

Perspectives on the Italian Electricity Supply Chain and the role of Digital and Cybersecurity



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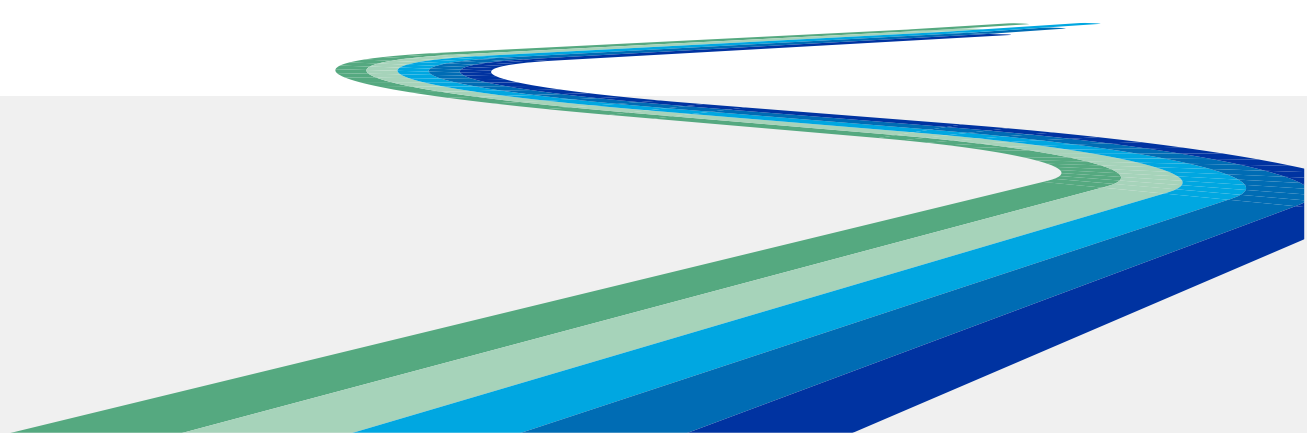


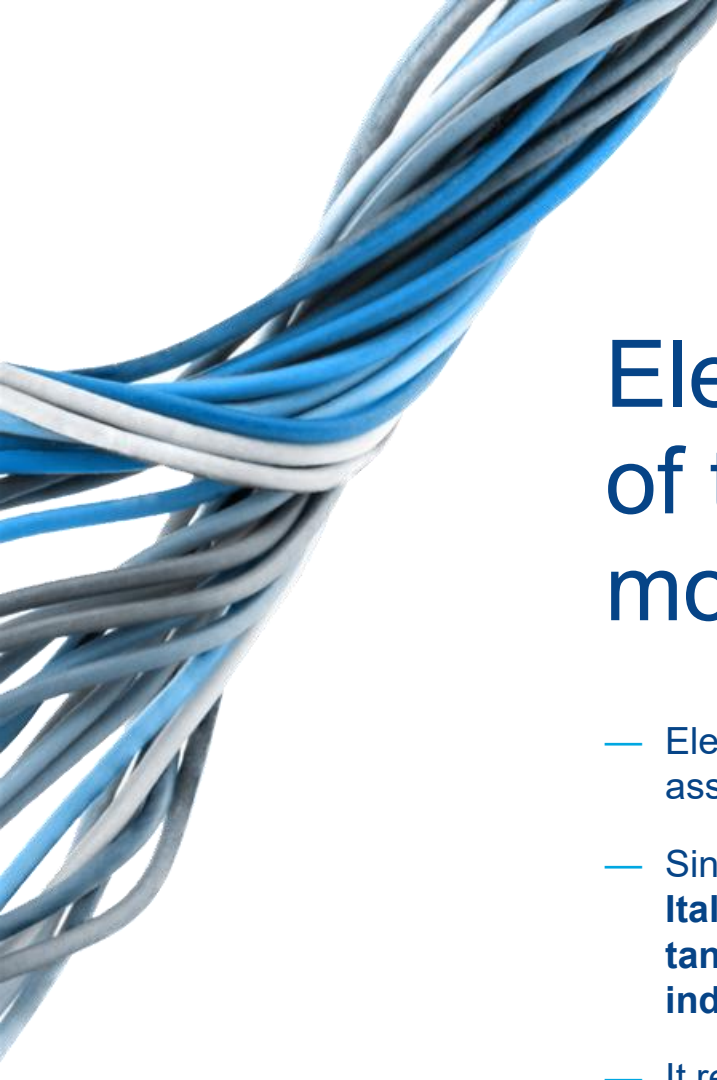
Rome - May 20, 2026

The Italian Power Sector

Market Structure, Energy Transition and Future Challenges

Giorgio Boneschi, *Managing Director*





Elettricità Futura is the leading Association of the Italian electricity sector, representing more than **70%** of the market

- Elettricità Futura was established in 2017 through the merger of Assoelettrica and assoRinnovabili.
- Since then, it has consistently pursued the objective of promoting the **development of the Italian electricity sector** and accelerating the energy transition — a path capable of **delivering tangible benefits for economic growth and employment**, while improving **security, independence, sustainability** and the overall **competitiveness of the system**.
- It represents **over 500 companies** active in the **production and commercialization of electricity** from conventional and renewable sources, in **distribution**, and in the **supply of services for the sector**, all of which have chosen Elettricità Futura as their point of reference.

Italy's Power System at a Glance

An interconnected market undergoing rapid transformation

↔ Import/ Export routes



Electricity Demand

~310 TWh/year

Stable, expected growth through electrification

Installed capacity

~160 GW

Rapid growth of solar (wind) and storage

Renewable capacity

~85 GW

Strong acceleration after 2022

Power mix

Gas + RES dominant

Gas still provides system flexibility

European integration

~25%

Import capacity / peak demand ratio
Italy is a major electricity importer

Market structure

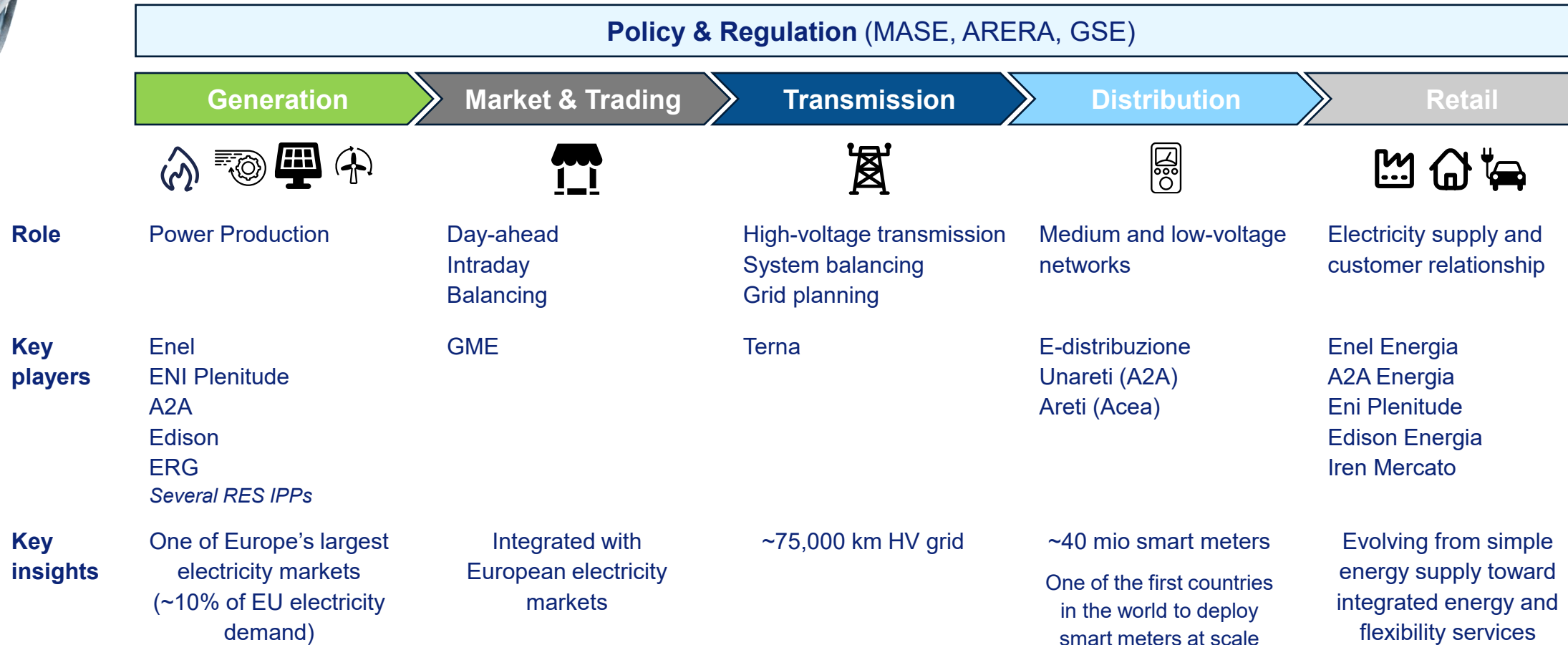
Fully liberalised

Separated generation, grids and retail

Italy is transitioning from a centralised thermal-based system toward a more distributed, renewable and digital electricity system.

The Italian Electricity Value Chain

Separated roles across a fully liberalized market



The transition toward renewables is reshaping every segment of the electricity value chain.

Energy Transition in Italy

Decarbonization, Electrification and Energy Security

DRIVERS



Decarbonisation

EU climate targets and emissions reduction



Electrification

Transport, industry and heating shift to electricity



Energy Security

Reduced dependence on imported fossil fuels



Competitiveness

Lower and more stable electricity prices

EUROPE vs. ITALY



- Green Deal
- Fit for 55
- REPowerEU



PNIEC

~131 GW

RES capacity

~65%+

RES generation

Storage

Grid-scale and distributed

Electrification

Transport, industry, household

SYSTEM TRANSFORMATION

Centralised
Generation

Distributed
Renewables

Passive
Grids

Smart
Grids

Predictable
Generation

Intermittent
Generation

One-way
power flows

Flexible bidirectional
systems

Analog
Infrastructure

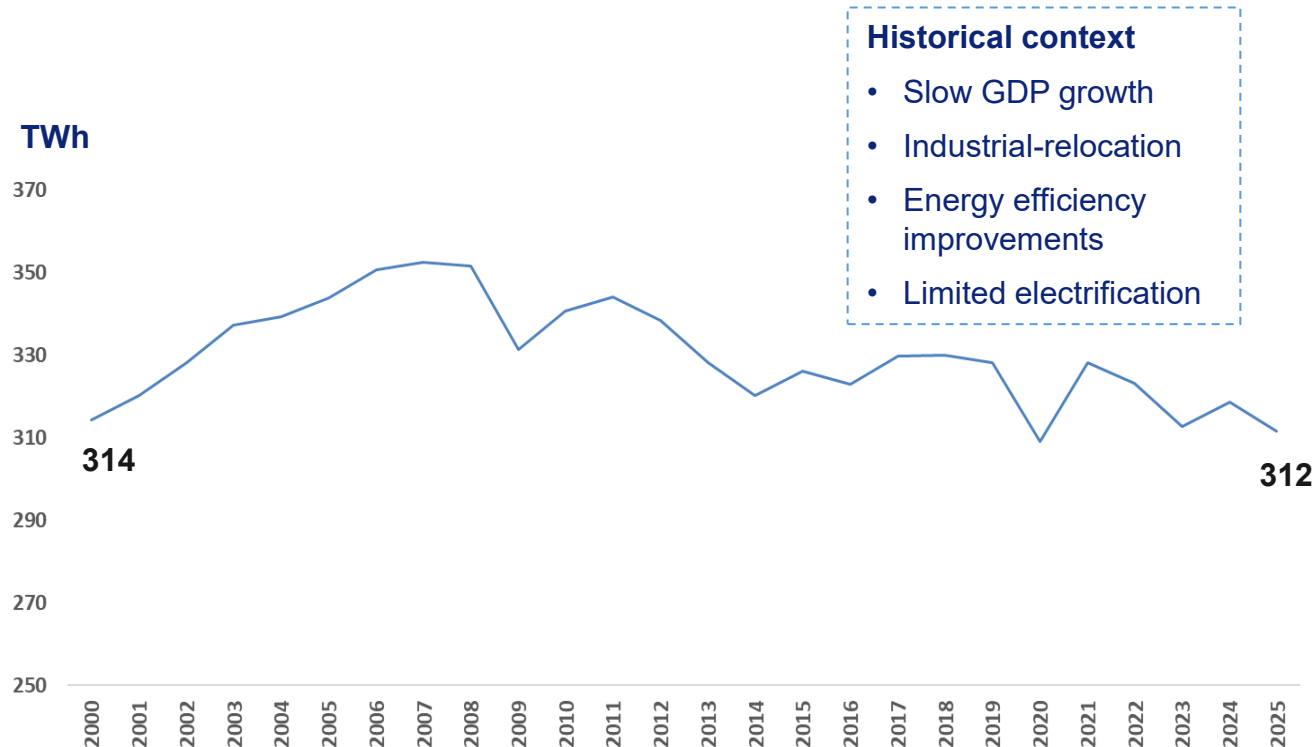
Digital
Infrastructure

The energy transition is transforming how the entire power system operates

Evolution of Electricity Demand

From stable consumption to electrification-driven growth

Italian electricity demand (2000–2025)



The next phase: electrification

Buildings

Heat pumps and electric heating

Digital economy

Data centres and digital infrastructure

Transport

EV charging growth

Industry

Industrial electrification

~15% [362 TWh]

expected electricity demand growth by 2030

(Terna / PNIEC scenarios)

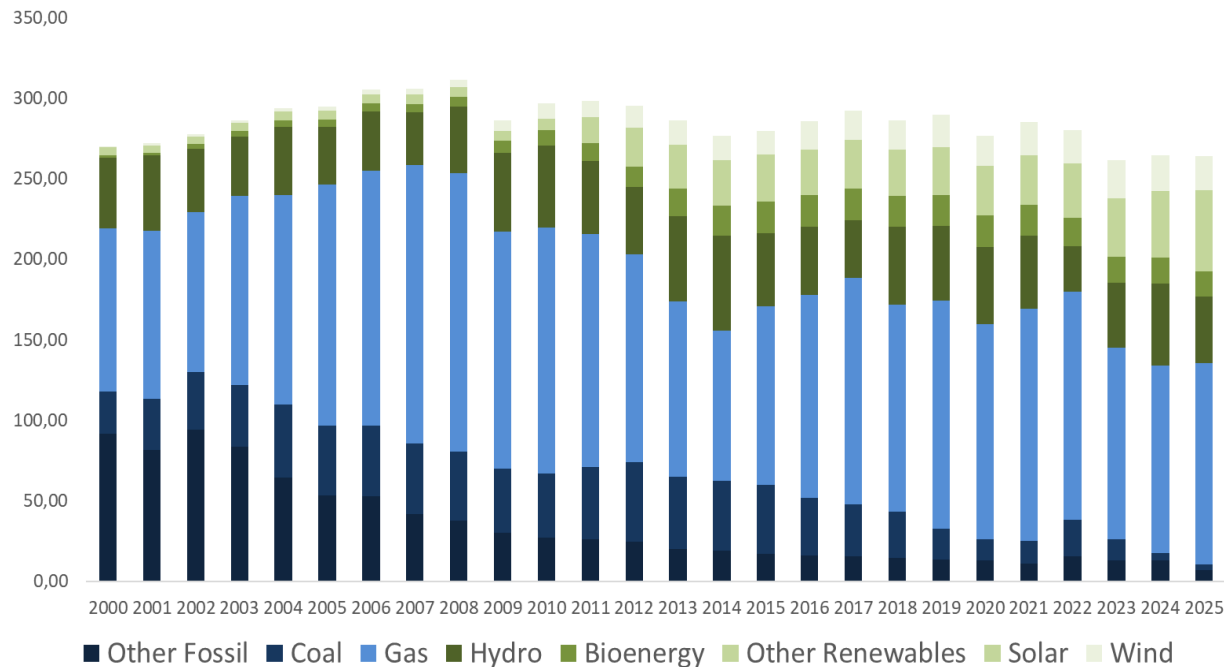
Long-term (2040): Up to ~410 TWh (high-electrification case)

In recent years, demand has remained broadly stable despite economic growth.
Electrification and digitalization may drive future growth, but timing remains uncertain

Evolution of the Generation Mix

From thermal dominance to a more renewable-based system

Electricity generation by source - TWh (2000–2025)



Insights

Renewable growth

Strong acceleration after 2020

Gas remains central

Key source of system flexibility

Coal phase-out

Rapid reduction in coal generation

System complexity

Higher variability requires flexibility and storage

~50%

low-carbon electricity generation in 2025

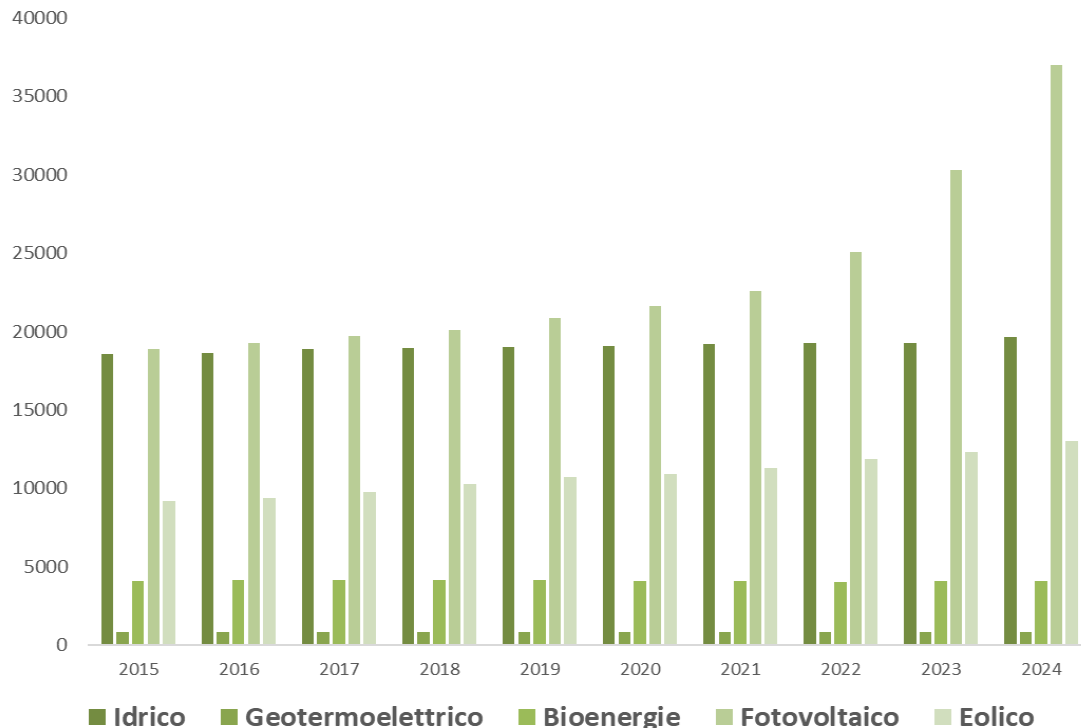
(estimates by Elettricità Futura)

The Italian system is becoming progressively more renewable, distributed and variable, increasing the need for flexibility, storage and digital coordination

Renewables Growth and PNIEC Targets

Acceleration is underway, but scaling remains the key challenge

Installed renewable capacity in Italy – MW (2015-2025)



The challenge toward 2030

~131 GW

PNIEC renewable capacity target by 2030

~7 GW/yr

Current pace

~10 GW/yr

Required pace

Solar
Main growth driver

Wind
Needs significant acceleration

Storage
Critical for system flexibility

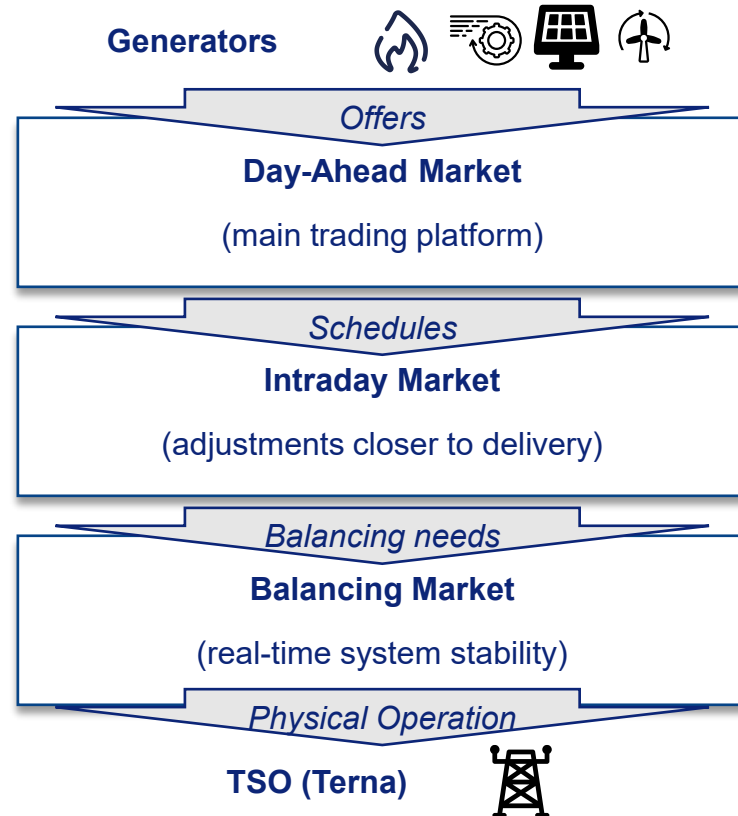
~70 GWh

storage needs by 2030 (currently 18 GWh)

The key challenge is no longer demonstrating the viability of renewables, but deploying them at the scale and speed required by the transition

The Evolving Role of Electricity Markets

From energy trading to system flexibility



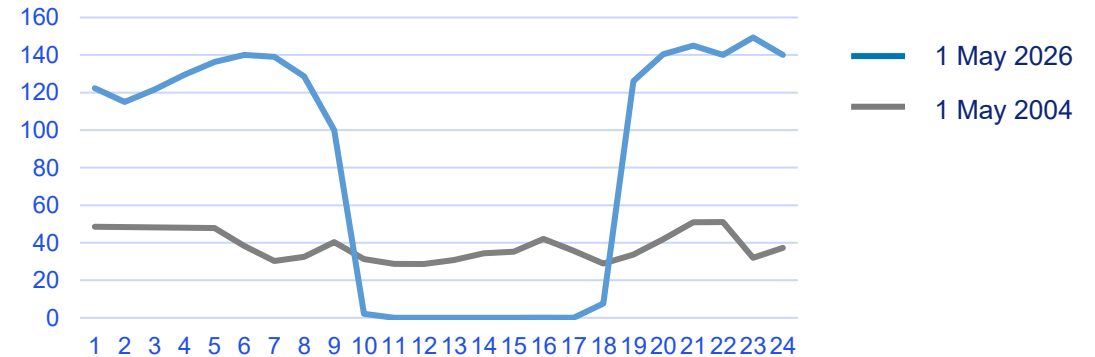
Emerging market dynamics

Renewable price-setting
Low marginal-cost renewables increasingly influence price formation

Flexibility value
Storage and flexible resources gain strategic importance

Higher volatility
Growing differences between peak and off-peak prices

Real-time coordination
Balancing and system services become increasingly critical



The Italian system is becoming progressively more renewable, distributed and variable, increasing the need for flexibility, storage and digital coordination

The Grid as an Enabler of the Transition

A more distributed system requires a more flexible and digital grid

Growing system complexity

>2 million

solar PV systems connected
to the grid

~85 GW

installed renewable
capacity

40+ million

smart meters
deployed

**Rapid growth of
distributed energy
resources**

EVs, batteries...

From a relatively centralized architecture to a highly distributed infrastructure...

Operational implications

**Real-time system
balancing**

More variable generation
profiles

**Bidirectional power
flows**

Distributed generation
and prosumers

**Congestion
management**

Higher stress on local
networks

**Data-intensive
operations**

Growing need for
automation and digital
coordination

The scale and decentralisation of new energy resources are transforming grid operation into an increasingly digital and data-driven activity

Strategic and Regulatory Priorities

Integrating decarbonization, competitiveness and system resilience

PHYSICAL TRANSITION

Permitting

Accelerating renewable and
grid project approvals

Grid investments

Expanding and modernizing
transmission and distribution networks

Flexibility and storage

Accelerating renewable and grid
project approvals

SYSTEM TRANSITION

Market evolution

Adapting market design to
higher renewable penetration

Competitiveness

Ensuring affordable and stable electricity
prices

System resilience

Strengthening operational
and cyber resilience

The next phase of the energy transition will depend not only on renewable deployment,
but on the ability to integrate infrastructure, markets and digital system management

Cybersecurity as a Systemic Challenge

Protecting increasingly interconnected and data-driven power systems



Smart meters, distributed generation, storage and EV charging

Interconnected European electricity markets and grids

Continuous balancing and automated coordination

Data platforms, automation and remote system management

Operational priorities

Operational resilience

Maintaining continuity across critical electricity infrastructure

System coordination

Cooperation across TSOs, DSOs, market operators and institutions

Monitoring and response

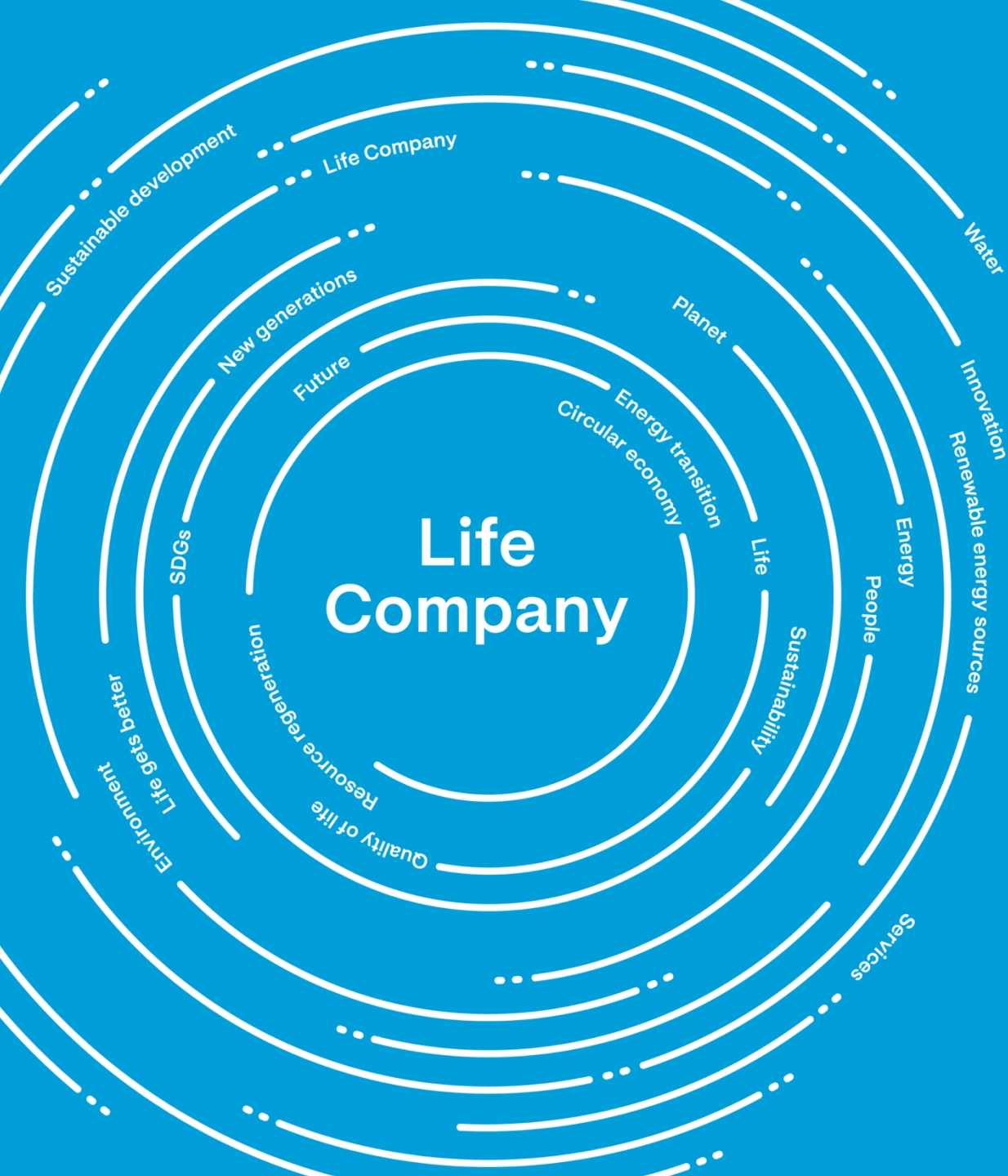
Early detection and rapid response capabilities

Supply chain security

Managing cyber exposure across interconnected technologies and vendors



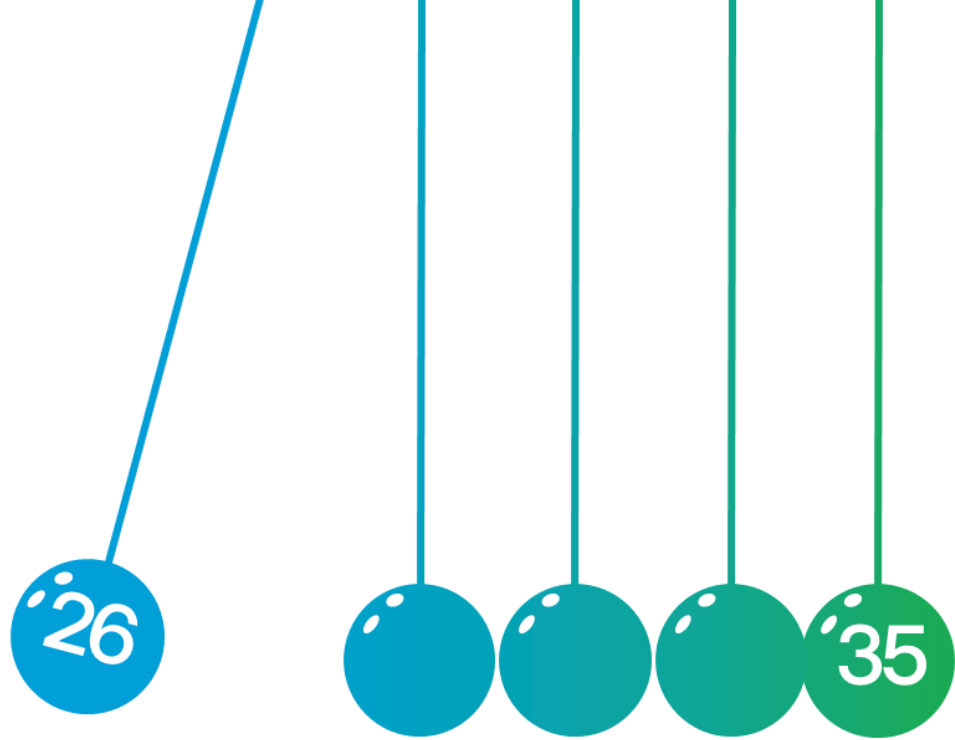
Thank you



A2A Life Company

Rome - May 20, 2026

The Group



A2A Momentum

In the era of artificial intelligence,
energy is the driving force of progress.

The future demands more:
more power, more efficiency,
more sustainability.

At the heart of this transformation lies data.

Data centers stand on our territories,
and their presence is set to grow.

A challenge that calls for tangible results,
vision and responsibility.

At A2A, we are ready.

We have invested in infrastructure,
renewable energy and smart grids.

We have transformed vision into action,
innovation into reality.

Today, we are ready to seize our Momentum,
to drive the digital and ecological transition
with expertise and responsibility.

A2A Momentum
Ready to Power

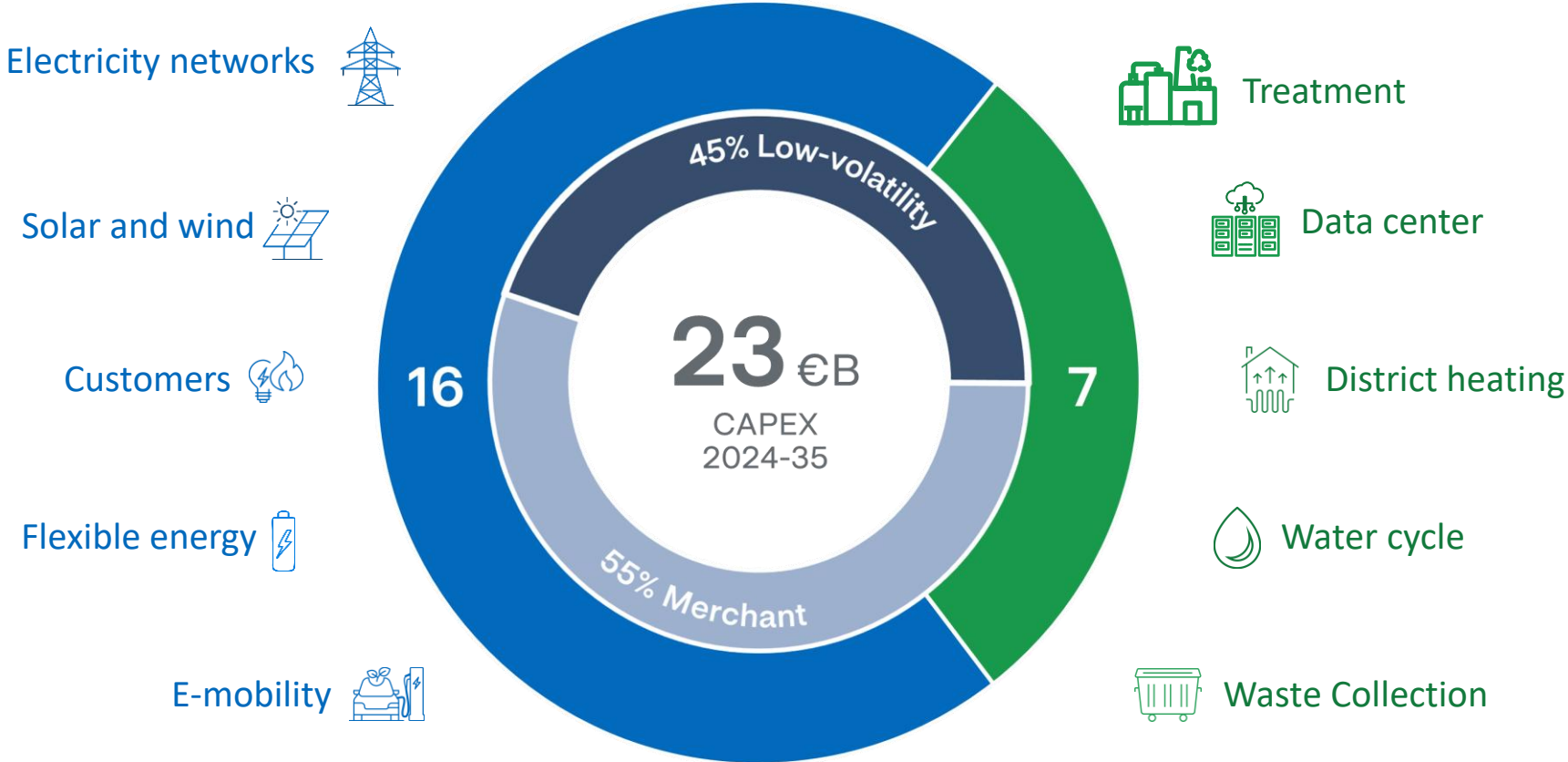
Our commitment to a sustainable growth

Energy Transition

We contribute to **decarbonising the system** by guiding the **electrification** of consumption and developing sources of **green energy**

Circular Economy

We enable **circular business models** for material and energy to **preserve the resources** of our Planet and protect the environment



Where we are and what we do

Plants

 Wind	 Waste treatment	 Bioenergy
 Photovoltaic	 Material recovery	
 Thermoelectric	 Waste-to-Energy	
 Hydroelectric	 Landfill	

Services

 Gas transport	 Public lighting
 Electricity distribution	 Integrated water service
 Gas distribution	 Recharge stations E-mobility
 Waste collection	 District Heating



Key figures of our 2025

Our commitment to the country's ecological transition continues

Investments

€
1,681
million €

Net profit Ajusted

€
686
million €

Energy

Energy production from renewable sources


5.5
TWh

Water

Water consumptions


8
million of m³

Environment

Urban waste recovered


99.1%
recovered as material (70%) and energy (29.1%)

E-Mobility

Recharges using A2A infrastructure


500,000

Employees


14,959
A2A Employees


1,416
hires

Green Energy


11.6
TWh sold to end customers

Water distributed


67
million of m³

Emissions avoided

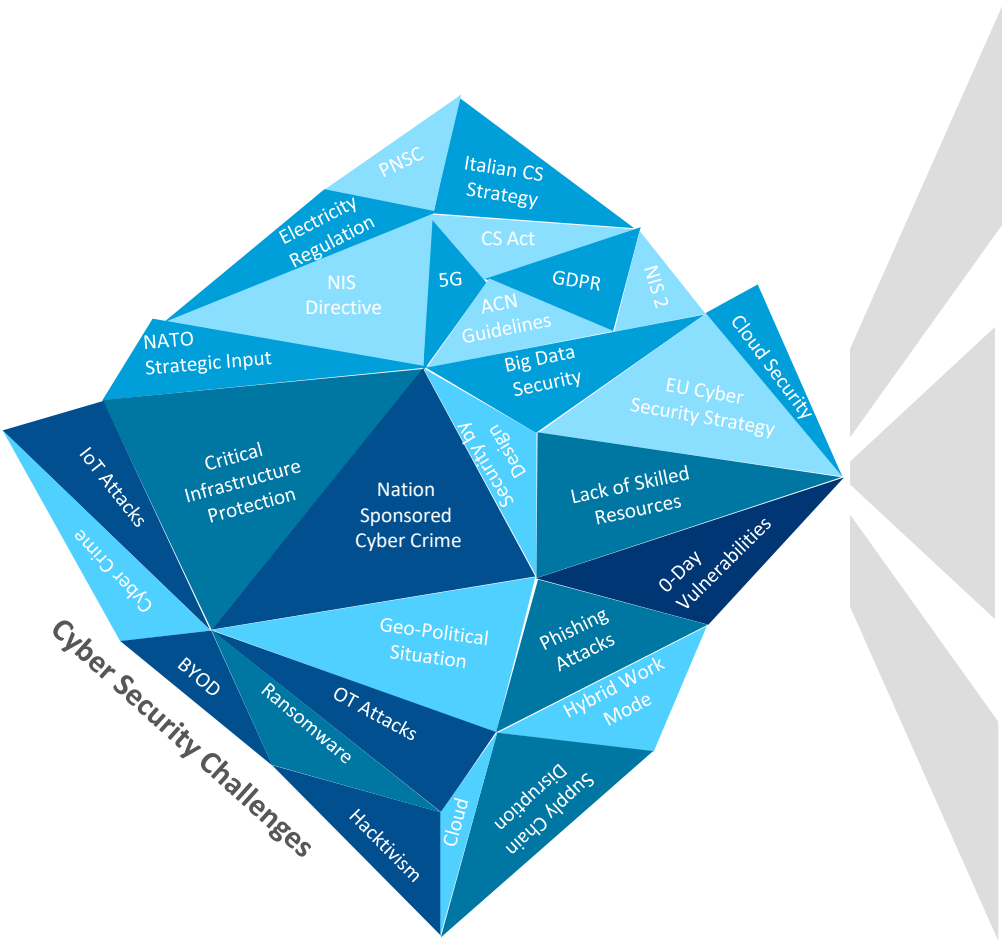
NO_x
2,104
tonnes NO_x emissions avoided

km travelled with zero emissions


52.2
million

Cybersecurity Challenges in the Energy Sector

The ever-evolving nature of cybersecurity risks is leading to new challenges that the energy sector must address.



Smart Infrastructures



The energy sector benefits from digitalization and technological innovation, which leads to an increase in cyber attacks targeting both IT and OT environments, resulting in serious business impacts.

Geopolitical Context



Cybersecurity is influenced by ongoing geopolitical changes, with new threats dynamically adapting to the context. Therefore, for organizations, protecting only their perimeter is no longer enough.

Regulations & Compliance



The importance of essential Italian services has highlighted how operators can contribute to the development of a more secure country system at an IT level, with new national and European regulations that define the requirements and limits.

Strategy for cooperation in cybersecurity

Italy intends to promote the creation of sector collaborations in the field of cyber security as indicated in the National Cybersecurity Strategy 2022-2026



National Cybersecurity Strategy 2022-2026



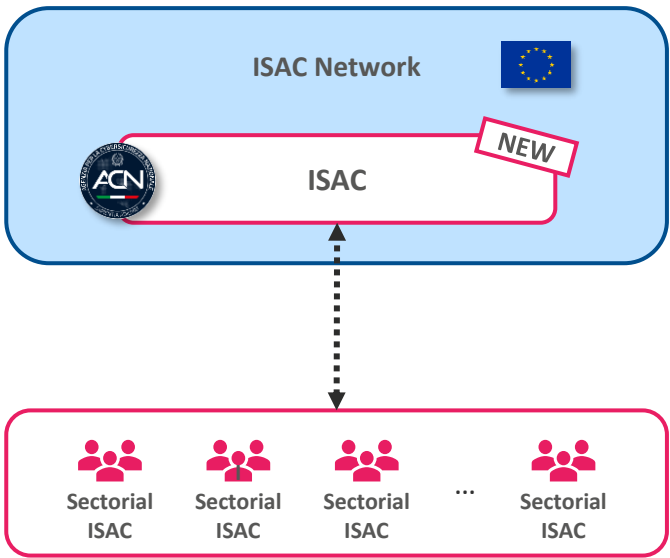
The National Cybersecurity Strategy aims to plan, coordinate and implement measures to make the country safer and more resilient.

Legenda

- European level
- National level
- Communications

Sectorial ISACs

The National Cybersecurity Strategy 2022-2026 will support the development of sectoral capacities to improve analysis and information sharing through the promotion of sector ISACs



The ISAC is going to be created within the National Cybersecurity Agency (NCA) and will be part of the ISAC network.

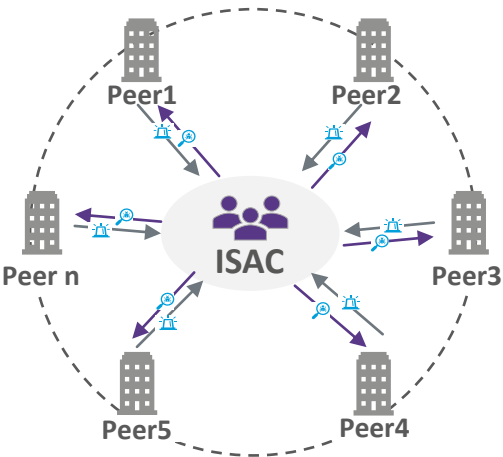
Sectorial ISACs will be integrated into the ACN ISAC to improve the dissemination and application of cyber threat intelligence.

INFORMATION SHARING AND ANALYSIS CENTER (ISAC)

An ISAC is an initiative that aims to increase the exchange of cyber security information through various methods of collaboration.

Definizione

The Information Sharing and Analysis Centers (ISAC) is an organization that provides a central resource for gathering cyber threat information and enables the sharing of experiences, knowledge and analysis.



Informazioni condivise

Incidents



Details of **attempted** and **successful attacks** which may include a description of the information stolen, the techniques used, the target and the impact

Threats



Information about threats with potentially serious implications, **indicators of compromise**, or **threat actor** information

Vulnerabilities



Vulnerabilities in **software**, **hardware**, or **business processes** that can be exploited for malicious purposes

Mitigation Actions



Methods for **fixing** vulnerabilities, **containing** or **blocking** threats, and **responding** to incidents

Situational Awareness



Information that enables decision makers to **respond** to an incident and may **require real-time measurement** of exploited vulnerabilities, active threats, and attacks

Best Practice



Information about how **software and services** are developed and deployed, such as security controls, secure development policies, and incident response policies

Strategic Analysis



Collecting, filtering and analyzing different types of information in order to build metrics, trends and projections

Collaboration methods

- Regular meetings
- Working groups
- Conferences and events
- Email and video conferences
- Information Sharing Platforms
- Web Portals

When we take care of energy, water and
environment, **life turns sky-blue**