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PANACEAN POWER BULLETIN Volume 5 Issue 03 Jun-2018

### **OVERVIEW OF INDIAN POWER SYSTEM FOR APR-2018**

All	India Install	ed Capacit	y (MW) as oi	n 30-04-20	18	All India Installe	d Capacity (MW)	Peak Demand of DD & DNH				
Region	Thermal	Nuclear	Hydro	RES	Total	as on 30-	as on 30-04-2018			Ар	-18	
Northern	58626.46	1620.00	19753.77	12873.22	92873.45	Sector	Generation (MW)					
Western	81415.11	1840.00	7447.50	20446.38	111148.99			Utility	Peak Demand	Peak	Surplus/	Deficit (-)
Southern	53017.26	3320.00	11808.03	34369.28	102514.57	Central	84516.63		(MW)	(MW)	(8.4)4()	(9/)
Eastern	27301.64	0.00	4942.12	1038.40	33282.16	State	102760 75				(10100)	(%)
North-	2292 07	0.00	1342 00	282 56	3916.63	State	103700.75	DD	347	347	0	0
Eastern	2232.07	0.00	10 12100	202.00	0010.00	Private	155511.02					
Islands	40.05	0.00	0.00	12.56	52.61		155511.02					
ALL	222692.59	6780.00	45293.42	69022.40	343788.41	Total	343788.40	DNH	778	778	0	0



## Sector Wise Capacity (MW,%) Apr-2018 Private, 155511.02, 45% 5tate, 103760.75, 30%

All India Plant Load Factor (PLF) in (%)										
Sector	Apr-17	Apr-18								
Central	74.51	76.46								
State	64.71	58.92								
Private	55.75	62.08								

64.66

220

2

Total

10

#### Highlights of WR Grid for Apr-2018

#### • Maximum Peak Demand Met: 52276 MW

- Energy Consumption: Total Energy Consumption in the month of Apr-2018 was 34315 MUs at an average of 1144 MUs/ day & Maxi-mum was 1175 MUs on 19.04.2018.
- Unrestricted Demand: Maximum Unrestricted demand was 52496 MW and Average Peak Unrestricted demand was 47662 MW.
- Frequency Profile: System frequency as per IEGC band is 49.90 Hz to 50.05 Hz. Maxi-mum, Minimum & Average Frequencies 50.25 Hz, 49.68 Hz & 49.97 Hz were respectively observed in the month of Apr-2018.
- Voltage Profile: All 765KV nodes except Tamnar, Durg and Kotra (high voltage node) of WR were within the IEGC limit. High Voltage (greater than 420 KV) at 400KV substations were observed at Khandwa, Damoh, Raipur, Raigarh, Wardha, Dhule, Parli, Karad, Kalwa, Mapusa and Magarwada. Highest of 68.39% of time above 420KV observed at Dhule.
   Hydro Generation: Total hydro genera-
- Hydro Generation: Total hydro generation of Western Region was 843 MUs at an average of 28.08 MUs/day in the month of Apr-2018.
- Wind Generation: Total wind generation was 1541 MUs at an average of 51.4 MUs/ day in the month of Apr-2018.
- Solar Generation: Total Solar generation was 619 MUs at an average of 21 MUs/ day in the month of Apr-2018.
- Open Access Transaction Details for Apr-2018:
- ⇒ No. of approvals & Energy Approved in Intra-regional: 149 & 991.78 MUs.
- ⇒ No. of approvals & Energy Approved in Inter-regional: 63 & 392.27 MUs.



	During Apr-2018											
Sector Central				Pvt.				Total				
Voltage Level (KV )	765	400	230	220	765	400	220	765	400	230	220	
No. of Sub- stations	2	1	0	0	0	0	0	2	4	0	5	14

#### Region-wise Power Supply Position (Demand & Availability) in Apr-2017 & Apr-2018

		Energy	(MUs)		Deficit /Surplus (%)		
Region	Dem	and	Ener	gy Met			
-	Apr-17	Apr-18	Apr-17	Apr-18	Apr-17	Apr-18	
Northern	28389	28591	27968	28171	(1.5)	(1.5)	
Western	32562	33371	32544	33369	(0.1)	(0.0)	
Southern	28106	29515	28091	29469	(0.1)	(0.2)	
Eastern	11164	11634	11149	11617	(0.1)	(0.1)	
North Eastern	1108	1187	1058	1135	(4.5)	(4.4)	
All India	101329	104298	100810	103761	(0.5)	(0.5)	

#### Region-wise Peak Demand / Peak Met in Apr-2017 & Apr-2018

		Power	Deficit (Surplue (%)				
Region	Peak De	emand	Pea	k Met	Denoic/Surpius (%)		
	Apr-17 Apr-18		Apr-17	Apr-18	Apr-17	Apr-18	
Northern	49603	47996	48711	46959	(1.8)	(2.2)	
Western	49850	50677	49778	50457	(0.1)	(0.4)	
Southern	42560	45808	42535	45684	(0.1)	(0.3)	
Eastern	19855	20429	19662	20429	(1.0)	0.0	
North Eastern	2258	2600	2209	2552	(2.2)	(1.8)	
All India	159590	158520	158393	156720	(0.8)	(1.1)	

Read More.

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Read More ...





### POWER TRADING

Emergence of IT has helped to create massive E-Commerce platforms in every walk of life. One such E-Commerce platform for transiting electricity for physical delivery, fine tuning daily requirements, sale of residual generation, optimal utilization of generating resources at marginal cost of production etc. has been made possible through the commencement of Power Exchanges.



#### ⇒ For more information about IEX visit (<u>www.iexindia.com</u>); For more information about PXIL visit (<u>www.powerexindia.com</u>)

#### $\Rightarrow$ PXIL & IEX Trading summary

	-										
			PXIL			IEX					
MAY- 2018	Buy Bid (MWh)	Sell Bid (MWh)	MCP (₹/MWh)	Cleared Volume (MWh)	Marginal Clear Volume (MWh)	Buy Bid (MWh)	Sell Bid (MWh)	MCP (₹/MWh)	Cleared Volume (MWh)	Marginal Clear Volume (MWh)	
Total	3024.0	167500.0	-	0.0	0.0	6441019.6	6123277.0	-	4917536.7	4969749.2	
Min	0.0	0.0	0.0	0.0	0.0	3566.9	4849.4	2296.9	3313.6	3313.6	
Max	1.5	150.0	0.0	0.0	0.0	14157.8	12477.4	10463.2	10515.1	10515.1	
Avg	1.0	56.3	0.0	0.0	0.0	8657.3	8230.2	4674.5	6609.6	6679.8	
APR- 2018	Buy Bid (MWh)	Sell Bid (MWh)	MCP (₹/MWh)	Cleared Volume (MWh)	Marginal Clear Volume (MWh)	Buy Bid (MWh)	Sell Bid (MWh)	MCP (₹/MWh)	Cleared Volume (MWh)	Marginal Clear Volume (MWh)	
Total	26416.0	242892.0	-	23200.0	23200.0	5100837.5	5506027.5	-	4055255.9	4058000.7	
Min	0.0	0.0	0.0	0.0	0.0	4056.2	4147.6	2488.5	3221.3	3221.3	
Max	400.0	450.0	5070.0	400.0	400.0	10458.8	11969.0	7500.4	7910.3	7910.3	
Avg	9.2	84.3	116.7	8.1	8.1	7084.5	7647.3	3978.1	5632.3	5636.1	





RENEWABLE ENERGY CERTIFICATE MECHANISM (REC) FROM Apr-17 TO May-18



POWER MARKET UPDATE: MAY 2018 Spot Power Market Trades 4916 MU with average MCP at Rs. 4.67 per unit DAM sees highest trade of 208.42 MU for delivery on 1 June 2018

 The average Market Clearing Price (MCP) discovered in the dayahead market was at Rs. 4.67 per unit, was also at par with the price of April-18 which was Rs. 3.98 per unit and 60% above Rs. 2.91 per unit in May-17.

- A total of 4916 MU were cleared, which is almost at par with the 4055 MU traded last month and almost 20% more than 4100 MU traded in May-17. On a daily average basis about 159 MU were traded.
- With average daily sell and buy bids were 198 MU and 207 MU respectively.
- The One Nation, One Price was realized for 22 days in the month of May.
- On daily average basis 662 participants traded in the day-ahead power market in May-18.

  Read More.





		DD-Devia	ation Cha	arges		1				
	UI Charge	es(₹. Lakh)								
FY 2018-19	(MUs)	(MUs)	Under Drawl	Over Drawl	Payable	Receivable				
Cumulative Total up to Apr-18	216.59	197.33	0.30	19.56	545.08	7.09				
21-05-2018 to 27-05-2018	52.74	46.05	0.10	6.79	241.03	2.80				
21-05-2017 to 27-05-2017	48.34	44.62	0.20	3.91	74.80	2.28				
14-05-2018 to 20-05-2018	50.57	42.57	0.01	8.01	295.27	0.23				
14-05-2017 to 49.48 47.11 0.27 2.63 49.99 3.75 20-05-2017										
Week wise UI Report: DD 21-05-2018 to 27-05-2018 14-05-2018 to 20-05-2018										

8.0

Drawal(MU's) Drawal(MU's)

Over

DD

**UI Rate** 

in

₹/Unit

(2.48)

(2.19)

(2.16)

(2.26)

(2.3)

(2.64)

(2.79)

(2.71)

(2.50)

(2.63)

(2.58)

(2.99)

(2.55)

6.8

0.1

FY 2017-18 (All Freq Hz)

Over

Drawl in

MU's

(11.30)

(15.28)

(17.98)

(15.89)

(24.00)

(24.70)

(29.42)

(22.01)

(16.60)

(18.20)

(12.58)

(19.63)

(227.6)

Under

52.7

50.6

Month

April

May

June

July

Aug

Sep

Oct

Nov

Dec

Jan

Feb

Mar

Total

Drawal (MUs)

Under

Drawl in

MU's

1.29

0.87

1.09

0.97

0.19

0.39

0.13

0.22

0.66

1.04

1.33

0.99

9.18

295.3

Payable

(₹. Lakh)

Under

Drawl in

MU's

0.30

-

-

-

-

\_

-

-

-

-

0.30

0.2

FY 2018-19 (All Freq Hz)

Over

Drawl in

MU's

(19.56)

-

-

-

-

(19.56)

Receivable

(₹. Lakh)

**UI Rate** 

in

₹/Unit

(2.79)

-

-

-

-

-

(2.79)

### **DEVIATION CHARGES**

DD User Click to get UI Report DNH User Click to get UI Report

14-05-2018 to 20-05-2018

DNH-Deviation Charges									
	Drawl	Schedule	UI Drav	vl (MUs)	UI Charges (₹. Lakh)				
FY 2018-19	(MUs)	(MUs)	Under Drawl	Over Drawl	Payable	Receivable			
Cumulative Total up to Apr-18	526.92	504.80	0.39	22.51	603.88	6.89			
21-05-2018 to 27-05-2018	123.63	119.07	0.39	4.94	167.16	9.25			
21-05-2017 to 27-05-2017	119.19	121.65	2.92	0.47	12.00	43.54			
14-05-2018 to 20-05-2018	121.67	117.41	0.15	4.41	147.09	4.02			
14-05-2017 to 20-05-2017	114.06	117.17	3.20	0.10	2.21	52.14			

Week wise UI Report: DNH 21-05-2018 to 27-05-2018



	DNH										
	FY 20	17-18 (All Fr	eq Hz)	FY 2018-19 (All Freq Hz)							
Month	Under Drawl in MU's	Over Drawl in MU's	UI Rate in ₹ /Unit	Under Drawl in MU's	Over Drawl in MU's	UI Rate in ₹ /Unit					
April	1.91	(21.52)	(2.31)	0.39	(22.51)	(2.70)					
Мау	13.54	(2.97)	(1.49)	-	-	-					
June	9.26	(3.65)	(1.98)	-	-	-					
July	6.71	(6.66)	(0.96)	-	-	-					
Aug	3.50	(14.68)	(2.15)	-	-	-					
Sep	2.06	(22.87)	(2.74)	-	-	-					
Oct	1.53	(28.73)	(2.67)	-	-	-					
Nov	2.23	(17.81)	(2.87)	-	-	-					
Dec	1.09	(21.60)	(2.53)	-	-	-					
Jan	0.47	(26.01)	(2.45)	-	-	-					
Feb	0.28	(22.83)	(2.46)	-	-	-					
Mar	1.03	(26.07)	(2.73)	-	-	-					
Total	43.61	(215.4)	(2.65)	0.39	(22.51)	(2.70)					

### REACTIVE ENERGY CHARGES FOR DD & DNH

	DD-High Voltage				DD-Low Voltage				DNH-High Voltage			DNH-Low Voltage		
FY 2018-19	GUJARAT		ISTS		GUJ	ARAT	ISTS		ISTS			ISTS		
	Dok-diu	Una-diu	Mgr-Vap HV	Total	Dok-diu	Una-diu	Mgr-Vap LV	Total	Kpd-Vap HV	Kdl-Vap HV	Total	Kpd-Vap LV	Kdl-Vap LV	Total
Cumulative Total MVARh till Apr-2018	180.3	-206.9	13917.4	13890.8	0.0	-0.2	0.0	-0.2	9937.2	8615.3	18552.5	0.0	0.0	0.0
Cumulative Total Charges in (₹) till Apr- 18	-25242.0	28966.0	-1948436.0	-1944712.0	0.0	-27.0	0.0	-27.0	-1391208.0	-1206142.0	-2597350.0	0.0	0.0	0.0
14-05-2018 to 20-05-2018	-331.5	-29.2	1763.8	1403.1	0.0	0.0	0.0	0.0	612.4	-683.7	-71.3	0.0	-19.6	-19.6
Charges in (₹)	46410.0	4088.0	-246932.0	-196434.0	0.0	0.0	0.0	0.0	-85736.0	95718.0	9982.0	0.0	-2744.0	-2744.0
21-05-2018 to 27-05-2018	-394.7	26.3	1194.9	826.5	0.0	0.5	0.0	0.5	157.6	216.2	373.8	132.2	-348.1	-215.9
Charges in (₹)	55258.0	-3682.0	-167286.0	-115710.0	0.0	70.0	0.0	70.0	-22064.0	-30268.0	-52332.0	18508.0	-48734.0	-30226.0

Note: The REC chargers has been revised to 13.5 paisa/KVARh from Apr-2017 as per clause of 6.6 of revised IEGC.

Note: Bracket Value () indicates the negative value(-ve). Note: For REC table -Ve Value indicates Receivable & +Ve Value indicates Payable.

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### **POWER SECTOR ACTIVITIES**

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#### MNRE

 Revised Schedule of "Quality Control Order of Solar Photo Voltaic Systems, Devices and Components Goods 2017".

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- Re-Tender of Design, development Supply & Installation of Class A+A+A+ Sun Simulator with built in Temperature Control Unit with complete accessories at National Institute of Solar Energy, Gurugram, Haryana. (Last date is 19.06.2018 by 12:00 Noon)
- Programme/Scheme wise Physical Progress in 2018-19 & Cumulative up to the 30<sup>th</sup> April, 2018
- Engagement of Senior Consultants/Consultants in National Institute of Solar Energy (NISE).
- Registrations are open for 18<sup>th</sup>, 5-Day Skill Development Program On Solar PV system Design using "PVSYST & PVSOL" software with cost economic and Policies at NISE (from 25<sup>th</sup> to 29<sup>th</sup> June 2018).
- Scheme for Setting-up of 2500 MW ISTS-connected Wind-Solar Hybrid Power Projects.
- Modifications in the selection of Solar Power Park Developers (SPPDs) for development of solar parks under the Solar Park Scheme-reg.
- Creation of Renewable Purchase Obligation (RPO) Compliance Cell.
- Corrigendum dated 21.05.18 to MNRE's Scheme for setting up of Solar PV Power Projects in Andaman & Nicobar and Lakshadweep Islands.
- National Wind-Solar Hybrid Policy.
- Scheme to Support Promotion of Biomass Based Cogeneration in Sugar Mills and Other Industries in the Country (up to March, 2020).
- \* MOP
- Mechanism for Implementation of New Environmental Norms for Thermal Power Plants (TPP) supplying power to distribution licensees under concluded long term and medium term Power Purchase Agreement (PPA).
- Proposed amendments in Tariff Policy, 2016.
- Draft amendments in the provisions relating to Captive Generating Plant in Electricity Rules, 2005-Reg.
- \* CEA
- Link for Presentations of the Meeting regarding "Furnishing Real Time / Daily Renewable Energy Generation Data" held at Jaipur, Rajasthan on 04-05-2018 under the Chairmanship of Member (Planning), CEA.
- Submission of AT&C and daily hours of supply data by DISCOMS.
- \* CERC
- Detailed procedure for "Grant of connectivity to projects based on renewable sources to inter-state transmission system.
- Terms and Conditions of Tariff for the tariff period commencing from 1<sup>st</sup> April, 2019 – Consultation Paper.
- \*× JERC
- The Commission has temporarily shifted its office to 6<sup>th</sup> and 8<sup>th</sup> floor, Udyog Minar, Udyog Vihar phase V, Gurugram adjacent to its existing building.
- \* GERC

 The Commission authorizes officers of four state owned Discoms Torrent Power Limited and MPSEZ Utilities Put Ltd to perform the duties under

Pvt. Ltd. to perform the duties under Section 135 (1A) of the Electricity Act, 2003 within their respective license area.

- \* MERC
- Constitution of Special Bench of Shri. Anand Kulkarni, Chairman and Members, under Regulation 29 of the MERC (Conduct of Business) Regulations, 2004 for hearing and other Official business (scheduled) in absence of Chairman or a Member.
- NISE
- Corrigendum for Supply & Installation of Impulse Voltage Generator, Oscilloscope and High Voltage tester with complete accessories at PVTF in NISE, Gurugram, Haryana.
- Extension up to 20<sup>th</sup> June, 2018 for submission of EOI for 1 MW Solar Thermal Power Plant at NISE.
- Corrigendum for Supply, Installation & Commissioning for up gradation of Solar Water Pump testing facility.
- \* SECI
- Extension of Bid submission date w.r.t. setting up of 70 MW Solar PV project in Amguri Solar Park, Assam .
- Extension of bid submission deadline : selection of solar power developers for setting up of 150MW (50MW x 3) grid connected floating solar power projects to be installed at Rihand dam, UP.
- Results of e-bidding and e-RA for 2000 MW ISTSconnected Wind Power Projects (Tranche-IV).
- MISCELLANEOUS
- India's first technology transfer pact for lithium-ion batteries signed.
  - ⇒ Lithium-ion batteries have applications in energy storage systems and can power any electrical application without the need of physical wires.
- GDP growth rate at sobering 6.7 per cent, banking system bankrupt: Chidambaram.
- Cabinet may decide on FAME II scheme in a June month: Anant Geete
  - ⇒ The second phase of the scheme spanning five years from 2018-19 to 2022-23 is likely to entail financial support of Rs 9,381 crore and target new energy vehicles.
- Congo mining code signed into law prime minister's aide.
- Botswana cancels plans to sell troubled power plant to Chinese firm.
- Flipkart founder-backed Indian startup launches subsidised electric scooter.
- Power tariffs in Haryana may be reduced soon: Chief Minister Khattar.
- Sweltering heat pushes peak power demand in Delhi to all time high of 6,934 MW.
- Rs 666 crore recovered for power theft in Haryana.
- Russia to supply advanced safe fuel for Kudankulam nuclear plant.

Note: Click on Head lines for More Info

- Use underground cables for mega power grid: Farmers.
- INNOVATION: Solar-powered system can harvest fresh water from air.
- PM Modi invites Kazakhstan to join International Solar Alliance.
- Floating solar power projects: Maha mulling Swiss Challenge method.
  - $\Rightarrow$  Under the Swiss challenge system, any person with suitable credentials can submit a development proposal to the government for a public project. The proposal will be then put online and a second party can give suggestions to improve and challenge that proposal.
- Solar auctions to delay further amid concerns over duty, ISTS issues.
- Surat set to become country's first smart city with solar power, vertical gardens.
  - The eight projects being implemented under the Surat  $\Rightarrow$ Smart City Mission include tertiary treatment plant, smart dustbins, solar energy plant, vertical gardens, housing project at Parvat, BRTS road and BRTS model station and command and control system at SMC's main building .
- Eastman Auto and Power Ltd. to solarise 100 government primary schools in 2018-19.
- China plans to build \$3 billion-worth of solar farms shaped like giant pandas.
- ACME bags 75 MW solar project in Uttar Pradesh at Rs 3.32 per unit.
  - $\Rightarrow$  ACME Group had won a 50 MW solar power project at Guirai solar park in Uttar Pradesh in an auction conducted by the SECI on 7th June 2018.
- UK Climate Investments buys interest in Indian solar power portfolio.
- China's new solar policy may delay India's plan to make panels.
  - India may delay its first ever auction to build solar facto- $\Rightarrow$ ries after a Chinese decision to withdraw some state support to power projects is seen leading to an equipment supply glut and price crash.
- IIT team's solar powered system can convert plastic into fuel.
  - $\Rightarrow$ Scientists from IIT Madras have developed a solar powered system to convert non-recyclable plastic into fuel that can substitute diesel used in generators, furnaces and engines.
- Cabinet approval for 3 lakh solar street lights in NE states, Maoist-hit districts.
- India aims to partner with UN to promote use of solar energy.
- India sees record low solar prices returning on China reforms.
- Petrol prices cut by 20 paise per liter, diesel by 15 paise.
- French energy regulator to recommend higher natural gas prices.
- City gas distribution project to cover 85 per cent population of Odisha.
- Iran to increase oil production by 460 million barrels in three years - oil minister.
- Algeria sees energy law amendments in early 2019.
- Coal India ensures supply of better coal, output: Minister Piyush Goyal.
- India using lesser coal to generate power under Modi government.

- $\Rightarrow$  Total production by state-run miner Coal India (CIL) has jumped by 105 million tone (MT) while the same growth could be achieved in 7 years before 2013-14.
- Coal India's realization from e-auctions rose 20 per cent last fiscal
- West Bengal allocated Deocha Pachami coal mine, the world's second-largest.
  - $\Rightarrow$  With an estimated reserve of 2,102 million tones, it is the second largest coal mine in the world.
- Coal India beats corporates with 37 per cent dole for employees.
- Coal India's dispatch to power sector up 15 per cent in April-May, 2018.
- Passed benefits of lower power tariff worth Rs 683 crore to Discoms: NLC
- Rajasthan has saved over Rs 17,000 crore in coal mining costs.
- To save on 90 lakhs a month power bill, Osmania Uni-• versity to go solar.
- No solar power panels allowed on fields: High Court.
- President Ram Nath Kovind to launch Solar Charkha Mission on June 27.
- India's first solar-powered EV charging station installed in Mumbai.
- Tamil Nadu plans to invest 5,000 crore in renewable energy, power transmission.
- Tamil Nadu to study feasibility of 250 MW floating solar power plant.
- Metro stations to get electric vehicle charging points.
- Gujarat to become 1st State with 100% piped gas network in India.
- Austria's energy regulator says climate protection goals hard to reach

#### List of Abbreviations

- AT & C : Aggregate Transmission MNRE : Ministry of New & Renew and Commercial able energy
- BRTS :Bus Rapid Transit System MOP :Ministry of Power
- :Central Electricity Author MPSEZ: Mundra Port and Special CEA ity
- CERC :Central Electricity Regu latory Commission
- DISCOM: Distribution Companies
- e-RA :E-Reverse Auction
- :Faster Adoption and FAME Manufacturing of Hydro and Electric Vehicle
- GDP :Gross Domestic Product
- GERC :Gujarat Electricity Regu latory Commission
- IIT Indian Institute of Tech nology
- ISTS inter-state transmission system
- JERC :Joint Electricity Regulato ry Commission
- MERC :Maharashtra Electricity Ragulatory Commission

•	MW	:Megawatt
•	NE	:North-Eastern
•	NISE	:National Institute of Solar Energy
•	NLC	:Neyveli Lignite Corpora tion
•	PM	:Prime Minister
•	PVSOL	:Photo Voltaic Solar
•	PVSYST	Photo Voltaic System
•	SECI	Solar Energy Corporation
•	SMC's	:Surat Municipal Corpora tion
•	UK	:United Kingdom
•	UN	:United Nation
•	UP	:Uttar Pradesh
•	UT	:Union Territory

Economic Zone Limited



All India List of Substations, Transmission Lines & Generators Commissioned during Apr-2018

#### Substations

- \* 765/400 KV Orai (ICT No. II) (1000 MVA)
- \* 765/400 KV New Parli (ICT I) (1500 MVA)
- \* 765/400 KV Orai (ICT-II) ( MVA)
- \* 765/400 KV Parli (New) S/s (PPTL -TBCB) (MVA)
- \* 400/220 KV Obra (replacement of 240 MVA ICT No.I) (315 MVA)
- \* 400/220 KV Moradabad (replacement of 315 MVA ICT No. I) (500 MVA)
- \* 400/220 KV Banda (ICT II) (315 MVA)
- \* 400/220 KV Narendra (ICT II) (500 MVA)
- \* 400/220 KV Maradam (ICT I) ( MVA)
- \* 400/220 KV Maradam (ICT II) ( MVA)
- \* 400/220 KV Narendra (ICT-II Repl.) (500-315) (MVA)
- \* 400/220 KV Obra-BTPS (Aug.) (315-240) ( MVA)
- \* 400/220 KV Banda (New) ICT-II ( MVA)
- \* 400/220 KV Moradabad (Aug.) (500-315) ICT (MVA)
- \* 220/132 KV Sohawal (Aug.) (160-100) ICT-I (Capacity MVA)
- \* 220/132 KV Sarsawa New (Saharanpur) \* 400 KV Parli (New) Parli (PG) (Q) (PPTL -

- ICT-I (MVA)
- \* 220/132 KV Barabanki (New) (MVA)
- \* 220/33 KV Kanpur Road (Lucknow New) ( MVA)
- \* 220/66 KV Verpal Repl. (100-50) ( MVA)
- Transmission Lines
- \* 765 KV New Parli(PG)-Solapur (CKT No. I)
- \* 765 KV New Parli(PG)-Solapur (CKT No. II)
- \* 765 KV Sasan UMPP Vindhyachal PS (Q) (C-WRTL-TBCB)
- \* 765 KV Parli Solapur (PPTL TBCB)
- \* 400 KV Parli(PG)-New Parli(PG) (CKT No.I)
- \* 400 KV Parli(PG)-New Parli(PG) (CKT No.II)
- \* 400 KV Bellary PS-Jindal (CKT No. I)
- \* 400 KV Bellary PS-Jindal (CKT No. II)
- \* 400 KV RTPS-BTPS (CKT No. I)
- \* 400 KV Kalikiri-Chitoor (CKT No. I)
- \* 400 KV Kalpaka-Maradam (CKT No. I)
- \* 400 KV Malkaram-Suryapet (CKT No. II)
- \* 400 KV VTPS-Suryapet (CKT No. II)

- TBCB)
- \* 400 KV Kalpaka Maradam line
- \* 400 KV LILO of 2nd Ckt. VTS- Malkaram to Suryapet
- \* 400 KV Ajmer-Phagi (CKT No. I)
- \* 400 KV Ajmer-Phagi (CKT No. II)
- \* 220 KV Mainpuri-Neebkrori (CKT No. I)
- \* 220 KV Mainpuri-Neebkrori (CKT No. II)
- \* 220 KV Allahabad-Phulpur (CKT No. I)
- \* 220 KV Ataur Mandola Vihar line
- \* 220 KV LILO of 2nd Ckt. Birsinghpur -Amarkantak line at Shahdol S/s
- \* 220 KV LILO of 2nd Ckt. of Itarsi (MP) -Hoshangabad (PG) at Itarsi (PG) line
- \* 220 KV Sarangapur (Allahabad)PG Phulpur line
- \* 220 KV Sohawal PG Barabanki line
- Generators

#### Thermal

\* IPP SKS Unit-1 (300MW) was Commissioned on dated 01.04.2018

#### All India No. of Generators Commissioned during FY 2018-19 (till Apr-2018)

Manth			Thermal					Hydro				ſ	Nuclear		
Month	WR	NR	NER	ER	S R	WR	NR	NER	ER	SR	WR	NR	NER	ER	SR
Apr-17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

All India No. of Line Reactors (LR), Transmission Lines (T/L), Substations (S/S) and Bus Reactors (BR) Commissioned for FY 2018-19 (till Apr-2018)

Manth	800	кv		765	ĸv	×	SAF	400	00 KV 230 KV 220 KV Total			tal										
Month	T/L	s/s	LR	T/L	S/S	BR	LR	T/L	s/s	BR	LR	T/L	S/S	BR	LR	T/L	s/s	BR	LR	T/L	S/S	BR
Apr-18	0	0	0	4	4	0	0	14	10	0	0	0	0	0	0	8	5	0	0	26	19	0
Total	0	0	0	4	4	0	0	14	10	0	0	0	0	0	0	8	5	0	0	26	19	0

Note 1: Data is taken from CEA and NLDC websites.

Note 2: No data for Branch Reactors (BR) and Line Reactors (LR) for the month of Apr-2018.

\* Tabulated Data is up to 220 KV level.

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#### POWER SYSTEM SOLUTIONS THAT WORK FOR YOUR BUSINESS

### Can You Imagine a World Without Power?

### ...Because, we can't.

We, at Panacean Energy Solution are committed to our core values integrity, excellence, enriched innovation and stand committed to nurture our talented work force and continually enhance our local insights and global perspective to bring about paradigm shift in the Indian Power Sector, through providing real solution.

We assist you to understand impact of Electricity Regulations applicable to you by providing tailor made gist of the new regulatory developments on case to case basis. With nation-wide experience of our team, and also with the valuable experience of handling overseas projects, we can assist you in planning and operations of your system.



### Why Panacean?

#### Because....We Can Energize Your Business

We're extremely serious about being your power solution advocate. We envision an Indian Power Sector enriched with solutions to enhance its capability to ensure quality power to end consumers with reliability, efficiency and economy on ethical grounds through providing "IT and network" solutions to different segments of Indian Power Sector. Maximize long-term return to Owner.

#### Our Clients Prefer Working Directly With Us

Because we arm them with valuable resources for contract negotiation. We help them manage the minutest detail behind their big business decisions.

> (An ISO 9001:2015 Company) More Power to You

## Panacean Energy Solution





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## Area of Services



#### **Power Services**

- Power System Studies
- Utility Load Forecast
- Transmission and distribution planning
- Reactive Power Optimization
- Fault MVA calculation and improvements
- GPS/GIS Asset Mapping
- Load survey
- Street light survey
- Policy making
- Implementation of Electricity Act 2003 and State Regulations
- Operation and maintenance of substation
- Power System Training
- PSS®E Training
- Power Procurement under Case-I and Case-II bidding
- Tender Preparation and Management
- Project Management Consultant
- DSM Management
- Drawl and Generation schedule optimization
- Regulatory Support
- DPR preparation for submission to JERC / CEA.
- IPDS Scheme
- UDAY Scheme
- Smart city Implementation
- Techno commercial feasibility of substation
- Techno-commercial feasibility of transmission line
- T&D CAPEX optimization
- Distribution business optimization
- Transmission business optimization
- Optimal power scheduling for system operators

- Open Access implementation, operation and management
- Resources optimization in transmission and distribution business
- Training in system operation
- Support in Regulatory matters
- Energy Accounting

### Renewable Energy



- Detailed Project Report preparation
- Feasibility Study for Renewable Power Generation
- EPC of Solar Power
- O&M of Renewable Power Plant Operation

### Energy Efficiency

- Energy Audit
- Development of State Designated Agency
- Development of State Nodal Agency
- Power Quality Management



#### **IT** Services

- Software for Transmission and Distribution Companies
- Regulatory Information Management System
- Complaint Management System
- Customer Care Centre
- Standard of Performance
- Document Management System
- ERP for Power Company
- Energy management system
- Optimal Power Schedule

### <u>Area of Clients</u>

### **Distribution Sector**

- Electricity Department of Daman and Diu
- DNH Power Distribution Corporation Ltd.

### **Transmission Sector**

- Maharashtra State Electricity Transmission Company Ltd.
- Reliance Infrastructure Ltd.
- Electricity Department of Dadra and Nagar Haveli
- Uganda Electricity Transmission Company Ltd.

### **Generation Sector**

- Essar M.P. Power Ltd.
- ♦ Ind-Barath Power

### Others

- Indian Institute of Technology, Bombay
- Alok Industries
- Abhijeet Ferrotech Ltd.
- Reliance Industries Ltd.
- Macquarie Infrastructure
- IXORA Construction
- ICRA Management and Consultancy Services
- CLP India Pvt. Ltd., Mumbai

### Reach us at

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Corporate Office

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#### Silvassa

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#### Daman

1/320, Bhidbhajan Mahadev Chawl, Wadi Falia, New Vegitable Market, Nani Daman, Daman - 396210.

#### Surat

206, Santiniketan Flora Business Hub, Nr. Sanskartirth Gyanpith School, Abrama Road, Mota Varachha, Surat – 394105.









### SUPPORT TO YOUR POWER SOLUTIONS

- INFRASTRUCTUTR MANAGEMENT (MAPS)
- COMPLAINT MANAGEMENT SYSTEM (CMS)
- REGULATORY INFORMATION MAN-AGEMENT SYSTEM(RIMS)
- MAINTENANCE MANAGEMENT SYS-TEM(MMS)
- INVENTORY MANAGEMENT(STORE)
- OPTIMAL POWER SCHEDULE

### ONLINE ACCESS BROWSER COMPATI-BILITY



### PANACEAN AT WORK FOR YOU

#### CONNECTING YOUR POWER NEEDS TO THE PANACEAN RESOURCES

### ntroduction

Power UI (Power System User Interface) is a cloud-based application specifically designed for power sectors organizations mainly, Transmission Utilities and Distribution Utilities. Presently, Power UI integrates various power system utilities such as Infrastructure management (MAPS), Complaint Management (CMS), Maintenance Management System (MMS), Regulatory Information Management system (RIMS), Inventory Management (Store).

### C imple and Intuitive UI

We have kept in mind simplest ever user interface while designing the software. The user interface is so intuitive that, anyone having basic knowledge of operating computer will be able to handle various applications with ease. The technical modules only require basic training for successful operation. The software will have inbuilt guiding system for assuring hassle free completion of almost all activities.

### loud Based:

The software run from cloud and is accessible over internet / intranet. This avoids installation of copies of software in each system. Management and upgradation of this cloud based application can become easier than ever.

### uto Backup:

The data of all enterprise applications is of utmost importance. Power UI comes with Auto Backup facility where an authorized person can schedule auto backup of full / partial data of the software. In case of data lost or hardware failure, no or minimal data is lost.

### vent Notification:

The user and/or administrator will not be unaware of activities and events being carried out by the members. All activity updates will be delivered to the concerned person via appropriate notification. Apart from inbuilt notification system, such alerts can also be combined with Email and SMS notification.

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# LAPTOP, Tablet & Mobile







# EGULATORY INFORMATION MANAGEMENT SYSTEM

RIMS keeps track of power purchase, power sale, trading, DSM (formerly known as "UI"), SEM data, Reliability Indices etc. It translates every bit of information for successful derivation various reports as intended by State Electricity Regulatory Commission.

### OMPLAINT MANAGEMENT SYSTEM MS

CMS enables utility to get in touch with its consumers. At one end it provides feedback and complaints of consumers, and on the other end it provides analytical tools for identifying time-bound resolving consumer complaints and improving consumer satisfaction.

#### NVENTORY MANAGEMENT SYSTEM (STORE):

Full proof inventory management is ensured by Store. With self-auditing feature of the software, it is ensured that no material is lost unknowingly. It ensures accountability at every step right from receipt of the material to usage of the material. It also provides handful information for material usage pattern, consumption of various material and its category, material expenses many more at micro level as well as macro level. This helps in improving our planning procedures and material management. Readily available audit reports enhances applicability of the module for financial compliances.



Transmission Best Suitable Utilities

Distribution









### AINTENANCE MANAGEMENT SYSTEM (MMS)

MMS it designed to improve inbuilt maintenance management facilities and hence reduce the failure rates of equipment. With equipment being part of MMS, the concerned person is reminded for inspection and taking corrective actions. The module supports maintenance routines in various categories such as preventive maintenance, breakdown maintenance, event based maintenance, and routine maintenance. The software will ensure accountability of maintenance team and improves reliability of equipment in service.

This module contains all functionalities involved in maintenance management of a utility. Specific provisions for this objective are provided in this module as given below;

- **Preventive & Routine Maintenance Operations**
- Breakdown and Event based Operations

# **ATA HANDLING:**

The software shall have a provision to handle huge volumes of data. Features such as import of excel files and import of data from databases shall be provided to facilitate bulk data entry and its corresponding map location display. Given below is a sample bulk data entry feature in POWERUI.









#### NLINE COMPLAINT AND FEEDBACK REPORTING

ATA / REPORT EXPORT AND PRINTING FACILITIES:

We are always listening to your feedback in terms of feature request, bug reporting, complaint, suggestion or any such thing for improving our service for your satisfaction. All such activities are only click away. User can report feedback online or by calling us on our helpline numbers.

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				Diste	ring 1-10 of 167 results.
From Substation	To Substation	Rating(MVR)	Owner Name	Line Length	
					Action
132 Kir Chandur Bacar	33 R/ SANSAPUR	0	MSEDCL		27.8
c 132 KV Achalpur	33 00109891	0	MSEDCL	0	224
132 KV Achalpur	33 KV T050GA0N	0	MSEDCL		27.8
132 KV Achalpur	33 KV/Karsani	0	MSEDCL	0	# X #
132 KV Adhalpur	30KV ASEGADN	0	MSED CL	0	P 7 *
132 Kr Olandur Bacar	33 krshiajpon	0	MSEDCL	0	27.4
132 KV Anjangaon	33429434807	0	MSEDCL	0	27.4
132 KV Achalpur	30KV/RKS85AON	0	MSEDCL	0	# X #
132 KV Achalpur	33HV ASEGADYL	0	MSEDCL	+	P 7 8
132 KV Achalpur	33 KV ASADPUR	0	MSEDCL		P 7 8
		É			



**APS** includes infrastructure mapping of various assets of a utility. All assets with geotag (Longitude and Latitude) can be displayed and managed with ease.

### DOWERUI – MAPS

POWERUI MAPS is a map based application where all important assets and infrastructure of a Distribution company and transmission company are displayed on maps using their exact geographic coordinates. Display of all mapped distribution equipment on google maps, along with establishment of comprehensive database maintaining dynamic data of all attributes of major equipment in the distribution network is the core objective of this application. The map will be loaded with several customized user interactive features which aid in day to day monitoring and supervision of operations of the distribution network. Along with this, features facilitating operations such as assignment of 0 & M tasks to personnel based on equipment monitoring on map, tracking work status and review of operations on a large scale are provided in this application.

#### AYER FACILITY:

Given a large and a highly dense network as that of MSEDCL, selective viewing of different components of maps is required. The Layer facility enables the user to turn ON/OFF display of certain elements on the map. This feature provides greater clarity of viewing and ease of operation of the software.

#### ATABASE - MAP COMMUNICATION:

Provision for any element to be inserted into the database or updation of any element in the database can be done through both map means and database means.



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1

📽 Dav Ahead Schedule



The primary objective of this software shall be to provide Cost optimal generator wise day ahead schedule (MW) based on block wise demand of the utility and declared capacity of the generator; subject to all major constraints, with an account of all possible factors in determining the merit order of generators for each block.

**ntroduction:** Optimal Power Scheduling is a custom made software for Power Distribution companies and load dispatch centres. Based on the principles of optimization, this software models complex issues of power purchase such as Power purchase agreements (PPA), Power Exchange, Unscheduled Interchange (UI), and Un-requisitioned Surplus (URS) etc. into a single integrated platform using a industrial popular software to get an optimal power purchase solution. The schematic diagram of Optimal Power Scheduling Software is shown below,



#### EATURES

- Day ahead and Intra-day optimal solutions for bidding.
- PPA Modelling concept, governing all PPA terms and Conditions.
- Analysis of Power Exchange and DSM prices based on Historical data.
- Indicative Power Purchase and Sale Solutions to bid optimally at the Power Market.
- Block wise Power Purchase cost estimation to explore all possible options to limit power purchase expenditure.
- Reports to analyse and summarize power scheduling over a period of time.

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OPTIMAL POWER SCHEDULE

