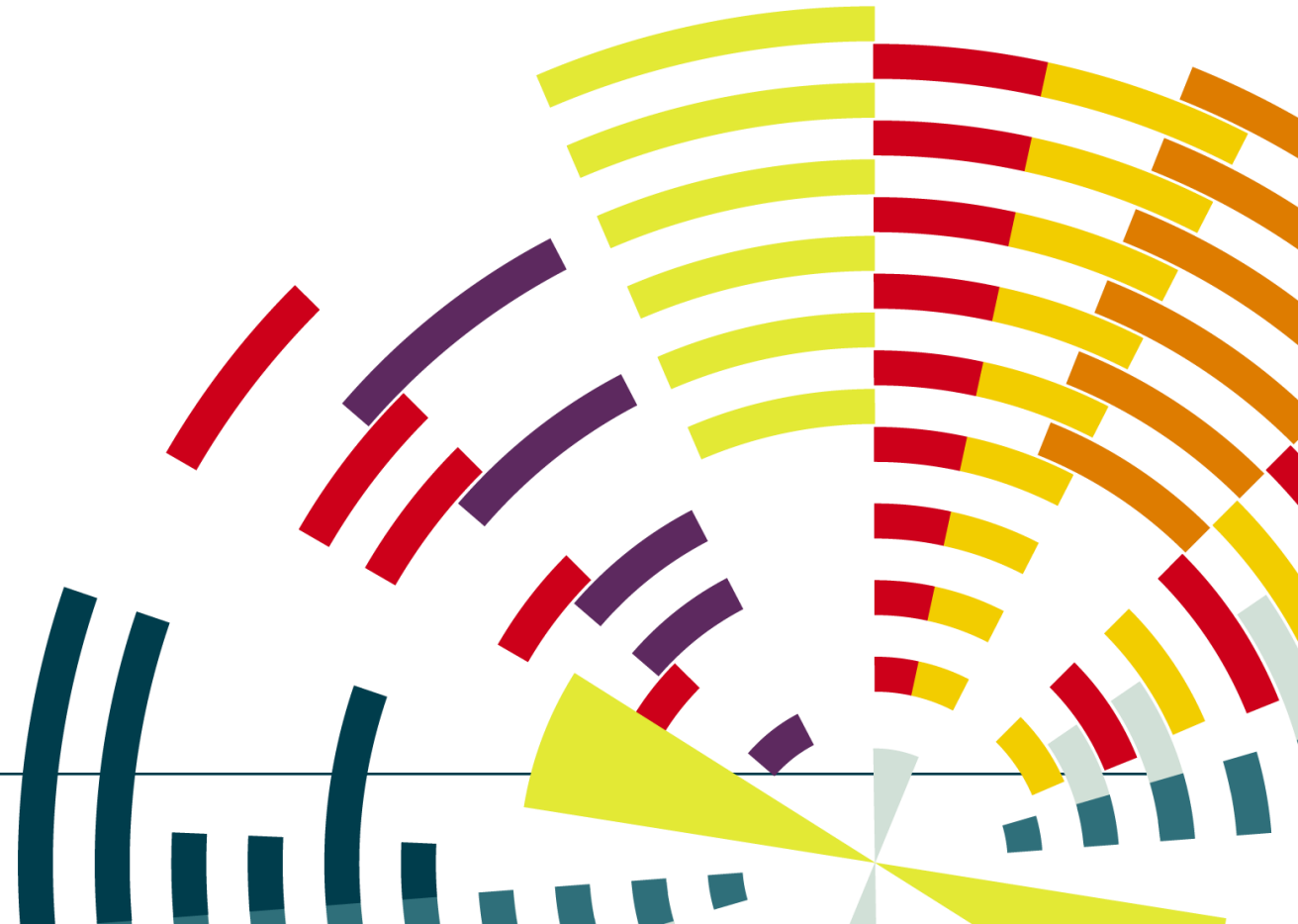


The value of hydrogen in the heating market

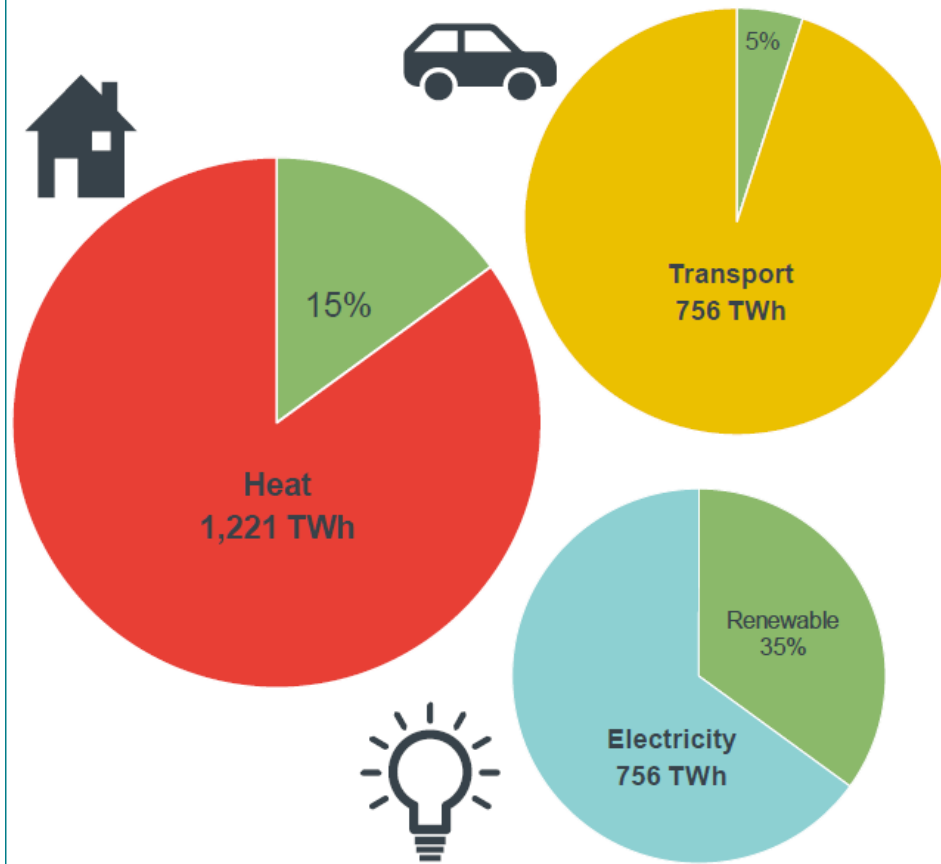
B2B Forum – H2 Flagship Expo Brussels

26 October 2022

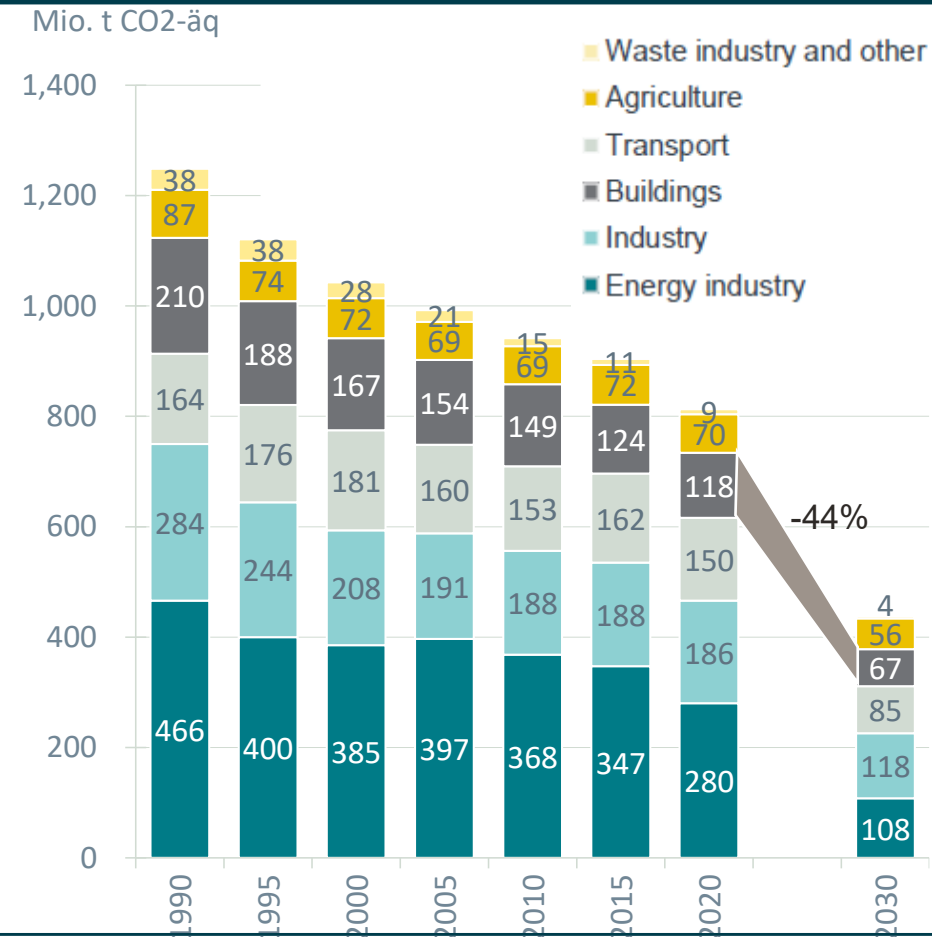


THE HEATING SECTOR IS ONE OF THE MAJOR FIELDS OF ACTION ON THE JOURNEY TO A DEFOSSILIZED SOCIETY

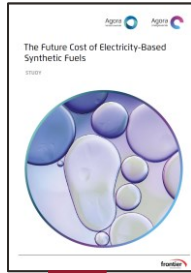
Heating applications make nearly half the energy demand in Germany ...



... emission reduction plan envisages savings over next 10 years similar to what has been achieved in last 30 years!

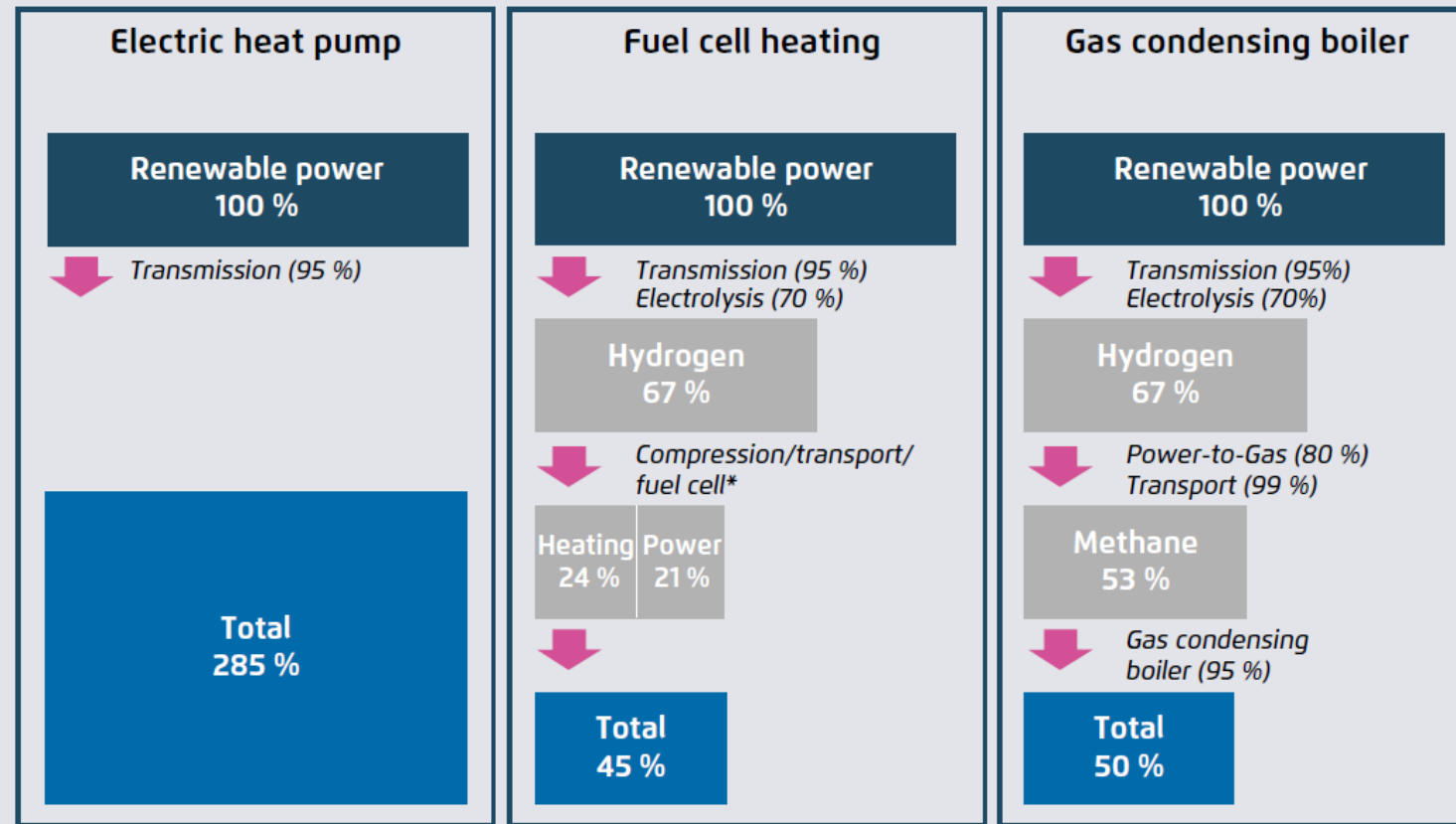


PHYSICAL CONVERSION LOSSES ARE OFTEN SEEN AS A SHOWSTOPPER FOR HYDROGEN IN HEATING APPLICATIONS ...

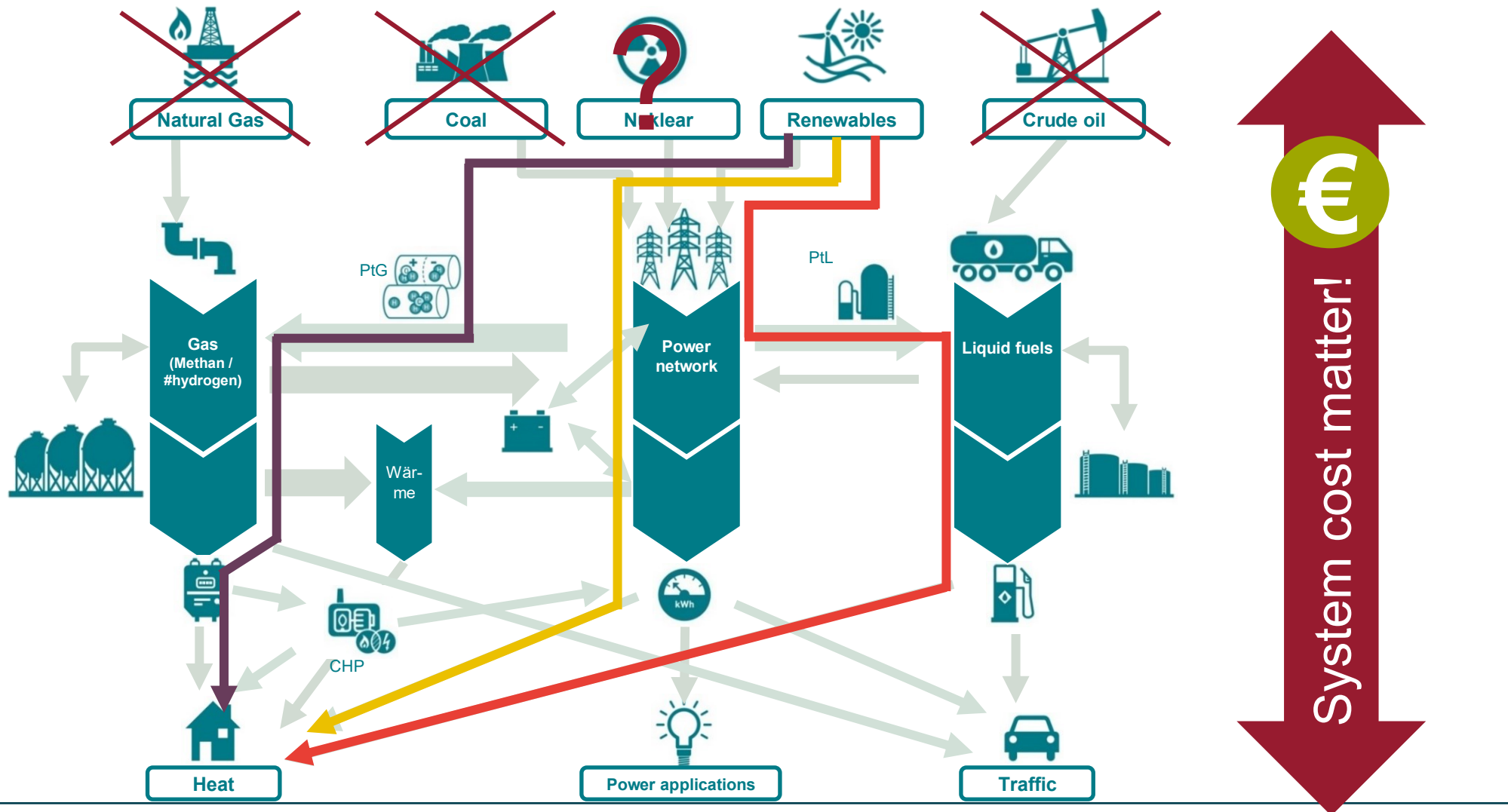


Individual and overall efficiencies for different heating systems, starting from renewable electricity

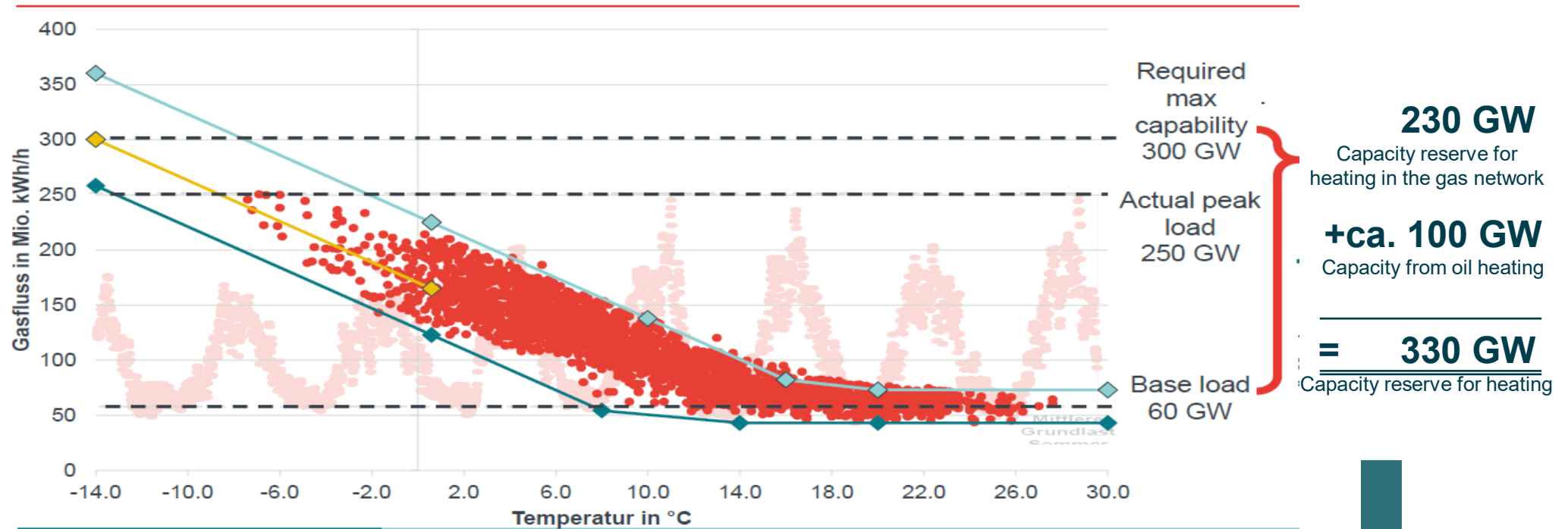
Figure 3



... BUT FROM AN ECONOMIC PERSPECTIVE ONLY SYSTEM COSTS MATTER!

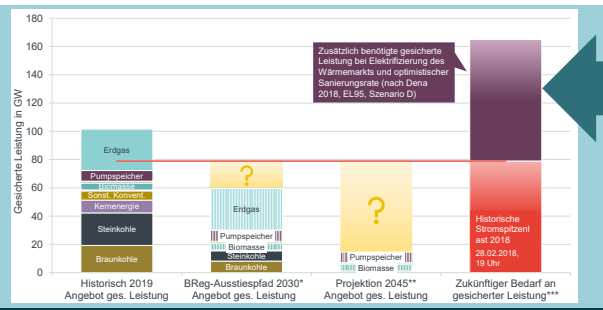


RELIABLE CAPACITY IS THE KEY CHALLENGE IN THE HEATING SECTOR (EXAMPLE GERMANY)



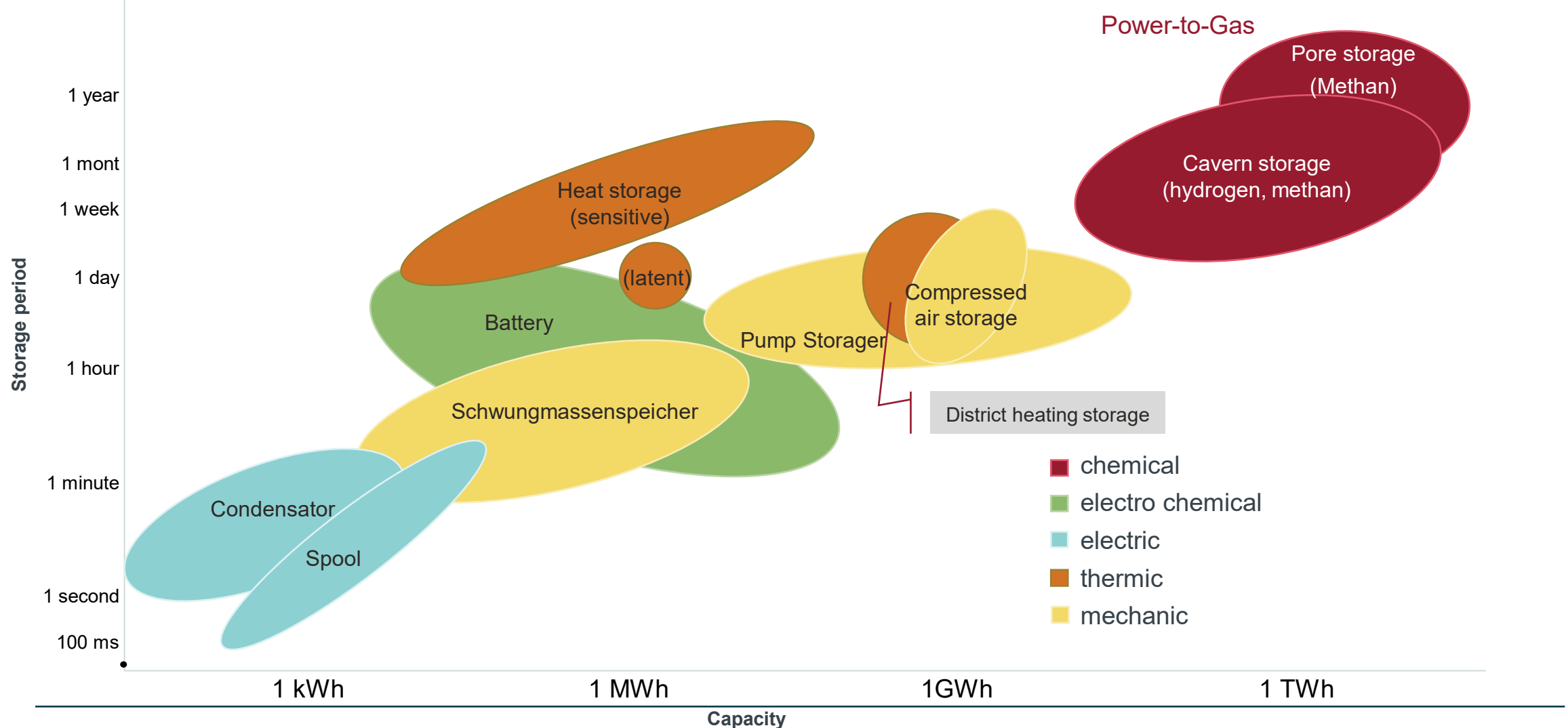
Would it be an option to run electrification completely over heat pumps?

Current peak load in the power network:
80GW
Secured power for the future?

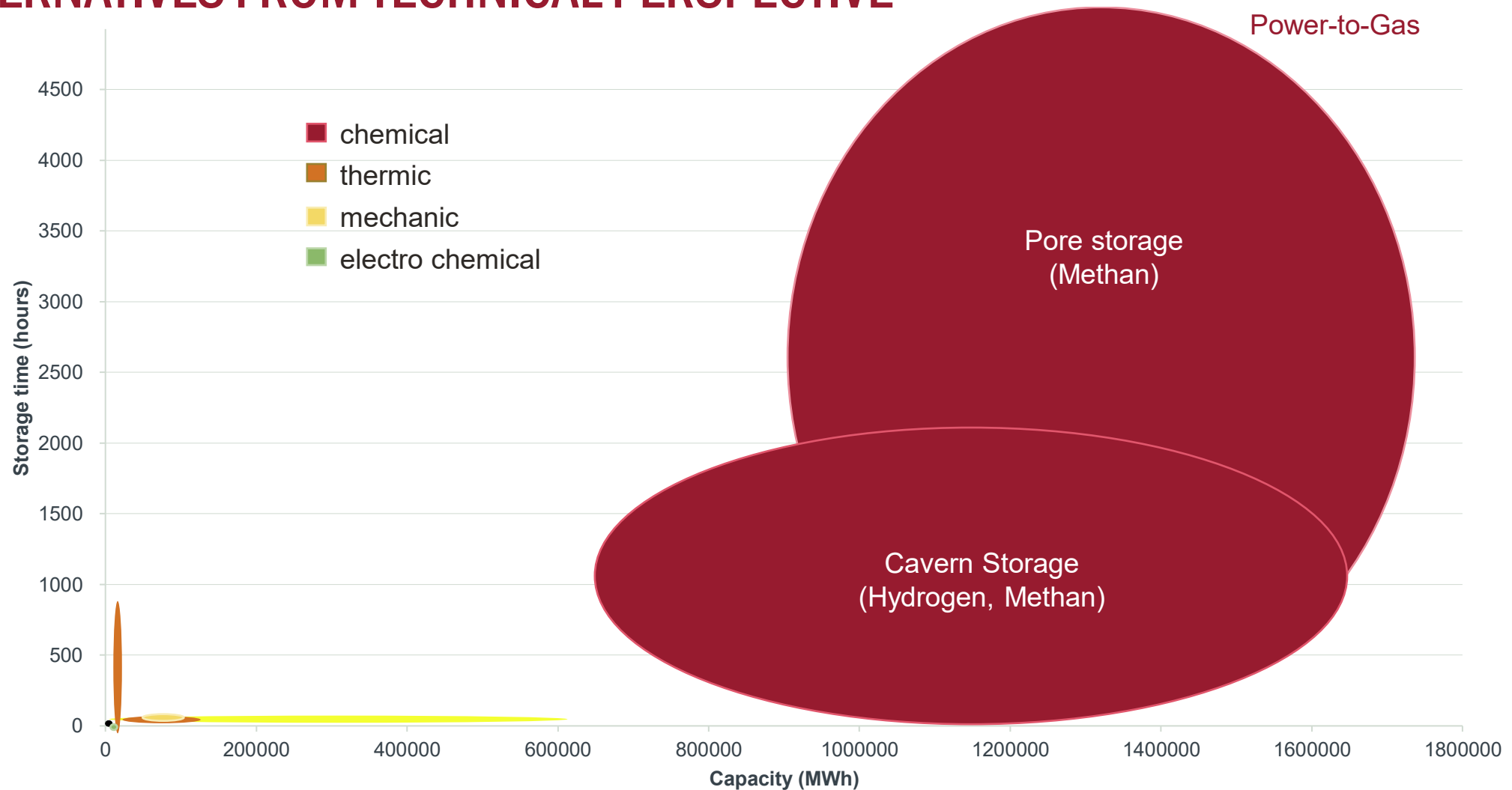


86-124 GW
additional capacity requirement for electrification

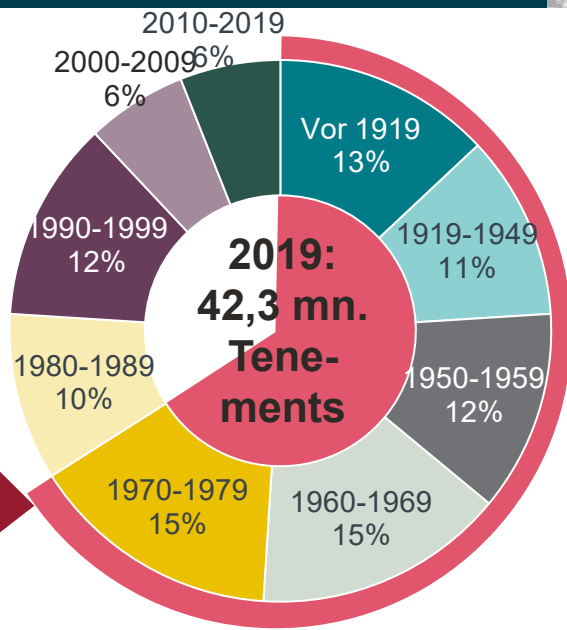
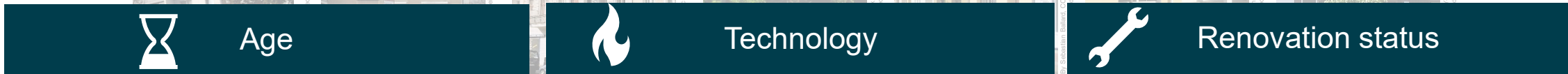
MOLECULES AS ENERGY CARRIERS FOR SEASONAL DEMAND COVERAGE WITHOUT ALTERNATIVES FROM TECHNICAL PERSPECTIVE



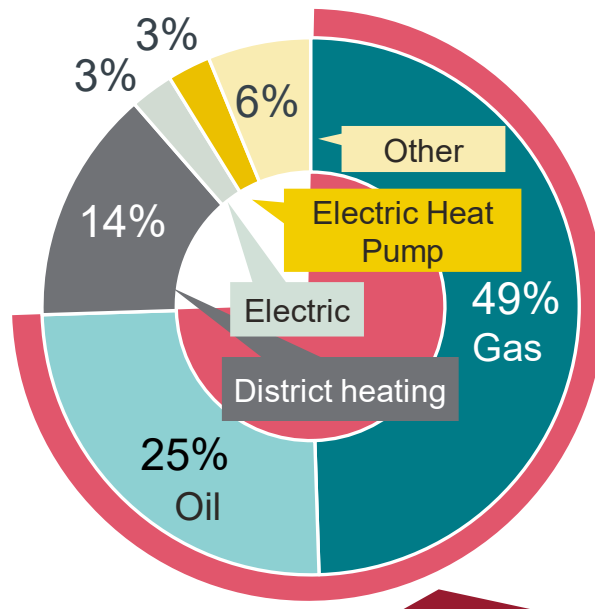
MOLECULES AS ENERGY CARRIERS FOR SEASONAL DEMAND COVERAGE WITHOUT ALTERNATIVES FROM TECHNICAL PERSPECTIVE



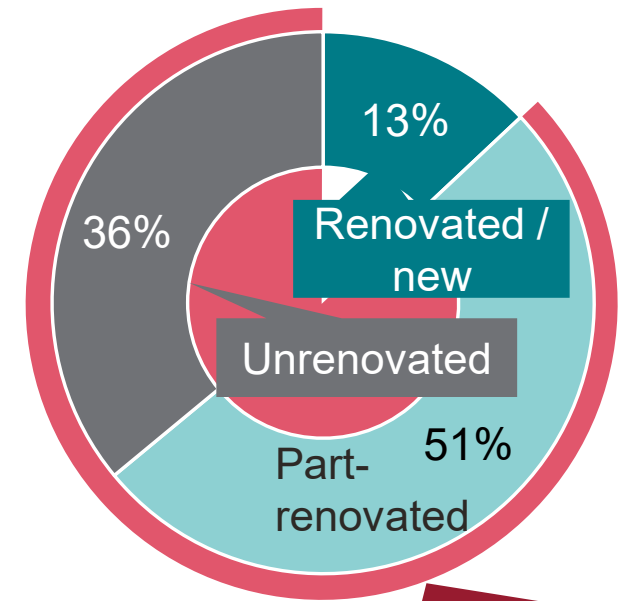
HETEROGENEITY OF EXISTING BUILDINGS REQUIRES A BROAD TECHNOLOGY MIX, THERE IS NO ONE-FITS-ALL SOLUTION



2/3 of homes built before (1st heating efficiency regulation of 1977)

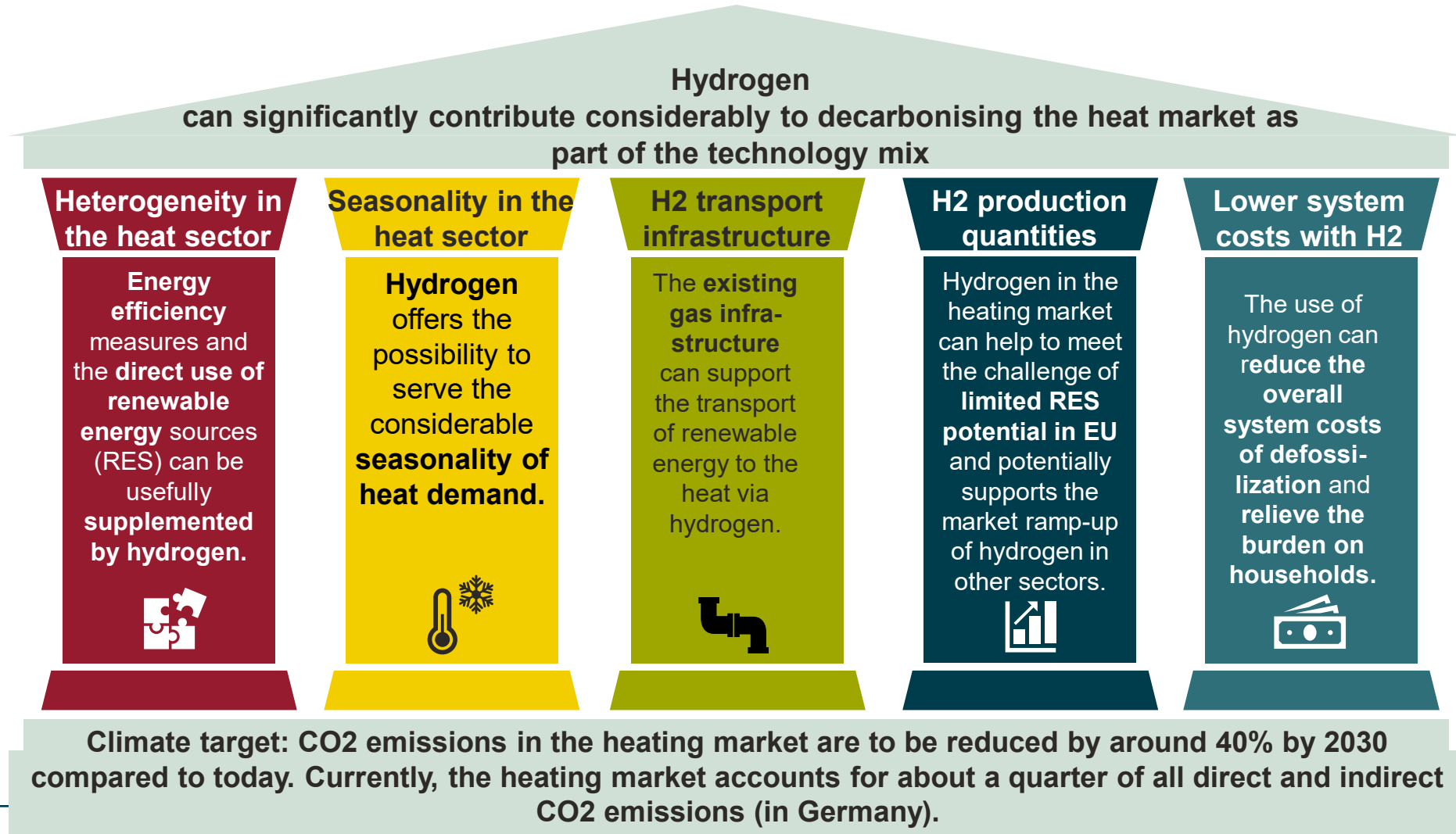


3/4 of homes heated with oil/gas



Only 1 in 8 buildings new or fully renovated

HYDROGEN CAN CONTRIBUTE TO THE DEFOSSILIZATION OF THE HEATING MARKET AND SHOULD BE PART OF THE TECHNOLOGY MIX!





Dr. David Bothe



+49 221 337 13 106



+49 176 641 00 11 3

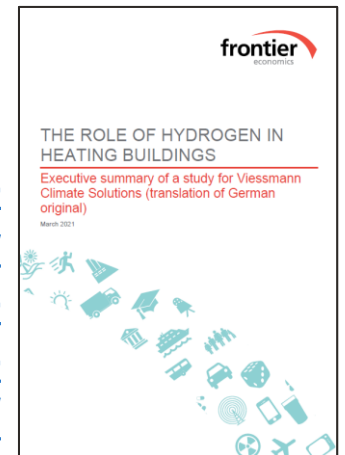
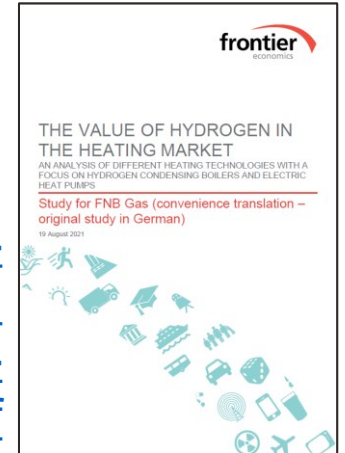


david.bothe@frontier-economics.com

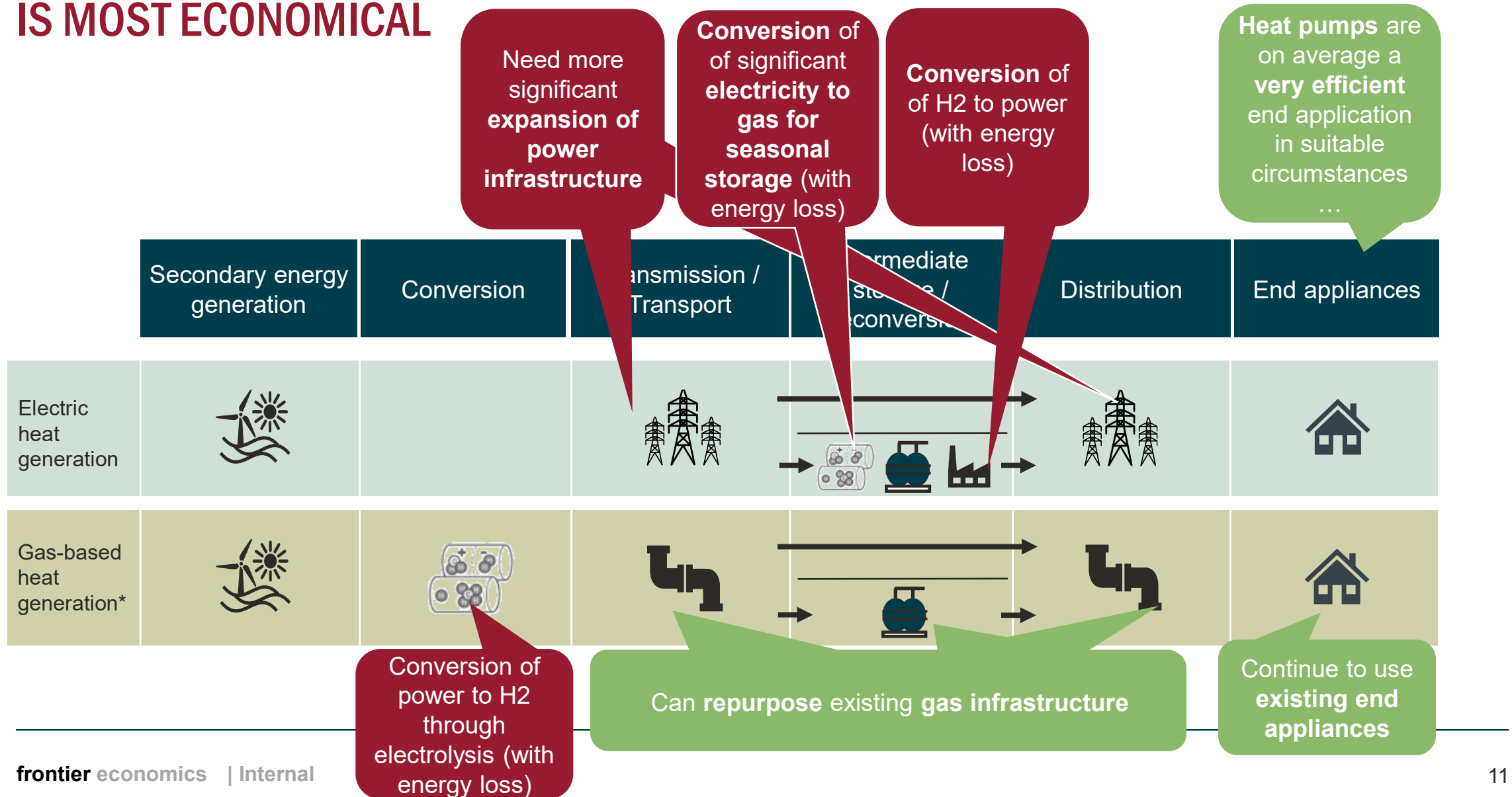
Frontier Economics Ltd is a member of the Frontier Economics network, which consists of two separate companies based in Europe (Frontier Economics Ltd) and Australia (Frontier Economics Pty Ltd). Both companies are independently owned, and legal commitments entered into by one company do not impose any obligations on the other company in the network. All views expressed in this document are the views of Frontier Economics Ltd.

<https://www.frontier-economics.com/media/4835/the-value-of-hydrogen-in-the-heating-market.pdf>

<https://www.frontier-economics.com/uk/en/news-and-articles/news/news-article-i8293-hydrogen-in-the-heat-market/>



A COMBINATION OF ELECTRICITY AND GAS (OR LIQUID) BASED HEAT SUPPLY IS MOST ECONOMICAL



*Other potential routes of low carbon gas based heat supply include H2 from natural gas („blue hydrogen) and use of green H2 in district heating