



Medium voltage service

MySiteCondition

Asset condition and risk assessment

Power and productivity
for a better world™



What is MySiteCondition?

MySiteCondition supports making the most appropriate business decisions related to the allocation of the maintenance budget. This is possible by strategically directing funds on the basis of asset condition to move from time-based to a reliability centered maintenance (RCM) methodology.

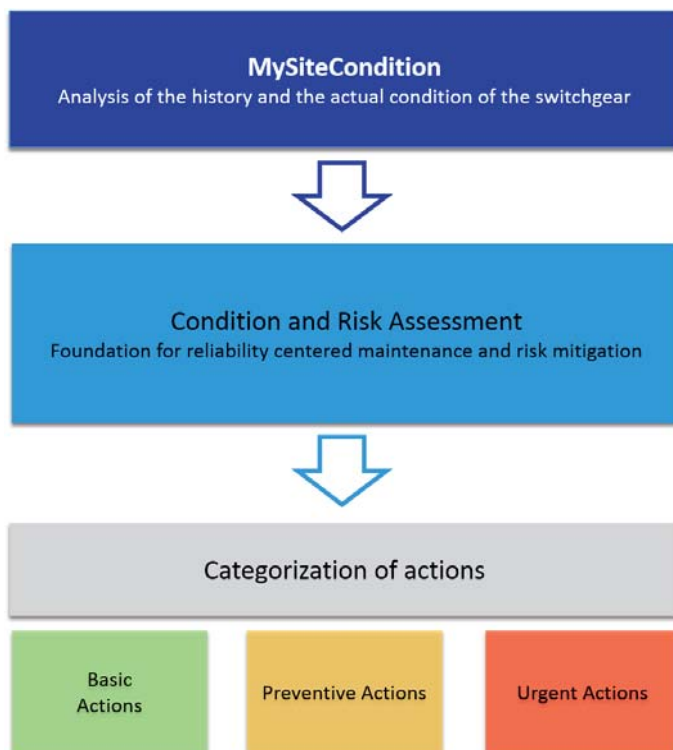
Condition indexing is an excellent instrument for risk assessments and financial planning for maintenance and lifetime extension. Switchgear lineups are strategically critical for production and the financial consequences of failure can easily exceed actual asset value. Maintenance, lifetime extension, and safety are important parts of asset management, as means to control and mitigate risk.

Knowing the condition of the installed equipment, and where to spend the maintenance budget to increase reliability, is an issue of increasing importance in today's electrical network operations due to the aging installed base.

MySiteCondition is the ABB methodology to support reliability-centered maintenance strategies by assessing the following:

- Importance of the equipment
- Actual equipment condition
- Critical points in the network
- Available historical data
- Operator and asset safety

After an assessment is conducted, the collected data is carefully analyzed and using an ABB proprietary algorithm to evaluate the risks and consequences of a failure. MySiteCondition assessments cover typical products found in an industrial and utility distribution system.



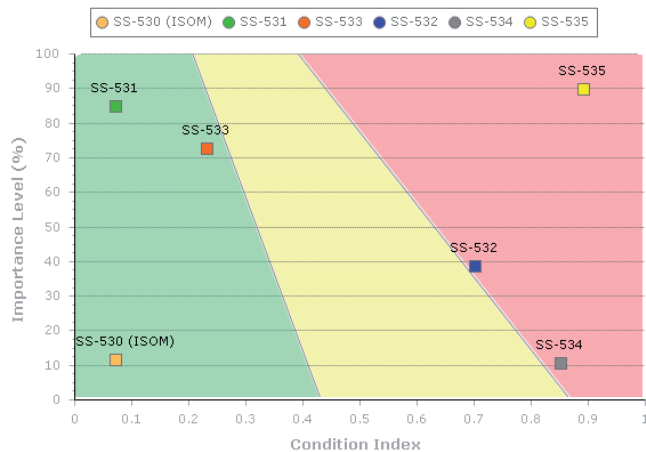
MySiteCondition methodology



ABB engineer conducting a MySiteCondition assessment

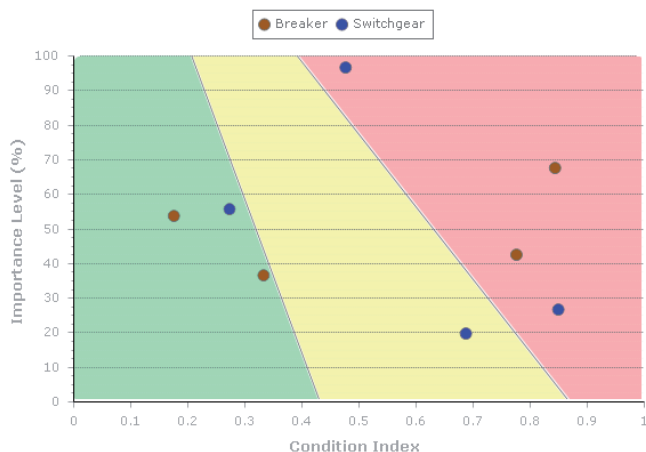
Detailed reporting

The outcomes of the assessment are detailed reports with illustrations of the actual status of the overall asset and plant condition: how performance and safety can be improved, availability increased, and service needs prioritized. In many cases while the assessment is being conducted and data is being collected, minor preventive maintenance actions can be performed to improve the condition of the equipment right away. Some examples are shown here.



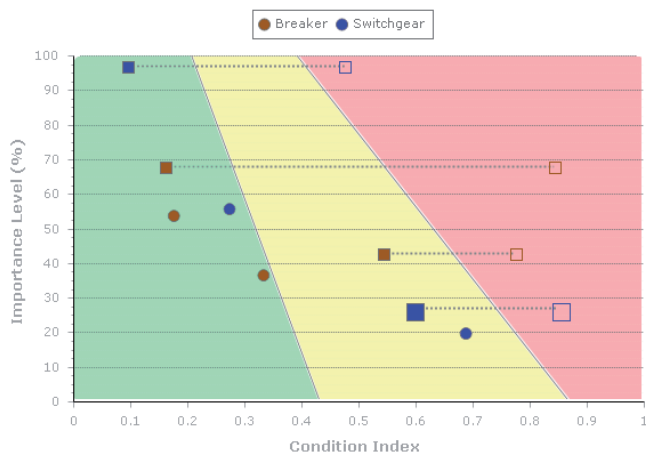
The categorization of plant substations, in the Importance/Condition matrix, gives an overview of the current condition of each substation in the plant, linked to its importance.

It gives a first idea about where to invest the maintenance budget in order to reduce the risk of failure.



This Importance/Condition matrix chart illustrates one plant substation with the switchgear and breakers installed. Using the chart as a guide, maintenance efforts can now be better focused. Maintenance budget is only used where asset reliability might be endangered in the future.

For each asset, a full report, including pictures, will be available to directly target the required needs discovered during the assessment.

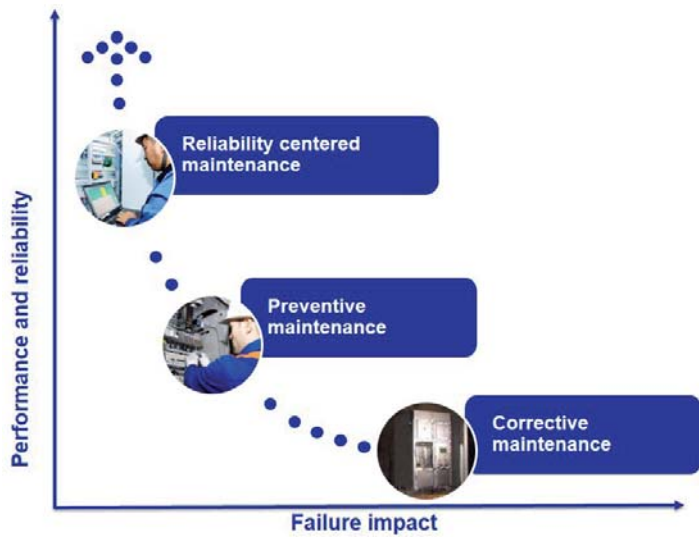


Based on the report, ABB will recommend measures to increase reliability, reduce risk, and improve safety.

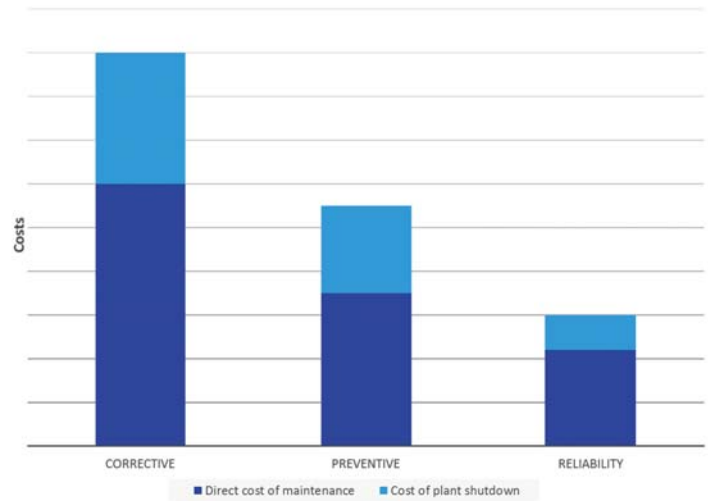
By carrying out these measures during the course of a RCM approach, overall equipment and substation condition can be highly improved as indicated in the chart on the left.

Asset improvement is achieved by properly allocating the funds for maintenance and upgrade measures. The asset status can be additionally enhanced by further investments.

Associated maintenance strategy



Overview of different strategies



Comparison of costs related to the different strategies

RCM is one of the most effective maintenance strategies that can be applied at reasonable cost to installed assets. Studies have shown that up to 25% of the maintenance budget can be used more effectively by performing assessments in order to prioritize and focus the maintenance effort.

The documented and transparent decision making framework provided by MySiteCondition supports operators in the risk-based approach in times where the know-how is not readily available locally and when the assets are reaching a critical age. The assumption that all assets are fit for the future can be a dangerous gamble.

The identification of increased future risk and the mitigating effect of various intervention strategies is essential information for a safe and reliable operation.

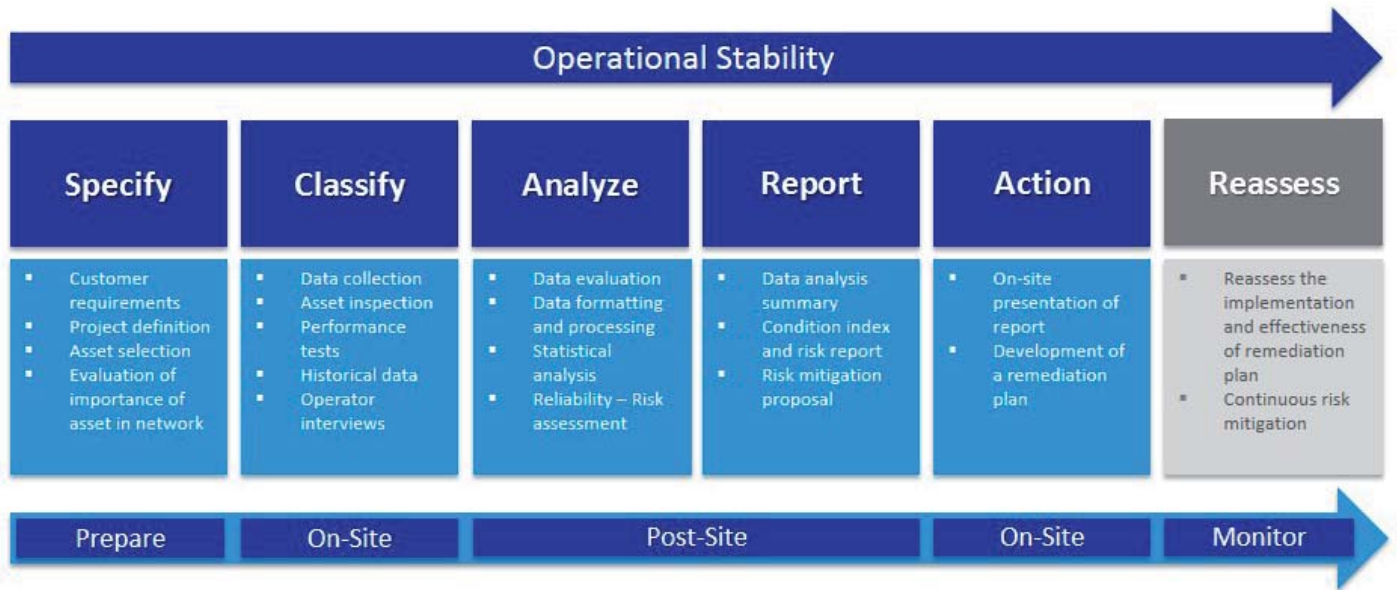
How well do you know your assets?

- What is the age of your switchgear?
- How thorough is your maintenance program?
- How important is your switchgear to the overall process?
- When did you last have a complete check-up?
- What is the cost of an outage?
- What are your annual maintenance costs?

How well do you know your operational stability?

- What are the most common failures?
- Do you have the results of an arc flash study?
- At which load percentage is your switchgear running?
- How do you carry out your maintenance? (time or condition based)

The process



RCM based on MySiteCondition methodology can be used for:

- MV equipment
- LV equipment
- Small power transformers

It approaches risk with a direct impact on asset reliability in a systematic way by analyzing:

- Importance of the asset
- Asset history
- Risk of failure equipment

The factors considered for the evaluation of the importance of the asset are:

- System importance
- Functional weighting factor
- Asset function

The on-site collection of data, via the MySiteCondition App, to classify the asset condition and the associated risk is based upon:

- Historical data
- Asset inspections
- Operator interviews
- Performance tests

The computation of the Condition Index based on the collected data is modeled after the Failure Mode and Effects Analysis (FMEA), a systematic technique for failure analysis which was developed to study problems that might arise from malfunctions in different systems.

- What are possible failure modes?
- What causes the failures?
- What is the system impact of the failure?

The Condition Index is the sum of the weighted scores and stands for the probability of a failure.

The results include:

- Executive report with high priority actions
- Reports for each asset covered by MySiteCondition
- A detailed risk mitigation plan including actions that immediately improve the Condition Index
- Critical items are highlighted with photographs
- All recommended actions are listed in the report with proposal for optimal budget allocation

The condition assessment performed by ABB is based on reliability principles in ISO & IEEE standards.

Collected data

With MySiteCondition, ABB can provide a definition of the current asset condition and its operational stability with an outlook on current and future reliability. The definition is based on an assessment where all parameters which influence equipment reliability and safety are collected, rated and analyzed.

Overview of parameters collected during MySiteCondition assessment					
Classification	Topic	Switchgear			Circuit Breaker
Observation	Ratings	X			X
	Age	X			X
	Cleanliness	X			X
	Interrupting technology				X
	Loading vs. rating %	X			X
	Rated operations				x
	Relay technology	X			
	Last calibration	X			
	Operating environment	X			X
	Racking				X
	Indicator lights	X			
Inspection	Trip functions	X			X
	Operating voltage range				X
	Racking condition				X
	Control switch	X			
	Secondary disconnect	X			X
	Shutter operation	X			
	Signs of overheating	X			X
	Interlocking	X			X
	CT condition	X			
	Control wiring	X			
Test results	Infrared scan	X			
	Bus insulation resistance	X			
	Power frequency	X			
	Withstand voltage	X			X
	Operating time				X
	Pole resistance				X
	Insulation resistance				X
	Shunt trip				X
	Partial discharge	X			
	Closing coil				X
	Spring charging motor				X
Records	Dielectric age	X			X
	Arc flash study	X			

Note: This list represents only an extract of the data which is collected in course of the MySiteCondition assessment.

Services for RCM and risk mitigation

ABB performs service activities according to the outcome of the MySiteCondition assessment and based on customer need. ABB always works with the customer to ensure a good understanding of the activities performed and the impact on the respective asset. These activities ensure that you, as a customer, will have an optimal equipment utilization, that eventual risks are mitigated and asset life is extended.

Spare parts and components

- Product reliability through high-quality certified spare parts
- Improved uptime due to guaranteed delivery
- Global logistic network

Training

- Long-term product performance through correct operation
- Improve safety
- Lower downtime

Maintenance and field services

- Field service by certified technicians
- Fast response
- Improved equipment utilization

Retrofit and refurbishment

- Cost-effective alternative to replacement
- Maximize investment performance of asset
- Incorporate latest technology to increase safety, performance and functionality

Safety related upgrades

- Maximum protection for all personnel during an arc-fault through active or passive protection

Monitoring and diagnostic

- Proactive intelligent action to reduce risk of failure
- 24-hour continuous asset monitoring
- Access to expert analysis

Engineering and consulting

- Access to expert product specialists
- Sharing of global best practices
- Combined analysis and implementation capabilities

ABB engineer inspecting a circuit breaker during a MySiteCondition assessment



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