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Fusion is urgent needed for the developing countries

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Energy need in the world

- **Energy is a global problem, as it is central to economic development, climate and environment, and international stability and sustainability.**
- **Energy need is expected to double in 40 years and an even larger increase is needed to lift the world out of poverty.**
- **80% of world's energy is generated by burning fossil fuels which is driving climate change and generating pollution.**
- **Fissile fuels will eventually be exhausted.**
- **Situation in developing countries is even more serious.**



Future Energy Demand in China

- China will grow up to be a moderate developed country in 2050
- The coal-centred energy structure will remain until 2050
- Annual Energy Consumption per person will increase from near 1 TCE to no less than 3 TCE (at present time, US: 11.5 TCE; West Europe: 5.6 TCE; Japan: 5.1 TCE)
- Population will step up inevitably from present 1.2 billion to about 1.6 billion in 2050
- Estimated Energy Demand: increasing from near 1B TCE to over 4B TCE within next 3-4 decades.



Future Options for China

- To realize the long-term sustainable development, it is necessary for China to explore reliable ways and develop thousands of GW non- fossil fuel power.
- Hydro-power was developed quickly during past 5 years.
- **The fission energy is a transit solution.** To build hundreds of GW Fission Nuclear Power Plants in China - social problems, safety and environmental concerns, technical difficulties should be solved in near future. There are 6 nuclear plants(total 8.7GW) now.
- We have arranged many renewable-energy and hydrogen energy programs, but is too small scale.
- Therefore, it is crucial and urgent for China to realize the controlled Nuclear Fusion Energy for our long-term development in the future as early as possible.



The reasons for Fusion

- Fusion shows environmentally responsible and intrinsically safe, the supplies of fuel are essentially limitless.
- Fusion is a gift from god to human being. JET has produced 16MW of fusion power and shown that fusion can be mastered on earth.
- Fusion has a long and successful history of international collaboration with obvious benefits to all partners for peaceful purpose.
- ITER is a device for us to bring the Sun to earth for the first time in the history. It is a good example of international effort to try solving the energy problem in a sustainable way.



Fusion must be developed quickly

- The major disadvantage of fusion power is that it is not yet available and will not as soon as we wish.
- With so few options available for the sustainable energy development, we cannot afford not to develop fusion as fast as possible.
- An properly organised and funded fusion development programme could lead to a proto-type fusion power plant to generate electricity to the grid within about 30 years (ITER+IFMIF).
- For developing countries, such as China and India, fusion is one of the very few options for large-scale sustainable energy generation and must be developed as quick as possible together with international efforts.