H_2 BAROMETER

Independent assessment of the hydrogen economy in Germany

Issue 1
May 2024

E-Bridge
competence in energy

Preface

Dear readers,

We are delighted to present you with the latest issue of the H_2 Barometer!

The last few months have been exciting for our hydrogen competence group, as the HydexPLUS, which we developed, has taken on a very special significance with the start of the funding calls for the first round of carbon contracts for difference. As the lead index, it determines the amount paid out and the dynamics of one of the most important instruments of the energy transition in the industrial sector. In this issue, you can find out more about the further development of our H_2 cost indices and our support services in this area.

The core grid is the central prerequisite for the ramp-up of the hydrogen economy in Germany. The clear commitment and concretisation of the framework conditions in recent weeks was therefore another important step, which we have summarised for you in this issue.

Another focus of this issue is the transformation strategy for gas distribution networks. We present an exciting approach that you can use to reduce complexity and categorise the regulatory framework for you.

A special highlight of this issue is the exclusive interview with Tobias Moldenhauer, Head of Hydrogen at EWE AG and Managing Director of EWE HYDROGEN GmbH. His in-depth knowledge and inspiring views provide valuable insights into current developments and future prospects.

We hope that this issue of our H_2 Barometer will inspire you, inform you and open new perspectives. Together, we can make a positive contribution to overcoming the challenges of ramping up the hydrogen economy.

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Theses and overall mood

Key messages from the H_2 barometer

Regulation

1. Climate protection contracts serve as an important instrument for the energy transition in the industrial sector and promote the demand for hydrogen. The HydexPLUS© serves as an underlying cost index and benchmark for determining the annual payment amounts within the framework of KSV hydrogen technologies.
2. The climate protection contracts facilitate the introduction of transformative production processes in particularly energy-intensive industrial plants. This offers industrial operators a significant incentive to switch to low-carbon processes, as they receive compensation for the additional costs.

Upstream

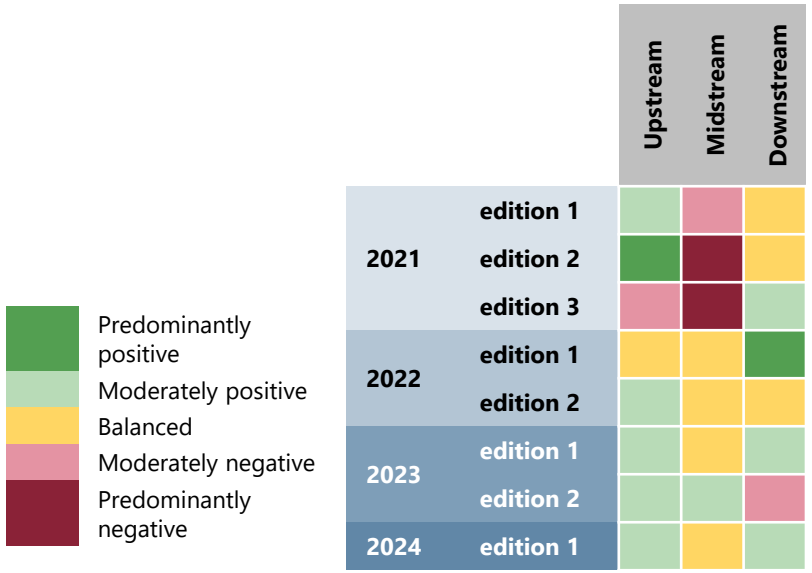
1. Utilization of the intraday time windows with lower electricity prices leads to a further opportunity to reduce the marginal costs by up to 15%. The addition of the Hydex12 Green to the Hydex© thus shows a more realistic mode of operation of the electrolyzer, while the basic calculation method remains the same.
2. The HydexPLUS© is used to dynamize the contract price as part of the hydrogen promotion of climate protection contracts (KSV) and thus determines the annual payment amount over the term of the KSV.

Midstream

1. Despite network operators' concerns regarding the financing concept, there is agreement on the indispensability of the hydrogen core network. The recent approval of EU funding for German IPCEI projects supports the plan to initiate the expansion of the H_2 infrastructure in a timely manner and to realise a comprehensive H_2 ramp-up in Germany.
2. The regulatory authority, the federal government and the EU see a need to adapt the legislation and regulatory framework for gas distribution grids. The consensus is that the scope of gas distribution networks for decentralized heat supply will decrease significantly, while other pipelines are suitable for rededication to H_2 transport.
3. E-Bridge offers a project approach for working with grid operators to develop a realistic vision for the future of gas distribution grids and to assess the financial and regulatory implications. This enables distribution grid operators to prepare for the upcoming transformation in the best possible way.

Downstream

1. The power plant strategy ensures that the electricity supply remains stable even with fluctuating renewable electricity generation. However, it is questionable to what extent its currently planned contribution will meet the forecasts of the energy system studies and whether capacity expansions are necessary.
2. E-Bridge's service portfolio optimally supports industrial companies in concluding climate protection contracts and the economical procurement of hydrogen in climate-friendly production processes.



The call for funding under the Climate Protection Contracts and the adopted power plant strategy ensure increased demand for hydrogen.

The industry is expected to become one of the primary consumers of hydrogen. However, whether the targeted capacity of hydrogen-capable power plants will be sufficient remains questionable.

In the space heating sector, hydrogen is expected to play only a limited role due to the significant reduction in the scope of gas distribution networks. Therefore, infrastructure planning should be based on projected industrial demand.

INTERVIEW

Interview with Tobias Moldenhauer, Head of Hydrogen at EWE AG and Managing Director of EWE HYDROGEN GmbH (I/II)

Tobias Moldenhauer,
Head of hydrogen at EWE AG and
Managing Director of
EWE HYDROGEN GmbH

As an innovative service provider, EWE is active in the business areas of energy, telecommunications and information technology. With over 10,800 employees and a turnover of ten billion euros in 2023, EWE is one of the largest energy companies in Germany. Headquartered in Oldenburg, Lower Saxony, the company is predominantly in municipal hands. It supplies around 1.4 million customers in north-west Germany, Brandenburg, Rügen and parts of Poland with electricity, 0.7 million with natural gas and 0.7 million with telecommunications services. EWE plays a pioneering role in the areas of security of supply, climate protection and digital participation. To this end, the Group is investing in the expansion of the electricity grids, the expansion of the glass fibre infrastructure, the construction of new wind turbines and is a leader in the expansion of the hydrogen infrastructure in the coming years.

EWE is one of the major forces shaping the hydrogen economy and is carrying out a large number of hydrogen-related projects at all levels of the value chain. These include electrolysis projects for the production of green hydrogen, the testing of underground H_2 storage in depleted natural gas caverns and the supply of transport companies and, in future, industrial companies. EWE is thus already making an enormous contribution to the transformation of the energy system and the development of a sustainable hydrogen economy. You can find out more about EWE's hydrogen activities at www.clean-hydrogen-coastline.de and www.ewe.com.

Mr Moldenhauer, in your opinion, in which areas will hydrogen contribute to achieving climate protection targets, given the expected extensive electrification in most sectors (mobility, space heating, industrial processes etc.)? Is hydrogen a prerequisite for the success of the energy transition?

Hydrogen undoubtedly has the potential to play a key role in achieving climate protection targets, especially in light of the expected far-reaching electrification in various sectors. Green hydrogen produced by electrolysis using renewable energy sources can make a decisive contribution to this.

With regard to the sectors in which hydrogen can contribute to achieving climate protection targets, I see the following sequence:

1. Industry: Particularly in sectors such as the steel and chemical industries, green hydrogen will be used as a clean energy source to reduce CO_2 emissions. Here, various processes based on fossil fuels can be replaced by hydrogen-based technologies.
2. H_2-ready power plants: Hydrogen will also play a role in energy generation, especially in hydrogen-capable power plants. This contributes to the security and reliability of the energy supply, as it offers a way to better integrate renewable energies and compensate for bottlenecks in the supply of solar and wind energy.
3. Process heat for non-electrifiable applications in industry: Many industrial processes require high temperatures that cannot simply be electrified. Here, hydrogen can serve as a clean fuel to provide process heat and thus reduce CO_2 emissions in these sectors.
4. Transport: Particularly in heavy goods transport, shipping and aviation, hydrogen can serve as an alternative source of propulsion to reduce dependence on fossil fuels and lower emissions. This can make a significant contribution, particularly in areas where electrification is difficult or insufficient.

Interview with Tobias Moldenhauer, Head of Hydrogen at EWE AG and Managing Director of EWE HYDROGEN GmbH (II/II)

Whether hydrogen is a prerequisite for the success of the energy transition depends on various factors. For me, it is clear that hydrogen will play an important role, especially in the sectors mentioned, in order to reduce CO_2 emissions, facilitate the transition to renewable energies and reliably provide energy at the right time and in the right place.

The development of a sustainable hydrogen economy still requires a wide range of efforts from all players in the market. In your opinion, which component or part of the value chain is consistently underestimated in this process? And which is overestimated?

In my opinion, the role of storage, especially cavern storage, is often underestimated in the development of a sustainable hydrogen economy. Efficient storage technologies are crucial for a reliable supply and are essential for the integration of electrolysers into the energy system, for the needs-based supply of industrial customers and for the targeted reconversion of electricity in power plants.

Furthermore, I believe that the assumption that imports will play a significant role in the short term is overestimated. While it is important to maintain international partnerships and initiate them at an early stage, strengthening domestic production capacities should be prioritised in order to strengthen long-term energy independence and industrial policy aspects.

In your opinion, which political decisions are sending positive signals with regard to the ramp-up of the hydrogen economy? Where do you see an acute need for improvement on the part of political decision-makers?

It is very positive that the government has committed to the expansion target for domestic electrolysis of 10 GW by 2030 in the coalition agreement and the update of the National Hydrogen Strategy (NHS). This is an important signal for hydrogen ramp-up and availability before the end of this decade. This capacity can also make a meaningful contribution to the electricity system. If the electrolysers are located in a way that benefits the system, as is also envisaged in the update of the NWS, electrolysis as a flexible load can make an optimal contribution to reducing grid bottlenecks in the electricity system and utilising existing gas infrastructure for storage and transport. This directly saves electricity grid costs by reducing curtailment. In the long term, expensive new grid construction can be reduced. In order for this potential of electrolysis to be utilised, there is still a lack of incentives for these system-beneficial locations. Various building blocks are possible and necessary for this: Starting with a reduction in grid connection costs (construction cost subsidy), a suitable design of the 'utilisation instead of curtailment' instrument and a long-term exemption from grid charges for these sites**.** Starting with a reduction in grid connection costs (construction cost subsidy), a suitable design of the 'utilisation instead of curtailment' instrument and a long-term exemption from grid fees for these locations. A positive signal in this context was the inclusion of tenders for system-beneficial electrolysis in the Wind Sea Act. It is now essential that these tenders, which have been announced for 2023, are realised!

With regard to the hydrogen infrastructure, an important milestone has been reached with the regulations on the core network. It is now essential that the government also presents a concept for hydrogen storage. An important first step here was the identification of the enormous demand for cavern storage facilities, for example in the BMWK long-term scenarios. In view of the long realisation times, it is now necessary to publish the national hydrogen storage strategy very soon. A suitable regulatory framework and a financing framework suitable for the capital market are particularly important here.

REGULATION

Climate protection contracts: EU has approved subsidies for climate protection contracts - First bidding process started in March

Climate protection contracts based on the concept of CO_2 contracts for difference

As part of the climate protection contracts (Klimaschutzverträge, KSV), industrial companies are supported in investing in climate-friendly production facilities that would otherwise not pay off (e.g., in the steel, cement, paper or glass industries).

- The EU Commission has approved the funding for the first procedure for a financing framework of EUR 4 billion. The BMWK has reserved an amount of EUR 21 billion for the first two bidding rounds.
- The KSV serves to hedge against price risks, compensate for additional costs and create secure investment conditions.
- Annual subsidy payments are adjusted to the actual market development through dynamization. The HydexPLUS index developed by E-Bridge is used for hydrogen production.

Schedule and requirements:

- The first bidding process was launched on March 12 with the BMWK's call for funding. Companies can submit bids until July 11 of this year.
- Companies must submit an imputed CO_2 price (necessary CO_2 price for low-emission technology) and a timetable for emission savings.
- The contract price is set per ton of CO_2 saved and corresponds to the expected reduction costs minus the current effective CO_2 price.
- KSVs have a term of 15 years and could lead to repayments if the effective CO_2 prices exceed the stated base contract price.

Climate protection contracts serve as an important instrument for the energy transition in the industrial sector and promote the demand for hydrogen. The HydexPLUS© serves as the underlying cost index and benchmark for determining the annual payout amounts for KSV hydrogen technologies.

Figure 1: KSV contracts schedule

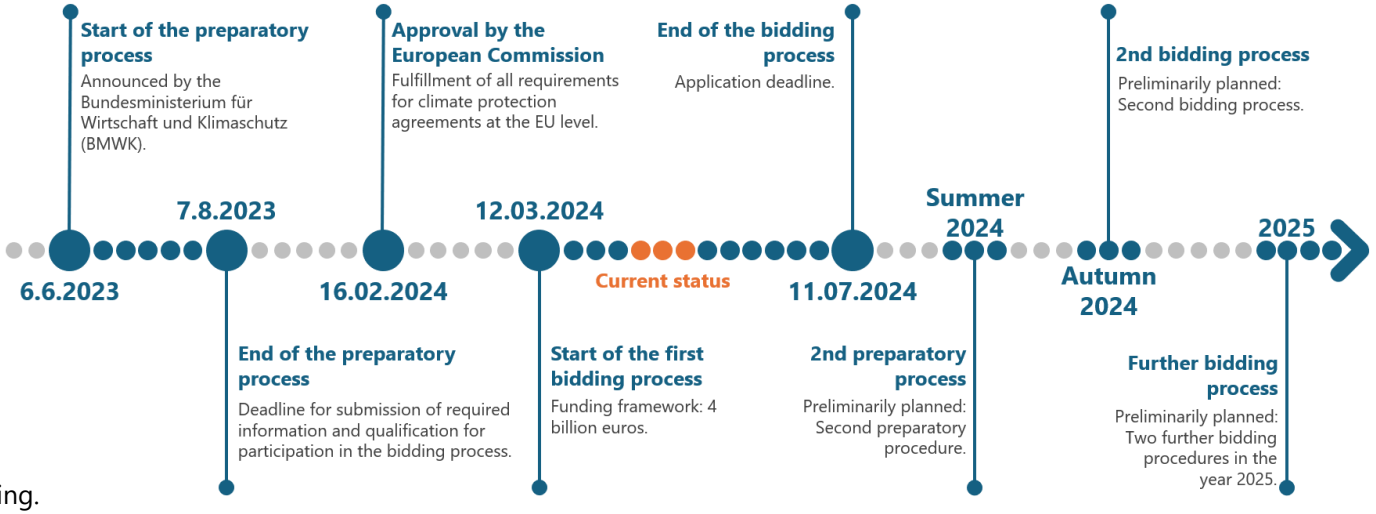
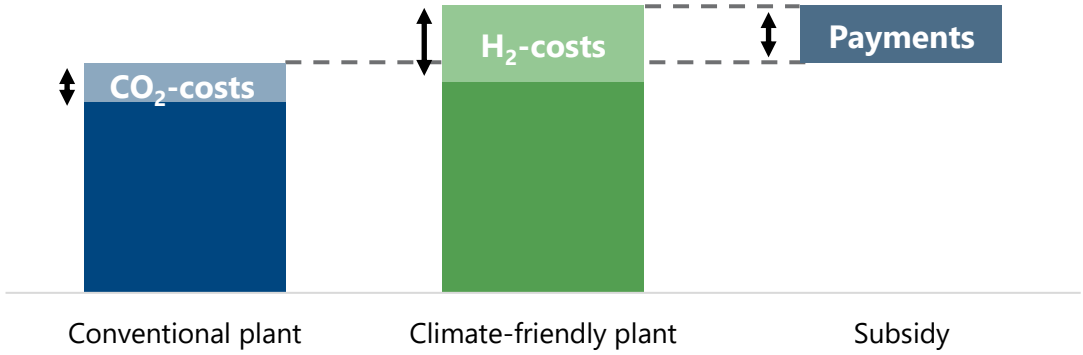


Figure 2: Methodology KSV schematic



Which companies and projects can benefit?

Company

Private company

Municipal companies

Consortia of several companies, if a technological alliance exists

If a technological transfer of intermediate products is necessary and actually takes place

Technologies

Promotion of transformative production processes

- Fundamental technological changes to the production process
- Significant investment in technology: not established on the market or market price-setting
- Climate-friendly alternatives for fossil fuels

Assignment of projects to defined reference systems

- Assignment to one of the 50 defined reference systems according to the funding call

No eligibility for funding for the pure production of climate-neutral intermediate products

- Projects that do not directly serve the manufacture of industrial products are not eligible for funding
- Use of transformative production process necessary

Minimum requirements

1. *Size of emission savings*: Average savings of at least 10 kt CO_2 equivalents per year
2. *Quick savings:* At least 60% reduction in greenhouse gas emissions compared to the reference system in the third full year at the latest
3. *Climate neutrality:* At least 90% savings compared to the reference system in the last 12 months of the contract
4. *Permanent savings*: From the sixth full year of the term, no shortfall of the planned savings of the fifth calendar year
5. *Start of the project:* Must be after application and within three years
6. *Minimum delivery volume* of EUR 15 million and *Maximum delivery volume* of EUR 1 billion per project
7. *Maximum bid price :* 600 EUR/$t_{CO_2,eq}$

The climate protection agreements facilitate the introduction of transformative production processes in particularly energy-intensive industrial plants. This offers industrial operators a significant incentive to switch to low-carbon processes, as they receive compensation for the additional costs.

UPSTREAM

Hydex12 Green - Extension of the cost indicator Hydex©

- The "Hydex Green" H_2 cost indicator is based on the daily 24-hour average of spot electricity prices. Taking into account the daily exchange profile of hourly electricity prices, it can be seen that two 6-hour blocks (see Figure 1) enable significantly more cost-effective H_2 production on average.
- On average, the most cost-effective operating hours for an electrolyzer are between midnight and 6 am and between 11 am and 5 pm. The Hydex© was therefore supplemented by the additional marginal cost indicator "Hydex12 Green", which reflects a more cost-effective H_2 production (see Figure 2) during the 12 most favorable hours of the day on average and thus an operating time of 4,380 full-load hours per year.

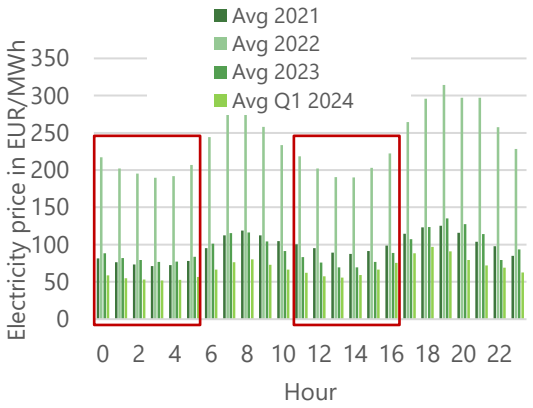


Figure 1: Average electricity prices during the hours of the day

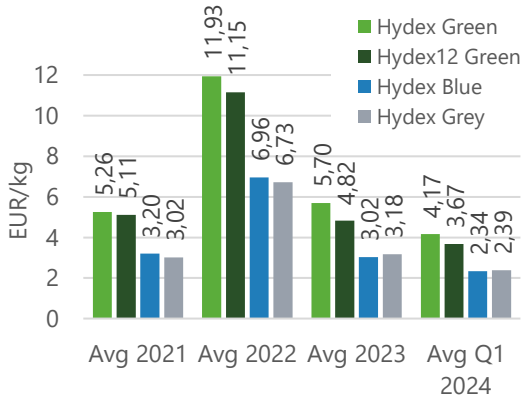
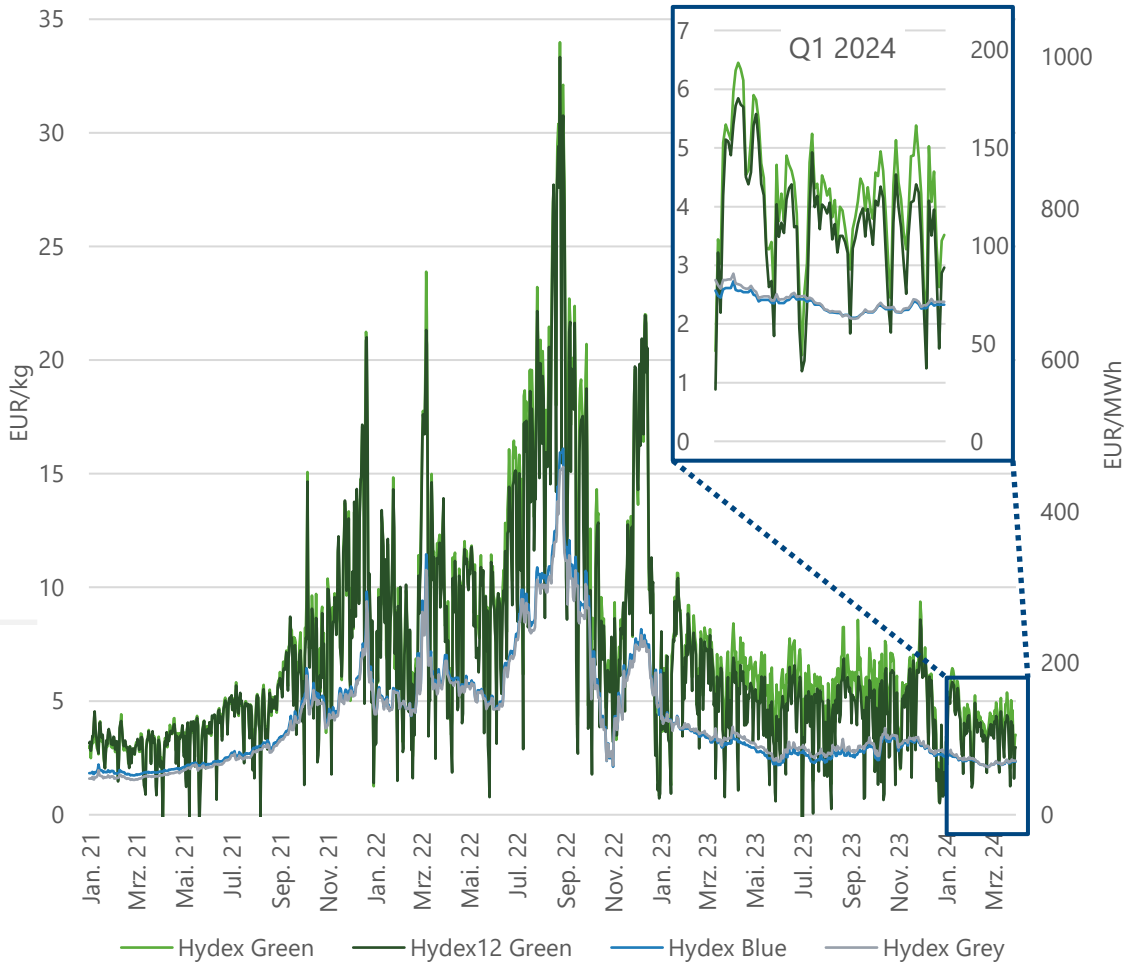


Figure 2: Hydex© average values 2021 - 2024

Utilization of the intraday time windows with lower electricity prices leads to a further opportunity to reduce the marginal costs by up to 15%. The addition of the Hydex12 Green to the Hydex© thus shows a more realistic mode of operation of the electrolyzer, while the basic calculation method remains the same.

Historical cost development 2021 – 2024



Publications:
Energate Messenger: https://www.energate-messenger.de/markt/gas-oel-und-wasserstoff/
E-Bridge Consulting: https://e-bridge.de/kompetenzen/energy-markets/wasserstoff/

HydexPLUS© – Leading index for the dynamization of H_2 prices in the climate protection contracts

Evaluation over time (Q1, 2024)

- At the beginning of March 2024, the optimized full costs for green H_2 were around 5.15 EUR/kg and for blue and grey H_2 at 3.20 and 3.10 EUR/kg respectively. The optimum full-load hours for green production amounted to around 5,000 h/a. Reformers for grey H_2 produced at 7,250, for blue at 8,700 h/a last year at optimal costs.

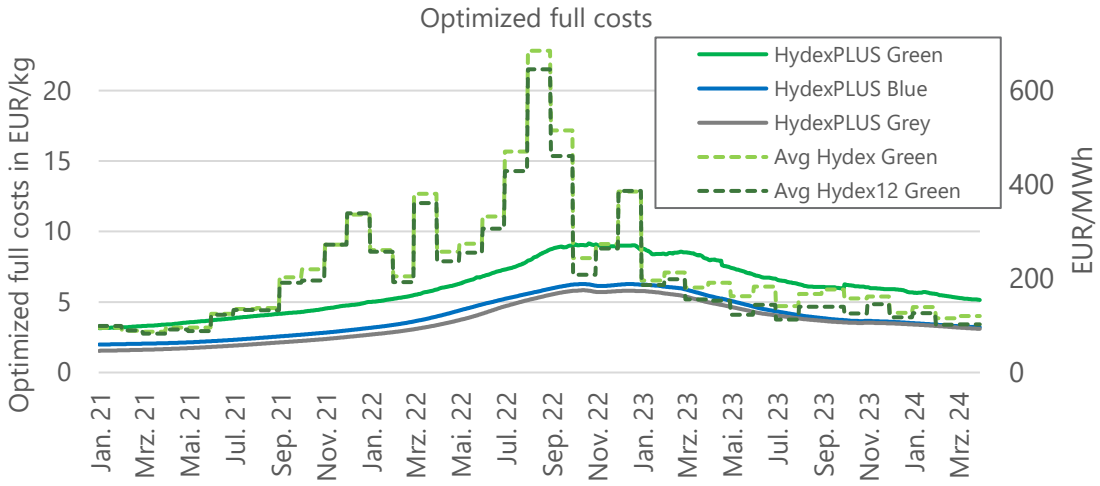
Comparison with mean values of marginal costs

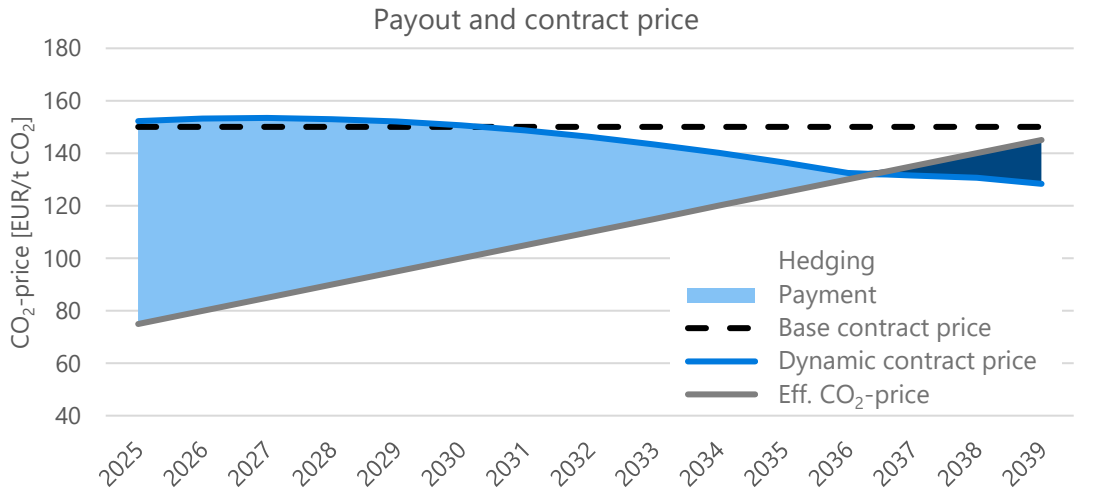
- A comparison with the monthly mean values of marginal costs (Hydex Green and Hydex12 Green) clearly shows that the HydexPLUS© compensates for the massive swings in volatile marginal costs, but also follows market trends with a slight delay.

Leading index for dynamization as part of the climate protection agreements (KSV)

- The base price of green and blue hydrogen is set at 145.97 EUR/MWh in the funding guidelines for climate protection contracts. The base contract price negotiated as part of the KSV is dynamized over time via a dynamization component (dynamized contract price). This cushions the price risk of energy sources and increases the efficiency of the subsidy.
- The dynamization component depends, among other things, on a factor for determining the dynamization share, the energy source requirement and the current annual price of the energy source. The current annual price is determined using price indices.
- In the funding call, the HydexPLUS© Green and Blue is designated as the lead index for hydrogen production. This means that the amount of annual funding paid out is based on the past annual performance of the HydexPLUS©. It is not the absolute cost level of the HydexPLUS© over time that is decisive, but the relative change compared to the previous year's value.

The HydexPLUS© is used to dynamize the contract price as part of the hydrogen promotion of climate protection contracts (KSV) and thus determines the annual payment amount over the term of the KSV.





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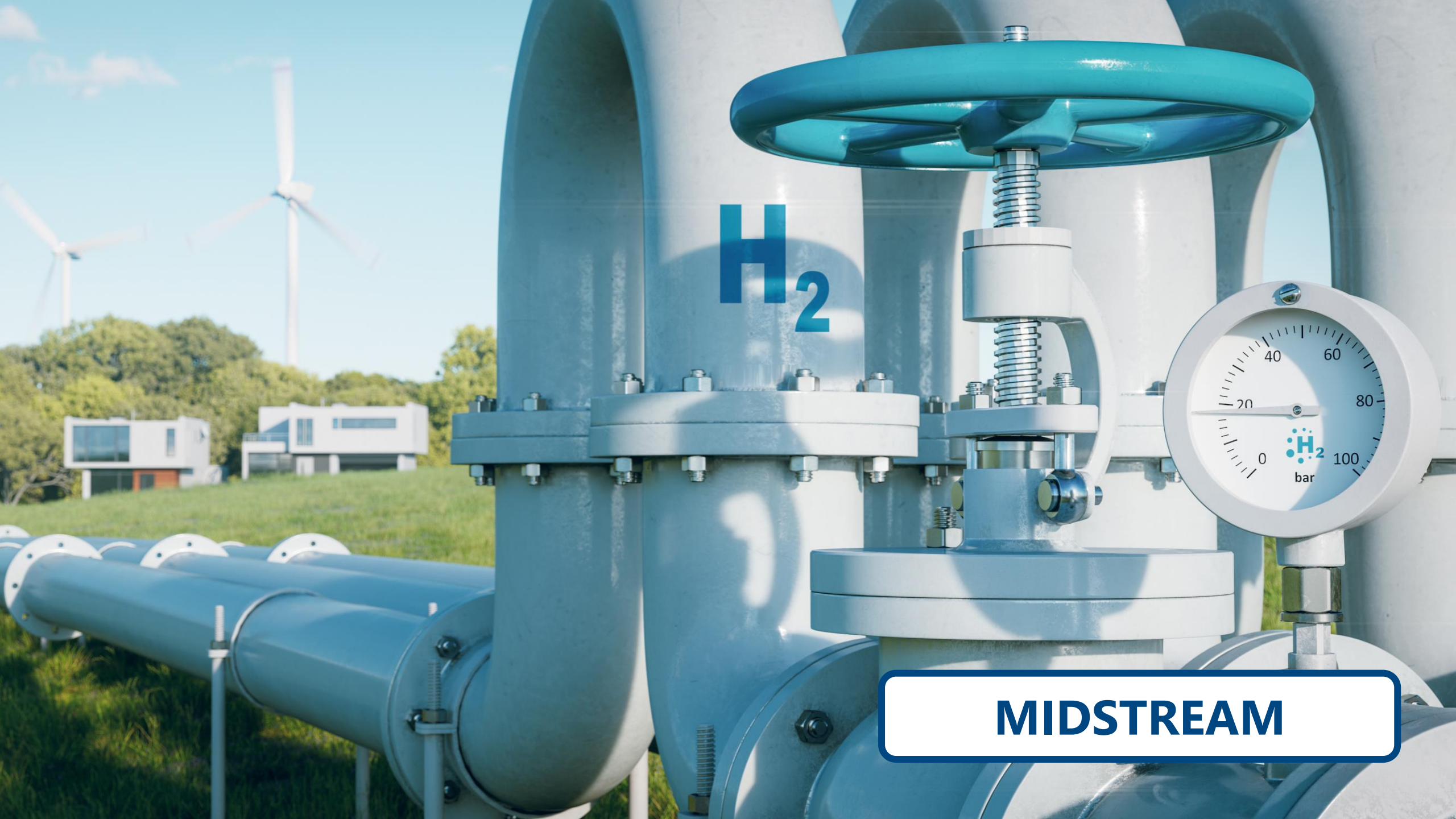


MIDSTREAM

Successes and challenges: Hydrogen core network and IPCEI approvals in Germany

After intense discussions: On 26 April 2024, the Federal Council approved the amendments to the EnWG, meaning that the financial framework for the hydrogen core network has finally been decided.

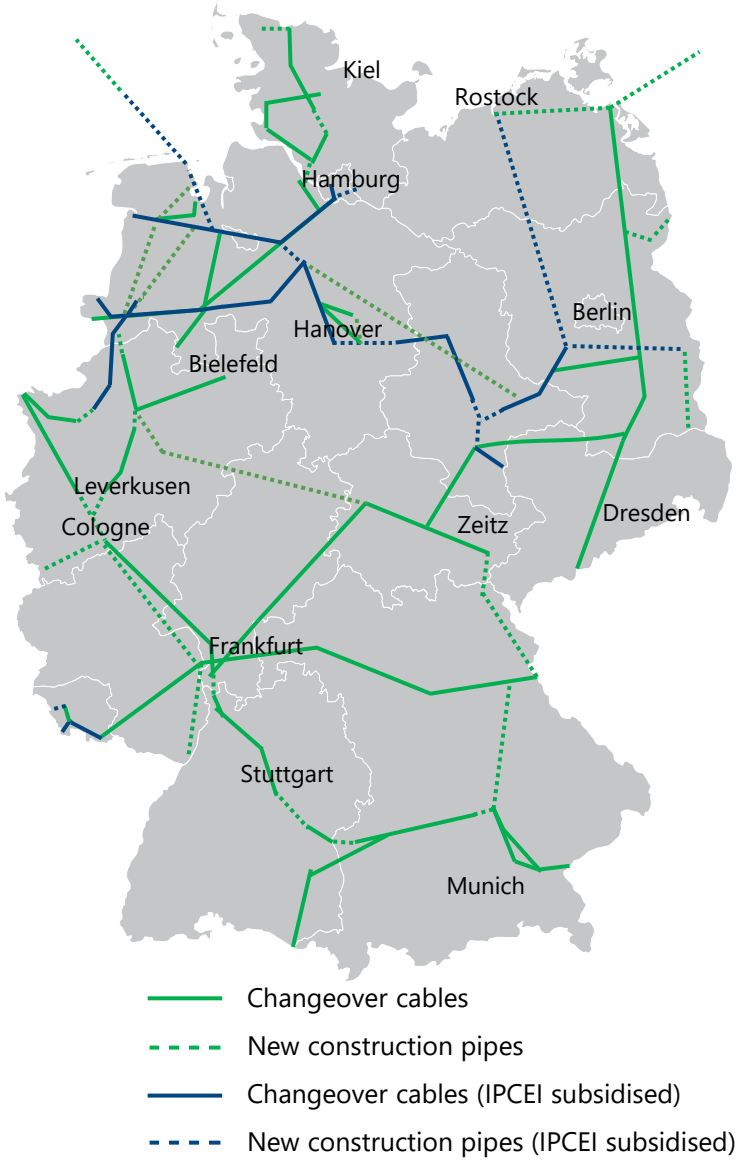
- **Deductible of up to 24%:** The grid operators bear a deductible of 24% for remaining bookings on the amortisation account in 2055 which have not yet been refinanced via the grid charges.
- **Financing via amortisation account until 2037:** Grid operators can finance their projects until 2037 via the amortisation account. This extends the period by 5 years with the aim of reducing liability risks.
- **Termination by the federal government possible from 2038:** The amortisation account could be terminated for the first time on 31 December 2038 if the federal government declares the core network a failure. In the event of cancellation before 2055, the deductible is reduced by 0.5% annually, meaning that the deductible would be 16% in the event of cancellation in 2039.
- **Uniform fees from 2025:** From 1 January 2025, the fees for access to the hydrogen core network are to be set uniformly throughout Germany based on the aggregated network costs of all hydrogen core network operators.
- **Capital market interest rate of 6.69%:** Despite considerable reservations on the part of the FNBs, the planned capital market interest rate remains in place.

Important milestone for the hydrogen ramp-up in Germany: EU state aid authorisation for 24 German IPCEI projects as part of the "infrastructure wave" (H_2Infra)

- **Funding commitments totalling 8 billion euros:** The state subsidy commitments total EUR 4.6 billion, which should stimulate a further 3.4 billion euros in private investment. The federal government will provide 70% of the funding and the federal states 30%.
- **Focus on eastern and northern Germany:** The focus is on electrolysis and pipeline infrastructure, particularly in northern and eastern Germany. H_2 applications in mobility and industry have not yet been considered in this round.
- **28 recognised IPCEI projects**: Of the original 62 German IPCEI applications, 28 projects have now been approved by the EU. In addition to the current procedure, 6 projects from all stages of the value chain have already been approved in 2022.

Despite network operators' concerns regarding the financing concept, there is agreement on the indispensability of the hydrogen core network. The recent approval of EU funding for German IPCEI projects supports the plan to initiate the expansion of the H_2 infrastructure in a timely manner and to realise a comprehensive H_2 ramp-up in Germany.

Hydrogen core network and IPCEI infrastructure projects (schematic representation)



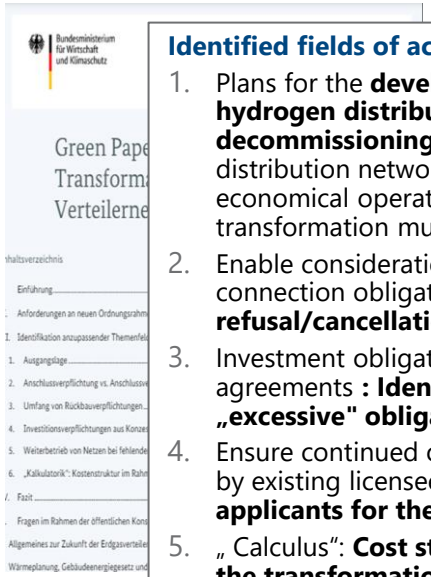
Both the legislators and the regulatory authority see a need to adapt the legal and regulatory framework for gas distribution networks

BNetzA: Only isolated reallocation of the distribution grid infrastructure

Regulatory requirements for gas distribution system operators

- Climate neutrality by 2045 at the latest means that the grids will **no longer be needed for the majority of traditional supply tasks**
- Safe and economical operation during the transformation must be guaranteed
- **Preservation of parts of the grids for individual customer groups**, uncertainty regarding reallocation to hydrogen
- **Orderly transition** to a decarbonized energy industry for operators and customers
- Large number of network operators in municipalities **with or without completed heat planning**

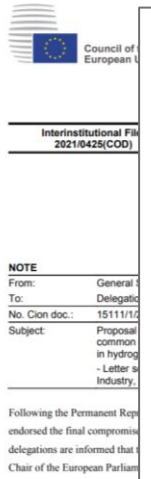
BMWK: Future of gas distribution networks depends on local conditions



Identified fields of action of the BMWK

1. Plans for the **development of hydrogen distribution networks and decommissioning of natural gas** distribution networks: Safe and economical operation in the transformation must be guaranteed
2. Enable consideration of the current connection obligation and **refusal/cancellation of connection**
3. Investment obligations from concession agreements **: Identification of „excessive" obligations**
4. Ensure continued operation of networks by existing licensees if there are **no applicants for the new concession**
5. „ Calculus": **Cost structure as part of the transformation** with reference to the BNetzA consultation paper

EU: Denial of connection permitted to promote climate targets



Requirements according to the draft EU gas/hydrogen internal market package

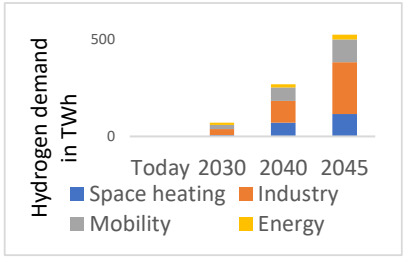
Connection refusal/termination possible in the event of a lack of capacity or missing connection.

- Also applies to capacity shortages resulting from the **reallocation** of existing lines in the context of climate neutrality targets
- Hydrogen distribution system operators must submit **development plans** for the **hydrogen network** every **4 years**
- **Decommissioning plans for natural gas** networks must be drawn up in the event of **falling gas demand**
- Transmission and hydrogen network operators must draw up a **ten-year network development plan every two years**

The regulatory authority, the federal government and the EU see a need to adapt the legislation and regulatory framework for gas distribution grids. The consensus is that the scope of gas distribution networks for decentralized heat supply will decrease significantly, while other pipelines are suitable for rededication to H_2 transport.

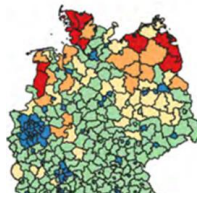
Publication
BNetzA Eckpunktepapier: Netze. Effizient. Sicher. Transformiert. [Link]
BMWK: Green Paper Transformation Gas-/Wasserstoff-Verteilernetze [Link]
EU: Entwurf über gemeinsame Vorschriften für den Binnenmarkt für erneuerbare Gase und Erdgas sowie für Wasserstoff (New version) [Link]

E-Bridge project approach enables individual assessment of gas grid areas to derive an economic vision for today's gas grid



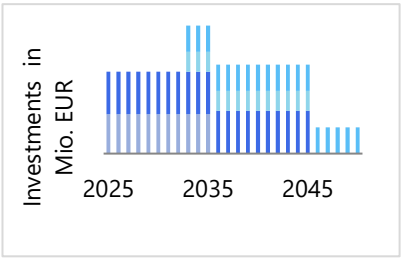
Transfer of network data

Supply area, current consumption, pipe lengths per pressure level and network area



Simulation target image „ Gas grid of the future“

(GIS-based) evaluation of pipe lengths by future category for all scenarios



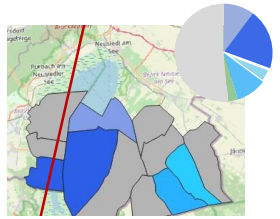
Kick-off

Common understanding of development scenarios for the gas and hydrogen economy

Jahr Kreise und kreisfreie Städte		Energieverbrauch (einschl. insgesamt Tsd. MJ	Erdgas Tsd. MJ
2022			
DG	Deutschland	35617266	9868403
7	Rheinland-Pfalz	262187175	121527852
71	Koblenz, Statistische Region	36036806	
7111	Koblenz, kreisfreie Stadt	2643847	1548954
7131	Ahrweiler, Landkreis	1350592	794255
7132	Altenkirchen (Westerwald),	1328759	418957
7133	Bad Kreuznach, Landkreis	3191265	1618108
7134	Birkenfeld, Landkreis	606021	116394

Demand regionalization for future scenarios

Regionalized demand forecasts in the supply area for long-term scenarios



Financial evaluation and recommendations for action

Presentation in workshop

E-Bridge offers a project approach for working with grid operators to develop a realistic vision for the future of gas distribution grids and to assess the financial and regulatory implications. This enables distribution grid operators to prepare for the upcoming transformation in the best possible way.


H2
DOWNSTREAM

Setting the strategic course: H_2-ready power plants and capacity market introduction through power plant strategy

Development of power plant capacities

- Agreement by the federal government to invite tenders for "H_2-ready" gas-fired power plants with a capacity of up to **4 x 2.5 GW**
- Planned conversion to hydrogen: Complete conversion between 2035 and 2040 after the switchover date has been set
- Construction and commissioning to take place by 2030
- Cost forecast: Estimate of EUR 16 billion for the next 20 years

Promotion of hydrogen use

- Funding for construction investments (CAPEX) and operating costs (OPEX) for power plants is planned Funding for the use of hydrogen includes up to 800 h per year.
- Compensation for the difference in costs between natural gas (+CO_2) and H_2 is guaranteed until 2040
- Accelerated approval procedures for power plants in accordance with the power plant strategy should contribute to prompt expansion

Long-term goal: capacity market

- The German government is holding talks with the EU Commission on a market-based, technology-neutral capacity mechanism
- An agreement is expected in the summer, with **introduction planned for 2028**
- The capacity market offers remuneration for secured power plant capacities regardless of electricity production and thus enables the refinancing of investment costs (CAPEX) to promote the construction of power plants

Analysis of the decision

- **Securing 10 GW of controllable generation capacity :**
  This corresponds to the recommendation of the report on security of supply from 2022 but is significantly lower than the forecasts of many energy system studies.
- **The conversion from "H_2-Ready" to "H_2" should be taken into account :**
  The conversion costs for larger CCGT combined cycle power plants are expected to be less than 10% of the initial investment. Significantly higher expenditure is assumed for CCGT power plants. This is followed by high time and cost expenditure for retrofitting.

Outstanding questions

- **Federal government strives for "system-friendly locations" :**
  So far, no specific locations have been named. Accordingly, TSOs must identify locations taking into account existing power plant sites.
- **Lack of a legal definition of "H_2 readiness":**
  There is only an implicit definition according to the Combined Heat and Power Act (KWGK), so that a uniform concept for H_2 readiness is still missing.

The power plant strategy ensures that the electricity supply remains stable even with fluctuating renewable electricity generation. However, it is questionable to what extent its currently planned contribution will meet the forecasts of the energy system studies and whether capacity expansions are necessary.

Several hurdles must be overcome on the way to hydrogen production with climate protection contracts - E-Bridge is your competent partner

Obstacles	Hedging the risk from the dynamization of the KSV	Consideration of requirements for participation and examination of economic efficiency	Optimization of the bid amount and project management in the bidding process	Optimization of procurement concepts and compliance with regulatory requirements
Solution approach	**Objective** ▪ Integration of the data basis into internal accounting and planning programs ▪ Joint discussion and evaluation of the implications of the index development over time	**Objective** ▪ Review of eligibility and minimum requirements of the bid ▪ Preparation of an initial business case with a focus on procurement strategies and risk management in relation to the dynamized subsidies	**Objective** ▪ Coordinated procedure for submitting applications in bidding process, including stakeholder management during the process, esp. for consortium applications ▪ Bid optimization to improve the chances of being contracted	**Objective** ▪ Compliance with regulatory reporting requirements ▪ Further optimization of the procurement of climate-neutral energy sources, taking risk strategies into account
	Methodological approach ▪ Automated provision of HydexPLUS data ▪ Regular workshops to evaluate the development and derive implications	**Methodological approach** ▪ Review of various H_2 procurement options by evaluating index forecasts ▪ Strategy development for hedging against dynamization	**Methodological approach** ▪ Support in the timely submission of bid documents ▪ Optimization of the bid amount to ensure the best possible award of the contract	**Methodological approach** ▪ Workshops and presentation of the required legal framework ▪ Comparative calculations for energy source procurement using the HydexPLUS methodology
Concrete support by E-Bridge	**Licensed data delivery of the HydexPLUS**	**Examination of eligibility for funding and preparation of business case incl. risk strategies**	**Structured PMO and optimization of the bid amount**	**Optimization of procurement and monitoring concept**

E-Bridge's service portfolio optimally supports industrial companies in concluding climate protection contracts and the economical procurement of hydrogen in climate-friendly production processes.

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