



# Austrian perspectives towards energy flexible buildings

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# Today's tour programme

- Austrian framework, energy data and challenges
- National characteristics and needs on energy flexible buildings
- Austrian SRI discussion and outlook

## Austrian framework, energy data and challenges

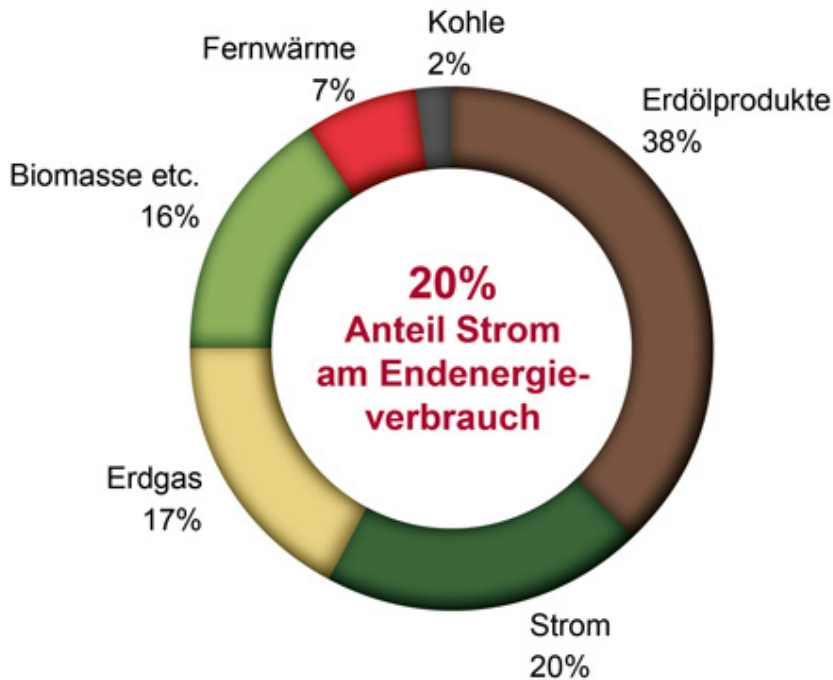
## #mission2030 – Austrian Climate and Energy Strategy (2018):

- 100 % electricity from renewable energy sources in 2030
- No oil-fired heating systems from 2020 for new buildings
- Increase the flexibility of the energy system

# Final energy consumption and electricity generation

2016

**72% Renewables in electricity production:**  
 56% Hydropower  
 16% Wind, PV and biomass CHP  
**Plus 28% mainly gas fired CHP plants**



Quelle: Statistik Austria (2018)

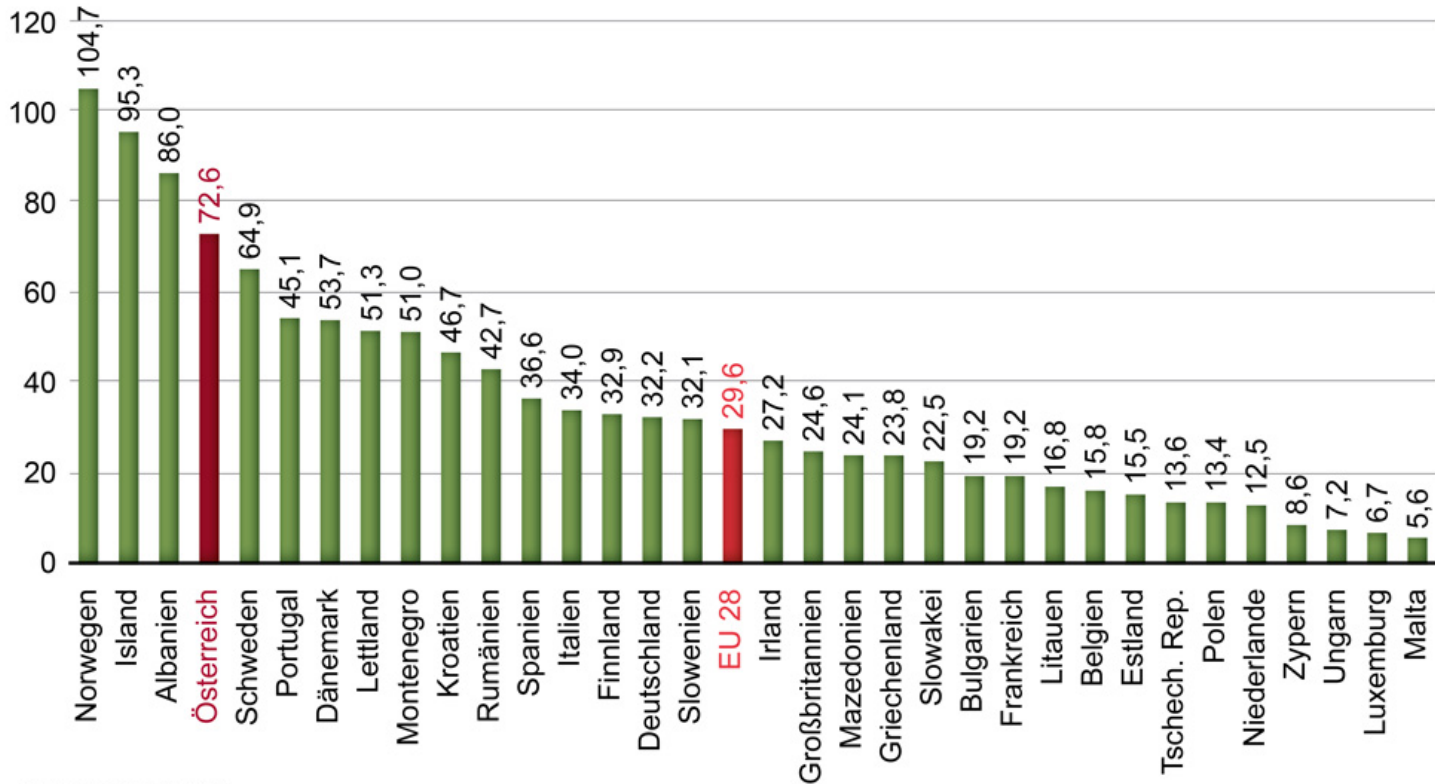
Quelle: Statistik Austria (2017)

Source: Association of Austrian Electricity Companies 2019, based on Statistics Austria 2017/2018

# Share of renewable energy covering the electricity consumption 2016

## Anteil erneuerbarer Energien am Stromverbrauch 2016

Angaben in Prozent



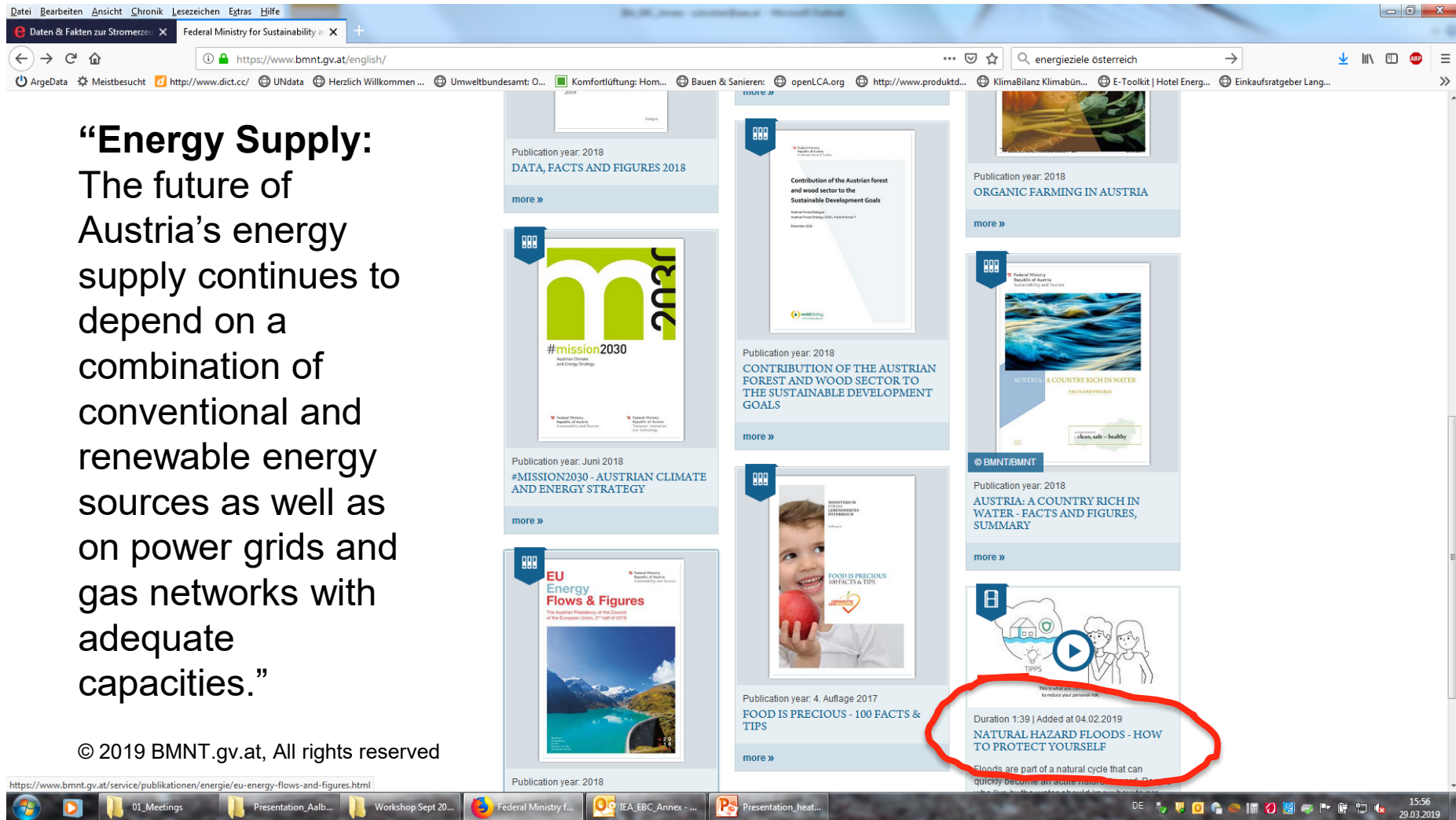
Quelle: Eurostat 2018

Source: Association of Austrian Electricity Companies 2019, based on EUROSTAT 2018

# Example for Austrian „challenges“

**“Energy Supply:**  
The future of Austria’s energy supply continues to depend on a combination of conventional and renewable energy sources as well as on power grids and gas networks with adequate capacities.”

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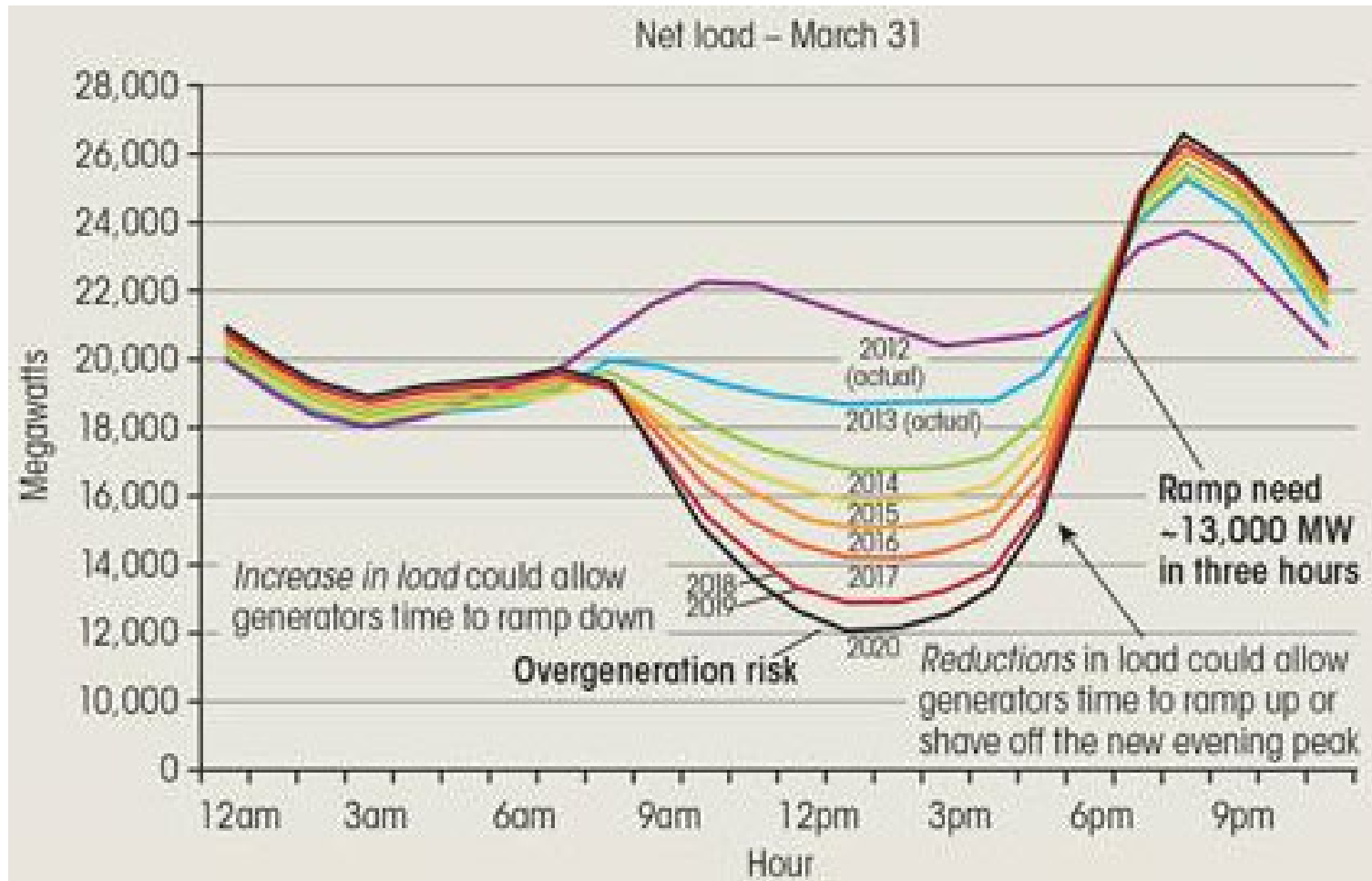


## National characteristics and needs on energy flexible buildings



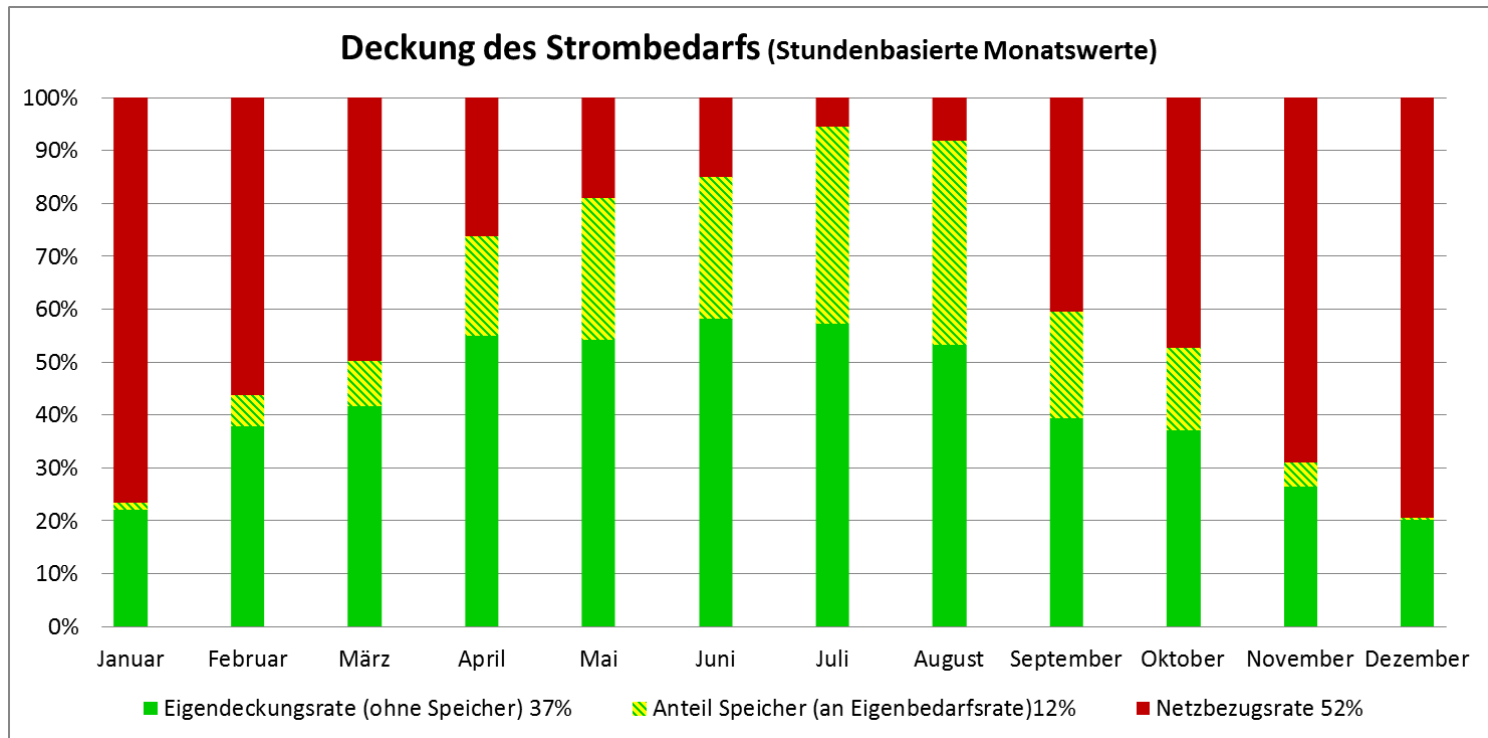
# National characteristics

Less duck curve problems!



Source: The GridOptimal™ Initiative, New Building Institute 2018

## Self-sufficiency Goals!

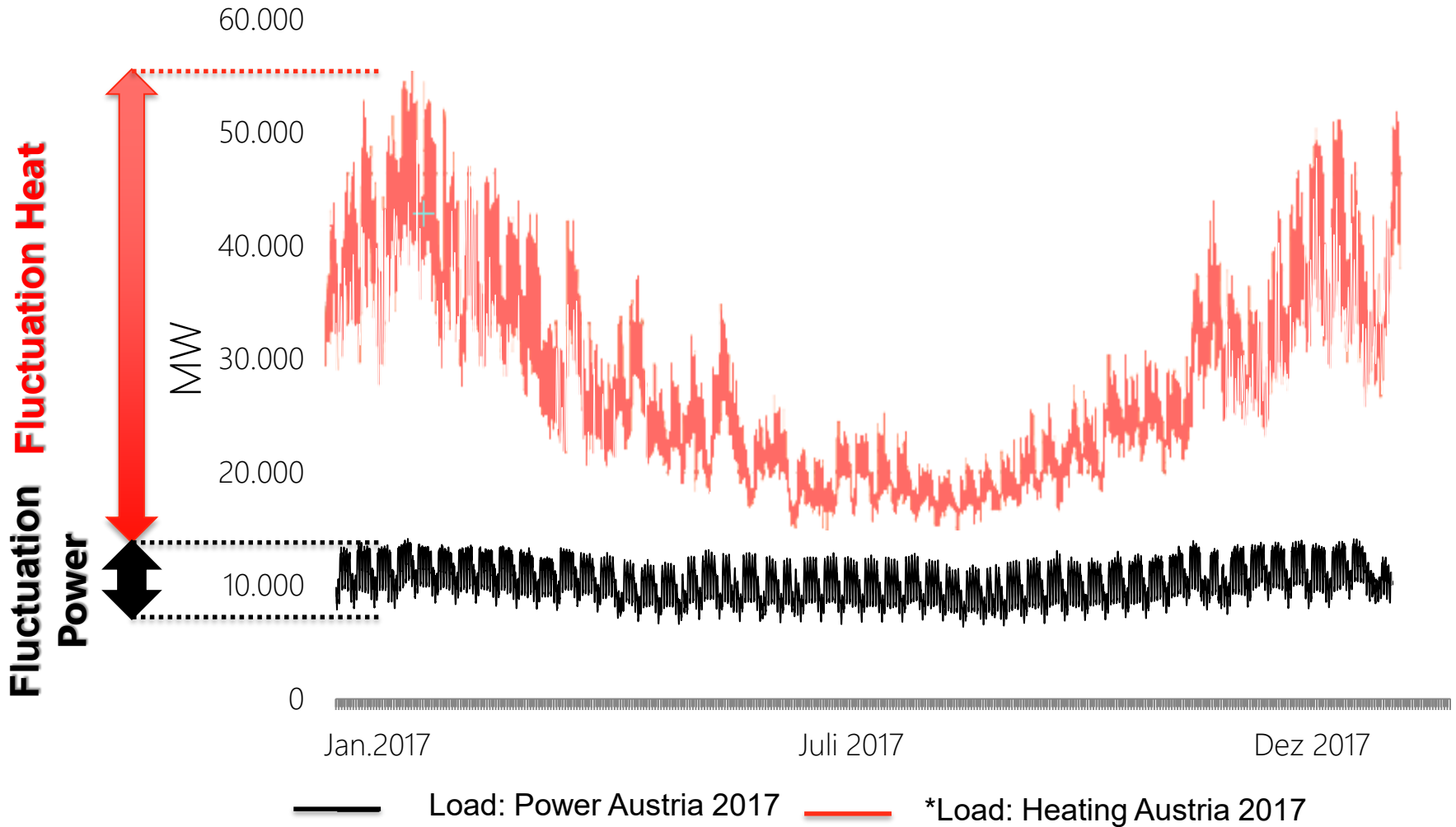


Source: PV Opti – Tool, FHNW, Switzerland

A **blackout** is a prolonged, large-scale power outage. Exactly what constitutes a blackout is not clearly defined quantitatively in terms of time and space.

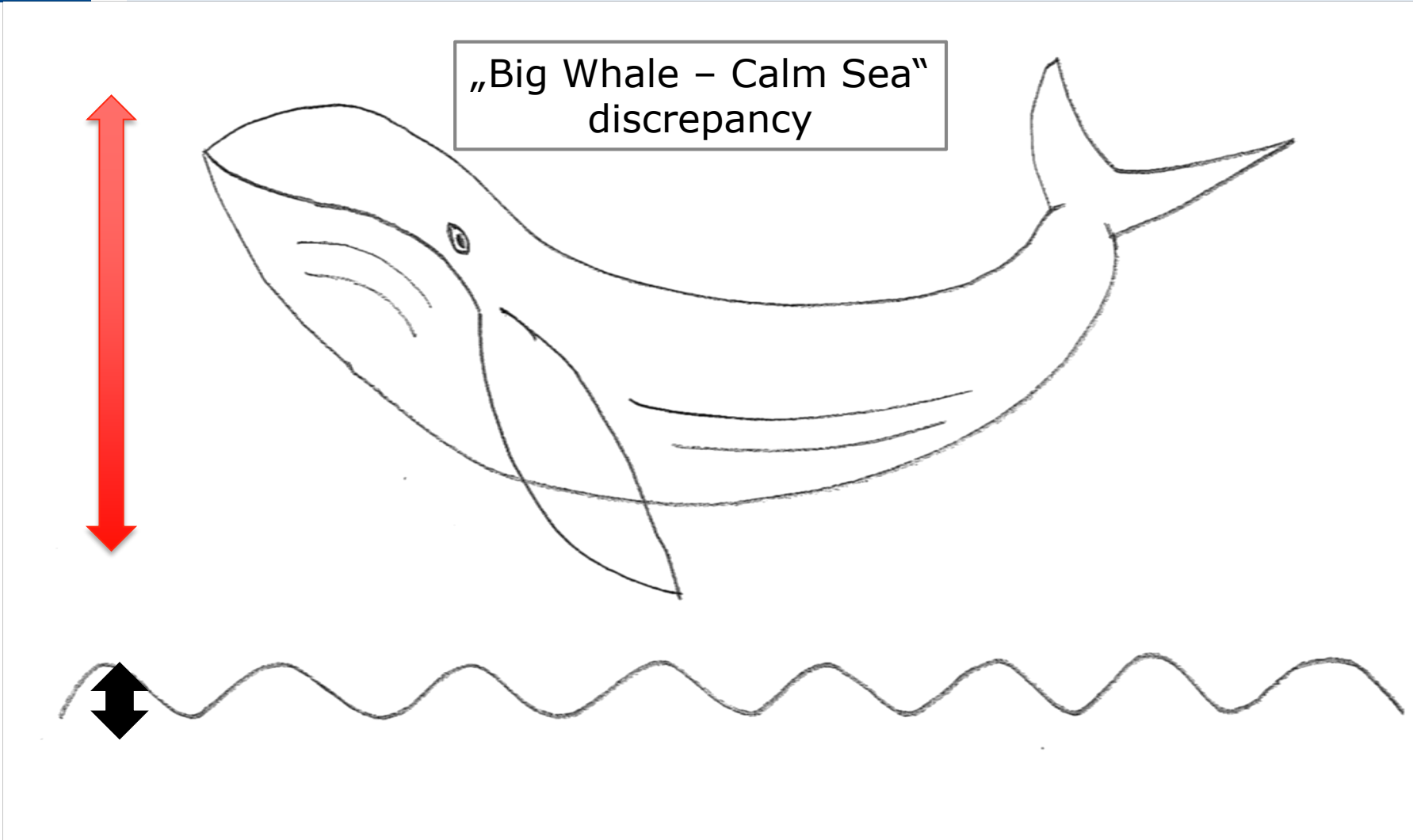
They can be caused by technical faults, extreme weather, human error but also terrorist attacks and sabotage. The larger the affected area, the more difficult and tedious it will be to restore power.

# National characteristics



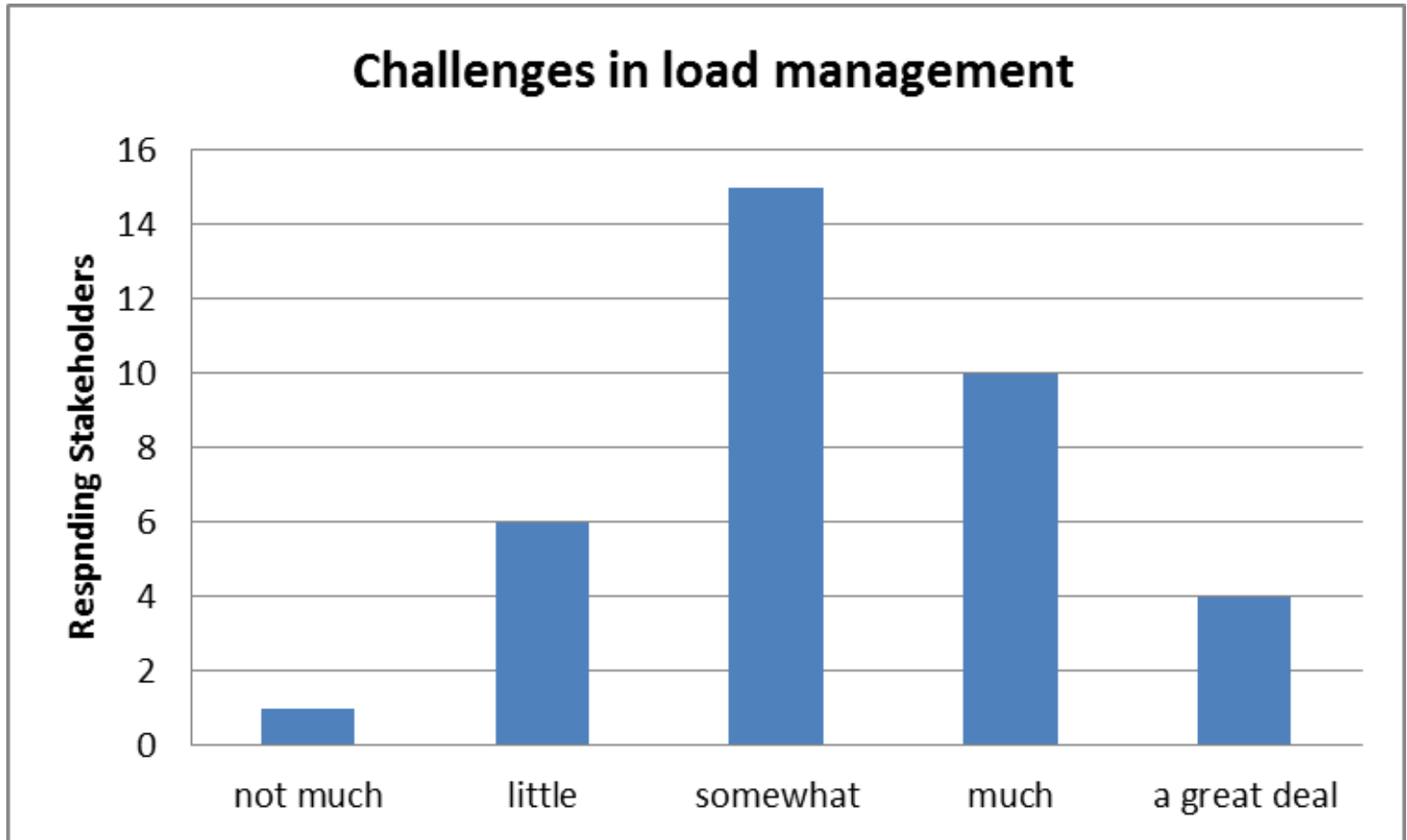
Source: Rough estimation of the heating load profile based on Statistics Austria / ENTSO-E / BMWFW/AGGM Report 2044) (Tobias Weiss – AEE INTEC)

# Heating vs. electricity consumption



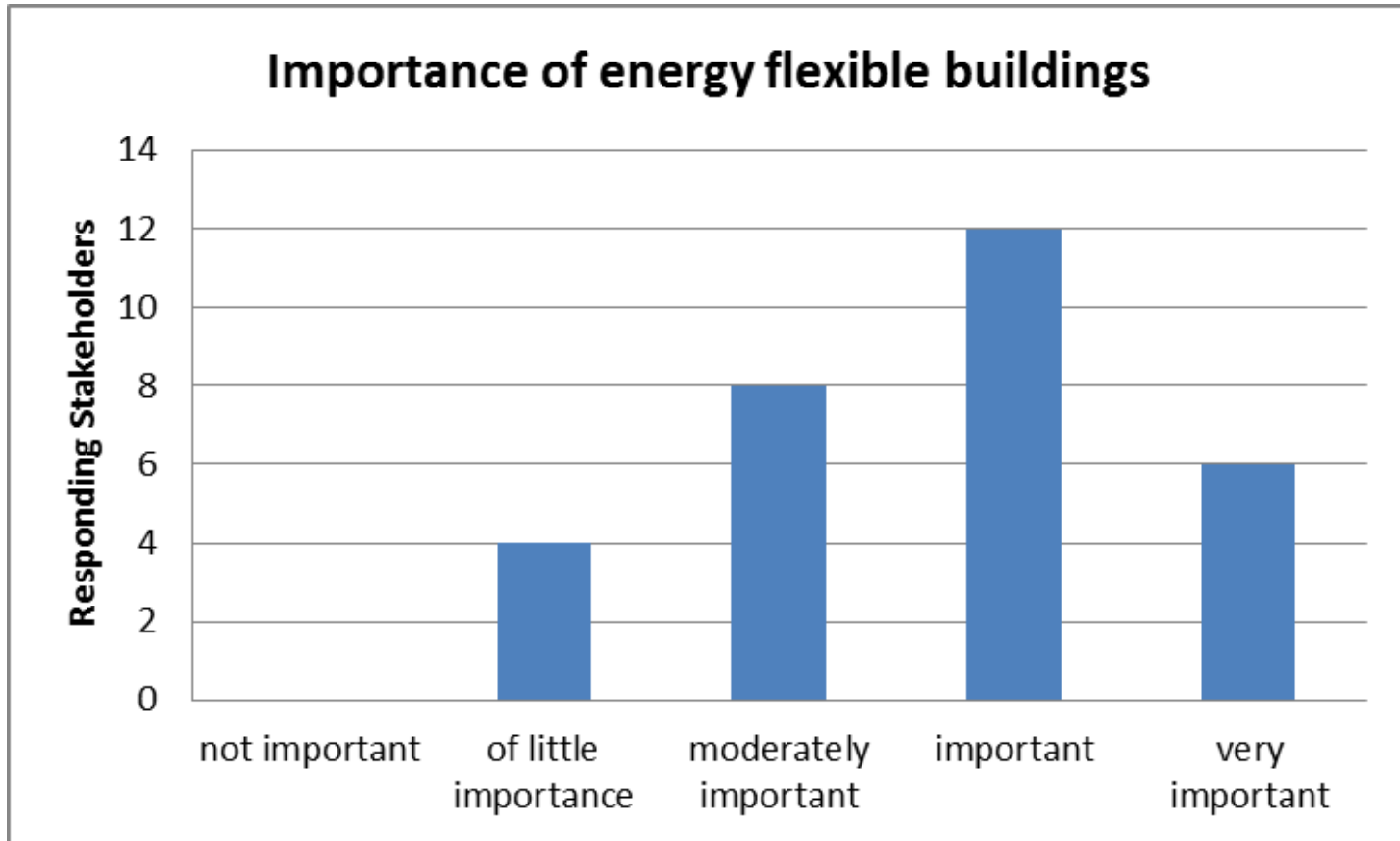
*Illustration: Armin Knotzer – AEE INTEC*

# District heating stakeholder survey

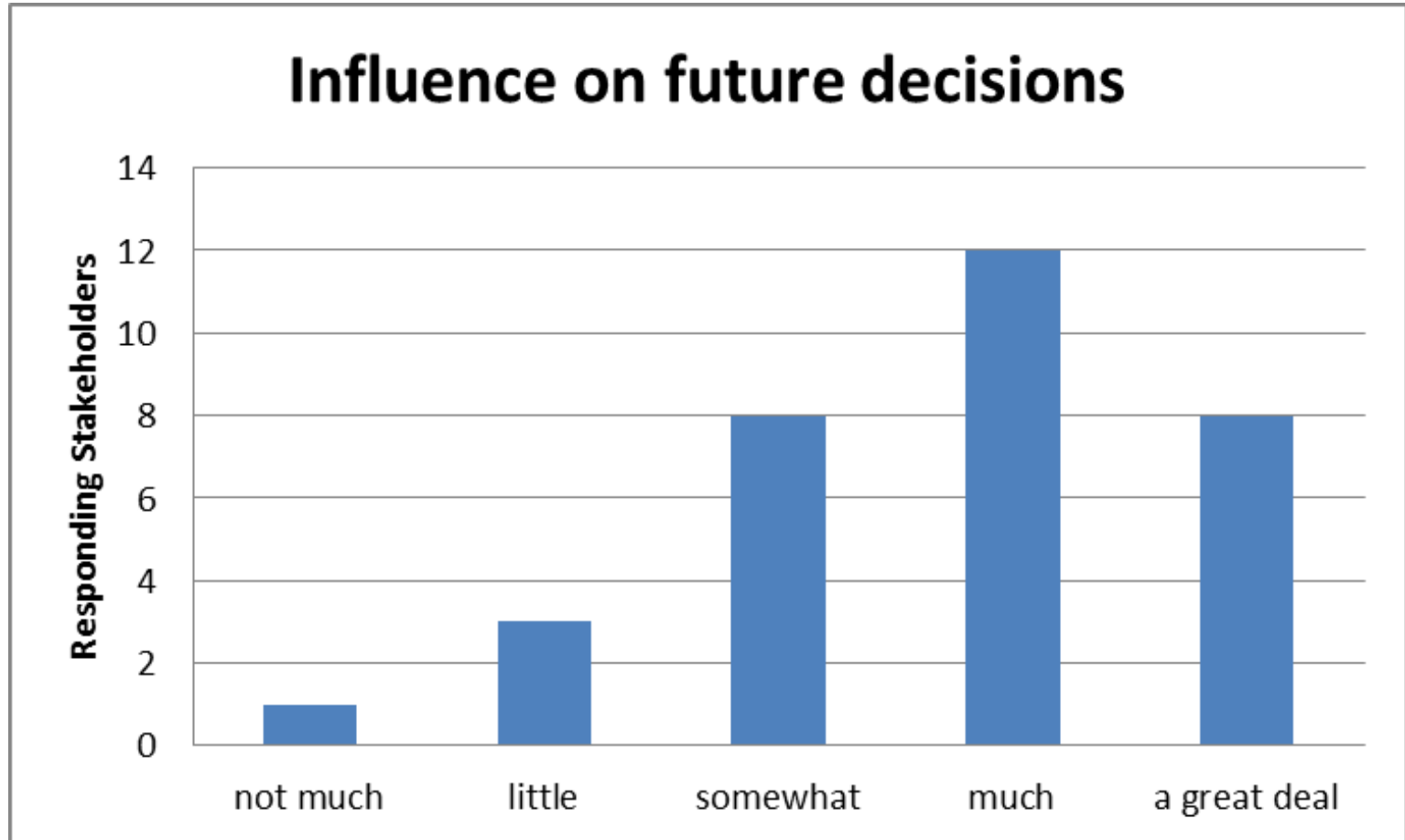


Source: Questionnaire on stakeholder's perception - 37 respondents, AEE INTEC

# District heating stakeholder survey



# District heating stakeholder survey



→ Relevance of the topic is higher than expected!



## Austrian SRI discussion and outlook

# Smart Readiness Indicator (SRI)

## MOTIVATION - SMART BUILDINGS

### Smart Building



### Expected advantages

-  optimised energy use as a function of (local) production
-  optimised local (green) energy storage
-  automatic diagnosis and maintenance prediction
-  improved comfort for residents via automation

### Measure the technological readiness of your building



**1** **Readiness to**  
 adapt in response  
 to the needs of the  
 occupant

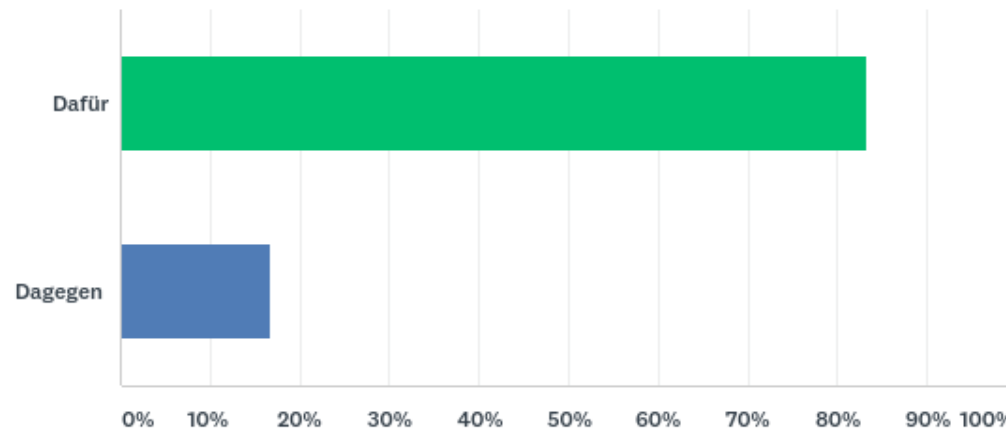
**2** **Readiness to**  
 facilitate main-  
 tenance and  
 efficient operation

**3** **Readiness to**  
 adapt in response  
 to the situation of  
 the energy grid

Quelle: Verbeke S., Waide P., Bettenhäuser K., Usslar M., Bogaert S.: Support for setting up a Smart Readiness Indicator for buildings and related impact assessment - second progress report executive summary. June 2018; Brussels

# For or against introduction of the SRI

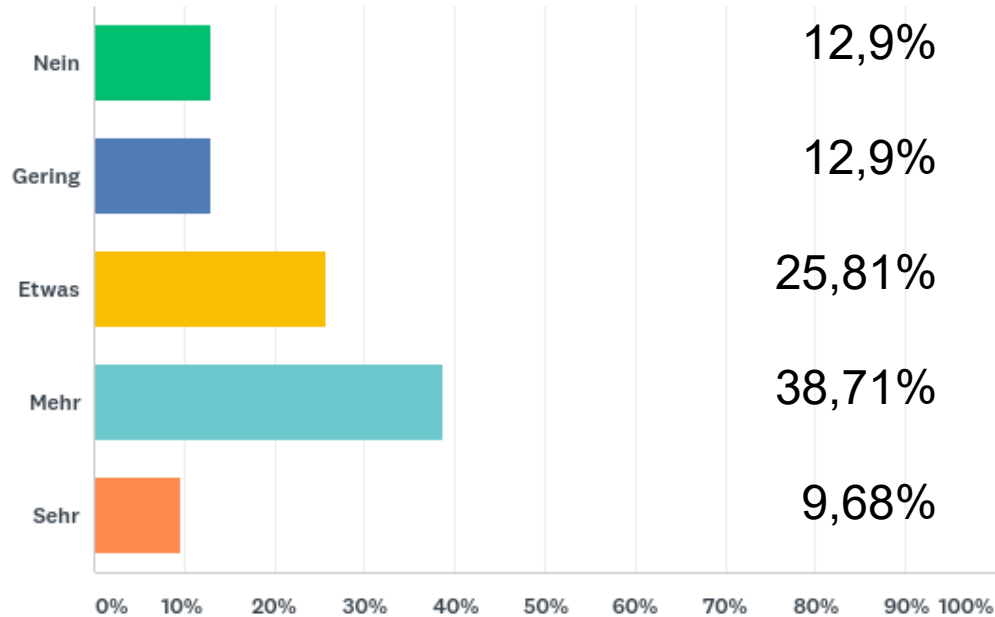
Q1 Wie stehen Sie grundsätzlich zur Einführung eines Smart Readiness Indikators - sind Sie dafür, oder dagegen?



Respondents: n=66  
Pro SRI: 83,33%  
Contra SRI: 16,67%

# Market relevance of SRI within energy certification system

Q12 Der SRI ist als Teil des Gebäude-Energieausweises geplant. Wird die Bewertung damit marktrelevant?



Respondents: n=62

# State of discussion on SRI

## Smart Readiness?

Physical/ Real  
Data Assessment

Technology- and  
Servicerating

User-supportive  
Smartness

Interfaces with energy generation / grid operators / overall energy system

Peak load characteristics,  
duration of the response,  
rebound-eff., EF Index  
→ Interest of CO<sub>2</sub>- und  
resource-reduction

Rating of existing  
technologies and services  
– mainly sustainable ones  
→ Economic interests

Sustainable and resilient  
solutions; user-friendly  
displays; data privacy  
→ Interest of the user

- Room for advanced energy targets and policy!
- No CO<sub>2</sub>-emission reductions since 1990
- Hydropower and biomass-CHP plants currently „prevent“ from fluctuations, but are already limited for extension
- District heating is important and still expanding
- Wind and PV are supposed to increase
- Self consumption / autarkic rate is a key aspect
- SRI is not very welcome by the Austrian regions, but agreed to be important when asking the relevant stakeholders

A photograph of a long, multi-story wooden building under construction. The structure is made of light-colored wood framing, with a gabled roof. The building is situated on a grassy field with a forested hill in the background under a blue sky with scattered clouds. The text "Is cooperative housing (at cluster or district level) the answer to smartness, flexibility, affordable living and (bio-) diversity?" is overlaid in white on the lower half of the image.

**Is cooperative housing (at cluster or district level) the answer to smartness, flexibility, affordable living and (bio-) diversity ?**

An aerial photograph of a modern building complex. The building features large glass facades and a prominent solar panel array mounted on a tilted structure. A yellow banner is overlaid on the top left, and a white box with blue text is in the center. The scene is set against a clear blue sky with some clouds.

**AEE INTEC**

**IDEA TO ACTION**

**Thank you for  
your attention!**