The Future of DSM in a Competitive Electricity Market

Security

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**Security vs Reliability?**

**Auckland:**
In early 1998 a series of failures occurred in the underground cables providing electricity to the central business district (CBD) of Auckland. As a consequence much of the CBD of Auckland was blacked-out for a significant period.

- Reliability issue

**California:**
The crisis began emerging in June 2000.
Complete ‘disjoint’ between wholesale market price and the retail price.
Result - insufficient generation to meet demand

- Security issue
Can the Demand Side improve security of energy supply?
- Finland: 330 MW
- Norway: 220 MW
- Sweden: 130 MW
- Spain: 1,750 MW
- UK: 480 MW

Creates two-sided markets
- helps to constrain market power
Competitive Electricity Markets

Prior to Liberalisation:
- Fixed energy rates
  - Customers ‘isolated’ from real-time price of electricity
- Engineering led approach
- Cost-plus pricing
- Prescribed power quality

Liberalised Market Characterised by:
- Real-time pricing for electricity
  - Innovative pricing
- Removal of subsidies
- Disaggregation of responsibilities
- ‘User pays’ power quality
“Outages cost facilities an average of $4,000 to $11,000 each, although many end users suffer much greater losses. For example, one semiconductor manufacturer reports that a single five-second outage could cost the company $12 million in lost production alone - the equivalent of its entire annual electricity bill.” - E-Source, May 1999
In early to mid 1990’s:
many programs closed to new customers or eliminated

Reasons:
– belief in availability of adequate capacity
– lack of incentives
  • regulatory
  • pricing
And Now?

Demand management now growing in importance
- NYISO
- NE-ISO
- PJM
- California

Reasons:
- response to real and perceived shortages of capacity
Integrated Resource Planning

- Identifying the best electricity supplies for the best price
  - worth vs cost
- Look at both generation and demand side resources
  - renewables
- US - FERC
- Europe - directive rejected by member countries
The Issues?

- How to value demand side response?
  - avoided network losses
  - deferred investment
  - avoided generation costs
  - environmental costs
  - retail costs
- How to involve all consumers
  - focus has been on large consumers
- Customer retention
  - the need for intermediaries / aggregators
- Impact of embedded generation
- Security market?