



Dutch Projects  
Webinar - June 13th  
Charles Geelen



# Introduction

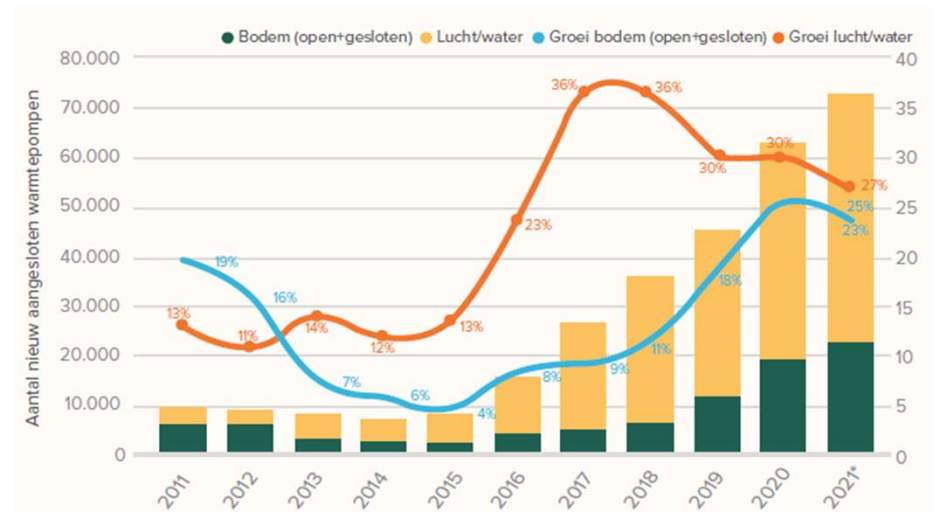
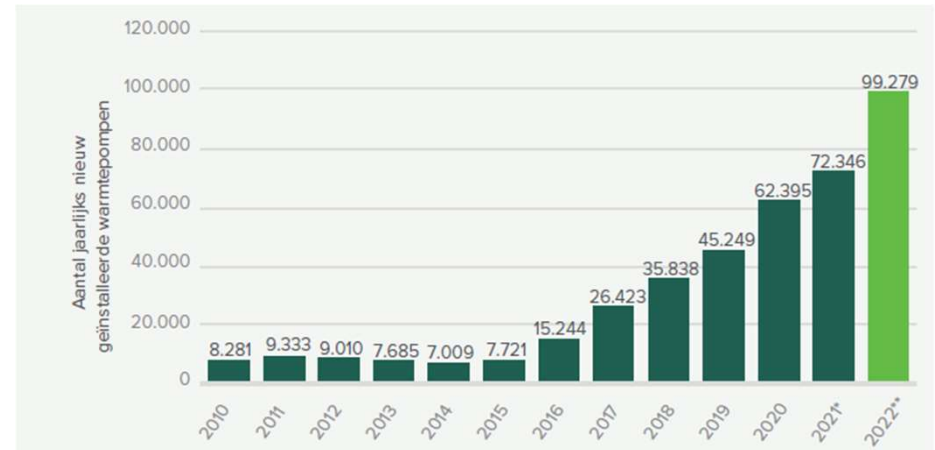


- Dutch participation is funded by RVO:
- Infinitus: 5 consultants - Renewable Heating and Cooling
- Scientific Secretary of Vereniging Warmtepompen (Dutch Heat Pump Association)

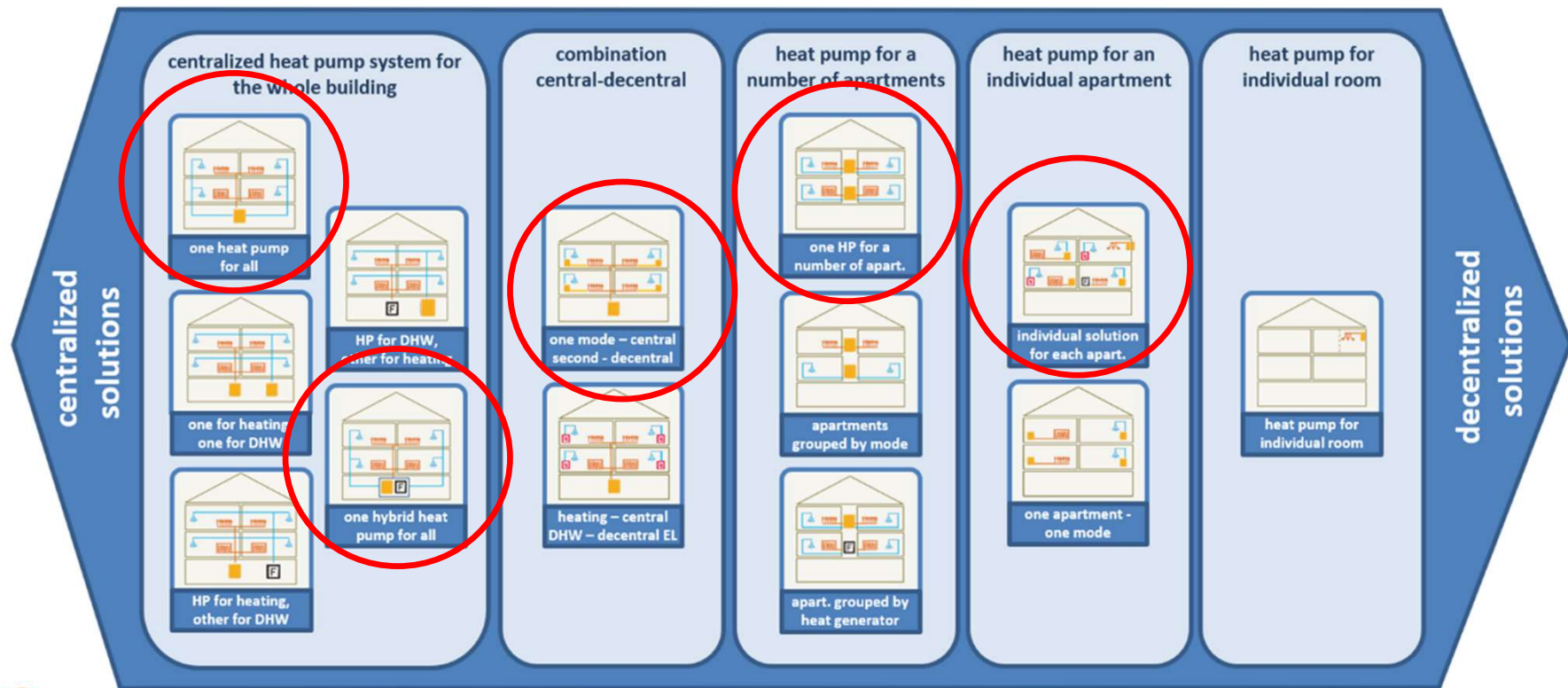


# Dutch market

- 8 mln. homes
- 2,8 mln. MFB apartments
- 400.000 new gas boilers/year
- Installed Heat Pumps/year →
- New homes (summer 2018): no gas allowed
- From 2026 boiler replacement requires (hybrid) HP, *but not for MFB....*

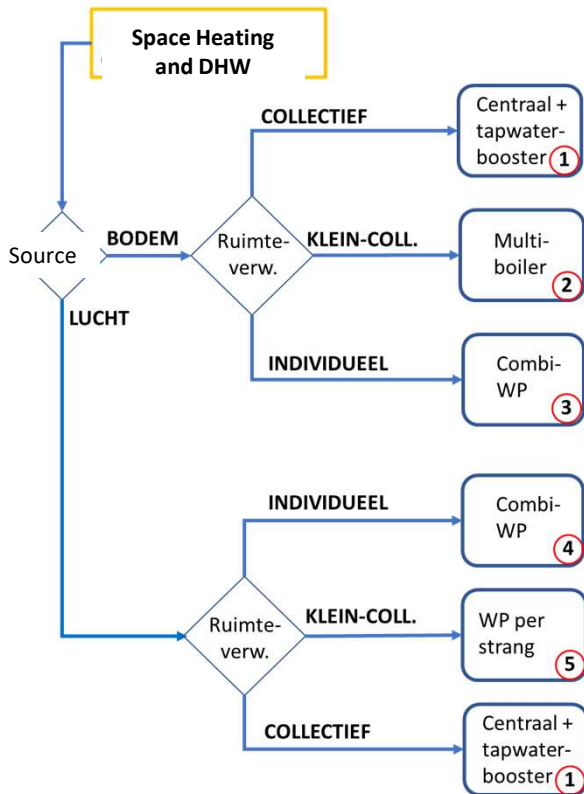


# Projects - Families

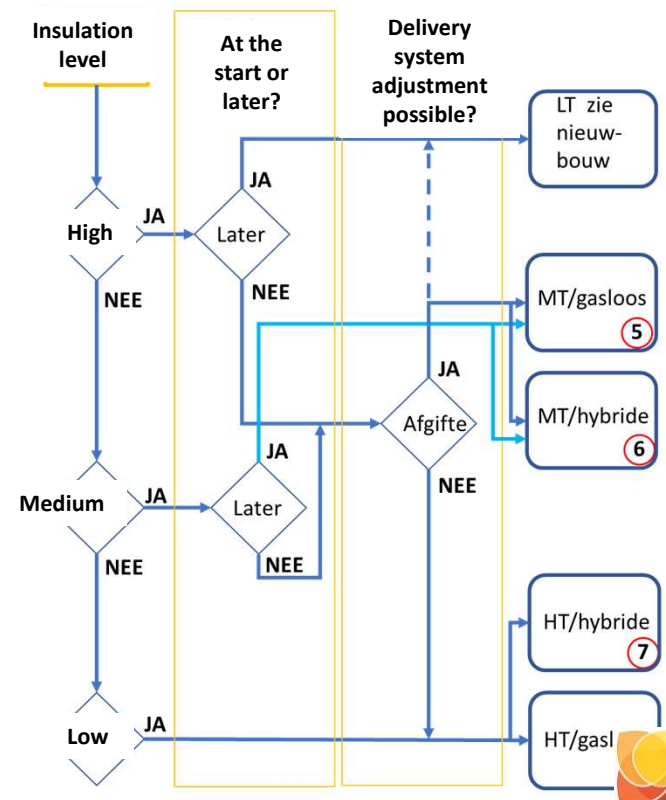


# Decision tool (→ Annex 60/62)

Newly built / extensive renovation



Existing / not renovated



# Projects - examples

## New

- 't Havenhûs – city of Harlingen
- Leyhoeve – city of Tilburg
- Sculptures – city of Breda

## Existing

- Montelbaanstraat – city of Amsterdam
- 2<sup>nd</sup> Skin – Vlaardingen / city of Rotterdam
- Jac. Urlusplantsoen – city of Leiden
- Hoog Lindoduin – Scheveningen / city of Den Haag

## Cluster of MFBs

- Clarissenhof – city of Tilburg



# 't Havenhûs – city of Harlingen

- 3000 m<sup>2</sup>
- 26 individual Combi-HPs
- All Electric
- 120 kW
- BTES (coll. GSHX)
- Under floor / 35°C
- Alpha Innotec



# Leyhoeve – city of Tilburg

- 40.000 m<sup>2</sup>
- 3 + 3 collective HPs
  - Second stage DHW
- All Electric
- 900 kW
- ATES
- Under floor / 35°C
- DHW / 72 °C
- NRQTEC
  - variable speed piston



# Sculptures – city of Breda

- 30.000 m<sup>2</sup>
- 1 collective HP
- Bivalent - hybrid
- 300 kW HP
- Thermal Solar (DHW)
- HE gas boilers
  - Peak heating
  - DHW
- ATES
- Under floor
- Trane



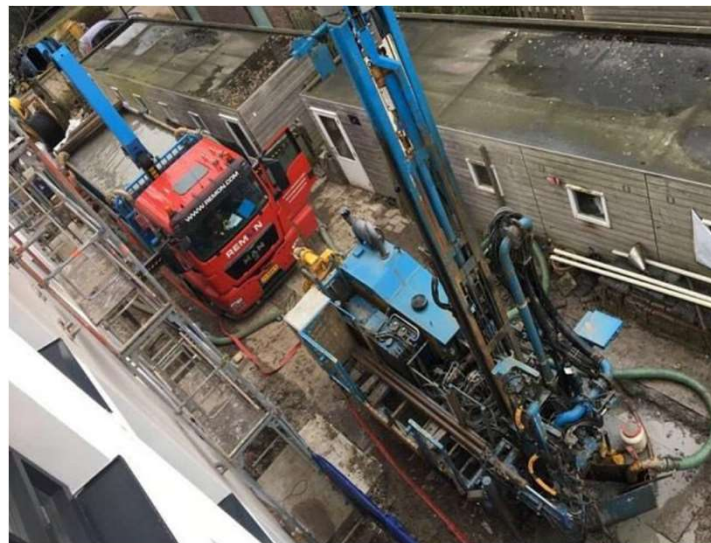
# Montelbaanstraat – city of Amsterdam

- 2.000 m<sup>2</sup>
- Extensive renovation
- HPs
  - 2 collective Sp.Ht.
  - 16 individual Booster DHW
- All Electric
- 60 kW
- BTES (9 \* 160 m GSHX)
- Under floor / 35°C
- Alpha Innotec



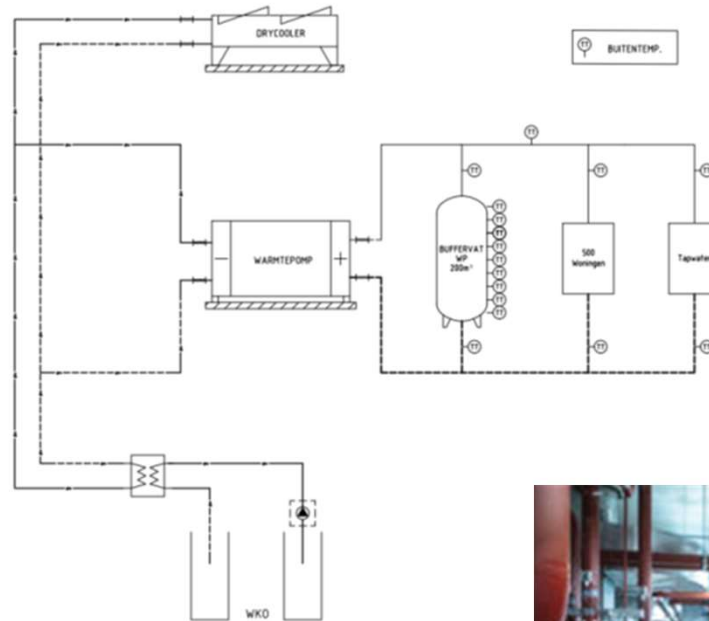
# 2<sup>nd</sup> Skin – Vlaardingen / city of Rotterdam

- 1.000 m<sup>2</sup>
- Very extensive renovation
- 2 collective HPs
  - Multi-storage DHW
- All Electric
- 30 kW
- BTES (GSHX)
- Under floor / 35°C
- Itho-Daalderop
- 150 m<sup>2</sup> Solar-PV



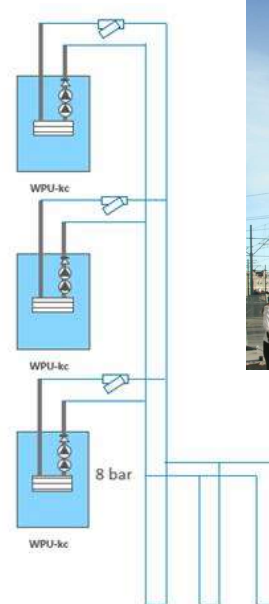
# Jac. Urlusplantsoen – city of Leiden

- 45.000 m<sup>2</sup>
- Not renovated
- 1 collective HP
  - Two stage
- All Electric
  - Emergency gas bc
- 1500 kW
- ATES + Outside Air
- Radiators / 85°C
- Linthorst
- 200 m<sup>3</sup> HT-storage



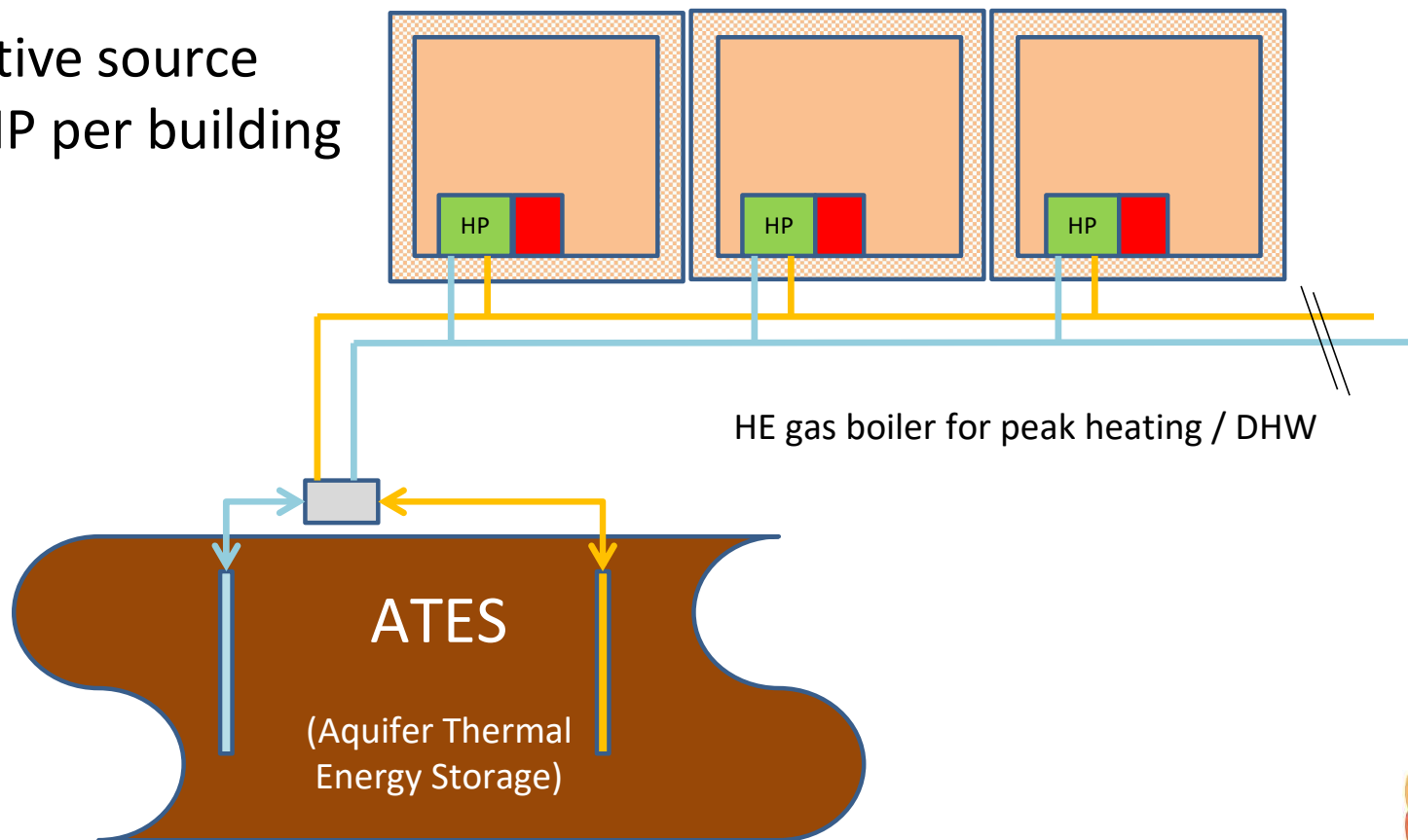
# Hoog Lindoduin – Scheveningen / city of Den Haag

- 18.000 m<sup>2</sup>
- Extensive renovation
- 182 individual Combi-HPs
- All Electric
- 900 kW
- BTES (coll. GSHX)
- Under floor / 35°C
- Itho-Daalderop



# Projects - clustering

Collective source  
with HP per building



# Clarissenhof – city of Tilburg

- 26.000 m<sup>2</sup>
- 6 collective HPs
- Bivalent - hybrid
- 340 kW
- HE gas boilers
  - Peak heating
  - DHW
- ATES
- Under floor / 35°C
- OSH – Dubo Techniek



Thank you for your kind attention!

Questions?

