EXISTING CONDITIONS: WITHOUT SMALL WIND SYSTEM

Usage | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4 | 609.4
Rate $/kWh | 0.130 | 0.136 | 0.143 | 0.149 | 0.156 | 0.164 | 0.171 | 0.179 | 0.187 | 0.195 | 0.204 | 0.215 | 0.226 | 0.238 | 0.250 | 0.264 | 0.279 | 0.295 | 0.312 | 0.330 | 0.350 | 0.371 | 0.394 | 0.410
Inflation rate | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% | 3.3%
Inflation factor | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033 | 1.033
Cost | $792.89 | $868.90 | $952.97 | $1044.95 | $1144.98 | $1254.97 | $1313.32 | $1375.19 | $1439.07 | $1507.65 | $1652.17 | $1730.81 | $1866.95 | $1985.20 | $2076.21 | $2176.27 | $2285.49 | $2398.20

ALTERNATIVE CONDITIONS: WITH SMALL WIND SYSTEM

AVERAGE WIND

- Wind generated kWh/yr | 1,900,000
- Wind system capacity | 10 kW
- Installed cost | $40,500
- Installed cost $/kW | $4,050
- Capacity factor | 0.0712

FINANCING: 50% OF INSTALLED COST IS A TAXABLE GRANT, TAX = 0.35 * $40,500 PLUS $20,250 IS BORROWED AT 6% /YR, INTEREST DEDUCTIBLE

- Levelized electricity over 25 years
- Total Paym
- Principal Paym

FINANCING: NO INCENTIVES

- Levelized electricity over 25 years
- Total Paym
- Principal Paym

EXISTING CONDITIONS: WITHOUT SMALL WIND SYSTEM

- Purchased electricity cost over 25 years
- Total cost of electricity over 25 years
- Cap'l cost
- Levelized cost of small wind power over 25 years

GENERAL NOTES:

- Electricity use is assumed at 6,094 kWh/yr
- Electricity rates are assumed to increase at 4.7% per year.
- Residential small wind system: Charlotte, Vermont, capacity 10 kW, installed cost $40,500, or $4,050/kW
- Capacity factor = (6,094 + 192) kWh/yr/(10 kW x 8,760 hr/yr) = 0.0712
- Small wind system life is assumed at 25 years, after which it may need to be upgraded/refurbished/replaced.

- Operating and maintenance, O & M costs are assumed at 0.05% of installed cost, inflating at 3% per year, & a percentage may increase as the system ages.

- Small wind system aging is assumed at 0.1% per year.

- O & M outages of small wind systems may be greater than assumed and their useful service life may be less than 25 years.

- Maintenance of a mast-mounted wind turbine requires lowering the wind turbine to grade, repairing and remounting, at least a one day operation with at least 2 people.

- Recycling and disposal costs were not included in this analysis.

- Wind system output is affected by csg, snow, too high winds, too low winds, wind variability, strength and duration.

- Small wind turbines, usually not at ideal sites, have low capacity factors. Wind turbines on ridge lines in Vermont may have capacity factors of about 0.30

- Small wind maximum rotor efficiency (wind power out divided by wind power in) is about 22%, big wind maximum is about 35% - 40%.

- Interest rate is assumed at 6%; loan amortized over 25 years. Loan starts on Jan 1, 2009

- Financing and other fees were not included in this analysis. Renewable energy systems are exempt from sales and property taxes in Vermont.