6th International Forum on Long-Term Energy Scenarios (LTES) for the Clean Energy Transition

**Session 6. Addressing the future of digitalization through demand-side planning.**

Co-hosted with: VTT (TBC)

*Thursday, 30 October 2025. Bonn, Germany. 11:30-13:00 (CET)*

1. **Context**

Digitalization is becoming a structural driver of electricity demand. Data centers, AI computing clusters, and digital industrial hubs are expanding rapidly, often with concentrated siting and steep load profiles. If not anticipated, these loads risk creating bottlenecks for grids and delaying renewable integration.

LTES processes provide governments with a way to bring digitalization into national energy planning. By capturing demand signals from industrial policy, technology adoption, and market forecasts, scenarios can stress-test system adequacy and identify investment needs well before demand surges materialize. This ensures that grid expansion, flexibility options, and siting decisions are prepared in advance, avoiding delays and cost escalation.

This session will bring together experiences from countries and research institutions that have begun incorporating digitalization trends into their planning. The discussion will focus on what data and institutional processes are needed, what planning and governance measures are effective, and how scenario frameworks can keep pace with rapidly evolving digital sectors.

1. **Objective**

To explore how national LTES can anticipate and integrate digitalization-driven demand growth, enabling early infrastructure planning and aligning digital expansion with system decarbonization.

1. **Expected outcomes**

* Practical examples of how digitalization signals are captured and integrated into scenario frameworks.
* Insights into how scenarios are being used to provide early investment signals for grids, flexibility, and siting.
* Lessons on governance and planning measures that help countries manage demand growth without slowing the energy transition.
* Contributions to the LTES Network dialogue on evolving scenario content to include new structural drivers of demand.

1. **Proposed Agenda (90 min)**

**Moderator:** (TBC)

**Start:** 11:30 (CET)

|  |  |
| --- | --- |
| **Duration** | **Details** |
| 05 min | **Welcome and introduction by moderator.**  *Overview of the session and context of the topic.* |
| 15 min | **Scene-setting presentations.**  *Why digitalization matters for demand-side planning*  *Speaker: VTT (TBC)*  *IRENA’s presentation. AVRIL: demand profiles report*  *Speaker: (TBC)* |
| 50 min | **Panel discussion.**  *This panel will explore how countries are incorporating digitalization signals — such as sector growth forecasts, industrial zoning trends, and technology adoption pathways — into demand-side scenario frameworks. The focus will be on using LTES to prepare the power system for sustained demand growth from digitalization, enabling timely investment in grids, flexibility resources, and supporting infrastructure.*  *Panelist:*   * *Dr. Ricardo Aguiar. Portugal.* * *Seoungho Lee. KEEI.* * *RSE. Italy. (TBC)* |
| 17 min | **Floor interventions/Q&A** |
| 03 min | **Wrap-up of the session** |

1. **Proposed guiding questions**

For countries

* How is your country capturing early digitalization signals (e.g. industrial siting, data centers) in its scenarios, and what impact has this had on investment planning?
* From a modelling perspective, how do you translate sector forecasts and adoption pathways into scenario assumptions that planners can trust?
* What insights has your country developed on how digital loads affect system adequacy and flexibility requirements, and how can scenarios reflect this?
* How is your planning system addressing the governance challenge of integrating high-demand loads like AI hubs without delaying renewable integration?
* In contexts with limited data, what approaches can countries use to anticipate digitalization-driven demand and prepare infrastructure in time?

For WEC

* From a global view, what lessons or frameworks can help governments align digitalization growth with decarbonization and system resilience?

Cross-cutting questions (for all)

* What digitalization trends are most urgent to include in national LTES now?
* What institutional measures (data sharing, inter-ministry coordination, regulation) help ensure that digital demand growth is integrated smoothly into transition planning?