

*Demand Response in the
PJM Marketplace:
Summer 2002 Results*

October 9, 2002



PJM Demand Response Programs

- ACTIVE LOAD MANAGEMENT PROGRAM (ALM)
 - Long-standing program of PJM and Member Companies
 - Provides capacity payments to load in return for agreement to curtail during system emergencies
 - Severe penalties for failure to curtail
 - Program administered through state tariffs and contracts while capacity payments through PJM Reliability Assurance Agreement (RAA)
 - Metering requirements

- PJM Emergency Demand Response Program
 - Payment to load of higher of LMP or \$500/mwhr
 - Called by dispatcher before loading of maximum emergency generation
 - Costs borne by all PJM market buyers to the extent they are short compared to their day ahead purchases

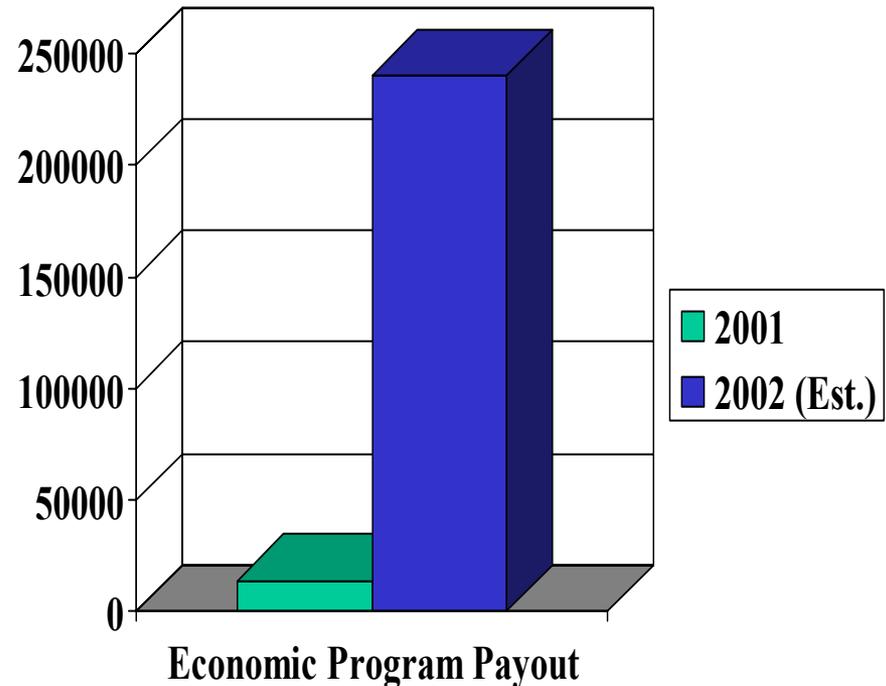
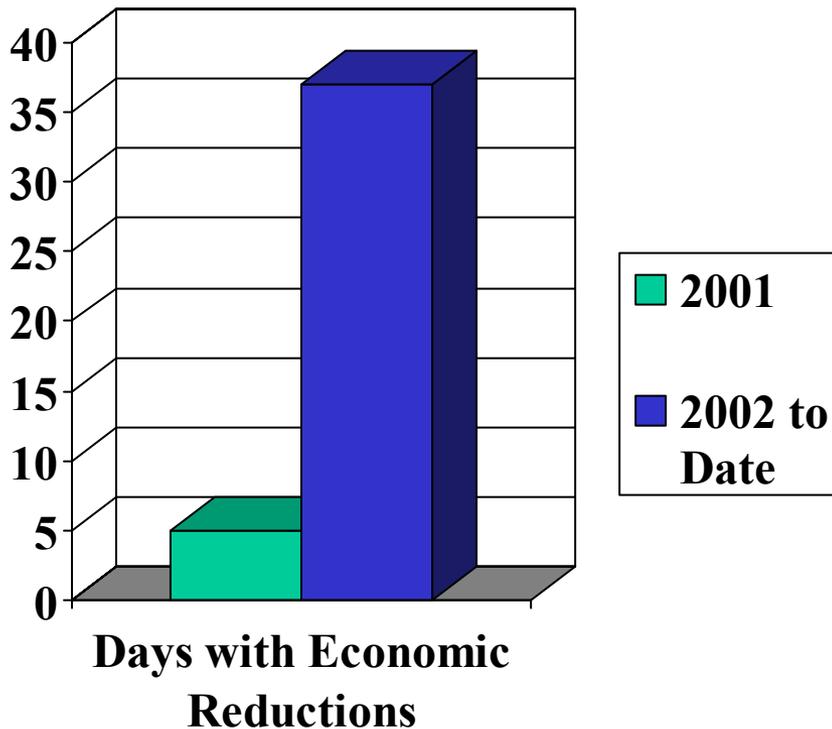


PJM Economic Demand Response Program

- Customer bids in price at which it is willing to curtail or be a price taker
- Customer receives full LMP price for curtailment if price is above \$75. If below \$75, customer receives LMP less generation and transmission retail rate
- LSE pays the LMP to the curtailing load. Costs of G&T are socialized to all load within the zone. Recognizes benefits to all load from reductions above \$75 (“elbow” of the hockey stick demand curve)

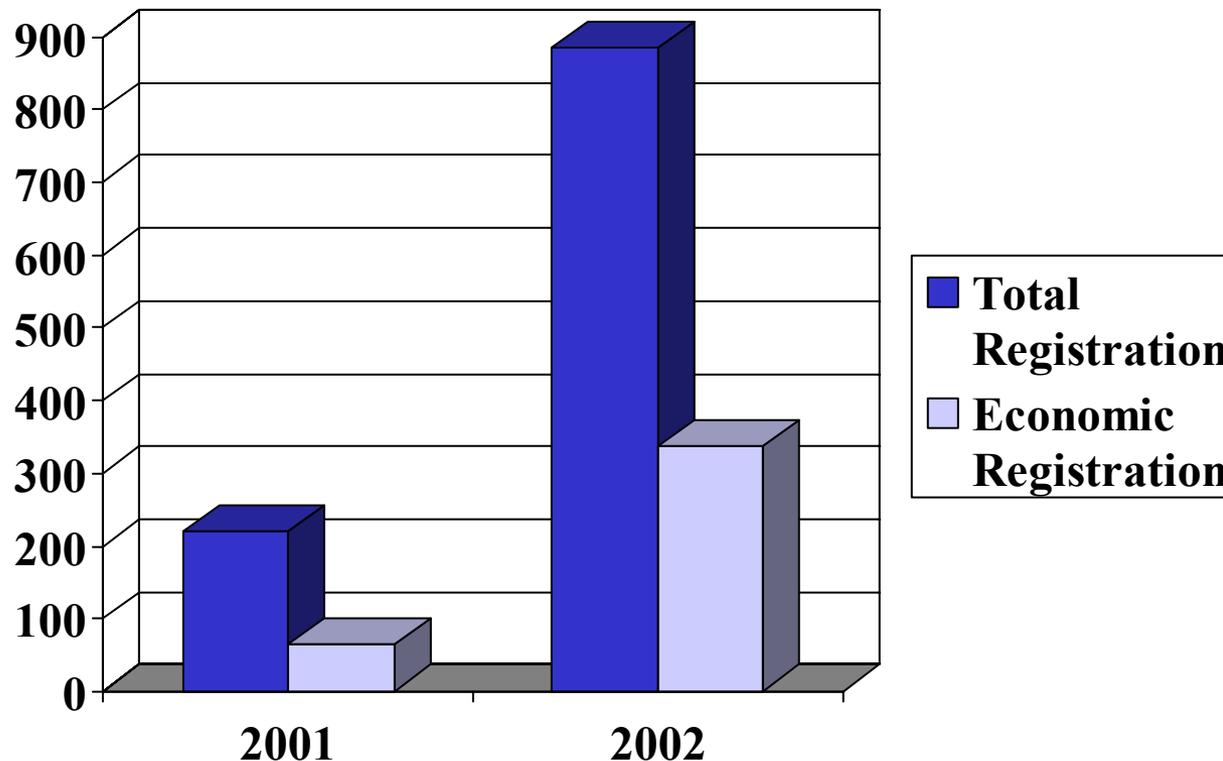
- Programs available (and used) by zone
- Programs open to non-metered load provided verification system proposed
- Programs provide competition with traditional utility “split the savings” programs

- Nearly **7** times the number of days with Economic reductions
- Estimated **20** times the payout for Economic reductions



Registrations Compared to 2001

- **277%** increase in registration over the 2001 program (885 MW vs. 220MW)
- **400%** increase in registration in the Economic Program from 2001



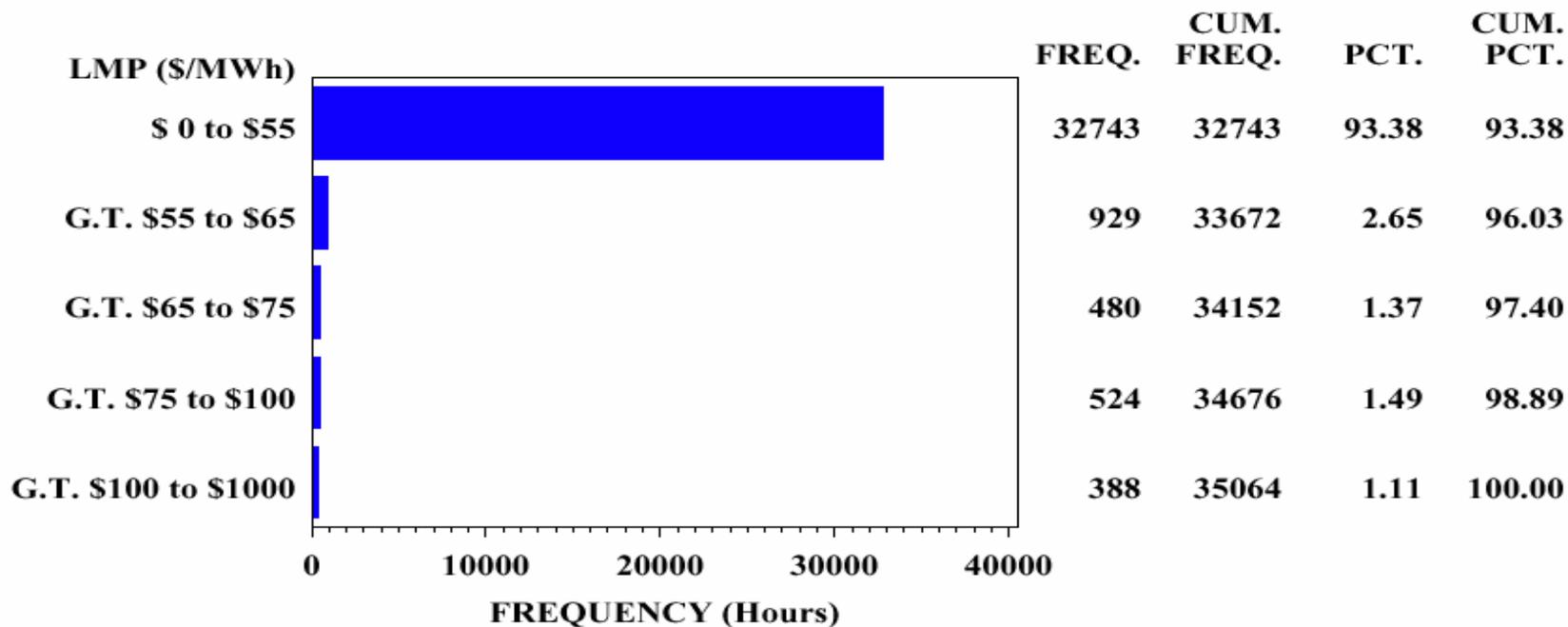
- PJM establishment of Demand Response Department within Market Services Department
- Potential reform of ALM and migration of customers toward economic and away from emergency programs
- Rate design incentives within retail rate caps

- Explicit regulatory subsidization/socialization of demand response technologies
- PJM development of non-proprietary modular protocols to allow ISO to communicate with broad range of customers and customer metering.
- Intensive customer education
- Collapsing of array of ISO and state programs
- More competition in type of programs offered.



PJM LMP Price-Duration Curves

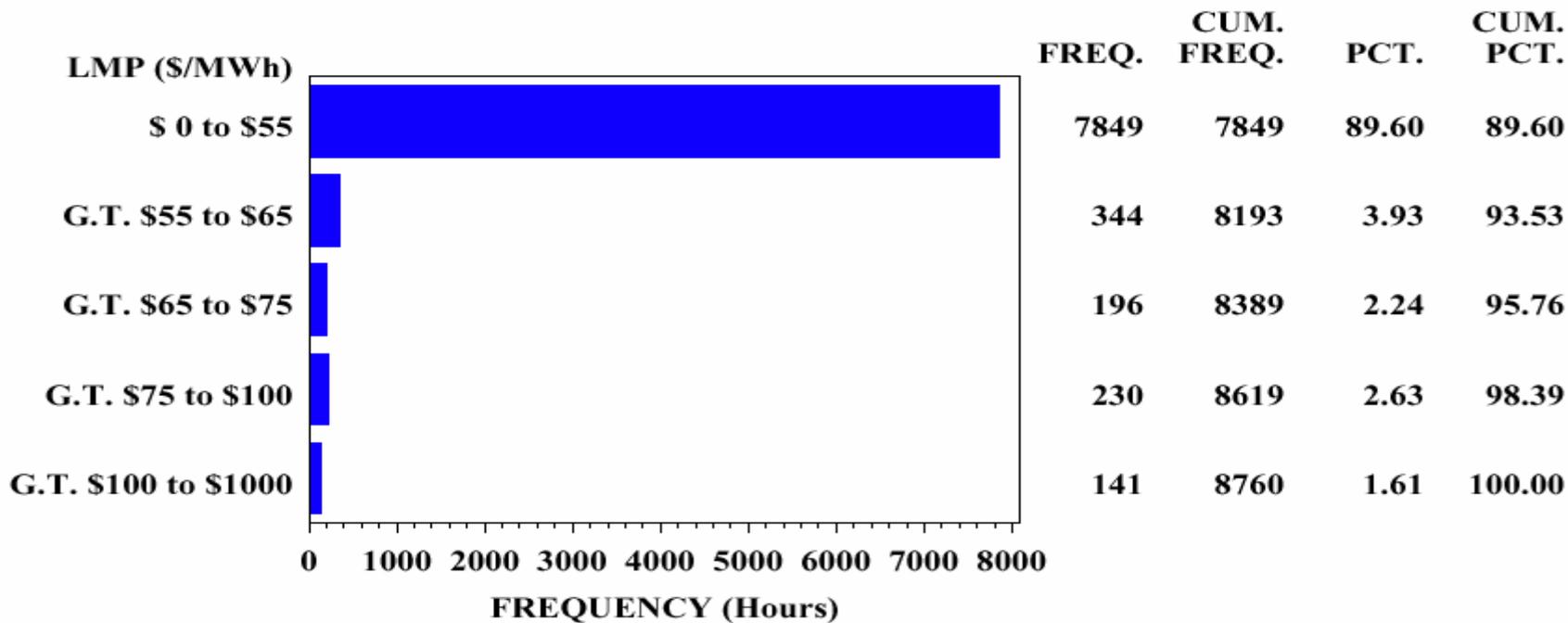
**Frequency Distribution by Hours of PJM LMPs
1998, 1999, 2000, and 2001**





PJM LMP Price-Duration Curves

Frequency Distribution by Hours of PJM LMPs
2001



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