POWER GRID CORPORATION OF INDIA LIMITED

FY 2014-15

Press & Analysts’ Meet
Mumbai June 2, 2015
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• Annual Accounts for FY2014-15 are yet to be approved by the shareholders.
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FY15 – Major Highlights

Profit After Tax crosses ₹ 5,000 crore for the first time in Company’s history (Consolidated Basis)

Fastest Growing Electric Utility in the World as per Platts Top250

5th Largest Gross Assets as per DPE, GoI

Highest ever Capitalization

Successful in 3 out of 4 TBCB projects

Inclusive Growth – Intra State [Bihar JV-operational] [NER, J&K, UP, Odisha, Delhi, Sikkim]

RE Integration gathers pace- Green Energy Corridors & Trans. for Ultra Mega Solar Parks commence

ERP goes live

JV with RINL for TL Tower manufacturing

Timely & effective Disaster Management support – Delhi Storm; J&K floods; HUDHUD, AP

1- As per Platts Top250 Energy Cos. (2014) 2- PSE Survey 2013-14 of DPE
POWERGRID Today

**A ‘NAVRATNA’ ENTERPRISE**
**CENTRAL TRANSMISSION UTILITY**
**LISTED in NSE, BSE since 2007**
**GOVT. SHAREHOLDING 57.90%**
**PAYING DIVIDEND SINCE 1993-94**
**Market Capitalization ₹ 74,812 crore**

**Vision**

World Class, Integrated, Global Transmission Company With Dominant Leadership in Emerging Power Markets Ensuring Reliability, Safety and Economy

**Transmission Lines**

116,625 ckm
961 Nos.

**MVA & S/S**

234,709 MVA
195 Nos.

**Operating Parameters (FY14-15)**

- Availability: 99.87%
- Reliability: 0.53 Trippings per line

**CREDIT RATINGS**

- **Domestic**
  - AAA Stable CRISIL
  - AAA Stable ICRA
  - AAA Stable CARE

- **International**
  - BBB (-) Stable Outlook S&P
  - BBB (-) Stable Outlook Fitch

1- Based on BSE Closing Price of ₹ 143.00 per share on 01.06.2015
POWERGRID Group

Government of India

- 57.90%

Institutions

- 35.49%

Non-Institutions

- 6.61%

Joint Ventures (% POWERGRID equity holding)

- Powerlinks Trans. Ltd. (49%)
- Torrent Power Grid Ltd. (26%)
- Jaypee Powergrid Ltd. (26%)
- North Eastern Trans. Co. (26%)
- Energy Efficiency Services Ltd. (25%)
- Parbati Koldam Trans. Co. Ltd. (26%)
- Teesta Valley Power Trans. Ltd. (26%)
- National High Power Test Laboratory (20%)
- Bihar Grid Company Ltd. (50%)
- Kalinga Bidyut Prasaran Nigam Pvt. Ltd. (50%)
- Cross Border Power Trans. Co. Ltd. (26%)
- Power Transmission Co. Nepal Ltd. (26%) (POWERGRID’s 1st Intl JV)

POSOCO (Grid Management)

Subsidiaries (100%)

- Dividend Paying

Cos. Acquired through TBCB

1. POWERGRID NM Trans. Ltd.
2. POWERGRID Vizag Trans. Ltd.
3. POWERGRID Unchahar Trans. Ltd.
4. POWERGRID Kala Amb Trans. Ltd.
5. POWERGRID Jabalpur Trans. Ltd.
6. Gadarwara (A) Transco Ltd.
7. Gadarwara (B) Transmission Ltd.
8. POWERGRID Vemagiri Trans. Ltd.

Shareholding in PTC 4.1%
### Power Sector Overview

**Installed Capacity (GW)** | **RE Capacity (GW)** | **Transmission (ckm)** | **I-R Capacity (GW)**
---|---|---|---
At the end of XI Plan | 200 incl. RES | 24.5 | 257,481 | 27.75
At the end of FY15 | 268 incl. RES | 31.7 | 313,437 | 46.45
Targeted addn. during XII Plan | 88 | 30 | 107,440 | 37.8
Addn. in XII Plan (Apr12-Mar15) | 68 | 7.2 | 55,956 | 18.7
Addn. in FY15 | 24.6 incl. RES | 2.2 | 22,101 | 7.9

*Targeted for XII Plan: 88 GW incl. RES, FY15: 68 GW incl. RES, Addn. in FY15: 24.6 GW incl. RES.*

**Per Capita Consumption:** 1010 kWh (2014-15 Prov.)

### Energy Trade-offs

#### FY15
- **Peak Load (GW):** FY17: 200; FY22: 283
- **Peak Energy (BU):** FY17: 1355; FY22: 1905
- **Congestion/Constraints:** FY17: 3.1BU (0.3%)
## Financial Highlights FY15

<table>
<thead>
<tr>
<th>Description</th>
<th>Quarter ended</th>
<th>Year ended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31.03.2015</td>
<td>31.03.2014</td>
</tr>
<tr>
<td><strong>Standalone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission Charges</td>
<td>4,468</td>
<td>3,752</td>
</tr>
<tr>
<td>Consultancy – Services</td>
<td>157</td>
<td>147</td>
</tr>
<tr>
<td>Consultancy – Sale of Products</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Telecom</td>
<td>79</td>
<td>65</td>
</tr>
<tr>
<td>Other Income</td>
<td>206</td>
<td>197</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>4,910</td>
<td>4,183</td>
</tr>
<tr>
<td>Operating Expenses (including prior period adjustment)</td>
<td>645</td>
<td>603</td>
</tr>
<tr>
<td>EBITDA-Gross Margin</td>
<td>4,265</td>
<td>3,580</td>
</tr>
<tr>
<td>Depreciation</td>
<td>1,418</td>
<td>1,075</td>
</tr>
<tr>
<td>Interest</td>
<td>1,038</td>
<td>819</td>
</tr>
<tr>
<td>Extraordinary Items (Net of Tax exp.)</td>
<td>-</td>
<td>(3)</td>
</tr>
<tr>
<td>Tax</td>
<td>397</td>
<td>510</td>
</tr>
<tr>
<td><strong>Profit after Tax</strong></td>
<td><strong>1,412</strong></td>
<td><strong>1,176</strong></td>
</tr>
</tbody>
</table>

(₹ in crore)
<table>
<thead>
<tr>
<th>Description</th>
<th>As on 31.03.2015</th>
<th>As on 31.03.2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Fixed Assets</td>
<td>118,264</td>
<td>96,504</td>
</tr>
<tr>
<td>Capital Work-in-Progress</td>
<td>56,292</td>
<td>53,330</td>
</tr>
<tr>
<td>Debt</td>
<td>93,845</td>
<td>80,470</td>
</tr>
<tr>
<td>Net Worth</td>
<td>38,037</td>
<td>34,413</td>
</tr>
<tr>
<td>Earning Per Share (₹)</td>
<td>9.52</td>
<td>9.36</td>
</tr>
<tr>
<td>Book Value per Share (₹)</td>
<td>72.71</td>
<td>65.78</td>
</tr>
</tbody>
</table>

**Key Financial Ratios**

<table>
<thead>
<tr>
<th>Description</th>
<th>FY15 (%)</th>
<th>FY14 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt : Equity</td>
<td>71:29</td>
<td>70:30</td>
</tr>
<tr>
<td>Return on Net Worth</td>
<td>13.09%</td>
<td>13.07%</td>
</tr>
</tbody>
</table>
Asset Based Returns - FY11 to FY15

**Investment-led Asset Growth**

<table>
<thead>
<tr>
<th></th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Fixed Assets (GFA+WIP) (₹ in '000 crore)</td>
<td>50.3</td>
<td>63.4</td>
<td>96.7</td>
<td>120.8</td>
<td>149.8</td>
</tr>
<tr>
<td>(2.35x)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Consistent increase in Physical Assets**

<table>
<thead>
<tr>
<th></th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL ('000 ckm)</td>
<td>82.4</td>
<td>93.1</td>
<td>93.0</td>
<td>100.2</td>
<td>164.8</td>
</tr>
<tr>
<td>X-fm (GVA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>150</td>
<td>167</td>
<td>184</td>
<td>205.9</td>
<td>231.7</td>
</tr>
</tbody>
</table>

**Forbes Global 2000 (Apr’15): Overall Rank 980; El. Utilities Rank: 54**

**Sustained Profitability...**

<table>
<thead>
<tr>
<th></th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income (₹ in crore)</td>
<td>9,099</td>
<td>10,785</td>
<td>13,328</td>
<td>15,721</td>
<td>17,781</td>
</tr>
<tr>
<td>PAT</td>
<td>2,697</td>
<td>3,255</td>
<td>4,235</td>
<td>4,497</td>
<td>4,979</td>
</tr>
<tr>
<td>EBITDA Margin</td>
<td>84.1%</td>
<td>84.5%</td>
<td>86.5%</td>
<td>85.4%</td>
<td>86.4%</td>
</tr>
</tbody>
</table>

**...and enhanced Shareholder returns ...**

<table>
<thead>
<tr>
<th></th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>6.19</td>
<td>7.03</td>
<td>9.15</td>
<td>9.36</td>
<td>9.52</td>
</tr>
<tr>
<td>Dividend per Share (₹ in crore)</td>
<td>1.75</td>
<td>2.11</td>
<td>2.75</td>
<td>2.58</td>
<td>2.00</td>
</tr>
<tr>
<td>BV per share</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46.12</td>
<td>50.73</td>
<td>56.62</td>
<td>65.78</td>
<td>72.71</td>
</tr>
</tbody>
</table>

**Growth^3 in Mkt Cap. between Mar14 and Mar15: 38%**

---

1- PSE Survey 2013-14 of DPE  2- As per Platts Top250 Energy Cos. (2014)  3- Based BSE Closing Price: 105.05 (31.3.14) & 145.20 (31.3.15)
Project & Employee Efficiency - FY11 to FY15

Thrust on Capitalization

- Capex
- Capitalisation
- Capitalization/ Capex (%)

(Fin in ‘000 crore)

<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>17.8</td>
<td>20.0</td>
<td>23.2</td>
<td>22.5</td>
</tr>
<tr>
<td>7.1</td>
<td>13.0</td>
<td>17.2</td>
<td>15.9</td>
<td>21.8</td>
</tr>
</tbody>
</table>

59% 73% 86% 69% 97%

…and Efficient Project Management

- CWIP (Installed)
- Const. Stores & Advances

(Fin in crore)

<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,661</td>
<td>17,701</td>
<td>21,037</td>
<td>21,479</td>
<td>39,882</td>
</tr>
<tr>
<td>12,964</td>
<td>15,574</td>
<td>19,115</td>
<td>16,409</td>
<td></td>
</tr>
</tbody>
</table>

Increased Employee Productivity....

- ckm/ Employee
- MVA/ Employee

(Fin in lakh)

<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.8</td>
<td>10.0</td>
<td>11.2</td>
<td>12.3</td>
<td>13.5</td>
</tr>
<tr>
<td>10.1</td>
<td>13.5</td>
<td>18.5</td>
<td>23.7</td>
<td>27.1</td>
</tr>
</tbody>
</table>

....and Employee Efficiency

- Income/ Employee
- Profit/ Employee

(Fin in lakh)

<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>117</td>
<td>150</td>
<td>181</td>
<td>208</td>
</tr>
<tr>
<td>29</td>
<td>35</td>
<td>48</td>
<td>52</td>
<td>58</td>
</tr>
</tbody>
</table>
FY15: Billing & Realization

Billing
₹ 16,409 crore

Realization
₹ 15,848 crore

%age realization
97%

Avg. Monthly Billing: ₹ 1,367 crore => 2mnths (60 days’) billing = ₹ 2,734 crore

Highest ever Revenue Collection in a month: ₹ 1880 crore (Mar’15)

Dues as on 31.05.2015

Balance due but not outstanding (≤60 days allowed as per CERC) = ₹ 1,425 crore

<table>
<thead>
<tr>
<th>Description</th>
<th>₹ in Crore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding &gt; 60 days</td>
<td>274*</td>
</tr>
<tr>
<td>Payments (in installments)</td>
<td>5</td>
</tr>
</tbody>
</table>

Outstanding equivalent to ~6 days’ billing
### Project Highlights - Major Projects Commissioned in FY15

#### Transmission Lines
- ~ 12,600 GW-ckm

#### Sub-Stations
- 8 Nos.
- ~ 25,800 MVA

#### Inter-Regional Capacity
- 4,200 MW

### Major Lines
- Nellore-Thiruvalam
- Bina – Gwalior
- Champa-Raipur, Champa-Dharamjaygarh
- Indore - Vadodara
- Raichur – Kurnool, Nellore - Kurnool
- Rihand – V’chal,
- Jharsuguda – Dharamjaygarh
- Thiruvalam – Sholinganallur
- Annupur - Jabalpur
- Balipara - Bongaigaon
- Satna – Gwalior
- Wardha – Aurangabad, Raipur - Wardha
- Kurnool – Thiruvalam
- Sholapur - Pune
- Angul-Jharsuguda
- Silchar-Imphal

*Aggregate ckm: ~8,800 (765kV: ~64%)*

### Sub-stations
- Rangpo (GIS)
- Shahjahanpur
- Magarwada (GIS)
- Chaibasa
- Tuticorin
- Pune (GIS)
- Bareilly
- Nagapattinam (GIS)

### Inter-Regional
- Jharsuguda – Dharamjaygarh (4,200MW)
Projects in FY16

Transmission Lines
- 20,500 GW-ckm

Sub-Stations
- 20 Nos.

Inter-Regional Capacity
- 15,200 MW

Major Lines
- Bareilly-Kashipur, Kashipur-Roorkee
- V’chal – Satna,
- Meerut – Moga, Kanpur – Jhatikara
- Raigarh-Champa
- Barh-Gorakhpur
- Silchar – Purba Kanchan Bari
- Vijayawada – Nellore
- Biswanath Chariyali – Agra (NE-NR/WR Interconnector) & associated AC system
- Aurangabad-Solapur, Kudgi-Kolhapur
- Aurangabad-Boisar
- Gooty – Madhugiri
- Angul – Jharsuguda (2nd line)
- Ranchi-Dharamjaygarh-Jabalpur
- Raipur PS - Wardha(2nd line), Wardha- Aurangabad
- Gwalior – Jaipur, Jaipur-Bhiwani(2nd line)
- Dehradun-Baghat, Roorkee-Saharanpur
- Pasighat – Roing – Tezu
- Mysore-Kozhikode
- Ballia – Varanasi, Gaya-Varanasi, Varanasi-Kanpur
- Kishenganj-Patna
- Kurnool-Raichur
- LILOs- Meerut-Kaithal; Baripada-Mendhasal;
- 800kV Champa-Kurukshetra HVDC (Pole-I)

Sub-stations
- Vindhya PS
- New Melli (GIS)
- Champa AC
- Vadodara (GIS)
- Navi Mumbai (GIS)
- Kanpur
- Biswanath Chariyali HVDC
- Agra HVDC
- Kudgi
- Kishenganj
- Varanasi
- Kolhapur
- Kozhikode
- Pandiabil (GIS)
- Saharanpur
- Bagpat (GIS)
- Dehradun
- Mokokchung (GIS)
- Champa HVDC
- Kurukshetra HVDC

Inter-Regional
- Barh – Gorakhpur
- Gwalior-Jaipur
- Biswanath Chariyali – Agra (NE-NR/WR Interconnector) HVDC
- Ranchi-Dharamjaygarh
- Gaya-Varanasi
- Narendra - Kolhapur
- Champa-Kurukshetra HVDC Pole-I

Transnational Interconnections
- India-Bangladesh (Surjyamaninagar-Comilla)
- India-Nepal (Muzzafarpur-Dalkebar)

Green font indicates assets commissioned in FY16
TBCB Projects

Participation
18 Projects

Success
9 (50%)

- POWERGRID NM Transmission Ltd.
  - Completion-Dec’15
  - ALTC*: ₹ 99 cr.

- POWERGRID Vizag Transmission Ltd.
  - Completion-Aug’16
  - ALTC: ₹ 231 cr.

- POWERGRID Unchahar Trans. Ltd.
  - Completion-Sep’16
  - ALTC: ₹ 17 cr.

- POWERGRID Kala Amb Trans. Ltd.
  - Completion-Jul’17
  - ALTC: ₹ 59 cr.

- POWERGRID Jabalpur Trans Ltd.
  - Acquired on 26.02.15
  - ALTC - ₹ 211 crore

- Gadarwara (A) Transco Ltd.
  - Acquired on 24.04.15
  - ALTC - ₹ 290 crore

- Gadarwara (B) Transmission Co. Ltd.
  - Acquired on 24.04.15
  - ALTC - ₹ 257 crore

- TS for connectivity of NCC Power Projects
  - Bidding annulled. Being implemented on regulated tariff mechanism by POWERGRID

- POWERGRID Vemagiri Trans. Ltd.
  - Discontinued

Licenses received.
Contracts awarded.

Construction under progress.

* Annual Levelised Trans. Charges

Projects in RfQ stage – 5 (Estimated Cost: ₹ 21,000 cr.)

Projects in RfP stage – 6 (Estimated Cost: ₹ 4300 crore)
Operational Highlights

Assets under management (Mar-15)

- 950 nos.
- 115,637 ckm

Tr. lines

Sub-stations: 192 Nos.

- 13 GIS
- 75 remotely managed
  - 44 managed through NTAMC

X-formers: ~750 nos.
Xfn Capacity: 231,709 MVA
Reactors: ~1050 nos.

Voltage Landscape poised for a major migration to 765kV in the coming years

- (<400kV)
- 400kV & HVDC
- 765kV

Tr. Lines (km)

Mar'11 (82,355)
Mar'15 (115,637)

Tr. Lines (nos.)

Sub. Stations:

Mar'11 (135)
Mar'15 (192)

Reliability

- FY13: 0.58
- FY14: 0.56
- FY15: 0.53

Availability

- FY13: 99.90%
- FY14: 99.92%
- FY15: 99.87%
Asset Management Initiatives

**NTAMC - Operational**
- Centralized Operation of 65 S/S taken up till date
- **Attributes**: SCADA; Remote Accessibility System & Real time Video Monitoring System; Maintenance Service Hubs
- **Regional Control Centers (9)** - Jammu, Manesar (Haryana), Dehgam (Guj.), Nagpur, Patna, Subhashgram (W.B.); Hyderabad, Bengaluru, Shillong
- Back Up Control Center at Bengaluru

**Hot Line Maintenance of 765kV transmission lines**
- Successfully taken up in India for the first time
- On 765 kV Moga-Bhiwani transmission line
- Carried out by in-house team

**Project ‘Rupantar’ (ERP) operationalized**

**Upcoming Initiatives in O&M**
- TL maintenance (Live) with the use of helicopters
- Insulated Bucket Trucks for Hotline Maintenance of TL & S/S
- Mobile sub-stations

**Aerial Patrolling**
Bids invited for ~ 17,000 km of transmission lines in Northern Region
R&D/ New Technology Initiatives

Simulation and Lab facilities
- Smart Grid Knowledge Centre
- Energy Efficiency Demo
- Substation Automation System
- Advance Diagnostics
- Material Science Lab
- WAMS Testing

Transmission Line Research Lab at Bina S/S
- Field Testing and Optimization Studies of TL

1200kV UHVAC Technology
- Field Trial since 2012
- Feedback satisfactory

High Temp. Superconducting Cable System
- Demonstration Project on 220kV HTS Cable – Bids invited

Fault Current Limiter
- Preliminary works under way

Process Bus Architecture in SAS
- Pilot Project successful
- 1st step towards digitization of S/S

POWERGRID Academy of Leadership (PAL) becomes operational
Grid Management - Highlights

Inter-Regional Exchange (BU)

CAGR: 10.4%

<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>59</td>
<td>66</td>
<td>78</td>
<td>84</td>
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</tbody>
</table>

Impact of STOA: Reduction in cost

~ 8 p.u.

~ 3 p.u.

Short Term Open Access

<table>
<thead>
<tr>
<th></th>
<th>Txns. ('000) Bilateral</th>
<th>Txns. ('000) Collective</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY11</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>FY12</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>FY13</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>FY14</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>FY15</td>
<td>26</td>
<td>12</td>
</tr>
</tbody>
</table>

Avg. Daily Vol. (MU)

<table>
<thead>
<tr>
<th></th>
<th>Bilateral</th>
<th>Collective</th>
<th>STOA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY11</td>
<td>156</td>
<td>82</td>
<td>238</td>
</tr>
</tbody>
</table>

Impact of STOA:

- Reduction in cost ~ 8 p.u.
- Reduction in cost ~ 3 p.u.

REC Update

(As on 31-Mar-15)

1063 RE generators registered
Aggregate capacity: 4755 MW

FY15

- RECs issued: 96.25 lakh (incl. 14.16 lakh Solar)
- RECs redeemed: 30.62 lakh (incl. 1.64 Solar)

Since inception (Mar-11)

- RECs issued (Nos.) upto March, 2015: 2.18 crore
- RECs traded (Nos.) till March, 2015: 94.16 lakh

Traded value: ₹ 1710 crore (incl. ₹ 148 crore Solar [since May-12])
Highlights – Consultancy (Domestic)

FY15 Performance

New Orders

30 New Orders from 21 clients
Project Cost: ~ ₹ 7,100 crore

Under Execution

~ 120 assignments
Project Cost (Bal.): ~₹ 19,500 crore

Major assignments

- Strengthening of T&D System in Arunachal & Sikkim, NER States
- Delhi Transco Ltd. works
- Rural Electrification works (15 districts) in Odisha

Works commenced

Major Orders under consideration

- Trans. System for Dedicated Freight Corridor Corporation of India
- Works for Ministry of Railways
- Smart Grid related assignments

Areas of Consultancy & Clientele

- GoI (NER, J&K): Project Management, Rural Electrification
- STUs: Turnkey Execution, Capacity Building
- DISCOMs: Smart Grid, Rural Electrification
- CPSEs: Turnkey Execution, SCADA & OPGW
- Pvt Sector: Turnkey Execution, TL & S/S Engg

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- Pvt Sector: Turnkey Execution, TL & S/S Engg
Highlights – Consultancy (International Business)

**FY15 Performance**

**Activities**
- 14 EoIs submitted
- 4 New countries approached

**Success**
- 10 Orders received
- ~50% of the works in the area of Capacity Building
- 3 New countries included

**Status**
- 14 projects under Execution
- Myanmar Project successfully completed

**Major works**
- 2\textsuperscript{nd} Block of 500MW B2B Stn. in Bangladesh
- Capacity Building works in Asia & Africa
- Assignments from ADB & the World Bank

**Major On-going Assignments**
- EPC Consultant: CASA 1000 Project
- Management Contract – Ethiopia
- HVDC Back-to-Back Stn. - Bangladesh
- Implementation Support- Nepal

**Recent Updates**
- EPC assignment in Nepal- Bid under submission
- ‘Trading House’ status accorded to POWERGRID - Certificate of Recognition issued by GoI (Addl. DGFT)

**Footprints in 18 countries**

**Asia**
- Afghanistan, Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, UAE

**Africa**
- Congo, Ethiopia, Kenya, Nigeria, Senegal, Tanzania

**CIS countries**
- Kyrgyz Republic, Kazakhstan, Tajikistan, Uzbekistan
### Infrastructure & Licenses
- **Infrastructure**
  - Fiber Optic Network: ~ 33,200 km
  - Points of Presence: 352
- **Licenses/Registrations**
  - NLD
  - ISP Category ‘A’
  - IP-I

### Services Offered
- **Point to Point dedicated Bandwidth Leased Lines**
- **MPLS-VPN**
- **Internet Leased lines**
- **Dark Fiber**
- **Tower Space**

### Clientele
- **NLDOs/ILDOs**
- Unified Access Providers (incl. all Leading Telcos)
- Global IT Companies
- ISPs
- Central & State Govt. incl. PSEs
- Corporates incl. MNCs

### Notable Projects
- **MPLS**
  - Commercial launch in Apr’14
  - 8 Clients – both CPSUs & Pvt. (NTPC, GAIL, APTRANSCO etc.)
  - In-house requirement for NTAMC and ERP
- **National Knowledge Network (NKN)**
  - POWERGRID Scope: ₹ 900 cr.
  - Project completed - Under Operation
- **National Optical Fiber Network (NOFN)**
  - Execution in 4 States
  - Work commenced for 6,900 Gram Panchayats
Investment & Funding Programme

Funding of Projects

- Debt & Equity in the ratio 70:30 as per Tariff guidelines
- FPO funds raised in 2013 - Utilized

NITs issued: ~ ₹ 27,000 crore (240 nos.)

Investments Approved

- FY14: 8,548
- FY15: 24,504
- FY16 (till May15): 20,228

Contracts Awarded

- FY14: 6766
- FY15: 10,766
- FY16 (till May15): 3610

₹ 2600 crore raised thru’ SBI Line of Credit

FY15- Fund raising through Domestic Market

- Sep'14: ₹ 4362 crore raised at 9.30% rate (p.a.)
- Oct'14: ₹ 2640 crore raised at 8.93% rate (p.a.)
- Jan'15: ₹ 2580 crore raised at 8.20% rate (p.a.)
- Mar'15: ₹ 1305 crore raised at 8.15% rate (p.a.)
## Smart Grid - Updates

<table>
<thead>
<tr>
<th>Green Energy Corridors</th>
<th>Implementation for Phase-I commenced  (Inter-State portion: ₹13,000 crore)</th>
<th>Report for Green Energy Corridors – II submitted to GoI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ultra Mega Solar Parks</strong></td>
<td>Transmission System Implementation commenced for Solar Park in NP Kunta, Andhra Pradesh</td>
<td></td>
</tr>
<tr>
<td><strong>Power Quality Measurement</strong></td>
<td>Under progress in 175 cities across the country</td>
<td></td>
</tr>
</tbody>
</table>

### Development of Smart Grid leading to Smart City

- **Project Report for Gurgaon under finalization**
- **Report to include attributes for**
  - Smart Grid
  - One Map Gurgaon
  - Traffic Management
  - Transport Management
New Products

- Smart Home Energy Management System and Microgrid Controller
- Energy Efficient All Season Roof Screening
- Active power filter for power quality improvement
- Smart Meter & Data Concentrator Units developed
- Smart Ventilation System being developed
- Meter Data Management System developed
- Development of Automatic Power Factor Controller in progress

New Technologies

- 1000 kW Grid scale battery energy storage systems under implementation
- Analytics for WAMS being developed along with IIT Bombay

Smart Grid Consultancy Works

- **Implementation commenced**
  - Punjab, Karnataka & Himachal Pradesh
- **Under Progress**
  - Tripura, West Bengal, Chhattisgarh
- **New Assignments**
  - Bangalore (BESCOM) - Secured
  - Puducherry – under Finalization

Patent applied

Developed & Patent will be filed

Under Development

Smart Grid - Updates

Smart Grid Consultancy Works

- Implementation commenced
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- Under Progress
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New Technologies

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ONE Nation Grid Frequency
New Initiatives- Updates

Energy Efficiency
- Certified as BEE Grade-1 Energy Service Co.
- Energy Audit assignment from SAIL - Successfully Completed
- >1300 Agricultural pumps replaced with energy efficient pumps in Karnataka

JVs for Intra-State Transmission
- Bihar Grid Co. Ltd.- Under implementation
- Kalinga Bidyut Prasaran Nigam Ltd. – Under discussion

JVs for Manufacturing
- Tower parts: POWERGRID & RINL – Shareholding Agreement signed
- Conductor: In-principle approval accorded by the Board
- Insulator: Under discussion

JV for Off-Shore Wind Power
- For Off-shore Wind Power in Gujarat: with NTPC, PFC, IREDA etc.
  (POWERGRID to implement evacuation system)
**Highlights – CSR & Sustainability**

**Environment and Social Policy & Procedure (ESPP)**
- Principles of **Avoidance, Minimization** and **Mitigation**
- Certified to Social Accountability Standard (SA-8001: 2008)

POWERGRID’s CSR Policy aligned to Companies Act, 2013 which came into effect from April 1, 2014

**Thrust Areas**
- Education - Rural Infrastructure - Health - Environment - Tree Plantation – Livelihood - Restoration works

**FY15 CSR Budget:** ₹ 109 cr
(2% of Avg. Net Profit of last 3 years)

**CSR Projects sanctioned in FY15**
- 79 Nos.
- Cost: ₹ 157 cr.

---

**Major Projects undertaken in FY15**

<table>
<thead>
<tr>
<th>Education</th>
<th>Rural Infrastructure</th>
<th>Health</th>
<th>Environment</th>
<th>Tree Plantation</th>
<th>Livelihood</th>
<th>Restoration works</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementing ‘Swachh Vidyalaya Abhiyan’ under Swachh Bharat Mission of Gov.</td>
<td>Skill Development to 5000 youth through NSDC¹</td>
<td>Skill Development to 1500 handicapped persons thru’ NHFDC²</td>
<td>Installation of Solar Street Lights</td>
<td>Supply of Solar lanterns to school children</td>
<td>Scholarships to Students in Assam &amp; Manipur</td>
<td>Supply of Aids and appliances to ~ 2500 persons through ALIMCO³</td>
</tr>
</tbody>
</table>

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**Sustainability Initiatives**
- Solar plants & LED lights in new S/S Control Rooms
- Rain Water Harvesting in S/S
- 1000 trees planted in Gurgaon
- Renovation of village ponds- Odisha & Chhattisgarh

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¹- NSDC- National Skill Development Council
²- National Handicapped Finance Development Corp.
³- Artifical Limbs Manufacturing Corp. of India
### Complementing ‘Make in India’

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>765kV Class Transformer/ Reactor</td>
<td>Foreign bidders to set up manufacturing facility to supply at least one Transformer/ Reactor</td>
</tr>
<tr>
<td>765kV GIS Equipment</td>
<td>Foreign bidders to set up manufacturing facility to supply at least one bay</td>
</tr>
<tr>
<td>±800kV HVDC Equipment</td>
<td>Thyristor- at least 50% to be assembled in India</td>
</tr>
<tr>
<td></td>
<td>Convertor X-former- 90% indigenous</td>
</tr>
<tr>
<td>SVC &amp; STATCOM</td>
<td>At least one SVC/STATCOM to be supplied from manufacturing facility in India</td>
</tr>
<tr>
<td>HTLS Conductors, Insulators &amp; EHV cable</td>
<td>Suitable provisions being proposed to promote manufacturing in India</td>
</tr>
</tbody>
</table>

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**Swachh Bharat Abhiyan**

- **Implementing ~ 10,000 toilets in Govt. Schools, by August, 2015**
## Way Forward

### Major works

<table>
<thead>
<tr>
<th>Description</th>
<th>State(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000MW HVDC Bipole/Other Schemes between WR &amp; SR</td>
<td></td>
</tr>
<tr>
<td>TS for Solar Park in 7 States</td>
<td></td>
</tr>
<tr>
<td>ISTS for Renewables in Northern Region</td>
<td></td>
</tr>
<tr>
<td>ISTS works in NCT of Delhi</td>
<td></td>
</tr>
<tr>
<td>Success in TBCB in recent projects</td>
<td></td>
</tr>
</tbody>
</table>

### Major Consulting Assignments in States

- NER Power System Improvement Scheme in six States of NER; Sikkim & Arunachal
- Transmission Project for Leh-Kargil (J&K) connectivity
- Implementation of evacuation system for Lalitpur TPP in UP
- Transmission System Strengthening works in Delhi

### Transmission Projects for FY15-16: ~ ₹ 100,000 crore

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBCB</td>
<td>~ ₹ 28,000 cr.</td>
</tr>
<tr>
<td>POWERGRID</td>
<td>~ ₹ 40,000 cr.</td>
</tr>
<tr>
<td>Consultancy</td>
<td>~ ₹ 9,800 cr.</td>
</tr>
<tr>
<td>Intra-State (GEC)</td>
<td>~ ₹ 14,000 cr.</td>
</tr>
</tbody>
</table>

### Other upcoming opportunities

- Desert Power
- RE Integration-Off shore Wind Power
- Smart Grid/Smart City Opportunities
- Energy Efficiency
- RGGVY & R-APDRP works
- Wire Business
- TBCB projects
Thank You