Informal Workshop on China's 12th Five Year Plan and Low Carbon Industrial Strategy

Background note for discussion[1]

China's 12th five year plan indicates a major strategic shift in its growth and industrial strategy

> In 2011, China surpassed Japan as a major economic power and has officially become the world's second biggest economy after the USA. By 2015, the Chinese economy is expected to grow by 40% to $8.5 trillion (slightly more than half of EU GDP at current exchange rates). However, China is facing significant challenges in maintaining growth in the longer term, such as high wage inflation and peaking working population in 2015-17. China accounted for about 20% of global energy consumption in 2010 and this is likely to rise dramatically in the next decade. As energy markets globalise and integrate further, the Chinese economy will be subject, like other countries, to higher prices and increased volatility in commodity markets.

> China's 12th Five-Year Plan (FYP), which was agreed in March 2011 by the National People's Congress, responds to this context by shifting from a focus on the quantity of growth to the *quality* of development. Its main economic objectives are to expand China's domestic market and move the economy towards higher value-added sectors, aiming to increase productivity and help its companies to become global players. Recognition of potential impacts of running a high carbon economy in a global economy where there could be trade, carbon and resource constraints have also played a significant role in shifting the vision of the Chinese development pathway.

> China has introduced binding environmental targets, including a 16% energy intensity and 17% carbon intensity reduction target by 2015. The new FYP is also a critical step towards implementing China's 40-45 percent carbon intensity reduction (compared to 2005) target by 2020. Although its absolute CO2 emissions will continue to rise in the

[1] This background note was prepared for Turkey-China Informal Workshops on Low Carbon Development that took place on 28th February 2012, Ankara Sheraton Hotel and 29th February 2012, Istanbul Hyatt Regency. This project has been supported by the British Embassy Ankara in the framework of the Prosperity Fund.

foreseeable future, China's increased carbon and energy intensity targets could save between 0.5-2.5 Gt of CO2 emissions in 2020 providing a strong domestic market in low carbon industries. To put this in context, EU emissions reductions will be 0.5 Gt in 2020 under the 20 percent target or up to 1.1 Gt if that is increased to 30 percent.

> Coal contributes to 70 percent of China's energy demand. Meanwhile, pollution and its health impacts have become a major concern for the public and the government. As part of reducing the effects of coal burning, China retired 70 GW of inefficient coal power plants (about 20 % more than the entire Turkish installed electricity capacity, and about the size of UK installed capacity). Also, a cap on coal consumption is already in place in Beijing and there are ongoing discussions for introducing a national cap on coal consumption.

> Despite continuing investment in coal, China has made significant decisions in moving towards a low(er) carbon development pathway. China has now become the world's second largest market for and investor in clean energy (after the EU). Low carbon and clean energy industries have been placed at the heart of China's forward strategy for growth, exports and industrial modernisation through efficiency targets and large scale public investment in low carbon infrastructure. Renewable energy capacity will match growth in the EU with installed capacity increasing by 64 percent to 427 GW by 2015, compared to 322 GW in the EU by 2015. China will decisively out-invest the EU in grid infrastructure with 500 billion yuan (€57 billion) allocated to ultra high voltage (UHV) transmission lines by 2015, and more than 4 trillion yuan (€460 billion) on "smart grids" in the next decade. The EU has identified investment needs for transmission lines of €23-€28 billion by 2015.

> China will introduce innovative governance structures to help deliver these targets. The 12th FYP is likely to launch pilots in emissions trading and introduce a national resource tax. China will also experiment with new governance approaches in 'low carbon zones' which were recently announced in 8 cities and 5 provinces, covering over 300 million people.

> The government has also identified three new strategic green industries that are critical to its future growth, supported with significant public investment:

- New energy sectors: 5 trillion yuan (€570 billion) government investment in new energy sector by 2020;
- Alternative-fuel vehicles: 100 billion yuan (€11.5 billion) government investment in alternative-energy vehicles industry by 2020. Annual sales of 1 million units of new energy vehicles by 2015;
- Energy saving and environmental protection: 3 trillion yuan (€340 billion) investment in environmental protection sector by 2015. Energy saving and environmental protection sector to worth 4.5 trillion yuan (€520 billion) by 2015.

> Other industries such as new generation information technology, high-end equipment manufacturing and advanced materials are strategically supported to develop China's green industry. It's also aiming to increase the share of R&D to 2.2% of GDP (approx €540 billion) over the next 5 years. Nevertheless, developing and testing innovative approaches to implementation remains a significant challenge. Even though much has been made in the rise of technology development in emerging economies like China and Brazil, most technologies are still owned by companies with headquarters in developed countries.

Turkey has strong growth ambitions but faces significant challenges ahead

> Turkey, as a middle-income economy in the top 20 of world's largest economies, faces significant challenges and opportunities in the decades to come. In 2010, Turkey was the world's 16th largest economy and the sixth largest economy when compared with the EU countries. By 2023, Turkey aims to be among the top ten economies of the world. The reforms in the financial sector in the early 2000s have provided the Turkish economy with some degree of resilience to the financial crisis in Europe and US. However, high levels of unemployment, especially among young people, remain a key concern. Similar to China, Turkey is also going through rapid urbanisation. In 2010, Turkey's population was 73 million where approximately 80% of the population lived in cities. Income disparity between regions and within cities requires the development and implementation of innovative policies that would simultaneously be resilient to future shocks, drive growth, and respond to changing parameters of international competitiveness.

> Turkey is already a technology leader in some sectors but its Industrial Strategy Plan envisages Turkey going up the value chain and become a technology leader in high-value added technology products. It is also aiming to become Eurasia's manufacturing base and boost its exports to $500 billion, from $134.5 billion in 2011.

> Energy demand is increasing at 8% per year on average – the second fastest rate of growth behind China – and $130 billion of new investment will be needed by 2023 to meet it. Energy efficiency and renewables are seen as part of the energy security agenda, while the development of nuclear and domestic coal (particularly carbon intensive lignite) resources are particularly emphasised. Legislative structure on energy efficiency and renewable energy is evolving, with Energy Efficiency law and the Renewable Energy Law with feed-in tariffs. Turkey has ambitious energy targets for 2023 according to Strategy Document for the Electrical Energy Market and Supply Security[2]:

- 20% of energy intensity reduction as compared to 2008;

[2] Decision of the Higher Planning Council dated 18.5.2009 and No. 2009/11

- 30% of electricity from renewables including hydro (currently 26,5%);
- All of the hydro and domestic coal potential will be utilized;
- 600 MWe installed capacity for geothermal;
- 20,000 MW wind energy (currently 1,300 MW) and 3,000 MW solar;
- A decrease in the share of gas to under 30% in electricity generation (compared to 44.7% at present)

> The EU is the main destination for exports from both Turkey and China. Energy intensive machinery and transport equipment account for Turkey's main exports to the EU. The Turkish economy is comparatively more energy intensive at 0.27 tons of oil equivalent (toe) in energy to generate US$ 1,000 of GDP (in 2000 US$), compared to the OECD average of 0.18 toe/thousand USD in 2009. However, compared to China (0.77 toe/thousand 2000 USD)[3], the Turkish economy remains more energy efficient at least in the foreseeable future. On the other hand, the IEA Turkey Energy Report estimates that the Turkish economy's energy efficiency is likely to worsen in 2020 to around 0.31 toe/1000 USD. While coal's contribution to electricity generation in China is expected to grow at around 4% pa between 2009 and 2020[4], in Turkey this rate reaches 8% pa with significant impacts on overall energy efficiency and hence the competitiveness of its economy[5].

Rising to the challenge of low carbon growth in an increasingly interdependent world

> The window of opportunity to avoid catastrophic climate change impacts is narrowing. In order to keep global temperature increases below 2°C, we need simultaneous action in both developed and developing countries. Around the world, governments are already taking action to meet these challenges through a mixture of direct investment and supportive policy, along with regulatory and institutional frameworks. Meanwhile, low carbon technologies are becoming of increasing strategic importance for major economies in a bid to secure their competitiveness and prosperity in future global markets. So far, the EU's political leadership on climate action has positioned its businesses at the forefront of low carbon technology growth. However, the landscape of innovation leadership is changing with the emergence of new players, such as China, and the globalisation of investment and research.

[3] IEA Stats Database, Indicators by Country/Region http://www.iea.org/stats/prodresult.asp?PRODUCT=Indicators

[4] According to IEA World Energy Outlook 2011, coal generated 2941 TWh of electricity in 2009 and is expected to generate 5194 TWh in 2020 under current policies scenario.

[5] Between 2008 and 2020. According to IEA 2009 Turkey Energy Report, Turkey's gross electricity generation was 198 TWh of which 29% accounted for coal; in 2020, it is expected this will reach 483 TWh with 33% generated by coal-powered plants.

- China's strong bid in the global 'low carbon race' presents both risks and opportunities for European business as well as emerging economies. Europe's current leadership in low carbon technologies means it will benefit from the growth in China's clean energy and green markets. For example, European companies are already very active in meeting high Chinese demand for modern grid infrastructure. China's energy saving and environmental protection sector is expected to be worth 4.5 trillion yuan (€520 billion) by 2015. The rise of global Chinese companies in these sectors, however, means that Europe will face stronger competition for market share, albeit in the context of overall global growth in these sectors.

- Despite their many differences, Turkey, China and the EU are interdependent in a globalised economy and will need to manage the risks of irreversible climate change, increasingly integrated and volatile energy markets, supply chains and scarce resources. Balancing competition with international cooperation will be essential to managing these global risks and creating low carbon economies that are resilient to future shocks.

- China has recognised these risks and opportunities in advance and is developing its own innovative approaches. There are no off-the-shelf and one size fits all responses to low carbon transformation. Countries are at different stages of development and represent diverse economic structures. Therefore, they need to 'innovate' their own responses while they can learn and adapt other countries' approaches.

About E3G

E3G is an independent, non-profit European organisation operating in the public interest to accelerate the global transition to sustainable development.

E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change.

E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and others.

More information is available at www.e3g.org

E3G (Third Generation Environmentalism Ltd)

47 Great Guildford Street

London SE1 0ES

United Kingdom

Tel: +44 (0)20 7593 2020

Fax: +44 (0)20 7633 9032