



COP25
C H I L E
MADRID 2019
UN CLIMATE CHANGE CONFERENCE

POST-COP25
HONG KONG FORUM

17 January 2020

Post-COP25 Hong Kong Forum

Event Summary Report

Published in February 2020

EVENT BACKGROUND

COP25's task was to finalise the 'Paris Rulebook' framework under which Countries are asked to submit significantly more ambitious National Determined Contributions to Greenhouse Gas (GHG) reduction at COP26 in 2020. Its context included:

- The IPCC's three special reports (1.5°C, oceans, land) which show the importance of reducing greenhouse emissions and adapting to climate change. – See the [briefing the IPCC gave in Hong Kong in October 2019](#)
- A tense global geopolitical climate with USA formally starting the process of withdrawing from the Paris Agreement, increased deforestation in Brazil and investments continuing to be made in coal mining and coal fired power stations.
- Technological progress on renewable energy and the potential hydrogen economy.
- Strong policy responses from some countries including the EU considering a Carbon Border-Adjustment for goods imported from countries without a carbon price.

COP25 failed to finalise the Paris Rulebook including 'Article 6' rules for international carbon trading. This must now be done in the next year and risks obstructing country commitments to reduce their emissions to close the gap on what science advises is essential.

On the other hand, 'side events' at the COP were extensive and showed the substantive work being done to meet the climate change challenge. Examples:

- [The EU's Green Deal to be carbon neutral by 2050](#)
- [The Energy Transitions Commission's detailed sectoral analysis on carbon neutrality](#)
- [The UNPRI's study on the 'Inevitable Policy Response' to the threat of severe climate change](#)



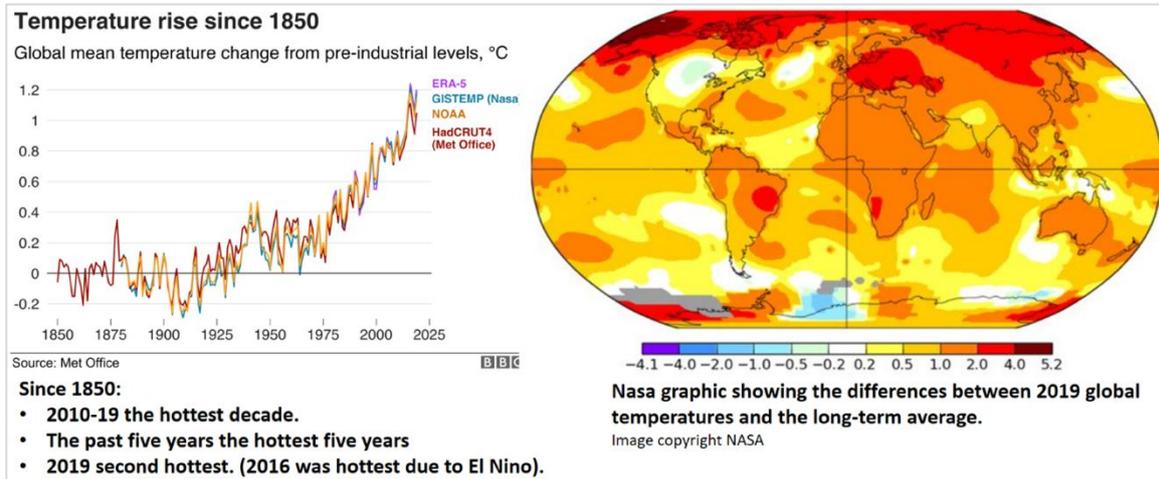
EVENT PROGRAM

TIME	CONTENT	SPEAKER	VIDEO
09:00	Opening Remarks	Mr. Eric Chong , Business Environment Council	[VIDEO]
Session 1 - What did the Government negotiators achieve at Madrid? What actions are China and California taking? What will Governments do to deliver more ambitious 'Nationally Determined Contributions' at COP26 in Glasgow next year?			
Moderated by Mr. J. Robert Gibson , HKUST/Civic Exchange			[VIDEO]
	A view from California	Prof. Cara Horowitz , UCLA	[VIDEO]
	A view from Beijing	Dr. Wee Kean Fong , WRI Beijing	[VIDEO]
09:05	Youth input at COP25	Mr. Lawrence Iu , Civic Exchange	[VIDEO]
	Panel Discussion with Q&A	<ul style="list-style-type: none"> • Prof. Cara Horowitz, UCLA • Dr. Wee Kean Fong, WRI Beijing • Mr. Ray Leung, EPD, HKSAR Government 	[VIDEO]
10:20	Coffee/tea break		
Session 2 – Business action to decarbonize Hong Kong			
Moderated by Mr. Simon Ng , Business Environment Council			
	Decarbonising electricity supply and electrifying our economy	Mr. Joseph Law , CLP	[VIDEO]
	Decarbonising shipping	Mr. Martin Cresswell , Hong Kong Shipowners Association (HKSOA)	[VIDEO]
10:40	How companies can look beyond the normal business horizon and reduce their exposure to the ' Inevitable Policy Response '	Mr. Tim Chan , Manulife Investment Management	[VIDEO]
	Panel Discussion with Q&A	<ul style="list-style-type: none"> • Mr. Joseph Law, CLP • Mr. Martin Cresswell, HKSOA • Mr. Tim Chan, Manulife 	[VIDEO]
11:55	Looking forwards to COP26	Mr. David Foster , British Consulate-General Hong Kong	[VIDEO]

HIGHLIGHTED MESSAGES FROM THE EVENT

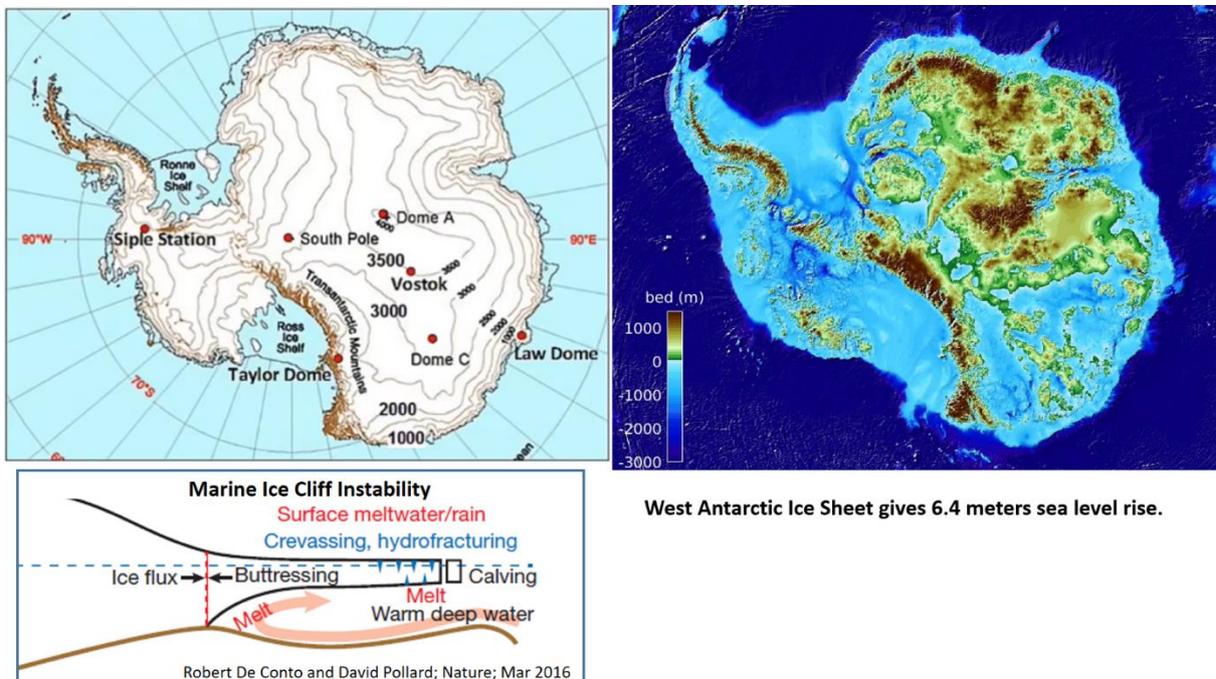
Climate science update

1. NASA, NOAA and the UK Met Office on increase in global temperature



Source: BBC 16th Jan 2020: www.bbc.com/news/science-environment-51111176

2. The risk of sea level rise from the West Antarctic Ice Sheet disintegrating



West Antarctic Ice Sheet gives 6.4 meters sea level rise.

Source: agu.confex.com/agu/fm19/meetingapp.cgi/Paper/515095

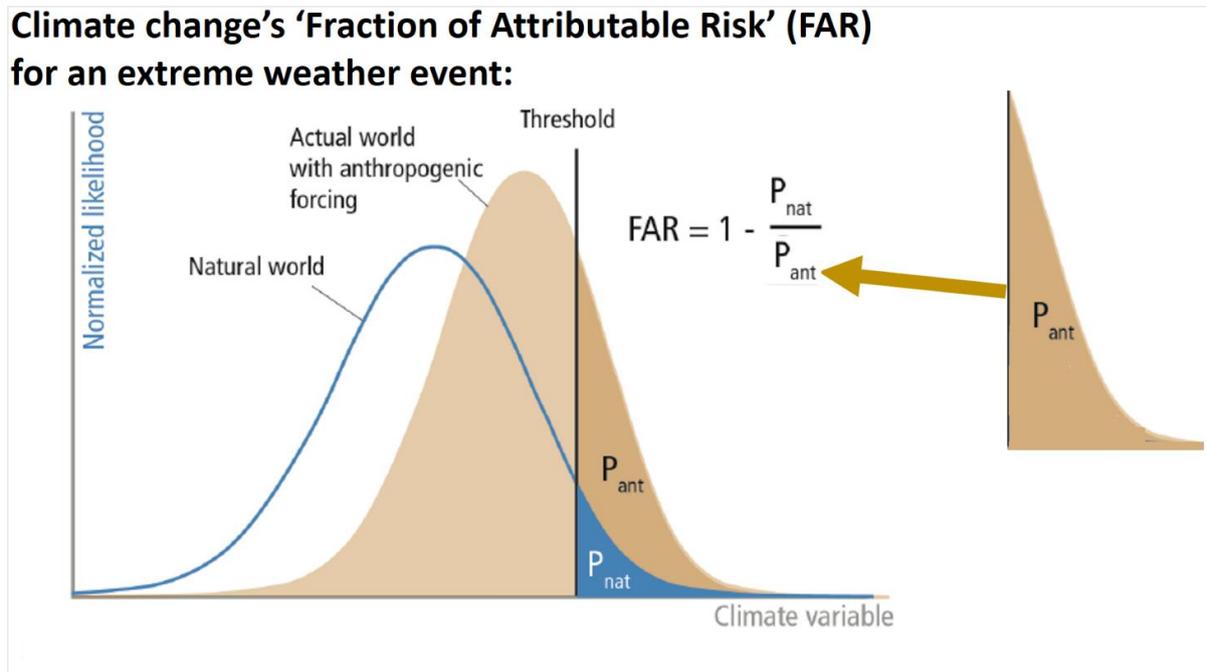
Most people look at the map on the left and believe Antarctica is all land. But, as the map on the right shows, it is a group of islands covered by ice-sheets some of which rest on bed-rock which is a long way below sea level.

Some scientists believe that at current CO₂ levels ice cliff instability will lead to the West Antarctic Ice Sheet will disintegrate giving 6.4 meters of sea level rise. Where, as they say, there is DEEP UNCERTAINTY

is how quickly this disintegration will occur. The latest IPCC reports estimate total sea-level rise of nearly 0.9 meters this century and, depending on future CO₂ emissions, between 1.0 and just over 5.0 meters by 2300. Considerable work is now being done to understand the issues better.

3. The relationship between global warming and extreme weather events

It is often asked whether climate change has caused a particular extreme weather event. For example, the forest fires in California, Brazil and Australia; or the severity of recent Typhoons. The chart below provides the thinking for answering this question:



Source: SROCC 1-12; 6-17

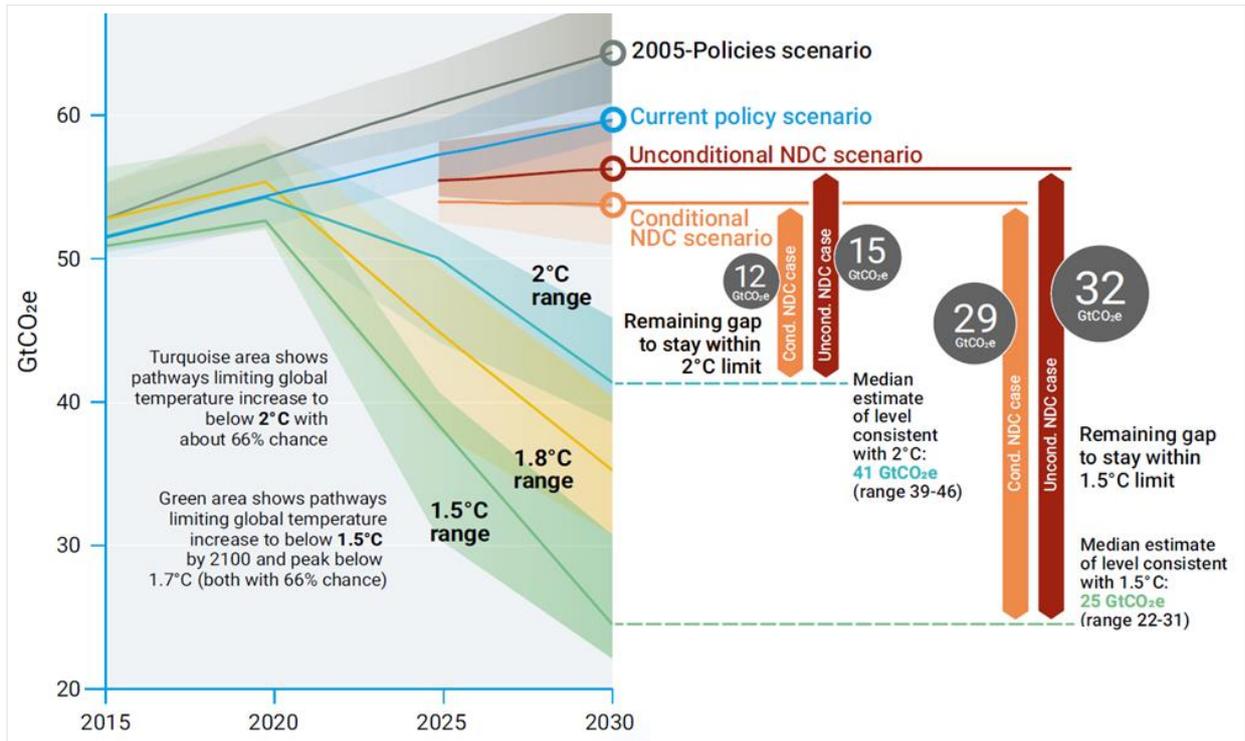
The chart simplifies matters to show the concept of how much more likely an extreme weather event is due to global warming caused by anthropogenic forcing (i.e. by our greenhouse gas emissions). To explain:

- Weather is variable so we will always have some extreme events. The 'BLUE: Natural World' shows the frequency of different levels of a climate variable with the 'Threshold' being the level above which an extreme weather event might happen. For example, the variable might be how warm the Western Pacific Ocean near Hong Kong is and the Threshold be the level at which a Typhoon may become severe.
- Next, the 'BROWN: Actual world with anthropogenic forcing' shows the frequency of different levels of the same climate variable given Earth is now warmer due to human greenhouse gas emissions.
- The likelihood that a Typhoon becomes severe is given by the ratio of the 'Brown' area to the 'Blue' area. Last year scientists used this type of logic to conclude that global warming had made it substantially more likely that a storm would devastate of the Bahamas in the way Hurricane Dorian did.

For more information on the science of climate change, you can view videos of the IPCC's presentation in Hong Kong on 18 October 2019 at <https://ienv.ust.hk/events/business-and-climate-change-challenge>

Information on Hong Kong's work to adapt to climate change has been provided by [HKUST's Climate Adaptation and Resilience Conference 27-29 October 2018](#).

4. The gap between global human greenhouse gas emissions and scientific advice on what is needed

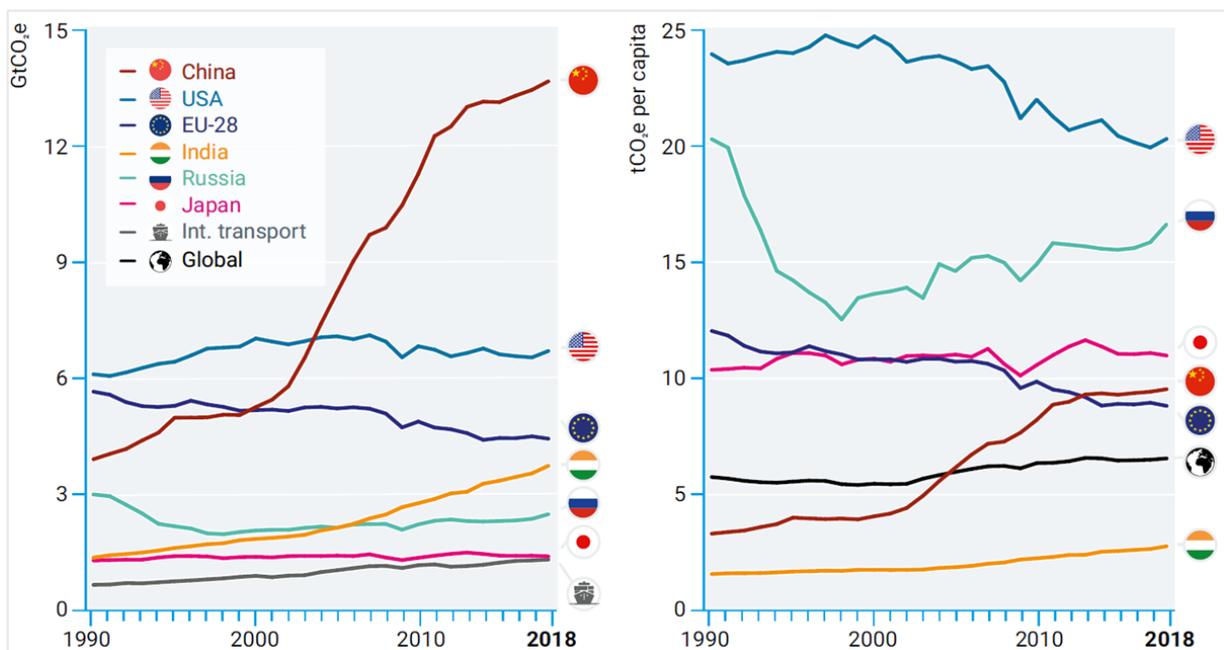


Source: UNEP Emissions Gap Report 2019 page 26 - newclimate.org/2019/11/26/emissions-gap-report-2019/

Key messages from the UNEP Emissions Gap Report 2019:

1. Current unconditional pledges, =>3.2°C temperature rise.
2. Technologies and policy knowledge exist to cut emissions, but transformations must begin now.
3. G20 nations = 78% of all emissions but 15 G20 members have not committed to a timeline for net-zero emissions.

The UNEP report also shows the trends in total emissions from major counties (on the left) and their per capita emissions (on the right).



Source: UNEP Emissions Gap Report 2019 p XVI - newclimate.org/2019/11/26/emissions-gap-report-2019/

So what happened at COP25?

1. Negotiations on international emissions trading (Article 6 of the Paris Agreement)

The most significant negotiations were on rules for 'Internationally Traded Emissions Outcomes' (ITMOs) – commonly referred to as carbon trading. As Prof Cara Horowitz explained in her presentation, and is further detailed in a research report commissioned by the International Emissions Trading Association (IETA)¹, such trading can reduce the cost of decarbonizing the global economy. For example:

- If it costs Country A US\$80/ton of CO₂ to decarbonise its steel production;
- and it costs Country B US\$20/ton to retire coal fired electricity generation early and replace it by renewable energy;
- then if Country A pay Country B accelerate its switch from coal to renewable energy, US\$60 per ton is saved while achieving the same global target to reduction.

The report calculates that by 2030 global trading could save US\$250 billion/year for a given greenhouse gas reduction. Further, if this saving were spent on accelerating decarbonisation, an additional 5 gigatons reduction can be achieved.

But if Article 6 rules are poorly written, they will hinder decarbonisation by:

- creating incentives countries not to tighten their NDCs;
- allowing double counting with the same reduction being counted by both a) by the country buying it; and b) the country where it is made; (Brazil was particularly unhelpful on this point.)
- allowing carbon credits from pre 2020 (“hot air”) to be used to meet part of country’s NDC commitments. (Australia wants to do this.)
- The negotiations failed to agree the above points. They also failed to agree on:
 - transparency of reporting, extent to which CDM rules used and measures to avoid double counting;
 - whether to ensure reductions in emissions by cancelling a % of the emissions covered by each trade;
 - whether, say 2%, of the money for each trade is paid to a fund which finances adaptation.

2. Areas where COP25 made progress

Areas where progress was made included integrating gender, human rights and indigenous rights into climate actions.

3. Other issues where there were disagreements at COP25

- a) Just Transition and Loss & Damage
- b) Developed countries delivering pledged emission reductions up to 2020
- c) Support for less developed countries including technology transfer, capacity building and finance

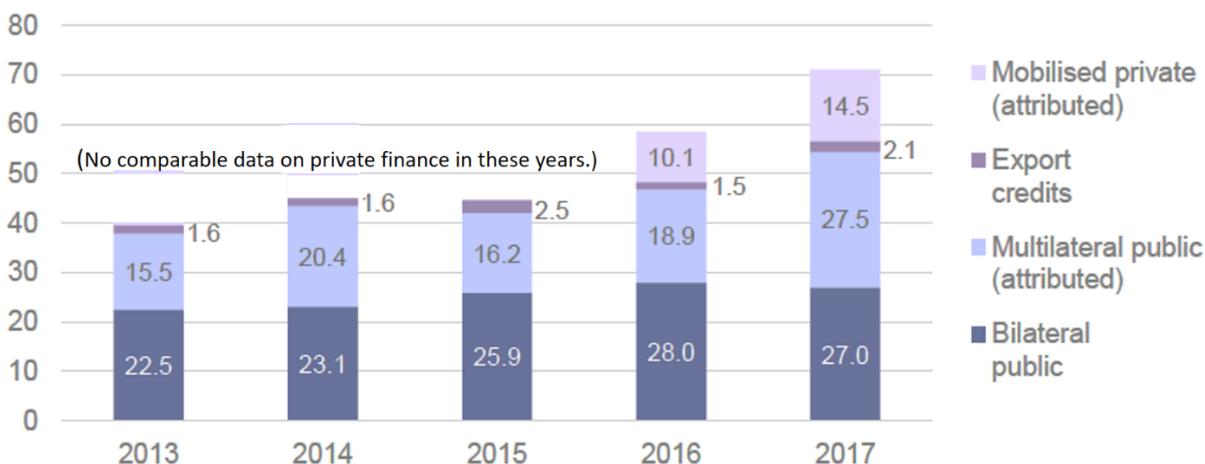
¹ IETA commissioned study by Germanwatch:

https://www.ieta.org/resources/International_WG/Article6/CLPC_A6%20report_no%20crops.pdf

Of these issues, finance is probably the most significant. Developed countries have pledged to mobilize US\$100 billion per annum by 2020 to help developing countries develop in a low carbon manner and adapt to climate change. The OECD has summarized all finance provided to developing countries which might be considered as climate finance². It has done this in a very transparent manner, however lack of clarity on what the 'US\$100 billion pledge' means has led it to added Grants, Loans, Equity Investments and in some cases Guarantees together. Further loan repayments are not netted off the new finance provided each year.

Figure 2.1. Climate finance provided and mobilised by developed countries (USD billion)

Annual flows



Source: www.oecd-ilibrary.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-17_39faf4a7-en

Table 3.1. Overview of the categories of finance considered

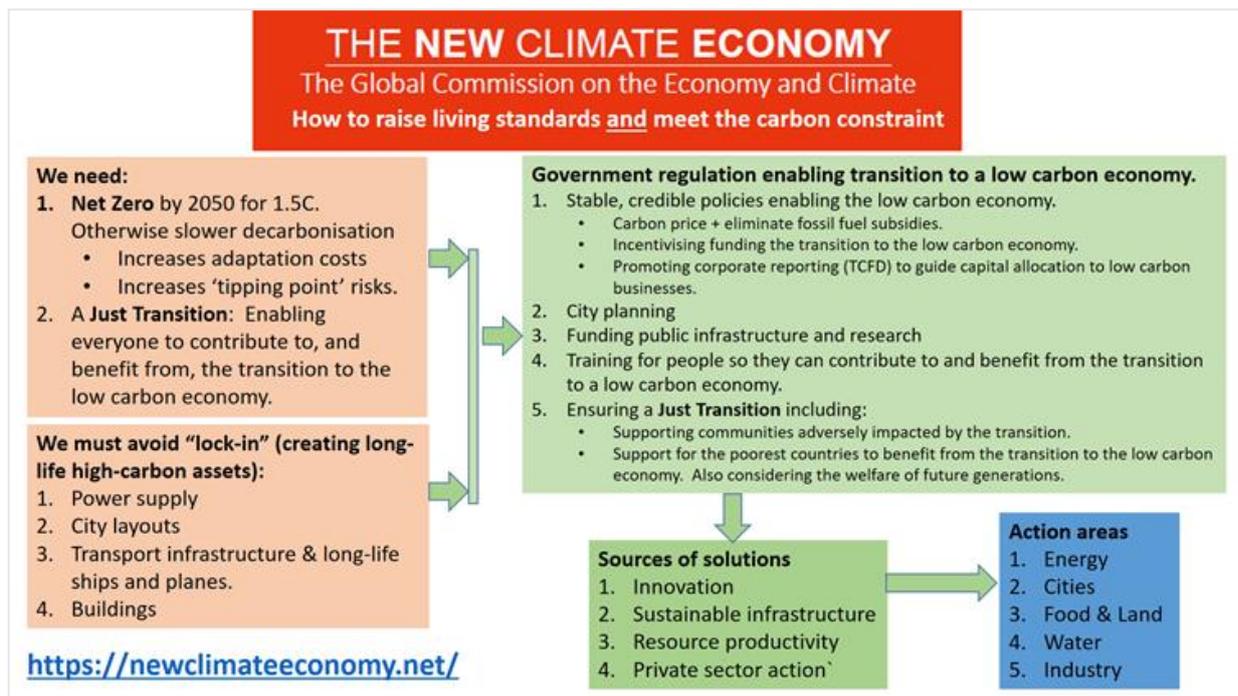
Category	Coverage	Instruments	Data source
Bilateral public	Climate finance outflows from donor countries' bilateral development finance agencies and institutions	Grants, loans, equity investments (for the USA only: developmental guarantees)	Biennial reports to the UNFCCC (Table 7(b) of the Common Tabular Format); complementary data submissions to the OECD.
Multilateral public (attributed to developed countries)	Climate finance outflows from multilateral development banks and climate funds attributable to developed countries; developed countries' climate-related inflows to other multilateral bodies	Grants, loans, equity investments	OECD DAC database (total multilateral outflows); institutions annual reports (for calculating attribution shares); Biennial reports to the UNFCCC (Table 7(a))
Export credits	Climate-related export credits provided by developed countries' official export credit agencies, mostly for renewable energy	Export credit loans, guarantees, and insurances.	OECD Export Credit Group database of officially- supported export credits; complementary data submissions to the OECD
Mobilised private (attributed)	Private finance mobilised by bilateral and multilateral public climate finance.	Private finance mobilised by grants, loans, equity and developmental guarantees	OECD DAC (regular and survey data collection); complementary data submissions to the OECD and controlled access to IFC private mobilisation data.

Source: www.oecd-ilibrary.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-17_39faf4a7-en

² http://www.oecd-ilibrary.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-17_39faf4a7-en

Solutions to the climate change challenge

1. The New Climate Economy 9 Nov 2018 – Briefing by Nick Stern



Source: www.envr.ust.hk/events-and-media/events-and-seminars/event-0398789dd1608e6c4ac554dc647c3a03.html#2018-11

This report maps out policies which can enable the global economy to both provide improved living standards for all people and reduce greenhouse gas emissions so as to avoid dangerous climate change. As Lord Nicholas Stern says,

"The only growth story for the 21st Century is low carbon growth. High-carbon growth self-destructs."

2. California's example of successful action on decarbonisation

In her talk (see video link on page 3 of this report), Prof Cara Horowitz noted that California's long history of action to improve air quality provided a foundation for its action on climate change. Its Assembly Bill 32: 'Global Warming Solutions Act of 2006' committed it to reduce its greenhouse gas emissions to 1990 levels by 2020, an objective it has achieved while its population has grown to 33% more than 1990 levels and its economy has grown even more substantially.

With its SB100 initiative, California has now committed to having 100% clean electricity and being overall carbon neutral by 2045. Actions taken include the following:

- Renewable energy mandates including achieving 33% of power from renewable sources by 2020.
- Changing to much more energy efficient appliances, building envelopes and solar water heating.
- A Statewide Cap and Trade scheme covering 350 businesses responsible for 80% of state's emissions which has raised US\$3.2 billion. How the money is spent helps build political support for the scheme.

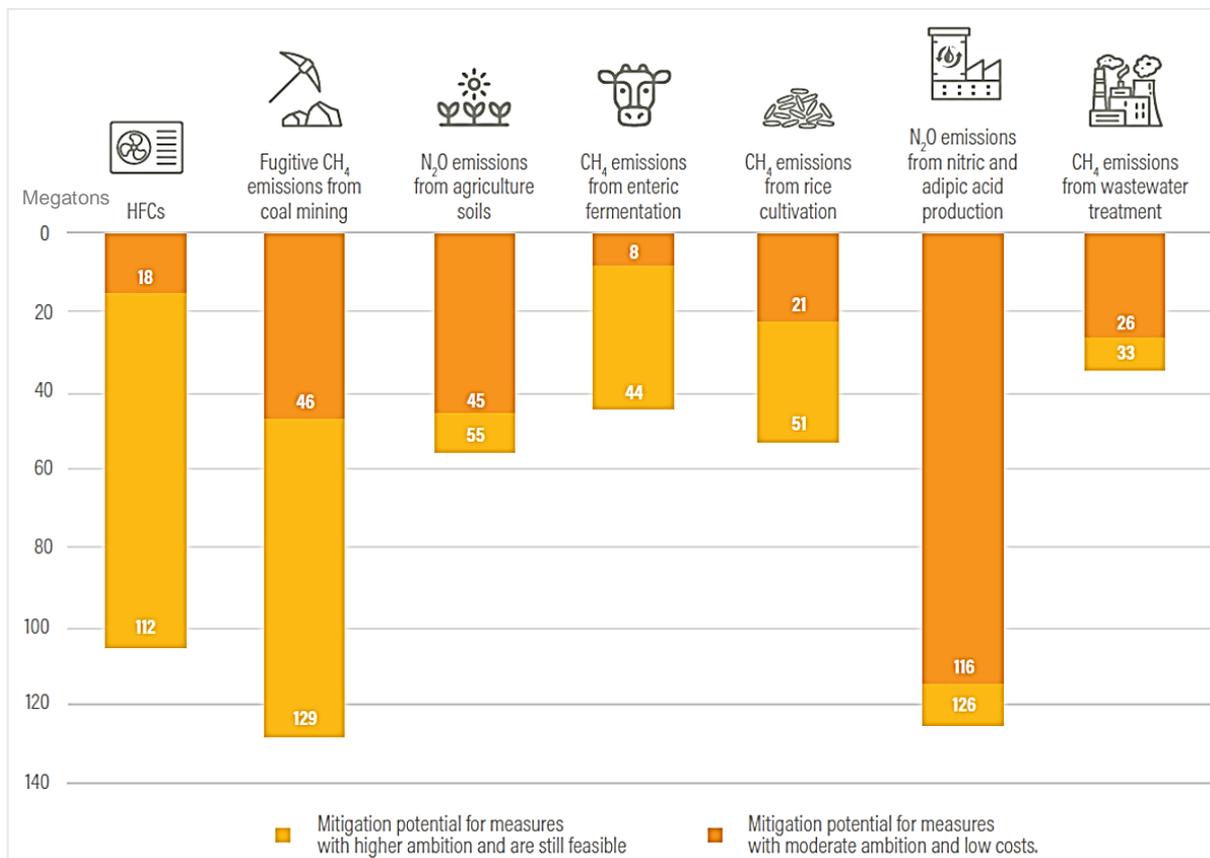
- Transport continues to be California’s biggest challenge but progress has been made through vehicle maximum greenhouse gas emission standards, mass transit funded from the carbon emissions cap and trade scheme and other measures.

When taking action, it helps that California has the company of 160 US mayors and about 14 States which have set GHG emissions targets.

3. Reducing China’s greenhouse gas emissions



Wee Kean Fong of WRI noted that China is making substantial investments to reduce CO₂ emissions. In addition, it can reduce its non CO₂ greenhouse gas emissions by 2 Gigatons in the following areas:



Source: WRI June 2019 report - wriorg.s3.amazonaws.com/s3fs-public/opportunities-advance-mitigation-ambition-china_0.pdf

4. Young people working for climate solutions



Lawrence Lu of Civic Exchange, who attended COP25 in Madrid, noted many Young Observers there and the attention which the UNFCCC pays to engaging with young people.

Prioritising Youth when updating NDCs

Why youth is important?

In 2020, Parties will officially submit their climate action plan for the next 5-10 years and their mid-century targets. Youth should be involved in setting climate policy. It is today's young people will be taking the action between now and 2050 and will face the consequences

Five core areas of youth priorities to be incorporated into countries' NDCs in the 2020 NDC update

				
ENVIRONMENTAL EDUCATION	AWARENESS AND SENSITISATION	GREEN JOBS AND PROFESSIONAL PROGRAMS	EQUITABLE ACCESS FOR YOUTH TO CLIMATE FINANCE	POLITICAL AND CIVIC PARTICIPATION

Source: showyourstripes.info

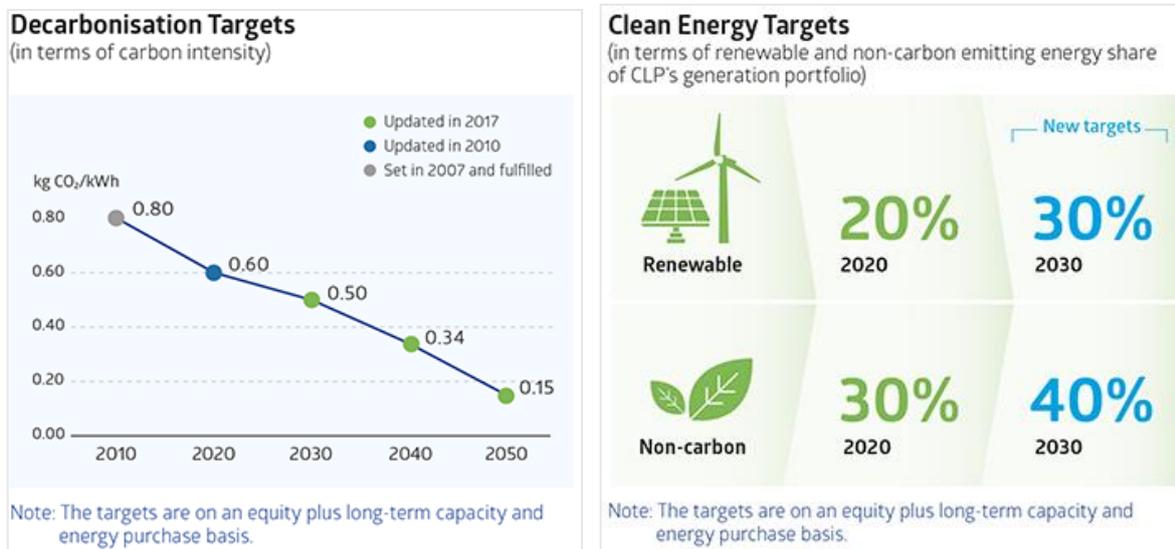
³ The Chart colour codes 1850 to 1918 with blue colours (mainly early years) being blue and hotter ones red. <https://showyourstripes.info/>

5. Decarbonising Hong Kong's electricity supply



Joseph Law outlined CLP's CLP2050 Carbon vision⁴ which has recently be tightened to include targets of 30% from renewable energy and 40% non-carbon energy by 2030. This includes generating as much as is practicable from renewables in Hong Kong and then meeting the balance from:

- Regional cooperation. NB: When increasing the supply of low carbon electricity the lead time on cross border transmission lines is 10+ years.
- Natural gas which will have to transition to using carbon capture and storage or hydrogen to meet mid-century emission targets.



Source: www.clpgroup.com/en/sustainability/our-approach/frameworks-strategies/climate-vision-2050

⁴ CLP Climate Vision 2050: <http://www.clpgroup.com/en/sustainability/our-approach/frameworks-strategies/climate-vision-2050>

6. Decarbonising shipping



Energy source for Ocean shipping

The challenges replacing liquid fuels.....

Energy Storage type		Specific energy MJ/kg	Energy Density MJ/L
HFO	Chemical	45.5	35
LNG	Chemical	51.2	36
Liquidified natural gas (LNG, 162 °C)	Chemical	50	32
LPG (Liquefied Propane / Butane)	Chemical	47	35
Hydrogen (liquid, -253 °C)	Chemical	142	10
Methanol	Chemical	18	15
Ammonia (liquid, -33 °C)	Chemical	18.5	13.2
Coal (lignite or bituminous)	Chemical	30	28
Coal dust	Chemical	22	8.8-11.8
Lithium-ion battery (Li-Po, Li-Mn)	Electrochemical	1.8	1.1
Lithium-ion battery	Electrochemical	0.8	2.6
Lead acid battery	Electrochemical	0.2	8.6

Tank volume increases from HFO to LNG:

LNG: x 1.6 times + insulation

From LNG to Hydrogen (cryogenic):

Hydrogen: x 2.2 times and more insulation

Same Tank size = less than 1% endurance!

Ammonia and Methanol:

Challenge on tank volume increase

Challenge on weight increase

—and both are toxic!

Batteries compared to HFO:

Volume increase: x 8 times

Weight increase: x 22 times

Martin Cresswell of the Hong Kong Shipowners' Association noted about 65,000 ships of more than 500 Gross Registered Tons carry international trade and account for 2.7% of global emissions. This percentage will become much higher if other sectors decarbonise and shipping doesn't.

Shipping is important to Hong Kong with 1.6% direct contribution to GDP and a much higher contribution when related activities are considered. Further Hong Kong has the 4th largest shipping register with over 2,600 ships.

International shipping is overseen by the IMO. In 2018 the IMO adopted targets for emissions from international shipping per Tonne-mile to reduce from 2008 levels by 40% by 2030 and 70% by 2050 with an aim for Net Zero by 2100. It aims to achieve this reduction by:

- Improved efficiency with better designed hulls and operating procedures. It is proposed to support this by a levy of US\$2/tonne of bunker fuel (US\$5 billion over five years).
- Developing zero emission ships. Given the long life of ships, the Zero Emission ones need to be available by 2035 to meet the 2050 target. These might use hydrogen, ammonia or other synthetic fuels. Ports providing bunkering these fuels will be key.

The change in fuel time will increase costs and, given margins, shipping will need to pass these on to customers.

Shipping is concerned to have a single global set of regulations providing a level playing field.

7. Funding the transition to a low carbon economy

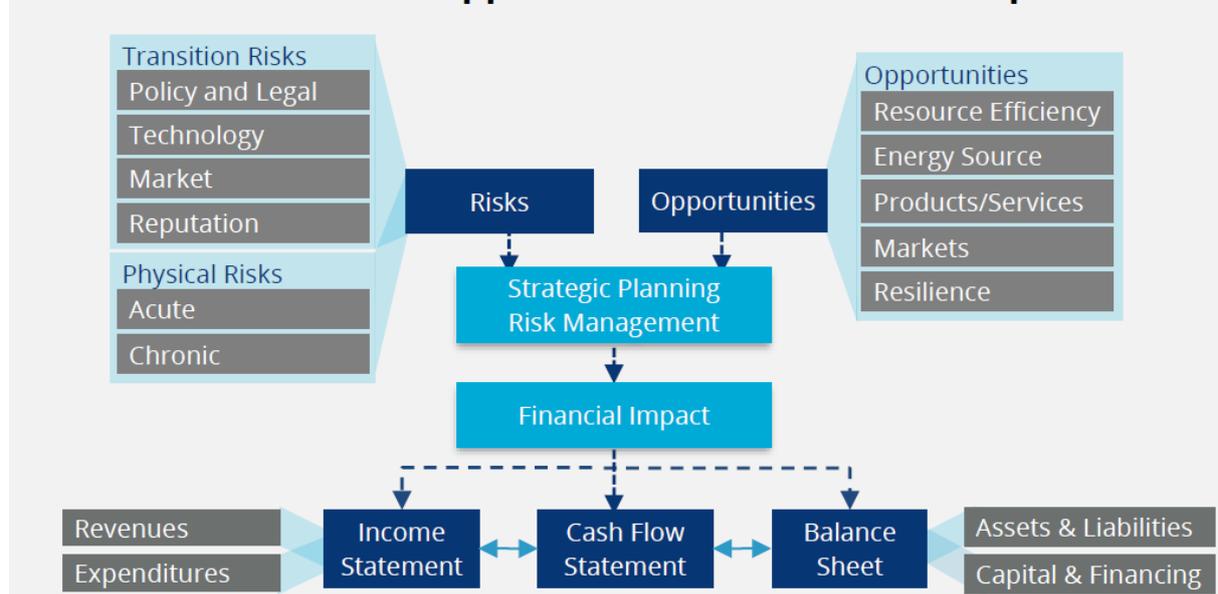


Tim Chan, Manulife: (Speaking subject to the Investment Consideration disclaimers – see video.)

The UNEP Emission Gap report shows a disconnect between the emissions reduction which science advises is necessary and current government policies. The UNPRI's 'Inevitable Policy Response'⁵ report notes the corollary that climate risk not adequately priced into the valuation of financial assets.

He sees company reporting per the recommendations of the Taskforce on Climate Related Financial Disclosures (TCFD)⁶ as helpful in identifying mispricing of financial assets. These recommendations include disclosure their potential physical and transition risk based on scenario planning:

Climate-Related Risks, Opportunities, and Financial Impact



Source: www.fsb-tcfd.org

This risk analysis feeds into calculations of the 'Value At Risk' from climate change. For example, finding Asian stocks have more exposure to climate risk than Canadian stocks. It seems inevitable that climate risk will be major factor in company valuations in the future.

⁵ UNPRI's paper on the Inevitable Policy Response to climate change: <http://www.unpri.org/inevitable-policy-response/what-is-the-inevitable-policy-response/4787.article>

⁶ Taskforce on Climate Related Financial Disclosures <http://www.fsb-tcfd.org/>

SPEAKERS & MODERATORS



Mr. Tim Chan is responsible for ESG integration, research and related activities in Asia at Manulife Investment Management, including engaging with companies on ESG issues. Before joining Manulife Investment Management, Tim worked at Ernst & Young Hong Kong as an ESG advisory manager, where he provided ESG risk assessment consulting services to financial institutions, corporates and the government.

Tim holds a Bachelor of Science from the Chinese University of Hong Kong, and a Master of Science in Environmental Management from the University of Hong Kong. He is also a CFA charterholder and an EFFAS Certified ESG Analyst.



Mr. Eric Chong, President & CEO of Siemens Hong Kong & Macao, is leading the overall strategy in electrification, automation and digitalization, focusing on the areas of power generation and distribution, intelligent infrastructure for buildings and distributed energy systems, and automation and digitalization in the process and manufacturing industries.

Mr. Chong is currently the Deputy Chairman of the Board of Directors of Business Environment Council (BEC) and is serving as the Chair of BEC Climate Change Business Forum Advisory Group.



Mr. Martin Cresswell is Technical Director of the Hong Kong Shipowners Association (HKSOA). He is a Marine Engineer with over 40 years experience of operating, managing and building merchant ships. He is currently Chairman of the Marine Committee of the International Chamber of Shipping (ICS) and was past Chairman of the HKSOA Technical Committee from 1996 to 2009. He is an active member of the Lloyds Register, ABS and DNVGL Technical Committees in Hong Kong.



Dr. Wee Kean Fong is the Deputy China Country Director and Senior Advisor to the Subnational Climate Action initiative at World Resources Institute (WRI). In China, Dr. Fong is leading WRI's China Climate and Energy Program. He has been actively supporting provinces and cities in China to develop emissions peaking and long-term deep decarbonization strategy. He is also a senior advisor to a global initiative on subnational low carbon action which focuses on supporting cities and regions to measure greenhouse gas emissions, set emissions reduction targets, and plan and implement actions.



Mr. David Foster is Vice Consul for Economic Diplomacy at the British Consulate-General in Hong Kong, leading on climate change, biodiversity and the illegal wildlife trade. He has a background in counter-trafficking, counter-terrorism and human rights, gained from postings in Azerbaijan, Bosnia and Herzegovina and Sudan.



Mr. J. Robert Gibson is Adjunct Professor at Hong Kong University of Science & Technology and a Fellow of Civic Exchange. He focuses on mechanisms for making capitalism more sustainable and facilitating action by business to mitigate greenhouse gas emissions which are causing climate change. He worked for the Swire Group up to 2010 including being the Director Sustainable Development for John Swire & Sons (HK) from 2007 to 2010.



Prof. Cara Horowitz is the Co-Executive Director of the Emmett Institute on Climate Change and the Environment at UCLA School of Law. She researches public policy debate and legislative reform to address climate change and its effects. She serves on the governing boards environmental organizations, including the Climate Law Institute, Climate Resolve, and the Green LA Coalition. Prior to joining UCLA, she worked as a staff attorney for the Natural Resources Defense Council.



Mr. Lawrence Lu works at Civic Exchange on the ‘HK2050 Is Now’ project focused on how Hong Kong can reach Net Zero carbon emissions by 2050. He previously worked in a multinational corporation and a higher institution on circular economy, green chemistry and other research projects. He holds a MPhil in Environmental Engineering, a MSc in Environmental Science and Management and a BEng in Chemical and Bioproduct Engineering from HKUST.



Mr. Joseph Law is Senior Director Planning and Development for CLP Power, the Hong Kong electricity business of CLP Group. CLP Power is a vertically integrated electricity supply business, serving 5.8 million people in its supply area. Joseph is responsible for corporate and strategic planning, tariff and regulatory management, as well as commercial projects developments. He has a range of experience in the energy business from finance, renewable energy development, project management, strategic planning and commercial development. Joseph has a banking background before joining CLP and is a Chartered Financial Analyst and a Certified Public Accountant.



Mr. Ray Leung is one of the Section Heads in the Cross Boundary and International Group of the Environmental Protection Department, HKSAR Government, responsible for climate change policy coordination. One of his key work areas is to coordinate the development of Hong Kong's long-term decarbonisation strategy. Before joining the group, Ray has worked in various groups of the department, responsible for air quality monitoring, emission inventory compilation, as well as development and implementation of different programmes to control vehicle emissions.



Mr. Simon Ng is Director – Policy & Research of Business Environment Council. He is responsible for BEC’s work on policy advocacy, thought leadership development, and collaborative research on various environmental issues that BEC focuses on. Trained as a geographer, Mr Ng is known for his ground-breaking work on ship emissions inventory in Hong Kong and the Pearl River Delta in which his collaboration with the shipping industry led to the launch of the Fair Winds Charter. Mr. Ng has over 20 years of experience in academic/policy research, project management and stakeholder's engagement. Before joining BEC, he was Chief Research Officer of Civic Exchange, an independent public policy think tank in Hong Kong.

The views expressed in this summary report are those of the speakers and moderators, and do not necessarily represent the opinions of the event organizers.