

14th BES Seminar: AI for Energy Regulation



Project: Applying artificial intelligence to the electricity sector in the Balkans
Friday, 3 April 2026 | 9:00 AM – 1:00 PM (Rome Time) | Online

CONTEXT & VISION

- Initiative co-financed by CEI to foster AI-driven innovation in the Balkan electricity sector
- Focus on public sector responsibility: from experimentation to real, accountable services for citizens
- AI as an enabler of the energy transition, supporting more complex, digitalised electricity systems (e.g. smart grids, distributed generation)



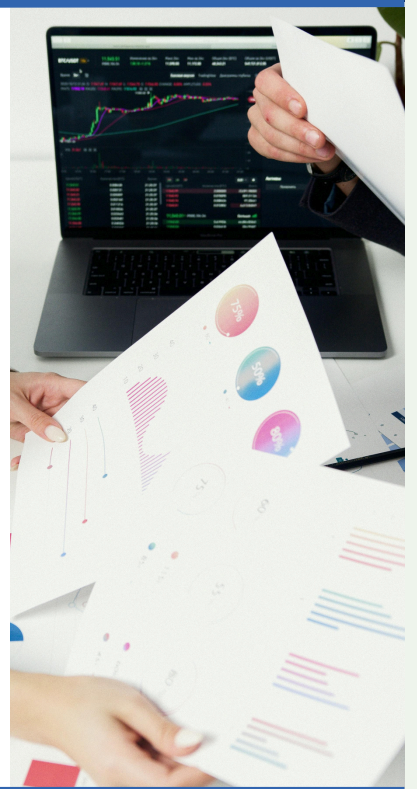
OPPORTUNITIES VS. RISKS

AI Technologies

- From traditional programming to machine learning and LLM-based systems enabling adaptive and conversational decision tools
- Use cases in energy: forecasting, grid management, anomaly detection

Critical Challenges

- Hallucinations & reliability issues in generative AI systems
- Algorithmic bias affecting fairness and decision-making (e.g. distorted outputs from training data)
- Black-box problem: high accuracy without explainability → risk in critical sectors
- Privacy risks from large-scale data collection and inference



THE REGULATORY FRAMEWORK: THE AI ACT

Risk-based approach:

- Prohibited AI practices
- High-risk systems (e.g. critical infrastructure, energy systems)

Public authorities must ensure:

- AI literacy and internal capacity
- Human oversight in decision-making
- Traceability and transparency of AI use

Alignment with EU energy regulation: ensuring **secure, resilient and interoperable digital infrastructures**



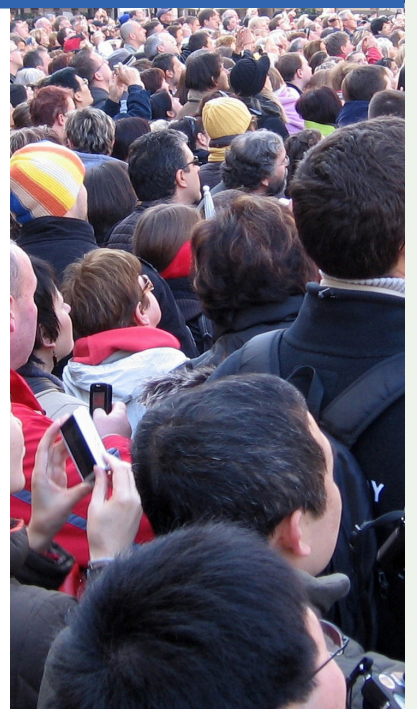
CITIZEN RIGHTS & DATA GOVERNANCE

- Right to explanation: citizens must understand AI-driven decisions
- Transparency by design in public sector AI systems

Data governance as a cornerstone:

- High-quality, representative datasets to reduce bias
- Strong alignment with GDPR principles

Trust as a key condition for AI adoption in critical infrastructures like electricity systems



KEY TAKEAWAY

AI in energy regulation is not just a technological shift, but a governance challenge: balancing innovation, system reliability, and citizens' rights in an increasingly complex energy ecosystem.

