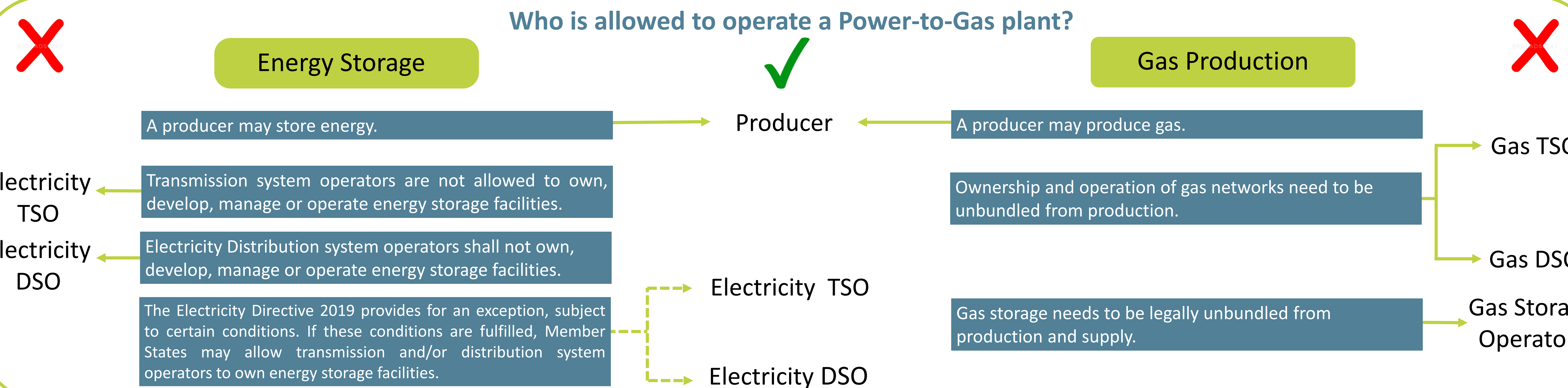
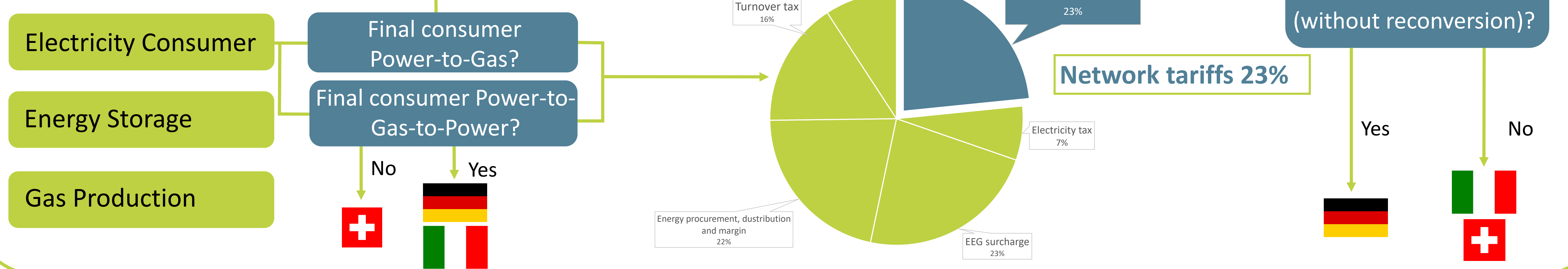


# European Legislative and Regulatory Framework on Power-to-Gas

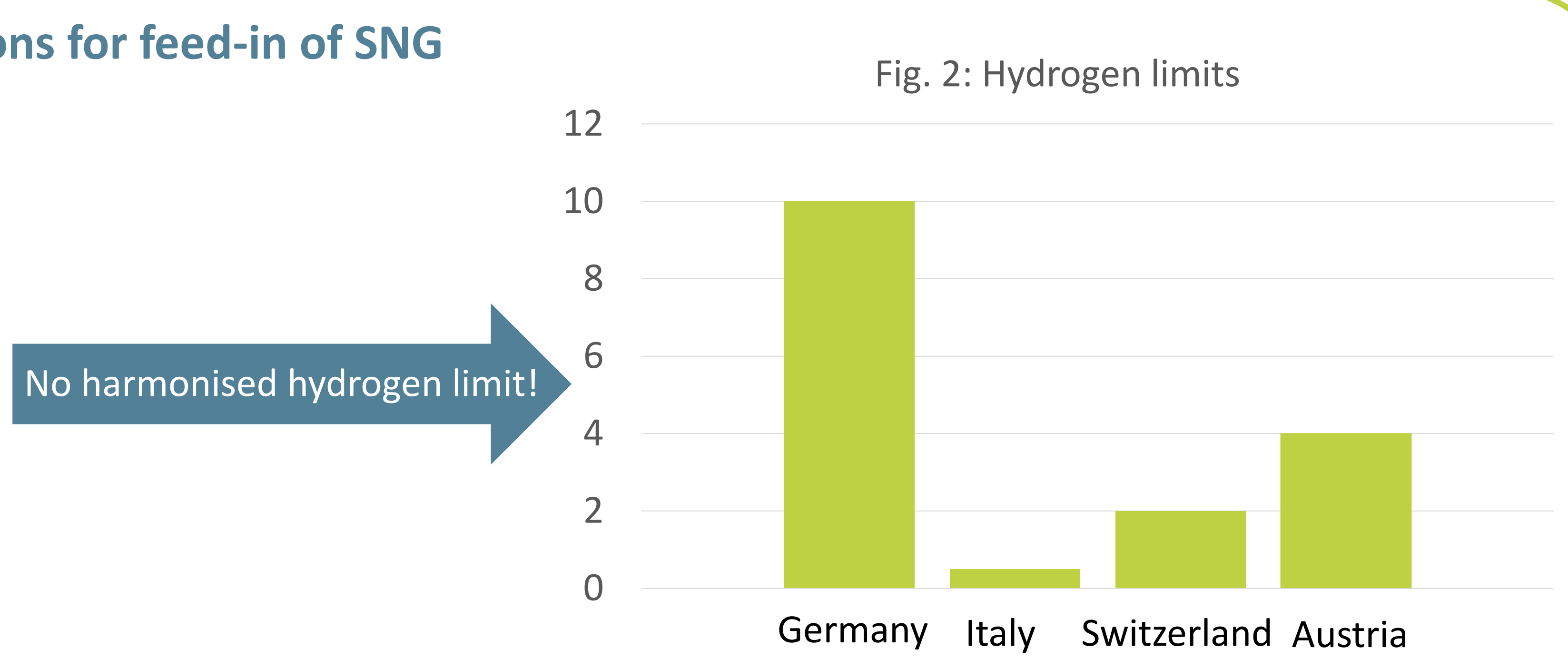
Argjenta Veseli

Power-to-Gas provides a number of system services. However, so far, there is no regulatory framework that addresses the environmental impact of Power-to-X products. Green PtX products are more expensive to produce than fossil fuels and have to compete with fossil fuels in the same market despite this. In order to achieve a (pareto)-optimal market situation in the event of market distortion the economic theory requires regulation. Since consumers can't distinguish between fossil fuels and PtX products, measures in the area of market and regulation are necessary to enhance the competitiveness of PtX products in the market, because if consumers don't want to pay for Power-to-X products there will never be a substantial Power-to-X industry.

## Legal classification of Power-to-Gas



- ## Conditions for feed-in of SNG
- Power-to-Gas is not explicitly mentioned in the 2009 Gas Directive and therefore it is not clear whether SNG can be fed in or not!
  - 2009 Gas Directive refers to natural gas.
  - However, biogas and gas from biomass or other types of gas are granted non-discriminatory access to the gas system.
  - It is allowed to differentiate between classes of system users based on objective criteria such as gas quality standards (technical safety criteria).
  - If the gas quality standards are complied with, feed-in of SNG is permitted.
  - No harmonised gas quality standards at the European level.
  - Member states have adopted their own gas quality standards.
  - Heterogeneous gas quality standards may hinder cross-border trade, and the access to the grid of gases from renewable sources.



- ## Renewable Energy in the transport sector
- Renewable energy within the final consumption of energy in the transport sector should be at least 14 % by 2030.
  - Share of **renewable electricity** shall be considered to be **four times its energy content** when supplied to **road vehicles**.
  - Where **electricity** is used for the **production of renewable liquid and gaseous transport fuels of non-biological origin**,
    - the **average share of electricity from renewable sources** shall be used to determine the share of renewable energy.
    - it **may fully be counted as renewable electricity** when obtained from direct connection to an installation.
    - it **may be counted as fully renewable** when taken from the grid provided that it is exclusively produced from renewable sources (and the renewable properties have been demonstrated).

- ## Support schemes
- ### Guarantees of Origin
- Guarantee of origin means an electronic document which has the sole function of **providing evidence to a final customer** that a given share or quantity of **energy was produced from renewable sources**.
  - The establishment of a system of guarantees of origin on a national basis is necessary, in particular in accordance with rules at EU level to **facilitate (cross-border) trade in gases from renewable sources**.
  - According to Renewable Energy Directive 2018 Member States shall ensure that **the origin of energy from renewable sources (amongst others renewable gas, including hydrogen) can be guaranteed**.

References  
Fig. 1: <https://www.bmwi.de/Redaktion/EN/Infografiken/strompreise.html>  
Fig. 2: Energieinstitut an der JKU Linz

Acknowledgement  
The support of this work under the Horizon 2020 research project "STOREandGO" on behalf of the European Union (contract # 691797) and by the association Energy Institute at the Johannes Kepler University is gratefully acknowledged.  
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