

Relationship Between Installed Capacity and Energy Markets

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Purpose of Installed Capacity

- The Purpose of Installed Capacity is to assure that there is sufficient generation capacity to reliably serve load
- The accepted standard for Installed Capacity is an expectation of no more than one day in ten years of failure to serve load due to insufficient generating capacity

Purpose of Energy Market

- The purpose of the energy market is to schedule and dispatch sufficient resources to meet the daily/hourly/minute by minute demand for electricity.

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How ICAP Assures Reliability

- ICAP requirement determines how much capacity must be available to assure reliability (additionally in NY there are locational ICAP requirements)
- Resources incented to maintain availability
- The pure reliability resource is cheap to build with no consideration of running costs
- Deficiency charges are therefore based upon a multiple of the levelized cost of building a GT.

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How Do Resource Planners Traditionally Determine Which Resources to Add

- Assume that you will add GTs to assure reliability
- Choose to add baseload resources if the efficiency gains from the baseload resource are “paid” for by avoiding more expensive energy sources
- Deregulated markets effectively produce the same result when potential entrants compare their costs to expected energy and capacity revenues.

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Proposed Replacements for ICAP Market

- Make ICAP payments only to new providers
- Contract with GTs to assure reliability
- Eliminate ICAP Altogether

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Problems With Only Paying New Suppliers

- New suppliers are not the only resources that add to reliability
- This is not a market mechanism - It is a command and control mechanism
- What is a new resource - do all potentially mobile resources leave if they are not paid continuously.
- Energy Prices will rise as existing resources have to recover more fixed costs in the energy market

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Problems With Contracting With GTs To Assure Reliability

- Which GTs get contracts
- Over time there will be less baseload resources
- Energy prices will rise due to both the baseload/peaking resource mix distortion and because generators without contracts will need to recover fixed costs through their energy payments

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Problems With Eliminating ICAP

- Generators must recover all their fixed costs through energy markets
- Energy markets do not provide a stable indicator of the need for capacity because demand is strongly influenced by random factor such as weather.
- Additional risk will result in higher energy costs than energy plus capacity in an ICAP market

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Energy Market Impact if ICAP Eliminated

- If ICAP is eliminated then Energy price caps must also be eliminated
- Energy prices must be able to rise sufficiently to induce new entry
- This requires prices of ~\$700/MWh for 175 hours/year or ~\$42,000/MWh for 2.4 hours/year
- Average energy prices would rise

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Market Monitoring Impact If ICAP Eliminated

- Reliability incentive is provided by including substantial shortage value in the energy market.
- Generators would need flexibility to modify bids over time to capture shortage value
- No longer valid to mitigate generators based upon deviation from past bidding behavior
- Fast action mitigation would most likely have to be eliminated