



Implementing Renewable Energy Projects – the Financial Perspective

Cleveland State University
Energy Policy and Law

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Craig E. Kasper

Sr. Energy Consultant



Implementing Renewable Energy Projects

- Implementing Renewable Energy Projects – Three Key Questions
 1. Is it technologically feasible?
 2. Is it the “right” option for the common good (users, stakeholders, environment)?
 3. **Is it financially sound for all concerned-investors, owners and customers?**

Accounting for Revenue Streams

- Primary Elements to Consider in the Financial Perspective – **Revenue Streams**
 - Energy sales (power & heat)
 - Renewable energy credits (incentives)
 - Waste disposal fees (tipping fees)
 - End-product sales (fertilizer, animal bedding)
 - Federal & State tax credits



Accounting for Expense Streams

- Primary Elements to Consider in the Financial Perspective – **Expense Streams**
 - Land lease/purchase, right-of-way
 - Equipment and materials
 - Engineering, permitting, project bid process
 - Contractor labor, construction management
 - Cost of fuel (biogas plant, landfill)
 - O&M costs (cents/kilowatt hour)



A Case Study

- Solar power case
 - 90 kW solar power ground-mounted
 - Assume system will deliver full power 14-percent of the annual available hours
 - System will be connected “behind the meter” in a net metering configuration
 - System will displace $[90 \text{ kW} * 8760 \text{ hrs} * 0.14]$ or 110,376 kWhrs of electricity
 - Assume Ohio market for solar REC is \$0.02/kWhr.

Pro Forma w/o Public Sector Participation

Installed cost of 90kW solar power system (\$6000/kw)	\$ 540,000
Apply the Federal ITC grant @ 30 %	\$ 162,000
Net investment to owner	\$ 378,000 ←
Cash Flow Items	
-Energy displaced (\$.0.10/kwhr)	\$ 11,040
-Renewable energy credit (\$0.02/kwhr)	<u>\$ 2,208</u>
-Total Cash flow	\$ 13,250 ←
Simple ROI Calculation (Inv/cash fl)	28-yr. pay back

Pro Forma with Public Sector Participation

Installed cost of 90kW solar power system (\$6000/kW)	\$540,000
Apply Federal ITC grant @ 30 %	\$162,000
Solar Deployment grant @ 40 %	\$216,000
Ohio Advanced Energy grant @ 15 %	<u>\$ 81,000</u>
Total funding resources	\$459,000 ←
Net investment to owner	\$ 81,000 ←
Total Cash flow	\$ 13,250 ←
Simple ROI Calculation	6-year pay back

Key Message Points

- The Message for the Financial Perspective is:
 - Make sure all capital and O&M costs are included in the financial models
 - Account for all revenue streams **REALISTICALLY** in the financial models
 - State and Federal grants and incentives are key ingredients to grow renewable energy resources



What the Future May Hold

- In the future
 - Private sector funding will need to “fuel the renewable energy” efforts
 - As market grows, capital and installed costs will decline
 - Energy costs in the US will rise over the next 20-plus years
 - The role for renewable energy resources will become more defined and accepted
 - Stand alone micro-grids with self generation will become reality