



BIOGAS IN IRELAND



Reducing our emissions, improving our environment,
creating employment in rural Ireland and
producing a sustainable energy source



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Brian Stanley TD and constituency worker Trish Ryan visiting Biogas plant in Nurney Co. Kildare



1. Foreward

Sinn Féin want to see a biogas industry develop which will help reduce greenhouse gas emissions, reduce pollution of water courses and reduce our dependence on imported fossil fuels. It would also generate jobs and improve farm incomes. It will further provide a sustainable method of dealing with waste and add to security of supply.

The State has neglected to utilise a broad range of renewable energy resources and has not developed beyond intermittent renewable sources of energy such as wind. In terms of Biogas plants or (Anaerobic Digesters or AD's) this State is considerably behind. **The EU Commission have highlighted Ireland as one of the best States for Biogas potential**¹. Contrast this with Germany where there are over 8,000 plants or Britain where there are over 600. Presently we have no biogas plants in place that supply the gas grid, with the first to become operational in March/April.

Biogas is an indigenous energy source that can reduce our emissions, is sustainable and will create jobs in rural Ireland. It is derived from waste products, such as animal slurry, crop residue, rotation crops and food waste. This is used to generate a renewable gas with by-products including bio-fertilizer and CO₂ for industry.

We have a large farming sector in this State. There are currently problems with waste and emissions, coupled with low farms incomes. The production of biogas could provide an income stream for farmers, create a renewable form of energy and help solve some of the farm waste issues.

To be realistic in our move away from fossil fuels on the island we will need diverse forms of indigenous renewable energy. Gas Networks Ireland (GNI) has declared their intention to support 20% of Ireland's gas demand with biogas by 2030. GNI state: *"If all of this 20% were converted to electricity it would produce c.5,300 GWh of renewable electricity. This is nearly as much as 2/3 of the total amount of renewable electricity produced in Ireland by all other renewable sources in 2015"*². Biogas can be used by several different sectors (Commercial Heat, Residential Heat, CNG Transport, as well as Gas Power Generators).

Alongside both the environmental benefits and the farm income benefits, the production of indigenous renewable gas would add to our security of supply on the island. It provides for a sustainable, indigenous energy for heat when injected into the mains gas grid, transport when used in natural gas vehicles (primarily buses, trucks and vans) or used for electricity production. All of this from an energy produced from waste.

1 EU Commission March 2017 *"Optimal use of biogas from waste stream. An assessment of the potential of biogas from digestion in the EU beyond 2020"*
2 Renewable Gas Forum Ireland Submission to RESS Consultation 2017.

2. Sustainability/Climate Change

Electricity generation in Ireland relies heavily on natural gas, with 43% of our electricity generated from natural gas in 2015. We are falling short in terms of reducing our greenhouse gas emissions where we are expected to reach a 4-6% reduction compared to a 20% reduction which is required under our EU obligations for 2020. We will also fall short in terms of developing more renewable energy production for 2020. **The State will face substantial fines for not reaching these targets.** A diverse and wide ranging portfolio of indigenous renewable energy sources is needed to reduce our emissions and maintain security of supply. Biogas must form part of this portfolio of energy sources.

SEAI state that biogas created in an Anaerobic Digester (AD) would cost between 3cent/kWh and 12cent/kWh of gas (depending on the input feedstock). This would allow existing Gas Power Stations (CCGTs) in the State with biogas to compare favourably with other sources of renewable electricity that are considered suitable for base load and dispatchable power generation (such as we have at present with coal and natural gas).³ This could allow existing power stations, which have already been paid for, to become users of and support renewable energy. This renewable baseload and dispatchable power could complement the intermittent nature of other sources of renewable energy such as wind and solar.



3 Renewable Gas Forum Ireland submission to RESS Consultation 2017.

3. Employment



Economic development in the State has been skewed towards Dublin with rural Ireland suffering substantially in this shift. A crucial element of the development of biogas, notwithstanding the environmental benefits, is the potential for job creation in rural Ireland. The majority of the current output of renewable energy in the State is through onshore wind. There has been limited use of other resources to help move the State away from fossil fuels imports. The State's energy import dependency increased to 88% in 2015 (from 85% in 2014). The cost of all energy imports to the State was approximately €4.6 billion in 2015. Some of these substantial monies could remain within our own economy, particularly the rural economy creating jobs through an indigenous energy source. The SEAI estimated that biogas plants have the potential to provide over 3,000 jobs.⁴ This is not including jobs in the construction phase of projects.

There is currently a biogas pilot project with funding from Gas Networks Ireland in Nurney Co. Kildare. This has 9 people employed and it is due to connect its gas to the grid in March/April 2018. It already uses biogas to produce some electricity and is supplying 1.2 MW to the electricity grid. The gas also provides heat and power to the adjacent pig farm which also supplies the slurry for the AD plant. This plant demonstrates directly the diverse potential for biogas in that it produces electricity, uses the waste from the adjacent farm and will be also supplying renewable gas to the grid. Along with farm waste this plant also uses catering waste that would otherwise go to landfill.

4 SEAI: Assessment of Cost and Benefits of Biogas and Biomethane in Ireland June 2017. <https://www.seai.ie/resources/publications/Assessment-of-Cost-and-Benefits-of-Biogas-and-Biomethane-in-Ireland.pdf>

4. Rural Ireland and Farm Incomes



Without rural Ireland we would not have the current renewable energy capacity. This has materialised in an almost complete concentration on onshore wind. While welcome as a source of renewable energy playing an important part in our energy mix it has brought limited economic benefit to rural Ireland. Biogas facilities offer the potential for energy production at community level and creating sustainable employment.

Biogas could provide a diverse and long term revenue stream for the Irish farming community.

Small scale biogas plants may also be an option in terms of energy self-sufficiency which have been developed in other States. The possibility of co-operatives being developed among smaller farmers should be encouraged. With the development of biogas plants there is no requirement to be on the natural gas grid network. The pilot project in Nurney Co Kildare has the gas produced compressed on site into gas transportation trailers and driven to the nearest suitable grid entry point a few kilometres away.

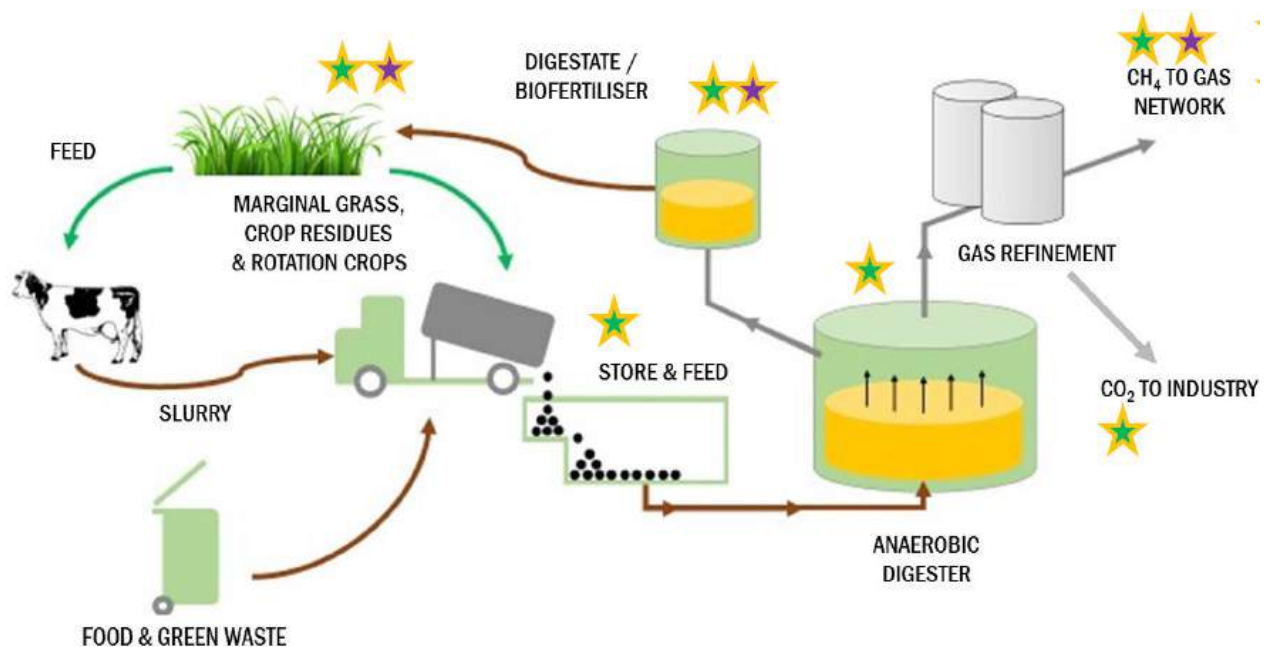
Alongside the gas produced for renewable energy there are additional by-products that provide an added revenue stream. These include green CO₂, a high value gas used in many industries of which Ireland is a large importer. Another by-product is a bio-fertilizer which could displace imported fertilizers. This bio-fertilizer can be in solid or liquid form. With solid bio-fertilizer this has the benefit that it can be spread on land at any time of year unlike wet slurry. This avoids the problem of effluent seeping in the streams, rivers and lakes and could help to address the current difficulty in regard to the high concentration of slurry being spread on land.



5. Waste to renewable gas

The sustainable production of renewable energy from the biogas obtained from agricultural residues can be combined with the food and beverage industry waste streams. These waste products can now be put to a sustainable use, developing an indigenous renewable energy source and diverting waste away from landfill. *“A key benefit of this improved management is a reduction in the greenhouse gas emissions associated with the management of the wastes”⁵*. Marine algae and abattoir waste may be further utilised. **Biogas lends itself to developing the circular economy, reducing waste going to landfill and incineration and reducing the costs involved in terms of our environment.**

Typically a facility requires 33% - 50% slurry, 33% crops and 33% crop residues, grass or agri-food industry waste. Grass silage, sugar beet are some of the various products that can be used. A multitude of various kinds of catering waste can also be used along with green household waste.



5 SEAI: Assessment of Cost and Benefits of Biogas and Biomethane in Ireland June 2017. <https://www.seai.ie/resources/publications/Assessment-of-Cost-and-Benefits-of-Biogas-and-Biomethane-in-Ireland.pdf>



6. Conclusion and Way Forward

Whatever the potential use of biogas, whether for heat, electricity generation or transport, a tailored support scheme could be applied to each end use energy form.

Going forward supports for renewable energy in terms of electricity production need to encompass a diverse renewable energy portfolio. Biogas could be a form of renewable energy used to complement the intermittent nature of wind and solar. We have through the Public Service Obligation (PSO) levy concentrated almost exclusively on onshore wind. This also supports peat through security of supply policy. With the phasing out of peat by 2030 we need to consider the different alternatives to that indigenous energy source.

If a biogas industry is to develop, a government support needs to be created for this to compete with imported fossil fuels and to grow. In Budget 2018, just €7m was allocated for the proposed 'Renewable Heat Incentive'. However within this there is no specific commitment to develop biogas but allowing only for it to be examined. Incentives in terms of heat when used in the gas grid could be through a guaranteed feed in tariff, (e.g a set per kWh payment for the energy supplied).

In establishing a multitude of AD's throughout the State one method could be to create co-operatives, where smaller farmers can be supported to come together to invest in this technology that will provide a long term income. A grant scheme could be provided for such initiatives.

In biogas we have an energy source completely neglected by the State, which has the potential to provide for heat, electricity or transport fuel. **A very small amount of biogas is currently used to generate electricity. This should be increased on a much larger scale.** Many options are available in this regard. For instance we can consider the use of biogas in existing gas fired power stations. Also the coal fired Moneypoint Plant in Co Clare is coming to the end of its operating life in 2025, other options for the plant are being considered. The feasibility of converting the plant to gas, to use only biogas should be considered.

With potential usage of biogas in so many energy consuming areas (transport, heat and electricity production) from a security of supply, environmental and rural jobs perspective, Sinn Féin believe it is vital a government strategy with sufficient supports is put in place to develop this industry.



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