



# UJWAL BHARAT

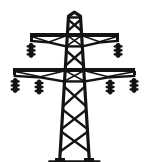
2  
YEARS

ACHIEVEMENTS AND INITIATIVES  
Ministry of Power, Coal and New & Renewable Energy  
Government of India  
MAY 2016



# VAULTING AMBITIONS SCALING NEW HEIGHTS

Record Breaking Achievements to fulfil  
Hon'ble Prime Minister, Shri Narendra Modi's  
vision of Ujwal Bharat



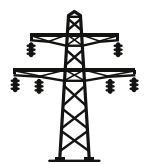
1

Most comprehensive power sector reform ever, Ujwal DISCOM Assurance Yojana (UDAY) to turnaround DISCOMs



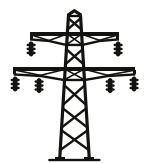
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UDAY Bonds worth about  
**₹ 1 lakh cr. issued**



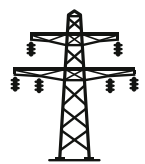
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**7,108 unelectrified villages**  
electrified in 2015-16  
**37% higher** than previous 3 years



4

**Around one fifth (46,543 MW)**  
of current conventional power capacity  
added over a two year period in 2014-16



5

**Around 69 ckm** transmission lines laid per  
day in 2014-16 compared to 46 ckm in 2012-14



6

Lowest ever Energy deficit of  
**2.1% in 2015-16 versus 11.1%** in 2008-09



7

Around **₹ 3.44 lakh cr.** potential revenues to  
coal bearing states over life time of mines from  
transparent coal auctions and allotment of  
**74 coal blocks**



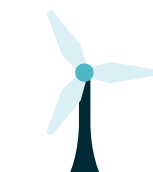
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Highest ever growth in coal production  
over a two year period of Coal India of  
**7.4 cr. tonnes** in 2014-16



9

**157%** increase in solar power capacity  
since 2014 of **4,132 MW**



10

Highest ever wind capacity addition of  
**3,423 MW** in 2015-16



11

**Over 9 cr.** LED bulbs distributed under  
UJALA in 2015-16. About 150 times higher  
than 6 lakh in 2013-14



12

Highest ever **31,472** solar pumps installed  
in 2015-16. Greater than total solar pumps  
installed since launch of programme in 1991



13

**Mobile apps for greater  
transparency and accountability**

Grameen Vidyutikaran (GARV) app to track  
rural electrification

Vidyut PRAVAH app to monitor real time  
electricity price and availability

Unnat Jyoti by Affordable LEDs for all  
(UJALA) app to monitor LED distribution

# MISSION

24 X 7 AFFORDABLE  
ENVIRONMENT FRIENDLY  
POWER FOR ALL BY 2019

CONNECTING THE UNCONNECTED

24 X 7 POWER FOR ALL

AFFORDABLE

ENVIRONMENT FRIENDLY

# CONNECTING THE UNCONNECTED

CHALLENGE TO ELECTRIFY **18,452** un-electrified villages as on 1st April 2015

"IT IS NOW THE SOLEMN PLEDGE OF THE 'TEAM INDIA' OF 125 CRORE COUNTRYMEN THAT THE TARGET OF PROVIDING ELECTRIC POLES, ELECTRIC WIRES AND ELECTRICITY TO THESE 18,500 VILLAGES WOULD BE ACHIEVED WITHIN NEXT 1,000 DAYS"

- Hon'ble PM Shri Narendra Modi on 15th August, 2015

ACTION TAKEN UNDER THE DEEN DAYAL UPADHYAYA GRAM JYOTI YOJANA (DDUGJY)

**7,108**

electrified against initial target of 2,800 in 2015-16



**VILLAGES** already connected





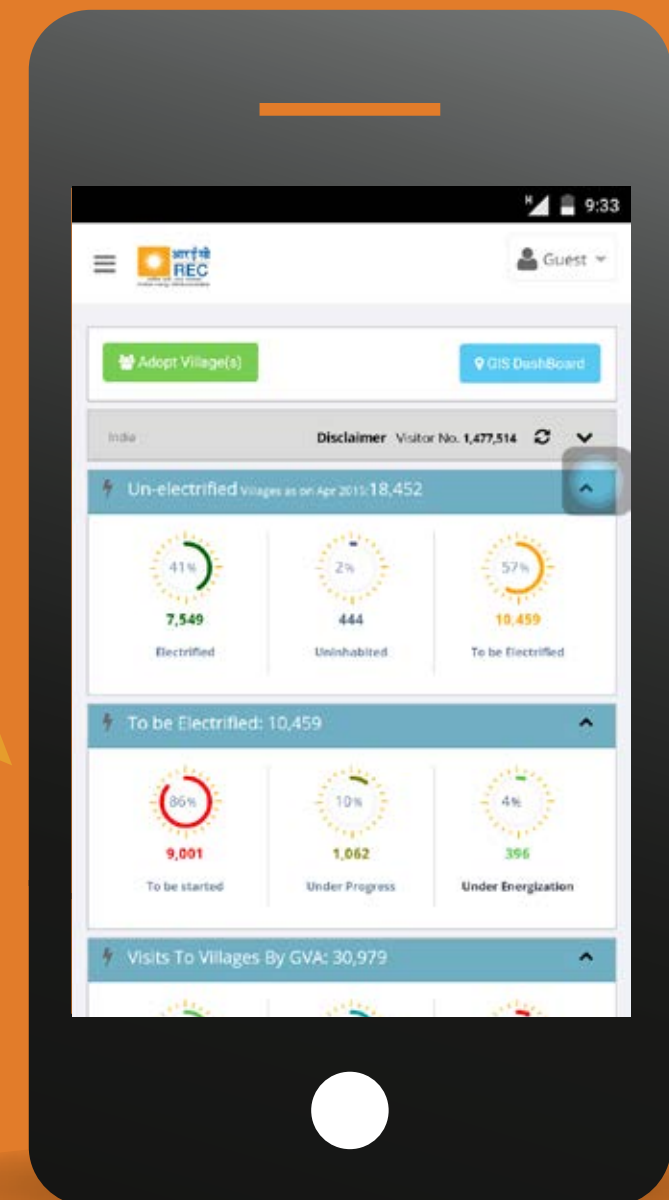
# GARV

## TRACKING RURAL ELECTRIFICATION

### Continuing Quest for Transparency

Grameen Vidyutikaran (GARV) mobile application developed to help citizens monitor rural electrification

[www.garv.gov.in](http://www.garv.gov.in)



# FROM DARKNESS TO LIGHT



## NUAON VILLAGE, BIHAR

Resident **Shri Akhilesh Kumar Singh** recalls the problems when there was no electricity in the village. "In summers, ladies and children at home during the day faced the ill-effects of heat waves. Moreover, poorly lit parts of the village were a threat to safety at night. Children also used to study under 'dibhri' or kerosene lamps at night. However, all this has changed with access to electricity in the village. Now the villagers use fans to counter the heat, safety has improved at night, and children can now study under LED lights. Flour mills and motors are also used in the village now."

## BADAURA VILLAGE, UTTAR PRADESH

An elated resident recounts, "Have stayed here from my birth. Electricity has reached since 1.5 months. Nothing had happened earlier. Many officials came and gave assurances but never returned. We used kerosene oil earlier for light. We will now shift from hand pumps, hand flour mills. Electricity will reach fields also. Children will be able to study at night. It is a great convenience for us now."

# 24 X 7 'POWER FOR ALL'

# COAL: FROM PITHEAD TO POWERHOUSE

Transparent e-auction of **31 coal blocks** and allotment of **43 coal blocks** from **204 cancelled** by Supreme Court in 2014

Potential revenues to coal bearing States of around **₹ 3.44 lakh cr.** over life time of the mines

In 2014 as many as two thirds of major power plants had critical coal stock of **less than 7 days.** Today not a single power plant has critical stock. Average stock exceeds 25 days



Coal Allocation Monitoring System (CAMS) portal to promote transparency by giving information regarding coal price, availability and utilisation for small and medium scale consumers



**EXPLORATION**  
44% increase in drilling for exploration in 2014-16 to 18.2 lakh metres as compared to 12.6 lakh metres in 2012-14

**MINE DEVELOPMENT**  
Land acquisition made win-win with attractive offer of one job per two acres of land acquired



## COAL INDIA SLEEPING GIANT AWAKENS



**MINING**  
Double Coal India's production to 100 cr. tonnes by 2020  
Achieved **53.60 cr. tonnes** in 2015-16  
Highest ever addition of **7.4 cr. tonnes** in a 2 year period  
Annual increase in production by **7.7%** on average in 2014-2016 as compared to just **1.8%** in 2010-14



**QUALITY**  
Now 100% crushed coal to power plants  
Quadruple washeries capacity from 3.7 to 15 cr. tonnes by 2017-18  
Third Party sampling of coal

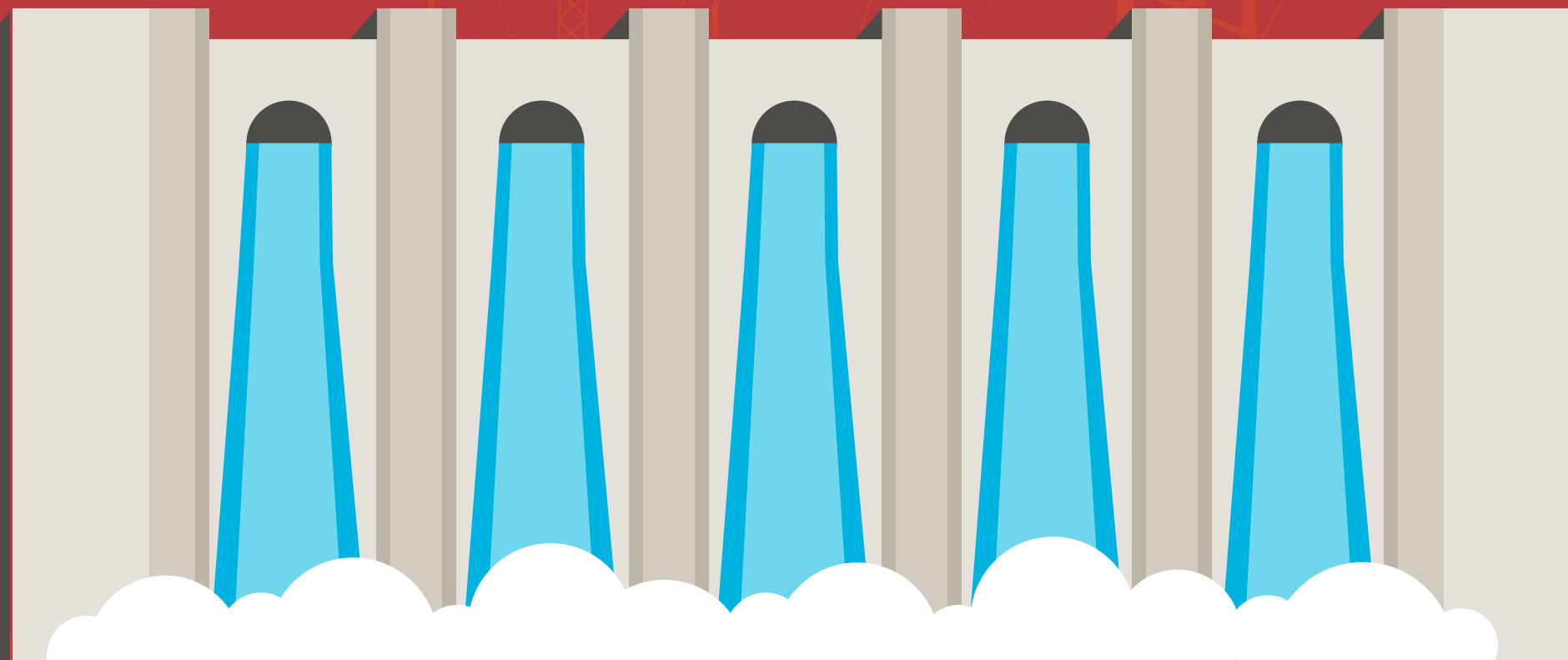


**EVACUATION**  
Better evacuation of coal by investing in new railway rakes and lines, expediting modernisation and mechanisation  
MOUs between Coal India, Railways and coal bearing states of Odisha, Jharkhand and Chhattisgarh to strengthen infrastructure creation



**OUTCOME**  
Reduced import of coal helped save around ₹ 24,000 cr. of foreign exchange in 2015-16  
Target to save ₹ 40,000 cr. of foreign exchange in 2016-17

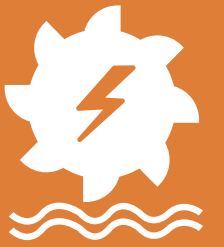
# RECHARGING HYDROELECTRIC POWER



Water flows again: Revived 1,200 MW Teesta Hydro Project through financial restructuring to ensure clean power for North East India

Financial institutions under Ministry of Power have decided to extend long term loans to power projects which, will particularly help Hydro power

## TARIFF POLICY FOR PROMOTING HYDRO POWER



**Promotion of Hydro projects through exemption from competitive bidding till 2022**

*To address difficulties in developing Hydro projects such as higher capital costs, Resettlement and Rehabilitation, Geology and Gestation periods*

**Allow Distribution Licensees to extend long term PPA beyond 35 years by a further period of 15 years**

*Encourage states to promote Hydro Projects as benefit of low tariffs accrues to State and consumers*

**Time of Day tariff allowed for power generators**

*To incentivise expansion of peaking power through Hydro*

**Hydro is excluded from Renewable Purchase Obligation (RPO)**

*To make Hydro power more attractive for the consumer*

**Allow developers flexibility in depreciation rate**

*To have lower tariff in initial years*



# GAS PLANTS REVIVED



29 Gas based power plants of 14,305 MW capacity out of total 24,150 MW grid-connected capacity of India had no supply of domestic gas in 2014

Revived stranded plants of capacity 11,717MW with supply of Re-gasified Liquefied Natural Gas (RLNG) through transparent e-auction in 2015

Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and Puducherry benefited through increased generation from gas based plants

- Will especially provide relief in peak summer months when there is shortage of power in South India due to transmission constraints

# TRANSMISSION

ONE NATION, ONE GRID, ONE PRICE

**50,215 ckm** transmission lines laid in 2014-16

Highest ever for both years

1.5 times higher than 33,855 ckm in preceding 2 years of 2012-14

**1,28,403 MVA** increase in sub-station capacity in 2014-16

Highest ever increase over 2 year period

**71% increase** in transmission capacity to South India (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and Puducherry) from 3,450 MW in 2013-14 to 5,900 MW

To be increased by over 5 times to 18,400 MW in next 3 years

Power Grid commissioned projects worth around **₹ 30,300 cr.** in 2015-16, registering a **growth of 39%**

Projects worth around **₹ 1 lakh cr.** initiated in 2015-16

# UDAY POWERING REFORMS

UJWAL DISCOM ASSURANCE YOJANA IS THE MOST COMPREHENSIVE POWER SECTOR REFORM EVER

DISCOMs are the weakest link in the power value chain

Losses of about ₹ 60,000 cr. annually and accumulated debt of ₹ 4.3 lakh cr.

Permanent resolution of past, present and future of DISCOM issues

Turnaround DISCOMs through financial and operational efficiency improvements



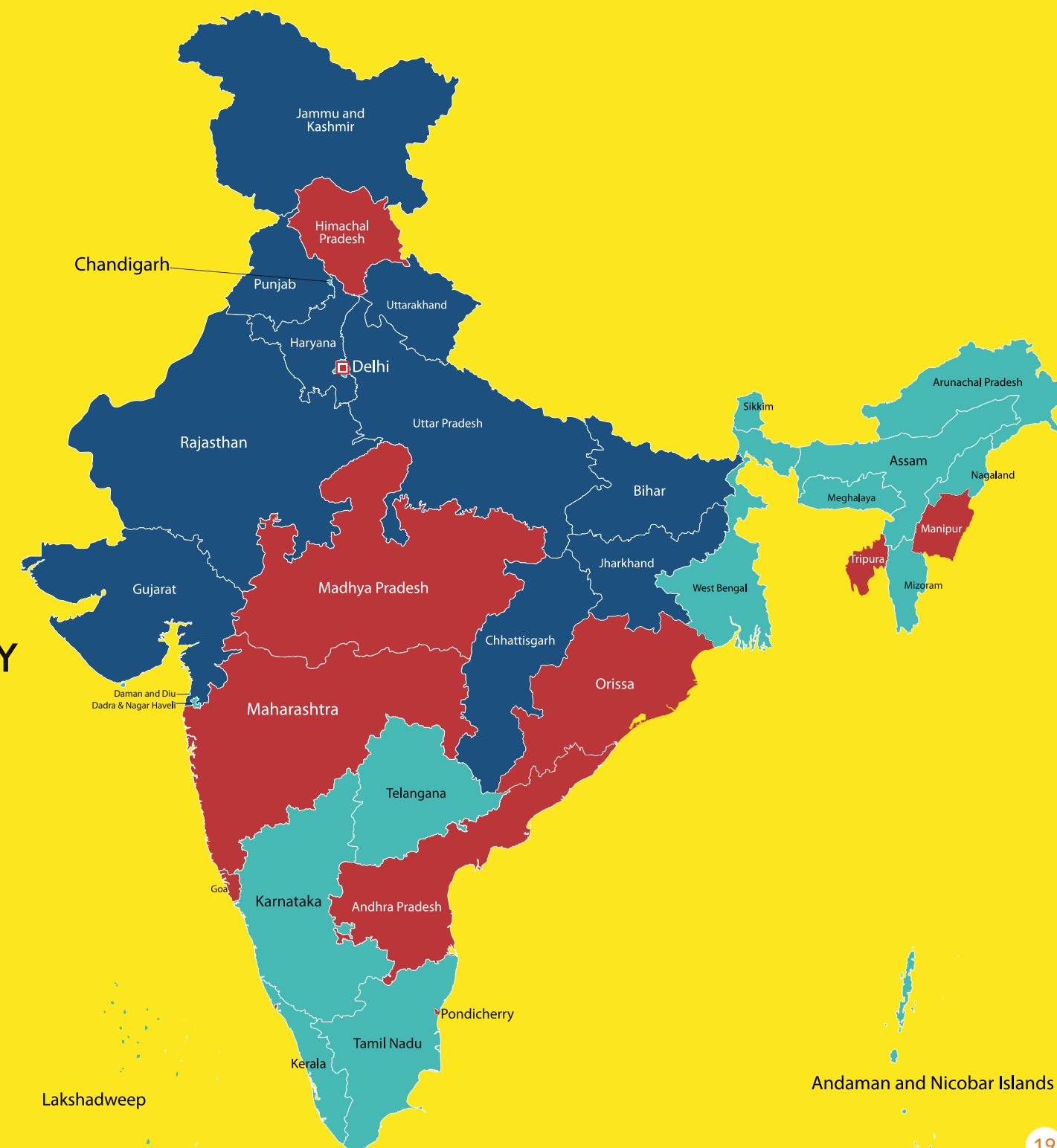
# BHARAT UDAY

UDAY bonds worth about ₹ 1 lakh cr. issued in 2015-16

**18 STATES AND 1 UNION TERRITORY OF WHICH**

**10 STATES HAVE ALREADY SIGNED AGREEMENTS**

**8 STATES AND 1 UNION TERRITORY HAVE AGREED TO JOIN**



# TARIFF POLICY ELECTRICITY FOR ALL

POWER IN REMOTE  
VILLAGES THROUGH  
MICRO GRIDS



AFFORDABLE POWER  
NEAR COAL MINES  
THROUGH WASHERY  
REJECTS

24 X 7 POWER  
SUPPLY FOR ALL  
WITH DEFINED  
TRAJECTORY



DEEN DAYAL UPADHYAYA  
GRAM JYOTI YOJANA  
(DDUGJY) FOR GRAMODAY  
SE BHARAT UDAY

INTEGRATED POWER  
DEVELOPMENT SCHEME  
(IPDS) FOR SMART  
INFRASTRUCTURE IN CITIES

Electrify remaining **18,452**  
un-electrified villages (as on 1<sup>st</sup> April, 2015)

Feeder segregation for **24 x 7** power to  
rural homes and micro, small & cottage  
industries

Adequate power to farmers

New transformers and upgradation of last  
mile infrastructure

Remote villages to be covered: Off grids and  
micro grids

Solar Installations by DISCOMs to promote  
clean and green energy

Outlay of ₹ **75,893 cr.**

Sanctioned Projects worth  
₹ **73,960 cr.**

Smart metering and tamper proof meters at  
home

Infrastructure upgradation in urban areas  
including comprehensive sub transmission  
and distribution

Underground cabling and GIS Sub stations in  
densely populated areas

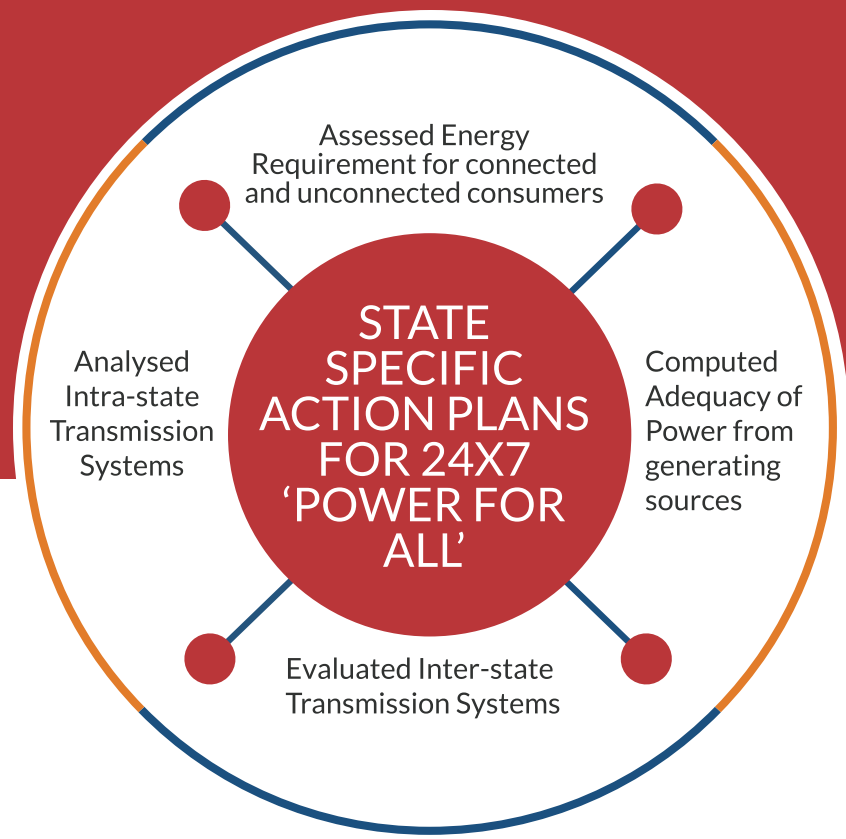
IT implementation for better consumer  
service

Solar installations like rooftop solar panels  
also covered

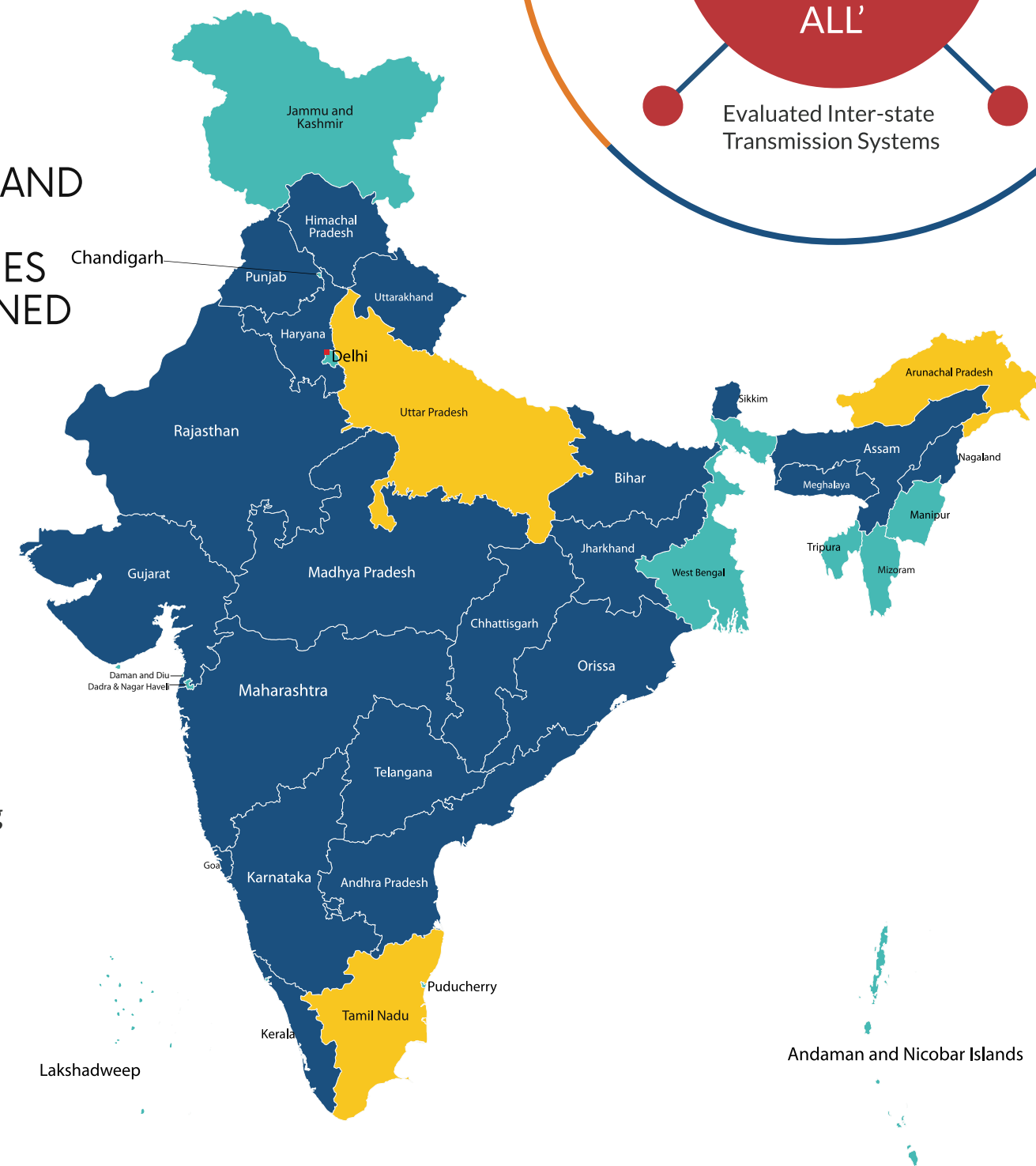
Outlay of ₹ **65,424 cr.**

Sanctioned projects worth  
₹ **56,295 cr.**

# CO-OPERATIVE FEDERALISM



21 STATES AND UNION TERRITORIES HAVE SIGNED



12 more have finalised plans  
3 are finalising plans

# VIDYUT PRAVAH EMPOWERING THE CITIZEN

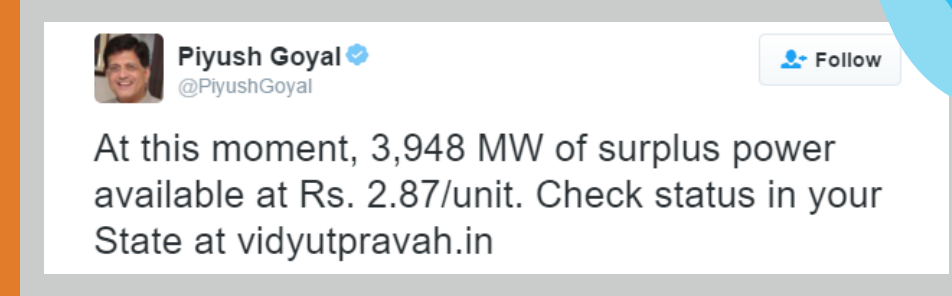


App provides Real Time Information on Electricity Price and Availability

Empowering the citizen by filling the Information Gap

State Governments made Accountable

[www.vidyutpravah.in](http://www.vidyutpravah.in)



# MAKING POWER AFFORDABLE



## TARIFF POLICY EFFICIENCY TO ENSURE AFFORDABLE TARIFFS

₹  
↓  
Reduce power cost to consumers through expansion of existing power plants

Benefit from Sale of Un-requisitioned Power to be shared allowing for reduction in overall power cost

Transmission projects to be developed through competitive bidding process to ensure faster completion at lower cost

Faster installation of Smart meters to enable "Time of Day" metering, reduce theft and allow net-metering

Lower power cost by creating transmission capacity for accessing power from across India

Short term power requirement to be compulsorily purchased through auctions by states

# UDAY

DEMOLISHING DISCOMS' DIFFICULTIES

## Potential for low cost of power by reducing DISCOM losses

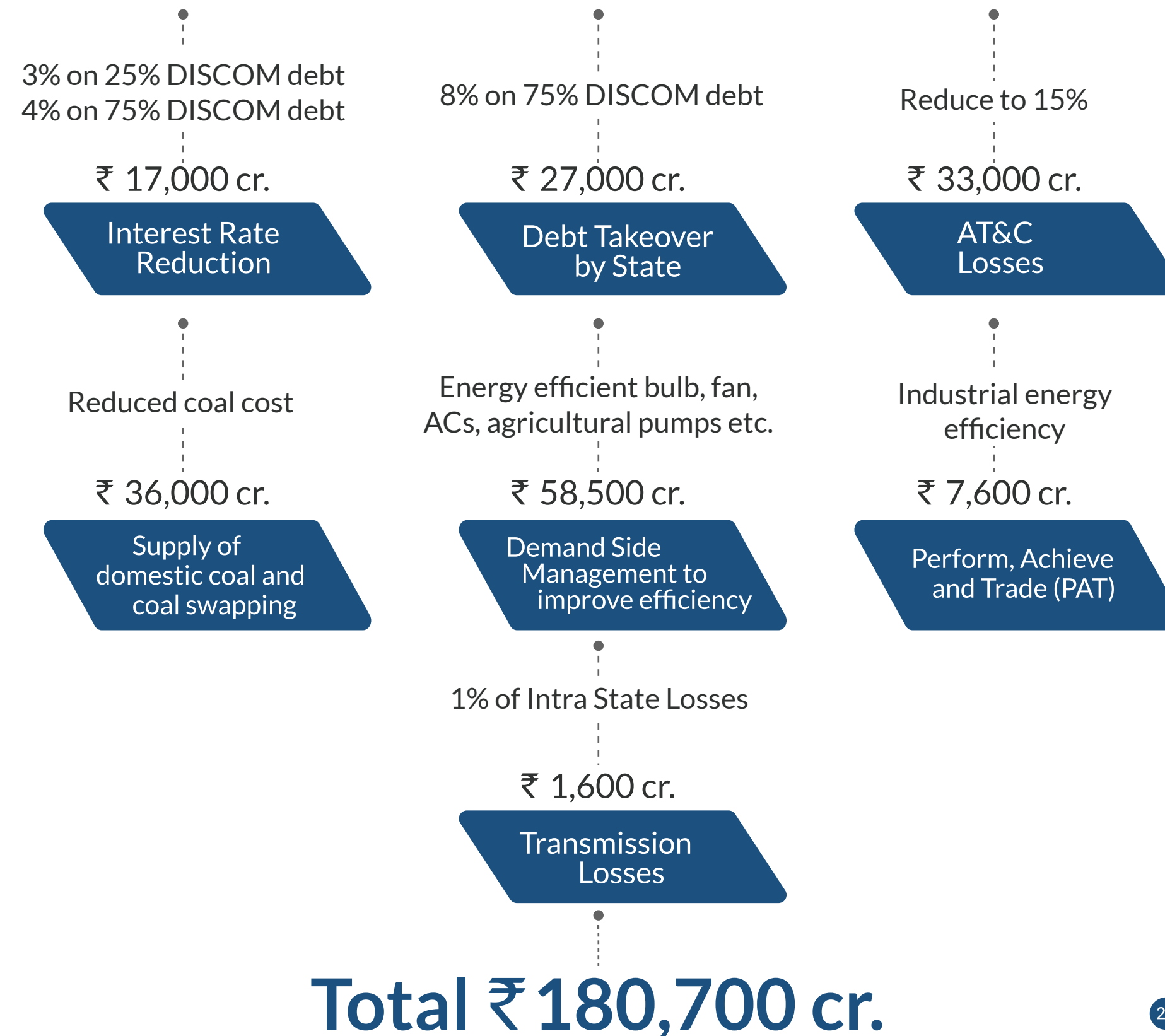
TAKE OVER OF DISCOM DEBTS TO LOWER COST OF SERVICING THE DEBT FROM AVERAGE INTEREST RATE OF 12% TO AVERAGE 8%

OPERATIONAL EFFICIENCIES TO REDUCE AGGREGATE COMMERCIAL AND TECHNICAL (AT&C) LOSSES

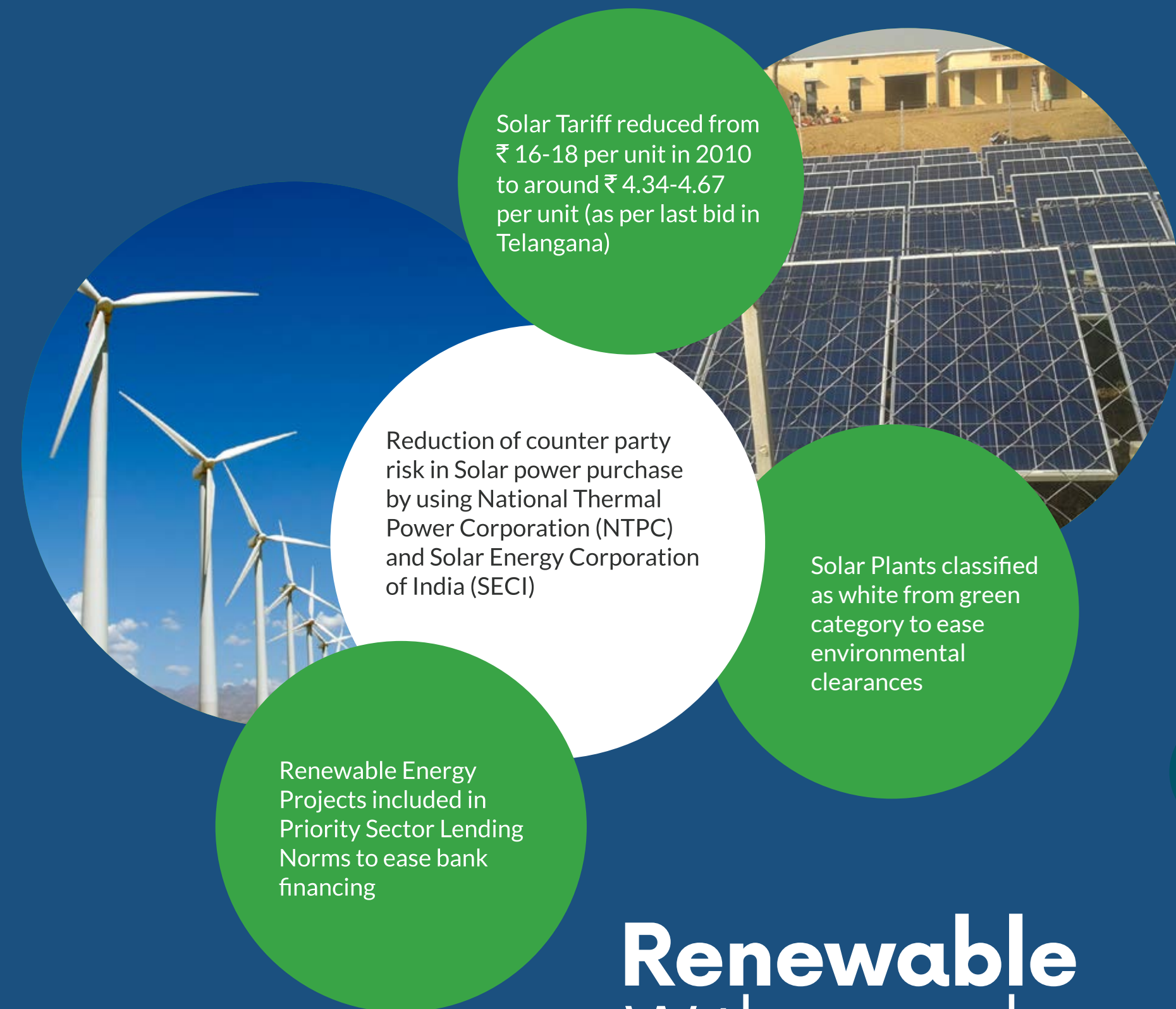
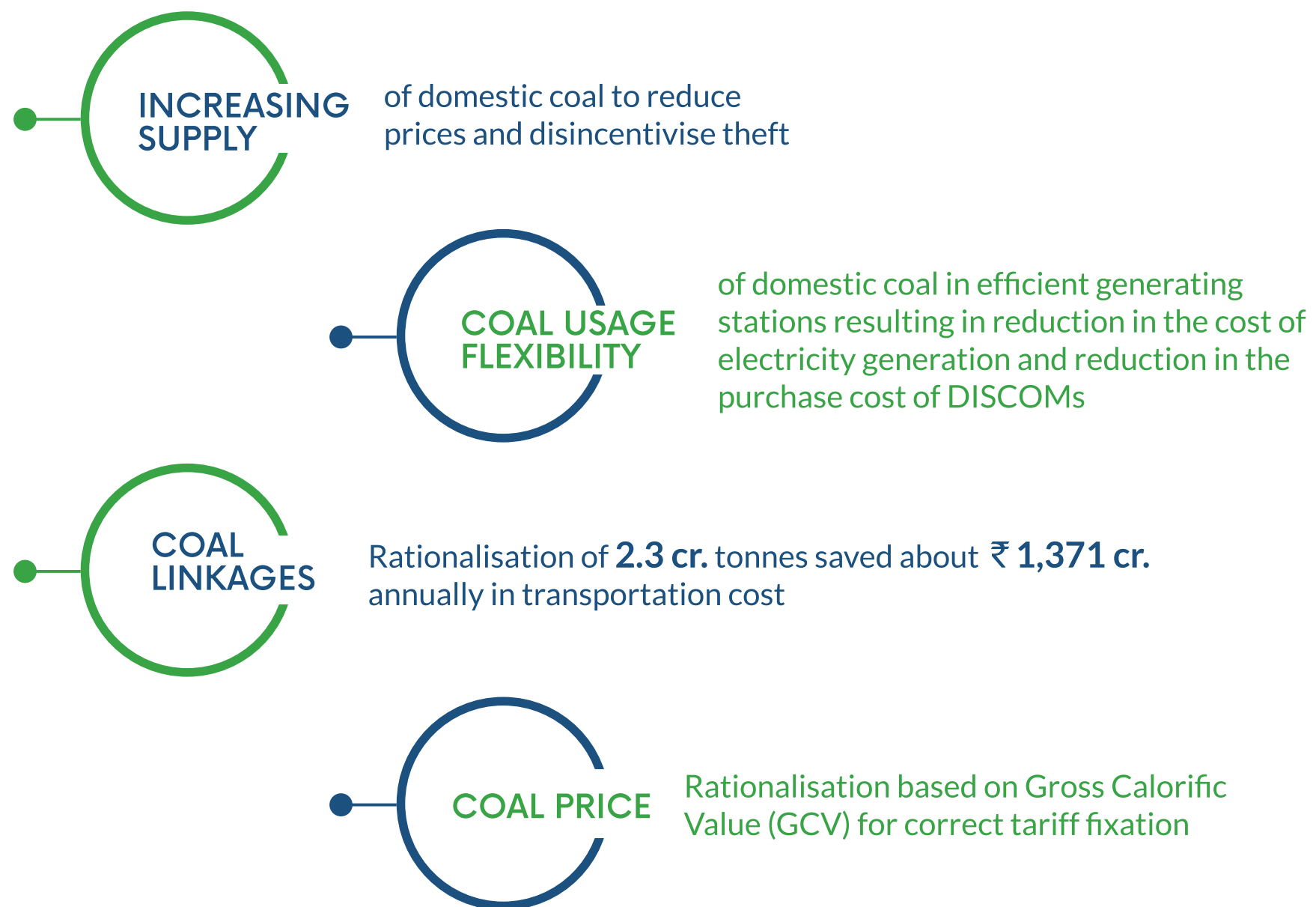
- Improving billing efficiency through metering and tracking of losses
- Infra augmentation and smart metering
- Improving collection efficiency through public participation

INCREASING PLANT LOAD FACTOR TO REDUCE FIXED COST PER UNIT

## POTENTIAL SAVINGS THROUGH EFFICIENCY IMPROVEMENT BENEFITS BY 2018-19 OVER BUSINESS AS USUAL SCENARIO



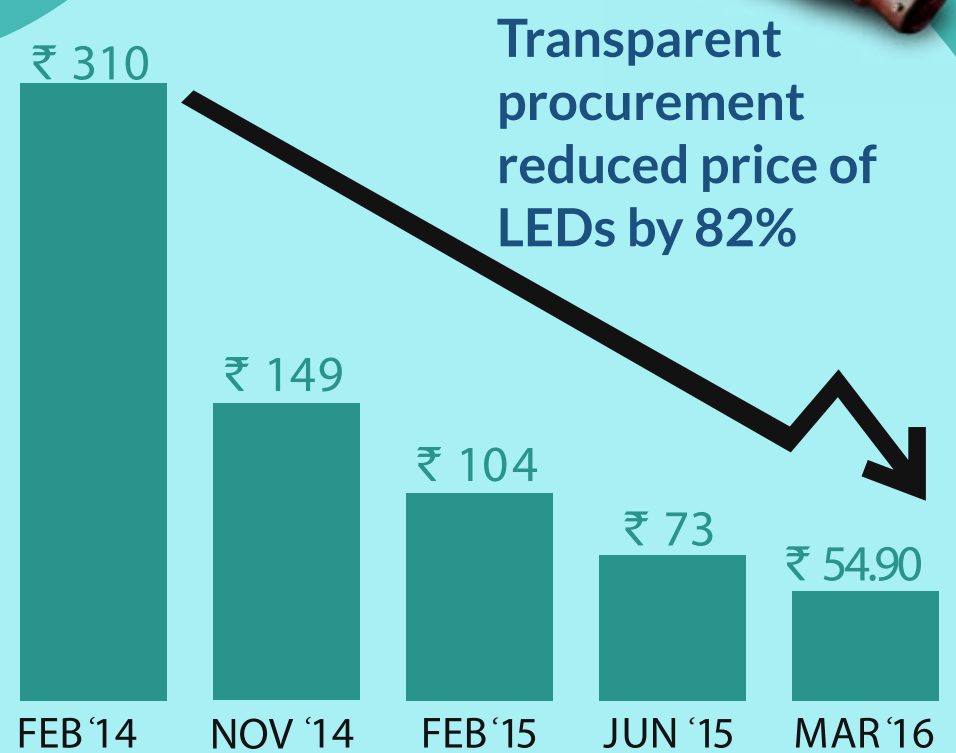
# THERMAL TAKING STRIDES



## Renewable Within reach

# INDIA LED THE WORLD

- India headed for top slot in global LED bulb market through Pradhan Mantri UJALA (Unnat Jyoti by Affordable LEDs for All) Yojana
- World's largest LED bulb distribution programme with over 10 cr. distributed
- To replace 77 cr. Energy inefficient bulbs by 2019
- To reduce peak load demand by about 20,000 MW
- To reduce consumer bills by about ₹ 40,000 cr.
- To also replace 3.5 cr. conventional street light under street light national programme (SLNP)



Transparent procurement reduced price of LEDs by 82%

Increased wattage from 7W to 9W at reduced price

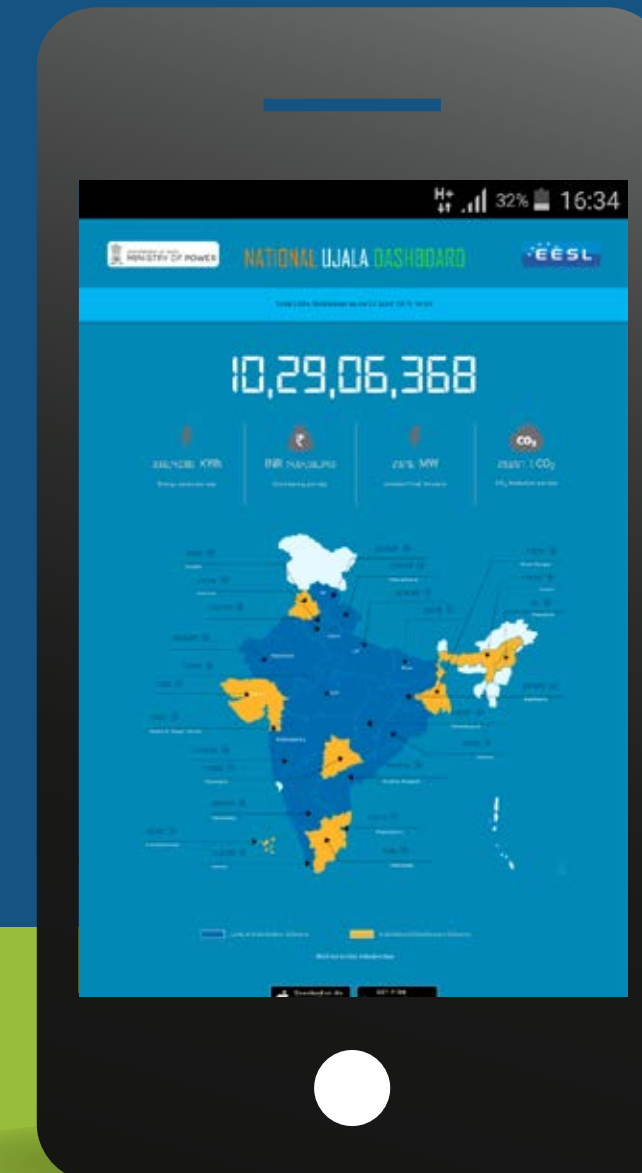
# TRACKING UJALA



**Vipin Anand,**  
 "Earlier bulb was sensitive, consumed 50W. Then we used CFL which was 12W. Now we use LED which is 7W. I have benefitted financially."



**Charu Madan,**  
 "I am a teacher and a housewife. Earlier when I used to go to pay electricity bills, it was expensive. Since, we have put LED bulbs we have gained."

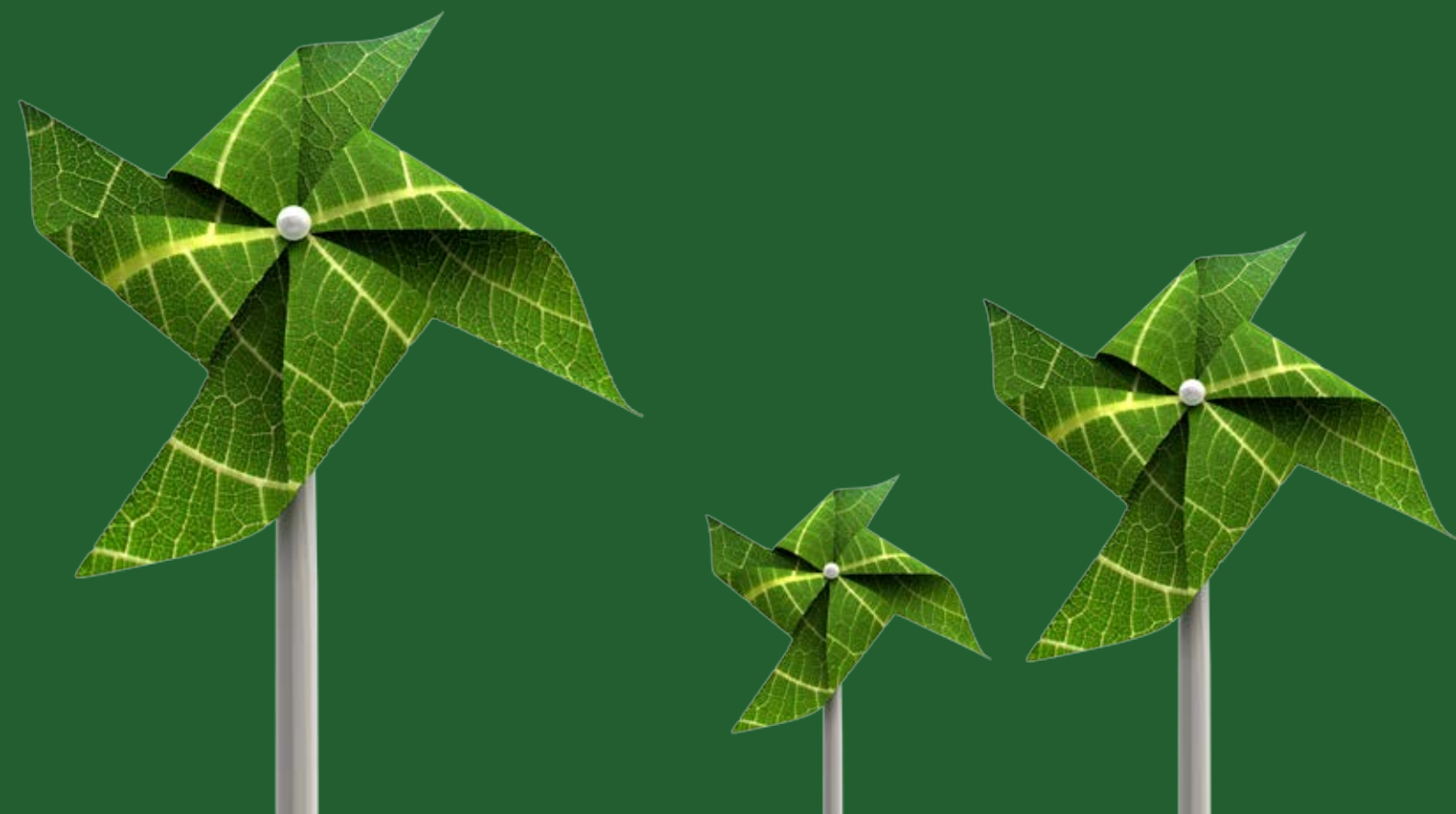


Mobile Application to monitor UJALA

[www.ujala.gov.in](http://www.ujala.gov.in)



# ARTICLE OF FAITH FOR INDIA ENVIRONMENT FRIENDLY POWER

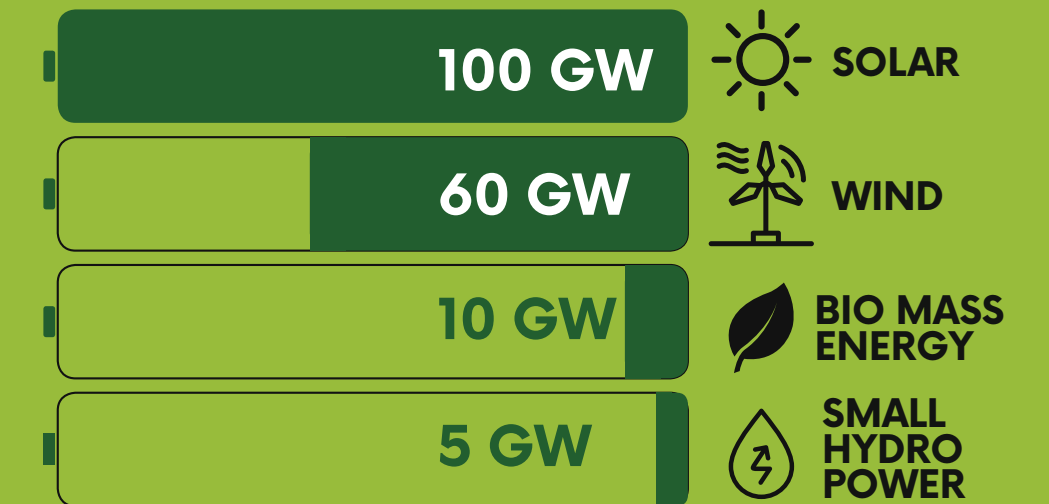


“INDIA IS GRADUATING FROM MEGAWATTS TO GIGAWATTS IN RENEWABLE ENERGY PRODUCTION”

PRIME MINISTER  
SHRI NARENDRA MODI

## WORLD'S CLEAN ENERGY CAPITAL

**INCREASE OVERALL RENEWABLE CAPACITY BY MORE THAN 5 TIMES FROM 32 GW IN 2014 TO 175 GW BY 2022**



**INDIA IS RUNNING THE LARGEST RENEWABLE ENERGY EXPANSION PROGRAMME IN THE WORLD**

Played keystone role in clinching climate change deal between 195 countries at COP21 in Paris

Record targets in the Intended Nationally Determined Contributions (INDC) by 2030

- Reducing emission of GDP by 33-35% from the 2005 level
- Achieving about 40% cumulative electric power installed capacity from non fuel based Energy sources
- Creating additional carbon sink of 250-300 cr. tonnes



# INTERNATIONAL SOLAR ALLIANCE

## *vasudhaiva kutumbakam*

Alliance of 121 tropical countries with maximum potential to harness Solar Energy

Common goal of increasing utilisation and promotion of solar energy and solar applications in its member countries

Mobilise \$1 trillion (around ₹ 67 lakh cr.) for investment by 2030



# RE-INVEST 2015

## WORLD'S LARGEST RENEWABLE FINANCING MEET

- To achieve target of **175 GW by 2022**
- To evolve innovative financing models for funding renewable energy



## IN 2015

2,860 delegates from **42 countries**

202 speakers from **29 countries**

578 Indian and **124 International companies**

118 exhibitors from **7 countries**

**NEXT MEET  
IN 2017**

**GREEN ENERGY  
COMMITMENTS BY PUBLIC  
AND PRIVATE SECTOR  
COMPANIES TO INVEST IN  
THE RENEWABLE ENERGY  
SECTOR**

RENEWABLE  
POWER CAPACITY  
COMMITMENT OF  
**266 GW**

RENEWABLE  
MANUFACTURING  
COMMITMENT OF  
**41 GW**

Renewable financing commitments for various projects.

# POLICY

## ENVIRONMENT FOR A SUSTAINABLE FUTURE

Enhancement in Solar Renewable Power Obligation (RPO) to 8% by March 2022

Renewable Generation Obligation on new thermal and lignite plants

No inter-state transmission charges and losses to be levied for solar and wind power

Compulsory procurement of 100% power from Waste to Energy plants

Ancillary services to support grid operation for expansion of renewable energy

National Offshore Wind Energy Policy

- Development of the Exclusive Economic Zone (EEZ) upto 200 nautical miles from the coast
- First project off the coast of Gujarat soon.

# REDUCTION IN EMISSIONS

8 fold increase in Clean Environment Cess from ₹ 50 to ₹ 400 per tonne of coal to help finance clean energy projects and Ganga rejuvenation

Sale of Renewable Energy Certificates (RECs) increased by about 62% to 49.6 lakh in 2015-16 as compared to 30.6 lakh in 2014-15

UJALA to help reduce Green House Gas emission by about 7.9 cr. tonnes CO<sub>2</sub> by 2019



Farmers helped with **31,472 Solar Pumps** installed in 2015-16, higher than total installed since commencement of scheme in 1991

Energy efficient LED Fans and Pumps launched

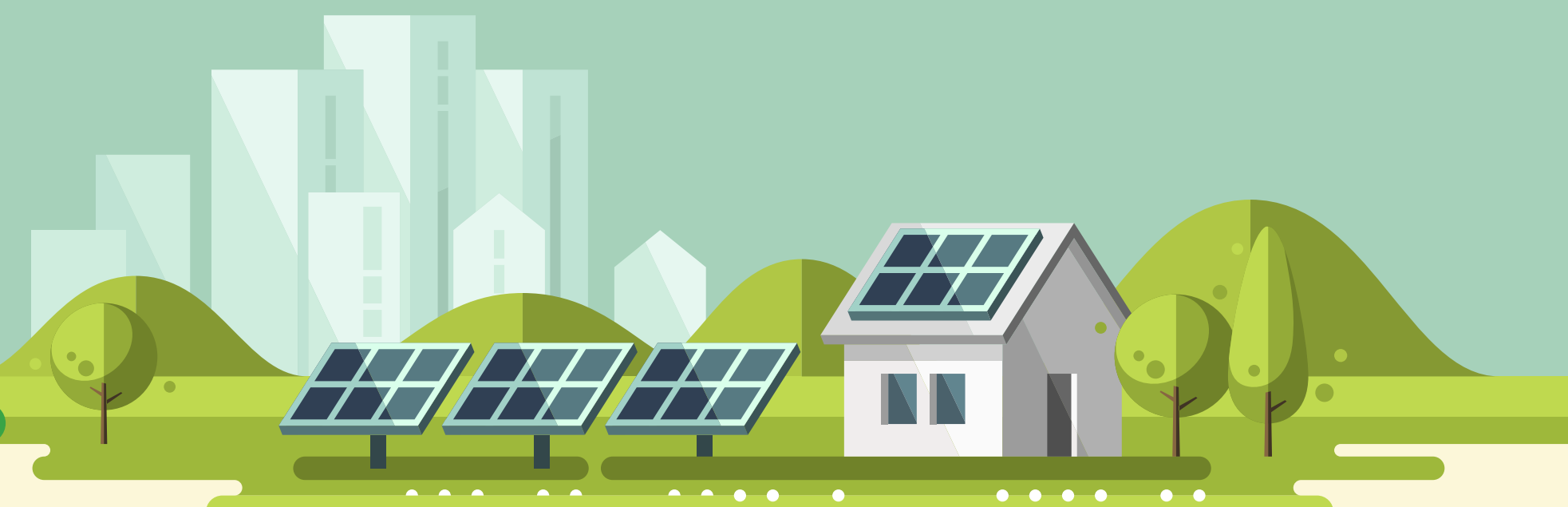
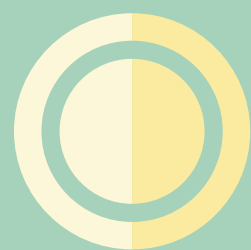
# INVESTING FOR THE FUTURE

**SOLAR PROJECTS**  
20,904 MW  
tendered in 2015-16

**₹ 38,000 CR.**  
**GREEN ENERGY**  
corridor to strengthen  
transmission of  
renewable energy

**33 SOLAR PARKS**  
with capacity of  
20,000 MW in 20 states

**WORLD'S LARGEST SOLAR  
PROJECT TO BE  
IN ANANTHAPURAM,  
ANDHRA PRADESH**



# SKILL INDIA

MOU's signed with National Skill Development Council (NSDC) and National Skill Development Fund (NSDF) for long term integrated skill development projects

## COAL INDIA

Training programme aligned with National Skills Qualifications Framework (NSQF)

Covers contractual workers, semi-skilled workers and youth in operational and neighbouring areas

**2.7 lakh people** to be trained

## NTPC

**5,000 people** in 22 locations across the country to be trained in first 2 years

Multi-Mission Skill Institute to be set up as a model

Signed another MOU to target backward areas of Bihar to train **15,000 people** in Service sectors and **10,000** in Manufacturing sectors

Surya Mitra scheme to train 50,000 solar engineers by 2019-20

# JALYUKT BHARAT

## IMPROVED WATER MANAGEMENT

### POWER SECTOR

Power plants using treated sewage water to save drinking water and cleaning rivers like Ganga thereby contributing to Namami Gange



### COAL SECTOR

Supply of mine water for industrial, domestic and agricultural purposes

Maintaining water bodies

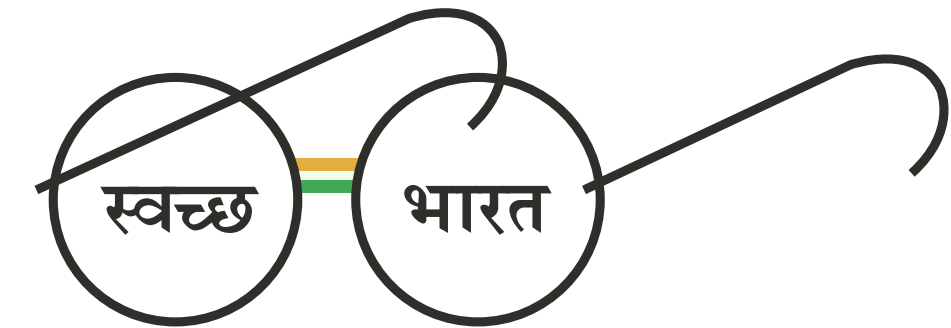
Post mining voids are left as water bodies to recharge groundwater

### COMBATING DROUGHT

COAL MINES ASSISTING DROUGHT RIDDEN REGIONS BY SUPPLYING WATER FROM UNDERGROUND RESERVES TO NEARBY VILLAGES

Western Coalfields discharged water from Saoner underground mine to water parched Borgaon village in Nagpur district increasing the water table and replenishing water in otherwise dried up bore wells

Western Coalfields discharged water from its Kamptee Open Cast Mine to water deficient Kanhan township in October 2015



एक कदम स्वच्छता की ओर

# SWACCH BHARAT

The PSUs under the three Ministries pro-actively constructed 1,28,000 toilets for school boys and girls particularly in states like Bihar, Odisha, West Bengal, Jharkhand, Chhattisgarh, Andhra Pradesh and Rajasthan

PSUs will also maintain toilets for 5 years to ensure their usage and maintenance

Awareness is also being created in rural communities to improve sanitation



# ECO-TOURISM INCREDIBLE INDIA

UNIQUE ECO-PARK NEAR NAGPUR  
DEVELOPED BY WESTERN COAL FIELDS



Tour of Gondegaon opencast mine and Saoner underground mine to show mining activities

#### Key attractions

- Guided tour of mining processes
- Forest safari on a toy train

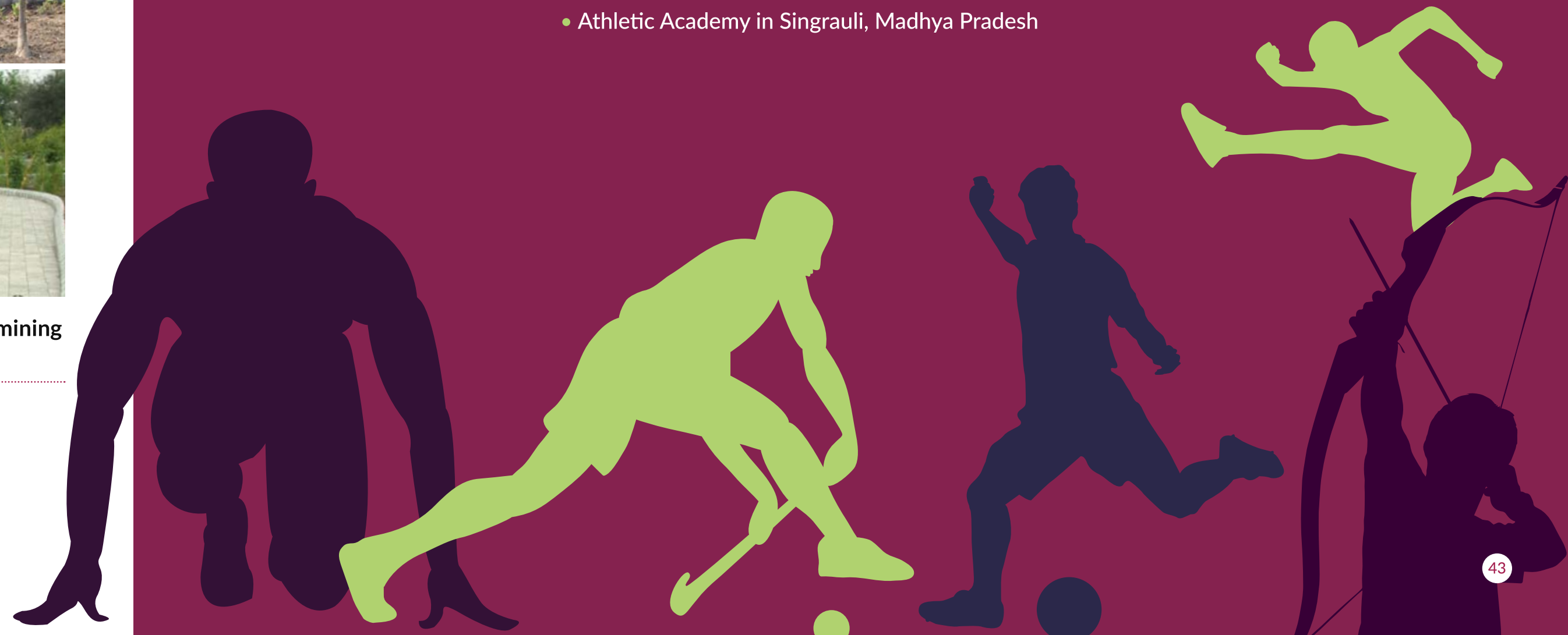
# SPORTS

COAL INDIA'S STELLAR ROLE IN ENCOURAGING SPORTS  
THROUGH CORPORATE SOCIAL RESPONSIBILITY

Signed MOU with Government of Jharkhand to establish Sports Academy and Sports University at the existing World class stadium/infrastructure in Hotwar, Ranchi

Further, planning to establish

- Hockey Excellence Centre in Sundargarh, Orissa
- Athletic Academy in Singrauli, Madhya Pradesh





Ministry of Power, Coal and New & Renewable Energy  
**GOVERNMENT OF INDIA**

“ आज़ादी के इतने साल हो गये। आज़ादी के इतने सालों के बाद इस देश में 18,000 गाँव ऐसे हैं, जहाँ बिजली का खंभा भी नहीं पहुँचा है, बिजली का तार नहीं पहुँचा है। 18 वीं शताब्दि में जैसी जिन्दगी वो गुजारते थे; 21 वीं सदी में भी 18,000 गाँव ऐसे ही जिन्दगी जीने के लिए मजबूर हैं। मुझे बताओ मेरे प्यारे भाइयों-बहनों, क्या किया इन गरीबी के नाम पर राजनीति करने वालों ने? उन 18,000 गाँव को बिजली क्यों नहीं पहुँचाई? मैंने बीड़ा उठाया है, लाल किले से 15 अगस्त को मैंने घोषणा की, मैं 1,000 दिन में 18,000 गाँवों में बिजली पहुँचा दूंगा। रोज़ का हिसाब देता हूँ देशवासियों को। ”

HON'BLE PRIME MINISTER  
SHRI NARENDRA MODI

[www.ujwalbharat.gov.in](http://www.ujwalbharat.gov.in)



@UjwalBharat