

Economics of Solar & Wind Energy in Ohio



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Vice President

Economics of Solar & Wind Energy

- What's this going to cost me?
- What will it do for me?
What will I save?
- How do I convince my spouse or boss that I am not just some tree hugging idealist?
- What other benefits or concerns should I be aware of?
- What has been the experience of other installations?



Presentation Topics

- Cost of Residential and Commercial Solar PV & Wind Installations
- Key Grants & Incentives Available
- Payback Analysis – Return On Investment
- Financing Options
- Other Tangible Benefits
- Questions

Residential Solar PV Cost

- Fixed angle, South-facing, framed modules on shingle roof most common
- Typically \$8 to \$12 per installed STC watt
- About \$27,000 for 3 KW System
 - Solar Modules are approximately 55% to 60%
 - Racking is about 4% to 5%
 - Inverter is about 10% to 12%
 - Balance of System is 7% to 9%
 - Design & Installation is 14% to 18%
 - Shipping is 1%

Sample Dovetail Residential Solar Photovoltaic Systems

Direct Grid-Tied (net metering)					
Solar PV System	The Studio	The Starter	The Family	Family Plus	The Estate
	1.0 kW grid-tie	2.0 kW grid-tie	3.0 kW grid-tie	4.0 kW grid-tie	5.4 kW grid-tie
Estimated monthly energy output kWh*					
Monthly Average	95	190	285	380	510
Summer Peak	135	270	405	540	730
Winter Low	40	80	120	150	210
System Components					
Inverter	PVP 2500	PVP 2500	PVP 3500	PVP 4800	PVP 5200
Modules	6 Sharp 170	12 Sharp 170	18 Sharp 170	24 Sharp 170	32 Sharp 170
String sizing	1x6, 1020W	2x6, 2040W	2x9, 3060W	3x8, 4080W	4x8, 5440W
Estimated Total Installed Cost					
Installed Price	\$12,000	\$20,000	\$27,000	\$35,000	\$45,000

Commercial Solar PV Systems

- Flat roof is most common type
- Installed at 0° to 20° module tilt angle
- Much wider range of system sizes
- Usually 3 phase 480V
- Smaller systems can be a little higher priced because of code and building requirements
- Larger systems have a lower cost per watt

Sample Dovetail Commercial Solar PV Systems

Direct Grid-Tied (net metering)					
Solar PV System	The Studio	The Office	The Firm	The Shop	The Plant
	3.0 kW grid-tie	5.4 kW grid-tie	10.9 kW grid-tie	21.8 kW grid-tie	43.5 kW grid-tie
Estimated monthly energy output kWh*					
Monthly Average	285	515	1030	2060	4120
Summer Peak	420	735	1470	2940	5880
Winter Low	115	210	420	840	1680
Major System Components					
Inverter	PVP 2800 XV	PVP 5200	Two PVP4600	Four PVP4600	Eight PVP4600
Modules Used	18 Sharp 170	32 Sharp 170	64 Sharp 170	128 Sharp 170	256 Sharp 170
String sizing	2x9, 3060W	4x8, 5440W	8x8, 10880W	16x8, 21760W	32x8, 43480W
Estimated Total Installed Cost					
Installed Price	\$27,500	\$47,000	\$92,000	\$178,000	\$350,000

Federal Tax Incentives Available

- Federal Tax Credit (August 2005 Energy Bill)
 - 30% Tax Credit on Reimbursed System Cost
 - Must be installed by 2008
 - \$2,000 Cap for Residential
 - No Cap for Commercial!
 - Solar PV & Solar Thermal only, not Wind systems
- Federal Modified Accelerated Cost Recovery System (MACRS) for Solar & Wind
 - 5 year Depreciation Schedule for Commercial

State Tax Incentives

- Ohio Revised Code Section 5709.46 exempts commercial solar & wind systems from:
 - Property taxation
 - Sales Tax
 - Use Tax
 - State's franchise tax
- State Depreciation is 5 or 10 years

State Solar PV System Grants

- Ohio Dept. of Development, Office of Energy Efficiency (OEE) NOFA #07-02 & 07-03 grants
- Grant awarded based on system size
 - \$3.50 per watt for 1,000 to 10,000 watts
 - \$2.50 per watt for 10,001 to 25,000 watts
 - \$1.50 per watt for 25,001 to 75,000 watts
 - \$0.00 per watt >75,000 watts
- Maximum Residential is \$25,000
- Maximum Commercial is \$147,500
- Must be in Investor Owned Utility Area
 - FirstEnergy, AEP, Duke, DP&L



Ohio Solar PV Grant Examples

- Residential 3 kW Solar PV System

$$\text{Grant} = 3,000 \times \$3.50 = \mathbf{\$10,500}$$

- Commercial 43.5 kW Solar PV System

$$\text{Grant} = 10,000 \times \$3.50 = \$35,000$$

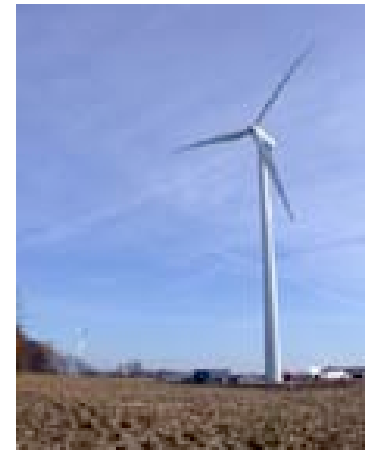
$$15,000 \times \$2.50 = \$37,500$$

$$18,500 \times \$1.50 = \$27,750$$

$$\mathbf{\text{Total Grant} = \$100,250}$$

State Wind System Grants

- Ohio Dept. of Development, Office of Energy Efficiency (OEE) NOFA #07-02 & 07-03 grants
- Grant based on Wind Turbine peak power rating:
 - **\$2.50 per watt**
 - But no more than 50% of system installed cost
- Maximum Residential is \$25,000
- Maximum Commercial is \$150,000
- Must be in Investor Owned Utility Area
 - FirstEnergy, AEP, Duke, DP&L



Ohio OEE Wind Grant Examples

- 1.8 kW SWWP Skystream Wind Turbine System
Typical cost: \$15,000 to \$21,000
Grant = 1,800 x \$2.50 = **\$4,500**
- 2.5 kW ARE110 Wind Turbine System
Typical cost: \$24,000 to \$33,000
Grant = 2,500 x \$2.50 = **\$6,250**
- 10 kW ARE442 Wind Turbine System
Typical cost: \$65,000 to \$75,000
Grant = 10,000 x \$2.50 = **\$25,000**

State Solar Thermal System Grants

- Ohio Dept. of Development, Office of Energy Efficiency (OEE) NOFA #07-02 & 07-03 grants
- Grant based on Solar Thermal collector system SRCC OG-100 Category C “Clear” rating:
 - **\$30.00 per 1,000 BTU/day** of heat output rating
 - But no more than 50% of system installed cost
- Maximum Residential is \$25,000
- Maximum Commercial is \$150,000
- Must be in Investor Owned Utility Area
 - FirstEnergy, AEP, Duke, DP&L



Ohio Solar Thermal Grant Example

- Closed Loop, Domestic Solar Thermal Hot Water Heating System for 3 to 4 Persons

Two unit Heliodyne Gobi 408 Solar Collectors
with 120 gallon solar storage tank

Typical cost: \$8,250 to \$8,750

Grant = $2 \times 37 \text{ kBTU} \times \$30 = \mathbf{\$2,220}$

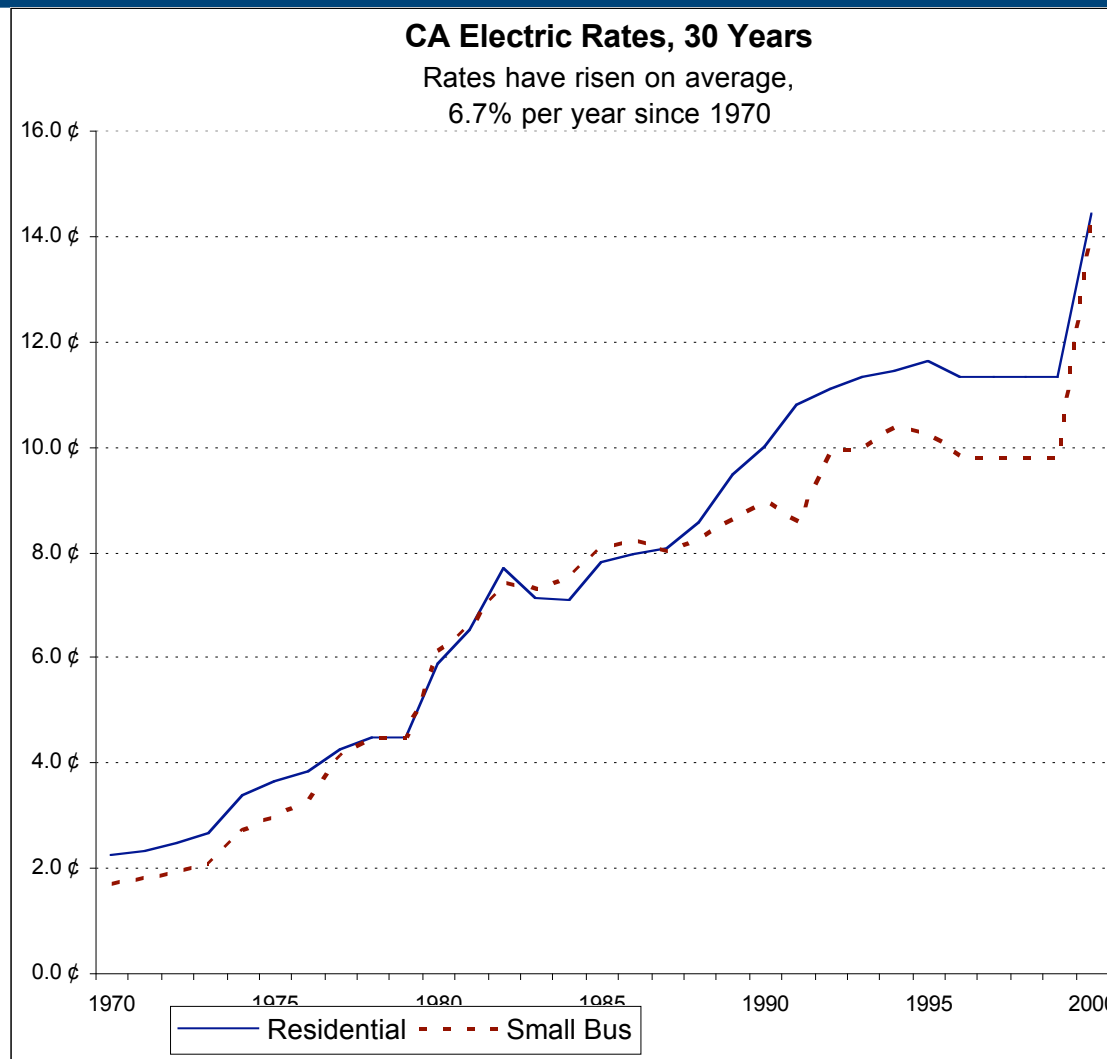
Payback Analysis

- Depends on client specific parameters:
 - System size, orientation, tilt angle, efficiency
 - Solar irradiance or average wind speed at turbine
 - Current electric usage & Utility rate(s)
 - Tax rates
 - Financed amount & loan interest rate
 - Any planned efficiency improvements or increased usage

Impact of Electric Rates

- A key element in figuring payback on a system is the impact of future electric rate increases
- Current rate about 7.5¢ to 12.5¢ per kWh
- Compounding effect - can have big impact on your future electric rates
- Usually assume conservative 5% annual rate increase

California Average Rate Increase 6.7%



Cost of Fuels Are Major Driver

- Natural Gas
 - 20% of all generation
 - Up >300% since 1999
- Oil
 - Up 50 percent between 2003 and 2005
- Coal
 - Provides half all power produced in US
 - Has risen 20% last two years alone
 - Powder River Basin prices up 100% percent since 2003
- Uranium
 - 19% of all generation
 - Has increased 40% since 2001

Average Price of Electricity Paid by the Full Service Customers of EDUs in Ohio
3rd Quarter 2006
(Cents per KWh)

	Cincinnati Gas & Electric		Cleveland Electric III		Columbus Southern Power		Dayton Power & Light	
	2006	2005	2006	2005	2006	2005	2006	2005
1st Quarter	9.1	6.7	9.5	8.9	7.7	6.7	8.7	8.2
2nd Quarter	10.5	8.0	11.2	10.7	8.9	8.2	9.6	8.9
3rd Quarter	10.0	8.3	12.5	12.0	9.6	8.3	9.6	8.8
4th Quarter		6.9		9.2		7.1		8.8
Average Year Through 3rd Quarter	9.8	7.7	11.1	10.5	8.4	7.7	9.3	8.6
Percent Change 3rd Quarter	21.08%		4.00%		16.48%		8.37%	
Percent Change Year Through 3rd Quarter	28.00%		5.56%		9.19%		7.28%	

	Monongahela Power		Ohio Edison Company		Ohio Power Company		Toledo Edison Company	
	2006	2005	2006	2005	2006	2005	2006	2005
1st Quarter	NA	6.6	9.7	9.1	7.3	6.4	10.0	9.3
2nd Quarter	NA	6.9	10.9	10.3	7.5	6.8	11.1	10.6
3rd Quarter	NA	6.5	11.3	10.8	7.5	6.5	11.9	11.4
4th Quarter		6.8		9.6		6.6		9.6
Average Year Through 3rd Quarter	NA	6.6	10.6	10.0	7.4	6.5	11.0	10.4
Percent Change 3rd Quarter	NA		4.92%		16.15%		3.84%	
Percent Change Year Through 3rd Quarter	NA		5.83%		13.37%		6.00%	

Ohio Energy Bills - Residential Customers

Major Ohio Cities

As of March 15, 2007

Cities	2000 Population	Electric Bill	Per KWH	Gas Bill	Per MCF	GCR Rate
Akron	217,074.00	\$88.72	\$0.12	\$112.39	\$11.24	\$8.99
Canton	80,806.00	62.58	0.08	112.39	11.24	8.99
Cincinnati	331,285.00	75.93	0.10	114.92	11.49	9.66
Cleveland	478,403.00	83.03	0.11	112.39	11.24	8.99
Columbus	711,740.00	76.03	0.10	130.83	13.08	10.11
Dayton	166,179.00	79.38	0.11	120.73	12.07	8.63
Toledo	313,619.00	85.63	0.11	130.83	13.08	10.11
Youngstown	82,026.00	\$88.72	\$0.12	\$112.39	\$11.24	\$8.99
Average		\$80.00	\$0.11	\$118.36	\$11.84	\$9.3081

Based on Usage of 750KWH and 10 MCF

Ohio Energy Bills - Commercial Customers

Major Ohio Cities

As of March 15, 2007

Cities	2000 Population	Electric Bill	Per KWH	Gas Bill	Per MCF	GCR Rate
Akron	217,074.00	\$33,461.08	\$0.11	\$530.78	\$11.54	\$8.99
Canton	80,806.00	18,522.79	0.06	530.78	11.54	8.99
Cincinnati	331,285.00	27,170.84	0.09	476.99	10.37	9.66
Cleveland	478,403.00	32,457.49	0.11	530.78	11.54	8.99
Columbus	711,740.00	24,928.37	0.08	586.40	12.75	10.11
Dayton	166,179.00	23,705.73	0.08	446.40	9.70	8.63
Toledo	313,619.00	35,612.82	0.12	586.40	12.75	10.11
Youngstown	82,026.00	\$33,461.08	\$0.11	\$530.78	\$11.54	\$8.99
Average		\$28,665.03	\$0.10	\$527.41	\$11.47	\$9.3081

Based on Usage of 300,000 KWH and 46MCF

Sample Residential Analysis

- 3 KW Solar Array at fixed 40° on South shingle roof in Southwest Ohio
- Uses 18 Sharp 170 watt poly-crystalline modules on Uni-Rac with PVP 3500 inverter
- Assume 70% of cost financed at 7% APR





Example 3 KW Residential System Analysis

System Size **3.06 kW STC DC**

System Cost per Watt **\$8.82 per STC DC Watt**

Estimated Federal Tax Bracket **28.0%**

Location's Avg Sun Hours **4.4 Sun Hours**

Current Utility Rate **10.8 ¢/kWh**

Estimated Annual Production 3,711 kWh/yr

Estimated First Year Utility Savings \$401 per year

Total Installed System Cost \$27,000

Ohio Energy Efficiency ELF Grant -\$10,710

Federal Tax Credit 30% Federal Tax Credit up to \$2,000 -\$2,000

MACRS Accelerated Depreciation N/A

System Cost After All Incentives \$14,290

Payback 17.5 yrs. ROI 4.6%



Payback / Return on Investment

Year	Average Utility Rate ¢/kWh	Utility Savings \$/year	Net Pre-Tax Savings Less Maintenance	Tax & Rebate Incentives	Cost / Payback Schedule
0				\$10,710	(\$16,290)
1	11.2	\$416	\$562	\$2,000	(\$13,728)
2	11.8	\$435	\$590		(\$13,138)
3	12.3	\$456	\$619		(\$12,519)
4	13.0	\$477	\$650		(\$11,870)
5	13.6	\$499	\$682		(\$11,188)
6	14.3	\$523	\$715		(\$10,473)
7	15.0	\$548	\$751		(\$9,722)
8	15.8	\$573	\$788		(\$8,935)
9	16.5	\$600	\$826		(\$8,108)
10	17.4	\$628	\$867		(\$7,241)
11	18.2	\$658	\$910		(\$6,332)
12	19.2	\$689	\$954		(\$5,377)
13	20.1	\$721	\$1,001		(\$4,376)
14	21.1	\$755	\$1,050		(\$3,326)

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11	18.2	\$658	\$910		(\$6,332)
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13	20.1	\$721	\$1,001		(\$4,376)
14	21.1	\$755	\$1,050		(\$3,326)
15	22.2	\$791	\$1,102		(\$2,224)
16	23.3	\$828	\$1,156		(\$1,068)
17	24.4	\$867	\$1,212		\$144
18	25.7	\$907	\$1,272		\$1,415
19	27.0	\$950	\$1,334		\$2,749
20	28.3	\$995	-\$405		\$2,344
21	29.7	\$1,042	\$1,467		\$3,811
22	31.2	\$1,090	\$1,539		\$5,350
23	32.8	\$1,142	\$1,614		\$6,964
24	34.4	\$1,195	\$1,692		\$8,656
25	36.1	\$1,252	\$1,775		\$10,430

Customer Case Study - Commercial

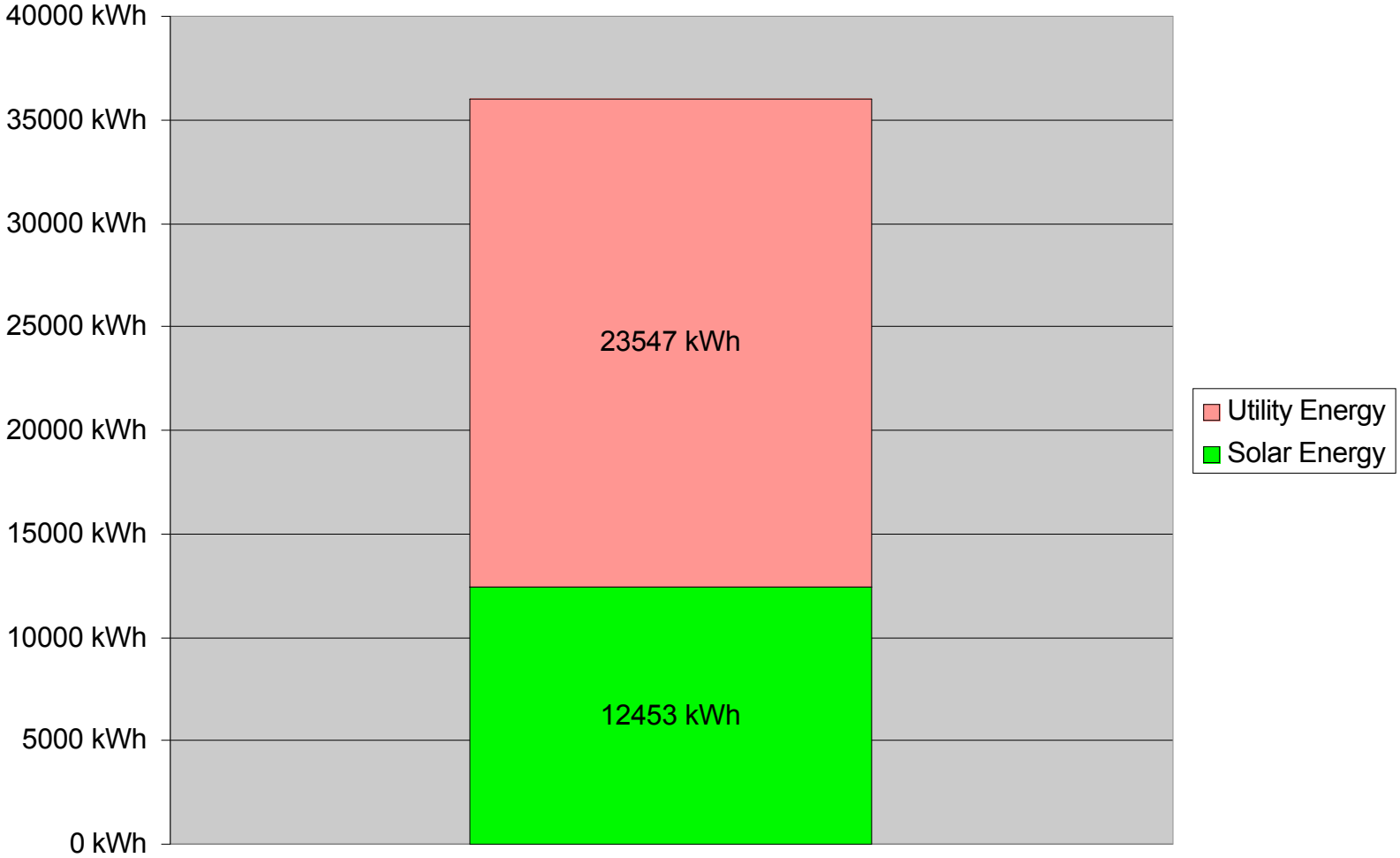
- Melink Corporation – Milford, OH
- An 11 KW Solar Array on New Corp. HQ
- Mounted on ballasted, racking at 10° tilt on membrane roof
- 64 Sharp 170 Watt modules
- 2 PVP4600 208v Inverters
- Installed April 2006





DOVETAIL
Solar and Wind

Energy Sources with Solar



Annual Usage

Example: 10.8 kW Commercial System

System Cost per Watt **\$8.46 per STC DC Watt**

Estimated Federal Tax Bracket **35.0%**

Location's Avg Sun Hours **4.2 Sun Hours**

Current Utility Rate Average **10.5 ¢/kWh**

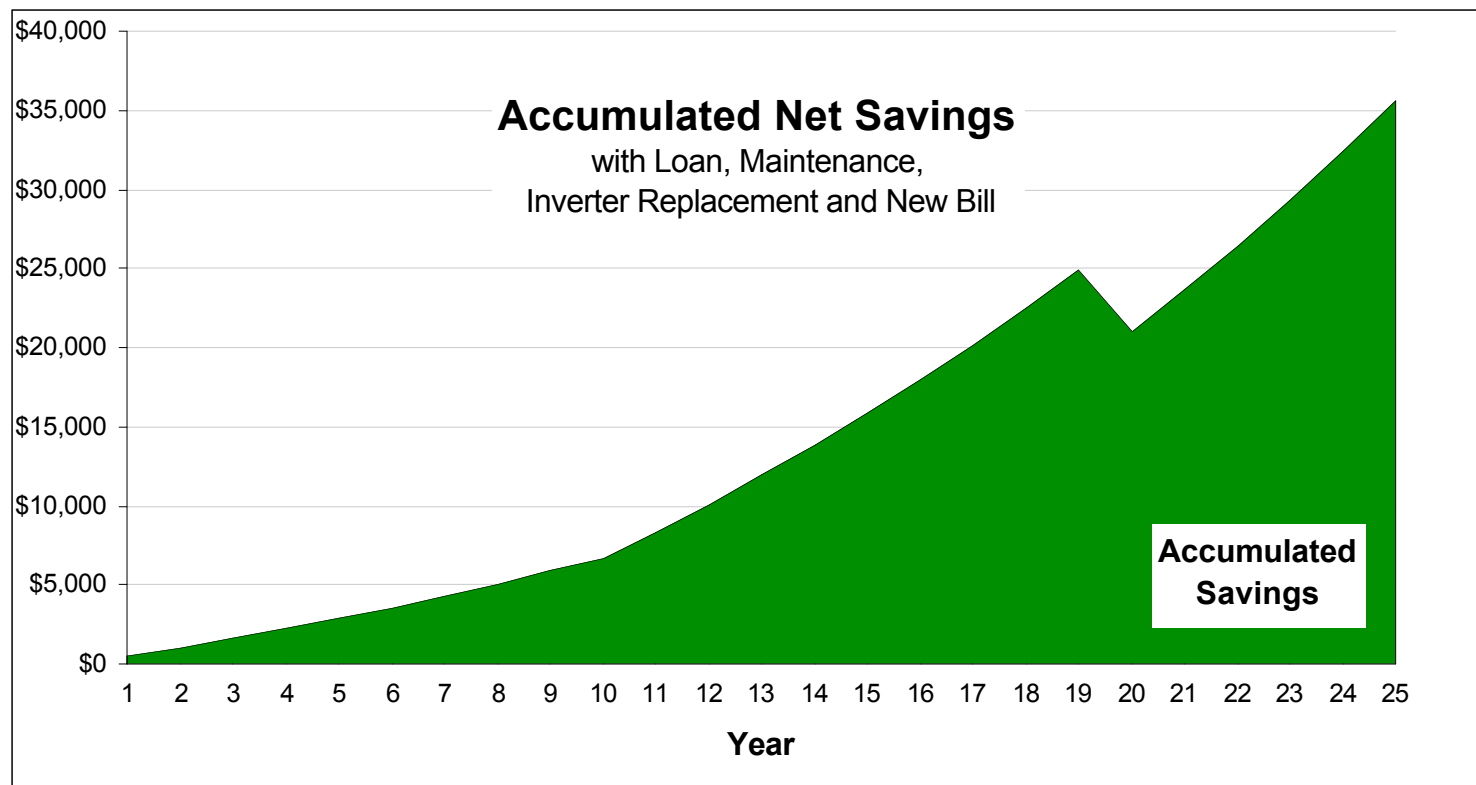
Estimated Annual Production **12,761 kWh/yr**

Estimated First Year Utility Savings **\$1,376 per year**

List System Installed Cost	\$92,000
Ohio Energy Efficiency ELF Grant	-\$37,200
Federal Tax on Grant Buy Down	\$13,020
Federal Tax Credit 30% Federal Tax Credit	-\$27,600
MACRS 5 yr Accelerated Depreciation	-\$31,182
<i>System Cost After all Incentives</i>	<u>\$9,038</u>

Payback 6.8 yrs. ROI >15%

Accumulated System Savings





Melink Awarded LEED
“**GOLD**” Certification
in May 2006

1 of 100 in World

**Melink is saving \$35,000 per
year in energy costs, or up
to \$100 per day**



LEED cost 10% more, 6 yr payback

Now 21,760 watts – 128 modules!



DOVETAIL
Solar and Wind

Sample Wind Turbine ROI

- ARE442 10kW turbine
- Produces 1,810 kWh/month = 22,000 kWh/yr
at a site with 12 mph average wind speed
- Approx cost on 100ft free-standing lattice tower
is \$68,400
- Receive \$25,000 Ohio OEE Grant
- Commercial/farm installation
- 32% Federal Tax Rate

ARE 442 10 kW wind turbine cash flow analysis

Prepared for: **Sample Customer**
 Date: **3/22/2007**
 1 ARE 442 Wind Turbine

10,000 Turbine Power rating (Watts)
1,810 kWh Avg Monthly Production
\$2.50 State Wind Rebate/Watt

Commerical
Cash Purchase
12 mph avg. wind

Assumptions (Inputs)

Total Installed Cost (\$):	\$68,400
Allocation to Business (%):	100
Annual Energy Output (kWh):	21,720
Electricity Cost (\$/kWh):	\$0.1120
Electricity Inflation Rate (%):	5
Loan Down payment (%):	100
Down Payment (\$):	\$68,400
Amount of Loan (\$):	\$0
Interest Rate (%):	7
Loan Term (Years):	7
Month Installed:	0
Net Federal Tax Rate (%):	32
Net State Tax Rate (%):	7.5
O & M Cost (\$/kWh):	\$0.010
O & M Inflation Rate (%):	3
State Rebate (%):	36.550
State Tax Credit (%):	0
Federal Tax Credit (%):	0
Green Tag Sales (\$/kWh):	\$0.030

Results

Annual Cash Flow Model

Year	Net Energy Savings	O&M Costs	Net Deprec.	Net Loan Payments	Annual Cash Flow	Total Cash Flow
0					(\$43,400)	(\$43,400)
1	\$3,084	(\$217)	\$6,111	\$0	\$8,978	(\$34,422)
2	\$3,238	(\$224)	\$3,111	\$0	\$6,126	(\$28,297)
3	\$3,400	(\$230)	\$1,867	\$0	\$5,036	(\$23,260)
4	\$3,570	(\$237)	\$1,120	\$0	\$4,453	(\$18,807)
5	\$3,749	(\$244)	\$1,120	\$0	\$4,624	(\$14,183)
6	\$3,936	(\$252)	\$561	\$0	\$4,246	(\$9,937)
7	\$4,133	(\$259)	\$0	\$0	\$3,874	(\$6,063)
8	\$4,340	(\$267)	\$0	\$0	\$4,073	(\$1,990)
9	\$4,557	(\$275)	\$0	\$0	\$4,282	\$2,291
10	\$4,785	(\$283)	\$0	\$0	\$4,501	\$6,793
11	\$5,024	(\$292)	\$0	\$0	\$4,732	\$11,525
12	\$5,275	(\$301)	\$0	\$0	\$4,974	\$16,499
13	\$5,539	(\$310)	\$0	\$0	\$5,229	\$21,728
14	\$5,816	(\$319)	\$0	\$0	\$5,497	\$27,225
15	\$6,107	(\$329)	\$0	\$0	\$5,778	\$33,003
16	\$6,412	(\$338)	\$0	\$0	\$6,074	\$39,077

**ARE442 Wind Turbine
Annual and Total Cash Flow**

**Commercial
Cash Purchase
w/ \$2.50 State Rebate**



Financing Options

- Include in Mortgage for New Construction
- Home Equity Loan
- Conventional Loan or Line of Credit
- Ohio OEE Energy Loan Fund (ELF)
 - Reduced Interest rate subsidized by State Deposit of Funds with Lending Institution
- Your Utility bill savings can cover a substantial portion of your loan payments
- Opportunity for increased rent if installed for benefit of tenant(s)

Financing Alternative

3rd Party Ownership

- 10 to 25 year Power Purchase Agreement
 - Typically set at 90% - 110% of utility electric cost
- 3rd Party Purchases & Owns System
 - Retains all grants, tax credits, depreciation & RECs
 - Has Roof Easement and provides system maintenance
- Building Owner provides \$0 or small up-front capital
- Pay 3rd party for renewable power instead of Utility during Agreement period
- Purchase system for \$1 at end of period
- **No Capital Cost, Lower Operating Cost after purchase**

Other Tangible Benefits

- Increased Property Value
 - A Solar PV System Increases the Resale Value of Your Property
 - Government funded study found that home **Resale Values increased by \$20 for every \$1 of reduction in annual utility cost**
- Example
 - A 3 KW Solar System produces 3,711 kWh per year = \$401 per year
 - Increase in Property Value = $20 \times \$401 = \$8,020$
 - Increases as Utility Electric Rate increases

Tangible Benefits (continued)

- Lock In The Cost of Electricity
- Reduce Impact of Electric Rate Increases on Business or Home Budget Cash Flow
- Move a portion of operational costs to depreciable capital costs
- Provide more predictable operational costs

Tangible Benefits (continued)

- Marketing Value / Increase In Good Will
 - Research has demonstrated significant buyer preference for dealing with “Green” firms
 - A way to create competitive differentiation
 - Position your firm as a community leader and good environmental steward
 - Enhance staff or student recruiting and employee retention

Going Green Increases Market Value

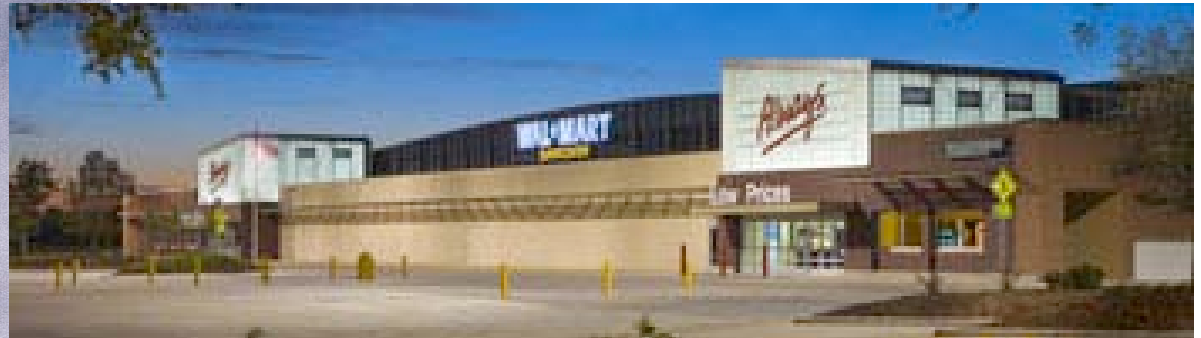
WE'RE POWERING THE FUTURE WITH WIND

On August 1, 2006, we began using renewable energy to power 100% of our U.S. operations.

We believe this will not only help decrease traditional power generation emissions, but also take a small step toward addressing the worldwide problem of global warming.

Coldwater Creek

One Coldwater Creek Drive | Sandpoint, ID 83864 | 800.787.9196



“We at Johnson & Johnson take our corporate responsibilities seriously. By investing in solar electric generation, we make active our commitment to the environment.”

John Subacus

Director, Facility Management
Janssen Pharmaceutica Products, L.P.

Tangible Benefits (continued)

- Renewable Energy Credits (RECs), also known as Green Tags
- Sell Value of “Green” Energy Generation to an Entity that is required to produce some quantity of clean power or equivalent offset
- Range in value from 2¢ to 20¢ per kWh
- Can represent significant value for larger commercial systems
 - Ex. 43.5 KW Solar System produces 48,193 kWh per year = \$2,892 per year at 6¢/kWh

Tangible Benefits (continued)

Pollution & Green House Gas Avoidance

- Avoid production of CO₂ by not burning fossil fuel to produce equivalent amount of electricity
- Also avoid NO_x, SO₂, & particulate pollution

Environmental Impact Example

A 10.8 KW Solar Array over 25 years avoids:

488,392 lbs of CO₂, the leading greenhouse gas

1,567 lbs of NO_x, which creates smog

1,419 lbs of SO₂, which causes acid rain

97 lbs of particulates which cause asthma

Or:

794,663 miles driven in an average car



Dovetail Solar & Wind

- Founded in 1995 – one Ohio's oldest & largest firms renewable energy installers
- Implement solar & wind power systems throughout Ohio and portions of the surrounding states.
- Offices in Northern Ohio (Cleveland) and in Southern Ohio (Athens & Cincinnati)
- Over 95 systems installed



DOVETAIL
Solar and Wind



Melink Corporation
"GOLD" LEED Certification
1 of 100 in World



DOVETAIL
Solar and Wind



Ohio University
Innovation Center



Kilpatrick Farm, Warren, OH



Cincinnati Zoo Schott Education Center

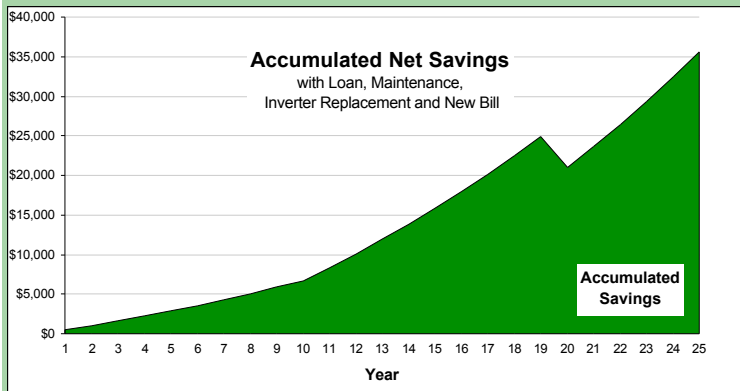
Our Key Tenants

- Provide clients outstanding value
 - Reliable, high quality systems
 - Energy cost savings
 - More sustainable use of resources
 - Healthier ecosystem
 - Improved energy security & lower risk exposure
 - Create local jobs
- Renewable Energy makes good business sense for Ohio



Project Feasibility Analysis Services

- Financial Payback
- Energy Production
- Sustainability reports



Site Location:
123 Main Street
Cleveland, OH 44123

Utility:
FirstEnergy Corp. (CEI)

System Information

Proposed System Size	10,880 kW DC (STC)
System's CEC Rating	9.162 kW AC (CEC)
Location's Avg Sun Hours	4.1 Sun Hours
Estimated Annual Production	12,511 kWh/yr

Cost Information

Proposed System Cost per rated Watt	\$8.46 per DC (STC) Watt
Estimated Federal Tax Bracket	35.0%
Current Utility Rate are as high as	11.0 ¢/kWh
Current Utility Rate Average	11.0 ¢/kWh
Estimated First Year Utility Savings	\$1,376 per year

Gross System Cost with Sales Tax \$92,000

Rebate Buy Down \$3.50 per STC Watt (assuming funding & approval) -\$37,200

Federal Tax on Rebate Buy Down \$13,020

\$0

\$0

Federal Tax Credit 30% Federal Investment Tax Credit in 2006 -\$27,600

MACRS Accelerated Depreciation See schedule below -\$31,182

System Cost After all Incentives \$9,038

Payback / Return on Investment

Year	Average Utility Rate ¢/kWh	Utility Savings \$/year	Net Utility Savings After Maintenance	Tax & Rebate Incentives	Cost / Payback Schedule
0				\$37,200	(\$54,800)
1	11.0	\$1,376	\$1,214	\$20,372	(\$33,214)
2	11.6	\$1,441	\$1,274	\$9,076	(\$22,864)
3	12.1	\$1,516	\$1,344	\$5,573	(\$15,948)
4	12.7	\$1,595	\$1,417	\$3,465	(\$11,065)
5	13.4	\$1,670	\$1,487	\$3,465	(\$6,113)
6	14.0	\$1,748	\$1,560	\$1,905	(\$2,648)
7	14.7	\$1,830	\$1,637	\$318	(\$694)
8	15.5	\$1,916	\$1,717	\$318	\$1,341
9	16.3	\$2,006	\$1,801	\$318	\$3,459
10	17.1	\$2,101	\$1,889	\$318	\$5,666
11	17.9	\$2,199	\$1,981	\$318	\$7,965
12	18.8	\$2,303	\$2,078	\$318	\$10,361
13	19.8	\$2,411	\$2,180		\$12,540
14	20.7	\$2,524	\$2,286		\$14,826
15	21.8	\$2,643	\$2,398		\$17,224
16	22.9	\$2,767	\$2,514		\$19,738
17	24.0	\$2,897	\$2,637		\$22,375
18	25.2	\$3,033	\$2,765		\$25,140
19	26.5	\$3,176	\$2,900		\$28,040
20	27.8	\$3,325	-\$3,373		\$24,667
21	29.2	\$3,481	\$3,188		\$27,856
22	30.6	\$3,645	\$3,343		\$31,199
23	32.2	\$3,816	\$3,506		\$34,705
24	33.8	\$3,996	\$3,676		\$38,380
25	35.5	\$4,183	\$3,854		\$42,234

Using a 6% cap rate this, project would likely increase your building's value by: \$22,936

MACRS Depreciation Schedule

Based on Net Cost minus 1/2 Fed Tax Credit	\$41,000
Federal Depreciation	\$27,370
State Net Depreciation (factoring federal taxes)	\$3,812

Year	State Net Depreciation	Federal Depreciation
1	\$318	\$5,474
2	\$318	\$8,758
3	\$318	\$5,255
4	\$318	\$3,148
5	\$318	\$3,148
6	\$318	\$1,587
7	\$318	
8	\$318	
9	\$318	
10	\$318	
11	\$318	
12	\$318	
TOTALS	\$3,812	\$27,370

Carbon Dioxide and Environmental Benefits:

Based on estimated production, this system will reduce emissions by:

245 tons of CO2 over 25 years

It's the environmental equivalent of:

798,323 miles not driven

or 4.2 acres of trees planted

Discussion and Q&A

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