# Water, element of life

**Claes Rytoft**
Chief Technology Officer
ABB Ltd.

**Dear Reader,**

Without water, there would be no life on Earth. It is maybe less obvious to what extent the functioning of our society is dependent on water: Whereas physicians may advise us to consume 2.5 liters every day, our real water footprint exceeds this by several orders of magnitude. This starts with our nutrition – thousands of liters are required to grow the food one person consumes in a day. In fact agriculture accounts for more than 70 percent of all freshwater consumed. Looking at the broader economy, our reliance on water is greater still. 20 to 25 percent of total freshwater consumption is accounted for by industry.

As the world's population continues to rise, the pressure on water sources is increasing. The problem is exacerbated by the unequal geographic distribution of water and by climate change. This issue of *ABB Review* is dedicated to this challenge and ABB's contribution to the sustainable use of water.

Starting with the supply side, we look at desalination technology, permitting freshwater to be won from the sea. This method of obtaining water requires a very energy efficient process to be viable.

Rising demand is not being met by new sources alone. Efficiency in distribution and usage presents considerable potential for loss reduction. ABB offers instrumentation solutions permitting the accurate measurement and remote monitoring of water flow. One major challenge facing water networks is the loss of water through leakages. Besides the wasted water, leakages are a waste of the energy used to process and transport the water up to that point. Water-management systems from ABB can quantify and locate leakages, thus supporting maintenance crews or providing early warnings of developing problems. Leakage losses can be further reduced by controlling pumps to avoid pressure peaks.

On the consumption side, we show how control systems can improve efficiency, reduce losses and improve the flow of information in agricultural and industrial applications.

Not directly related to water supply, but connected to water in a broader sense, we also look at a submarine cable installed to supply power to a floating oil and gas platform. Besides the depth and length of the cable, one major challenge was the dynamic section rising from the seabed to the platform, which must follow all movements of the sea and platform, even under extreme weather conditions.

I trust that the reading of this edition of *ABB Review* will provide you fresh insights into the fascinating world of water and make you more aware of the numerous ways in which ABB can contribute.

Enjoy your reading

Claes Rytoft
Chief Technology Officer
ABB Ltd.