

Action and implementation plans from the Energy and Climate Strategy

Subject:	Political and legal framework (Factsheet D 3.1)
Description:	Preparation of detailed action and implementation plans from the "Energy and Climate Strategy" with a focus on solar thermal energy and district heating
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Summary description of the instrument

Region: Styria (Austria)

Partners involved: Province of Styria, AEE INTEC

Short description of the measure: The use of renewable heat through solar thermal energy and district heating can make a targeted contribution to achieving climate targets. For climate policy measures to have a broad range, it is necessary to integrate them into national and regional political strategy documents. A detailed, dynamic implementation plan for the defined packages of measures of Styria's local climate and energy strategy should also support the importance of renewable heat at the political level.

Initial situation

In line with the international and national energy and climate targets, an initial climate protection plan and an energy strategy to achieve greenhouse gas targets, increase energy efficiency and increase the share of renewable energy was developed for Styria as early as 2010. By tightening up the climate and energy requirements, the Styrian climate protection plan Perspective 2020/2030 and the Energy Strategy 2025 were adapted and harmonised. It was achieved through the consistent involvement of the relevant departments of the Styrian provincial government, over 300 selected stakeholders and focus groups.

The Styrian Climate and Energy Strategy (KESS¹) is structured in a four-stage pyramid. At the top are the Vision 2050 and the key objectives for 2030, supported by the Styrian formula of objectives. The priorities and packages of measures are then defined. These represent the areas for the current and detailed action and implementation plans.

¹ http://www.technik.steiermark.at/cms/dokumente/12449173_128523298/f9e55343/KESS2030_Web_Seiten.pdf



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The Styrian formula (36/30/40) thus stands for active regional energy and climate strategy with four concrete targets:

Figure 1: Structure of the Styrian climate and energy strategy 2030

- A 36% reduction in greenhouse gas emissions
- The 30 % increase in energy efficiency
- Increasing the share of renewables to 40%
- Powerful energy and security of supply

Concerning renewable heating networks and solar thermal energy, the energy and climate strategy supports the increase of energy efficiency, the increase of the share of renewable energies and the security of energy supply and provides the following concrete priorities and packages of measures:

Focus on E1 Increasing efficiency in energy supply

The aim is to increase the efficiency of the entire energy supply from generation to distribution, to adapt the infrastructure to the new challenges and to expand the storage possibilities.

The E1.3 package of measures focuses in particular on increasing the energy efficiency of local and district heating networks. In this context, the demand for district cooling also offers new opportunities.

Focus E2 Renewable energy

The aim is to further expand the use of renewable energies.

The package of measures E2.2 provides for the increased use of solar energy as well as geothermal and ambient heat. Concerning solar energy, reference is made both to solar thermal systems and photovoltaics.

The package of measures E2.4 aims at the optimal use of the available biomass potential. In this context, renewable district heating is to be further promoted.



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Focus E3 Security of supply

The aim is to maintain a stable energy supply, put particular emphasis on consumption-oriented energy generation and significantly reduce energy imports.

The E3.3 package of measures aims to secure district heating supplies. A very high level of reliability in the supply of consumers of district heating networks is essential; therefore high supply dependencies of the district heating networks on individual heat supply plants or different energy sources must be further reduced.

Objectives

The aim is to draw up concrete action and implementation plans for the relevant priority areas and packages of measures. To this purpose, the implementation is to be processed and adapted in a multi-level system and in time cycles. It should be ensured that the effectiveness of the objectives is evaluated and that the degree to which the energy and climate objectives have been achieved is reviewed at specific intervals. Experts are to be involved in drawing up the action plans.

Defined action targets refine each package of measures to be able to concretise the implementation plans in expert rounds in the next step.

The E1.3 package of measures to increase the efficiency of local and district heating was refined into four action targets:

- - Promoting efficient district heating expansion
- - Advice on the optimisation of existing district heating networks
- - Forcing decentralised micro networks with low temperature
- - Integrating seasonal storage heaters into district heating networks

Package of measures E2.2, increased use of solar energy follows a concrete goal concerning heating networks:

- Push the feed-in of solar thermal energy into heating networks

Package of measures E2.4, optimal use of the available biomass potential focus on targets for biogas and concrete actions for heating networks:

- Increase the share of renewable energy sources in district heating networks

Package of measures E3.2, to ensure district heating supply, deals with two concrete action targets:

- Securing the DH supply of Graz in the long-term
- Making local and district heating networks fit for the future



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The actions described are intended not only to achieve energy savings and an increase in energy efficiency in the heat supply sector but also specifically to increase the use of renewable energies in heat networks.

Measures and actions

The procedure for implementing the adopted Climate and Energy Strategy 2030 is specified in four stages (Figure 2). In the first stage, the previously described action plans for the individual packages of measures are worked out and fixed for a three-year cycle by a decision of the state government. The first action plan is for the period 2019-2021 and will be evaluated and adapted in the periods 2022-2024, 2025-2027 and 2028-2030.

Two coordination rounds (stage 2) take place annually between the state experts, which are supported in the form of KESS platform meetings with external experts.

Stage 3 deals with the ongoing implementation of the action plans drawn up according to the previously defined timetable.

Finally, Stage 4 evaluates annually the success of implementation and the achievement of objectives and summarises the results in a report. This report serves as the basis for drawing up the action plans for the next period and the annual coordination process.



Figure 2: Approach to developing action plans, implementation and evaluation of the achievement of objectives, source: A15 – FA Energie und Wohnbau – Referat Energietechnik und Klimaschutz

The expert group for the elaboration of the concrete action plans consists of representatives of the Province of Styria, interest groups, energy supply companies and scientific institutions. The development of the action plan, starting with the expert round, condensation and coordination of the results up to the decision by the politicians, takes 6 months.

In concrete terms, this four-stage process should lead from the definition of the KESS action plan to its reliable implementation and substantially support the achievement of the binding climate targets.



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Barriers and opportunities

The integration and emphasis of the heating sector and the relevance of renewable energies in the regional climate and energy strategy, as well as the concrete process of defining action plans and implementation, can be strengthened by political support. It underlines the importance of achieving climate and energy goals at the political level and supports awareness raising among citizens and operators.

The expert rounds organised directly by the Province of Styria with representatives of energy supply companies, interest groups and scientific institutions as well as companies also highlight the importance of the heating sector and solar thermal energy. The precise specifications and goals can therefore also be essential for concrete project implementation.

The implementation of the action plans can cause a delay due to the coordination and coordination processes.

Results

The first results from the expert rounds to develop concrete action and implementation plans for the relevant packages of measures with a focus on heating networks and solar thermal energy are as follows:

E1.3 Increasing the efficiency of local and district heating supply

Continued promotion of efficient district heating expansion

In areas with high heat demand, the development of district heating with a share of at least 80 % of renewable energy, waste heat or high-efficiency combined heat and power should continue to be supported.

Significant actions are the development of a funding programme "UFI plus", which has to be coordinated with the federal funding. The creation of assessment criteria and the incentive to adjust density and efficiency criteria for the heating network. Organise summer operation through the integration of large-scale solar thermal systems and thus improve efficiency.

Promoting advice and optimisation of existing local and district heating networks

The operators of local and district heating networks are to be offered subsidised advice on the energetic optimisation of existing networks. The information should focus on sensible network expansion and compression, flow and return temperature control as well as the integration of heat storage, solar thermal and alternative heat sources.

Significant actions are the analysis of efficiency increases with exemplary effect for other heating plant operators. A Quick check tool for heating plants and the development of benchmarks can support the



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efficiency analysis for heating networks. Periodic audits should also continuously improve the efficiency of heating plants. Regular get-togethers are to be revived as a platform for the exchange of heating plant operators and possible measures to improve the company's heating network.

Forcing decentralised micro-networks with low-temperature heat

The use of low-temperature heat networks is to be evaluated and, if possible, implemented in the development of new areas. In existing networks, the switch to low-temperature systems in individual power supply units should be supported. The establishment of low-temperature decoupling can be tracked with the help of best practice examples.

Integrating seasonal heat storage systems into district heating networks

Seasonal heat storage systems are intended to increase the possibility of using renewable energy sources such as solar energy or waste heat. Pilot projects for seasonal heat storage systems should be specifically supported. The use of compulsory rights, such as in the electricity and road construction sectors, should also be considered.

Identify priority areas for district heating

A detailed survey is to form the basis for existing and new building networks. The survey must be coordinated with the grid operators. The price component is a certain aspect and is to be promoted through targeted activities with price regulation by a regulatory authority and district heating price monitoring.

E2.2 Increased use of solar energy

Push feed-in of solar thermal energy into heating networks

The integration of large-scale central solar thermal plants into heating networks is intended to replace fossil fuels, for example by covering the summer demand. The possibilities of solar thermal energy in district heating networks are to be investigated and its implementation promoted. The use of seasonal large heat storages to further increase the solar feed-in as well as the possibility of decentralised feeding into heat networks are to be supported. The implementation of pilot projects should be accelerated.

Significant actions are the comparison and prioritisation of summer operation using a central large-scale solar thermal system in the heating network and decentralised hot water preparation with a solar system or domestic hot water heat pump with PV combination. For heating plant operators, a start-up subsidy for advisory services is to be set up, and additional investment incentives created. Efficiency criteria must be developed for the review of heating networks. The use of alternative financing instruments must be developed.



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E2.4 Optimal utilisation of the available biomass potential

Increasing the share of renewable energy sources in district heating networks

To this purpose, all Styrian district heating networks and their current mix of energy sources for heat supply must be systematically documented in the first stage. It will support the development and implementation of concepts to increase the share of renewable energy sources.

Significant activities are the survey of the status quo of the existing networks and the consumer structure, the economic efficiency of the networks as well as the implementation of efficiency criteria to check the heat networks.

E3.3 Securing district heating supply

Securing the district heating supply of the provincial capital Graz in the long-term

The district heating supply of the city of Graz must be prepared by gradually reducing fossil fuels such as gas. The working group "Heat supply Graz 2020/2030" is to be supported in a targeted manner.

Significant activities are to promote thermal refurbishment, to increase grid density and to expand the concept of "Big Solar further" so that fossil energy sources can be substituted. In addition, standards for new buildings must be defined, and possibilities of compulsory law evaluated.

Making local and district heating networks fit for the future

Higher renovation standards and the elimination (depopulation) of the building stock reduce the heat requirement. The economic efficiency of heating networks must be evaluated. In some rural regions, securing the supply of heat by renewable resources must be examined if the heat source fails.

Significant activities in this context are the survey of building standards, the planning of alternative supply concepts, and the coupling with regionally existing industry.

Once the Styrian government has adopted the concrete action plans, they are to be implemented and evaluated in the period 2019-2021.

Lessons learned

Particularly successful is the implementation of a clear strategy process with the elaboration of concrete goals and action plans involving all relevant stakeholders. A specific timetable with short to medium-term activities provides a structured line.



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It is also remarkable that solar thermal energy plays an important role in the Styrian climate and energy strategy at the political level to achieve the binding climate targets and is taken explicitly into account in the action plans.

The action plans developed are at the beginning of the first implementation period, so that no concrete results from the initial assessment phase on the achievement of objectives and methodological approach are yet available.

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