

# SUSTAINABLE ENERGY WEEK 2024

## BUILDING RESILIENT & JUST ENERGY SYSTEMS

16-20 SEPTEMBER 2024 | PALAIS DES NATIONS | GENEVA



# UNECE

## Creating Favorable Conditions for Just and Effective Transformation of the Electricity Systems

20th session – Group of Experts on Cleaner Electricity  
Systems

Sylvain Clermont, ing. – Vice-Chair



## Context

Electricity plays a crucial role in the transition to cleaner and more sustainable energy sources

By 2050, we project that electricity makes up 41% of total end-use energy consumption up from 17% in 2021



# 2x

Global electricity demand is expected to more than double from 25,000 terawatt-hours (TWh) to between 52,000 and 71,000 TWh by 2050, due to the growth in emerging markets' energy needs and electrification across the economy.

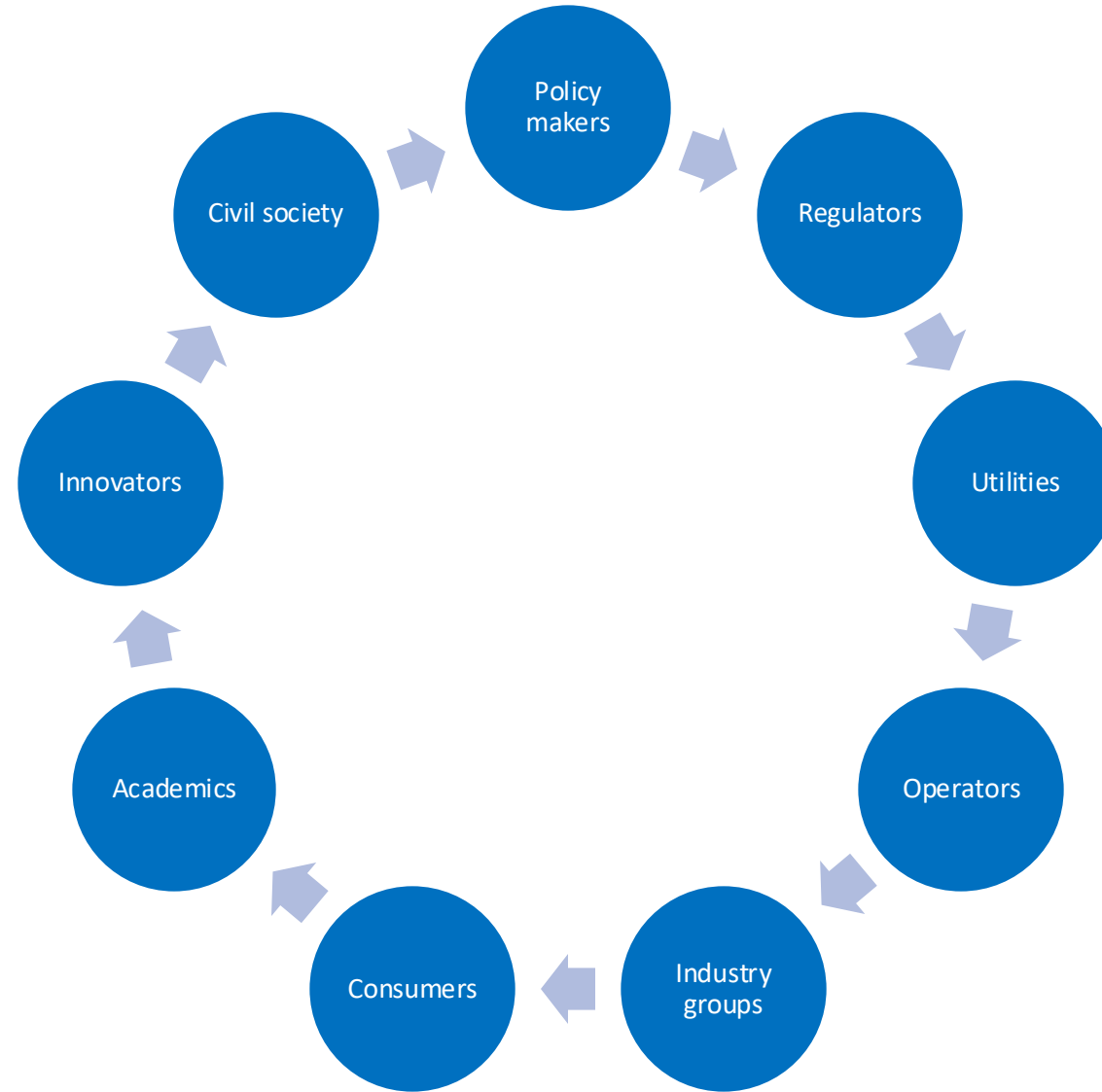
McKinsey

# The Electric Grid is Challenged

- Climate changes (more extreme weather)
- Reliability and resiliency
  - Aging infrastructures
  - Integration of inverter-based resources
  - Insufficient investment
- Energy transition
  - Growing renewable energy sources (Fuel mix change)
  - Policies
  - Electrification
- Digitalization
  - Security (cyber and physical) threats
- Decentralization
  - Changing role of customers
  - Decentralized energy resources

# Stakeholders

## A Growing Ecosystem



# Key Levers

Areas of actions



Policy



Regulation



Financing



Emission Market



Market Design

# Session Goals

- 1 Discuss the challenges associated with the transformation of electricity systems
- 2 Present conditions that would favor the transformation
- 3 Discuss the role of stakeholders, policy, regulations, financing, emission markets and market

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## Thank you!

**Sylvain Clermont, ing.**

Vice-Chair - Group of Experts on Cleaner Electricity Systems

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