

*Presentation  
on  
Power, Coal and Renewable Energy  
-Issues, challenges and imperative*

June, 2014, New Delhi



*National Council on Energy  
Infrastructure Industry and Logistics Federation of India*

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## Agenda



### Indian Power Sector:

1. Where we stand today
2. Issues and challenges; imperatives and suggestions
  - ▶ Thermal
  - ▶ Hydro
  - ▶ Renewable
    - Solar
    - Wind
  - ▶ Transmission and Distribution
3. Conclusion

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## 1. Where we stand today



- Over 1400 BU estimated electricity requirements in next 5-6 years as against the present level of around 900 BU; generation growth rate stands nearly 7-8 % CAGR.
- Per capita consumption is around 900 units as against world average of over 2800 units; per capita consumption growth stands nearly 5.5 % CAGR
- Energy deficit and peak deficit continue to remain high with average 8-9 % and 10-12% respectively
- Average energy shortfall is around 85000 MU; to meet peak demand average shortfall stands at around 13000 MW
- 190+ GW of total generation capacity addition is estimated in next 8 years to meet the demand by 13<sup>th</sup> plan as against present capacity level of over 228 GW
- 3500+ MW of existing Solar Power Generation capacity as against the target addition of 20000 MW in next 6 years
- Declining hydro share (17%) in generation capacity mix, only 27% of India's hydro potential is tapped with present capacity of 40000 MW against 15000 MW potential
- Disbursements by PFC and REC averages to 40 to 50 % as against sanctioned amounts

## 2. Issues and challenges



### ► Thermal Power

- ✓ Fuel supply constraints
- ✓ Land acquisition
- ✓ Procedural delays
- ✓ Power equipments and quality EPC players
- ✓ Misalignment in energy pricing
- ✓ UMPP implementation

## ✓ Fuel supply constraints

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### Coal

- Coal linkages and agreement
- Proximity to coal mines and coastal regions to gain efficiencies
- Inadequate availability of domestic coal, dependency on imported coal
- Domestic coal production is estimated to increase by 28% in next 5 years as against 41% increase in the overall demand in same period
- Coal domestic supply deficit (150 million tonnes) continue to rise leading to increasing imports
- Dependency on imported coal likely to increase from 18.8% to 22.4% by end of 12<sup>th</sup> and 25.9% by end of 13<sup>th</sup> plan
- Uncertainty in overseas coal linkages as alternative
- Changing regulations in source countries (Indonesia / Australia) impacting availability and price volatility of imported coal;
- Lack of progress in captive coal mines

### Gas

- Inadequate availability of gas leads to unutilized / idle capacity; Low PLF
- Domestic supply allocation meets only 60-65% gas demand for power;
- Import dependency bring in price volatility
- High cost of R-LNG; and its transportation to power plant
- High cost of power generation

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## ✓ Land acquisition

- Change of use – agriculture land
- Availability with access to water; connectivity and related site approval
- Delays in clearances and approvals; and public resistance

### ✓ Procedural delays

- Delays in project related clearances
- Environment; Forest; site related approvals
- Project execution risk associated with procedural delays

### ✓ UMPP implementation

- Fuel supply agreement;
- Tariff rationalization - tariff versus cost of coal
- Lack of infrastructure and logistics support for equipment transfer

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## ✓ Power equipments and quality EPC players

- Transportation of equipments to project site is a big challenge

- RM and LE of plants;

- Power supply related issues to shut down of plants of RM; cost efficiencies for equipment supply companies for RM

## ✓ Misalignment in energy pricing

- Politically sensitive issue leading to untargeted subsidies
- Widening gap between average tariff and average cost of supply
- Adverse fluctuations in fuel prices not account for in competitive bid tariffs; making project unviable

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## Imperatives and suggestions

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### Thermal

Development of supporting infrastructure in different transport sectors like railway, highways and roads, inland waterways and gas pipelines.

Railways to enhance their capacity for coal evacuation from coal fields

Rail connectivity to all ports having coal unloading facilities, all these ports must be given priority in effective road/rail connectivity.

Augment roads and highways for transportation of over dimensional consignments to support fast transportation of heavy equipments

Load classification for roads and bridges to be reviewed, changes in Motor vehicle act to accommodate heavy consignments, and toll plaza building on highways to be designed keeping in view heavy transportations requirements

Coal handling arrangements at ports to be expanded to handle the larger quantities of imported coal required for power stations

Increase of draft, creation of roll-on/roll-off berths and mechanisation to improve the load handling capabilities of ports.

Regulatory body for coal; Delink CIL and CMPDI / subsidiaries as independent companies

Develop and enhance capacity and capabilities of balance of plants construction agencies and construction equipment/ techniques

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## 2. Issues and challenges

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### ► Hydro Power

- ✓ Land acquisition problems
- ✓ Environment and forest clearances
- ✓ Environmental impact, resettlement and rehabilitation issues
- ✓ Compensation of forest land – valuation based on net present value
- ✓ Compensation issues related to R & R
- ✓ Law and order problems in project implementation
- ✓ Geological surprises; lack of reliable surveys
- ✓ Inter-State Issues – river basin and water sharing issues
- ✓ Inadequate power evacuation facilities
- ✓ Dearth of good contractors for construction
- ✓ Lack of private sector interest
- ✓ Access to Site; logistics and transportation issues
- ✓ Long gestation period and uncertainty in execution – lack of interests amongst financial institutions and private sector
- ✓ Apportionment of project costs to various agencies and beneficiaries
- ✓ Delayed payment by State utilities – discipline / escrow account

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## Imperatives and suggestions



### Hydro Power

Developer should be able to make a single application (once) for environment and forest clearances

Do away with separate public hearings for environment; forest etc to avoid project delays

Only one public hearing for all clearances required for the project

TOR once decided and agreed should not be changed; as DPR is developed based on TOR and submitted with TOR period

Lack of defined guidelines for clearances for example environment flow should be based on scientific basis and not arbitrary ;

Review guidelines related to project clearances in consultation with all stake holders; with transparency

Forest land compensations to be reviewed - developer pays for land to owner; for rights and privileges and for compensatory land

Funds collected by way of forest land compensation should be utilized for the purpose collected

## Imperatives and suggestions



### Hydro Power

Government should identify and create land bank for developer to compensate for forest land

Low PLF of hydro plants leads to high transmission costs; National Clean Energy funds should be made available for evacuation

ROE for hydro projects are 16.5% as against 15.5% of thermal whereas hydro project cost per MW and implementation periods double then thermal plants, to encourage private sector interest payment on equity to be considered

To reduce hydro costs, tax incentives to be provided - concession of custom, excise duty on equipments; construction materials; and services tax exemptions

Developer to be compensated for provision of irrigation and flood moderation in the project

Take up few large projects as fast track projects for speedy implementations

Assess logistics and transportation requirements of fast track projects with developers; and ensure support from respective ministries - transportation , Railways

## 2. Issues and challenges



### ► Renewable Power

#### Solar

- ✓ Inadequate domestic manufacturing capacity
- ✓ Project viability
  - Low cost finance availability
  - Standard and bankable PPA
  - Non-recourse infrastructure financing option
- ✓ ADD- import versus local versus 20 GW target
- ✓ RPO enforcement
- ✓ Slump in REC based projects
- ✓ Payout of capital subsidy
- ✓ Decentralized generation regulation for micro grid / smaller plants
- ✓ Entrepreneur development

#### Wind

- ✓ Repowering of old wind farms for better PLF
- ✓ Grid Infrastructure – evacuation and transmission
- ✓ High borrowing cost; availability of low cost finance
- ✓ Availability of potential land and clearances
- ✓ Revised tariff implementations
- ✓ Accelerated depreciation

## Imperatives and suggestions



### Solar

- Rationalize / reduce various grid charges for smaller solar plants which do not use medium grid;
- Reduce open access charges, cross-subsidy surcharge, transmission charges, transmission losses, wheeling charges and wheeling losses to encourage small entrepreneurs to set up micro grids
- RPO to be enforcement and monitored strictly; penalty structure to put in place for not meeting RPO
- Revive REC mechanism as there is uncertainty in price beyond 2017
- Stringent norms to ensure quality of imported cells, modules and equipments
- Projects awarded or cleared before imposition of ADD notification should be allowed imports without ADD
- Mechanism to trade off local manufacturing versus imports keeping in view the existing domestic capacity and generation targets
- Mechanism to make available reliable and detailed performance data of the plants

## 2. Issues and challenges



### ► Transmission and Distribution

- ✓ Evacuation and transmission capacity to keep pace with disbursed generation including smaller renewable both grid and off grid projects
- ✓ Transmission cost of electricity versus transportation cost of fuel
- ✓ Heavy congestion on Transmission corridors
- ✓ Lack of up gradation of transmission, distribution network for inter-state connect
- ✓ Huge AT&C losses in distribution sector – around 27% at national level
- ✓ Financial viability of operation of DISCOMs; rising losses
- ✓ Subsidy dependence of distribution utilities and SEBs
- ✓ Energy audit of power utilities
- ✓ Inefficiencies in metering, billing and collection affecting discosm revenue

## Imperatives and suggestions



### Transmission and distribution

Strengthen the performance of the distribution system to achieve improved financial viability of Discoms

Distribution reforms to reduce AT&C losses

- Separate agriculture feeders to non-agriculture
- Privatisation of distributions circles gradually to achieve management efficiency
- Use of smart cards; modern technologies to limit power theft
- Rationalize / lower industrial tariff through open access

Introduction of smart grid to allow effective demand side management (DSM),



Thank You

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