POWER PERSPECTIVES

State overview: Telangana

Part of Power Perspectives

An Initiative by Prayas (Energy Group), Pune

Author: Sreekumar Nhalur

April, 2020

Prayas (Energy Group)

About Prayas

Prayas (Initiatives in Health, Energy, Learning and Parenthood) is a non-governmental, non-profit organisation based in Pune, India. Members of Prayas are professionals working to protect and promote public interest in general, and interests of the disadvantaged sections of society, in particular. Prayas (Energy Group) works on theoretical, conceptual, regulatory and policy issues in the energy and electricity sectors. Our activities cover research and engagement in policy and regulatory areas, as well as training, awareness, and support to civil society organisations. Prayas (Energy Group) has contributed in the development of energy sector policy as part of several official committees constituted by ministries, the erstwhile Planning Commission and NITI Aayog. Prayas is registered as SIRO (Scientific and Industrial Research Organization) with the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India.

Prayas (Energy Group)
Unit III A & B, Devgiri,
Kothrud Industrial Area,
Joshi Railway Museum Lane, Kothrud,
Pune 411 038
Maharashtra
Phone: 020 – 2542 0720
Website: http://www.prayaspune.org/peg

About Power Perspectives

Power Perspectives is an initiative by Prayas (Energy Group) to provide brief commentaries and analyses on important developments in the Indian power sector in various states and at the national level. The portal hosts articles on a wide-ranging set of issues to inform policy makers, regulators, researchers, journalists and civil society organisations about sector developments from a public interest perspective. The initiative focuses on critical developments that are not adequately reported.

As part of the initiative, developments in focus states are tracked. In addition to articles, each focus state has a "State Overview" document which provides a brief background of the state and infographics with key statistics. The portal can be accessed here: https://prayaspune.org/peg/resources/power-perspective-portal

Comments and suggestions are welcome at powerperspectives@prayaspune.org.

Acknowledgements

We would like to thank the various experts who have shared their insights and feedback on the analysis in this state overview. Special thanks to Shri. Thimma Reddy (Convenor, People's Monitoring Group on Electricity Regulation, Hyderabad) for valuable insights and patient review of drafts. We are also grateful to colleagues at Prayas, particularly Ann Josey, Ashwin Gambhir and Shantanu Dixit for their keen observations, advice and assistance. Any shortcomings or weaknesses in the report are our own.

Suggested citation: Prayas (Energy Group), (2020), Power Perspectives: Telangana Overview

Copyright: Any part of this report can be reproduced for non-commercial use without prior permission, provided that Prayas is clearly acknowledged, and a copy of the published document is sent to Prayas

Contents

1. Introduction 1
2. Power procurement planning and capacity addition 3
3. Demand and sources of revenue 10
4. Distribution business and quality of supply and service 14
5. DISCOM finances 16
6. SERC functioning and effectiveness of accountability 18

List of tables

Table 1: Organisation structure of electricity sector in Telangana 2
Table 2: Energy and peak requirement for 2019, from different sources 4
Table 3: Power purchase pattern and per-unit cost of power from different sources 2017 and 2019. 8
Table 4: Brief details of power purchase contracts with power plants 2019 9
Table 5: Proposed coal capacity addition 10
Table 6: Proportion of generation capacity from different sources 2024 10
Table 7: Share of consumption (% of total) by different consumer categories in TS DISCOMs 11
Table 8: Average Billing Rate trends 13
Table 9: State subsidy commitment trend 14
Table 10: Increasing fatal electricity accidents 15
Table 11: Rising financial losses of the DISCOMs 16
Table 12: Increasing revenue gap 18
Table 13: Overview of key TSERC processes from 2014 to 2020 19

List of figures

Figure 1: Ambitious energy projections 5
Figure 2: Change in ownership mix in generation in percentage terms 6
Figure 3: Change in fuel-mix in generation – 2015-2017 7
Figure 4: Different numbers for agriculture demand in 2016 and 2017 13
Figure 5: Trends of APPC, ACOS and ABR 17

State Overview: Telangana

1. Introduction

Telangana State was formed after a popular movement involving all sections of society – students, employees, workers, farmers, civil society organisations and most political parties. Unfair treatment to Telangana in electricity and water sectors was an important issue in the movement, in which electricity employee unions and associations played a major role. There were high expectations about the formation of a participative pro-people government in Telangana.

Telangana state was carved out of Andhra Pradesh as the 29th State, as per the Andhra Pradesh Reorganisation Act 2014[1] (March 2014). Telangana Rashtra Samiti (TRS), the party in the forefront of the Telangana movement, won the assembly elections in 2014 with 63 seats in the 119 strong assembly. After defections from other parties, the strength of TRS went up to 90, resulting in a weak opposition. The new government took office on June 2, 2014 and the power utilities in the state were divided between the new Telangana (TS) and residual Andhra Pradesh (AP) states.

This base note covers five years of Telangana State (TS), electricity distribution sector from 2014-15 (written as 2015) till 2018-19 (2019). This is largely based on data collected from tariff orders, Annual Revenue Requirement (ARR) submissions, Distribution Company (DISCOM) annual reports, Telangana State Electricity Regulatory Commission (TSERC) annual reports, tariff and true-up orders, Power For All (PFA) and DISCOM financial bail-out programme (UDAY) agreements, Comptroller and Auditor General (CAG) reports and Central Electricity Authority (CEA) reports. Most of the insights are provided for the period 2015-2017, for which actual data is available. Tariff order data is used for 2018 and 2019, and data in the Multi-year tariff proposals filed in late 2019 is used for projections up to 2024.

Table 1 gives the organisational structure of TS electricity sector. The new government appointed senior utility staff as CMDs of Transmission Company (TRANSCO), Generation Company (GENCO) and DISCOMs in 2014. Except for one DISCOM (Northern Power Distribution Company Limited – NPDCL), where the CMD retired in 2016 and another senior utility staff was appointed), all these continue in their position till March 2020, after getting extensions.[2] TSERC was set up in end 2014, with full strength.

Soon after the state formation, government set up a Task force on Energy in 2014, which prepared a 5-year road map for the sector. This and the 'Power For All' agreement with the Government of India, have formed the basis for power sector planning in the state. Power shortages were high in the initial years, with 14.3% peak shortage and 6.2% energy shortage in 2014-15.[3] There were hectic measures to overcome this, like high proportion of costly short term power purchase in the initial years – 10,273 MU in 2015 (22% of the total) and 13,029 MU in 2016 (26% of the total), speeding up ongoing state generation projects, requesting more power from Central Government Stations, competitive bidding for medium term power and signing an MoU with Chhattisgarh state. There were also hectic plans to add new TSGENCO generation capacity.

[1] Available at: http://www.egazette.nic.in/WriteReadData/2014/158325.pdf
[2] CMD of TSGENCO and TSTRANSCO are the same person, who has finance background. Others are engineers.
[3] Based on actuals for 2014-15, reported in CEA's LGBR report 2015-16, available at: http://cea.nic.in/reports/annual/lgbr/lgbr-2015.pdf

Shortages reduced soon with 0.6% energy and 0.1% peak shortage in 2015-16.[4] Subsequent years have been reporting marginal surplus.

Table 1: Organisation structure of electricity sector in Telangana

Area	Organisations	Remarks
Generation	TS Generation Company Limited	As per the AP state re-organisation Act, power generation was apportioned between TS and AP DISCOMs, based on historical consumption ratio. This applied to all thermal, hydel stations located in both states and share of power from central government stations. For non- conventional energy stations, power was to be available to the DISCOM where the stations are physically located. Following disputes on payment between TS and AP states, from 11/6/2017, power from thermal, hydel and renewable stations are allocated as per location, whereas central power is apportioned.
	TS Renewable Energy Development Corporation	Telangana State Renewable Energy Development Corporation (TSREDCO) formed in 2015, is the state nodal agency for renewable energy and energy conservation.
Transmission	TS Transmission Corporation Limited	All the substations and transmission lines physically located in TS are within TSTRANSCO purview
Distribution	TS Northern Power Distribution Company Limited (TSNPDCL), TS Southern Power Distribution Company Limited (TSSPDCL)	There were four DISCOMs in the united AP state – APEPDCL, APSPDCL, APCPDCL and APNPDCL. After bifurcation, first two companies stayed with residual AP and last two with TS. They were renamed as TSSPDCL and TSNPDCL. Two districts – Kurnool and Anantapur – which formed part of the erstwhile APCPDCL. were transferred to APSPDCL. There is one Rural Electric Supply Cooperative (Sircilla RESCO) in TSNPDCL license area.
Regulation	TS Electricity Regulatory Commission	APERC of the joint state was to act as a joint Commission for both states for a period not exceeding six months. TSERC was set up in November 2014.
	Electrical Inspectorate	Office of the Chief Electricity Inspector to the Government (CEIG) oversees electricity safety.
Power purchase	TS Power Coordination Committee (TSPCC)	As in the united AP state, power purchase is managed by TSPCC on behalf of the DISCOMs. This is an internal arrangement with two sub-committees – the Power Trading Committee and the Balancing and Settlement Committee. TSPCC, set up through a Government Order. It is headed by the CMD of TRANSCO with TRANSCO Directors (Finance and Commercial) and CMDs of DISCOMs as members.[5] Chief Engineer – Commercial (TSTRANSCO) manages the routine operations, including inviting tenders, though the PPAs are signed by the DISCOM CMDs.

Source: Compiled by Prayas (Energy Group) from various sources

[4] Based on actuals for 2015-16, available at CEA's LGBR report for 2016-17, available at: http://cea.nic.in/reports/annual/lgbr/lgbr-2016.pdf

[5] See GO MS21, dated 12/5/2014, available at: https://goir.ap.gov.in/

As for rural electrification, all villages have been electrified in the joint state of AP from mid 1980s. Telangana reported rural household electrification of 82.4% in 2014, as per the Power For All document.[6] All households were provided connections through SAUBHAGYA and DDUGJY programs of the government of India by end 2018, as per the reports on their portals.[7]

Agriculture power supply has been free from 2014 in the joint state of AP, with some conditions[8]. Telangana government reduced the number of conditions (only corporate farmers are not eligible for free power), enhanced the hours of supply from 7 hours (multiple spells) to 9 hours (single spell) in 2017, and to 24 hours from January 2018. It also liberalised the annual limits on the number of free agriculture connections. Government of Telangana also planned massive lift irrigation projects (connected to High Tension distribution network), which require high electricity consumption.

Ujjwal DISCOM Assurance Yojana (UDAY) agreement was signed by Telangana in January 2017.[9] There were many conditions on debt take over, metering, loss reduction and tariff raise, of which only some were complied with.

In Telangana state, share LT demand is high at 63-64% compared to that of HT. LT-Agriculture, LT - Domestic and HT – Commercial & Industrial have major shares in the demand, with LT-Agriculture accounting for nearly one-third of the total. Demand profiles of the two DISCOMs are quite different. In 2019, industry and commercial (LT and HT) demand together is around 16% in NPDCL, whereas it is around 42% in SPDCL. Thus, cross subsidy is high in SPDCL, whereas state subsidy is around 40% of the ARR in NPDCL.

The Telangana power sector in 2019 presents some achievements and many challenges. There is no shortage of power and quality of supply has improved over the years, especially in urban areas. There has been a major increase in renewable power, especially centralised solar. Providing 24 x 7 free supply to agriculture is projected as a major achievement, though there are challenges of ground water shortage and quality of supply. Tariff revisions and true-ups have been infrequent and there has been no transparent efforts to prepare long term load forecast and resource plans. The result has been mounting financial losses of the DISCOMs. This challenge is tough to overcome, considering the poor financial situation of the State, with high debts and many welfare and massive infrastructure programs.

The next sections provide details of the Telangana distribution sector, in the areas of power procurement, demand profile, quality of supply, financial health and regulatory oversight.

2. Power procurement planning and capacity addition

Power purchase in the state is managed by the Telangana State Power Coordination Committee (TSPCC – see Table 1) on behalf of the DISCOMs. TSTRANSCO CMD is the chair of TSPCC and power purchase is thus centrally managed by the state government.

[6] Telangana Power for All document: http://powerforall.co.in/AccessFolder/PFA_Document/1_Telangana_PFA.pdf
[7] Saubhagya and DDUGJY status reports for November 2018, accessed from https://saubhagya.gov.in/ and http://www.ddugjy.gov.in/
[8] Free power was provided to non- corporate farmer/IT asessee farmers, having less than 3 connections, owning less than 2.5 acres of wetland and implementing DSM measures.
[9] Agreement is available at https://www.uday.gov.in/MOU/MoU-Telangana.pdf

Aggressive contracting of power and capacity addition was planned in TS, soon after the state formation, as laid out in the report of the task force on energy in 2014[10] and reiterated in the PFA agreement in 2015 (reference in foot note 6), as well as the solar policy in 2015[11] and the wind power policy in 2016.[12] Demand growth and capacity addition projections in the task force report and PFA were extremely ambitions.

2.1 Ambitious plans

Capacity addition has been in reaction to the power shortages at the time of state formation and very ambitious plans of energy requirement growth were presented in the Task force report (2014) and Power For All agreement (PFA, 2015). But the 19th Electric Power Survey of the Central Electricity Authority (CEA, 2017) and the actual DISCOM power purchase indicate a much slower energy requirement growth even though there was no shortage.[13] Table 2 gives the 2019 data for energy requirement and peak demand from different sources.

Table 2: Energy and peak requirement for 2019, from different sources

Source	Energy Requirement MU	Peak Demand MW
Task Force 2014	84,496	10,396
PFA 2015	1,05,974	19,053
CEA 19th EPS	67,680	11,262
Actual	65,678	10,818

Source: Compiled by Prayas (Energy Group); projected data from Energy Task Force report, Power For All (PFA) agreement, CEA 19th EPS; actual energy data is approved in the Tariff order 2019; actual peak demand from the 4th quarter report of SRLDC for 2018-19.

It can be seen that the projected numbers are way above the actual figures – energy 1.6 times and peak demand 1.8 times. Capacity addition followed such ambitious demand projections. There were no separate regulatory processes on long term load forecast and resource planning – with utilities submitting plans, TSERC inviting comments, holding public hearings and issuing orders. As part of the Multi Year Tariff (MYT) Process, medium term load forecast and resource plan till 2019 (end of the 3rd control period) were part of the ARR submissions in 2017 and 2018. DISCOMs sought and obtained exemption for submitting MYT proposals for supply business in the 3rd (2015-19) control period. Thus, there has been no revision of these ambitious projections based on recent demand trends when decisions to add major capacity was being made.

[10] This report was prepared in about two months in November 2014, with support from KPMG, by a task force on energy, consisting of senior bureaucrats from energy, industry, agriculture departments and Singareni collieries. The report is available at:
https://www.telangana.gov.in/Style%20Library/GoT/Content/pdf/web/viewer.html?/PDFDocuments/Report%20on%20Energy.pdf

[11] The 2015 solar policy is available at:
https://www.tssouthernpower.com/ShowProperty/CP_CM_REPO/Pages/Hotlinks/TelanganaSolarPowerPolicy/TelanganaSolarPowerPolicy . There are reports in 2019, that government will announce a new policy.

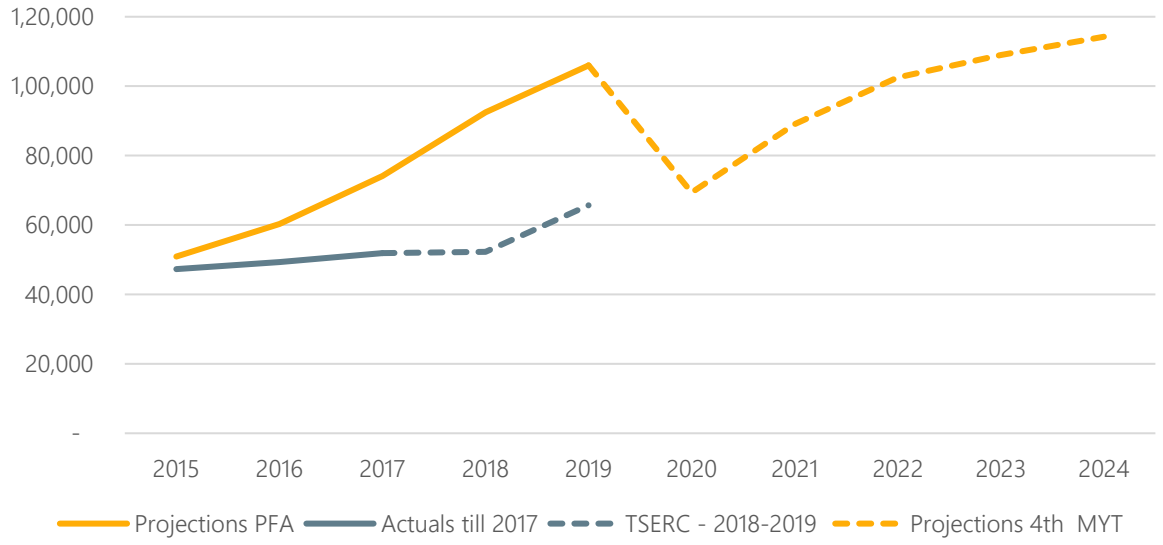
[12] There is limited wind potential in Telangana and the draft policy document is available at:
http://www.indiaenvironmentportal.org.in/files/file/Telangana_Wind_Power_Policy_2016.pdf

[13] 18th EPS was prepared in 2012 before TS formation in 2014 and 19th EPS in 2017. As per the 18th EPS, CAGR of energy demand in the united AP state between 2011 and 2017 is 8.6%.

It is unfortunate that there is no transparency in preparing the plans for the future years, and they also appear very ambitious. The MYT petitions for the 4th control period (2020-2024) for distribution and transmission business, were filed rather late in November 2019.[14] These filings indicate that load forecast and resource plans have been submitted to TSERC in October 2018. But these plans are not available for comments and there have been no public hearings on them. MYT filings provide energy requirement plan for 2019-24, which continue to be quite ambitious.

Figure 1 captures the energy scenario in the state from 2015 to 2024. It gives the energy projections as per PFA (2015-2019) and projections as per the 4th MYT (2020-24) DISCOM petitions filed in 2019. It also gives the actual energy purchase till 2017 and TSERC approved figures for 2018 and 2019. It is clear that the PFA and MYT projections are highly ambitions. As per PFA, energy demand was projected to grow at a CAGR of 20% whereas the actual was 5% during the period 2015-2017(actual figures) and 9% if the period 2015-2019 is considered (using approved tariff order figures for 2018 and 2019). It can also be noted as per the MYT petitions, the energy requirement projected for 2020 is 65% of the 2019 projections as per PFA. PFA envisaged significant industrial and HT agriculture load growth and expected many TSGENCO projects to be commissioned by 2019. Energy CAGR as per MYT petition for 2020-24 is 13%, indicating ambitious projections once again.

Figure 1: Ambitious energy projections



Source: Compiled by Prayas (Energy Group) – 2015-2017 actual data from 2019 ARR; 2018-2019 data from tariff orders; 2015-19 projections from PFA; 2020-24 projections from DISCOM business MYT petitions for 2020-24

2.2 Capacity addition

Since the power shortages were high, all possible avenues were explored to add to the power purchase basket. State benefited from the availability of surplus thermal generation in the country.[15] Steps taken included short-term market purchase, speeding up on-going TSGENCO projects, competitive bidding for power from stations

[14] 4th MYT filings of TSTRANSCO, SLDC and DISCOMs, consumer objections and utility replies are available at the website of TSERC, https://tserc.gov.in/arrfilings.php

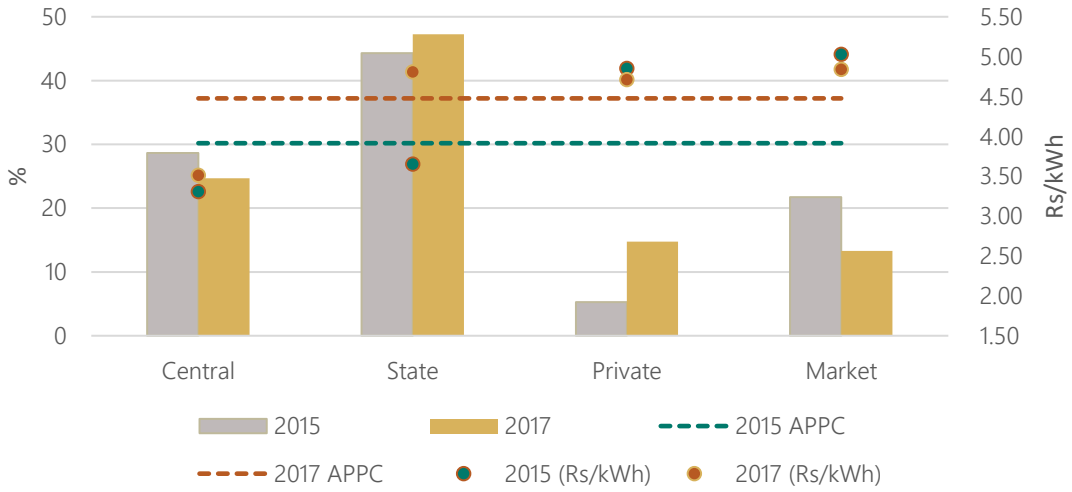
[15] As indicated by the LGBR reports of CEA, energy shortage has been reducing from 2014. All India actual energy shortage was 2.1% in 2015 and 0.7% in 2017.

in Southern region, following up with Central government to increase the transmission capacity to Telangana from North-East-Western grid, and initiating new TSGENCO projects.

As per the re-organisation Act and a Government Order amending the transfer scheme[16], existing PPAs and those signed after 28/4/2008 were to be valid and power apportioned between TS and AP DISCOMs based on past 5 years' energy consumption in the ratio of 53.89: 46.1. This applied to all state thermal, hydro stations and shares from central government power stations. Power from non- conventional energy stations was available to the DISCOM where they are physically located. Disputes between states on power purchase payment started in mid- 2014 and from 11/6/2017, power from all thermal, hydel and renewable stations are allocated to the state as per location[17], whereas central and inter-state power is shared as per the same ratio.

The outcome of power purchase actions has been a steep increase in thermal power capacity contracted by the DISCOMs – both in the state and medium/long term purchase from multiple sources. Solar capacity also increased significantly. Figure 2 shows the change in generation ownership mix and power purchase cost for 2015 and 2017, the years for which actual data is available. Figure 3 shows the change in fuel mix for the same two years.

Figure 2: Change in ownership mix in generation in percentage terms



Source: Compiled by Prayas (Energy Group) from actual data for these years, available in the 2019 ARR of DISCOMs.
Note: Markets includes contribution from UI also, and % of UI is low in Telangana. Markets also include bundled solar power from NTPC; Central sector coal includes NTPC coal power plants and power plants of Neyveli Lignite Corporation; State Hydro includes a few interstate projects also - with Odisha, AP and Karnataka; State Coal includes Singareni Thermal Power Plant, a JV between Telangana State and Singareni Collieries; APPC = Average Power Purchase Cost

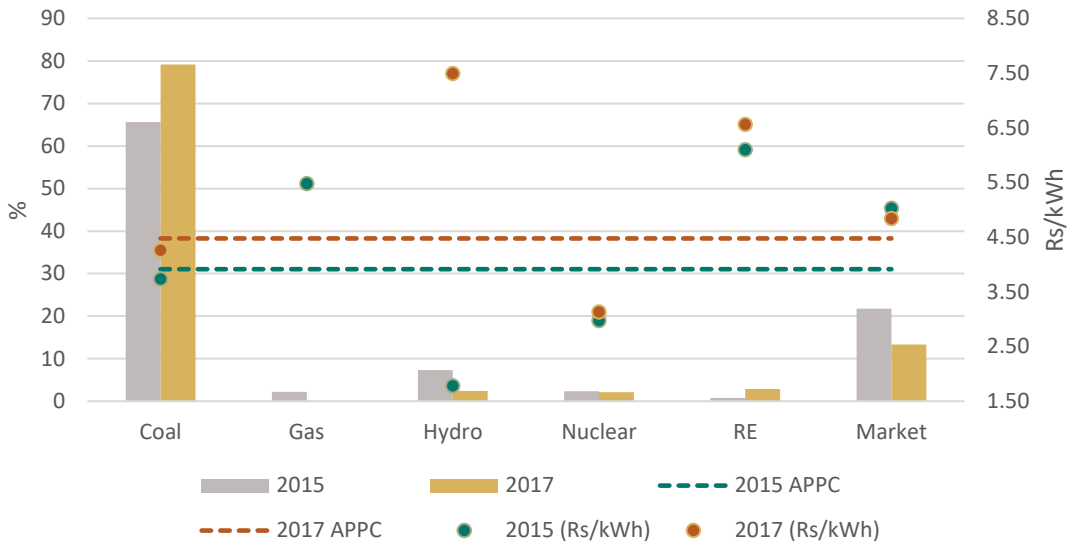
It can be seen that there has been a slight reduction in the percentage contribution of central stations and increase in state and private stations. The major increase in private capacity has been in private coal and solar.

[16] Search for GO MS20 dated 8/5/2014 of Energy department at: https://goir.ap.gov.in/

[17] This follows a letter from GoAP to APGENCO dated 5/6/2017, permitting APGENCO to discontinue supply to TS DISCOMs, based on which AP discontinued power supply to TS and TS reciprocated. A brief summary of the dispute with versions of both states is given in the TSSPDCL annual report for 2017-18 (see pages 93-95). This annual report available at:
https://tssouthernpower.com/ShowProperty/CP_CM_REPO/Pages/CompanyInformation/Annual%20Reports/Annual%20Report%202017-18

Short term purchase and bundled solar (a smaller component) are included in market. Market procurement was high in 2015, but with the gradual reduction of short- term procurement, it has reduced. Average Power Purchase Cost (APPC) for state owned stations have increased, while it has remained same for other stations.

Figure 3: Change in fuel-mix in generation – 2015-2017



Source: Compiled by Prayas (Energy Group) from actual data for these years, available in the 2019 ARR of DISCOMs

Figure 3 on fuel mix shows that thermal power dominates in generation. The proportion of renewable generation has increased. Contracted renewable capacity increased from 124 MW in 2015 to 3,567 MW in 2019. In 2019, solar capacity is 3,293 MW of centralised and 135 MW of roof-top, making Telangana second in solar installed capacity, after Karnataka. The solar capacity addition target for the state by 2022 was 5000 MW. Planned state wind capacity addition by 2019 was 2000 MW, as against the 2019 capacity of 101 MW.[18] As per the MYT petitions for the 4th control period, no significant solar or wind capacity additions are planned between 2020-24. Gas based power was been low, due to poor availability of gas and completion of PPAs with some plants based in AP. Average Power Purchase Cost (APPC) has marginally increased. The high per-unit rate of power procurement for Hydro in 2017 is due to low generation in the year by the newly commissioned projects.

Table 3 summarises the power purchase pattern and unit cost for 2017 (based on actual) and 2019 (based on tariff order). For 2017, based on actual data, it can be seen that the APPC is Rs 4.48/kWh, reducing to 3.85/kWh in 2019 (tariff order figures). But it should be noted that such a comparison between actual and approved figures is not very valid. For 2017, it can be seen that the cost of TS coal power is high compared to that of central stations. High unit cost of hydro is due to low generation by some new plants (Lower Jurala, Pulichintala, Singur). Other renewable includes bio-mass, bagasse, municipal solid waste, industrial waste and min-hydro. It can also be seen in 2019 that surplus power (8,047 MU) was expected to be sold at Rs. 3.10/kWh.[19]

[18] Solar capacity addition plan from news reports, Wind from 2016 TS Wind policy; actual 2019 centralised solar/wind capacity from 2019 Tariff order; 2019 roof top capacity from BridgetoIndia report Mar 2019, available at: https://bridgetoindia.com/backend/wp-content/uploads/2019/07/India-solar-rooftop-map_June-2019.pdf .

[19] However, it must be kept in mind that the DISCOMs and the Commission have been optimistic about projecting reduced expenses and high revenue, including the management of surplus. High surplus is projected based on the unrealistic assumption of full availability of all capacity and high revenue from sale of surplus at rates high enough to recover significant costs is projected. These help to project increased revenue, thus reducing the pressure of increase tariffs to meet expenses. In reality, the surplus and the revenue recovery is much less resulting in an increase in

Table 3: Power purchase pattern and per-unit cost of power from different sources 2017 and 2019.

Year/Source	2017		2019 (P)	
	MU %	Rs/kWh	MU %	Rs/kWh
State- Thermal	44.9	4.66	41.3	3.85
Central - Thermal	22.6	3.54	29.7	3.42
Private - Thermal	11.7	4.12	9.5	4.22
Central - Nuclear	2.1	3.14	2.4	3.24
State - Hydro	2.4	7.49	4.5	3.56
Private - Gas	0.1	18.37	0.1	2.76
Private - Solar	2.0	7.10	7.0	5.58
Private - Wind	0.4	4.70	0.3	4.70
Private - other RE	0.1	5.44	0.6	6.00
Market	13.3	4.84	4.5	3.55
Total MU	51,901	4.48	65,678	3.85
Surplus sale MU			8,047	3.10

Source: Compiled by Prayas (Energy Group); 2017 data from actuals reported in 2019 DISCOM ARRs; 2019 from Tariff order for 2019

Some state projects were commissioned during this time. This includes hydro power plants at Lower Jurala (6 x 40 MW, 2016) and Pulichintala (4 x 30 MW, 2018); Kakatiya thermal station unit 2 (600 MW, 2018). Medium and long-term contracts with thermal power plants helped to overcome the shortage and marginally reduce power purchase cost, since they were cheaper than market power. Brief details of these contracts of thermal plants contracted are given in Table 4.

All contracts except with CSPDCL are with plants in Telangana or AP states, so that inter-state transmission constraint is not an issue.[20] The first three contacts were finalised after competitive bidding[21], whereas STPP is based on Power Purchase Agreement (PPA) signed in 2016 and Chhattisgarh is based on a unique inter-state agreement. Governments of Telangana and Chhattisgarh had entered in to an MoU in 2014 to procure 100 % of the 1000 MW power from the Marwah thermal power plant in Chhattisgarh. This cost-plus generating station of the Chhattisgarh State Generation Company (CSPGCL) has a PPA with Chhattisgarh State Distribution Company (CSPDCL). In 2015, a PPA was signed between the DISCOMs of both states. This PPA states that tariff for the power will be determined by Chhattisgarh Electricity Regulatory Commission (CSERC). At this time, the

unrecovered expenses/ revenue gap. For such trends in different states, including Telangana please refer to Prayas report "The price of plenty", available at: https://www.prayaspune.org/peg/publications/item/335

[20] Southern Regional grid (SR) was synchronised with the rest of the country only in 2014 and the transmission capacity between Eastern Region or Western Region with SR was limited. In 2014 and 2015, Southern Region had limited power generation and high peak shortages. Hence there was competition among the southern states to claim the available inter-regional transmission corridors.

[21] TTPL1 and KSK were finalised earlier. TTPL2 was through a competitive bidding, though it was the only qualified bidder. TSERC, by its order dated 27/1/2016 approved the process and the tariff. Order available at: http://www.tserc.gov.in/file_upload/uploads/Orders/Commission%20Orders/2016/orderinOPNo01of2016.pdf

POWERGRID transmission corridor from Chhattisgarh to Telangana was not ready. After the transmission corridor was ready and CSERC determined provisional tariff for the plant, TSERC approved this tariff in 2017. It argued that tariff of the plant shall be determined by CSERC u/s 86(1) (a) read with section 62 of the Electricity Act, and TSERC role is limited to approving it. From 2018, this power is available to Telangana DISCOMs. Questions have been raised before TSERC and CSERC regarding the jurisdiction of CSERC to decide this tariff (being an inter-state transaction, CERC should be in the picture) and on the high cost of landed power at DISCOM end, due to losses and transmission charges.[22]

Table 4: Brief details of power purchase contracts with power plants 2019

Name	Contracted Capacity MW	Ownership	Purchase Start date	Duration - years	Fixed cost Rs/kWh	Variable cost Rs/kWh	Total cost Rs/kWh
Thermal Power Tech 1, Nellore, AP (TTPL 1)	269.5	Sembcorp	2015	25	1.75	1.74	3.49
Thermal Power Tech 2, Nellore, AP (TTPL 2)	570	Sembcorp	2016	8	2.66	1.91	4.57
KSK Mahanadi, Jangir-Champa, Chattisgarh	215.6	KSK	2013	3	0	3.8	3.80
Singareni Thermal Power Plant, Mancherial, Telangana (STPP)	1200	TS, SCCL	2017	25	1.80	1.77	3.57
Marwah Thermal PP,Chattisgarh (CSPDCL)	1000	CSPGCL	2018	12	2.65	1.20	3.85

Source: Compiled by Prayas (Energy Group) from tariff orders, DISCOM petitions and PPA orders

2.3 Capacity addition plans

Table 5 provides a brief overview of the ongoing thermal projects. There have been delays in all these projects, but once they are commissioned, they will constitute the major thermal capacity of TSGENCO. Tariff details of only KTPS VII is available as of now (Rs.1.11/kWh FC and Rs.2.57/kWh VC), and hence the impact of power purchase from these projects is not clear. As per TSTRANSCO, PPA for KTPS VII has been signed on 19/3/18, submitted to TSERC for approval; PPA for Bhadradri has been signed on 17/9/19, submitted for TSERC approval; PPA for Telangana STPP is submitted to TSERC for approval; and PPA for Yadadri is being prepared. [23] All these amount to over 8000 MW of state-owned thermal capacity, which is nearly double the current thermal capacity. Only one station of 800 MW capacity is operational in 2019 and rest are expected to be commissioned in 2020-23, but without clarity on the power purchase cost impacts.

[22] Compiled from the PPA between TS DISCOMs and CSPDCL, TSERC PPA approval order and submissions to the TSERC and CSERC by objectors.

[23] This information is given in the reply by TSTRANSCO given in February 2020 to M Venugopala Rao's objections on the MYT petitions. Reply available at: https://tserc.gov.in/file_upload/uploads/Objections%20Received/Transco%20Obj%2019-20/Transco%20obj%20Replies/transco%20replies.htm

Table 5: Proposed coal capacity addition

Name	Installed Capacity MW	Owner	Capital cost Rs Cr/MW	Planned COD	Expected COD
Kothagudem TPS Stage VII	800	TSGENCO	7.13	Sep-17	Dec-18
Bhadradri Thermal Power Station, 4 x 270 MW	1080	TSGENCO	5.63	2017	Jan-Dec 2020
Yadadri Thermal Power Station 5 x 800 MW	4000	TSGENCO	6.25	2020-21	2023
Telangana STPP Phase 1: 2 x 800	1600	NTPC	3.53	Jan-20	Jun-21
Singareni Thermal Power Plant stage II	800	TS,SCCL	7.35	2023	2023

Source: Compiled by Prayas (Energy Group) from: National Electricity Plan – Generation by CEA (2018); Monthly broad status of thermal power projects by CEA (November 2019) and EIA reports. For Yadadri, COD indicated in the 2020-24 MYT petition of TSTRANSCO is shown here; CEA indicates 2020-21

The MYT petition of TSTRANSCO for 2020-24 indicate that by 2024, nearly two-third of the generation capacity will be coal based and nearly half the capacity will be state owned. If Singareni power plant stage II (JV with Telangana) are included in state thermal capacity, 56% of the capacity addition from 2020-24 would be from state thermal. Table 6 summarises the proportions of generation capacity from different sources in 2024.

Table 6: Proportion of generation capacity from different sources 2024

Source	Capacity share %	Remarks
TS –Coal	30%	Many new projects expected
Central - Coal + Nuclear	19%	Mostly coal, small % of nuclear
Other - Coal	17%	Includes Singareni (partly TS owned) and private projects
Hydro	11%	State and small % inter-state
Renewable	22%	Mostly solar
Open access	2%	Private projects using the state grid
Total MW	22,537	About 1.5 times the capacity in 2019

Source: Compiled by Prayas (Energy Group) from MYT petition of TSTRANSCO for the 4th control period (2020-24)

3. Demand and sources of revenue

The share of consumption by different consumer categories in 2015 and 2017 based on actuals and 2019 based on Tariff order is given in Table 7. In Telangana state, share of LT demand is high at 63-64% compared to that of HT. LT-Agriculture, LT - Domestic and HT – Commercial & Industrial have major shares in the demand, with

LT-Agriculture (which is free) accounting for nearly one-third of the total. Demand shares of agriculture and domestic have been increasing over the years, whereas commercial & industrial demand has been dropping.

Table 7: Share of consumption (% of total) by different consumer categories in TS DISCOMs

Category/Year/DISCOM	2015			2017			2019
	NPDCL	SPDCL	Total	NPDCL	SPDCL	Total	Total
LT Domestic	22	22	22	22	23	23	23
LT Agriculture	43	25	30	44	28	33	29
LT Commercial & Industrial	7	9	9	7	10	9	9
LT Others	3	3	3	3	3	2	2
HT Commercial & Industrial	12	38	31	11	32	26	25
HT Agriculture	2	2	2	4	3	3	8
HT Others	11	2	4	10	1	4	4
Total LT	74	59	63	75	64	67	63
Total HT	26	41	37	25	36	33	37
Total MU	11,105	28,079	39,183	12,885	30,844	43,729	49,721

Source: Compiled by Prayas (Energy Group) from DISCOM ARR for 2019 (for 2015-2017 actuals data) and 2019 approved figures from Tariff order

Note: HT Others also include Rural Electricity Supply Cooperative (RESCO), Railways and Metro

Demand growth projections were extremely ambitious after the state formation. The expected CAGR of demand from 2015 to 2019 was 11%, as per the 2014 report of the task force on energy. These were higher at 20% in the PFA, prepared in 2015. These were based in significant demand growth in sectors like industry (16% CAGR), irrigation (27%) and domestic (23%). But the observed CAGR of total demand is of the order of 5-6%. HT commercial & industrial demand has been stagnating and has reduced in 2017. The actual sales to HT industry in 2017 was 80% of what was approved in the tariff order and 75% of the projections by DISCOMs in the tariff petitions. On the other hand, there has been significant growth in a few sectors like HT irrigation, which has increased more than five-fold between 2015-2019. CAGR for domestic for the same period is 7.5% and LT agriculture is 5.1%.

As seen from Table 7, the demand profiles of the two DISCOMs are quite different. In 2019, industry and commercial (LT and HT) demand together is around 18% in NPDCL, whereas it is around 42% in SPDCL. Thus, cross subsidy is high in SPDCL, whereas state subsidy is around 40% of the ARR in NPDCL. With the growth in HT lift irrigation projects of the government in the NPDCL area, HT irrigation demand has been increasing over the years. Its share in the state has increased from 2% to 8% between 2015 to 2019, with NPDCL recording higher demand growth. This demand is present for 16 hours for 120 days (August-November) in a year and hence planning power purchase for it is challenging.[24]

TSSPDCL has some open access consumers from 2015, with slow increase in quantum over the years. Open access as a percent of HT sales in SPDCL for different years are: 2015 (6%), 2016 (10%), 2017 (24%), 2018 (14%) and 2019 (16%). Telangana DISCOMs collect cross subsidy surcharge and additional surcharge from open access consumers. The captive power capacity in Telangana has been increasing with installed capacity of 1251

[24] As per Table 7(a) of the TSTRANSCO MYT petition for 2020-24, contribution of lift irrigation to coincident peak demand is expected to grow from 29% in 2020 to 37% (which works out to 7684 MW) in 2024

MW in 2015 to 1533 MW in 2017, as reported by CEA.[25] Open access and captive contribute to reduction in HT sales, and the significant HT sales in 2017 could be due to high open access.

About 44% of the sales in 2017 in NPDCL is to LT agriculture, whereas it is only 28% in SPDCL. Supply to agriculture was increased from 7 to 9 hours from April 2016. Telangana government announced 24 x7 agriculture supply from January 2018, after reportedly investing over Rs. 12,000 crores over three years to augment the transmission and distribution infrastructure.[26] TS government has also been liberal in granting new agriculture connections, which has resulted in a significant increase of agriculture connections from 18.7 lakhs (2014-15) to 23.8 lakhs (2018-19). Citing all these, during the 2018-19 tariff revision process, DISCOMs proposed 43% annual growth in agriculture consumption and the TSERC approved 21% increase. Year on year growth of agriculture consumption reported was 13% in 2017 and 21% in 2019.

These are based on estimates and hence it is not possible to be sure of such huge increases. LT agriculture connections are not metered and power is free for all except for corporate farmers, that is, those who are registered as a company or society, own permanent farm houses or cold storage facilities.[27] Estimation of consumption is based a normative consumption estimate calculated based on the meter readings of sample DTs and the total capacity of DTs. There have been many regulatory directives to improve the quality of consumption estimation and TSERC has always downward revised DISCOM claims of consumption. Figure 4 gives agriculture sales from different sources in 2016 and 2017. Downward revision by TSERC and wide variation of the proportion of agriculture sales can be seen. In 2016 and 2017, the difference in total sales between the true-up petition and true-up order is completely due to the difference in the proposed and approved agriculture sales.

Responding to frequent doubts on the estimation of agriculture consumption, TSERC commissioned a consultancy project by Administrative College of India (ASCI) in 2017 to develop a better method to estimate agriculture consumption. This methodology was to be adopted by the DISCOMs after TSERC approval.[28] But there has been no tariff revision process after that (as of March 2020) and the result of the study is not in the public domain.

Distribution loss has remained at around 11-13% for both the DISCOMs in 2015 to 2017. The approved distribution loss for both DISCOMs in 2019 tariff order is 11.09% and the transmission loss is 4.55%.[29] Distribution loss is comparable to that reported in 2018 by some urban DISCOMs, which do not have agriculture consumption. Since the agriculture consumption is estimated and is high, one cannot be confident of the Telangana distribution loss numbers.

[25] All India Electricity Statistics – General Review 2018, CEA

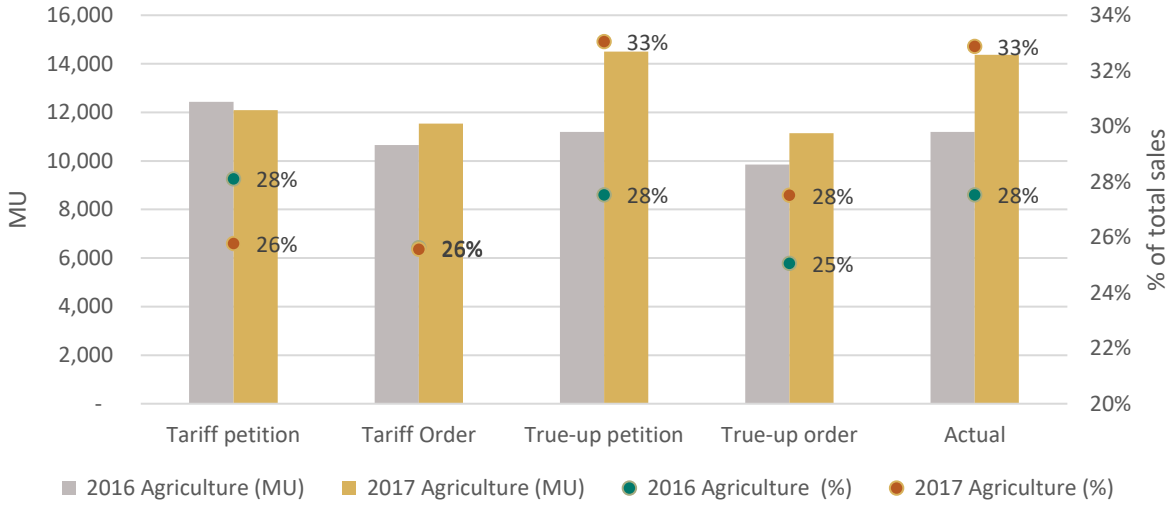
[26] Full page advertisements and press conferences in January 2018 quote the Energy Secretary and CMD-TSTRANSCO saying that Rs. 12,610 Cr was spent in the past three years to strengthen the Transmission and Distribution infrastructure. In one interview, the Energy Secretary was quoted saying that Rs. 2800 Cr was spent to strengthen infrastructure to provide 24 x 7 agriculture supply. (https://egov.eletsonline.com/2018/02/transformed-power-sector-in-telangana-sets-high-benchmarks-for-the-country/ , https://egov.eletsonline.com/2018/01/free-power-supply-for-farmers-in-telangana/)

[27] It is another matter that the number of 'corporate farmers' in Telangana is 3603 (all in TSSPDCL) out of 23 lakh LT agriculture consumers, as reported in Form 7 of the 2019 ARR submissions of both DISCOMs.

[28] See 2.1.6 of the Tariff order for 2018-19

[29] Approved figures as per 2019 Tariff order. Actuals will be available only when true –up is done.

Figure 4: Different numbers for agriculture demand in 2016 and 2017



Source: Compiled by Prayas (Energy Group) from 2016 tariff order, 2016 True-up included in the 2018 tariff order and 2019 DISCOM ARRs

Table 8 gives the Average Billing Rate of different consumer categories. This calculation does not include state subsidy, so accounts for what is actually paid by consumers. Data for 2015-2017 is actuals and 2018-2019 are approved figures. The last row of gives the total ABR with subsidy.

Table 8: Average Billing Rate trends

Category	Average Billing Rate Rs/kWh (without subsidy)				
	2015	2016	2017	2018	2019
LT Domestic	3.73	3.82	4.12	4.46	4.30
LT Agriculture	0.07	0.10	0.07	0.07	0.06
LT Commercial	9.46	9.89	10.20	9.98	9.96
LT Industrial	7.69	7.95	8.45	7.63	7.34
LT Others	5.65	6.02	6.37	6.33	6.32
HT Industrial	6.62	7.21	7.69	7.45	7.90
HT Commercial	8.52	9.43	10.02	9.73	10.01
RESCO	0.90	1.08	1.07	1.00	4.52
HT Agriculture	5.37	6.26	6.68	6.40	6.49
HT Others	6.58	7.07	7.26	6.23	6.38
LT Total	2.80	3.13	2.95	3.40	3.14
HT Total	6.55	7.21	7.58	7.27	7.62
Total	4.18	4.61	4.49	4.89	4.80
ABR with subsidy	5.12	6.26	5.41	5.65	5.78

Source: Compiled by Prayas (Energy Group; 2015-2017 actuals from the 2019 ARR of DISCOMs, 2018 and 2019 from Tariff orders for the respective years

State government has been providing subsidy for free power to agriculture and low tariff for small domestic consumers.[30] As seen in Table 9, there has been a steady rise in the state subsidy, from Rs. 3,663 Cr in 2015 to Rs. 5,973 Cr in 2019. Committed State subsidy is about 18-19% of the total revenue (including tariff, non-tariff, open access, subsidy and surplus sale) for the whole state; it is about 40 - 48% for TSNPDCL and 4 - 9% for TSSPDCL. It can be seen that the subsidy to agriculture has significantly increased in 2017 and 2019, due to higher consumption, which could be attributed to higher hours of supply. In addition to agriculture and small domestic, poultry farms and small hair cutting saloons (grouped in others) also have been provided subsidy, which is a small proportion, compared to agriculture or domestic.

Table 9: State subsidy commitment trend

Category/Year	2015	2016	2017	2018	2019
LT Agriculture	NA	61.9%	72.1%	67.4%	78.5%
LT Small domestic	NA	37.4%	27.4%	32.1%	21.0%
Others	NA	0.7%	0.5%	0.4%	0.5%
Total Rs Cr	3,663	4,257	4,584	4,797	5,973
% of Total revenue	18%	18%	19%	18%	18%

Source: Compiled by Prayas (Energy Group) from Tariff orders and 2019 ARR submissions. RESCO subsidy included in agriculture and domestic categories. Break-up for 2015 not available, since there was no Tariff order

4. Distribution business and quality of supply and service

Anecdotal evidence indicates improvement in quality of supply all over the state, especially in cities and towns. In addition to the increase in power availability, investment in distribution also seem to have contributed to this change. This is reflected in the increase in distribution cost from 0.84/kWh in 2015 to 0.99/kWh in 2017 (both actuals) and 1.07/kWh in 2019 (approved). Distribution cost is higher in NPDCL at Rs.1.27/Unit in 2019, perhaps due to higher investment in HT lift irrigation projects.

Significant capital expenses were also made under DDUGJY, IPDS and to strengthen the distribution to provide 24 x 7 supply to agriculture. Feeder separation has not been planned in an extensive way in TS and the approach from 2000-01 has been to implement High Voltage Distribution Systems (HVDS) for agriculture and rural supply. As of 2019, around 20% of the pumpsets are covered under this scheme.[31] While 3-phase supply is provided to agriculture for 24 hours from 2018, many villages where single phase supply is extended from an agriculture DT, do not get 3-phase supply.

DISCOMs provide performance reports as part of their ARR submissions. These reports cover annual distribution circle-wise data on compensation for Standards of Performance (SoP) violations, accidents, Distribution Transformer (DT) failures, burnt meters, stuck meters, attending fuse-off calls, feeder outages, pending service connections, release of connections, arrears greater than Rs. 50,000 pending for 6 months etc.

[30] The Cost of Service (CoS) for agriculture is Rs. 5.27/kWh and domestic is Rs. 7.31/kWh (2019 Tariff order – AP and TS calculate CoS based on apportioning of distribution, energy and customer costs for each consumer category. See Chapter 6 of the 2018-19 ARR filings of DISCOMs). Power is free of agriculture and the tariff for domestic is Rs.1.45/kWh if consumption is between 0-50 units/month. Domestic tariff is close to CoS if monthly consumption exceeds 300 units.

[31] Telangana Socio-economic Outlook Report 2019 reports that 5.05 lakh pumpsets of the total 23.8 lakhs are covered under HVDS. Report available at: https://www.telangana.gov.in/PDFDocuments/Socio%20Economic%20Outlook%202019.pdf

Annual DT failures in both the DISCOMs has remained around 12-13% during the 3 years from 2015 (2014-15) to 2017, without any major trends of reduction or increase. CAG report on TSPDCL notes that the failure rate norm of 12% was fixed in 2004[32]. It is disappointing that even now the failure rates are a little above this outdated norm.

Reports on power outages indicate that DISCOMs are able to restore supply within specified benchmarks. One DISCOM (TSSPDCL) reports minimum, maximum and average time taken to attend to outage complaints. Based on this data, time taken to attend to individual consumer outage complaint is 1 to 2 hours in predominantly urban circles and 1 to 3 hours in other circles. For DT failure, the figures are 4 to 8 hours in predominantly urban circles and 24 to 48 hours in other circles. It can also be seen the time taken to attend complaints and number of consumers affected have been reducing from 2015 till 2017. Both the DISCOMs also report circle-wise 11 kV feeder outage information, giving number of outages and hours of outage. It can be seen that scheduled load shedding has reduced, but no clear trend is seen in outage data.

Number of fatal human accidents have been increasing over the years (2015-17, for which data is available) in both the DISCOMs, as seen in the Table 10.[33] After this issue was raised by many consumer groups and discussed in public hearings, TSERC revised the regulations to provide ex-gratia to dependents of accident victims in 2015, to ensure that maximum number of victims are granted ex-gratia on humanitarian grounds. This has eased the ex-gratia process. But there has been limited efforts to reduce accidents, even though this topic is being raised in tariff hearings from 2006 and SERC (APERC before 2014) has been issuing directions to DISCOMs to take steps to reduce accidents.[34] Electrical inspectorate under the Department of Energy is the agency responsible for safety certifications and inspections, largely of HT installations. In TS, inspectorate has not been able to contribute to reducing accidents. CAG Report 5 of 2018, reviewing the Electrical inspectorate notes that there are shortfalls in inspections, shortage of staff - with each official having to conduct 466 inspections in a year and lack of skill updates. [35]

Table 10: Increasing fatal electricity accidents

DISCOM/Year	2015	2016	2017
SPDCL	307	383	349
NPDCL	147	139	329
Total	454	522	678

Source: Compiled by Prayas (Energy Group) from DISCOM tariff submissions

[32] This is reported in the performance audit of TSSPDCL in Report 1 of 2018 – CAG report on Telangana PSUs, available at: https://cag.gov.in/sites/default/files/audit_report_files/AR%20PSUs%20TS%202016-17%20single%20file.pdf

[33] This is compiled from ARR submissions of DISCOMs. National Crime Records Bureau (NCRB) also provides electrocution deaths and the numbers reported for Telangana are: 2015 (456), 2016 (666), 2017 (814) and 2018 (780). Reports available at: https://ncrb.gov.in/accidental-deaths-suicides-india-adsi

[34] To quote from Clause 186 of the 2006-7 tariff order of APERC: "The distribution licensees will chalk out by 30.09.2006, a cogent and viable plan of action to adhere to appropriate safety standards, in particular, to periodically inspect their electrical installations to take prompt action to rectify any shortcomings noticed or brought to their notice and to lay down a time schedule therefor." In subsequent tariff orders, SERC has been expressing dissatisfaction with the response of DISCOMs and again issuing similar directions, for preparing action plan etc.

[35] CAG report 5 of 2018, on the TS Revenue sector for year ending March 2017, available at: https://cag.gov.in/sites/default/files/audit_report_files/Report_No_5_of_2018_-_Revenue_Sector_Government_of_Telangana.pdf

TSERC revised the Consumer Grievance Redressal Forum (CGRF) regulations in 2015, with an option of a judicial officer as the Chair (or a retired Chief Engineer) and a consumer member appointed by the TSERC. There are two CGRFs in TSSPDCL area (both at Hyderabad) and one in TSNPDCL area (at Warangal). [36] Some GRFs have been active with many pro-active complaint meetings held all over the state. Orders of CGRF and their tour programme are available on DISCOM websites. Active consumer members (representing farmer organisations and federation of commercial/industrial consumers) have significantly helped to increase awareness and consumer participation. There have been occasional vacancies in the forum and resulting gaps in its functioning. There is one Electricity Ombudsman for the state from 2014, appointed by the TSERC.

5. DISCOM finances

Ujjwal DISCOM Assurance Yojana (UDAY) agreement was signed by Telangana in January 2017. There were many conditions on debt take over, metering, loss reduction and tariff raise, of which only some were complied with. Total DISCOM debts as of September 2015 was Rs. 11,897 Cr, 75% of which (Rs. 8,923 Cr) was to be taken over by the Telangana government by March 2017 through bonds which was to be transferred to DISCOMs - half as grants, 25% as equity and the remaining 25% as loans. These liabilities were to be taken over by the government in 2018. For the remaining 25% of the debt, DISCOMs were to issue state guaranteed bonds or convert them to low interest bank loans. Future annual losses of the DISCOMs were to be taken over in the coming years: 5% of 2017 losses in 2018, 10% of 2018 losses in 2019, 25% of 2019 losses in 2020 and 50% of 2020 losses in 2021. As per the agreement, dues from the government departments, amounting to Rs. 2,416 Crores was to be cleared by March 2017. DISCOMs were given many performance targets like reduction of AT&C losses, 100% urban DT metering (Jun 2017), rural feeder energy audit (Aug 2018), physical feeder separation (Mar 2018), timely tariff filing and tariff hikes (7.5% in 2017, 8% in 2018, 6% in 2019). As seen later, UDAY has not helped the DISCOMs to tide over financial crisis and they have not been able to meet all the targets, especially on energy audit, feeder separation and tariff revision.

Table 11 gives the financial losses reported by the DISCOMs from 2015 to 2019. It can be seen that the losses have been steadily increasing over the years in terms of absolute numbers and as a percentage of ARR.

Table 11: Rising financial losses of the DISCOMs

Year	NPDCL Rs Cr	SPDCL Rs Cr	Total Rs Cr	% of ARR
2015	1,343	1,171	2,513	11%
2016	1,010	2,369	3,380	13%
2017	1,502	4,700	6,202	20%
2018	1,561	3,925	5,485	19%
2019	2,141	3,562	5,703	18%

Source: Tariff orders and 2019 ARR for ARR figures; DISCOM audited annual reports for 2015 to 2018, UDAY portal for 2019 for financial losses

There are many reasons for this steady increase in losses. Transfer scheme has not been fully implemented and tariff increase has been irregular and low. There were tariff hikes in 2016 (4.4%) and 2017 (7.5%)[37], but not in 2018, 2019 and 2020. There was no tariff determination process for 2020, since TSERC was not functional with no chairperson and members from Jan 2019 till Oct 2019. Subsidy payments by the government has been delayed. But since schedule of payments are not tracked by the ERC or reported by the DISCOMs, it is difficult

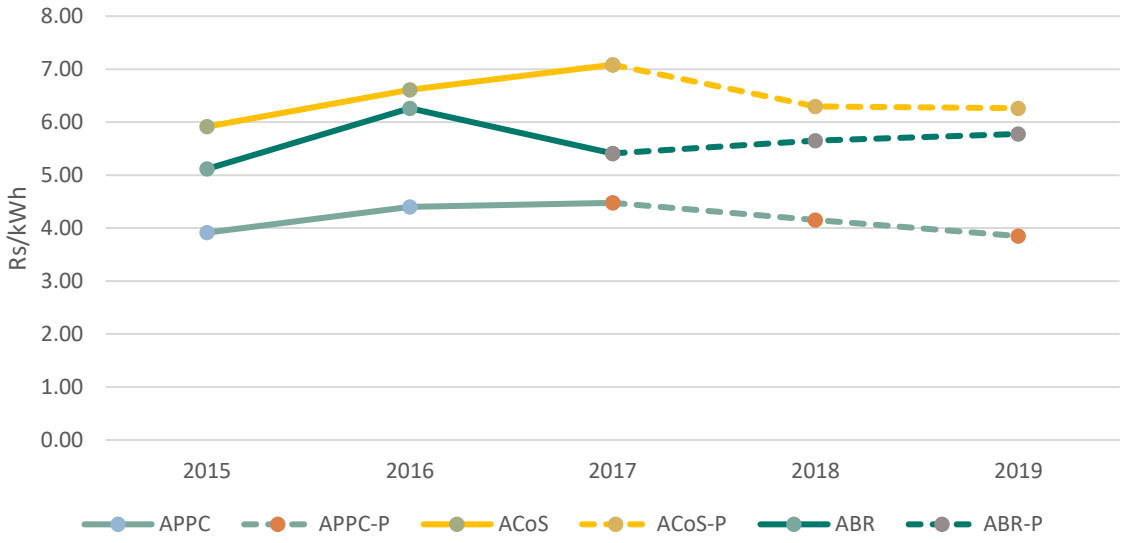
[36] TSERC regulation suggests 2 CGRFs in each DISCOM

[37] These figures of tariff increase are from press releases of TSERC, for consumers who had tariff hike

to understand the extent and impact of the delay, for example when the hours of supply to agriculture was increased 7 to 9 hours in 2017. The annual reports of DISCOMs (available till 2018) state near full receipt of committed state subsidy. But the seventh annual integrated DISCOM rating report of Ministry of Power (2019), gives B+ rating to TSSPDCL and B to TSNPDCL. The reasons given are low cost coverage ratio, delay in tariff filing and partial subsidy receipt in 2017 and 2018.[38] Report on the performance of power utilities by Power Finance Corporation also indicate that the subsidy receipt was 81% in 2018.[39]

The trends of Average Power Purchase Cost (APPC), Average Cost of Supply (ACOS) and Average Billing Rate (ABR) over 2015-2019 given in Figure 5 indicates that APPC and ACOS figures are high in 2015 and 2016 due to high percentage of costly market power purchase. It has come down subsequently due to reduction in market purchase and increase in power purchase from long term contracts. There is a gap between ACOS and ABR with subsidy is increasing between 2015-17, based on actual data. It is high at Rs 1.67/kWh in 2017, perhaps due to low industry sales. The 2019 gap of Rs. 0.49/kWh is close to the figure of Rs 0.42/kWh reported by UDAY portal in June 2019.

Figure 5: Trends of APPC, ACOS and ABR



Source: Compiled by Prayas (Energy Group); 2015-2017 data from actuals given in 2019 ARRs of DISCOMs; 2018 and 2019 data from the Tariff orders for the respective years – hence Provisional

In some years (2016 and 2017), actual short-term market power purchase has been much higher than what was approved in the Tariff order. Capital expenses (for increased hours of supply, evacuation of power, supporting lift irrigation projects etc) have been more than that approved by the Commission.[40] True up was done for 2016 and provisionally for 2015 and 2017 for sales and power purchase, but not after that. It has not been done

[38] Ratings of TS DISCOMs have been around B+ from 2015. The 7th annual integrated DISCOM report 2019 is available at: https://pfcindia.com/DocumentRepository/ckfinder/files/GoI_Initiatives/Annual_Integrated_Ratings_of_State_DISCOMs/7th_Rating_Booklet_Final_13-10-2019.pdf

[39] Report is available at: https://www.pfcindia.com/DocumentRepository/ckfinder/files/Operations/Performance_Reports_of_State_Power_Utilities/Report_on_Performance_of_State_Power_Utilities_%202017_18.pdf

[40] Details of TSSPDCL in the period 2013-2017 is available in the CAG audit report (1 of 2018 on Telangana PSUs) cited before. Audit report also notes that there was no comprehensive technical study to justify augmentation of network.

for the distribution business. Regular true-up is extremely important to assess the situation, even though it does not address the issue of recovering the revenue gap. The practice of quarterly adjustment of power purchase cost variations (called Fuel Surcharge Adjustment - FSA) was discontinued just before state bifurcation in 2014.There is lack of timely recovery of fait accompli costs which ultimately burdens consumers with avoidable carrying cost. Hence the revenue gap is getting accumulated, adding carrying costs every year, without any clear idea how and when the costs will be recovered. Table 12 shows the annual revenue gap reported by DISCOMs in absolute numbers and as a % of ARR. It can be seen that the numbers are increasing over the years.

Table 12: Increasing revenue gap

Year	2015	2016	2017
Revenue gap reported by DISCOMs Rs Cr	3,338	3,832	6,531
Revenue gap as a % of ARR	14%	14%	21%

Source: Compiled by Prayas (Energy Group) from DISCOM ARR submissions of 2019

Both the DISCOMs report very high arrears pending for more than 6 months, which added up to Rs. 4,154 Cr in 2017, with TSSPDL having a higher share at Rs. 3,353 Cr. More than half the arrears are from government agencies like municipalities, panchayats and water supply schemes. [41]

True-up filing of supply business by the DISCOMs during the distribution MYT process for 2020-24 indicate that the revenue gap in supply business of over Rs. 10,000 Cr in 2019, out of which Rs. 8,900 Cr is due to the higher power purchase cost.[42] True-up for distribution business for the all the control periods were filed only in early 2020. This covers first control period (2007-09), second (2010-14) and third (2015-19). Filings for third control period indicate significant increase in distribution costs due to higher O&M expenses due to wage revision (2014 and 2018) and few other reasons. The MYT true-up petition claims a total revenue gap of about Rs.1,380 Cr in distribution business for the 2015-19 control period, but as of March 2020, these petitions are yet to be approved by TSERC. A clear picture will emerge only after regulatory true-up of recent years.

6. SERC functioning and effectiveness of accountability

Table 13 summarises the important regulatory processes from June 2014 till January 2020. There were some good initiatives by TSERC, which include improved regulations on complaint redressal (2015), order on ex-gratia for accidents (2015), order on transmission line compensation (2017), and commissioning a study to estimate agriculture consumption (2017). But based on many factors, it appears that the regulatory oversight has been weak. There have been delays in annual tariff revision process and power purchase approvals.

As shown in Table 13, the tariff petitions for 2017-18 was inordinately delayed and filed only in April 2017, even after many letters by the TSERC. In the tariff order TSERC expressed 'its extreme displeasure on the inordinate delay in filing the tariff proposals by the DISCOMs', but did not do much more. Tariff public hearings were organised only at two locations – one in each DISCOM area. Quality of the public participation was low because of this and also measures like an advisory that was issued by the TSERC in 2016 stating that, as per conduct rules, employees of licensees can participate in regulatory process only after due permission from the

[41] Based on Tariff filings of DISCOMs

[42] From the additional information (1) filed in January 2020 by the DISCOMs for the 2020-24 DISCOM business, available at tserc.gov.in

management.[43] The number of objectors in the first tariff process held in Feb-Mar 2015 was 170, which slowly reduced to 82 in the hearing held in Feb 2018.[44]

There were long periods of vacancies in the Regulatory Commission. The Commission has three members as of October 30, 2019, but the positions of Chairman was vacant for 10 months, that of Member-Finance for 18 months, and that of Member-Technical for 38 months. Strength of professional staff has been low at 9 in 2015 and reduced to 6 by 2019.

Table 13: Overview of key TSERC processes from 2014 to 2020

Milestone	Details	Remarks
Constitution of TSERC	Constituted with 3 members on 3/11/2014	Technical member retired on 7/8/2016, Finance member on 7/4/2018 and Chair on 9/1/19. Commission with 3 members was reconstituted on 30/10/19.
Frequency of issue of tariff orders	No tariff order for 2014-15 and 2019-20. Delayed orders for 2016-17 and 2017-18, due to delay in filings.	No tariff order for 2014-15, though petitions were filed in Dec 2013. 2016-17 order issued in Jun 2016; 2017-18 order in Aug 2017; 2018-19 order in Mar 2018. No Commission from Jan – Oct 2019, hence no order for 2019-20.
Regularity of tariff hike	Some hikes in the beginning, no hike since 2018	4.42% in 2015-16 order, 7.5% in 2016-17, no hike in 2017-18, 2018-19, 2019-20
True-up of Power purchase	Approved for 2016, provisional true-up for 2015 and 2017	True-up petitions filed along with ARR and tariff proposals
True-up of distribution business	To be done at the end of the control period as per Regulations, but not done at all	True-up petitions submitted by DISCOMs in January 2020, orders not issued as of March 2020
TSERC staff strength/ capacity	Gradual reduction in professional staff strength from 9 in 2014-15 (including 4 on deputation) to 4-6 in 2019	No Director level posts for tariff, engineering, legal, finance or administration since inception. For comparison, APERC (of joint state) at its inception in 1999 had professional staff strength of 21 and directors for tariff, engineering, law and administration. The sanctioned professional staff strength of APERC in 2014, just before bifurcation was around 30.
Tariff hearings	Held at two locations – one in each of the two DISCOMs	Participation has been reducing over the years
Meetings of SAC	Held once a year before tariff order till January 2018. Not held after that till Dec 2019.	SAC was reconstituted in Dec 2019 and first meeting held in January 2020.

Source: Compiled by Prayas (Energy Group) from annual reports of TSERC and information at the TSERC website

[43] As widely reported in the media, the TSERC wrote a letter on 9/2/2016 to all utilities advising the utilities to issue a circular to their employees that as per service rules, they should not correspond, appear or present on utility business before the Commission without prior approval. Subsequently all utilities issued memos to its senior employees, asking them to strictly follow the TSERC letter. As mentioned in clause 2.88 of the Tariff order for 2017, this was challenged in the High Court through a Writ petition, but no order has been issued so far.

[44] Objectors reported in the tariff orders – year (number): 2016 (170), 2017 (158), 2018 (55), 2019 (82).

Tariff order has a separate section on directives – giving the previous directives and new ones. For example, directives in the 2019 tariff order include 4 previous ones and 10 new ones. Previous directives are about procuring imported coal through competitive process, DISCOM to check the quality of coal used by stations from which power is being procured, DISCOM bearing the cost of transporting failed transformers and segregating aviation/non-aviation loads at Hyderabad airport. New ones include procuring short term power through competitive bidding, root cause analysis of electricity accidents, prompt release of ex-gratia for accidents, submitting data as per given formats, 100% DT metering and 11 kV feeder audit. Follow-up by the Commission to ensure implementation of these directives has not been very effective.

The first Commission was successful in some areas like marginal reduction in power purchase costs, streamlining ex-gratia for accidents, issuing regulations on wind and solar forecasting and scheduling, trying to streamline land acquisition and compensation for transmission lines, and improving the CGRF regulations. But it did not succeed in improving the planning process, rationalising power purchase, encouraging public participation, improving the service quality, implementing periodic tariff increase or improving the financial health of the DISCOMs. It is to be seen how the current Commission, which has taken office in October 2019 meets these challenges.

Power sector in Telangana, the newest Indian state, has seen many changes in the past five years – overcoming power shortage, significant increase in solar capacity and significant investment in transmission and distribution. While these are welcome, low tariff hikes, lack of robust planning and weak regulatory oversight is leading the sector to a financial crisis. There is an urgent need to take stock and plan for mid-course corrections, to ensure that the situation does not become worse.

xx