



Solve the Energy Crisis of Pakistan

May, 2013

Grim Picture

Current power generation is around 9,000 MW against a demand of 15,500 MW (excluding KESC), a scary shortfall of 6,500 MW. KESC supply is around 1500 MW against a demand of 2000 MW. NTDC estimates this to reach more than 12,000 MW by 2016-17.

Severe shortfall in indigenous gas production is imminent as growth in production since 2006~7 is negative. For 2014, the gas demand is expected to be 6.3 BCFD against a supply of 4.0 BCFD



In Pakistan's Energy Mix Oil has grown at a CAGR of 4.1%. Whereas Gas, Hydro and Coal on average have grown at a CAGR of 1.2% in the last 6 years, portraying a clear trend towards Oil in the Energy Mix

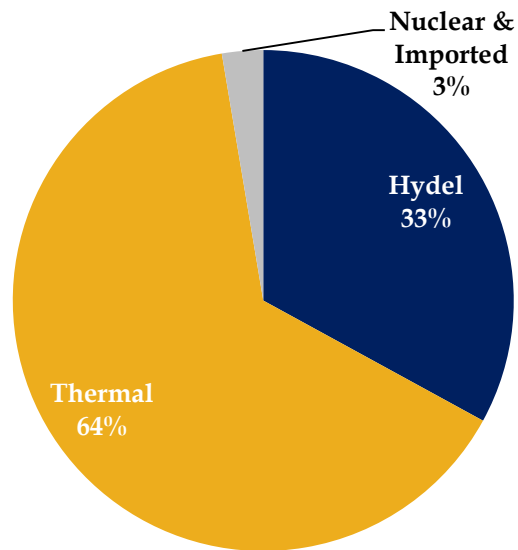


The overall contribution of thermal and hydel generation has remained constant over the years. oil based generation has increased resulting in higher cost of generation

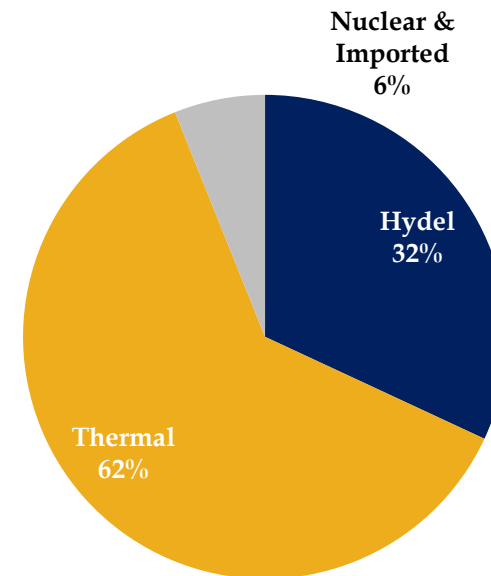
Fuel Mix in the Power Sector

The overall contribution of thermal and hydel generation has remained constant over the years

Electricity Generation Contribution (%) in 2005-06



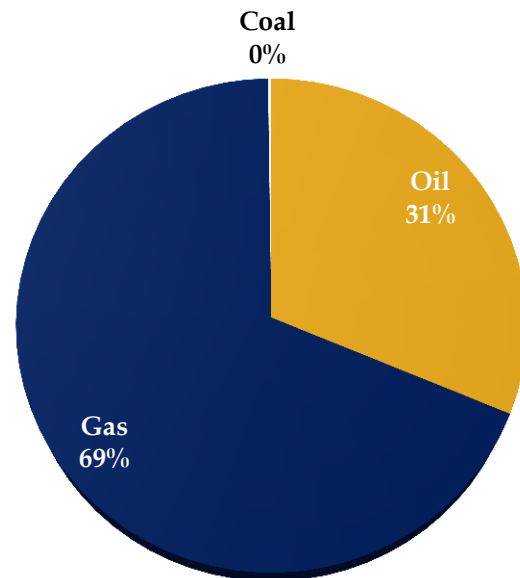
Electricity Generation Contribution (%) in 2011-12



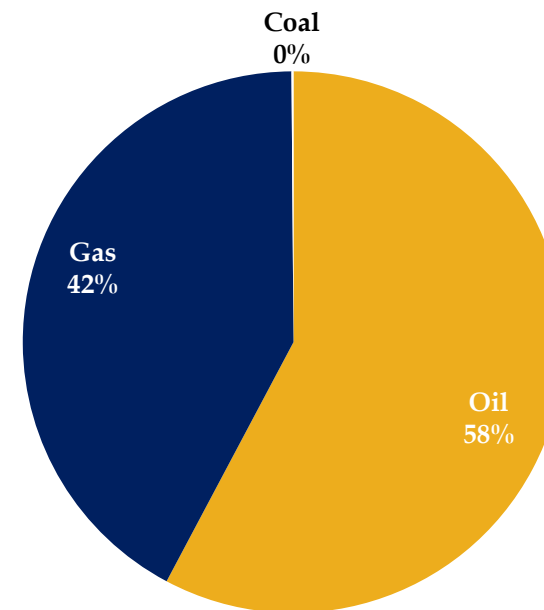
Thermal Fuel Mix in Power Sector

Over the years, oil based generation has increased resulting in higher cost of generation

Thermal Electricity Generation by Fuel 2005-06



Thermal Electricity Generation by Fuel 2011-12



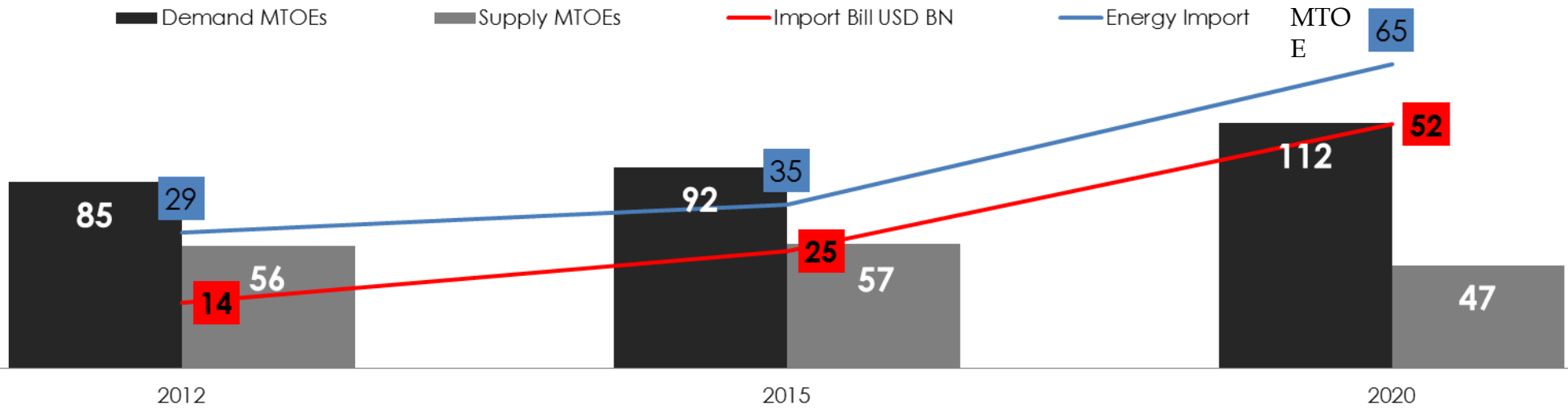
Energy Mix - Summary



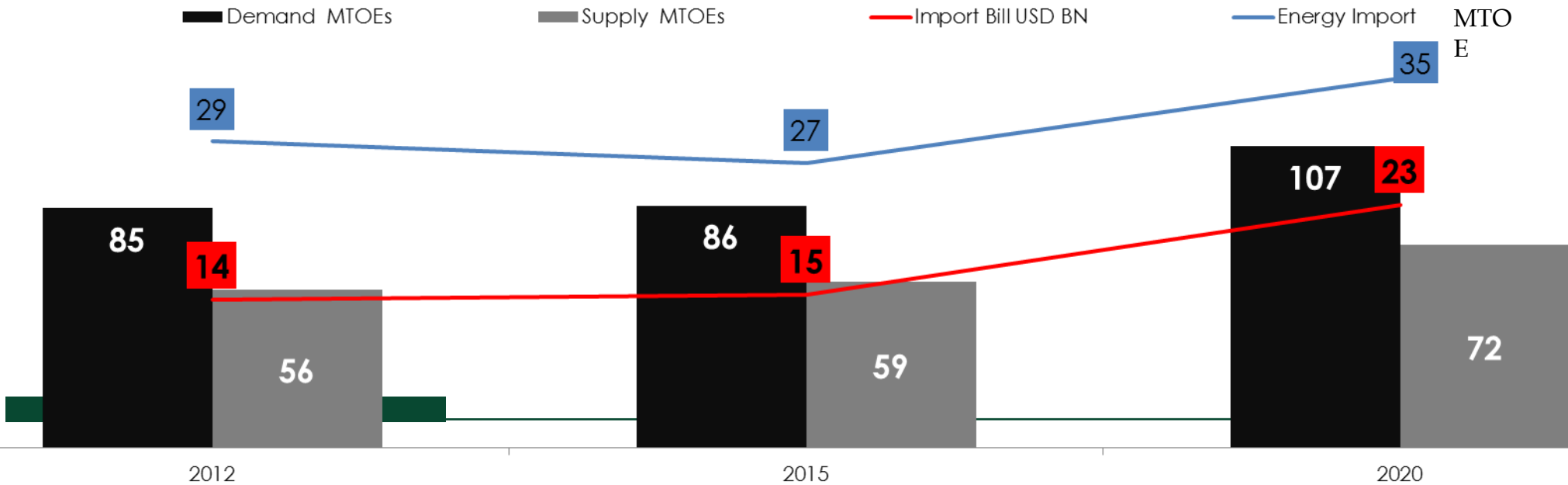
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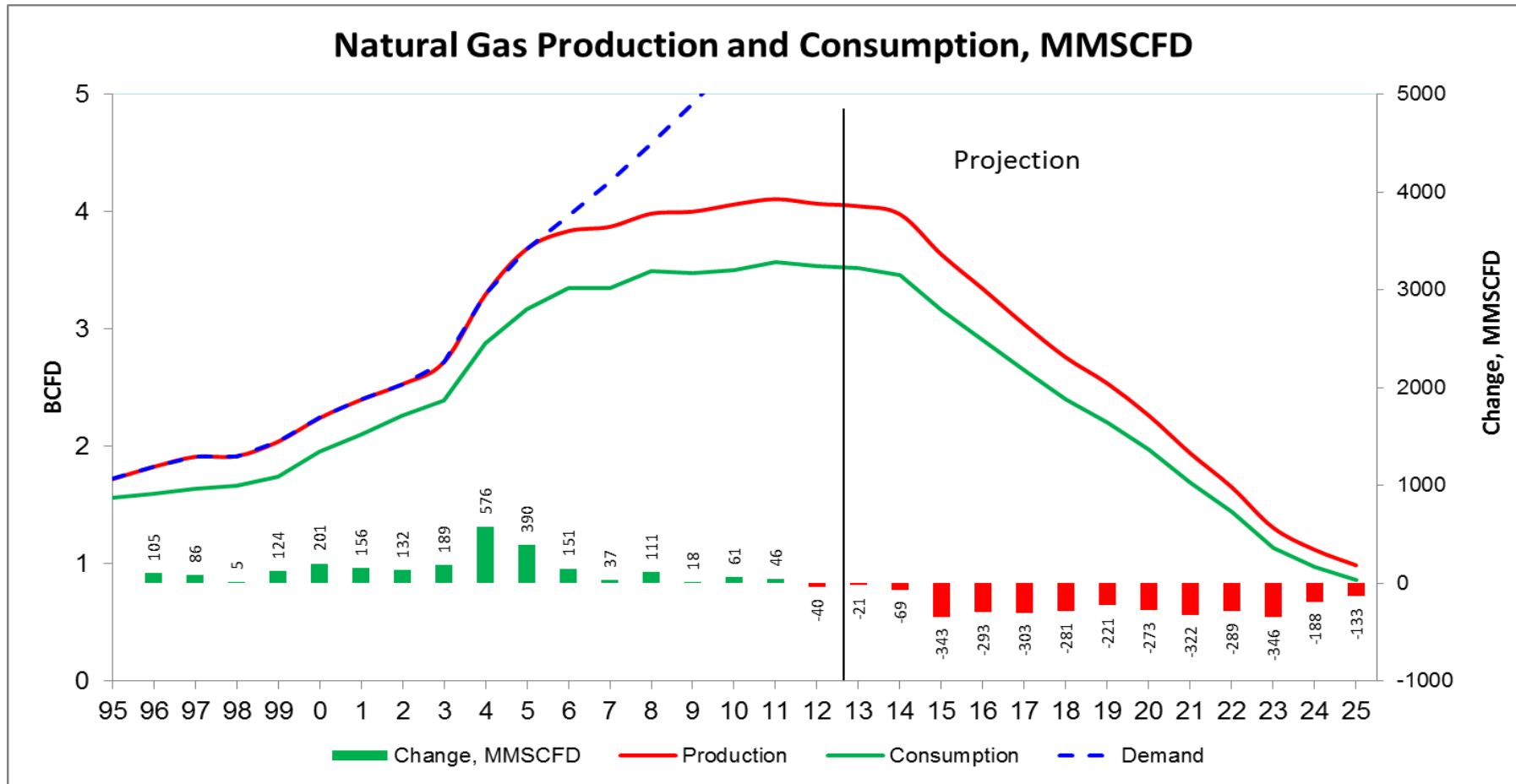


Business as usual - Unsustainable



Proposed Scenario





* Source - Pakistan Energy Yearbook - Engro Energy Task Force - DG Gas presentation

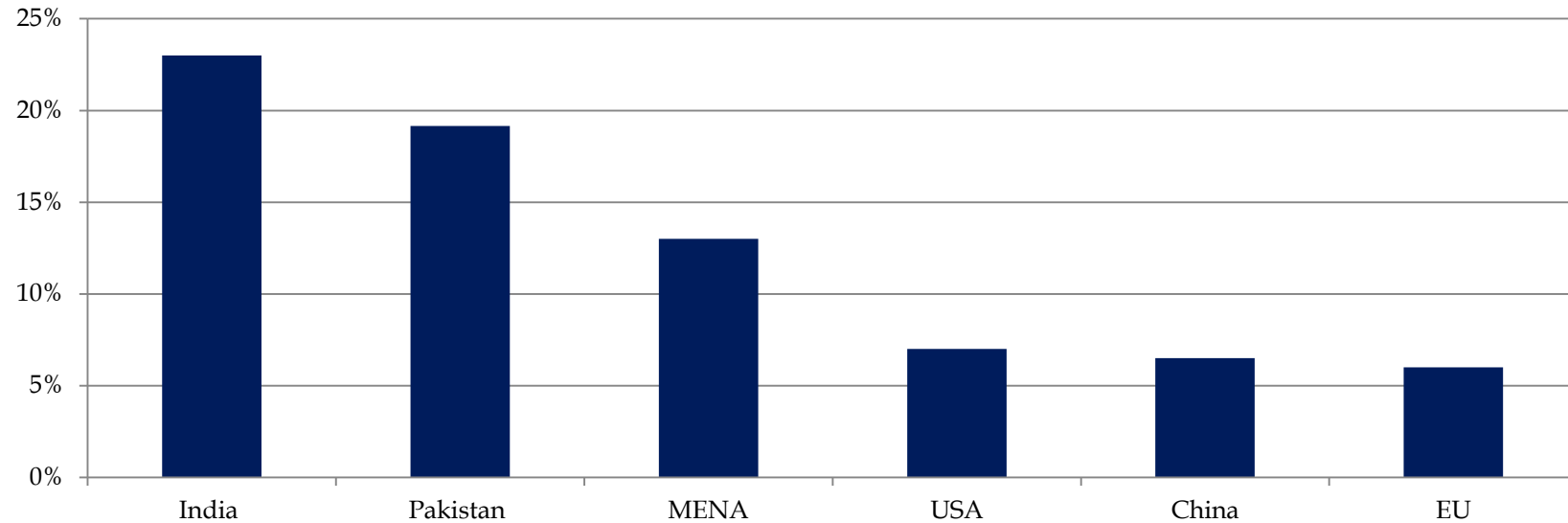


	Gwh	PKR/kWh	PKR BN
Difference btw Nepra & GoP	76,761	3.17	243
T&D Losses not compensated	2,456	8.72	21
Recovery Losses			99
Tax Loss			16
Late Payment Surcharge approx*			75
Heat Rate Difference at GENCOs*			6
Cost of Delay in Tariff Determination *			60
Total Subsidy Required			521

	PKR /kWh
Govt Notified Tariff (DISCO)	8.72
Tariff Notified by NEPRA	11.89
Effective Tariff catering for T&D Losses	12.27
Effective Tariff catering for Recovery Losses	13.83

The total subsidy required by the Power Sector is PKR 521 BN. This Subsidy can be reduced and diverted to mitigate the power crisis of Pakistan.

Comparative T&D Losses



Source: World Bank, NTDC

- T&D losses stand at 19.15%
- These compare unfavorably to global averages

Circular Debt solutions

Short Term

- Tariff rationalization

- General Consumer, Peak & Off peak rate
- Indirect Subsidy
- Impact : 225 Billion

- Subsidy Rationalization

- Increase the subsidy to cover remaining short Fall
- Impact : 75 Billion reduction in late payment surcharge

- Fuel to power plants based on order of generation efficiencies (IPPs 43 %, GENCOs 28%, KESC 32%) - GENCOs to IPPs adds 2000 MW and will save 75 Billion / Year

Circular Debt solutions

Long Term

Generation Mix

- Incentivize coal conversion, around 3000 Convertible to coal. Yearly impact in fuel cost saving is around 150 Billion Rs.
- Make Thar Coal Happen.
- Incentivize Hydel & renewables.

Structural

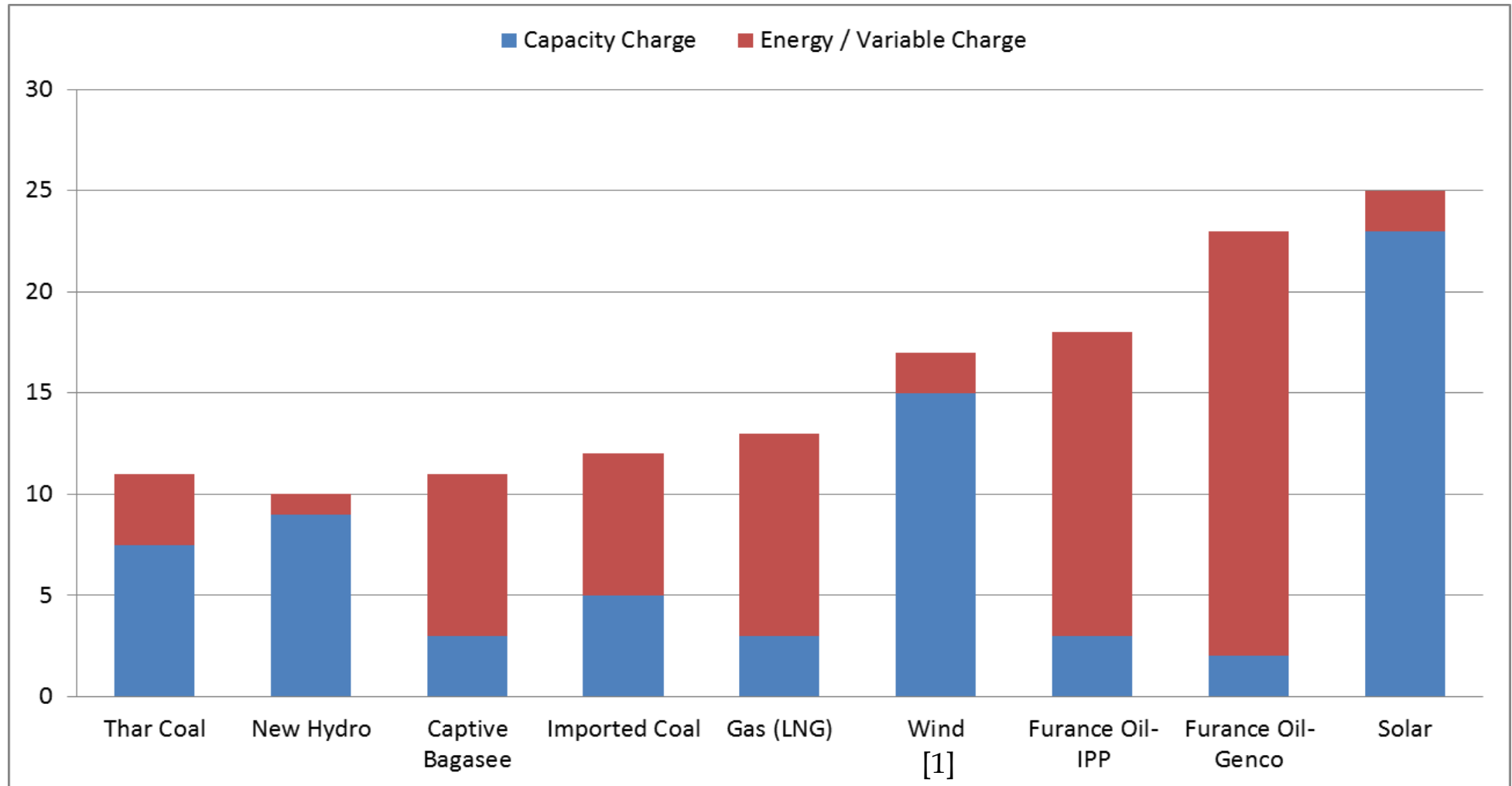
- Privatize Discos with professional management and boards. Independent cost centers.

Performance contracts with Disco's

Technical

- Install Transmission effectiveness analysis software and hardware to optimize losses
- Re-activate SCADA and smart metering at feeder level in Disco's

Comparative Tariffs by Fuel Type (in Rs. per kWh)



[1] Upfront tariff approved for wind recently (13 Rs/kwh) is not attractive for investment

SECMC - Integrated Mine & Power Plant Thar Block - II

