



valuing  
nature



# Socio-Economic and Ecosystems Water Valuation

## Water Reuse in a Cogeneration Power Plant Kwinana, Australia

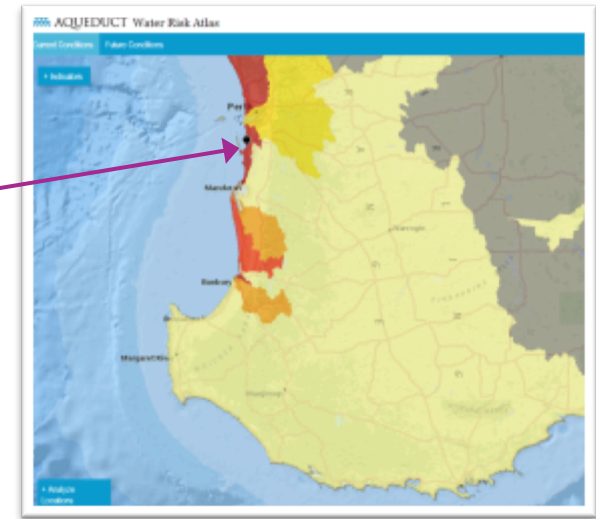
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Valuing Nature

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World Water Week, Stockholm

# Industrial synergies impulsed by the local authorities

- Case study focused on **ENGIE Kwinana cogeneration plant**  
Direct synergies with the BP refinery and KWRP
- Industrial area located in **extremely high water stressed area**
- Local population ~2 M inhabitants
- Target to **recycle 30% of wastewater** by 2030  
(*State water plan 2007 – Western Australia Government*)



- **Local environmental constraints** on water discharge to preserve the ecosystem of Cockburn Sound
- **Multiple industrial synergies**, including water reuse  
Kwinana Water Reclamation Plant (KWRP) produces 17 ML/day of high quality industrial grade water

## The value of water – Summary



**+ 1'670'000 AUD/year benefits**

Social and economic shared benefit thanks to water recycling (74% of which benefit the local community of Perth), linked to ENGIE water use.



**- 2'400'000 AUD/year costs savings**

Costs savings for Kwinana cogeneration power plant



**- 3 % impact/kWh reduction thanks to water recycling**

Overall reduction of 1 kWh environmental externalities, thanks to water recycling initiative.

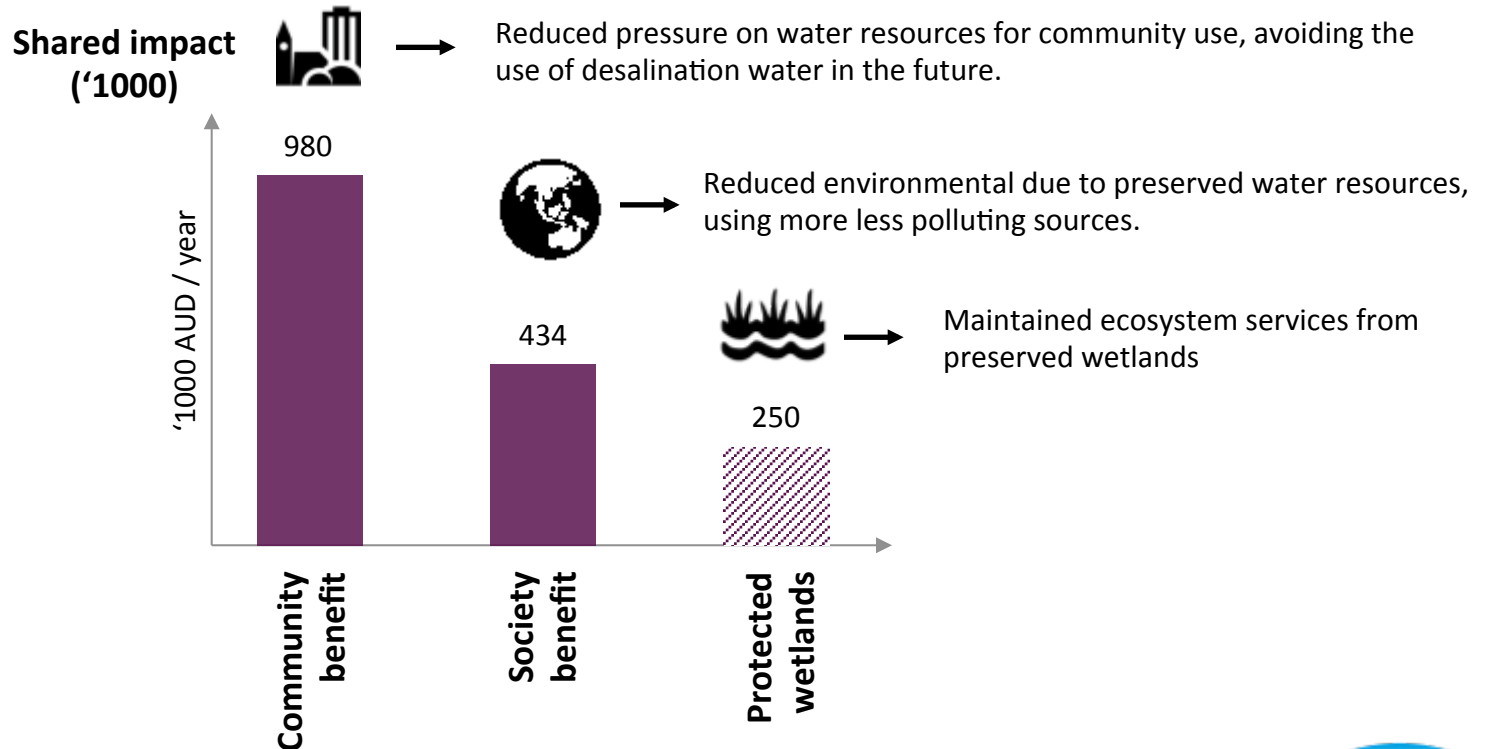
AUD: Australian dollar

# Results – Overall benefits



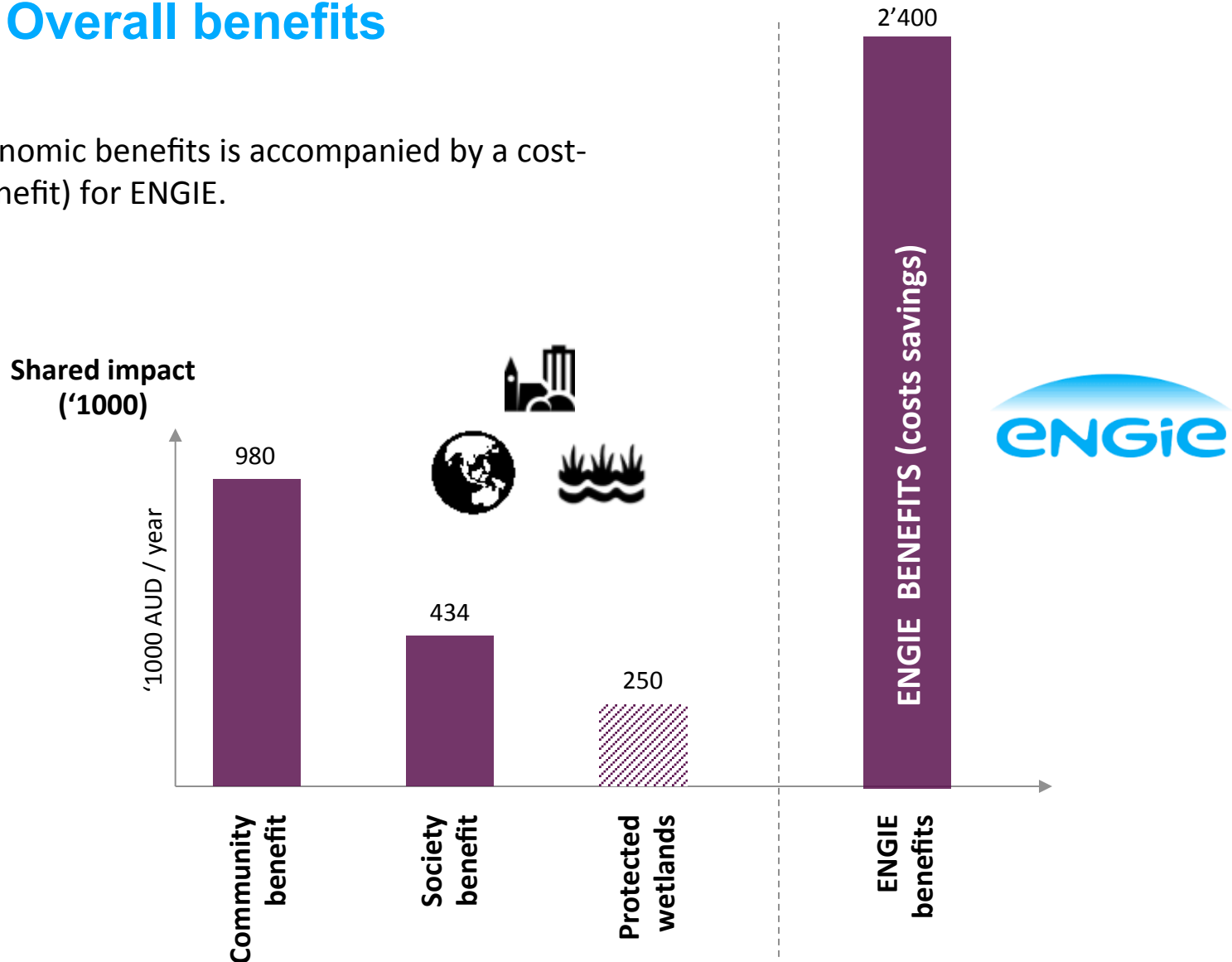
Thanks to the water reclamation plants, a water saving of 1'239'000 m<sup>3</sup> is achieved.

The socio-economic benefits are split into the following categories:



# Results – Overall benefits

The socio-economic benefits is accompanied by a cost-reduction (benefit) for ENGIE.





# Water valuation: a promising approach



Environmental impacts valuation (including water):

- **Supports** decision making through Cost Benefit Analysis
- **Highlights** socio-economic and ecosystems shared value, in addition to private companies value
- Is a relevant approach for the **interpretation of environmental impact assessments** with a common and comparable unit

**BUT :**

- **Needs a standardized approach** to improve reliability and acceptability of the results
- Needs **more case studies and success stories** to convince the stakeholders, especially the private sector

