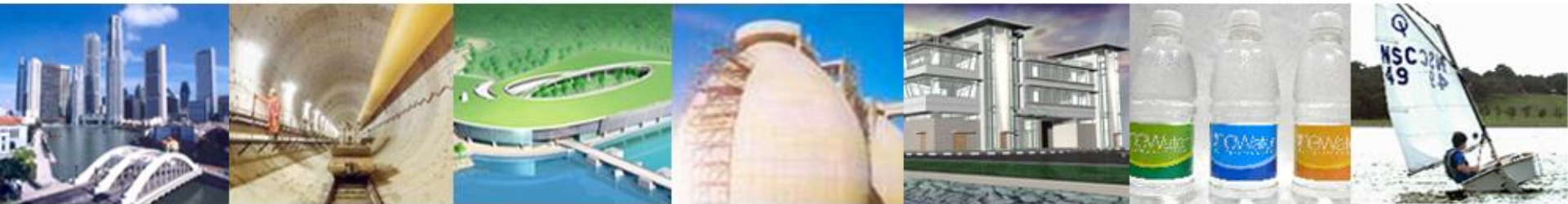


Water for All
Conserve, Value, Enjoy



MARKET SOUNDING SESSION MARINA EAST DESALINATION PLANT

PUB/15TH JAN 2016

MARINA EAST DESALINATION PLANT

The information presented in the following slides is for general information only and may be subject to change as deemed necessary by PUB. PUB shall not be liable for any loss, expense, costs or damage whatsoever resulting from the use of the information or any changes in the information.

Marina East Desalination Plant

Plant Capacity: At least 30mgd (or 136,500m³/day)

Location: Adjacent to the Marina Coastal Expressway (MCE) and KPE Interchange

Delivery Approach: Design, Build, Own and Operate.

Tentative RFP Invitation Date: Early Mar 2016

Expected PCOD : End 2019

Concession Period: 2019 to 2044 (25-yr Term)

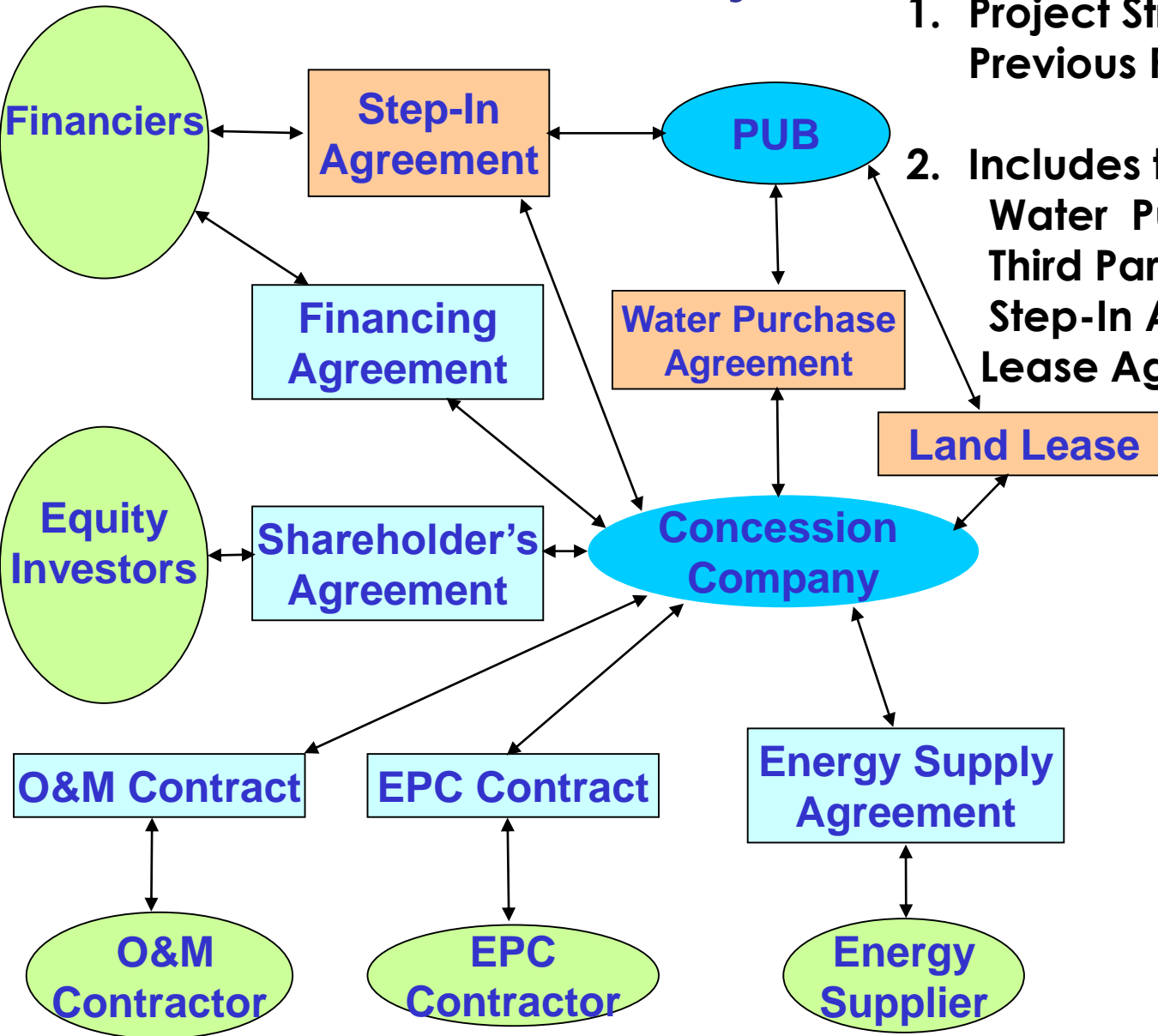
Co-location with other facilities

- ❖ Colocation of a green roof for park users
- ❖ Colocation of park amenities such as bicycle parks and toilets
- ❖ Architectural design and landscaping with planting strips to blend in with East Coast Park

DBOO Project Structure

1. Project Structure Similar to Previous PUB DBOO Projects

2. Includes the Water Purchase Agreement, Third Party Agreements, Step-In Agreement, Lease Agreement.



Water Purchase Agreement

- **The Water Purchase Agreement (WPA) is the key agreement for the DBOO Scheme.**
- **It prescribes the contractual and legal rights of the Concession Company and PUB.**
- **It contains the technical, financial, commercial and legal terms and conditions for the supply and purchase of water.**



Third Party Agreements

- **Third party agreements are entered into by the Concession Company for the provision of various facilities.**
- **PUB is not a party to third party agreements.**



Step-In-Agreement or Direct Agreement

- **Step-In Agreement is signed amongst PUB, Concession Company and the Lenders/Financiers.**
- **Provides for PUB/Financiers to step-in to operate the plant in the event of Concession Company's default under certain conditions defined in the Water Purchase Agreement. This is to ensure continued operation of the plant and delivery of desalinated water.**
- **PUB will step out once the Concession Company has cured the default or the financiers have found a suitable operator during the interim period while the Concession Company cures the default.**



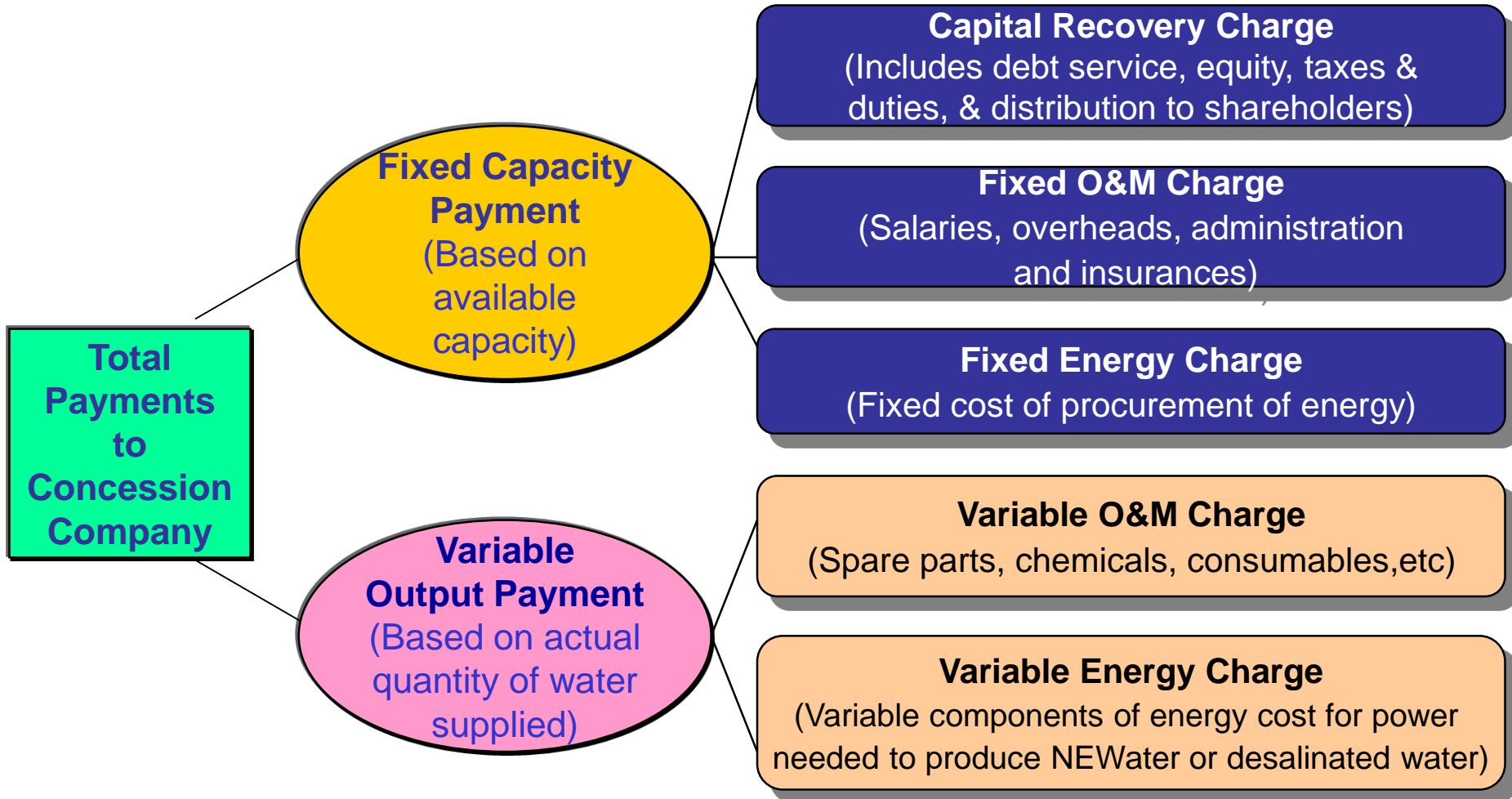
Lease Agreement

- **PUB sub-lease land to Concession Company**
- **Lease – 29 years (with allowance for design and construction)**
- **At the end of the Lease, PUB is given the option of**
 - **taking over the Plant at nominal value or**
 - **Concession Company to decommission the Plant and return the reinstated land to PUB**



Payment Structure and Indexation

Payment structure based on fixed capacity payment and variable output payment.



Payment Structure and Indexation

Concession Company has offered base rates for the various capacity and output payment components at tender submission. To share the long term risks of future changes in costs due to inflation and fluctuation in fuel price, the base rates are subject to indexation.

Indexation

Capacity Payment

Capital Recovery Charge

• Nil

Fixed O&M Charge

• Singapore Consumer Price Index.

Fixed Energy Charge

• Nil

Output Payment

Variable O&M Charge

• Singapore Consumer Price Index.

Variable Energy Charge

• HSFO 180 cst

Technical Specifications

- **Concession Company primarily takes construction and operational risk. The technical specifications are performance-based.**
- **Concession Company is given room to use innovative and cost-effective means to provide the most sustainable plant that can produce water that meets the specified performance in term of quality and quantity.**

MARINA EAST DESALINATION PLANT

Project Consultants



MARINA EAST DESALINATION PLANT

TECHNICAL

MARINA EAST DESALINATION PLANT

KEY ASPECTS OF THE PROJECT

Capacity: 30 MiGD Design, Build, Own & Operate
Desalination Plant

Term: 25 years

Scheduled PCOD: Projected to be in 2019

Unique Features :

- Inland Plant with 3 ha. footprint– extended Intake and Outfall pipes;
- Dual water source - Seawater & Marina Reservoir water;
- Fenceless plant with public access to green roof

MARINA EAST DESALINATION PLANT

MAJOR TECHNICAL HIGHLIGHTS

Technical Specifications – Performance-based

Warranted Capacity – 30MiGD

- Reservoir water, 30MiGD
- Sea Water at least 30MiGD

PUB not under any obligations to take or accept any Product Water

Minimum amount if asked to supply – amount to be proposed by CC but not more than 7MiGD

Specified processes (DAF, MF/UF, RO, Disinfection and Potabilization)

MARINA EAST DESALINATION PLANT

MAJOR TECHNICAL HIGHLIGHTS

Dedicated 66kV supply from SPPG with power back-up for essential services

Product Water Quality Requirements will be specified. Real time continuous monitoring of key parameters for Product Water before the delivery point

Fenceless Plant with Critical Infrastructure security features to meet MHA requirements

- Threat, Vulnerability and Risk Assessment
- Structural resilience Study
- Overall Security Protection Plan

MARINA EAST DESALINATION PLANT

MAJOR CONSTRUCTION SCOPE

Plant building construction - deep excavation for the basement; site close to ECP & MCE

Construction and installation of treatment units within enclosed building and basement

Long Intake, Outfall and Product Water Pipeline (~1.8km) - pipe jacking through marine clay; soil improvement works

Two sets of offshore pipeline construction and intake structures

Architectural and landscaping work, public access facilities, etc.

MARINA EAST DESALINATION PLANT

HANDOVER FACILITIES

Product water pipelines

PCN and other park land features outside the site boundary

MARINA EAST DESALINATION PLANT

PUBLIC ACCESS FACILITIES

Roof top open to public, include green features

Architectural and landscape features on and around the plant building

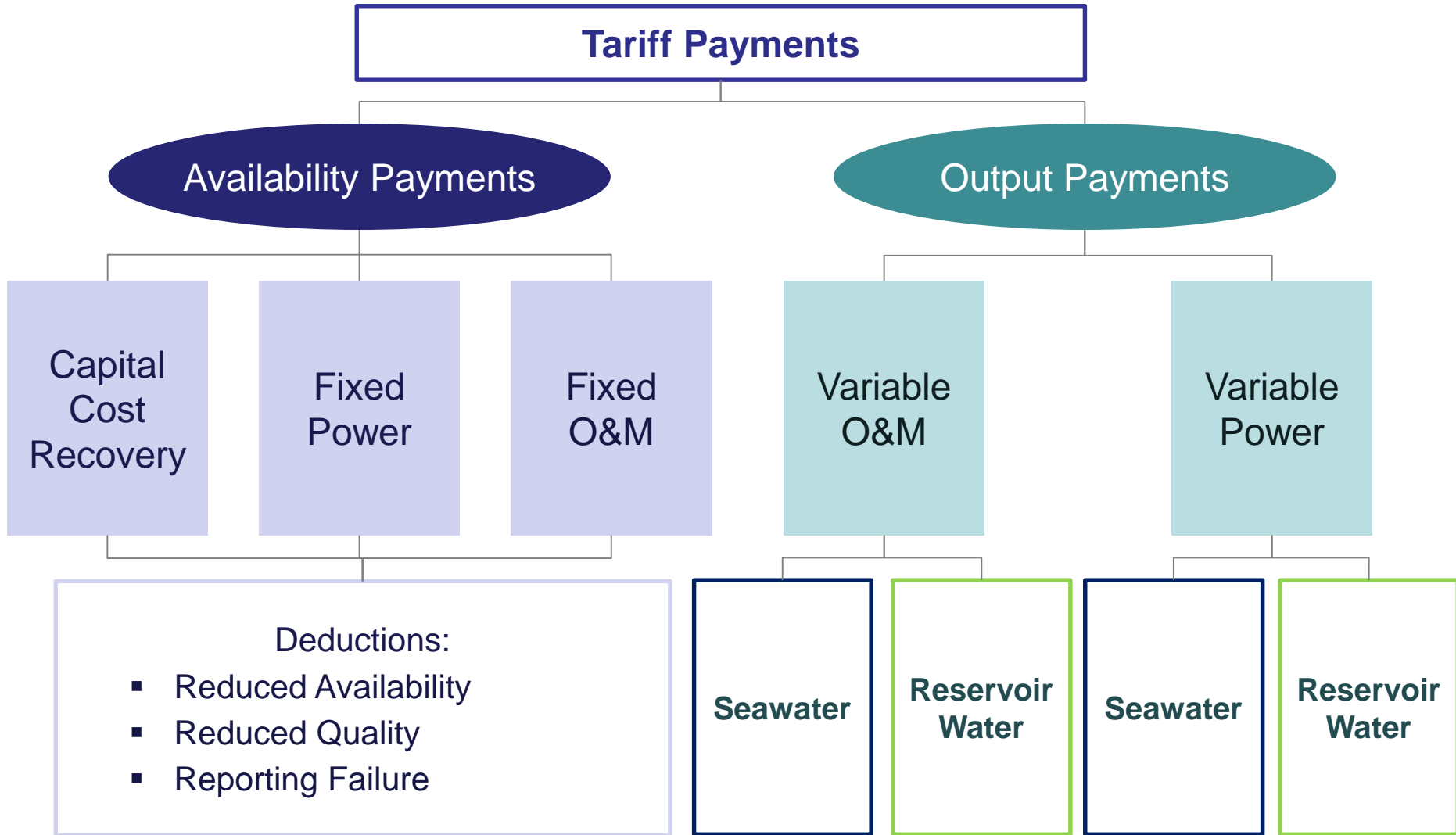
Park Connector Network, bicycle parking, public toilets, etc.

“Butterfly” walking trail

MARINA EAST DESALINATION PLANT

FINANCIAL AND COMMERCIAL

TARIFF PAYMENT STRUCTURE



TARIFF BUILD-UP – AVAILABILITY PAYMENTS

Category	Formula	Indexation
Capital Cost Recovery	<p>CCRP consists of the following components:</p> <ul style="list-style-type: none"> ▪ Debt service ▪ Equity returns ▪ Taxes 	<p>N.A.</p>
Fixed O&M	<p>FOMP compensates the following costs:</p> <ul style="list-style-type: none"> ▪ Manpower cost ▪ Routine maintenance cost 	<p>X% to SCPI</p>
Fixed Power	<p>FPP compensates the following fixed power charges:</p> <ul style="list-style-type: none"> ▪ Contracted / Uncontracted capacity charges ▪ Reactive power charges 	<p>N.A.</p>

TARIFF BUILD-UP – OUTPUT PAYMENTS

Category	Formula		Indexation
Variable O&M	Seawater	VOMP compensates for: <ul style="list-style-type: none"> ▪ Chemical costs ▪ Spare parts costs ▪ Membrane replacement 	Y% to SCPI
	Reservoir Water		
Variable Power	Seawater	VPP compensates for: <ul style="list-style-type: none"> ▪ Cost of fuel ▪ Cost of procuring power 	Z% of Fuel tariff to HSFO 180cst
	Reservoir Water		

DEDUCTIONS ON AVAILABILITY PAYMENTS

Deduction for Reduced Availability

Applies in the events of:

- declared unavailability;
- deemed unavailability; and
- no dispatch due to non-conforming product water quality.

Deduction for Reduced Quality

Applies in the events of

- water supplied fails to meet the water quality specifications.

Deduction for Reporting Failure

Applies in the events of

- misreporting by the Concession Company of its declared available capacity.

DEDUCTIONS ON AVAILABILITY PAYMENTS

Plant availability requirements

Plant to be available not less than 98% of the time measured monthly

No single outage affecting the entire Plant lasting more than 5 hours

Not more than one outage occurring in any continuous 168 hour period

Tariff Evaluation Framework

Key concept:

- Evaluation based on Levelised Water Cost
- Levelised tariff = (NPV of payments / NPV of water output)

**Provided by PUB
(for evaluation
purpose only)**

- Capacity rotation profile
- Water outputs profile
- CPI and HSFO 180 cst indices for the project's term
- Discount factor for NPV calculations

Provided by Bidder

- Availability payments per m³
- Output payments per m³
- % of payments to be indexed
- Load correction factor for both SW and RW operation
- Project and Equity IRR
- First year tariff

Bidder's Commercial Requirements

As part of the bid, the Bidder has to provide the following information:

Corporate Structure

- Proposed structure of the Concession Company
- Shareholder structure and agreements

Financing Sources and Conditions

- Funding structure and terms of financing
- Financiers In-Principle Commitment Letter

Information on Bidder

- Submission of Financial Statements
- Necessary approvals (e.g. from the Bidder's board)

Third Party Contracts

- EPC and O&M term sheets
- Electricity Retailer term sheet

MARINA EAST DESALINATION PLANT

LEGAL AND CONTRACTUAL

MARINA EAST DESALINATION PLANT

- Legal & contractual structure similar to previous DBOO projects
- Water Purchase Agreement – key terms

Clause	
Term	25 years
Performance Security	required
Liquidated Damages	delay and abandonment
Concession Company	SPV structure
Dual Water Source	<ul style="list-style-type: none">• sea water or reservoir water• PUB's dispatch instruction – quantity and water source

MARINA EAST DESALINATION PLANT

Clause	
Tariff Mechanism	Availability & Output payments – subject to deductions regime
Events of Default	generally in-line with previous DBOO projects: <ul style="list-style-type: none">•failure to comply with Implementation Schedule•failure to meet Warranted Capacity•failure to meet minimum average Availability•failure to supply In-Spec Product Water for 24 hours or more•other material breaches•Etc

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Clause	
Termination Compensation	generally in line with previous DBOO projects:
<ul style="list-style-type: none"> PUB's default 	debt, 100% breakage costs, equity, project returns
<ul style="list-style-type: none"> CC's default 	market value of the project
<ul style="list-style-type: none"> Force Majeure 	debt, 50% breakage costs, equity
Expiry	<ul style="list-style-type: none"> no residual value handover plant in good condition PUB may require Plant to be demolished (reasonable costs borne by PUB)

MARINA EAST DESALINATION PLANT

Clause	
<p>PUB step-in rights:</p> <p>Step-in Event A:</p> <ul style="list-style-type: none">•CC suffers an insolvency event;•breach by CC leading to serious threat to health and safety;•breach by CC which will result in a material interruption in supply of Product Water	<p>Cost Impact:</p> <ul style="list-style-type: none">•PUB to continue paying the Tariff•any existing Tariff deductions will continue to apply•CC to pay to PUB all costs properly and reasonably incurred by PUB in exercising its Step-in Rights
<p>Step-in Event B:</p> <ul style="list-style-type: none">•public emergency / public interest	<ul style="list-style-type: none">•PUB to continue paying the Tariff.•any existing Tariff deductions will continue to apply.

MARINA EAST DESALINATION PLANT

Clause	
Equity Transfer Restrictions	Any Equity transfer requires PUB's approval
	<p>From WPA Signing Date till 3 years from Project COD – PUB may reject any Equity transfer at its sole discretion if such transfer results in:</p> <ul style="list-style-type: none">•Key Shareholder holding less than 30% of Equity in CC•any other Shareholder holding less than 10% of Equity in CC•Key Shareholder's rights in managing CC's business are detrimentally affected
	Post this period, PUB will act reasonably in rejecting any Equity transfer.

MARINA EAST DESALINATION PLANT

- Direct Agreement
 - Generally in line with previous DBOO projects
 - Lender's step-in rights & substitution rights subject to PUB's consent
 - Lender's enforcement of securities subject to PUB's consent
 - PUB to act reasonably in both cases

MARINA EAST DESALINATION PLANT

- Land/Site
 - leases - PUB head lessor
 - site - sub-lease to CC
 - foreshore - sub-lease to CC
 - PUB has rights to designated public areas (e.g. rooftop)
 - pipelines rights of way
 - access to site

Thank You