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AGAINST THE ODDS AS CHINA AND THE U.S. MOVE LOW CARBON, JAPAN BETS ON BUSINESS AS USUAL

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Summary

- **Paris was a success despite low ambition from Japan.** The Paris Agreement, reinforced by global energy trends, provides a clear indication that the transition away from fossil fuels and towards a decarbonized economy is clear and incontrovertible. Paris also delivered many of Japan's key negotiating asks, including action from all countries and a strong transparency and rules mechanism.
- **Yet Japan was virtually absent as a diplomatic force in the negotiations and has not raised its emission reduction target of 26% below 2013 levels by 2030.** This target is inadequate to deliver the well below 2 degrees Celsius benchmark, is less ambitious than the pledges from either the US or EU and is not consistent with Japan's long term goal of an 80% reduction in emissions by 2050.
- **Meanwhile Japan is losing the clean energy race to its largest regional competitor, China.** By any measure new markets for low carbon technologies and services represent an enormous economic opportunity, but Japan is lagging behind. In 2015 total renewable energy investment in China rose 17% to US\$102bn – more than double that of Japan where investment has remained flat over the past two years.
- **Japan is betting its economy and energy security on risky coal investments.** Japan is the only member of the G7 that is planning a significant amount of new coal infrastructure. Japan currently has 47 coal units planned accounting for 22.5GW and 135 million tons of CO2 annually. By contrast, the coal development pipeline in the rest of the G7 countries has dried up with no further plants expected beyond a handful of projects that are already under construction.
- **It is not just the developed world that is abandoning coal.** In China, India, Indonesia and Vietnam, for example, shelved or cancelled coal power proposals outnumbered completed fossil plants 1.5 to one over the past five years, with 653GW canceled or shelved compared to 411GW completed. In 2015, while China's electricity demand



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grew by 0.5% its coal consumption and imports fell 5% and 35%, respectively. After Paris, far less coal is likely to be built globally than what is currently in the pipeline.

- **While Japan continues to fund international coal projects investors are dumping coal assets.** At least 500 institutions representing over \$3.4 trillion in assets have made some form of divestment commitment as many companies are now assessing climate risk in planning and decision making. It is telling that the World Economic Forum's annual survey listed climate change as the top global risk for the next ten years.
- **Despite a hostile Congress and an upcoming election, Japan's closest ally is forging ahead on clean energy and climate action.** Investment in renewables in the United States increased by 19% in 2015 to USD\$44bn – the highest level since 2011. Climate change is considered essential to US national security by defense and foreign policy leaders and a large majority of Americans support the Clean Power Plan, which will limit emissions from new and existing power plants.
- **The G7 is a rare opportunity for Japan to set a stronger global climate agenda.** Japan can use its G7 Presidency to signal its reemergence as a leader on climate change by reasserting the developments and outcomes from the G7 and Paris in 2015 and outlining proactive collaboration on key elements of the international agenda. Japan should further demonstrate its resolve by becoming one of the first countries to ratify the Paris Agreement, restricting international financing of coal plants, establishing a domestic carbon pricing system, and setting new targets on energy efficiency.

Paris was a success despite low ambition from Japan

2015 marked a new era of cooperation on climate change. Countries collectively agreed that the risks of failure to address climate change were too high, and the benefits of action too overwhelming. The Paris outcome, reinforced by global energy trends, signaled that the transition away from fossil fuels and towards a decarbonized economy is clear and incontrovertible.

The strength of the signal sent by Paris has given investors and companies newfound confidence to increase investment in clean energy, which is already outpacing investment in fossil fuels by a ratio of 2 to 1¹. Governments have also been given assurance that they are not moving alone, but will be acting together towards a shared long term goal.

The outcome was made possible by a new approach to multilateralism that included commitments not just from nation states but also from cities, regions, financial institutions and other coalitions. This includes a group of some of the world's largest companies such as Google, Goldman Sachs, Microsoft and Coca Cola that committed to source their electricity from 100% renewable sources. Additionally, 400 investors representing over US\$24 trillion signed the Global Investor Statement on Climate Change to increase low-carbon and climate resilient investments.

¹ <http://www.bloomberg.com/news/articles/2016-04-06/wind-and-solar-are-crushing-fossil-fuels>



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As the world's third largest economy and fifth largest emitter, and as both a global technology leader and an island that is highly vulnerable to climate impacts, Japan had an opportunity to raise the overall level of global ambition. Japan has a history of climate leadership, playing an integral role as host of the world's first international climate change agreement in Kyoto in 1997. And critically, Paris delivered many of Japan's key negotiating asks, including action from all parties and a strong transparency and rules mechanism.

Yet Japan was virtually absent as a diplomatic force in the negotiations² and it has not increased its emission reduction target of 26% below 2013 levels by 2030. This is inadequate to deliver the well below 2 degrees Celsius benchmark, is less ambitious than the pledges from either the US or EU and is not consistent with Japan's long term goal of an 80% reduction in emissions by 2050³.

There is now widespread recognition that climate change is interrelated to every other major international issue, including economics, security, trade, health and energy. Japan's decision to de-prioritize emission reductions and adaptation leave it in danger of becoming isolated in global affairs.

Japan is losing the clean energy race to its regional rival China

By any measure new markets for low carbon technologies represent an enormous economic opportunity. Global renewable energy investment was USD \$286bn in 2015 – already more than double the investment in coal and gas despite the low price of those fuels⁴. The global market for low carbon goods and services stands at USD \$5.5 trillion and that figure will continue to grow under the commitments made in Paris⁵. Two-thirds or USD \$2.5 trillion of new energy investment in the Asia Pacific region to 2030 will be in clean energy⁶. **The price of solar energy has fallen by 70% since 2009, making it cost competitive with fossil fuels in many places including some areas in Japan**⁷.

As one of the world's largest international investors and exporters Japan has a great deal to gain from growth in global low carbon markets. Along with the US and Germany, Japan is one of the leaders in innovation of energy technologies, including wind, solar photovoltaic (PV), concentrated solar power (CSP), and biomass. Japan holds more patents in wind and solar PV than any country outside of the US⁸.

However, the commitments made in Paris will change the shape of Japan's major export markets. Europe's climate and energy policies over the past two decades for example have helped the EU reduce its energy intensity by 28% since 1990⁹. Over the same period Japan's energy intensity has flat-lined, and several European countries now consume less energy per

² <http://www.japantimes.co.jp/news/2015/12/16/national/japan-virtual-nonentity-paris-climate-talks/>

³ <http://climateactiontracker.org/countries.html>

⁴ <http://fs-unep-centre.org/publications/global-trends-renewable-energy-investment-2016>

⁵ <http://www.wri.org/blog/2015/07/multi-trillion-dollar-opportunity-better-growth>

⁶ <http://about.bnef.com/press-releases/2-5-trillion-invested-renewables-asia-pacific-build-power-capacity-needed-2030/>

⁷ <https://www.db.com/cr/en/concrete-deutsche-bank-report-solar-grid-parity-in-a-low-oil-price-era.htm>

⁸ Chatham House (2009) Who owns our low carbon future? Bernice Lee, Ilian Iliev and Felix Preston.

⁹ https://www.iea.org/newsroomandevents/speeches/141008_EEMR_slides.pdf

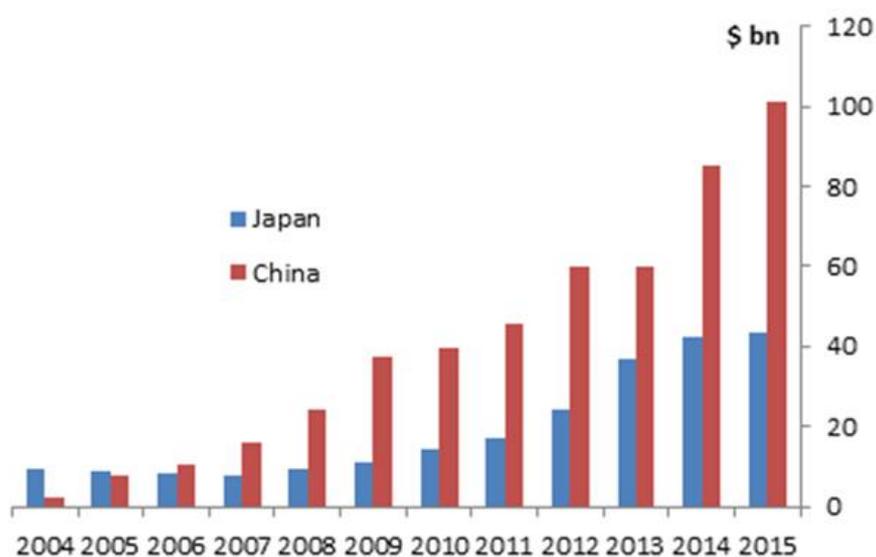


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dollar of GDP than Japan. The EU has a rising population and lower per capita emissions than Japan, but has committed to deeper and faster emission reductions. It is also worth noting that, particularly in light of Paris, pressures will grow for countries to have comparable commitments to carbon reduction to avoid trade tensions.

The fierce competition Japan faces in capturing the low carbon markets of the future is illustrated by a comparison with one of its closest neighbors and largest economic competitors. In 2015 total renewable energy investment in China rose 17% to US\$102bn – more than double that of Japan where investment has remained flat over the past two years¹⁰.

Figure 1. Total clean energy investment in China and Japan, 2004-2015



Source: Bloomberg New Energy Finance

Japan is betting its economy and energy security on risky coal investments

The International Energy Agency (IEA) estimates that to limit global average warming to 2C or less, almost all new energy infrastructure must be low-carbon from 2017¹¹. While this will mean trillions of dollars in new clean energy markets, it also means existing and future coal plants are at risk of becoming stranded assets. By one estimate average annual returns from the coal sector could fall by up to 74% over the next 35 years¹². Indeed, the global energy landscape has changed dramatically in recent years including a radical shift away from coal in the energy sector, especially in developed countries.

At the G7 Summit in Germany last year the G7 nations pledged to phase out fossil fuel use by the end of the century. The UK has pledged to phase out unabated coal power plants by 2025.

¹⁰ Bloomberg New Energy Finance.

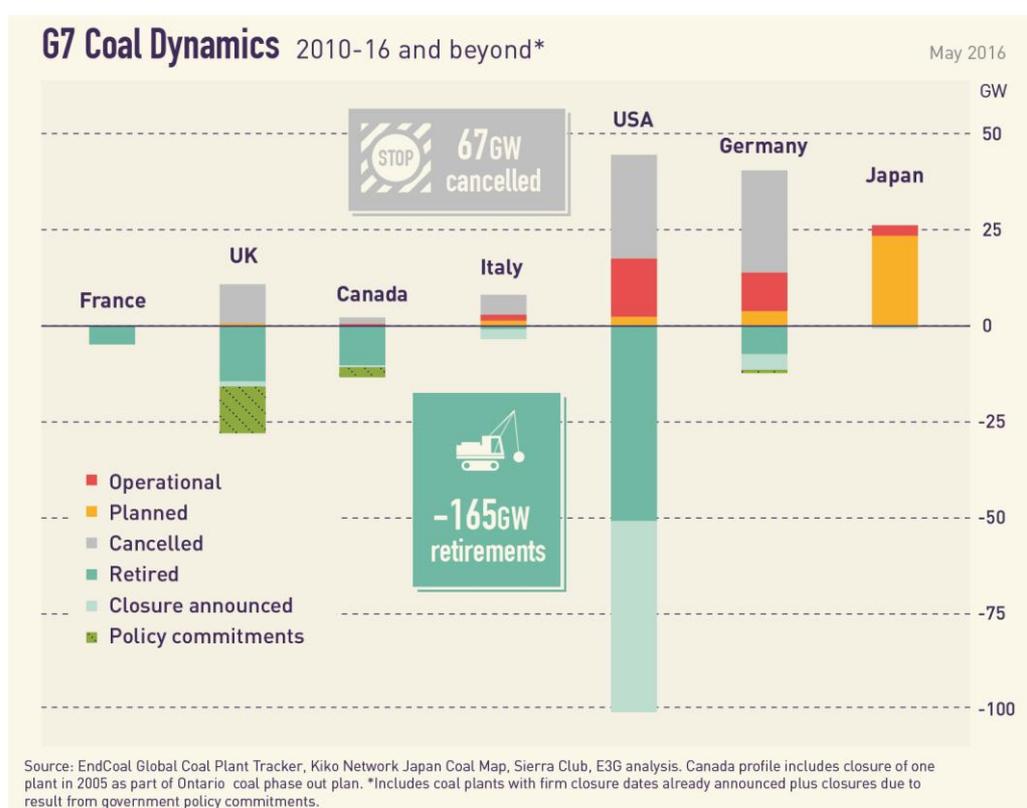
¹¹ International Energy Agency (IEA), 2011. World Energy Outlook 2011. IEA, Paris.

¹² <http://www.mercer.com/insights/focus/invest-in-climate-change-study-2015/executive-summary.html>

Coal plant closures in the US have skyrocketed, with over one third of the US coal fleet having retired since 2010¹³. New York State has pledged to phase coal out of the energy mix by 2020, the province of Ontario in Canada closed its last coal plant in 2014 and Alberta has pledged to phase out coal by 2030.

Japan is the only member of the G7 that is planning a significant amount of new coal infrastructure. Japan currently has 47 coal units planned accounting for 22.5GW and 135 million tons of CO2 annually¹⁴. By contrast, the coal pipeline in the rest of the G7 has dried up - there are now less than 9GW of coal plant proposals still under development. Out of 128GW of new coal plants proposed by G7 countries since 2010, just 29GW of new capacity has entered operation, while 7GW is under construction.

Figure 2. G7 Coal Dynamics: 2010-2016 and beyond



It is not just the developed world that is abandoning coal. **After Paris, far fewer coal plants are likely to be built globally than what is currently in the pipeline.** In China, India, Indonesia and Vietnam, for example, shelved or cancelled coal power proposals outnumbered completed fossil plants 1.5 to one over the past five years, with 653GW canceled or shelved compared to 411GW completed. Taken together, these four Asian nations are likely to complete less than half of their collective, current coal power plant pipeline¹⁵. Coal use is falling in China. In 2015, while China's electricity demand grew by 0.5% **its coal consumption and imports fell 5% and**

¹³ <http://www.sierraclub.org/sierra/2016-3-may-june/feature/coal-industry-bankrupt>

¹⁴ Kiko Network: <http://sekitan.jp/plant-map/en>

¹⁵ http://eciu.net/assets/Reports/ECIU_Asia%C2%B9s-Tigers_FINAL.pdf

35%, respectively¹⁶. China has also announced it will suspend the approval of new coal mines starting this year¹⁷.

Japanese companies that are making long term investment decisions based on expectations of high coal demand in Asia may find that these forecasts are far too optimistic.

Investors are now weighing the risks of climate change and betting against a high carbon future

After years of indecision businesses are now considering climate risk as an integral factor in planning and decision-making. The policy certainty that has been created by the new legal framework, along with the strengthened transparency and accountability means more opportunity for companies that move zero carbon and greater risks for those that fail to adapt to the new landscape.

It is telling that the World Economic Forum's annual survey listed climate change as the top global risk for the next ten years. Companies have begun analyzing supply chain risks and investors are assessing portfolio exposure to climate change. These private sector efforts are being supported by governments and multilateral institutions. France has introduced a carbon reporting obligation on financial institutions on how they are managing climate change risks. Through the G20, Mark Carney, Governor of the Bank of England, has launched an industry-led Task Force on Climate-related Financial Disclosures to consider the physical, liability and transition risks associated with climate change.

Major investment funds are also changing their strategies. At least 500 institutions representing over USD \$3.4 trillion in assets have made some form of divestment commitment¹⁸. In recognition of the risk that fossil fuel assets could become stranded given new policy and regulatory frameworks, Norway's USD \$900bn sovereign wealth fund is planning to sell USD \$8-10bn worth of coal assets¹⁹. Europe's largest insurance company, Allianz, divested €630 million of their own capital investment portfolio from coal²⁰.

Meanwhile, Japan continues to be the largest international funder of coal projects. The government has provided generous support to the coal technology manufacturing industry through export credits and other development finance via the Japan Bank for International Cooperation (JBIC) and Nippon Export and Investment Insurance (NEXI). Despite claims that this benefits the environment by offsetting the use of inefficient coal, the majority of Japanese financing has gone to coal plants that are less efficient than the global average²¹. And the

¹⁶ <http://cleantechnica.com/2016/01/19/china-electricity-demand-slows-coal-consumption-drops-hits-australia-hard/>

¹⁷ <http://www.bloomberg.com/news/articles/2015-12-30/china-to-suspend-new-coal-mine-approvals-amid-pollution-fight>

¹⁸ <http://www.bloomberg.com/news/articles/2015-12-02/fossil-fuel-divestment-tops-3-4-trillion-mark-activists-say>

¹⁹ <http://www.theguardian.com/environment/2015/jun/05/norways-pension-fund-to-divest-8bn-from-coal-a-new-analysis-shows>

²⁰ https://www.allianz.com/en/press/news/financials/stakes_investments/151126_climate-protection-will-become-part-of-core-business/

²¹ <http://sekitan.jp/jbic/wp-content/uploads/2015/04/Dirty-Coal-JBIC.pdf>

bottom line is that even the most efficient coal plants are incompatible with the 1.5C temperature goal²².

Japan's closest ally continues to forge ahead on clean energy and climate diplomacy

After failing to ratify the Kyoto Protocol and spending almost a decade as a deal-blocker, strong and sustained climate diplomacy from the United States in recent years was pivotal in opening up the political space for an agreement in Paris. Climate change has been one of President Obama's highest domestic and international priorities in his second term of office, which ends in January 2017.

Despite a hostile Congress and an upcoming election, the United States is unlikely to abandon its climate efforts, for several reasons. First, the move towards clean energy in the real economy has reached a tipping point. Investment in renewables in the US increased by 19% in 2015 to USD\$44bn – the highest level since 2011²³. Renewable use other than hydro power in the electric power sector is expected to increase by a further 11% in 2016²⁴. Solar production grew by 17% in 2015, surpassing Natural Gas as the most installed power source. The cost of wind has dropped 66% percent in the last 6 years, and has become the cheapest source of electricity²⁵.

Second, addressing climate change is now considered essential to US national security. The US Department of Defense has led this effort and has been a catalyst in driving forward improvements in climate risk management practices. These efforts have also led to a change in perception of climate as a threat: a survey in 2015 found that 40% of International Relations professionals believe that global climate change is the number one foreign policy issue for the United States²⁶.

Finally, even if a hostile President and Congress are elected in 2016 they would not be able to easily reverse existing climate initiatives. The Clean Power Plan, which is the cornerstone of Obama's climate strategy and will reduce GHG emissions by 32% by 2030, will ultimately be decided by the U.S. judicial system and is unlikely to be overturned considering the authority given to the Environmental Protection Agency under the Clean Air Act. Almost 70% of Americans support the CPP²⁷. Many states have indicated they already plan to comply with the Plan and 20 states are already halfway toward achieving their 2030 targets²⁸. Further, many state and local policies will continue regardless of the outcome of the election.

Over the past decade or so, Japan has generally aligned itself with countries like the U.S., Canada and Australia in blocking a progressive climate agenda. But a new government in

²² <http://www.ecofys.com/files/files/ecofys-2016-incompatibility-of-hele-coal-w-2c-scenarios.pdf>

²³ http://fs-unep-centre.org/sites/default/files/publications/globaltrendsrenewableenergyinvestment2016lowres_0.pdf

²⁴ https://www.eia.gov/forecasts/steo/report/renew_co2.cfm

²⁵ Department of Energy 2014 Wind Technologies Market Report <http://energy.gov/eere/wind/downloads/2014-wind-technologies-market-report>

²⁶ <http://www.eesi.org/newsletters/view/climate-change-news-february-9-2015#5>

²⁷ http://www.eenews.net/assets/2016/05/04/document_gw_03.pdf

²⁸ http://www.ucsusa.org/global-warming/reduce-emissions/clean-power-plan-states-of-progress#.Vy_EJpMDGko



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Canada has now joined the Obama administration in pushing for stronger efforts, and the two countries have committed to working together to implement the Paris Agreement including in pursuing long-term low greenhouse gas emission development strategies. The coalition of countries that want to lower ambition is steadily losing members.

The G7 is a rare opportunity for Japan to set the global climate agenda

Upon returning to office in 2012, Prime Minister Abe promised a proactive approach and new era of Japanese diplomacy. Paris was a missed opportunity to deliver on this promise. But the decisions Japan makes this year about its energy and economic future will also have implications for its role in the world and how it is perceived by its international partners.

Abe's popularity could be used to reduce the outsized influence of incumbent industries and focus on reforms that will benefit all Japanese citizens, aligning Japan's interests with those of its international peers. While transitioning to a low carbon economy does not come without its challenges, Japan has the advantage of decades of leadership in technological innovation and its strength in the fields of engineering and scientific research.

The G7 is a rare opportunity to re-engage after Paris and help set the agenda for 2016. This year's Summit can make progress by reasserting the developments and outcomes from the G7 and Paris in 2015 and outlining proactive collaboration on key elements of the international agenda. This could include reinforcing the new goal of limiting temperature rise to well below 2 degrees Celsius, and building on the work of the Africa Renewables Energy and the Climate Insurance Initiatives. The G7 can also serve as the platform for integrating climate into other global priorities including explicitly linking climate change to other respective G7 agendas and plans such as health, migration and disaster risk reduction. It could also take up the recommendations in 'A new Climate for Peace' working group on climate resilience.

Japan should further demonstrate its resolve by becoming one of the first countries to ratify the Paris Agreement, restricting international financing of coal plants, establishing a domestic carbon pricing system, and setting new targets on energy efficiency.

The Japanese Government is right to worry about its lack of domestic fossil fuel- based energy resources, and right to prioritize economic growth and energy and national security. But these objectives will not be achieved through investments in the high carbon infrastructure of the past. To deliver security and prosperity Japan must bet on the future.