Remain true to our aspiration and keep our mission firmly in mind in the new era. This CSR report is dedicated to illustrating our aspiration, action, and performance in maximizing its integrated value, promoting the sustainable development, as well as our implementation of social responsibilities in 2017 and missions, strategies and responsibilities in the new era.

**Statement**

State Grid Corporation of China (State Grid) declares that all information within this CSR report is substantiated, balanced, and comprehensive. It systematically illustrates State Grid’s aspiration, action, performance, commitment and future improvement in terms of maximizing the integrated economic, social and environmental value. We hereby ensure the authenticity, objectivity and promptness of this CSR report. We hope, by means of publishing the CSR report, to strengthen the communication with our stakeholders and the society in general, establish mutual trust and cooperation based on the same value recognition, and promote sustainable development.

February 2018
The Thought on Socialism with Chinese Characteristics for a New Era builds on and further enriches Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the Theory of Three Represents, and the Scientific Outlook on Development. It represents the latest achievement in adapting Marxism to the Chinese context and encapsulates the practical experience and collective wisdom of the CPC and the people. It is an important component of the system of theories of socialism with Chinese characteristics, and a guide to action for all our members and all the Chinese people as we strive to achieve national rejuvenation. This Thought must be adhered to and steadily developed on a long-term basis.

The Thought is the new guiding ideology for the CPC and the Chinese people, and it has important practical and far-reaching historic significance for winning the great struggle, building the great project, promoting the great cause and realizing the great dream. It makes clear that the overarching goal of upholding and developing socialism with Chinese characteristics is to realize socialist modernization and national rejuvenation, and that on the basis of finishing the building of a moderately prosperous society in all respects, a two-step approach should be taken to build China into a great modern socialist country that is prosperous, strong, democratic, culturally advanced, harmonious, and beautiful by the middle of the 21st century.

It makes clear that the principal contradiction facing Chinese society in the new era is that between unbalanced and inadequate development and the people’s ever-growing needs for a better life. We must therefore continue commitment to our people-centered philosophy of development, and work to promote well-rounded human development and common prosperity for everyone.

It makes clear that the overall plan for building socialism with Chinese characteristics is the five-sphere integrated plan, and the overall strategy is the four-promised comprehensive strategy. It highlights the importance of fostering stronger confidence in the path, theory, system, and culture of socialism with Chinese characteristics.

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Report Overview

The time frame covered by this report:
Jan. 1-Dec. 31, 2017. Certain parts may go beyond this time frame.

Reporting cycle:
State Grid’s CSR Report is an annual report, usually released by the end of February the next year.

Organizational coverage:
State Grid (Refer to “Corporate Profile” for organizational structure).

Note on the data:
The data for 2017 used in this report are preliminary statistics. They may be slightly different from the final results. The data for 2016 are final statistics, part of which differs slightly from the 2016 CSR Report.

Extended reading:
For information related to corporate governance, social responsibility management, stakeholder’s participation mechanisms, indicator measurement and GRI report index, please visit the official website: http://www.sgcc.com.cn/html/sgcc_main/col2017031221/column_2017031221_1.shtml.

Language of the report and how to get a copy:
The CSR reports are available in both Chinese and English, including paper and electronic versions. Please email csr@sgcc.com.cn or call at 86-10-66598394 for a hard copy. Or you can download the report from our CSR website.

Procedure for Report Preparation:
Please visit our CSR website for more details.

References:
- UN Sustainable Development Goals
- Sustainability Reporting Guidelines by Global Reporting Initiative
- Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities by SASAC
- Guidelines to State-Owned Enterprises on Better Fulfilling Corporate Social Responsibilities by SASAC
- GBT 36001-2015 CSR Report Guide
- State Grid CSR Performance Guide
- Guidance on Chinese Enterprises’ Corporate Social Responsibility by Research Center for Corporate Social Responsibility, Chinese Academy of Social Sciences
- CSR Guide for China’s Industrial Enterprises and Industrial Associations by China Industrial Economic Federation
- GB/T 36001-2015 CSR Report Guide
- AA 1000 Assurance Standards by Accountability Institute, Britain

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The year of 2017 has witnessed the successful 19th CPC National Congress and comprehensive implementation of the “13th Five-Year Plan”. In 2017, State Grid studied and followed the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th CPC National Congress under the strong leadership of the Central Party Committee with President Xi Jinping at the core. State Grid achieved new progress and fruitful results in all aspects, successfully carried out the tasks assigned by the Central Party Committee and the State Council, demonstrated the importance of the “six forces” of state-owned enterprises and making great contribution to building a well-off society in all respects. State Grid was awarded A Class by State-owned Assets Supervision and Administration Commission (SASAC) for 13 consecutive years, and ranked 2nd on Fortune Global 500 for 2 consecutive years.

We have been loyal to the Party and kept highly consistent with the Central Party Committee with President Xi Jinping as the core. We strengthened the “four conscientiousness” and the “four confidence”, firmly safeguarded the authority and centralized leadership of the Central Party Committee and spared no effort to implement the strategies and instructions of the Central Party Committee and the State Council. Moreover, we integrated the leadership of the Party into corporate governance through adopting the “united responsibility” system in which the Chairman of State Grid is also the Chairman of the Party Leadership Group to constantly improve the modern state-owned enterprise system with Chinese characteristics. We also comprehensively carried out the requirements of the central government on Party management and Party discipline to create a robust and organizational bulwark for corporate reform and development.

We vigorously promoted reforms in energy production and consumption to provide secure and quality electric power for economic and social development. We also implemented the “four revolutions, one cooperation” energy strategy proposed by President Xi Jinping to promote the construction of power grids of all levels and improve the capability and efficiency of optimized resource allocation. State Grid successfully dodged the “Year AC” and four “DC” UHV projects included in the National Air Pollution Prevention and Control Action Plan and Jiayuguan—Hunan and Zhuhai—Qinghai UHV projects. Besides, State Grid also took multiple measures to serve the development ofinnovable energy, bringing down both the volume and percentage of wind and PV curtailment and realized 100% clean-energy power supply in Qinghai for 7 consecutive days, finished the “Replacement of Coal by Electricity for heating” for a total of 1.99 million households in North China, expanding the use of electricity for heating in 500 million square meters, and successfully completed the task of securing power supply for major events such as the 18th CPC National Congress and disaster-relief for the earthquake in Jiuzhaigou. Currently, our ultra-large grid has the world’s greatest transmission capacity, largest integration of renewable energy and the highest level of security.

Going full play to the role of electric power as a driver to economic growth, State Grid has been actively facilitating efforts to fight against poverty, promote the reactivation of rural areas and achieve coordinated development across regions. State Grid finished the new round of rural grid augmentation three months ahead of schedule with a human-oriented approach, benefiting 565 million rural residents, including 29 million people in poverty.

State Grid also innovatively implemented targeted PV poverty alleviation and explored a replicable and universally applicable path of poverty alleviation through the development of electric power that ensures targeted and accurate power services in all villages with long-term, stable benefits. Besides, State Grid also carried out President Xi Jinping’s strategy on the governance and rejuvenation of border and remote areas through the construction of the world’s highest and most complicated plains power transmission and transformation project—Central Tibet Interconnection Project, speeding up the improvement of the “750kV” backbone grid in South Xinjiang and serving the development of Xiangning New District for coordinated development of Beijing, Tianjin and Hebei.

State Grid facilitated maintenance and appreciation of state-owned assets through reform and innovation. We carried out the reforms of transmission and distribution tariff on provincial levels, opened up power market and investment in incremental power distribution and established an integrated power market composed of national and provincial levels with more than 30% of power being traded, saving 73.7 billion RMB for power users on an annual basis. State Grid also carried out instructions of the Central Government on state-owned enterprise reforms and completed the enterprise restructuring, enabling vigor and vitality of institutions systems. State Grid also developed the world’s largest Smart Service Platform for Internet of Electric Vehicles (EVS) with a total of 170,000 charging piles integrated. It actively developed new business and new models such as comprehensive energy services e-commerce and PV cloud network. State Grid was selected as one of the second batch of national pilot bases for mass innovation and entrepreneurship and led the development of “Science and Technology Innovation 2050” smart grid project. State Grid won special prize in National Award for Science and Technology Progress and ranked on top among central state-owned enterprises in terms of the number of patents and number of patent applications for 7 consecutive years.

State Grid made full use of its resources to serve the development of the “Belt and Road” with new breakthroughs. It steadily promoted the M&A of overseas quality-energy infrastructure and completed the transfer of shares of CPEL Brazil and ADMEIE with an aggregated investment of 16.6 billion US Dollars and a total overseas asset of 60 billion US Dollars. State Grid also deepened international cooperation on production capacity with contract value of about 40 billion US Dollars. The operation of the first phase of Bule Mlonta hydropower project is a good example of “China quality” and “China speed”. Moreover, State Grid led the development of 47 international standards. With increasing international influence, State Grid became the chart of BDI China last year.

State Grid grows with its employees. We own a great team with dedication, integrity and responsibility. State Grid strengthened the development and selection of young leaders to unleash their potentials, emphasized the construction of local teams, venerated the innovation of employees and cared for their well-being. State Grid also promoted the spirit of role models and craftsmanship. In the construction of power grids, reforms and innovation, safe power supply, disaster relief and other major tasks, our teams showed great quality of discipline, hard-working, diligence and faith in the face of difficulties and subversion.

The 19th CPC National Congress depicted the great blueprint of making the Two Centenary Goals, starting a new journey in turning China into a modern strong socialist country in all respects. The Central Economic Work Conference clarified the requirements for developing clean energy and deepening the reform of state-owned enterprises to promote high-quality development. These major decisions of the Central Party Committee and the State Council pointed out the direction and provided the guidelines for State Grid to embrace the new era, demonstrate new responsibilities and achieve new progress.

The year 2018 is the start to implement the decisions of the 19th CPC National Congress. State Grid will carefully implement the decisions and policies of the 19th CPC National Congress and the Central Economic Work Conference to seek for the truth and make real progress to play a pioneering and demonstrative role in building a beautiful China and delivering real benefit for the people. In 2018, State Grid will carry on our mission to become a world-class energy interconnected company to make greater contributions for prosperous society and enter the great success of socialism with Chinese characteristics for a new era and to write its own splendid chapter in history.
As a state-owned company established on December 29, 2002, State Grid takes the investment, construction and operation of power grids as core business. We are committed to electrification and energy connectivity, meeting the power demand with clean and green electrification and energy connectivity, meeting the power demand with clean and green

As the largest public utility in the world, with a registered capital of 629.5 billion RMB and assets of 1.6333 trillion RMB, State Grid also owns and operates overseas assets in the Philippines, Brazil, Portugal, Australia, Italy and Greece etc.

Region: As a state-owned company established on December 29, 2002, State Grid takes the investment, construction and operation of power grids as core business. We are committed to electrification and energy connectivity, meeting the power demand with clean and green.

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The Aspiration
Responsibility, Mission, Strategy

Our Identity
Leader of global energy revolution, Pioneer in serving the people and the nation

Our Mission
Promoting re-electrification, Building Energy Interconnection, Meeting power demand with clean and green alternatives

Our Tenet
Power utility by the people and for the people

Development Philosophy
Safe, quality, affordable, green and efficient

Core Values
Customer-oriented, Professional and dedicated, Ever-improving

Corporate Spirit
In search of excellence, in pursuit of outperformance

Strategic Goal
Building a world-class energy intergrid company

Strategic Steps

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>Building up a modernized corporation with “A strong power grid with excellent Assets, Services and Performance”, making major progress in building a world-class energy intergrid company</td>
</tr>
<tr>
<td>2025</td>
<td>Basically building a world-class energy intergrid company</td>
</tr>
<tr>
<td>2035</td>
<td>Building a world-class energy intergrid company in all respects</td>
</tr>
</tbody>
</table>

Guiding Principle
Six Commitments

The Way to Success
Committing to the leadership of the Party, implementing the decisions and policies of the Central Party Committee and the State Council and forging an employee-oriented enterprise.

The Action of Responsibility
Committing to the tenet of power utility by the people and for the people to promote the corporate core values of being customer-oriented, professional and dedicated, Ever-improving.

Original Aspiration
Committing to re-electrification, building energy interconnection and meeting power demand with clean and green alternatives for energy production and consumption revolution.

Key to a Solid Foundation
Committing to building up a strong & smart grid with UHV grid as the backbone and coordination among power grids of all levels to foster an extensive & interconnected, smart & interactive, flexible & resilient, secure & controllable new generation power system.

The Foundation of Management
Committing to conglomeration, centralization, standardization, streamlining, digitalization and internationalization development, becoming a more competitive modern state-owned enterprise.

An Inevitable Approach
Committing to quality development, focusing on “one core, three pillars” strategy (grid business, manufacturing, finance and international business) to strengthen reform, innovation, service and culture.

Strategic Thinking
Eight Highlights

1. quality development of power grids
2. quality development of the company
3. development of clean energy
4. a customer-oriented approach
5. serving the development of the “Belt and Road” Initiative
6. deepening the supply-side structural reform
7. promoting technical innovation
8. highlighting the leadership of the Party
The Action

Party Building

Holding the banner high, to reach new peak within three years
The Party Leadership Group of State Grid regards studying, promoting and implementing the Spirit of the 19th CPC National Congress as the top political task of State Grid for the time being and the near future through emphasizing the exemplary role of leaders to carry out the Spirit on all levels. State Grid needs to make special efforts in “ten deep understanding”, “six focus” and “five full coverage” for thorough research, deep understanding and concrete action, so that we can use the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era to equip ourselves, guide our practice and promote our work. Executives of State Grid went to local branches to communicate with local staff and leaders of different levels also organized different forms of promotion and research activities based on local circumstances. Party committees on all levels also consolidated the “Four Consciousness” and the “Four Confidence” to comprehensively promote the political, theoretical, organizational, behavior and discipline construction of the Party with institutional construction being embedded in the process. We implemented the plan to “Holding the banner high, to reach new peak within three years” in Party building and regularized and institutionalized studies on the theoretical and practical issues of Party building. We made continuous efforts to implement the eight-point guidelines to improve the management and value creation capability of Party-building, foster loyal, upright and responsible officials and constantly enhance the creativity, cohesiveness and strength of the Party.

Studying and implementing the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the Spirit of the 19th CPC National Congress

We consolidated the “Four Consciousness” and the “Four Confidence” to comprehensively promote the political, theoretical, organizational, behavior and discipline construction of the Party with institutional construction being embedded in the process. We implemented the plan to “Holding the banner high, to reach new peak within three years” in Party building and regularized and institutionalized studies on the theoretical and practical issues of Party building. We made continuous efforts to implement the eight-point guidelines to improve the management and value creation capability of Party-building, foster loyal, upright and responsible officials and constantly enhance the creativity, cohesiveness and strength of the Party.
Strengthening the leadership of the Party

State Grid followed the requirements of seeing Party self-governance exercised fully and with rigour, attached equal importance to theoretical and institutional improvements in Party building and governance, identified and carefully implemented 60 key tasks, regulated and institutionalized studies on the theoretical and practical issues of Party building and implemented the plan to “hold the banner high, to reach new peak within three years” in Party building to establish the “six major work mechanisms” and “six-in-One” Party building. We included Party building in corporate rules at all levels and clearly identified the duty and responsibilities of the Party Committee and the Board of Directors, executives and the Board of Supervisors. The Party Committee organized research and discussion between corporate leadership and corporate decisions. State Grid established Party building leadership groups on all levels and realized the “Chairmen of the company also held the position of Party Secretary in subsidiaries”. We carefully implemented the Party building responsibility system and organized the first assessment work on Party building among chairmen of Party Committees on all levels and comprehensive Party building performance assessment work across the Corporation. We also strengthened the construction of Local Party Committees and comprehensively established the rules of Party governance and organized elections in 594 Party Committees, replacing all unqualified officials.

Building good conduct and political integrity

State Grid continued to fight against undesirable work styles, such as formalism, bureaucratism, hedonism and extravagance, in line with the eight-point guidelines issued by the CPC leadership and gave full play to inspection through organization internal inspection in 20 companies. During the inspections, 2101 problems were identified and solved, 2236 rectification measures were proposed and 415 systems were established. In the meantime, 60 companies also organized inspection in secondary subsidiaries. State Grid supported the State-owned Assets Supervision and Administration Commission of the State Council to organize the special activity of “Five Years of Unremitting Efforts” and “Under the leadership of the Shining Party Emblem” to strengthen the construction of spiritual civilization and corporate culture and spur the innovativeness of Party members. State Grid also undertook major Party-building projects of the Organization Department of the Central Committee of the CPC and State-owned Assets Supervision and Administration Commission of the State Council, contributing wisdom to Party-building in central enterprises, demonstrating corporate value and improving the image of State Grid. State Grid also used Party-building to lead Youth League-building through organizing a series of all contents among young employees and “Youth Brightness Tour” Volunteer Service and holding the 3rd Youth Innovation and Creativity Competition with 6000 innovation and creativity projects being launched, creating an economic value of nearly 230 million RMB.

Strengthening the construction of Local Party Committees and Party members

We need to implement primary political task and promote the study of the spirit of the 19th CPC National Congress. State Grid launch the Action “Chairman of the company also held the position of Party Secretary in subsidiaries”. We carefully implemented the Party building leadership groups on all levels and realized the “Chairmen of the company also held the position of Party Secretary in subsidiaries”. We carefully implemented the Party building responsibility system and organized the first assessment work on Party building among chairmen of Party Committees on all levels and comprehensive Party building performance assessment work across the Corporation. We also strengthened the construction of Local Party Committees and comprehensively established the rules of Party governance and organized elections in 594 Party Committees, replacing all unqualified officials.

Strengthening accountability to safeguard the effective implementation of the accountability system of the Party-building. State Grid worked out detailed plans on the implementation of the accountability system, launched 20 detailed rules and regulations for implementation and the Party-building Performance Evaluation and Assessment Measures to improve the accountability system of Party-building from top to bottom. State Grid also organized centralized inspection of the problem of implementing and underperforming the importance of Party-building and Party leadership and made a list concerning problems in 6 aspects. The Headquarters urged related companies to come up with concrete measures to solve their own problems. State Grid also organized evaluation of Party Committee Chairman’s Report on Party-building in 62 subsidiary companies for the first time, which significantly promoted the implementation of the accountability system in Party-building.

Improving organizational construction to ensure the implementation of Party-building measures across the Corporation. All companies are required to include Party-building into their corporate charters and clarify the legal status of Party committees at all levels. Under the guidance of the “Super Party-building” framework, State Grid asked all subsidiary companies to establish leadership groups on Party-building and form a new work mechanism with regularized studies on Party-building, regulated and improved the institutional settings of Party-building Office, Organizational Department and Party-building Department of all levels, which substantially improved the capability of Party-building. State Grid also promoted organizational construction and general election, transformed the Party Leadership Group to Party Committee in 37 companies and supervised 306 Party committees and 1078 Party branches (general branches) to organize elections to ensure that those who are the most capable take the helm. In 2017, State Grid carried out election in Party committees directly under the leadership of the Headquarters to make their Party-building efforts more effective. State Grid also promoted institutionalized and regularized studies on the theoretical and practical issues of party building to implement the requirements of the central government and State Grid Party Leadership Group with special emphasis on routine education and centralized training of party members to guide party members to strengthen “four awareness”, build up “four confidence” and fulfill “four qualification”. State Grid took concrete measures to ensure that Party committees and Party members of all levels take their responsibilities to play a leading role in undertaking key tasks, including ensuring power supply during the 19th CPC National Congress, the construction of major projects and cutting-edge S&T innovation. The Corporation also organized theme activities to promote Party-building, established 4022 Party Service Teams, 56,000 Party Member Responsibility Zones and 67,000 Party Member Demonstration Positions to ensure that important posts are taken by Party members, backbone employees, Party members and the presence of Party members on crucial moments.

Stressing the demonstrative role of Party members to form synergy. State Grid strengthened theoretical studies and promotion through organizing the theme activity of “Five Years of Unremitting Efforts” and “Under the leadership of the Shining Party Emblem” to strengthen the construction of spiritual civilization and corporate culture and spur the innovativeness of Party members. State Grid also undertook major Party-building projects of the Organization Department of the Central Committee of the CPC and State-owned Assets Supervision and Administration Commission of the State Council, contributing wisdom to Party-building in central enterprises, demonstrating corporate value and improving the image of State Grid. State Grid also used Party-building to lead Youth League-building through organizing a series of all contents among young employees and “Youth Brightness Tour” Volunteer Service and holding the 3rd Youth Innovation and Creativity Competition with 6000 innovation and creativity projects being launched, creating an economic value of nearly 230 million RMB.
Quality Development

Ensuring reliable, modern energy services for all expanding infrastructure construction and providing sustainable and modern energy services for all by technical innovation.

Gradually improving the efficiency of energy use in consumption and production to disconnect economic growth and environmental degradation.

Developing quality, reliable, sustainable, and resilient infrastructure and existing infrastructure to improve the efficiency of energy use.
Building a strong and smart grid with UHV grids as the backbone with coordinated development of power grids at all levels, establishing a safe, green, efficient and smart new-generation electric power system, building an energy interconnection that is flexible and integrated, interacted and extensively interconnected. State Grid has been actively promoting the safe development of power grids and has built the world's largest power grid in terms of transmission capacity, level of safety and installed capacity of renewable energy. State Grid will continue to promote the safe, green, coordinated and smart development of power grids and coordinate the development of power grids at all levels for better resource allocation, supply reliability, smart interaction and intrinsic safety.

State Grid Corporation of China

Seizing the principle of grid development

Building World-Class UHV Transmission Projects

UHV power grid benefits all. It could significantly improve the capability of resource allocation, promote the intensive development of renewable energy, address the challenge of energy scarcity, facilitate air pollution prevention and control in Eastern and Central China, build a Power Silk Road, secure power supply during peak hours in summer and aid the development of western China with significant social and economic benefits.

Breakthroughs have been made in UHV power grids. State Grid successfully produced the world’s first ±1100kV UHV DC wall bushing and put into operation the world’s first 1100kV AC filter bank circuit breaker through independent R&D. It also promoted multiple technological breakthroughs in GIL integrated corridor, 3D digital design and UHV AC composite transverse load.

State Grid Corporation of China

Coordinating the Integrated Development of Power Grids on All Levels

State Grid Corporation of China

Putting transformation (converting) capacity into operation

350GW (GW)

Putting transmission line over 110 (66) kV into operation

55 thousand kilometers

Building World-Class UHV Transmission Projects

State Grid Corporation of China

Building World-Class UHV Transmission Projects

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Putting transmission line over 110 (66) kV into operation

55 thousand kilometers

STATE GRID CORPORATION OF CHINA

Building World-Class UHV Transmission Projects

State Grid Corporation of China

Building World-Class UHV Transmission Projects

State Grid Corporation of China

State Grid Corporation of China
State Grid Corporation of China

Coordinated development of grids at all levels

In our service area

*8 AC and 10 DC* UHV projects into operation

1000 kV UHV AC projects
- Jindongnan—Nanyang—Jingmen
- Huainan—Zhou—Shanghai
- Zhabei—Fuzhou
- Xinping—Shangdong
- Mengxi—Tianjin
- Yanping—Wenhui

±800kV UHV DC projects
- Xiangxi—Shanghai
- Jining—Nanjing—Shanghai
- Huainan—Zhebei—Shanghai
- Zhebei—Fuzhou
- Ximeng—Shandong
- Mengxi—Tianjin
- Shanghaimiao—Shandong

“Three AC and One DC” UHV projects approved and under construction

1000 kV Su—Tong GIL Integrated Pipeline Project
1000 kV Beijingxi—Shijiazhuang UHV AC Project
1000kV Weifang—Linyi—Zaozhuang—Heze—Shijiazhuang UHV AC Project
±1100kV Zhundong—Wannan UHV DC Project

Other key demonstration projects

- Accelerated the demonstration of the Yangtze River, Solar, Thermal and Storage Multi-Energy Complementary Project, the Northwest 750kV Main Grid Structure Project and the Central Tibet Interconnection Project
- Started construction of Xingjiang—Yancheng—750kV transmission line project, and construction projects in Shandong and Zhejiang Converter Stations.
- Built 500 kV Red River Delivery Project and Jiujiang 500kV Unified Power Flow Controller Project.
- Completed and put into operation the Yalongjiang—Yanzhou hydroelectricity delivery project and Shanghai—220kV Unified Power Flow Controller Project.
- Completed the design of Shanghai—Shenzhen flexible DC Project, and studied and formulated plans for energy interconnection planning and construction in Asia, Europe and Africa.

In 2017, 110 (66) kV and above AC and DC projects into operation

Transformation capacity of AC projects
- 273 GW

Conversion capacity of DC projects
- 92 GW

AC line length
- 48,800 km

DC line length
- 7,600 km

The Action State Grid Corporation of China
Intrinsic Safety

- Protect labor rights and promote the creation of a safe and secure working environment for all workers.

- Develop quality, reliable, sustainable and resilient infrastructure; provide financial, technical and technical support to promote the development of sustainable infrastructure that is resilient to disasters.

- Strengthen inclusive and sustainable urban development; build resilient communities that are resilient to disaster and implement comprehensive disaster risk management.
Comprehensively investigated the security risks. State Grid carried out the inspection of safety production, covering various levels of organizations, specialties, places and working sites; carried out targeted special inspections on construction safety; made efforts to pursue safety of distribution grids, information and affiliated businesses. Actively upgraded power consumption facilities and improved the intrinsic safety of power equipment.

Ensured the security of power grid during the summer load peaks. In 2017, affected by the continuous large-scale high temperature, the load of the six regional power grids and 21 provincial-level power grids hit a record high. Abiding by the National Safe Production Video Teleconferences, State Grid analyzed the power demand and supply situation of peak hours during the summer, guaranteed the full-power operation of the three UHV DC transmission projects and ensured the safe operation of the power grid and reliable power supply.

Effectively respond to unexpected disasters. Faced with natural disasters that have occurred in China in 2017, State Grid launched an emergency plan to quickly implement emergency rescue, disaster protection and power supply, restored damaged grid facilities in a timely manner, spared no efforts in emergency rescue and disaster relief, promptly and effectively restored power supply, and effectively responded to the 7.0 magnitude earthquake in Jiuzhaigou, Sichuan, lasting heavy rainfall in Hunan, Jiangxi, Liaoning, Jilin, and other natural disasters such as the double typhoons of Nasha and Haitang.

Institutional mechanism guarantee. Strictly implemented the requirements of the Party Central Committee and the State Council, strengthened organization and leadership, and carefully formulated power supply plans; different departments and organizations gave full play to the advantages of the corporation and supported, cooperated and coordinated with each other; employees fulfilled their duties with due diligence and dedication, ensured safe power supply and made great contributions to the success of major events.

Domestic and international major events. State Grid carefully prepared and successfully secured with high-standard, high-quality the power supply during major events such as the 19th National Congress of the Party, the “Two Sessions”, the “Belt and Road” Forum for International Cooperation, BRICS Xiamen Summit, the 13th National Games, etc.
### Safety and Quality Index

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Improved Year-on-Year (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply Reliability for Urban Users</td>
<td>0.0023%</td>
</tr>
<tr>
<td>Power Supply Reliability for Rural Users</td>
<td>0.0015%</td>
</tr>
<tr>
<td>Transformer trip rate decreased year-on-year</td>
<td>35.7%</td>
</tr>
<tr>
<td>Transmission line tripping rate decreased year-on-year</td>
<td>25%</td>
</tr>
<tr>
<td>Transformer trip rate decreased year-on-year</td>
<td>28%</td>
</tr>
<tr>
<td>Converter Station tripping rate decreased year-on-year</td>
<td>99.9403%</td>
</tr>
<tr>
<td>500 (330) kV and above</td>
<td>99.7837%</td>
</tr>
</tbody>
</table>

### Emergency Repairs

<table>
<thead>
<tr>
<th>Action</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted emergency drills</td>
<td>8,196</td>
</tr>
<tr>
<td>Person times participated</td>
<td>169,200</td>
</tr>
</tbody>
</table>

### Summer Load Peaks

<table>
<thead>
<tr>
<th>Action</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulated and printed key measures</td>
<td>30</td>
</tr>
<tr>
<td>A total of person times put into repair</td>
<td>185,100</td>
</tr>
<tr>
<td>Vehicle times put into repair</td>
<td>38,000</td>
</tr>
</tbody>
</table>
Excellent Management

Expand effective supply to meet effective demand and accelerate the formation of institutional mechanisms and development methods that will lead the new normal of economic development.

Improve industrial sustainability, increase the efficiency of resource consumption, provide favorable policies to achieve industrial diversification and increase the added value.

State Grid Corporation of China
Perfecting the modern state-owned enterprise system with Chinese characteristics

Follow the right direction. Adhering to the Party’s leadership over state-owned enterprises is a major political principle and it must be followed consistently; the establishment of a modern enterprise system is the direction of state-owned enterprise reform and also it must be followed consistently. Adhering to the Party’s leadership and strengthening the Party’s construction is a unique advantage of the state-owned enterprises. State Grid insisted on the service, production and operation without deviating from it and examined the work and effectiveness of the party organization with the results of the enterprise reform and development. State Grid will provide a strong guarantee for the construction of a world-class energy intergrid company with outstanding competitiveness.

Promote institutional development. State Grid comprehensively strengthened Party leadership and Party building with safety based, value oriented, customer centered and team rooted principles. Taking reform-innovation as a driving force, State Grid paid more attention to development quality and efficiency, and strived to promote upgrades of Party building and power grids, management and services, put all efforts to build a world-class energy intergrid company.

Promoting power industry reform

- Promote the release of incremental distribution services. State Grid started the operation of mixed ownership power transmission and distribution companies, explored the market-based approach to alleviate the “three-abandoned” issue, cooperated with the National Development and Reform Commission to promote trans-regional and trans-provincial power transmission price reforms, and successfully completed the provincial power grid transmission and distribution price verification work.
- Promote the construction of the electricity market. State Grid continued to standardize trading organizations, constantly enriched its trading varieties, basically established a normalized market operation mechanism, established inter- and intra-provincial medium and long-term power trading mechanisms, and established a national electricity market system with “unified market and two-level operation”.
- Develop power transmission and distribution market. State Grid explored the realization of mixed ownership of incremental distribution, the rapid development of trials in the power sale side, set up power supply service organizations to quickly respond to the electricity demand of customers, and greatly improved service efficiency.

Promoting reform of state-owned assets and state-owned enterprises

- Master the direction of reform. State Grid made overall plans for the promotion of mixed ownership, auditing systems, and reform of collective enterprises, promoted the marketization of industries and financial organizations, standardized the setting up of organizations to strengthen front-end business integration.
- Complete the company restructuring. State Grid achieved “designating one person for both the Committee Secretary and the chairman of the board in secondary organizations,” establishing the Party’s statutory status in corporate governance structure; researched and explored business intensive integration approach and selected 19 organizations to formulate pilot programs to conduct business integration according to local conditions.
- Strengthen institutional development. State Grid established the “1+N” leaders management system; issued the first “White Paper of Managing Enterprises According to Law” among central enterprises. The county-level subsidiaries were all re-registered to branch companies.

Accumulatively reduced the number of legal persons at all levels

Registered market players on power trading platforms
Power industry reform

- The total trading power in State Grid service area was 4,046.7 TWh.
- Market trading power: 1,209.5 TWh.

Approved transmission and distribution tariff
- Expanded annual direct trading volume
- Canceled the city utility surcharge
- Canceled the power tariff for the repayment of electrified railway

Reduced customers’ electricity expenditure by 73.7 billion RMB.
- Direct transaction reduced customers’ power consumption by 29.5 billion RMB.

Power trading platform
- The daily visit of power trading platform exceeded 10,000 times.
- Electricity turnover exceeded 1,200 TWh.

- Registered market players: 55,700
- Participated market player: 155,000 times
- Retailing company: 5,000
- Power retailing companies: 2,233
- Power generation companies: 2,233
- Power users: 100,000
- Power retailing companies: 50,000 times
- Power generation companies: 50,000 times

State-owned Assets Reform and Corporate Management Reform

Clearly define the task of reform, fully deploy and implement, formulate and issue

- State Grid Corporation of China’s Opinions on Comprehensive and Promotion of Fully Deepening Reform Work in the Second Half of 2017
- Notice on Solid Concentration and Promotion of Fully Deepening Reform Work in the Second Half of 2017
- Key Tasks Analysis and Implementation Measures for Reform in 2017

Management efficiency benefits continued to be optimized

- Smoothenly completed the task of company system reforming on schedule.

- Completed categorizing subsidiary companies at all levels of the Corporate secondary organizations: + 21
- Third-level and below organizations: + 123

- Promoted business integration and selected pilot organizations: 19
- Promoted “reduction” work, accumulatively reduced legal persons: 661
- County companies were changed from subsidiary company to branch company: 594
- Cleaned non-core and inefficient investments: 67

Management performance

- “163” Excellence Management System won the first prize of the 23rd National Enterprise Management Modernization Innovation Achievement Award
- Awarded as A-Class enterprise by State-owned Assets Supervision and Administration Commission (SASAC) evaluation on operation performance for 13 consecutive years

- Market trading power: 1,209.5 TWh.
- Total trading power in State Grid service area: 4,046.7 TWh.
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State Grid Corporation of China

The Action

- Improved management and control
- Adopted scientific methods to determine key indicators
- Prompt employees to achieve high performance
- Evaluated performance through comprehensive evaluation

Promote the construction of institutional and mechanism. State Grid innovated on management concepts, focused on building institutional mechanisms that will fully deepen reforms and target market competition, fully mobilized the enthusiasm of all levels, and stimulated the vitality of the bottom level. We optimized the allocation of resources and promoted the coordinated development of all organizations. By implementing big data strategy, we made full use of modern information and communication technologies such as "Big Data, Cloud Computing, Internet of Things, Mobile Internet," and deepened the application of big data, cloud computing, and the Internet of Things to realize continuous driving force for high-performance corporate development.

Practice "163" excellent management system. State Grid comprehensively deepened excellent performance management and evaluation, promoted the scientific management of the company, implemented accurate management, and improved its overall efficiency. The company has been working on optimizing the allocation of resources and promoting the efficiency of the enterprise.

Optimize the overall management level. State Grid optimized and improved the "Three Intensives and Five Majors" system; improved the professional integration and coordination mechanism; carried out 74 special audits for the inspection of enterprises in accordance with the law; strengthened audit, supervision, and rectification of international and financial businesses; established a digital auditing studio to explore new audit models.

State Grid Anshan Power Company performing post competency evaluation

Jiangsu Zhenjiang Yangzhou High-tech Industrial Development Zone is the country's first batch of incremental power distribution reform pilot areas approved by the National Development and Reform Commission and the National Energy Administration. On November 10, 2017, Yangzhou High-tech Zone Mixed-Ownership Distribution and Retailing Company was officially unveiled and established. This is one of the first batch of three power distribution companies established in the country, which is an important point in the Jiangsu power system reform of the State Grid and marks a new step of the Jiangsu incremental power distribution reform.

Yangzhou High-tech Zone Distribution Power Company is entitled to operate the power distribution business in the 2.8km² to-be-developed area in the High-tech Zone, providing power distribution, power supply, and bottom-keeping services in the region, conducting value-added services such as integrated energy management, and competition in market-based power purchases and wholesale business. During the "13th Five-Year Plan" period, Yangzhou High-tech Zone Distribution Power Company will invest 20.05 million RMB to transform the regional power grid, continue to improve the grid structure, the quality of power supply and to maximize the release of reform dividends.

Zhejiang, Jiangsu Province
Established the first batch of Power Distribution
distributor companies

Xinjiang Power Market Management Committee formally established

On June 8, 2017, the Xinjiang Power Market Management Committee was officially established in Ilijiang, 33 representatives from Xinjiang Gufeng Autonomous Region's power generation companies, power customers, State Grid Xinjiang Power Supply Company, Xinjiang Power Market Trading Center became members of the first management committee.

The Xinjiang Power Market Management Committee, as an autonomous deliberative agency, is mainly responsible for studying the regulations of the Xinjiang Power Trading Center, proposing power market construction and operation, discussing the power market operation rules, financial regulation rules and important issues involving the interests of market players, listening to the market's main appeals, putting forward reasonable opinions and suggestions, supervising the implementation of power market operations and trading rules, and promptly reporting to the Autonomous Region's Economic and Information Commission, the Development and Reform Commission, Xinjiang Energy Supervision Office and other departments.

State Grid Xinjiang Power Supply Company achieved new height in "Procuratorate and Enterprise Joint Construction"

"Procuratorate and Enterprise Joint Construction" is the demand for the rapid development of power companies after the "Three Intensives and Five Majors" restructuring and is an important safeguard measure under the new situation of comprehensive reform and enterprise management. State Grid Xinjiang Power Supply Company took the construction of "Procuratorate and Enterprise Joint Construction" as the starting point, based on education, system and supervision, continuously improved the management mechanism and connected the company supervision with the procuratorate supervision to form a new supervision mechanism which restricts and coordinates, utilizing the advantages of joint inspection/platform to prevent related crimes. After setting up the platform of "Procuratorate and Enterprise Joint Construction," the company has established a management system of joint supervision and prevention, and prevention and supervision and the construction of a coordinated supervision mechanism. Through annual risk prevention and control inspections and quarterly inspections, the company has improved the quality of supervision and prevention and improved the quality of supervision and prevention and the activities of "ruling enterprises by law" have gradually advanced.

State Grid Corporation of China

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Innovation-driven Strategy

Enhance scientific research, upgrade the technological capabilities of industrial sectors by encouraging innovation.

Facilitate access to clean energy research and technology, and promote investment in energy infrastructure and clean energy technology.

Affordable and Clean Energy
Promote all-round innovation. Innovation was integrated into all work, injecting drivers into the development of State Grid. Special attention was given to areas like renewable energy, new-generation power system and energy interconnection to get major achievements in innovation, so as to consolidate and expand its advantages in the global industry.

Enhance its leading position in power grid and energy technologies. State Grid took the lead to implement the “Scientific and Technological Innovation 2030” smart grid key project and completed the implementation plans, built Suihua Energy Transition and Innovation Demonstration Zone and Zhangjiakou Renewable Energy Demonstration Zone, and established a National Technical Innovation Center for smart grid. With these efforts, the company has consolidated and enhanced its technical advantages in UHV power grids, large-grid stable control and smart grids.

State Grid fully implemented innovative development action plan of information and telecommunication. Carried out 74 key projects in 3 categories of innovative applications in key areas, upgrading foundation platforms and innovation in grassroots units, and promoted the construction of demonstration projects in key areas and their business models, making innovations in smart status sensing of grid equipment.

Promote entrepreneurship and innovation. In June 2017, State Grid was approved by the State Council as the National Demonstration Base for Entrepreneurship and Innovation. State Grid proposed the “122” major tasks (1 objective: to build a world-class energy service company, 2 methods: seeking the leading position in the industry, improving weak links and strengthening the foundation, regional cooperation, 1 development path: innovation development, 2 engines: strengthening Party self-discipline, and reform and innovation) and innovative measures for the mechanism to build its brand as a “Star Company in Entrepreneurship and Innovation.” The construction plan of the base was approved by NDRC and SASAC and published.

State Grid’s strategy outline and orderly carried out pilot projects of good conduct on standardization in power companies. State Grid was approved to build innovative bases for national technical standards in smart grid, and the first 11 bases are under construction as planned.

Major technical innovations

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Follow the trends of “big data, cloud computing, Internet of Things and mobile internet”. The MIIT (Ministry of Industry and Information Technology) 230-NPS Power Wireless Dedicated Grid Pilot Project passed quality acceptance. State Grid preliminarily built a unified data center analysis platform covering all services, connecting 57 operation systems and 394 terabytes of data. “State Grid Cloud” was officially launched to support the operation of 33 kinds of services, connecting 32 operation systems and had a size of around 2,300 terabytes of data. “State Grid Cloud” was officially launched to support the operation of 33 kinds of services, connecting 32 operation systems and had a size of around 2,300 terabytes of data.

Develop new businesses

State Grid developed TCU display screen, and launched advertisement in charging stations, charging piles and APP.

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**R&D achievements**

- **National standards led by State Grid**: 103
- **Industrial standards led by State Grid**: 152

**Total valid patents**

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td>In 2013—2017</td>
<td>28,131</td>
<td>40,143</td>
<td>50,165</td>
<td>60,186</td>
<td>70,208</td>
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**Patients for invention**

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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<tr>
<td></td>
<td>73,350</td>
<td>80,460</td>
<td>87,570</td>
<td>94,680</td>
<td>101,790</td>
</tr>
</tbody>
</table>

**Level of intelligence**

- **Investment in IT**: 5,324 billion RMB, Year-on-year growth 7.5%
- **Investment in communication projects**: 7,046 billion RMB, Year-on-year growth 15.13%

**Increase the level of intelligence**

- **Information system operation rate**: 99.95%, communication equipment operation rate above 99.99%
- **Online line loss monitoring stations during the same period**: 3,833, monitoring rate 92.47%, up by 11.99%
- **State Grid erected**: 13,000 km of cable and completed equipment installation and debugging in 4,397 transformer substations, power supply stations (outlets)
- **State Grid orderly promoted coordinated patrol by helicopters, drones and workers**: Helicopters traveled 171,000 km in total and found 17,000 faults

**National Science and Technology Award (special award)**

- **1**

**National Science and Technology Award (second award)**

- **7**

**State Technological Innovation Award (second award)**

- **1**

**China Patent Awards (gold medal)**

- **2**

**China Patent Awards (outstanding award)**

- **17**

±800kV UHV DC transmission projects brought significant social and economic benefits, which are essential to energy production and consumption revolution, energy upgrading in China, and promoting the “Belt and Road” Initiative. Such projects greatly increased the transmission capacity of hydro, wind, solar power from west and north China to load centers, and promoted the large-scale concentrated development and accommodation of clean energies, with over 60 GW of hydropower generation in west and south China and 30 GW of wind and solar power generation in west and north China.
Excellent Service

Strengthen the scientific and technological capacity to move towards more sustainable patterns of consumption and production.

Ensure universal access to affordable, reliable and modern energy services and double the global improvement rate of energy efficiency.

Responsible Consumption and Production

Sustainable Consumption and Production
State Grid Corporation of China

Build a modern customer-oriented service system

Upgrade power supply service and command platform. The 95598 service platform followed the principle of “Serving Customers with Whole Heart”, prioritized customers, and continuously promoted to offer services in a scientific, standard and precise way to send cross-discipline command, manage and control the operation and maintenance of the power distribution network, manage and control service process and quickly respond to service requests. State Grid established the enterprise culture of serving customers to provide users with quicker response and better experience, and meet people’s needs for electricity. By implementing the “Ten Promises” in Power Supply Services of State Grid, the company required employees to strictly follow the proceedings of verification and calibration, and upload the test results on 95598 intelligent interactive website within 5 working days so that users could log in the website and check the test certification.

Support public services. State Grid provided diversified and tailored comprehensive energy services for industry parks, industrial enterprises and large-scale public buildings; checked the power device, self-owned emergency power supply equipment, power operation and management of railway, airport, government, hospital, school, large shopping mall and other high-risk stakeholders; provided power supply management services to coal mines, non-coal mines and other high-risk and important stakeholders to ensure that the power supply to public facilities is safe and reliable.

Build a convenient bill settlement system for power sales. State Grid optimized the regulations and proceedings of market-based electricity sales, which was applied in 27 provincial companies, improved the bill settlement process, and facilitated the interaction and collaboration of data among systems to build an efficient and user-friendly settlement system.

Safeguard information safety for customers. In line with the Cybersecurity Law, State Grid gives notices and gets users’ permission before the information system collects their information; rigorously applies level-by-level examination and internal approval before providing such information to other organizations and signs confidential agreements with them; Never provide privacy-related information to any person or organization without the users’ permission or strictly removing sensitive information, and ensures that the data is not stolen or used for malicious purposes to ensure information safety.

Enhance the new type of business of providing comprehensive energy services

Deepen the application of “big data, cloud computing, Internet of Things and mobile internet” and functions including scanning code to pay bills, and using rewards points in other online shopping platforms. More customers chose to use e-bills, greatly reducing service cost.

All-in-one smart meters. State Grid accelerated the information collection of power, water, gas and heating in one meter and set up 5 pilots; explored more service channels, like WeChat platform where people could check the data of water and natural gas, electricity, water-gas bill, and collecting water and gas bills on “95598 Pay” or in-business halls.

Inform customers of key links. Functions include real-time positioning of repair workers, real-time inquiring of failure recovery path in, effective interaction with customers on high-frequency business, informing customers of processing progress, service booking, information inquiry and scheduled outage via APP, calls and text message, and building a real-time connection with customers and evaluation mechanism.

Promote transition and upgrading of business halls. The company provided smart payment services to low-voltage non-residential users and high-voltage users, optimized mobile marketing, and provided better functions including online business, smart payment, e-bill and e-invoice etc.
Customer-centered service system

- **95598 hotline**
  - Call-answering rate: 97.35%
  - First-call resolution rate: 70.56%
  - First-call resolution rate (consulting): 100.00%
  - Timely dispatch rate: 99.99%
  - First-call resolution rate (complaint): 83.81%
  - Satisfaction rate of return visits: 99.10%
  - Accuracy rate of order dispatch: 99.98%

- **Electricity sales companies established in its service area over**
  - 10,000

- **Electricity sales companies registered and publicized in power trading centers**
  - 2,233

- **Over 1,000 electricity sales companies in 15 provinces joined power market, set up sales services windows in 2,185 business halls at city and county level with diversified choices and value-added services.**

New type of business: comprehensive energy services

- **User information collection system provided 44.497 million pieces of information on blackouts to the electricity quality online monitoring system and 24.52 billion pieces of voltage monitoring data to the production management system (PMS).**

- **Installed another 37.487 million smart meters**
  - Completed: 192.2% of the annual target
  - Coverage: 447 million households
  - Coverage rate: 99.03%

- **Network information safety loopholes handled**
  - 1,947

- **Self-inspection activities of network information system**
  - 205

- **User information collection system provided 44.497 million pieces of information on blackouts to the electricity quality online monitoring system and 24.52 billion pieces of voltage monitoring data to the production management system (PMS).**

- **Build a market-oriented business channel for electricity sales**
  - Electricity sales companies established in its service area over 10,000

- **Installed another 37.487 million smart meters**
  - Completed: 192.2% of the annual target
  - Coverage: 447 million households
  - Coverage rate: 99.03%

- **2,233 electricity sales companies registered and publicized in power trading centers**

- **Timely dispatch rate**
  - 99.99%

- **First-call resolution rate (complaint)**
  - 83.81%

- **Satisfaction rate of return visits**
  - 99.10%

- **Accuracy rate of order dispatch**
  - 99.98%

- **First-call resolution rate (repair)**
  - 70.56%

- **Accuracy rate of order dispatch**
  - 99.98%

- **First-call resolution rate (consulting)**
  - 100.00%

- **First-call resolution rate (complaint)**
  - 83.81%

- **Satisfaction rate of return visits**
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State Grid Corporation of China

The Action

packets worth over 30 million RMB, attract extensive promotion activities, covering 25 provinces. “red packets” promotions based on the local situations, “Internet+ marketing” strategy, and “Internet of Things and mobile internet” to comply with the needs of the digital age. Deeper fusion of “big data, cloud computing, Internet of Things and mobile internet” to build a cross-industrial platform for customers with better services and experience.

Ensure information security of customers. A mechanism was built to secure the marketing network and information, and enhanced standards building on information security. The information system would remove customer’s sensitive information before using it for marketing purposes. The company strictly managed log in passwords and accounts at its best efforts. The company backed up and removed information in the offline system to avoid information leakage at the final link, and tried its best to get rid of any safety risk that may disclose users’ sensitive information. Meanwhile, it held regular training on cybersecurity to make salesperson aware of information security.

Provide modern services

Centralized management of services. State Grid launched smart service programs in business halls to optimize the layout of halls and increase their functions. With these efforts, customers could pay their bills within 30 minutes in urban areas, and there are stalls for each village in rural areas. State Grid’s online and offline service centers are the first of their kind in the country. After a period of pilot operation, its functions were proved successful and have been widely accepted. The number of repair requests received by hotline 95598 was down by 42% year on year, and the number of late reports and complaints was down by 65%, complaints down by 10%. The power supply services were well-appreciated by customers from all walks of life.

Central City Power Supply Company sets up a management system that prioritizes customers’ needs. The company has responded to customers’ needs in a more efficient and effective way, increasing the efficiency of operation and customer’s degree of satisfaction. In 2017, over 600 pieces of information on needs were collected, over 210 potential risks identified and 78 risks of complaints avoided. After a period of pilot operation, its functions were proved successful and have been widely accepted. The number of repair requests received by hotline 95598 was down by 42% year on year, and the number of late reports and complaints was down by 65%, complaints down by 10%. The power supply services were well-appreciated by customers from all walks of life.

State Grid Chongqing Central City Power Supply Company provides services for specific use. The company provides undifferentiated services to urban and rural areas and lower the potential safety risks for sensitive customers. The company promoted the governance of weak links of the grid and continuous improvement of the grid structure to improve the ability to manage and control emergency risks; improved customer’s emergency countermeasures to fundamentally increase the reliability of power supply; pushed the government to improve the review and approval process of power supply safety planning for major customers, further increasing the level of services, efficiently avoided any potential social and economic loss caused by blackout or delayed power resume in core business areas and sensitive customers; adopted more sophisticated measures to ensure power supply for major venues and activities; and built an image of a reliable power supply company that enjoys high-level skills and provides quality services.

State Grid Zhejiang Power Supply Company promoted a robot called “Jiabai”. The first robot “Jiabai” in Fujian Province was officially put in use in urban business halls of State Grid Zhangzhou Power Supply Company. The robot is featured with “Artificial-Intelligence” capability. It can effectively identify customers’ needs through verbal communication, interaction on the screen and body language. Moreover, it can automatically identify positions, walking around the business hall and helping welcome customers, get them to the right place, answer questions, guide customers to handle operations and provide information inquiry. Customers can learn the latest preferential policies on bills by watching videos on its screen. Such smart services at business halls provide more efficient services to customers. The robot can learn by itself quickly. After a period of pilot operation, its functions could be upgraded through the knowledge base. By the end of 2017, the robot served over 3,000 customers with around 4,000 times of consulting service, and customer satisfaction rate reached 100%.

State Grid Zhejiang Power Supply Company created a power supply ecosystem with “Sunshine Power” project. To actively meet people’s demands for quality and quick power supply in the new era and deal with challenges like low efficiency in installation, State Grid Zhejiang Power Supply Company joint hands with State Grid Arha Power Supply Company and other stakeholders to implement the theory of sustainable development, further handled the issue of “absence of stakeholders after installation”, created and enriched the 2.0 version of “Sunshine IT Power” and built a community of value creation for installation ecosystem. By enriching “Sunshine 1.0 Power”, they launched “Letter of Undertaking of the Post-installation Alliance” activities to extend the chain of value. By enriching “Sunshine 2.0 Power”, they launched “eManager” evaluation and decision-making system to reshape the standards of value. The 2.0 version of “Sunshine IT Power” enriched the ecosystem of installation, explored a new way to solve public problems with the theory and tools of social responsibilities, and provided a good example for social governance in public services in the whole country.

State Grid Shanghai Power Supply Company presented a robot called “Jiabai”. The first robot “Jiabai” in Fujian Province was officially put in use in urban business halls of State Grid Shanghai Power Supply Company. The robot is featured with “Artificial-Intelligence” capability. It can effectively identify customers’ needs through verbal communication, interaction on the screen and body language. Moreover, it can automatically identify positions, walking around the business hall and helping welcome customers, get them to the right place, answer questions, guide customers to handle operations and provide information inquiry. Customers can learn the latest preferential policies on bills by watching videos on its screen. Such smart services at business halls provide more efficient services to customers. The robot can learn by itself quickly. After a period of pilot operation, its functions could be upgraded through the knowledge base. By the end of 2017, the robot served over 3,000 customers with around 4,000 times of consulting service, and customer satisfaction rate reached 100%.

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Promote the application of “Internet+”

State Grid Corporation of China

The Action

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State Grid Corporation of China
Promoting Rural Development

Ensure that all men and women have equal rights to economic resources, build the resilience of the poor and those in vulnerable situations to disasters.
Implement the new-round grid augmentation in rural areas. State Grid implemented the supply-side reform deployed by the CPC Central Committee to promote social and economic development in rural areas, and performed its social responsibilities, including “Power to All Wells”, power grid upgrading in small towns (key villages) and “Dynamic Power to All Villages” projects, which were completed on September 25, 2017, 3 months prior to the original plan.

Comprehensive services made significant achievements. State Grid adopted the station manager system, appointing the station manager as the main body of grid services and owner of the equipment, to form closer relations with customers and equipment; improved managers’ abilities to provide collaborative work, cutting-edge services and all-round skills to collaborate and support each other within the grid and in inter-grid operation. For low-voltage failure at township power supply stations, the time it took to arrive at the scene and repair time reduced by 21% and 22.8% respectively.

Integrate mobile operation terminals. State Grid built a “three-in-one” operation mode that combined power supply service command platform, power supply station comprehensive service monitoring and control platform and station manager mobile operation terminal, integrating terminals used for marketing and checking and examination on-site operation, and promoting its application. Thanks to these efforts, the on-site operation efficiency was further increased and the managers could better manage and control the on-site services.

Promote full coverage of well-functioning township power supply stations

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Promoting the development of agriculture and sideline production

- Power to All Wells
- Total investment: 45.693 billion RMB
- CO₂ emissions reduced: 8.75 million tons
- Farmland benefiting from the project: 93,333 km²
- Line for power transmission and distribution: 897,000 km
- Distribution transformers: 451,000
- Substations: 552
- Households with reconstructed electricity meters: 14.314 million

New-round grid augmentation in rural areas

- April 2016 to September 2017: 1.535 million wells covered by the project
- Small town (central village) grid augmentation was completed: 66,000 villages
- Villages where dynamic power was built and upgraded: 78,000
- Rural residents benefiting from the project: 160 million
- The average capacity of a distribution transformer in a rural household increased to 2.64 kVA
- Average interruption hours of customer in rural areas decreased from 18.14 h to 18.944 h
- Electricity consumption per capita increased by 35.1%
- Annual income growth by agriculture and tourism: 51.4 billion RMB
- New businesses like agricultural and sideline product processing factories, or livestock companies, are established in each village on average.

Line for power transmission and distribution

- Distribution transformers: 451,000
- Substations: 552
- Households with reconstructed electricity meters: 14.314 million

Construct and upgrade power grids in towns and small villages

- Total investment: 142.36 billion RMB
- Villages where dynamic power was built and upgraded: 78,000
- Rural residents benefiting from the project: 160 million
- The average capacity of a distribution transformer in a rural household increased to 2.64 kVA
- Average interruption hours of customer in rural areas decreased from 18.14 h to 18.944 h
- Electricity consumption per capita increased by 35.1%
- Annual income growth by agriculture and tourism: 51.4 billion RMB
- New businesses like agricultural and sideline product processing factories, or livestock companies, are established in each village on average.

Attracting over 4.4 million migrant workers to return to their hometown to start their own business or find jobs.
Employee Development

Ensuring the comprehensive and effective participation of women in all levels of decision-making in political, economic and public life and equal opportunity for women to be leaders on all levels.

Significantly increasing the number of teenagers and adults with the skills needed for finding employment and decent jobs; eliminating the gender difference in education and ensure equal access to vocational training for all.

Realizing the full and productive employment of all men and women, including the young and the disabled with decent jobs, equal work and equal pay.

Quality Education

Gender Equality

Decent Work and Economic Growth
Employees are the pillars of an enterprise. State Grid respects and safeguards the legal rights and interests of its employees and treats employees of different nationalities, ethnic groups, religious beliefs and gender in an equal and just manner. State Grid signs labor contracts with all employees, implements an integrated payroll system, pays social security in full and on time, ensures that employees enjoy paid vacation, maternal leave/paternal leave and bans child labor and forced labor.

Employees are the masters of an enterprise. State Grid attaches great importance to the role of employees in domestic management and supervision and strengthens domestic participation. State Grid constantly improves the democratic management system with the Workers’ Congress as the basic form, implements the Outline of the Democratic Management of Workers, sticks to enterprise information transparency, the signing of collective contracts on the basis of equal negotiation, the inspection by workers’ representatives and the Chairman’s liaison system. State Grid also normalized and promoted the incentive-suggestion system to safeguard employees’ rights to know, to participate, to express and to supervise.

Employees are invaluable assets of an enterprise and their safety and health play a key role in ensuring corporate growth. State Grid is keen to improving the level of safety and the well-being of employees through providing them with reliable safety protection and health insurance to solve safety issues and improving the safety awareness of employees from the perspective of equipment safety and personnel safety while strengthening the management of occupational health risks, paying more attention to the psychological health of employees and setting up employees’ health profiles to keep track of the health of employees and create a safe and healthy work environment.

Employees constitute the foundation of corporate development. State Grid regards the career development of employees as the foundation of corporate growth and provides education and training for all through organizing skill competitions and professional skill training programs. State Grid launches innovative training programs for fresh employees, expands the channel for promotion and supports diversified development. It also promotes the development of international talents to foster a team with global vision, familiarity of international rules, operational insights and outstanding management capabilities.
State Grid Corporation of China

Creating decent jobs

Over 1.6333 million employees

Overall productivity stands at 771,100 RMB/ (person·year)

Implementing the strategy of making the corporation stronger with talent development

Implementing major national talent development programs

Newly added
- Academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering
- Candidates for the National BaiQianWan Talents Program

Candidates for Ten Thousand Talent Program

Candidates for Innovative Talent Promotion Program

Four levels of talents on four levels

78,000

The proportion of male employees 72.51%

The proportion of female employees 27.49%

The proportion of foreign employees 1.81%

The proportion of employees from ethnic minorities 5.57%

The distribution of employees with different length of service

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Organized competitions (examinations) 628

Finished online training 7.167 million person·times

Took online exams 4.40 million person·times

Applied for professional qualification certification and evaluation 196,300 person·times

Promoting the development of employees

Staff training (10,000 person·time)

2013 340
2014 360
2015 360
2016 364
2017 380

Training for technical workers 56,100 person·times

Training for service workers 28,800 person·times

Training for skilled workers 1.7956 million person·times

Joint training 66,800 person·times

Training for operational staff 51,700 person·times

Training for fresh employees 56,100 person·times

Training for technical workers 299,800 person·times

Training for managerial staff 1.2216 million person·times

Upholding fairness and justice and eliminating discrimination

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Safeguarding employees’ health and safety

Caring about the physical and psychological well-being of employees.

Promoting the spirit of model workers. State Grid attaches great importance to selecting model workers and promoting arts through making video clips and micro movies for maximum effect. It also pushes forward the development of employee innovation studios to form synergies, create a favorable environment for innovation and build corporate brands, so as to spark the creativity and passion of employees.

Promoting the development of employees’ organizations

Ensuring the development of employees

Adopting innovative models for the development of fresh employees. State Grid increased the number of employees in remote and poor areas through implementing the system of “order + targeted development” and optimized the model for the development of new employees through identifying the goals of training for different stages and emphasizing the fulfillment of responsibilities on all levels to help fresh employees to understand the corporate culture and adapt to their jobs.

Expanding the channel of promotion. State Grid improves the “four level, four type” talent structure and stresses the leading role of companies and departments that the talents work for in the selection, development and evaluation of talents through allowing those who use the talents to select, train and evaluate the talents. State Grid also adopts an innovative talent assessment and evaluation mechanism that highlights moral characters and performance to avoid the tendency of degree-oriented, position-oriented and dissertation-oriented talent evaluation.

Improving incentives for talent development. State Grid provides incentives to employees with outstanding results in evaluations and promotes the trial implementation of dividends-based incentives in technological-oriented companies focusing on the R&D of new products and the commercialization of scientific outputs through giving additional bonus and dividends to motivate R&D staff to pursue innovation. State Grid also launched the standard treatment to talents of different levels as an important factor determining their paypool to combine short-term and long-term incentives.

Organizing various activities to enrich the cultural life of employees

Safeguarding the rights and interests of female employees. State Grid strictly follows Regulations on the Special Labor Protection for Female Employees to safeguard the rights and interests of female employees from the root, the mechanism for female employees to protect their own rights, and include the “Collective Contract on the Protection of the Special Rights and Interests of Female Employees” as an important component of domestic management. State Grid also provides individualized services of all kinds and organizes theme activities to improve the well-being of female employees.

Tapping the potential of employees in making innovation and increasing efficiency. State Grid sticks to driving development with innovation and respects the creativity and initiative of employees, encourages employees to make innovations and increase efficiency and promote the development of a result demonstration and exchange platform.

It organized the 3rd Innovation and Creativity Competition for Young Employees, Technological Innovation Contest, Model Worker Innovation Studios and QC programs to integrate online and offline platforms to spur the enthusiasm, initiative and creativity of employees.

Organizing in demonstrating their talents among employees and the general public. By carving hobby to record the development and popularize the art of seal carving, State Grid established seal carving clubs on all levels. To promote traditional Chinese culture, enrich the company culture and popularize the art of seal carving, State Grid established seal carving clubs on all levels. The 3-Year Action Plan for Building “State Grid Seal Carving Clubs” aims to combine traditional art with corporate culture. Picky select the seal carving hobby to record the development and achievement of the Corporation. The program helped to spur an interest in seal carving among employees and the general public. By the end of 2017, more than 46 “State Grid Seal Carving Clubs” have been established with several thousand members. They organized academic exchanges and competitions and invited communities and schools to hold a variety of promotion activities that not only help to popularize corporate culture and build a good corporate image, but also contribute to popularizing traditional seal carving art.
Mutually-Beneficial Win-Win Cooperation

- Encourage affiliate companies to adopt sustainable practices and set up a regular frequent reporting mechanism in areas of sustainable development.
- Promote sustainable public procurement according to state policies and corporate priorities.

- Strengthen cooperation, develop technologies to get access to clean energy, and promote investment in energy infrastructure and clean energy technologies.

- Deepen international industrial capacity and equipment manufacturing cooperation and assist other developing countries to improve industrial structure and realize diversified industrial production.

- Encourage affiliate companies to adopt sustainable practices and set up a regular frequent reporting mechanism in areas of sustainable development, promote sustainable public procurement according to state policies and corporate priorities.
Pursuing joint development with power generation companies

Facilitating the construction of new energy power generation bases. State Grid closely cooperates with power generation companies to carry out the planning and construction of new energy power generation bases, actively participate in the transmission and consumption of wind power and solar power, building the largest distributed PV energy network in China.

Optimizing coordinated grid-side and generation-side management. Strengthen the interactive response level between power grid and power generation. Carry out wind power monitoring and early warning tasks as required by the National Energy Administration. Implements the national PV integration projects for poverty alleviation.

Pursuing win-win cooperation with financial institutions

Expanding financing channels. State Grid has been awarded the National Sovereign Credit Rating by three major international rating agencies for 5 consecutive years and successfully issued 5 billion USD bond with a record low interest among Chinese enterprises. State Grid also made efforts to fully tap the potential of internal capital and increased the collectively-owned capital under China Power Finance Co., Ltd's control to more than 100 billion RMB.

Optimizing capital structure. State Grid made breakthroughs in equipment manufacturing affiliates' process, successfully implemented the asset restructure of NARI Group and Guangyu Development, and increased the securitization rate of companies with direct affiliation to 50%. State Grid launched reform measures for financial operations and helped Yingda International Trust Co., Ltd. to attract strategic investment from China Southern Power Grid.

Growing together with construction companies

Improving the management of technologies. State Grid vigorously promotes 3D design, factory processing, modular production and mechanized construction to improve the efficiency and quality of construction and promotes coordinated planning, design, procurement, construction, operation and maintenance to foster a modern (smart) supply chain.

Strengthening technology, economic and cost management. State Grid improved procedures for the approval of preliminary designs and the management of the budget for the construction map and promotes project settlement during construction to ensure standard management. It also organizes research into project quota and pricing systems and make deeper analysis into project cost.

Promoting the management of the construction and operation of hydropower projects. State Grid carried out studies on models for the construction and management of hydropower projects and on-site inspection and supervision of flood control facilities in power stations under construction and in operation on rivers along the border areas of China and North Korea, accelerated the construction of pumped storage projects, strengthened the check and maintenance of hydropower projects and technological management to improve the quality of hydropower facilities and infrastructure construction.

Implementing responsible procurement

Constantly improving procurement management. State Grid strengthens bidding and procurement supervision and management with the establishment of the headquarters-provincial-regional (municipal) three-layer e-commerce procurement system to expand the scope of e-commerce procurement. It is committed to improving the capability of securing the supply of material and capital to pull in resources for intensive management and improve the level of standardization.

Promoting quality and green procurement. State Grid promotes the project of “fostering green supply chains and promoting green manufacturing”, strictly controls the quality of procurement, improves the management of suppliers and optimizes the stability and quality of mass production.

Improving procurement supporting facilities. State Grid effectively promotes the “two foundations and one modernization construction” initiative, gives full play to the role of supplier service center as the “bridge” and the “window”. The State Grid material and capital service micro platform has been launched and put into operation, promoting the application of information technology in building a new-generation e-commerce platform.

Forge platforms for scientific and research cooperation

Extensively carrying out international cooperation in scientific research. State Grid established partnerships with more than 150 international organizations, government departments, businesses, universities and research institutions from 42 countries and regions, and organized studies on power grid planning in Asia, Africa, South America and Southeast Asia with the Feasibility Study of China-South Korea-Japan Grid Interconnection already finished.

Pushing forward cooperation with domestic scientific research institutions. State Grid signed cooperation agreements with National Natural Science Foundation of China on establishing a joint fund for the development of smart grid, proposed guidelines for projects selection procedure for the joint fund in 2017 and plans for major projects in 2018.

Promoting the management of the construction and operation of hydropower projects. State Grid carried out studies on models for the construction and management of hydropower projects and on-site inspection and supervision of flood control facilities in power stations under construction and in operation on rivers along the border areas of China and North Korea, accelerated the construction of pumped storage projects, strengthened the check and maintenance of hydropower projects and technological management to improve the quality of hydropower facilities and infrastructure construction.

Expanding financing channels. State Grid has been awarded the National Sovereign Credit Rating by three major international rating agencies for 5 consecutive years and successfully issued 5 billion USD bond with a record low interest among Chinese enterprises. State Grid also made efforts to fully tap the potential of internal capital and increased the collectively-owned capital under China Power Finance Co., Ltd's control to more than 100 billion RMB.

Optimizing capital structure. State Grid made breakthroughs in equipment manufacturing affiliates’ process, successfully implemented the asset restructure of NARI Group and Guangyu Development, and increased the securitization rate of companies with direct affiliation to 50%. State Grid launched reform measures for financial operations and helped Yingda International Trust Co., Ltd. to attract strategic investment from China Southern Power Grid.

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Enhancing team building of construction. Deepening the reform of local construction teams to comprehensively promote team-building, promote the transformation and upgrade of construction teams and strengthen the professional management of collective construction group.

Implementing responsible procurement

Constantly improving procurement management. State Grid strengthens bidding and procurement supervision and management with the establishment of the headquarters-provincial-regional (municipal) three-layer e-commerce procurement system to expand the scope of e-commerce procurement. It is committed to improving the capability of securing the supply of material and capital to pull in resources for intensive management and improve the level of standardization.

Promoting quality and green procurement. State Grid promotes the project of “fostering green supply chains and promoting green manufacturing”, strictly controls the quality of procurement, improves the management of suppliers and optimizes the stability and quality of mass production.

Improving procurement supporting facilities. State Grid effectively promotes the “two foundations and one modernization construction” initiative, gives full play to the role of supplier service center as the “bridge” and the “window”. The State Grid material and capital service micro platform has been launched and put into operation, promoting the application of information technology in building a new-generation e-commerce platform.

Forging platforms for scientific and research cooperation

Extensively carrying out international cooperation in scientific research. State Grid established partnerships with more than 150 international organizations, government departments, businesses, universities and research institutions from 42 countries and regions, and organized studies on power grid planning in Asia, Africa, South America and Southeast Asia with the Feasibility Study of China-South Korea-Japan Grid Interconnection already finished.

Pushing forward cooperation with domestic scientific research institutions. State Grid signed cooperation agreements with National Natural Science Foundation of China on establishing a joint fund for the development of smart grid, proposed guidelines for projects selection procedure for the joint fund in 2017 and plans for major projects in 2018.
Innovation in procurement management

- Improving the closed-loop business mechanism with extended coverage
- Regulating the management communication mechanism
- Expanding the channels of service provision and improving the on-the-spot service evaluation system
- Establishing a new self-service zone for suppliers
- Enhancing the functions of WeChat platform for supplier services
- Comprehensively providing highly-efficient, convenient and quality services for suppliers on all fronts

Centralized procurement

- 422 billion RMB
- 13.3% completion of bidding for substations: 61 cases
- 206 completing warehouse infrastructure construction and augmentation projects
- 183 completing warehouse information infrastructure construction projects
- 2,656 cases concerning misbehavior of suppliers were handled, representing a year-on-year growth of 122%.
- Guiding suppliers to pay more attention to the quality of products and services

Improving the capability of suppliers in providing services

- The e-commerce platform had more than 80,000 registered suppliers in 2017.

Supplier service centers

- Companies followed the official WeChat account of State Grid
- The equipment passed the off-production-line test: 95%
- Answered hotline calls: 37,326
- Services: 73,900

Focusing on high-end equipment and smart manufacturing

- 16 directly-affiliated industrial companies

- 191.3 billion RMB revenue, year-on-year growth of 58.4%.
- 769.47 billion RMB total assets, year-on-year growth of 11.13%.
- 333.56 billion RMB equity, year-on-year growth of 6.3.
- 16.1 billion RMB profit, year-on-year growth of 11.3%.
- 25.1 billion RMB revenue, year-on-year growth of 10.9%.
- 15.5 billion RMB profit, year-on-year growth of 10.9%.

Value of e-commerce procurement reached 13.5 billion RMB

Responsible procurement

- Annual procurement target: 2,656 cases concerning misbehavior of suppliers were handled, representing a year-on-year growth of 122%
- Guiding suppliers to pay more attention to the quality of products and services

Quality supervision and control is being constantly improved

- The equipment passed the off-production-line test: 95%
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Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality; implement the principle of special and differential treatment for developing countries, in particular least developed countries.

Ensure that all girls and boys have access to free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes; provide safe and effective learning environments for all.

Ensure that all people everywhere, implement nationally appropriate social protection systems and measures for all, achieve substantial coverage for the poor and the vulnerable, ensure that the poor and the vulnerable have equal rights to economic resources as well as access to basic services.

Eradicate extreme poverty for all people everywhere, implement nationally appropriate social protection systems and measures for all, achieve substantial coverage for the poor and the vulnerable, ensure that the poor and the vulnerable have equal rights to economic resources as well as access to basic services.

Corporate Citizen
Aid to Tibet and Xinjiang

Power grid construction. State Grid implemented the country’s policy of stabilizing and securing Xinjiang and Tibet and built a safe and high-quality Central Tibet Interconnection Project, accelerated the construction of Xinjiang power grids, promoted the transformation of South Xinjiang’s resource advantages into economic advantages, and increased the reliable power supply level of the power grid.

Talent input. To implement the East-West talents’ assistance, 423 management and technical personnel were selected from 31 institutes, assisting five companies in Xinjiang and Tibet to carry out power grid construction and management upgrades.

Cultural promotion. State Grid implemented cultural aid measures for aiding Xinjiang and Tibet, organized the compiling of bilingual (Tibetan-Han, Uygur-Han) books of aiding enterprises, and organized and carried out the delivery of cultural works for aiding Tibet and Xinjiang, distributed mobile book boxes, digital integrated reading machine and cultural activities facilities; created a number of grid theme literary works and provided a convenient and efficient reading experience and a full range of cultural services for all employees.

Poverty alleviation

State Grid Corporation of China insisted on the use of electricity for poverty relief as an important force in promoting the industry development and supporting the poverty alleviation, and incorporated it into the corporate development strategy. The company actively served new urbanization, agricultural modernization and beautiful countryside construction. It persisted in the overall planning of urban and rural power grid development, and strove to increase the power supply support capacity of rural power grids in remote and impoverished areas. Electricity for poverty relief drove and radiated the industry for poverty relief, being an important driving force behind accurate poverty alleviation.

The “State Grid Sunshine Poverty Alleviation Initiatives” achieved remarkable results. The “State Grid Sunshine Poverty Alleviation Initiatives” has become a paradigm for the central state-owned enterprises in poverty alleviation. Actively communicating with the government at various levels and project owners, State Grid had smooth access to projects through green channels, ensuring that projects connected to the grid and generated electricity in a timely manner, settled the on-grid electricity charges on time according to the agreed period and timely allocated government subsidies. State Grid also formulated Guidelines for the Management and Evaluation of Photovoltaic Power Plants for Targeted Poverty Alleviation at Village Level. E-commerce poverty alleviation area is operated and Evaluation of Photovoltaic Power Plants

Creating a public welfare brand for helping students, the elderly and the disabled

Helping students. State Grid Corporation of China has been actively participating in poverty alleviation based on awards instead of subsidy as poverty alleviation measures. Using the poverty alleviation site watching exhibition, which was highly evaluated by the leadership of the State Council Poverty Alleviation Office. Using awards instead of subsidy as poverty alleviation practice were fully affirmed by the ministries and commissions of the State Council Poverty Alleviation Office and won widespread attention and recognition from all sectors of the society for the comprehensive value created by the central state-owned enterprises. The practice of poverty alleviation based on awards instead of subsidy has become a subject for State Grid to actively explore and practice.

Created public welfare brand. Combining with photovoltaic power plants for targeted poverty alleviation in “Three Counties and One District” (Zigui County, Changyang County, Badong County and Shennongjia Forestry District), Hubei province and Maduo County, Qinghai Province, State Grid created the public welfare brand of “State Grid Sunshine Poverty Alleviation Initiatives” and promoted the publicity of programs such as “Lighting Up Jingangtai by Heart”, “Love·Red Ribbon” and “Spring Seeding Home of State Grid”.

In 2017, 180 undergraduates majoring in electrical engineering from 20 universities were granted UHV Power Grid Scholarship worth over 1.8 million RMB, which demonstrated the core values of power industry. State Grid made active efforts to enhance its cooperation with universities and other companies, consciously shouldering its due social responsibility.
State Grid sunshine poverty alleviation initiatives

2016—2017

- National photovoltaic power allocation power station: The cumulative investment = 1.97 billion RMB + 9.542 GW + 1.551 million
- Dynamic Power to All Villages: Completed investment = 21.25 billion RMB + 26,000 + 52,000
- Natural villages with power supply: Completed electricity capacity enlargement and upgrading for 236

Continuously launched targeted poverty alleviation

- “Three counties and one district” in Hubei Province: Poverty alleviation, completed contribution of 437 million RMB, 236
- Malan County, Qinghai Province: Established 3,000 card, alleviated villages from poverty 7.64 million RMB, 3.8 million RMB
- Clean energy heating demonstration project, investment: Assisted students on education in pastoral area 148 persons, “Emergency and Difficulty Rescue” project relieved 41 persons
- Disbursement of photovoltaic benefits for poverty alleviation: The revenue generated by PV-powered poverty-relief power plants assisted in establishment of file card for 1,132 households, and the income of poverty-stricken people was increased by 3,357 RMB (household·year).

Created a public welfare brand

In 2017, external donations totaled 636 million RMB.

Partner assistance to Tibet and Xinjiang

- Tibet: Started constructing the Central Tibet Interconnection Project with the highest altitude, the most complex environment and the most difficult construction in the world, accelerating the leap-forward development of Tibet’s power grid. Hosted the rural electricity of 16 counties outside Tibet power grid to achieve the unified management of Tibet’s power grid.
- Xinjiang: State Grid invested 17.0 billion RMB in power grid in Xinjiang in 2017. The 750 kV Ili—Kuchar transmission line formed the main grid of Xinjiang power grid. The amount of clean energy delivered has reached 320 GWh, and the photovoltaic capacity of the four prefectural states in southern Xinjiang has reached 320 GW, equivalent to a reduction of 50,000 tons of CO₂ emissions and 560 tons of SO₂ emissions.
Compliance with laws and regulations

Build an internal control system
- In accordance with the requirements of the State Council SASAC Construction Standards Board of Directors, State Grid formed a board of directors and a special committee, set up a comprehensive risk management committee, and implemented two-level legal person and the whole management to ensure that decision, execution and supervision and independent control and check and balance can be achieved in these fields.
- State Grid carried out thorough risk assessments, adopted questionnaire surveys, expert interviews and risk reports, etc. to comprehensively assess major risks at the company level. No major risk events occurred throughout the year.
- Deepened the centralized management of funds, State Grid carried out specialized management and controls on production, business activities such as capital, procurement, assets, marketing, research, development and engineering.
- Deepened the life cycle management of assets, State Grid promoted the construction of electricity market and customer service, actively promoted the "first-class and four-biggest" technology strategy, and strengthened the responsibilities of design, construction and supervision.
- Comprehensive applied daily supervision and special supervision methods, State Grid conducted monthly real-time supervision on the core business such as finance, engineering, materials and marketing, as well as internal control thematic evaluations with information projects, asset management, and "two funds" as key management and control areas.

Strengthen the management of the Corporation according to law
- State Grid implemented the requirements of "Three Full" (full compliance, full comprehensive coverage, and full control), strengthened "Five Law-based" (law-based governance, decision-making, operation, supervision, control, and rights protection), and established "Four Modernizations" (networking, integration, specialization, socialization) platform.
- Comprehensively strengthened contract management. State Grid revised the unified text of 238 contracts and continuously improved the mechanism for separating the demand for authorization management, deepened the legal protection of tendering and strengthened the legalization of the company’s tendering business.

State Grid Communist Party Member Service Team

Set up a bridge with the people. Kept in mind the instructions of President Xi Jinping when he visited the Communist Party Member Service Team of State Grid Sichuan Electric Power, keep in mind the purpose, be mindful of the people and become the party’s bridge with the people. The Communist Party Service Team adhered to the service concept of “Your Power, Our Care”, and carried out activities such as emergency rescue, disaster relief, aid for the weak, and dedicating love, so that they could respond with aspirations and difficulties.

Party members played an exemplary role. During the 19th CPC National Congress, State Grid dispatched nearly 50,000 security teams to team up 15 party commandos, 79 party members’ safeguarding teams, and 88 party members’ service teams. State Grid organized “Party Member Pioneers Lightning (Tibetan Area)" theme activity, set up 47 party members demonstration posts, 23 party member commandos, 25 party members responsibility area and 25 youth commandos; three comrades, Zhang Caihui, He Jiajia and Peng Kechang were unfortunately sacrificed in the front of anti-flood and safeguarding electricity, highlighting the noble quality of "power utility by the people and for the people".

Initiated “Young Volunteers Action”

Through group promotion, standardization management, project operation and typicalization guidance, the "Young Volunteers Action" Service Team has been widely implemented in the Corporation’s system for 15 consecutive years. Among the central-owned enterprises, State Grid established first youth volunteer service corps and set up 3,200 volunteer service teams with 500,000 volunteers registered. State Grid formulated the Youth Volunteer Service Activities Management Approaches and established a working mechanism for volunteers’ action. The "Young Volunteers Action" Service team has newly added 2.5 million volunteers every year, displaying the company’s brand image.

Lucyanghe Village in Shennongjia forestry district
The happy face of the villagers under the sun

In April 2017, all the villagers of Shenyanghe Village in Shennongjia, Hubei province, wrote a joint letter to Sha Yubiao, Chairman and Party Secretary of the State Grid Corporation of China. At the end of the letter, there were 50 red fingerprints, from 92 families’ representatives in the village, expressing their gratitude to the company. The Lucyanghe Village is a poor village with 62 households and 181 households in the Shennongjia Forestry District. It is also the most remote mountain village in the forestry area. The natural environment is harsh, remote, obstructed and backward. The village in collective has no sustainable sources of economic income. In February 2017, the 200kW photovoltaic power station for poverty alleviation that was donated by the company was officially discharged, with a total investment of more than 2 million RMB. The company was responsible for material procurement, installation and grid connection of the power station. After the power station was completed and put into operation, it could generate 155,000~168,000 RMB/year under local sunshine conditions. Chen Daju, party secretary of Lucyanghe River Village, said, “I want to do something for the people in the future. I have confidence and can stand together.”
Green Development and Environmental Protection

Enhancing the education related to climate change and ability of staffs and authorities on this aspect.

Sustainable Cities and Communities

Relieving the negative impact on environment per capita in cities, including focus on air quality, management of city wastes, etc.

Affordable and Clean Energy

Dramatically increasing the share of renewable energy in global energy mix. The global energy efficiency has tripled advancing the research and technology on developing of clean energy and promoting investment in energy infrastructure.

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Re-electrification is the fundamental way of energy transition. A new clean and low-carbon energy system is required for energy transition. In terms of production, re-electrification is represented by large-scale development and utilization of renewable energy, such as wind and solar power; in terms of consumption, it can be represented as deep replacement of fossil energy by electric energy.

The large-scale development and utilization of renewable energy. By means of establishing steering groups on promoting its accommodation, and formulating a comprehensive scenario, China has become the country producing the largest amount of wind power. Also, establish distributed PV cloud network generation, meanwhile, populating PV generation for highway sideway, and plan the construction of UHV transmission channels for hydropower out-sending.

Profound replacement of fossil energies by electric power. Actively expanding the range and fields which can be replaced by electricity, and systematically arranging an overall layout for replaceable areas according to the principle of “covering all domain-fields, energetically advancing new fields and implementing pilot scheme on creative fields.” Greatly reducing the consumption of final direct fired coal and oil to boost the re-electrification in various fields.

Boosting energy conservation and emission reduction of power grids

The EIA (Environmental Impact Assessment) rate of grid construction projects has stayed 100% for 9 consecutive years; the gas of SF₆ has been purified by 70 tons, which equals to CO₂ emission reduction of 1,675,000 tons; advancing the work on ensuring that the sealing sites of electrical facilities which contain polychlorinated biphenyl are harmless for environment; finishing the special examination on environmental and water conservation of projects on UHV DC transmission from Shanghaimiao to Shandong, from Ximeng to Taizhou, and from Zhalute to Qingzhou.

Facilitating the energy conservation and emission reduction

Aiming at the features like “more requirements from customers, more projects in various areas and complexity in category of techniques,” State Grid took the company of comprehensive energy service as the principal part, focused on industrial parks, industrial enterprises and public architecture. We also integrated resources, planned for the technologies, including diagnosis and supervision of energy efficiency, improvement of energy conservation, combined supply system of cooling, heating and power as well as energy storage, so as to satisfy customers’ demand for various energy services on electricity, gas, cooling and heating.

Establishing Smart Service Platform for Internet of EVs

A total of 170,000 charging piles have been integrated to the Smart Service Platform for Internet of EVs. The functions of this platform are consistently renewed, including services of “e-charging,” “e-taxi-hailing,” “e-cars in cities,” and thus the e-service system which is advanced in the same industry has been built. The one-package service system of sharing charging information, renting and selling electric cars, running and maintaining charging piles as well as car insurance has been fundamentally established.
Optimized resource allocation by UHV grids

Accommodation of clean energy

Cross-provincial clean energy trading

- 408.6 TWh
- Year-on-year growth: 8.5%

Cross-provincial renewable energy trading

- 49 TWh
- Year-on-year growth: 35.6%

Reduced coal consumption in east and middle China

- 400 million tons

Reduced emission of CO₂

- 820 million tons

Reduced emission of SO₂

- 1.40 million tons

Reduced emission of NOₓ

- 1.41 million tons

Reduced emission of smoke and dust

- 220,000 tons

Power transmission in total over

- 900 TWh

Hydropower trading from

- Southwest China to other provinces

- 140.5 TWh
- Year-on-year growth: 8.6%

Charging piles were integrated to the Smart Service Platform for Internet of EVs

- 170,000

- EVs integrated

- 17,000

Accomplished the government’s target of “Replacement of Coal by Electricity for heating” in Beijing, Tianjin and Hebei

- 100%

Accomplished the government’s target of “Replacement of Coal by Electricity for heating” in Beijing, Tianjin and Hebei

- 100,000 villages

Completed task of “Replacement of Coal by Electricity for heating” in Beijing, Tianjin and Hebei

- 1.26 million households

Completed task of “Replacement of Coal by Electricity for heating” in Beijing, Tianjin and Hebei

- 115 TWh

Year-on-year growth of sold electricity of the company

- 8.6%

Establishing the Smart Service Platform for Internet of EVs

- 221,165 transactions
- 66,000 billion RMB

Registered users

- 801,000

Online rate of charging piles

- 99%

Accumulated trading volumes on ”EV City” APP more than

- 20,000

Accumulated number of tenants on e-commerce platform

- 66,000

Accumulated sold EVs on ”EV City” APP more than

- 20,000

Accumulated serving distance of ”e-hailing”

- 490,000 km

Transactions

- 20,000
Being the leader in green development of state-owned enterprises

Reports in the 19th CPC National Congress proposed the idea of promoting revolution on energy production and consumption as well as establishing a safe and highly efficient system of clean and low-carbon energy. As the leader in state-owned enterprises, State Grid keenly figured out the deep influence brought to power grid by new age and contradictions, and won new opportunities to cope with new challenges. Sticking to the principle of green development, State Grid planned and promoted the construction of power grid at all levels, improved the mechanism of market-oriented transaction, carried forward the supply and consumption of green electricity to the largest extent, and tried actively to be a model in advancing the revolution of energy production and consumption.

Promoting the accommodation of renewable energy in all dimensions

* Formulating the Work Schedule of Promoting accommodation of Renewable Energy in 2017, refining the division of work, implementing responsibility system, and solving problems of Wind and PV curtailment through combining multiple methods and comprehensively strategies.
* Organizing 11 themed researches on to come up with systematic solutions.
* Strictly following the precautionary principle of supervision on State's investment on wind power, and meeting the requirements related to guaranteed full purchase—Strictly controlling the integration of renewable energy and newly installed capacity of wind and PV.
* Carrying out the PV network in north Hebei province, proposing advices and realizing the integration by stages in turn.
* Carrying out Guiding opinions on the implementation of the “13th Five-Year Plan” for renewable energy development and strategies for reserving command of hydrogen, wind and PV power generation, and providing specific working requirements.
* Organizing themed conference in the company, and arranging the goals and tasks in three years after the “13th Five-Year Plan”.

Serving the construction of a beautiful China

Based on its own advantages, State Grid held on to the principle of focusing on electric power and two replacements (replacing coal and oil by electricity); accelerated the process of re-electrification, and took actions resolutely in establishing a safe and highly efficient system of clean and low-carbon energy, a green and low-carbon economic system of cyclic development as well as a creative system and technology which is oriented by market. In this way, State Grid could promote green development, join in the construction of beautiful China with actual measures, create a good environment of production and living for Chinese people, and make contributions to global ecological security.

Actively building pumped storage stations

Pumped storage station is an important infrastructure and an eco-environmental project for balancing power supply. From 2013 to 2017, the construction of 21 pumped storage stations had been carried out, with installed capacity of 301.16 GW; 5 pumped storage stations have been put into operation with installed capacity of 6.1 GW. The 5 stations in Yixian of Hebei and other cities have driven the growth of GDP by more than 7.2 billion RMB, generated more than 170,000 job positions and will bring about 840 million RMB of tax after put into use.

Pay a leading role in energy conservation and emission reduction

State Grid combined the active management and advertisement so as to gradually advance the energy saving construction in buildings which have existed within the company and implemented green management in newly constructed buildings. State Grid also started the energy conservation and emission reduction in office blocks, established smart micro grid system which covered interior buildings, checked the effect of energy conservation and emission reduction in real-time, gradually worked out an extensive office management so that the energy conservation and cost reduction in all aspects of daily office work can be realized. Besides, the cross-regional allocation of materials can be carried out by property transferring so as to utilize the value of recycling materials in a larger range; a “green channel” for wastes was opened by positively coordinating with specific departments, the incentive mechanism of assessment was optimized and scrap materials were better tackled.

Promoting the initiative on management of carbon assets

Establishing a professional company of managing carbon assets—Shanghai ZhongXin Carbon Asset Management. Co., Ltd., which leads the development of this industry in fields including auditing, exploiting, managing and trading carbon assets, low-carbon research and carbon finance.

* Taking the lead in the business of green supply chain within the industry, and developing the project of “forging green supply chain and promoting the green industrial production”.
* Organizing senior seminars on “carbon management and carbon finance of enterprises” together with academic institutions, including China-UK Low Carbon College of Shanghai Jiao Tong University, Business School in University of Edinburgh, Edinburgh Centre for Carbon Innovation and Hong Kong Centre for Carbon Innovation.
* Studying the method, route and MBV crucial techniques in which the company takes part in national carbon emissions trading market.
* State Grid also undertook the main project of new industry launched by the government of Hongkong, Shanghai: A comprehensive service platform of managing carbon emissions from enterprises.
* Having independently developed 4 methodologies about Chinese Certified Emission Reductions (CCER) and put them on records by NDCIC. Among these projects, two have been assessed and approved by UHI Executive Board of Clean Development Mechanism (CDM) so that they fill in the gaps in the field of Clean Development Mechanism (CDM) and carbon project.

Popularizing the network of PV generation

* The successful operation of State Grid’s cloud network of distributed PV generation has realized 5473 million RMB of trading volume.
* Fully implementing services for facilitation which covered “one-click establishment of PV generation, intellectualized operation and management as well as online issuing subsidies for electric charge. In total, the cloud network has been connected to 742,000 households with 28.1879 GW of generation, and 276 high-quality suppliers have joined in with 652 items for sale.
* Building a public service platform of distributed PV generation which covers all industries and combines “technology + service + finance”, forming a new service model for online and offline collaboration to realize online procurement and installation as well as offline installation and access to electricity, for distributed PV owners, investors, manufacturers, operating service providers, financial institutions, and governments at all levels, State Grid provided one-stop services including information releasing, online transactions, smart management, financial services, and big data analysis in order to realize the function of an all-dimensional and three-dimensional Internet platform which is “more convenient with one-click installation, more energy-saving with the construction, more intelligent with supervision on Internet, and faster one-step settlement than ever”. Relying on the cloud network of PV generation, the “National Information System of Poverty Alleviation by PV Generation” was established to make the full-life cycle management of power stations concerning poverty alleviation.

Innovation drives the development of EV industry

* The Smart Service Platform for Internet of EVs with the largest number of charging piles, the most powerful charging function, and the most extensive service area has been established.
* Models for charging prediction and fault monitoring were built, customized operation and maintenance as well as intellectualized repair were implemented to create the best user experience.
* Innovation on a series of operation models for platform business. Promoting the operation transformation and upgrading of charging stations, creating a “one in one” integrated service model of charging, resettling, catering, Internet access, car washing, and advertising; innovating the services of charging facility inspection which combines the management and control of whole life cycle quality, and promoting value-added services such as advertisements on APPs and charging piles as well as financial services. All of these have continually improved the operational-effectiveness. State Grid also built a demonstration base of “dual-innovation”, opened up data interfaces for Smart Service Platform for Internet of EVs, provided comprehensive and convenient data services for small and micro enterprises, and initiated the construction of ecosystem for Smart Service Platform for Internet of EVs.
State Grid Corporation of China
7 Days of green electricity only

Qinghai Province

From 00:00 on June 17 to 24:00 on June 23, 2017, Qinghai Province was fully (100%) powered by clean energy for 7 days, namely, solar, wind power and hydropower, which gave rise to a reduction of 355,000 tons coal burning of and 1.33 GW installed capacity of renewable energy generation. The clean energy operation has set a world record. It is the first time in China and an important milestone in global energy transition. State Grid fully utilized the advantages of large-scale power grids and electric market, coordinated the scheduling of different processes in northwest regions, flexibly used a variety of market trading categories, and promoted the consumption and absorption of renewable energy in a wider range. During the 7 days fully powered by clean energy, Qinghai successfully addressed the intermittency and fluctuation of renewable energy generation.

In the future, the company will further break market barriers, optimize allocation of resources in a wider range, improve trading mechanisms, innovate trading categories, increase frequency of transactions, and constantly plan and deploy various types of power sources so as to form a complementary model of using various clean energy resources.

Addressing Climate Change

China is actively involved in the actions addressing climate change. The COP23 was held in Bonn, Germany from November 6 to 17, 2017. The General Assembly further discussed the implementation of The Paris Agreement and laid the foundation for negotiations for 2018. China is becoming an important participant and contributor to global ecological civilization, so its actions have become the focus of all parties.

The national trading system of carbon emissions was officially launched. On December 19, 2017, NDRC held a national initiative meeting of carbon emissions trading system, which marked the beginning of building a nationwide carbon emissions trading system. The establishment of a national market for carbon emissions trading is a significant and innovative practice, which applies market mechanisms greenhouse gas reduction as well as green and low carbon development. It will be beneficial for related industries, for establishing a sound economic system which is green and low carbon recycling, for building a market-oriented innovation system of green technology, and for promoting green and low-carbon development with higher quality in China.

France

In the climate change conference in Bonn, Germany, China announced that it will increase the installed capacity of new energy in its operating areas by 2020, with an increase of 1.8TWh, year-on-year. The generation of new energy in the company’s operating areas took up 8.62% of total power generation, with a rise of 1.6% year-on-year.

Promoting energy conservation and emission reduction on the power generation side

Promoting cooperation with civil airports

APU replacement of bridge loading equipment

Promoting energy conservation and emission reduction on the power generation side

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Promoting energy conservation and emission reduction on the power generation side

Promoting cooperation with civil airports

APU replacement of bridge loading equipment
Serving and Promoting the “Belt and Road” Initiative

Enhance international cooperation to facilitate access to clean energy research and technology, and drive investment in energy infrastructure and clean energy technology.

Increase trade support for developing countries, in particular for the least developed countries.

Enhance North-South, South-South and other regional and international cooperation in areas of science, technology and innovation, and enhance knowledge sharing, improve coordination among existing mechanisms.
State Grid successfully invested and operated national and regional backbone energy networks in the Philippines, Brazil, Portugal, Australia, Italy and Greece with a total overseas assets exceeding 60 billion USD. State Grid follows the principle of extensive consultation, joint construction and shared benefit, developed and operated backbone power grids in the “Belt and Road” countries, deepened international production capacity cooperation and improved the efficiency and safety of asset management. We gained extensive recognition from local communities and regulatory authorities, actively opening up a new era of serving the development of the “Belt and Road” Initiative.

State Grid has been promoting the development of cross-border grid interconnection projects with neighboring countries like Mongolia, Nepal and Russia, which played a positive role in addressing the challenges posed by power shortage and promoting people-to-people exchange and communication between countries.

Securing a good reputation with steady and prudent investment. State Grid received the National Sovereign Credit Rating by three major international rating agencies for years.

Promoting grid interconnection. 10 interconnected transmission lines with neighboring countries such as Russia, Mongolia and Kyrgyzstan have been built to promote exchanges and communications between locals.

Deepening international production capacity cooperation. State Grid undertook the construction of key grid projects in Ethopia, Poland, Myanmar and the Lao PDR, gaining recognition and appreciation from all sides.

Promoting technologies and standards to “going out”. State Grid took the lead in establishing the UHV AC and DC and smart grid technology industry standard mechanism and led the development of 41 international standards.

Building the image of a responsible international enterprise. State Grid adopted localization policies with 97% of all employees being natives. State Grid also pursues lawful business operation and carries out its social responsibilities.

State grid makes full use of its advantages in design, construction, technology and management to participate in international power grid interconnection projects. Currently, projects under construction include: Ethiopia-Kenya DC grid interconnection, Turkey-Iran back-to-back DC grid interconnection project, cross-border grid interconnection projects between Portugal and Morocco, between Greece and Cyprus, between Israel and Egypt, between Saudi Arabia and Egypt. The 1000kV power transmission project of the Grand Ethiopian Renaissance Dam build by State Grid was identified by the Ethiopian government as a base for patriotism education for the local youth. State Grid also cooperated with Egyptian power transmission companies on the construction of 500kV power transmission lines and substations in Egypt and steadily developed the ± 660kV Matruh-Lahore DC transmission project in Pakistan.

Making full use of our own advantage, meeting the international market’s demands, State Grid took a heavy focus on electricity grid-related EPC projects, established a new model for international production capacity cooperation that allows all sectors from investment, technology, equipment to design and construction to “going out”. With such efforts, China was able to export its electric and engineering equipments, control and protection equipment, automatic dispatching and control system and high-end power and electric equipment to 83 countries and regions, including developed European economies such as Germany, The Great Britain and Poland. State Grid also undertook the construction of key projects in Ethiopia, Poland, Pakistan, Myanmar, and the Lao PDR, driving the whole industrial chain and value chain to “going out”.

State Grid has been actively building international financing platforms to make full use of the international capital market, with 15.5 billion US Dollar bonds and 2 billion Euro bonds already issued, significantly strengthened the company’s financing capability.

State Grid delivered a series of world-leading innovations with independent intellectual property rights, in areas of UHV, large grid control and smart power grid, took the lead in establishing a complete UHV DC, smart grid technology industry standard mechanism. China becomes a permanent member of the IEC Standing Committee with Chairman Shu Yibin as the Vice President. State Grid also promotes Chinese industry standards to “going out”, turning its technological strength into global competitiveness.

Supporting the development of MIN in the Philippines

Mindanao Island is not connected to the main power grid, and relies heavily on hydropower with frequent power outages and seasonal oversupply. In recent years, Philippine generation companies have built more generators on Mindanao Island. It is expected in the next 5 years, the island will face the challenge of power surplus. The Philippine government proposed the inclusion of MIN in the list of China-Philippine energy cooperation project. The China National Energy Administration (NEA) established the China-Philippine expert team on energy cooperation with State Grid as technical supporter. Today, with continuous improvement in diplomatic relations, State Grid’s efforts in promoting the implementation of grid interconnection projects is of great importance to promoting the development of the “Belt and Road” Initiative.
Responsibly operating overseas assets through joint work, benefit sharing and win-win cooperation

State Grid is operating its overseas assets in the Philippines, Brazil, Portugal, Australia, Italy and Greece etc., with a great sense of social responsibility. In the process, State Grid strictly complies with laws, respects local culture, religions and customs, and has increased employment significantly, winning the recognition and respect of local governments. State Grid also funds schools and education, supports the construction of public service facilities in poverty-stricken areas and participates in environmental protection and public welfare activities, significantly promoting people-to-people exchange in the “Belt and Road” countries.

Responsibly operating State Grid Brazil Holding (SGBH)

State Grid commits to the concept of sustainable and harmonious development. With long-term strategy of localized development, State Grid respects local religions, customs and culture, and sticks to the people-oriented approach to build inclusive and integrated international teams.

State Grid commits to enhancing stakeholder relations. By organizing high-level mutual visits, participating in the bidding and construction of greenfield transmission projects, we pursue long-term development in Brazil.

State Grid commits to social welfare. SGBH has donated 5.34 million BRL in supporting 10 public welfare projects including the “Mare Slum Orchestra” program, “Rio de Janeiro Four Seasons Long-distance Race” and “An Ode to Human” Film Exhibition.

SGBH actively participates in social welfare events, fulfilling environmental protection responsibilities and enhancing communication with the media. We helped the Mare Slum Orchestra grow from less than 10 members to 500 members, benefiting a total of 2000 students. We also organized professional training on 26 subjects in UHV technology and management program in China, with 909 persons being trained in total. By learning from successful experiences in management, construction and operation of UHV AC and DC projects, SGBH has improved its project management capability.

Responsibly operating Greece ADMIE

In economic sector. State Grid invested in the Greek national power transmission network construction and upgrading, improved the efficiency and reliability of the system, contributing to the Greek economy.

In social sector. State Grid shares information with local community to protect their benefits.

In environmental sector. State Grid designed and constructed indoor substations and underground cables with less land occupation, and laid submarine cables connecting island with onshore power grid systems to reduce the reliance on oil-fired power generation, hence protect the natural environment.

ADMIE signed land use agreements with local communities caring for regional natural reserves (eg. Cyclades program among others). We actively participate in community welfare activities, including promoting civil defense and providing engineering equipment for public welfare programs. For smooth implementation of the project, ADMIE also actively takes part in international organizations and associations, sharing expertise and experience.

Responsibly operating SGSPAA

By diligently carrying out its responsibilities as the largest shareholder for SGSPAA, State Grid supports SGSPAA on key decisions in areas of new breakthroughs in natural gas business. By improving SGSPAA’s credit rating to A class, about 50 million RMB financial costs can be saved annually. SGSPAA successfully won the bid for Australian largest 5-year power grid operation and maintenance service contract; the company also successfully acquired the DDP pipeline project with a bid-winning price of 415 million Australian Dollars. ElectraNet won the bid for solar power plant grid interconnection project (unregulated) with 34.6 million Australian Dollars. The first smart community micro grid experimental project initiated by SGSPAA was granted the “2017 Innovation of the Year Award”, creating a new stream of revenue for the company.
International communications and cooperation

We promote practical communications with related international organizations, strengthening cooperation in areas of energy strategy, power transmission and distribution technologies, smart grid and renewable energy, advocating China’s new development philosophy and State Grid wisdom, increasing our international influence.

Participating major international organizations and high-level meetings:

- World Economic Forum (WEF)
- Global Sustainable Electricity Partnership (GSEP)
- International Energy Agency (IEA)
- Power utilities
- Research institutes
- Universities
- Equipment manufacturers
- IEC Executive Committee Meeting
- B20 China Business Council
- IEEE PES
- B20 China Business Council
- 81st General Meeting of IEC
- IEEE
- B20 China Business Council Annual Meeting, B20 “Belt and Road” Forum

2017 International Conference on Renewable Energy Development and Technology

Sharing the best practice of renewable energy development

Addressing challenges in renewable energy development

Finding solutions

Jointly promoting the global green energy transition

Over 130 representatives

Promoting the development of international standards

Regarding the development of international standards as an important approach to serve the development of the “Belt and Road” initiative, State Grid attaches great importance in promoting standards “going out” in the electric power sector.

In 2017, 11 international standards initiated and led by State Grid were approved:

6 IEC standards:
- Wind and PV power station grid connection conformance assessment
- Smart Grid Data Analysis and Integration
- Distribution Power System Stresses and Micro Grid Implementation—Technology, Standard and Experience
- Information Physics System Safety Analysis and Control
- Smart Hydropower Station Technical Guidelines
- Guidelines for the Measurement of Overvoltage in Power Systems Over Pilot Wave and Pilot Wave/Flash Frequency

5 IEEE standards:
- Guidelines for Evaluation of Geotechnical Stability of Transmission Towers
- Smart Grid Data Analysis and Integration
- Distribution Power System Stresses and Micro Grid Implementation—Technology, Standard and Experience
- Information Physics System Safety Analysis and Control
- Protection of Transmission System Elements

State Grid led the development of 47 international standards.

International academic activities

Chairman Shu Yinbiao is IEC’s Vice President and the Governor of IEC’s Market Strategy Board (MSB). During the IEC Executive Committee Meeting in Switzerland, Dr. Shu discussed with committee members on major issues concerning the operation and management of IEC and offered practical proposals in the future development strategy.

Chairman Shu Yinbiao was elected as the Chairman of the B20 China Business Council at the meeting celebrating the establishment of the Council in Beijing.


Chairman Shu Yinbiao attended the 81st IEC General Conference and a series of high-level management meetings in Moscow and addressed on the Closing Ceremony.

State Grid signed MOU with IEEE in Beijing to further deepen and expand the scope of bilateral cooperation in the future.

Chairman Shu Yinbiao attended the meeting and delivered a keynote speech.
State Grid ensures that the public has access to all kinds of information to guarantee its basic freedom; establishes effective, accountable and transparent institutions; and substantially reduces all forms of corruption and bribery.
In-depth research on development of power grid development, construction and other major issues. Consulting with governments at all levels on power grid construction, State Grid completed the “13th Five-Year” power grid development plan and company development plan; actively seek government support, signed strategic cooperation agreements and jointly promoted power grid construction. By strengthening report and communication to the National Development and Reform Commission, the National Energy Administration and other higher authorities, State Grid formed reports on accelerating the development and reforming related work of the power grid and received extensive attention.

Cooperation in power grid construction

Consciously accepting supervision and inspection is a responsibility carrying. State Grid didn’t evade supervision from all sectors of society and consciously accepted all sectors’ inspections. Moreover, State Grid actively cooperated with supervisory inspections at higher levels, improved and perfected the mechanism for inspections; met the public’s requirement of “openness, justice and fairness” for power supply services, consciously accepted public supervision, and relied on the 95598 business system of customer service centers to extensively listen to opinions from all parties.

Accept supervision and inspection

State Grid took the lead in releasing the social responsibility report for 12 consecutive years, strengthening the disclosure of social responsibility information, fully demonstrating the exemplary image of the responsible central enterprise, and relying on the news spokesman team to continuously publish information concerned by society and enhance enterprise transparent operation in the form of press conferences and other forms. Focusing on important issues, State Grid carried out all-round multi-dimensional communication and interaction to enhance the sense of participation and recognition of stakeholders.

Strengthen social communication

Adhering to the full implementation of social responsibility, State Grid established a sound social responsibility communication mechanism to improve the external information disclosure mechanism, comprehensively promoted stakeholder participation mechanisms and strengthened effective communication with stakeholders. The “Going into the State Grid” activity was launched in theme, and nearly 150 domestic and foreign groups were visited. Through aspects of institutional arrangement, resource guarantee and operational deployment, State Grid ensured stakeholders right to know, to supervise and to participate in order to give full rein to stakeholders’ potentiality in creating comprehensive value.

Promote stakeholder participation

State Grid participated in the launch of the “Global CSR2030 Initiative”, joining hands with Chorus CSR partners, contributed to China’s implementation of the United Nations’ sustainable development agenda country program and helped the ultimate realization of the UN’s sustainable development goals.

Participated in the China Electricity Industry Transparency Forum and discussed new methods of transparency management with representatives from associations, universities and the electric power industry to help the power industry develop healthily and sustainability.

Responsibility information disclosure

Participated in the “Golden Honeybees Honey Collection” campaign, exchanged ideas with government, enterprises, research institutions, media and other representatives to promote the “Replacement of Coal by Electricity for heating” project innovation method to help protect the blue skies.

Participated in the launch of the “Global CSR2030 Initiative”, joining hands with Chorus CSR partners, contributed to China’s implementation of the United Nations’ sustainable development agenda country program and helped the ultimate realization of the UN’s sustainable development goals.

The company had a total of 2,405 spokespersons.

Organization news released 3,182 times.

Tabled more than 100,000 pieces of information.
State Grid Corporation of China - The Action

Media attention

A Matrix of New Media

Built a new media matrix with the headquarters official Weibo, official WeChat account, “Power Grid Headline”, official Weibo and WeChat accounts of each unit as the core. There are a total of 735 official Weibo in the company system, a total of 1,045 official WeChat accounts, and 7 news clients.

Among the TOP10 influential new media of the central-enterprise secondary account in 2017, new media accounts under State Grid system occupied 6 seats, of which “State Grid Jiangsu Power” ranked first.

Responsibility management and communication

Release social responsibility management tool services for power supply companies

In order to assist power supply companies and other companies to fully understand, systematically grasp, and proficiently apply social responsibility concepts, methods and tools, State Grid has carefully compiled and published a series of company social responsibility management tools for power supply companies. This series of books select the areas of electricity supply and consumption that are closely related to social development and people’s lives. Through five dimensions of social responsibility boundary, social responsibility issue, stakeholder communication, public welfare project management and compiling social responsibility information disclosure report, the social responsibility theory and methods are logically, structurally, and graphically interpreted, and a new perspective is used to define and analyze the key issues of company social responsibility. The combination of this series of books will certainly play an important role in promoting the development of China’s company social responsibility theory and practice, and will have an important and far-reaching impact on the sustainable development of China’s economy and society and the better fulfillment of company social responsibility.

Hold a comprehensive social responsibility management and accountability exchange meeting

State Grid held a comprehensive social responsibility management exchange meeting in Jinan, Shandong Province, and invited the leaders of the State-owned Assets Supervision and Administration Commission of the State Council, experts and representatives of the 19th National Congress, and external experts to attend the meeting. Participants visited the pilot unit set up by the well-functioning township power supply stations driven by social responsibility—the Xitang Power Supply Station, the Jiashan County Power Supply Company’s overhaul (construction) area assembly and delivery package plant, the public power experience hall, and the “responsibility road” — Overall experience hall, and the “responsibility road” — Overall experience hall, and the “responsibility road” — Overall experience hall, and the “responsibility road” — Overall experience hall, and the “responsibility road” — Overall experience hall.

Select social responsibility demonstration bases and rooting demonstration projects

After more than 10 years of exploration, practice and accumulation, State Grid innovatively proposed the “two-way drive and demonstration lead” means of social responsibility work promotion model that promotes comprehensive social responsibility management from top to bottom and promotes integration of social responsibility from bottom to top. In order to further deepen companies’ social responsibility management, State Grid conducted exchange meetings such as State Grid Power Supply Company and 35 influential rooting demonstration projects. These demonstrations bases and rooting demonstration projects represented the Corporate’s level of social responsibility management and accountability, demonstrated the results of Corporate’s social responsibility theory research and practical exploration, published the Corporate’s scientific social responsibility concept, and shared the Corporate’s brand image of “responsible central enterprise”.

Media focus on key issues

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<tr>
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</thead>
<tbody>
<tr>
<td>Various media reports (Articles/Pcs)</td>
<td>32,465</td>
<td>31,526</td>
<td>28,241</td>
<td>25,106</td>
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<tr>
<td>Uffice and Other Major Power Grid Project Construction</td>
<td>20,000</td>
<td>18,000</td>
<td>16,000</td>
<td>14,000</td>
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<td>State Grid’s Poverty Alleviation Initiative</td>
<td>15,000</td>
<td>13,000</td>
<td>11,000</td>
<td>9,000</td>
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<tr>
<td>North Region Clean Heating</td>
<td>12,000</td>
<td>10,000</td>
<td>8,000</td>
<td>6,000</td>
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<td>Study, Publicize and Implement the Party’s 19th National Congress</td>
<td>11,200</td>
<td>9,200</td>
<td>7,200</td>
<td>5,200</td>
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<tr>
<td>Smart Service Platform for Internet of Pcs</td>
<td>27,200</td>
<td>21,200</td>
<td>15,200</td>
<td>10,200</td>
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<tr>
<td>Quarterly News Conference</td>
<td>13,200</td>
<td>11,200</td>
<td>9,200</td>
<td>7,200</td>
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<tr>
<td>Service Xiangshan New District Development</td>
<td>12,420</td>
<td>10,420</td>
<td>8,420</td>
<td>6,420</td>
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<tr>
<td>New Round Grid Augmentation in Rural Areas</td>
<td>10,630</td>
<td>8,630</td>
<td>6,630</td>
<td>4,630</td>
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<tr>
<td>Qinghai “Green Power for 7 Days”</td>
<td>7,890</td>
<td>5,890</td>
<td>3,890</td>
<td>1,890</td>
</tr>
</tbody>
</table>

The official WeChat account of State Grid Stories has cumulatively released 427 articles in 2017, and the number of fans has reached 120,000. The total reading volume exceeded 40.82 million.

The “Power Grid headline” was selected as the top 10 influential new media account of central enterprise in 2017. The WeChat public account cumulatively released 1,222 articles in 700 sessions, with nearly 1.5 million subscriptions and a total reading of more than 94.87 million, among which there are 322 articles with more than 100,000 plus.

In 2017, the official Weibo and WeChat accounts of State Grid system shared 427 articles, with a total of 1,222 sessions, with nearly 1.5 million subscriptions and a total reading of more than 94.87 million, among which there are 322 articles with more than 100,000 plus.

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State Grid Corporation of China

The Action

To study and implement the Party’s spirit of the “13th Five-Year” Power Grid Development Strategic: Corporation Agreement signed with eight provinces (autonomous regions, municipalities) including Inner Mongolia, Hebei and Shanghai, which provided a good external environment for accelerating power grid development, promoting quality services, and economic and social development.

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## Economic Performance

### Financial Performance

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue (billion RMB)</td>
<td>2,049.8</td>
<td>2,091.4</td>
<td>2,071.35</td>
<td>2,093.97</td>
<td>2,323.65</td>
</tr>
<tr>
<td>Total assets (billion RMB)</td>
<td>2,570.1</td>
<td>2,892.9</td>
<td>3,107.46</td>
<td>3,404.13</td>
<td>3,858.83</td>
</tr>
<tr>
<td>Total profits (billion RMB)</td>
<td>70.58</td>
<td>81.21</td>
<td>86.52</td>
<td>86.62</td>
<td>91.02</td>
</tr>
<tr>
<td>Pre-tax profits (billion RMB)</td>
<td>173.96</td>
<td>197.17</td>
<td>203.67</td>
<td>211.64</td>
<td>241.59</td>
</tr>
<tr>
<td>Return on equity (%)</td>
<td>4.72</td>
<td>5.18</td>
<td>4.97</td>
<td>4.56</td>
<td>4.32</td>
</tr>
<tr>
<td>Asset-liability ratio</td>
<td>57.60</td>
<td>56.1</td>
<td>55.3</td>
<td>55.9</td>
<td>57.6</td>
</tr>
</tbody>
</table>

### Grid Capability

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in power grid (billion RMB)</td>
<td>303.482</td>
<td>385.504</td>
<td>451.8</td>
<td>496.41</td>
<td>485.36</td>
</tr>
<tr>
<td>Length of transmission lines* (km)</td>
<td>1,045,300</td>
<td>843,600</td>
<td>890,000</td>
<td>932,000</td>
<td>987,000</td>
</tr>
<tr>
<td>Transformation/converting capacity ** (TWh/W)</td>
<td>3.24</td>
<td>3.305</td>
<td>3.4</td>
<td>4.0</td>
<td>4.35</td>
</tr>
<tr>
<td>Integrated generation capacity (GW)</td>
<td>962</td>
<td>1,049</td>
<td>1,161</td>
<td>1,271</td>
<td>1,379</td>
</tr>
<tr>
<td>On-grid electricity of integrated capacity (TWh)</td>
<td>3,690</td>
<td>3,650</td>
<td>3,620</td>
<td>3,830</td>
<td>4,100</td>
</tr>
<tr>
<td>Technical R&amp;D Expenditure (billion RMB)</td>
<td>5.787</td>
<td>7.080</td>
<td>7.376</td>
<td>6.921</td>
<td>7.628</td>
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<tr>
<td>Total patents</td>
<td>28,311</td>
<td>40,143</td>
<td>50,165</td>
<td>62,036</td>
<td>73,350</td>
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<tr>
<td>Total National Science and Technology Awards</td>
<td>43</td>
<td>46</td>
<td>51</td>
<td>60</td>
<td>69</td>
</tr>
<tr>
<td>Trans-regional and trans-provincial UHV/ transmission (TWh)</td>
<td>72.758</td>
<td>136.7</td>
<td>160,518</td>
<td>180.7</td>
<td>225.6</td>
</tr>
<tr>
<td>National and industrial standards led and development by State Grid</td>
<td>296</td>
<td>144</td>
<td>185</td>
<td>236</td>
<td>255</td>
</tr>
</tbody>
</table>

*Transmission lines of 110 (66) kV and above levels. **Transformation /converting capacity of 110 (66) kV and above levels.

Note: Data in this report for 2016 may differ from the ones in the 2016 CSR Report, please note the data in this report is the final count. The financial performance figures for 2017 are from the express reports, which may also differ from the final statistics.

## Operational Efficiency

### Power Supply Performance

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity sales (TWh)</td>
<td>3,522.7</td>
<td>3,468.4</td>
<td>3,492.6</td>
<td>3,605.1</td>
<td>3,874.5</td>
</tr>
<tr>
<td>Maximum load within State Grid's service area (GW)</td>
<td>654</td>
<td>631</td>
<td>649</td>
<td>702</td>
<td>762</td>
</tr>
<tr>
<td>Number of customers (million)</td>
<td>343</td>
<td>378</td>
<td>430</td>
<td>430</td>
<td>447</td>
</tr>
<tr>
<td>Reliability rate of urban power supply (%)</td>
<td>99.956</td>
<td>99.967</td>
<td>99.957</td>
<td>99.946</td>
<td>99.948</td>
</tr>
<tr>
<td>Average blackout duration for urban users (Hour/household)</td>
<td>3.854</td>
<td>2.891</td>
<td>3.74</td>
<td>4.75</td>
<td>4.529</td>
</tr>
<tr>
<td>Voltage qualification rate of urban users (%)</td>
<td>99.999</td>
<td>99.982</td>
<td>99.989</td>
<td>99.993</td>
<td>99.994</td>
</tr>
<tr>
<td>Reliability rate of rural grid power supply (%)</td>
<td>99.852</td>
<td>99.878</td>
<td>99.844</td>
<td>99.752</td>
<td>99.784</td>
</tr>
<tr>
<td>Average blackout duration for rural users (Hour/household)</td>
<td>12.965</td>
<td>10.64</td>
<td>13.71</td>
<td>19.14</td>
<td>18.944</td>
</tr>
<tr>
<td>Voltage qualification rate for rural users (%)</td>
<td>98.567</td>
<td>98.808</td>
<td>99.065</td>
<td>99.491</td>
<td>99.602</td>
</tr>
</tbody>
</table>

### Overall Performance

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall productivity (RMB/person-year)</td>
<td>609,000</td>
<td>643,500</td>
<td>653,000</td>
<td>703,000</td>
<td>771,100</td>
</tr>
<tr>
<td>Total asset turnover period (Day)</td>
<td>439</td>
<td>474</td>
<td>521.7</td>
<td>570.3</td>
<td>566.5</td>
</tr>
<tr>
<td>Comprehensive line loss rate (%)</td>
<td>6.83</td>
<td>6.81</td>
<td>6.78</td>
<td>6.75</td>
<td>6.66</td>
</tr>
<tr>
<td>Number of equipment accidents</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Number of power grid accidents</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: Data in this report for 2016 may differ from the ones in the 2016 CSR Report, please note the data in this report is the final count. The financial performance figures for 2017 are from the express reports, which may also differ from the final statistics.
## General Service

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in the rural grid Billion RMB</td>
<td>50.73</td>
<td>46.45</td>
<td>125.799</td>
<td>180.00</td>
<td>147.4</td>
</tr>
<tr>
<td>The average gap between urban and rural annual blackout time Hour/ household</td>
<td>9.11</td>
<td>7.8</td>
<td>9.97</td>
<td>14.41</td>
<td>14.41</td>
</tr>
</tbody>
</table>

Note: After two years of hard work, State Grid had comprehensively solved the long term low voltage problems on our grid. At the moment, the low voltage problem is under constant surveillance and will be dealt with, as soon as being identified.

## Public Donations

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donations million RMB</td>
<td>115</td>
<td>114</td>
<td>128</td>
<td>130</td>
<td>630</td>
</tr>
<tr>
<td>Via State Grid Foundation for Public Welfare million RMB</td>
<td>8.5</td>
<td>10.6</td>
<td>15</td>
<td>18</td>
<td>522</td>
</tr>
<tr>
<td>Staff’s volunteer service Thousand person·time</td>
<td>715</td>
<td>2200</td>
<td>2000</td>
<td>2500</td>
<td>2000</td>
</tr>
</tbody>
</table>

## Win-win Partnership

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized tendering volume Billion RMB</td>
<td>354.3</td>
<td>368.0</td>
<td>597.7</td>
<td>466.9</td>
<td>422.0</td>
</tr>
<tr>
<td>Luban Awards in total</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>27</td>
<td>28</td>
</tr>
</tbody>
</table>

## Transparent Operation

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Grid website’s browse statistics Visits</td>
<td>8,864,000</td>
<td>12,810,000</td>
<td>17,919,000</td>
<td>14,384,000</td>
<td>25,829,000</td>
</tr>
<tr>
<td>Information reported to governments from State Grid Headquarters Piece</td>
<td>205</td>
<td>198</td>
<td>215</td>
<td>160</td>
<td>205</td>
</tr>
</tbody>
</table>

## Employee Development

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training coverage rate %</td>
<td>94</td>
<td>94.3</td>
<td>94.55</td>
<td>94.6</td>
<td>94.64</td>
</tr>
<tr>
<td>Employee training Thousand person·time</td>
<td>3,400</td>
<td>3,600</td>
<td>3,600</td>
<td>3,640</td>
<td>3,600</td>
</tr>
<tr>
<td>The proportion of female employees %</td>
<td>26.9</td>
<td>27.2</td>
<td>27.3</td>
<td>27.5</td>
<td>27.49</td>
</tr>
<tr>
<td>Labour unions</td>
<td>1,936</td>
<td>1,303</td>
<td>1,523</td>
<td>1,539</td>
<td>1,559</td>
</tr>
</tbody>
</table>

## Environmental Performance

### Serve Clean Energy Development

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated capacity from clean energy generator units GW</td>
<td>274.26</td>
<td>331.83</td>
<td>372.95</td>
<td>430.79</td>
<td>503.06</td>
</tr>
<tr>
<td>Including: integrated capacity of hydropower GW</td>
<td>185.37</td>
<td>198.82</td>
<td>207.84</td>
<td>215.89</td>
<td>224.14</td>
</tr>
<tr>
<td>Integrated capacity of nuclear power MW</td>
<td>8,490</td>
<td>12,750</td>
<td>17,019</td>
<td>20,070</td>
<td>21,760</td>
</tr>
<tr>
<td>Integrated capacity from renewable energy generator units</td>
<td>92,470</td>
<td>120,260</td>
<td>148,106</td>
<td>194,230</td>
<td>257,140</td>
</tr>
<tr>
<td>Including: integrated capacity of wind power MW</td>
<td>59,590</td>
<td>87,900</td>
<td>102,757</td>
<td>116,540</td>
<td>126,900</td>
</tr>
<tr>
<td>Integrated capacity of PV power MW</td>
<td>14,290</td>
<td>24,450</td>
<td>35,975</td>
<td>66,760</td>
<td>115,000</td>
</tr>
<tr>
<td>On-grid power from clean energy generator units TWh</td>
<td>767.9</td>
<td>921.8</td>
<td>980.56</td>
<td>1,154.7</td>
<td>1,262.6</td>
</tr>
<tr>
<td>Including: on-grid hydropower TWh</td>
<td>568.3</td>
<td>651.1</td>
<td>669,799</td>
<td>737.5</td>
<td>744.5</td>
</tr>
<tr>
<td>On-grid nuclear power TWh</td>
<td>66.6</td>
<td>73</td>
<td>101,487</td>
<td>117.3</td>
<td>138</td>
</tr>
<tr>
<td>On-grid power from renewable energy generator units TWh</td>
<td>139</td>
<td>187,742</td>
<td>208,822</td>
<td>279.9</td>
<td>380</td>
</tr>
</tbody>
</table>

## Comprehensive Power Conservation

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power saved by lowering the line loss TWh</td>
<td>1.89</td>
<td>17.1</td>
<td>8,200</td>
<td>910</td>
<td>2,890</td>
</tr>
<tr>
<td>Generation rights transactions TWh</td>
<td>113.848</td>
<td>116.785</td>
<td>113.154</td>
<td>122.1</td>
<td>121.4</td>
</tr>
<tr>
<td>Electricity replacement capacity TWh</td>
<td>14</td>
<td>24,450</td>
<td>35,975</td>
<td>66,760</td>
<td>115,000</td>
</tr>
</tbody>
</table>

## EV Development

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total EV charging piles</td>
<td>19,700</td>
<td>24,000</td>
<td>29,000</td>
<td>44,000</td>
<td>56,000</td>
</tr>
</tbody>
</table>

## Carbon Dioxide Emission Reduction

<table>
<thead>
<tr>
<th>Unit</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission reduced by clean energy accommodation Thousand tons</td>
<td>668,291.3</td>
<td>741,620</td>
<td>810,000</td>
<td>880,000</td>
<td>980,000</td>
</tr>
<tr>
<td>Emission reduced by lowering the line loss Thousand tons</td>
<td>1,500</td>
<td>13,700</td>
<td>8,200</td>
<td>910</td>
<td>2,890</td>
</tr>
</tbody>
</table>
The Commitment

Commitment for 2017

Economic Performance

- Invested 568.3 billion RMB in corporate development
- Invested 506.5 billion RMB in fixed assets
- Invested 485.4 billion RMB in power grid
- Started the construction of 49,000 km 110/66kV and above power lines with a transformation/converting capacity of 260 GVA/(GW)
- Put 55,000 km 110/66kV and above lines into operation with a transformation/converting capacity of 300 GVA/(GW)

Social Performance

- Finished the grid upgrade in small town (central village) and in irrigation systems. Replace oil by electricity for motor-pumped wells and in irrigation systems. Replace oil by electricity for rural service providers
- Put the 4 AC and 4 DC UHV projects into operation, where the networks achieved the targets included in the National Action Plan for Air Pollution Prevention and Control

Environmental Performance

- Accomplished 1157TWh of electricity replacement
- Put into operation 54 key projects replacing coal by electricity in Beijing, Tianjin and Hebei region
- Put 55,000 km 110(66)kV and above lines into operation with a transformation/converting capacity of 260 GVA/(GW)
- Put 5,000 km 110(66)kV and above lines into operation with a transformation/converting capacity of 300 GVA/(GW)

Fulfillment in 2017

Economic Performance

- Invested 568.3 billion RMB in corporate development
- Invested 506.5 billion RMB in fixed assets
- Invested 485.4 billion RMB in power grid
- Started the construction of 49,000 km 110/66kV and above power lines with a transformation/converting capacity of 260 GVA/(GW)
- Put 55,000 km 110/66kV and above lines into operation with a transformation/converting capacity of 300 GVA/(GW)

Social Performance

- Finished the grid upgrade in small town (central village) and in irrigation systems. Replace oil by electricity for motor-pumped wells and in irrigation systems. Replace oil by electricity for rural service providers
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Environmental Performance

- Accomplished 1157TWh of electricity replacement
- Put into operation 54 key projects replacing coal by electricity in Beijing, Tianjin and Hebei region
- Put 55,000 km 110(66)kV and above lines into operation with a transformation/converting capacity of 260 GVA/(GW)
- Put 5,000 km 110(66)kV and above lines into operation with a transformation/converting capacity of 300 GVA/(GW)

Commitment for 2018

Economic Performance

- Invested 591.9 billion RMB in corporate development
- Invested 522.4 billion RMB in fixed assets
- Invested 498.9 billion RMB in power grid
- Started the construction of 61,000 km 110/66kV and above power lines with a transformation/converting capacity of 300 GVA/(GW)
- Put 52,000 km 110/66kV and above lines into operation with a transformation/converting capacity of 300 GVA/(GW)

Social Performance

- One stop service for urban settlement, power access and energy-related services etc.
- Reduce the average time for 15kV and 400kV non-residential electricity connection to 80 and 30 days respectively
- Get approval for the construction of six UHV projects, including: Ya’an—Chengdu—Chongqing—Shanghai UHV projects

Environmental Performance

- Reduce both the volume and rate of wind/PV curtailment by year end
- Build and put into operation auxiliary projects to replace coal by electricity in key areas in Tibet Autonomous Region, Xinjiang, Inner Mongolia and Shaanxi—Shanxi, Jiangsu—Zhejiang—Shanxi UHV projects
The Commitments by the subsidiaries managed by State Grid have been included in the commitment of the company.

**Featured CSR commitments from State Grid provincial companies in 2018**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Increase the proportion of clean energy heating during winter in Beijing, the &quot;Replacement of Coal by Electricity in heating&quot; in 407,700 rural households in 560 villages.</td>
<td>By 2017, we have completed the grounding of electricity access in 80% of rural power line pumped wells in the rural areas of the capital city.</td>
<td>Promote electricity replacement and realize 13.17TWh of electricity replacement.</td>
<td>In 2017, we have promoted electricity replacement and realize 13.97TWh of electricity replacement and further achieved 1.4% of the total electricity sales.</td>
<td>Promote the export of electricity generated in Shaanxi, deliver over 123.8 billion kWh of hydropower out of the province.</td>
<td>Help 140 places to get out of poverty before the end of 2018.</td>
</tr>
<tr>
<td>Promote clean energy heating during winter in North and South China, and the construction of &quot;zero-coal area&quot; in Weishan District.</td>
<td>Build 301 EV charging and swapping stations and 4,417 charging piles, forming a 3km radius charging service circle for electric vehicles in 1,951 small town (central village).</td>
<td>Implement “two replacements” and accomplish 7.076TWh of electricity replacement.</td>
<td>Implement “two replacements” and accomplish 7.575TWh of electricity replacement.</td>
<td>Promote the export of electricity generated in Shandong, deliver over 132.8 billion kWh of hydropower out of the province.</td>
<td>Reduce 2.17TWh of electricity replacement.</td>
</tr>
<tr>
<td>Ensure no wind/ PV curtailment all around the area, total installed generation capacity of the renewables reach 4.5GW.</td>
<td>Build 118 quick charging stations with 1,289 DC charging piles in highway service areas.</td>
<td>Build 54 new quick charging stations.</td>
<td>Upgrade the grid in 465 companies; the electrified railways to accommodate over 15.2 million households.</td>
<td>Complete all supporting grid projects for poverty-alleviation relocation program and &quot;Daima Poverty to Affluence&quot; project.</td>
<td>Upgrade power supply facilities for 31,700 small town (central village) and 1,251,400 impoverished households.</td>
</tr>
<tr>
<td>Upgrade the power grids in 2,135 small town (central village) and electricity access in 45,400 pumped wells.</td>
<td>The &quot;Replacement of Coal by Electricity for heating&quot; in 465 companies and the provincial areas to accommodate more than 53%, realize 47TWh of electricity replacement.</td>
<td>The &quot;Replacement of Coal by Electricity for heating&quot; in 465 companies; the provincial areas to accommodate more than 53%, realize 47.6TWh of electricity replacement.</td>
<td>Invest 3.402 billion RMB in improved central villages, benefit 2.66 million people.</td>
<td>Help 502 villages in 11 impoverished counties out of poverty; improve 27TWh of electricity replacement.</td>
<td>Complete all supporting grid projects for poverty-alleviation relocation program and &quot;Daima Poverty to Affluence&quot; project.</td>
</tr>
<tr>
<td>Support the development of renewable energy; accommodate over 15.2 GW of installed capacity of renewable energy into the grid.</td>
<td>Invest 4.37 billion RMB to build 47.2 MW PV power stations in villages, benefiting 33,200 households and 102,800 registered poverty-stricken population.</td>
<td>Invest at least 8 billion RMB in rural grid projects; comprehensively promote electricity replacement, realize 5.15TWh of electricity replacement.</td>
<td>Invest 488 million RMB in rural grid power and electricity 43.47TWh of clean energy is accommodated, accounting for 24% of total electricity sales.</td>
<td>Help 1,782 poverty-stricken households; improve 465 companies; the electrified railways to accommodate over 15.2 million households.</td>
<td>Upgrade power supply facilities for 31,700 small town (central village) and 1,251,400 impoverished households.</td>
</tr>
<tr>
<td>Upgrade and the grids in 1,851 small town (central village); electricity access in 45,400 pumped wells.</td>
<td>Promote electricity replacement and realize 13.17TWh of electricity replacement; and realize 15.3 billion kWh of energy taking up more than 51% of the total generation mix.</td>
<td>Invest 0.2 billion RMB in rural grid projects; comprehensively promote electricity replacement, realize 5.15TWh of electricity replacement.</td>
<td>Accommodate 10.18TWh of wind power; accounting for 14.94% of the total electricity sales.</td>
<td>Invest 1.25 billion RMB in rural grid power and electricity 43.3 billion kWh.</td>
<td>Invest 3,080 billion RMB in fixed assets; invest a total of 82.4 billion RMB in Xinjiang Grid during the &quot;13th Five-Year Period&quot;.</td>
</tr>
<tr>
<td>Upgrade the power grid in 2,135 small town (central village) and electricity access in 45,400 pumped wells.</td>
<td>The &quot;Replacement of Coal by Electricity for heating&quot; in 465 companies and the provincial areas to accommodate more than 53%, realize 47TWh of electricity replacement.</td>
<td>Upgrade rural grids in 1,259 poverty-stricken villages; promote electricity replacement; accomplish 2.19TWh of electricity replacement.</td>
<td>Accommodate 1.43TWh of wind power; accounting for 14.94% of the total electricity sales.</td>
<td>Implement point to point poverty alleviation projects in 29 impoverished villages, with a total investment of more than 0.1 billion RMB in 100 impoverished households.</td>
<td>Reduce 900GWh of electricity replacement; 75 towns will realize power supply by the main power grid.</td>
</tr>
<tr>
<td>Continue speeding up the construction of urban bus quick charging network and realize an average 3 km radius charging service circle in downtown.</td>
<td>Promote electricity replacement and realize 13.17TWh of electricity replacement.</td>
<td>Upgrade rural grids in 4 deeply impoverished counties and 1,225 deeply impoverished villages.</td>
<td>Accommodate 0.85TWh wind power; accounting for 6.67% of the total electricity sales.</td>
<td>Accommodate 16.27TWh wind power; accounting for 55.7% of the total electricity sales.</td>
<td>Reduce 2,000GWh of electricity replacement; 67 towns will realize power supply by the main power grid.</td>
</tr>
</tbody>
</table>
Benchmarking

Analysis on Substantive Topics in the 2017 Report

**Identify Topics**
We continue collecting topics via:
- Suggestions from the management team;
- Analysis from external and internal experts;
- Topics from subsidiaries;
- Topics from external stakeholders;
- Topics benchmarked with CSR standards.

**Analyze Topics**
We invited stakeholders to vote on their top concerns regarding the CSR topics through official WeChat accounts of “Power Grid Headline” and the provincial companies, with reference to media analysis reports, including central media, industrial media, new media, cyber media and marketing media to further understand these concerns. Practical analysis were done to the topics included in the topic pool according to their weighted contribution to the company’s economic, environmental and social value creation with reference to internal media reports including State Grid News, State Grid Magazine and Liang Bao.

**Order of Topics**
According to State Grid CSR Guide, we continue applying the “value creation - social concern” two-dimensional matrix to sort out the importance of topics.

**Value Creation Dimension**: assess the relevance, importance, and feasibility of specific topics to integrated value creation.

**Social Concern Dimension**: assess the degree of concern on specific topics by the stakeholders and the public in general.
Intrinsic Safety. State Grid improved R1 1,702 person-time and effectively powered supply during the Earthquake in Assabgha, Equatorial Congo. The two strong rain in Hunan, Jiangxi, Liaoning and Jilin as well as Typhoon Nesat and Tropical Storm Haitang and other national disasters.

Innovation-driven strategy. State Grid took the initiative to develop 10 national standards and 12 international standards, won 1 special prize and 27 first-prizes of National Science and Technology Award. It awarded 1,713,700 valid patents and 11,664 invention patents.

Green Development and Environmental Protection. State Grid completed task of the “Replacement of Coal by Electricity for heating” for 1.26 million households in 7,800 cities in Beijing, Tianjin, Hebei, promoting the application of urban coal boilers, and implementing the project of building green supply chains and promoting green manufacturing and implementing quality and green procurement.

Serving and Promoting the “Belt and Road” Initiative. State Grid helped China to export and electric vehicle manufacturing, control and protection equipment, automotive dispatching and control system and high-voltage power electronics equipment to 83 countries and regions including developed European economies such as Germany, The Great Britain and Poland, and promoted Chinese product chain and value chain to go global. State Grid also took the lead to establish a comprehensive UHV and AC, UHV DC and smart grid technological standard system and initiated the development of 47 international standards. State Grid built 10 transnational power transmission interconnection chains, realizing dynamic power supply to 78,000 villages, benefiting 160 million rural people. State Grid implemented “Sunshine Action for Poverty Alleviation”, invested 5,713,700 RMB in poverty-relief PV tractor. From 2016 to 2017, with an installed capacity of 5,450,000, benefitted 1,531,000 poverty-stricken households. State Grid invested 437 million RMB in poverty relief in “villages and one region” in Hebei and 7,14 million RMB in clean energy-focused heating demonstration project at Shandong City, Qinghai Province.

Employee Development. State Grid developed the employee fitness APP “S365” , organized regular body checks and established health records to safeguard the health of employees. It also regulated the types of safety protection equipment to be prepared and the cycle of distribution and carried out surveys to learn about the trouble of employees, organized lectures on psychological health and promoted the development of Employee APP (S365) and Employee Health Center.

Employee Development. State Grid provided 380 million person·times training, including 1,227,080 person·times training for managerial staff, 1,754,000 person·times training for skilled workers, 28,000 person·times training for service workers, 50,000 person·times training for marketing staff, 51,700 person·times training for new employees, 299,000 person·times training for technical staff and 66,800 person·times joint training. It also organized 428 conferences (examinations), 7,500,000 person·times online training and 4,600,000 person·times online exams and provided 196,300 employee evaluation and professional qualification certification.

Corporate Citizen. State Grid utilized 2,518,700 RMB in technology R&D, 5,621,300 RMB in information technology and 7,500,000 RMB in telecommunication projects.

Corporate Citizen. State Grid had 500 donations totaling 636 million RMB. It electrified 1,535,000 pumped wells, upgraded and reconstructed 66,000 small town stations, supported 29,000 households, solar, wind power and agricultural projects, and realized dynamic power supply to 78,000 villages, benefiting 160 million rural people. State Grid implemented "Sunshine Action for Poverty Alleviation", invested 1.713.306 million RMB in poverty-relief PV tractor. From 2016 to 2017, with an installed capacity of 5.450.000, benefitted 1.531.000 poverty-stricken households. State Grid invested 4.37.000 million RMB in poverty relief in "villages and one region" in Hebei and 71.4 million RMB in clean energy-focused heating demonstration project at Shandong City, Qinghai Province.

Promoting Rural Development. State Grid promoted the full coverage of well-functioning township power supply stations, increased the average capacity of a substation from 5,000 kVA to 14,000 kVA, and realized dynamic power supply to 78,000 villages, benefiting 160 million rural people. State Grid implemented "Sunshine Action for Poverty Alleviation" to ensure dynamic power supply to 78,000 villages, benefiting 160 million rural people.

Corporate Citizen. State Grid utilized 2,518,700 RMB in technology R&D, 5,621,300 RMB in information technology and 7,500,000 RMB in telecommunication projects.

Corporate Citizen. State Grid continued to implement point-to-point poverty alleviation projects in "villages and one region" in Hebei, solving the problem of the shortage of drinking water for people.

Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed Exemplary Service. State Grid promoted the application of smart meters, with 37.460 million smart meters being installed, fulfilling 190.2% of the annual plan.

Intrinsic Safety. State Grid improved R1 1,702 person-time and effectively powered supply during the Earthquake in Assabgha, Equatorial Congo. The two strong rain in Hunan, Jiangxi, Liaoning and Jilin as well as Typhoon Nesat and Tropical Storm Haitang and other national disasters.

Innovation-driven strategy. State Grid invested 7,828 million RMB in technological R&D, 5,324 million RMB in information technology and 7,046 million RMB in implementing quality and green procurement.

Green Development and Environmental Protection. State Grid built the world's largest multi-functional Smart Service Platform for Internet of Things to promote the development of the Industry.

Corporate Citizen. State Grid established a special fund to protect the natural and ecological environment along the Central Tianjin interconnection Project to avoid causing harm to the ecosystem, grazing and the local habitat of the area and protect the ecological system and biodiversity.

Landslide. State Grid carried out 14 special audits on base-level corporate governance, strengthened the management and management of audits on international and financial businesses and established a digital audit model for new models of auditing.

Green Development and Environmental Protection. State Grid entered the industry of dynamic power transmission to all parts of the country in order to provide power supplies for the people and build "green power".

Corporate Citizen. State Grid had 500 donations totaling 636 million RMB. It electrified 1,535,000 pumped wells, upgraded and reconstructed 66,000 small town stations, supported 29,000 households, solar, wind power and agricultural projects, and realized dynamic power supply to 78,000 villages, benefiting 160 million rural people. State Grid implemented "Sunshine Action for Poverty Alleviation" to ensure dynamic power supply to 78,000 villages, benefiting 160 million rural people.

Employee Development. State Grid provided 380 million person·times training, including 1,227,080 person·times training for managerial staff, 1,754,000 person·times training for skilled workers, 28,000 person·times training for service workers, 50,000 person·times training for marketing staff, 51,700 person·times training for new employees, 299,000 person·times training for technical staff and 66,800 person·times joint training. It also organized 428 conferences (examinations), 7,500,000 person·times online training and 4,600,000 person·times online exams and provided 196,300 employee evaluation and professional qualification certification.

Corporate Citizen. State Grid utilized 2,518,700 RMB in technology R&D, 5,621,300 RMB in information technology and 7,500,000 RMB in telecommunication projects.

Corporate Citizen. State Grid continued to implement point-to-point poverty alleviation projects in "villages and one region" in Hebei, solving the problem of the shortage of drinking water for people.

Quality Development. State Grid built "Bright AC" and "Smart DC" projects with "Yellow AC" and "One DC" core projects under construction or being approved.

safety violations being identified and rectified.

Employee Development. State Grid provided 380 million person·times training, including 1,227,080 person·times training for managerial staff, 1,754,000 person·times training for skilled workers, 28,000 person·times training for service workers, 50,000 person·times training for marketing staff, 51,700 person·times training for new employees, 299,000 person·times training for technical staff and 66,800 person·times joint training. It also organized 428 conferences (examinations), 7,500,000 person·times online training and 4,600,000 person·times online exams and provided 196,300 employee evaluation and professional qualification certification.

Corporate Citizen. State Grid utilized 2,518,700 RMB in technology R&D, 5,621,300 RMB in information technology and 7,500,000 RMB in telecommunication projects.

Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed Employee Development. State Grid is determined to prevent all forms of gender discrimination and safeguard employees' right to take paid leave, maternal and paternal leave. It followed
benchmarking

State Grid Corporation of China refer to the GRI official website for more information. including all the key indicators and some additional indicators are closely related to our business. Our internal evaluation shows that we fully conform to GRI standards. Please refer to the GRI official website for more information.

**GRI Index**

GRI Index could help readers to understand how our report conforms to Sustainability Reporting Guidelines by Global Reporting Initiative. The indicators we have chosen, including all the key indicators and some additional indicators are closely related to our business. Our internal evaluation shows that we fully conform to GRI standards. Please refer to the GRI official website for more information.

**Initiatives and Performance of UN Global Compact**

**Human Rights**

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. take no part in human rights abuses

**Labor**

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced and compulsory labor; the abolition of child labor; and the elimination of discrimination in respect of employment and occupation

**Environment**

7. Businesses should support a precautionary approach to environmental challenges; 8. undertake initiatives to promote greater environmental responsibility; and 9. encourage the development and diffusion of environmentally friendly technologies

**Anti-Corruption**

10. Businesses should work against corruption, extortion and bribery in all forms

**Action Performance**

- Respect and safeguard the legal rights and interests of employees and treat employees of different nationalities, races, religious beliefs and gender equally and fairly.
- State Grid signs labor contracts with all employees, implements an integrated payroll system and bans child labor and forced labor.
- Promoting the development of the Labor Union and domestic participation; responding to and handling proposals from workers' representatives and extensively soliciting for rationalization suggestions.
- Prevent all forms of discrimination, increase the percentage of foreign employees by 1.81% and that of ethnic minorities by 5.07%
- Organize and implement 11 researches on renewable energy accommodation.
- Establish a clean, low-carbon, safe and efficient energy system; green, low-carbon circular economic system and market-oriented green technological innovation system to serve the building of a beautiful China and contribute to global ecological safety.
- Vigorously promote carbon asset management and device the project of “forging green supply chain and promoting the green industrial production”.
- State Grid carried out 74 special audits on law-based corporate governance; organized internal inspection, promoting the green industrial production.