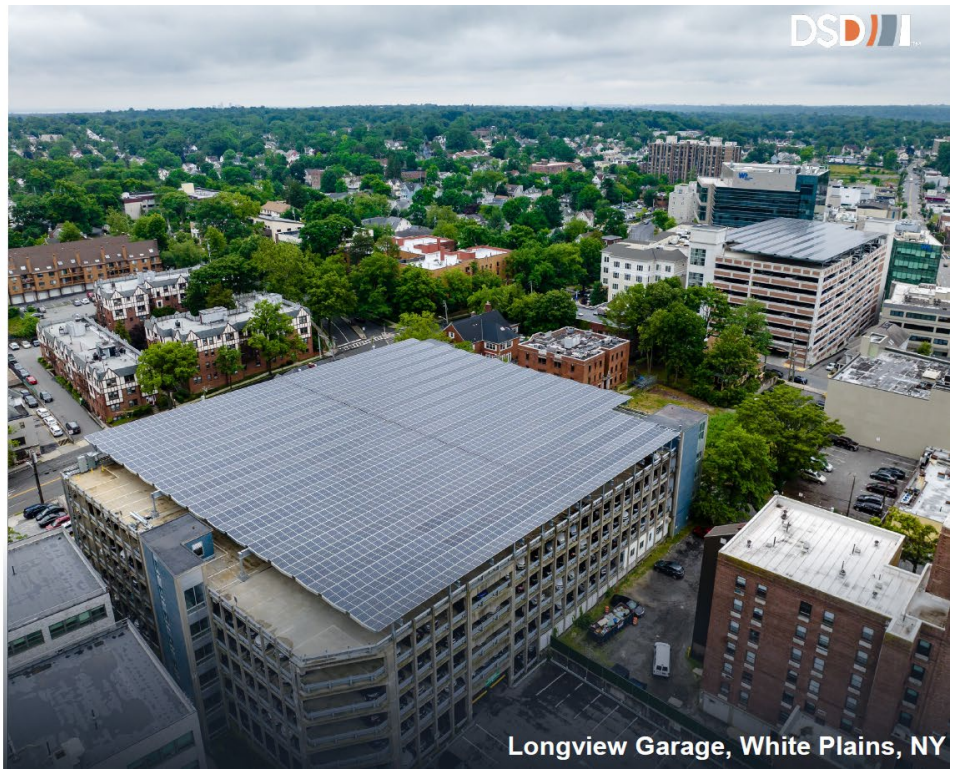


Project Proposal

Site Plan

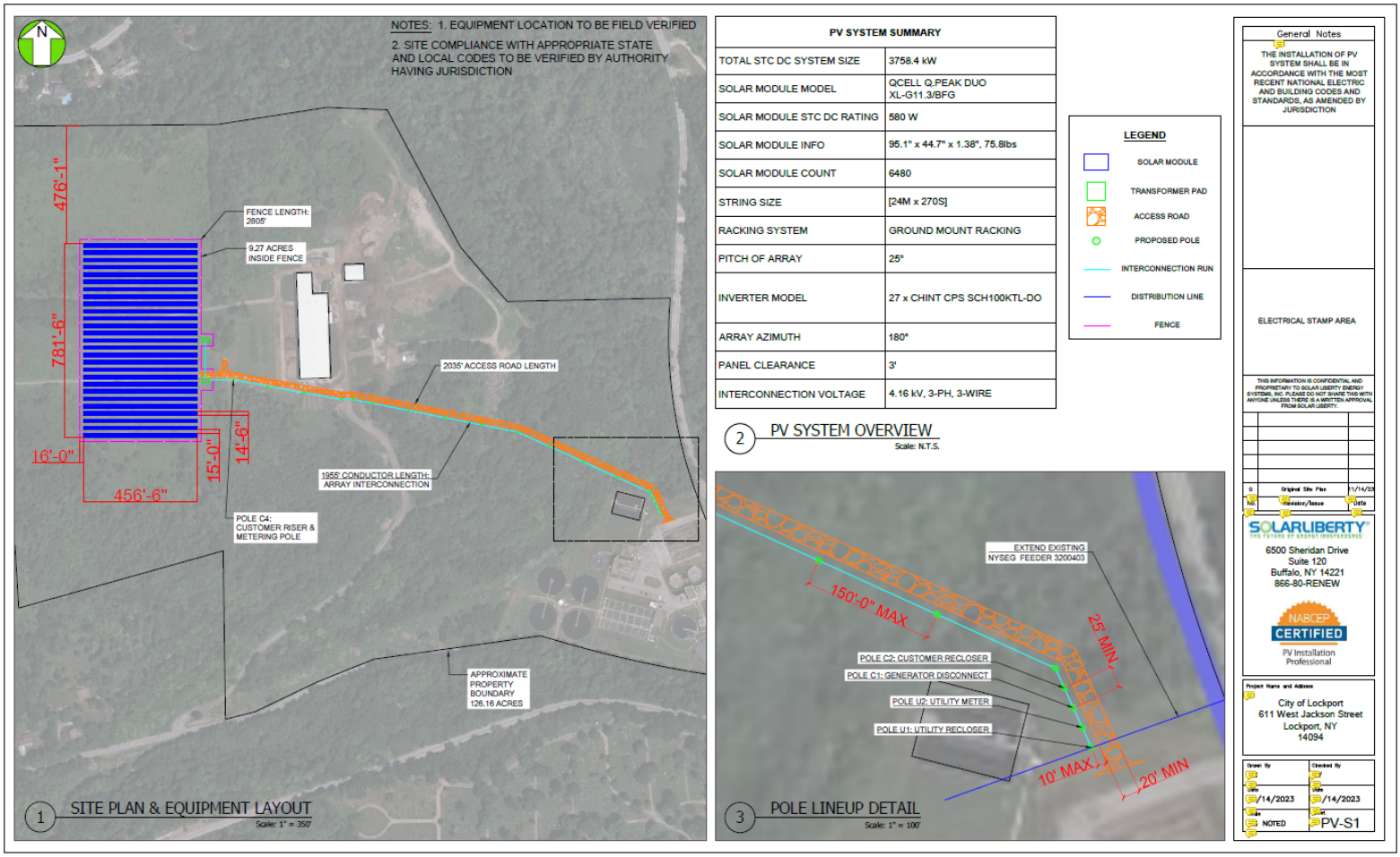
Solar Liberty is proposing the construction of a 3,748.4kW ground mounted solar array to maximize the use of the parcel designated by the RFP.

The vast financial benefits of this project are outlined in detail in the Financial Proposal section. The City of Lockport can enter into a Power Purchase Agreement (PPA) or lease the land.

The system looks to utilize a Point of Interconnection to the southeast of the array. This was determined to be the most viable Point of Interconnection after review of NYSEG's hosting capacity map. These power lines have the most capacity in the area to take on the large electric production of a solar installation of this magnitude.

As a full Engineering, Procurement, and Construction (EPC) developer, Solar Liberty is quoting the full turn-key construction of this project.

This quote and Power Purchase Agreement (PPA) price does not include any NYSEG interconnection/CESIR study fees. It only includes the interconnection application fee. Interconnection costs will be determined by a full CESIR study, which will impact the final cost if there are upgrade costs required for interconnection.



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Project Proposal

Solar Module and Inverter Details

AC System Size: 3,758.4kW
DC System Size: 2,700kW
Year-One Production Estimate: 4,728,556kWh

Solar Module Manufacturer: Hanwha Q Cell
Solar Module Model: Q.Peak Duo XL-G11.3/BFG
Solar Module Quantity: 6,480

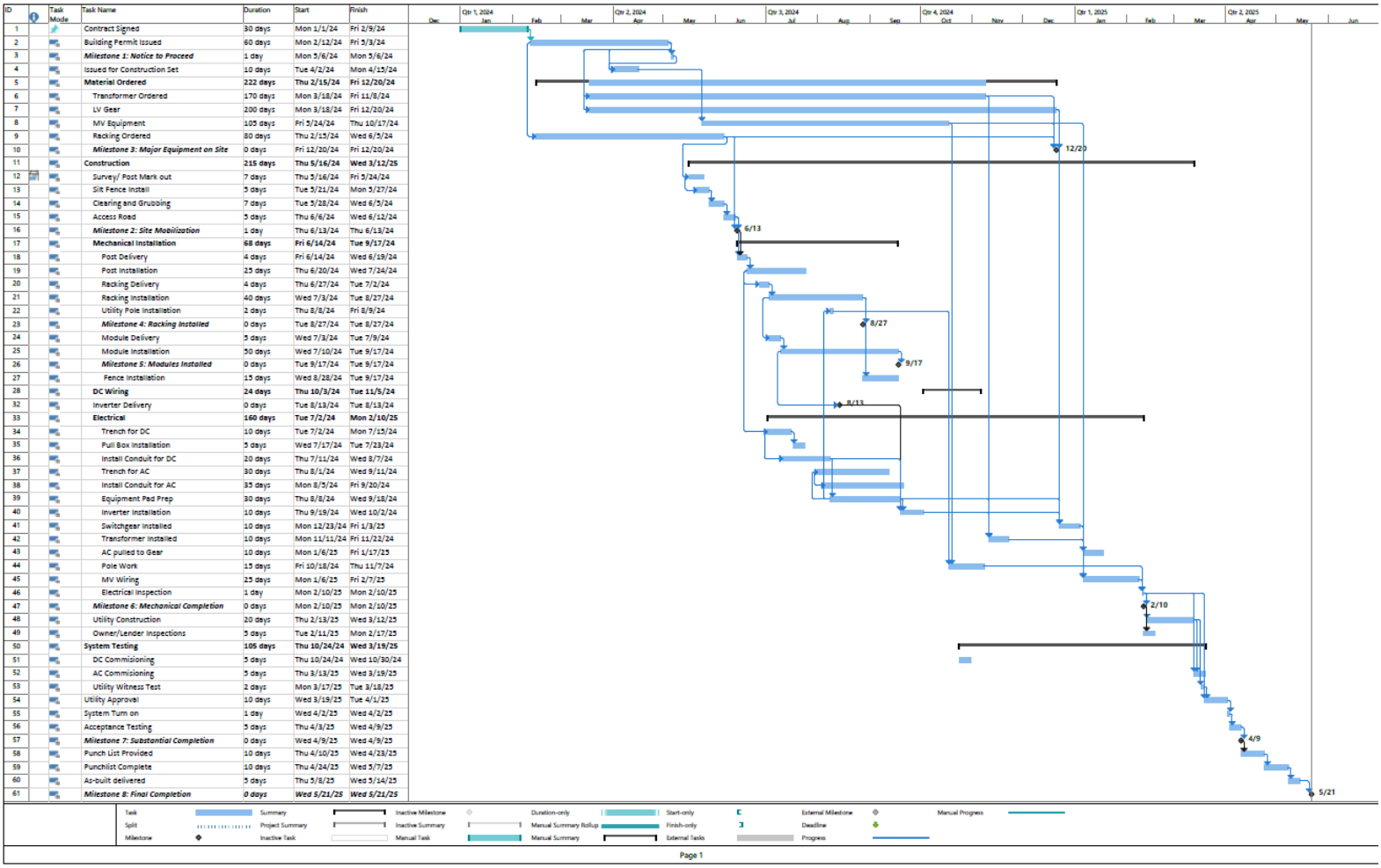
Inverter Manufacturer: CPS Chint
Inverter Model: SCH100KTL-DO
Inverter Quantity: 27

The installation includes a 20ft wide, 2,035ft long access road (noted in orange on the site plan) that leads to the Lockport Wastewater Treatment Plant. This is also where we are proposing for a point of interconnection as, according to NYSEG's hosting capacity maps as of the time of this RFP submission, has the best utility infrastructure to handle this interconnection. This is NYSEG Feeder 3200403. The system would be surrounded by an agricultural fence to protect the system from wildlife.

Logistics and Operations

Below is an example Gantt chart for the development of a project of this scope. This is an example to give an expected timeline. The actual timeline will be dependent on actual project award dates and is subject to change based on market fluctuation. A system of this size can realistically take approximately 17 months from signed contract to final completion.

A full-sized example is attached at the end of this document.



ID	Task Mode	Task Name	Duration	Start	Finish
1		Contract Signed	30 days	Mon 1/1/24	Fri 2/9/24
2		Building Permit Issued	60 days	Mon 2/12/24	Fri 5/3/24
3		***Milestone 1: Notice to Proceed***	1 day	Mon 5/6/24	Mon 5/6/24
4		Issued for Construction Set	10 days	Tue 4/2/24	Mon 4/15/24
5		**Material Ordered**	**222 days**	**Thu 2/15/24**	**Fri 12/20/24**
6		Transformer Ordered	170 days	Mon 3/18/24	Fri 11/8/24
7		LV Gear	200 days	Mon 3/18/24	Fri 12/20/24
8		MV Equipment	105 days	Fri 5/24/24	Thu 10/17/24
9		Racking Ordered	80 days	Thu 2/15/24	Wed 6/5/24
10		***Milestone 3: Major Equipment on Site***	0 days	Fri 12/20/24	Fri 12/20/24
11		**Construction**	**215 days**	**Thu 5/16/24**	**Wed 3/12/25**
12		Survey/ Post Mark out	7 days	Thu 5/16/24	Fri 5/24/24
13		Silt Fence Install	5 days	Tue 5/21/24	Mon 5/27/24
14		Clearing and Grubbing	7 days	Tue 5/28/24	Wed 6/5/24
15		Access Road	5 days	Thu 6/6/24	Wed 6/12/24
16		***Milestone 2: Site Mobilization***	1 day	Thu 6/13/24	Thu 6/13/24
17		**Mechanical Installation**	**68 days**	**Fri 6/14/24**	**Tue 9/17/24**
18		Post Delivery	4 days	Fri 6/14/24	Wed 6/19/24
19		Post Installation	25 days	Thu 6/20/24	Wed 7/24/24
20		Racking Delivery	4 days	Thu 6/27/24	Tue 7/2/24
21		Racking Installation	40 days	Wed 7/3/24	Tue 8/27/24
22		Utility Pole Installation	2 days	Thu 8/8/24	Fri 8/9/24
23		***Milestone 4: Racking Installed***	0 days	Tue 8/27/24	Tue 8/27/24
24		Module Delivery	5 days	Wed 7/3/24	Tue 7/9/24
25		Module Installation	50 days	Wed 7/10/24	Tue 9/17/24
26		***Milestone 5: Modules Installed***	0 days	Tue 9/17/24	Tue 9/17/24
27		Fence Installation	15 days	Wed 8/28/24	Tue 9/17/24
28		**DC Wiring**	**24 days**	**Thu 10/3/24**	**Tue 11/5/24**
32		Inverter Delivery	0 days	Tue 8/13/24	Tue 8/13/24
33		**Electrical**	**160 days**	**Tue 7/2/24**	**Mon 2/10/25**
34		Trench for DC	10 days	Tue 7/2/24	Mon 7/15/24
35		Pull Box Installation	5 days	Wed 7/17/24	Tue 7/23/24
36		Install Conduit for DC	20 days	Thu 7/11/24	Wed 8/7/24
37		Trench for AC	30 days	Thu 8/1/24	Wed 9/11/24
38		Install Conduit for AC	35 days	Mon 8/5/24	Fri 9/20/24
39		Equipment Pad Prep	30 days	Thu 8/8/24	Wed 9/18/24
40		Inverter Installation	10 days	Thu 9/19/24	Wed 10/2/24
41		Switchgear Installed	10 days	Mon 12/23/24	Fri 1/3/25
42		Transformer Installed	10 days	Mon 11/11/24	Fri 11/22/24
43		AC pulled to Gear	10 days	Mon 1/6/25	Fri 1/17/25
44		Pole Work	15 days	Fri 10/18/24	Thu 11/7/24
45		MV Wiring	25 days	Mon 1/6/25	Fri 2/7/25
46		Electrical Inspection	1 day	Mon 2/10/25	Mon 2/10/25
47		***Milestone 6: Mechanical Completion***	0 days	Mon 2/10/25	Mon 2/10/25
48		Utility Construction	20 days	Thu 2/13/25	Wed 3/12/25
49		Owner/Lender Inspections	5 days	Tue 2/11/25	Mon 2/17/25
50		**System Testing**	**105 days**	**Thu 10/24/24**	**Wed 3/19/25**
51		DC Commisioning	5 days	Thu 10/24/24	Wed 10/30/24
52		AC Commisioning	5 days	Thu 3/13/25	Wed 3/19/25
53		Utility Witness Test	2 days	Mon 3/17/25	Tue 3/18/25
54		Utility Approval	10 days	Wed 3/19/25	Tue 4/1/25
55		System Turn on	1 day	Wed 4/2/25	Wed 4/2/25
56		Acceptance Testing	5 days	Thu 4/3/25	Wed 4/9/25
57		***Milestone 7: Substantial Completion***	0 days	Wed 4/9/25	Wed 4/9/25
58		Punch List Provided	10 days	Thu 4/10/25	Wed 4/23/25
59		Punchlist Complete	10 days	Thu 4/24/25	Wed 5/7/25
60		As-built delivered	5 days	Thu 5/8/25	Wed 5/14/25
61		***Milestone 8: Final Completion***	***0 days***	***Wed 5/21/25***	***Wed 5/21/25***

Financial Proposal

Solar Liberty, in partnership with DSD Connect, is pleased to submit our proposal for a 20-year Power Purchase Agreement (PPA) with the City of Lockport. This PPA presents a unique opportunity for the City of Lockport to leverage renewable energy while achieving significant cost savings and sustainability goals.

Under the proposed PPA, Solar Liberty will design and install the solar power system on city-owned property at 611 West Jackson Road in Lockport at no upfront cost to the City of Lockport. The City will then purchase the generated electricity from our financial partner, DSD Connect, at a competitive rate of $0.0905 per kWh in the first year, with an annual escalation of 2.5%. This requested escalation rate structure ensures predictable energy costs, shielding the City from volatile energy market prices. In the final year of the 20-year agreement, that PPA rate will have risen to $0.1447/kWh at that escalation rate. As long-term owner of the asset, DSD Connect is responsible for the maintenance and upkeep of the solar installation.

Over the course of the 20-year agreement, the City of Lockport is projected to realize an estimated savings of $1,517,522. (See cashflow analysis on the next page) These savings are a direct result of the City's purchase of solar-generated electricity at a rate below current and projected utility prices.

A Power Purchase Agreement offers several key benefits:

1. Financial Savings: The City will enjoy immediate and long-term savings with no upfront capital investment, converting a variable and unpredictable expense into a fixed, predictable cost.
2. Environmental Impact: The PPA supports the City's commitment to sustainability by reducing carbon emissions and promoting clean, renewable energy sources.
    a. See Sustainability and Environmental Impact page for long-term sustainability figures.
3. Risk Mitigation: Solar Liberty and DSD will assume the operational and maintenance responsibilities, mitigating the risks typically associated with energy projects.
4. Community Leadership: By adopting solar energy, the City of Lockport positions itself as a leader in environmental stewardship, setting an example for other municipalities and its residents.

- ❖ In is important to note, that this PPA rate does not account for additional utility upgrade costs. That can only be determined after the Coordinated Electric System Impact Review (CESIR) study is completed with NYSEG. Any utility upgrade costs of significance can increase this PPA rate.

In conclusion, our proposed PPA offers a financially and environmentally beneficial solution for the City of Lockport, demonstrating our commitment to providing sustainable energy solutions that align with the city's goals and values. In partnership with DSD Connect, we look forward to the opportunity to partner with the City of Lockport and contribute to its journey towards a more sustainable and economically resilient future.

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PPA 20-Year Cashflow Analysis

Cashflow Analysis can be affected by an increase in PPA rate due to increased costs incurred by significant NYSEG utility upgrades. These costs can't be determined until after a CESIR study is completed.

Year	3,758.4 kW DC Annual Prod. (kWh) (2.0% Loss in Year 2/ 0.2% Loss in Year 3-25)	NYSERDA VDER Rate (Annual $ Avg.)	Annual $ Credits (VDER Rate x Prod. (kWh))	Solar Liberty Ground Mount PPA (2.5% Annual Increase)	Annual Cost ((PPA Rate ($) x Prod. (kWh))	Annual Savings (Total Credits - Total PPA Cost)
1	4,426,223	$0.1203	$532,475	$0.0905	$400,573	$131,901
2	4,337,699	$0.1217	$527,898	$0.0928	$402,376	$125,522
3	4,329,023	$0.1232	$533,336	$0.0951	$411,610	$121,725
4	4,320,365	$0.1246	$538,317	$0.0975	$421,057	$117,261
5	4,311,724	$0.1260	$543,277	$0.0999	$430,720	$112,557
6	4,303,101	$0.1275	$548,645	$0.1024	$440,605	$108,040
7	4,294,495	$0.1290	$553,990	$0.1050	$450,717	$103,273
8	4,285,906	$0.1306	$559,739	$0.1076	$461,061	$98,678
9	4,277,334	$0.1322	$565,464	$0.1103	$471,642	$93,821
10	4,268,779	$0.1337	$570,736	$0.1130	$482,466	$88,269
11	4,260,242	$0.1316	$560,648	$0.1158	$493,539	$67,109
12	4,251,721	$0.1333	$566,754	$0.1187	$504,866	$61,889
13	4,243,218	$0.1350	$572,834	$0.1217	$516,452	$56,382
14	4,234,731	$0.1368	$579,311	$0.1248	$528,305	$51,006
15	4,226,262	$0.1386	$585,760	$0.1279	$540,430	$45,330
16	4,217,809	$0.1404	$592,180	$0.1311	$552,832	$39,348
17	4,209,374	$0.1423	$598,994	$0.1343	$565,520	$33,474
18	4,200,955	$0.1441	$605,358	$0.1377	$578,499	$26,859
19	4,192,553	$0.1461	$612,532	$0.1411	$591,775	$20,757
20	4,184,168	$0.1481	$619,675	$0.1447	$605,356	$14,319
					$9,850,401	$1,517,522

SOLARLIBERTY®

Sustainability and Environmental Impact

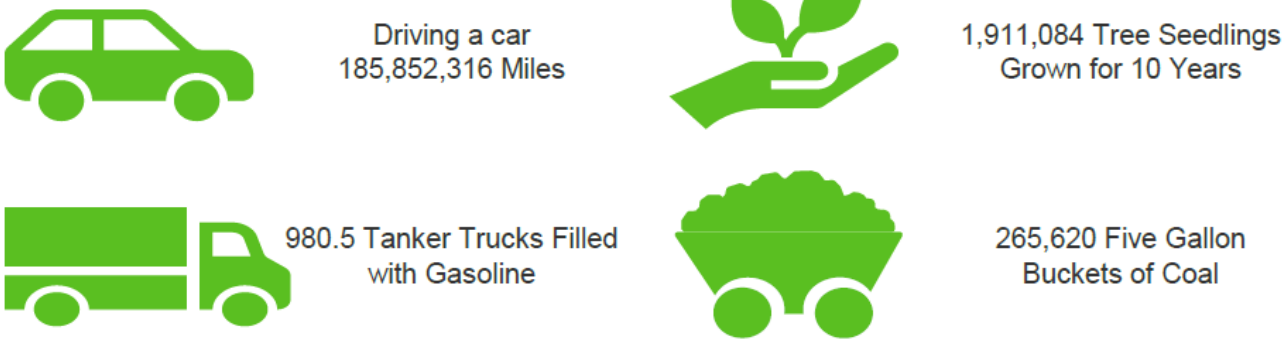
Solar Liberty's installation of a 3,758.4 kW solar system for the City of Lockport represents a significant step towards environmental sustainability. Producing an impressive 4,426,223 kWh, this solar installation provides substantial environmental benefits. It is equivalent to offsetting the emissions from 185,852,316 miles driven by an average car, akin to avoiding the burning of 265,620 five-gallon buckets of coal. Moreover, the carbon offset achieved by this project is comparable to growing 1,911,084 tree seedlings for a decade. This initiative underscores the City of Lockport's commitment to reducing its carbon footprint and embracing renewable energy solutions.

Environmental Benefits

Going solar not only benefits your pocket book but it generates significant environmental benefits in reducing your carbon footprint. Below is a comparison of CO2 emissions that will be offset by your solar system to various forms of carbon sequestration or polluting activities.

Comparison of CO2 Emissions

The proposed 3758.4 kW system will reduce Green House Gas Emissions by 163,847,402 lbs. of CO2 over 25 years. That is equivalent to:



Equipment Spec Sheets & Warranties

Q.PEAK DUO XL-G11.3
570-590

ENDURING HIGH PERFORMANCE

ntv GERMANY'S MOST POPULAR PROVIDER Life & Living Award 2021

EUPD RESEARCH TOP BRAND PV MODULES 2021

Q CELLS Yield Security

BREAKING THE 21% EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.7 %.

LOW ELECTRICITY GENERATION COSTS
Higher yield per surface area, lower BOS costs and up to 175 watts more module power than standard 144 half-cell modules.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (2400 Pa).

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance warranty[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative 12-busbar design with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:
Ground-mounted solar power plants

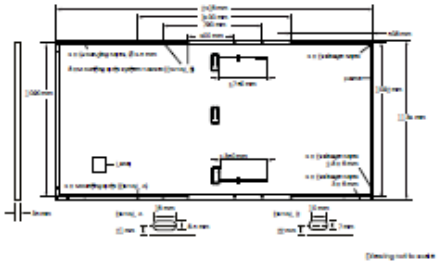
Engineered in Germany

Q CELLS

SOLARLIBERTY®

MECHANICAL SPECIFICATION

Format	2416 mm × 1134 mm × 35 mm (including frame)
Weight	30.7 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodised aluminium
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥750 mm, (−) ≥ 350 mm
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4; IP68

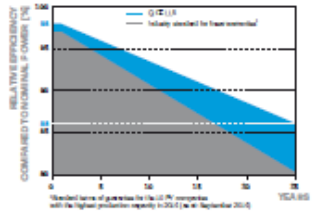


ELECTRICAL CHARACTERISTICS

POWER CLASS				570	575	580	585	590
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)								
Minimum	Power at MPP[2]	P_{MPP}	[W]	570	575	580	585	590
	Short Circuit Current[2]	I_{SC}	[A]	13.49	13.51	13.54	13.57	13.59
	Open Circuit Voltage[2]	V_{OC}	[V]	53.59	53.62	53.64	53.67	53.70
	Current at MPP	I_{MPP}	[A]	12.82	12.87	12.92	12.97	13.01
	Voltage at MPP	V_{MPP}	[V]	44.46	44.68	44.90	45.12	45.33
	Efficiency[2]	η	[%]	≥20.8	≥21.0	≥21.2	≥21.4	≥21.5
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	427.6	431.4	435.1	438.9	442.6
	Short Circuit Current	I_{SC}	[A]	10.87	10.89	10.91	10.93	10.95
	Open Circuit Voltage	V_{OC}	[V]	50.54	50.56	50.59	50.62	50.64
	Current at MPP	I_{MPP}	[A]	10.09	10.13	10.17	10.22	10.26
	Voltage at MPP	V_{MPP}	[V]	42.39	42.58	42.77	42.96	43.14

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

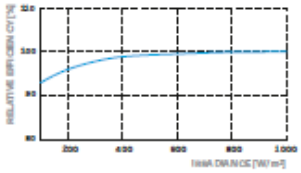
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1500	PV module classification	Class II
Maximum Reverse Current	I_R	[A]	25	Fire Rating	C
Max. Design Load, Push / Pull		[Pa]	3600 / 1600	Permitted Module Temperature on Continuous Duty	−40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 2400		

QUALIFICATIONS AND CERTIFICATES

IEC 61215:2016, IEC 61730:2016.
This data sheet complies with DIN EN 50380.

PACKAGING INFORMATION

Vertical packaging	2458 mm	1134 mm	1270 mm	1000 kg	20 pallets	16 pallets	31 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS GmbH
Sonnenallee 17-21, 06766 Bitterfeld-Wolfen, Germany | TEL +49 (0)3494 66 99-23444 | FAX +49 (0)3494 66 99-23000 | EMAIL sales@q-cells.com | WEB www.q-cells.com

Specifications subject to technical changes © Q CELLS Q.PEAK DUO XL-G11.3 570-590_2021-08_Rev02_EN

Engineered in Germany

Q CELLS

LIMITED WARRANTY FOR CRYSTALLINE PHOTOVOLTAIC MODULES FROM Q CELLS

Document issued on March 1st, 2021

This limited warranty ("Limited Warranty") is issued by Hanwha Solutions Corporation, 86 Cheonggyecheon-ro Jung-gu, Seoul, Republic of Korea 04541, or its successors or assigns ("HSC"), and applies exclusively to Q CELLS Modules (as defined in Section 1.a.).

1. SCOPE

a. Products

Q CELLS Modules are defined in this Limited Warranty as Q CELLS branded photovoltaic modules manufactured by HSC or its authorized manufacturers that are sold and installed within the United States, Canada, Mexico, Panama and Costa Rica and are of the following product type:

- Q.PEAK DUO XL-G9.3 / BFG
- Q.PEAK DUO XL-G10.3 / BFG, Q.PEAK DUO XL-G10.d / BFG
- Q.PEAK DUO XL-G11.3 / BFG

b. Beneficiary

The sole and exclusive beneficiary of this Limited Warranty is an end customer who purchases Q CELLS Modules from HSC or from any one of its authorized distributors ("Distributor") and is the initial installer of such modules into a specific photovoltaic (PV) solar energy project ("Project"), and any of the end customer's permitted successors or assigns ("Customer").

c. Term

The term of this Limited Warranty ("Term") for the Customer begins on the delivery date to the original Customer ("Warranty Start Date") and ends at the end of the warranty periods set forth in Section 2.. If the Customer is unable to provide sufficient and adequate documentation of the delivery date to the original Customer, the "Warranty start Date" sixty (60) days after the following the Module(s) was manufactured as indicated by the serial number. The performance of warranty services under this Limited Warranty does not extend the Term. HSC's obligations under this Limited Warranty are conditioned upon the Customer's compliance with its payment obligations for purchase of the applicable Q CELLS Module.

2. WARRANTY

a. Product Warranty

Subject to the terms and conditions in this Limited Warranty, HSC warrants to the Customer for a period of twelve (12) years following the Warranty Start Date that the Q CELLS Modules, when installed, used, and serviced under normal operating conditions and in accordance with Q CELLS Module Installation Manual provided by HSC or Distributor will be free from any defects in materials and workmanship that have a significantly negative effect on the power output of the Q CELLS Modules (collectively, „Product Defect"). The Product Warranty does not warrant a specific power output of the Q CELLS Modules, which shall be exclusively covered under the Performance Warranty in Section 2.b.. Product Defect does not include any cosmetic changes or other changes in the Q CELLS Modules' appearance, including but not limited to, any color changes, mold and normal wear and tear.

b. Performance Warranty

Subject to the terms and conditions of this Limited Warranty, HSC warrants to the Customer that the Q CELLS Modules are manufactured to (i) produce a power output of at least ninety-eight percent (98 %) of the minimum power output specified in the applicable module data sheet during the first twelve (12) months following the Warranty Start Date, and (ii) have a yearly maximum decrease (or degradation) of power of not more than fourty-five hundredths of one percent (0.45 %) from start of the second (2nd) twelve (12)-month period following the Warranty Start Date until the end of such twelve (12)-month period, and repeated for each successive twelve (12)-month period until the thirtieth (30th) anniversary of the Warranty Start Date, (collectively, "Performance Warranty"). As an example, the Q CELLS Module will be manufactured to have a minimum power output of eighty-four point ninety-five percent (84.95 %) of the minimum power output specified in the applicable module data sheet at the end of the term of this Limited Warranty. Failure to meet the Performance Warranty is defined herein as a "Performance Defect." In the event of a Performance Defect claim, the power output of any Q CELLS Modules described in this Section 2. b. shall be measured by HSC under the Standard

Test Conditions ("STCs") defined in the IEC standards EN 61215 and 60904-3 in effect as of the Warranty Start Date.

3. EXCLUSIONS

The Limited Warranty shall not apply to any Q CELLS Modules affected by the following events or conditions:

1. usage, transport, storage, installation and/or handling in any manner that fails to strictly comply with the Installation Manual and the Packaging and Transportation Information sheet (provide upon request) applicable to the Q CELLS Modules;

2. system or components of such system that are of a design, configuration or installation that does not meet the standards typically used by experienced professionals in the industry;

3. incorrect, improper or inadequate service, operation or maintenance of the Q CELLS Modules or of the Project, or any normal wear and tear of the Q CELLS Modules;

4. damage caused by extreme environmental sources of impact, including, but not limited to (i) acid rain or snow, (ii) blowing sand, (iii) saline air, (iv) pollution of any kind in the air, soil or groundwater, (v) unusual oxidation levels, (vi) mold, or (vii) any nearby fire, explosion, smoke or charring;

5. damage caused by acts of nature or acts of God, including, but not limited to, lightning, hail, frost, snow, storms, tidal waves, floods, extreme temperatures, earthquakes, typhoons, tornadoes, volcanic eruptions, meteorites, ground motions, earth fissures or landslides;

6. damage caused directly or indirectly by acts of violence or intervention by third parties or external forces, including but not limited to, misadventure, riots, war, insurrection, communal violence, unintentional damage by third parties, vandalism, damage caused by animals, and/or acts or omissions by third parties beyond the reasonable control of HSC;

7. damage to the Project in which the Q CELLS Modules are installed caused by external factors, including, but not limited to, voltage fluctuations, power peaks, excess current, power failure, poor electrical or mechanical engineering work, or other faults occurring in a power supply system with or without mains connection, whether or not such faults in the power supply system was contributed to by any act or omission of the Customer;

8. Q CELLS Modules are modified or used in processes involving other products, without obtaining the prior written consent of HSC;

9. the serial number or product label has been removed, changed, deleted or made unrecognizable;

10. the Q CELLS Modules are used on any mobile carriers (such as motor vehicles or ships);

11. the conditions of use at the Project, at any time, exceed the specifications set out in the applicable module data sheet; and/or

12. the Customer fails to notify HSC of a Product Defect or Performance Defect within 30 days of the initial discovery or prior to the end of the applicable warranty period set forth in Section 2..

4. WARRANTY CLAIMS

a. Customer Inspection

The original Customer must inspect the Q CELLS Modules for visible defects and notify HSC of any defects within 30 days of the delivery of the Q CELLS Modules ("Inspection Period"). If Customer does not notify HSC of the visible defects within the Inspection Period, such modules shall be deemed as being accepted by the Customer.

b. Warranty Claims

The Customer will be entitled to make claims under this Limited Warranty ("Warranty Claims") only if the Customer has provided documented evidence sufficient to prove that the malfunctioning or non-conformity of the Q CELLS Modules resulted exclusively from a Product Defect or Performance Defect covered by this Limited Warranty. If the Warranty Claim is based on glass breakage, then the Customer shall conduct a static load calculation on the substructure.

c. Warranty Claim Compliance

The Customer must comply with the HSC's then-current Return Merchandise Authorization ("RMA") process (available upon request) to make any Warranty Claim. HSC will not accept any Warranty Claims not in compliance with the RMA or Warranty Claims that use the delivery of any unauthorized return shipments of Q CELLS Modules.

d. Warranty Claim Procedure

The Customer is responsible for shipping the Q CELLS Modules to HSC for evaluation at the Customer's expense. HSC shall pay the costs of a technical inspection and, in the event that the warranty

claim is confirmed by such inspection, transportation. Otherwise, the Customer shall be charged with these costs. To make a Warranty Claim, the Customer must submit the original receipt or invoice, which bears the date of the purchase and of the delivery, the serial numbers of the relevant Q CELLS Modules and the name of the authorized distributor or seller.

e. Ownership Interest
The Q CELLS Modules sent to HSC in the course of the RMA process shall remain the property of the Customer until any inspection has been completed and HSC provides a replacement or refund. At the time any refund or delivery of a replacement Q CELLS Module to the Customer takes place under this Limited Warranty, the ownership interest of the defective module passes to HSC. Any repaired, replaced or additionally supplied modules will be warranted only for the remainder of the original warranty period applicable to the original Q CELLS Modules.

5. REMEDIES

a. Product Defect Remedy
If HSC determines, following a Warranty Claim, that a Q CELLS Module has a Product Defect, then HSC shall, at its discretion, within a reasonable time: (i) remedy or repair the Product Defect; (ii) provide a replacement module in place of the Q CELLS Module with the Product Defect; or (iii) provide the Customer monetary compensation equal to the purchase price of the Q CELLS Module subject to an annual four percent (4 %) depreciation rate on the original purchase price as evidenced by the invoice produced by the Customer; provided, however, if the Customer fails to produce an original invoice, then the price shall be based upon the then-current per watt market price of a comparable PV module in a similar market and the date shall be based upon the date of manufacture according to the HSC records.

b. Performance Warranty Remedy
If HSC determines following a Warranty Claim that a Q CELLS Module has a Performance Defect, then HSC shall, at its discretion, within a reasonable time: (i) remedy or repair the Performance Defect; (ii) provide a replacement module in place of the Q CELLS Module that has the Performance Defect; (iii) make up the difference to the guaranteed power output by providing additional modules; or (iv) provide to the Customer monetary compensation that shall be calculated at the time of a justified Customer's Warranty Claim subject to Section 4. of this Limited Warranty, and shall be the difference between the applicable guaranteed power output and actual power output (measured by the STCs) multiplied by the price per watt of the Q CELLS Module (in which such price shall be calculated by applying an annual four percent (4 %) depreciation rate to the purchase price as evidenced by the original invoice provided by the Customer; monetary compensation = depreciated purchase price per watt x (guaranteed power output – actual power output); provided, however, if the Customer fails to produce an original invoice, then the price shall be based upon the then current per watt market price of a comparable PV module in a similar market and the date shall be based upon the date of manufacture according to the HSC records.

c. Discontinued products
In the event the Module(s) is no longer available, Q CELLS reserves the right to deliver replacement Module(s) that may differ in size, color, shape, model number, but with equivalent or higher power level.

d. Sole and Exclusive Remedy and Obligation
THE REMEDIES SET FORTH IN THIS SECTION 5. ARE HSC'S SOLE AND EXCLUSIVE LIABILITY AND OBLIGATION, AND THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES, FOR ANY PRODUCT DEFECT OR PERFORMANCE DEFECT IN ANY Q CELLS MODULE. THE REMEDY EXTENDED TO THE CUSTOMER SPECIFICALLY EXCLUDES ANY REIMBURSEMENT FOR THE COSTS OR EXPENSES INCURRED IN THE DISMANTLING OR INSTALLATION OF THE Q CELLS MODULES, REPLACEMENT MODULES OR PARTS, OR LOSS OF POWER.

6. WARRANTY LIMITATIONS

THE WARRANTIES SET FORTH IN THIS LIMITED WARRANTY ARE IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, REGARDING ANY Q CELLS MODULES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

HOWEVER, IF A Q CELLS MODULE IS SOLD AS A CONSUMER PRODUCT, TO THE EXTENT REQUIRED BY APPLICABLE LAW, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT ARE LIMITED TO THE PERIODS OF THE LIMITED PRODUCT AND LIMITED PERFORMANCE WARRANTIES SET FORTH ABOVE, OR SUCH SHORTER PERIOD AS REQUIRED BY APPLICABLE LAW. THIS LIMITED WARRANTY GIVES THE CUSTOMER SPECIFIC LEGAL RIGHTS, AND THE CUSTOMER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. HSC IS NOT RESPONSIBLE OR LIABLE IN ANY WAY FOR DAMAGE OR INJURY TO PERSONS OR PROPERTY, OR FOR OTHER LOSS OR INJURY RESULTING FROM ANY CAUSE WHATSOEVER, ARISING OUT OF OR RELATED TO ANY Q CELLS MODULES UNLESS OTHERWISE STIPULATED BY MANDATORY STATUTORY LAW. IN PARTICULAR, HSC'S LIABILITY FOR FRAUDULENT OR WILLFUL INTENT, GROSS NEGLIGENCE OR PERSONAL INJURY, IN EACH CASE, UNDER APPLICABLE MANDATORY LIABILITY LAW SHALL REMAIN UNAFFECTED.

EXCEPT AS PROVIDED IN THIS SECTION 6., THE Q CELLS MODULES, THE PRODUCT DOCUMENTATION AND ALL INFORMATION ARE PROVIDED ON AN "AS IS" BASIS.

THE CUSTOMER ACKNOWLEDGES THAT THE FOREGOING LIMITATIONS ON LIABILITY ARE AN ESSENTIAL ELEMENT OF THE RELEVANT SALES AGREEMENT BETWEEN THE PARTIES AND THAT IN THE ABSENCE OF SUCH LIMITATIONS THE PURCHASE PRICE OF THE Q CELLS MODULES WOULD BE SUBSTANTIALLY HIGHER.

SOME JURISDICTIONS LIMIT OR DO NOT PERMIT DISCLAIMERS OF LIABILITY, SO THIS PROVISION MAY NOT APPLY TO THE CUSTOMER IN SAID JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW LIMITATIONS OR THE EXCLUSION OF DAMAGES SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO THE CUSTOMER IN SAID JURISDICTION. THE CUSTOMER MAY HAVE SPECIFIC LEGAL RIGHTS OUTSIDE THIS LIMITED WARRANTY FOR Q CELLS MODULES, AND MAY ALSO HAVE OTHER MANDATORY RIGHTS THAT VARY FROM JURISDICTION TO JURISDICTION, WHICH SHALL REMAIN UNAFFECTED.

IN NO EVENT WILL HSC BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, EXEMPLARY, SPECIAL OR INCIDENTAL DAMAGES, INCLUDING LOSS OF USE, LOST REVENUE AND/OR LOST POWER, ARISING FROM OR RELATING TO THIS WARRANTY OR ANY Q CELLS MODULE OR ANY REPLACEMENT OR ADDITIONAL MODULE SUPPLIED BY HSC HEREUNDER, EVEN IF HSC IS AWARE OF THE POSSIBILITY OF SUCH DAMAGES.

THE TOTAL LIABILITY OF HSC, ANY DISTRIBUTOR, AND/OR THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS ARISING FROM OR RELATING TO THIS LIMITED WARRANTY, WHETHER IN CONTRACT, TORT OR OTHERWISE, WILL NOT EXCEED THE AMOUNT RECEIVED BY HSC FOR THE Q CELLS MODULE THAT IS THE SUBJECT OF THE CLAIM OR DISPUTE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE CUSTOMER IN SAID JURISDICTION.

7. ASSIGNMENT

Customer Assignment

Customer Assignment. Customer may assign this Limited Warranty for any Q CELLS Module to a new owner of the entire photovoltaic system in which such module is originally installed, provided that such system remains intact in its original place of installation. This Limited Warranty may not otherwise be assigned or transferred, and any attempt to assign or transfer in violation of this Section 7. shall be null and void.

8. MISCELLANEOUS

a. Survival

If any provision of this Limited Warranty terms and conditions is held to be invalid, illegal or unenforceable in any respect, such provision will be changed and interpreted to accomplish the objectives of such provision to the greatest extent possible under applicable law and the remaining provisions will continue in full force and effect.

b. Governing Law

All matters arising from or relating to this Limited Warranty shall be governed by the laws of the State of California, without regard to its choice of law rules. The UN Convention on the International Sale of Goods shall not apply.

c. Waiver of Jury Trial; Jurisdiction

Any dispute, controversy or claim arising out of or relating to this Limited Warranty or any of its provisions, or the breach, termination, interpretation, enforcement or validity thereof, including any dispute hereby is waived to the fullest extent permitted by applicable Law any right it may have to a trial by jury with respect to any litigation directly or indirectly arising out of, under or in connection with this Limited Warranty. Any dispute, controversy or claim arising out of or relating to this Limited Warranty or any of its provisions, or the breach, termination, interpretation, enforcement or validity thereof, including any dispute irrevocably is submitted to the jurisdiction of the courts of the State of California and the federal courts of the United States of America located in the State of California solely in respect of the interpretation and enforcement of the provisions of this Limited Warranty.

Subject to modifications. © Q CELLS HEC Warranty_terms_module_QPEAK_DUO_XL-G9.2-BFG_XL-G11S-BFG_series_2021-03_Rev02_NA

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Q CELLS

CPS

Datasheet

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 inlcudes touch safe fusing for up to 20 strings. The CPS Flex 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 Flex 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

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Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

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	120.3/127.2A
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	150A	175A
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 Flex Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex 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 Block [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, M8 PEMserts (Wire range: #1AWG - 250kcmil CU/AL, Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	15A or 20A fuses provided (Determined by product SKU)	
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.

CHINT POWER SYSTEMS AMERICA INVERTER WARRANTY

BUYER ACCEPTS THIS WARRANTY IN LIEU OF ANY OTHER WARRANTY, WHETHER WRITTEN, ORAL, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY, WORKMANSHIP, AND FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY SHALL BE BUYER'S SOLE AND EXCLUSIVE REMEDY AND CHINT POWER SYSTEMS AMERICA CO.'S LIMIT OF LIABILITY FOR ANY AND ALL LOSS OR DAMAGE RESULTING FROM DEFECTIVE OR NONCONFORMING PRODUCT(S).

Chint Power Systems America Co. ("CPS") and its parent company, Shanghai Chint Power Systems Co., Ltd, warrant that all new inverter Products conform to applicable codes and standards in effect at the time of Product manufacture and are free of any defects in material and workmanship for a standard warranty period of ten (10) years for 1000Vdc models and five (5) years for 1500Vdc models. The warranty period begins one (1) month from the date CPS ships the Product or the date of installation, whichever comes first. If the Buyer purchases an extended warranty, the warranty terms and conditions provided herein will continue for the duration of the extended warranty. The CPS Warranty, including the limitations, is transferrable from the original Buyer to subsequent owners.

Scope of Warranty Services:

- Covers new inverter Products installed in North America.
- CPS will repair, replace with a Product of the same type, or refund the purchase price, at its sole discretion, at no cost to the Buyer if the Buyer notifies CPS of any breach of warranty within the warranty period.
- CPS will, with commercially reasonable efforts, respond to Buyer inquiries within 24 hours and provide a resolution plan within 48 hours to rapidly resolve warranty issues.
- If the unit is replaced in the field, the Buyer agrees to utilize the CPS Return Material Authorization ("RMA") process in place at the time of replacement.
- CPS warrants that any repaired or replaced Product will be free from defects in material or workmanship for the remainder of original unit warranty period.

Warranty Exclusions:

- Damage from shipping or transportation.
- Damage caused by improper installation, operation and maintenance according to the installation manual or any local, state or federal codes and requirements, or other misuse.
- Replaceable service items, including fuses and filters.
- Any costs incurred by the Buyer or installer for troubleshooting, installation, removal or the value of lost energy production.
- Damage caused by force majeure, including but not limited to flood, fire, earthquakes and lightning.
- Material or workmanship not provided by CPS or its approved service providers.
- Damage caused by rust or corrosion.
- Units not paid for in full by original purchaser per mutually agreed payment terms.

If your Product requires troubleshooting or warranty service, contact your installer or dealer. If you are unable to contact your installer or dealer, or the installer or dealer is unable to provide service, contact CPS directly at:

North American call center: 1-855-584-7168

CPS LIABILITY FOR LOSSES CAUSED BY PRODUCT FAILURE OR DAMAGE IS SOLELY LIMITED TO THE PURCHASE PRICE OF THE PARTICULAR PRODUCT(S) WITH RESPECT TO WHICH LOSS OR DAMAGE IS CLAIMED, PLUS ANY TRANSPORTATION CHARGES ACTUALLY PAID BY THE BUYER FOR SUCH PRODUCT(S) AND EXCLUDES CONSEQUENTIAL LOSSES. IN THE EVENT OF ANY DISCREPENCY BETWEEN OTHER APPLICABLE QUALITY GUARANTEE OR AFTER-SALES PROVISIONS AND THIS WARRANTY, THIS WARRANTY SHALL PREVAIL. IN THE EVENT THAT PROVISIONS OF THIS WARRANTY ARE IN CONTRADICTION WITH APPLICABLE STATE OR FEDERAL LAWS OR REGULATIONS, THE LATTER SHALL HAVE TOP PRIORITY. THE RIGHT OF MODIFICATION AND INTERPRETATION OF THIS WARRANTY IS RESERVED BY SHANGHAI CHINT POWER SYSTEM CO., LT

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CHINT POWER SYSTEMS AMERICA CO.
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