Water and energy efficiency

Life in the Territory is influenced by our environment. We live amidst expansive deserts in the south and wet / dry tropics in the north, with every climatic condition they bring. Seasonal extremes vary from very hot to very cold and very wet to dry. This can lead to increased use of electricity for heating and cooling, high water use for plants and gardens, keeping clean and staying cool.

Delivery of services

Delivering power and water safely and efficiently to remote homes in this environment is challenging. We live with the potential for fire, annual flooding, storms and cyclones, termites and ants disrupting supplies.

Power and Water services small populations across vast distances, meaning there are numerous small local power generation and groundwater pumps systems. Durable and reliable infrastructure is required to withstand the elements with less need for maintenance.

These factors make it costly to deliver services in remote areas of the Territory.

Supply cost influences

The majority of electricity in remote communities is supplied through diesel fuelled power stations, complemented by five renewable energy power generation plants in remote communities, with a further three in construction.

Diesel power is highly reliable and robust, however disadvantages include dependency on fossil fuels with predicted price rises and the environmental impacts of carbon emissions. Increasing renewable energy generation and high efficiency power generation is essential to address the rising cost to produce energy.

Growing demand

Demand for water and power is growing as population grows and improved standards of living are achieved. The tariff consumers pay for energy is much lower than the actual cost of production. Currently the cost to supply essential services is subsidised by government.

The growth in demand results in a growing 'gap' between the costs of delivery and revenue received, and also requires further upgrades of the system and assets.

The cost to produce water and energy is much higher in remote locations.

Customer cost

Utilising these essential services in homes and businesses comes at a financial cost to the end user. All customers across the Territory pay a uniform tariff for power, water and sewerage services whether they live and work in the bush or towns.

Using power and water efficiently means less consumption and therefore reduced costs to consumers. Simple changes in water and energy use behaviour or upgrades to water and energy efficient appliances at work and at home will help to manage and reduce money spent on essential electricity and water.

Limited water resources

Of the 72 communities serviced, 95 per cent rely on groundwater, which is limited.

Despite monsoonal rainfall in the north and large underground aquifers in the south, much of the water is not available or suitable for human use because quality and/or quantity is variable or cost prohibitive to access.

One third of these communities are considered 'water-stressed' due to three main factors:

- Demand growth is greater than available water sources
- Limited availability of alternative water sources
- Current water use is too high - posing a threat to water sources in the future.

Water and energy efficiency

The cost to produce water and energy is much higher in remote locations.

Power and Water's Kylie Climie discussing water efficiency with Minyerri residents.

WHAT IS WATER AND ENERGY EFFICIENCY AND HOW DO WE IMPLEMENT IT?

Working together

To manage the cost and achieve the benefits, we all need to work together. Successful demand management requires:

- Leadership from all levels of government and private sector in efficiency measures
- Strong financial and educational signals to customers and shared commitment
- Cooperation across agencies and local organisations in improving efficiencies
- Engagement with customers (community residents, commercial and governments)
- Ability to fund cost-effective appliances and measures

What should be done?

Realising the potential for efficiency will require a range of measures, which can be summarised in to:

- Technical measures including efficient fixtures, fittings and appliances and fixing leaks
- Education of consumers about the benefits of reducing excessive discretionary use of water and energy
- Clear and direct incentives defined and implemented to encourage government and households to adopt water and energy efficiency appliances and to use water and energy wisely

This requires Power and Water to work with governments and the communities to improve awareness and promote behaviour change. We will provide leadership by initiating and managing various programs aimed to improve resource efficiencies.

The journey

Water and energy efficiency in remote areas began with Power and Water improving efficiency in power generation with the introduction of smart technology and use of renewable energy.

Power and Water has been working with a number of 'water-stressed' communities expanding education and awareness about why and how to save water. This has involved direct marketing and promotion to government staff, community organisations and the general public. Energy awareness materials are being developed and will be promoted widely across remote areas from early 2013.

Strengthening our approach

Over recent years, Power and Water has been developing its approach to improve efficiency in remote communities, which includes:

- Place-based programs addressing the highest risks which target communities that have highest growth or are water-stressed locations or have the higher cost to supply services
- Continuous improvement programs including water leak detection and supply upgrade programs
- Integration of 'low emission' energy sources through solar, gas and wind expansion; where it is cost effective
- Expansion and refinement of water resource monitoring programs
- Improved efficiency of diesel generation
- Working with communities to design education programs that are suitable and encourage change in the most effective manner
- Continuing to extend collaborative and persuasive efficiency programs

- Raising awareness and education through general marketing and media or targeted programs for remote government employees

Community effectiveness programs include:

- Smart metering, retrofits and community-wide behaviour change programs in Gunbalanya and Milingimbi;
- Water education programs in Galiwin'ku, Ali Curung, Kintore, Beswick, Minyerri and Nauiyu Nambiyu
- A trial of efficient fixtures and fittings retrofitted to existing public housing stock in Gunbalanya
- Commercial efficiency audits for the five major commercial/government facilities in six community locations in 2012-13

Moving ahead

Power and Water aims to increase awareness and achieve efficiency gains across remote communities through:

- Expansion of staff awareness and outreach to remotely-based government staff
- Expansion of 'social marketing' approaches promoting water and energy efficient behaviour across media in remote areas
- Plan for rolling out of water meters to all lots across the 72 communities;
- Continued implementation of improvements to systems including water supply efficiency, leak detection and diesel displacement by more efficient and cost-effective energy sources
- Seeking opportunities to improve market access for efficient consumer goods in remote areas of NT
- Prepare energy and water efficiency information and educational material for all customers
- Seek collaboration opportunities with Commonwealth agencies under linked programs for climate change, water management and energy efficiency to expand the program across the largest and prioritised communities

Efficiency can only be achieved sustainably by working with key stakeholders from businesses, governments and communities. Everyone plays a key role in securing water and energy supplies in a changing climate. Help manage household costs and improve the sustainability of the Territory lifestyle.

Information to assist with promotion and education about environmental sustainability is available from our website:

http://www.powerwater.com.au/sustainability_and_environment/remote_sustainability_initiatives/water_resource_management/use_less_water_campaign

USEFUL TERMS

Water efficiency is achieving maximum the benefit from water used. This means achieving the same benefit from water (e.g. watering, cooling, cleaning) with less.

Water conservation refers to preventing wasteful or excessive use of water resources.

Water demand management includes water efficiency measures such as regulations, price changes and infrastructure improvements intended to reduce demand on potable water supplies.

Energy efficiency is achieving the maximum benefit from energy used. Similar to water efficiency, this means getting the same benefit from energy use (e.g. air-conditioning, cooking, refrigeration) while using less electricity.

Energy demand management is the modification of consumer demand for energy through various methods. Usually the goal of demand side management is to encourage the consumer to use less energy during peak hours, which is the time when most energy is being used. Supplying this peak demand requires costly infrastructure investment.