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# IMPROVING THE ENERGY EFFICIENCY OF YOUR ROTATING EQUIPMENT

Mari E Haapala, ABB Motion Digital Lead





## Presenters

Mari Emilia Haapala leads the digital solutions unit in ABB Motion. In this role, Mari is responsible for growing the service and solution business through innovative digital offerings that securely and efficiently connect our customers' motors and drives. She is passionate about innovation, technology and customer experience.



**Mari E. Haapala**  
ABB Motion Digital Lead

# The world is going electric



Electric motion plays a significant role in

**SUSTAINABILITY  
(CLIMATE & ENERGY)**

**AUTOMATION**

**MOBILITY**

Energy efficiency is a must

**45%** of the world's electricity is converted by electric motors into motion  
**< 23%** of the world's electric motors are controlled by drives

**Demand for electric motion  
to double by 2040**

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# How global industry is speeding up investment in energy efficiency

## ABB energy efficiency survey 2022

97%

Are either **already investing** or **planning to invest** in making their energy usage more efficient

58%

**Don't** feel that the government and third parties provide all the information they need on energy efficiency

89%

Expect their investment in energy efficiency to **increase over the next 5 years**

90%

Say rising energy costs are at least a **minor threat** to the profitability of their business; **53%** say they are a **moderate or major threat**

40%

Plan to make energy efficiency improvements **this year**

52%

Plan to achieve net zero **within 5 years**

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# Sustainable operations through energy efficiency and digitalization

## St Gallen Report

“We are working on progressing with correct monitoring. Then, with the help of the data that is born from this monitoring, we want to make the right decisions, avoiding decisions based on gut feeling, but choosing based on data.”

– **Energy Maintenance Manager, Europe**

“We need this transparency for ourselves, to know what we are doing and to fully understand our production process. So, if we have this data, we can also use it to show our customers or suppliers what we are doing and how efficient we are doing that.”

– **Energy Engineer, Europe**

“Internally, the finance manager, data manager, they all should work together and analyze what our systems tell us and measure; Where do we have the higher costs? Where do we use most energy? We should have the bigger picture, to make the decision about the right investment.”

– **Energy Maintenance Manager, Europe**



86%

of the interviewees strongly believe, that upgrading their equipment could be a viable opinion to save energy

87%

of the interviewees strongly believe, that monitoring and tracking of equipment's energy efficiency is important



95%

of the respondents agree that importance of energy efficiency at a business level is rapidly increasing





At ABB, we believe in “plug and play”, which means the solutions need to come with little effort to deploy and a low barrier to apply. This plug-and-play experience accelerates the digital transformation of the industrial services.

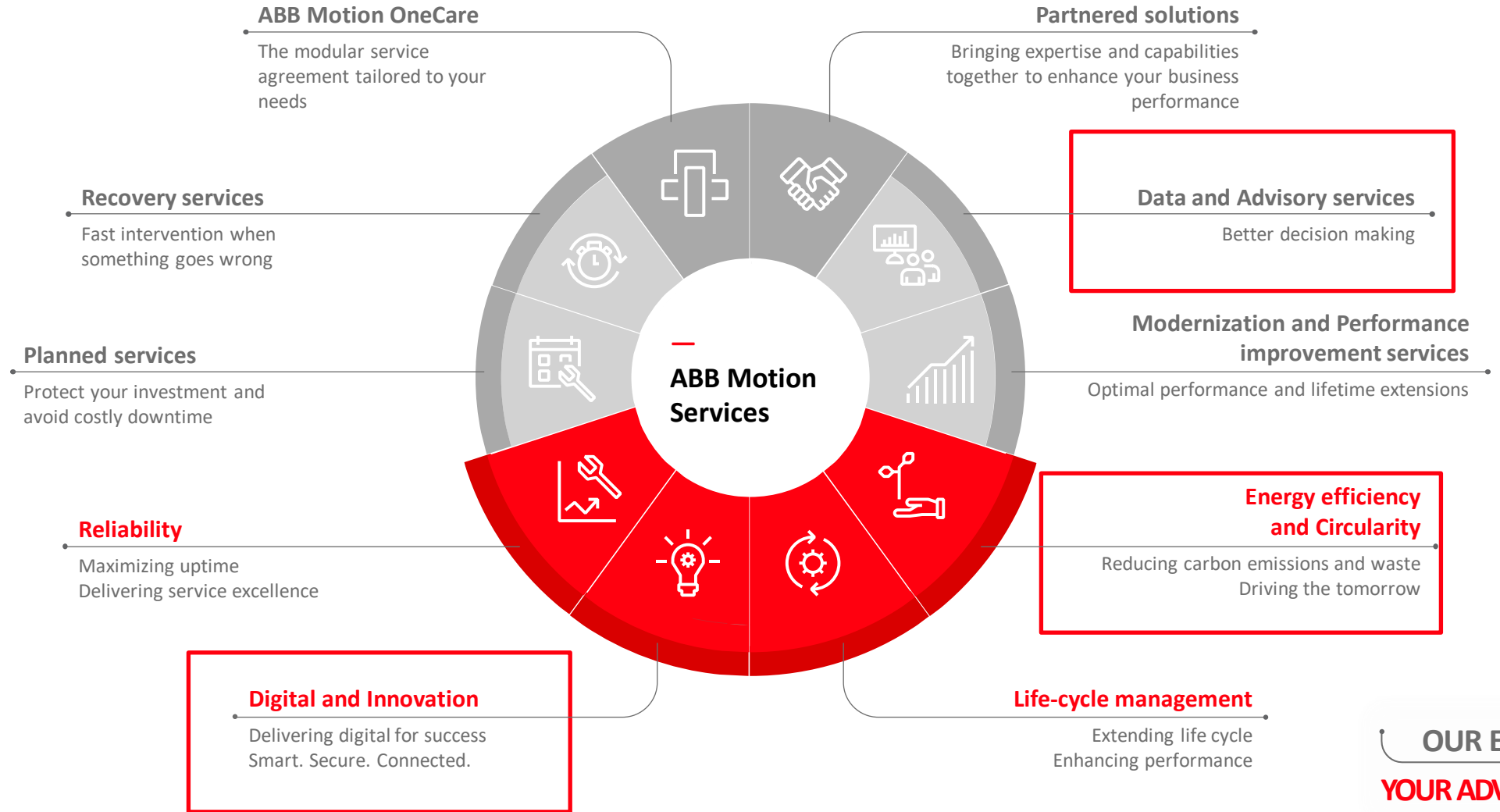
It will allow to reduce carbon emissions through energy efficiency improvements and minimizing waste through circularity.

# Digital solutions to identify and implement energy-efficient actions

HOW

WHAT

WHY





# Why are we successful...

Pioneering technology leader

Domain expertise & offering

Global scale & local presence

## Means for Service today



### Intellectual property

130 years manufacturing and servicing motors and generators.  
40 years manufacturing and servicing drives



### Knowhow

Over 1,200 field service engineers



### Customer access

Services in more than 70 countries, including over 600 service partners

## TOMORROW



Outcome-based business models



Digital platforms



Network of service partners

Digital is key for our future success

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# Data, insights and expertise to improve the energy efficiency

## ABB Ability™ digital solutions

### Better decision making

ABB Ability™ Condition  
Monitoring for powertrains

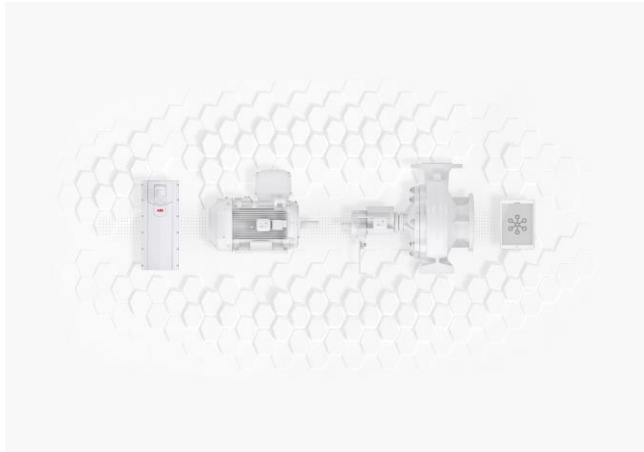
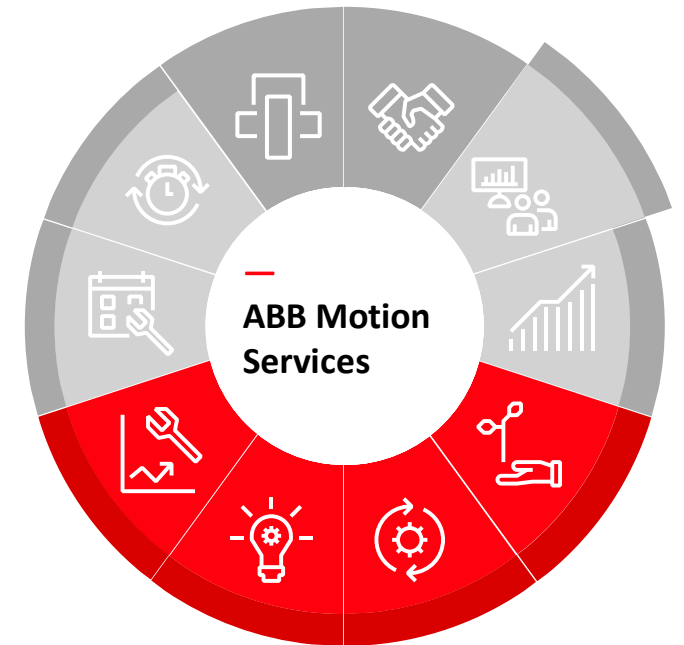


ABB Digital Powertrain Energy Appraisal



Data and Advisory services



# Enabling risk mitigation for flexible business models



**Cost effective maintenance** strategy with long-term planning for maximized asset performance

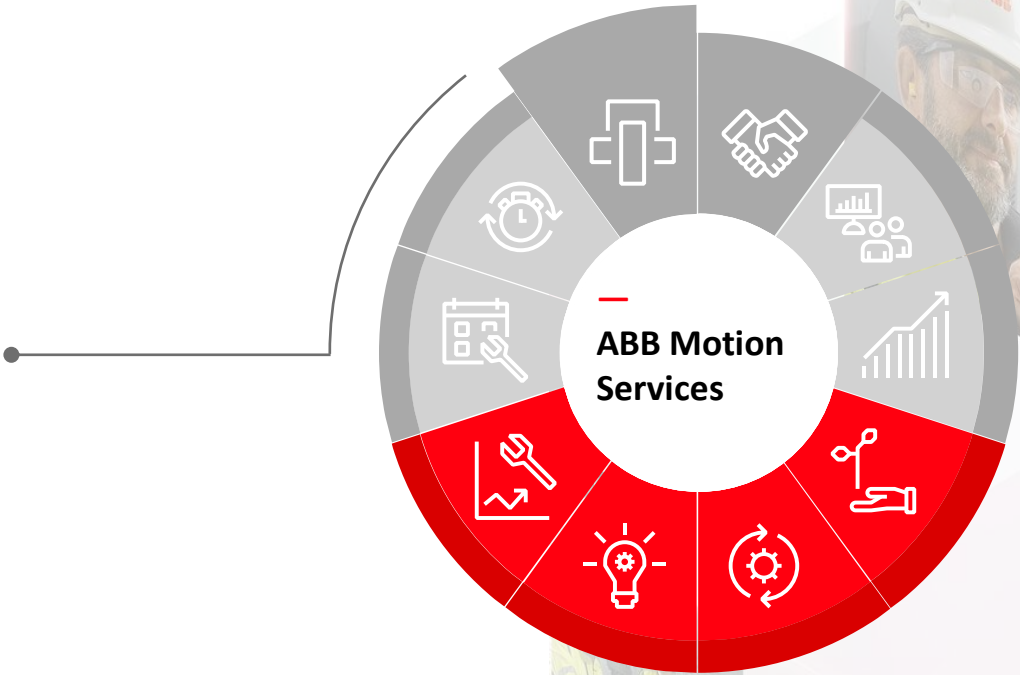


**Guaranteed performance with service expertise** to match your equipment's predictive and unpredictable needs, giving you peace of mind

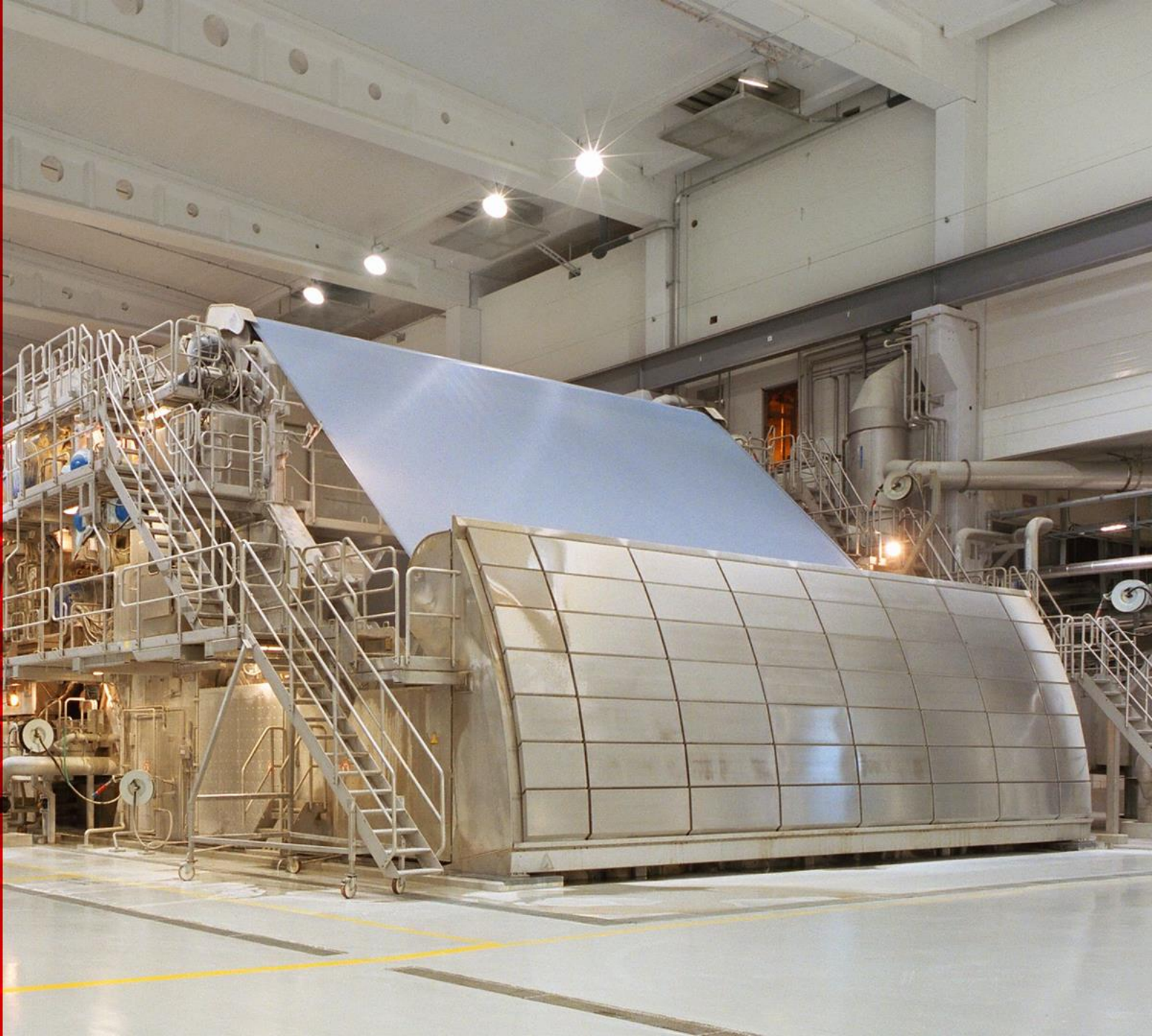


**Partnering for success** within a single contract for easy management of your assets and business needs

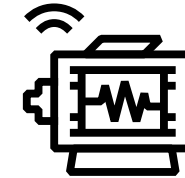
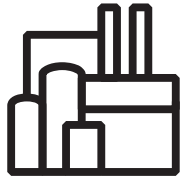
ABB Motion OneCare



Swedish pulp producer  
achieves world-class  
energy efficiency, while  
increasing uptime,  
making use of ABB's  
data insights and  
service expertise



# Waggeryd Cell pulp mill



Waggeryd Cell pulp mill in southern Sweden has used modern digital solutions to make better decisions about its electricity-intensive operations

The key has been the combined power of **ABB Ability™ Condition Monitoring service** and the **Digital Powertrain Energy Appraisal**, enabled by Smart Sensors

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# Solution

**Waggeryd installed the ABB Ability™ Digital Powertrain solution enabled by 156 Smart Sensors, digitalizing their entire critical line.**

The sensor can easily be externally mounted on ABB and non-ABB motors, pumps and general machinery to measure power consumption, speed, vibration frequencies and temperatures



**93**

Smart Sensors on the motors running the mill's huge pulp refiners

**42**

sensors on bearings

**10**

sensors on gearings

**11**

sensors on other process pumps

## How it works



The sensors collect and transmit data to the ABB Ability™ Condition Monitoring system,



Monitoring system analyzes the information to provide key operational parameters of the equipment, and apply the ABB Ability™ Digital Powertrain Energy Appraisal



The system also gives early warning about potential trouble and possible failure



In addition, ABB's service expertise provided to the condition monitoring service generates a detailed report regarding the equipment status, energy efficiency and further maintenance recommendations



This enables Waggeryd to make the right decisions at the right time on installed base optimizations – and make further gains in improving overall energy efficiency

# SCA Group embraces ABB digital solutions to increase energy efficiency

- With a long-term goal of establishing a fossil-free value chain, SCA has contracted ABB Ability™ Condition Monitoring to harvest, analyze and report on data from their motor installed base, which is used to provide expert energy efficiency recommendations
- The collected data was analyzed, providing intelligent insights into improvements in energy efficiency, and thereby helping to reduce emissions and overall energy consumption and cost
- ABB's domain expertise was key to providing this information, enabling SCA to take the right decisions on which motors to exchange to gain improved energy efficiency





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# Summary



World is going electric; climate change is accelerating and energy prices rising – making better decisions about energy efficiency has become more important than ever



The technology hype is fading, get relevant. **Technology** enables us to create more value to customers



Focus shifting to **outcome-based services** to help our customer operate safely, reliably and profitably, while reaching their sustainability goals

# Join the Energy Efficiency Movement



- 01 Make a commitment to improve energy efficiency
- 02 Share your commitment publicly
- 03 Act on your commitment
- 04 Share the progress publicly
- 05 Activate the Movement further



**ABB**