



POWERQ:

a 30-year strategy for Queensland's electricity sector

QUEENSLAND'S VISION

We will have an electricity supply system that is resilient, cost-effective and consumer-focused to support the economic and lifestyle aspirations of all Queenslanders.

Participant Story

NICK, 25

Nick is an electrical engineer for one of Queensland's electricity providers. He thinks big benefits will come from the changes ahead for his sector.

FOREWORD

The Queensland Plan sets out a shared vision for our state: a place that is vibrant and prosperous with the right catalysts to drive our economy, regions and communities. *PowerQ: a 30-year strategy for Queensland's electricity sector* will help to achieve this vision by establishing a resilient, cost-effective and consumer-focused electricity supply.

While Queensland was well served by electricity supply infrastructure built by previous generations, in 2004 it was so run-down our state experienced an electricity supply crisis. The decade of unsustainable electricity price increases that has followed—linked to past planning failures, reckless spending and political intervention in the energy market—reflect today's increasingly higher cost of supply, including very big debts that need to be paid and unnecessarily high operating costs. Indeed, Queensland's recent experience shows that a failure to properly plan for, manage and invest in our future electricity supply will result in unacceptable quality-of-life stress and reduced affordability for future residents and businesses.

Given the critical role power plays in growing a four-pillar economy of tourism, agriculture, resources and construction, we simply cannot afford to repeat past policy, planning and investment failures in the design of Queensland's future electricity sector. Consumers, the market and government all have important roles to play in putting downward pressure on future electricity prices.

Because the government cannot do it alone, *PowerQ* establishes a clear vision for Queensland's electricity sector and influences its future direction through a series of goals and actions. Developed in consultation with Queenslanders and other industry experts, this long-term plan proposes a high-level, long-term framework that defines the role of consumers, market and government, and is responsive to the changes that lie ahead.

PowerQ is one of several sector-specific strategies that will help deliver the government's vision for Queensland, including:

- Queensland's agriculture strategy
- *DestinationQ*, a 20-year plan for tourism
- *ResourcesQ*, a 30-year plan for the resources sector
- *Governing for growth economic strategy*
- *WaterQ*, a 30-year strategy for Queensland's water sector
- *Science and innovation action plan*.

Together, these strategies will ensure our future actions align with the priorities and values identified by Queenslanders.

30-YEAR ELECTRICITY STRATEGY AT A GLANCE

Why do we need an electricity strategy?

Queensland's electricity system is under pressure. Prices are rising and asset use is shrinking.

Change is already under way. New technology means there are more ways to make and move electricity more efficiently. This, in turn, creates demand for different business models with more services and suppliers. By creating a *30-year electricity strategy*, we have a clear direction and pathway to ensure all changes are positive and support Queensland's economy and way of life.

Consumers, the market and government all have important roles to play in placing downward pressure on electricity prices. Government can't do it alone.

OUR GOALS

Consumers

Improve consumer value

Strategies

1. Ensure the Queensland electricity market is cost-competitive nationally.
2. Champion informed decision-making so consumer behaviour creates a responsive electricity market.

Market

Improve market efficiency

Strategies

3. Encourage a competitive and diverse market that attracts more innovation and investment.
4. Maximise opportunities from Queensland's natural resources to create cost-effective, sustainable electricity.
5. Use open data to drive market development, competition and innovation.

Government

Improve governance effectiveness

Strategies

6. Provide policy certainty to encourage strong competition and benefit consumers.
7. Position Queensland as a leader in innovative, customer-driven reform.
8. Enable equitable access to electricity.

We will deliver these strategies through a range of short, medium and long-term actions.

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EVERYDAY QUEENSLANDERS

Every Queenslanders uses electricity. Throughout this report you'll meet just some of them. Some work in the field of electricity and all have lives that will be impacted by the changed future this strategy pursues. Enjoy their stories.

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INTRODUCTION

Change has always driven the electricity sector. Population and policy changes are just two of the many factors that have influenced the sector in the past 30 years.

However, the pace of change now facing the sector is unprecedented. We know the electricity sector is on the cusp of significant change as the way Queenslanders make, move, sell and use electricity shifts. Our state's future prosperity relies heavily on the traditionally slow-moving electricity sector being able to rapidly transform and respond.

The early effects of these changes have already been felt in Queensland. Increased environmental costs, falling demand and growing infrastructure costs contributed to price hikes over the past decade, with the average household electricity bill more than doubling during that time. In 2013, to stabilise the market, the Queensland Government introduced a significant number of urgent short-term electricity reforms to:

- Stop building unnecessary infrastructure and improve the efficiency of network businesses.
- Maximise the benefits of competition while protecting consumers.
- Develop a more effective role for government.

PowerQ uses these important reforms as its foundation for the future.

Queensland presents unique opportunities and challenges. We have the advantage of rich natural resources but distinct challenges because our small population is spread over vast distances. Retail competition is continuing to develop in the south-east corner of the state but is limited in regional areas.

Recognising Queensland's unique situation, we talked to consumers, community members and a wide range of industry stakeholders about the challenges we face and the changes they'd like to see happen. Through extensive community consultation around our directions and discussion papers, the goals and actions in this strategy became clear.

By leading and guiding the electricity sector through the changes that are ahead, this strategy will ensure decisions and actions are proactive, timely and focused squarely on consumer needs. Using the short-term reforms as its foundation, this strategy looks forward to a future when consumer value, an efficient market and effective government are hallmarks of our electricity supply system.

Participant Story

JIM, 67

Jim's a pensioner on a fixed income and sometimes finds it hard to make ends meet. He wants to be sure he'll continue to have support in meeting his costs and accessing essential electricity services as the market changes.

UNIQUELY QUEENSLAND

There is no place like Queensland

Queensland has unique opportunities, resources and challenges. This strategy has been purpose-built to reflect these.

HOW OUR ELECTRICITY SYSTEM WORKS

	Make	Move	Sell	Use	A CHANGING SUPPLY CHAIN Queensland is fortunate to have secure and reliable electricity infrastructure. A nationally interconnected wholesale market, which trades electricity across multiple geographic zones, provides additional flexibility and security. Until recently, Queensland has used a traditional, linear electricity system. Historically, it has served us well. However, it cannot adapt to the changes that lie ahead. For example, technological and economic shifts in the future could decentralise decision-making and allow consumers to become electricity generators, sellers, storers and users. New types of service providers such as demand aggregators and micro-grids will enter the market as a result.
	Large power plants and small generators such as rooftop solar panels generate electricity.	High voltage transmission power lines move electricity long distances from power stations to local distribution areas. Low voltage power lines (poles and wires) then move electricity to the end user.	Retailers buy electricity from the wholesale market and sell it to consumers. Retailers package electricity services and products to meet consumers' needs.	Electricity consumers range in size from residential and small businesses to large industrial consumers such as the mining industry.	
	The majority of Queensland consumers are supplied through the National Electricity Market (NEM), a physically and financially interconnected market that covers all states and territories other than Western Australia and the Northern Territory.				
How are prices set?	Prices are set by bidding supply into the NEM, and by future supply contracts based on that market.	Transmission and distribution businesses operate as geographic monopolies. The national regulator, the Australian Energy Regulator, sets prices.	Prices are set through a combination of regulated prices by the Queensland Competition Authority, and agreed prices offered by retailers under market contracts.		
Who owns what?	The Queensland Government owns or controls 65 per cent of Queensland's NEM-connected generation (CS Energy and Stanwell Corporation). The remainder is privately owned.	The Queensland Government owns most of Queensland's transmission and distribution network (Powerlink Queensland, Energex and Ergon Energy). However, a small area around Goondiwindi is served by Essential Energy (NSW) and there is private investment in the Northern NSW network (Directlink) that supports electricity flow both to and from Queensland.	A number of privately owned retailers compete for consumers in South East Queensland. Publicly owned Ergon Energy provides retail services in regional Queensland.		
What's the government's role?	The Queensland Government licenses generators and, with the other state and federal governments, maintains the legal framework for the NEM. Together, these governments also oversee the market operation and regulatory and rule-making institutions: the Australian Energy Market Operator, Australian Energy Regulator and Australian Energy Market Commission.	The Queensland Government licenses network businesses and sets their service standards. With other state and federal governments, it also maintains the legal framework for the NEM and has a role in overseeing market operation, and regulatory and rule-making institutions.	The Queensland Government currently licenses retailers and regulates retail prices for residential and some business consumers. The government regulates retail service standards to ensure consumer protections.	The Queensland Government assists vulnerable electricity consumers and those experiencing hardship. It also subsidises consumers in the regions so they pay an equivalent price to South East Queensland.	

DIVERSITY SUPPORTS RESILIENCE

Fuel diversity is an important part of creating resilient electricity systems. Queensland could improve the way it uses its natural resources to develop greater diversity, according to the University of Queensland's Global Change Institute.

Local energy resources in the state include coal, gas, solar and wind. In the long term, this diversity provides an opportunity for market-based investments to build Queensland's electricity system resilience, contribute to the National Electricity Market and provide the state with a genuine competitive advantage.

QUEENSLAND'S WEALTH RELIES ON ELECTRICITY

Queensland is Australia's third largest economy after New South Wales and Victoria but uses more electricity than these states to produce its wealth and lifestyle.

Electricity-intensive industries such as mining, agriculture and manufacturing are expected to remain important parts of Queensland's economy for decades to come. These industries must have access to competitively priced electricity to develop and grow the state's economy.

Participant Story

KRISTEN, 33

Kristen has been worried about the cost of electricity for a few years now. She plans on enjoying retirement by 2044 and hopes this strategy will ensure more affordable power, leaving more money for her retirement—especially travel.

Participant Story

LINDA, 53

Linda's looking for a better deal on electricity but doesn't know where to start with suppliers. It's important to her to have easy comparison tools she can trust so she can see all the different products and choose the best one for her.

"Queensland should embrace the opportunities and economic benefits of renewable energy in rural and off-grid locations." *Clean Energy Council*

"Coal will remain an important part of the generation mix." *Rio Tinto*

UNIQUE OPPORTUNITIES

Queensland has an abundance of natural resources presently used to generate electricity in Australia and abroad, including black coal and gas. It also has solar resources and some potential geothermal, wind and uranium resources. By leveraging off these, Queensland's electricity sector can position itself to take advantage of, and better meet, changing global and local energy needs.

COAL

- Black coal provided three-quarters of Queensland's electricity needs in 2012.
- Black coal produces cheap, reliable base load supply but emits higher levels of greenhouse gases.
- Queensland has 62 per cent of Australia's black coal reserves, the largest of any state.

GAS

- Gas provided about 20 per cent of our state's electricity needs in 2012.
- Gas-fired generators can quickly increase and decrease output, making them very responsive to fluctuations in demand.
- Queensland has 95 per cent of the east coast's coal seam gas reserves and a liquefied natural gas (LNG) industry preparing to export. Gas prices will rise and fall in line with international markets.

SUN

- More than 322,000 Queenslanders have small-scale rooftop solar systems, equalling about 30 per cent of Australia's solar capacity. These have a generating capacity of more than 1GW of solar electricity, equal to a large power station.
- Rooftop solar systems in South East Queensland export enough energy to meet 11 per cent of daily residential needs, but historical subsidy arrangements have contributed to cost pressures.
- Queensland's abundant resources and existing base of users position the state well for future solar growth in both small and large-scale systems.

GEOTHERMAL

- Despite their remote location, Queensland has highly prospective geothermal resources which may provide good sources of energy in the future.

WIND

- While Queensland's wind energy resources are not as large as those in other states, there is good potential in some areas.

URANIUM

- The Queensland Government has ended the prohibition on uranium mining, enabling more jobs through the opportunity to mine and export uranium to countries that use nuclear power.
- While the local use of nuclear energy is still prohibited, understanding its potential and developing our resources will give us long-term flexibility in meeting global energy needs.

UNIQUE SIZE

INFRASTRUCTURE AND POPULATION SPREAD

There are 4.6 million Queenslanders, and our numbers are growing fast. Between 2010 and 2013, Queensland's population grew by almost 100,000, making it the second-fastest growing state behind Western Australia.

The population is small compared to its land size. In June 2010, Queensland's population density was 2.6 people per square kilometre, with less than one person per square kilometre in 92 per cent of the state.

Queensland's low-density population spread over large distances means its electricity sector requires a vast network of power lines and poles to transport electricity to its consumers. It is expensive to service the most remote areas of our state through the traditional grid approach of poles and wires. Independent regional grids serve the Mt Isa region, while 34 small communities in remote areas have isolated generators and localised distribution networks.

The state's extensive transmission and distribution network is valued at more than \$29.2 billion, or 35 per cent of the network value in the National Electricity Market. This valuable infrastructure is severely underused.

Critical peak demand occurs only a few times a year, usually when the weather is extremely hot. Extra infrastructure costing millions of dollars must be built to cater for these peak demand times. Unfortunately, this infrastructure remains unused for the rest of the year. Energex estimates 16 per cent of its network has been built to service a demand that only occurs for the equivalent of three days a year.

Queensland has significant opportunities to reduce its infrastructure costs without losing service quality. These include balancing out use of the system by shifting the load away from peak times and introducing innovations in embedded generation for remote and isolated communities.

"Any competition in the industry in Far North Queensland can only be to the customer's advantage." *Regional resident*

The power lines that make up the state's electricity network are more than 205,000km long—enough to wrap around the earth five times.

WHAT YOU TOLD US... ABOUT ELECTRICITY INFRASTRUCTURE

The cost of maintaining the distribution networks (poles and wires) was identified as a contributor to rising electricity prices. Stakeholders also told us that greater responsiveness was needed from these networks to enable timely and competitive investment, particularly in major projects.

Stakeholders also raised concerns about who bears the risk of over-investment in network infrastructure, including the impact on consumers' bills.

Finally, the monopoly business model— which protects network business owners from the risk that assets built now won't be needed in the future—may need to change. This will reflect the competition that these businesses now face. New technologies are emerging that will have the potential to challenge monopolies in the future.

WHAT YOU TOLD US... ABOUT REGIONALISATION

Stakeholder interest in regional issues was high, including the importance of electricity for regional economic development and the challenges and opportunities in providing electricity to these communities. Many highlighted the potential for new technologies and models to help meet regional consumers' needs over time without high capital expenditure.

Participant Story

KAMALAYAN, 58

Kamalayan remembers many times over the past 30 years when electricity supply was uncertain, particularly the blackouts and brownouts of 2004. He's counting on this strategy to ensure that, regardless of Queensland's growth, we'll never have to experience those times again.

UNIQUE STATE, SIMILAR PRESSURES

The Queensland system is under pressure from many competing issues. While many of these can be found in other states, combined they create a set of circumstances unique to Queensland.

PRICE SHOCKS

Prices have more than doubled for the average consumer in the past decade. Two factors were major contributors.

First, in response to significant supply failures in 2004, very large investments in network infrastructure have delivered more reliable electricity during infrequent periods of high peak demand. This has caused network costs to more than double since 2007–2008. However, demand growth has slowed, and the gap between peak and average demand means this infrastructure has excess capacity.

The second factor influencing price rises is the number and cost of environmental schemes. Scheme costs have risen 1200 per cent since 2007–2008. These include the Renewable Energy Target, the carbon tax, and subsidies paid under the Solar Bonus Scheme. All of these have contributed to higher electricity prices.

WHAT YOU TOLD US... ABOUT ELECTRICITY PRICES

Price rises are a concern for all consumers: residential, commercial and industrial alike. Whether the cost of electricity affected the household budget or the profitability of a business, consumers wanted the 30-year strategy to look into ways to make electricity affordable and prices more stable.

"We cannot afford higher prices." *South East Queensland resident*

Participant Story

MOLLIE, 7

Mollie's pretty sensible for a girl her age. She loves to do her bit and is great at turning lights off when she leaves her room. At age 37, she'll be managing a whole house but will probably have devices that turn the lights out for her.

CONSUMERS ARE STRUGGLING

Queensland has a high rate of residential consumer disconnection as a result of unpaid bills. The number of participants in electricity retailer hardship programs in Queensland has increased by more than 33 per cent from September 2010 to June 2013.

The rising cost of electricity also places additional strain on commercial and industrial consumers. This limits their opportunity to expand into new markets. Commercial and industrial use accounts for around 80 per cent of total electricity use in Queensland. These businesses must have access to competitively priced electricity to grow Queensland's economy.

Industries trading globally are unable to pass on the higher electricity cost. In particular, agricultural users and the mining and resources industry have identified rising electricity prices as a major challenge. These industries already face significant pressure from international competitors, many of whom have lower labour costs and favourable exchange rates. Many of these electricity-intensive industries are concentrated in regions such as central Queensland and Townsville.

WHAT YOU TOLD US... ABOUT CONSUMERS

All electricity stakeholders believed effective consumer engagement was fundamental to the success of any reforms. All electricity consumers, from households to very large business users, said they faced increasing cost pressures and were seeking options to reduce these.

"Keep comparisons simple i.e. compare apples with apples." *South East Queensland resident*

TARIFF AND PRICING STRUCTURES

Today, most consumers pay the same rate for using electricity regardless of when they use it or how much demand they are placing on the system. But major and rapid changes in electricity use mean this 'one size fits all' approach no longer suits.

Increased use of energy-intensive appliances such as air conditioners has placed additional demand on the network, requiring significant investment in infrastructure to provide reliable power at peak times. All consumers pay for this infrastructure through higher prices, while much of it is under-used most of the time.

Aided by generous, long-lived subsidies, consumers have responded to price rises by seeking alternative electricity sources such as rooftop solar to reduce their bills. However, this has also had some broader consequences. The cost of early solar subsidies is well above market value for the energy produced and is passed on to all electricity consumers, causing further price hikes.

Solar is also having the opposite effect of air conditioning by reducing demand (but not peak demand) in the electricity network. This means there is a smaller volume of electricity sales across fewer consumers. Prices must increase to recover the cost of infrastructure investments.

Unless some adjustments are made, we risk a spiral of higher prices falling hardest on consumers who cannot afford or access air conditioning or rooftop solar. In extreme cases, this could result in some existing assets no longer being needed.

As more consumers take up these and other technologies that change the way they use the system, it will be important for these developments to be integrated into the system in a way that offers value and is fair to all users.

MULTI-LAYERED AND PROBLEMATIC REGULATION

There are many regulations affecting the Queensland electricity sector. Some extend across the entire National Electricity Market while others only apply in Queensland. National and state-based policies have not always been aligned and can add complexity and cost to the system.

Climate change policy has often been multi-jurisdictional and subject to regular and significant change, which contributes to the uncertainty of the investment environment.

Policy certainty and effective regulation can reduce complexity, improve the investment environment and reduce costs.

CASE STUDY

CONSTRAINING ELECTRICITY PRICES DELIVERS STRONG BENEFITS IF WE DO IT RIGHT

In developing the 30-year electricity strategy, we studied economic models that compared a baseline electricity price-rise with scenarios in which prices were held 1 per cent lower per year through either a subsidy or productivity gains in the electricity supply chain.

The results were very clear.

The subsidies necessary would cost more than \$10 billion per year by 2044–2045. However, they would make very little difference to economic growth. While they would allow electricity-reliant industries to expand faster, this would draw resources from other sectors and would not change overall economic growth.

Productivity improvements in the electricity supply chain were a different story. These offered significant long-term financial benefits to Queensland—another 1 per cent increase in gross state product and \$1.8 billion of consumption (in 2014–2015 dollars) across the state.

These types of improvements would provide enduring benefits to all electricity users and our energy-intensive economy.

WHAT THIS MEANS FOR QUEENSLAND

PowerQ will encourage a prosperous, diversified state through cost-competitive electricity supply that meets consumers' different needs. One of the key actions to deliver this strategy will be to examine how productivity improvements can best be delivered, including which parts of the supply chain could deliver the greater efficiency gains and how this could be achieved.

PRODUCTIVITY MATTERS

Productivity in the electricity sector is declining. That is, we are using our infrastructure less efficiently than we did and prices are going up.

WHAT YOU TOLD US... ABOUT GOVERNMENT'S ROLE

Respondents believed the 30-year electricity strategy should support the state's wider vision and goals for the future. Where possible, they believed Queensland's approach to electricity should capitalise on the state's strengths.

Many respondents noted the government plays several roles in the electricity sector, from owner and shareholder to regulator and policy-maker. Respondents believed that a successful strategy should clearly explain the future role of the government in the sector.

Stakeholders called for more effective nationwide collaboration to address industry challenges and to help Queensland succeed in the national market. Specifically, industry participants believe there is a need for consistent policy and a framework that better aligns with and, where possible, harmonises regulations to benefit both the market and consumers.

Stakeholders were also seeking a more responsive policy framework that could act on challenges and address change.

"There is a role for government where there is market failure. Otherwise, it is important to establish stable, clear and transparent policy outcomes and a framework that allows business to respond." *Energy Users Association of Australia*

Participant Story

GRAHAM, 52

Graham likes to plan for the future and knows today's easy option is not always the right decision over the long term. He expects decisions in the electricity sector will be made with a long-term, strategic view so he can be confident in the choices he makes for his family and business.

CASE STUDY

TELECOMMUNICATIONS OFFERS A GLIMPSE OF THE TRANSFORMATION FACING ELECTRICITY

Thirty years ago, almost every home in Queensland had a landline phone that was connected, supplied and serviced by a monopoly telephone company. We all received a similar service for a similar price.

Today, the telecommunications industry is radically different as a result of competition and major technological change. These have transformed the traditional supply chain, business model and end product.

There are now more mobile phones in Australia than people. The landline infrastructure is used to transmit data as well as voice calls (only 16 per cent of us cited fixed line voice calls as our most used communications service) and there is a product or service to cater for every lifestyle. These range from 'unlimited' mobile-internet-home-data bundles, to commitment-free 'pay as you go' SIM-card-only products.

The traditional landline network remains an important piece of infrastructure. But it now competes with mobile and Wi-Fi infrastructure to deliver consumers their voice calls, internet access, apps and other forms of content. This has changed the valuation and market performance of telecommunications companies and assets.

Consumers have demonstrated an ability and willingness to change telecommunications suppliers. Strong consumer appetite for the latest, smartest and fastest devices drives the industry to continually offer innovative products to retain their existing consumers and attract new ones.

Indeed, competition and consumer satisfaction informally regulate the telecommunications industry to some extent. The industry also submits to a voluntary Telecommunication Consumer Protection Code with the government retaining 'backstop' powers where it finds the market has failed to adequately protect consumers.

The telecommunications industry has transcended its traditional function to become an essential stepping stone to products and services that interact and augment every part of consumers' lives.

Technology, changing consumer needs and competition all have the potential to reshape the electricity supply chain and business models in a similar way. The key question is: how will the electricity market respond?

Participant Story

REBECCA, 30

Rebecca runs her own small business, which means she juggles lots of tasks. She manages everything—cashflow, business development, employees—so she's keen on more affordable electricity bills making at least one of these jobs easier.

UNIQUE FUTURE

Queensland's electricity sector will be shaped by significant, permanent changes in the next 30 years.

EMISSIONS REDUCTION ACTION

Global and national action on carbon emissions will have major impacts on the sector, including:

- costs of producing and consuming electricity
- relative competitiveness of different sources of electricity
- stimulating demand for new technology.

We don't yet know what actions will be required. This means the electricity sector needs to be adaptive and responsive.

WHAT YOU TOLD US... ABOUT THE FUTURE

Electricity stakeholders anticipate a number of economic, technology and demand-driven mega-shifts will force the sector to change. They believe *PowerQ* is an essential step to deal with the challenges these shifts will bring.

"The energy market is constantly evolving, and a more innovative and commercially viable business model that takes a more holistic view of the whole customer value chain is required." *ENERGEX*

DEMAND GROWTH

Global and national economic changes, patterns of use and population growth all affect electricity demand. These factors, including in regional communities and among different electricity users, will determine future demand.

BUSINESS MODEL DISRUPTION

In the near future, technologies such as rooftop solar, small-scale wind generators and fuel cells will support increasing consumer independence from the grid. These consumers may look to the network and retailers for back-up electricity and to sell their own electricity production to the market. Electric vehicles offer a potential new market for electricity but also risk increasing the inefficiency of the grid if they're not well integrated into the system.

The traditional business model will be altered. New types of providers such as demand aggregators, energy management and global data companies will create new ways to produce and use electricity.

NEW LARGE-SCALE GENERATION ALTERNATIVES

At present, new large-scale technologies that use Queensland's natural resources—including solar thermal, carbon capture and storage, and geothermal technologies— are limited in terms of cost or technology.

A lack of fuel diversity could leave Queensland exposed to market fluctuations and less able to respond unless cost-effective, new generation alternatives are introduced to promote the effective use of the state's range of energy resources.

Queensland is looking for ways to balance its dual goals of sustaining its economic prosperity and preserving its natural environment. Around the world, environmental challenges will change the way economies conduct business. An electricity sector that responds to these challenges in a way that is cost-efficient and avoids disruption to reliability will benefit Queensland.

Participant Story

BEN, 27

Ben installed solar panels on his house two years ago and his family's electricity bills have dropped substantially as a result. Thanks to this small win, he's now watching with interest for other products, such as battery storage, that can help him control his electricity needs.

INCREASED INVESTMENT

While right now there is more generation capacity than consumers require, this is unlikely to always be the case. Eventually, demand could require new capacity to be built, while older generation assets will need to be replaced.

The market will need to attract investment while dealing with future financial, policy, fuel, technology and demand-based challenges.

ECONOMIC IMPACTS

The electricity sector plays an important role in delivering infrastructure that supports economic development by:

- continuing to provide high quality electricity services that are essential for economic activity
- ensuring those services are competitively and efficiently priced.

This requires long-term thinking about the need for new infrastructure and how it can be delivered, as well as better use and operation of existing infrastructure.

CONSUMER ACTION

More data and clearer prices means consumers can become active participants, producing, storing and trading electricity as well as using it.

Meanwhile, increased consumer choice will create more complex purchase decisions, and some consumers may risk being left behind unless they are unable to overcome barriers.

WHAT YOU TOLD US... ABOUT RENEWABLE ENERGY

Some residential consumers and environmental groups strongly supported investment in renewable energy. While industry stakeholders agreed, they generally favoured a market-driven transition to new technology over direct subsidies that ‘pick winners’.

Stakeholders also identified the need to pursue renewable energy in a way that balances costs and allows the market to develop innovative, competitive alternative energy solutions. There were also concerns about schemes that encouraged additional supply (and cost) into a generation market that is suffering the impact of reduced consumer demand.

HOW WILL QUEENSLAND’S ELECTRICITY SECTOR CHANGE?

We don’t know exactly what the future will hold but we do know that a number of factors will shape the electricity sector. Technology, government policy, demand and price pressures will all lead to significant and continual changes.

Through *PowerQ*, we are creating a policy and regulatory framework that is ready to respond to the changes that lie ahead and will benefit everyone.

Powering Queensland’s future: the discussion paper for the 30-year electricity strategy explored scenarios of what the future could look like. To read more, go to www.dews.qld.gov.au.

Will Queensland’s lifestyle be the same?	Will battery technology mean consumers can go off-grid?	How will consumers shape the market and trade electricity?
Will electric cars be in every home?	How will emission reduction actions affect the cost of electricity?	What energy technologies are still to be invented?
How much competition is enough?	What will Queensland’s regions be like in 30 years?	What’s the future role of consumers, market and government?

DEVELOPING THE STRATEGY

PowerQ: 30-year strategy for Queensland's electricity sector reflects the valuable contributions made by community members and industry stakeholders.

To develop the strategy, the Queensland Government wanted to understand the needs and wants of all energy consumers in the context of the state's unique strengths and characteristics. Its research identified how the present supply system would need to change in order to become more consumer-focused, cost-effective and resilient.

In December 2012, the government published a directions paper that defined the challenges ahead and set the foundation for developing a long-term strategy. Community and industry feedback was sought.

Then, in late 2013, the Queensland Government began its second stage of consultation via a discussion paper. *Powering Queensland's future: the discussion paper for the 30-year electricity strategy* sought feedback on the government's short-term reform agenda as well as the long-term challenges facing the sector.

Electricity industry representatives and members of the broader community were all encouraged to share their ideas for the future through written submissions and by participating in workshops, meetings and online surveys.

In total, more than 220 written submissions and 1300 survey responses were received from a range of stakeholders. These included generation and network businesses, retailers, unions, industry advocacy organisations, universities, and residential and business consumers. Their views have been invaluable in developing *PowerQ*. To view submissions and past papers, go to: www.dews.qld.gov.au.

STRATEGY PATHWAY

Directions paper > Feedback > Analysis > Discussion paper > Consultation > Feedback > Analysis > *PowerQ*

BEST IDEAS WILL MEAN STRATEGY SUCCEEDS

As new challenges emerge throughout the 30-year horizon of the strategy, we will need to understand them and respond quickly. To ensure the strategy's long-term success, the Queensland Government will establish a panel of experts to critically examine emerging market challenges and opportunities and recommend action.

Panel members will include some of the best minds in Australia, including people who may not be directly involved in the electricity sector. Members will regularly change to ensure the panel has the skills and expertise necessary to understand emerging issues. Bringing fresh perspectives to present and future changes, they will provide expert insight.

The panel will exchange ideas, knowledge and expertise. It will complement, rather than duplicate, the work of other organisations.

While the topics for consideration will shift over time, stakeholders' viewpoints will remain central. Potential panel considerations will include:

- future trends and approaches to improving demand forecasts
- opportunities for supply chain productivity improvements
- impacts of emerging technologies, including competitive advantages for Queensland to develop and deploy these technologies
- effects of new business models on consumers and market participants.

The Minister for Energy and Water Supply will convene the panel's inaugural meeting in 2014.

"Having a long-term outlook is important to ensure the electricity industry is flexible and adaptable enough to deal with changing market conditions." *AGL*

DELIVERING THE STRATEGY

SHARED ACCOUNTABILITY MODEL

Consumers, the market and government all have important roles to play in creating a better electricity future. Government can't do it alone, so *PowerQ* is framed around a shared accountability model.

This model places great importance and responsibility on the roles of the consumer, the market and the government in shaping Queensland's future electricity supply.

CONSUMERS

- actively participate in the market
- seek out products that meet their needs
- understand the cumulative impact of individual usage and purchase decisions on the market

MARKET

- compete to deliver value and cost-effective services for consumers
- embrace new technologies to develop innovative products and services
- deliver safe, reliable services that achieve high levels of consumer satisfaction

GOVERNMENT

- reduce regulatory risk and uncertainty
- address equity concerns
- ensure policy keeps pace with change
- address market failures

"There is much to be done to realise the potential of the energy sector to enable Queensland small businesses to make a significant contribution to our economy." *Chamber of Commerce and Industry Queensland*

REFORMS ARE UNDER WAY

In June 2013, the Queensland Government commenced the most significant reforms to the electricity sector in more than a decade. We have made significant progress in implementing these reforms to deliver the following outcomes:

- ensuring consumers pay the right price by introducing advanced metering, tariff reform and changes to solar bonus scheme arrangements
- opening up the market for increased retail competition and consumer choice by introducing price monitoring in South East Queensland in 2015 and later in regional Queensland
- helping vulnerable consumers to better manage future price increases through an agreed concessions and hardships framework
- balancing investment needs, costs and savings through improved network efficiencies.

The strategies and actions set out in the following pages include and build on these actions to deliver a better energy future for Queensland.

THREE PLANNING HORIZONS IN 30 YEARS

Stabilisation

2014–2016

The first phase aims to ready the electricity sector for change by encouraging stability.

Short-term reforms aim to repair the sector and lay the foundations for successful responses to future challenges.

Focused transformation

2016–2026

Success will come from genuine collaboration across the supply chain and between jurisdictions as the sector adjusts to changes in how parts of the supply chain operate and relate. Achieving positive change will foster a market capable of taking advantage of technological advances, new service models and sector-wide shifts, rather than waiting too long, which would be more costly and lead to further problems.

Adaptive approach

2026–2044

The final stage of the strategy allows for greater ease of adaptation as consumers, the market and government respond to changing conditions and new challenges. Nimble, responsive and consumer-driven, the electricity sector will be competitive and resilient.

CONSUMERS

PowerQ will empower consumers—big and small—to become active players in the electricity market, dynamically shaping the market for their own benefit.

Government and the market will work with consumers, supporting them with tools and options that steady their footing.

New products and services will encourage consumers to reach for even higher levels in participation.

In response to consumer need, the market will develop increasingly innovative service offerings.

GOAL: IMPROVE CONSUMER VALUE

Queensland will have the most competitive electricity prices in Australia. Empowered and informed, consumers will continually challenge the market to deliver innovative products and services that meet their needs.

FUTURE VISION

2014–2016

Consumers begin this timeframe with limited choice and understanding of their options in the electricity market. Thanks to timely information that is easy to understand and compare, they will become increasingly aware they can make informed decisions about their electricity needs.

As electricity sector reforms in Queensland begin to take effect, consumers will start saving money.

Meanwhile, more large industrial consumers will pursue increasingly energy-efficient methods as well as new options to manage their supply and better control their operating costs.

2016–2026

Prices will stabilise as reforms take effect and electricity sector productivity is improved. This will deliver lifestyle benefits to Queenslanders and contribute to strong economic growth.

In the medium term, consumers will become adept at picking the right electricity products and services for them. In addition, the market will offer consumers the ability to creatively tailor products and services and achieve greater control and flexibility.

Changes in the way consumers use electricity will be evident everywhere.

Consumers will no longer see electricity as ‘one size fits all’. They will expect electricity services to match their individual business and lifestyle needs.

This growing interest will, in turn, force the market to work harder and become more consumer-focused. This will be a significant shift in power, with great benefits for the consumer.

2026–2044

In this shared energy future, consumers will wield significant power and influence as users, generators and traders of electricity.

A new generation of service providers will make it easy for consumers to do as little or as much as they want in the electricity sector, and demand will drive the development of new and innovative products and services.

Through new technology, some consumers will generate more power than they can use. In response, the market will offer even more ways to share electricity, which should lead to more options for consumers to control their use and costs.

Queensland will have a strong and diversified economy.

HOW WILL WE KNOW WE’VE SUCCEEDED? In the future, the value that consumers get from electricity services will be higher. Higher value means more competitive pricing, and high quality and reliable electricity services. Consumers will also feel they are getting value when they can choose the service that best suits their needs

from the many that will be available. As their requirements and judgments mature over time, consumers' definition of what is good value will change, too.

Participant Story

MARK, 35

Mark is a dad and shares responsibility for the household budget. He's been concerned with the rising cost of electricity these past few years and wants to see electricity become more affordable and his bills more predictable.

STRATEGY 1

Ensure the Queensland electricity market is cost-competitive nationally.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 1.1 Implement immediate reform program.
- 1.2 Identify opportunities for productivity improvements.
- 1.3 Support consumer advocacy.

2016–2026

- 1.4 Implement productivity improvements.
- 1.5 Make sure the tariff settings are right.
- 1.6 Encourage low-cost solutions in remote and isolated communities.

2026–2044

- 1.7 Monitor market changes.

WHY THESE ACTIONS?

Taken together, these actions will:

- stabilise electricity prices to improve affordability and stimulate Queensland's economy
- drive better value from the electricity assets we have and avoid building unnecessary infrastructure
- give consumers a stronger voice on the issues that matter to them
- ensure the policy framework is responsive to change.

HOW WILL WE APPROACH THESE ACTIONS?

ACTION 1.1

Reforms already under way

The Queensland Government is already targeting those costs within its influence by:

- driving efficiencies into the network businesses
- adjusting reliability standards to balance service levels and costs to consumers
- removing red tape
- addressing state-based schemes, such as the Solar Bonus Scheme and Queensland Gas Scheme, to relieve cost pressures
- developing a tariff reform and metering strategy to give consumers more information about their electricity usage, greater choice in managing their costs and to address longer term price pressures.

We will continue to implement the urgent short-term reforms agreed in June 2013.

ACTIONS 1.2 AND 1.4

Seeking productivity improvements

We will undertake an economic analysis of where and how productivity improvements could lower costs across the electricity supply chain. The scope of this economic analysis will be developed in consultation with electricity users. It could include consideration of wholesale market competitiveness, asset utilisation across the supply chain, and transmission and distribution infrastructure needs and pricing over the long term.

The analysis would identify how and where productivity gains could best be made. Implementation of the findings would target these high value areas.

ACTION 1.3

Supporting consumer advocacy

The Queensland Government will push to ensure consumer interests are better reflected in national electricity reforms. This will include seeking better advocacy arrangements through both national and state-based bodies to ensure consumers have an effective voice.

ACTION 1.5

Getting tariff settings right

This action builds on reforms already under way to improve tariff settings. It will ensure the right signals are in place ahead of any increase in demand and the settings are responsive to changing usage patterns. This will encourage the most efficient use of assets and delay capital investment.

ACTION 1.6

Low-cost solutions for isolated communities

The Queensland Government will work with Ergon Energy, other technology and service providers and remote communities to explore new, low-cost options for remote and isolated electricity services.

ACTION 1.7

Monitoring market changes

The government will continue to monitor market changes as they occur to understand their impact on cost-competitiveness. This will be informed by regular stakeholder consultation as well as the work of the expert panel that will be established to critically examine emerging market challenges and opportunities.

SHORT-TERM REFORMS HAVE LONG-TERM EFFECTS

The Queensland Government has already acted to reform the electricity market. Actions to date include:

- removing red tape by closing the Queensland Gas Scheme, saving industry almost \$1 million per year in compliance costs
- closing the premium 44c feed-in tariff to new consumers and moving the 8c solar feed-in tariff to a market-based scheme in South East Queensland to reduce electricity bills
- saving \$197 million through network efficiencies since 2012.

STRATEGY 2

Champion informed decision-making so consumer behaviour creates a responsive electricity market.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 2.1 Adopt national consumer protections and retail standards.
- 2.2 Increase consumer engagement in the electricity market.
- 2.3 Support higher voluntary standards for product comparison services.

2016–2026

- 2.4 Adjust engagement strategies as market conditions change.
- 2.5 Set new goals for improved consumer experience.

2026–2044

- 2.6 Address emerging impediments to ongoing consumer engagement.
- 2.7 Champion continued improvements in consumer service levels.

WHY THESE ACTIONS?

Taken together, these actions will:

- provide higher levels of consumer protection and drive more effective retail competition with less red tape
- help consumers make effective decisions and play their part in the evolving electricity market
- support increased market transparency and integrity, and higher service levels, as the market evolves.

HOW WILL WE APPROACH THESE ACTIONS?

ACTION 2.1

Adopt national consumer protections and retail standards

We will put in place legislation to harmonise consumer protections and retail standards across National Electricity Market jurisdictions. This legislation has been developed in consultation with consumers, industry stakeholders, other states and the Australian Government over several years. It will contain appropriate measures to account for Queensland’s specific circumstances and will be taken to Parliament in 2014. This will enable the new framework to come into effect in 2015.

ACTIONS 2.2, 2.4 AND 2.6

Improving consumer engagement in the market

Improving consumer engagement in the market means helping consumers to become more active and successful in seeking out suppliers and products that best meet their needs. In the short term, the Queensland Government is examining options to trigger greater (and more effective) consumer activity. These may include better targeting of information and support for more effective decision- making tools and processes.

The government’s role in this area will evolve over time as consumer skills grow. The aim is to build a self-sustaining level of consumer participation in the market.

ACTIONS 2.3, 2.5 AND 2.7

Improving transparency and service levels

In the short term, the Queensland Government will support moves for a national, industry-led approach to improving service levels. This includes improved disclosure and a voluntary code of conduct for electricity comparison services.

The focus of these efforts will change over time to ensure consumer service levels are maintained as new products and services emerge.

Participant Story

JUDE, 2

Jude doesn’t yet know what electricity is, so he doesn’t understand the role it plays in the life of his family and his community. Electricity as we know it will be radically different, although just as essential, by the time Jude reaches adulthood.

CASE STUDY

RETAIL MARKET REFORM BENEFITS CONSUMERS

In 1995, the state of Texas in the United States began a strategy to reform its electricity market.

A competitive wholesale market began that year, followed by the retail market in 2002.

The strategy allowed the retail market five years to transition from ‘price to beat’ regulated pricing to market-based retail pricing. This timeframe encouraged more competitors to enter the market.

Despite a period of initial price rises, the Texas Legislature and Public Utilities Commission resisted pressure to change the strategy, holding firm to the belief that competitive markets deliver better long-term outcomes than heavy-handed government intervention.

They were right. When regulated pricing stopped in 2007, product innovation and differentiation increased, and the average price charged by electricity retailers decreased over time.

Texas has achieved one of the most successful retail market reform programs in the United States. It has the country’s most competitive retail electricity market, with more than 50 retailers offering over 300 products. It also has high levels of switching among all consumer classes—all signs of an engaged, educated market.

WHAT THIS MEANS FOR QUEENSLAND

The Texan example reinforces the need for a committed, long-term strategy that encourages a strong and competitive market and advocates for consumers.

Through its 30-year electricity strategy, the Queensland Government will encourage market development by championing consumers.

MARKET

During the next 30 years, the electricity sector will become a more competitive, resilient marketplace that responds to consumer needs.

The way electricity is made, moved, sold and used will change. This will revolutionise the electricity supply chain, infrastructure needs and market relationships.

In the future, electricity and related services such as storage, demand response and data will be continually traded and moved between the market and consumers.

GOAL: IMPROVE MARKET EFFICIENCY

Queensland's thriving, competitive and efficient electricity market will promote timely investment, be open to new entrants and meet the changing needs of consumers across the state.

FUTURE VISION

2014–2016

The market is in a state of flux.

Contributing factors include consumers' changing demand and usage patterns, driven by the popularity of energy-efficient products and rooftop solar systems.

In response, new pricing structures will begin to show the true cost of supply and encourage consumers to use electricity in ways and at times that do not add to cost pressures and give them greater control over their bills.

The retail market in South East Queensland will soon strengthen as the benefits of competition and supporting reforms take effect.

2016–2026

In the medium term, most consumers will feel the benefits of true retail competition for the first time.

Across the state, new forms of generation and storage will become commercially viable, creating challenges and opportunities for existing infrastructure. Advanced metering and the roll-out of new tariffs will drive new efficiencies, and consumers will feel the benefits.

As communications and data technology improve, matching supply and demand will be easier. Smarter grids will incorporate advanced metering, communications and control. New, smarter technologies will mean less costly infrastructure is needed. More homes and businesses may be powered independently, perhaps by cheap, organic photovoltaic cells, batteries or fuel cells. These premises will have the technology to know when power is needed, and will be able to monitor appliances and identify those that aren't running effectively.

A changed regulatory model will recognise market shifts and that network businesses are competing with new technologies to provide greater service to consumers. Consumers will also change: they will now produce and store electricity and supply the surplus back into the market.

For Queensland's big energy users, new sources of energy could power operations, including solar thermal, geothermal or wind supported by gas. Technologies such as carbon capture and storage could see coal-fired generators maintaining their market share.

All of these changes release the market to create cost-effective, unique energy solutions. This thriving electricity market, together with clear policy and regulatory frameworks, will make Queensland attractive to investors and accelerate the state's economic growth.

2026–2044

Innovation will be the byword for the long-term future of Queensland's electricity market. Technologies considered advanced today will be the norm tomorrow, with new products and services yet to be invented.

New, non-traditional service providers will enter the market in competition with the existing participants. The lines between sellers and consumers of electricity will blur as consumers simultaneously produce, use, store and trade electricity.

Technological advances in data communication will affect every aspect of the electricity market, from alternative supply and demand response through to self-healing smart grids that will detect and isolate network faults and dynamically reconfigure the system in response.

At the heart of the market changes will be the consumer, whose diverse needs and demands will be met to increasingly higher standards.

HOW WILL WE KNOW WE'VE SUCCEEDED?

New products and suppliers will easily enter the market and there will be vigorous competition, nimble responses to change and high innovation. This means we will have a strong and competitive market where electricity can be generated and traded by consumers.

Participant Story

LIAM, 19

Liam, who's an entrepreneur at heart, is studying business at uni. He recently completed an assignment on the electricity sector that sparked some ideas for exciting business opportunities to help consumers manage their electricity usage and costs.

STRATEGY 3

Encourage a competitive and diverse market that attracts more innovation and investment.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

3.1 Stimulate the retail electricity market by:

- removing price regulation in South East Queensland, subject to meeting certain preconditions
- investigating options to provide increased competition in regional areas.

3.2 Review the potential impacts of, and opportunities from, new technologies.

2016–2026

3.3 Review retail competition across Queensland.

3.4 Implement actions from the review of new technologies (action 3.2).

2026–2044

3.5 Review the policy framework in light of changes to the supply chain.

WHY THESE ACTIONS?

Taken together, these actions will ensure:

- all consumers can benefit from greater competition, including greater choice and better services, while maintaining adequate protections
- new technologies will be efficiently deployed to make best use of our existing electricity infrastructure
- new market forces are able to flourish, delivering more choice and better value for consumers.

HOW WILL WE APPROACH THESE ACTIONS?

ACTION 3.1 AND 3.3

Stimulate retail electricity markets

The Queensland Government will amend legislation to replace price regulation in South East Queensland with a price-monitoring regime. This will enable a July 1, 2015, start to the new regime, but price regulation will not be removed until important pre-conditions are met, including:

- ensuring there is sufficient retail competition to allow consumers to benefit
- adopting harmonised consumer protections and retail standards (see action 2.1)
- implementing a consumer engagement strategy (see action 2.2)
- establishing an effective price-monitoring regime to ensure retailers are offering the best deals and services
- developing a suitable approach to setting prices outside South East Queensland that maintains support for regional consumers.

The Queensland Government is considering options to improve the structure of regional subsidy arrangements. This is being conducted in parallel with reforms to Ergon Energy’s retail business. It addresses the ways subsidies are paid to enable new retailers to offer competitive deals to consumers. However, this work does not alter the state government’s commitment to support regional consumers by subsidising electricity prices.

In the medium term, following the implementation of retail competition reforms, the state government will review whether consumers are benefiting from retail competition in south east and regional Queensland, and act to remove any identified barriers, where possible.

ACTIONS 3.2 AND 3.4

Review new technology

This review will examine the expected uptake and applications of new electricity technologies at residential, commercial and industrial scales. Technologies under consideration would include battery storage and electric vehicles. The review will consider the potential effects of these technologies on market dynamics—including electricity demand and consumption patterns, asset utilisation, costs and competition—as new providers enter the market. The aim will be to ensure new technologies are efficiently deployed to make the best use of our infrastructure.

ACTION 3.5

Review policy framework in light of changing business models

This review will consider whether the policy and regulatory framework remains appropriate as the market develops. The goal will be to ensure policy and regulatory settings encourage innovation and new market forces that deliver better, more efficient services. A focus of the review will be the need to transition from, rather than protect, existing regulatory and business models.

Participant Story

KEELEY, 15

In five years, Keeley will have finished uni and moved out of home. Confident and informed, she’ll also be part of the new wave of consumers who will use technologies like her smartphone to control her electricity use.

STRATEGY 4

Maximise opportunities from Queensland’s natural resources to create cost-effective, sustainable electricity.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 4.1 Ensure policy settings support efficient investment choices.

2016–2026

- 4.2 Remove barriers to new generation sources and technologies.
- 4.3 Assess Queensland’s ability to contribute to emissions reductions.

2026–2044

- 4.4 Facilitate the development of clean and energy-efficient technologies.
- 4.5 Monitor the market’s ability to provide a generation fuel mix that meets consumer needs.

Participant Story

AMANDA, 37

Amanda has been hearing a lot about electric cars being the way of the future. She isn't ready to invest in one just yet, but she wants to know more about how they will operate— where could she recharge one, and how much would it cost to run?

WHY THESE ACTIONS?

These actions will ensure there are fewer barriers to entry for new technologies that can maximise Queensland's competitive advantages, increase competition, reduce costs and address emissions reduction requirements.

HOW WILL WE APPROACH THESE ACTIONS?

ACTIONS 4.1

Support efficient investment choices

This action will help to ensure the policy and regulatory framework does not discriminate against alternative technologies. This will include continually monitoring where new energy technologies, services or efficiency measures can add value for consumers, address challenges in the supply chain or increase competition.

ACTIONS 4.2 AND 4.4

Facilitate new technology

The Queensland Government's role in facilitating technology development will be to remove barriers and build strategic relationships with knowledge partners and the Australian Government. Our focus will be on new technologies that provide benefits to consumers or build on Queensland's unique strengths. For example, carbon capture and storage, solar thermal and geothermal technologies all have the potential to increase the use of Queensland's natural resources in a lower emissions environment, maximising the state's unique competitive environment.

It will then be up to market forces to determine the generation technology and fuel mix based on prevailing commercial and environmental considerations.

ACTIONS 4.3 AND 4.5

Emissions reduction requirements

Emissions reduction efforts will be driven by global developments and Australian Government policy. The Queensland Government does not intend to increase costs or distort the market by duplicating these efforts. Instead, the Queensland Government will monitor emissions-reduction commitments globally to investigate the impacts and opportunities for the state. This will include participating in national debate about emissions policy and leveraging Queensland's unique strengths to address the environmental impact of electricity use.

STRATEGY 5

Use open data to drive market development, competition and innovation.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 5.1 Develop an advanced metering framework.
- 5.2 Establish an electricity data hub.

2016–2026

- 5.3 Work with knowledge partners to share data analysis and information.

2026–2044

5.4 Identify new opportunities for open data.

WHY THESE ACTIONS?

Greater availability of data has the potential to drive innovation. It will mean the market has better data with which to develop new products and services that can provide more choice and control over costs to consumers and help use our assets more efficiently.

HOW WILL WE APPROACH THESE ACTIONS?

ACTION 5.1

Advanced metering

The limited functionality of most existing electricity meters in Queensland limits options for new types of tariffs, more frequent billing and other types of product innovation. The Queensland Government supports a market-led approach in which consumer needs drive the roll-out of advanced meters and the resulting product innovation. The government has ruled out a mandated distributor-led roll-out of advanced meters.

ACTIONS 5.2, 5.3 AND 5.4

Facilitating open data

The Queensland Government will investigate opportunities to build on the state's existing open data initiative to support innovation in the electricity sector. This could include sharing data on topics such as electricity usage and our energy resource potential. It could also include real-time system information to increase the efficient use of electricity infrastructure.

The state government will look for ways to expand this initiative over time, including by partnering with universities, education, research and development bodies to find other data-sharing opportunities. These will include the public findings of research activities as they emerge.

PRIVACY WILL BE PARAMOUNT

Strategy 5 of *PowerQ* identifies actions the Queensland Government can take to leverage the extensive data that exists around electricity supply and demand. Any actions undertaken will protect the privacy of Queensland consumers.

Participant Story

JUSTENE, 30

Justene develops projects for a Queensland energy supplier. She's proudly working on projects now that will play a pivotal role in the way electricity is generated and delivered to customers over the next few decades.

CASE STUDY

GOOGLE AND BIG DATA POINT TO A BETTER ELECTRICITY FUTURE

The advent of 'big data' brings big opportunities as the electricity sector evolves.

Case in point: the average suburban meter box. At the moment, most meter boxes in Queensland reveal only the most basic information about electricity consumption. This is because the details are only gathered four times a year when the meter is read. However, even now, advanced metering systems can take more frequent readings. If taken every half-hour, that works out to 17,520 times a year. That's a lot more information about how and when electricity is used.

Innovative companies are taking a keen interest in this potential deluge of raw data. In January 2014, Google bought Nest, which produces an energy-efficient thermostat, for \$3.2 billion. Nest's smart product uses metering data to learn its owner's schedule, and then programs itself to operate energy-efficiently and save the household money. Nest's products can also be controlled remotely using an internet-enabled phone.

Google's investment shows a broader market understanding that information leads to product and service innovation and smarter consumer behaviour, and helps network infrastructure to be better used.

In the future, home energy management products like Nest's will help consumers shift their electricity use from peak times. Infrastructure owners will use the improved data to help manage demand and only build assets where they are really needed. Market and consumers alike will use data to better understand energy needs, and enable everyone to participate, making sure the billions invested in the electricity sector are used wisely.

WHAT THIS MEANS FOR QUEENSLAND

PowerQ will promote consumer understanding and market innovation by leveraging the data collected and used in the electricity market.

GOVERNMENT

During the next 30 years, the Queensland Government's role in the electricity sector will permanently transform.

Once a heavy-handed system owner and regulator, the government will instead become a watchful facilitator of the market focused on the best outcomes for Queensland consumers.

GOAL: IMPROVE GOVERNANCE EFFECTIVENESS

The Queensland Government will provide an operating environment for the electricity sector that promotes efficient markets, helps protect consumers and addresses market failures.

FUTURE VISION

2014–2016

Short-term reforms to stabilise the Queensland electricity market will have a positive effect felt by consumers and the market for years to come. By removing the distorted market and regulatory frameworks that contributed to recent unsustainable price rises, the Queensland Government will pave the way for a better electricity future.

2016–2026

The medium-term years will be a period of transition as new technologies and business models transform the sector.

Taking a system-wide view, governments at all levels will work together to guide the electricity sector through this transformation.

2026–2044

By this time, the Queensland Government's role will have changed to watchful facilitator. It will respond quickly to the evolving and dynamic marketplace to ensure consumers and all of Queensland benefit in the new market.

HOW WILL WE KNOW WE'VE SUCCEEDED?

The Queensland Government will protect consumers, promote efficient markets and be responsive to change. It will provide a clear pathway to investment. Interventions, if any, will be clearly explained and understood. While the best solution will generally be to allow the market to respond to new challenges, the government will retain a role in monitoring the effects of this strategy on consumers.

Participant Story

KAREN, 50

Karen doesn't know much about how the electricity sector works. She's heard a lot about gold-plated poles and wires, and wants to know how the cost of supply will be managed in the future so her bills are more affordable.

STRATEGY 6

Provide policy certainty to encourage strong competition and benefit consumers.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 6.1 Clarify the Queensland Government's role in the electricity market.
- 6.2 Review *the Electricity Act 1994*.

2016–2026

- 6.3 Implement outcomes of the *Electricity Act 1994* review.

2026–2044

6.4 Maintain the Queensland Government’s role as a proponent of effective, outcomes-based regulation.

WHY THESE ACTIONS?

These actions will ensure:

- the electricity market has a clearer understanding of the Queensland Government’s role and how it will conduct itself
- opportunities for further red tape reductions and additional reforms are identified as the market evolves.

HOW WILL WE APPROACH THESE ACTIONS?

ACTION 6.1

Clarify the state government’s role

The Queensland Government will clarify its role across the electricity sector in a number of ways, including by:

- moving to a price-monitoring framework in South East Queensland and investigating ways to improve regional retail competition (see action 3.1)
- ensuring any new generation assets required in the future are funded by private investment (as the market is mature and working effectively)
- conducting scoping studies and community consultation on its ownership of electricity generation and retail assets, and potential private investment in future network assets. From this research, the Queensland Government will establish a clear position on its intentions for its shareholding interests in these assets, including seeking an electoral mandate for any proposed asset sales
- implementing the outcomes of the review into the *Government Owned Corporations Act 1993* to ensure any ongoing shareholder role does not conflict with its policy-maker and regulator roles.

ACTIONS 6.2 AND 6.3

Review the Electricity Act 1994

This review will build on the existing reform agenda to examine opportunities for further red tape reduction and any other reforms necessary to promote a modern and efficient market. This review could take into account issues such as:

- the maturing of a competitive market, with new product offerings and new service providers
- the changing role of the consumer, as buyer, maker and trader of electricity
- service delivery models such as Total Energy Planning for new residential and industrial estates.

ACTION 6.4

The Queensland Government will be a proponent of effective, outcomes-based regulation

This action reflects the ongoing shift in the Queensland Government’s role in the sector from prescriptive regulator to facilitator and proponent of outcomes-based regulation across the National Electricity Market.

Participant Story

CHRIS, 62

Chris is an early adopter of new technologies and has more devices needing electricity than ever before. His smartphone and tablet help control everything, but he’s keen to find even smarter ways to make his bills more affordable and his life easier.

STRATEGY 7

Position Queensland as a leader in innovative, consumer-driven reform.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

- 7.1 Drive national consideration of supply chain disruptions.
- 7.2 Advocate for a more strategic approach to national reforms.
- 7.3 Emphasise whole-of-system electricity productivity as a policy objective.
- 7.4 Work with the Australian Government on the Renewable Energy Target review and the Direct Action Plan.

2016–2026

- 7.5 Monitor the effectiveness of the wholesale market design.

2026–2044

- 7.6 Review the scope and operation of the national reform agenda.

WHY THESE ACTIONS?

These actions will ensure:

- Disruption to the supply chain and the market's evolution are understood and progressed at a national level and in a timely manner.
- The national reform program is responsive and targeted.
- Both the national and state policy agendas seek opportunities for enduring improvements in value-for-money electricity services.
- The Queensland Government understands and addresses any implications of changes to renewable energy and climate change policies.

HOW WILL WE APPROACH THESE ACTIONS?

ACTIONS 7.1 AND 7.5

Drive national consideration of disruption to supply chain and wholesale market design

In the short term, the Queensland Government will work with other members of the Council of Australian Governments (COAG) Energy Council to drive national consideration of the potential for fundamental disruption to the existing generator-to-consumer supply chain. Topics to be considered could include:

- the potential for new technologies and service models to disrupt the present supply chain and business models
- any policy and regulatory responses needed at the national level.

In the medium term, the Queensland Government will, with the COAG Energy Council, monitor the ongoing effectiveness of the wholesale market's design. This will include examining the impact of the consumer's changing role to electricity producer and trader, as well as developments such as demand-response trading.

ACTION 7.2

Advocate for a more strategic and urgent approach to national reforms

The Queensland Government will push to refine the COAG Energy Council's work plan to ensure the focus is appropriately strategic and future-focused, and that issues are resolved in a timely manner. This will include seeking more timely and strategic treatment of issues by the national rule-making bodies and regulators that are governed by the council, including the Australian Energy Market Commission, Australian Energy Regulator and Australian Energy Market Operator.

ACTION 7.3

Emphasise whole-of-system electricity productivity as a policy goal

The Queensland Government will push for a greater focus on electricity sector productivity in the national reform agenda. This will include seeking opportunities for the national reform agenda to contribute to delivering improvements identified in action 1.2.

ACTION 7.4

Work with the Australian Government on the Renewable Energy Target review and Direct Action Plan

The Queensland Government will work with the Australian Government to understand the costs, benefits and opportunities arising from any changes to the Renewable Energy Target and the implementation of the Direct Action Plan. This will include identifying any necessary policy responses and seeking opportunities for collaboration.

ACTION 7.6

Review the scope and operation of the national reform agenda

The Queensland Government will work with the COAG Energy Council to maintain the effectiveness of its charter and the Australian Energy Market Agreement. The intent is to ensure these documents continue to set out an appropriate reform agenda and governance arrangements for Australian electricity markets as they evolve.

STRATEGY 8

Enable equitable access to electricity.

ACTIONS TO ACHIEVE THIS STRATEGY

2014–2016

8.1 Review the hardship and concession framework.

2016–2026

8.2 Review the arrangements for the Uniform Tariff Policy.

8.3 Review the impact of the changing market on consumers.

8.4 Assess whether existing consumer protections remain relevant.

8.5 Align Queensland and Australian Government assistance measures.

2026–2044

8.6 Assess support mechanisms as the market evolves.

Participant Story

FELIX, 6

Felix has a powerful imagination. His Dad works in the electricity field, so it's possible that, by 2044, Felix will have helped to invent one of the technologies that will make our electricity future even brighter.

WHY THESE ACTIONS?

These actions will ensure:

- the hardship and concession framework supports people who are most in need while being affordable for Queensland
- consumer protections and hardship arrangements remain appropriate as the market evolves.

HOW WILL WE APPROACH THESE ACTIONS?

ACTIONS 8.1 AND 8.2

Evaluate consumer assistance measures

In the short term, these actions will focus on existing hardship and concession measures such as the Electricity Rebate. The review of the framework will include investigating whether there are ways to improve the eligibility criteria or the structure of existing assistance measures. Any changes will need to be made in a way that is financially sustainable for Queensland.

In the medium term, the Queensland Government is considering ways to better target the assistance given under the Uniform Tariff Policy, in line with the existing reform agenda. However, the government remains committed to supporting regional electricity consumers.

ACTIONS 8.3, 8.4 AND 8.6

Monitor consumer assistance and protections as the market evolves

In the medium and longer term, the Queensland Government will continue to monitor the impact of the changing product mix on consumers, as well as consumer needs. It will consider whether any changes are required to consumer hardship arrangements or protections as the market evolves so vulnerable consumers are not left behind.

ACTION 8.5

Align state and Australian Government assistance measures

The Queensland Government will work with the Australian Government and other states and territories to examine ways to harmonise and improve the delivery of support to people who are most in need. This may be through targeted concessions, social security payments, or a combination of the two.

CASE STUDY

POLICY SHIFTS WITH UNINTENDED CONSEQUENCES:

THE GERMAN ELECTRICITY MARKET

In 2000, most electricity generated in Germany was from coal (52 per cent) and nuclear (29 per cent) sources. Around 6 per cent came from renewable sources, predominantly hydroelectricity.

Responding to declining public support for nuclear generation, the German government negotiated with utility companies and committed to a gradual decommissioning of all nuclear generators by 2022.

To meet their carbon emission reduction targets, the government aimed to substitute renewables for coal while gradually decommissioning the nuclear generators. Renewable energy uptake was encouraged by a guaranteed high feed-in-tariff and priority sale of renewable electricity on the grid.

Renewables grew to provide around 20 per cent of Germany's electricity needs in 2011. Taxes and charges to support renewables made up around 14 per cent of household electricity bills by 2011 and overall electricity costs rose considerably for all consumers.

Then, in 2011, the Fukushima nuclear disaster hit in Japan.

The German government abandoned its agreement to gradually decommission plants and ordered eight of Germany's 17 nuclear generators to close instantly. The abruptness of the closure increased the utilities' risks, and significantly reduced the value of the remaining plants.

At the same time, European coal and carbon prices fell, and 30 gigawatts of gas-fired capacity across Europe was mothballed. Wholesale electricity prices plummeted so low that it cost traditional generators to feed their electricity into the grid while renewables remained protected.

Since 2011, this situation has continued to devastate profits and place traditional generators at a significant risk. The market capitalisation of European utilities has halved in five years.

The original decision in 2000 to gradually decommission nuclear generators and promote the uptake of renewable energy allowed time for the market to adjust. The rapid turnaround on nuclear energy forced Germany into a far riskier transition. Electricity prices and the electricity sector's performance are now a major risk to Germany's economy.

Germany's experience reinforces the need for an integrated, measured strategy that understands the whole-of-system impacts of interventions in complex markets.

WHAT THIS MEANS FOR QUEENSLAND

During the next 30 years, the Queensland Government will provide a dependable operating environment that promotes efficient markets, protects consumers and addresses market failures. This will allow the electricity sector to respond more effectively to emerging challenges, including balancing low cost and low emission energy sources.

Participant Story

CHERYLLE, 67

Cherylle loves having choice. She is counting on innovative electricity products providing her and all Queenslanders with more options about where their power comes from and how much it costs.

ALIGNING WITH THE QUEENSLAND PLAN

The Queensland Plan will serve as a valuable compass for the state's future development.

More than 78,000 Queenslanders contributed their ideas to *The Queensland Plan*, which will establish a shared, long- term vision for Queensland to have the best opportunities, the brightest minds and a prosperous and resilient economy.

PowerQ and its goals and actions will reflect the priorities and values set by the plan.

The Queensland Plan		POWERQ: a 30-year strategy for Queensland's electricity sector
PEOPLE 'We support the least advantaged'	COMMUNITY 'In Queensland, nobody gets left behind'	<p>Strategy 2 Champion informed decision-making so consumer behaviour creates a responsive market.</p> <p>Strategy 3 Encourage a competitive and diverse market that attracts more innovation and investment.</p> <p>Strategy 8 Enable equitable access to electricity.</p>
REGIONS 'Regions are strong and prosperous'		<p>Strategy 1 Enhance Queensland's prosperity by ensuring the electricity market is cost- competitive nationally.</p> <p>Strategy 3 Encourage a competitive and diverse market that attracts more innovation and investment.</p> <p>Strategy 8 Enable equitable access to electricity.</p>
ECONOMY 'We are the number one performing economy in Australia'		<p>Strategy 1 Enhance Queensland's prosperity by ensuring the electricity market is cost- competitive nationally.</p> <p>Strategy 3 Encourage a competitive and diverse market that attracts more innovation and investment.</p> <p>Strategy 4 Maximise opportunities from Queensland's natural resources to create cost-effective, sustainable electricity.</p> <p>Strategy 5 Use open data to drive market development, competition and innovation.</p>
ENVIRONMENT 'Our natural resources are managed effectively'		<p>Strategy 4 Maximise opportunities from Queensland's natural resources to create cost-effective, sustainable electricity.</p> <p>Strategy 7 Position Queensland as a leader in innovative, consumer-driven reform.</p>
INFRASTRUCTURE 'Our infrastructure fits our changing population and demographics'		<p>Strategy 1 Enhance Queensland's prosperity by ensuring the electricity market is cost- competitive nationally.</p> <p>Strategy 3 Encourage a competitive and diverse market that attracts more innovation and investment.</p> <p>Strategy 5 Use open data to drive market development, competition and innovation.</p>
GOVERNANCE 'Government is more effective and efficient'		<p>Strategy 6 Provide policy certainty to encourage strong competition and benefit consumers.</p> <p>Strategy 7 Position Queensland as a leader in innovative, consumer-driven reform.</p>

Strategic actions		Queensland in 30 years' time
<ul style="list-style-type: none"> • Improve retail competition and consumer protection. • Increase consumer participation. • Provide more effective hardship assistance. 		<ul style="list-style-type: none"> • Access to electricity services is enhanced. • No-one is left behind.
<ul style="list-style-type: none"> • Extend the benefits of retail competition to regional Queensland. • Encourage alternative electricity solutions to meet forecast growth in regions. • Monitor support for vulnerable consumers and regional subsidy arrangements. 		<ul style="list-style-type: none"> • Our regions will have strong, diverse and innovative economies. • Our regions are affordable and attractive places to live.
<ul style="list-style-type: none"> • Undertake economic analysis on productivity gains in the electricity supply chain. • Increase competition. • Remove barriers to market-based investment in new technologies. • Encourage research, development and investment in clean and energy- efficient technologies. • Share data and research to support innovation. 		<ul style="list-style-type: none"> • A strong and innovative electricity sector supports our economic growth. • Diversity is encouraged in Queensland's electricity generation.
<ul style="list-style-type: none"> • Remove barriers to market-based investment in new technologies. • Encourage research, development and investment in clean and energy-efficient technologies. • Assess the state's ability to contribute to international emissions reductions commitments. 		<ul style="list-style-type: none"> • Our unique environments are protected. • We use our natural resources well to support our economic development.
<ul style="list-style-type: none"> • Undertake economic analysis on productivity gains in the electricity supply chain. • Encourage alternative electricity solutions to meet forecast growth in regions. • Ensure tariff and metering reforms are in place ahead of medium-term demand increases. • Share data and research to support innovation. • Review the impact of new technologies. 		<ul style="list-style-type: none"> • We use our assets more efficiently. • The need for capital investment is deferred.
<ul style="list-style-type: none"> • Identify opportunities for red tape cuts and reforms to promote a modern and efficient market. • Work with the COAG Energy Council to improve strategic focus and timeliness of national reforms. • Improve the governance of national energy bodies. 		<ul style="list-style-type: none"> • Government's role as policy maker and facilitator is clear. • Regulation is outcomes-based. • Actions are strategic, transparent and responsive.

NEXT STEPS

PowerQ: a 30-year strategy for Queensland's electricity sector will be implemented by the Department of Energy and Water Supply. The strategies it contains will guide the department's approach and the actions will be central to our work program.

REVIEW AND COURSE CORRECTION

Regular review will be essential to ensure we are meeting our goals and will achieve our vision of a better energy future. The success of the strategy's implementation will be measured against the indicators in the 'How will we know we've succeeded?' section for each strategy.

Change in the electricity sector is inevitable. The strategy is resilient and adaptable. It allows us to carefully monitor and respond to change as it occurs. However, some changes cannot be foreseen. Some will be of greater impact than others and will change our priorities. Reviews of the strategy may draw on tools such as scenario analysis to understand the factors driving change and how they may play out over time.

The expert panel will also have input, as will stakeholders across the industry and community.

The five-yearly renewal of *The Queensland Plan* will also inform the reviews of *PowerQ* as it will enable us to realign our actions as the priorities and values of Queenslanders evolve.



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