

MIIFED-2

Chinese Energy Policy and Fusion Energy R&D Progress

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Presented at the 2th Monaco-ITER International Fusion Energy Days
Dec. 1-4, 2013, Monaco



OUTLINE

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Energy Development in 12th 5-Year Plan

2

Fusion Energy R&D in China

3

ITER Project Progress



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Layout of Energy Strategy in 12th 5-Year Plan (2011-15)

- On one hand, **to enhance energy saving and to increase energy efficiency**; on the other, to develop renewable resources and nuclear energy. By 2020, non-fossil energy will account for 15% in primary energy consumption.
- **Compared to 2005, unit GDP CO₂ emission will decrease by 40%-50% by 2020**, and it is incorporated into the medium and long term national economy and social development planning.
- Focus put on 7 emerging industrial sectors of strategic importance, for example, **Energy Saving and Environment Protection, New Energy, New Material, New-Energy Vehicles**.



12th 5-Year Layout on Energy

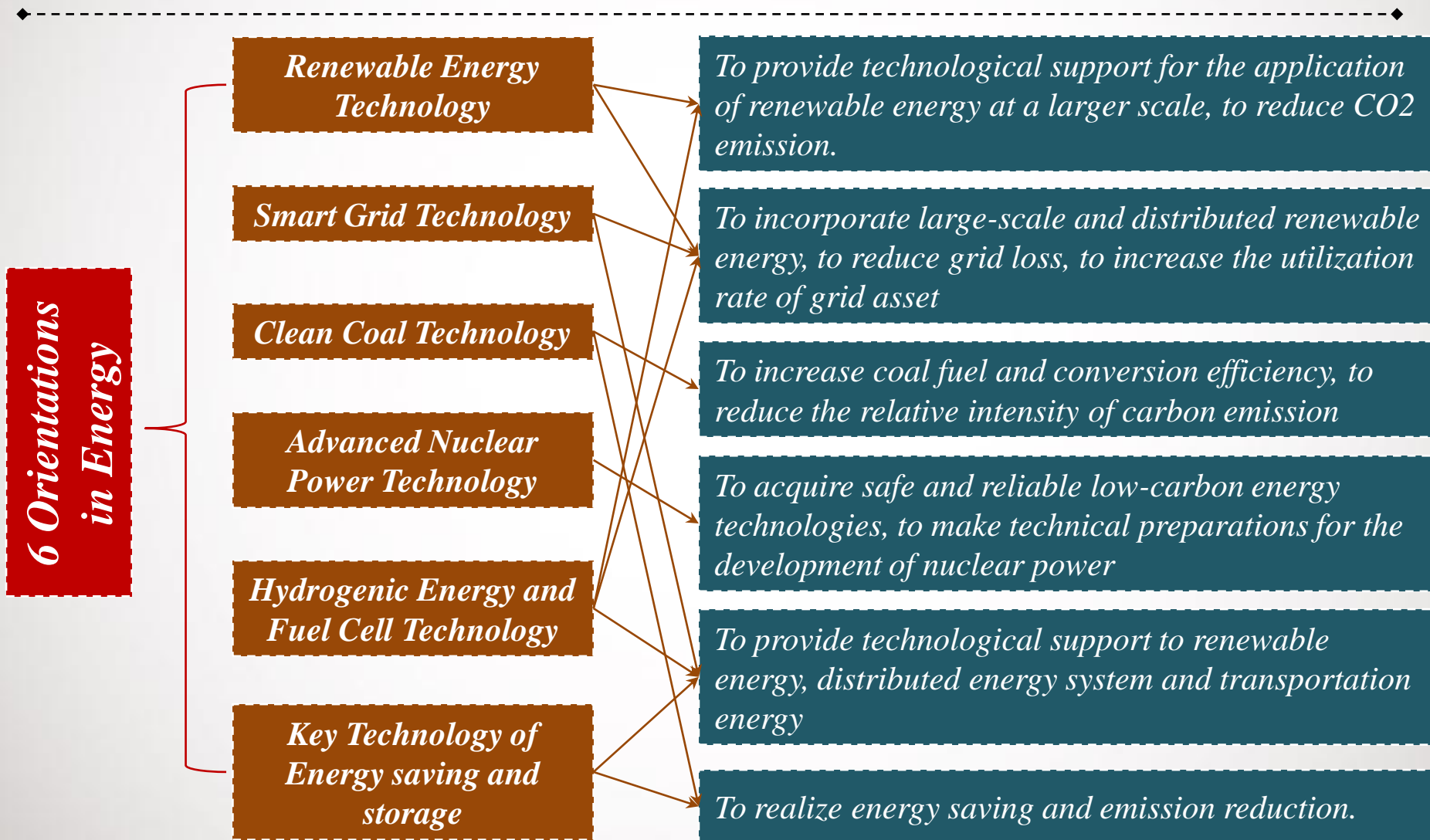
Energy Structure

- Total energy consumption within **4.5 billion tons of standard coal** by 2020 (3.2 billion tons of standard coal in 2010)
- Non fossil energy accounting for **15%**, 675 million tons of standard coal in energy structure (currently around 10%,)

	Hydro Power	Nuclear Power	Biomass Energy	Wind Power	Solar Energy	Photovoltaic	Total
Installed capacity (kW)	300 million	70 million	Power generation: 30 million Fuel 50 million tons	150 million	300 million m ²	20 million	
Energy saving (Ton)	315 million	163 million	86 million	82 million	30 million	14 million	690 million



Technological Orientation





Major Programs and Priorities

Four Major Programs

- *Smart grid technology*
- *Clean coal technology*
- *Solar power technology*
- *Wind power energy technology*

Six Priorities

- *Renewable energy technology*
- *Clean coal technology*
- *Nuclear energy technology*
- *Hydrogenic energy and fuel cell*
- *Energy saving and storage*
- *Power electronics*



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Policy Framework of Fusion R&D in MOST

The “Twelfth Five-Year Plan” on Nuclear Fusion Energy R&D in China was established by MOST and approved by Chinese government.

- *Implementing ITER Project with commitment*
- *Domestic Program in MCF*
- *Enhancing International Cooperation*



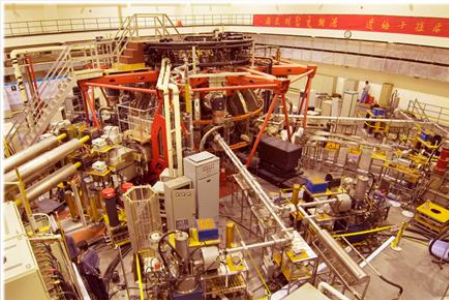
中华人民共和国科学技术部

Ministry of Science and Technology of the People's Republic of China

Main Facilities for Fusion Research



Hefei, ASIPP, EAST



Chengdu, SWIP, HL-2A



Wuhan, HUST, J-TEXT

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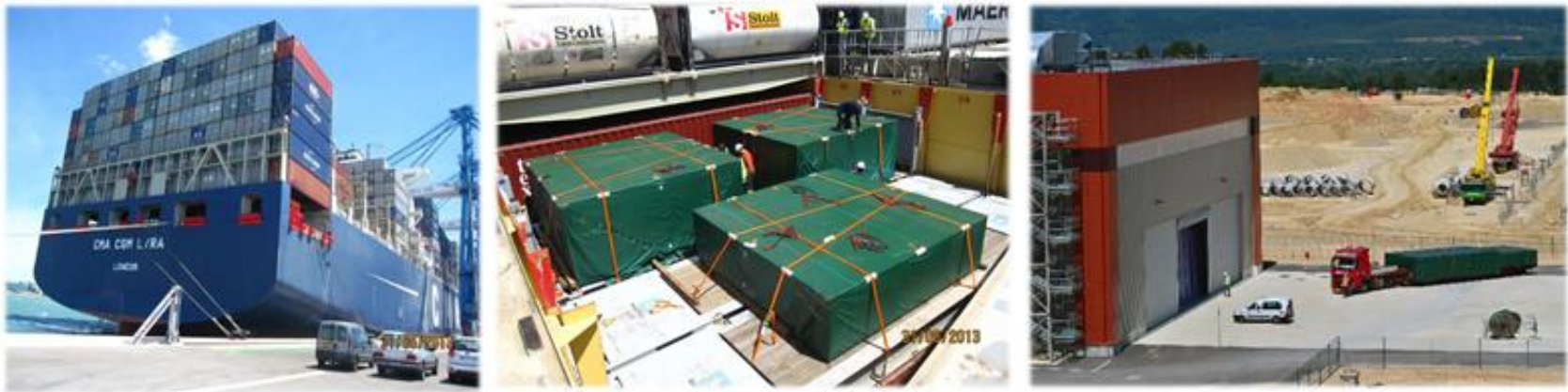
ITER Project Progress



ITER Project Progress in China

ITER PAs:

11 out of 12 PAs and 2 Amendments were signed so far and up to 45 contracts were signed with domestic Suppliers.



The first batch of ITER items delivered by ITER China to the European Domestic Agency F4E on 3 June 2013, to be tested in a mockup of PF5. The 14.5-ton load was also the first ITER item to enter the large on-site winding facility.



Procurement Arrangement and PA Refinement (PAR)

2006 CNDA found

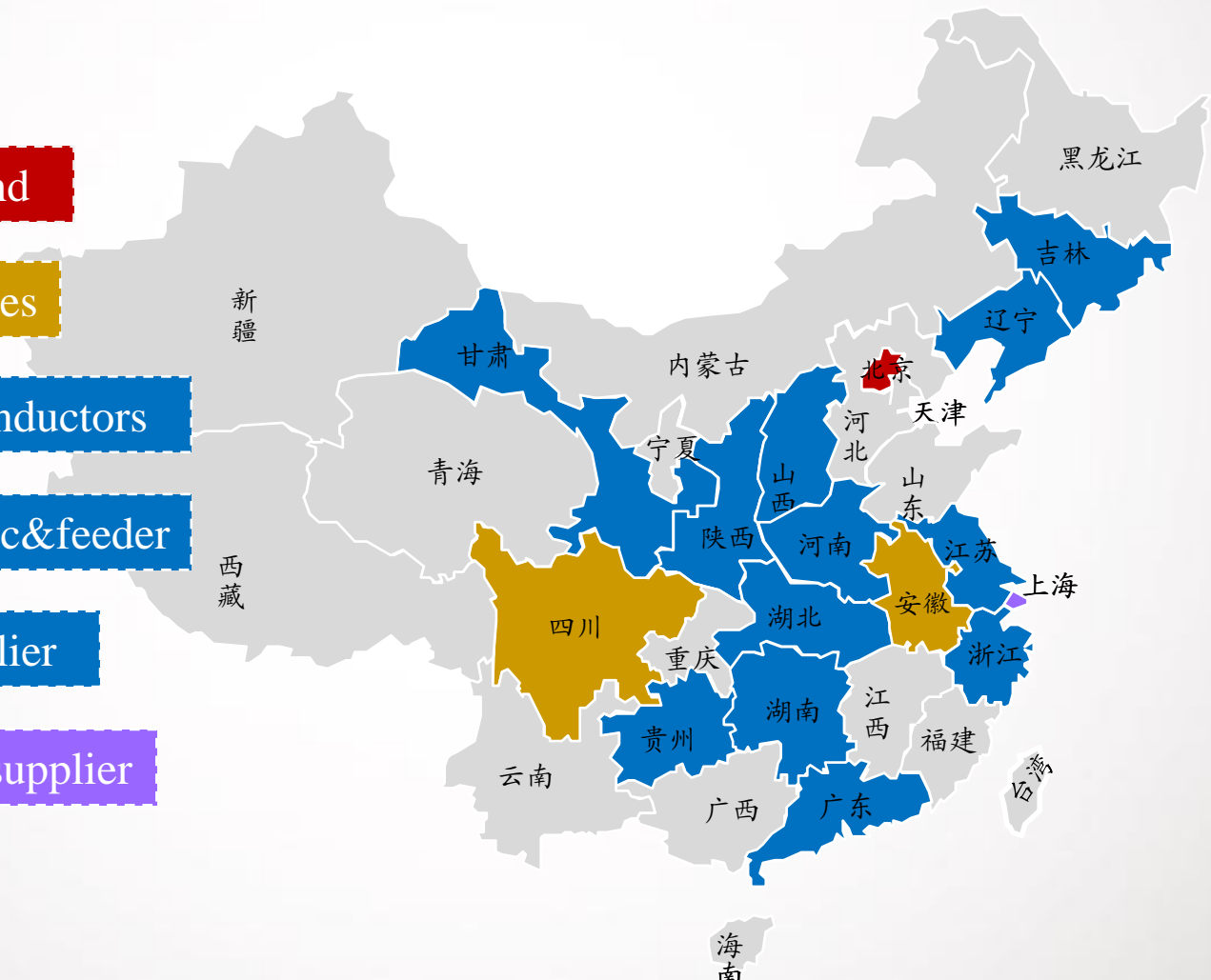
Two research bases

2008 TF& PF conductors

2010 support & cc&feeder

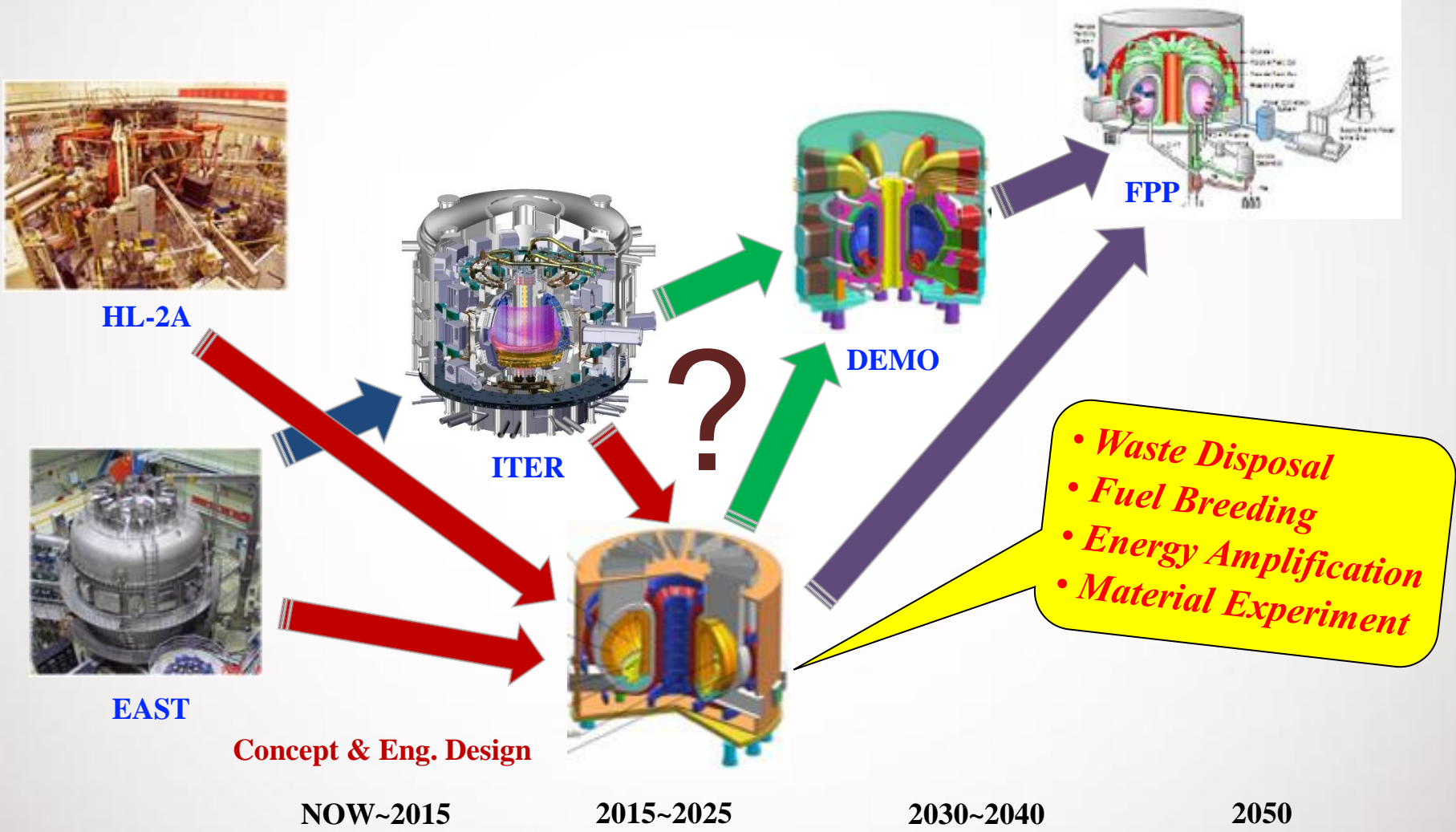
2011 power supplier

Others potential supplier





Possible Road Map to Fusion DEMO in China



Concept & Eng. Design

NOW~2015

2015~2025

2030~2040

2050



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