RESPONSE TO QUESTIONS ON NOTICE: SENATE SELECT COMMITTEE ON SCRUTINY OF NEW TAXES - INQUIRY INTO A CARBON TAX

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CHINA'S POLICIES

CHINA'S TARGETS

China has set a number of targets to reduce the energy and pollution intensity of its economy. It has committed internationally under the Cancun Agreements to reduce the emissions intensity of its economy by 40-45% on 2005 levels by 2020. The International Energy Agency, HSBC and internal analysis by the Department of Climate Change and Energy Efficiency suggest this is a fair contribution towards stabilising global greenhouse gas concentrations at 450 ppm-e.

TABLE 1: CHINA'S PAST, CURRENT AND FUTURE POLLUTION AND ENERGY COMMITMENTS

Target	11th Five Year Plan (2006-2010)	Achieved in 11th FYP	12th Five Year Plan (2011-2015)	13th Five Year Plan (2016-2020)
Reduction in energy intensity	20% in five years	19.1% in five years	**16% in five years**	N/A
Reduction in carbon intensity	N/A	N/A	**17% in five years**	40-45% on 2005 levels
Proportion of new energy in primary energy	10%	9.6%	**11.4%**	15%

CHINA'S 12TH FIVE-YEAR PLAN

China's 12th Five Year Plan builds on previous actions in the 11th Five Year plan (see below).

Figures 1 and 2 summarise key elements of the 12 FYP. For example, China's target is to achieve non-fossil fuels in primary energy consumption of 11.4 per cent by 2015. According to HSBC, by 2015, around 63GW of new hydroelectric capacity, 48GW of new wind capacity, 40GW of nuclear, and 2.5GW of solar capacity will come on line. This combined with anticipate investments in gas and coal are projected to see the share of coal in the energy mix in China fall from 72 per cent to 63 per cent over this period.

The 12 FYP also sets out aggressive plans for strategic emerging industries (SEIs) critical to economic restructuring. These include electric vehicles, next generation information technology, energy efficient products and renewable energy. A figure of RMB 10 trillion (US $1.5 trillion) of public and private investment in the next five years across all SEIs has been discussed but a government target has not yet been set.

Fiscal incentives form part of an integrated strategy. For example, research and development funding is set to increase dramatically, leveraging public and private sources from the current 1.7 per cent to reach 2.2-2.5 per cent of GDP.

Recently, Chinese Climate Change Minister Xie Zhenhua announced that China was about to release a full plan for the 17 per cent by 2015 carbon emissions reduction target. What is likely to emerge in the full plan are specific targets for each province. These are essential elements in the development of the announced pilot emissions trading schemes. In April, China announced the six provinces where emissions trading pilots would take place: Beijing, Chongqing, Guangdong, Hubei, Shanghai and Tianjin. There are currently very few details on these potential emissions trading schemes.

Several of the other initiatives are much further along. China has already extended the very successful Thousand Enterprise Program (see below) to Ten Thousand Enterprises, thus massively expanding China's industrial energy efficiency program.

Experts also expect a carbon tax within the next year or two. China already has an energy consumption tax on oil and gas, so adding in coal would enable the roll out of a national tax. Professor Ross Garnaut has also highlighted that fiscal policies in China have restricted or raised the costs of inputs to the most pollution-intensive industries: "Some provinces now impose a surcharge on power use equivalent to either $19 per tonne of carbon dioxide on electricity used in highly emissions-intensive plants or $57 per tonne of carbon dioxide on electricity used in excessively emissions-intensive plants in eight 'high-polluting' industries. The high-polluting industries include aluminium, steel and cement."

FIGURE 1: OVERVIEW OF CHINA'S CLIMATE AND ENERGY POLICIES IN THE 12TH FIVE YEAR PLAN (SOURCE: HSBC, 2011)

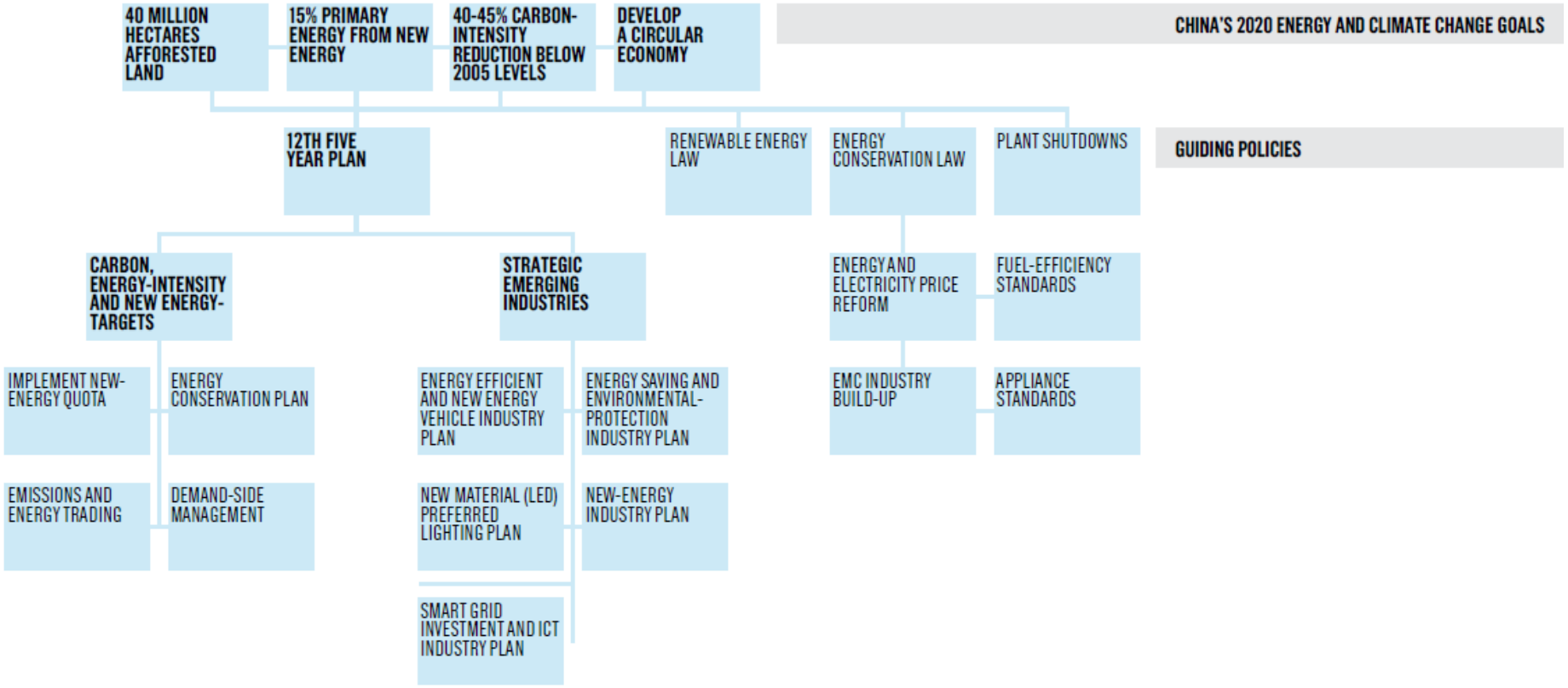

FIGURE 2: SUMMARY OF CHINA'S MAIN ENERGY POLICY MECHANISMS (SOURCE: HSBC, 2011)

POLICY MECHANISM	DESCRIPTION
NEW-ENERGY QUOTA MANAGEMENT IMPLEMENTATION	The details will be part of the 2011 National Energy Board work plan. Is likely to require renewables as a percentage of either (a) power company generation or (b) energy-intensive industry purchasing.
SPECIAL ENERGY CONSERVATION PLAN	Expected from the NDRC later in 2011. Likely to be the most significant proposal for delivering against efficiency goals. Likely features include an energy audit requirement for large infrastructure projects.
CLIMATE CHANGE LAW	Expected in the next five years (draft expected from NDRC in 2-3 years). Will lay a legal foundation for future institutions and standardize functions of existing institutions (e.g. coordinating amongst ministries, planning mechanisms, creating industry standards). May draw together policies already in force including CDM guidelines and energy conservation laws.
IMPACT INDICATORS	Indicators established in the 12th FYP include new energy, energy savings, pollution, carbon intensity and energy intensity[182].
CONSOLIDATION OF ENERGY INTENSIVE INDUSTRY	Consolidation, mergers and acquisitions expected to intensify in the 12th FYP. Especially relevant for energy-intensive industries like steel. The coal sector will reduce from 11,000 to 7,000 companies with 6-8 large enterprise groups.
ENVIRONMENTAL TAX	Enacted as early as 2011, starting with SO2 and waste water. Introduction will be gradual. Conservative revenue estimates from environmental taxes (including on carbon) are in the range of RMB 1 billion yuan (US$150 billion)[183].
CARBON TAX	A possibility in the next five years. Recommendations start with a levy at RMB 9.5 yuan/tonne (US$1.45) and rising incrementally to between RMB 48 and 390 yuan/tonne (US$7.30 to US$59).
ENERGY PRICE LADDER	Proposed for residential electricity, setting per-unit price according to three stepped levels. Around 70-80% of residents will maintain existing prices but higher-consuming residents will be charged at higher rates.
EMISSIONS AND ENERGY-EFFICIENCY TRADING	Announced by CPC Central Committee in October 2010, with intent to 'gradually establish' a carbon emissions trading market. The government is currently assessing sector-specific and economy-wide schemes. Guangdong has proposed a pilot between its 11 cities and the electricity industry is also expected to be involved in tests.
ENERGY TRADING MARKET	Mentioned in the 12th FYP, but without details on which energy sources would be included. Central government currently sets the price for oil, gas and electricity. Coal prices have become more market-oriented. Domestic oil prices are far below the international price of oil. Natural gas and industrial electricity prices are close to US levels[184,185].
STRATEGIC EMERGING INDUSTRY PLANS	Included in the 12th FYP to stimulate seven broad sectors to boost efficiency, competitiveness and industrial added value. There is a wide array of mechanisms to promote R&D and commercialization. Detailed plans are involved.
DEMAND-SIDE MANAGEMENT	Mandatory 0.3% energy-efficiency target established in January 2011 for the electric power industry. The target for 2011 is equivalent to a 0.3% efficiency improvement on electricity sold in 2010.

CHINA'S 11TH FIVE-YEAR PLAN

China's 11th Five-Year Plan included a major programme to drive clean energy, improve energy efficiency and, established a number of national targets, for example, reducing energy intensity (energy consumption per unit of GDP) by 20 per cent below 2005 levels by 2010, or an average of 4 per cent per year.

China reached a 9.6 per cent share of primary energy from non-fossil fuel sources in the 11th five year plan period against the target of 10 per cent. Challenges came from larger than predicted overall energy consumption and from delays in developing some hydroelectric and nuclear power assets.

Accounting for around a quarter of global investment, in 2010, China added around 29GW of grid connected renewable capacity. This saw total renewable energy capacity reach 263GW – 26 per cent of total installed electricity capacity, 18 per cent of generation and more than 9 per cent of final energy consumption. Most of this capacity is hydro and in 2010 wind generated 1 per cent of total capacity (nearly twice the production of the previous year and in some regions it is as much as 12 per cent).

To meet the energy intensity target in the 11 FYP the government launched a range of new programs and policies. These included (see also below):

- The Ten Key Projects program, which focused on using economic incentives and technical strategies to improve the efficiency of everything from coal-fired industrial boilers and motors, to promoting “green” lighting and alternatives to oil-based fuels
- The Top 1000 Energy-Consuming Enterprises Program, which mandated a suite of energy-saving steps for the biggest firms in nine industrial sectors
- Building energy efficiency programs, which aimed to make newly-constructed buildings more efficient and to retrofit older structures
- Small plant closures, which targeted the most polluting and least energy-efficient facilities for closure
- Appliance standards and energy-efficiency labels, which aimed to curb energy use by new appliances and provide consumers with more information
- Expand the enforcement of building energy standards that have been effective in large urban areas to the rest of the nation, and continue to emphasize energy management of large-scale public and governmental buildings

- Combine explicit market mechanisms, such as energy pricing reform and tax incentives, with administrative measures, such as binding targets and controlling market access through permits, to encourage a structural shift away from energy-intensive, low value-added production

In 2006, energy intensity declined 1.79 per cent and in 2007 it declined by 3.66 per cent. The 4 per cent figure was met in 2008, when energy intensity declined by 4.2 per cent. The closing months of 2010 saw a last-minute rush to meet targets that resulted in socially and economically disruptive measures that included black-outs, the shutting down of residential heating and forced factory closures (such as steel mills). This experience has challenged the government to improve its enforcement mechanisms.

Overall however a recent study by researchers at the US Department of Energy's Lawrence Berkeley National Laboratory in Berkeley, California and colleagues in China concluded that "[i]t seems likely," that the 11 FYP's goal of reducing China's energy intensity "will be met or nearly met." They estimate that cumulatively, China saved the equivalent of about 527 million tonnes of coal from the 11 FYP.

TABLE 2: SELECTION OF POLICIES IDENTIFIED FOR CHINA BY THE INTERNATIONAL ENERGY AGENCY CLIMATE CHANGE POLICY DATABASE.

Note these do not include new announcements in China 12th Year Plan and this is a not an exhaustive list of all of China's policies. For example it does not include policies by fiat such as the Renewable Energy Law. It is a snapshot. (http://www.iea.org/textbase/pm/index.html)	
National Building Energy Standard	In 2007, the central government adopted China's first national building energy standard as part of its 11th Five Year Plan. The standard went into force in August 2008 and requires a 50% reduction of building's total operation load based on a building's energy consumption during the 1980s, calculated using average consumption by building type within a designated climate zone. The regulation covers residential, commercial and public buildings, including those used for education and sanitation purposes.
Aluminium Industry Permitting Standards	In October 2007 the NDRC implemented new standards that must be met for permits to be issued for bauxite mines, alumina refineries, primary aluminium smelting operations, secondary aluminium and aluminium process plants. The standards cover a range of elements, such as scale of production,

	minimum size of plants and furnaces, technology to be implemented, resource use, as well as water and energy consumption. For bauxite mining, overall energy consumption must be less than 25kg of coal equivalent per tonne produced for underground mining, and less than 13kg for above-ground operations. For alumina refining, energy consumption for newly built Bayer method operations must be less than 500kg of coal equivalent per tonne of alumina, and the recovery rate at least 81%. For other methods, the consumption is limited to 800kg of coal equivalent per tonne, with a recovery rate of at least 90%. For primary aluminium, new and upgraded smelters must consume less than 14 300kWh per tonne of primary aluminium, with electrical efficiency over 94%. For existing smelters, energy consumption is limited to 14 450kWh/tonne with 93% electrical efficiency. For secondary aluminium, the use of direct burn coal reverberating furnaces is prohibited, and other reverberating furnaces must have a capacity over 4 tonnes. For aluminium processing, energy consumption for new facilities is limited to 350kg of coal equivalent or 1150kWh per tonne of finished product. For existing facilities the limit is 410kg of coal equivalent or 1250kWh per tonne.
Retirement of Inefficient Plants	Starting in early 2007, the NDRC issued orders to retire small and inefficient plants in various industrial sub-sectors. In the power sector as of August 2007, a total of 50GW of small, inefficient power plants where to be required by 2010, comprising approximately 40GW of coal-fire and 10GW of oil-fired plants. Generators wishing to construct new coal-fired power plants could only do so once smaller and older facilities are fully decommissioned. All coal-fired power plants of less than 50MW capacity, and those with capacity between 50 and 100MW that have been in operation for over 20 years will be required to close by 2010.

	Generators with unit coal consumption 10% or more above the provincial average or 15% above the national average where also targeted for closure. In the cement sector, all plants with an annual capacity under 200 000 tonnes were to be closed by the end of 2008, and 250 million tonnes (Mt) of outdated and inefficient capacity to be retired by 2010. In the steel sector, outdated and inefficient pig iron capacity is to be reduced by 100 Mt and steel capacity by 55 Mt, both by 2010. In addition, all blast furnaces below 300 m3 must be closed by 2010. Steel-making furnaces with less than 20 tonne capacity and blast furnaces below 100m3 were to be closed by 2007. NDRC established reduction quotas at the provincial and regional levels, for which provincial officials are held responsible through agreements signed with the central government.
Vehicle excise tax rates	Excise tax rates for vehicles have been proportional to the size of car engines since 1994. The rate for cars with engines 1.0L or less was set at 3%, for engines over 4.0L it was 8%, and for engines in between the rate was 5%. As of 1 April 2006, the range of excise tax rates for vehicles was broadened to 3-20%. Rates for small cars with engines between 1.0 and 1.5L decreased to 3%, for engines from 1.5 to 2.0L they remained at 5%, while for engines between 2.0 to 4.0 the rate increased to between 9% and 15%. For engines over 4.0L, the rate nearly doubled from 8% to 20%. On 1 September 2008, the excise tax rate for engines 1.0L or less further decreased to 1%, while for engines from 3.0 to 4.0L it increased to 25%. The rate for cars with engines over 4.0L increased to 40%.
Efficiency Upgrade for Electric Motors	Within the 11th Five-Year Period, the Chinese government mandated the efficiency improvements for electric motors nationwide.
Expansion of Local Cogeneration (CHP)	China's 11th Five Year Period the state established policies improve the efficiency of heating, including the installation of 300, 000-kilowatt highly efficient cogeneration units. Objectives included, expanding

	coverage of urban centralized heat supply (27% in 2002,) to 40% in 2010 and saving 35 million tons of standard coal. Through combined heat and power (CHP) systems, heat efficiency can be raised by 30 percent as compared to separated generation. Centralized heat supply is 50-percent more efficient than small boilers.
Renewable Energy Development Targets	The Chinese government's has established a number of short- and medium-term targets for renewable energy designed to increase the share of renewable energy in China's energy portfolio. These targets are included in the 11th five-year plan and the 2007 National Climate Change Programme, among other policy documents. The targets include: - to build 30 large-scale wind farms each with of more than 100Mw by 2010; - the achieve on-grid wind capacity of 10 GW by 2010; - to achieve biomass and waste fueled generation of more than 5.5 GW by 2010; - to increase the share of energy from renewable sources in the total primary energy consumption to 15% by 2020, up from 7.5% in 2005; - to increase on-grid wind turbine capacity to 20 GW by 2015 and 30 GW by 2020; - to provide for solar heating to the amount of 30 million square metres by 2020; and - to provide for 24 million cubic metres of biogas utilisation by 2020.
Support for Biogas Projects	As part of its renewable energy targets, established in 2006, the Chinese government is providing more support to biogas projects. This includes the farmers' household biogas project, to the value of 40 million RMB, which is helping certain eligible farming families to have biogas digesters.
Vehicle Fuel Economy Standards	The National Development and Reform Commission established mandatory fuel efficiency standards for passenger cars in 2004.

	The standards were implemented in two phases: Phase 1 took effect in 2005 for passenger vehicles and Phase 2 in 2008 for light-duty vehicles. The standards classify vehicles into 16 categories based on vehicle weight. Standard values are set for each category. In addition, there are different standard values for manual transmissions and automatic transmissions. Manufacturers must get the vehicle type they want to market certified to comply with the standards. The standard values are maximum allowable limits for each vehicle type, not the limits for the fleet average of the categories.
Medium and Long-term Plan of Energy Conservation: 10 Energy Conservation Programmes	Launched in 2004, the Medium and Long-term Plan of Energy Conservation covers the 2005-10 and the 2010-20 period. It details energy conservation aims and implementation plans to be undertaken during the 11th five year period (2006-10) and beyond. The Plan puts forward ten key energy conservation programmes. These include programmes to upgrade coal-burning kilns and electric motor systems, improve district co-generation, and undertake fuel switching and conservation activities. The other six programmes are: Residual heat and pressure use: Iron and steel enterprises are to apply coke dry quenching and recover waste energy from blast furnaces for energy production, as well as renovate blast furnace gas power generation and implement converter gas recovery. Optimise energy systems in major industries, primarily metallurgical, petrochemicals and chemicals. Adopt energy conservation standards for buildings. Promote energy conservation in government agencies, including through building efficiency as well as equipment and vehicle procurement. Monitoring and Technical Services: Energy and energy-saving monitoring centres in provinces and major industries are to be improved, through upgrading of equipment, training of personnel, and promoting energy service contracts. Such centres would provide a range of energy services, from diagnosis, design,

	financing, renovation, operation and management. Green Lighting: Replacement of ordinary incandescent lamps with high-efficiency compact fluorescent light bulbs (CFLs), replacement of traditional electromagnetic ballast with electronic ballast, and using light emitting diodes (LEDs) in traffic lights.
Preferential Tax Policies for Renewable Energy	As of 2003, foreign investment in both biogas and wind energy production also benefits from a reduced income tax rate of 15%, as opposed to 33%. Renewable energy enterprises and bio-energy development projects can also request income tax reduction or exemptions. In addition wind turbines and their main components, as well as photovoltaic modules, benefit from preferential customs duty rates.
Wind Power Concession Programme	Domestic and international companies are invited to bid for relatively large-scale potential projects (100-200MW). Successful bidders are selected according to the price per kWh of wind electricity proposed and the share of domestic components utilised in the wind farm. The wind concession lasts for 25 years and the bid price is guaranteed as a feed-in tariff for the first 30,000 full load hours achieved (for a 100 MW project, this amounts to approximately 3 billion kWh). Depending on the site's wind resource, this could cover about 10-15 years. After 30,000 full load hours, the project owner will receive the average local feed-in-tariff on the power market at that time. Two projects have so far been awarded, one in Rudong, Jiangsu, and one in Huilai, Guangdong. These two projects required 50% domestic content in turbines. The former achieved a price of 0.43 Renminbi, the latter 0.5 Renminibi per kWh (USD 0.051 and USD 0.06 respectively). The Rudong project will be powered by 50 Vestas turbines (2MW each). In the course of this project, Vestas is planning to open a blade factory in mainland China. In 2004, the Chinese Government has offered three more concession projects of 100-200MW in size, one in each in Jiangsu, Inner Mongolia, and Jilin. These concession projects will require 70% domestic content and together will result in 650 MW of added capacity. The NDRC expects to award a total of 20 such projects by 2010, contributing to the overall aim to reach 20000MW installed capacity in 2020.

Reduced VAT for renewable energy	In 2001 value added tax (VAT) for wind power cut in half, to 8.5% (normal rate 17%). In the same year, a circular determined that VAT collected for using municipal solid waste for power generation would be refunded back to the producer. In 2003, the VAT for biogas production was also reduced to 13%.

FORESTRY POLICIES

China policies are not limited to the energy sector. Since 1981, China has planted more than 40 billion trees, doubling its forest cover. China's forests now cover 175 million hectares – an area the size of Alaska. Currently China is pumping more than US$80 billion into its forestry programs. The 11 FYP saw China's forestry development, especially the large scale of afforestation measures, contributed significantly to the building of carbon sinks, adding 420MtCO_2 per year on average to the current stock, an amount nearly four times the CO_2 emission from direct fossil fuel combustion in agriculture and forestry.

New targets aim for 26 per cent forest cover by 2050, and 40 million new hectares (over 2005 levels) by 2020.

KYOTO TARGETS

TABLE 3: SUMMARY OF PROGRESS TOWARDS MEETING KYOTO PROTOCOL 1ST COMMITMENT PERIOD TARGETS

Country Region	Target – Change on 1990 levels	Current emissions including international trading and LULUCF (source)	Meet Kyoto target	Source
Australia	+8%	**+7%**	**Yes**	(Department of Climate Change and Energy Efficiency)
Canada	-6%	**+20%**	**No**	(Based on 710 million tonnes CO2e in 2010 by Environment Canada, Government of Canada)
European Community[i]	-8%	**253 Mt lower than the EU-15 target (2008 and 2009)**	**Yes**	(European Environment Agency, 2010)
Japan	-6%	**-5% in 2009**	**Likely but unclear**[ii]	(UNFCCC, 2010)
New Zealand	0%	**-10% (2008-2009)**	**Yes**	(Calculated from 1st Review of NZ ETS, New Government)
Norway	+1%	**-27Mt tonnes under target in 2008**	**Yes**	(European Environment Agency, 2010)
Russia	0%	**-57% below 1990 in 2009**	**Yes**	(UNFCCC, 2010)
Switzerland	-8%	**5Mt tonnes above target in 2008**	**Likely**	(European Environment Agency, 2010)
Ukraine	0%	**-60% below 1990 in 2009**	**Yes**	(UNFCCC, 2010)

[i] Most European countries with a Kyoto target were on track towards their individual target in 2008, based on their emission levels that year. However in three EU Member States (Austria, Denmark and Italy), two other EEA countries (Liechtenstein and Switzerland) and one EU candidate country (Croatia), emissions stayed above their limits in 2008 despite planned use of flexible mechanisms and expected carbon removals from LULUCF activities over the full commitment period.

[ii] Japan has been purchasing international permits to meet target. Uncertainty is driven by earth quake response.