

# HONG KONG 2050 IS NOW

Council For Sustainable Development  
Long Term Decarbonization Strategy  
Public Engagement Response

## Framing Questions

### 1. What is Hong Kong 2050 Is Now?

- An independent initiative of Civic Exchange (CE) and the World Resources Institute (WRI) seeking to galvanize action towards Hong Kong becoming close to carbon neutral by 2050.

### 2. How can we stop climate from getting worse?

- Scientists advise Global Net Zero emissions are required.
- After achieving Net Zero emissions, we must wait centuries for ocean temperatures and sea levels to rise to a new equilibrium matching the new GHG levels.
- The question is not: “what % reduction to make?” but “how quickly could we get to Net Zero?”
- Hong Kong should decarbonize faster than the global average as it is an advanced city with little activity in the hardest to decarbonize sectors: industry, agriculture and domestic aviation.

### 3. The GHG emissions for which Hong Kong is responsible?

- Scope 1: GHGs we emit (reported to UNFCCC).
- Scope 2: GHG emissions from making energy we use (mainly electricity).
- Scope 3: GHG emissions from suppliers or customers (Hong Kong’s imports of food, clothing and machinery plus our use of air and sea travel).



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#### **4. Should Hong Kong comply with the Paris Agreement? What should be Hong Kong's priorities?**

Yes, it is a legal requirement. Hong Kong should prioritize:

- Rapid reduction of its Scope 1 and 2 emissions to Net Zero by 2050. Decarbonizing electricity generation has the biggest impact.
- Understanding how its Scope 3 Emissions should be reduced under efforts to reach global Net Zero.

Scope 3 emissions embodied in our imports of food, clothing, machinery and our use of international air travel almost certainly substantially exceed the amount of Scope 1 emissions we reported to the UNFCCC.

#### **5. What balance should there be between using 'active policy and regulation' and 'market mechanisms'?**

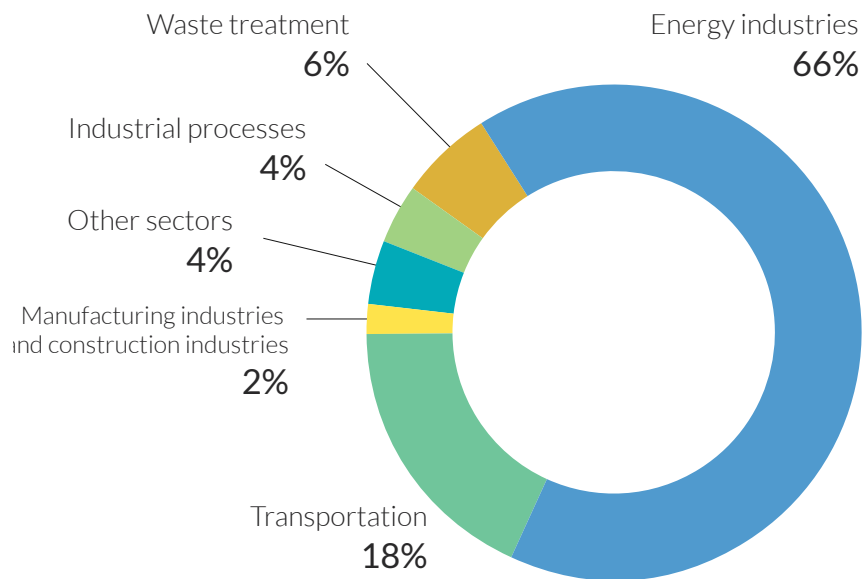
- Market measures can motivate technology and market innovation, leading to lower cost solutions.
- Active policy and regulation is effective in changing the fuel mix for electricity generation but has limited impact on the myriad decisions that impact energy use in buildings and transport.
- The government should urgently commission a study to evaluate the mechanisms of introducing a Carbon Price.

#### **6. What governance structure should we have?**

- Strong action to reduce GHG emissions and adapt to climate change is needed and will have a major impact on Hong Kong's economy.
- We need governing mechanisms that enable good, timely decisions, independent from short-term political pressures.

# What Are The Numbers?

## HONG KONG'S SCOPE 1 EMISSIONS IN 2016



Scope 1: 41.8 Mt

Scope 2: Near Zero

Source: Hong Kong 2050 is Now project, based on data from Hong Kong EPD

### GOVERNMENT EMISSIONS REDUCTION TARGETS

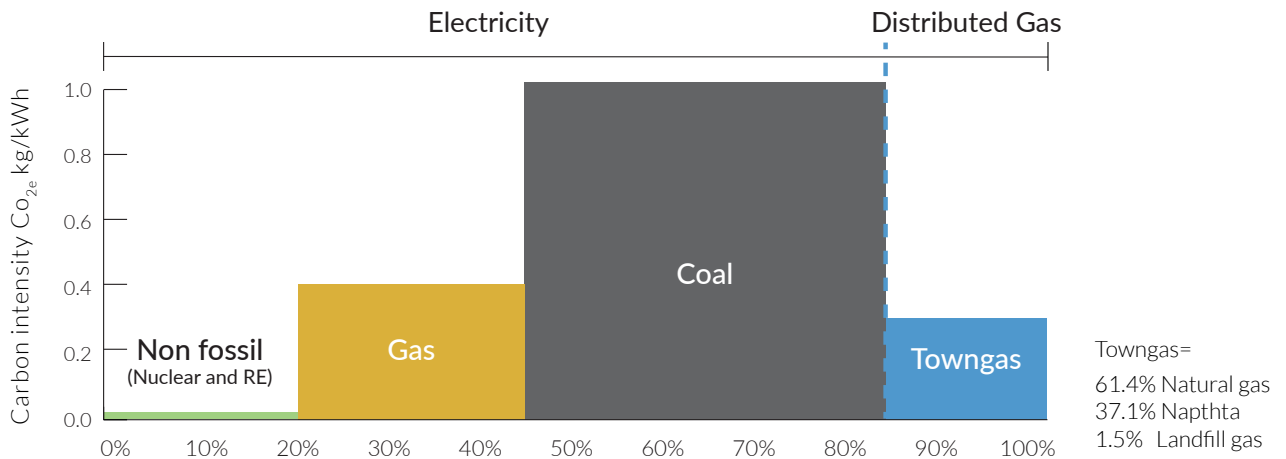
**Set in 2010:** A 50-60% reduction in Scope 1 carbon intensity from 2005 levels by 2020.

**Set in the 2017 Hong Kong's Climate Action Plan 2030+:** Reduction of 60-65% in intensity (equalling a 26-36% reduction) from 2005 levels by 2030.

The switch from coal to gas has contributed to most of the reduction thus far. Other components of the plan appear to be progressing very slowly.

# How To Decarbonize Energy Industries?

## 2016 ENERGY INDUSTRY CARBON FOOTPRINT



The shaded areas of this graph represent carbon emissions from the use of electricity and gas in Hong Kong. The avenues for reduction available are:

- Reduce energy consumed (horizontal axis).
- Reduce the carbon intensity of electricity (vertical axis).
- Replace distributed gas with either low carbon electricity or hydrogen (H<sub>2</sub>) plus inert gas mixture.

Further study is required to determine which option is best. Shipping vessels changing to H<sub>2</sub> may make extensive use of H<sub>2</sub> in Hong Kong viable.

## REDUCING ENERGY CONSUMED IN BUILDINGS

### 1. Long term measures to improve building energy efficiency

- Empower the Hong Kong Green Building Council to add a 'BEAM+Energy Star' measure to its existing ratings.
- Set targets and track performance.
- Town planning to control building design.

### 2. Short and medium term measures

- Progressively tighten the Building Energy Code and Energy Efficiency Labelling Scheme. Consider automatic adjustments triggered by technological improvements.
- Improve existing energy audit systems.
- Demand side management including behavioural changes.

# Electricity and Distributed Gas

**Should Hong Kong gradually phase out fossil fuel?**

Answer: Yes, but the phase out should provide a 'rapid', not a 'gradual', decrease in emissions.

**Which of the following is more important?**

Answer: they are all important. Their relative importance at any point in time depends on the level of performance. Safety is another important factor.



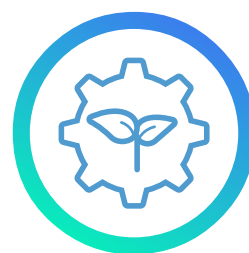
Reliability



Security and Availability



Affordability



Environmental Performance and Response to Climate Change

## Recommendations On Reducing The Carbon Intensity of Electricity

### 1. Increase the use of renewable energy (RE)

To promote RE in Hong Kong, the Government should:

- Publish detailed assessments on how Hong Kong RE can meet 3–4% of energy demand and include options for additional RE.
- Encourage new ideas on how to increase the amount of renewable energy generated in Hong Kong.
- Update the assessment every five years.

For RE from Mainland China, the Government should:

- Engage in negotiations for Hong Kong to import RE. Hong Kong companies should be able to invest in RE projects in Mainland China and pay China's Southern Grid for 'wheeling' the power to Hong Kong.

# Recommendations On Reducing The Carbon Intensity of Electricity (Cont'd)

## 2. Explore importing more nuclear energy from Mainland China

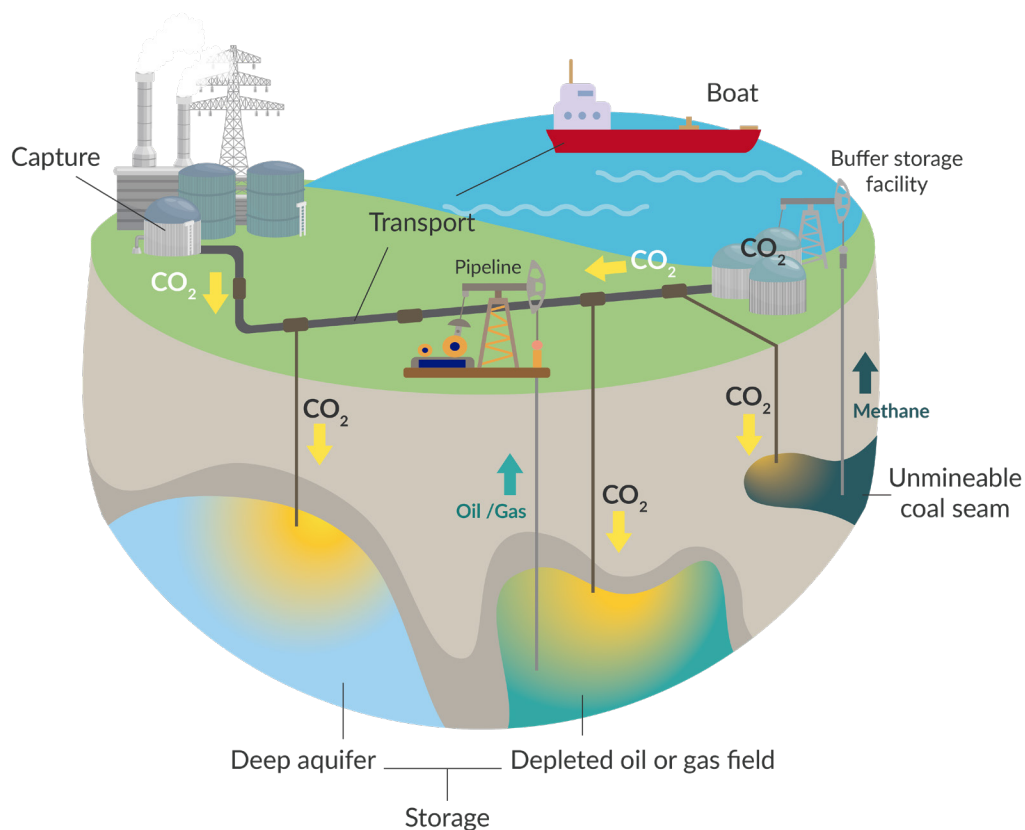
- Daya Bay has supplied Hong Kong with 25% of its electricity in a safe, low pollution, low cost, reliable manner for over 20 years.
- We should explore the potential for increasing nuclear energy imports and at the same time undertake a nuclear risk assessment.

## 3. Natural gas with Carbon Capture and Storage (CCS)

Hong Kong should aim to be a 'fast follower' for using (CCS), once the technology has been developed elsewhere.

Reasons:

- Without CCS, natural gas emits around 0.4kg/kWhr, which is far from Net Zero.
- But, Gas generation is important as it improves the Reliability, Security and Availability of supply.
- Also, Guangdong province has identified very substantial saline aquifers under Mainland waters about 100km offshore Hong Kong.



# Mobility

## 1. Use 'Avoid, Shift, Improve' thinking to lower CO<sub>2</sub> emissions from mobility

- **Avoid** stands for 'Avoiding Journeys'. For example, better town planning can reduce travel from home to work or school.
- **Shift** covers 'Shifting' from more CO<sub>2</sub> emissions intensive to less CO<sub>2</sub> emissions intensive transport modes. For example, from private cars to buses; or, from buses to the MTR.
- **Improve** covers 'Improving' a given mode of transport. For example, reducing CO<sub>2</sub> emissions by switching from petrol to electric vehicles.

## 2. Consider hydrogen fuel cell vehicles, given the advantages over electric vehicles

- The lighter weight of hydrogen fuel cells make them suitable for Heavy Duty Vehicles (HDVs) such as buses and refuse collection vehicles.
- Faster refueling time makes them suitable for vehicles that operate for long hours. These include many HDVs, taxis and minibuses.
- Substantially less usage of difficult to recycle metals since EVs often have lithium and cadmium in their batteries.
- Also, international shipping vessels may switch to H<sub>2</sub>, making it viable for Hong Kong to develop H<sub>2</sub> infrastructure.

## 3. Other recommendations

- Prioritize switching to zero emission taxis and minibuses given their high utilization and that LPG is being phased out.
- Use vehicle registration and fuel taxes to disincentivize car ownership and increase the market share of low-emission vehicles.
- Use Electronic Road Pricing to reduce congestion. Less congestion leads to better fuel efficiency.
- Incorporate a mandatory fleet-wide average carbon dioxide standard into the Air Pollution Control Ordinance.
- Yes, Hong Kong should ban fossil fuel powered vehicles but the timing of the ban must take technological developments into account.



# Lifestyle

Lifestyle substantially impacts GHG emissions.

- Impacts on Scope 1 emissions: Use of space conditioning and transport.
- Impacts on Scope 3 emissions: Hong Kong's imports of food, clothing, machinery, international air travel.

The government is the only stakeholder capable of coordinating and overseeing a society-wide response. It should:

- Set Scope 3 GHG emissions reduction targets to guide progress and inform future decision-making.
- Use behavioural science to understand the motivations of individuals and set policies and campaigns that enable them to make healthy, lower-GHG choices.

These may include:

- Communicating measures that promote the adoption of sustainable habits in daily life.
- Eliminating or restricting high-carbon choices from the market through regulations, tax incentives and market-based financial disincentives.

## Examples of areas meriting attention:

- Food consumption, including reducing food waste and, changing to healthier diets with less meat.
- Apparel services that promote circularity in the clothing market including rental, repair, and redistribution services should be strongly promoted.
- Providing better information on energy used for space conditioning should lead to lower demand. Specifically a Hong Kong Beam + Energy Star measure could make the energy performance of office buildings as visible as 'hotel Star' ratings. This should drive decisions on which building to rent and about appropriate temperatures.

