



## Legislative framework

<b>Country:</b>	Sweden
<b>Date start:</b>	August 2016
<b>Date finished:</b>	November 2016

## Substrate regulations

			<b>Explain restrictions and/or exceptions</b>	<b>Source of information</b>
<b>Animal byproducts (ABP)</b>	<i>Does the country apply ABP-legislation?</i>	YES/ <del>NO</del>	There is an exception for biogas plants that uses manure that comes from a small quantity of farms, where the manure is returned as digestate to the same farms. This substrate doesn't have to be hygienized. [1]	(EU) nr 142/2011  (EG) nr 1069/2009  SJVFS 2006:84
<b>Waste water treatment plants</b>	<i>Is this material allowed in biogas production?</i>	YES/ <del>NO</del>		
	<i>If yes, are there any restrictions to spreading the digestate from that production?</i>	YES/ <del>NO</del>	The sewage sludge EU-directive 86/278/EEC from 1986 regulates the spreading of sewage sludge, but Sweden has more strict regulations regarding heavy metals stated in SNFS 1994:2.	86/278/EEC  SNFS 1994:2
<b>Agricultural materials (not included in ABP)</b>	<i>Are there any restrictions for this material?</i>	YES/ <del>NO</del>	Vegetable residues used for biogas production is restricted by the Environmental Code's general rules of consideration. This means that this material is allowed in production of biomethane provided that the substrate doesn't contain toxic substances in concentrations that present a risk for future spreading on farmland. This is for the plant owner to control by analyzing the content in the substrates used in the plant. When assessing the risks one can use the limits used in the certification system SPCR 120 as a guideline. [1]	the Environmental Code's general rules of consideration
<b>Bio-waste / organic waste</b>	<i>Are there any restrictions for this material?</i>	YES/ <del>NO</del>	Household waste can include materials that are not included in ABP. The same rules apply as for	the Environmental Code's general



<b>material (not included in ABP)</b>			agricultural waste. Material that is not organic, like glass or plastic should be separated before digestion.	rules of consideration
<b>Monitoring</b>	<i>Who takes care of the monitoring of these regulations?</i>	The farmers, plant owners, The municipality, the county administration and the chemicals Inspectorate.		

### Alternative handling

				Explain restrictions and/or exceptions			Source of information
<b>What alternative handling processes are allowed?</b>	x	<b>Composting</b>	x	<b>Combustion</b>		<b>Landfilling</b>	
	<i>Another?</i>			Some animal by-products, for example manure can be spread on land as a fertiliser. Animal by-products are in some restricted cases allowed to be buried in the ground. Animal by-products can in some restricted cases be used in teaching and research. Source: SJVFS 2006:84			SJVFS 2006:84
<b>Regulations</b>	<i>Are there regulations to reduce the incentive of alternative handling? (ex. no organics allowed in landfills)</i>			YES/ <del>NO</del>	You are not allowed to put organic material on landfills.		Regulation 2001:512

### Building regulations

		Explain restrictions and/or exceptions		Source of information
<b>Guidelines</b>	<i>Are there any documents of guidelines for construction of biogas plants?</i>	YES/ <del>NO</del>	The organization The Swedish Gas Association sells a book with guidelines. These guidelines provide instructions on handling gas, permissions needed, materials to use, operation, control and maintenance. If you use these guidelines you are allowed to simplify the risk analysis of the plant. [4]	
	<i>If yes, Are they widely used?</i>	YES/ <del>NO</del>	These guidelines are created together with the industry through The Swedish Gas Association to increase the safety	



			by making sure that it is easy to understand and follow the regulations.	
	<i>Are there any documents of guidelines for the construction of systems for the produced gas? (Security, upgrading, gas pipelines etc.)</i>	YES/ <del>NO</del>	There are two more guideline books provided by The Swedish Gas Association that provides instructions for constructing gas lines (EGN 2011) and fueling stations (TSA 2015). [4]	
<b>Permission process</b>	<i>Is the permission process for small and medium scale biogas plants easier/faster?</i>	YES/ <del>NO</del>	There are different permissions depending on the size of the planed plant. The amount of feedstock and the amounts of upgraded gas affects the permission process. The smallest plants are only required to report the building of the plant to the municipality, while larger plants needs permissions from municipality and the county administration. [5]	
	<i>Describe the process:</i>		After forming the idea and making a pre-study you send out an invitation to a consultation with the affected persons and agencies. This is to make sure that these persons have had the opportunity to influence the content of the application before it is sent in, which can make the process faster. After the first consultation you make a draft for the environmental impact assessment (EIA) which is discussed at an additional consultation where a larger group of affected persons and agencies are invited. Then you write your application and attach the EIA and send it in to the permission unit at the county administration. After complementing the application (if needed) it is sent to the other agencies affected, the municipality or/and county administration. After answering their questions and complementing the application again a decision can be made. [5] Small plants that only need to report their operation, the process is simpler. For example you don't need the consultation, and you can do a smaller EIA. [5]	

## Handling of products

	<b>Explain restrictions and/or exceptions</b>	<b>Source of information</b>
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<b>Digestate</b>	<i>Are there any regulations for the spreading of digestate from biomethane production?</i>	YES/NO	<p>There is no legislation specifically for digestate from biogas plants, as long as there isn't included sewage sludge. The recommendation is to follow the legislation for spreading of liquid manure because the environmental effects are similar. The regulations for spreading of manure have increased in order to reach goals for reduced eutrophication stated in the nitrate EU-directive. The regulations are stated in SJVFS 2004:62. [1]</p> <p>There is legislation for spreading sewage sludge which also can be used as a guideline for spreading of other digestate regarding the content of heavy metals. The sewage sludge EU-directive 86/278/EEC from 1986 regulates the spreading of sewage sludge, but Sweden has more strict regulations regarding heavy metals stated in SNFS 1994:2. [2]</p>	<p>SJVFS 2004:62</p> <p>EU-directive 86/278/EEC</p> <p>SNFS 1994:2</p>
	<i>Are there any regulations for transporting of digestate from biomethane production?</i>	YES/NO	<p>When using substrates that requires hygienization before the digester you need to make sure that the produced digestate is not infected. Therefore you need to clean out the trucks that are used for transporting both substrate and digestate. [1]</p>	
	<i>Is there a system for certification of digestate from biomethane production?</i>	YES/NO	<p>It is called SPCR 120 and regulates the quality of the digestate. They measure metals, infectious agents and impurities over 2 mm. SPCR 120 regulates which substrates additives that can be used in the process. [1] Digestate from sewage sludge is not allowed in SPCR 120 but can be certified through certification system called REVAQ instead. The purpose with this certification system is to improve the quality of the sludge upstream in the sewage system. [6]</p>	
<b>Electricity</b>	<i>Do you need permission to sell the electricity on the grid?</i>	YES/NO	<p>If you in a year produce the same amount (or less) as you use you don't need any permission or pay extra fees. You need to report your</p>	



			<p>plant to the grid owner before connecting it to their grid and it's your responsibility that the installation of the plant is done by a certified installer and that you have a building permit if that is needed. If you produce more, you need to pay the grid owner a fee. [7]</p>	
<b>Heat</b>	<i>Are there regulations for selling heat?</i>	YES/NO	<p>You are allowed to connect your plant to a district heating system, if there is no risk for damaging the system. The plant owner pays for the connection and the grid owner pays for the heat. [8]</p>	District heat law 2008:263
<b>Biomethane</b>	<i>Is there a standard for using biomethane in vehicles?</i>	YES/NO	<p>The standard is called SS 15 54 38 and is restricting the methane content to 97 %. There are more restrictions stated in SS 15 54 38. [9]</p>	SS 15 54 38
	<i>Is there a standard for injecting biomethane into the grid?</i>	YES/NO	<p>The industry is follow the standard for vehicle fuel, but adds some propane to increase the heating value of the gas to match the natural gas on the grid. The company that is operating the grid has limits for the energy content. [10]</p>	
	<i>Is there a permission process for selling standardized biomethane?</i>	YES/NO	<p>You need a permit to handle flammable gases and liquids and you apply for this the municipality. You may also have to apply for a building permit. If you produce more than 1 million m3 per year you need to report this to the authorities. If you plan to store more than 50 tons of biomethane you need to report it. For storing of more than 200 tons of biomethane you need a permit. [11]</p>	

### Environmental goals

		<b>Explain restrictions and/or exceptions</b>	<b>Source of information</b>
<b>Climate</b>	<i>What are the overall goals for reducing greenhouse gas</i>	Greenhouse gas emissions not included in the emission trading system in EU should be reduced by 21 % from 2005 to 2020. The	EU:s Effort Sharing



	<i>emissions?</i>	Decision says that Sweden should reduce their emissions by 17 % from 2005 to 2020. The national goal is to reduce the emission by 40 % to year 2020 compared to year 1990. [12]		Decision, 406/2009/EG  Regulation 2008/2009:162
	<i>Are there goals for reducing the use of fossil fuels in the transport sector?</i>	There is a suggestion that Sweden should have a goal of a fossil independent transporting fleet by year 2030. [13]		
<b>Eutrophication</b>	<i>Are there goals for reducing eutrophication due to leakage of nutrients from digestate spreading?</i>	YES/ <del>NO</del>	The goal says that the leakage of nutrients to the sea has to be under the maximum amount set by international agreements and that the leakage should not have a negative effect on land and water. [14]	
	<i>If yes, how does this reflect in the legislation on spreading of digestate?</i>	There are regulations for sensitive areas where the regulations are thought to have the largest impact. These regulations are being modified continuously to reduce the leakage even more, see regulation SJVFS 2004:62, in line with the EU-directive for nitrate. [1]		91/676/EEC SJVFS 2004:62

## Economic framework

		<b>Explain restrictions and/or exceptions</b>	<b>Source of information</b>
<b>Investment</b>	<i>Are there subsidies that cover a part of the investment costs?</i>	YES/ <del>NO</del>  This subsidy is a support that you can apply for regionally. Its purpose is to stimulate local investments with high environmental benefit. This support can't be combined with green certificates. [15]  There is also a subsidy for innovative biomethane. The aim of this regulation is to support biomethane production that is not able to compete on the market yet.	Regulation 2015:517
	<i>If yes, how big is it and where do you apply for it?</i>	The regional support system has a limit of 45 % or 30 %, depending on some terms, of the investment cost connected to the connected benefit. [15]	Regulation 2015:517  Regulation



		Support for innovative biomethane has a limit of 45 % of the cost, maximum 25 million SEK. You send the application to Swedish energy agency.	2009:938
	<i>If yes, is the support larger for small and medium scale plants?</i>	YES/ <del>NO</del>	The support can be increased up to 20 percentages for small and medium sized enterprises. North Sweden has an additional 5 percentage of support. [15]
	<i>Are there other ways of financing the investment, special loans for this application?</i>	YES/ <del>NO</del>	There are banks and investors that provide green loans, or green bonds. For example the bank "Ekobanken" and "Kommuninvest"
<b>Electricity</b>	<i>Is there a feed-in tariff system for electricity produced of biomethane?</i>	YES/NO	
	<i>If yes, how is the price determined?</i>		
	<i>Is there any other support for producing electricity from biomethane?</i>	YES/ <del>NO</del>	Green certificates that you get when producing electricity from biomethane. You get one per MWh produced, that you can sell to companies that have to cover some of their usage of energy with green certificates. This is not a long term contract. The price is set by the market. The government sets the demands on the users of electricity by a system of quotas. [16]
<b>Heat</b>	<i>Is there a feed-in tariff system for heat produced of biomethane?</i>	YES/NO	
	<i>If yes, how is the price determined?</i>		
	<i>Is there any other support for producing heat from biomethane?</i>	YES/ <del>NO</del>	The regulation that enables small heat producers to sell their heat on an existing heating grid supports heat production from biomethane. [8]
<b>Biomethane</b>	<i>Is there a feed-in- tariff system for injecting biomethane into the grid?</i>	YES/NO	



	<i>If yes, how is the price determined?</i>			
	<i>Is there any support for producing/selling/buying biomethane as a vehicle fuel?</i>	YES/NO	If you produce biomethane with manure as feedstock you get 0,4 SEK/Nm3. [17]	Regulation 2014:1528
	<i>Are there taxes on fossil fuels?</i>	YES/NO	There are taxes on energy, carbon dioxide and sulphur. Renewable fuels are not included in these tax systems.	Law 1994:1776 Chapter 2: tax on energy and carbon dioxide  Chapter 3: Sulphur
	<i>Are there demands or support for making biomethane available at filling stations?</i>	YES/NO	If the filling station sells more than 1500 m3 of fuel you need to have at least one type of renewable fuel available.	Law 2005:1248  Specifically 2014:537
	<i>Are there any other support systems for biomethane as a vehicle fuel, or biofuels in general?</i>	YES/NO		
<b>SME's</b>	<i>Is there support for small and medium enterprises?</i>	YES/NO	You can apply for support up to 150 000 SEK to develop your product/service. You can also apply for support for participating in an exhibition, maximum support is then 1,8 million SEK other activities that can apply for support are for example education, collaborations and innovation clusters.	Regulation 2015:210

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