

# Here Comes the Sun

With solar incentives changing rapidly at both the state and federal levels, you're likely receiving calls from solar companies asking you to research your options. Learn the steps to get started, case studies, and how to evaluate different procurement strategies that best align with your District.

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# Introductions

Angie Smith, Moderator.

- *Asst Supt for Operations & CSBO, West Aurora SD 129*



Steven Kowalski, Speaker

- *Business Development Manager, Performance Services*



Aaron Raftery, Speaker

- *Solar & Efficiency Advisor, Nania Energy Advisors*



Becky Thompson, CEP; Speaker

- *Sr. Energy Advisor, Nania Energy Advisors*



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# Solar for Schools

A Cost-Effective Solution for Rising Energy Costs

## Procurement Options for Solar



### Ownership Model

Purchase system outright

Requires capital or debt

District keeps all of energy savings

District keeps all Incentives

### Power Purchase Agreement (PPA)

3rd party installs system

No capital used or debt incurred

3rd party contracts to sell energy to district

3rd party keeps incentives



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## Incentives Available in Addition to Energy Savings



### Solar Renewable Energy Credits (SRECS)

- Managed by the Illinois Power Agency
- Payments Made to District for Producing Renewable Energy
- Value Determined by Adjustable Block Program



### Utility (ComEd / Ameren)

- Onetime Incentive from Utility
- Value Determined on System Size in kW



### Net Metering

- Process for Receiving Money for Excess Energy Created
- Credit is Applied by Utility Company



### Investment Tax Credit (ITC)

- Federal Credit Previously Only Available to Taxing Entities
- Now Available for Public Schools
- Payment of Up To 30% of Total Cost of Project

# Solar for Schools

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## Case Studies



## Example Illinois K12 Solar Projects

- Roselle SD 11
- Palos SD 118
- Sunset Ridge SD
- Kildeer CCSD 96
- Glenbard School District 87
- Grayslake CCSD 46
- Grayslake CHSD 127
- Warren Township HSD 121
- Lake Park High School 108
- Valley View CUSD 365U

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Grayslake HSD 127



System Size	<b>2.7 MW</b>
Energy Produced	<b>32%</b>
Cost of Project	<b>\$5.9M</b>
Financing	<b>2.9%</b>
Incentives	<b>\$1M+</b>

# Solar for Schools

A Cost-Effective Solution for Rising Energy Costs

Grayslake HSD 127



# Solar for Schools

A Cost-Effective Solution for Rising Energy Costs

Glenbard East High School – Installation 2020



System Size	<b>1.2 MW</b>
Energy Produced	<b>40+%</b>
Cost of Project	<b>\$2.7M</b>
Energy Produced	<b>102% of Projected</b>
Rebates	<b>\$291,200</b>
SRECs	<b>\$823,382</b>



# Solar for Schools

A Cost-Effective Solution for Rising Energy Costs

Warren Township High School District 121



System Size	<b>2.4 MW</b>
Solar Production	<b>2.9MWh (1 Year)</b>
Rebates	<b>\$601,965</b>
SRECs (to date)	<b>\$666,708</b>

# Solar for Schools

## A Cost-Effective Solution for Rising Energy Costs

### Example Cashflow With Incentives and Savings

Year	Solar kWh, Total	Total Cost No Project	Total Cost with Project	Electrical Savings	(1) Rebates	(2) ITC Savings	(3) REC Income	Total Annual Savings	Cumul. Savings
1	862,122	\$ 265,320	\$ 216,884	\$ 48,437	\$ 179,800	\$ 690,000	\$ 131,362	\$ 1,049,598	\$ 1,049,598
2	840,569	\$ 274,607	\$ 208,249	\$ 66,358			\$ 84,270	\$ 150,628	\$ 1,200,226
3	836,366	\$ 284,218	\$ 215,806	\$ 68,412			\$ 84,270	\$ 152,682	\$ 1,352,908
4	832,184	\$ 294,166	\$ 223,636	\$ 70,530			\$ 84,270	\$ 154,800	\$ 1,507,707
5	828,023	\$ 304,461	\$ 231,748	\$ 72,714			\$ 84,270	\$ 156,983	\$ 1,664,691
6	823,883	\$ 315,117	\$ 240,152	\$ 74,965			\$ 84,270	\$ 159,235	\$ 1,823,926
7	819,764	\$ 326,147	\$ 248,860	\$ 77,287			\$ 42,135	\$ 119,422	\$ 1,943,347
8	815,665	\$ 337,562	\$ 257,881	\$ 79,681			\$ -	\$ 79,681	\$ 2,023,028
9	811,587	\$ 349,376	\$ 267,227	\$ 82,149			\$ -	\$ 82,149	\$ 2,105,178
10	807,529	\$ 361,605	\$ 276,910	\$ 84,695			\$ -	\$ 84,695	\$ 2,189,872
11	803,491	\$ 374,261	\$ 286,941	\$ 87,319			\$ -	\$ 87,319	\$ 2,277,192
12	799,474	\$ 387,360	\$ 297,334	\$ 90,026			\$ -	\$ 90,026	\$ 2,367,217
13	795,476	\$ 400,917	\$ 308,101	\$ 92,816			\$ -	\$ 92,816	\$ 2,460,033
14	791,499	\$ 414,950	\$ 319,256	\$ 95,694			\$ -	\$ 95,694	\$ 2,555,727
15	787,541	\$ 429,473	\$ 330,812	\$ 98,661			\$ -	\$ 98,661	\$ 2,654,387
16	783,604	\$ 444,504	\$ 342,784	\$ 101,720			\$ -	\$ 101,720	\$ 2,756,108
17	779,686	\$ 460,062	\$ 355,187	\$ 104,875			\$ -	\$ 104,875	\$ 2,860,983
18	775,787	\$ 476,164	\$ 368,036	\$ 108,129			\$ -	\$ 108,129	\$ 2,969,112
19	771,908	\$ 492,830	\$ 381,347	\$ 111,483			\$ -	\$ 111,483	\$ 3,080,595
20	768,049	\$ 510,079	\$ 395,136	\$ 114,943			\$ -	\$ 114,943	\$ 3,195,537
21	764,208	\$ 527,932	\$ 409,422	\$ 118,510			\$ -	\$ 118,510	\$ 3,314,047
22	760,387	\$ 546,409	\$ 424,221	\$ 122,188			\$ -	\$ 122,188	\$ 3,436,235
23	756,585	\$ 565,534	\$ 439,552	\$ 125,981			\$ -	\$ 125,981	\$ 3,562,217
24	752,803	\$ 585,327	\$ 455,434	\$ 129,893			\$ -	\$ 129,893	\$ 3,692,109
25	749,039	\$ 605,814	\$ 471,887	\$ 133,926			\$ -	\$ 133,926	\$ 3,826,036
26	745,293	\$ 627,017	\$ 488,931	\$ 138,086			\$ -	\$ 138,086	\$ 3,964,122
27	741,567	\$ 648,963	\$ 506,588	\$ 142,375			\$ -	\$ 142,375	\$ 4,106,497
28	737,859	\$ 671,677	\$ 524,878	\$ 146,798			\$ -	\$ 146,798	\$ 4,253,295
29	734,170	\$ 695,185	\$ 543,826	\$ 151,360			\$ -	\$ 151,360	\$ 4,404,655
30	730,499	\$ 719,517	\$ 563,453	\$ 156,063			\$ -	\$ 156,063	\$ 4,560,718
Totals	23,606,615	\$ 13,696,551	\$ 10,600,478	\$ 3,096,073	\$ 179,800	\$ 690,000	\$ 594,845	\$ 4,560,718	

#### Project Financial Summary

Turnkey Installation Budget:	\$ 2,300,000
(1) Rebate:	\$ 179,800
(3) REC Incentive Year 1:	\$ 131,362
Gross Savings in Year 1:	\$ 1,049,598
20 Year Gross Savings:	\$ 3,195,537
30 Year Gross Savings:	\$ 4,560,718

#### Assumptions

(4) Annual Solar Degradation:	0.50%
Annual Rate Escalation:	3.50%



# Solar Project Considerations

- Location (20+ years)
  - Roof
  - Ground-mount
  - Carport/shade structure
- Procurement
- Key contract terms



# Rooftop Solar Considerations

- Roof type/orientation
  - Pitched
  - Flat
- Roof surface
  - Asphalt
  - Membrane
  - Metal standing seam
  - Metal corrugated
- Roof age/warranty



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# Ground-mount Solar Considerations

- Proximity to building
- Neighboring properties
- Wetlands/flood zones
- Zoning requirements
- Vegetation options



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# Ground-mount Solar: Off-premise Option

- Consider hosting “community solar” on district-owned land
- Solar provider constructs, owns and operates system
- Land lease payments for 20-30 years
- Community may “subscribe” to reduce their energy costs
- Ideal size: 10-30 acres
- Include decommissioning bond
- Negotiate lease option (\$/yr) during project diligence



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# Ground-mount Solar: Off-premise Option (ctd)



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# Carport/Shade Structure Solar Considerations

- Most expensive option
- Least contentious though!
- Snowplow impact
- Full canopy vs aisle/perimeter



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# Procurement Considerations

- Cooperative procurement programs
  - Still important to ensure competitive pricing
- Article 19b/ESCO/Performance Contracting
  - Great for comprehensive energy projects
  - Also applies to solar-only projects
- Competitive RFP
  - Consider engaging Owner's Rep



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# Contract Considerations

- Ownership model
  - Product warranties
  - O&M in-house or outsourced?
  - Are savings guaranteed?
  - Who's responsible for incentives?
- Power Purchase Agreement model
  - Pricing: starting PPA rate, annual escalator, contract length
  - What happens at end of term? Decommissioning bond?
  - Early buyout options/provisions



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**So, you're going to install solar – now what?**



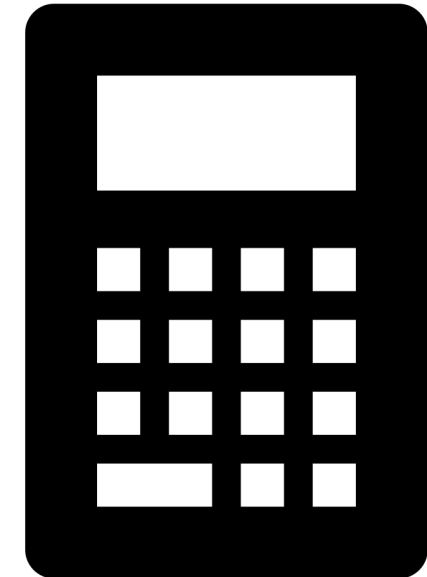
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# Projecting Energy Savings

- When estimating energy savings over the lifespan of the solar array:
  - Watch escalators from solar companies closely
    - Should range  $<3\%$
  - Ask how rate-to-compare was calculated
    - Only \$ per kWh costs should be included, not total due / total usage
  - Think about future energy use and how it might change



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# Energy Buying Considerations

- Even if estimated offset is 100%, you still buy energy supply, unless installing batteries
- Involve your 3<sup>rd</sup> party supplier
  - Material change or renewable energy clauses penalize for reduced usage
- Most school districts purchase “all-in fixed” or “around-the-clock” electrical supply
  - Can maximize solar cost offsets by peak/off-peak product

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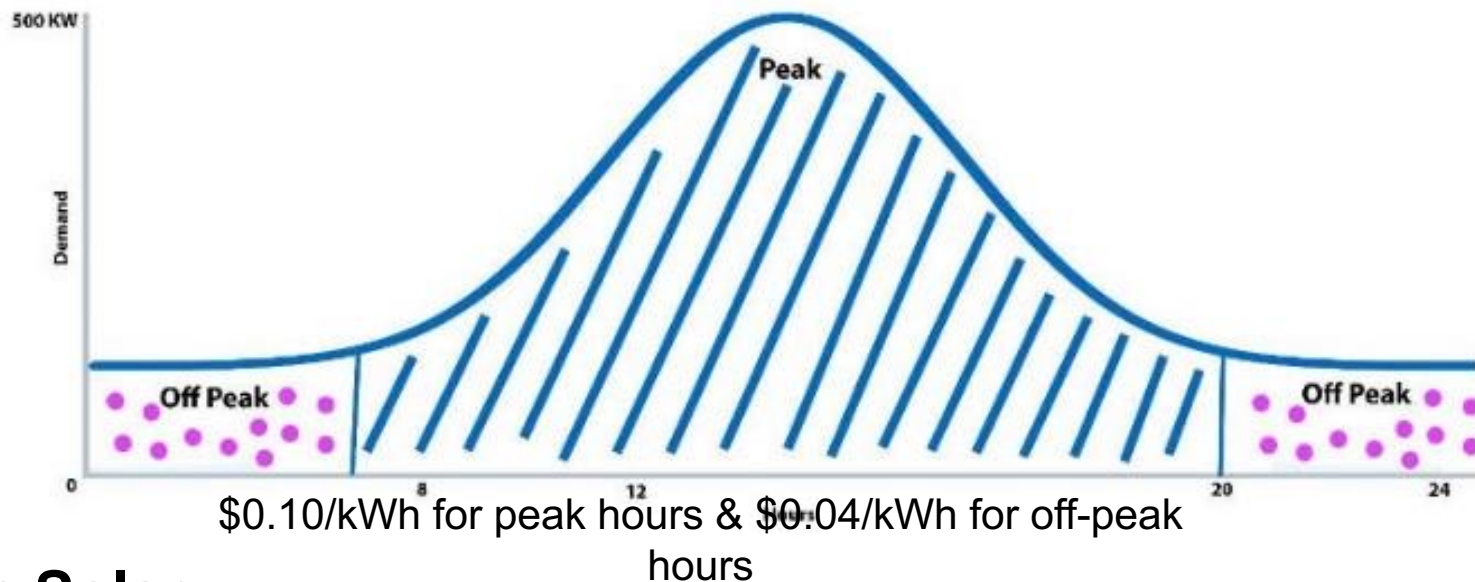


**Before**  
**Solar**

**Around-the-Clock**  
**Rate**

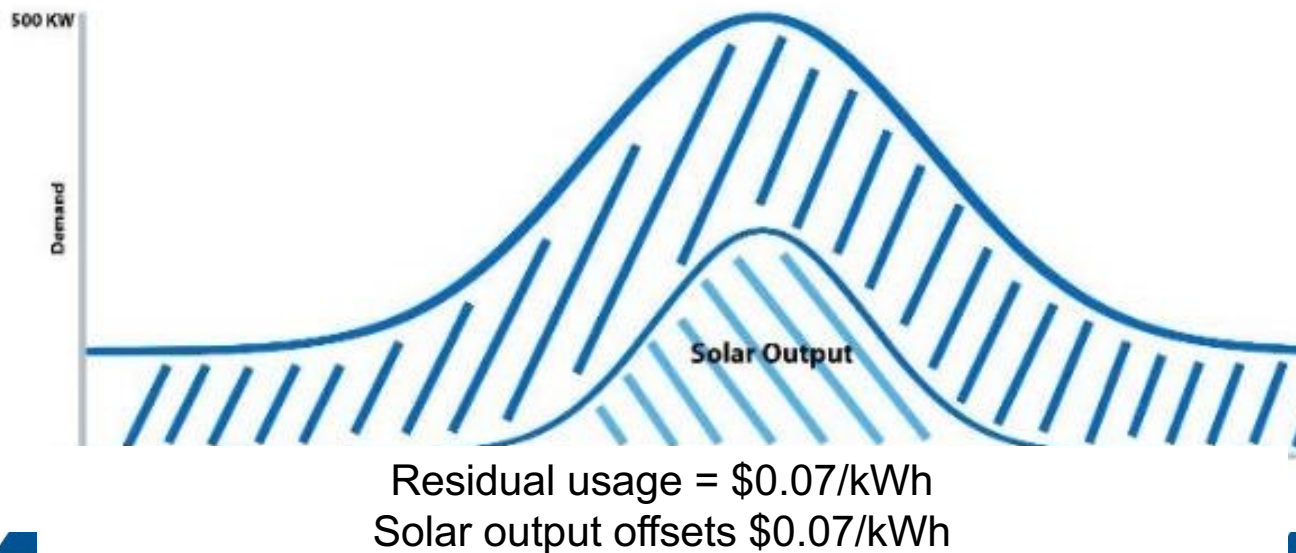


**Peak / Off-Peak**  
**Rate**

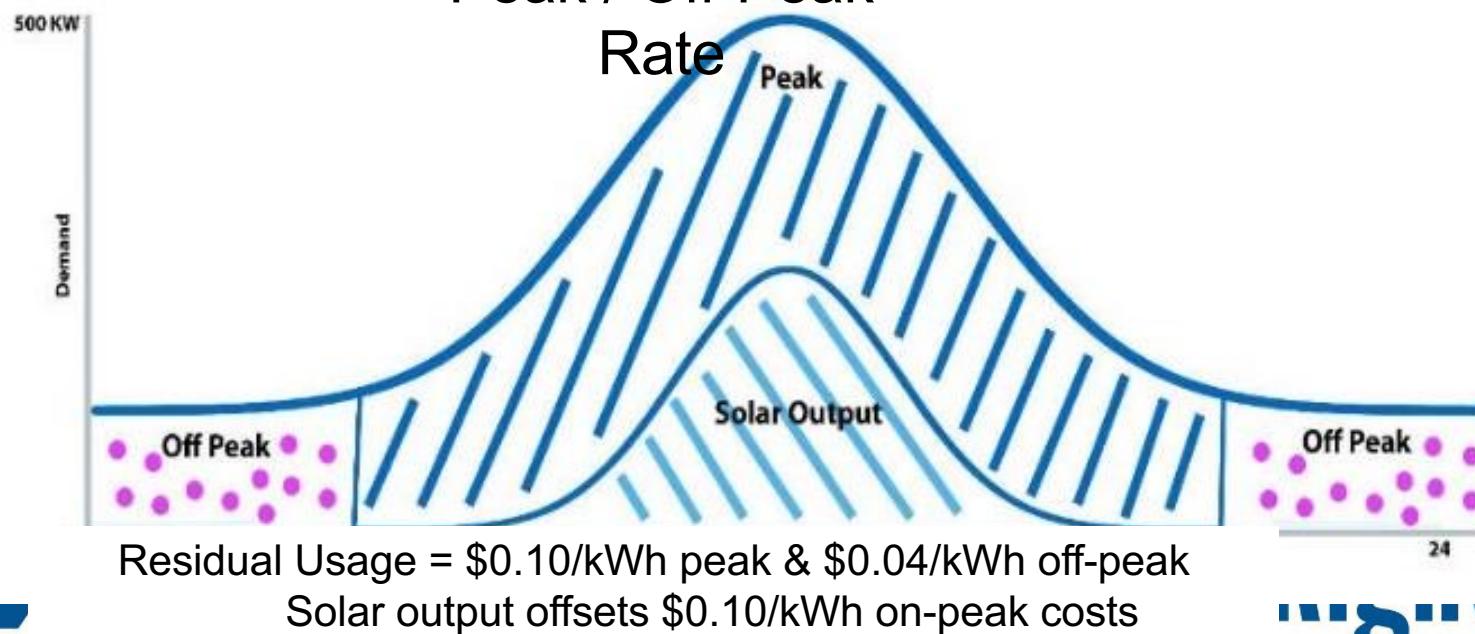


**With Solar**

**Around-the-Clock**  
**Rate**



**Peak / Off-Peak**  
**Rate**



# *Questions and Answers*

*We thank you for your time!*



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# Presenters:

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