

Innovation



- 6 Innovation highlights**
ABB's top innovations for 2015
- 11 Information exploitation**
New data techniques to improve plant service
- 16 Emulation to the rescue**
The virtual emulator framework simplifies process control system testing
- 22 Building better**
Technology to make buildings intelligent
- 27 A service tool grows up**
ABB's ServicePort™ is now delivering advanced services to a wide range of customers worldwide
- 32 An expanded role**
ABB's 800xA Simulator is now being used throughout the complete life cycle of an automation system
- 37 Switching gears**
Moving to smart switchgear for primary and secondary substations
- 42 Smoothing the peak**
Integrated optimization algorithms save heating costs
- 48 Wind window**
An effective user interface for wind farm operations
- 53 Caps unlocked**
ABB's new QCap cylindrical capacitor improves power factors
- 60 ABB in brief**
- 63 From the ASEA archives**
Looking back on more than a century in print

Solar power



- 6 From source to socket**
ABB is at the forefront of photovoltaics
- 10 A place in the sun**
Challenges and perspectives for the future of solar
- 16 A soaring vision**
Propelled only by the sun's energy, the airplane Solar Impulse 2 demonstrates the promise of alternatives to fossil fuel
- 20 Balancing act**
Microgrid optimization control stabilizes production in solar and hybrid microgrids
- 27 A bright future**
Energy storage transforms the solar paradigm
- 33 Evolving solutions**
Technology trends and design targets for next-generation photovoltaic inverters
- 38 Life-cycle automation and services**
A holistic approach to photovoltaic plant automation and operation and maintenance
- 43 Putting it all together**
Integrating distributed renewable energies into the grid
- 50 A growing need**
Affordable irrigation with ABB's solar pump drive
- 53 Transforming revenue**
ABB's technology cuts transformer losses
- 58 Next-generation components**
Advanced low-voltage components for next-generation 1,500 V DC utility-scale PV solar applications
- 60 Self generation**
Photovoltaics play an essential role in ABB's Active Site technology
- 64 Steady as a rock**
Two PCS100 AVC products now designed for different applications
- 68 Safe and powerful**
Dry transformers for subtransmission

Robust production



- 7 **YuMi®**
Introducing the world's first truly collaborative dual-arm robot that will radically change assembly lines
- 12 **Transformer health in the real world**
Maximizing transformer reliability on a budget
- 18 **Dicing the load**
Flexible production saves energy costs
- 25 **Causing a stir**
ArcSave increases productivity and lowers cost in electric arc furnaces
- 32 **A motor's best friend**
Narrowing the gap between softstarters and drives
- 35 **Medium-voltage, premium performance**
ABB's PCS100 medium-voltage UPS
- 39 **Looking into Windows**
Windows XP has reached the end of its life – what are the implications?
- 42 **PASS steps up**
ABB hybrid switchgear technology is now available for 420 kV
- 48 **Intelligent living**
Making home automation easier than ever with ABB-free@home®
- 50 **Wire ahead**
Pluggable connections and prewiring solutions boost productivity
- 52 **Taming the power**
Advanced control is achieving high availability and performance by mastering complex instability
- 55 **Beating oscillations**
Advanced active damping methods in medium-voltage power converters control electrical oscillations
- 60 **\$300,000 research award**
ABB creates an award to honor and support outstanding postdoctoral research
- 62 **Your opinion matters**
How readers can help make ABB review even better

Integrating renewables



- 6 **Capital questions**
Why the future of renewables depends on the costs of capital and other questions around renewable energys
- 13 **Symphony orchestrates**
Symphony® Plus automation delivers flexibility and optimization for conventional and renewable power plants
- 18 **Changing wind**
New technologies for wind-turbine and wind-farm control
- 24 **Virtual reality**
ABB's central control and optimization system enables cost-effective virtual power plant operation
- 29 **Potential improvement**
Transmission technologies to support the integration of renewable energy
- 34 **Regulating life's ups and downs**
Increasing grid capacity to connect renewable energies
- 43 **Energy storage**
The benefits beyond the integration of renewables
- 50 **Consulting the grid code**
ABB and its power consulting experts are helping networks integrate renewables and meet grid code requirements
- 57 **Balance the swing**
Real-time monitoring and elimination of inter-area oscillations in large interconnected power systems
- 62 **Absolut zero invasion**
Noninvasive temperature measurement keeps things tight
- 68 **Optimizing energy flows**
Improving energy efficiency in steelmaking by modeling and managing energy flows with ABB's cpmPlus Energy Manager
- 74 **2015 index**
The year at a glance