



## Welcome to the first issue of the Melody news bulletin

### Dear readers,

We are happy to send you the first edition of our Melody news bulletin.

In this issue we would like to inform you about news related to products, projects and initiatives of Melody based systems (including former Contronic installations). Being the control system foundation in several greenfield projects, Melody is a perfect foundation for stepwise and continuous evolution in existing installations.

A project report explains the successful migration of a Contronic control system to the latest Melody system. Furthermore we would like to inform you about our latest Melody product developments.

Another article will show you recommendations and will offer support on how to keep your daily operations running without Windows XP.

We offer a comprehensive portfolio of life cycle management and service products for power generation. Our portfolio is based on extensive process and application know-how.

Our philosophy is simple: we protect your investment through the stepwise evolution and upgrading of your control systems to minimize the consumption of energy, prolong asset operating life and minimize the cost of ownership. In this

field we provide several standardized solutions which are applied together with the ABB expertise on control and process know-how successfully in many projects.

We trust you will get interesting information from this newsletter and that you will find additional value for your operation. We look forward to receiving your feedback and requests. We would be happy to provide you with any additional information.

Best regards  
Manfred Klingebiel  
Melody Evolution Manager  
ABB Power Systems Division

# Symphony Plus Melody upgrade integrates control and reduces costs

The Swedish energy company, AB Fortum Värme, has selected ABB Symphony Plus Melody automation to upgrade the control system at its Brista CHPP (combined heat and power plant) in Märsta/Arlanda, about 40 km west of Stockholm.



## Advantages

- Symphony Plus state-of-the-art control system solution replaces the existing legacy control system
- System 800xA operation system upgraded to the latest version
- Replacement of various PLC systems and integration into Symphony Plus

## Scope of supply and services

### Key figures

Site	Märsta, Stockholm
Type of power plant	CHPP
Unit 1	44 MWe/120 MWth
Unit 2	20 MWe/80 MWth
Completion Phase Unit 1	October 2014

### Supply automation system

- Common operator platform and common control and engineering system for both units at Bristaverket including auxiliary plant control systems
- Symphony Plus Melody
- Upgrade System 800xA
- Replacement of various PLC systems and integration to Symphony Plus
- Data management

### Services

- Project management
- Engineering
- FAT/SAT
- Erection
- Commissioning
- Optimization

### The task

Since Brista unit 1 was commissioned 18 years ago, the 44 MWe, 120 MWth CHPP has been operating reliably with ABB Contrinsic E and Freelance control systems.

The plant consists of two generating units producing both electricity and district heating for the city of Stockholm. Unit 1 is a fluidized bed boiler system using biomass (wood chips) as fuel; unit 2 was constructed as a waste-to-energy (WtE) plant.

Unit 1 originally used a Contrinsic E system for boiler and balance-of-plant (BoP) automation. The Freelance control system operated the flue gas condensing process.

System 800xA Operations has run as the human machine interface (HMI) since 2007.

The customer requirements were the unification at operation and control system for the reduction at operation and maintenance cost as well as the modernization at DCS for the use of actual technologies in conjunction with further extension at the life cycle of the plant.

### The solution

ABB executed the retrofit project during the planned summer outage in 2014, at which time the existing Contrinsic E and Freelance control systems were migrated to the ABB Symphony Plus Melody control system family.

Utilizing the Symphony Plus migration technique for Melody I/O-cards enabled the reuse of existing control cabinets, including field wiring, which created significant savings in time, testing and material.

The resulting widespread reuse potential reduced shutdown time to the normal summer revision process, which meant the plant was restarted as scheduled with a new Symphony Plus control system in operation.

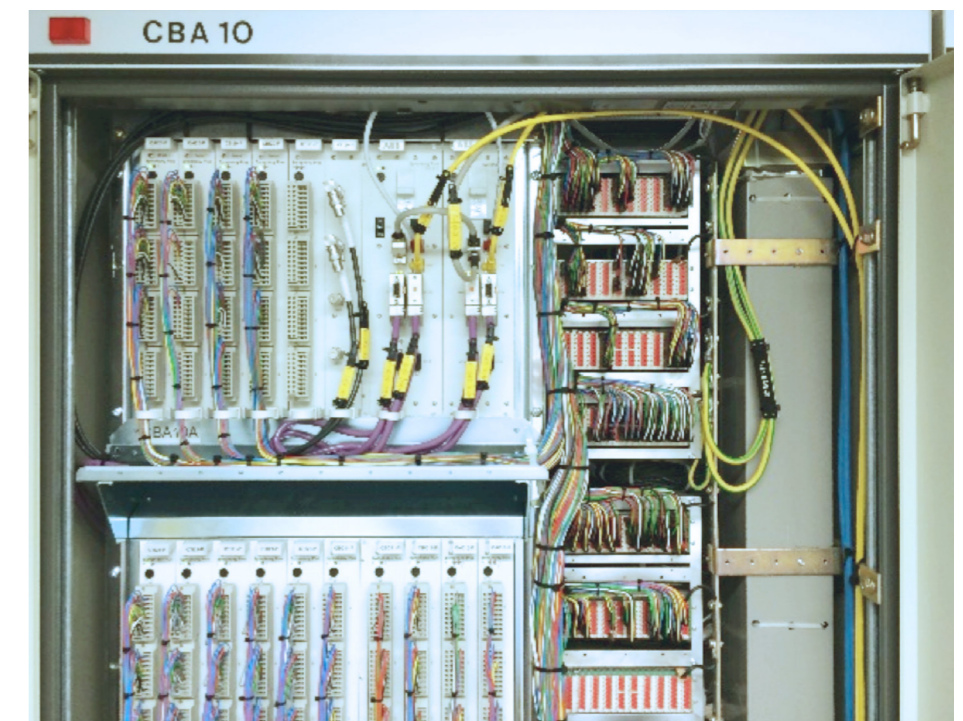
The DCS retrofit was also an opportunity to replace several programmable logic controller (PLC) systems, and integrate these into the Symphony Plus Melody automation. This now enables the plant to operate under one common control and engineering system for all plant automation tasks.

In addition to Symphony Plus Melody, the ABB automation package includes state-of-the-art DCS features like the IEC 61850 substation automation standard and Profibus communication standard, which were supplied and integrated into

the engineering, control and operation systems of the plant.

As a result of upgrading unit 1 to Symphony Plus Melody both generating units can now be operated from a common central control room, using the same DCS technology.

This reduces overall operational and maintenance costs and provides the Brista power plant with a fast, safe, flexible and economical control system solution.



# Symphony Plus™ Melody

New powerful and future-proof Melody controller PM 877



### Advantages

Over the past 30 years, ABB has continuously developed Symphony Melody in line with its policy of ‘Evolution without obsolescence’, equipping it with new products and technologies specific to the needs of the power generation and water industries. Now with this release, the Melody series includes a new high performance controller called PM 877. It is a fit and functional replacement of existing former controllers while improving reliability, performance and security.

### Benefits

- No battery needed
- Cyber Security compliant (DSAC)
- Backward compatible to former Melody controllers (e.g. CMC 50, Support of both Fnet speeds (1x2 Mbaud or 2x375 Kbaud)
- Protect investment by providing sustainable product using up-to-date hardware and software

### Background

The PM 877 is the latest innovation of the Melody controller line. It is the successor product for the following controller types: CMC 50 and CMC 60 (incl. communication modules CCO 30) as well as CMC 70, PM 875 and PM 876 and their variants. PM 877 has been designed as a form, fit and functional replacement (except in cases where IEC 61850 is in use); existing installations can make use of PM 877 without the need to replace hardware components, to change the cabling or to adjust existing control logic.

## Symphony Plus

Melody is active part of the Symphony™ Plus family, which is the new generation of ABB’s total plant automation for the power and water industries. Symphony Plus is designed to maximize plant efficiency and reliability through automation, integration, and optimization of the entire plant. For more than 30 years, ABB has evolved the Symphony family, with each new generation enhancing its predecessors and backwardly compatible with them – all in accordance with our long-held policy of ‘Evolution without obsolescence’.

## ABB’s message: “Evolution without obsolescence”

ABB’s control systems are designed for continuous evolution. It is ABB’s goal to protect its customers’ intellectual investment (ie. application software) beyond the lifecycles of the underlying platform products (hardware and software). ABB will not ‘Remove from Active Sale’ any product or ‘family’ of products until an equivalent or superior replacement to those products is available. Once a product has been removed from active sale, ABB will continue to support the product for at least 10 years, although exceptions to this may occur if the components or technologies needed are no longer available to ABB. Within this support period ABB will announce a ‘Last Buy’ opportunity at least 12 months prior to the end of manufacturing (except in cases where there is a direct form, fit and function replacement). It is ABB’s intention to provide support for as long as there are significant customer needs after the ‘Manufacturing End’ through field service, repair and by making replacement spares (new or refurbished modules) available.

# Managing Windows XP end of life

### Windows XP background

As announced several times, Microsoft stopped supporting the ageing Windows XP operating system on April 8, 2014. XP users will no longer receive software updates or tech support from Microsoft, although the company announced earlier this year that it will continue to provide virus warnings for Windows XP for some time. The Windows Server 2003 server operating system also reached its end of life in July 2015.

### Risks to consider

Microsoft is recommending XP users upgrade to Windows 7 or 8, but this involves costs for new operating system software, and could also require investment in new hardware since the PCs (or other hardware devices) that have used to be run XP for some years may be incompatible with the latest Windows operating systems.

Computers using Windows XP after support ends could become more

vulnerable to security risks and viruses, and XP users will find new and optimized software and hardware for more current. Windows operating systems, so that greater numbers of apps and devices won’t work with XP.

XP end of life presents some critical risks to the safe management of assets and plants operating on XP-based solutions, a situation that also affects ABB automation and control systems.

### ABB can help you

The ABB Evolution pathway updates and upgrades an existing system to the actual versions of operating systems as well as product and application software. In addition, for customers not yet subscribed to ABB Evolution programs such as Sentinel, ABB offers special maintenance contracts for a specific time period as a means of upgrading and avoiding end-of-life operating system issues.

## S+ control Melody platform solutions for XP obsolescence

The S+ control Melody platform is fully supported by ABB and has overcome the XP obsolescence issues for quite some time.

For all products required to operate and maintain a Melody system ABB is offering upgrades and seamless evolution paths to the latest versions:

- S+ Engineering Composer Melody supports Windows 7 (32 bit and 64 bit) since version 5.3.
- S+ Operations including Melody Connect fully supports Windows 7/ Server 2008 (R2) for 32 bit and 64 bit since Version 1.0.
- System 800xA including the Melody Connect fully supports Windows 7/Server 2008 (R2) for 32 bit and 64 bit since System Version 5.1 Rev.A.

For details about the available upgrade paths specific to your configuration and type of application, please contact your local ABB Power Generation contact.

### ABB AG

Rolf Springfeld/Manfred Klingebiel  
Service Export Market  
Hermann-Schoppe-Straße 4  
DE-32429 Minden  
Phone +49 571 830-1610/-1734  
E-mail:  
Rolf.Springfeld@de.abb.com  
Manfred.M.Klingebiel@de.abb.com

[new.abb.com/power-generation/power-plant-automation/melody](http://new.abb.com/power-generation/power-plant-automation/melody)



# Life cycle management for power plants

ABB offers a comprehensive portfolio of life cycle management and service products for the power generation – a portfolio based on extensive process and application know-how and one of the largest installed bases in the world.

As a leading supplier of instrumentation, control and electrical equipment, ABB possesses both, the system technology and the process expertise required, as well as the qualified and skilled staff needed for successful implementation of solutions.

Our philosophy is simple: we protect your investment through the stepwise evolution and upgrading of your electrical, control and instrumentation systems to minimize the consumption of energy, prolong asset operating life, and minimize the cost of ownership.

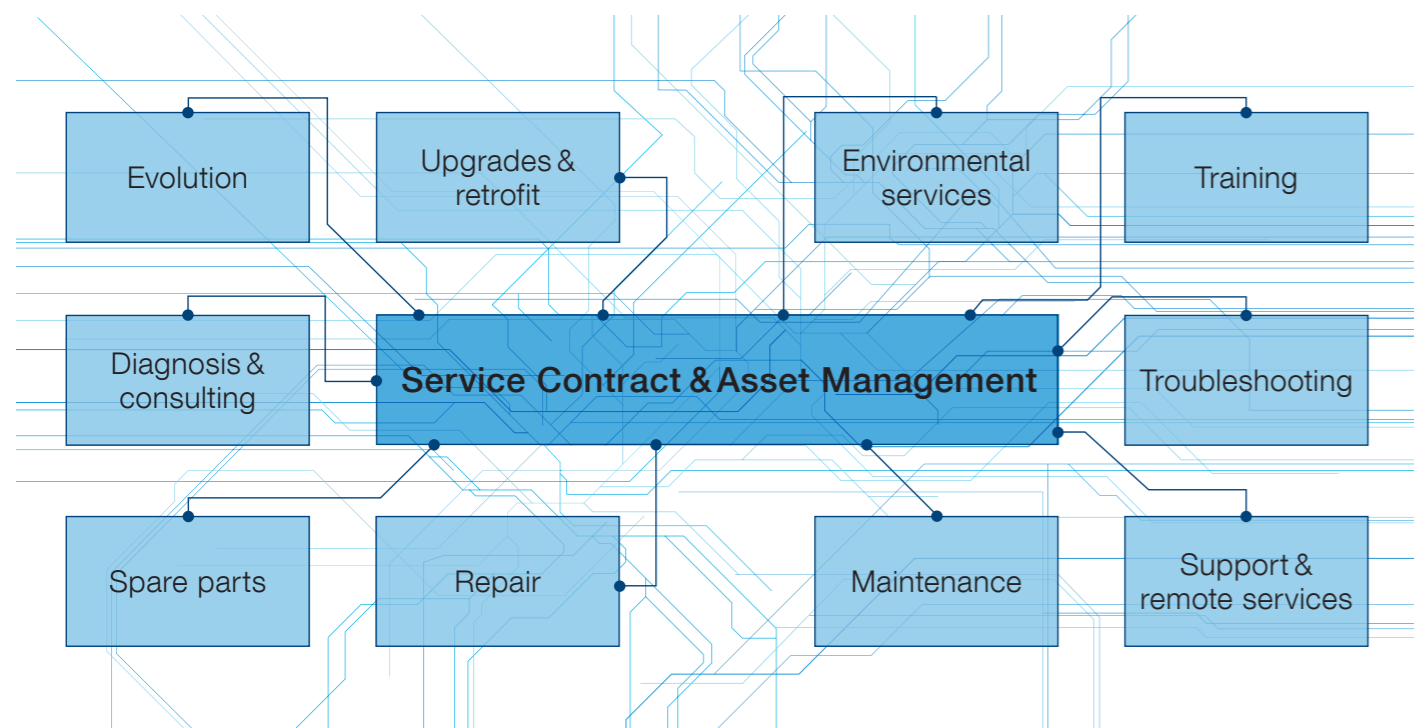


## Why ABB?

- ABB has been in the power generation industry for more than 125 years
- ABB is a leading supplier of power and automation products and systems for utility and industry customers
- ABB covers the complete scope of power and automation systems

- and offers a full portfolio of life cycle management services
- ABB offers professional life cycle services for your products and systems, including component reliability analysis. Through our assessments you will gain the in-

formation required for cost effective long-term decisions concerning overall system operation and maintenance.



# Plant optimization and energy efficiency

ABB plant optimization and energy efficiency solutions enable power producers to maximize plant performance and achieve significant benefits and savings in all types of market – dynamic response, base load and renewables integration.

In mature markets the days of thermal power plants operating constantly at base load are over. Often these plants now have to operate as back-up to wind farms and solar power plants, running below their designed capacity and ramping up or shutting down several times over a 24-hour cycle. For power generators in these markets, the ability to respond quickly and cost-effectively to rapidly changing load requirements is crucial.

In developing parts of the world, where there is often a shortage of electric power, thermal power plants continue to operate around the clock at base load. Here there is scope for huge savings to be made by optimizing plant performance or improving the plant's energy efficiency. The objective is to increase plant electrical output with a given and limited amount of resources.

In many countries – developed and developing – there is a need to participate in intra-day and day-ahead energy trading efficiently in order to maximize returns. This can be achieved by optimizing unit production in a multiunit conventional power plant, or by integrating small renewable energy installations into one large virtual power plant in distributed generation.

ABB has a proven and comprehensive range of plant optimization and energy efficiency solutions that enable power generators to thrive in these diverse market requirements.

## Throttle-free frequency control

MODAN and MODAKOND is a unit control solution that delivers the fast load ramps and frequency control required to meet the dynamic response schedules of load dispatchers in mature markets. It does this by coordinating the boiler, turbine and energy reserves by means of model-based set-point control and

model-based feed forward control. This eliminates the need to throttle the turbine control valves. Whereas throttling usually achieves the desired results but lowers plant efficiency, MODAN and MODAKOND improve plant efficiency by 0.3 to 0.4 percent.

The two products can be installed as an integrated control solution in units running on ABB control systems or as an optimization solution to upgrade power plants running on non-ABB control systems. Installations at more than 80 power plants show that a typical 700 MW unit operating at an average load of 88% can reduce energy consumption on throttling by around 10,150 MWh a year. "The annual cost savings for such a reduction are significant."

## Optimizing start-ups and shutdowns

Because of the increasing number of start-ups and shutdowns that thermal power plants have to perform – often several times a day – power generators need to know how long it will take from firing up to synchronization in order to meet the required load scheduling. They also need to keep the cost of these potentially budget-busting boiler start-ups as low as possible.

In one of many project examples in a German 840 MW power plant OPTIMAX® BoilerMax has reduced fuel consumption and greenhouse gas emissions by 20 percent. The power station is one of several plants that now benefits from lower fuel costs and a reduced carbon footprint thanks to BoilerMax.

## ABB AG

Rolf Springfeld/Manfred Klingebiel  
Service Export Market  
Herrmann-Schoppe-Str. 4  
DE-32429 Minden  
Phone +49 571 830-1610/-1734  
E-mail: Rolf.Springfeld@de.abb.com  
E-mail: Manfred.M.Klingebiel@de.abb.com

By applying the above solutions a power plant can reach a higher ranking in the enterprises scheduling list, resulting increasing operation. This can be achieved by using the existing Melody control system and the proven, standardized ABB solutions. Get in contact with ABB to get more information and to learn how this could be implemented in your plant.



# Melody presence worldwide

## We are here to support you

**Melody Global Execution Center**  
**ABB AG Germany – Power Systems**  
Rolf Springfeld, Manfred Klingebiel  
Hermann-Schoppe-Straße 4  
DE-32425 Minden, Germany  
Phone: +49 621 381 33 33  
E-mail: Contact Centers 24/7: contact.center@de.abb.com

[new.abb.com/power-generation/power-plant-automation/melody](http://new.abb.com/power-generation/power-plant-automation/melody)

**ABB Netherlands: Rob van Huissteden**  
Phone: +31 765 086 230  
E-mail: rob.huissteden@nl.abb.com

**ABB Denmark: Michael Friborg**  
Phone: +45 445 045 59  
E-mail: michael.friborg@dk.abb.com

**ABB Germany: Rainer Wankelmann**  
Phone: +49 571 830 17 56  
E-mail: rainer.wankelmann@de.abb.com

**ABB Sweden: Per G Johansson**  
Phone: +46 405 500 81  
E-mail: per.g.johansson@se.abb.com

**ABB UK: Oliver Jennes**  
Phone: +44 178 582 50 33  
E-mail: oliver.jennes@gb.abb.com

**ABB Poland: Piotr Szkoda**  
Phone: +48 601 883 937  
E-mail: piotr.szkoda@pl.abb.com

**ABB Spain: Juan-Carlos Larranaga**  
Phone: +34 915 819 293  
E-mail: juan-carlos.larranaga@es.abb.com

**ABB China: YaoDong Han**  
Phone: +86 106 423 36 49  
E-mail: yaodong.han@cn.abb.com

**ABB Vietnam: Ngoc LeMinh**  
Phone: +84 438 611 010 260  
E-mail: ngoc.leminh@vn.abb.com

**ABB Switzerland: Matthias Bolliger**  
Phone: +41 585 86 85 75  
E-mail: matthias.bolliger@ch.abb.com

**ABB Greece & Cyprus: Paris Papageorgiou**  
Phone: +30 210 289 17 25  
E-mail: paris.papageorgiou@gr.abb.com

**ABB India: Ahmad Khan**  
Phone: +91 990 149 11 23  
E-mail: ahmad.khan@in.abb.com

**ABB United Arab Emirates: Prakash Mysore**  
Phone: +97 124 938 382  
E-mail: prakash.mysore@ae.abb.com

**ABB Turkey: Baris Unver**  
Phone: +90 216 528 22 00  
E-mail: baris.unver@tr.abb.com

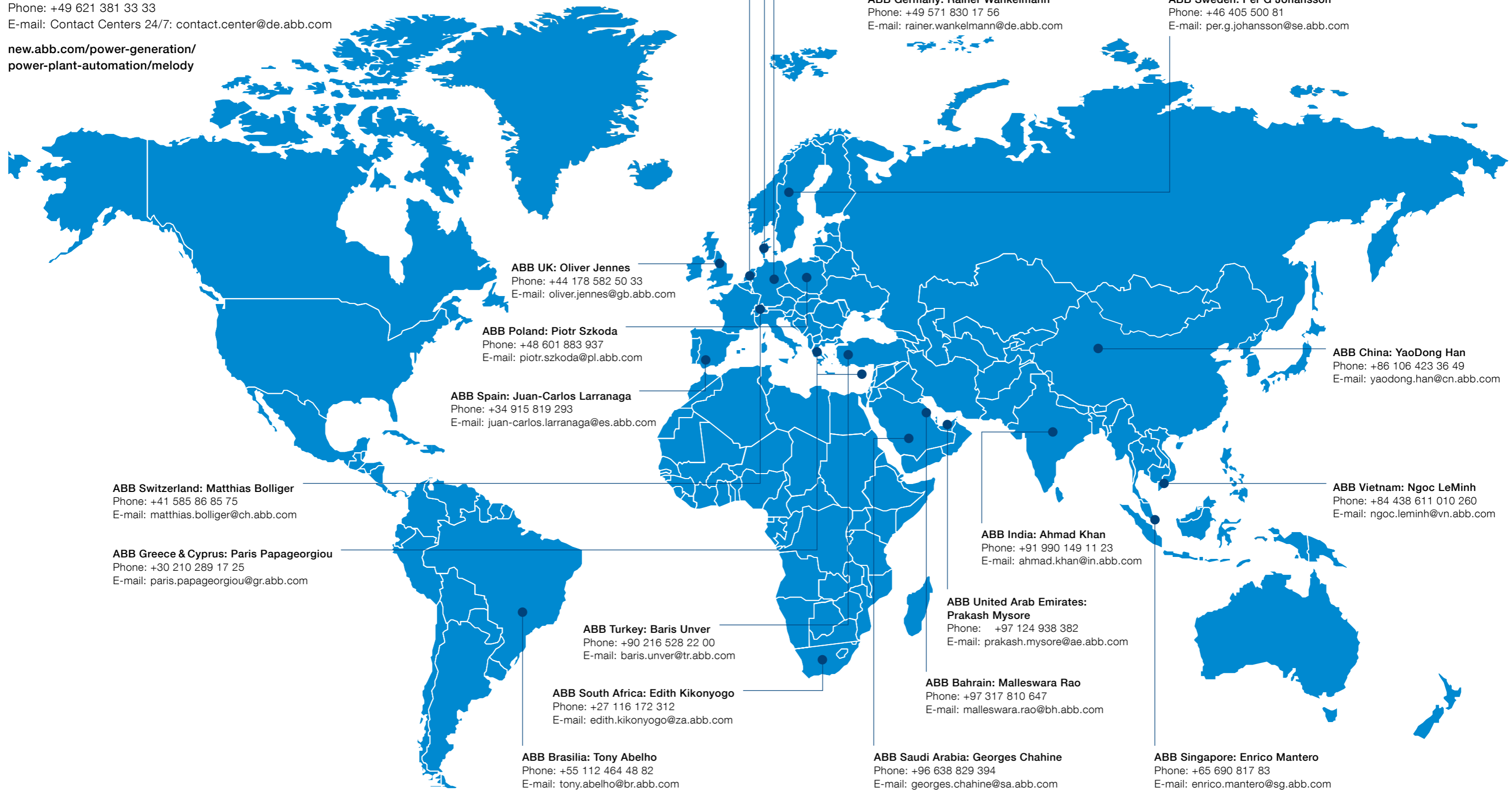
**ABB South Africa: Edith Kikonyogo**  
Phone: +27 116 172 312  
E-mail: edith.kikonyogo@za.abb.com

**ABB Bahrain: Malleswara Rao**  
Phone: +97 317 810 647  
E-mail: malleswara.rao@bh.abb.com

**ABB Brasilia: Tony Abelho**  
Phone: +55 112 464 48 82  
E-mail: tony.abelho@br.abb.com

**ABB Saudi Arabia: Georges Chahine**  
Phone: +96 638 829 394  
E-mail: georges.chahine@sa.abb.com

**ABB Singapore: Enrico Mantero**  
Phone: +65 690 817 83  
E-mail: enrico.mantero@sg.abb.com



# Contact us

## Melody Global Execution Center

### **ABB AG**

Power Systems Division  
Hermann-Schoppe-Straße 4  
DE-32425 Minden, Germany  
Phone: +49 621 381 33 33  
E-mail: Contact Centers 24/7: [contact.center@de.abb.com](mailto:contact.center@de.abb.com)  
E-mail: [Rolf.Springfeld@de.abb.com](mailto:Rolf.Springfeld@de.abb.com)  
E-mail: [Manfred.M.Klingebl@de.abb.com](mailto:Manfred.M.Klingebl@de.abb.com)

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