

Changing Energy for Good

ST/PVT and Heat-as-a-Service:
solution to unlock heat decarbonisation
in the build environment

Miguel Matias, Commercial Director

virtu
Solar Redefined

100% more energy vs direct competitors

300% more CO₂ savings vs PV

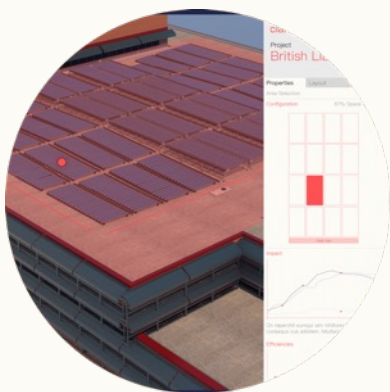
50% more net cash savings vs PV

23 patents



Naked Energy's end to end offer

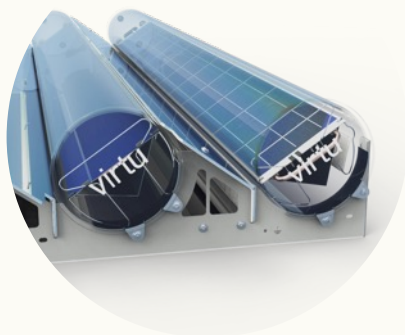
Design



clarity³⁶⁰

Design, integrate and procure **Virtu** in minutes

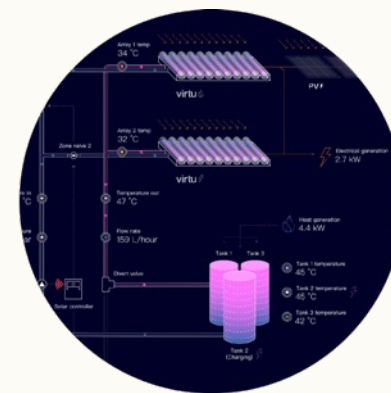
Generate



virtu

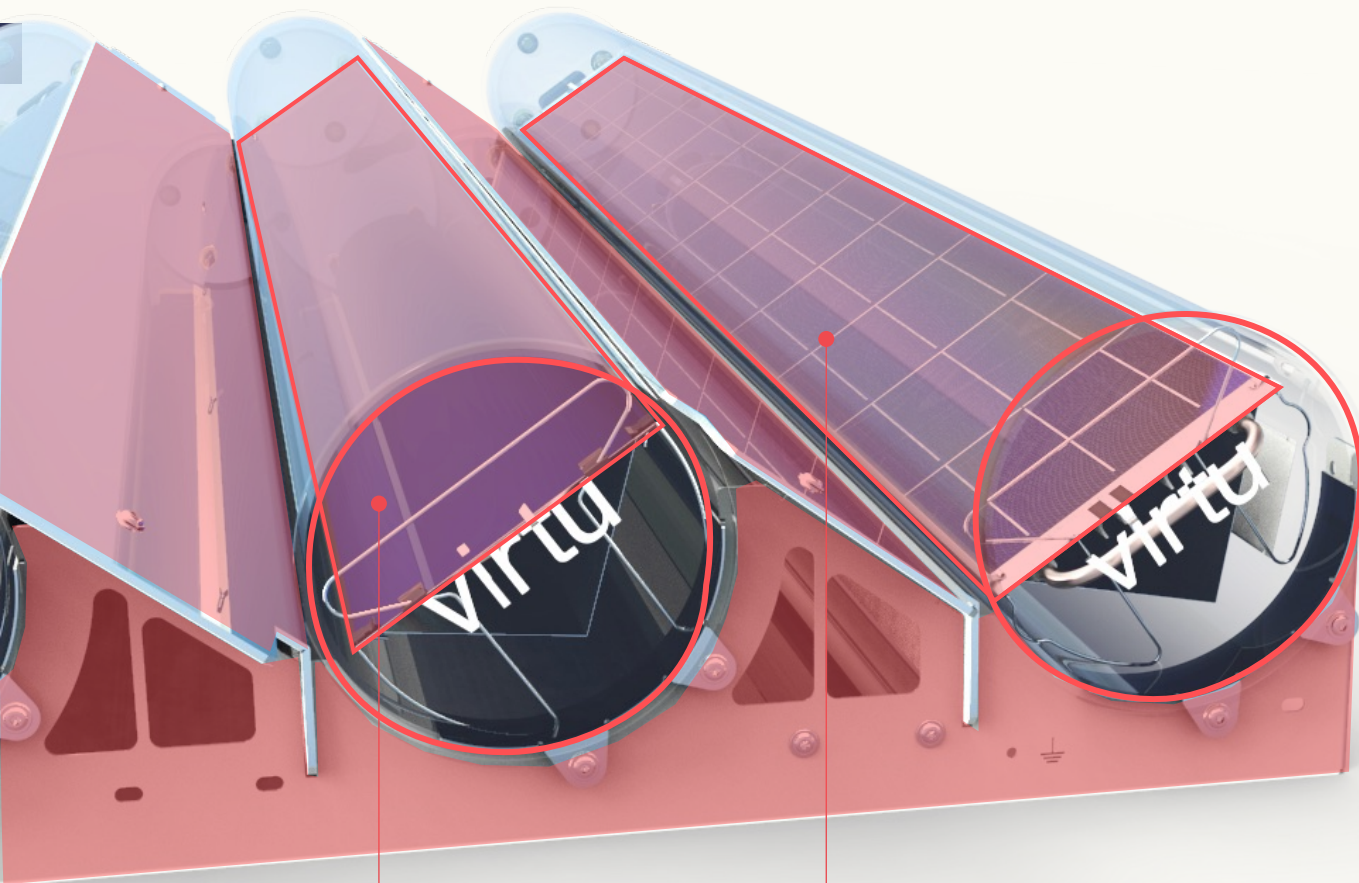
World's most space efficient, elegant and versatile solar heat technology

Monitor



clarity²⁴⁻⁷

AI augmented solar monitoring, reporting, and management platform



virtu^{HOT}

Solar collector producing heat up to 120 °C / 248 °F

virtu^{PVT}

Globally unique hybrid solar collector producing power and heat up to 75 °C / 167 °F

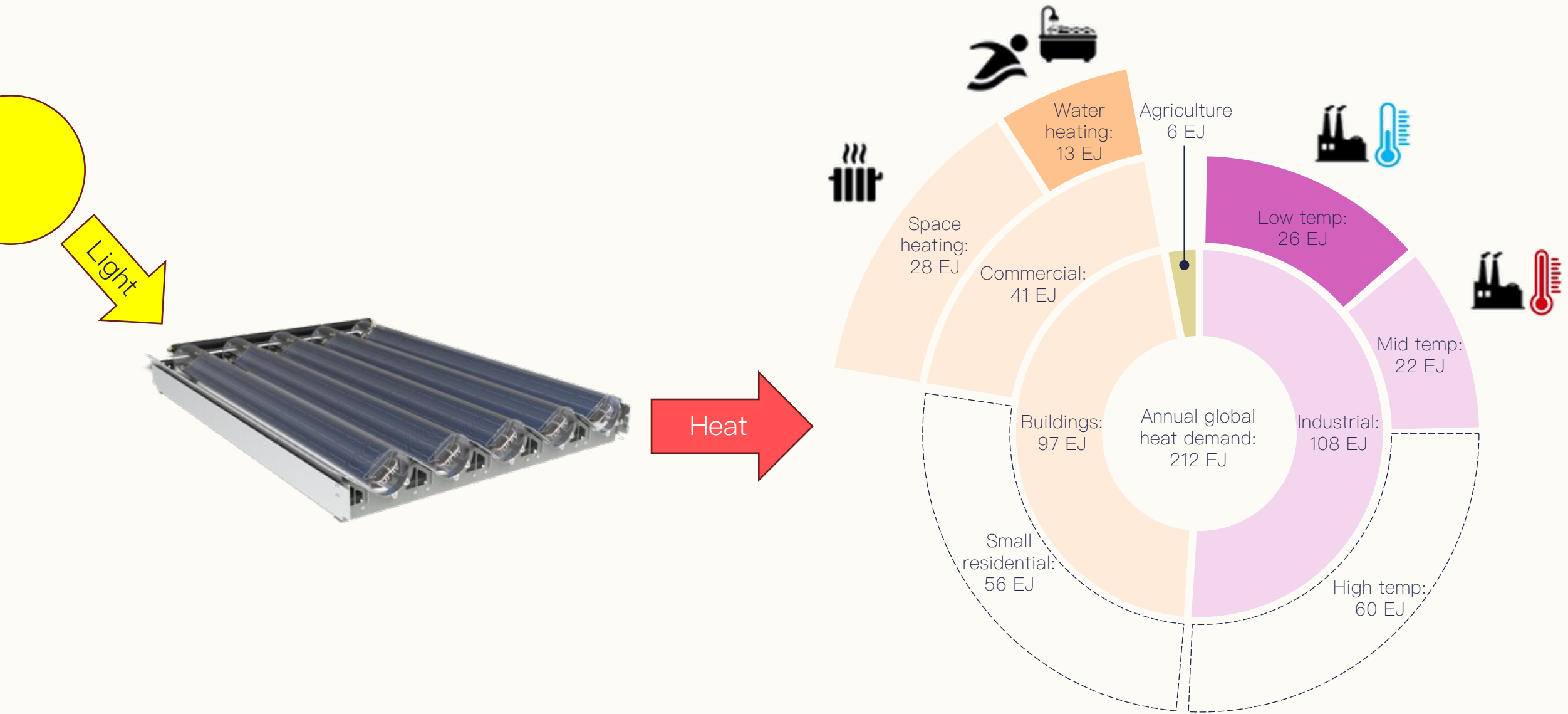
Virtu – the world's highest energy density solar solution*

5 key technology elements

- > High efficiency heat plate technology
- > 22% efficient mono-crystalline cells
- > Borosilicate glass tube with vacuum
- > Integrated reflectors
- > Bespoke building mounting system

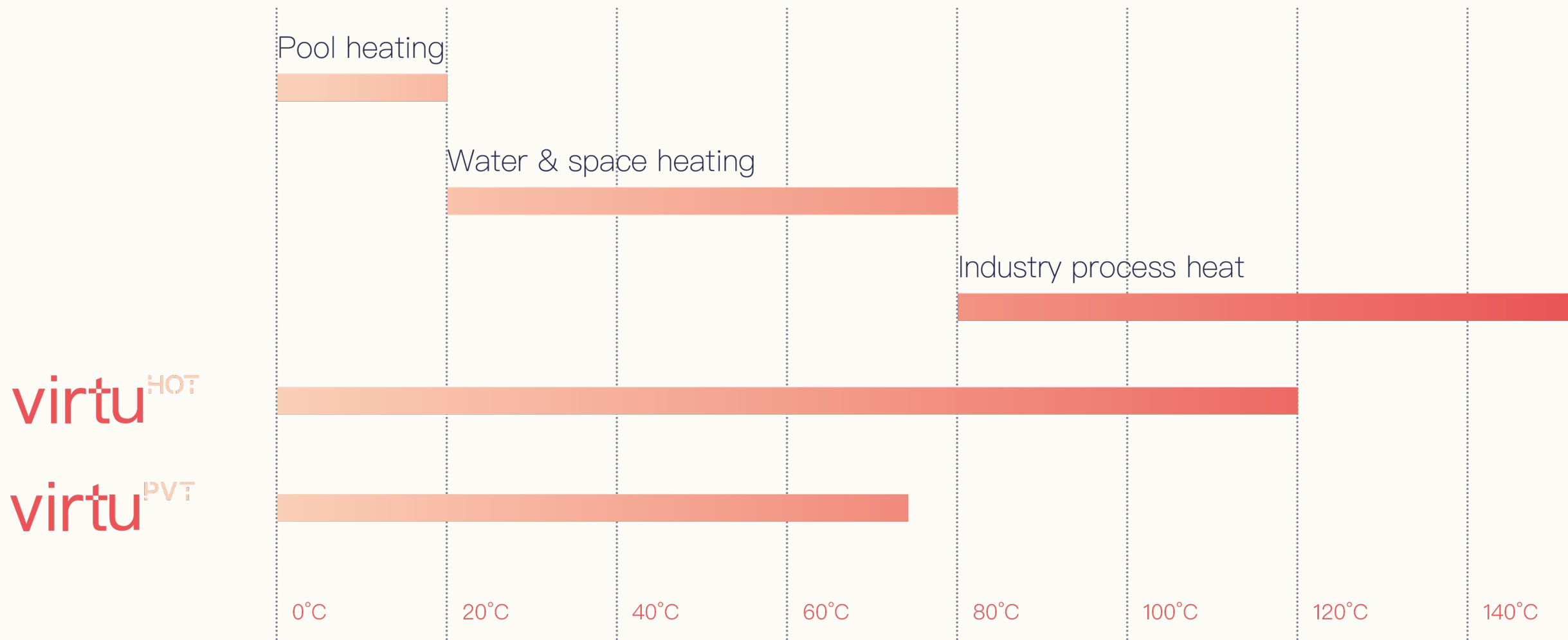
* Installed horizontally, for a given area

Intro to solar heat applications



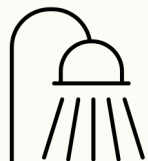
Perfectly matched

The ideal temperature for many processes.



Sectors

The following applications are suitable for solar heat.



Large
DHW

Hotels

Hospitals

Multi-unit
residential blocks

Care Homes

Education

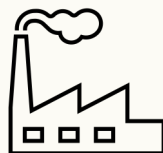


Commercial
Pools

Hotels

Leisure centres

Outdoor pools



Industry
process heat

Textiles

Food
Manufacturing

Beverage
Manufacturing

Pulp & Paper

Dairy/Agro

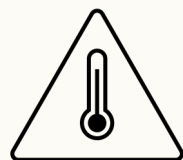


Communities

District heat
networks

Care villages

Industrial
complexes



Space
conditioning

Storage/archives

Industrial cooling
w/heat recovery

Seasonal storage

90 case studies in 9 countries



Van Wervan Recycling, NL



Delémont Apartments, Switzerland



Westgate leisure centre, UK



University of Westminster, UK



SPECIFIC Active Office, Swansea (UK)



Hotel, NL



The British Library

Hybrid solar heat and power

Location: London

Technology: Virtu^{PVT} and Virtu^{HOT}

Application: DHW, Space Heating and Dehumidification

Array size: 240 Virtu^{PVT} + 710 Virtu^{HOT}, 650 m²

Generation: 350kW_{p_{th}} and 17kW_{p_{el}}

Storage tank size: 15,000L

CO₂ saving: 70 tonnes per year

The British Library, London



Industrial site — 100% off gas

Phase
1
Q1 2024

- > 1,965 **Virtu^{HOT}** tubes (786 kW_{th})
- > Solar cooling

Phase
2
2024

- > 2,905 **Virtu^{HOT}** tubes (1.2 MW_{th})
- > Inter-seasonal storage tanks capture summer generation

Phase
3
2025

- > 2,490 **Virtu^{PVT}** tubes (685 kW_{th} and 174 kW_e)
- > Solar heat from **Virtu^{PVT}** will be injected into a borehole field to provide long-range inter-seasonal thermal storage

Manufacturing technology centre, UK



Hilton Frankfurt

Virtu^{HOT} supplying 65 °C sanitary hot water

Array size: 1,065 Virtu^{HOT}

Annual generation: 371,379 kWh

CAPEX cost^{1,2}: €410,858

Average annual net savings: €99,995

Payback: 5 years

Cumulative net cashflow: €1,589,040

IRR: 20%

NPV: €731,890

Cumulative carbon savings: 1,296 tCO₂e

1. Based on a Frankfurt district heating price of €0.17/kWh with 3.4% inflation per annum
2. This project benefits from a 25% German renewable subsidy

Hilton, Frankfurt



F&B Industrial plant

Virtu^{HOT} providing a low temperature process heat system with a target temperature of 90 °C

Array size:	11,140 Virtu ^{HOT}
Annual generation:	3,596 MWh
CAPEX cost ^{1,2} :	€2,783,799
Average annual net savings:	€659,672
Payback:	5.7 years
Cumulative net cashflow:	€13,705,295
IRR:	19%
NPV:	€4,174,004
Cumulative carbon savings:	15,496 tCO ₂ e

1. Based on a Hamburg district heating price of €0.11/kWh with 3.4% inflation per annum
2. This project benefits from a 45% German renewable subsidy

Global Beverage Company, Frankfurt



Thank you!