

Energy made smarter

Safe, reliable, efficient, productive, and green energy for electric utilities, Oil and Gas and other electro-intensive industries



Schneider
Electric™



The Global
Specialist in Energy
Management
delivering innovative
solutions and
projects worldwide

1 000 000

people in 100+ countries

€15.8

billion sales in 2009

5%

of sales devoted to R&D

34%

of sales in new economies* creating
access to safe and reliable energy

*New economies include Africa and the Middle
East, Eastern Europe (including Russia), Latin
America and Mexico, and Asia without Japan.

Building a smarter grid with reliable, efficient energy

How Schneider Electric smart
grid-ready products and solutions
help balance your grid equation

More and more people — especially in developing countries —
are learning to depend on energy as being integral to their
daily lives.

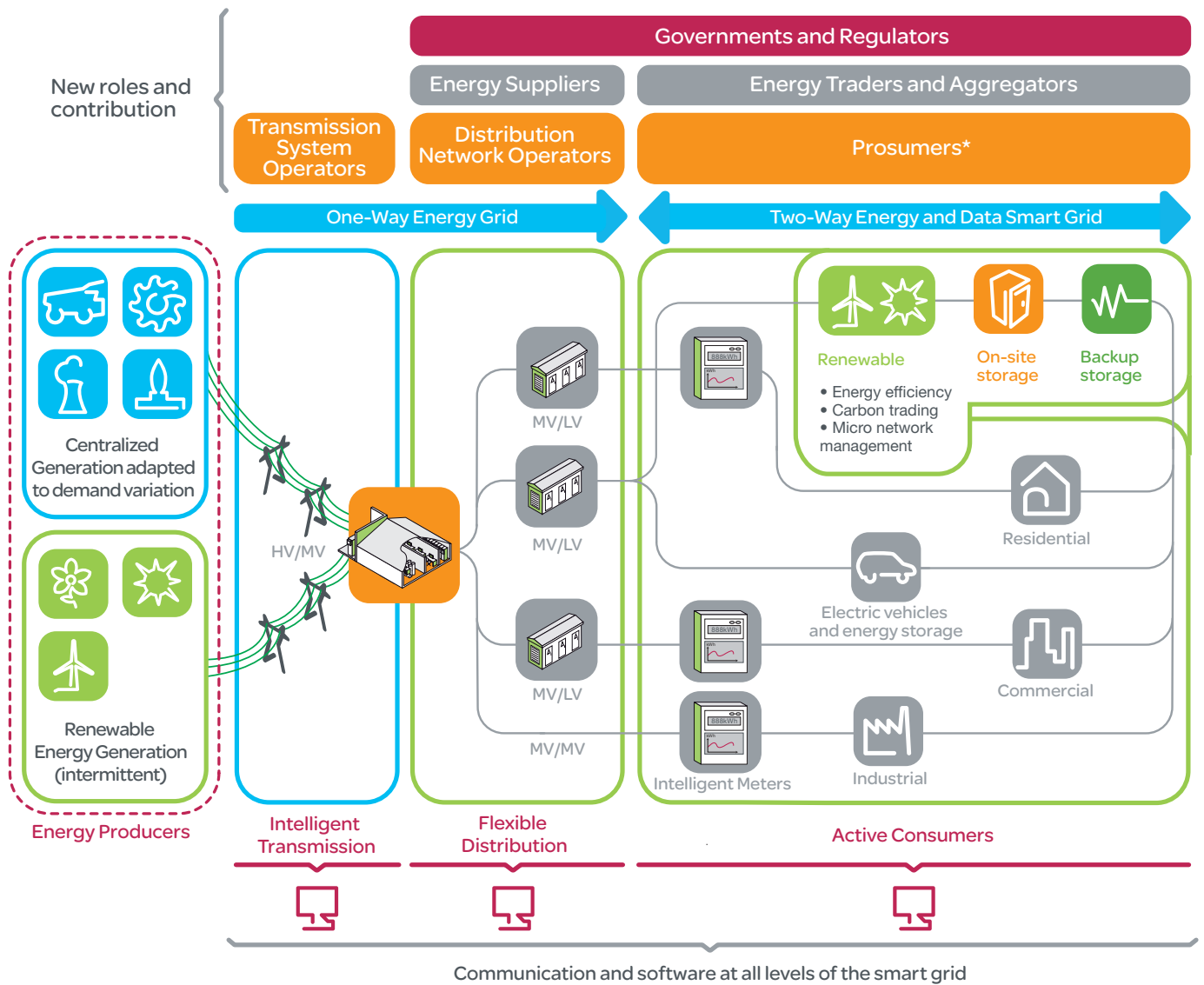
Meanwhile, the electricity market is changing. And every day,
end-users' expectations increase in terms of reliability and
quality, and they gain greater awareness of energy's
environmental impact.

It's an evolution. But as our reliance on electricity grows globally,
the ways in which we produce, distribute, and use energy must
also evolve. The solution will not only involve smarter demand,
but also smarter supply — and as such, a smarter grid is at the
heart of the issue.

As The Global Specialist in Energy Management™,
Schneider Electric™ is smart grid-ready, enabling the products
and solutions that support and connect the five key domains
of a smarter grid:

- > Flexible distribution
- > Smart Generation
- > Demand-side management
- > Efficient homes (including electric vehicles)
- > Efficient enterprise (buildings, industrial facilities,
and data centres)

Our vision isn't just to connect our customers to the smart grid —
but to also connect them with each other, facilitating
smarter interactions and leading to increased energy
management capabilities.



Our smart grid solutions include:

- > Smart Medium Voltage (MV)/Low Voltage (LV) Equipment
- > Substation Automation
- > Feeder Automation
- > Enhanced Distribution Management Solutions
- > Microgrid Control
- > Volt/VAr Management
- > Real-time Condition Monitoring
- > Electric Vehicle Load Management

*Two-way energy exchange



Intelligent solutions for electric utilities



Quality products, solutions, and services bringing guaranteed reliability

We're all aware of the need to integrate renewable energies and electric vehicles, and at the same time become more energy efficient — but it's the electric utilities that are on the front line, already navigating this complex landscape, and as such, shaping the smart grid.

That's why at Schneider Electric, we offer fully customizable, scalable solutions that enable utilities to operate their networks reliably and efficiently, with improved visibility and unprecedented control.

An integrated offer for any application

With our best-in-class products and renowned expertise in electrical distribution and control, Schneider Electric is a proven global player in the development, manufacturing, and installation of:

- > Integrated, customized solutions
- > Turnkey systems and equipment
- > A full range of stand-alone products and equipment
- > Locally deployed specific services

But that's just the beginning. With the help of our project management experts, you can guarantee the safety of your people and equipment, and take advantage of our turnkey grid connection solutions covering design, engineering, installation, and maintenance.

x2

The increase in electrical energy demand predicted by 2030

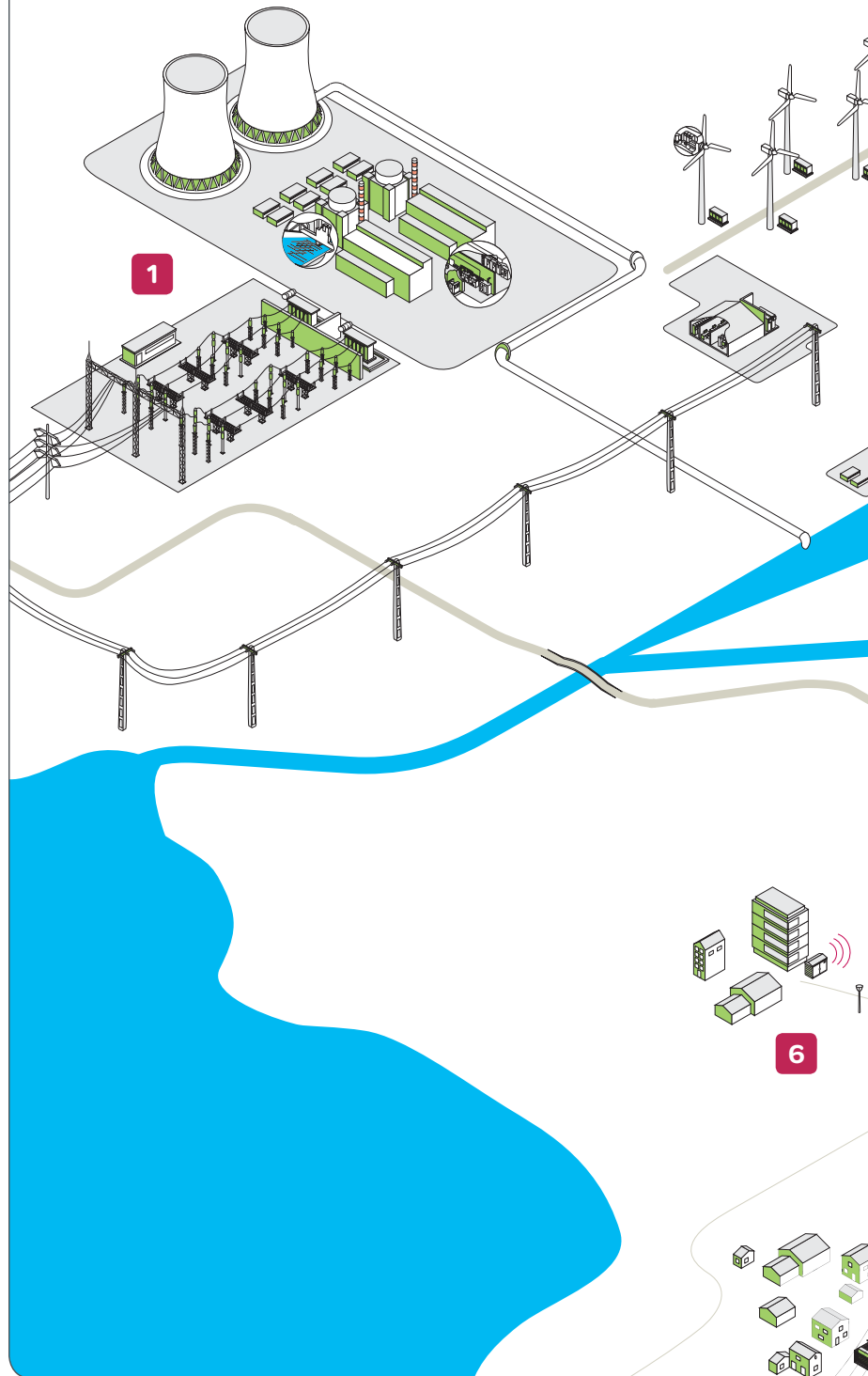
Source: IEA 2008

1/2

The reduction in CO₂ emissions necessary to avoid dramatic climate changes

Source: IPCC 2007, figure (vs. 1990 level)

Solutions for Electric Utilities



1

HV/MV and MV/LV substations

Indoor solutions for limited space, urban, and outdoor areas, as well as unmanned solutions for rural and remote landscapes, guaranteeing safety of people and assets with best-in-class products.

2

Substation automation (IEC 61850-compliant) and protection systems

Complete grid connection turnkey project management including design, engineering, installation, and maintenance to increase service continuity through trouble-free and reliable operations.

3

Renewable energy connectivity

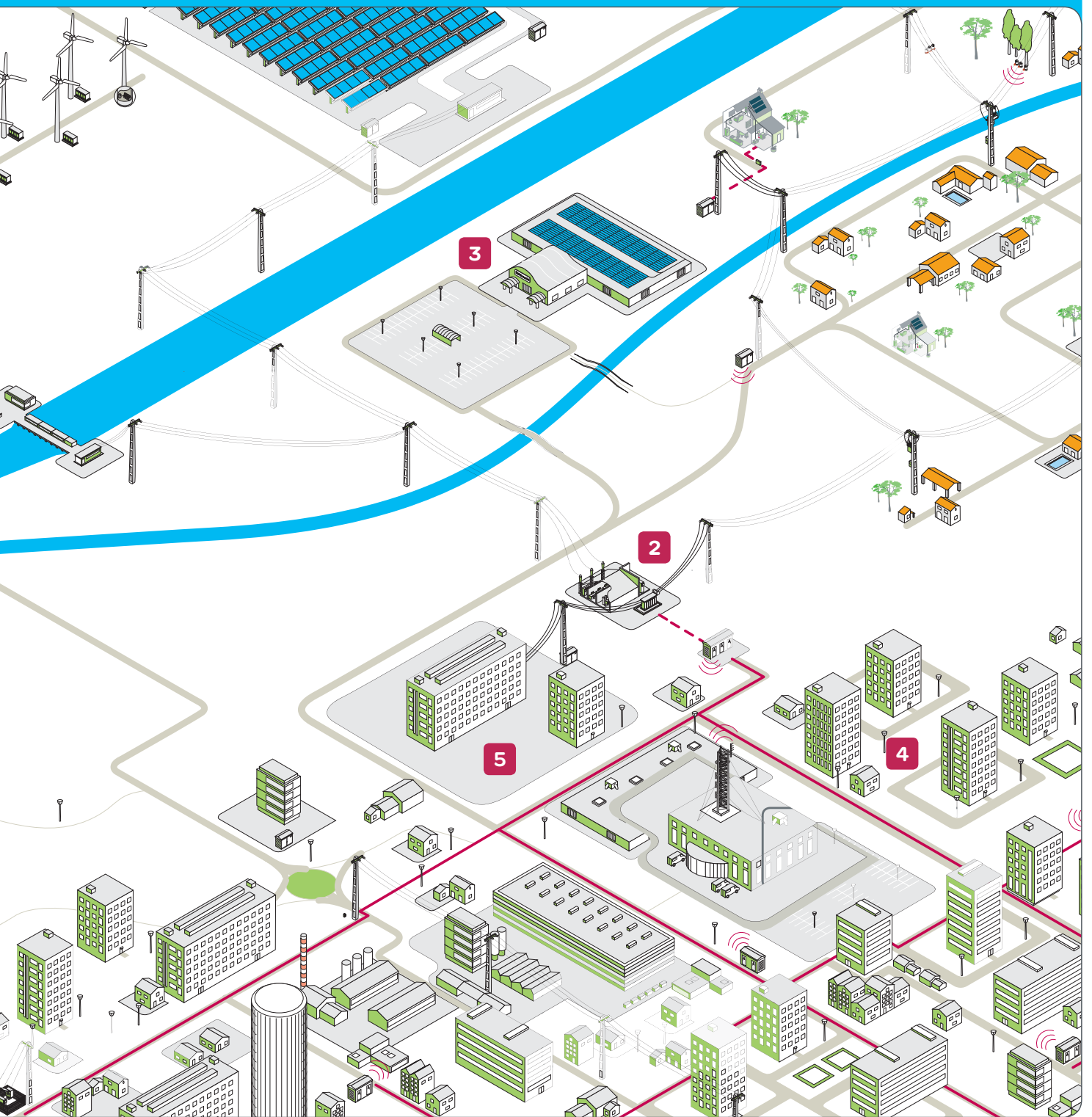
Global solutions compliant with local regulations enabling uninterrupted connectivity of intermittent sources through energy-efficient wind turbines and end-to-end wind farm electrical operation (local MV network, connection to the grid, control, supervision, and security).

6

4

SCADA distribution management systems

Efficient solutions for underground and overhead network management through status updates, complex switching assistance, multitasking control, monitoring functions, and network evolution planning.



5

Feeder automation

Flexible, modular, remote control solutions linking fault passage indicators to circuit breakers and reclosers, making networks more reliable (outage duration reduced by 50 per cent) and reducing operational and capital costs.

6

Energy management services

Prevention- and prediction-focused asset productivity management based on maintenance and retrofitting solutions, system assessments, and uptime audits as well as network planning and demand response consulting.

Efficient solutions for electro-intensive industries



Safe and reliable solutions to increase uptime



End-to-end electrical solutions for the Oil & Gas industry

Safety and reliability are the Oil & Gas industry's top concerns. The complex, energy-intensive processes of upstream, midstream, and downstream operations all require uninterrupted power. Meanwhile, Oil & Gas players are all looking to increase their energy savings and reduce greenhouse gas emissions.

At Schneider Electric, we offer end-to-end electrical solutions that comply with local regulations, boost performance, and optimize energy consumption. It's these reliable solutions that integrate seamless power and play a critical role in guaranteeing the safety and security of people and assets across all applications, from concept to commissioning.

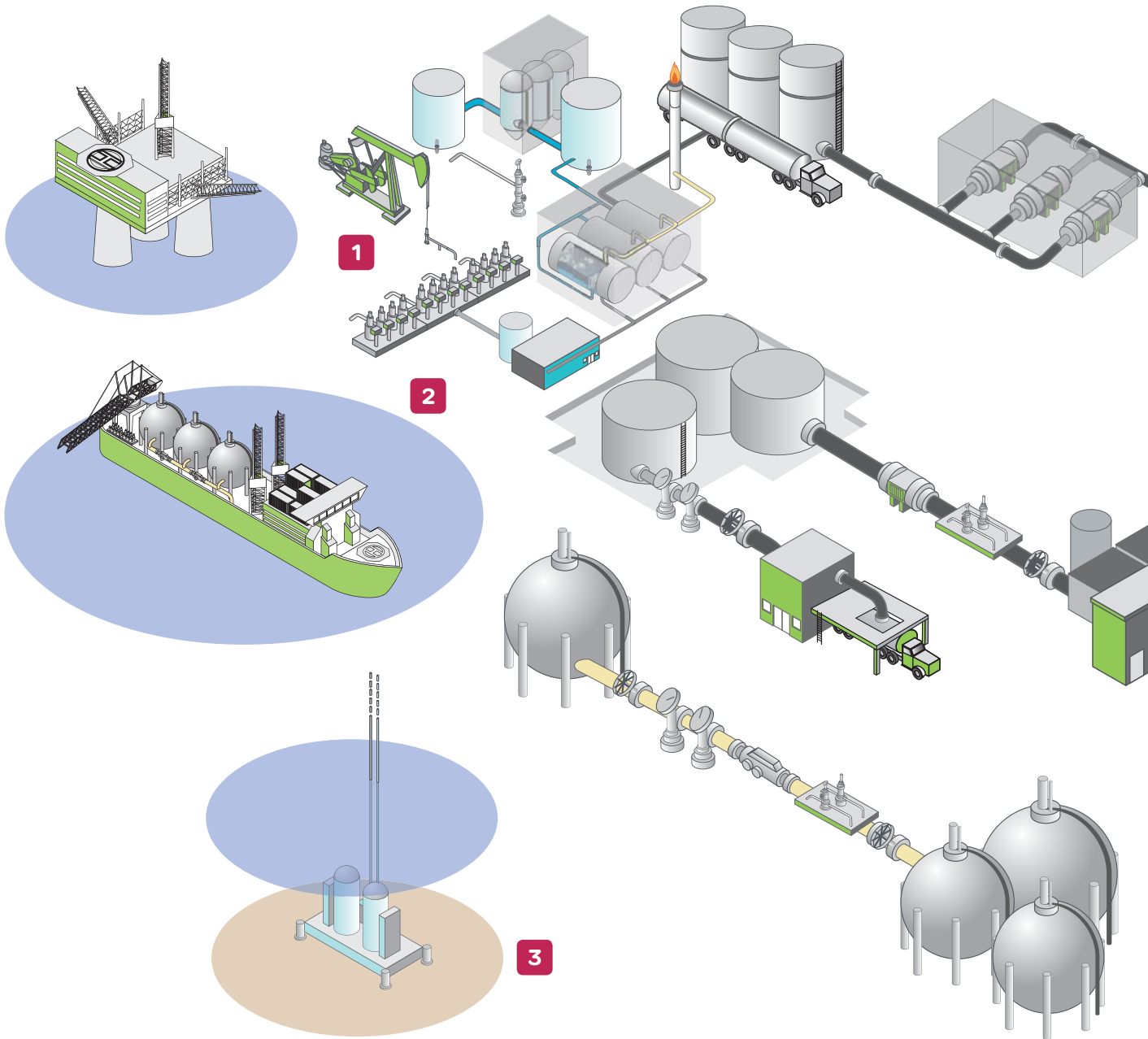
Harsh environment solutions

The age of easy oil is coming to an end and the new frontiers of Oil & Gas operations have specific demands that require innovative engineering. That's why our engineers are fully capable of providing customized solutions for even the harshest conditions, from arctic to subsea and even desert environments.

Advanced control for any electrical network

To ensure maximum power availability and reliability while connecting to the grid or in islanded systems, our IEC 61850-compliant Energy Management and Control System (EMCS) enables smooth power management with dynamic network modeling and fast recovery through high-speed and intelligent load shedding.

Solutions for the Oil & Gas industry



1

Digital Oil Field

Managing Oil & Gas production from the well to the field including a comprehensive set of control and monitoring solutions.

2

E-houses for offshore and onshore, Floating Production Storage and Offloading units (FPSO)

Customized and optimized E-house design delivering compact, efficient, and cost-effective power substations.

3

Subsea Power Distribution

Cost-effective solution with high reliability for onshore to 60 MW subsea processing located at up to 3000 m deep.

4

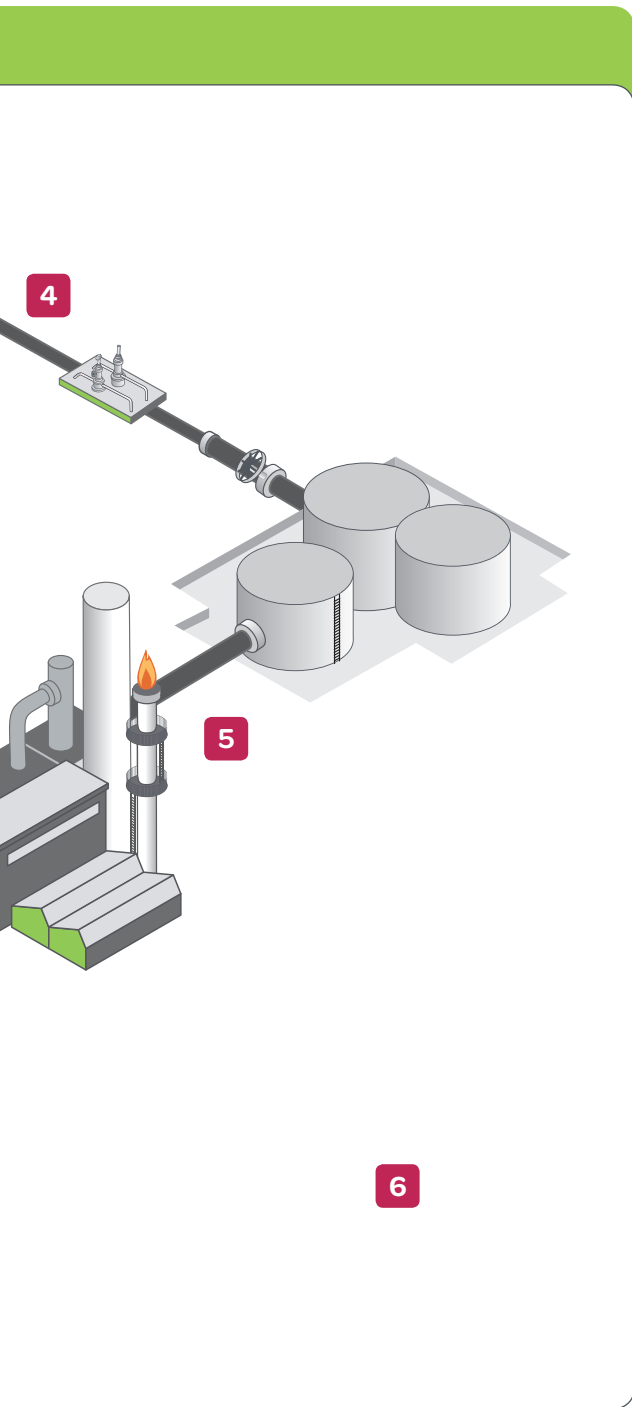
Pipeline Management

Complete pipeline management solution encompassing pumping and compressor stations, block valves, and metering stations, and enhancing operation efficiency and security.

5

Energy Management and Control Systems (EMCS)

Complete power distribution solutions for large Oil & Gas sites (refineries, petrochemical and LNG plants) based on IEC 61850 standards.



6
Complete and integrated security solutions
Based on industry-proven CCTV and efficient access-control systems.



Optimizing power usage with integrated solutions



Improving the efficiency and reliability of energy in the Mining, Minerals, and Metals industries

The world's demand for raw materials is ever-increasing and with resource scarcity and environmental issues, Mining, Minerals, and Metals businesses face tough profitability and sustainability challenges every day.

But whether your business is in mining, material handling, or mineral and metal processing, Schneider Electric has the integrated electrical solutions to meet your needs and ensure reliable, efficient power where it's needed most.

Dedicated solutions for the mining industry

The long-running hours of mining facilities require robust systems. Safe and easy to operate, our power distribution solutions ensure seamless integration to all equipment from pumping stations to conveyors, lifts, air extraction, and more.

We also cater for specialized needs, including mobile, rapidly installed substations as well as explosion- and flame-proof switchgear that ensure personnel safety in gaseous mines.

Enhanced availability and efficiency for mineral processing

Robust and durable, our products are engineered to withstand harsh environmental conditions and deliver the efficiency and availability you need to maximize profit and manage your energy safely.

Schneider Electric provides turnkey project management, minimizing shutdown times and reducing your facility's operating and maintenance costs.



1

E-houses

Prefabricated, pretested, and customizable MV and LV systems to energize and monitor processes, including control and safety systems.

2

Advanced control for electrical networks

Ensuring maximum power availability and reliability while connecting to grids or in islanded systems, our IEC 61850-compliant Energy Management and Control System (EMCS) enables smooth power management.

3

Explosion proof switchgear

Specialized enclosed equipment for high-risk environments, guaranteeing safety and production.

4

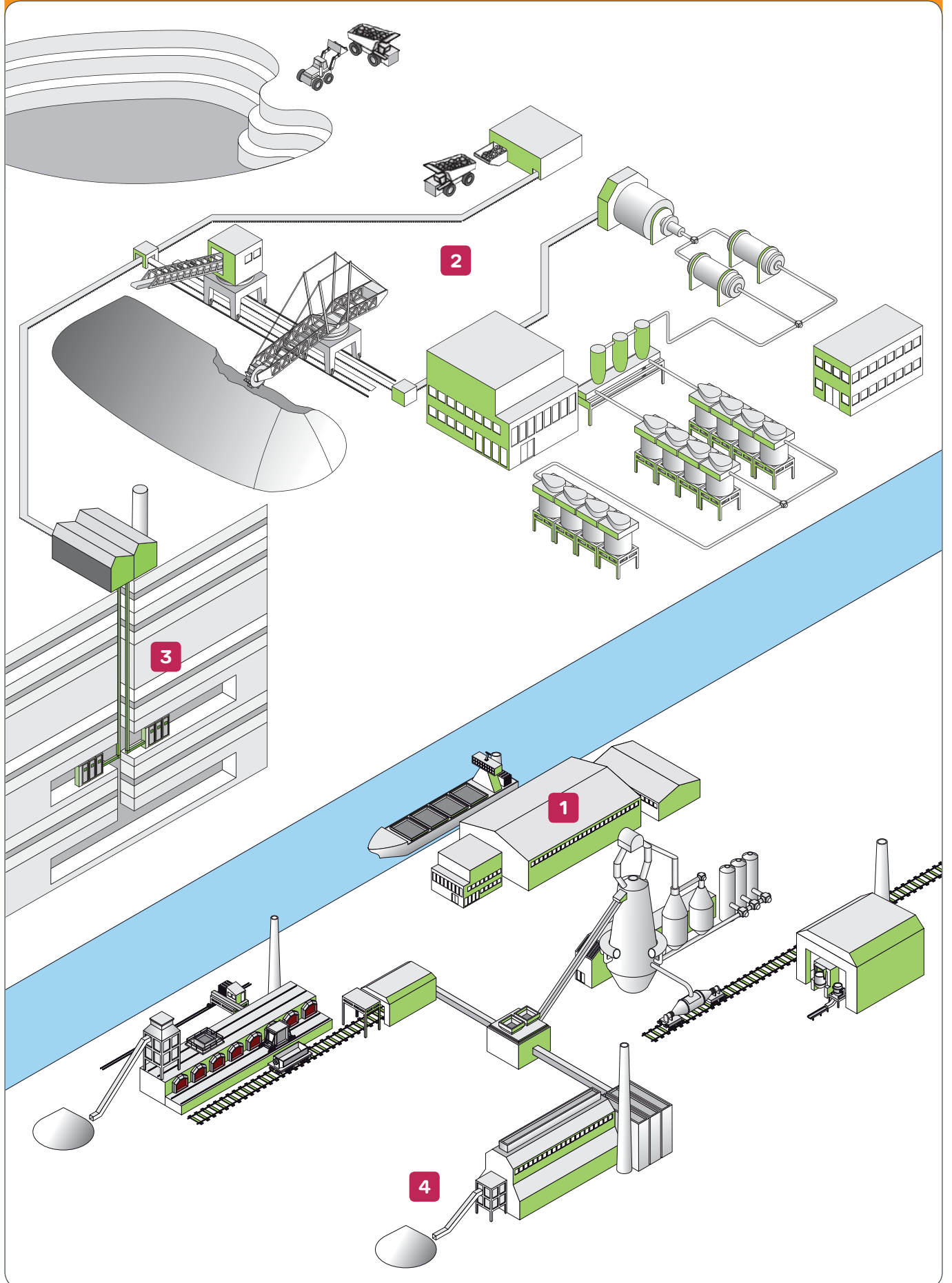
Energy efficiency solutions

Improving your MMM project and business performance through monitoring and load-shedding solutions and low-consumption and low-loss components.

up to **25%**

The performance improvement that can be achieved in a mine with our products, solutions, and services

Solutions for the Mining, Minerals, and Metals industries





80%

The percentage of electrical consumption in the MMM industries that is used by machines and equipment

Ensuring safety and efficiency for the metals industry

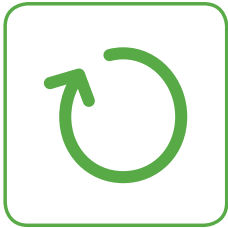
To handle the complex chain of interdependent processes and their constant demand for energy, Schneider Electric solutions support high peak loads and ensure the highest safety standards for personnel and equipment.

Our integrated and intelligent power supply management systems provide automated products with reduced intervention and life cycle costs.

Optimizing production; reducing energy costs

From electrical distribution to Manufacturing Execution System (MES), our products, solutions, and services ensure trouble-free operation, optimized production, and improved energy efficiency for every process phase.

Experience and expertise at your service



Comprehensive services to improve your installation's performance

With more than 235 service centres in 72 countries, Schneider Electric is the ideal partner to optimize your installation's efficiency throughout its life cycle.

Peace of mind is critical when overseeing operations, and our services, from installation assessment to on-demand maintenance, are designed to maximize uptime and keep your equipment running at optimized costs.

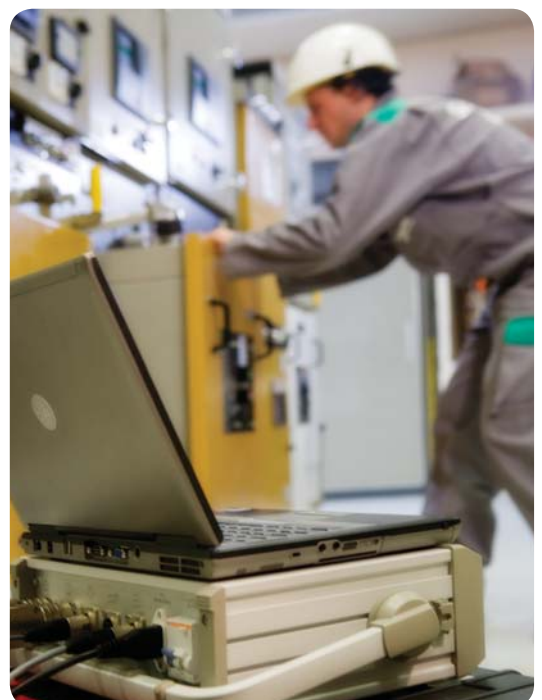
We can help you Make the Most of Your EnergySM with a complete range of services, including:

Energy Management Services:

- > Energy efficiency consulting and service contracts
- > Demand response consulting
- > Remote monitoring services

Installed Base Services:

- > On-demand services: spare parts, repairs, etc
- > Modernization: ECOFIT™ (retrofit, retrofill, replacement, etc)
- > End-of-life services: SF6 recovery
- > Installation assessments and technical studies
- > Asset management programmes
- > Training and competence management.



Our broad range of services:

- > Ensures the quality and reliability of electrical energy
- > Improves the resilience of your installation at all stages of its life cycle
- > Optimizes investments by guaranteeing long-lasting installations
- > Reduces energy bill and optimizes energy consumption.

Learn more about Schneider Electric solutions!

For more information or to answer your queries, visit our Customer Care Centre today at

www.schneider-electric.com/CCC

Make the most of your energySM

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