Ministry of Economic Affairs

RENEWABLE HEATING & COOLING POLICY of the NETHERLANDS

Tjalling de Vries
Ministry of Economic Affairs
the Netherlands

Paris February 7th 2017

View of the Netherlands on renewable H&C

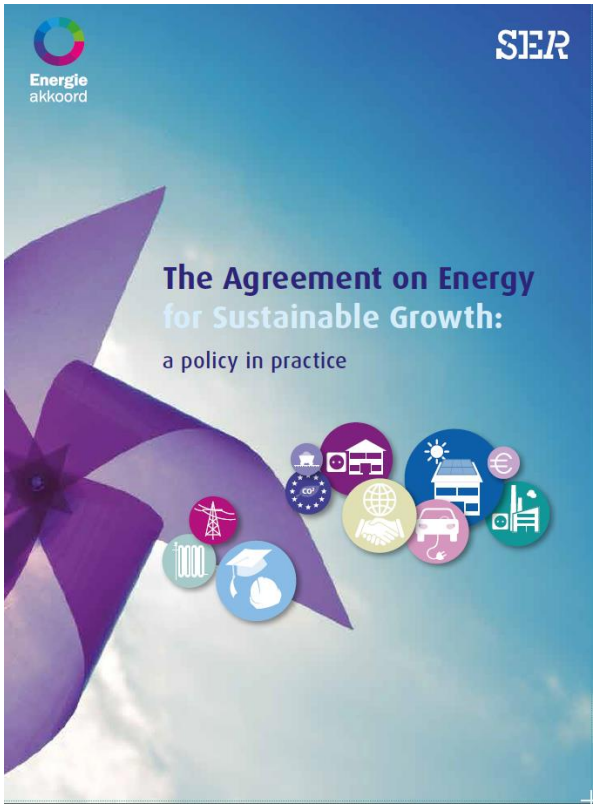
- 80–95% CO_2 reduction in the Netherlands by 2050
- Policy focus on CO2-reduction (EU)
- Timely, gradual transition: temporary additional policies (NL)
- Heat is 53% of final energy use in the Netherlands
- To decarbonize**,** renewable H&C plays a major role
- Renewables should be integrated with energy efficiency and use of residual heat
- Renewable cooling should count towards RES targets
- The EU should stimulate both innovation and market uptake

Netherlands energy policy

- The Agreement on Energy for Sustainable Growth 2013
  - 47 partners: public, private, ngo's
  - 1,5% energy saving annually / 100 petajoule by 2020
  - 14% renewable energy in 2020, 16% in 2023
  - 15.000 full-time jobs
  - www.energieakkoordser.nl/doen/engels.aspx

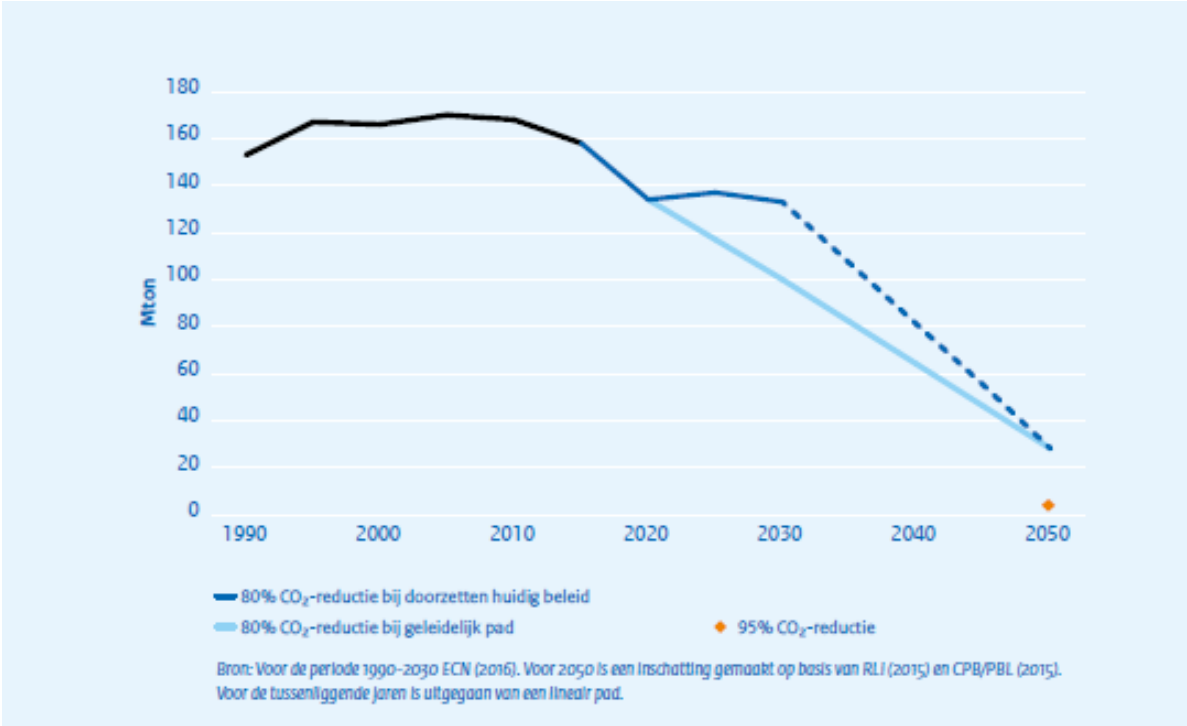
- Energy Report 2015
  - Goal: near climate neutral in 2050
  - Focus on CO_2-reduction
  - www.government.nl/documents/reports/2016/04/28/energy-report-transition-tot-sustainable-energy

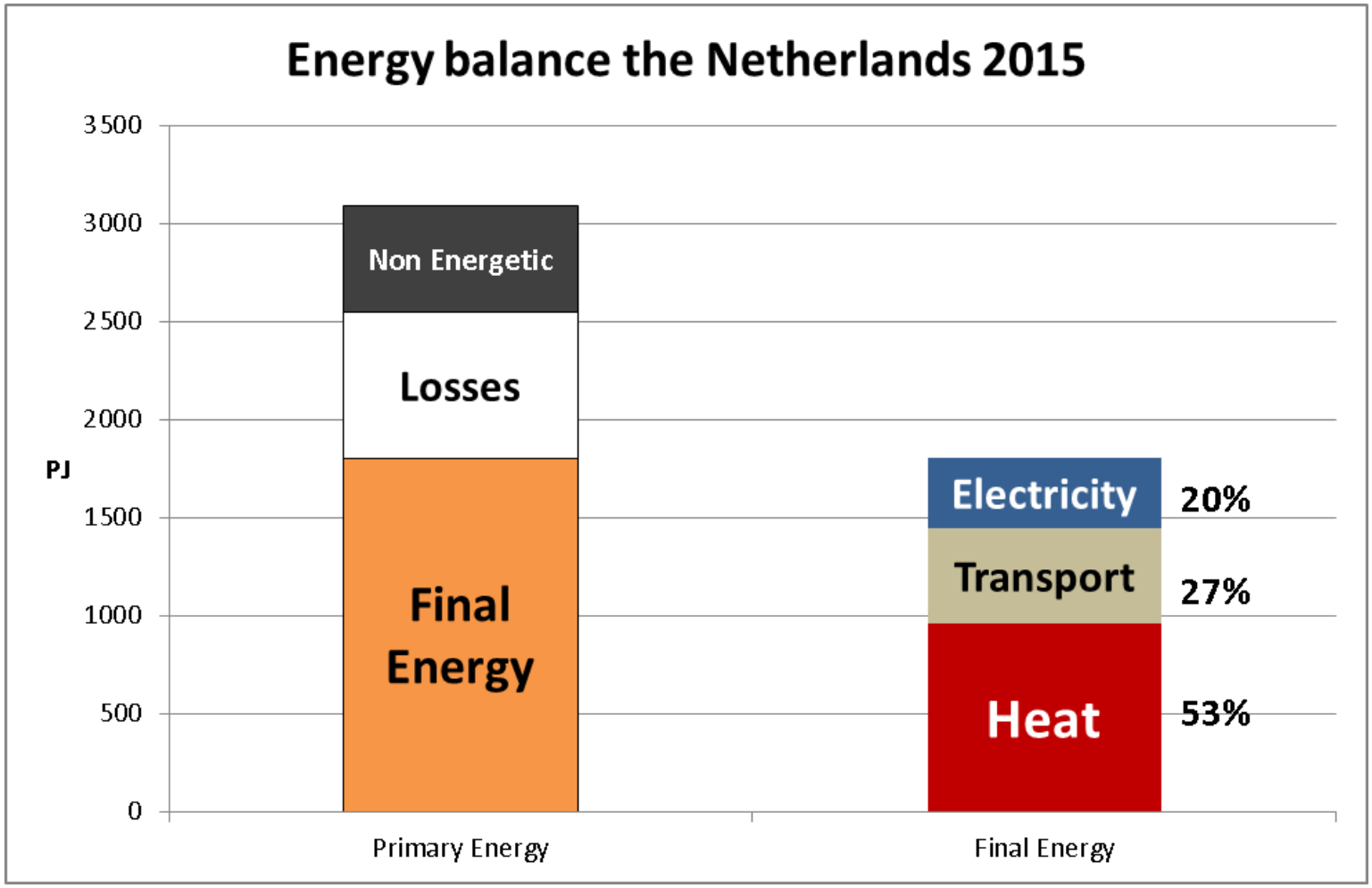
- Energy Agenda 2016
  - Netherlands has an economic interest in accelerating the transition



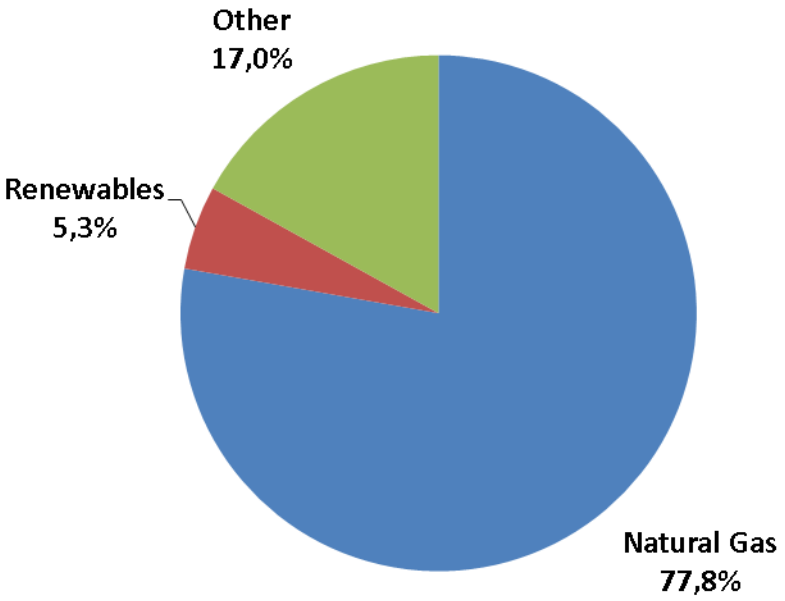
Energy Agenda

- 80–95% CO_2 reduction in the Netherlands by 2050
- Need for a gradual, timely transition
- For all sectors, temporary additional policies (carrots and sticks):
  - Power & light
  - Transport
  - High temp heating
  - Low temp heating
- Outline of transition roadmaps
- Innovation

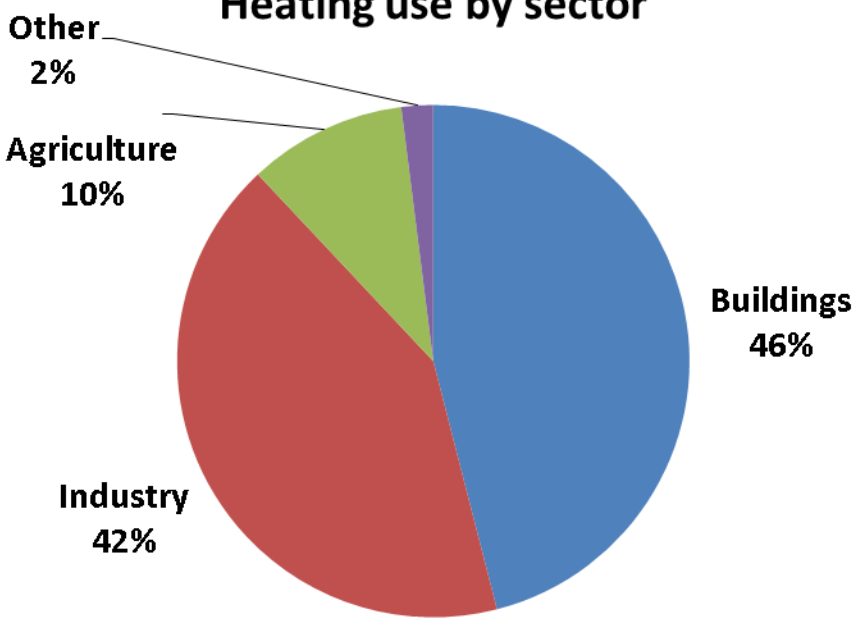



Energy balance the Netherlands 2015
3500
3000
2500
2000
PJ
1500
1000
500
0
Non Energetic
Losses
Final Energy
Electricity
Transport
Heat
20%
27%
53%
Primary Energy
Final Energy

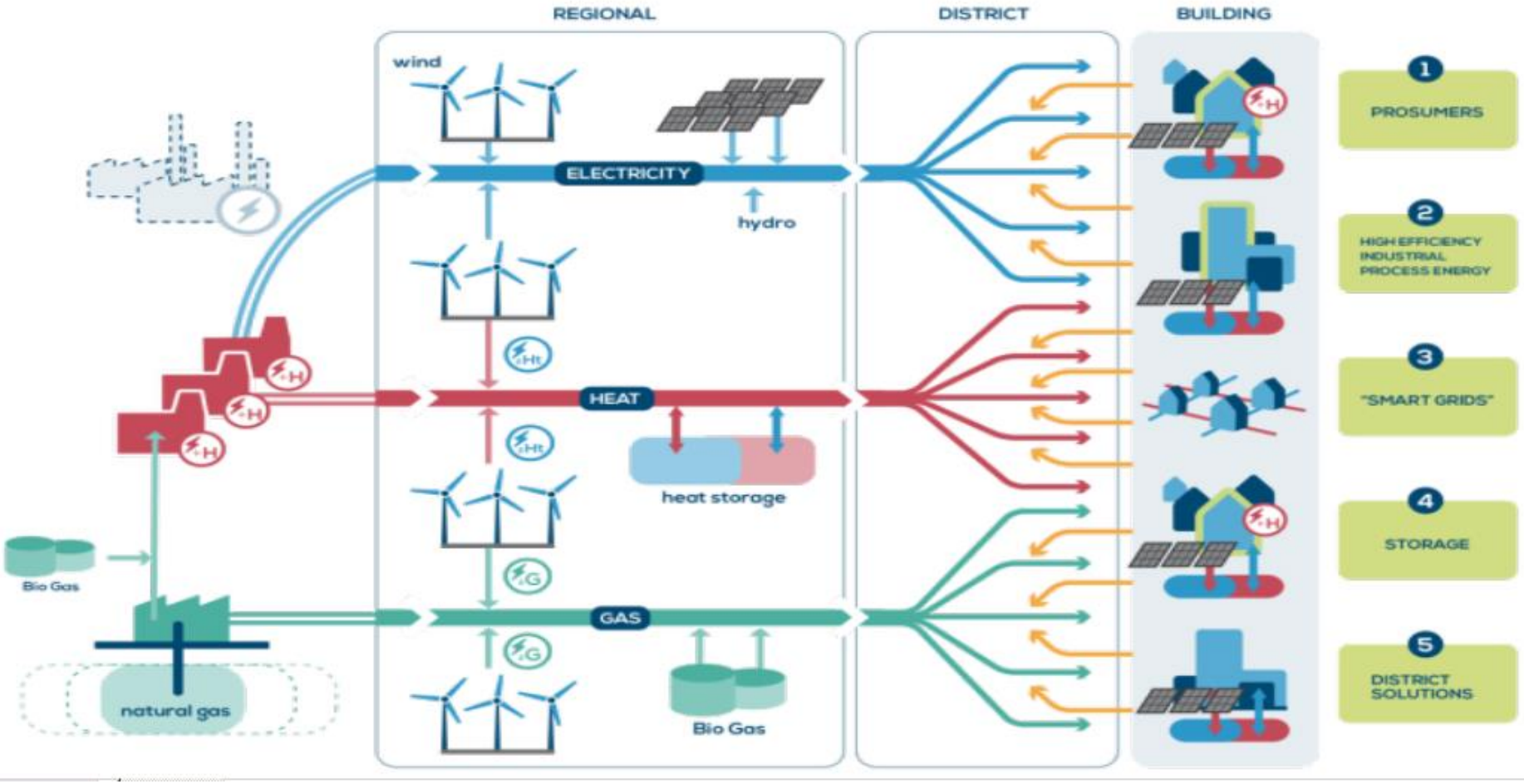
Energy use for heating



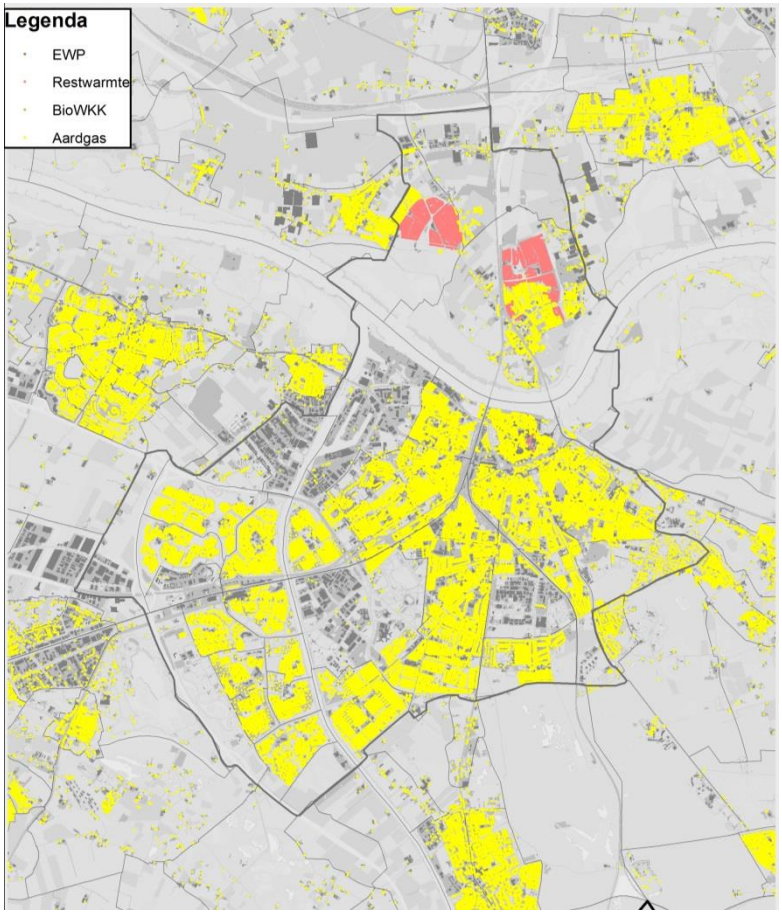
Heating use by sector

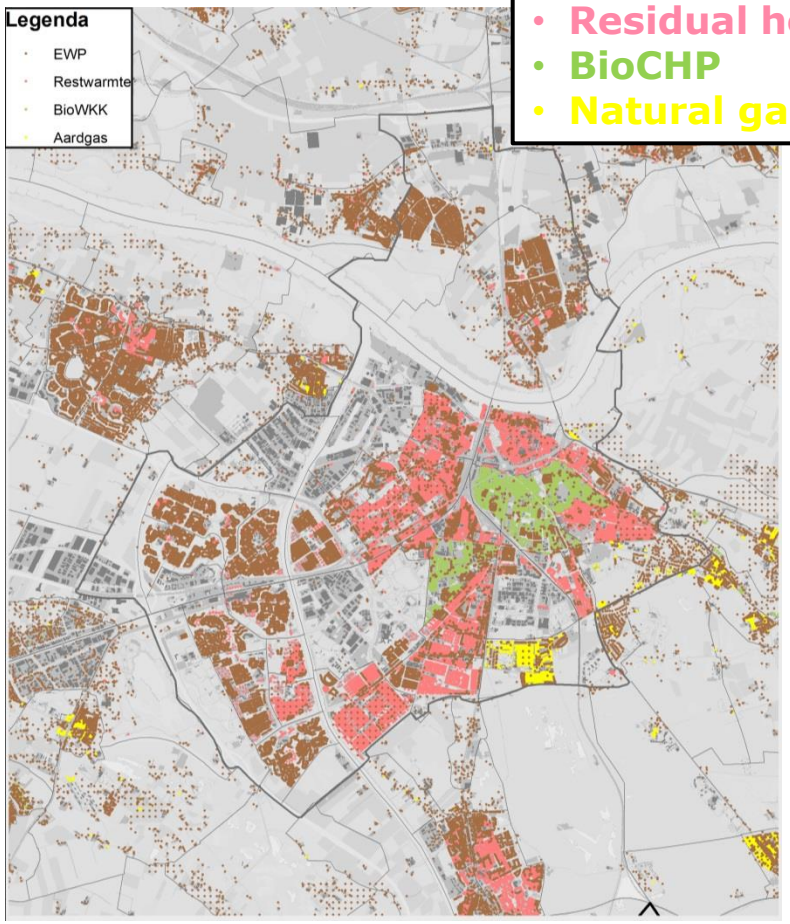


H&C integrated part of our energy system



Scenario's for 2050



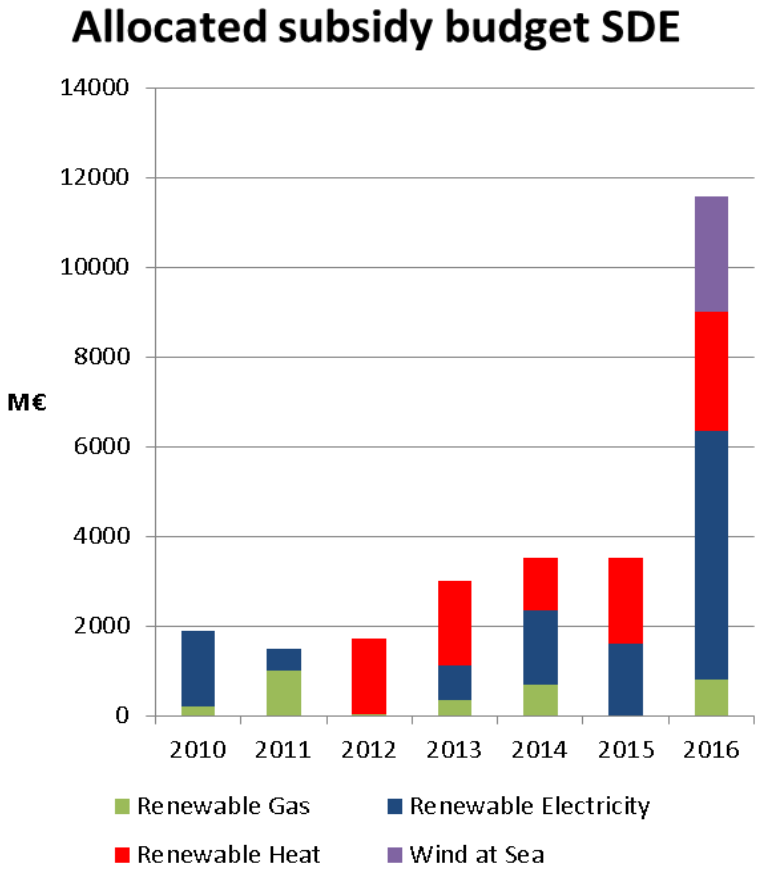


Legenda

- **E heat pump**
- **Residual heat**
- **BioCHP**
- **Natural gas**

Renewable heating

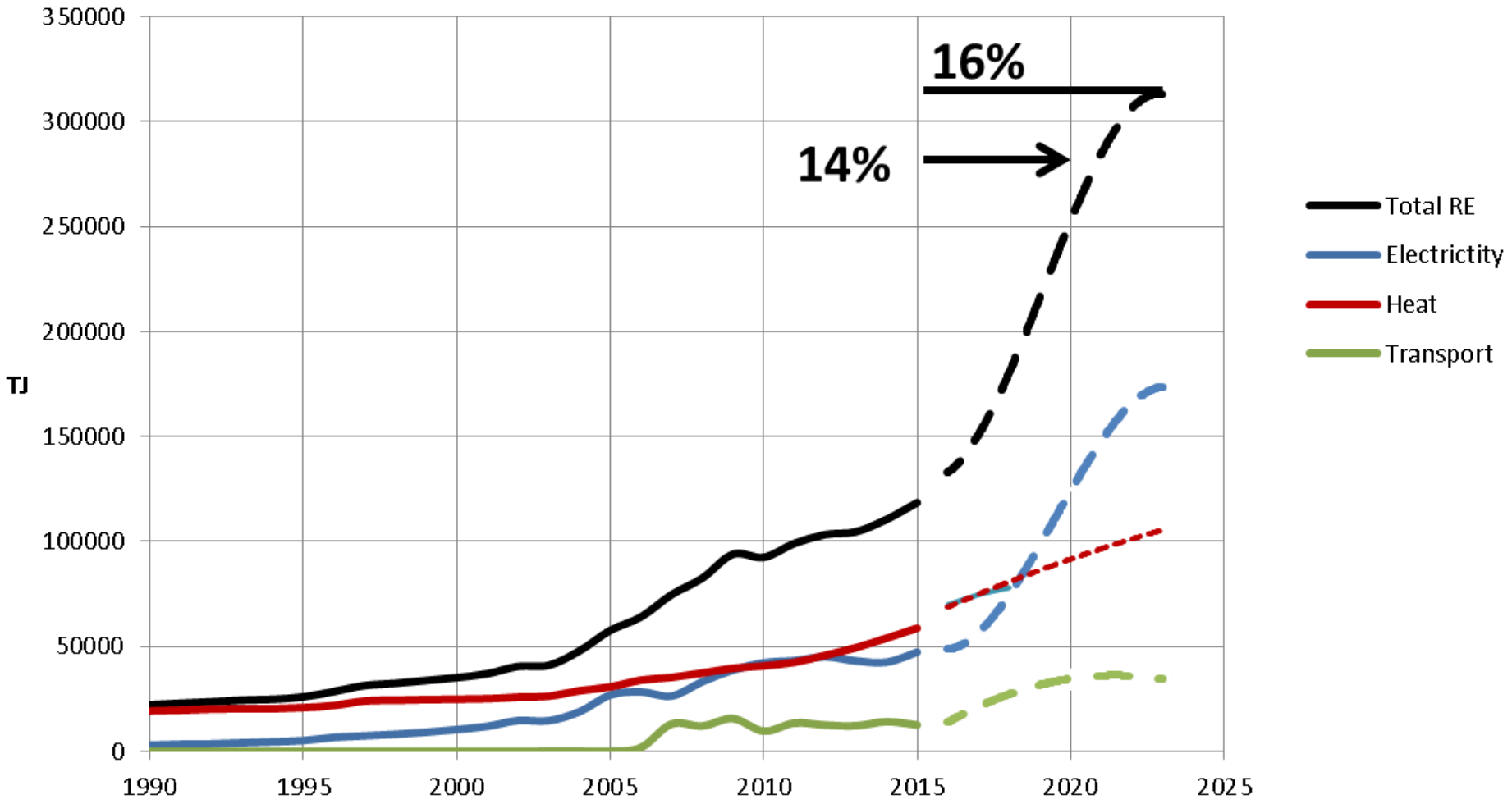
- Success of the SDE+ feed in tariff
  - Electricity
  - Heat
  - Renewable gas
  - www.rvo.nl/sde
- Cost-effective support scheme: competition for the lowest subsidy
- A major part has been granted to heat projects
- 12 billion subsidy expected for 2017



Other support schemes

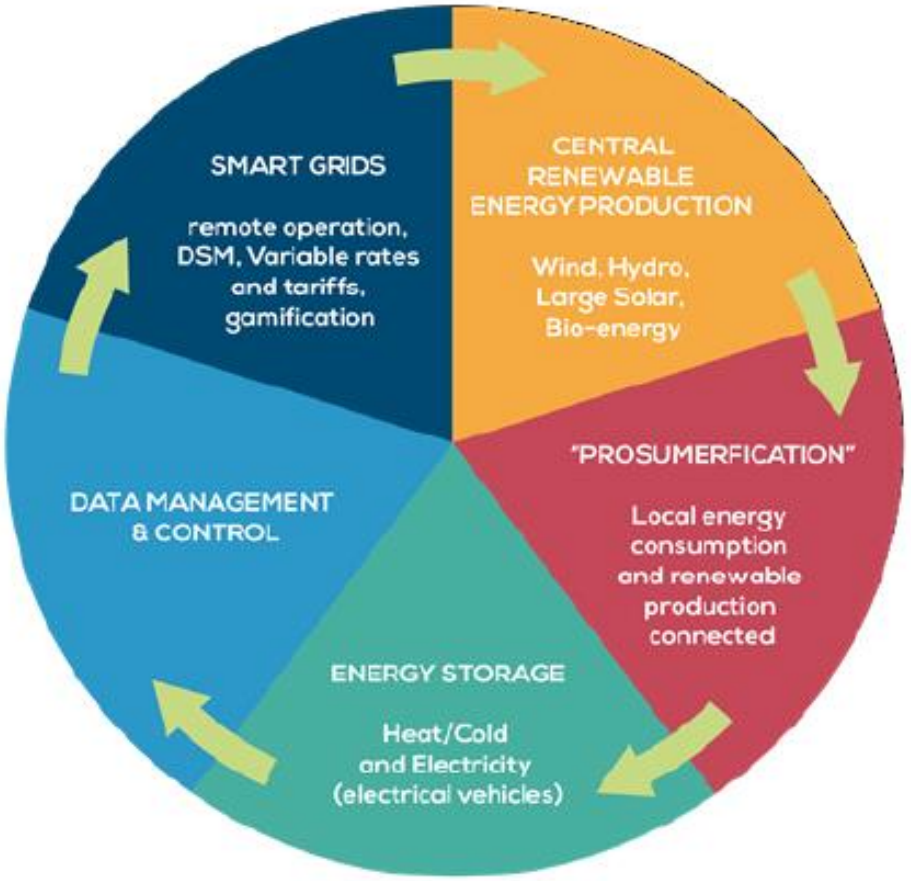
- Loans for house owners (for construction and renovation)
- ISDE scheme for small renewable heating systems
- Acceleration projects Energy Agreement
- Fiscal incentives companies (innovation)
- Green Deals for district heating projects based on residual heat supply
- Guarantee fund for geothermal projects

Renewable Energy production in the Netherlands

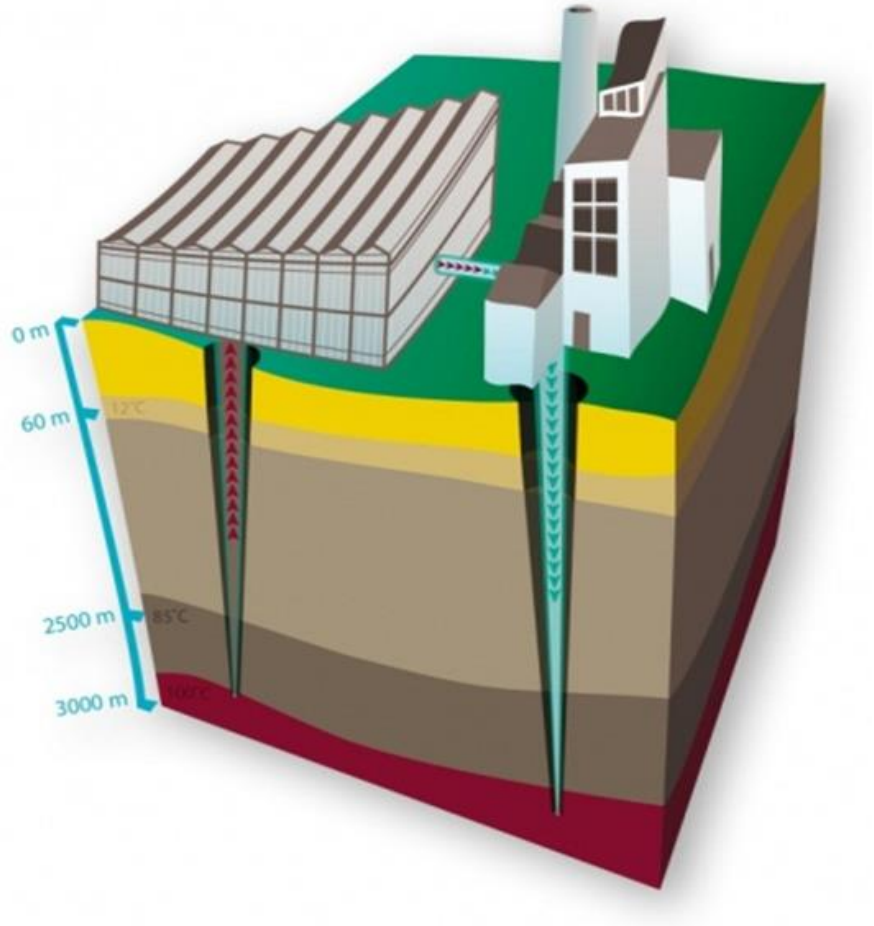


Innovation is key for further development H&C

"old model"



Example 1: Smart energy system



Agriport A7

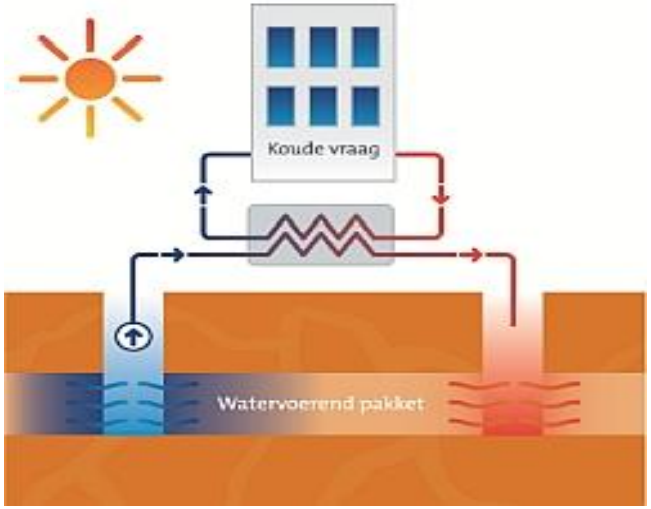
- 300 ha greenhouses
- Geothermal energy
- CHP
- Waste heat datacenter
- Data network
- Smart energy grid

www.bezoekagriport.nl/en/home-2

Example 2: Renewable cooling

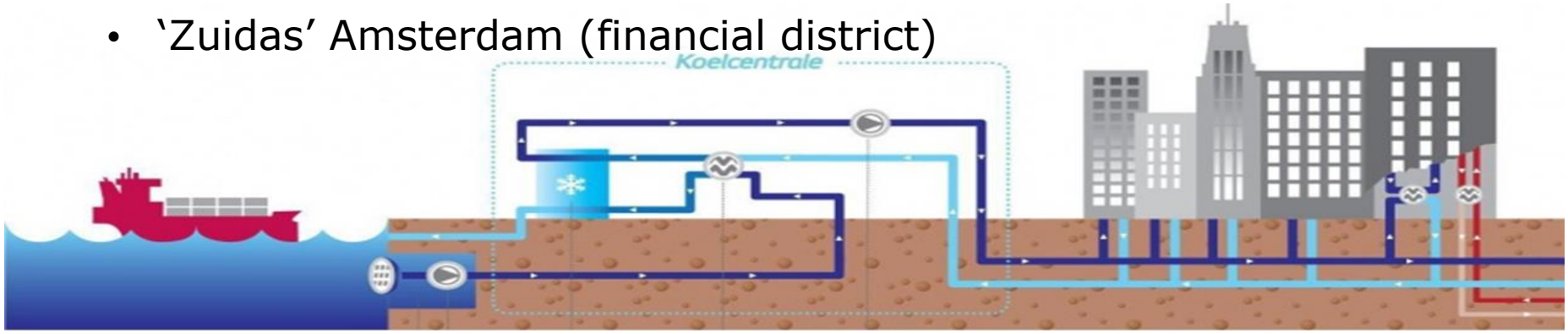
Heat and cold storage in aquifers

- Around 10.000 systems
- 3.4 PJ renewable heat
- 1.8 PJ renewable cooling (not accounted in EU)



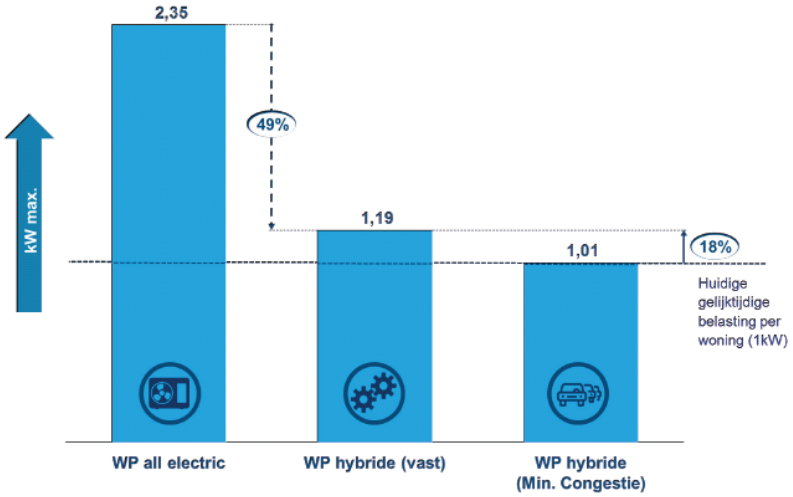
District Cooling

- The 'Rotterdam' (vertical city)
- 'Zuidas' Amsterdam (financial district)



Example 3: Hybrid heat pump

- Air to water heat pump for base load
- Peak load from gas boiler
- Up to 80% contribution heat pump
- Fits in the current electricity grid
- Low cost (ca. €3000 to €5000,-)



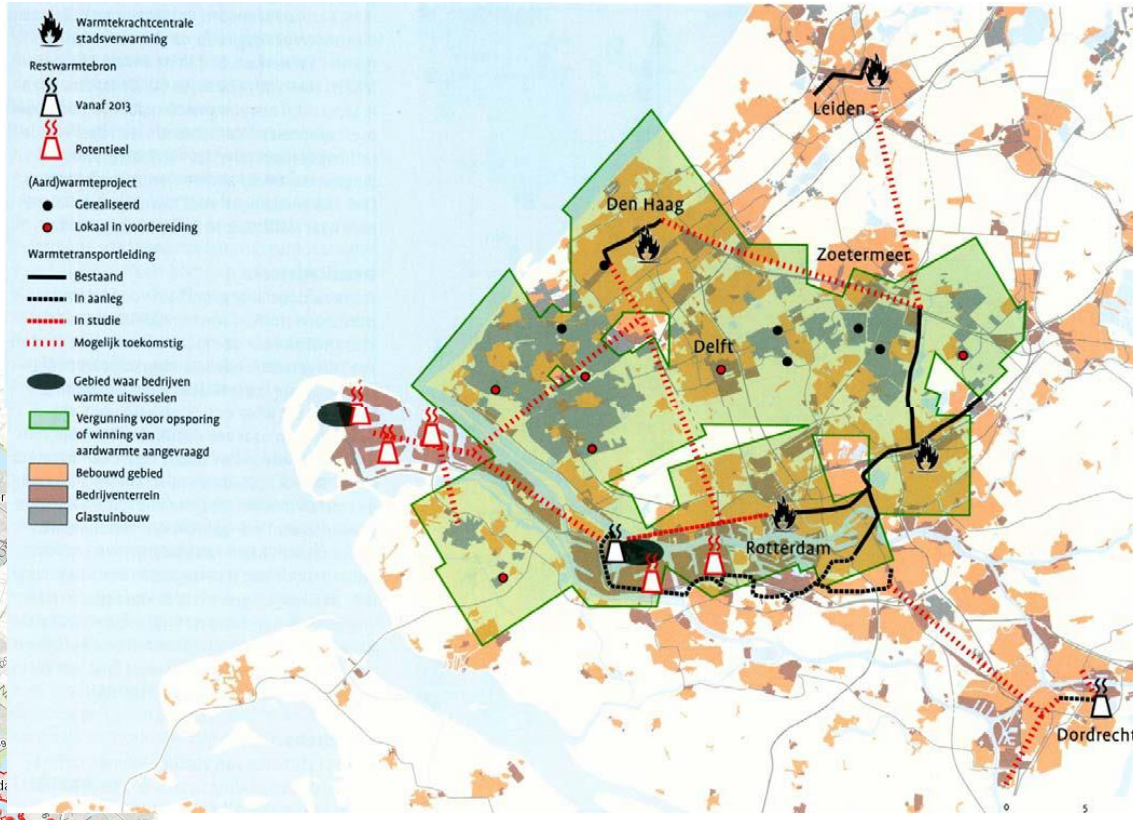
Example 4: Transition to net zero

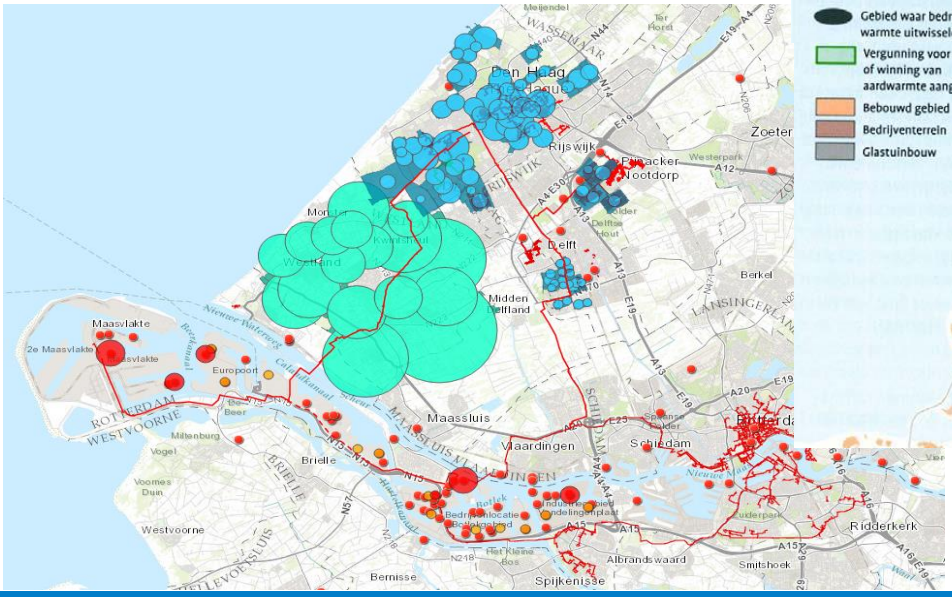
- Refurbish existing buildings
- Net Zero Energy
- Objectives:
  - Standardisation
  - In one week
  - Cost effective

www.nulopdemeter.eu (in Dutch only)

Example 5: Smart thermal grid

- Heat 'roundabout'
  - Industrial waste heat (70%)
  - Geothermal heat (30%)
- Rotterdam – The Hague
  - 350.000 buildings in 2020
  - 1.000 ha greenhouses





https://youtu.be/6vslyxbjass

Recap: Dutch view on H&C

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Questions?

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