



**ENGINEERING &
PROPERTY SERVICES**
Plan • Design • Build • Run



Beerse Geothermal Project

ATIC - Project introduction

20 APRIL 2023 – JAN VANDENEEDDE



ATIC – Project introduction

1. Sustainability goals of Johnson & Johnson and more specific within Janssen Pharmaceutica campus Belgium
2. Geothermal project
 - a) Drilling wells
 - b) Energy plant
3. Heat net

Sustainability goals within Janssen (part of Johnson & Johnson)



**100% renewable
electricity for the own
global activities
by 2025**



SCOPE 1 & 2

**CO2 neutrality for own
activities by 2030**

Go beyond our science-based target* to reduce
absolute scope 1 and 2 emissions by 60%
compared to 2016



SCOPE 3

**Reducing the upstream
emissions with 20% for our
value chain by 2030 ****

Compared with 2016



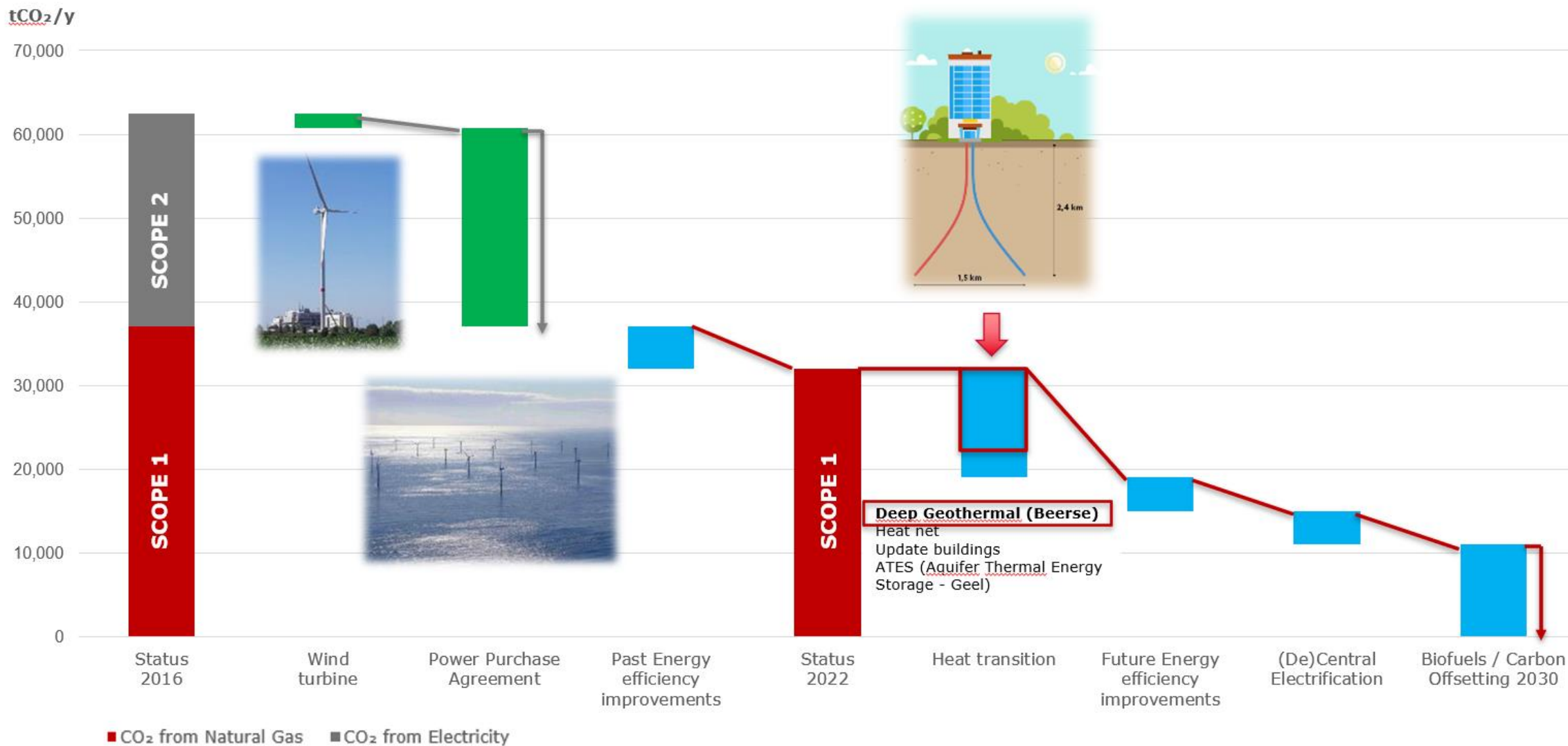
Race to Zero: | Our ambition is to achieve net zero emissions across our entire value chain by 2045

Voetnoten:

*Science-Based Targets (SBTs) align our ambition with the latest climate science

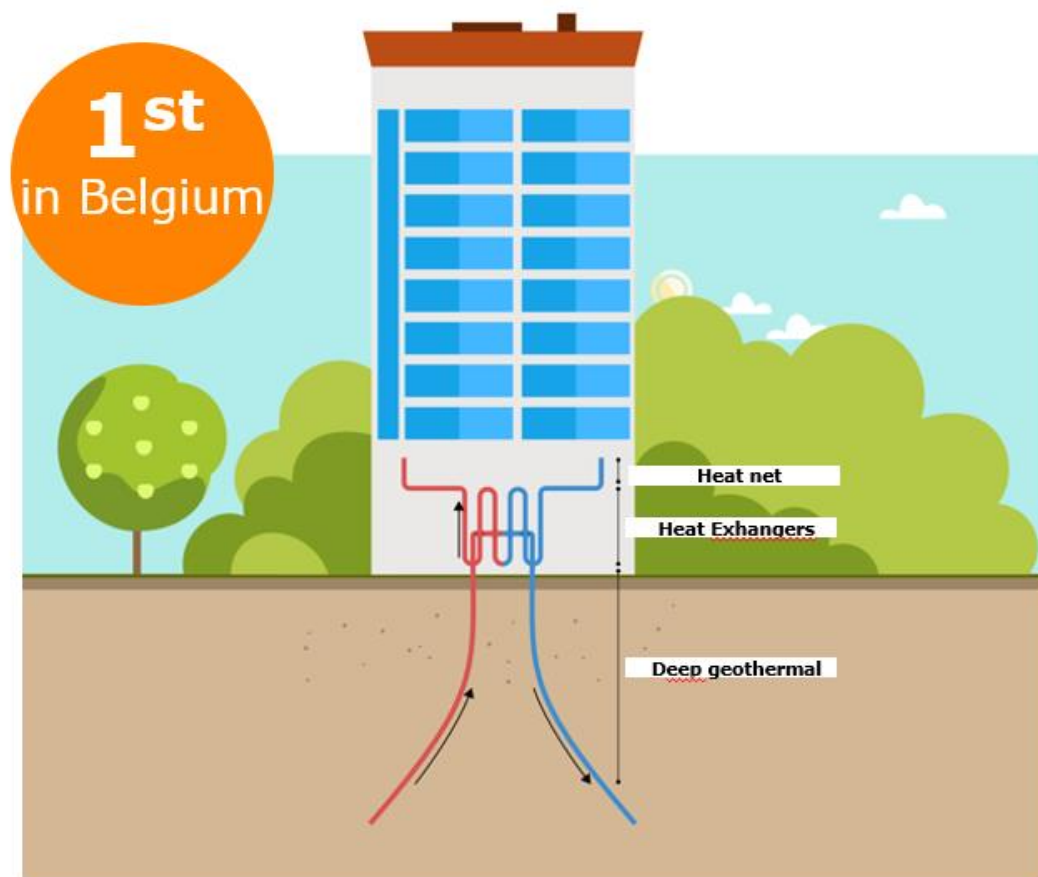
**SBTi guidance suggests we need to update our value chain commitment in 2023 to align with a 1.5-degree pathway

Janssen Belgium: Carbon neutral by 2030



Deep Geothermal as Sustainable Energy Source

An inexhaustible, Sustainable Energy source



We expect to reduce our **CO₂-emissions** by 30%*

= the CO₂-compensation of **2500 families**

1st heat generation achieved in October 2022



Healthy planet



VLAAMS ENERGIEAGENTSCHAP

AGENTSCHAP INNOVEREN & ONDERNEMEN



Vlaanderen is ondernemen



EFRO EUROPEES FONDS VOOR REGIONALE ONTWIKKELING



* Compared with our emissions in 2010

Key figures

■ Depth injection- and production well

Injection well

Vertical Section		1492,31	m
Depth (TVD)		2,051.57	m
Depth (MD)		2,725.00	m

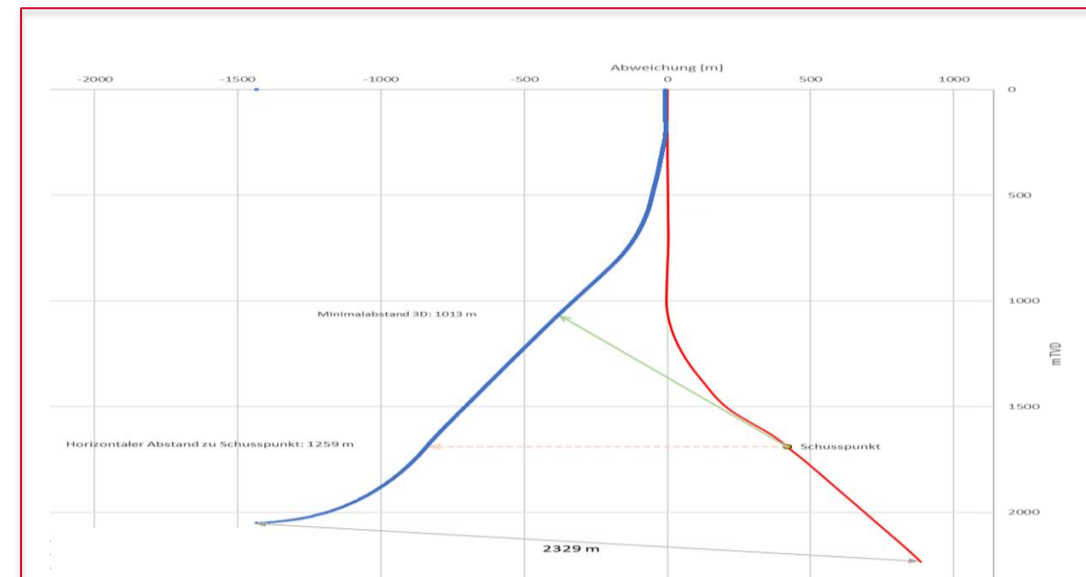
Production well

Vertical Section		886.08	M
Depth (TVD)		2,235.47	M
Depth (MD)		2,558.00	M

■ Flow rate & temperature

- ✓ Flow rates between 20 and 80l/s
- ✓ Very low injection pressures
- ✓ Expected temperature of 85°C

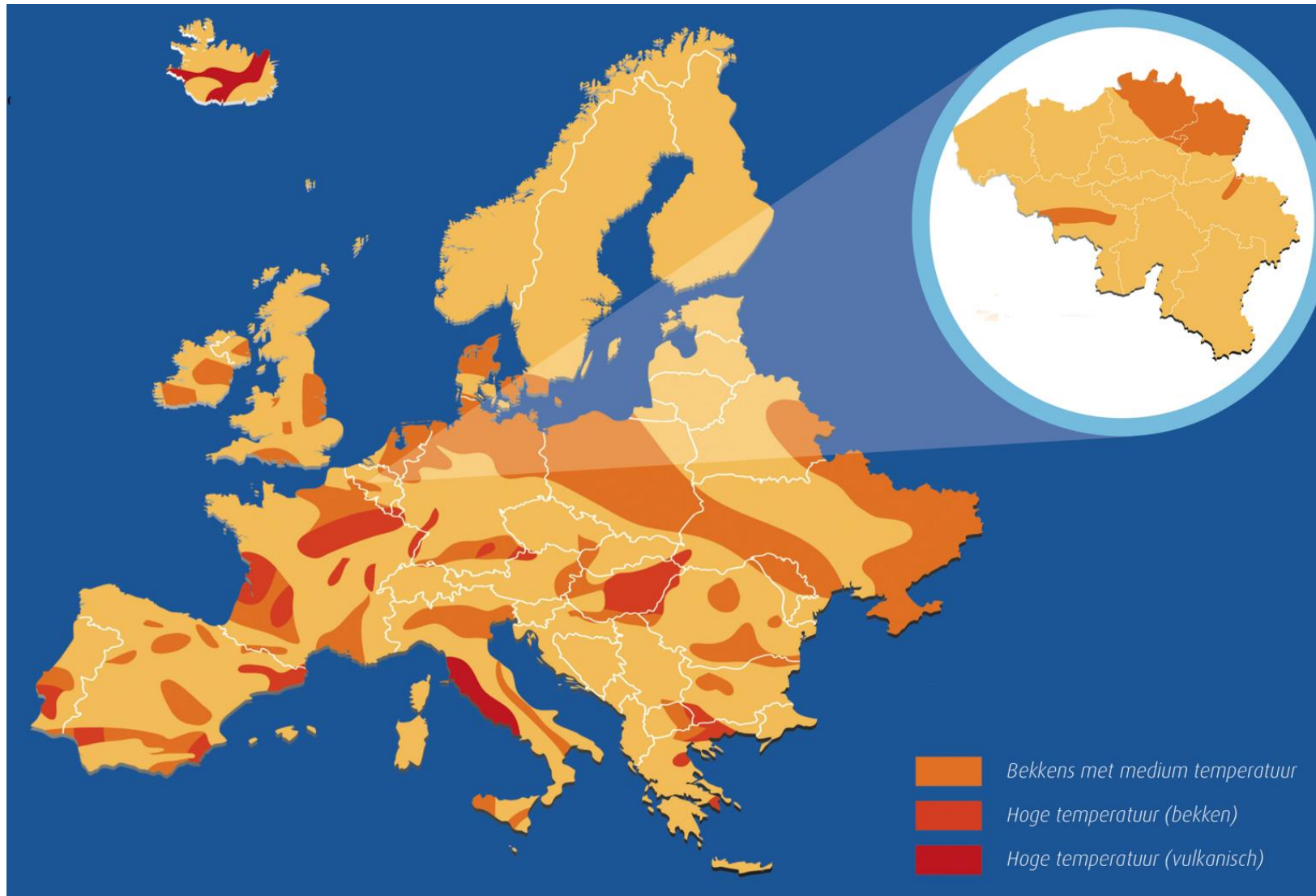
■ No seismicity detected during test and start-up phase



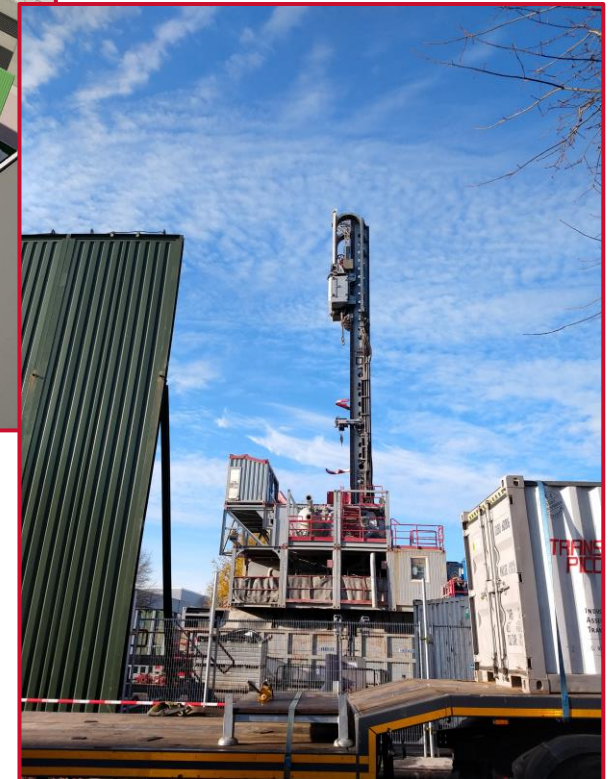
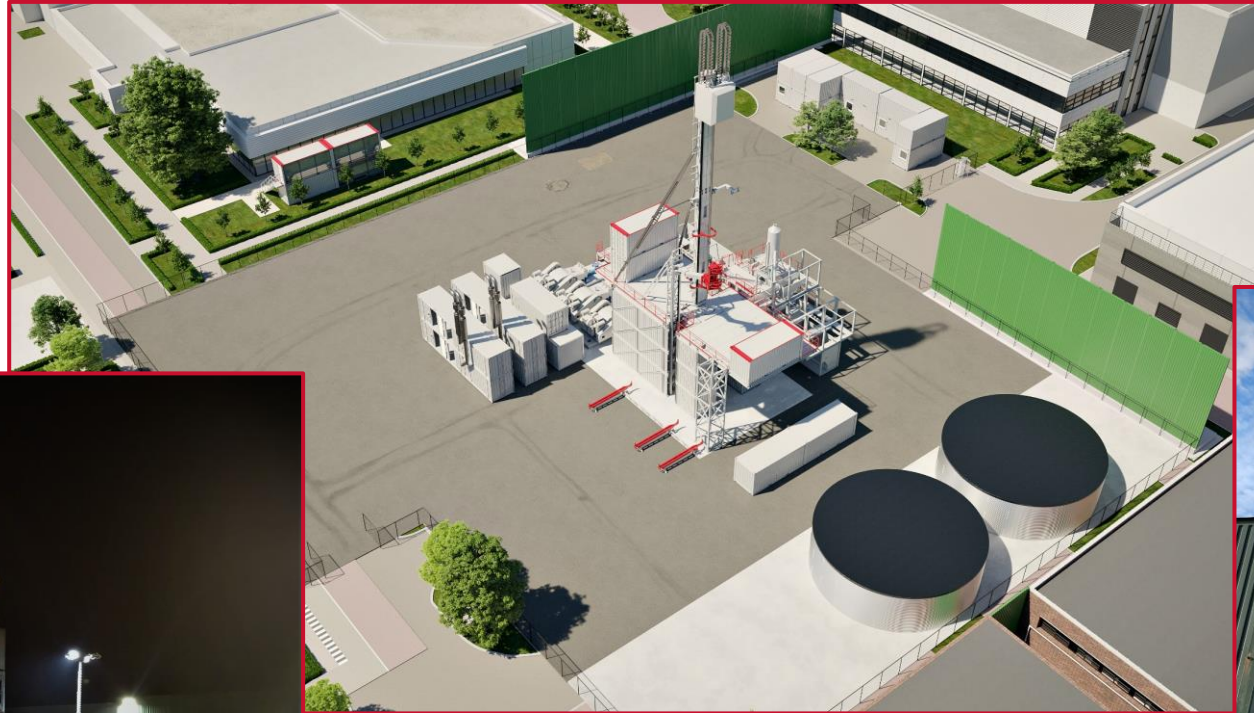
CO₂ Reduction

- 30% CO₂-emmission Belgian Campus
- 1,5% for J&J Globally

Geothermal energy resources in Europe



Geothermal Drilling

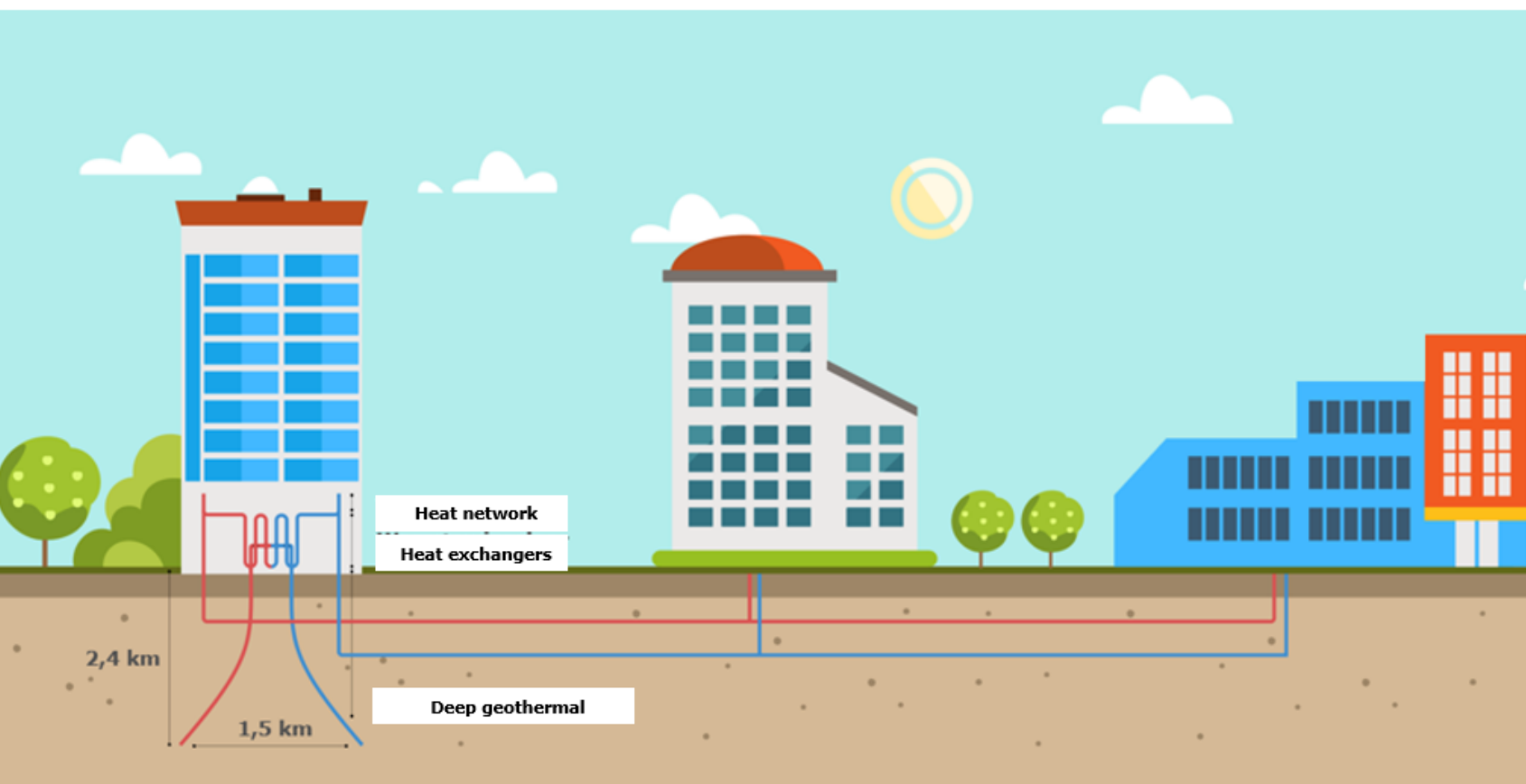


Geothermal Energy plant



Heat net of the 4th generation

Heating of buildings on the Janssen campus with deep geothermal



1. The **Heat Exchangers** transfers the heat to the Heat Net
2. Heat is **generated and used** on multiple locations
3. The **cooled down** water goes back through the Heat Exchangers
4. This process is called a **closed circuit**



Healy planet

VLAAMS
ENERGIEAGENTSCHAP

AGENTSCHAP
INNOVEREN &
ONDERNEMEN

Vlaanderen
in ondernemen

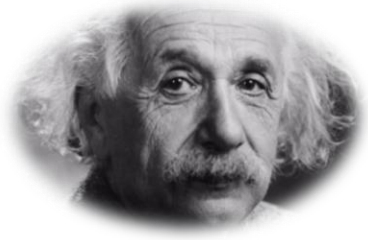


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EUROPEES FONDS
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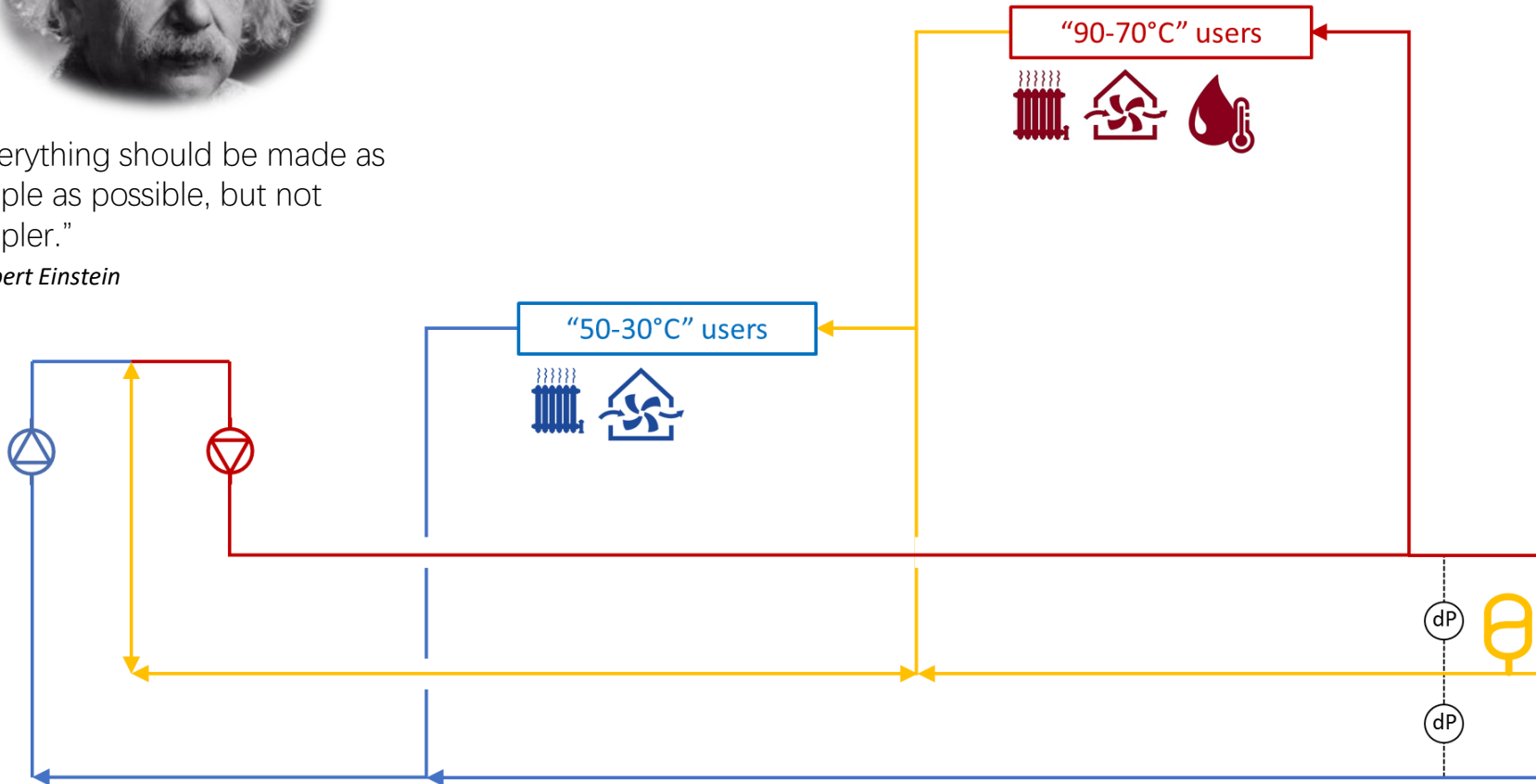
Heat net of the 4th generation

Innovation : 3 pipe system (*smart: complex vs. simple*)

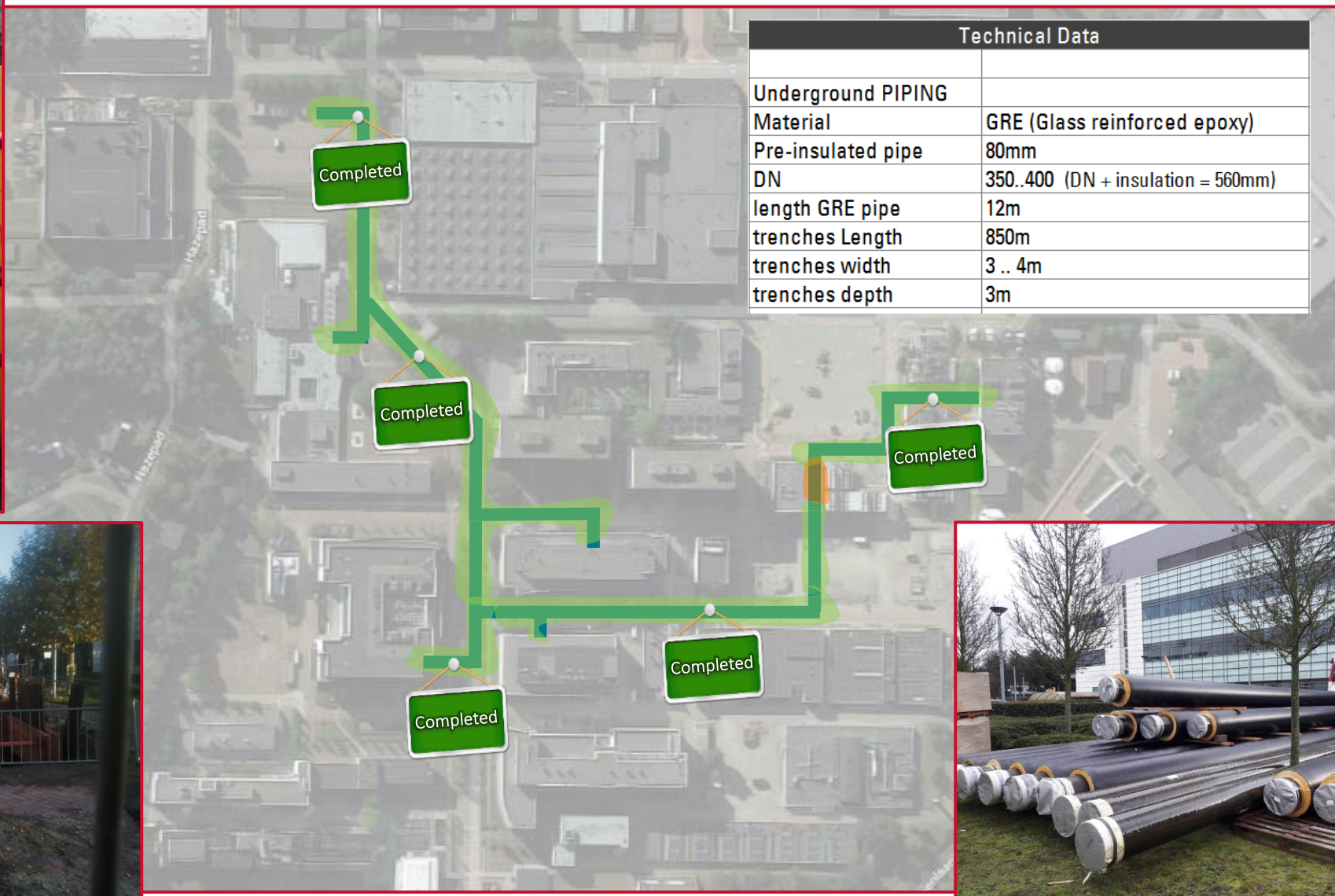


"Everything should be made as simple as possible, but not simpler."

Albert Einstein



Heat net of the 4th generation



Technical Data	
Underground PIPING	
Material	GRE (Glass reinforced epoxy)
Pre-insulated pipe	80mm
DN	350..400 (DN + insulation = 560mm)
length GRE pipe	12m
trenches Length	850m
trenches width	3 .. 4m
trenches depth	3m



Heat Net and Geothermal events

