

CONFIDENTIAL



**ROOFTOP
SOLAR POWER**

Kingspan Energy

Custom Solar PV Proposal for

**NAUGATUCK
SCHOOL DISTRICT**

**Maple Avenue
Elementary**

**641 Maple Hill Road
Naugatuck, CT 06770**

March 2, 2016



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Site Layout: 641 Maple Hill Road, Naugatuck, CT 06770



SUMMARY AND PRICE

The indicative pricing below is for the design, installation and commissioning of a turnkey solar PV system and includes the following:

Full Structural Analysis	✓	Fully Commissioned System	✓
PPA Contract Execution	✓	Tier 1 Major Components	✓
PPA Price Discount	✓	\$0 Install Cost to Customer	✓
Immediate Customer Savings	✓	\$0 Maintenance Cost to Customer	✓
Utility interconnection	✓	Output and Performance Testing	✓

Pricing does not include potential costs arising from the condition of the customer's roof, the customer's electrical infrastructure or the utility's electricity distribution system.



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Maple Avenue Elementary: Financing Options

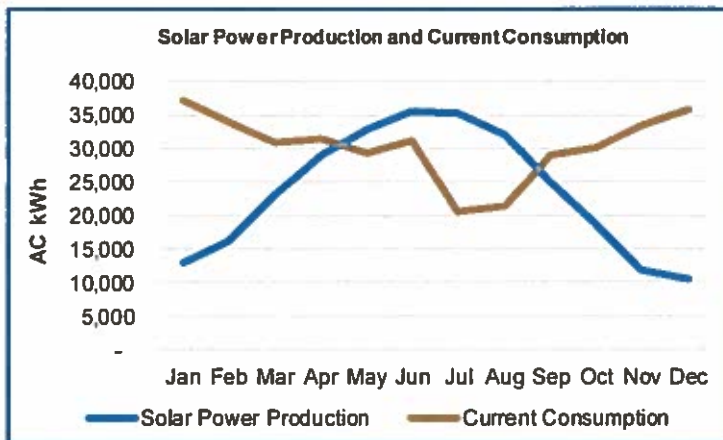
SYSTEM DETAILS	
System Size (kW)	240
System Life	20 Years
System Production - Year 1 (kWh)	282,942
Current Site Consumption (kWh)	364,480
Current Consumption Offset - Year 1	77.6%

PPA DETAILS	PPA (fixed)	PPA (esc)
Current Customer Utility Rate (\$/kWh)	\$0.158	\$0.158
Estimated PPA Rate (\$/kWh)	\$0.114	\$0.093
Discount to Current Rate	28%	41%
PPA Term	20	20
PPA Escalator	0%	2.99%

Cost to Install System	\$0	\$0
Cost to Maintain System over PPA Term	\$0	\$0
1-Year Estimated Energy Savings	\$12,316	\$18,257
10-Year Estimated Energy Savings	\$183,541	\$204,471
20-Year Estimated Energy Savings	\$520,435	\$465,553

ENVIRONMENTAL BENEFITS	
Acres of Planted Trees per Year	34.3
Gallons of Conserved Gasoline	13,121
Miles not Driven in a Passenger Car	313,602
Annual Tons of Avoided CO2	127

Solar Power Production vs. Current Consumption



Projected sizes, quoted prices and results are estimates only and are subject to full structural, engineering and financial analysis.

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**Solar Feasibility
Proposal to**

**NAUGATUCK
SCHOOL DISTRICT**

June 20, 2017



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FINANCIAL SUMMARY Maple Avenue Elementary – FIXED PPA OPTION

SYSTEM DETAILS	
System Size (kW)	131
System Life	25 Years
System Production – Year 1 (kWh)	158,865
Current Site Consumption (kWh)	172,640
Current Consumption Offset – Year 1	92.0%
PPA DETAILS	
	PPA (fixed)
Current Customer Utility Rate (\$/kWh)	\$0.172
Estimated PPA Rate (\$/kWh)	\$0.096
Discount to Current Rate	44%
PPA Term	20
PPA Escalator	0%
Cost to Install System	\$0
Cost to Maintain System over PPA Term	\$0
1-Year Estimated Energy Savings	\$12,079
10-Year Estimated Energy Savings	\$156,799
25-Year Estimated Energy Savings	\$570,659
ENVIRONMENTAL BENEFITS	
Acres of Planted Trees per Year	19.2
Gallons of Conserved Gasoline	7,361
Miles not Driven in a Passenger Car	175,920
Annual Tons of Avoided CO2	71

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FINANCIAL SUMMARY Andrew Avenue Elementary – FIXED PPA OPTION

SYSTEM DETAILS	
System Size (kW)	208.7
System Life	25 Years
System Production – Year 1 (kWh)	240,005
Current Site Consumption (kWh)	581,184
Current Consumption Offset – Year 1	41.3%
PPA DETAILS	
	PPA (fixed)
Current Customer Utility Rate (\$/kWh)	\$0.159
Estimated PPA Rate (\$/kWh)	\$0.096
Discount to Current Rate	40%
PPA Term	20
PPA Escalator	0%
Cost to Install System	\$0
Cost to Maintain System over PPA Term	\$0
1-Year Estimated Energy Savings	\$15,120
10-Year Estimated Energy Savings	\$201,874
25-Year Estimated Energy Savings	\$755,788
ENVIRONMENTAL BENEFITS	
Acres of Planted Trees per Year	19.2
Gallons of Conserved Gasoline	7,361
Miles not Driven in a Passenger Car	175,920
Annual Tons of Avoided CO2	71

Kingspan is not responsible for providing taxation, accounting or financial advice; please consult with your respective advisers.

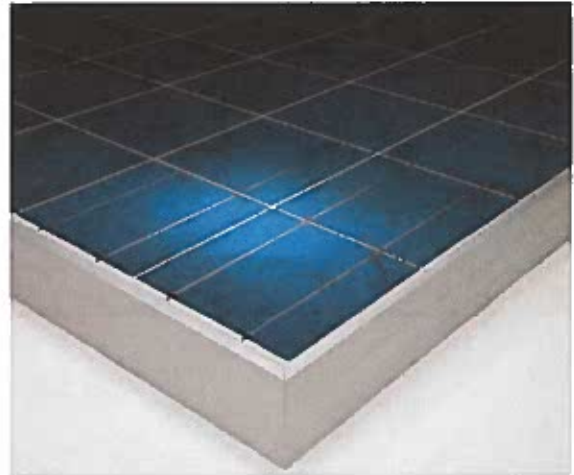
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SYSTEM COMPONENTS

Solar Modules

Included in our proposal are solar modules that Kingspan has tested and pre-approved as meeting our quality and production standards (Hyundai or approved equivalent). These solar modules have a 25 year performance guarantee and a 10 year workmanship warranty.



Inverters

String inverters from Solectria or an approved equivalent are included in our proposal. String inverters produce higher productivity and come with a 10 year manufacturer's workmanship warranty.

Racking Systems

Kingspan utilizes site-appropriate racking systems. For *flat roofs*, we use self-ballasted racking from Polar or other approved equivalents. We adhere to your roof manufacturer's requirements so as to not impact your roof warranty.

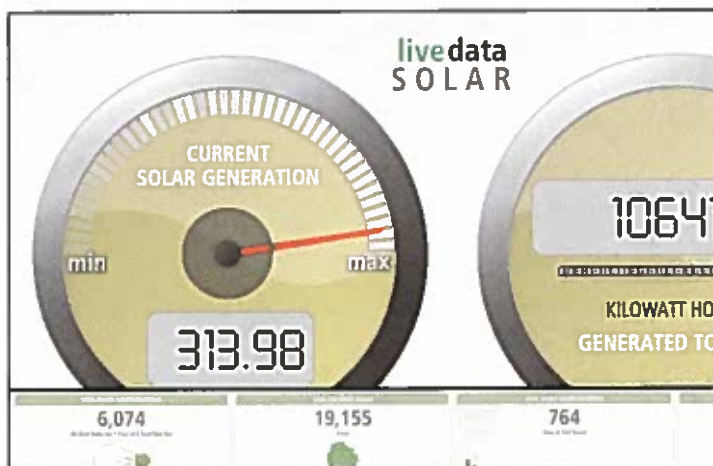


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Monitoring System

We have incorporated a monitoring system (also called a Data Acquisition System or 'DAS') from Locus Energy in our system. Locus' products are leading-edge and have the capability of interfacing with any building management system you may have. The monitoring system also enables you to display the performance data and environmental impacts of your solar array either on displays in your facilities or on any internet-connected computer anywhere in the world. Many companies choose to put this information on their websites



A specification sheet for the Monitoring System is included in the Appendix.

Balance of Systems

There are other components that Kingspan utilizes to design and install your solar array including:

- Conductors (wire – DC and AC)
- Combiners and recombiners
- Conduit
- AC and DC disconnects

DESIGN AND ENGINEERING

Kingspan Energy will design and engineer your solar array, taking into account all national and local code as well as utility requirements. Licensed Professional Engineers will stamp and seal all drawings and verify that your building is capable of supporting the weight of the solar array.

PERMITTING AND CONSTRUCTION

Kingspan will handle all permitting with the authorities having jurisdiction and the utility. Construction of the system will be done according to codes in place at the time, utilizing safety measures that meet or exceed OSHA standards. We always adhere to any safety standards that our customers have. We are also happy to assist with planning/zoning board meetings if required.

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ENVIRONMENTAL BENEFITS

While solar projects are financially beneficial, they are also hugely beneficial to the environment. Generating electricity from clean sources like solar takes the place of using other fuels that are not as environmentally friendly.

USAGE HISTORY

Billing Account: 51015493091 (Maple)
Service Account: RATE 35-DELIVERY
Service Location: 641 MAPLE HILL RD
 NAUGATUCK CT 06770

Meter Number: 892500912

View Data From: 12/22/2016 

To: 04/25/2018 



Data is available from 1/24/2007

Read Date (Click to View Bill)	Billed Demand (KW)	Usage (kWh)	Number of Days	Usage Per Day	Usage Charge	Read Type	Average Temp (°F)
04/25/2018	97.00	33760	33	1023.03	\$5,787.96	00	42.9
03/23/2018	92.50	31040	29	1070.34	\$5,445.78	00	37.2
02/22/2018	96.20	33440	30	1114.67	\$5,745.31	00	34.5
01/23/2018	98.10	23865	23	1037.62	\$4,078.18	13	24.7
12/31/2017	98.10	10375	10	1037.47	\$1,704.58	13	19.4
12/21/2017	98.10	32640	30	1088.00	\$5,522.75	00	34.6
11/21/2017	96.50	29440	29	1015.17	\$5,186.98	00	46.2
10/23/2017	101.80	29760	31	960.00	\$5,273.79	00	62.6
09/22/2017	110.20	32480	30	1082.67	\$5,638.94	00	65.9
08/23/2017	71.20	23840	30	794.67	\$4,358.77	00	70.9
07/24/2017	63.80	19440	24	810.00	\$3,373.07	13	73.4
06/30/2017	63.80	6480	8	810.00	\$1,101.75	13	70.1
06/22/2017	107.70	31840	31	1027.10	\$5,402.33	00	64.9
05/22/2017	115.80	31680	28	1131.43	\$5,457.45	00	58.7
04/24/2017	105.00	35840	33	1086.06	\$5,789.09	00	49.3
03/22/2017	104.20	33280	28	1188.57	\$5,519.25	00	36.8
02/22/2017	103.40	33440	29	1153.10	\$5,528.62	00	33.9
01/24/2017	104.80	28859	24	1202.47	\$4,495.81	13	34.6
12/31/2016	104.80	10821	9	1202.30	\$1,693.32	13	37.1
12/22/2016	110.10	33600	30	1120.00	\$5,646.65	02	36.2