WA Water Awards 2011 - Waterwise Business
Presented by: The Department of Water and the Water Corporation

Recognises the achievements of organisations who have demonstrated a commitment to improved Water Management, demonstrated effective waterwise practices and displayed initiative in educating their staff and the community. Nominees must have a current Water Efficiency Management Plan in place and have submitted all Annual Reports as required by the program.

Organisation: IPM Operation & Maintenance Kwinana Pty Ltd
Contact person: Andrew Usher
Title/Profession: Plant Engineer
Postal address: Locked Bag 66 Rockingham DC WA 6967
Phone: 08 9439 8124
Fax: 08 9439 5087
Mobile: 
Email: andrew.usher@kwinanapower.com

If this Business receives an award it should be presented to:

Name: Debasis Baksi
Title: Plant Manager

A panel of industry experts will select a winner based on the following:

Entrant must be a member of the Waterwise Business Program and then:
1. Describe in no more than 300 words how your business/company has contributed towards the sustainable use of water;
2. Estimate the volume of water your business/company is responsible for saving each year, indicate the basis of you estimation;
3. Provide documentation, including photographs, of specific work examples your business/company has undertaken;
4. Explain how the work you have undertaken could be employed by other businesses/companies to reduce water use throughout the community; and
5. Detail any water efficiency education you have facilitated for your staff and/or the general community.

Submissions checklist:
☐ Completed nomination form
☐ 100 word executive summary (outlining the project, key features, effectiveness etc).
☐ Response to all category assessment criteria (up to 300 words per criterion).
☐ Photo of team or one of the project elements for promotional purposes (in jpg or similar format)
☐ Supporting documentation (Required)(can include plans, photographs, copies of water use data, articles, publications, media etc in a variety of formats.)

Nominations should be submitted electronically to wabbranch@awa.asn.au or via www.sendspace.com if >5MB

Closing Date: 5pm, Friday 16th September 2011.
EXECUTIVE SUMMARY

The Kwinana Cogeneration Plant (KCP) is a gas turbine combined cycle-cogeneration plant capable of producing 124 MW electrical output and 2,300 tonnes per day of process steam with the use of duct firing on the heat recovery steam generators (HRSG).

Electricity generated is provided to Verve Energy and the BP Kwinana oil refinery. The plant is operated and maintained by IPM Operation & Maintenance Kwinana Pty Ltd.

KCP participates in the Waterwise Business program and has introduced recycled water from the Kwinana Water Reclamation Plant into the power plant processes to significantly reduce demand on WA scheme water resources.

HOW IPM HAS CONTRIBUTED TOWARDS THE SUSTAINABLE USE OF SCHEME WATER

- Active participant in the Waterwise Business program having completed water management assessments, a water efficiency management plan and related annual reports. All target benchmarks for reducing scheme water use have been achieved.

- Modified water treatment processes to maximise the use of recycled water from the Kwinana Water Recycling Plant (KWRP) as a substitute for scheme water.

- Reduced scheme water use from 1,473,940 kl (06/07) to 213,103 kl (10/11). Refer to the attached graphs provided from the Water Corporation’s billing system detailing the reduced scheme water use over the last five years.

- The saving in scheme water for the 10/11 year compared to the base year of 06/07 was 1,242,837kl, which equates to the average annual use of 4603 metropolitan homes (based on an average home water use of 270kls/annum).

- The significant work undertaken by IPM in modifying water treatment processes to accommodate recycled water could be adapted by other similar power plants to minimise their use of scheme water.

- When IPM initially signed a binding take-or-pay agreement to purchase KWRP water until 2021, the KWRP water price was significantly higher than the scheme water price. This “leap of faith” demonstrated IPM’s strong commitment to sustainability and improved environmental outcomes.

- Additionally, by introducing KWRP into the plant cooling tower where KWRP was previously used, chemical additives to maintain water quality such as sodium hypochlorite and sulphuric acid, have reduced. The KWRP waste water discharge from the cooling tower has additional benefits to the
environment through the reduction of chemicals; and reduces plant chemical costs for water treatment.

- Participated in Kwinana Industry Council (KIC) industry news outlining industry water savings; see related attached article.

- Featured in Channel 7's Greenfingers program earlier this year. See attached DVD (feature starts approximately 3 min 50 seconds into the program) cf follow link: http://www.youtube.com/watercorpwa?p/c/A0E35615E2B89D01

- Incorporated water wise native garden project into plant grounds.

- Provided community funding support to Men of the Tress Rockingham to purchase water tanks for seedling watering.

- Use of environmentally friendly and biodegradable products in urinals that negate the need for water.
KEY CUSTOMER RELATIONSHIP MANAGEMENT

SCHEME WATER USE SUMMARY

Account Number 9008577390
Customer IPM OPERATION & MAINTENANCE KWINANA P/L
Site ADD SERVICE IND AT MASON RD KWINANA BEACH LOT PT 18

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<thead>
<tr>
<th>Meter Number</th>
<th>Meter Size</th>
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<tr>
<td>SK0700003</td>
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<td>231,103 KL</td>
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Total Scheme Water Use

Reading Cycle MONTHLY
12 of 12 completed

Average Daily Usage
KEY CUSTOMER RELATIONSHIP MANAGEMENT

SCHEME WATER USE SUMMARY

Account Number  9008577390
Customer          IPM OPERATION & MAINTENANCE KWINANA P/L
Site              ADD SERVICE IND AT MASON RD KWINANA BEACH LOT PT 18

Reading Usage

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<th>Water Use (KL)</th>
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<th>3R Sep</th>
<th>4R Oct</th>
<th>5R Nov</th>
<th>6R Dec</th>
<th>7R Jan</th>
<th>8R Feb</th>
<th>9R Mar</th>
<th>10R Apr</th>
<th>11R May</th>
<th>12R Jun</th>
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# KEY CUSTOMER RELATIONSHIP MANAGEMENT

**KWRP WATER USE SUMMARY**

- **Account Number**: 9016443704
- **Customer**: IPM OPERATION & MAINTENANCE KWINANA P/L
- **Site**: ADD SERVICE IND AT MASON RD KWINANA BEACH LOT 18

## KWRP Water Use Summary

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<th>Meter Number</th>
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<td>FDK083F500</td>
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## Total KWRP Water Use

![Bar Chart showing water usage from 2006/2007 to 2010/2011]

- **Reading Cycle**: MONTHLY
- **Average Daily Usage**: 12 of 12 completed

![Bar Chart showing average daily usage from 2006/2007 to 2010/2011]
KEY CUSTOMER RELATIONSHIP MANAGEMENT

KWRP WATER USE SUMMARY

Account Number 9016443704
Customer IPM OPERATION & MAINTENANCE KWINANA P/L
Site ADD SERVICE IND AT MASON RD KWINANA BEACH LOT 18

Reading Usage

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<thead>
<tr>
<th>Water Use (KL)</th>
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<th>2R - Aug</th>
<th>3R - Sep</th>
<th>4R - Oct</th>
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IPM Water Use History

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<td>KWRP Use</td>
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<td>Scheme Use</td>
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IPM Operation and Maintenance - Water Use

IPM Operation and Maintenance - Total Combined Usage
Kwinana Industry Slashes Water Use

Water is essential to many industrial processes and this can't be changed. But that hasn't stopped Industry in Kwinana from doing the right thing and playing their part in saving water.

Even though water will always be used in industry, what can change is how many times the same water is used (recycled) in the process, where it comes from (new sources like treated wastewater from households) and how much the overall quantity can be reduced using new water recovery technologies (e.g. capturing steam in water and reusing it).

Using recycled water, and less of it to start with, is now the industry norm, and can make economic as well as environmental sense. Only a few years ago in 2004, industry used to use 6.5 gigalitres (GL) of Perth's scheme water. Today the figure is about 3 GL and around the middle of next year it will go down to less than 2GL. A GL is about what Subi Oval would hold if it were filled to the brim, and it's about the annual use of 3,610 households.

The main reason for the big drop in scheme water usage is because the Water Corporation's Kwinana Water Recycling Plant, which takes treated wastewater from the Woodman Point treatment plant, further treats the wastewater and sells it to Industry. This is a good thing.

The work in finding new ways to reduce water consumption is getting harder. One of Kwinana Industries Council's (KIC) key strategic issues is to secure a sustainable supply of water for industrial processes. Work to achieve this is not done only by KIC members individually, but also collectively. Many new ideas to save water have been introduced over the years, and the Water Corporation has been strongly involved in this process. This work is ongoing.

Effective water management is critical to CSBP's continued success.

CSBP's integration of resource efficiency into management systems and its broader strategic direction, in line with the WA Government's State Water Strategy, has resulted in significant improvements in water use.

A focused program, including industry partnerships and innovative sustainable solutions, has seen CSBP implement engineering, technological and behavioural change across the business that has resulted in reductions in water use.

CSBP has reduced scheme water consumption by diversifying supply sources including the use of recycled water from the Kwinana Water Recycling Plant (KWRP). Applying the principle of "right water, right use" has assisted in limiting the use of scheme and bore water in production processes.

Our integrated approach to water management has resulted in improved performance which will continue as part of CSBP's business operations, and will also help us meet our longer term objective of sustainable business growth.

BP’s Water Minimisation Project

A FOCUS on water minimisation has seen BP’s Kwinana refinery slash its use of scheme water by ninety percent.

Since 1997, the refinery has strived to increase water recycling and limit water use in the refining process. The result has been an annual saving of 2 gigalitres scheme water, which equates to the average annual water use of 7,220 houses.

"BP recognises the value of water and the refinery was aware of the need to become more water conscious and efficient," said refinery managing director, Des Gillen.

BP used engineering solutions to reduce the amount of water needed in the production of transport fuels, and tied into the Kwinana Water Recycling Plant to access a secure supply of industrial grade water.

Through the KWRP, the refinery no longer discharges any process waste water into Cockburn Sound.

Tintest at Water Savings

Tintest has reduced its scheme water usage by 60% per tonne of pigment produced to now 10GL. This is despite a 3 fold growth in production since 1991.

The current focus is on fit-for-purpose water usage. The aim is to use the most sustainable water source available, that still meets process needs. Major water saving projects implemented include:
- internal reuse of recycled brackish water where quality is not important.
- use of bore water supplied by CSBP where lower quality is acceptable but salty brackish water cannot be used; and
- use of KWRP water where quality of water is critical.

Tintest's goal is to use no scheme water in the industrial process, though small quantities will still be needed for drinking, showering and firefighting.

To achieve this goal Tintest will take additional recycled water from KWRP as it becomes available and once installation of infrastructure to achieve this is completed later in the year.

International Power (IPM)

The IPM plant supplies steam and electrical power directly to the BP Australia Kwinana Oil Refinery and electrically only to Verve Energy.

The main water requirements for the plant are to meet the needs of make-up water to boilers for steam and boiler blowdown and for cooling towers.

Prior to the establishment of the Kwinana Water Recycling Plant, IPM was one of the largest metropolitan users of scheme water.

By using recycled water instead of scheme water, IPM has reduced its annual scheme water use by around 86% which is a saving equivalent to the annual water use of 16613 hot tons.

In future years IPM intends to continue to use a similar quantity of recycled water to satisfy BP's steam demand.

www.iio.org.au | admin@iio.org.au