**Keynote speech**

At

The 8th International Conference On

Sustainability of energy sources

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Excellences, distinguished guests, ladies and gentlemen:

I have the distinct pleasure and the challenge of speaking to you in the morning,.

The theme of my speech is how to use the renewable resources and the measures should be done.

As we all know,The 19th National Congress of the Communist Party of China stated that it must unswervingly implement the development concept of innovation, coordination, green, openness and sharing. The green means the renewable use of the resources in the earth. Today,I’ll talk about two kinds of renewable resources: solar ernegy and wind energy.

Solar energy utilization is mainly divided into two directions, light and heat utilization and photoelectric utilization. Nowadays, solar energy utilization is widely used, solar water heating, solar heating, solar floor heating, solar air conditioning, solar cooling, solar desalination, etc. Etc., the use of solar energy has been very extensive.

The advantages of solar energy are obvious, but the disadvantages are equally obvious:  
(1) Low energy density: In actual use, a considerable area of solar energy collection equipment is required, and equipment footprint, material structure, cost, etc. are affected and promoted;  
(2) Intermittent: The direct solar radiation energy reaching the ground changes with the day and night, and the solar energy equipment at night cannot work. To overcome this problem, it is necessary to study and equip the energy storage equipment;  
(3) Randomness: The direct solar radiation reaching the ground is affected by climate, season and other factors, and is extremely unstable.

The most critical factor in wind power is the size of the wind, while offshore wind conditions are generally better than on land, and the offshore wind speed of 10 km offshore is usually 20% higher than the coast. The power generation of the wind turbine is proportional to the cube of the wind speed, so the annual power generation of the offshore wind turbine under the same conditions can be 70% higher than that of the land. At the same time, there is very little static wind at sea, so the wind turbine has a longer power generation time. In general, the annual power generation hours of onshore wind turbines are about 2,000 hours, while offshore wind turbines can often reach more than 3,000 hours.  
 For wind power equipment, the land terrain is complex and the roughness is high. The wind speeds at different heights often vary greatly, resulting in wind shear and turbulence, which makes the wind wheel unbalanced and can cause vibration, fatigue and even fracture of the blade. The system is also vulnerable to damage. There are very few such risks at sea. In addition, most of the offshore wind power is built at a distance of tens of kilometers from the coast, close to the power center, and there is basically no wind abandonment.Offshore wind energy resources are an important part of China's national energy development strategy. The National Wind Power "13th Five-Year Plan" proposes to build 15 million kilowatts of offshore wind power by 2020 (including the completion of 5 million kilowatts and 10 million kilowatts under construction). Under the guidance of national planning, the coastal provinces have successively compiled medium and long-term plans for offshore wind power in the province, with a total planned capacity of 74.22 million kilowatts. Among them, Shandong, Jiangsu, Fujian and Guangdong provinces with a planned scale of 10 million kilowatts or more.

So,what measures should be done? For one thing, the government should increase the amout of the investment. I mean both the enterprises and the universities should enjoy the policy. Secondly, I think the corporation between different disciplines is very important, through which the new techniques will be developed.Finally, thanks for listening.If I have any mistakes,welcome you anyone to criticize me.