

Management Discussion and Analysis (Annexure 'A' to Directors' Report)

CESC Limited ('CESC' or 'the Company'), is the flagship company of the RP-Sanjiv Goenka Group (the 'Group'). Registered in 1897, it is engaged in distribution of electricity across 567 square kilometres of the licensed area in Kolkata, Howrah, Hooghly, North & South 24-Parganas, West Bengal as also in generation of electricity. It supplies safe, cost-effective and reliable electricity to over 3.2 million customers — both consumer households and commercial establishments. The Company, through its subsidiaries, is also active, inter alia, in the renewable, thermal power generation and in the distribution franchisee space.

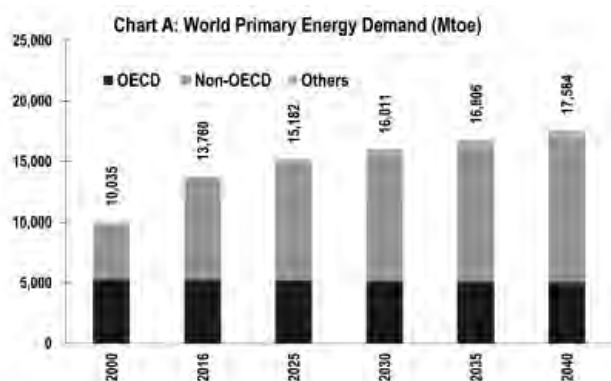
Apart from spearheading the Group's interest in the power sector, CESC also had investments in organised retail, business process management, FMCG and infrastructure sectors through its subsidiaries. At its Board meeting held on 18 May 2017, the Company had announced a restructuring scheme to demerge its businesses into four separate entities: namely, (i) power generation, (ii) power distribution, (iii) retail, and (iv) other business ventures. As the approval from West Bengal Electricity Regulatory Commission to the Power Purchase Agreement between CESC and the Generation Undertaking proposed to be demerged is awaited, the Company has partially implemented the said scheme with the non-power investments of CESC demerged into two entities— retail and other business ventures. As a result, there would be three listed companies: CESC (generation and distribution), RP-SG Retail Limited (retail) and RP-SG Business Process Services Limited (other business ventures). Further details on the restructuring process are discussed later in a separate section on 'Demerger'.

This chapter presents an overview of the energy sector as well as operational and financial performance of CESC. It also discusses important initiatives taken by the Company and its subsidiaries during the year to achieve further growth and performance objectives.

ECONOMIC OVERVIEW

Global Energy Outlook

Global energy systems and its longer term outlook are being shaped by several factors. On the supply side, the US is emerging as an undisputed leader in the global oil and gas markets. Second,



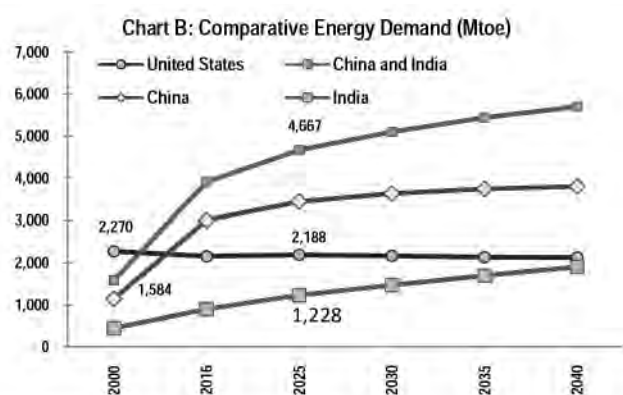
Source: New Policies Scenario, World Energy Outlook 2017, IEA

falling costs of Solar PV is making it increasingly more attractive as the source of electricity in many countries. In terms of demand, the world is moving towards greater electricity consumption driven by cooling, electric vehicles and digitalisation. Also, China's recent policy focus on electricity, natural gas and other cleaner technologies could spark a faster global transition to clean energy.

According to the World Energy Outlook 2017, world primary energy demand under the 'New Policies Scenario'¹ will grow by around 3,824 million tonnes of oil equivalent (Mtoe) between 2016 and 2040 — a CAGR of around 1.0% (Chart A). Demand from OECD countries is expected to come down marginally by 2040 from its current levels. Accordingly, the entire increase in energy demand will come from non-OECD countries — essentially developing economies that are home to billions without adequate access to basic energy.

As much as 46.9% of this increase will come from China and India, with their combined energy demand growing from 3,903 Mtoe in 2016 to 5,698 Mtoe in 2040 (Chart B). Significantly, India will take the lead with its energy demand increasing higher than China — growth of 1,004 Mtoe in India versus 791 Mtoe in China — between 2016 and 2040. These two countries will account for 32.4% of global energy demand in 2040, up from 13.6% in 1990 and 28.4% in 2016. China, US and India will continue to be the top three consumers of energy in the world in 2040, with a share of 21.6%, 12.1% and 10.8% respectively.

Fossil fuels — coal, oil and gas — are the dominant source of energy,

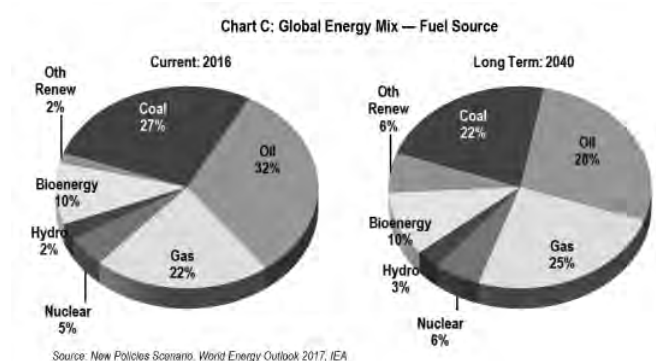


Source: New Policies Scenario, World Energy Outlook 2017, IEA

meeting around 81% of energy demand (Chart C). However, low-carbon fuels and technologies, mostly renewables, will supply nearly half of the increase in energy demand to 2040. As shown in Chart C, share of renewable sources is expected to increase — from 14% in 2016 to 19.7% in 2040. During the same period, even as the dominance of fossil fuels continues, its share is estimated to come

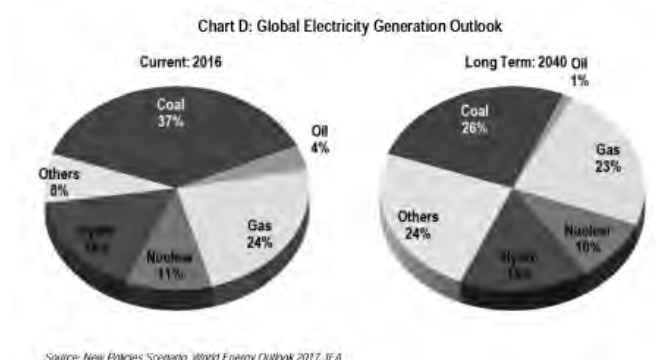
¹ The 'New Policies Scenario' estimates incorporates existing energy policies as well as an assessment of the results likely to stem from the implementation of announced policy intentions. Among such announcements over the last year: the change in policy orientation in the United States; a wealth of additional detail on China's plans for an "energy revolution"; a stronger commitment to renewables and electric mobility in India; and plans to shift the power mix in Korea in favour of gas and renewables.

down to around 74.6%. More important, this decline is only due to the drop in share of coal and oil in the energy mix, as the share of gas is expected to increase between 2016 and 2040.



The power sector accounts for 38.2% of the global energy demand in 2016; and around 50% of the increase in energy demand between 2016 and 2040 is expected to come from this sector. Accordingly, capacity addition of 5,283 GW is estimated between 2016 and 2040. The move to renewable sources will also gather steam, especially with availability of efficient and cost effective technologies. As a result, renewable sources are expected to account for 72.4% of all capacity additions between 2016 and 2040.

This will mean a significant change in the fuel mix for the power sector, more so than the overall global energy mix. As shown in Chart D, dominance of fossil fuels is expected come down significantly—from 65.2% in 2016 to 50.3% by 2040. Renewable sources will be the biggest beneficiary in the medium to longer term. Stronger policies on Solar PV and wind will help renewables account for 39.9% of the total power generation by 2040. In view of China’s plans for an “energy revolution” and a stronger commitment to renewables and electric mobility in India, it is now apparent that use of renewables will continue to dominate the global energy agenda in the future.



India’s Power Scenario

During 2017-18, the Indian power sector added 17.2 GW in power generation capacity, a growth of 5.2% over previous year. Hydro and other renewable sources accounted 12.6 GW or around 73% of the

increase in power capacities in the country. With these additions, generation capacity in India stood at 344 GW at the end of the year. Table 1 gives the detail.

Table 1 : Power Generation Capacity in India: 2017-18, By Fuel Source

Fuel	MW	% Share	Growth (%)
Coal	1,97,172	57.3%	2.6%
Gas	24,897	7.2%	-1.7%
Diesel	838	0.2%	0.0%
Thermal	2,22,907	64.8%	2.1%
Nuclear	6,780	2.0%	0.0%
Hydro	45,293	13.2%	1.8%
Others	69,022	20.0%	20.5%
Total	3,44,002	100.0%	5.2%

Source: Central Electricity Authority

During 2017-18, electricity requirement increased by 6.1% from 1,142 billion units to 1,212 billion units. The all-India peak demand for power was 164 GW of power, whereas the actual power met was 161 GW.

Table 2 : Power Demand and Deficit: 2017-18

Region	Peak Demand (MW)	Peak Met (MW)	Deficit (MW)	Deficit %
	Northern	60,479		
Western	50,477	50,085	392	0.8%
Southern	47,385	47,210	175	0.4%
Eastern	20,794	20,485	30	1.5%
North-Eastern	2,629	2,520	109	4.1%
All India	1,64,066	1,60,752	3,314	2.0%

Source: Central Electricity Authority

With a peak demand-supply shortfall of a mere 2% (see Table 2), the deficit in generation has been nearly eliminated. The current deficits reflected at the regional level are due to poor situation in some states, such as J&K (20%), UP (11%), Chhattisgarh (6.8%), Jharkhand (5.4%), Mizoram (8.6%), Nagaland (5.9%), Odisha (5.4%) and Andaman & Nicobar Islands (6.9%). Other than these, none of the states/UTs had a peak power deficit of over 5%.

The demand for power in India has been growing at a stable rate of 6% to 7%. This is despite the impact of energy efficient technologies such as LEDs and increase in captive power generation, including solar capacities not connected to the grid. The growth in demand is expected to continue with efforts towards complete electrification and provision of uninterrupted electricity for all by 2019. Equally, the government’s focus on the manufacturing sector and large-scale infrastructure projects such as smart cities programme and electrification of railways is expected to provide further boost to

demand. Improvement in the sustainability of DISCOMs is likely to boost the market for power and bring down sector-level risks in the process.

BUSINESS PERFORMANCE

CESC's operations in the power sector comprise :

- **Kolkata Operations** : Distribution of electricity to over 3.2 million customers across its licensed areas in Kolkata, Howrah, Hooghly, North & South 24-Parganas, West Bengal. Other than power sourced from the 600 MW Haldia plant, which is owned by CESC's 100% subsidiary Haldia Energy Limited, the Kolkata operations are directly under CESC Limited.
- **Independent Power Generation Projects** : Operational thermal and renewables projects with a cumulative capacity of around 800 MW. These are owned by the various subsidiaries of CESC.
- **Distribution Franchisees** : This represents the Company's foray into the distribution franchisee space. It includes three franchisees in Kota, Bharatpur and Bikaner in Rajasthan. The first two became operational in 2016-17, whereas Bikaner became operational in May 2017.

KOLKATA OPERATIONS

CESC's operations in Kolkata include generation and distribution of electricity to over 3.2 million customers across its licensed areas. Its key achievement as a power supplier has been to provide its customers with reliable and uninterrupted power supply at competitive rates. It has continued to move further in this direction by ramping-up utilisation from its 600 MW Haldia plant in 2017-18. This plant is operated by CESC's subsidiary, Haldia Energy Limited (HEL). Simultaneously, its existing generating stations at Budge Budge, Southern and Titagarh continue to have high rate of availability.

Generation

CESC owns three generating stations at Budge Budge, Southern and Titagarh, with a cumulative capacity of 1,125 MW. All generating stations are ISO 9001 certified in Quality Management Systems. During the year, the combined generation for the three stations was 6,337MU. Even as the Company significantly reduced generation from the older Titagarh and Southern stations, the overall combined availability of the three stations was 95.87%, a factor that makes it useful in meeting peak load demand or in emergencies.

Budge Budge Generating Station (BBGS) comprises three units of 250 MW each; Southern Generating Station (SGS) consists of two units of 67.5 MW each and Titagarh Generating Station (TGS) constitutes four units of 60 MW each.

During 2017-18, BBGS generated 6,033 MU (million units) of power, recording its highest ever Plant Load Factor (PLF) of 91.8% with

three units in operation. This was also the fourth highest PLF among all thermal plants in India in 2017-18. It received the award for "Best Performing Utility in Thermal Power Sector" from Central Board of Irrigation and Power. During the year, SGS generated 304 MU of power, whereas there was no generation of power from the costly source at TGS.

CESC's generating stations have consistently excelled in energy conservation by achieving extremely low figures for auxiliary consumption and heat rate. In recognition of its efforts, BBGS was awarded the "Innovative Power Technology of the Year" award at the Asian Power Awards 2017 for reduction of energy consumption in the boiler feed pumps of the station.

All three generating stations are ISO 14001 certified in respect of Environmental Management Systems. Apart from compliance with applicable legal and regulatory requirements, CESC has set stringent environmental standards, and devised new and improved processes to achieve these. Since 2000, it has continuously achieved 100% utilisation of ash in an environment friendly manner. During the year, BBGS received the Gold Award in the Power sector for "Outstanding Achievement in Environmental Role Model Category" at the EKDKN INNOV Awards 2017.

Haldia Energy Limited (HEL), a subsidiary of the Company, owns a 2x300 MW coal fired thermal power project at Haldia in West Bengal. Both units were commissioned and started commercial operation towards the end of 2014-15. HEL has successfully implemented Integrated Management System [ISO 9001, ISO 14001 and OHSAS 18001]. It has a long term PPA with CESC Limited, its holding company, for selling the entire power generated from the plant. It also has a Fuel Supply Agreement with Mahanadi Coalfields Limited (MCL), a subsidiary of Coal India Limited, for sourcing coal. The power evacuation arrangement is through an 89 km long 400 KV double circuit transmission line — including a three kilometre crossing over river Hooghly — to the Power Grid Corporation of India Limited substation at Subhasgram.

During 2017-18, HEL achieved a remarkable feat of over 98% plant availability factor (PAF) and a PLF of 86%. It commissioned a sewage treatment plant to reuse the sewage water of the administrative building and developed a garden with 30 species of rare and valuable medicinal plants within the premises. In recognition of its all-round performance, HEL received several awards during the year: FICCI 6th Quality System Excellence Awards for Industry, 2018; Indian Chamber of Commerce Environment Excellence Awards 2017; and the CII Safety, Health and Environment Award 2017. During the year, the administrative building of HEL received the Green Building Certificate under the Platinum category from Indian Green Building Council.

Centralised Monitoring Station for Generation Assets

During 2017-18, CESC unveiled its state-of-the-art centralised monitoring station (CMS) for all critical assets in its generation plants. The CMS, which has been running successfully since its launch, is yet another example of how the Company proactively utilises digitisation and technology to improve the productivity of its operations.

The project was implemented in collaboration with General Electric's global digital team. It ensures enhanced asset utilisation by improving plant availability using artificial intelligence and strong analytical capabilities to predict potential failures. It also enhances end-to-end visibility of the power generation process and enables benchmarking of performance, comparing different units, highlight KPIs and facilitate data-based business decision making. It will allow CESC to benchmark itself with global leaders, follow their best practices and make it future ready.

Distribution

CESC undertakes continuous upgrading of its distribution infrastructure to maintain and enhance the quality and reliability of supply as well as to reduce downtime and overloads. During 2017-18, about 2.5 lakh meters were installed on account of new supplies and replacements. The peak power demand was 2,159 MW.

Investments were made to strengthen the distribution network to cope with growing system demand, as well as for replacement of older plant and equipment. CESC is also executing special projects to upgrade its distribution network and enhance its capacity as well as reliability for efficient handling of the growing demand.

Energy conservation and maintaining an efficient distribution network are key areas of focus for all power companies. During 2017-18, several measures were taken. These included standardisation to higher rated underground cables, regular energy audits, energy efficient distribution transformers and inclusion of energy efficiency metrics in the bid evaluation criteria for awarding contracts to equipment suppliers.

CESC is at the forefront of deploying advanced technology and innovations to maintain its lead in distribution business and provide better services to its customers. Some of the key initiatives carried out during the year were :

- To increase the Company's capabilities in servicing the growing energy demand in a space-starved city such as Kolkata, CESC deployed state-of-the-art technologies to convert existing Extra High Voltage (EHV) outdoor substations to indoor GIS substations, with space consolidation for future capacity augmentation and up-gradation to 220 kV. This allows for higher capacity substations in limited space as well as forming an EHV ring network for higher system reliability.
- Over the years, the Company has been carrying out technology trials in both AMI (Automated Metering Infrastructure) for Smart Meter deployment, and DA (Distribution Automation) for

the ring main units (RMU). This year too, trials were conducted using RF Mesh technology at different frequency bands and power line carrier to build a common communication canopy for both Smart Meters and RMU Automation.

- To reduce occurrences of faults at consumer service points, the Company has taken up a program to redesign the Service Cut Out and install Moulded Case Circuit Breaker (MCCB) and Miniature Circuit Breaker (MCB) in meter boards. In 2017-18, 50,000 such installations were carried out.
- During 2017-18, CESC installed 900 Automatic Power Factor Controllers (APFC) at the secondary (400V) side of distribution transformers (DTs) for improving supply voltages and relieving them.
- It has also installed AMR meters for remote metering of its HT consumers, LT consumers and distribution transformers. By the end of 2017-18, 35,376 AMR meters were installed, including 14,700 for street lighting and 8,254 for DTRs.

In recognition of its efforts, CESC won Utilities and T&D Award "Overall Best-in-Class Urban Utility" at the 11th ENERTIA Awards 2017 and SKOCH Order of Merit at the SKOCH Summit 2017. It was also the first runner-up in "Quality of Service Award" and "Efficient Distribution Operation Award" at ICC Awards 2017.

Customer Service

Providing best-in-class services to its 3.2 million consumers is at the core of CESC's vision to build a customer centric organisation. Over the years, the Company has sought to achieve this through innovative processes backed by effective deployment of technology across platforms such as web, mobility solutions and communication through social media. During 2017-18, it initiated several measures to strengthen customer service and enhance customer value, aimed at both consumer households and businesses. Some of the key developments are discussed below :

- **New Connections** : CESC added around 74,000 customers during 2017-18. The average time taken to provide a new connection is 1-2 days. Moreover, where premises have an existing connection, supply typically starts within 24 hours of payment and compliance. The online application process was further simplified for the ease and convenience of the applicants. During the year, 84.4% of the applications were received online — a considerable improvement over 58% in 2016-17 and 38% in 2015-16.
- **Billing and Payment** : CESC already has easy and user-friendly avenues for online payments : mobile wallets, debit/credit cards, net banking and ECS, covering all major payment technologies and solutions. During the year, it launched online batch payment through NEFT/RTGS — meeting a longstanding demand of institutional clients. By the end of 2017-18, 35.4% of LT consumers were making online payments accounting

for 40.7% of the revenues — again a step-up from 22.2% and 28.5% respectively during the previous year.

- **Customer Contact** : The Company’s centralised 24x7 call centre, which acts as the primary touch point for all complaints and queries, was extended to cater to HT customers during the year. All calls to the call centre are guided through Interactive Voice Recording System (IVR) and are docketed and routed to concerned department for quick resolution. Regular chat sessions with the Managing Director and senior leadership team continued to see a strong response, with the participation of more than 1,300 consumers in 48 chat sessions. During 2017-18, engagement levels on CESC’s social media assets remained high.
- **Supply Interruptions** : Various steps have been taken by CESC over the years to ensure reliable supply and quicker restoration. Its 24x7 LT control room, manned by engineers and placement of radio-linked and GPS-enabled mobile service vans at strategic locations have helped it in restoring supply faster. Use of GIS and field force automation has also improved the efficiency of operations. All planned outages are proactively informed by the call-centre to the HT consumers and critical installations for LT consumers. HT consumers continue to avail free diagnostic testing service of their installations.
- **E-services** : Expanding the bouquet of e-services has been a continuous process. During the year, new services added to the CESC Website included a special name change application process for spouse of deceased consumer, advance payment statement, provision for online payment of supply reconnection bills generated on-site at Regional Offices. E-services penetration increased substantially during the year. For instance, 78.2% of the total name change requests were received online compared to 71.9% a year ago; and 47.5% of the total AC applications were received online versus 44.3% in 2016-17.

Special Initiatives During 2017-18

CESC values customer feedback and is responsive to the requirements of its customers. Based on feedback received through its various engagement drives and capabilities in the deployment of tech-based solutions, it introduced several special initiatives to enhance customer satisfaction during the year. Some of these were:

- **New Design Electricity Bill** : A new multi-coloured monthly bill was launched with better content and layout of key items for easy readability and comprehension. A separate box has been prominently incorporated for indicating the additional e-payment rebate and net amount payable.

- **Mobile App Version 2** : CESC Mobile App for customers was upgraded during the year to make it more user-friendly, modern and appealing. The main features of the new app are hassle free registration, auto verification of OTP and a customizable dashboard-based menu.

Safety and Health

CESC is committed to maintaining high standards of industrial safety across its operations, and has a safety vision and policy, including a policy on use of personal protective equipment (PPE). Over the years, it has brought about wide-ranging changes in daily work management to create a culture of safety.

The ‘Central Safety Cell’ has been instrumental in implementation of safe work procedures as well as monitoring and control of unsafe situations. During the year, work instructions were developed from safe work procedures of all critical activities of distribution wing in vernacular languages and distributed to all grass root level workmen for their easy understanding and adherence to safety processes. The Company started a pilot project in the Howrah District to develop it as a model safe district through an intensive schedule of activities carried out by a dedicated team of the Safety Cell.

The Safety Cell has also been instrumental in providing in-house training to 100% of the Company’s employees. Officers in operations and key support functions have gone through safety-related trainings conducted by institutions of international repute. Safety and occupational health audits, communication meetings, safety workshops, mock drills and company-wide observation of “Safety Day” are other activities carried out regularly by the Cell. These activities have resulted in increased awareness and identification of near-miss incidents as well as improvement in control of first aid and lost work day cases. CESC has also started educating its institutional and corporate customers on electrical and fire safety by conducting seminars.

CESC has a structured communication system for coverage of its safety-related initiatives. This includes publishing safety manuals, audio visual aids, safety magazine “Surakshabarta” (available in both Bengali and Hindi) and web-based monthly newsletter “Safety Spotlight”. All thermal stations are OHSAS 18001 certified for occupational health, and safety management systems. During the year, Budge Budge Generating Station received the Gold Award and Southern Generating Station received the Platinum Award for “Outstanding achievement in Safety Management” at the 16th Annual Greentech Safety Award (2017).

CESC has a strong focus on health and well-being of its employees. It operates 27 well-equipped dispensaries across the organisation with doctors and pharmacists. Best-in-class medical facilities including empanelment of major super speciality hospitals, nursing homes

and diagnostic clinics are available to the employees through tie-ups. It also conducts regular health check-up for all the employees as a part of the occupational health initiative. It publishes a quarterly medical bulletin called “Mediflash” for its employees. To emphasise wellness over the curative approach, CESC has developed several platforms for building awareness and better lifestyle management by its employees: monthly “Unit-wise Awareness” sessions, periodic “Special Health Awareness” sessions, annual “Specialised Health” sessions for female employees and annual “Mega Health Camp” for all employees and their families.

INDEPENDENT POWER GENERATION PROJECTS

Apart from its generation capacities catering to the Kolkata operations, CESC has built generation capacities to benefit from the opportunities presented by the growing market in India. This includes two operational thermal power projects, with a combined capacity of 640 MW. Besides, the Company has taken several initiatives to build its capabilities and presence in the renewable energy sector. Currently, it has five operational wind and solar power projects with a combined capacity of 170 MW.

Thermal

Chandrapur, Maharashtra : This is a 2x300 MW thermal power project implemented by Dhariwal Infrastructure Limited (DIL), a 100% subsidiary of CESC. Unit I was commissioned in 2013-14 and Unit II was commissioned in 2014-15. For power evacuation, Unit I is connected to the state grid and Unit II to the central grid. This provides for flexibility in the sale of power to customers from both within and outside the state. DIL has a Fuel Supply Agreement (FSA) with South Eastern Coal Fields Limited.

For Unit II, DIL has Power Purchase Agreements (PPAs) for supply of 100 MW to Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and 170 MW to the Noida Power Company Limited. During 2017-18, Unit II achieved availability factor of 89% and unit load factor of 81%. Unit I of DIL generated 258 MU in 2017-18 under short term arrangements. During the year, DIL secured short term contract with Maharashtra State Power Generation Company Limited (MSPGCL) for supply of 185 MW with effect from 1 April 2018.

In recognition of its innovative and environment friendly practices to save energy and natural resources, DIL won the Gold Award in Fame Excellence Award 2017 for outstanding Project on “Water Conservation/Watershed Development” and 5-star rating certificate by Maharashtra Pollution Control Board (MPCB) under their Star Rating programme for sustaining good performance in air pollution control. It also won Platinum Award in Fame Excellence Award 2017 for outstanding Project on “Best Innovative CSR Project”.

Asansol, West Bengal : This is a 40 MW atmospheric fluidised based combustion (AFBC) power plant using shale and washery

rejects from the adjacent captive coal mine in Sarisatolli. The unit is operational since July 2009. The power plant is owned by Crescent Power Limited, a CESC subsidiary, which operates in the merchant market. During the year, the plant achieved 99.67% PLF in generation.

Wind

Dangri, Rajasthan : This was the Company’s first venture into the wind power business. The 24 MW project was implemented by Surya Vidyut Limited (SVL), a wholly owned subsidiary of CESC. The project, commissioned in 2012-13, has two long-term power purchase agreements with Jaipur Vidyut Vitran Nigam Limited and Ajmer Vidyut Vitran Nigam Limited, subsidiaries of Rajasthan Urja Vikas Nigam Limited. The plant is running successfully and has been profitable since commissioning.

Surendranagar, Gujarat : This is CESC’s second wind power project. The 26 MW project, undertaken through SVL, was commissioned in December 2014. Power from this project is being sold to Gujarat Urja Vikas Nigam Limited under a long term power purchase agreement. The plant is running successfully and is profitable since its first full year of operation.

Nipaniya, Madhya Pradesh : This is the third wind power project. The 36 MW project, also through SVL, was commissioned in March 2016. The power is being sold to the Madhya Pradesh Power Management Company Limited under a long term power purchase agreement. The plant is running successfully and was profitable in 2017-18 — its first full year of post-stabilisation operations.

Rojmal, Gujarat : This is the Company’s fourth wind power project. The 70 MW project, undertaken through SVL, is being commissioned in phases since December 2016. Power is being sold to the Gujarat Urja Vikas Nigam Limited under the long term power purchase agreement executed for the entire capacity. With the commissioning of the balance capacity of 10 MW during 2017-18, the project is now fully operational.

All four wind power projects are running successfully. During 2017-18, their combined generation was 234.50 MU (129.48 MU in 2016-17) with a capacity utilization factor of 17.60% (15.97% in 2016-17). Combined supply of electricity by the four plants stood at 222.77 MU in 2017-18 (123.91 MU in 2016-17).

Solar

Ramnathapuram, Tamil Nadu : This is the Company’s first venture into solar power. The 18 MW_{DC} project undertaken through Crescent Power Limited, a subsidiary of CESC, was commissioned in January 2016. The power is being sold to the Tamil Nadu Generation and Distribution Corporation Limited under a long term energy purchase agreement. The plant is operating as per target parameters and has been profitable since 2016-17 — its first full year of operation.

DISTRIBUTION FRANCHISEE

State distribution companies (DISCOMs) are using the distribution franchisee (DF) route to partially privatise operations and improve their financial health. Rajasthan awarded four franchisees in the last few years, three of which were won by CESC. This includes Kota and Bharatpur those became operational in 2016-17 and Bikaner, which became operational in 2017-18. Other than these, CESC had also won the bid for a DF in Ranchi, Jharkhand, in 2012. However, the DF agreement was subsequently terminated.

Kota, Rajasthan : Kota Electricity Distribution Limited (KEDL), a wholly owned subsidiary of CESC, took over operations in Kota on 1 September 2016 after signing of Distribution Franchisee Agreement with JVVNL (Jaipur Vidyut Vitaran Nigam Limited). By the end 2017-18, the number of consumers has increased to 2.1 lakh and the sale of electricity has grown to 890 MUs.

As a part of its efforts to reduce losses and make the distribution network safe and robust, KEDL deployed advanced technologies such as AMI in 2017-18. By the end of the year, the network had 63,000 smart meters, which is the largest population of smart meters in the country. Going forward, the primary focus will be on reduction of T&D losses which is currently around 27%. During the year, KEDL continued with its efforts in the deployment of customer centric processes, resulting in improvements in customer service parameters and time taken in fault restoration. It will continue to expand its consumer services in the coming year.

Bharatpur, Rajasthan : Bharatpur Electricity Services Limited (BESL), a wholly owned subsidiary of CESC, took over the operations in Bharatpur on 1 December 2016 after the signing of Distribution Franchisee Agreement with JVVNL. By the end 2017-18, the number of consumers has increased to 57,740 and the sale of electricity has grown to 213.61 MUs.

BESL inherited a distribution network with considerable shortcomings, and efforts are being made to make it safe and reliable. As a result of concentrated efforts made during the year, it successfully brought down T&D losses from 32% to 20%. All systems and processes followed in Kota have been replicated at Bharatpur with the focus of providing the high standards of customer service available to customers in CESC's network.

Bikaner, Rajasthan : CESC won the bid floated by Jodhpur Vidyut Vitaran Nigam Limited (JdVVNL) for a 20-year appointment as the distribution franchisee for the city of Bikaner in Rajasthan. The distribution area had around 1.5 lakh consumers and annual sales of over 500 MUs in 2015-16. Bikaner Electricity Supply Limited (BESL), a wholly owned subsidiary of CESC, took over the operations in Bikaner in May 2017 after the signing of Distribution Franchisee Agreement with JdVVNL. The operations have stabilised since takeover and the services have been widely accepted by consumers

of Bikaner. During the year, the Company deployed SCADA, which is fully operational and is one of its kind in Rajasthan. Going forward, focus will be on reduction of T&D loss which is currently around 22%, along with making the distribution network safe and reliable.

The three distribution franchisees — Kota, Bharatpur and Bikaner — currently have a combined customer base of 4.2 lakh and an annual energy consumption of around 2,100 million units, which translates into a revenue of approximately Rs.1,300 crore per annum.

HUMAN RESOURCES (HR)

CESC has always sought to create an environment that ensures growth, development and well-being of its employees. All HR strategies are formulated keeping employees at the core and supporting them to contribute to their and the organisation's growth. Processes are also in place by way of engagement surveys and perception studies to receive feedback from employees to align the Company with their expectation keeping synergy with the changing business needs.

The emphasis on 'service excellence with cost leadership' along with building a high performance culture has been the cornerstone of the Company's talent sourcing strategy. "Unmesh", the paid summer internship programme for students of premier engineering colleges and business schools which culminates in pre-placement offers to select young talents, has played a major role in this direction. "Anneswan", the annual induction process, has established itself as a highly popular initiative for integrating the newly recruited executives within the organisation.

Learning and development is another key focus area. The Company has a robust process for conducting training and other learning intervention programs in line with an annual training plan drawn at the beginning of the year. Curriculum based programmes and special courses in collaboration with premier institutes such as IIT Kharagpur, IIM Calcutta and XLRI Jamshedpur also play a major role in this regard. Other initiatives such as leadership retreat, coaching and mentoring and outbound learning programmes for creativity and team building are also carried out. During 2017-18, the Company carried out over 750 training programs totalling over 15,000 man days.

Knowledge and innovation management play a pivotal role in building organisational capability. CESC organises an annual "Knowledge Carnival", a platform to bring out innovative ideas to the fore. The Company has an in-house knowledge and innovation portals to support the process. During 2017-18, several innovation projects were implemented. These projects are also published in the in-house bi-annual technical journal.

Many employee centric initiatives such as "Employee Suggestion Scheme", "Reward and Recognition Programme" and "Small Group Interactive Meetings" are in place to enhance employee engagement. CESC is also deeply engaged with its employees and

Asia Institute of Power Management (AIPM), the training and consulting wing of CESC, has established itself in training of power professionals across the country and abroad. During 2017-18, AIPM carried out 21 training programs involving 1,399 man days covering many state level utilities and central organisations. These covered diverse areas such as network planning, operation and maintenance of critical electrical assets, reliability improvement, loss reduction, safety and renewable energy along with smart grid initiatives.

AIPM also offered consultancy services in reviewing of bidding documents and physical assessment of SCADA centre in Andhra Pradesh under the World Bank. Ability to support diverse range of issues in power companies bears testimony to AIPM's capabilities and operational excellence of CESC as a customer centric organisation.

their family members through regular events such as Annual Sports, Sit and Draw Competition, "Ankur Samman" to recognise and embrace the meritorious children of the employees and "Avishkar", a talent search and promotion initiative for the employees and their family.

During 2017-18, CESC won several awards and recognitions which underscore its employee friendly HR practices. These include: "Significant Achievement in HR Excellence" from CII, winner of Energy and Environment Foundation "Global HR Skill Development Award" and "Golden Peacock Award for HR Excellence".

As on 31 March 2018, CESC had 8,896 employees on its payroll. Unions representing the employees continued to play a positive role in partnering with the management to drive excellence in operations. The Company continues to enjoy industrial harmony in its operations. There were no major incidents of service interruption due to industrial relations issues in the year.

Business Excellence & Quality (BEQ)

CESC has an established track record in areas of customer centricity and operational excellence. Quality has been intrinsic to its philosophy and is imbibed in a strong process driven business model that it follows in all key areas of its operations. Institutionalising these activities across the Company led to the formation of Business Excellence & Quality (BEQ) department in 2015-16.

CESC has adopted the principles of EFQM Model of Excellence (European Foundation for Quality Management) as a tool for its journey towards excellence. During the year, focus was on reinforcement of qualitative, quantitative and motivational growth initiatives through Kaizens and 5S.

Going forward, focus will be on increasing the scope and coverage of these tools and principles through digital platforms. Simultaneously, the Company plans to develop capabilities of its people for wider participation by integrating a structured framework for daily work management and handholding teams for driving business excellence.

CORPORATE SOCIAL RESPONSIBILITY (CSR)

As a socially responsible organisation, CESC is committed to investing in the holistic and sustainable development of the communities where it operates. Through its CSR initiatives in the areas of education, health, environment and community development, the Company seeks to empower communities, to help them attain their potential.

In 2017-18, CESC received the Skoch BSE Order of Merit and Certificate of Appreciation — Earth Day Network 'Sheher Green Karo' Campaign, in recognition of the quality and impact of its CSR activities. During the year, the CSR strategy was revisited to prioritise interventions in line with the strategic objectives of the Company. Employee participation in CSR has also increased.

Education Initiatives

Under its '*Nirmal Abhiyan*' programme, carried out with City Level Programme of Action for Street and Working Children (CLPOA), the Company seeks to create a child-friendly environment in schools by providing safe drinking water and sanitation facilities, improving their overall structure, and promoting hygiene education. During 2017-18, infrastructural support was provided to four schools, which has benefited more than 650 students. Since its launch, the project has been implemented in 19 schools and has helped approximately 2,300 students and 40 teachers who have been trained under the Project.

'*Muktangan*' is a remedial education programme implemented with Hope Kolkata Foundation. Through this Project, academic support is provided to the underprivileged students from classes VIII to X, to prevent drop-out and improve learning outcomes by facilitating competency-based education. Under the project, 13 remedial education centres are operational, benefiting 1,100 students directly and 1,300 students indirectly.

The '*School Build Programme*' has been focusing on infrastructure development in government and municipal schools through repair and renovation of school buildings, provision of facilities such as safe drinking water facility and furnitures. During 2017-18, the Company provided support to six schools under this programme.

'*Roshni*' aims at helping children in urban slums to acquire quality education with level-appropriate reading and writing ability, and mainstreaming drop-out. The project is being implemented in Tiljala area with Child in Need Institute (CINI). *Roshni* covers a population of 24,000, catering to 3,742 direct beneficiaries and 4,000 indirect beneficiaries.

Health Initiatives

'*Suswasthya*' implemented with CLPOA, aims at ensuring improved health of women, children and adolescents by increasing health-seeking behaviour, improving awareness on health, nutrition and hygiene, and ensuring collective action on health for improving the quality of services in government health facilities. The project

is implemented in Kamarhati Municipality, under the Company's licensed area covering a population of about 13,000.

Over the years CESC has been supporting upgradation of the Titagarh Municipal Hospital, located in the vicinity of TGS, by improving the maternity ward and operation theatre, setting up ENT, ophthalmology and a neo-natal intensive care unit (NICU) at the hospital. In 2017-18, CESC supported the setting up of a Dialysis Unit in the hospital.

Environment Initiatives

'*Urja Chetana*' implemented in 26 schools with Centre for Environment Education promotes education for sustainable development through awareness generation on energy and environment conservation, water conservation, protection of biodiversity, waste reduction, its reuse and recycling, and protection of traditional knowledge. This project has directly benefited 9,400 students and reached 44,000 community members through them.

The Company continued its partnership with the Kolkata Municipal Corporation for maintaining the green verges in certain areas of the city of Kolkata.

Community Development Initiatives

'*Nirmal Sankalp*' is a comprehensive water and sanitation Project in Titagarh Municipality, which is implemented with Water Sanitation and Hygiene Institute. It seeks to improve availability, usage, quality and sustainability of water and sanitation facilities by involving community members as change agents. The project seeks to make the entire Titagarh Municipality 100% open defecation free. A population of 25,000 has been covered through this project.

'*Saksham*' is a skill development and employment generation programme for youth in Tiljala area. Two centres are running under the project are training 200 youth in tailoring, beauty therapy etc. '*Jagruti*' is a similar project in Titagarh Municipality through which 60 youth are being trained in use of computers, Tally and GST. Both projects are being implemented with NSHM Udaan Skills Private Limited.

'*HamariAwaaz*' is a comprehensive community sensitisation project on child protection in urban slums which is being implemented in the Tiljala area with CINI. The project aims at creating child friendly communities in urban slums by mobilising, sensitising and empowering communities to fight against child labour and other forms of child abuse.

'*Socio-economic Development Programme for Specially-Abled Persons*' is a skill training programme for persons with disabilities (visually and orthopedically challenged) to help facilitating financial security for them. Modules offered are IT essentials, digital literacy, workplace English and comprehension, workplace readiness and financial literacy. 50 persons have been trained and have been provided with placement assistance.

FINANCIAL RESULTS

Table 3 : Abridged Financial Performance of CESC (Standalone and Consolidated)

₹ Crore

	Standalone		Consolidated	
	2017-18	2016-17	2017-18	2016-17
Revenue from operations	7,786	7,220	10,275	8,363
Other Income	168	137	252	230
Total Income	7,954	7,357	10,527	8,593
Operating Costs	4,371	3,973	4,907	3,511
Employee Benefit Expenses	860	780	970	873
Other Expenses	920	846	1,467	1,240
Depreciation	426	401	751	715
Finance Costs	484	448	1,303	1,372
Total Expenses	7,061	6,448	9,398	7,711
Regulatory Income/ (Expense)	209	190	67	46
Share of Profit in Associate	-	-	50	48
Profit Before Taxes (PBT) from continuing operations	1,102	1,099	1,246	976
Tax Expense	(237)	(238)	(356)	(321)
Profit/(Loss) from discontinued operations	(3)	2	85	155
Profit After Taxes (PAT)**	862	863	975	810
Non-controlling Interest (NCI)**	-	-	62	119
PAT after NCI**	-	-	913	691
Other Comprehensive Income	(9)	(39)	2	(86)
Total Comprehensive Income**	853	824	977	724
Non-controlling Interest (NCI)**	-	-	66	98
Total Comp. Income after NCI**	853	824	911	626
Diluted EPS (Rs.)**	65.01	65.09	68.85	52.12

** From continuing and discontinued operations

Table 3 summarises the financial performance of CESC Limited both as a standalone and a consolidated entity.

Standalone Performance

- Total income (including other income) of CESC increased by 8.11%, from ₹ 7,357 crore in 2016-17 to ₹ 7,954 crore in 2017-18.
- Profit before taxes (PBT) from continuing operations for 2017-18 stood at ₹ 1,102 crore. After accounting for tax

expense of ₹ 237 crore and loss of ₹ 3 crore from discontinued operations, Profit after Taxes (PAT) for 2017-18 was ₹ 862 crore.

- Earnings per share (EPS) during the year stood at ₹ 65.01 compared to ₹ 65.09 in 2016-17.

Consolidated Performance

- Total income (including other income) of CESC as a consolidated entity increased by 22.5%, from ₹ 8,593 crore in 2016-17 to ₹ 10,527 crore in 2017-18.
- Profit before taxes (PBT) from continuing operations grew by 27.7% from ₹ 976 crore in 2016-17 to ₹ 1,246 crore in 2017-18. After accounting for tax expense of ₹ 356 crore and profit of ₹ 85 crore from discontinued operations, Profit after Taxes (PAT) grew by 20.4% from ₹ 810 crore to ₹ 975 crore in 2017-18. PAT after non-controlling interest grew at 32.1% from ₹ 691 crore to ₹ 913 crore.
- Earnings per share (EPS) during the year grew by 32.1% from ₹ 52.12 in 2016-17 to ₹ 68.85 in 2017-18.

INTERNAL CONTROLS

The Company's internal control systems are commensurate with its size and the nature of its operations. It has well documented policies, procedures and authorisation guidelines to ensure that all assets are safeguarded against unauthorised use or losses, all the transactions are properly authorised, recorded and reported, and all applicable laws and regulations are complied with.

The effectiveness of internal control mechanism is tested and certified by the Internal Audit Department, covering all divisions and key areas of operation, based on an annual audit plan giving due weightage to the various risk parameters associated with the business. Major audit observations and follow-up actions are reviewed and monitored by the Audit Committee and placed before the Board of Directors, where necessary. The Internal Audit Department also assesses the effectiveness of risk management and governance process.

RISKS AND CONCERNS

CESC's Risk Management Committee operates on a comprehensive risk management framework that the Company has put in place over time. In addition, the Company has a Risk and Disaster Management cell to focus on operational risks emanating from fire hazards and natural disasters.

At CESC, risks are systematically evaluated, categorised and suitable actions are taken to mitigate them. Divisions identify operational and tactical risks and suggest measures for mitigation and control. Departmental heads manage risks at the departmental level, whereas the top leadership team supervises and monitors the risk identification and mitigation activities of each division. CESC has identified the following key areas of risks and concerns.

Macroeconomic and Market Risks

Availability of coal, coal quality and linkages for new projects continue to be issues of concern. Surplus power generation capacities in the short term exposes the industry to risks associated with difficulties in executing PPAs and adverse price movements in the short-term power market.

To mitigate the risk of availability and cost of coal, CESC has adopted a strategy of ensuring long-term coal linkages for its existing and future projects. Most of the Company's generation capacities have long-term PPAs. It is also well placed to access state and national grids to sell surplus power and is actively looking at long-term PPAs for Unit I of DIL to further mitigate this risk.

Operational Risks

As power plants age, their operating efficiencies reduce. Beyond a point in time, shutting down and replacement of these plants become imperative. If the Company cannot build replacement plants at favourable sites, the cost of evacuating and distributing power from far flung locations into the licensed area might increase, impacting quality of service delivery and profitability. Other operational risks pertain to natural and man-made disasters such as earthquake, floods and fire that can affect the Company's ability to supply quality power to its customers.

The medium to long term risks associated with generation sites, availability and quality of power have been mitigated with the new generation plant at Haldia. To mitigate disaster risks, the Company has a comprehensive disaster management plan which classifies operational risks into three categories: fire safety management, disaster management, and risk management, with each having detailed SOPs to handle such events. System for on-line health monitoring of fire safety systems has been implemented. Periodic mock drill on fire fighting and evacuation during emergency are part of the training calendar and vital installations are under 24x7 CCTV surveillance to protect against external attack, security breach or similar activities. Apart from this, the organisation has also focused on refurbishment / revamping of its electrical assets in hospitals, nursing homes, markets, schools and colleges to reduce risks related to fire and electrical safety.

Regulatory Risks

Power is a highly regulated sector. This exposes the Company to risks with respect to changes in policies and regulations. Besides, given the nature of the industry, there is a risk of more stringent policies and norms aimed at addressing environmental concerns. This can make it more difficult to execute new projects as well as increase the cost of operations. Efficient managing and recycling of fly ash is one such area.

CESC is conscious of these risks. All the generating stations of the Company have achieved 100% ash utilisation. As explained earlier, CESC, through its subsidiaries, is also exploring opportunities in

power generation using renewable fuel sources to mitigate this class of environmental risks.

DEMERGER

As mentioned at the beginning of this chapter, the Board of Directors of CESC at its meeting held on 18 May 2017 approved a restructuring plan to demerge all the large businesses into four separate entities: power generation, power distribution, retail, and other businesses, the last to include its business process outsourcing unit under Firstsource Solutions. The rationale of this move is to unlock shareholder value, provide greater flexibility in accessing capital and to prepare a focused strategy for sustained growth across the different entities. As per the proposal, for every 10 CESC shares held, a shareholder will get five shares of the power generation arm, five of the distribution company, six of the retail firm (RP-SG Retail Limited) and two of the entity which will hold the residual business ventures (RP-SG Business Process Services Limited). All four will be listed entities.

After obtaining necessary clearance from SEBI and stock exchanges, the draft Restructuring Scheme (the "Scheme") was submitted with National Company Law Tribunal, Kolkata Bench ("NCLT"). Subsequently pursuant to the direction of NCLT, a meeting of CESC's equity shareholders was held where the draft Scheme was approved by the shareholders with an overwhelming majority. On 28 March 2018 NCLT has passed an order sanctioning the Scheme ("NCLT Order") with a direction that Part III of the Scheme providing for demerger of CESC's generation undertaking shall be effective upon obtaining approval of the West Bengal Electricity Regulatory Commission ("WBERC") in terms of Electricity Act, 2003 on the power purchase agreement between CESC and the Generation Undertaking proposed to be demerged. The Company made an application in April 2018 seeking WBERC's approval which is currently awaited.

Subsequent to the receipt of the certified copy of the NCLT Order, the Board of Directors of CESC, in its meeting held on 12 October 2018 decided to file it with the Registrar of Companies and make the Scheme effective from the Appointed Date i.e. 1 October 2017 except for Part III, Part IX and Part XII (Section 1), which shall be effective after receipt of the said approval from WBERC.

Accordingly, every shareholder of the Company will receive 6 (six) equity shares of RP-SG Retail Limited of ₹ 5/- each and 2 (two) equity shares of RP-SG Business Process Services Limited of ₹ 10/- each for every 10 equity shares of the Company held by such shareholder on 31 October 2018 (the "Record Date").

OUTLOOK

Global economic growth has strengthened considerably in the last couple of years. According to the IMF, world output grew at 3.8%

in 2017 — the fastest since 2011 — driven by an upswing in both international investment and trade. The macro-economic outlook for the next couple of years is also positive, with growth expected to firm up further to around 3.9% in 2018 and 2019. Growth is also expected to be more broad-based with positive contribution from advanced economies — notably the US. Growth in emerging markets and developing economies is also likely to firm up, along with a modest turnaround for commodity exporters.

India's GDP grew at 6.7% in 2017-18. Equally important, the economy witnessed an acceleration in growth as the year progressed, which suggests that the impact of demonetisation and Goods and Services Tax (GST) implementation may now be over. The macro-economic outlook for 2018-19 is also positive — with the RBI projecting a GDP growth of 7.4% in 2018-19.

As for energy markets, global trends clearly point at strong growth of the power sector, with electricity consumption increasing rapidly driven by demand from cooling, electric vehicles and digitisation. In term of the fuel mix, even as thermal and gas will continue to dominate the overall generation, renewable sources are expected to account for 72.4% of all capacity additions between 2016 and 2040. Capacity additions in India over the last couple of years are already in line with this.

India's power demand is growing consistently at 6% to 7%, even with efficient technologies such as LEDs are crowding out some of the growth. As the macroeconomic situation improves, demand is likely to be more broad-based, with contribution from both industrial and household segments.

These developments should augur well for the Company, which has strong expertise in both power generation projects and operating distribution networks.

Cautionary Statement

The financial statements appearing above are in conformity with accounting principles generally accepted in India. The statements in the report which may be considered 'forward looking statements' within the meaning of applicable laws and regulations, have been based upon current expectations and projection about future events. The management cannot, however, guarantee that these forward looking statements will be realised or achieved.

On behalf of the Board of Directors

Kolkata, 14 November 2018

Sanjiv Goenka
Chairman