# 17. Biofuels [229]

**Commitment:**

"[We will] ensure the compatibility of policies for the sustainable production and use of biofuels with food security and accelerate development and commercialization of sustainable second-generation biofuels from non-food plant materials and inedible biomass."

*G8 Leaders Declaration on Global Food Security*

**Assessment:**

**Compliance Score**

| Country | Lack of Compliance -1 | Work in Progress 0 | Full Compliance +1 |
|---|---|---|---|
| Canada | | | +1 |
| France | | | +1 |
| Germany | | | +1 |
| Italy | -1 | | |
| Japan | | | +1 |
| Russia | | | +1 |
| United Kingdom | | | +1 |
| United States | | | +1 |
| European Union | | | +1 |
| **Average Score** | | | **+0.78** |

**Background:**

G8 leaders did not identify biofuels as a priority prior to the 2008 Hokkaido-Toyako Summit. However, as food prices soared in early 2008, food security, including the production of biofuels, quickly become a primary concern.

A global shortage of rice and other grains, most adversely affecting individuals in Africa and other developing countries, preoccupied G8 leaders during the Hokkaido-Toyako Summit. Many factors may contribute to the rise in food prices, but the production of first-generation biofuels – which use food crops such as corn, rapeseed, palm, and soya beans to create fuel – was posited as a major cause. Many countries have increased first generation biofuel production as a renewable alternative to fossil fuels, but some argued that this may have diverted vital resources from food production, causing food shortage and price inflation.

As an alternative, G8 leaders looked to second-generation biofuels, which are made from non-food plant materials and inedible biomass. At the 2008 Hokkaido-Toyako Summit, the G8 came to a consensus that there is a need to "accelerate research on second-

generation biofuels, which do not require food crops as feedstock, in order to bring them into practical production".[1246]

Due to the recent decline in oil prices, inflationary pressures in food prices have been alleviated to some extent. However, the production of second-generation biofuels is critical to support the future demand for energy. According to the assessment by the International Energy Agency, they are projecting a 4-5 per cent decline in oil demand next year, but expecting a much larger – 9.1 per cent – decline in oil production.[1247] Such assessments confirm the pressing need for alternative sources of energy. Numerous problems surround the production of second-generation biofuels, inviting further research and development.

**Commitment Features:**

The commitment states a general goal – to ensure that biofuels production and use is compatible with food security – and a mechanism for achieving this goal. The mechanism, to "accelerate development and commercialization of sustainable second-generation biofuels," will be our focus in assessing compliance. The implied assumption is that second-generation biofuels, manufactured from non-food plant material and inedible biomass, are more compatible with food security than first-generation biofuels. Members must increase investment in the development and commercialization of second-generation biofuels. Any investment in first-generation biofuels cannot be considered compliance.

**Scoring:**

| | |
|---|---|
| -1 | Member does not invest in the development or commercialization of second-generation biofuels. |
| 0 | Member allocates resources to programs or policies that address either the development **OR** commercialization of second-generation biofuels, not both. |
| +1 | Member allocates resources to programs or policies that address both the development **AND** commercialization of second-generation biofuels. |

*Lead Analyst: Kenta Hatamochi*

**Canada: +1**

[1246] In pursuit of Japan as a Low-carbon society , Japan Press Club (Tokyo), 9 June 2008. Date of Access: 10 November 2008. http://www.kantei.go.jp/foreign/hukudaspeech/2008/06/09speech_e.html.
[1247] FT: IEA Projects 9.1% Decline Rate, Higher Oil Prices, 29 October 2008. Date of Access: 19 November 2008. http://www.energyinvestmentstrategies.com/2008/10/29/ft-iea-projects-91-decline-rate-higher-oil-prices/.

Canada has fully complied with its commitment on second-generation biofuels.

On 29 August 2008, Secretary of State for Agriculture Christian Paradis announced a CAD3 million contribution to the Industrial Oil Seed Network under the Agricultural Bioproducts Innovation Program.[1248] This research could develop a new type of oilseed used exclusively for the production of petroleum substitutes.[1249]

Canada has also made commitments regarding both international and domestic biofuel research. At the 2008 Canada-EU Summit, Canada agreed to cooperate on the development of second-generation biofuels and sustainable bioenergy.[1250] On 2 September 2008, Canada's Minister of Industry, Jim Prentice, announced that the Government of Canada's 2008 Science and Technology Strategy will include biofuels research as one of its areas of focus.[1251]

On 22 January 2009, the Minister of National Revenue Jean-Pierre Blackburn announced CAD19.9 million for the Cellulosic Biofuels Network through the Agriculture Bioproducts Innovation Program (ABIP).[1252] This research is intended to find new ways of creating biofuels from agricultural waste, and allow these new findings to be harnessed by Canadian farmers.[1253] The ABIP exists to "accelerate progress towards the commercialization of bioproducts and bioprocesses."[1254]

Canada's 2009 federal budget included funding for second-generation biofuels development. Through an arms-length agency called FPInnovations, it will provide

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[1248] The Government Of Canada Invests $3m In Oilseed Research, Agriculture and Agri-Food Canada (Ottawa) 29 August 2008. Date of Access: 30 December 2008. http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=8&nid=417109&crtr.dpt1D=6656&crtr.tp1D=&crtr.lc1D=&crtr.yrStrtVl=2008&crtr.kw=&crtr.dyStrtVl=1&crtr.aud1D=&crtr.mnthStrtVl=8&crtr.yrndVl=2008&crtr.dyndVl=31.

[1249] The Government Of Canada Invests $3m In Oilseed Research, Agriculture and Agri-Food Canada (Ottawa) 29 August 2008. Date of Access: 30 December 2008. http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=8&nid=417109&crtr.dpt1D=6656&crtr.tp1D=&crtr.lc1D=&crtr.yrStrtVl=2008&crtr.kw=&crtr.dyStrtVl=1&crtr.aud1D=&crtr.mnthStrtVl=8&crtr.yrndVl=2008&crtr.dyndVl=31.

[1250] 2008 Canada-EU Summit Statement, Office of the Prime Minister (Ottawa) 17 October 2008. Date of Access: 30 December 2008. http://pm.gc.ca/eng/media.asp?id=2283.

[1251] Minister of Industry Accepts S&T Strategy's Sub-Priorities Recommended by the Science, Technology and Innovation Council, National Research Council Canada (Ottawa) 2 September 2008. Date of Access: 30 December 2008. http://www.nrc-cnrc.gc.ca/newsroom/news/2008/industry08_e.html.

[1252] Government of Canada puts farmers first, invests in Cellulosic Biofuels research, Agriculture and Agri-Food Canada (Ottawa) 22 January 2009. Date of Access: 8 May 2009. http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=&nid=431319.

[1253] Government of Canada puts farmers first, invests in Cellulosic Biofuels research, Agriculture and Agri-Food Canada (Ottawa) 22 January 2009. Date of Access: 8 May 2009. http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=&nid=431319.

[1254] Government of Canada puts farmers first, invests in Cellulosic Biofuels research, Agriculture and Agri-Food Canada (Ottawa) 22 January 2009. Date of Access: 8 May 2009. http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=&nid=431319.

CAD80 million over two fiscal years to build "operational-scale pilot forest products plants." This project supports the commercialization of cellulosic biofuels.[1255]

In some cases, however, Canada's support for biofuels development has not been focused on second-generation development. On 18 July 2008, the Government of Canada announced an investment of CAD25 million into Suncor Energy's St. Clair Ethanol Plant.[1256] This plant will produce first-generation biofuels, undermining this commitment.

Thus, Canada has been awarded a +1 for funding research into the development and commercialization of second-generation biofuels.

*Analyst: Andrew Wright*

**France: +1**

France has fully complied with its commitment on second-generation biofuels.

On 25 July 2008, the Grenelle Environnement, a forum that unites representatives of national and local governments and organizations, formally announced EUR400 million in new funding into new energy technologies. This funding, for research and development, will be divided among several different sectors, one of which is second-generation biofuels.[1257]

In November 2008, the French government also promised to establish a Renewable Heat Fund and pledged EUR1 billion for the development of wood, solar, geothermal and biogas heat sources.[1258] In January 2009, the tenders were issued for the future construction of biomass power plants. However, while it was noted that special attention will be paid to the efficiency and quality of biomass energy production, it was not specified whether second-generation technology would be used.[1259]

France has also demonstrated its commitment to the research, development and commercialization of second-generation biofuels through its approval and funding of industrial pilot Project Futurol.[1260] The commercialization project's objectives include producing biofuels at a competitive price, reducing greenhouse gas emissions throughout

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[1255] Transformative technologies demonstration projects in the forest sector, Canada's Economic Action Plan. Date of Access: 29 June 2009. http://plandaction.gc.ca/initiatives/eng/index.asp?mode=3&initiativeID=124.

[1256] Government of Canada Invests $25 Million in Biofuels Production, ecoAction (Ottawa) 18 July 2008. Date of Access: 30 December 2008. http://www.ecoaction.gc.ca/news-nouvelles/20080718-eng.cfm.

[1257] Grenelle Environnement: The search for demonstration projects is on! The government will spend 400 million euros over 4 years, Ministry of Ecology, Energy, Sustainable Development and Planning (Paris) 25 July 2008. Date of Access: 12 December 2008. http://www.developpement-durable.gouv.fr/article.php3?id_article=3530.

[1258] Renewable Heat Fund, Ministry of Ecology, Energy, Sustainable Development and Planning (Paris) 18 November, 2008. Date of Access: 9 May 2009. http://www.developpement-durable.gouv.fr/article.php3?id_article=3902.

[1259] Jean-Louis Borloo launches new tender for biomass power generation, Ministry of Ecology, Energy, Sustainable Development and Planning (Paris) 1 January 2009. Date of Access: 8 May 2009. http://www.developpement-durable.gouv.fr/article.php3?id_article=4110.

[1260] Press Kit, Project Futurol. Date of Access: 8 May 2009.

production, and promoting sustainable development. [1261] Although the project was planned before the 2008 Hokkaido-Toyako Summit, it was formally launched in September 2008 with EUR29.9 million from OSEO.[1262]

Thus, France has been awarded a +1 for funding the development and commercialization of second-generation biofuels.

*Analyst: Kayla Pries*

**Germany: +1**

Germany has fully complied with its commitment on second-generation biofuels. It has invested in both the development and commercialization of second-generation biofuels.

On 3 December 2008, the German Advisory Council on Global Change released a report titled Future Bioenergy and Sustainable Land Use, which argued that biofuels could meet 10 per cent of the world's energy needs.[1263] The authors advocate the use of second-generation biofuels primarily created from waste products, so that food security is not endangered.[1264] The Federal Environment Minister, Sigmar Gabriel, announced the Ministry's support for this report and asserted that it had already begun reorienting its biofuels strategy.[1265] As a result, the Federal Research Ministry determined that more research into the balance between food security and fuels was needed. Thus, the Ministry announced that EUR200 million will be made available over the next few years for research into bioenergies.[1266]

[1261] Project Futurol: Launching of Research and Development of 2nd generation bioethanol, IFP, 11 September 2009. Date of Access: 9 May, 2009. http://www.ifp.fr/actualites/communiques-de-presse/projet-futurol.
[1262] Project Futurol: Launching of Research and Development of 2nd generation bioethanol, IFP, 11 September 2009. Date of Access: 9 May, 2009. http://www.ifp.fr/actualites/communiques-de-presse/projet-futurol.
[1263] Submission on Report of "Future Bioenergy and Sustainable Land Use," German Advisory Council on Global Change (Berlin) 3 December 2008. Date of Access: 11 December 2008. http://www.wbgu.de/wbgu_jg2008_presse_engl.html.
[1264] Bioenergy Has Potential But It Must Be Sustainable, Federal Research Ministry (Berlin) 3 December 2008. Date of Access: 11 December 2008. http://www.bundesregierung.de/nn_6538/Content/EN/Artikel/2008/12/2008-12-03-zukunftsfaehige-bioenergie__en.html.
[1265] Bioenergy Has Potential But It Must Be Sustainable, Federal Research Ministry (Berlin) 3 December 2008. Date of Access: 11 December 2008. http://www.bundesregierung.de/nn_6538/Content/EN/Artikel/2008/12/2008-12-03-zukunftsfaehige-bioenergie__en.html.
[1266] Bioenergy Has Potential But It Must Be Sustainable, Federal Research Ministry (Berlin) 3 December 2008. Date of Access: 11 December 2008. http://www.bundesregierung.de/nn_6538/Content/EN/Artikel/2008/12/2008-12-03-zukunftsfaehige-bioenergie__en.html.

In December 2008, the public Karlsruhe Institute for Technology, in partnership with Air Liquide Group, announced plans to build a pilot second-generation biofuels plant.[1267] The new plant supports the commercialization of second-generation biofuels.

In January 2009, EUR400 million was designated for the promotion of renewable energies in the heating sector. While no specific new promotion of bioenergies was made, it was noted that the previous financial support for large biomass systems and biogas conditioners from 2008 will continue.[1268] In April 2009, the Federal Ministry of Food, Agriculture and Consumer Protection (BMVEL) set up a new program to promote and educate the public about the potential of bioenergy in rural areas and also allotted EUR3 million for the research of integrated bioproduction and sustainable biomass use.[1269]

Germany has also reaffirmed its position on second-generation biofuels through several public statements and policies. On 22 October 2008, the federal cabinet announced a new bill that amends the legal basis for the promotion of biofuels.[1270] The new bill focuses on the sustainability of biofuel production in order to reduce competition between the food and energy sector. Germany delayed a planned increase of the percentage of biofuels required in vehicle fuel.[1271] The bill also noted that the production of second-generation biofuels has less of an impact on the environment and they would thus be given an advantage under a new benefit calculation system.[1272]

The BMVEL also recently unveiled a certification system for the sustainable production of biofuels from renewable sources.[1273] In April 2009, The Federal Cabinet formally

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[1267] Second generation biofuels: A new technological step, Lurgi, 22 December 2008. Date of Access: 9 February 2009. http://www.lurgi.com/website/index.php?id=125&L=1&tx_ttnews[tt_news]=203&tx_ttnews[backPid]=27&cHash=01e20481fe.

[1268] Gabriel: 400 Millionen Euro zur Förderung von erneuerbaren Energien im Wärmebereich, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Berlin) 26 January 2009. Date of Access: 8 May 2009. http://www.erneuerbare-energien.de/inhalt/42958/36302/.

[1269] Heinen-Esser: "The energy of tomorrow is a great opportunity for our rural areas", Federal Ministry of Food, Agriculture and Consumer Protection (Berlin) 28 April 2009. Date of Access: 10 May 2009. http://www.bmelv.de/cln_044/nn_752324/sid_9A478D24ED1190CB687BB15168B05EC2/DE/12-Presse/Pressemitteilungen/2009/04-72-HE-Energie-von-morgen.html__nnn=true.
BMVEL promotes integrated bioproduction, Federal Ministry of Food, Agriculture and Consumer Protection (Berlin) 3 April 2009. Date of Access: 10 May 2009. http://www.bmelv.de/cln_044/nn_752324/DE/12-Presse/Pressemitteilungen/2009/04-59-Bioproduktion-Leuna.html__nnn=true.

[1270] Act amending the promotion of biofuels, Federal Ministry of the Environment (Berlin) 22 October 2008. Date of Access: 11 December 2008. http://www.bmu.de/gesetze_und_verordnungen/gesetzesentwuerfe/parlamentarisches_verfahren/doc/42435.php.

[1271] Less biofuel, Sueddeutsche Zeitung (Munich) 22 October 2008. Date of Access: 11 December 2008. http://www.sueddeutsche.de/automobil/196/315089/text/.

[1272] Federal cabinet decides to amend law to promomte biofuels, Federal Ministry of the Environment (Berlin) 22 October 2008. Date of Access: 11 December 2008. http://www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/42433.php.

[1273] The first certification scheme for sustainably produced biomass takes shape, Federal Ministry of Food, Agriculture and Consumer Protection (Berlin) 17 February 2009. Date of Access: 10 May 2009. http://www.bmelv.de/cln_044/nn_752324/DE/12-Presse/Pressemitteilungen/2009/02-29-LI-Biomassezertifikat.html__nnn=true.

announced the National Biomass Action Plan, whereby the Cabinet expressed Germany's dedication to developing sustainable bioenergy. This Action Plan, which contains measures to promote the development and production of bioenergy, became law in May 2009.[1274]

Further, Germany assumed a leadership role on biofuels at the recent International Conference on Bioenergy in Brazil, which covered food security and biofuels. In particular, German delegates urged other members to set international environmental and social standards for biofuels, without which there can be no true progress.[1275]

Thus, Germany has received a score of +1 for its substantial investments and advocacy to further the development and commercialization of second-generation biofuels.

*Analyst: Kayla Pries*

**Italy: -1**

Italy has failed to comply with its commitment on second-generation biofuels.

On 17 July 2008, the Ministry of Agriculture introduced a requirement that biofuels must make up two per cent of total fossil fuel usage.[1276] Further, during the December 2008 United Nations Climate Change Conference in Poznán, Poland, Italy agreed to the biofuels directive sustainability criteria, which "stipulates requirement for carbon dioxide performance in the biofuel chain."[1277] These commitments encourage the use of biofuels, but not necessarily second-generation biofuels compatible with food security.

Speaking at the conference on 4 March 2009 in Milan, the director general of the Italian Ministry of the Environment, Corrado Clini, noted: "Second generation ethanol offers huge advantages because it raises competitiveness with fossil fuels and ensures greater food and environmental security compared to first-generation biofuels."[1278]

Europe's first second-generation bioethanol plant is expected to open next year in Piedmont, Italy.[1279] When the project was originally announced Director-General Clini

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[1274] National biomass action plan approved by the Federal Cabinet, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Berlin) 29 April 2009. Date of Access: 8 May 2009. http://www.erneuerbare-energien.de/inhalt/43844/36302/.

[1275] International conference on bioenergy in Brazil, Federal Ministry of the Environment (Berlin) 21 November 2008. Date of Access: 11 December 2008. http://www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/42641.php.

[1276] Mixing biofuels, Zaia: "Players finally have the tools to comply with the law," Ministry of Agricultural, Food and Forestry Policies (Rome) 17 July 2008. Date of Access: 9 May 2009. http://www.politicheagricole.gov.it/comunicazione/comunicati/20080717_emanata_circolare_mipaaf_biocarburanti.htm.

[1277] Italian position on the climate energy package clear, Ministry for the Environment, Land and Sea (Rome) 19 November 2008. Date of Access: 13 December 2008. http://www.minambiente.it/index.php?id_doc=1234&id_oggetto=2.

[1278] Europe's first 2nd generation bioethanol plant next year, Life in Italy (Milan) 4 March 2009. Date of Access: 14 June 2009. http://www.lifeinitaly.com/node/4267.

[1279] Europe's first 2nd generation bioethanol plant next year, Life in Italy (Milan) 4 March 2009. Date of Access: 14 June 2009. http://www.lifeinitaly.com/node/4267.

expressed his hope that the project would help Italy become a world leader in research into second-biofuels.[1280] The new plant does not appear to be supported by the Italian government, however.

Italy has not yet addressed the research, development or commercialization of second-generation biofuels. Thus, Italy has been awarded a score of -1.

*Analysts: Naregh Galoustian and Darya Frolova*

**Russia: +1**

Russia has fully complied with its commitment on second-generation biofuels. Russia has taken steps to encourage both the development and commercialization of second-generation biofuels.

On 8 September 2008, Russian officials met at the Fifth Baikal Economic Forum and agreed that the Corporation of Biotechnologies would sign a RUR1.1 billion investment agreement with the Administration of the Irkutsk region in order to produce biofuels.[1281] After the agreement, the executive of the Corporation of Biotechnologies, Igor Cheremnov, said that the Corporation plans to create 30 new enterprises for biofuel production within the next eight years.[1282] The project specifically supports second-generation biofuels.

On 31 October 2008, the Corporation of Biotechnologies presented its plan for biofuels production at the Russian Academy of Science.[1283] A member of the Russian Academy of Science, Valentin Parmon, announced his support for the plan and confirmed that they are already working on a project in Siberia which aims to improve the production of second generation biofuels.[1284]

On 17 April 2009, during public consultations in the Duma, the head of the committee for natural resources, natural management and ecological issues, Natalia Komarova, highlighted the importance of the biofuels production on the basis of the forest industry. Draft bills were prepared to support the development of biofuels production in the

[1280] Italy's M&G to build bioethanol plant, Reuters (Tortona) 4 February 2008. Date of Access: 14 June 2009. http://www.reuters.com/article/environmentNews/idUSL0583856120080205.
[1281] The First Biofuels Plant in LakeBaikal, German Energy Agency (Berlin) 24 September 2008. Date of Access: 6 December 2008. http://www.energieforum.ru/ru/archiv_novostej/pervyii_biotoplivnyii_zavod_u_baiikala_481.html.
[1282] The Corporation 'Biotechnology' in Russia Will Build 30 Plants to Produce Biofuels with Total Capacity of 2 Million Tonnes, Regnum News Agency (Moscow) 9 September 2008. Date of Access: 6 December 2008. http://www.regnum.ru/news/1052390.html.
[1283] The Members of the Russian Academy of Sciences Discussed the Projects on Second-Generation Biofuel Production, CNews (Moscow) 1 November 2008. Date of Access: 5 December 2008. http://rnd.cnews.ru/tech/news/line/index_science.shtml?2008/11/01/325806.
[1284] Russia Will Produce the Oil from the Plants, German Energy Agency (Berlin) 5 December 2008. Date of Access: 6 December 2008. http://www.energieforum.ru/ru/archiv_novostej/rossija_budet_proizvodit'_neft'_iz_travy_506.html.

Russian Federation, including the tax incentives for enterprises developing low impact technologies.[1285]

Thus, Russia has been awarded a score of +1.

*Analyst: Arina Shadrikova*

**Japan: +1**

Japan has fully complied with its commitment on second-generation biofuels.

On 4 December 2008, the Forestry Agency of Japan announced it would spend USD5.2 million to create a marketplace for carbon dioxide emission credits earned through the production of biofuel from wood chips.[1286] The marketplace will facilitate the sale of biofuel from forestry industries to energy consumers.[1287] Energy consumers will receive emission credits through their use of biofuels. The primary goal of the project is to establish the profitability and sustainability of second-generation biofuels.[1288] This project supports commercialization.

On 18 November 2008, the Ministry of Agriculture committed USD32 million five years to subsidize the construction and operation of an ethanol production facility for agricultural biomass.[1289] Kawasaki Heavy Industries and a state corporation are dividing the cost of construction and operation.[1290] The Ministry predicted that the project could yield ethanol at a commercially viable cost of production.[1291] This project also supports commercialization.

On 11 May 2009, Japan's Ministry of Environment stated that it would commence a three year research program on an alternative auto fuel known as E10.[1292] Two firms are to take part in this research: one is to concentrate on making ethanol out of discarded

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[1285] The Public Relations Department of the Russian State Duma (Moscow) 17 April 2009. Date of Access: 29 June 2009. http://www.duma.gov.ru.
[1286] Government to Stimulate Economy of Mountain Areas by Promoting Biofuels, Associated Press (Tokyo) 4 December 2008. Date of Access: 5 December 2008. http://www.breitbart.com/article.php?id=D94RH6304&show_article=1.
[1287] Government to Stimulate Economy of Mountain Areas by Promoting Biofuels, Associated Press (Tokyo) 4 December 2008. Date of Access: 5 December 2008. http://www.breitbart.com/article.php?id=D94RH6304&show_article=1.
[1288] Government to Stimulate Economy of Mountain Areas by Promoting Biofuels, Associated Press (Tokyo) 4 December 2008. Date of Access: 5 December 2008. http://www.breitbart.com/article.php?id=D94RH6304&show_article=1.
[1289] Japan to Back Third Farm Waste Ethanol Project, Reuters (Tokyo) 18 November 2008. Date of Access: 6 December 2008. http://www.reuters.com/article/rbssIndustryMaterialsUtilitiesNews/idUST30138220081118.
[1290] Japan to Back Third Farm Waste Ethanol Project, Reuters (Tokyo) 18 November 2008. Date of Access: 6 December 2008. http://www.reuters.com/article/rbssIndustryMaterialsUtilitiesNews/idUST30138220081118.
[1291] Japan to Tack Third Farm Waste Ethanol Project, Reuters (Tokyo) 18 November 2008. Date of Access: 6 December 2008. http://www.reuters.com/article/rbssIndustryMaterialsUtilitiesNews/idUST30138220081118.
[1292] Japan starts 3 year study on 10 percent ethanol brewing, Reuters UK (London) 11 May 2009. Date of Access: 22 May 2009. http://uk.reuters.com/article/behindTheScenes/idUKTRE54A6EP20090511.

construction materials and the other will focus on farm waste.[1293] This project will support the development of second-generation biofuels.

On 20 November 2008, in a joint statement at the 20th Asia-Pacific Economic Cooperation (APEC) ministerial meeting in Lima, Japan reiterated its support for the development and commercialization of second-generation biofuels. In a statement, Japan addressed the critical issue of food security in the context of first-generation biofuels.[1294]

Japan has launched new projects to promote both the development and commercial success of second-generation biofuels. Thus, Japan has been awarded a score of +1.

*Analyst: Nikola Cvetkovic*

**United Kingdom: +1**

The United Kingdom has fully complied with its commitment on second-generation biofuels. The UK has supported both the development and commercialization of second-generation biofuels.

On 15 October 2008, Transport Minister Andrew Adonis stated that "biofuels will only have a role to play in [tackling climate change] if they are sustainably produced."[1295] The UK government pledged GBP6 million to the Carbon Trust to aid the development of advanced biofuels technology.[1296] The funding will partly be used to fund the Algae Biofuels Challenge, announced on 30 October 2008, which is intended to "support the development and commercialization of microalgae biofuel technologies."[1297] These projects support the development of new, more environmentally friendly biofuels.

On 16 July 2008, ministers from the Department for Food and Rural Affairs specified how GBP10 million, which had already been announced, would be utilized to build commercial scale anaerobic digestion demonstrator plants that can create fuel from organic waste.[1298] Minister Phil Woolas confirmed that "this is a high priority for [the British] government."[1299] This project supports commercialization.

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[1293] Japan starts 3 year study on 10 percent ethanol brewing, Reuters UK (London) 11 May 2009. Date of Access: 22 May 2009. http://uk.reuters.com/article/behindTheScenes/idUKTRE54A6EP20090511.
[1294] Joint Statement of the Twentieth APEC Ministerial Meeting, Asia Pacific Economic Cooperation (Lima) 20 November 2008. Date of Access: 4 December 2008. http://www.mofa.go.jp/policy/economy/apec/2008/joint.pdf.
[1295] Adonis Sets Out More Cautious Approach to Biofuels, Department for Transport (London) 15 October 2008. Date of Access: 10 December 2008. http://nds.coi.gov.uk/environment/fullDetail.asp?ReleaseID=381333&NewsAreaID=2.
[1296] Adonis Sets Out More Cautious Approach to Biofuels, Department for Transport (London) 15 October 2008. Date of Access: 10 December 2008. http://nds.coi.gov.uk/environment/fullDetail.asp?ReleaseID=381333&NewsAreaID=2.
[1297] Algae Biofuels Challenge: Launch Event, Carbon Trust (London) 30 October 2008. Date of Access 10 December 2008. http://www.carbontrust.co.uk/NR/rdonlyres/77C2F2E5-3AA6-43A5-9F43-55C7E02162E3/0/ABCLaunchEventUpdated.pdf.
[1298] Defra Ministers Give Boost to Biogas, Department for Environment, Food and Rural Affairs (London) 16 July 2008. Date of Access: 10 December 2008. http://www.defra.gov.uk/news/2008/080716c.htm.
[1299] Defra Ministers Give Boost to Biogas, Department for Environment, Food and Rural Affairs (London) 16 July 2008. Date of Access: 10 December 2008. http://www.defra.gov.uk/news/2008/080716c.htm.

In December 2008, a set of reforms to an existing policy, the Renewables Obligation, introduced sustainability reporting for any company using biomass to comply with the Obligation.[1300] The reforms are intended to ensure that the use of biomass in the reduction of greenhouse gas emissions is environmentally sustainable.[1301] While this action encourages sustainable use of biofuels, it does not directly support the development or commercialization of second-generation biofuels technology.

Along similar lines, in 30 March 2009 a set of proposals from the Department of Energy and Climate Change decreased the level of support given to older biomass technologies, while increasing the support available to newer technologies.[1302] Additionally, the UK has committed to further adoption of sustainable, second-generation biofuels through the EU Renewables Directive, and is currently in the process of writing this agreement into UK law.[1303]

The British Government has also been active internationally in promoting more environmentally sustainable biofuels. On 10 November 2008, the UK and China signed the Sustainable Agriculture Innovation Network (SAIN).[1304] One of the four initial areas of focus for the SAIN is to "expand use of agricultural biomass and livestock manure for biogas, liquid biofuels, and organic fertilizer production."[1305]

Thus, the United Kingdom has been awarded a score of +1 for its commitment to the development and commercialization of second-generation biofuels.

*Analyst: Andrew Wright*

**United States: +1**

The United States has fully complied with its commitment on second-generation biofuels.

On 22 December 2008, the Department of Energy (DOE) launched a Funding Opportunity Announcement (FOA) that will operate over the next six years and will

[1300] Reform of the Renewables Obligation: Government Response to the Statutory Consultation of the Renewables Obligation Order 2009, Department of Energy and Climate Change (London) December 2008. Date of Access: 8 May 2009. http://www.berr.gov.uk/files/file49342.pdf.
[1301] Reform of the Renewables Obligation: Government Response to the Statutory Consultation of the Renewables Obligation Order 2009, Department of Energy and Climate Change (London) December 2008. Date of Access: 8 May 2009. http://www.berr.gov.uk/files/file49342.pdf.
[1302] Offshore renewables financial boost kicks in, Department of Energy and Climate Change (London) 30 March 2009. Date of Access: 8 May 2009. http://nds.coi.gov.uk/content/detail.asp?ReleaseID=397300&NewsAreaID=2.
[1303] EU Renewables Directive, Department for Environment Food and Rural Affairs (London) 22 April 2009. Date of Access: 8 May 2009. http://www.defra.gov.uk/environment/climatechange/internat/eu/renewables.htm.
[1304] China and UK Strengthen Partnership on Sustainable Agriculture, Department for Environment, Food And Rural Affairs (London) 10 November 2008. Date of Access: 10 December 2008. http://nds.coi.gov.uk/content/detail.asp?ReleaseID=383731&NewsAreaID=2.
[1305] China and UK Strengthen Partnership on Sustainable Agriculture, Department for Environment, Food And Rural Affairs (London) 10 November 2008. Date of Access: 10 December 2008. http://nds.coi.gov.uk/content/detail.asp?ReleaseID=383731&NewsAreaID=2.

provide a maximum of USD200 million for original and demonstration-scale biorefinery projects.[1306] This FOA is limited to second-generation biofuels.[1307] Its primary goal is large-scale commercialization in the short- to medium-term.[1308]

On 8 October 2008, the US Department of Agriculture and the DOA released the National Biofuels Action Plan (NBAP).[1309] The NBAP is a national strategy towards sustainable biofuels. The strategy addresses the development and commercialization of first- and second-generation biofuels. It outlines "cost-effective methods of producing cellulosic biofuels from non-food based feedstock"; methods to "advance these next generation biofuels to commercialization"; and sustainability as an important and short-term objective.[1310] These priorities encourage the development and commercialization of second-generation biofuels.

Furthermore, on 5 May 2009, the US Secretary of Energy Steven Chu, announced that USD786 million would be provided from the American Recovery and Reinvestment Act for funding biofuel research.[1311] Chu addressed the department's intentions by stating: "[d]eveloping the next generation of biofuels is key to our effort to end our dependence on foreign oil and address the climate crisis."[1312]

Further, on 10 September 2008, the DOE granted USD4.4 million to fund research and development in six second-generation biofuels projects based at US universities.[1313] The projects represent multiple second-generation biofuels, including lignocelluloses biomass, syngas, and algae.[1314] University contributions will supplement DOE funding for the projects, increasing total funding to USD5.7 million. The DOE emphasized the

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[1306] DOE Announces Funding Opportunity of up to $200 Million for Pilot and Demonstration Scale Biorefinery Projects, Department of Energy (Washington) 22 December 2008. Date of Access: 23 December 2008.http://www.energy.gov/news/6817.htm.
[1307] DOE Announces Funding Opportunity of up to $200 Million for Pilot and Demonstration Scale Biorefinery Projects, Department of Energy (Washington) 22 December 2008. Date of Access: 23 December 2008. http://www.energy.gov/news/6817.htm.
[1308] DOE Announces Funding Opportunity of up to $200 Million for Pilot and Demonstration Scale Biorefinery Projects, Department of Energy (Washington) 22 December 2008. Date of Access: 23 December 2008. http://www.energy.gov/news/6817.htm.
[1309] USDA & DOE Release National Biofuels Action Plan, Department of Energy (Washington) 7 October 2008. Date of Access: 11 December 2008. http://www.energy.gov/news/6633.htm.
[1310] USDA & DOE Release National Biofuels Action Plan, Department of Energy (Washington) 7 October 2008. Date of Access: 11 December 2008. http://www.energy.gov/news/6633.htm.
[1311] Secretary Chu Announces Nearly $800 Million from Recovery Act to Accelerate Biofuels Research and Commercialization, Department of Energy (Washington) 5 May 2009. Date of Access: May 22 2009. http://www.energy.gov/news2009/print2009/7375.htm.
[1312] Secretary Chu Announces Nearly $800 Million from Recovery Act to Accelerate Biofuels Research and Commercialization, Department of Energy (Washington) 5 May 2009. Date of Access: May 22 2009. http://www.energy.gov/news2009/print2009/7375.htm.
[1313] DOE to Invest up to $4.4 Million in Six Innovative Biofuels Projects at US Universities, Department of Energy (Washington) 10 September 2008. Date of Access: 2 December 2008. http://www.energy.gov/news/6525.htm.
[1314] DOE to Invest up to $4.4 Million in Six Innovative Biofuels Projects at US Universities, Department of Energy (Washington) 10 September 2008. Date of Access: 2 December 2008. http://www.energy.gov/news/6525.htm.

Renewable Fuel Standard contained within the EISA in its decision to provide funding.[1315]

Thus, the United States has been awarded a score of +1 for its significant policy and monetary support for the development and commercialization of second-generation biofuels.

*Analyst: Nikola Cvetkovic*

**European Union: +1**

The European Union has fully complied with its commitment on second-generation biofuels.

On 11 December 2008, EU Commissioner for the Environment Stavros Dimas announced that the European Investment Fund had pledged EUR80 million through the Global Energy Efficiency and Renewable Energy Fund platform for the development and commercialization of sustainable renewable energies such as second-generation biofuels.[1316] With this investment, the EU estimates that second-generation biofuels may be commercialized by 2015, but their high costs as opposed to first-generation biofuels will decrease only by 2020.[1317]

Although the European Commission suggested in the 2007 Biofuels Progress Report that the current directive on biofuels in force should be amended to allow further incentives on second-generation biofuels, the EU has thus far not acted on this recommendation.[1318] Furthermore, the Seventh Framework Program, started in 2007 and expected to last until 2013, remains the primary European-funded research initiative on biofuels development to which EUR1.935 billion has been issued.[1319]

Thus, the EU has been awarded a score of +1 for its moderate investments into the development and commercialization of second-generation biofuels.

*Analyst: Naregh Galoustian*

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[1315] DOE to Invest up to $4.4 Million in Six Innovative Biofuels Projects at US Universities, Department of Energy (Washington) 10 September 2008. Date of Access: 2 December 2008. http://www.energy.gov/news/6525.htm.

[1316] GEEREF – An Innovative Platform to Fight Climate Change and Global Poverty (Poznanm Poland) 11 December 2008. Date of Access: 9 May 2009. http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/08/703&format=HTML&aged=0&language=EN&guiLanguage=en.

[1317] Biofuels Progress Report, Commission of the European Communities (Brussels) 1 October 2008. Date of Access: 9 May 2009. http://www.biomatnet.org/publications/2105com.pdf.

[1318] Biofuels Progress Report, Commission of the European Communities (Brussels) 1 October 2008. Date of Access: 9 May 2009. http://www.biomatnet.org/publications/2105com.pdf.

[1319] Food, Agriculture and Fisheries, Biotechnology, European Commission Research (Brussels) September 2006. Date of Access: 9 May 2009. http://ec.europa.eu/research/fp7/index_en.cfm?pg=food.