

ECONOMIC INFRASTRUCTURE

Ground Water Level Scenario

In the present water year 2022-23, (up to November-2022) the State has received 3.6 % excess rainfall over normal rainfall. After utilization of groundwater for agriculture and other needs, a net rise in groundwater level is 2.4m is observed when compared to the pre monsoon water level (May-2022).

During this water year 2022-23, up to November, 2022, 24 districts received Normal Rainfall and 02 district (Sri Satya Sai & Anantapuramu) received excess rainfall. The Percentage of rainfall deviation in 26 Districts are Srikakulam (-2.8), Vizianagaram (12.7), Parvatipuram Manyam (7.7), Alluri Seetarama Raju (8.7), Visakhapatnam (-2.8), Anakapalli (-4.3), Kakinada (15.7), Dr.B.R.Ambetkar Konaseema (7.5), East Godavari (7.1), West Godavari (4.0), Eluru (16.8), Krishna (-1.3), NTR (-5.9), Guntur (12.8), Bapatla (17.5), Palnadu (3.2), Prakasam (-4.8), Sri Potti Sriramulu Nellore (-0.4), Kurnool (9.6), Nandyala (-4.3), Anantapuramu (41.5), Sri Satya Sai (49.9), YSR Kaapa (1.4), Anammayya (13.9), Chittoor (6.6) and Tirupati (-4.6).

Power

Power sector is a critical infrastructure element required for propelling the growth and for the smooth functioning of the state economy. An efficient, resilient and financially robust power sector is essential for growth and poverty reduction. The availability of reliable, quality and affordable power helps in the rapid Agriculture and Industrial development and the overall economy of the state. Power sector is one sector that has recorded significant performance in terms of generation, transmission and distribution. Various Energy Efficiency and Energy Conservation (EE&EC) programs are under implementation in the state which is expected to impact the end consumers and facilitate industrial growth.

The state government, in co-ordination with BEE (Bureau of Energy Efficiency), Gol& EESL (Energy Efficiency Services Limited), Gol, is implementing several EE&EC activities to ensure optimal utilization of available resources and realize the huge scope of energy saving potential in all sectors to the tune of around 15,000MU per annum.

Solar and Wind power will be the focus areas. As a critical

infrastructure pushing the state economy upwards, its impact on the agriculture sector has also showed great promise. Efforts are being put in to bring major turnaround with apt policy reforms, considerably reducing the AT&C and T&D losses and providing quality power.

Challenges

Cost of service

- The cost of service of DISCOMS increased from Rs 24,211 Cr in FY 2014-15 to Rs 46,903 Cr. in FY 2021-22. Power purchase cost is 64% of the cost of service in power sector during the year FY 2021-22.
- The increase in the cost of service is mainly due to increase in power purchase cost compared to business-as-usual case. This amount is not covered by a commensurate increase in income and hence is likely to accumulate as losses to the extent not covered by income/subsidy increase.
- The abnormal doubling of cost of service in eight years is primarily due to loss of
 - a) Singareni coal mines to Telanagana after bifurcation of the state and formation of the new state of Andhra Pradesh which led to increase in power purchase cost primarily due to coal transportation cost.
 - b) High Central Transmission Utility (CTU) charges levied by PGCIL on Andhra Pradesh is approx. Rs 3.49 lakhs/MW/month.

DISCOMS Financial losses

The financial losses of DISCOMS increased from Rs 9026 Cr in FY 2014-15 to Rs 31282 Cr in FY 2021-22. The loans of power sector increased from Rs 13834 Cr by end FY 2014-15 to Rs. 47,052 Cr by FY 2022-23. Of these loans Rs.37,716 Cr are working capital loans in FY 2022-23.

Ballooning Subsidy: The government subsidies towards agriculture & other allied subsidies increased from year to year. This has put enormous pressure on the state finances.

Strengths

Huge VRE potential: AP has about 44 GW of wind and 38 GW of solar potential. The cumulative Renewable Energy

ECONOMIC INFRASTRUCTURE

capacity installed in the State for the FY 2022-23 is 7714.336 MW. Of this, 3755.62MW from Solar Power Projects, 3693.55 from Wind Power Projects, 27.35 MW from Small Hydro Power Projects and 237.810 MW from Bio-Mass, Bagasse, Municipal & Industrial Waste Power Projects.

Huge reverse pumped hydro potential: In the state, there is 4 GW of hydro/reverse-pumped hydro potential. 32 sites are identified by NREDCAP techno commercial feasibility reports for 29 locations were prepared and potential is estimated as 33,240 MW.

- Feasibility Reports have been prepared for 10 locations with an aggregate capacity of 9,300 MW. DPRs are under preparation. Feasibility Reports are under preparation for 8 locations with an aggregate capacity of 7,120 MW.
- Geotechnical investigations are completed at Chitravathi (500 MW) and Gandikota (1000 MW).
- To promote the Pumped Hydro Storage Power Projects in the state, Govt. of AP has notified "AP Pumped Storage Promotion Policy 2022" vide GO. Ms.No. 25 Dated 20.12.2022.

Low AT&C losses: The AT&C losses were reduced from 16.36% in FY2018-19 to 12.02% in FY 2020-21.

- The amount received from the Government towards subsidy is Rs 27,736.53 Crs against the Demand raised for Rs 36,672.33 Crs and towards Department CC Charges Rs 9,145.53 Crs received from the Government against the Demand raised for Rs 14,183.01 Crs.
- The total amount received from the Government towards subsidy and Department CC Charges is Rs 36,882.06 Crs against the Demand raised for Rs 50,855.34 Crs.
- In addition Government has released an amount of Rs 12,000.52 Crs through Government servicing loans.
- The total Government releases are Rs 48,882.58 Crs (Rs 36,882.06 Crs + Rs 12,000.52 Crs).

Way Forward

Reduction of power purchase cost: In order to reduce the cost of service, the biggest component i.e. power purchase cost which constitutes 64% has to be targeted.

The Discoms have been aggressively pursuing the path of purchase of cheapest power since FY 2019-20. All the high cost expiring contracts are not being renewed and efforts are on to request Gol to permit surrender of costly CGS power.

ARR-ACS gap: Govt. has already notified a 3-year trajectory for release of both subsidy and departmental electricity receivables. Govt. is also committed to timely release of subsidy and departmental charges. All the govt. offices are mandated to install pre-paid smart meters. These measures will reduce the ARR-ACS gap.

Precautions taken to reduce the thermal generation cost

- **Improvement of Coal Quality & Materialization :** To avoid the grade slippage of coal & for improving the coal materialization, a team of Engineers headed by Superintending Engineer along with Chemists were deployed to the coal mines at M/s MCL & M/s SCCL for pursuing the sampling & testing
- **Swapping of linkage quantity from MCL to SCCL:** APGENCO has transferred 3.0 MMTPA linkage quantity pertaining to Dr. NTTPS from MCL to SCCL effective from 01.04.2022. This result in saving in railway freight charges and smooth transportation of coal to Dr. NTTPS. Due to the above arrangement with SCCL, APGENCO avoided procurement of additional coal under MOU from SCCL at higher price.
- APGENCO has entered FSA for 100% of normative requirement for RTPP-IV duly revising the ACQ from 2.778 MMTPA to 2.830 MMTPA effective from 01.10.2022.
- To mitigate the coal shortage at power plants and to increase power generation, APGENCO has procured additional coal from MCL at normal price as per FSA during the FY 2022-23 through Road Cum Rail (RCR) mode.
- **Minimization of the penal charges to Railways and the transit loss:** A supervision contract was fixed to curtail the overloading & under loading of the wagons at mines thereby minimising the penal charges to Railways and the transit loss.

ECONOMIC INFRASTRUCTURE

- **Minimization of demurrage charges:** An agency was fixed for expediting the unloading of rakes & supervision of coal rakes to avoid bunching of rakes and thereby minimizing the demurrage charges.
- **Limiting actual Operation & Maintenance (O&M) cost to normative O&M cost:** APGENCO is working in this direction to rationalize the Man-MW ratio and also maximum efforts are being put forth to minimize the O&M contract works (Repairs & Maintenance) to bring the actual O&M cost to normative cost.

New Projects

- The Lower Sileru Hydro-Electric Project (2x115MW), Upper Sileru Pumped Storage Project (9x150MW), Chittrakonda (Balimela) Dam Toe Power House (2x30MW) are at various stages of development like getting clearances, approvals etc.
- SDSTPS 800 MW (Unit#3), Krishnapatnam thermal projects Unit # 3 dedicated to nation by

Hon'ble Chief Minister on 27.10.2022 which is ready for commercial operation.

- Dr.NTTPS800 MW (Unit#8) at Vijayawada thermal project is scheduled to be added in FY 2022-23.
- Polavaram Hydro-Electric 960 MW (12x80MW) Project: First Three Units are to be commissioned by July 2024 and thereafter for every two months one new unit has to be commissioned and all the 12 units by January 2026. Turbine model test, Power house pit excavation and Tunnel excavation works were completed and other related works are under progress. Detailed Engineering, manufacturing and supply of equipment is under progress.

Progress

Generation-Installed Capacity

The installed capacity in the Andhra Pradesh state upto 30/11/2022, stands at 18518.062 MW. The Transmission losses decreased to 2.73%(Provisional) during the year upto Nov,22 from 2.76% in 2021-22. Source wise installed capacities are shown below in Table 7.10

Table 7.10 Source wise installed capacities

Source of Generation		2021-22 (MW)	2022-23 (up to Nov-22) (MW)
Hydel-Genco		1797.60	1797.60
Thermal-Genco		4850.00	4850.00
CGS		1980.51	1978.806
Gas		906.77	906.77
Thermal-IPP		1270.55	1270.55
Renewable sources	Wind*	3767.95	3693.55
	Solar*	3755.626	3755.626
	Other	283.86	265.16
Total		18612.866	18518.062

* Wind and Solar values are reconciled

ECONOMIC INFRASTRUCTURE

Transmission

The Transmission losses decreased to 2.73%(Provisional) during the year upto Nov,22 from 2.76% in 2021-22. During the Year 2022-23 (up to November 2022), the total

Energy met is 47468.37 MU and the per capita consumption of electricity is 1,349 units (Prov) during the period. Parameter wise details of Transmission are given in Table 7.11

Table 7.11 Parameter wise details of Transmission during 2022-23 (upto November 22

Sl. No	Parameters	Unit	2021-22	2022-23 (up to Nov-22)
1	Installed Capacity	MW	18612.866	18518.062
2	Transmission capacity	MVA	60221.50	60745.00
3	Energy Met	MU	68827.12	47648.37
4	EHT Substations	No.s	351	358
5	33KV Substations	No.s	3232	3240
6	Peak Demand Met	MW	12032 28/03/2022	12293 08/04/2022
7	Domestic Services	Lakh	159.22	162.44
8	Agricultural Pump sets energized	Lakh	18.25	18.87
9	Total Consumers served	Lakh	201.17	205.77
10	Per capita consumption	Units	1285	1349 (Prov.)
11	Transmission loss	%	2.76	2.73(Prov.)

Subsidies and Farm sector

Support to Agriculture: Government is particularly committed to the welfare of farmers by supplying free power to all agriculture consumers including all the services released. During the year 2022-23, 62517 agricultural services have been released till 30-11-2022. The total agriculture services released up to 30-11-2022 stands at 18.87 lakh. The Government is providing free power of 9 hours per a day to agricultural consumers in the state and it is now extended to all non-corporate farmers irrespective of the extent of their land holdings, type of lands and number of connections.

The Subsidies provided by Government during 2022-23 (Upto Nov.2022) are:

- Agriculture subsidy : Rs 4384.80 Cr for 9-hour free power supply provided to 18.87 lakh connections.

- Aqua Subsidy : Rs.500.00 Cr subsidy to aqua farmers for consumption of 1891.24MU towards subsidising unit rate @Rs 1.50.
- Amount received from the Government towards Department CC Charges is Rs 7176.01 Crs .
- Domestic subsidy: Free power supplied to domestic consumers of SC colonies/ST colonies (200 units / month) 14,72,571 SC and 4,34,340 ST benefitted.
- Under SC/ST Sub Plan Bore wells were provided to 5896 SCs and 1985 STs.
- Other Sections: Nurseries, weavers, Most Backward Classes (MBC) 100 units, dhobi Ghats 150units, laundries 150units, gold shops 100units, saloons 150 units, rolled gold (concession tariff of Rs.3.75 against Rs.9.20) were provided subsidies under DBT mode.

ECONOMIC INFRASTRUCTURE

Government Schemes

Integrated power Development Scheme

The Government of India has launched the "Integrated Power Development Scheme" (IPDS) in urban areas. The Distribution system strengthening works in urban area under IPDS (Integrated Power Development Scheme) has been sanctioned through M/s PFC Ltd with GoI Grant of 60%, PFC Loan-30%, Own-10%. The works against GIS substations in APEPDCL area with sanctioned DPR cost of Rs 114.93 Crs is under progress. The expenditure incurred so far towards works against GIS substations is Rs 112.87Crs.

AP Rural High Voltage Distribution System Project

The High Voltage Distribution System (HVDS) aims at reduction of losses through replacement of the low voltage network with high voltage network and installation of large number of smaller capacity Distribution Transformers viz 25 KVA/16 KVA DTRs in place of higher capacity Distribution Transformers viz., 100 KVA/63 KVA for supply to agricultural consumers. This system is best suited to meet the scattered low-density loads observed in rural areas in India.

Based on a sample study carried out in Andhra Pradesh, the system loss reduction due to adoption of HVDS system is expected to be around 10%. During the year 2022-23, in Andhra Pradesh State, HVDS has been implemented to 44,055 agricultural services up to 30-11-2022 at a cost of Rs.664.15Crs, bringing the total number of agricultural services converted under HVDS to 12,66,685 services at the cost of Rs.7394.71 crores.)

Externally Aided Projects

Power for All 24x7 World Bank (Funding agency – IBRD & AIIB): A total of 69 works are awarded with an administrative sanctioned cost of Rs.4295.518Crs ((Transco- Rs 992.318, EPDCL- Rs 1000 Crs and SPDCL - Rs 1792.69 Crs and CPDCL – Rs 510.51 Crs). 30 works were completed, 29 works are in progress and tenders are in progress for 10 works. The expenditure incurred as on November 2022 is Rs 2339.515 Crs out of the total contracted project cost of Rs 2994.778 Crs.

Visakhapatnam, Chennai Industrial Corridor projects (Funding agency ADB): 6 packages with an administrative cost of Rs 641.70 Crs was sanctioned, 3 works are completed and 3 works in progress. The expenditure incurred is Rs.409.36Crs.

APDRP (Funding agency World Bank): 4 works and 1 Goods with an amount of Rs 758.40 Crs were sanctioned; all the 4 works are in progress and 1 Goods is completed. The expenditure incurred upto November 2022 is Rs.541.11 Crs out of the total contracted project cost of Rs 754.52 Crs.

Green Energy Corridor (I & II) (Funding agency - KFW/MNRE): The projects covered under GEC I & II were sanctioned with an amount of Rs 1379.75 Crs towards 8 Packages/ works (namely ICB-01 to ICB-08) of which one work completed, 7 works are in progress. Expenditure incurred is Rs.862.41 Crs out of the contracted project cost of Rs 941.14 Crs.

Energy Efficiency Activities

LED Bulb Programme

Unnat Jyothi Affordable LEDs for All (UJALA) Scheme: Around 2.20 Cr LED bulbs have been distributed as against the target of 2.32 cr. The Annual energy savings for these 2.20 crore LED bulbs is around 1621MU and monetary saving of Rs.1131 crores per annum. Two LED bulbs of 7W/9W capacity are distributed at nominal price of Rs.10/- each to the households as a replacement of 60W capacity incandescent lamps (ICLs). The energy savings per LED bulb is 73.7 units per annum according to a survey by 3rd party.

Installation of LED Street lights in all Municipalities: Around 6.2 Lakh ordinary street lights have been replaced with LED Street lights in 106 Urban local bodies and saved around 133 Million units of energy worth Rs.93 crore. Centralized Control & Monitoring System (CCMS) for analyzing the energy savings in municipalities on real-time basis apart from centralized control of all the street lights from a single window was also completed.

LED Street Lighting in Gram panchayats: AP has initiated world's largest Rural LED Programme by installation of 30 lakhs LED street lights in all existing 13,065 Gram Panchayats in 26 districts with the support of EESL, GoI. As on date, around 25.22 Lakh LED lights

ECONOMIC INFRASTRUCTURE

have been installed so far across the State. The estimated energy savings are around 279 MU per annum with a monetary benefit of Rs195 Crores per year for the entire project. It is expected to save 111 units per annum per one LED light

Implementation of Energy Conservation Building Code (ECBC)

Andhra Pradesh Government has issued Andhra Pradesh Building Rules, 2017 which notifies mandatory Energy Conservation Building Code (ECBC) applicable to commercial buildings and other Non-Residential Buildings that have a plot area of more than 1000 Sq.Mts or built up area of 2000 Sq. Mts and certain categories of buildings such as multiplexes, hospitals, hotels, and convention centre's irrespective of their built-up area.

Incorporation of ECBC in Online DPMS

To streamline the ECBC Compliance, Directorate of Town and Country Planning (DTCP), Government of Andhra Pradesh has developed a state-wide ECBC Online Compliance system. DTCP has integrated building energy efficiency compliance into the Development Permission Management System (DPMS) for buildings approval.

Massive Capacity Building

Awareness and Training Programs are conducted extensively in the cities of Vijayawada, Visakhapatnam and Tirupati. A total of 2679 members were trained on ECBC and awarded with ECBC Expert Certification to all the members who qualified in the exam conducted. Till date, 36 Physical Training Programs, 26 webinars are conducted. With all these efforts in the state, nearly 787 buildings are registered for approvals in DPMS for ECBC Compliance at both Design and Occupancy Stages till date, out of which 86 buildings have received the occupancy certificates.

Star Rating System in APECBC

A Star Rating System has been incorporated in the Energy Conservation Building Code in Andhra Pradesh. The maximum star rating allotted to the buildings is AP***** (6 star) with exemplary performance and minimum star rating is AP* (1 star) which is mandatory for all commercial buildings. For buildings rated AP** and

above, preference will be given during design and occupancy state approvals. This system encourages building owners to opt for higher star ratings which ultimately resulted in greater energy savings.

Perform, Achieve and Trade (PAT) Scheme

Perform, Achieve and Trade (PAT) scheme is a flagship programme of Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE). NMEEE is one of the eight national missions under the National Action Plan on Climate Change (NAPCC) launched by the Gol in the year 2008.

PAT scheme is a market-based compliance mechanism to accelerate improvements in energy efficiency in energy intensive industries. Every energy intensive industry and other establishments whose annual energy consumption is equal or greater than the threshold limit specified in MoP, Gol notifications from time to time, shall deemed to be Designated Consumer (DC). There are 13 sectors i.e Aluminium, Cement, Commercial Buildings (Hotels & Airports), Chlor Alkali, DISCOMs, Fertilizer, Iron and Steel, Pulp and Paper, Petroleum Refineries, Petrochemical Units, Railways, Textile and Thermal Power Plant. In AP State, 10 sectors are there. 52 Designated Consumers cover under PAT Cycle I to VII in Andhra Pradesh. The Energy Savings achieved and Escerts Issued / Purchased is given below:

PAT Cycle	Energy Saving Million TOE	Escerts	
		Issued	Purchased
PAT Cycle I	0.274	1,30,253	77,704
PAT Cycle II	0.511	2,48,954	2,01,201
PAT Cycle III	0.033	22,289	762
PAT Cycle IV	0.321	1,47,616	0
PAT Cycle V	0.066	29,567	3858
Total	1.205	5,78,679	2,83,525

ECONOMIC INFRASTRUCTURE

New initiatives by APSECM

- Government of Andhra Pradesh has notified Energy Conservation Building Code, ECBC 2017 vide G.O Ms 180 dated 1.10.2020 for mandatory adoption of the energy conservation building code in the existing building rules of AP.
- APSECM has implemented an IoT based demonstration project in MSMEs in coordination with IIT, Hyderabad in Padma ceramics in East Godavari district. The project was successful and the innovative IoT technology was recognized and showcased at national level.
- APSECM has installed 65 IoT power monitoring devices in MSME units to improve their power factor to enhance equipment life and their productivity.
- The Govt. of AP has attached highest priority for the Power Sector and promotion of efficient use of energy and its conservation which is the least-cost option to meet the increasing energy demand which requires the active involvement of each and every dept.
- The State Govt issued orders for constituting Energy Conservation (EC) cells in all the Govt depts/Autonomous bodies/Societies with nodal and technical officers.
- The role of EC Cells is to introduce cost effective, energy-efficient technologies in the State Govt depts to address escalated energy usage and electricity bills.
- State government is planning to provide 30 lakhs houses under Prime Minister Aavas Yojana (PMAY) with the world class 'Indo-Swiss energy efficient building technology' which helps to enhance thermal comfort (cooling) through adequate natural ventilation and day lighting potential which ensures minimum 20% energy savings and also a safe & healthier environment in buildings.
- Replacement of 39 No's old/obsolete Pump Sets with Energy Efficient Pump Sets in RWS Dept under the component of demonstration Project.(24 to 28 % Energy Savings Endorsed by RWS Department).
- Installation /Retrofitting of Energy Efficient appliances in places of Conventional appliances are taken up in 37 AP Residential Schools and 48 AP Govt. Girls Hostels.
- Organized Workshops and awareness Programs in the State to 3786 Nos. farmers/Pump Technicians involving DISCOM and Agriculture Department officials with the Support of KVKs. Organized Training and Capacity Building Program on Municipal Demand Side Management (MuDSM) for 595 No's of Pump Operators, Ward Amenity secretaries and Officials of 16 Nos Municipal Corporations.
- Replaced conventional appliances with energy efficient appliances in 541 Court buildings under Judiciary department. (21 % Savings Estimated).

Awards

In 15th ENERTIA Awards Summit:

- Andhra Pradesh state won ENERTIA Award as the "Best State for Energy Infrastructure and Development".
- APTRANSCO won ENERTIA award as the "Best Transmission Utility"
- Andhra Pradesh State Energy Conservation Mission, State designated Agency of Andhra Pradesh has bagged "1st prize in the National Energy Conservation Awards in the State Designated Agency (SDA) Sector" for its exemplary performance in promoting and implementing energy efficiency and conservation measures.
- The award was presented based on the State Energy Efficiency Index (SEEI) - 2022 score. The state received 77.5 points in SEEI-2022. The state improved by 53% compared to its SEEI 2020 score of 50.5.
- The major accomplishments of the state to achieve a higher SEEI score are
- Implementation measures of as per notification of Energy Conservation Building Code (ECBC) and amendments to building byelaws in 123 Urban Local Bodies (ULBs) as well as the Eco-Niwas Samhitha (ENS) trainings in the building sector.

ECONOMIC INFRASTRUCTURE

- Energy audits in Micro small and medium enterprises (MSME) clusters
- Measures taken for introduction of 296 E-vehicles in Govt. Depts. and another 100 E-vehicles in APSRTC for Government use etc.

Andhra Pradesh Green Energy Corporation Limited

- a) The state is incurring more than Rs. 10,000 Crores to meet the Agriculture subsidy, Lift Irrigation power charges and aquaculture subsidy every year. Further, this subsidy has been continuously increasing over years on account of increasing cost of power supply as well as increase in number of pump sets. In order to ensure that this subsidy is provided on a sustainable basis, government recognized that there is a need for evolving an alternative mechanism to provide quality power and nine-hour day-time free

supply to farmers. Solar energy has the potential to fulfill these requirements due to its lower cost compared to the current average procurement cost of Discoms and also due to the fact that all solar power is generated during daytime.

- b) In order to provide free power to agriculture in the long run, the State government has established Andhra Pradesh Green Energy Corporation Ltd., to install 8000 MW to 10000 MW of dedicated solar power. Evacuation scheme was prepared for a capacity of 6100 MW solar power and administrative approval was issued to all the evacuation works. Tendering is in progress.

APGENCO

The total Installed Capacity of APGENCO & APPDCL is 7189.03 MW. The source wise details of installed capacities are shown in Table 7.12.

Table.7.12. Installed Capacity of APGENCO & APPDCL as on 31-12-2022

Sl.No.	Item	Unit	AP as on 01.04.2022	As on 31.12.2022
1	Thermal	MW	3410.00	3410.00
2	Hydel	MW	1773.60	1773.60
3	Wind	MW	0.00	0.00
4	Solar	MW	405.43	405.43
5	AP Power Development Corp.Ltd.	MW	1600.00	1600.00
APGENCO & APPDCL Total		MW	7189.03	7189.03

The department has planned to implement an Important scheme namely 'Commissioning of Dr.NTTPS Stg-V (1x800MW) and SDSTPS Stg-II (1x800MW). Commercial Operation of these 800 MW unit is planned by 30.04.2023. APGENCO is making all-out efforts to achieve the generation revised targets set for the year 2022-23

Dr. NTTPS Stage-V (1x800 MW), Unit# 8

APGENCO has issued Letter of Intent (LOI) to M/s BHEL for Design, Engineering, Manufacture, to Supply including Mandatory Spares, Erection, Testing & Commissioning

for coal fired 1x800MW Super-Critical Unit for a total value of Rs 2307.00 Crores on 28.10.2015.

LOI dated 06.07.2016 was issued to M/s BGR Energy Systems Ltd., Chennai for execution of Balance of Plant including Civil works on EPC basis in respect of Dr.NTTPS Stage-V (1X800MW) expansion unit with completion period of 36 months from the date of LOI.

As per the schedule, completion date for BTG &BoP contracts are 14.06.2019 & 05.07.2019 respectively. Synchronization of the unit was actually planned in June

ECONOMIC INFRASTRUCTURE

2020 and due to pandemic COVID-19, all the works have been stalled since third week of March 2020.

APGENCO in its Board in its meeting held on 29.12.2021 has issued time extension up to 31.12.2022 to BOP contract and upto 28.02.2023 for BTG contract. Boiler light up was completed. The unit synchronized with oil firing on 07.12.2021 and achieved maximum load of 119 MW. COD activities of the project will start in February 2023 and all efforts are being put to complete the COD with priority path by April 2023. M/s. MCL issued a LoA for the supply of 3.548 Million tonnes per annum of coal to the unit on 12.11.2018.

Milestones Achieved

- 400 kV extension Switchyard charged on 28.02.2019
- Drainable Hydro test completed on 05.03.2019
- Generator stator lifting completed on 29.04.2019.
- Station Transformer charged on 12.06.2019.
- UAT & SAT, 11KV & 3.3KV Boards charged.
- Non drainable Hydraulic Test completed on 24.10.2019.
- Boiler light up was completed on 28.12.2019
- Unit Synchronized with oil firing on 07.12.2021 @00:09 Hrs

Status of BTG Works: The BTG Contractor, M/s BHEL supplied 99% of material. 95% of BTG works, 99% ESP erection works and 98% of TG Package erection completed. TDBFP A & B commissioning under progress. Erection of RHS mills & feeders is to be taken up.

Status of BOP Works: The BOP Contractor M/s BGRESL, Chennai completed systems required for oil synchronization. RHS mill & bunker structure erection, CHP Equipment erection in junction towers and conveyors are in progress,

CHP: LHS Trippers erection completed. Equipment erection in junction towers and conveyors and RHS bunker building erection works are in progress.

AHP: Buffer Hopper structural erection and BAH, internal piping and erection of Ash disposal pipe lines are in progress.

Flue Gas Desulphurization Plant (FGD) Tender for

Engineering, procurement and construction of Flue Gas Desulphurization Plant at Dr. NTPS, Stage V (1x800MW) is floated on 22.01.2021. Price bid opened on 26.11.2021. M/s. BHEL is the only bidder participated. Tender was cancelled due to higher price quoted by M/s BHEL. Retendering is under process.

SDSTPS Stage-II (1x800 MW), Unit# 3

LOI for the BTG package of 1X800MW SDSTPS- Stage-II was issued to M/s BHEL on 02.11.2015 for an amount of Rs.2307 Crores. M/s. Tata Projects Limited has emerged as L1 bidder. LoI issued to M/s TPL for execution of BOP package for an amount of Rs.2660 Crores on 06-07-2016. The Fuel Supply Agreement was entered with M/s. MCL for supply 3.548 MMT of raw coal per annum. The unit is scheduled for COD by Jan-2023.

The Unit was first synchronized on 10.11.2021 with coal firing. The balance works for trial operation & COD of the Unit are under progress.

Projects under Development

Additional two units (2x115MW) at Lower Sileru Power House

Consent issued by APPCC dtd 17-12-2019. In-principle approvals accorded by Govt. of AP The Terms of Reference (TOR) issued by MOEF & CC on 14-01-2021. Tender floated in APGENCO e-procurement platform on 02-09-2021. E-Reverse auction was conducted on 15-12-2021 and M/s Shirdi Sai Electrical Ltd – M/s. PES Engineers Pvt Ltd Consortium has quoted lowest bid. LOI issued to M/s SSEL-PES Consortium on 13.04.2022. The Term Loan was sanctioned by M/s REC Ltd on 04-08-2022. Contract Agreement concluded with M/s SSEL-PES Consortium on 28-11-2022. Obtaining Environmental clearance from MOEF&CC is in process. Obtaining of consent from APERC is in process.

Upper Sileru Pumped Storage Project (9x150MW)

Terms of reference (TOR) was issued by MOEF on 03-06-2019. APPCC on 02-10-2020 has communicated their consent for establishment of pumped storage project at Upper sileru on cost plus approach. In-principle approval accorded by Govt. of AP on 19-10-2021. All the draft DPR technical chapters such as General Layout, Hydrology,

Power Potential studies, Central Soil & Material Research, Foundation Engineering & Seismic Aspects, Standing Technical Committee, Inter State matters and International matters except chapter on Geological aspects were conditionally approved by Various Directories of CWC/CEA/CS & MRS etc.,

Administrative sanction from Govt. of AP received on 20-12-2022 for an estimated project cost of Rs. 11,881.50Cr. (including GST, IDC and escalation on Civil works). Final DPR using approved chapters was submitted to CEA on 23-12-2022. Obtaining of Techno economic clearance (TEC) from CEA is in process and Stage-1 clearance for forest land (215 HA) is in process. Obtaining Environmental clearance from MOEF&CC is in process. Finalization of agency for execution of project is expected to be completed by June'2023. Project works are expected to be completed by June 2028 (60 months).

ChitraKonda (Balimela) Dam HEP (2X30MW)

New Agreement was entered with Govt. of Odisha/OHPC on 23.10.2020 for R&M of Machkund HE Project covering implementation of Chittrakonda (Balimela) Dam Toe Power House. The Govt. of Odisha has proposed to have energy Secretaries of both the states i.e., Odisha and Andhra Pradesh as co-chairpersons of the Project Administration Committee (PAC) as Agenda Item in ensuing Project Administration committee (PAC) meeting. The PAC meeting is to be convened for taking further necessary action in finalizing the modalities on the proposal of Construction of Chittrakonda (Balimela) Dam Toe Power house jointly by APGENCO and OHPC duly sharing the costs and benefits on 50:50 basis in the similar lines of existing Machkund HE Project. It was agreed to utilize the equipment procured by erstwhile APSEB earlier.

Polavaram Hydro Electric Project (12X80MW)

Government of Andhra Pradesh proposed to construct a Dam across the river Godavari near Ramayyapeta village of West Godavari district about 34KM from Rajahmundry. The Polavaram Hydro Electric Project, as a part of Polavaram Multi Purpose Project is proposed across river Godavari at Anguluru village in Devipatnam Mandal of East Godavari district to utilize the monsoon flows and flows of Godavari Delta for Hydel Power generation. With the utilization of the surplus flows, power generation is

possible to an extent of 960MW (12x80MW)

Government of Andhra Pradesh, has given concurrence to APGENCO for development of Polavaram Hydro Electric Project. Central Electricity Authority (CEA), MOP, Government of India, New Delhi has accorded Techno Economic Concurrence on 21.02.2012 to the Indira Sagar Polavaram Hydro Electric Project (Now Polavaram Hydro Electric Project) at an estimated cost of Rs.3013.68 Cr at 2010-11 Price level, and a Levelized tariff of Rs.3.17/Kwh considering mega status to Project.

Ministry of Defence, Govt. of India has issued No Objection for setting up of 960MW Hydel power project at Polavaram, East Godavari District, AP by M/s APGENCO vide their letter Dated.09.10.2014. GoAP accorded in principle approval for establishment of Indira Sagar Polavaram Hydro Electric Project on 13.04.2016. Tenders were called for PHEP with an IBM of 3157.93 Crores and M/s. Navayuga Engineering Company Limited (M/s. NECL) stood L1 with 3236.46 Crores. After conducting negotiations M/s. NECL has given 0.5% discount to the quoted price and the final price became 3220.28 Crores.

Govt. of A.P accorded permission to APGENCO for execution of Polavaram Hydro Electric Project (12x80MW) on 06-12-2017. LOI was issued to M/s. NECL for Rs. 322.028 Crores on 06-12-2017 and contract Agreement was concluded on 20-12-2017. APGENCO has issued Administrative approval for Rs. 5338.95 Crores on 30-07-2018 (Price of Civil component with escalation and CSR is 1939.97 Crores and 2597.96 Crores for E&M component. IDC is additional at 801.02 Crores) based on contracted value against the earlier administrative approval of Rs.4956.39 Crores based on 2016-17 price level.

CEA has approved the cost of Polavaram Project for Rs.4124.64 Crores without IDC and escalation of prices. (E&M cost of Rs. 2613.36 Crores against the proposal of Rs.2619.66 Crores by APGENCO with 2017-18 Price Level on 06-02-2019. Civil cost of the Polavaram Project with Rs. 1511.28 Crores against the proposal of Rs.1700.58 Crores by APGENCO with March-2018 Price Level on 08-02-2019.)

Salient features of the Project

REC has sanctioned the loan / financial assistance to

ECONOMIC INFRASTRUCTURE

APGENCO for an amount of Rs.3965.11 Cr on 28.02.2017. Govt. of AP formed an Expert committee on 14-06-2019 and APGENCO referred the project to the committee based on the instructions of Energy Department, Govt. of A.P. and terminated the contract with M/s.NECL based on the recommendations of the expert committee, approval of APGENCO Board and Govt. of AP on 14-08-2019.

With regard to the termination of PHEP contract:

M/s.NECL has filed Writ Petition No.11664/2019 on 19.08.2019 seeking a stay of entrusting the work to any third party with regard to PHEP which was undertaken by the NECL under contract dt.20.12.2017. In this connection, APGENCO floated a fresh tender through Water Resources Department along with their works jointly in line with the recommendations of the expert committee with an IBM of Rs.3216.11 Crores pertaining to PHEP on 17-08-2019. Technical bid and price bid of the tenders was opened on 21-09-2019 and 23-09-2019 respectively.

A fresh LOI was issued to M/s. Megha Engineering and Infrastructure Limited being the sole bidder for Rs. 2810.88 Crores as per the acceptance of the tender by the Commissioner of Tenders, Govt. of A.P and APGENCO board approval, as the stay was vacated by Hon'ble High court in w.p.no.11664 on 31-10-2019. However, Hon'ble High court again imposed stay from 12-11-2019.

Based on the request of M/s.MEIL, Provisional agreement was also made on 01-11-2019. As per the orders issued by Hon'ble High Court of AP on 14-12-2020, a letter was addressed to M/s MEIL to commence the PHEP work immediately and to conclude agreement. Accordingly, Final Contract was concluded with new contractor M/s MEIL for execution of PHEP Works on 30.03.2021. Zero date of the project is 30.03.2021.

As per new contract with M/s MEIL, First Three Units are to be commissioned by July 2024 and thereafter for every two months one new unit has to be commissioned and all the 12 units by January 2026. Turbine model test was completed on 14th July 21 at BHEL, Bhopal. Power house pit excavation is completed and Power house civil works are under progress. The Tunnel excavation was completed. The fabrication of steel liners for pressure

tunnels, erection of steel liners for pressure tunnels Unit 1 to 12, the Power house area first stage raft concreting works are under progress. Above ground Earth mat laying work for unit 1 to 12 in power house area is under progress. Detailed Engineering, manufacturing and supply of equipment is under progress.

The Salient Features of A.P. Transco / A.P.Genco / Discoms are shown in Annexure 7.3

RENEWABLE ENERGY

The Government of Andhra Pradesh has given top priority for promotion of Renewable Energy Power Projects in particular solar power projects in line with the Policies of the Ministry of New & Renewable Energy, Government of India.

The cumulative Renewable Energy capacity installed in the State is 8826.363 MW. of this, 4132.385 MW from Solar Power Projects, 4083.57 from Wind Power Projects, 105.598 MW from Small Hydro Power Projects and 504.81 MW from Bio-Mass, Bagasee, Municipal & Industrial Waste Power Projects.



The Solar Pump sets programme was taken up in the State with the financial assistance of MNRE, GoI and 32,000 Solar pump sets have been installed for Irrigation purpose. Grid connected solar roof top systems with capacity of 120 MW have been installed in the State.

ROADS and BUILDINGS

Construction, development and maintenance of National Highways, State Highways, Major District Roads and Buildings are dealt by the Department.

Four categories of roads and buildings namely, National Highways, State Highways, Major District Roads and Buildings are dealt by the Department.