

Cogeneration Roadmap for Lithuania

SUMMARY

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Summary

After the shut down of the Ignalina nuclear power plant in 2010, Lithuania is importing more than 50% of electricity and cogeneration became the largest domestic source of electricity with 36% share in the gross electricity generation. District heating is the major cogeneration sector with more than 70% share of natural gas in fuel structure and growing share of renewable energy sources (RES). Increase of energy efficiency, rise of renewable energy sources and a new nuclear power plant are key energy policy goals to decrease current more than 80% energy dependency of Lithuania. Especially cogeneration on renewable energy sources fits well to this goals, proved by the recent fast development of biomass CHP plants. Favourable CHP development in Lithuania is a result of proper CHP position in the national energy policy with the incentive support framework which are the key drivers for general high CHP awareness in Lithuania. How to preserve the current volume of CHP generation and further future development is a huge financial challenge in current unfavourable energy market conditions which have increased the requested CHP support intensity and enlarged the needed financial resources.

The CHP roadmap path would deliver up to 2.6 TWh/a of primary energy saving (PES) and 1.2 million tonnes of CO₂ reductions are achievable till 2030. Increase of sustainable CHP electricity generation by new CHP units mainly using RES for up to 1.2 TWh would decrease Lithuanian import dependency and is complementary to the planned further use of nuclear energy. Providing adequate EU financial resources for CHP support in the current unfavourable energy market conditions and transition to investment intensive RES CHP plants. Setting proper position and quantitative goals of cogeneration in the reviewed National Energy Strategy is of high importance for the future sustainable electricity generation mix in Lithuania.

1. Where we are now

More than 50% of the thermal electricity generation in Lithuania is produced in high efficient cogeneration mode. Cogeneration has more than 36% share in the total gross electricity generation after a significant decrease of domestic production by the closure of the Ignalina nuclear power plant in 2010 and close to 60% of electricity import consequently. Majority of CHP plants are located in district heating systems mainly fuelled by natural gas but with growing share of wood biomass and waste.

2. Energy and climate strategy

Increase of the use of renewable energy sources (RES), increase of the energy efficiency and further use of nuclear energy are key strategic goals of energy and climate policy based on the National Energy Independence Strategy of Lithuania and other strategic documents. Support of cogeneration using RES is one of the Lithuania's energy policy goals to decrease dependency on imported gas and electricity.

3. Cogeneration awareness

Fast recent growth and high penetration of cogeneration especially in district heating as a result of proper CHP position in the national energy policy with an incentive support framework are key drivers for general high CHP awareness in Lithuania. Several professional interest associations enable good expert support framework for cogeneration which has an important influence on the decent general awareness of cogeneration in Lithuania.

4. Key observed existing barriers

Current unfavourable energy market conditions have increased the requested CHP support intensity and limited the volume of supported electricity by the available financial resources. Availability of the adequate EU financial resources will have the key influence on the extent of the new CHP investments using renewable energy sources as new policy orientation and measure for the reduction of current high heat prices from CHP using natural gas. On-going review of the National Energy Strategy of Lithuania poses certain uncertainty to the future energy policy goals and priorities and the role of CHP.

5. Cogeneration potential

Latest comprehensive assessments proved up to 200 MWe of additional CHP cost-effective potential in Vilnius and Kaunas with a partial switch of existing CHP units using natural gas on biofuel and waste. Following the National Energy Independence Strategy Lithuania will provide conditions for the installation of up to 355 MWe CHP plants using biomass till 2020. Recent fast growth of RES CHP electricity generation proves huge bio energy CHP opportunities assessed also by the recent CODE2 analysis. Good natural gas infrastructure offers a proper environment also for development of micro CHP units in SMEs outside the district heating if necessary new incentives would be introduced.

6. The roadmap

To assure adequate EU financial resources and preserving long term stable and predictable incentive legal framework for cogeneration is a key priority necessary for keeping current volume and enabling further future CHP development in Lithuania with a special emphasis on the use of renewable energy sources. Setting proper position and quantitative goals of cogeneration in the reviewed National Energy Strategy is of high importance for the future sustainable electricity generation mix in Lithuania.

Increase for more than 60% or 1.2 TWh increase of current CHP electricity generation is proposed by the CHP road map implementation. Majority of 350 MWe of new CHP capacity would be installed in district heating and using renewable energy sources. Moderate CHP development is expected also in other sectors and SMEs. The current rather high 20% share of CHP electricity generation in final electricity demand could be increased to at least 23% level till 2030 in spite of rather high expected demand growth.

Potential CHP primary energy savings could contribute up to 1.7 TWh or around 5% of the indicative national target of primary energy savings till the year 2020 and reduce CO₂ emissions for up to 1.2 million tons of CO₂ till the year 2030. Growth of CHP generation will enable efficient and sustainable domestic electricity and heat generation mainly from renewable resources and significantly contribute to the decrease of Lithuanian import dependency.

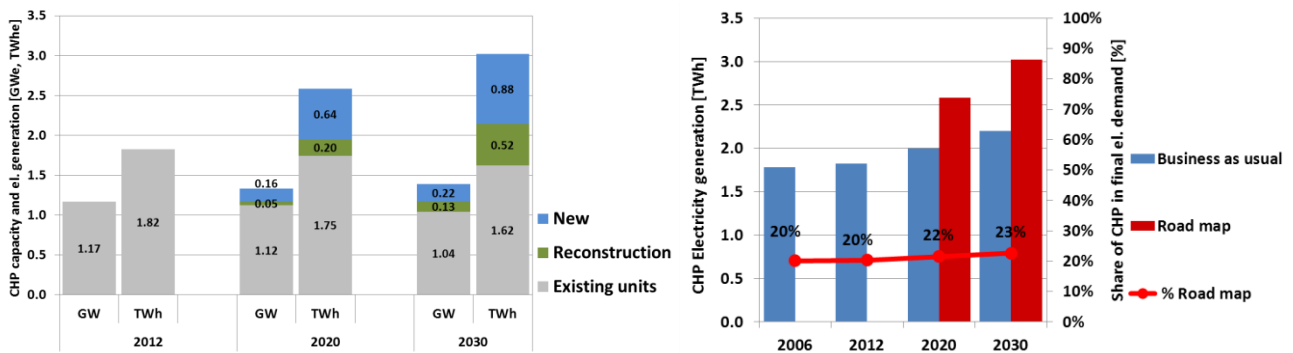


Figure 1: CHP Roadmap target path to CHP growth till the year 2030

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

About 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.