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THE FUTURE OF GAS IN THE (GERMAN) ENERGY TRANSITION

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Five facts on the future of gas in the energy transition

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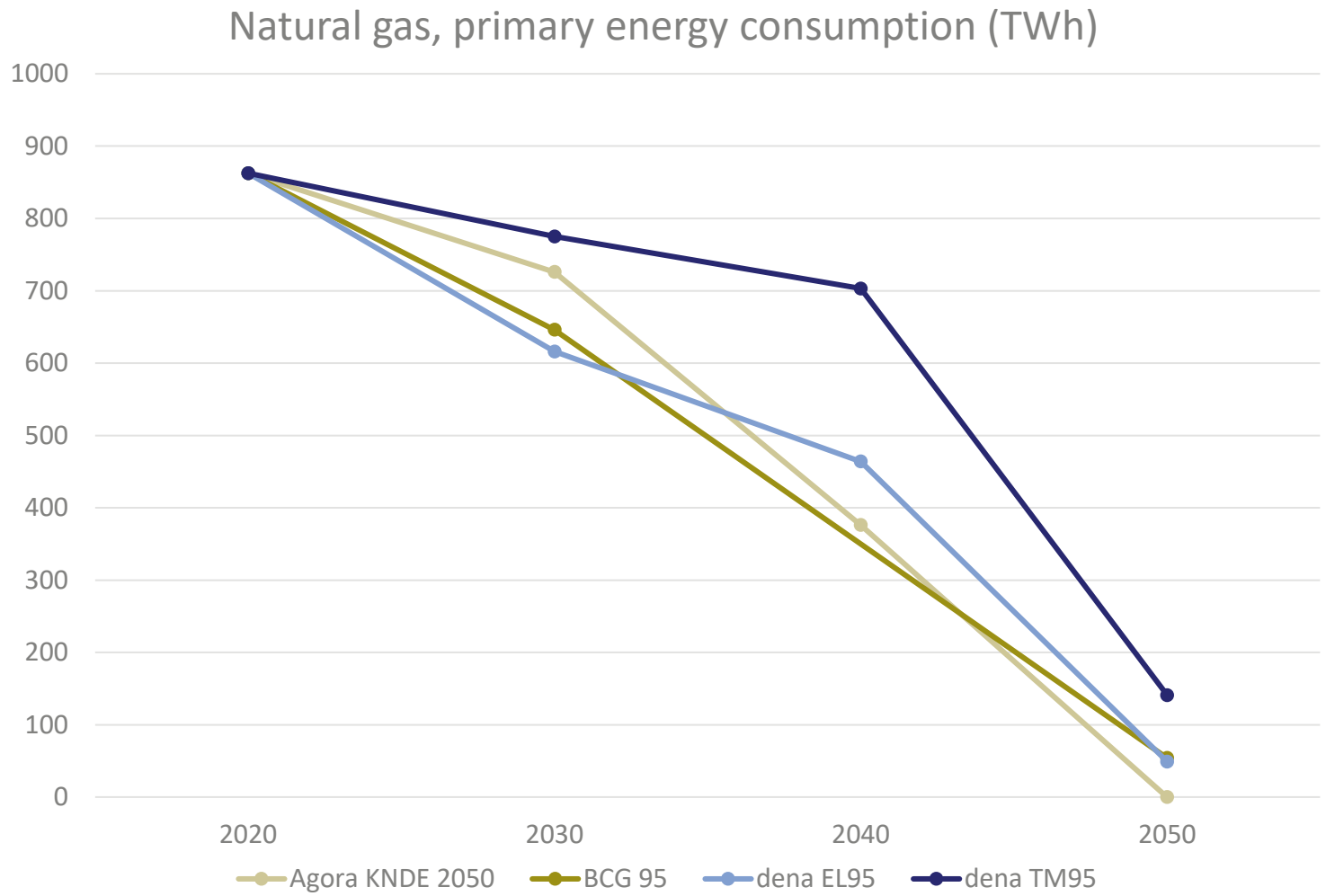
> The discussion on the role that natural gas and other gases will play on the way to climate neutrality is ongoing, with sometimes strongly opposing claims facing each other.

> This publication proposes five facts on the future of gas in order to contribute to the ongoing discussion. All statements are based on scientific scenarios on climate neutrality, official government documents and up-to-date data. Country-specific data (in all facts except #4) is for Germany, but similar developments can be expected in other countries.

We propose the following facts:

1. To reach climate targets, the consumption of natural gas needs to decline considerably.
2. Gas consumption levels projected by the German gas industry for its infrastructure planning are too high.
3. The future role of hydrogen will be different to, and much smaller than, the role of natural gas today.
4. The future potential of hydrogen depends on a massive expansion of renewable energy capacity.
5. Gas consumption in the heating sector is considerably declining, in particular between now and 2030 already.

To reach climate targets, the consumption of natural gas needs to decline considerably

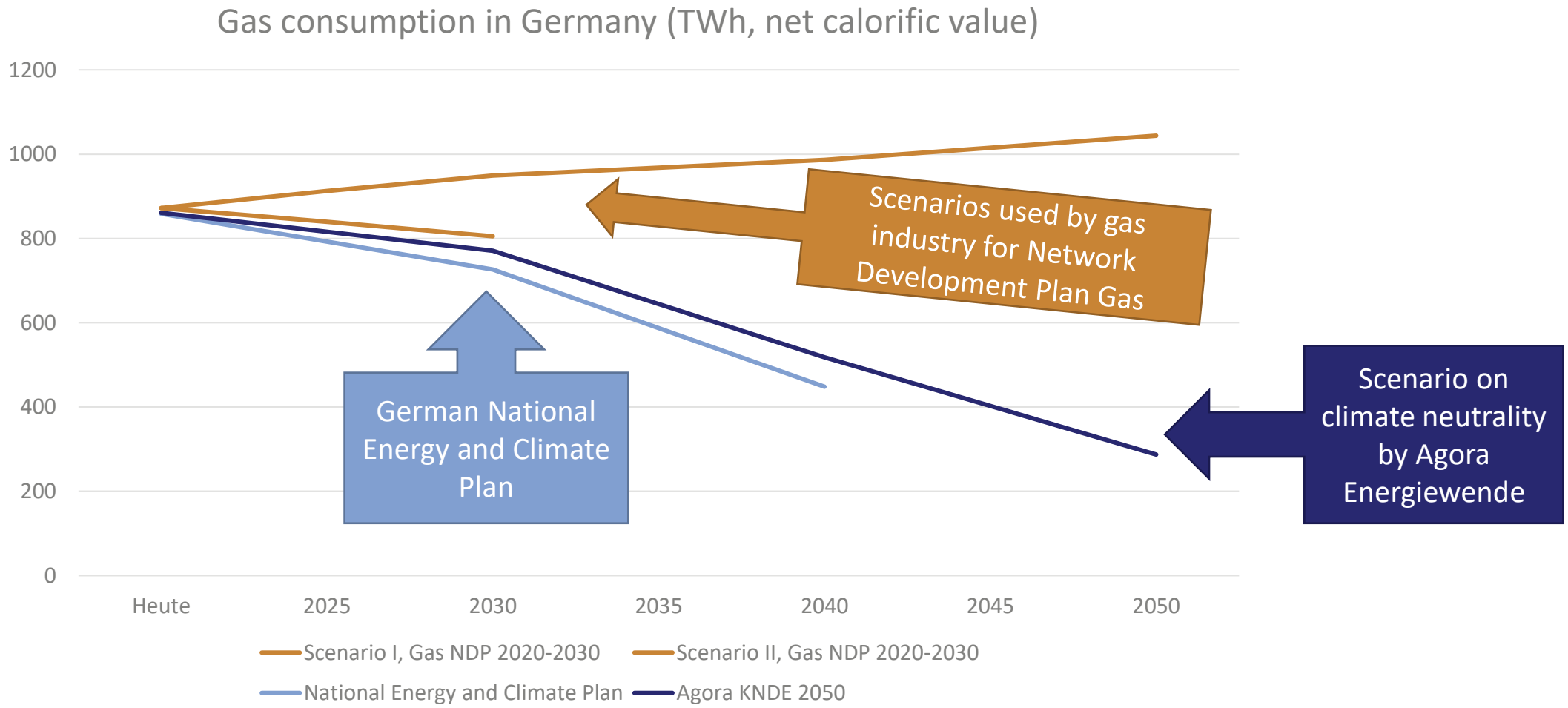


This trend is confirmed unambiguously by different scenarios for reaching climate neutrality by 2050.

Noteworthy: total consumption levels need to decline substantially in the 2020s already.

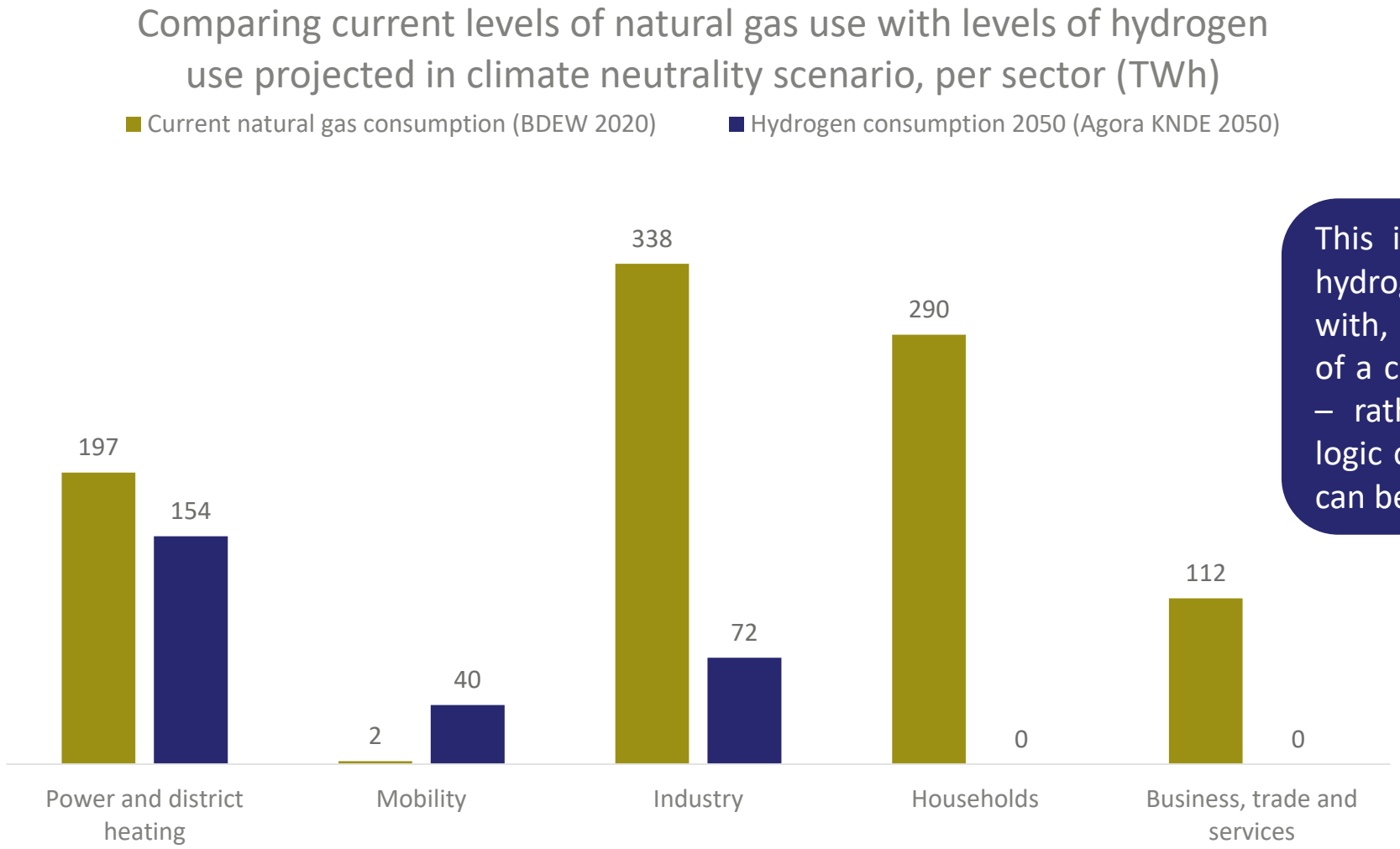
Data for Germany. Figures for 2020 are based on AGEB (2021). Scenarios via Agora Energiewende (2020) as well as Scharf et al. (2020)

Gas consumption levels projected by the German gas industry for its infrastructure planning are too high



FNB Gas (2020), BMWi (2020), Agora Energiewende (2020)
Notes: Figures from gas TSOs converted from gross calorific value into net calorific value.
Starting dates: 2017 for Network Development Plan Gas, 2018 for BMWi and Agora.

The future role of hydrogen will be different to, and much smaller than, the role of natural gas today



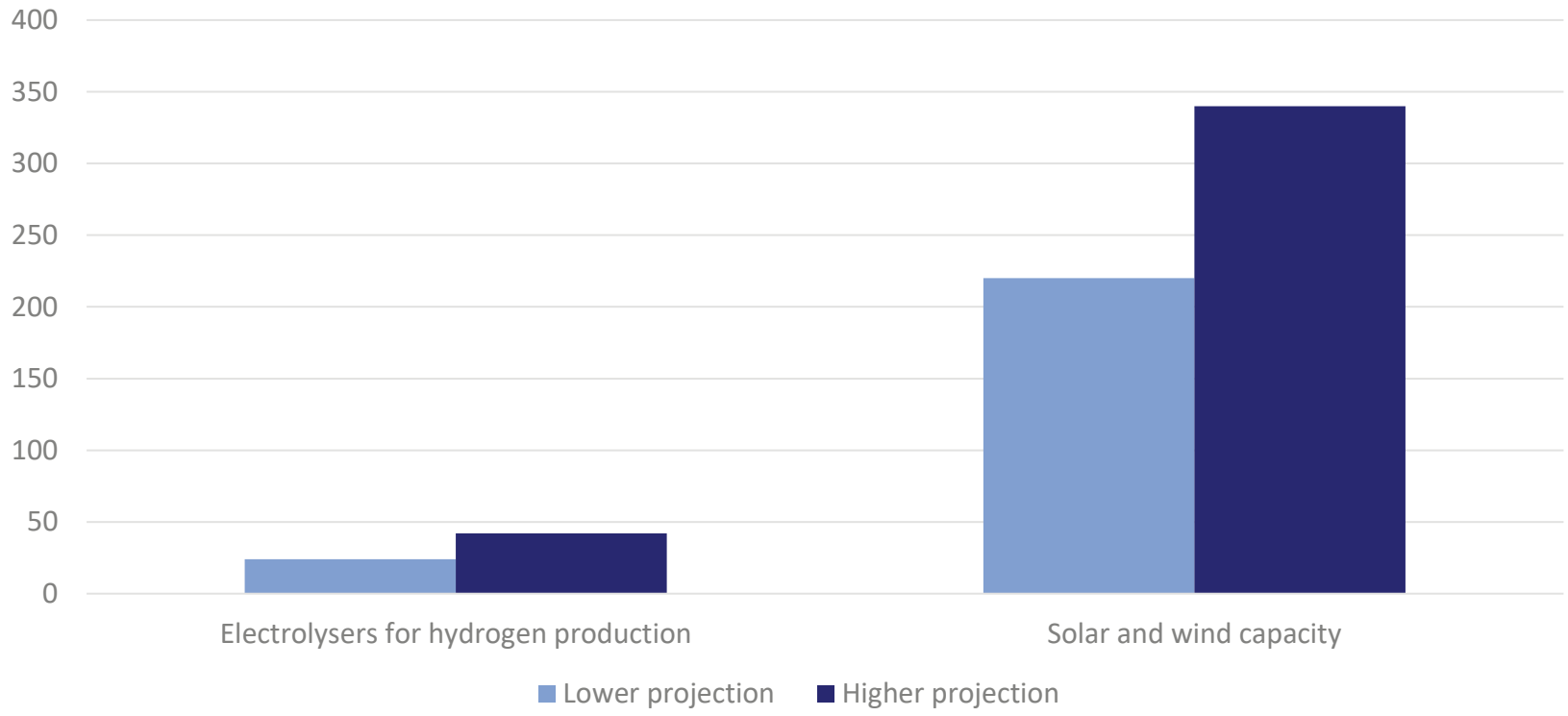
This is why any plans for future hydrogen use should be aligned with, and focussed on, the needs of a climate neutral energy system – rather than just following the logic of how existing infrastructure can be used for as long as possible.

Data for Germany. Sources: BDEW (2020), Agora Energiewende (2020)

The future potential of hydrogen depends on a massive expansion of renewable energy capacity

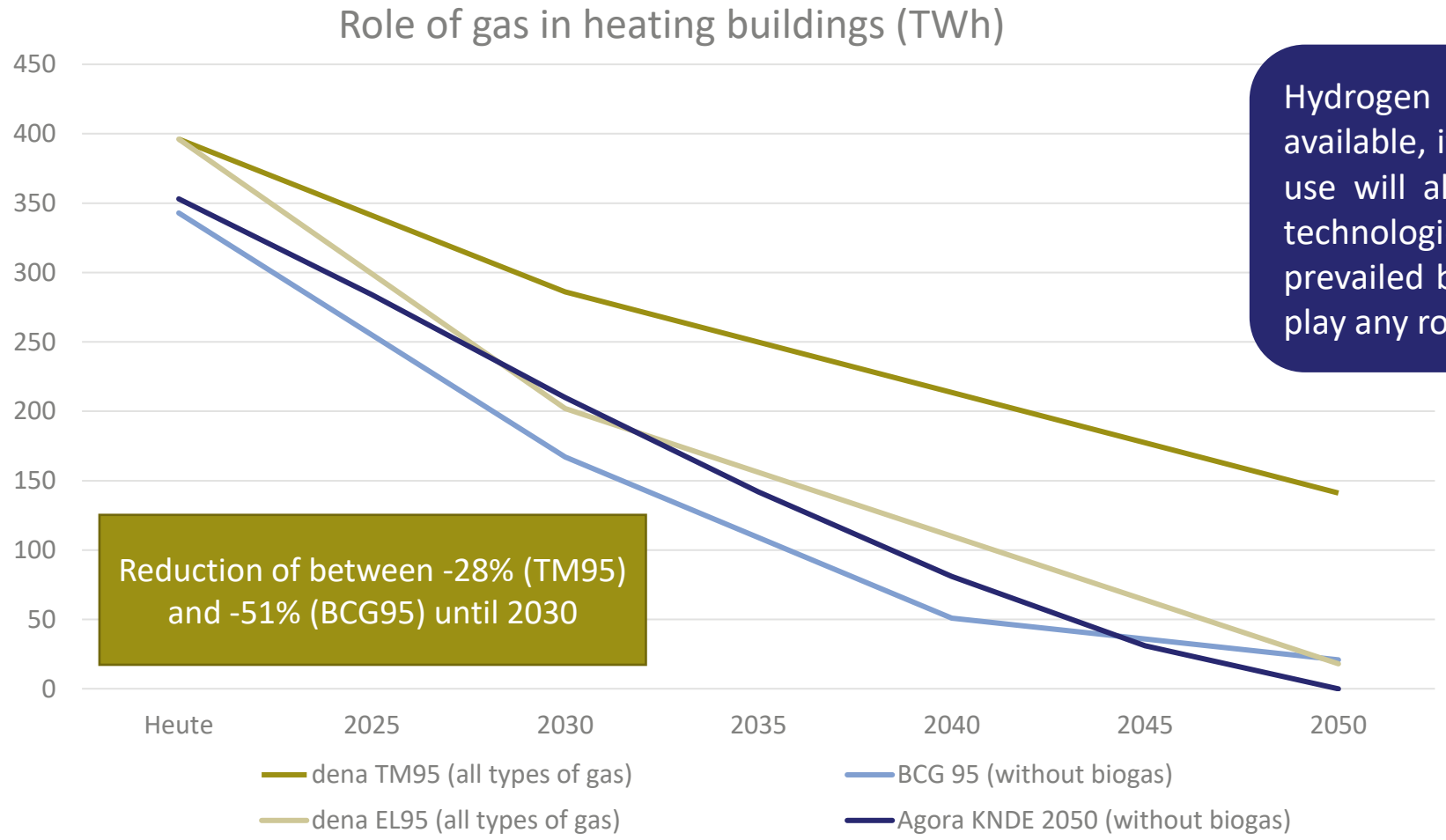
- EU-wide, the installation of 40 GW of electrolysis capacity by 2030 is planned. In order for these facilitities to run on renewable electricity, **80-120 GW of additional solar and wind generation capacity are needed.**
- This equals the **triple amount of EU-wide renewable capacity expansion between 2019 and 2020 (35 GW)** and would come on top of other sources of renewable electricity demand.
- The potential success of a „hydrogen economy“ therefore depends on a massive expansion of renewable energy capacity – as well as on an efficient use of hydrogen.

Investments in electrolysers for hydrogen production and in the additional renewable capacity needed for electrolysers to run (by 2030, EU-wide, in billion €)



European Commission (2020). A hydrogen strategy for a climate-neutral Europe

Gas consumption in the heating sector will decline considerably, in particular between now and 2030



Hydrogen for heating buildings would be available, if at all, once drastic reductions in gas use will already have taken place. Alternative technologies like heat pumps will have prevailed by then. Therefore, hydrogen will not play any role for decentralized residential heat.

Agora Energiewende (2020), BCG & Prognos (2018) as well as dena & EWI (2018). Starting dates: 2015 for BCG and dena, 2018 for Agora. Data for Germany.

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ABOUT E3G

E3G

E3G is an independent climate change think tank accelerating the transition to a climate-safe world. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

More information is available at **www.e3g.org**

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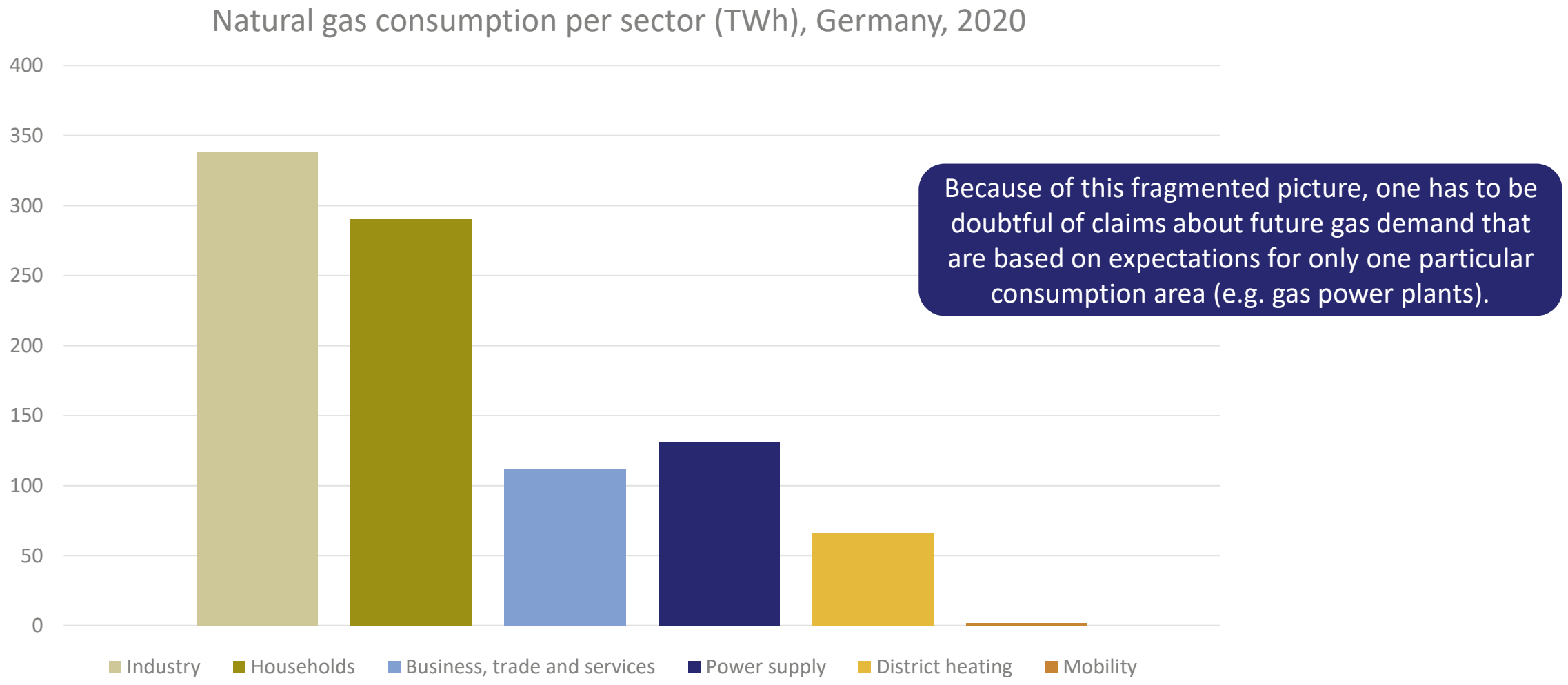
Annex: Today's use of natural gas is fragmented



Because of this fragmented picture, one has to be doubtful of claims about future gas demand that are based on expectations for only one particular consumption area (e.g. gas power plants).

BDEW (2020)