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## **Measures for the guaranteed full purchase of renewable electricity**

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### **National Development and Reform Commission**

#### **"Measures for the guaranteed full purchase of renewable electricity"**

NDRC Energy [2016] No. 625

To Development and Reform Commissions (Energy Administrations) and Commissions of Economy and Informatization (Commissions of Industry and Informatization, Offices of Industry and Informatization) of all provinces, autonomous regions, directly-controlled municipalities and Xinjiang Production and Construction Corps, local branches of the National Energy Administration, the State Grid Corporation, China Southern Power Grid Corporation, Inner Mongolia Electric Power (Group) Co., Ltd., Huaneng, Datang, Huadian, Guodian, CPI, Shenhua, Three Gorges, China Resources, China Nuclear, China Guangdong Nuclear Power, China Energy Conservation and Environmental Protection Group :

In order to implement the relevant requirements of the Opinions of the CPC Central Committee and the State Council on further deepening the reform of the electric power system (ZhongFa [2015] No. 9) and relevant supporting documents, in accordance with the "Renewable Energy Law", we prepared the "Measures for the guaranteed full purchase of renewable electricity"; it is hereby issued to you, and you are requested to implement accordingly.

Annex : Measures for the guaranteed full purchase of renewable electricity

National Development and Reform Commission

March 24, 2016

Annex

### **Measures for the guaranteed full purchase of renewable electricity**

#### **Chapter I General Provisions**

**Article 1** In order to implement the relevant requirements of the Opinions of the CPC Central Committee and the State Council on further deepening the reform of the electric power system (ZhongFa [2015] No. 9) and relevant supporting documents, to

strengthen the administrative management of the full guaranteed purchase of renewable electricity generation, to ensure the achievement of non-fossil energy consumption share targets, to promote a revolution in energy production and consumption, and in accordance with the "Renewable Energy Law of the People's Republic of China" and other laws and regulations, this measure is formulated.

**Article 2** This measure applies to wind power, solar power, biomass power generation, geothermal power generation, marine power generation and other non-hydro renewable energy. It may serve as a reference for implementation for hydropower.

## **Chapter II Full guaranteed purchase**

**Article 3** The full guaranteed purchase of renewable electricity refers to the full purchase by power grid enterprises (including dispatch agencies) in accordance with the benchmark feed-in tariff and number of full-load hours with guaranteed purchase as determined by the National Energy Administration, in combination with market competition mechanisms, through the implementation of priority dispatch systems, and whilst ensuring the safety of power supply, of electricity put on the grid by renewable electricity generation projects included in planning.

For hydropower, priority dispatch systems and full guaranteed purchase will be implemented, according to the benchmark feed-in tariff determined by the central government (or the feed-in tariff approved for the power station) and the designed average number of full-load hours, through the implementation of long-term electricity supply and purchase agreements, priority scheduling in annual power generation plans, and participation in spot market transactions and other forms. In accordance with the specific characteristics of hydropower, in order to promote renewable energy consumption and optimize system operation, hydropower peaking units and large hydropower units enjoy top priority order.

**Article 4** The power grid enterprises and other power supply entities (hereinafter referred to as power grid enterprises) shall assume the responsibility for the implementation of the full guaranteed purchase for renewable electricity generation projects within the coverage of their power grid, which have been constructed in accordance with renewable energy development and utilization planning, which have obtained or have applied for administrative licenses in accordance with the law, and which comply with technical grid standards.

**Article 5** The annual electricity production by grid-connected renewable electricity generation projects is divided into a guaranteed purchase part and a market traded part. Of this, the amount of electricity with purchase guarantees shall be guaranteed to be

purchased in full, at the benchmark feed-in tariff, through priority ordering in annual power generation plans, and with a priority scheduling contract signed with the grid company (physical contract or contract for difference) ; For the market traded part, the renewable power generation enterprises will obtain power generation contracts through participation in market competition; power grid enterprises shall sign a power generation contract in accordance with the principle of priority scheduling。

**Article 6** The State Council's department in charge of energy, in conjunction with the economic operation department, shall, for administrative areas that experience curtailment of renewable power generation, approve and publish the number of guaranteed purchased annual full-load hours for various types of grid-connected renewable electricity generation projects. This will happen in accordance with the capacity for power transmission and the system's capacity for electricity consumption, in accordance with the various benchmark feed-in tariffs applicable in the respective geographic areas, and with reference to permissible costs plus reasonable profits. The number of guaranteed purchased annual full-load hours of various types of renewable electricity generation in various geographic areas shall further, in a timely manner, be adjusted on the basis of industry development and the installed and operational capacity of renewable power generation。 The relevant local authorities are responsible for the implementation of the approved number of hours; grid-connected renewable electricity generation projects determine the amount of guaranteed purchased electricity on the basis of approved number of hours and installed capacity。

**Article 7** In areas where there is no curtailment of renewable power generation, power grid enterprises should, on the basis of local resource conditions, guarantee the purchase of the full amount of electricity generated。

**Article 8** Biomass, geothermal, and marine power generation, as well as distributed PV power generation projects will temporarily not participate in market competition: the electricity generated shall be purchased in full by the grid enterprises ; various types of concession projects or demonstration projects shall determine the number of guaranteed purchased annual full-load hours in accordance with the number of hours defined in the concession agreement or technical program。

**Article 9** Within the limits of the volume of electricity subject to guaranteed purchase, where there is no element of system security being affected, the occupancy of room to absorb electricity by non-renewable power generation sources and the curtailment of grid-connected renewable power generation projects shall be regarded as the transfer of priority dispatch contracts to other units of lower priority in the priority dispatch system, and these units shall be responsible for the cost of compensation to the grid-

connected renewable power generation projects on the basis of the extent of their effects [on renewable power generation projects curtailment]; and further do a good job at linking [the stipulations of the current article] with the prioritized dispatch of renewable energy peak regulation units. The amount of curtailed electricity for which compensation is to be awarded, shall not exceed the difference between the amount of electricity subject to guaranteed purchase and the amount of electricity actually generated by the renewable power generation source. Priority dispatch contracts for the volume of electricity subject to guaranteed purchase shall not be voluntarily transferred through market transactions.

Where curtailment is the result of grid connection failures (except those caused by force majeure such as natural disasters that exceed the design standards), or of unplanned maintenance, compensation for curtailment for grid-connected renewable power generation projects shall be borne by the grid company. Where the actual generation does not meet the volume of generation subject to guaranteed purchase, due to circumstances of the [natural] renewable energy resources [such as wind speeds, solar irradiation], or where due to own equipment failure or maintenance etc., the lost [income due to reduced] power generation by the grid-connected renewable energy power generation project shall be borne by the grid-connected renewable energy power generation project itself, and there shall be no compensation. Where, due to reasons that lie with the renewable power generation [projects], the volume of electricity that cannot be fulfilled [by their production] shall be acquired from various other power generation units through market competition methods, with the price determined through bidding.

Compensation for curtailment of electricity from grid-connected renewable power generation projects, for the volume of electricity subject to guaranteed purchase, shall occur on the basis of the most recent benchmark feed-in tariff for renewable electricity applicable in the administrative area where the project is located, or on the basis of the approved feed-in tariff [e.g., where a project has a feed-in tariff determined through a tender].

**Article 10** Power trading institutions are responsible, with assistance by power grid companies (areas where no trading institution has been set up the responsibility lies with the power grid companies), on the basis of actual power grid operation during moments of curtailment, and with reference to the scheduling priority, from low to high, for determining the scope of generation units (including autoproducer power plants), that are responsible for the costs for compensation for the volume of electricity curtailed to grid-connected renewable power generation projects, and to determine

their share of the cost for compensation in accordance with their [these power generation units] actual power generation [during the time of curtailment of renewable power generation projects]。 Statistics on the volume of curtailed power generation within the scope of guaranteed purchase, as well as the allocation of the responsibility of the cost for compensation, shall be reported on a monthly basis to the local branches of the State Council's department in charge of energy and recorded by the competent provincial-level economic department. The allocation of the responsibility of the cost for compensation for the volume of power generation curtailed may, on the basis of actual power generation, be adjusted on a rolling basis between different months, with relevant costs to be settled on an annual basis。

**Article 11** Encourage the participation in various forms of electricity market transactions for the part of renewable power generation beyond the scope of guaranteed purchase, give full play to the advantages of the low marginal cost of renewable power, and achieve priority dispatch through market competition methods, to promote further dispatch or full dispatch of renewable power generation。 In areas where an electricity spot market trading mechanism has been established, encourage the participation of renewable power generation in transactions on the spot market and in medium- and long-term power contracts, with priority dispatch contracts increasingly acquired through market-based methods, in accordance with spot market transactions and related market rules ; the volume of renewable power generation that participates in market transactions shall enjoy renewable electricity price subsidies in accordance with the subsidy standard applicable in the administrative area where the project is located。

### **Chapter III Safeguard Measures**

**Article 12** The State Council's department in charge of energy shall, in accordance with national renewable energy development and utilization planning, determine the share of renewable electricity in total electricity production that should be achieved during the planning period。 Provincial level energy authorities, in conjunction with the economic operation departments, shall guide the formulation of measures taken by grid enterprises to implement the renewable electricity generation share targets, and the implementation in arranging the annual power generation plan and scheduling modes

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**Article 13** When the competent provincial-level economic department formulates the power generation plan, the system for prioritized renewable power generation shall be strictly implemented, and provide the guaranteed purchase by arranging the amount of

electricity from grid-connected power generation projects with purchase guarantees in its entirety as prioritized power generation, and by strict implementation [of this prioritization]。 In the power generation plan, room shall be reserved for power generation from grid-connected renewable power generation projects planned to be put into operation during the year, with the number of full-load hours subject to guaranteed purchase for projects that become operational during the year determined on the proportion of the year remaining at the moment of becoming operational。

**Article 14** Power grid companies shall, in accordance with these measures, sign priority power generation contracts with grid-connected renewable power generation projects in the fourth quarter of each year。

**Article 15** Power grid enterprises shall, in accordance with the principle of energy-saving & low-carbon power dispatch, and on the basis of market rules as determined by the relevant departments, prioritize implementation of renewable power generation planning and renewable power trading contracts, guarantee that wind, solar, biomass and other renewable power generation enjoys the highest level of priority dispatch, and may not require renewable energy projects to achieve priority dispatch by paying fees [for priority dispatch rights] to power generation projects with relatively low priority。 Power grid enterprises and renewable power generation enterprises should cooperate in preparing forecast reports for the output of renewable power, and on the basis of such reports, break down power generation plans and contracts by month, week, day, hour etc., and prioritize renewable energy generation。

**Article 16** Power grid companies should establish and improve dispatch mechanisms with a high proportion of renewable electricity, fully utilize the system's potential for peak regulation, scientifically schedule groups of [power generation] units, reasonable adjust the spinning reserve capacity, gradually change the dispatching method aimed at provincial-level balancing, and expand the [geographic] scope for balancing of dispatch 。 Relevant departments of provinces (autonomous regions, directly-controlled municipalities) and provincial power grid enterprises should actively cooperate with each other, promote inter-provincial and inter-regional trading of renewable energy, and reasonably expand the [geographic] scope for absorption of renewable electricity。

**Article 17** Wind power, solar power and other renewable power generation enterprises should cooperate with power grid enterprises to strengthen their power output forecasting work, improve the level of short-term and medium & long-term forecasts, and, in accordance with the relevant regulations, submit the forecasting results to grid companies or power trading institutions, have grid companies comprehensively determine renewable power generation forecast curves for the

respective power grid, to ensure the implementation of the guaranteed purchase for the volume of electricity with purchase guarantees, and to promote further dispatch or full dispatch for the remaining part through market-based trading。 Renewable power generation enterprises should participate in the cost sharing for ancillary services in accordance with the relevant regulations。

**Article 18** Establish a demand-side response mechanism that allows interaction between supply demand, and form a mechanism for sharing responsibilities and benefits from consumer participation in ancillary services。 Encourage consumers, through pricing mechanisms, to optimize their demand load characteristics, thereby achieving shifting of demand peaks and filling of demand valleys。 Encourage the participation of consumers in ancillary services such as peak regulation and frequency control, thereby increasing system flexibility and potential for absorbing renewable power。

#### **Chapter IV Supervision and Administrative management**

**Article 19** The State Council's department in charge of energy and its local branch organizations shall be responsible for carrying out supervision of the guaranteed full purchase of renewable electricity。

**Article 20** The State Council's department in charge of energy shall, in conjunction with the competent provincial-level economic department, in accordance with these measures specified here, and in regard of the local situation, formulate implementation details, and implement these after approval by the National Development and Reform Commission and the National Energy Administration。

**Article 21** The State Council's department in charge of energy, in conjunction with the competent provincial-level energy department and economic department, are responsible for supervision on the signing of priority power generation contracts between grid companies and grid-connected renewable power generation project enterprises, and for supervision on the implementation of said contracts。

**Article 22** The volume of curtailed power generation from grid-connected renewable power generation projects shall be calculated by the power trading institutions, with assistance from the grid companies and renewable power generation enterprises, and on the basis of relevant regulations [i.e., calculation methods] as determined by the national government。 Where there are conflicts on the volume of curtailed power generation or the cost for compensation, the local branch organizations of the State Council's department in charge of energy together with the competent provincial economic department may mediate。

**Article 23** In the event of curtailment of renewable power generation, power grid companies shall promptly analyze the causes, and retain relevant operating data, to prepare for inspection by the regulatory institution。 The relevant information shall be publicly reported on a regular basis by the department of energy under the State Council and its local branch organizations。

#### **Chapter V Supplementary Provisions**

**Article 24** The National Development and Reform Commission and the National Energy Administration are responsible for the interpretation of this measure. This measure shall be timely revised in accordance with progress on the power system reform and electricity market development。

**Article 25** These measures will come into effect from the date of issuance。