

Opening

Hans Jonk



Agenda

- 10:30 – 11:00 welcome with coffee and tea
- 11:00 – 11:15 Opening
- 11:15 – 11:45 Investment plan 2020: process
- 11:45 – 13:00 Investment plan 2020: scenarios
- 13:00 – 13:30 Lunch
- 13:30 – 14:30 Planning assumptions Groningen advice

Investment plan 2020

Process

Janet Heida



Objective

- Article 7a of the Gas Act states that network operators are obliged to write an investment plan (IP).
- With the IP, network operators offer an overview including justification of their investments in the short and long term.
- Up to now, GTS complied with this legal provision through the Quality and Capacity Document (KCD / NOP).
- In 2018, national legislation was adopted, laying down further rules for both the status and the content of the investment plan.
- The most important change is the status of the document: previously the NOP / KCD was offered to the Ministry of Economic Affairs & Climate (EZK) and Autoriteit Consument & Markt (ACM) for information, yet the IP will be offered for approval. Approval of the IP therefore means approval of the described investments and an obligation for GTS to realise them.

Content and form of the IP 2020

- The IP contains, legally, the following three elements:
 - Developments in the energy market => scenarios up to 2030
 - Bottleneck analysis of the transport network
 - Description of investments in the transport network
 - Looking back over the past 2 years
 - Looking 5 and 10 years ahead
- GTS would like to develop a single, public version of the IP 2020 in English. In addition, GTS might also publish a Dutch version.

Stakeholders

- Market parties
 - Information session I: process and scenarios
 - Information session II: bottlenecks and investments
 - Consultation IP 2020
- Dutch TSOs and DSOs
 - Continuous alignment
- NNO's
 - Within context subject/project
- ACM and EZK
 - Continuous alignment

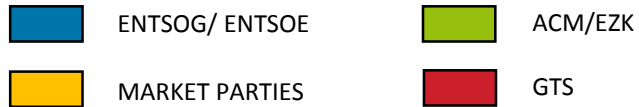
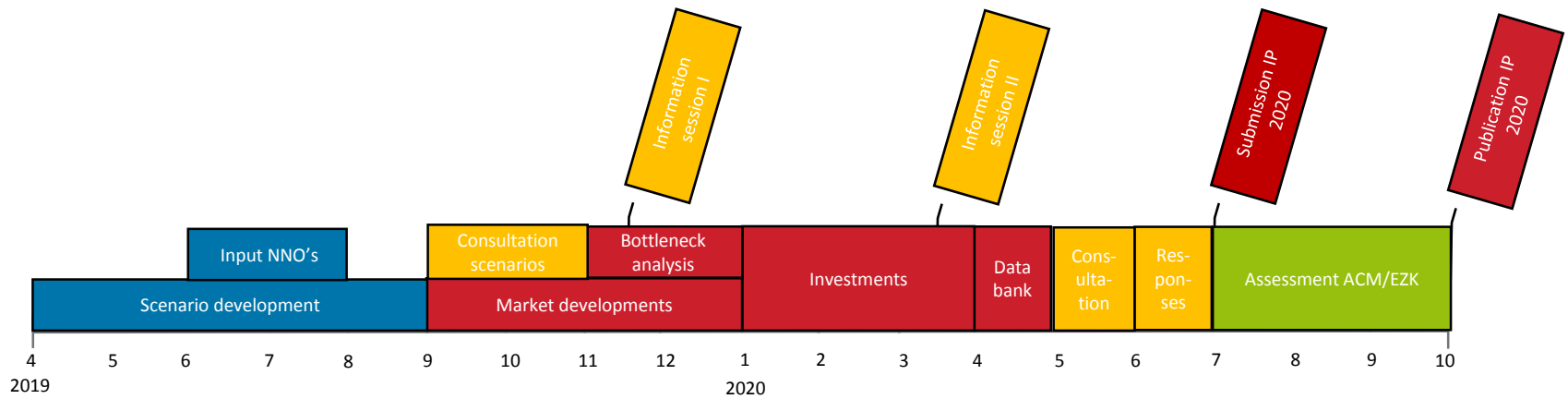
Deadline and period of validity

- Deadline for submission of the IP to ACM and the Minister is 1 July 2020 at the latest.
- Approval:
 - ACM: could GTS reasonably have come to the draft investment plan and are the investments necessary?
 - EZK: has GTS taken sufficient account of developments in the energy market?
- This investment plan applies for a period of eighteen months.
- In future, GTS must submit an IP to ACM and the Minister on 1 January of every even calendar year. These investment plans are valid for two years.
- GTS has an obligation to report via an addendum in the event of a significant change.

Relation with other projects

- Incremental capacity
- Closure of the Groningen field
- Market integration of the German market areas GASPOOL and NCG

Planning



GTS welcomes ideas on possible developments and foreseeable investments and would like to receive those 15 December at the latest.

Scenarios for the Investment Plan 2020

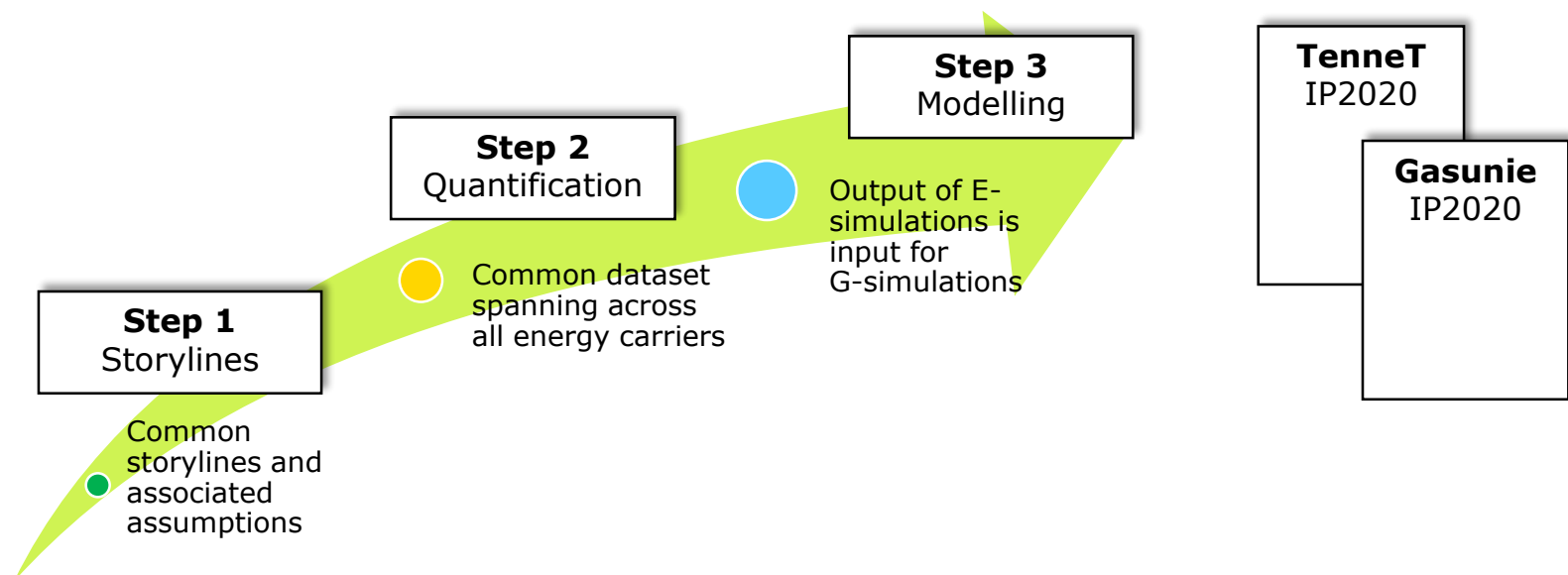
Commonly developed by Tennet and Gasunie

P.J. Boersma

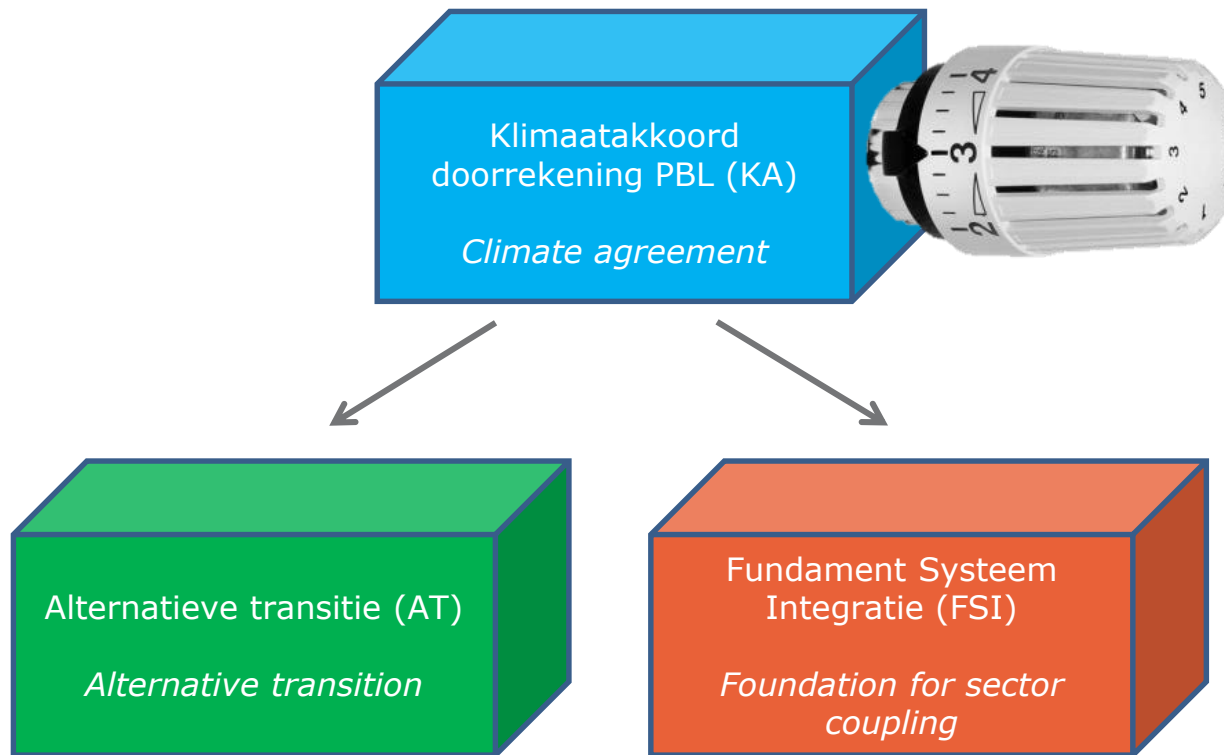


TenneT and Gasunie worked together in the development of the scenarios for Investment Plan (IP) 2020.

- Goal: “reasonable extreme” scenarios with a quantification up to 2030.
- One set of scenarios to test the infrastructures for electricity and gas.
- All scenarios aim to reach the carbon emission targets for 2030 (-49%).
- Scenarios will be updated every two years



All TSOs in the Netherlands use the climate agreement as a reference scenario. GTS and Tennet have established two additional scenarios to consider relevant uncertainties.



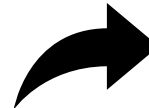
The scenario storylines.

Klimaatakkoord (KA) *Climate agreement*



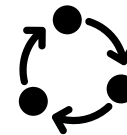
- CO₂ target probably not met
- Based on PBL* analyses
- Mix of technologies for domestic heating
- Electric vehicles
- Limited P2H in industry
- 7 MT of CCS
- Coal phaseout
- Increase in solar PV and wind generation

Alternatieve transitie (AT) *Alternative transition*



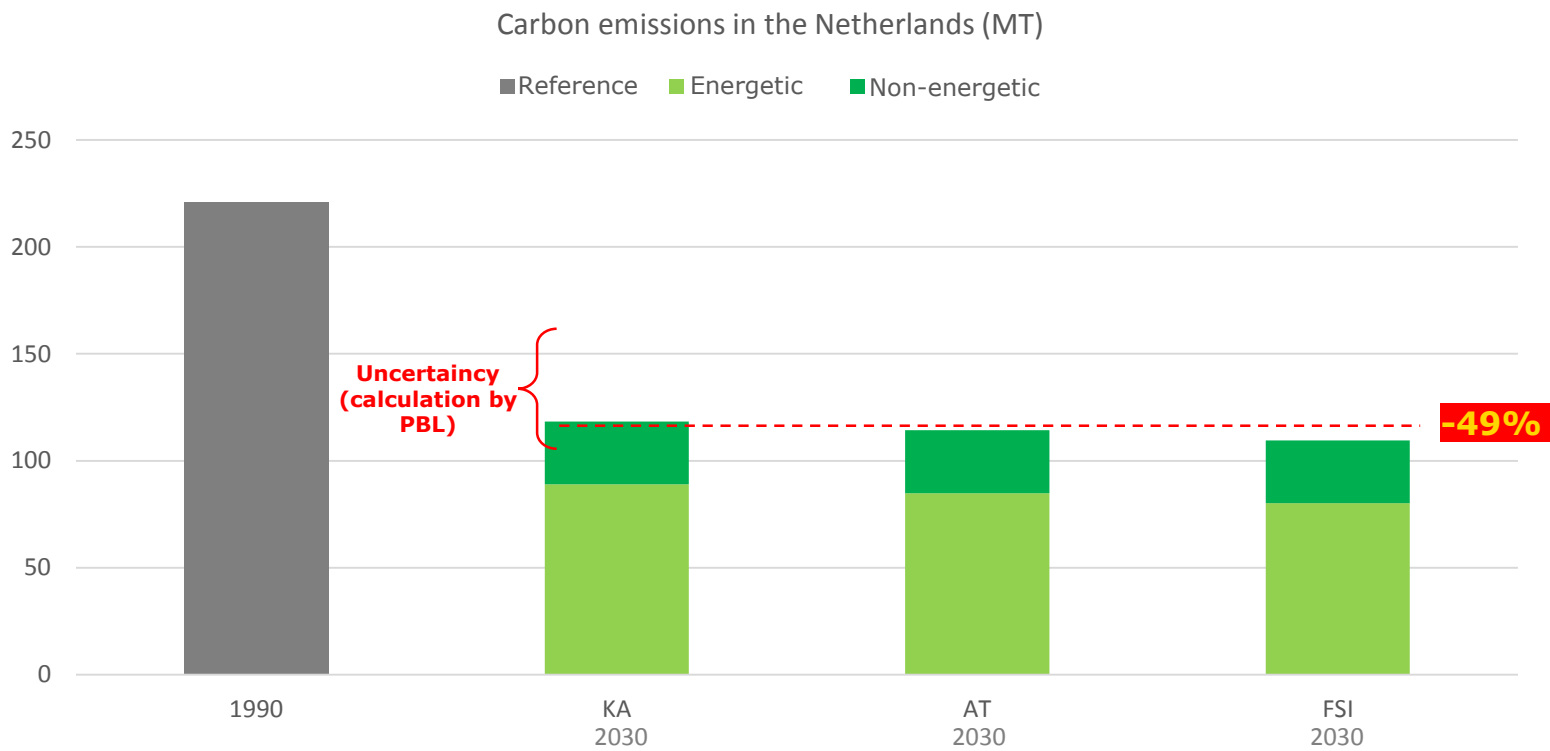
- CO₂ target reached
- Green methane
- Focus on hybrid heatpumps
- Fewer electric vehicles
- LNG for heavy goods transport
- More CCS in industry (10MT)
- Coal phaseout
- Less solar PV and wind

Fundament voor Systeemintegratie (FSI) *Foundation for sector coupling*



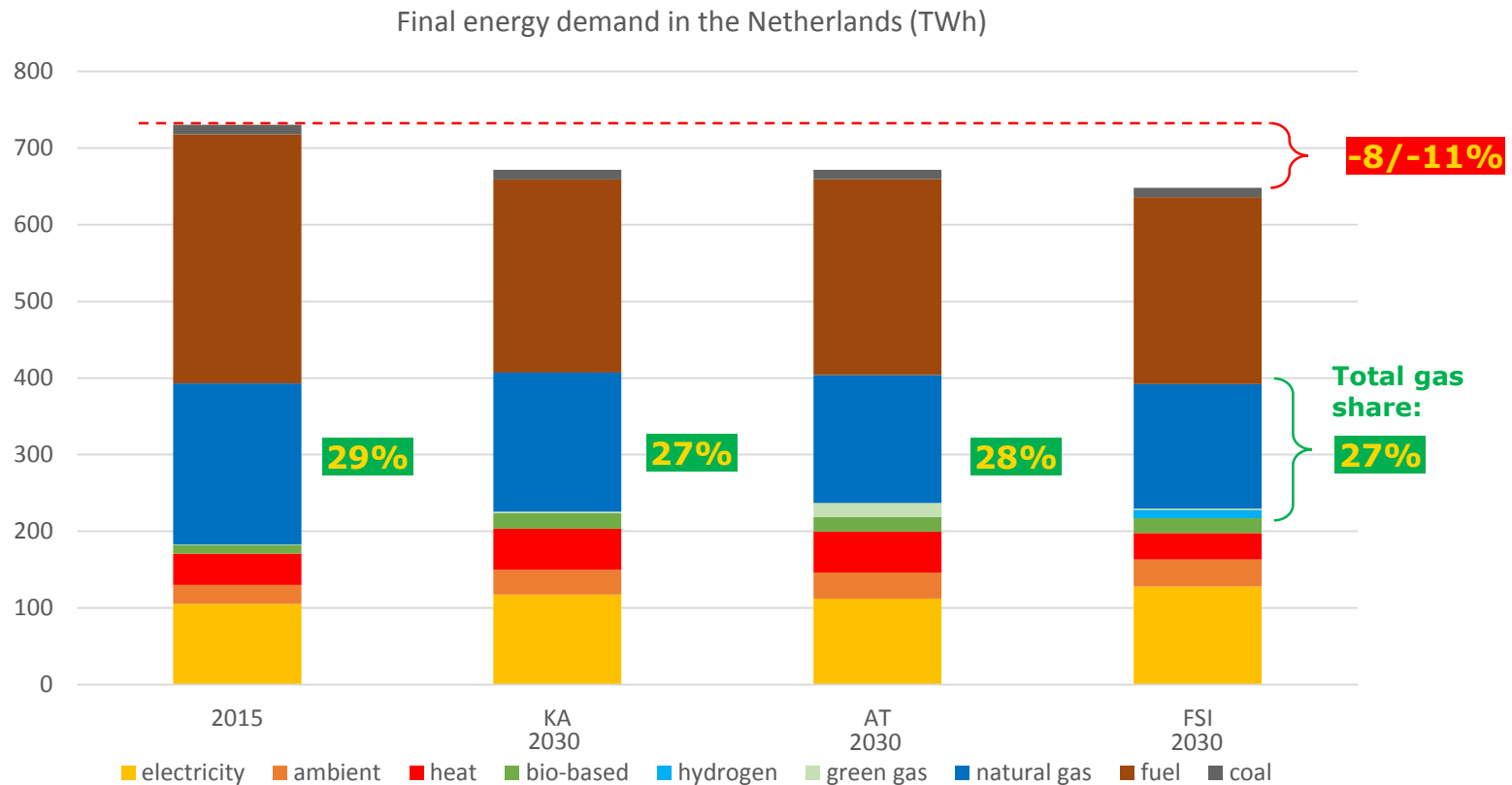
- CO₂ target reached
- Blue and green hydrogen
- Focus on all-electric solutions
- More electric vehicles
- P2H in industry
- 7 MT CCS
- Coal phaseout, some transition towards biomass
- Even more solar PV and wind

Dutch carbon emission reduction target (-49%) may not be entirely reached with the climate agreement. AT and FSI scenarios are on track however.



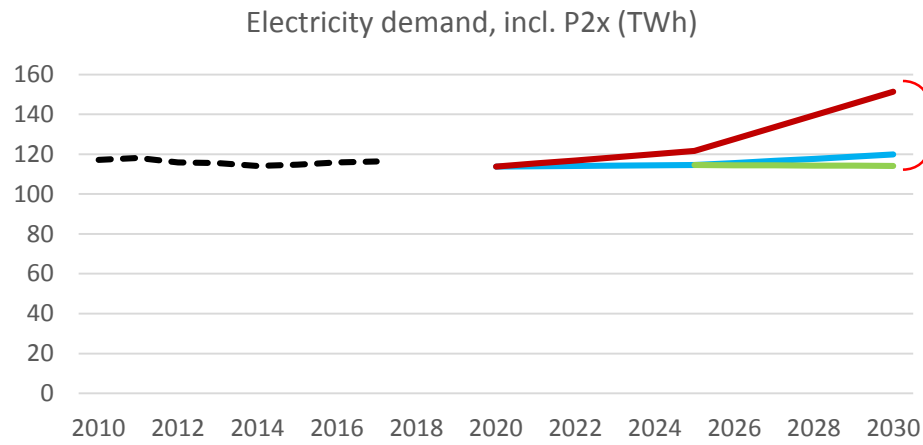
Carbon emissions are estimated with the Energy Transition Model (ETM) from Quintel. These outcomes are only indicative.

Final energy demand in the Netherlands declines in all scenarios. Share of gas remains quite stable (~28%), electricity increases.

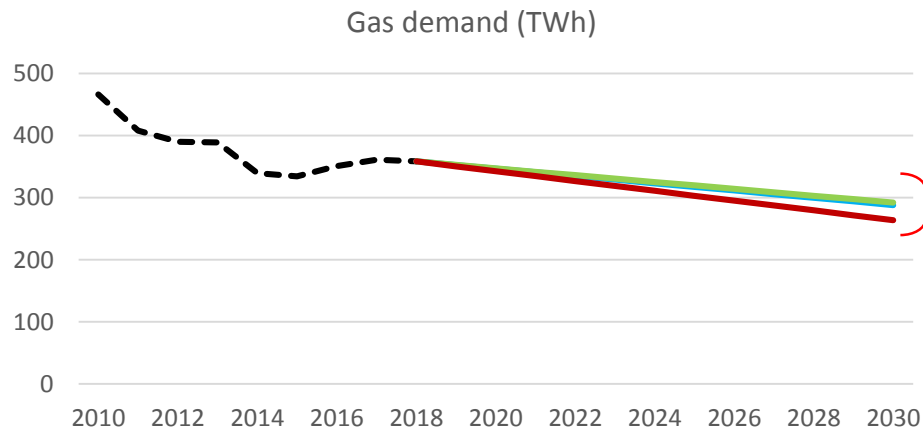


Note: Final energy demand excludes energy for conversion, like for example power generation

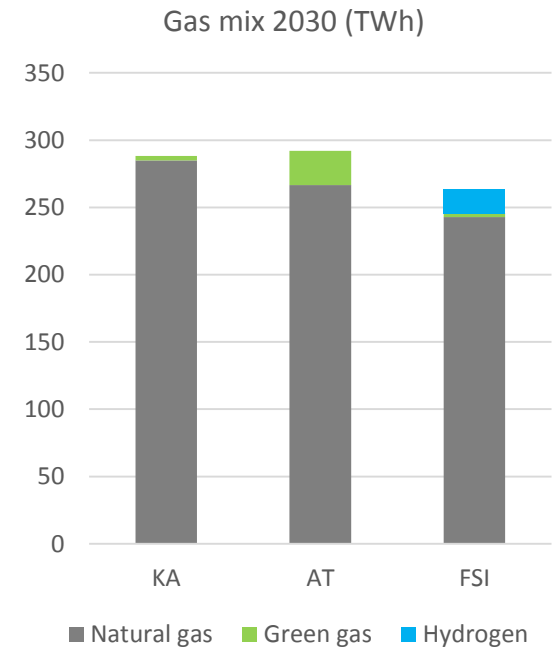
Electricity demand either remains constant or grows. Gas demand declines in all scenarios. Share of renewable gas increases.



+0/+33%



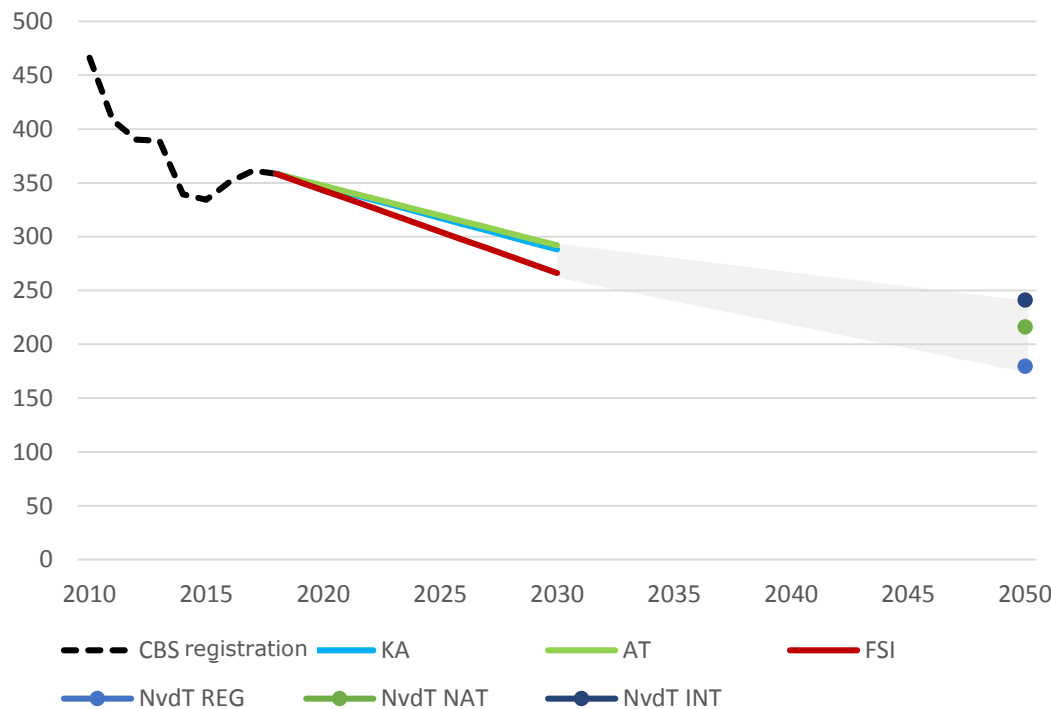
-19/-26%



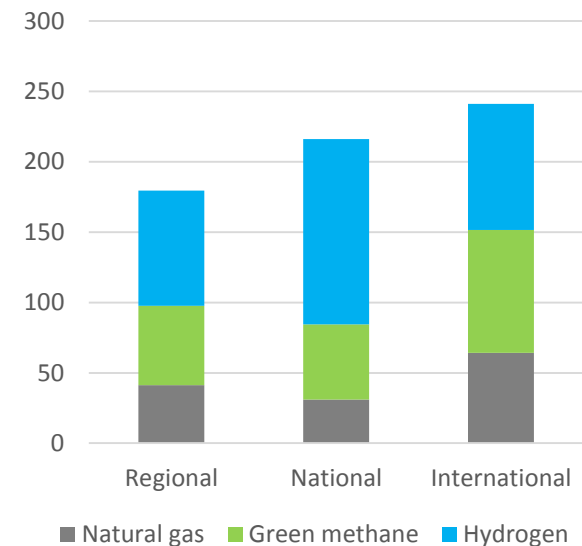
Note: Gasvolumes are presented in net calorific value.

After 2030 gas demand is expected to continue on a similar trajectory. Share of renewable gas will continue to rise to at least 75% in 2050.

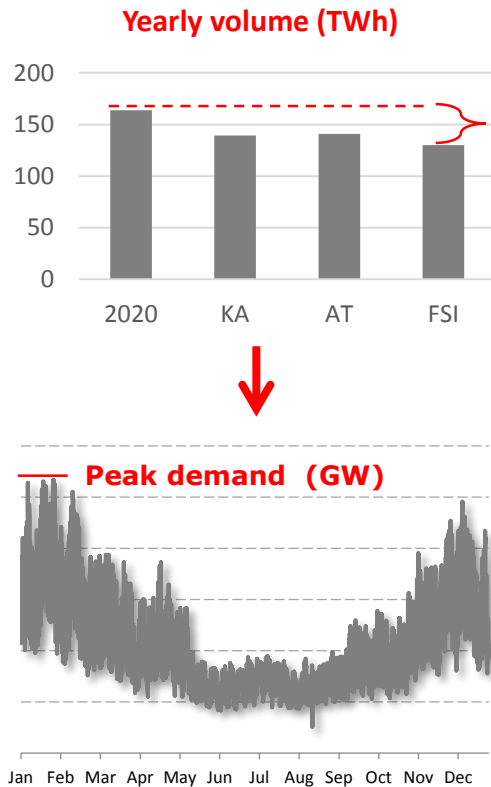
Gas demand in the Netherlands (TWh)



Dutch gas mix in 2050 (TWh)

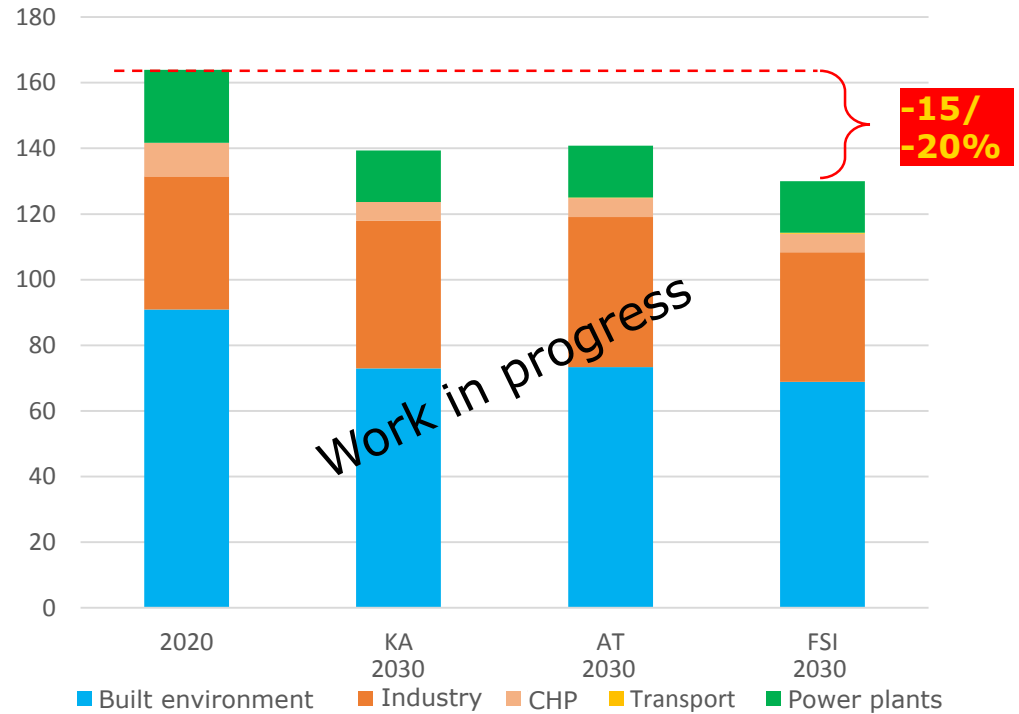


Peak demand for gas also declines in all scenarios. However this decline is smaller than that of yearly demand. This is caused by the role of gas for peak, backup and hybrid solutions.



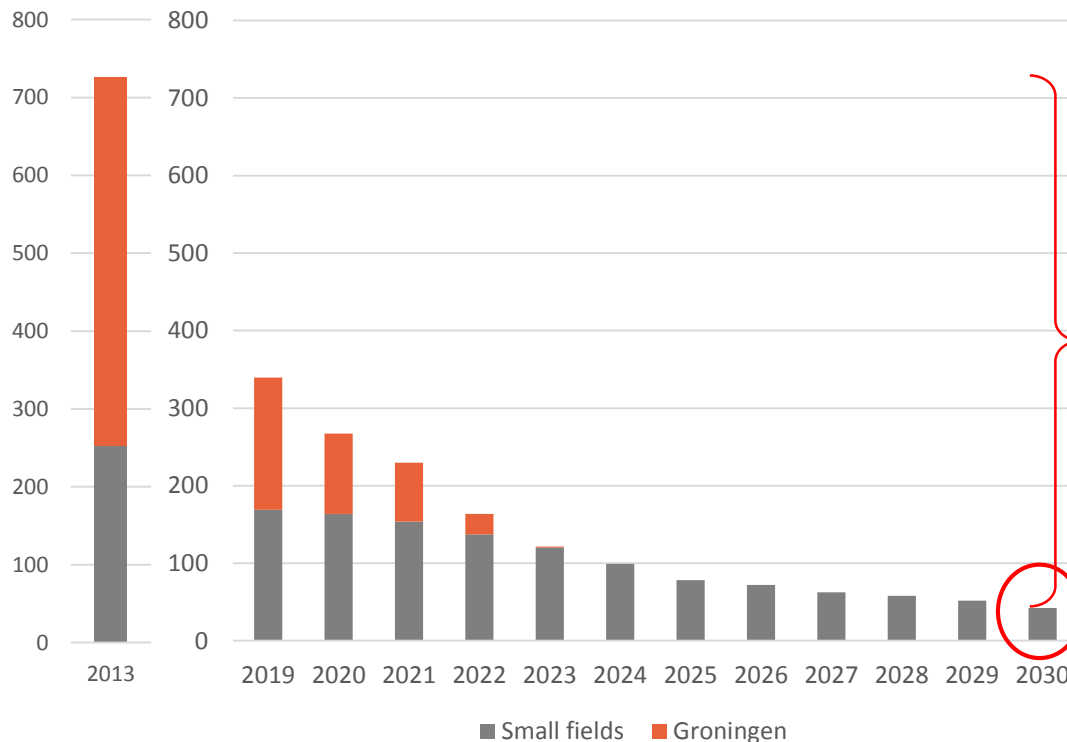
**-19/
-26%**

Peak demand gas (GW)

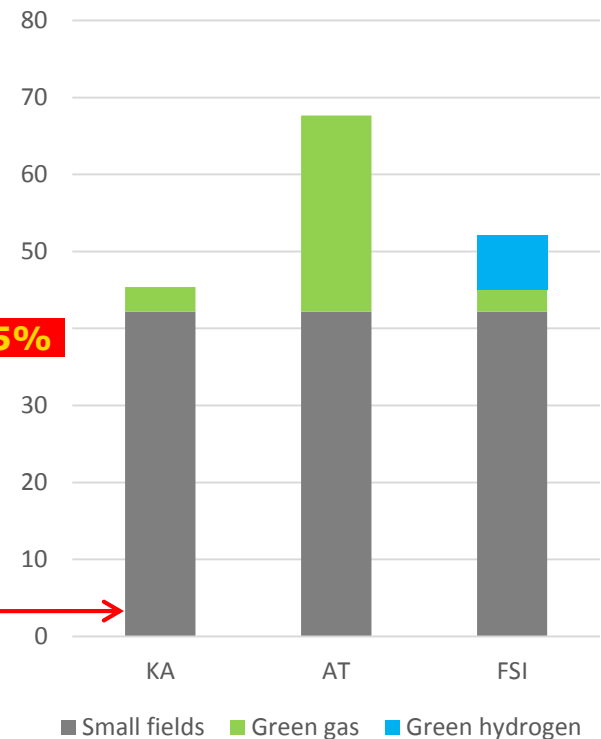


By 2030 the production of natural gas will be reduced substantially. In particular due to the closure of the Groningen field. Supply of renewable gas increases.

Domestic production in the Netherlands (TWh)

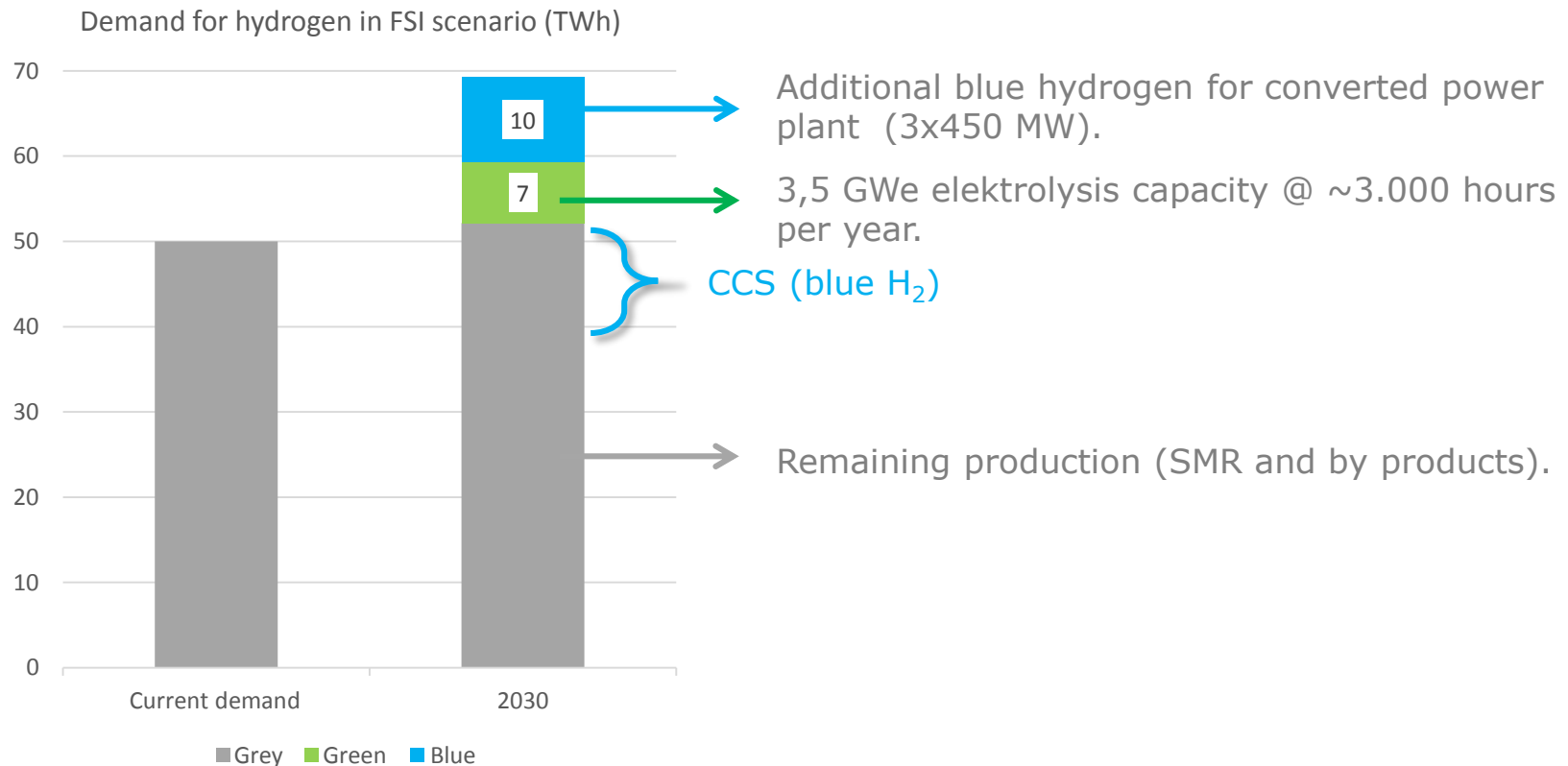


Dutch gas production in 2030 (TWh)



-95%

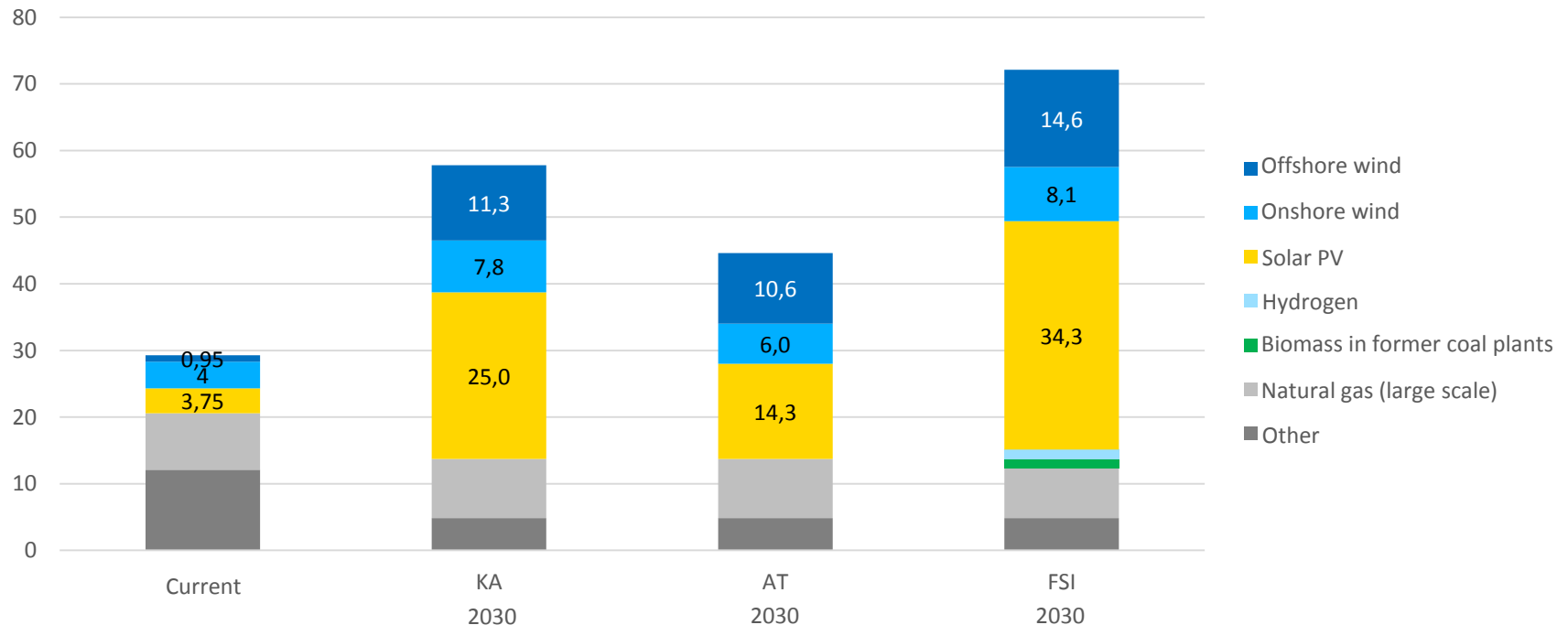
The FSI scenario foresees an increase in blue and green hydrogen. Up to ~28 TWh of carbon free hydrogen in 2030.



Note: Figures consider all production in the Netherlands. Historically approximately 1 TWh thereof is exported.

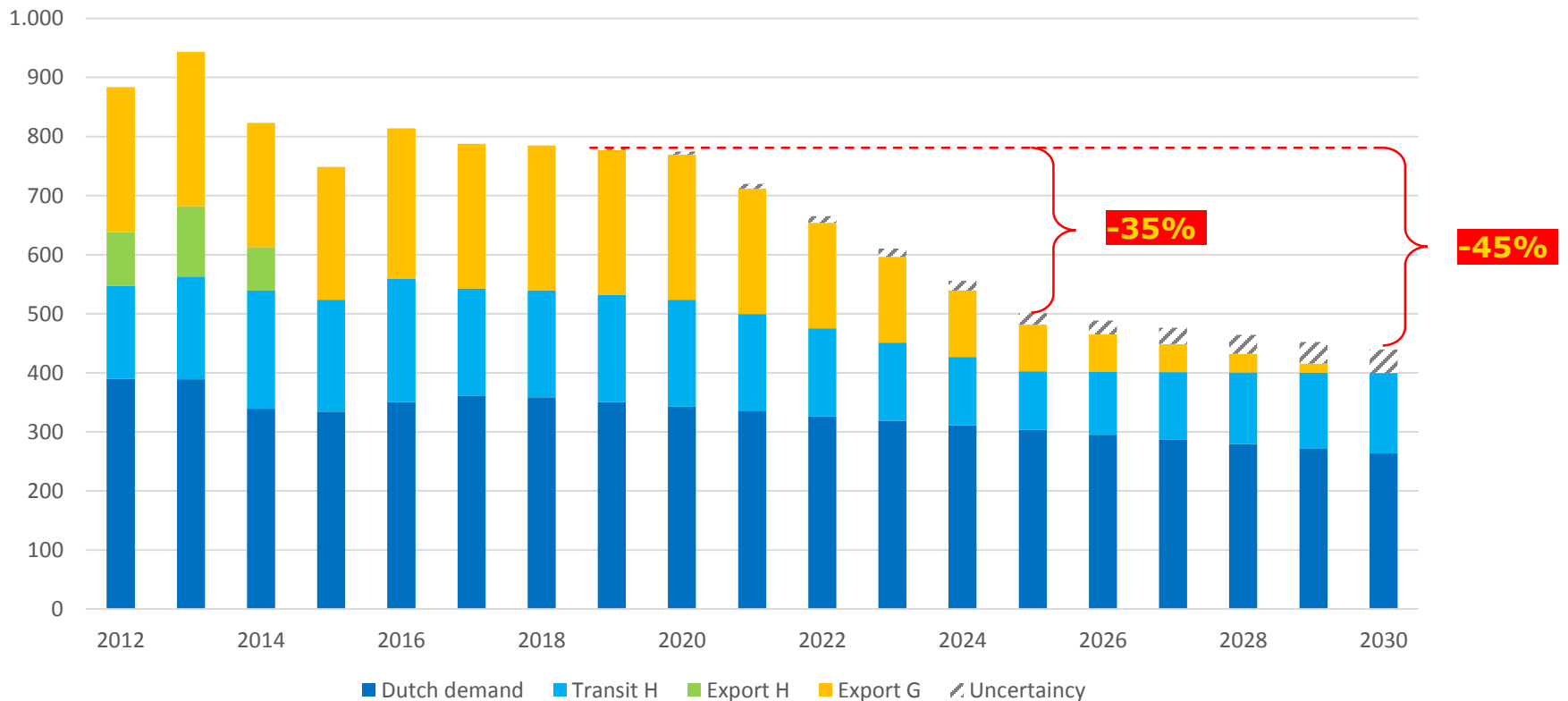
Installed capacity for renewable generation increases in all scenarios. In particular in the FSI scenario. This scenario also foresees some carbon free dispatchable generation (H₂, biomass).

Installed capacity of electricity generation (GW)



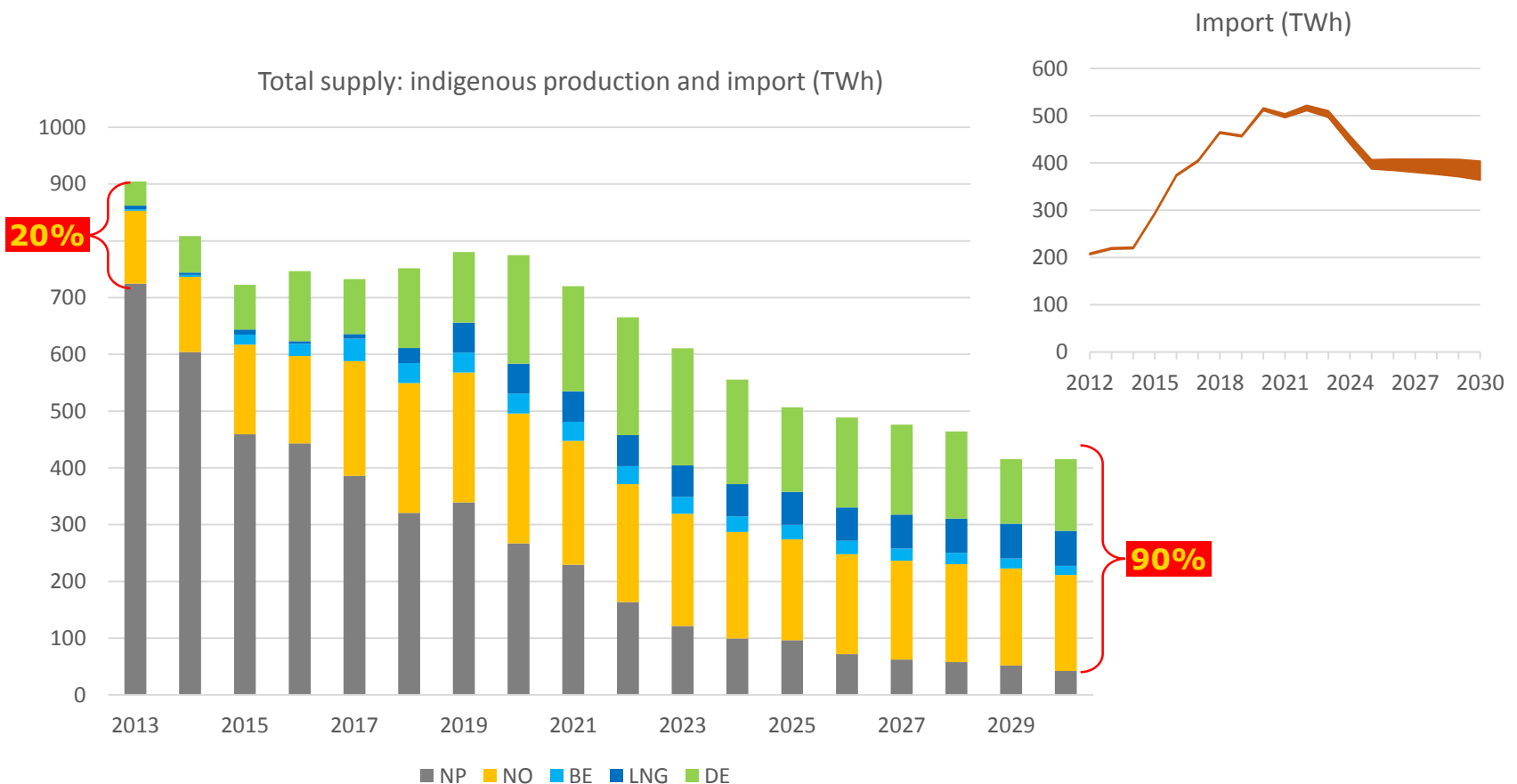
Total transport need is expected to decline. Primarily due to the reduction of L-gas export. Transit flow remains quite stable.

Total transport demand: domestic, export and transit (TWh)



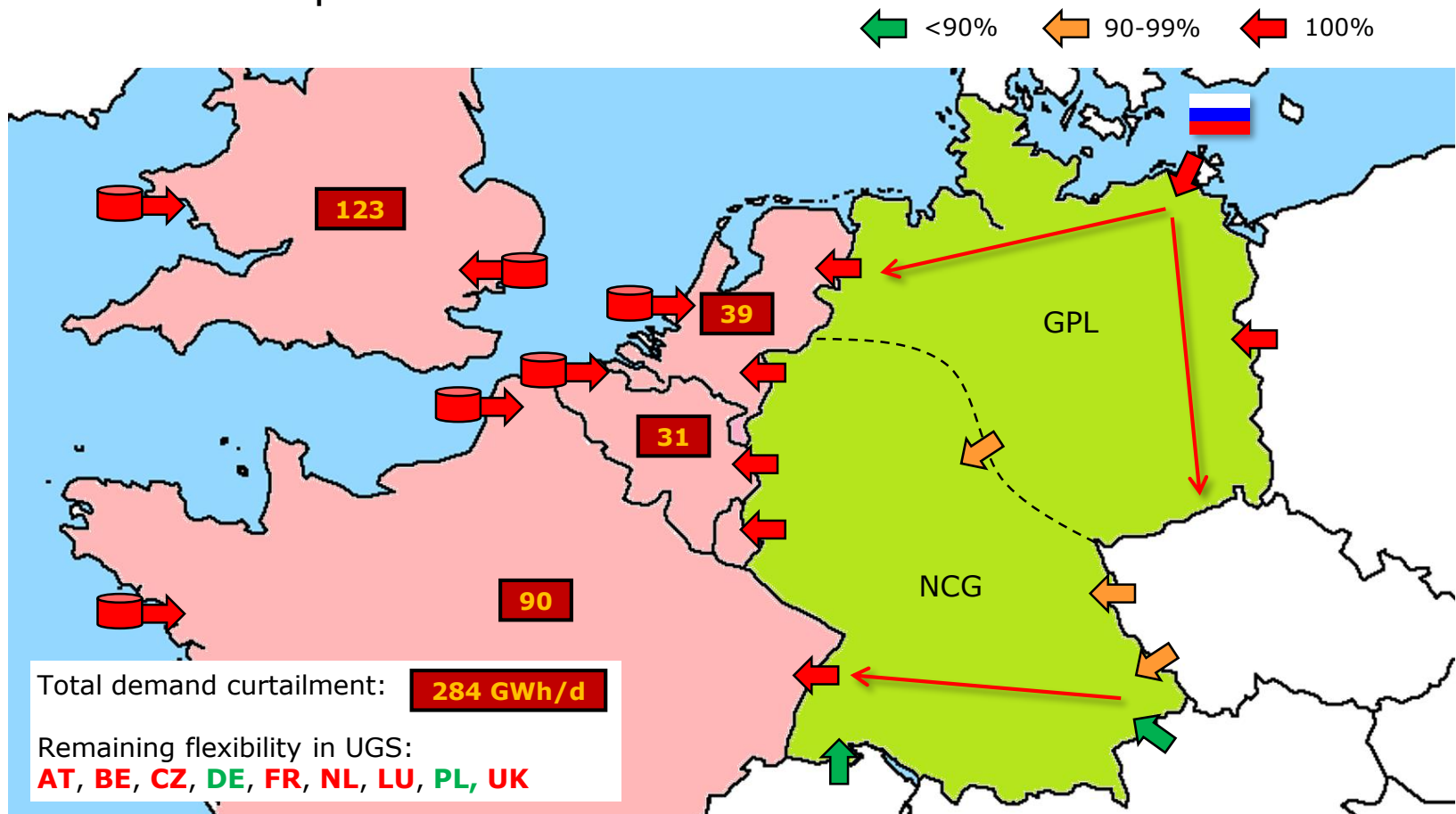
Net calorific value, normal temperature year. Outlook for transit flow is based on ENTSOG TYNDP calculations.

Import requirement will peak between 2020-2025. After that it will decline slightly. Requires additional import of Russian gas and LNG.



Net calorific value, normal temperature year. Outlook for imports is based on ENTSOG TYNDP calculations.

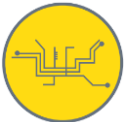
Due to lower indigenous production and expected closure of UGS capacity a possible security of supply bottleneck may arise in Northwest Europe.



Take aways



1. Dutch carbon emission target for 2030 (-49%) can be reached in different ways.



2. Gas- and electricity infrastructure contribute to reaching this target, each in their own way. Additionally, the energy infrastructures are expected to become more and more integrated.



3. Renewable electricity generation will increase substantially in the years to come. Combined with increasing electrification of demand will this increase the load on electricity infrastructure.



4. Gas demand will decline in all scenarios, but indigenous production will decline even faster. Therefore more gas import is needed. Supply of renewable gas (methane, hydrogen) will also increase. This means that gas transmission infrastructure will be used in different ways.

