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THE BUSINESS CASE FOR GREEN BUILDING

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Azimuth Energy Systems

A TriStar Properties Affiliated Company

ENERGY STAR PARTNER

Azimuth Energy Systems



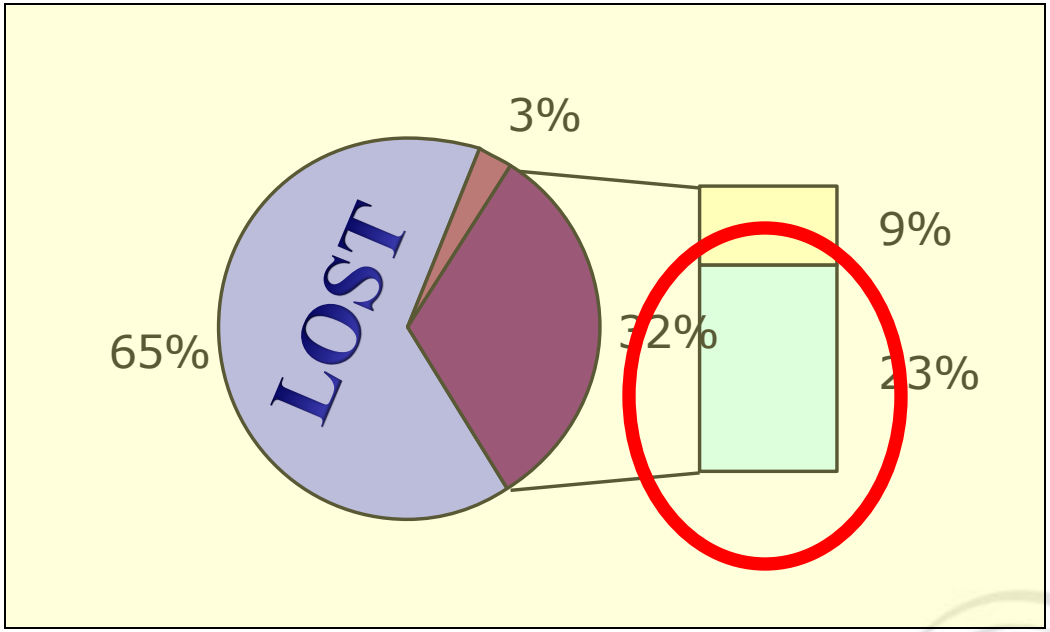

- Track record of successful project development since 1996.
- Developer on over $500M in commercial project value.
- Project team on over a dozen Energy Star and LEED projects, totaling over 10,000,000 square feet of commercial floor space.
- Project team on over 30 Megawatts of photovoltaic, wind, solar-thermal, and ground-source projects.

- St. Louis Cardinals
- Verizon Telecommunications
- Orange Country Water District
- McCormack Baron Salazar
- Citibank Citicards Division
- Clayton School District (K-12)
- BJC Healthcare
- Fontainebleau Resorts
- Harrah’s Entertainment
- St. Louis Country Club
- Fireman’s Fund Insurance
- Los Angeles Metropolitan Transportation Authority

THE BUSINESS CASE FOR CHANGE

- The way we use resources.
- The construction process.
- What we build.
- How we operate an existing building.
- The goods and services we buy to support our business.

Electrical Power Delivery



- Powerplant losses = 65%
- Transmission losses = 3%
- Building losses = 9%
- Available for building use = 23%

One unit of power not used has a much greater impact than simply its own energy.

THE ROAD AHEAD FOR ENERGY?

- Advances in global energy supply and technology.
- Shifts in politics and legislation related to climate change and carbon emissions.
- Public and shareholder perception about climate change.
- Changes in financial markets that impact energy markets.
- Energy will no longer be incidental to the operating statement.

How will your business, as it operates today, thrive on the future of energy?

How can you plan to manage that risk?

ARE YOU IN PAIN ?
WHERE DOES IT HURT ?

"Increasing fixed expenses are killing my profit margin."

"Our staff productivity is dropping and absenteeism is out of control."

"My shareholders want us to be more sustainable, whatever that is."

"Our vacancy rate is way too high and tenants are always complaining."

"The city wants us to build green to balance out our zoning variance."

ONE SIZE **DOESN'T** FIT ALL

✓ Owner occupied, long-term corporate headquarters.

- High occupancy and hours, high salary and benefits cost.

✓ Investment property, tax-driven exit strategy, full-service leased.

- Connection between capital investment and operating expense.

✓ Non-profit, government agency, or school.

- Naming a building versus keeping the lights on.

✓ Developer is flipping a triple-net leased building.

- Fully occupied - or - high vacancy rate?

FINANCIAL CRITERIA

Let's look at these project types:

- *Energy Efficiency Measures*
- *LEED and Energy Star certification*
- *Commissioning*
- *Renewable Energy*

… and these financial benchmarks:

- *Return on Investment (ROI)*
- *Net Present Value (NPV)*
- *Net Operating Income (NOI)*
- *Cap Rate*

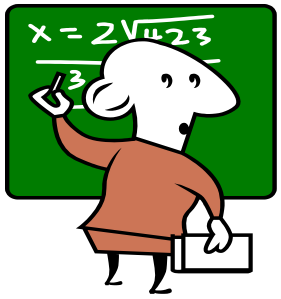
… with these assumptions:

- *Annual utility cost escalation of 3%.*
- *Project life of 15 years.*
- *Discount rate of 10%.*
- *Target cap rate of 8%.*

BUSINESS CASE FOR ENERGY EFFICIENCY

Bottom Line: *Invest 1% of the building value.*
Reduce energy consumption by 10%.
*Typical ROI **20% - 30%**. NPV is positive, **2-X** the investment.*

- Conduct energy audit.
  - Funding available from Ameren and Laclede Gas.
- Operational and behavioral changes, no/low cost measures, systems control & upgrades.
  - ROI can vary from 20% to 100+%
- Fund the upgrades through utility rebates, state loan programs, or performance contracting with an ESCO.



BUSINESS CASE FOR LEED CERTIFICATION

Scenarios: *#1 - Office building leased full service*
#2 - Corporate headquarters

$	15,000,000	100,000 sf new construction
	150,000	LEED premium
$	15,150,000	Total project cost

Typical expense costs	"LEED" Reduction
$ 2.00 / sf for Energy	20%
0.50 / sf for Water/Wastewater	20%
0.50 / sf for Insurance	10%

BUSINESS CASE FOR LEED CERTIFICATION

For BOTH scenarios --

Reduce **energy** consumption by 20% …

$ 40,000	Expected annual **energy** savings, **Yr-1**
$ 500,000	Resulting increase in building value
27%	ROI on LEED premium (energy only)

Reduce **water** consumption by 20% …

$ 10,000	Expected annual **water / MSD** savings, **Yr-1**
$125,000	Resulting increase in building value
33%	ROI on LEED premium (energy + water)

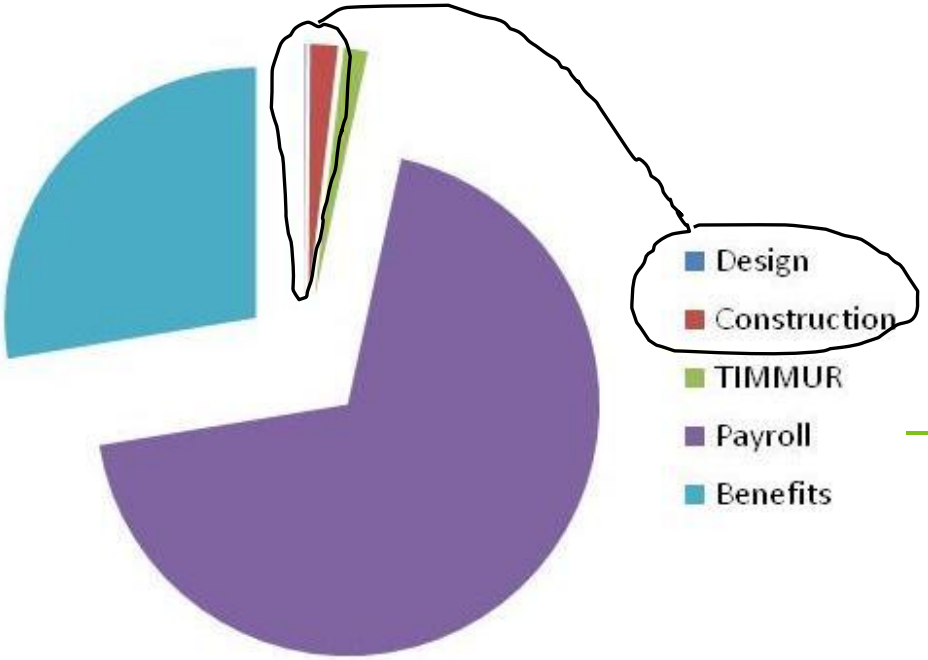
Net Present Value ~ $ 350,000 for **energy**
$440,000 for **energy** and **water**

Scenario #1: OFFICE BUILDING

$28/sf Rent (full service), incr. 2% annually

Adding a 2% **vacancy reduction** …
Increase **NOI** in Year-1 to $ 100,000
Increase in **market value** of $ 630,000
Increases the positive **NPV** to $ 930,000

Resulting increase in **Cap Rate** of about 0.7%



BUSINESS CASE FOR HIGHER "PRODUCTIVITY"

Design and Construction represents 2% to 4% of the life-cycle cost for a typical commercial building over a 20-year life cycle.

Office:	Increased productivity, lower absenteeism
Retail:	Increase sales per square foot
Schools:	Improved test performance
Factories:	Increased production
Hospitals:	Earlier discharge, fewer "oops" moments

Scenario #2: CORPORATE HQ

Assuming 500 full-time staff
Average salary of $36,000 plus benefits, with 2% annual COLA

$ 600,000	Annual value of reduced absenteeism *
680,000	Annual value of increased productivity (1/2 of CBRE value) *
$ 1,280,000	Increased NOI for the Company

Total positive NPV ~ $12,000,000

How would your board view that NPV on a $150,000 investment?

* Based on CBRE survey of 154 buildings, published 12/09/2009.

DON'T TAKE MY WORD FOR IT …

U.C. Berkeley Institute of Building and Economic Research, Fisher Center for Real Estate and Urban Economics; January 2009.

- Study of 10,000 certified and control buildings, under both LEED and Energy Star, comparing rents and selling prices.
- Selling prices of the "certified" buildings are on average 16% higher.

U.C. San Diego and CoStar; July 2008.

- Study of 643 certified and non-certified commercial buildings. All are Class-A, 200,000sf or larger, 5 floors or more, and built since 1970.
- Certified buildings enjoyed 3.5% to 4% greater occupancy, $2 higher rent (min), and 20% higher sale prices (min).

BUSINESS CASE FOR BUILDING COMMISSIONING

Bottom Line: *Invest $0.30 to $1.00 / sf.*
Reduce energy consumption by 16-13%.
*ROI **100% - 25%** in Year-1.*

- Commission “energy systems” in new construction.
  - Right-sizing (i.e., lower cost) of HVAC equipment.
  - Correct installation, setting, and operation.
- Retro-commission or re-commission systems in existing buildings.
  - Correcting accumulated faults and setting changes.
- Funding through Ameren Biz Efficiency program.

Tom Lillie, PE; Horizon Engineering.

Lawrence Berkeley National Laboratory; July 2009. Study of 643 buildings, totaling 100,000,000 sf.

BUSINESS CASE FOR BUILDING COMMISSIONING

ST. LOUIS REGIONAL U.S. GREEN BUILDING COUNCIL CHAPTER

BUSINESS CASE FOR RENEWABLE ENERGY

- “Provision Options” and financial performance.
  - Power Purchase Agreements (PPA’s)
  - Lease-to-own or initial capital investment
- Shift dollars from Income Statement to Balance Sheet
  - Higher property value
  - Lower operating expenses
  - Higher EBITDA / NOI
  - Greater depreciation
  - Higher cash flow

BUSINESS CASE FOR RENEWABLE ENERGY

Building floor area of 150,000sf

Average electricity rate of $ 0.07 / kWh

Electric demand charge of $ 4 / kW

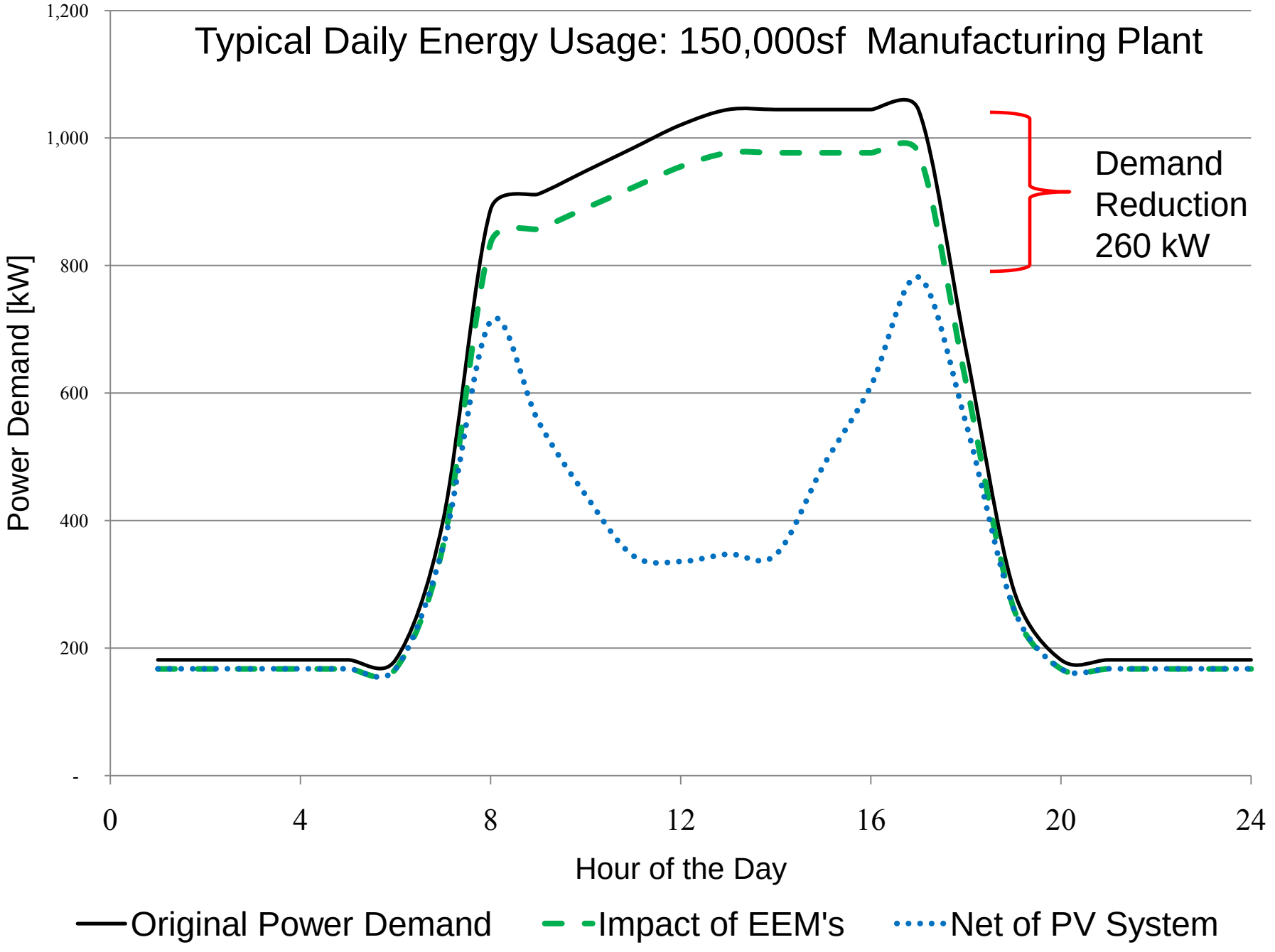
} Effective rate $0.09 / kWh

Natural gas rate of $0.40 / therm (annual average)

Annual energy cost of $ 300,000

<u>Scenarios: Renewable Systems</u>

1. 25 kW photovoltaic (PV) system
2. 1,000 kW PV system
3. 20kW Solar-thermal hot water system


Typical Daily Energy Usage: 150,000sf Manufacturing Plant
1,200
1,000
800
600
400
200
-
Power Demand [kW]
Demand
Reduction
260 kW
0
4
8
12
16
20
24
Hour of the Day
Original Power Demand
Impact of EEM's
Net of PV System

BUSINESS CASE FOR PV

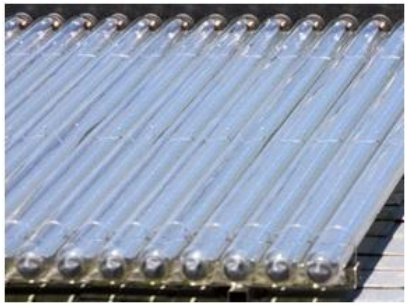
25 kW PV system in St. Louis

Produces 30,000 to 40,000 kWh of energy each year.
Utility energy consumption reduced by $3,300 in Year-1.
Typical system cost of **$55,000** after all incentives.

- 30% Treasury grant available through 2010.
- Sell the Missouri Solar Renewable Energy Credits (S-REC's).
- MARCS depreciation.

1,000 kW PV system in Tampa

Produces 1,400,000 to 1,800,000 kWh of energy each year.
Energy usage charges reduced by 10%.
Demand charges reduced by $75,000 in Year-1.
IRR of 15% or higher.
Can be an off-balance-sheet lease or Power Purchase Agreement.

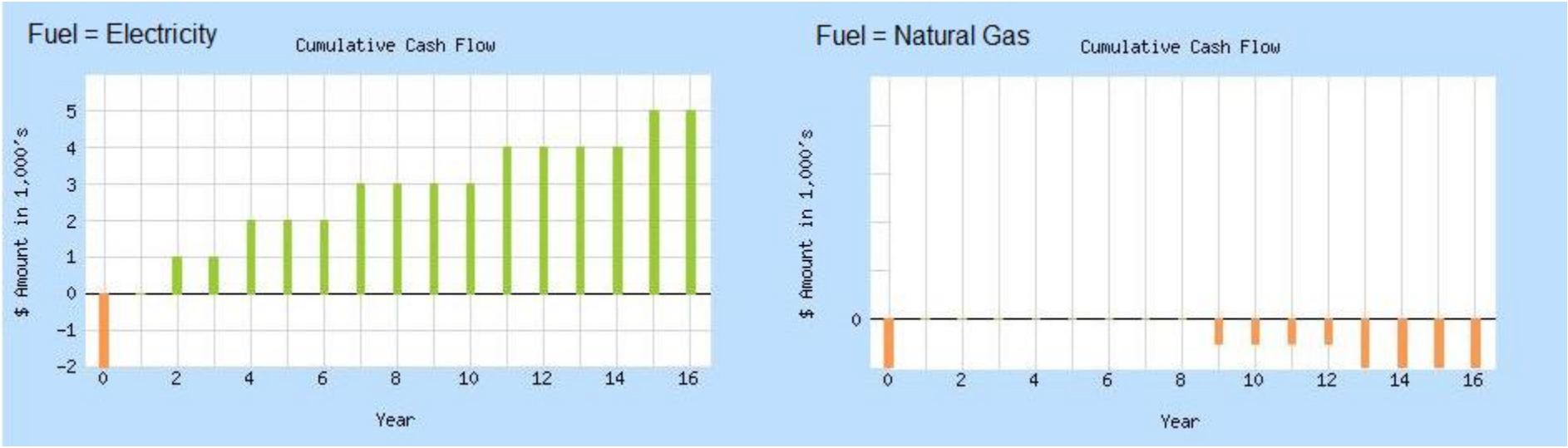


BUSINESS CASE FOR SOLAR-THERMAL

$ 15,000 system cost , after incentives. Reduces energy cost by $3,500 / year.
ROI range = 23% (all equity) to 100% (leveraged).

Solar-thermal makes sense if hot water is produced using:

- electricity, at a unit cost of $0.055 / kWh or higher; or
- ~~gas or oil at a unit cost of $0.80 / therm or higher.~~



BUSINESS CASE FOR RENEWABLE ENERGY

- Known utility rate structure for 20 years.
- Utility expense cost reduction of 5% to 10%.
- Risk management for carbon legislation.
- Reduced greenhouse gas production.
- Reputation as a steward of the environment.

INCENTIVES FOR ENERGY EFFICIENCY & RENEWABLE ENERGY

- Federal Commercial Energy Policy Act
- Ameren Biz Efficiency
- IRS R&D Tax Credit
- Missouri low-interest loan program.
- Treasury grants or Investment Tax Credit (ITC)
- Sale of Renewable Energy Credits (REC's)
- Ameren rebate.
- Laclede Gas rebate.

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Azimuth Energy Systems

We did not inherit the land from our ancestors – we are borrowing it from our children.

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What is the cost of debt service?!