

2025 IFAC Workshop on Smart Energy Systems for Efficient and Sustainable Smart Grids and Smart Cities (SENSYS 2025)

Open Invited Track

## **Energy systems, natural resource and environmental management**

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As the global shift toward cleaner and more sustainable energy sources accelerates, it becomes essential to explore innovative approaches to optimize energy production, distribution, and consumption while minimizing environmental impacts. This Open Invited Track will focus on novel modeling and control approaches to analyse and address the critical relationships between energy systems, resource management, and environmental sustainability at different spatial and temporal scales. The session will provide insights into how these approaches can support decision-makers in formulating effective policies for a clean energy transition.

The Open Invited Track will include, but is not limited to, contributions in the following areas:

- AI and ML for environmental systems
- Air quality modeling and control
- Climate change mitigation and adaptation modeling
- Control of large-scale environmental systems
- Integrated Assessment Modeling
- Modeling and identification of environmental systems
- Natural resources management
- Optimal control and operation of environment systems
- Participatory decision making
- Planning and management under deep uncertainty
- Real time monitoring and control of environmental systems
- Risk analysis, impact assessment
- Water-food-energy nexus
- Water resource system modeling and control

Researchers, industry professionals, and policymakers are invited to discuss their contributions to shape a clean energy transition through interdisciplinary approaches to energy, resource efficiency, and environmental resilience.