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10 Services & Support

10.1 Asset Services

Asset Services provide expert solutions and services for power supply systems in the areas of power transmission, power distribution and industrial energy supply that keep the network

infrastructure on cutting edge in terms of lifecycle, reliability and environmental friendliness. Such expert solutions and services include Siemens state-of-the-art retrofit.



10.1.1 Network Services

Network Services solutions from Siemens deliver the decisive plus in reliability, quality and efficiency throughout the entire power system.

The comprehensive portfolio of Network Service solutions comprises advisory services, asset management and a wide array of operation, management and maintenance packages – all provided by professionals with many years of experience, and a proven track record in power technology applications and the energy business. In a nutshell: Siemens helps make the most of a given power system in terms of efficiency, reliability and profitability (fig. 10.1-1).

Operation and maintenance (O&M) services

Siemens provides a wide array of operation and maintenance services as well as “care-free packages” that deliver a guaranteed level of performance for power supply infrastructure facilities.

Siemens works closely with system operators to develop balanced service solutions tailored to each specific situation. These solutions are designed to meet the needs and expectations of customers as far as the technical, financial and regulatory performance of their assets are concerned.

The Siemens approach to the provision of O&M services is proven every day. The key to success is combining the organiza-

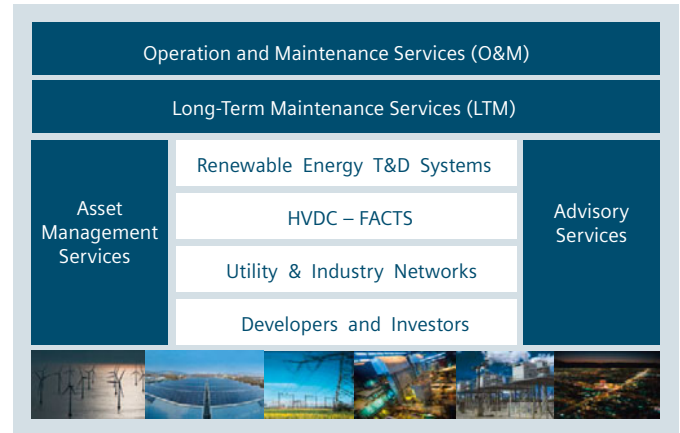


Fig. 10.1-1: Comprehensive solutions for system operators

tion’s global expert knowledge of asset management and network analysis with local knowledge of the specific network conditions (that is, global competence delivered locally).

Customers include public or private utilities, industrial organizations, private/equity investors, or real estate development companies from many countries around the world.

Siemens’s portfolio of O&M services includes the following elements (fig. 10.1-3):

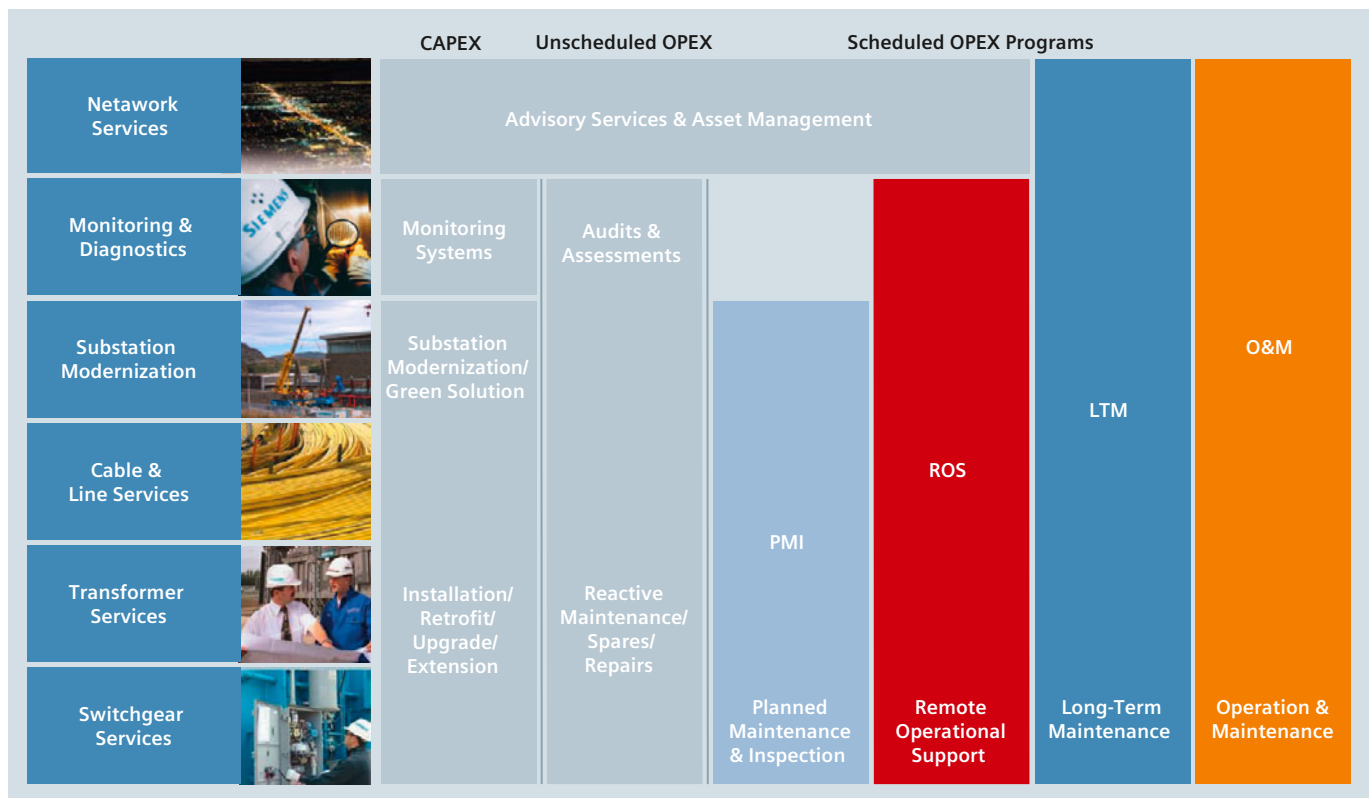


Fig. 10.1-2: Asset services portfolio

Services & Support

10.1 Asset Services

- Operation services (e.g., control room operation 24/7, metering, energy automation)
- Long-term maintenance services (e.g., field services, emergency response, supply chain management)
- Management services (e.g., asset strategy planning, transition & change management)
- Asset services (e.g., lifecycle management, network extensions, substation refurbishments).
- Customer services (e.g., call center, customer support, billing, revenue collection)
- Support services (e.g., financial services, human resources, logistics, quality management).

In a typical engagement, the management of an entire power supply system or specific targeted portions/functions thereof is transferred to Siemens for a fixed period of time. Investment decisions and individual core functions may remain with the asset owner or may be assumed by Siemens. The operational risk is transferred to Siemens and Key Performance Indicators (KPI's) and/or Service Programs are established to guarantee the agreed technical and budget performance.

Siemens provides O&M services for:

- T&D networks
- Wind farms and solar power electrical balance of plant systems
- HVDC and FACTS facilities.

O&M services for wind farms:

Siemens provides O&M services for onshore or offshore wind farms interconnected to the power system using conventional AC or HVDC technology.

Examples of the scope of O&M services for wind farms include (fig. 10.1-4):

- Electrical balance of plant (HV, MV, LV and DC systems, SCADA and telecommunication systems)
- Buildings and other civil infrastructure (e.g., roads, drainage systems, etc.)
- Ancillary facilities (e.g., lighting equipment, network data systems, etc.).

O&M services for HVDC and FACTS:

Siemens provides services for a wide range of power-electronics-based facilities including long distance (overhead and underground/undersea) and back-to-back HVDC installations, as well as Static VAR Compensators (SVC), Thyristor Controlled Static Compensators (TCSC), and other similar FACTS devices.

Examples of customized services for HVDC and FACTS installations include the following (fig. 10.1-5):

- Maintenance (preventive, corrective)
- First line of support (for immediate fault analysis and repair)
- Second line of support (for complex fault analysis and repair)
- Development of maintenance strategies
- Remote maintenance activities, such as monitoring, fault analysis and diagnostics/repairs of control and protection systems
- Spare parts management.

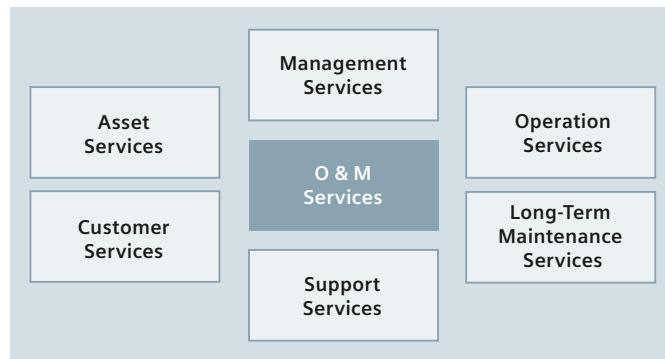


Fig. 10.1-3: O&M service elements



Fig. 10.1-4: Wind farm in Italy operated and maintained by Siemens



Fig. 10.1-5: HVDC system in Scotland operated and maintained by Siemens

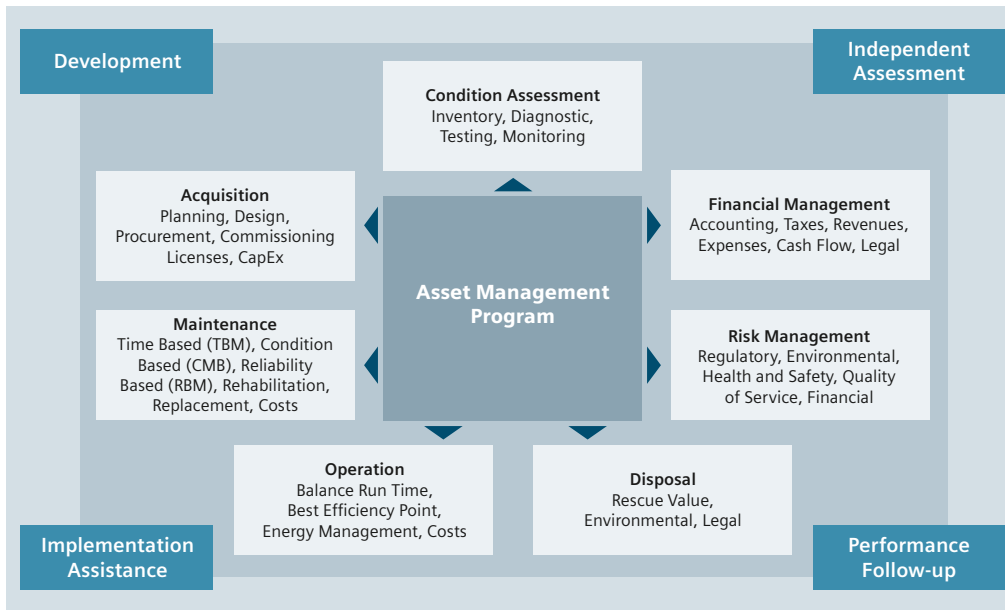


Fig. 10.1-6: Core elements of asset management support

Asset management services

Siemens's asset management experience, processes and methodologies enable system operators to increase the profitability and efficiency in the use of their assets while at the same time safeguarding required quality levels and minimizing life-cycle costs.

Asset management support services by Siemens leverage a number of advanced methodologies and tools, including independent condition assessments, RCAM (Reliability-Centered Asset Management) and MBR (Management Business Review). Siemens's asset management support services include (fig. 10.1-6):

- Independent assessment of Asset Management Programs (AMP)
- Development of Asset Management Programs (AMP)
- Implementation assistance of Asset Management Programs (AMP)
- Performance follow-up of Asset Management Programs (AMP)

Siemens provides recommendations that are completely independent from product, construction or equipment sales of other affiliates. Indeed, our recommendations are vendor-neutral and are well accepted by third parties such as lenders and other financial institutions.

Advisory services

Siemens's advisory services enable power asset owners and operators to get the most out of their assets while providing options to improve performance. The analysis looks at every material issue from a holistic vantage point. Answers and recommendations explicitly recognize that every decision has technical, economical and regulatory implications.

Technical Review/ Condition Assessment	CapEx
<ul style="list-style-type: none"> Assets Business Site Visits Environmental/Permits 	<ul style="list-style-type: none"> Demand Projections Budgets/Programmes Historical/Future
OpEx	Risk Analysis
<ul style="list-style-type: none"> Standards Staffing/Equipment/Tools Budgets/Programs 	<ul style="list-style-type: none"> Technical Institutional Regulatory Other

Fig. 10.1-7: Core elements of advisory services

The results provided by our due diligence/advisory services enable Siemens's customers to:

- Gain an insight into the correlation between technical decisions and their business implications (e.g., on network cost and service quality)
- Build a sound approach for evaluating relevant aspects of the system expenditures program, with objective and documented decisions
- Increase the efficiency of resource utilization while safeguarding required quality of service levels in the long run.

Fig. 10.1-7 provides an overview of the core elements of Siemens Advisory Services.

10.1.2 Substation Modernization Projects

Because top priority is given to operational continuity in substations and power systems, any long-term maintenance, modernization and system rehabilitation must be precisely planned. These are the right opportunities for OEM-driven service projects. Siemens offers a variety of corresponding service solutions for extending the lifespan and size of the substation, or for its modernization. Countless examples worldwide serve as references for successfully executed service projects.

10.1.3 Monitoring and Diagnostics

Monitoring systems

The condition of your assets is highly relevant to your decision-making about service or replacement. With insight into condition, the transition to Condition Based Maintenance (CBM) can take place. Pending failures can be repaired before a breakdown occurs. Siemens offers both on-site audits and also online condition monitoring as a stand-alone or integrated system.

With Integrated Substation Condition Monitoring (ISCM®), Siemens provides online asset condition information through a comprehensive range of innovative tools for diagnostic analysis. Through prediction and prevention of equipment failures, ISCM® protects the customer's company image as well as his investment. The integrated monitoring system guarantees minimum downtime, maximum asset performance, nearly real-time rating, and extended lifespan. ISCM® is a fundamental prerequisite for securing the customer's required performance level, and with it, long-term entrepreneurial success.

The Siemens ISCM® solution, customized to the individual requirements of the substation, monitors all relevant components of the power supply system – from transformers (e.g., SITRAM integrated condition monitoring system) and switchgear to overhead lines and cables. It can be seamlessly integrated into the existing substation communication and visualization infrastructure, from simple bay controllers to high-end control center applications. Siemens offers one integral solution for all network assets.

ISCM® provides a highly reliable solution, based on expert knowledge and advanced technology. With its unique proficiency and experience along the entire energy conversion chain, Siemens is ideally positioned to supply a sophisticated, comprehensive monitoring concept that covers all equipment within the power supply.

SAFE™ – Audits and Assessments

With SAFE asset audits, Siemens personnel visit substations for an inspection – ranging from visual inspection all the way to extended diagnostics, providing the basis for a targeted maintenance

strategy for important substation assets like high-voltage gas-insulated switchgear (GIS), high-voltage circuit-breakers, and power transformers.

Cable and line services

In principle all service offerings by Siemens, such as installation and repair, also apply to power cables in the T&D environment. Currently, Siemens is focusing on cable diagnostics with different detection methodologies.

Namely high-frequency partial discharge (PD) diagnostics and frequency response analysis (FRA) are considered as a field of activity for Siemens. For the second methodology, Siemens uses patent-pending Line Resonance Analysis (LIRA®) technology.

The LIRA® system assesses and monitors the general degradation of the cable insulation caused by harsh environmental conditions (high temperatures, humidity, radiation). It also detects local degradation of the insulation material as a result of mechanical impact or local abnormal environmental conditions. These diagnostics services are valuable for specific applications in power transmission and distribution systems, for subsea cable installations like in offshore windfarms, or in the oil and gas industry, as well as in power plants.

Remote Operational Support (ROS)

Remote services are performed by our Remote Diagnostics Center – in short, RDC. On the one hand, remote services assist the customer in daily business with remote expert consulting, troubleshooting and fault investigation, and on the other hand support. Siemens O&M contracts with online Integrated Substation Condition Monitoring (ISCM®), and with innovative services for substations as well as for transmission and distribution systems.

At a glance, the RDC offers:

- ISCM®, including expert diagnostics
- Remote supervision
- Remote services for operation and maintenance contracts
- Online asset data
- Remote troubleshooting.

The RDC enables asset data management tailored to the system operator's needs. With these elements, the implementation of efficient maintenance concepts like condition-based maintenance and minimization of reaction times are applicable to Siemens's O&M offerings.

Due to its flexible configuration, operation can take place nearby the customer, and advanced condition analysis can take place centrally. System operators can share condition data, but keep control and protection data private. Close co-operation between the Remote Diagnostic Center and the Energy Customer Support Center offers Siemens's customers one central point of contact.

10.1.4 Transformer Services

The remaining lifetime of transformers decreases continuously as a consequence of normal ageing processes. The transformer's rate of ageing varies considerably from one type of construction to the next. It depends on several different facts such as transformer design, capacity, service and load history, climate, and environmental conditions. The critical factors which influence the rate of ageing are:

- Operating temperatures (under load, ambient)
- Moisture content and increases (e.g., decomposition product of hydrocarbons in insulation)
- Oxygen level and inrush (e.g., trough conservator)
- Mechanical and electrical stress (e.g., short circuit events, harmonics, system overvoltage).

That is why Siemens offers transformer services including:

- Condition assessment and diagnostics
- Online monitoring
- Consulting and expertise
- Maintenance and lifecycle extension
- Spare parts, accessories
- Repair and retrofit

For details please refer to Transformers, Transformer Lifecycle Management.

10.1.5 Switchgear Services

Worldwide customer-focused Siemens service centers are able to manage all product-related services for Siemens products, as well as for Magrini Galileo, Merlin Gerin, Elin Holec and Reyrolle products.

Whether in industrial companies, public or private power supply and infrastructure, or building technology – power distribution plants must basically be available continuously, and they must provide the highest degree of operational safety. Switchgear in particular must handle the steadily increasing demand for electrical energy; but their aging and wear can significantly impact their functioning.

Quick and cost-effective retrofits make switchgear fit for the future, with minimal disruption of ongoing operations.

Retrofit made easy – rely on an experienced partner

Siemens is the experienced partner to depend on when it is time to retrofit medium-voltage switchgear and other related equipment. The offering includes:

- Evaluation of all required technical information. The switchgear to be retrofitted remains in place and in operation.
- Measurement and development of the most suitable solution, testing, and verifications in AutoCAD.
- Transport of the ready-to-use trucks to the system operator's plant, installation, and commissioning.
- Thorough testing of prototype; series production begins after all tests are successfully passed.

Retrofits quickly pay off. Solutions from Siemens provide many benefits – and the most important is the high level of system availability that can be achieved with the new equipment. In addition to prolonging the equipment's service life and securing the customer's investments, retrofitting also reduces maintenance costs, as it uses modern vacuum circuit-breaker technology. In addition, retrofitting with Siemens also means a secure and cost-effective supply of spare parts anywhere in the world.

Retrofit benefits at a glance:

- Minimized downtimes for greater availability of the switchgear
- Increased security of energy supply
- Cost reduction for maintenance and fault clearance
- No additional cost for plant and building modifications
- Secure global supply of spare parts for crucial wear components.

Preventive maintenance and repairs

Equipment and systems with a long service life and continuous fault-free operation provide the best conditions for efficient utilization of the operator's system. Siemens's maintenance services ensure that all components work safely and reliably, and include major revisions and overhauls to bring assets back to reference condition. Siemens keeps customer network assets like switchgear, transformers, and the substation secondary equipment well maintained at all times through regular inspections and revisions.

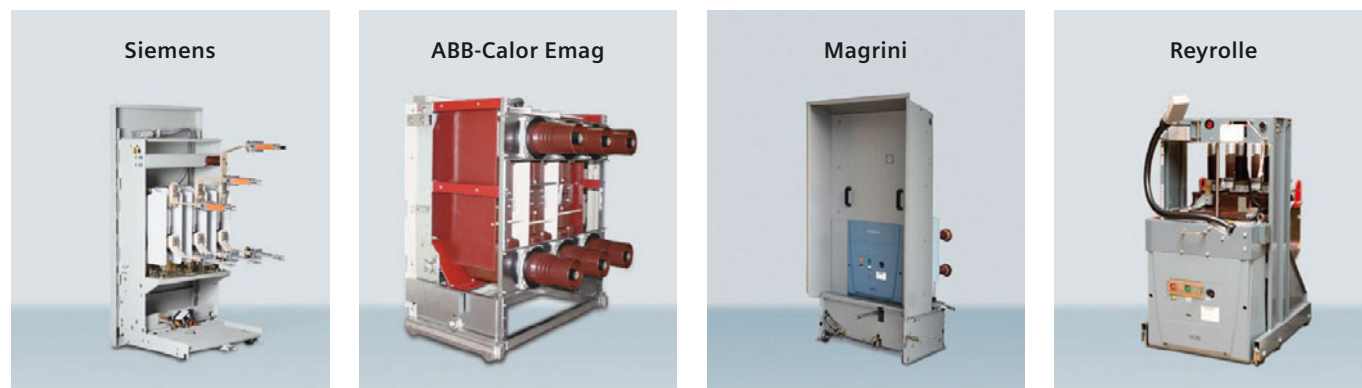


Fig. 10.1-7: Examples for retrofit

Modifications, upratings and extensions for modernizing switchgear

Naturally, the system operator cannot upgrade equipment at the same rapid pace that technology changes. However, Siemens's modification, upgrading and extension capabilities offer many opportunities for optimization, so that the system operator can profit from the latest technical improvements. With these cost-effective solutions, the system operator will be investing capital wisely and taking advantage of the experience offered by Siemens in adapting older systems to new technical standards, resulting in reduced lifecycle costs.

The primary objectives of the maintenance services offered by Siemens are to avoid emergency repairs and ensure fault-free operations. If a failure does occur, Siemens will be on site rectifying the fault as quickly as possible. Operators can contact Siemens at any time 24/7 via the on-call duty service.

Spare parts, components and kits

The prerequisite for successful and fast fault recovery is, of course, the availability of required spare parts. Siemens delivers spare parts, components and kits for all asset series – from current production to series that have been phased-out.

Installation and commissioning and other field services

Siemens manages all associated network assets and processes like cable connections and overhead lines, as well as decommissioning and recycling. Installation and commissioning are, of course, a part of the standard portfolio.

OEM	Type
Siemens	8BD
ABB – Calor Emag	QD3M
ABB – Sace	Uniarc
	Univer4
ABB	Safesix
Magrini	Epoclad
	Composit
	Distrivan
	Multiclad
	Venus
Reyrolle	LMT
	C-Gear
	SMS
	SA 14
	SA 36
Ansaldo	Siclad
Schneider	Fluair
	Belldonne
Sprecher & Schuh	HPTW

Table 10.1-1: Retrofit solutions

10.1.6 Service Programs

Service programs serve as an umbrella spanning the entire Siemens portfolio. They are one way for system operators to ensure that they receive the best possible service. Guaranteed availability of staff and spare parts, as well as short response times can all be included.

These agreements minimize the customer's operational risk to a calculable factor by defining which individual maintenance and emergency response services will be provided. Remote services and even O&M based on KPIs can be incorporated in a service program.

With the available service programs, an exact match with the system operator requirements can be achieved in several areas: from single assets to entire networks, from preventive maintenance to remote services, and from short-term contracts to long-term agreements.

Referring to fig. 10.1-1 Siemens has prepared four service programs which can be adapted in scope and volume exactly to the system operator's requirements.

PMI

The focus here is on scheduled OEM maintenance and inspections to become a calculable operational factor.

ROS

This program includes all remote service offerings. The focus point is on alarming and reaction times for advisory and field services.

LTM

This refers to project-like managed services with the need for a service team to be recruited.

O&M

In this highest degree of service, Siemens takes over the operational responsibility. All operational risk is taken by the service provider.

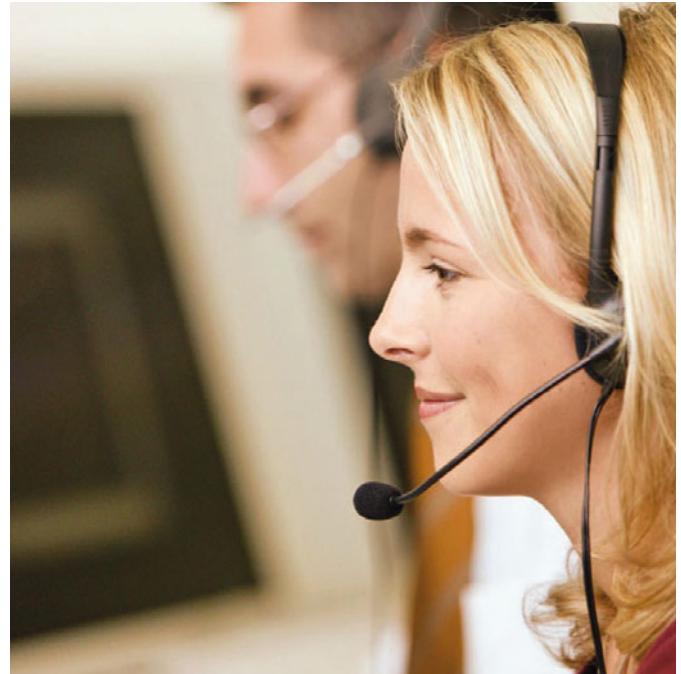
10.1.7 Energy Customer Support Center

"Good morning, Energy Customer Support Center, Betty Smith speaking. How can I help you? – ¡Buenos días! Le atiende Pedro García. ¿En qué le puedo ayudar?" This is what customers hear when visiting the Customer Support Center based in Nuremberg. Inquiries are answered 24/7 in numerous languages by the support agents. The Energy Customer Support Center is the central contact channel for all inquiries regarding the Energy Sector. This has been a service of the Energy Sector to answer questions and point people in the right direction helping to achieve best-in-class customer satisfaction for more than 10 years.

"The only way we can convince our customers to use this contact channel is performance and quality. Test it and get convinced!" Michael Freitag, director of the Energy Customer Support Center points out.

The Energy Customer Support Center ensures the availability of the entire Energy Sector around the clock. All customer inquiries are taken according to the defined processes, entered in the Customer Support Management (CSM) tool, and forwarded to the person in charge. The processing of the inquiries takes place during the locally prevailing office hours.

This ensures a quick and for the customer satisfactory processing of all inquiries. Periodically conducted customer satisfaction surveys give customers the possibility for feedback, and for actively forming the process.



The Energy Customer Support Center is available around the clock:

Phone: +49 180 524 7000

Fax: +49 180 524 2471

Email: support.energy@siemens.com

Internet: www.siemens.com/energy-support/en

10.2 Siemens Power Academy TD

The Siemens Power Academy specializes in power supply related training for customers and Siemens employees. Training programs range from power generation to power transmission and distribution. As part of the Siemens Power Academy, the Siemens Power Academy TD offers professional training in the areas of power transmission and distribution, all the way to industrial and commercial consumption, including smart grids.

Training from experts

Customers will find trained and certified instructors, a well-designed instructional and methodical approach, and product-oriented exercises using the latest Siemens technology.

Many subjects – even more development opportunities

In addition to training classes, workshops, and certification for technical employees, the Siemens Power Academy TD program also includes courses for non-technical employees working in power transmission and distribution. One of our focus areas is the training program for competence development. In addition to individual courses, Siemens Power Academy TD also offers several curricula that features a logically structured series of classes that help efficiently and systematically build knowledge.

An overview of the training portfolio is presented in table 10.2-1. For detailed information on the standardized training portfolio, please visit www.siemens.com/poweracademy. Customized training is developed and defined on demand in close cooperation with the customer.

Our core competence: The right mix of theory and practice

In the Siemens Power Academy TD training programs, theory and practice go hand-in-hand. This means that theoretical approaches are always supplemented by practical exercises on real devices and systems. To make that possible, the training centers use original components, devices and systems from the transmission & distribution product portfolio. This hands-on training principle guarantees a maximum learning effect.

Our strength: flexibility

- Product-oriented training:
The latest products and solutions from Siemens
- Comprehensive teaching material:
The use of professional presentation methods, lecture notes, slides and course documents

Training portfolio Transmission & Distribution and Smart Grid		
Primary technology	Protection technology	Substation automation (Control technology)
<ul style="list-style-type: none"> • High and medium-voltage networks • Switching technology and gas- and air-insulated switchgear • Switches, circuit breakers • Surge arresters • Power transformers • On-load and off-load tap changers • Innovative power transmission and distribution concepts 	<ul style="list-style-type: none"> • Protection technology – principles • Distance protection • Transformer differential protection • Line differential protection • Busbar protection • Generator/motor protection • IEC61850 • Secondary testing 	<ul style="list-style-type: none"> • Power system control, telecontrol, substation control • Monitoring • Energy automation • Power quality • Energy meters • Communication
Smart Grid	Software	General trainings
<ul style="list-style-type: none"> • Wind power, farms & grid connection/compliance • Solar plants monitoring • HVDC and FACTS • Electromobility • Smart metering 	<ul style="list-style-type: none"> • PSS®SINCAL • PSS®NETOMAC • PSS®E • Other Software Courses 	<ul style="list-style-type: none"> • Principles of electrical energy • Smart Grid technology at a glance • Transmission and distribution networks • Oil and gas fundamentals

Fig. 10.2-1: Siemens Power Academy TD: Training portfolio for transmission & distribution

- Tests and certification:
Certificates for demonstrated performance
- Subject-specific curricula:
An integrated continuing education concept
- Combining technology + business learning:
Interdisciplinary courses optimally prepare for day-to-day business operations
- Personal coaching:
Identifying technical expertise and determining the training required.

Curriculum – competence development program of the Siemens Power Academy TD

Well-trained employees are vital for successful companies. The challenge comes from increasingly rapid transformation of the economic environment and technologies. Faced with changes like this, continuous improvement of skills and knowledge is essential if you are to be a reliable resource who contributes to the success of the company.

Therefore the Siemens Power Academy TD has developed a competence development program. This program is based on the curricula approach.

Unlike individual training seminars, a curriculum provides incremental learning through a structured, logical combination of various classes on a specific topic. This allows the necessary skills and abilities to be developed.

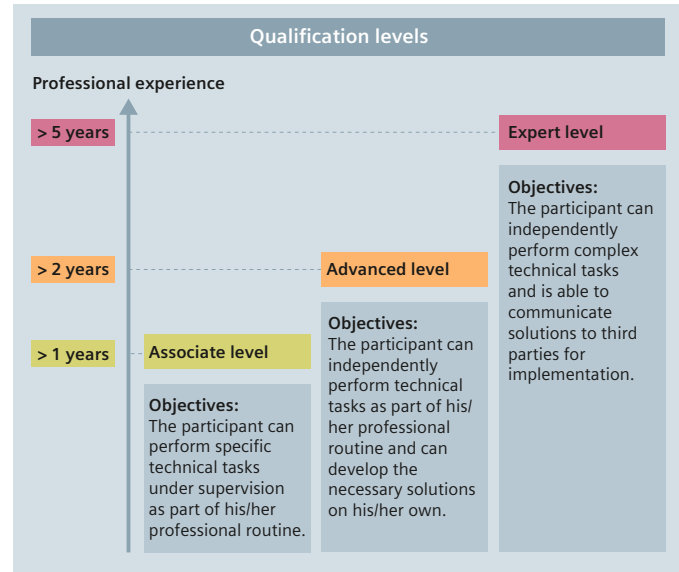


Fig. 10.2-2: Qualification levels of competence development program

What does the "Curriculum" consist of?

- Training program for competence development
- The possibility to apply and be certified in three different qualification levels

Associate – Advanced – Expert

- Per qualification level: Series of aligned courses and associated e-tests
- Certificate is valid for 5 years

Benefit for employers	Benefit for participants	Benefit for the industry
Employers meet the requirements of ISO 9001 as employees obtain specialist knowledge and skills through certification.	Participants can certify their skills and knowledge to enhance their professional market value at home and abroad. <ul style="list-style-type: none"> ■ Enhancement of employee competence (participant receives a certificate confirming achieved knowledge) ■ More confidence and less mistakes in daily operation through practice and exercise increases safety and reliability of operation ■ Enhancement of one's own market value ■ Stay technically up-to-date 	Recruiters can aim at certified applicants to ensure adequate capabilities of future employees.

Table 10.2-1: Siemens Power Academy TD: Benefits of Curricula program

10.3 Metering Services

The Siemens metering services portfolio delivers measurable improvements to the acquisition and processing of meter data, to meter management and to customer communications. Siemens supplies integrated solutions right through the value chain, from metering to billing. The key offering is high-quality, accurate meter data and the services which provide it. As a leading provider of metering services, Siemens works in partnership with some of the largest global utilities for electricity, gas and water. All Siemens services are provided within the framework of strict industry and regulatory standards.

The following sections provide an overview of customer requirements and the different elements of Siemens service portfolio. Fig. 10.3-1 summarizes the ranges of services Siemens offers in the UK and globally.

10.3.1 Portfolio Overview

Services offered by Siemens include „meter-to-cash“ services to power supply companies as well as to business-to-business (B2B) customers.

The role of meter operations for utilities and B2B customers is fundamentally concerned with meter installation, meter functionality changes, meter fault resolution, meter removals and connection of new supplies. Siemens installs both credit and prepayment meters. The provision, installation and operation of fiscal meters has to be carried out only by a fully accredited service provider like Siemens.

Before meter purchasing takes place, Siemens carries out site surveys to determine the best design, sizing and location of meters. Siemens configures and commissions the metering systems (fig. 10.3-2) and provides ongoing maintenance, including calibration, storage, removal and repair of equipment as needed.

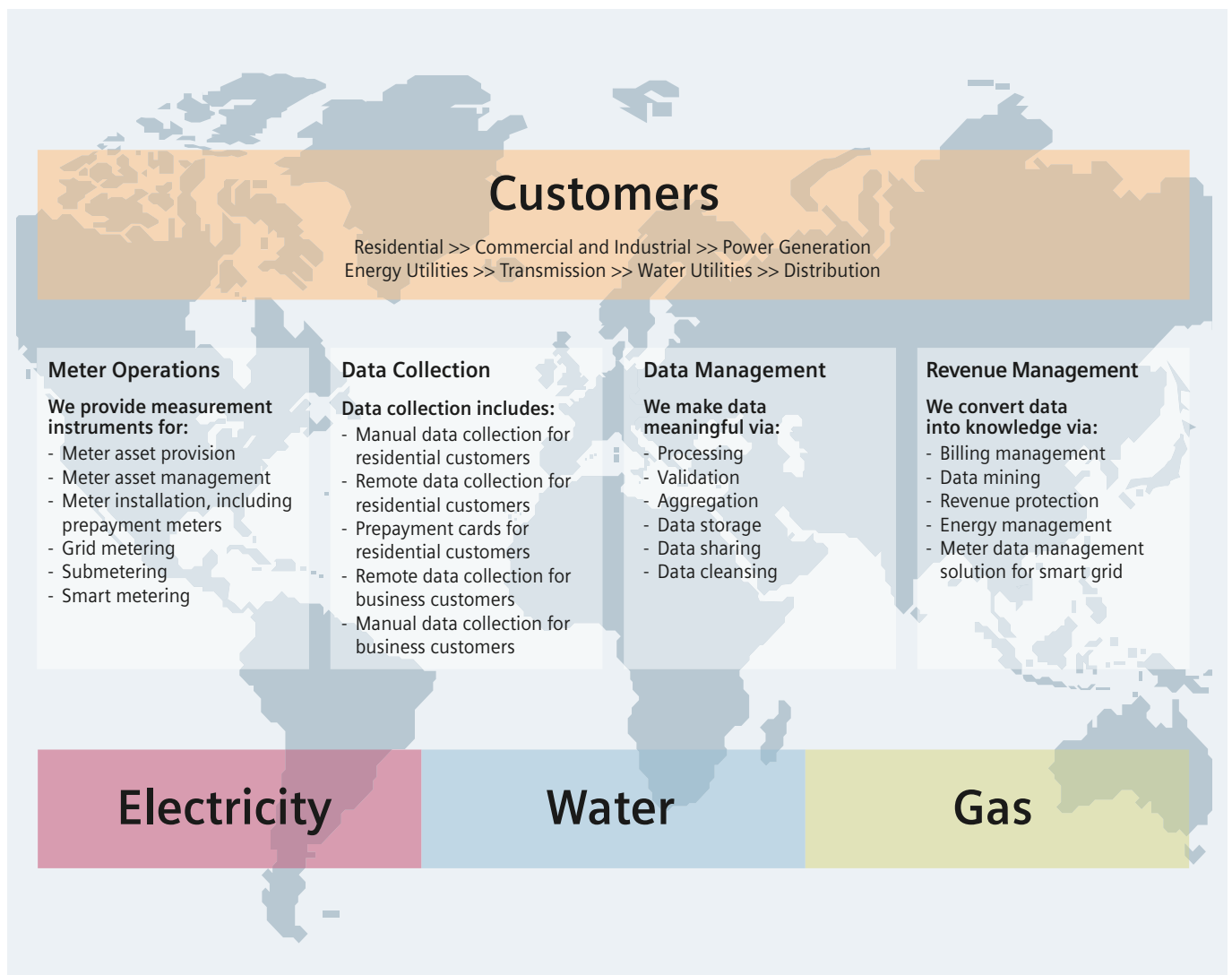


Fig. 10.3-1: Metering services portfolio overview

Siemens offers expert advice in high-accuracy metering, grid metering and submetering solutions to monitor the consumption levels of equipment.

Typical users of Siemens metering services include large energy and water retailers and millions of residential, commercial and industrial customers – potentially everybody who has an interest in their meter equipment for gathering up-to-date and accurate data. The Siemens meter operations service supports the data collection process. All these services together help to ensure the highest levels of data quality.

Meter asset maintenance and provision

Siemens provides energy and gas distribution companies with meter equipment and ongoing maintenance service, an additional service that is frequently used by meter operations customers. Siemens also has experience in financing and leasing meter assets, and has access to expert knowledge regarding meter asset purchasing.

Prepayment

Some domestic customers prefer to pay for their energy before they use it, adopting a “pay-as-you-go” approach to energy. This can be done via a special prepayment meter that uses a top-up card or key mechanism.

The UK has the world’s largest meter system, with over 2 million meter points.

Siemens is responsible for maintaining the system as well as for installing new prepayment meters and for distributing top-up cards to customers. The latest technologies and process knowledge are combined in this prepayment meter in order to ensure that the customer is completely satisfied (fig. 10.3-3).

Grid metering

Siemens is a leading provider of grid metering and high-accuracy metering solutions in the electricity value chain. Siemens offers services to power generation and transmission companies worldwide, which enables them to get the most accurate view of the electricity they produce and put through the network. This product and service offering fits perfectly with the meter operations element of the value chain, and enables power generation and distribution customers to manage and maintain their revenue stream.

Submetering

Siemens provides meter operations services for non-fiscal purposes, including submetering applications. These can be installed and integrated into energy management systems for individual or multi-utility (gas, water, electricity) applications.

Siemens provides accurate consumption information at the point of use and visibility via Web-based solutions. Siemens offers tailored solutions and enables the system operator to monitor and control energy usage in different business locations. Large retailers and industrial customers use this service, which can be linked to their billing or finance system.



Fig. 10.3-2: Meter installation



Fig. 10.3-3: Q-Smart prepayment meter installed

10.3.2 Data Collection

Data collection services comprise meter reading (data retrieval), data processing and data aggregation services. Siemens data collectors carry out routine reads, special request reads and change of tenancy reads as well as re-programming of meters.

The data processing system has been developed to comply with strict industry standards and fully supports all work scheduling, validation and distribution of meter readings for up to 12 million meters. To meet special needs and requirements, ad-hoc projects such as providing solutions for “hard-to-read” sites can be performed upon request. The field force consists of 750 Siemens employees. Siemens reads over 14 million residential meter points in the UK on behalf of energy and water suppliers. Systems are continually being enhanced to provide greater flexibility and adaptability, which enables Siemens to meet the constantly evolving market requirements. The automated remote collection systems utilize a range of technologies (e.g., in-field mobile data terminals), providing affordable data collection solutions.

10.3.3 Data Management

In this section of the meter-to-cash value chain, Siemens ensures that the data is accurate. That means Siemens aggregates and processes the data, deletes duplicates in the database and verifies the data before passing it on to the system operator. In most cases, the system operator uses this data directly for billing purposes.

For commercial and industrial customers, Siemens provides a full range of utility metering data – from electricity to gas and water meters. Large nationwide retail chains are particularly interested in this service so that they can monitor and control the energy consumption of their stores. The IT warehouse enables Siemens to collect a wide variety of data, and Siemens can provide custom-designed solutions based on the operator’s in-house IT system. Siemens also offers custom-designed reporting systems and works with various communication interfaces to transfer data to the system operator.

10.3.4 Revenue Management

In this section of the meter-to-cash value chain, Siemens ensures that the data is meaningful to the system operator. For instance, revenue protection affects the whole value chain – from energy generation, transmission and distribution down to the energy retailers.

The key features of the Siemens revenue protection service are investigation of power theft, selective and sensitive targeting and helping to increase the rate of loss discovery, with special focus on high non-residential usage. Siemens packages these features as a non-technical losses solution and offers loss assessments and training to data collection agents.

Property management is part of the revenue protection services portfolio. Siemens is a member of the UK Revenue Protection Association and can offer these services internationally.

10.3.5 Smart Metering

Smart metering is the combination of automatic meter reading with the ability to control and update the meter point. Having two-way communications between the meter and the central communications “hub” allows data to be collected on demand whilst enabling critical actions to be taken without having to make a visit to the property.

It is anticipated that smart metering will drive:

- Consumers to become more aware of their consumption and to participate in energy saving initiatives
- Energy retailers to bill more accurately with few, if any, estimated readings, and even to forecast and settle their energy based on actual rather than synthesized energy profiles

As the global competency center within Siemens for metering services, Siemens has a smart metering portfolio which is “meter independent” enabling a variety of devices to be used for electricity, gas and water metering.

Siemens also has the ability to support a number of different communications technologies – GPRS, Power Line Carrier (signaling wire for the low-voltage cables) and fixed radio technologies – depending upon what the customer or market requires.

The core of the offering is the smart metering “scheme”. This is a business process solution combining IT technology, business process execution and field force management.

The smart metering scheme brings together the data processing and device control systems with business processes designed to optimize the operation of the smart meter asset and the skills to transition from a dumb meter to an installed base of smart meters.

Smart metering is an important global trend, and our regional capability and sales network combined with specialist resources makes Siemens the ideal provider of smart metering and smart grid solutions.

10.3.6 Meter Data Management Solution

The need for a Meter Data Management Solution (MDMS) has increased dramatically over the last 12 months, especially in the US energy market.

What does MDMS mean?

MDM is:

- A platform to enable fundamental changes in the operating company using near real-time information
- The integration point for current and future Automated Meter Infrastructure (AMI) technologies
- The information toolkit required to empower AMI operations department
- Step one toward a smart grid

MDM is NOT:

- Just a data warehouse of meter data
- Just for commercial and industrial meters and complex billing systems
- Limited to utility metering data

A smart metering solution has three distinct elements: the meter, a communication network and a data hub. MDM systems provide a necessary link between metering communication networks and other utility IT systems ,e.g., billing, call center and distribution automation. In March 2008, Siemens entered into a partnership agreement with eMeter for the sale and promotion of the EnergyIP™ Meter Data Management software worldwide.

Siemens is seeking to establish a market leading position by combining the MDM systems with other elements of the metering services portfolio.