

# Submission with respect to the Draft Regional Spatial and Economic Strategy

## Carbon Sole Group



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Dear Assembly Members,

The following is a submission by Carbon Sole Group Ltd (CSG) with respect to the Draft Regional Spatial and Economic Strategy, 19th November 2018 to the 8th February 2019.

Carbon Sole Groups (CSG) submission focus is based on incorporating a Renewable Energy Development Strategy to support low carbon economic development and employment growth, based on mapping local and regional natural resources, infrastructure and energy demands.

There are number of key observations to please take into consideration:

1. What are the available natural resources on a County Level (Forestry, Wind, Solar, Wave/Tidal)
2. Under County Development Plans make it a requirement to map resources and optimum locations to develop a mix of green energy technologies to create low carbon economies.
3. What is the energy demand in each County?
  - a. Map the energy and heat demand centres, these are the larger towns with industry or industrial/commercial estates. County Towns are generally larger with industry and a concentration of electrical and heat demand, suited to Biomass CHP.
  - b. Smaller satellite towns may be more suited to woodchip boilers (heat only) and other renewable energy investments.
  - c. County Plans must map the energy demands and suitable locations for supporting investment in sustainable green energy under development plans and spatial strategy planning.
4. What infrastructure is in place and must be reinforced or developed:
  - a. Access to forestry. More importantly designation of lands suited to increase afforestation to meet national targets and sustain local County energy demands and future growth.
  - b. Incorporation of mix of woodlands. Hard wood forests and greenways alongside commercial forestry to create a more acceptable mix for locals.
  - c. Amalgamation of smaller private forestry holdings when harvested into larger co-operative holdings, making them more commercially viable, reducing thinning and harvesting costs and increasing returns to farmers. But also incorporating planning for road access.
  - d. Electricity generators located in areas suited to demand and use of energy, e.g.:
    - i. Biomass CHP with DHN in proximity to towns to enable distribution of electricity and heat to the town, delivering a low carbon economy.
    - ii. Wind Turbines in areas of high wind and access to grid
    - iii. Solar in areas of optimum solar conditions and grid access.

Carbon Sole Group has assessed over 20 locations along the Atlantic corridor in determining the most suitable locations for Biomass Combined Heat and Power with District Heating Networks. A heat demand centre is a



linear concentration of heat demand that can be met through investment in Biomass Combined Heat and Power (CHP) and District Heating Network (DHN) piping the hot water to users to heat space and water. The primary focusing being to decarbonise large industry, commercial and public sector heat users (Oil and Gas) and substitute with cheaper green heat in phase 1 and then expand to the rest of the town, commercial and residential in phase 2 and 3.

To meet the biomass fuel demand and sizing of a CHP and DHN it is important to locate in proximity to forestry and the utilisation of forest harvest waste, tree tops, stumps, pulp wood and saw mill residues. Various publications by the WDC support the supply availability and demand for renewable ehat in the region. WDC Publication Using Biomass to Contribute to the National Heat Target: <https://www.wdc.ie/wp-content/uploads/Study.jpg>

Currently CSG is progressing with two projects:

1. Sligo City Combined Heat and Power Plant with District Heating Network
2. Shannon Town CHP & DHN

Both operations are sized the same with the same industrial, commercial and public sector thermal energy demand. The woodchip biomass will be supplied from regional forestry, generating green electricity and heat to be distributed to each town, supporting regeneration, sustainable development and growth.

There are number of other sites in the North-West Region that are suitable for investment and decarbonisation.

This investment in embedded renewable energy infrastructure delivers on environmental objectives toward establishing a low Carbon Economies, meeting current and future sustainable development, attracting further FDI through carbon neutral energy supply, while meeting companies corporate social & environmental responsibility.

CSG has made number of submissions under Local Area Plans, County Development Plans and Renewable Energy Strategies through Sligo & Clare County Councils. The latter has implemented a defined renewable energy strategy to Decarbonise County Clare, mapping and zoning land under LAPs and County Development Plans suitable for green energy enterprise and investment. Identifying heat demand centres; land use suited to planting of short rotation crops and commercial forestry to support supply and future sustainability and growth; areas of high wind and solar activity; an integrated framework for the development of the Shannon estuary with Kerry and Tipperary Municipalities defining areas of the estuary suited to economic development, tidal/wave energy, tourism and conservation. This provides clear guidance and support when investing in design and planning for renewable energy investments in a region.

To deliver a low carbon strategy CSG would welcome an integrated and coherent regional spatial and economic strategy that Municipalities could refer to when defining future development plans that support low carbon economic development, taking into consideration the available mix of renewable energy technologies and the suitability of each technology based the energy demands of the County, its towns and environs

A green energy strategy must include energy profiling and demand, identifying suitable zoning of land for green energy production to deliver the required embedded energy infrastructure, such as a district heating network, that is sustainable for 40+ years well beyond a subsidy period. T

The strategy should recognise the potential of green energy technologies to substitute fossil fuel use toward decarbonising the local economy and delivering on a sustainable future supporting the growth and development of County Towns and environs.

CSG has assessed the use of heating fuels used in Sligo town and has mapped areas of heat use for conversion to green clean district heating on a phased basis. Over the last number of years, the company has:

- *Studied the thermal energy requirement and renewable energy potential of the City, Industrial, Public Sector, Commercial and Residential Heat Demand and use of fossil fuels.*
- *Designed an environmentally sustainable approach to renewable energy development and delivery to the City through Biomass Combined Heat and Power with District Heating*
- *Supported the development through local biomass supply potential, supplemented by imports through Sligo Port (Low draft 5,000 tonne shipments) until local supply is consolidated and meets requirements.*

Carbon Sole would welcome the integration of an underlying Green Energy strategy to support the achievement of the objectives in a managed transition to the use of renewable energy technologies in delivering increased air quality, sustainability and growth.

### **Core Strategy**

Consistent with national and regional policies, renewable energy strategy to focus on the further development of Sligo City and other County Towns as a Gateways and economic drivers of the North-West region.

Sligo was chosen as an optimum location for number of reasons but one of the key drivers was the designation as the Gateway Town to the North-West, under the previous National Spatial Strategy. A key zoning for driving economic development for the North West Region.

### **There is a need to implement an over-riding Green Energy Strategy and objectives, including:**

- Define a clear requirement to regenerate Towns in the North-West Region through renewable energy investment with a specific focus on the substitution of fossil fuels used and the delivery of green energy infrastructure.
- The identification and appropriate zoning of sites most suited to attract investment in green energy development based in operational requirements and energy delivery, supporting investment and expansion of energy infrastructure such as District Heating.
- The decarbonisation of the Towns, with a focus on meeting Industrial and Commercial corporate social responsibility demands for sustainable energy, both electricity and thermal.
- Sizing of energy developments based on current energy demand and future growth and sustainability to attract FDI/employment.
- The provision of community (hospital, nursing homes, schools) and residential based renewable energy, delivering regeneration to existing and new schemes.

The above green energy strategy complements the National Planning Framework “Ireland 2040 - Our Plan” the successor to the National Spatial Strategy (NSS). With no explicit reference to Sligo’s regional significance in the draft NPF, even though Sligo is the most obvious large regional town that should be supported to achieve its potential in terms of employment and population growth, in parallel with infrastructural development and regeneration of the town centre. Letterkenny and Donegal Town not having access to gas networks are also suitable for substantial Biomass CHO and DHN green energy investments.

The NWRA published an Issues Paper as a first step in the development of a Regional Spatial and Economic Strategy. The Paper identifies Sligo as a “City Region”, on the same level as Galway and Letterkenny-Derry in the urban hierarchy of the Northern and Western Region.

**Green energy infrastructure (DHN) investment and development is a key objective under NPF/NSS for the development of Sligo City and Environs.**

Implementing a strategy that offers future sustainability and growth, a Gateway City that offers industry security in energy pricing that is not prone to international fossil fuel prices, carbon offsets and taxes. Supported by a regional biomass and energy supply model.

**An over-riding green energy development plan strategy addresses the issues referred to under economic development:**

- Increasing Sligo’s ability to attract investment in green energy
- Decarbonisation of Sligo City will attract other FDI and increase employment opportunities
- Delivering green energy infrastructure to sustain future economic development.

Municipalities/County Councils Development Plans:

- Implementing a LAP with defined Zoning that supports Planning for green energy investment that is vital for sustained economic development while delivering a low carbon economy. Attracting increased FDI and employment.
- A County regional support plan, that includes mapping of heat centres (that can be decarbonised through community based green energy investment, solar, biomass heating systems) and
- Suitable land use for planting of renewable energy crops; commercial forestry, short rotation crops such as willow. Supporting rural development and family farm income and local supply chain development.

A land use plan with strong economic development policies regarding the above is a pre-requisite for future economic growth and employment. The above being in line with the multi-pronged approach as identified in the plan as stated hereunder:

**Observations: A multi-pronged approach, involves the following key elements:**

- Ensures that North-West Cities, Towns and Environs attract investment while offering a good quality of life to those who live and work here:
  - Through decarbonisation and security of green energy supply
- Provides support for the provision of essential embedded green energy infrastructure:
  - Through Biomass CHP and District Heating Networks (DHN). The most energy efficient system, compared to standalone wood chip boilers.
- Reserve sufficient land in suitable locations for industry and enterprise uses;
  - Zoning for delivery of CHP and DH
- Mapping of land use on a County level to meet forestation targets and sustainable supply of biomass to meet renewable heating targets.
- Mapping of land use for other renewable energy technologies.

Carbon Sole would welcome the identification of the need for additional land area to support further attraction of Green Energy Investment, FDI, Industry and enterprise

## **As a developer of Biomass CHP and District Heating, Carbon Soles considerations are mainly in respect of Green Carbon Free Energy Investment and Delivery**

### **Biomass Combined Heat and Power**

Biomass HE CHP operations impact greatly on renewable targets for electricity (RES-e) and Heat (Res-h)

**The objective of this submission is to demonstrate how Biomass CHP can impact on the North-West achieving regional economic development objectives and low carbon economy through investment in delivering sustainable embedded green energy infrastructure.**

Biomass CHP is based on a proven model from Sweden whereby GDP has increased by 48% over 12 years with a corresponding reduction in CO<sub>2</sub> emissions, where plants have been located. In addition, it is proven that Biomass HE CHP is the most employment intensive generation process (supply chain requirements, forestry & SRC) and most substantial investment in providing a green energy infrastructure (DHN heating network) which attracts further investment by Employers – clean green heat source; neutral carbon footprint, energy efficiency and savings for users.

### **Three deliverables associated with Biomass CHP:**

1. Meeting the electrical demand of towns through green carbon free electricity
2. Utilising the Heat for District Heating Networks (DH) & Installation of Heat Exchangers, and
3. Production of a processed dried certified biomass woodchip to deliver green heating outside of reach of DH network, to smaller communities in the Counties.

in combination delivering the most highly efficient use of local natural resources/forestry and residues. Resources located in proximity to all North-West Towns. Haulage cost reduced. Increase income to regional and local forestry farmers as forest waste used in CHP boilers.

In Scandinavia Biomass CHP Plants are located at towns with a concentrated heat and electrical demand. The objective being to pipe the heat from the power production process to the town, eliminating the use of fossil fuels for heating space and water, reducing carbon emissions.

During periods of low district heat demand, the heat is used to dry the biomass woodchip. This processed dried, certified woodchip can also be used to develop smaller renewable heating schemes to locations outside the reach of the District Heating network. One of the key hurdles in increasing the conversion to biomass fuelled heating systems is lack of quality dried wood chip, consistent in moisture and energy content. Carbon Sole will bridge this market gap in supply through provision of certified biomass products under ESCo (Energy Supply Contracts, metered) arrangements.

***A strategy to map heat demand centres/towns in the North-West region would support roll-out of smaller-scale heat plants.*** It is required to assess the feasibility of expanding to smaller community-based District Heating systems in a radius out from the Sligo City CHP plant & DH network, fuelled by the dried woodchip processed from heat from the CHP.

The substantial investment in Biomass CHP with DHN, increases confidence in future availability and supply of carbon free energy not connected to fossil fuel market price volatility, attracting FDI.

***Carbon Sole Group - Biomass CHP Supporting Carbon Neutral Regional Development***

## **Biomass HE CHP Renewable Energy Generation Projects should be supported under the RSES:**

- Overall impact on green energy generation (RES-e & RES-h)
- Wider County and Regional impact:
  - Increased investment in Private Forestry Development and family farm incomes
  - Increased expansion and uptake of renewable heating
- Impact on town/locality – clean green image and cheaper carbon neutral heating.
- Employment intensity – Biomass CHP is the most employment intensive green energy generation and attracts cluster development due to clean heat source
- Ability to offset fossil fuels and attract employment/industry to the town
- Neutral Carbon footprint

## **In support of sustainability and growth, there is a need for long term objectives & policy with respect to forestry private planting, road access and management:**

- Felling licences need to be streamlined to meet biomass supply requirements of facilities
- Environmental services collaboration in designating areas and design of plantations (distance from waterways, road access, forestry management and land management upon harvesting)
- Long term investment in roads & planting schemes, staging areas, there is a history of stop start schemes, need to develop one stop shop and guidelines
- Support for co-op-based family farm planting, harvesting and supply for the RHI market development
- Due to the disparate nature of private forest estates and sizes (many ranging from 10 to 100 hectares) private forestry sector on harvesting should look toward relocation/merging of forest estates for replanting purposes. The objective being to reduce costs to plant, manage, thin, access plantations, increasing returns to farmers on next thinning and clear-fell.
- Identify protected habitats and SAC, SPA's infringing on marginal land suitability for planting as per maps available from Sligo CoCo.
- Support from EU for increased planting in line with RES targets and increased forestation. Ireland must increase its forestation.

## **Supporting Submission Information**

The following 4 key points are in support of Biomass CHP & District Heating Development requirements for consideration under the North-West Regional Spatial and Economic Strategy.

1. Sligo is not served by CHP generation and District Heating system of this nature and neither is it served by any public gas supply.

Sligo was designated as a Gateway City with a particular emphasis on attempting to attract direct foreign investment as the leading city in the Northwest area. A large Institute of Technology and General Hospital are located to the North of the City together with large hotels, smaller hospitals, schools etc. Finisklin Industrial Estate comprises many large-scale Industrial units including pharmaceutical, manufacturing etc, all of which have large heat requirements. A CHP will provide steady and reliable heat demand as well as electricity production which will be fed back into the National Grid System.



CSG are currently well advanced in plans to locate a Biomass CHP in Sligo. CHP is recognised as a proven cost-effective energy model, providing clean green energy in the form of electricity and thermal heating.

Carbon Sole Group is offering the development of a clean green carbon free zone increasing investment and creating employment in the regions it invests in locating its facilities.

A number of suitable locations have been identified in the region.

2. **Forestry:** Detailed assessments of forestry supply have been completed supporting a consistent supply of raw materials from the region required to operate CHP plants of varying sizes. Biomass sourced from the Sligo, Leitrim, Donegal, Mayo, Galway & Roscommon areas. The location of the operations is ideally located central to forested regions for extraction of the raw materials to minimise transport costs and the best potential to add value to a region where gas was not a viable option. For this reason and linear heat concentration, Sligo was chosen.
3. **Importance of Zoning.** Many meetings were held by CSG with representatives of Local Authorities in the region, IDA, Enterprise Ireland, SEAI and Planning Consultants and Engineers with a view to locating the proposed CHP in the most suitable area to distribute heat and appropriate zoning. Sligo has that potential for such an investment in strategic green energy infrastructure and attract further FDI to the town.

On further analysis of Sligo and its Environs it was found that the Docklands is the only area that can meet operational requirements of all sites assessed for a number of reasons, which can be summarised as follows;

- Located close to or in proximity of large industrial areas / commercial areas which provide a viable market for the supply of District heating.
- Proximity to heat users for operational purposes, cost of the piping network, reduce heat distribution losses and cost of pumping to client site, maintain efficiencies.
- Suitable road infrastructure to cater for the supply of biomass raw materials. The medium-term objective is to have all material requirements grown within an 80 - 100km radius.
- Access to the Port (5,000 tonne low draft ship loads) to supplement biomass supply until sustained through local planting and supply arrangements and investment.
- Adequate site area to cater for the plant and associated storage of raw materials, 15 acres.
- The possibility of integrating the CHP with other industrial & clean technology activities in the area including research with the IoT, etc.

**Importance of the North-West RSES to communicate the need for County and LAP Plans, to include appropriate Zoning & Land Use to support investment in green energy embedded infrastructure. Taking into consideration requirements that support green energy investment by reducing planning risk:**

- A focus on supporting sustainable embedded green energy Infrastructure, helping in meeting Ireland's, Regional and County requirements through the provision of renewable energy objectives, thus reducing dependence on fossil fuel use as set down by The Kyoto Protocol, toward delivering carbon free local economies.



- The strategy should seek to attract investment in Renewable energy developments that will deliver low carbon economic development while attracting further investment in the region and reduce planning risk taking into consideration the timing and substantial cost in design.
- Encourage Industry to decarbonise and seek green energy alternatives.

Assembly members,

It is the sincere intent of Carbon Sole Group Ltd to deliver investment in Biomass CHP and District Heating in number of locations in the North-West, starting with Sligo City and Environs. As such we request that the North-West RSES define objectives as outlined under a Renewable Energy Strategy in particular:

- the adoption of appropriate zoning of land to support investment in a mix of green energy investments, including Biomass CHP and District Heating Networks, long-term embedded green energy infrastructure.
- Mapping of heat demand centres and energy consumption will support low carbon economic development under County and LAPs and define land zoning requirements.
- Mapping of land use suitable for SRC and increased forestry cover.

The company and its representatives can make themselves available for workshops and/or appraisals of CHP technology in support of developing toward a low carbon economic region, starting with Sligo City and expanding into the surrounding towns and Counties.

Please feel free to contact me at your convenience,

Thank you for your time,

Yours Sincerely

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