

Based on the most recent International energy agency(IEA) data, Singapore ranks 26th out of 142 countries in terms of emissions per capital despite its small land area. However, we are taking steps to tackle this problem to achieve our emission target of greenhouse gas emissions peaking at about 65 million tonnes of carbon dioxide for each GDP dollar to 0.113kg per dollar.

The government has implemented many plans to reduce carbon emissions. From 2019, a carbon tax of \$5 per tonne of greenhouse gas emissions will be charged to facilities which produce 25000 tonnes or more greenhouse emissions. This encourages companies to use more renewable sources of energy instead of fossil fuels by placing a price on the carbon emitted. Another initiative by the government would be to replace oil with more environmentally-friendly and less carbon intensive alternatives. This has resulted in natural gas representing over 96% of our energy mix in 2016. Singapore has also increased its solar capacity as a measure to diversify its energy mix.

Singapore is also taking measures to reduce emissions from the industry sectors. A good example would be the Energy Conservation Act. From April 2013, companies in the industry and transport sectors who use more than 15 gigawatt-hours of energy per year will have to appoint an energy manager, monitor and report energy consumption and greenhouse gas emissions, as well as submit plans to improve energy efficiency. By improving our energy efficiency, carbon emissions will be cut down as lesser electricity is needed and lesser fossil fuels will be burnt.

To reduce emissions from motor vehicles, Singapore implemented the Vehicular Emissions Scheme(VES) at the start of 2018. The VES tracks five pollutants: Carbon Dioxide, Carbon Monoxide, hydrocarbons, nitrogen oxides and particulate matter to reduce harmful vehicle emissions. The rebate and surcharge for vehicles will then be determined by the worst-performing pollutant. The VES has two bands: rebate of \$10,000 or \$20,000, and surcharge of \$10,000 or \$20,000. This encourages buyers to

purchase more environmentally-friendly models with lower emissions, improving the air quality and reducing the emissions caused by motor vehicles.

Even though I think these schemes have been effective in reducing carbon emissions, more needs to be done to reduce carbon emissions from the households of the general public.

I firmly believe that we should spread awareness for recycling as recycling reduces industrial emissions as lesser goods need to be manufactured when more materials are recycled. Recycling is also a bit to reduce emissions from incinerators as less waste products are burnt. This shows that recycling has a huge impact on reducing carbon emissions. Despite our efforts to make recycling more convenient with programmes like the National Recycling Programme (NRP), which allows paper, plastic, glass and metal recyclables to be deposited to the same blue recycling bin for collection by recycling trucks, the household recycling rate still remained at only around 20 percent between 2005 and 2015. To make matters worse, 30 to 50 percent of materials in the recycling were unsuitable for recycling due to recycling contamination. This shows that the general public still lacks awareness for recycling, hence I propose a few initiatives to encourage more of the public to recycle the right materials.

An important step to take would be to educate the public on recycling. For the younger generations, recycling can be encouraged and taught in schooling from a young age. For example, children in pre-school can create arts and crafts with recycled materials, whereas students in Primary School and beyond can be educated on the impacts and ways of going about recycling through lessons taught in school, as well as attending talks and learning journeys on recycling. Examples would be recycling drives and educational trips to recycling facilities held on Youth for the Environment Day. This not only gives them a hands on experience on the different methods of recycling, it also influenced and encourages them to recycle. Competitions such as Crea8 sustainability competition also encourage students to think deeper into environmental issues.

Through education for the young, they can be more aware of recycling contamination, which will allow the children and students to learn to bin or recycle materials appropriately.

When the younger generation recycles, this will in turn influence adults to change their bad social behaviour. Elderly residents, having very little or no knowledge of how to recycle because of their lack of activity on the Internet will be able to pick up correct recycling habits from the younger generation. Additionally, television and radio channels can advertise the benefits and correct methods of recycling, as the message will reach most households.

Another measure to take would be to have strict laws issued by the government in order to make recycling contamination and waste disposal a deterrence for the public. A current example would be the regulation set by the Government to ensure that e-waste is recycled instead of disposed. Further action has to be taken to ensure that other than e-waste, other recyclable materials will be recycled as well. Incentives can be given to those who actively and correctly recycle their waste. An example for a reward system would be the Cash-For-Trash Programme in Pasir Ris-Tampines residents will be able to exchange their recyclable items for cash when they bring them to the nearby recycling station. Besides this initiative, "Happiness Arcades" rewards users with a pong-like game for every empty can recycled. With this new initiative, recycling bins can be seen in a fun and enjoyable light as happiness is used to change social behaviour. Hence, I hope that more of such stations can be placed in our neighbourhood as they are very different from carrots and sticks, with joy being the reward derived from recycling for both initiatives. Hence, recycling is strongly promoted.

With all these efforts put in place, as well as the wide range of ideas that can be carried out, I believe that the path to lower Singapore's carbon footprint and achieve our emission targets has never been brighter.