



## Ensuring Generation Adequacy



## Ensuring Generation Adequacy

- ◆ Replacing old regulatory assurances
- ◆ ICAP in the Northeast before deregulation
- ◆ ICAP after deregulation
- ◆ Can generators survive without ICAP?
- ◆ Promoting reliability through surplus capacity

## Reliability Assurances in Regulated Markets

- ◆ Integrated Resource Plans
  - Difficult to maintain in competitive environment
  - Suppliers can't project market share with enough certainty to make capacity projections meaningful

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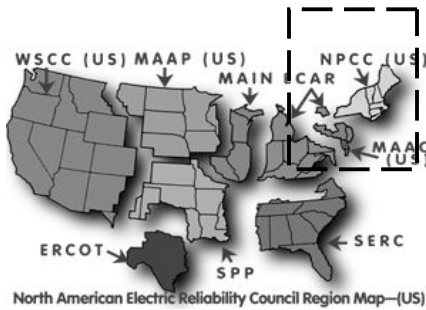
## New Reliability Assurances

- ◆ Supply will respond to price signals
  - But, will the response be quick enough to avoid California-type disasters?
- ◆ Northeast power pools attempted to transform Reserve Sharing Arrangements into Reliability Assurance and implemented Installed Capacity ("ICAP") obligations (ICAP after deregulation)

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# Is ICAP Effective?



- ◆ Two of ten NERC regions are using ICAP, and one (NY) faces potential blackouts in Summer 2001
- ◆ Before California, MAAC and NPCC have had the most blackouts
- ◆ Seven of eight regions without ICAP have adequate supply

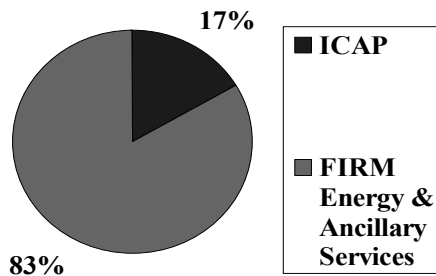
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# How Much Does ICAP Cost Retail Customers?

- ◆ PJM last year
  - 1.1 cents/kWh on average
- ◆ New York City
  - 1.8 cents/kWh
- ◆ New England
  - 1.1 cents/kWh

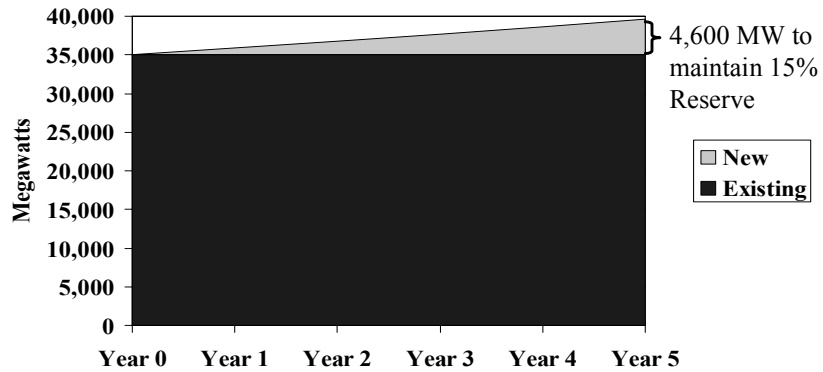
**In PJM, ICAP averages  
~17% of the Power  
Price**



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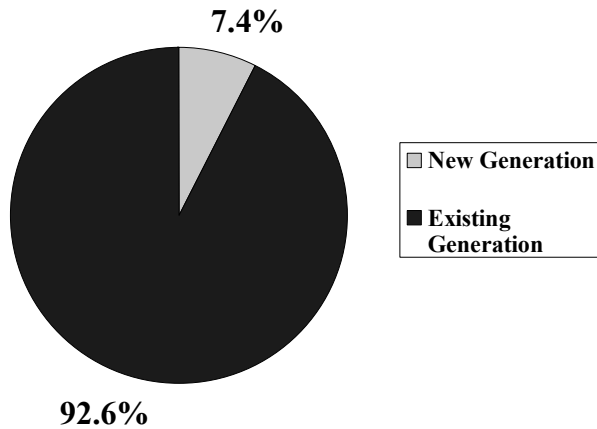
## What Do We Get For ICAP \$?



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## Who Receives ICAP Payments?



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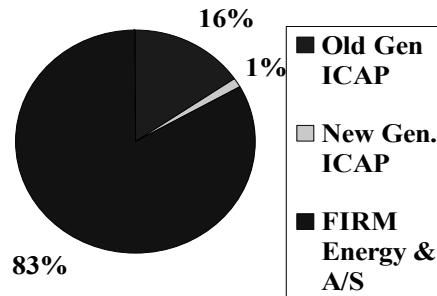
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## How Much Does ICAP Cost Retail Customers?

- ◆ PJM

Less than 0.1¢/kWh of 1.1¢/kWh ICAP payment goes to new generators

**In PJM, ICAP averages ~17% of the Power Price**



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## Do Existing Generators Need ICAP?

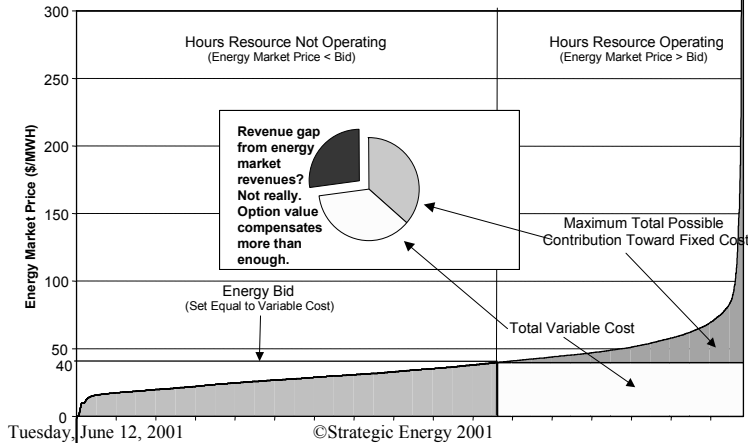
- ◆ Can generators cover fixed and variable expenses through firm energy sales?
- ◆ Are subsidies necessary to keep generators from going away when spot energy prices are low?
- ◆ ICAP proponents warn of a “revenue gap”.

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# How do generators make money?

## Maximum Possible Contribution to Fixed Cost from Energy Market (Example Unit w/ \$40/MWH Variable Cost)



## Generators create revenue by:

### 1. Commonly Understood Methods

- Selling into the spot market
- Uplift charges
- Ancillary Services

### 2. Little-Known Methods

- Selling into the forward market
- Optimizing sales through portfolio management techniques
- Extracting the option value of the generator by “range trading” around the variable cost of production, among other methods. Let’s review this method.

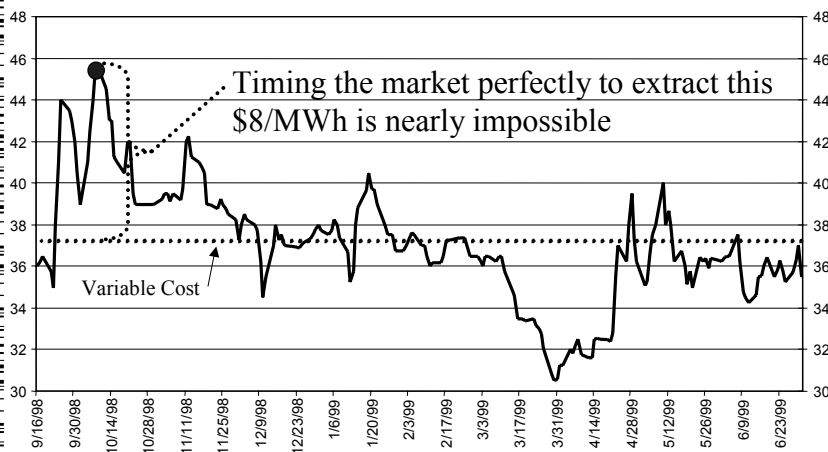
# Option Value

- ◆ Generators have an option, in real-time, to generate or not to generate
  - This flexibility is extremely valuable both in the forward markets and in the hourly markets
  - The following two slides illustrate a very simple approach to extract this value

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## Explaining Option Value: Cinergy Sep '99 Contract Selling at The Peak Yields \$8/MWh

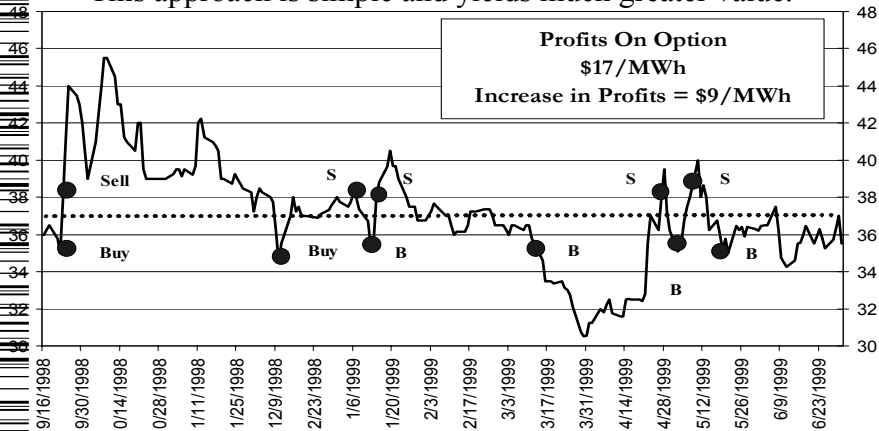


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## Explaining Option Value: Cinergy Sep '99 Contract Selling around bandwidth yields \$17

This approach is simple and yields much greater value.



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## Generators Extracting Value

- ◆ This approach to extracting value to help pay the fixed costs of a generator is a simple method showing how generators can create value
  - Even in a low-volatility month like September
  - Using narrow, conservative trading ranges
  - No risk
- ◆ \$17/MWh for one month translates to **\$70/kW-year** from this tool alone

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## Examples We've Seen

- ◆ The next two slides show examples used by proponents of ICAP to explain why they need ICAP subsidies
  - Example 1: base-load, gas-fired plant
  - Example 2: peaking plant

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## Incomplete Example 1

### Excludes Option Value

#### 500 MW gas-fired combined cycle

- Fixed cost requirement (levelized) \$95 - \$140 per kw-yr
- Expected net revenues:
  - energy market less \$50 - \$70 per kw-yr<sup>1</sup>
  - uplift \$1 - \$1.5 per kw-yr<sup>2</sup>
  - ancillary services \$2 - \$2.5 per kw-yr<sup>3</sup>
  - total \$53 - \$74 kw-yr
- **revenue gap** equals **\$21 - \$87 kw-yr**

However, our example showed September returning \$17/MWh which translates to \$5.78/kW-month. The same return over 12 months is \$69.36, and that doesn't even count off-peak hours and Saturdays! Obviously, this covers the "revenue gap".

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## Incomplete Example 2

### Excludes Option Value

#### 125 MW gas-fired combustion turbine

• Fixed cost requirement (levelized)	\$60 - \$90 per kw-yr
• Expected net revenues:	<u>less</u>
– energy market	\$25 - \$40 per kw-yr <sup>1</sup>
– uplift	\$0.5 - \$1 per kw-yr <sup>2</sup>
– <u>ancillary services</u>	<u>\$2.5 - \$3 per kw-yr<sup>3</sup></u>
– total	\$28 - \$44 kw-yr
• revenue gap	<u>equals</u> \$16 - \$62 kw-yr

Here, the burden is even smaller. Clearly, the \$70 contribution of the option value covers the “revenue gap”.

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## Will All Generators Turn Profits Without ICAP?

- ◆ Maybe not
  - Some may not be sophisticated enough to employ simple portfolio management techniques
- ◆ Still, generating equipment will not disappear
  - Owners will learn how to manage better, or will sell to someone who can create more value

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## ICAP Is Not Needed

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- Capacity market is not needed to assure adequate entry of new generation capacity for reliability purposes
- ICAP is anticompetitive – it artificially sustains weak competitors

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## If Policy Makers Must Subsidize

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- ◆ Not convinced that new generation will be built without subsidy?
- ◆ Not willing to risk that markets will react quickly enough to prevent California-type disaster?
- ◆ Then limit subsidies to new generators.

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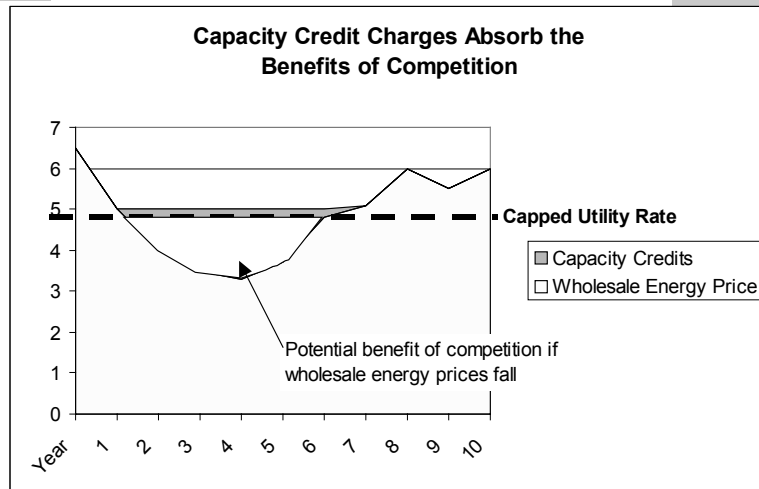
## Guarantee Payment Only to New Generators

- ◆ Pay new generators \$50/kW per year for the first five years of operation
- ◆ Fund through surcharge of \$0.002/kWh to all customers through a \$1.50/MWh charge to all suppliers that schedule through the ISO for delivery to retail customers
- ◆ Apply only when reserves drop below 15%

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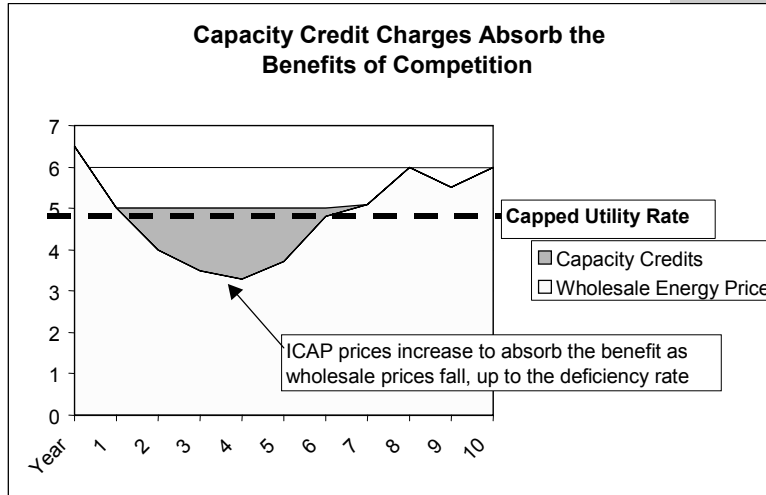
## Benefits of Retail Choice If Not For ICAP



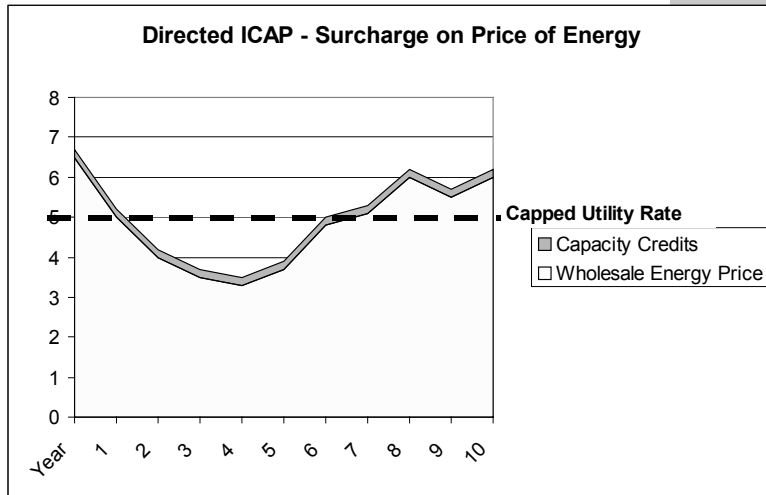
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# Current ICAP Steals the Benefits of Retail Choice



1. Customers Benefit When Prices Fall
2. Revenue Continues When Prices Rise





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# Summary

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- ◆ Policy makers service reliability & price stability
- ◆ ICAP currently is too expensive
- ◆ Existing generators don't need ICAP
- ◆ New generation can be encouraged at much lower cost to customers if payments are directed to new generators only