Connected smart grid futures
ready for data-driven business

Atos
Worldgrid

Opportunity is data-driven

The good news?
Atos Smart Grid Suite

What makes the new world of the smart grid so different? More than anything else, it's the shift to data-driven business. It's the data which allows you to build better relationships with your customers; which gives you control over the low voltage network; which allows you to optimize distribution and the mix of renewables.

Welcome to the Atos Smart Grid Suite! ASGS meets each of these challenges head-on – helping forward-thinking utility companies implement effective smart grid and smart metering strategies improving existing systems whenever possible and without the need for major capital investment or mega IT projects.

These data-driven opportunities are open to every forward-thinking utility company. But with the opportunities, come challenges.

Transparency and security

With your domestic and commercial clients, you need to establish exceptional transparency in all billing and relationship management – but you need to do so while maintaining the highest standards of data security and privacy.

Actionable intelligence

You also need to provide multiple data views for the many different professional roles within your organization and across the partner eco-system – helping everybody from the strategic planner to the third party field service engineer do their jobs smarter and more effectively.

Storage and transaction scalability

Every smart meter installed or electric vehicle charging point now delivers a constant stream of real-time data. But it's not just the data volumes which are exploding – it's the transactions too: the periodic batch processes of the past are replaced with high-intensity near real-time processing – demanding unprecedented scalability.

Robust interoperability

These challenges and opportunities demand a high degree of secure and seamless interoperability between the business and operational systems on which you rely – many of which have, until now, been siloed.

Automation

You need to automate and industrialize the collection and processing of vast volumes of machine-to-machine data generated both by devices in the home and by those across the distribution network.

Cost and continuity

Every utility company must ensure continuity – and that means maximizing the value of your existing systems. IT mega projects – with their associated mega investments – are increasingly unlikely to get sign-off. From now on, "as-a-service" models will win over those requiring extended projects and heavy capital investment.
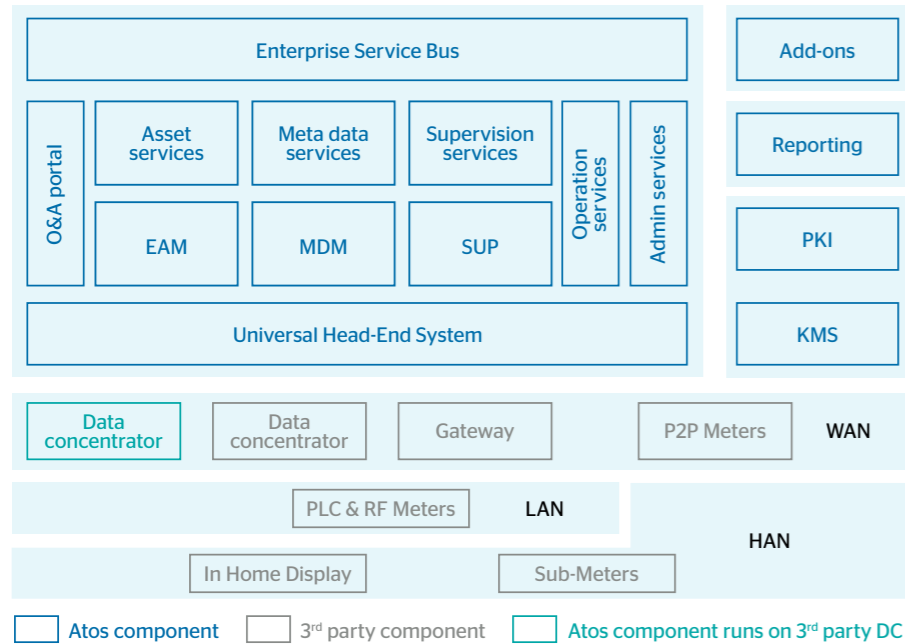

More than the simple collection and billing operations, ASGS provide at a lower cost, means to develop and adapt Smart Services such as data aggregation, process supervision, meter data management, in order to help you being responsive first to your customer and then to legislation requirements.

By using ASGS you will bridge in a secure and effective way the gap between IT and OT. ASGS will help you smooth your transition from Utility to Smart Utility.

Inside Atos Smart Grid Suite

ASGS is the new smart grid nerve center. The suite collects and processes meter data to provide relevant and near real time information to your commercial and operational systems. The success of your smart metering strategy is only as good as the information and communication infrastructure which supports it.

| | Atos component | | 3rd party component | | Atos component runs on 3rd party DC |

ASGS is a multi-fluid, and multi-tenant end to end solution with following essential functions:

Universal Head-End

- On demand , scheduled or periodic meter data collection
- Communication management with concentrators and meters
- Connection of data concentrators during installation and their registration after authentication
- Meters, DC and Gateway discovery, replacement, parameters settings, orders management, firmware update, and time synchronization.

Data Concentrator

- Communication management with UHE and meters
- Implementation of retry mechanisms
- The discovery of Meters (either on polling or "new" alarm), and the transmission to UHE
- Local Logs & Events management.

Atos Smart Grid Suite at a Glance

Core Functions

- Two-way communication and data collection from smart meters
- Asset management, monitoring and reporting tools
- Smart grid event supervision

Security and confidentiality

- Data integrity checked and validated at all levels
- Communication with external systems, users and devices secured through end to end security mechanisms
- Customer data confidentiality assured

Added value functions

- Meter Data Management (Atos or tier)
- VEE (Validation, Edition and Estimation)
- Data aggregation
- Outage management and energy quality monitor
- Fraud and loss analysis
- Managing pre-payment contracts

Scalability and performance

- Advanced Metering Infrastructure (AMI) decentralized to spread and optimize loads
- Highly Scalable and upscale capacity from restricted pilot to mass roll-out (up to 60 million meters within 6hours on oracle Exadata platform)
- Collect, manage, control and display diverse data types and volumes

User interfaces and web portals

- User friendly interface designed to meet different business and user profiles
- Customize the "tree view" enabling easy access to geographical, operational and business activity at a glance according to required geographical, operational or business activity

Interoperability and flexibility

- Validation laboratory for metering devices, to test complex interoperability scenarios

- External connectivity designed in with Meter Data Unification and Synchronization (MDUS) and APIs in place
- Flexible and open to integrate new devices and new business processes (based on Oracle SOA architecture and database)

Optimized roll out tools

- Complete service monitoring and work order management toolsets
- Full logistic support and installation follow-up
- Common access for authorized installation companies
- Performance indicators deliver timely roll-out intelligence

Advanced supervision where automation boosts management quality

- Driven by correlation rules
- Supporting utility process workflows
- Easily customized information screens
- Ready for immediate control room adoption

Meter Data Mngt

- Data collection: Data acquisition from HES, B2B interface for data import
- Real time Data processing: VEE, Settlement, Data aggregation
- Data Publishing: B2B interface Mdus connector for SAP-ISU
- Data Storage: Highly scalable data store, archiving, purge
- Data segregation for multi company access (for multitenancy).

Enterprise Asset Mngt

- Device configuration and status management
- Device provisioning and deployment information control
- Device firmware/software upgrade and configuration management
- Communication (WAN & LAN) status management
- Workforce interface.

Supervision

- Event and alarm management
- Event correlation using complex event structure
- GIS assisted supervision
- Interface with ticketing tool to request field intervention
- Report and statistics about system activities.

Benefits of using Atos Smart Grid Suite

- Through ASGS you will achieve: Control of the low voltage network through software embedded in the concentrators.
- Immediate visibility of energy quality, processing and resolving outages, voltage variations and power management issues automatically.
- Direct connection with SCADA industrial control systems and field service devices.
- Complete GIS integration – combining network topology and performance data for smart analysis and decision-making.

- Maybe add real time supervision.
- By choosing ASGS as your central system, you gain a platform from which to end to end solution including meter data and asset management, real time Supervision, outage and workforce management, grid management, billing and customer care.
- ASGS is completely "device-agnostic" and can be used in conjunction with all leading smart meters, concentrators, and networking components.

ASGS provides an end-to-end Automated Metering Infrastructure (AMI), ready for the immediate adoption of smart grid practices. Not only does ASGS enable secure and reliable communication with meters and concentrators: it is also ready to manage the new data flows for additional grid components, such as car charging points, smart domestic and industrial devices, and the entire spectrum of local renewable generation systems.

Reporting

ASGS integrates Business Intelligence tool which has several benefits for customers such as:

- Automatic generation and publishing of reports
- Graphical visualization of system performance.

Key Management System / Public Key Infrastructure

ASGS Security features is made of:

- Both AES and RSA certificates management (with their private keys renewal)
- Controlled Authentication, Data integrity control , Confidentiality, and Non repudiation.

Add-ons

Are included in ASGS Adds ons features Clean-up tools:

- Graphical visualization of communication operating state with the meter
- Graphical representation of meter communication status & roads
- MRA (Meter Roll out Accelerator): workforce management tool to support device installation.

Comprehensive integration

Integration capacity

ASGS has been designed for effective and easy integration with the external applications on which you rely. These include both off-the-shelf business applications and the many highly customized applications still used within most utility companies.

Key areas of integration include

- Billing and Customer Care Management
- Energy Data Management
- Enterprise Asset Management
- Workforce Management
- Geographic Information System
- Network Operation Center
- Outage Management
- SCADA

Massively scalable – Powerful processing

We have designed ASGS to meet your need for massive scalability. The tools you adopt to manage the new world of smart metering and smart grid must be fully future-proofed. Whether you are running a pilot of just a few thousand smart meters or rolling out nationwide, you need a system that will flex to the task without strain.

The ASGS engine room can be powered by Oracle Exadata and Exalogic technologies. As such, ASGS performance has been exhaustively tested in Oracle's own independent test facilities and has achieved universally impressive results.

ASGS has been stress-tested with under extreme loads and has shown itself capable of processing the results of a full day's input from 60 million meters in under four hours. This was 6.8 times faster than the previously existing benchmark.

Not only does ASGS out-perform in terms of volume and scalability. It does so with extreme efficiency. By exploiting the latest data compression and de-duplication techniques, ASGS achieves these results with a significantly reduced need for computing power – saving both time and money for our clients.
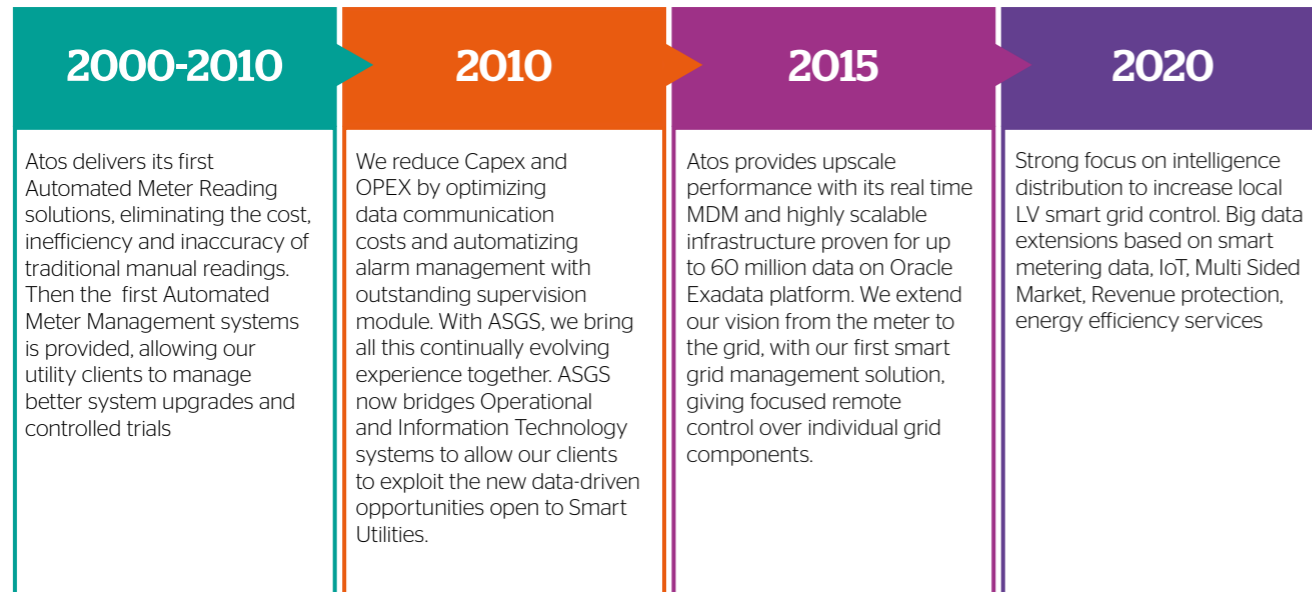
The tools and the knowledge

The Atos Smart Grid Suite is the first fully distributed system ready to help utilities manage the combined commercial and operational functions of their smart meter and smart grid investments.

All the required interfaces with specialist utility systems are in place and ready to go. But Atos is not simply offering ASGS as an "off-the-shelf" solution for smart utility operations.

The Atos Worldgrid specialists who conceived and constructed ASGS are ready to help you plan for effective adoption. With their deep experience of the processes and practices of the Utilities sector, they are ready to help you rolling out your smart metering infrastructure, envision your future operation as a smart utility, and manage the practical analysis and change management which will underpin successful ASGS adoption.

Building on achievement

The Atos Smart Grid Suite is the natural extension of twelve years' continuous focus on smart evolution for our utility clients:

2000-2010	2010	2015	2020
Atos delivers its first Automated Meter Reading solutions, eliminating the cost, inefficiency and inaccuracy of traditional manual readings. Then the first Automated Meter Management systems is provided, allowing our utility clients to manage better system upgrades and controlled trials	We reduce Capex and OPEX by optimizing data communication costs and automatizing alarm management with outstanding supervision module. With ASGS, we bring all this continually evolving experience together. ASGS now bridges Operational and Information Technology systems to allow our clients to exploit the new data-driven opportunities open to Smart Utilities.	Atos provides upscale performance with its real time MDM and highly scalable infrastructure proven for up to 60 million data on Oracle Exadata platform. We extend our vision from the meter to the grid, with our first smart grid management solution, giving focused remote control over individual grid components.	Strong focus on intelligence distribution to increase local LV smart grid control. Big data extensions based on smart metering data, IoT, Multi Sided Market, Revenue protection, energy efficiency services

Agile engagement

The way in which you adopt ASGS as your operational and commercial nerve center will depend on your own culture and future strategy.

Atos can offer ASGS either as a fully supported service suite or as a completely outsourced business function. You can choose to host the data storage and transaction resources using your own facilities or you can entrust these to Atos. If desired, Atos can provide the entire business function on a pay-per-use basis, providing you with access to the services you have chosen, and managing all transaction processing using our own resources.

The decisions you make today may change tomorrow as conditions and ambitions evolve. But however you decide to establish your own model of ASGS use, we will stick to our founding principles: no big bang and no mega-IT projects. Costs will be transparent and controlled, and implementation measured and incremental.

Next steps

In over 30 years' experience of innovation with our utility clients, we have learned just how important continuity and risk management are. We understand that the implications of smart metering and smart grid, coupled with an increasing emphasis on customer focus and sustainability, represent a major change for utility companies.

For these reasons, we have been as careful to consider **how** ASGS can be adopted as to consider **what** it delivers. No big bangs; no mega-IT projects – and every opportunity to adopt and extend incrementally, following practical proof-of-concept.

The secure and cost-effective management of rapidly growing data volumes will be absolutely central to your transformation from utility to Smart Utility. Take some time out with Atos Worldgrid to explore how ASGS can help put you on the fast track.

About Atos

Atos SE (Societas Europaea) is a leader in digital services with pro forma annual revenue of circa € 12 billion and circa 100,000 employees in 72 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cyber-security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defense, Financial Services, Health, Manufacturing, Media, Utilities, Public sector, Retail, Telecommunications, and Transportation.

Atos Worldgrid, an international subsidiary of Atos, is a unique player in smart energy. With over 1,600 engineers and over 35 years' experience, Atos Worldgrid operates in more than 15 countries. It has in particular equipped 70 nuclear power units with its Supervision and Command & Control software in France, UK, Russia and China and delivered the world's largest smart metering system.

Find out more about us
atos.net
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Let's start a discussion together