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JHARKHAND
POWER POLICY,
2018 (Draft)

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LIST OF ABBREVIATIONS

ACS: Average Cost of Supply

ADB: Asian Development Bank

ADMS: Advance Distribution Management System

AT&C losses: Aggregate Technical & Commercial losses

BAT: Best Available Technologies

BEE: Bureau of Energy Efficiency

BOOT: Build, Operate, Own, Transfer

BOT: Build, Operate, Transfer

CAF: Common Application Form

CCS: Carbon capture and storage

CPP: Captive Power Plant

DBFOO: Design Build Finance Own and Operate

DBT: Direct Benefit Transfer

DDG: Decentralized Distributed Generation

DDUGVY: Deen Dayal Upadhyaya Gram Jyoti Yojana

ECBC: Energy Conservation Building Code

EESL: Energy Efficiency Services Limited

EV: Electrical Vehicle

FY: Financial Year

GFBC: Green Factory Building Code

GIS: Geographic Information System

GST: Goods & Services Tax

IGCC: Integrated Gasification Combined Cycle

IPP: Independent Power Producer

IPTC: Independent Power Transmission Company

ITES: Information Technology Enabled Services

JBVNL Jharkhand Bijli Vitaran Nigam Limited

JREDA: Jharkhand Renewable Energy Development Agency

JSERC: Jharkhand State Regulatory Commission

JUSNL: Jharkhand Urja Sancharan Nigam Limited
JUVNL: Jharkhand Urja Vikas Nigam Limited
KUSUM: Kisan Urja Suraksha evam Utthaan Mahabhiyan
KYC: Know Your Customer
MoP: Ministry of Power
MoU: Memorandum of Understanding
MSW: Municipal Solid Waste
MVA: Mega Volt Amp
MW: Megawatt
NTPC: National Thermal Power Corporation
PAT: Perform Achieve Trade
PCRA: Petroleum Conservation Research Association
PLF: Plant Load Factor
PPP: Public Private Partnership
PTPS: Patratu Thermal Power Station
PWD: Public Works Department
R&D: Research & Development
R&M: Renovation & Modernization
REMCs: Renewable Energy Management Centres
RGVY: Rajiv Gandhi Grameen Vidyutikaran Yojana
RPO: Renewable Purchase Obligations
SAMAST: Scheduling, Accounting, Metering, and Settlement Transaction
in Electricity
SAS: Substation Automation System
SCADA: Supervisory Control and Data Acquisition System
SDA: State Designated Agency
SECI: Solar Energy Corporation of India
Shakti: Scheme for Harnessing and Allocating Koyla Transparently in
India
SNAs: State Nodal Agencies
Solar PV: Solar Photovoltaic

STU: State Transmission Utility

T&D: Transmission and Distribution

TVNL: Tenughat Vidyut Nigam Limited

UDAY: Ujwal Discom Assurance Yojana

ULB: Urban Local Bodies

UMPP: Ultra Mega Power Plant

VGF: Viability Gap Funding

1. BACKGROUND

Electricity is a strategic input providing a source of livelihood for various segments of society and is a prime mover and an effective engine of economic growth. Electricity consumption is recognised as a universally accepted indicator of progress in the agricultural, industrial and commercial sectors, thereby contributing to the socio-economic development of the people of the state. Electricity sector plays a critical role in employment generation, poverty eradication, improving human development indices and regional economic development.

Availability of adequate and reliable power is necessary for meeting the basic requirements of people of the state in general and industrial development is particular. One of the key parameters to measure the prosperity of a state is the *per capita energy availability and per capita energy consumption*. While the former indicates the energy access or simply energy availability to people, the later depicts the penetration of energy and its usage in day to day activities of people. Improvement in these parameters signifies the changing lifestyle and enhancement in standard of living of people.

2. PRESENT POWER SCENARIO

The total installed capacity in the state as on 31.03.2018 is 1774.46 MW of which the installed capacity of State Owned Power Plants is 554.04 MW. As against this, the State's peak power demand requirement for FY 2018-19 is estimated to be 2,441 MW. To meet the power demand requirement, the State sources power from Central Sector Power Stations and Independent Power Producers.

The per capita electricity consumption of Jharkhand for FY 2016-17 stood at 612 units which is lower compared to other developed states and less than the national average of 1122 (Provisional) units for FY 2016-17. However, with rapid socio-economic development and the Government's vision to provide universal access and reliable power to all population of the state, the electricity demand in the state is poised to double by FY 2023. This necessitates a need for generation capacity addition and upgradation of transmission & distribution network to achieve the objective of making available the people of state reliable supply of power at affordable prices.

The key initiatives being taken by Government of Jharkhand to improve the power supply position are:

Improving generation capacity

In the past few years, the power supply position in the state has improved with the energy deficit in the state reducing from 2.8% in FY 2014-15 to about 0.7% in FY 2016-17. This

deficit was met by sourcing short term power. It is anticipated that the state may have a peak deficit of power to the extent of 194 MW in FY 2017-18, which may increase due to delay in commissioning of ongoing projects and no addition to the State's own generation capacity since 1997. Further, for providing universal access of power supply and promoting economic development in the State there is an added need to augment the generation capacity. To address the twin challenge of increasing power deficit in the state and procurement of costlier power from outside sources, the State Government has already taken some initiatives like:

- (a) Performance improvement and expansion of Patratu Thermal Power Station for expansion of up to 4000 MW (Phase-I: 3 x 800 MW & Phase-II: 2 x 800 MW) with expected completion of Phase-I by FY 2022 under Joint Venture between the Government of Jharkhand and NTPC,
- (b) Expansion of existing Tenughat Vidyut Nigam Limited from 2 x 210 MW to 2 x 660 MW and various efficiency improvement measures for maintaining high PLF,
- (c) Establishment of a new 2 x 660 MW pithead power plant near Maurya Coal Block.
- (d) Revival of Tilaiya 4000 MW Ultra Mega Power Project (UMPP),
- (e) Promotion of new and renewable energy sources – Sourcing power from wind and solar energy through SECI and other agencies.

Improving Intra-State transmission capacity

At present Jharkhand has an intra-state transmission capacity of 5,705 MVA with 3,648 circuit kilometres line length as on June 2018. With increase in electricity demand, addition of generation capacity and expanding electricity access throughout the state, transmission network in the state has to be upgraded and strengthened to improve availability and reliability of power in all the corners of the state.

To augment the state transmission network, construction of new grid substations and associated lines has been taken up under consultancy of Power Grid Corporation of India Limited. 75 numbers of grid substations with transformation capacity of 21,400 MVA capacity and 11,484 circuit kilometres line length is proposed to be completed by 2019. Out of these 75 grid substations 18 grid substations with 5,660 MVA capacity are under construction and 3,734 ckm of transmission line is under construction. However, to meet this ambitious plan, additional funding of INR 9600 crores is required to be tied up. State intends to obtain assistance from multilateral lending agencies like World Bank, ADB or explore PPP route in addition to taking up process from own resources to meet up this additional requirement.

Improving the electricity distribution network and supply

Government of Jharkhand, intends to provide 24 hours reliable electricity supply

throughout the state. With the Government of India's target to achieve 100% household electrification by December 2018, the State Government has joined hands with the Central Government to work together to achieve the targets. The household electrification level in the State is about 59.2 % as on June 2018 as against the national average of about 87% household electrification.

As on May 2018, the State distribution network comprise of 1,36,844.82 circuit kilometres of line length with the transformation capacity of 4,026.65 MVA. To ensure adequate network capacity, the distribution network would require to install 1.36 lakh distribution transformers and adding 51,788 ckm distribution lines by FY 2019.

In order to improve system reliability, the State Government has also launched "Jyoti Mission 2016" to replace all burnt and defective Distribution Transformers in rural areas.

On the operational efficiency side, the state (JBVNL) has made a huge progress in reducing its Aggregate Technical & Commercial (AT&C) losses, from over 42% in FY 2011-12 to 31.78% (provisional) as on March 2018.

Further, Jharkhand was the first state to join the UDAY scheme of Government of India whereby it targeted to undertake a number of operational efficiency activities and achieve Aggregate Technical & Commercial (AT&C) losses of 15% by FY 2019.

3. OBJECTIVES

The main objective of this power policy is to ensure that the power sector acts as a driver to the socio - economic development in the state and bring it at par with other developed States taking into advantage latest technologies. It will reduce the level of poverty, offer new avenues for local entrepreneurship, generate employment, provide impetus to industries particularly prevailing in rural areas and improve the standard of living of the people specially belonging to Scheduled Castes and Scheduled Tribes and Other Backward Classes.

Jharkhand is endowed with natural resources with immense potential for coal-based power plants; and it also has potential for the development of new and renewable energy sources like solar energy, hydel power, and biomass.

Government of Jharkhand will strive to develop Jharkhand as a 'Power Hub' of India from where power could be utilized to other parts of the country, after meeting state's demand.

Jharkhand Power Policy, 2018 is structured keeping customers as the focal point & aims at *making available the people of state reliable supply of power at affordable prices* with improved security and independence, greater sustainability and economic growth. The following are the principal objectives in this direction:

- (a) Developing Jharkhand as the power generation hub of India with surplus power by FY 2023.
- (b) Optimize and improve efficiency of existing plants through system improvement as well as through renovation & modernization initiatives.
- (c) Encouraging the use of renewable energy in the state with focus on decentralized generation of power using renewable energy.
- (d) Promote investment in generation in the state and also encourage existing Thermal IPPs who have entered into MoU for setting up Power generating plant in the State and supply of power to the State under the existing scheme of first right of refusal limited to 35% of the installed capacity. In case of provision of coal linkage the rate of 18.2% share will be as approved by Jharkhand State Regulatory Commission (JSERC) and rate of remaining 16.8% share will be on variable cost basis. In case no provision for coal linkage is provided then the rate of 35% of power will be as per the approved rate of JSERC.
- (e) An annual contribution @6 paise per unit of the energy sent out from the private power generating stations, during the relevant financial year for the energy sold outside the state, is to be deposited in Environment Protection Fund.
- (f) Augmentation of the transmission and distribution network and refurbishment of the existing network with a view to improve efficiencies, reliability & quality of supply and reducing losses.

- (g) Achieving a target of 15% AT&C losses.
- (h) Financial Turnaround and Commercial Viability of power utilities, thereby reducing the financial burden on the State.
- (i) Sourcing competitive and reliable bulk power from sources both within and outside the state.
- (j) Introduction of new technologies for enhanced customer services and satisfaction such as smart meters/ prepaid meters/ advance metering infrastructure, net metering, smart grid, SCADA, electronic vehicles and so on.
- (k) Improving efficiency through deployment of emerging and sustainable technologies.
- (l) Achieving the target of 24 x 7 Power for all.
- (m) Improve customer service delivery.
- (n) Protection of customer rights and interests.
- (o) Reliable supply of power to the customer at affordable prices.
- (p) Increasing per capita electricity consumption of the state to 1000 units atleast.
- (q) Capacity building of employees and promoting innovation within the organisation.
- (r) Encourage efficient usage of electricity & facilitate energy conservation measures including demand side management.
- (s) Supporting the Jharkhand State Electricity Regulatory Commission with policy and other administrative measures.

4. POWER SECTOR TRANSFORMATION

In tune with the National Electricity Policy, Government shall take the following steps:-

- (a) Benchmark performance across similarly placed utilities for making state power utilities more efficient.
- (b) Reduce technical and commercial losses in Transmission and Distribution (T&D)
- (c) Ensure effective metering at all levels of T&D, so that proper energy audit can be under-taken and accountability is fixed.
- (d) Ensure 100% metering of all customers and implementation of smart meters/ prepaid meters.
- (e) Strict legal action to be undertaken against those found indulging in power theft.
- (f) Informers of power theft to be rewarded and introduction of modern technical methods to detect and reduce power thefts.
- (g) Services of judicial officers will also be obtained as per requirement for the special courts constituted as per Section 153 of the Electricity Act, 2003.
- (h) Private investment and participation shall be encouraged in transmission sector under PPP mode.
- (i) Introduction of KYC norms for all customers and gradual transition towards Direct Benefit Transfer (DBT) which is an efficient subsidy delivery mechanism and also enables reduction in cross subsidy from industries.

5. GENERATION

Jharkhand tops the list of coal reserves in India and accounts for nearly 26% of country's coal reserve as on April 2017 and has the potential for becoming the power hub of the country. There exists ample scope for establishing pit head coal-based power projects in the State. In addition, the state has good potential for power generation through non-conventional energy sources especially through solar photovoltaic system and mini/micro Hydel projects. The state's generation potential needs to be exploited optimally with necessary policy support.

As mentioned earlier, there is a strong need to increase the state owned generation capacity and improve the efficiency of the existing capacity to meet the demand supply gap, improve energy security and enable industrial growth in the state. In this regard, following steps shall be taken: -

- (a) System Improvement and Renovation & Modernization (R&M) of old thermal power units owned by the State Government to improve their power generation efficiency. By FY 2023, the PLF to the extent of 70-80% shall be achieved for all the power units.
- (b) Performance improvement and expansion of Patratu Thermal Power Station (PTPS) under Joint Venture between the Government of Jharkhand (GoJ) and NTPC - In first

phase, 2400 MW would be developed through competitive bidding. After meeting the requirement of the State, the surplus power from this plant could be exported. The State Government shall extend all possible support in this regard.

- (c) Expansion of Tenughat Vidyut Nigam Limited (TVNL) to 1,320 MW (2 x 660 MW) is in process and the required additional coal linkage has been finalized.
- (d) Explore the feasibility of new pithead power plant near Maurya Coal Block.
- (e) With a view to increase the share of renewable energy in the state generation mix, generation through renewable energy resources such as Solar Energy, Wind Energy, hydel energy, Biomass, will also be encouraged and all possible assistance shall be provided by the state government.
- (f) To facilitate the development of solar power in the state, a separate policy named Jharkhand State Solar Power Policy 2015 has been notified on 10th August 2015. In order to promote rooftop solar power plants in the state, separate Solar Rooftop Policy is also notified.
- (g) Fresh bidding procedure to be initiated for Tilaiya 4,000 MW UMPP.
- (h) To increase Hydel Power generation, sites for various projects at different locations based on water availability and feasibility shall be identified. Private participation will also be promoted for Hydel Power Projects. Non-Governmental Organizations and local bodies will also be encouraged for mini/micro hydro projects wherever feasible.
- (i) Generation projects through Competitive bidding/ MoU route shall be set up by IPP on its own or jointly with central or state-owned utilities in the State of Jharkhand. The tariff for such projects would be determined by the JSERC.

In order to meet the power deficit in the transient period the state may take up power procurement under short term/medium term/long term as required and as per the guidelines of Government of India.

Policy for New IPPs in Thermal power

To facilitate new investments in generation, Government resolves to undertake the following actions;

- (a) Generation projects of super critical technology to be encouraged in thermal power projects
- (b) These projects shall limited to 35% of the power generated from these projects are tied up to the state, subject to first right of refusal of the state. In case of provision of coal linkage the rate of 18.2% share will be as approved by Jharkhand State Regulatory Commission (JSERC) and rate of remaining 16.8% share will be as on variable cost. In case no provision for coal linkage is provided than the rate of 35% of power will be as per the approved rate of JSERC.
- (c) An annual contribution @6 paise per unit of the energy sent out from the private power generating stations, during the relevant financial year for the energy sold outside the state, is to be deposited in Environment Protection Fund.

- (d) Generation projects shall be set up by Independent Power Producers or as Joint Venture with Government of Jharkhand.
- (e) Investment in promotion of clean coal technologies: Washing of coal with minimum or no water consumption, gasification of coal for power generation through IGCC, Carbon capture and storage (CCS) technologies and other clean coal technologies shall be adopted for such plants.
- (f) All clearances shall be facilitated through CAF (Common Application Form) and Single Window Portal as per the Jharkhand Single Window Clearance Act 2015. Indicative time period for clearances related to the pertinent issues, under the purview of State Government, shall be 45 to 60 days subject to submission of all the necessary documents.
- (g) Coal Linkages Allocation Mechanism shall be granted to Joint Ventures formed by JUVNL or its subsidiaries and IPP's based on new and more transparent allocation policy for power sector, 2017, Shakti (Scheme for Harnessing and Allocating Koyla Transparently in India).
- (h) Government of Jharkhand shall facilitate in:
 - i. Arrangement of Land through Land Bank,
 - ii. Creation/ strengthening of all connecting infrastructure to the project site i.e. roads etc.
 - iii. Right of way,
 - iv. The availability of water for the project.
 - v. Evacuation facilities for the project.
- (i) Government of Jharkhand shall provide fiscal incentives through:
 - i. 100% exemption/ reimbursement of stamp duty and registration fee for land directly purchased from the raiyats/ acquired through consent award (lessee of IADA/ industrial parks will not be eligible for this benefits). This facility will be granted only for the first transaction for a particular plot of land.
 - ii. No tax on sale of electricity shall be levied for sale of electricity outside the State of Jharkhand.

6. TRANSMISSION

- 6.1. In the envisaged power surplus scenario of the state, the transmission network needs to be planned in a manner to facilitate export of power outside the state to optimize the utilization of grid and improve revenue potential.
- 6.2. With the increasing share of renewable energy, the transmission system needs to be carefully developed and the load dispatch function needs to be strengthened. Since renewable sources of energy are intermittent in nature, a lot of changes are required in grid design, technology and its operation.
- 6.3. Based on the plans till FY 2023, it is necessary to increase the transmission

substation capacity from existing 5,705 MVA to 26,655 MVA and line length from 3,648 ckm to 15,132 ckm by FY 2022.

- 6.4. In the event of full capacity generation from Patratu and TVNL, issues of transmission network constraint for evacuation of power will be addressed. Moreover, private power producers are also setting up their power plants & few of them are in advanced stage of completion.
- 6.5. A state of the art State Load Despatch Centre (SLDC) has been established and will be made operational.
- 6.6. Necessary steps are being taken for setting up of transmission sub-stations, new transmission lines and strengthening of all existing transmission sub-stations and lines to cater to these power plants. Mapping of upcoming and existing transmission assets through GIS.
- 6.7. This necessitates a huge investment for which funds would be required by Jharkhand Urja Sancharan Nigam Limited (JUSNL). The Government shall explore various options for funding this investment including loans from banks and multi-lateral agencies, issue of bonds etc.
- 6.8. The Government will also look at possible private participation in the transmission sector. For encouraging Public Private Partnership (PPP) in transmission, few transmission lines may be selected and the same may be developed on PPP models like IPTC (Independent Power Transmission Company), VGF (Viability Gap Funding etc. The State Transmission Utility (STU) shall identify the suitable lines and the models which may be taken up on PPP basis as per the guidelines for PPP by Government of India.
- 6.9. Some of the changes required to be taken by the STU are:
 - (a) Deploying a comprehensive SCADA (Supervisory Control and Data Acquisition) System with sensors for generating real-time high geographic resolution data on grid conditions and analytical engines to provide real time information and insights for grid operation.
 - (b) Implementation of SAMAST (Scheduling, Accounting, Metering, and Settlement Transaction in Electricity) System to provide for robust, scalable and dispute free scheduling, metering, accounting and settlement system.
 - (c) Installation and implementation of SAS (Substation Automation System) System for a comprehensive substation control and monitoring solution.
 - (d) Installing advanced control systems to enable load despatch centre to respond to changes in grid conditions.

- (e) Upgrading the technology through appropriate technical interventions for strengthening of load dispatch function.
- (f) Promoting use of auxiliary and balancing resources like batteries, pump storage, flexible thermal generation, hydroelectricity etc.
- (g) Conducting studies to determine how much balancing resources are required.
- (h) Introduction of modern technologies in upgradation and R&M of existing substations.

7. DISTRIBUTION

- 7.1. Government of Jharkhand is keen that the distribution utilities in the state should operate efficiently and provide reliable and affordable power to consumer. The utilities in the state need to benchmark its operational parameters with similarly placed utilities across India and globally. The operational parameters like AT&C losses, quality & reliability of supply need to improve to address the financial stress in the sector and meet regulators expectations on the cost and efficiency benchmark. The utilities to align itself to the targets imposed from the various MoUs signed with the Central Government.
- 7.2. The Electricity Act, 2003 facilitates introduction of competition in the distribution sector through mechanisms such as open access and multiple licensees through creation of own distribution network. The State Government is of the view that such mechanisms would introduce competitive pressure on various players in the power distribution sector to improve quality of supply and service at competitive prices as well as enhance consumer choice. The State Government is committed for implementation of non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission as per provisions of the Electricity Act, 2003.
- 7.3. Government of Jharkhand would pursue private sector participation in the distribution business to improve efficiency and promote investment for system improvement in distribution business. PPP in distribution business may be explored through DBFOO /franchisee models as per the recommendations of the Task Force on Private participation in power distribution by NITI Aayog. In addition to reduction of the burden on Government finances, involvement of private players in power distribution is expected to improve efficiencies on a sustainable basis and ensure sector viability.
- 7.4. The next expected phase of reforms in power distribution is the separation of

carriage and content as proposed in the draft amendments to the Electricity Act 2003. This would bring competition in the electricity supply business and provide multiple options to the consumer for supply of electricity. The Government of Jharkhand shall take necessary steps as and when required to implement the proposed changes in Electricity Act, 2003.

- 7.5. In the coming years, the power demand of the state will be met by multiple energy sources which is expected to make the power market complex and competitive. The distribution company will also take necessary steps towards quick resolution of consumer grievances, implementation of SCADA, installation of smart metering infrastructure, underground cabling and self-billing system in urban areas.
- 7.6. In the present scenario, the State Govt. is planning to provide specific consumer category wise subsidy to JBVNL instead of providing a lump-sum resource gap funding to JBVNL (where the subsidy amount for certain categories of consumer is paid on a lump sum basis to the utility). Further, in the coming years the State would take necessary steps to move from the present subsidy mechanism to Direct Benefit Transfer based support (where the subsidy amount shall be directly paid to the concerned consumer) to make the subsidy system more transparent and accountable.
- 7.7. As mentioned earlier, JBVNL has participated in the UDAY scheme where a number of operational activities are being taken up in a time bound manner. The State Government shall provide necessary support to the Discom in implementation of UDAY scheme and related activities. Besides, a robust performance monitoring and management system shall be developed to ensure that the performance targets are met.

8. TARIFF REFORMS

- 8.1. The present tariff structure for electricity suffers from a number of issues such as lack of uniform method for determining tariff of various categories; presence of number of categories and sub-categories; non-reflective cost of service of a particular consumer; and lack of promotion of use of efficient and clean energy. As such, there is a requirement to rationalize the tariff structure based on the guidelines provided by Ministry of Power, Government of India, October 2017.
- 8.2. The key steps to be taken are:
 - (a) Voltage wise costs should be determined and tariffs should be aligned with voltage wise costs. Later on, the tariff should ultimately move towards actual category wise costs.

- (b) The tariff should be rationalized over an extended period of 5 years to palliate tariff hikes and for a smooth transition.
- (c) Two-part tariffs with demand and energy charges for recovering fixed and variable costs respectively, should be implemented for all tariff categories
- (d) Unmetered connections should be eliminated immediately as they promote wasteful consumption.
- (e) As Smart meters gets progressively installed across customer categories, Time of Day (ToD) tariffs may be introduced in categories other than HT, as they reflect the time varying costs in tariffs for demand management
- (f) State Discoms should conduct consumption and affordability studies to determine the consumption slab ranges for Domestic and Commercial category consumers
- (g) Full disclosure of costs should be ensured in consumer bills with per unit components such as generation cost, renewable cost, transmission cost, distribution cost, etc.
- (h) Consumers should be incentivized to adopt renewable energy generation and feed excess power into the grid at Discom's avoidable or opportunity costs
- (i) Introduction to net metering system and installation of two-way or net meters at the consumer end.

9. Direct benefit Transfer subsidy mechanism

To ensure that the electricity reaches to rural consumers at affordable prices, targeted subsidy shall be provided by State Government as per requirement. At present, there is a lack of clarity on allocation of revenue subsidy being provided for rural supply and also lack of accountability for effective consumption of subsidy amount. A roadmap for implementation of Direct Benefit Transfer (DBT) will be developed to improve transparency and accountability.

10. RURAL ELECTRIFICATION

- 10.1. The key endeavour to provide electricity access to all areas including villages and hamlets through rural electricity infrastructure and electrification of households as mandated in Section 6 of the Electricity Act, 2003 for which Government of Jharkhand is committed.
- 10.2. Determined efforts shall be made to ensure that the task of rural electrification (includes electrification of villages as well as households in all villages and habitations) for securing electricity access to all citizens of the State of Jharkhand within the stipulated deadlines as agreed by the state with Central government.
- 10.3. Accordingly, the Transmission & Distribution network of the state shall be strengthened. Looking at the problems in electrification due to dense forest coverage, remote villages will be electrified through non-conventional energy resources wherever necessary. The focus would be on supplying grid based

electricity to all households and enhance off-grid or DDG solutions in remote areas by setting up micro/ mini grid solutions, as much as possible.

10.4. The State intends to provide 24 hours reliable electricity supply to the consumers in rural areas. Some of the key measures to be taken for rural electrification and supply of reliable power are:

(a) Ensure adequate network capacity in the system:

- i. Augment the transmission network to 26,655 MVA from the current 5,705 MVA by FY 2022
- ii. Install 1.36 lakh distribution transformers and adding 51,788 ckm distribution lines by FY 2019

(b) Ensure additional 31.25 lakh rural household connections by FY 2019

(c) Complete electrification works of villages and households under schemes such as RGGVY, DDUGJY and Saubhagya.

(d) Complete works of feeder segregation into Rural and Industrial feeders.

(e) Enhance off-grid coverage

- i. Solar PV and solar standalone system electrification through micro-grids to help setting up DDG (Decentralized distributed generation) in remote areas

(f) Enhance performance of utilities

- i. Set up a Project Management Cell to ensure timely execution of distribution network augmentation
- ii. Revamp the existing Performance Management System by aligning targets linked with performance based incentive for employees

11. RENEWABLE ENERGY

11.1. With rising maturity of renewable energy technologies, aided by decline in their costs and upon environment considerations, the Government of Jharkhand has already articulated its decision to boost Renewable Energy capacity.

11.2. Towards this initiative, the state plans to undertake solar power development through grid connected and off grid projects as well as large scale solar park projects akin to similar projects in other similar states.

11.3. In the near short term, the development of renewable energy sources needs to be driven through regulatory compliances and various incentives for promotion of renewable energy. This is because the renewable energy sources coupled with necessary balancing mechanisms, needs to compete with the available conventional sources. In the medium to long term, the price of renewable energy is expected to come at par with conventional sources which would require gradual

withdrawal of various incentives like must run status and waiver of transmission charges. However, such incentives shall be continued in the short term.

11.4. Regarding financial incentives to be provided to renewables, performance linked incentives for encouraging generation, will be promoted.

11.5. The Renewable Energy promotion, following initiatives are to be undertaken:

- (a) To facilitate the development of solar power in the state, a separate policy named Jharkhand State Solar Power Policy 2015 has been notified on 10th August 2015.
- (b) In order to promote rooftop solar power plants in the state, separate Solar Rooftop Policy is also notified.
- (c) Biomass projects to be promoted by utilizing agriculture residues and animal waste. A comprehensive bio-energy policy shall be notified separately for effective utilization of biomass and promotion of biomass based energy.
- (d) Mini, Micro and Small Hydropower projects (up to 25 MW) will be encouraged. New sights for implementation of Mini, Micro and Small Hydropower projects will be explored with minimum submergence.
- (e) Government intends to provide land from the Land Bank for setting up of Solar Power Generation Projects at suitable locations based on availability.
- (f) Energy power projects based on municipal sewage, solid waste and Industrial Waste.

11.6. Thrust will be given to develop these on BOT/BOOT bases through private sector participation. The power will be purchased by JBVNL at the tariff approved by JSERC, in case the developer wants to sell power to JBVNL. The developer shall also have the option to sell to third parties, within or outside the state.

11.7. A power plant generating power from renewable sources, with commercial operation after the effective date of implementation of this policy, shall be deemed to be a new industrial unit and will be entitled to all the incentives under this policy. These plants will be liable to pay only 50% of the electricity duty for a period of 10 years. These plants, if the power is being sold to the State Utility or consumers within the State, shall also provide concessional access to the T&D network to encourage renewable power development.

11.8. Policy for Waste to Energy:

Utilization of Municipal Solid Waste (MSW) for generation of energy is a good measure for utilization and disposal of municipal waste on one side and generation of clean energy on another side. However, in order to make the power from such plants affordable and also to encourage development of such new technology based initiatives, policy interventions are required to promote the development of such plants. The following incentives and support shall be provided for development of waste to energy plants:

- (a) Facilitation in allotment of land to the developers near the landfill sites or any other suitable land after consultation with concerned urban local bodies, municipalities etc.
- (b) The project shall be provided 100% waiver on the stamp duty charges for development of project.
- (c) Municipal Solid waste shall be provided to the developer at incentivised rate.
- (d) The developer for a project shall be selected based on competitive bidding based on lowest tariff quoted per unit of electricity to be generated.
- (e) A nodal agency shall be formed within the urban local body for finalization of project specifications (including land, waste availability, connectivity requirements etc.), tender documents, award of work, issuing detailed guidelines for the project etc.
- (f) The project developer may use power for self-consumption, or sell power to third party or other obligated entities for meeting their RPO. In case the developer wants to sell entire power to the respective utility of the area as the obligated entity, the respective utility shall have to buy power subject to approval of power purchase agreement by JSERC.

11.9. Policy for Biomass/Bagasse based power generation:

Ministry of Power has advocated the need for a Bio Energy Policy that encompasses all forms of bio-mass based energy. However, in order to make the power from such plants affordable and also to encourage development of such new technology based initiatives, policy interventions are required to promote the development of such plants. The following incentives and support shall be provided for development of waste to energy plants:

- (a) Any Industry, Institution, Private Agency, Partnership Firm, Consortia, Panchayat Raj Institutions, Urban Local Bodies, Co-Operative or Registered Society shall be eligible for establishing a biomass based power project.
- (b) In case Government owned land is required for the project, the same shall be made available to the developer on priority. Else if private land is required, then the developer shall take necessary steps to acquire the land.
- (c) The project shall be provided 100% waiver on the stamp duty charges for development of project.
- (d) The developer may use the power themselves as captive plants or sell to a third party under open access. In case, the power is required to be off-taken by the utility, the same may be done at the generic tariff to be notified by JSERC. The developer shall also have the flexibility to bank the power with the utility of the respective area.
- (e) For transmission of electricity from the plant, necessary wheeling charges or transmission charges, shall be applicable as per the relevant orders from JSERC.

- (f) The developer shall be required to bear the cost of network required for evacuation of power from the plant to the nearest substation of the transmission licensee or the distribution licensee as applicable.
- (g) JREDA shall finalize the detailed guidelines on development of biomass based power projects.
- (h) All new projects under this category shall be treated as an industry and shall be provided the incentives applicable to new industries as per the Industrial Policy of the state.
- (i) The generation of electricity shall be exempted from payment of electricity duty.
- (j) Such projects shall be exempted from Stamp Duty applicable for registration of property.

12. ENERGY EFFICIENCY, ENERGY CONSERVATION AND DEMAND SIDE MANAGEMENT

- 12.1. The Government of Jharkhand realizes the importance of energy conservation as a major thrust of the energy policy. There is need to have a system that encourages energy conservation and provides disincentives for inefficient use of energy. Government of Jharkhand would promote measures for economy and efficiency in energy consumption.
- 12.2. Government of Jharkhand would in consultation with the State Regulatory Commission formulate a comprehensive Demand Side Management policy covering the tariff measures.
- (a) State Government shall facilitate replacement of 100% incandescent and CFL bulbs with LED bulbs under central and state schemes by FY 2022-23.
 - (b) As per guidelines of Bureau of Energy Efficiency and MoP, Government of India energy audit will be made compulsory for all major industrial and large commercial establishments
 - (c) Government of Jharkhand would initiate measures through specific goals to improve efficiency of major energy consuming sectors such as:
 - i. Efficiency Improvement program for AC, pump, and fans
 - ii. Revision of AC standards
 - iii. Introduction of Electric Vehicles
 - iv. National buildings program for residential and commercial buildings
 - v. Expansion of the Perform Achieve Trade (PAT) program and adoption of Best Available Technologies (BAT) to reduce the industrial energy consumption.
 - (d) All key appliances, equipments and electric vehicles should be covered by mandatory standard and labelling programme by 2020 by the State Government/ Central Government.

- (e) Initiate award and tax rebate for facility and enterprise to create awareness about energy efficiency.
- (f) A communication campaign would be launched for consumer guidance and education programme for spreading mass awareness about energy conservation measures.
- (g) The State Government will introduce and notify Energy Conservation Building Code (ECBC) Code/ Green Factory Building Code (GFBC) Code to encourage energy efficient buildings for which JREDA shall be nodal agency.
- (h) The Government will endeavour to create and strengthen robust State Nodal Agencies (SNAs), and strive to achieve an active cooperation in implementing energy efficiency programmes. In this regard, necessary support will be provided to State Nodal Agencies for institutional strengthening and capacity building.
- (i) In order that energy efficiency becomes a major instrument of the policy framework, there will be a need to raise the resource allocations for key energy efficiency agencies both at the central (such as BEE, EESL) as well as state (SDAs) level – both in terms of staff as well as program funds
- (j) Institutional capacity building to run these programmes will need to be raised manifold. There are multiple agencies in charge for overseeing/implementing energy efficiency programs especially in the buildings sector, for example, BEE, PWD, SDA and ULB; greater inter-agency coordination is called for. Coordination is needed with agencies across energy sectors, such as PCRA, too.
- (k) Energy efficiency sector is a technical one wherein the role of R&D is very significant. The State Government will encourage Research, Development and Deployment through public funding, both to private and public sectors.
- (l) Looking to the importance of energy and its high generation cost, it is not only essential to stop misuse of energy but also to conserve energy by way of demand side management. Effective measures for creating awareness about energy efficient appliances like agriculture pump sets, energy efficient bulb tube lights etc. shall be taken by State Government.

13. POWER FOR AGRICULTURE

- 13.1. Keeping in view the important role of agriculture in the State's economic development and low irrigation percentage, priority shall be accorded to energization of agriculture pump sets. For this purpose, where power lines exist and the required formalities are completed by the farmers, energization of their agriculture pumps shall be done within a fixed time limit. Where lines do not exist, transmission and distribution infrastructure shall be developed for energizing agriculture pumps.
- 13.2. Free electric connections will be provided to farmers for agriculture purpose including tube wells and procession of agriculture produce including chaff cutter,

thresher, cane crusher and rice hauler operated on farms.

- 13.3. New dedicated feeders for agriculture connections will be erected and existing feeders predominantly serving agriculture load will be segregated for assured and quality supply of power to agriculture consumers.
- 13.4. At places where grid connectivity is not available, other option like providing power supply through renewable sources of energy such as Solar Power Plant/ Biomass co-generation would be implemented.
- 13.5. The Government of India is in the process of formulating 'Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM) scheme which provides for installation of grid-connected solar power plants in the rural areas, installation of standalone off-grid solar water pumps, solarization of existing grid-connected agriculture pumps and also enable agricultural consumers to sell surplus solar power generated to DISCOM and get additional income; and solarization of tube-wells and lift irrigation projects of Government sector.

14. POWER FOR INDUSTRIES

- 14.1. For giving impetus to industrial investment the State Government resolves to make reliable power available to industries at affordable prices so that in the present competitive scenario, new industries get attracted to the State.
 - (a) Assured connections for industries within stipulated time period from time of application.
 - (b) Assured 24x7 power supply & no load shedding for feeders supplying power to more than 75% industrial load.
 - (c) Segregation of feeders with 75% industrial load and creation of dedicated industrial feeders having 24x7 power supply.
 - (d) All industrial consumers to have mandatory smart metering infrastructure.
 - (e) Government to be fully committed towards ease of doing business initiatives.
 - (f) Information Technology, Bio-technology and Tourism related activities (existing or new) which are treated as industrial activity will be entitled to have power at industrial or commercial rate of tariff, whichever is lower, subject to JSERC approval.

15. CAPTIVE POWER PLANT FOR INDUSTRIES

- 15.1. Option of setting up Captive Power Plants (CPP) by customers is based on the availability, reliability and tariff of power prevalent for that category of customers

in the state.

15.2. The State Government's policy for captive power plants is as follows:

- (a) Keeping in view the State Government's vision to make Jharkhand 'Power Hub' of the Nation, State Government shall encourage power generation through captive power plants.
- (b) Captive power plant owners would be allowed to sell power to their affiliates. Any surplus post meeting their own demand, will be given to the Government of Jharkhand as first right of refusal.
- (c) In case of purchase of power from captive plant by JBVNL, the rates of purchase shall be decided procedures laid out by JSERC.
- (d) New or existing industrial units setting up captive power plant shall be exempted from the payment of 100% of electricity duty for a period of five years for self – consumption or captive use (i.e. in respect of power being used by the plant) from the date of its commissioning.
- (e) In order to encourage Captive Power Generation in IT-ITES locations, 40% of the capital expenditure incurred in soundless captive power generating sets will be reimbursed.

16. NEW TECHNOLOGIES

- 16.1. Clean Coal technologies for efficient use of coal such as Coal gasification through IGCC, Coal washing with minimum or no water and Carbon Capture and Storage needs to be encouraged to have minimum environmental impacts.
- 16.2. The State shall also take up necessary measures to implement the guidelines issued by Government of India for modernization of electrical infrastructure and overall energy infrastructure including but not limiting to implementation of smart meters, smart grid, Supervisory Control and Data Acquisition (SCADA), electronic vehicles and so on.
- 16.3. Smart meter/prepaid meter/ Advance Metering infrastructure for all consumers within the state to be implemented in a stipulated time frame and initiatives to do away human interface completely from metering, billing and collection activities. Outage Management System, Distribution Management System and Customer Relationship Management System needs to be introduced, for early resolution of consumer supply related complaints. Adequate data protection needs to be in place to maintain consumer data privacy.
- 16.4. Smart Grid and Mini Grid needs to be rolled-out in the state so as to provide an efficient electricity distribution system, which also supports Renewable Energy. Appropriate technology solutions may be needed if Renewable Energy has to drive

the penetration of electric vehicles and acting as a storage device in future. Suitable application of time-of-the-day tariff mechanisms will be applied to encourage EVs to store-up renewable energy when it is available in excess of demand.

- 16.5. Renewable Energy Management Centres (REMCs) shall be set up in future to address issues arising out of variable renewable energy.

17. CONSUMER SATISFACTION

- 17.1. State Government is focused to improve customer service and enhance customer satisfaction levels. It is keen to work with the regulator on developing a robust Supply Code and Standards of performance.
- 17.2. Customer complaints needs to be redressed on a time bound manner. Utilities should deploy technological solutions to track status of complaints of all category of consumers viz - agriculture, industry, domestic and others.
- 17.3. Facilities like online new supply connection application, online bill payments, self-billing system in urban areas will be implemented for all consumers. 24x7 customer care centres to be made operational by utilities for speedy redressal of consumers grievances.

18. HUMAN RESOURCE DEVELOPMENT

- 18.1. With increase in growth of customers in the network, capacity addition in electricity generation, expansion of transmission & distribution network and technology options available, need for new resources and skills is a necessity. The utilities need to provide regular trainings, skill development seminars, refresher courses and exposure training to the employees.
- 18.2. Specialized training needs to be imparted to adopt to new technology intervention such as Information Technology, SCADA, Smart Grid, AMI ,Renewable energy, Equipment testing and Maintenance practices including general and financial management to increase efficiency and adaptability to changing environment and to ensure safety and security of personnel.
- 18.3. A state of the art Power Training Centre and Laboratory shall be planned to facilitate such training. In order to support this development, power sector companies may fund/ sponsor/ support educational institutions to set up colleges/ Universities/ ITI's/ polytechnics in specialized disciplines. Organizational

structure of the utilities is also to be modernized as per current requirements.

19. SCOPE OF POLICY

- 19.1. The provisions of this policy would be valid and applicable to all the stakeholders of Jharkhand Power Sector. In case of any deviation, the prevailing National Electricity Policy, shall supersede over Jharkhand Power Policy 2018.

20. PERIOD OF VALIDITY

- 20.1. State Government has declared the above 'Jharkhand Power Policy 2018' for the State of Jharkhand vide Resolution dated XXXX.
- 20.2. This Power Policy would be valid for five years w.e.f. date of notification of the policy and can be extended further by Government Order.

Order: It is ordered that a copy of the resolution should be sent for publication in the special edition of the Jharkhand Gazette, Reputed Journals and Newspapers and be circulated among all the Departments/Departmental heads and Subordinate office of the Government.

By the order of the Governor of Jharkhand,

Sd/-

Secretary,
Energy Department
Government of Jharkhand