

To whom it may concern,

I'm sorry for the rushed and perhaps hard to read responses below - I only realised this evening that you were holding this public consultation and further that it is closing by tonight. I do hope you find the below legible! I appreciate your opening up this avenue for our ideas. Please see the below for answers to your questions and general comments.
Sincerely, Mark

Feedback and questions on Energy Efficiency:

- The focus should not be on reducing energy intensity but on reduction of absolute emissions. Incremental increasing energy efficiency is not going to lead to the structural economic changes necessary to pivot towards a low carbon future. Having said that, Households/Energy-saving practices:
 - new HDB apartment units could be fitted with a master power switch at the doorway, which could turn off all power points except the one located for the fridge.

Carbon Pricing

- 5-15/tonne is not aggressive enough and unlikely to lead to significant changes in business practices

Households/Pay more and/or carbon credits?

- Yes I would

Businesses:

- its is important to reduce the dependence of our economy on oil and chemicals refining and exports. Only partly because of climate change hazards; but also for the sake of economic well-being because the trend is already that the worldwide divestment trend is causing stranded assets which are already physically affecting oil/gas future prospects.

Power generation

- I would be willing to pay 10-20 percent more as a household
- Is there a reason why solar mounted to HDB rooftops is not mentioned?
- energy recovery through waste management can consider pyrolysis/gasification technology instead of WTE. (Unfortunately I don't know how they compare purely in terms of how much energy they recover.)
- Not an energy source per se but can consider gravity-based energy storage: where during peak production electricity generated is used to raise concrete blocks; when there is energy demand these blocks are allowed to descent and the energy is re-captured.
- For industrial electrical insulation, the use of sulphur hexafluoride must be heavily curtailed if not banned

EVs/Household:

- Grants towards EV and battery R&D should not have been suppressed. Because this has happened in the past, it is likely we have already lost the leading edge of green innovation to China.
- As a family with a young child, I have found it feasible (barely) to use Blue SG cars in lieu of purchasing a car. What would help with the EV car sharing economy would be parking spaces within 5 minutes' walk of all (optimally) or the majority of the places we as a family tend to travel. (Currently, because my parents and grandmother stay in a landed property area which is a Blue SG parking "dead zone", I can only directly drive to less than half of my usual commute locations, and have to supplement with a kick scooter to make most of my commutes viable). Any additional "last mile" requirement getting to or from the Blue SG car park tends to nullify the convenience of being able to access a car. Also, the pricing of

Blue SG needs to be revised slightly downward as currently it is roughly on par with Grab and Gojek, but with the added inconvenience of being limited by parking lot, lack of cars at times, and having to drive.

- Upper Serangoon needs more public transport options, especially towards the east. The company Grab recognised this and thus trialled Grab Shuttle Plus but now with the trial winding down, LTA should take responsibility of this aspect.
- As stated above, I am not interested in purchasing a vehicle, EV or otherwise, because of the embodied carbon required. That said, subsidies for EVs have to be actually meaningful. The argument was raised in the past that since we are getting all of our electricity from natural gas, EVs could not be considered less emitting and thus did not deserve subsidies. However, since the goal is now about considering the future benefits EVs within a future electrical grid that is more renewable, EV subsidies should be granted now on the basis of this future benefit; it would probably also encourage the transition to this renewable grid as a whole as well.

Carbon Capture:

- Carbon dioxide should be converted into hydrocarbons, which then can be processed by Singapore's petrochemical plants and maintain their relevancy for a "soft landing" during the pivot to renewables. This is already possible and being piloted by Carbon Engineering, which use reasonably off-the-shelf components and existing technologies to achieve CO₂ conversion to hydrocarbons. I believe they have altruistically left the blueprints open source as well.
- It should not [sic: have to] be said that our existing forests should be conserved as a form of carbon stock. As such, it was not appropriate to clear the Tengah forest for new development
- However, since we are land-scarce and thus limited in terms of tree planting capacity, could we consider seaweed farming as a form of carbon sequestration?
- Of course to pay for any form of carbon capture, the Carbon Credits market must be extremely well functioning, and the above activities must be financially feasible through the Carbon Credits mechanism.
- Could NParks, food waste (as a last resort) etc biomass be composted and then used as land reclamation (eg for topsoil)? This would presumably also be a form of carbon capture. If so, undeveloped sites could be planted with fast growing species (I think many already are; sites in Tampines and Serangoon show good woody growth in less than a decade) which on development could be composted and used as land reclamation.

Hydrogen:

- Can we consider that burning hydrogen would also be a source of water security for Singapore? Thus I am in favour of early development of hydrogen infrastructure. I also wonder how much our existing LNG infrastructure and expertise could be modified to support the logistics of importing hydrogen.

Collective Climate Action:

- Yes I am willing to pay a higher price/added inconvenience for the sake of a green premium (I already am).
- As previously mentioned to incentivise me to take more public transport, Upper Serangoon needs more public transport connectivity, especially to the east. Even having a direct bus from Upper Serangoon Road to NEX would be helpful.
- Terracycle's Loop Initiative should be trialled here.
- Similarly, food packaging as a subset of packaging needs urgent attention with busy Singaporeans' overdependence on takeaway food made worse with the rise of Food Panda and Grab Food. A system (preferably a nation-wide unified system using

standardised boxes) for borrowing non-disposable “tapow boxes” with drop-off points in hawker centres and shopping malls should be implemented at scale (if piecemeal, its likely to fail).

- As part of EPR it should be make socially appropriate (eg through educational campaigns) to deposit packaging from goods at the purchasing shops or to return to the delivery persons. This way the waste streams at these shops would be much more homogenous than at the consumer waste-bin level, which enhances quality recovery for recycling; not to mention it would probably encourage said sellers to reduce unnecessary packaging as well as allow them to reuse packaging.
- Similar for postal service items given the rise of e-commerce. A system of reuseable boxes and envelopes should be developed, where boxes and envelopes can be used many times, and only the sealing needs to be re-applied each time.
- Bear in mind that the ideal of a circular economy does NOT solve for the problem of micro-plastics. Also bear in mind that while PUB has said that their potable water is NOT contaminated with micro-plastics, it cannot conclude the same for presence or absence of nano-plastics, since little is known about detecting nano-plastics, much less their effect on their environment. Regardless it is understood that microplastic dust is present in city air. The European Commission’s Scientific Advice Mechanism has suggested that the precautionary principle should apply. Public goods such as sports stadiums and playgrounds should be limit their use of astro-turf and recycled tyre running/playground surfaces moving forward.
- I feel like we are always fighting an uphill battle with regard to environmentalism vs business innovation. For example the growing movement to BYO is undercut by the simultaneous growth of e-food delivery. Or bike sharing, which should have been an environmental win but turned out to be a massive waste of resources. I feel that government should take a proactive stance in vetting new business proposals in accordance with certain environmental metrics rather than taking the wait-and-see approach that the “move fast and break things” approach of these tech startups exploited.

Green Growth Opportunities:

- Perhaps its just me, but as a (beginning) retail investor I still find it very difficult to find green bonds or other securities to invest in.
- We could (have to) be a leader in climate change adaptation for low lying countries
- We have opportunity to be a leader in waste management solutions because we are geographically strategic, given that the bulk of global ocean waste came was discovered to come from China, Indonesia, Philippines, Thailand and Vietnam (ie mostly ASEAN; bear in mind this was also before China’s National Sword)
- For up skilling workers: I see oil and gas industry as the greatest risk during this transition, so leveraging on their technical knowhow (eg adapting their knowledge of safe handling of combustable fuels for the pivot to hydrogen; utilising oil rig platforms expertise to develop offshore solar and wind products), as well as proactive expectation management and re-skilling this particular group is essential.
- We should be driving our economy from the tertiary economy of services and virtual goods rather the secondary industry of consumer goods. In other words, we should encourage “experiences over things” and the focus on living a good life rather than having more. Perhaps, constraints or redirection of advertising may be appropriate to achieve this.