Assessing the impact of the Groningen production cap – What does this mean for European gas trading?

Amsterdam, 18 October 2016

Data Source: Gasunie

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Agenda

Can European gas demand still be met with lower production from Groningen?

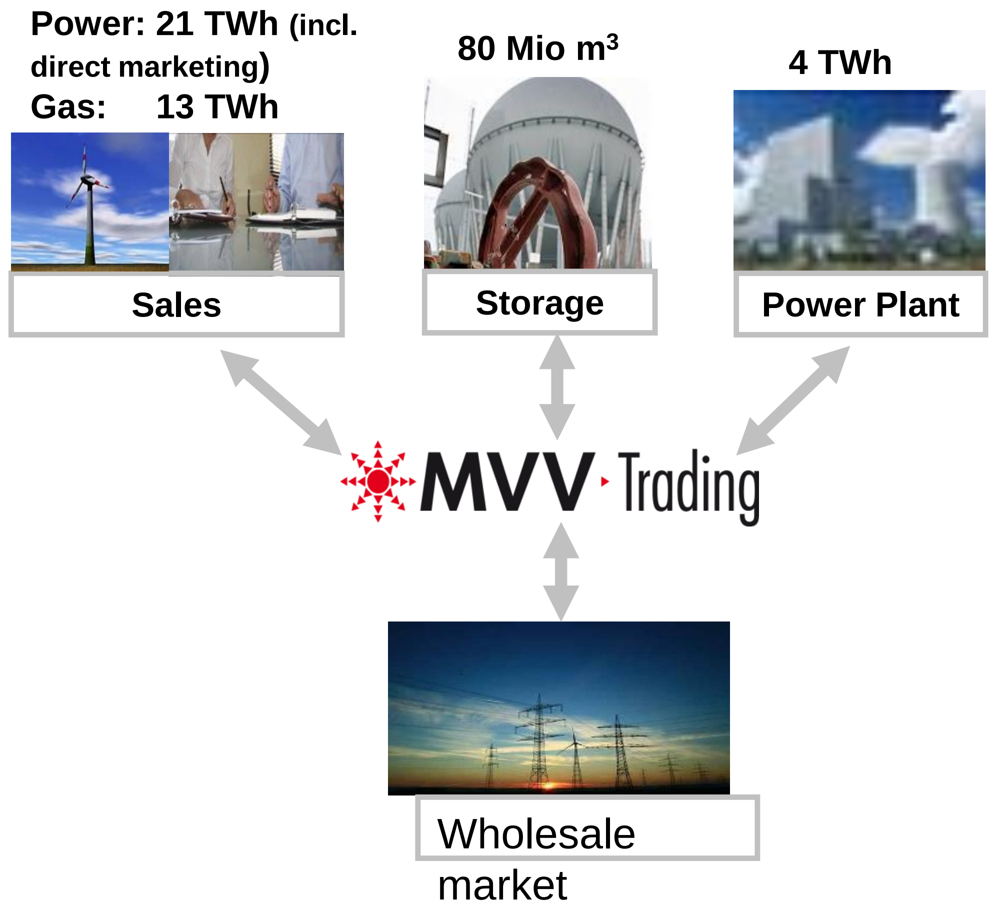
The future role of Groningen as a flexible supply source in the mid-to-long term

Is it more an issue of gas quality? – a look into the German NCG market area

MVV Energie Group's Energy Portfolio

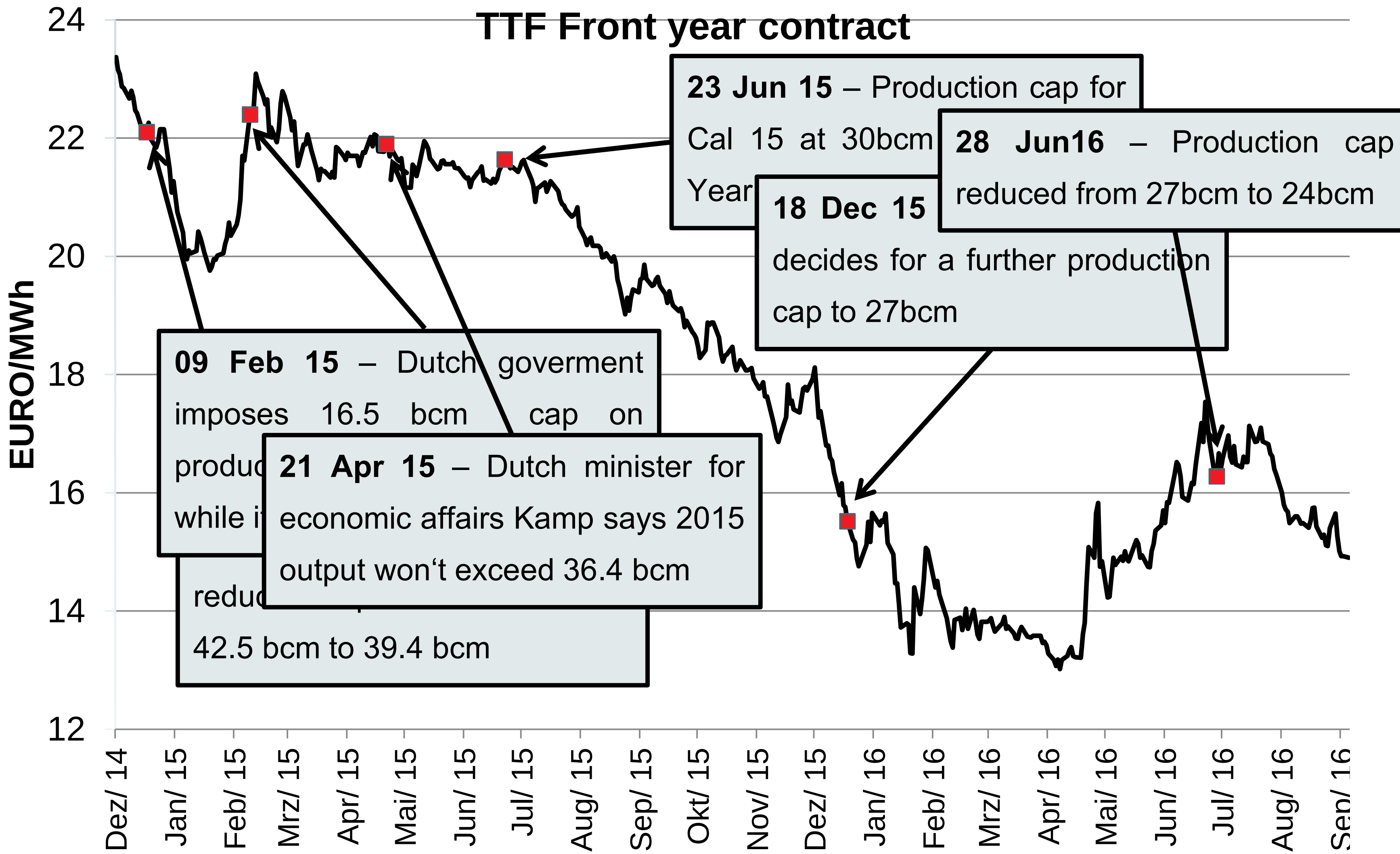
Products for procurement, optimization and risk management

- Standard products
- Gas flexibility (e.g. storage...)
- CDS-hedging
- Renewables direct marketing > 4.000 MW



MVV Trading provides market access for the energy portfolio of MVV Energie group

Major News regarding Groningen Production Allowances and the Effect on Prices



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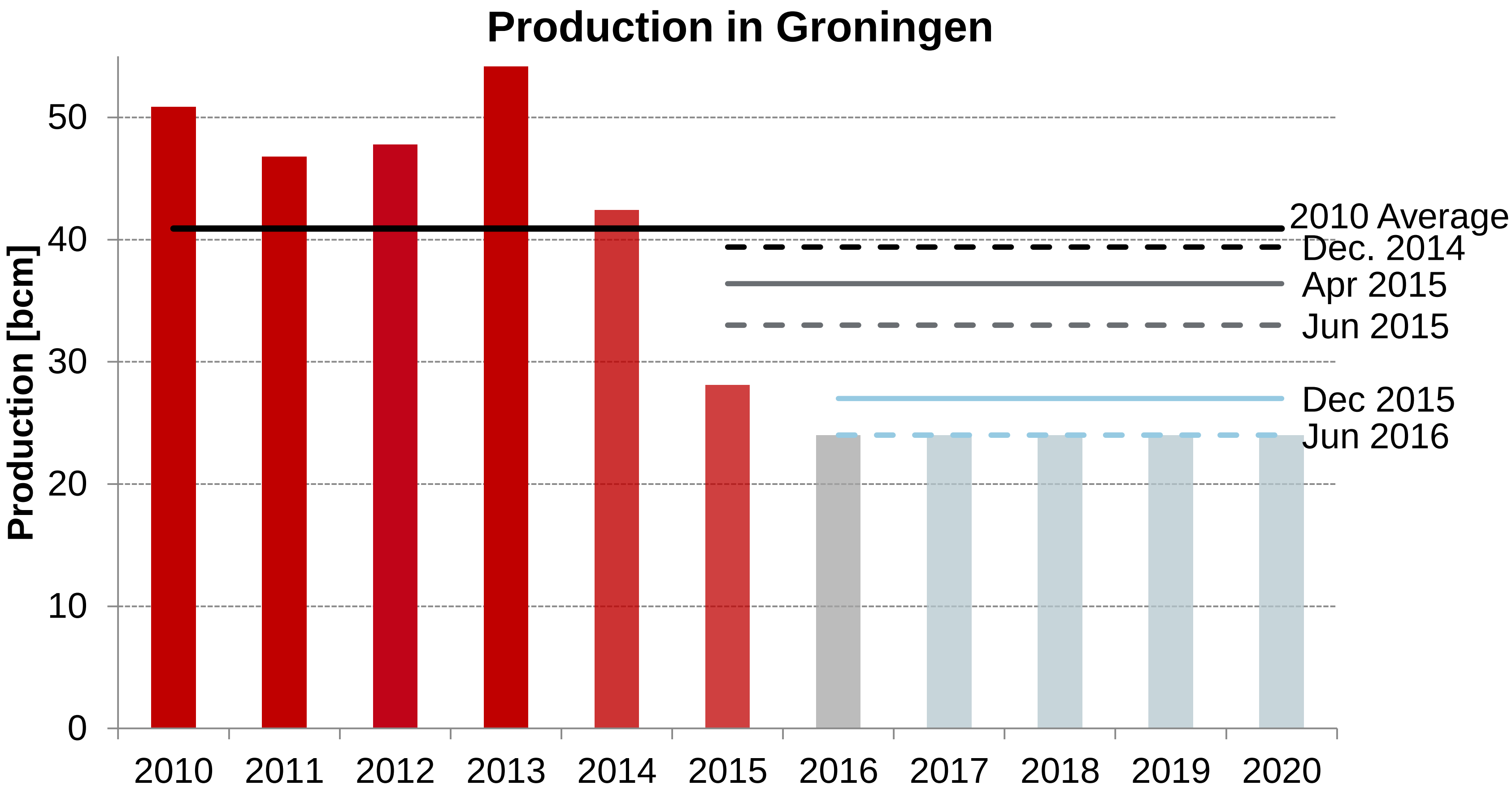
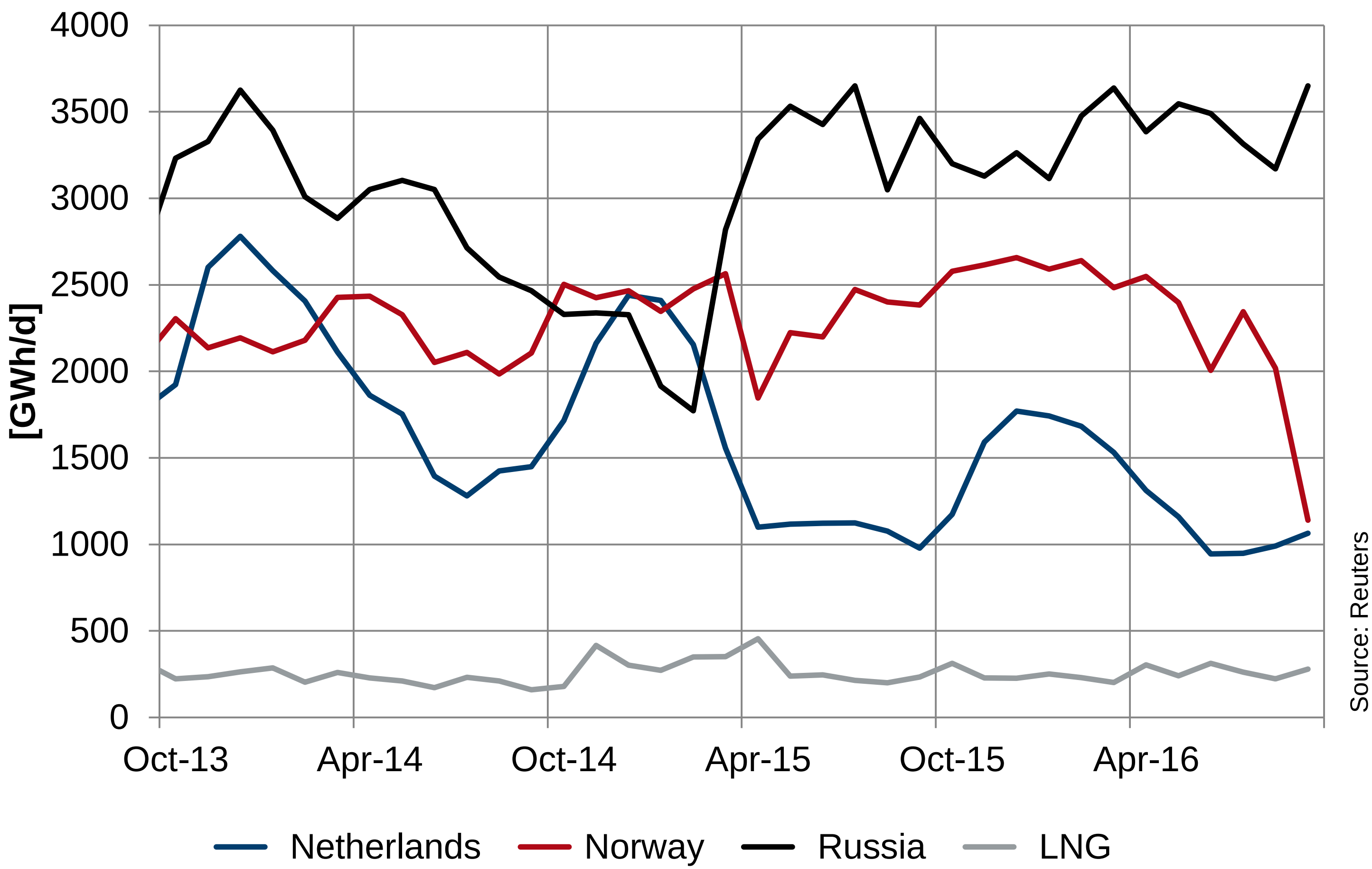
Development of Groningen Production and Caps



Any new decision increases reduction of Groningen production

Development of Production and Flows for North-West Europe



Groningen Gas replaced mainly by increased flows from Russia

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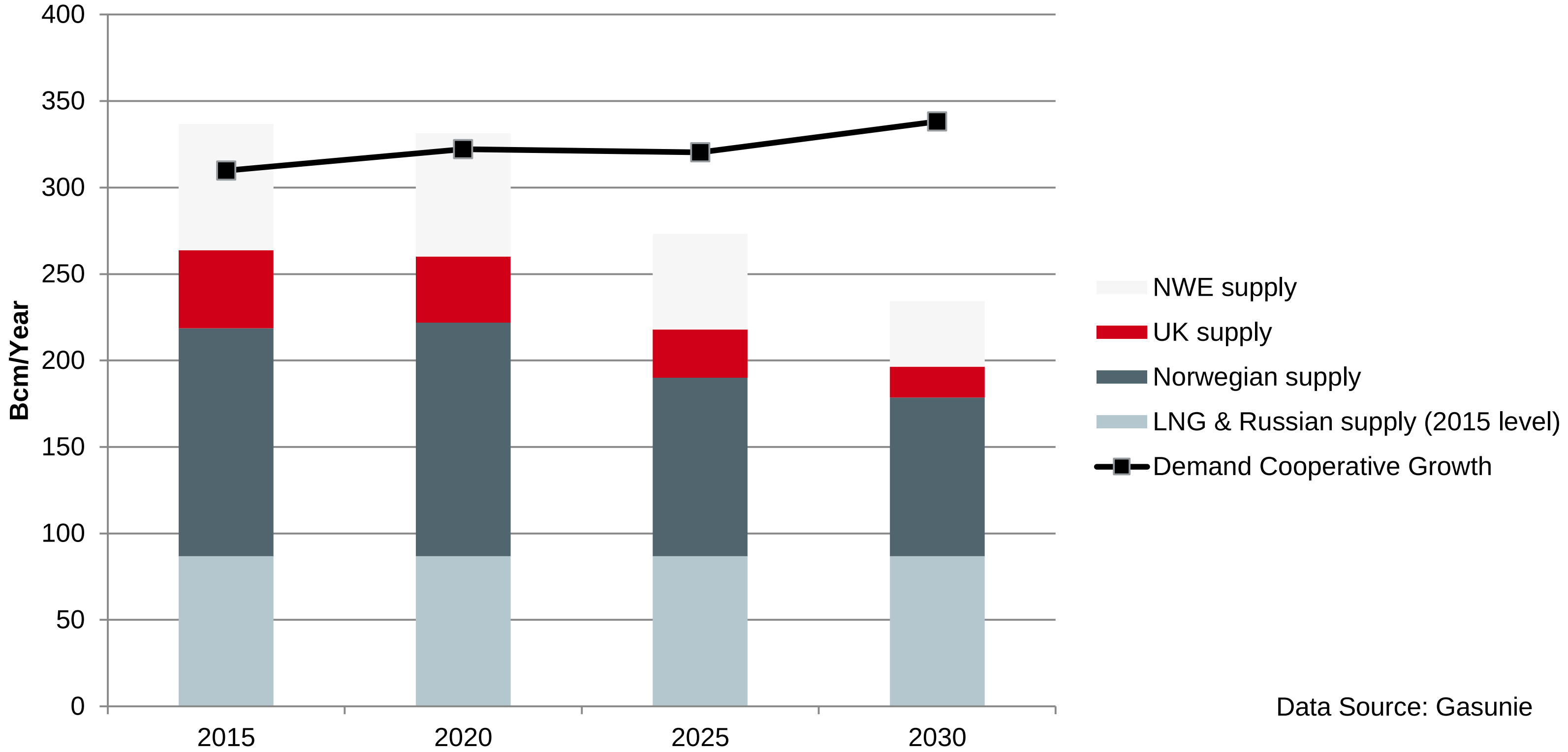
Volume balance in North-West Europe - Supply Gap to be filled after 2020



Data Source: Gasunie

Potential Sources of Supply:

- Russia: ~70bcm unused import capacity, ~ 100bcm unused production capacity
- LNG >25bcm unused regasification capacity in the Netherlands, Belgium and Dunkerque

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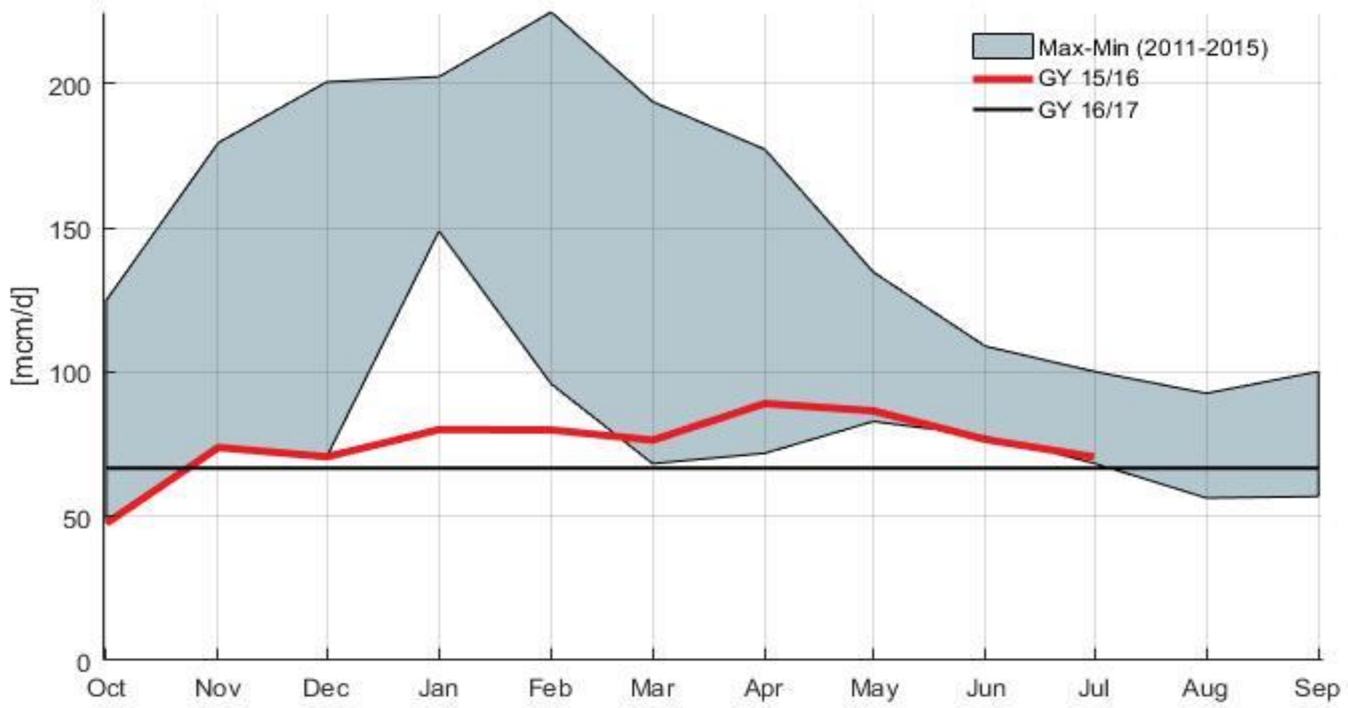
Groningen Swing Capabilities – Past and Future



Source: Reuters & NAM

Alternative sources of flexibility:

- Storage (+ 7 bcm in NL alone)
- LNG (unused winter cap > 10 bcm)
- Pipeline imports
- Additional Groningen allowance in case of cold winter (6 bcm)

Market View of Lost Swing Production

Summer x Winter spread not affected

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Gas Quality – Low Calorific Gas

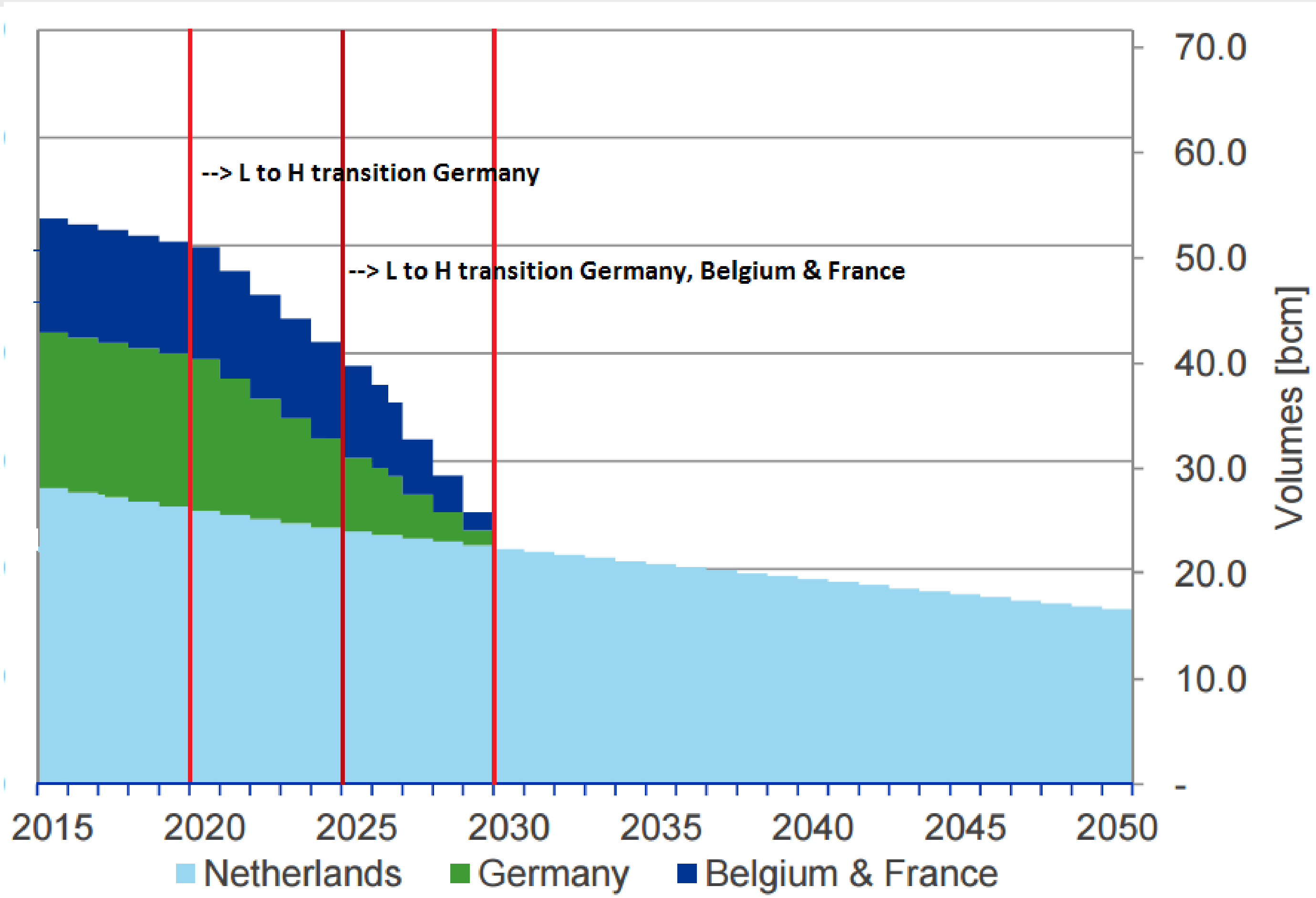
Low calorific gas (L-gas or G-gas)

- Wobbe index of 42.7 – 46.9 MJ/m3
- Produced mainly in Groningen and in some small fields in NL, Germany

How to cope with shrinking L-gas volumes

- Conversion:
  - Ballasting H-gas with Nitrogen – 20 bcm/a
  - Blending L-gas with H-gas to reach upper limit of Wobbe range Avoiding not required use of L-gas
  - Stop blending H-gas with L-gas
  - Stop exporting L-gas that is not needed (France) – 2 bcm/a
- Switching consumption from L-gas to H-gas

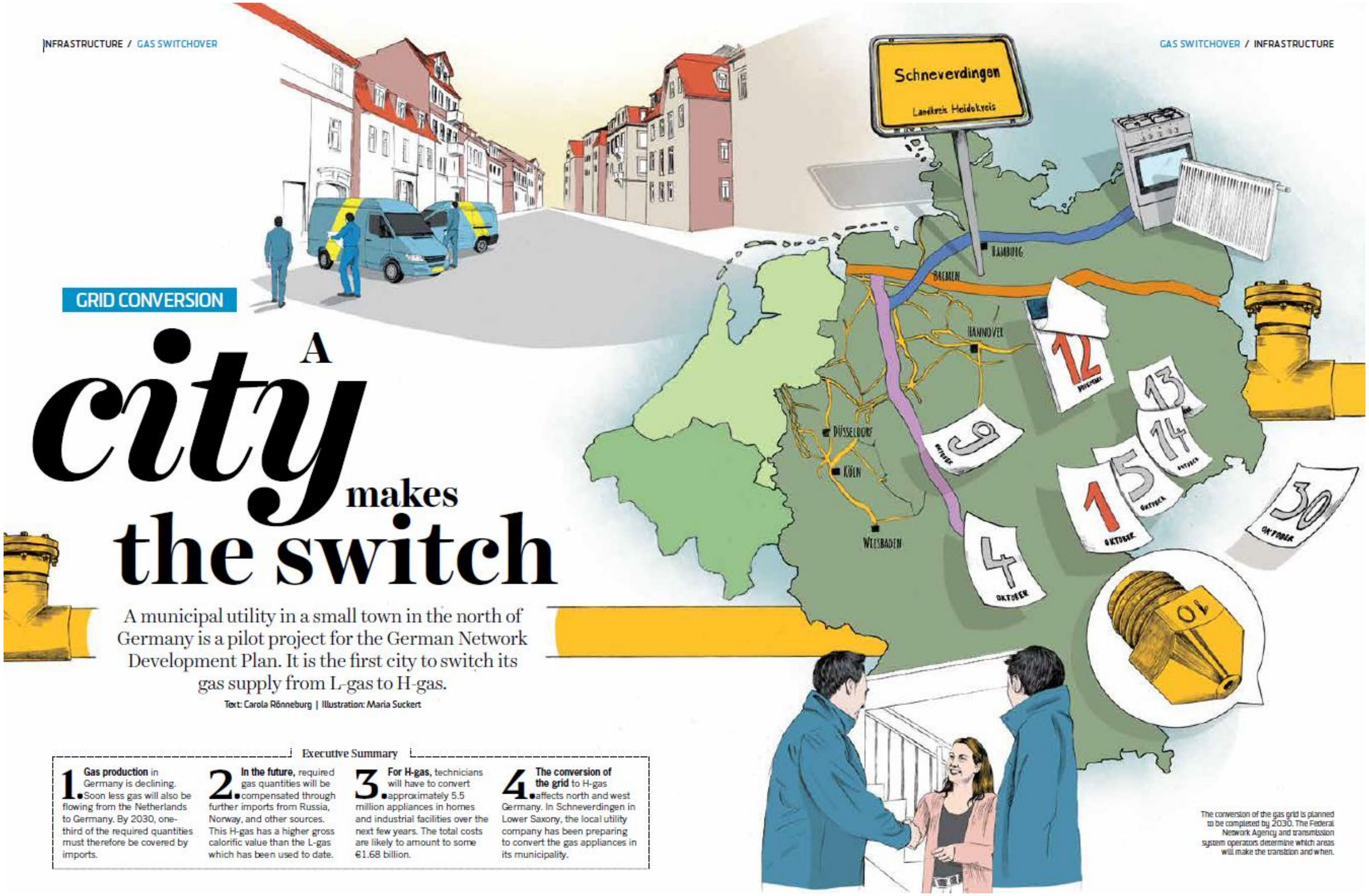
Estimated demand for Dutch L-gas in an average year



Data Source: Gasunie

Changing quality specifications in consumption starting in Germany, followed by Belgium and France

Switching Consumption from L-Gas to H-Gas has already started in Germany in 2015


INFRASTRUCTURE / GAS SWITCHOVER

GAS SWITCHOVER / INFRASTRUCTURE

GRID CONVERSION

A city makes the switch

A municipal utility in a small town in the north of Germany is a pilot project for the German Network Development Plan. It is the first city to switch its gas supply from L-gas to H-gas.

Text: Carola Rönneburg | Illustration: Maria Suckert

Executive Summary

1. **Gas production** in Germany is declining. Soon less gas will also be flowing from the Netherlands to Germany. By 2030, one-third of the required quantities must therefore be covered by imports.

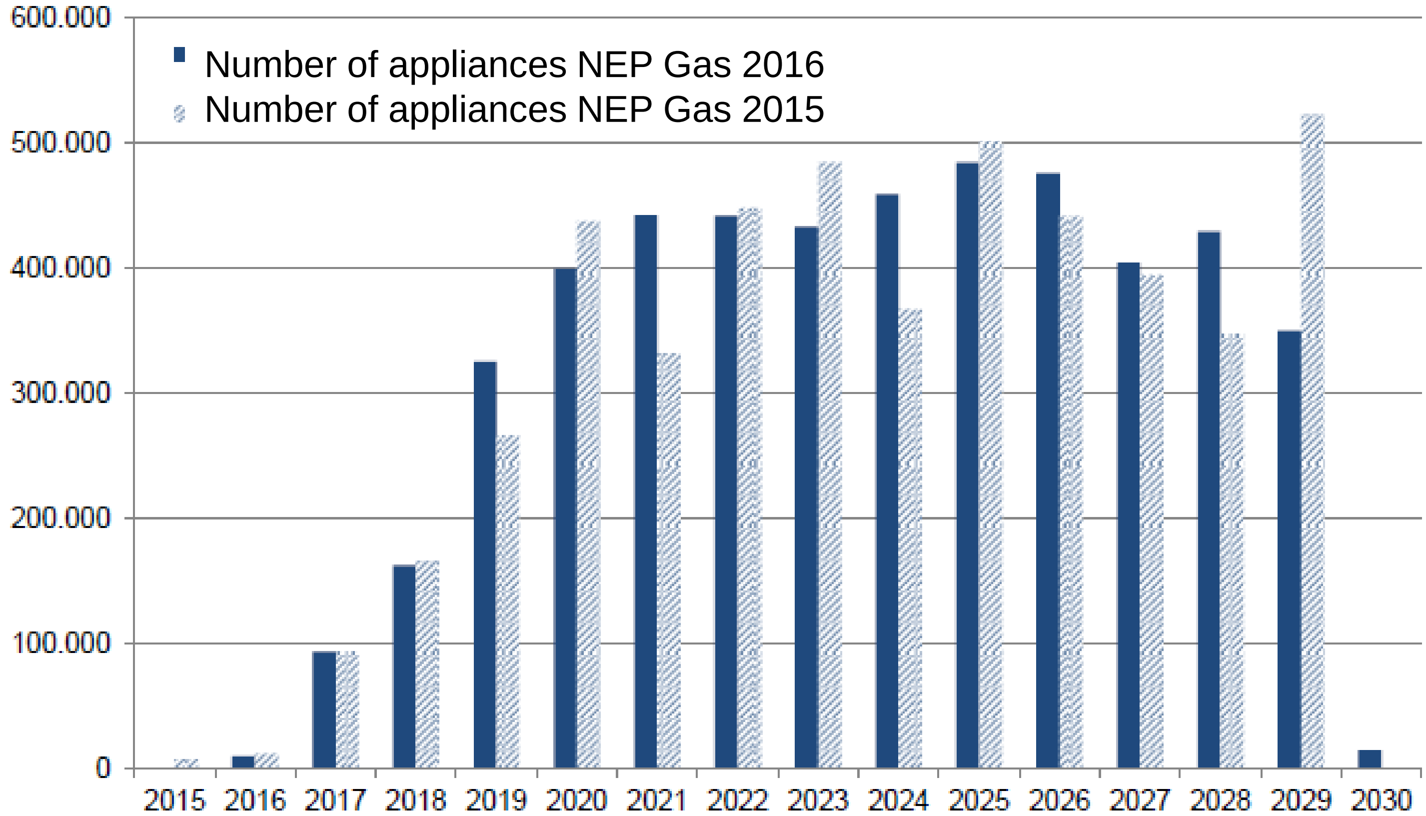
2. **In the future,** required gas quantities will be compensated through further imports from Russia, Norway, and other sources. This H-gas has a higher gross calorific value than the L-gas which has been used to date.

3. **For H-gas,** technicians will have to convert approximately 5.5 million appliances in homes and industrial facilities over the next few years. The total costs are likely to amount to some €1.68 billion.

4. **The conversion of the grid** to H-gas affects north and west Germany. In Schneverdingen in Lower Saxony, the local utility company has been preparing to convert the gas appliances in its municipality.

The conversion of the gas grid is planned to be completed by 2030. The Federal Network Agency and transmission system operators determine which areas will make the transition and when.

Plan for Regional Switching of Gas Quality



- Slow startup to build capacities
- Complex planning to define switching areas based on infrastrucure constraints

KONNI – Regulatory Framework for Quality Specific Balancing Issues in Germany

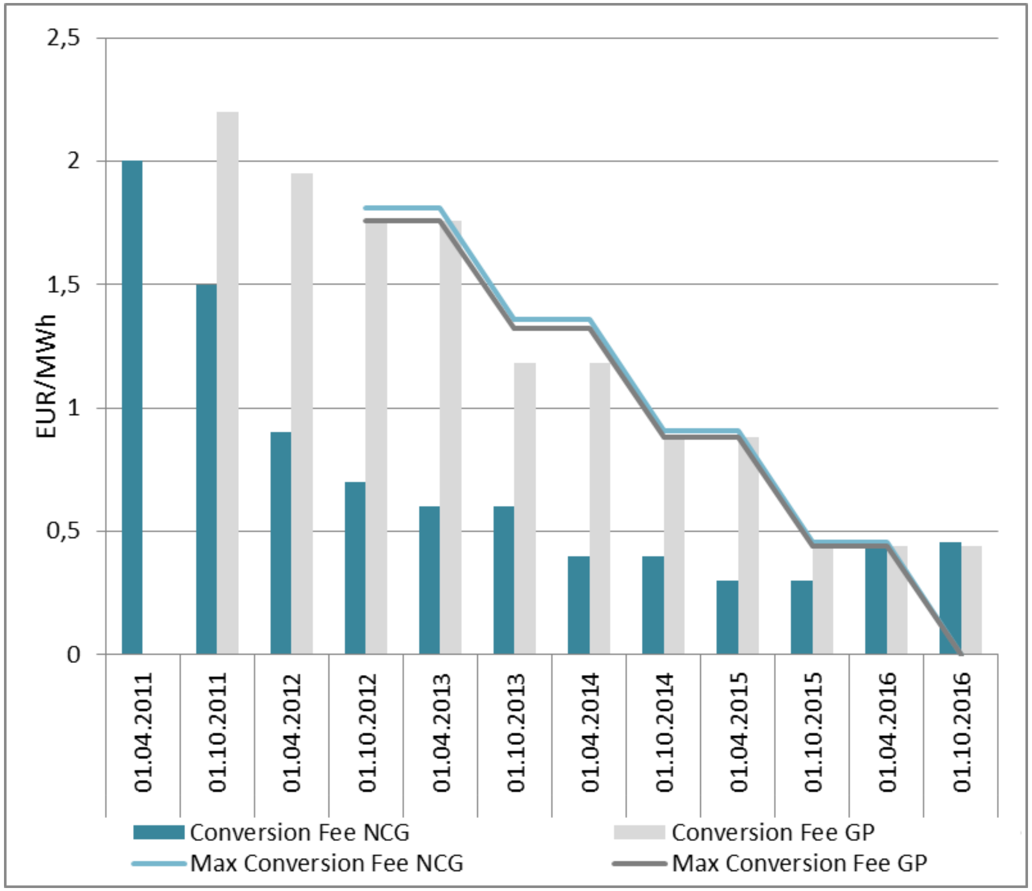
3 ways to fulfill demand for L-gas in NCG market area

Buy L-gas at NCG

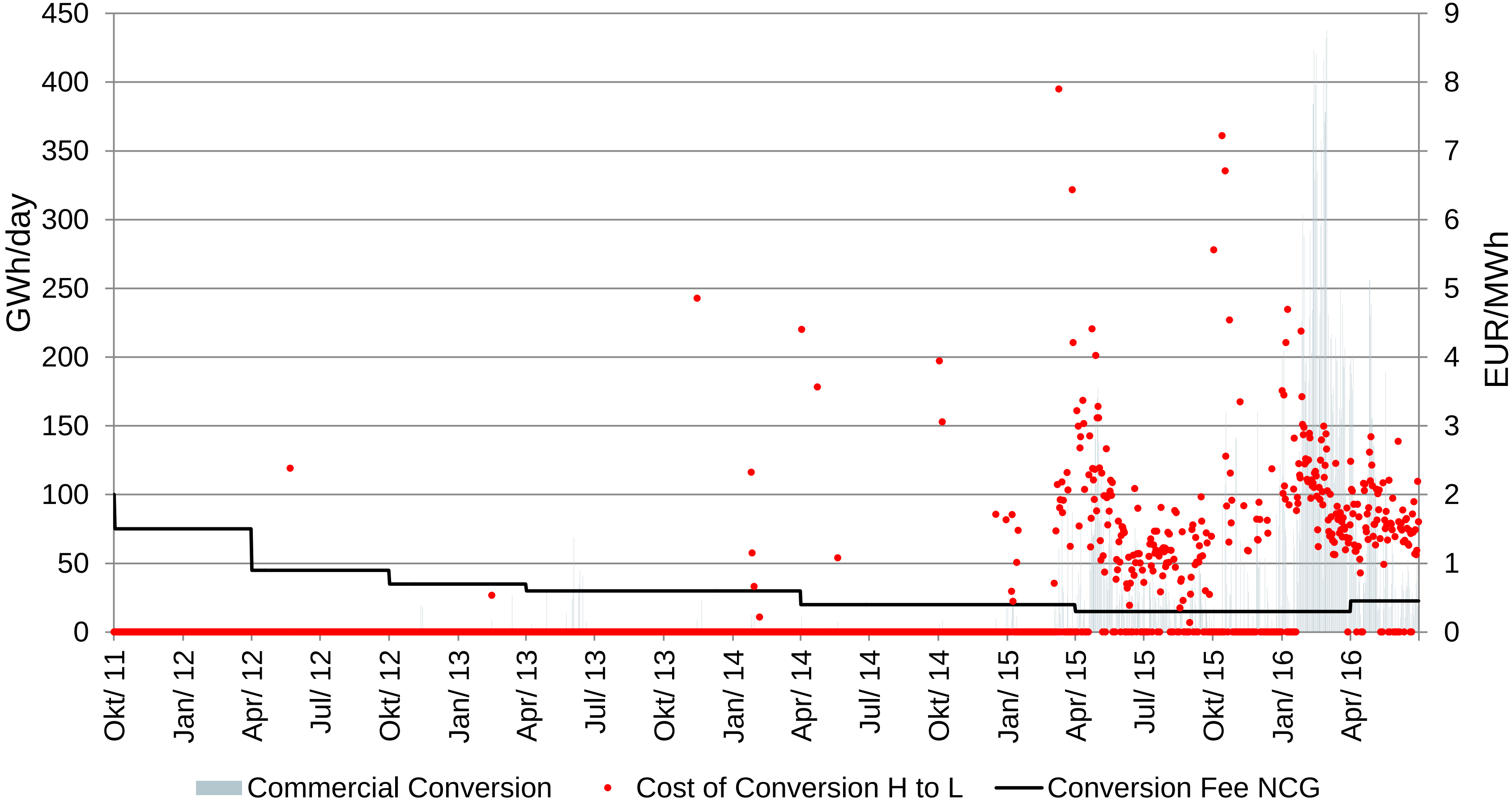
Buy L-gas at TTF or border point + transport to NCG

Buy H-gas at NCG + virtual conversion to L-Gas (KONNI)

Development of Conversion Fes in Germany



Cost of Virtual Conversion and Converted Volumes



Is the conversion fee a sufficient incentive for shipper?

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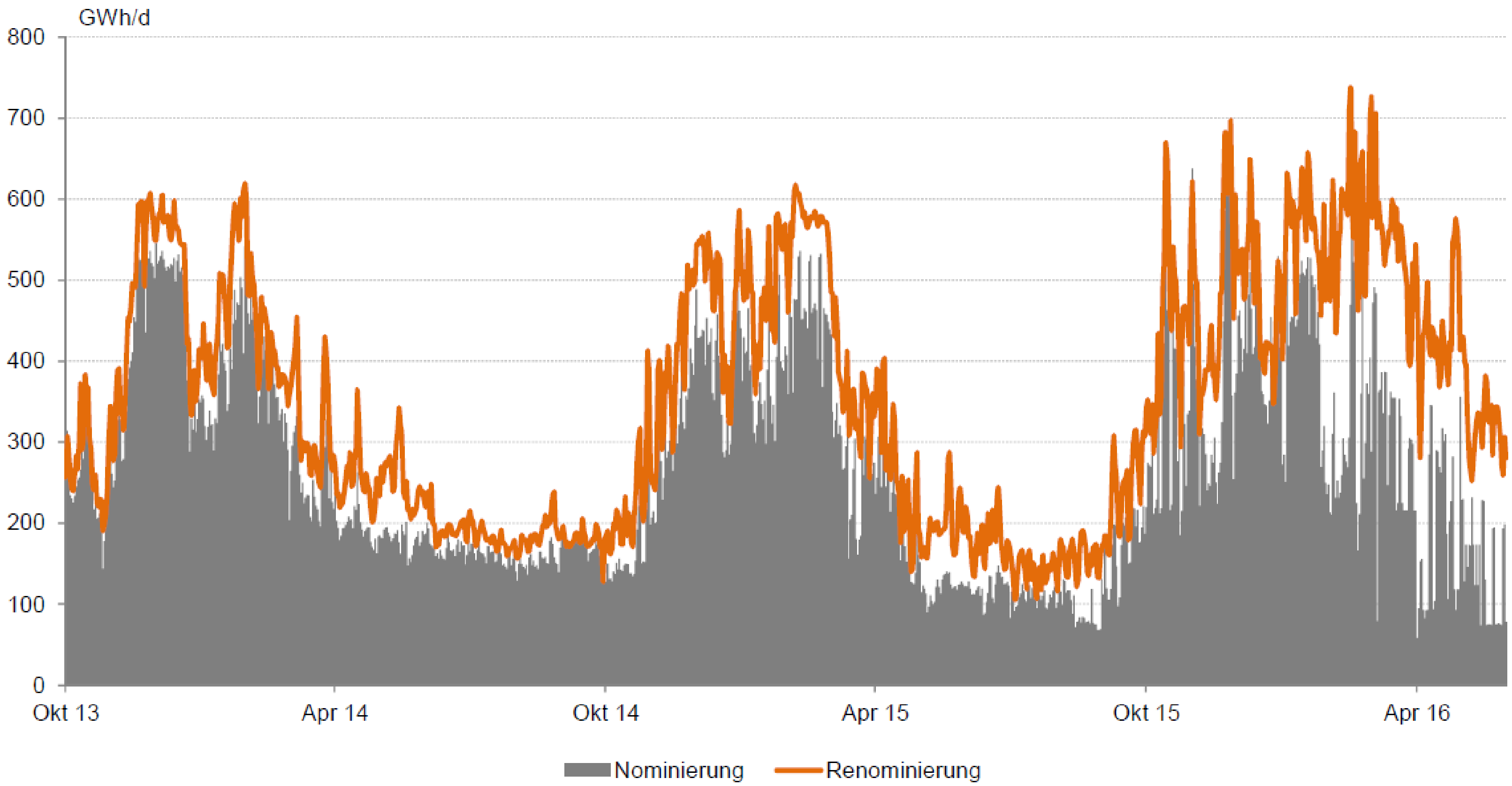
Nominations and Renominations at Entry Points to NCG-L



Are shippers holding back L-gas to maximise profit?

3 Levels of Action for German L-Gas

1) Making sure that sufficient L-gas volumes will be available
   - Political Level
   - TSO-level
   - Trading level

2) Incentives for shippers to balance gas qualities
   - Prologation of KONNI?
   - Contradictory to legal limitation to 2 market areas

3) Integrating L-gas zones into TTF
   - Sufficient liquidity for German L-gas customers
   - Market design that can support shrinking L-Gas zones in German market areas

Thank you for your attention!

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