



The cover of this issue of *ABB Review* depicts aspects of the striking architecture of the Yas Hotel in Abu Dhabi. While visitors can hardly fail to notice the building's fascinating design, most will probably not be aware that another great innovation is also contributing to their comfort: ABB's i-bus® KNX building control system.

The products and services of tomorrow's world will rely on the interplay of numerous innovations in different areas of research and development. This issue of *ABB Review* looks at a selection of recent breakthroughs achieved by the company.

Innovations

- 6 **Innovation highlights**
The 11 best innovations for 2011
 - 12 **CLEEN innovations**
How collaboration is supporting ABB's research and development work
-

Switchgear

- 18 **The smart eVolution**
eVD4 brings simplicity and reliability to medium-voltage distribution networks
 - 24 **A seismic switch**
Certified switchgear for nuclear power plants is providing a critical link in the chain
-

Drives and converters

- 29 **Driving value**
Sophisticated ring-gear mill drives from ABB (Part 1)
 - 36 **Onshore and onboard**
Looking at the shoreside and shipside technologies and the case for standardization in shore-to-ship power
 - 41 **The five-level converter**
ANPC-5L technology and the ACS 2000 drive
-

Productivity

- 47 **Harvest time**
Harvesting energy to create truly autonomous devices for industrial processes
 - 52 **Spark-free safety**
Synchronous and induction motors and generators with guaranteed spark-free operation
 - 56 **Motoring ahead**
Synchronous motors controlled by variable-speed drives are bringing higher efficiencies to many industrial applications
-

Energy

- 63 **The other alternative fuel**
Energy efficiency is a critical part of a sustainable energy policy for many power plants
 - 68 **Surviving a strike**
ABB helps distribution transformers survive rapid voltage transients
 - 73 **Sharing values**
ABB is implementing the first commercial installation of IEC 61850-9-2 process-bus technology
-

Questionnaire

- 78 **The results are in**
ABB Review readership survey