

LCQ19: Modern waste-to-energy incinerators

Following is a question by the Hon Chan Pui-leung and a written reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (January 24):

Question:

The first modern waste-to-energy incinerator I·PARK1, located on the artificial island near Shek Kwu Chau, is expected to commence operation in 2025. In addition, the Government has also proposed to construct the second facility of its kind I·PARK2 in the Tsang Tsui middle ash lagoon in Tuen Mun. In this connection, will the Government inform this Council:

- (1) whether it has estimated the annual electricity consumption of I·PARK1 in waste incineration, and whether the electricity generated in the incineration process will enable I·PARK1 to achieve self-sufficiency in energy consumption; of the plans in place to reduce the energy consumption and increase the power supply of I·PARK1;
- (2) whether it has set respective indicators for the effectiveness of I·PARK1 and I·PARK2 (such as those in respect of waste disposal, energy utilization and pollution control); if so, of the details, and how it will follow up the situation that the indicators are not met; if not, the reasons for that;
- (3) whether I·PARK1 and I·PARK2 will first screen and segregate waste according to the calorific value of different types of waste during incineration before proceeding with incineration, so as to reduce additional energy consumption for incinerating waste with low calorific values; of the measures in place to avoid the problem of incomplete combustion during waste incineration; and
- (4) as it is learnt that many countries with waste incineration plants have high incineration rates but low recovery rates, and some environmental groups are also worried that Hong Kong will put more emphasis on incineration than waste reduction and recycling in the future, of the authorities' plans in place to continuously encourage members of the public to reduce waste at source after the commissioning of I·PARK1?

Reply:

President,

Currently, about 11 100 tonnes of municipal solid waste (MSW) are generated in Hong Kong per day. To reduce the total amount of waste, the Environmental Protection Department (EPD) is promoting waste reduction and recycling at full steam in accordance with the Waste Blueprint for Hong Kong

2035 (the Blueprint) announced in 2021, such as progressively installing smart food waste collection facilities in public housing estates across the territory and implementing MSW charging to encourage waste reduction and recycling, as well as resources circulation. In addition, we are working at full steam on developing an advanced and efficient network of modern waste-to-energy (WtE) facilities to move away from the reliance on landfills for waste disposal. These include the Integrated Waste Management Facilities Phase 1 (I·PARK1) currently under construction near Shek Kwu Chau, which is expected to commence operation in 2025 for handling 3 000 tonnes of MSW per day. We are also actively planning for the development of the Integrated Waste Management Facilities Phase 2 (I·PARK2), with an expected MSW handling capacity of about 6 000 tonnes per day. The reply to the question raised by the Hon Chan Pui-leung is as follows:

(1) and (2) In accordance with the contract requirements, the contractor of I·PARK1 shall treat up to 3 000 tonnes of MSW per day using incineration technology and recover the heat released from the incineration process to generate electricity for meeting on-site needs, while the surplus electricity generated can be exported to the power grid of the power company. It is estimated that about 480 million kilowatt-hours of surplus electricity can be exported to the power grid per year, which is equivalent to the electricity consumption of about 100 000 households.

The contractor shall design and construct the buildings within the I·PARK1 facility for meeting the requirements of the Building Environmental Assessment Method Plus certification on energy use. These requirements include the installation of energy efficient equipment, optimisation of facilities operations and monitoring of energy consumption. Besides, I·PARK1 shall apply renewable energy, such as installing solar photovoltaic systems on buildings for use by the facilities. In the future, work will also be conducted to assess and optimise energy efficiency through continuously improving and upgrading technologies and enhancing the energy efficiency of the facilities, thereby reducing energy consumption and increasing electricity supply.

According to the Environmental Impact Assessment Ordinance (Cap. 499), I·PARK1 is classified as a designated project, of which the contractor is required to apply for an environmental permit in accordance with the Ordinance and install advanced air pollution control systems as mandated to treat the emitted flue gas. The contractor must comply with A Guidance Note on the Best Practicable Means for Incinerators (Municipal Waste Incineration) issued by the EPD to control air pollutant emissions.

Furthermore, according to the Air Pollution Control Ordinance (Cap. 311), the contractor is required to apply for a Specified Process Licence as stipulated by the Ordinance and comply with the treatment and emission requirements for the incineration flue gas as specified in the licence. At the same time, the contractor is required to continuously monitor the flue gas emissions by on-line monitoring equipment, and the relevant environmental monitoring data will be made available to the public through a dedicated website. If the aforementioned flue gas emissions fail to meet the standards,

the Government will require the contractor to take appropriate follow-up actions according to the contract requirements. In the event that the contractor fails to comply with the relevant requirements, the Government will deduct the corresponding operating fees payable to the contractor as stipulated in the contract.

The future I·PARK2 will also adopt the same arrangement as I·PARK1.

(3) I·PARK1 adopts advanced incineration technology, strictly controlling temperature, time and high turbulence flow. Within the specially designed incinerator, waste is combusted at temperatures above 850 degrees Celsius with sufficient air supply. The flue gas is required to stay at this high temperature for at least two seconds. Combined with the high turbulence flow technology, this ensures thorough combustion of the waste and complete destruction of organic pollutants including dioxins. Therefore, during the incineration process of MSW, I·PARK1 does not require the segregation and separation of waste based on different calorific values.

The future I·PARK2 will also adopt the same incineration technology as I·PARK1, which could likewise address the above situation effectively.

(4) The Government sets out the strategies, goals and measures to tackle the challenge of waste management up to 2035 in the Blueprint. We aim to gradually reduce the per capita MSW disposal rate by 40 to 45 per cent and raise the recovery rate to about 55 per cent by implementing measures such as MSW charging, and will develop adequate WtE facilities to move away from the reliance on landfills in the long run, so as to achieve the vision of "Waste Reductionâ€¦Resources Circulationâ€¦Zero Landfill". Therefore, promoting waste reduction and recycling is a continuous effort, say launching producer responsibility schemes for more products, regulating disposable plastic products, continuously expanding the community recycling network GREEN@COMMUNITY and providing outreaching recycling support services in the community through the Green Outreach, etc. Developing modern WtE facilities will not affect the progress of these initiatives.