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Institute for Energy Efficiency
in Production EEP


# Bi-monthly Open Discussion Forum

Heating and Cooling Efficiency – Harnessing Untapped Potential for Resilience and Net-Zero Goals

Dr.
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***-Extract-***

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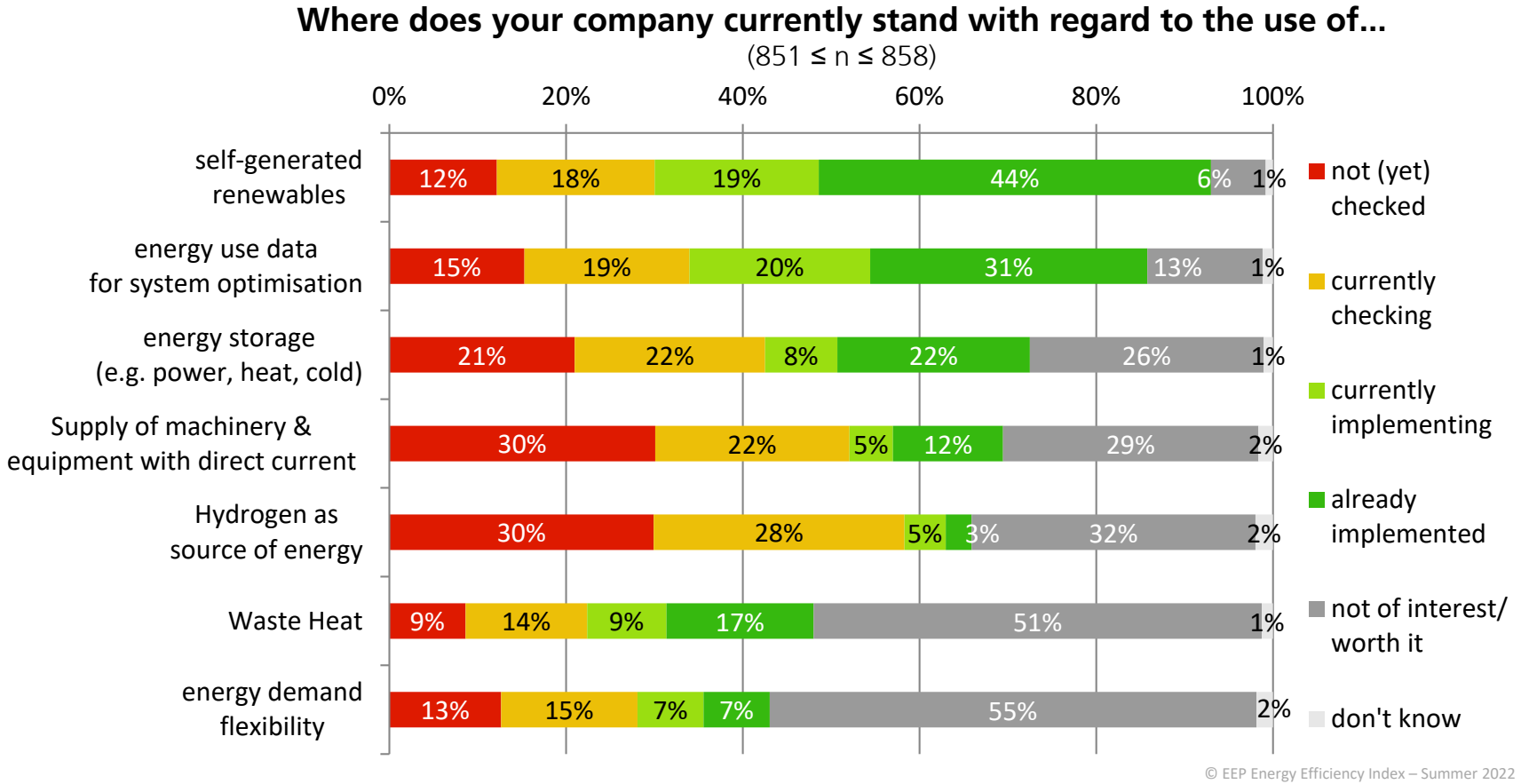
# Where do companies stand in the use of different approaches to systemic resilience?

## Alleged lack of information leads to blatant misjudgement - problematic in view of gas emergency.




Source: EEP Energy Efficiency Index - Summer 2022





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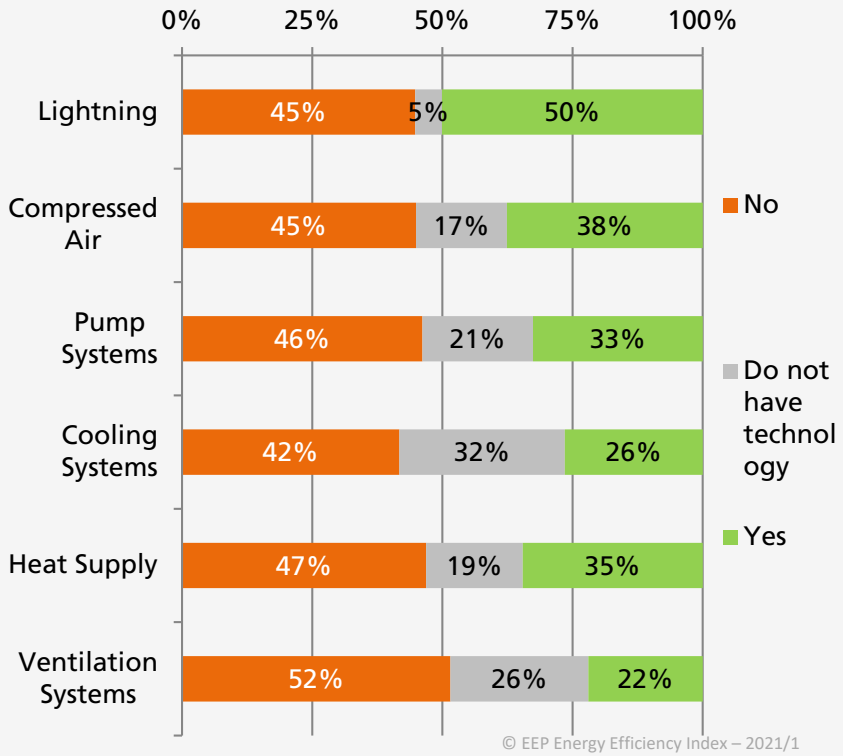
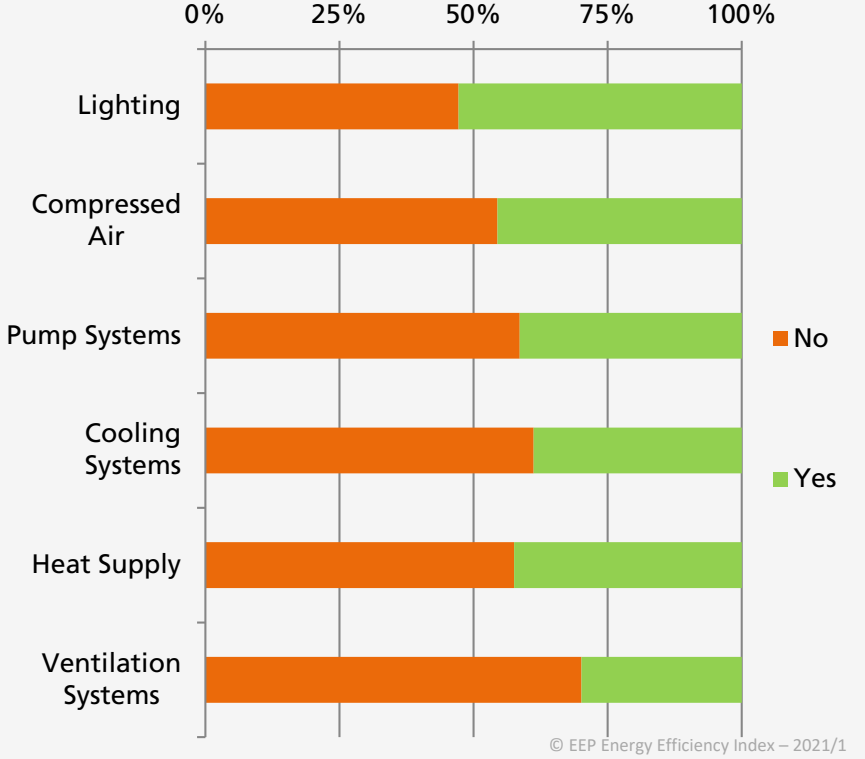
# Awareness level savings potentials of cross-sectional technologies

## The majority of companies have no knowledge of their energy saving potentials in the cross-sectional technologies used

**Do you know the percentage energy savings potential* in your company for these cross-sectional technologies? (n=643, n'=3851)**




**Do you know the percentage energy savings potential* in your company for these cross-sectional technologies? (if technology available, n=643, n'=3077)**

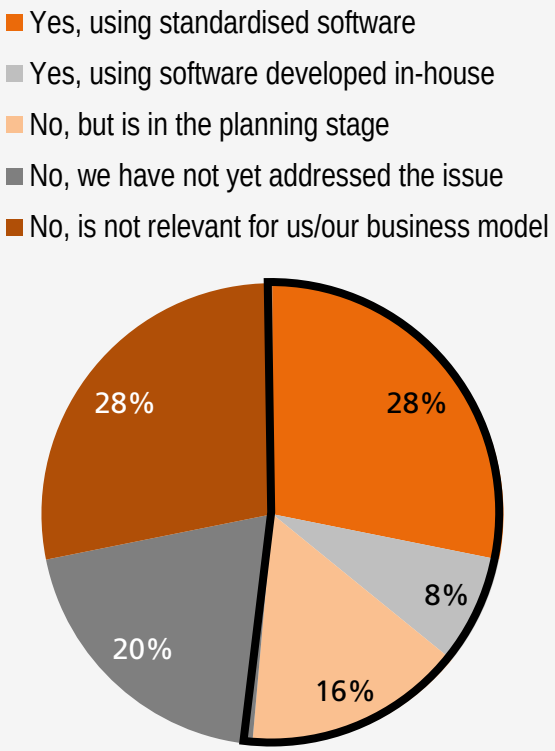



Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021) *with the same output/utilisation ratio, i.e. efficiency increase

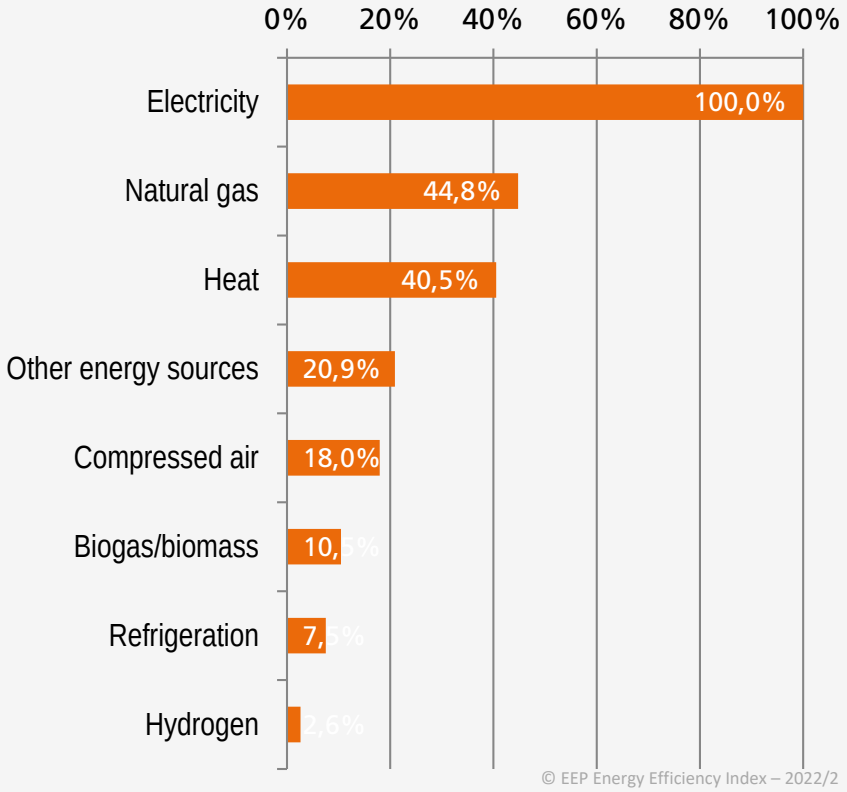
# Digitalization as an energy-saving measure

## Digitized monitoring of energy consumption can offer efficiency potential – too few companies do this apart from than electricity

**Is there a digitalized recording of energy consumption data?** (n = 856)




**Which energy sources are recorded?**
(n = 305, n' = 749)




Source: EEP Energy-Efficiency-Index - EEI 2022/2

# Temperature ranges



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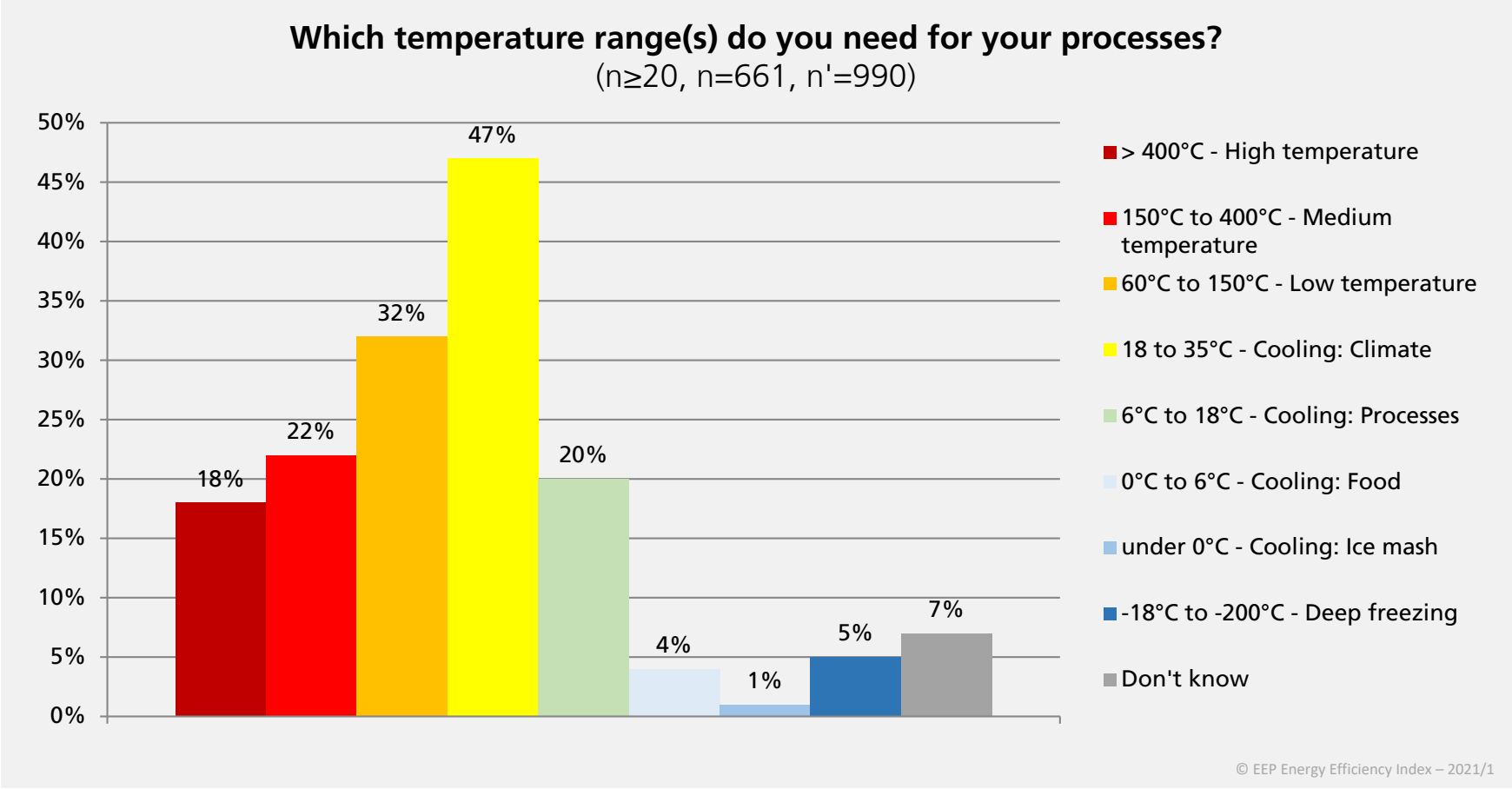
# Temperature ranges

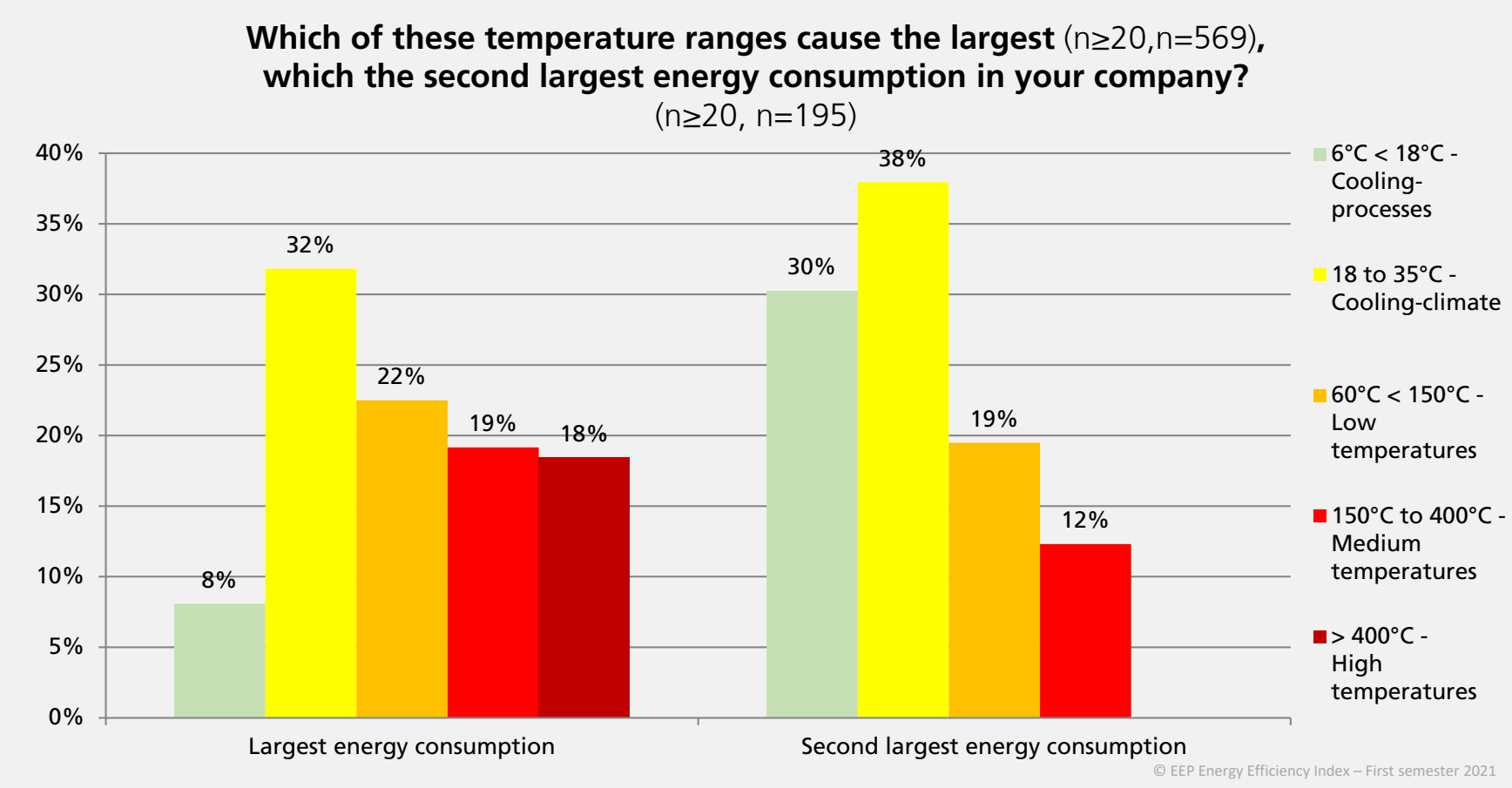
## The temperature ranges between 18°C and 35°C (climate cooling) are needed most often – will this increase with warming climate?




Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)

# Temperature ranges

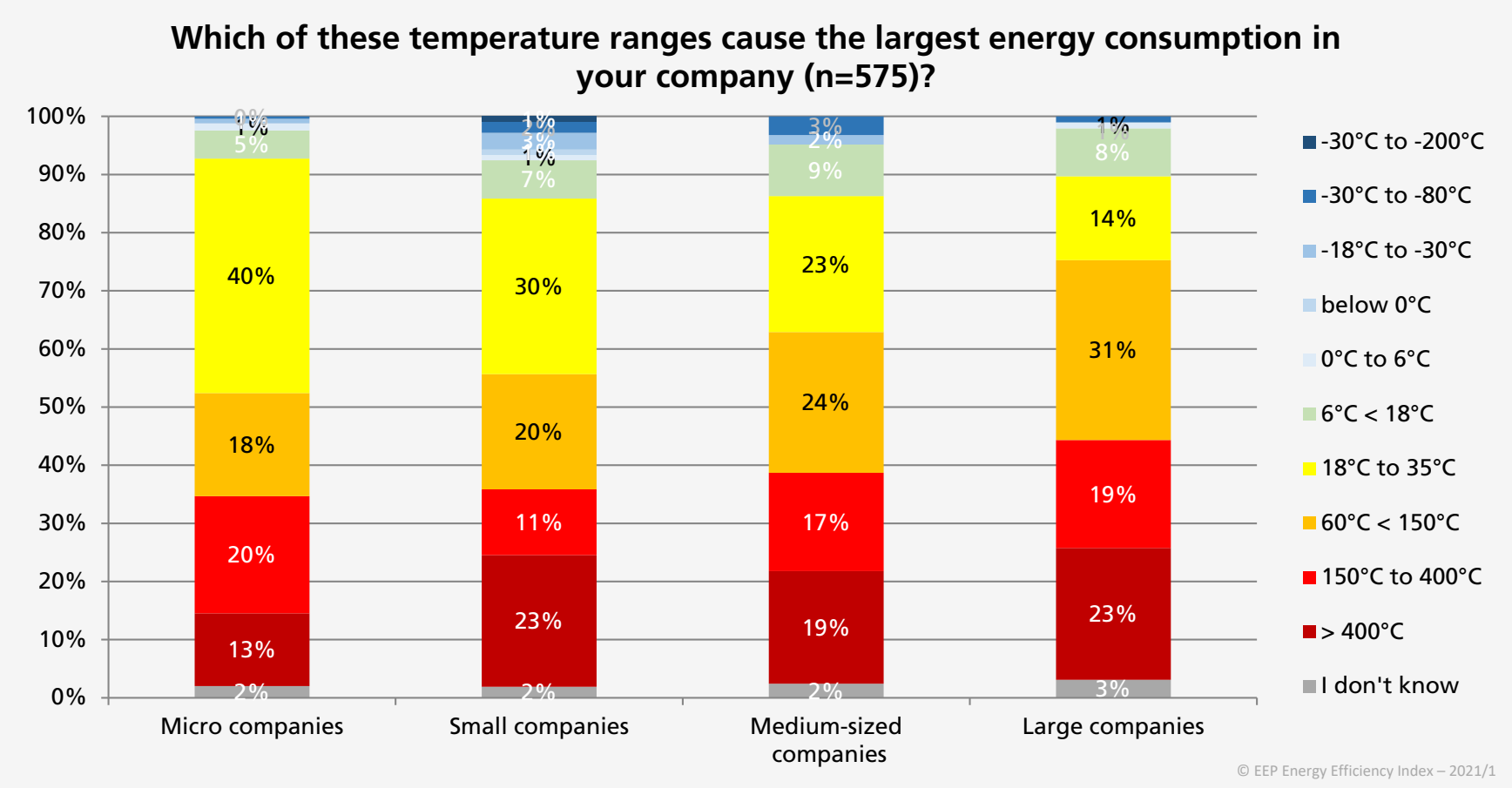
## Clmate cooling most often causes the highest energy consumption across companies – but....




Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)

# Temperature ranges

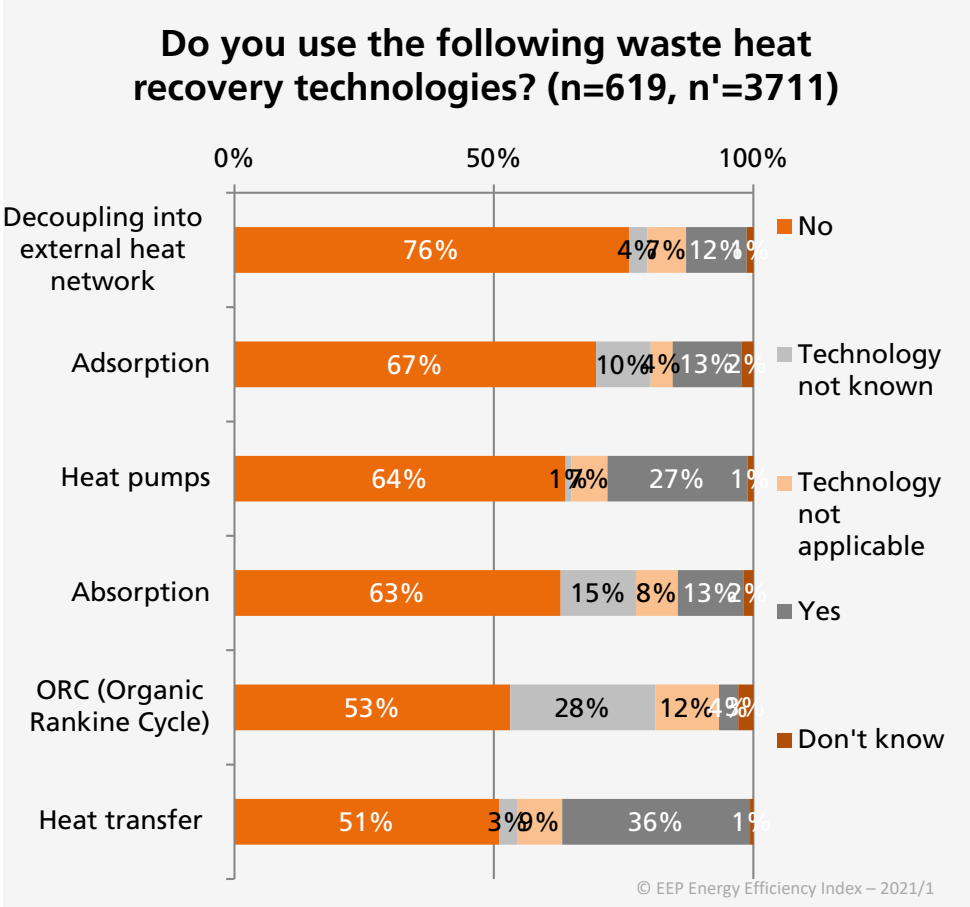
## The larger the company the more often low temperature processes (60-150°C) lead to the highest energy use

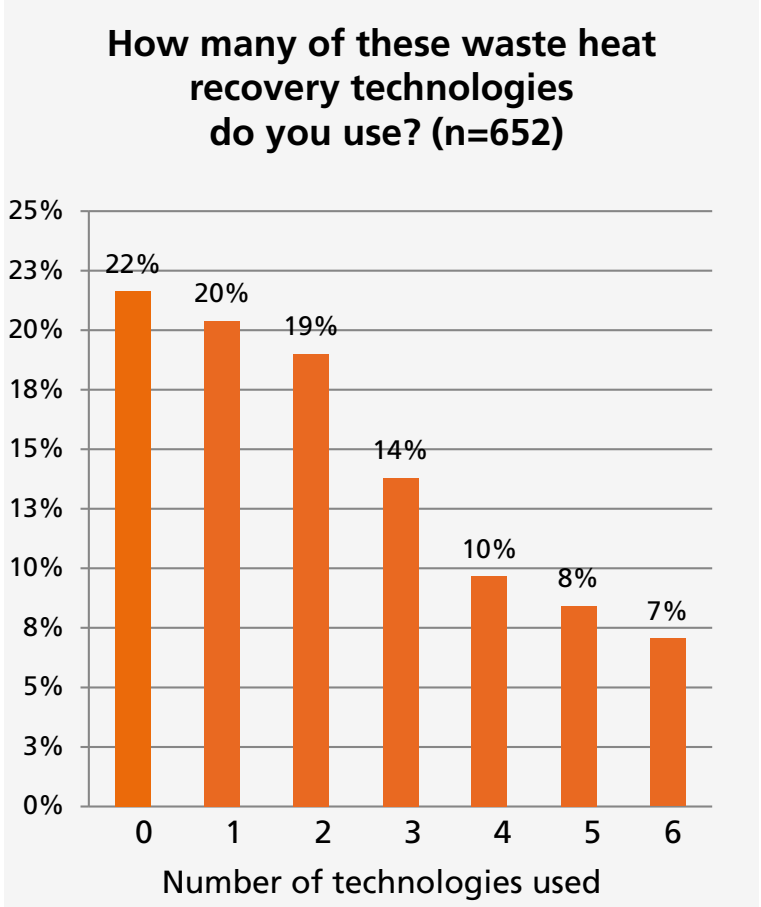



Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)

# Use of waste heat recovery technologies

## 22 % of companies do not yet use waste heat recovery technologies - heat exchangers and heat pumps are currently the frontrunners




Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)





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# The challenge of heating/cooling efficiency



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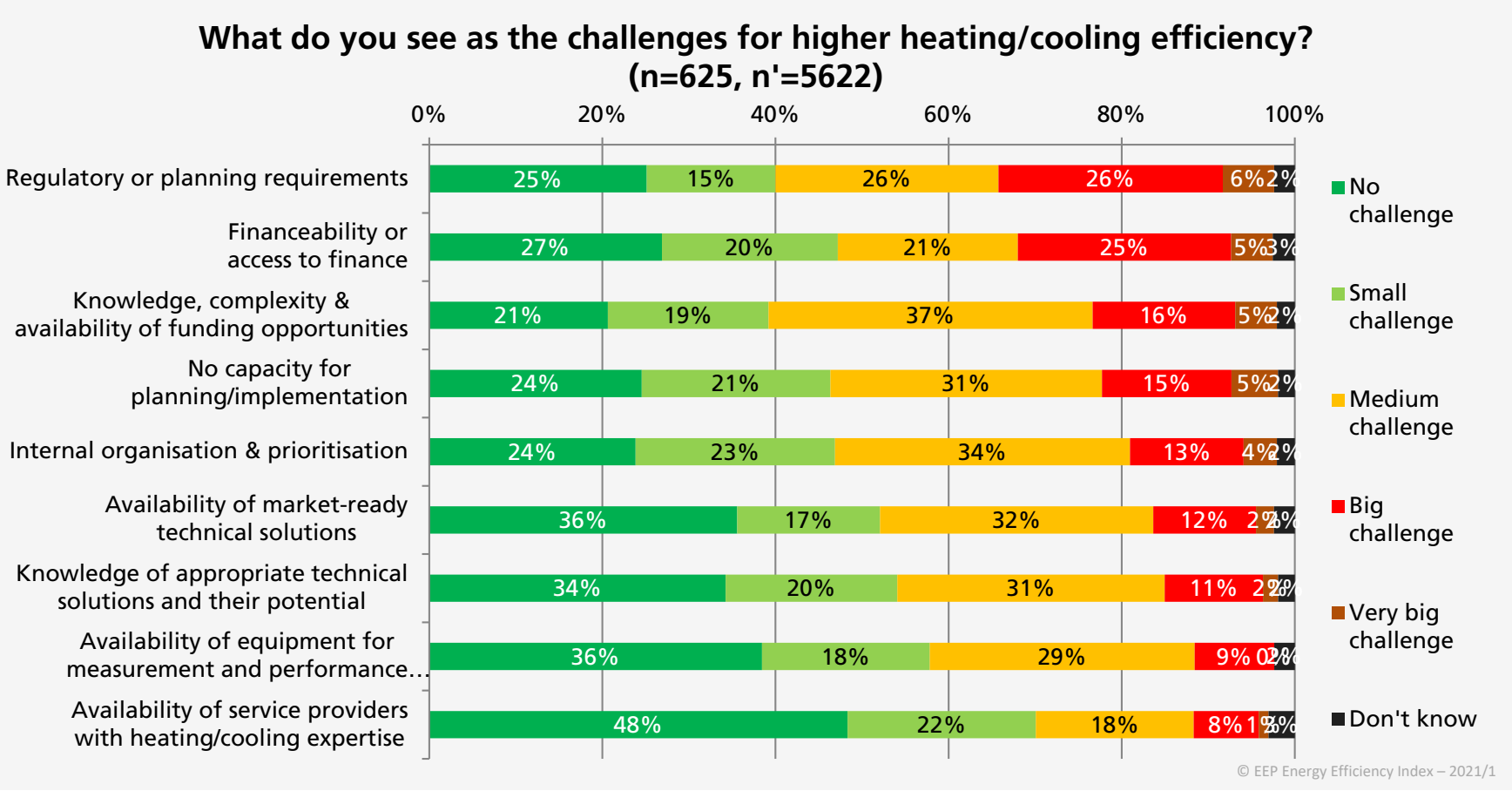
# The challenge of heat/cooling efficiency

## Key challenges are the regulatory requirements as well as access to financing




Source: Energieeffizienzindex der deutschen Industrie: 2021/1, EEP(2021)

# Which influencing factors inhibit the use of waste heat?



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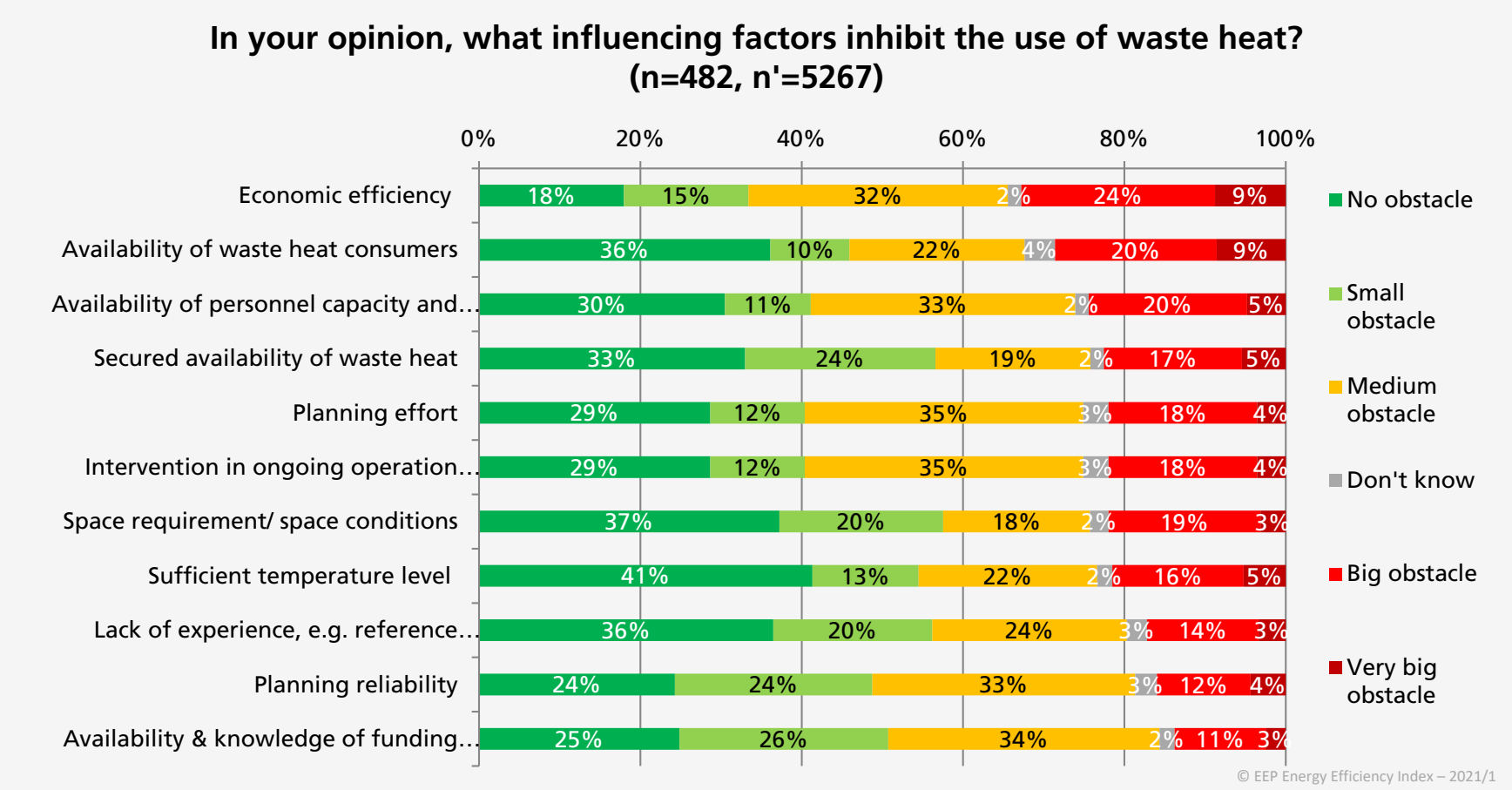
# Barriers to waste heat utilization

## The biggest barriers to waste heat recovery are the economics and availability of waste heat consumers




Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)

# Which influencing factors drive the use of waste heat?



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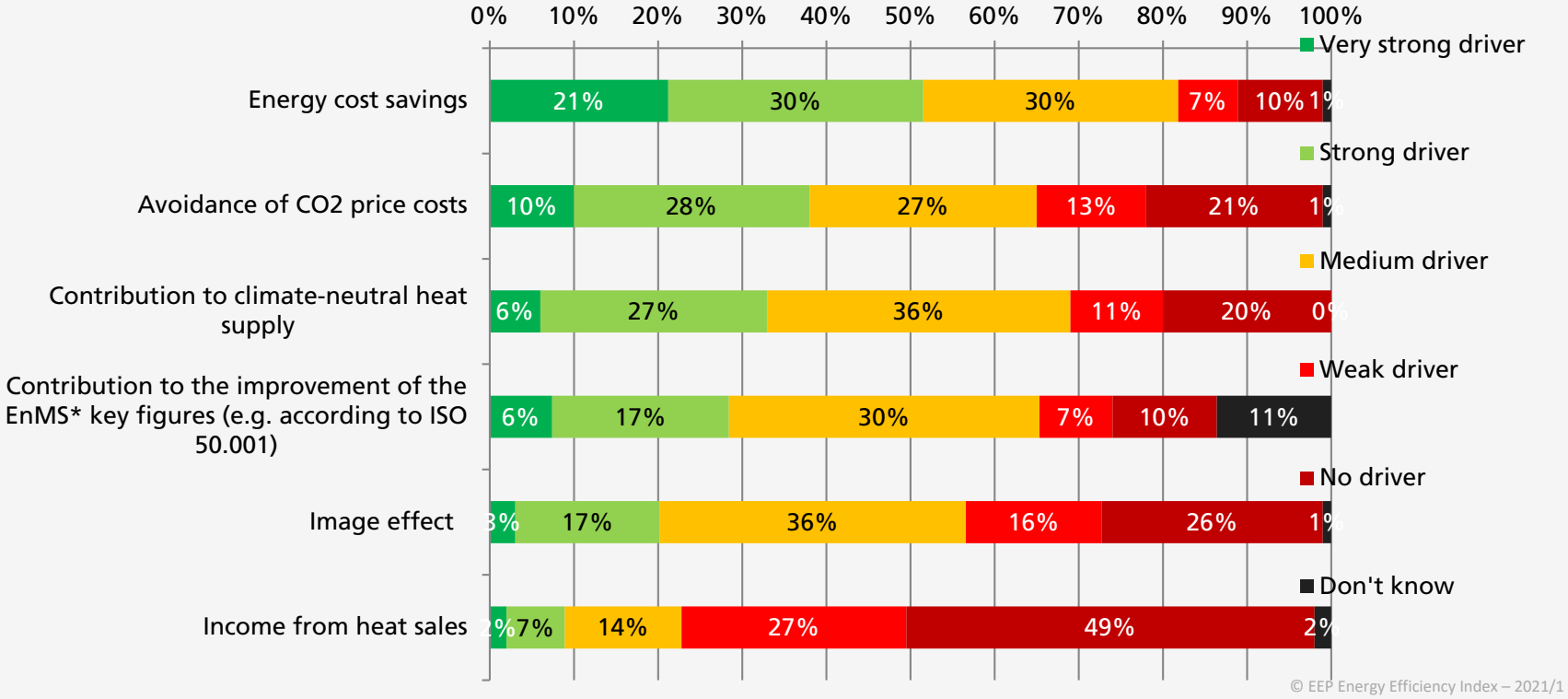
# Drivers of waste heat utilization

## The use of waste heat is primarily driven by energy cost savings and the contribution to a climate-neutral heat supply

**In your opinion, which influencing factors are driving the use of waste heat?**
(n=469, n'=2815)

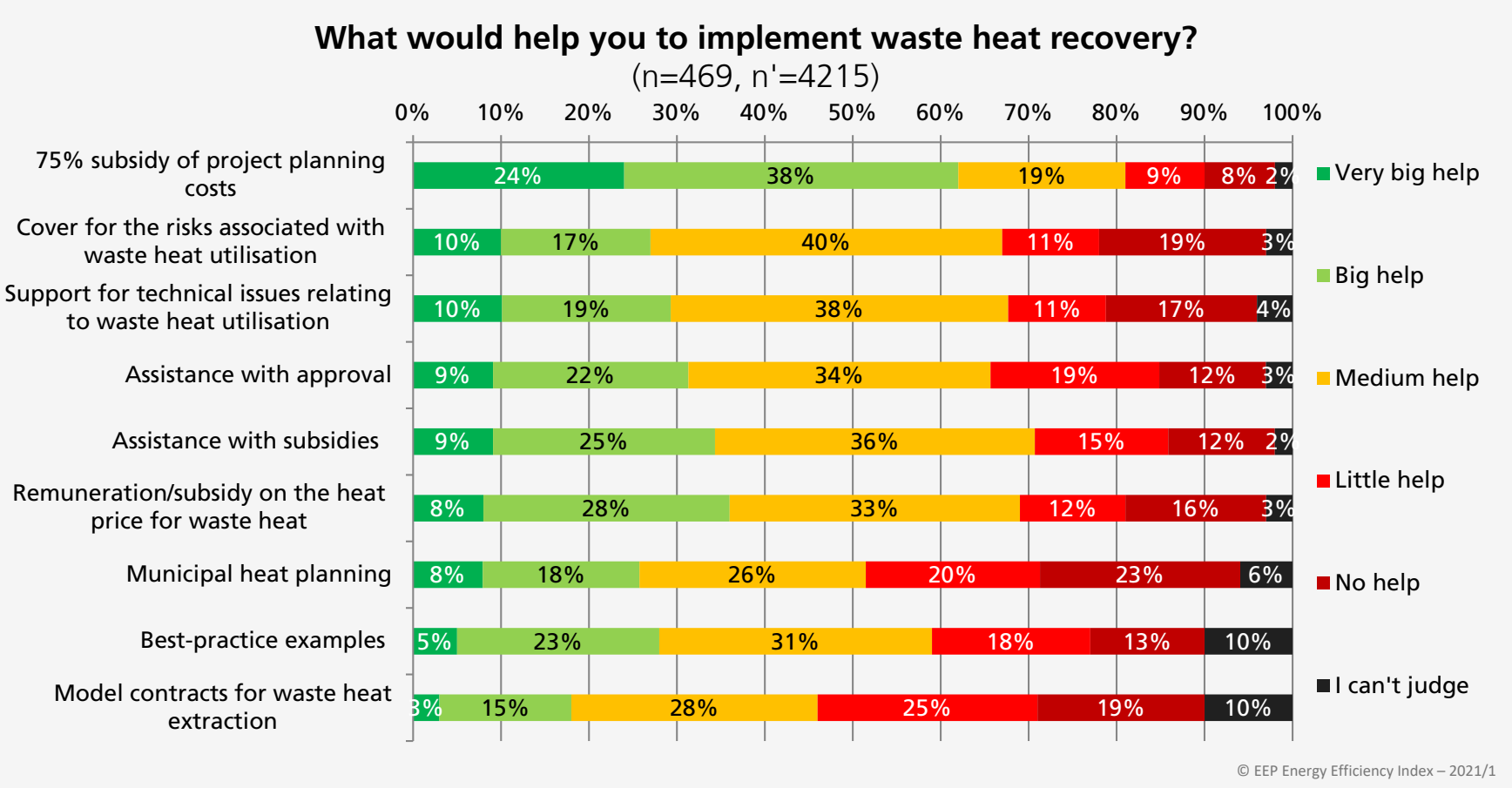





Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)

# What helps with the implementation of waste heat recovery?

## For the utilisation of waste heat potentials, the participating companies see a subsidy for project planning costs as the greatest help




Source: Energy Efficiency Index of German Industry: 2021/1, EEP(2021)





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# Thank You!


Dr.

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# Disclaimer

*"The views expressed are those of Dr. Stefan M. Buettner and do not necessarily reflect the views of the United Nations"*