Panel on Development

357WF - Design and Construction for First Stage of Desalination Plant at Tseung Kwan O

Follow-up Actions of the Meeting held on 24 April 2018

At the meeting held on 24 April 2018, the Panel on Development discussed the proposal to upgrade the remainder of **357WF**, entitled "Design and Construction for First Stage of Desalination Plant at Tseung Kwan O" (LC Paper No. CB(1)825/17-18(04)), to Category A. Supplementary information requested by Members is provided below:

(a) whether the existing Tseung Kwan O ("TKO") Fresh Water Primary Service Reservoir has adequate capacity to cater for the ultimate water production capacity of the proposed desalination plant at 270 000 cubic metres per day;

TKO Fresh Water Primary Service Reservoir has adequate capacity to cater for the ultimate water production capacity of the proposed desalination plant at TKO at 270 000 cubic metres per day.

 (b) whether, after deducting the capital cost for the construction of the proposed desalination plant, the estimated unit water production cost of seawater desalination in Hong Kong would be lower than the unit cost of importing Dongjiang water (including the purchase cost and water treatment cost);

The cost of depreciation associated with the capital investment of the waterworks facilities is part of the production cost of water. Such principle should be applied in the calculation of the unit production cost of desalinated water.

(c) the Government's planned objectives of diversifying water sources, in terms of the target proportions of the various water supply sources, viz. desalination, Dongjiang water, local catchment water, etc.;

Currently, the water sources of Hong Kong comprise rainwater from local catchments, imported water from Dongjiang and seawater for flushing. To cope with the impact of climate change, increase of water demand brought about by population and economic growth, and keen demand for water resources due to development of the Pearl River Delta region, the Government is introducing alternative water sources that are not susceptible to climate change, including desalinated water and recycled water. Therefore, in the future, water sources in Hong Kong would be more diversified, allowing more flexibility, as well as ensuring security in Hong Kong's water supply. The future proportions of the water sources will vary with a host of factors, including water demand (subject to effectiveness of various water conservation measures, and population and economic growth), local rainfall (can be affected by annual rainfall fluctuations and climate change), cost-effectiveness, as well as technological development of the various water sources, their reliability, impacts to the environment, etc. We will review the proportions of the different water sources from time to time according to the latest circumstances.

(d) a projection on the annual total fresh water consumption of Hong Kong in the next 10 years; and

The annual fresh water consumption projection in Hong Kong would depend on various factors such as population growth, economic development, achievement in water conservation, etc. As stated in the Policy Agenda in 2017 and 2018, we aim at reducing the per capita fresh water consumption from 135 cubic metres in the 2016 base year by 10% to around 120 cubic metres by 2030 at the earliest. Based on latest long-term population projections (released in September 2017) from the Census and Statistics Department, the projected water demand in 2030 is about 960 million cubic metres. We will continue to strengthen water conservation efforts and will aim at containing the growth of fresh water consumption in order to meet the reduction target.

(e) in the funding proposal to be submitted to the Public Works Subcommittee, the Administration's response on (i) the progress of the discussion with the Hong Kong and China Gas Company Limited ("HKCG") regarding the feasibility of utilizing the methane gas generated from the Southeast New Territories landfill to provide electricity supply to the proposed desalination plant; (ii) whether it was feasible to use renewable energy (such as solar energy) to reduce the water production cost of seawater desalination; and (iii) whether and how the Administration would encourage the future contractor to adopt renewable energy in operating the proposed desalination plant.

We have discussed with the HKCG on the supply of treated and purified landfill gas from the Southeast New Territories landfill to the proposed desalination plant at TKO for generating electricity. We have ascertained that it is technically feasible to supply the landfill gas to the desalination plant. The contractor of the Design-Build-Operate ("DBO") Contract for the proposed desalination plant could liaise with the HKCG for utilizing the landfill gas to generate electricity for operating the plant.

To encourage the adoption of renewable energy for the proposed desalination plant, the design of renewable energy system proposed by the tenderers will be evaluated, amongst other things, in the tender assessment and more marks will be awarded in the relevant assessment criterion to the tenderer who proposes a higher estimated total annual renewable energy production. Under the marking scheme for tender evaluation of the DBO Contract for the proposed desalination plant at TKO, the weightings of technical assessment and price assessment are 40% and 60% respectively.

Development Bureau Water Supplies Department March 2019