

Energy Infrastructure

Oakley Greenwood Services

- Due diligence studies and business case development
- Quantitative analysis including, opex, capex and demand forecasting for gas projects
- Market modelling and analysis of gas, electricity and carbon markets
- Financial modelling and feasibility studies
- Structuring and negotiation of commercial agreements and arrangements
- Gas contracting and haulage agreements
- Risk analysis and mitigation strategy development
- Integrated energy and carbon management solutions and services
- Technical analysis of integrated diesel, renewables and energy storage solutions

Infrastructure Expertise

Oakley Greenwood bring a deep level of expertise in infrastructure both in providing regulatory advice to our clients and in developing opportunities.

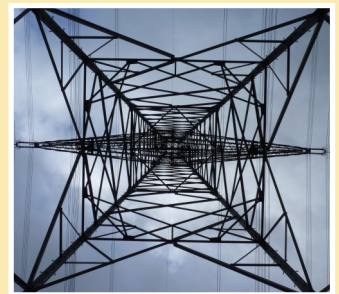
Understanding regulatory risk and market opportunities are key consideration for investors in energy infrastructure.

Oakley Greenwood has extensive experience undertaking due diligence studies on behalf of potential investors in infrastructure projects and infrastructure companies.

We have extensive experience in assessing and developing commercial opportunities for the development of infrastructure assets in the electricity, gas and water sectors. Members of our team have also have undertaken extensive engagements in regulatory economics across gas and electricity sectors for clients in Australia, New Zealand and South East Asia.

We have helped our clients by providing advice including structuring transactions, negotiation of agreements, financial analysis, demand forecasting, economic analysis, tariff design and energy market design.

The economic, commercial, financial and regulatory expertise that Oakley Greenwood has developed gives Oakley Greenwood a unique ability to assist it's clients.





"One of Oakley Greenwood's strengths is the mix of commercial, regulatory, economic and engineering expertise in the gas and electricity sectors"

Due Diligence Studies

With Oakley Greenwood's experience in market design, developing energy infrastructure projects and financial modelling the ability to provide quality commercial and technical due diligence advice is unique. Oakley Greenwood is the commercial adviser to the **Gas Market Reform Group (GMRG)**. The GMRG was established by the **COAG Energy Council** to lead the design, development and implementation of gas pipeline capacity trading reforms. Oakley Greenwood is providing advice on a range of issues that will impact on how the capacity trading reform package will be implemented. The **Gas Market Reform Group** recently published a discussion paper prepared by Oakley Greenwood on some of the commercial aspects of pipeline operations.

Oakley Greenwood was engaged in late 2017 by the **Gas Market Reform Group** to assist in the preparation of recommendations to the **COAG Energy Council** on the structure of gas pipeline capacity trading reforms.

Oakley Greenwood is the Principal Advisor to the Utility Reform Group of the **Northern Territory Department of Treasury and Finance** which is leading the reform of the NT electricity sector.

Multinet engaged Oakley Greenwood to provide an independent opinion as to the prudence and efficiency of Multinet Gas's actual capital expenditure for mains replacement capex and connections capex, in the context of the requirements of the National Gas Rules (Rule 79 in particular).

Oakley Greenwood provided cost due diligence advice to a prospective bidder on the **Trility** water business. This was predominately focused on

assessing the extent to which efficiency improvements could be made to the business' operating structure, as well as assessing the impact that any subsequent partial sale of certain assets might have on the Corporate costs required to support what would be a business of very different scale and scope to how it is currently constituted. A financial model (with significant flexibility to test the sensitivity of results to different input assumptions) was developed to support the assignment.

Prostar Capital engaged Oakley Greenwood to provide due diligence for a potential investment in one of the short listed proponents for the North East Gas Interconnector pipeline. The analysis included a review of the proponent's capital and operating costs, high level modelling of tariffs, market review of the gas supply opportunities and likely offtakers, regulatory and approvals fatal flaws, forecast of netback pricing to the potential upstream fields from different load centres.

Market Studies

A Japanese investor in West Australian LNG projects engaged Oakley Greenwood to undertake a review of the Australian electricity and gas markets in 2018. This included a review of energy infrastructure, gas production facilities and supply/demand forecasts for Queensland, south east Australia, the Northern Territory and West Australia.



The **Department of Environment and Energy** engaged Oakley Greenwood to prepare the Gas Price Trends Review 2017. The work included the pricing for large industrial, small industrial and retail gas pricing for each jurisdiction. The report included a review of the innovative services offered by pipeline and recent trends in gas pipeline tariffs. It included an analysis of key developments in the gas pipeline industry including how bi-directional pipelines are re-shaping Australian gas markets,

Oakley Greenwood was engaged by he **Tasmanian Government Energy Security Taskforce** to assess the role of gas in the Tasmanian energy market, the role of the Tamar Valley gas fired power station and to assess security of supply of gas to Tasmania. This included an assessment of changes to the gas assets.

Oakley Greenwood was engaged by **IFM** and **QIC** to provide wholesale electricity price forecasts as part of the sale of NSW transmission supply chain and the impact of those changes on security of supply.

The **Department of Industry, Innovation and Science** engaged Oakley Greenwood to undertake the Gas Price Trends Review 2015. This was the first ever 10 year historical review into gas pricing trends in all States.

Financial Modelling

The economic regulation of energy infrastructure assets is a significant value driver for energy infrastructure investments. Oakley Greenwood has extensive experience in forecasting demand for services on infrastructure assets, revenue,

operating and capital expenditure and in managing regulatory processes.

Oakley Greenwood was engaged by **Multinet** to project manage the development of the stand-alone and LRMC cost models for Multinet (and SP AusNet) in support of their submission to the Australian Energy Regulator.

Oakley Greenwood's engagement by **SP AusNet** for the preparation of its 2013 Gas Access Arrangement included managing the development of their stand-alone cost, avoidable cost and LRMC models.

Oakley Greenwood was engaged by **United Energy / Multinet** to undertake a report into the issues/benefits surrounding the choice between a Weighted Average Price Cap and a Revenue Cap form or price control.

Oakley Greenwood was engaged by **SP Ausnet** to prepare a tariff strategy paper for SP AusNet's gas distribution business, with particular reference to the consistency of SP AusNet's tariffs with the requirements and principles set out in the National Gas Rules.

Oakley Greenwood was engaged by **SP AusNet** in the preparation of its 2013 Gas Access Arrangement for submission to the AER. This included providing strategic advice, modelling and drafting the chapters relating to SP AusNet's proposed tariffs, price control mechanisms and demand forecasting.

Key Staff



JIM SNOW

Executive Director

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Jim has worked across the energy and water industry. This has included water and energy pricing and economic regulation, demand side management, greenhouse gas mitigation and emission trading, extensive and complex modelling work as well as building generation plants, gas pipelines and electricity grid systems, CNG and LNG facilities, managing energy retail operations and has consulted widely to the demand side, particularly energy intensive industry.

Jim has held senior executive positions with AGL, Energy Developments Ltd (EGM Development and Construction Group), Hunter Electricity (CEO), Energetics Pty Ltd (CEO), and was a founding Vice President in Australia of the Boston based consulting firm Charles River Associates International which evolved to become Oakley Greenwood in Australia.



LANCE HOCH

Executive Director

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BA Sociology

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Lance is a seasoned energy industry expert with more than 30 years of experience in energy issues, he specialises in the operation of electricity and gas distribution and retail utilities. He has provided expert and innovative assistance to government departments, regulators and the electricity and gas industry in a number of areas including regulation and regulatory strategy, tariff design, improving the commercial basis on which internal industry operations are undertaken, demand management and energy efficiency for improved financial and technical operation, business strategy development and implementation, and customer interactions.

Lance served on the 5-member panel appointed by Australia's Minister for the Environment to provide advice on the Commonwealth's Smart Grid, Smart City program which is providing A\$100 million to a consortium led by Ausgrid (formerly EnergyAustralia) to develop and operate an at-scale smart grid.



GREG THORPE

Executive Director

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Greg has 40 years' experience in the energy utility sector, primarily in electricity and also in gas. He has made major contributions to the design of both the Victorian and National Electricity Markets (NEM) and has subsequently advised on similar arrangements in other markets including in Western Australia and international power systems. Greg oversees OGW's market modelling capability.

Our modelling assignments typically involve strategically important projects including for the Australian Energy Market Commission (impact of the Renewable Energy Target and market power).



ROD JOHANNESSEN

Principal Consultant

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Rod has over 17 years' experience in the energy sector; 10 years in mid-stream (APA Group), two years in upstream (Conoco Phillips) and five years in downstream (Ergon Energy retail). During his career he has held roles in business development, negotiation, strategy, customer service delivery and risk oversight across the transmission pipeline industry, upstream oil and gas, power generation and electricity retailing.

Prior to joining OGW in 2015, Rod was with the APA Group for 10 years and held the roles of General Manager Strategy and Service Delivery, and Project Director for capital projects including power stations, gas processing plants and pipeline expansions, new services to customers, regulatory projects related to complex market design changes and business improvement projects.

Key Staff



Susan Taylor

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Susan Taylor has expertise in a wide range of commercial law, most notably energy regulatory and transactional law. She has over 25 years' experience assisting private and public clients in energy regulatory matters and significant commercial transactions in energy markets in more than eight countries.

For eight years she served as General Counsel and Company Secretary of AusNet Services, one of the largest diversified energy infrastructure businesses in Victoria.

Susan's regulatory experience includes working for the US Federal Energy Regulatory Commission in Washington DC.

Susan has worked in private practice at US law firms and at Freehills. Susan played a leading role in the regulatory reform and privatisation of the Victorian gas industry and the creation of Australia's national electricity market.



ROHAN HARRIS
Principal Consultant

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Rohan is an economist who has worked in the energy, water and consulting industries for more than 15 years. Rohan has significant experience in the areas of: tariff design; regulatory strategy and analysis; cost benefit analysis; energy and water policy; metering policy and regulatory issues; risk management identification and quantification; and gas, electricity and water demand forecasting.

Rohan has advised SP AusNet, United Energy, Multinet, Jemena, Citipower, Powercor, the Electricity Authority (NZ), ActewAGL, South East Water, Yarra Valley Water, Southern Rural Water, ElectraNet, Queensland Urban Utilities, Origin Energy and AGL.



ROHAN JONES
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Rohan has worked in the energy infrastructure industry for more than 30 years, including electricity distribution, electricity retail and gas distribution.

He worked for 10 years as the Regulatory Affairs Manager for AGL Distribution/Alinta. During this time he managed all aspects of Regulation for the business including numerous changes to Laws, Rules and Regulations, Price Reviews, the development of the Regulatory Framework for the Advanced Interval Meter roll out..

Rohan has developed a number of financial and business models for large scale solar power projects for international investors and is familiar with the technical and economic details of renewable technologies including large scale solar, wind and various energy storage technologies.



JEFF THONG
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Jeff's expertise is in both upstream and downstream gas and electricity markets, mining and resources sectors. His 20 years of experience working in Australia and Asia evolved into a mix of technical and commercial ability with strong business development skills. He specialises in energy delivery definition and strategy for mining operations, gas commercialisation strategy, energy research and analysis, carbon cost reduction and carbon abatement strategies.

Developed business cases, commercial structure and board presentation for greenfield off-grid power stations, coal mine methane, brownfield contract extensions, gas commercialisation (CNG, LNG, Power, Pipeline), with counterparties to Energy Developments Limited including BHP Billiton, Macarthur Coal, Xstrata Zinc, Minmetals Group, Centennial Coal, Vale and Incitec Pivot.



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