The burden of high energy costs and concerns about reliability of electricity supply are typically the priority issues we hear asset owners want addressed as part of their operational planning. With long-term renewable energy policy trapped in a cycle of perpetual uncertainty it is no surprise that asset owners, particularly in the local government sector, are increasingly demanding solutions that allow them to take control of their overall energy consumption and expenditure.

In response to the needs of local councils, Peak Services works directly with local governments, state government departments and electricity generators providing asset-specific review of energy issues and solutions. This work is underpinned by taking a holistic approach to energy sustainability designed to optimise outcomes. The three key focus areas largely involve reviewing operational efficiency, embedded generation and competitive retail pricing.

Improving overall operational efficiency can deliver immediate and significant energy savings, often without significant investment in new plant and equipment. This is initiated by conducting a detailed energy audit on selected assets to identify opportunities to save on electricity costs through reduced energy consumption, improved demand management and reduced reactive power (kVA). This approach combines forensic analysis of meter interval data with detailed assessments of building design and plant efficiencies (including asset benchmarking) to identify a range of solutions from lighting upgrades, modifications to HVAC operating parameters, installation of motion sensors, effective building management systems, power factor correction and variable speed drive pumps and motors.

Depending on the individual asset’s operation and power consumption, Peak found some assets could save up to $10,000 per annum by optimising HVAC operating parameters and up to $8,000 per annum through installation or optimisation of an effective building management system.

Embedded renewable energy generation has been identified as an option to offset future energy consumption needs. Unfortunately, there are many instances where asset owners have committed to a vendor-driven renewable energy solution, most commonly rooftop solar PV, only to find that the sizing has not been tailored to match the energy consumption profile. Further to this, upgrades to
switchboards, cabling, meters or roof structures have not factored into the investment equation. This can lead to unexpected expenditures and/or delays in the delivery of the project which could change the overall financial return of the project. By conducting a comprehensive assessment of embedded energy generation options that is technology agnostic, we can then focus on delivering the maximum operational benefit and optimum return on investment over the full life cycle of the asset.

To highlight this, as an example Peak worked with a Queensland council to assess the feasibility of solar installation (including electrical and structural assessments) at 21 of its highest electricity consumption sites. Peak identified site specific structural and electrical upgrade requirements prior to a solar installation and specified a renewable energy solution for each site that would provide a combined total savings of approximately $16 million over 20 years.

Every asset owner should ensure their retail and underlying network arrangements have the correct tariff applied based on consumption, demand and asset size classification. Power pricing can, however, be complex with a myriad of factors influencing pricing, such as kW and kVA demand, peak/off-peak/shoulder kWh consumption profiles, mandatory environmental charges, distribution & transmission loss factors, network charges, metering and account consolidation to name a few. When you also consider consumption patterns for individual assets often change over time, it is unsurprising then that many asset owners are unnecessarily paying too much for electricity under an ‘incorrect’ tariff structure. In addition to the changing consumption patterns for the individual assets there are also annual changes (substantial in some cases) in the network charges which impact markedly on the cost outcome of the various tariffs.

This can be addressed by analysing all factors that influence electricity pricing to ensure retail and underlining network arrangements are aligned with the optimum available electricity tariff structures (retail and network) to provide the lowest cost of electricity. We have seen savings of more than $200,000 per annum realised on a single asset alone through changes to retail tariff structures! That is a significant saving when you consider that no capital investment is required. Through this targeted approach the sector has saved well in excess of $5.5 million through tariff analyses and understanding the complexities of navigating the contestable energy market for large sites. In addition, we have assisted several Councils to substantially abate their total greenhouse gas emissions cost effectively through landfill gas extraction and flaring operations since 2010 and then extending the flaring at those facilities to base load electricity generation of up to 5MW since 2015.

Overall the Australian Energy Industry is undergoing more transformational change than when Thomas Edison first invented the light bulb, so it is vital that your organisation has a trusted partner to navigate the power industry maze in these rapidly changing times. Peak Services is well placed to assist Queensland councils and other organisations to realise any potential savings and take grasp of the opportunities that are available. Contact the energy team (Mike Fideli or Michael Fullelove) at Peak Services for further information via email hello@wearepeak.com.au.