

Chapter 2: Context of ENLIVEN

Rural Development Context

After World War II, European countries were seriously concerned about the adequacy of the food supply available to its citizens. It was highly dependent on food imports, but dollars and other foreign exchange were scarce and world prices were unstable. Within Europe itself, there were huge imbalances caused by erratic supply. The industrialisation of agriculture underwritten by price supports seemed the answer. In the early sixties Europe in the form of the European Economic Community first introduced capping with the aim of securing Europe's food supply and to stabilise prices so that they would benefit both producers and consumers. Because of food shortages, the low quality, as well as outdated methods of production and distribution, it was thought that that a system of farm price supports, coupled with research into efficient methods of production inside the farm gate would guarantee stability.

The Common Agricultural Policy (CAP)

The support system consisted of a combination of food import tariffs, export refunds and market management. From a European point of view the CAP was necessary to remove internal trade barriers in order to ensure greater economic cohesion among the member-countries of the EEC, which Ireland joined in 1973. The CAP became and remains the costliest common policy tool in the EU. From a producer's point of view, farms became more labour efficient and business orientated. The peasant type of subsistence farming still prevalent in the new accession states, was slowly eradicated in Europe. Young entrants were encouraged to participate in a range of farm modernisation schemes, including a variety of agricultural education programmes. Production of food per hectare quadrupled in the latter part of the last century.

The CAP achieved all its aims. Indeed, it was too successful and began to run out of control, producing very large "food mountains" and large "lakes" filled with either wine or milk. Costs spiraled and other problems emerged, such as the effect of aggressive production on the environment, and the widening gap between food prices in Europe and the rest of the world. Moreover, tariffs designed to control imports of food into Europe to protect prices to the EU's producers were seen as contributing to poverty in the developing world, and were, understandably, unpopular with farmers in America, New Zealand, and Australia. The pressure that these countries exerted through first the GATT (General Agreement on Tariffs and Trade) and later the World Trade Organisation forced Europe to change the CAP.

CAP Reform

Before 1992, farm product prices were supported through 'price and market' support mechanisms, such as the removal of surplus products from the market and restricting imports from outside the EU. A series of reforms was introduced. Europe agreed to accept more food imports from outside its borders and introduced quotas on the production of most farm produce to bring output down closer to the resulting market

demand. In return for the output cut, European farmers received direct compensatory payments from the European Union. Over the years that followed, the costs of production rose to the point that farmers were selling their produce below cost and had to rely on the 'cheque in the post' to survive. In Ireland, their income subsidy went from less than 30% in the 1980s to over 90% in 2003. This level of subsidy came to be seen as unsustainable in terms of Europe's relationships with the rest of the world, the continued support of European taxpayers, and indeed the long-term future of the industry itself.

In June 2003, the EU Council of Agricultural Ministers agreed on a radical change in the CAP. The landmark Luxembourg Agreementⁱ proposed the dismantling of the linkage between direct payments and farm production and the term 'de-coupling' were introduced to the Irish farming community. In 2004 after a widespread period of consultation, Irish farmers went for full de-coupling, in other words the complete separation of EU payments from farm production. The agreement meant that farmers would receive farm payments until 2013. These payments will not match inflation, but will be reduced in real terms by 5% per annum at current rates. In theory, apart from ensuring that the land is maintained under agreed environmental standards, farmers do not have to engage in the farming of livestock, or indeed any of the farm enterprises in order to receive their payments.

Current Irish farming conditions

A great reduction in the number of full-time farmers has taken place since Ireland's political independence. In the early to middle part of the 20th century some quarter of a million farmers worked the land. Most were subsistence farmers and relied heavily on a plentiful supply of family labour. Up to 40% of their output was needed as energy in the form of feed for horses.

Despite the income support for farmers under the CAP, the numbers involved in farming declined to around half their 1926 level and are expected to continue to fall. The recent *Agri-vision 2015* report prepared by the Department of Agriculture predicts that the numbers involved in farming of any kind will drop within the next 10 years from 136,000 to 105,000, and that only 30,000 will be on viable holdings. An earlier Teagasc report strongly suggested that at least 60,000 part time farmers are on an exit strategy, and that the next generation will concentrate on the upkeep of one career rather than two or three. The average annual farm income according to Teagasc is €17,000, and in enterprises such as beef and sheep can be as low as €6,000. Many young potential farmers are choosing to avail of an increasing array of better paid careers in the towns and it is commonly accepted that were it not for the building boom in Ireland, many farmers would have had to leave their communities to earn a living too. Not surprisingly, the demand for agricultural training in agricultural colleges is at an all time low. Some have closed and several more are in serious jeopardy.

Under the current scenario if agricultural prices, already at 1990 levels, continue to decline to the levels set by the world market only those engaged in large scale production have any hope of survival. Up to now farmers relied on increased output per hectare to

maintain profits but with heightened environmental protection measures such as the controversial ‘nitrates directive’, output per hectare will drop in future, removing all hope of maintaining incomes by further intensification. Equally, intensive farm production relies heavily on the cost and availability of energy and because of the amount of energy embodied in such things as plastic silage covering, and fertilisers, to say nothing of the oil needed to power huge farm machinery, farm production costs are now closely linked to the price of a barrel of oil. In fact the price of energy changes all bets as regards the economics and future nature of farming. John Feehan from University College Dublin raises serious questions about the dominant farming model in this regard.

Thoughtful observers can see an Achille’s heel in industrial agriculture that has three facets to it; in the first place the price of oil and gas will inevitably and steeply escalate, stretching to a breaking point the economic viability of a system inextricably linked to fossil energy; secondly the growing threat of disease that hangs over ever ever- narrower genetic spectrum of crop diversity which supports the rising world population; third the growing scarcity of water. ⁱⁱ

On the positive side, some commentators consider that the world market prices are misleading and if all government price supports were eliminated (similarly to CAP reform) the market prices for food products might well be much higher. According to Alan Mathews, “simulation models suggest that the increases could be in the range of 5-30 per cent, with lower figures applying to grains and higher figures applying to livestock and particularly dairy products”. ⁱⁱⁱ

With so many factors to consider it is difficult to make firm predictions but the following are five options, not all mutually exclusive, that realistically face farmers.

Options	Advantages	Disadvantages
The present situation of full and part time farming continues	Full time farmers become more efficient, and therefore less reliant on subsidies.	Farm sizes increase. Fewer part-time farmers. Migration from rural areas speeds up as people follow the jobs. Large scale farming threatens environmental sustainability.
Increased levels of part time farming	Would preserve the present structure of farming, and would enhance environment. It would ensure rural communities are sustainable.	Is economically unsustainable. Coming generations are unlikely to subsidise farming using other incomes. Is family unfriendly, because of the long working hours.
Niche farm production	Based on potential consumer demand for organic foods, home-made cheeses, or the development of value added products sold from inside the farm gate. Good for	Organic farming yet to be proved in economic terms but would be helped by higher energy prices. All niche food production requires considerable training

	landscape. soil and water conservation	as well as continued supports.
Leisure	The provision of leisure activities on the land can generate income for the family and the wider community	Is still limited in terms of product development. No serious on-going research
Energy	The production of renewable energy in combined heat and power plants using biomass or anaerobic digestion of organic farm wastes, or bio-diesel offers an answer to dwindling oil supplies, while at the same time maintaining present farm holdings	Oil prices need to stay at a high level. Not enough pilot research projects have been carried out. Requires considerable policy and resource support from Government

Figure 2.1 Scenarios for farming in Ireland

The Future of Farming and Rural Communities

The future of Irish farming has never been as uncertain as it is now. De-coupled support payments and an EU policy which seeks to get agricultural prices on a par with those in the rest of the world, are forcing farmers to examine their futures, and those of the next generation. Most of the commodities produced on our farms are economically unsustainable without large subsidies. The single payment means that farmers are questioning their continued involvement in what are, in effect loss-making enterprises. Even milk, so long the strong income earner for farmers, is set to contract as an industry. Professor Seamus Sheehy of UCD at a conference in 2004 said that the European Commission proposed to cut milk prices by 25 per cent over five years from 2004 and to prolong a "*reformed dairy quota system until 2014/15 at the same time.*" The value of tradable milk quotas will decline along with the price of milk, forcing farmers to consider selling them now while they still have value.

The majority of farmers, even those on very large holdings, are looking for crops to grow which will not need continuing subsidy support to be profitable. The options available are not clear cut, and require considerable research. At present the EU is in the process of negotiating with all member-states a Rural Development Framework, which seeks to offer greater security for the wider rural community in order to maintain rural populations which up to now have been sustained by agriculture and related industries. In the 'Council Regulation on Support for Rural Development by the European Agricultural Fund for Rural Development (EAFRD)', there is a clear shift to the examination of initiatives that broaden the use of land and at the same time give recognition to the wider community, many of whom are not directly involved in agriculture. The following excerpt is taken from the published guidelines.

(21) The purpose of Community farm investment aid is to modernise agricultural holdings to improve their economic performance through better use of the production

factors, including the introduction of new technologies, targeting quality and on/off-farm diversification, including non-food sectors and energy crops, as well as improving the environmental, occupational safety, hygiene and animal welfare status of farms, while simplifying the conditions for investment aid as compared with those laid down in Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations.^{iv}

Clearly the EU recognises that finding alternative uses for land is beneficial from a sustainability perspective. However developing alternative uses requires each member state to initiate research, which will, of necessity, include some pilot projects.

There is still a danger that the present negotiations will revert to supporting traditional farming practice in the manner of the old CAP regime. Support for this among the farm lobbies in Europe is strong, particularly since too little significant research has been carried out on the alternatives. 'ENLIVEN' will make up some of this research deficit and, by examining a range of sustainability issues in relation to energy production, fits in perfectly with Point 21 of the Regulations.

The use of land for the production of energy as well as for growing food and raw material offers the possibility of maintaining rural populations by providing better, more diverse employment opportunities. These in turn would add considerably to balanced regional development, a necessity recognised by the Irish government's Programme for Government, its National Spatial Strategy and by NESC, its National Economic Social Council.

The Energy Context

The function of the transmission side of the Irish electricity grid is to carry power from ten or twelve large fossil-fuel-fired power stations to over a hundred sub-stations around the country. These sub-stations reduce the power to a lower voltage and feed it into the distribution grid that takes it to consumers. Almost all Ireland's electricity comes from these large fossil stations. In 2001, only 4% of the country's gross electricity consumption came from non-fossil sources and these sources were dispersed and small. (The biggest was Ardnacrusha with an output of 86MW, less than 2% of the total national generating capacity and a tenth of that of the biggest fossil station, Moneypoint.) The concentration of power generation in 10-15 places may not continue in the future because fossil-fuel-fired power stations are likely to be phased out entirely over the next fifty years and they may not be replaced by other types of stations which generate power in the same place on the same scale.

There are two reasons why fossil-fuelled stations are likely to be phased out. One is that, as part of the international effort to slow climate change, their operators will come under market pressure to reduce their greenhouse gas emissions. For all practical purposes this means that they will have to cut their output because the only other ways that they can reduce emissions without doing so are to increase operating efficiency, something which is very hard to achieve without a massive investment in new plant or the use of

sequestration. The latter is the removal of the carbon dioxide from a power station's flue gases before they are allowed into the atmosphere and the subsequent compression of the gas so that it can be injected into a disused oil or gas well. However, as the process is untried, expensive and consumes a lot of energy itself, it can probably be ruled out.

This effectively leaves fossil generators with the choice between reducing their electricity output to match their declining allocation of greenhouse gas emissions permits or buying emissions permits from power (and other) companies outside Ireland which have themselves cut their production back. The price of these permits is likely to rise significantly as restrictions on emissions get increasingly severe. The cost burden will fall particularly heavily on generators using coal and peat as these involve high levels of emissions per unit of power.

Oil and Gas Scarcity

The second reason that big fossil fuel-fired power stations are likely to cease operations is that the steady exhaustion of the world's oil and gas reserves will make supplies of the two fuels, which currently supply the energy for the generation of about 60% of Ireland's electricity scarce and expensive. Oil, in particular, can be expected to rise in price particularly quickly as no other fuel is quite as suitable for transport purposes. There is, of course, plenty of coal around the world and this country could replace its oil- and gas-fired power stations with coal-burning ones but, as this course would lead to a sharp rise in greenhouse emissions, it can probably be ruled out.

If the number of fossil-fired power stations declines because of increasingly tight restrictions on their emissions and more costly supplies of fuel, the question needs to be asked whether it is desirable to replace their contribution to the transmission grid with electricity from equally large stations using nuclear or renewable energy sources. The alternative is, of course, to generate electricity in a much larger number of smaller stations which would either feed into the distribution side of the grid or bypass it entirely and distribute their output using direct lines. In other words, will Ireland need or want a transmission grid in fifty years' time?

Finland, a country with a similar-sized population to Ireland's, has already decided that it will have a transmission grid. It has built four nuclear stations to feed it, has a fifth under construction and a sixth under discussion. Ireland, by contrast, is unlikely to take the nuclear route. It has a constitutional ban on building nuclear stations and, while this could conceivably be removed through a referendum, the costs and returns from developing this country's renewable energy sources, which are very much better than Finland's, would give a superior financial and social return.

Choosing the Best Grid System for Ireland

Ireland does have the option of replacing its fossil-fired power stations with massive offshore windfarms and an offshore tidal lagoon in Galway Bay. Other sources of renewable energy such as solar are dispersed by nature and either cannot be assembled in one place or, as with biomass, would require the use of too much energy for it to be worthwhile doing so. This means that they can only be used to produce small amounts of

electricity in a large number of places that makes them unsuited to using the very high voltage side of the transmission grid

The problem this creates is that the windfarms and the tidal lagoon would, inevitably, supply power intermittently and, to ensure the continuity of supply, the country would either have to make a huge investment in pumped storage and/or flow batteries, or in interconnectors with the British grid and through that to the continental one. The cost of providing the storage capacity, or that of the interconnectors and the line losses which would occur when power was brought into Ireland from overseas, would have to be added to the unit cost of power from the large-scale producers. This might push the delivered cost of their output up above that of much smaller scale renewable producers who fed directly into the distribution side of the grid or supplied their communities directly through direct lines.

In short, attempting to maintain an electricity transmission system which was developed for a particular set of historical circumstances might not make economic sense in the future. The cost of running and maintaining the transmission grid in 2005, including depreciation and profit, will be €255.54 million, equivalent to 0.94 cents for each kilowatt-hour expected to pass through it. This is a significant sum when one recalls that the price currently being paid for wind energy is 4.8 cents per kWh. Almost all the grid's costs are fixed – in other words, they are not dependent on the amount of power passing through the system. Consequently, if the amount of electricity using the transmission grid fell as fossil-fuel-fired stations cut back their output or closed, the costs per unit would rise and, assuming that these costs continued to be charged to those transmitting power and not spread more widely, this would make the large producers less able to compete with the smaller ones. A vicious circle might develop, with low power volumes leading to even lower ones.

On top of the cost of sending electricity through the transmission side of the grid is the much higher cost of distributing it through the distribution side. The total cost of operating this came to €690 million in 2003, the most recent year for which figures are available, not far short of the €884 million it cost the ESB to generate all the electricity it supplied to the grid, or around 3 cents per kWh sold. In other words, taking both parts of the grid together, at 4 cents per unit it costs as much or more to get the electricity to the customer as it does to produce it. Direct line systems could probably avoid a significant part of this high level of costs as well as the line- and other losses incurred in both sides of the grid. These amount to about 14% of the total amount of electricity generated, as chart 3.1 from ESB Networks shows.

 Energy Flows in GWh 2002

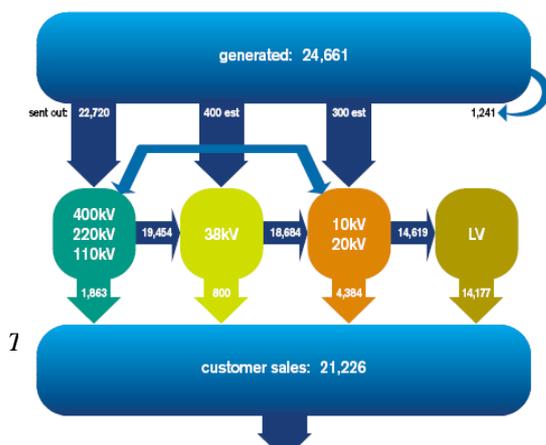


Figure 0-1 Two-thirds of Ireland's electricity is sold to customers at 220 volts. This represents the market which small-scale, distributed generators could serve.

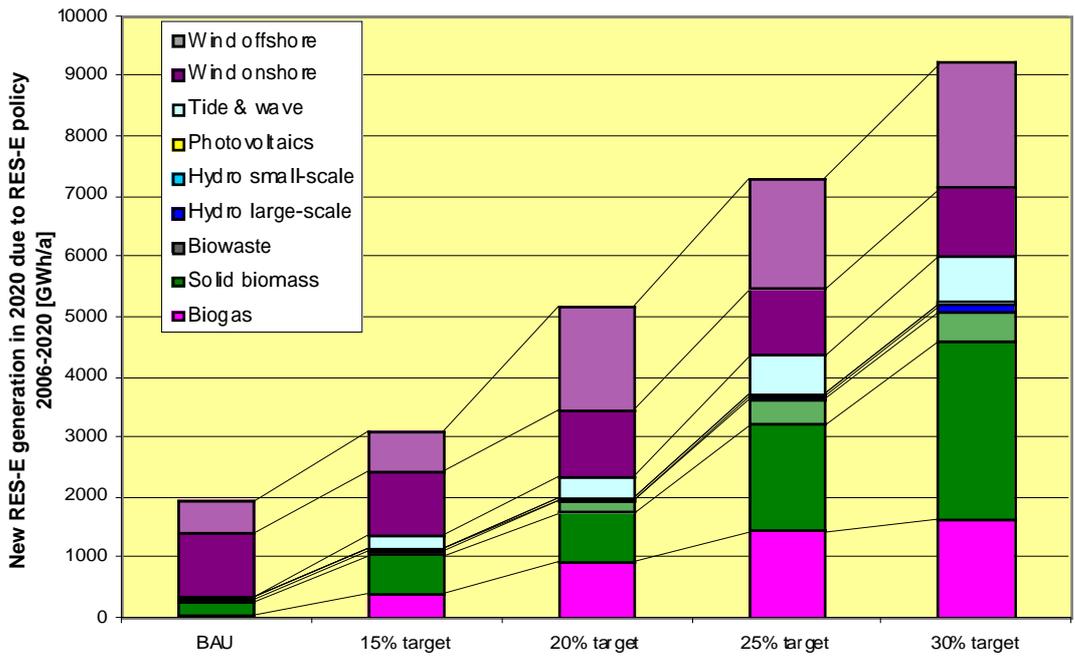
However, the local generators' overwhelming advantage over larger scale ones burning any fuel is likely to be the latter's grossly inefficient use of energy. Taking line- and other losses into consideration, only 35% of the energy in the fuels used in distant power stations actually reaches the consumer^v. The rest of the energy is lost as waste heat, either at the power station itself or along the distribution lines. Small, local electricity generation enables much of this heat to be sold, giving efficiencies of energy use of up to 90%. In a period of scarce, expensive fuel, this difference will matter a lot.

A situation could arise analogous to what happened to the railways when the development of road transport gave people the freedom to move directly to where they wanted to go at a time of their choosing. Local rail lines were closed down, leaving only the main routes. This could happen to the grid. Even if Ireland can cover the cost of interconnection by developing its potential to become a major exporter of electricity from the wind, large parts of the current 6,600 kilometres of the transmission network and many of the substations may prove unnecessary. What might remain could be the sections linking the large conurbations with each other, with the interconnector to Britain and with massive offshore windfarms in the West.

Distributed Grid

The electricity needs of the rest of the country could conceivably be met at least cost by small producers feeding directly into the distribution grid or using their own mini-grids. These producers would use several sources for their power, three of which - small scale hydro, and CHP from biogas and from biomass - have the potential to provide a continuous supply of power without storage capacity being required. We believe that if costs could be cut by developing energy supply systems based on local resources using direct line electricity distribution mini-grids, it would be a serious mistake for the Irish government and the electricity regulator to attempt to prevent their development in the interests of preserving an outdated, centralised, top-down system of electricity supply.

Biomass could supply a very significant part of Ireland's energy needs if distributed electricity generation was encouraged. Figure 3.2 below, taken from Claus Huber *et al*, 2004, shows that it has the potential to match the total amount of electricity available from both onshore and offshore wind by 2020 if the government set a target of getting 30% of the country's electricity from renewables by that date.



F

figure 3.2 THE POTENTIAL FOR ELECTRICITY FROM BIOMASS AND BIOGAS

If the government sets an ambitious target for obtaining a high proportion of the country's electricity from renewables, biomass and biogas could provide as much as all other sources combined. Distributed generation would be required to make this happen.

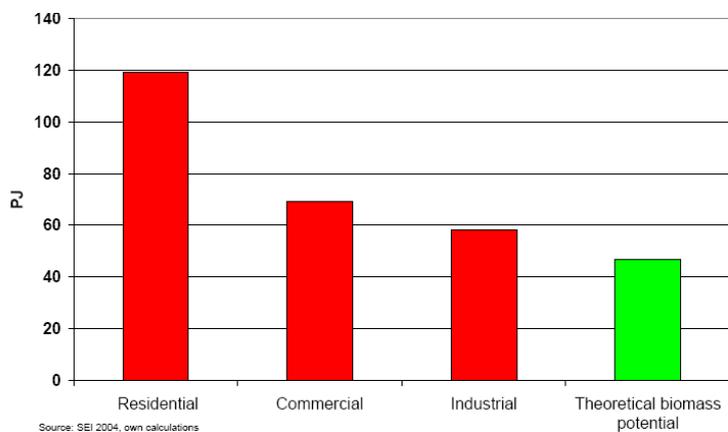


Figure 3.3 COMPARISON BETWEEN BIOMASS ENERGY POTENTIAL AND SECTORAL ENERGY USE

Biomass has the potential to supply almost as much energy as used in Irish industry. Most of it will come from woodwaste and from specially-grown short-rotation coppice.

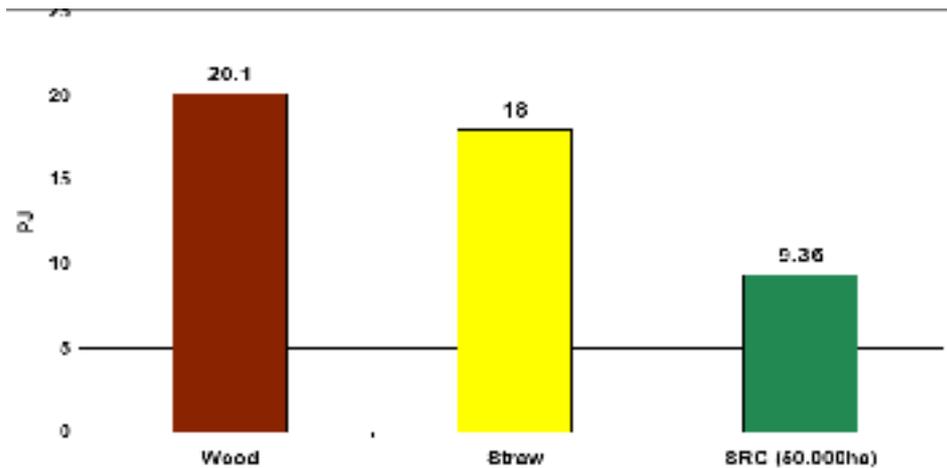


Figure 3.4: POTENTIAL SOURCES OF BIOMASS ENERGY IN IRELAND

Wood, wood waste, straw and specially-grown short rotation coppice (SRC) can all supply a significant proportion of Ireland's electricity and heat requirements if suitable policies are put into place.

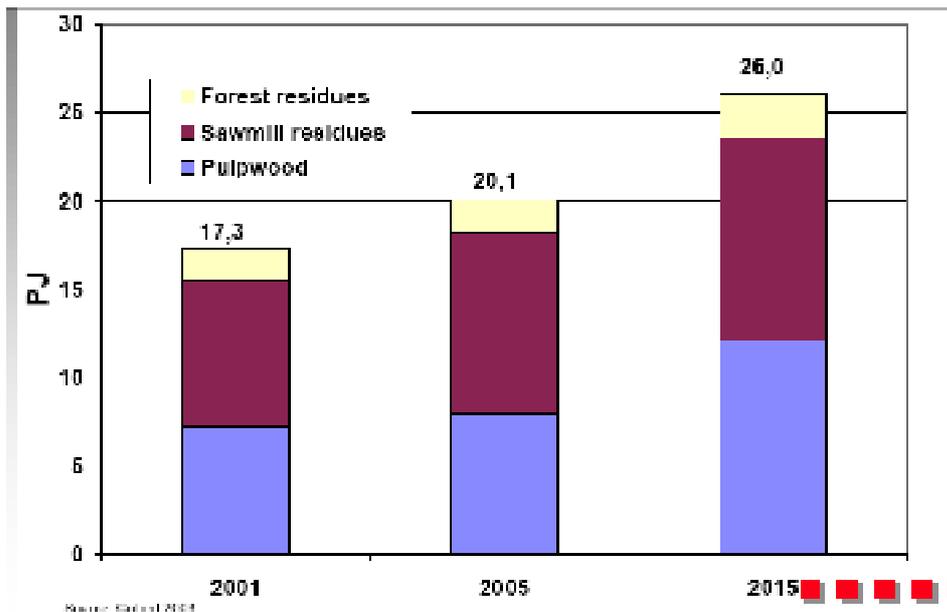


Figure 3.5: INCREASING AVAILABILITY OF WASTE WOOD AS A FUEL SOURCE

An increasing amount of woodwaste is going to become available over the next few years. Because of their bulk in relation to the amount of energy they supply, waste wood and coppice cuttings should not be transported very far to be burned or converted into higher value products such as wood pellets. 12 to 15 km is usually taken as a maximum. This means that they can only be efficiently converted into energy by being burned in

small plants that can find a use for their heat. Electricity production alone is not enough. Consequently, such plants are probably best established by the heat users themselves, or by an organisation acting on their behalf, or by local entrepreneurs rather than by a national organisation. District heating is likely to be the most usual use if German, Danish and Austrian experience is any guide. And, if pipes for a district heating are to be installed, it makes sense to put in cables for a direct line electricity supply at the same time.

Even though the wood waste might be being burned in a CHP plant, in Irish conditions the cheapest source of renewable electricity to the organisation that operated the plant would almost certainly be the wind. However, the power supply from the latter would obviously be intermittent while that from the CHP plant would always be available. It would therefore make economic sense for local energy supply companies to have a variable tariff and to supply wind electricity at the lowest rate whenever it was available. This would give their customers the option of using it for such things as water heating, storage heaters, refrigeration and the batteries of electric cars when it was available and of switching off these uses when other sources had to be used and the price rose. In effect, selling wind power this way passes some of the burden of the cost of electricity storage on to the consumer. The technology for such a system is well worked out. Where private lines are being installed, the simplest solution is to run two cables rather than one, the second being for the intermittent electricity supply. A more complicated alternative is for there just to be one cable and for information on the price of the power to be sent to a computer in the customer's premises by the broadband connection that would be installed at the same time as the power cable. This would allow several prices to be charged for power and for a special computer in the customer's premises to develop a response to each one.

Several research programmes into the integration of renewable energy generation in electricity distribution networks are being carried out in the UK with funding from the Engineering and Physical Sciences Research Council (EPSRC). Amongst other things, the EPSRC aims to determine the maximum capacity of distributed generation that can be connected to distribution networks. A key factor that has emerged from the work so far is the importance of using variable electricity tariffs to reduce peak demands from the domestic sector. As Figure 3.6 below shows, the peak in British power demand comes as a result of the big increase in domestic electricity consumption at the end of the day. The consumption profile in Ireland is similar. Much of this surge is due to heating demand, a highly inefficient use of electricity from distant thermal power stations. The local CHP plants proposed by this project are another matter and, by supplying both heat and light, they would reduce the demand surge on the grid caused by heating. In addition, the project's use of variable electricity tariffs and sophisticated power management systems, both of which are possible only with a direct line system, should provide valuable experience for application elsewhere. And, most importantly perhaps, the project will put to the test whether it really is a major advantage for a community to be able to attempt to attract economic activity by offering guaranteed energy supplies at a guaranteed cost. Again, such a strategy would be impossible if local energy suppliers were legally bound to put all their supply into the national electricity grid.

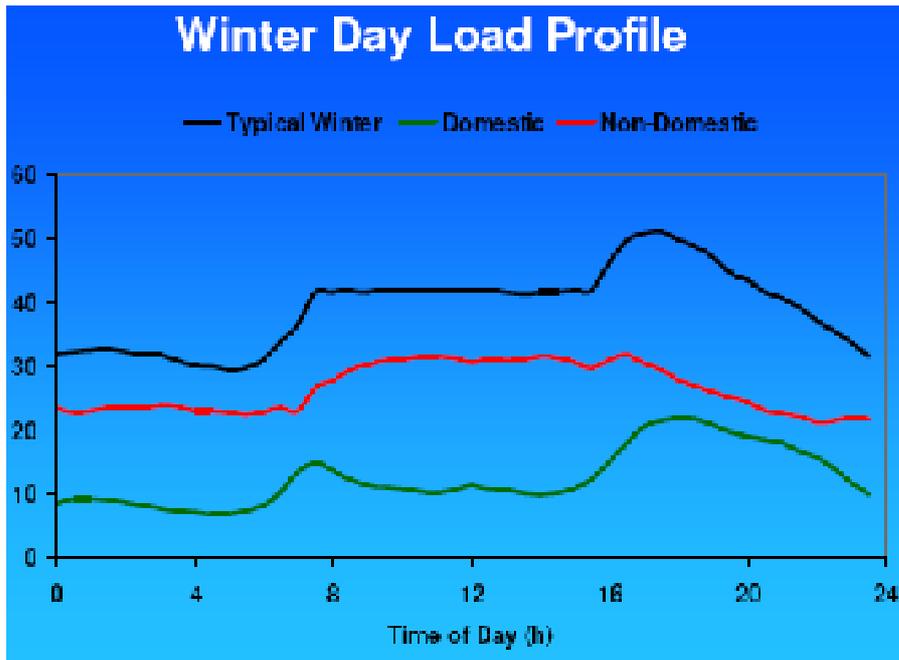


Figure 3.6. WINTER DAY LOAD PROFILE

Overall electricity demand on a winter's day in Britain increases by almost 25% for a brief period in the early evening. Great capacity savings could be achieved if this peak could be avoided by supplying heat as well as electricity.

Planning Policy Context

There has been much recent discussion, some of it very heated, on the subject of rural housing. Our study does not go into the benefits and costs of giving planning permissions for one-off housing in the countryside but sidesteps it to concentrate on providing better choice for the aspiring rural dweller than what is currently on offer.

We suspect that there is considerable unmet demand for rural housing from urban families that could help revitalize areas suffering population decline. The huge interest in the Cloughjordan Eco-village co-operative in Co Tipperary shows this with 43 signed up families and many more have signed up now that Planning permission has come through. These families are of mixed age and income with a high level of education and many are self-employed; an asset for any rural community. They are willing to relinquish the convenience and higher incomes of city life if the relocation brings deeper community and a more harmonious relationship with the natural world. Research suggests that the success of Rural Resettlement Ireland in tempting urban local authority tenants to settle in rural areas would be multiplied if they could move, together with others of like mind, to cheap-to-run houses in proximity to transport and services. Even the high number of holiday homes being built in many rural counties hints at aspirations for more permanent living, economic circumstances permitting.

Rural housing choice today is very constrained for most families. There are only two options - to buy an overpriced suburban style house on a tiny site in an anonymous *cul-de-sac* development on the outskirts of a town or village or, to build a house on a half-acre site with a septic tank in the open countryside. Planning restrictions usually limit the second choice to locals to minimize servicing costs and environmental damage. The option of self-build on an affordable *convenient site* is not available to most families and especially not to non-locals. If rural sites can be built on by non-locals, they are either very remote or very expensive. There is therefore very little rural housing choice for ordinary families who wish to be close to services and community and who cannot afford or wish to run two cars.

Proximity to services and housing affordability are key factors in reversing population decline and revitalizing rural areas and both are needed at the same time. Apart from farmers, many rural dwellers commute significant distances to work because of the lack of jobs in their local villages and towns. The influential social commentator Robert Putnam found that in the US

The car and the commute however, are demonstrably bad for community life. In round numbers the evidence suggests that each additional ten minutes in daily commuting time cuts involvement in community affairs by 10 percent.... In fact, although commuting time is not quite as powerful and influence on civic involvement as education, it is more important than any other demographic factor.^{vi}

The city offers advantages of agglomeration and scale to business that cannot be easily counteracted by better telecommunications, as is sometimes suggested. What can be changed is the need for *two* partners in a family to commute to well paying jobs in the city by making housing cheap enough to buy with one income. Secondly, as all journeys are not work-related, ensuring that daily-needed services like primary schooling, childcare, recreation and buying goods such as food, fuel and newspapers can be accessed within walking distance of the home can halve the transport costs, carbon emissions and improve social capital for a rural family. Proximity to a station or node for public or shared transport to the nearby town/ city for further education and wider range of household items and cultural entertainment expands mobility to near big town levels. Research shows that where other options are provided, people will leave their car at home;-

Residents and employees located in more accessible, more multi-modal locations tend to own fewer motor vehicles, drive less, and use alternative modes more than those at automobile-dependent locations. Per capita mileage reductions of 20-40% are common when people move from an automobile-dependent suburb to a multi-modal, New Urbanist neighborhood, and similar reductions in automobile commute trips are common when employees shift from suburban to city center worksites^{vii} (“Smart Growth,” VTPI, 2005).

The final element of course, in supporting more sustainable lifestyles is to enhance the locational competitiveness for business of rural villages to by offering cheaper and more secure energy, which subject is dealt with extensively later in this report.

National Spatial Strategy

The recently-published Sustainable Rural Housing Guidelines for Planning Authorities 2004 fleshes out the National Spatial Strategy (NSS) in terms of rural settlement objectives. It recognises the importance of a new approach to rural villages that would strengthen infrastructure and services. One of the first objectives listed in the report is

“To strengthen the established structure of villages and smaller settlements both to support local economies and to accommodate additional population in a way that supports the viability of public transport and local infrastructure and services such as schools and water services.” (p.10)^{viii}

Clear direction was given to local authorities to be proactive in supporting village development,

“Local authorities have a variety of measures available to them to secure the ongoing development, renewal and improvement of towns and villages. These measures include the incorporation of appropriate policies in the development plan, derelict sites legislation and serviced land initiatives relating to water service and roads related infrastructure. Development of individual serviced sites or housing schemes of appropriate scale and character, within, or in the vicinity of small rural towns and villages can be encouraged using these mechanisms. Using the development plan and local plan processes, planning authorities should therefore make every effort to harness all of these measures to ensure that sufficient high quality, well located and affordable development can take place.”

^{ix}

The ENLIVEN project will describe a process that will add the option of an affordable completed (or self-built) house with a generous garden and open green views within walking distance to friends, shops and school. Moreover, this house will be ‘future-proofed’ with minimal heating costs, cheap hot water, secure electricity, full accessibility for non drivers and it will be situated in a beautiful nurturing rural environment.

It will also address the linked issues of renewable energy and rural settlement regeneration which is discussed in the NSS only in terms of balanced development^x between cities and rural areas and the revitalization of medium sized towns in the West^{xi} implying rural areas feeding energy to urban centres and conflating energy networks with transmission power lines. This viewpoint ignores local distributed energy grids and the efficiencies possible where there are short distances between energy production and consumption. The positive benefits of anaerobic digesters and CHP are touched upon in respect of improving nitrogen levels on farmland but not in respect to using this energy to fuel enterprise in nearby villages.^{xii}

Offaly County Council Development Plan

The Offaly Development Plan 2003-2009 cites the National Spatial Strategy 2002-2020 in its settlement strategy

The council considers that the control of development location is necessary in order (a) to secure a rate of return on expensive infrastructural services, (b) to preserve the quality and character of the rural environment and, (c) to facilitate the establishment and maintenance of viable communities and their support services and (d) to sustain rural communities by accommodation the special needs of agricultural areas.^{xiii}

The Development Plan concept of development districts is also consistent with the National Spatial Strategy. It requires that demand for housing within easy reach of the larger towns should be met within existing village and emerging centre areas. Birr is the nearest district centre to Cadamstown while Ballyboy is closer to Tullamore. Kilcormac is defined as a local centre and its district including Ballyboy, which is less than two miles distant, has experienced weak population growth, 5.9% in the period 1996-2002. Cadamstown and Ballyboy are not in an area under pressure for development but Cadamstown is on the border of an area of special amenity and as such clause 2.2.4 could apply. This clause requires that a restrictive policy apply to applicants for housing limiting them to local need. Local need is defined as follows.

- *Farmers in the area*
- *Persons who are local to the area or who have been living there for a substantial period and have connections with the local community.*
- *The children and siblings of the above.*
- *Persons who are engaged in the rural economy or otherwise have a demonstrable need to live in the rural area concerned.*

Ballyboy is defined as a 'local centre' while Cadamstown is defined as an 'emerging centre' which appears to override the possible restrictions of its development to 'local need'. Moreover, population level share has fallen in the Kinnity district of which it is part - 4.9% in the 1996-2002 period -, which is grounds for a more flexible approach to accommodating outsiders. The council also states that it will encourage development of the villages as a means of enhancing the level of local services and to form a basis for the development of a viable tourism industry in the immediate area^{xiv}. An emerging centre or a 'Sraid' village as it is termed, is defined as follows:-

- (i) *Located within safe walking distance to services. (Based on a typical non-car person, this could be taken as 500 metres for a 15-20 min journey).*
- (ii) *Appropriate traffic management proposals within the designated areas.*
- (iii) *Low densities to allow for the cultural aspirations re 'one off house on its own space'.*
- (iv) *In certain locations private treatment facilities (individual or group) would be considered where soil conditions permit.*
- (v) *Critical mass to support or help retain one or more of the following; school, church, shop/public house, doctor, childcare and other social service, waste water treatment.*

Cadamstown and Ballyboy villages meet these criteria and are included in the designation.^{xv} Key actions to meet the five criteria are as follows

- (i) *Removal of some through traffic*

- (ii) *Development envelope designated clearly*
- (iii) *Relief roads partly financed by development activity*
- (iv) *Some focal point to create*
 - sense of place*
 - safe environment*
 - discourage fast moving traffic*
- (v) *footpaths and street lighting out to envelope boundary only*
- (vi) *Low to medium density*
- (vii) *Development pressures outside envelope will be resisted. Local need to be economically based rather than personal.*

It is a mark of Offaly County Council's forward-thinking character that it has included a section about eco-villages under a section headed Strategic Development Zones;-

In the meantime, the county seeks to work with the development agencies to provide eco-villages as locations at Banagher, Ferbane, Daingean, Kilcormac and Portarlinton. Eco village is a term used to describe quality development comprising workspaces and dwellings in compact settlements reusing existing complexes with character^{xvi}.

The absence of existing sewerage facilities will not be a barrier to development^{xvii}. The council gives priority to providing adequate water and drainage services to those centres where serious deficiencies are in evidence or where further development is anticipated^{xviii}. In this regard, particular attention will be paid to the council's settlement strategy.

Cadamstown, located in a geological area of poor aquifers and potential gravels, is situated in a Class 3 'Low sensitivity' rural area with some monuments and archeological interest at the boundary of an 'Area of High Amenity' at the foot of the Slieve Bloom Mountains. The R-421 county road serves the village and is scheduled for improvement. The village is to the south of an important group water scheme groundwater protection zone group water scheme.

The council requires that 15% of zoned housing land be reserved for social and affordable housing on a 1:1 ratio^{xix}. The exact nature of the transfer will be by agreement with the options of transferring completed dwellings preferred. The land at Cadamstown is not zoned currently. However, the necessity to designate the development envelope may be regarded as a form of zoning as it sets out the area in which development will be positively considered and the area outside of which development is discouraged.

Local area plans are projected for a number of named settlements in the development plan. *Notwithstanding this the Council will consider carrying out, subject to resources being available, village plans for the smaller settlements in the county^{xx}.* It is also positive to note that innovative ways of connecting rural communities to broadband will be supported by the council^{xxi}.

Road Standards

The Development Plan taken as a whole supports the planning and development objectives of ENLIVEN but nevertheless it contains some development standards and controls that may cause problems for an ecologically designed housing layout. The road standards favour the private car over pedestrian use in common with most Councils, for which reason they are under review by the DoEHLG. For instance cul-de-sacs are specifically encouraged. In addition, road hierarchies and visibility splays at junctions and at least two off-street parking spaces are required for each housing unit. Another concern is the building line requirement of 7.5 metres from the boundary that tends to result in excessively wide, unvaried, suburban type public spaces. Separation of traffic^{xxii} can also be problematical resulting in underused unsupervised pedestrian routes and wasted space. However, the clause relating to innovative estate design^{xxiii} which promises flexibility in return for good quality building and layout design should provide a mechanism to overcome the rigidities of the general road and layout standards.

Local Action 21: Partnership for Sustainable Development

Local Action 21 sets the context for sustainable development policies as agreed at the 2002 World Summit on sustainable Development in Johannesburg. The 1998 UN World Summit declared that local authorities and local development agencies should take the lead in developing the agenda for a transition to sustainability. It introduced the concept of cross-sector partnerships and fora to develop an agreed vision and outline future priorities. The 2002 Summit for Sustainable Development (WSSD) moved the process to a more proactive phase and firmly challenges local authorities, development agencies, public, private and third sector (NGOs) to deliver on those goals. The Irish government designated the City and County Development Boards (CDBs) as the lead delivery agencies for LA 21 for Ireland. According to *Making Ireland's Development Sustainable*, the government's report to the 2002 WSSD,

“The CDBs are tasked with developing strategies for economic, social and cultural development, and ‘Towards Sustainable Communities’ directly links these strategies with LA21 implementation”^{xxiv}.

Unfortunately, this responsibility has not been properly conveyed to the CDBs so the onus for sustainable development initiatives is typically left to Local Agenda 21 officers in the councils to deliver on a part time basis. Neither have specific resources been allocated to the CDBs to support their critical sustainable development role. It is not surprising that the current Offaly CDB vision statement only hints indirectly to sustainability as an important goal.

“That all people in Offaly will enjoy equal opportunity and a good quality of life – that they will look forward to the future with confidence while cherishing the past.”

The cross sectoral team which developed this report has tried to follow LA21 guidelines as developed by ICLEI (the International Council of Local Environmental Initiatives). Unfortunately there are as yet no CDB policies for rural or sustainable development to inform our research but both are planned in the current CDB term. It is hoped that this report might prove a useful input into to that work.

Development Context

The Silver River that springs from the Slieve Bloom Mountains links the villages of Cadamstown and Ballyboy in the midland county of Offaly. Ballyboy is an ancient settlement situated only a mile and a half from the much larger village of Kilcormac. Kilcormac overtook Ballyboy in size and importance in the 19th century with the construction of a new road from Tullamore to Birr which runs through the village and its designation for development linked to the boglands of Boora to the North and Cadamstown to the South.

Historical Development

Local energy resources were twice before the generators of substantial village development in the Silver River catchment area. The wave of development which started in the 17th century led to the construction of six mills on the Silver River between Cadamstown and Ballyboy which provided the power to grind wheat, roll oats, forge spades, spin and weave wool and churn butter. Biomass, in the shape of oats for horses, provided the power for not just the village's own transport system but made a contribution to that in the towns. Apparently there was especially high demand for oats from the cavalry in the Crimean War and the straw of the black oats grown in the area was regarded as particularly good for thatching. Cheap oil and other fuels have destroyed these activities and, as a result, the village's population, which was 1,500 after the Famine in 1851 has fallen to only 400. The school, which had 60 pupils in 1950, has closed. The first Cadamstown mill was built in 1604 according to local historian Paddy Heaney.



Figure 5. 0-2 Cadamstown Mill



Figure 5.0-3 Ballyboy Mill

It was a flour and spade mill, common in Northern Ireland, and built in Offaly by a northern follower of Hugh O'Neill who settled in those parts^{xxv}. The Cromwellian planters who dispossessed him let it go into disrepair until 1831 when Sina Manifold of Cadamstown House built the present mill. The old abbey at Leitir Luna was pulled down for the stones.

The mill gave great employment during its years of operation. Local families with their horses and carts delivered flour all over the midlands. ...there was a full time staff operating the mill. Manifold grew the wheat and corn on the flat lands of the green; also local farmers sold their corn to the Manifolds. There was a dairy attached

to the mill as the Manifolds had one hundred cows that were milked by the local women. The milk was churned by waterpower. ” Heaney (p.31)

The second wave of development came in the 19th century with the development of the bogs for the second phase of industrialization and then again in the 1930s early days of the Irish Republic and the establishment of Bord na Mona. This development was more uneven with certain villages and towns benefiting more than others. Kilcormac was the winning village within our study area.



Figure 5.0-4 Kilcormac/Frankfort Bog Development 1810

Bord na Mona situated extensive housing for its workers near the village centre. Frank Gibney was the Bord Na Mona architect responsible for many very fine schemes in the Irish midlands including Kilcormac. The Kilcormac schemes illustrate his characteristic arcs of terraces fronting generous playing areas. Kilcormac hurling teams showed the benefit of the thoughtful sporting provision for many years and lead the county leagues to the present day.



Figure 5. 0-5 Bord na Mona Housing Kilcormac



Figure 5 0-6 Bord na Mona Housing Tyrellspass

Recent Development History

The planning records indicate that nine houses were given planning permission within a one-kilometre radius of the centre of Cadamstown since 1998 but not all were actually built. *See appendix: Planning Applications for Cadamstown.* Five permissions were for extensions or garages to existing houses. Permission was given for a garage and filling station near the crossroads in 1997/98 that was not acted upon at the time and has now lapsed. All of the houses are on large sites with septic tanks set well back from the road. There has been no non-residential building except for the relocation of a coffee house during that period.

Ballyboy shows rather more activity as befits its size and location beside Kilcormac. *See Appendix: Planning Applications for Ballyboy.* Seventeen planning permissions were recorded in the main village centre, four of which were for the demolition of existing houses and their replacement with new out of nine applications for new houses. One was for an agricultural building and two were for works to the school. A small further cluster of nine planning applications new houses with one demolition is evident on the Northern approach to the village at Ballyoran. six new houses were given permission on a North West cluster with one replacement of a demolished house at the one-kilometer distance mark. 7 houses were given permission at Kilgolan lower at the one-kilometer distance mark with one replacement demolition. There were no applications for buildings that would give employment. The number of demolitions is noteworthy in a richly historical area and leads one to concern whether important vernacular buildings were lost.

None of the planning applications in either village appear to have been prepared by a qualified architect although one used the title architect and another architectural and design services. No submitted design showed particular sensitivity to the local vernacular or contemporary design. However, despite the sporadic and uncoordinated development of the single houses, both villages have retained much of their original character and have not had their future development compromised. Development has been limited and neither village has suffered the intrusion of insensitive public or private housing estates.

Ballyboy in particular, is a very unusual Irish village of great antiquity, with a legacy of buildings from different eras; - a Norman motte, two Churches, a late Georgian house and a mill building. It also boasts one of the prettiest thatched pubs in the country, 'Dan and Mollys'.



Figure 5.0-7: Dan and Molly's pub in Ballyboy

Current Development Prospects

Ownership of land in and near Cadamstown and Ballyboy is now considerably fragmented as is typical for Irish villages following the Land Acts and operation of the Land Commissions. Village merchants and skilled trades-people with capital and some experience of farming practice were seen as good candidates for distribution of compulsorily acquired estate lands by the Land Commission and their small farms radiate out from villages in every direction. This policy provided viable farms for periods when agricultural prices were high although it did little directly for the non-farmers of the villages and towns. The periods of high agricultural prices became shorter over time and gradually the community dwindled as locals, farmer and non-farmer alike, sought livelihoods in the cities or overseas. There was no longer a large single landowner who could invest in or redevelop the village in response to new challenges and opportunities. The state took over that role to some extent; Bord na Mona in exploiting the lowlands and Coillte in planting forestry in the highlands. But, unlike in the days of the watermills, the energy collected from the bogs and converted into electricity was exported to the centres of population to fuel the cities' development not the local villages.

The vast areas of unpopulated forest have only recently begun to create local employment and that indirectly from tourism, despite having destroyed the fishing through acid run-off from the conifer plantations. A walking route, the Offaly Way follows the Silver River and links Kilcormac, Cadamstown and Ballyboy. Cadamstown has emerged as the

centre for walking recreation in the Slieve Blooms with four walks starting from the village including 40 kilometres of the Slieve Bloom Way that takes in a complete circuit of the mountains. But Cadamstown also suffers from relatively high levels of through vehicular traffic. A busy regional road, the R421, runs North East to South West and carries heavy volumes of truck traffic at certain times.

The National Spatial Strategy has designated the nearby town of Tullamore - grouped with Athlone and Mullingar - as 'a gateway centre' and thus prioritized for national and regional infrastructure investment. It mentions village structure as an important key to selection and future success.

It will also be important to build on the central location of the Midlands and the key towns at the intersection of national road and rail routes, the attractiveness of the village structure in the Midlands and the natural and other resources of more rural areas. The gateway in the region will help to position other areas to benefit from the strength of that gateway, but those other areas will need to put plans in place to ensure that this happens.^{xxvi}

There is little planned economic development stimulus proposed for the study area arising from the National Spatial Strategy. However, three towns in Offaly have been designated for decentralized government departments in the 2004 budget. Of those at the edges of the study area, Birr is promised 250 civil servants and Tullamore, 130. These decisions will provide some demand for high quality housing within the towns or within short commuting distances but it is unlikely to contribute significantly in the rejuvenation of the area.

-
- i Luxembourg Agreement, June 2003
- ii P. 522 Feehan, John, *Farming in Ireland UCD*, Faculty of Agriculture 2003
- iii P.29, Mathews Alan, *Farm Incomes, Myth and Reality*, Cork University press, 2000
- iv Council Regulation on Support for Rural Development by the European Agricultural Fund for Rural Development (EAFRD)', published July 2004
- v *Energy in Ireland, 2002*, Sustainable Energy Ireland, Dublin, p. 17
- vi Putnam, Robert, *Bowling Alone, 2000*, Simon and Schuster New York
- vii P.18 *The Future Isn't What It Used To Be* Changing Trends And Their Implications For Transport Planning By Todd Litman Victoria Transport Policy Institute 4 June 2005
- viii P.10 National Spatial Strategy 2003
- ix P.17 *ibid*
- x P.36 *ibid*
- xi P.47 National Spatial Strategy
- xii P.115 National Spatial Strategy
- xiii P.60 Offaly County Council Development Plan 2003-2009
- xiv P.81 *ibid*
- xv P.68/69 *ibid*
- xvi P.104 69 *ibid*
- xvii P.66 *ibid*
- xviii P.73 *ibid*
- xix P.146-148 *ibid*
- xx P.175
- xxi P.156
- xxii P.179-190
- xxiii P.191
- xxiv P.58, DoELG, *Making Ireland's Development Sustainable*, Government Publications, 2002
- xxv Heaney, Paddy, *At the Foot of Slieve Bloom*, 1994, Kilcormac Historical Society
- xxvi P.80 National Spatial Strategy