ELECTRICITY RESTRUCTURING:
WHAT WENT WRONG/WHAT WORKED RIGHT?

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ENERGY CONVERGENCE

WHOLESALE

RETAIL

TRANSMISSION

& DISTRIBUTION

COMMUNICATIONS

MIDSTREAM

- $29 Billion Revenues *
- $21 Billion Assets *
- $16 Billion Equity Market Value
- 5,900+ Employees

- 19,100 MW Generation Control
- 11 Bcf/d Natural Gas Sales *
- 138 MM MWh Produced & Sold *
- 565 MBbls/d Liquids Sales *

* Year End 2000
"OPPORTUNITY" IN SHORT MARKETS*

**TOTAL U.S.**
-44,500 mw ‘01
-36,500 mw ‘02

- WSCC
  -13,700 mw ‘01
  -15,500 mw ‘02

- NYPP
  +1,700 mw ‘01
  +3,400 mw ‘02

- NEPOOL
  -5,400 mw ‘01
  -4,900 mw ‘02

- MAAC
  -4,000 mw ‘01
  -1,900 mw ‘02

- Midwest / Southeast
  -24,100 mw ‘01
  -22,900 mw ‘02

- FRCC
  -6,800 mw ‘01
  -5,500 mw ‘02

* Projected capacity deficits based upon NERC data and Dynegy estimates

_owned / equity
Pending Acquisition
In-Construction
Recently Announced
Managed / Contracted
California Basics: What Did Happen?

- Supply/Demand imbalance
- Market structure flaws
  - Resort to spot/real-time markets for entire load
  - Price caps and other machinations
- Little new supply
- Growth and drought in West
California Growth Statistics 1990-99

- **Economic and Demographic**
  - Employment: +12%
  - Population: +16%
  - State Economy: +45%
  - Electronics and Instruments Industry: +62%
  - Communications Industry: +80%

- **Energy**
  - Nat. Gas Use: +6%
  - Electricity Use: +9%
  - Peak Demand: +15%
  - Peak Demand in Silicon Valley: +33%
  - Power Generation Capacity: +2%

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- Electricity use from 1990-1999 (Source: CEC)
- Peak Demand from 1990-1999 (Source: CEC)
- Gas use from 1990-1997 actual (Source: EIA); 19; Silicon Valley Growth from Los Angeles Times, 1/8/00.97-1999 assumes average growth rate from 1990-1998
Generation Additions in the Western Interconnection 1980-1999

- 1980-1989: 33,305 Megawatts
- 1990-1999: 10,655 Megawatts
LESSONS LEARNED - Dynegy’s Perspective

- Do not confuse bad results with bad acts
  - prices increase when demand increases and supply does not
  - prices increase when production costs increase
  - since electricity cannot be stored, supply and demand must be balanced in real-time
  - electricity is produced in many different ways; the cost structure for electric production varies considerably
LESSONS LEARNED - Dynegy’s Perspective

- Markets work best with many buyers and many sellers
  - California demand is dominated by a few very large players (whose decisions were affected by the goal of stranded cost recovery)
  - the difficulty in developing and siting new projects in California constrained the supply side of the market
  - the centralized nature of the California market did not encourage innovation
What to Do?

- Short-term -
  - Get as much energy out of the real-time market as possible
  - Increase supply however possible
  - Decrease demand
    - Raise consumer prices (9% demand reduction when SDG&E raised prices = 4,000+ MW statewide)
  - Revert to 2000 Emissions Limits
  - Fix financial uncertainty problem
  - Develop a viable means of returning utilities to solvency
  - Moderate political rhetoric
What to Do?

- Long-term
  - Encourage new supply
  - Infrastructure improvements
    - Gas delivery in California
    - Transmission – Path 15
    - Generation siting
  - Restore credit and credibility to markets
  - Demand response
  - Wholesale market improvements
    - Regional RTOs
  - Regulatory certainty
KEY ISSUES IN RTO DEVELOPMENT

- Eliminate Vertical Market Power
- Ensure Comparability
- Provide fair & open Interconnection Procedures
- Market-driven Congestion Pricing
- Mitigate Seams Issues
Vertical Market Power

Why RTOs:
- FERC concluded that:
  - “opportunities for undue discrimination continue to exist that may not be remedied by functional unbundling”
  - RTOs will remedy this impediment to competitive markets.

Manifestations
- Lack of access to transmission, curtailments, TLRs
- Discriminatory interconnection procedures
- Lack of trust that transmission customers are being treated fairly
Comparability

- Follow the Order No. 636 gas model
- RTOs alone do not “put all uses on the tariff”
- FERC Staff Report: *In order to improve the incentives for open access transmission, Commission should require native load to be served under the same tariff provisions as all other transmission services*
Interconnection Issues

- Multiple benefits of merchant generation
  - enhances competition
  - promotes diversity in products and services
  - mitigates market power of incumbent utilities
  - contributes to overall market liquidity

- RTOs should be the doorkeeper of fair, open and consistent interconnection procedures
Congestion Pricing Principles

- CM proposals should be designed to satisfy the needs of the market, not be the “market”

- CM proposal should be judged whether they satisfy the needs of customers, including:
  - liquidity
  - certainty of price
  - certainty of delivery
  - transmission flexibility
Function 8 - Interregional Coordination

- Heightened recognition of regional markets
- Multiple uncoordinated efforts to solve seams issues
- Need for FERC to take a very active role in accomplishing Function 8
- Investments are being made; stranded costs are accumulating
The Premise: Efficiency Gains from Competition Reduce Retail Prices

U.S. Energy Information Administration projections (a penny is $34 billion per year):

Higher price is no competition.

Middle price is competition with stranded costs allowed.

Lower price is competition with no stranded costs.

Significant Long-Term Benefits.
Retail Market Conundrum # 1

Generation
Supply-Demand
Balance

“Supply Deficit” ←
↓
Marginal Cost > Embedded Cost
↓
Can’t Beat Shopping Credit
↓
No Competition

→ “Supply Surplus”
↓
Sets Stranded Costs
↓
Neutralizes Savings
↓
No Competition
Retail Market Conundrum # 2

Utility
Generation

Utility Keeps ←
→ Utility Sells

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Utility Acts Like
Integrated Monopoly*

No Competition

Utility Can’t Supply
at Embedded Cost

Price Volatility**

* At least until wholesale price exceeds shopping credit.
** At least at wholesale level (load serving entity can hedge).
What’s Right

- Regional Markets are developing
- New Supply is being added
- Price signals are being sent
- Promising innovations in the field of renewables, distributed generation etc.
- Increase in the number and sophistication of market players
- **Need to remember** - Restructuring does not happen overnight