Energy Saving Practices and Enlightenments in State Grid Corporation of China (SGCC)

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1. 1 Electric Demand Side Management Regulations

Issued by NDRC and other 5 authorities in November 2010.

- States that power grid enterprises are **the main implementation body** of electric demand side management, with the obligation to promote energy saving among electricity consumers clearly.
- Point to **the amount of energy saving** should be larger than the **0.3%** of last year's total electricity consumption and peak demand.

1 Drivers to Develop Energy Saving Service

1.2 Develop Value-added Services

Energy saving services are recognized as the new point of profit growth of SGCC. Returns will continuously increase with the growing of market share of SGCC Energy Service Companies (**ESC**).

1.3 **Advantages of SGCC**

- Marketing Advantage
- Technological Advantage
- Capital Advantage

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2 Energy Saving Practices of SGCC

2.1 Energy Saving Service Company (ESCO)

- SGCC established one ESCO at the headquarter level in January 2013. At present, SGCC has found the SGCC ESCO and **27 provincial scale ESCOs**.

By the end of Oct. 2015

- **550 new project contracts** signed
- All of SGCC ESCOs and planed to invest **more than 2 billion CNY**
- These projects are expected to make the **revenue** of about **2.8 billion CNY** and a total **energy saving of 4.8 TWh**

2.2 ESCO Business Modes

3 business modes. In common, ESCOs offer the **investment costs**. **The profits and the ownership** of energy saving projects **belong to consumers** after the end of contracts.

- **Energy Saving Profits Shared**. ESCOs take a proportion of the profits, as agreed by consumers.
- **Energy Saving Profits Guaranteed**. ESCOs guarantee a certain amount of energy saving. If not achieved, ESCOs compensate consumers. If over-fulfilled, ESCOs share the profits with consumers.
- **Energy Cost Trusted**. The energy cost and maintenance cost are paid based on an agreed settlement price.

2.3 Energy saving practice of ESCOs

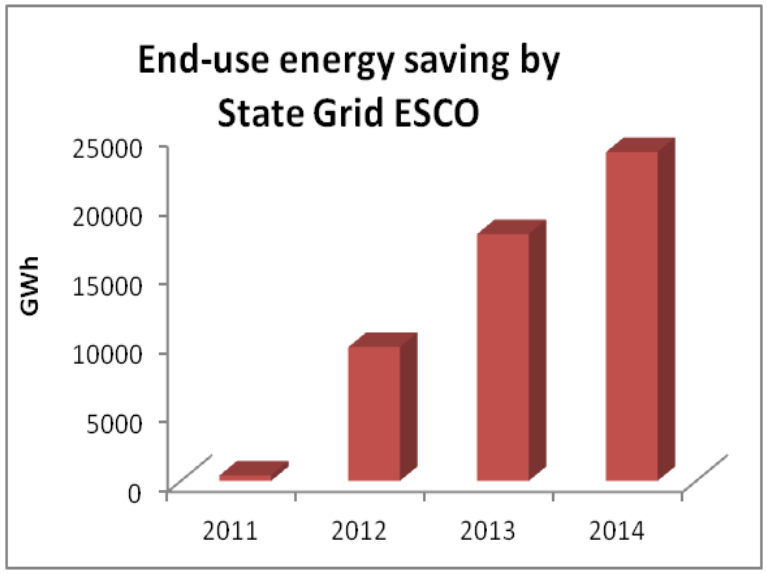
Demand response was carried out in Foshan, Jiangsu and Beijing, with the participation of SGCC in the summer of 2015. A **subsidy of 100 CNY/kW** was granted to the **reduced peak hour electric demand** by the central government.

Date	Location	Number of Demand Responders	Reduced Electric Demand/MW
July 30	Foshan	33 end users、 3 electricity service providers	42
July 30	Suzhou	24 end users、 5 load integrators	230
August 4	Jiangsu	513 end users、 8 load integrators	1658
August 12	Beijing	74 end users、 17 load integrators	70

2 Energy Saving Practices of SGCC

2.4 Enhance end use energy efficiency (2014)

- **Energy Performance Contracting (EPC)**
- **23,840 GWh** electricity saved
- **18.4 Mt** CO_2 emission reduced



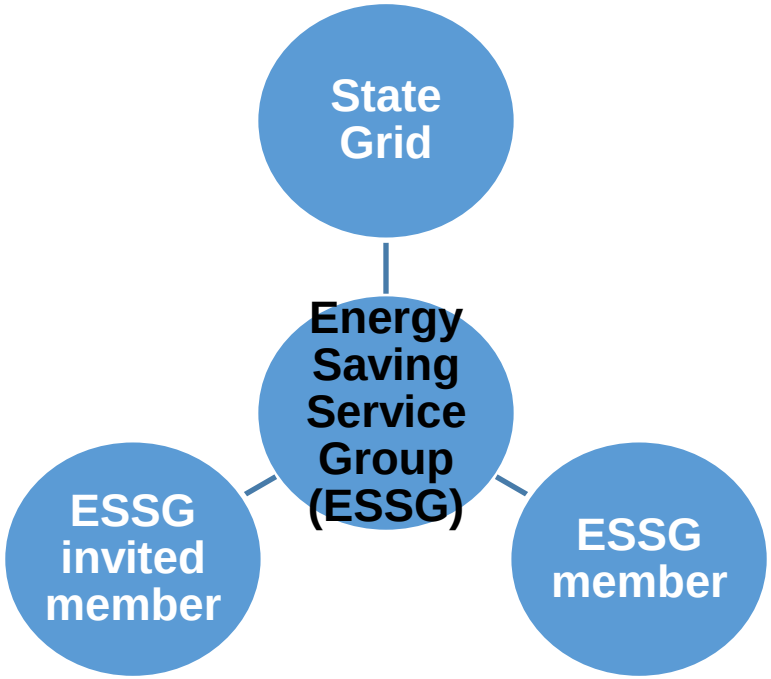
- 248 million smart meters
- 256 million end-users, the electricity consumption information collected automatically. The coverage rate is 68%.
- Energy saving suggestions provided to end-users.
- Training in environmental protection (118 in 2014)

2 Energy Saving Practices of SGCC

2.5 Energy Saving Service Network

Energy Saving Service Group (**ESSG**)

- **ESSG members** are electricity consumers who join in voluntarily.
- **ESSG invited members** are advisory consultants, ESCOs and invited electricity consumers.
- **695 ESSGs** with **6024 members** (until 2015.10)



2.4 Energy Efficiency Evaluation Organization

6 energy efficiency evaluation organizations granted energy audit qualifications，nationally or locally. (until 2015.10)

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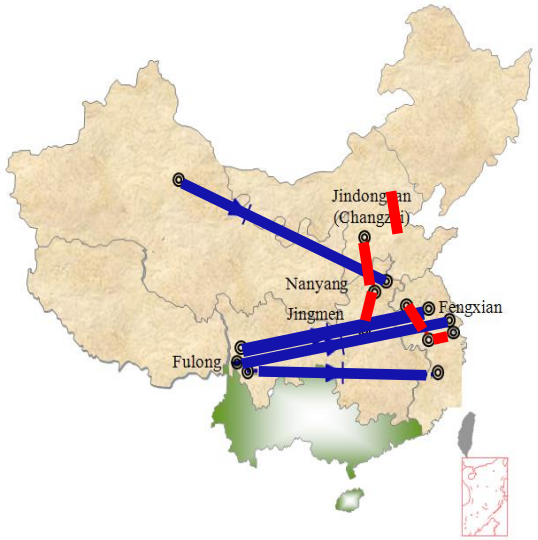
3 Achievements of SGCC's Energy Saving Service

3.1 Reduce power line losses (2014)

- Saved electricity energy up to **17.1 TWh**
- Equivalent to savings on **5.5 Mt of standard coal consumption**
- Reduction of CO2 emission by **13.7 Mt**.

- **UHV transmission technology**. (3UHVAC projects and 4 UHVDC projects)
- **Smart substations**
- **Distribution network reconstruction**

The length of UHV transmission lines in operation and under construction is over **15,000 km**. The **annually transmit energy** on these lines is **136.7 TWh**, increased **by 88%.**



3 Achievements of SGCC's Energy Saving Service

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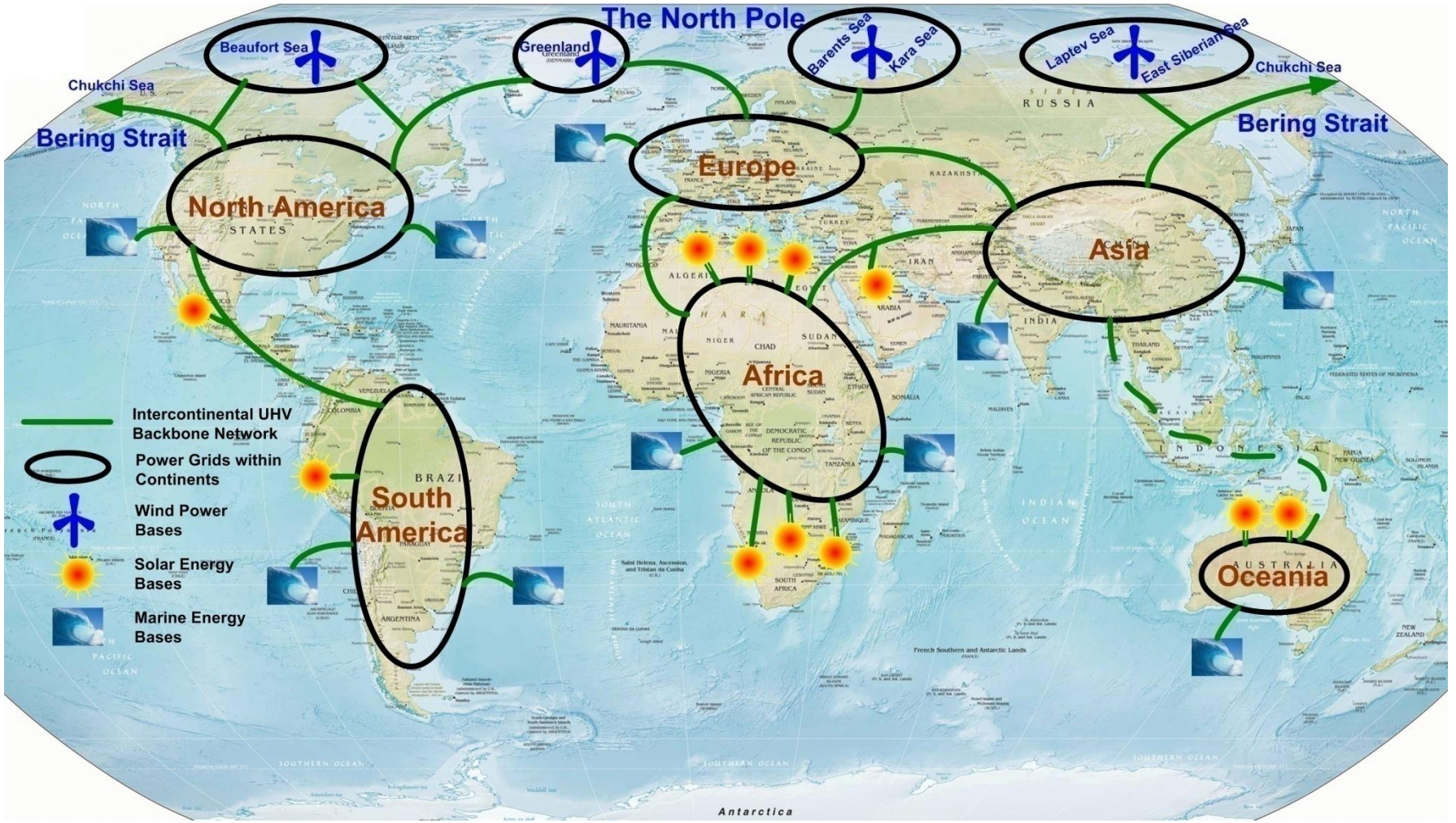
3.2 Promote clean energy substitution (in 2014)

- **13,000** electricity replacement projects (accumulated)
- **50.3 TWh** energy replaced by electricity
- **618** charging and battery swap stations.
- **24,000** EV charging poles

Total facility numbers top the world. The fast charging network of intercity highway has almost been completed.

		2010	2011	2012	2013	2014
Grid infeed clean energy	(TWh)	490.3	594.3	717.7	790.4	921.8
Emission Reduction by clean energy	(Million ton)	447	442.85	552.65	668.29	740
Number of charging and battery swap stations for electric vehicles		87	243	353	400	618
charging poles for electric vehicles		7000	13000	15000	19000	24000



Global Energy Interconnection Map

Thank you for your attention!