

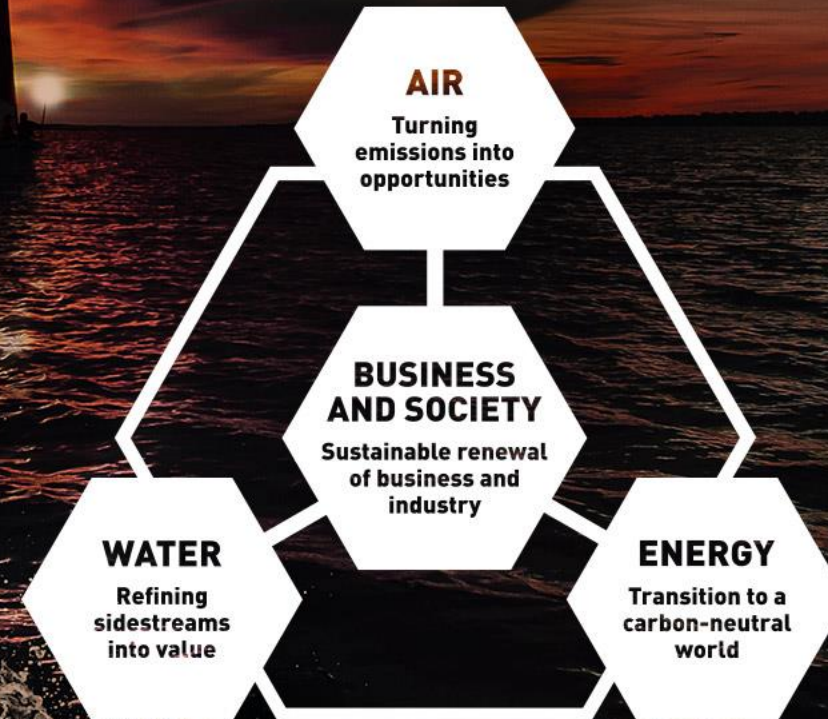
# Joint Action to Improve Security, Economic Vitality and Societal Resilience in the EU

Brussels, 20.6.2023

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## SYSTEM EARTH





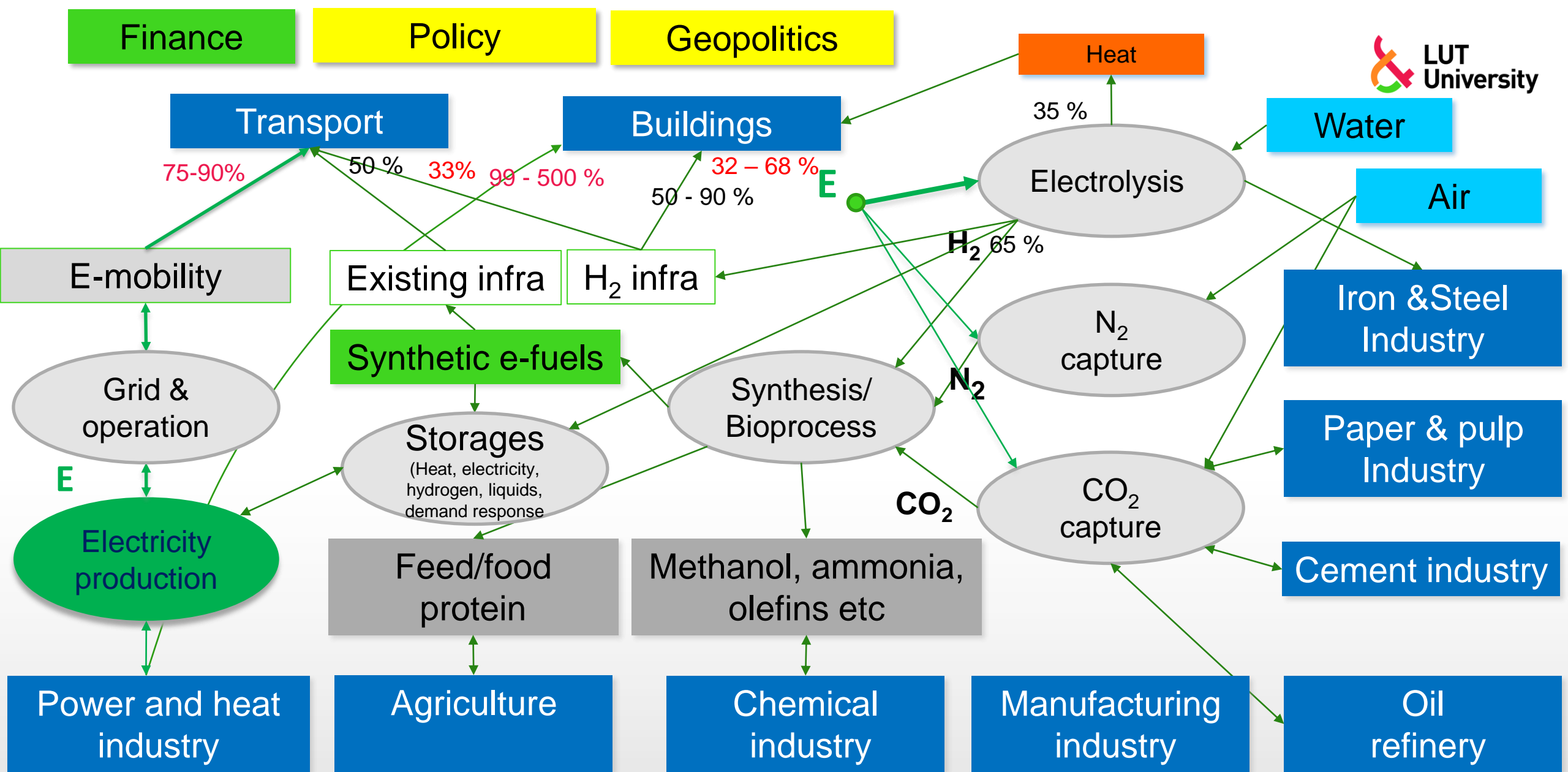
 LUT-university

# WORLD'S 9<sup>TH</sup>

University – SDG 13.

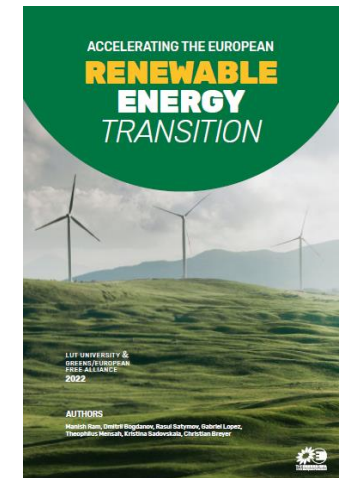
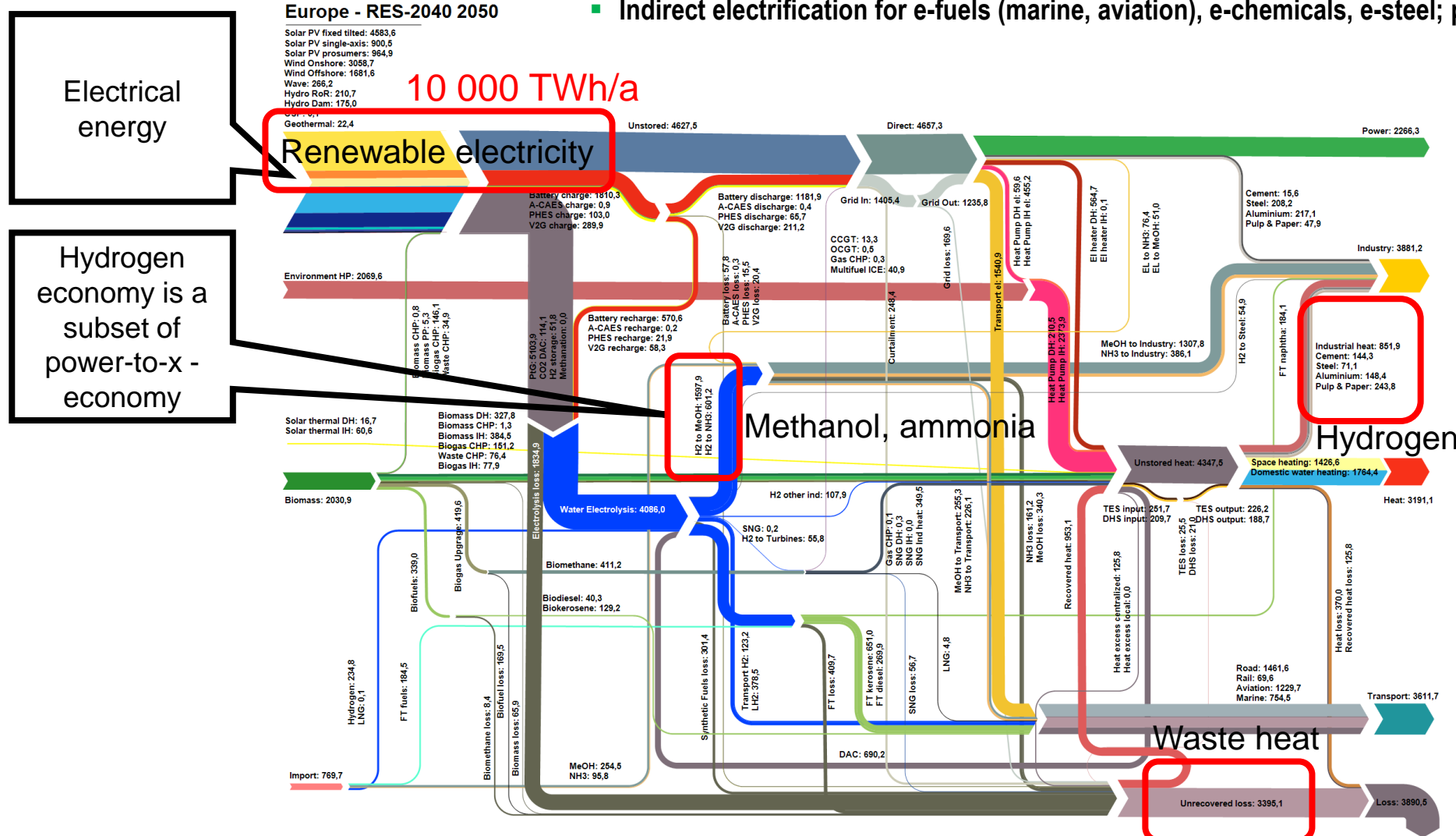
Times Higher Education Impact Rankings 2022






# Energy system transition in Europe

- Zero CO<sub>2</sub> emission low-cost energy system is based on electricity
- Core characteristic of energy in future: Power-to-X Economy
  - Primary energy supply from renewable electricity: mainly solar PV and wind power
  - Direct electrification wherever possible: electric vehicles, heat pumps, desalination, etc.
  - Indirect electrification for e-fuels (marine, aviation), e-chemicals, e-steel; power-to-hydrogen-to-X




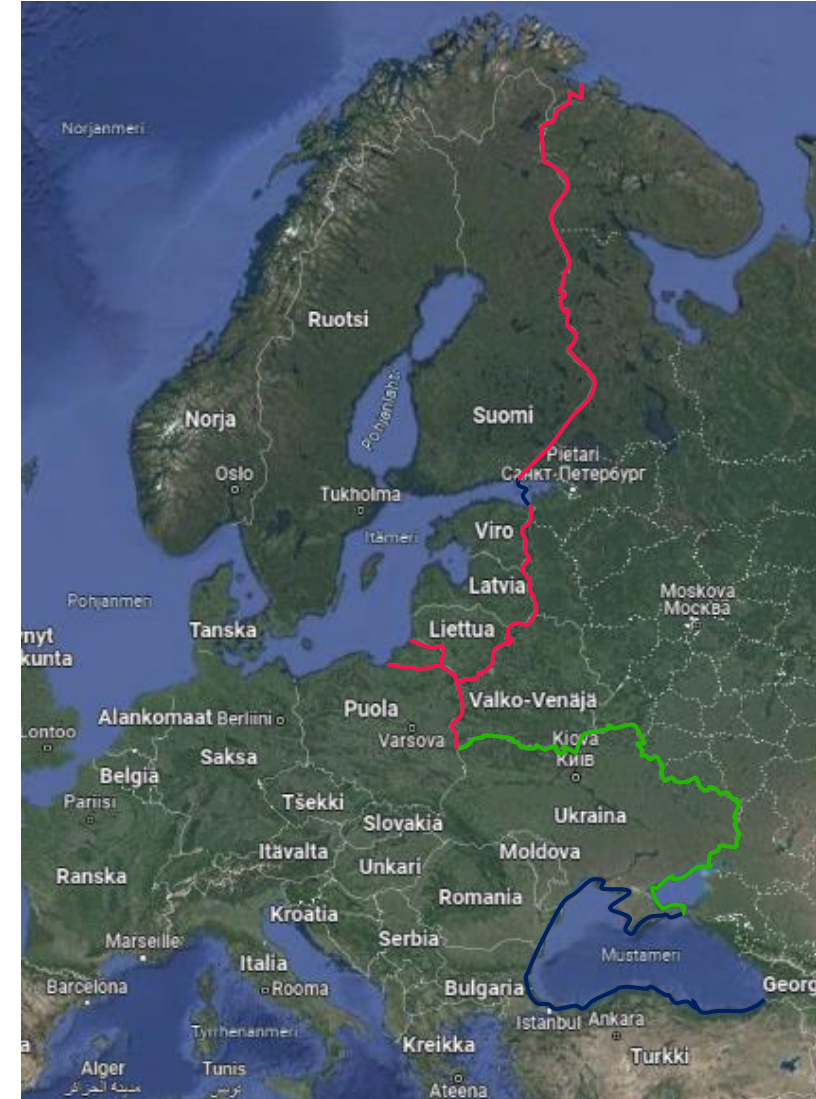
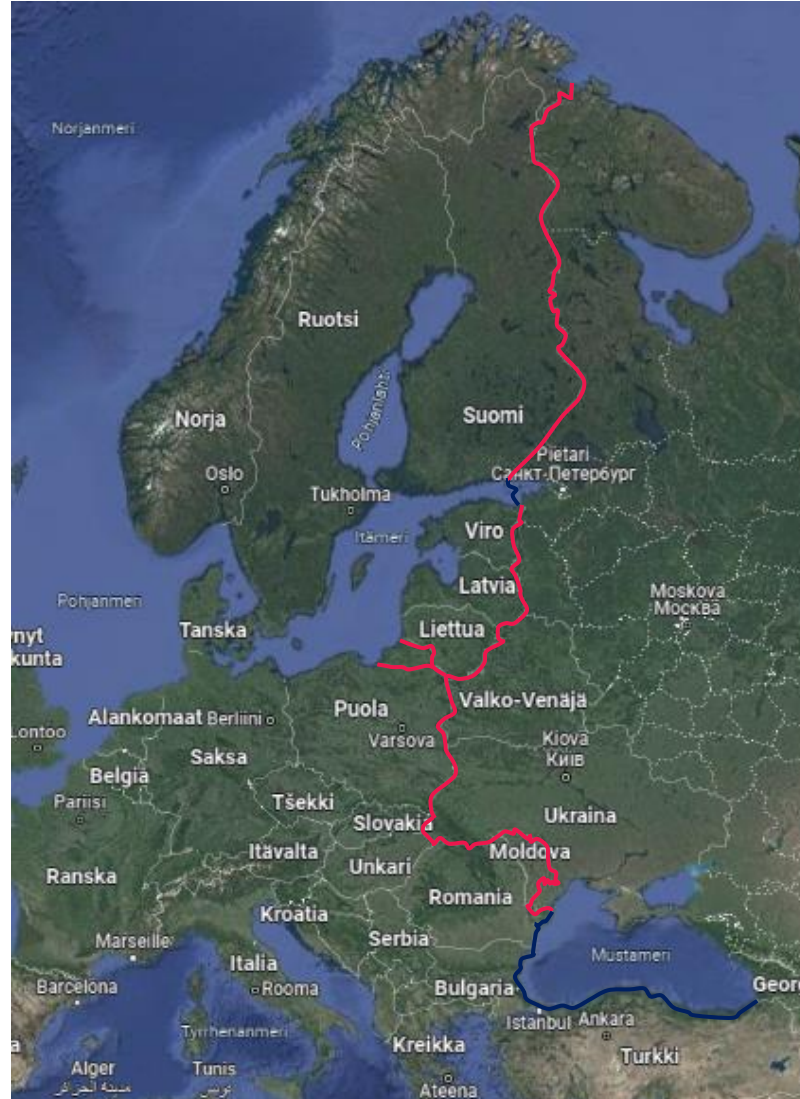
Greens/EFA, 2022

 Brussels, 20.6.2023

# **Joint Action to Improve Security, Economic Vitality and Societal Resilience in the EU**

# EU – RUSSIAN BORDER

 Scenarios



# GREEN TRANSITION AND AREAS BY THE RUSSIAN BORDER

- » Demand of electricity will three- to four-fold (3-4) in average in EU, when fossil oil and gas are replaced
- » Electricity will be produced mainly by wind and solar energy. Wind power is needed to supply electricity especially during winter times.
- » Distributed electricity production improves the resilience of the power system and societies
- » Electricity to produce hydrogen (H<sub>2</sub>) and its derivatives (P2X products) will become vitally important to Europe
- » The production of hydrogen and P2X products shall be produced near to production of electricity due to huge volumes of electricity
- » Proximity of the Russian border and assumed insecurity is blocking investments in areas by the border (like radar and surveillance reasons)
- » As a result border areas are impoverishing and industries relocate to areas where there is access to cheap electricity

# ISSUE



## How to

- meet the security requirements,
- enable electricity production investments in all areas of Europe and
- improve resilience of the societies?



# PROPOSAL

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- » Investigate the war time surveillance, radar and defence requirements at Ukraine (EU & NATO)
- » Study alternative technologies for peace and war time surveillance, radar and defence solutions (research and suppliers)
- » Define the defence and surveillance system for the border areas (NATO/National defence forces)
- » Define new grid architecture to improve resilience for distributed energy system
- » Build test country (Finland?)
- » Expand the set-up to Ukraine
  - » Distributed energy production
  - » Grid architecture

**New approach by joint European forces from EU, NATO, Research (Universities) and suppliers**

# Thank you!

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