

Distinguished guests,

Ladies and gentlemen,

It gives me great pleasure to join you today for the groundbreaking of our fourth desalination plant here at Marina East.

Keppel Marina East Desalination Plant

2 The Keppel Marina East Desalination Plant is expected to commence operations in 2020 and will add another 30 million gallons per day (mgd) to our water supply. This is about enough to fill 55 Olympic-sized swimming pools per day. As far as we know, this plant will be the first of its kind in the world. Being a large-scale dual mode plant, it will either treat freshwater from Marina Reservoir or desalinate seawater, depending on wet or dry weather conditions. As such, this plant will be yet another step forward in enhancing the drought resilience and sustainability of our water supply.

3 Beyond this, there will be public green spaces incorporated on the rooftop of the Keppel Marina East Desalination Plant. This illustrates how we can achieve multiple uses of land, which includes the creation of new spaces for the community to enjoy.

Building water supply resilience

4 Desalinated water forms one of the four National Taps of Singapore's water supply, in addition to water from local catchments, imported water and NEWater. As a weather-resilient source, it plays an especially crucial role in ensuring a diversified and sustainable supply of water for everyone.

5 We are thankful that we have had reasonably good rainfall these last few months. However, we need to plan ahead as we are increasingly facing greater weather uncertainties. We must not forget that we had just left behind 3 continuous years of dry weather and such long dry spells are projected to be more frequent in the future. We must therefore ensure that we have enough NEWater and desalination plants ready to cater for any eventualities.

6. Indeed, water has always been an existential issue for us. Climate change impact will exacerbate our water issues if we are not prepared. According to the World Resources Institute, Singapore is one of the world's most water-stressed countries, as our local freshwater sources are far from sufficient to meet the needs of our population and economy. Despite our water scarcity, Singaporeans are able to enjoy a reliable supply of water today. This is a result of our relentless pursuit to secure a high-quality and reliable supply of water for our nation.

7 While we pursue greater resilience in our water supply, we also need to expand our water supply sources to keep pace with the growth of our nation's economy; it is prudent that we build ahead to cater to future demand. Our water supply strategy must take into account climate change as well as the need to allow the economy to grow. These are objectives that require complex solutions that incorporate technology, land use, capable human resources and sound operations. I am glad that we have always taken our water challenge seriously while always trying to keep costs manageable and water affordable.

8 With the launch of the fifth NEWater plant at Changi earlier this year, NEWater can meet up to 40% of Singapore's current water demand. As for desalination, our two existing plants at Tuas can meet up to 25% of our water demand now, and the third desalination plant at Tuas will be completed this year. Besides this Marina East desalination plant that begins construction today, our fifth desalination plant located on Jurong Island is also targeted for completion in 2020. We need to continue right-pricing this precious resource so that users can appreciate its scarcity value and the cost of supplying water. It is one key component to enable continual investments and proper maintenance of our water infrastructure. We have avoided the problems many countries face with water supply because we always take a balanced approach towards investment, conservation and pricing.

9 Looking forward, our water demand is expected to more than double by 2060. We will need to continue ramping up our capacities of NEWater and desalination so that they can meet up to 55% and 30% of our water demand respectively by then. And as we expand our water supply, we also need to continue our efforts to manage the demand for water. We must press on with water conservation and efficiency, both in

our daily individual usage and in the non-domestic sector. Every drop of water conserved means that less resources and costs are needed to invest in additional supply.

Investments in infrastructure and R&D

10 Water infrastructure projects, such as this plant, are testaments to PUB's efforts to reduce our vulnerability to climate change and enhance reliability through research and development efforts. Such technological improvements take us many years to prove and to become operationally deployable. Just like the breakthrough in membrane technology that brought us NEWater, the realisation of the dual mode desalination concept that we will see implemented in this desalination plant did not come easy. The reliability of this concept was proven through a 1-mgd demonstration plant at Pasir Ris, which PUB had operated since 2007. Today, after years of testing, this technology is ready to be applied on a large-scale at this 30-mgd plant.

11 These technological improvements come at a large expense. Other than construction costs to build these new plants, operation costs are also significant. For example, desalination costs more than treating freshwater from a reservoir as it is much more energy-intensive. PUB's R&D efforts have been vital in keeping these costs as low as possible, allowing water to remain affordable.

12 Moving ahead, we must continue to innovate and look into ways to reduce the energy consumption of the desalination process to ensure energy sustainability as well as to moderate production costs. To this end, PUB has been exploring, through R&D, the use of electrochemical energy, waste heat and even biomimicry in the desalination process. Though further technological improvements may take many more years to become operational, we must remain committed to our continuous efforts in R&D, so as to keep cost pressures in check as we have done in the past.

Embracing Partnerships

13 The public sector alone cannot chart our water journey. Close partnership with the private sector has enabled Singapore to explore, pilot and implement new technologies. This has improved our ability to overcome challenges in addressing our water scarcity. We have leveraged the combined expertise and resources of the public and private sectors to deliver water solutions in a cost-effective manner, through Public-Private-Partnerships (or PPP) like this one. Such an approach also encourages greater innovation and competition in the private sector, enhances production efficiency and helps keep water as affordable as possible. Through such partnerships for our water infrastructure, companies in the private sector also gain a track record here and can go on to contribute their water expertise on the global stage.

Conclusion

14 This desalination plant at Marina East is PUB's second PPP with Keppel, after the Keppel Seghers Ulu Pandan NEWater Plant. I would like to congratulate Keppel Infrastructure Holdings Pte Ltd (Keppel Infrastructure) on the groundbreaking of Singapore's fourth desalination plant at Marina East. We look forward to the opening of the plant, which will contribute to a new page in Singapore's water story. Thank you.