# President’s welcome message and report from ETN’s High-Level User Meeting

Pedro Lopez, Uniper/
ETN President

# Key messages from High Level User Meeting 2022

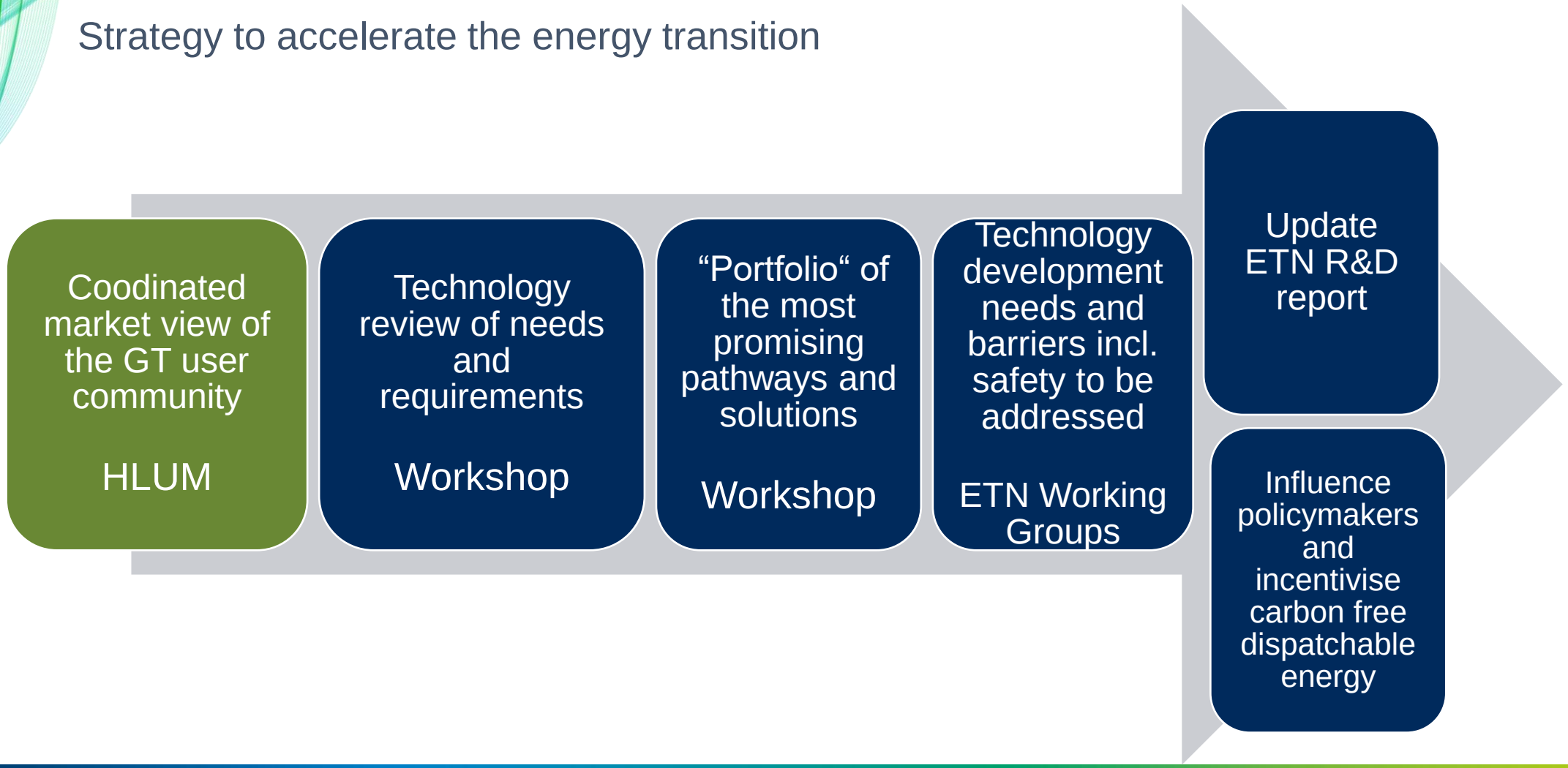
## Efficient, flexible and low carbon pathways towards net-zero solutions

Pedro Lopez, ETN President/ Uniper

# ETN's Roadmap 2022

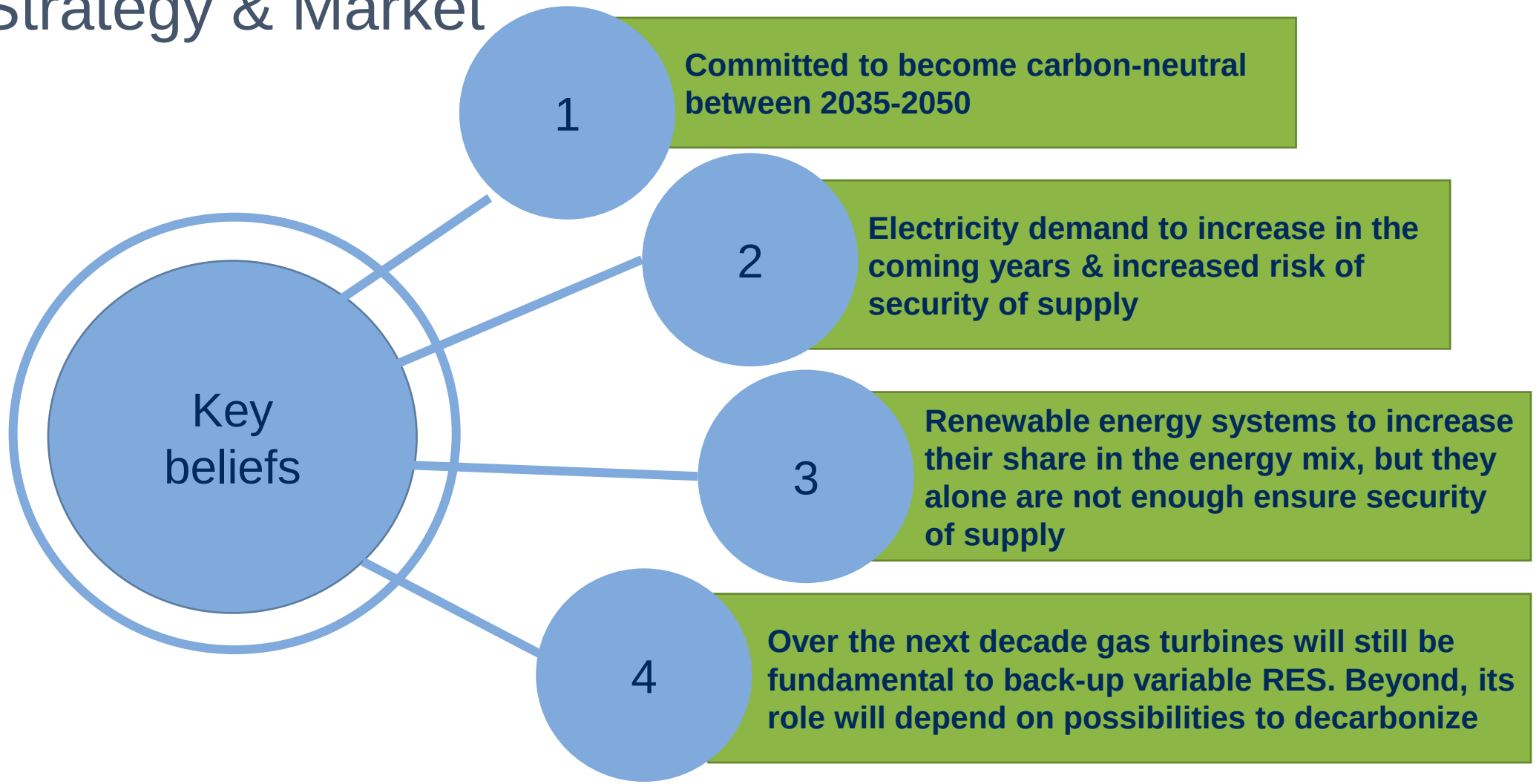
## "Efficient, flexible and low carbon pathways towards net-zero solutions"

Strategy to accelerate the energy transition



# Utilities – input from HLUM

## Strategy & Market



# Oil & gas – input from HLUM

## Strategy & key beliefs

1. Committed to reduce significantly GHG emissions by 2030 and to net-zero by 2050.
2. Transforming into energy companies providing primary and low carbon fuels and electricity generated by RES (e.g. wind farms, floating wind turbines, solar PV).
3. Supply of natural gas is essential to manage the energy transition but needs to be sustainably decarbonized.
4. Decarbonization of gas fired electricity generating assets and thermal generation in general, is needed to achieve emission targets.

# Utilities – input from HLUM

## Pathways & technical development needs


1

**Energy efficiency solutions:**

- Increased cycle efficiency to reduce costs and emissions (merit order).
- Part-load efficiency and ramp rate improvements. Plants should be able to run on low loads with fast power ramp-rates to compensate intermittency.

2

**Fuel flexibility solutions & Safety standards:**

- Increased fuel flexibility to allow fast shift to low-carbon/carbon-free fuels and mixes (hydrogen, ammonia, biogas). Safety standards for

3

**CCS solutions:**

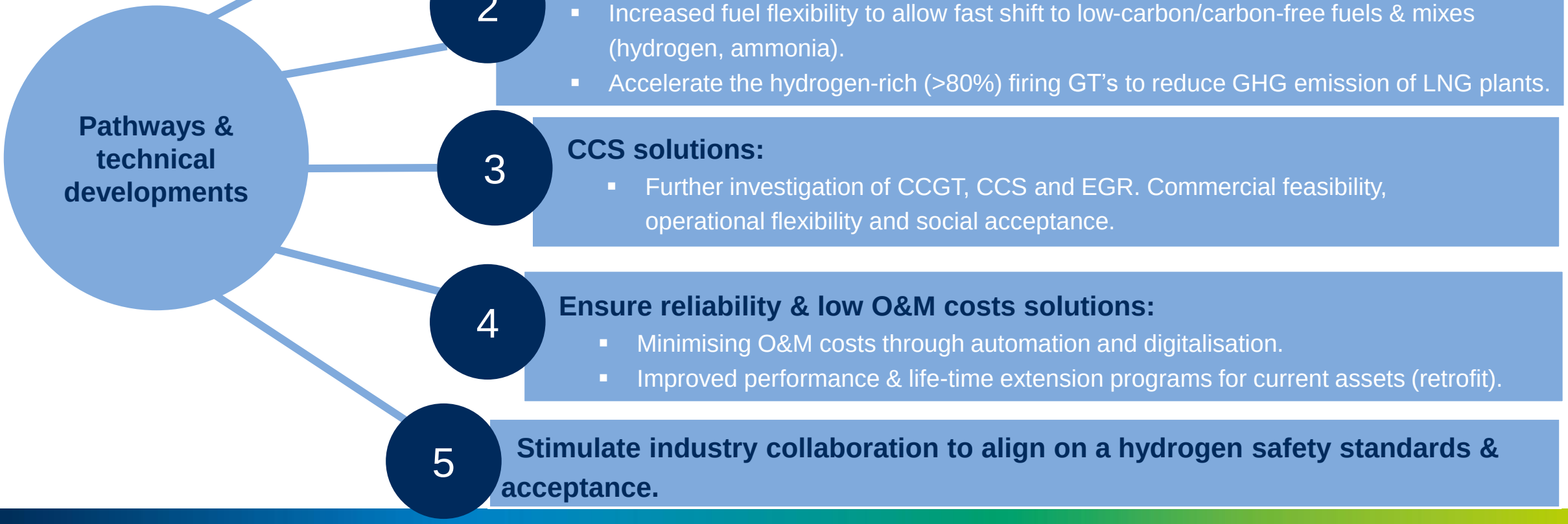
- Further technology maturity for CCGT + CCS. Commercial feasibility, operational flexibility (peak vs base) and social acceptance.

4

**Ensure reliability & low O&M costs solutions:**

- Minimising O&M costs through automation and digitalisation.
- Improved performance & life-time extension programs for current assets (retrofit).

# Oil & gas – input from HLUM



# Common identified technology development requirements for 2030

1. Provide short-term engine specific retrofit solutions to enable a safe, flexible and reliable operation with fuels that contain **up to 30% hydrogen**. Launch a gas turbine specific upgrade package to operate with **up to 100% $H_2$** before 2030 without significant increase in the NOx emissions and maintaining the plant's performance.

2. Develop **GT specific CCS solutions** and other **integrated energy system solutions** (storage, waste recovery, and other hybrid solutions)

3. Develop **gas turbine specific upgrade packages enabling part-load efficiency and ramp rate improvements**

4. Provide **lifetime extension programmes** for plant specific gas turbines for cycle behaviour and alternative fuels guaranteeing safe operation and optimised performance. It will involve **life-time assessment of critical components** including advanced component repair to reduce material resources and costs of ownership.

5. **Optimise power plant operation and maintenance through better use of digitisation and analytics**. Combine analytics with engineering knowledge to reduce the operational costs and increase of plant's overall performance.

# Final remarks