Gas for Climate

Manual for National Biomethane Strategies

20th September 2022



Moderator Jan Cihlar

Managing Consultant at Guidehouse



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Agenda

10.00 - 10.10	Welcome and introduction from Gas for Climate representative
10.10 – 10.15	A new landscape of the EU energy system
10.15 – 10.35	Manual for National Biomethane Strategies
10.35 – 11.00	Q&A



Welcome from the Consortium

Gas for Climate was initiated in 2017 to analyse and create awareness about the role of renewable and low carbon gas in the future energy system. Gas for Climate is committed to achieve net zero greenhouse gas emissions in the EU by 2050.





Jeppe Bjerg Lead Development Manager Energinet



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Gas for Climate over the years



REPowerEU aims to make Europe independent from Russian gas well before 2030



- → Renewable gases play a key role in meeting the REPowerEU ambition:
 - Increase energy security and reduce dependency on Russian gas
 - Contribute to achieve energy transition objectives and speed up the implementation of climate goals
 - Alleviate part of the energy cost pressure on households and companies

Today, the EU produces 3 bcm of biomethane and 17 bcm of biogas. REPowerEU sets a target of 35 bcm of biomethane production by 2030

The EC's Biomethane Action Plan sets out measures to be taken at national and EU levels to scale up biomethane production and consumption





Speaker Silvia Yordanova

Managing Consultant at Guidehouse



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Manual for National Biomethane Strategies

10 steps to develop and implement national biomethane strategies

GAS FOR CLIMATE A path to 2050

Biomethane Production Potentials

Gas for Climate recently assessed the potential for biomethane production at each Member State's level.

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Enough sustainable feedstock is available in the EU-27 to **meet the REPowerEU 2030 target (35 bcm)** A potential of 38 bcm is estimated for **anaerobic digestion** in 2030 for EU-27 increasing to 91 bcm in 2050

A potential of 3 bcm is estimated for thermal gasification in 2030 for EU-27 increasing to 60 bcm in 2050 More biomethane potential can be unlocked by looking at additional feedstocks and technologies



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The purpose of this manual

- → The Biomethane Action Plan in the REPowerEU requests member states to build and implement a national biomethane strategy to feed into the new target of 35 bcm production by 2030.
- → Gas for Climate has compiled this step-by-step manual to support member states in developing and implementing their national biomethane strategies.
- → This manual is published in the context of the upcoming Biogas and Biomethane Industrial Partnership (BIP).

The core focus of this manual is to be **as practical as possible** – it serves as a "**checklist**" that key stakeholders in all member states can use in the development and implementation of their national strategies.









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Purpose of the manual

10 steps to develop and implement national biomethane strategies

Including best practices



Steps to complete the action with key recommendations



- A forthcoming study by Caldehouse for the EBA (dae Q4 2022) aims to identify and quantify the benefits include for samples reducing further entrained in agriculture innormal the terms of the imposed of the terms of the innormal sectors. The terms of terms of the terms of terms of the terms of te
- Denmark primarily initiated their biogas and biomethane market based on the showcase of its positive benefits. Biogas production was showcased to decrease the nitrogenous gases of the agricultural sector (livescel) and to produce a cheap heat for neighbouring communities?³¹

 Potenial estimates per Member State ave, for example, available in a July 2022 Gas for Climate paper Biomethane pro potentials in the DL, Gas for Chimes, July 2022, juliés feedback and for technology used, the location, ... 20 Meaning, low restrictions on the size of the project, the feedback and for technology used, the location, ... 21 "halo Deman, the National Resource yand Realizationes Plan", Link



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10 steps to develop and implement national biomethane strategies



GT0 small comment: steps 8-10 look back to front when the infographic is stretched out into a line... but I think it would be more confusing to flip that phase around just for this slide, so probably we just have to accept it! Gemma Toop, 2022-09-15T12:41:07.369



National Vision



To set up an overall vision of the role of biomethane in the national energy system

- → Show a clear government direction and support
- → Introduce a **favourable environment** for biomethane
- → Take 'no regret actions' to kick start the market





To analyse the Member States' situation to prepare and build a solid biomethane strategy

- → Assess and map sustainable feedstock potential in short, medium and long-term
- → Set production and consumption **targets** to directly contribute to the 35 bcm
- → Assess and plan infrastructure upgrades needed for the future of the gas grid
- → Identify existing **barriers** to biomethane production that need to be overcome



GT0 [@Silvia Yordanova] i would change the wording on the last bullet as identifying barriers itself does not incentise biomethane and the barriers are overcome in steps 6-7... something like "identify existing barriers to biomethane production that will need to be overcome" (or similar)

Gemma Toop, 2022-09-15T12:35:24.542

SY0 0 Changed Silvia Yordanova, 2022-09-15T12:38:11.607

Phase 2 Enable



To build a market framework for an accelerated development of biomethane

- → Introduce supporting **policies and financial** measures for the development of biomethane projects
- → Develop a regulatory framework to provide security to investors
- → Improve and **speed** up the permitting process
- → Implement mechanisms to enable a robust and smooth **trade and cooperation**



GT0 [@Silvia Yordanova] some suggestions - first bullet - Introduce supporting policies and financial measures for the development of biomethane projects

Gemma Toop, 2022-09-15T12:37:33.053

- **GT0 0** Also add something on permitting as that is a key point in the EC BAP Gemma Toop, 2022-09-15T12:37:57.082
- **GT0 1** Last bullet suggest to add Implement mechanisms to enable *a robust* and smooth trade and cooperation Gemma Toop, 2022-09-15T12:38:59.727

Phase 3 Mobilise



To engage all relevant stakeholders to secure acceptance and build a thriving market

- → Engage all stakeholders from early stage
- → Organise **communication campaigns** and public presentations to build public support
- → Mobilise available feedstock through awareness campaigns for farmers, industrial players and associations
- → Foster the development of a skilled and qualified workforce for biomethane plants
- → Broaden biomethane producers' business case by promoting the valorisation of digestate and biogenic CO2



How do we diversify hydrogen import to enhance energy security?

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AMO [@Chia-Yu Lin] to replace with new info for 3rd webinar Alize Michelet, 2022-09-13T15:14:50.381

Biomethane Production Potentials



Biomethane potential in 2030 sufficient to meet REPowerEU target of 35 bcm



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Overview of the manual



- 10 step manual to support member states in developing and implementing their national biomethane strategies
- The steps have a **logical flow**, but some can be done in parallel
- Member states are at different stages in their biomethane journeys and hence some will be able to make faster progress



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- LEO [@Chia-Yu Lin], do we have this figure in a better quality ? Lucie Emprin, 2022-09-13T13:58:44.923
- **GT0 0** and make it bigger, if possible. Text will be very small if viewed on a laptop screen via go to webinar Gemma Toop, 2022-09-14T09:20:40.547

Phase 1: National vision







To analyse Member States' situation to prepare and build a solid biomethane strategy

- → Assess and map sustainable feedstock potential in short, medium and long-term
- → Set production and consumption **targets** to directly contribute to the 35 bcm
- → Assess and plan **infrastructure** upgrades needed for the future on the gas grid
- → Incentivise biomethane production by identifying existing barriers



Phase 2: Enable



١	Why?	Build a market framework for an accelerated development of biomethane
		 → Support the development of projects with financial measures LE2
		→ Develop a regulatory framework to provide security to investors
		→ Implement mechanisms to enable smooth trade and cooperation



Slide 22

- LEO Propose to replace by: Financially support the development of projects Lucie Emprin, 2022-09-14T15:24:59.270
- LE1 add cooperation Lucie Emprin, 2022-09-14T15:25:08.367
- LE2 develop a regulatory framework Lucie Emprin, 2022-09-14T15:27:08.238

Phase 3: Mobilise





Why?

Engage various stakeholders to secure acceptance and build a thriving market

- → Engage all stakeholders from early stage
- → Organise communication campaigns and public presentations to build public support LE1
- → Mobilise available feedstock through awareness campaigns for farmers, industrial players and associations LE2
- → Foster the development of a skilled and qualified workforce for biomethane plants
- → Broaden biomethane producers' business case by promoting the valorisation of digestate and biogenic CO2



Slide 23

- LEO replace 'public presentations [...] support' with 'trainings, and fora to rally the public opinion" Lucie Emprin, 2022-09-14T16:09:08.550
- LE1 replace 'through' by 'thanks to' Lucie Emprin, 2022-09-14T16:10:48.211
- LE2 add installation, operation and maintenance? Lucie Emprin, 2022-09-14T16:11:24.367
- **SY2 0** I am afraid it would be too long but happy to add it if you think it is weird without Silvia Yordanova, 2022-09-15T08:20:33.262
- LE3 suggest to add Lucie Emprin, 2022-09-14T16:12:18.770
- SY3 0 Very well, I would replace "broaden" by "strengthen" Silvia Yordanova, 2022-09-15T08:15:02.580

Phase 2: Prepare

Feedstock potential assessment

- → Assess the sustainable feedstock potential
- → Identify untapped feedstock potential that should be targeted
- → Map the target feedstock potential

Production and consumption target setting

- → Define targets for biomethane production and consumption
- → Integrate the targets into the NECP and other relevant national policies and regulations

Infrastructure for system integration

- → Engage with gas grid operators to update their spatial gas grid planning based on the mapping of biomethane production potential
- → Develop a zoning approach according to infrastructure grid and assess future needs
- → Assess the need to cluster existing or new small-scale biogas plants to facilitate biomethane upgrading



Regulatory and barriers assessment

- → Absence of long-term regulatory and legal framework
- → Lack of incentives for biogas upgrading and difficulties to inject biomethane

Infrastructure for

- → The length of the permitting processitem integration
- $\rightarrow~$ Absence of national biomethane registry and guarantee of origin system

- \rightarrow Inconsistent application of European gas quality standard
- → Accessibility of waste and residue feedstock
- → Lack of support for sequential cropping
- → Farmer awareness



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Phase 2: Enable



Supporting policy

- → Define and adopt financial support measures for biomethane
- → Introduce a 'right to inject' policy
- → Define how to speed up the permitting process for new constructions as well as for the upgrading of existing plants
- → Define a cost sharing process for integration to the gas grid
- → Ensure measures to stimulate feedstocks are coherent with broader energy, agricultural, waste and environmental policies.

Market development and trading

- → Set up a robust system to monitor biomethane production
- → Set up national biomethane registry with guarantees of origin (GOs)
- → Enable cross-border biomethane trade
- $\rightarrow\,$ Promote the use of Renewable Gas Purchase Agreements (GPA).



Slide 25

- LEO Text updated with the most recent versio Lucie Emprin, 2022-09-13T14:30:53.076
- LE1 Need to replace each figures with the new ones Lucie Emprin, 2022-09-13T14:31:11.825

Phase 3: Mobilise



Public acceptance

- → Involve professional associations and unions
- → Engage local communities
- → Mitigate negative impacts of biomethane

Sustainable feedstock and capacity building

- → Raise awareness and launch training and information sessions for agricultural stakeholders
- → Research into a sustainable approach for sequential cropping
- → Leverage industrial sources of waste organic feedstock, including biowaste and wastewater
- → Leverage waste-based feedstock

Supply chain

- → Stimulate a reliable and competitive equipment supply chain
- → Provide training to ensure quality in the development, installation, operation and maintenance of biomethane plants
- → Define a legal framework for digestate valuation
- → Provide guidance how to integrate biogenic CO2 sales in the business case
- → Consider outlining research and development priorities to unlock additional production capacities and drive costs down



Slide 26

- LEO Text updated with the most recent versio Lucie Emprin, 2022-09-13T14:30:59.012
- LE1 Need to replace each figures with the new ones Lucie Emprin, 2022-09-13T14:31:20.386

Overview of the manual



IO steps to help Member States develop a national biomethane strategy



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LE0

No longer updated Lucie Emprin, 2022-09-13T14:29:37.362

Overview of the manual



Develop a national vision for biomethane

- Set out role of biomethane
- Quantify economic, social and environmental benefits
- Establish 'no regrets' targets and first auctions



Assess regional feedstock availability and biomethane production potential

- Assess theoretical feedstock potential
- Assess sustainable feedstock potential
- Deduct for existing uses
- Identify feedstocks which should be prioritized

Define biomethane production or consumption targets, set timelines, integrate this into NECP and other relevant national policies and regulations

- Define targets for biomethane production
- Define targets for biomethane consumption
- Integrate the targets into the NECP and other relevant national policies and regulations



Assess infrastructure requirements for biomethane integration to the gas system

- Develop a spatial planning and zoning approach based on feedstock
- Assess possibilities of clustering existing or new small-scale biogas plants to facilitate biomethane upgrading
- Develop a zoning approach according to infrastructure grid and assess future needs



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LE0

No longer updated Lucie Emprin, 2022-09-13T14:29:51.372

Overview of the manual



Identify existing regulatory and economic barriers that could restrict biomethane scale-up

- Analyse long-term regulatory and legal framework
- Assess the length of the permitting process
- Define the existence of national biomethane registry, guarantee of origin system and common European quality standard
- Assess the accessibility of feedstock
- Identify existing incentives on sequential crops
- Analyse farmers awareness
- Assess incentives for biomethane upgrading
- Identify barriers to inject
- Assess the coverage of the gas infrastructure



Design support and enabling measures for biomethane

- Define financial support measures
- Introduce a 'Right to inject' policy
- Define cost sharing process for integration to the gas grid.
- Facilitate permitting process for new constructions as well as for the upgrading of existing plants
- Ensure coherence with broader energy, agricultural, waste and environmental policies
- Limit the incentives for the use of natural gas to bridge the price gap between fossil gas and biomethane



Mobilize feedstock and capacity building

- Raise awareness and launch training and information sessions for agricultural stakeholders to unlock production potential
- Leverage industrial source of feedstock
- Activate waste-based feedstock
- Inform feedstock stakeholders on sustainability criteria



LE0

No longer updated Lucie Emprin, 2022-09-13T14:29:56.625

Overview of the manual



Enable biomethane market development and trading

- Set up national biomethane registry with guarantees of origin (GOs)
- Enable cross-border biomethane trade
- Set up a robust system to monitor biomethane production



Mobilize the biomethane supply chain

- Stimulate a reliable and dynamic equipment supply chain
- Provide training to ensure quality in the development, installation, operation and maintenance of biomethane plants
- Define a legal framework for digestate valuation
- Set up public-private partnerships
- Set up research and development priorities to unlock additional production capacities and drive costs down



- Engage local communities around the biomethane industry
- Mitigate negative impacts of biomethane
- Involve professional associations and unions when developing new biomethane policies



LE0

No longer updated Lucie Emprin, 2022-09-13T14:30:02.329