Increasing Share of Renewable Energy in Energy Mix

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PTC: An Integrated Energy Player

PTC India Ltd. (PTC), was established in 1999 by Govt. of India through a Cabinet Decision as a Public-Private Initiative

**Power Trading**
- Domestic OTC market;
- Short/Medium & Long-term trades (utilities)
- Retail (Open Access consumers)
- Cross Border trade

**Renewable Energy**
- PTC Energy Limited – Wind Power Projects
- Scheduling and despatch of Solar Power (750 MW-SECI)
- Scheduling and PPA of 1st 1,000MW ISTS Wind Projects
- Trading of Solar Power (MOU with SECI)

**Investments**
- Early stage support as Equity Investor / co-developer
- PTC India Financial Services Ltd.

**Advisory Services**
- Portfolio Management Services
- Energy efficiency implementation
- Transmission Infrastructure based services
Wind & Solar Portfolio: Approx. 300 MW operating assets

**Project 1, Distt Ratlam, MP**
- COD: March 16
- Total Installed Capacity: 30 MW
- WTG Supplier: GAMESA (G97)

**Project 2, Distt Mandsaur, MP**
- COD: March 16
- Total Installed Capacity: 20 MW
- WTG Supplier: INOX (WT 2000)

**Project 3, Distt Vijayapura, KA**
- COD: March 17
- Total Installed Capacity: 50 MW
- WTG Supplier: GAMESA (G 114)

**Project 4, Distt Kurnool, AP**
- COD: March 17
- Total Installed Capacity: 50 MW
- WTG Supplier: GAMESA (G97)

**Project 5, Distt Kurnool, AP**
- COD: March 17
- Total Installed Capacity: 49.5 MW
- WTG Supplier: REGEN (v87)

**Project 6, Distt Kadapa, AP**
- COD: March 17
- Total Installed Capacity: 49.3 MW
- WTG Supplier: GE

**Project 7, Distt Kadapa, AP**
- COD: March 17
- Total Installed Capacity: 40 MW
- WTG Supplier: INOX

- Madhya Pradesh (MP)
  - 30 MW
  - 20 MW

- Andhra Pradesh (AP – 188 MW)
  - 88 MW

- Karnataka (KA)
  - 50 MW
  - 100 MW

- Uttar Pradesh (UP)
  - 30 kW at Lucknow
  - 45 kW at Bikaner and Jodhpur

- Rajasthan (RJ)
  - 30 kW at Vrindavan

- Operating – Wind Plants

- Solar Roof top projects

- **Project: 1** 45kW Solar PV Roof top at Akshaypatra Foundation, Lucknow, Uttar Pradesh
- **Project: 2** 30kW Solar PV Roof top at Akshaypatra Foundation, Vrindavan, Uttar Pradesh
- **Project: 3 & 4** Solar PV Roof top at Akshaypatra Foundation, Bikaner and Jodhpur premises
Key Issues & considerations for drafting a renewable energy implementation plan

- Key issues in operationalizing the selected renewable energy plan:
  Change in RE Mix of India

Renewable Energy portfolio increases from 14% (in 2016) to 34% (in 2022) in total energy mix in next six years period

- Recent policy and Govt. targets in renewable sector gives a change in energy mix of the country
- New Govt. to continue its previous term focus on Renewable Areas
- Renewable energy remains the most favorable choice of capacity addition
Key issues & considerations for drafting a renewable energy implementation plan

- Key issues in operationalizing the selected renewable energy plan:

  
  **Generation Dispatch at Current Pattern (2022)**

  **Generation Dispatch on Maximum RE generation day (2022)**

Renewable Energy portfolio increases from 14% (in 2016) to 34% (in 2022) in total energy mix in next six years period

- Loss in efficiency at partial loading, Also requires retrofitting in existing thermal stations
- Investment towards retrofitting to run plants at low loads
- Hydro projects are run off river and multipurpose projects – but have to be operated during off peak hours
The session aims to delve into the importance of planning and strategizing a renewable energy implementation plan:

- **Why to create** a renewable energy implementation plan?
- **Key issues** in operationalizing the selected renewable energy plan
- An overview of the **key considerations for drafting a renewable energy implementation plan**
Why to Create

- **Why to create** a renewable energy implementation plan?
  - Financial benefits to the corporates
  - Opportunity to adopt and be part of change in India Power Generation scenario
  - Social Responsibility to shift from Fossil based fuel systems to Renewable based system
Key Issues & considerations for drafting a renewable energy implementation plan

• Key issues in operationalizing the selected renewable energy plan:

Issues in penetration of Roof top solar implementation

a. The journey started with subsidy based rooftop solar schemes
b. Participation with SNAs etc. for identification of agencies; key parameters ensured for initial few years of operation to avail subsidy
c. Fragmented with small players dominance
d. Rooftops are financially self-sustainable today - from approx. Rs.100/watt to approx. Rs.30/watt. in 8 yrs.
e. Need for integrated agencies ensuring high efficiency of O&M, ensuring high quality standards for Solar panels and BOP, smart tracking system
f. Smooth grid interaction: Increase Discom participation and Discom Integration at all stages not only net-metering: SRISTI (“Sustainable Rooftop Implementation for Solar Transfiguration in India”)
g. Standardize net-metering policies and regulations across states. Making complete net-metering filing and approval process IT enabled within Discoms will support speeding up the process.
h. Standard Net Meter Policies for all states for Net Metering approvals
Key Issues & considerations for drafting a renewable energy implementation plan

• Key issues in operationalizing the selected renewable energy plan:

  • Evolution of RE Encouraging State Policies:
    • **HERC Policy** on exemption of open access charges for 3rd party sale and captive power consumers
    • **Maharashtra analysis** of purchase of RE power through open access compared to purchasing power on HT Express Feeders
    • **Karnataka** – Policy on exemption of open access charges for projects

  • **RPO Obligations**
    • Requirement posed by Central/State agencies
    • Stringent enforcement by MNRE/MOP – Single tracking window

  • **Focus on Green Financing to encourage projects**
  • **Incentives to companies having a rising trend of green energy usage in their overall consumptions**
Key Issues & considerations for drafting a renewable energy implementation plan

- **Key issues in operationalizing the selected renewable energy plan:**

  - Re-negotiation of Renewable PPAs

  - **Grid Integration challenges:**
    - Low usage of transmission network implemented for RE projects
    - Green Corridors part: Transfer of power from rich RE potential states to low RE potential states with exemption of ISTS charges
    - Change in RE Mix of India in generation capacity
    - Hybrid Solutions
    - Forecasting & Scheduling challenges

  - **Large size ground mounted solar PV projects:**
    - Availability of large size land parcels
    - Most of the solar rich states have completed their RPOs. The States with low solar radiation to buy from Inter–State transmission system
Key Issues & considerations for drafting a renewable energy implementation plan

• Key issues in operationalizing the selected renewable energy plan:
  
  • Exemption/reduction of GST on Solar items (There has been 5% to 18% on various items)
  • Exemption/reduction of duties on Solar panel import to bring down the tariff
  • Introduction of compensation on grid outage in solar tenders / Concept of deemed Generation
    • Introduced in recent and upcoming tenders
    • Must run status to be maintained by States
    • Curtailment issues in RE potential states
Key Issues & considerations for drafting a renewable energy implementation plan

- Key issues in operationalizing the selected renewable energy plan: Change in RE Mix of India

**Total Installed Capacity (Mar’2016): 302 GW**
- Coal: 61%
- Gas: 14%
- Nuclear: 14%
- Hydro: 9%
- Renewable: 2%

**Total Installed Capacity (Mar’2019): 356 GW**
- Coal: 55%
- Gas: 7%
- Nuclear: 2%
- Hydro: 13%
- Renewable: 22%

**Total Installed Capacity 2022: 500+ GW**
- Coal: 44%
- Gas: 5%
- Nuclear: 5%
- Hydro: 12%
- Renewable: 34%

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Thank You