Use of Biogas for Electric Power

Net Metering versus Standby Rates
SC-3 Illustrative Example

Doug Lutzy
Department of Public Service
January 29, 2004
Background

September 17, 2002
- Governor signs 400 kW digester net-metering bill

December 2002
- Utilities file new net-metering tariffs

April 2003
- Utility digester net-metering tariffs take effect
Net Metering Administration

ζ Utilizes Standard Bundled Rate

ψ Monthly on-site kWh production displaces utility metered kWh sales to on-site loads

ψ Customer avoids fixed delivery costs (including CTCs) and supply costs otherwise recovered in tariff energy (per kWh) charges

ψ Monthly production in excess of on-site load
  ξ converted at tariff energy rate per kWh
  ξ creating additional monthly bill credits ($)

ψ Residual generation excesses are carried forward and eventually reconciled after 12 months @ utility’s avoided cost (ISO mkt. prices)
Standby Delivery Rates

**Commission Guideline and Objective**

- Transfer recovery of fixed delivery costs from standard volumetric (per kWh) rate elements
- Encourages displacement of utility on-peak delivery and supply services

**Standby delivery tariff rate elements:**

- **Customer** per month
- **Contract demand** per kW (paid monthly)
- **As-Used demand** peak hour* kW per day

**Energy service at standard tariff supply rates**

* As-used demand assessed only during on-peak hours
Anaerobic Digesters
Special Considerations

Operational Flexibility

*Not* based on comparative economics of generating electricity versus purchasing services from grid

Resolving waste management problem drives the generator operation

Operating digester and generator during utility off-peak rating periods is more valuable to farm customers than the opportunity to purchase lower cost electricity services from the grid
Illustrative Customer

Generator Characteristics
- Generator Size: 200 kW
- Energy production: 108,000 kWh/mo*

Customer Requirements
- Peak demand: 150 kW
- Energy: 79,200 kWh/mo**

* Assumes average operation at 140 kW
** Assumes average load of 110 kW
Standard tariff delivery bill
(assuming no generator)

ζ Monthly standard tariff bill*

ψ Customer Charge $ 260
ψ Demand Charges $2,250
ψ kWh (delivery) charges $1,270
ψ kWh (supply) charges $3,960

ξ Total monthly bill ~$7,740

* SC-3 demand @ $15/kW
   kWh: delivery @ 1.6 c/kWh + supply @ 5.0 c/kWh = 6.6 c/kWh
SC-3 Standard bill (derivations)

Customer Charge: $260

Demand Charges: 150kW $15 = $2,250

Residual Delivery: $2,510

kWh delivery: 79,200kWh $0.016 = $1,270

kWh supply: 79,200kWh $0.050 = $3,960

tariff rate per kWh: 6.6 cents
Net-Metered delivery bill

Monthly net-metered bill

Net Metered Energy* (28,800) kWh

Residual Standard tariff bill

Monthly Customer & Demand Charges only $2,510
Excess energy value @ tariff c/kWh rate - $1,900**

Adjusted (net-metered) bill $ 610

* generator met all of customer’s on-site kWh loads and sent 28,800 kWh back to grid

** excess energy valued @ 28,800 kWh X $0.066 = $1,900
Standby tariff bill

Monthly SC-3 Standby tariff bill

- Customer Charge: $646
- Contract Demand: $1,500*
- As-Used Demand: $0**

Total Monthly Standby bill: $2,146

* Assumes generator completely satisfies customer’s on-site electric loads during all on-peak hours (weekdays 8am-10pm) and off-peak hours; no utility supply service actually delivered.
## Monthly Bill Comparisons

### Net-Metered & Standby vs. Standard

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Net - Metered</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ 7,740</td>
<td>$ 610</td>
<td>$ 2,146</td>
</tr>
</tbody>
</table>

Ψ Net-Metered Savings vs. Standby Rates
ξ $1,536; 72%

Ψ Net-Metered Savings vs. Standard Rates
ξ $7130; 92%