



Representative Projects

Strata Energy Consulting Limited (Strata) has undertaken a number of electricity and gas-related assignments within the past few years. The following list sets out some examples of the work that has been done with our clients and associates.

Electricity Market Development

- **Retail electricity market development:** Strata has been involved in the development of New Zealand's retail electricity market through the provision of advice and assistance to the New Zealand Electricity Commission (now Electricity Authority - New Zealand's electricity regulator) in the development of:
 - Rules for the global reconciliation of retail electricity purchases from the wholesale electricity market;
 - Model contracts for domestic electricity users;
 - Model use of system agreements;
 - Guidelines for the disconnection of vulnerable and medically dependent consumers;
 - Audit guidelines for the reconciliation of sales and purchases in the electricity market;
 - Guidelines on the policy for secondary electricity networks.
- **Load management project:** Strata led the phases of the Electricity Commission's load management project, which developed the value of load management for a wide range of applications including deferral of distribution and transmission investment.
- **Ancillary services arrangements:** Strata has been involved in the development of ancillary service arrangements and has assisted ancillary service providers with operational compliance. Strata has also provided independent reviews of rule breaches and end-to-end technical reviews of ancillary service systems.
- **Demand aggregation:** Strata provided advice and assistance to a demand aggregator to enable it to successfully enter the New Zealand reserves market and



participate in pilot studies for transmission investment deferral.

- **Under Frequency management**

Strata has provided advice and assistance to clients preparing submissions on the Transpower Under Frequency Management project workstreams on Automatic Under Frequency Load Shedding and Instantaneous Reserve.

- **Security of New Zealand electricity supply:** Strata advised the New Zealand Electricity Commission on options for security of supply arrangements. This work involved canvassing a number of issues, including the offer and dispatch strategies for reserves, the recovery of reserves costs from market participants, ownership options for reserves providers, information disclosure requirements, the process for tendering for the provision of reserves and possible hedge arrangements to assist with security of supply.

- **Review of access arrangements in Western Australia:** Strata in conjunction with EMCa, reviewed access arrangements for the connection of generation to the South West Interconnected System in Western Australia. The assignment was undertaken for the Australian Energy Markets Commission (AEMC). Strata also provided advice to the AEMC on system operation issues relating to the connection of renewable power generation under the carbon pollution reduction policies and the Mandatory Renewable Energy Targets.

- **Design of Multi-Buyer Market for Andhra Pradesh, India:** Strata assisted in developing a model for a wholesale market for the Andhra Pradesh Transmission company (APTransco), which provided for a managed process from a single buyer arrangement to a competitive wholesale and retail market for the state.

Transmission

- **Review of Powerlink's transmission expenditure plans:** During 2011, Strata advised the Australian Energy Regulator on the reasonableness of Powerlink's (the electricity transmission company in Queensland) capital expenditure plans and associated forecasts and assumptions.



- **Review of Transpower New Zealand's transmission capital expenditure plans:** For the period 2007 to 2010, Strata advised the New Zealand Commerce Commission (New Zealand's economic regulator) on the reasonableness of Transpower's (New Zealand's national grid owner/operator) capital expenditure plans and associated forecast capital expenditure, as well as the company's performance against regulatory thresholds.
- **Reviews of transmission upgrades:** Over recent years Strata has been called upon to provide advice to major electricity users on several proposed major upgrades to the New Zealand transmission system.
- **New Zealand transmission pricing guidelines:** Strata advised on the guidelines and historical development of the transmission pricing methodology in New Zealand and has prepared submissions on New Zealand's transmission pricing methodology.
- **Value of Unserved Energy:** Strata was commissioned to assist the New Zealand Electricity Commission to assess the value of unsupplied electricity to New Zealand's consumers. The work involved assisting in the development of questionnaires for all sizes of electricity consumers, interviewing a sample of New Zealand's largest electricity consumers and reporting on the findings of the assessment.
- **Transmission price forecasting:** Strata has assisted large industries and generators in New Zealand to understand transmission pricing and to prepare transmission price forecasts.
- **Transmission contracts:** Strata has advised major New Zealand electricity users on options for transmission contracts and the management of price risks associated with regional peak demand and nodal pricing.
- **Interconnection rules and benchmark agreements:** Strata has advised on the development of rules for interconnection with New Zealand's national transmission grid and on the benchmark transmission agreement published by the New Zealand Electricity Commission.
- **Expert witness on wind farm transmission impact:** Strata provided expert witness testimony on the impact of a proposed wind farm on transmission arrangements in



the South Island of New Zealand, including transmission congestion and the need for new transmission investment to accommodate the wind generation.

Distribution

- **Distribution standardisation:** Strata has assisted the Electricity Authority in a major project to develop standard approaches to a number of Distribution activities. In particular, revised Model Use of System Agreements and Load Management Policy were produced for consultation.
- **Post breach reviews of electricity lines businesses:** Strata advised the New Zealand Commerce Commission on the quality performance of several electricity lines businesses that had breached their regulatory thresholds for quality of supply.
- **Distributed generation:** Strata has provided advice to several distributed power generation projects including wind, small hydro and bio gas.
- **Distribution pricing:** Strata provided advice and assistance to the New Zealand Electricity Commission on the development of model distribution pricing methodologies using a principles-based approach and disclosure guidelines.
- **Asset Management Plans:** Strata has reviewed and assessed New Zealand electricity lines businesses' disclosed asset management plans for the New Zealand Commerce Commission.

Generation

- **Integrated asset management:** Strata undertook a significant project for a major generator, which involved the development and implementation of integrated asset management across three generation groups (thermal, hydro and geothermal). The project included asset management strategies, systems and data management, asset monitoring, records and reporting.
- **Connection of a wind farm to the grid:** Strata provided advice to the owners of a large wind farm on the required technical arrangements for connection to and operation on New Zealand's national transmission network. The project included the management of compliance with the electricity market rules as well as arrangements for the



sale and purchase of the wind farm's output via the wholesale electricity market.

- **Expert witness on hydro station transmission impact:** Strata provided expert witness testimony on the impact of a proposed hydro power station on transmission arrangements in New Zealand, including transmission congestion and the potential for deferral of new transmission investment as a consequence of the hydro station being built.

Advanced/Smart Metering

- **Advanced metering infrastructure:** Strata has been actively involved in the development of the regulation of advanced metering infrastructure (AMI) in New Zealand through advice and assistance to the New Zealand Electricity Commission on:
 - AMI policy and guidelines;
 - Review of the electricity market rules on metering to enable the introduction of AMI. The review included the access, security and technical procedures and policies required for competition, the protection of consumers, and market participants; and
 - Advice to the Minister of Energy on the need for intervention in the roll out of smart meters in New Zealand.
- **Smart metering report to the New Zealand Parliamentary Commissioner for the Environment:** Strata has advised the New Zealand Parliamentary Commissioner for the Environment on smart metering, including a review of international developments, case studies on implementation and advice on the environmental benefits arising from smart meters.
- **Victorian Department of Primary Industries Smart Metering Cost-Benefit Analysis:** In association with EMCa, Strata has advised the Victorian Department of Primary Industries on the costs and benefits associated with the rollout of smart metering in Victoria.

Gas Market Development

- **Gas downstream allocation and reconciliation:** Strata has worked with New Zealand's gas co-regulator, Gas



Industry Company (GIC) on a number of downstream gas arrangements, including:

- Providing advice and assistance in drawing up the Statement of Proposal for the gas market rules required to establish a national registry of gas delivery points.
- Providing advice and assistance in drawing up the Statement of Proposal for the rules required to establish an allocation and reconciliation system for the gas downstream market.
- Fulfilling the role of GIC's project manager for the implementation of the New Zealand gas industry's downstream allocation and reconciliation system. Following the successful implementation of this system, Strata has continued to provide advice to GIC on gas retail market matters.

Risk Management

- **Regulatory compliance reviews:** Strata has conducted a number of reviews for electricity market and gas market participants to assess the participants' compliance with the relevant gas or electricity market rules.
- **Security of supply assessments:** Strata has reviewed the supply arrangements for several major industrial electricity consumers, to identify the risks to the consumers from electricity supply outages.