

# Installed Capacity Markets: A Load Research View of the Peak

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# National Grid Facts

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- ◆ **One of the largest investor-owned utilities in the world, with headquarters in London.**
- ◆ **Core US business is the delivery of electricity to 3.3 million electric and .8 million gas customers in NY, MA, NH, RI.**
- ◆ **Summer Peak is about 14,000 MW.**
- ◆ **About 8,600 US employees.**

# Overview

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- ◆ **Energy Market in New England**
- ◆ **Some Definitions**
- ◆ **Role of Load Research in ICAP markets**
- ◆ **Basic ICAP Estimation Process**
- ◆ **Data Requirements of Suppliers**
- ◆ **New Forward Capacity Market**

# Energy Market in NE

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- ◆ **Utilities divested generation and implemented Retail Choice in 1998.**
- ◆ **Basic Service “safety net” still exists.**
- ◆ **In May, 4% of customers (37% of load) had competitive suppliers.**
- ◆ **Markets are settled by ISO-NE, based on information provided by utility “Assigned Meter Readers”.**
- ◆ **Transition to the new Forward Capacity Market began in December 2006.**

# Some Definitions

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- ◆ **Supplier = Load Serving Entity**
- ◆ **ICAP = Installed Capacity Market**  
**= Forecasted Peak KW x (1 + Reserves)**
- ◆ **UCAP = Unforced Capacity Market**  
**= ICAP x (1 – Forced Outage Rate)**
- ◆ **The terms “ICAP” and “UCAP” are used interchangeably by most participants to describe what we report. Neither is correct.**

# Some More Definitions:

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- ◆ **Tag = Estimate of individual customer's contribution to peak**
- ◆ **Load Shifting = Daily migration of customers (and their Tags) between Suppliers**
- ◆ **Load Reconstitution = Adjustment of Tags for Demand Response Participants**

# Role of Load Research in ICAP Markets

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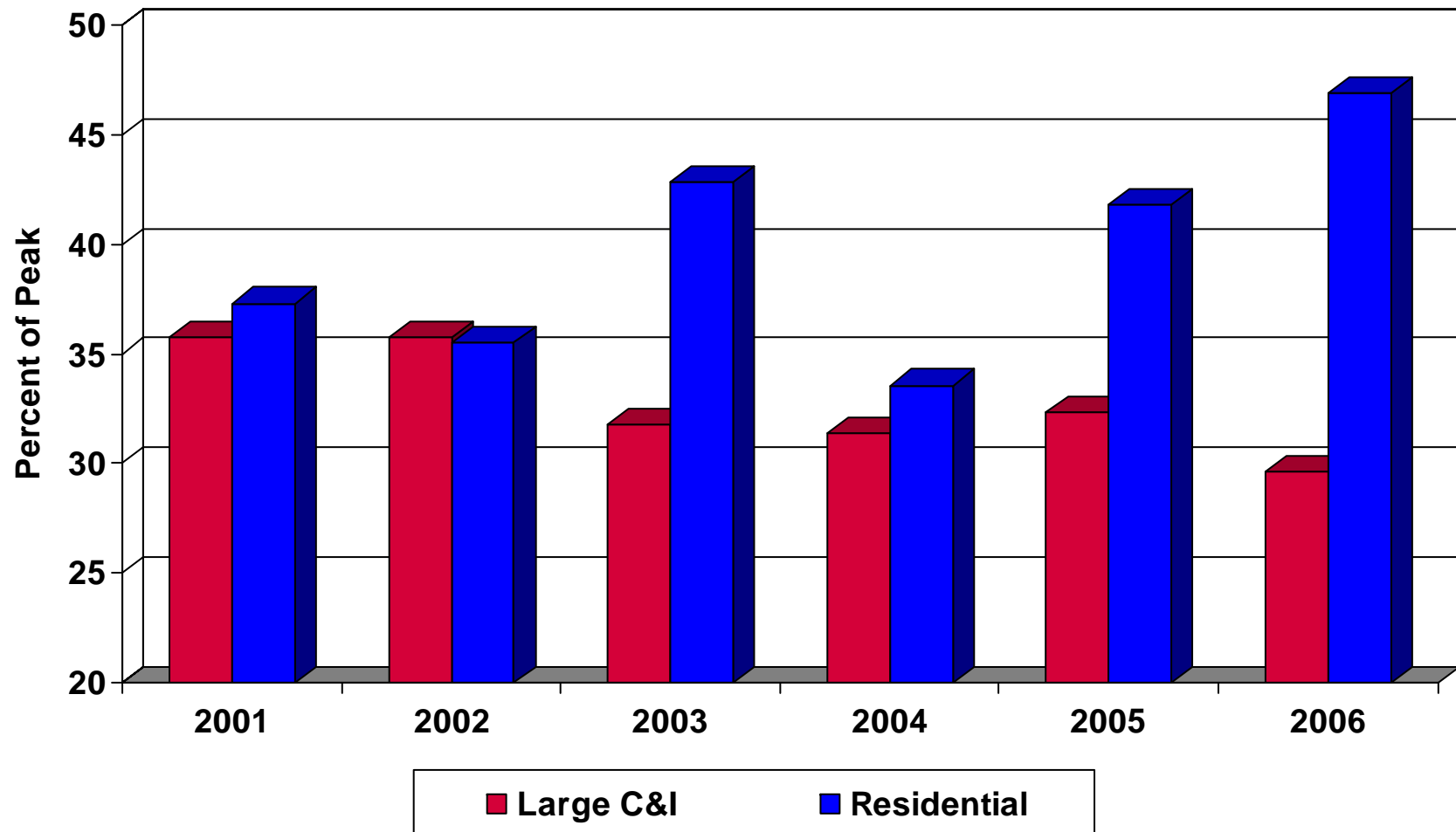
- ◆ **Suppliers pay Generators in the ICAP market.**
- ◆ **Total ICAP is allocated to Suppliers based on the sum of their customers' contributions to the previous year's system peak.**
- ◆ ***Sound familiar?***

# Role of Load Research in ICAP Markets

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- ◆ *... It's what we do!*
- ◆ **Load Research is the study of how classes of customers contribute to system loads.**
- ◆ **Instead of traditional rate class segments, we estimate Supplier segments.**
- ◆ **Instead of writing annual load studies, we report daily to ISO-NE and Suppliers.**

# Massachusetts Rate Classes: Contributions to System Peak



# Basic ICAP Method

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- ◆ **Estimate individual customer tags based on interval data or class average load in the system peak hour.**
- ◆ **Tags include losses and unaccounted for energy.**
- ◆ **Customers' tags follow them as they enroll with different Suppliers.**
- ◆ **Each day, each Supplier's capacity obligation is calculated as the sum of their current customers' tags.**

# Load Reconstitution

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- ◆ **Participants in the Real-Time Demand Response Program get ICAP credits from the ISO-NE if event coincides with Annual Peak.**
  - ◆ **ISO-NE calculates customers' base loads from interval data provided by utilities.**
  - ◆ **Difference between actual and base loads determines credits.**
- ◆ **To avoid double counting of benefits, ISO-NE provides “adders” to participants' actual interval data for inclusion in ICAP tags.**
- ◆ **Since ISO-NE knows very little about end-use customers, this process is a challenge.**

# Do Suppliers Care About ICAP?

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- ◆ **Since 2003, we've provided:**
  - ◆ Daily and monthly emails with reported Supplier ICAP.
  - ◆ Individual customer tags via EDI.
  - ◆ Responses to questions about method (very few).
- ◆ **Nobody noticed.**
- ◆ **In December 2006, the price of ICAP increased from about \$.20/KW-mo to \$3.05/KW-mo.**
- ◆ **Almost daily questions from Suppliers and Customers, and debates about tag "corrections"!**
- ◆ **Load reconstitution was required for all zones this year.**

# Forward Capacity Market

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- ◆ **Goal is to promote investment in new and existing power resources, attract new conservation programs, and maintain reliable operations.**
- ◆ **ISO-NE forecasts requirements (3-years out) and holds annual auctions to purchase resources.**
- ◆ **“Other Demand Resources” can be bid into the same market as Generation.**
- ◆ **Market rules developed by ISO-NE with input from many stakeholders.**

# FCM, So Far

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- ◆ **400 “Show of Interest” forms received for 17,200 MW of new resources (500 MW needed).**
- ◆ **Qualification packages submitted in 6/2007, for auction in 2/2008, for capacity to be delivered in 6/2010.**
- ◆ **National Grid submitted Qualification Package only for existing DSM programs.**
- ◆ **Some players are marketing aggressively, requiring 5-year customer commitments.**

# National Grid Strategy in FCM Market

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- ◆ **The use of Other Demand Resources to meet capacity requirements is a good idea.**
- ◆ **We are continuing to market Demand Response programs to our customers.**
- ◆ **Money earned during Transition Period will be used to fund and expand energy efficiency programs/pilots.**
- ◆ **We are using targeted DR programs to improve reliability, and are interested in technology “by-products” for system automation.**
- ◆ **We want to be Meter and Data Service provider.**
- ◆ **Goal is to “decouple” T&D revenues from KWH sales.**