# POWER GRID CORPORATION OF INDIA LIMITED

## Q3 FY 2016-17

## Analyst Meet

**Mumbai**

**February 10, 2017**

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## Recent Highlights

## Power Transmission Opportunities in India

## POWERGRID Today

## Performance (Q3FY17)

- Transmission

## Performance (Q3FY17)

- Consultancy
- Telecom

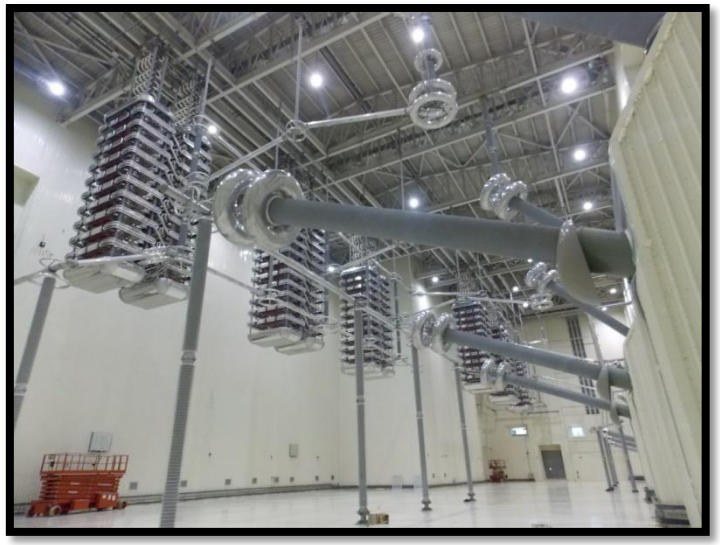
## XII Plan Performance

## Investment Outlook

# Recent Highlights

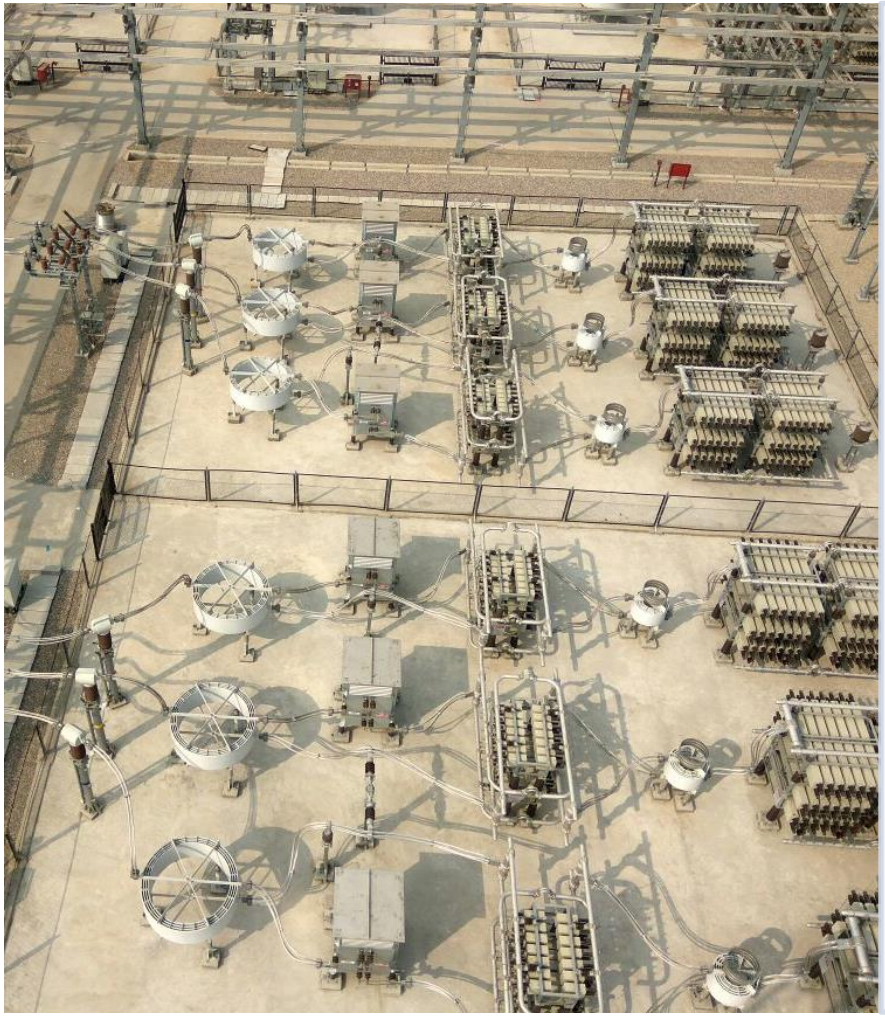
# ±800kV HVDC Champa-Kurukshetra Pole-I

**Power Flow Test Charged – Commissioning targeted in Feb'17**



- **Power Transfer: 3000MW**
  - ✓ Between Champa in WR and Kurukshetra in NR
- **Being implemented in Phases**
  - ✓ Phase-I, Pole-I: 1500 MW (~₹ 6,000 crore)
  - ✓ Phase-I, Pole-II: 1500 MW (~₹ 3,200 crore)
- **Line Length**: ~ 1,300 km.
- **Upgrade to 6000MW in Phase-II**
- **Largest 400/200 kV GIS in India: 51 bays**

# -400/+600MVAr SVC - Commissioned at Ludhiana



- **One of the Largest Range Swing SVCs in the World**
- **Envisaged to improves Power Quality & Grid Stability**
- **Project included a high degree of local engineering & local production (Make-in-India)**
  - ✓ Thyristor Valves, Protection & Control Systems manufactured and tested locally in India

# Project Execution

## Major Elements Completed since Oct'16

- **ER-SR Interconnection**
  - Angul-Srikakulam-Vemagiri
- **Strengthening in SR**
  - Nagapattinam PS – Salem – Dharmapuri; Tuticorin-Dharmapuri
- **Strengthening in Western UP**
  - Dehradun-Baghpat-Saharanpur; Dehradun-Roorkee

# Commissioning/ Capitalization

## Completed/ Commissioned in FY17 (Apr'16-Jan'17)

- ✓ **~ ₹ 26,700 crore:**
  - Completed (including Champa-Kurukshetra HVDC & TBCB)

- ✓ **~ ₹ 20,700 crore:**
  - Commissioned/ Capitalized (incl. TBCB)

# Special Highlight

**POWERGRID Market Capitalization crosses ₹ 1 lakh crore**

**POWERGRID Stock crosses ₹ 200 mark**


*Snapshot: BSE 01.02.17*

# Power Transmission Opportunities in India

# Glimpse of Indian Power System

## Broad Parameters

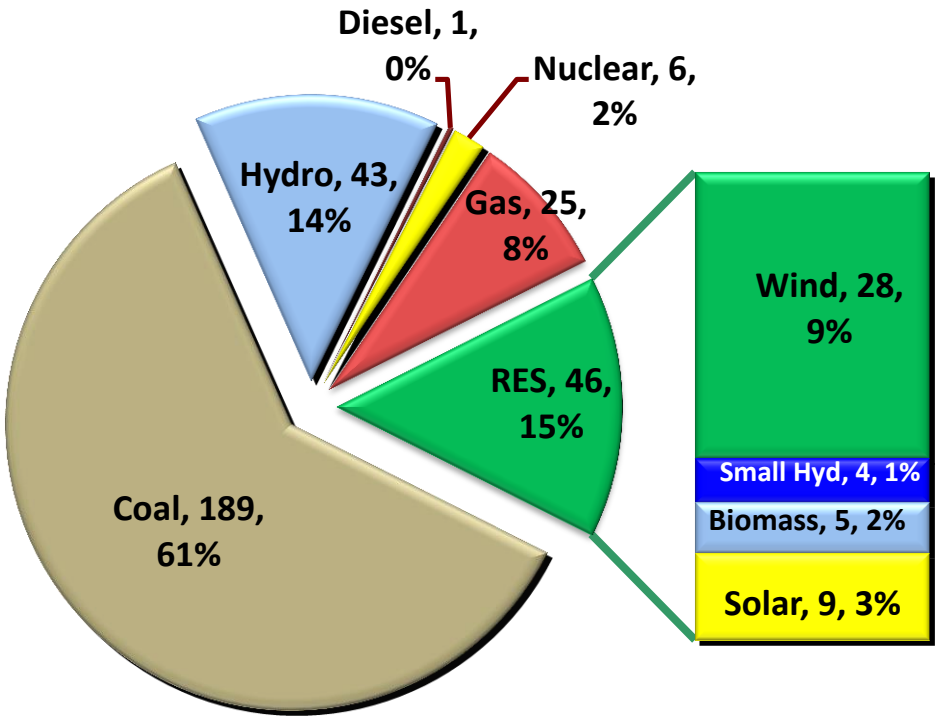
**Total Installed Capacity**
**~ 310 GW**
CAGR (Mar12-Dec16): 9.7%

**Annual Consumption**
**1200 BU**
Growth: 5.64% (y-o-y)

**Peak Demand Met:**
**157 GW**

**Power Market**
**9-10%**

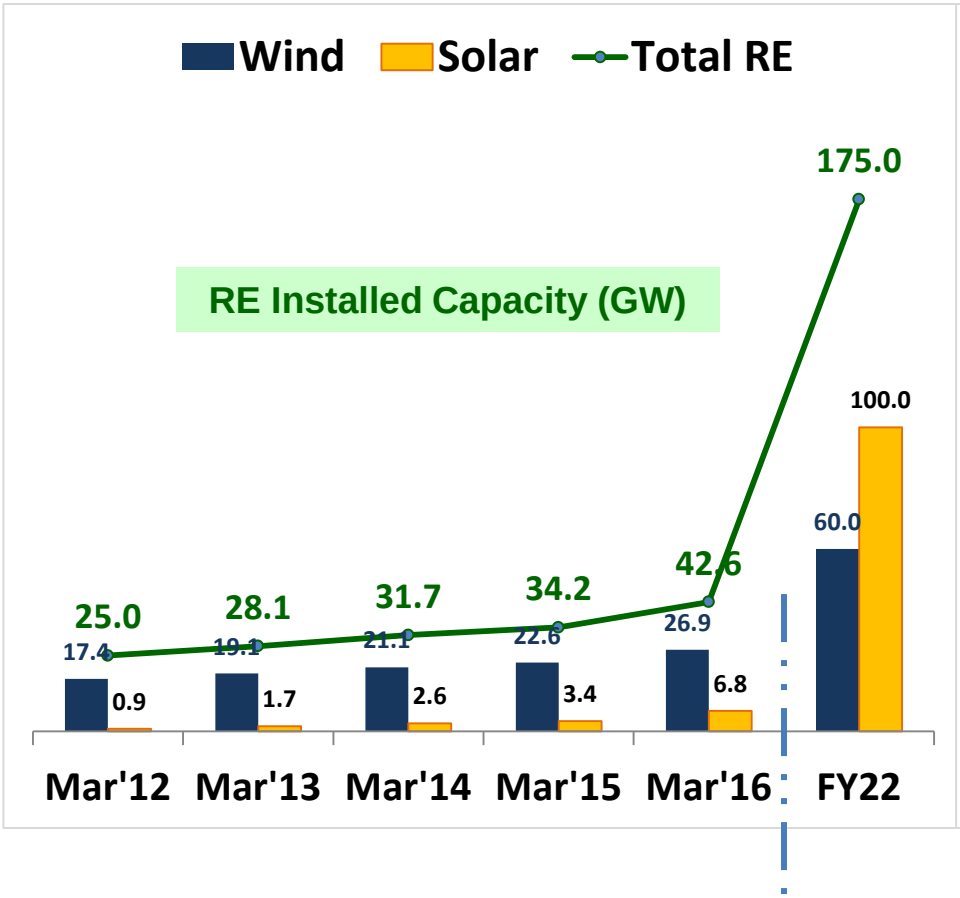
## Capacity (GW): Source-wise Segmentation (%)

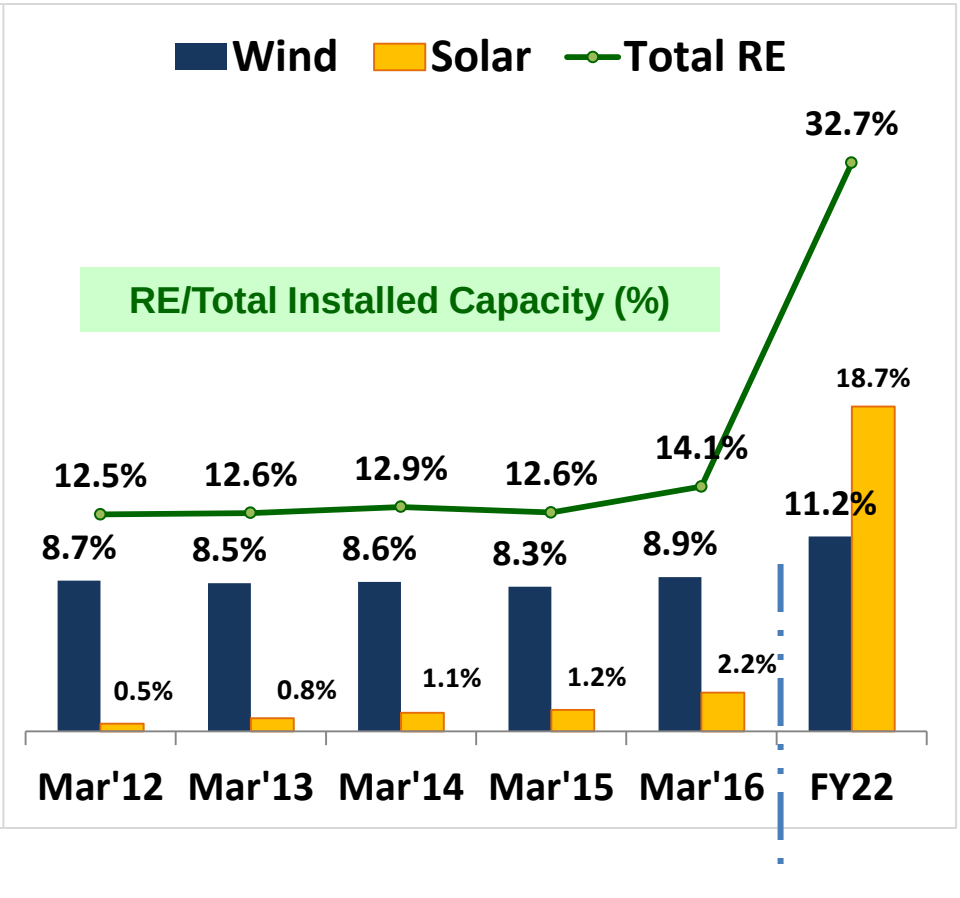



*As on Dec 2016, CEA Reports*

# Indian Power System- Changing Paradigm

**Renewable: 46 GW** CAGR (Mar12-Dec16): 14.1%



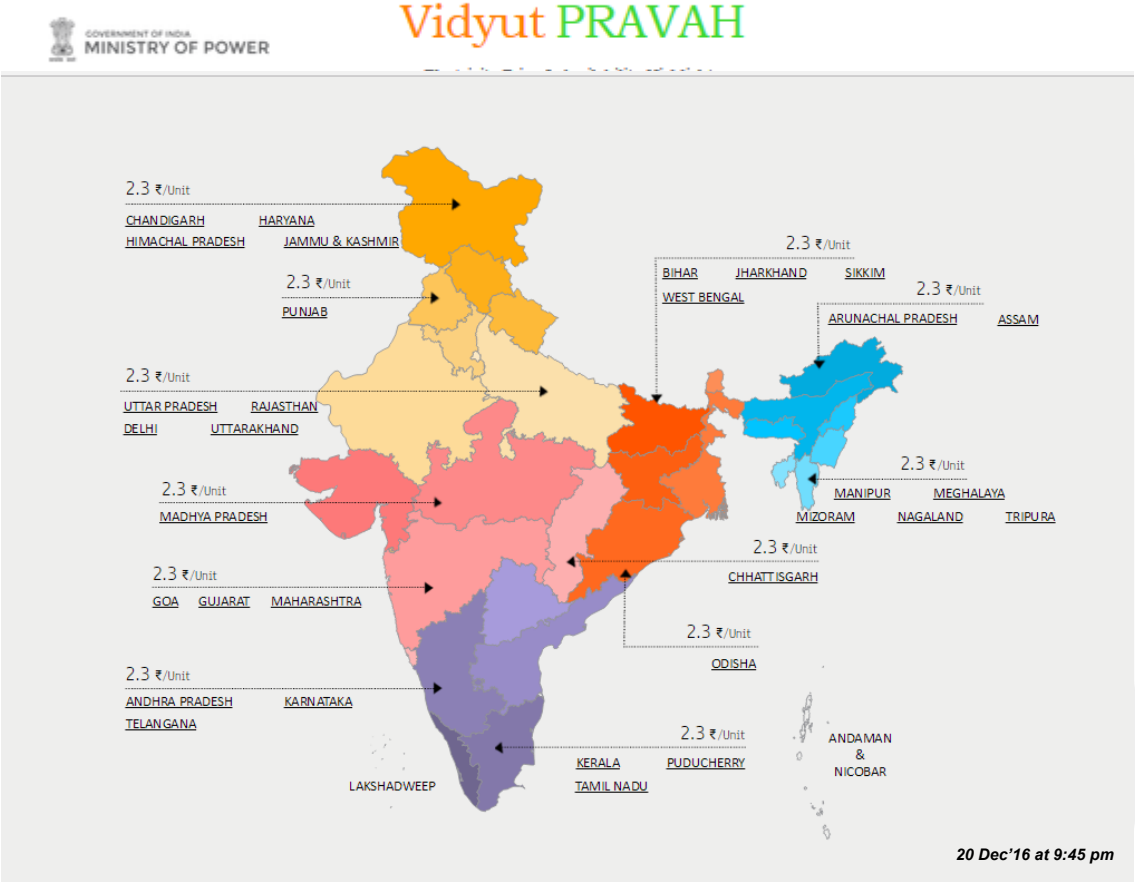



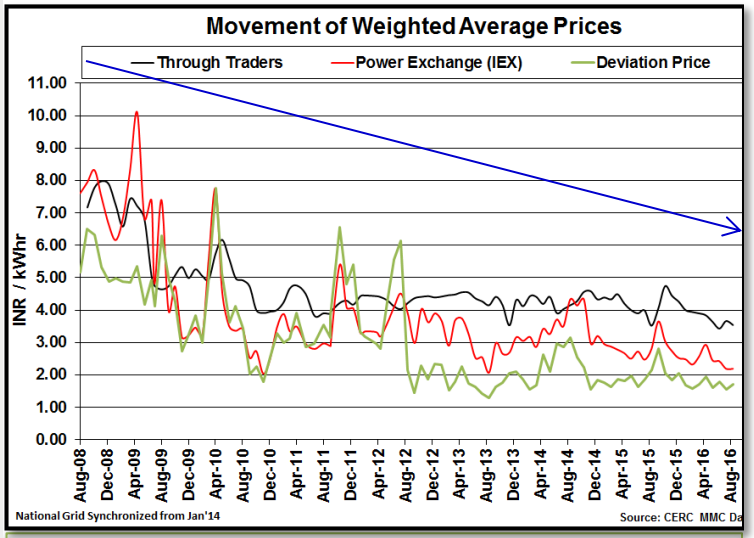
# Indian Power Sector - Outlook

- **24x7 Affordable Power for All by 2019**
- **Renewable Integration : 175 GW by 2022**
- **Per Capita Consumption : about 4000 units by 2030; CAGR:10%**
- **Seamless SAARC Power Grid**

# Towards 24x7 Power For All by 2019

## One Nation – One Grid – One Price

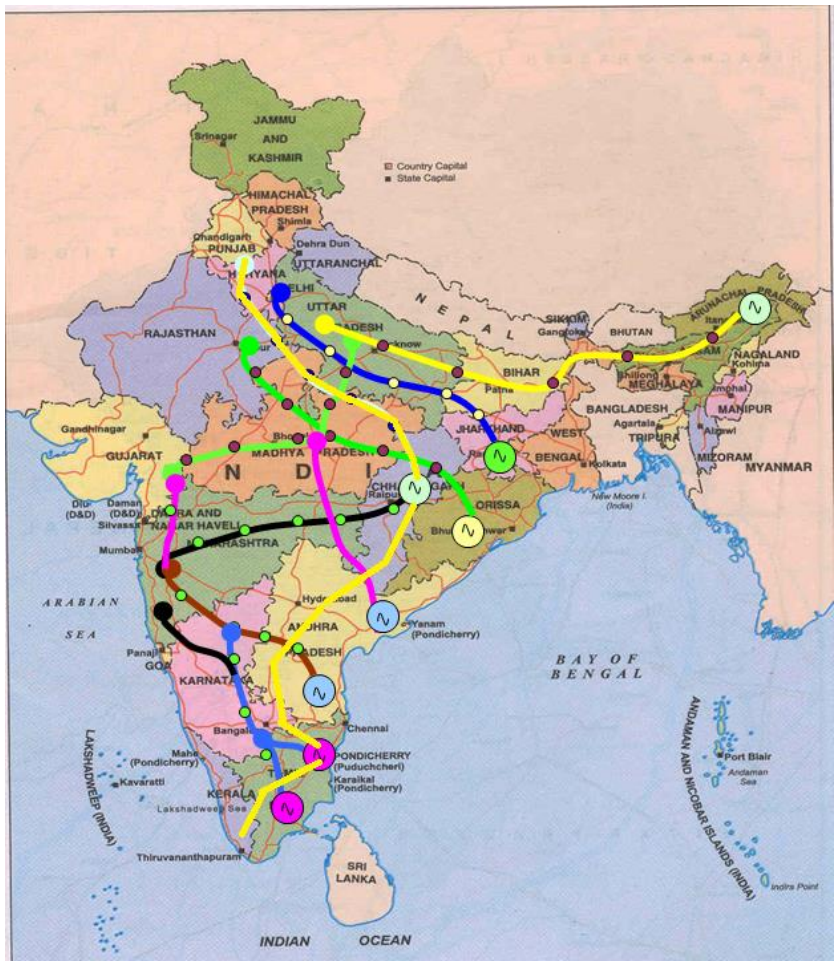



**Power Market**
**Bringing Efficiency Into the Sector**

**Snapshot**

# National Grid Augmentation




**11 nos. High Capacity Transmission Corridors**

- Creation of Energy Highways based on envisaged load growth
  - **11 high capacity corridors - each capacity of about 4000 MW**
  - **3 high capacity HVDC system (6000 MW each)**
- Wide Area Measurement System (WAMS)
  - Making Smart Grid

# Renewable Integration

## Challenges

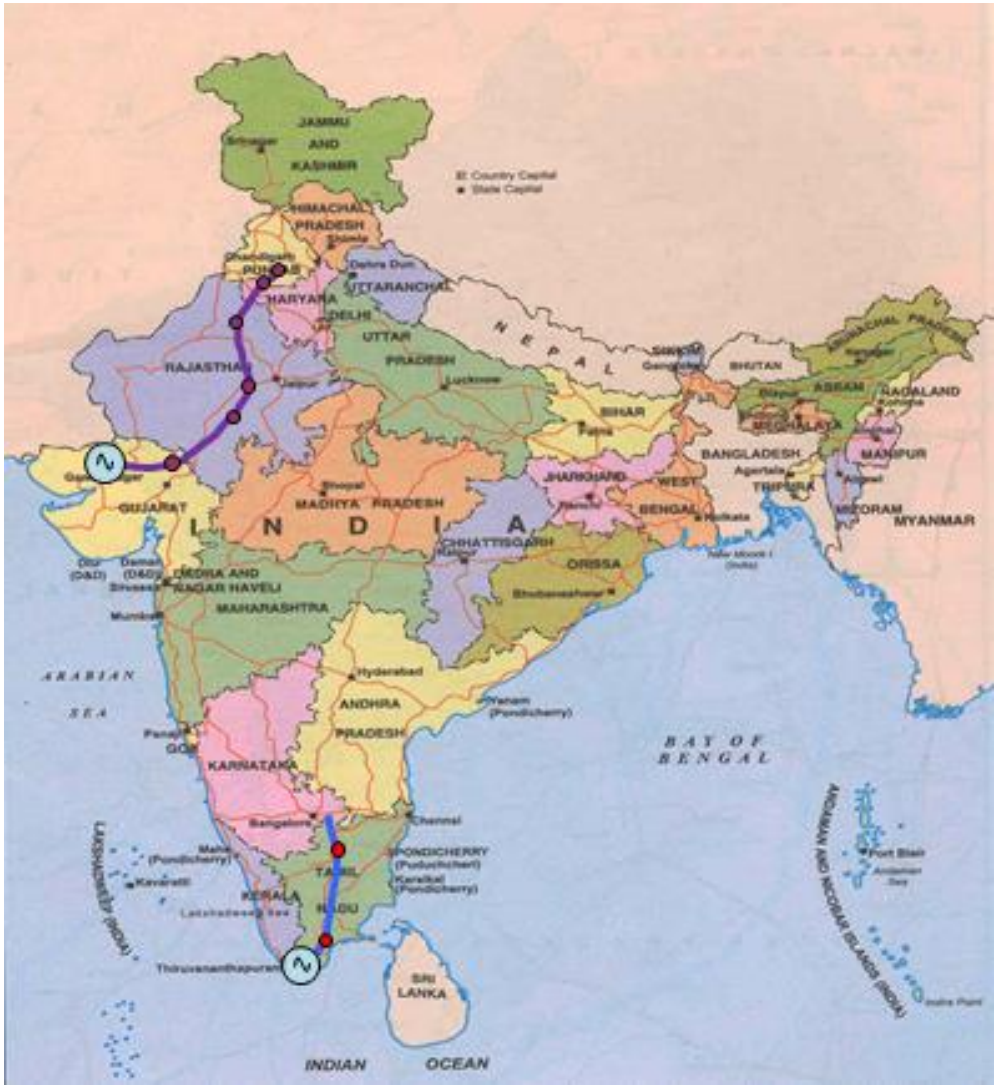
- Intermittency
- Variability
- Matching Transmission Development
- Load- Generation balance

## Remedial Measures

- Green Energy Corridors
- Green Energy Corridors-II (Solar Park Integration)
- Dynamic Compensation
- Renewable Energy Management Centres
- Storage

**Renewables involves Integration i.e. bringing together separate elements to create a whole unit**

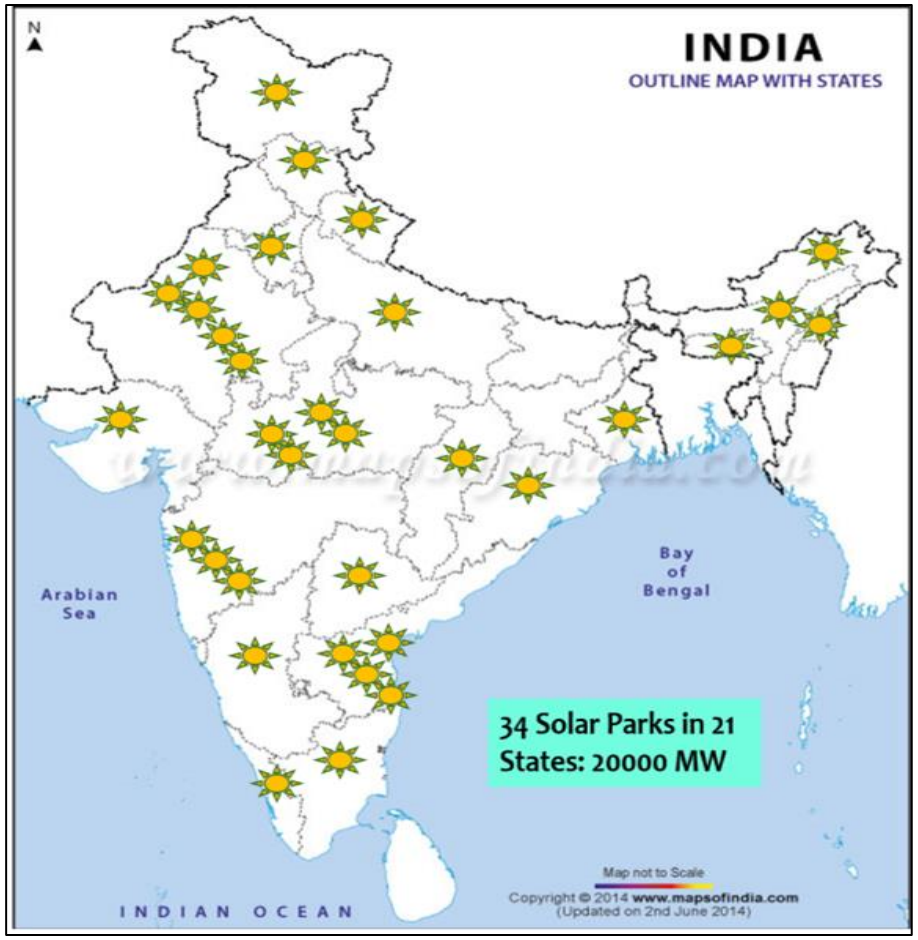
# Development of Green Energy Corridors




**Green Energy Corridors for Renewables (Inter-State Transmission Systems)**

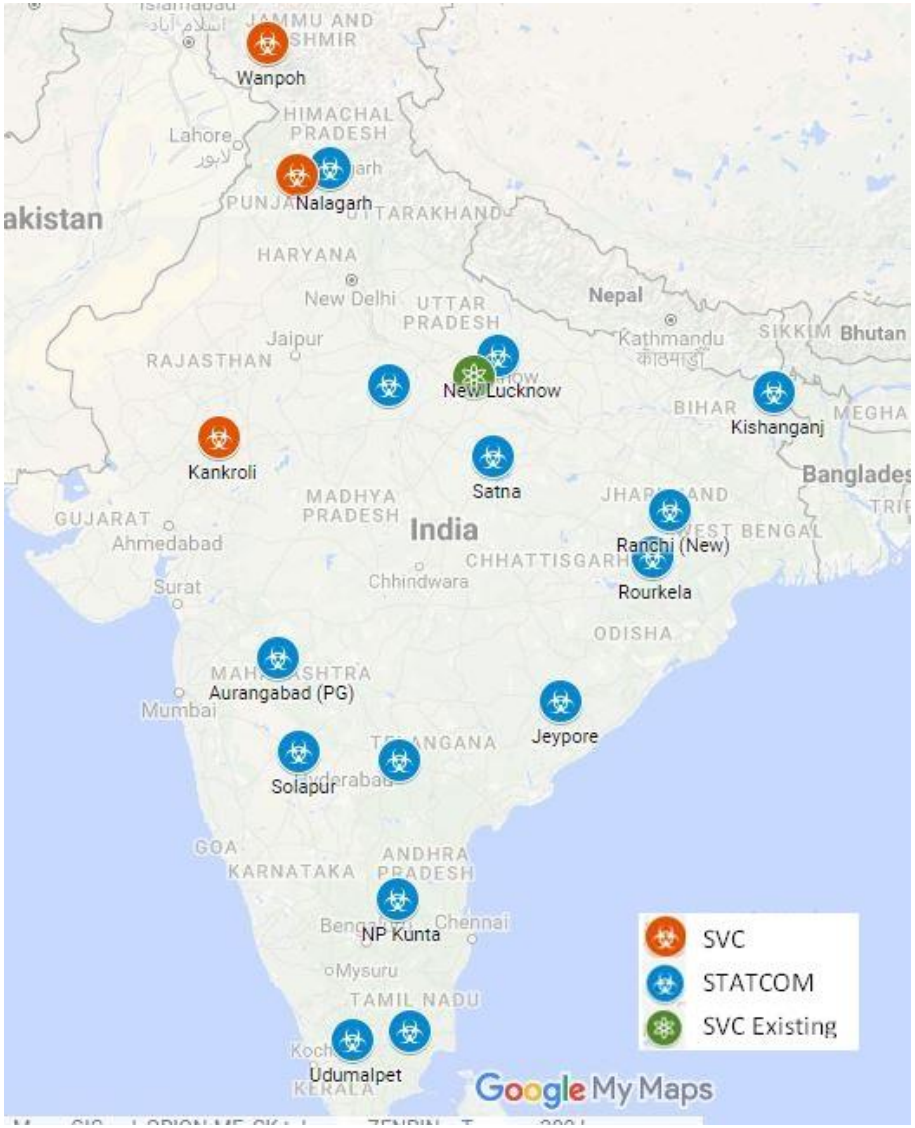
# Green Energy Corridors-II: Solar Parks Integration

**34 Solar Parks 20 GW**



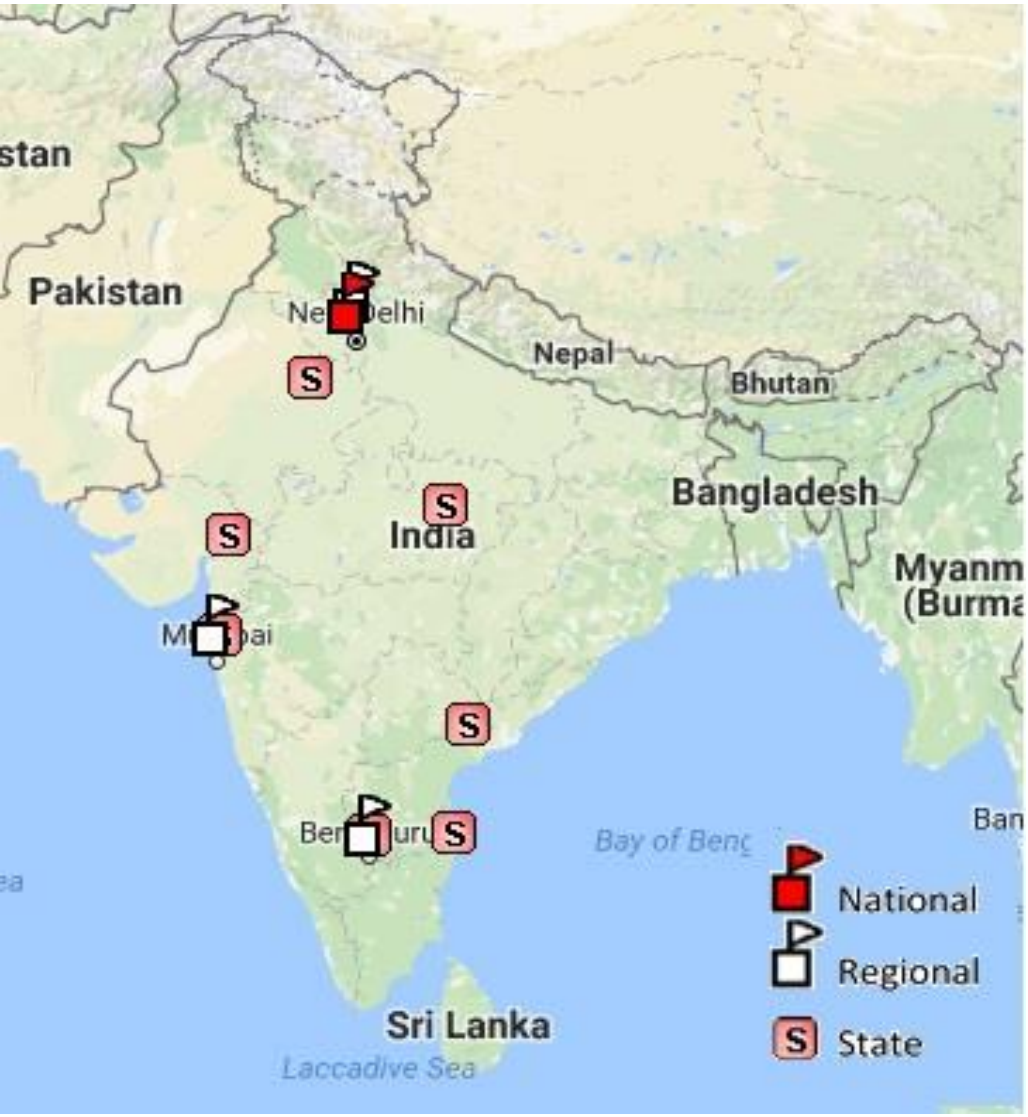

- **Inter-State transmission**
  - ✓ 13 solar parks
  - ✓ ~ 9,220 MW capacity
- **Intra-State transmission**
  - ✓ 21 solar parks
  - ✓ ~ 10,780 MW capacity

# Dynamic Compensation




- **Maintaining Grid Parameters**
- **Hybrid STATCOMs**
  - **14 Nos.**
  - **400 – 600 MVAR**
- **SVCs**
  - **4 Nos.**
  - **500 - 1000 MVAR**

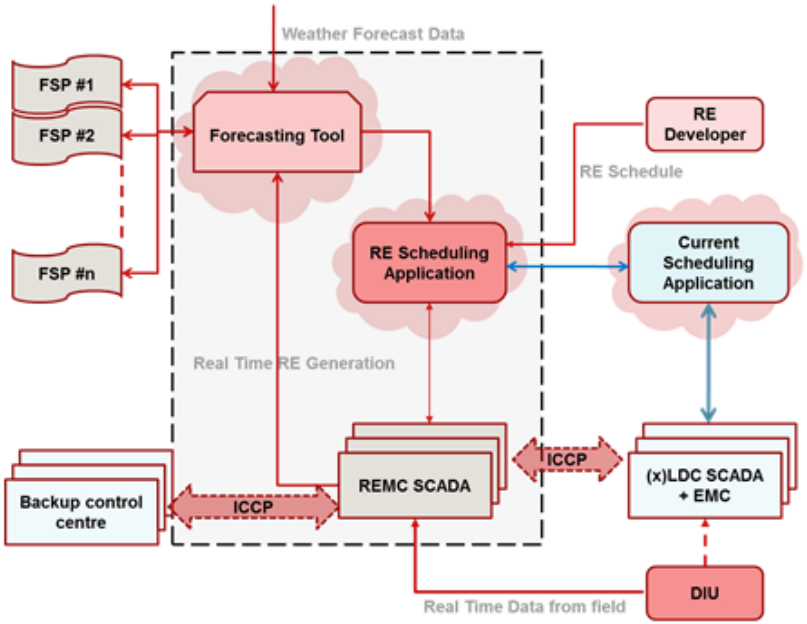
# Renewable Energy Management Center




**11 no. of REMC : 7 States + 3 Regions + 1 National level**

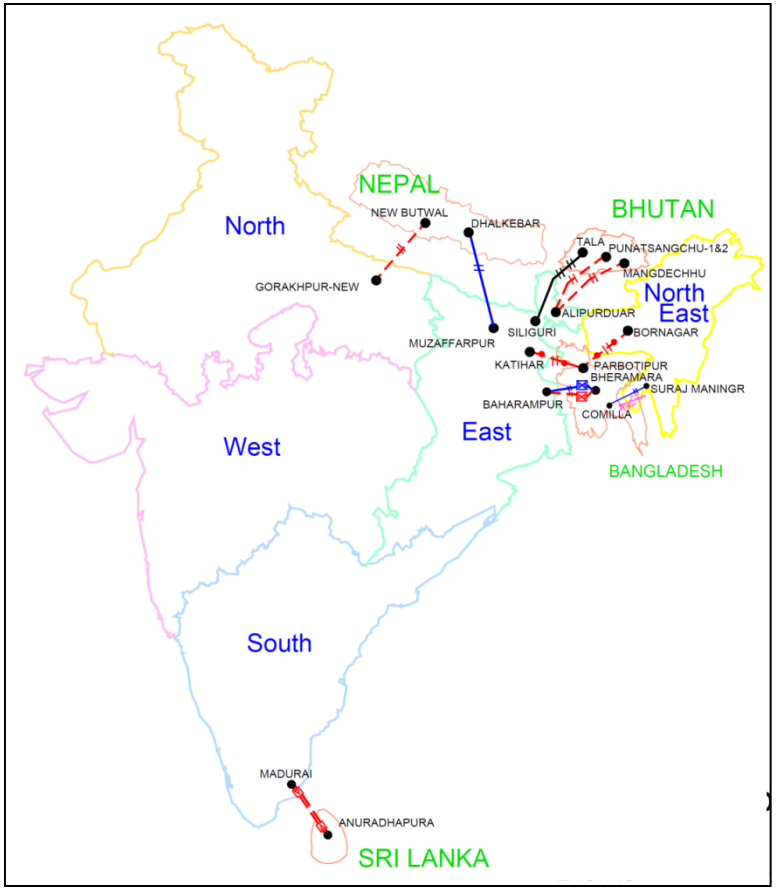
## REMC

- Co-located with RLDC/SLDC
- RE Forecasting & Scheduling
- Real Time tracking of RE Generation



# SAARC Interconnections

- Geographically widely spread Indian Grid can facilitate interconnections with Neighboring countries
- India can provide a good demand market to harness energy resources of other countries
- Optimal utilization of energy resources



# Sectoral Investment Envisaged (2017-2022)

## ➢ Investment Envisaged:

- ✓ **~ ₹ 2,60,000 cr.**
  **(includes ₹ 30,000 crore for investments in Trans. Systems below 220kV levels)**

## ➢ Physical Additions Planned:

- ✓ **106,000 ckm of Transmission lines**
- ✓ **292,000 MVA Transformation Capacity**
- ✓ **14,000 MW HVDC Bipole line**

*Source: CEA **Draft** National Electricity Plan(Vol-II) Transmission, 2016*

# POWERGRID Today

# POWERGRID Today

- ✓ **>90% ISTS Transmission Network owned by POWERGRID**
- ✓ **POWERGRID's Transmission Assets:**
  - **Trans. Lines: 134,750 ckm**
  - **Sub-stations: 217 Nos. - 280,362 MVA**

  } **400kV & above: >90%**
  - **Availability: 99.76% (Apr16-Dec16)**
- ✓ **>45% power generated in India transmitted through POWERGRID**
- ✓ **POSOCO, POWERGRID's wholly owned subsidiary, hived off into a separate independent company, as per Govt. directives**
- ✓ **Market Capitalization[1]: ₹ 1,08,059 crore**

***Physical parameters as on 31st January, 2017***

1- Based on BSE Closing Price of ₹ 206.55 per share on 31.01.2017

# Performance in FY17 (Q3 & 9 months)

-

# Transmission

# Performance- Financial (Q3 & 9mths FY17)

(₹ in crore)

| Description | Quarter ended | | | Nine Months ended | | |
|---|---|---|---|---|---|---|
| | 31.12.2015 As per Ind AS | 31.12.2016 As per Ind AS | % change | 31.12.2015 As per Ind AS | 31.12.2016 As per Ind AS | % change |
| **Revenue** | | | | | | |
| - Transmission Charges | 5,153 | 6,336 | 23% | 14,335 | 18,196 | 27% |
| - Consultancy Income: Services | 114 | 164 | 44% | 302 | 438 | 45% |
| - Telecom | 103 | 130 | 26% | 288 | 371 | 29% |
| - Other Income | 107 | 158 | | 334 | 522 | |
| **Total Income** | **5,477** | **6,788** | 24% | **15,259** | **19,527** | 28% |
| -Operating Expenses | 583 | 679 | | 1,696 | 2,035 | |
| **EBITDA-Gross Margin** | **4,894** | **6,109** | | **13,563** | **17,492** | |
| Depreciation | 1,585 | 1,965 | | 4,411 | 5,599 | |
| Finance Cost | 1,288 | 1,643 | | 3,615 | 4,748 | |
| Tax | 415 | 571 | | 1157 | 1541 | |
| **Profit after Tax** | **1,606** | **1,930** | 20% | **4,380** | **5,604** | 28% |
| Other Comprehensive Income/ (Exp) – net of Tax | 10 | (30) | | (12) | (14) | |
| **Total Comprehensive Income** | **1,616** | **1,900** | | **4,368** | **5,590** | |

# Performance – Financial (Q3 & 9mthsFY17)

| | (₹ in crore) | | |
|---|---|---|---|
| | As on 30.09.2016 As per Ind AS | As on 31.12.2016 As per Ind AS | As on 31.12.2015 As per Ind AS |
| **Gross Fixed Assets** | **1,58,937** | **1,65,757** | **1,44,795** |
| Capital Work-in-Progress | **46,335** | **45,991** | **46,000** |
| **Debt** | **1,12,284** | **1,15,924** | **1,05,387** |
| **Net Worth** | **46,391** | **48,290** | **42,598** |
| **Earning Per Share (₹)** | **7.02#** | **10.71#** | **8.37#** |
| **Book Value per Share (₹)** | **88.67** | **92.31** | **81.43** |
| **Key Financial Ratios** | | | |
| **Debt : Equity** | **71:29** | **71:29** | **71:29** |
| **Return on Net Worth** | **7.92%#** | **11.60%#** | **10.28%#** |

**# Not Annualized**

# Performance - Financial (Billing & Realization)

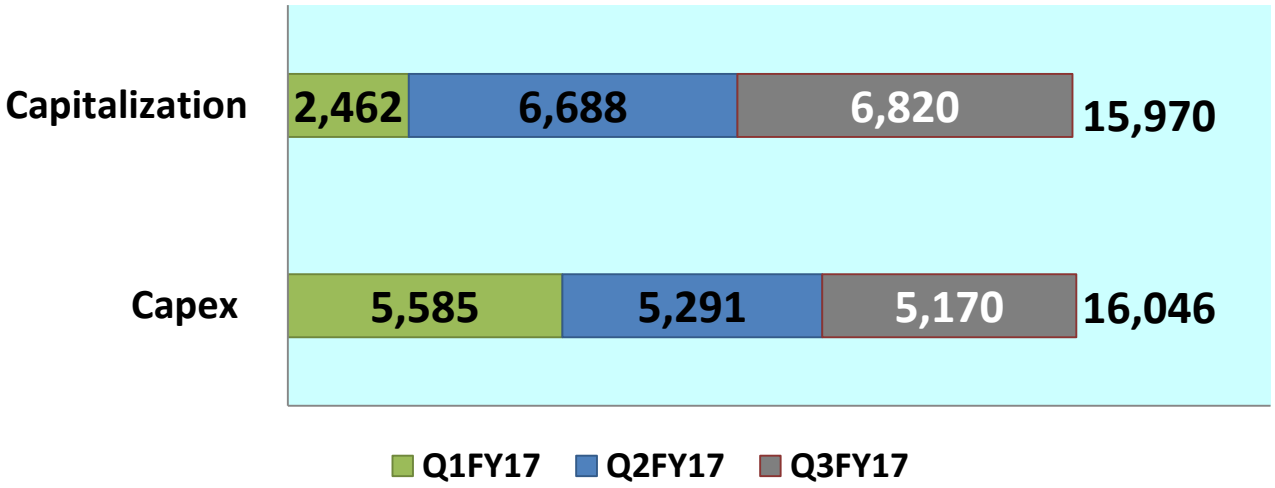
## As on 31.12.2016

| | |
|---|---|
| **Total Outstanding** | **~ ₹ 3,749 crore (53 days billing#)** |
| **Transmission Outstanding (beyond 60 days)** | **~ ₹ 792 crore (11 days billing#)** |
| **Billed but not outstanding (<60 days allowed as per CERC)** | **~ ₹ 2,958 crore (42 days billing#)** |

**# Avg. Monthly Billing: ₹ 2,126 => 2 months 60 days) billing = ₹ 4,252 crore**

**Tripartite Agreement signed by 12 States; Others in Progress**

# Performance: Projects- Q3 & 9mths FY17




**Till Jan'17**

~ ₹ 20,700 cr. (*)
(Commissioning)

~ ₹ 17,908 cr.

*(*) excluding Champa-Kurukshetra ±800kV HVDC*

| | FY16 (Apr-Dec) | FY17 (Apr-Dec) |
|---|---|---|
| Investment Approvals | 9,490 | 28,133 |
| Contracts Awarded | 13,465 | 21,942 |

**Investment Approval in FY17 till date: ₹ 34,809 crore**

# Performance - Physical

## Apr-Dec16 (9mths)

**Tr. Line:**
~ 4,650 ckm

**S/S:**
7 Nos.; ~24,000 MVA

**Inter-Regional Capacity:**
3,600MW

## Targeted for Q4FY17

**Tr. Line:**
~ 4,750 ckm

**S/S:**
7 Nos.; 14,000 MVA

**Inter-Regional Capacity:**
11,400MW

# Performance- Operations: FY17 (till Dec-16)

| | | |
|---|---|---|
| Assets (Dec'16) | Trans. Lines: | 1062 Nos. |
| | | ~ 134,000 ckm |
| | Sub-stations: | 214 Nos. |
| | | ~ 278,860 MVA |

| | | |
|---|---|---|
| Performance (Apr-Dec'16) | Availability: 99.76% | Reliability: 0.57* |

** Trippings per line*

# Performance (Q3FY17)

-

# Consultancy & Telecom

# Consultancy – Q3FY17

**Overall Consultancy Income ↑ 44%**
**(over Q3FY16)**

| | |
|---|---|
| **New Orders in Q3FY17** | **Domestic: 8 Nos. (Project Cost: ~ ₹ 1300 crore)** |
| | **International: 3 Nos. (Project Cost: ~USD 3.3 mn)** |
| **Assignments in Hand (Dec'16)** | **Domestic: 105 Nos. (~₹ 16,700 crore)** |
| | **International: 17 Nos.** |

# Telecom – Q3FY17

**Increase in Income**

**26% w.r.t Q3FY16**

- **Infrastructure:**
  - **Fiber Optic Network : ~ 36,500km**
  - **Points of Presence : 595**
  - **Backbone Availability : 100%**

- **Major Projects:**
  - **National Knowledge Network (NKN):** Project completed & Under Operation
  - **National Optic Fiber Backbone (NOFN): Work in progress**
    - ✓ Scope of work enhanced to connect 9,372 Gram Panchayats - 5,447 Gram Panchayats connected

# XII Plan Performance

# XII Plan Performance

**Planned Capital Outlay**

**₹ 110,000 crore**

## Annual Capex Plan

| FY12-13: | FY13-14: | FY14-15: | FY15-16: | FY16-17: |
|---|---|---|---|---|
| ₹20,037 cr. (Achieved) | ₹23,158 cr. (Achieved) | ₹ 22,456 cr. (Achieved) | ₹ 22,584 cr. (Achieved) | ₹22,550 cr. [Achieved ₹ 17,908 cr.] |

**~ ₹ 106,143 crore achieved in XII Plan (Apr12 till Jan17)**

**Physical Parameters (Ap12-Jan17)**

| | Target | Achievement |
|---|---|---|
| **Transmission Lines** | 40,000 ckm | **41,769 ckm (104%)** |
| **Sub-stations** | 60 Nos. | **67 Nos. (112%)** |
| **X-formation Capacity** | 100,000 MVA | **155,837 MVA (155%)** |

# Investment Outlook

# POWERGRID Outlook (as on Dec'16)

| | |
|---|---|
| **Ongoing Projects** | **approx. ₹ 1,10,000 crore** |
| **New Projects** | **approx. ₹ 13,000 crore** |
| **TBCB Projects** | **approx. ₹ 16,000 crore**<br>**(as per Empowered Committee Estimate)** |
| **Total Works in Hand** | **approx. ₹ 1,39,000 crore** |

# Investment Potential

| | | |
|---|---|---|
| **Transmission (TBCB)-** under various stages of bidding | **Inter-State: ₹ 8,697 crore - 7 projects** | **₹ 14,000 crore** |
| | **Intra-State: ₹ 5,265 crore - 10 projects in 4 States** | |

| | |
|---|---|
| **Thrust of Railways on upgradation and modernisation:** | **Railways' Target to achieve electrification of 90% tracks in next 5 years from current levels (<50%)** |
| | **24,000 rkm to electrified by 2021** (Target: 2000 in FY17; 4000 in FY18, 6000 annually during FY19-FY21) |
| | **POWERGRID already implementing a pilot for 761 rkm** |


Thank You