

## **Greenpeace Insights & Commentary: China's 12th Five-Year Plan**

### **Forward**

Ever since 1953, when China first issued its inaugural Five-Year Plan, this important document has served as the central development blueprint for its domestic economy. At the end of 2010, China completed its 11th Five-Year Plan, issued in 2005.

2011 marks the launch date for the 12th Five-Year Plan, and delegates to the National People's Congress will convene on March 5th, 2011, to consider and approve the Plan's draft outline. Upon approval, the Plan's directives will be signed into law, and will be incorporated into the evaluation and performance appraisals of provincial government officials, who will be held accountable for the Plan's implementation.

In 2005, the 11th Five-Year Plan attempted to broaden China's policymakers' myopic focus on raising economic growth, so that it encompassed a greater consideration of environmental issues and resource constraints. Indeed, over the past 30 years, even though China's rapid economic growth has caught the attention of the world, this growth has exacted a tremendous toll on the health of China's environment. This, coupled with the limits of natural resources and international pressure, has prompted China to shift its development path, by reducing energy and resource consumption, while raising national living standards. Policymakers and academics alike, believe that it is in China's long term interest to change its economic development model, by reducing the share of heavy industry from its GDP growth. On this point, environmental protection and energy groups have an important to play in assisting and accelerating this transition.

Certainly, observers will be waiting with great anticipation to see whether China's 2011-2015 12th Five-Year Plan will provide further guidance on environmental protection and tackling climate change, and shift China's economic development model onto a "Green" path.

Greenpeace has great hopes that the 12<sup>th</sup> Five-Year Plan will be the greenest one in China's history. We expect that more toxic pollutants will be given reduction targets, that energy intensity (energy consumed per unit of GDP) will be decreased, that the rapid growth of the coal industry will be curtailed, and that clean, renewable energy will continue its growth momentum.

China achieved its energy savings and pollutants emissions reductions goals for the 11<sup>th</sup> Five-Year Plan largely by closing down old and inefficient plants, and advancing technology standards. To achieve its pollutants-reduction and energy

intensity targets for the 12<sup>th</sup> Five-Year Plan, China needs to reform the structure of its economy and energy mix. To meet these challenges, China should draw on the lessons learnt over the past five years, by focusing on improving provinces and industries which have the greatest potential for energy and emissions reductions, linking the performance assessments of officials with energy and emissions targets, and using market-based mechanisms to encourage local government and industries to meet energy efficiency and emission reduction goals.

Unfortunately, Greenpeace believes that the 12<sup>th</sup> Five-Year Plan's likely 16% target for reduction for energy intensity is not high enough to encourage local governments and industry to change their growth models. In addition, although the Plan may call for market-based mechanisms to encourage energy efficiency, it is unlikely to detail when environmental taxes will be raised. Greenpeace encourages the Chinese government to increase its energy intensity targets and impose the environmental taxes as soon as possible, into which carbon emissions should be included.

Over the last five years, China's economic growth has far exceeded plan targets, and with industrial sector increasing its proportion of China's GDP, energy and coal consumption has risen unabatedly, increasing the difficulty of reducing carbon emissions. Greenpeace believes that local governments and ministries need a paradigm shift in how they view the targets of the 12th Five-Year Plan: GDP targets should be seen as upper ceilings on growth, while energy usage and pollutant discharge targets should be seen as baselines. We also urge the Chinese government to limit the excessive growth of energy and coal consumption, in order to accelerate structural changes to the Chinese economy and energy industries.

In view of the changes from the 11th Five-Year Plan to the 12th Five-Year Plan and taking into account the internal and external pressures to China's development, Greenpeace believes that the Chinese government will continue to improve energy efficiency and environmental policies, strengthen, widen and deepen reforms to the economy and the energy sector, and provide continued support to renewable energy and cleaner production technologies. As China's economy makes this historic transition towards a green development path, local governments and companies with the foresight to recognize this trend, and the fortitude to capture the opportunities, will occupy leading positions in China's clean development future.

In the following section, Greenpeace provides its assessments of the various targets and details of the 12th Fifth Year Plan, and suggests on how China can truly achieve green development.

## Energy Intensity and Carbon Intensity Targets

According to various media reports, for the 12th Five-Year Plan, China will aim for a 16% decrease in energy consumed per unit of GDP.

According to estimates<sup>1</sup>, if the energy intensity reduction target is set at 16%, the potential in CO<sub>2</sub> emissions avoided will be between 0.5 – 2.5 Gt.

However, this 16% target, the most significant and important of the government's Five-Year Plan targets, has left many disappointed. Greenpeace believes that target is too low, and does not provide enough pressure for provinces and industries to address China's wide-ranging environmental and energy challenges. Over the course of the 11th Five-Year Plan, China had taken impressive endeavor to reach its energy intensity reduction target and thus, Greenpeace believes that there is sufficient basis for China to be more ambitious. We hope the Chinese government will publish higher reduction targets, and implement stronger policies that can support the development of the clean energy sector.

Greenpeace believes that the 20% energy intensity reduction target of the 11<sup>th</sup> Fifth Year Plan was highly effective towards spurring industries and local governments to action, and moving China closer to a low-carbon economic model. If China wants to continue this momentum, it will require another ambitious energy intensity reduction targets for the next the 12<sup>th</sup> Five-Year Plan period,

The past five years of the 11th Five-Year Plan saw the closure of thousands of inefficient power plants among the numerous energy saving and emission reduction measures that were implemented. In addition, China's clean energy technology has advanced rapidly. However, with the launch of the 12th Five-Year Plan, the over-reliance of top-down administrative measures to address environmental problem has become apparent. Over the next five years, even though government pressure on local authorities and industries should continue, Greenpeace believes that it is important to introduce a variety of market mechanisms and incentives to mobilize local government and business, and move China onto a more sustainable path of development. These measures should include reforming energy prices and subsidies, implementing an environmental tax, and expanding carbon emissions trading, all of which will go long way towards reforming China's development model, and reducing its energy intensity.

Although achieving greater energy intensity reduction targets will require greater effort over time, Greenpeace believes China can draw from the accumulated experience and lessons of the past five years to set a more ambitious energy

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<sup>1</sup> E3G, *Chinese Challenge or Low Carbon Opportunity? The Implication of China's 12<sup>th</sup> Five-Year-Plan for Europe*, Jan 2011.

intensity reduction target for the next five years. If the central government shares the burden of emissions reductions appropriately among the local governments, and, and uses effective financial and market mechanisms, achieving reductions in energy intensity higher than 16% will not be a huge challenge.

This 16% energy efficiency should be assigned to the various sectors and provinces and reflected in their respective sub-plans of 12<sup>th</sup> Five-Year Plan, and detailed implementation actions, along with practical measures and strict supervision will ensure ultimate success.

In 2010, China consumed the energy equivalent of 3.25 billion tons of coal. According to estimates by the NDRC, by the end of the 12th Five-Year Plan period, China would consume the energy equivalent of approximately 4 billion tons of coal annually. Thus, the next five years will see China's insatiable energy demand increase even more, even as the natural environment's capacity to absorb this demand will gradually reach its limit. Greenpeace believes that because growth in energy and coal consumption will limit what is achievable with respect to reaching carbon and energy intensity targets, China should set a cap on energy and coal consumption.

## **Adjustments to China's Energy Portfolio**

China's economic development is grossly reliant on coal, which currently accounts for 73% of the installed capacity of power generation. According to the "Research Report on the Electricity Industry for the 12th Five-Year Plan," it is feasible for China to reduce coal's share of installed capacity to 64.8%. Greenpeace hopes that the government can send a clear policy signals on the reconfiguration of the energy mix, halt the rapid growth of coal-fired power plants, and gradually decrease the country's reliance on coal. At the same time, there should be bold targets for the development of renewable energy and active steps to remove the bottlenecks that prevent renewable energy's further expansion.

For example, the 11th Five-Year Plan set a target of 10 GW for the installed capacity of wind power by the end of 2010. By the end of 2010, wind power reached an installed capacity of 41.8 GW, or four times the planned target, making China the world's leading nation in installed wind capacity. In Greenpeace's latest report in 2010, we estimated that China's installed wind capacity can reach 130 GW by 2015. We hope that the 12th Five-Year Plan and future industry planning can reflect higher ambition.

Another noteworthy point is that while China's Renewable Energy Law stipulated that the State Grid must purchase all electricity generated from renewable sources, this requirement has not been implemented into practice. What's more,

no penalties or consequences were set for failures to comply. This has created the key bottleneck facing renewable energy today. If future wind and solar energy continue to lack access to the grid, then China's targets on carbon emissions reduction and clean energy development will be hard to reach. To solve these issues, Greenpeace believes during the 12<sup>th</sup> Five-Year Plan period, the government should issue effective policy measures to address the difficulties of grid access for renewable energy sources, and issue feed-in tariff for solar and other renewable energy sources. We hope that the yet-unpublished "New Energy Industry Planning" and the sectoral plan on the renewable energy industry can provide clear solutions for these issues.

## **Environment Taxes**

In October 2010, the CCP's Central Committee proposed China to introduce environmental taxes in the next five years. Greenpeace believes that environmental tax would be an important part of any China's transition to green development, and hopes that these tax policies will be implemented early in the next five years, with a tax on carbon dioxide part of this proposal

China is the world's largest producer and consumer of coal, and coal provides 70% of its domestic energy needs. China's rapid economic growth has led to a commensurate rise in energy demands, even while social and environmental costs related to coal excavation and consumption become ever more serious and prevalent. In 2007 alone, every ton of coal consumed in China resulted in RMB150 in damages to the environment.

It is important to note that the current price of coal does not reflect the true costs of coal. Greenpeace believes that an environmental tax, properly applied to high energy consuming and carbon emitting companies, will help China end its overreliance on coal, the burning of which releases pollutants such as CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>2</sub>, particulate matter, and heavy metals. In addition, an environmental tax will be an effective means of achieving China's 12th Five-Year Plan of reducing energy and carbon intensity, emissions of pollutants and economic transition.

## **Sulfur Dioxide and Nitrogen Oxides Reduction Targets**

According to reports, the 12th Five-Year Plan will see for the first time, hard reduction targets for Nitrogen Oxides, which will result in greater pressure on coal-fired power plants to implement pollution-reducing technologies, a development which Greenpeace views positively. However, with respect to controlling the use of coal, Greenpeace believes that the current reduction target of 10% is not high enough.

In China, 85% of the SO<sub>2</sub> emissions, and 67% of NO<sub>x</sub> emissions, are caused by the burning of coal. With coal providing 70% of China's domestic energy needs and taking account of today's emissions control levels, China's coal fired power plants will emit up to more than 123.4 million tons of NO<sub>x</sub> by 2020. Certainly, the environmental damage wrought by coal-fired power plant emissions will be increasingly severe, and Greenpeace believes that it is important to take effective pollution control measures immediately.

Because the damage caused by NO<sub>x</sub>, a major atmospheric pollutant, has not been reflected by the price of coal, China over relies on this dirty source of energy. The announcement of NO<sub>x</sub> reduction targets will certainly help to end this situation, and spur greater reform in energy industry practices. It is important to point out that allocation of these targets to provinces and industries should be followed by effective implementation measures, with actions to measure progress.

The 11th Five-Year Plan saw target reductions for SO<sub>2</sub>, and now with NO<sub>x</sub> target reductions part of the 12th Five-Year Plan, the government's growing efforts to control the pollution caused by burning coal are clearly apparent. Greenpeace believes that the increasing pressure of carbon emission reductions, and continued energy sector reforms, foreshadows the end of coal's dominant position in China's energy portfolio. Electric power companies and local governments should recognize this strategic policy signal from the central government, and encourage investments in the clean and renewable energy sector, and implement effective pollutant control technologies in newly built coal-fired power plants.

## **Heavy Metal Pollution**

In the 12<sup>th</sup> Five-Year Plan, China will for the first time include "invisible pollutants" such as heavy metals into the planning framework, in the form of a Special Five-Year Plan. The Plan sets regional reduction targets for these pollutants, and also incorporates the approach of comprehensive prevention and control over their lifecycle, including prevention at the source. In comparison to the limitations of the traditional end-of-pipe approach, China's new measures will make progress not only in the types of pollutants covered, but also in the approach to pollution management as a whole. However, it is important to note that the Five-Year Plan does not trace these "invisible pollutants" back to their point of origin in the product demand and production processes. It also fails to set a timetable for eliminating the usage of lead, cadmium, and other heavy metals in some products and industries. As such, Greenpeace believes that true prevention at the source should be the direction of current and future pollution management.

## **Highlights of the “12<sup>th</sup> Five-Year Plan for the Comprehensive Management of Heavy Metal Pollution”**

- Reduction targets: 15% reduction from 2007 levels for priority regions; no higher than 2007 levels for other regions.
- A comprehensive approach to pollution management: prevention, termination of production processes, clean production, and end-of-pipe control.
- Key industries: Heavy non-ferrous metal ore mining (including associated minerals), heavy non-ferrous metal smelting, lead-acid battery manufacturing, leather and leather manufactured products, chemicals and chemical products

In Greenpeace’s view, the reduction targets are better than expected, because they are absolute targets capping the total quantity of pollutants, rather than intensity targets, as was formerly reported, in which the total quantity of pollutants was allowed to rise, but at a decreased rate.

In the approach to pollution control, the addition of prevention and comprehensive lifecycle management is also a marked contrast to former strategies that emphasized the end-of-pipe approach (such as the large-scale construction of power plant desulphurization facilities and municipal sewage treatment plants). But judging from already published portions of the Five-Year Plan, the current concept of “prevention at the source” basically refers to the approval of new projects, and does not yet address the true source of heavy metal pollution or the usage of lead, cadmium and other metals throughout the production chain. The strict regulation of polluting industries only cures the symptoms, but to cure the root of the problem, heavy metals must be eliminated from multiple products and production processes, and alternative technologies and substitutes must be researched.

At present, the specific content and details of the Plan have yet to be made public, which is not in accordance with environmental protection policies encouraging information disclosure and public participation. We suggest that the full text should be released as soon as possible. Ultimately, pollution control is not only the concern of the government, for without the supervision of an informed public, there will be no truly effective way of reaching China’s pollution reduction targets, and ensuring that the public benefits.

## **Agricultural Non Point-Source Pollution**

The 12th Five-Year Plan clearly points out the necessity of managing agricultural non-point-source pollution and already sets out a few binding targets that will help control and even reverse the state of China’s agricultural non-point pollution. But Greenpeace believes that the severity of China’s agricultural pollutants

demands more specific and comprehensive reduction targets at the source.

Published in October 2010, the “Communist Party of China Central Committee's Proposal for Formulating the 12th Five-Year Program for China's Economic and Social Development (2011-2015)” clearly indicates the need to control agricultural non-point pollution. Compared with the 11th Five-Year Plan, the 12th Five-Year Plan has added binding 10% reduction targets from 2010 quantity levels for ammonia nitrogen.

According to the first national pollution source survey published in February 2010, over 40% of China's water pollutants come from agricultural sources. Agricultural pollutants accounted for 57.2% of total nitrogen and 67.4% of total phosphorous in water. Greenpeace believes that binding reduction targets for ammonia nitrogen (a nitrogen compound) will be helpful to reducing agricultural non-point-source pollutants.

China's severe over-reliance on fertilizers and pesticides not only pollutes the country's water sources but also causes other environmental problems. In 2009, China used 54,044,000 tons of fertilizers (35% of the world's total fertilizer consumption) and 1,708,000 tons of pesticides. This massive use of fertilizers and pesticides has not only failed to increase crop production, but has also severely polluted the environment. 60-80% of chemical nitrogen fertilizers used in staple crop production (rice, corn, and wheat) is actually lost into the environment, leading to soil compaction, water pollution, and other problems. China's agricultural production practices have also resulted in excessively large quantities of greenhouse-gas emissions. In 2000, agricultural sources accounted for over 90% of China's total nitrous oxide (N<sub>2</sub>O) emissions, a greenhouse gas that has a global warming effect 296 times more potent than carbon dioxide.

As a result, Greenpeace suggests that the 12th Five-Year and related policies must increase the number of binding control targets for agricultural non-point-source pollutants, especially for the total quantities of nitrogen and phosphorous. To cure the root of the problem, targets must focus on preventing pollution and reducing the usage of fertilizers and pesticides. Considering their gross overuse in China, the target can be easily set above 10%. Setting and achieving these reduction targets will help China achieve the goals of the 12th Five-Year Plan.

## **Genetically Engineered Crops**

The long-term food safety and environmental impact of GE crops has not yet been determined. As a result, Greenpeace urges the government to keep a cautious attitude on the commercialization of GE crops in the 12th Five-Year Plan and related policies, and to implement more policies that will assess the

impact of GE on China's crop production, public welfare, economic development, and other areas. Greenpeace urges increased investment into the research, development, and promotion of ecological agriculture. Decreasing the usage of fertilizers and pesticides, as well as stopping the commercialization of GE crops, will aid China to develop an environmentally friendly, sustainable agriculture model.

## **Conclusion**

Over the next five years, China needs to continue its economic development and tackle environmental crisis at the same time. Faced with limited natural resources and wide-ranging environmental problems, China has no choice but to move onto a more sustainable green development path. Greenpeace hopes that the 12th Five-Year Plan can be a historic turning point in China's development, and that will see not only a reduction in environmental damage and degradation, but the development of a completely new low-carbon economy that is powered by the intelligent use of clean and renewable energy sources.