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G7 Research Group

The
G7 Research Group
at the Munk School of Global Affairs at Trinity College in the University of Toronto
presents the

2017 G7 Taormina Interim Compliance Report

27 May 2017 to 30 January 2018

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17 April 2018, updated on 20 April 2018
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"We have meanwhile set up a process and there are also independent institutions monitoring which objectives of our G7 meetings we actually achieve. When it comes to these goals we have a compliance rate of about 80%, according to the University of Toronto. Germany, with its 87%, comes off pretty well. That means that next year too, under the Japanese G7 presidency, we are going to check where we stand in comparison to what we have discussed with each other now. So a lot of what we have resolved to do here together is something that we are going to have to work very hard at over the next few months. But I think that it has become apparent that we, as the G7, want to assume responsibility far beyond the prosperity in our own countries. That's why today's outreach meetings, that is the meetings with our guests, were also of great importance."

Chancellor Angela Merkel, Schloss Elmau, 8 June 2015

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8. Climate Change: Energy and Clean Technology

"We are determined to harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

G7 Taormina Leaders' Declaration

Assessment

Member	Lack of Compliance	Partial	Full Compliance
Canada			+1
France			+1
Germany	−1		
Italy			+1
Japan		0	
United Kingdom			+1
United States	−1		
European Union			+1
Average	+0.38		

Background

Historically, the G7 members have relied on coal and oil as primary energy resources, however the advent of different forms of technology has offered a new avenue for exploration.[754] At the G7 Summit in Taormina, G7 members declared an unprecedented determination to utilize the transformation of the energy sector and clean technology to strengthen their economies.[755]

The energy sector has been driven by the innovation of the technologies used to harness energy.[756] Renewable sources of energy, such as bioenergy, wind energy, solar energy and geothermal energy have become important for G7 countries. For instance, renewable energy accounts for 18.9% of Canada's total primary energy supply.[757] In addition, in the European Union, renewable energy consumption almost doubled from 8.5% in 2004 to 16.7% in 2015.[758] This growing usage of renewables has created a viable job market, as in Germany where the renewable energy sector employs approximately 371,000 people.[759] Since 2014, global solar energy employment has increased by 11%, with marked employment increases in Japan and the United States.[760]

[754] World Energy Resources 2013 Survey (London) 2013. Date of Access: 10 October 2017. https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf.
[755] Leader's Declaration: G7 Summit, G7 Taormina Summit (Taormina) 2017. Date of Access: 10 October 2017. http://www.g7italy.it/sites/default/files/documents/G7%20Taormina%20Leaders%27%20Communique_27052017_0.pdf.
[756] World Energy Resources 2013 Survey (London) 2013. Date of Access: 25 October 2017. https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf.
[757] About Renewable Energy (Canada) 2017. Date of Access: 25 October 2017. http://www.nrcan.gc.ca/energy/renewable-electricity/7295.
[758] Renewable Energy Statistics (Brussels) 2017. Date of Access: 25 October 2017. http://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics.
[759] World Energy Resources 2013 Survey (London) 2013. Date of Access: 25 October 2017. https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf.
[760] Renewable Energy and Jobs Annual Review 2016 Abu Dhabi (2016). Date of Access: 25 October 2017. https://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Jobs_Annual_Review_2016.pdf.

The G7 first recognized the importance of developing clean technology to reduce pollution and decrease environmental damage at the 1979 Tokyo Summit.[761] Here G7 members also discussed investing in alternative sources of energy to economic growth in developing countries.[762] This summit initiated the global governance of climate change to ensure that G7 members could lead the way to a more efficient future. The years that followed resulted in numerous discussions on sustainability and responsibility to maintain the health of the environment. In 2005, G8 members formed the G8 Climate Change Roundtable at the World Economic Forum.[763] Their first meeting was held later that year in Gleneagles, where the Gleneagles Plan of Action: Climate Change, Clean Energy, and Sustainable Development was conceived.[764] The Plan of Action acknowledged that energy transformation was required for a sustainable future and that raising consumer awareness was of critical importance. Furthermore, to initiate infrastructure renovation, G8 members were to work with the International Energy Agency (IEA) in order to review best policy practices. Each country was in full compliance of this goal.[765]

In 2007, at the Heiligendamm Summit, the G8 acknowledged the need for exploration of efficient energy uses.[766] In 2008, the G8 countries along with some others, established the International Partnership for Energy Efficiency Cooperation, tasked with streamlining policy in the energy sector.[767] Soon thereafter, the G8 members agreed to the G8 Action Plan for Climate Change to Enhance the Engagement of Private and Public Financial Institutions.[768] This particular document outlined the importance of the relationship between public and private sectors when it comes to mainstreaming clean technology. It also underscored the importance of market incentives, such as emission trading, tax incentives and performance-based regulation.[769] The G8 committed to actively engage in coordination with Multilateral Development Banks and other bilateral donors.[770]

Environment Ministers from respective G8 members came together at the Gleneagles-Dialogue on Climate Change, Clean Energy and Sustainable Development 4th Ministerial Meeting on 14-16

[761] Leaders' Declaration: G8 Summit, G7 Research Group (Toronto) 29 June 1979. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/summit/1979tokyo/communique.html.
[762] Leaders' Declaration: G8 Summit, G7 Research Group (Toronto) 29 June 1979. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/summit/1979tokyo/communique.html.
[763] Statement of G8 Climate Change Roundtable (Davos) 9 June 2005. Date of Access: 20 October 2017. https://web.archive.org/web/20130508123035/http://www.weforum.org/pdf/g8_climatechange.pdf.
[764] Leader's Declaration: G7 Summit, G7 Research Group (Toronto) 8 June 2005. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/summit/2005gleneagles/climatechangeplan.pdf.
[765] Final Compliance Report: Renewable Energy, G7 Research Group (Toronto) 12 June 2006. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/evaluations/2005compliance_final/2005-19-g8-f-comp_energy.pdf.
[766] Leaders' Declaration: G7 Summit, G7 Research Group (Toronto), 8 June 2007. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/summit/2007heiligendamm/g8-2007-summary.pdf.
[767] Declaration: International Partnership for Energy Efficiency Cooperation, G7 Summit, G7 Research Group (Toronto) 8 June 2007. Date of Access: 10 October 2017. http://www.g8.utoronto.ca/energy/080608ipeec.pdf.
[768] G8 Action Plan for Climate Change to Enhance the Engagement of Private and Public Financial Institutions, Government of Canada (Ottawa) 4 November 2008. Date of Access: 10 October 2017. http://www.fin.gc.ca/activty/G7/g8140608_3-eng.asp.
[769] G8 Action Plan for Climate Change to Enhance the Engagement of Private and Public Financial Institutions, Government of Canada (Ottawa) 4 November 2008. Date of Access: 10 October 2017. http://www.fin.gc.ca/activty/G7/g8140608_3-eng.asp.
[770] G8 Action Plan for Climate Change to Enhance the Engagement of Private and Public Financial Institutions, Government of Canada (Ottawa) 4 November 2008. Date of Access: 10 October 2017. http://www.fin.gc.ca/activty/G7/g8140608_3-eng.asp.

March 2008. During this meeting, the mobilization of clean technology and investment opportunities were discussed at great length.[771]

In May 2014, the Rome G7 Initiative for Energy Security took place.[772] This meeting was used to determine ways to strengthen energy security. The meeting took place two months after the Hague Declaration and provided a platform to focus on energy efficiency and clean technology.[773] Following this meeting, the energy ministers met again in Hamburg on 11-12 May 2015 to discuss further plans of action following the Rome Initiative.[774] The G7 members reaffirmed their commitment to sustainable energy and emphasized the importance of energy in ensuring economic resilience and aiding developing countries.

Finally, in 2016, the G7 Science and Technology ministers met in Tsukuba and created a declaration informing the development of clean technology by using current international structures in place to have research and development collaborations.[775]

Currently, the global energy infrastructure is undergoing a major change because of the emphasis placed upon renewable energy sources.[776] This transformation of the energy sector offers climate protection and economic stimuli, which the G7 members are determined to use to their advantage.[777] As their energy portfolios diversify, the G7 members have recognized that they must adapt their policies and diversify their business practices.[778] Innovating and implementing sustainable resources while maintaining a cost-effective agenda is key.[779]

Commitment Features

At Taormina, G7 leaders committed "to harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

With this commitment, the leaders recognize that significant economic opportunities are offered by the transformation of the energy sector and clean technology. G7 members must make use of and support the marked changes occurring in the energy sector. As the value of clean technology increases, the benefits to be garnered also have the potential to become more meaningful. This

[771] Gleneagles-Dialogue on Climate Change, Clean Energy and Sustainable Development 4th Ministerial Meeting, G8 Research Group (Toronto) 14-16 March 2008. Date of Access: 17 October 2017. http://www.g8.utoronto.ca/environment/gleneagles-dialogue2008.pdf.
[772] G7 Initiative for Energy Security, G7 Energy (Rome) 4-5 June 2014. Date of Access: 17 October 2017. https://www.iea.org/media/g20/Rome_G7_Energy_Initiative_For_Energy_Security.pdf.
[773] G7 Initiative for Energy Security, G7 Energy (Rome) 4-5 June 2014. Date of Access: 17 October 2017. https://www.iea.org/media/g20/Rome_G7_Energy_Initiative_For_Energy_Security.pdf.
[774] Hamburg Initiative for Sustainable Energy (Hamburg) 11-12 May 2015. Date of Access: 17 October 2017. https://www.iea.org/media/g20/G7_Hamburg_Initiative_For_Sustainable_Energy_Security.pdf.
[775] Tsubuka Communique: G7 Summit (Tsubuka) 15-17 May 2016. Date of Access: 17 October 2017. http://www.international.gc.ca/g7/assets/pdfs/g7-2016-tsukuba-communique.pdf.
[776] Rethinking Energy 2017 (Abu Dhabi) 2017. Date of Access: 17 October 2017. http://www.irena.org/DocumentDownloads/Publications/IRENA_REthinking_Energy_2017.pdf.
[777] Factsheet: Renewables from Germany (Berlin) 2015. Date of Access: 10 October 2017. https://www.bee-ev.de/fileadmin/Publikationen/Sonstiges/BEE_Factsheet_RENEWABLES_FROM_GERMANY.pdf.
[778] Gleneagles-Dialogue on Climate Change, Clean Energy and Sustainable Development 4th Ministerial Meeting, G8 Research Group (Toronto) 14-16 March 2008. Date of Access: 17 October 2017. http://www.g8.utoronto.ca/environment/gleneagles-dialogue2008.pdf.
[779] Rethinking Energy 2017 (Abu Dhabi) 2017. Date of Access: 17 October 2017. http://www.irena.org/DocumentDownloads/Publications/IRENA_REthinking_Energy_2017.pdf.

includes investing in research and development, and infrastructure, and utilizing subsidies and incentives where possible to turn consumers and manufacturers to cleaner technology.

For example, Canada's Clean Energy Fund (CEF), conceived in 2009, presented an investment budget to enhance the innovation of the energy industry.[780] The focus was expediting wind energy development and advancing the design of electric, thermal and solar energies for commercial and manufacturing usage. As a result, the fund led to the development of jobs in the research and development sectors.[781] Another G7 member, Germany, has made considerable strides in the field of clean technology. In 2014, Germany employed more than 371,000 people in the renewable energy sector and this number continues to increase as the industry continues to expand.[782]

When a commitment states that it will achieve something "significant" or work in a "'significant way," the work must be meaningful or to an important degree. It must matter in the eyes of the public. It must not occur by accident or chance and therefore it should be statistically significant.[783] Transformation is defined as a marked change in form, nature or appearance.[784]

In the context of the commitment, "harness" means to make use of the economic opportunities available. For instance, a G7 member can harness the economic opportunities available if it controls the export of clean energy. The use of the word "growth" is to increase the economic activity as the transformation of energy occurs. For example, a member country can increase growth of economic activity by incentivising the use of clean technology by manufacturers or the public. "Significant" in this context means that the work must be meaningful in the eyes of the public. An announcement or press release stating the value of clean energy is not enough to achieve a score of +1. An example of what would qualify as more significant is an investment in research and development that leads to employment.

The commitment also features the word "transformation" which, in the context of the commitment, entails innovations in the field of clean technology that have led to a marked change in the kinds of energy consumed. This was confirmed by a report submitted by the World Energy Council detailing the change in energy usage from 1993 to 2013.[785] In 1993, renewable sources of energy were not considered to be significant, however 20 years later, the amount of solar energy, wind power and bioenergy have increased.[786]

As stated above, "significant" suggests that the impact must be meaningful in the eyes of the public and it must be deliberate. G7 members must do more than simply announce their support for the clean technology industry. An example of significant compliance would be the investment of

[780] Clean Energy Fund Summary Report (Ottawa), May 2014. Date of Access: 10 October 2017. http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/files/pdf/CLEAN-ENERGY-FUND-ENG-FINAL-may-29.pdf.
[781] Clean Energy Fund Summary Report (Ottawa), May 2014. Date of Access: 10 October 2017. http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/files/pdf/CLEAN-ENERGY-FUND-ENG-FINAL-may-29.pdf.
[782] Factsheet: Renewables from Germany, (Berlin), 2015. Date of Access: 10 October 2017. https://www.bee-ev.de/fileadmin/Publikationen/Sonstiges/BEE_Factsheet_RENEWABLES_FROM_GERMANY.pdf.
[783] G7 Compliance Coding Manual, G7 Research Group (Toronto), 19 September 2016. Date of Access: 15 October 2017. https://drive.google.com/drive/folders/0B-CD-9TvlTXeU05VSWtUWG1BTzQ.
[784] Definition: Transformation (London). Date of Access: 15 October 2017. https://en.oxforddictionaries.com/definition/transformation.
[785] World Energy Resources 2013 Survey (London) 2013. Date of Access: 10 October 2017. https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf.
[786] World Energy Resources 2013 Survey (London) 2013. Date of Access: 10 October 2017. https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf.

monetary contributions into clean technology. Another method to measure compliance would be to determine whether meaningful policy developments have been implemented. This may include trade policies that favour clean energy imports, policies that expense coal/oil exports more heavily or carbon pricing to encourage clean technology usage.

Thus, a score of +1 is achieved by monetary investments and policy developments that are well-received by the public, such as incentivisation of the clean energy industry or trade restrictions on oil coal exports and imports.

To achieve a score of 0, G7 members might make policy developments or investments, however the significance might be very small. For example, a federal ministerial announcement to contribute to clean energy would be given a score of 0.

A score of –1 is given when there is a complete lack of action with regards to growth or job creation in the field of transformation of the energy sector and clean technology.

Scoring Guidelines

–1	Member does not make ANY significant strides with growth or job creation as it relates to the transformation of the energy sector and clean technology.
0	Member makes some policy developments OR monetary contributions pertaining to growth or job creation as it relates to the transformation of the energy sector and clean technology.
+1	Member makes significant monetary contributions or significant policy changes pertaining to growth and job creation in the energy sector and clean technology.

Lead Analyst: Ambika Varma

Canada: +1

Canada has fully complied with its commitments to the transformation of the energy sector and clean technology.

On 10 July 2017, Michel Picard, Member of Parliament for Montarville, spoke on behalf of Canada's Minister of Natural Resources, Honourable Jim Carr, announcing a CAD 1.34 million funding to Enerlab 2000 Inc. "as part of the government's commitment to furthering the advancement of clean technology in Canada."[787]

On 2 October 2017, the Canadian Trade Commissioner Service reported that 65% of Canada's electricity comes from renewable resources and continues to rise each year.[788] Adrienne Downey, Operations and Business Development Manager, from ENERCON Canada inc. said that it has been reported that the annual solar capacity within Canada has been expected to increase by three times by 2025, as 5,000 megawatts of solar panels are expected to be installed over the next three years due to the increase in government funding.[789]

[787] Government of Canada Supports Clean Technology in Quebec's Forest Sector, NW Group Ltd. (Quebec).10 July 2017. Date of Access: 9 January 2018. http://www.newswire.ca/news-releases/government-of-canada-supports-clean-technology-in-quebecs-forest-sector-633610703.html.
[788] Renewable Energy, The Canadian Trade Commissioner Service (Canada) 2 October 2017. Date of Access 29 October 2017. http://www.international.gc.ca/investors-investisseurs/sector-secteurs/energy-energie.aspx?lang=eng.
[789] Renewable Energy, The Canadian Trade Commissioner Service (Canada) 2 October 2017 Date of Access 29 October 2017 http://www.international.gc.ca/investors-investisseurs/sector-secteurs/energy-energie.aspx?lang=eng.

On 4 October 2017, it was reported that Canada's renewable energy capacity is expected to grow by 10% each year.[790] Canada's renewable energy is also expected to supply 69% of the overall power by 2022.[791] The International Energy Agency reported that Canada's hydro power is expected to slow down after 2022.[792] It has also been reported that Canadian hydro power will grow by 2.2 gigawatts in the next five years, and its solar capacity is expected to jump from 2 gigawatts to 4.7 gigawatts in 2022.[793]

On 24 November 2017, the Honourable Ahmed Hussen, Minister of Immigration, Refugees and Citizenship, announced on behalf of the Honourable Navdeep Bains, Minister of Innovation, Science and Economic Development, that there will be a CAD 9.5 million in various clean technology companies such as Morgan Solar Inc. and NRStor Inc.[794] He announced that, "The investment in Morgan Solar Inc. supports products based on the company's proprietary planar optical technology, which reduces the amount of expensive material required in solar panels … The investment in NRStor Inc. supports the development of greater energy storage capabilities for the Ontario electricity grid by proposing to store energy as compressed air and heat. This innovative system will create new business opportunities for Canadian energy companies."[795]

Canada has fully complied with its commitment by having extensive policy developments and monetary contributions pertaining to creating jobs in the energy sector.

Thus, Canada receives a +1.

Analyst: Kymone Fletcher

France: +1

France has fully complied with its commitment to "harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

[790] Canada's renewable energy growth projections scaled back after Ontario scraps clean energy program: Report, Financial Post 4 October 2017 Date of Access 29 October 2017 http://business.financialpost.com/commodities/energy/canadas-renewable-energy-growth-projections-scaled-back-after-ontario-scraps-clean-energy-program-report

[791] Canada's renewable energy growth projections scaled back after Ontario scraps clean energy program: Report, Financial Post 4 October 2017 Date of Access 29 October 2017 http://business.financialpost.com/commodities/energy/canadas-renewable-energy-growth-projections-scaled-back-after-ontario-scraps-clean-energy-program-report.

[792] Canada's renewable energy growth projections scaled back after Ontario scraps clean energy program: Report, Financial Post 4 October 2017 Date of Access 29 October 2017 http://business.financialpost.com/commodities/energy/canadas-renewable-energy-growth-projections-scaled-back-after-ontario-scraps-clean-energy-program-report.

[793] Canada's renewable energy growth projections scaled back after Ontario scraps clean energy program: Report, Financial Post 4 October 2017 Date of Access 29 October 2017 http://business.financialpost.com/commodities/energy/canadas-renewable-energy-growth-projections-scaled-back-after-ontario-scraps-clean-energy-program-report.

[794] Investing in Ontario's clean tech industry will improve energy efficiency and cut greenhouse gases, Canada, 24 November 2017. Date of Access: 9 January 2018 https://www.canada.ca/en/innovation-science-economic-development/news/2017/11/investing_in_ontarioscleantechindustrywillimproveenergyefficienc.html

[795] Investing in Ontario's clean tech industry will improve energy efficiency and cut greenhouse gases, Canada, 24 November 2017. Date of Access: 9 January 2018 https://www.canada.ca/en/innovation-science-economic-development/news/2017/11/investing_in_ontarioscleantechindustrywillimproveenergyefficienc.html

France currently generates over 72% of its energy through nuclear reactors, while renewable energy only covers 6% of total consumption.[796] Though nuclear energy is perceived positively by most of the public population, France's biggest challenge has been the inability to remove bureaucratic barriers to expedite the development of renewable energy products — it takes France "five times longer to get a wind project up and running" compared to Germany.[797] Newly elected president, Emmanuel Macron, has repeatedly signaled his interest in transforming France into a green energy powerhouse.[798]

On 6 September 2017, Minister of Ecological and Solidary Transition, Nicolas Hulot, proposed a bill to end the production and exploration of hydrocarbons in France.[799] This proposed new law stipulates that no new hydrocarbon exploration licenses will be granted beginning next year with the intent of ending all oil and gas production by 2040.[800] These provisions will apply to both land and sea projects, domestically and abroad, including the Guyane Maritime license in French Guiana.[801]

On 25 September 2017 Prime Minister Edouard Philippe presented the "Great Investment Plan 2018-2022," which includes EUR 20 billion for France's energy transition plan, "including 9 billion euros towards improved energy efficiency, 7 billion for renewables and 4 billion to precipitate the switch to cleaner vehicles."[802] Included in the energy efficiency fund is a thermal insulation program focusing on renovating the country's low-income housing and government buildings. Buildings account for 20% of France's greenhouse gas emissions. The aim of the program is to renovate approximately 75,000 houses per year to bring them in line with environmental norms. The government will also invest EUR 7 billion to "boost the growth of French renewable energies by 70 percent over the next five years."[803] Finally, the transport industry is responsible for a third of greenhouse gas emissions, and the government will invest EUR 4 billion in the switch to electric vehicles, with the intention of ending the sale of diesel and gasoline vehicles in the country by 2040.[804] The plan looks to revamp its road and railway networks, and help low-income "households

[796] Green Power Still Tied Up with Red Tape in Macron's France, Bloomberg Politics. 4 August 2017. 25 November 2017. https://www.bloomberg.com/news/articles/2017-08-04/green-power-still-tied-up-with-red-tape-in-macron-s-france
[797] Green Power Still Tied Up with Red Tape in Macron's France, Bloomberg Politics. 4 August 2017. 25 November 2017. https://www.bloomberg.com/news/articles/2017-08-04/green-power-still-tied-up-with-red-tape-in-macron-s-france
[798] Green Power Still Tied Up with Red Tape in Macron's France, Bloomberg Politics. 4 August 2017. 25 November 2017. https://www.bloomberg.com/news/articles/2017-08-04/green-power-still-tied-up-with-red-tape-in-macron-s-france
[799] France Bans Production of Hydrocarbons, Euractiv. 6 September 2017. 25 November 2017. http://www.euractiv.com/section/climate-environment/news/france-bans-production-of-hydrocarbons/
[800] France Plans to End Oil Output by 2040 with Exploration Ban, Bloomberg Markets. 6 September 2017. 25 November 2017. https://www.bloomberg.com/news/articles/2017-09-06/france-proposes-to-end-oil-output-by-2040-with-exploration-ban
[801] France Bans Production of Hydrocarbons, Euractiv. 6 September 2017. 25 November 2017. http://www.euractiv.com/section/climate-environment/news/france-bans-production-of-hydrocarbons/
[802] France to Invest 20 Billion Euros in Energy Transition, Reuters. 25 September 2017. 25 November 2017. https://www.reuters.com/article/us-france-renewables-investments/france-to-invest-20-billion-euros-in-energy-transition-idUSKCN1C027P
[803] France to Invest 20 Billion Euros in Energy Transition, Reuters. 25 September 2017. 25 November 2017. https://www.reuters.com/article/us-france-renewables-investments/france-to-invest-20-billion-euros-in-energy-transition-idUSKCN1C027P
[804] France Bans Production of Hydrocarbons, Euractiv. 6 September 2017. 25 November 2017. http://www.euractiv.com/section/climate-environment/news/france-bans-production-of-hydrocarbons/

exchange older vehicles for more environmentally friendly models." The French government aims to retire 10 million old vehicles.[805]

France has fully complied with its commitment concerning energy and clean technology due to its fully developed and robust investment plan focused on efficient and renewable energy.

Thus, France receives a score of +1.

Analyst: Leigh Bohner

Germany: −1

Germany has not complied with its commitment to "to harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

Germany has been the sixth largest renewable energy employer in the world with the most renewable energy jobs in the European Union — a total of 355,000 jobs. Germany leads the European Union in wind power employment, supporting around 149,000 jobs. Moreover, 49,000 jobs in solid biomass, 48,000 jobs in biogas, 38,000 jobs in solar photovoltaic, 23,000 jobs in liquid biofuels, and 700 jobs in concentrated solar power. Additionally, Germany employed 8,300 individuals in publicly-funded renewable energy research and development and administration projects.[806]

Germany's Energiewende, or renewable energy transition, has been seen as the best practice for other countries to follow.[807] However, the Energiewende focused on subsidising renewables without action on phasing out fossil fuels, and even one of Germany's climate negotiators, Jocehn Flasbarth, stated that "our assumptions were too optimistic."[808]

Germany is on course to miss its 2020 climate target, according to a new study by think tank Agora Energiewende. Germany has committed to reducing its greenhouse gas emissions by 40% by 2020 compared to 1990 levels, but Agora calculates that without drastic new measures, the country will be looking at a reduction of just 30% to 31%. The think tank said Germany was jeopardizing its reputation as a leader in the global fight against climate change. If things continue as they are, Germany will miss its 2020 target by 120 million tons of CO2.[809]

Germany has not complied with the commitment because, despite announcements on energy ambitions, Germany has lacked concrete action to follow through with its climate targets since 28 May 2017.

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[805] France to Invest 20 Billion Euros in Energy Transition, Reuters. 25 September 2017. 25 November 2017. https://www.reuters.com/article/us-france-renewables-investments/france-to-invest-20-billion-euros-in-energy-transition-idUSKCN1C027P

[806] Fact Sheet — Jobs in Renewable Energy and Energy Efficiency (2017), Environmental and Energy Study Institute. 15 February 2017. 8 December 2017. http://www.eesi.org/papers/view/fact-sheet-jobs-in-renewable-energy-and-energy-efficiency-2017

[807] Foreign Policy, 13 November 2017. 8 December 2017. http://foreignpolicy.com/2017/11/13/germany-is-a-coal-burning-gas-guzzling-climate-change-hypocrite/

[808] Germany is missing its emissions targets, The Economist. 9 November 2017. 8 December 2017. https://www.economist.com/news/europe/21731171-thanks-panicked-decision-shut-its-nuclear-plants-germany-carbon-laggard-germany

[809] Germany risks reputation with climate goals failure, DW Akaemie. 8 September 2017. 8 December 2017. http://www.dw.com/en/germany-risks-reputation-with-climate-goals-failure/a-40413092

Thus, Germany receives a score of –1.

Analyst: Bethlehem Solomon

Italy: +1

Italy has fully complied with its commitment on job creation with relation to the clean energy sector and clean technology.

On 3 October 2017, DuPont hosted an event in Rome, Italy on 11 October 2017 to discuss mitigation strategies and new business opportunities for photovoltaics in Italy.[810]

On 24 October 2017, Italy announced that it is planning to phase out the use of coal energy and implement renewable energy strategies.[811] This phase out is a part of the country's National Energy Strategy and calls for investments of USD 204 billion through 2030 in infrastructure, renewable energy, and energy efficiency development.[812]The energy strategy has set goals to decrease carbon emissions from the energy sector by 39% by 2030 and 63% by 2050.[813]

Italy initiated a launch of a national action plan pertaining to clean technology and has invested in the creation of jobs in the energy sector.

Thus, Italy receives a score of +1.

Analyst: Kymone Fletcher

Japan: 0

Japan has partially complied with its commitment to "harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

Following the 2011 Tohoku earthquake and subsequent Fukushima nuclear disaster Japan reassessed its reliance on nuclear power as its primary source of electricity generation.[814] Popular opinion in Japan, concerned over the safety of nuclear power, favoured the introduction of renewable energy policies.[815] However, more recently the administration of Prime Minister Shinzo Abe has characterized nuclear energy as an "important baseload power source that contributes to a stable energy supply."[816] On 1 August 2017, Hiroshige Seko, Minister of Economy, Trade and Industry

[810] DuPont to organize event on risk mitigation strategies and new business opportunities for photovoltaic in Italy, 3 October 2017, Date of Access: 29 October 2017 https://www.renewableenergymagazine.com/pv_solar/dupont-to-organize-event-on-risk-mitigation-20171003

[811] Italy says goodbye to coal, reNEWS Ltd., 24 October 2017, Date of Access: 11 November 2017. http://renews.biz/108912/italy-says-goodbye-to-coal/

[812] The Latest: Italy to phase out coal for electricity by 2025. (Rome, Italy). 11 November 2017. Date of Access: 22 January 2018. http://www.businessinsider.com/ap-the-latest-italy-to-phase-out-coal-for-electricity-by-2025-2017-1.

[813] Italy's National Energy Strategy 2017. (Italy). 22 October 2017.. Date of Access: 22 January 2018. http://www.sviluppoeconomico.gov.it/images/stories/documenti/BROCHURE_ENG_SEN.PDF.

[814] Japan's Renewable-Energy Revolution, Bloomberg. 13 July 2017. 26 November 2017. https://www.bloomberg.com/news/photo-essays/2017-07-13/japan-s-renewable-energy-revolution

[815] National Energy Plan Needs a Major Review, The Japan Times. 27 August 2017. 26 November 2017.https://www.japantimes.co.jp/opinion/2017/08/27/editorials/national-energy-plan-needs-major-review/#.Wht4062ZPLY

[816] National Energy Plan Needs a Major Review, The Japan Times. 27 August 2017. 26 November 2017. https://www.japantimes.co.jp/opinion/2017/08/27/editorials/national-energy-plan-needs-major-review/#.Wht4062ZPLY

began discussions to revise Japan's basic energy plan, which has seen no significant energy policies established since 2014.[817]

Japan's Ministry of the Environment and Ministry of Economy, Trade and Industry have implemented a carbon offset campaign, which focuses on offsetting carbon dioxide emissions from visitor centres in "national parks, sightseeing ships, and authorized vehicles" through carbon dioxide emission reduction/removal credits.[818] This campaign began in August 2017 in six national parks within the Hokkaido Prefecture and has since spread to other national parks and world natural heritage sites across Japan.[819]

Japan's current policies do not provide significant measures in either job creation or growth for the renewable energy sector, as such, Japan has only partially complied with its commitment concerning energy and clean technology.

Thus, Japan receives a score of 0.

Analyst: Leigh Bohner

United Kingdom: +1

The United Kingdom has fully complied with its commitment to "to harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

On 12 October 2017, the Ministry for Climate Change and Industry released "The Clean Growth Strategy," which contains 50 policies and proposals, of which 30 are brand-new announcements.[820] Included in this strategy is a strong dedication to growth and job creation. The UK already has 430,000 jobs in low-carbon businesses and their supply chains, and the most recent research shows that the low-carbon economy is growing rapidly, by between 10% and 12% a year from now until 2030, four times faster than growth in the broader economy as a whole. By that estimate, in just 13 years, it expected that the UK will have up to two million more jobs in this sector and increase exports by up to GBP 170 billion each year. Furthermore, the government is spending GBP 2.6 billion on innovation to support a transition to a low-carbon economy.[821]

The Minister of Climate Change and Industry has made clear that the UK plays a pivotal role in signing the Paris climate agreement. Moreover, the ministry has reaffirmed that a low-carbon transition can go hand-in-hand with economic growth and that will sit at the core of the industrial

[817] Japan to Start Work on Revising Basic Energy Policy Next Week, Reuters. 1 August 2017. 26 November 2017. https://www.reuters.com/article/us-japan-nuclear/japan-to-start-work-on-revising-basic-energy-policy-next-week-idUSKBN1AH3VZ

[818] Carbon Offset Campaigns Targeting Japan's National Parks and World Heritage Sites Start this Summer, Ministry of Economy, Trade and Industry. 8 August 2017. 26 November 2017. http://www.meti.go.jp/english/press/2017/0808_001.html

[819] Carbon Offset Campaigns Targeting Japan's National Parks and World Heritage Sites Start this Summer, Ministry of Economy, Trade and Industry. 8 August 2017. 26 November 2017. http://www.meti.go.jp/english/press/2017/0808_001.html

[820] The Government finally switches on to a clean growth strategy, The Telegraph Business. 12 October 2017. 25 November 2017. http://www.telegraph.co.uk/business/2017/10/12/government-finally-switches-clean-growth-strategy/

[821] Clean Growth Strategy, Parliamentary Business. 12 October 2017. 26 November 2017. https://hansard.parliament.uk/Commons/2017-10-12/debates/E9354BA9-5321-4630-9F93-1342E5246996/CleanGrowthStrategy

strategy. Minister Claire Perry has emphasized, that "by focusing on clean growth, we can cut the cost of energy, drive economic prosperity, create high value jobs and improve our quality of life."[822]

This new strategy demonstrates the commitment of the UK to transition into a low-carbon economy and create shared value through this transition.

Thus, the United Kingdom receives a score of +1.

Analyst: Bethlehem Solomon

United States: −1

The United States has not complied with its commitment to "harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

On 29 June 2017, the Trump administration, including the Department of the Interior, the Department of Energy, and the Environmental Protection Agency (EPA), proposed "energy dominance" at the Unleashing American Energy event. The plan includes increasing American exports of liquefied natural gas and coal as well as the promotion of lending for overseas coal projects.[823]

On 27 September 2017, the Department of Energy proposed a rule to shift the pricing of electricity in power markets to bolster the use of coal and nuclear power. Energy Secretary Rick Perry claimed the new rule would benefit the energy grid by catering to baseload energy sources, which include coal and nuclear plants.[824]

On 3 October 2017, the Environmental Protection Agency launched "Smart Sectors," a partnership program between the EPA and regulated industries designed to enhance a pro-business and pro-environment collaboration. The program allows industries to collaborate with the EPA in the molding of business and environmental regulations. Currently, no environmental, health, or conservation groups are included as partners. There are also no measurements offered by the EPA regarding the progress of "Smart Sectors" since its launch.[825]

On 10 October 2017, Chief of the Environmental Protection Agency, Scott Pruitt, signed a proposal to repeal the Clean Power Plan. The 2015 legislation mandated a carbon emissions cut of 32% (870 million tons of carbon dioxide) from 2005 levels in the U.S. power sector by 2030. In repealing this

[822] The Government finally switches on to a clean growth strategy, The Telegraph Business. 12 October 2017. 25 November 2017. http://www.telegraph.co.uk/business/2017/10/12/government-finally-switches-clean-growth-strategy/

[823] Trump seeks to project global power through energy exports, Reuters (Washington). 29 June 2017. Access Date: 30 October 2017. https://www.reuters.com/article/us-usa-trump-energy/trump-seeks-to-project-global-power-through-energy-exports-idUSKBN19K2VY

[824] Grid Resiliency Pricing Rule, U.S. Department of Energy (Washington D.C.). 27 September 2017. Access Date: 30 October 2017. https://energy.gov/sites/prod/files/2017/09/f37/Notice%20of%20Proposed%20Rulemaking%20.pdf

[825] E.P.A launches Smart Sectors Program, U.S. Environmental protection Agency (Washington D.C.). 3 October 2017. Access Date: November 11, 2017. https://www.epa.gov/newsreleases/epa-launches-smart-sectors-program

measure, the EPA loosens regulations on the coal industry, thus slowing the transition towards renewable energy.[826]

On 23 October 2017, the U.S. Department of the Interior announced a plan to auction off oil and gas leases for 77 million acres of federal waters. The area includes all unleased lands on the Gulf of Mexico's outer continental shelf, in waters off the coasts of Texas, Louisiana, Mississippi, Alabama, and Florida. An EPA estimate suggests that if the available 48 billion barrels of oil and 141 trillion cubic feet of gas are burned in their entirety, this would add the equivalent of more than 28 billion tons of carbon dioxide to the atmosphere.[827]

On 13 November 2017, the Trump administration declared its intention to support coal, natural gas, and nuclear energy in response to climate change. At the 23rd Conference of the Parties in Bonn during a program entitled "The Role of Cleaner and More Efficient Fossil Fuels and Nuclear Power in Climate Mitigation," the U.S. promoted the exploration of "how the U.S. will be a leader in cutting carbon emissions through cleaner, more efficient fossil fuels and other energy sources."[828]

On 4 January 2018, the Department of the Interior announced a five-year plan to open 90% of American coastal waters to oil drilling. The Department outlined 47 possible auctions for drilling rights in the continental shelf, including off the coast of Alaska, California, and Florida. Interior Secretary Ryan Zinke highlighted the plan as fuel for the U.S. energy sector both domestically and abroad.[829]

On 8 January 2018, the Federal Energy Regulatory Commission dismissed Energy Secretary Rick Perry's proposal to subsidize the domestic coal and nuclear industry. The regulators stated renewables did not present a significant threat to the country's resiliency grid, countering the Secretary's argument for the proposal.[830]

The United States has not complied with the commitment concerning energy and clean technology. The federal government has regressed policies that support clean economic growth and job creation and has instead bolstered development in fossil fuel industries both domestically and abroad.

Thus, the United States receives a score of –1.

Analyst: Carey Davis

[826] E.P.A. announces repeal of major obama-era carbon emissions rule, The New York Times (New York City). 9 October 2017. Access Date: 30 October 2017. https://www.nytimes.com/2017/10/09/climate/clean-power-plan.html?rref=collection%2Fsectioncollection%2Fbusiness-energy-environment&action=click&contentCollection=energy-environment&region=stream&module=stream_unit&version=latest&contentPlacement=23&pgtype=sectionfront

[827] Secretary Zinke announces largest oil & gas lease sale in U.S. history, U.S. Department of the Interior (Washington D.C.) 23 October 2017. Access Date: 30 October 2017. https://www.doi.gov/pressreleases/secretary-zinke-announces-largest-oil-gas-lease-sale-us-history

[828] US switches focus of its Bonn event from clean energy to fossil fuels, The Guardian (London) 10 November 2017. Access Date: 17 November 2017. https://www.theguardian.com/environment/2017/nov/10/us-switches-focus-of-its-bonn-event-from-clean-energy-to-fossil-fuels

[829] 2019–2024 National OCS Oil and Gas Leasing Draft Proposed Program, U.S. Department of the Interior (Washington D.C.) 04 January 2018. Access Date: 17 January 2018. https://www.boem.gov/NP-Draft-Proposed-Program-2019-2024/

[830] Order terminating rulemaking proceeding, initiating new proceedings, & establishing additional procedures re Grid Reliability & Resilience Pricing, Federal Energy Regulatory Commission (Washington D.C.) 08 January 2018. Access Date: 17 January 2018. https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14633130

European Union: +1

The European Union has fully complied with its commitment to "harness the significant economic opportunities, in terms of growth and job creation, offered by the transformation of the energy sector and clean technology."

On 31 May 2017, the EU set in motion a new mobility package that aims to help the sector move towards clean energy and digitalisation, while keeping it competitive and socially fair. These proposals encourage cleaner transport and complement existing packages and initiatives for energy efficiency. The decision to target the mobility sector in a move towards clean energy is of significance because the sector directly employs five million people and contributes to nearly a fifth of EU's greenhouse gas emissions.[831]

On 2 June 2017, the EU and China partook in the EU-China Energy Dialogue in Brussels, during which they reaffirmed their commitment to bilateral cooperation on energy and climate.[832] Despite the U.S. withdrawal from the Paris Agreement, the EU and China proposed to deepen existing commitments. The EU and China released a ten-page joint statement that reflects their multilateral approach to ensure a global clean energy economy.[833]

On 26 June 2017, the European Council adopted a new regulation that establishes a framework for energy efficiency labelling, while further strengthening existing directives on energy efficiency. The aim of this regulation is to better inform consumers on how much energy is used by appliances by re-scaling labels based on technological development.[834] The European Council also proposed to revise directives on the energy performance of buildings. Promoting energy efficiency in buildings in Europe is of particular importance, as buildings are the largest single energy consumer in Europe.[835]

On 19 September 2017, Eurostat, the European Union's statistics tracker, changed key rules pertaining to energy efficiency and how to record energy performance contracts in government accounts.[836] This makes it simpler for businesses and investors to support clean energy initiatives.[837] This new framework is predicted to promote clean energy development all over the EU.

On 20 September 2017, EU members and partners signed the Tallinn Declaration on e-Energy in Estonia, which is "the first comprehensive agreement of goodwill in the world, that unites the

[831] Europe on the Move: Commission takes action for clean, competitive and connected mobility, European Commission (Brussels). 31 May 2017. Date of Access: 1 November 2017. http://europa.eu/rapid/press-release_IP-17-1460_en.htm.
[832] EU-China Energy Dialogue: clean energy in an international context, European Commission. 02 June 2017. Date of Access: 1 November 2017. https://ec.europa.eu/energy/en/news/eu-china-energy-dialogue-clean-energy-international-context.
[833] EU-China Climate Statement is a Manifesto for a New Global Order, E3G. 02 June 2017. Date of Access: 1 November 2017. https://www.e3g.org/news/e3g-updates/eu-china-climate-statement-is-a-manifesto-for-a-new-global-order.
[834] Clearer energy labelling: improved energy efficiency, European Council. 26 June 2017. Date of Access: 1 November 2017. http://www.consilium.europa.eu/en/press/press-releases/2017/06/26/clearer-energy-labelling/.
[835] Energy efficient buildings, European Council. 26 June 2017. Date of Access: 1 November 2017. http://www.consilium.europa.eu/en/press/press-releases/2017/06/26/energy-efficient-buildings/.
[836] Changes to Eurostat rules to boost investment in energy efficiency, European Commission. 20 September 2017. Date of Access: 02 November 2017. https://ec.europa.eu/energy/en/news/changes-eurostat-rules-boost-investment-energy-efficiency.
[837] Stars are (almost) aligned for energy efficiency projects in Europe, EURACTIV. 26 September 2017. Date of Access: 02 November 2017. http://www.euractiv.com/section/energy/opinion/stars-are-almost-aligned-for-energy-efficiency-projects-in-europe/.

development of energy and information technology."[838] The Tallinn Declaration on e-Energy reaffirms the EU's commitment to increasing energy efficiency and renewable energy.

On 22 September 2017, Greece held the first Clean Energy for EU Islands forum which focused on the decarbonisation of EU islands, clean energy transition on EU islands through the creation of local jobs and production of cheap energy to consumers.[839] The forum extends the scope of action taken by the EU to honour its commitment by taking into account EU islands.[840]

On 6 October 2017, the EU and India issued a Joint Declaration on climate change and clean energy at the 14th India-European Summit.[841] In addition, the European Investment Bank (EIB) confirmed a EUR800 million investment for renewable energy projects across India. The European Investment Bank also agreed on a new partnership with the International Solar Alliance (ISA), one of the world's largest lenders for renewable energy.[842] The agreement supports renewable energy expansion through the financing for development and deployment of economical solar energy in ISA member countries.

On 8 November 2017, the European Commission outlined the Clean Mobility Package which aims to speed of the transition to low and zero-emission vehicles. This is the second mobility package of 2017. The Clean Mobility Package proposed a target to lower carbon emissions for new cars and vans by 30% from 2021 to 2030.[843]

On 14 November 2017, the EIB approved of EUR 2.6 billion on new energy financing in countries in Europe, Africa, Asia, and Latin America.[844] Moreover, EUR 3.7 billion will go into other climate related investment schemes to reduce energy emissions.

Overall, the EU contributed a significant amount to its commitment regarding clean energy and technology.

Thus, the European Union receives a score of +1.

Analyst: Micaela Tam¡

[838] Member States and partners signed the Tallinn Declaration on e-Energy, Republic of Estonia. 21 September 2017. Date of Access: 02 November 2017. https://www.mkm.ee/en/news/member-states-and-partners-signed-tallinn-declaration-e-energy

[839] In Crete, EU strives for clean energy transition islands, New Europe. 26 September 2017. Date of Access: 02 November 2017. https://www.neweurope.eu/article/crete-eu-strives-clean-energy-transition-islands/.

[840] First Clean Energy for EU Islands Forum: an integral part of Europe's energy transition, European Commission. 22 September 2017. Date of Access: 02 November 2017. https://ec.europa.eu/energy/en/news/first-clean-energy-eu-islands-forum-integral-part-europes-energy-transition.

[841] EU, India Partner on Paris Agreement Implementation, Clean Energy, IISD. 16 October 2017. Date of Access: 02 November 2017. http://sdg.iisd.org/news/eu-india-partner-on-paris-agreement-implementation-clean-energy/.

[842] EIB partners with International Solar Alliance and confirms EUR 800 million support for Indian renewable energy, European Investment Bank. 06 October 2017. Date of Access: 02 November 2017. http://www.eib.org/infocentre/press/releases/all/2017/2017-266-eib-partners-with-international-solar-alliance-and-confirms-eur-800-million-support-for-indian-renewable-energy.htm.

[843] Slovakia dragging its feet on EU clean mobility plan, EURACTIV. 17 November 2017. Date of Access: 21 November 2017. https://www.euractiv.com/section/electric-cars/news/slovakia-dragging-its-feet-on-eu-clean-mobility-plan/.

[844] #EIB agrees €9.2 billion new financing including EFSI backed investment for climate action, broadband and business, EU Reporter. 15 November 2017. Date of Access: 21 November 2017. https://www.eureporter.co/economy/2017/11/15/eib-agrees-e9-2-billion-new-financing-including-efsi-backed-investment-for-climate-action-broadband-and-business/.