

# Achievements and innovations in 2016

Take a look around. Wherever you see modern technology, reliable power supplies, efficient road transport, and remarkable rail solutions, you're likely to be looking at ABB technology. Not that it is always visible. Most of it is at work inside buildings and vehicles, where it drives progress. The future we envisage is already reality in many projects and places. It makes our cities more livable and our transport more attractive, and it strikes a better balance between what people want and the needs of a sustainably developed environment.



**THE GOTTHARD BASE TUNNEL** is the world's longest railway tunnel at 57 km. The latest energy-efficient technologies from ABB provide it with ventilation and power supply for its infrastructure and for over 10,000 orientation lights. Our company helps in many other ways to ensure that Switzerland, a country famous for its railways, keeps setting international standards. That includes locomotives as well as infrastructure, and encompasses maintenance, upgrades and retrofitting. The EC250 high-speed train, which is due to launch in 2019, will be yet another railway pioneer, and will incorporate ABB converters.



**FIFTEEN SECONDS** is all the TOSA fully electric bus needs to replenish its batteries. It can recharge using pivoting contacts on its roof during a regular stop. It drives without emissions and without noise. The TOSA can carry 133 passengers; it connected Geneva Airport to the Palexpo exhibition center from May 2013 to the end of 2014 – to the delight of passengers and operators. Geneva's Line 23 is now being equipped with TOSA buses.



#### LIKE A JULES VERNE STORY

That was how Bertrand Piccard's idea sounded: to fly around the world in a solar-powered plane without a drop of fuel. He spent 12 years together with a 60-man team of partners to prepare for the 17-stage flight. To circle the globe he alternated with André Borschberg as the pilot of Solar Impulse 2, landing 505 days later in Abu Dhabi where he had set out on the record flight. Four twin-bladed tractor propellers were driven by solar power, which was collected during the day by 11,628 photovoltaic cells affixed mainly to the 63.4-meter-long wings. The current was converted by an ABB microgrid, which also controlled its highly efficient distribution and storage in rechargeable batteries, from which the high-wing plane was powered at night. This high-flying dream provides very real evidence of what renewable energies can achieve when used intelligently – by courageous people, it should be added.



#### ABB AND THE SMART SENSOR FOR LOW-VOLTAGE ELECTRIC MOTORS

German Chancellor Angela Merkel and US President Barack Obama were the first to experience a groundbreaking new sensor from ABB during their visit to the Hanover Fair. As guests of honor at the world's largest industrial trade show, they were shown how ABB's latest innovation allows electric motors for the first time to report their condition through a wireless internet connection.