

# **APEX Power Services Corporation**

**Presentation**

to

**Landfill Methane Outreach Program**

**Baltimore, Maryland**

**January 10<sup>th</sup>, 2005**

# About APEX

- An independent energy consultant and advisor
- Experienced in all phases of *retail/wholesale* energy
- Experts in leading-edge energy purchase/supply options
- Knowledgeable in energy regulatory policies/procedures
- Represents mid & large energy consumers/producers in 30 states and Canada
- Leaders in identifying revenue enhancement opportunities for all type energy sources
- Providers of “expert testimony” at state & federal levels

Provides “*Complete Energy Solutions*”

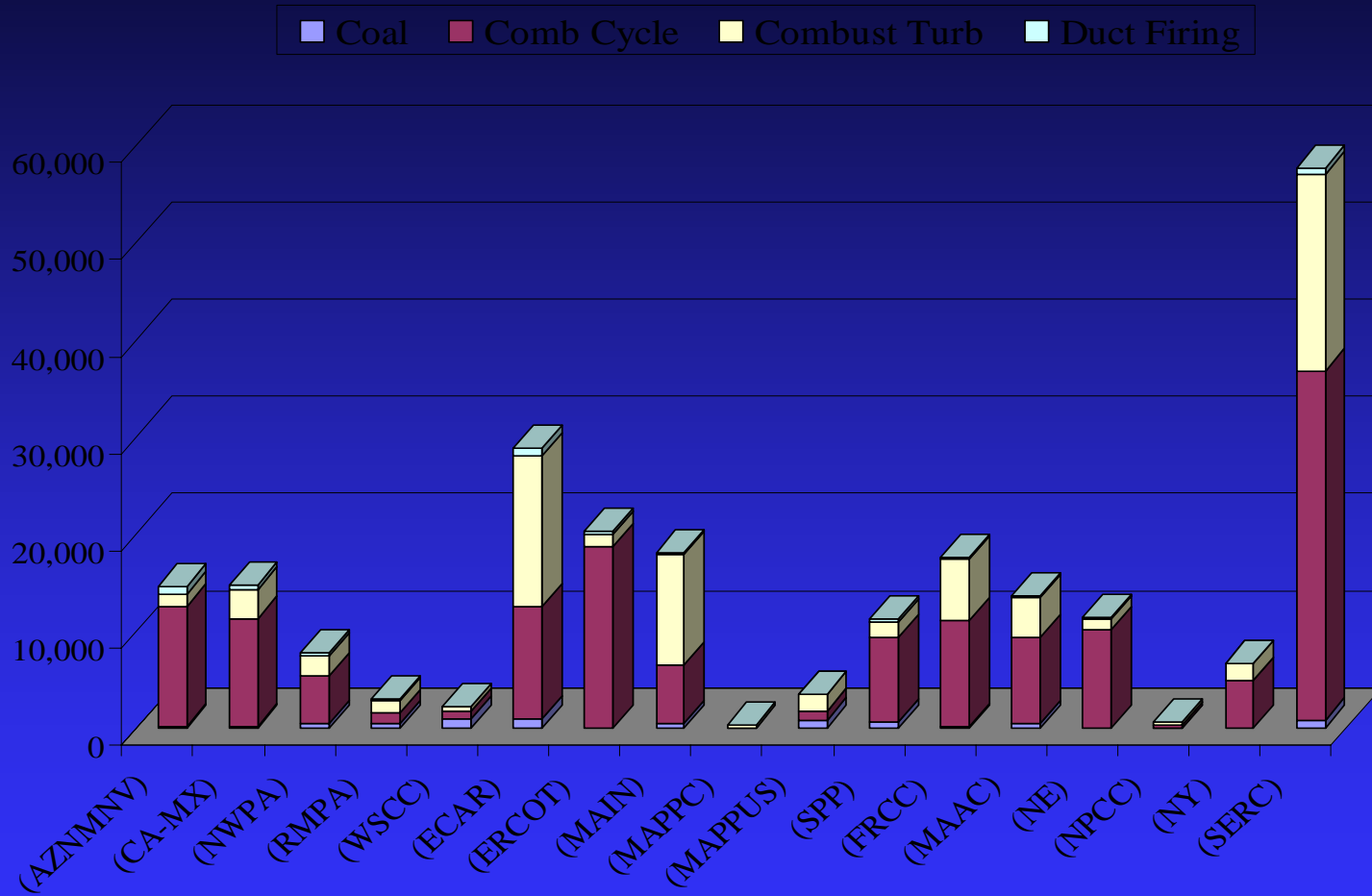
# Current Energy Industry Market Conditions

- Very high natural gas prices (implications for coal?)
- Natural gas demand outpacing domestic supply
- NYMEX NG Futures 18 Mth Strip @ \$6.50/mmBtu
- Shortage of “low cost” energy resources (coal/nuclear)
- *Majority of new electric generation is natural gas fueled*
- Serious energy sector credit/credibility issues
- Fewer market participants – ongoing consolidation
- Electric generating capacity glut in some areas
- Volatile market prices and illiquid markets
- *Increasing demand for green/renewable energy*
- Advantages to “credit worthy” customers
- Little interest in exposure to new merchant plant capacity

# Market Issues & Opportunities

- Large electric utilities can dominate market opportunities
- Asset purchases by financial institutions & host utilities
- Strategic energy companies losing to financial institutions
  - ◆ Merrill Lynch, CSFB, JP Morgan
  - ◆ Who benefits – short/long term?
- Distributed Generation – Value of voltage support
- Alternative Generation – Interconnection costs?
- Fuel diversity and security of supply concerns
- Environmental obstacles forcing fuel choices
- “Renewable” energy portfolio standards (RPS)
- Green energy resources
- Tradeable non-energy attributes of renewable/green

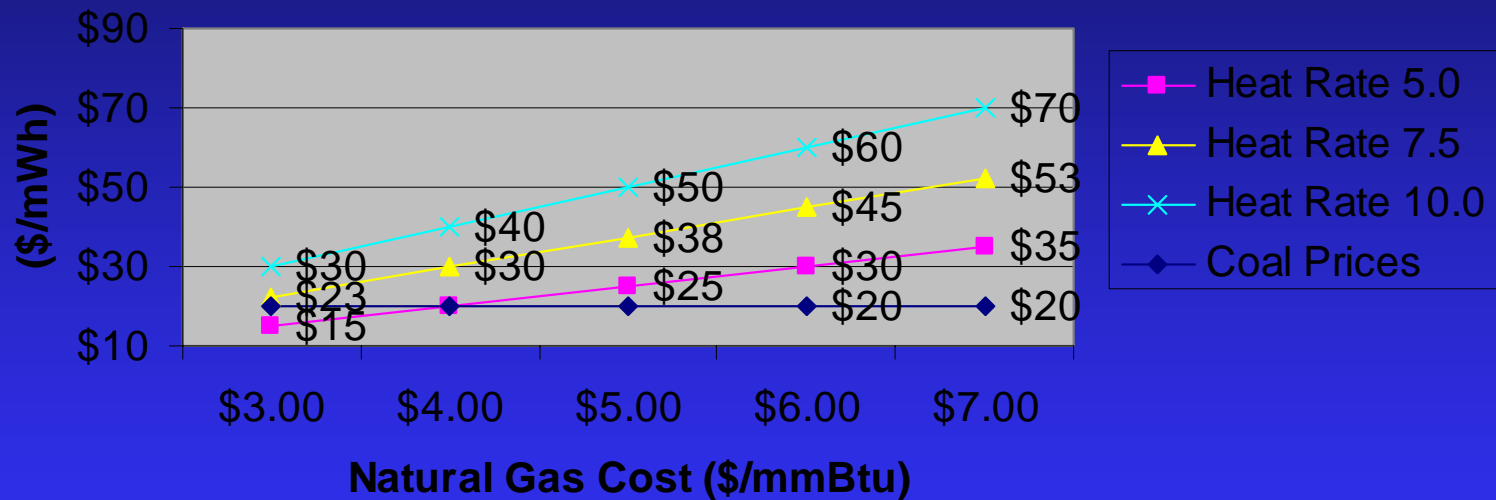
# New Generating Capacity



# Excess Generating Capacity

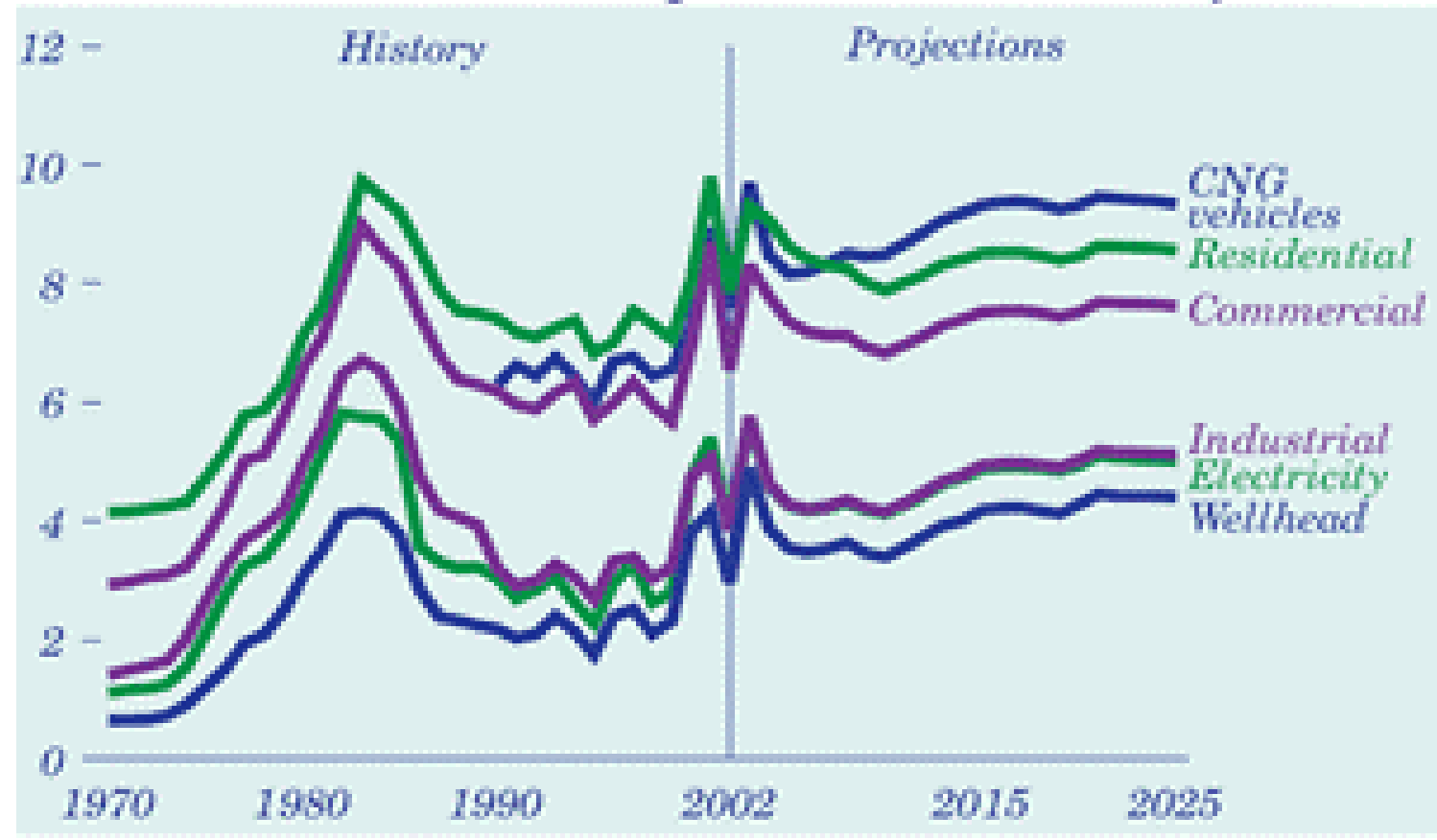
- Some large markets over-built with 25-40% excess
- Projected electric growth rates reduced
  - ◆ higher energy prices
  - ◆ economic/manufacturing slowdown
- Merchant electric sales market may be severely overbuilt
- Transmission constraints contribute to market inefficiency
- Utility generators continue to hold an unfair advantage over non-utility generators
- *Long term market outlook of soft prices and thin margins*

# Generation Prices & Heat Rate



# Natural Gas Prices

*Figure 86. Natural gas prices by end-use sector, 1970-2025 (2002 dollars per thousand cubic feet)*





# Maximizing Landfill Gas “Asset” Value

## ■ Direct sales of LFG

- ◆ low Btu gas
- ◆ pipeline quality gas

## ■ Indirect sales of LFG

- ◆ Conversion to thermal energy
- ◆ Conversion to electricity
  - ◆ Sale to electric marketplace
  - ◆ Direct sale to customer
  - ◆ Direct sale of commodity
  - ◆ Financial “green tag” sale to third party

# Direct sale of low Btu gas

- Low capital costs
- Least complex - both technically and commercially
- Projects can be operational within 6-9 months
- Can be used at the site of purchase for electric and/or thermal generation
- Sale price typically discounted to NG market
- Limit on distance of end user from site - dependent on volume, interconnection costs, R of W, etc.
- Single buyer financial risk and long term viability of purchaser may be problematic

# Direct sale to pipeline quality gas

- Higher capital costs
- Moderately complex - both technically and commercially
- Project can be operational within 9-12 months
- Sale price typically indexed directly to NG market with multiple buyers available
- Abundance of financial options available including fixed payments & monetization
- Higher operating costs due to the greater complexity of compressor and gas clean up equipment
- Pipeline and/or LDC “support” may be a minimum requirement for project success

# Electric Sale Options

- High capital costs (reciprocating and turbine engines)
- Greatest complexity - both technically and commercially
- Project can be operational within 12-18 months
- High fixed and variable operating costs
- Fixed capital costs at approximately \$21/mWh
- Purchasers limited and may be constrained due to local electric utility T & D upgrades & wheeling costs
- Electric utility interconnection and support a “must” - otherwise project may not be economically viable
- Purchasers likely to require “performance” guarantees

# Electric Sale Options (cont.)

- Direct sale may be an option - but regulatory and commercial issues can be very cumbersome
- State commissions may require “Jurisdictional Determination” prior to the start of construction
- Sophisticated lease/ownership structures may be a minimum requirement for direct sales in regulated states
- Purchasers of “green tags” may not have sufficient credit rating for project financing purposes
- Green tags may be monetized for up-front cash but likely at severe discounts dictated by the marketplace

# Energy-Based Financial Products

- Synthetic commercial structures may be applicable to some LFG electrical generation projects
  - ◆ Regulated & unregulated utility areas
  - ◆ Heat rate & fixed price agreements with base price minimums available
  - ◆ Products offered by financial institutions & energy trading companies
  - ◆ Allows LFG owners to hedge revenue streams against volatile fuel prices
  - ◆ Multiple of products based on variables such as individual risk profiles and market characteristics

## Energy-Based Financial Products (cont)

- ◆ Renewable energy resource such as LFG can be used to hedge against rising energy prices
- ◆ LFG converted to pipeline quality then traded for other products such as diesel fuel
- ◆ LFG can be monetized for up-front cash to build generating plants or LFG piping system
- ◆ LFG may be swapped for “potential” Production Tax Credit at nearby electric generating station
- ◆ Countless options to maximize LFG value

# Other Options for Landfill Gas

- Micro turbines for on-site load
  - ◆ Reliable and relatively easy to operate
  - ◆ Clean and efficient
  - ◆ Package units simplify installation
  - ◆ Lease options available
- Joint venture with third party interested in a low cost fuel source
- Outsource all services but retain ownership and control of project



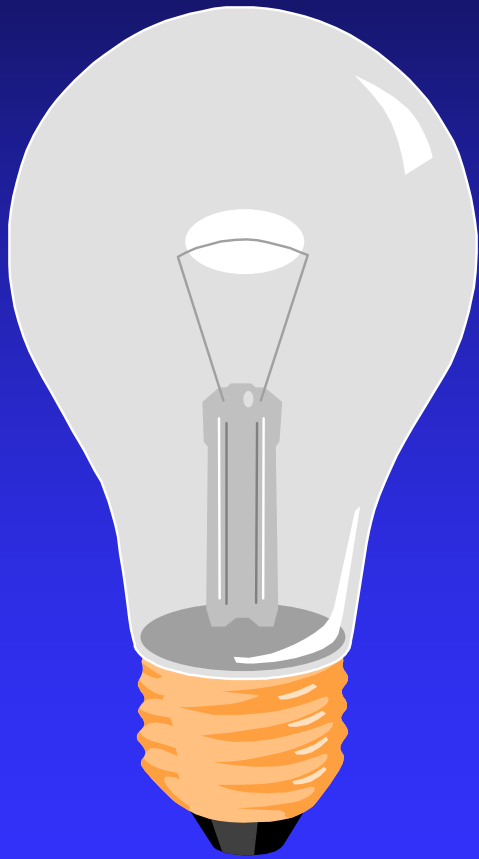
# Overall – Opportunities Do Exist

- The sky's the limit – many attractive arrangements may be possible in today's rapidly changing market
- Thoroughly understand available options and risks
  - ◆ technical feasibility
  - ◆ financial impacts and viability
  - ◆ long/short term risk-reward
- Fully research long term energy and green tag markets prior to closing any deal (e.g. be informed and cautious)
- Seek “independent” advice tailored to your situation
- Challenge your energy partners to provide competitive, “market priced” products and services

# Recommendations

- ◆ Be pro-active energy consumers and producers
- ◆ Understand the markets and the opportunities
- ◆ Be aware of current market prospects/options
- ◆ Stay informed of activities affecting LFG
- ◆ Support policies favorable to LFG/renewables
- ◆ Participate in processes affecting LFG options
  - ◆ State PSC proceedings
  - ◆ FERC proceedings
  - ◆ Legislative activities

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