

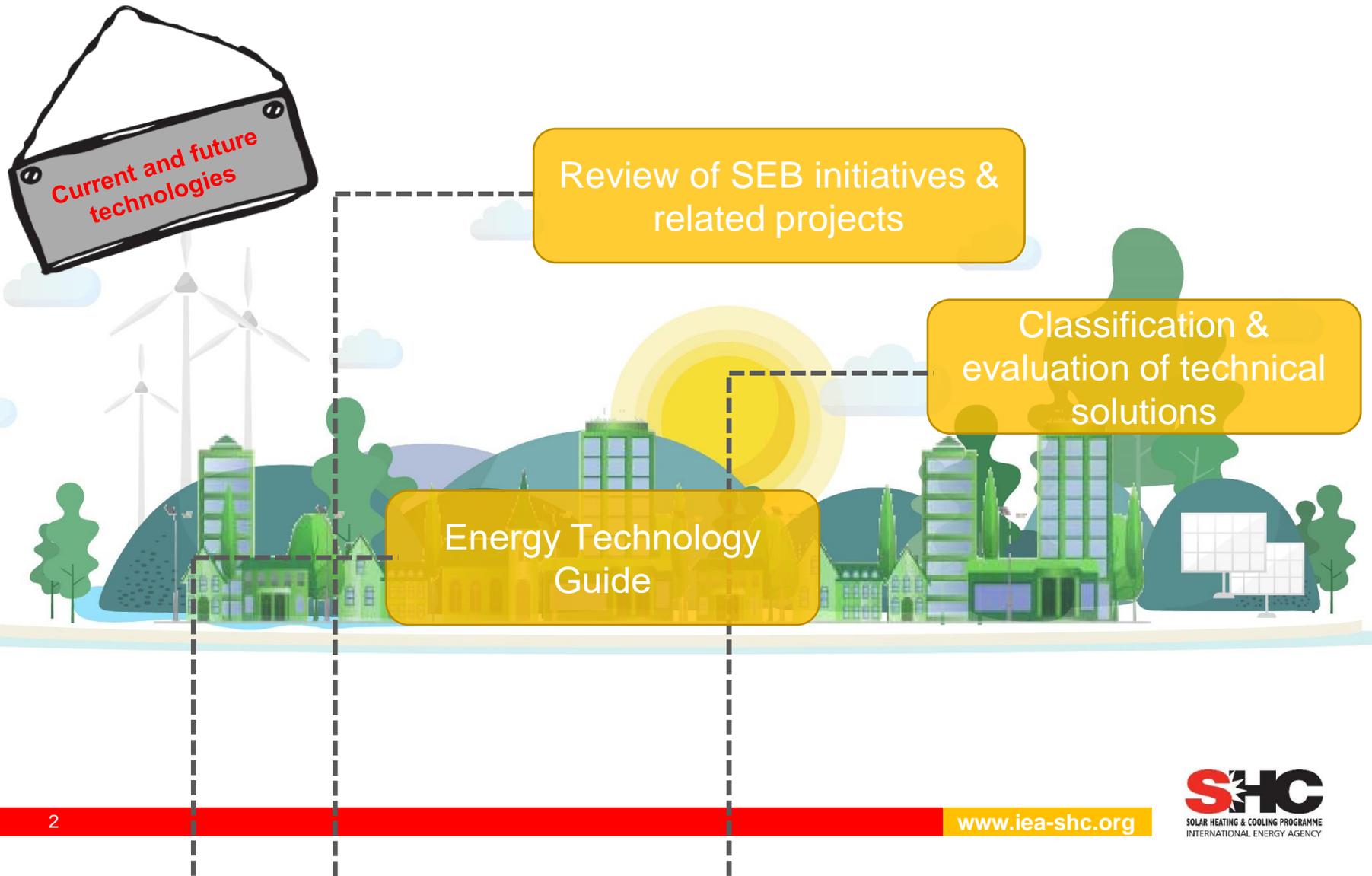


# Highlights of the activities in Subtask D

## Current and future technologies and components

Thomas Ramschak, AEE INTEC, Austria

# Task 66 (Solar Energy Buildings) – Subtask D



# Aktivität D1: Documenting and analyzing current and future technologies applied in SEB's.

## Two main directions

- Case studies from sources beyond Task 66
  - (EU-Projects, IEA Tasks, ...)
- Case studies description – real implementations
  - Demo cases from B and C

## Assess SEBs cases

- Analysing the technology variations between the SEBs
- Different geographical areas (climate regions-ranging from warm climates with Low HDD to cold climate with high HDD)
- Different generation, storage and distribution in different regions

# Solar energy Buildings

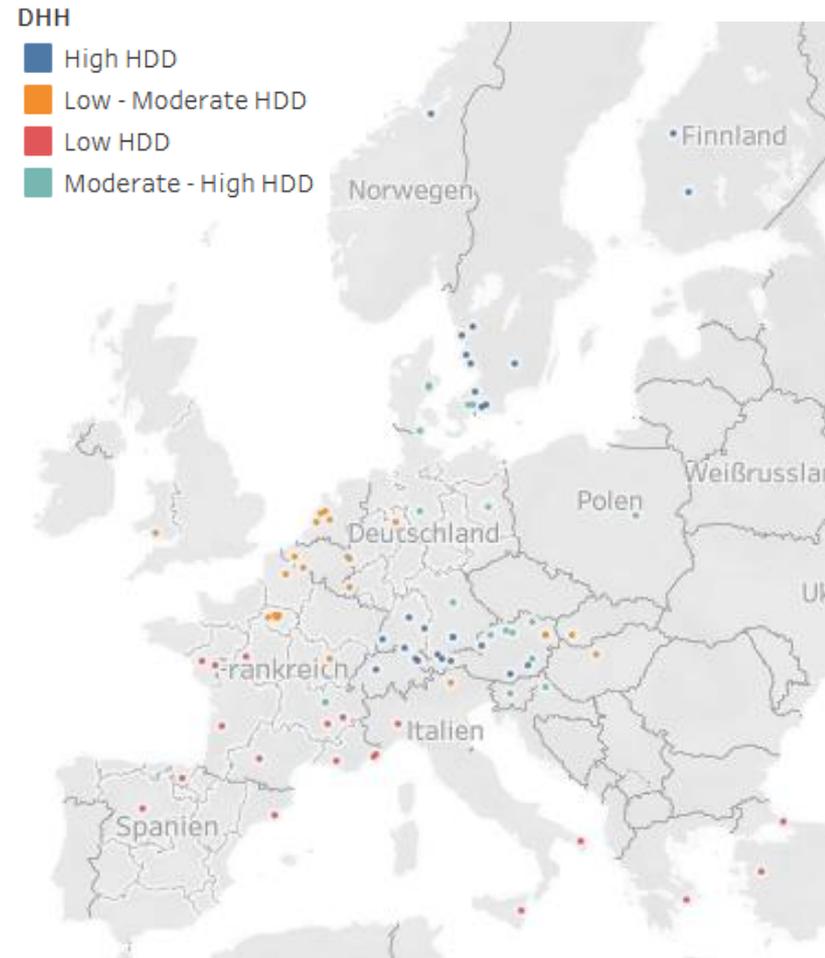
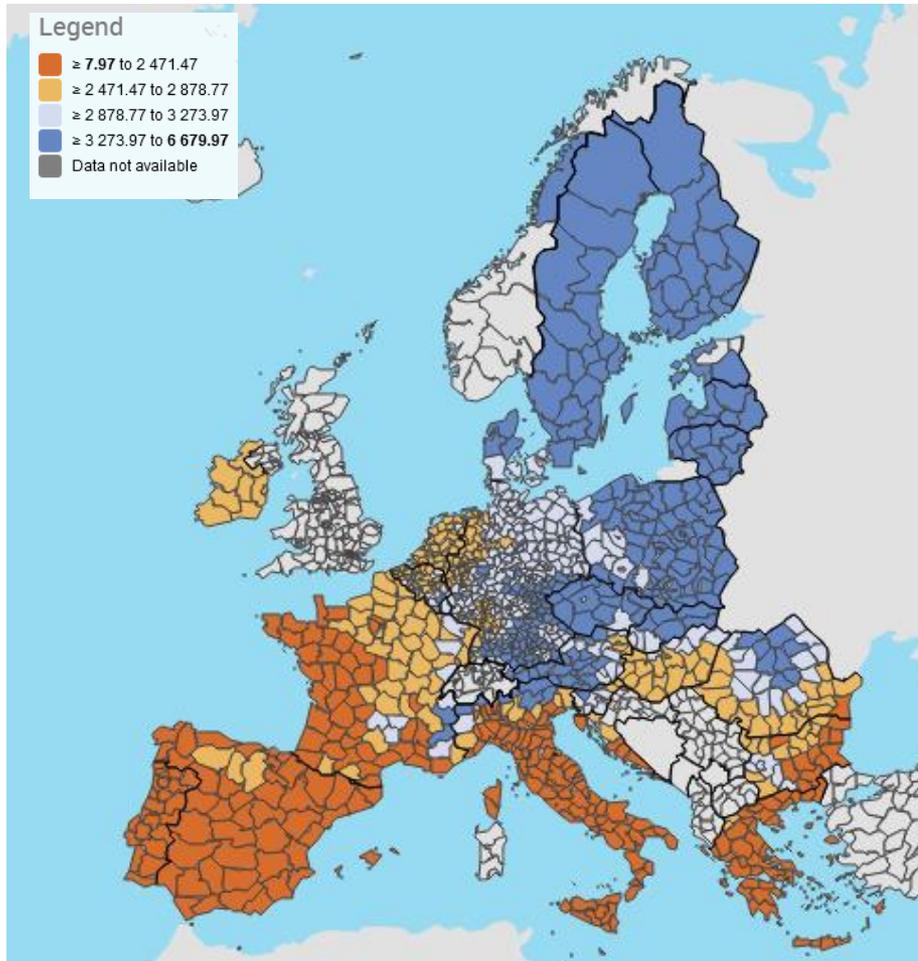
126 SEB; 17 countries

Smart Cities Marketplace,  
PEB, PED, ...



SEB No.	Name of SEB Example	Country	DHH	Link
1	<a href="#">Act2</a>	Germany	Moderate - High HDD	<a href="#">Link</a>
2	<a href="#">Act2</a>	France	Low HDD	<a href="#">Link</a>
3	<a href="#">Active office</a>	United Kingdom	Low - Moderate HDD	<a href="#">Link</a>
4	<a href="#">Aerem factory</a>	France	Low HDD	<a href="#">Link</a>
5	<a href="#">AquaTurm Water Tower Hotel</a>	Germany	High HDD	<a href="#">Link</a>
6	BEEM-UP	Sweden	High HDD	<a href="#">Link</a>
7	BEEM-UP	Netherlands	Low - Moderate HDD	<a href="#">Link</a>
8	BEEM-UP	France	Low - Moderate HDD	<a href="#">Link</a>
9	BUILDSMART	Sweden	High HDD	<a href="#">Link</a>
10	CITyFiED	Sweden	High HDD	<a href="#">Link</a>
11	CITyFiED	Turkey	Low HDD	<a href="#">Link</a>
12	CITY-ZEN	Netherlands	Low - Moderate HDD	<a href="#">Link</a>
13	CITY-ZEN	France	Low HDD	<a href="#">Link</a>
14	CLASS1	Sweden	High HDD	<a href="#">Link</a>
15	Commercial Building Kobra	Slovenia	Moderate - High HDD	<a href="#">Link</a>
16	Concert or Conference Hall "The House for All"	France	Moderate - High HDD	<a href="#">Link</a>
17	Concerto AL Piano	Italy	Low HDD	<a href="#">Link</a>
18	DIRECTION	Germany	Moderate - High HDD	<a href="#">Link</a>
19	DIRECTION	Spain	Low HDD	<a href="#">Link</a>
20	ECO-Life	Denmark	Moderate - High HDD	<a href="#">Link</a>
21	ECO-Life	Belgium	Low - Moderate HDD	<a href="#">Link</a>
22	Eco-Renovation of KTR France HQ	France	no information on exact location	<a href="#">Link</a>
23	Education and Leisure Hub	France	Low - Moderate HDD	<a href="#">Link</a>
24	EE-HIGHRISE	Slovenia	Moderate - High HDD	<a href="#">Link</a>
25	Efficiency House Plus	Germany	no information on exact location	<a href="#">Link</a>
26	Elithis Tower	France	Low - Moderate HDD	<a href="#">Link</a>
27	Energy in Minds!	Sweden	High HDD	<a href="#">Link</a>
28	Energy Positive Dwelling	Netherlands	Low - Moderate HDD	<a href="#">Link</a>

# Climate classification – Joint Research Centre



Deviation of categories based on HDD  
Source: Eurobase Cooling and Heating degree days

Source: AEE INTEC

# SEB-Technologies overview

## Generation Technologies

Photovoltaics  
Solar thermal  
PVT-collectors  
Wind Turbines  
Hydro power plant  
Groundwater and HP  
River-water and HP  
Ice-storage and HP  
Mine-water and HP  
Geothermal and HP  
Air-Source HP  
Biomass Combustion  
Bio gas plants  
Waste Heat Recovery

## Storage Technologies

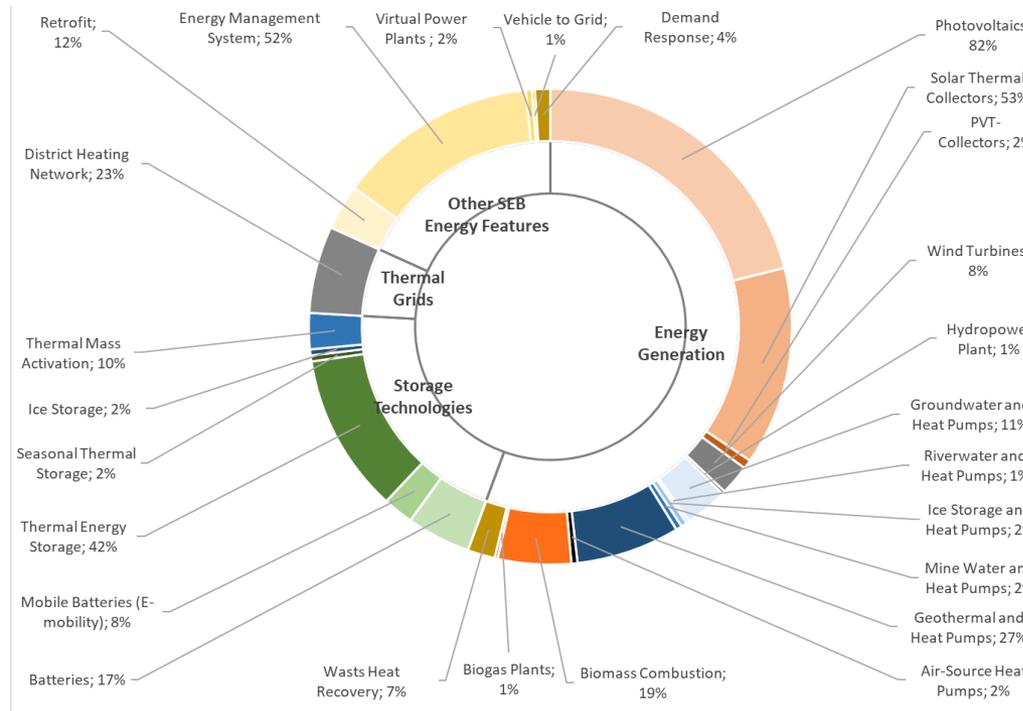
Batteries  
Mobile batteries (e-mobility)  
Thermal storages  
Ice storage  
Thermal mass activation

## Thermal Grids

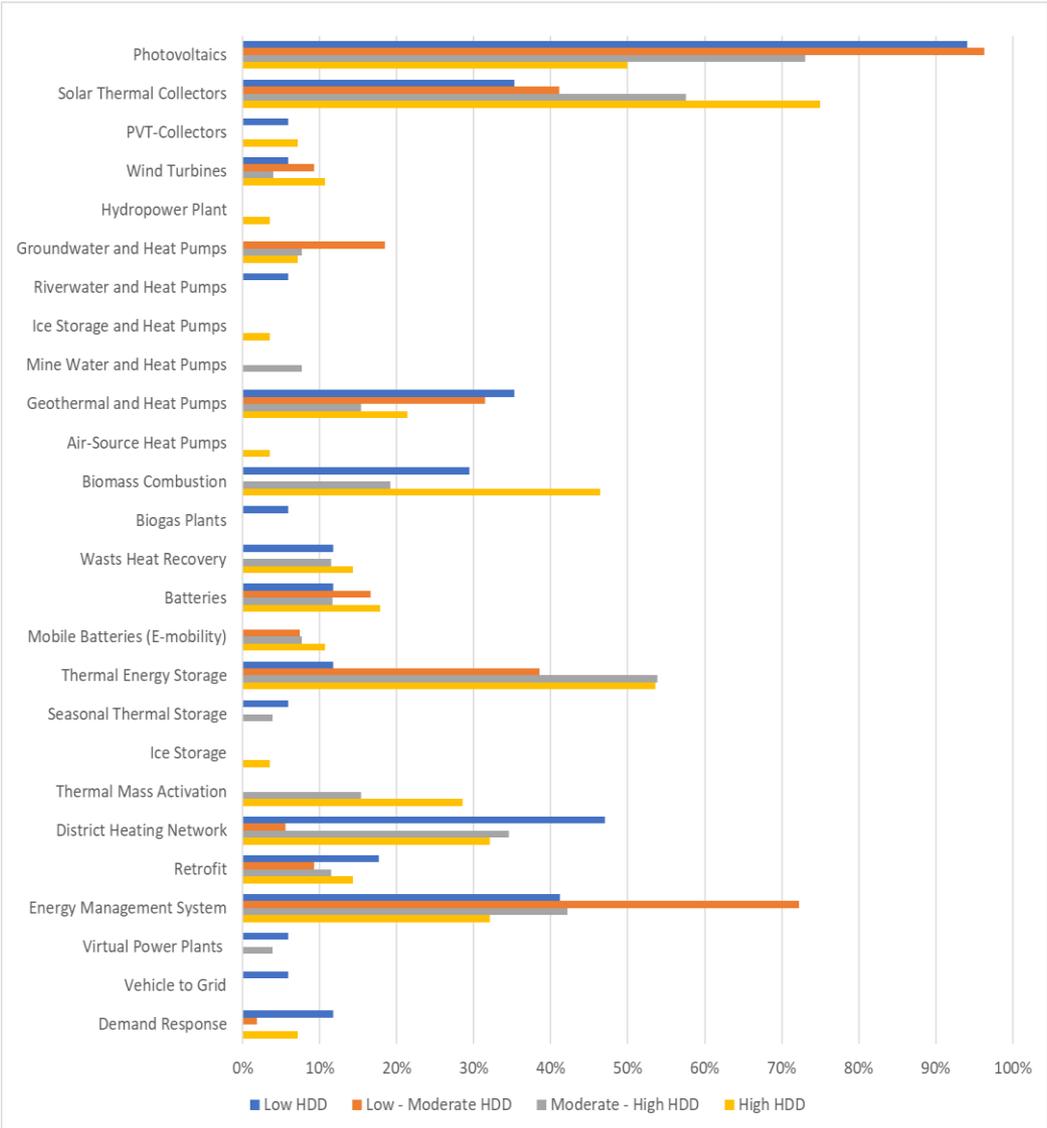
District heating networks

## Other Building Features

Retrofit  
Energy management systems  
Virtual power plant  
Vehicle to grid  
Demand Response



# SEB-Technologies overview



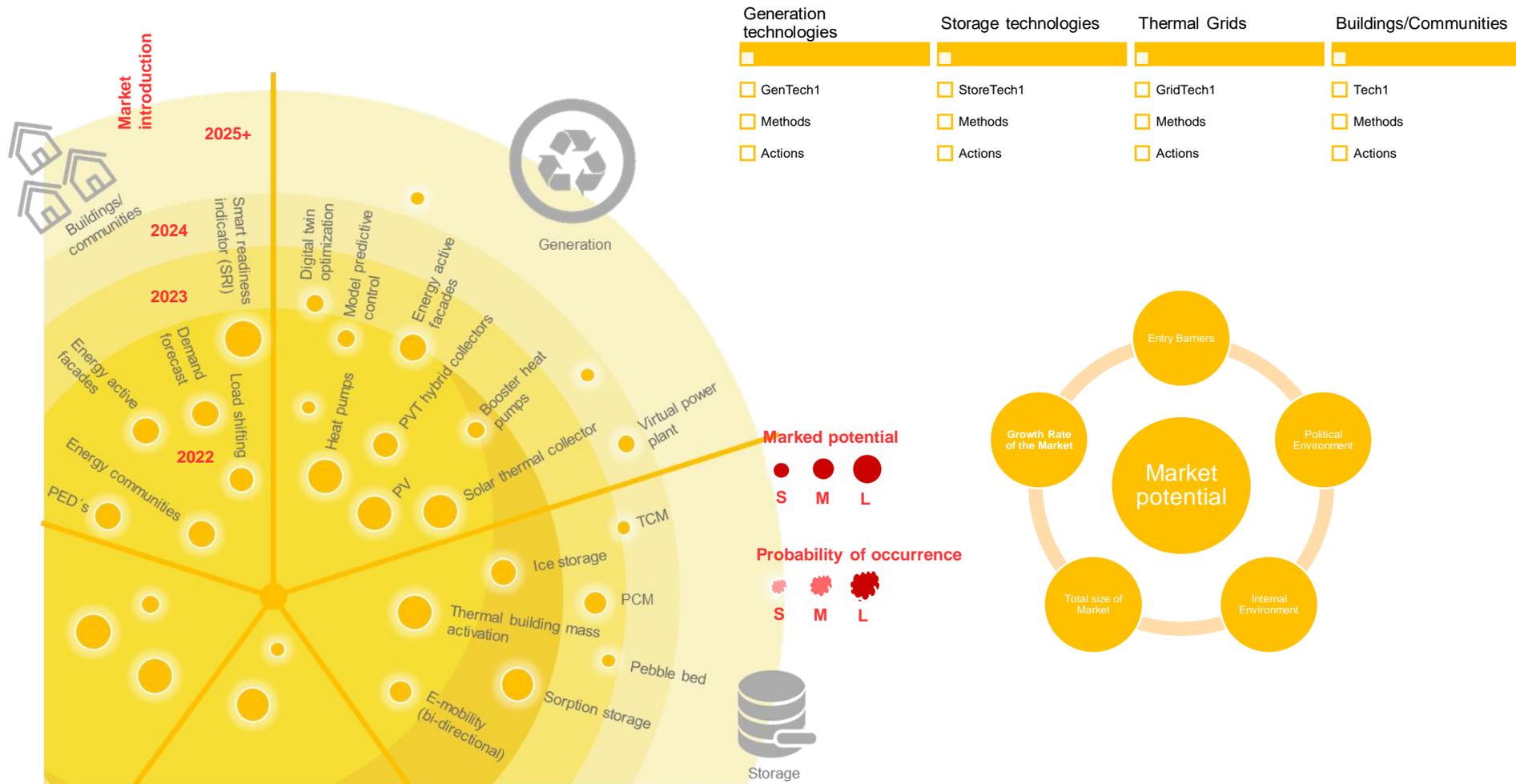
# Democases Task66

SEB typology →

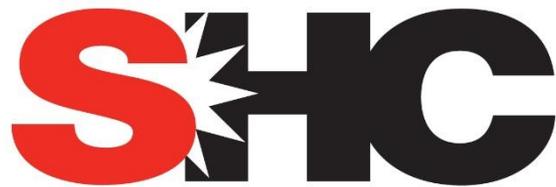
- stand alone buildings to city districts (+ test chambers)
- Very ambitious demonstration cases
- Emerging technologies
- upgrading single technologies to be part of a large orchestra

<p>MIXED USE by AEE INTEC Former Industrial complex (AT)</p>  <p>SEB No.1</p>	<p>COMMERCIAL by DTU Ramboll Head Office (DK)</p>  <p>SEB No. 2</p>	<p>RESIDENTIAL by Simply Solar</p>  <p>SEB No.3</p>	<p>RESIDENTIAL by IGTE Flying Space (DE)</p>  <p>SEB No.4</p>
<p>RESIDENTIAL by TU Freibg Apartment Buildings (DE)</p>  <p>SEB No.5</p>	<p>TEST CHAMBERS by LNGE LNGE Campus (PT)</p>  <p>SEB No.6</p>	<p>COMMERCIAL by AEE INTEC Orphange (PL)</p>  <p>SEB No.7</p>	<p>RESIDENTIAL by SIZ energieplus Multi-family houses (DE)</p>  <p>Block of multi-family houses in continen</p> <p>Location Info: Address: Köln Geographic Co: Climate Zone: Building typology</p> <p>SEB No.8</p>
<p>RESIDENTIAL by AEE INTEC Sol4City-Simulation Study</p>  <p>SEB No.9</p>	<p>RESIDENTIAL by SIZ energieplus Multi-family house (DE)</p>  <p>Multi-family houses in continental clim</p> <p>Location Information: Address: Riedberg, Germany Geographic Coordinates: Climate Zone: Continental Building typology: Residential</p> <p>SEB No.10</p>	<p>MIXED USE by UIBK An der Lan (AT)</p>  <p>SEB No.11</p>	<p>RESIDENTIAL by UIBK Vöglebichl (AT)</p>  <p>SEB No.12</p>

# Aktivität D.D2: Description of promising future technologies



[www.iea-shc.org](http://www.iea-shc.org)



**SOLAR HEATING & COOLING PROGRAMME**  
INTERNATIONAL ENERGY AGENCY

Thomas Ramschak, AEE INTEC  
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