As we celebrate our 85th year in New Zealand, we are proud to look back at the ways we have supported our customers to develop electrical and automation infrastructure across a wide range of industries.

The founding company for ABB in New Zealand was ASEA, which was incorporated as a subsidiary of ASEA Electric NZ Limited on 9th March 1933. This was not the beginning of activities in New Zealand, however, as ASEA had been selling products to New Zealand for many years with the first delivery of a transformer to a Wellington customer in 1898 and the supply of hydro generators in the 1920s.

ASEA also achieved other local milestones:
- The first 3-phase motor connected to the New Zealand Government's hydro-electric supply was an ASEA motor.
- The first synchronous induction motor ever used in New Zealand was an ASEA machine.
- Mokauti, one of the first remote controlled power stations in New Zealand, was engineered by ASEA in New Zealand using ASEA control equipment.
- The first robot to be used in an industrial manufacturing operation in New Zealand was supplied by ASEA.

ASEA’s HVDC technology was an integral part the 600 MW HVDC Interisland Link between Benmore in the South Island and Haywards in the North Island in 1965. This was not only the third link of its kind in the world, but also unique because the voltage and current were considerably higher than had ever been attempted. As you will see on page 6, ABB will be carrying out essential upgrades on this vital equipment, and ABB Ability™ MACH control system, which acts as the brain or nerve centre of the link, will be a key component of the upgrade.

We look forward to many more years working with our customers on innovations that make their businesses more productive, connected, reliable and efficient.

Regards
Ewan
Consolidation for collaboration

ABB’s Auckland offices at Grafton Road and 570 Mt Wellington were recently consolidated to facilitate collaboration, bring cost savings, and to introduce a customer showroom.

The centrally-based Grafton Road offices in Auckland city are being modernised floor-by-floor to avoid disruption to the business. The full refit and completion of the customer showroom is planned for early February 2019.

Ewan Morris, Managing Director, says the consolidation enables ABB to realise synergies and build a more collaborative culture, ultimately resulting in a better experience for our customers.

“A refreshed space affords us the opportunity to introduce a customer showroom and space for us to better represent our technologies and improve customer engagement,” he highlights.

The modernised interior is complemented by the introduction of elements of modern workplace principles, including collaborative spaces, and reviewing flexible working guidelines.
Fortune names ABB among Top 10 Companies in “Change the World” List

ABB’s global leadership in fast charging solutions for electric vehicles has led Fortune magazine to rank it #8 among top companies that “help the planet and tackle social problems.”

ABB has been named #8 in Fortune magazine’s “Change the World” rankings for the company’s efforts to speed up adoption of clean-energy electric transportation. The list, Fortune said, honours companies that “have had a positive social impact through activities that are part of their core business strategy.”

In naming ABB among the top 10 in its fourth annual ranking, Fortune placed the company alongside a prestigious group. Other honourees included the drug maker Merck, for use of its life-saving vaccine against the Ebola virus this year in the Democratic Republic of the Congo. Fortune also lauded Reliance Jio, a telecommunications provider for providing the “digital oxygen” of smartphones and broadband to more than 200 million subscribers in India in less than two years.

ABB’s CEO, Ulrich Spiesshofer said the Fortune ranking was validation of the company’s leadership and commitment to e-mobility as a way to decouple global economic growth from climate change.

“ABB is committed to running the world without consuming the earth,” Spiesshofer said.

ABB, whose e-mobility portfolio includes charging and power solutions for trains, buses and ships, has developed fast-chargers for cars that can add as much as 200 kilometres of cruising range in as little as eight minutes.

“As electric vehicles have grown more popular, ” Fortune wrote, “ABB has installed over 7,000 fast charging stations worldwide – saving about two million gallons of gasoline over the past seven years. The charging business has posted double-digit annual revenue growth since 2015. Next up: a plan with Electrify America to place hundreds of charging stations in the U.S. in the next year. “

Fortune’s criteria for its “Change the World” rankings include the degree of innovation in a company’s technologies and the benefits to profitability and shareholder value from its positive social impact.
ABB to upgrade historic New Zealand HVDC link

Upgrade of North and South Island interconnection, including ABB Ability™ MACH control system, will enable the exchange of renewable energy

ABB has received an order from Transpower New Zealand Ltd to upgrade its high-voltage direct current (HVDC) link which interconnects the transmission grids of the North and South Islands. The link is a vital element of the country’s transmission system and is used as an energy-balancing system, between the two islands. ABB Ability™ MACH control system, which acts as the brain or nerve centre of the link, will be a key component of the upgrade.

The North Island is home to more than three times the population of the South Island which, besides its picturesque landscape, offers vast amounts of hydro power. As a consequence, demand for power in the North Island is substantially higher and relies on power generated on the South Island. The more than 600-kilometre (km)-long North-South HVDC interconnection enables efficient transmission of clean power to areas of high demand. The link also plays an important role in the New Zealand electricity market by allowing power trading between the two islands.

ABB has an historic involvement in the link. The first New Zealand link was commissioned by ABB, (erstwhile ASEA), in 1965 as one of the first HVDC transmission systems in the world. It was originally a bipolar 600 megawatt (MW) link with mercury arc valves, until the original equipment was paralleled onto a single pole in 1992, and a new thyristor-based pole was commissioned by ABB alongside it, increasing capacity to 1040 MW. The first installation was decommissioned in 2012 after 47 years of operation. The scope of the project includes a valve upgrade of pole 2 consisting of capacitors, fibre optics and valve control units based on the latest ABB Ability™ MACH control system.

The upgrade, to be finalised in 2020, will be carried out in a manner that minimises impact on the grid and the power-trading market.
**A long term relationship**

First New Zealand link commissioned by ABB in 1965

“...This upgrade will enhance grid reliability and availability thereby increasing power security and bringing clean power to consumers”. said Claudio Facchin, President of ABB’s Power Grids division. “The project reiterates our strategic focus on service, our commitment to integrating renewables, and the role of digital technologies based on our ABB Ability based technologies and reinforces our HVDC technology leadership, as a partner of choice for enabling a stronger, smarter and greener grid.”

ABB pioneered HVDC technology 60 years ago and has been awarded approximately 120 HVDC projects representing a total installed capacity of more than 130,000 MW, accounting for about half of the global installed base.
NZ Steel recognised ABB with a Safety Star Award during the company’s Contractor Safety Forum in late January 2018. The award was given for the company’s outstanding safety leadership and completion of a complex project with multiple stakeholders without injury. A strong focus on engagement, calm active leadership and exceptional planning were regarded as key for the success of the project.

ABB’s team composed of technical experts across the world collaborated on the complex brownfield project, which involved the replacement of the existing 5 MW Tyrak LCI drive and 11 kV drive transformer. A first of its type to be installed in NZ, the new megadrive line commutated inverter (LCI) is a medium voltage (MV) drive that uses a PEC800-based control platform, supplied from a special drive type transformer that is rated at 5 MW, 11 kV to 1400 V. These engineered drives are specifically suitable for high power, high speed or special performance applications such as rolling mills.

Throughout the entire relocation, installation and commissioning process, ABB’s teams ensured that strictest health and safety standards were followed. Fully commissioned in early January 2018, the project was completed on time and with zero injuries.

NZ Steel’s Project Manager Agha Shoeb commended ABB’s project team, particularly for leadership shown in health and safety, and the breadth and depth of experience and maturity demonstrated by those involved in the project:

“I am happy with the results and pleased that the project was executed on time, within budget and with exceptional safety performance. I am equally pleased with the project culture that was created amongst the various companies’ teams in this project – which ABB was a key player in creating and maintaining.”

ABB’s local footprint covered in EMA magazine

ABB’s focus on the fourth industrial revolution and research and development (R&D) focus was recently featured in The Employers and Manufacturers Association (EMA) magazine “Business Plus” which is distributed to all EMA members.

Managing Director Ewan Morris was photographed for the cover at our Henderson switchgear manufacturing site in Auckland.
More power, less space: Helping the Jaguar I-PACE eTROPHY series charge zero-emissions motorsport

As a new season approaches for ABB in zero-emission electric car racing, the company is taking another important technological step to advance the future of e-mobility.

ABB, title partner of the ABB FIA Formula E Championship, will be the Official Charging Partner of Jaguar Racing in a new category of electric motorsport: the Jaguar I-PACE eTROPHY series. The eTROPHY races will be the official support series to 10 ABB FIA Formula E Championship races, held on the same weekends and on the same racetracks. The new racing season begins December 15 in Ad Diriyah, Saudi Arabia.

In contrast to the specially designed single-seat racecars used in ABB Formula E, the Jaguar I-PACE eTROPHY series will feature racing versions of the same Jaguar I-PACE electric SUVs that are now sold to consumers. And the Jaguar racers will use ABB chargers based on the same charging stations now installed by the thousands around the world for use by everyday drivers of electric vehicles.

Making all this possible required engineering ingenuity from ABB, the world leader in fast-charging technology.

When the Jaguar I-PACE eTROPHY series was being planned, the company faced a complicated technical challenge – how to quickly recharge the batteries of up to 20 I-PACE eTROPHY racecars in the breaks between practice, qualifying and each race. And how to do that in 10 different cities on four continents during the upcoming racing season.

ABB’s Terra DC class of chargers were certainly up to the task. After all, they are ABB’s most popular charging stations now in use in Europe and the United States. There was only one catch. The chargers designed for public use are 2.2 metres tall – about the same size as a filling station petrol pump. But that’s too big to fit into the cargo holds of the jetliners that transport the series’ racers and equipment around the world during the eTROPHY season. These high speed chargers are also generally fixed in place and hard wired, and not intended to be portable.

And so an ABB team in India re-engineered a solution that repackaged the functionality of a Terra DC charger into a package on wheels and with a profile only 1.5 metres high, a reduction in height of almost 32 percent. At Jaguar’s request, ABB’s team also designed a durable shipping enclosure that incorporates innovations like a built-in loading ramp and channels for handling by a forklift.
ABB looks forward to the start of the race series, which will take place on the same weekends and on the same city street circuits at 10 of this season’s ABB FIA Formula E Championship races. The series commences on 15 December in Ad Diriyah, Saudi Arabia and will give participating teams the opportunity to showcase their racing talent and performance in this first for electric street racing.

Most importantly, this series will continue to push the boundaries of e-mobility, helping to inspire the next generation of electric vehicle owners.

The full race calendar is included below, subject to approval by the FIA World Motorsport Council and track approval:

<table>
<thead>
<tr>
<th>Round</th>
<th>City</th>
<th>Country</th>
<th>Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Ad Diriyah</td>
<td>Saudi Arabia</td>
<td>15 December 2018</td>
</tr>
<tr>
<td>2</td>
<td>Mexico City</td>
<td>Mexico</td>
<td>16 February 2019</td>
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<tr>
<td>3</td>
<td>Hong Kong</td>
<td>Hong Kong</td>
<td>10 March 2019</td>
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<tr>
<td>4</td>
<td>Sanya</td>
<td>China</td>
<td>23 March 2019</td>
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<tr>
<td>5</td>
<td>Rome</td>
<td>Italy</td>
<td>13 April 2019</td>
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<td>6</td>
<td>Paris</td>
<td>France</td>
<td>27 April 2019</td>
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<td>7</td>
<td>Monaco</td>
<td>Monaco</td>
<td>11 May 2019</td>
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<tr>
<td>8</td>
<td>Berlin</td>
<td>Germany</td>
<td>25 May 2019</td>
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<tr>
<td>9</td>
<td>New York City</td>
<td>USA</td>
<td>13 July 2019</td>
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<tr>
<td>10</td>
<td>New York City</td>
<td>USA</td>
<td>14 July 2019</td>
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As the world leader in electric vehicle infrastructure, ABB’s full range of charging solutions covers electric cars, electric and hybrid buses, as well as electrification solutions for ships and railways. The company has an installed base of 8,000 ABB high speed chargers across 68 countries, more chargers than any other manufacturer.
ABB launches the world's most energy-lean uninterruptible power supply

The uninterruptible power supply (UPS) DPA 250 S4, with its market-leading module efficiency of 97.6 percent, offers more than 30 percent lower power losses, top reliability, zero downtime and low cost of ownership.

The DPA 250 S4 features ABB’s decentralised parallel architecture (DPA™), covers the power range 50 to 1,500 kW and is specially designed for critical, high-density computing environments such as small- to medium-sized data centres, commercial buildings, healthcare facilities, railway signalling applications and airports.

One DPA 250 S4 250 kW cabinet can host up to six 50 kW modules for 250 kW N+1 redundant power. Up to six 250 kW frames and up to 30 modules can be paralleled for 1,500 kW of uninterrupted, clean power. Secure ring-bus communication ensures there is no single point of failure in the system.

As well as providing a fully scalable and easily maintained UPS, with unparalleled uptime and energy efficiency, the DPA 250 S4’s dual conversion mode ensures power going to the critical load is cleansed of any grid noise or fluctuations. Its transformer-free Insulated Gate Bipolare Transistor IGBT converters – which feature three-level topology with interleaving controls – mean that the device is lighter and more energy efficient, with reduced cooling requirements.

The DPA 250 S4 delivers a market-leading module efficiency of 97.6 percent and a system efficiency of 97.4 percent, setting the standard for the future of UPS evolution. Power losses are more than 30 percent below those of similar products on the market, which has a direct impact on the total cost of ownership.
ABB joins select group of Nobel International Partners

Builds on the company’s commitment to research, innovation and education.

ABB’s pioneering work in science and engineering and its commitment to education are at the root of a new, global partnership with the Nobel organisation.

“The Nobel and ABB share a deep commitment to innovation and the power of ideas,” said ABB CEO Ulrich Spiesshofer, “and we are inspired by this opportunity to spotlight the groundbreaking work of Nobel laureates, to celebrate science and discovery and to inspire the next generation of extraordinary pioneers. We look forward to working closely with Nobel and to involving our customers, employees and communities around the world in this exciting partnership.”

Nobel’s outreach programmes include inspirational events, digital media and special exhibitions and activities related to the hundreds of Nobel laureates since the year 1901, and the legacy of Alfred Nobel, the 19th century Swedish chemist, engineer and inventor on whose inspiration and fortune the Nobel prizes were established. The activities in which ABB will participate include the Nobel prize dialogues – annual events in world capitals that bring Nobel laureates, scholars, inventors and other great thinkers together with the public to discuss solutions to some of the world’s most pressing issues.

“We believe that, by doing this together – Nobel and ABB – we can get people on a global scale even more engaged and interested in those areas,” said Mattias Fyrenius, CEO of Nobel Media. “And I think that is important for ABB. That is important for Nobel. And I truly believe that it is important for mankind.”

Johan Söderström, managing director, ABB Sweden, which was the home of ASEA – the “A” in ABB before its 1987 merger with Brown Boveri of Switzerland – said the Nobel partnership holds special meaning for the company. “Partnering with one of our country’s most important institutions is a privilege for all of us at ABB. We are excited to explore the events, activities and engagements together with the best scientists in the world, and to strengthen our commitment to the next generation of visionary leaders.”

In becoming a Nobel international partner, ABB joins a select group of other global companies known for their commitment to research, technological innovation, education, sustainable economic growth and social responsibility: 3M, Ericsson, Scania and Volvo cars. For more information on Nobel Media, please visit nobelprize.org.
In September, two performers took the stage together for the first time at Stockholm’s Kulturhuset Stadsteatern (House of Culture & City Theatre).

One of the performers was Fredrik “Benke” Rydman, the renowned artist who has choreographed a Eurovision Song Contest winner and advanced modern dance through his Bounce Streetdance Company. The other performer was a two metre (6.5 ft) tall, 900 kg (2,000 lb) industrial robot from digital technology pioneer ABB.

Benke’s path-breaking duet, set to an original score, is a unique reflection of the changing role of robots, automation technology and artificial intelligence in society. The ABB IRB 6620 robot with which he performed is more typically found in heavy manufacturing facilities, like automotive plants, where it performs spot welding and complicated assembly tasks in close collaboration with plant employees. It is one of ABB’s biggest, strongest and heaviest industrial robots.

Performances of Benke’s new work, which was met with strong reviews from critics, continue at Kulturhuset Stadsteatern in Stockholm, one of the largest and most prominent culture centres in Northern Europe, through November 30.
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