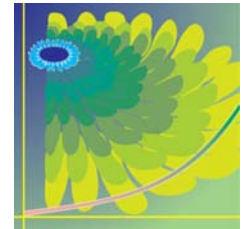


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# Biomethane Injection: Outlook from a grid controller perspective

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**Peter Beumers**  
Project Group “Groen Gas”  
Netbeheer Nederland



# Grid Controllers

netbeheer  nederland



liander  
onderdeel van alliander



gastransportservices



intergas  
netbeheer 

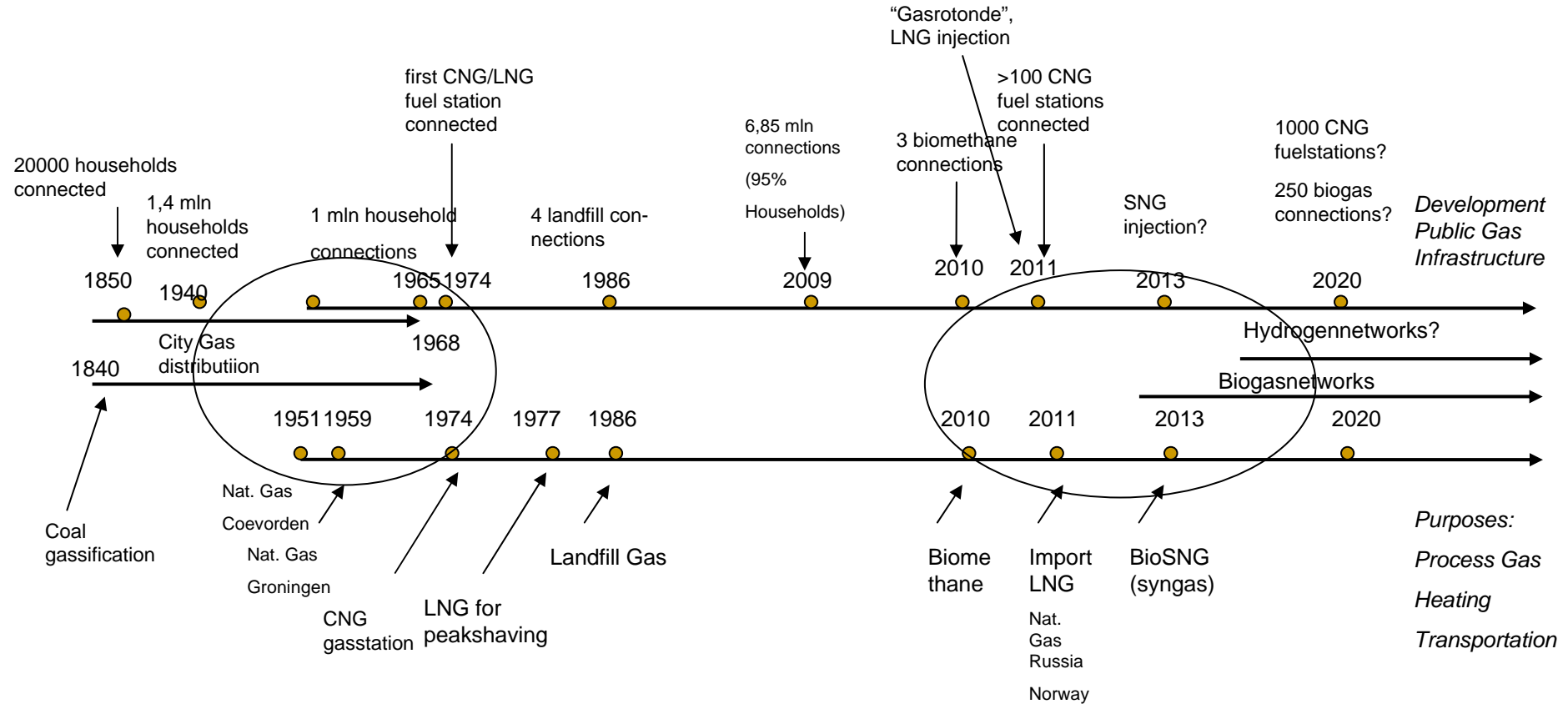


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# Tasks Grid Controller

- Maintain and develop gas networks
    - Economically viable
    - Safe
    - Reliable
  - Transportation of gas to businesses and consumers
    - 121.000 km
    - 6,5 mln. Connections
  - Facilitating energytransition
  - Reliability & safety: Biomethane
    - Gas quality: Effects on installed base
      - interchangeability of upgraded biogas with natural gas
    - Capacity/Connection:
      - Preserve infrastructure integrity, network reliability
-

# Dutch Transitionpath



Distribution of City Gas

Distribution Natural Gas

Distribution of Natural and Biomethane

Distribution of ?

# Network



From Downstream Situation

Towards

Downstream Situation with local production biomethane:

- Feed in local network
- Feed in GTS network

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# Current situation & Expectations

- Pilot Situation
    - Start up: not always easy
    - New sites, different technologies, to comply with gasspec., measurement, many parties involved
  - Growth in local production
    - Growth in production sites: 2011 > 10
    - Volume: installations from 50 m<sup>3</sup> to 1000m<sup>3</sup>/hr and up
  - Ambitions government
    - Biomethane estimate (ECN 2010):
      - 2020: 24 PJ Biomethane, 5 PJ BioSNG (2% nat.)
      - SDE+?
  - Growth in demand? Green Gas Fuelstations? Transport CNG?
  - Technical innovations gas production
-

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# Facilitating

- Information
    - Website: [www.groengas.nl](http://www.groengas.nl)
  - Customer: Location & opportunities
    - Feed in location: Demand vs. Production, Feed in in GTS network or Local networks
    - Central upgrade unit, more producers?
  - Research
    - Measurement & Monitoring gas quality
    - Hepa
    - Dynamic Grid Management
    - Grid calculation & simulation
  - Regulation
    - Development technical guidelines on feed in of biomethane, requirements
-

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# In progress

- Further development technical guidelines
    - Invoedvoorwaarden Gas – LNB
    - Aansluit & Transportvoorwaarden RNB
      - “Aanvullende voorwaarden invoeders gas V14”
      - Gas Quality: Upstream Compatibility
      - Protocols
        - “start up” installation and operational management
        - measurement of gas quality, methods
-



# Questions



# Distribution & Cost

## Location & opportunities

- ❑ Feed in location: Demand vs. Production
- ❑ Optimal solution; costs
- ❑ Central Upgrade Unit
- ❑ Injection 40 Bar?
- ❑ Direct connection users & producers?

