



ERCOT Emergency Interruptible Load Program

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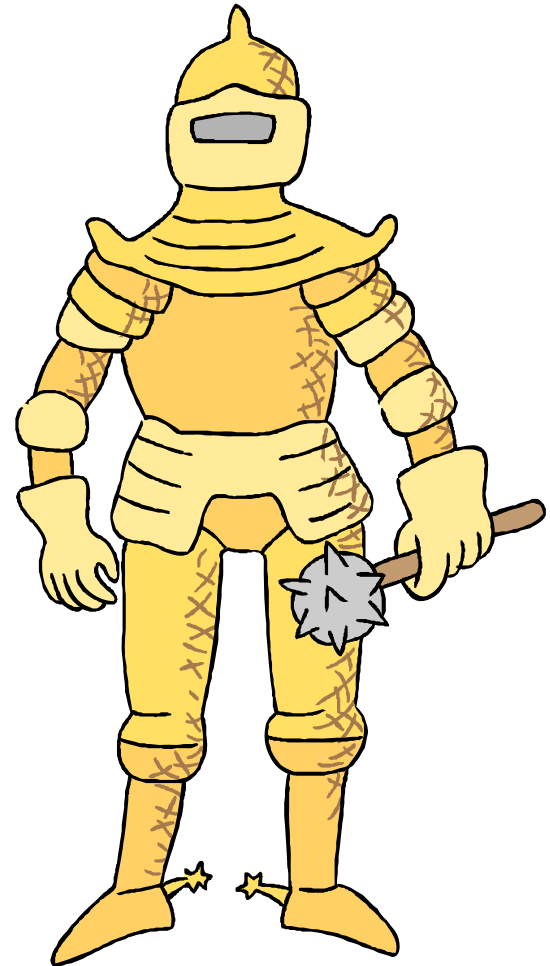
PUC Demand Response Workshop

Oct. 2, 2006



**Thanks for all
the feedback!**

**We're back to clear
up any questions
you may have.**



Purpose of the EILP:

- **To provide ERCOT Operations with an additional emergency tool to lessen the likelihood of involuntary firm load shedding (a.k.a. rolling blackouts)**

What the EILP is:

- **Service provided by loads willing to interrupt immediately prior to the need for involuntary firm load shedding, in exchange for a payment**
 - Deployed only in emergency situations, when no more resources are available at any price from the market or other sources in real time
 - Part of EECP, deployed just prior to final step (rolling blackouts)
 - Closest cousins: Black Start and RMR

What the EILP is NOT:

- **It is not a market-based program in which loads bid into day-ahead or real-time markets. EILP loads:**
 - Cannot bid into Balancing Energy market
 - Cannot bid into Ancillary Services markets
 - Cannot participate as price-responsive load
 - Will not suppress energy prices during an EECPP event
- **It is not a resource that is deployed to recover or replace regular ancillary services**
- **It is not a resource that will ever be deployed ahead of available market resources**
- **It is not a backstop for insufficient planning reserve margins, or a tool to meet long-term capacity needs**

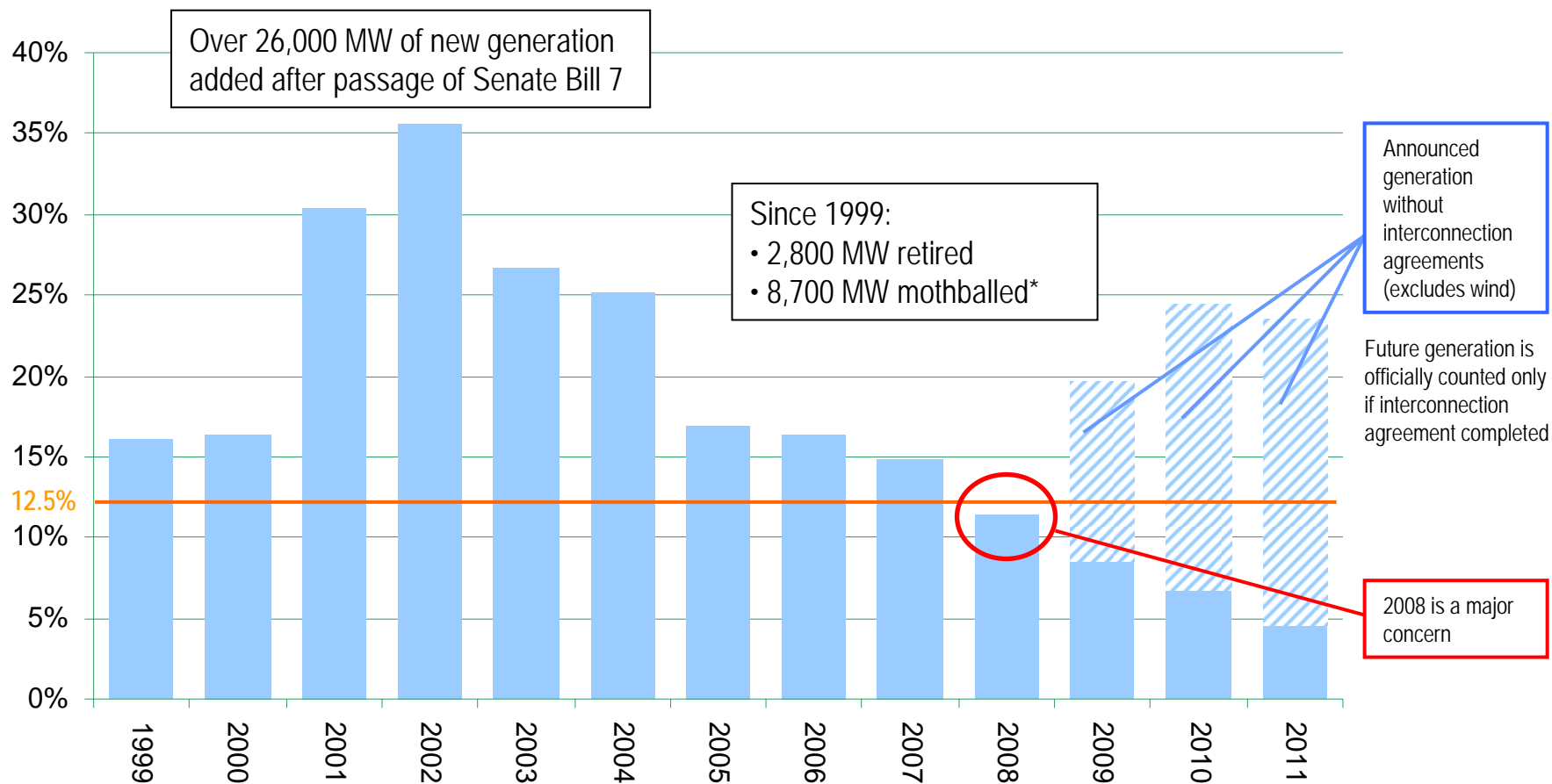
How the need for EILP relates to the Planning Reserve Margin:

- **Low reserve margin is related to this program ONLY as one indicator of an increased likelihood for the need**
 - EILP is less likely to be needed in times of large generation surpluses
- **EILP will NOT impact the reserve margin**
 - Will not be part of the reserve margin calculation
 - Unlike LaaRs, which are built into the reserve margin calculation as an offset to total peak demand



2006 Post-mortem

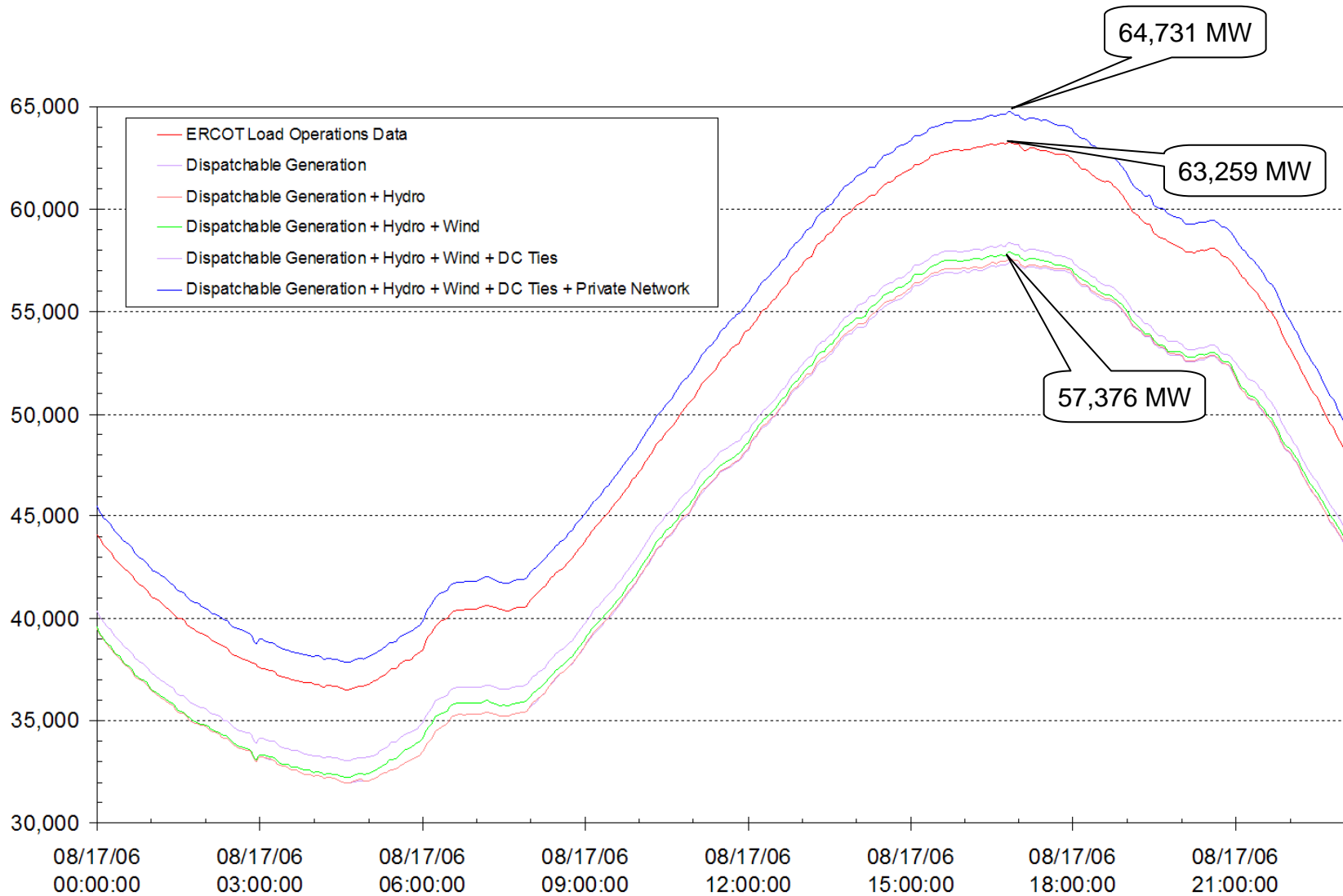
Reserve Margins 1999-2011



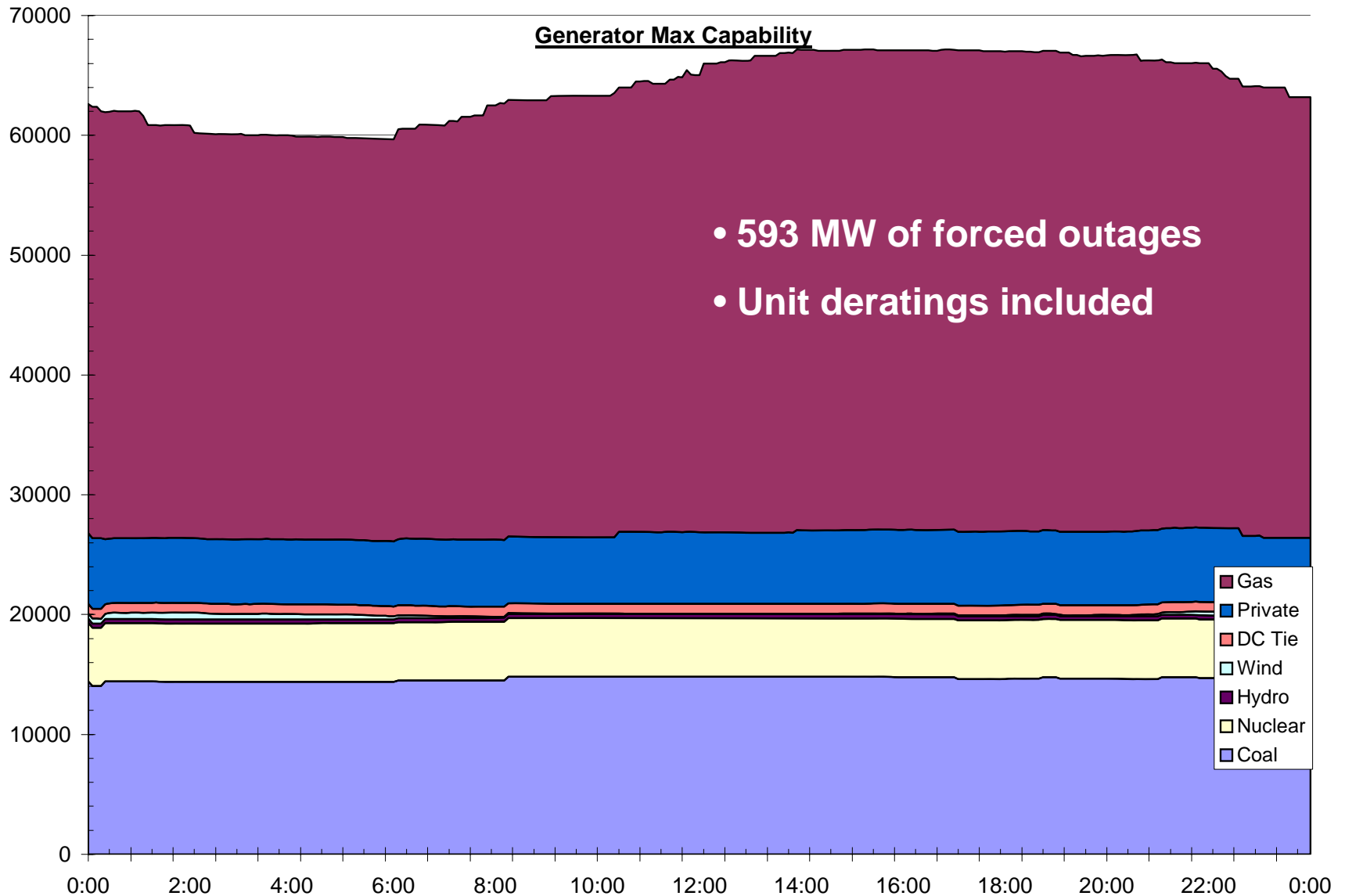
Percentage difference between peak load forecast and available generation/resources
 12.5% is the target minimum reserve margin established by ERCOT stakeholders and Board

*1,100 MW of mothballed units have been returned to service

Aug. 17, 2006 (System peak) Operations Data

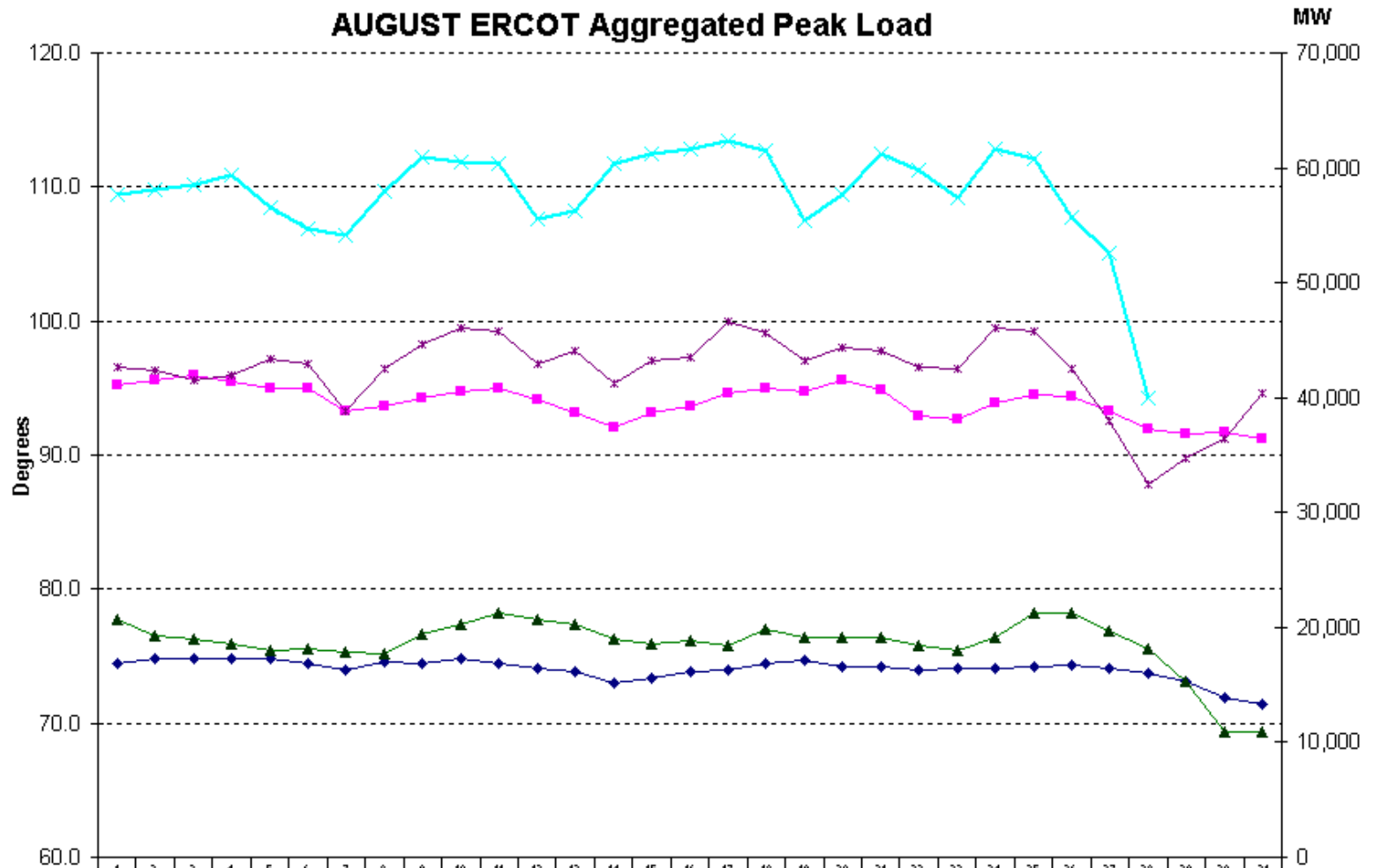


Aug. 17, 2006 (System peak) Operating Capacity



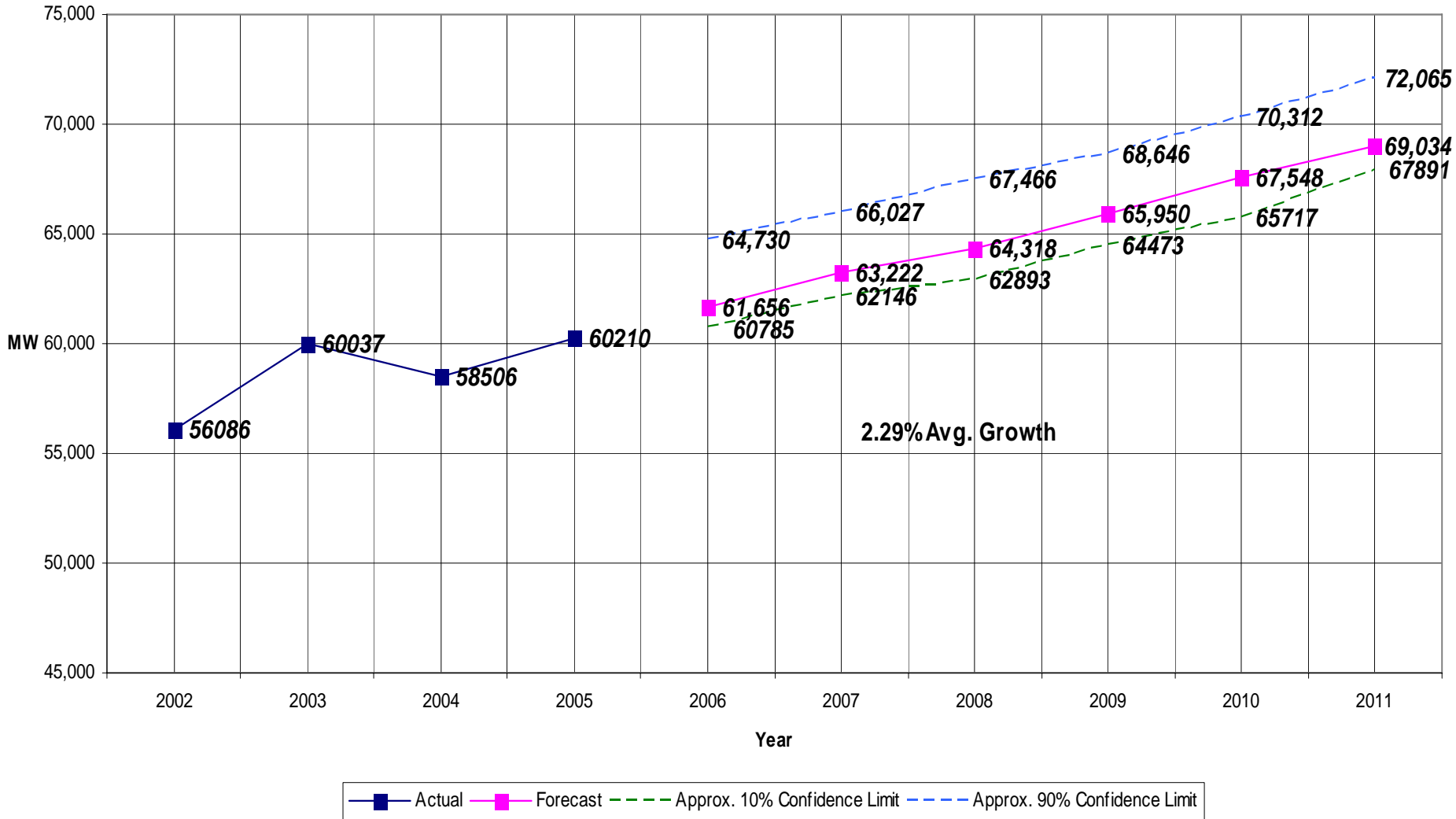
Daily peak loads & temperatures, August 2006

AUGUST ERCOT Aggregated Peak Load

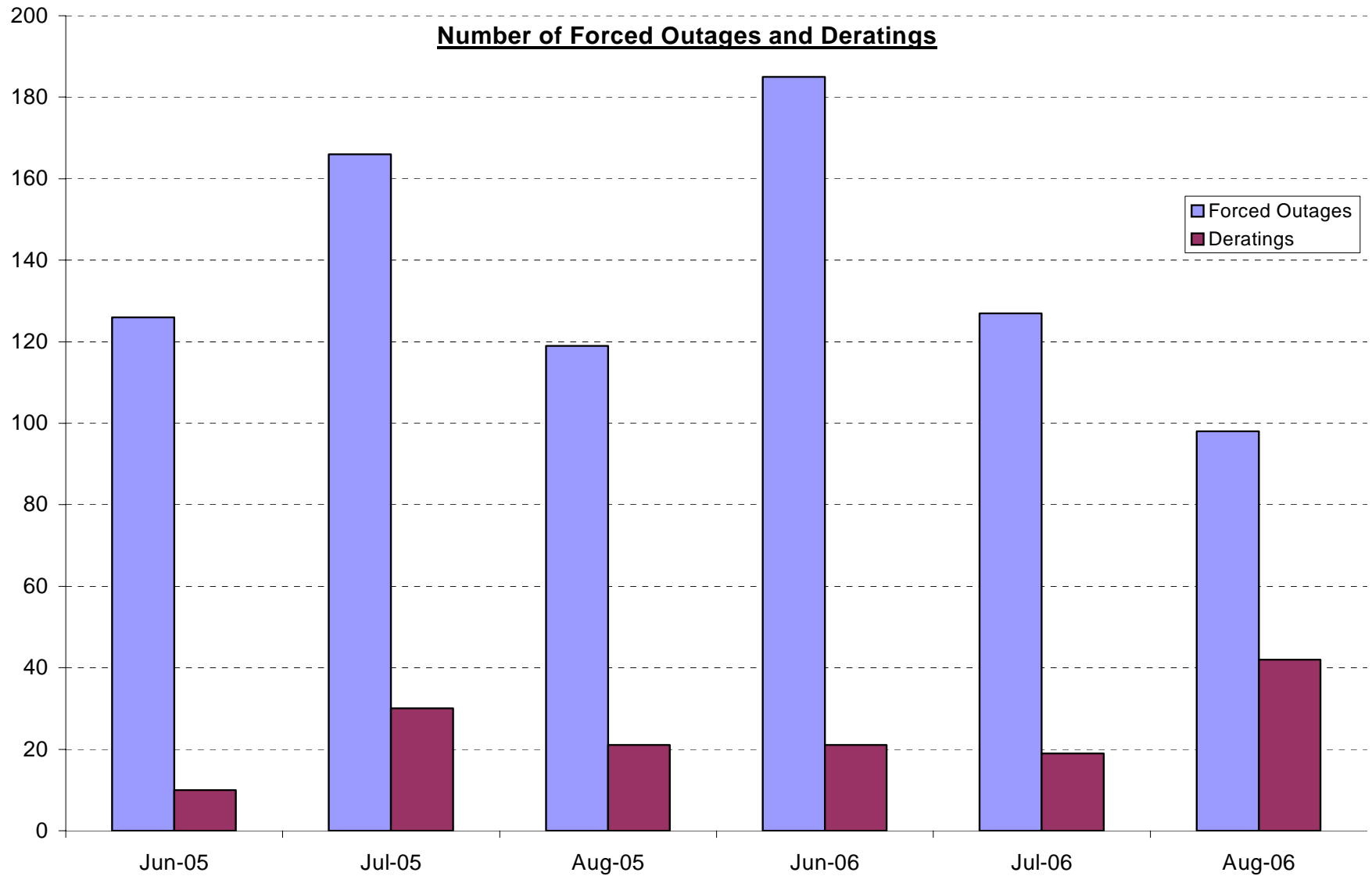


ERCOT Average High Temp	95.2	95.5	95.9	95.4	95.0	95.0	93.2	92.7	94.2	94.7	95.0	94.2	93.1	92.1	93.2	93.7	94.6	95.0	94.8	95.6	94.9	92.9	92.7	92.9	94.4	94.4	93.3	92.0	91.6	91.7	91.2
ERCOT Average Low Temp	74.4	74.8	74.8	74.8	74.8	74.5	73.9	74.5	74.4	74.8	74.4	74.1	73.9	73.0	73.4	73.9	74.0	74.5	74.7	74.2	74.2	74.0	74.1	74.1	74.2	74.3	74.1	73.7	73.2	71.8	71.4
ERCOT High Temp	96.5	96.3	95.5	95.9	97.2	96.9	93.3	96.5	98.3	99.5	99.2	96.8	97.7	95.4	97.0	97.3	100.0	99.1	97.0	98.0	97.8	96.5	96.5	99.4	99.2	96.4	92.6	87.8	89.8	91.3	94.6
ERCOT Low Temp	77.8	76.6	76.3	75.9	75.4	75.5	75.2	75.2	76.7	77.3	76.2	77.8	77.3	76.3	75.9	76.2	75.8	77.0	76.4	76.4	76.4	75.8	75.5	76.4	76.2	76.2	76.9	75.5	73.1	69.3	69.4
ERCOT Total Load	57663	58162	58588	59319	56480	54727	54152	57979	60926	60526	60387	55560	56284	60323	61203	61590	62375	61564	55360	57652	61244	59769	57357	61599	60765	55735	52614	39930			

Projections of Peak Demand through 2011



Generation unit forced outages & deratings, Summer 2005-06



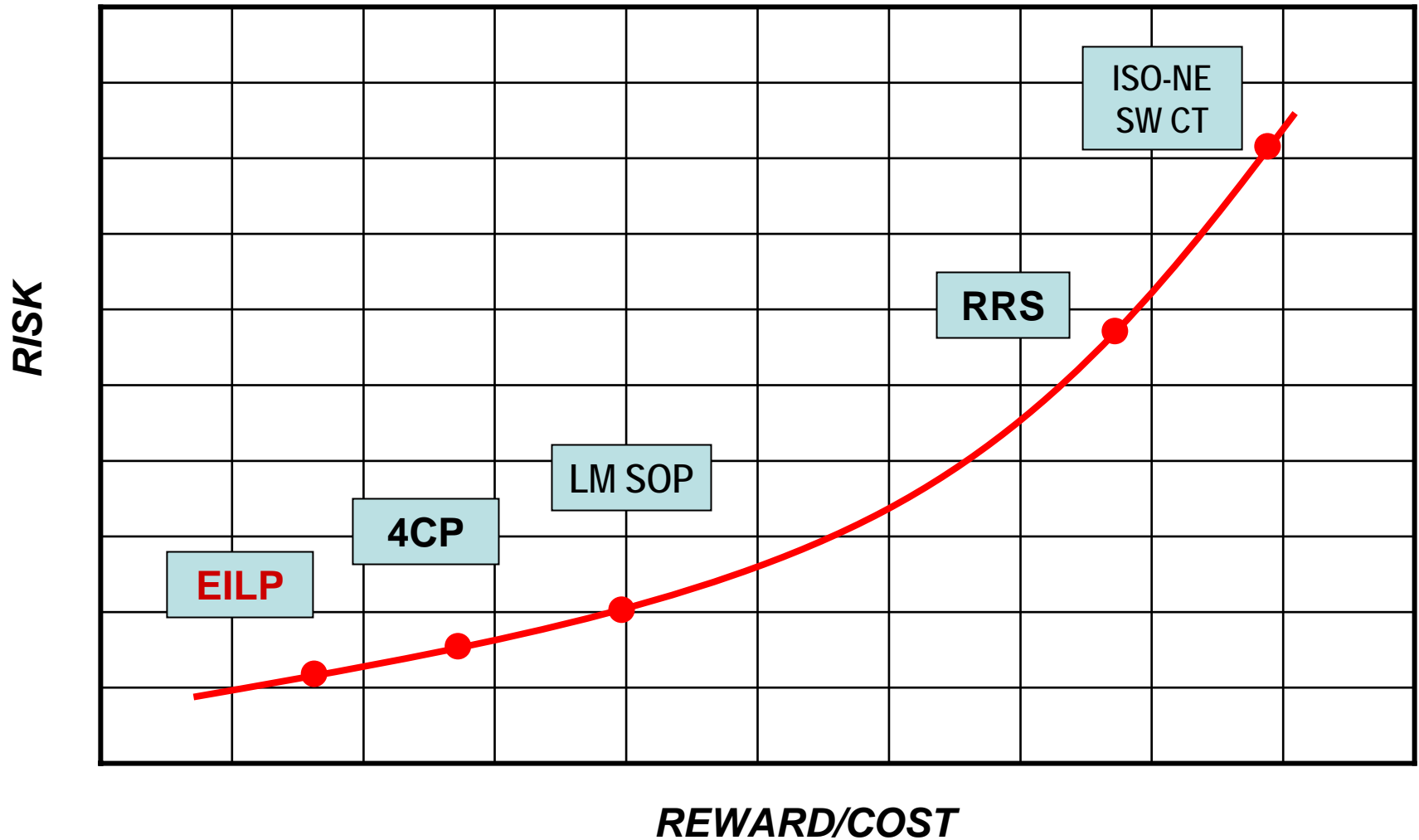


ERCOT EILP

When the EILP may be needed:

- **Emergencies can occur at any time:**
 - Cold weather months (due to natural gas curtailment & higher forced outages)
 - Shoulder months (due to unforeseen weather events & large amounts of scheduled maintenance)
 - Traditional summer peaks
 - Anytime, as may be caused by:
 - **generation outages (scheduled, forced or both)**
 - **transmission outages beyond likely contingencies**
 - **extreme weather events**
 - **multiple simultaneous contingencies**

EILP Cost/Risk relative to other types of Demand Response



- **Background**

- Under normal circumstances, adequate resources (RRS, NSRS, RPRS) are on line or available to deal with most situations
- Historical need for additional resources due to abnormal events (usually weather related)
 - Cold weather events can lead to abnormally high load combined with fuel curtailments (Dec. 1989, Feb. 2003)
 - Shoulder month events caused by unusual weather at unexpected times (100° weather on April 17, 2006, with 20% of capacity offline for seasonal maintenance)
- When abnormal events occur, additional ERCOT tools could reduce the possibility of a need for involuntary firm load shedding and the associated public health and safety risks

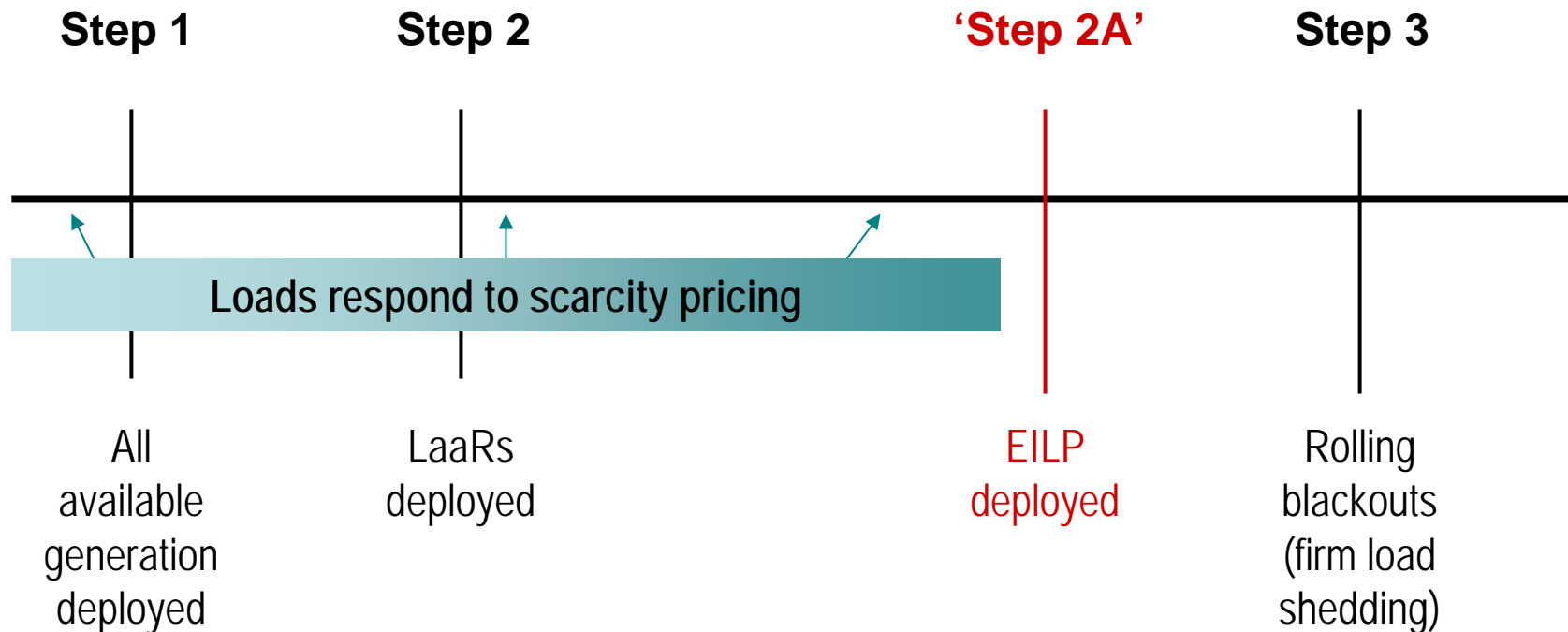
Operating Procedures to be discussed at TAC 10/6/06

<i>Event/Action</i>	<i>Trigger</i>
Operating Condition Notice	Physical responsive reserve below 3300 MW
ADVISORY	Physical responsive below 3000 MW
ALERT: Start RMR units, suspend unit testing, deploy RPRS & NSRS	Physical responsive below 2500 MW
<i>Emergency Electric Curtailment Plan</i>	
Step 1: Dispatch all generation & DC Ties, issue public media appeal	Physical responsive below 2300 MW
Step 2: Deploy LaaRs	Physical responsive below 1750 MW
Step 3: Instruct transmission operators to shed firm load	Frequency below 59.8 hz

A proposed new tool for the ERCOT toolbox

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ALERT: Start RMR units, suspend unit testing, deploy RPRS & NSRS	Physical responsive below 2500 MW
<i>Emergency Electric Curtailment Plan</i>	
Step 1: Dispatch all generation, public media appeal, DC Ties	Physical responsive below 2300 MW
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➔ New Step: Deploy EMERGENCY INTERRUPTIBLE LOAD	
Step 3: Instruct transmission owners to shed firm load	Frequency below 59.8 hz

Emergency Electric Curtailment Plan Event



(Moving MCPE to the price cap during EILP is currently under consideration by stakeholders working on the Nodal transition)

- **Loads would be deployed:**
 - After all market-based resources have been deployed
 - Under low frequency conditions
 - Prior to rolling blackouts
- **Quantity would be based on averting historical firm load shedding events which have occurred in winter peak or shoulder months**
 - Initial proposal: 1000 MW, based on history
- **Need for program and quantity to be procured could be adjusted periodically based on various operating conditions**
- **Low probability of deployment**
- **Controlled load interruption vs. uncontrolled**

- **Shedding voluntary load from prepared end-use customers is preferred over involuntary load shedding from unprepared customers**
- **Provides ERCOT operations an additional tool in emergency situations**
- **Shedding load is 100% effective to maintain balance with generation**
- **ERCOT believes that EILP cost will be lower than the societal cost of rolling blackouts**

- **Procurement**

- Loads, through their QSEs, would bid to provide service (similar to Black Start)
- Contract is with the QSE
- Initial 2-year contract term
 - After that, evaluate annually
 - Possible renewal or re-bid if deployments exceed predefined number of hours

- **Dispatching and Operations**

- Dispatched By ERCOT thru QSEs
- Deployed as a single block after all existing generation resources and LaaRs are deployed
 - Under low frequency conditions but before any firm load shedding
- Quick response required (10 minutes or less)
- Require interval data metering for measurement and verification
 - But no telemetry or under frequency relay requirement
- Limit number of hours to be curtailed in any given year

- **Payment Option 1: CAPACITY & ENERGY**
 - Initial up-front payment based on bids at time of contract award
 - Pay for performance based on actual load response
 - QSE receives energy imbalance credit equal to MWh delivered (based on validated performance) times the MCPE, or price cap in place
 - Subject to clawback for underperformance

- **Payment Option 2: Energy-Only with DEFINED PRICE**
 - No up-front payment
 - Energy-only payment for performance based on actual load response
 - QSE receives a double energy imbalance credit/payment equal to:
 - MWh delivered (based on validated performance)
 - x MCPE price cap in place (guaranteed amount, known in advance)
 - x 2
 - Subject to clawback for underperformance
 - In this case, subscription to the program would be first-come, first-serve (as opposed to competitive bidding)
 - Similar to Standard Offer Programs

- **Payment Option 3: 'Energy Only' with COMPETITIVE PRICE**
 - No up-front payment
 - Energy-only payment under a call agreement
 - Open bid process (QSEs bid on customers behalf)
 - ERCOT recommends a 'descending clock auction'
 - Bids should represent value of lost load
 - QSEs paid auction clearing price x MWh delivered (based on validated load performance)
 - Subject to clawback for underperformance

Clawback for underperformance

- **Eligible customer must not:**
 - Participate as LaaR
 - Participate as BUL or voluntary load response...
 - Unless sufficient EILP load is also available
- **ERCOT will verify:**
 - Actual curtailed demand based on review of 15-minute interval data
 - Using actual load from last full interval prior to instruction, minus actual load from next full interval following 10-minute response period
 - Prior performance under high price periods and 4 CP days
- **No energy payment will be provided (other than energy imbalance credit) if load underperforms**
 - If QSE has received a capacity payment (i.e., under payment option 1), it will be subject to performance-based clawback

- **Allocation (Option 1)**
 - Charged to QSEs representing load on load-ratio share
- **Allocation (Option 2)**
 - Allocate using RPRS methodology (including PRRs 666, 676 & 687)
 - Short-scheduled LSEs bear a higher portion of the cost
- **ERCOT is open to recommendations on how to accommodate self-providing of EILP**

•Potential Program Participants

- Large Commercial and Industrial Accounts
- Government and Municipal Facilities
- Retail Chains
- Others???

Program should be open to QSEs serving both competitive and NOIE load

- **ERCOT-sponsored PRR**
 - A similar program has already failed to pass through subcommittees
- **PUC rulemaking**
 - Similar concept has already been subject to public comment (Project 31972)
 - Would be difficult to enable program by Spring '07

- **The new energy-only market must attract a robust level of price-responsive load, especially during periods of scarcity of supply**
 - How much load will respond to scarcity pricing?
 - How much load is even capable of demand response today?

- **ERCOT is anxious to work with the Commission and the market to enable increased demand response**
 - The EILP proposal should not distract from this greater goal

