EnAlgae policy landscape analysis for

Ireland

Landscaping of national policies of Ireland that can have an impact in algae cultivation revealed a number of strategies, mandates, and economic incentives for biomass energy and green economy. Many of the identified policies are in fact response mechanisms to EU-level overarching strategies and targets. Nevertheless, each country can set its own priorities and strategies in order to reach EU targets.

The Irish market has a long history is harvesting wild seaweed and using it for production of food, feed, and products for many decades. Production of Energetic Algae (or algae for production of fuels and energy) is a concept under development in Ireland. Yet seaweed is considered a strategic marine biomass resource. For example, In Harnessing Our Ocean Wealth Plan (2012), seaweed is highlighted as an important resource for production of a variety of market products like food and bioproducts and bioenergy, and the Irish Government plans to strategically support algae R&D and algae business creation nationwide. Nevertheless, apart from this strategy, the grand majority of existing bioenergy and environmental strategies were not found to be actively supportive to energetic algae. To identify policies that could affect energetic algae, research was focussed on generic biomass, bioenergy and environmental strategies.

With regard to energy targets, Ireland has a primary obligation set in the EU Renewable Energy Directive (RED) to source 16% of its energy use from renewables by 2020, including 10% of transport. In response to RED targets, Ireland plans to source 42.5% of electricityand 12% of heating and cooling energyconsumption from renewable sources.Ireland sees renewable energies as a part of an overarching Green Economy development strategy. Main targets in Irish policy are reduction of GHG emissions, increasing the share of renewables in the energy mix and job creation. For reaching these three targets Ireland strategically supportsinnovation and technology uptake activities for anaerobic digestion, biomass CHP, biomass combustion, biomass co-firing, and transport biofuels, as well as technologies that increase energy efficiency, and recover waste and wastewater. All these energy technologies have strong potential to integrate with algae at many levels.

Ireland plans to support all these strategic energy technologies by providing financial support to new investment, funding R&D, and incubating clusterization of industries, with universities, and public organizations among other measures. Further on, uptake of strategic energy technologies is supported mainly by feed-in tariffs schemes, green certificates, tax regulations, and mandated quotas.

In the case of green transport, biofuel quotas are eligible to purchase tradable green certificates. When biofuels are produced from biodegradable waste, residue, non-food cellulosic material, lignocellulosic material, or algae, the volume of biofuel counts as double and thereby receives double financial support.

In the following section findings from landscape analysis of Ireland legislation are listed by topic. First presented are the overarching strategies and acts, which are then followed by targeted incentives.

# General Policy Framework

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| Policy | Key Measures/Aims |
| Sustainable development – A strategy for Ireland[[1]](#footnote-2) 1997 | The principal purpose of the Strategy is to provide a comprehensive analysis and framework which will allow sustainable development to be taken forward more systematically in Ireland. It considers forestry, marine environment, industry, energy, transport and tourism.  |
| Bioenergy Action Plan 2007[[2]](#footnote-3) | The bioenergy action plan outlines a range of measures, across a number of relevant government departments, introduced or to be introduced, in order to increase the uptake of renewable energy in Ireland. Measures include, for the electricity sector, setting a target of 33% renewable electricity by 2020, expanding the REFIT scheme to ensure 30% co-firing in peat power stations by 2015 and extending the REFIT scheme to facilitate waste to energy projects. For the transport sector, a biofuel target of 5.75% was set for 2010, and 10% for 2020. A biofuel obligation scheme was planned to help deliver 2010 and 2020 targets. A target of 5% renewables in the heating sector by 2010 was set, increasing to 12% by 2020. Increased support for renewable heat was announced for the commercial sector, including support for solar and wood chips.  |
| National Climate Change Strategy 2007 to 2012[[3]](#footnote-4) | This builds upon the first National Climate Change strategy of 2006. It sets out how Ireland will meet its 2008-2012 commitment. It will identify the implications of these measures and what other methods are being researched and developed to meet a 2020 commitment. It has a cross sectorial approach to addressing climate change, and includes measures in the Energy White Paper and Budgets.  |
| Delivering a Sustainable Energy Future for Ireland[[4]](#footnote-5),[[5]](#footnote-6) - Energy White Paper | Sets out the Irish governments targets for renewable electricity, heat and biofuels by 2010 and 2020. Renewable Energy generation was planned to contribute 15% by 2010 and 40% by 2020 to total electricity generation, biofuels had targets of 3% by 2010 and 10% by 2020 of total transport fuels supplied, renewable heat 5% by 2010 and 12% by 2020. For biomass electricity specifically, a target of 30% biomass co-firing at three state-owned peat power generation stations was set by 2015.  |
| Building Ireland’s Smart Economy- A Framework for Sustainable Economic Renewal [[6]](#footnote-7) 2008 | The strategy is to: • Address the current economic challenges facing the Irish economy by stabilising the public finances, improving competitiveness, assisting those who lose their jobs, and supporting Irish business and multinational companies; •Invest heavily in research and development, incentivise multinational companies to locate more R&D capacity in Ireland, and ensure the commercialisation and retaining of ideas that flow from that investment; •Implement a ‘new green deal’ to move Ireland away from fossil fuel-based energy production through investment in renewable energy and to promote the green enterprise sector and the creation of ‘green-collar’ jobs; •Develop first-class infrastructure that will improve quality of life and increase the competitiveness of Irish business.  |
| National Renewable Energy Action Plan - 2009[[7]](#footnote-8) | Ireland’s overall target is to achieve 16% of energy from renewable sources by 2020. The NREAP indicates the measures by which this target will be met. The Government has set a target of 12% renewable heat, 10% biofuels and a target of 42.5% electricity consumption from renewable sources by 2020. |
| Developing the Green Economy in Ireland - Key Actions[[8]](#footnote-9) - 2009 | The green economy can make a significant contribution to Ireland’s economy by creating employment and export opportunities in areas such as renewable energy, energy efficiency and consultancy, waste management, recovery and recycling, and water and wastewater treatment. What’s required to deliver the opportunity? 1)Promote green sectors that can drive exports and jobs in Renewable energy, energy efficiency, waste, water and wastewater; 2) Create world-class research centres in niche areas;3) Developing the Green Economy in Ireland4) Remove basic hurdles to the green economy. |
| Harnessing Our Ocean Wealth Plan 2012[[9]](#footnote-10) | This is an Integrated Marine Plan (IMP), setting out a roadmap for the Government’s vision, high-level goals and integrated actions across policy, governance and business to enable marine potential to be realised. Implementation of this Plan will see Ireland evolve an integrated system of policy and programme planning for our marine affairs. Three high-level goals, of equal importance, based on the concept of sustainable development have been developed. Goal 1 focuses on a thriving maritime economy, whereby Ireland harnesses the market opportunities to achieve economic recovery and socially inclusive, sustainable growth.Goal 2 sets out to achieve healthy ecosystems that provide monetary and non-monetary goods and services (e.g. food, climate, health and well-being).Goal 3 aims to increase our engagement with the sea. Building on our rich maritime heritage, our goal is to strengthen our maritime identity and increase our awareness of the value (market and non-market), opportunities and social benefits of engaging with the sea.Seaweed is highlighted as an important resource for production of a variety of market products like food and bioproducts, and is planned to be strategically supported by Irish Government for R&D and business creation in Ireland. |
| Our Sustainable Future - A framework for sustainableDevelopment for Ireland[[10]](#footnote-11) 2012 | The overall aim of Our Sustainable Future is to provide for the integration of sustainable development into key areas of policy, to put in place effective implementation mechanisms and deliver concrete measures to progress sustainable development. The objectives of the Framework are to:• Identify and prioritise policy areas and mechanisms where a sustainable development approach will add value and enable progress towards the strategy aims.• Highlight and promote existing sustainable practices that, with the correct support, can underpin sustainable development more generally.• Strengthen policy integration, coherence and co-ordination and bring a long term perspective to decision making.• Set out governance mechanisms which ensure effective participation within government and across all stakeholders.• Set out clear measures, responsibilities and timelines in an implementation plan.• Set out how progress is to be measured and reported on through the use of indicators.• Incorporate adequate and effective monitoring, learning, and improvement, into the Framework process. |
| Action Plan for Jobs 2012[[11]](#footnote-12) | The Action Plan for Jobs is a plan designed to help rebuild Ireland’s broken economy, through reform and innovation to fulfil the ambition to have 100,000 more people in work by 2016 and 2 million people in work by 2020. This is not a strategy document, it is a working document.The Action Plan for Jobs will address seven principal areas:* Building competitive advantage – Innovation, Costs, Skills & Infrastructure
* Supporting indigenous start‐ups
* Attracting inward entrepreneurial start‐ups
* Exploiting sectorial opportunities, including in manufacturing, Green Economy, Agri‐Food, Business Process Outsourcing/Shared Services, Education Services, and Construction among others.

For meeting its targets, the plan prepares a list of actions that need to be set, like among other measures:* Building a new Green Economy framework,
* Support the development of new market products,
* Seek to attract a new range of “green” related financial products and services to Ireland,
* Support clustering and other industry‐led initiatives to increase collaboration among Irish companies and multinationals, academic institutions and State bodies to develop opportunities in emerging sectors, like water and wastewater treatment and energy management,
* Focus public investment in research and development so as to build critical mass in a number of areas of direct relevance to the Green Economy.
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# Power Generation

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| Policy | Ambitions | Policy Measures | Financial Incentives |
| Renewable Energy Feed in Tariff (REFIT3)[[12]](#footnote-13) | Aims to incentivise the addition of 310 MW renewable energy to the Irish electricity grid.  | REFIT 3 offers support for biomass categories including anaerobic digestions, biomass CHP, biomass combustion and biomass co-firing. Parasitic energy demand is not supported. Projects must be operational by the end of 2015. The support for any particular project cannot exceed 15 years and may not extend beyond 31/12/2030. REFIT 3 covers 310 MW of certain biomass-related categories, divided as follows: 50 MW of anaerobic digestion (including AD CHP), 100 MW of biomass CHP, and 160 MW of biomass combustion (including biomass co-firing with peat)  | Ensure a guaranteed price for each unit of electricity exported to the grid by paying the difference between the wholesale price for electricity and the REFIT price. AD-CHP ≤ 500 kW €c 15.7/kWhAD-CHP > 500 kW €c 13.63/kWhAD (non CHP) ≤ 500 kW €c 11.53/kWhAD (non CHP) > 500 kW €c 10.48/kWhBiomass-CHP ≤ 1500 kW €c 14.68/kWhBiomass-CHP > 1500 kW €c 12.58/kWhBiomass (non CHP) combined with energy crops €c 9.5/kWh; and with other biomasses€c 8.91/kWhTariffs are altered annually in line with inflation (CPI).  |
| Tax regulation mechanisms (Taxes Consolidation Act 1997)[[13]](#footnote-14) | The scheme aims to facilitate the growth of electricity generation capacity using RES. | Tax relief scheme for corporate investments in certain renewable energy projects (such as solid biomass for electricity). It has been periodically extended and was recently extended until 31 December 2014. The scheme is open for applications on a continual basis. | The tax relief is based on part or the entire sum invested by a company in new shares of a renewable energy project. The capital expenditure, for the purpose of calculating the amount admissible for the tax relief, is capped at 50% of such expenditure (excluding lands) or at €9.5 million on any individual project, whichever is the lesser. Additionally, investments by a company or group are capped at €12.7 million per annum and the shares shall be held for at least 5 years by the corporate investor, otherwise the tax relief shall be withdrawn. |
| Bio-Energy Scheme[[14]](#footnote-15) (2010) | The aim is to increase the amount of Miscanthus and short rotation coppice grown in Ireland which could be used for production of bioenergy (heat and energy). | The current scheme (2010-2012) provides establishment grants to overcome some of the costs associated with ground preparation and planting energy crops. The minimum allowable area per applicant is 3 hectares and the maximum is 30 hectares.  | 50% of the approved costs associated with establishing the crop, subject to a maximum payment rate of €1,300 per hectare, with the balance to be invested by the applicant. Also eligible for EU energy crop premium and single farm payment.  |
| RES-H building obligations[[15]](#footnote-16) |  | New buildings are required to comply with renewable energy requirements of Part L of the Building Regulations, contributing to the renewable heat target. New dwellings, a reasonable proportion of the energy consumption to meet its energy performance shall be provided by renewable energy sources.The Building Regulation Technical Guidance Document 2011 refers to the minimum level of renewable technologies to be used in order to comply with regulation L3 (b) as follows: 10 kWh/m2/annum contributing to energy use for domestic hot water heating, space heating or cooling; or 4 kWh/m2/annum of electrical energy; or a combination of these which would have an equivalent effect.  |  |

# Biofuels

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| Policy  | Ambitions | Policy Measures | Financial Incentives |
| Biofuels Obligation Scheme (BOS)[[16]](#footnote-17) | Obligated companies should ensure that biofuels make up 4%v/v of transport fuels on the market. The proportion of biofuels in the fossil fuel mix will increase over time, to 8% v/v from start 2015; 10% v/v from start 2018; and 10.5% v/v from 2019. | One Biofuel obligation (BOS) certificate will be issued with every litre of biofuel. Two BOS certificates will be issued for every litre of biofuel meeting the criteria of the scheme produced from biodegradable waste, residue, non-food cellulosic material, ligno-cellulosic material or algae. Obligated parties with a shortfall in BOS Certificates may purchase surplus certificates from other parties in order to fulfil their obligation. Since 1st February 2012, sustainability criteria, as set out in the RED apply to biofuels[[17]](#footnote-18).  | BOS certificates can be traded on the market. 'Buy-out price' or penalty for suppliers not meeting their obligation will be €0.45 per certificate not achieved. A levy of €0.02 per litre both for mineral oil and biofuels is payable to National Oil Reserves Agency (NORA). |

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2. <http://www.teagasc.ie/energy/Policies/BioenergyActionPlan.pdf> [↑](#footnote-ref-3)
3. [http://www.environ.ie/en/Publications/Environment/Atmosphere/FileDownLoad,1861,en.pdf](http://www.environ.ie/en/Publications/Environment/Atmosphere/FileDownLoad%2C1861%2Cen.pdf) [↑](#footnote-ref-4)
4. <http://www.dcenr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/30374/EnergyWhitePaper12March2007.pdf> [↑](#footnote-ref-5)
5. <http://www.teagasc.ie/energy/Policies/IrishEnergyPolicyWhitePaper.asp> [↑](#footnote-ref-6)
6. <http://www.taoiseach.gov.ie/attached_files/BuildingIrelandsSmartEconomy.pdf> [↑](#footnote-ref-7)
7. <http://www.dcenr.gov.ie/NR/exeres/0B956228-14AC-4BA0-B795-EDD53EBA19FB.htm> [↑](#footnote-ref-8)
8. <http://www.djei.ie/publications/trade/2009/developing_the_green_economy_in_ireland_key_actions_02.12.09.pdf> [↑](#footnote-ref-9)
9. <http://www.dcenr.gov.ie/NR/rdonlyres/FE4B123A-94AC-451E-B80A-E8F9BD079E3D/0/HarnessingOurOceanWealthReport.pdf> [↑](#footnote-ref-10)
10. [http://www.environ.ie/en/Environment/SustainableDevelopment/PublicationsDocuments/FileDownLoad,30454,en.pdf](http://www.environ.ie/en/Environment/SustainableDevelopment/PublicationsDocuments/FileDownLoad%2C30454%2Cen.pdf) [↑](#footnote-ref-11)
11. <http://www.djei.ie/publications/2012APJ.pdf> [↑](#footnote-ref-12)
12. <http://www.dcenr.gov.ie/NR/rdonlyres/718E8541-7ADD-4FB2-A471-B6081C435625/0/REFIT3BiomassTermsandConditions2012.pdf> [↑](#footnote-ref-13)
13. <http://www.res-legal.eu/search-by-country/ireland/single/s/res-e/t/promotion/aid/tax-regulation-mechanisms-taxes-consolidation-act-1997/lastp/147/> [↑](#footnote-ref-14)
14. <http://www.agriculture.gov.ie/farmingsectors/crops/bioenergyscheme/> [↑](#footnote-ref-15)
15. <http://www.res-legal.eu/search-by-country/ireland/single/s/res-hc/t/policy/aid/res-h-building-obligations-12/lastp/147/> [↑](#footnote-ref-16)
16. <http://www.nora.ie/regulations_legislation/biofuels_obligation_scheme.450.474.html> [↑](#footnote-ref-17)
17. <http://www.irishstatutebook.ie/2012/en/si/0033.html> [↑](#footnote-ref-18)