

**CONFIDENTIAL**



**ROOFTOP  
SOLAR POWER**

**Kingspan Energy**

**Custom Solar PV Proposal for**

**NAUGATUCK  
SCHOOL DISTRICT**

**Andrew Avenue  
Elementary School**

**140 Andrew Avenue  
Naugatuck, CT 06770**

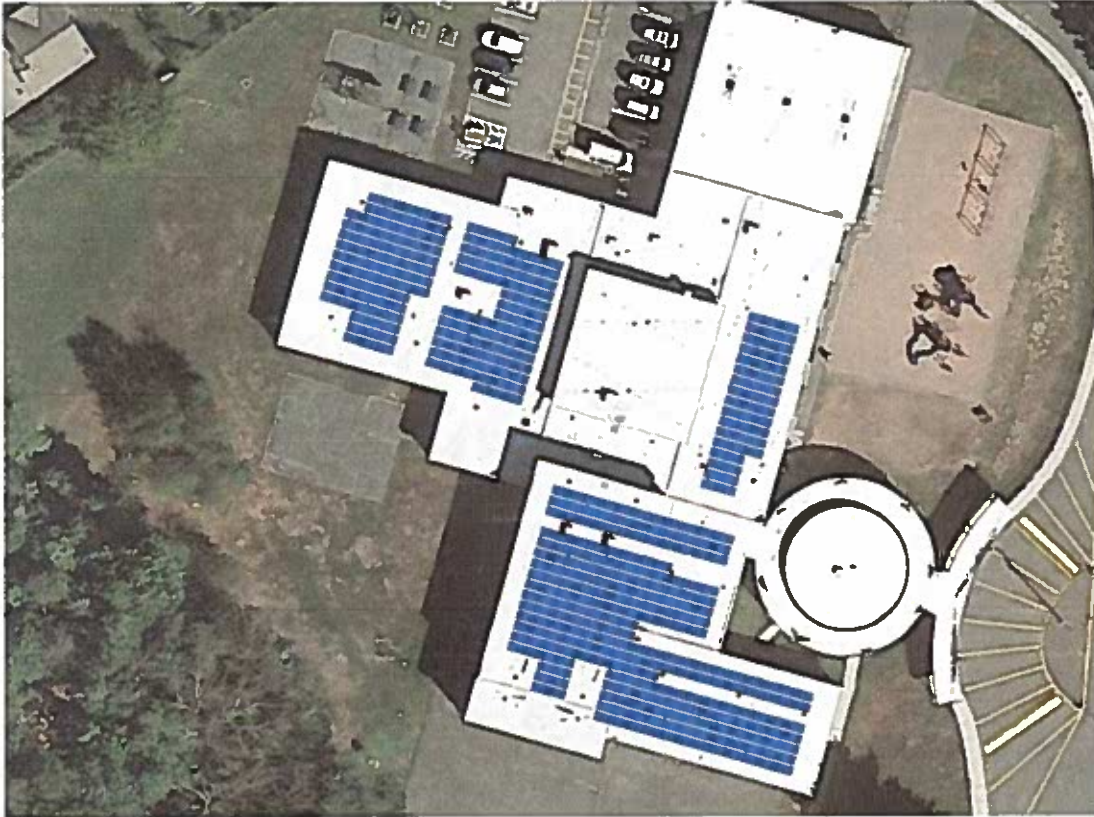
**February 18, 2016**



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**Site Layout: 140 Andrew Avenue, 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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**Andrew Avenue Elementary School: Financing Options**

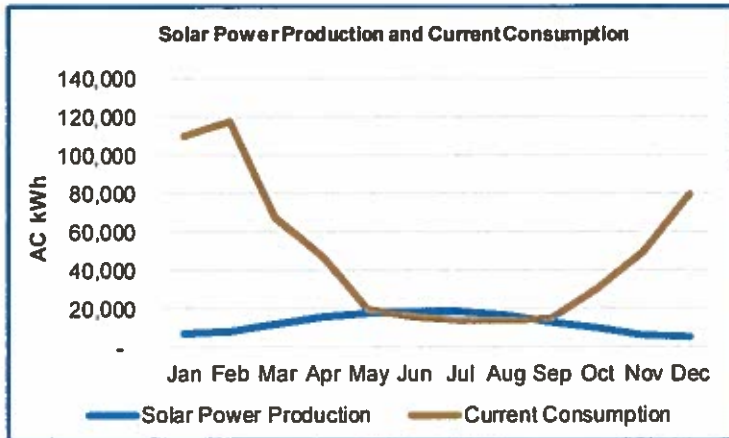
<b>SYSTEM DETAILS</b>	
System Size (kW)	129
System life	20 Years
System Production - Year 1 (kWh)	152,081
Current Site Consumption (kWh)	581,184
Current Consumption Offset - Year 1	26.2%

<b>PPA DETAILS</b>	<b>PPA (fixed)</b>	<b>PPA (esc)</b>
Customer Utility Rate (\$/kWh)	\$0.159	\$0.159
Estimated PPA Rate (\$/kWh)	\$0.144	\$0.117
PPA Term	20	20
PPA Escalator	0%	2.99%

Cost to Install System	\$0	\$0
Cost to Maintain System over PPA Term	\$0	\$0
Estimated Energy Savings - Year 1	\$2,245	\$6,351
Estimated Energy Savings - Year 10	\$56,161	\$71,177
Estimated Energy Savings - Year 20	\$197,609	\$162,179

<b>ENVIRONMENTAL BENEFITS</b>	
Acres of Planted Trees per year	18.4
Gallons of Conserved Gasoline	7,053
Miles not driven in a Passenger Car	168,561
Annual Tons of Avoided CO2	68

**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**



**ROOFTOP  
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**FINANCIAL SUMMARY Maple Avenue Elementary – FIXED PPA OPTION**

<b>SYSTEM DETAILS</b>	
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%
<b>PPA DETAILS</b>	
	<b>PPA (fixed)</b>
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
<b>ENVIRONMENTAL BENEFITS</b>	
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

**ROOFTOP  
SOLAR POWER**



**FINANCIAL SUMMARY Andrew Avenue Elementary – FIXED PPA OPTION**

<b>SYSTEM DETAILS</b>	
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%
<b>PPA DETAILS</b>	
	<b>PPA (fixed)</b>
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
<b>ENVIRONMENTAL BENEFITS</b>	
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.

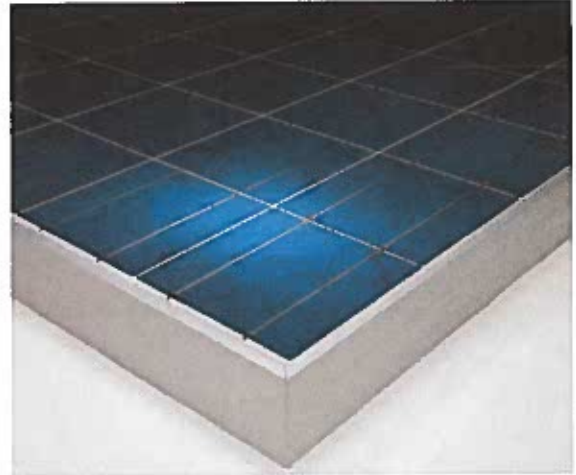
## ROOFTOP SOLAR POWER



### 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.

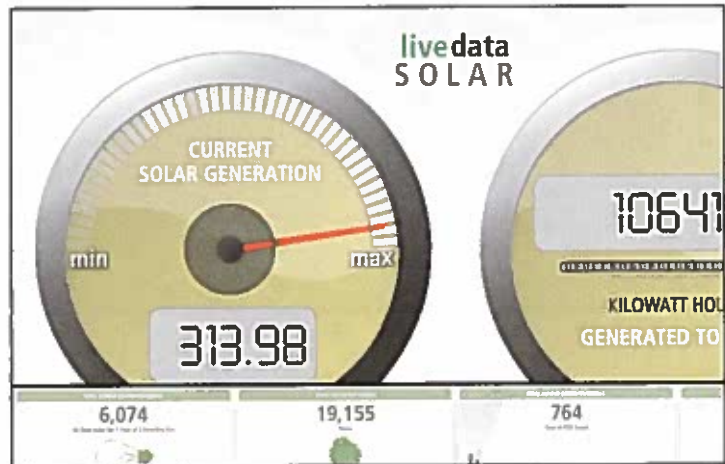


## ROOFTOP SOLAR POWER



### 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:**

51471653071 (Andrew)

**Service Account:**

RATE 41-DELIVERY

**Service Location:**164 ANDREW AVE  
NAUGATUCK CT 06770

Meter Number: 891723992

View Data From: 12/22/2016

To: 04/25/2018



Refresh

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	303.00	86976	33	2635.64	\$14,561.54	00	42.9
03/23/2018	268.40	83520	29	2880.00	\$14,270.90	00	37.2
02/22/2018	298.90	96192	30	3206.40	\$16,402.64	00	34.5
01/23/2018	388.80	105989	23	4608.20	\$18,693.45	13	24.7
12/31/2017	388.80	46075	10	4607.53	\$7,771.62	13	19.4
12/21/2017	327.20	87552	30	2918.40	\$14,631.14	00	34.6
11/21/2017	316.80	51264	29	1767.72	\$8,709.43	00	46.2
10/23/2017	190.70	24768	31	798.97	\$4,421.72	00	62.6
09/22/2017	146.90	18432	30	614.40	\$3,421.87	00	65.9
08/23/2017	97.30	15552	30	518.40	\$2,935.43	00	70.9
07/24/2017	65.70	10800	24	450.00	\$2,073.23	13	73.4
06/30/2017	65.70	3600	8	450.00	\$681.23	13	70.1
06/22/2017	186.00	24768	31	798.97	\$4,330.42	00	64.9
05/22/2017	226.40	47808	28	1707.43	\$8,039.33	00	58.7
04/24/2017	280.50	64512	33	1954.91	\$10,498.33	02	49.3
03/22/2017	347.30	102528	28	3661.71	\$16,464.73	00	36.8
02/22/2017	314.50	117504	29	4051.86	\$19,065.83	00	33.9
01/24/2017	337.50	85880	24	3578.32	\$13,793.69	13	34.6
12/31/2016	337.50	32200	9	3577.82	\$5,186.02	13	37.1
12/22/2016	336.40	122688	30	4089.60	\$19,881.61	00	36.2