

COP21 – The View of the Suppliers

Interview Dr. Lutz Bertling, President Bombardier Transportation

1. As a railway supplier, what impact does COP21 have on your strategy?

COP21 is exemplary to the fact that governments are taking climate change and environmental protection seriously. Given the high contribution of the transport segment on environmental matters, COP21 will emphasize the importance of sustainable modes of transport to respond to the challenges of global climate change – and rail transport as a real provider of e-mobility will be in the focus. The discussions at COP21 will impact transportation policies and regulations, as governments and cities are facing increased public pressure to take action. As a consequence, we expect support for a modal shift towards rail combined with incentives for all railway suppliers to continue to reduce CO2 emissions and energy consumption.

Bombardier, as a global leader in rail technology, has put a clear emphasis on these two areas and has been leading the way for many years. So, I clearly see COP21 confirming and possibly accelerating our strategy.

It is indeed our utmost priority to support our customers and other stakeholders reaching global climate goals and increasing the attractiveness of rail. We are committed to delivering the most environmentally friendly mobility solutions in order to connect people while preserving our planet. We are increasingly investing in innovative and eco-friendly technologies to reach our ambitious target. This is embedded in our *ECO4* initiative – built on the four cornerstones of energy, efficiency, economy and ecology – which aims to reduce overall energy consumption by up to 50% compared to current solutions and to lower emissions by up to 80%.

2. In your research and development strategy, what actions are specifically influenced by the objectives of sustainable development and climate change?

At Bombardier, we are continuously pushing the boundaries. Environmental sustainability is a competitive differentiator for us and therefore an integral part of our product development and EcoDesign approach. As mentioned earlier, we significantly invest in research and technology to implement increasingly performing eco-friendly solutions throughout the rail sector. Close collaboration along the whole value chain is needed to reach global climate goals. From the early stages of our product development, we are working closely with public authorities, cities and rail operators to fulfil their demands and provide the most eco-efficient and sustainable products. More than ever, we work hand in hand with all our stakeholders to drive the modal shift from road to rail.

We also play a key role in Railsponsible, an industry initiative focusing on sustainable procurement practices. To meet our ambitious environmental targets, we will continue to strengthen our long-term partnerships with suppliers as well as universities to foster intensive research and successful collaboration in support of our innovation strategy. Already today, more than 95% of the materials in our rail vehicles are recoverable while recyclability of our products amounts to 93%. We will continue to use renewable resources and materials that are easier to separate and disassemble for a second life, as specified in our EcoDesign approach. Let me give you a few concrete examples:

Bombardier is the driving force in developing intermodal e-mobility solutions, helping operators to eliminate CO2 emissions and reduce operating costs. Our PRIMOVE inductive charging and energy storage technology, which has been developed for trams and light rail vehicles, is now being successfully implemented in buses and is about to become a standard in the car industry.

We are also setting new standards in reducing energy consumption for locomotives. Take our multi-engine diesel locomotives. Instead of one big engine and generator, we are using four smaller ones, but we are using only as many engines in operation as needed at a certain point in

time, which brings energy consumption down to a totally different level. Our highly innovative generation of TRAXX AC locomotives features both a traction battery and a support diesel engine as part of its 'Last Mile' capability. This innovative technology enables the locomotive to run on non-electrified sections, completely independent of catenary or the support of diesel shunting locomotives, which means greater efficiency due to time and cost savings.

With our FLEXXTronic Bogie family, we increase the capacity of existing infrastructure and reduce noise, vibration and particle emissions while ensuring 30% reduction in mass compared with a conventional bogie.

So, thinking out of the box and questioning existing concepts are essential in making gradual changes in environmental friendliness combined with economic advantages.

3. What cooperation do you expect from rail operators in this context to ensure the success of trains in the future?

Ensuring the success of trains in the future, or 'The Evolution of Mobility' as we say at Bombardier, is about innovation and technology, but also about partnership and collaboration.

Rail operators are expecting value for their money, and they all have specific needs. At Bombardier, we are committed to delivering innovative products that are based on proven platforms and can be tailored to perfectly suit the individual needs of each of our customers. We build and maintain efficient mobility solutions that lower overall lifecycle costs and offer our customers the most competitive Total Cost of Ownership (TCO) approach. The more the customers employ a TCO approach in selecting their products for the future, the more environmentally friendly solutions will find their way into operation. Environmental friendliness and economic operations can be brought together perfectly in a TCO approach.

The future of mobility clearly needs thought leadership to properly address tomorrow's challenges. Digitalisation will definitely help our industry to become more efficient and more eco-friendly. It requires an increased cooperation between rail operators and rail manufacturers.

For several years now, we have shifted our business proposal to rail operators from a pure train manufacturer into a solutions provider, engaging in long-term partnerships to drive together the improvements that are expected in terms of performance and eco-friendliness. Digitalisation, shared real-time access to data generated by the train in operation, and a resulting transformation of this data into information by data pattern recognition will allow us to continue to make significant progress in these areas.

Digitalisation will further allow us to move more towards automated train operation, thus increasing capacity significantly based on the existing infrastructure.

It is also key that we start our cooperation with rail operators, city planners, public authorities and other stakeholders at the earliest stages possible in order to identify and create the most sustainable mobility solutions.