

# NEW ENERGY TECHNOLOGIES

Sector Strategy

Victoria's  
Future  
Industries.



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Cover: CSIRO researchers developing flexible solar cells

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**Definitions:** For the purpose of this strategy, 'new energy technologies' includes renewable energy and the products, technologies and services that help reduce energy consumption and enhance energy productivity.

Extensive consultation has underpinned development of this sector strategy.

- 80 people participated in 4 stakeholder forums
- 33 organisations participated in direct discussions with the Department
- 34 written submissions were received from a variety of businesses and organisations.

In addition, we would like to acknowledge the contribution of members of the Future Industries Ministerial Advisory Council, who provided valuable advice and generously shared their knowledge and experience with Departmental staff charged with developing sector strategies:

- Mr David Bartlett, Chair, former Premier of Tasmania
- Mr Nixon Apple, Alternate Director, Australian Super
- Mr Jeff Connolly, Chairman and Chief Executive Officer of Siemens Group, Australia-Pacific Region
- Ms Gabrielle Coyne, former Chief Executive Officer, Penguin Random House Australia
- Professor Linda Kristjanson, Vice-Chancellor, Swinburne University of Technology
- Dr Leonie Walsh, Victorian Government Lead Scientist.



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# PREMIER'S FOREWORD

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We talk so much about our economic 'transition', but this transition won't occur on its own. We have to take action ourselves. We need a real plan. And we need to invest.

That's what our \$200 million Future Industries Fund is all about.

The priorities of today will define our economic future, and we believe the Victorian Government needs to set those priorities.

With those priorities in mind, we can work with businesses to grow our traditional industries and invest in the sectors that will shape the next century.

Our Government has identified the priority sectors with potential for remarkable growth – the sectors in which Victoria is uniquely poised to lead the world:

- Medical technology and pharmaceuticals
- New energy technologies
- Transport, defence and construction technologies
- Food and fibre
- International education
- Professional services.

Collectively, these sectors have the potential to drive up to \$70 billion in additional economic output by the year 2025, and create over 400,000 new jobs for Victorians.

The \$200 million Future Industries Fund is turbocharging these priority sectors through job-creating grants to specialist firms and companies.

The \$500 million Regional Jobs and Infrastructure Fund and the \$508 million Premier's Jobs and Investment Fund also lay the foundation for growth across our entire economy.

We have a few advantages under our belt: high-quality infrastructure, skilled workers, world-class liveability, well-connected cities, productive land and resources, all in close proximity to Asia.

And new energy technologies will be vital to the future of this planet, and our state. As we make our energy supplies cleaner and more sustainable, we also have the opportunity to attract investment, build our knowledge and skills and, importantly, create jobs. But it isn't up to the sector to go it alone – governments also have a role to play.

Our priorities for assisting this sector, outlined in this strategy, are the next step. It's all about securing the high-growth industries of the future, and the jobs that come with them.

A handwritten signature in white ink, appearing to read 'Daniel Andrews'. The signature is fluid and cursive, with a prominent 'D' and 'A'.

**The Hon. Daniel Andrews MP**  
Premier of Victoria

# MINISTERS' FOREWORD

The energy sector is rapidly transforming both in Victoria and internationally as new technologies emerge at a fast pace. Victoria is positioned to significantly benefit from this transformation and to capitalise on new and developing technologies including renewable energy and energy storage, and energy efficiency products and services. We are also at the stage where we can see significant innovation opportunities, and the growth of consumer-driven markets for new energy solutions, from Victoria's smart meters.

The New Energy Technologies sector strategy, along with a suite of initiatives including our forthcoming Renewable Energy Action Plan and Energy Efficiency and Productivity Strategy, form the Victorian Government's comprehensive approach to transforming the energy sector. This New Energy Technologies sector strategy outlines our priorities to ensure Victoria is ready for sector transformation and well-placed to capture the economic and environmental benefits offered, including creating new jobs.

We developed this strategy after extensive consultation with many energy sector participants. We sought input on the best ways government can collaborate with industry, households, communities, academics and others to support future growth and development in the sector. Our New Energy Technologies sector strategy clearly outlines how we will work with participants across the energy sector, providing a framework for government support and investment, and a basis for ongoing industry partnership.

This strategy is designed so Victorian manufacturers and service providers in metropolitan and regional areas can capture their share of market growth by investing in clean energy generation technologies, strengthening industry capability and innovation. It also encourages the development of new consumer-driven markets and statewide industry capabilities.

Supporting this strategy is the New Energy Jobs Fund (NEJF), part of the Government's \$200 million Future Industries Fund. The NEJF provides \$20 million to support priority initiatives and activities that align with this strategy and drive the development of new technologies, jobs and initiatives delivering energy from renewable sources. We welcome the opportunity to provide funding support to eligible projects that will:

- Create long-term jobs
- Increase community participation and the uptake of renewable energy generation
- Reduce greenhouse gas emissions
- Drive innovation
- Build our state's skills and capacity in the sector.

There is already strong local and international demand for new energy technologies, and this demand will continue to grow and create many exciting opportunities over the coming years. We look forward to working with Victorian businesses, households and communities to turn these opportunities into reality.



**The Hon. Lily D'Ambrosio MP**  
Minister for Industry  
Minister for Energy and Resources



**The Hon. Lisa Neville MP**  
Minister for Environment,  
Climate Change and Water



# ENERGY – A TRANSFORMING SECTOR

Victoria's energy sector is undergoing a significant transformation. The emergence of new technologies, greater choice of products and services, cost of living pressures and the imperative to reduce greenhouse gas emissions are changing how Victorians use and interact with energy.

And Victoria is not alone. Countries around the world are looking at new ways to meet their future energy challenges and to capture resultant opportunities. Many of these countries are making large investments in clean energy technologies and products.

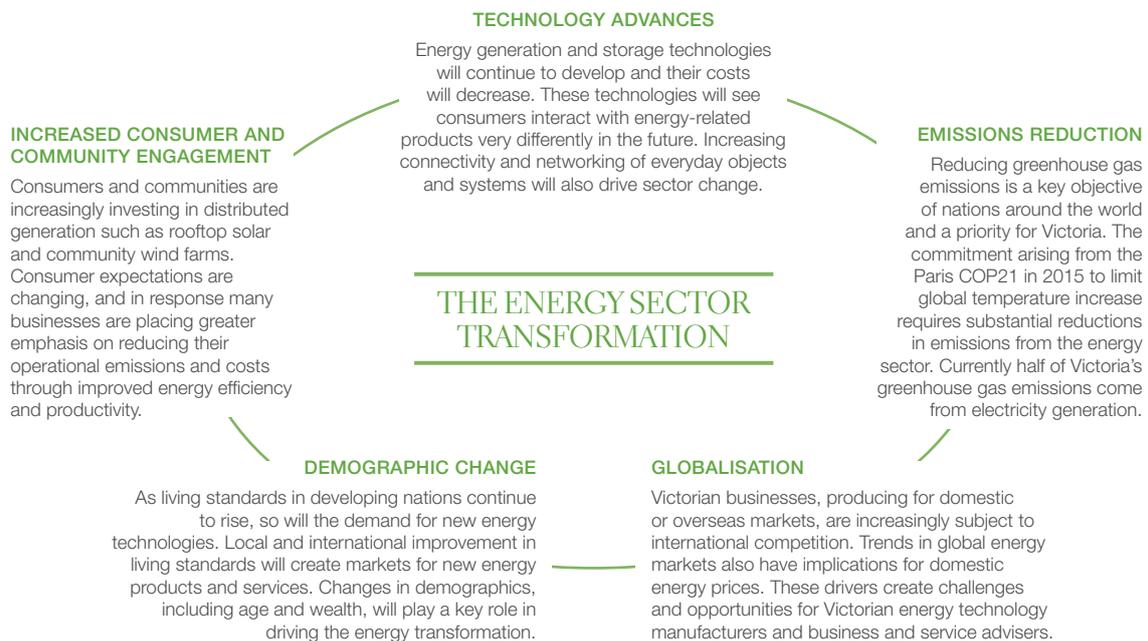
The Victorian Government is committed to maximising the opportunities from being adaptive and resilient to climate change, and transitioning to a low emissions economy. The Future Industries Fund can play a key part in this transition, by encouraging innovation and helping secure jobs and growth aligned to achieving a climate-ready Victoria. Meeting the international commitments made at COP21, held in Paris in November 2015, will further drive the imperative to expand energy efficiency and renewable energy efforts domestically, and reduce emissions from the energy sector. The strong growth of renewables in many countries is forecast to raise renewables' share of global power generation to one third by 2040.<sup>1</sup>

## What is the new energy technologies sector?

New energy technologies are a small but growing part of Victoria's economy. New energy technologies include forms of renewable energy, innovations that make our energy system more efficient, and the products and services that increase consumers' control over their energy needs. The new energy technologies sector creates jobs to deliver these outcomes to the state.

New energy technologies offer potential for substantial employment growth across the state because of our competitive advantages in the sector. Victoria enjoys significant advantages in areas such as information and communications technology (ICT), advanced manufacturing, and material engineering. We also have abundant world-class renewable energy resources, smart meter infrastructure, and research and technological capabilities, so we are well-placed to capitalise on sector growth.

The new energy technologies sector is being shaped by several local and global transformation drivers.



1. World Energy Outlook 2015, International Energy Agency, Executive Summary



# POSITIONING FOR GROWTH

New energy technologies create opportunities for new jobs, business models, and markets for innovative products and services. Victoria has significant opportunities for investment and employment growth in this sector.

Growing Victoria’s new energy technologies sector requires a clear strategy, focus and commitment from the Government. It is critical that we continue to develop and have access to the most efficient and low-cost new energy technologies in the world.

To achieve this, we will initiate and leverage programs such as the New Energy Jobs Fund (NEJF), which provides \$20 million in funding for new energy technology projects under four categories – community, manufacturing, technology and energy storage.

We will also work with industry and the education sector to build knowledge and capability in new energy technologies. This will support growth in advanced manufacturing, installation services, and export markets, and provide opportunities to capitalise on the global demand for energy, which is set to grow by nearly one third by 2040.<sup>2</sup> Locally, this will grow jobs and also support diversification of Victoria’s energy mix.

Our focus	Our goals
<b>Investing in clean energy generation technology</b>	<ol style="list-style-type: none"> <li>1. Deliver a clear and focused Renewable Energy Action Plan</li> <li>2. Attract investment and facilitate access to new capital</li> <li>3. Facilitate renewable energy projects and technologies in Victoria</li> <li>4. Develop emerging energy industries</li> </ol>
<b>Strengthening sector skills, collaboration and innovation</b>	<ol style="list-style-type: none"> <li>5. Collaborate with universities and businesses on energy policies and programs</li> <li>6. Educate the next generation of industry professionals</li> <li>7. Understand and address skill and capability requirements and opportunities</li> </ol>
<b>Encouraging the development of new consumer-driven markets</b>	<ol style="list-style-type: none"> <li>8. Unlock the potential and benefits of energy data</li> <li>9. Enable consumer access to new energy solutions</li> <li>10. Support jobs through improving energy efficiency and productivity</li> <li>11. Support the development of a local electricity storage industry</li> <li>12. Support energy entrepreneurs and start-ups</li> </ol>
<b>Building statewide capabilities</b>	<ol style="list-style-type: none"> <li>13. Secure international investment and strengthen our global supply chain</li> <li>14. Explore opportunities for businesses to transition into the sector</li> <li>15. Facilitate export growth</li> </ol>

2. World Energy Outlook 2015, International Energy Agency, Executive Summary



*Macedon Ranges Sustainability Group, solar photovoltaic system at the Black Forest Timber Mill, Woodend.*

# ACHIEVEMENTS TO DATE

The Andrews Labor Government is delivering on its election commitments with a clear focus on growing jobs and sharing opportunities across our society.

We have established three new Funds totalling over \$1.2 billion to support job creation and economic development, with a particular focus on our priority sectors including new energy technologies:

- \$200 million Future Industries Fund
- \$508 million Premier's Jobs and Investment Fund
- \$500 million Regional Jobs and Infrastructure Fund.

We released the New Energy Jobs Fund (NEJF) grant program, the first of a number of programs under the Future Industries Fund. The \$20 million NEJF will support the creation of new jobs and growth in the uptake of renewable energy generation, reduce greenhouse gas emissions, drive innovation in new energy technologies and assist community groups to develop renewable energy products.

We opened the \$5 million Future Industries Manufacturing Program in 2015 and the \$20 million Future Industries Sector Growth Program in early 2016. These programs are focused on helping businesses to partner with each other, and with educational institutions and the community, to invest in job-creating projects. We have also established LaunchVic, a \$60 million initiative to foster the creation of start-up enterprises.

We provided renewable energy grants to two pioneering communities – \$200,000 to Newstead 2021 to develop a master plan to transition their town to 100 per cent renewable energy, and \$100,000 to the Macedon Ranges Sustainability Group to build a solar photovoltaic system at the Black Forest Timber Mill at Woodend. To assist other communities to develop their own community-owned renewable energy projects, we released an informative guide that provides practical pointers on commercial, technical, governance and regulatory aspects of renewable energy projects.

We also announced an initiative to source renewable energy certificates from new projects in Victoria, bringing forward approximately \$200 million of new investment in around 100 megawatts of renewable energy projects. Additionally, reforms to Victoria's wind farm planning laws have halved the distance within which landowners' consent is required for locating a turbine near a dwelling, from 2km to 1km, and returned responsibility for wind farm planning approvals to the Minister for Planning.

To support Victorian households access the benefits of solar, we implemented regulatory changes to help make solar panels for Victorian householders more accessible and the small scale renewable energy generation connection process easier.

Energy efficiency supports Victoria's transition to a sustainable economy, while lowering costs and creating jobs. We strengthened the Victorian Energy Efficiency Target scheme, including legislating new targets for 2016-20. We also extended Environmental Upgrade Agreements to allow all Victorian councils to offer this financing mechanism to upgrade the energy efficiency and environmental performance of buildings in their municipality.

To help Victorian consumers find the best available energy offer and save money, we upgraded Victorian Energy Compare, an independent price comparator website. Victorian Energy Compare is the only independent comparison tool in the market that has every generally available electricity, gas and solar offer, and lets consumers use their own energy usage data to provide a faster, more accurate comparison.

We are proud of these achievements but know there is much more to do, working in partnership with industry, educational institutions, unions, and the broader community.

The background of the cover is an aerial photograph of a large-scale solar farm. The solar panels are arranged in neat, parallel rows, creating a strong sense of perspective. The color palette of the panels transitions from a bright yellowish-green in the upper right to a deep blue in the lower left. Overlaid on this image are several large, semi-transparent geometric shapes: a large green triangle pointing downwards on the left side, and a large blue triangle pointing upwards on the right side. These shapes intersect to form a central white area where the text is located.

**NEW ENERGY TECHNOLOGIES**  
Sector Strategy

# Investing in clean energy generation technology

We will capitalise on Victoria's history of innovation and abundance of renewable resources to ensure the state attracts and secures local and international investment, and attains leadership status in the development and commercialisation of new and emerging renewable energy technologies.

We will work with households, communities and businesses across metropolitan and regional Victoria to drive advances in new clean energy technologies, generate new jobs in the sector, help facilitate project development and support access to capital for traditional or emerging business models. Importantly, we will create a stable policy environment to ensure stakeholder, particularly investor, confidence is secure.

## What we plan to do

### 1. **Deliver a clear and focused Renewable Energy Action Plan**

Our forthcoming Renewable Energy Action Plan will set out a range of measures to help drive the use of sustainable energy sources in Victoria. These will include establishing a renewable energy generation target for 2020 and 2025, and supporting actions to achieve the target, as well as establishing actions to support households, businesses and communities to invest in renewable generation and energy storage at a local level.

The plan will underline the Government's commitment to investment in renewable technologies and clean energy generation and provide a stable policy environment to engender stakeholder confidence.

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## 2. Attract investment and facilitate access to new capital

Attracting investment is critical for businesses and communities to successfully develop new energy projects. Government investment at an early stage of a small business development has been shown to have positive effects in helping attract additional private sector funding.

The primary vehicle for this investment will be the NEJF, which will support Victorian-based, commercially-ready, new energy technology projects that create long-term jobs across the state. The NEJF will help support the development of Victoria's new energy technologies sector and jobs that deliver energy from renewable sources.

The NEJF will run funding rounds with a total of up to \$20 million available. It will support new energy technology projects which align with its objectives across these categories – community, manufacturing, technology and energy storage. Projects which take advantage of Victoria's smart metering infrastructure platform and/or data will also be encouraged to apply. More information on the NEJF can be found at <http://www.business.vic.gov.au/support-for-your-business/future-industries/new-energy-technologies>.

The Government is working with the Clean Energy Finance Corporation (CEFC) and the Australian Renewable Energy Agency (ARENA) to identify programs and initiatives that could benefit from the NEJF. We will also work with the Commonwealth Government to consider how Victoria can develop a leadership position in using unconventional forms of private financing, such as community-ownership models or crowd-funding, for innovation and development in the new energy technologies sector.

The Victorian Government's Guide to Community-owned Renewable Energy is a complementary initiative that provides practical advice on commercial, technical, governance and regulatory aspects of renewable energy projects to support consumers across the state to pursue new energy solutions at a community level. For more information, see: <http://www.energyandresources.vic.gov.au/energy/sustainable-energy/community-energy>.

### **Case study: A template for sustainability-focused communities – Bendigo Sustainability Group**

The not-for-profit, membership-based Bendigo Sustainability Group (BSG) in Victoria brings together people with a shared interest in sustainability to champion and raise funds for projects in and around Bendigo. The group started in 2007 and its ultimate aim is for Bendigo to be powered by 100 per cent renewable energy.

BSG has successfully delivered a community-owned, 20 kilowatt solar installation on the roof of the Bendigo Goldfields Library, entirely funded by an innovative, local, crowd-sourcing campaign. The library and local council pay BSG for the power generated, and BSG reinvests the money into other local sustainability initiatives.

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“Investment in clean energy projects presents a massive opportunity for local firms and the creation of new jobs. For example, the Macarthur Wind Farm is one of Australia's largest renewable energy plants and offered exciting opportunities for local suppliers to participate all along the supply chain. We set about working with the Macarthur Wind Farm project contractor, the Victorian Government, Olex Cables and all of their partners to ensure local provider Olex had every possible chance of success.”

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3. **Facilitate renewable energy projects and technologies in Victoria**

Renewable energy projects have the potential to support local investment and jobs, helping strengthen Victoria’s economy. We will work with local businesses to develop and support emerging technologies that assist the transition to cleaner and more efficient technology. This includes using the Victorian Government’s purchasing power to support new energy technologies, especially renewable energy.

The Government will also explore options to work with project developers to facilitate the uptake of renewable energy in Victoria. We will support the sector to grow job opportunities and drive investment by facilitating access to expert guidance, allowing projects to progress more effectively.

4. **Develop emerging energy industries**

Around 12 per cent of Victoria’s electricity generation comes from renewable sources such as wind, solar and bio-energy. There is potential for renewable energy to meet a greater share of our energy needs in the future, contribute new jobs, and increase the state’s economic prosperity.

To better unlock this potential, we will implement industry development plans to support Victorian-based renewable energy sectors. These plans will support the growth of bio-energy and marine energy, with the potential to expand to other industries as they emerge.

Using new forms of renewable energy can deliver significant economic benefits to Victoria, including:

- Expanding the energy mix and providing a more diversified energy base
- Reducing greenhouse gas emissions from energy sources to allow for a smoother transition for Victoria’s energy system under any future carbon constraints
- Providing opportunities to develop new products, industries, and markets, and generating new jobs and economic growth.

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“The Government has a great opportunity to position Victoria as a leader in a sector that is innovative and can support real employment in rural and regional areas. The role of renewable energy in helping to reduce electricity prices and give consumers and businesses meaningful ways to protect themselves from rising power prices is becoming more broadly appreciated among the general public.”

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Clean Energy Council





# Strengthening sector skills, collaboration and innovation

As we grow Victoria's new energy technologies sector, our workforce will need to grow and develop new skills. In order to meet this demand, it will be critical that we strengthen our capabilities and capacity to innovate in the energy sector. Capacity within the sector is key – for innovation, research and development, education, commercialisation, manufacturing and export. Also critical is our ability to capitalise on local and international opportunities, products and services, and adapt them for use in Victoria.

Building the sector's capacity to innovate and transform requires different sector participants to connect, share ideas and partner together. These participants include energy businesses, the ICT sector, universities, advanced manufacturers, financial institutions and entrepreneurs.

Victoria will be known as an attractive, stable market for the commercialisation of pioneering energy management products and businesses. Our modern energy sector infrastructure, research and development and innovation capability support energy sector transformation. Our state will offer an energy technology innovation ecosystem that provides a comprehensive solution to energy challenges.

## What we plan to do

### 5. Collaborate with universities and businesses on energy policies and programs

The Government understands that collaborative relationships between research and academic institutions and international and local businesses, are critical to attracting and building skills. We will explore options to partner with these stakeholders to undertake evidence-based analyses that will benefit all Victorians.

In partnership with our leading universities and other institutions, and under the guidance of strict consumer privacy protocols, there is potential to leverage the de-identified data collected from Victoria's smart meters. Collaboration between government, universities and businesses may also provide electricity systems analysis, which may include:

- Undertaking independent and evidence-based analyses of the energy needs of Victorian consumers and understanding the systems and technologies required to best meet those needs
- Understanding and demonstrating how new energy technologies can and will play a major role in Victoria's transformation to a cleaner energy generation mix
- Educating and informing academia, industry and government to ensure energy industry training, education, policy development and investment decisions are based on accurate information
- Establishing sophisticated links between industry and academia to support new jobs and new technologies and grow Victoria's economy
- Undertaking consistent and measurable reporting of the energy sector, including understanding employment trends, business types and supply chain mapping to identify new opportunities and make informed business decisions.

Collaboration can provide opportunities to test prototypes and use academic test labs to help commercialise new energy products and services.

#### **Case study: Achieving success through partnerships – The Advanced Resource Efficiency Centre**

The Advanced Resource Efficiency Centre (AREC) in Sheffield in the United Kingdom is an excellent example of how genuine, sector-wide collaboration results in tangible benefits. The centre provides a platform for joint work between policy makers, academics and industry to meet the challenge of promoting resource efficiency and sustainability across supply chains.

Working with government policy makers, universities and industry partners, AREC supports the development of resource-sustainable supply chains by proposing new ways of reducing risk in overcoming the challenges of resource availability. Through AREC, small and medium-sized enterprises (SMEs) can work with larger industrial partners, and benefit from cutting edge academic research and skills.

One project, a collaboration between Sheffield University, Cambridge University, University College London, and Boeing, revealed a method to reduce CO<sub>2</sub> emissions of the Boeing 787 Dreamliner by up to 15 per cent through replacement of traditional construction materials with composites and practicing eco fuel use.



**6. Educate the next generation of industry professionals**

We will explore options to collaborate with universities, TAFEs and other educational and training institutions to continue to ensure the curriculum and focus of energy-related vocational courses and degrees are aligned with the workforce requirements of the new energy technologies sector.

Ensuring that emerging graduates entering the energy sector have the right technical, commercial and policy development skills and capabilities will be critical to enabling Victoria's new energy technologies sector to thrive and grow. This initiative could operate as an extension of the collaboration centre outlined as part of point five in this plan, "Collaborate with universities and businesses on energy policies and programs".

**7. Understand and address skill and capability requirements and opportunities**

We will work with Victoria's energy industry to develop policies and programs that address sector skill shortages and meet the demand for new and additional skills. Understanding the skill needs of the new energy technologies sector now and in the future is critical to ensuring that Victorian businesses have access to employees with the right skills in the right areas.

We will identify energy sector skill requirements and take opportunities to build new jobs and alternative pathways for Victorian workers with relevant expertise in industries undergoing significant change.

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"In both the TAFE and university sectors, there is need to ensure that curriculum changes to reflect the future trends of technology which will impact new energy advances. This would greatly assist in a globally competitive environment. Equipped with knowledge of the different engineering disciplines, further training in entrepreneurship would enable individuals to form strategic alliances with universities at one end and venture capitalists at the other end of the technology development curve."

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# Encouraging the development of new consumer-driven markets

Rapid advances in technology and greater connectivity of people, systems and everyday objects have created a potential consumer-driven market for energy solutions, for example, integrating electricity storage.

The new energy technologies sector will be a key driver of jobs and economic growth in Victoria, and the Government will work with industry and regulators to encourage sector investment and innovation.

Victoria is a state where innovation can thrive. Our regulatory systems and settings will be fit-for-purpose, so local and international emerging industries, particularly those focused on developing and commercialising energy efficiency and other innovative energy-related consumer products and services, want to do business here.

Opportunities for entrepreneurs and start-ups will arise from the Government working with industry to fully enable the benefits of our smart meter infrastructure, data and strong ICT sector.



# What we plan to do

## 8. Unlock the potential and benefits of energy data

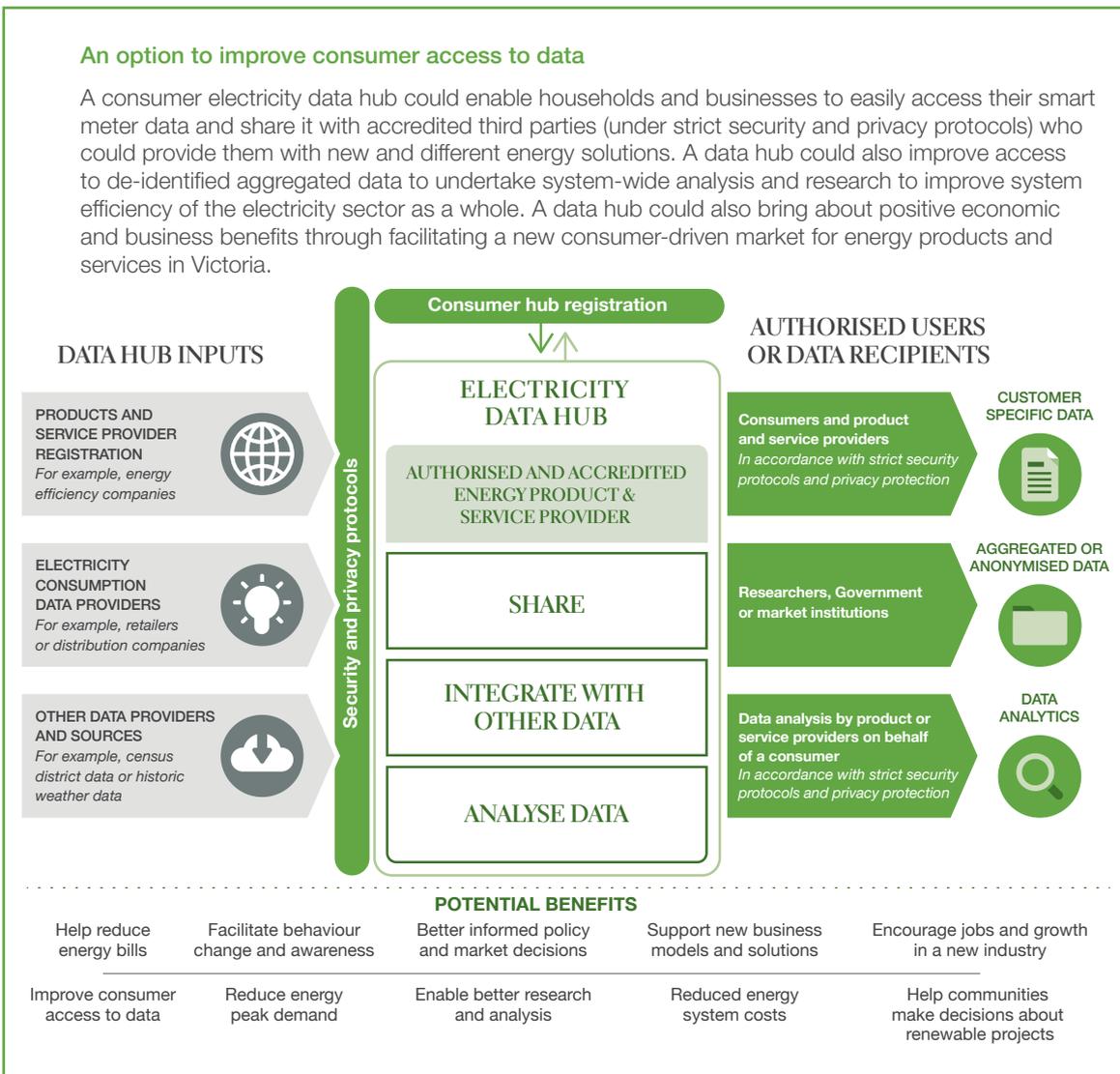
Consumers increasingly expect products and services that make their lives easy. Smart meters can support this outcome by providing consumer data that, when linked with a relevant product or service, can deliver a range of personalised energy solutions and enable consumers to more efficiently interact with the energy market.

The Government is exploring options to improve consumer access to their energy data and emerging energy products and services. This will enable Victorian consumers to fully access the benefits of data captured by smart meters. For example, these benefits may be realised through a centralised platform, such as a consumer electricity data hub.

Opportunities exist for businesses to develop new products, services and technologies that leverage smart meter data to benefit individual consumers, communities, and whole industries. New product and service providers could develop technologies to deliver services so households and businesses, both metropolitan and regional, can use their energy more effectively.

### An option to improve consumer access to data

A consumer electricity data hub could enable households and businesses to easily access their smart meter data and share it with accredited third parties (under strict security and privacy protocols) who could provide them with new and different energy solutions. A data hub could also improve access to de-identified aggregated data to undertake system-wide analysis and research to improve system efficiency of the electricity sector as a whole. A data hub could also bring about positive economic and business benefits through facilitating a new consumer-driven market for energy products and services in Victoria.



## 9. Enable consumer access to new energy solutions

Consumers are increasingly central to the energy system as new technologies emerge, including new ways to generate, store and use energy.

Enabled by smart meter infrastructure and access to the data captured by this technology, Victoria is well-positioned to develop and promote new, consumer-driven markets for energy products and services. These potential markets could include integrated electricity storage and generation solutions, innovative new retail products, energy analytics and efficiency services, energy price brokers, or facilitation of regional or metropolitan community-scale renewable projects.

The Government is focused on opening up markets to allow consumers to drive and promote ideas and solutions that can potentially change behaviours, save consumers money and help them reduce their carbon footprint.

Victoria has the opportunity to become a global leader as this market for new energy technology products and services emerges. We will also look at introducing measures to assist Victorian businesses, to create jobs and capitalise on these emerging markets.

### Opening up the energy market allows for smart collaboration and new ideas

Smart meters are a key building block for creating 'smart energy ecosystems' that support exciting new technologies, business models and industries.

As we have seen with smart phones, 'smart' devices have enormous consumer appeal because they can be so fully personalised to the individual user, making our lives easier (for example, air conditioning controls, smart watches and battery storage). As electricity transitions towards a new generation of business models, new enterprises using the data from smart meters will arise to help residential, commercial and industrial customers maximise their financial, lifestyle and/or operational benefits.

Smart meter data will enable customers to accurately choose the appliances, equipment and energy management systems that will save or even make them money. These set-and-forget systems can function like a 'digital conductor' to continuously ensure appliances and equipment provide all the desired user-benefits at the lowest possible cost. The same system might also be set to 'sell' electricity back to the grid at high price periods where excess household solar and energy storage capacity is available.

The detailed energy data available to Victorian customers and industry enables the creation of a new platform for energy innovation. As a result, Victoria is well-positioned to drive the creation of next generation energy jobs, enterprises and business models of national and global significance.

**Mark Paterson**, Program Director – Network Transformation Roadmap, CSIRO

## 10. Support jobs through improving energy efficiency and productivity

Promoting investment in energy efficiency supports jobs for service providers who offer advice and improve business systems, retrofit buildings and manufacture and upgrade appliances. Jobs can also be created when businesses use energy more productively as the money saved on reduced energy bills frees up resources, which can then be reinvested in the business.

The Victorian Energy Efficiency Target (VEET) scheme already supports new jobs, bill savings and emission reduction, by effectively providing discounts on energy efficiency services and products. The VEET scheme is driving substantial investment in energy efficiency in homes and businesses and supports around 2,000 energy services industry jobs. We are further strengthening the VEET scheme by increasing the targets in order to lift energy efficiency and productivity in Victoria even higher.

In June 2015, we released our Energy Efficiency and Productivity Statement, which set out priorities for action. These included improving the efficiency and quality of our buildings, making Victorian businesses more productive and competitive and harnessing markets to ensure broad uptake of energy efficiency. Our forthcoming Energy Efficiency and Productivity Strategy will detail new measures to deliver on these priorities.

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## 11. Support the development of a local electricity storage industry

Without storage, electricity can only be used at the time it is produced, meaning that (for example) solar and wind generated electricity is only available when the sun shines or the wind blows. It also means that at peak times – usually when large numbers of people get home from work and switch on air conditioners or heaters – the system has to generate enough electricity simultaneously to meet that high demand.

The storage of electricity can fundamentally change the way electricity systems are designed and operated. Electricity can be produced at one point in time, but used at a later time. Unused energy can be stored when it is generated, and drawn on later to meet peak demand.

With the correct frameworks in place, the use of energy storage has the potential to benefit residential and small commercial customers, as well as the electricity network, by assisting:

- Individual consumers to manage their electricity consumption and enjoy a greater ability to respond to flexible electricity prices
- Electricity network businesses to integrate higher levels of distributed generation into the system and lower the overall cost to the network of meeting aggregate demand during peak electricity use periods.

In parallel to supporting the development of new standards and accreditation frameworks at the national level to support the efficient, effective and safe uptake of energy storage technologies, the Government will review the critical steps required to facilitate the industry's growth in our state. Recycling and disposal of batteries will be a critical part of the future for energy storage, providing Victoria with an excellent opportunity to establish an 'end of life' electricity storage industry that services both our state and beyond.

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## 12. Support energy entrepreneurs and start-ups

The Government will encourage and support new energy technology ideas developed in Victoria, creating jobs, investment and exports. We will ensure incentives are in place so appropriate providers choose Victoria as the place to develop their business. We will provide a supportive, fit-for-purpose regulatory system, stable policy environment, and world-class innovation ecosystem to give Victoria significant 'first mover' local and global competitive advantages.

One key to supporting start-ups and other new energy technology providers will be our exploration of new energy technology hubs and industry clusters to foster job growth, sector development and innovation. These hubs and clusters provide the forum for idea incubation and generation in fit-for-purpose facilities. They would be a place where, for example, small start-ups can develop big ideas, across the state.

The Government recently established LaunchVic to enhance Victoria's entrepreneurial system and support the development of high potential businesses. Consistent with our holistic approach to sector development, we will engage with and support start-ups and fast-growing businesses related to new energy technologies.

LaunchVic will invest in core infrastructure, improve access to capital markets for local start-ups and advocate on Commonwealth legislation and regulation, as well as engage in start-up events, campaigns and mentoring programs to assist businesses to grow and create new jobs.

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A hand is holding a small, white, rectangular smart lighting sensor. The sensor has a circular lens in the center, a small square component to its left, and a grid of small holes to its right. The background is a blurred cityscape with a prominent tower under a blue sky. The image is framed by a green geometric shape on the left side.

*Melbourne based  
Organic Response,  
smart lighting sensors*



# Building statewide capabilities

The Government will identify and support Victorian businesses entering the global supply chain in sectors that have not traditionally focused on energy, such as ICT or advanced manufacturing, to capitalise on emerging opportunities and our state's global capabilities. These capabilities include advanced industry development, strong export links to fast-growing economies, and world-class education systems, graduate programs and graduates.

The potential for Victoria to grow and develop its presence as a centre of excellence in new energy technologies is significant. For example, we can build our expertise in advanced manufacturing, including high-end specialised components and research and development.

We will work across several levels of government to build statewide industry capabilities in the new energy technologies sector. First, we will actively enhance the uptake of new energy technologies by Victorian industry and consumers. Second, we will identify and support non-traditional energy businesses to transition into the new energy technologies sector. This work will include ensuring Victoria is recognised globally as a developer and manufacturer of advanced and innovative components, products and services.

## What we plan to do

### 13. Secure international investment and strengthen our global supply chain

We will work with Victorian businesses in the new energy technologies sector to help them innovate, secure international investment, build new markets, and ensure a strong and integrated local and global supply chain for the state.

Invest Victoria provides an effective, single entry point and a range of investment facilitation services for international companies wanting to establish or expand their business in metropolitan or regional Victoria. Invest Victoria has a key role to play in the new energy technologies sector, introducing international companies to local suppliers, service providers and potential partners to fast track their entry into the market.

The Victorian Government Business Offices (VGBOs) around the world will support new energy technology businesses and help them navigate government services, programs and regulations. Additionally, VGBOs will guide businesses looking to access government grants and seeking other assistance and information.

This work will contribute both to strengthening Victoria's existing, local and regional supply chain and building and integrating our global connections. Additionally, Invest Victoria will guide businesses looking to access government grants and seeking other assistance and information.

#### **Victorian Industry Participation Policy**

We are creating jobs and boosting economic activity along the new energy technologies sector supply chain through the Victorian Industry Participation Policy (VIPP).

VIPP is applied to government procurement activities in metropolitan and regional Victoria to raise awareness of local industry capabilities and to encourage participation by local SMEs in public sector purchasing. VIPP also has a Strategic Project framework that applies to all major strategic projects. Strategic Projects have minimum local content requirements set by government to drive local industry development, support local SMEs, and create jobs.





#### 14. Explore opportunities for businesses to transition into the sector

Victoria has important competitive advantages, including globally-competitive industries, a talented and skilled workforce, and vibrant education and research sectors. When combined with our abundant renewable resources and extensive smart meter data, these attributes provide a strong foundation for a vibrant new energy technologies sector.

Traditional energy products and distribution models have driven past growth in Victoria's energy sector. This is set to change as the sector transforms. Technology advances, such as electricity storage, new forms of renewable energy generation, and the digitisation of the energy sector through smart meters opens the sector up to companies that may not have traditionally been involved in the energy sector.

As Victoria enters the global market for new energy technologies, significant potential exists for domestic and international companies to transition or expand into the new energy technologies sector, especially those with strong ICT or advanced manufacturing expertise. We will undertake feasibility work and supply chain analysis that focuses on traditional and non-traditional energy industries to understand the role new energy technologies can play in this new economic environment. This will help ensure the Government supports companies transitioning into the new energy technologies sector.

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#### 15. Facilitate export growth

The world market for new energy technologies is large and growing. Local businesses developing new and emerging low emission energy technologies are increasingly operating in a global market, as many countries look for new and innovative ways to meet their future energy challenges and needs.

Our close proximity to growing markets in Asia, such as China, India and Indonesia presents significant export opportunities. Potential export opportunities exist for Victorian businesses operating in the new energy technologies sector, particularly with information, knowledge and expertise, high-end technology component manufacturing, and research and development work.

We will continue to promote opportunities for new energy technologies businesses to grow their export capabilities through our internationally-focused agencies, such as Business Victoria, Trade Victoria's Access Program and the Department of Economic Development, Jobs, Transport and Resources' Trade Mission Program. We will capitalise on Victoria's existing international presence, provided by the 18 VGBOs around the world, to ensure our new energy technologies sector has access to international markets and to assist Victorian businesses to become export ready.

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"There are definite growth opportunities in high-tech manufacturing – battery storage, electric vehicle components, and control systems, particularly with strong trade links to Asia. Australia is a knowledge economy and Victoria should be focusing on supporting the innovation that already exists and nurturing new ideas to commercial fruition."

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# Securing the sector into the future

The Victorian Government will deliver this strategy in partnership with industry and other key stakeholders. In delivering this strategy we aim to achieve lasting growth, and in doing so create rewarding, high-value, and secure jobs for Victorians.

The success of this strategy will be measured through:

- Growth in scale and capability, reflected by an increase in value-adding collaborations and investment attracted to Victoria
- Local companies growing their business and retaining value-adding activity in Victoria, reflected by an increase in businesses growing local operations and continual increases in deal size and a shift towards later-stage assets sold
- An increase in manufacturing related activities, measured by capital investment and exports
- A sustainable pipeline of investable opportunities, reflected by an increase in successful new businesses being created and capital attracted by the sector
- Active engagement with international markets, measured through increased exports and rate of export growth
- The creation of new skilled jobs and enabling the workforce to support capacity increases and scale-up
- Enhanced innovation and research and development across the sector, measured by industry utilisation of enabling infrastructure and capabilities, and investment in research and development activities.

## Victorian Government Programs

There are a range of programs which will support and complement delivery of the New Energy Technologies sector strategy.

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<b>Future Industries Fund</b>	<p>The \$200 million Future Industries Fund will support implementation of the Government's high-growth sector strategies, including support for businesses and industry.</p> <p><a href="http://www.business.vic.gov.au/support-for-your-business/future-industries">http://www.business.vic.gov.au/support-for-your-business/future-industries</a></p>
<b>Regional Jobs and Investment Fund</b>	<p>The \$500 million Regional Jobs and Investment Fund is providing funding for targeted regional infrastructure, jobs and community projects.</p> <p><a href="http://www.rdv.vic.gov.au/regional-jobs-and-infrastructure-fund">http://www.rdv.vic.gov.au/regional-jobs-and-infrastructure-fund</a></p>
<b>LaunchVic</b>	<p>The Victorian Government, through its \$60 million Start-up Initiative, will establish LaunchVic as an independent entity to grow Victoria's broader start up ecosystem in partnership with the start-up community.</p>
<b>Local Industry Fund for Transition</b>	<p>The new \$33 million Local Industry Fund for Transition will support communities in Melbourne's North, South-East and West, and the Geelong Region hit hardest by departing automotive companies, to attract investment and create new jobs for local workers.</p> <p><a href="http://www.business.vic.gov.au/lift">http://www.business.vic.gov.au/lift</a></p>
<b>New Energy Jobs Fund</b>	<p>The Victorian Government's \$20 million New Energy Jobs Fund, a component of the \$200 million Future Industries Fund, will support Victorian-based projects that create long-term sustainable jobs, increase the uptake of renewable energy generation, reduce greenhouse gas emissions and drive innovation in new energy technologies.</p> <p><a href="http://www.business.vic.gov.au/support-for-your-business/future-industries/new-energy-technologies">http://www.business.vic.gov.au/support-for-your-business/future-industries/new-energy-technologies</a></p>
<b>Energy Saver Incentive</b>	<p>The Energy Saver Incentive (ESI), also known as the Victorian Energy Efficiency Target scheme, is a market-based mechanism that helps Victorians cut power bills and reduce greenhouse gas emissions, by providing access to discounted energy efficient products and services.</p> <p><a href="http://www.energyandresources.vic.gov.au/energy/about/legislation-and-regulation/energy-saver-incentive">http://www.energyandresources.vic.gov.au/energy/about/legislation-and-regulation/energy-saver-incentive</a></p>
<b>Victorian Industry Participation Policy</b>	<p>Each year, the Victorian public sector spends more than \$10 billion on procurement activities from goods and services to construction. The Victorian Industry Participation Policy requires government agencies to consider competitive local suppliers when awarding government contracts. For government procurement projects valued at \$50 million or more, minimum local content requirements must be satisfied.</p>

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