

REACH Public Consultation on Singapore's Climate Ambition

5 - 26 September 2022

Respondent Name: Cheng Chin-Hsien

1 Singapore has stated that we intend to achieve net zero emissions by or around mid-century. Reaching net zero emissions by 2050 is:

- (a) Just right
- (b) Too ambitious
- (c) Not sufficiently ambitious

Answer: (a) Just right

1.1 [If answered (b) or (c) above] What is a suitable year to reach net zero?

- (a) Not Sure
- (b) 2030-2039
- (c) 2040-2049
- (d) 2050-2059
- (e) 2060-2069
- (f) Beyond 2070

Answer: -

1.2 Please feel free to provide your thoughts on what makes a suitable net zero year.

NIL

2 Should we enhance Singapore's 2030 NDC which currently pledges to peak emissions at 65 MtCO_{2e} around 2030?

- (a) Yes
- (b) No
- (c) Neutral/ Maybe/ Not sure

Answer: Yes

3 What should our 2030 NDC ambition be and why? (Refer to Paras 3 - 4 of Consultation Document)

Of course yes. If we are serious about net zero by 2050, or 1.5 degree target, we should in fact aim below 25 MtCO_{2e} around 2030.

Surely, we are bound by our limited renewable energy resources, but there are still plenty of ways for that, at least we can achieve < 25 MtCO_{2e} around 2030 via carbon offset. From the GHG mitigation perspective, importing renewable energy is more for accelerating the renewable deployment in neighbouring countries with more renewable resources, rather than the actual import of renewable energy. There are also plenty of nature-based solutions in the region that Singapore may tap on via carbon-offset scheme.

In the event that carbon-offset scheme is not recognised at national emission cut during international meeting like COP, we should still have an ambitious specific target on carbon-offset and its required international funding.

Excluding the carbon offset and imported renewable energy, we should still try to cut emissions to < 40 MtCO_{2e} by 2030. We can explore means to slow down the biomass (e.g. cut grasses, branches) degradation in Singapore, which could then be counted as additional carbon sink. The natural terrestrial and oceanic carbon sinks globally take up about 60% of anthropogenic CO₂ emission, and there is plenty of room for improvement, especially through slowing down natural biomass degradation. Turning natural biomass into more long-lasting and valuable products will be ideal. If not, we can simply store the biomass underwater (e.g. in the surrounding ocean, but in an enclosed environment to minimise pollution). The cost will be much much lower than capturing and storing CO₂ as CO₂, very likely lower than US\$30-50/ton CO₂. In 2021, there is ~ 130k ton unrecycled horticultural and wood waste. Although this is not much compared to ~50MtCO_{2e} emissions, if we expand more ocean seaweed farming, partly for our food security, we may also have more biomass for chemicals, and biomass for underwater carbon sequestration. These may even be integrated together with the ocean farm.

Similarly, we can also speed up the testbed and scale-up deployment of offshore / nearshore solar farms.

And honestly, we should also consider scale-down our refinery, especially many developed countries have set a phase-out date for gasoline/diesel cars around 2030. The demand for oil will eventually reduce, probably even before 2030.

Considering all these, together with other strategies Singapore is working on, such as energy efficiency, geothermal energy, and market influence of carbon tax on the fossil fuel demand, I believe by 2030, we can achieve 40 MtCO_{2e} - abatement via imported renewable energy and international carbon offset.

REACH Public Consultation on Singapore's Climate Ambition

5 - 26 September 2022

Respondent Name: Cheng Chin-Hsien

4 What can the Government do to support Singapore's transition to a low carbon future?

1. Please refer to the answers in Q3 for suggestions on 1) international carbon offset, 2) underwater biomass carbon sequestration (note that this can potentially cut tens of Gton/yr CO2 if we implement it globally), 3) nearshore/offshore solar farms, 4) scale-down refinery.

2. Other than cutting local emissions, we should also adopt policies that help us cut emissions through the international supply chain. Food will be a big opportunity, solutions that minimise food waste, and shift to plant-based or insect-based food have great potential to reduce the demand for imported food and associated emission.

3. NEA, EMA, and BCA should work together to design a formula to charge more energy-wasting commercial buildings with a higher tariff (or a higher carbon tax since the tariff is commercially determined). We should be able to establish fair baselines for different types of buildings with intensive energy and efficiency data after years of GreenMark initiative. This will help stimulate energy-saving culture and behaviors.

4. NEA, EMA, and HDB should work together to design a formula to charge more energy-wasting households with higher tariffs (or carbon tax). Parameters like household area, number of residents in the house, or even the age of the residents, are factors that influence household energy demand. We should be able to establish a fairer baseline based on these parameters, so that tariffs or carbon price can be better adjusted, to stimulate energy-saving behaviors.

For points 3-4, I understand that a higher carbon price will already push up the energy price due to additional cost for gencos. But the potential for cultural and behavioral change is actually quite large. (For instance, I personally don't use air-con, or the most I turn on it only once or twice a year. I also refrain from taking hot showers, so my personal energy demand is perhaps 3-4x lower than a typical Singaporean). Shared office + work-from-home scheme will also greatly cut down the energy demand of total office buildings. These changes are unlike industry energy demand which is more restricted by processes. Therefore, it makes sense to introduce a second layer of price differentiation for commercial buildings and households.

5 What can businesses and industries do to support Singapore's transition to a low carbon future?

Demand a higher carbon price and shift towards a knowledge-based (instead of resource-intensive) and low-carbon economy together.

6 What can individuals and communities do to support Singapore's transition to a low carbon future?

Demand a higher carbon price and shift towards a knowledge-based (instead of resource-intensive) and low-carbon economy together.

7 While there may be trade-offs or inconveniences, I am willing to contribute / play my part in helping Singapore realise its net zero ambition.

- (a) Strongly Agree
- (b) Neutral
- (c) Agree
- (d) Strongly Disagree
- (e) Disagree

Answer: Strongly Agree

8 Do you have any other thoughts on Singapore's climate ambition that you wish to share?

NIL