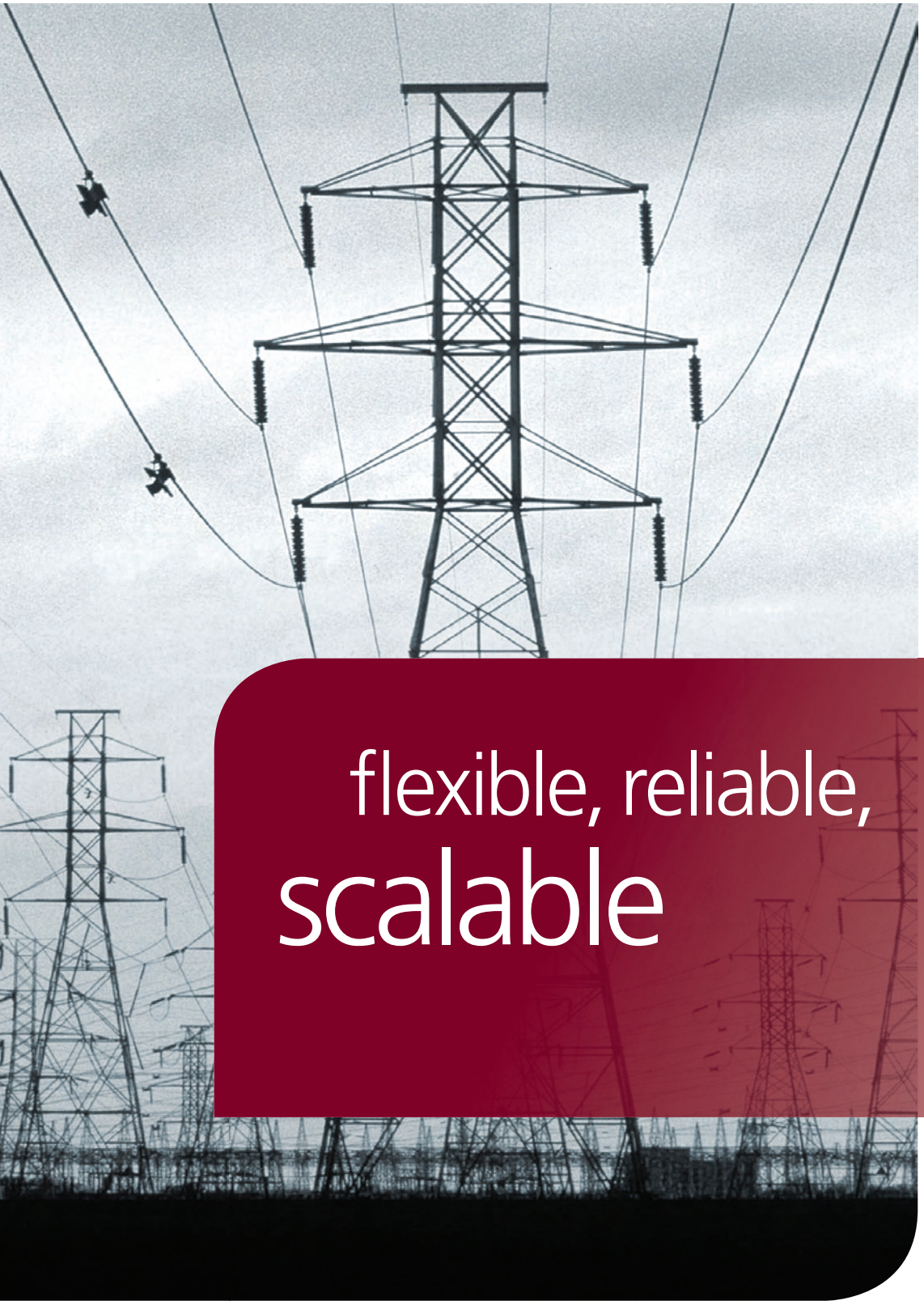
Utility Reactive Power Solutions



flexible, reliable, scalable

Gridtec Solutions

Enhanced grid capacity on utility power networks

With rapidly growing energy demand, utilities today are expected to deliver more power to more people in more locations, from more variable and distributed sources of generation. Additionally, they are expected to reliably deliver greater loads of higher quality power in a deregulated, competitive marketplace.

All of these challenges can place significant stress on our existing power networks, often leading to transmission congestion. These bottlenecks, especially along the transmission networks, can result in grid disturbances, disruptions and outages, ultimately costing the economy billions of dollars every year.

AMSC® is meeting these challenges head on.

Helping utilities deliver more power to customers.
Highly efficient, effective, compact, grid solutions that increase power flow through increased stability, availability, quality and reliability. Greater grid flexibility, lower operating costs, better returns.

Our Utility Reactive Power Compensation solutions address the following types of issues

- Localized voltage collapse problems
- Limited power transfer due to system instability
- Generation run out of economic order due to voltage instability
- Wind park and solar plant voltage regulation / low voltage ride-through (LVRT) challenges
- Poorly Regulated voltage on radial lines
- Poorly regulated voltage in weak grids
- Flicker issues from industrial customers

AMSC's D-VAR and SVC systems can provide the following benefits

- Dynamic reactive power compensation
- Steady-state and transient stability enhancement
- Voltage regulation
- Post fault voltage recovery
- Increased power transfer capacity
- Three-phase voltage balancing
- Reduced transmission losses
- Flicker mitigation
- Power oscillation damping

Delivering more power with our utility reactive power solutions

AMSC's FACTS (Flexible AC Transmission Systems) solutions are an alternative to overhead transmission lines for utilities looking to improve system stability, availability, quality and reliability.

Our utility-scale power electronics and decades of experience in transmission planning enable utilities to enhance grid utilization on the existing power systems, avoiding environmental concerns, permitting issues, right of way requirements and high costs associated with the expansion of the grid.

Our D-VAR® and SVC systems help utilities deliver more power to their customer while keeping operating costs at a minimum.

Grid capacity, enhanced:

- **Increase transmission capacity**
- **Mitigate the need for costly transmission build out**
- **Very compact & inexpensive to install**
- **Low environmental impact**
- **Low operating costs**

D-VAR STATCOM systems

AMSC's D-VAR reactive compensation systems provide a powerful and cost-effective source of dynamic VARs for a wide range of operational needs from the point of generation to transmission and distribution networks.

They correct voltage instability problems; provide dynamic steady-state voltage and power factor control and regulation; protect industrial facilities requiring premium power quality; and support a stable point of interconnection for distributed generation facilities and large-scale wind parks and solar plants.

AMSC's D-VAR systems employ a proprietary control and monitoring system that detects voltage disturbances and rapidly compensates by injecting leading or lagging reactive power (measured in VARS, or volt amperes-reactive) in precise amounts exactly where it is needed on the grid.

The D-VAR STATCOM features a modular design, short term overload capability, coordination with mechanically or electronically switched shunt capacitor or reactor banks, and a sophisticated, flexible and adaptable control system. These key features can be leveraged to create high performing, low cost solutions to answer a wide variety of transmission and distribution challenges.

Static Var Compensators

AMSC's solid-state Static VAR Compensator (SVC) device uses proven thyristor technology to improve grid efficiency at transmission and distribution levels. At the heart of AMSC's SVC is the anti-parallel thyristor valve. This simple but powerful thyristor valve electronically switches capacitors and/or reactors in discrete steps to allow automatic adjustment of the system capacitance and inductance, thereby maintaining voltages and responding to system events. AMSC's SVC solutions are often combined with mechanically switched shunt reactors and capacitors or D-VAR STATCOM systems to expand the reactive power capability and performance.

AMSC's SVC systems are intended to provide low cost and highly reliable dynamic reactive solutions for applications where dynamic solutions are traditionally thought to be too costly. The systems are passively cooled (no pumps or fans), extremely compact and low cost.

Our SVC solutions can be configured to meet specific customer requirements, and our highly experienced engineering team can optimize the SVC configuration to fit your needs.

We offer fully engineered, turnkey services including

- T&D planning
- Project management
- Construction management
- Professional substation design engineering
- Substation control and protection
- Commissioning and testing

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About AMSC's Gridtec Solutions

AMSC's Gridtec Solutions® are a set of engineering planning services and advanced grid systems that optimize network reliability, efficiency and performance from the point of generation through transmission and distribution. We supply components, systems and solutions to some of the industry's biggest names. From wind parks to solar power plants and from utilities to large industrial manufacturers, our commitment is to deliver the right solution for our customers, each and every time. Whether a simple component or complex system-level solution, we focus on ensuring that the investment is right, and right for you – delivering reliability, security, efficiency, scalability and tangible long-term benefits.

For invaluable advice and compelling solutions, we are the partner you can turn to.

About AMSC

AMSC (NASDAQ: AMSC) generates the ideas, technologies and solutions that meet the world's demand for smarter, cleaner … better energy. Through its Windtec Solutions, AMSC enables manufacturers to launch best-in-class wind turbines quickly, effectively and profitably. Through its Gridtec Solutions, AMSC provides the engineering planning services and advanced grid systems that optimize network reliability, efficiency and performance. The company's solutions are now powering gigawatts of renewable energy globally and enhancing the performance and reliability of power networks in more than a dozen countries. Founded in 1987, AMSC is headquartered near Boston, Massachusetts with operations in Asia, Australia, Europe and North America.

Talk to us about

- **Solving your most complex power challenges**
- **Enhancing competitive advantage**
- **Improving your system's performance, reliability and profitability**

Whether you wish to make new advances in renewable technology, optimize power generation or delivery, or simply gain a better understanding of the issues you face, please get in touch. We're here to help.

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smarter, cleaner
…better energy

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