

Alkimos Seawater Desalination Plant

Alliance Design, Construct, Operate and Maintain
Industry Briefing - 21 July 2022

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About this session



- Your microphones and video have been switched off.
- This briefing will be recorded and will be made available to you – you must not record video or audio from this briefing.
- Please type any questions in the Webex chat box (stating your name and company). Our responses will be saved for the end of the session. We will only respond if we are able to provide a response at this time and to the extent time permits. For further information participants should refer to the Request for Proposal (RFP) and submit any outstanding questions via the RFP process.

Disclaimer: All information disclosed as part of this session is for information only, in no circumstances should it be relied upon by participants. It is based on information available as at the date of this presentation, it may be subject to change without notice. All dates are aspirational and are subject to change, revisions may arise for a variety of reasons including due to funding, environmental, Board and Ministerial approvals. Participants are advised to carefully review all information provided in future Request for Proposal documentation.

Welcome to Country





Daniel Rossi

Project Director
Assets Delivery

Our vision is to deliver a climate resilient water source utilising sustainable energy, built by local expertise to sustain Perth's future as a liveable, waterwise city.



Agenda

- About Water Corporation and our context
- Program overview
- Alkimos Seawater Desalination Plant Project
- Contract establishment and Alliance Agreements
- Questions and answers



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Our context

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About Water Corporation



We are owned by the Western Australian Government and accountable to the Minister for Water the Hon Dave Kelly MLA, for delivery of our services in a commercial manner.

To find out more about us visit [Water Corporation | About us](#)

Our structure

Minister - Hon. Dave Kelly MLA

Chairman of the Board - Ross Love

Board of Directors

Chief Executive Officer – Pat Donovan

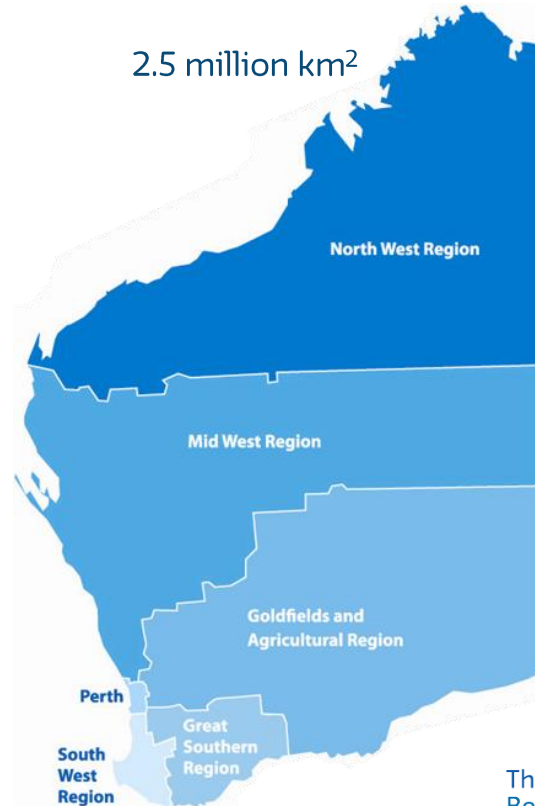
Our west coast story



Water Corporation is an **integrated water utility** operating across Western Australia.

Our purpose is to manage water services sustainably to make WA a great place to live and invest.

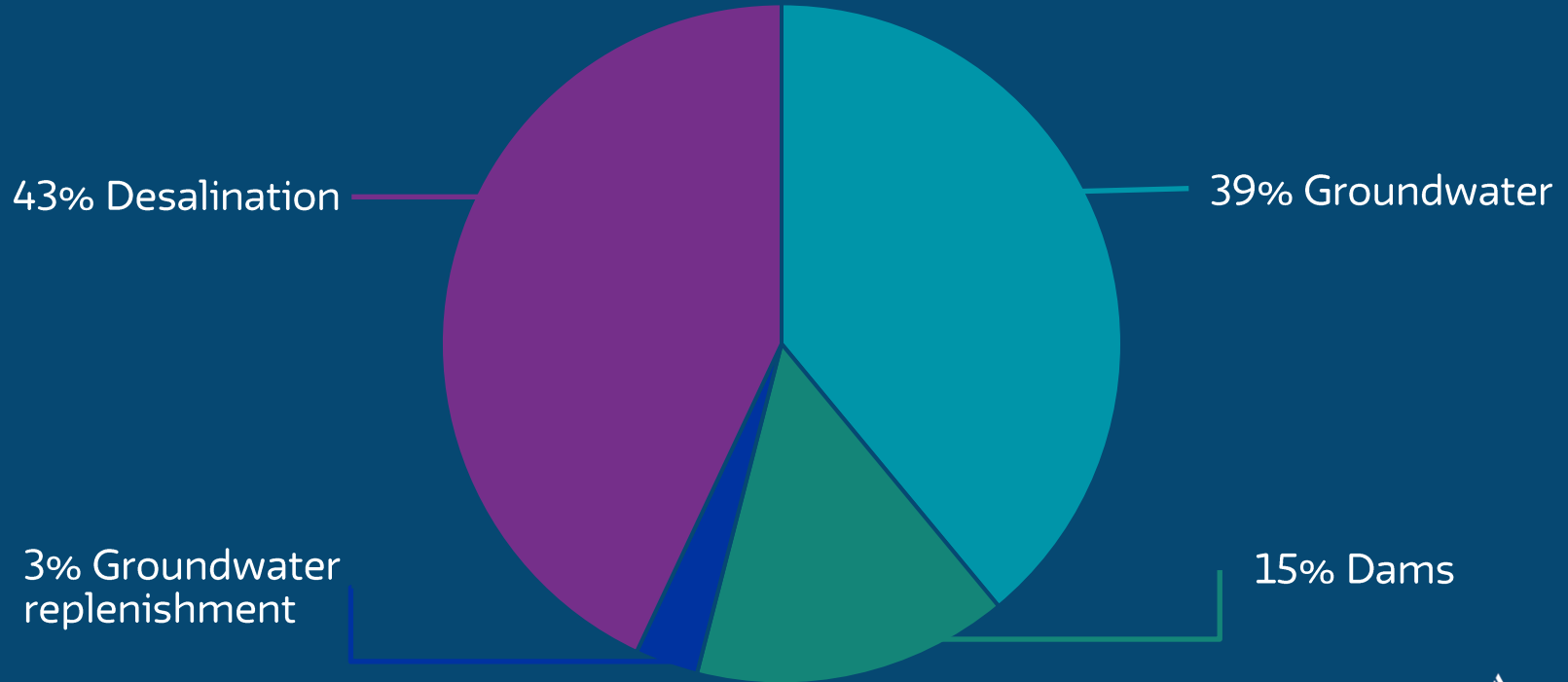
Our **purpose and vision** reflect the role of water as an enabler of the economy and our quality of life.



Service **1.3M** homes and businesses

90% customer base across metro Perth, South West, Great Southern and Kalgoorlie pipeline

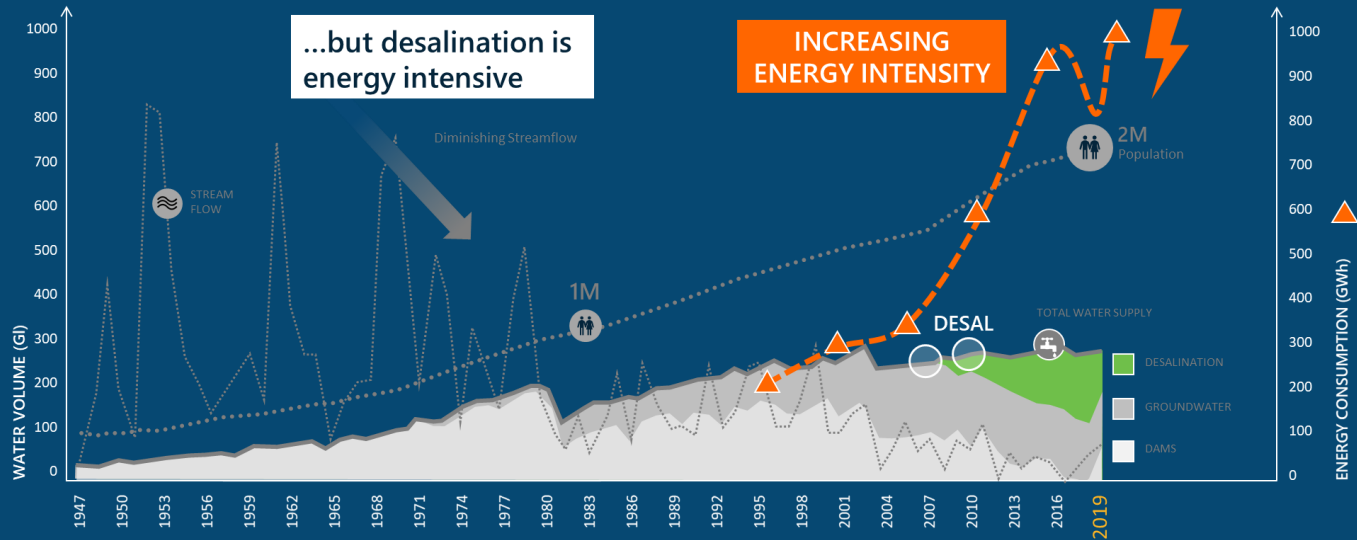
Where our water comes from



Climate change



Climate change has significantly impacted our water supply and energy use.



SEAWATER DESALINATION = 4x ⚡ GROUND WATER & 40x ⚡ DAMS

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Source: Water Corporation

Note: Energy consumption data based on available records

Our prediction for 2050



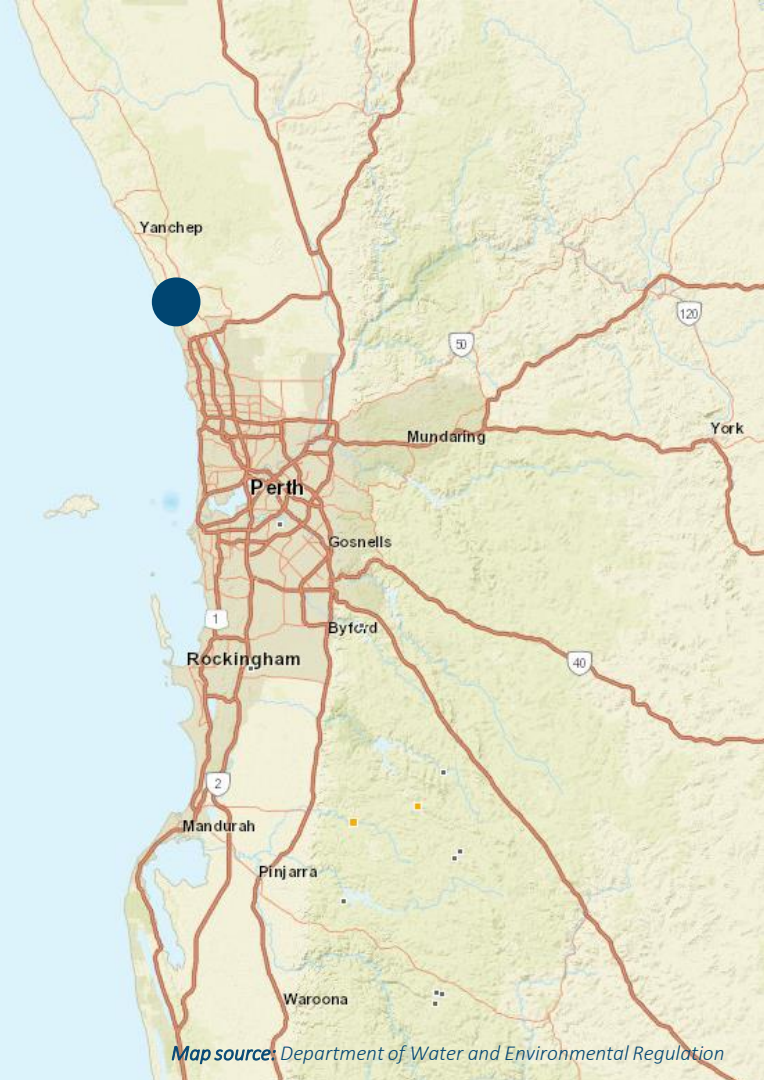
	Population	Potable Water	Non-potable Water	Wastewater Production
Now	 2.1 million	 260GL	 275GL	 140GL
2050 Medium Forecast	 3.4 million	 370GL	 325GL	 185GL

Our first of multiple new sources is required by 2028.



Why Alkimos?

- 45km north of Perth.
- High growth area.
- One of two locations identified for a new desalination plant.
- Groundwater allocation reduction.
- ASDP is to be co-located with the:
 - Existing Alkimos WWTP
 - Planned Eglinton GWTP
 - Planned advanced water recycling plant.



Our measures of success

To ensure successful delivery we must be able to:



Safe for all

Meet our **safety targets for TRIFR and public safety.**



Satisfied customers

Achieve **positive outcomes for local, aboriginal and sustainable participation.**



Supporting state development

Fully commission the works and commence operation by **July 2028.**



Great place to work

Integrate **Water Corporation resource capacity and capability** for desalination **operation and maintenance.**



Environmentally sustainable as climate changes

Demonstrate **carbon and environmental impact reductions.**



Efficient

Optimise the desalination plant design for **energy efficiency and production flexibility**, minimising **whole of life costs** and ensuring design facilitates **efficient and cost-effective operation.**

We need your help to achieve our measures of success.

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Program overview

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Program of works

Overall a
\$2 billion
program of
works

ASDP Works

- Sub-sea intake and outfall tunnels
- 150MLD (40MGD) Seawater Desalination Plant
- Eglinton Groundwater Treatment Plant and bore headworks

Enabling Works

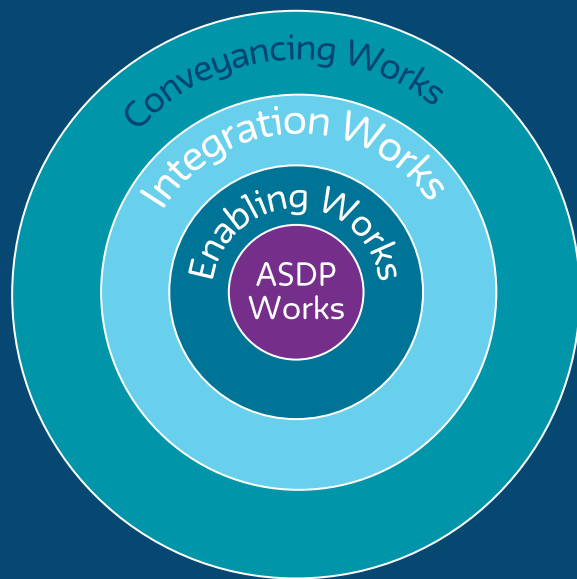
- Environmental approvals (State and Federal)
- Bulk earthworks incl. berm construction
- Power supply to Alkimos Water Precinct

Integration Works

- 27km of DN1600 trunk main
- 6km of DN1400 pipeline aligned to transport and local development projects
- Connection to Wanneroo Reservoir
- GHG renewable energy solution

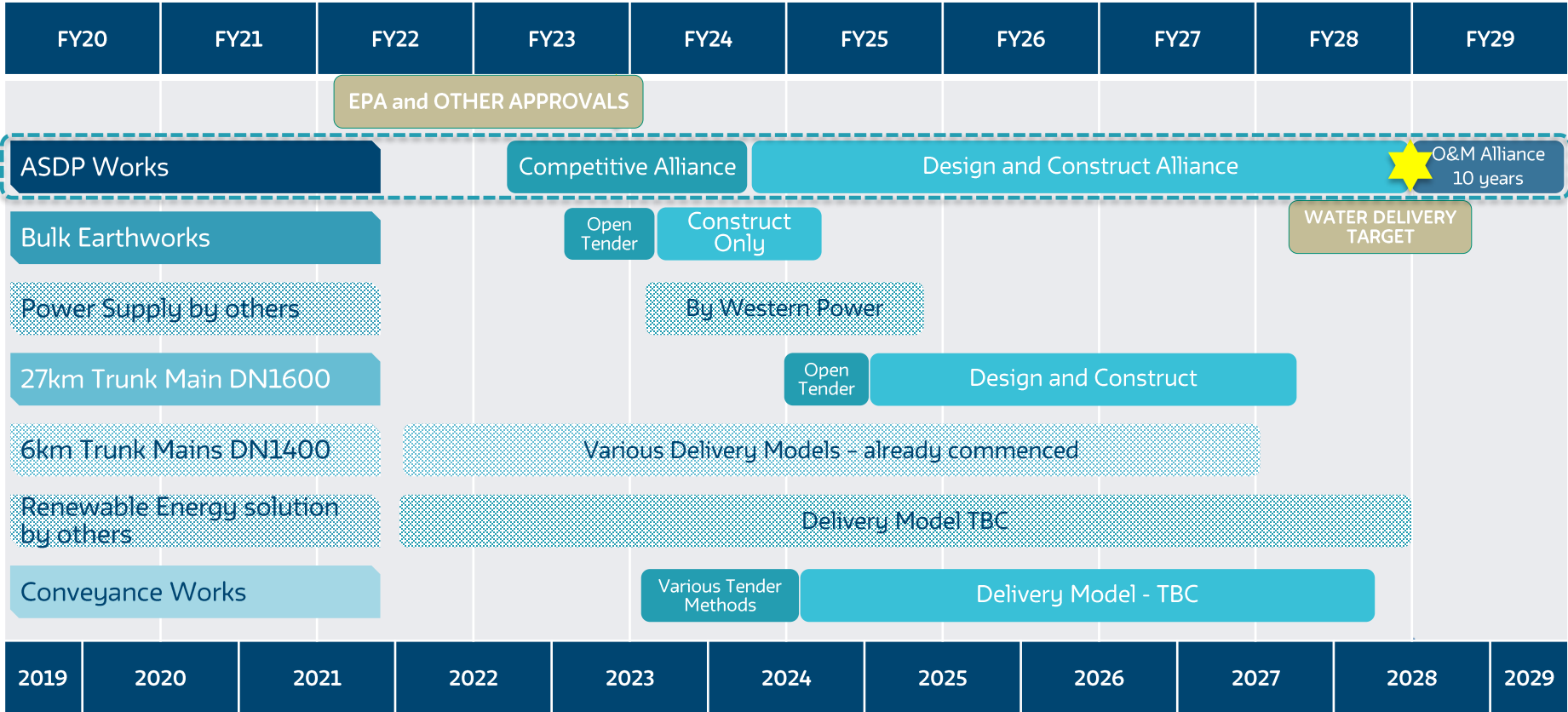
Conveyancing Works

- Upgrades to existing Integrated Water Supply Scheme assets



The works need to be integrated to
activate the new water source by 2028.

High level schedule





Ryan Smith

Principal Project Manager
Assets Delivery



Alkimos Seawater Desalination Plant project

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Alkimos site

Ultimate Capacity of 300MLD (80MGD)

EXISTING ALKIMOS WWTW OUTFALL ON 1200 PIPE

PROPOSED 600 OUTFALL ON 600 TUNNEL (400M LONG)

PROPOSED 600 OUTFALL ON 600 TUNNEL (300M LONG)



Bulk earthworks

Site preparation ahead of D&C Alliance mobilisation

Scope

- Construct only contract.
- Approx. 1,000,000 m³ surplus fill, with 600,000 m³ fill to the Alkimos Coastal Development.
- Berm, retaining walls, roads, security and drainage.
- Clearing and levelling earthworks at the TBM launch pad site.

Benefits

- Minimise future disruption to developing local community.
- Opportunistic re-use of spoil.

Status

- Detailed design commenced.
- EPA and EPBC assessment underway.

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Western
Berm



Alkimos Coastal
Development (DevWA)

Site Access
Road

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Project scope



**Design and
construct a new
desalination plant
equipped for
150MLD (40MGD)**

The assets required include:

- Marine tunnels
- Seawater screening
- Pre-treatment
- Reverse osmosis
- Chemical systems
- Control system including linkage to Water Corporation integrated SCADA
- Ancillary works
- HV switchyard (incoming power supply by Western Power)
- Groundwater filter block and design of bore headworks

**Future
proofing
for Stage 2
– 300MLD
(80MGD)**

Project scope



Operate and maintain desalination plant for energy efficiency and production flexibility, minimising whole of life costs

- Efficient and cost-effective operation and maintenance that minimises Whole of Life Cost.
- Delivery of drinking water into the IWSS meeting the water quality specification and production target. (permeate bromide concentration 0.1 mg/L)
- Compliance with Water Corporation's Operating Licence and Environmental Conditions.
- Water Corporation responsible for power procurement during operation and maintenance.

How is this plant different?



Design and construct differences

- Site Location
 - Residential developments and school in close proximity to site.
- Segmentally lined tunnels 3.5m internal diameter
 - Intake tunnel 2.5 km.
 - Outfall tunnel 4 km.
- Eglinton Groundwater Treatment Plant and Borefields
 - Potential 4.6GL/year scheme. Use of groundwater source for remineralisation of permeate offers OPEX savings.
- Water quality requirements
 - Source water quality risk requires minimum LRV bacteria 7 log, virus 7 log, protozoa 5 log.
- Sustainability Rating
 - Requirement to seek a Design and As-Built Infrastructure Sustainability rating of Silver or higher.
- Aboriginal Engagement Plan
 - Water Corporation aims to maximise opportunities for Aboriginal businesses and employment opportunities.

How is this plant different?



Operation and maintenance differences

- Operational flexibility
 - The plant will comprise of two 75MLD (20MGD) trains which need to be able to operate independently yet still have direct links for process, chemical dosing, pipework etc.
 - Energy efficiency and energy management are primary requirements (2 clearwater storages in Stage 1 to provide additional onsite storage).
- Operation and Maintenance Alliance
 - Initial 10 year term, with an optional 5 year extension.
 - Water Corporation employees to make up around 35% of Operation and Maintenance Alliance personnel.
 - Integration with select Corporate Management Systems.
- Total Renewable Energy / Zero GHG component
 - Perth's 3 desalination plants.



Challenges



The Alkimos Seawater Desalination Plant Stage 1 includes the following challenging aspects:

- The environmental approvals from State EPA and Commonwealth are expected in mid-2023.
- The Alliance Development Stage will commence before approvals are received.
- The enabling earthworks (delivered by others) is on the critical path. Potentially earthworks around the site are still being completed whilst TBM area is being set up by the Alliance in late 2024.
- Timeframe for procurement of Tunnel Boring Machines and tunnelling progress present a risk to the schedule.
- Critical components such as large pumps and HV equipment such as transformers have extended delivery times.
- Construction and maintenance of risers for intake and brine discharge present a challenge in the active ocean conditions.
- Potential for Stage 2 Design and Construct initiated during Operate and Maintain Alliance term.

Lead times and tight schedule are significant challenges.



Contract establishment and alliance agreements

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RFP submission



- The Request for Proposals (RFP) will be publicly advertised. This advertisement will confirm the details regarding how to obtain a copy of the RFP documentation.
- The RFP documentation will be made accessible via Water Corporation's online supplier portal.
- To access the RFP documentation you must first be registered as a Water Corporation supplier or bidder on Water Corporation's online supplier portal. If you are not already registered and wish to respond to the RFP, please complete the online Supplier Registration form available under the 'Suppliers' tab on our website at watercorporation.com.au.
- Please be aware this may take up to five working days to process.

Contract establishment and execution process



An Alliance Contract has been selected for Design and Construct and Operation and Maintenance.



Criteria

Under review



- Personnel
- Experience
- Capability and Capacity
- Key Contractors
- Methodology and Schedule
- Alliance Development Agreement and Commercial Framework
- Financial Capability and Stability
- Management Systems
- Prequalification
- Safety
- References
- Overhead and Profit

Commercial framework



RFP will set out details of Commercial Framework. The current intention is:

TOC and TOMB (Target Costs)

In the Alliance Development Stage, Target Costs will be agreed for both the D&C and O&M Contracts. These include estimates for Direct Costs, Margin and Contingencies. During the Alliance Agreements Target Cost is adjusted in response to defined events.

Actual Outturn Costs (AOC)

During the Project, Water Corporation pays, or reimburses NOPs, for all Direct Costs and agreed % Margin up to the Target Cost.

Risk / Reward

If the Actual Outturn Cost is less than the Target Cost, the NOPs will share the benefit by receiving a reward payment worth 50% of the cost-savings. If the Actual Outturn Cost is greater than the Target Cost, the NOPs will pay 50% of the cost overrun capped at the Target Cost Margin.

O&M risk / reward payments will be tied to performance against Minimum Conditions of Satisfaction. e.g. Direct costs AOC against TOMB, drinking water production, asset maintenance and replacement.

Target Outturn Cost (D&C)

Target O&M Budget (O&M)



Actual Outturn Costs



Risk

Reward

Industrial and workplace relations



A comprehensive IR assessment and Workplace Relations Management Plan (WRMP) will be required and assessed by Water Corporation's ER team.

Given the significance of the project and funding, the purpose of the assessment will be to ensure the works are awarded to a fair, sound and reasonable employer.



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WRMP/IR submission



- The bidder will be assessed in relation to their IR/ER background inclusive of reputation, practices, industrial agreements and relationships.
- This will include additional requirements to the ABCC WRMPs and will require the bidder to outline their bargaining/union/dispute/claims history to demonstrate themselves as a fair and reasonable employer.
- Where relevant, a Greenfields agreement may be required involving bargaining with trade unions, ensuring fair/competitive wages, terms and conditions are agreed to.

Local industry



Water Corporation is committed to the Western Australian Industry Participation Strategy (WAIPS) and develops options for increasing local business participation in the works.

Standard local industry participation and reporting requirements will apply.

If a Shortlisted Proponent is proposing to use any overseas supply in carrying out the Works, they will have to demonstrate that local businesses have been given a full, fair, and reasonable opportunity to participate in the Project.

RFP enquiries



Janet Dahl

Specialist – Contracts

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Probity matters



James Cottrill

Principal – Stantons
Internal Audit, IT Audit and
Risk Consulting

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Any questions?

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More information



To find out more about the Alkimos Seawater Desalination Plant visit [Alkimos Seawater Desalination Plant | Water Corporation WA](#)



Additional slides

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Power supply



Temporary Construction and Permanent ASDP Power Scope

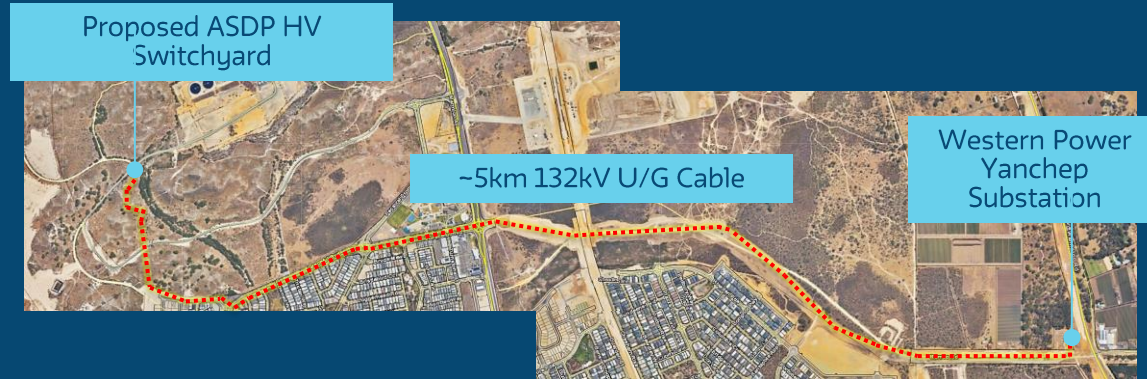
- Western Power design and delivery of 132kV underground HV Cable from Yanchep SS to ASDP HV Switchyard.
- Design and early procurement of long lead HV Switchyard Transformers.
- Design and early procurement of long lead temporary step-down transformers for construction power.

Benefits

- Early procurement of long lead electrical equipment.
- Provisions to meet TBM tunnelling power demand.

Status

- Western Power detailed design commenced.
- Design for early procurement of equipment underway.



DN1600 trunk main

Connects ASDP to Wanneroo Reservoir

Scope

- 27 km x DN1600 pipeline to Wanneroo.
- Connection to existing Carabooda Tank.
- Future connection to Nowergup Tank.
- Pipe is Principal supplied.

Benefits

- Security of supply to the northern IWSS.
- Improved water quality.
- Direct offset to local groundwater allocation reduction.

Status

- Pipeline route selection study completed.
- Concept design commenced.



DN1400 pipelines

Aligned to transport and local development projects

Scope

- 6 km x DN1400 pipeline in 5 sections delivered early while major transport infrastructure projects are in construction (led by PTA and MRWA).
- Includes installation of a bridge for a rail crossing and sleeves for road crossings.

Benefits

- To minimise future disruption to the community.

Status

- Various ranging from in construction to in-design to not yet started.



Building these pipelines now gives us better certainty on project delivery

Conveyancing works

Upgrades to wider Integrated Water Supply Scheme

Scope

- Projects to modify existing assets that transfer bulk water around the network to centres of demand.

Benefits

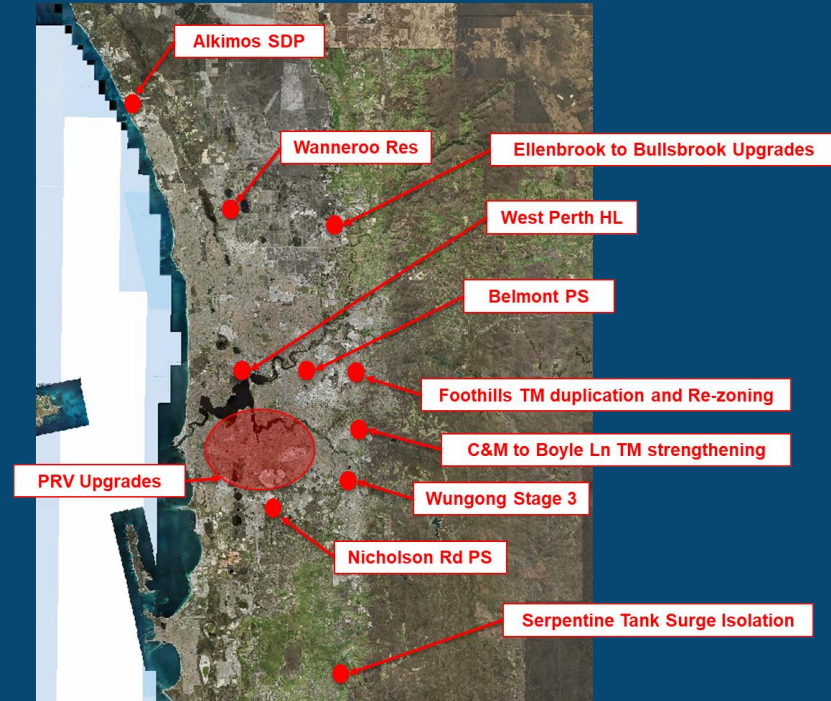
- To provide required capacity and reliability necessary to accommodate production from ASDP.

Status

- Detailed planning to be completed this year.

The scope and timing of these projects is still to be developed.

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Attending organisations



Acciona

ACE (Australian Control Engineering)

AECOM

Amiad

Aqseptence Group Pty Ltd

Architectus

Arup

Aurecon group

Barchip Australia

Bechtel Australia Pty Ltd

Bessac

Black & Veatch

BMD Construction Pty Ltd

Brady Marine & Civil

Cadagua

Canningspurple

Clough Group

CPB Contractors

DDR Consult

DM Civil

Downer

Dupont

Epigroup

Ertech

Evoqua Water Technologies Pty Ltd

Fedco

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Attending organisations



Georgiou

GHD

Global Pipe

HF Integration Pty Ltd

IDE Technologies

Indianic

Indigo Innovation Solutions

Jacobs

John Holland

Laing O'Rourke Australia

Leicon Notley

McConnell Dowell

Mipac

Natrual Area Consulting Management Services

Nexans Olex

PRDW Consulting Port and Costal Engineers

Rob Carr

RSGx

Sacyr

Sacyr Agua

Sacyr Water

Sequana Partners

Seymourwhyte

SMC Australia New Zealand

SMEC

Spiecapag

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Attending organisations



Stantec Australia Pty Ltd

Steel Mains

Strabag Australia Pty Ltd

Suez

Tams Group

TBH Planning & Scheduling

Trility

Valmec

Viadux

Violia Water Australia

Waterintel

Westforce Construction

Westwater

Worley

WSP

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