



**ED SMITH**  
**PRINCIPAL**  
**CONSULTANT**

Bachelor of Engineering (Chemical)  
Honours

CP Engineering

MIChemE

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## PRIOR PROFESSIONAL HISTORY

2013 - Present	Principal Consultant, Oakley Greenwood Pty Ltd, Melbourne, Australia Non-Executive Director, Northmore Gordon Pty Ltd
2009 - 2013	Global Leader, Energy and Carbon Management, Golder Associates Pty Ltd, Melbourne, Australia
2005 - 2008	Practice Director, Hatch Associates Consultants Inc., Pittsburgh, PA, USA
2002 - 2004	Vice President - Solutions Implementation, EnVinta Corporation, Pittsburgh, PA, USA
1999 - 2002	General Manager, Energetics Pty Ltd, Melbourne, Australia
1995 - 1999	Regional Manager, Energetics Pty Ltd, Melbourne, Australia
1993 - 1995	Senior Energy Consultant, Energetics Pty Ltd, Sydney, Australia

## OVERVIEW

Ed is based in Melbourne and assists clients develop energy and carbon management solutions to help reduce the impact of rising energy costs, impacts of carbon pricing and address their legislative reporting requirements.

Ed has extensive international experience spanning 30 years, with 27 years specifically in energy and greenhouse gas management. Ed has wide-ranging experience in energy management programs and processes, demand response initiatives, energy training and development of greenhouse gas mitigation plans and has delivered projects and training programs across five continents. Typical services include the identification and delivery of energy cost savings, demand response strategies, integrated supply options, carbon strategy development, including carbon inventories, developing cost of abatement curves, management practice assessments and the provision of implementation support and training.

Ed has worked with many Utilities in Australia, USA, Canada and South Africa and has assisted with both the development and implementation of sustainable energy management support programs for their customers (both industrial and commercial). This has included the development of efficiency support programs, demand management practices, including the identification of potential participation in demand response programs, accessing funding mechanisms to support implementation and market transformation programs, including training and management practice diagnostics.

Ed has assisted Corporate groups across most business sectors, including ChevronTexaco, Barrick, Rio Tinto, Glencore, Newmont, Anglo American, Algoma Steel, J.R. Simplot, The Lion Company, Kraft, Peabody Energy, Carlton and United Breweries, and many others.

Prior to joining Oakley Greenwood, Ed was the Global Energy Services Leader for Golder Associates and led the Golder Energy Services Technical Community which is responsible for training and technical knowledge transfer to Golder employees and the development of tools and methodologies to support the deployment of services. Previously he was responsible for the Energy Management Consulting group within Hatch and based in Pittsburgh, Pennsylvania, where he managed the team responsible for the development of integrated approaches to energy management, with a focus on the implementation of solutions. He was previously in Australia with Energetics and held the position of General Manager, Australian Consulting before transferring to the US held subsidiary, EnVINTA, to initiate the business partnership with Hatch. Ed has also worked as an energy consultant with Linhoff March in Australia, and worked as a Process Engineer at Rhone Poulenc in the UK and ISCOR in South Africa.

## RELEVANT EXPERIENCE

### **Golder Associates Pty Ltd - Melbourne, Australia**

*Global Leader, Energy and Carbon Management (2009 – 2013)*

Ed joined Golder initially as the Energy Services Leader for Asia Pacific and later as the Global Leader for Energy and Carbon Management. Ed's primary responsibility was to assist the organisation develop their energy services teams in selected core regions and to assist with the growth strategies, capacity building and assist with potential acquisitions. During this period Ed helped develop the teams in Australia, Canada, UK, USA and South Africa and provided training and support to these groups as they developed their services market. Ed was also Project Principal on many engagements in Australia particularly in the mining and manufacturing sectors. Projects included energy assessments, demand response and demand side management programs, development of sustainable energy management practices, carbon mitigation plans, assistance with access to funding mechanisms and support for legislative reporting projects.

### **Hatch Associates Consultants Inc. - Pittsburgh, PA, USA**

*Practice Director (2005 to 2008)*

Ed joined Hatch as the Practice Director and supported the growth and development of the North American group through energy management initiatives for key clients within a broad range of sectors. Developed skills of in-house consultants and team members and provided Principal and Project Management support. Key clients have included Hydro One, BC Hydro, Algoma Steel, Ohio Department of Development, Efficiency Maine, San Diego Gas & Electric, J.R. Simplot, Stora Enso, Iron Ore of Canada and the Ontario Forestry Industry.

### **EnVINTA Corporation - Pittsburgh, PA, USA**

*Vice President - Solutions Implementation (2002 to 2004)*

Advisor to the Hatch Energy Management Consulting group during their start up and supported the EnVINTA group with specific targeted business development and program roll-out. Utility and State Government programs included energy efficiency pilot projects for Pacific Gas & Electric, Department of Commerce and Economic Opportunity, Conectiv, Keyspan, Northwest Energy Efficiency Alliance and Western Massachusetts Electric Company, as well as corporate clients including Millennium, ConocoPhillips and Raytheon.

### **Energetics Pty Ltd - Melbourne, Australia**

*General Manager (1999 to 2002)*

Successfully led a group of over 40 consultants operating from offices in 6 locations around Australia. Specific responsibilities included regional and national performance, new business development, key account management and staff development.

### **Energetics Pty Ltd - Melbourne, Australia**

*Regional Manager (1995 to 1999)*

Significantly increased the regional performance of the Victorian office. The team focused on the provision of services in energy and greenhouse gas management and energy procurement, with emphasis on the mining and mineral processing, pulp and paper, and food and beverage sectors.

### **Energetics Pty Ltd - Sydney, Australia**

*Senior Energy Consultant (1993 to 1995)*

Broadened experience in energy management assessments and investigations across a variety of industrial sectors in New South Wales. Promoted to the position of Regional Manager and relocated to Melbourne, Victoria.

### **Linhoff March (Australia) Pty Ltd - Melbourne, Australia**

*Energy Consultant (1991 to 1993)*

Application of process integration techniques, using Pinch Technology, to optimize the heat and material balance of industrial facilities. Participated in the Industrial Energy Audit Program undertaken by the State Electricity Commission of Victoria and undertook many energy audits of industrial facilities within Victoria.

### **Rhone-Poulenc Rorer - Dagenham, UK**

*Process Engineer (1989 to 1990)*

Commissioned a new specialty pharmaceutical batch process plant and provided operational support for existing batch operations.

### **ISCOR - Vanderbijlpark, South Africa**

*Process Engineer (1986 to 1989)*

Responsibility for projects in the Blast Furnaces section with a focus on operational performance, contract assessments for consumables, and the development and tracking of operational performance measures.

## REPRESENTATIVE ASSIGNMENTS

### Utility and State Energy Efficiency and Demand Response Programs

#### *Victorian Utility, Victoria, Australia*

Market segmentation assessments to identify sectors with large loads and challenging load profiles.

#### *Sarawak Energy Berhad, Kuching, Malaysia*

Undertook an assessment of the potential to secure up to 100MW of demand reductions through the application of Demand Response and Demand Side Management mechanisms, including development of business cases for complementary programs that together would achieve the desired level.

#### *Department of Industry, Melbourne*

Participated in the assessment of the proposed Demand Response Mechanism and its likely benefits and impact on utilities. Contributed through an evaluation of the likely level of DR take-up that may eventuate as a result of this mechanism.

#### *Efficiency Maine, Maine, USA*

Conservation program demonstrating the value of management practices, including operational performance, productivity and demand management practices to deliver substantial savings from low cost initiatives. The program included 12 site investigations across a range of sectors including Pratt & Whitney, International Paper, The Jackson Laboratories, University of Maine, B & G Foods, Poland Spring, Mercy Hospital, etc.

#### *The United Illuminating Company, Connecticut, USA*

Devised and developed the conservation program that was rolled out within the United Illuminating supply territory. This program has been successfully applied over a four year timeframe. The program included energy performance improvements, energy productivity and allowed access to utility funding programs for equipment and demand management. The program covered a range of sites including, Sikorsky, People's Bank, University of Bridgeport, and several others.

#### *Department of Commerce and Economic Opportunity, Illinois, USA*

Developed and assisted with implementation of the support programs for demand side management within the State of Illinois. Included reviews at 20 facilities including Caterpillar, Kraft, Del Monte, Conoco Phillips, Gardner Denver, Ineos Silicas, Ethyl Petroleum and many more.

#### *Hydro One, Toronto, Canada*

Established the energy management program plan for key customers to assist them with the development of their energy management strategies, energy reduction plans and integrating demand response and demand management practices. Participating sites include: Stanley Tools, 3M, Parmalat, Washington Mills, Weyerhaeuser, Blue Mountain Resort, Domtar and several others.

### ***Western Massachusetts Electric Company, Massachusetts, USA***

Facilitated and acted as Project Principal for the pilot and roll out program to undertake energy assessments at a range of facilities within the western Massachusetts region. This included detailed energy reviews and management practice assessments to promote long term sustainability of the initiative. Participating sites included Titeflex, Schweitzer-Mauduit, Top Flite, Schiffer Dental, Southworth Paper and Storms Forge.

### ***North West Energy Efficiency Alliance, Portland, Oregon, USA***

Participated in the energy efficiency pilot program under-taken across a range of facilities in Washington, Oregon and Idaho. This included a mix of detailed integrated assessments and management practice reviews at a range of sites including Davis Wire, Great Western Foods, Kimberly Clark, FritoLay, Galena Mine and several others.

### ***Manufacturing Energy Efficiency Program, Illinois, USA***

Participation in the second stage of the DCEO energy efficiency program in the State of Illinois included energy and greenhouse assessments of operating facilities including Spartan Metal, Woodward Governor and Caterpillar.

### ***Ohio Department of Development, Office of Energy Efficiency, Ohio, USA***

Worked with a variety of Ohio based organizations to develop energy management plans and identify cost effective energy reduction and demand management solutions. Assisted sites with applications to access grants to support project implementation. Some of the sites participating in this program included Guardian, Nova Chemicals, Anchor Hocking, RJF International, ThyssenKrupp, Smurfit Stone Containers, Chevron Phillips and many more.

### ***BC Hydro, Vancouver, B.C., Canada***

Worked with various groups within the Power Smart program to assist customers develop energy management strategies, assist with regional system constraints through improved demand management & maximise opportunities from the variety of incentive programs available. Particular emphasis was placed on the mining industry with four full energy evaluations of regional mine sites and individual pump opportunities assessments at selected mines. The mines included Highland Valley Copper, Endako, Gibraltar and several others.

### ***San Diego Gas & Electric, San Diego, CA, USA***

Developed energy action plans for a range of facilities, actions included host site recruitment, preliminary opportunities reviews including management and technical practice improvements, establishment of key action plans and identification of opportunities for the sites to participate in additional funding programs for project implementation operated by the utility and including demand response participation. Sites included Genzyme, Genentech, Raytheon, Callaway, Continental Marine, etc.

### ***Western Power, Perth, Australia***

Provided management support, business development assistance and project services to the alliance with Western Power to provide energy and demand management services to their key customers.

### ***Maryland Energy Administration, Anapolis, Maryland, USA***

Managed the Maryland Energy Administration pilot pro-gram for energy assessments using the management practice diagnostic tools and involved reviews at several facilities including FritoLay, Pemco, Perdue and Sasol.

### ***EnVINTA Corporation, Multiple, USA***

Undertook a range of energy improvement assessments and management practice reviews for a variety of clients on behalf of the EnVinta Corporation. This included work on behalf of Avista, Xcel, Wisconsin Public Service, New Hampshire Public Service and Keyspan and site participants included companies such as Goodyear, Lockheed Martin, Crucible, American Airlines, Koch, Wyman Gordon, Monandock Paper, DaimlerChrysler, ShopKo, Dofasco, Stelco, Molson, Time Warner, 3M, Ortho-McNeil, UMA Lowell, Ariens and Babson College.

### ***New Jersey Utilities, New Jersey, USA***

Undertook a range of energy management practice assessments to assist organisations develop their energy strategies. Program incorporated customer sites from three Utilities including PSE&G, GPU and Conectiv and included some 35 sites in total with detailed evaluations occurring at 5 facilities. Participating sites included Honey-well, Johanna Foods, Merck, Kraft Foods, Leone Industries, M&M Mars, 3M and many more.

### ***Connecticut Light and Power, Hartford, Connecticut, USA***

Sustainable energy management practices assessments leading to the development of energy management strategies focused on improved energy performance, and demand management. These were carried out at a range of utility customers including Dow, Kimberly Clark, Stanley Tools, Norwalk Hospital, Duracell, GE and CIGNA.

### ***Industrial Energy Efficiency Program, Victoria, Australia***

Participated in the industrial energy efficiency and audit programs operated throughout Victoria. Undertook energy audits at a wide range of facilities across the State. These included investigations at Hawker DeHavilland, Simco, Greer Wire, Kemcor, Kaolin Industries, Dulux, Brivis, Mars Confectionary, Valectro and many more.

### ***Ontario Forest Industries Association, Ontario, Canada***

Supported the successful 3 year program providing a range of energy management programs and initiatives to the sector to assist them develop their energy and green-house gas mitigation strategies. Provided management support and guidance to the services delivery team on program set-up, brainstorming of opportunities for improvement, action plan development and other support programs initiated by the program.

### ***ESKOM, South Africa***

Assisted with the development of energy efficiency projects with the local energy team for participation in the Utility Demand Response Program that targeted the potential deferral of future supply investment through improved efficiency and load profile shaping within industry.

### ***Australian Energy Market Commission, Victoria, Australia***

Participated in the assessment of the impact of late re-bidding on the provision of demand response by large electricity users in the NEM

## Energy Management Projects

### *Carlton and United Breweries, All Australian Operations, Australia*

Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts. Participating sites included Abbotsford, Kent, Yatala, Cascade and Mathilda Bay.

Developed a comprehensive energy management plan and provided support to improve efficiency reduce operating costs. This was a 4 year program covering all Australian facilities and achieved energy costs reductions of over 18%

### *Murray Goulburn, NSW, Australia*

Assessment of the potential to install economisers on the boilers at Erskine Park.

### *Murray Goulburn, All Operations, Australia*

Assisting with a range of project identification, analysis and implementation of viable energy efficiency projects to help rapidly improve energy performance

### *Dairy Manufacturer, Victoria, Australia*

Assisted with the identification of potential opportunities for sites to participate in local demand response activities with their supply utility during extreme hot weather events.

### *Alliance Group, Invercargill, NZ*

Undertook a comprehensive evaluation of the coal fired boiler and steam system to identify opportunities to improve efficiency and reduce emissions.

### *Don Smallgoods, Castlemaine, Victoria*

Working with the site team in an innovative program as an outsourced energy manager focused on delivering significant implemented savings over the next 4 years.

### *Bonlac Foods (now Fonterra), All Australian Sites, Australia*

Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts. Sites included Stanhope, Cobden, Darnum, Cororooke, etc.

### *Bonlac Foods (now Fonterra), All Australian Sites, Australia*

Establishment of a structured energy management plan that focused on the development of sustainable energy practices at each of the Victorian dairy facilities.

### *The Lion Company, WA, NSW & QLD, Australia*

Detailed energy efficiency reviews and assistance with greenhouse gas mitigation programs at the Lion Nathan breweries at Lidcombe, NSW (Tooheys), Milton, QLD (Castlemaine Perkins) and Canning Vale, WA (Swan).

### *George Weston Foods, All Australian Operations, Australia*

Developed the company-wide strategy for the energy management program across the range of facilities within the GWF operations, including Weston Milling, Arnotts, Weston Bioproducts, Watsonia, Tip Top, etc.

***Carlton and United Breweries (Fiji), Suva, Fiji***

Undertook a detailed energy and greenhouse gas assessment at the Suva brewery and established an implementation plan to support aggressive reduction targets.

***Coca-Cola Amatil, Throughout Australia, Australia***

Participated as part of the energy and greenhouse management team that helped define the opportunities for mitigation of emissions and cost savings at all of the CCA facilities across Australia.

***Australia Meat Holdings, QLD, Australia***

Detailed energy efficiency and demand management assessments and action plans to deliver significant cost reductions at several facilities, including Dinmore and Beef City.

***Meadow Lea, Mascot, NSW, Australia***

Detailed energy efficiency review and greenhouse gas evaluation.

***Maple Leaf Foods, Rothsay, Ontario, Canada***

Establish an energy profile of the operations and identify a range of energy savings opportunities for site cost reduction.

***Kerry Ingredients, Altona North, VIC, Australia***

Energy efficiency review and greenhouse gas emissions inventory development.

***J. R. Simplot, Boise, Idaho, USA***

Established the energy management program for 6 facilities within the Potato Division in Idaho, Washington and Oregon, including diagnostic assessments, energy efficiency and demand management opportunities evaluation and action plan development.

***Kraft Foods, Victorian Sites, Australia***

Undertook a range of energy and demand management and greenhouse gas mitigation assessments and provided implementation support to facilities across Victoria.

***Parmalat, Brisbane QLD, Australia***

Provided project support for the detailed energy efficiency assessment and development of action plans to deliver significant cost reductions.

***Cadbury Schweppes, Claremont, Tasmania, Australia***

Detailed energy efficiency review and greenhouse gas evaluation.

***Guardian, Millbury, Ohio, USA***

Project Principal for the energy efficiency investigation and development of energy and demand management plan for sustainable improvement utilising funds available through the Office of Energy Efficiency.

***Metro Trains Melbourne, Victoria, Australia***

Assisted with the development of energy mass flow evaluations and energy management workshops as part of the company's EEO submission.

***AusNet Services, Melbourne, Australia***

Ongoing assistance with the collection and analysis of NGER data for AusNet Services for their electricity and gas transmission and distribution business. Includes the development of procedures and supplemental information, aggregation of data, preparation and submission of the required reports and assistance with external audits as required by the Clean Energy Regulator.

***ACI Glass Packaging, West Croydon, SA & South Brisbane, QLD, Australia***

Project Principal for the development of energy management and greenhouse gas mitigation strategies at the glass manufacturing facilities in Adelaide and Brisbane.

***Baxter Healthcare, Old Toongabbie, NSW, Australia***

Detailed energy efficiency review and greenhouse gas evaluation.

***Boral, Several Australian Locations, Australia***

Provided energy management support and action plan development activities to a range of sites within the Group.

***Iron Ore of Canada, Labrador City (Newfoundland & Labrador) & Sept Illes (Quebec), Canada***

Established the energy efficiency program that identified key management improvement opportunities and technical improvements and developed a structured action plan for improvement. Worked with the Hatch and IOC team on the enhancement of identified opportunities and provided implementation and greenhouse gas mitigation support.

***North Star Bluescope Steel, Delta, Ohio, USA***

Project Principal for the detailed energy review of the plant operations at Delta in Ohio. Findings included energy efficiency improvements and potential to participate in the local trial of a demand response program.

***Algoma Steel, Sault Ste Marie, Ontario, Canada***

Project Principal for the Algoma Steel “Best in Class” pro-gram with overall responsibility for the successful delivery of a strategic plan for energy cost reduction and building a pathway to best practice.

***CSA Mine, NSW, Australia***

Developed energy management strategy and supported the establishment of the greenhouse gas inventory. Assisted with the development of potential projects that could generate white certificates.

***Wesfarmers Curragh Coal, Queensland, Australia***

Project advisor assisting with the development of sustain-able energy and carbon management action plans at the coal mine. Included support for evaluation of the range of energy efficiency projects and potential demand management through improved scheduling and the associated energy savings and greenhouse gas reductions. Further ad-vice on integrating these findings into the mandatory re-orting processes was undertaken.

***Peak Gold Mine***

NSW, Australia Project Director for an evaluation of the energy management program and identification of opportunities for improvement in the compressed air system and an assessment of the site energy management practices.

***Hamersley Iron***

Undertook an energy review of the iron ore operations in the Pilbara, concentrating on Dampier, Channar, Paraburdoo and Tom Price

***OZ Minerals, South Australia, Australia***

Worked with the site teams to help identify a wide range of savings and quantify the benefits available, including energy management improvements and potential demand management practices. Continuing to work with the team to help complete mandatory reporting requirements and establish appropriate verification processes for the identified projects.

***Barrick - Hemlo Mine, Marathon, Ontario, Canada***

Project Principal and Project Adviser for the energy efficiency assessment and sustainable energy management practices review undertaken at the Hemlo gold mine out-side Marathon, Ontario.

***Newcrest Cadia Mine, NSW, Australia***

Assisted with the development and submission of the application to secure tradeable energy saving certificates for the high pressure grinding rolls project at the Cadia mine. Ongoing support for monitoring and verification and annual reporting.

***Queensland Alumina Limited, Gladstone, QLD, Australia***

Energy efficiency review and opportunities assessment.

***Placer Dome, Timmins, Ontario, Canada***

Project Principal for the detailed energy management evaluation for the Porcupine Joint Venture at Timmins in Ontario. This included energy investigations of the underground mining operations, the mill and the other surface operations.

***Alcoa, Suriname***

Detailed energy efficiency evaluation of the refinery operations and identification of a range of cost reduction initiatives.

***Queensland Nickel, Yabulu, QLD, Australia***

Project Principal for the energy and greenhouse gas mitigation assessment of the Yabulu Refinery.

***Barrick – Bulyanhulu, Tanzania***

Project Principal and Project Adviser for the energy efficiency assessment and sustainable energy management practices review undertaken at the Bulyanhulu Gold Mine

***Normandy Mining Limited, All Australian Operations, Australia***

Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts. Participating sites included Golden Grove, Mt Leyshon, Pajingo, Tanami, Wahi, Boddington, Tennant Creek and Woodcutters.

***Falconbridge, Sudbury, Ontario, Canada***

Project Principal for the detailed energy review of the mining and surface facilities, including energy efficiency and technology improvements, controls, and demand management practices.

***Paladin Energy, Malawi***

Project Principal for a project to provide assistance with the preparation of an application for participation in the clean development mechanism associated with their plant upgrade.

***Western Mining Corporation (now BHP Billiton)***

All Australian sites, Australia Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts.

Provided data management and reporting for energy and greenhouse gas components of the annual Environmental Progress Report.

Participating sites included Mt Keith, Leinster, Kambalda, Kalgoorlie Nickel Smelter, Kwinana Nickel Refinery, Olympic Dam and WMC Fertilisers.

***Theiss, South Bank, Queensland, Australia***

Evaluated the energy performance of the Theiss operations and identified energy and greenhouse gas mitigation opportunities.

***North Ltd (now mainly owned by Rio Tinto), All Australian Sites, Australia***

Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts.

Provided data management and reporting for energy and greenhouse gas components of the annual Environmental Progress Report.

Participating sites included Northparkes, Ranger Uranium, Robe River Iron Associates, Kanowna Belle, North Forest Products and Warman International.

***Placer Dome (Australia) (sites now owned by Barrick, All Australian Operations, Australia)***

Development of the Greenhouse Challenge Agreement, including greenhouse gas inventory development, abatement opportunities identification, management practices improvements, and forecasting of the impact of improvements. This also included a regular update of the progress against targets and enhancement of the Agreement with additional abatement opportunities and tracking of emissions forecasts. Sites engaged included Osborne, Granny Smith and Kidston.

***Comalco, Point Henry, Victoria, Australia***

Project Principal for the energy efficiency assessment of the ancillary energy using equipment at the smelter.

***Comalco, Weipa, Queensland, Australia***

Undertook a detailed energy review of the site operations and established a structured plan for improvement in energy efficiency and greenhouse gas emissions. This also included developing a load management and demand reduction strategy to improve the management and utilisation of the diesel generation units that supplied the operations and town.

***Dulux Australia, Clayton, VIC, Australia***

Energy Efficiency review and evaluation of site plan for improvement.

***ChevronTexaco, California, USA***

Worked with the Company team to develop their green-house inventory system that was then deployed across all significant energy using operations worldwide. This ownership of the system was transferred to API for distribution and implementation across the sector.

***Huntsmen Chemical Company, Brooklyn, VIC, Australia***

Established a strategic energy plan for the reduction of energy usage, energy waste minimisation and the establishment of sustainable practices to encourage continued performance against targets.

***Ampol, Lytton, QLD, Australia***

Assessment of the application of variable speed drives as a means of saving energy at various locations throughout the refinery.

■ ***Kemcor, Altona, VIC, Australia***

Energy efficiency review and opportunities assessment.

■ ***Millennium Chemicals, Multiple, USA***

Helped establish and train internal resources to develop energy management practice improvements and build sustainable energy programs for the worldwide operations.

■ ***Nufarm, Laverton North, VIC, Australia***

Energy efficiency review and opportunities assessment.

■ ***Mobil Oil Australia, Adelaide and Altona***

Energy management assistance and advice to support the site energy initiatives.

■ ***Stora Enso, Wisconsin & Nova Scotia, USA & Canada***

Undertook a range of management practice assessments at Stora Enso facilities in North America to determine the scope of opportunities for savings.

■ ***Australian Newsprint Mills, Malaysia***

Developed a preliminary model for the integration of a large scale cogeneration facility at the planned greenfields operational site in Malaysia and used the model to assist with the optimisation of supply and heat recovery.

■ ***Australian Paper, Maryvale, VIC, Australia***

Participated in a range of site initiatives to help reduce energy and greenhouse gas emissions, including energy auditing, process integration and management practice assessments.

■ ***Winstone Pulp International, Ohakune, New Zealand***

Undertook detailed mass and energy balance and process integration analysis to target energy cost reductions.

■ ***Visy Industries, NSW & Vic, Australia***

Undertook 2 detailed energy reviews of manufacturing sites in Victoria and New South Wales. Identified a range of energy efficiency and demand management projects ranging from boiler and steam improvements, load shedding and peak clipping, compressed air system upgrades, demand management and possible demand response participation, pumping system opportunities and lighting and incorporated a range of management practice improvements. Cost effective savings in excess of 15% were identified

***Visy VP8, QLD, Australia***

Assisted with the review of the operations and facilitated a management practices diagnostic to review opportunities for improvements in policies and procedures and the potential impact of cultural change on overall energy performance.

***Carter Holt Harvey, Victoria, Australia***

Detailed energy performance evaluation and greenhouse gas study. Development of a sustainable energy management program.

***Amtcor, Several Australian Facilities, Australia***

Provided support to the on-site energy and greenhouse gas management activities.

***Australian Newsprint Mills, Australia***

Worked with the planning team to establish energy requirements, accessibility and availability for a planned new thermo-mechanical pulp plant.

***ITT Goulds, Alabama, Maine, Ohio, USA***

Worked with the ITT Sales team to identify energy saving opportunities at a representative number of pulp and paper facilities, including International Paper, MeadWestvaco and Georgia Pacific facilities in the US. Although the immediate focus was on hydraulic systems, additional energy saving activities were also promoted.

***Flowserve, Kalamazoo, Michigan, USA***

Worked with the Flowserve marketing team to identify energy saving opportunities at target clients with an aim to help them establish improvements in energy performance and greenhouse gas emissions and to identify opportunities to leverage Flowserve technology. Sites included Pfizer, Graphic Packaging, Menasha and Flowserve production operations.

***RJF International, Marietta, Ohio, USA***

Project Principal for the energy efficiency investigation and development of an energy plan for sustainable improvement utilising funds available through the Office of Energy Efficiency.

***Holden Engine Company, Fisherman's Bend, VIC, Australia***

Demand management assessment and efficiency review.

***University of Sydney, Sydney, NSW, Australia***

Participated as consultant on the energy team that established the best practice energy plan for the University of Sydney.

***Hannanprint, Sydney, Australia***

Assisted with the evaluation of energy efficiency upgrade to the HVAC system which led to an application for white certificates.

***Ford Motor Company, Victoria, Australia***

Energy demand assessment to identify potential improvements to improve the demand profile and reduce direct costs.

***Ford Motor Company, Victoria, Australia***

Assistance with the development of the Australian operations greenhouse gas inventory.

***Bruck Textiles, Victoria, Australia***

Energy efficiency evaluation and identification of opportunities to reduce energy costs and participate in funding mechanisms for large scale upgrade of operations through the Clean Technology Investment Program

***Waste Management Company, Victoria, Australia***

Evaluation of the market potential for process engineered fuels from waste and including the potential as a fuel source for distributed electricity generation or supplemental electricity supply at large facilities.

***Hewlett-Packard, NSW, Australia***

Assisted with the company NGER submission including review and aggregation of data, validation, report development and submission. Support with NGER submissions is continuing.

***Hewlett-Packard, NSW, Australia***

Provided support for registration of HPE for the Federal Energy Efficiency Opportunities initiative, including assessments of the current energy efficiency practices, evaluation of participating sites and current commitments for future improvements.

***District Energy Solution, Toronto, Canada***

Preliminary feasibility for the development of a District Energy solution for the Waterfront development in Toronto Canada.

***UTC Aerospace Systems, Indonesia and Singapore***

Undertook energy audits of four facilities within the UTC Aerospace Systems group. The investigations were focused on identifying cost effective energy savings and improved energy management practices.

***Hunter Water Corporation, NSW, Australia***

Demand management investigation targeting operating cost reductions, including operational decision making, alternative strategies to reduce demand, savings modelling and indicative cost assessments.

***Gosford City Council – WWTP, NSW, Australia***

Detailed energy audit of water and waste water treatment facilities at Gosford and Wyong including data analysis, site work, opportunities investigation, savings assessments and indicative capital cost requirements.

***Gold Coast City Council – Water and Wastewater Treatment, QLD, Australia***

Detailed energy audit of water and waste water treatment facilities in the Gold Coast region including data analysis, site work, opportunities investigation, savings assessments and indicative capital cost requirements.

***United Water, NJ, USA***

Energy audit and management practices assessment of the water treatment facilities at Haworth, NJ - part of an Electricity Utility (PSE&G) energy efficiency funding program

***Sydney Water, NSW, Australia***

Participated in energy audits of selected facilities and assisted with the design of water optimisation processes for Sydney Water customers

***DXC Technology***

Acts as the Company's Client Contact with the Clean Energy Regulator and assists with the company registrations and their initial NGER submission including review and aggregation of data, validation, report development and submission.

***AEMC, NSW, Australia***

Current Status of DR in the NEM: Interviews with Electricity Retailers and DR Specialist Service Providers. Included surveys of retailers, distributors and demand response specialists.

*Terminals Pty Ltd, VIC, Australia*

Level 2 Energy audit of the Corio Facility including data analysis, site work, opportunities investigation, savings assessments and indicative capital cost requirements.

*VicRoads, VIC, Australia*

Review of the VicRoads energy management activities and projects.

*Davey Water Products, VIC, Australia*

Level 2 Energy audit of the Scoresby manufacturing facility including data analysis, site work, opportunities investigation, savings assessments and indicative capital cost requirements.