Case Study:
Coffin Butte Resource Project

Northwest Landfill Gas Energy Workshop

April 10, 2002

Kevin Watkins

PNGC Power
Smart. Local. Connected.

Topics

- About PNGC Power
- Project information
- Project development issues
- Green Power marketing
- Emerging technologies

About PNGC Power

- Wholesale energy services cooperative
- 15 owner/member distribution systems
- 24\7 load monitoring & power scheduling
- Manage Owners' projects & activities
  - Coffin Butte Resource Project
  - Fuel Cell Demonstration Program
  - Microturbine Demonstration
  - Others

PNGC Power
Smart. Local. Connected.

Project information

- 2.5 MW landfill gas-to-energy facility
- 21,000 MWhrs/year energy generation
- 98% Capacity Factor (CF) operations
- Conversion technology:
  internal combustion (IC) engines
  (also termed “recip” engines)
- Commercial operations: October,1995

PNGC Power
Smart. Local. Connected.

Project information (cont.)

PNGC Power
Smart. Local. Connected.

Project information (cont.)

PNGC Power
Smart. Local. Connected.

Project information (cont.)

PNGC Power
Smart. Local. Connected.

Project development issues: *public perception & acceptance*

- Air quality?
  Reduced fossil-fuel usage
- Recycling programs?
  No impact on recycling goals
- Community impacts?
  Orderly operations, odor control
- Desirable energy project?
  Renewable resource

PNGC Power
Smart. Local. Connected.

Project development issues: *permitting*

- Conditional use (land use) permit
  - noise abatement
  - odor control
  - appearance
- **Air quality permit: extensive computer modelling of pollutant impacts**
- *Suggestion: Start early, involve public & public interest groups*

PNGC Power
Smart. Local. Connected.

Project development issues: *electrical integration*

- Electrical interconnection with local utility
  - adequate capacity of power lines
  - match voltage (transformers)
  - reactive power correction
- System protection
  (e.g., protective relays and relay settings)
- Operations coordination
  (e.g., outage notifications)

Green power marketing: *corporate support*

- Management commitment
- “Customer service” perspective
- Adequate financial resources
- Incorporation into strategic planning

PNGC Power
Smart. Local. Connected.

Green power marketing: *market (load) analysis*

- Objective: determine market (load) size
  - current situation
  - future conditions
- Method: **survey retail customers**
- PNGC Power survey: *"Pay 10% more for renewable energy??"*
  - 7% - YES
  - 24% - MAYBE

PNGC Power
Smart. Local. Connected.

Green power marketing: *integrated marketing plan*

Goal: educate and inform retail customers

- costs & sources - current power supplies
- costs & sources - renewable resources
- environmental impacts - ALL resources
- benefits of “environmentally preferred” renewable resources - (less reliance on fossil fuels, lower air emissions, etc.)
- renewable “credentials” of LFG

PNGC Power
Smart. Local. Connected.

Green power marketing: *integrated marketing plan (cont.)*

- Message: “green power support”
  (NOT “green power delivery”)
- Message specifics
  - **Directing** $’s to renewable resources
  - **Displacing** thermal/hydro operations
  - **Promoting** additional renewable resource development

PNGC Power
Smart. Local. Connected.

Green power marketing: *integrated marketing plan (cont.)*

- **Simple** pricing mechanism
  - understandable for retail customers
  - manageable for billing department
- Retail marketing materials
  - informational brochures, media articles
  - “bill stuffer” - insert to retail bills
  - fulfillment piece - provides more information to interested customers

PNGC Power
Smart. Local. Connected.

Emerging technologies

- Possible alternatives to IC engines
- **Potential** advantages
  - smaller sizes (generating capacity)
  - reduced O&M costs
  - ***lower NOX emissions***
  - simplified permitting & siting
- Promising technologies:
  - microturbine
  - fuel cell

Emerging technologies: microturbine

PNGC Power
Smart. Local. Connected.

Emerging technologies: fuel cell

PNGC Power
Smart. Local. Connected.