# Decarbonisation Pathways for the Baltic Regional Gas Market – Stakeholder consultation

## Feedback on the assessment of the macro-economic and energy system impacts of the considered scenarios

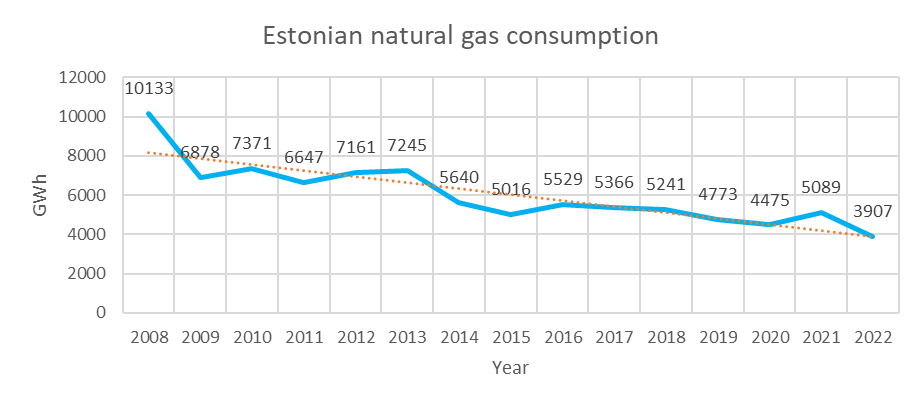
#### Q4 Do you agree with our key findings and conclusions regarding the impacts of the decarbonisation scenarios? Any specific comments or suggestions to take on board in our final report?

##### Estonian Competition Authority

For the sake of the future usability of the study, gas consumption in 2030 and 2050 should be forecast as realistically as possible. It seems that the consumption forecast of the Estonian study is based on the actual consumption of 5.09 TWh per year in 2021, which according to the BAU scenario will decrease to 4.5 TWh per year by 2030 (-12%) and to 3.8 TWh by 2050 (-25 %). The second half of 2022 natural gas price shock caused by the war in Ukraine reduced 2022 consumption to 3.9 TWh per year (- 23% less than 2021), which is forecasted to decrease further in 2023. ECA has a reasonable information about allocation forecast for 2023. Therefore, in the BAU scenario it would be reasonable to consider 5.09\*(100%-35%) = 3.3 TWh (this volume also matches the current market forecasts) in 2023 and adjust the scenarios accordingly. Additional effect on the gas market will have the Council Regulation (EU) 2023/706 of 30 March 2023 amending Regulation (EU) 2022/1369 as regards prolonging the demand-reduction period for demand-reduction measures for gas and reinforcing the reporting and monitoring of their implementation. Based on the vision of the authors of the study, in the case of a decrease in gas consumption, the estimated amount of consumption in Estonia would be 2.9 TWh in 2030 and 2.5 TWh in 2050 according to the BAU scenario.

Due to the continued implementation of demand-reduction measures and the prevailing shift away from natural gas, it is foreseeable that in the future, as customers transition to alternative energy sources, the network service price may increase for those who remain connected to the system.

It would be intriguing to learn about the process that led you to these conclusions.



In view of the decreased gas consumption volumes due to the Russian war in Ukraine in 2022 ECA recommends SEI Tallinn and E3 Modelling to update the national gas consumption data before submitting the study to the European Commission.

It is recommended to include not only a regional summary but also separate summaries for each country for a comprehensive and detailed analysis.

##### Elering (Estonia)

Elering does not agree with the results, since several aspects of the energy system and market participants behaviour seem to have been ignored (at least in Estonia). This has very likely led to overestimating the gas demand projections, underestimating the price of biomethane, underestimation of the costs required for the infrastructure and in combination underestimating the costs to the gas consumers. Thus, in Elering’s assessment the findings and conclusions do not reflect the ongoing changes in the energy system and end consumers behaviour in a realistic manner, and the conclusions made based on the analysis could be misleading.

##### Gaasiilit (Estonia)

We think that conclusions cannot be done only comparing the LCOE prices, because consumption is not based only on the electricity production. Therefore we suggest that those scenarios must take into account all other consumption and prices, which has the biggest impact for decarbonising the gas market.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

I agree, do not have further comments.

##### Public Utilities Commission (Latvia)

Agree. Perhaps it is worth to clarify how competitiveness of renewable gases will be achieved in CM scenario, what policy measures have been included in the model. Blue gas can maintain a very competitive position for a long time if there are no incentives for green gas(es) or if blue gas is not disincentivised. Not entirely clear from the current wording why CM scenario is the best one. LCOE values for H2 are quite high and the learning curve seems to be rather flat in all scenarios. What assumptions were taken into consideration? Did the model consider fast/large-scale deployment of offshore wind in combination with H2 production in synergy?

##### Conexus (Latvia)

One key challenge for the Cost Minimal scenario is the significant need for investments in renewable gas production, particularly in the 2022-2030 period. This includes a need for biomass feedstocks for biogas/biomethane production and renewable electricity for electrolysis. At the national level, there are currently no readily available funds or imminent plans for investing in the development of green gas, which covers production, consumption, and infrastructure. The lack of financial resources should be given greater consideration. Also, significant role of Inčukalns underground storage (UGS) in enabling maximisation of the production of green gasses shall be taken into account. Inčukalns UGS serves as a large-scale energy storage and flexible natural gas (methane) supply source, and is an important infrastructure asset for the region's energy security. Inčukalns UGS will remain a key element of the region's energy security in the long term, maintaining high demand for natural gas (methane) storage services.

##### Estonian Renewable Energy Association (Estonia)

It is unclear, to which extent the general electrification trend is taken into account with regard to alternatives to using gaseous (fossil) fuels (e.g. uptake of heat pumps). In addition, due to the recent energy crisis, it has become evident that gas usage (especially in the case of Estonia) will probably be less than previously foreseen, which in turn will affect the aforementioned scenarios. Is such sensitivity taken into account in the analysis?

##### Finland biogas association (Finland)

When looking at the table 1, it seems that the Cost Minimal scenario (CM) is linked to 2050 not to 2030; maybe this could be added to the description of different scenarios in the page 2.

The key findings and conclusions seems to be okey. Although it is difficult to estimate, because the basic data is not given e.g. how much biogas/biomethane production is in Finland, Latvia, Lithuania, Estonia. It is rather difficult to interpret the graphs, because the colors are so similar.

It would be good to show the state of art (year 2019?), which would help in seeing the differences of different scenarios.

##### AS GASO (Latvia)

We have no specific comments on this matter.

#### Q5 Are there any important energy system or macro-economic impacts missing in our analysis?

##### Estonian Competition Authority

The Cost Minimal (2030 and 2050) and REN-Methane (2050) scenarios envisage on-network biomethane production of approx. 2.2 TWh per year.

The actual amount of biomethane production in 2022 was 0.17 TWh, and on the basis of the first 5 months of 2023, a very significant increase in this amount is not foreseen.

The five-month increase in 2023 (11%) is due to the commissioning of new production equipment at the end of 2022. Such growth is currently not foreseen in the following years.

Biomethane production (<https://www.biometaan.info/news-archive>)



According to the study, biomethane production in Estonia should increase 13 times over the next 5-6 years (scenario Cost Minimal 2030), which cannot be considered realistic. Also, the 13-fold growth of biomethane by 2050 (scenarios Cost Minimal 2030 and REN-Methane 2050) is questionable, because the main economically efficient sources of raw materials for biomethane production have already been introduced (see also the additional explanation in the answer to question Q11).

According to a study prepared by the Development Fund in 2014, it is estimated that up to 4.7 TWh (= 483 mcm) of biomethane can be produced annually in Estonia, the raw material of which would be mainly biomass from grasslands (83%), residues from agricultural production (9.8%), as well as biodegradable residues from industry, landfill gas and domestic waste from sewage treatment plants. As this study is nearly a decade old, it is necessary to verify the provided data. Dispersion of the raw material across a vast area will lead to higher biomethane costs, primarily due to increased transportation expenses.

While biomethane can be produced from various organic materials, e.g. livestock manure, organic waste, agricultural residues, food waste, and dedicated energy crops the most cost-effective solutions are already in use. It is also doubtful that there will be an increase of raw material (livestock manure, organic waste, landfill gas, sewage treatment plant gas) needed for production of biomethane.

While it is theoretically possible to achieve the envisioned biomethane volumes in an off-network solution, it may prove very difficult to achieve the on-network biomethane production shown in scenarios Cost Minimal 2030 and REN-Methane 2050.

In addition, Estonia has set a goal to use biomethane mainly in transport (to reduce CO2 emissions from fossil fuels), which will not affect the long-term demand satisfaction of existing network gas users.

##### Elering (Estonia)

The cost competitiveness analysis of gaseous fuels compared to other energy carriers and technologies, like electrical heat pumps. The analysis considers the gas system and -market as an isolated silo in the energy system and does not consider the implications of a sector coupled energy system which would change the cost competitiveness of certain gaseous fuels either way.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

I think all important things are covered.

##### Public Utilities Commission (Latvia)

It should be noted that the biomethane as well as the hydrogen industry is at a very early stage of development. A slightly more elaborate explanation of causality between demand and supply in scenarios would provide a better understanding whether and to what extent certain types of policies (or policy mixes) facilitate deployment (investment, technologies, supply chain, innovative solutions, etc.) of green gas.

##### Conexus (Latvia)

Analysis is missing the significant role of electricity desynchronisation and its impact on natural gas demand in the region. Understanding how changes in electricity generation and distribution interact with natural gas demand (including natural gas reserves in Inčukalns UGS and LNG supplies) is essential for a more objective and comprehensive analysis. In the Conexus view, natural gas consumption in the power generation segment may increase in the next 10 years, based on the expected increase in national generation due to desynchronisation from the BRELL and deployment of the wind and solar generation capacities. The price of natural gas and meteorological conditions will continue to play an important role in the dynamics of natural gas demand as an energy source for electricity generation.

##### Finland biogas association (Finland)

Biogas/biomethane is not only energy production, but actually nutrient recycling is an important part of the solutions in terms of its environmental, social and economic issues. This aspect also has impact on the CO2 emissions, costs etc. This should be mentioned in the report.

##### AS GASO (Latvia)

We have no additions.

## Feedback on the risk analysis of gas decarbonisation scenarios

#### Q6 Do you agree with our assessment of the most important risks for the scenarios? Any specific comments or suggestions to take on board in our final report?

##### Estonian Competition Authority

Agree with the assessment, no suggestions.

##### Elering (Estonia)

Elering does not agree with the assessment of the most important risks at all. The root of all other risks is not even listed – the risk that gaseous fuels are not (or are significantly less) competitive against other energy carriers and the gas demand is miniscule to even maintain a national gas network at the current form. The risks listed in Table 3 are secondary risks, if the gas demand risk is somewhat mitigated.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

I agree with the risk scenarios

##### Public Utilities Commission (Latvia)

Agree. Could probably indicate that development of offshore wind in the Baltic States could have significant impact on the deployment of hydrogen technologies, which normally function in synergy with industrial scale wind and solar PV. Also, demand for and opportunity of developing hydrogen infrastructure may strongly depend on business decisions of developers of other types of RES technologies, for example, wind, particularly offshore wind. If there is no willingness/stimulus to develop large capacities of offshore wind, then green hydrogen projects have less chance to get deployed. Thus, investment in one particular technology may have significant influence on the ability of other technologies to develop in the particular geographic market.

##### Conexus (Latvia)

Mostly yes, biggest risks are related to availability of funding, investments and general energy poverty due to high energy and new infrastructure costs. Considering also desynchronisation (mentioned in answer to Q5) natural gas will be needed for energy generation and balancing, also in this, crucial role for the whole region will be to natural gas and Inčukalns UGS. One of the biggest risks that need to be strengthened regarding decarbonisation is lack of diversity of energy sources. Investments only in solar or wind technologies could create even bigger long term risks related to energy availability and energy poverty. Methane (fossil or renewable) in future development of region should have stable role, since it reduces risks of energy that is dependent on weather or needs high costs investments in production/transportation (hydrogen) or needs new capacities (electricity).

##### EPHA (Estonia)

Due to the table page 3. Maybe you should evaluate in risk scenarios (table 3) the increase of renewable electricity production. In any scenario there is a high need of electricity and government should encourage it.

##### Estonian Renewable Energy Association (Estonia)

Risk 2:

Regarding (off-shore) wind power for renewable gas production, these supply chain issues may prove to be more likely, since the supply in this sector might have difficulties to meet demands.

Risk 10:

This is a crucial risk (and current hindrance) for all decarbonisation pathways.

Risk 16:

Geopolitical events can of course be risks, but as recent events have shown, they can also provide ignition for change.

##### Finland biogas association (Finland)

We see that there are also significant policy and regulation uncertainty risks (number 11) regarding biomethane investments, because the whole legislation on renewable gases is under development (e.g. RED2: sustainability requirements, GoO, marketing instruments; the EU gas market directive and regulation: gas market rules for renewables; energy tax directive: what will be price competitiveness of biogas). We don’t figure out what would be the public opposition risk (12; 13) linked to the biomethane? We see that there are actually positive environmental (nutrient recycling; fertilizer production; carbon farming; soil health) and social issues linked to biomethane/biogas. We see that nutrient recycling and hence the role of biogas will be more important in the future due to the climate change.

##### AS GASO (Latvia)

We do agree with the risks that You have marked out. At the same time, we see Risk No.10 as controversial. There is no other way to decarbonise energy that is transported in natural gas system, with no investments. Natural gas system has to be adjusted for hydrogen transportation, it is also challenging to replace high quantities of natural gas with biomethane with no investments in natural gas grid. We understand the risk, but we think it can be reduced by smart management.

#### Q7 Are there any critical risks not properly considered in our analysis?

##### Estonian Competition Authority

Risk 14: Technological - Costs or efficiency may not improve sufficiently for the main technologies for gas carbon dioxide emissions - probability Medium, impact High.

The production of REN hydrogen from water by electrolysis has a very low total efficiency, which requires a large overproduction of renewable electricity (wind, sun). At the same time, this fact does not favor investments in electricity production, and therefore it may not be practically feasible in the long term.

On the other hand, the increase in electricity demand for hydrogen production inevitably increases the price of electricity, which limits hydrogen production due to insufficient efficiency (see also the additional explanation in the answer to question Q12).

There is no other large-scale hydrogen production technology (CO2 neutral) on the horizon. Therefore, in the case of hydrogen, the probability of risk 14 is rather High.

Risk 10 - Energy markets - Investments in methane infrastructure may lead to blocking natural gas or stranding assets - probability Medium, impact High.

This risk could also be supplemented by investments in hydrogen infrastructure.

Since the use of biomethane and hydrogen can become more efficient in an off-grid way, there is a great risk that the transmission and distribution networks will become useless in whole or in part, because the network fees will rise as the quantities in the network decrease (which will further reduce the use and some smaller distribution networks or parts of the network may be out of use remain) and in addition it may not be possible to find financial means to renew the aging gas network (the weighted average age of the Estonian transmission network (without Balticconnector) is 48 years and there are 39% of pipes over 50 years old). Therefore, the probability of risk 10 is rather High.

Risk 8 - Security of gas supply can be threatened due to external energy dependence

The July 2023 coup in Niger has introduced significant uncertainties and risks for the European Commission's gas substitution plan. Political instability, risks to the gas supply chain, impact on investment, regional security concerns, and changing geopolitical dynamics all present potential challenges. In response, the European Commission will need to carefully reassess its energy strategy, exploring alternative options to mitigate potential disruptions and ensure energy supply security.

The coup in Niger has resulted in widespread political instability. The new military-led government under General Abdourahamane Tchiani may present unpredictable and unreliable factors for the European Commission and potential investors within the gas sector. Concerns regarding the dependability of gas supplies from Niger are likely heightened due to these uncertainties.

State institution suspensions and curfew impositions in Niger may disrupt the gas supply chain, particularly due to border closures affecting gas transport logistics to Europe. Any disruption poses significant risks to the European Commission's strategy to diversify its energy supplies away from Russia.

The current political climate may deter foreign investment in Niger's gas sector. The hesitancy to commit to long-term projects, such as gas exploration and infrastructure development, may hinder the progress of Niger's gas resources, subsequently delaying the availability of gas supplies for Europe.

Given Niger's location in the Sahel region, security challenges arising from terrorist insurgencies pose concerns for the safety of gas infrastructure, potentially disrupt supplies and pose security risks to European energy interests.

The coup's potential impact on Niger's membership in the Economic Community of West African States (ECOWAS) should also be noted. As ECOWAS has suspended Niger's membership and imposed sanctions, the European Commission may face difficulties in engaging with Niger within this framework, which could complicate gas supply negotiations.

Changes in regional geopolitical dynamics following the coup, particularly concerning external actors such as Russia and Turkey, could further complicate efforts to secure gas supplies from Niger. Competition for influence and resources in the Sahel region could affect gas deals, pricing, and availability. These events can have an effect on Algerian gas exports.

The political instability may prompt the European Commission to reconsider its reliance on Niger for gas and explore other energy alternatives. These may include a greater focus on renewable energy sources and efforts to diversify energy imports from other regions.

Therefore, the probability of risk 8 is rather Medium or High.

Risk 6 - Infrastructure cannot be adequately or timely developed, including repurposing or adaptation of natural gas infrastructure

It may not be possible to find financial means to renew the aging gas network (the weighted average age of the Estonian transmission network (without Balticconnector) is 48 years and there are 39% of pipes over 50 years old). Therefore, the probability of risk 6 is rather Medium.

##### Elering (Estonia)

The main risk is the gas demand outlook itself and the volume and location of it compared to the gas system. The main risk holding back, not only decarbonisation investments in the listed scenarios, but even maintain the current the gas system capacities, is the risk of gas demand falling rapidly and leading to stranded assets. The risk that making considerable investments into infrastructure would rise the network costs, that would accelerate the fuel switching from gaseous fuels to other fuels and energy carriers, creating a spiral effect.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

Safety risk – will there be any major “danger zones”? Gas supply is already considered as vital service. How it should/would be in the future?

##### Public Utilities Commission (Latvia)

All main risks covered. Inconsistent energy policy could perhaps constitute a bigger risk than anticipated. At least this risk has proven to be a major/the main risk over the course of last 20 or so years.

##### Conexus (Latvia)

Financial risks and availability of feedstocks (as well as competition) for biomethane production should be emphasised. Developing biomethane production facilities requires significant investment. There's a risk that the necessary financing might not be available or that investors perceive the sector as high-risk due to uncertain market conditions or changing regulatory policies. Also, insufficient market acceptance and regulatory and policy uncertainties are common drawbacks for biomethane development at least in Latvia.

##### Finland biogas association (Finland)

The risk of delayed investment is not tackled properly. This problem was well discussed already in the page 5 (“Furthermore, the renewable gas production investment needs in the CM scenario are frontloaded (concentrated in the 2022-2030 period), which despite presenting benefits in the form of the accelerated phase out of LNG imports could lead to difficulties in realising the investments due to issues such as obtaining the necessary financing sources but also potential bottlenecks in the supply chain and related ..”).

##### AS GASO (Latvia)

We see Risk No.11 with a medium likelihood and high severity. From our experience regulatory framework is key factor that is needed for investors and system operators to set their goals in decarbonisation and decide to invest. If regulatory framework comes with a delay, investments will be delayed as well. Also, we see availability of sufficient funding as a risk. Some of network operators are private companies regulated by a state. Adjusting gas system in order to make a green transition will result in significant costs, which are expected to be covered from funds allocated for this purpose. There is a risk that the relevant funds will not be available for these companies or become available too late.

#### Q8 Which additional mitigation options would you suggest? For which risks?

##### Estonian Competition Authority

No comments

##### Elering (Estonia)

To alleviate the gas demand risk an energy system development plan for electricity, methane, hydrogen network should be carried out, considering the expected developments in these sectors, transit flows between Finland and Latvia and inputs from heating and transport sector. For obsolete or uneconomical (natural gas) infrastructure a decommissioning plan should be created and approved by the regulator to avoid stranded assets for network operators and allowing sufficient time for the remaining consumers to plan their energy switch.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

No comments

##### Public Utilities Commission (Latvia)

Subject policy analysis and planning to standard processes and procedures that eliminate or reduce to minimum possibility of ad hoc decisions about policies that produce adverse consequences for decarbonisation efforts.

##### Conexus (Latvia)

For financial risks and investment uncertainty would help government support (financial incentives for biomethane projects), risk sharing (support from financial institutions), project partnerships (e.g. potential biomethane producers with support from regulatory authorities could develop and share infrastructure costs with Transmission System Operators for creating direct connection to the gas system (for biomethane grid injection). For feedstock availability – from policy side develop policies where long-term feedstock supply contracts shall be established invest in research to identify alternative feedstock sources that may not be in direct competition with existing uses, such as algae-based feedstocks which could be available at Baltic Sea. And for market acceptance and regulatory uncertainty mitigation more stable policy shall be developed, while relevant stakeholders are more involved in market development. Market development includes standardizing quality requirements, facilitating certification processes, and establishing transparent trading mechanisms. That could increase biomethane’s role while substituting natural gas in region.

##### AS GASO (Latvia)

We would change one mitigation measure for risk No.10. In order to define it “Introduce a legal ban on connecting new residential and tertiary buildings to the natural gas grid”, we would change it to “Allow new residential and tertiary building connections to gas grid only if they undertake to use renewable gases.”

## Feedback on the policy action plan and roadmap

#### Q9 What main actions is your organisation undertaking or considering regarding the decarbonisation of the gas system? As new proposed measures should build on existing initiatives, this information is quite important.

##### Estonian Competition Authority

As a response to the imperative of gas system decarbonisation, the Estonian Competition Authority has established a strategic framework centered around proactive monitoring and effective response to market anomalies and deficiencies. This encompasses a commitment to the timely disclosure of critical information, proposals for amendments in domestic legislation, and other pertinent actions that are instrumental in achieving the objective of carbon-neutral gas consumption. The Authority also focuses on orchestrating a systematic and judicious approach towards the termination and decommissioning of existing natural gas infrastructures."

##### Elering (Estonia)

Elering, together with the regional gas TSOs are assessing its current pipeline network compatibility with renewable gases and are carrying out a pre-feasibility study for creating a dedicated new-build hydrogen pipeline from Finland to Germany through the Baltic States and Poland by the 2030-s.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

For decarbonation CPTRA is right now not actively involved, our input can be to the safety issues (pressure, gas, electricity, chemicals). And how the gas supply affects the buildings energy efficiency (gas as a heat source).

If the pathway is chosen, then we can see what role CPTRA will be.

What we will be closely will be monitoring, what is the end result for natural gas grid (is it utilized?) and consumers who have the gas boiler for domestic hot water, what options are for them etc.

##### Public Utilities Commission (Latvia)

In Latvia, there are two core legal acts for gas and electricity – Energy Law and Electricity Market Law. Any activities in energy sector must be in line with the provisions of these laws. The Ministry of Climate and Energy (MoCE) performs functions of energy policy development and implementation. The respective institutions of Latvia, including the PUC, participates in legislative processes related to the energy sector in Latvia and EU institutions within the scope of their competency. Latvia has transposed provisions of EU directives in energy sector in its legislation and complies with the EU regulations and other legal documents which are binding to the EU member states.

On 4 February 2020 the Cabinet on Ministers of the Republic of Latvia adopted the National Energy and Climate Plan for 2021-2030 which sets out Latvia's performance targets, measures and activities in several sectors including the reduction of greenhouse gas emissions and the increase in the share of renewable energy sources, improving energy efficiency, as well as improving innovation, research and competitiveness.

##### Conexus (Latvia)

Conexus is working on following projects to decarbonise gas system:

1) Smart integrated solutions for injecting renewable gases into the transmission system. The project involves the construction of biomethane injection points that would allow off-grid biomethane producers (producers without a direct connection to the gas infrastructure) to inject the biomethane they produce into the transmission network without having to build connecting pipelines from the biomethane plant to the transmission system.

In 2022, two technical permits for direct connections to the transmission system were issued. Conexus has created a map of potential connection points with potentially the lowest connection costs to the natural gas transmission system pipeline, where 18 potential connection points are marked on the map. A map of the Latvian natural gas transmission system with connection points is available on the Conexus website. Conexus has finalised the minimum construction design for four biomethane injection points as part of the project "Smart Integrated Solutions for Renewable Gas Injection into the Transmission System". The most promising location for further development and implementation of the pilot project has been identified as a point in the municipality of Džūkste, which is planned to be built by the end of 2024.

More information here (<https://www.conexus.lv/biomethane-injection-points>) and here ([https://www.conexus.lv/biomethane-injection-points#](https://www.conexus.lv/biomethane-injection-points))

2) Adapting the cross-border gas transmission system to transport hydrogen – transmission system study in the light of the European Commission's 2021 proposals for an internal market for renewable gases and hydrogen, where transmission system operators must accept gas flows with hydrogen content up to 5% from 1 October 2025.

3) Seasonal hydrogen storage in Latvia – with the growing importance of hydrogen gas in the region and the need for flexibility, a study is needed on the feasibility of a hydrogen storage facility based on the Inčukalns UGS. In order to evaluate the potential for hydrogen demand, production, transmission and storage in Latvia, Conexus conducts a market study. The results will contribute to the further planning of the development of hydrogen infrastructure in Latvia and beyond.

More information here (<https://www.conexus.lv/press-releases/conexus-veiks-tirgus-izpeti-udenraza-infrastrukturas-attistibai-latvija>)

4) Nordic-Baltic Hydrogen Corridor – Latvia's section. The Nordic-Baltic Hydrogen Corridor is a joint project of six national transmission system operators (Finland, Estonia, Latvia, Lithuania, Poland, and Germany) – Gasgrid Finland Oy, Elering AS, Conexus, Amber Grid AB, GAZ SYSTEM S.A. and ONTRAS Gastransport GmbH – aiming to establish a cross-border 100% hydrogen gas transmission corridor from Finland to Germany via the Baltic States and Poland. The project builds on the RePower EU Roadmap published by the European Commission on 18 May 2022, as well as the proposals for hydrogen infrastructure development developed by the European Hydrogen Backbone.

More information here (<https://www.conexus.lv/press-releases/sesi-gazes-parvades-sistemas-operatori-paraksta-sadarbibas-ligumu-ziemelvalstu-un-baltijas-valstu-udenraza-koridora-attistibai>) and here (<https://ehb.eu/>)

5) As the injection of hydrogen into natural gas transmission networks can pose various technical challenges, the four national operators are jointly implementing a development and study project in 2022 on the possibility of injecting hydrogen into the gas transmission systems of Latvia, Lithuania, Estonia and Finland, the first part of which – a desk study – is scheduled to be completed in 2023.

More information here (<https://www.conexus.lv/press-releases/conexus-ar-starptautiskajiem-partneriem-uzsak-vienotu-petniecibas-un-attistibas-projektu-udenraza-ievadisanai-un-transportesanai-gazes-parvade>)

##### Estonian Renewable Energy Association (Estonia)

As a representative of an industry association, we support the development and uptake of measures in partnership with several stakeholders to decarbonise the energy sector as quickly as possible, with emphasis on swift uptake of renewable electricity production capacities, further development of biomethane production and market, and a shift towards climate neutral heating & cooling.

##### AS GASO (Latvia)

JSC “Gaso” supports the goals of the European Union in decarbonisation of energy sector. Respecting the reduction of greenhouse gas emissions set by the European Union, JSC “Gaso” is actively involved in reducing the amount of CO2 emissions (including improving the energy efficiency of our buildings and company in general, reducing the consumption of energy resources, reducing CO2 emissions in the company's car fleet). Gaso is actively working on an initiatives that will allow to inject renewable gases in our pipeline grid. In particular our company supports potential biomethane producers by consulting them on technical issues regarding system design and construction process. Also we engage in regulatory framework development regarding to biomethane injection in gas network.

#### Q10 Which existing policies in the Baltic countries & Finland (e.g. financial support for biomethane and injection rules/conditions in methane grid) should be adapted to facilitate gas decarbonisation while avoiding distortions between countries?

##### Estonian Competition Authority

To promote effective decarbonisation in the Baltic countries and Finland, a coordinated transition strategy encompassing the cessation of gas network operations and the systematic decommissioning of current transmission and distribution infrastructure by 2050 is recommended. This strategy would preserve only domestic usage of off-grid gas, inclusive of biomethane, hydrogen, and synthetic natural gas (SNG), concomitant with the necessary enhancements to local infrastructure, encompassing areas such as transport and the food industry.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

No comments

##### Public Utilities Commission (Latvia)

Similar/common approach to the application of excise tax on natural gas. Co-financing for heat supply companies to switch from gas to wood chip heating.

##### Conexus (Latvia)

For Latvia – Energy Law shall be amended to facilitate biomethane injection, Conexus has submitted proposals on various concepts regarding biomethane injection points, entry-exit system and other.

On regional level gas quality requirement harmonisation also regarding hydrogen could be facilitated, also existing law required development on setting hydrogen responsibilities.

On a regional and European level, harmonised renewable gas Guarantee of Origin system approached shall be facilitated, to ensure free renewable gas cross-border flow.

##### Estonian Renewable Energy Association (Estonia)

Firstly, and as mentioned before, the electrification of several processes and sectors will have a profound effect on gas demand, while lower consumption will lessen the difficulty and burden to decarbonise the gas sector across the region. Hence, measures that simplify and accelerate the uptake of renewable electricity production capacities are crucial to gas sector decarbonisation as well.

##### Finland biogas association (Finland)

This is difficult to estimate, because renewable gases are not really currently traded between countries. Biomethane trading between countries is not yet smooth and the trading requires special expertise (guarantees of origin, durability certificates). In Estonia, the national biomethane production subsidy determines the uses of biomethane and hence biomethane cannot be exported from biogas plants having the subsidy.

##### AS GASO (Latvia)

In our opinion, there should be joint financial support policy for biomethane producers. Also, there should be joint approach to use of feed-in tariffs for renewable gases so all potential biomethane producers in region would be equally supported.

#### Q11 Which are the main new policies and measures that should be implemented to stimulate biogas and/or biomethane production and use in the Baltic countries & Finland?

##### Estonian Competition Authority

There is a total of 17 biogas plants operating in Estonia (http://eestibiogaas.ee/), 5 of them work on agricultural (biodegradable) raw materials, 7 on raw materials produced by wastewater treatment, and 5 on landfill gas.

7 of them, Estonian Cell AS, which has stopped production from time to time, produce biomethane, which is used outside the company (according to the certificates of origin issued by Elering, 100% in the transport sector).

Biogas plant companies working on agricultural inputs (5):

1. Aravete Biogaas OÜ - produces biomethane from 2022

2. Oisu Biogaas OÜ - produces biomethane from 2021

3. Biometaan OÜ - produces biomethane since 2018

4. Vinni Biogaas OÜ - produces biomethane from 2020

5. Tartu Biogaas OÜ - produces biomethane from 2020

Industrial wastewater treatment plant:

6. Estonian Cell AS – produces biomethane from 2018 (stopped from time to time in 2022 and 2023)

Production of biomethane from separately collected mixed household waste:

7. EKT Ecobio OÜ - produces biomethane from 2022

The remaining ten biogas facilities, which do not engage in biomethane production, utilize the unconcentrated gas they generate for internal production processes, typically as a heat source, or for electricity production. In 2022, these facilities contributed 5.9 GWh of biogas-generated electricity to the grid, representing 0.07% of total consumption. For these entities, the emphasis on biogas production tends more towards environmental stewardship than it does towards the undertaking of an energy production enterprise.

Biomethane production presently encounters constraints largely stemming from an insufficiency of concentrated raw materials such as outputs from livestock farming complexes. Consequently, financial stimulation has yielded less than anticipated results. The logistics of consolidating scattered raw materials also poses an impediment to efficiency as distances escalate and the comparative advantage over other energy sources, such as electricity, diminishes. This process could potentially compromise the carbon neutrality of biomethane, particularly when energy expenditure on biogas production exceeds its energetic content.

Furthermore, there is an ongoing trend of declining livestock farming due to an increasing shift towards plant-based dietary habits. This transition is likely to result in a further reduction in raw materials available for biogas production.

Consequently, the potential for escalating biomethane production is, in reality, significantly restricted. This factor should be judiciously considered in the context of any study or strategy concerning biogas and/or biomethane production and use in the Baltic countries and Finland.

##### Gaasiilit Estonia

The most important is to reach the potential of biomethane, it would be one of the best solutions to reduce GHG emissions in the gas sector. Only possible way, considering the higher price compared with natural gas, is to build a system, where biomethane can compete against other energy carriers. We see that the crucial moment is to develop a strong market demand for biomethane. This needs to be done in the transport, household and energy sector. It gives the clear signal to develop new biogas plants, if there’s no market, there will be no investments. In the transport sector we see that one option is to give investment aid for transport companies to buy CNG or LNG vehicles, which gives the possibility for the companies to be carbon neutral. This means that they can buy 100% or less biomethane instead of natural gas or LNG, but it would definitely increase the biomethane demand. In the energy sector or in the households there need to expand the scope of the energy carriers that fulfils the efficient district heating criteria. Today, if district heating operators are using 51% biomass + 49% natural gas they are efficient. There should be the same conditions for biomethane, so 51% biomethane + 49% natural gas is also efficient, which gives the opportunity for real estate developers to neutralize gas market GHG emissions. According to the RED, biomethane GHG values can be as low as –(minus) 95 g CO2/MJ. It means that 1 MJ of biomethane can neutralize 1,22 MJ natural gas. That gives the possibility for large variety of consumers to become climate neutral, only if the biomethane plants will be connected with the TSO grids or there are injection points available.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

No comments

##### Public Utilities Commission (Latvia)

Latvian unified natural gas transmission and storage system operator JSC Conexus Baltic Grid has developed a unique solution in the Baltics, allowing biomethane producers to deliver biomethane to a centralised biomethane entry point using special mobile gas containers to be fed into the common gas transmission system. Currently, 4 such entry point locations have been identified in Latvia. The quality of the gas entering the biomethane feed gas system must comply with the current legal framework on feed gas quality. The use of the biomethane feed-in point will be subject to the same entry tariff as any other entry point to the system (form more information see: https://www.conexus.lv/press-releases/conexus-attistis-pirmo-centralizeto-biometana-ievades-punktu-baltija). Fiscal measures would be measures of choice, but those could be combined with temporary or one-time stimuli for capital investment in infrastructure both on demand and supply side.

##### Conexus (Latvia)

A unified regional approach is suggested for biomethane utilization, particularly when not injected into the gas grid (need for harmonised off-grid renewable gas policies and approaches). While remaining cautious about using feed-in tariffs, premiums, or subsidies, as new policies, Conexus proposes directing efforts towards encouraging biomethane adoption at the consumer level. This strategic shift aims to facilitate the transition from conventional fossil fuels to renewable methane sources. In addition, introduction of tax incentives and the implementation of policy measures aimed at streamlining the process of grid injection would benefit biogas and biomethane production and utilization. Importantly, any policies or measures must be carefully designed to ensure cost-effectiveness and affordability for end-users. While governments strive to financially incentivize the adoption of renewable energy sources, we must be cautious not to unintentionally escalate energy poverty within the Baltic region. So, proposed policies should be geared towards minimizing their impact on energy costs for consumers.

##### EPHA (Estonia)

Please consider to expand sub-action 3C and add: a measure „no governmental support for such projects“ should considered.

##### Estonian Renewable Energy Association (Estonia)

Similarly to 100% renewable electricity goal for 2030 in Estonia, a goal of at least 1 TWh of biomethane produced by 2030 should be implemented with strong stress to provide local energy security. Multiple biomethane injection points to national gas grid should be developed to increase the potential area where biogas production would be economically feasible.

##### Finland biogas association (Finland)

It is important to ensure good price competitiveness of renewable gases compared to fossil gases (energy tax, something else?). The fossil energy is still too cheap. We are also lacking proper (binding) targets for the growth (production; e.g. Finland has unofficial target of having 4TWh biogas/biomethane production in 2030.). The markets of renewable gases could be improved by taken in use “virtual reginal mass-balance area”, that would enable to get off-grid production sites better in the same renewable gas markets. Now the RED2 considers the transmission grid of the EU to be same mass-balance area, but off-grid sides are considered to form their own separate mass-balance areas.

##### AS GASO (Latvia)

We have no specific comments on this matter.

#### Q12 Which are the main new policies and measures that should be implemented in the Baltic countries & Finland to stimulate hydrogen and other renewable fuels of non-biological origin?

##### Estonian Competition Authority

The production of renewable hydrogen hinges on the availability of inexpensive electricity, typically resulting from significant periods of electricity overproduction. Consequently, any policies or measures aimed at bolstering renewable hydrogen production in the Baltic countries and Finland should contemplate the facilitation of such electricity overproduction, which, although counter-intuitive from an economic perspective, could facilitate the production of hydrogen at a reasonable cost. However, the feasibility of this approach, particularly in terms of national economic viability, should be rigorously scrutinized. Furthermore, the generation of Synthetic Natural Gas (SNG) depends on a substantial supply of hydrogen. It's important to note that the energy demand for the entire process could potentially surpass the energy content of the end product, which might render mass production nonviable. Therefore, SNG may be more suitable as a niche product, utilized in specific situations where electricity or hydrogen energy cannot be conveniently used. Additionally, as hydrogen assumes a more pivotal role within the energy landscape, the cultivation of expertise in delineating clear regulatory frameworks governing hydrogen production, conveyance, and application is necessitated. This pertains to establishing regulations concerning hydrogen quality, safety protocols, and procedures for the integration of hydrogen projects into the grid network.

##### Elering (Estonia)

Hydrogen blending into methane transmission network should coordinated between Baltic-Finnish member states and allowed only together with methane injection, due to flow direction changes and the complications with gas quality that come with blending.

##### Consumer Protection and Technical Regulatory Authority (Estonia)

If hydrogen needs offshore wind parks, then where it will be? Wind parks will start soon the environmental assessments soon, it would be wise to include hydrogen to there as one possible consumer for electricity.

##### Public Utilities Commission (Latvia)

Same as in Q11, but, in addition, and given the specifics of green hydrogen production, measures supporting industrial scale wind energy production (offshore in particular) and power production using solar PV technologies in combination with hydrogen production and storage. The key to the scalability of hydrogen deployment lies in the hybrid nature of energy system, which encompasses a variety of energy saving, production and storage technologies. Nordic-Baltic Hydrogen Corridor project which will strengthen regions energy security and connect the green energy production regions in Northern Europe with the main consumption centres in Central Europe (for more information see: <https://www.conexus.lv/press-releases/sesi-gazes-parvades-sistemas-operatori-paraksta-sadarbibas-ligumu-ziemelvalstu-un-baltijas-valstu-udenraza-koridora-attistibai>).

##### Conexus (Latvia)

Important to ensure proper research and planning regarding hydrogen, its infrastructure and consumption as well. Again, priority should be not only energy source diversification and security of supply, but also economic affordability.

##### EPHA (Estonia)

Please consider to expand sub-action 3C and add: a measure „no governmental support for such projects“ should considered.

##### AS GASO (Latvia)

We have no specific comments on this matter.