

# › DECARBONISING THE STEAM SUPPLY OF THE DUTCH PAPER AND BOARD INDUSTRY

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Rijksdienst voor Ondernemend  
Nederland

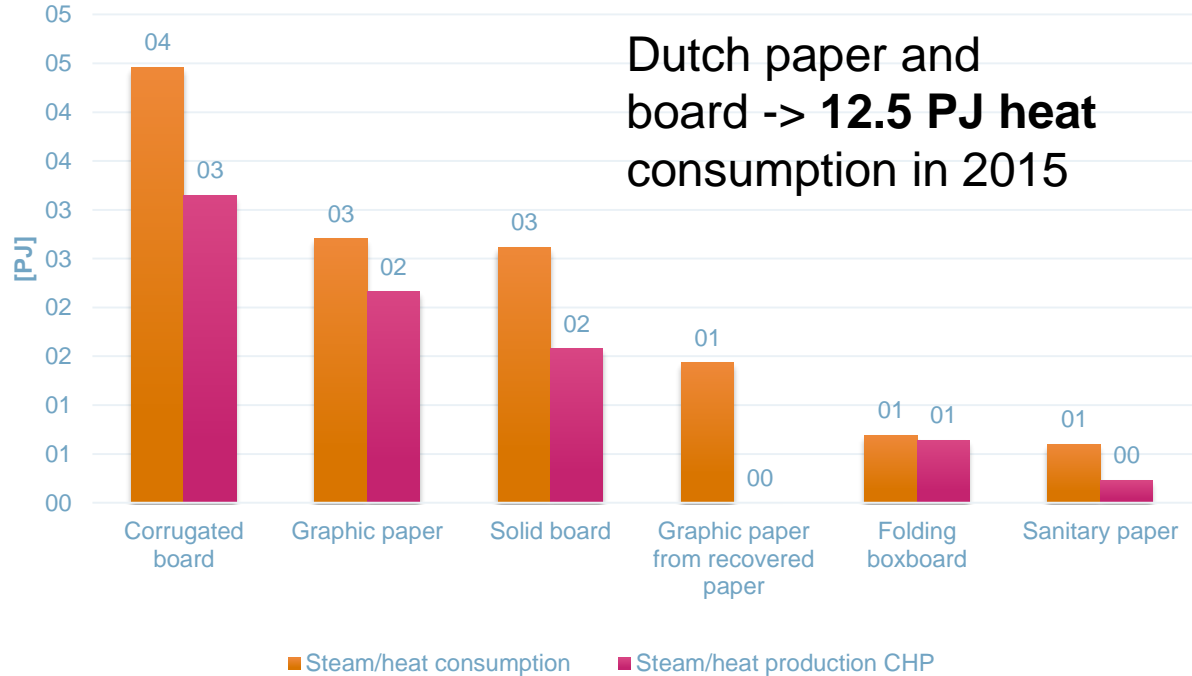


# DECARBONISING STEAM SUPPLY

- › How to best reduce GHG emissions from steam consumption in the P&B industry?
  
- › Answer depends on many factors, such as e.g.:
  - › Investment cost development per option;
  - › Development of energy prices (e.g. electricity and gas prices);
  - › *Development of the grid (infrastructure)\*;*
  - › *Other developments in the energy system (e.g. development of hydrogen infrastructure)\*.*

\*Not analysed in the pilot project

# HOW MUCH ENERGY?

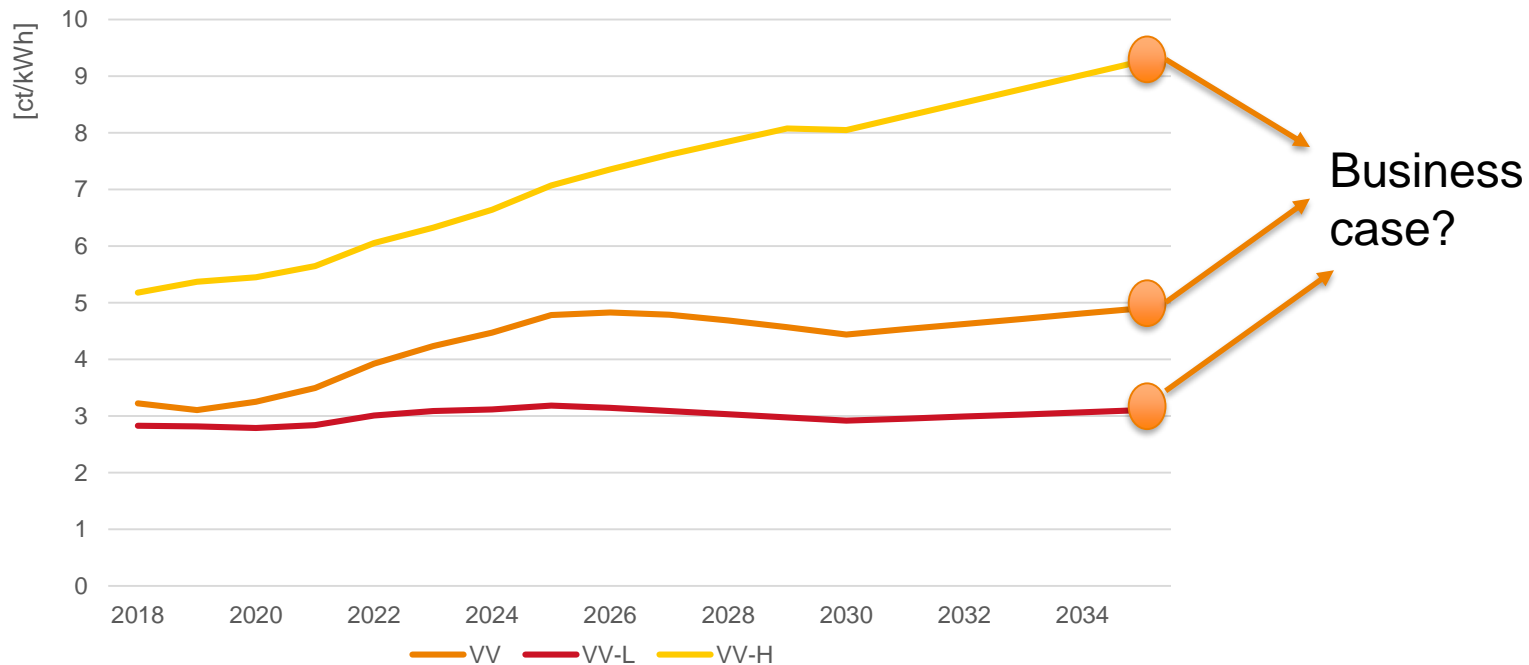


# RENEWABLE HEAT OPTIONS

- › Electrification:
  - › Heat pump;
  - › Electric/electrode boiler;
  - › Electrolysis -> H2 boiler;
- › Alternative fuel for boiler:
  - › H2;
  - › *Biogas\**;
  - › *Biomass\**;
- › Biomass gasification;
- › *(Ultra deep) geothermal\**.

\*Not analysed in the pilot project

# IMPACT OF ENERGY PRICES



Source: National Energy Outlook 2017

# REPORT AVAILABLE

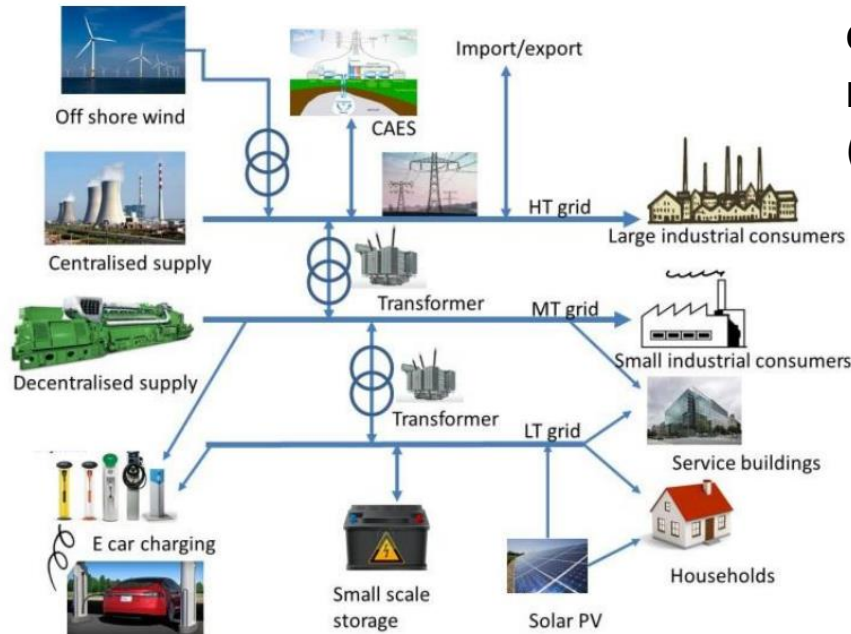


The Dutch paper and board industry has a major climate challenge that is being searched for possibilities to reduce greenhouse gas emissions and to use more sustainable. In the production process, large amounts of steam are used for drying. In the long term, the paper and board industry may be able to implement breakthrough technologies that allow major progress. This report focuses on the carbon footprint in 2050 and aims to give an overview of options for decarbonisation of the steam supply.

- Energy consumption paper and board industry;
- Description and economic data of renewable heat technologies;
- Analysis of application potential.

# NEXT YEAR

## Integrated energy system modeling (OPERA)





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