



Philippines Natural Gas Master Plan

Phase Two Public Consultation: Regulatory Strategy

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Prepared for:



THE WORLD BANK

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Prepared by:



THE LANTAU GROUP
strategy & economic consulting

As discussed earlier, Regulatory Strategy is a key element for general market development, and it fits closely with Facilitation

General market development

Regulatory Strategy: Clear guidance on how to review and approve diesel-to-LNG conversions and mid-merit plant

Facilitation Strategy: Education and capacity building

Specific development of terminal infrastructure

Issue policies to require LNG use as backup to Malampaya

Issue policies to facilitate diesel-to-LNG conversions

Facilitate an Open Season for a new terminal

Choose an FSRU provider to provide backup capacity and additional capacity for the private sector

Agenda

1 Portfolio aggregation problem

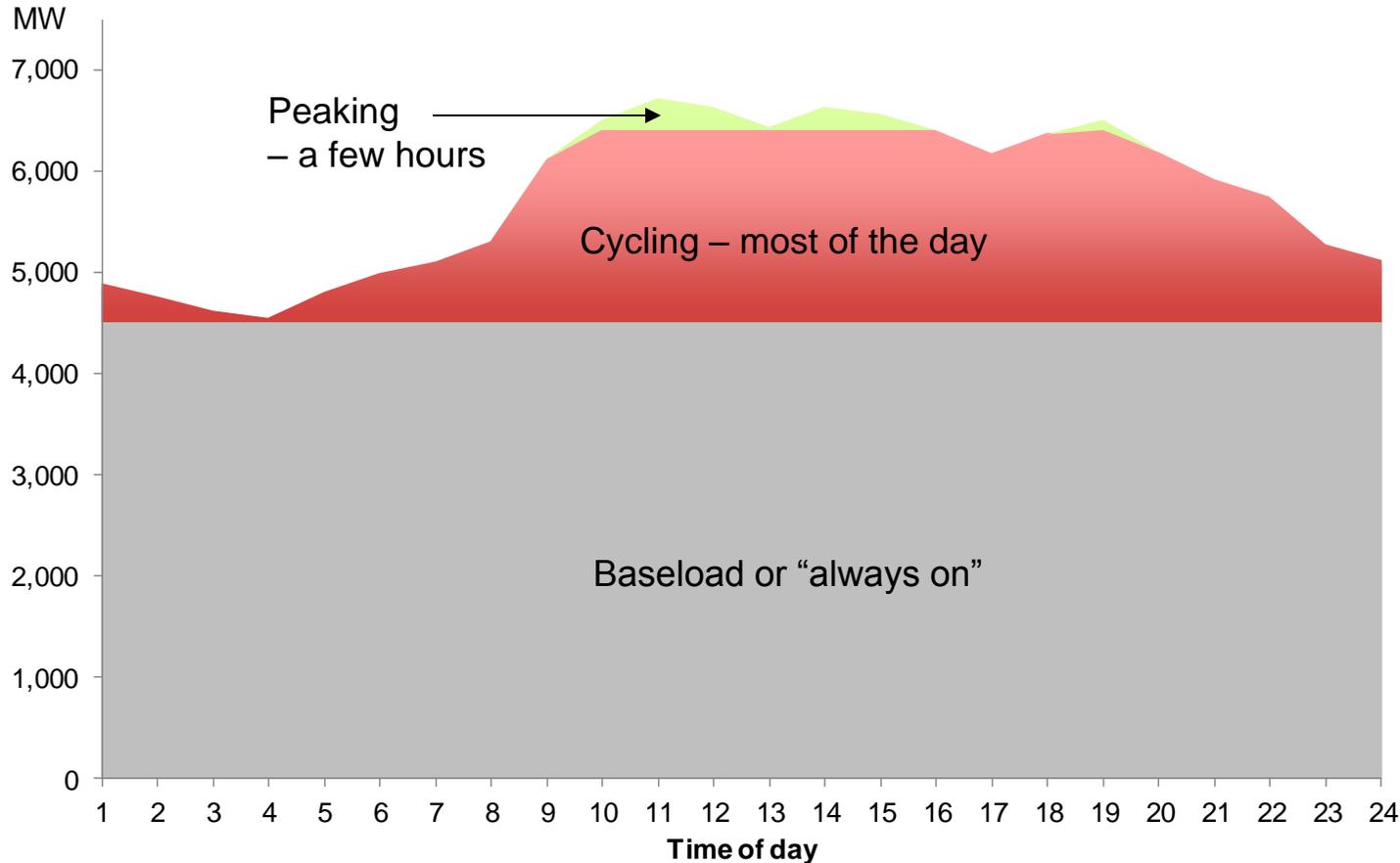
2 Institutional background

3 Structural and regulatory issues

4 Policy recommendations

The electricity system must contain a mix of different units to meet the varying load across the hours of the day

Electricity demand in Luzon on an illustrative day (Friday, 10 Jan 2014)

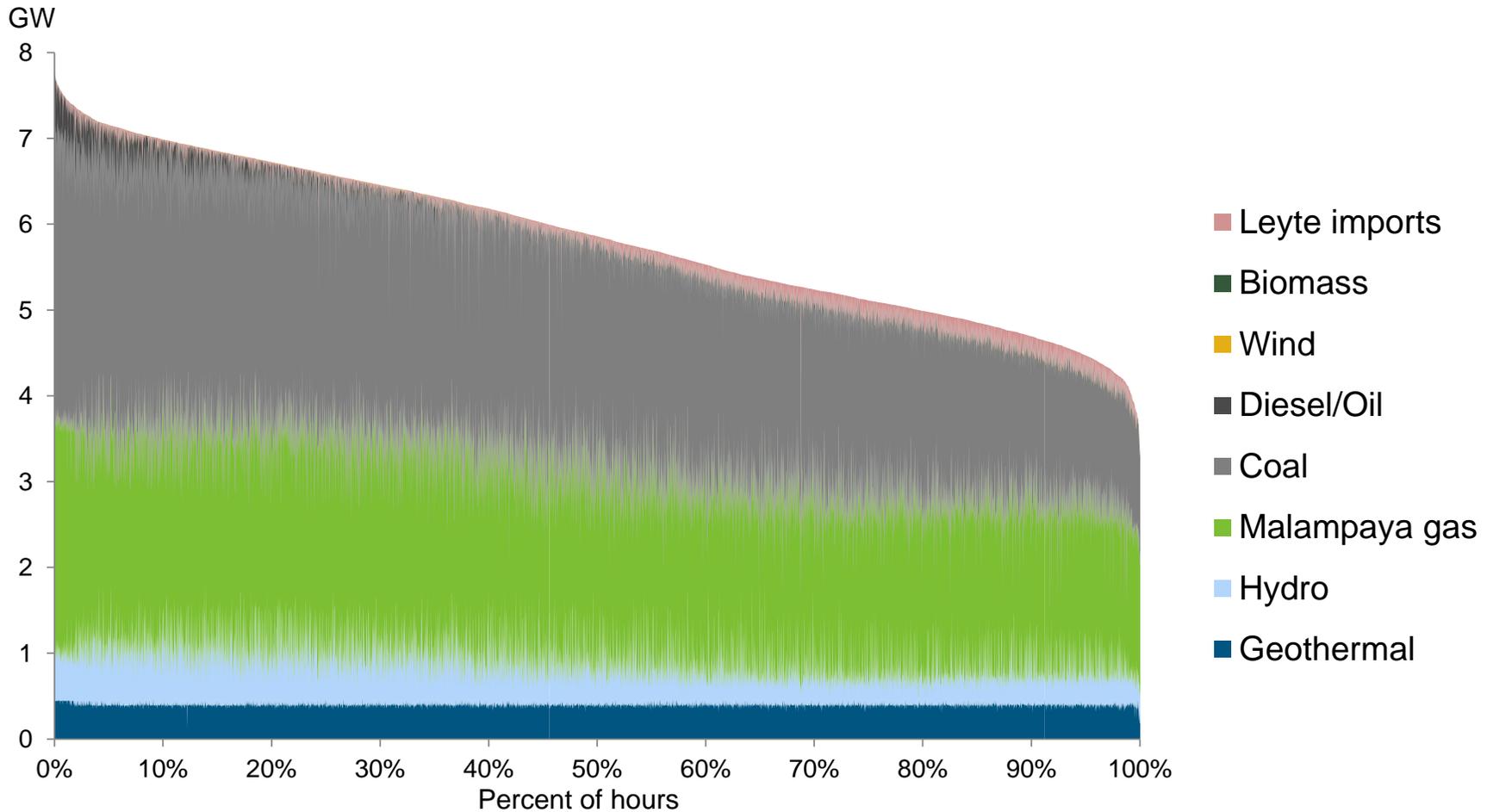


We can divide the demand up into three kinds of demand:

- **Baseload:** Which is always needed
- **Cycling:** Which is mostly needed during the day
- **Peaking:** For which just a small amount is needed in a few hours

Stacking the generation by type against the Luzon load duration curve for 2012 shows the overall system generation mix

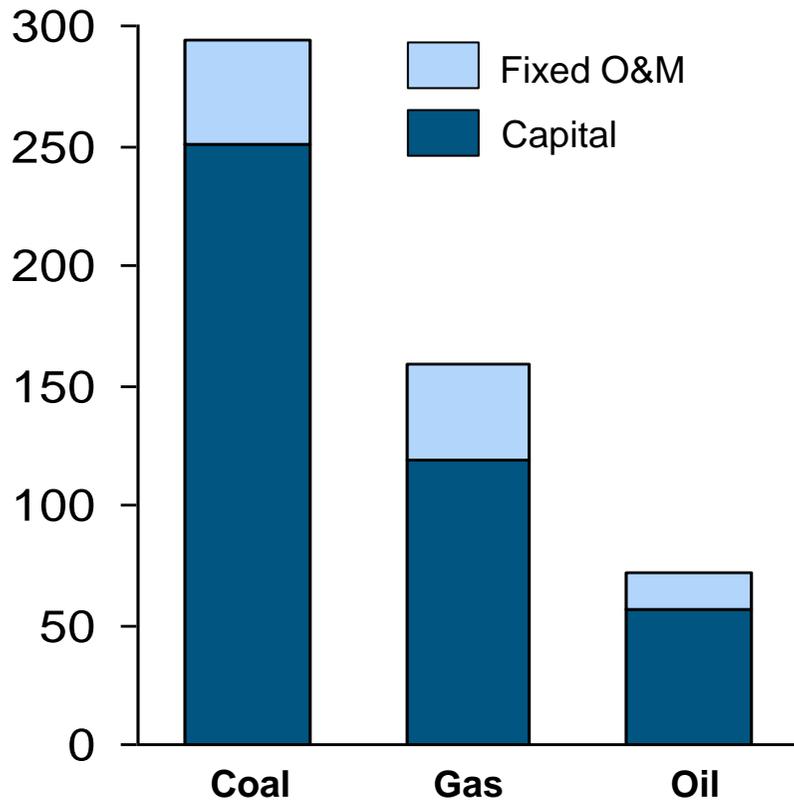
Luzon generation mix stacked against Load-Duration Curve (2012)



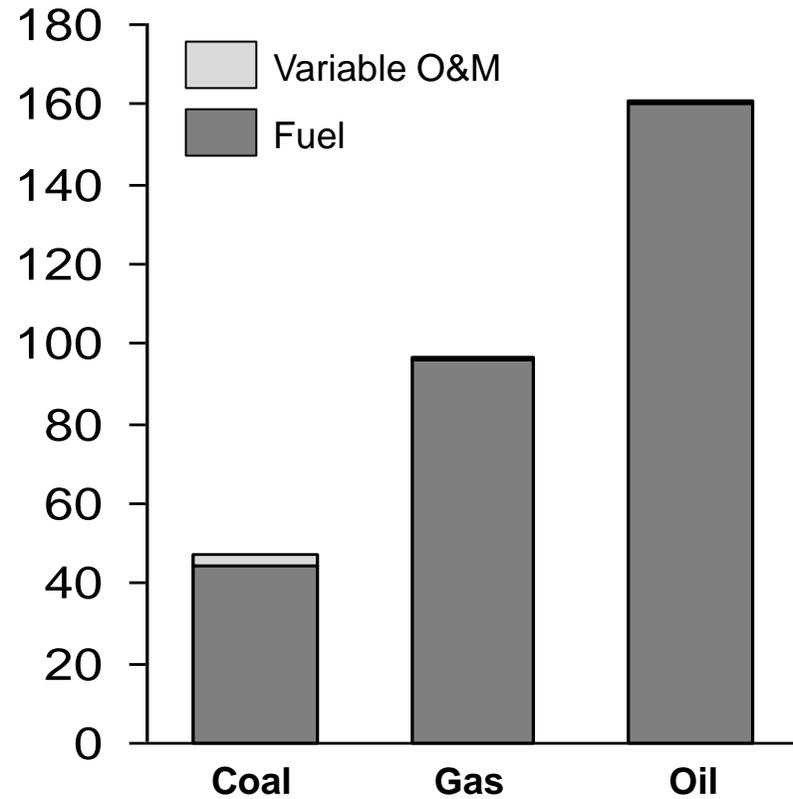
Source: PEMC (ex-post); TLG analysis

Each type of unit has a different structure of fixed and variable costs

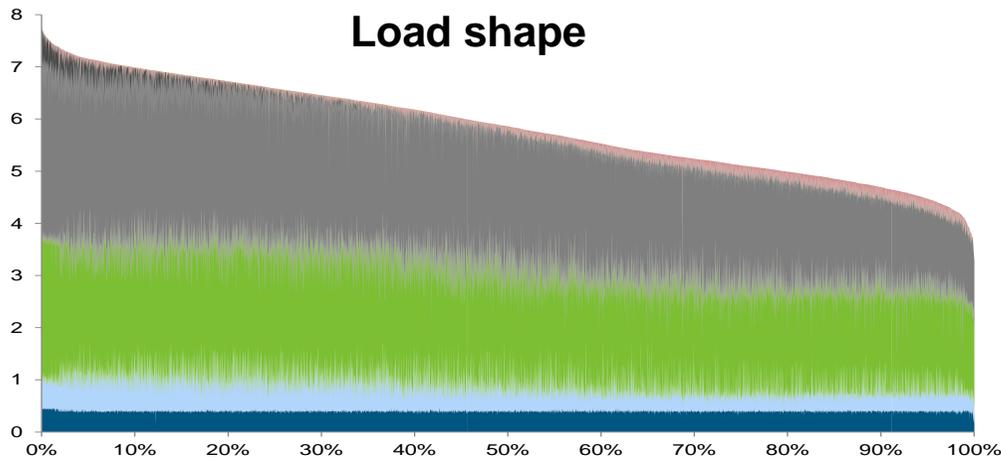
Fixed costs - \$/kW per year



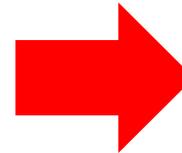
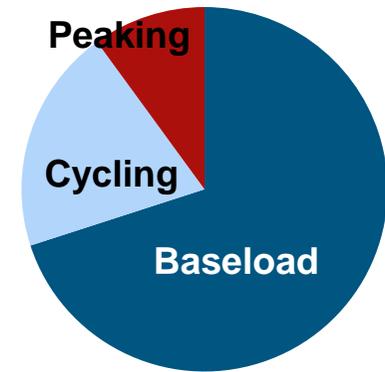
Variable costs - \$/MWh



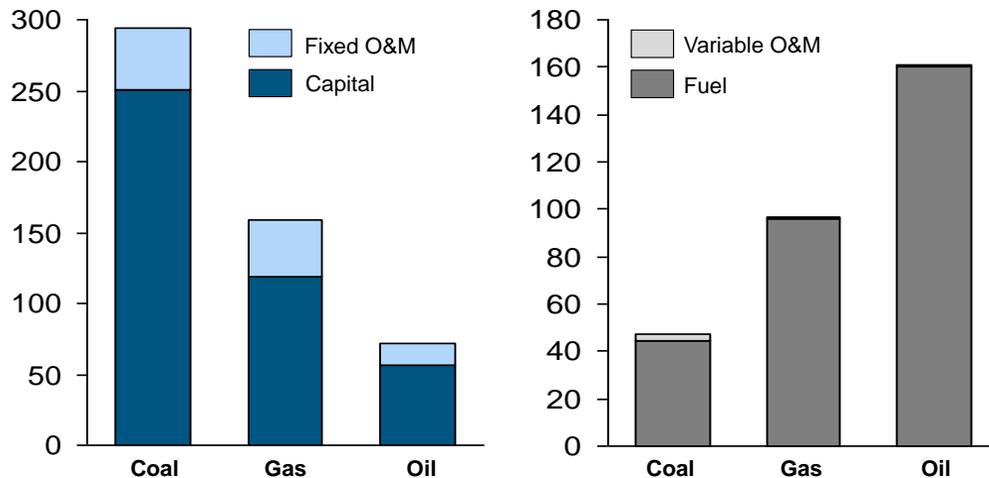
The portfolio aggregation problem – given a load shape and cost structure – is how to determine the optimal capacity and generation mix



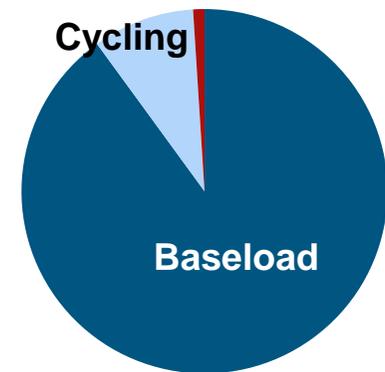
Optimal Capacity Mix



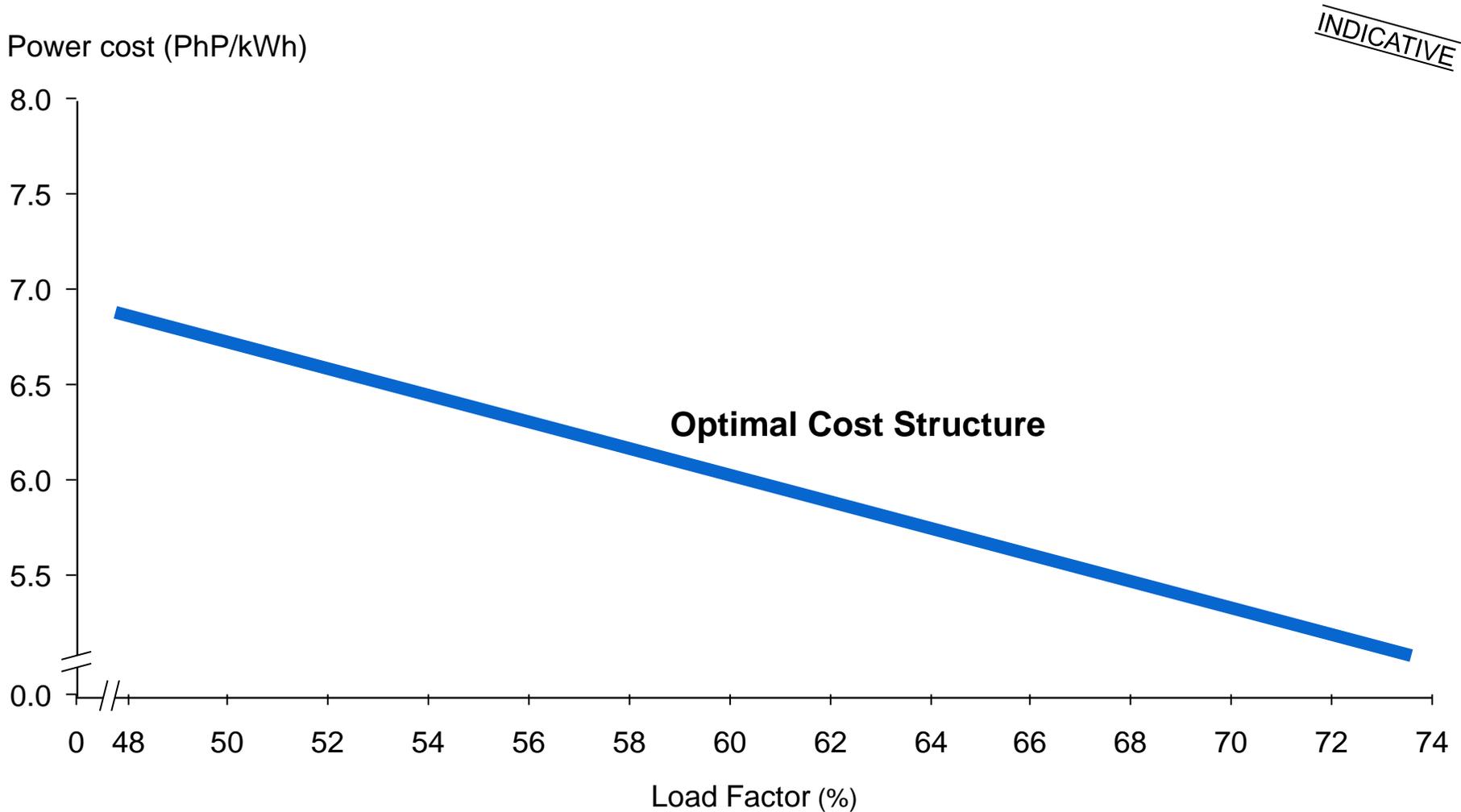
Fixed and variable cost structure



Optimal Generation Mix



For an optimal portfolio, the average cost should decline as the load factor increases



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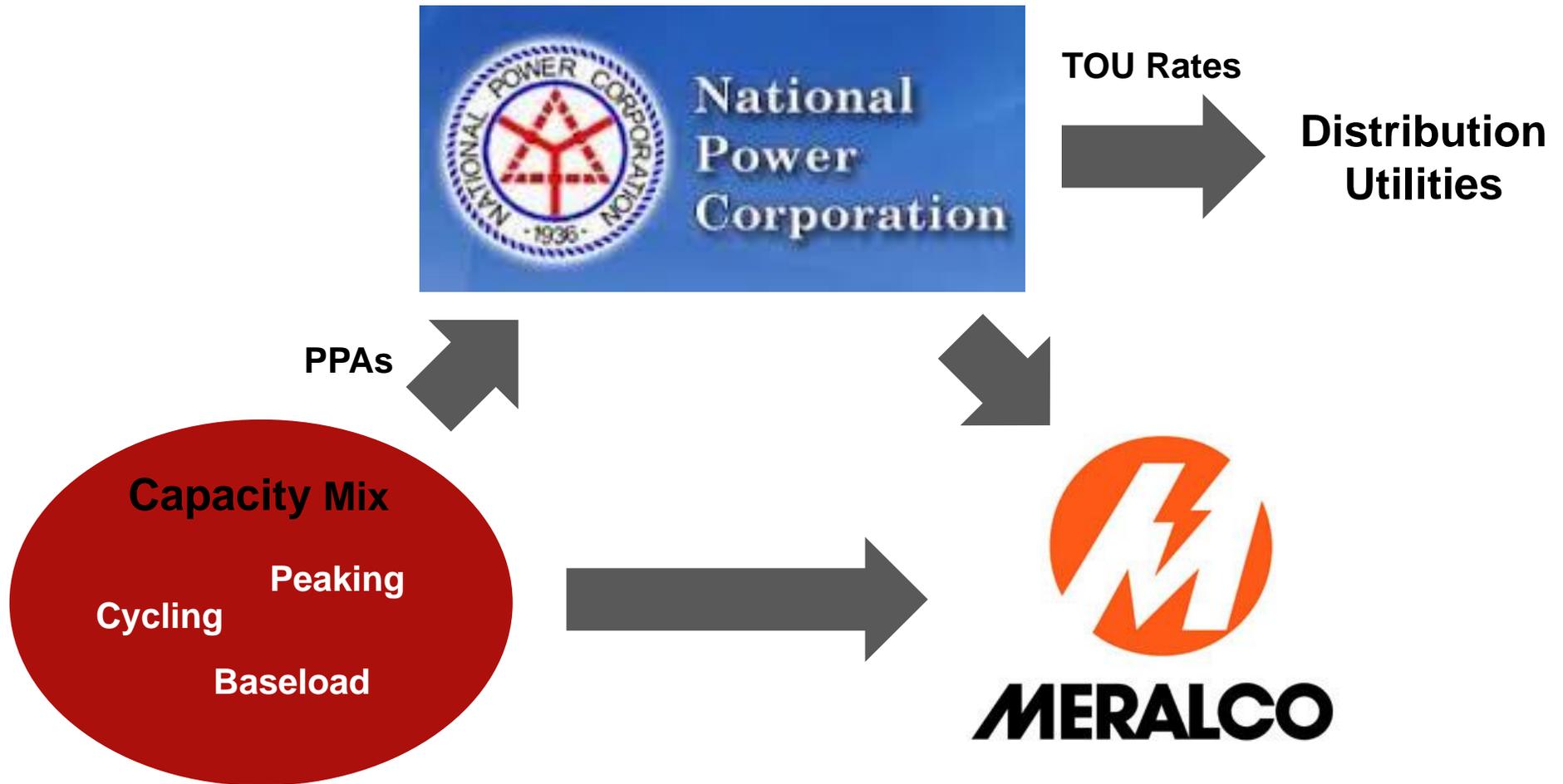
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Historically, NPC (and secondarily Meralco) acted as portfolio aggregator, buying under PPAs and selling to distribution utilities at time-of-use rates



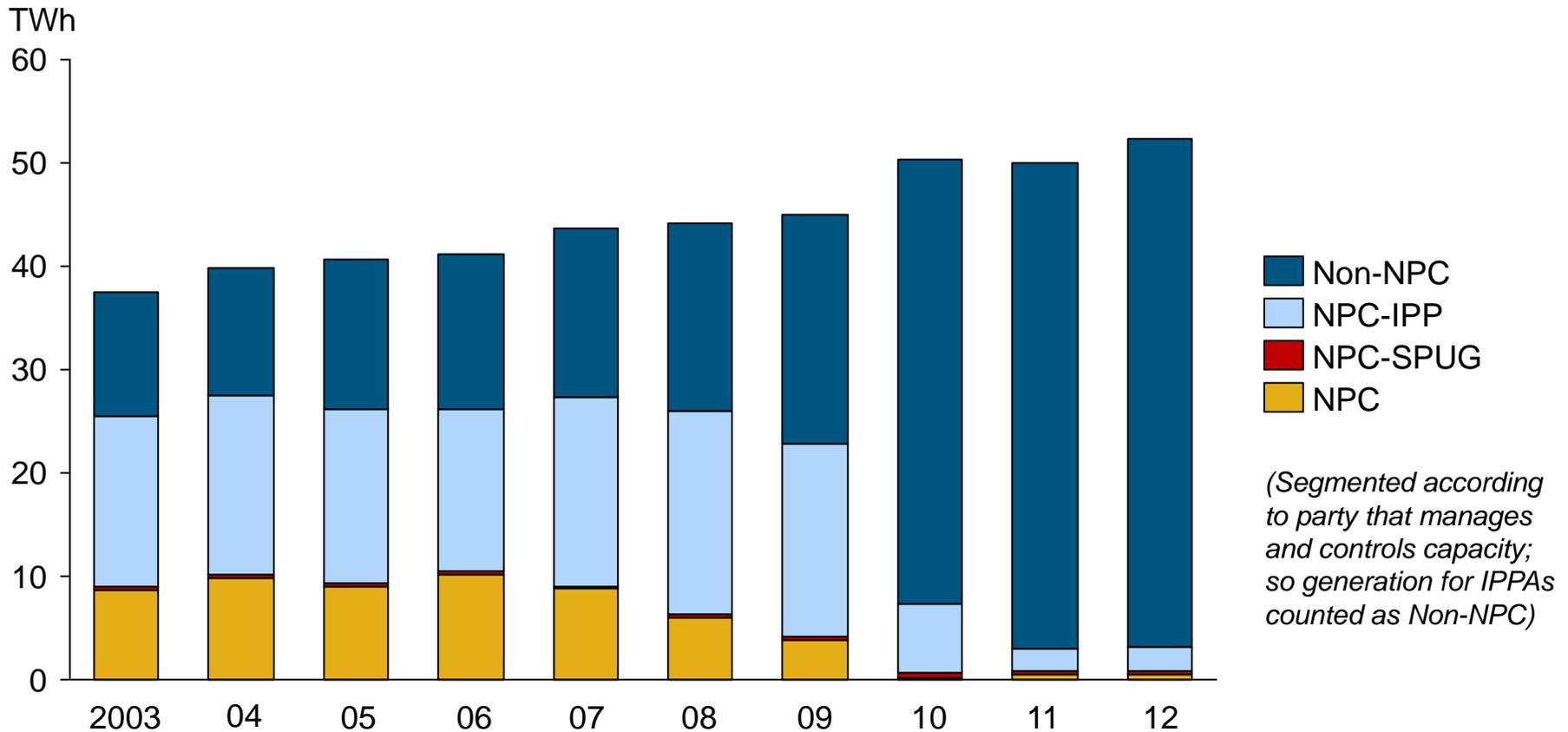
After EPIRA, PSALM was created to privatize the NPC assets and liabilities – the TOU rates were converted to Transition Supply Contracts (TSCs)



The successor generation companies that inherited the PSALM-privatized assets and liabilities ultimately renegotiated most TSCs as commercial Power Sale Agreements (PSAs)

As generation assets moved to private ownership and TSCs were converted to PSAs, the distribution utilities (DUs) were left to play the aggregation role

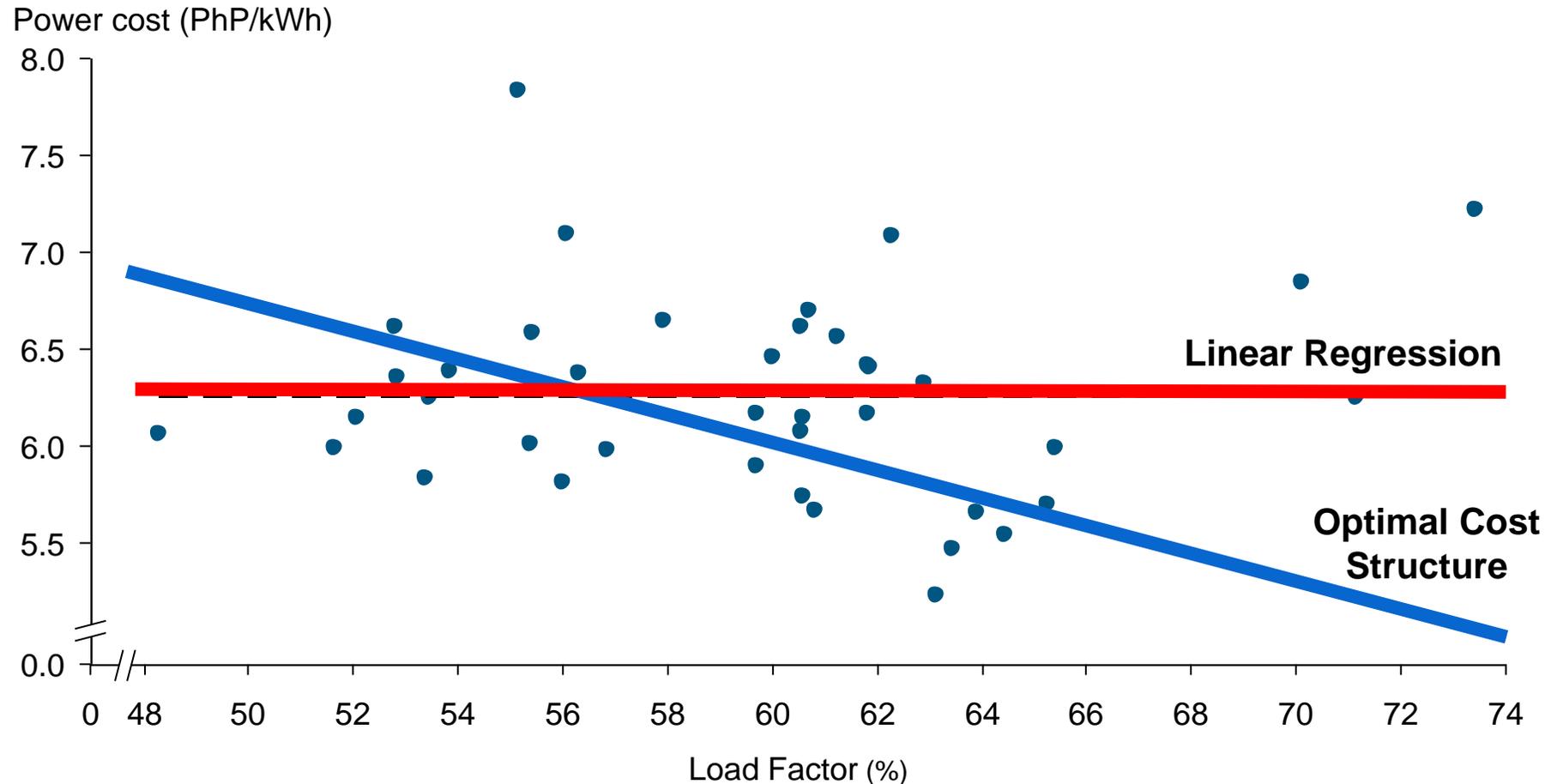
Gross power generation by ownership – Luzon (2003-12)



Source: DOE

How have the DUs performed? So far, they seem to have demonstrated little ability to optimize the capacity and generation mix

Average power cost vs. load factor for Luzon grid ECs (2012)



Source: NEA

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This historical evolution largely determines the current approach to structural and regulatory issues associated with the capacity and generation mix

What is the form of contracts by which DUs contract with generators?

- The dominant contract form is a Power Sales Agreement for a “slice” of a unit’s capacity
- The DU has the right to take energy in any hour at the defined energy price
- How does the ERC assess the rates under any PSA?
 - The ERC compares the proposed rates against the unit’s long-run marginal cost (LRMC) at a set capacity factor, given its actual capital structure
 - Prior to February 2013, proposed rates that fell below the NPC “Effective Rates” were deemed to be acceptable
 - In February 2013, the ERC published new draft PSA rules that explicitly reject “market-based pricing”, but require DUs to “undertake a transparent and competitive selection process”
- How does the ERC ensure that DUs are purchasing a “least-cost” capacity mix?
 - The ERC conducts a one-time review of the rates of individual PSAs
 - There is no mechanism to assess the cost-effectiveness of the overall portfolio
 - DUs are free to dispatch contracted energy and pass costs through to franchise customers

The traditional form of PSAs – which resemble historical PPAs – and associated contracting policies give rise to a number of issues

- DUs are not well-equipped to perform assess the appropriate mix of baseload, cycling, and peaking resources
- The dominant “slice of capacity” PSA structure suggests an implicit cost/MWh metric that creates a bias in favor of baseload resources
- The “slice of capacity” rights give the DUs – such as Meralco – effective control over generation dispatch and thereby considerable market power

Similarly, the ERC's contract-by-contract review process of individual PSAs gives rise to a number of possible distortions

- The standards by which a contract rate is deemed acceptable are unclear and give rise to regulatory risk
- The LRMC test requires the ERC's judgment on future price expectations
- The implicit cost/MWh basis built into the LRMC calculation may create a regulatory bias in favor of baseload resources
- Consideration focuses on the reasonableness of the specific resource, without obvious regard to other possible alternatives
- The “point in time” review gives the generator the ability to make later changes – e.g., changes in capital structure – that lower costs and thereby lead to higher (and possibly excess) profits
- Fuel cost pass-through provides no incentives for efficient fuel contracting
- Review process is aimed at procurement; there is no ongoing oversight to force or incentivize that contracted capacity is dispatched efficiently

The lack of any review of the effectiveness of a DU's overall portfolio creates the potential for inefficiency and possible abuse

- There is no evaluation of whether the specific mix of resources is appropriate – or necessarily even if the total amount of contracted capacity is reasonable
- There is no mechanism to take account of issues such as diversification or portfolio risk
- The cost pass-through nature of the regulatory approval gives DUs weak incentives to ensure that the portfolio of resources is dispatched effectively
- Moreover, the regulatory structure gives DUs some ability to pass higher-cost resources through to franchise customers, while funneling lower-cost resources to contestable customers

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There is considerable scope for improvement in DUs' contracting processes

- Time-of-use (e.g., peak, shoulder, and off-peak) contracts would allow for a more effective evaluation of different capacity resources and help build the DUs' ability to do portfolio planning
- Use of financially-oriented contracts (e.g., contracts for differences) would further enhance the evaluation of different capacity resources, as well as encourage greater consideration of price risk issues
- Both contract structures would push dispatching decisions back to generators, who have greater information and can thereby realize efficiencies more effectively
- We would also encourage active education efforts with respect to portfolio analysis and risk management

Similarly, we suggest improvements on the regulatory front

- The ERC should relax the focus on individual contracts and take a more “holistic” view of the DU’s overall portfolio
- One promising approach is the determination of a “benchmark portfolio” that would represent a least-cost mix of resources, given a set of generation technologies and a DU’s specific load shape
- Competitive power costs, rather than the ERC’s expectations of reasonable costs, could be used to set the benchmarks
- The allowed tariff could be set relative to this benchmark, so as to give DUs a clear profit incentive for beating the benchmark
- The DU’s profit incentives would then help to reinforce effective contracting and risk management



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