



*World Ecological Forum 2010: Gotland Summit
---- Workshop on Climate Strategies and Investments*



Key issues for a New Global Climate Agreement and China's Approach towards a Low Carbon Future

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- **Key issues for a full agreement on global climate**
- **China's actions on addressing climate change and energy security**
- **China's carbon intensity strategy**
- **Shifting to a Low Carbon Development: targets and priorities**



Current actions to address climate change and Climate deal

- **Current proposals not achieve the goal of 2°C or 450ppm based on IPCC AR4**
- **Developed countries: taking the lead to contribute more on mitigation, technology transfer and financing**
- **Developing countries: exploring their own model of low carbon development, speeding up mitigation with technology transfer and financing on MRV level**
- **Addressing financial crisis and climate change together**
- **Difficulty for a full and legally binding agreement on global climate in Mexico even in South Africa**



Key issues for a legally binding agreement

- **International negotiation: slow and frustrated**
- **Financial support: achieving commitment in Copenhagen deal**
- **Technology transfer**
- **Medium- and long-term and term targets**
 - **Developed country: target in 2nd commitment period**
 - **Developing country: NAMAS at MRV level**
- **Fair allocation of the capacity of emissions**
 - **Based on different scenarios such as IPCC, IEA and EU, per capita accumulated emissions (PCE) from 1990-2050 or 2005-2050, PCE in developed countries will be over two times of that in developing countries**



Shaping up the new agreement and making political commitment

- **Maintaining the main channel of negotiation under UNFCCC, KP and Bali roadmap**
- **EU, US and China: take the lead in different aspects and build up respective competitive advantages**
- **With political commitment:**
 - **Setting medium- and long-term cap**
 - **allocated on “common and differential responsibility” principle**
 - **long term action framework and adaptive management**
- **Without political commitment for a Cap:**
 - **Low carbon economy ?**
 - **ETS/C&T or carbon tax ?**
 - **new and green technology revolution ?**
- **Multi-track cooperation**



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China's actions to address climate change

- **Mandatory targets of energy efficiency during 2006-2010, increase by 20% (about 1.5 bn t CO₂e reduction by plan)**
- **National Climate Change Assessment Report (Dec, 2006; update 2010)**
- **National Climate Change Program (June, 2007)**
- **China's S & T Actions on Climate Change (June, 2007)**
- **Energy Conservation Law (amended, 2007)**
- **White paper: China's Policies and Actions on Climate Change (Oct. 2008)**
- **Establish the National Leading Group on Climate Change , chaired by Premier WEN Jiabo**
- **Establish the Department of Climate Change under NDRC (2008)**
- **A new NPC Resolution on Climate Change (Aug. 27, 2009)**



China's actions: Targets and commitment

- **Priorities: energy efficiency and carbon productivity**
- **Commitment: reduction of energy use per unit GDP by 20% during 2006-2010, as mandatory**
 - **1990-2005, energy intensity reduced by 50%, annually 4.4%**
 - **Holistic approach and comprehensive measures**
 - **14.38% reduction achieved during 2006-2009**
 - **Energy-saving building, fuel economy standard**
 - **Post 2010, carbon intensity target proposed, commitment to both domestic and international**
- **New targets on carbon intensity cuts announced (Nov. 26, 2009), 40-45% by 2020 compared with the level of 2005**



China's energy efficiency (EE) priorities

- **Implement EE objective-based responsibility system**
- **Control growth, adjust existing stocks, optimize industrial structure**
- **Implement “Ten key EE Programs”**
- **Top 1000 enterprises energy conservation action plan (100 mtce in 5yrs)**
- **Establish a sound EE guarantee system**
- **Strengthen EE legislation**
- **Improve collection of energy statistics and metrological management**
- **Establish a national energy conservation center**
- **Improve EE in governmental agencies**
- **Further EE publicity, education, and training**

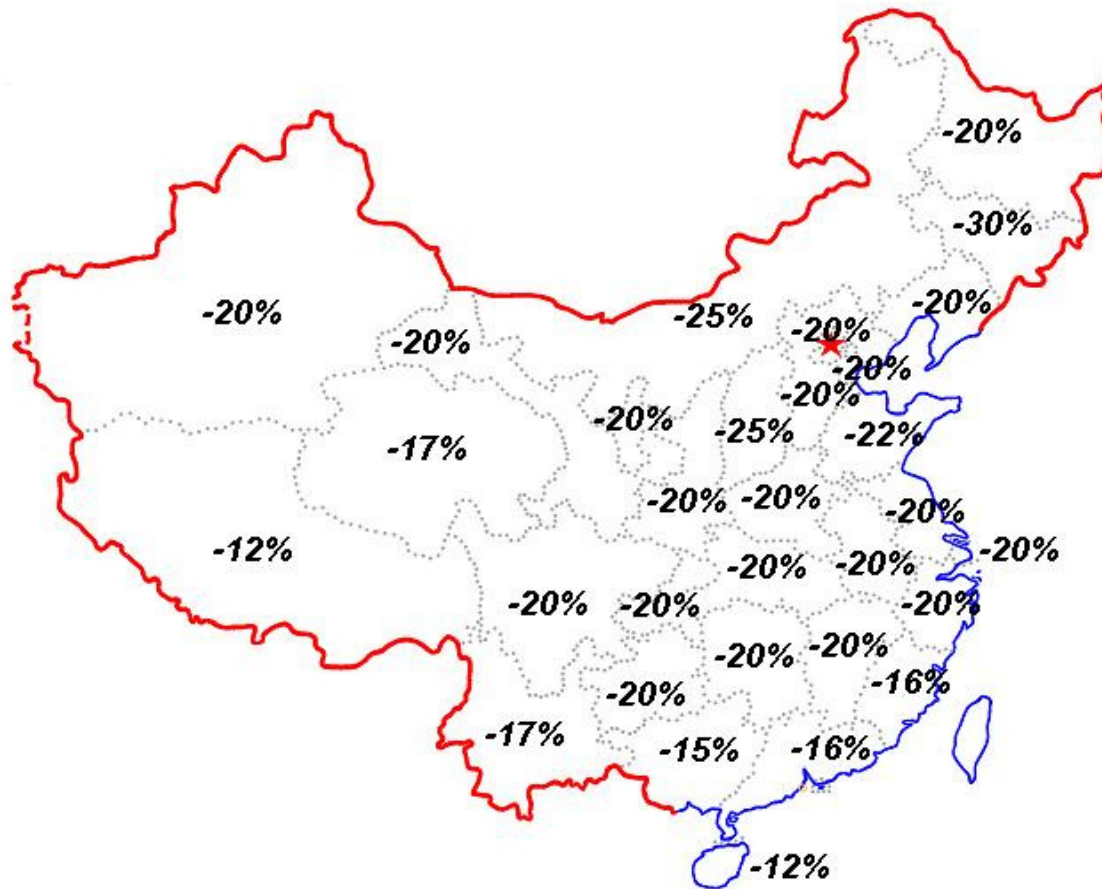


China's actions: new technologies, adaptation and green investment

- **New and clean energy**
 - **Carbon intensity: 40-45% reduction during 2005-2020**
 - **Non-fossil energies: 15% in 2020**
 - **Nuclear power: over 5% of total power generation in 2020**
 - **Clean coal: advanced technologies, such as SC, USC, IGCC, Poly-generation, and CCS**
 - **Clean vehicle: alternative fuel, hybrid, electric car, fuel cell**
- **Carbon sink of ecosystem**
 - **Forest cover: 18.21% during 1999-2003 to 23% around 2020, about 40 Mn ha. of forest increased**
- **Adaptation capacity**
 - **Adaptation plan and capacity building**
- **Green stimulus plan**



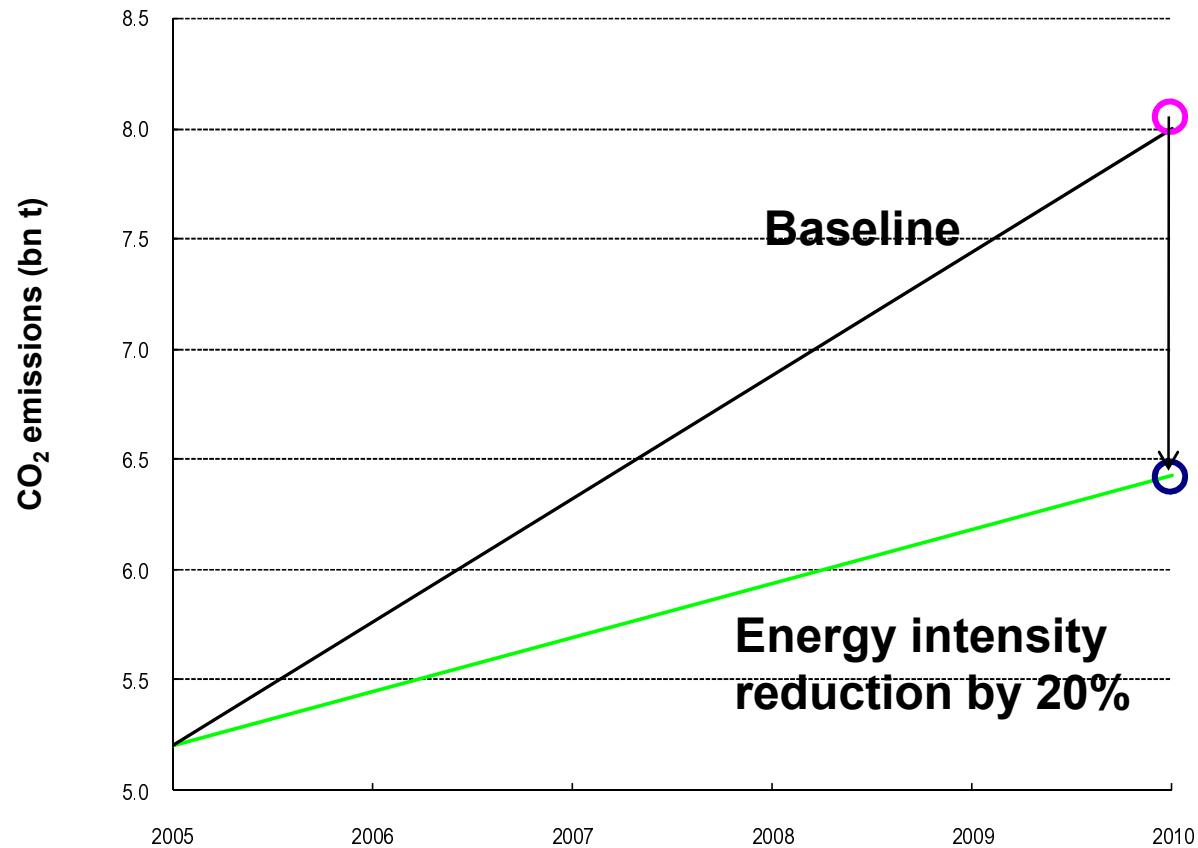
Energy intensity target distribution by provinces during 2006-2010



- A political task
- Central gov't supervision



EE contributions to CO₂ emissions during 2006-2010



1.57 bn t CO₂ reduction

=

•1.93 times of German emissions in 2005 (810 Mn t CO₂)

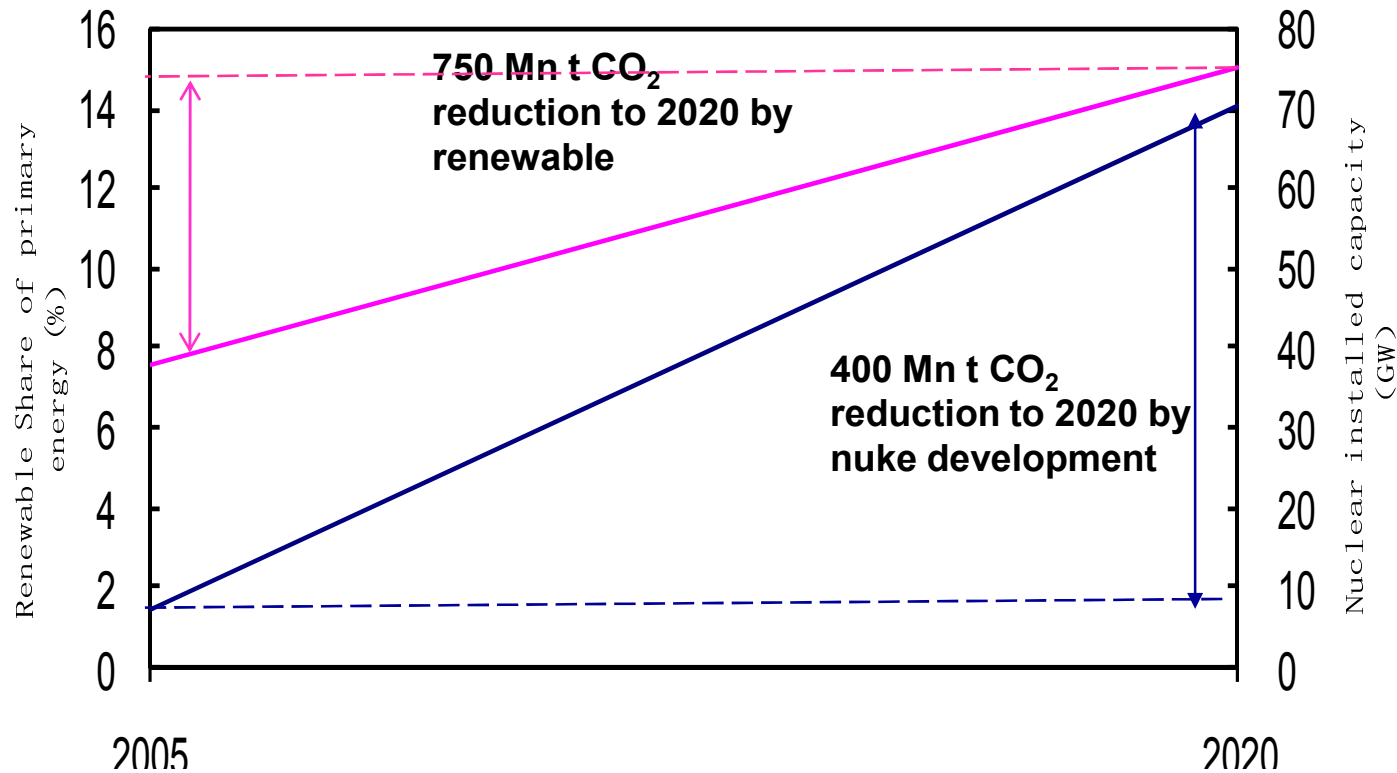
•2.85 times of Canadian emissions in 2005 (550 Mn t CO₂)

Source: CHEN, Xavier Xinhua, 2009

Note: GDP growth rate at 9%



Renewable and Nuke contributions to CO₂ emissions during 2006-2020



Source: CHEN, Xavier Xinhua, 2009

Note: Renewable contributions based on IEA scenario; Nuke for Coal



Progress and actions after Copenhagen in China

- **Setting carbon intensity target in 12th FYP**
- **Green and Low carbon development strategy**
- **Special plan on EE and Pollution Control**
- **Develop new strategic industries, such as service of Contract Energy Management**
- **Invest on low carbon technology**
- **Sectoral benchmark management**
- **Active role of local governments (bottom up)**
- **.....**



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Consensus and trends of global low carbon economy

- **The way out to address climate change is to transfer paradigms of production, consumption and global resources/capitals allocation to low carbon development**
- **Low carbon development/transition concept has been accepted by more and more countries**
- **Low carbon economy (LCE) refers to comprehensive concerns of climate protection, economics and politics**
- **EU and Japan would like to take the lead of LCE**
- **LCE has no unified definition and model**
- **Countries formulate their own action framework of LCE**
- **China has discussed LCE goals and pilot at both national and local levels**

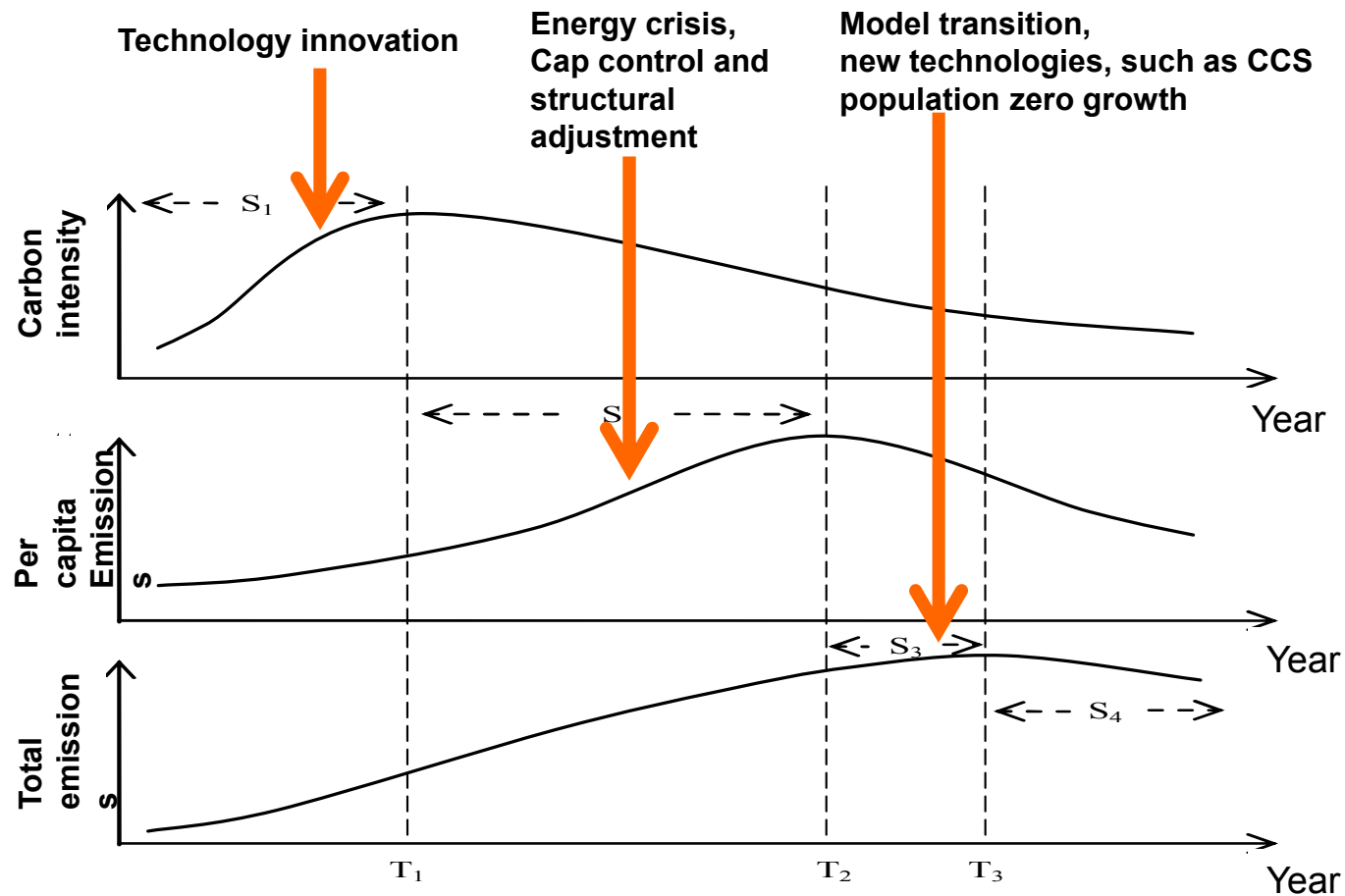


Relationship between economic growth and carbon emissions

- **The basis of China's approach to low carbon development**
 - **Law of interaction between economic growth and carbon emissions reduction**
 - **National conditions**
 - **Responsibility of national mitigation action**
- **Most industrial countries experienced successively the three inverted U-shape curves**
 - **carbon intensity**
 - **per capita carbon emissions**
 - **total carbon emissions**
- **If we would like to speed up the process, technology, financial support and march policies needed**

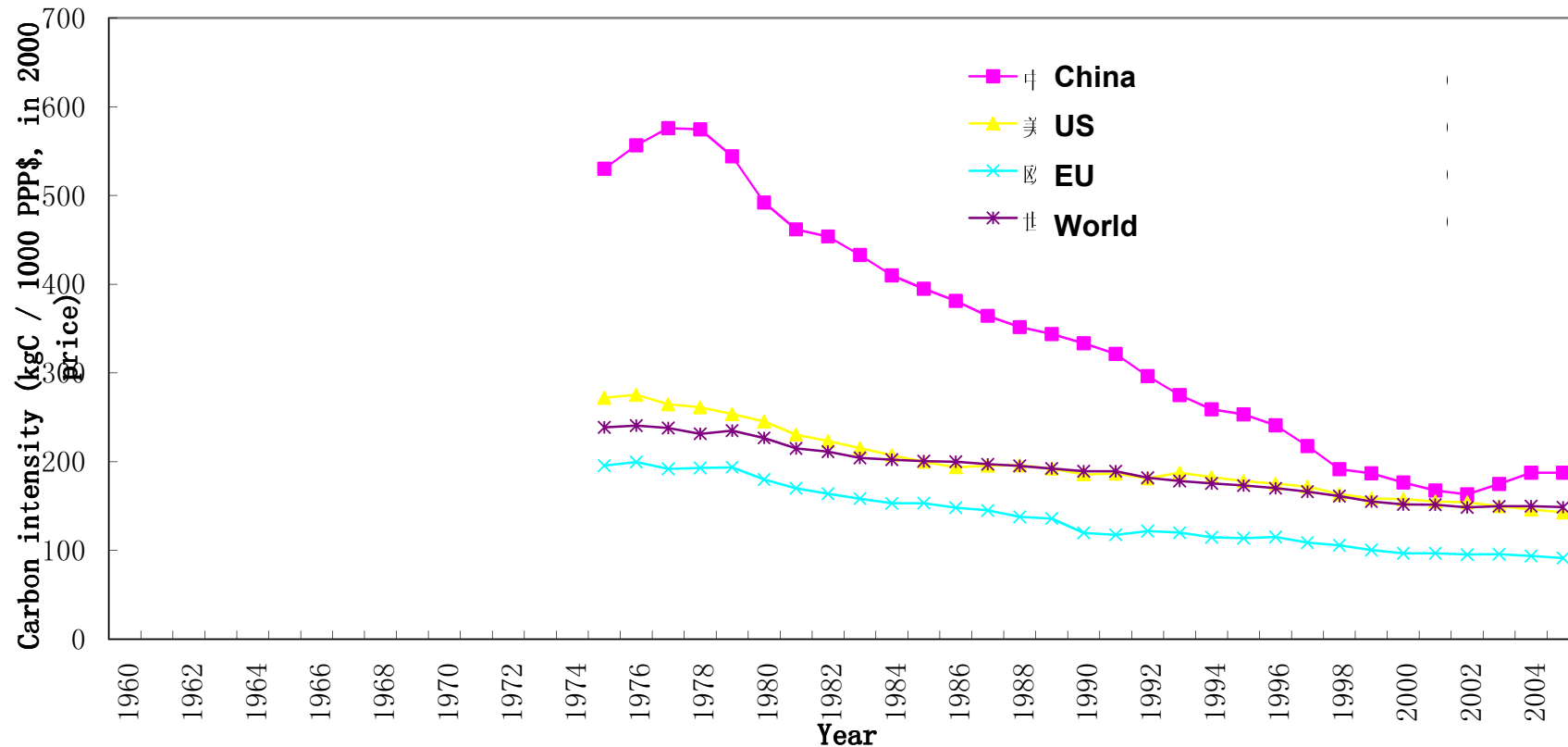


Trends of Three carbon emissions Peaks and measures responded





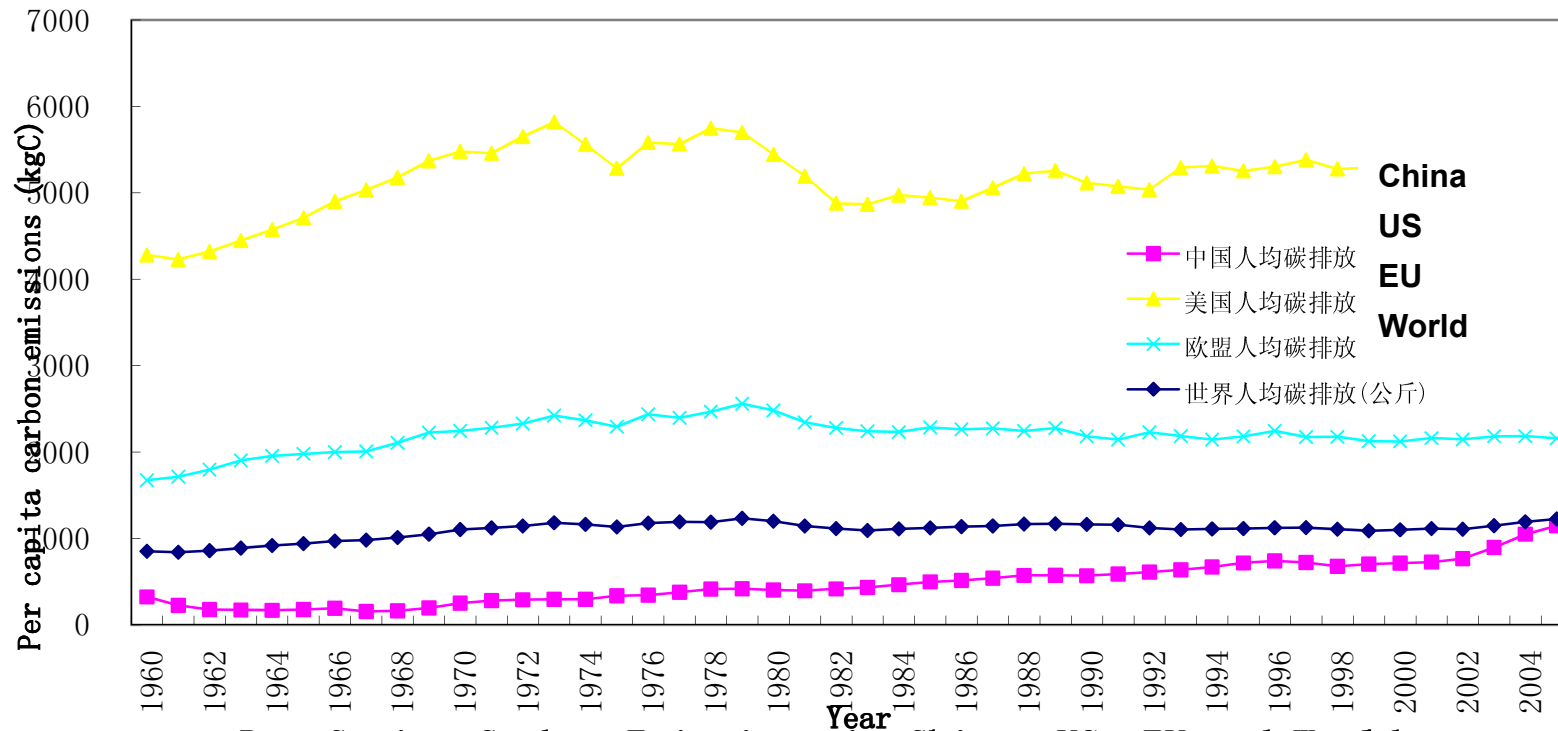
Comparison of China/US/EU/World Carbon Intensity (1975-2005, GDP ppp in 2000 price)



Carbon Intensity in China, US, EU and World (1975-2005) (GDPppp)



Comparison of Per Capita Carbon Emissions (1960–2005)



Per Capita Carbon Emissions in China, US, EU and World (1960–2005)



Implications of relation between economic growth and carbon emissions

- On average 55 years are required between the peak of carbon emissions intensity and that of per capita carbon emissions
- LCE development or carbon mitigation must concern the stage of development
- At present, the mitigation goals in developed countries should focus on per capita and total carbon emissions; In developing countries, **the mitigation goals should prioritized in increase energy efficiency and carbon productivity**
- Nationally appropriate mitigation actions of developing countries must be supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner

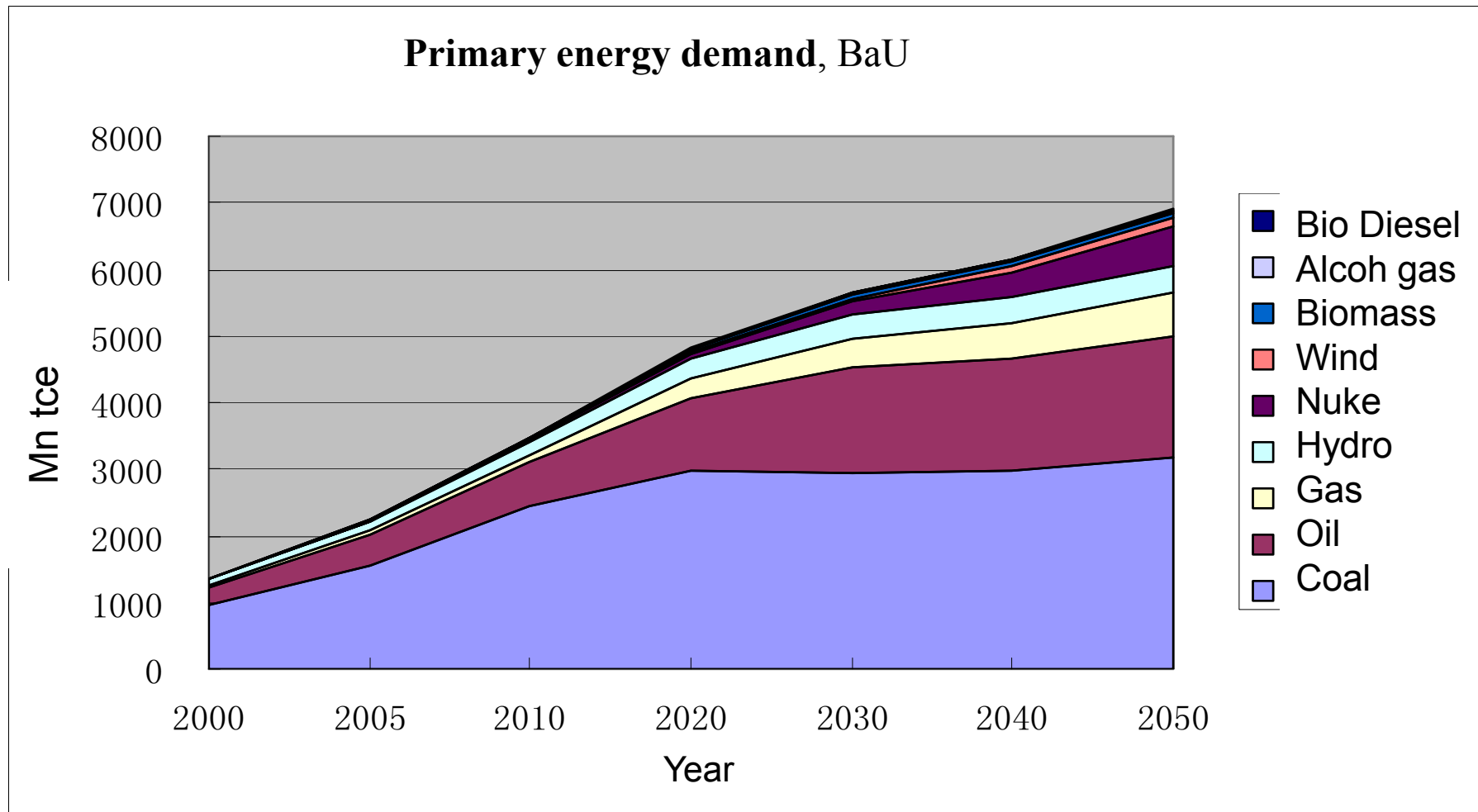


Challenges for LCE development in China

- **Main Issues:**
 - ✓ **Stage of development: rapid growth rate and heavy and chemistry industrialization; No countries can realize industrialization without fossil fuel**
 - ✓ **Energy and resource intensive product processing in the int'l trade context**
 - ✓ **Energy structure with coal reliance**
 - ✓ **Regional disparity: regional response to climate change, socio-economic conditions and gaps**
 - ✓ **Additional costs for mitigation**
 - ✓ **Backward technology and monitoring system**
 - ✓ **Conflicts of policy goals on Employment, poverty alleviation**
 - ✓ **Barriers in institutional arrangement, management system**
 - ✓ **New international climate regime**
- **China have to explore an unique low carbon pathway to balance policy goals above**

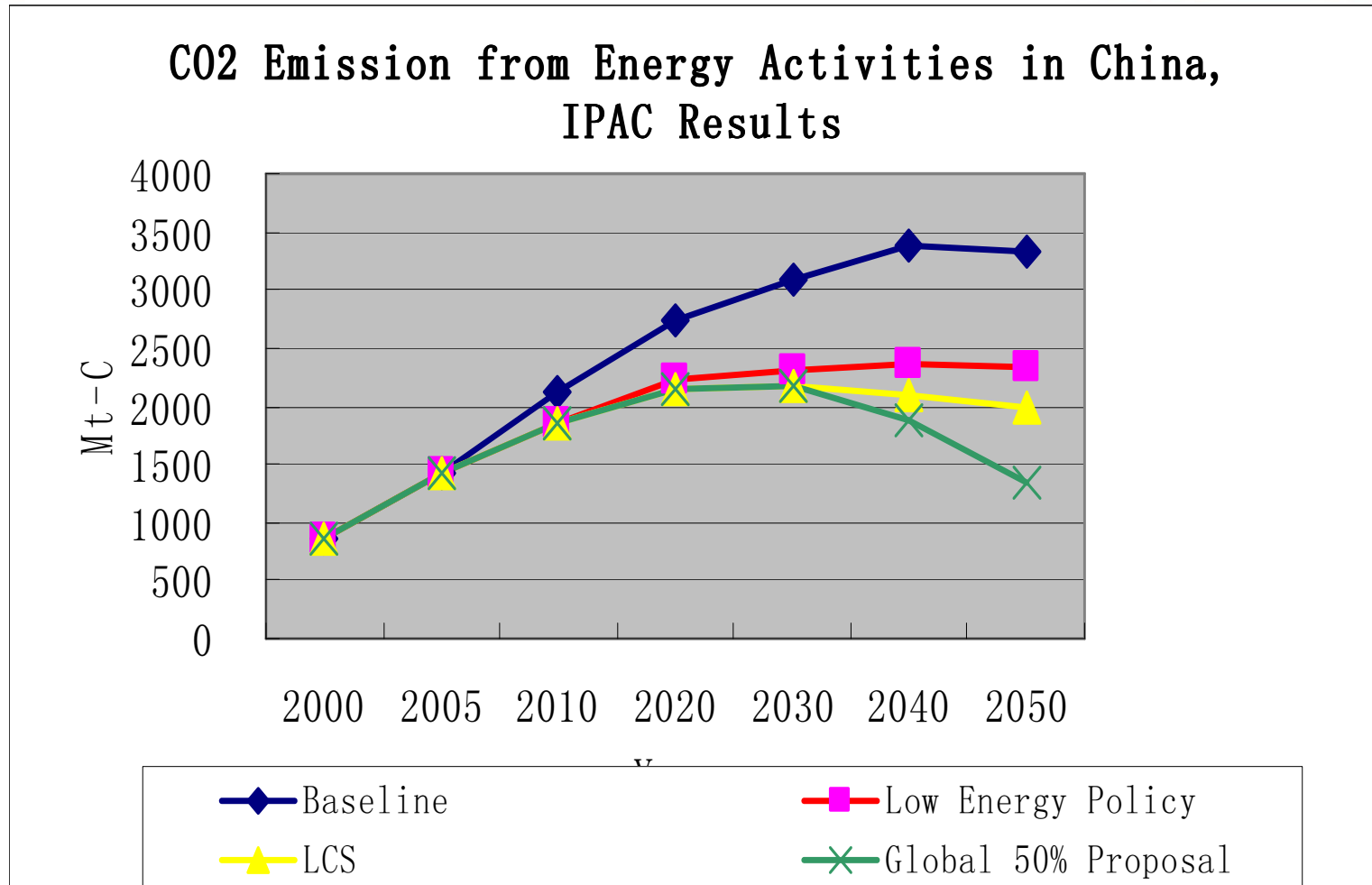


Energy demand structure(2050)





Projected Chinese Carbon emissions by scenarios: opportunities or Risks?





China's primary energy demand and carbon emissions by scenarios

	Scenarios	2005	2010	2020	2030	2040	2050
Primary energy demand (bn tce)	BaU	2.189	3.438	4.817	5.658	6.202	6.657
	LC		3.087	3.996	4.474	4.833	5.250
	ELC		2.971	3.921	4.275	4.660	5.014
Carbon emissions from fuel combustion (MtC)	BaU	1409	2134	2779	3179	3525	3465
	LC		1943	2262	2345	2398	2406
	ELC		1943	2194	2228	2014	1395

Source: China Sustainable Development Strategy Study Group, *China Sustainable Development Strategy Report 2009 -- China's approach towards a low carbon future*, Beijing: Science Press, 2009

Note: BaU-Business as Usual; LC-Low carbon; ELC: Enhanced low carbon



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Strategic approach of China's low carbon development

- Low carbon development shall take place in the context of sustainable development
- **“Decarbonization” shall be taken as part of the national strategic target** for social and economic development, with improvement of energy efficiency and achievement of the energy-saving and pollution control targets as the core for short- and mid-term, eg, set carbon intensity as a mandatory target in 12th FYP period
- Balance of climate and other policy goals shall be a basic principle



Strategic targets of China's low carbon development

- **Targets during 2010-2015 proposed:**
 - **Energy intensity reduction: 15-17%;**
 - **Carbon intensity reduction: 16-18%**
- **Projection for 2020:**
 - **40%~60% reduction of energy consumption per unit of GDP over the 2005 level**
 - **40-45% reduction of CO₂ emissions per unit of GDP (50-60% based on conditions)**
 - **Carbon emissions: peak between 2030 and 2040 based on strengthened technology innovation, financial support and policy incentives**



Strategic focuses of China's low carbon development

- **Establish a legal and regulatory framework addressing climate change, such as “Law to Address Climate Change”**
- **Improve the macro management system and sectoral coordination**
- **Work out a roadmap to low carbon development and the action plan with both top-down and bottom-up approaches**
- **Set up tax and fiscal policy to encourage the low carbon transition**
- **Establish a healthy low carbon technology system and invest R & D of prioritized technologies**
- **China shall actively participate in international climate regime negotiation and rule setting for low carbon economy**



Low carbon technology development and march policies during 12 FYP and beyond

- **Prioritized fields before 2020: energy efficiency technology, structural adjustment, and clean coal utilization**
- **Build a diversified low carbon technology system**
 - **Energy saving and energy efficiency technology with sectoral benchmark management**
 - **Clean coal technology system with best practice promotion**
 - ✓ **Clean power generation technology: SC and USC tech and unit diffusion, commercialized demo of IGCC**
 - ✓ **Poly Generation system development**
 - **Renewable, hydro power, clean and new energy development**
 - **Advanced nuclear power technology and spent fuel disposal technology development**
 - **CCUS, carbon sink technologies**



Promoting International cooperation

- **Multi-track cooperation: bi- and multi-lateral coop**
- **Mutual understanding and trust**
- **Co-interests, gaps and constraints**
- **Roadmap for cooperation: removing barriers first and **the working group needed** to identify priorities for coop**
- **Potential cooperation areas:**
 - **R & D & Demos on low carbon technologies**
 - **Co-fund in developing countries with different advantages**
 - **multi-lateral fund for technology transfer**
 - **Best practice on low carbon economy / society / city / model and its roadmap**
 - **Exchange experience on policy and institutional arrangements, such as sectoral benchmark, policy package, co-benefits, and eco-innovation**



Summary

- **Human being's future depends on our political wisdom to make a decision to set up medium and long term targets now**
- **Put aside accusation, strengthen understanding and take concrete actions to cooperate**
- **We are on the same boat but different cabins, we have to take respective responsibility**
- **For China, we face unique and plural development challenges and there is no ready formula. China has to explore its own model and approach towards a low carbon future**
- **Let all of us join the journey to address climate change beyond Copenhagen**



Thanks for your attention!

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