



Waste to Wealth or Windfarm Facility Development in Scotland: Legal, Technical and Socio Economic Issues Involved In Choosing Either

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Abstract

The study looked at the technical, legal and socio economic issues involved in land use planning for choosing a viable renewable energy investment (waste to energy or wind farm facility) as well as public opinion issues with respect to sustainable development. The study tried to evaluate and analyse the key technical, legal and socio economic aspects a landowner will have to deal with in order to set up a functional 'waste to energy plant' with respect to the proximity to a residential area. Alternately the paper discussed all the relevant aspects and impacts as regards legal, technical and socio economic conditions a landowner will have, on setting up a windfarm with respect to the possibility of scenery destruction and other issues that the populace will likely find loathsome. Identifying those key issues that opponents and proponents of both projects may have will provide the landowner with the best way to decide the option to choose. Conclusively, the study opined that no matter the choice made, it is important that all the relevant laws, regulations, acts and guidelines provided by the authorities and the opinion of the local population are respected so that while renewable energy is produced, sustainability is maintained.

KEY WORDS: Windfarm, planning, legal, incineration, waste to wealth, land use

INTRODUCTION

The negative effects of fossil fuels on the environment which stem from accumulation of greenhouse gases that cause global warming and drastic changes in our climate are the main reasons for calls for sustainable and renewable sources of energy all over the globe. A legal framework has to be provided with guidelines to ensure that things are done the right way. From a legal point of view, the environment is made up of anything in water, air, land on and all its components; including those below or above ground level (Environmental Protection Act 1990; Section 1(2)). Therefore, environmental law provides rules and regulations that guide our attitude towards environmental protection, especially as it relates to pollution and contamination.

Environmental issues do not respect borders; most environmental laws in the United Kingdom stem from international treaties (like the Kyoto protocol), agreements and declarations made at the regional European Union (EU). The EU Renewables Directive (2009/28/EC), the EU Emissions Trading Scheme (ETS) and the Energy performance of buildings Directive (2002/91/EC). These are key policies provided at the regional level to guide member nations to move towards renewable energy development (European commission ITP/0875; 2006).

Though issues on environmental protection and sustainability may appear relatively new, laws on environmental protection and conservation are not. Stookes (2009) asserts that as far back as 1500s, the British parliament had imposed a death penalty for the use of coal after Queen Elizabeth banned it. However by the mid-1850s, the environmental effects of the industrial revolution actuated parliament in England to pass laws like the public health act which heralded a good number of laws and regulations in existence today. Throughout much of the 20th century, laws and acts have been passed dealing with different and specific issues in the environment, mostly in reactionary manner. For instance, the clean air act (1956) was made into law following smog in urban areas especially in London. It is pertinent to note that prior to the 1960s, private laws on environmental issues did not side with it claimants (Stookes, P.; 2009). As the years went by and environmental issues expanded, it became apparent that a more holistic approach had to be employed and this led to the introduction of the Environmental Protection Act (1990), which amalgamated and strengthened some of the laws already in place and provided the holistic approach needed to tackle and enforce environmental laws given their interlinking nature.

RELEVANT ISSUES IN LAND USE PLANNING

It is of vital importance that we consider land use planning because any use that we intend to put land into will have environmental effects and probably consequences. Furthermore, putting land to its designated use goes a long way in reducing pollution and misuse of land. Following urbanization from the nineteenth century, there had been a lot of laws on land use and planning but the Town & country planning Act (TCPA 1947) amalgamated and also countermanded existing land use planning laws at that time. Blundell (1993) asserts that the act was premised by the sudden increase in land value whenever government agencies or local authorities show interest in the land. The act also intended to control and ensure appropriate use of land so as to prevent incongruous land use. The act defined development not only as erecting or renovating structures on land, but also changes from one land use to another. It also gave government the power to determine appropriate land use as well as approbation of changes in land use.

According to Stookes (2009), implementing land use planning in the UK is a fundamental obligation of local authorities, through their Local planning authorities (LPAs) and this can also be seen on review of various TCPAs. In Scotland, the Town & Country planning Act (Scotland) 1997 and the Planning. Act (Scotland) 2006 provides the guideline for land use planning. Legal issues involved in land use are determined by the kind of development that is intended. These acts provide a hierarchy for development by defining development into national, major and local. According to the National planning framework 2 (Scottish Directorate for the Built Environment; 2009), national development involves major projects in different sectors that have national significance and international connections as to its impact on national economic growth. This also has pivotal regional significance as well as encourages sustainable development. Major development projects are categorized in the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009 which provides interpretations for the Town & Country planning Act (Scotland) 1997. According to the regulations, any electricity generation facility (windfarms included) whose production capacity is or surpasses 20 Mw is categorized as a major development. In addition, any waste management facility whose carrying capacity is or surpasses 25,000 tonnes per annum is also classed as a major development. Consequently, any development on land that does not fall into any of the above categories is listed as local development.

WINDFARM DEVELOPMENT: LEGAL ISSUES

Wind energy development is not new. Cole & Taylor (1993) opined that the first windfarm in the UK for profitmaking began functioning in January 1992. Since then a lot of development has been witnessed in the sector. Scotland has a lot of potential for renewable energy especially in the area of wind energy development. Alldritt & Hopwood (2010) highlights that much of Scotland, especially the highlands are ideal for wind energy development due to the fierce and ideal winds that weighs over the country. Furthermore, Troen & Petersen (1989) postulates that Scotland has about a quarter of all winds resources in Europe, therefore it is most suitable for onshore and offshore wind development than any other place in Europe.

Every potential investor in windfarm development requires a planning permission from the local authority before the project can commence. The council has the final say on whether an environmental impact Assessment is required or not. Furthermore, approval lies on the investors' ability to satisfy all the criteria provided which can vary from council to council. Most local authorities in Scotland base their planning requirements for renewable energy development on the Scottish planning policy guideline provided by the Scottish executive. According to SPP6 (Scottish executive development department; 2007), windfarm design and positioning is determined by wind prevalence rates, effects on human population and accessibility to the grid among others. These determinants are decided when critical procedural, economic and environmental appraisals have been undertaken. These issues are considered through the following criteria:

- Impact of the proposed wind facility on scenery. This considers their appearance from a visual point of view and issues bothering on noise pollution to the general public
- Due to laid down conservation laws and regulations on the protection of birds and their habitats, probable effects on bird populations in the area must be considered so as to ensure that their migration pathways, feeding and nestling areas are not affected
- The eccentricity and features of the landscape (valleys, plains, hills etc.) must also be considered as it relates to whether the turbines will fit into the area and not destroy the landscape. This is also to ensure that protected sites and national reserves do not serve as potential windfarm sites.
- Effect or possible electromagnetic interference with Basic amenities and infrastructure already in place in the area (airports/flight routes, military facilities, television and telecommunication devices, flickers on drivers and construction disturbances)

Section 36 (1 & 2) of the Electricity Act (1989) opines that permission from the secretary of state is required for any electricity generation facility that generates more than 50 Mw of electricity. (c.29; 1989); this is a determining factor for the facility to be connected to the grid. Facilities lower than 50mw require approval from the local authority before they can be connected. However, all categories call for public participation to ensure fairness and transparency.

OPPOSITION TO WINDFARMS

Opposition towards the development of windfarm is based on their ability to destroy the natural landscape and scenery, noise pollution, shadow flicking, possible habitat disruption for flora / fauna and television receptions. Furthermore Van der Horst & Toke (2010), highlights that understanding the technology goes a long way in determining the level of opposition. There is a tendency to develop windfarms in rural and remote areas so as to reduce the number of people that see them. Though there are fewer residents in rural areas, they are mostly very conservative and are not very willing to compromise their love for beautiful

countryside and scenery. The Viking energy project expected to begin at least before 2016, has a potential to generate enough energy to meet about 20% of Scotland's domestic energy needs but the project is opposed by a large number of local residents (Alldritt & Hopwood; 2010).

According to Van der Horst & Toke (2010). the two parameters that can be used to look at opposition of citing wind farms are (i)The economic, social and demographic personalities/enlightenment and development of people living nearby(ii) distance to the facility is important because the views and influence of the local populace living near the intended site .Other things to consider are the size of the turbines and the scale of the wind farm, this I because smaller installations tend to have less opposition. In addition, the amount of flora and fauna especially as it relates to endangered species, distance from conserved/reserved areas is also vital in determining the level of opposition.

Some laws that opponents can use to support their claims are:

- Section 36 of the Electricity act (1989)Which deals with the quantity of electricity the windfarm intends to produce. Opponents can call for denial of permit if it is determined that the electricity generation capacity the operators are claiming is untrue. Opponents of the Frodsham Windfarm are using this to support their opposition peel energy limited (Residents against the windfarm; 2010).
- Control of pollution Act (1974) & Environmental protection act (1990): opponents of wind farms can use this law to support their claim as some studies have shown that windfarms can produce irritating sounds that can disturb the peace and quiet of people within the vicinity of the turbine. Section(s) that applies depends on the level/quantity of noise produced and the frequency.
- The Human Rights Act 1998: article 8 (1 &2) highlights that every citizen is entitled to have their family and private life respected and there should be no interference without just cause. Sequel to that, opponents of windfarms can use this to support their claims if they can proof that siting a wind farm close by interferes with these rights.
- Town and Country Planning (Environmental Impact Assessment) Regulations 2011, Planning (Listed Buildings and Conservation Areas) Act 1990
- Wildlife and Countryside Act 1981: Opponents to windfarms can use irregularities in the act on the part of the investor to request that planning permission be denied. For instance, in the case of Derbyshire Wind Energy Ltd v North East Derbyshire DC ([2010] P.A.D. 32: see case for more details), the defendant was denied planning permission by the planning inspector for defaulting some parts of the acts/regulations above.
- In the case of Enertrag v East Lindsey DC 2011 P.A.D. 27 planning permission appeal by Enertrag to build a windfarm in East Lindsey council was denied due to the effect of the proposed windfarm on the surrounding landscape. Furthermore, effects on heritage sites in the vicinity, the local populace (particularly noise pollution and visual impacts) were deemed incomparable with the potential energy generation from the windfarm.
- The case of Grange Wind Farm v North Lincolnshire Council 2010 P.A.D. 31 demonstrates the extent of visual impacts of wind turbines. The planning inspector opined that apart from the negative impacts on the landscape, the proposed windfarm will lead to 'fixation addiction' by two small children living close to the windfarm (see case for more details)

WASTE TO WEALTH (INCINERATION): LEGAL ISSUES

Waste is any portable material that is insignificant to the present owner (Lemann, M. F.; 2008). As long as human exist, waste must be produced. However, in line with sustainability and environmental protection, it is important that waste is optimally managed. Like in other legal

areas. The UK waste management laws stem from international and regional agreements and directives which provide the required guidelines to maintain/uphold sustainability.

The EU waste framework directive (75/442/EEC, revised as 2008/98/EC) introduced an overall approach towards waste management. The principles of the directives cover the following areas:

- provide suitable arrangements that tackle waste from a holistic point of view (Integrated waste management infrastructure)
- design their waste management strategy to be proactive so as to reduce effects on the environment and human health
- use the waste management hierarchy to handle all types of waste {prevention, reuse, recycling, energy recovery (incineration, Anaerobic digesting etc.) and land filling}

Furthermore, the EU waste incineration Directive (2000/76/EC) provides definite principles to be considered in waste incineration across the European Union. The directive mainly aims to reduce the negative impacts of waste incineration on human health and the environment, as far as possible. This is through stringent measures on technical requirements, types of incinerators, type of waste used and control of emissions.

In Scotland, relevant regulations that guide the management and licensing of waste incineration include: the waste incineration (Scotland) Regulations 2003, the pollution prevention and control (Scotland) regulations 2011 (as amended) and the Waste Management Licensing (Scotland) Regulations 2011. The Scottish Environmental Protection Agency (SEPA), created by the Environment Act (1995), is in charge of regulating the licensing and permitting of waste to wealth facilities. The 2009 thermal treatment of waste guidelines 2009 provides the guidelines on the roles of SEPA in issuing permits and consults on thermal waste to wealth facilities. The guidelines (SEPA; 2011) looked at the issues in three ways:

1. that thermal is considered only after all other options in the waste hierarchy (reuse and recycling) in line with the EU waste framework directive
2. That thermal recovery should also integrate other waste management techniques like composting and recycling infrastructure
3. To ensure that energy recovery from the waste is optimal

In the area of planning, SEPA will critically assess the site location, the amount of energy recovery projected in relation to the needs/capacity of the facility, distance between the facility and the waste to be incinerated

In the area of licensing, SEPA policy is mostly determined by the size and capacity of the plant. Here, SEPA will ensure that the facility's design is capable of treating the waste effectively, that emissions are significantly reduced and even if there is any, they must not have pernicious effect on the environment and consequently on human health. Furthermore, the 'best available technique' (BAT) must be used in the facility in relation to the consideration of substitute systems. The intended facility must also have a clear plan on how the heat will be managed in line with the quality assurance scheme for combined heat and power (CHPQA).

OPPOSITION TO WASTE TO WEALTH FACILITIES (INCINERATORS)

There is considerable opposition to the establishment of waste to wealth facility especially waste incineration due to the general belief that aerobic combustion can lead to the release of

toxin and greenhouse gases that exacerbate global warming and climate change as well as cause damage to human health. Diaz & Salvage (2003) asserts that opposition towards incinerators arise from belief that dioxins and furans can be released into the air that can harm the environment and lead to severe ill health in humans. Furthermore, Sedman & Esparza (1991) affirm that heavy metals like cadmium and chromium can also be released from waste incinerators; these metals are carcinogenic if they find their way into the human system. However, studies have shown that proper technical and legal restrictions can significantly reduce emission effects.

Laws that oppose waste to wealth facilities cover several sectors.

- The Air Quality (Scotland) Regulations 2002(as amended): the Environment Act (1995) give SEPA the right to intervene if it is determined that there is any section of the regulations that are contravened especially as it relates to the air quality of the proposed site, even after local authority has given planning permission.
- The Human Rights Act 1998: if an incinerator site has been determined to have adverse effect on the right to life of people within the proximity of the proposed plant.
- Environmental protection act (1990): various sections of the environmental protection act provide sections that can help opponents of incinerator plants make their case. Section 79 of the act deals with statutory nuisance (including noise pollution) and can provide a platform for the opposition to prove that the proposed incinerator can cause harm to the health and wellbeing of the humans and the environment. In the same vein section 38 of the act looks at the issue of revocation and withdrawal of licences already issued if it is determined that the facility poses serious threat to the health and wellbeing of the populace.
- Conservation of Habitats and Species Regulations 2010: this regulation can be used by opponents of waste to wealth facilities to call for denial of planning permission for setting up one. In Cornwall Waste Forum St Dennis Branch v Secretary Of State For Communities and Local Government (13 October 2011), the judge ruled that the planning inspector should not have granted licence to the waste company trying to run an incinerator plant in Cornwall council, due to the contravention of Conservation of Habitats and Species Regulations (2010) which calls for assessment of possible effects of the plant on special areas of conservation.
- Waste Incineration (Scotland) Regulations 2003
- EU directives: Opponent can use the EU framework directive (75/442) (as amended) and other relevant directives to pursue their case this is very important as it defines the kind of waste that can be incinerated. . A review of Scottish Power Generation Ltd v Scottish Environment Protection Agency (No.1) 2005 Env. L.R. 38 expounds that Scottish gas petitioned that SEPA should not class the facility in their power station as an incinerator since they burnt waste derived fuel which they claimed is not waste under the waste framework directive 75/442 (as amended). However, the court found that the facility was in fact an incinerator; that they were burning waste under the environmental protection act (1990) and the waste incineration regulations

CONCLUSION

The need for sustainability stemming from the facts of global warming and climate change is driving the developed world to encourage renewable energy improvements.

Wind farm does not have much environmental impact in relation to the current drive for emission reduction to combat global warming and climate change. Its effects are mostly

aesthetic in terms of landscape scenery destruction which is less pertinent when compared to the need to produce clean and renewable energy.

The Scottish government has very high support for wind farm development. It has been made official that Scotland intend to lead the world in renewable energy. The government is providing a lot incentives like the SDLT, Renewable heat incentive (RHI) and the feed in tariffs (FITs) to potential investors in the sector. (Alldritt & Hopwood; 2010). The availability of wind energy in Scotland is very clear especially given the wind speeds experienced most times of the year which are very conducive for the development of wind energy. Thus wind farms have a very good potential for success in Scotland. Wind energy development is also considered relatively less expensive in comparison to other renewable energy technology options like waste incineration (warren & McFadyen; 2010).

Finally, the key issue involved in land use as regards renewable energy is to ensure that the environment and health of the general public is protected, while clean energy is produced. Sequel to that, public enlightenment is of the essence and no matter the choice taken, all efforts must be made to ensure that all the relevant laws and regulations of the land are fully complied with.

In view of the findings of this work, wind energy is better than waste to wealth facility like incineration.

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