Issue 24 : August 2013

PARSONS BRINCKERHOFF

Powerlines

News and industry comment from Parsons Brinckerhoff around the globe

Planning for a brighter future

Plans to increase access to electricity in Kenya

Plus

Planning for a brighter future

Contact: **Mark Fraser** (fraserm@pbworld.com)

Access to electricity provides huge benefits for individuals and communities, raising standards of living and providing a catalyst for economic growth. Electricity facilitates the use of computers in schools and machinery in industry; electric lighting in homes allows students to study in the evenings without the health risks posed by kerosene lamps.

The counterpart team was pivotal during the data-gathering stage and provided invaluable local knowledge during the development of the expansion plans

Electricity is a scarce resource in many African countries, with many of the areas currently supplied with electricity suffering from poor levels of reliability and quality of supply. Only around 25 percent of Kenyans currently enjoy access to electricity; 50 percent in urban areas and just five percent in rural areas. The Kenyan government aims to increase this access to 98 percent in urban areas and 58 percent in rural areas by 2030.

Major investments are being made in the generation and bulk transmission of electricity, but for benefits to be realised, similar levels of investment are required in the distribution of electricity. This investment must be carefully planned to ensure that scarce resources are used efficiently.

To this end, in December 2011, Parsons Brinckerhoff was appointed by The Kenya Power & Lighting Company Limited (KPLC) to conduct a study to determine the country's future electricity distribution infrastructure requirements – the Kenya Distribution Masterplan Study.

The study sets out the least-cost approach and demonstrates compliance with environmental standards. It is an essential step towards securing project finance from whatever source.

In addition to producing a blueprint for the development of the country's electricity distribution network up to 2030, the masterplan will also serve to facilitate project funding from the Kenyan government's own resources and through multilateral and bilateral funding agencies.

Parsons Brinckerhoff drew together its team of experienced engineers, economists and environmentalists, and associated with a local partner to assist with some of the in-country

activities. An important factor leading to the successful execution of the masterplan study was the appointment by KPLC of a dedicated team of engineers from within its own organisation to assist with the Masterplan Study. This counterpart team was pivotal during the data-gathering stage and provided invaluable local knowledge during the development of the expansion plans.

Key outputs from the study included:

- Identification and prioritisation of specific projects that would realise benefits in terms of increasing access to electricity or improving the reliability and quality of existing supplies.
- Environmental scoping studies for the identified projects. This aspect of the assignment included visiting each of the 47 counties across the country to hold meetings with stakeholders and to understand the key issues associated with electricity infrastructure projects at a local level. Consultants heard from chiefs and village elders about the issues they face and translated these into viable engineering solutions.
- Production of a Design Manual covering design principles for the key elements of equipment, to assist KPLC with the day-to-day development of the network.

Only around 25 percent of Kenyans currently enjoy access to electricity; 50 percent in urban areas and just five percent in rural areas

The assignment included an intensive three-week training course in the UK for the KPLC counterpart team, given by Parsons Brinckerhoff. This covered most of the key aspects of the study and included hands-on training in the use of the network planning software.

The completed study was presented to the client in December 2012 via a seminar and workshop in Nairobi. The work was well received and there was a real appreciation for the effort that had gone into producing this critical blueprint for future development. Since the presentation, KPLC has asked for further training in specific areas and for ongoing assistance towards implementation. The study has also attracted interest from a funding agency that wishes to work with Parsons Brinckerhoff and KPLC towards securing a finance package for the masterplan.

Parsons Brinckerhoff already has a firm presence in the electricity sector in Kenya through its involvement in projects ranging from feasibility studies for several new transmission lines to contract supervision for the construction of two new lines including a 400 kV line from Mombasa to Nairobi, the first of its kind in Kenya. The company was proud to continue its association with the country via the masterplan project, helping to secure a vital resource to improve the lives of millions of Kenyans.

Private power expansion in Thailand

Contact: **Steve Merrill** (merrills@pbworld.com)

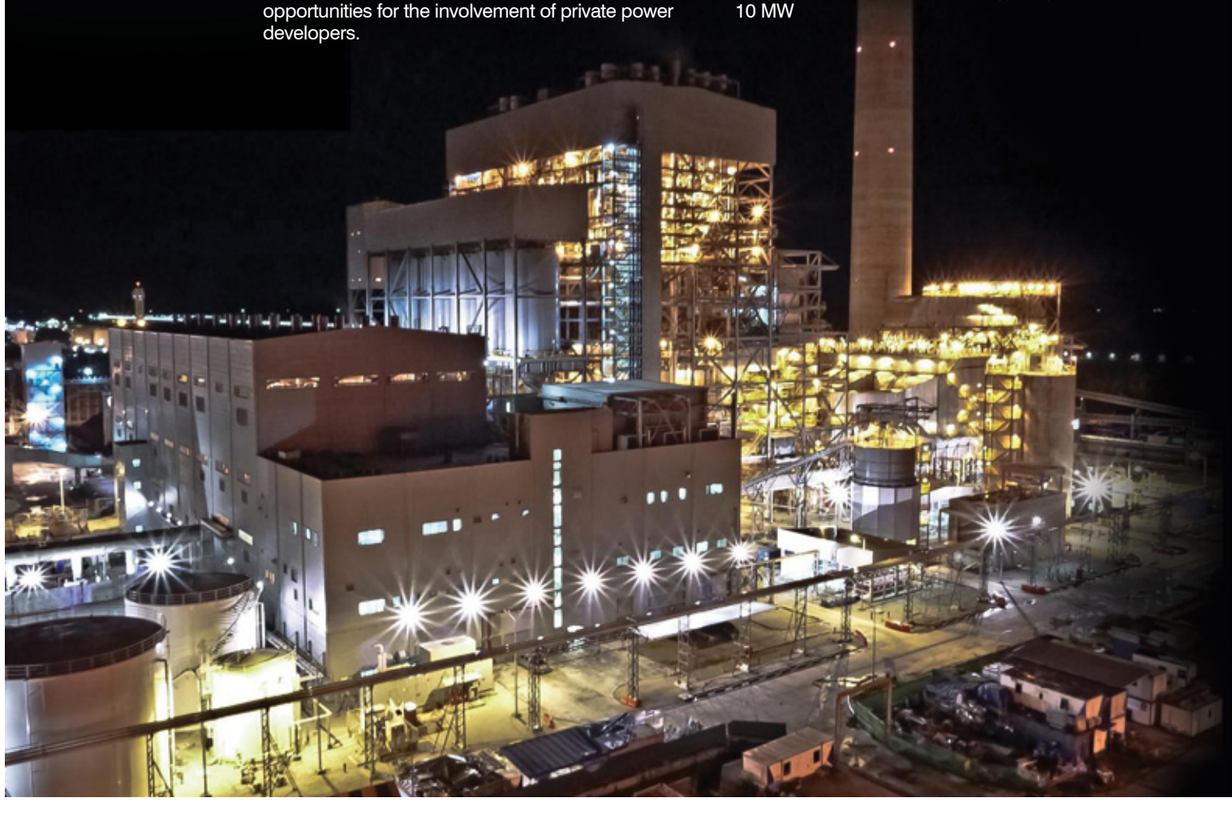
Additions to Thailand's generating capacity generally follow the requirements of the Thailand Power Development Plan (PDP) that is issued periodically by the Ministry of Energy.

The PDP usually reflects the forecasted power demand increase, which itself follows the expected rise in gross domestic product (expected to be around 4% per year) whilst considering government policy requirements. These requirements include a minimum reserve margin of around 15% of peak demand; a target of 25% of capacity to use renewable technology by 2030; fuel-diversification requirements to reduce dependence on gas; an energy-saving policy; and limits on foreign power purchase (currently set to 15% maximum).

Thailand's current installed generating capacity is just over 32,000 MW. There are plans to add a further 55,000 MW by 2030, providing significant opportunities for the involvement of private power developers.

Since the introduction in the early 1990s of regulations to facilitate private participation in power generation in Thailand, access to the market has been expanded. There are now three schemes under which private developers can obtain Power Purchase Agreements (PPAs) for power plants:

- the Independent Power Producer (IPP) programme for utility-scale plant built in response to solicitations issued by the relevant government agencies
- the Small Power Producer (SPP) programme for power plant selling up to 90 MW
- the Very Small Power Producer (VSPP) programme for renewable energy projects up to 10 MW



The key features of the three PPA types are:

IPP	SPP (firm)	SPP (non firm)	VSPP
Contracted in response to government solicitations for specified capacities and Commercial Operation Date	Unsolicited proposals with negotiated and guaranteed Commercial Operation Date	Unsolicited proposals with negotiated but not guaranteed Commercial Operation Date	
Availability guaranteed		Availability not guaranteed	
Minimum-take provision	Minimum-take commitment (EGAT*)	No minimum-take provisions	
20-25 year PPA		5-25 year PPA	PPA up to 10 years with option to renew
Capacity, energy and Variable Operation and Maintenance fees paid according to tendered pricing subject to meeting contracted operating characteristics	Fixed capacity and energy fees based on EGAT's avoided costs	Payment only for energy delivered	Do not require environmental impact assessment
PPA for capacity per tender, all output sold to EGAT*	PPA for up to 90 MW but excess capacity can be sold to industrial users	PPA for up to 90 MW with EGAT*	PPA with Provincial Electricity Authority or Metropolitan Electricity Authority
Applicable to coal, CCGT or other thermal plant per national energy policy	Applicable to CCGT cogeneration plant	Applicable to renewable energy projects	
Fuel cost is passed through with FSA minimum-take requirement reflected in PPA. IPP protected from Forex variations for portion of Capex that is not in Thai Baht	10% of primary energy input to be sold to industry as steam etc in order to qualify for fuel-saving (cogen) tariff	Only receive energy fees based on avoided cost with 'adder' (feed-in tariff) paid according to renewable energy technology used in order to promote renewable power development	

*EGAT – Electricity Generating Authority of Thailand

Thailand's private power programmes are considered by many industry observers to be a model implementation of private participation in what historically has been a government-monopolised market sector.

Private developers continue to show high levels of interest, encouraged by the use of standardised bankable Power Purchase Agreements and Gas Supply Agreements.

Another positive feature is the business environment in Thailand, ranked 18 out of 195 countries reviewed by the World Bank in a 2012 study of ease of doing business. Amongst other factors, the study considered enforceability of contracts, and this element is enhanced by the creditworthiness and payment record of the power purchaser – the Electricity Generating Authority of Thailand.

Power projects also attract Board of Investment privileges including tax and duty free import of equipment and post-COD tax 'holidays'.

GHECO-One IPP

Parsons Brinckerhoff is currently involved in all three private power schemes in Thailand. We have been appointed as the lender's technical adviser for a 9.8 MW waste-to-energy VSPP project in Bangkok; owner's engineer for the construction of the GHECO-One coal-fired supercritical IPP that achieved commercial operation in 2012; and lender's technical adviser for a 2 x 100 MW CCGT cogeneration plant SPP project in Ratchaburi.

There are plans to add a further 55,000 MW by 2030, providing significant opportunities for the involvement of private power developers

End of an era in St Lucia

Contact: **Neil Mant** (mantn@pbworld.com)

For over two decades, Parsons Brinckerhoff engineers have worked with their client, LUCELEC, to ensure reliable power generation for the inhabitants of St Lucia. The installation of the tenth diesel generator at Cul de Sac power station – commissioned and handed over at the end of 2012 – marks the conclusion of development at the site.

As the station had been designed to allow new generators to be added without having to close down the existing sets, the supply to the island remained uninterrupted

It was back in the mid-1980s that our engineers investigated potential sites for a power station on this beautiful Caribbean island. Work commenced on the recommended site in the Cul de Sac valley, south of the capital, Castries. By the end of the decade, a new diesel-fuelled power plant had been built and commissioned, providing 19 MW of additional power. This represented a major step forward for St Lucia, replacing aged, unreliable and inefficient power stations at other locations on the island.

It was around this time that tourism in the Caribbean began to take off, requiring expansion of the new power station to meet the increasing demand for power. The site had been selected to ensure sufficient room to accommodate future development of this nature, and Parsons Brinckerhoff was again contracted to carry out the work.

Our planning study identified a requirement for two new diesel generators to be installed, followed by a further two in quick succession. We produced conceptual designs and Wartsila of Finland supplied two 9.4 MW medium-speed diesel generators which were installed in a new, five-bay engine hall. The latter was constructed under a turnkey contract with Wartsila, along with a new control room suitable for operating the entire power station, offices, workshops, and an extension to the existing 66 kV switchyard.

Commissioning of the two new diesel sets was completed in 1998 but the demand for more power continued unabated. Before long, LUCELEC invited Parsons Brinckerhoff to oversee the installation and commissioning of another two 9.4 MW diesel generators, and this work was completed by the end of 2000. By this point, Cul de Sac was providing all of the electrical power for St Lucia, as the older power stations had all been retired. As the station had been designed to allow new generators to be added without having to close down the existing sets, the supply to the island remained uninterrupted. In 2003, the power

station received an award for consistently being the best-maintained Wartsila diesel power plant in the world.

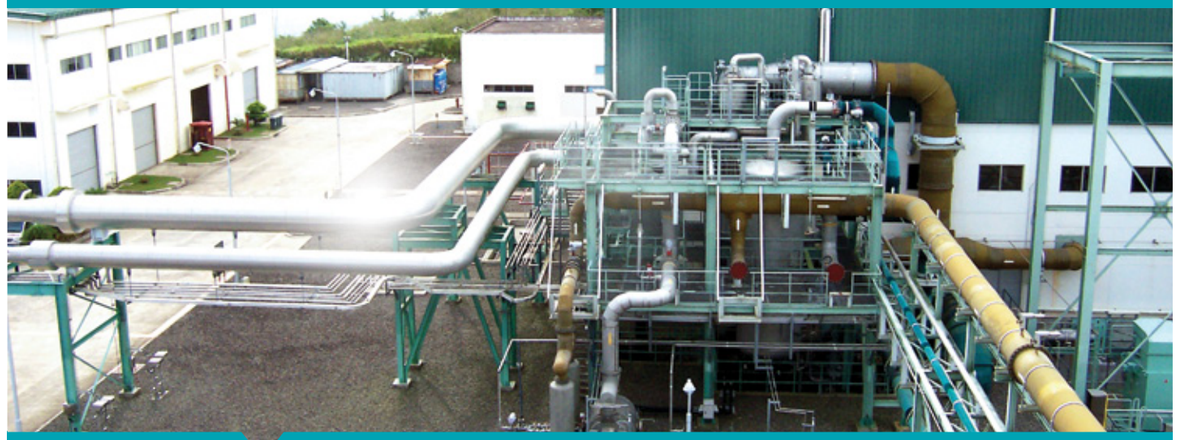
Demand for power continued to grow steadily – so much so that, even with seven large diesel generators producing 57 MW, further expansion became necessary. In 2003, we were engaged to produce new conceptual designs; as a result, Wartsila supplied two new 10.2 MW medium-speed diesel generators. These were installed in two phases in a two-bay extension to the existing engine hall. Fully operational by 2007, they brought the total output of the station to 77 MW.

By 2011, the global downturn was beginning to take effect, with a negative impact on load growth. The first two engines started to show their age and, being less fuel efficient than the newer Wartsila engines, were being operated intermittently for peak-lopping purposes. A further generation planning study by Parsons Brinckerhoff identified that one more diesel generator was required, and Wartsila supplied a final 10.2 MW medium-speed set, installed in a single-bay extension.

As the 21st century progresses, with the inevitable increase in population and personal energy use, it seems inevitable that LUCELEC will need to look elsewhere for a new site to provide the required capacity.

Full steam ahead

Contact: **Lindsay Robertson** (robertsonl@pbworld.com)



A unique project to relocate a geothermal power station to enable it to run at planned capacity will provide greater security of electricity supply for the residents of Negros Island in the Philippines.

In 2011 it was decided to relocate the plant from the northern end to the southern end of the island of Negros

Northern Negros geothermal power station, as built by the government-owned/controlled corporation Philippine National Oil Company-Energy Development Corporation (PNOC-EDC), was designed to produce 50 MW of power. Soon after acquiring the plant, the new private owner, Energy Development Corporation (EDC), realised that the steamfield could not supply adequate steam to reach full output. The station was then shut down, and extensive efforts were made to ensure that the equipment was preserved and maintained in good condition.

After some consideration and analysis, EDC decided to investigate an unusual solution: to dismantle, relocate and recommission the station on another suitable steamfield.

In 2010, a Parsons Brinckerhoff team from New Zealand carried out a feasibility study of possible new sites and evaluated six locations, while EDC carried out extensive evaluations of the steamfield capabilities. In 2011 it was decided to relocate the plant from the northern end to the southern end of the island of Negros, a distance of about 250 km. The new site – Nasulo – is part of the existing Palinpinon steamfield.

With the destination of the station confirmed, we then refined the feasibility study and EDC worked to confirm the transportation options and methods.

Both sites have difficult road access, with large loads needing to be transported by sea for much of their journey. The process of dismantling and transportation will also pose major technical and logistical challenges.

The chosen location has significant technical issues. The steam at the Nasulo site has different levels of non-condensable gas, which means that the gas extraction system will have to be redesigned. The site also requires slight changes to the relative elevations of the cooling tower basin and the direct contact condenser, again requiring design adjustments. It has been decided not to use the low-pressure (brine-flash) system at Nasulo, involving minor design changes and the reconfiguration of the control system. Other issues to be resolved include different interconnection requirements for power transmission, including integration with other EDC plants.

Parsons Brinckerhoff played a major part in developing the tendering specifications for the relocation activities, and has also been awarded the owner's representative and technical support work for the project. We look forward to working with EDC through to the successful recommissioning of the relocated station.

Sumitomo, the prime contractor, plans to complete the work in 2014.

Securing geothermal power for the future

Contact: **Roger Hudson** (hudsonr@pbworld.com)

In New Zealand, an expansion to one of the world's single biggest geothermal developments – delivering enough energy for 170,000 homes – is approaching completion.

Stringent noise level limits were applied and extensive mitigation measures were put in place to achieve a compliant design

The Contact Energy Te Mihi project has expanded the use of the Wairakei steamfield northwest of Taupo. In addition to a new power station, the steamfield systems have been re-engineered so that all separated geothermal water can be reinjected, and a newly built bioreactor removes hydrogen sulphide from the cooling water of the original Wairakei station before being returned to the river. Life-extension work has been carried out at the Wairakei geothermal power station, and additional production and reinjection wells have been drilled for the new Te Mihi power station.

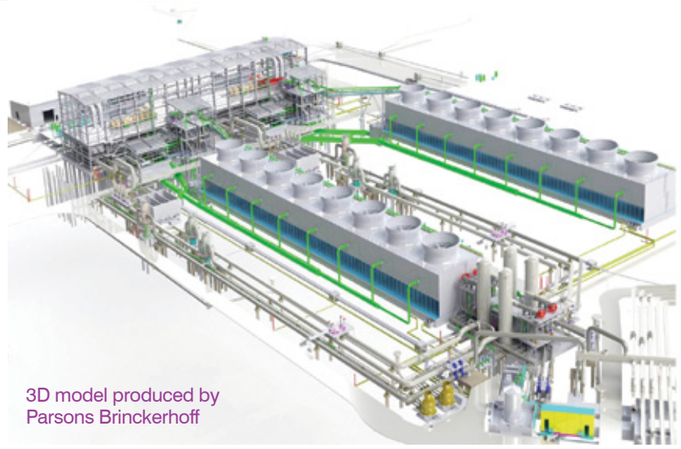
Fuelled by steam from the Wairakei steam field, the new 166 MW Te Mihi power station is a staged replacement of the existing 157 MW Wairakei A and B power stations, which were constructed and commissioned in the 1950s. Contact Energy, a leading generator of geothermal electricity in New Zealand and globally, awarded the EPC contract for the power station to MSP, a joint venture of McConnell Dowell Constructors, SNC-Lavalin Constructors, and Parsons Brinckerhoff.

Contact's Te Mihi power station has negotiated many twists and turns on its route to completion, starting with the rigorous consenting process. As the power station site was classed as rural, particular importance was attached to the effect of noise, visual impact and traffic management – during construction and operation. Stringent noise level limits were applied and extensive mitigation measures were put in place to achieve a compliant design. The site's visual impact was lessened by planting, restricting building heights, and keeping the main structures within a carefully selected colour palette.

The traditional consent application in New Zealand via a district or regional council can be a lengthy process. Given the project's significance for the New Zealand economy, Contact Energy wanted to expedite the process and so applied to the Minister for the Environment for the project to be 'called in'. This meant that the application would be considered by a Board of Inquiry selected by the Minister rather than a council. Following an expeditious Board of Inquiry process, consents were granted in 2008 – the first time that the call-in process of the Resource Management Act had been used on a major power project.

Once consented, the development phase of the Te Mihi project went through a number of evolutions. The global financial crisis led to a decision to defer the project by a year. During this hiatus, Contact Energy undertook some additional work to refine the scope prior to further competitive bidding. The final EPC procurement process restarted in 2010 and, in February 2011, an EPC contract was signed with the MSP Joint Venture – on the same day that the devastating Christchurch earthquake struck.

Despite the various challenges, a construction team mobilised to the site early in 2011. Work began by carving an access road and a flat construction platform out of rolling farm land ridden with faults and sink holes, and implementing erosion and sediment controls. Some 500,000m^3 of earthworks have been carried out, and the project incorporates 4,000 tonnes of structural steel and more than 12,000 metres of pipework. Over 2,500 staff have worked on site during the past two years, with numbers peaking at around 550. As a result of the well-managed handling of imported goods, the project received a letter of commendation from the NZ Ministry of Agriculture and Forestry for understanding, vigilance and awareness with regard to New Zealand's biosecurity.



3D model produced by Parsons Brinckerhoff

When Contact's Te Mihi power station is up and running, providing the people of New Zealand with a reliable source of lower-cost renewable energy, it will be possible to decommission the ageing Wairakei geothermal station when economically appropriate.

Pupil power in Kenya

Contact: **Nair Purushothaman** (nair.p@pbworld.com)

A major transmission project in the north of Kenya has brought additional benefits to the region beyond the provision of reliable grid power.

The irrigation scheme will replace the use of diesel generators, widely used in Kenya for farm irrigation

The Rabai-Malindi-Garsen-Lamu (RMGL) project is a $100m project to construct 328 km of 220 kV single-circuit transmission line to connect an extension of Rabai substation to three new substations at Malindi, Garsen and Lamu. It was commissioned by KETRACO, the Kenya Electricity Transmission Company, and is being undertaken by China CAMC Engineering Company Limited (CAMCE). Finance is provided by Exim Bank of China, and Parsons Brinckerhoff is providing engineering and project management services as owner's engineer. The RMGL project will be the main supply source for the planned Lamu port, which will mainly serve South Sudan and Ethiopia.

The new overhead line has undoubtedly changed the landscape of the Kenyan coast, with shining steel structures standing tall along the Mombasa-Lamu highway. But while the line has passed through villages with minimal environmental impact or need for resettlement, some trees have had to be cut down to allow the line to cross forested areas. To redress the balance, our client KETRACO provided coconut seedlings and irrigation kits to the Kenya Coconut Development Authority. A colourful ceremony took place when 9,000 seedlings were delivered to local farming groups in Mida – close to the RMGL project office – helping to boost the coconut industry and increase household incomes. The irrigation scheme provided by KETRACO will replace the use of diesel generators, widely used in Kenya for farm irrigation.

Elsewhere, the Ndeu primary school in Lamu has also directly benefited from the nearby project. As it will be used as the venue for the official inauguration ceremony, the project team thanked the school by arranging for it to be repaired and repainted, and receive new desks and chairs, sports equipment, books and stationery. The pupils were all outfitted in new uniforms and shoes.

In February 2013, RMGL project representatives from KETRACO, CAMCE and Parsons Brinckerhoff visited the Lamu substation site and then travelled in convoy to the school to meet the headmaster and the District Commissioner. The guests were given a warm welcome by the teachers and pupils, who marked the occasion with a special performance of song, dance and poetry. Many of the students had never had new uniforms and were clearly excited to receive their new clothes and equipment.

Parsons Brinckerhoff's Javid Khaliq (Transmission Director, pictured far right) described the sponsorship as "the best thing I've ever done", and was very moved by the children's beautifully expressed thanks. The team is now looking to form a longer-term relationship with the school, so it can support the pupils in years to come.

The guests were given a warm welcome by the teachers and pupils, who marked the occasion with a special performance of song, dance and poetry

Delivering power in remote Australia

Contact: **Dave Sherrington** (sherringtond@pbworld.com)

Mining in the remote Pilbara region of Australia has brought with it a number of challenges, including how to meet the significant increase in demand for power. Responsible for solving this problem is Horizon Power, a state government-owned corporation which provides power to residents and businesses via the North West Interconnected System (NWIS).

This was Parsons Brinckerhoff's first full EPC project in Australia and we were determined to make it a success for our client

Part of the solution is the development of a 20 MW power station in Karratha to meet the region's immediate power requirements. To maintain the reliability of power supply and meet the summer peaking demand, an ambitious target was set: start work in August 2012 and deliver 20 MW by early 2013.

Faced with this challenge, Horizon Power undertook a competitive tender process and subsequently awarded Parsons Brinckerhoff the EPC contract to deliver the balance-of-plant works. The scope covered the engineering, design and construction of the power station, plus the procurement of all items (except those procured by the client prior to contract award, including the gas turbine and step-up transformer).

This was Parsons Brinckerhoff's first full EPC project in Australia and we were determined to make it a success for our client. We appreciated the importance of the project and assembled an experienced team to complete various critical and time-consuming activities during the tender phase, enabling the project to be delivered on schedule. Valuable project delivery time was saved by producing the equipment specifications, issuing requests for quote documents, receiving fixed quotes, and completing the preliminary design prior to contract award.

We also focused on engineering innovative solutions to reduce the project cost and schedule. For example, the technical specification required a building to enclose the gas turbine generator, reducing noise emissions and providing cyclone protection. By taking the time to investigate other options, we were able to offer cost savings and reduce the schedule while still meeting the client's requirements. Our solution? A pre-cast concrete wall enclosure that could be erected quickly on site and removed should the power station be demobilised. Parsons Brinckerhoff worked with Horizon Power's project team to design an enclosure which would mitigate the noise emissions while being a fraction of the cost of a building.

The close collaboration between Horizon Power and Parsons Brinckerhoff was demonstrated elsewhere in the project. Project teams from both companies communicated daily and adopted a flexible, objective-orientated approach. Horizon Power's technical representatives ensured that all designs were reviewed without delay, enabling the project to proceed on schedule.

Thanks to the willingness to be flexible and the close working relationship between both parties, the Karratha generation project was delivered on a fast-track schedule and within budget.

Onwards and upwards

Contact: **JL Gray** (jlgray@subsurfacegroup.com)

Clients in the United States will benefit from the enhanced capabilities of our underground storage business as a result of the recent acquisition of the Subsurface Group.

Our collaborative business development efforts are well under way, and we are starting to become fully integrated on projects – all to the benefit of our clients

Parsons Brinckerhoff already has a strong track record in the design and construction of salt and hard rock caverns for the storage of hydrocarbons. With Subsurface's industry leadership in injection wells for hazardous and non-hazardous waste disposal, and depth of experience in reservoir evaluation for special applications, the combined businesses will provide a comprehensive global offering to clients.

Subsurface is a 37-person full-service engineering, procurement and construction (EPC) firm, providing services in underground injection, underground storage, speciality wells, petroleum and natural resources, and environmental science. Its headquarters are in Houston (Texas), with other offices in Baton Rouge (Louisiana) and South Bend (Indiana).

The recognised expertise that Subsurface brings to our business will create synergies for the oil and gas, energy, and industrial clients that we both currently serve, as well enabling us to target new markets and clients. Specific areas augmented by the acquisition include well and maintenance, geologic characterisation, reservoir engineering, and the operation and maintenance of well-related facilities. Given Parsons Brinckerhoff's bonding capacity and existing client relationships with municipalities around the country, the acquisition allows Subsurface to pursue municipal injection well projects. It also expands Parsons Brinckerhoff's reach into upstream markets such as refining and petrochemicals.

JL Gray, Business Development Director for Subsurface, sees a bright future. "Our collaborative business development efforts are well under way, and we are starting to become fully integrated on projects – all to the benefit of our clients. We look forward to working with colleagues throughout the business to bring innovative solutions to subsurface challenges, as we have done for over 30 years."

A strong alliance

Contact: **Martin Fessey** (fesseym@pbworld.com)

The nuclear new-build market is burgeoning in regions such as Eastern Europe, the Far East and South America.

The alliance will ensure that the highest levels of expertise are available for the efficient and safe development, delivery and operation of a new plant

In the Middle East, where the price of oil is rising while the resource is dwindling, governments have realised that it is more profitable to sell their oil and gas to the international market rather than use it to generate electricity. As a result, they are considering a move to nuclear generation and renewables as an alternative to burning fossil fuels.

To provide comprehensive technical support services to the utilities, regulators and government departments charged with implementing these programmes, Parsons Brinckerhoff has formed a powerful alliance with Nuvia Limited.

The alliance is launched at a time when the estimated spend on global nuclear new-build over the next 20 years is around US$940 billion with more than 30 new countries seeking to implement new-build programmes, in addition to the 30 countries with existing nuclear capability. With formidable experience across power generation markets and safety as its primary focus, the Parsons Brinckerhoff/Nuvia partnership will respond to the requirements of clients and stakeholders in nuclear new-build programmes to meet regulatory, technical, safety and quality controls.

Individually, Parsons Brinckerhoff and Nuvia provide extensive services to the global nuclear and energy industries. Our combined strengths create a powerful new force with market-leading experience of all third-generation reactor technologies and all aspects of developing generation facilities from initial regulatory and concept development through to delivery, operation and decommissioning.

Parsons Brinckerhoff has in-depth knowledge and experience in providing world-class power technical advisory services to governments, financial institutions and stakeholders globally. Nuvia's expertise encompasses the complete life-cycle of a nuclear power plant, providing engineering expertise which is technology independent and can cover a range of reactor technologies.

In today's nuclear sector, organisations developing new-build programmes require access to the best technical expertise across a multitude of essential and safety-critical areas. The Parsons Brinckerhoff/Nuvia alliance will ensure that the highest levels of expertise are available for the efficient and safe development, delivery and operation of a new plant.

A royal honour

Contact: **Jeff Larkin** (larkinj@pbworld.com)

"They'll usually have made life better for other people or be outstanding at what they do."

Thus reads part of the qualifying criteria for an individual to be considered for a UK Honour, awarded on merit, for exceptional achievement or service.

The statement applies perfectly to Jeff Larkin, who was awarded an OBE (Officer of the Order of the British Empire) in the New Years Honours 2013 for his work in helping to reconstruct the electricity sector in Iraq.

During his seven years of continuous deployment from May 2004, Jeff very quickly became the focal point for all of Parsons Brinckerhoff's reconstruction activities in Iraq. Initially as project delivery team director and latterly as country manager, he delivered a series of extensive and challenging power projects across the country in collaboration with the US Military, the US Department of State, the Government of Iraq, and the Kurdistan Regional Government.

Over the period of his deployment – and largely as a direct result of his work – the electricity system in Iraq was transformed from total non-functionality to a fragile but stable system providing the majority of the population with increasingly reliable power. Jeff's final role was the preparation and delivery of a 25-year masterplan for the long-term reconstruction of the country's power systems.

It was David Rutherford, Global Head of Power for Parsons Brinckerhoff, who felt that Jeff's efforts deserved wider recognition and nominated him to receive an honour. He said: "I am delighted that Jeff has received this award for the selfless work he undertook during an exceptionally long and continuous deployment on behalf of Parsons Brinckerhoff in post-war Iraq. He was driven by a total commitment to make things better for the people of Iraq and a vision, determination and willingness to work with others to achieve it.

"His lasting legacy is to the Iraqi people through their access to electricity and an improved power infrastructure, and to the enhanced reputation of UK engineering that he has left in the region."

Jeff attended an Investiture at Buckingham Palace in London on 17 June, officiated by The Prince of Wales.

Belgrade bound

Contact: **Goran Vukojevic** (vukojevicg@pbworld.com)

Serbia is recognised for the expertise, talent and experience of its engineers, and Parsons Brinckerhoff intends to take advantage of this skilled resource by opening a new office in the capital, Belgrade.

By employing English-speaking professional engineering staff who are locally based but globally mobile, Parsons Brinckerhoff will develop a centre of engineering consultancy expertise to support its power and rail work worldwide.

General manager in Belgrade is Goran Vukojevic, a principal power systems engineer. He explained that in addition to achieving strategic growth in the country, the company was also seeking to develop the next generation of professional engineers.

"To help achieve this, we will work with local universities, provide scholarships, offer work practice and cooperate on specific research projects," he explained. "We look forward to building strong links with other companies, institutions and professional bodies operating in the same sectors as us."

The official launch of the office was held on 4 June at the residence of Michael Davenport, the British Ambassador to Serbia, attended by guests from local power and rail companies, professional bodies, and further education.

Parsons Brinckerhoff
Kneginje Ljubice 6/60
11000 Belgrade
Serbia

Tel: 381-63-470660

(l-r) Sean McGoldrick, Darren Reed and Goran Vukojevic from Parsons Brinckerhoff with the British Ambassador to Serbia, Michael Davenport

For additional copies of this newsletter please contact the editor:

Maria Laffey
laffeym@pbworld.com
tel: 44-191-226-2000
Amber Court, William Armstrong Drive
Newcastle upon Tyne, NE4 7YQ, UK
www.pbworld.com

For further information about Parsons Brinckerhoff's power capabilities, please contact your nearest representative.

Africa
Ian Maclean
macleani@pbworld.com
tel: 27-11-787-4141

Americas
Roger Blair
blair@pbworld.com
tel: 1-281-589-5826

Asia, Australia, NZ
Paul Turney
turney.paul@pbworld.com
tel: 65-9657-8025

Europe
David Rutherford
rutherfordd@pbworld.com
tel: 44-191-226-2000

Middle East
Jeff Larkin
larkinj@pbworld.com
tel: 9712-652-9243

Parsons Brinckerhoff is an international engineering and programme management firm offering a multi-disciplinary consultancy service in power, transportation, community development, water and the environment. Established in 1885, with its headquarters in New York, Parsons Brinckerhoff employs approximately 14,000 staff in 150 offices worldwide.

PARSONS BRINCKERHOFF