MISSION INNOVATION

August 2022

National Innovation Pathway Round-up

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National Innovation Pathway Round up - Austria

Introduction

Mission Innovation members agreed to develop **National Innovation Pathways (NIPs)** to describe and build collective understanding on how each member plans to pioneer clean energy technologies to meet their climate and energy goals.

Each member has their own approach to developing and identifying innovation needs and priorities, with some already having undertaken extensive strategy development. The Roundup provides a **single location of summary information on countries' innovation priorities** utilizing existing sources of information so members and interested stakeholders can easily find key information of interest.

All MI members were asked to provide answers to a survey (Annex A) providing as much information as possible, with some questions being optional. The survey asked questions relevant to each element of the National Innovation Pathway described in the Joint Launch Statement:

1. Energy transition scenarios and priority national-level energy innovation needs / priorities until at least 2030;
2. Strategies or national-level plans to address these energy innovation needs / priorities, including institutional design and working internationally
3. Information on how Members will measure innovation outcomes and innovation ecosystem developments;
4. Members' preferred modes and methods of collaboration; and
5. Any further supporting evidence that was used to identify the energy innovation needs / priorities, such as analysis of domestic competitiveness, economic opportunities or national level climate and clean energy plans.

Members will be asked to refresh this document annually if significant changes to national policy have taken place

1. Clean Energy Innovation Strategy

1.1 Summary

Austria has set itself the goal of being **climate neutral by 2040** at the latest. Corresponding measures will be implemented on the basis of an amended climate protection law with binding reduction paths until 2040 and interim targets until 2030 as well as clear responsibilities and schedules. A mandatory and independent climate check of laws and regulations makes climate protection a central decision-making criterion applied in many ways.

The current framework of the clean energy innovation policies in Austria are the **Climate and Energy Strategy** #mission2030 (published in 2018) and its **implementation plan** (National Energy and Climate Plan NECP); submitted to the European Commission in 2019). By 2030, Austria pursues the following goals:

- reduction of green house gas emissions by 36% compared to 2005
- providing 100% of its total electricity consumption (national balance) from renewable energy sources
- increase in the share of renewable energy in the gross final energy demand to 46-50%

In 2020, Austria has published an **updated Implementation Plan for the Energy Research Initiative** (Research Chapter of the NECP). It covers missions and related innovation goals, public R&D measures and concrete innovation activities. Austria has started three new RD&D initiatives, which will result in demonstration labs in the fields of

- **100% Renewable Energy Regions**: up to 5 innovation labs will demonstrate how wholistic and systemic energy solutions such as sector coupling (power, heat, mobility, industry) will enable flexible, resilient and regional energy supply.
- **Climate Neutral Cities** aim to accelerate the development of climate-neutral cities by implementing climate-neutral strategies, process and regulatory innovation in urban living labs and cities
- **Circular Economy:** implementation of the Austrian circular economy strategy by promoting cross-cutting RD&D in the areas of circular procurement & manufacturing, intensification of usage and recycling.

1.2 Methodology

Following on from the 2010 Energy Research Strategy and its mission statement of "Making the Zero Carbon Society Possible", in the spring of 2016 the Federal Ministry of Transport, Innovation and Technology, together with the Climate and Energy Fund, began the consultation process "Dialog Energiezukunft 2050" (Future of Energy 2050), with the aim of aligning future energy research and innovation policy with the challenges of energy supply and current targets. The starting point for the dialogue was a topic-based paper in which experts from the individual focus areas set out the key challenges and courses of action along with future priorities and central issues. In a public consultation process between August and October 2016 a community of experts and interested members of the public were invited to comment on the key issues outlined and to work together to develop possible solutions. The resulting ideas were compiled and consolidated in further expert workshops. In keeping with the mission statement of the vision – "Making Austria the global innovation leader in energy for the future ".

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Table 1: RELEVANT DOCUMENTS AND POLICIES

Document or policy name	Description of the document or policy	Specific outcomes, goals or targets identified in the document or policy	Year	Web Link(s)
Climate and Energy Strategy #mission2030	The strategy aims to align with the 2030 sustainability goals in the areas of GHG reduction, renewable energy and energy efficiency to achieve the goals of the European Union.	The Strategy lays down guidelines for climate and energy policy up to 2030.	2018	https://www.bmk.gv.at/dam/jcr:36595bff-3fbb-40f2-b573-9bc75f30f75b/mission2030_oe_climatestrategy_ua.pdf
National Energy and Climate Plan NECP	The NEKP is a comprehensive plan that shows the way to achieve Austria's energy and climate targets by 2030 and that includes those sectors that are not subject to the EU emissions trading system, such as transport, agriculture or buildings.	Goals for 2030: • Reduction of GHG emissions (non-ETS) by 36% compared to 2005 • Increasing the proportion renewable energy in gross final energy consumption to 46-50%, as well 100% coverage of electricity consumption from renewables (national/balance sheet) • Improvement of Primary energy intensity by 25-30% compared to 2015	2010	https://www.bmk.gv.at/themen/klima_umwelt/klimaschutz/nat_klimapolitik/energie_klimaplan.html
Implementation Plan for the Energy Research Initiative	The implementation plan for the energy research initiative for the period 2020-2030.	The plan gives a detailed descriptions of the following three missions, goals and corresponding activities: • Plus energy quarters • Integrated regional energy systems • Break-through technologies for industry	2020	https://nachhaltigwirtschaften.at/de/e2050/publikationen/schriftenreihe-2020-22-umsetzungsplan-eforschungsinitiative.php
RTI – Roadmap Geothermal Energy	Shows potential, but also difficulties for expansion and is a central component of an overarching overall strategy for heating, cooling and electricity.	In addition to RTI topics, the RTI - Roadmap also addresses important non-technological difficulties for the required massive expansion of geothermal energy in Austria - this includes access to planning information and strengthening visibility through innovative showcase projects.	2022	FTI-Roadmap Geothermie: Vision und FTI-politische Fragestellungen - Nachhaltig Wirtschaften

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Hydrogen strategy for Austria	Based on fields of action, the strategy enables a targeted and efficient use of climate-neutral hydrogen in strategic consumption sectors embedded in the overall system.	The goals are: • Use of climate-neutral hydrogen in the industry until 2030 • Increase of capacity (1 GW electrolysis capacity until 2030) • Market development • Establishment of hydrogen production by electrolysis as integral part of the energy system • Infrastructure development • International cooperation and hydrogen partnerships • Research & Development	2022	Wasserstoffstrategie für Österreich (bmk.gv.at)

2. Clean Energy Innovation Priorities

2.1 Overview of Clean Energy Innovation Priorities

Table 2: CLEAN ENERGY INNOVATION PRIORITIES

Innovation priority	Focus of innovation activity (tick all that apply)	Targets/Goals (if applicable)	Technologies or topics of interest	Total RD&D funding allocated, (include budget years where applicable)	Planned demonstration Investments (include budget years and indicate if domestic or international spending where possible)	Links to relevant reports or plans
Break-through technologies for industry	☐ Early-stage research ☑ Applied research ☐ product development ☑ Demonstration ☐ Commercialisation Other:	Break-through technologies for the industry, the reduction in leaps and bounds of raw material and energy requirements with the same output as well as significantly reduced emissions and enable increased added value across the value chains in Austria as a whole.	Energy intensive industry	35 Mio. € [see demos]	35 Mio (Programme: Transformation of the Economy, 1st Call 2022), domestic	https://nachhaltigwirtschaften.at/de/e2050/publikationen/schriftenreihe-2020-22-umsetzungsplan-eforschungsinitiative.php
Plus energy quarters	☐ Early-stage research ☑ Applied research ☐ product development ☑ Demonstration ☐ Commercialisation Other:	Development of plus energy quarters, which are able to meet their entire energy needs from renewable sources.	Integrated planning, construction, and operational processes	30.7 Mio. € *[=12 Mio. € (Pioneer City, domestic, 2022) + 8 Mio. € (City of the Future, 9th Call, domestic, 2021) + 2.2*	8.5 Mio. € *[=7 Mio. € Resilient Cities: Lighthouse projects 2040, domestic, 2022 +*	https://nachhaltigwirtschaften.at/de/e2050/publikationen/schriftenreihe-2020-22-umsetzungsplan-

				€ (Driving Urban Transitions, 1st Call, int.) + 8.5 Mio. € (see demos)]	*1.5 Mio. € MI Call 21 – "Positive Energy districts (PEDs) and neighbourhoods for Climate neutrality, 2022 int.]*	eforschungsinitiative.php
Integrated regional energy systems	☐ Early-stage research ☑ Applied research ☐ product development ☐ Demonstration ☐ Commercialisation Other:	Development of integrated regional energy systems and grids that enable up to 100% energy from renewable sources in local and regional energy supply and the participation of companies and citizens in regional value chains and national markets.	Cross-sector, cross-energy source and cross-infrastructure integration, provision and use of significantly high shares of renewable energy	15.1 Mio € *[=4.3 Mio € (Clean Energy Transition Partnership, int., 2022) + 2.8 Mio € (IEA Research Cooperation, int., 2022), + 8 Mio. € (Energy Research, 8th Call, domestic, 2021)*		https://nachhaltigwirtschaften.at/de/e2050/publikationen/schriftenreihe-2020-22-umsetzungsplan-eforschungsinitiative.php

A total of 14 innovation goals were developed for the three missions (aka innovation priorities) by Austrian companies and research organisations. A total of 39 energy technology development plans ("innovation activities") were identified by Austrian companies and research organisations. All 39 innovation activities contribute to the achievement of one or more innovation goals and thus the missions. On the basis of the three pillars (missions, innovation goals and innovation activities), public-sector measures are currently being derived that are intended to support the innovation actor.

2.2 Tracking Progress (Optional)

In order to be able to effectively steer developments in the field of research, technology and innovation and also to achieve longer-term goals, regular monitoring of energy innovations and their evaluation is necessary.
Two essential parameters of the innovation system have already been monitored in Austria for more than ten years:

1. Surveys of public energy research expenditures as a financial input into the innovation system.
2. Surveys on the market development of innovative energy technologies as the market outcome of the innovation process.

3. Private Sector Engagement (Optional)

Close cooperation between the public sector and businesses is an important key to success in Austria.
key to success. It is the intensive partnership between the state and private investors that opens significant opportunities for Austria's economy. Therefore, Austria pursues the approach of complementing comprehensive industrial research investments with public funds and involving business enterprises in the development of innovative solutions for the public sector. A special feature of Austrian innovation activities is the strong market and implementation orientation.

4. International Collaboration (Optional)

Since internationalisation is without any alternative for innovation-oriented companies - not least due to globalisation as well as the relatively manageable home market - in Austria, companies are supported in this challenging growth phase. Decisive for the successful positioning of Austrian energy technology providers is, on the one hand, the active networking and cooperation of Austrian actors in international RTI initiatives (such as participation in the global Mission Innovation initiative, participation in the Strategic Energy Technology (SET) Plan of the EU and the cooperation programmes of the International Energy Agency (IEA)) and, on the other hand, the strategic bundling of individual strengths into presentable and communicable comprehensive solution offers.

5. National Energy Innovation Ecosystem (Optional)

A key for success in Mission Innovation is the strong public-private cooperation. Austria has installed a national governance structure, ensuring a broad involvement of Austrian industry and R&D stakeholders. Austrian MI activities are led by the **Federal Ministry of Climate Action, Environment, Mobility, Innovation and Technology (BMK). BMK** installed an **expert advisory board.** This board meets in May 2021 the 5th time and gives advice to the Federal Minister on Austria's energy research and technology policy and its involvement in Mission Innovation**.** The **Climate and Energy Fund**, owned by BMK, is the most important institution funding national energy R&D and implementation projects. The Climate and Energy fund is currently leading the scoping process of the Industry Mission. The **Austrian Institute of Technology (AIT)** has a supporting role in the Austrian MI activities (contribution to Missions, supporting BMK and the Climate and Energy Fund and contribution to the MI Secretariat).

The **Austrian Research Promotion Agency (FFG)** is the national funding agency for industrial research and development in Austria. It provides funding for applied research. The **Kommunalkredit Public Consulting (KPC)** provides management of funding initiatives for market and investment funding.

Annex A – National Innovation Pathway Roundup Survey Questions

1.1 Summary: Please provide a summary of your national clean energy innovation strategy i.e. the overall policies, framework and/or goals that help to define the innovation priorities you will describe in Section 2. We recommend including information about your national climate or energy targets (such as NDCs or renewable energy targets) as well as national innovation strategies and policies. You can share links to relevant documents in Table 1.

1.2 Methodology: Please describe the methodology to develop your national clean energy innovation strategy such as analysis, modelling or stakeholder engagement and include any links to relevant documents in Table 1. This will be used to help share learning between members**.**

2.1 Overview of Clean Energy Innovation Priorities: Please provide a list of your national clean energy innovation priorities (i.e. specific technologies, sectors or needs). Please complete Table 2 to provide information about where you are focusing in the innovation cycle for each priority; any targets or goals; RD&D interests; current allocated budgets (including specific demonstration funding) and links to relevant strategies or reports. In the text box following please provide a brief description of how you plan to respond to each innovation priority in the coming years, such as through future plans over the next 3-10 years to mobilise further investments for innovation, launch new major programmes and timelines for major demonstration projects**.**

2.2 Tracking Progress: Please describe how you plan to measure progress towards addressing your identified energy innovation priorities. Please describe any governance processes to manage and review energy innovation efforts and, where able, please list

tracking indicators that are commonly used (e.g. such as patents, publications, rates of company formation, follow-on capital and private co-investment, technology performance upgrades).

3. Private Sector Engagement: Please can you describe your strategic approach and priorities to engagement with the private sector to address the clean energy innovation priorities identified in section 2. This could include for instance prioritising co-funding of RD&D initiatives; incubator/accelerator programs that are funded (in part or fully) by the private sector; tax credits and other fiscal incentives; initiatives that the private sector can engage with, grants, de-risking instruments such as loan guarantees etc.

4. International Collaborations: Please describe your strategic approach to international collaboration to tackle your clean energy innovation priorities (e.g. do you have an international strategy, or particular types of collaboration you are prioritising).

5. National Energy innovation Ecosystem: Please provide an overview of your national institutions, funders and organisations and describe how they contribute to tackling the innovation priorities identified in Section 2. Please either provide this information in the box or complete Table 3.

6. Further Supporting Information: Please add below any further information about your national energy innovation needs or approaches to tackling these that has not been covered above.

Mission Innovation – Catalysing Clean Energy Solutions For All