IRENA INNOVATION WEEK 2025

Planning for the future:

Demand-side narratives and scenarios

Organised in partnership with

SEI Stockholm Environment Institute

11 June 2025 | 11:30-15:00

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Join at slido.com
#1053254

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Scene Setting

Planning for the future:
Demand side narratives and scenarios

Nadeem Goussous

Associate Programme Officer / Clean Energy Transition
IRENA

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LTES Network

Current Membership

31 Country Members

15 Technical Partners

Energy modelling tools

Long-term energy scenarios

Long-term energy policy-making

Collaborative engagement

Knowledge-sharing in the LTES Network

Facilitation of dialogue

High-level/Regional level/Technical level and thematic

Regional Engagement

LAC (2021) | Africa (2021/22) | Asia (2023)

High level Engagement

- IRENA Assembly
- Clean Energy Ministerial
- G20
- COP

International LTES Forum

Workshops

- Participatory Processes
- Peer to peer sessions
- Scenario comparisons and benchmarking

Synthesis of Country case studies

Demand-side prioritization

Priority survey results (LTES network)

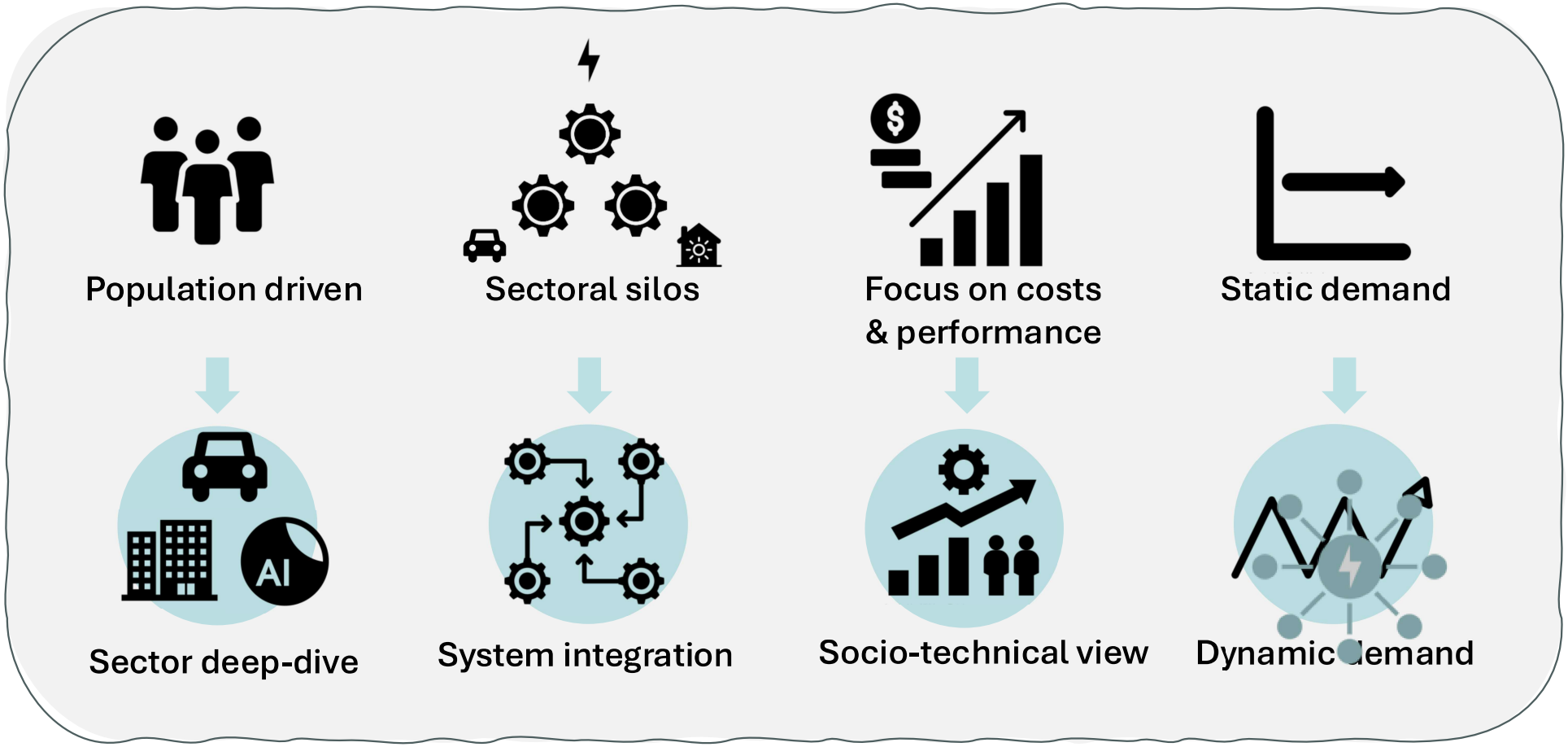
Final ranking	Topic
1	Energy security and geopolitics
2	Demand-side aspects
3	Financial aspects
4	Flexibility and storage
5	Just transition and socio-economic aspects
6	Climate resilience
7	Sector-coupling
8	Emerging technologies

Continued focus on Demand-side aspects

Demand-side narratives in LTES

How have Demand Side narratives changed?

Demand-side narratives in LTES



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Demand-side narratives in LTES

Single linear demand pathway

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Multiple demand scenarios

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Scene Setting

Rethinking demand-side energy planning

Charlie Heaps

LEAP Developer and Senior Scientist
Stockholm Environment Institute (SEI)

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Rethinking demand-side energy planning

Past

Predictable Demand

Slow, stable growth

Predictable patterns (seasonal/diurnal)

New focus on:

- Demand-side energy planning
- Interaction between demand and supplies

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Structure of energy demand changing rapidly

Drivers of Change

- Climate goals and growing populations
- Surge in RE / BEVs / Heat pumps / AI
- Rising and shifting electricity demand

Challenges

- Uncertain AI demand
- Rapid decarbonization pressure
- Urgent need of smart systems

New Paradigm

From "Supply meets variable demand" to

"Demand *adapts to variable* supply"

Energy Storage / Smart energy management

Connecting energy and financial planning

Low–carbon Technology is cost-competitive,
but also capital intensive

The planning gap

Disconnection between finance and system planning– especially on the demand side

Needs quality data

- Better data costs
- Better performance characteristics

Upgraded modelling

- Better methods for estimating technology penetration
- Better methods for estimating phenomena

Coordinated Planning

- Behind-the-meter technologies can reduce investments required in distribution systems, ONLY if planned *carefully*

Difficult challenges in low-income countries

Currently going through..

Rapid energy demand growth in developing countries, especially in Africa


The Economist

Feb 13th 2025

Cheap solar power is sending electrical grids into a death spiral

Pakistan and South Africa provide a warning for other countries

- Energy systems are traditionally used to promote social policies (e.g., cross subsidizing rural households)
- Rising self generation using REs behind the meter: starving grids and utilities of the resources for investment → Difficult to maintain policies

Planning for energy efficiency

Energy supply planning

Energy demand planning

+

Environmental Impacts

Social Goals

Integrated Resource Planning (IRP)

Why IRP is challenging

- Data gaps: credibility / accessibility / proprietary
- Electricity focused planning is dominating
- Tools are complex and data intensive
- Lack of local/subnational expertise lead to difficulties in ministries to play a credible oversight role

What IRP requires

- Detailed end-use and tech-specific data
- Whole energy system approach
- Advanced, integrated planning tools
- Inter-ministerial coordination

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Panel discussion

Moderator

Charlie Heaps

Stockholm Environment Institute

Panelists

Marina Gil Sevilla

Economic Commission for Latin America and the Caribbean

Fiona Lambe

Stockholm Environment Institute

Yichun Gong

State Grid Energy Research Institute (SGERI)

Li Xiang

National Energy Agency, China

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Audience Q&A

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Closing Remarks

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Renewables and Digitalisation for a Sustainable Energy Future

Thank you!

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Coffee Break

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