City of Laguna Beach – Project No. CM-24-1008

2024

Proposal for Solar Photovoltaic Microgrid – City of Laguna Beach Facilities

STATEN

Prepared By: STATEN SOLAR

8/20/2024

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Cover Letter

City Manager's Office,
505 Forest Avenue
Laguna Beach, CA 92651

Kind Attention: Jeremy Frimond, Assistant City Manager

Subject: Proposal for implementation of Solar PV Microgrid Design, Installation and Operation at Multiple City of Laguna Beach Facilities (RFQ/P CM-24-1008).

Dear Jeremy,

Thanks so much for the opportunity to collaborate with the City of Laguna Beach ("**City**") on the Solar PV Microgrid RFQ/P CM-24-1008. Our capabilities align seamlessly with your requirements, and we are confident in our ability to contribute positively to the project's success.

Staten Solar Corporation ("**Staten**") is a distinguished developer and EPC contractor specializing in design and installation of Solar, Storage, and EV Chargers projects. As a leading firm based in the Bay Area California, Staten holds Class B, C-10, and C-46 California licenses, demonstrating our commitment to excellence in electrical and solar construction. We have been in business for over sixteen (16) years and have successfully executed numerous projects for both public and private clients with a focus on sustainability, innovation, and environmental responsibility across the length and breadth of California.

We pride ourselves on delivering high-quality projects on schedule and within budget, with a particular emphasis on design build experience, design management, and expertise in Solar PV systems, BESS & Microgrid constructed from the highest quality system components with best-in-class performance, reliability, and warranties.

We have thoroughly reviewed the RFP and all addenda and look forward to meeting the City's representatives during the interview process to provide more information on the company, answer any questions you may have about our proposal, and start contract negotiations. We will strive to make this project a shining example of sustainable energy innovation.

Sincerely,

Sam Bhanot, President
Staten Solar Corporation
Phone: (408) 480-3137 (mobile)
Email: sb@statensolar.com

1. Executive Summary

Staten Solar appreciates the opportunity to work with the **City of Laguna Beach** ("**City**") and is very pleased to provide the proposal in response to Solar PV Microgrid RFQ/P CM-24-1008 for Design, Installation and Operation at Multiple location of City of Laguna Beach Facilities. The proposal includes procurement of materials, permitting, installation, interconnection, and all associated documentation, financing, maintenance, and warranties of Solar PV Microgrid systems at all sites. Here are some key points that we would like to highlight:

- **Dual Developer and EPC role:** Staten is a California General Building (B), Electrical (C-10) and Solar (C-46) contractor and consistent with our trade we deliver high quality construction projects. What sets us apart is that we have in-house capabilities to develop, finance, own and operate these systems. Currently we have several iconic systems owned and operated directly by us such as Lake Tahoe Airport solar, Judicial Council of California (Bay Area) solar and South Tahoe Public Utilities District solar. Having financing, development, construction and Operations and Maintenance (O&M) under one roof uniquely positions us to optimize decisions across the board which cannot be done by a grouping of compartmentalized firms.
- **Strong financial backing:** Financing for the project is secured. Staten Solar collaborates with a large national REIT with assets under management of over $45B, for providing PPAs and other financing structures to clients (up to $300M year). We also have construction lines of credit, and tax credit offloading mechanisms with a local community bank. At the appropriate time, we will choose one option that best serves the Project's interests.
- **Bonding Capabilities:** Staten Solar also possesses the necessary Insurance and bonding capacity to obtain all required payment and performance bonds. We hold $35 million in bonding capacity, further demonstrating our financial commitment to fulfilling contractual obligations. We maintain strong relationships with reputable bonding companies and are confident in securing the necessary bonds within the specified timeframe.
- **Project Design:** We designed the project to maximize the City's benefit by using normalized PPA rates. While some sites offer greater savings than others, the overall package delivers significant cost reductions.
- **BESS Design & Cost:**
  - We have complied with the RFP requirements so the city may perform levelized comparisons with other bidders. However, we would like to take a much closer look at this part of the RFP and search for more optimal solutions such as a BESS lease. We are also open to offering a monthly BESS lease option (similar to a PPA financing method) if the city prefers.
  - The exact BESS sizes are not easily available for one, and we have had to use the next higher size – which increased the cost/PPA rate. Also, the philosophy of backing up only critical loads may help reduce the BESS size needed.

1.1 Company Background – Staten Solar Corporation

Staten Solar is a leading EPC contractor and developer of solar PV, Storage and EV charger projects. Founded in 2008, with offices in San Jose, California, and New Delhi, India, the company's focus is commercial and utility solar PV applications where it has a combined experience in hundreds of megawatts (MW) of projects from small residential owners to billion-dollar corporations. Customers know that they can trust and count on Staten Solar's innovative design methodologies, electrical know-how, and system expertise, and construction skills to deliver solar PV systems with the highest quality, most reliability, and best long-term value.

Areas of Expertise:

- **Target Markets:** Agriculture, commercial, non-Profit, RV parks, public sector (schools, government, etc.).
- **Project Expertise in the US**: 100 kW to 30MW, commercial rooftop, canopy & carport structures, levee mount, and ground mount arrays.
- **Project Expertise internationally:** 1MW-40MW, commercial rooftop, canal-top, canopy & carport structures, and ground mount arrays.
- **Multi-vendor Offerings:** We work with all key solar modules, inverter, and racking vendors so that we can tailor a solution that best meets your specific budget, site, and business requirements.
- **Key Company Strengths:**
  - Proactive and Innovative: We create long-term customer value by using innovative and cost-effective solutions in project design and construction, financing, and operations and maintenance.
  - Dedicated and Team Oriented: Our employees are driven by their commitment to service and our culture is defined by management's dedication to growth, innovation, responsibility, and integrity.
  - Extensive Technical Expertise & Experience: We have a thorough understanding of the underlying physics of solar and broad experience in all kinds of solar technologies.
  - Focused on Quality and Reliability: We use state-of-the-art design, logistics, construction techniques, global supply chain optimization, and system monitoring to deliver best in class yet cost-effective value.

Product & Solution Innovation: Solar pioneers. Constructed the **World's First Levee Mount Solar Energy system**. Winner of the '**Solar Project of the Year**' award and featured in press releases from **Solar Frontier** and **Canadian Solar**.

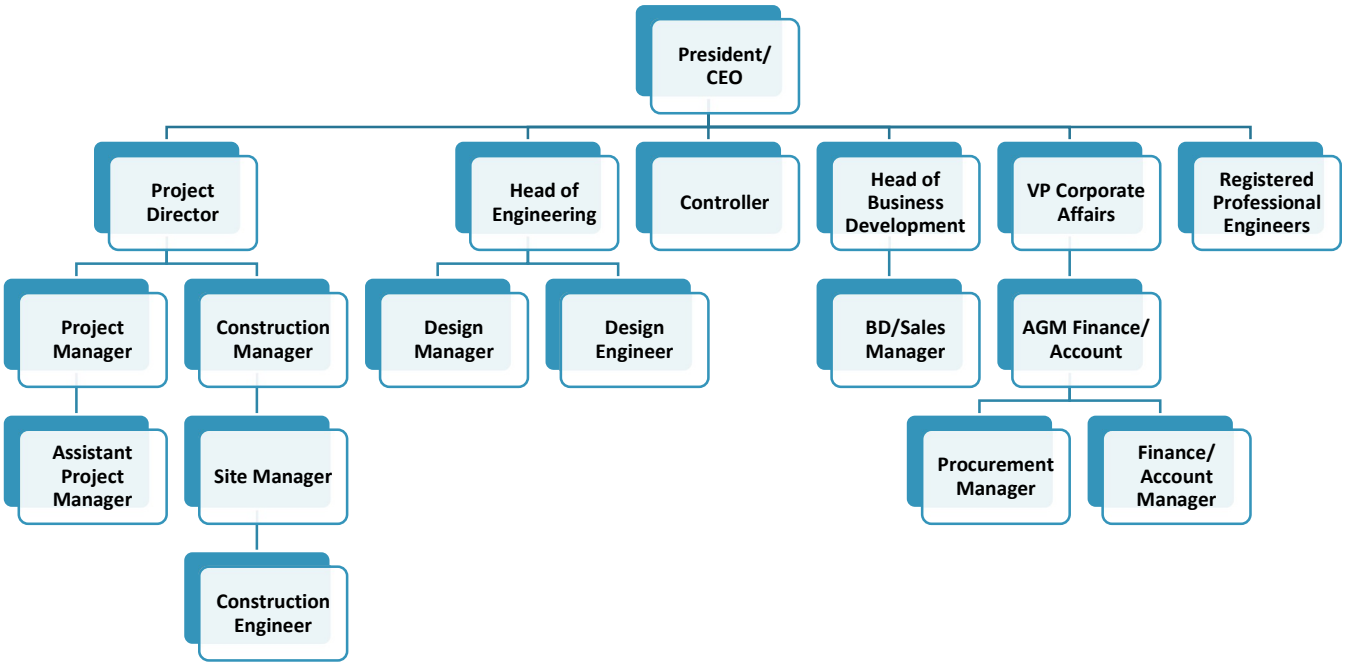
1.2 Organization & Resources

Staten Solar operates as a California Corporation. Our organization was founded in 2008 under the laws of the state of California. Our organization was formed with a commitment to excellence, integrity, and adherence to all legal and regulatory obligations. Staten Solar is fully committed to complying with all statutory requirements outlined in the RFP document.

Particulars	Information
Legal Name of Proposer	**Staten Solar Corporation**
Year founded	**2008**
Federal ID Number	**26-2551126**
Date of Incorporation/ State	**May 02, 2008 / California**
State License (CLSB) Number	**984910**
License Classification (s)	**C10, C46 & B**
DIR Registration Number	**1000046459**
Number of Years in Business	**16 years**
Status (private or publicly held)	**Private**
Number of Employees	**34**
Number of Employees in California	**25**
Targeted Consumers	**Government, Commercial, Industrial and Residential**
Authorized Person (s)	**Name: Sam Bhanot** **Title: President & CEO** **Phone: (408) 480-3137 (mobile)** **Email: sb@statensolar.com**
Corporate Office	**175, Nortech Pkwy, Suite 100, San Jose, CA 95134**
Contact Details:	**Website: www.statensolar.com** **Office Phone: (408) 780-2889**

2. Relevant Team and Project Experience

2.1 Organization Structure



Team Experience:

Name	Role	Experience
Sam Bhanot	President	35 years
Mehrdad Jafari	Director of Projects	33 years
Napoleon Leoni	California Professional Engineer (Electrical)	45 years
Gang Xuan	California Professional Engineer (Structural)	18 Years
Raj Kumar	Controller	25 years
Puneet Mathur	Head of Engineering	15 years
Julio Beristain	Construction/Project Manager	20 years

2.2 Project Management Team Resumes

Sam Bhanot, Founder, President

Sam is a licensed CA contractor and has been active in the industry for over 35 years. Under his leadership, Staten has delivered over 200 MWs of complex projects with unique technical challenges and opportunities. Prior to founding Staten in 2008, Sam was the CEO of Knowlent, a semiconductor software company with silicon-valley VC funding and footprint in over a dozen countries. Sam holds an MBA from UC Berkeley and BS in Computer Science from the Indian Institute of Technology.

Mehrdad Jafari, Director of Projects, Registered Professional Engineer in CA

As an experienced Civil Engineer with 33 years of demonstrated expertise in commercial and residential development, construction and real estate, Mehrdad delivers our projects on time and budget and with safety and quality. Proven track record of delivering high-profile projects through exceptional project management skills. Proficient in steel structural and reinforced concrete designs using advanced engineering software, with strong capabilities in detailing and CAD-supported drawing.

Napoleon Leoni – Registered Professional Engineer, ELECTRICAL, California - License (PE) Number 24930

As a registered Electrical Professional Engineer of California, Napoleon comes with over 45+ years of combined EPC (Engineering, Procurement and Construction) experience that spans three continents in the world. His profound expertise and industry acumen bring exceptional leadership qualities to the board. Napoleon has extensive experience as a project manager and supervisor in electrical distribution of aerial and control systems. He has led the entire process of revision, budgeting, contracting and administration for about 135 environmental projects in Venezuela. Napoleon has always had a passion for nature and the environment, and from 2017 he has been able to take his diverse skillset and focus them on the solar industry. As the Director of Construction at Staten, Napoleon is responsible for overseeing all aspects of planning, procurement, construction, project management and commissioning of small & large-scale solar projects in California. He leads a project execution team of well-educated professionals to fulfill all the construction commitments. Napoleon has a BS in Electrical Engineering from Universidad Central de Venezuela and a Masters in Control Systems from the Imperial College, London. Napoleon will review and stamp all plan sets for the Project and witness any specialty electrical work that requires an expert witness.

Gang Xuan, Registered Professional Engineer, STRUCTURAL, California - License (PE) Number 6504

As a registered Structural Professional Engineer of California, Gang Xuan, based in the San Francisco Bay Area and registered his civil engineer license (C-80829) to the State of California and subsequently registered his structural engineer license (S-6504) in 2016 to the State. He has been Staten's Structural engineer of record since 2016. Over his 18 years' professional work, the first 6 years (2006-2012) are focused on high-rise buildings, residential

structures, and municipality projects development, and the last 12 years (2012-2024) are quite concentrated in the photovoltaic project structural design development ranging from small residential work (a few KW) to large utility solar farms (at MW level). His expertise includes the solar racking structures including residential use rooftop racking, ground mounted residential solar steel structures, and commercial use steel frame-based carports. Prepare and sign off project design drawings and calculation packages for jurisdiction project permit approval. He focuses includes to a variety of infrastructure facilities with the emphasis on foundation design, pile design, and soil engineering. Structural design includes waterfront piers, ferry terminal, city power plant facility, transmission tower renovation, and residential/commercial office building design. With a collaborative approach, he bridges technical intricacies with project goals. A proven track record in diverse projects reflects his passion for pushing the boundaries of structural engineering.

Puneet Mathur, Head of Engineering

Seasoned Solar Engineering professional having 15 years of expertise in the areas of solar design. Successfully managed teams of up to 15 engineers to engineer more than 1 Gigawatt of solar energy projects on commercial, industrial, and utility scale. Designed solar power projects for the USA, India, Philippines, and African markets. Puneet holds a BS in Mechanical Engineering from Dronacharya College of Engineering.

Julio Beristain, Construction Manager

Julio has 20+ years' experience in the California construction industry and has delivered numerous solar projects ranging from 100KW up to 1 MW over the last seven years at Staten. Julio will be the designated CM for this project. He consistently demonstrates the time-honored construction code of safety, quality, budget and leads his crews by teaching them. Julio is licensed with OSHA, LG certified, and underwent Electrical Training at Escuela Technica 46-Puebla, México. Julio will be leading the crew onsite.

Sub-contractor Selection Process: Staten may use subcontractors from time to time. We require all major subcontractors to pass a comprehensive pre-qualification process prior to engagement in services. During this process we evaluate the subcontractor's statement of qualifications, financial stability, experience, insurance/bonding capabilities, quality and safety standings and procedures, and management background. The pre-qualification process requires the following:

- Current license in good standing with State License Board.
- Financial stability over the past 3 years
- Signed Non-Disclosure Agreement
- Experience in solar, electrical, mechanical, or similar trade.
- Positive reference check with customers and vendors
- Insurance and Bonding requirements equivalent contact amount.
- Have an Experience Modification Rate of 1% or less.
- Evaluation of safety culture and safety requirements in accordance with ISO standards
- Evaluation of quality processes in accordance with ISO standards

3. Project References

Staten Solar has extensive experience in Solar Projects, working with Public Agencies, private agencies and with DSA (Division of the State Architect) for approvals for solar projects. The list of the project undertaken by Staten Solar in US commercial segment can be seen at **Appendix-H**.

Client Name	Brar Farms	South Lake Tahoe Airport	Happy Days
Contact Person	Major B. S. Brar	Mark Gibbs	Ravi Grewal
Title	Owner	Manager	Owner
Phone	(661) 721 1802	(530) 208 8074	(310) 748 1348
Email	majorbsbrar@gmail.com	mgibbs@cityofslt.us	ravigrewal192@gmail.com
Project Location	Delano, CA	South Lake Tahoe, CA	Baker, CA
Work Performed as (Prime/Sub)	EPC Contractor	EPC Contractor	EPC Contractor
Project Scope	Solar Ground Mount (Levee)	Airport Hangars Rooftop	Solar Carports
Size	5.0MW	301kW	300kW
Cost ($)	$12.4M	$720K	$999,500
Completion Year	2021	2019	2023

Client Name	Electric Power Research Institute (EPRI)	Goldberry Distributors
Contact Person	Agatha Vaaler Kazdan	Javier Palma
Title	Project Manager	Project Manager
Phone	(415) 416 0678 / (831) 775 5056	(408) 685-9209
Email	akazdan@epri.com	Palma.javier@gmail.com
Project Location	Compton, CA	Haward, CA
Work Performed as (Prime/Sub)	EPC Contractor	EPC Contractor
Project Scope	Low Income Housing Project EPRI Microgrid (Solar + BESS + Microgrid)	Solar Rooftop & BESS
Size	120 kW Solar and 60 KW/120 kWh BESS	300kW (Solar) and 150kW/300kWh (BESS)
Cost ($)	$300,000	$415,000
Completion Year	2021	2022

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Staten Solar – US Commercial Project Experience:

S.No.	Id	Jurisdiction	Size (KW	Installation	Status
1	AHN	San Bernardino	1,231	Ground Mount	Commissioned
2	B21	Kern	522	Ground Mount	Commissioned
3	B51	Ducor	522	Ground Mount	Commissioned
4	AMG	Big Water	500	Ground Mount	Commissioned
5	B41	Kern	456	Ground Mount	Commissioned
6	B24	Tulare	399	Ground Mount	Commissioned
7	B32	Tulare	391	Ground Mount	Commissioned
8	B27	Delano city	359	Ground Mount	Commissioned
9	B33	Visalia	359	Levee Mount	Commissioned
10	SLT	Lake Tahoe	301	Rooftop	Commissioned
11	FCC	San Jose	286	Rooftop	Commissioned
12	VTA	Milpitas	286	Carport	Commissioned
13	CLYD	Mountain View	200	Rooftop	Commissioned
14	STS	Sacramento	180	Carport	Commissioned
15	SNGHA	Delano	140	Ground Mount	Commissioned
16	B22	Delano	131	Levee Mount	Commissioned
17	B71	Delano	131	Ground Mount	Commissioned
18	B13	Visalia	130	Levee Mount	Commissioned
19	B34	Kern	130	Ground Mount	Commissioned
20	B81	Kern	130	Ground Mount	Commissioned
21	B11	Tulare	122	Ground Mount	Commissioned
22	RINN	San Jose	100	Rooftop	Commissioned
23	BBG	Ducor	97	Ground Mount	Commissioned
24	B42	Dinuba	88	Levee Mount	Commissioned
25	SEYM	Castroville	86	Carport	Commissioned
26	FMG	Fremont	82	Rooftop	Commissioned
27	HMT	Fremont	71	Ground Mount	Commissioned
28	COHR	San Leandro	68	Canopy	Commissioned
29	SPGL	Castroville	60	Carport	Commissioned
30	BUB	Hayward	56	Carport	Commissioned

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S.No.	Id	Jurisdiction	Size (KW	Installation	Status
31	JCNC	Milpitas	54	Carport	Commissioned
32	CABA	Walnut Creek	54	Rooftop	Commissioned
33	LUTZ	Scotts Valley	48	Rooftop	Commissioned
34	FBT	Bakersfield	40	Rooftop	Commissioned
35	TIME	Milbrae	38	Rooftop	Commissioned
36	RDH	Delano city	30	Canopy	Commissioned
37	AAT	Kern	24	Carport	Commissioned
38	B12	Tulare	20	Ground Mount	Commissioned
39	B23	Tulare	20	Ground Mount	Commissioned
40	STSS	Sacramento	20	Carport	Commissioned
41	OLR	Castroville	19	Carport	Commissioned
42	SPAT 2	Oakland	10	Rooftop	Commissioned
43	PAY	San Jose	1,132	Rooftop	Commissioned
44	RAVI	Baker	316	Carport	Commissioned
45	LSWI	San Jose	276	Rooftop	Commissioned
46	GBRY	Hayward	256	Rooftop	Commissioned
47	GHOS	Yermo	250	Ground Mount	Commissioned
48	HACI	Newberry	250	Ground Mount	In Progress
49	MEMO	Newberry	201	Ground Mount	In Progress
50	MUSH	City of Commerce	201	Carport, Roof	Commissioned
51	NATI	Newberry Springs	186	Ground Mount	Commissioned
52	GRID	Compton	120	Rooftop	Commissioned
53	KGH	San Jose	100	Rooftop	In Progress
54	LAKV	Newberry Springs	20	Ground Mount	Commissioned
55	SWAN	Delano	500	Ground Mount	Commissioned
56	LEEF	Delano	225	Ground Mount	Commissioned
57	SCLI	Santa Clara	40	Rooftop	Commissioned
58	MCFA	McFarland	125	Ground Mount	Commissioned
59	STJO	Sacramento	167	Rooftop	In Progress
60	NSTR	Truckee, CA	83	Rooftop	Commissioned
61	RAFT	San Jose, CA	115	Rooftop	Commissioned
62	NMAN	Ojai, CA	52	Ground Mount	Commissioned
63	SGCC	Stockton, CA	369	Carport	In Progress
64	WELT	Vernalis, CA	431	Ground Mount	In Progress
65	CCYN	San Ramon, CA	143	Raised Rooftop	Commissioned
66	TOAKS	City of Thousand Oak:	1,461	Carport and RT	In Progress
67	RCLNC	Bakersfield, CA	110	Raised Rooftop	In Progress
68	DIVAG	Divine Company Ag	350	Ground Mount	In Progress
69	WUSD	Washington USD	61	Carport	In Progress
70	MADR	Madera, CA	501	Carport and GM	In Progress
71	MONTE	Santa Clara	249	Rooftop	Commissioned
72	ACAMP	Acampo	110	Ground Mount	In Progress
73	PPLC	Bakersfield	25	Rooftop	Commissioned
74	RHOME	Bakersfield	37	Rooftop	Commissioned

4. Preliminary System Design

4.1 System Layouts and Design Parameters

Design Concept and Layout: Staten Solar possesses extensive experience designing and implementing solar PV systems for facilities in various stages of development. Staten Solar has been installing projects for the C&I and government sector for 16 years. We have successfully deployed solar PV systems, BESS & Microgrid constructed from the highest quality system components with best-in-class performance, reliability, and warranties in United State. Our proven experience guarantees high-quality, customer-oriented service from project inception through construction and operation.

Building upon the City's initial concept and leveraging our expertise, we have developed a refined design concept and layout that optimizes energy production, minimizes land use, orientation of the panels to maximize sunlight capture throughout the year and aligns with the district's technical requirements. We optimized the layout and orientation of the panels to maximize sunlight capture throughout the year. The summary of the proposed system is described below. The System layout for the project can be seen in **Appendix A**.

Solar PV System Design - Parameters:

Sr. No.	Site Name	Proposed System Type		Proposed System Size Total	Proposed System Size	Estimated Annual Energy Production	Guaranteed Annual Energy Production	Specific Production
		Carport	Rooftop	(kW-DC)	(kW-AC)	(in kWh)	(in kWh)	(kWh/kWp/ Year)
1	City Hall	272.80	-	**272.80**	250.00	399,554	359,599	1,465
1.1	City Hall EV	112.20	-	**112.20**	100.00	164,333	147,900	1,465
2	City Hall Lift Station	66.00	-	**66.00**	60.00	100,048	90,043	1,516
3	Corporation Yard	-	110.55	**110.55**	100.00	166,234	149,611	1,504
3.1	Corporation Hall EV	59.40	14.85	**74.25**	50.00	111,650	100,485	1,504
4	Laguna Beach Community and Recreation Center	168.30	77.55	**245.85**	200.00	366,813	330,132	1,492
5	Susi Q Center	-	47.85	**47.85**	50.00	72,142	64,928	1,508
6	Fire Station 2	-	24.20	**24.20**	20.00	34,914	31,423	1,443
7	Fire Station 3	-	10.45	**10.45**	10.00	15,568	14,011	1,490
8	Laguna Beach Animal Shelter	23.10	-	**23.10**	20.00	34,343	30,909	1,487
9	Animal Shelter Lift Station	4.95	-	**4.95**	5.00	7,177	6,459	1,450
	Total	**706.75**	**285.45**	**992.20**	**865.00**	**1,472,776**	**1,325,498**	**1,484**

Solar PV System Design Parameters:

Sr. No.	Site Name	Estimated Capacity Factor	PR (%)	Tilt Angle	Azimuth Angle	Load Ratio	Expected Year -1 Module Degradation Rate	Expected Year 2 - 30 Module Degradation Rate
		(%)	Degree	Degree	Degree	DC/AC	(%)	(%)
1	City Hall	16.72%	78.82%	5°	266°/252°	1.09	<2%	0.50%
1.1	City Hall	16.72%	78.82%	5°	266°/158°	1.12	<2%	0.50%
2	City Hall Lift Station	17.30%	80.88%	5°	253°	1.10	<2%	0.50%
3	Corporation Yard	17.17%	78.68%	Along Roof	213°	1.11	<2%	0.50%
3.1	Corporation Yard	17.17%	78.68%	5°	208°/213°/34°	1.49	<2%	0.50%
4	Laguna Beach Community and Recreation Center	17.03%	79.01%	5°	240°	1.23	<2%	0.50%
5	Susi Q Center	17.21%	77.07%	10°	159°	0.96	<2%	0.50%
6	Fire Station 2	16.47%	76.66%	10°	135°	1.21	<2%	0.50%
7	Fire Station 3	17.01%	78.20%	10°	140°	1.05	<2%	0.50%
8	Laguna Beach Animal Shelter	16.97%	78.73%	5°	240°	1.16	<2%	0.50%
9	Animal Shelter Lift Station	16.55%	76.78%	5°	240°	0.99	<2%	0.50%
	Total	**16.94%**	**78.39%**			**1.15**	**<2%**	**0.50%**

4.2 System Layout and Energy Simulation (PVSyst Reports) Details

Sr. No.	Site Name	System Layout (Click on the below Link for quick reference)	PVSyst Simulation Report (Click on the below Link for quick reference)
1	City Hall & EV	Click to see	Click to see
2	City Hall Lift Station	Click to see	Click to see
3	Corporation Yard & EV	Click to see	Click to see
4	Laguna Beach Community and Recreation Center	Click to see	Click to see
5	Susi Q Center	Click to see	Click to see
6	Fire Station 2	Click to see	Click to see
7	Fire Station 3	Click to see	Click to see
8	Laguna Beach Animal Shelter	Click to see	Click to see
9	Animal Shelter Lift Station	Click to see	Click to see

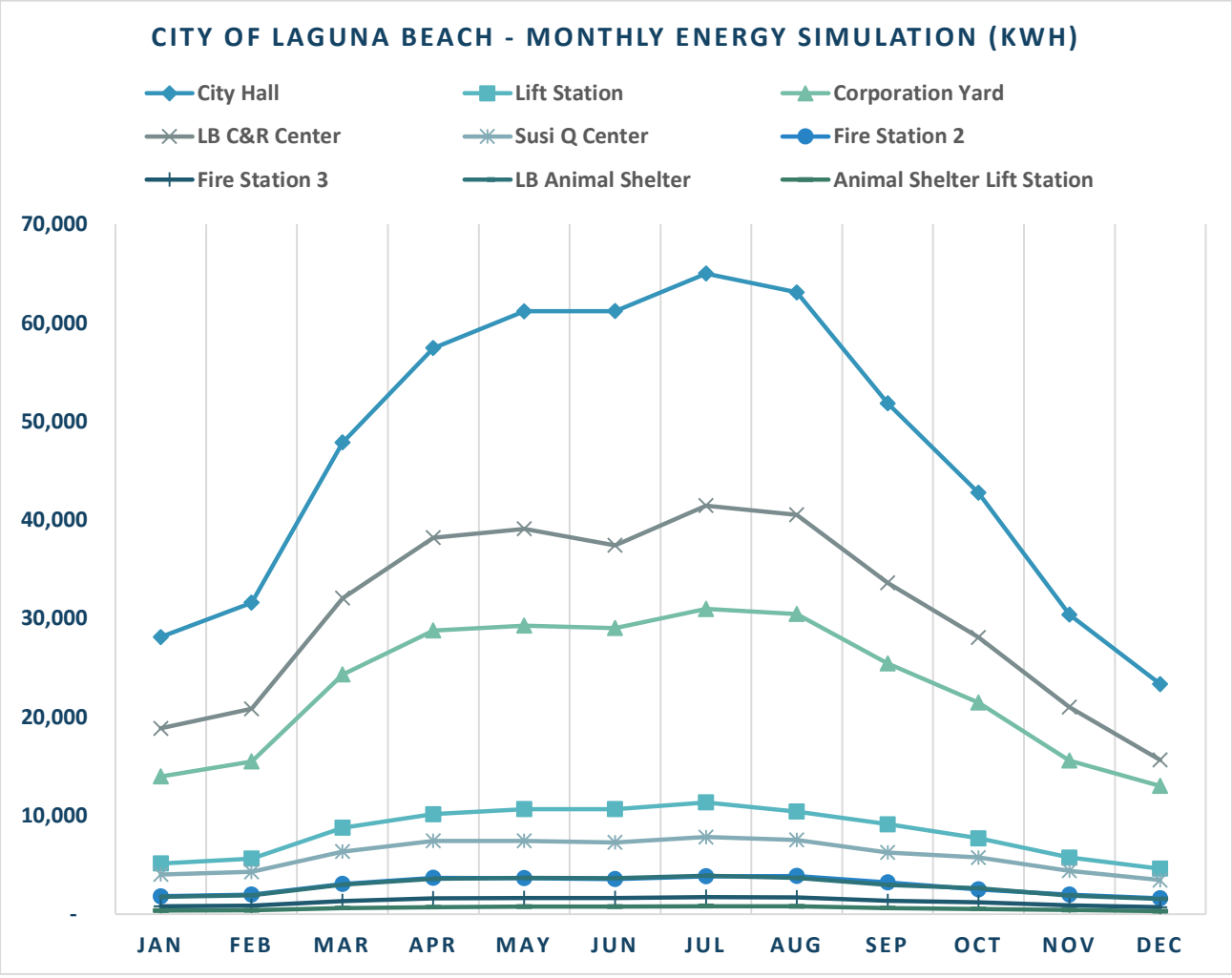
4.3 Solar Production Modelling

Staten Solar provides highly accurate PV performance modelling simulations using PVSyst, an industry-standard tool known for its user-friendly interface and regular updates.

PVSyst helps design engineers produce reliable production reports. Our Engineering team is available to discuss findings at any time upon request. Solar power simulations are critical for determining the total value of a solar technology, which is why accurate data inputs are essential.

Our models consider various loss factors like soiling, IAM, temperature effects, low light conditions, wiring losses, degradation, and mismatch losses. These factors are based on historical production data relevant to your project.

The complete PVSyst report is available in Appendix B. This section presents a graphical representation of the monthly energy simulations, derived from the detailed 8760-hour data analysis within the report.



4.4 Balance of Supply (BOS)

This is the typical high-level BOS (Balance of system) details provided for all project sites. The specification for the transformer (if required at any site) is also provided.

Sr. No	Product	Specification	UOM	City Hall & EV	City Hall Lift Station	Corporation Yard & EV		Laguna Beach Community and Recreation centre	
Plant Capacity				**385**	**66**	**184.8**		**245.85**	
1	Solar Module	ZNShine-550W	Nos	700	120	108	228	306	141
2	Inverter	CPS-50KW	Nos	7	0	1	2	3	1
3		CPS-60KW	Nos	0	1	0	0	0	0
4	Structure	Reputed		Carport Type	Carport Type	Carport Type	Rooftop Type	Carport Type	Rooftop Type
5	Datalogger	Reputed		1	1	1		1	
6	AC Combiner Panel	Reputed		600A Panel	NA	400A Panel		400A Panel	
7	AC Disconnect	Reputed		600A Disconnect	100A Disconnect	400A Disconnect		800A Disconnect	
8	AC Cable	Reputed	Lot	1	1	1		1	
9	DC Cable	Reputed	Lot	1	1	1		1	
10	Transformer	Reputed		600KVA ,480V to 208V	125KVA ,480V to 208V	NA		250KVA ,480V to 240V	
11	Communication Cable	Reputed	Lot	1	1	1		1	
12	BESS	24 Hrs Microgrid		220kW/1166kWh	53kW/307kWh	248kW/670kWh		186kW/1358kWh	
		48 Hrs Microgrid		220kW/1892kWh	53kW/519kWh	248kW/1091kWh		186kW/2269kWh	
		72 Hrs Microgrid		220kW/2464kWh	53kW/726kWh	248kW/1438kWh		186kW/3125kWh	
13	NGOM Metter socket	Reputed	Nos	1	1	1		1	
14	AC CONCENTRATION PANEL	Reputed		1000A Panel	600A Panel	1000A Panel		1000A Panel	
15	Microgrid Controller	Reputed	Nos	1	1	1	1	1	1

Sr. No	Product	Specification	UOM	Susi Q Centre	Fire Station 2	Fire Station 3	Laguna Beach Animal Shelter	Animal Shelter Lift Station
Plant Capacity				**47.85**	**24.2**	**10.45**	**23.1**	**4.95**
1	Solar Module	ZNShine-550W	Nos	87	44	19	42	9
2	Inverter	CPS-50KW	Nos	1	SMA SUNNY BOY-10KW/240V X 2	SMA SUNNY BOY-10KW/240V X 1	SMA SUNNY BOY-10KW/240V X 2	SMA SUNNY BOY-5KW/240V X 1
3		CPS-60KW	Nos	0				
4	Structure	Reputed		Rooftop Type	Rooftop Type	Rooftop Type	Rooftop Type	Rooftop Type
5	Datalogger	Reputed		1	1	1	1	1
6	AC Combiner Panel	Reputed		NA	NA	NA	NA	NA
7	AC Disconnect	Reputed		100A Disconnect	100A Disconnect	60A Disconnect	100A Disconnect	40A Disconnect
8	AC Cable	Reputed	Lot	1	1	1	1	1
9	DC Cable	Reputed	Lot	1	1	1	1	1
10	Transformer	Reputed		NA	NA	NA	NA	NA
11	Communication Cable	Reputed	Lot	1	1	1	1	1
12	BESS	24 Hrs Microgrid		93kW/949kWh	18kW/211kWh	7kW/89kWh	13kW/200kWh	4kW/49kWh
		48 Hrs Microgrid		93kW/1655kWh	18kW/397kWh	7kW/164kWh	13kW/366kWh	4kW/92kWh
		72 Hrs Microgrid		93kW/2418kWh	18kW/583kWh	7kW/238kWh	13kW/533kWh	4kW/136kWh
13	NGOM Metter socket	Reputed	Nos	1	1	1	1	1
14	AC CONCENTRATION PANEL	Reputed		600A Panel	600A Panel	200A Panel	600A Panel	200A Panel
15	Microgrid Controller	Reputed	Nos	1	1	1	1	1

4.5 Proposed Equipment List

Equipment Type	Make	Technology	Standard Warranty	Datasheets
Solar PV Module	ZnShine Solar (Tier 1)	10BB Half-cell Bifacial Double Glass Monocrystalline PERC PV Module – 550Wp	Product Warranty – 12 Years Power Warranty – 30 Years	Click to See
Inverter	Chint Power – CPS (CEC Listed) SMA Sunny Boy (CEC Listed)	• CPS SCA50KTL-DO/US-480 – 50kW • CPS SCA60KTL-DO/US-480 – 60kW • SMA Sunny Boy 10000TLUS-12 -240V – 10kW • SMA Sunny Boy 5000 U -240V – 5kW	10 years	Click to See
Carport Structure	Kern Solar Steel - KSS	• Multiple Foundation Options • Manufactured in an ISO 9001/AISC certified facility. • Compatible with DSA and PACE system requirements. • Constructed from high strength structural and high tensile steel	25 Years	Click to See
Rooftop Structure	Unirac	• RM10 EVO - Three SKUs: a fully assembled ballast bay, a tucked north row bay, and a redesigned universal module clamp • SM – SolarMount - Two rail profiles for light and heavy-duty applications.	25 Years	Click to See
BESS & Microcontroller System	Generac Powerwall 3 Ageto	• Generac – BESS System: SBE500 – 500kWh & SBE1000 – 1000kWh • Powerwall 3 – BESS System • Ageto – Microcontroller- ARC	10 Years	Click to See
Monitoring System & Meters	Wattch	• Standard Data Acquisition System – Inverter Level Monitoring • Data Logger/Controller – WattchEdge • Production Meter – AccuEnergy • LTE Modem – Digi International	5 Years	Click to See

Design Criteria / Assumptions / Notes for Solar PV Microgrid Project

1. **Notes for Equipment make/specification:** It is important to note that equipment makes and models are subject to change based on market availability. In such cases, any replacements will be chosen to be at least similar or superior in technical specifications and warranty terms.
2. **Production Guarantee** - 90% system production guarantee or better
3. **Monitoring Equipment/System** - Inverter level performance/production monitoring
4. Solar modules are Tier 1, and all inverters are UL 1741-SA certified or listed in the CEC compliant database.
5. Shade structure height clearance heigh is 10 feet and DSA approval is not applicable.
6. The storage system configuration provided in the RFP is unique in nature and not available commercially. Sizes proposed considering the storage sizes provided in the RFP at this instance. We will be happy to incorporate/update the actual required storage solution for the specific sites chosen after due discussion with the City management and understanding their intent.

4.5 BESS System Detail

Upon review of the RFP requirements, we acknowledge that the storage system configuration provided in the RFP is unique in nature and not available commercially. We are proposing the microgrids and BESS system for all three options (24 Hrs, 48 Hrs & 72 Hrs) considering the storage sizes provided in the RFP at this instance. We will be happy to incorporate/update the actual required storage solution for the specific sites chosen after due discussion with the management and understanding their intent.

The proposed system sizes may exceed the requested power (kW) requirements, and the inverter power rating may be derated to lower ratings in alignment with project criteria, utility requirements and AHJ regulations. Alternatively, although the primary application for battery storage is resiliency/back-up, the City has expressed interest in the economic and environmental benefits of battery storage. In this case, the additional capacity could allow for ongoing energy savings via demand charge management and energy arbitrage via Time-of-Use rate optimization.

We would prefer to size the storage systems based on the backup required in terms of providing maximum ROI. Storage can reduce demand charges by smoothening out the demand curve and shift a portion of the load peak to non-peak-TOU timeframe hence reducing the bill hence providing value by energy rate arbitrage (charge at a low rate; discharge at the time of high rate).

0.5C Ratings - Economic Focus

	Nameplate Energy capacity (kWh)								
Power (kW)	288	538	576	806	864	1075	1152	1613	1728
125	2 hour		4 hour						
200			3 hour		4 hour		5 hour		
250		2 hour	2 hour	3 hour	3 hour	4 hour	4 hour		
400					2 hour		3 hour		4 hour
500						2 hour		3 hour	3 hour
600									3 hour
Enclosure size	10'					20'			

1C Short Duration Ratings

	Nameplate Energy capacity (kWh)				
Power (kW)	230	460	599	690	1198
200	1 hour				
400		1 hour			
500			1 hour		
600				1 hour	
1000					1 hour
Enclosure size	10'				20'

It is very hard to attribute a value to resilience (back-up power in case of an outage) because of the highly subjective nature of the entity and its operations. Also, it is hard to figure out precisely how much load needs to be backed up without detailed discussions with the host.

The energy storage system consists of a bidirectional power converter PCS, a battery system, an energy management system EMS, and other equipment as shown below. When the system is discharged, DC power from the lithium batteries is converted into AC power by the PCS. All or part of the AC power is supplied to local loads, and the surplus power is exported to the electric utility grid. During charging, AC power is converted into DC power through the PCS and the lithium batteries are charged to store energy.

BESS Storage – System Capacity & Technology:

RFP Required Sizes:

Sr. No.	Site Name	24 Hrs Microgrid		48 Hrs Microgrid		72 Hrs Microgrid	
		Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)	Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)	Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)
		kW	kWh	kW	kWh	kW	kWh
1	City Hall	220	1,166	220	1,892	220	2,464
2	City Hall Lift Station	53	307	53	519	53	726
3	Corporation Yard	248	670	248	1,091	248	1,438
4	Laguna Beach Community and Recreation Center	186	1,358	186	2,269	186	3,125
5	Susi Q Center	93	949	93	1,655	93	2,418
6	Fire Station 2	18	211	18	397	18	583
7	Fire Station 3	7	89	7	164	7	238
8	Laguna Beach Animal Shelter	13	200	13	366	13	533
9	Animal Shelter Lift Station	4	49	4	92	4	136
Total		**842**	**4,999**	**842**	**8,445**	**842**	**11,661**

Proposed BESS Sizes:

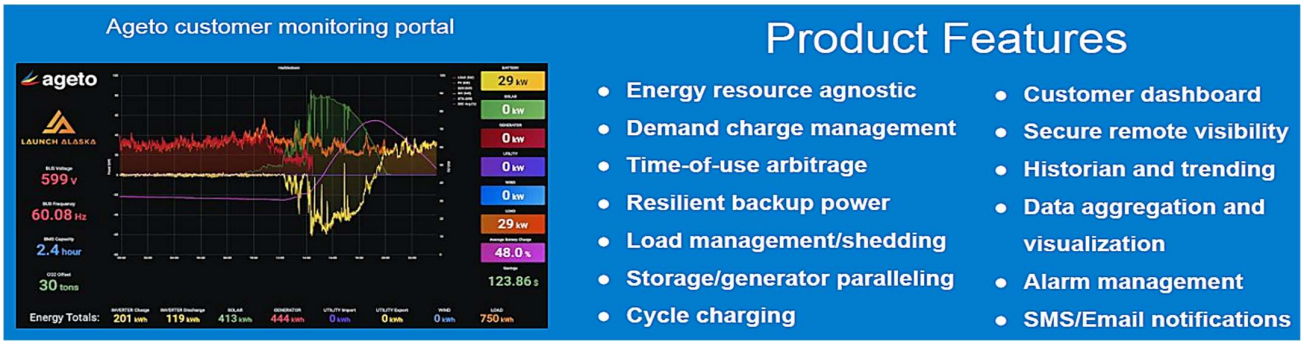
Sr. No.	Site Name	24 Hrs Microgrid		48 Hrs Microgrid		72 Hrs Microgrid		BESS Manufacturer
		Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)	Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)	Proposed Size (Power Capacity)	Proposed Size (Energy Capacity)	
		kW	kWh	kW	kWh	kW	kWh	Name
1	City Hall	500	1,613	1,000	3,440	1,000	5,000	Generac
1.1	City Hall EV	1,000	1,198	1,000	1,198	500	1,613	Generac
2	City Hall Lift Station	125	688	250	1,075	500	1,613	Generac
3	Corporation Yard	125	688	250	1,075	500	1,613	Generac
3.1	Corp Yard EV	1,000	1,198	1,000	2,500	1,000	3,440	Generac
4	LBCRC	500	1,613	1,000	2,500	1,000	3,440	Generac
5	Susi Q Center	250	1,075	500	1,613	1,000	2,500	Generac
6	Fire Station 2	11.5	189	11.5	378	11.5	567	Powerwall 3
7	Fire Station 3	7.6	95	7.6	189	7.6	284	Powerwall 3
8	Laguna Beach Animal Shelter	11.5	189	11.5	378	11.5	567	Powerwall 3
9	Animal Shelter Lift Station	5.8	54	5.8	108	5.8	162	Powerwall 3
Total		**3,536**	**8,600**	**5,036**	**14,454**	**5,536**	**20,799**	

Technical Parameter of BESS System:

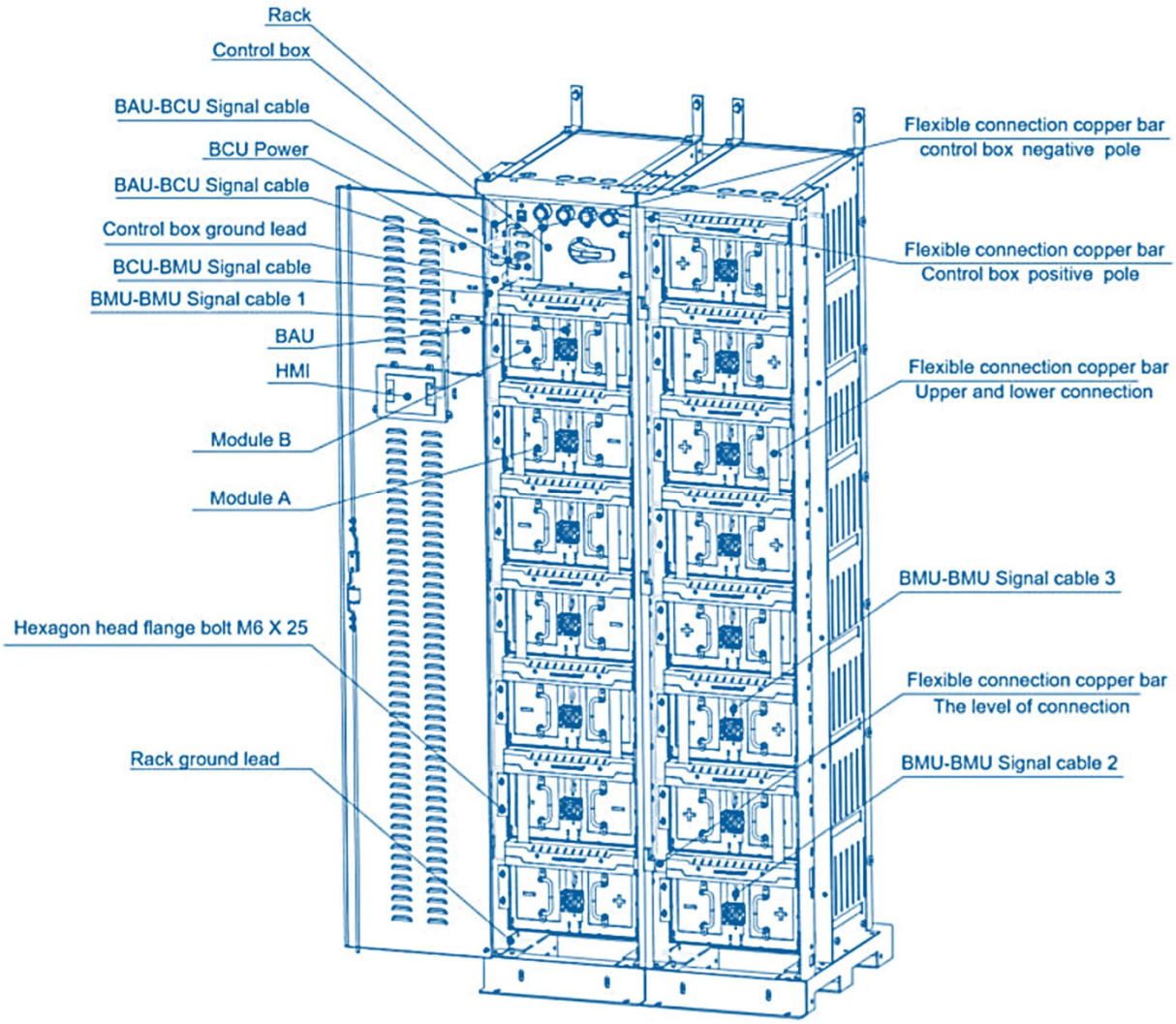
BESS System Specifications	
BESS Manufacturer & Model No	Generac – SBE1000 – 1000kWh Generac – SBE500 – 500kWh
EMS Provider	Generac
Microgrid Controller	Ageto ARC
Battery Chemistry	Lithium Ion: LFP - Lithium Iron Phosphate
Average Annual Degradation	2.50%
Capacity Guarantee	80% for Year 10 and 74% for Year 15
Charge/Discharge Rate	Up to 1C
Duration	1 to 5 Hours (Depends on requirement/ outage duration)
SoH (State of Health)	100%
Round Trip Efficiency (RTE)	93% DC to DC
Cycle Life	7300
Maximum Efficiency (PCS)	98%
Operating Temperature range	-25°C to 45°C, Fire suppression system – Novec 1230
Encloser	NEMA 3R (Outdoor) – 10ft & 20ft Container (Custom)
BESS System Warranty	10 Years

Microcontroller – Ageto:

The Ageto ARC Microgrid Controller is a robust, reliable and highly flexible control solution designed to amplify the value of your energy resources in three-phase behind-the-meter and off-grid microgrid installations. The ARC controller acts as the single interface for your entire system, providing autonomous system control and optimization, data collection and visualization, alarm handling, and countless other features designed to ease the operation and maintenance of these complex systems. ARC maximizes clean, renewable energy by seamlessly integrating and optimizing conventional and renewable energy resources.

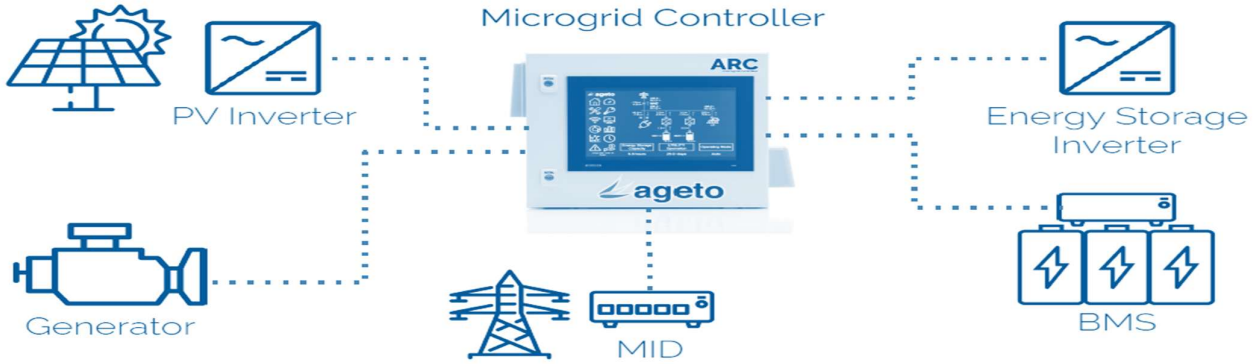


BESS System - Enclosure Design/Drawings - Battery Cabinet Internal Components



5. Description of MEMS/BEMS Control Architecture

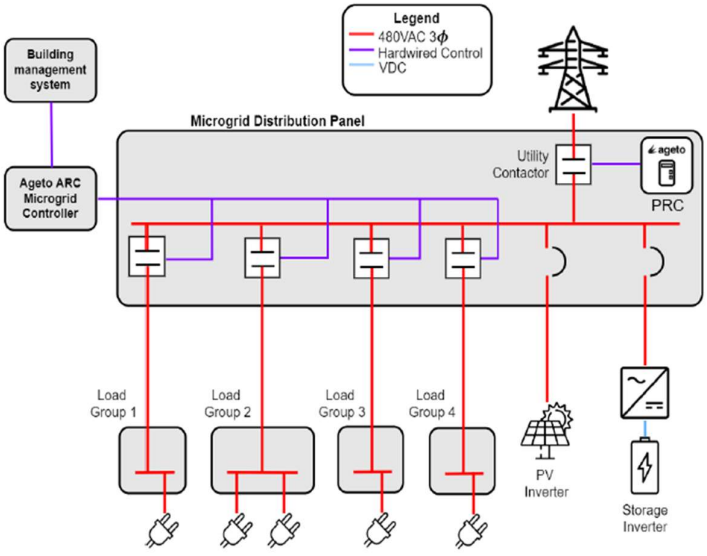
Microgrid Components:

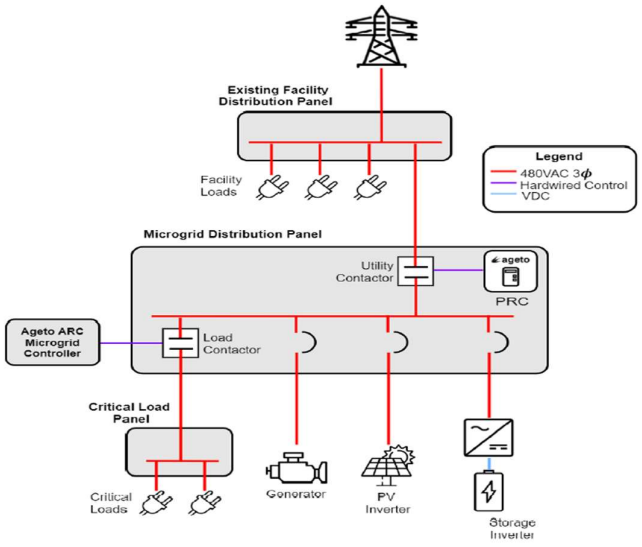


In a microgrid system designed to provide backup power, the life of the battery can be extended through load management. The two methods recommended are **Load Shedding**, in which the system makes intelligent load shedding decisions based on the state of charge of the battery, or through a **Critical Load Panel (CLP)** in which a certain portion of the facility load is shed upon the grid outage and is not brought back on until the grid regains health.

Load Shedding: Load shedding is the more granular load control method to extend battery life. Our Microcontroller can provide the Load Control Center (LCC) with six available outputs. Four of these outputs can be used to open contactors to drop certain load circuits at a configurable state of charge. The remaining two outputs can be used to send status signals, such as an off-grid or excess solar notice, to other management systems.

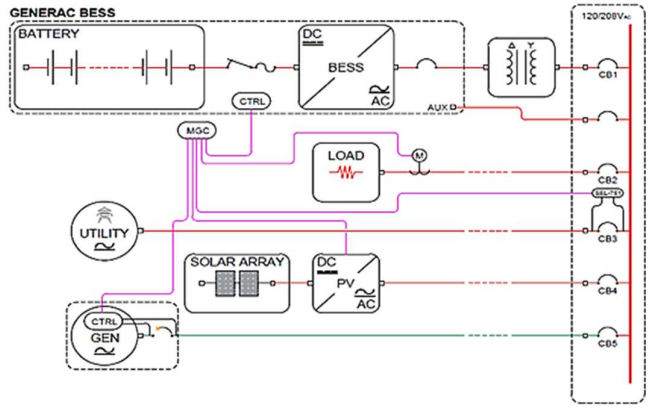
Critical Load Panel: In this design there is a main distribution panel and a critical load panel. The main distribution panel will be dropped as soon as there is an outage while the critical load panel will remain connected to the microgrid bus. There are a few ways to implement this.





This configuration's main purposes are energy management and resiliency with BESS, PV and Generator as aggregate power generating sources. BESS and PV are intended to run in grid-following mode when the utility is available and transition to BESS in grid-forming when there is a utility failure, PV will be able to operate with BESS as the forming source. Once the minimum SOC threshold has been reached the microgrid controller will call the generator to start, the generator will then supply site loads and charge BESS with excess power. When using the generator to charge the BESS, it will go from the minimum SOC threshold to a maximum SOC threshold when charging from generator, once reached the generator will be commanded to turn off, BESS and PV will take over supplying load power again.

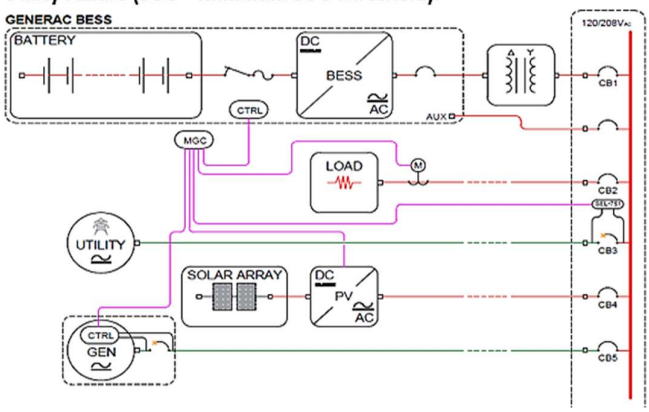
Normal Conditions:



Balance of Systems

Item	Description
Isolation / Step-down transformer	Selection is driven by site operating voltage, 480/277VAC or 120/208VAC. Note that if the site operating voltage is 480/277VAC an additional smaller step-down transformer will be needed for the BESS aux load given its operational voltage is 120/208VAC.
Power meter	Needed for implementing the peak shaving algorithms. BESS unit controller sends discharge / charge commands based on this external power meter readings. Also needed for load consumption data gathering.
Feeder Protection Relay	Takes care of monitoring both sides of the PCC. It oversees opening & closing PCC based on utility status. Requires CT's to perform metering functions and may require PT's based on utility voltage for proper installation.
PCC (CB3)	Required for islanding operation purposes, CB3 must be an electrically operated breaker to meet functions needed. Note that an in-line contactor could also serve as PCC (note that it does not replace the need for CB3).
Microgrid Controller (MGC)	Serves the purpose of power generating assets master controller, talks directly to BESS unit controller, PV inverter(s), feeder protection relay, PCC, and power meter(s). Manages transitions through the different modes the system can operate without human intervention. Operates based on pre-defined rules.

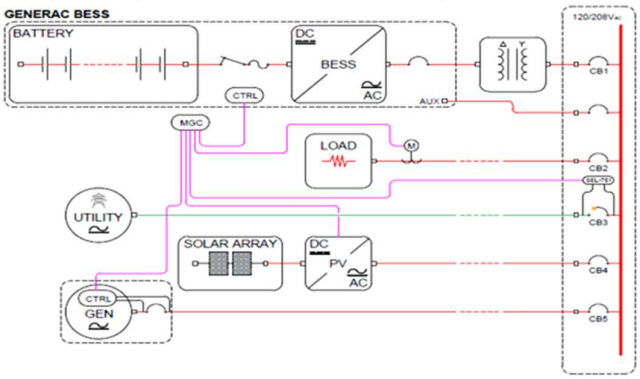
Utility Failure (SOC > Minimum SOC Threshold):



Events Table – Short Utility Failure (SOC > Minimum SOC Threshold)

Step	CB1	BESS	CB2	Load	CB3	Utility	Description
1	Closed	Following	Closed	Energized	Closed	Available	Initial conditions. Utility normal, BESS in following mode, charges and discharges as configured / PV supports load.
2	Closed	Following	Closed	Energized	Closed	Abnormal	Utility disturbance detected. BESS and PV will stay in following until utility parameters are out of range.
3	Closed	Forming	Closed	Energized	Open	Unavailable	Utility unavailable. CB3 to open by protective relay command. BESS goes from following to forming / PV operates with BESS as the forming source.
4	Closed	Forming	Closed	Energized	Open	Restored	Utility restored. CB3 to close by protective relay command. BESS goes from forming to following.
5	Closed	Following	Closed	Energized	Closed	Available	Utility restored. BESS an PV in following mode, resume normal operations. Back to Step 1.

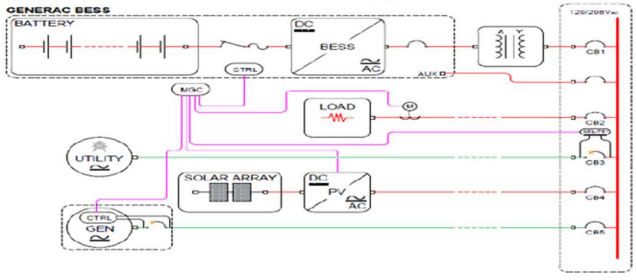
Utility Failure (SOC ≤ Minimum SOC Threshold):



Events Table – Long Utility Failure (SOC ≤ Minimum SOC Threshold)

Step	CB1	BESS	CB2	Load	CB3	Utility	Description
1	Closed	Following	Closed	Energized	Closed	Available	Initial conditions. Utility normal, BESS in following mode, charges and discharges as configured / PV supports load.
2	Closed	Following	Closed	Energized	Closed	Abnormal	Utility disturbance detected. BESS and PV will stay in following until utility parameters are out of range.
3	Closed	Forming	Closed	Energized	Open	Unavailable	Utility unavailable. CB3 to open by protective relay command. BESS to goes from following to forming / PV operates with BESS as the forming source.
4	Closed	Forming	Closed	Energized	Open	Unavailable	Utility unavailable. BESS has been supplying site loads and has reached minimum SOC threshold.
5	Closed	Standby	Closed	Energized	Open	Unavailable	Utility unavailable. MGC starts Generator and load power is now supplied from the Generator.
6	Closed	Forming	Closed	Energized	Open	Unavailable	Generator to remain supplying site load and charge the BESS until maximum SOC when charging from generator threshold reached or utility restored.

Utility Failure (SOC = Maximum SOC when Charging from Generator Threshold):



Events Table – Long Utility Failure (SOC = Maximum SOC when Charging from Generator Threshold))

Step	CB1	BESS	CB2	Load	CB3	Utility	Description
7	Closed	Forming	Closed	Energized	Open	Unavailable	Once the BESS reaches the maximum SOC when charging from Generator threshold the MGC will command the Generator to stop.
8	Closed	Forming	Closed	Energized	Open	Unavailable	System will be back to supplying power to site loads with BESS and PV until utility is restored or BESS minimum SOC threshold is reached again.

6. Financial Analysis

Environmental Benefits Equivalent:

- Yearly Production of kWh : 1,472,776 kWh Annual
- CO_2 Emission Reduction : 614,006 Kg of Carbon Dioxide (CO2) equivalent
- Tree Seedling Grown : 10,153 (For 10 Years)
- Waste Recycled : 213 tons (instead of landfilled)
- Homes Electricity use for : 121 (For 1 Year)

Additional Benefits:

- 30 Years Solar output Guarantee
- 20 Years Performance Guarantee
- Full system maintenance and monitoring
- Greatest Net Savings
- Better utilization of parking space
- Minimal site operation disruption
- Long term partnership

Economics Benefits: Key Economic Benefits for Solar Only Option (Cash & PPA):

Sr. No.	Site Name	Proposed System Size	Direct Purchase Cost	PPA Terms	Starting PPA Rate	Termination Value after 20 Years	PPA Escalation Annual	Lifetime Savings for PPA Option	Lifetime Savings for Cash Option
		(kW-DC)	$/Wp	(Years)	($/kWh)	($/kWh)	(%)	($)	($)
1	City Hall	272.80	$ 4.26	20	$ 0.2630	$ 174,458	1.5%	$ (114,270)	$ 2,946,958
1.1	City Hall EV	112.20	$ 4.26	20	$ 0.2630	$ 71,753	1.5%		
2	City Hall Lift Station	66.00	$ 4.12	20	$ 0.2390	$ 40,805	1.5%	$ (80,945)	$ 429,917
3	Corporation Yard	110.55	$ 3.19	20	$ 0.2180	$ 52,968	1.5%	$ 1,002,945	$ 1,468,746
3.1	Corporation Yard EV	74.25	$ 3.19	20	$ 0.2180	$ 35,575	1.5%		
4	LB Community and Recreation Center	245.85	$ 3.71	20	$ 0.2180	$ 136,963	1.5%	$ 113,156	$ 1,948,277
5	Susi Q Center	47.85	$ 3.25	20	$ 0.1910	$ 23,295	1.5%	$ 3,850	$ 316,303
6	Fire Station 2	24.20	$ 3.60	20	$ 0.2190	$ 13,068	1.5%	$ (3,789)	$ 166,971
7	Fire Station 3	10.45	$ 4.20	20	$ 0.2470	$ 6,578	1.5%	$ 3,475	$ 91,087
8	Laguna Beach Animal Shelter	23.10	$ 7.51	20	$ 0.4340	$ 26,008	1.5%	$ (173,180)	$ 101,980
9	Animal Shelter Lift Station	4.95	$ 7.51	20	$ 0.4440	$ 5,573	1.5%	$ (40,200)	$ 17,523
	Total	**992.20**	**$ 3.94**	**20**		**$ 587,044**	**1.5%**	**$ 711,042**	**$ 7,487,762**

Saving Analysis:

Based on details in the RFP and utility data, Staten Solar analyzed the savings for all proposed solar projects using the ETB platform. We analyzed both PPA options, considering assumptions and details provided in the RFP documents.

ETBs co-optimization of grid services and utility bill savings. This enhancement allows solar and storage projects to capitalize on diverse value streams, not only improving overall project economics but also rendering these estimates more reliable and robust. The addition of grid service optimization builds on ETB's sophisticated modeling technology, which includes:

- Optimization across multiple behind-the-meter value streams
- Rapid creation and application of forecasts during simulation
- Access to our unparalleled utility rates database

ETBs Reports:

ETB reports for each project site can be accessed can be accessed through this link: **ETBs Report**

https://drive.google.com/drive/folders/11AKCxUU94iyEHZlyhehJobE0DkkGF74f?usp=drive_link

Sr. No.	Site Name	PPA Option				Direct Purchase Option			
		Solar Only	24 Hrs Microgrid	48 Hrs Microgrid	72 Hrs Microgrid	Solar Only	24 Hrs Microgrid	48 Hrs Microgrid	72 Hrs Microgrid
1	City Hall & EV	Yes	Yes	No	No	Yes	Yes	No	No
2	City Hall Lift Station	Yes	Yes	No	No	Yes	Yes	No	No
3	Corporation Yard & EV	Yes	Yes	No	No	Yes	Yes	No	No
4	LB Community and Recreation Center	Yes	Yes	No	No	Yes	Yes	No	No
5	Susi Q Center	Yes	Yes	No	No	Yes	Yes	No	No
6	Fire Station 2	Yes	Yes	No	No	Yes	Yes	No	No
7	Fire Station 3	Yes	Yes	No	No	Yes	Yes	No	No
8	Laguna Beach Animal Shelter	Yes	Yes	No	No	Yes	Yes	No	No
9	Animal Shelter Lift Station	Yes	Yes	No	No	Yes	Yes	No	No

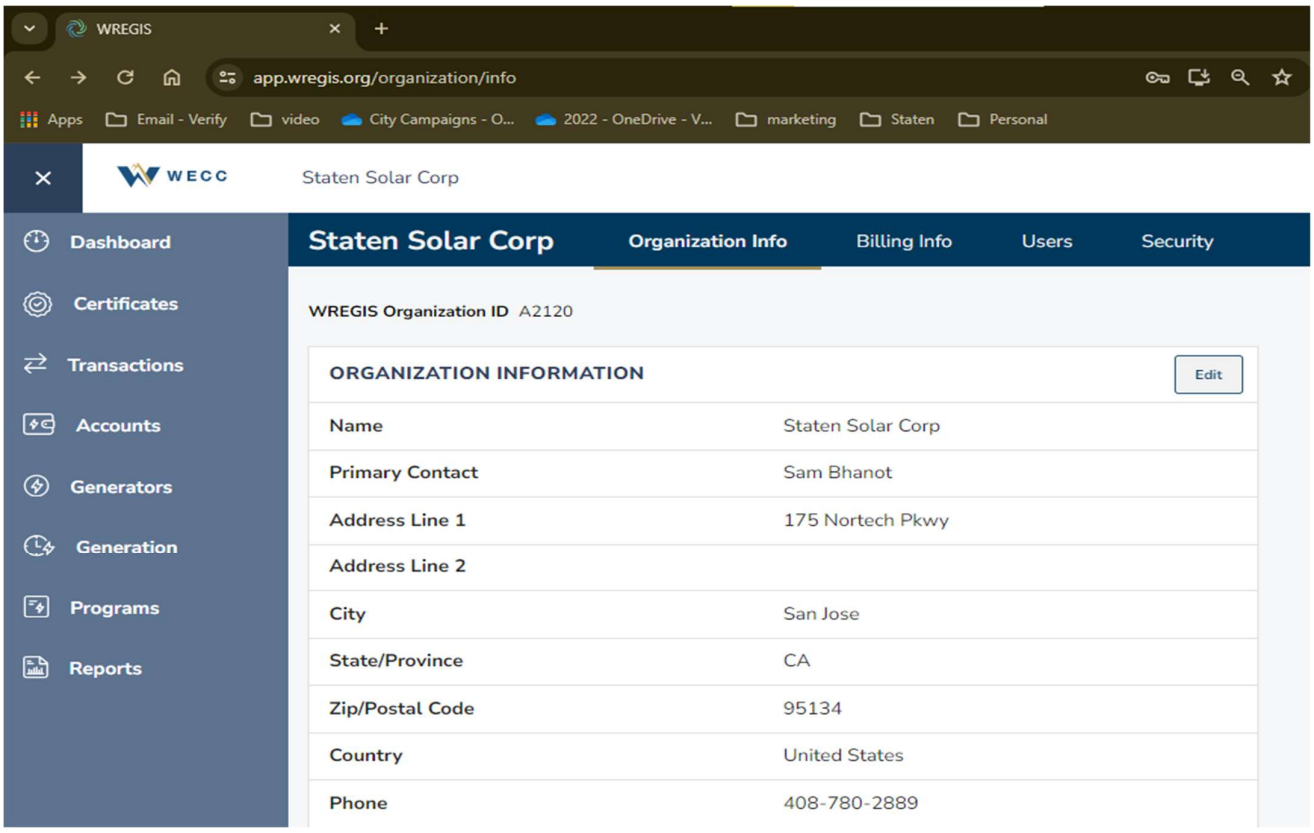
Note: The ETB reports for 48 Hrs & 72 Hrs Microgrid will be done and provided by Staten solar if City desires so.

Experience with WREGIS registration:

Staten Solar possesses extensive experience with renewable energy projects, particularly within the Western US. Given WREGIS's role as the dominant tracking system in this region, our team has developed a deep understanding of its requirements and registration procedures. Also, Wattch Metering hardware is certified revenue-grade ((ANSI C12.20 Class C0.1)) and should comply with WREGIS requirements.

Our Approach:

- **Streamlined Process**: We prioritize a streamlined WREGIS registration process to minimize the burden. Our team, well-versed in WREGIS, will handle all aspects efficiently. We will maintain clear communication throughout, keeping you informed of progress and any necessary steps.
- **Accuracy and Efficiency**: We meticulously verify all data with accuracy and efficiency to ensure a smooth registration process and eligibility for Renewable Energy Certificates (RECs).
- **Ongoing Support**: We offer ongoing support to help you understand REC options and navigate reporting requirements associated with WREGIS.

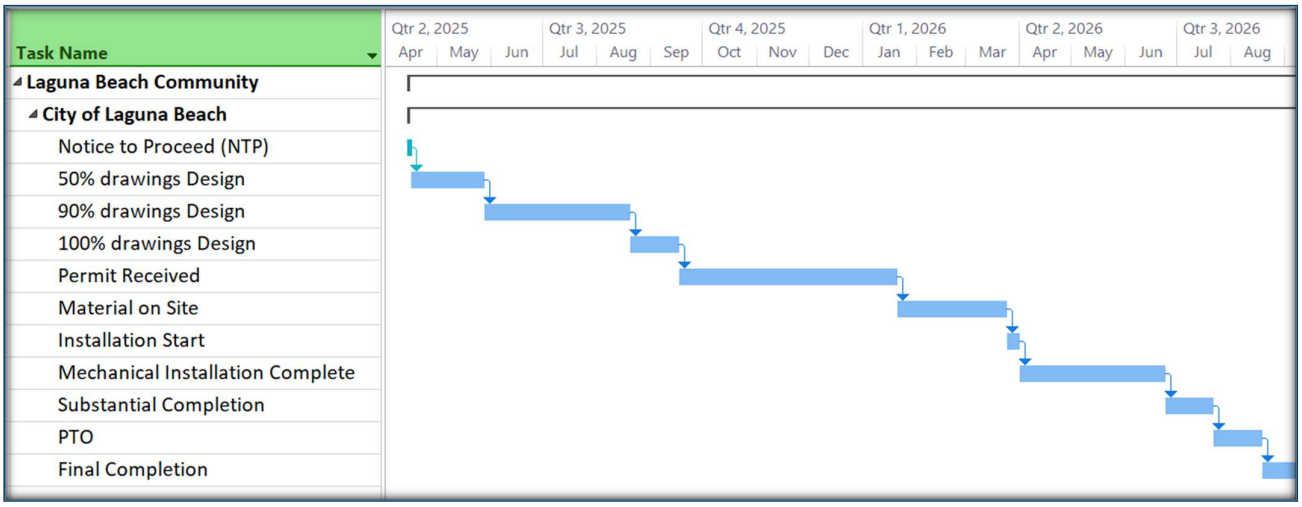


7. Project Schedule

The table below shows our High-Level critical path schedule. Many details have been omitted for ease of use and appropriate abstraction. We may address them during the interview or after signing the Contract – for example the details of construction steps or permitting steps, Geotech studies and so on. But please rest assured that this schedule is based on our years of experience and is the one we will commit to.

Preliminary Project Schedule			
Task ID	**Task Name**	**Duration**	**Finish**
1	Notice to Proceed (NTP)	0 Weeks	Apr 15, 2025
2	50% drawings Design	6 Weeks	May 27, 2025
3	90% drawings Design	10 Weeks	Aug 05, 2025
4	100% drawings Design/Permit Submission	6 Weeks	Sep 16, 2025
5	Permit Received	16 Weeks	Jan 06, 2026
6	Material on Site	8 Weeks	Mar 03, 2026
7	Installation Start	2 Weeks	Mar 17, 2026
8	Mechanical Installation Complete	12 Weeks	Jun 09, 2026
9	Substantial Completion	4 Weeks	Jul 07, 2026
10	PTO	4 Weeks	Aug 04, 2026
11	Final Completion	4 Weeks	Sep 01, 2026

Project Schedule - Gantt Chart:



8. Risk Management and Safety Plan

Staten Solar is committed to providing safe and healthy work environments for all personnel involved in the solar PV system project. Staten Solar has their own policy to monitor and manger the safety at the project site during construction and maintenance phase. The policy promotes a safe workplace, free from hazards for all employees, contractors/subcontractors, and the public. This program shall provide directions to implement safety requirements and achieve compliance with the Federal Occupational Safety and Health Administration (OSHA) and applicable state OSHA Requirements.

Please refer the link to access the policy – **Click to get the Safety at Staten Solar Policy.**

https://drive.google.com/file/d/1CPxUNcuz2QxZ1RDU2ZnYViM8Mesr2EFl/view?usp=drive_link

Staten Solar's EHS policy emphasizes the following principles:

- **Safety First**: We believe that all incidents are preventable, and we are committed to continuously improving our safety performance.
- **Compliance**: We comply with all applicable local, state, and federal EHS laws, regulations, and standards.
- **Risk Management**: We identify and assess potential hazards and implement effective controls to mitigate them.
- **Continuous Improvement**: We strive to continually improve our EHS programs and procedures through regular reviews and inspections.
- **Communication and Training**: We effectively communicate EHS expectations and provide comprehensive training to all personnel.

Experience Modification Rate (EMR) (California workers' compensation insurance)	**0.79**
Any OSHA (Occupational Health and Safety Administration) Violation or Fine	**No**

STATEN

9. Proof of Valid Licensing

Contractors State License Board – B (General), C-46 (Solar) & C-10 (Electrical):

Staten holds Class-B, C-10, and C-46 California licenses, demonstrating our commitment to excellence in electrical and solar construction. The copies of certificate of our Contractors State license, DIR registration and Certificate of Insurance are provided below:

STATE OF CALIFORNIA – DEPARTMENT OF CONSUMER AFFAIRS

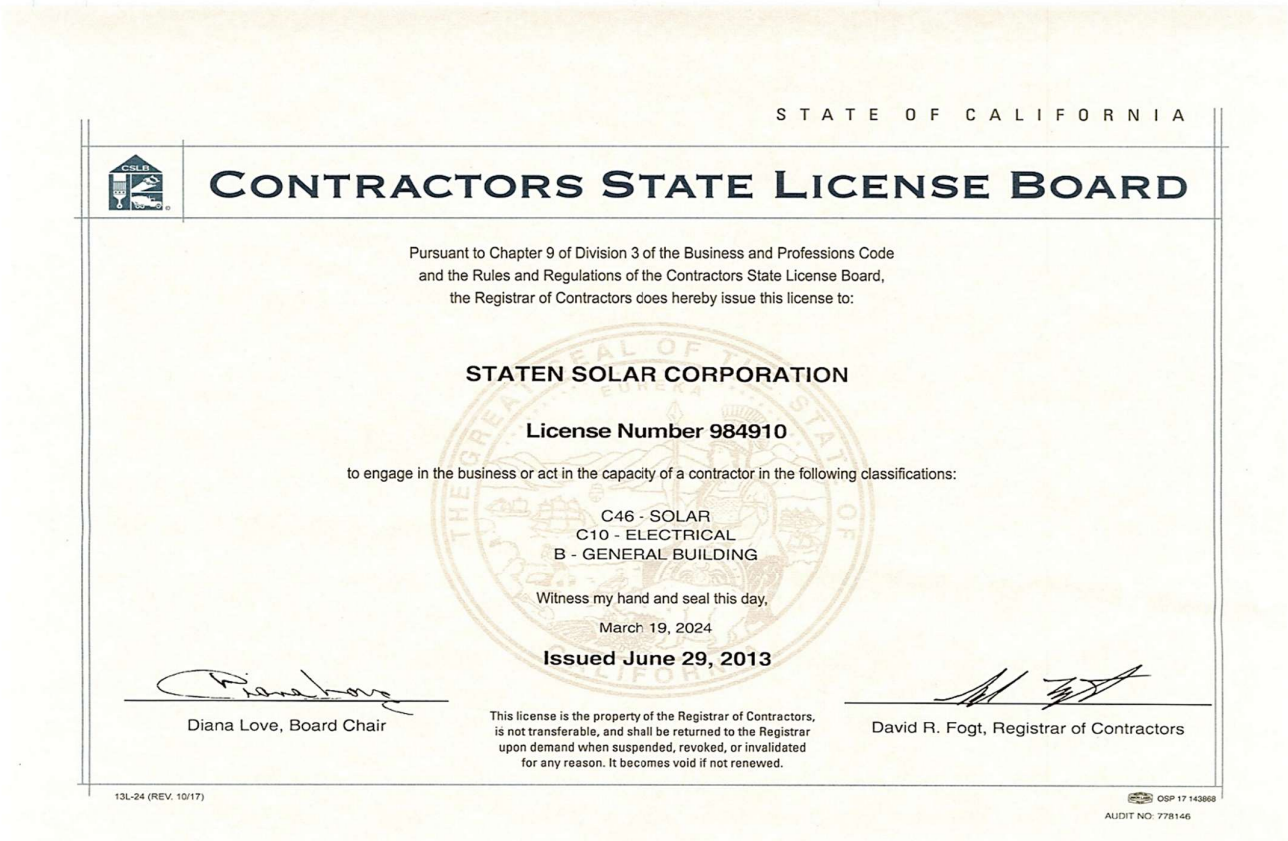
CONTRACTORS STATE LICENSE BOARD
ACTIVE LICENSE

License Number **984910** Entity CORP

Business Name STATEN SOLAR CORPORATION

Classification(s) C46 C10 B

Expiration Date 06/30/2025 www.cslb.ca.gov



STATE OF CALIFORNIA

CONTRACTORS STATE LICENSE BOARD

Pursuant to Chapter 9 of Division 3 of the Business and Professions Code and the Rules and Regulations of the Contractors State License Board, the Registrar of Contractors does hereby issue this license to:

STATEN SOLAR CORPORATION

License Number 984910

to engage in the business or act in the capacity of a contractor in the following classifications:

C46 - SOLAR
C10 - ELECTRICAL
B - GENERAL BUILDING

Witness my hand and seal this day,

March 19, 2024

Issued June 29, 2013

Diana Love, Board Chair

This license is the property of the Registrar of Contractors, is not transferable, and shall be returned to the Registrar upon demand when suspended, revoked, or invalidated for any reason. It becomes void if not renewed.

David R. Fogt, Registrar of Contractors

13L-24 (REV. 10/17)

OSP 17 143868
AUDIT NO: 778146

STATEN

DIR Registration:

Contractor Information

Legal Entity Name
STATEN SOLAR
Legal Entity Type
Corporation
Status
Active
Registration Number
1000046459
Registration effective date
7/1/2023
Registration expiration date
6/30/2026
Mailing Address
175 Nortech Pkwy, Suite 100 San Jose 95134 CA United States of...
Physical Address
175 Nortech Pkwy, Suite 100 San Jose 95134 CA United States of...
Email Address
Trade Name/DBA
STATEN SOLAR CORPORATION
License Number(s)
CSLB:984910
CSLB:984910

Registration History

Effective Date	Expiration Date
7/10/2018	6/30/2019
9/22/2017	6/30/2018
2/3/2017	6/30/2017
7/1/2019	6/30/2021
7/1/2021	6/30/2022
7/1/2022	6/30/2023
7/1/2023	6/30/2026

Legal Entity Information

Corporation Number:
Federal Employment Identification Number:
President Name: Sandipan Bhanot
Vice President Name:
Treasurer Name:
Secretary Name:
CEO Name:

Agent of Service Name: Staten Solar
Agent of Service Mailing Address: 175 Nortech Pkwy San Jose 95134 CA United States of America

STATEN

Certificate of Insurance:

Client#: 1811666 STATESOL3

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/17/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Barbara Ayerle
USI Insurance Services, LLC Lic # 0G11911 333 South Grand Avenue, Suite 1450 Los Angeles, CA 90071	PHONE (A/C, No, Ext): 213 337-6400 FAX (A/C, No): E-MAIL ADDRESS: barbara.ayerle@usi.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Colony Insurance Company	39993
INSURER B : State Compensation Insurance Fund of CA	35076
INSURER C : United Financial Casualty Company	11770
INSURER D :	
INSURER E :	
INSURER F :	

INSURED: Staten Solar Corporation, 175 Nortech Pkwy, Suite 100, San Jose, CA 95134

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	X	X	PACES4266580	09/13/2024	09/13/2025	EACH OCCURRENCE	$1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$100,000
	X BI/PD Ded:5,000						MED EXP (Any one person)	$5,000
							PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$2,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$2,000,000
	OTHER:							$
C	AUTOMOBILE LIABILITY	X	X	00916102	09/13/2024	03/13/2025	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY X SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	UMBRELLA LIAB OCCUR			EXC4266581	09/13/2024	09/13/2025	EACH OCCURRENCE	$5,000,000
	X EXCESS LIAB X CLAIMS-MADE						AGGREGATE	$5,000,000
	DED RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N			923809824	09/13/2024	09/13/2025	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y	N/A					E.L. EACH ACCIDENT	$1,000,000
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$1,000,000
A	Pollution	X	X	PACES4266580	09/13/2024	09/13/2025	$1M/$2M	
A	Prof Liability	X	X	PACES4266580	09/13/2024	09/13/2025	$1M/$2M	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The General Liability and Auto policies include an automatic Additional Insured endorsement that provides Additional Insured status to the Certificate Holder with regard to work performed by or on behalf of the named insured.

The General Liability and Auto policies provide a Blanket Waiver of Subrogation in favor of the same.

10. Cost Proposal and Production Form (Attachment D)

We would be happy to be partnered with City of Laguna Beach for implementation of Solar PV Microgrid Design, Installation and Operation at Multiple City Facilities. We have developed a refined design concept and layout that optimizes energy production, minimizes land use, orientation of the panels to maximize sunlight capture throughout the year and aligns with the client's technical requirements.

We are also proposing an alternate financial proposal (refer 10.1.4 section of this proposal) considering the solar only option that would be workable based on the project size, locations, and cost. Staten Solar offered the best price if the City would prefer to move with the solar only option. The proposed pricing for Solar PV Microgrid Projects is provided in the table below. The copy of both Attachment D (the electronic submission) is attached in Microsoft Excel spreadsheet format (.xls or .xlsx) at the Google Drive link provided below:

Attachment D – Staten Solar.

https://drive.google.com/drive/folders/1jF1-hW4EM8URe9DSIwtINzG0DXsE0p4K?usp=drive_link

Notes for all PPA options provided next in Section 10.1: -

a) Staten Solar preferred PPA over Direct Purchase option.
b) The initial PPA term is 20 Years.
c) Annual escalation in PPA rate is 1.5%.
d) No upfront/initial payment.
e) There will be end of term buyout payment as mentioned in the PPA table.
f) PPA can be extendable by an additional 10 years (2 Terms having 5 years in each term).
g) Staten Solar will provide a 90% Performance Guarantee.
h) The Price is considered for non-DCR category.
i) All Environmental benefits (REC, Carbon Credit etc.) will be retained by City.
j) All Tax benefits (ITC, IRA etc.) will be with Staten Solar.

Notes for all Direct Purchase options provided next in Section 10.1: The following material/services included in proposal:

a) Solar Panels
b) Solar Inverters
c) Solar Carport & Rooftop Structure
d) BESS System (Cell, modules, racks, encloser)
e) BOM - All other materials for constructing the system as per industry standards
f) Project Engineering
g) Project Permitting & Coordination with City Departments
h) Construction Mobilization and Staging
i) Civil Construction (trenching and backfill, directional boring, equipment pad preparation, etc.)
j) Structural/mechanical Construction
k) Electrical Construction
l) Testing and Commissioning
m) Interconnection Process with Utility Meter
n) Monitoring Equipment/System
o) Communications and Metering

Note: The detailed description of project inclusion, assumption and exclusion is provided next in section 10.2, 10.3 & 10.4.

10.1 Pricing Details:

10.1.1 Solar PPA & BESS Lease Cost Proposal for Solar PV Microgrid Project – 24 Hrs Microgrid:

Sr. No.	Site Name	Proposed System	Proposed System Size	BESS Power Capacity	BESS Energy Capacity	Solar PPA Rate	Solar PPA Termination Value ($) after 20 Years	Annual BESS Lease Price	BESS Lease Termination Value after 20 years
		Type	(kW-DC)	(kW)	(kWh)	($/kWh)	($)	($)	($)
1	**City Hall**	Carport	272.80	500	1,613	**$ 0.2630**	$ 174,458	**$ 156,062**	$ 250,635
1.1	**City Hall EV**	Carport	112.20	1,000	1,198	**$ 0.2630**	$ 71,753	**$ 154,427**	$ 248,009
2	**City Hall Lift Station**	Carport	66.00	125	688	**$ 0.2390**	$ 40,805	**$ 98,388**	$ 158,011
3	**Corporation Yard**	Rooftop	110.55	125	688	**$ 0.2180**	$ 52,968	**$ 98,388**	$ 158,011
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	1,198	**$ 0.2180**	$ 35,575	**$ 154,427**	$ 248,009
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	500	1,613	**$ 0.2180**	$ 136,963	**$ 156,062**	$ 250,635
5	**Susi Q Center**	Rooftop	47.85	250	1,075	**$ 0.1910**	$ 23,295	**$ 131,628**	$ 211,394
6	**Fire Station 2**	Rooftop	24.20	11.5	189	**$ 0.2190**	$ 13,068	**$ 24,025**	$ 38,584
7	**Fire Station 3**	Rooftop	10.45	7.6	95	**$ 0.2470**	$ 6,578	**$ 12,286**	$ 19,732
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	189	**$ 0.4340**	$ 26,008	**$ 22,737**	$ 36,515
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	54	**$ 0.4440**	$ 5,573	**$ 7,323**	$ 11,761

Note:

1. **Solar PPA Terms applicable for 20 years.**
2. **Solar PPA – Annual Escalation is 1.5% for all sites.**
3. **BESS lease payment shall be payable on monthly basis for each site.**
4. **No BESS Lease annual escalations applicable.**
5. **BESS Lease Term applicable for 20 years.**
6. **BESS O&M included for the term.**
7. **One time battery replacement in year 12 also included in the lease.**
8. **Same warranties under BESS lease as offered in PPA option.**

10.1.2 Solar PPA & BESS Lease Cost Proposal for Solar PV Microgrid Project – 48 Hrs Microgrid:

Sr. No.	Site Name	Proposed System	Proposed System Size	BESS Power Capacity	BESS Energy Capacity	Solar PPA Rate	Solar PPA Termination Value ($) after 20 Years	Annual BESS Lease Price	BESS Lease Termination Value after 20 years
		Type	(kW-DC)	(kW)	(kWh)	($/kWh)	($)	($)	($)
1	**City Hall**	Carport	272.80	1,000	3,440	**$ 0.2630**	$ 174,458	**$ 217,394**	$ 349,134
1.1	**City Hall EV**	Carport	112.20	1,000	1,198	**$ 0.2630**	$ 71,753	**$ 154,427**	$ 248,009
2	**City Hall Lift Station**	Carport	66.00	250	1,075	**$ 0.2390**	$ 40,805	**$ 131,628**	$ 211,394
3	**Corporation Yard**	Rooftop	110.55	250	1,075	**$ 0.2180**	$ 52,968	**$ 131,628**	$ 211,394
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	2,500	**$ 0.2180**	$ 35,575	**$ 209,126**	$ 335,856
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	1,000	2,500	**$ 0.2180**	$ 136,963	**$ 209,126**	$ 335,856
5	**Susi Q Center**	Rooftop	47.85	500	1,613	**$ 0.1910**	$ 23,295	**$ 156,062**	$ 250,635
6	**Fire Station 2**	Rooftop	24.20	11.5	378	**$ 0.2190**	$ 13,068	**$ 43,143**	$ 69,287
7	**Fire Station 3**	Rooftop	10.45	7.6	189	**$ 0.2470**	$ 6,578	**$ 23,125**	$ 37,139
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	378	**$ 0.4340**	$ 26,008	**$ 42,790**	$ 68,720
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	108	**$ 0.4440**	$ 5,573	**$ 13,204**	$ 21,206

Note:

1. **Solar PPA Terms applicable for 20 years.**
2. **Solar PPA – Annual Escalation is 1.5% for all sites.**
3. **BESS lease payment shall be payable on monthly basis for each site.**
4. **No BESS Lease annual escalations applicable.**
5. **BESS Lease Term applicable for 20 years.**
6. **BESS O&M included for the term.**
7. **One time battery replacement in year 12 also included in the lease.**
8. **Same warranties under BESS lease as offered in PPA option.**

10.1.3 Solar PPA & BESS Lease Cost Proposal for Solar PV Microgrid Project – 72 Hrs Microgrid:

Sr. No.	Site Name	Proposed System	Proposed System Size	BESS Power Capacity	BESS Energy Capacity	Solar PPA Rate	Solar PPA Termination Value ($) after 20 Years	Annual BESS Lease Price	BESS Lease Termination Value after 20 years
		Type	(kW-DC)	(kW)	(kWh)	($/kWh)	($)	($)	($)
1	**City Hall**	Carport	272.80	1,000	5,000	**$ 0.2630**	$ 174,458	**$ 345,156**	$ 554,318
1.1	**City Hall EV**	Carport	112.20	500	1,613	**$ 0.2630**	$ 71,753	**$ 156,062**	$ 250,635
2	**City Hall Lift Station**	Carport	66.00	500	1,613	**$ 0.2390**	$ 40,805	**$ 156,062**	$ 250,635
3	**Corporation Yard**	Rooftop	110.55	500	1,613	**$ 0.2180**	$ 52,968	**$ 156,062**	$ 250,635
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	3,440	**$ 0.2180**	$ 35,575	**$ 217,394**	$ 349,134
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	1,000	3,440	**$ 0.2180**	$ 136,963	**$ 217,394**	$ 349,134
5	**Susi Q Center**	Rooftop	47.85	1,000	2,500	**$ 0.1910**	$ 23,295	**$ 209,126**	$ 335,856
6	**Fire Station 2**	Rooftop	24.20	11.5	567	**$ 0.2190**	$ 13,068	**$ 62,596**	$ 100,529
7	**Fire Station 3**	Rooftop	10.45	7.6	284	**$ 0.2470**	$ 6,578	**$ 32,860**	$ 52,774
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	567	**$ 0.4340**	$ 26,008	**$ 61,855**	$ 99,338
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	162	**$ 0.4440**	$ 5,573	**$ 19,095**	$ 30,667

Note:

1. **Solar PPA Terms applicable for 20 years.**
2. **Solar PPA – Annual Escalation is 1.5% for all sites.**
3. **BESS lease payment shall be payable on monthly basis for each site.**
4. **No BESS Lease annual escalations applicable.**
5. **BESS Lease Term applicable for 20 years.**
6. **BESS O&M included for the term.**
7. **One time battery replacement in year 12 also included in the lease.**
8. **Same warranties under BESS lease as offered in PPA option.**

10.1.4 Alternate PPA Proposal for Solar Only Project:

Sr. No.	Site Name	Proposed System	Proposed System Size	PPA Rate	PPA Annual Escalation	PPA Terms (Years)	Solar Termination Value ($) after 20 Years
		Type	(kW-DC)	($/kWh)	(%)	(Years)	($)
1	City Hall	Carport	272.80	$ 0.2630	1.5%	20	$ 174,458
1.1	City Hall EV	Carport	112.20	$ 0.2630	1.5%	20	$ 71,753
2	City Hall Lift Station	Carport	66.00	$ 0.2390	1.5%	20	$ 40,805
3	Corporation Yard	Rooftop	110.55	$ 0.2180	1.5%	20	$ 52,968
3.1	Corp Yard EV	Carport & Rooftop	74.25	$ 0.2180	1.5%	20	$ 35,575
4	Laguna Beach Community and Recreation Center	Carport & Rooftop	245.85	$ 0.2180	1.5%	20	$ 136,963
5	Susi Q Center	Rooftop	47.85	$ 0.1910	1.5%	20	$ 23,295
6	Fire Station 2	Rooftop	24.20	$ 0.2190	1.5%	20	$ 13,068
7	Fire Station 3	Rooftop	10.45	$ 0.2470	1.5%	20	$ 6,578
8	Laguna Beach Animal Shelter	Carport	23.10	$ 0.4340	1.5%	20	$ 26,008
9	Animal Shelter Lift Station	Carport	4.95	$ 0.4440	1.5%	20	$ 5,573

10.1.5 Direct Purchase Price Proposal for Solar PV Microgrid Project – 24 Hrs Microgrid

Sr. No.	Site Name	Proposed System Type	Proposed System Size (kW-DC)	BESS Power Capacity (kW)	BESS Energy Capacity (kWh)	Solar Direct Purchase Price ($/Wp)	Solar O&M Price (1st Year) ($)	BESS Direct Purchase Price ($/kWh)	BESS O&M Price (1st Year) ($)
1	**City Hall**	Carport	272.80	500	1,613	**$ 4.26**	**$ 4,910.4**	**$ 1,036**	**$ 16,709**
1.1	**City Hall EV**	Carport	112.20	1,000	1,198	**$ 4.26**	**$ 2,019.6**	**$ 1,380**	**$ 16,534**
2	**City Hall Lift Station**	Carport	66.00	125	688	**$ 4.12**	**$ 1,188.0**	**$ 1,531**	**$ 10,534**
3	**Corporation Yard**	Rooftop	110.55	125	688	**$ 3.19**	**$ 1,989.9**	**$ 1,531**	**$ 10,534**
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	1,198	**$ 3.19**	**$ 1,336.5**	**$ 1,380**	**$ 16,534**
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	500	1,613	**$ 3.71**	**$ 4,425.3**	**$ 1,036**	**$ 16,709**
5	**Susi Q Center**	Rooftop	47.85	250	1,075	**$ 3.25**	**$ 861.3**	**$ 1,311**	**$ 14,093**
6	**Fire Station 2**	Rooftop	24.20	11.5	189	**$ 3.60**	**$ 435.6**	**$ 1,361**	**$ 4,502**
7	**Fire Station 3**	Rooftop	10.45	7.6	95	**$ 4.20**	**$ 188.1**	**$ 1,392**	**$ 2,302**
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	189	**$ 7.51**	**$ 415.8**	**$ 1,288**	**$ 4,260**
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	54	**$ 7.51**	**$ 89.1**	**$ 1,452**	**$ 1,372**
TOTAL			**992.20**	**3,536**	**8,600**	**$ 3.95**	**$ 17,860**	**$ 1,265**	**$ 114,083**

Note:

1. **Solar O&M Cost – Annual Escalation is 2.5% for all Sites.**
2. **BESS O&M Cost – Annual Escalation is 2.5% for all sites.**
3. **Annual O&M Cost shall be payable on monthly basis for each site.**
4. **City keeps all RECs and Environmental Attributes.**

10.1.6 Direct Purchase Price Proposal for Solar PV Microgrid Project – 48 Hrs Microgrid

Sr. No.	Site Name	Proposed System Type	Proposed System Size (kW-DC)	BESS Power Capacity (kW)	BESS Energy Capacity (kWh)	Solar Direct Purchase Price ($/Wp)	Solar O&M Price (1st Year) ($)	BESS Direct Purchase Price ($/kWh)	BESS O&M Price (1st Year) ($)
1	**City Hall**	Carport	272.80	1,000	3,440	**$ 4.26**	**$ 4,910.4**	**$ 677**	**$ 19,784**
1.1	**City Hall EV**	Carport	112.20	1,000	1,198	**$ 4.26**	**$ 2,019.6**	**$ 1,380**	**$ 14,054**
2	**City Hall Lift Station**	Carport	66.00	250	1,075	**$ 4.12**	**$ 1,188.0**	**$ 1,311**	**$ 11,979**
3	**Corporation Yard**	Rooftop	110.55	250	1,075	**$ 3.19**	**$ 1,989.9**	**$ 1,311**	**$ 11,979**
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	2,500	**$ 3.19**	**$ 1,336.5**	**$ 896**	**$ 19,032**
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	1,000	2,500	**$ 3.71**	**$ 4,425.3**	**$ 896**	**$ 19,032**
5	**Susi Q Center**	Rooftop	47.85	500	1,613	**$ 3.25**	**$ 861.3**	**$ 1,036**	**$ 14,203**
6	**Fire Station 2**	Rooftop	24.20	11.5	378	**$ 3.60**	**$ 435.6**	**$ 1,222**	**$ 6,871**
7	**Fire Station 3**	Rooftop	10.45	7.6	189	**$ 4.20**	**$ 188.1**	**$ 1,310**	**$ 3,683**
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	378	**$ 7.51**	**$ 415.8**	**$ 1,212**	**$ 6,815**
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	108	**$ 7.51**	**$ 89.1**	**$ 1,309**	**$ 2,103**
TOTAL			**992.20**	**5,036**	**14,454**	**$ 3.95**	**$ 17,860**	**$ 986**	**$ 129,534**

Note:

1. **Solar O&M Cost – Annual Escalation is 2.5% for all Sites.**
2. **BESS O&M Cost – Annual Escalation is 2.5% for all sites.**
3. **Annual O&M Cost shall be payable on monthly basis for each site.**
4. **City keeps all RECs and Environmental Attributes.**

10.1.7 Direct Purchase Price Proposal for Solar PV Microgrid Project – 72 Hrs Microgrid

Sr. No.	Site Name	Proposed System Type	Proposed System Size (kW-DC)	BESS Power Capacity (kW)	BESS Energy Capacity (kWh)	Solar Direct Purchase Price ($/Wp)	Solar O&M Price (1st Year) ($)	BESS Direct Purchase Price ($/kWh)	BESS O&M Price (1st Year) ($)
1	**City Hall**	Carport	272.80	1,000	5,000	**$ 4.26**	**$ 4,910.4**	**$ 739**	**$ 28,270**
1.1	**City Hall EV**	Carport	112.20	500	1,613	**$ 4.26**	**$ 2,019.6**	**$ 1,036**	**$ 12,782**
2	**City Hall Lift Station**	Carport	66.00	500	1,613	**$ 4.12**	**$ 1,188.0**	**$ 1,036**	**$ 12,782**
3	**Corporation Yard**	Rooftop	110.55	500	1,613	**$ 3.19**	**$ 1,989.9**	**$ 1,036**	**$ 12,782**
3.1	**Corp Yard EV**	Carport & Rooftop	74.25	1,000	3,440	**$ 3.19**	**$ 1,336.5**	**$ 677**	**$ 17,806**
4	**Laguna Beach Community and Recreation Center**	Carport & Rooftop	245.85	1,000	3,440	**$ 3.71**	**$ 4,425.3**	**$ 677**	**$ 17,806**
5	**Susi Q Center**	Rooftop	47.85	1,000	2,500	**$ 3.25**	**$ 861.3**	**$ 896**	**$ 17,129**
6	**Fire Station 2**	Rooftop	24.20	11.5	567	**$ 3.60**	**$ 435.6**	**$ 1,182**	**$ 8,972**
7	**Fire Station 3**	Rooftop	10.45	7.6	284	**$ 4.20**	**$ 188.1**	**$ 1,241**	**$ 4,710**
8	**Laguna Beach Animal Shelter**	Carport	23.10	11.5	567	**$ 7.51**	**$ 415.8**	**$ 1,168**	**$ 8,866**
9	**Animal Shelter Lift Station**	Carport	4.95	5.8	162	**$ 7.51**	**$ 89.1**	**$ 1,262**	**$ 2,737**
TOTAL			**992.20**	**5,536**	**20,799**	**$ 3.95**	**$ 17,860**	**$ 841**	**$ 144,643**

Note:

1. **Solar O&M Cost – Annual Escalation is 2.5% for all Sites.**
2. **BESS O&M Cost – Annual Escalation is 2.5% for all sites.**
3. **Annual O&M Cost shall be payable on monthly basis for each site.**
4. **City keeps all RECs and Environmental Attributes.**

10.2 Solar PV Microgrid Project Includes

Staten Solar proposed the solar PV Project pricing for the project sites items/components mentioned in the RFP documents. The project Price is including the following items/components:

a) Project Engineering

(i) Civil/structural engineering

(ii) Electrical engineering

(iii) Mechanical engineering

(iv) Geotechnical studies and engineering

b) Project Permitting

(i) Applicable AHJ permitting fees

(ii) Utility interconnection study process

c) Safety Plan

d) Materials

(i) Modules/BESS

(ii) Inverters

(iii) Racking/structures

(iv) Balance of System (BOS)

(v) All other materials for constructing the system as per industry standards.

a) Equipment/Material Procurement

(i) Mobilization

(ii) Delivery, storage, and staging logistics

(iii) Delivery and handling costs

(iv) De-mobilization

b) Facility Construction

(i) Civil (trenching and backfill, directional boring, equipment pad preparation, etc.)

(ii) Structural/mechanical

(iii) Electrical

c) Interconnection Process

(i) Interconnection Application

(ii) Initial and supplemental review process management

(iii) System coordination studies (if deemed necessary)

(iv) System protection engineering (Rule 21, UL 1741, etc.)

(v) Pre-parallel inspection

(vi) Permission to operate (PTO)

d) Facility Testing

e) Facility Commissioning

(i) String voltage check

(ii) Inverters – (System check ramp rate, power factor, protection, etc.)

(iii) Racking visual inspection and torque check

(iv) Monitoring, configuration, startup, and training of Participant's personnel

(v) Switchgear (if required)

f) Monitoring Equipment/System - Inverter level performance/production monitoring

g) Operations and Maintenance

(i) Inverter maintenance

(ii) Module cleaning/testing

(iii) Checking of electrical connections/torque

(iv) Racking/structure torque check

(v) Remote monitoring

h) Production Guarantee - 90% system production guarantee or better.

10.3 Solar PV Microgrid Project Assumptions

Staten Solar proposed the solar PV Project pricing for the project sites items/components with the following assumptions:

a) Each site will follow the payments milestone separately based only on its status.

b) Pricing includes sales tax, and permit fees.

c) Payment and performance Bond and Insurance included.

d) The City will retain ownership of all environmental attributes of the energy systems (Renewable Energy Credits (RECs), Carbon Credits, etc.)

e) All tax related benefits (ITC, IRA, etc) will be retained by Staten Solar.

f) Underground conditions allow for standard foundation sizing and installation, boring for electrical conduit lines, and trenching or digging required for the scope of work.

g) Project pricing includes compliance with prevailing wages where required by law; but assumes that the project is not bound to Union Labor.

h) Solar modules are Tier 1 and All inverters are UL 1741-SA certified or listed in the CEC compliant database.

i) Project pricing is based on designs for the PV Systems and location provided in RFP documents. Any changes to the location may be adjusted via a change order.

j) No electrical panel upgrades included. Main meters are adequately sized and have available space for connection of PV generation.

k) Unless otherwise stated, all systems will interconnect into a 480V AC 3-Phase service.

l) Array areas shown on project site maps are representative and not exact layouts.

m) All pricing should be based on standard work hours of Monday – Friday 8:00 AM to 5:00 PM.

n) Assumed that all equipment will be delivered to site, if equipment must be delivered to a storage facility, then the cost of storage and redelivery to site will be the responsibility of Owner.

o) If crossing an existing easement is required, then any additional cost to perform work will result in a change order to Owner.

p) The storage system configuration provided in the RFP is unique in nature and not available commercially. We are proposing the microgrids and BESS system for all three options (24 Hrs, 48 Hrs & 72 Hrs) considering the storage sizes provided in the RFP at this instance. The actual required storage solution for the specific sites will be chosen after due discussion with the management and understanding their intent.

q) The proposed system sizes may exceed the requested power (kW) requirements, and the inverter power rating may be derated to lower ratings in alignment with project criteria, utility requirements and AHJ regulations.

r) **Notes for Equipment make:** It is important to note that equipment makes and models are subject to change based on market availability. In such cases, any replacements will be chosen to be at least similar or superior in technical specifications and warranty terms.

10.4 Solar PV Microgrid Project Excludes

The following products and services are expressly excluded from the work and base pricing offered by Staten Solar.

a) Utility costs for new services, distribution/substation upgrade fees, or any utility study fees beyond the initial application fee.

b) Any upgrades to existing site services.

c) Buy American, American Made, or American Recovery and Reinvestment Act certified components unless the Domestic Content option is ordered.

d) Overtime work – if required by the Owner - outside of Contractors standard working hours of 8 AM – 5 PM Monday through Friday.

e) Groundwater abatement.

f) Removal/disposal/Remediation of existing hazardous materials including asbestos.

g) Habitat mitigation.

h) Backup, or temporary power for existing electrical system.

i) SWPPP, grading plans/permit, tree removal permits, or any other permits required other than standard building, electrical and fire permits.

j) Backup generator power for use during interconnection shutdown.

k) All conductors, transformers, and pole work, as required by the utility and not the contractor.

l) Any fees or preparation and recording of documents required to cross existing easements.

m) Removal of any existing abandoned structures, conduits, pads etc.

n) Off-site Storage fees.

o) Environmental studies.

11. Key Contract Terms Exceptions

We would like to respectfully note a few observations within specific clauses that we believe warrant further discussion during the negotiation phase. These observations are not intended to be objections at this stage. We would appreciate the opportunity to discuss the following clauses in more detail during the negotiation phase.

There is only EPC/Contract Agreement attached in RFP documents (No PPA agreement found). There should be many points that need to be incorporated in the attached sample agreement. We are listing some important clauses/details that needs to add into contract document.

Clause No	Changes Proposed	Observations
10/Page36	CONTRACTOR and its supplier shall guarantee for a period of ~~two (2)~~ one (1) year after recordation of the Notice of Completion, all materials and all workmanship against any defects whatsoever	Generally, One Year workmanship Warranties applicable to Direct Cash Purchase project after notice of completion, all material and all workmanship. Please see.
5/Page45	CONTRACTOR acknowledges and agrees that if this Agreement involves a project specified in Section 9203 of the California Public Contract Code with a Contract price that exceeds five thousand dollars ($5,000), City will withhold five percent (5%) of the Contract price until the Notice of Completion is issued and recorded	Advance and Payment breakup – Discussion required.
N/A	To be Added	**Performance Guarantee** – Annual Energy Generation Guarantee clause to be added.
N/A	To be Added	Remedies clause to be added.
N/A	To be Added	Termination clause to be added.
N/A	To be Added	Price Escalation clause to be added.
N/A	To be Added	Jurisdiction clause to be added.
N/A	To be Added	Default Clause to be added.
N/A	To be Added	Force Majeure clause to be added.
N/A	To be Added/Not specified	LD rate not specified. It needs to be checked and incorporated.
9 / Page46	"~~CONTRACTOR will forfeit to the CITY, as a penalty, Two Hundred Dollars ($200) for each calendar day or portion thereof for each worker paid (either by him or any subcontractors under him) less than the prevailing rate described above on the work provided for in this Agreement, all in accordance with Section 1775 of the Labor Code of the State of California.~~"	Need to Discussion –this forfeit of $200 amount as a penalty is very stringent. It should be removed.
12/Page46	**Payment & Performance bond to be given before execution of the Agreement. – "**CONTRACTOR will, prior to the execution of this Agreement, furnish two bonds approved by the CITY, one in the amount of One Hundred Percent (100%) of the Contract price, to guarantee the faithful performance of the work, and one in the amount of One Hundred Percent (100%) of the Contract price to guarantee payment of all claims for labor and materials furnished. This Agreement shall not become effective until such bonds are supplied to and approved by the CITY."	Need to Discuss - Generally, it will be given before start of Construction – Discussion required to understand the City stand on this.

12. Response Checklist and Required Forms

Proposer to complete and return as part of Proposal

Submittal requirements:

[Yes] Section 1. Executive Summary

[Yes] Section 2. Relevant Team and Project Experience

[Yes] Section 3. Project References

[Yes] Section 4. Preliminary System Design

[Yes] Section 5. Description of MEMS/BEMS Control Architecture

[Yes] Section 6. Financial Analysis

[Yes] Section 7. Project Schedule

[Yes] Section 8. Risk Management and Safety Plan

[Yes] Section 9. Proof of Valid Licensing

[Yes] Section 10. Cost Proposal and Production Form (Attachment D)

[Yes] Section 11. Key Contract Term Exceptions

[Yes] Section 12. Response Checklist (Attachment E)

Confirmed receipt of Addenda (as applicable):

[Yes] Addendum 1

[Yes] Addendum 2

Signed: _____

Name & Designation: Sam Bhanot, President & CEO, Staten Solar

All Relevant Documents: All documents that are part of proposal can also be accessed on below links:

Sr. No.	Document Type	Link for Accessing Documents
1.	Layout Plans	Click to see System Layout
2.	PVSyst – Simulation Reports	Click to see PVSyst Report
3.	8760 Hourly Energy Simulation	Click to see 8760 Report
4.	ETB Reports	Click to see ETB Report
5.	Attachment D – Cost Proposal	Click to See Attachment D

Note: All documents can also be access on this master link for ease: **Master Documents Folder**

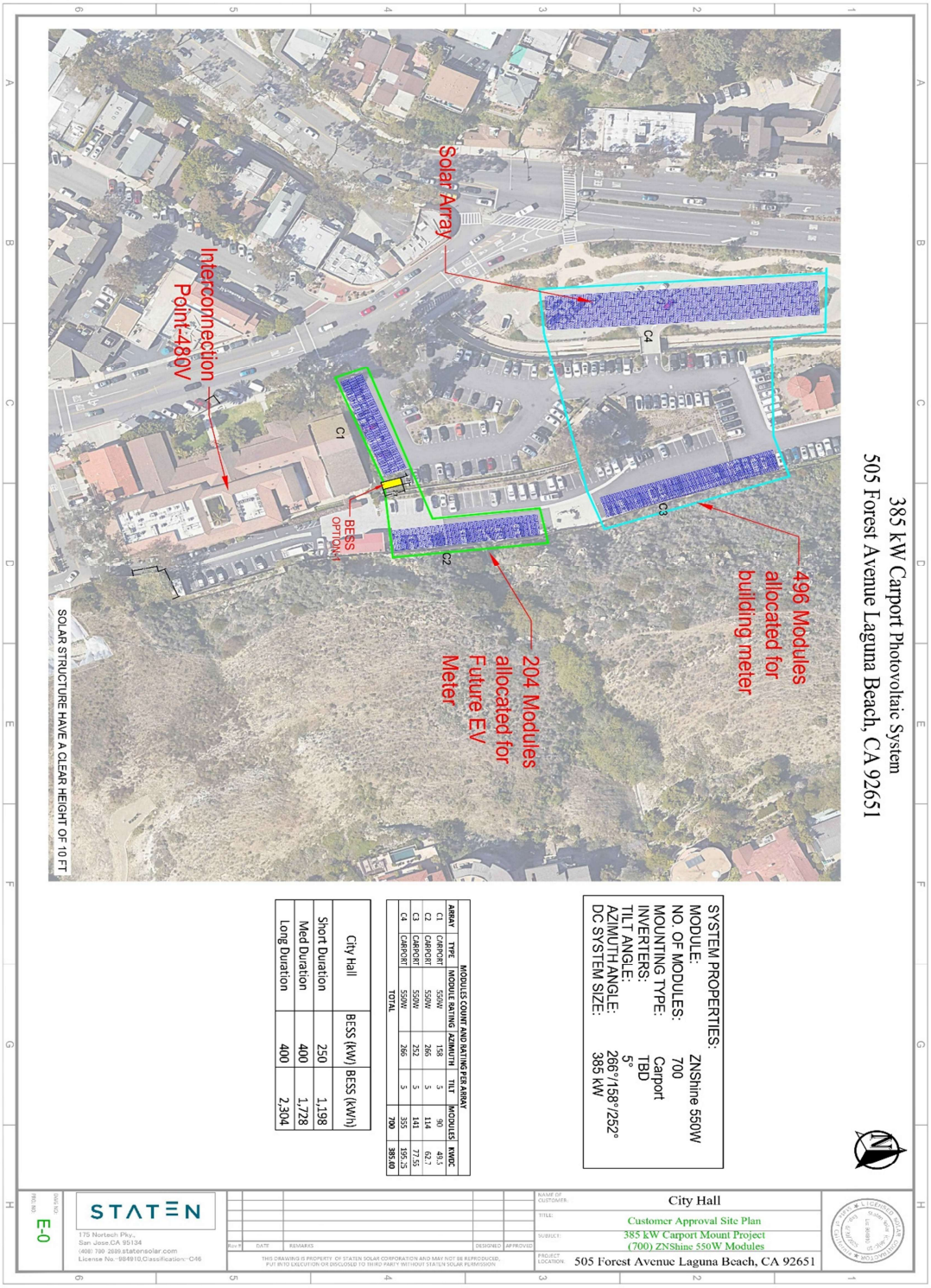
https://drive.google.com/drive/folders/1MLHM_xuUcEJ0wb3k2I_S7BXu9GPca0kV?usp=drive_link

Appendices

STATEN

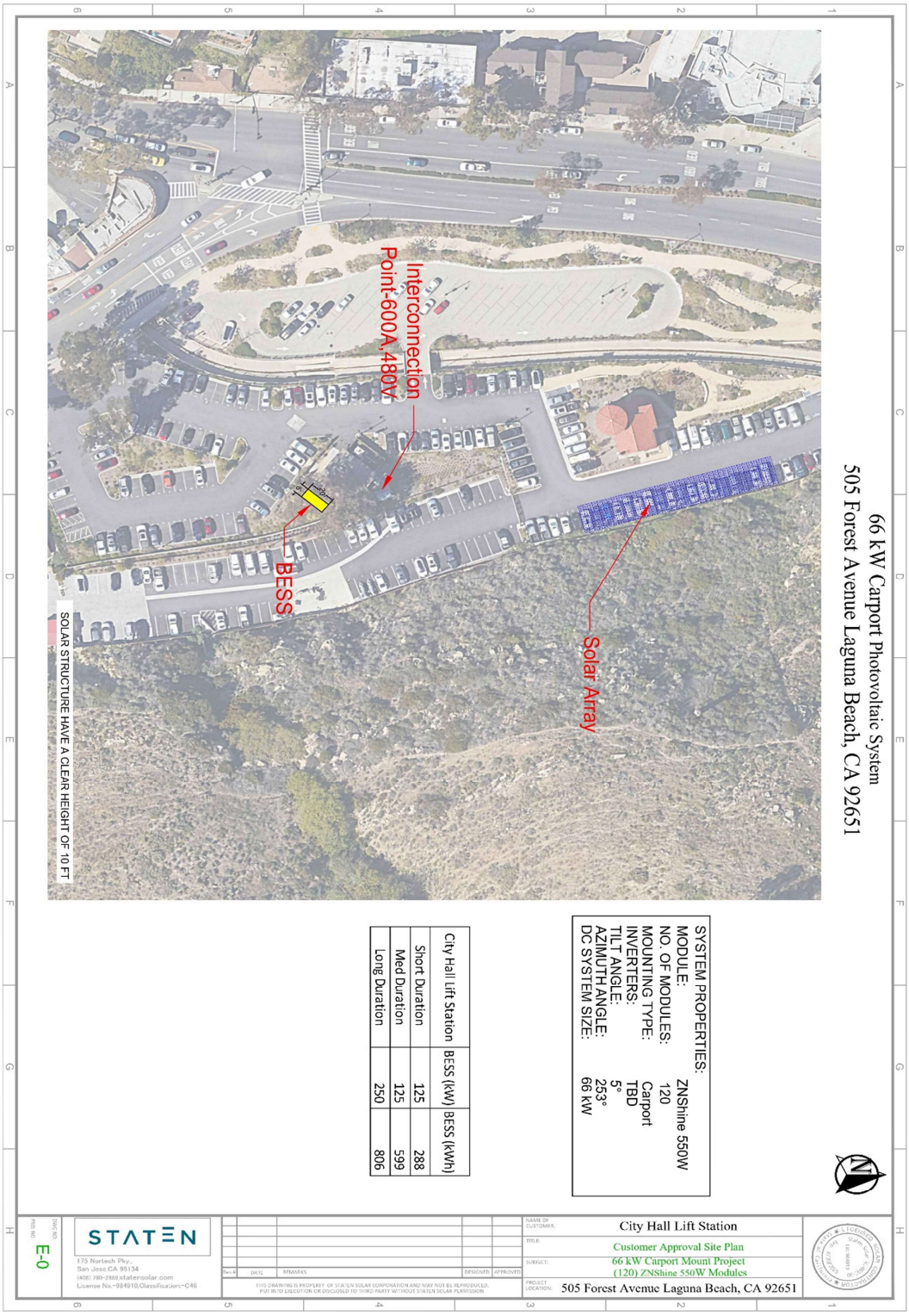
Appendix – A (System Layout)

City Hall & City Hall EV



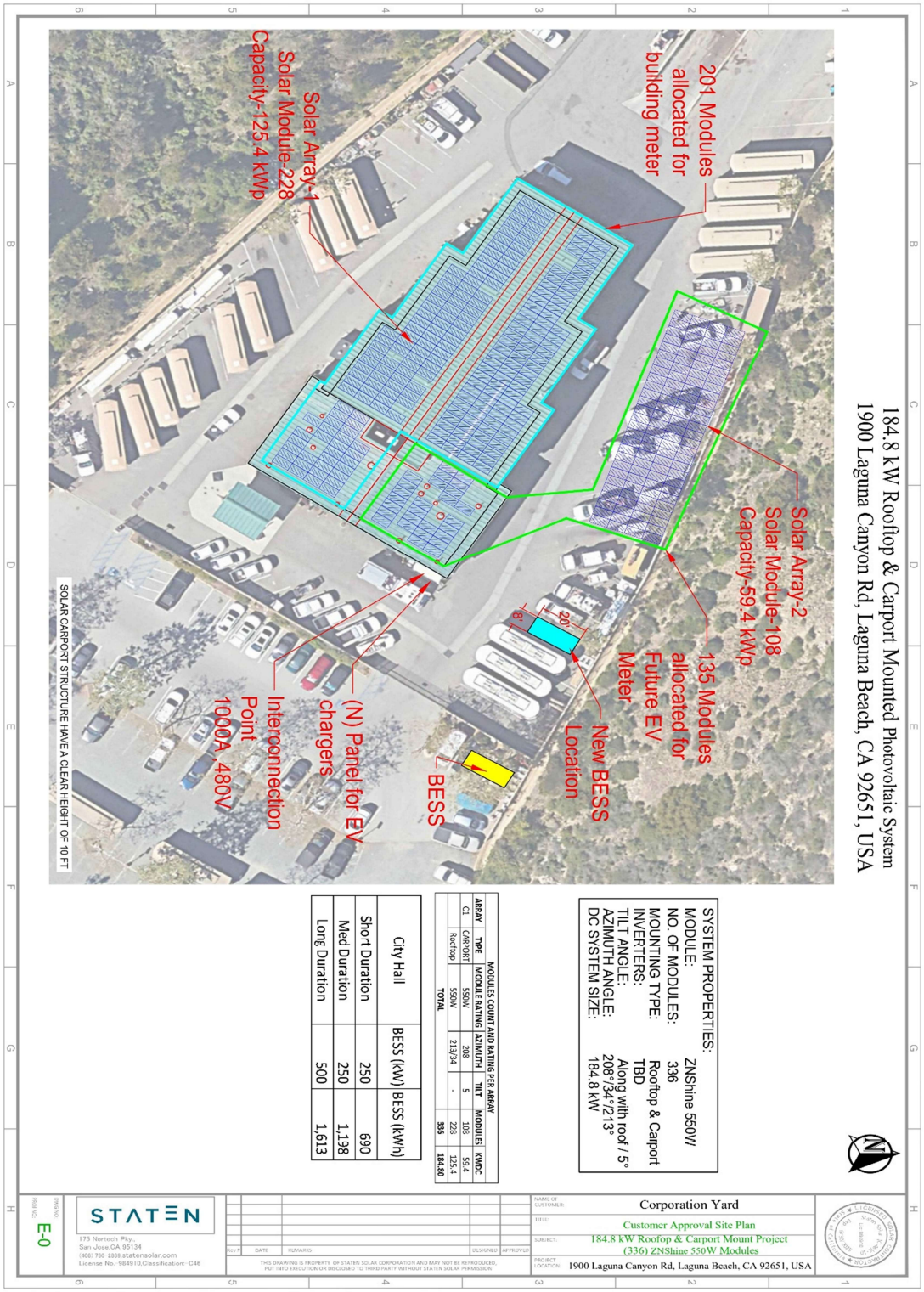
STATEN

City Hall Lift Station



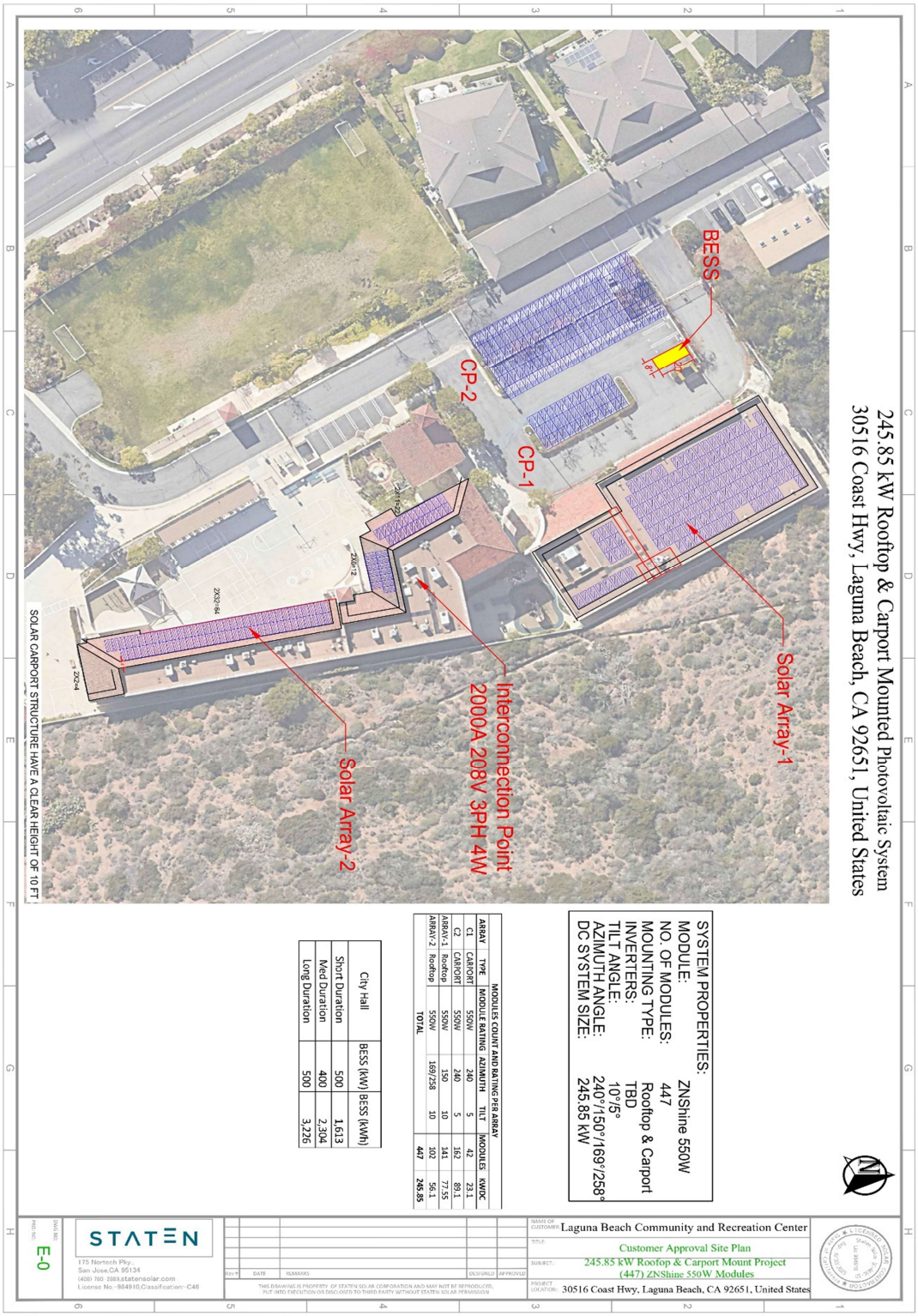
STATEN

Corporation Yard & EV



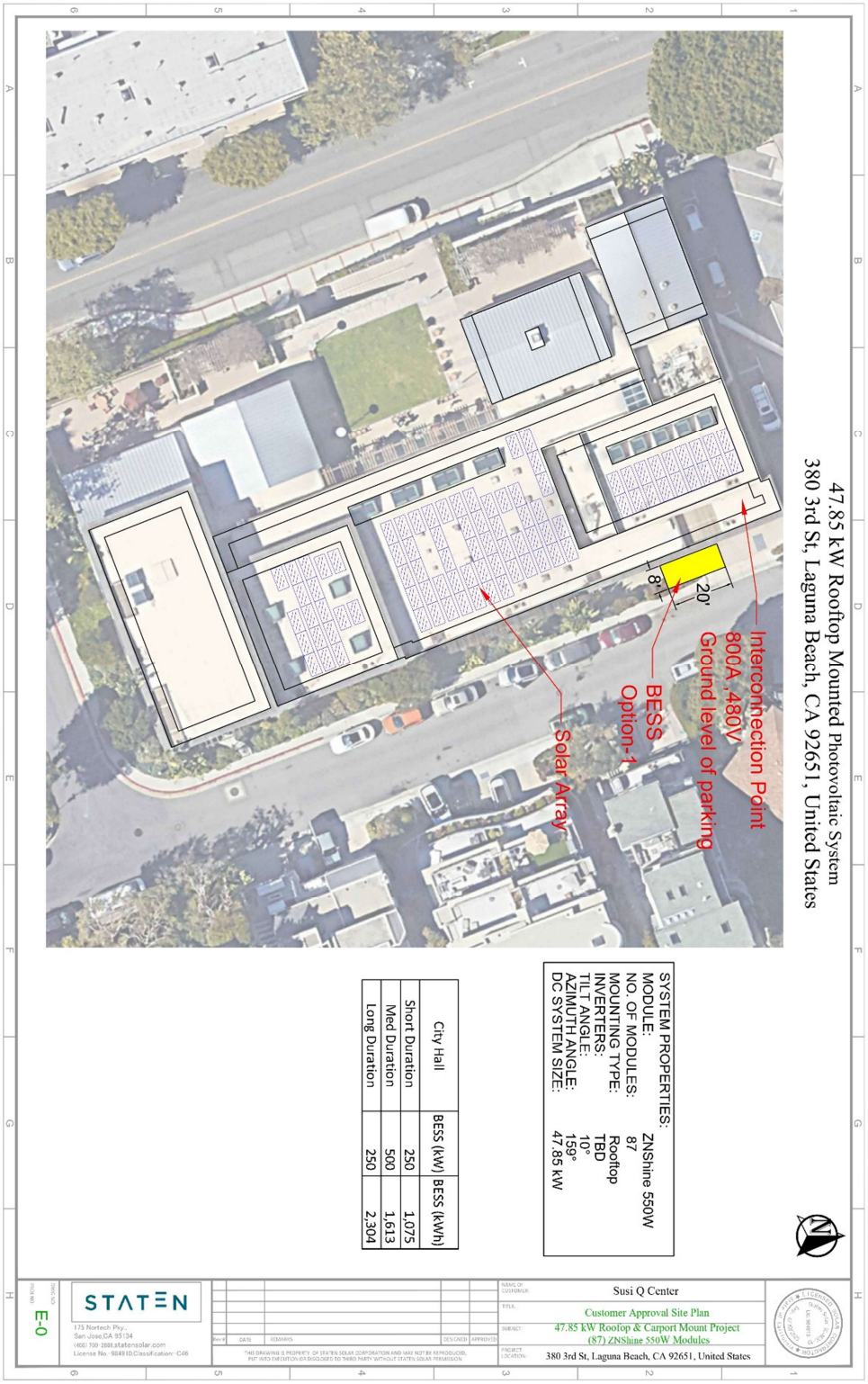
STATEN

Laguna Beach Community and Recreation Center



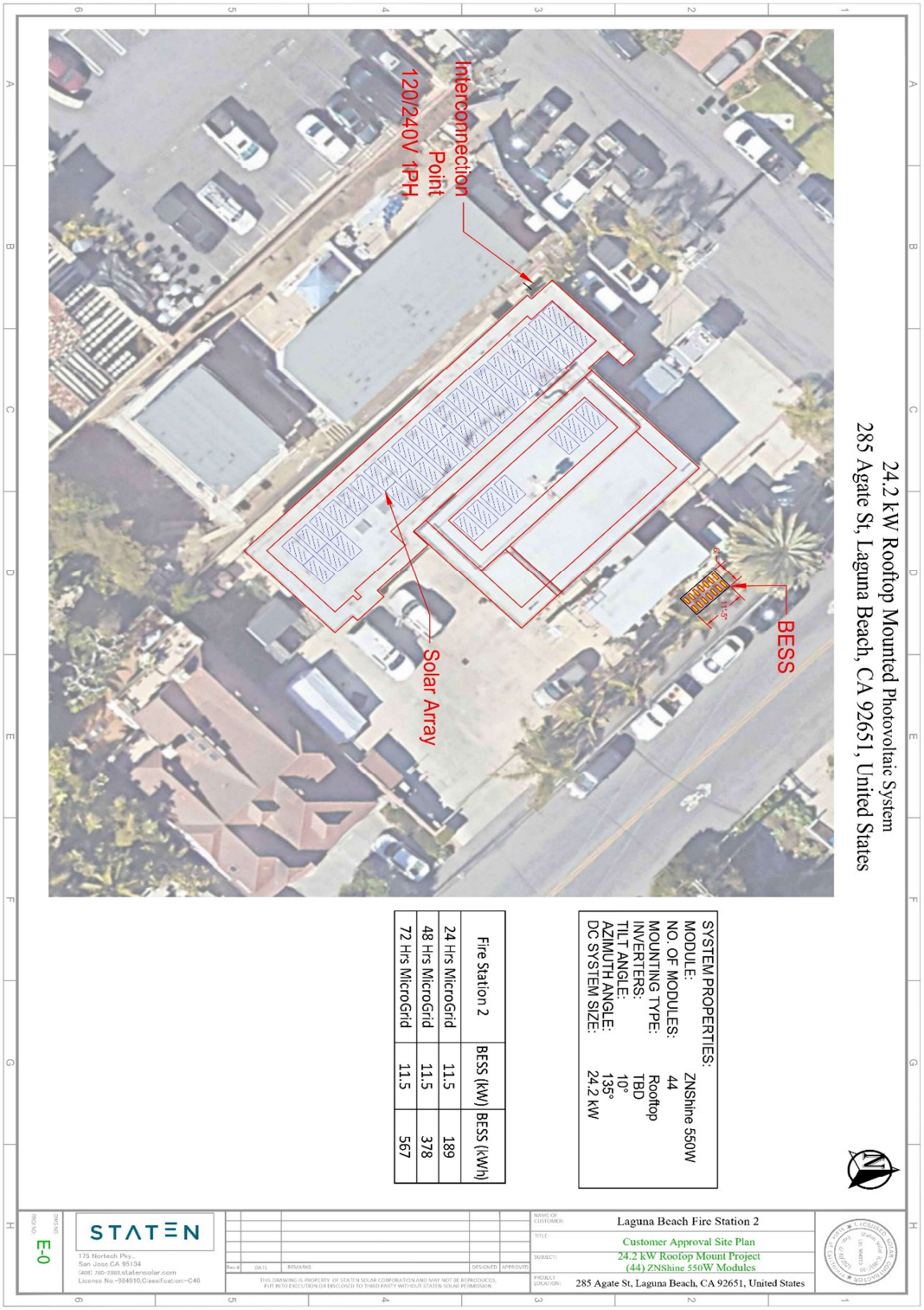
STATEN

Susi Q Center



STATEN

Fire Station 2



STATEN

Fire Station 3

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Laguna Beach Animal Shelter

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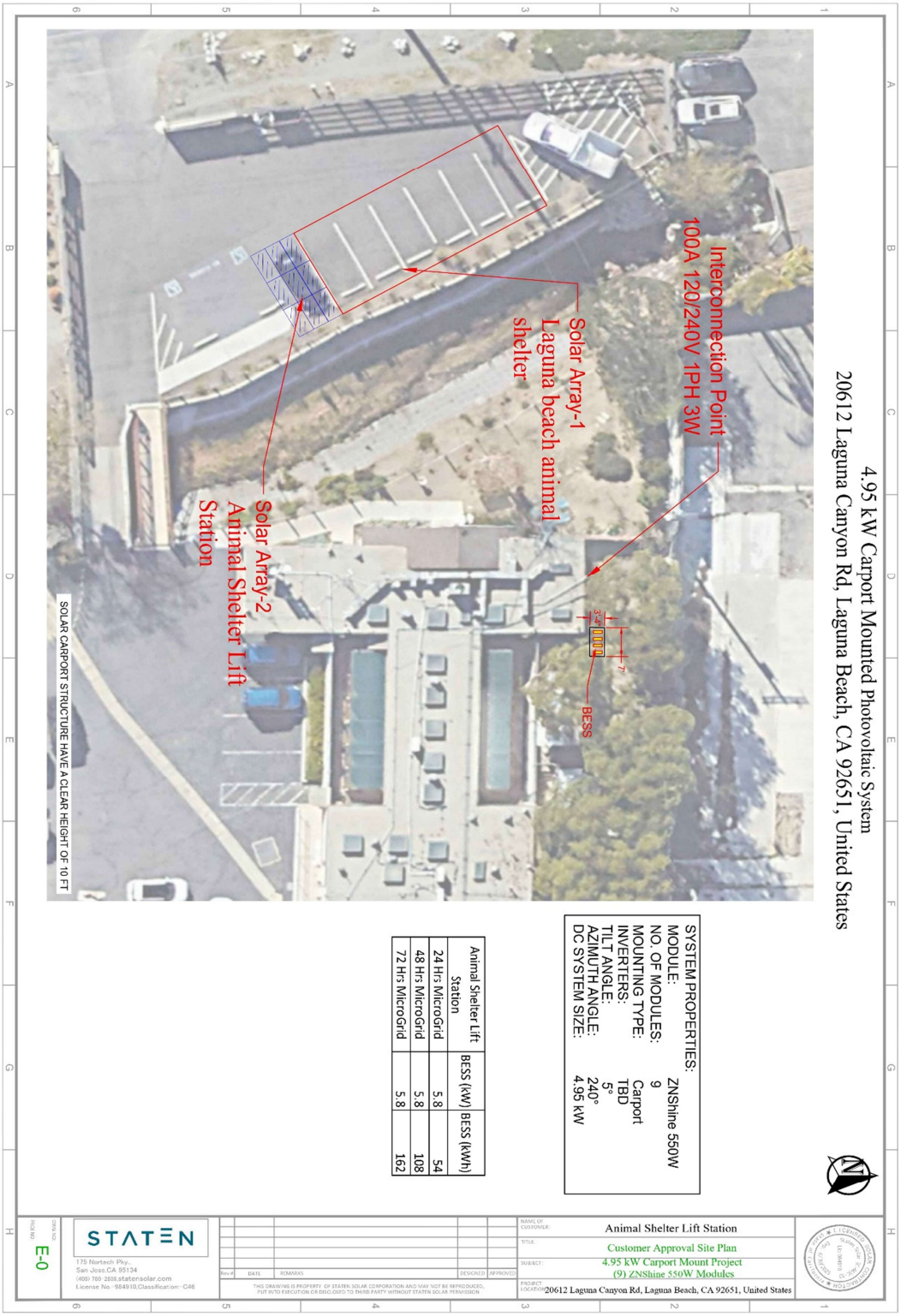
Animal Shelter Lift Station



Appendix – B (PVSyst Simulation)

PVSyst Simulation Report

Note: The PVSyst Energy Simulation report for Solar System can be accessed through this link: **PVSyst Report**

https://drive.google.com/drive/folders/1qweS-VtgjSMX1QNJZW1f7Aq7C3Z4lvI5?usp=drive_link

Sr. No.	Site Name	PVSyst Simulation Report (Click on the below Link for quick reference)
1	City Hall	Click to see
2	City Hall Lift Station	Click to see
3	Corporation Yard	Click to see
4	Laguna Beach Community and Recreation Center	Click to see
5	Susi Q Center	Click to see
6	Fire Station 2	Click to see
7	Fire Station 3	Click to see
8	Laguna Beach Animal Shelter	Click to see
9	Animal Shelter Lift Station	Click to see

Appendix – C (ETBs Report)

ETBs for Solar System

Note: ETB reports for Solar System can be accessed through this link: **ETBs Report**

https://drive.google.com/drive/folders/11AKCxUU94iyEHZlyhehJobE0DkkGF74f?usp=drive_link

Sr. No.	Site Name	ETBs Reports – Solar Only (Click on the below Link for quick reference)	ETBs Reports – Solar, BESS (Click on the below Link for quick reference)
1	City Hall	Click to see	Click to see
2	City Hall Lift Station	Click to see	Click to see
3	Corporation Yard	Click to see	Click to see
4	Laguna Beach Community and Recreation Center	Click to see	Click to see
5	Susi Q Center	Click to see	Click to see
6	Fire Station 2	Click to see	Click to see
7	Fire Station 3	Click to see	Click to see
8	Laguna Beach Animal Shelter	Click to see	Click to see
9	Animal Shelter Lift Station	Click to see	Click to see

STATEN

Appendix – D (Equipment Datasheets)

Datasheet – Solar Module

ZNSHINESOLAR

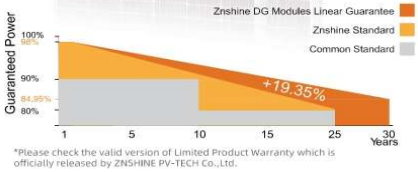
ZXM7-SHLDD144 Series

10BB HALF-CELL Bifacial Double Glass Monocrystalline PERC PV Module

525-550W	21.23%	0.45%
POWER RANGE	MAXIMUM EFFICIENCY	YEARLY DEGRADATION

12 12 YEARS PRODUCT WARRANTY

30 30 YEARS OUTPUT GUARANTEE



*Please check the valid version of Limited Product Warranty which is officially released by ZNSHINE PV-TECH Co.,Ltd.

IEC 61215/IEC 61730/IEC 61701/IEC 62716/UL6 1730

ISO 14001: Environmental Management System

ISO 9001: Quality Management System

ISO45001: Occupational Health and Safety Management System

*As there are different certification requirements in different markets,please contact your local znshine sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

Key Features

Excellent Cells Efficiency
MBB technology reduce the distance between busbars and finger grid line which is benefit to power increase.

Better Weak Illumination Response
More power output in weak light condition, such as haze, cloudy, and early morning.

Anti PID
Ensured PID resistance through the quality control of cell manufacturing process and raw materials.

Adapt To Harsh Outdoor Environment
Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.

TIER 1
Global,Tier 1 bankable brand,with independently certified advanced automated manufacturing.

Excellent Quality Managerment System
Warranted reliability and stringent quality assurances well beyond certified requirements.

Bifacial Technology
Up to 25% additional power gain from back side depending on albedo.

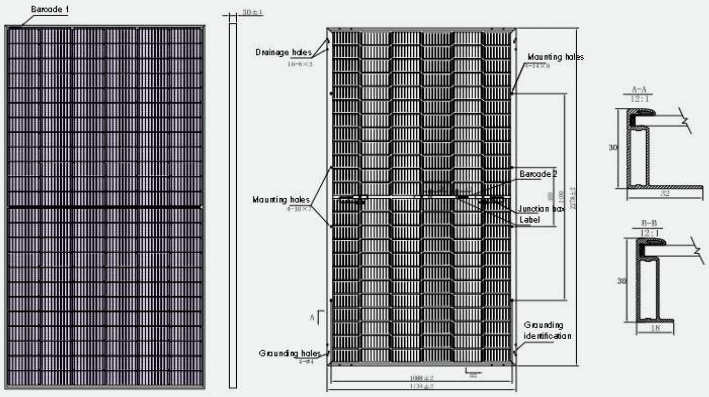
Founded in 1988, ZNShine solar is a world's leading high-tech PV module manufacturer.With the advanced production lines, the company boasts module capacity of 6GW. Bloomberg has listed ZNShine as a global Tier 1 PV module maker. Today Znshine has distributed its sales to more than 60 countries around the globe.

STATEN

ZXM7-SHLDD144 Series | Znshinesolar 10BB HALF-CELL Bifacial Double Glass Monocrystalline PERC PV Module

ZNSHINESOLAR

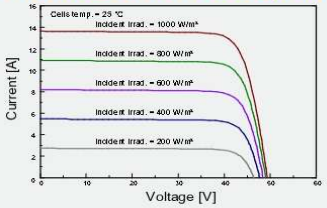
DIMENSIONS OF PV MODULE(mm)



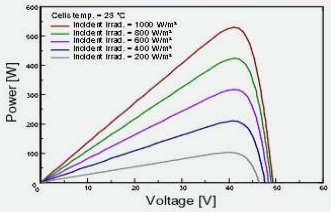
Front View Back View

*Remark: customized frame color and cable length available upon request

I-V CURVES OF PV MODULE(530W)



P-V CURVES OF PV MODULE(530W)



ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	525	530	535	540	545	550
Power Output Tolerance Pmax(%)	0~+3	0~+3	0~+3	0~+3	0~+3	0~+3
Maximum Power Voltage Vmp(V)	40.90	41.10	41.30	41.50	41.70	41.90
Maximum Power Current Imp(A)	12.85	12.91	12.96	13.02	13.07	13.13
Open Circuit Voltage Voc(V)	49.20	49.40	49.60	49.80	50.00	50.20
Short Circuit Current Isc(A)	13.59	13.65	13.71	13.77	13.83	13.89
Module Efficiency (%)	20.32	20.52	20.71	20.90	21.10	21.29

*The data above is for reference only and the actual data is in accordance with the pratical testing
*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25℃, AM 1.5
*Measuring tolerance: ±3%

MECHANICAL DATA

Solar cells	Mono PERC
Cells orientation	144 (6×24)
Module dimension	2278×1134×30 mm (With Frame)
Weight	31.5±1 kg
Glass	2.0 mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction box	IP 68, 3 diodes
Cables	4 mm² ,350 mm (With Connectors)
Connectors	MC4-compatible

*Please refer to regional datasheet for specified connector

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	392.70	396.40	399.90	403.60	406.80	410.80
Maximum Power Voltage Vmpp(V)	38.00	38.20	38.40	38.50	38.80	38.90
Maximum Power Current Impp(A)	10.33	10.38	10.42	10.47	10.49	10.56
Open Circuit Voltage Voc(V)	46.00	46.20	46.30	46.50	46.70	46.90
Short Circuit Current Isc(A)	10.98	11.02	11.07	11.12	11.17	11.22

*NMOT:Irradiance 800W/m²,Ambient Temperature 20℃,AM 1.5,Wind Speed 1m/s

TEMPERATURE RATINGS

NMOT	44℃ ±2℃
Temperature coefficient of Pmax	-0.35%/℃
Temperature coefficient of Voc	-0.29%/℃
Temperature coefficient of Isc	0.05%/℃
Refer.Bifacial Factor	70±10%

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40℃~+85℃
Maximum series fuse	30 A
Front Side Maximum Static Loading	Up to 5400Pa
Rear Side Maximum Static Loading	Up to 2400Pa

*Do not connect Fuse in Combiner Box with two or more strings in parallel connection

ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN *

Front power Pmax/W	525	530	535	540	545	550
Total power Pmax/W	656	663	669	675	681	688
Vmp/V(Total)	41.00	41.20	41.40	41.60	41.80	42.00
Imp/A(Total)	16.01	16.08	16.15	16.23	16.30	16.37
Voc/V(Total)	49.30	49.50	49.70	49.90	50.10	50.30
Isc/A(Total)	16.95	17.02	17.10	17.17	17.25	17.32

*Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

PACKAGING CONFIGURATION **

Piece/Box	36
Piece/Container(40'HQ)	720

*Remark:Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.
**Customized packaging is available upon request.
Caution:Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

Add : 1#, Zhixi Industrial Zone, JintanJiangsu 213251, P.R. China Tel: +86 519 6822 0233

CPS

Datasheet

50/60 kW, 1000 Vdc String Inverters for North America

The 50 & 60 kW (55 & 66 kVA) medium-power CPS three-phase string inverters are designed for ground mount, large rooftop and carport applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.8% 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 50/60KTL products ship with either the Standard Wire-box or the Rapid Shutdown Wire-box, each fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown Wire-box enables PVRSS certified module-level rapid shutdown when used with the Tigo TS4-F/TS4-A-F/TS4-A-2F products, APS RSD-S-PLC/RSD-D products, and NEP PVG-2 products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

CPS SCA50KTL-DO/US-480
CPS SCA60KTL-DO/US-480

Key Features

- NEC 2017/2020 PVRSS certified for rapid shutdown
- 55 & 66 kVA rating allows max rated active power @ ±0.91 PF
- Selectable max AC apparent power of 50/55 kVA and 60/66 kVA
- NEC compliant and UL listed arc-fault circuit protection
- 15-90° mounting orientation for low profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 3 MPPTs with 5 inputs each for maximum flexibility
- NEMA Type 4X outdoor rated enclosure
- UL 1741-SA certified to CA Rule 21, including SA8 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions up to 20 years

50/60KTL Standard Wire-box

50/60KTL Rapid Shutdown Wire-box

C SP US

FC This device complies with part 15 of the FCC Rules

Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

STATEN

CPS

Technical Data

Model Name	CPS SCA50KTL-DO/US-480	CPS SCA60KTL-DO/US-480
DC Input		
Max. PV power	90 kW (33 kW per MPPT)	
Max. DC input voltage	1000 Vdc	
Operating DC input voltage range	200-950 Vdc	
Start-up DC input voltage / power	330 V / 80 W	
Number of MPP trackers	3	
MPPT voltage range @ PF>0.99	480-850 Vdc	540-850 Vdc
Max. PV short-circuit current (Isc x 1.25)	204 A (68 A per MPPT)	
Number of DC inputs	15 inputs, 5 per MPPT	
DC disconnection type	Load-rated DC switch	
DC surge protection	Type II MOV	
AC Output		
Rated AC output power @ PF>0.99 to ±0.91[1]	50 kW	60 kW
Max. AC apparent power (selectable)	50 / 55 kVA	60 / 66 kVA
Rated output voltage	480 Vac	
Output voltage range[2]	422 - 528 Vac	
Grid connection type	3Φ / PE / N (Neutral optional)	
Max. AC output current @ 480 Vac	60.2 / 66.2 A	72.2 / 79.4 A
Rated output frequency	60 Hz	
Output frequency range[2]	57 - 63 Hz	
Power factor	>0.99 (±0.8 adjustable)	
Current THD @ rated load	<3%	
Max. fault current contribution (1 cycle RMS)	64.1 A (1.06/0.88 PU)	
Max. OCPD rating	110 A	125 A
AC disconnection type	Load-break rated AC switch	
AC surge protection	Type II MOV	
System and Performance		
Topology	Transformerless	
Max. efficiency	98.8%	
CEC efficiency	98.5%	
Stand-by / night consumption	<1 W	
Environment		
Enclosure protection degree	NEMA Type 4X	
Cooling method	Variable speed cooling fans	
Operating temperature range[3]	-22°F to +140°F / -30°C to +60°C	
Non-operating temperature range[4]	No low temp minimum to +158°F / +70°C maximum	
Operating humidity	0 to 100%	
Operating altitude	13123 ft / 4000 m (derating from 9843 ft / 3000 m)	
Audible noise	<60 dBA @ 1 m and 25°C	
Display and Communication		
User interface and display	LCD+LED	
Inverter monitoring	SunSpec, Modbus RS485	
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)	
Modbus data mapping	CPS	
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (H x W x D)	39.4 x 23.6 x 10.24 in (1000 x 600 x 260 mm)	
Weight	Inverter: 123.5 lbs (56 kg); Wire-box: 33 lbs (15 kg)	
Mounting / installation angle[5]	15 to 90 degrees from horizontal (vertical or angled)	
AC termination	M8 stud type terminal block (wire range: #6 - 3/0 AWG CU/AL; lugs not supplied)	
DC termination[6]	Screw clamp, neg. busbar (RSD version[6]) wire range: #14 - #6 AWG CU	
Fused string inputs (5 per MPPT)[7]	RSD[6] and Standard Wire-box: 20 A fuses provided (fuse values up to 30 A acceptable)	
Safety		
Certifications and standards	UL 1741-SA Ed. 2, UL 1699B, CSA-C22.2 NO.107.1-01, IEEE 1547a-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	10 years	
Extended terms	15 and 20 years	

1) Active power derating begins at PF = ±0.91 to ±0.80 when max AC apparent power is set to 55 or 66 kVA.
2) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
3) Active power derating begins at 40°C when PF = ±0.9 and MPPT≥Vmin; at 45°C when PF = 1 and MPPT≥Vmin; and at 50°C when PF = 1 and MPPT≥700 Vdc.
4) See user manual for further requirements regarding non-operating conditions.
5) Shade cover accessory required for installation angles of 75 degrees or less.
6) RSD wire-box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020.
7) Fuse values above 20 A have additional spacing requirements or require the use of the Y-Comb Terminal Block. See user manual for more details.
8) Firmware version 17.0 or later required.

STATEN

SUNNY BOY 6000TL-US / 7000TL-US / 8000TL-US / 9000TL-US / 10000TL-US / 11000TL-US

Innovative
- First transformerless SMA inverter to be certified in accordance with UL 1741
- First inverter with arc-fault circuit interrupter listed according to UL 1699B

Economical
- Maximum efficiency of 98.7%
- Class-leading CEC efficiency of 98.5%
- Superior MPP tracking with OptiTrac™
- Transformerless, with H5 topology

Reliable
- OptiCool™ active temperature management

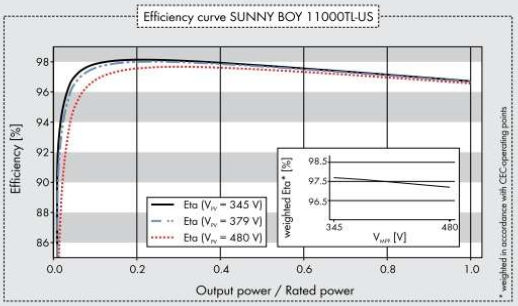
Convenient
- Integrated DC disconnect
- SMA Power Balancer for three-phase grid connection
- WebConnect compatible

SUNNY BOY 6000TL-US / 7000TL-US / 8000TL-US / 9000TL-US / 10000TL-US / 11000TL-US

Transformerless design, maximum energy production

The Sunny Boy TL-US series is UL listed for North America and features SMA's innovative H5 topology, resulting in superior efficiencies of more than 98 percent and unmatched solar power production. The transformerless design reduces weight, increases the speed of payback and provides optimum value for any residential or decentralized commercial PV system. The Sunny Boy TL-US series for North America is the ideal choice in transformerless technology.

MADE IN THE USA OF U.S. AND IMPORTED PARTS



Accessories


Sunny Boy Combiner Box
SBCBTL6-10


Bluetooth Piggy-Back
BTPBINV-NR
with External Antenna
BTPB-EXTANT-NR


Interface RS485
485USPB-NR


SMA Power Balancer Set
PBL-SBUS-10-NR


WebConnect Piggy-Back
SWPB-US-10

● Standard feature
○ Optional feature
– Not available
Data at nominal conditions

Technical data	Sunny Boy 10000TL-US		Sunny Boy 11000TL-US
	208 V	240 V	240 V
Input (DC)			
Max. usable DC power (@ cos φ = 1)	10500 W	10400 W	11500 W
Max. input voltage	600 V	600 V	600 V
MPP voltage range / rated input voltage	300 V – 480 V / 345 V	345 V – 480 V / 379 V	345 V – 480 V / 379 V
Min. input voltage / initial input voltage	300 V / 360 V	345 V / 360 V	345 V / 360 V
Max. input current	35 A	30.2 A	33.3 A
Max. input current per string	35 A	30.2 A	33.3 A
Number of independent MPP inputs	1	1	1
Strings per MPP input @ Combiner Box	6	6	6
Output (AC)			
Rated power / max. apparent AC power	10000 W / 10000 VA		11000 W / 11000 VA
Nominal AC voltage / nominal AC voltage range	208 V / 183 V – 229 V	240 V / 211 V – 264 V	240 V / 211 V – 264 V
AC power frequency / range	60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz	60 Hz / 59.3 Hz ... 60.5 Hz
Max. output current	48.1 A	41.7 A	45.8 A
Power factor at rated power	1		1
Feed-in phases / connection phases	1 / 2		1 / 2
Efficiency			
CEC efficiency / max. efficiency	98.0 % / 98.6 %	98 % / 98.7 %	98 % / 98.7 %
Protective devices			
DC reverse polarity protection	●		●
AC short-circuit current capability	●		●
Galvanic isolation	–		–
All-pole-sensitive residual-current monitoring unit	●		●
Arc-fault circuit interrupter (according to UL 1699B)	●		●
Protection class	I		I
Overvoltage category	IV		IV
General data			
Dimensions (W / H / D)	470 / 615 / 240 mm (18.4 / 24.1 / 9.5 inch)		
Dimensions of DC Disconnect (W / H / D)	187 / 297 / 190 mm (7.28 / 11.7 / 7.5 inch)		
Weight	35 kg / 78 lb		
Weight of DC Disconnect	3.5 kg / 8 lb		
Operating temperature range	-40 °C ... +60 °C / -40 °F ... +140 °F		
Noise emission (typical)	46 dB(A)		46 dB(A)
Self-consumption (night)	0.15 W		0.15 W
Topology	Transformerless H5		Transformerless H5
Cooling concept	OptiCool		OptiCool
Degree of protection	NEMA 3R		NEMA 3R
Degree of protection of connection area	NEMA 3R		NEMA 3R
Max. permissible value for relative humidity (non-condensing)	100 %		100 %
Features			
DC connection	Screw terminal		Screw terminal
AC connection	Screw terminal		Screw terminal
Display	Text line		Text line
Interface: RS485 / Bluetooth / WebConnect	○ / ○ / ○		○ / ○ / ○
Warranty: 10 / 15 / 20 years	● / ○ / ○		● / ○ / ○
Certificates and approvals (more available on request)	UL1741, UL1998, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B		
NOTE: US inverters ship with gray lids			
Type designation	SB 10000TLUS-12		SB 11000TLUS-12

Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

STATEN

SUNNY BOY
3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

SMA

Value-Added Improvements

- Superior integration with SMA's MLPE Power+ Solution
- World's first Secure Power Supply* now offers up to 2,000 W
- Full grid management capabilities ensure a utility-compliant solution for any market

Reduced Labor

- New Installation Assistant with direct access via smartphone minimizes time in the field
- Advanced communication interface with fewer components creates 50% faster setup and commissioning

Unmatched Flexibility

- SMA's proprietary OptiTrac™ Global Peak technology mitigates shade with ease
- Multiple independent MPPTs accommodate hundreds of stringing possibilities

Trouble-Free Servicing

- Two-part enclosure concept allows for simple, expedited servicing
- Equipped with SMA Smart Connected, a proactive service solution that is integrated into Sunny Portal

SUNNY BOY 3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US

Reduce costs across your entire residential business model

The residential PV market is changing rapidly. Your bottom line matters more than ever—so we've designed a superior residential solution to help you decrease costs at every stage of your business operations. The Sunny Boy 3.0-US/3.8-US/5.0-US/6.0-US/7.0-US/7.7-US join the SMA lineup of field-proven solar technology backed by the world's #1 service team, along with a wealth of improvements. Simple design, improved stocking and ordering, value-driven sales support and streamlined installation are just some of the ways that SMA helps your business operate more efficiently. And, Sunny Boy's superior integration with the innovative Power+ Solution means installers have even more flexibility in addressing their toughest challenges. Finally, SMA Smart Connected will automatically detect errors and initiate the repair and replacement process so that installers can reduce service calls and save time and money.

www.SMA-America.com

STATEN

Technical data	Sunny Boy 3.0-US		Sunny Boy 3.8-US		Sunny Boy 5.0-US	
	208 V	240 V	208 V	240 V	208 V	240 V
Input (DC)						
Max. PV power	4800 Wp		6144 Wp		8000 Wp	
Max. DC voltage	600 V					
Rated MPP voltage range	155 - 480 V		195 - 480 V		220 – 480 V	
MPPT operating voltage range	100 – 550 V					
Min. DC voltage / start voltage	100 V / 125 V					
Max. operating input current per MPPT	10 A					
Max. short circuit current per MPPT	18 A					
Number of MPPT tracker / string per MPPT tracker	2/1				3 / 1	
Output (AC)						
AC nominal power	3000 W	3000 W	3330 W	3840 W	5000 W	5000 W
Max. AC apparent power	3000 VA	3000 VA	3330 VA	3840 VA	5000 VA	5000 VA
Nominal voltage / adjustable	208 V / ●	240 V / ●	208 V / ●	240 V / ●	208 V / ●	240 V / ●
AC voltage range	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V	183 - 229 V	211 - 264 V
AC grid frequency	60 Hz / 50 Hz					
Max. output current	14.5 A	12.5 A	16.0 A	16.0 A	24.0 A	21.0 A
Power factor (cos ϕ)	1					
Output phases / line connections	1 / 2					
Harmonics	< 4 %					
Efficiency						
Max. efficiency	97.2 %	97.6 %	97.3 %	97.6 %	97.3 %	97.6 %
CEC efficiency	96.2 %	96.3 %	96.4 %	96.7 %	96.7 %	96.9 %
Protection devices						
DC disconnect device / DC reverse polarity protection	● / ●					
Ground fault monitoring / Grid monitoring	●					
AC short circuit protection	●					
All-pole sensitive residual current monitoring unit (RCMU)	●					
Arc fault circuit interrupter (AFCI)	●					
Protection class / overvoltage category	I / IV					
General data						
Dimensions (W / H / D) in mm (in)	535 x 730 x 198 (21.1 x 28.5 x 7.8)					
Packaging dimensions (W / H / D) in mm (in)	600 x 800 x 300 (23.6 x 31.5 x 11.8)					
Weight / packaging weight	26 kg (57 lb) / 30 kg (66 lb)					
Temperature range: operating / non-operating	–25 °C ...+60 °C / –40 °C ...+60 °C					
Environmental protection rating	NEMA 3R					
Noise emission (typical)	39 dB(A)					
Internal power consumption at night	< 5 W					
Topology / Cooling concept	Transformerless / Convection					
Features						
Ethernet ports	2					
Secure Power Supply	●*					
Display (2 x 16 characters)	●					
2.4 GHz WLAN / External WLAN antenna	●/○					
Cellular (4G / 3G) / Revenue Grade Meter	○/○**					
Warranty: 10 / 15 / 20 years	●/○/○					
Certificates and approvals	UL 1741, UL 1741 SA incl. CA Rule 21 RSD, UL 1998, UL 1699B Ed. 1, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA V22.2 107.1-1, HECO Rule 14H, PV Rapid Shutdown System Equipment					

● Standard features ○ Optional features – Not available

NOTE: US inverters ship with gray lids. Data at nominal conditions * Not compatible with the SunSpec Rapid Shutdown functionality **Standard in SBX.X-1TP-US-41

Type designation	SB3.0-1SP-US-41 / SB3.0-1TP-US-41	SB3.8-1SP-US-41 / SB3.8-1TP-US-41	SB5.0-1SP-US-41 / SB5.0-1TP-US-41

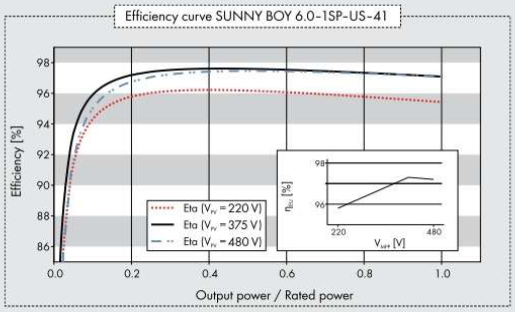
Accessories


External WLAN antenna
EXTANT-US-40


SMA Rooftop Communication Kit
ROOFCOMMKIT-P2-US


Revenue Grade Meter Kit
RGM05KIT-US-10


Cellular Modem Kit
CELLMODKIT-US-10



Wattch

STANDARD DATA ACQUISITION SYSTEM

WDAS-S3

FEATURES

- Revenue-grade energy metering with NIST traceable calibration certificates
- Second-by-second monitoring and control for distributed generation assets
- Battery backup for increased uptime and outage accounting
- Universal compatibility with Modbus/RTU and Modbus/TCP devices

SPECIFICATIONS

GENERAL	
Dimensions	19.69 x 15.75 x 7.87 in (500.13 x 400.05 x 199.90 mm)
Weight	16 lb (7.26 kg) 32 lb with batteries (14.2 kg)
Ratings	UL 508A
Mounting	Non-penetrating surface-mount installation with included flange kit
Warranty[1]	5 years against defects in materials and workmanship
ENVIRONMENTAL	
Operating Temperature	-20 to 70°C, 20-90% relative humidity non-condensing
Protection Ratings	NEMA 4X / IP67, outdoor-rated
POWER SUPPLY	
Input Voltage	311-690Vac L-L
Input Protection	2A Class CC time-delay fuse per input
Power Consumption	Average: 11W Peak: 80W
UPS	(2) 9Ah sealed lead acid batteries in series (24V DC) Powers equipment for up to 18 hours after power failure[2]
External[3]	Up to 1A at 24V DC available for external devices and sensors Switched via UL 1077 supplementary protector

DATA ACQUISITION	
Resolution	10 second nominal Configurable down to 1 second
Device Limit	250 devices over ethernet 32 devices over RS-485 *Contact sales@wattch.io for options to increase device count*
Compatibility	Modbus/RTU or Modbus/TCP devices *Contact sales@wattch.io for an up-to-date hardware compatibility list*
Interfaces	(1) RS-485 (1) Available 10/100 Ethernet port
Storage Capacity[4]	Up to 3 months of offline data storage capacity
Connectivity	LTE Cat 4 Modem with multi-carrier compatibility (requires Wattch data plan)
METERING	
CT Inputs	Compatible with any 333 mV CT
Accuracy[5]	Typical 0.1% (ANSI C12.20 Class C0.1)

[1] Excludes SLA backup batteries and fuses
[2] Actual runtime will vary based on the number of external devices connected
[3] Devices connected must be 21-28VDC tolerant for operation while running on UPS backup
[4] Exact value varies with the number of configured devices
[5] Applies from 1% to 120% of rated CT current, NIST traceable calibration certificate available upon request for an additional fee

Developed in partnership with ACCUENERGY

STATEN

Wattch

BILL OF MATERIALS

GENERAL	
Enclosure	Polycase WQ-76
POWER SUPPLY	
Power Supply	Mean Well WDR-120-24
Uninterruptible Power Supply	Mean Well DUPS40
AC Protection	Holly HC10SR Fuse
I/O Supplementary Protector	Eaton FAZ-B1-1-SP
UPS Supplementary Protector	Eaton FAZ-B3-1-SP

DATA ACQUISITION	
Production Meter	AccuEnergy AcuVim IIR
Data Logger/Controller	Wattch Edge Controller
COMMUNICATIONS	
LTE Modem	Digi International IX30-00G4

STATEN

Datasheet – Rooftop Structure

ROOFMOUNT | RM10 EVO

UNIRAC
BETTER SOLAR STARTS HERE

THREE MAJOR COMPONENTS. ONE TOOL.

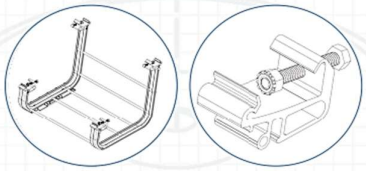
- Supports most framed PV modules (conventional, bi-facial, and large format) at a 10-degree tilt.
- Three SKUs: a fully assembled ballast bay, a tucked north row bay, and a redesigned universal module clamp.
- Improved 13" row spacing yeilds up to 20% more power density on the roof.
- Built on a decade long legacy, RM10 EVO retains the elements that made RM10 reliable, simple and robust.
- Designed to conveniently work with off the shelf wire management products.

AVAILABILITY

- UNIRAC maintains the largest network of stocking distributors for our racking solutions. Count on our partners for fast and accurate delivery to meet your project needs.

AUTOMATED DESIGN TOOL

- Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. There's no need to print results and send to a distributor, just click, and share.



WHY ROOFMOUNT RM10 EVO?

LAY IT DOWN AND POWER UP! Unirac has taken the tried-and-true form and functionality of RM10 and evolved it to maximize the potential of flat roof solar projects. We have paired simplicity with power by improving the function, strength and reliability of the module clamps and modified the shape of the north row bay to optimize space and increase module density. Optional roof attachments, roof pads, and MLPE mounts provide a complete solution. Unirac's unmatched commercial project support makes construction easy, from permitting through installation.

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024JAN01-V1

CONFORMS TO UL2703

ISO 9001:2015 14001:2015 CERTIFIED

STATEN

SOLARMOUNT

UNIRAC
BETTER SOLAR STARTS HERE

FEATURING SOLARMOUNT

- Designed for Unirac's Solarmount rail systems and certified to UL2703A for low-slope AND steep-slope roofs
- One-step butyl application for easy install and reliable waterproofing

DIFFERENT CLAMPS FOR DIFFERENT NEEDS

- Universal AF mid clamps and end clamps adjust to module heights from 30-46mm in a great looking, easy to install fastener
- Pro-series clamps feature hidden fasteners for fantastic aesthetics
- Standard clamps feature tight row spacing and various clamps to accommodate module frames up to 51mm in height

OPTIONS FOR ANY APPLICATION

- Solarmount Standard and Solarmount Light rails profiles for installations across the country, including Puerto Rico
- Huge selection of attachments for any roof form comp shingle to tile
- Adjustable tilt legs certified to UL2703 to dial in your system just right


UNIVERSAL END CLAMP


UNIVERSAL MID CLAMP


CONCEALED SM END CLAMP


SM PRO SERIES MID CLAMP


SOLARMOUNT BUTYL


SOLARMOUNT PROFILE AND LIGHT PROFILE

WHY SOLARMOUNT?

SOLARMOUNT is the professionals' choice for residential PV mounting applications. Every aspect of the system is designed for an easier, faster installation experience. SOLARMOUNT is a complete solution with universal clamps, tons of attachment options, full system UL 2703 certification, and 25-year warranty. Sleek rails for both light and heavy duty applications, with optional trim, make for a reliable, cost-effective, great looking racking solution.

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024JAN01-V1

CONFORMS TO UL2703

ISO 9001:2015 14001:2015 CERTIFIED

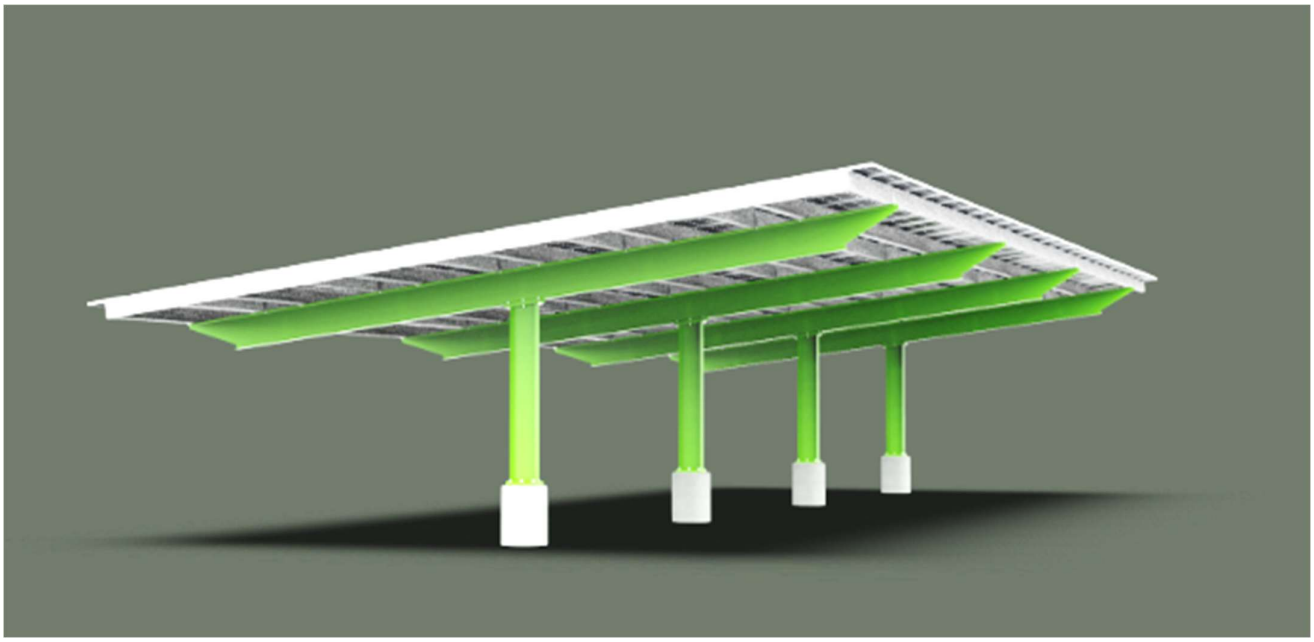
Datasheet – Shade Structure

Shade Structure: The carport racking systems are sourced from **Kern Steel Solar**, **a reputable California-based steel fabricator**, and serve as our subcontractor for erecting the steel structures. KSS, a licensed structural contractor specializing in solar system structures, ensures the robustness and reliability of the installation.

Basic Technical Specifications:

- Engineered to IBC 2018/ ASCE 7-16
- Standard Wind Speed – (94mph - 140mph)
- Standard Snow Load – (0psf - 25psf)
- Multiple Foundation Options
- Manufactured in an ISO 9001/AISC certified facility.
- Compatible with DSA and PACE system requirements.

Sr. No.	Descriptions	Values
1	Type of Structure	Carport Structure (Permit Ready)
2	Manufacturer	Kern Steel Solar (“KSS”)
3	Warranty	25 Years
4	Benefits	➢ Constructed from high strength structural and high tensile steel. ➢ Pre-Drilled for a simple, quick bolt-together assembly. ➢ Engineered to be compatible with most commercial grade direct-bolt PV modules. ➢ Available in a variety of structural steel finishes.



STATEN

Datasheet – BESS System

SBE1000 | LFP | 1,000 kWh
LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

Power Rating:
250 kW / 500 kW / 1,000 kW

Energy Rating:
1,000 kWh

Enclosure Style:
Custom 20 ft

Codes and Standards

Contact Generac for details.

- UL 1642
- UL 1973
- UL 9540A
- UL 1741
- UL 9540
- CSA 22.2
- UN 38.3
- IEEE 1547
- NFPA 855

The Generac Solution

Energy management today means balancing a combination of carbon reduction, energy savings, and energy resilience goals. Generac's Stationary Battery Energy storage system (SBE) is our latest addition to a portfolio of products and technologies helping commercial and industrial customers to meet their current and future energy goals.

The SBE energy storage systems enable commercial and industrial customers to:

- Reduce peak demand charges and save on energy costs.
- Pair with on-site solar and lower both carbon footprint and energy costs.
- Provide site resilience during brownouts/power quality issues, back up critical loads during shorter duration blackouts, and pair with our line of gas and diesel generators for full facility resilience during long duration blackouts.
- Earn additional revenue by monetizing the asset to support broader grid resilience.

SPEC SHEET
1 of 3

STATEN

SBE1000 | LFP | 1,000 kWh

LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

BESS SPECIFICATIONS	250 kW / 1,000 kWh	500 kW / 1,000 kWh	1,000 kW / 1,000 kWh
Nameplate DC energy	1,198 kWh	1,198 kWh	1,198 kWh
DC voltage range	874-1,123 VDC	874-1,123 VDC	874-1,123 VDC
Nominal voltage	998.4 VDC	998.4 VDC	998.4 VDC
AC connection	3-wire (3P3W)	3-wire (3P3W)	3-wire (3P3W)
Nominal AC voltage	480 V	480 V	480 V
Frequency	60 Hz	60 Hz	60 Hz
Overload capacity	110%, 10 min 125%, 10 s	110%, 10 min 125%, 10 s	110%, 10 min 125%, 10 s
Power factor	Full 4-quadrant operation	Full 4-quadrant operation	Full 4-quadrant operation
Inverter efficiency	Up to 98.4%	Up to 98.4%	Up to 98.4%
Dimensions (approx.)	20 ft x 8 ft x 9.6 ft (6.1 m x 2.4 m x 2.9 m)	20 ft x 8 ft x 9.6 ft (6.1 m x 2.4 m x 2.9 m)	20 ft x 8 ft x 9.6 ft (6.1 m x 2.4 m x 2.9 m)
Weight (approx.)	38,229 lb (17,340 kg)	38,367 lb (17,402 kg)	41,222 lb (18,697 kg)

Contact Generac for smaller capacities within the 20 ft enclosure; minimum capacity is 600 kWh.

ENVIRONMENTAL

Operating temperature	-13 °F to 113 °F -25 °C to 45 °C	-13 °F to 113 °F -25 °C to 45 °C	-13 °F to 113 °F -25 °C to 45 °C
Enclosure	NEMA 3R (Outdoor)	NEMA 3R (Outdoor)	NEMA 3R (Outdoor)
Altitude before derate	3,280 ft (1,000 m)	3,280 ft (1,000 m)	3,280 ft (1,000 m)
Noise (approx.)	<65 dB @ 3.3 ft (1 m)	<65 dB @ 3.3 ft (1 m)	<65 dB @ 3.3 ft (1 m)

STANDARD FEATURES

ELECTRICAL SYSTEMS
- Auxiliary load panel
- Lighting
- BESS controller panel
- Ground fault monitoring

CONTROLS
- Door open alarm switch

BIDIRECTIONAL INVERTER
- Dynamic transfer
- Grid forming
- Grid following
- 4 quadrant operation
- THD < 2%
- Load imbalance capable

FIRE PREVENTION AND SUPPRESSION SYSTEM
- Smoke detectors
- Audible alarm
- Visual alarm
- Remote E-Stop
- Dry solution suppression
- Remote alarm
- Temperature sensors

ENCLOSURE
- NEMA 3R
- Structural steel base
- Drip edge door covers
- Insulated enclosure and doors
- Reinforced cable cutouts entry points
- Lifting eye provisions

SPEC SHEET
2 of 3

STATEN

SBE1000 | LFP | 1,000 kWh

LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

BESS CONTROL SYSTEM

USE CASES
- Peak shaving
- Arbitrage
- Back up power
- Black start
- Renewable energy shifting
- Voltage regulation
- Frequency response
- Engineered UPS
- Grid forming - off-grid

FEATURES
- Local data server
- HMI interface
- Cloud based monitoring
- Multilevel authentications for security operation
- Data acquisition and control functions
- Event reporting
- Remote configuration firmware and software upgrade
- Ramp rate control demand management
- Modbus TCP
- Sunspec protocol
- CAN
- Ethernet based communication
- Compatibility with 3rd party EMS, SCADA systems

OPTIONS

ELECTRICAL SYSTEMS
- Automatic transfer switch
- Isolation transformer
- LV circuit breaker

HVAC
- Electric reheat with humidity control

CONTROLS
- Custom HMI screen interface

FIRE PREVENTION & SUPPRESSION SYSTEM
- Off gas detection (Li-ion Tamers)
- Dry pipe and sprinkler system
- Deflagration venting panels

O&M
- 10 year extended warranty
- Long term service contract

ENCLOSURE
- Security camera
- Exterior flood lights
- Seismic rating
- Arctic rated
- Key pad lock

Contact Generac for a one stop solution to integrate our line of generators with our SBE battery system.
Contact Generac for partner(s) referral regarding on-site Engineer/Procurement/Construct (EPC) services.

SPEC SHEET
3 of 3

Generac Power Systems, Inc. | S45 W29290 HWY. 59 | Waukesha, WI 53189 | generac.com

Part No. A0003997953
Rev. C 05/16/2024

STATEN

SBE500 | LFP | 500 kWh

LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

Power Rating:
125 kW / 250 kW / 500 kW

Energy Rating:
500 kWh

Enclosure Style:
Custom 10 ft

Codes and Standards

Contact Generac for details.

- UL 1642
- UL 1973
- UL 9540A
- UL 1741
- UL 9540
- CSA 22.2
- UN 38.3
- IEEE 1547
- NFPA 855

The Generac Solution

Energy management today means balancing a combination of carbon reduction, energy savings, and energy resilience goals. Generac's Stationary Battery Energy storage system (SBE) is our latest addition to a portfolio of products and technologies helping commercial and industrial customers to meet their current and future energy goals.

The SBE energy storage systems enable commercial and industrial customers to:

- Reduce peak demand charges and save on energy costs.
- Pair with on-site solar and lower both carbon footprint and energy costs.
- Provide site resilience during brownouts/power quality issues, back up critical loads during shorter duration blackouts, and pair with our line of gas and diesel generators for full facility resilience during long duration blackouts.
- Earn additional revenue by monetizing the asset to support broader grid resilience.

SPEC SHEET

1 of 3

STATEN

SBE500 | LFP | 500 kWh

LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

BESS SPECIFICATIONS	125 kW / 500 kWh	250 kW / 500 kWh	500 kW / 500kWh
Nameplate DC energy	599 kWh	599 kWh	599 kWh
DC voltage range	874-1,123 VDC	874-1,123 VDC	874-1,123 VDC
Nominal voltage	998.4 VDC	998.4 VDC	998.4 VDC
AC connection	3-wire (3P3W)	3-wire (3P3W)	3-wire (3P3W)
Nominal AC voltage	480 V	480 V	480 V
Frequency	60 Hz	60 Hz	60 Hz
Overload capacity	120%, 10s	110%, 10 min; 125%, 10 s	110%, 10 min; 125%, 10 s
Power factor	Full 4-quadrant operation	Full 4-quadrant operation	Full 4-quadrant operation
Inverter efficiency	Up to 98.7%	Up to 98.4%	Up to 98.4%
Dimensions (approx.)	10 ft x 8 ft x 9.6 ft (3.1 m x 2.4 m x 2.9 m)	10 ft x 8 ft x 9.6 ft (3.1 m x 2.4 m x 2.9 m)	10 ft x 8 ft x 9.6 ft (3.1 m x 2.4 m x 2.9 m)
Weight (approx.)	20,756 lb (9,415 kg)	21,188 lb (9,611 kg)	22,111 lb (10,029 kg)

Contact Generac for smaller capacities within the 10 ft enclosure; minimum capacity is 200 kWh.

ENVIRONMENTAL

Operating temperature	-13 °F to 113 °F -25 °C to 45 °C	-13 °F to 113 °F -25 °C to 45 °C	-13 °F to 113 °F -25 °C to 45 °C
Enclosure	NEMA 3R (Outdoor)	NEMA 3R (Outdoor)	NEMA 3R (Outdoor)
Altitude before derate	3,280 ft (1,000 m)	3,280 ft (1,000 m)	3,280 ft (1,000 m)
Noise (approx.)	<65 dB @ 3.3 ft (1 m)	<65 dB @ 3.3 ft (1 m)	<65 dB @ 3.3 ft (1 m)

STANDARD FEATURES

ELECTRICAL SYSTEMS
- Auxiliary load panel
- Lighting
- BESS controller panel
- Ground fault monitoring

CONTROLS
- Door open alarm switch

BIDIRECTIONAL INVERTER
- Dynamic transfer
- Grid forming
- Grid following
- 4 quadrant operation
- THD < 2%
- Load imbalance capable

FIRE PREVENTION AND SUPPRESSION SYSTEM
- Smoke detectors
- Audible alarm
- Visual alarm
- Remote E-Stop
- Dry solution suppression
- Remote alarm
- Temperature sensors

ENCLOSURE
- NEMA 3R
- Structural steel base
- Drip edge door covers
- Insulated enclosure and doors
- Reinforced cable cutouts entry points
- Lifting eye provisions

SPEC SHEET
2 of 3

STATEN

SBE500 | LFP | 500 kWh

LITHIUM ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

BESS CONTROL SYSTEM

USE CASES
- Peak shaving
- Arbitrage
- Back up power
- Black start
- Renewable energy shifting
- Voltage regulation
- Frequency response
- Engineered UPS
- Grid forming - off-grid

FEATURES
- Local data server
- HMI interface
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SPEC SHEET

3 of 3

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Part No. A0003997951
Rev. C 05/16/2024

STATEN

Ageto Renewable Controller (ARC) - Hardware Technical Specifications

ageto

Cabinet Data	ARC Pro	ARC Lite
External dimensions (height x width x depth)	500 mm x 500 mm x 300 mm (19.7" x 19.7" x 11.8")	424 mm x 373 mm x 219 mm (16.7" x 14.7" x 8.6")
Mounting dimensions (height x width)	460 mm x 460 mm (18.1" x 18.1")	424 mm x 307 mm (16.7" x 12.1")
Mounting style	Wall-mount	Wall-mount
Cable entry (width x depth)	Metal gland plate 303 mm x 113 mm (11.9" x 4.4")	n/a - field installed
Certifications	UL 508A	UL 508A
NEMA rating	NEMA 3R NEMA 1 (UL 508A listing)	NEMA 4X
Weight	31 kg (68 lb)	13.6 kg (30 lb)
Power Supply		
Voltage	100 - 240V AC single phase	100 - 240V AC single phase
Frequency	50/60 Hz	50/60 Hz
Current Requirement	2A @ 120V AC	2A @ 120V AC
Wire Gauge	14 AWG	14 AWG
Climate Limit		
Operating Temperature Range	-20 to +55°C (-4 to +131°F)	-10 to +40°C (14 to +104°F)
Humidity, non-condensing	5 - 95% RH	5 - 80% RH (non-condensing)
Altitude Limit	3000 m (9,842 ft)	3000 m (9,842 ft)
Communication		
Network switch	(16) total, (14) available ports	(8) total, (6) available ports
Remote Communications	Ethernet Cellular	Ethernet Cellular
External Communication Interfaces	Modbus RS485 Modbus TCP DNP3 API	Modbus RS485 Modbus TCP DNP3 API
User Interface		
Screen size	15" viewable	n/a (DisplayPort available)
Touchscreen	IP 66 400 cd/m^2 luminance Sunlight-readable	n/a
Resolution	1024 x 768	n/a

Powerwall 3 Technical Specifications

System Technical Specifications

Model Number	1707000-xx-y
Nominal Grid Voltage (Input & Output)	120/240 VAC
Grid Type	Split phase
Frequency	60 Hz
Solar to Battery to Home/Grid Efficiency	89% [1,2]
Solar to Home/Grid Efficiency	97.5% [3]
Supported Islanding Devices	Gateway 3, Backup Switch, Backup Gateway 2
Connectivity	Wi-Fi (2.4 and 5 GHz), Ethernet, Cellular (LTE/4G [4])
Hardware Interface	Dry contact relay, Rapid Shutdown (RSD) certified switch and 2-pin connector, RS-485 for meters
AC Metering	Revenue Grade (+/- 0.5%, ANSI C12.20)
Protections	Integrated arc fault circuit interrupter (AFCI), Isolation Monitor Interrupter (IMI), PV Rapid Shutdown (RSD) using Tesla Mid-Circuit Interrupters
Customer Interface	Tesla Mobile App
Warranty	10 years

Battery Technical Specifications

Nominal Battery Energy	13.5 kWh AC [2]			
Nominal Output Power (AC)	5.8 kW	7.6 kW	10 kW	11.5 kW
Maximum Apparent Power	5,800 VA	7,600 VA	10,000 VA	11,500 VA
Maximum Continuous Current	24 A	31.7 A	41.7 A	48 A
Overcurrent Protection Device [5]	30 A	40 A	60 A	60 A
Maximum Continuous Charge Current / Power	20.8 A AC / 5 kW			
Output Power Factor Rating	0 - 1 (Grid Code configurable)			
Maximum Output Fault Current (1 s)	160 A			
Maximum Short-Circuit Current Rating	10 kA			
Load Start Capability	185 LRA			
Power Scalability	Up to 4 Powerwall 3 units supported			

Solar Technical Specifications

Maximum Solar STC Input	20 kW
Withstand Voltage	600 V DC
PV DC Input Voltage Range	60 — 550 V DC
PV DC MPPT Voltage Range	60 — 480 V DC
MPPTs	6
Maximum Current per MPPT (I_{mp})	13 A [6]
Maximum Short Circuit Current per MPPT (I_{sc})	15 A [6]

[1] Typical solar shifting use case.

[2] Values provided for 25°C (77°F), at beginning of life. 3.3 kW charge/discharge power.

[3] Tested using CEC weighted efficiency methodology.

[4] The customer is expected to provide internet connectivity for Powerwall 3; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

[5] See Powerwall 3 Installation Manual for fuse requirements if using fuse for overcurrent protection.

[6] Where the DC input current exceeds the MPPT rating, a jumper can be used to combine two MPPTs into a single input to intake DC current up to 26 A I_{MP} / 30 A I_{SC}.