

# 4<sup>th</sup> Annual Northern Ohio Energy Management Conference

## Developing Renewable Energy (RE) Resource Projects – The Business Case

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## Discussion Agenda

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- Energy Project Development – Hull’s Perspective
- Senate Bill 221 – Ohio’s RE Driver
- Grid-connected RE Projects
- Projects Connected “Behind-the Meter”
- Customer Benefits and Concerns
- Key Value Drivers
- The Business Case



# Hull's Perspective

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- Engineering and Environmental Services
- Seven Offices – Ohio, PA, IN
- Service Four Market Areas:
  - Urban Revitalization
  - Waste Management
  - Industrial
  - Energy



## Hull's Perspective (cont'd)

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- Our Approach to Renewable Energy
  - Owner-Developer
  - Feasibility Consultant
  - Design/Build Contractor to Utility or Developer
  - Environmental/Engineering Services to Owner
- Experience with:
  - Solar Power – ground and roof-top
  - Wind Power
  - Hydro Power – small scale
  - Biogas



## Renewable Energy Targets – SB221

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- SB221 Establishes New Renewable Energy Targets for Utilities
  - 12.5% of a utility's sales by 2025
  - 6000 MW of renewable energy
  - 600 MW by solar technologies
  - 5400 MW by wind, biomass and hydro
- One-half of Renewable Energy Resources Must be Sited in Ohio



# Grid Connected Renewable Energy Projects

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- Larger Scale Projects
- Power Normally Sold to Utility Company
- Involves Interconnection Agreement with Transmission Operator
- Normally Developed by National Renewable Energy Companies or Utilities
  - Juwi/First Solar - 10 MW for AEP
  - DPL to build own 750KW



## Projects Connected “Behind-the-Meter”

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- Behind-the-Meter (BTM) Projects
  - Built on the customer’s site
  - Customer has “free” fuel and available land
  - Energy is generated primarily for customer needs
- Technologies Implemented
  - Solar (roof-top and ground mounted)
  - Biomass such as Anaerobic Digestion
  - Landfill gas
  - Wind



# Customer Benefits & Concerns

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- Customers Benefits from BTM Projects:
  - Creating a hedge against rising energy costs
  - Alternatives for disposing of waste by-products
  - Meeting corporate sustainability initiatives
- Customer Concerns:
  - Many customer do not “want to be in the energy business”
  - Payback periods may not meet capital project requirements



## Key Value Drivers

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- Key Value Drivers:
  - Energy costs - the ability to offset retail rates
  - Federal tax and State tax credits and incentives
  - Sale of Renewable Energy Credits (REC's)
  - Customers may be able to offset certain waste disposal costs
  - Opportunities for cogeneration



# Access to Financing is Critical

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- Renewable Energy Projects are Capital-Intensive
  - Equipment and construction costs are significant investments for customers
  - Payback periods are often do not meet corporate guidelines
- Financing issues:
  - Length of development period and equipment supply availability
  - Uncertainty about availability of Federal & State incentives, grants etc..
  - Ability to realize tax benefit values
  - Uncertainty in valuing the Renewable Energy Certificates

# Renewable Energy Costs

- Solar project example:
- 50 KW solar PV roof-top system:
  - System Costs \$300,000
  - Expected annual energy production: 54,000kWh
  - Energy value @ \$.07/kWh = \$3,780/year
  - Payback without incentives is nearly 80 years





# Renewable Energy Incentive Values

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- Grants
  - Ohio Advanced Energy Grants
    - 50% of project costs up to \$150,000
    - Grant is taxable by the IRS
  - Federal Section 1603 grant
    - 30% of eligible project costs
    - Construction must be started prior to December 2010
  - Grants are typically paid out post completion.
- Depreciation
  - Accelerated depreciation ( 5 year MACRS) allows for tax deductions that can offset taxable income.
  - Projects completed by December 1010 can take bonus depreciation = 50% of project costs.



## Impact of Incentives

- Ohio Advanced Energy Grant \$150,000
- US Treasury 1603 Grant \$ 90,000
  
- Tax Depreciation Base
  - \$300,000 – (.5 X 90,000) \$255,000
  - First year ‘bonus’ depreciation \$127,500
- Tax impact
  - Taxable grant revenue \$150,000
  - Depreciation deduction \$127,500
  - Taxable Income \$ 22,500
  - Tax at 30% \$ 6,750



## Impact of Incentives

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<b>Project Construction costs</b>	<b>\$300,000</b>
Less:	
Ohio Advanced Energy Grant	\$150,000
US Treasury 1603 Grant	\$ 90,000
<b>Net before tax</b>	<b>\$ 60,000</b>
Tax Due	\$ 6,750
<b>Total Net Cost</b>	<b>\$ 66,750</b>

Payback is about 17 years, however, additional tax benefits due to additional depreciation deductions the payback can reduce the payback to 8 years.



## Renewable Energy Certificates – REC's

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- Every MWH of renewable energy generated qualifies for a REC.
  - Project must be registered with the PUCO and one of tow approved tracking organizations.
  - REC's are saleable commodities
- REC values are still evolving and driven by SB221 compliance payments and market supply/demand
  - 2010 \$400/MWH for solar & \$45/MWh for non-solar



## Renewable Energy Certificates – REC's

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- A 50 KW system will generate about 50 REC's per year.
- Assume REC prices are averaging \$250/MWH an additional \$12,500 in revenue can be generated.
- Combined with tax benefits the payback can now be reduced to 2-3 years.



# Impact of Incentives

<b>Total Net Cost</b>	<b>\$ 66,750</b>
Annual Energy Savings	\$ 3,780
REC Sales	\$ 12,500
Estimated tax benefit	\$ 5,800
<b>Total Annual Benefit</b>	<b>\$ 22,800</b>

**Payback is about 3 years**



## Financing Considerations

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- Third party ownership and purchase energy through PPA
  - Provides customer with energy price hedge
  - Does not require up-front capital investment
  - Takes customer out of the utility business
  - Still helps customer meet sustainability goals

## Conclusion

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- SB 221 Will Require a Significant Investment in Renewable Energy Resources
  - At \$3 million per MW installed (average), price tag for 6,000 MW is \$18 billion by 2025
- Customer Driven Projects Can Play a Major Role in Meeting this Challenge
- “Partnerships” are Critical to Success