POWER GRID CORPORATION OF INDIA LIMITED

Q1 FY 2015-16
Press & Analysts’ Meet

Mumbai
August 11, 2015
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• Annual Accounts for FY2014-15 are yet to be approved by the shareholders.
POWERGRID Today

Financial Highlights

Project Execution

Operations Highlights

Other Businesses Highlights – Consultancy, Telecom

New Initiatives- Updates

Investment & Funding Programme
Thank You

for making POWERGRID (only Indian Company)

‘One of the Best Three Asian Companies which host most constructive Analyst Days that professionals find most beneficial’

Source: Institutional Investor Award: The 2015 All-Asia Best Analyst Day
POWERGRID Today

A ‘NAVRATNA’ ENTERPRISE
CENTRAL TRANSMISSION UTILITY
LISTED COMPANY since 2007
GOVT. SHAREHOLDING 57.90%
PAYING DIVIDEND SINCE 1993-94
Market Capitalization ₹ 72,248 crore

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

Tr. Lines (as on 10-Aug-15)
118,261 ckm
975 Nos.

MVA & S/S (as on 10-Aug-15)
239,424 MVA
197 Nos.

Operating Parameters (FY14-15)
Availability: 99.92%
Reliability(*): 0.56

CREDIT RATINGS
Domestic
- AAA
- Stable
- CRISIL
- AAA
- Stable
- ICRA
- AAA
- Stable
- CARE

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

(*) Trippings/ line

1- Based on BSE Closing Price of ₹ 138.10 per share on 10.8.2015
## Financial Highlights Q1 FY16

<table>
<thead>
<tr>
<th>Description</th>
<th>Year ended 31.03.2015</th>
<th>Quarter ended 30.06.2014</th>
<th>Quarter ended 30.06.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Transmission Charges</td>
<td>16521</td>
<td>3816</td>
<td>4541</td>
</tr>
<tr>
<td>- Consultancy – Services</td>
<td>381</td>
<td>61</td>
<td>89</td>
</tr>
<tr>
<td>- Telecom</td>
<td>275</td>
<td>65</td>
<td>88</td>
</tr>
<tr>
<td>- Other Income</td>
<td>603</td>
<td>133</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td><strong>17780</strong></td>
<td><strong>4075</strong></td>
<td><strong>4788</strong></td>
</tr>
<tr>
<td>Operating Expenses (including prior period adjustment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2426</td>
<td>569</td>
<td>580</td>
</tr>
<tr>
<td><strong>EBITDA-Gross Margin</strong></td>
<td><strong>15354</strong></td>
<td><strong>3506</strong></td>
<td><strong>4208</strong></td>
</tr>
<tr>
<td>Depreciation</td>
<td>5085</td>
<td>1155</td>
<td>1370</td>
</tr>
<tr>
<td>Interest</td>
<td>3979</td>
<td>928</td>
<td>1109</td>
</tr>
<tr>
<td>Tax</td>
<td>1311</td>
<td>286</td>
<td>362</td>
</tr>
<tr>
<td><strong>Profit after Tax</strong></td>
<td><strong>4979</strong></td>
<td><strong>1137</strong></td>
<td><strong>1367</strong></td>
</tr>
</tbody>
</table>
## Financial Highlights Q1FY16

<table>
<thead>
<tr>
<th>Description</th>
<th>As on 31.03.2015</th>
<th>As on 30.06.2014</th>
<th>As on 30.06.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Fixed Assets</td>
<td>118264</td>
<td>101382</td>
<td>122811</td>
</tr>
<tr>
<td>Capital Work-in-Progress</td>
<td>56292</td>
<td>53345</td>
<td>56878</td>
</tr>
<tr>
<td>Debt</td>
<td>93845</td>
<td>84685</td>
<td>99412</td>
</tr>
<tr>
<td>Net Worth</td>
<td>38037</td>
<td>35526</td>
<td>39404</td>
</tr>
<tr>
<td>Earning Per Share (₹)</td>
<td>9.52</td>
<td>2.17#</td>
<td>2.61#</td>
</tr>
<tr>
<td>Book Value per Share (₹)</td>
<td>72.71</td>
<td>67.91</td>
<td>75.32</td>
</tr>
</tbody>
</table>

### Key Financial Ratios

<table>
<thead>
<tr>
<th></th>
<th>As on 31.03.2015</th>
<th>As on 30.06.2014</th>
<th>As on 30.06.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt : Equity</td>
<td>71:29</td>
<td>70:30</td>
<td>72:28</td>
</tr>
<tr>
<td>Return on Net Worth</td>
<td>13.09%</td>
<td>3.20%#</td>
<td>3.47%#</td>
</tr>
</tbody>
</table>

# Not Annualised
Avg. Monthly Billing: ₹ 1,305 Crore => 2 months (60 days) billing = ₹ 2,610 crore

Dues as on 31.07.2015
Balance due but not outstanding (<60 days allowed as per CERC) = ₹ 1,809 crore

<table>
<thead>
<tr>
<th>Description</th>
<th>₹ in Crore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding &gt; 60 days</td>
<td>347</td>
</tr>
</tbody>
</table>

Outstanding equivalent to ~8 days billing
**Project Execution - Q1FY16**

**Capex (₹ in crore)**

- FY15: 22,456
- Q1FY14: 5,073
- Q1FY15: 5,844
- Q1FY16: 6,412

**Capitalization (₹ in crore)**

- FY15: 21,760
- Q1FY14: 2,950
- Q1FY15: 4,878
- Q1FY16: 4,547

**Till Jul’15**

- ₹ 8,080 crore

**Till date**

- ₹ 7,000 crore

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**Physical Performance Q1FY16 (Till date)**

- Tr. Line (GW-ckm): 2,209 (3,574)
  - Q1FY15: 2,180
- S/S (Nos.): 4 (5)
  - Q1FY15: 2
- X-fmn. (MVA): 6,000 (7,715)
  - Q1FY15: 3,351MVA
- I-R Cap. (MW): 1,600 (3,700)
  + 2100 by 12-Aug
Projects in FY16

Transmission Lines
20,500 GW-ckm

Sub-stations
20 Nos.

Inter-Regional Capacity
16,700 MW

Major Lines
- Bareilly-Kashipur, Kashipur-Roorkee
- V’chal – Satna, V’chal-Satna (2nd line)
- Meerut – Moga, Kanpur – Jhatikara
- Barh-Gorakhpur
- Raigarh - Champa
- Silchar – Purba Kanchan Bari
- Vijayawada – Nellore
- Gwalior – Jaipur, Jaipur-Bhiwani (2nd line)
- 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
- Dehradun-Bagpat, Roorkee-Saharanpur
- Pasighat – Roing – Tezu
- Mysore-Kozhikode
- Balia – Varanasi, Gaya-Varanasi, Varanasi-Kanpur
- Kishenganj-Patna
- Kurnool-Raichur
- LILOs- Meerut-Kaithal; Baripada-Mendhasal;
- 800kV Champa-Kurukshetra HVDC (Pole-I)

Sub-stations
- Vindhyachal PS
- New Melli (GIS)
- Champa PS
- Vadodara (GIS)
- Mokokchung (GIS)
- Madhugiri
- Salem (Dharmapuri)
- Navi Mumbai (GIS)
- Kanpur
- Biswanath Chariyali HVDC
- Agra HVDC
- Kudgi
- Kishenganj
- Varanasi
- Kolhapur
- Kozhikode
- Pandiabil (GIS)
- Saharanpur
- Bagpat (GIS)
- Dehradun
- Roing
- Tezu
- Champa HVDC
- Kurukshetra HVDC

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

Green font indicates assets commissioned in FY16

Transnational Interconnections
- India-Bangladesh (Surjyamaninagar-Comilla)
- India-Nepal (Muzzafarpur-Dalkebar)
Operations Highlights – Q1FY16

Assets under Management (as on 30-Jun-2015)

- **Lines**
  - 963 Nos.
  - 117,323 ckm

- **Sub-Stations**
  - 196 Nos.
  - 237,709 MVA

- **765kV(*)**: 19%
  - 400kV: 71%
  - (*) ckm incl. HVDC & 765kV chgd at 400kV

- **765kV(#)**: 23%
  - 400kV: 65%
  - (#) S/S incl. HVDC

NTAMC Operational

- 82 nos. S/S - remotely operated
- 36 nos. S/S - without Operations team

Asset Management (Apr15-Jun15)

- **Availability**: 99.79%
- **Reliability*/: 0.24
  - (*) Trippings/ line
**Grid Management Highlights (POSOCO) – Q1FY16**

**I-R Transfer (BU)**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Q1FY12</th>
<th>Q1FY13</th>
<th>Q1FY14</th>
<th>Q1FY15</th>
<th>Q1FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>13.39</td>
<td>16.32</td>
<td>18.54</td>
<td>22.24</td>
<td>24.37</td>
</tr>
<tr>
<td>Increase</td>
<td></td>
<td></td>
<td>82%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Short Term Open Access (Q1FY16)**

**Transactions**
- 11,115 Nos.
- 25% increase over Q1FY15

**Energy Transacted**
- 22.83 BUs
- 17% increase over Q1FY15

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**REC Trading: Update (Jun’15)**

**Registration**
- As on Jun-15
- 1088 projects; 4798 MW

**Value of RECs traded till Jun-15**
- ₹1821 crore

**RECs traded**
- Q1FY16: 111.5 (2.7x)
- Q1FY15: 41.6

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**Optimal Utilization of Resources (both Generation & Transmission)**

**Reduction in per unit energy charges**

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1. Carried out through Power System Operation Corporation Limited, a wholly owned subsidiary of POWERGRID.
Consultancy - Q1FY16 Highlights

Domestic

Q1 Orders: 6 (All Govt.)

Major assignments secured
• Smart Grid works in Puducherry and Bangalore
• Sub-station work for Railways
• System Study work for Daman & Diu

Works commenced for
• Strengthening of T&D works in Sikkim and Arunachal Pradesh
• NER Power System Improvement Project
• Delhi Transco Works
• Rural Electrification works in Odisha

~ 120 Assignments
Project Cost: ₹ 19,600 cr. (Bal. cost)

Under execution (as on Jun-15)

International

Proposals submitted in Q1FY15
• 6 EoIs submitted
• Shortlisted in 2 EoIs for submitting proposal
• 3 new countries approached
  • Armenia, Rwanda, Mali

Under execution (as on Jun-15)

14 Assignments

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

Recent Development

Shortlisted in Armenia to submit proposal

Footprints in 18 countries
Telecom Highlights – Q1FY16

12 New Clients [(Pvt. (8), Govt(4))]

7 new MPLS clients

Revenue ₹ 88 crore

Backbone Availability 100%

Notable Projects

**MPLS**
- 15 Clients – both CPSUs & Pvt. (NTPC, GAIL, APTRANSCO, Syndicate Bank etc.)
- In-house requirement for NTAMC and ERP

**NKN***
- POWERGRID Scope: ₹ 900 cr.
- Project completed - Under Operation

**NOFN#**
- Execution in 4 States
- Work commenced for 6,900 GPs
- 1,810 GPs connected

* National Knowledge Network
# National Optic Fiber Network
GP- Gram Panchayat

New Initiative- Peering with content providers

- Recently peered with NIXI at Noida & Chennai and with a leading content provider at Delhi & Chennai
- Peering with other content providers under deliberations
## New Initiatives - Updates

<table>
<thead>
<tr>
<th>Green Energy Corridors</th>
<th>Implementation for Phase-I commenced (Inter-State portion: ₹ 13,000 crore)</th>
<th>Parts- A,B,C – Works commenced</th>
<th>Part-D: Project approval under progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green Energy Corridors – II</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report submitted to GoI. Under discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultra Mega Solar Parks</td>
<td>Implementation commenced for Solar Park in NP Kunta, Andhra Pradesh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AP, MP, UP, Raj., Guj., Kar., Meghalaya)</td>
<td>NP Kunta, Andhra Pradesh</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rewa, MP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tendering activities under progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Quality Measurement</td>
<td>Completed in 175 cities across the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report under finalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Storage</td>
<td>1000kW Battery Energy Storage</td>
<td></td>
<td>Under Implementation</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>Energy Audit assignment from SAIL – successfully completed</td>
<td></td>
<td>New assignments from a leading Private Steel Company and from other industries</td>
</tr>
</tbody>
</table>

Report for Smart Grid leading to Smart City in Gurgaon – submitted to Govt. of Haryana
Investment & Funding Programme

XII Plan Capital Outlay*

₹110,000 crore

Annual Capex Plan

FY13: ₹20,037 cr. (Achieved)
FY14: ₹22,324 cr. (Achieved)
FY15: ₹22,456 cr. (Achieved)
FY16: ₹22,500 cr. (₹6,412 till Jun-15)
FY17: ₹22,550 cr.

*Projects
Ongoing Projects; Tariff Based Bidding Projects; Projects assigned by GoI; Green Energy Corridors; Intra-State Projects; Transnational Interconnections

Other upcoming opportunities

TS for Solar Park RE Integration-Off shore Wind Power Smart Grid/Smart City Opportunities Energy Efficiency Rural Electrification works Wire Business TBCB projects

Apr’15-Jul’15

Investment Approval
• ₹ 9,213 crore

Contracts Awarded
• ₹ 8,128 crore

Bids opened
• ~ ₹ 16,500 crore

NITs issued/ Bids not opened
• ~ ₹ 11,000 crore
Thank You
±800kV HVDC Biswanath Chariyali-Agra TL- An Overview

- World’s longest multi-terminal ±800kV HVDC
- Power Transfer capacity: 6000 MW
- Part of NE-N/W Interconnector Project
- Line length of Biswanath Chariyali – Agra tr. Line: ~ 1750km
- States covered enroute: Assam, West Bengal, Bihar, Uttar Pradesh
- Line traverses through Chicken’s Neck (only 21km wide stretch) in West Bengal

Rivers crossed (40+)

- Jia Bharali, Gabharu, Pansai, Dhansiri, Bulandi, Kulsi, Nanai, Suklai, Puthimarai, Baralia, Matanga, Dimla, Pagladia, Pahumara, Beji, Aie, Salal Bhanga, Champawati
- Sankosh, Raidak, Gadadhar, Kaljani, Torsa, Jarda, Joldhaka, Teesta, Panga, Balasam, Mahananda
- Bhakhra, Kosi, Kareh, Boodhi Gandak, Gandak, Rapti, Kamla Balan
- Ghagra, Gomti, Ganga, Yamuna, Kuani
±800kV HVDC Biswanath Chariyali-Agra TL- An Overview

22 lakh
cu.m.
Excavation

Station Details
Converter X-former: 60 1φ 2 winding Xfrmrss - 18,000 MVA
Capacitor: 7000 MVAR
Thyristor Valves: ~ 10,000

Line Details
Line length: ~ 1750 km
Conductor: ~ 22,000 km (Lapwing)
Insulator Discs: ~ 20 lakh

2.7 lakh MT
Struct. & Reinf. Steel

3.2 lakh
cu.m.
RCC Concrete
Development of Vibrant Electricity Market

Optimal Utilization of Resources both Generation & transmission

Reduction in per unit energy charges

Movement of Weighted Average Prices

- Through Traders
- Power Exchange (IEX)
- Deviation Price

Source: CERC MMC Data

National Grid Synchronized from Jan’16
**Installed Capacity:** 275,912 MW
**Peak Met:** 137,541 MW
**Energy Met:** 3,128 MU

<table>
<thead>
<tr>
<th>Date</th>
<th>Purchase Bid (MW)</th>
<th>Sell Bid (MW)</th>
<th>Market Clearing Volume (MW)</th>
<th>Cleared Volume (MW)</th>
<th>Market Clearing Price (₹/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-08-2015</td>
<td>Total (MWh)</td>
<td>120552</td>
<td>156326</td>
<td>104619</td>
<td>94452</td>
</tr>
<tr>
<td></td>
<td>Max (MW)</td>
<td>5562</td>
<td>8444</td>
<td>4910</td>
<td>4617</td>
</tr>
<tr>
<td></td>
<td>Min (MW)</td>
<td>4269</td>
<td>3850</td>
<td>3644</td>
<td>2990</td>
</tr>
<tr>
<td></td>
<td>Average (MW)</td>
<td>5023</td>
<td>6513</td>
<td>4359</td>
<td>3935</td>
</tr>
</tbody>
</table>

Source: CEA, NLDC, IEX

Only ~ 424 MW could not be transacted (i.e. ~0.15% of installed capacity or ~0.3% of Peak met)

<table>
<thead>
<tr>
<th></th>
<th>FY2013-14</th>
<th>FY2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Energy Generated</td>
<td>967,150 MU</td>
<td>1048,403 MU</td>
</tr>
<tr>
<td>Energy that could not be cleared due to congestion</td>
<td>5,591 MU</td>
<td>3,139 MU</td>
</tr>
<tr>
<td>% Energy not cleared</td>
<td>0.58%</td>
<td>0.30%</td>
</tr>
</tbody>
</table>
Price – Reason for Energy not transacted

Energy Transaction did not take place due to buyers not willing to buy > ~₹3.6-3.8 p.u.

Source: IEX
Prices of Short Term Transactions

Weighted Avg. Price of Electricity Transacted (Exchange-IEX)

Source: Monthly Market Monitoring reports of CERC on Short Term Transactions
Present Congestion in ISTS & its progressive removal

Generation addition of ~16,300 MW in last 2 years

Generation delay of ~14,000MW

Generation delay of ~ 10,000MW

WR-NR (Present Capacity: 5500MW)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug ’15</td>
<td>1900</td>
<td>7,400</td>
<td>Gwalior-Jaipur 765kV 2xS/c</td>
<td>Sep/Oct’15</td>
<td>1700</td>
<td>5,900</td>
<td>Aurangabad-Sholapur 765kV D/c</td>
</tr>
<tr>
<td>Jul ’16</td>
<td>2900</td>
<td>10,300</td>
<td>Champa-Kurukshetra 1st pole</td>
<td></td>
<td></td>
<td></td>
<td>Kolhapur – Narendra 765kV D/c</td>
</tr>
<tr>
<td>2016-17</td>
<td>2500</td>
<td>12,800</td>
<td>Champa-Kurukshetra 2nd pole</td>
<td>Jun ’18</td>
<td>2500</td>
<td>8,700</td>
<td>Raichur-Sholapur enhancement</td>
</tr>
<tr>
<td>2018-19</td>
<td>2500</td>
<td>15,300</td>
<td>Jabalpur-Orai 765kV D/c</td>
<td></td>
<td></td>
<td></td>
<td>Wardha-Hyderabad 765kV D/C</td>
</tr>
<tr>
<td>New</td>
<td>2500</td>
<td>17,800</td>
<td>Indore-Chittorgarh 765kV D/c</td>
<td>2018-19</td>
<td>5000</td>
<td>13,700</td>
<td>Warora- Warangal 765kV D/c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2018-19</td>
<td>5000</td>
<td>18,700</td>
<td>Angul-Srikakulam - Vemagiri-C’Peta-</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Cuddapa 765kV D/c</td>
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<td></td>
<td></td>
<td></td>
<td>Raigarh-Pugulur HVDC</td>
</tr>
</tbody>
</table>

NEW-SR (Present Capacity: 4200MW)
National Grid – Present and Envisaged

Present IR Capacity: 47,450 MW

Planned IR Capacity by XII Plan end: 72,250 MW

Present & Targeted IR Capacity include Pvt. Sector lines also

Picture does not include various 132kV lines aggregating 600 MW of IR capacity
Present Congestion: Market Forces

Skewed Power Flow due to Market forces

CLP Jhajjar (1320MW), Aravali, Jhajjar(1500MW), Dadri (Thermal 1820 MW), Badarpur (705 MW), Kayankulam in Kerala, Gas projects etc.

- Not in operation due on price considerations

Congestion is dynamic and is a market phenomenon
Comparison of MCV and UMCV (2014 vs 2015)

Comaparison of MCV and UMCV (Apr - July, 2015)

Comaparison of MCV and UMCV (Apr - July, 2014)