



East Harbour Geothermal

East Harbour Energy is an energy-focused consulting firm that undertakes commercial and strategic projects for a wide range of businesses and organisations. We have strong technical and commercial capability and experience, based on over 10 years of assignments for a diverse range of industrial and commercial energy users.

We have a particular interest in geothermal energy with our experience covering both electricity generation and process heat supply from conventional and enhanced geothermal resources projects for, and the use of low enthalpy geothermal heat for horticultural and commercial/domestic applications.

Our expertise includes developing energy-related strategies, implementing energy projects, introducing new technologies, and assisting customers to effect utilisation improvements and reductions in energy use, carbon emissions and associated costs. We have particular capability in financial and commercial analysis and are familiar with many types of project structures, including BOOTs and BOOs, and in structuring agreements on a win-win basis.

East Harbour's focus areas include:

- Energy-related commercial advice, strategy development, risk assessment, and business planning
- Enhanced and low enthalpy geothermal applications, in addition to conventional geothermal use
- Feasibility studies: covering heat and electricity generation and use, including new technologies and applications from aquaculture to power generation
- Due diligence covering technical, environmental and commercial aspects of projects and developments
- Energy and waste advice and auditing, including cost assessment, benchmarking and solution development, and provision of energy-management services
- Commercialisation of energy projects, including financial assessment, business case development, consenting, and project management

East Harbour's geothermal work:

Projects carried out cover both steam-field and heat and electricity generation and utilisation aspects of geothermal projects; covering both conventional geothermal and also enhanced geothermal technologies applied in site-specific applications. We have worked on projects based on both high and low temperature resources, considering a range of heat applications including horticulture and aquaculture, spas, the supply of high temperature process heat, and electricity generation from small to large-scale.

Our work encompasses all required disciplines, technical and commercial, utilising as required our strong relationships with specialist advisors covering areas such as geology and geophysics, reservoir development, detailed engineering and binary and conventional generation plant.

Our recent geothermal work includes:

- The feasibility of enhanced geothermal heat supply and power generation at two large industrial processing sites (projects ongoing)

- Feasibility study for use of low-enthalpy geothermal heat at a large greenhouse complex (project proceeding to detailed investigation phase)
- The assessment of the potential for binary cycle electricity generation from medium temperature and high temperature resources for a Maori Trust (project about to move to the business case and consenting stage)
- The feasibility of binary cycle electricity generation from a low temperature resource
- The secondment of Brian White as geothermal advisor for a World Bank team planning the financing of a major geothermal development in Indonesia (following previous geothermal policy advice contracted via Castalia, for the World Bank)
- Development of a geothermal strategy for a group of Maori Trusts
- Feasibility assessment for a geothermal heat pump spa development in Wellington
- Deep geothermal scoping study of the Auckland region (with Ian R Brown Associates)
- The provision of Executive Officer services to the New Zealand Geothermal Association (ongoing)
- Participation in a World Bank team in Indonesia as Geothermal Advisor for the planning of a series of new geothermal stations

Previous work includes:

- Assistance to an Australian geothermal company in the development of a programme for a their enhanced geothermal project
- Due diligence for major geothermal plants in the Philippines in association with PB Power and an overseas client
- Extensive work in Indonesia for the World Bank in a range of initiatives designed to stimulate investment in geothermal energy including: reports looking at barriers and solutions; grant programs to build capability and stimulate three specific generation projects; and work related to carbon financing of geothermal projects as a further step to overcome development barriers
- Preparation of a range of reports (ref: www.eastharb.co.nz) covering such topics as:
 - Distributed energy opportunities (heat and electricity) for geothermal energy in New Zealand (for the Geothermal Association)
 - The direct use of geothermal energy (for EECA/the Geothermal Association)
 - Geothermal direct use renewables targets (for EECA), in co-operation with GNS Science
 - Review of renewable energy resources (including geothermal energy) for MED
- Extensive work with government departments in developing technical databases and policy inputs related to renewable energy uptake, including geothermal and both heat and electricity generation options

East Harbour has taken a strong advocacy position on the potential of geothermal for both electricity generation and heat supply for a wide range of uses from aquaculture, horticulture and space heating through to industrial process heat use.

Geothermally focussed East Harbour staff include:

Mike Suggate, Director

Mike has more than 30 years' engineering and management experience, predominantly in the energy sector. This experience includes senior management positions in electricity generation, distribution and retailing businesses and for an oil company. Mike also has wide management experience in manufacturing and distribution businesses and prior to joining East Harbour was General Manager of a start up energy business Energy for Industry which focussed on the provision of heat and electricity services from ownership and operation of on-site energy plant utilising renewable and fossil fuels.

Geothermal experience includes large and small scale projects covering both heat supply and power generation. This includes management of the early planning for Ohaaki Powerstation, work on geothermal district heating and, with East Harbour, on feasibility studies and project management covering both conventional and enhanced geothermal projects for electricity generation and process heat supply, and the use of low enthalpy geothermal heat.

Brian White, Commercial Development Manager

Brian has 25 years' experience in the management and implementation of technical projects. This experience has ranged from geothermal feasibility studies, field investigation reports, well siting and measurements, consenting, design, construction, operations and maintenance, energy audits, contractual reviews, and due diligence exercises on a range of technical plant through to management roles. His specialised experience in geothermal energy and energy markets has enabled him to provide strategic advice to potential investors and Government, and includes overseas work on World Bank assignments and for other businesses.

Brian also provides Executive Officer services to the New Zealand Geothermal Association.

Brian Cox, Director

Brian has 30 years' experience in large infrastructure projects (roading, large industrial, petrochemical) and over 16 years' experience in the energy industry. He has had extensive senior management experience particularly in strategic advice and development groups. His primary role has been the management of investigations to evaluate the technical, environmental and economic viability of new business opportunities and progressing them through subsequent phases of development. He has managed the commercial development of a number of industrial energy facility projects.

Associates

East Harbour works closely with a range of specialist consultants (i.e. geological, geosciences, drilling and environmental assessment) in the completion of geothermal assignments. These include in particular:

Ian R Brown and Associates (IRBA)

IRBA is a New Zealand-based consulting company with international links and experience which provides specialist professional services in the areas of applied geology, resource assessment, geotechnical engineering and spatial data analysis (<http://www.irba.co.nz/>).

Please contact us for further information or with any enquiries that you may have.

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