

# Load Response Survey

## Preliminary Results

DSWG

Aug. 10, 2007

## Background

- **PUC Subst. Rule §25.505(e)(5):**
  - Load serving entities (LSEs) shall provide ERCOT with complete information on load response capabilities that are self-arranged or pursuant to bilateral agreements between LSEs and their customers.
- **ERCOT Staff, with help from DSWG, developed questions for the initial survey in Spring 2007**
- **Questionnaire was sent to all ERCOT LSEs via Market Notice on June 1, 2007**
  - Online platform Survey Monkey
- **Deadline for returning surveys was June 30, 2007**

- **A total of 267 LSEs received the survey**
  - Competitive Retailers and Non-Opt In Entities
  - Includes all LSEs registered in the ERCOT system (unique DUNS numbers)
    - Some parent companies have multiple DUNS
- **Tally to date:**
  - Surveys received or inactive status confirmed for 220 of the LSE DUNS
  - 47 still outstanding
- **Vast majority of total ERCOT load is accounted for**

## Additional Notes...



- **Survey is a snapshot in time in an evolving market**
- **ERCOT intends to re-issue the survey annually**
  - Lessons learned can be applied
  - New load response products will emerge

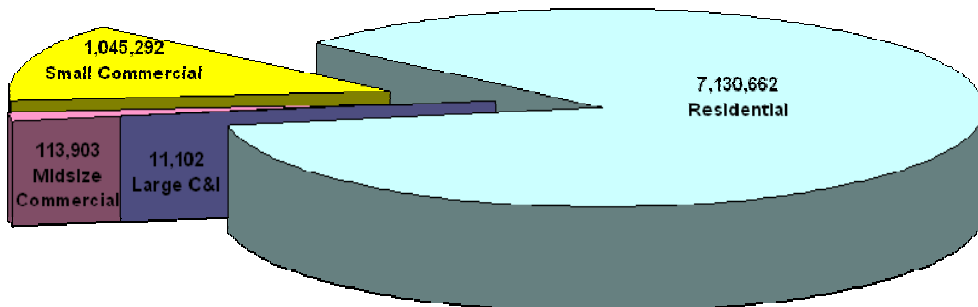
## **WARNING**

- **These results are preliminary**
  - Will be updated when all LSEs are accounted for
  - Have not been scrubbed for anomalies and inconsistencies
- **Accuracy was the goal, but in some cases best estimates were used**

- **Time of Use (TOU) Pricing**
  - **Real Time Pricing (RTP)**
    - ‘MCPE’ price plans
  - **Four Coincident Peak (4CP) Load Shedding**
  - **Critical Peak Pricing (CPP)**
  - **Direct Load Control (DLC)**
- 
- **38 LSEs report some type of load response offering to their customers**

## Results: General

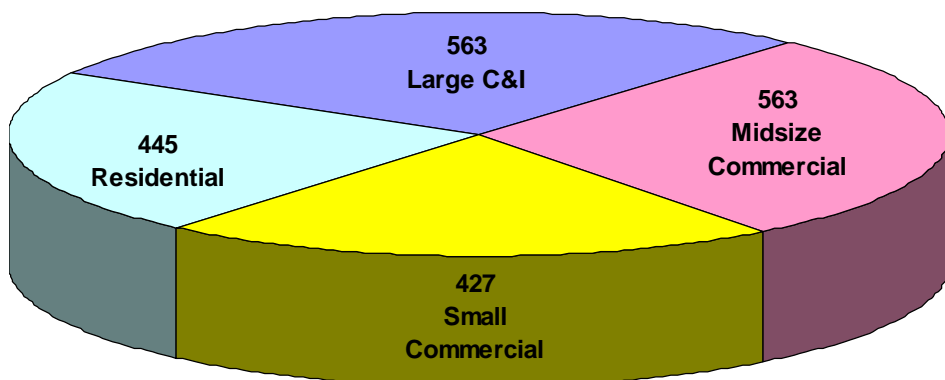
- **96 LSEs report serving load to 8.3 million customers**



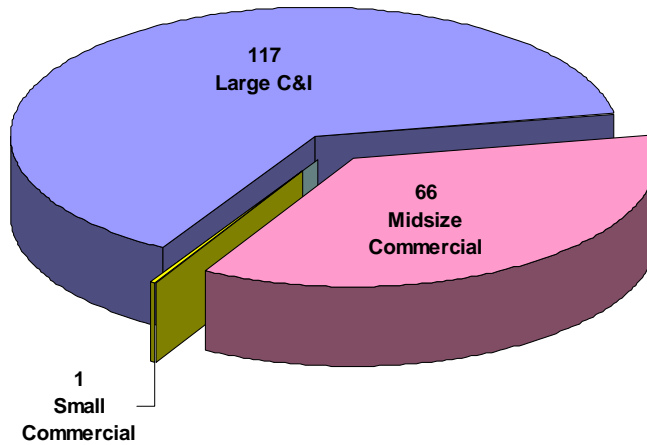
- **TOU:**
  - Time-differentiated pricing based on schedules known in advance and recorded on time-of-use meters
  - Does not apply to seasonal fuel factor-related rate adjustments
- **LSEs' primary factors in decisions to offer TOU:**
  - Additional product offering (75%)
  - Wholesale cost of electricity (45%)

## Time of Use (TOU) Pricing

- **1,998 TOU customers reported across all categories:**



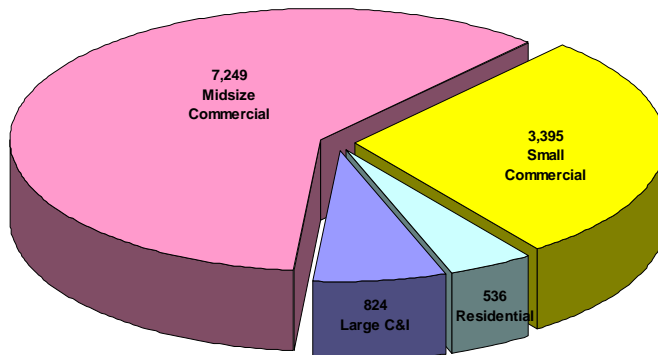
- **At least 184 MW\* of demand capable of shifting:**



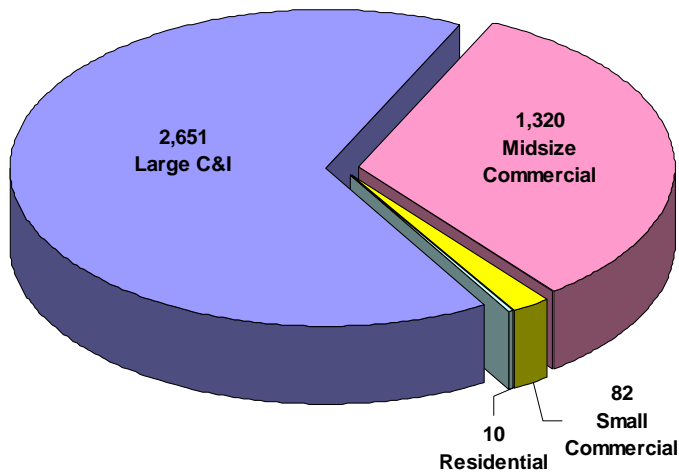
\* LSEs offering TOU to small commercial and residential customers were reluctant to estimate potential MW of load shifting

## Real-Time Pricing (RTP or MCPE)

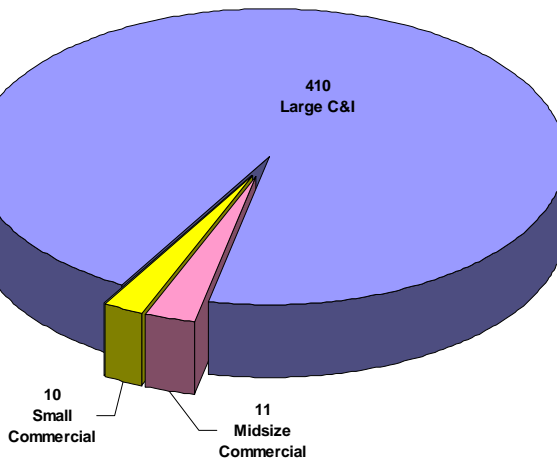
- **RTP:**
  - Retail prices that change continuously based on the ERCOT Market Clearing Price of Energy (MCPE) or other real-time wholesale price indicator
- **12,004 total customers reported on RTP Plans:**



- **4,063 MW of combined peak demand for customers on RTP Plans:**

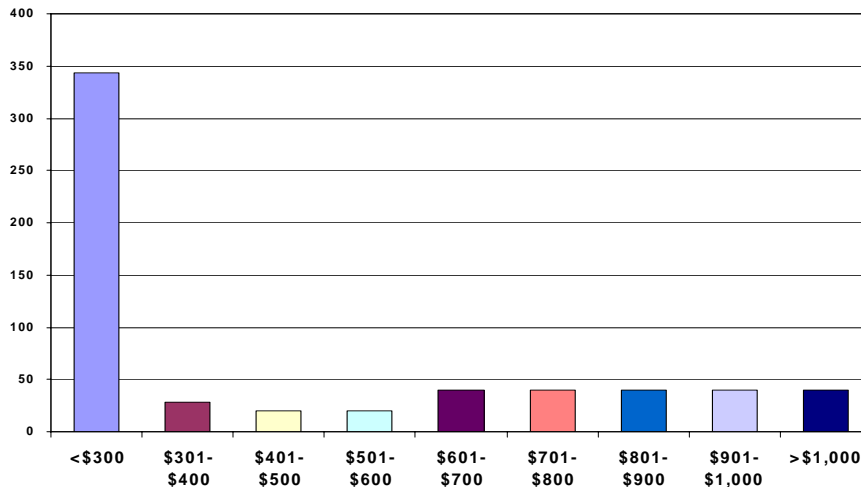


- **431 MW of total curtailable load on RTP plans:**



**69% of responding LSEs reported that load-shedding is manually activated (not automated)**

- **MW of curtailable load on RTP plans by strike price:**



**All RTP plans are reported 'voluntary' –  
no other incentive or penalty applies beyond exposure to high prices**



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- **RTP concerns cited by LSEs & customers (in order of frequency):**

1. Insufficient prior notice of price
  - 58% of respondents said 8-10 minutes notice is insufficient
  - 21% said it is sufficient
2. Lack of price certainty (post-mitigation)
3. Unpredictability of high-price periods
- Other comments:
  - 1 hour+ pricing duration is a necessary incentive to shed load
  - Profiled (non-IDR) loads cannot benefit
  - Day Ahead market needed
  - 'At least one hour, preferably day-ahead' advance notice needed
  - Subscription service for electronic notification of high prices would help



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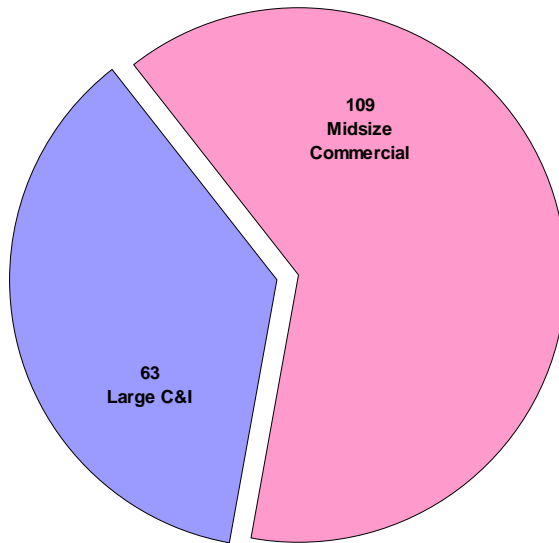
- **Would guaranteed high prices during scarcity or emergency conditions provide more incentive for customers to respond to price?**
  - 32% Yes
  - 37% No
  - 32% N/A

## Four Coincident Peak (4CP) Load Shedding

- **4CP:**
  - Interval-metered (IDR) customers' transmission rates are based on their consumption during the ERCOT system peak intervals in June, July, August & September
- **Shedding load during 4CP intervals can reduce future transmission charges by up to \$20,000 per MW/year**
  - Benefits accrue only to customers with IDR meters
  - IDR is required at 700kW of peak demand
  - Also applies to NOIE service areas
- **Several market products are now available to help customers predict 4CP intervals**
- **This survey is limited to LSE-based products**
  - Does not extend to 4CP predictor services offered by third party providers

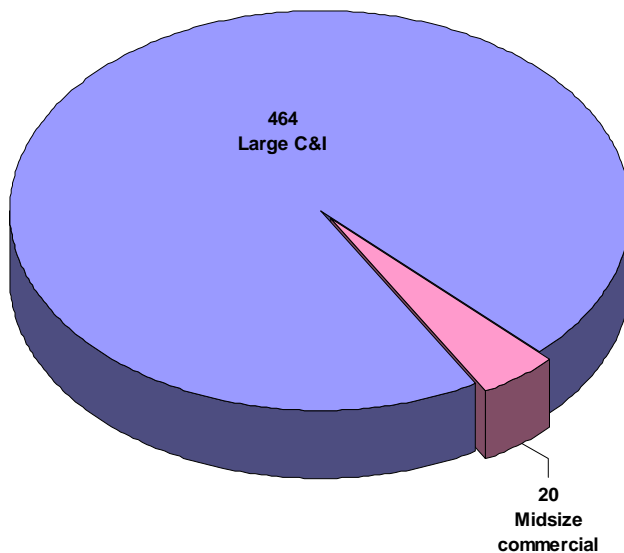


- LSEs report 172 subscribed 4CP customers:

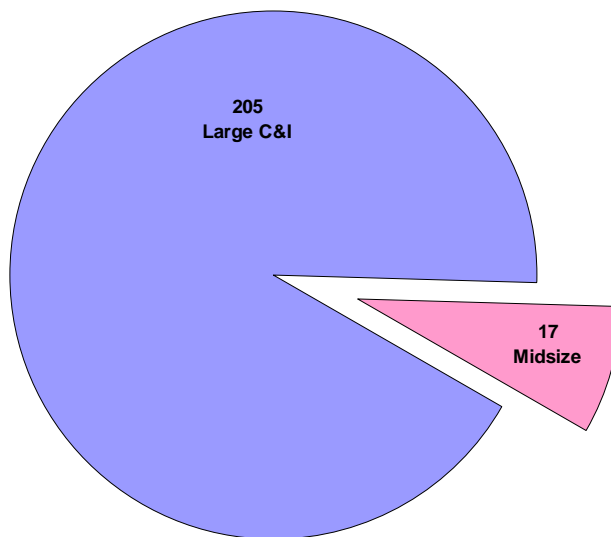


## Four Coincident Peak (4CP) Load Shedding

- These 172 customers have a reported 484 MW of peak demand



- **These customers have the capability of shedding a reported 222 MW of peak load:**



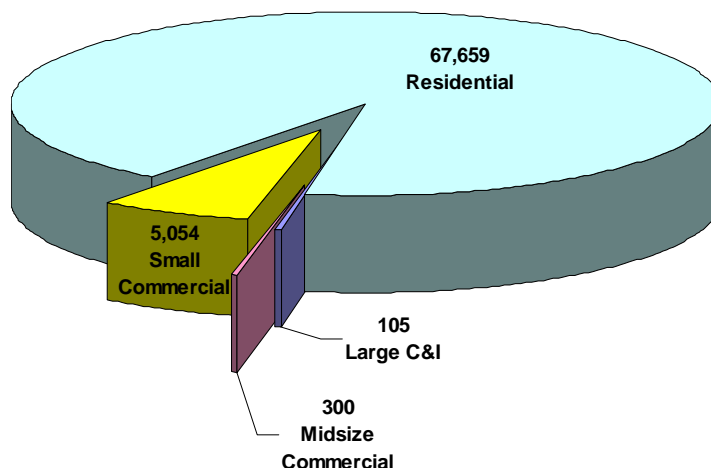
## Critical Peak Pricing (CPP)

- **CPP:**
  - Special, typically very high prices communicated to customers a limited number of times per year as incentives for them to reduce their load
    - Questions sought information on individual customers who curtail load voluntarily in response to prices
    - Not applicable to group load curtailment or mass market direct load control programs
- **LSEs report:**
  - Total of 20 Large C&I customers on CPP products
  - Combined peak demand of 341 MW
  - Curtailable load of 91 MW at various \$ trigger points

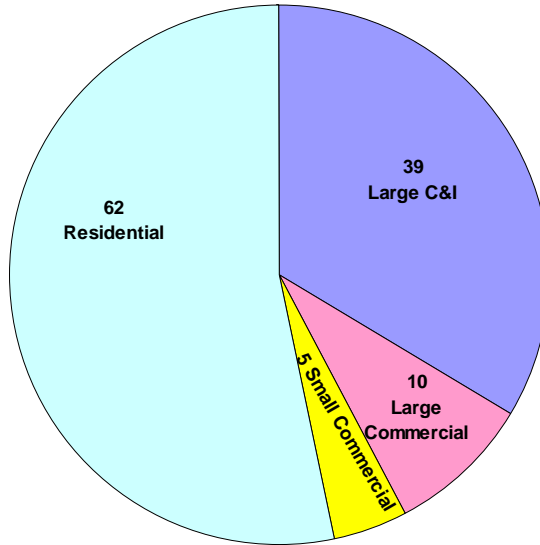
- **DLC:**
  - Programs in which customers agree to allow their load to be remotely curtailed by another party (LSE, TDSP or other third party) under defined circumstances.
  - Also called Group Load Curtailment programs
  - Typically, groups of like customers whose load is aggregated to achieve a particular load reduction goal.
  - Key element: Customers' load is curtailed remotely by another party and not by the customers themselves

## Direct Load Control (DLC)

- **73,118 DLC subscribers reported across all customer categories**



- **DLC subscribers have a reported 116 MW of curtailable load**



- **DLC technologies in use:**
  - Air conditioner switches
  - Water heater switches
  - Smart thermostats
  - Light dimmer controls
  - Under-frequency relay switches
- **DLC incentives provided:**
  - Financial (lower prices, one-time bonus or credit)
  - Free technology

- **15 LSEs report current or future interest in participating in Emergency Interruptible Load Service (EILS)**
- **Reasons cited for inability to subscribe program to date (in order of frequency from 49 LSE responses):**
  - Not enough time to put technology in place (34%)
  - Not enough time to market the program (29%)
  - Not enough time to develop contracts/legal agreements (26%)
  - Insufficient financial incentive (26%)
  - Long-term uncertainty (17%)
  - Prospects already committed to other programs (14%)
- **Other drawbacks cited:**
  - 500 MW minimum threshold for program is too high
  - Prefer electronic notification to verbal dispatch
  - Not open to residential customers

## Miscellaneous

- **34 LSEs report they are planning to introduce new load reduction programs to their customers**
- **Most popular:**

– RTP/MCPE	44%
– TOU	41%
– Other	41%
– 4CP	23%
– DLC	18%
– CPP	12%

- **All LSEs will be accounted for**
- **Results will be reviewed for anomalies and inconsistencies**
- **Results will be shared internally within ERCOT, with potential value for:**
  - Long-term load forecasting
  - Mid-term load forecasting
  - Grid operations
  - Market operations support
  - Commercial operations & data aggregation
- **Results will be communicated to PUC and IMM**

## Questions?

