

2010 BRIC Brasilia Summit Compliance Assessment on Clean Energy Systems

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Commitment #29

“We will aim to diversify our energy mix by increasing, where appropriate, the contribution of renewable energy sources”

2nd BRIC Summit of Heads of State and Government Joint Statement

Assessment

Country	Lack of Compliance	Partial Compliance	Full Compliance
Brazil			+1
China			+1
India			+1
Russia		0	
Average Score			+0.75

Background

On 15 April 2010, the leaders of the four BRIC countries committed to developing cleaner energy systems as well as increasing the contribution of renewable energy sources to their energy mix.

These two commitments are in line with commitment [#4] made by the leaders of the BRIC countries at the Yekaterinburg Summit in Russia on 16 June 2009.¹ That year, BRIC countries had committed to “strengthen coordination and cooperation among states in the energy field, including amongst energy producers and consumers and transit states, in an effort to decrease uncertainty and ensure stability and sustainability”² and to “support diversification of energy resources and supply, including renewable energy, security of energy transit routes and creation of new energy investments and infrastructure.”³

Commitment Features

This commitment requires that the BRIC member diversify the types of energy consumed domestically. In its most basic form the commitment outlined that the member must diversify its ‘energy mix’. If the member state takes actions to satisfy this requirement they will receive a score of partial compliance. To receive a score of full compliance the BRIC member must diversify the energy mix and include renewable energies as part of the diversification.

Definitions

Renewable Energy: Sources of energy that can be replenished, including solar energy, wind energy, geothermal energy, bioenergy, hydropower and ocean energy.⁴

¹ 2009 Joint Statement of the BRIC Countries’ Leaders (Yekaterinburg) 16 June 2009. Date of Access: 23 January 2013. <http://www.brics.utoronto.ca/docs/090616-leaders.html>

² 2009 Joint Statement of the BRIC Countries’ Leaders (Yekaterinburg) 16 June 2009. Date of Access: 23 January 2013. <http://www.brics.utoronto.ca/docs/090616-leaders.html>

³ 2009 Joint Statement of the BRIC Countries’ Leaders (Yekaterinburg) 16 June 2009. Date of Access: 23 January 2013. <http://www.brics.utoronto.ca/docs/090616-leaders.html>

⁴ Efficiency Partnership (Vienna) Date of Access: 23 January 2013. <http://africa-toolkit.reep.org/modules/Module12.pdf>

Scoring Guidelines

-1	Member does not diversify its energy mix.
0	Member diversifies the mix of energy but does not increase the portion of renewable energy sources.
+1	Member diversifies its energy mix by increasing, where appropriate, the contribution of renewable energy sources.

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Brazil: +1

Brazil fully complied with its commitment to develop cleaner energy systems by diversifying its energy mix by increasing, where appropriate, the contribution of renewable energy sources.

Brazil increased the contribution of renewable energy sources to its energy mix in the following ways.

In 2010, Brazil increased its share of wind and sugarcane bagasse energies in the national electric matrix through auctions of renewable energy held in September and December 2010, and a total of 7000 MW of renewable sources were implemented throughout the year.⁵

For instance, in September 2010, the Brazilian Government held a wind, hydroelectric and biomass auction that prompted USD5.52 billion in renewable energy investments in the country and added an installed capacity of 2892.2 MW to the national energy matrix.⁶

It is also worth noting that Brazil is second only to China among emerging economies for investments in clean energy with a total clean energy investment of USD7.6 billion in 2010 of which 40 per cent is biofuels, 31 per cent wind and 28 per cent in other renewable energy sources. Brazil is also amongst the top 10 countries for share of GDP invested in renewable energy. With almost 14 GW, Brazil has the world's seventh largest installed clean energy capacity, which complements its sizeable biofuels capacity.⁷

In 2011, according to the Global Wind Energy Council (GWEC), Brazil installed 578 MW of wind power, increasing the number of total wind power installations to 1509 MW from the 931 MW installed in 2010.⁸ Thus, Brazil achieved the first stage of its objective of the PROINFA programme of installing 1429 MW of wind power in 2011 and is continuously developing its wind energy sector.⁹

Thus Brazil scored +1 on its commitment to develop cleaner energy systems.

Analyst: Shahnaaz Parker

China: +1

China fully complied with its commitment to develop cleaner energy systems by promoting access to energy efficient technologies and practices in all sectors and by diversifying its energy mix by increasing, where appropriate, the contribution of renewable energy sources.

⁵ Corporate Clean Energy Investment Trends in Brazil, China, India and South Africa, The Carbon Disclosure Project (London) Date of Access: 9 February 2013.

<https://www.cdproject.net/CDPResults/Clean%20energy%20trends%20in%20emerging%20markets%20ENGLISH.pdf>

⁶ Brazil to Invest \$5.5 Billion in Renewable Energy Sources by 2013, Clean Technics. 10 September 2010: Date of Access: 8 February 2013. <http://blog.cleantechnics.com/2010/09/14/brazil-invest-renewable-energy-sources/>

⁷ Who's winning the clean energy race? Edition 2010, G20 Investment Powering Forward. The Pew Charitable Trusts (Washington DC) Date of Access: 9 February 2010.

<http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/G-20Report-LOWRes-FINAL.pdf>

⁸ IRENA - 30 Years of Policies for Wind Energy: Lessons from 12 Wind Energy Projects. Page 36. Date of Access: 15 December 2013. http://www.irena.org/DocumentDownloads/Publications/IRENA_GWEC_WindReport_Full.pdf

⁹ IRENA - 30 Years of Policies for Wind Energy: Lessons from 12 Wind Energy Projects. (Global Wind Energy Council) Page 39. Date of Access: 15 December 2013.

http://www.irena.org/DocumentDownloads/Publications/IRENA_GWEC_WindReport_Full.pdf

China promoted access to energy efficient technologies and practices in the following ways.

On 14 September 2010, the Chinese Ministry of Finance, the Chinese National Development and Reform Commission, the Chinese Ministry of Foreign Affairs, the Chinese Ministry of Science and Technology, the Chinese Ministry of Environmental Protection, the Chinese Ministry of Agriculture and the Chinese State Bureau of Meteorology promulgated the Management Rule of the Chinese Clean Development Mechanism Fund (CDM) whose mission is to help mitigate and adapt to climate change by adopting cleaner energy systems.¹⁰ The adoption of cleaner energy systems is financed by concessional loans granted by the CDM fund to renewable energy, energy conservation and technological upgrading and energy efficiency projects.¹¹

China increased the contribution of renewable energy sources to its energy mix in the following capacity.

In June 2010, China's first offshore wind power demonstration project, Shanghai Donghai Bridge 102 MW wind farm, began generating power. From May to November the Chinese government called for bids to develop the first set of offshore wind concession projects along the coastline of the Jiangsu Province, adding 1 GW of planned capacity. By 2011, a total of 242.5 MW of offshore demonstration plants were installed, placing the country third in ranking after the United Kingdom and Denmark.¹²

In 2010, China ranked first in the world for wind energy markets, with an installment of 43 per cent of new global capacity in 2011. Furthermore, in 2010, an agreement was reached to "connect 100 GW of wind power by 2015 and 150 GW by 2020". According to the State Grid, China invested CNY 40 billion to facilitate the use of wind power in the nation.¹³

In 2010, according to the U.S. Energy Information Administration, China generated more than 70 TWh of nuclear power, which made up approximately 2 per cent of total net generation. China has been increasing its development of the nuclear power sector ever since.¹⁴

On 5 January 2011, the American Company First Solar Inc. signed a memorandum with the state-owned Chinese Company China Guangdong Nuclear Solar Energy Development Co Ltd on building a solar power plant in Ordos. The solar power plant will be a 2000 MW plant when completed.¹⁵

In 2010 China ranked first amongst renewable energy investing countries with renewable energy investments which were up by 28 per cent from 2009 and which totalled USD48.9 billion, accounting for two-thirds of the developing countries' total and more than a third of the global

¹⁰ Management Rule on Chinese Clean Development Mechanism Fund, State Council Gazette, Issue 3, Serial No. 1362 (Beijing) 14 September 2010. Date of Access: 10 February 2013.
http://www.gov.cn/gongbao/content/2011/content_1792049.htm.

¹¹ China Clean Development Mechanism Fund – Annual Report 2011 (Beijing) Date of Access: 12 February 2013
<http://www.cdmfund.org/userfiles/20120620%E8%8B%B1%E6%96%87%E6%B8%85%E6%B4%81%E5%9F%BA%E9%87%91.pdf>

¹² IRENA - 30 Years of Policies for Wind Energy: Lessons from 12 Wind Energy Projects (Global Wind Energy Council). Page 49. Date of Access: 15 December 2013.
http://www.irena.org/DocumentDownloads/Publications/IRENA_GWEC_WindReport_Full.pdf

¹³ IRENA - 30 Years of Policies for Wind Energy: Lessons from 12 Wind Energy Projects. (Global Wind Energy Council). Page 44, 49. Date of Access: 15 December 2013.
http://www.irena.org/DocumentDownloads/Publications/IRENA_GWEC_WindReport_Full.pdf

¹⁴ U.S. Energy Information Administration (China). Date of Access: 16 December 2013.
<http://www.eia.gov/countries/cab.cfm?fips=CH>

¹⁵ US, China to build world's largest solar plant, china.org.cn 6 January 2011. Date of Access: 12 February 2013.
http://www.china.org.cn/business/2011-01/06/content_21683402.htm

total.¹⁶ In 2010 China was ranked second in the world after the U.S. in total amount of power produced from wind energy, upping the total installed wind capacity by 17GW.¹⁷

On 27 July 2010, the National Energy Administration finished the new energy development plan for 2010-2020. The plan will develop wind power, solar power, biomass energy, and other renewable energy sectors. The plan aims to invest CNY5 trillion.¹⁸

On 9 June 2010, Chinese company Sinopec Star Petroleum Co. signed a framework pact with Iceland Company Geysir Energy Green Energy. The partnership is a venture to develop geothermal energy in China. Sinopec and Geysir are planning to enlarge their existing geothermal district.¹⁹

On 6 May 2010, Chinese province Guangdong announces an investment of CNY20 billion to build an offshore wind farm.²⁰

Thus China scored +1 on its commitment to develop cleaner energy systems.

Analysts: Brian Bressendorf and Mickael Deprez

India: +1

India fully complied with its commitment to develop cleaner energy systems by promoting access to energy efficient technologies and practices in all sectors and by diversifying its energy mix by increasing, where appropriate, the contribution of renewable energy sources.

India increased the contribution of renewable energy sources to its energy mix in the following capacity.

In 2010, India increased its renewable energy investments by 25 per cent to total USD3.8 billion, securing a place amongst the top 10 investor countries in renewable energy.²¹ Sixty-three per cent of Indian investments in renewable energy were in the wind sector and 17 per cent in the solar sector.²²

In 2010, over 2700 MW grid connected renewable power capacity was added, including power from wind, biomass, small hydro and solar. More specifically, over 2000 MW wind capacity was added; 400 MW biomass power/bagasse cogeneration capacity was added; 10 MW capacity grid connected solar power generation systems were set up; and 700 small hydropower projects aggregating to 2850 MW were set up.²³

¹⁶ Global Trends in Renewable Energy Investment 2011- Analysis of Trends and Issues in the Financing of Renewable Energy. UNEP-Bloomberg New Energy Finance- Frankfurt School UNEP Collaborating Centre. 2011. Page 19 Date of Access: 10 February 2013. <http://fs-unep-centre.org/sites/default/files/media/sefi2011finalowres.pdf>

¹⁷ Итоги развития альтернативной энергетики в мире и в России в 2010 году. (Translated: Results of the development of alternative energy in the world and in Russia in 2010) 17 January 2011. Date of Access: 15 December 2013.

http://www.cleandex.ru/articles/2011/01/17/results_of_development_of_alternative_energy_in_the_world_and_in_russia_in_2010. See also: Global Trends in Renewable Energy Investment 2011 (UNEP, Bloomberg New Energy Finance). Page 20. Date of Access: 15 December 2013. <http://fs-unep-centre.org/sites/default/files/media/sefi2011finalowres.pdf>.

¹⁸ 5 trillion yuan investment plan to spur energy development, Xinhua News Agency 28 July 2010. Date of Access: 12 February 2013. http://news.xinhuanet.com/english2010/china/2010-07/28/c_13418682.htm

¹⁹ Venture to develop geothermal energy, Xinhua News Agency 19 June 2010. Date of Access: 12 February 2013. http://news.xinhuanet.com/english2010/business/2010-06/19/c_13358507.htm

²⁰ Guangdong to build China's largest offshore wind farm, People's Daily Online (Beijing) 6 May 2010. Date of Access: 12 February 2013. <http://english.peopledaily.com.cn/90001/90776/90882/6975833.html>

²¹ Global Trends in Renewable Energy Investment 2011- Analysis of Trends and Issues in the Financing of Renewable Energy. UNEP-Bloomberg New Energy Finance- Frankfurt School UNEP Collaborating Centre. 2011. Page 12. Date of Access: 10 February 2013. <http://fs-unep-centre.org/sites/default/files/media/sefi2011finalowres.pdf>

²² Renewable (clean) energy. The Associated Chambers of Commerce and Industry of India (Delhi). Date of Access: 10 February 2013. <http://www.assochem.org/australia-chapter/renewable-energy.php>

²³ 2700 MW Grid Connected Renewable Power Capacity Added Biomass Gasification for Rural Electricity, Press Information Bureau, Government of India (Delhi) 30 December 2010. Date of Access: 10 February 2013. <http://pib.nic.in/newsite/erelease.aspx?relid=68779>

On 25 July 2010, Indian Ministers for New and Renewable Energy and Power jointly officialised the guidelines for selection of new solar power projects under the 1000 MW Solar Power Scheme as part of the first phase of the Jawaharlal Nehru National Solar Mission and reiterated his commitment to adding 1100 MW of grid connected solar power by the end of the first phase of the National Solar Mission.²⁴

On 16 June 2010, Indian Minister for New and Renewable Energy DrFarooq unveiled the guidelines of two schemes falling under the Jawaharlal Nehru National Solar Mission: (1) Off-grid (photovoltaic and thermal) and decentralized solar applications and (2) Rooftop and other small solar power plants.

On 23 April 2010, the Indian Cabinet Committee on Infrastructure approved the implementation of several renewable energy projects in the Ladakh Region as part of its strategy to promote the use of renewable energy in the region.²⁵ The renewable energy projects which will total an investment of EUR94.6 million will include 30 small/micro hydroelectric power projects aggregating to a capacity of 23.5 MW, 300 solar photovoltaic (SPV) power plants of 5-100 KW capacity, 2000 SPV home lighting systems and 40 000 solar thermal systems including water heating, solar cookers, solar passive buildings and solar green houses.²⁶ The implementation of the pilot projects will begin on 1 June 2010 and is set to be completed by 31 December 2013.²⁷

India has made plans to build a 1000-megawatt solar power plant worth \$1.78 billion in the state of Gujarat towards by the end of 2011.²⁸

In 2011, according to the GWEC, India installed 3,019 MW of wind capacity, allowing the total MW volume of wind installation to increase from 10,926 MW in 2009 to 13,065 MW in 2010 and to 16,084 MW in 2011.²⁹

Thus India scores +1 on its commitment to develop cleaner energy systems.

Analysts: Shahnaaz Parker and MickaelDeprez

Russia: 0

Russia partially complied with its commitment to develop cleaner energy systems. It complied with its sub-commitment to promote access to energy efficient technologies and practices in all sectors. However it did not comply with its sub-commitment to diversify its energy mix by increasing, where appropriate, the contribution of renewable energy sources.

In 2010, the share of renewable energy as percentage of total electricity produced in Russia remained constant from the year before at 1 per cent, thus not meeting the Russian Government's 2010

²⁴ Dr. Farooq Abdullah and ShriSushilkumarShinde Jointly Unveil Guidelines for New Solar Projects Under Jawaharlal Nehru National Solar Mission, Press Information Bureau, Government of India (Delhi) 25 July 2010. Date of Access: 10 February 2013.<http://pib.nic.in/newsite/pmreleases.aspx?mincode=28>

²⁵ Ladakh Renewable Energy Initiative, Press Information Bureau, Government of India (Delhi) 23 April 2010. Date of Access: 10 February 2013. <http://pib.nic.in/newsite/pmreleases.aspx?mincode=28>

²⁶ Ladakh Renewable Energy Initiative, Press Information Bureau, Government of India (Delhi) 23 April 2010. Date of Access: 10 February 2013. <http://pib.nic.in/newsite/pmreleases.aspx?mincode=28>

²⁷ Ladakh Renewable Energy Initiative, Press Information Bureau, Government of India (Delhi) 23 April 2010. Date of Access: 10 February 2013. <http://pib.nic.in/newsite/pmreleases.aspx?mincode=28>

²⁸ Renewable energy globally and in Russia in 2010: When will Russia commit to green energy possibilities? (Bellona) 10 January 2011. Date of Access: 15 December 2013. <http://bellona.org/news/renewable-energy/2011-01-renewable-energy-globally-and-in-russia-in-2010-when-will-russia-commit-to-green-energy-possibilities>

²⁹ IRENA - 30 Years of Policies for Wind Energy: Lessons from 12 Wind Energy Projects. Page 82. Date of Access: 15 December 2013. http://www.irena.org/DocumentDownloads/Publications/IRENA_GWEC_WindReport_Full.pdf

objective of increasing it to 1.5 per cent.³⁰ Russia is thus non-compliant on its sub-commitment to increase the contribution of renewable energy sources to its energy mix.

However this report notes positive developments related to renewable energy development in Russia which took place between the Brasilia BRIC Summit and the Sanya BRICS Summit. It will report these developments as follow:

On 30 December 2010, the Russian Ministry of Economic Development approved three renewable energy-related Joint Implementation projects (JI) amongst the total of 18 projects approved. The projects are the following: (1) Coal-to-Waste Wood Energy Switchin Onega; (2) Conversion of Biomass Waste into Energy in Bratsk; and (3) Conversion of Wood Waste into Energy in Arkhangelsk.³¹

On 28 December 2010, the President of the Russian Federation approved the Federal Law № 401-FZ amending the Federal Law on Electricity of 26 March 2003. The amendments introduced a new capacity-based scheme without however formally repealing the market-based electricity premium scheme initiated by the Federal Law № 401-FZ of 4 November 2007.^{32,33} In contrast to the premium scheme which supports renewable energy development through the electricity market, the new capacity-based scheme will be anchored in the capacity market. As per the scheme, electricity buyers will be required to remunerate the installed capacity of specific installations determined by the Russian government; installations that include renewable energy projects.³⁴

In December 2010, RusHydro signed agreements with foreign companies including Alstom in France and Voith Hydro in Germany. The wide-ranging agreements include plants renovations and upgrades of power plants.³⁵

In December 2010, the International Finance Corporation (IFC) launched the Russia Renewable Energy Program (RREP), a five-year advisory programme aimed at creating a sustainable renewable energy market by developing favourable policies and financing mechanisms. Over the duration of the five year program, RREP aims to arrange for the addition of 205 MW of renewable capacity. However, before the investments of approximately \$150 million are made, RREP seeks to establish the proper legislative framework.³⁶ The IFC planned close partnerships with the Russian Energy Agency and RusHydro, the Russian state-owned hydroelectricity company, in order to support the project. According to the organisation's assessments, it will take approximately USD44 billion in

³⁰ Renewable Energy Policy in Russia: Waking the Green Giant. International Finance Corporation-World Group Bank (Washington). June 2011. Page 7. Date of Access: 20 February 2013.

<http://www.ifc.org/wps/wcm/connect/bf9fff0049718eba8bcaaf849537832d/PublicationRussiaRREP-CreenGiant-2011-11.pdf?MOD=AJPERES>

³¹ Order № 709: On Approval of the list of projects implemented under Article 6 of the Kyoto Protocol to the UN Framework Convention on Climate Change. Ministry of Economic Development (Moscow). 30 December 2010. Date of Access: 20 February 2013 <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=EXP;n=497876>

³² Federal Law № 401-FZ: On Amending the Federal Law on Electricity and Certain Legislative Acts of the Russian Federation". Office of the President of the Russian Federation (Moscow). 20 December 2010. Date of Access: 20 February 2013 <http://www.rg.ru/2010/12/30/energetika-dok.html>

³³ Federal Law № 250-FZ: "On Amending Certain Legislative Acts of the Russian Federation for the Implementation of the Single Russian Energy System Reform". Parliament of the Russian Federation (Moscow) Date of Access: 20 February 2010 <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=118030>

³⁴ Renewable Energy Policy in Russia: Waking the Green Giant. International Finance Corporation-World Group Bank (Washington). June 2011. Date of Access: 20 February 2013.

<http://www.ifc.org/wps/wcm/connect/bf9fff0049718eba8bcaaf849537832d/PublicationRussiaRREP-CreenGiant-2011-11.pdf?MOD=AJPERES>

³⁵ Annual Financial Report 2010- RusHydro (Moscow). Date of Access: 20 February 2013.

http://www.eng.rushydro.ru/file/main/english/investors/reports/annual_financial_reports/AFR_Hydro_01_2010.pdf

³⁶ A thaw in official attitudes could rouse renewable energy's "sleeping giant." 21 March 2011. Date of Access: 15 December 2013. <http://www.renewableenergyworld.com/rea/news/article/2011/03/country-profile-russia>

capital investments for Russia to realise its goal of increasing its share of renewable energy to 4.5 per cent by 2020.³⁷

In September 2010, the first national solar power station was launched in the Belgrade region with a capacity of 100 kW.³⁸

On 2 November 2010, Russian high-tech companies Rusnano and Renova announced their plan to build an industrial solar power station near the Black Sea. The 12.3 megawatt station will be the first in the country.³⁹

On 30 July 2010, Russia announced an investment of USD200 million to construct a wind power plant near the city of Yeisk on the Azov Sea coast. The power plant is expected to initially produce 50MW of energy annually with its capacity gradually expected to rise to 100MW a year.⁴⁰

In October 2010 Russia's energy minister Sergei Shmatko stressed Russia's aim to develop its geothermal energy production from then on. Kamchatka, with 90 volcanoes and an abundant amount of hot springs estimated to have 2 GW of power production stored, will be the primary focus of geothermal energy development. The geothermal project would include Russia's cooperation with Iceland to effectively exploit the renewable resource.⁴¹

Despite some encouraging trends in its national renewable energy development sector, Russia failed to increase its share of renewable energies as a percentage of its total energy. It therefore registers non-compliance on the second sub-commitment, earning it a final score of 0 for its commitment to develop cleaner energy systems.

Analysts: Brian Bressendorf and Mickael Deprez

³⁷ Russia Renewable Energy Programme. International Finance Corporation- World Bank Group (Washington). Page 39. Date of Access: 20 February 2013.

http://www.ifc.org/wps/wcm/connect/RegProjects_Ext_Content/ifc_external_corporate_site/home-rrep

³⁸ Альтернативные источники энергии: Россия и мировой опыт (Translated: Alternative Energy Sources: Russian and the international experience) 9 June 2011. Date of Access: 15 December 2013.

<http://www.rg.ru/2011/06/08/kosachev-poln.html>

³⁹ Russia to build its first solar power station, RiaNovosti (Moscow). 2 November 2010. Date of Access: 12 February 2013. <http://en.rian.ru/science/20101102/161184538.html>

⁴⁰ Russia to spend \$200 million on largest wind-power plant, RiaNovosti (Moscow) 30 July 2010. Date of Access: 12 February 2013. <http://en.rian.ru/russia/20100730/160006679.html>

⁴¹ A thaw in official attitudes could rouse renewable energy's "sleeping giant." 21 March 2011. Date of Access: 15 December 2013. <http://www.renewableenergyworld.com/rea/news/article/2011/03/country-profile-russia>