HARVARD ELECTRICITY POLICY GROUP

SPECIAL SEMINAR

ON

RELIABILITY, CAPACITY REQUIREMENTS AND THE OBLIGATION TO SERVE IN A MORE COMPETITIVE MARKET

REMARKS

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RELIABILITY: HOW AND HOW MUCH?

"HOW MUCH" is an important concept

- *All energy services have reliability attributes*

- *Tendency to think of reliability in historical context clouds the discussion*

- *Customer needs to decide reliability requirements*

- *Two problems:*

  - *Visibility to the customer of the reliability characteristics of potential supplies*

  - *Prevent "leaning"*

RELIABILITY CHARACTERISTICS

Distribution; depends upon:

- *Facilities and their maintenance*
- *Availability of transmission and power sources*

Transmission; depends upon:

- *Facilities and their maintenance*
- *Availability of power sources*

Availability of transmission and generation; depend upon:

- *Long range - planning and resource commitments*
- *Short range - scheduling, maintenance and system conditions*

BULK POWER RELIABILITY: HOW MUCH?

HISTORICALLY

- *Planning based upon 1 day in 10 year loss of load exception*

- *Operations managed available generation and transmission to protect integrity of bulk system on a deterministic protocol*

FUTURE

Customer should have choice. However;

- *Benefits of resource pooling need to be available and they require a planning structure*

- *Entities with obligation to serve (by franchise or contract) must be able to assure compliance*

- *Entities not participating in pooling commitment must not undermine attaining pooling objectives*

RELIABILITY: HOW?

- *My remarks are in the context of the PJM Power Pool*
- *ASSUMPTIONS:*
  - *Regional grid transmission services*
  - *Independent regional grid operator (ISO) that economically dispatches resources available to participate in economic interchange*
  - *Regional operations permits bi-lateral transactions and self-scheduling of owned resources*
- *REGIONAL LOADS ARE SELF DEFINING AS EITHER FIRM LOADS OR NON-FIRM LOADS*
- *REQUIREMENTS FOR FIRM LOADS:*
  - *Commit sufficient generation to meet firm load customers' requirements for reliability*
  - *Reserve transmission services sufficient to deliver (under planning conditions) from committed generation to firm load*

RELIABILITY: HOW?
(continued)

- *Go it "alone"; i.e., not take part in regional pooling (reserve sharing) agreement - load must match output of designated generation during generation shortages, or*

- *Participate in Regional Pooling Agreement whereby signatories agree on:*

  = *Reliability objectives*
  = *Obligations to participate in planning process*
  = *Generation and transmission obligations*
  = *Reserve sharing obligations*
  = *Coordination of maintenance*
  = *Sharing of load shedding when required*

- *NON-FIRM LOADS MUST BE FULLY CURTAILED/ INTERRUPTED AT A PRE-DETERMINED PRICING SIGNAL*

- *TRANSMISSION OWNERS OBLIGATED TO EX-PAND REGIONAL GRID WHEN NECESSARY TO SUPPORT RELIABILITY OBJECTIVES OF FIRM LOADS*