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Introduction

1. Waste is a problem that will not go away, and will only continue to grow over time as GDP and the population grow. We should be committed to finding the most effective solution for dealing with our municipal solid waste (MSW) in ways that limit and reduce environmental and human impact.

2. There is no doubt that dumping untreated MSW in landfills, poses significant environmental problems. These include the leaching of toxic chemicals into groundwater, an increasingly urgent shortage of space, and the adverse environmental effects through the release of dangerous methane emissions from decomposing trash. Methane is a very potent greenhouse gas (over 20-25 times more potent than CO2), and these emissions contribute to global warming.

3. According to the U.S. Environmental Protection Agency (EPA), landfills are the third-largest source of methane in the United States, behind industry and agriculture. These environmental impacts are the reason why many European countries, including the Netherlands, have instituted landfill bans in recent decades. This has had a significant contribution to the rapid expansion of incineration and waste-to-energy technology.

4. Hong Kong sends approximately 9,000 tons of municipal solid waste per day to landfills. Their maximum capacity will be reached within the next four years. Even if a Waste to Energy facility (incinerator) is built with a planned capacity of 3,000 tons per day, there will still be over 6,000 tons per day of waste resources to make use of. What are the best, most optimal ways to use these resources, so that they are not being wasted, and even being transformed into other resources?

Implementing a sustainable solution to the solid waste problem

5. Sustainable Waste Management objectives when met enable us to use material resources efficiently, to cut down on the amount of waste produced and to dispose of waste in ways that actively contribute to the economic, social and environmental goals of society at large and a sustainable development in particular.

6. The EU and the U.S. EPA have both adopted a solid waste hierarchy consisting of 5 levels: (1) reduce, (2) reuse, (3) recycle, (4) Waste to Energy (WtE) and, as a last resort, (5) landfill. The European Union (EU) utilizes a simple but effective approach to managing waste while also reducing Green House Gas (GHG) emissions. Firstly, it reduces the amount of landfilled biodegradable waste (according to the EU Landfill Directive) and secondly, it acknowledges that WtE recovers potential energy and ferrous materials from MSW. The EU recognizes that WtE is a net reducer of GHGs and it has aligned its policies to take advantage of the benefits that Waste to Energy (WtE) technology provides in meeting greenhouse gas reduction targets as laid out under the Kyoto Protocol.

7. As long-term residents of Hong Kong, we welcome the efforts by the Government to launch campaigns to encourage behavioural change, such as the Food Wise campaign, and we would support further efforts to stimulate the Hong Kong Community to reduce (at source), reuse, recycle and rethink.

8. Recycling is a vital part of a sustainable waste solution because it has the potential to significantly reduce the quantity of waste. However, not all waste is recyclable. Waste to Energy (WtE) facilities complement these recycling efforts by converting non-recyclable waste into energy. Evidence in the Europe, the U.S. and Japan has shown that municipalities with WtE facilities typically have a higher recycling rate than communicates without WtE.

9. Throughout the world it can be seen that in local communities, in which WtE facilities are part of a waste management solution, recycling rates exceed the national average. Why do communities with WtE facilities recycle more than other communities? The reason is simple: communities that invest in WtE facilities establish long-term, comprehensive solid waste management plans.

10. For instance, WtE facilities in the U.S. recycle more than 770,000 tons of ferrous metal annually that would otherwise end up in landfills. In Europe, and the Netherlands in particular, the results are even more impressive: in the Netherlands only 2% of all MSW ends up in landfills as a result of a sustainable waste management policy.

11. WtE has an important role to play in an integrated approach to waste management, providing hygienic treatment of the waste that is not suitable for sustainable recycling. At the same time this waste generates energy, rather than ending on a landfill. Recycling and WtE are therefore complementary to achieve lower landfill rates.

12. Countries with the highest rates of Waste to Energy - Denmark, Norway, Sweden and The Netherlands, for example, all incinerate more than 50% of their waste - also enjoy extraordinarily high recycling rates and composting of organic materials and food waste. In Europe and in the United States, WtE continues to complement and lead to improved recycling efforts.
    Fact: The average recycling rate for WtE communities across the United States is 33%, compared to a national recycling rate of 28%.

<u>Understanding the difference between Incinerators and Waste to Energy Facilities</u>

13. The term “incineration,” which is often erroneously applied to WtE is an uncontrolled combustion process without energy recovery. Today’s modern WtE facilities are in no way similar to incinerators of the past. Using municipal solid waste (MSW) as the primary fuel source, WtE facilities recover electricity for the communities in which they operate. WtE facilities burn waste in specially designed boilers to ensure complete combustion. The facilities use state-of-the-art pollution and odor control equipment to scrub emissions, preventing them from releasing into our environment. The result is clean, renewable energy.

14. Increasingly common in Europe, municipal 'WtE facilities' are being touted as a green trash-disposal alternative. For Hong Kong with its shortage of (landfill) space, WtE appears a bulletproof solution: Recycle all you can, and turn the rest into electricity. That is how it is viewed in much of Europe.

<u>Recommended Solution for a better Hong Kong</u>:

15. Hong Kong has a large and troubling waste load. Currently, Hong Kong's recycling rate of domestic municipal solid waste is about 23% and its landfilling rate is 52% - compared to a recycling rate of almost 60% and a landfilling rate of 2% in the Netherlands. It is interesting to note that the

Netherlands, similar to Hong Kong also suffers from lack of space. The results of sustainable waste management policies implemented in the Netherlands have solved the pressing MSW problem. Surely the Netherlands would be happy to share its knowledge and results to the benefit of the citizens of Hong Kong.

16. We respectfully recommend you to consider the following:
    a. Small landfill extensions at SENT, NENT and WENT as the small extensions would solve the mounting waste disposal in the short term; and simultaneously
    b. Build WtE facilities at SENT, NENT and WENT

17. The construction of WtE facilities' at the above mentioned three sites would, in our opinion, have the following benefits for the community in Hong Kong:
    a. The existing landfills have the infrastructure already in place for transporting the waste, so no material additional cost will be involved;
    b. Implementation of three WtE facilities would make further landfilling in the future completely redundant;
    c. Electricity generated through the WtE facilities is easily transported to the grid or alternatively could be used for recycling facilities to be built at the same location;
    d. Multiple WtE facilities enable a continuation of the incineration process even if maintenance renders a facility temporarily inactive; and
    e. Implementation of 3 WtE facilities would be similar to the set up in Singapore and Macau (countries with similar space restrictions to Hong Kong).

18. In our view, the establishment of just one WtE facility at Shek Kwu Chau has the following disadvantages:
    a. Implementing a WtE facility on an island is generally a very expensive option;
    b. Infrastructure on the main areas of Hong Kong /Kowloon would need to be built for the loading of waste onto barges to ship the waste to Shek Kwu Chau;
    c. Infrastructure on the island would also need to be built for off-loading of waste (docking facilities, cranes, transportation of waste from harbour to WtE, etc);
    d. Ferry services for staff and/or housing for staff would need to be arranged
    e. Electricity produced on the island of Shek Kwu Chau leads to a more complicated and expensive connection to the grid
    f. In case of maintenance and/or repairs which would require the WtE to be taken out of operation Hong Kong would become fully dependent on the landfills again for the period of maintenance/repair.

19. We sincerely appreciate the time allocated to us to present our views and we would welcome the opportunity to engage the distinguished members of the Legislative Council in more detailed discussions at their convenience.