



Shell NL & Shell New Energies

An outlook towards a clean and renewable energy system

Dr.-Ing. 5.1.2e

Contents

New Energies Themes

- New Fuels
- Renewable Power
- Connected Customer

Netherlands

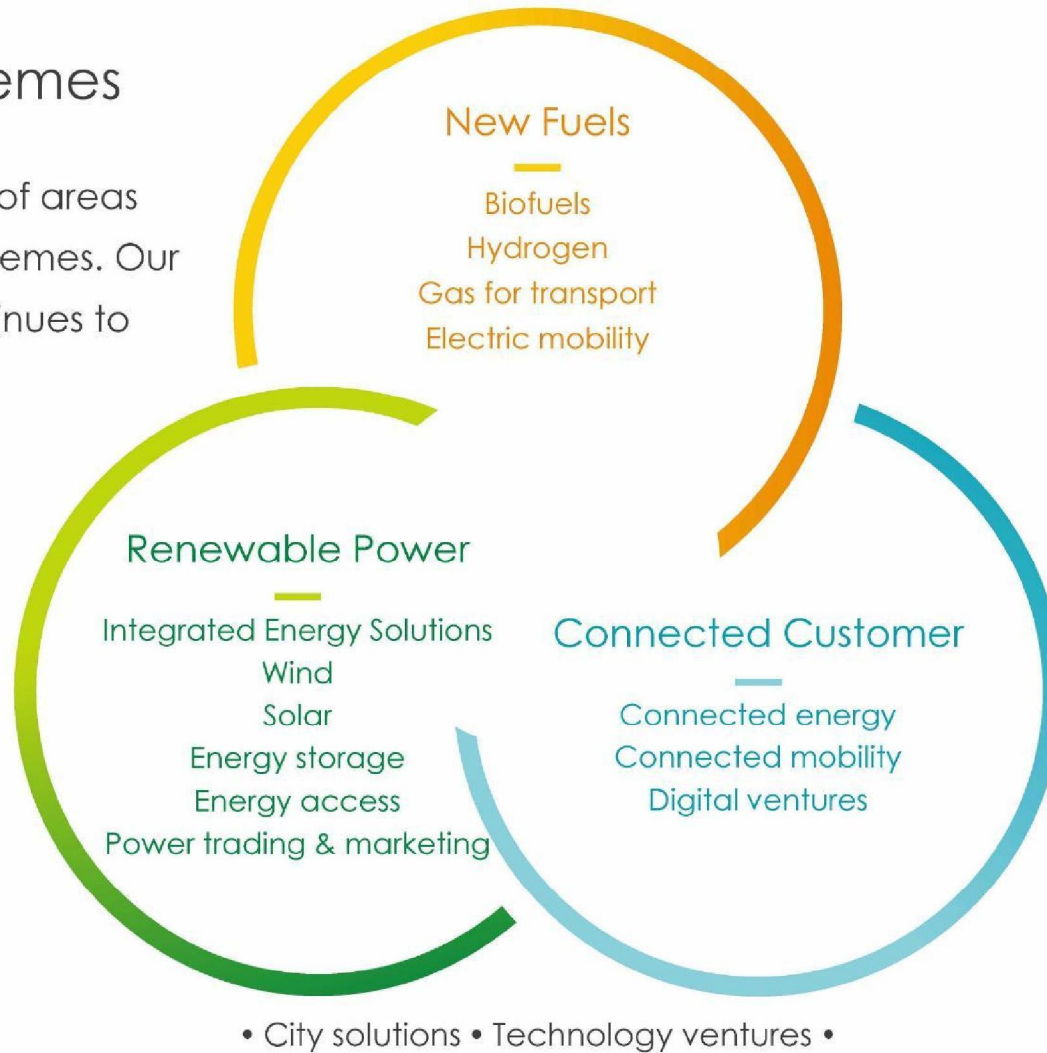
- Energy transition
- CO2 reduction

Groningen

- Power – to - Heat
- Smart District Heating systems
- Innovation

New Energies themes

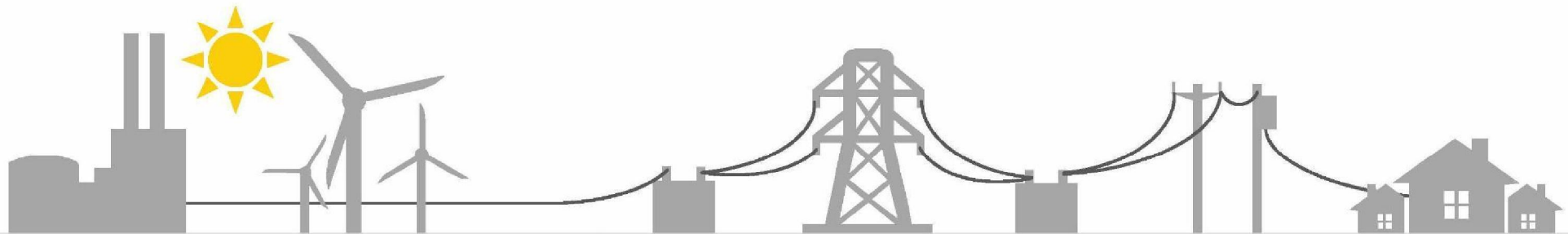
We're exploring a range of areas across interconnected themes. Our dynamic approach continues to evolve.



Integrated energy solutions/renewable power

Our approach

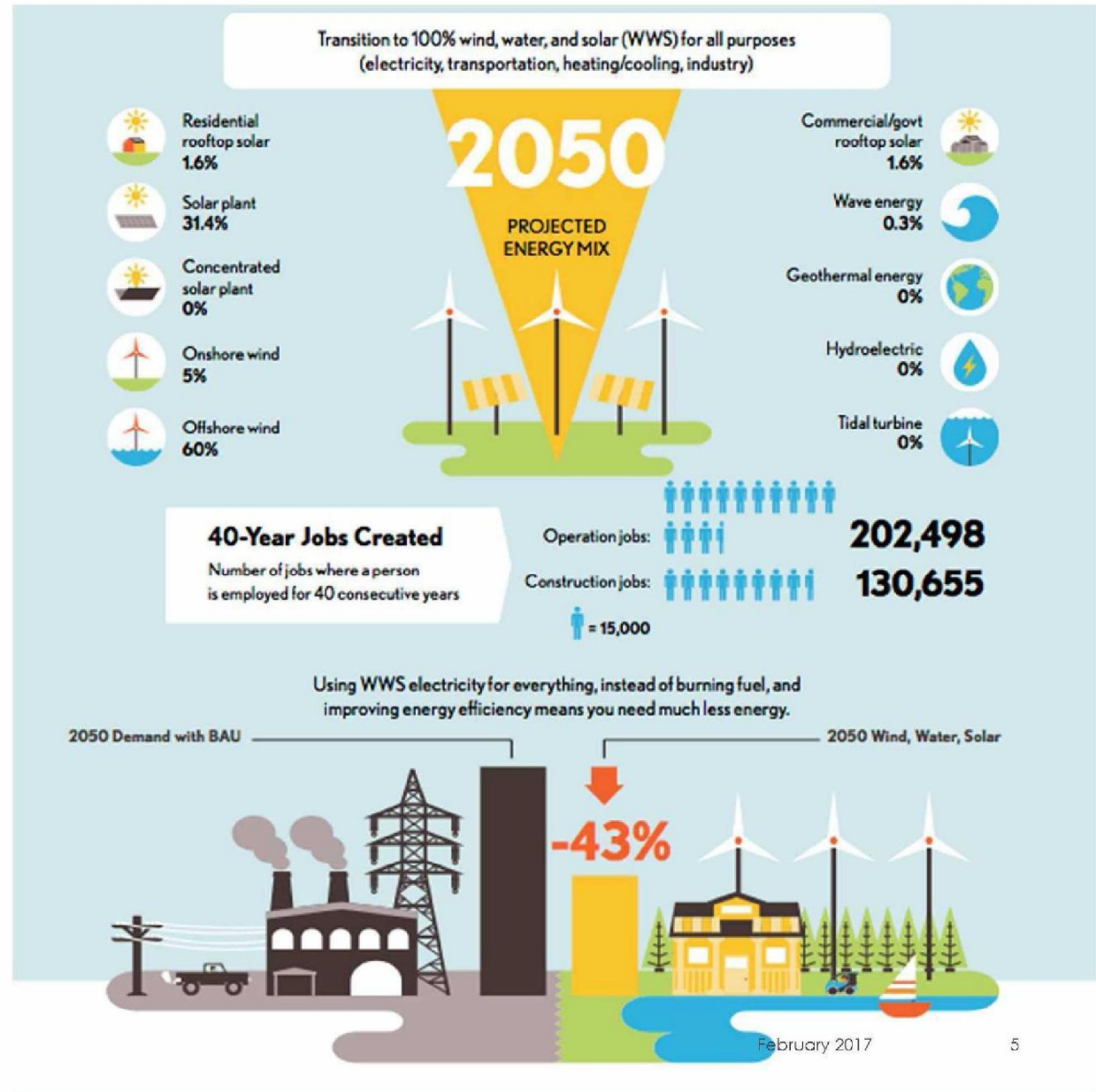
- Energy systems are becoming ever more **decentralised** and interconnected.
- Shell aims to become a global leader in cleaner **power generation**, taking advantage of our global footprint and experience with large-scale power infrastructure.
- Natural gas and energy storage solutions **must integrate with renewables** to meet customers' new energy needs.
- Our integrated approach explores and expands wind and solar; ways to connect customers with **new business energy models**; access to energy; and the digitalisation of businesses.



Netherlands transition to electricity:

43% energy efficiency by using electricity instead of burning fuels.

- 2050 Projected Energy Mix
 - 30% Solar
 - 60% Wind
 - 10% Others



Data from www.stanford.edu, thesolutionproject

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Share of energy in key demand sectors & energy, respectively CO2 efficiency

20% electricity

1

very little impact



industry 20%



1 - 2

efficiency & fuel change

3 - 5

electrification



30% mobility

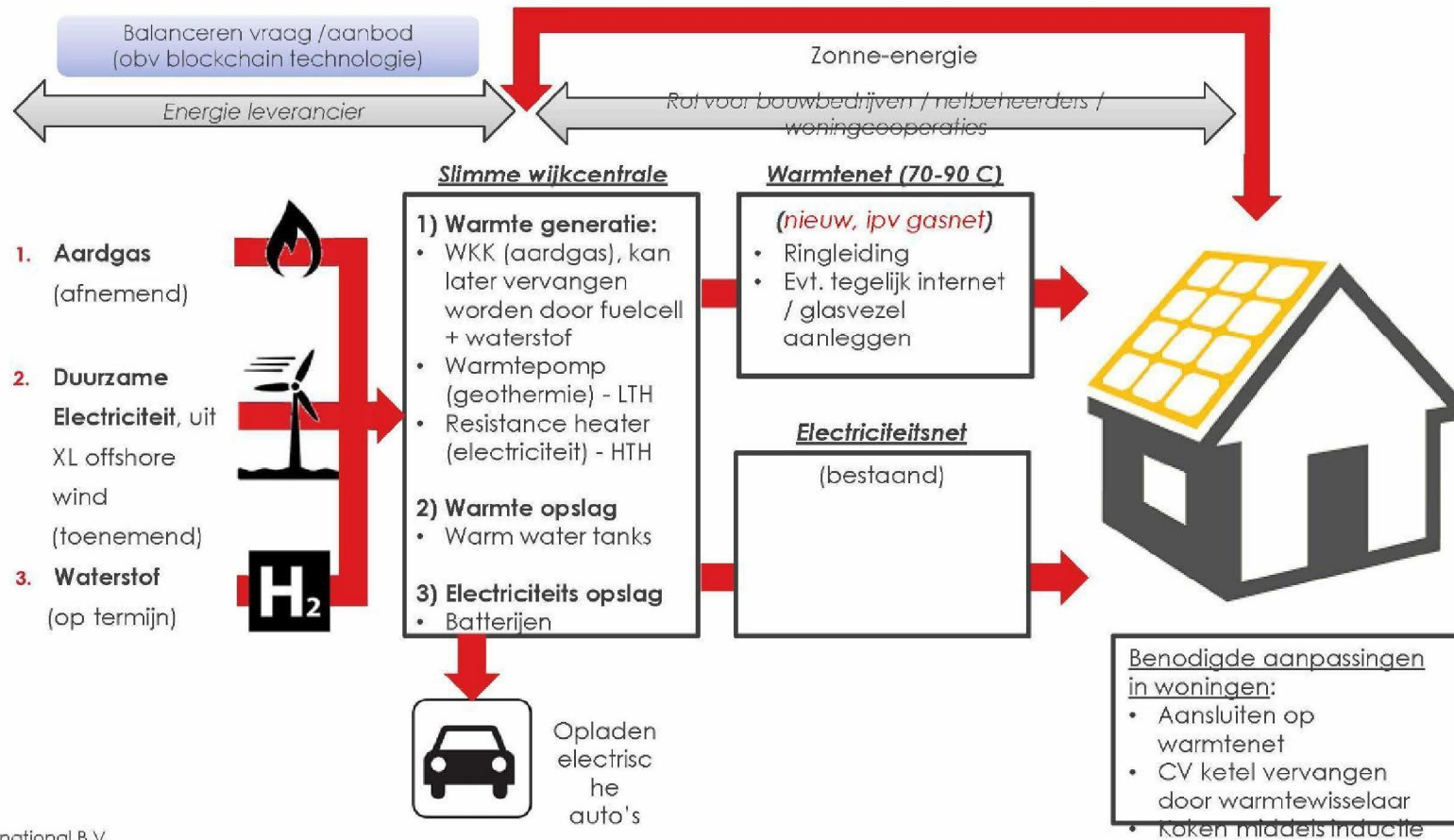


3 - 5

heat pump driven
district heating systems

heating 30%

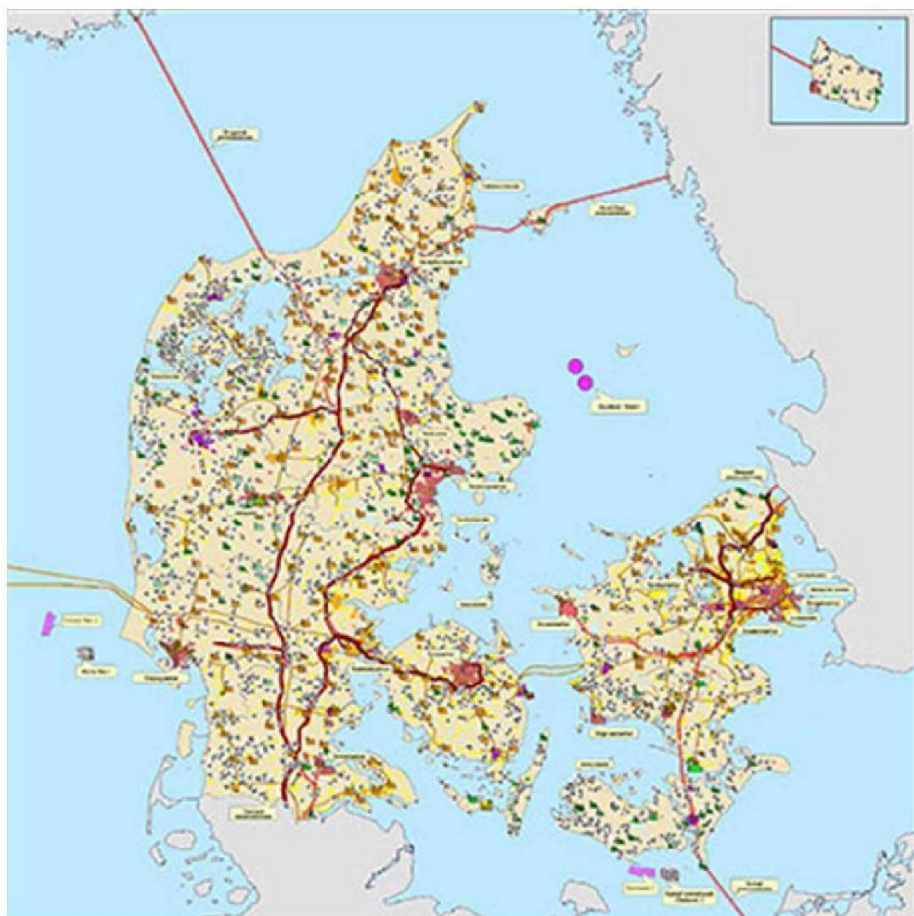
DE ROL VAN "SLIMME WIJKCENTRALES"



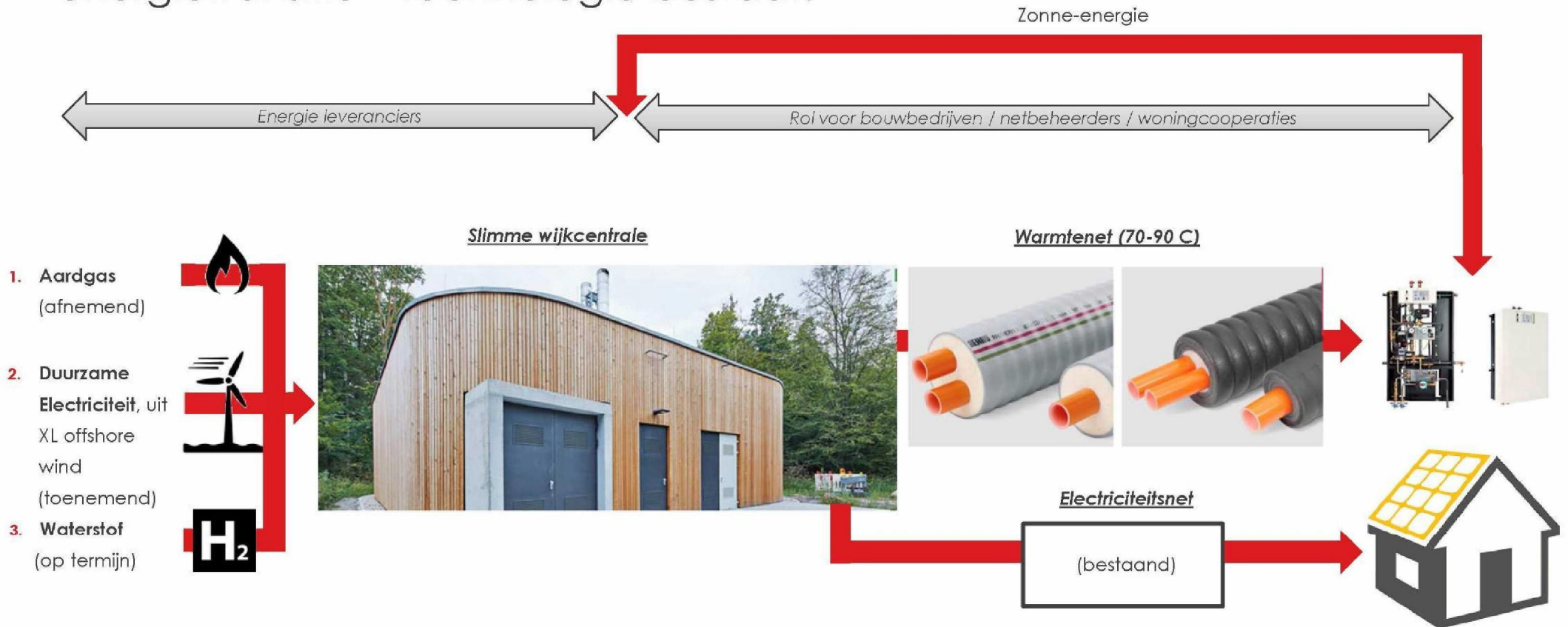
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Power to heat

64% of Danish households are served by district heating systems



Innovatie "SLIMME WIJKCENTRALES": business modellen voor energietransitie – technologie bestaat!



A vision for Groningen 25-30GW offshore wind

- 20 GW offshore will enable **80% of residential heat in The Netherlands** to be generated by and distributed by **smart district heating systems** at
 - Lower costs
 - Reduced CO2 emissions
 - Increased comfort and security of supply

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Legenda

- Zoekgebied
- Grens Continentaal Plat
- Europese Kustlijn
- Relevante belemmeringen



