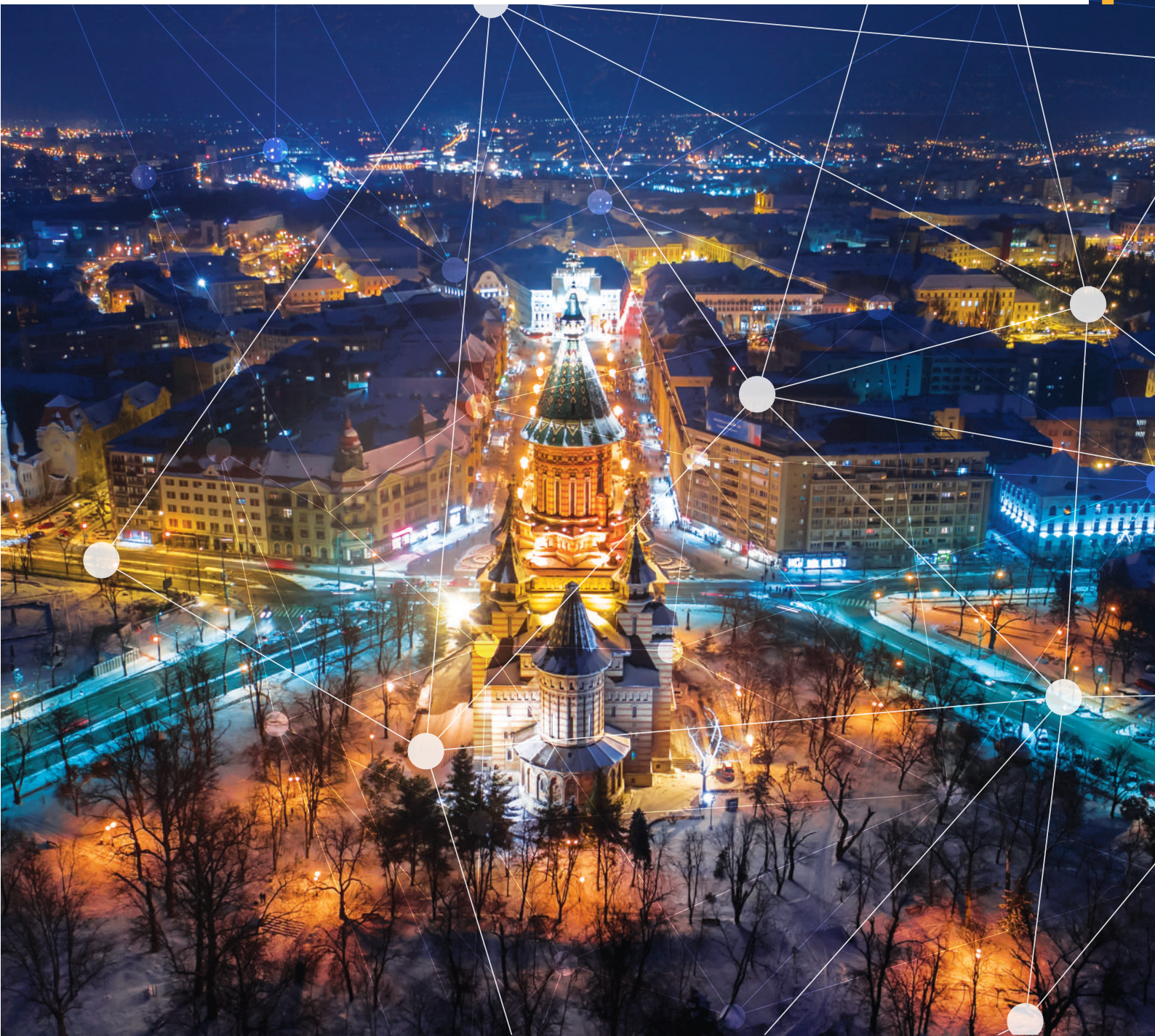# Networked Energy Services

Enabling the Transition to Smart Sustainable Energy

WE ARE THE SMART GRID PEOPLE

From the innovative minds at Apple and Echelon, Networked Energy Services (NES) was built with leading ideas and technology to usher in a new era of smart energy to make the world a better place.

NES is a provider of the most efficient, reliable & secure smart grid technology for utilities. When you think of the best smart grid solutions around the globe, you think NES – industry leading technology to conserve fossil fuels and contribute to a cleaner environment and protect access to the world's energy.

NES offers the most reliable, broadly deployed smart grid platform based on a 3-tier architecture. Our smart meter devices act as grid sensors that enable grid health and efficiency monitoring as well as control.

The solution is complemented by a family of smart metering applications based on a pre-integrated, cloud-ready and secure suite of analytics, operations and business support tools. Together with our devices, the Patagonia Energy Applications Platform (EAP^{TM}) will allow utilities to increase visibility of their Smart Grid, improve outage detection and restoration times, reduce non-technical losses, and increase system efficiency, all leading to a more satisfied energy consumer.

THE LEADING
THREE-TIER SMART GRID

PATAGONIA SOFTWARE
A central data hub that empowers the Patagonia Energy Applications Platform (EAP^{TM}) & securely coordinates communications across the architecture

DISTRIBUTED CONTROL NODES
Connects the meters with the NES head-end, correlates, analyses and aggregates data from devices, and provides your field innovation platform

GRID SENSORS / SMART METERS
Smart Meters that serve as powerful grid sensors, local communications gateways and supply control devices, as well as providing smart grid monetization

DELIVERING SOLUTIONS IN MORE THAN 30 COUNTRIES

TRUSTED BY MORE THAN 100 UTILITIES

25+ YEARS OF SMART GRID EXPERTISE

>40 MILLION DEVICES HAVE BEEN DEPLOYED WITH NES' SMART GRID TECHNOLOGY

TURNKEY SMART GRID SOLUTIONS

- Advanced, internationally certified metering
- Intelligent devices that sense, measure, & control mission critical distribution grid transactions
- Innovative Grid Modernization Software Applications that easily integrate with current systems provide greater visibility of your low voltage grid
- Always-on security at the core of the solution providing a unique Intrusion Detection System
- Sophisticated power quality and distribution automation
- A focus on business outcomes with Grid Operations: a single consolidated operational cockpit for your Smart Meter deployments
- Two-way IP network including point to point and power line communications, designed by a smart grid communications world leader
- A range of professional services designed to help utilities make the most of their investment
- Offering more functionality at a total per-point cost lower than competing systems.

ROBUST GRID SENSING DEVICES

| Single Phase | Poly Phase | ANSI Electricity Smart Meters | IEC CT Smart Meter | Point-to-Point (P2P) |

- Intelligent, fully-featured electronic meter with integrated load disconnect switch and multi-function information display
- Measure forward and reverse active power, active energy, reactive power, reactive energy, RMS voltage, RMS current, power factor, THD and other power quality measurements
- 4x16 channels of load profiling data; each with independent configuration and settings
- Built-in prepayment features include time-of-use reporting, maximum power limiting using a configurable power threshold, configurable emergency credit levels, and an optional audible low-credit alarm
- Offer time-of-use metering with up to 8 tariffs and custom billing cycles
- Power quality measurements, including outage detection and duration, sag and swell analysis
- Extensive tamper and fraud detection features
- Event log for recording and storing alarms and events
- Two optional input channels capture data from external devices such as gas or water meters
- Multiple HAN options including wireless and wired M-Bus, load control relays, pulse outputs and other communication technologies via multipurpose expansion port.

DCN 3000 Distributed Control Node

- Collects and reports meter data, including consumption and power quality, alarms and other events
- Authenticates and encrypts all transactions with smart meters and other smart devices using state-of-the-art communications security
- Low voltage grid mapping support - map meter, segment feeder and transformer associations and report information to the headend system
- Linux operating system provides a strong built-in distribution platform for adding additional device/sensor support drivers and distributed applications that allow you to implement local automation and monitoring

- Linux operating system provides a strong built-in distribution platform for adding additional device/sensor support drivers and distributed applications that allow you to implement local automation and monitoring
- Installs anywhere on low voltage network - including behind an IEC meter or at LV transformer
- Future proof platform supports backwards compatibility, remote firmware upgrades, and WAN modularity via USB port
- IP-66 rated enclosure allows unprotected outdoor installation
- Communicates securely via power line with up to 1024 meters
- Communicates with NES System Software using standard TCP/IP-capable wide area networks such as GPRS/EDGE, LTE, GSM, CDMA/1xRTT, Ethernet, broadband power line, private wireless, satellite, and traditional analog telephone service
- Supports external antenna through upper enclosure cable glands.

INNOVATIVE GRID MODERNIZATION HEADEND SYSTEM & APPLICATIONS

The Patagonia Energy Applications Platform (EAP^{TM}) provides a flexible framework to leverage your AMI investment and create your own Energy Applications to respond rapidly to market changes and exploit opportunities that new technology brings. The solution includes enterprise-grade headend software that easily integrates with current systems using standards-based platform-independent Web Services, and provides an extensible infrastructure that can deliver additional revenue streams and cost savings. The solutions scales from supporting small projects to millions of smart meters and smart grid devices.

EAP^{TM} is a pre-integrated, cloud-ready and secure suite of analytics, operations and business support tools. The Patagonia Energy Applications Platform (EAP^{TM}) is a combination of technologies and an ecosystem that provides secure and interoperable software and communications solutions for you to improve customer service, grid reliability, and efficient operations. EAP^{TM} has the OSGP standard as its foundation.

Grid Navigator
Maps low voltage grid topology for back office and distributed applications

Grid Flow
Identifies transformer utilization improvements and identifies meter mis-wirings

Grid Operations
Provides management, analysis, and control for millions of NES smart grid devices

Grid Watch
Adds detection and response capabilities to your established smart meter security layers

System Software
Provides overall system control, data collection, and configuration for smart meters

DESIGNED WITH SECURITY AT ITS CORE

Power grids are part of critical infrastructure. Security is therefore an integral part of the Patagonia smart grid platform. The complete lifecycle of the system is designed with security at its core; from device manufacturing to device deployment, from operation to maintenance.

BENEFITS OF THE NES SOLUTION

- Future proof solution and supporting integration
- Interoperability with different technologies, vendors and protocols
- Maximizes grid intelligence while minimizing operating costs
- Improves outage detection and restoration times
- Provides customers with information they can use
- Successfully integrates customer-sited generation
- Automates customer service transactions
- Provides remote disconnection and reconnection
- Improves voltage control and system-wide efficiency
- Improves conservation by reducing energy demand and carbon emissions
- Reduces non-technical losses and identifies technical losses
- Empowers consumers to optimize energy usage & costs
- Assists utilities with diversifying fuel and resources
- Ensures system reliability and resiliency.

PROVEN RESULTS MATTER

- >99.8% daily availability of meter data
- >50% drop in customer complaints for one utility
- >30% reduction in a utility's operation expenses
- >50% tampering reduction
- >$80M savings for one utility from eliminating field visits for connections
- >17% annual energy savings by consumers of one utility
- >600,000 annual field visits for connections eliminated for one utility

OUR SUCCESSFUL DEPLOYMENT

Italy
30 million meters

Sweden
1.1M meters

Denmark
910K meters

USA
680K meters

Finland
660K meters

Russia
410K meters

Poland
375K meters

Austria
230K meters

Switzerland
85K meters

Netherlands
75K meters

South Africa
65K meters

Germany
25K meters

www.networkedenergy.com