



Energy News and ABB

Annual New Zealand Electricity Survey

SURVEY RESULTS 2015

Introduction

Energy News and ABB are delighted to announce the results of the Annual New Zealand Electricity Survey 2015. This document contains some fascinating insights gained from a record 600 industry participants sharing their opinions on the New Zealand electricity sector.

The survey, now in its fourth year, took a different approach to questioning in 2015 and focused on identifying opportunities for the sector and highlighting areas for collaboration and new ways of thinking. We are now sharing our learnings with the industry - and beyond - to inform, educate and encourage.

Twenty-one thought-provoking questions tested respondents' views on electricity industry matters such as disruptive technologies (including solar PV, electric vehicles and battery storage), changes to the industry structure, energy poverty, retail competition, Tiwai Point and the 90 per cent renewables target.

Key findings include 70 per cent of respondents thinking we should be aiming for 90 per cent renewables; participants being split on whether standardising tariffs would deliver the same benefits to consumers as lines company amalgamations; and some 55 per cent of participants thinking we should be a driver of change in the EV movement.

The number of survey respondents was up 30 per cent on the year prior, representing a growing interest among the industry. A breakdown of respondents by organisation type is available on page 15. The survey questions and range of responses were again guided by an advisory panel chaired by John Hancock. The panel members are listed on page 2 and we would like to thank them for their input.

Please email any feedback to
margaret.mccrone@freemanmedia.co.nz.

We welcome any and all suggestions for questions and responses for 2016.

Margie McCrone - Research Analyst
Freeman Media (publisher of *Energy News*)

About ABB

ABB (www.abb.com) is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

About Energy News

Energy News is New Zealand's online news and information service for the energy sector. The website (www.energynews.co.nz) was launched in 2008 and now boasts over 5,000 readers every month from 300 subscribing organisations. Its readership consists of New Zealand energy sector organisations and service companies spanning the electricity, oil and gas, petroleum and alternative energy value chain.

The subscription-based site provides executive interviews, news, opinions and commentary on a daily basis. It also hosts a suite of information resources including two large databases of the sector participants and energy resources. Other information tools include 30-minute electricity supply and demand monitoring, petroleum permit deadline summaries and an oil price monitor.

Cover photo: ABB

The advisory panel

Thank you to all of our panellists for their excellent ideas, which guided the questions and answers in this survey. Combined, these panellists represent a cross section of the industry, and offer a wealth of expertise and knowledge.



John Hancock (Chair)

John Hancock is an independent consultant to utility companies and their suppliers. He is the independent chair of the Electricity Authority's Wholesale Advisory Group, secretariat to the NZ Smart Grid Forum and has chaired the advisory panel for this survey since its inception in 2012.



Richard Fletcher – Powerco

Richard Fletcher joined Powerco in 2011 as GM Regulation and Government Relations. In this role he is responsible for managing policy interaction with the company's economic and technical regulators, as well as corporate relations with official stakeholders. Immediately prior to joining Powerco Richard was Regulatory Strategy and Pricing Manager at Transpower, and before that held various roles in the UK, Middle East and South East Asia.



Shaun Hayward – Smart Power

Shaun Hayward is a director of Smart Power, a specialist energy procurement and management company servicing New Zealand and Australia. He has over 12 years' experience in the New Zealand electricity industry, primarily in energy retailing and trading. Prior to joining Smart Power, Shaun worked for Mercury Energy in various senior management roles.



Gary Holden – Pulse Energy

Gary Holden is Chief Executive of Pulse Energy. He joined Pulse in March 2013, bringing with him 30 years' experience in the electricity sector. In the 1990's Gary headed up TransAlta New Zealand. In 1999 he returned to Canada to lead TransAlta Generation's de-regulation, and became Chief Executive of Enmax Corporation.



Murray Dyer – Simply Energy

Murray Dyer is Commercial Director at Simply Energy, a fast-growing specialist generation and retail services company he co-founded in 2005. He has 20 years' experience working in the energy, commodity and financial markets in Australasia, Asia and the UK.



Chris Turney – Ergo Consulting

Chris Turney founded Ergo Consulting, an electrical engineering consultancy, in 2003. Prior to this he had gained over 25 years' experience in the industry, and has been involved in all aspects of electrical engineering. He has worked in a range of sectors including transmission and distribution, hydro, gas and wind generation, and oil and gas.



Fraser Whineray – Mighty River Power

Fraser Whineray is Chief Executive of Mighty River Power, a role he has held since September 2014. He was previously GM Operations for the company. Fraser joined Mighty River in 2008 from Carter Holt Harvey where he was Director Operational Improvement. Prior to this Fraser held a number of senior roles in the dairy industry and with Credit Suisse First Boston in Australia and New Zealand. He has gained considerable experience in performance management, strategy, mergers and acquisitions, and international business.



Neil Wembridge - Freeman Media

Neil Wembridge is the GM at Freeman Media, which sees him take responsibility for the commercial side of the energy sector products of Freeman Media, including all events, map products, surveys, stakeholder management and business development. Neil came to Freeman Media from a role as a strategic consultant to the New Zealand energy sector based in Wellington. He previously worked for Total and Oracle in the UK.



Margie McCrone - Freeman Media

Margie leads the research team at Freeman Media and is responsible for the premium content on the *Energy News* and *Inside Resources* websites, as well as being involved in the development of new and existing Freeman Media products and services. Margie has law and arts degrees from Victoria University of Wellington. While studying she worked for Freeman Media as a part-time research assistant.



Ewan Morris – ABB

Ewan Morris is the Managing Director of ABB New Zealand, a role he has held since March 2014. He has been with ABB since 1988, and has enjoyed a long and extensive career in the company across five countries including New Zealand, Australia, Sweden, Malaysia and Switzerland. This has seen him gain 20 years' professional experience in international industrial sales, marketing, product and service management.



Tracey Paver – ABB

Tracey Paver is ABB's Corporate Communications Manager and is responsible for coordinating internal and external communications and PR for ABB in New Zealand. Tracey has worked in ABB for eight years, and previously in the rail and construction industries, and has a Bachelor of Communications Studies.

2015 survey highlights

600

 respondents –
up 30% from 2014

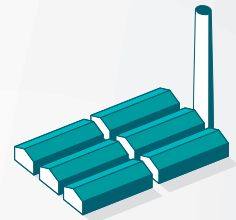
Industry participants include gentailers, retailers, distribution companies, Transpower, regulators and consumers

Based on our survey results:

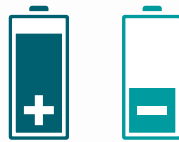
The electricity sector can improve its image by promoting its ability to enhance the quality of consumers' lives



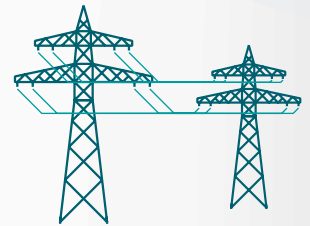
Electricity sector not concerned Tiwai Point smelter will close, and doesn't predict much change in prices even if it does



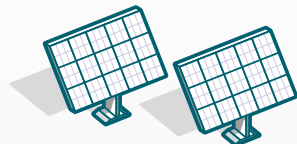
Next 10 years: solar PV and battery storage will be the biggest drivers of change in the electricity sector



Seeking efficiency in networks - lines company amalgamation vs. standardising distribution tariff structures?
Industry split



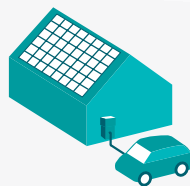
Electricity sector is concerned consumers are reading solar price signals wrong



Electricity industry thinks delivering technology benefits to consumers is the highest priority for the sector



86% of the electricity industry would buy an electric vehicle if all costs were equal



Electricity industry split on whether there is enough retail competition in New Zealand



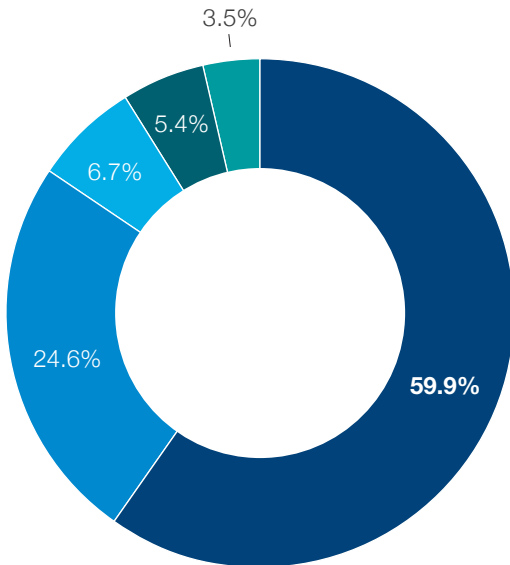
70% of electricity sector gives the green light to 90% renewables



Survey questions

Question 1 – What does the sector do best?

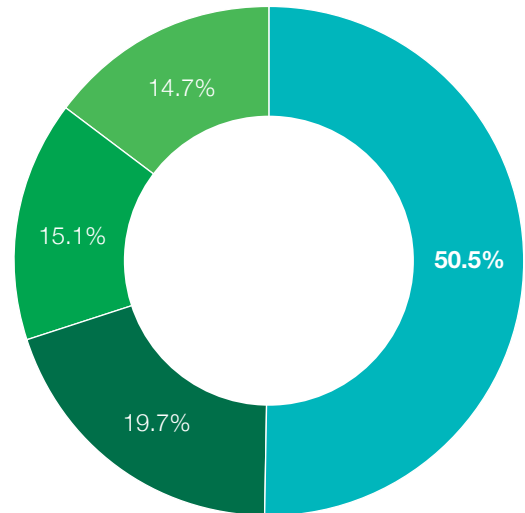
Let's start with the big picture. New Zealand's electricity sector has plenty to be proud of. What would you say is its best feature?



- **80 per cent renewables generation. – 59.9%**
- Security and quality of supply among the best in the world. – 24.6%
- First class health and safety standards and performance. – 6.7%
- Robust regulation that evolves and adapts where necessary. – 5.4%
- Unregulated rollout of smart meters that is on target to reach the majority of residential customers. – 3.5%

Question 2 – How would the public score us?

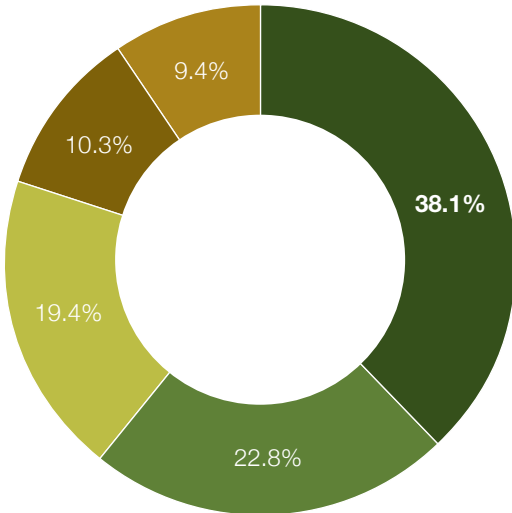
New Zealand does have a world class electricity sector, but public perception (especially around value) could be better. A key challenge, identified in last year's survey and by industry leaders at the recent Downstream conference, is finding a way to work together to turn this around - what is the best way forward?



- **Working on shifting from an image of an industry that builds stuff to one that enhances the quality of New Zealanders' lives. This could include generic pro-electricity brand advertising, improving customer service in call centres, and offering customers more choice e.g. EV and PV solutions. – 50.5%**
- Being seen to take seriously and respond to energy poverty challenges, even if that is acting in a support role to Government rather than taking a leading position – 19.7%
- Industry-wide better marketing of our enviable renewables portfolio, and tying this in with New Zealand's much acclaimed 'Clean Green' image – 15.1%
- Encouraging distribution companies and Transpower to build stronger relationships with customers, so it's not just retailers that have a regular face-to-face relationship – 14.7%

Question 3 – Addressing energy poverty

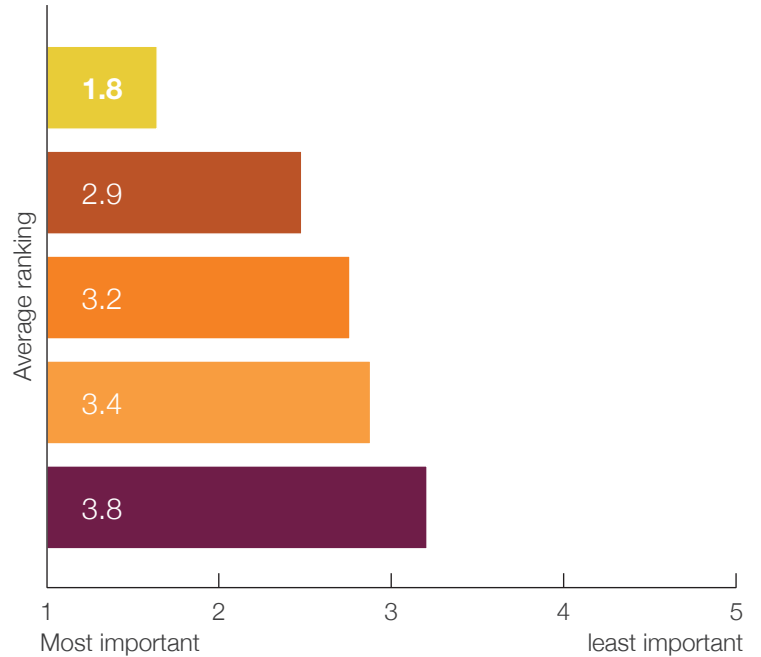
Poverty, and hence energy poverty, is an unfortunate reality for some New Zealanders, and last year survey participants agreed the industry has a role to play in addressing it. Disconnections for non-payment are now down to a six-year low, so the industry’s collaboration in this area appears to be working. What more should industry be doing to help?



- **The industry should work more with Government to come up with dynamic, targeted, integrated policies that reach those most in need, and supports them long-term, including with budgeting advice and energy efficiency education – 38.1%**
- Nothing more. The industry is already doing what it can. New weekly payment options, pre-pay products, and early intervention plans have largely dealt with the issue from an industry perspective – 22.8%
- The industry should work more with the Government to get gas and solar into the country’s social housing stock and lift the standard of private rental homes – 19.4%
- The industry should work more with the Government and social welfare agencies to create a social tariff – 10.3%
- Less. Energy poverty is not an industry problem and we should leave it to Government to tackle – 9.4%

Question 4 – Future focus

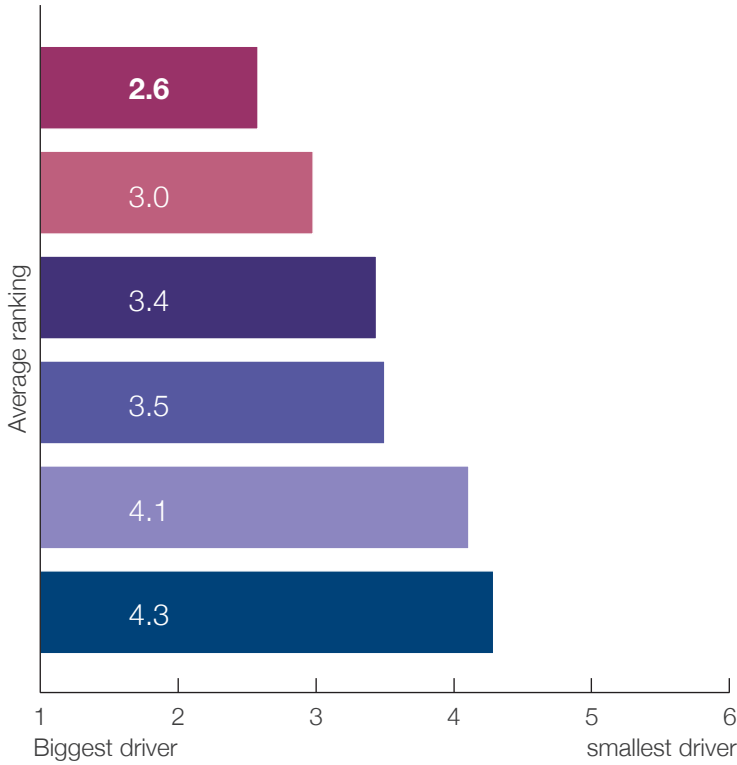
Thinking of the big picture again, what is the most important priority for the electricity sector moving forward, in order to ensure it continues to be world class?



- **Adopting new technology and delivering the benefits to consumers, including making the most of our smart grid potential – 1.8**
- Moving determinedly towards a 90 per cent renewables generation target – 2.9
- Addressing the potential impacts of big reductions in demand e.g. Tiwai Point’s potential closure or reduced load – 3.2
- Improving the electricity sector’s public image – 3.4
- Making the most of our great renewables know-how by exporting our skills to the international market place – 3.8

Question 5 - Biggest catalysts for change

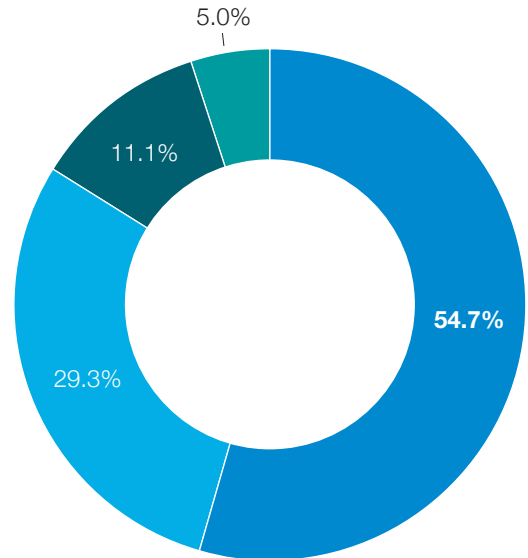
With that big picture in mind, times are changing and changing faster than ever before. We are currently at a crossroads, and the sector in ten years' time promises to look very different to the sector of today. What will be the biggest drivers for change in the New Zealand electricity sector?



- **Distributed generation, particularly solar PVs – 2.6**
- Smart in-home energy management systems, including battery storage – 3.0
- Mass-market electric/plug-in hybrid vehicles – 3.4
- A dynamic smart grid – 3.5
- Engaged energy consumers – 4.1
- Aggregated residential demand response – 4.3

Question 6 – Electric vehicles: where do we stand?

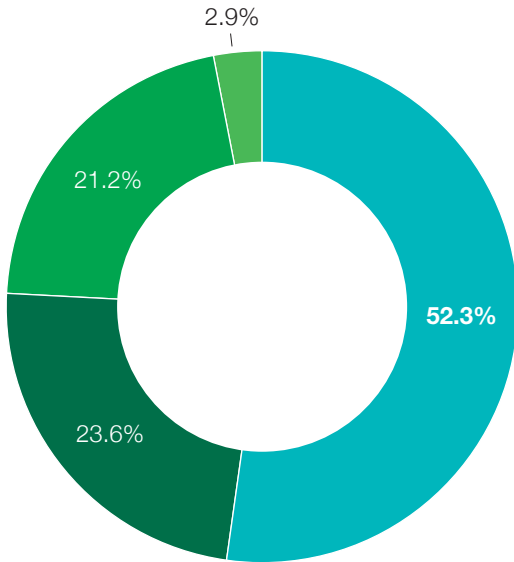
Electric vehicles and charging technologies are developing rapidly, and bring with them a huge potential opportunity for the New Zealand electricity sector. The sector should position itself as...



- **A driver of change – 54.7%**
- A fast follower – 29.3%
- A wary wait-and-seer – 11.1%
- It should not take a position until it is forced to by consumers and the motor industry – 5.0%

Question 7 – EV marketing: selling the benefits?

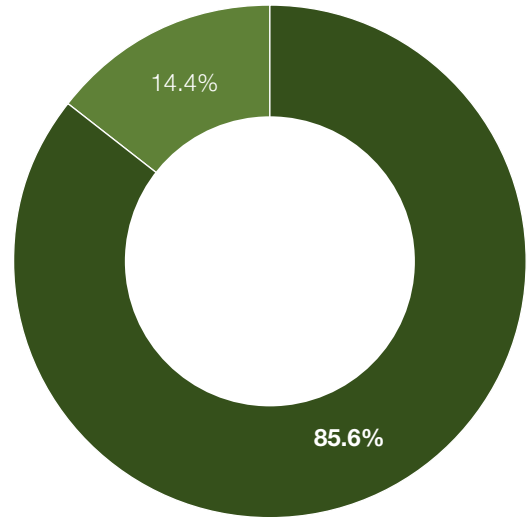
Whether or not you are ready to adopt an industry standpoint, if you were marketing EVs, which benefits do you think would have the best consumer appeal?



- **They're cheaper to run – 52.3%**
- Renewables-powered, they will reduce emissions and be better for the environment than conventionally-fuelled engines – 23.6%
- They will reduce the country's reliance on imported oil, improving energy security and our balance of payments – 21.2%
- They're fast – 2.9%

Question 8 – EVs: would you buy one?

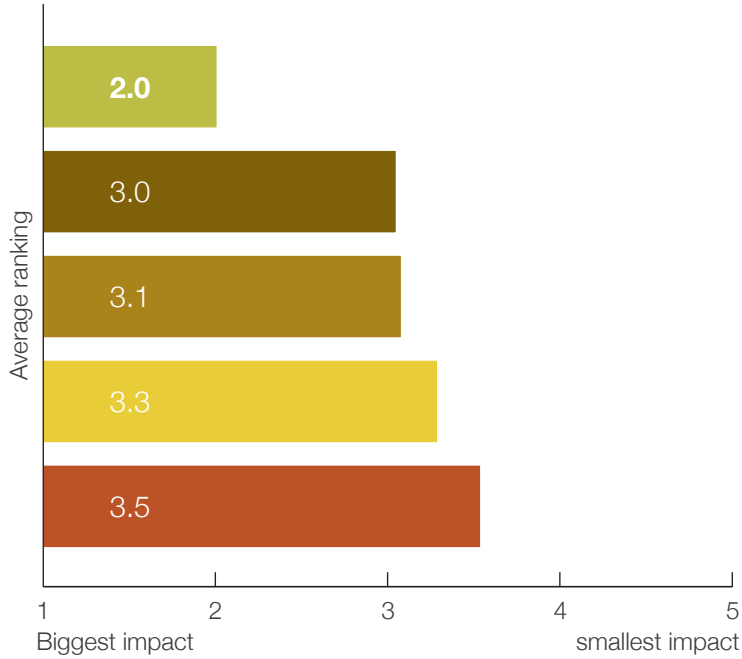
In a survey of 10,000 consumers carried out by Pulse Energy last year, 84 per cent said they would consider purchasing an electric vehicle in the future if all costs were equal. As a consumer and a member of this industry, would you purchase an EV (or plug-in hybrid) if total cost of ownership was equal or better than the internal combustion equivalent?



- **Yes – 85.6%**
- No – 14.4%

Question 9 – Solar: what will the impacts be?

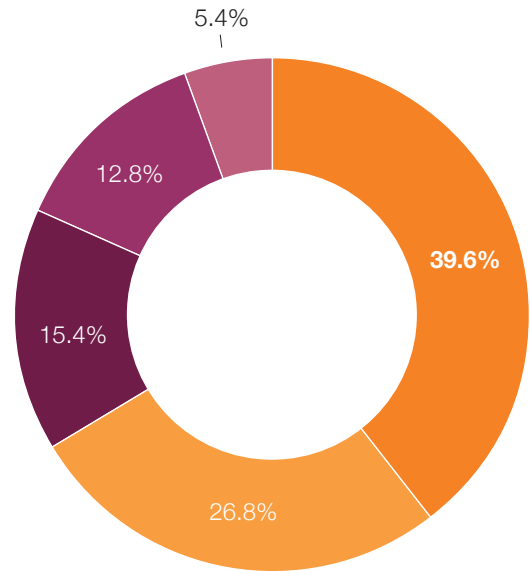
The sector is watching closely as more and more New Zealanders take up mass-marketed solar offers. What are the biggest impacts the big solar push will have on the sector?



- Existing distribution pricing models will need to be modified in order to cater for the impact of more multi-directional power flows in the network and reduction in net kWh delivered across the network – 2.0
- Consumers will enjoy being more self-reliant for their energy needs and less exposed to retail price increases – 3.0
- Retailers and distribution companies will all start to offer solar installation services given the commercial opportunity before them – 3.1
- Consumers could end up losing out if their solar installation is more expensive than staying grid-connected over its lifetime – 3.3
- Solar will help demystify electricity for consumers and aid the take-up of other technologies, including EVs and in home energy-management systems – 3.5

Question 10 – Solar storage options

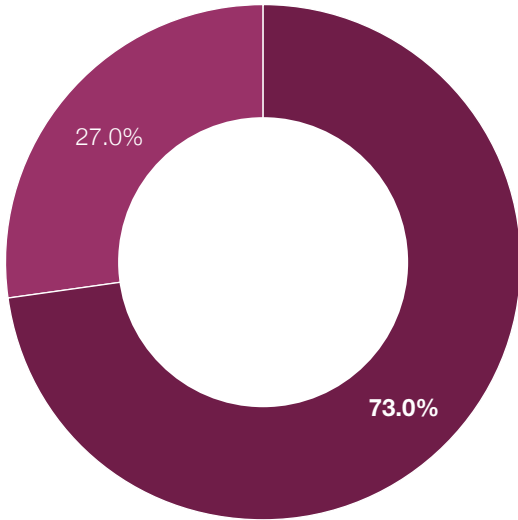
One of the challenges with solar generation is around how to store the energy produced for peak demand periods, or when the sun stops shining. What do you think is the best storage option?



- Individual end consumer level storage solutions – 39.6%
- The existing controlled fuel storage in the grid (e.g. hydro, gas and coal) – 26.8%
- Community type, individual feeder level solutions offer the best of both worlds – 15.4%
- Network level PV generation and storage solutions will offer the most economic overall solution with the benefits socialised among all consumers – 12.8%
- Low voltage distribution network at substation level – 5.4%

Question 11 – Solar: is it economic for you?

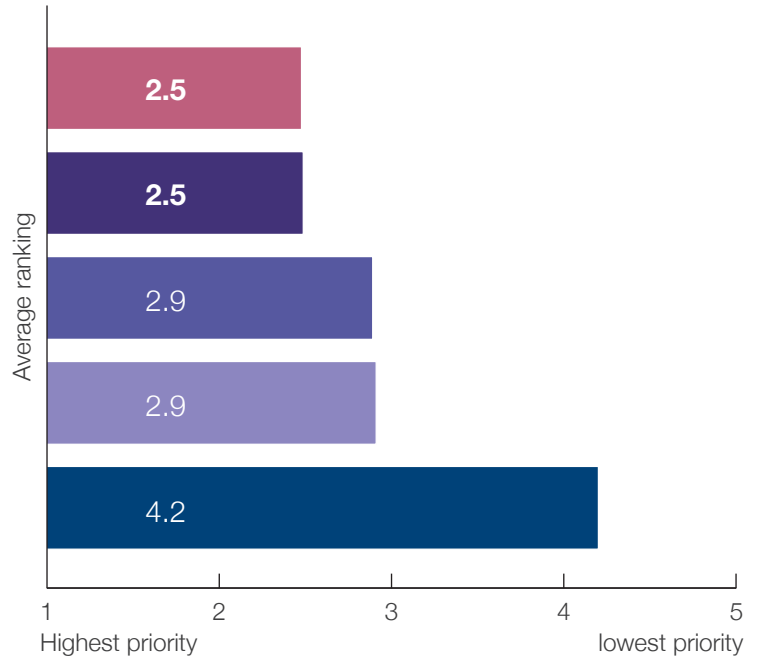
In that same Pulse survey (referred to in question 8), 85 per cent of consumers believed that there would be an advantage to solar relative to the retail day-time electricity price. As a consumer and a member of this industry, do you think consumers are reading the price signals over the life time of the panels correctly?



- No – 73.0%
- Yes – 27.0%

Question 12 – Industry structure changes

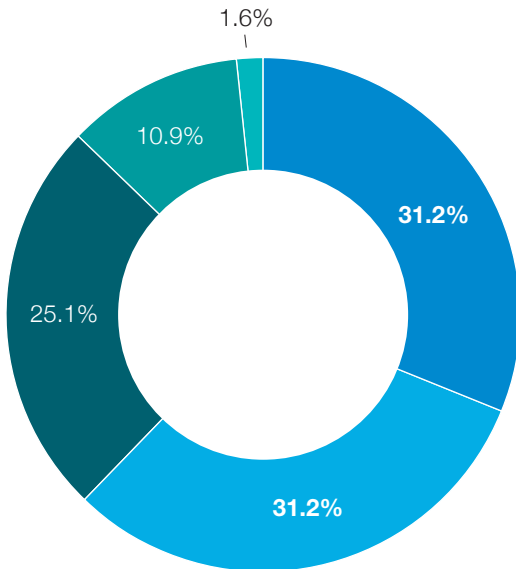
All this talk of change naturally leads us to question whether the current industry structure is efficient, and working as best it can. Thinking hypothetically, if you had to change the industry structure, with a mandate to deliver better outcomes for consumers, what would be the highest priority?



- Reduce the number of distribution companies – 2.5
- Standardise tariff structures among distribution companies – 2.5
- Split retail from generation – 2.9
- Consolidate the market regulator (Electricity Authority) and the economic regulator (Commerce Commission) into one regulator – 2.9
- Create a single buyer market – 4.2

Question 13 – Too many distribution companies?

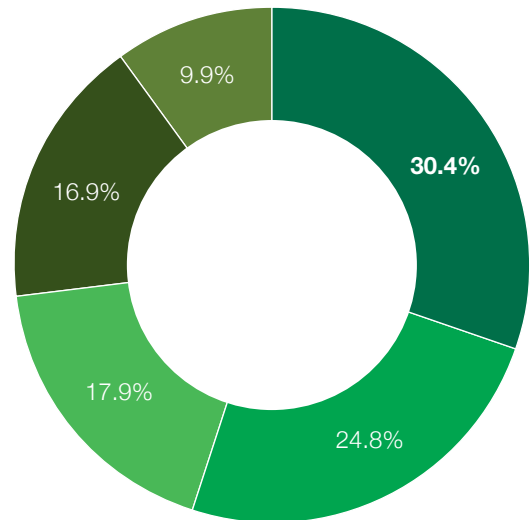
The number of distribution companies is a regular and hotly debated issue. But is there anything to really be gained from looking at amalgamations? What could the benefits be?



- **Consumers stand to save millions through regional amalgamations – 31.2%**
- **Standardising tariffs would deliver most of the benefits, and faster – 31.2%**
- No-one will thank the industry for messing with networks, most of which are customer-owned and provide local support to already struggling regions – 25.1%
- Any gains will be minor after allowing for the time and cost of restructuring – 10.9%
- Distribution restructuring would bring all other sector reforms to a halt – 1.6%

Question 14 – The Authority’s priority

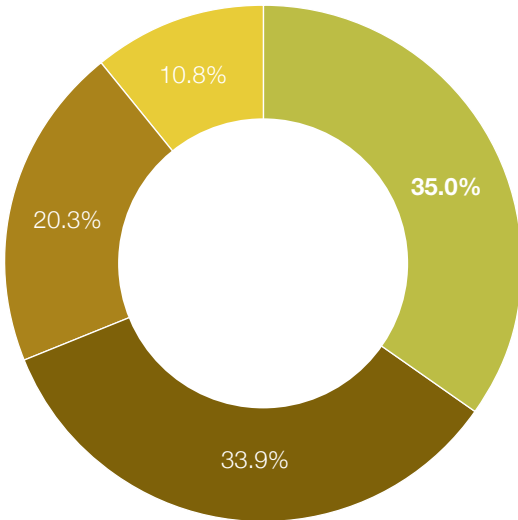
As the current industry structure stands, the Electricity Authority is the market regulator. Hypothetically speaking, what do you think that agency’s number one priority should be going forward?



- **Proactively responding to the increase in solar connections, and the potential impacts of disruptive technologies – 30.4%**
- Coming to an early and pragmatic decision on transmission pricing – 24.8%
- Accelerating its distribution pricing review – 17.9%
- Continuing to encourage more competition in the retail market – 16.9%
- Improving clarity of invoicing on consumers’ bills – 9.9%

Question 15 – Sufficient retail competition?

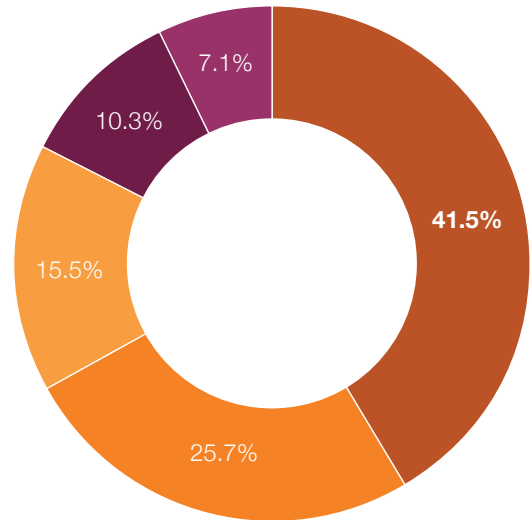
Part of the Authority’s statutory objective is to promote competition in the retail electricity market. Competition appears to be at an all-time high, with 21 parent companies operating 27 retail brands; eight new retailers entered the market in the past 18 months and the four biggest electricity retailers have again announced nil increases in energy costs for the coming year. It could be argued the Authority has cracked that nut. Do you agree?



- **Yes. It's now up to all retailers to come up with a distinct proposition that delivers real value to consumers – 35.0%**
- No. The integrated players still dominate – 33.9%
- Yes. How many more retailers can develop a sustainable business in a market of just over two million ICPs? – 20.3%
- No. Pricing in the forward market is still an obstacle to long-term growth for most of the new retail players – 10.8%

Question 16 – Hedge market tweaking

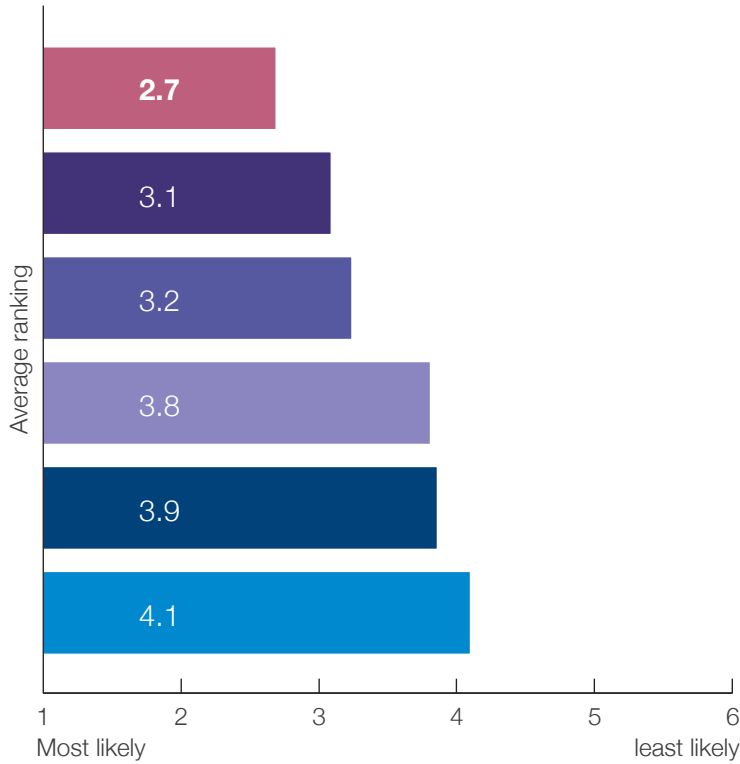
Despite exceeding the Authority’s target of >3,000GWh of UOI, there has been some comment from within the industry that the current futures market is insufficiently liquid, particularly for merchant generators, direct participants and new entrant retailers. What is the best option for improving the performance of the ASX futures market?



- **Reduce the standard contract size so that more, smaller firms can participate – 41.5%**
- Make market-making compulsory for all generators and retailers in proportion to their size – 25.7%
- Require retailers to buy a set percentage of their supplies independently – 15.5%
- Narrow the bid-offer spread that the existing market-makers are required to work within – 10.3%
- Introduce an upper South Island and lower North Island contract – 7.1%

Question 17 – The elephant in the room

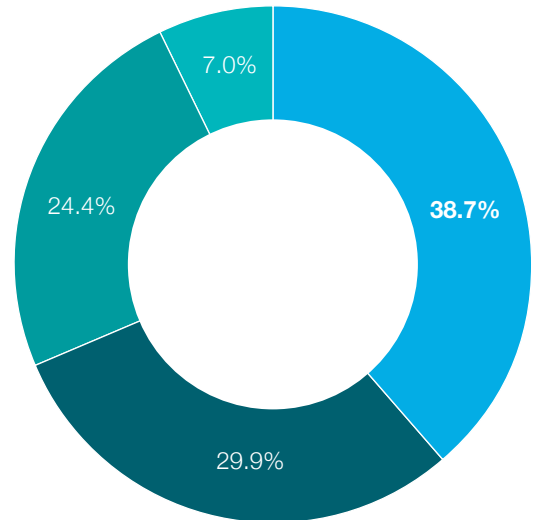
Pacific Aluminium faces a choice on July 1 2015 as to how it buys electricity for the Tiwai Point smelter. What do you think is the most likely outcome?



- **The smelter reduces its load from 572 MW to 400 MW – 2.7**
- The smelter sources 172 MW of supply from a combination of more than one generator, and the remaining 400 MW from Meridian – 3.1
- The smelter sources 172 MW of supply from Contact Energy, and the remaining 400 MW from Meridian – 3.2
- The smelter continues taking 572 MW from Meridian Energy at the original (that agreed in 2007) contract price – 3.8
- The smelter sources 172 MW of supply from Genesis Energy, and the remaining 400 MW from Meridian – 3.9
- The smelter notifies of its intention to shut the plant – 4.1

Question 18 – Tiwai impacts

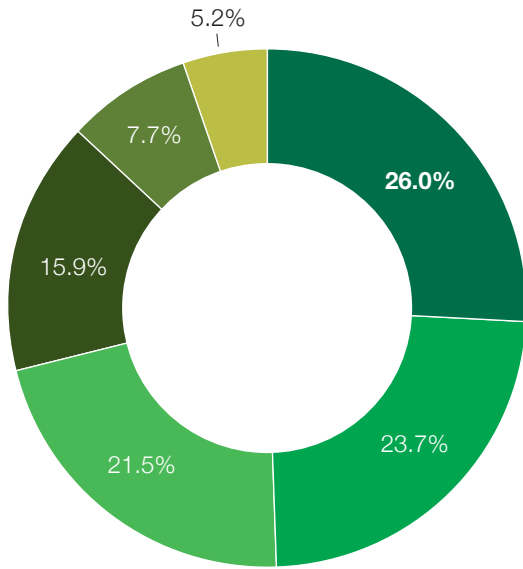
Imagine Tiwai Point is shut in 2017, what do you believe the impact on prices will be?



- **Prices won't change much – 38.7%**
- Prices will decrease across the board by about five per cent – 29.9%
- Prices will decrease across the board by around 10 per cent – 24.4%
- Prices will increase – 7.0%

Question 19 – Dry year risk

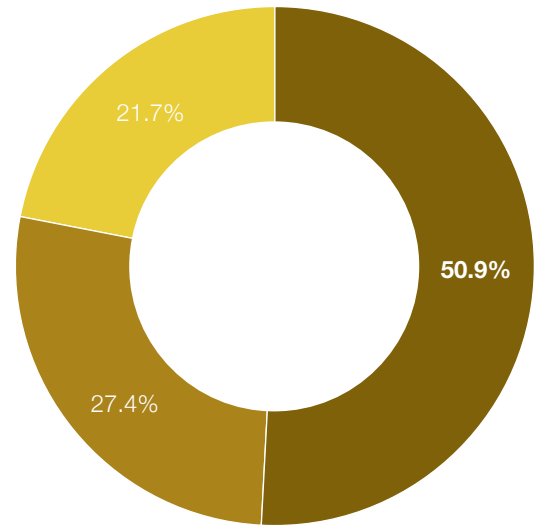
New Zealand has just gone through several dry sequences in the past two years without the industry hitting the newspapers. Given the pending retirement of some thermal generation kit, will that continue?



- **Yes. The country has more than enough consented renewable projects to offset further thermal retirements in a timely fashion - 26.0%**
- Yes, but reserve costs will rise and wholesale prices will become even more volatile - 23.7%
- Yes. Flat or declining demand and increasing geothermal, solar and wind capacity will permanently reduce demand on the country's hydro resources - 21.5%
- No. Hydrology sequences still have scope to surprise us and coal and gas supplies are becoming less flexible - 15.9%
- No. Periods of high wholesale prices will become more visible to the media as more consumers opt for spot-based retail plans - 7.7%
- No. The adoption of EVs will increase year-round electricity demand and accelerate the draw on base-load hydro, increasing the need for thermal generation - 5.2%

Question 20 – 90 per cent renewables target

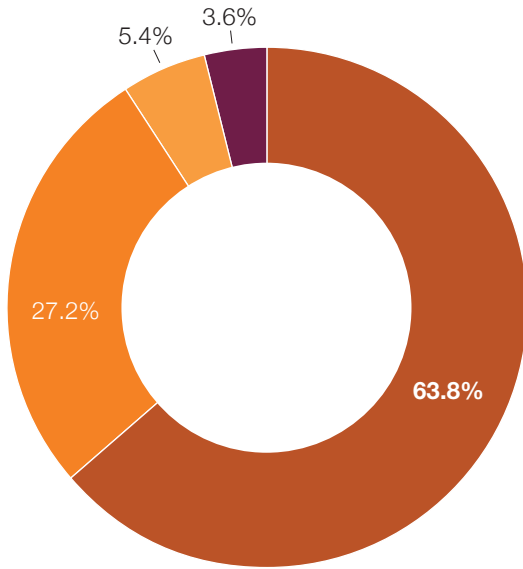
Stuart Nash, energy spokesperson for the Labour Party, has come out saying he would favour finding incentives to reach New Zealand's 90 per cent renewables target (over continuing with the Labour/Green's NZ Power proposal). What do you think of this idea?



- **We should aim for 90 per cent renewables but incentives can be dangerous, and it would be better left to the market to work towards the target than involve regulators or policy makers – 50.9%**
- 90 per cent renewables is not something New Zealand needs to strive for – we need thermal generation capacity to protect us when it's not raining and the wind isn't blowing – 27.4%
- Getting to 90 per cent renewables is a great idea, and providing incentives is indeed the best way to achieve this target – 21.7%

Question 21 – Election 2017 – will NZ Power rise again?

Last year, survey participants rated 'NZ Power' as one of the biggest issues facing the sector, and the majority of respondents were against the controversial proposal. Do you think NZ Power will survive through to the 2017 election?



No, it was a terrible proposal, criticised widely and Labour/Greens will want to quietly back away from it before 2017 – 63.8%

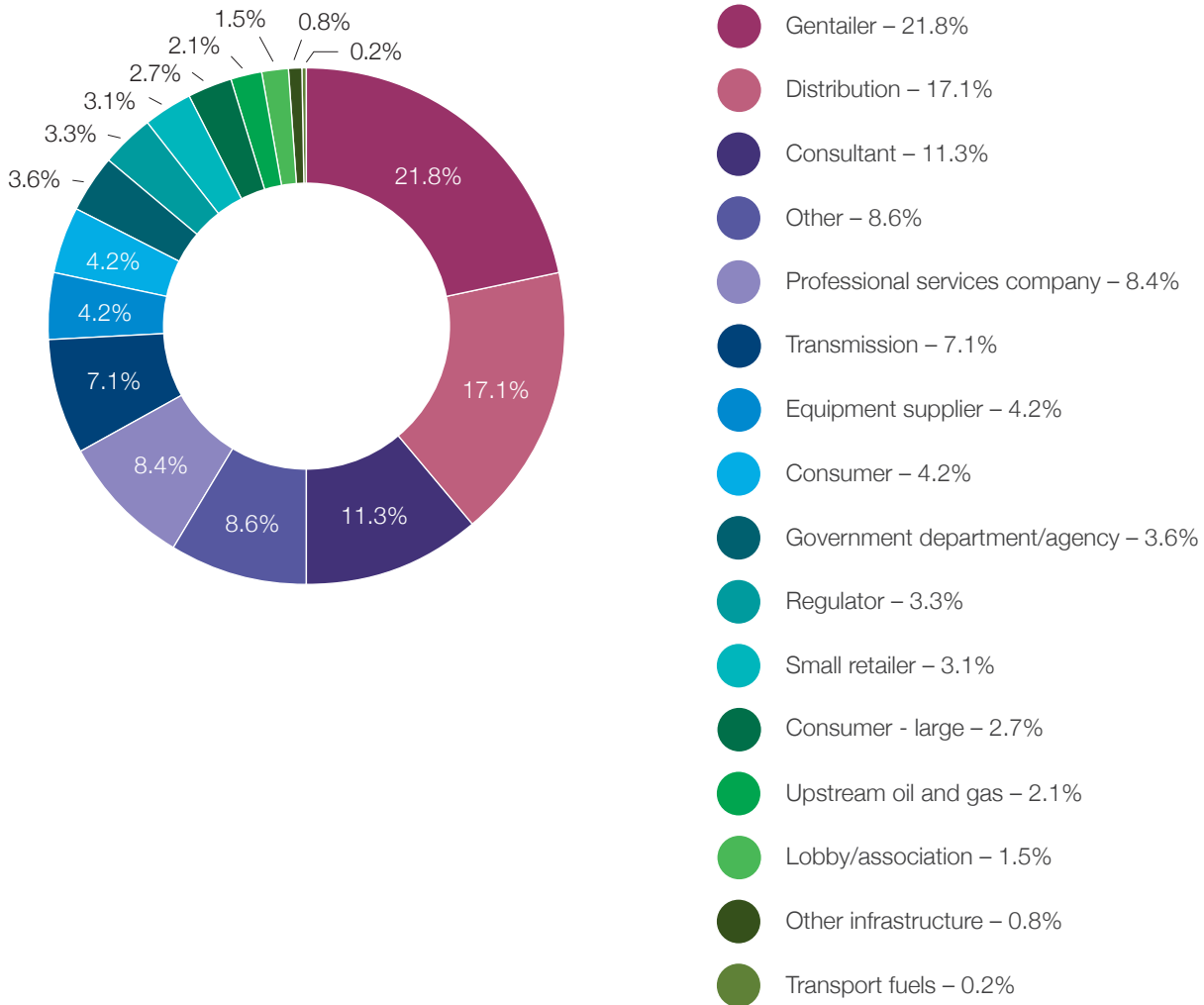
Maybe, and I will be watching closely to see what Labour does next – 27.2%

Yes, and I will continue to support the plan – 5.4%

Yes, and I will continue to oppose the plan – 3.6%

Participants by organisation type

Please choose one option below to describe where you work or your connection to this survey:



Electricity industry facts

One of our aims this year is to educate consumers about the electricity sector, and provide them with some information about how the electricity sector works, and how it stacks up against other countries.

Key pieces of the puzzle

1. Generation

New Zealand generated 40,365 gigawatt hours (GWh) of electricity in 2014. Renewables resources – such as hydro, geothermal and wind – account for 80 per cent of the installed generation capacity in New Zealand. The largest generator in New Zealand (33 per cent penetration) is Meridian Energy.

2. Transmission

New Zealand has a national transmission grid that is owned by government-entity Transpower. It transmits electricity from most of the country's generation assets to local distribution networks and some large industrial users (such as New Zealand's largest single site consumer – the Tiwai Point aluminium smelter in Southland). The National Grid is made up of over 12,000 kilometres of transmission lines and more than 170 substations.

3. Distribution

Local distribution networks supply electricity to homes and businesses throughout New Zealand. There are 29 'lines companies', each of which covers a specific geographic area and is responsible for delivering electricity to the consumers in that area. Combined, New Zealand lines companies supply over 30,000 GWh of electricity annually.

4. Retail

Retailers sell electricity to customers who can choose what company to buy their power from. There are almost 30 retail brands operating in New Zealand, although the market is dominated by large incumbent retailers such as Genesis Energy and Contact Energy.

5. Consumers

There are over two million individual connection points (ICPs) in New Zealand. Consumers range from typical households, which consume on average 8-9 megawatt hours (MWh) per year, to the Tiwai Point aluminium smelter, which consumes 5,400 GWh.

How we rate

For a small country, we are able to hold our own with the big guys. We have been ranked 10th (out of 129 countries) by the World Energy Council for our managing of the energy 'trilemma' – that is achieving a balance between energy security, energy equity, and environmental sustainability.

And according to the International Index of Energy Security Risk, we have one of the most secure energy systems in the world, ranking fourth among the top 25 countries in the world.



Electric cars: 15 minutes charging, 200 km driving?

Having to wait eight hours to fully recharge an electric car is the main reason for not buying one. But things have changed: With ABB's direct current (DC) chargers charging time has been slashed to as little as 15 to 30 minutes. No wonder the Estonian government is relying on ABB to build Europe's largest electric vehicle fast-charging network. Once accomplished the goal to significantly reduce CO₂ emissions by 2020 moves a lot closer.
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Certainly.