

Solar Field – Antioch, Illinois

3/6/2020

# Thelen Sand and Gravel Solar Field Antioch, IL



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Aerial showing  
north plant plus  
solar field



## Thelen Philosophy

Thelen Sand & Gravel is a land company, not just a mining, farming & compost company. These activities are how we utilize the land before reclaiming it for other uses such as individual homes and recreational areas.

The Solar Field, located in Antioch, Illinois is a new repurposing and sustainable venture. The 7.5-acre site was previously mined, used as certified Clean Construction Demolition and Debris site and is now reclaimed land for a consumable renewable resource.

This is the largest “Behind the Meter” solar project in Illinois. This is renewable energy generating facility that produces power for on-site use.

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You Tube Video

<https://www.bing.com/videos/search?q=thelen+solar+project+on+utube&view=detail&mid=2C26A3D4104517A5C5952C26A3D4104517A5C595&FORM=VIRE>

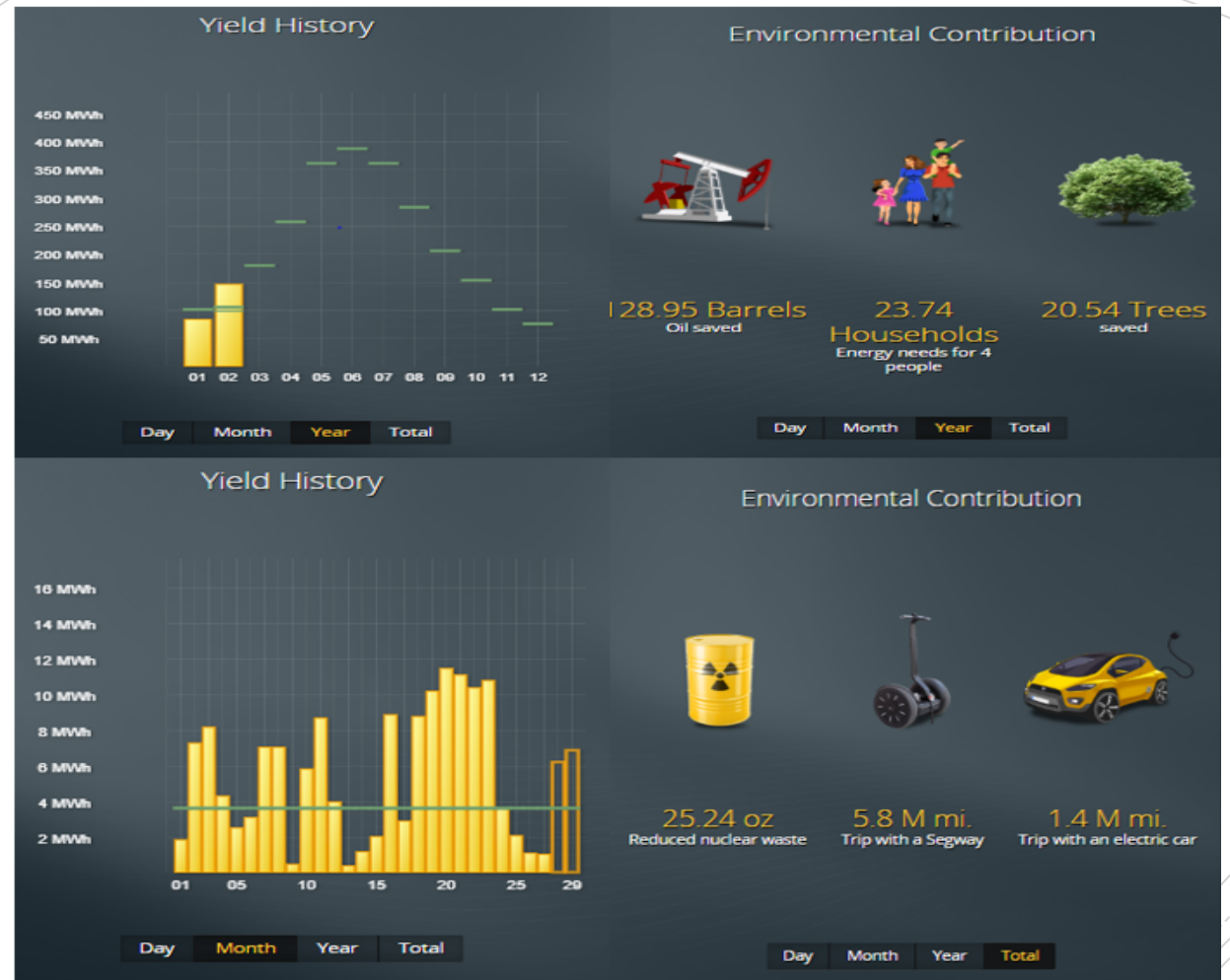


## Solar System Statistics

1. Total system size: 1,996.5 kWdc (1850 kWac)
2. Number of panels: 7,260
3. Angle of racking: 20 degrees
4. Number of inverters: 37
5. Number of transformers: 1 2000 kVA 480Y/277V to 12.47 KV Delta PV System Step-Up Transformer to interconnect to ComEd's 12.47kV distribution line
6. Estimated annual production : ~2.6 GWh / year
7. Estimated lifetime production: ~72 GWh
8. The installation will produce about 30% of the annual energy needs
9. Local labor sourced from Urban League funded through the Future Energy Jobs Act
10. Annual CO2 reduction of 5,720,000 lbs / year ... if electricity were generated by Coal Power Plant
11. Lifetime CO2 reduction of 160,670 lbs ... if electricity were generated by Coal Power Plant (30 years)

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# Control Panel





# Financials



# The Budget

## Solar Field Budget

### *Sources*

Loan \$ 3,400,000

Inverter Rebate (\*) \$ -

Cash/Equity \$ 654,750

**Total** \$ 4,054,750

### *Uses*

Solar Field Costs \$ 4,054,750

**Total** \$ 4,054,750

# Financials

# Financials

Year			
5		25	
Total		Total	
0.08	\$	0.08	
37,808		2,278,848	60,854,690
09,480			1,516,453
03,025	\$	182,308	4,868,375
16,340	\$	16,340	497,790
96,165	\$	165,968	392,160
00,781			\$ 6,490,458
72,324	\$	0	(732,133)
23,060	\$	165,968	\$ 6,150,485
08,137)	\$	-	1,072,106
(6,226)	\$	(44,811)	7,222,591
00,781	\$	-	(6,150,485)
			\$ 14,445,182
9,478	\$	121,157	\$ 16,589,394
12,087	\$	2,243,768	\$ 18,833,162

PRO FORMA

## ENERGY SCHEDULES

### MODEL COEFFICIENTS

### System Performance Index (SPI)

Electrical Cost Index (ECI)

### ENERGY RATES

Blended Energy Rate	\$/kwh
ENERGY PRODUCTION	

Energy Production

Total Energy Production

## FINANCIAL SCHEDULES

### INCOME STATEMENT

### Estimated SREC Payments

### Estimated SREC Payments

Avoided Energy Costs

Inverter Rebate

### Operating Expenses

	EBITDA
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Federal Depreciation Expense (less FITC)

Add Back for Depreciation Reduction	EBIT
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Add Back for Depreciation Reduction	EBIT
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Interest Expense

Net Taxable Income

Less Principle

Income Taxes

Add Depreciation

EBT

Federal Investment Tax Credit

State Tax Credit

Taxes (Saved)

CASH FLOW STATEMENT		Cash From	Net Income
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## Operations

**Net Income**

Cumulative Cash Flow with an IRR of	88%
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with an IRR of	88%
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	Year	Year	Year	Year	Year	Year	
Initial	1	2	3	4	5	25	Total
	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08	
	2,589,000	2,576,652	2,563,704	2,550,756	2,537,808	2,278,848	60,854,690
	\$ 201,162	\$ 309,480	\$ 309,480	\$ 309,480	\$ 309,480		1,516,453
	\$ 207,120	\$ 206,132	\$ 205,096	\$ 204,060	\$ 203,025	\$ 182,308	4,868,375
\$ -	\$ 497,790						497,790
		\$ 16,340	\$ 16,340	\$ 16,340	\$ 16,340	\$ 16,340	392,160
\$ -	\$ 906,072	\$ 499,272	\$ 498,237	\$ 497,201	\$ 496,165	\$ 165,968	\$ 6,490,458
\$ 4,054,750	695,801	1,113,281	667,969	400,781	400,781		\$ (732,133)
	\$ 170,000	\$ 132,179	\$ 112,444	\$ 92,496	\$ 72,324	\$ 0	\$ 6,150,485
	\$ 40,271	\$ (746,188)	\$ (282,176)	\$ 3,924	\$ 23,060	\$ 165,968	\$ 1,072,106
\$ 3,400,000	\$ (756,413)	\$ (394,704)	\$ (398,965)	\$ (403,439)	\$ (408,137)	\$ -	\$ 7,222,591
7%	\$ (10,873)	\$ 201,471	\$ 76,188	\$ (1,059)	\$ (6,226)	\$ (44,811)	\$ (6,150,485)
	\$ 695,801	\$ 1,113,281	\$ 667,969	\$ 400,781	\$ 400,781	\$ -	\$ 14,445,182
0%	\$ 1,151,492						
	\$ (654,750)	\$ 1,120,278	\$ 173,860	\$ 63,015	\$ 206	\$ 9,478	\$ 121,157
	\$ (654,750)	\$ 465,528	\$ 639,388	\$ 702,403	\$ 702,610	\$ 712,087	\$ 2,243,768
							\$ 18,833,162

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# The Environment

Questions?

