



# 2G Water Pty Ltd

2gwater.com.au

## Phillips Landing Presentation

*Creating an alternative water infrastructure to  
help “Drought Proof” Australia*

February 2007



# Mission

Introducing

the alternative environmental water company

**2G Water**

delivering “fit for purpose water”

for the local Government, commercial and industrial markets



# Current Market Challenges

- Water irrigation networks lacked maintenance
  - Underground/Out of Site
- Water Wastage
- Water networks lacked continuity
  - Different plumbers, suppliers, consultants
- Water services lacked effective technology
- No alternative water sources
- Lack of infrastructure



# Water Crisis

Our parks, fields, courses and ovals are deteriorating due to  
**Growing Water Restrictions**

**smh.com.au**  
**The Sydney Morning Herald**

25 July 2006

## **Water: the highest priority**

The local dams have shrunk to near 30% of capacity. Just 2% of Sydney's water is recycled. 98% of our sewerage effluent is simply flushed away.

Governments have allocated **\$2 billion** to  
**alternative water solutions and infrastructure**

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A sustainable solution





# Water Market

Just alone in the Sydney Metropolitan Area 4,000 parks, ovals, clubs, golf courses consume 120,000 megalitres per year



31 July 2006

Currently Brisbane City council sends the 170 million Litres of treated effluent into Moreton Bay

Our parks, fields, courses and ovals are deteriorating due to growing water restrictions

Sydney's dam levels heading towards 30%

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# Headlines



3 August 2006

## Microbiologist stands by recycled water plan

Dr Megan Hargreaves said "Recycled water is as safe, if not safer, than the water in our dams because it has already been through a stringent treatment process"



ABC Online

20 July 2006

## Council agrees to buy recycled water for irrigation

Townsville City Council has agreed to buy back recycled water not used by industry to use for irrigation on gardens



ABC Online

2 August 2006

## Public help sought in ground water sale

GWM Water is looking for Wimmera residents to help decide the best way to sell groundwater. Water will be available to buy for irrigation or other purposes



# The Opportunity

The Water Market is Deregulating - Governments can't do it alone

**FINANCIAL REVIEW** [afr.com](http://afr.com)

Water pricing most urgent

Water trading between states has hardly happened and there's been hardly any private investment in infrastructure.

The Financial Review 07/08/2006

It's time to introduce an environmentally focused water business that can move quickly and develop smart infrastructure helping drought proof Australia

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# Government Support

- \$2 billion Australian Federal Government Water Fund
- \$120 million State Metropolitan Water Plan
- \$57 million Urban Sustainability Program
- Sydney's top 200 commercial water users required water savings plan
- Centralised Water management for 18 council area's in South East Queensland
- \$320 million Victorian Water Trust for Recycling





# 2G Water Target

- **2G Water** is set to target 4,000 Sydney Metropolitan sites to develop and establish water solutions and infrastructure
  - Water recycling storm/effluent
  - Water harvesting
  - Water delivery
  - Water Management and Service
- **2G Water** is already in discussions with several councils, golf courses and developers to provide “fit for purpose” water solutions

**THE AGE**  
theage.com.au

5 August 2006

## NSW councils consider recycled water

35 out of 110 councils would be prepared to recycle sewage water

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# Water is deregulating

Sydney Water has opened its sewer network to third parties, enabling sewer mining to deliver alternative water sources



9 August 2006

## Waste water use

Werribee's MacKillop College will begin trials to irrigate its sporting fields and gardens using treated water saving 20 million litres of drinking water annually.



# Cost of Water

- Potable water prices range up to \$1.48 in Sydney
- Australian Water prices are a fraction of those in Europe and elsewhere
- Prices are forecasted to rise over \$9.00 a kilolitre in the next 10 years

[smh.com.au](http://smh.com.au)  
The Sydney Morning Herald

9 August 2006

## Overuse forces up recycled water cost

Sydney Water could almost treble the cost of recycled water for residential consumers in the next three years to discourage overuse. Now supplied at 30% of the cost of drinking water, will be provided at 80% by June 30 2009

**Star**  
Star News Group

9 August 2006

## Waste water use

A kilolitre of recycled water from City West Water costs 82 cents for residential use and 68 cents for non residential use, while drinking water is charged at up to \$1.42 a kilolitre.

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# Infrastructure



22 August 2006

## 'Let private sector plug water leaks'

PRIVATE investors could be given privileged access to public water systems under plans to encourage investment in infrastructure such as dams and irrigation channels.

An example of such an access agreement would be a private player using publicly owned storm water drains and sewers to recycle water.





# 2G Water Target Market

- **2G Water** will be the mid-cap market leader producing water 300 (KL) to 2 (ML) per site, per day
- **2G Water** will service property developers moving towards an “Autonomous Water Solution” no water in/no water out for residential and commercial developments
- **2G Water** plans to own infrastructure and be the water authority for such developments



# 2G Water - Corporate Structure

2G Water Australia Pty Ltd

(Holding Company)

2G Water Pty Ltd   Irrigation Management Pty Ltd   3G Water Pty Ltd



# The 2G WATER Team

## Key 2G Water Members:

	Peter Brueck Program Costing	Roland Cage CEO	Melissa Burge Project Administrator
Alistair Punshon Project Manager	Andrew Donnelly Business Analyst/Systems Developer	David McKinley Business Development Key Stakeholders	Don Mitchell Water/Wastewater Specialist

## Key Partners :

	Grange Securities Finance Specialist	H D B Planning Specialist	Bragpr Community/Public Relations	
Stormwater Specialists	Water Treatment Specialists	Services Water Servicing Coordinator	UNSW Water Research Laboratory Technical Advisor	Hydroplan Water Specialist
	Irrigation Mgt Irrigation & Pumping Specialists	The Glascott Group Landscape Specialists		

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# Our Plan

Step 1 and 2 in parallel

**Step 1** - Strategic Site Selection and Access Rights

**Step 2** - Water sale agreements – Councils, Schools, Golfing Bodies, Sports Clubs

**Step 3** - Water Commissioning – Initiate Infrastructure Deployment and Management Plan

**Step 4** - Operate and Maintain





# Current Water Pricing Economics

- City Utilities raise revenue from service charges to customers
- Utilities receive funding via a subsidy from the State Government for providing an essential community service known as:
  - Community Service Obligation (CSO)
  - Tax Liability paid by the public
- Water Utility Profits passed backed to the Government-dividend
  - Profits are generally larger than the CSO



# Water Pricing – is subsidised

## Current Pricing example per k/L:

- Tier 1 - \$1.01 growing to \$1.31 by 2008 (current \$1.26)
- Tier 2 - \$1.48 growing to \$1.85 by 2008 (over 100k/L per Qt)
- Hastings Council (NSW): as high as \$2.76/kL
- International Water Prices (AUD equivalent)
  - UK: \$2.42
  - France: \$4.60
  - Denmark: \$8.51



# Environmental Benefits

- **2G Water** provides alternative water to potable that is “fit for use”
- **2G Water** is an advocate and leader of public health and safety in the operation and maintenance of its network and infrastructure
- Every megalitre of **2G Water** recycled water is:
  - A megalitre of sewage not going into our rivers and oceans
  - A megalitre of potable water not wasted on parks, gardens and industries



# Capabilities

- Grey-and-black-water recycling
- Storm and Rain Water Harvesting
- Water audits
- Service and Maintenance
- Water Technology
- Central Controls, Back-to-base monitoring, GPS/GIS mapping
- Funding and Financing
- Water recycling and Sewer Mining
- Managing Irrigation infrastructure





# Sewer Mining Establishment

## Steps to establish a sewer mine:

- Preliminary Exploration
- Develop & Test your concept
- Decision to go ahead:
  - a) Obtain Council approval
  - b) Enter into agreement with Sydney Water
- Construct & Connect your sewer mine
- Commission & Operate

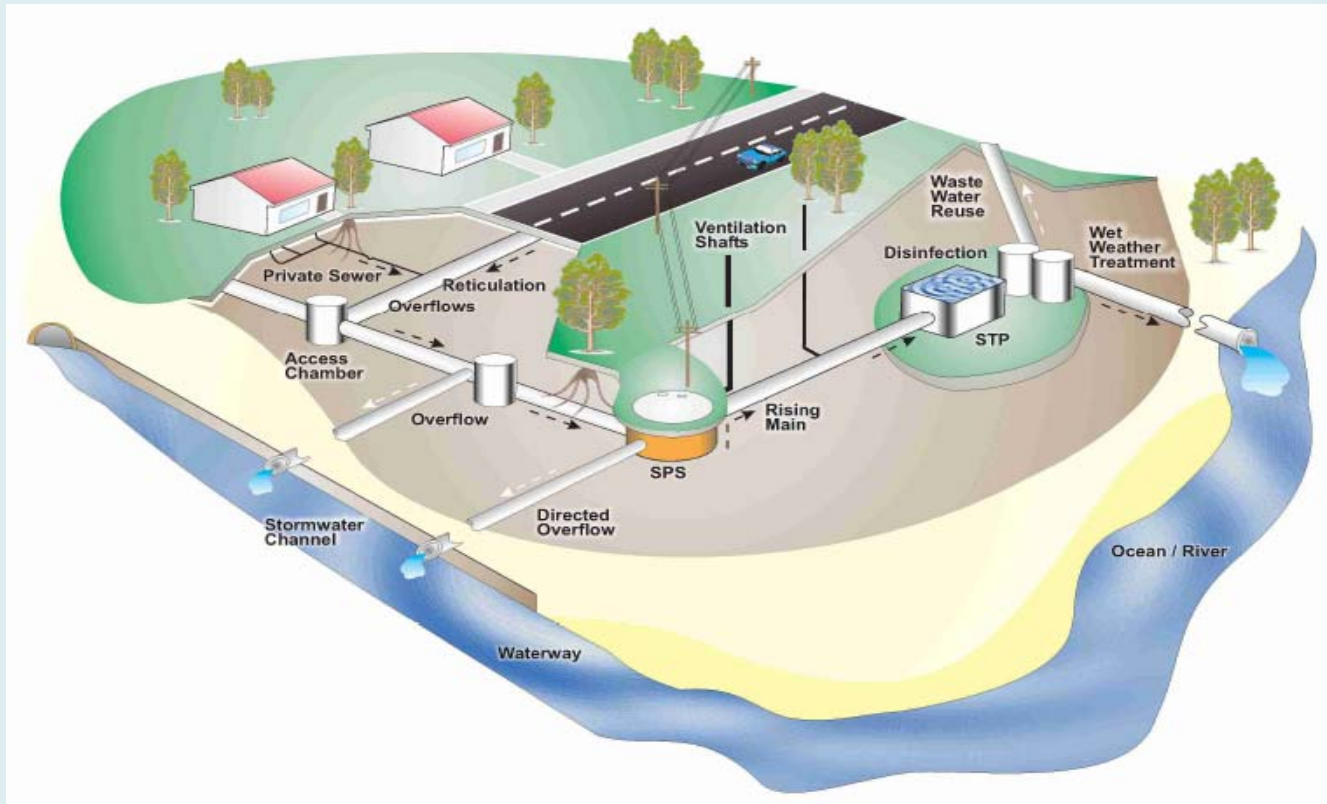


# Treatment Process

- Activated Sludge – Membrane BioReactor
- Raw Sewage is stirred and aerated in a tank to create suitable conditions for micro-organisms to breakdown the waste materials
- Stirring & Aeration is stopped at various times to allow solids material to settle and the supernatant water is decanted off
- This decanted water is further aerated between ultra-filtration membranes to remove all solid materials, bacteria, viruses and protozoa
- The treated water passes through the membranes to a pipe in which it is further treated by Ultraviolet Sterilisation and Chlorination



# Sample of a Sewer Treatment Plant



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# Sample of a Sewer Treatment Plant



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# Frequently Asked Questions

**Q. How safe is the treated water?**

**A.** The water is treated to the level required by the National Recycled Water Quality Guidelines. It is classified as 4 Star or A+ and is safe for human contact.

**Q. Can we drink the recycled water?**

**A.** NO. Only Potable Water [5 Star and above] may be used for drinking.

**Q. What can the recycled water be used for?**

**A.** Watering garden vegetables eaten raw [e.g. lettuce]; washing down cars, boats, paths etc; irrigation of lawns; gardens using above-ground sprinklers; and filling of ornamental fish ponds



# Water Quality

2G WATER is focused on providing “fit for purpose” water classified with a four star rating

<div>Four Star</div> <div>☆☆☆☆</div>	<div>Advanced Treatment</div> <div>Further treatment in addition to primary, secondary and tertiary treatment. Treatment may involve natural processes such as artificial wetlands or conventional, multimedia or membrane filtration and other advanced processes. May be ‘tailored’ to a quality suitable for the specific end use.</div>	<table><tr><td>SS</td><td>10mg/L</td></tr><tr><td>BOD<sub>5</sub></td><td>10mg/L</td></tr><tr><td>Thermo-tolerant Coliforms</td><td>&lt;1 in 100mL (in 95% of samples)</td></tr><tr><td>Total Coliforms</td><td>&lt;10 in 100mL</td></tr><tr><td>Virus<sup>1</sup></td><td>&lt;2 in 50L</td></tr><tr><td>Parasites<sup>2</sup></td><td>&lt;1 in 50L</td></tr><tr><td>Turbidity</td><td>&lt;2 NTU geometric mean</td></tr><tr><td>pH</td><td>6.5-8.0</td></tr><tr><td>Colour</td><td>&lt;15 NTU</td></tr><tr><td>Disinfection</td><td>Dependant on disinfection type</td></tr></table>	SS	10mg/L	BOD <sub>5</sub>	10mg/L	Thermo-tolerant Coliforms	<1 in 100mL (in 95% of samples)	Total Coliforms	<10 in 100mL	Virus <sup>1</sup>	<2 in 50L	Parasites <sup>2</sup>	<1 in 50L	Turbidity	<2 NTU geometric mean	pH	6.5-8.0	Colour	<15 NTU	Disinfection	Dependant on disinfection type	<ul style="list-style-type: none"><li>▪ Dual reticulation</li><li>▪ Unrestricted residential use</li><li>▪ Industrial processes</li><li>▪ Irrigation of food crops eaten raw</li></ul>
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# NSW Regulatory Framework

To ensure we comply with all regulatory requirements mentioned below, we have strategic contacts available for management and auditing our systems

- Local Government Act 1993
- Department of Energy, Utilities and Sustainability (DEUS)
- Local Government
- Water Authorities
- Department of Environment and Conservation (DEC)
- Public Health Act 1991
- Protection of the Environment Operation Act 1997 (PEOA)
- Occupation Health and Safety Act 2000  
Local Government
- NSW Health and Public Health Act 1991  
Department of Environment and Conservation (DEC)
- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Environmental Planning and Assessment Regulation 2000





# Frequently Asked Questions

**Q. Could I fill my swimming pool with this recycled water?**

**A.** Regulatory requirements say NO.

**Q. Will the treatment plant produce offensive odours?**

**A.** NO. The plant is completely enclosed in its own building. Any air movement takes place through a specially-designed filter known as an Odour Control Unit.

**Q. Will the treatment plant be noisy?**

**A.** NO. The building in which it will be housed will be insulated. Noise levels at similar plants have been tested as no more than 20% above normal background.





# Frequently Asked Questions

- Q. How do we know that the treatment plant is operating correctly and that the water is safe to use?**
- A.** The plant undergoes a rigorous water testing program by an independent government accredited laboratory over a period of 16 weeks prior to distribution of the recycled water to the end-user.
- Q. Ongoing monitoring on a weekly basis and annual audits are also mandatory**
- A.** The plant is also equipped with alarm systems which allow transmission of data regarding breakdowns, faults etc. to a central control point. Samples are independently tested by NATA approved laboratories.



# Benefits of 2G Water

- No water restrictions
- Reduction in plant loss
- Reduction in turf loss
- Improved property/Land values due to improved aesthetics
- Reduction in maintenance costs
- Water for hardscape clean downs
- Water for car cleaning
- Other fit for purpose applications



# Frequently Asked Questions

**Q. How much is it going to cost?**

**A. \$1.80/kL - \$2.20/kL**

**Price structure will be:**

Connection fee

Service fee

Price per kilolitre

(subject to final design and Council involvement)



# Timeline of a Sewer Treatment Plant

Owner Consent

Place Order

DA Approval (2 - 6 Months)

Construction (Fabrication 6 Weeks)

Installation (5 Weeks)

Pipework Infrastructure

Commissioning (4 Weeks)

Validation (4-12 Weeks)

Turn On 2G Water







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