Dutch Projects
Webinar - June 13th
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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:

- Space Heating and DHW
  - COLLECTIF
    - BODEM
      - Ruimte-verw.
        - LUCHT
          - INDIVIDUEEL
            - Combi-WP
              - Ruimte-verw.
                - COLLECTIF
                  - Centraal + tapwater-booster
    - KLEIN-COLL.
      - Multi-boiler

Existing / not renovated:

- Insulation level
  - High
    - JA
      - Later
        - JA
          - Afgifte
            - NEE
  - Medium
    - JA
      - Later
        - JA
          - NEE
  - Low
    - JA
      - NEE

- At the start or later?
  - JA
    - NEE
  - Later
    - JA
      - NEE

- Delivery system adjustment possible?
  - JA
    - NEE
  - NEE
    - MT/gasloos
    - MT/hybride
    - HT/hybride
    - HT/gasl
Projects - examples

New
• ‘t Havenhûs – city of Harlingen
• Leyhoeve – city of Tilburg
• Sculptures – city of Breda

Existing
• Montelbaanstraat – city of Amsterdam
• 2\textsuperscript{nd} 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 m²
- 26 individual Combi-HPs
- All Electric
- 120 kW
- BTES (coll. GSHX)
- Under floor / 35°C
- Alpha Innotec
Leyhoeve – city of Tilburg

- 40,000 m²
- 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 m²
- 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 m²
- Extensive renovation
- HPs
  - 16 individual Booster DHW
- All Electric
- 60 kW
- BTES (9 * 160 m GSHX)
- Under floor / 35°C
- Alpha Innotec
2nd Skin – Vlaardingen / city of Rotterdam

- 1,000 m²
- Very extensive renovation
- 2 collective HPs
  - Multi-storage DHW
- All Electric
- 30 kW
- BTES (GSHX)
- Under floor / 35°C
- Itho-Daalderop
- 150 m² Solar-PV
Jac. Urlusplantsoen – city of Leiden

- 45,000 m²
- Not renovated
- 1 collective HP
  - Two stage
- All Electric
  - Emergency gas bc
- 1500 kW
- ATES + Outside Air
- Radiators / 85°C
- Linthorst
- 200 m³ HT-storage
Hoog Lindoduin – Scheveningen / city of Den Haag

- 18.000 m²
- 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

ATES (Aquifer Thermal Energy Storage)

HE gas boiler for peak heating / DHW
Clarissenhof – city of Tilburg

- 26,000 m²
- 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?