Praxair at a Glance

Fortune 500 company – 2004 sales of $6.6 billion

One of the 3 largest industrial gases companies in the world; largest in No. & So. America

Operations in 40 countries

27,000 employees

One million customers
Products

Atmospheric gases
• Oxygen, nitrogen, argon

Process gases
• Hydrogen, helium, carbon dioxide, specialty gases
Praxair
Uses of Industrial Gases

- Production
- Efficiency
- Capacity
- Quality
- Environmental
Industrial Gases Markets

Aerospace  4%
Chemicals  11%
Electronics  8%
Energy  8%
Food & Beverage  9%
Healthcare  11%
Manufacturing  22%
Metals  15%
Other  12%

Praxair Revenue $ by End Use Market
Electricity Expenditures

Up to 75% of variable costs

$500 Million
Air Separation

- Filter It
- Compress It
- Cool It
- Distill It
Customer Categories

- On-Site
- Merchant
- Package

Importance of Inventory
PRAXAIR IN U.S. AND CANADA

Merchant Plant Locations

51 Liquid Plants – Total Capacity over 19,000 tpd

99% electricity to motors

X,000 HP

10-25 MW
Development of Operating Flexibility

- Ability to Shut Down / w/o problems
- Manage logistics, wear & tear
- Net Benefits
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- Rangeability
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- Rangeability
- Cultural Implementation Challenges
  - Originally widespread concerns
- Internal Coordination and Selling
Enhanced Production and Sourcing

- Enhanced Technology Implementation
- Improved Inventory Metering / Management
- DR good time for Plant Maintenance
- Widespread Watts-Transducers / Telemetry
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- Performance KPIs
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- Performance KPIs
- Optimization Programs – Multi-cost/plants
  - Minimize Costs / Reliable Supply
  - TOU / Interruptible / DR considered
- Decision Support Systems / Advances
  - Improve planning, response, efficiency
Demand Response Opportunities

- Diversity of Experience

- Goals for DR:
  - Should have all Opportunities of Generation
  - Should be Fairly Compensated
  - All Qualified Load should be Eligible
DR should have all Opportunities of Gen to Provide Energy, Capacity, A/S

- One but not the Other (or none)
- Objections of Generators
- DR gets lower priority
- Talk but no action
  - Mentioned in tariff
  - Not integrated / compensated
  - Unreasonable requirements
DR should be Fairly Compensated for its Economic and Reliability Value

- Minimum Prices and Durations
- No Generation Offsets
- Ease of Use / Automation
- Permanency / Incorporate in Tariff
- Maintain good existing programs
- Full value to Load / No stranded cost
All Qualified DR Load should be Eligible

- Barriers to Entry
- Federal/State Regulatory Conflicts
  - “One hand clapping”
- Encourage DR where there is none
  - No DR need and no capacity avail ?!
- DR resource can serve multiple needs
Making Our Planet More Productive