



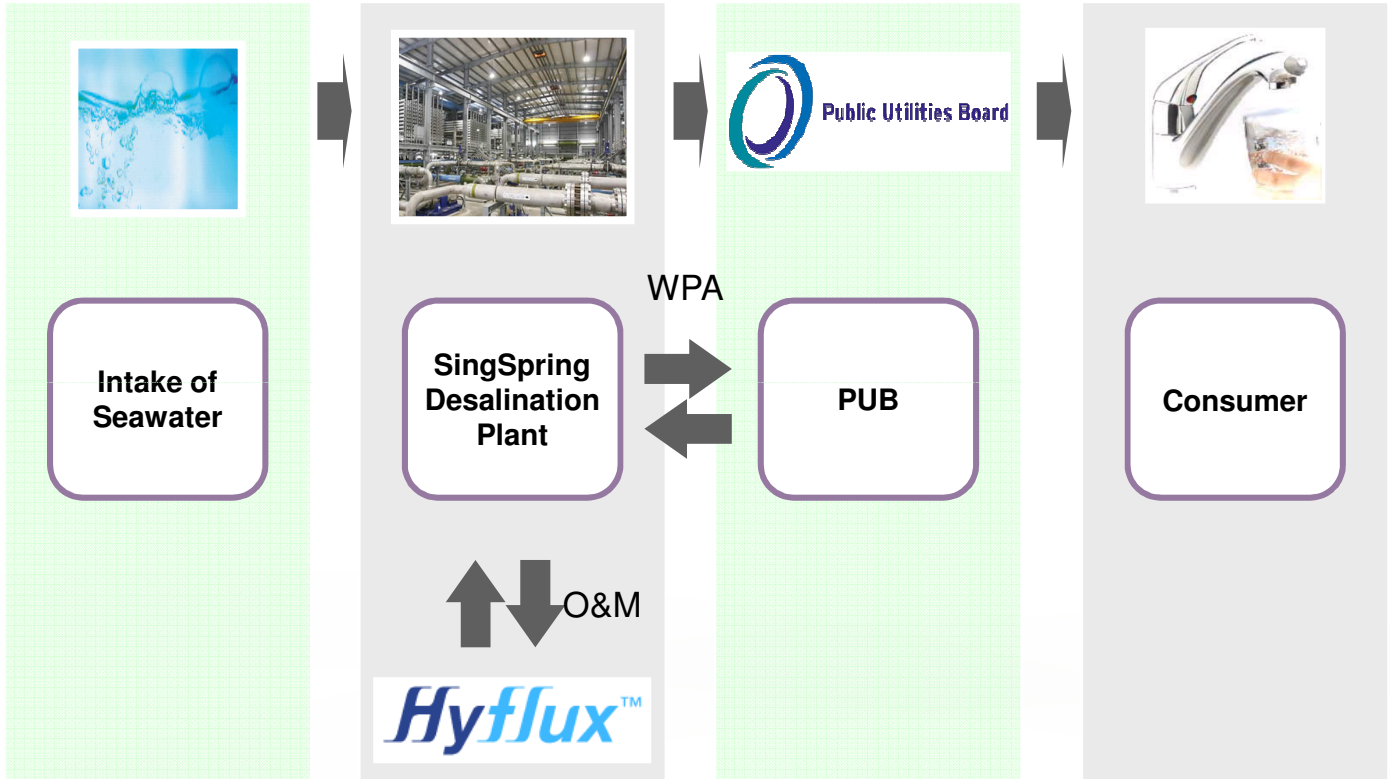
SingSpring – A Positive PPP Experience

24 June 2009

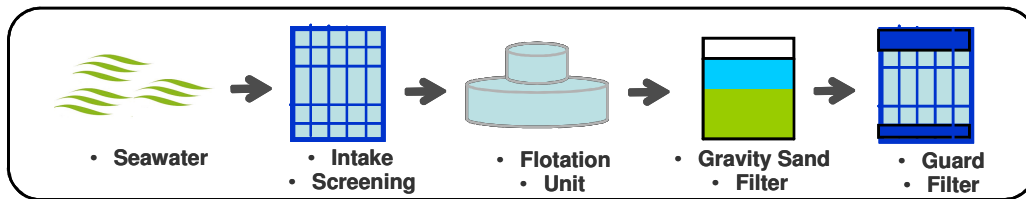
**Singapore's Water Policy –
“Four Taps Approach”**

- 1. Local Catchment Water
- 2. Imported Johor Water
- 3. NEWater - Recycled Water
- 4. Desalinated Water

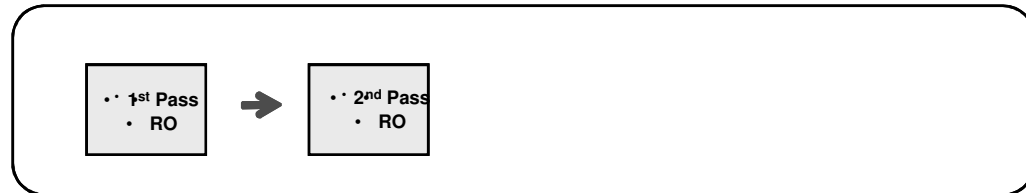
Seawater Desalination Process



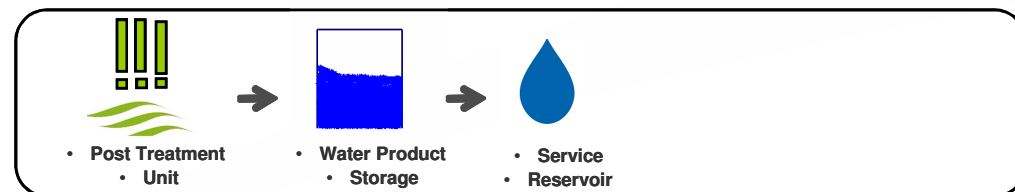
100% water production availability since commissioning in 2005



• Pre-treatment



• Reverse Osmosis

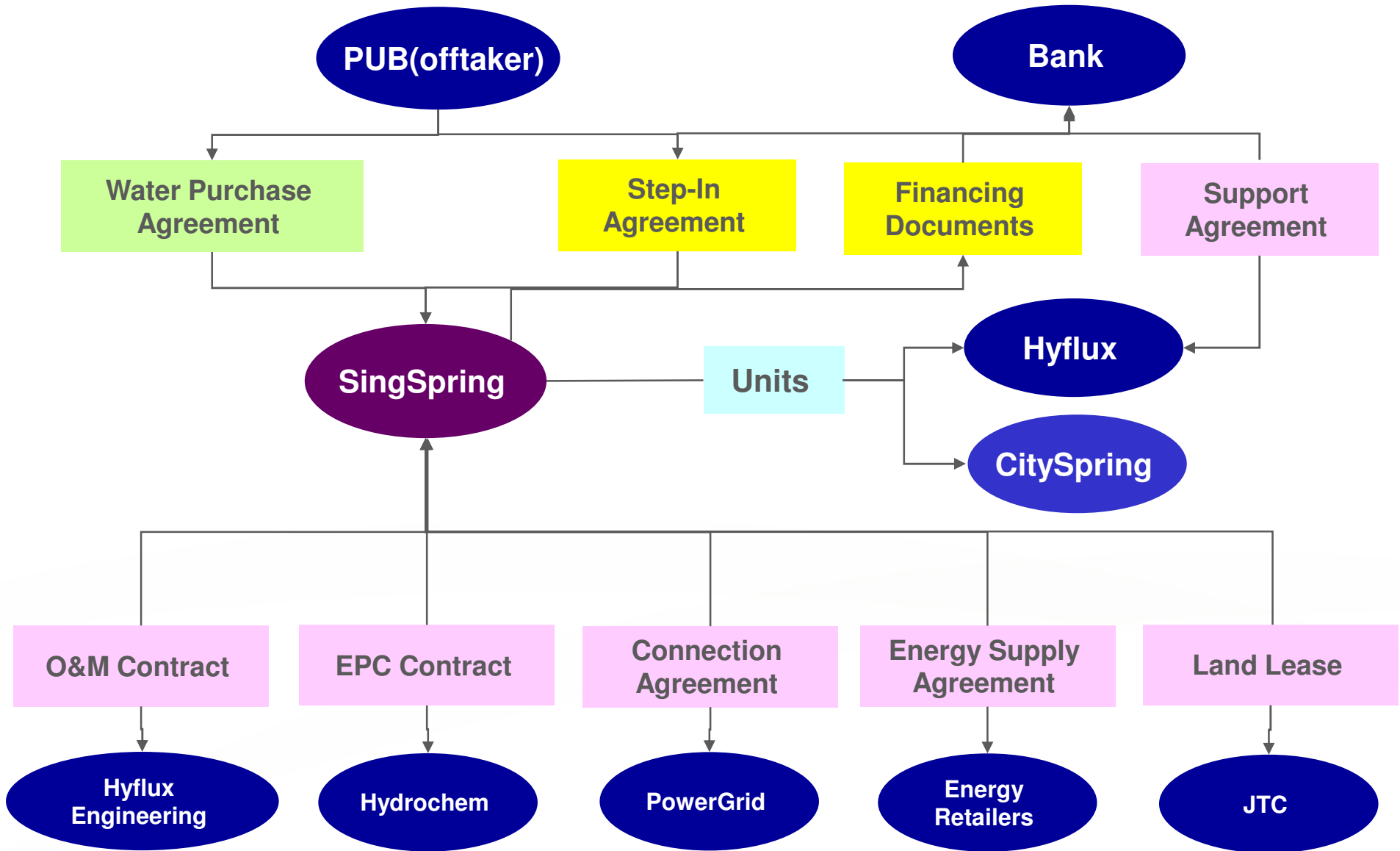


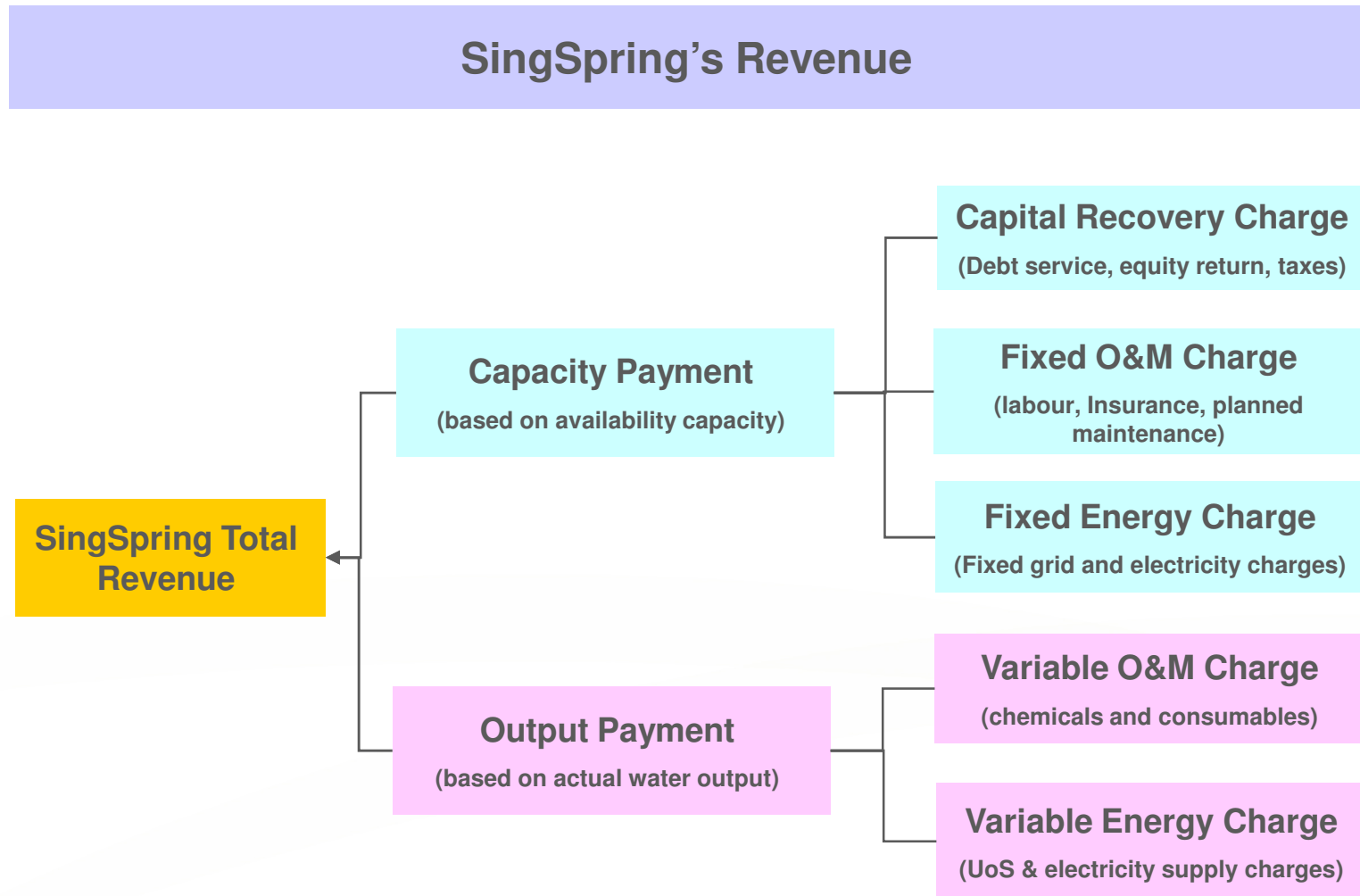
• Post-treatment

- Seawater is taken in a submerged intake culvert and is passed through filter screens which remove debris
- Seawater is pumped to the Dissolved Air Flotation Filtration (DAFF) units to remove contaminants such as oil, grease and suspended solids
- The pre-treated sea water is then sent to the Reverse Osmosis (RO) stage
- The pre-treated seawater is pumped at high pressure through semi-permeable reverse osmosis membranes. No bacteria, viruses, chemicals or dissolved minerals can pass through the membranes
- 45% of the influent seawater is recovered from the 1st Pass RO, for treatment in the 2nd Pass RO. The 2nd Pass RO further treats the water and recovers 90% of the water
- After the RO stage, the RO reject stream is discharged back into the sea
- After the RO process, post-treatment adds back minerals and fluorides to balance the PH of the water, so that the drinking water quality meets the PUB and World Health Organisation drinking water quality standards, ready for consumption



- Singapore's first PPP project
- PUB purchases potable water under a long-term (20-year) water purchase agreement
- Private sector design, build, own and operate the facility
- Project finance to be arranged by the private sector
- Scalable water supply capability
 - Up to 30 million gallons per day upon request
 - In compliance with WHO drinking water standards





Equitable Risk Sharing

Government Force Majeure

- Capacity payments made

Other Force Majeure

- On SingSpring, non-performance excused
- On PUB, capacity payments made

Change in law

- Tariff adjustment

Grid failure

- Capacity payments made

Event of default

- Cure periods
- Lender step-in rights
- Termination prices

PUB (offtaker)'s Perspective

- Added security of Singapore's water supply in the long run
 - Modular design, able to operate at different levels below full capacity
- Shifting project development risks to the private sector
 - Construction & operating cost over-runs to be borne by the private sector
- Encouraging innovation
 - Largest tropical SWRO desalination plant in Asia and 2nd largest in the world
- Good value for money
 - Lower cost of desalinated water

Owner's Perspective

- Predictable long-term cash flow
- Lower cost of capital

Financiers' Perspective

- Low risk, bankable assets with long-term contracts, e.g. 20-year WPA, 20-year O&M contract
- Longest tenor project financing in Singapore at 18 years

The SingSpring experience has shown that PPP structure is a creative, innovative and cost-effective structure to develop similar facilities in Singapore



Thank you