

## Date

December, 2014

## Issue:

Regional synergies

## KIC Position and Key Messages

- Kwinana Industries Council (KIC) has created and manages a continuing program of synergies which have led to increased efficiencies and a reduced environmental impact.
- Companies and industries in the Kwinana Industrial Area (KIA) work together as part of the Kwinana Industries Synergies Project (KISP), created by KIC, to create By-Product Synergy (BPS).
- The KIA is a unique and important asset to Western Australia. The synergistic characteristics of the KIA provides economic, environmental and social advantages that would be extremely difficult, if not impossible, to replicate in another industrial area.
- The unique co-location of diverse heavy, support and infrastructure industries in the KIA provides a strong foundation for the identification and development of synergy opportunities.
- The synergies that exist in the KIA are world-class and they help to define the industrial area as one with a spirit of cooperation.
- KIC believes that the commissioning of any new industry in the KIA is likely to increase the number of synergies and further the integration of industries, providing new opportunities.
- One of the most important synergies that exists in the KIA is that between industry and KIC. Since its inception, KIC has worked with industry on promoting a positive image of Kwinana industries, ensuring the long-term viability of Kwinana industry, coordinating intra-industry activities and liaison with stakeholders.
- Some documented synergies include:
  - I. chemical plant supplying carbon dioxide for residue neutralisation at alumina refinery,
  - II. coal company supplying shale (overburden) to cement company,
  - III. exchanges of sulphuric acid between two chemical plants,
  - IV. nickel refinery supplying by-product carbon dioxide to utility gas provider,
  - V. pigment plant supplying hydrochloric acid to chemical manufacturer to produce ammonium chloride,
  - VI. reuse of Silica Fume from fused alumina and zirconium producers,
  - VII. use of bio-sludge from Wastewater Treatment Plant as soil conditioner,
  - VIII. artificial wetland treatment at chemical plant to strip out nutrients from wastewater,
  - IX. Kwinana Water Recycling Plant,
  - X. recycling of boiler blowdown water from the gas-fired power station.

- KIC will continue to research and assess potential synergies.

## **Background information**

Regional synergies refer to exchanges of by-products including materials, water and energy between industrial operations. They can also involve the shared use of utility infrastructure.

The synergies project, which aims to develop synergy opportunities within the KIA, will continue to enhance Kwinana's triple bottom line benefits, which are already well beyond the scope of what can be achieved by industries in isolation. The Kwinana Industries Synergies Project had the aim of improving the economic and environmental outcomes of industry by:

- converting by-products currently going to waste into value added products,
- reducing the overall generation of wastes,
- reducing greenhouse gases by improved energy efficiencies,
- Reducing industry's use of scheme water,
- reusing treated water,
- reducing waste water discharges into Cockburn Sound,
- reducing transport traffic and heavy haulage (thus saving resources and decreasing vehicle emissions)

As LISP progressed, it reported monthly to the Kwinana Industries Council's Eco-Efficiency Committee. That committee had oversight for the entire project and was responsible for ensuring identified synergies were evaluated and taken up by industry members. This committee was comprised of senior management level representatives of core operating companies in KIA, including CSBP, Alcoa, BP, Verve Energy, Water Corporation, BHP Billiton Nickel West and Coogee Chemicals.

Established in 2002, the Eco-Efficiency Committee was formed in response to the recommendations highlighted in the Kwinana Industrial Area Economic Impact Study 2002. It was realised that an improved understanding of materials and energy flows with a particular focus on eco-efficiency would be beneficial in respect to economic and environmental outcomes. In 2011, the committee was disbanded, with the committee's remaining work slotting into the role of the Environmental and Planning Committee.

The original work of the Eco-efficiency Committee carried on through the Environment and Planning Committee where it continuously aims to identify and investigate opportunities for KIA industries.

The original Industrial Symbiosis project was managed by the Sustainable Engineering Group (SEG) at Curtin University through the auspices of a CRC grant funded by the Centre for Sustainable Resource Processing. SEG have had a long history with the KIC and are committed to ensuring the KIC's continuing leadership in eco-industrial park management and the promotion and extension of industrial symbiosis in KIA.

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