Federal Ministry
Transport, Innovation
and Technology

klima+ energie fonds

INNOVATIVE ENERGY STORAGE SYSTEMS IN AND FROM AUSTRIA

Recommendations for innovation // Implementation steps // Value chain

MISSION INNOVATION
Austria

High pressure heat storage facility at Simmering power plant, Photo: Wien Energie/Ian Ehm

EXECUTIVE SUMMARY

Opportunities offered by decarbonisation – Austria becoming an Innovation Leader!!

The Austrian federal government presented the Austrian Climate and Energy Strategy (#mission2030) in June 2018. The central goal specified in this strategy is the complete decarbonisation of the Austrian energy supply by 2050. By 2030, the government aims to achieve a 36% reduction in greenhouse emissions as compared with 2005 and to cover 100% of total national electricity consumption (in terms of the national balance sheet) with renewable energy resources . The #mission2030 strategy is based on the essential principles of ecological sustainability, security of supply, competitiveness, and affordability.

Energy storage systems play an important role in the future renewable energy and mobility system and make an essential contribution to global decarbonisation. They are a relevant cross-sectional topic in #mission2030 and now play a central role in the majority of the defined action areas for climate and energy policy, as well as in eight of the twelve planned beacon projects.

These recommendations define the next crucial steps towards the successful implementation of an energy storage system for Austria, based on #mission2030 – The Austrian Climate and Energy Strategy[1], the ENERGY Research and Innovation Strategy[2], the "Energy storage systems in and from Austria" technology roadmap[3], the national battery initiative and the final report on the storage system initiative of the Climate and Energy Fund[4]. They consider the complete value chain from production and operation to the disassembly/recycling of the storage systems, and also cover individual components and primary products in addition to entire storage systems.

The storage system initiative will include a broad portfolio of tools and measures for research promotion, qualification and market introduction. They range from modified training and educational courses, the establishment of a research infrastructure to R&D projects, the funding for investment-related measures (e.g. environmental support schemes within Austria), and the creation of early markets through public procurement that promotes innovation within the framework of innovation partnerships.

Research and technology development, also along the entire value chain, play a special role in these recommendations. The successes achieved so far in Austria provide major potential in terms of developing innovative technologies and solutions and launching them on the market. Further efforts are still required in order to become an "innovation leader" in this area, which is crucial for the future. Ten essential fields of action are specified below which aim to accelerate further development and the application of innovative storage systems "made in Austria".

[1] Federal Ministry for Sustainability and Tourism; Federal Ministry for Transport, Innovation and Technology (2018): #mission2030 – The Austrian Climate and Energy Strategy, Vienna [www.mission2030.info]
[2] Federal Ministry for Transport, Innovation and Technology, Climate and Energy Fund (2017): ENERGY Research and Innovation Strategy, Vienna [nachhaltigwirtschaften.at/de/e2050/publikationen/energie-forschungs-innovationsstrategie.php]
[3] Climate and Energy Fund (publisher) (2019): „Energy storage systems in and from Austria" technology roadmap, Vienna [www.energieforschung.at/projekte/1021/technologie-roadmap-energiespeichersysteme-in-und-aus-oesterreich]
[4] Climate and Energy Fund (2016): Final report of the storage system initiative start-up phase, Vienna [www.speicherinitiative.at]

Action areas for the (further) development and application of innovative storage systems "made in Austria"

1. **Expand the research and development of storage technologies**
   along the entire value chain in order to improve existing technologies and explore breakthrough technologies. Research and development and the corresponding support from the public sector are essential requirements for developing innovative products and services in order to secure Austria's competitiveness as a location for business.

2. **Accelerate innovation**
   comprehensively over the entire life cycle in order to allow the realisation of new business models and the implementation of new technologies. The public sector should act as a model in applying new technologies at an early stage.

3. **Raise international visibility**
   in order to position Austria as an Innovation Leader and exploit the Austrian market as a reference market. This will secure jobs in Austrian industry and create opportunities to help design the international framework.

4. **Make the most of synergies through sector coupling**
   in order to exploit all of the potential for storing volatile renewable energies.

5. **Maintain the security of supply and system stability**
   with storage systems, even when using high levels of renewable energies.

6. **Drive digitalisation**
   in order to allow the comprehensive system integration of storage systems that subsequently allow measures on the consumer side and new business models for different stakeholders such as prosumers.

7. **Enable long-term storage**
   in order to balance out seasonal fluctuations in the generation of renewable energies.

8. **Create innovation-promoting framework conditions**
   in order to enable the use of innovative storage systems.

9. **Strengthen prosumers**
   and encourage acceptance, in order to achieve active and informed participation of citizens in decarbonisation.

10. **Advance decentralisation and regionalisation**
    efforts based on the premise of "optimising the overall system", with the aim of enabling integrated and regional energy systems based on 100% renewable energy sources. This should make it possible for private citizens to participate in regional value creation chains and nationwide markets.

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Link to the long version (available in German only):

www.energieforschung.at/projekte/1021/technologie-roadmap-energiespeichersysteme-in-und-aus-oesterreich

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