

# **Transformations after the Paris Agreement: Nuclear Energy in the Context**

The 52<sup>nd</sup> JAIF Annual Conference

April 9, 2019

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- Paris Agreement (PA): Its long term goal towards decarbonization
- Transformations after the PA: Global energy transition
- Nuclear energy in the context

# Main features of the Paris Agreement

- **Legally binding treaty** which binds States (like the Kyoto Protocol)
- **Much more clear long term goal**
  - Holding the increase in the global average temperature to **well below 2 °C** and pursuing efforts to limit the temperature increase to **1.5 °C above pre-industrial levels**
  - “Net zero emission” “De-carbonization” in the second half of this century
- **Five-year cycle of ratchet-up mechanism**
  - **Mitigation commitments** under the PA
  - **Every five year, countries will take stock of progress**, based of which **each country will review and submit, and possibly upgrade its target** towards achieving the long term target.
- **A legal parity between mitigation and other elements**, such as adaptation
  - Not only mitigation but also adaptation and support including financial support.
- **From a bifurcate differentiation to exquisite and delicate differentiations**

# Long term goal: de-carbonization

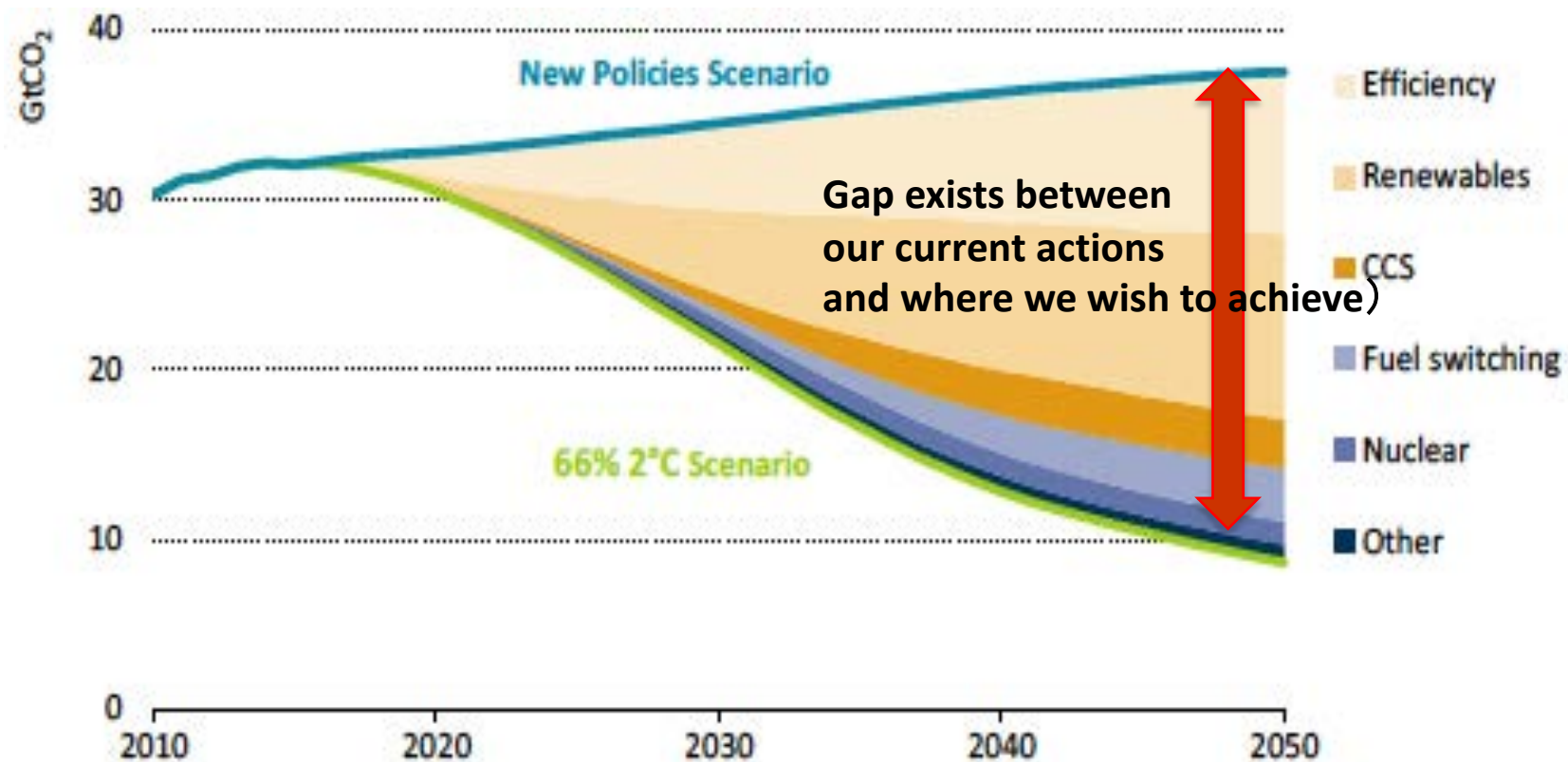
- The PA defines **a more clear long term goal towards de-carbonization** that international community aims to achieve.
- The PA shows a shared value and vision that international community aims to achieve, **based on the most recent science** such as the 5th Assessment Report of IPCC.
  - “Whether or not 2 degree and 1.5 degree would be achievable”?
  - Mindful of **adverse impacts and risks of climate change that the most vulnerable countries and population would face**, somehow reflecting “climate justice”
  - **“No one left behind” principle**
- **Value of clear goal** to enhance cooperative action to tackle climate change
  - **As guidance for each country’s actions**
  - **As signal for business, investment and innovation** (not only technological but also social)
  - **“Stranded assets”**

# Ambitious long term goal by developed countries

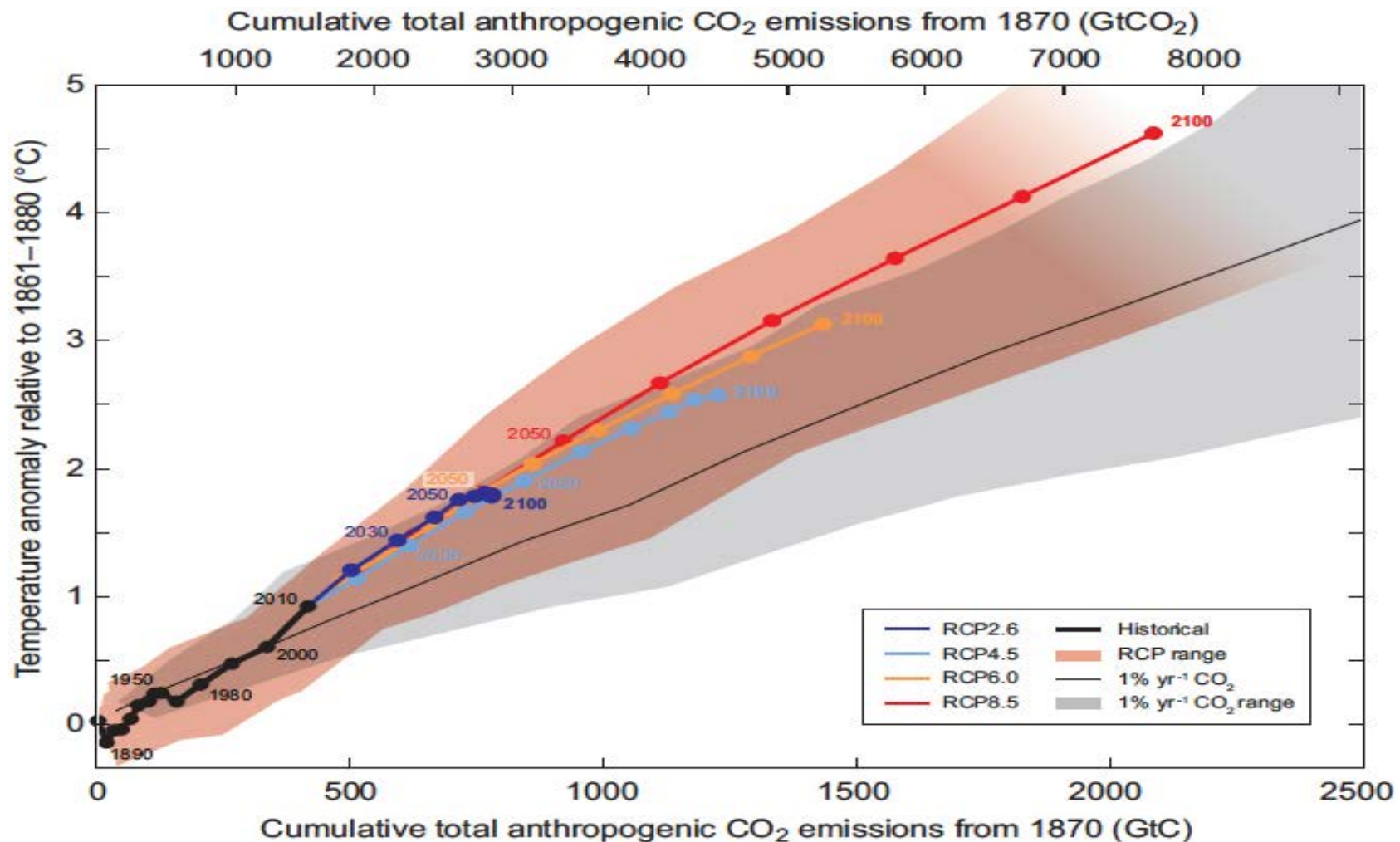
(base year)	Japan (2013)	US (2005)	Canada (2005)	Germany (1990)	France (1990)	UK (1990)
2030 target	▲26%	▲26~28%	▲30%	▲40%	▲40%	▲57%
2050 goal	▲80%	▲80%	▲80%	▲80-95% (roughly carbon neutral)	▲75% (Dec. 2016)  GHG neutral (July 2017)	At least ▲80%
Long term strategy	—	Submitted (by Obama administration)	Submitted	Submitted	Submitted	Submitted

# Long term goal shows where innovation would be needed

Lower the energy intensity by 2.5%/year on average between 2014-2050  
(3.5 times greater than the rate of improvement seen over the past 15 years)  
By 2050, nearly 95% of electricity would be low-carbon

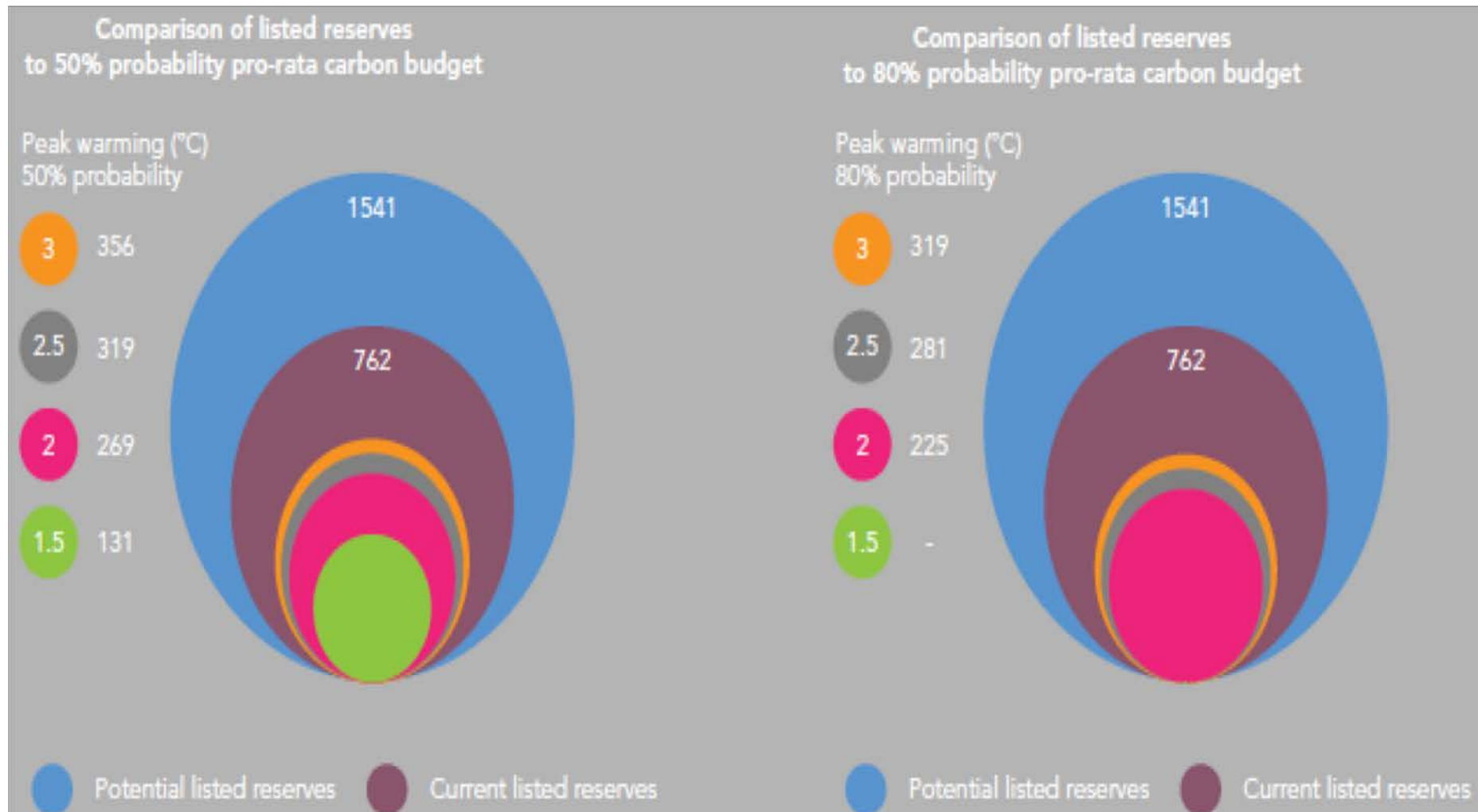


# Global mean surface temperature increase as a function of cumulative total global CO<sub>2</sub> emissions



Source: IPCC, 2014

# Stranded Assets





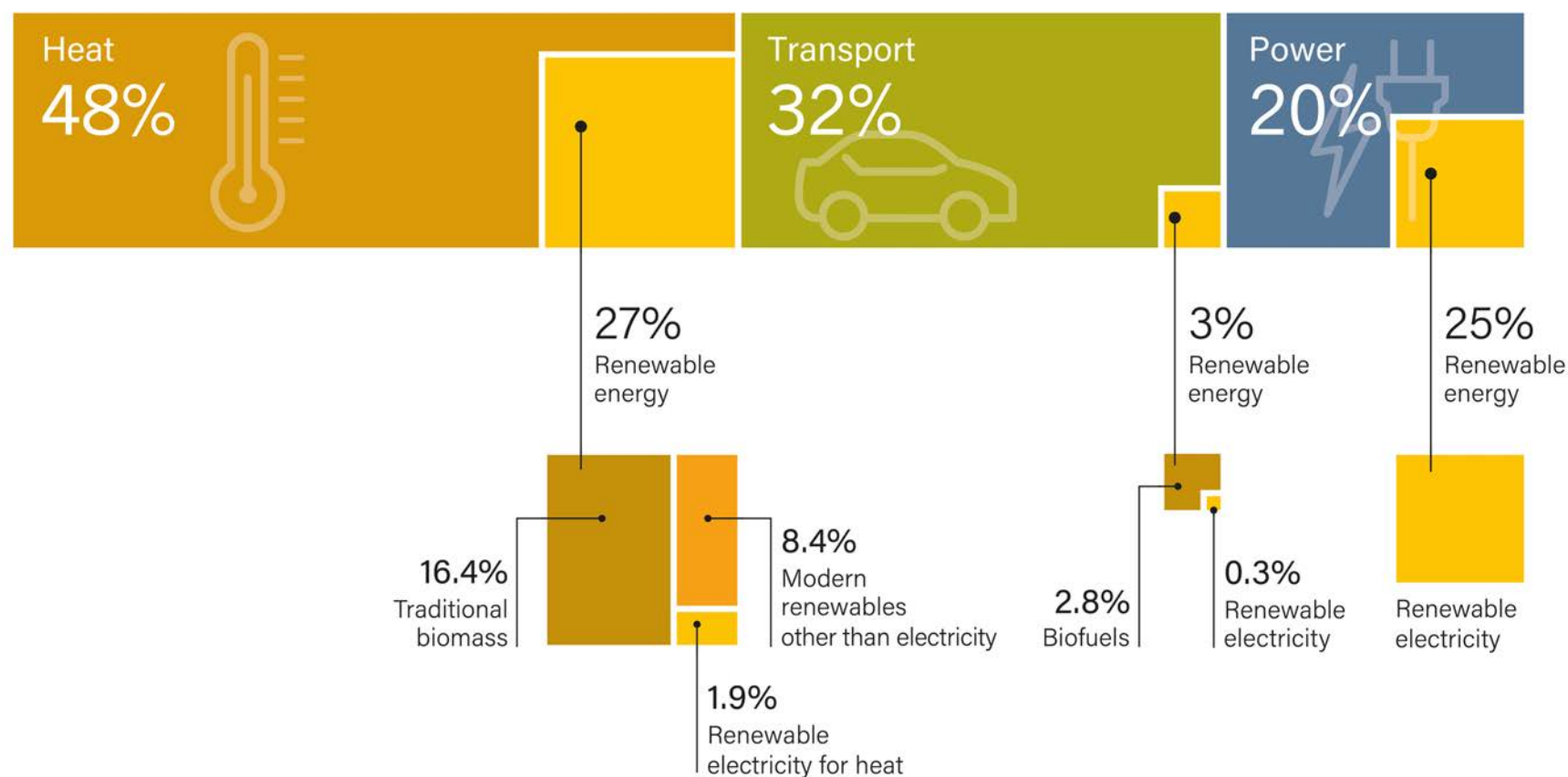
# Global transformations are accelerating

- Global energy transition
- Zero emission mobility
- Business (Demand side) has been taking the lead
- Financial institutions and investors are changing, which has been changing the business's behavior.

# Renewable Energy in TFEC by Sector

A quarter of global power generated comes from renewables.  
Renewable has become the second power source after coal.

Renewable Energy in Total Final Energy Consumption, by Sector, 2015



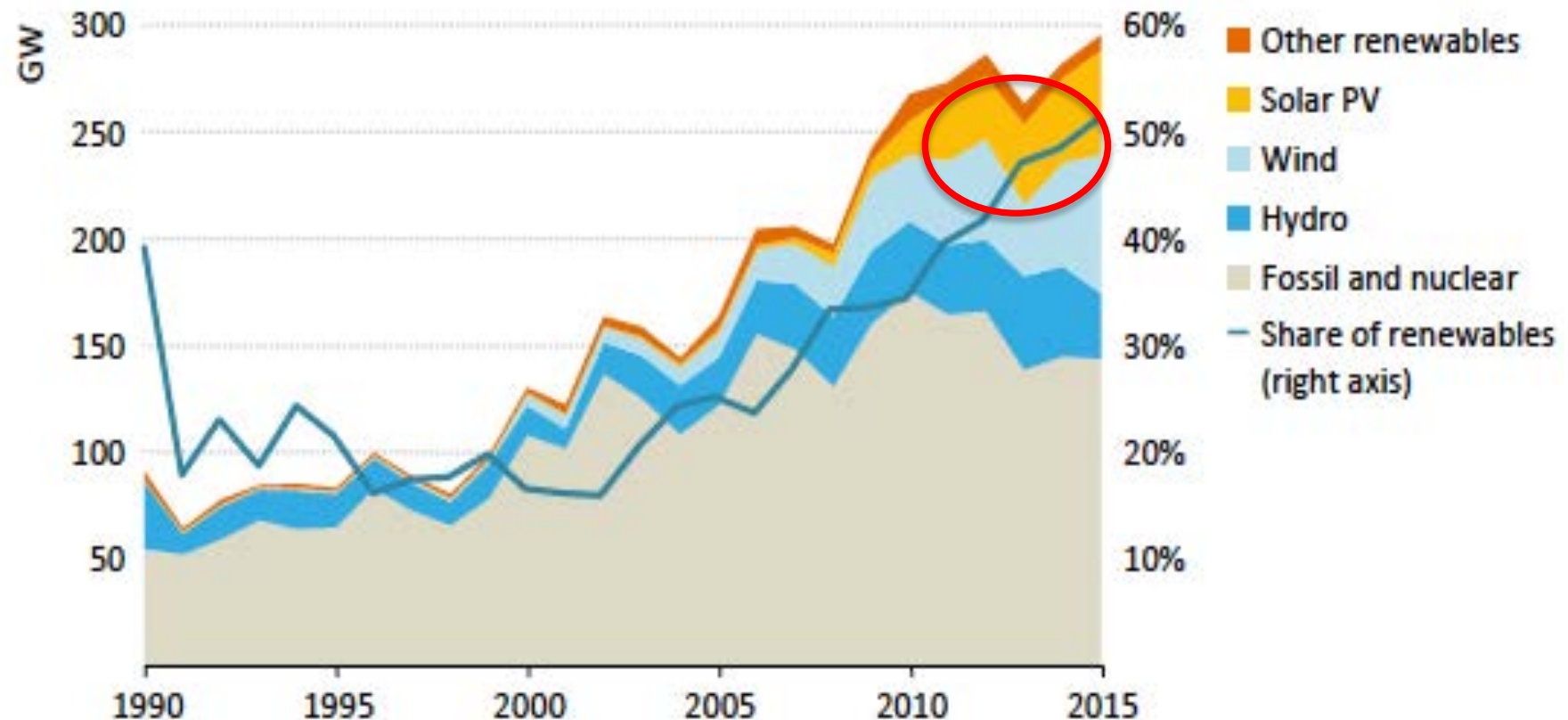
# Year 2015 as Historic year

## “a transformation of global power markets”

- IEA, Secretary General, Mr. Fatih Birol (Oct. 2016)
  - “We are witnessing a transformation of global power markets led by renewables”.
- Renewable energy capacity overtook coal for the first time in 2015 (IEA)
- In 2015, more renewable capacity was built than coal, natural gas, oil and nuclear combined (IEA, 2016).
  - 2013 was the first year that more renewable power capacity was built than coal, natural gas and oil combined, according to Bloomberg.
- 2015 set a record for investment in renewables.
  - In 2015, more than twice as much (\$265.8 billion) was invested in renewables excluding hydropower than coal and gas (around \$130 billion) (Frankfurt School-UNEP Centre/BNEF)

# Renewable power capacity additions set a new record in 2015.

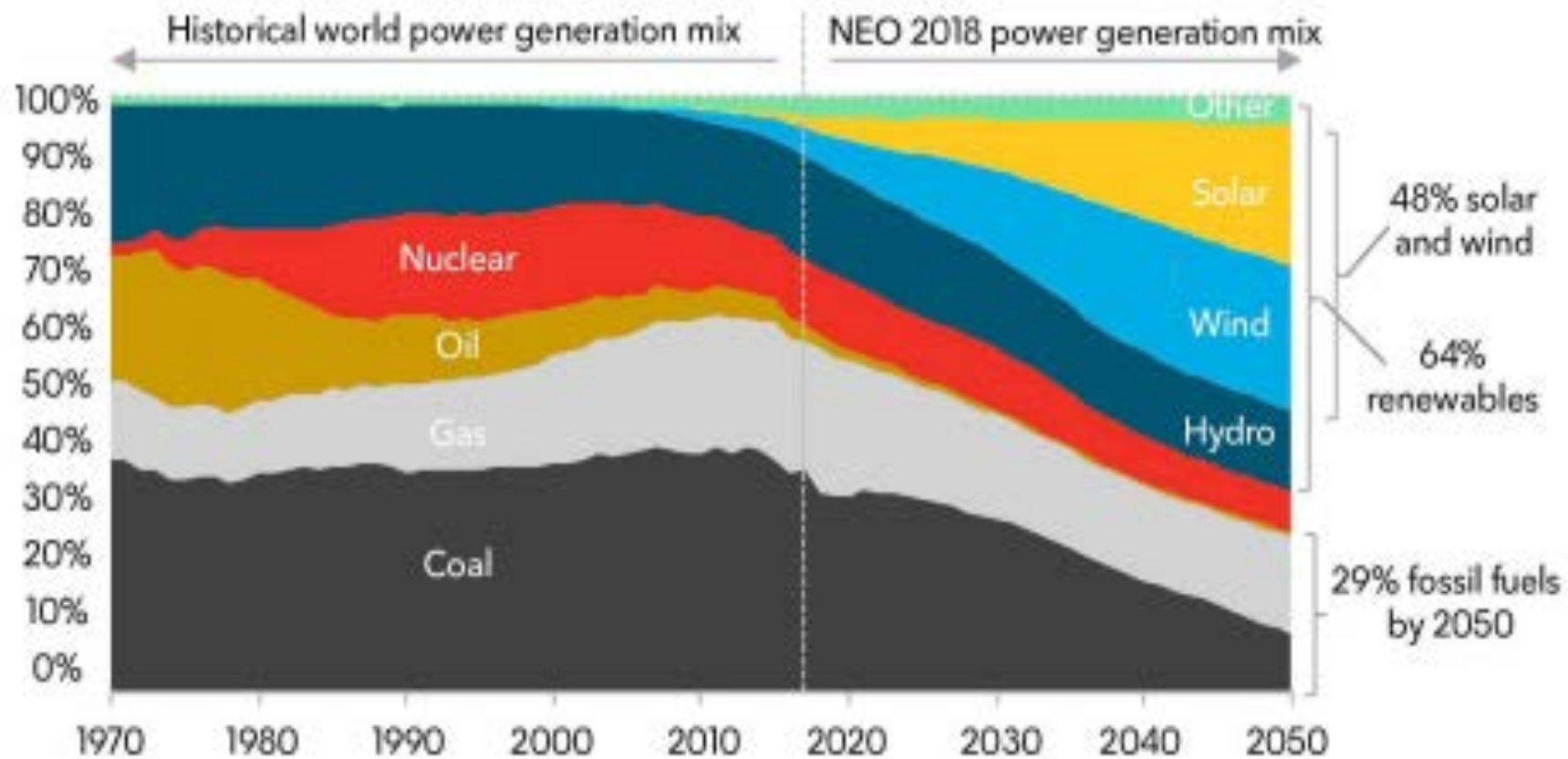
In 2015, renewable power capacity additions exceeded those of all other fuels.



*Renewables-based power capacity additions set a new record in 2015 and exceeded those of all other fuels for the first time*

# Global power mix (BNEF, 2018)

Share of renewable will increase to 64% in 2050.  
Fossil fuel will be 29%.



Source: Bloomberg NEF

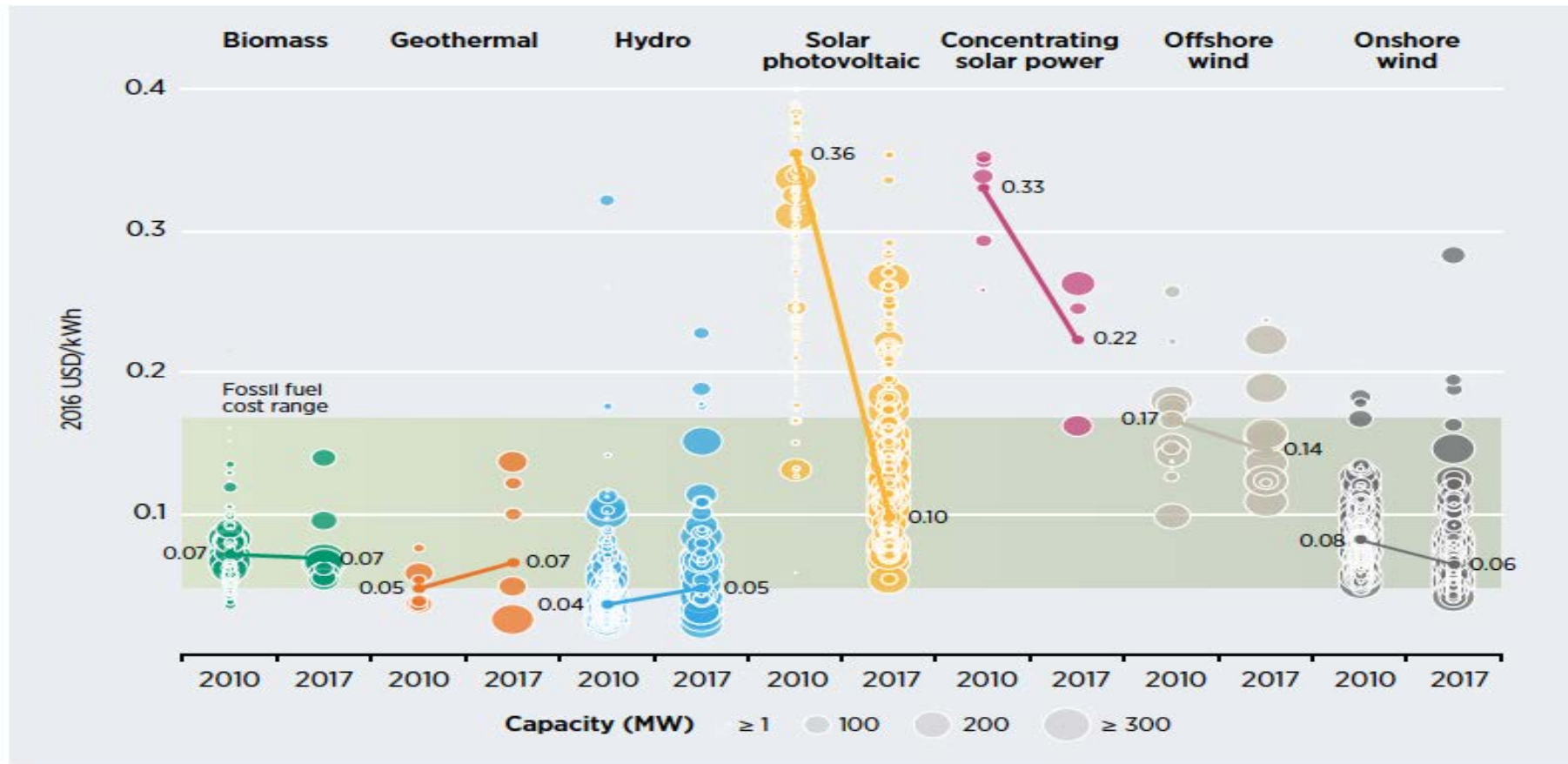
# Energy transition and climate change

- Renewable has become competitive with fossil fuel power in terms of generation cost
  - Technological innovation and expansion (scale of economy) has lowered the cost of renewables
  - “unstoppable” (Ben van Beurden, CEO, Shell, May 2017)
- Discovered and recognized benefits of energy transition has changed framing (narratives) of climate change issue
  - Lowering energy cost, reducing GHGs, expanding new (clean energy) market, producing new employment, reducing air pollution, promoting energy access...
- Energy transition supports implementation of the PA, which accelerates further energy transition
- Reframing of energy system/energy policy
  - Renewables, having being considered expensive and instable, has now become “cost competitive” “principal source” of low carbon energy



# Cost of renewables between 2010 - 2017

Cost of solar has halved during this 5 years, and it has been **reduced by 73% during 8 years**. Solar has now become cost competitive with fossil fuel power.



Source: IRENA Renewable Cost Database.

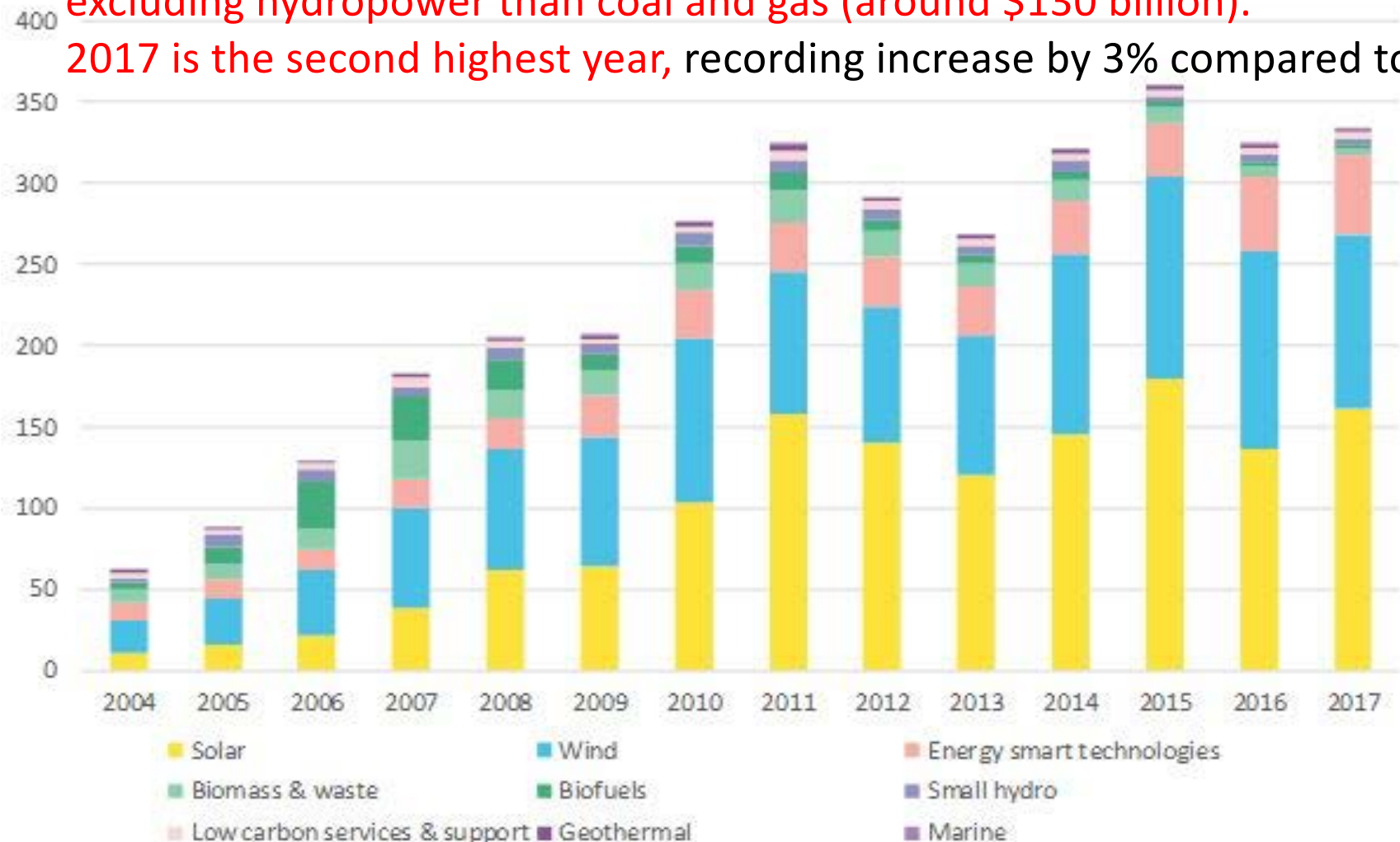
Note: The diameter of the circle represents the size of the project, with its centre the value for the cost of each project on the Y axis. The thick lines are the global weighted average LCOE value for plants commissioned in each year. Real weighted average cost of capital is 7.5% for OECD countries and China and 10% for the rest of the world. The band represents the fossil fuel-fired power generation cost range.

# Global investment in renewables (1)

2015 set a record for investment in renewables.

More than twice as much (\$265.8 billion) was invested in renewables excluding hydropower than coal and gas (around \$130 billion).

2017 is the second highest year, recording increase by 3% compared to 2016.

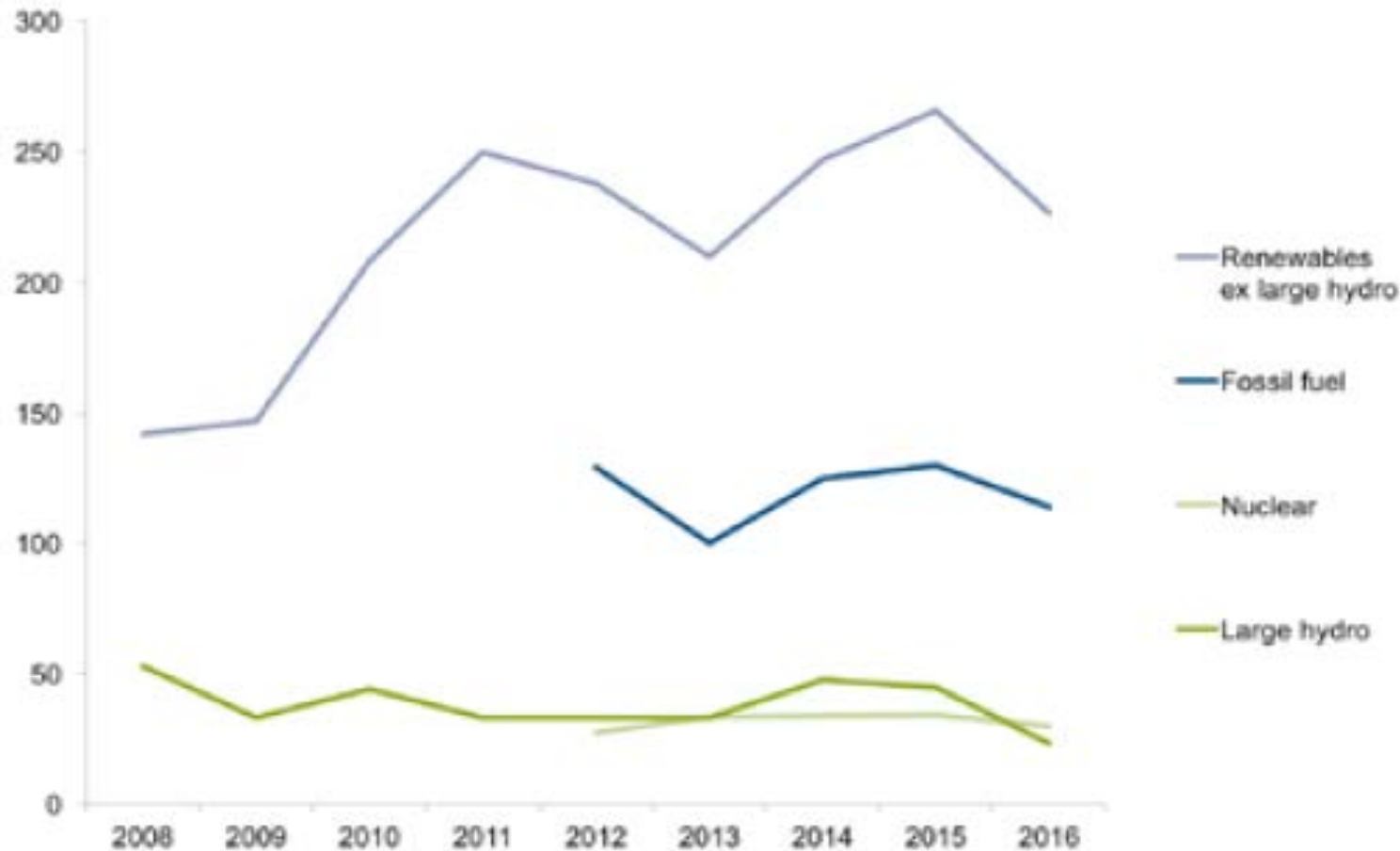


Source : BNEF, 2018



# Global investment in renewables (2)

Investment in renewables was much higher than the one in other energy sources



Source: Bloomberg New Energy Finance

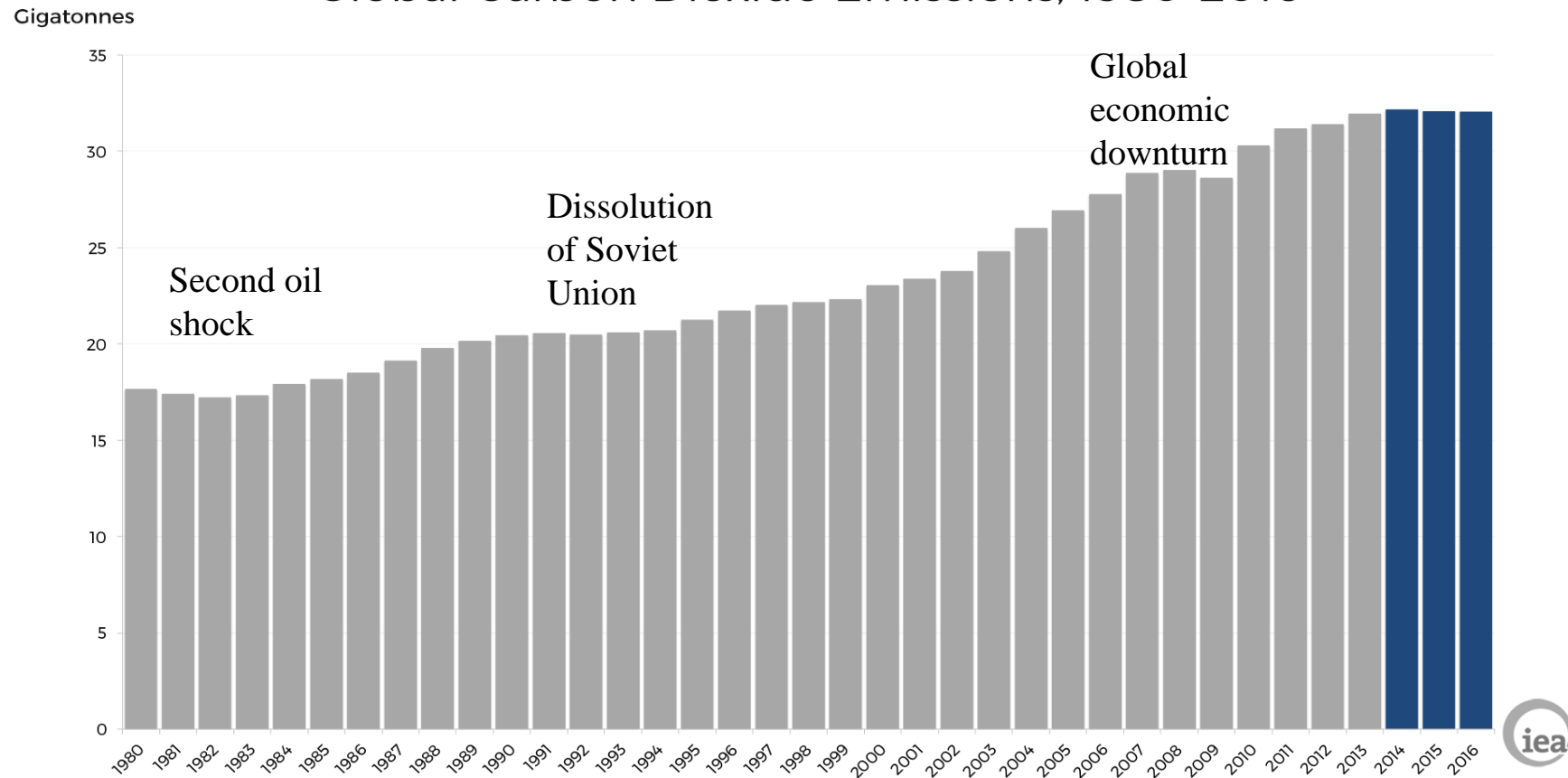
Source : Frankfurt School-UNEP Centre/BNEF, 2017<sup>17</sup>

# Global energy-related CO2 emissions

Renewables surged and improvements in energy efficiency were key to keep emissions flat for a third year in a row

De-coupling of emission growth with economic growth?

Global Carbon Dioxide Emissions, 1980-2016



# Japan's GHG emission trends

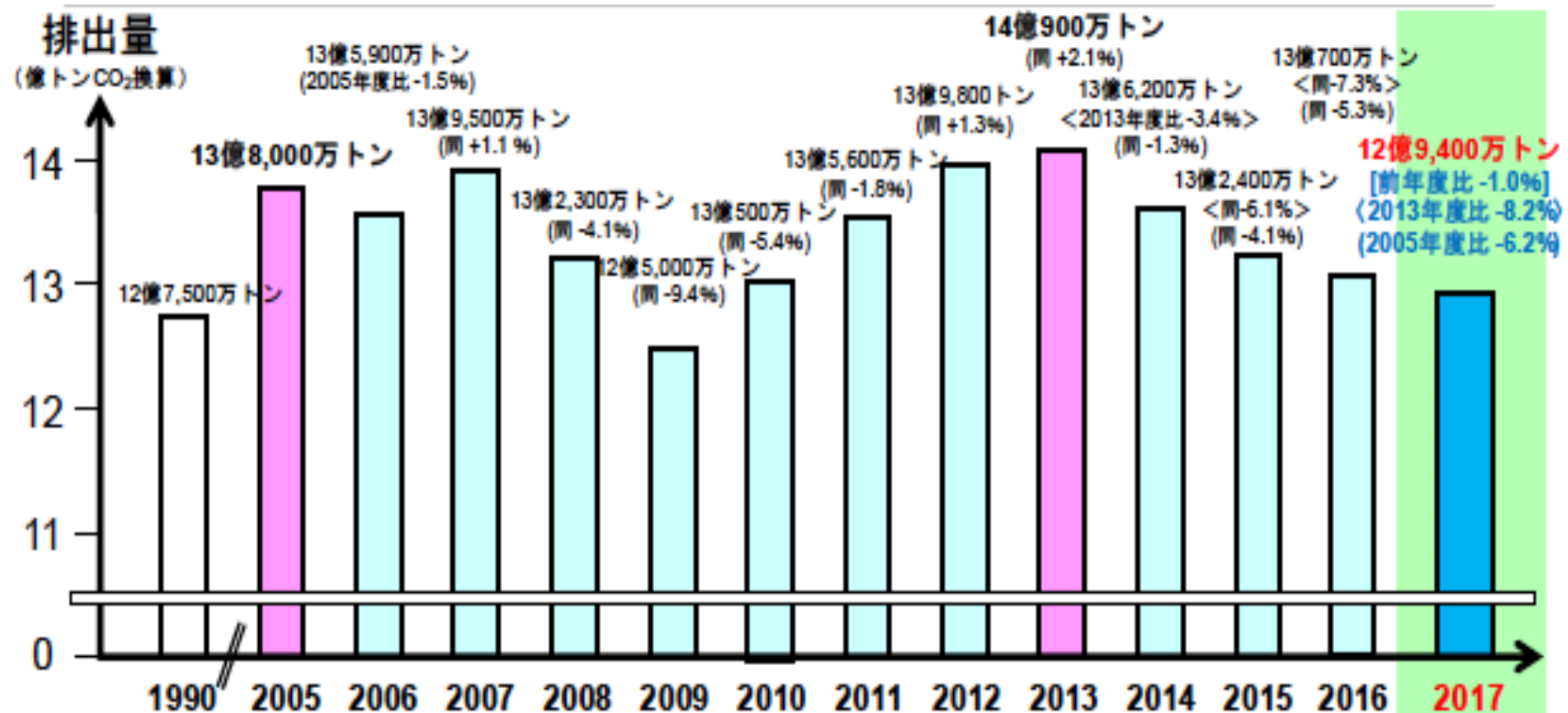
Emission in 2013: 1.409 GtCO<sub>2</sub>eq

Emission in 2014: 1.362 GtCO<sub>2</sub>eq (-3.4% below 2013)

Emission in 2015: 1.324 GtCO<sub>2</sub>eq (-6.1% below 2013)

Emission in 2016: 1.307 GtCO<sub>2</sub>eq (-7.3% below 2013)

Emission in 2016: 1.294 GtCO<sub>2</sub>eq (-8.2% below 2013)



Source : MOE, 2018

# Jobs created by renewable (2012-2017)



Source: IRENA jobs database.

Source : IRENA, 2018

# Job created by renewable (2017)

8.83 million jobs in the area of RE (excluding large hydro) in 2017,  
283 thousand jobs in Japan (272 thousand in solar)

								
	World	China	Brazil	United States	India	Germany	Japan	Total European Union <sup>k</sup>
<b>Solar Photovoltaic</b> 	3 365	2 216	10	233	164	36	272	100
<b>Liquid Biofuels</b> 	1 931	51	795 <sup>g</sup>	299 <sup>h</sup>	35	24	3	200
<b>Wind Power</b> 	1 148	510	34	106	61	160	5	344
<b>Solar Heating/Cooling</b> 	807	670	42	13	17	8.9	0.7	34
<b>Solid Biomass<sup>a,b</sup></b> 	780	180		80 <sup>i</sup>	58	41		389
<b>Biogas</b> 	344	145		7	85	41		71
<b>Hydropower (Small)<sup>c</sup></b> 	290	95	12	9.3	12	7.3 <sup>j</sup>		74 <sup>i</sup>
<b>Geothermal Energy<sup>a,d</sup></b> 	93	1.5		35		6.5	2	25
<b>CSP</b> 	34	11		5.2		0.6		6
<b>Total (excluding Large Hydropower)</b>	<b>8 829<sup>f</sup></b>	<b>3 880</b>	<b>893</b>	<b>786</b>	<b>432</b>	<b>332</b>	<b>283</b>	<b>1 268</b>
<b>Hydropower (Large)<sup>c,e</sup></b> 	1 514	312	184	26	289	7.3 <sup>j</sup>	20	74 <sup>i</sup>
<b>Total (including Large Hydropower)</b>	<b>10 343</b>	<b>4 192</b>	<b>1 076</b>	<b>812</b>	<b>721</b>	<b>332<sup>j</sup></b>	<b>303</b>	<b>1 268<sup>i</sup></b>

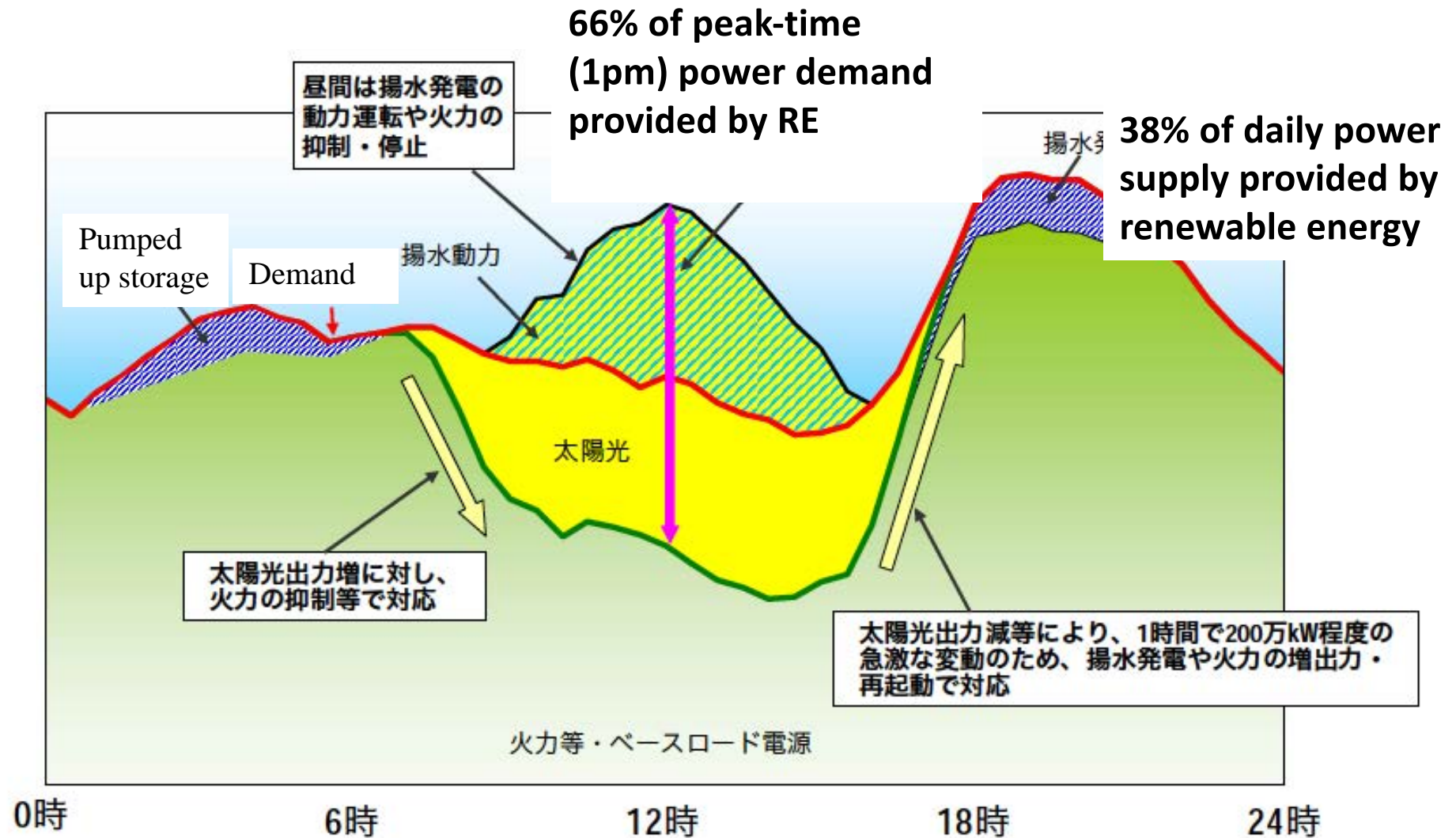
Source : IRENA, 2018

# Statement by Prime Minister Abe in the Growth Strategy Meeting (4 June 2018)

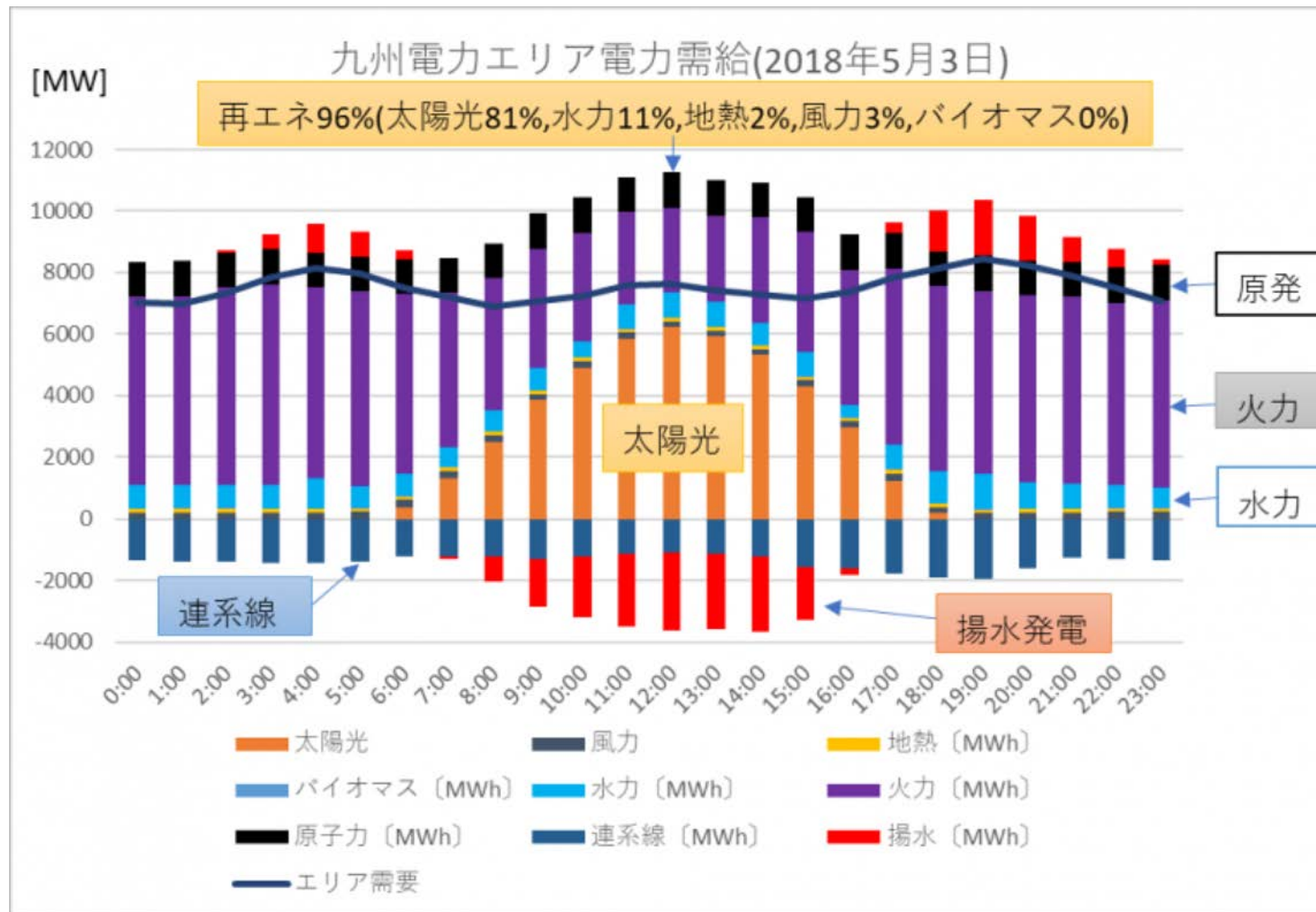
- “...Climate actions are no longer question of cost for companies: rather they are source of their competitiveness...”
- “Now change called as a virtuous cycle in the environment and the economy has been truly accelerating at the global scale and with incredible speed for these 5 years”
- “...with view to driving decarbonization toward 2050,...we need to realize a paradigm shift, by turning such virtuous cycle in the environment and the economy increasingly and thereby promoting innovation led by business...”



# Demand and supply of electricity in Kyushu Electric Power Co. Area (4 May 2016)



# Demand and supply of electricity in Kyushu Electric Power Co. Area (3 May 2018)

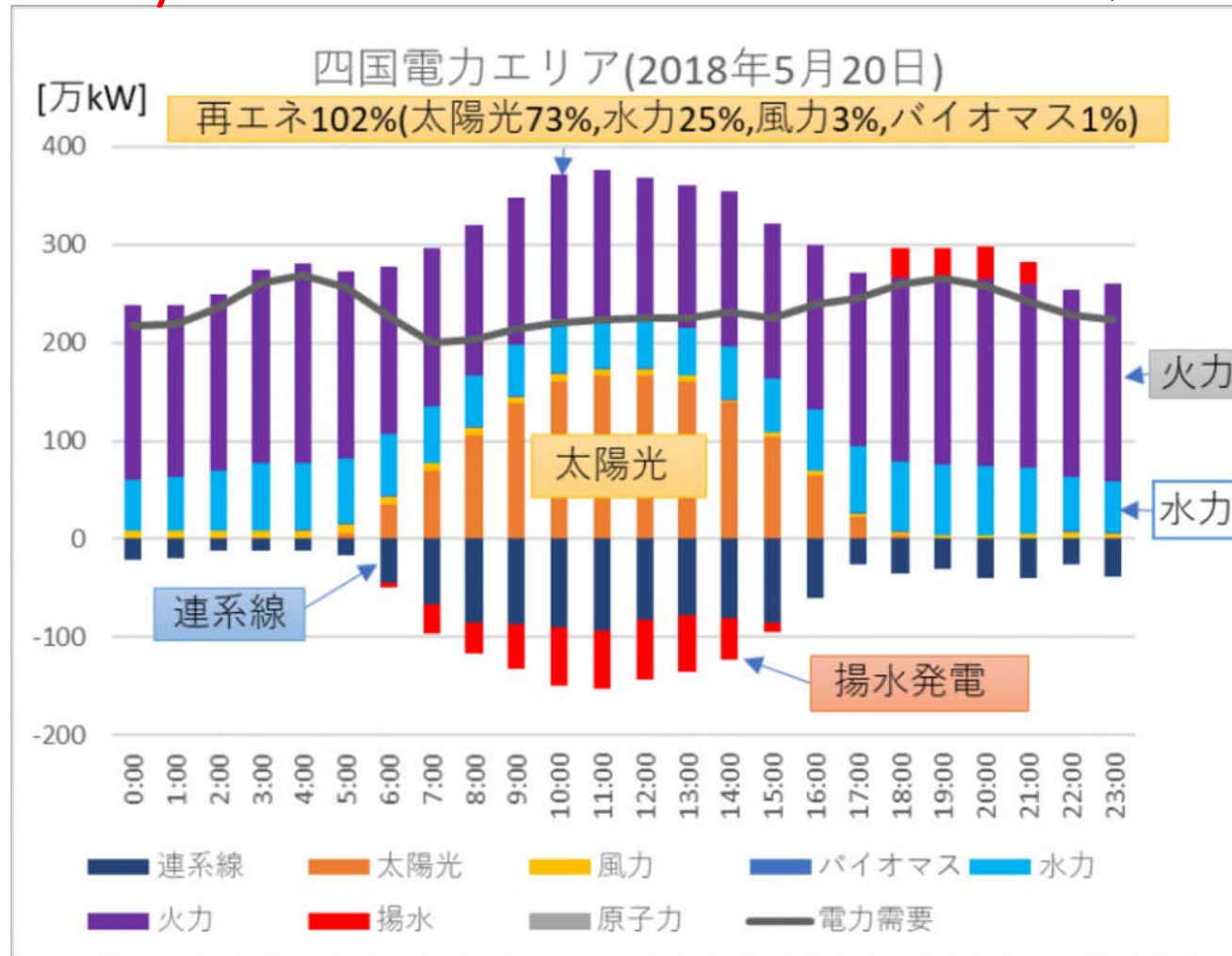


Source : ISEP based on data from Kyushu Electric Power Co.



# Demand and supply of electricity in Shikoku Electric Power Co. Area (20 May 2018)

52% of that day's demand comes from renewables (24% of solar)



Source : ISEP based on data from Shikoku Electric Power Co

# Renewable energy as the « major power source »

- **Strategic Energy Plan 2018** (approved by the Cabinet, July 2018)
  - « GOJ has been accelerating the introduction of renewable energy as far as possible since 2013 and will **continue** actively promoting it. Therefore, GOJ steadily proceeds with the enhancement of power grids, rationalization of regulation, research and development for cost reduction, etc... In this way, GOJ is **advancing on early measures for laying the foundation for steady conversion of renewable energy into a major power source, as well as for realization of the power source composition ratios in the 2030 energy mix.** »
  - « GOJ will aim for cost reduction to a level that is competitive compared to other power sources and for self-reliance from the FIT system and will **continue to actively promote measures for the smooth, large-volume introduction of renewable energy so that it becomes sustainable as a long-term, stable, major power source that can play a role in Japan's energy supply.** »
- **Keidanren (Japan Business Federation)** issued a statement **requesting acceleration of measures toward making renewable energy as the major power source** (12 October 2018).

# Power companies' moves (1)

- **TEPCO** (press release issued on 27 November 2018)
  - « TEPCO will now move forward with offshore wind power projects, both in Japan and abroad,..., aiming to develop renewable energy sources as primary sources of power. TEPCO's **eventual goal for domestic offshore wind power is output of between two and three GW of power.** »
- **Tohoku Electric Power Co.** (press release issued on 30 January 2019)
  - « ...Renewable energy will be one of the major power source in future... »
  - « ..The Tohoku Electric Power Co. will aim to develop output of two GW of power of renewables energy **centring on wind power**, mainly in Tohoku and Niigata areas ... »

# Power companies' moves (2)

- **Chubu Electric Power Co.** (26 February 2019, 26 March 2019, President's Press Conference)
  - [https://www.chuden.co.jp/corporate/publicity/pub\\_release/press/\\_\\_\\_icsFiles/afieldfile/2019/03/26/201903261.pdf](https://www.chuden.co.jp/corporate/publicity/pub_release/press/___icsFiles/afieldfile/2019/03/26/201903261.pdf)
  - « ...will aim to increase self-reliance and realize low carbon society by **promoting ESG management which enhances corporate value continuously ...and reducing CO2 emission over the whole value chain from power generation to retailing through all possible measures...** »
  - Develop **additional output of more than two GW of renewable energy around 2030**
  - All possible measures are to be taken to expand renewable energy including through financing funds investing in renewable energy

# Power companies' moves (3)

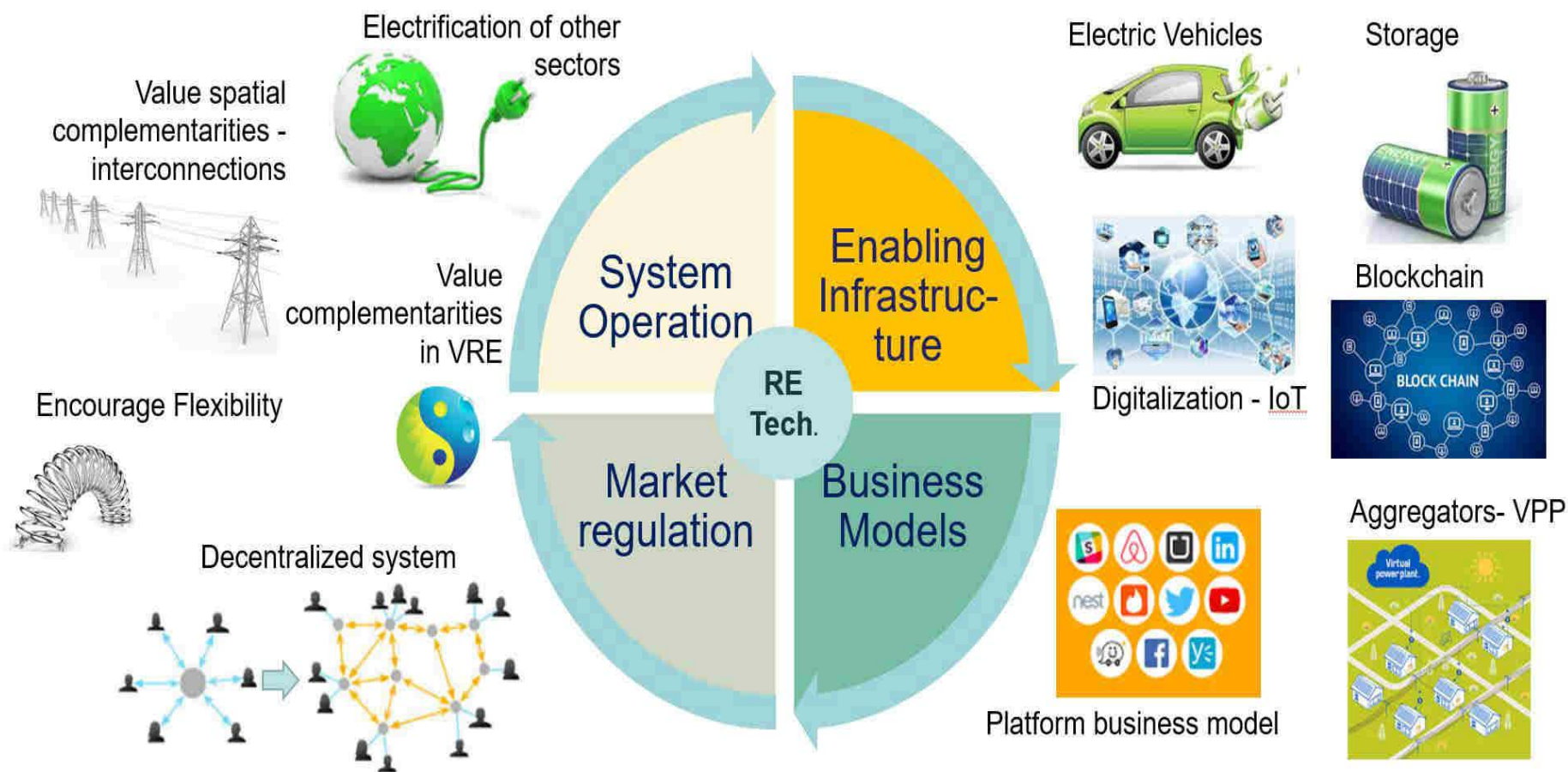
- **Kansai Electric Power Co.** (press release on 26 March 2019)
  - [https://www.kepco.co.jp/corporate/pr/2019/pdf/0326\\_1j\\_01.pdf](https://www.kepco.co.jp/corporate/pr/2019/pdf/0326_1j_01.pdf)
  - « ... will undertake reducing adverse environmental impacts, starting with tackling climate change, **as a leading low carbon company...**»
  - « ... will aim to **increase to output of 6 GW of renewable energy during 2030's...** »
  - « ... will continue to be **NO.1 company producing the largest CO2 free power generated in Japan and halve CO2 emission deriving from domestic power generation** compared to the one in 2013... »

# Zero Emission Mobility

- **Automobile manufacturers** have been heading for **zero emission mobility**
  - **Toyota: “Toyota Environment Challenges 2050”**
    - 90% reduction of emission from new cars to be sold globally by 2050
    - Zero emission from its production by 2050
    - Zero emission from over all supply chain
- Many countries announce to take measures to promote **Zero-Emission Vehicles; ZEV**
  - France: bans gasoline car and diesel car by 2040 (July 2017)
  - UK: Air pollution strategy: bans sale of new gasoline car and diesel car by 2040 (July 2017)
  - Norway : the goal to reach 100% of new car sales being zero-emission vehicles starting in 2025.
  - China : introducing new laws that effectively introduce strict quotas that force car-makers to increase the share of ‘New Energy Vehicles’. Aero- and ultra-low emission vehicles must make up 10 per cent of all sales starting in 2019, rising to 12 per cent in 2020(October 2017)
  - **Japan : all passenger cars will be electric car by 2050. About 90% of GHG reduction per vehicle (July 2018)**
- **Accelerated expansion of EVs, in particular in 3 biggest markets**
- **Interaction with energy transition**
- **Digitalization, automatization...**

# Innovation landscape for power sector transformation

## Innovation Landscape for Power Sector Transformation





# Climate actions by local governments (5 April 2019)

- C40
  - C40 convenes networks that provide a range of services in support of cities' climate change efforts. C40 currently has 17 networks that cover the mitigation, adaptation and sustainability topics of highest priority to C40 cities and with the potential for the greatest climate impact.
  - 94 cities participate accounting for 600 M population and 25% of global GDP
  - From Japan, Tokyo and Yokohama participate
- Global Covenant of Mayors for Climate & Energy (世界首長誓約)
  - International alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society.
  - 9322 local governments from more than 120 countries accounting for 815 M population
  - 20 local governments from Japan participate
    - Goto, Hiroshima, Kaga, Kasai, Kitakyushu, Kyoto, Mishima, Nanmoku village (Gunma), Niseko (Hokkaido), Okazaki, Otsu, Takayama village (Nagano), Tokorozawa, Tokyo, Toyama, Toyohashi, Toyonaka, Toyota, Yokohama, Yosano (Kyoto)



# Science Based Target (SBT)

- Initiative created by CDP, UN Global Compact, WRI, and WWF
- **Targets adopted by companies** to reduce greenhouse gas (GHG) emissions are **certified as “science-based”** if they are **in line with the level of de-carbonization required to keep global temperature increase below 2 degrees Celsius** compared to pre- industrial temperatures.
- **550** companies have committed to having such targets, **196** of which have set certified science-based targets (as of 5 April 2019)

➤ <https://sciencebasedtargets.org>

# Japanese companies setting SBTs (as of 5 April 2019)

<p>Companies setting SBTs (39)</p>	<p>Asahi Group Holdings、ASICS、ASKUL、Astellas Pharma、Aeon、NEC、Kawasaki Kisen Kaisha、Kirin Holdings、Konica Minolta、Komatsu、Suntory Holdings、Suntory Beverage &amp; Food、SUMITOMO CHEMICAL、Sumitomo Forestry、Seiko Epson、SEKISUI CHEMICAL、Sekisui House、Sony、Taisei Corporation、Daiichi Sankyo、Daito Trust Construction、Dai Nippon Printing、Daiwa House Industry、Dentsu、TODA Corporation、TOPPAN PRINTING、Nabtesco、Japan Tobacco、Nippon Yusen Kabushiki Kaisha、Nomura Research Institute、Panasonic、Fujitsu、FUJIFILM Holdings、Brother Industries、MARUI GROUP、LIXIL Group、Ricoh、Unicharm、YKK.AP</p>
<p>Companies committing to set SBTs (38)</p>	<p>Ajinomoto、Azbil、Anritsu、Eisai、MS&amp;AD Insurance Group Holdings、Otsuka Pharmaceutical、ONO PHARMACEUTICAL、OMRON、KAO、KYOCERA、KDDI、KOBAYASHI PHARMACEUTICAL、SHIMADZU、Shimizu Corporation、J. FRONT RETAILING、Sompo Holdings、Takeda Pharmaceutical、Daikin Industries、Tokio Marine Holdings、Toyota Motor、Nikon、Nissan Motor、Nippon Sheet Glass (NSG Group)、Zeon、Hitachi、Hitachi Construction Machinery、FAST RETAILING、FUJI OIL HOLDINGS、Furukawa Electric、Benesse Corporation、Honda Motor Company、MITSUBISHI ESTATE、Mitsubishi Electric、MEIDENSHA、UK-NSI、Yamaha、YAMAHA MOTOR、Yokohama Rubber Company</p>

# SBTs by Japanese companies

- Companies commit themselves to **setting ambitious target on and reducing emissions over their supply chain and value chain (scope 3 emissions)**
  - **Ricoh** (July 2017)
    - commits to **reduce absolute scope 1 and 2 greenhouse gas emissions 30% by 2030 from a 2015 base-year**. This is a milestone target toward Ricoh's long-term target to achieve net-zero emissions by 2050 for scope 1 and 2 emissions. In addition, the company commits to **reduce absolute scope 3 GHG emissions from purchased goods and services, transportation, and product use emissions 15% by 2030 from a 2015 base-year**.
  - **Dainippon Printing** (July 2018)
    - commits to **reduce Scope 1 and 2 GHG emissions 25% by FY2030 from a FY2015 base-year**. The company also commits to **engage with key suppliers representing 90% of purchase value, to ensure these will have SBTs in place by FY 2025**.
- The Government of Japan expressed its commitment to support Japanese companies for setting SBT. **By the end of March 2020, it aims that 100 Japanese companies would set SBTs** (December 2017).

# Asahi Carbon Zero

## (based on 2015 emission)

2050	Commits to reach zero absolute GHG emissions	
2030	Scope 1 & 2	30% reduction
	Scope 3	30% reduction

- Implementing **effective sustainable supply chain management**
  - Asahi Group Basic Procurement Policies
  - CSR Principles for Asahi Group Suppliers
- Main Results for FY2017
  - A total of 108 suppliers participated in the Asahi Group Basic Procurement Policy Workshop, in which we explain the Asahi Group's policies to the management of our suppliers.
  - A total of 45 suppliers participated in QA Meetings for Asahi Group suppliers.
  - An on-site survey based on the responses to the Supplier CSR Survey was conducted at 13 suppliers.
  - Supplier evaluations (48 ingredient suppliers and 55 material suppliers)

# RE 100

- **RE100**
  - Companies start to seek to 100% renewable energy for their operation.
  - Committed by 169 companies (as of 5 April 2019)
  - <http://there100.org/companies>
  - **IKEA**: committed to produce as much renewable energy as the total energy it consumes in its buildings by 2020
  - **Swiss Re**: Swiss Re is motivated to drive a low carbon economy and has a goal to use 100% renewable electricity by 2020.
  - **Apple**: achieved 100% renewable electricity powering its global facilities across 43 countries. Apple is also helping its manufacturing partners lower their carbon footprint, working with them to install more than 4 gigawatts of new clean energy worldwide by 2020.

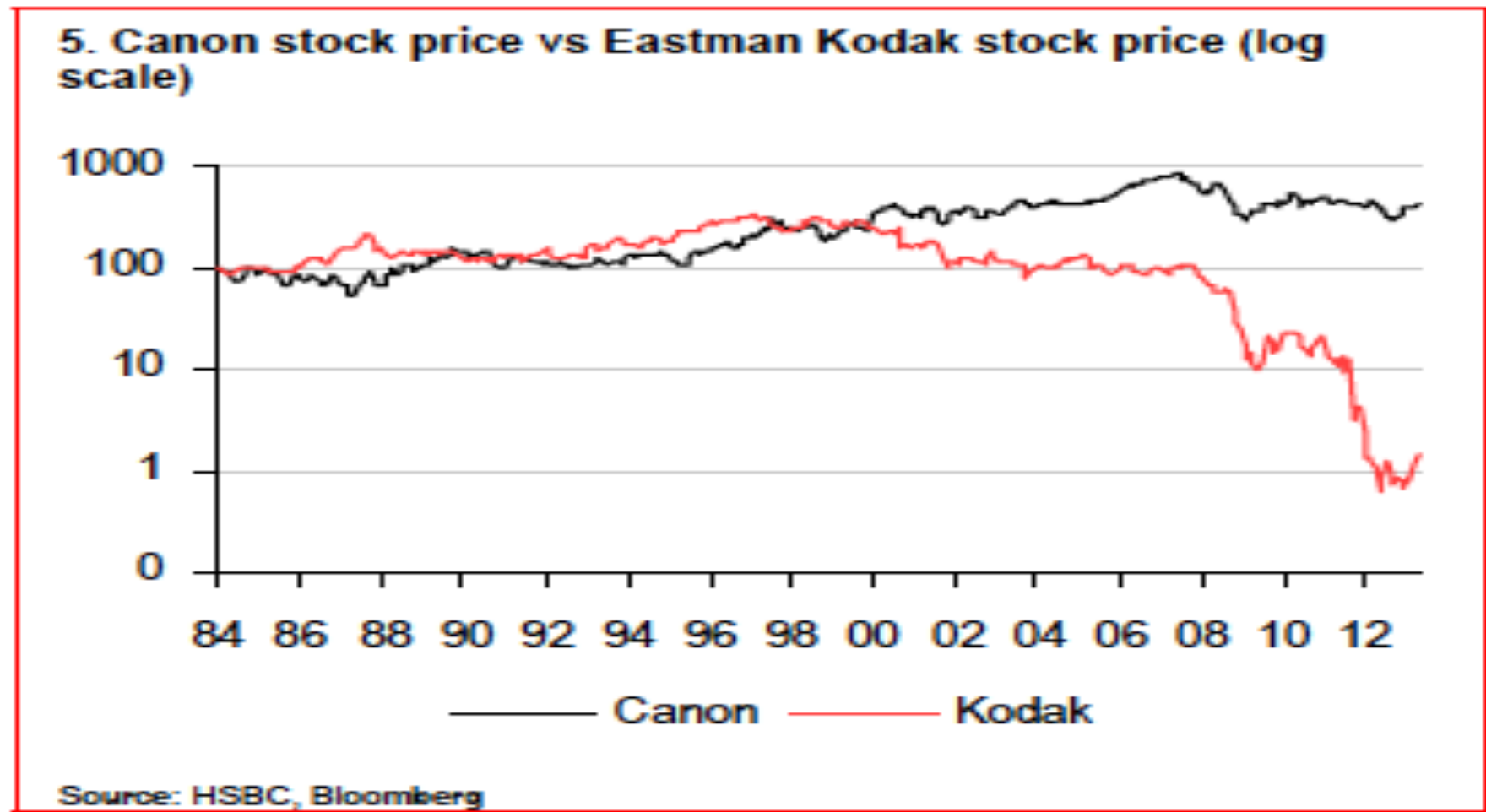
# RE100 by Japanese companies

- Ricoh (April 2017)
  - a target to source 100% renewable electricity by 2050, with an interim goal of at least 30% by 2030
- Sekisui House (October 2017)
  - committed to sourcing 100% renewable power by 2040, with an interim target of 50% by 2030.
- AEON (March 2018)
  - a target of sourcing 100% renewable electricity to power its global business operations by 2050
- ASKUL (November 2017)、Daiwa House (February 2018)、Watami (March 2018)、Johnan Shinkin Bank (May 2018)、MARUI GROUP (July 2018)、Envipro Holdings (July 2018)、Fujitsu (July 2018)、Sony (September 2018)、COOP Sapporo (October 2018)、Fuyo General Lease (October 2018)、TODA Corporation (2019年1月)、Daito Trust Construction (January 2019)、Konica Minolta (February 2019)、Nomura Research Institute (NRI) (February 2019)
- IBIDEN
  - Supplier for Apple products
  - Announced its decision to manufacture products for Apple by all renewable power (March 2017).

# Drastic Changes in Financial Institutions and Investors

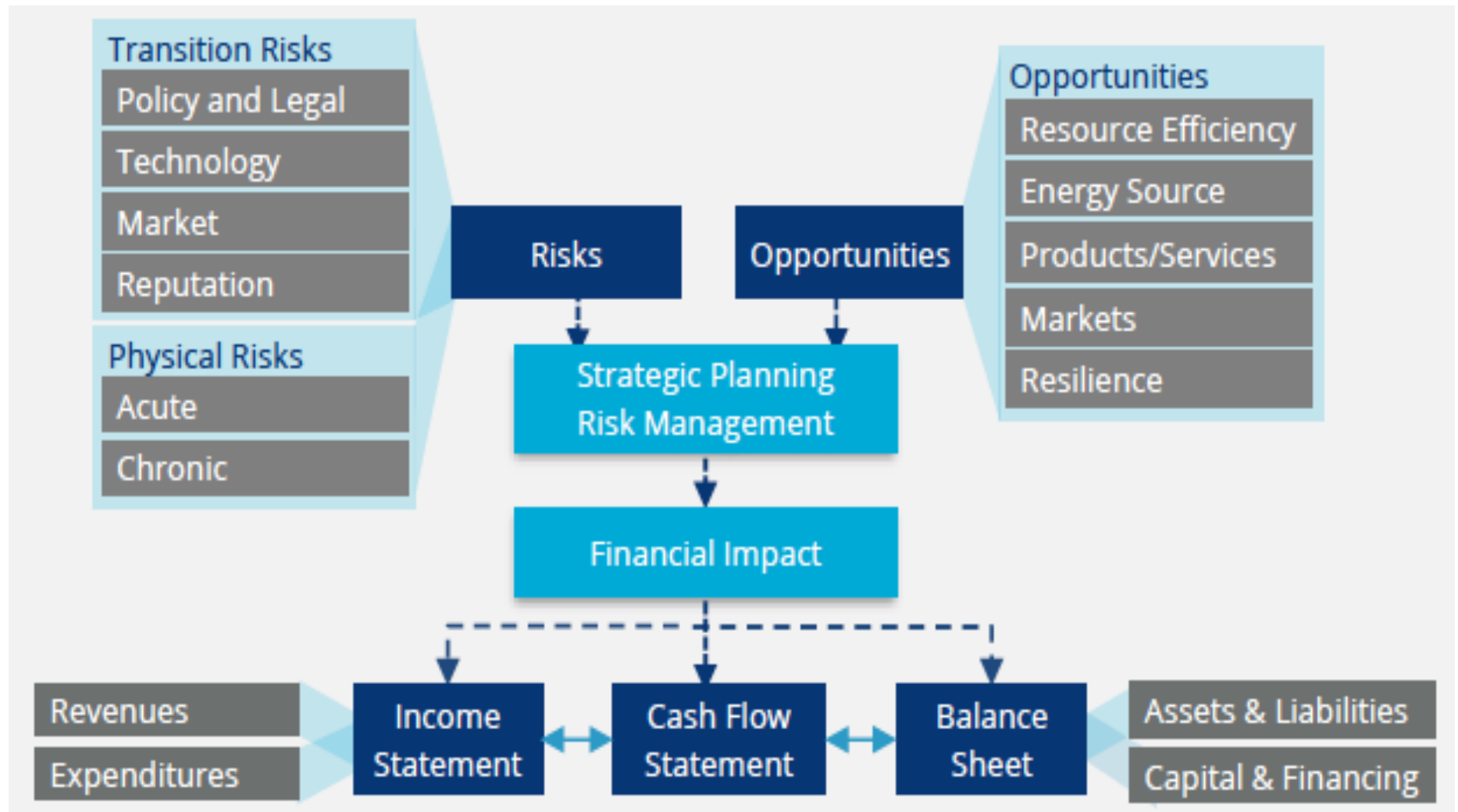
- Drastic change in financial institutions and investors
  - UNPRI (Principles for Responsible Investment) and ESG investment
  - Disclosure of climate risk, covering the whole supply chain
    - CDP (previously, Carbon Disclosure Project)
    - Recommendations by Task Force on Climate-related Financial Disclosures (TCFD) (June 2017)
- “Engagement, Voting and Divestment”
  - For instance, Norwegian Government Pension Fund (with about One trillion US dollar) has made divestment (about 8 billion US dollar) from 122 companies, more than 30% of business of which depends on coal exploitation and power generation (since 2016)
  - Climate Action 100+

# Canon stock price vs Kodak stock price (log scale)





# 気候変動のリスクと機会 財務上の影響 (TCFD)



# Climate Action 100 +

- **Climate Action 100+** (launched in December 2017)
  - As of 5 April 2019, **323 investors with more than USD \$32 trillion in assets** under management have signed on to the initiative.
  - From Japan, Asset Management One Co., Fukoku Capital Management, Mitsubishi UFJ Trust & Banking Corporation, Sumitomo Mitsui Trust Bank, Nikko Asset Management, Sompo Japan Nipponkoa Asset Management and Resona Bank signed.
  - **Government Pension Investment Fund (GPIF)** also signed in October 2018
  - **Commit to undertake engagement with companies in the Focus list**

# Climate Action 100 + (2)

- The initiative aims to secure commitments from the boards and senior management to:
  - Implement a strong governance framework which clearly articulates the board's accountability and oversight of climate change risk and opportunities.
  - Take action to reduce GHG emissions across their value chain, consistent with the Paris Agreement's goal.
  - Provide enhanced corporate disclosure in line with the final recommendations of the TCFD to enable investors to assess the robustness of companies' business plans against a range of climate scenarios.
- 10 Japanese companies in the Focus List targeted for engagement under climate action 100 +
  - Daikin Industries、Hitachi、Honda Motor Company、JX Holding、Nippon Steel & Sumitomo Metal Corporation、Nissan Motor、Panasonic、Suzuki Motor Corporation、Toray Industries、Toyota Motor Corporation

# Change of policy for investment in coal (1)

- Dai-ichi Life Holdings (May 2018)
- Mitsubishi UFJ Financial Group (May 2018)
- Mizuho Financial Group (June 2018)
- Sumitomo Mitsui Banking Corporation (June 2018)
- Nippon Life (July 2018)
- Sumitomo Mitsui Trust Bank (July 2018)

# Change of policy for investment in coal (2)

- Meiji Yasuda Life Insurance Company (September 2018)
- Marubeni (September 2018)
- Mitsui & Co. (October 2018)
- Mitsui Matsushima Holdings (November 2018)
- Risona Holdings (November 2018)
- Itochu (February 2019)

# Nuclear power in the context

- “Nuclear energy is a mature low-GHG emission source of baseload power, but its share of global electricity generation has been declining (since 1993). Nuclear energy could make an increasing contribution to low-carbon energy supply, but a variety of barriers and risks exist (IPCC AR5, 2014)
  - operational risks, and the associated concerns, unresolved waste management issues, nuclear weapon proliferation concerns, adverse public opinion...
  - Cost
  - Value and difficulties as “large-scale” “baseload” power
- Increasing importance of low and zero carbon power supply in the context of decarbonizing society
  - Redefining its role and value in the context

Thank you for your attention!

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# Institute for Future Initiatives

## The University of Tokyo

- **Institute for Future Initiatives (IFI)** was established in April 2019 to organically integrate UTIAS Integrated Research System for Sustainability Science (IR3S) and the Policy Alternatives Research Institute.
- **To create a sustainable future society,**
  - IFI makes **policy and social recommendations on future society issues** and **pursues research in collaboration with society** toward those ends.
  - It also serves as **an international network hub integrating university knowledge** related to future society and as **a platform for collaborative creation** between industry, government, academia, and citizens to **provide research-based alternatives** for creating our future society and to help **develop the human resources necessary to achieve it.**
- 3 approaches to construct and bring about a vision of the future
  - Inclusive, Fundamental, Innovative