THALES
Building a future we can all trust

Powering up Trust for Connected Smart Energy

Thales Smart Energy Solutions

Our evolving smart energy ecosystem

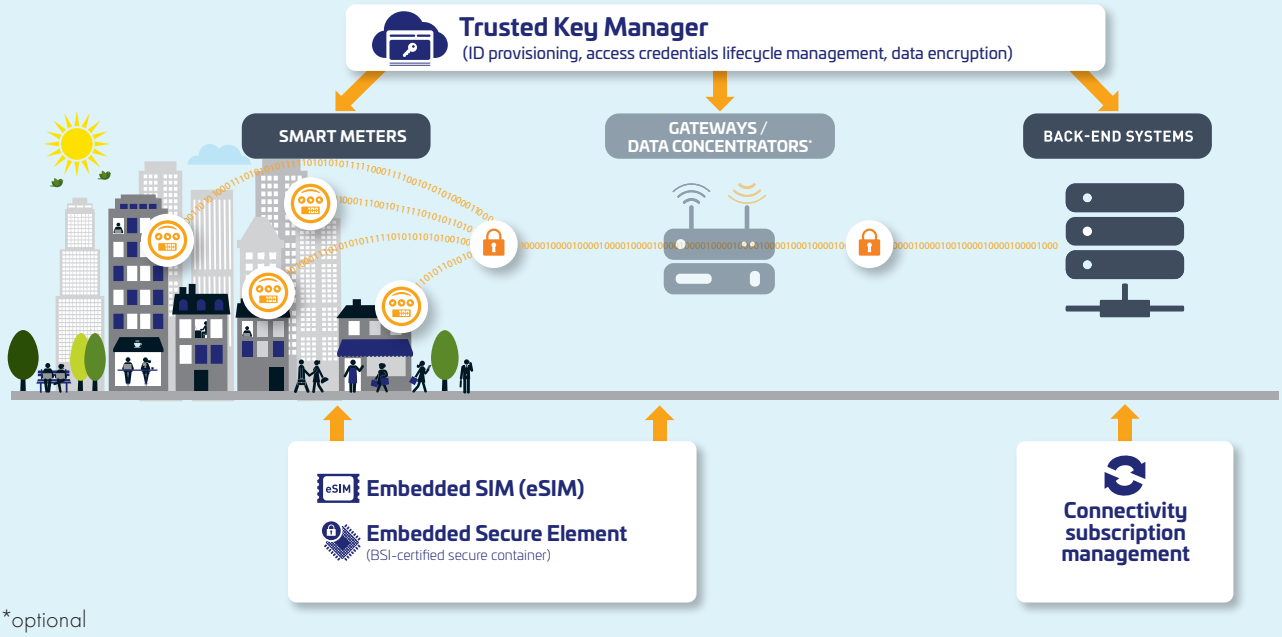
The energy market is in the midst of massive transformation, as it rapidly evolves into a vast connected grid. IoT connected smart meters are becoming industry standard, providing real time insight into energy production and consumption data and streamlining operations and billing systems. Expanding connectivity and digitalization will also enable small-scale sustainable "power plants", or Distributed Energy Resources (DERs), offering a renewable, non-carbon resource for energy for "prosumers". As the smart energy ecosystem has evolved into a complex IoT network exchanging massive sensitive data, many new points of vulnerability have emerged.

To ensure accurate grid management and billing, as well as privacy protection, the integrity and confidentiality of the exchanged data is crucial. Securely connecting the evolving smart energy infrastructure is paramount to the success of our grids.

Powering up trust in securely connected smart grids

As a global leader in digital security and IoT technology, Thales has connected and secured billions of assets in sensitive sectors including banking, government, and healthcare. Our solutions have already been deployed in millions of smart meters and energy assets around the world. Active members of ESMIG, the European smart energy solution providers, our experts collaborate with industry leaders to develop standards and recommendations for optimizing and safeguarding the smart grid.

Thales is at the center of the smart energy transformation, connecting and powering up trust in an increasingly complex smart grid infrastructure:



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The Thales Smart Energy Portfolio

The dedicated Thales Smart Energy offer encompasses advanced connectivity and security solutions to connect and protect massive smart metering deployments over time.

OUR OFFER DELIVERS:

Multiple connectivity options and ease of deployment:

Thales eSIMs, which can be embedded into IoT modules, offer built-in security as well as a great ease in connectivity deployment. The preferred connectivity network can be selected at installation, to suit each deployment case.

End-to-end security and device lifecycle management:

The dedicated Thales smart energy cybersecurity offer protects connected assets and ensures integrity of the data they exchange. It includes secure digital ID provisioning, hardware security containers (such as Thales BSI-certified embedded Secure Elements), data encryption and access credential management for the lifecycle of deployments.

“Turning on” the smart grid seamlessly with eSIMs

Provisioning wireless service to widely distributed smart energy assets has been a long-standing challenge. Traditionally, it requires manufacturing multiple product SKUs with MNO-specific SIM cards, plus complicated logistics to ensure meters are shipped to the proper location.

Thales is revolutionising the ecosystem by offering eSIMs. Leveraging and its own platform to select the preferred connectivity network provider during device deployment.

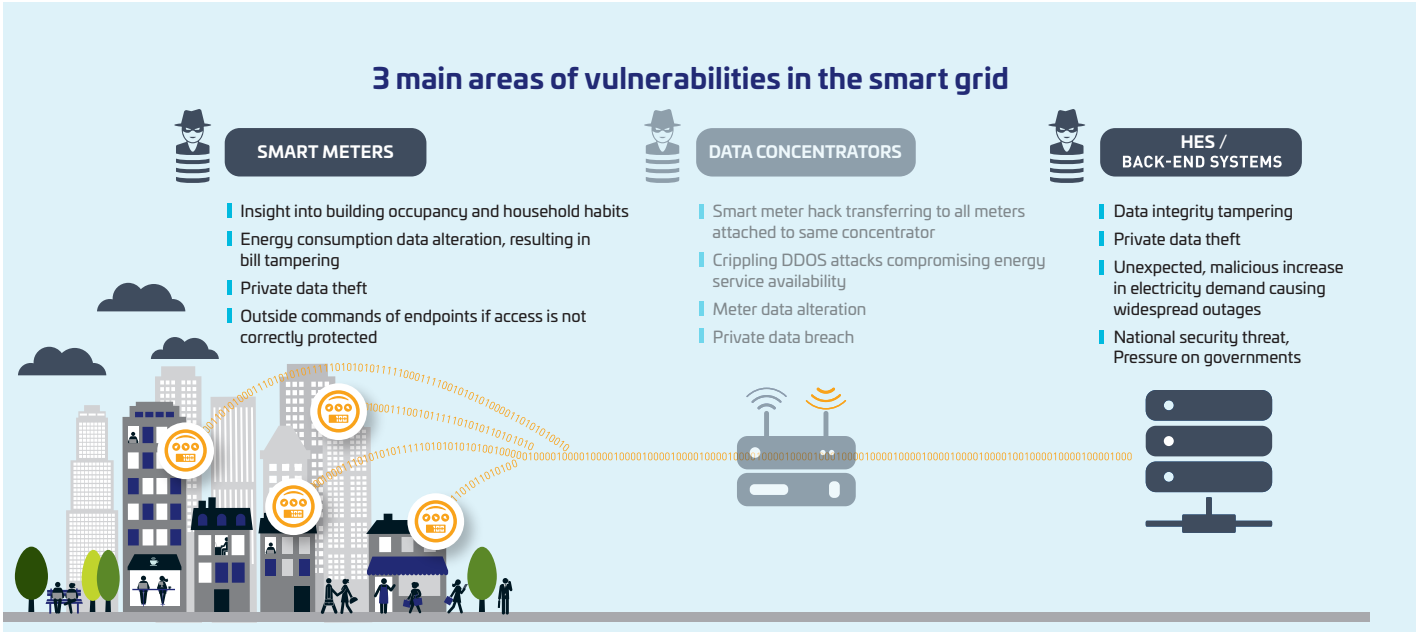
eSIMs benefits:

- **Simplified manufacturing logistics:** Single SKU wherever the destination the device will be shipped to. Universal eSIMs and remote connectivity provisioning enable downloading of selected network profile at deployment or any time.
- **Enhanced security and trust:** Tamper-resistant Thales eSIM provide a secure container for sensitive data.

Thales Trusted Key Manager for Smart Energy: building trust in the smart energy ecosystem

The increased volume of digital data generated and exchanged via connected assets represents a critically growing cyber-attack surface. Every smart meter, data concentrator or Head End System (HES) is a potential point of vulnerability that hackers could attack, if poorly protected.

Leveraging decades of digital security expertise, Thales offers an advanced smart energy cyber security solution that goes beyond traditional security platforms. The solution ensures the secure exchange of data between firmly authenticated energy actors for the entire lifecycle of devices.



Deployed at all points of risk, the solution protects, defends and ensures the integrity of the entire smart grid ecosystem:

- **Secure ID generation and key provisioning:** Diversified, random IDs are generated and can be provisioned directly into embedded Secure Elements (BSI-certified), or into the device´s memory (in this last case, under the device maker´s responsibility). Expert built-in security provides advanced protection and allows Smart Meter vendors to focus on their core competency.
- **Mutual authentication of stakeholders:** Secure PKI-based process enabling an automated device activation and onboarding to authenticated ecosystem partners and clouds. This ensures trust.
- **Data encryption at rest or in motion:** Secure data encryption/decryption mechanisms, based on standardized AES cryptographic algorithms. This protects against eavesdropping, data interception and tampering at rest, in the cloud and in motion.
- **Credential and software lifecycle management:** Crypto key updates, revocation and renewals as needed to cope with legislation and DSO's security policy and protect systems against evolving threats. Secure firmware and software updates, operated remotely through digital signature schemes.

The solution leverages the award-winning and world-leading Thales Safenet Hardware Security Module (HSM) with steadfast PKI-based authentication and encryption technology.

Acting as an anchor of trust, it ensures the secure generation and processing of cryptographic keys (used to cipher device keys´ repository) inside a hardened, tamper resistant entity. Its dedicated processor was specifically designed for the crypto key lifecycle protection.

Going above and beyond to connect and secure the smart energy ecosystem

Thales's smart energy offer goes above and beyond to connect and protect the complex modern smart grid. At all layers of the ecosystem, we offer solutions to strengthen reliability, mitigate risk, and simplify deployments and lifecycle management.

To learn more, please visit our dedicated smart energy page.

Notes

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