

Cogeneration Roadmap for the Slovak Republic

SUMMARY

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The Slovak Republic is one of the most developed cogeneration member states in the EU and with a 25% CHP share in gross electricity generation on the 6th place in EU28. Long cogeneration tradition in district heating and industry, rather broad awareness on cogeneration advantages and incentive support framework enables further CHP development, especially with necessary retrofit and replacement of existing old CHP plants in district heating systems and industry by modern CHP units with partial switch to wood biomass. Sustainable CHP electricity generation is in line with the key national energy policy goals to increase energy efficiency and use of domestic primary energy sources, especially nuclear energy and biomass and would contribute to faster reduction of current high energy intensity and import dependency.

The CHP roadmap path would deliver up to 4 TWh/a of primary energy saving (PES) under the EED methodology till 2030. Considering the likely implementation path of such a roadmap up to 6 TWh/a PES and 3 Million tonnes of CO₂ reductions are achievable in practice till 2030 and could contribute more 30 – 50% of the national indicative primary energy saving target (10 TWh) till 2020 and result in huge benefits for the national economy. Establishing a stable long term support framework for cogeneration and incentives for the energy retrofit of district heating systems and increase of their competitiveness are prerequisite conditions beside removal of some other barriers. Profound implementation of the Energy Efficiency Directive (EED) could significantly contribute to the proper future CHP role in sustainable energy supply of Slovakia and roadmap implementation. Resolving the current natural gas supply problem from Ukraine is one of the critical issues of EU policy to enable security of the natural gas supply and future operation of CHP units.

1. Where are we now

Slovakia is facing slightly decreasing trends of CHP generation although still with a high 14% share of total electricity generation (even 25% reported by Eurostat). Majority or more than 80% of the total 2,6 GWe installed capacity with around 4 TWh of electricity and 10 TWh of heat production was provided by steam turbines (including nuclear power plants) and more than 80% of total CHP generation is generated by plants supplying district heating systems.

Slovakia has a very high and prevailing more than 30% share of natural gas in the CHP generation, followed by a 27% share of coal, above 20% of nuclear energy and a growing 4% share of RES. Only gas engines CHP units are facing positive recent trends in the period with significant heat demand decrease and current low electricity prices on the regional electricity market.

2. Energy and climate strategy

Increase of energy efficiency and use of domestic primary energy sources, especially nuclear energy and

biomass are the key energy and climate orientation of the Slovak Republic with goals to further reduce high energy intensity and import dependency. Well established efficient CHP support framework with premium payments set for different CHP technologies and used fuels as the key CHP support instrument, enables economic environment for small and medium size CHP investments and operation.

3. Cogeneration awareness

Traditional use of CHP in industry and district heating and rather high heating prices are key drivers for general high CHP awareness in Slovakia, where interested investors are looking for economic CHP heating solutions. High level awareness of energy service providers and financial institutions is a good support to the well-developed domestic CHP technology and project providers, where a very good position of cogeneration in research and education programmes is a very important pillar for the successful CHP development.

4. Key existing barriers

Low competitiveness of district heating systems compared to other heating options is the most important barrier for the future development of the largest CHP sector in Slovakia. Current unfavourable energy market conditions that recently stop connection of new CHP units need fast update of the support scheme regulation to establish long-term stable and predictable conditions for new investments. Recent reduced natural gas supply from Ukraine is a huge threat that needs an urgent EU policy response.

5. Cogeneration potential

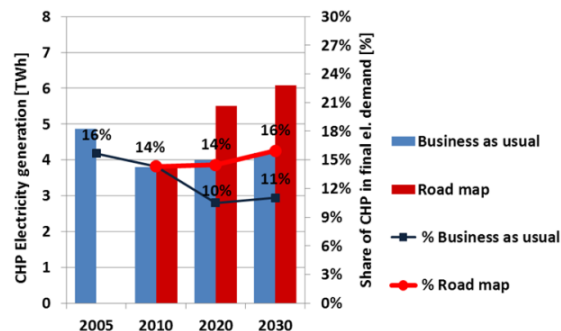
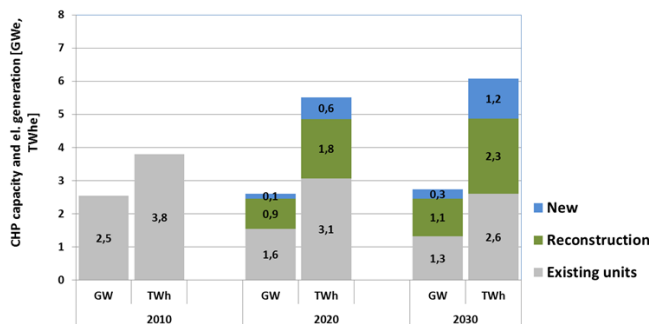
Evident economical CHP potential exists in Slovakia which should be re-assessed within EED prescribed comprehensive assessment till end of 2015. 0,5 GW or 2,6 TWh of additional CHP generation was earmarked as an additional economic CHP potential till the year 2020 in the National potential study from 2008 with a growing role of bio and micro CHP potential proved by the recent CODE2 analysis.

6. The roadmap

Establishing a long term stable and predictable incentive legal framework for cogeneration is a key priority necessary for the future CHP development in Slovakia. Intensifying the support instruments for increasing efficiency and competitiveness of district heating systems is crucial for their future economic operation and preserving the majority of current CHP generation. EED implementation should be an important tool and push in the increase of the efficiency in the heat supply where simplification of administrative procedures and grid connection is one of the important issues beside EU policy action for the mitigation of the natural gas supply risk.

In the future CHP could also contribute around 15% of final electricity demand and become the sustainable pillar of electricity supply in Slovakia by the proposed CHP road map implementation. By the necessary replacement of 45% of existing CHP capacities by 1,1 GWe of modern CHP plants and 60% implementation of economic potential or 0,3 GWe of new CHP units current CHP electricity generation could be increased for 60% from current 4 TWh to more than 6 TWh till the year 2030.

Potential CHP primary energy savings could contribute 30 – 50% of the indicative national target of primary energy savings till the year 2020 and reduce CO₂ emissions for up to 3 million tons of CO₂ till the year 2030.



For more detailed information about the Cogeneration Roadmap for the Slovak Republic please refer to the complete document available at www.code2-project.eu.

About the CODE2 project:

This roadmap has been developed in the frame of the CODE2 project, which is co-funded by the European Commission (Intelligent Energy Europe – IEE) and will launch and structure an important market consultation for developing 27 National Cogeneration Roadmaps and one European Cogeneration Roadmap. These roadmaps are built on the experience of the previous CODE project (www.code-project.eu) and in close interaction with the policy-makers, industry and civil society through research and workshops.

The project aims to provide a better understanding of key markets, policy interactions around cogeneration and acceleration of cogeneration penetration into industry. By adding a bio-energy CHP and micro-CHP analysis to the Member State projections for cogeneration to 2020, the project consortium is proposing a concrete route to realise Europe's cogeneration potential.