



Ballynagran

Ireland's Energy Plus⁺ Community

ZECO₂S
Zero CO_{2e} Emission Certification System



SERVE ENERGY CONFERENCE

5 October 2012

Prepared by:





About MosArt



MosArt is a commercially based multidisciplinary environmental design practice established in 1993 by Tomás O'Leary and Art McCormack, specialising in Architecture, Landscape Architecture, Urban Design and Visual Impact Assessment.

Projects of note include the new town centre for Wicklow Town, landscape design at the Ritz Carlton Hotel in Enniskerry, public realm design for Clonburris, landscape impact assessment of the Arklow Bank Windfarm and Energy Consultancy on the Chicago Spire.

Our team of talented Architects, Landscape Architects and Building Energy Specialists provide a turn-key design solution for all our clients. Among many of the normal Architecture and Landscape consultancy services MosArt offers a diverse and varied range of other services, including:

- Passive House Consultancy
- Energy Consultancy
- BER Assessments and Certification
- Landscape Impact Assessments
- Character and Sensitivity Assessments
- Urban Design and Master planning

• Sustainable Public Realm
• Research and production of Guidelines



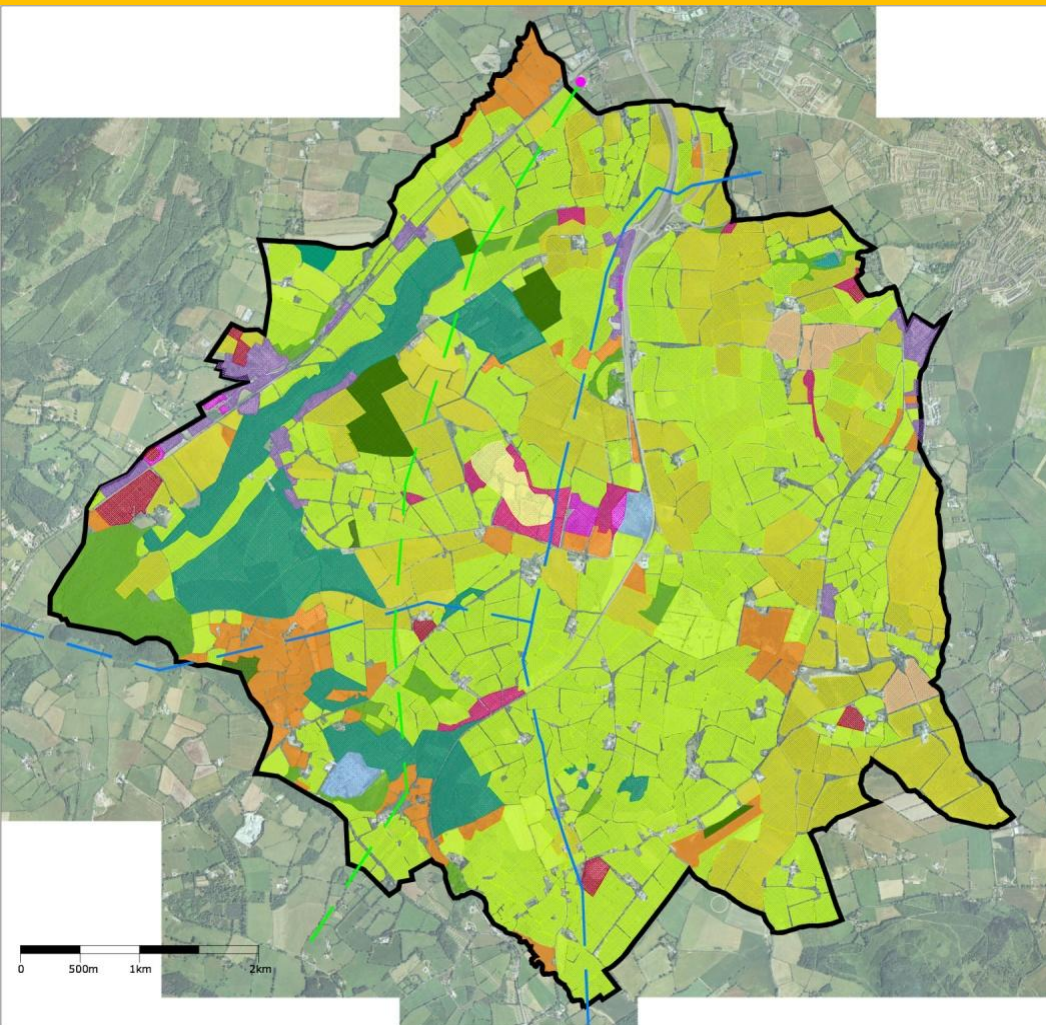


Ballynagran - Location





Ballynagran – A rural community



Land use

Total Area 3750ha – 600 homes

Pasture: 50%

Crops: 20%

Woodland: 15%

Rape Seed: 1%

Marginal Farmland: 5%

Settlements: 2%

Industry/ Commerce: 3%



Ballynagran – Local Assets





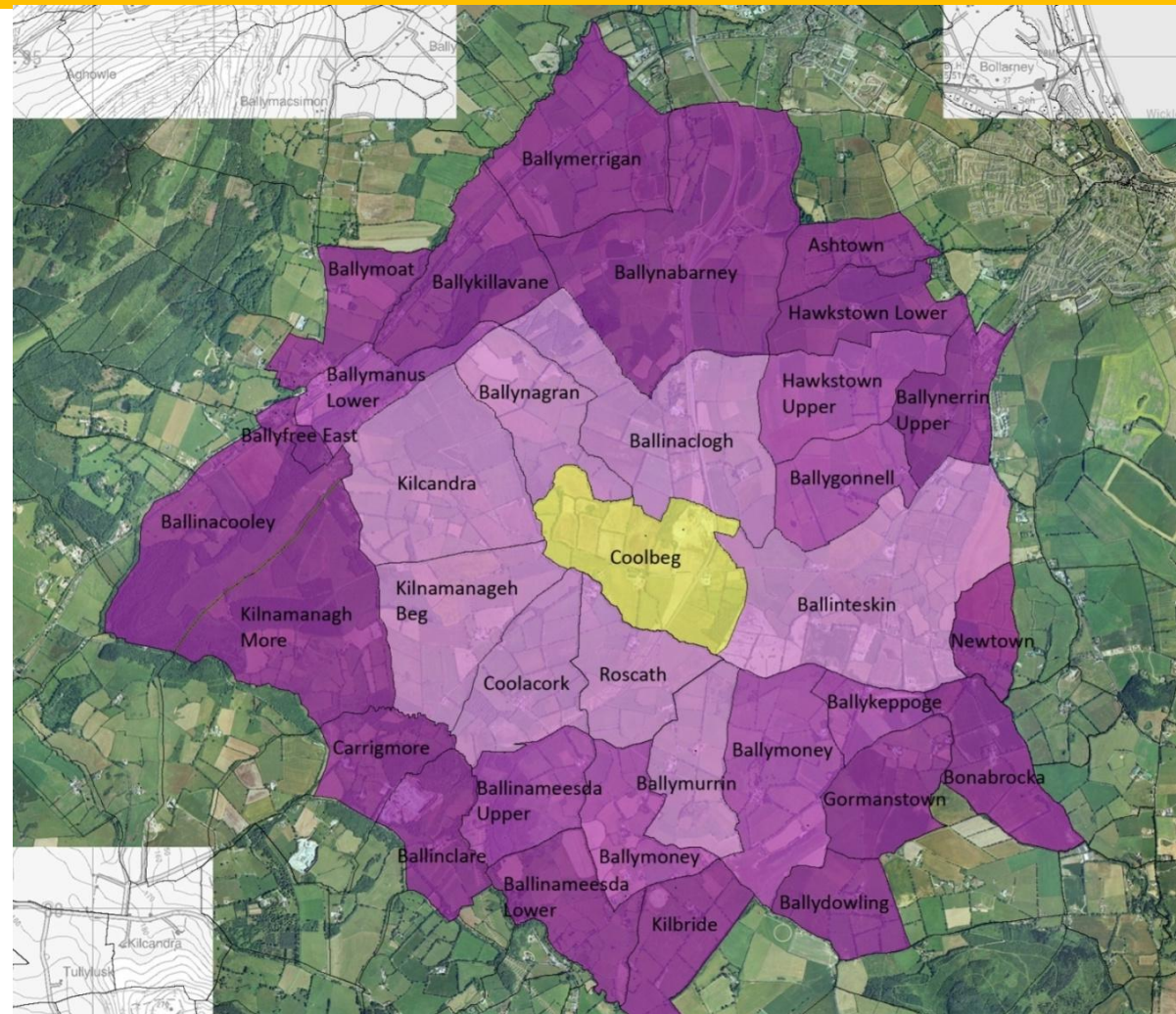
Ballynagran Community Fund



Landfill community fund has been set Up in 2010 to support community projects within a 3km radius of site.



Ballynagran
Energy Plus⁺
Community
was set up in
October 2010





Project Background



Hikes in energy costs

25% 'cannot cope with rise in energy cost'

By Niamh Hennessy

MONDAY, OCTOBER 17, 2011

Household energy bills to rise by over €300 per year

Watchdog accuses Bord Gais of 'hoodwinking' customers

Cost of running
a car rises €600 as fuel prices soar

Electricity price rise on the way



- Electricity and gas price hikes approved | 05/09/2012
- Energy price rises turn heat up on consumers | 05/09/2012
- Home heating oil prices up 18% - survey | 07/09/2012
- Gas prices set to increase again | 04/09/2012



Energy Plus+ Project Mission



Reduce energy use of local people.

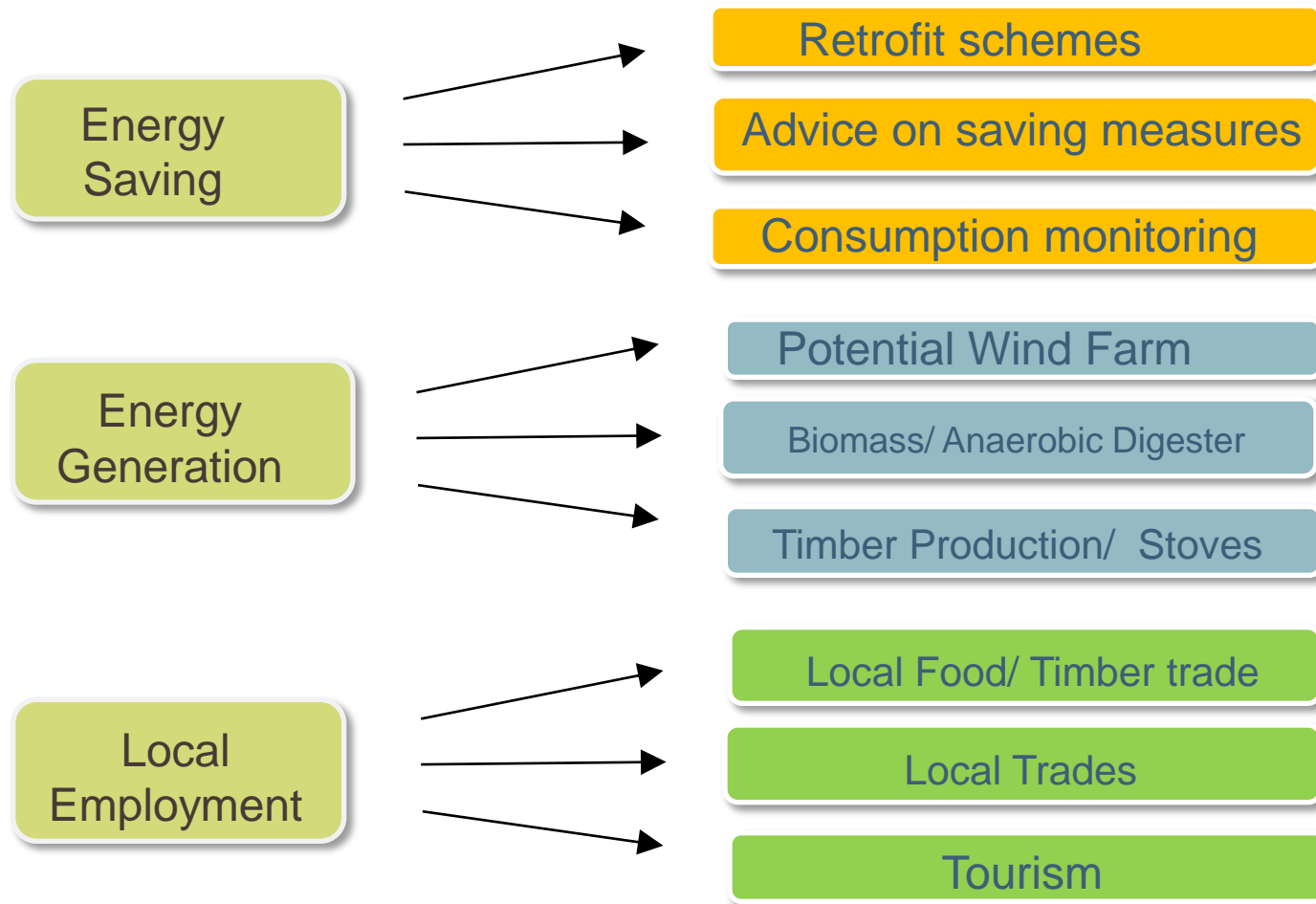
Produce sustainable energy locally.

Create local 'green collar' skilled employment.

Enhance the overall quality of life for residents.

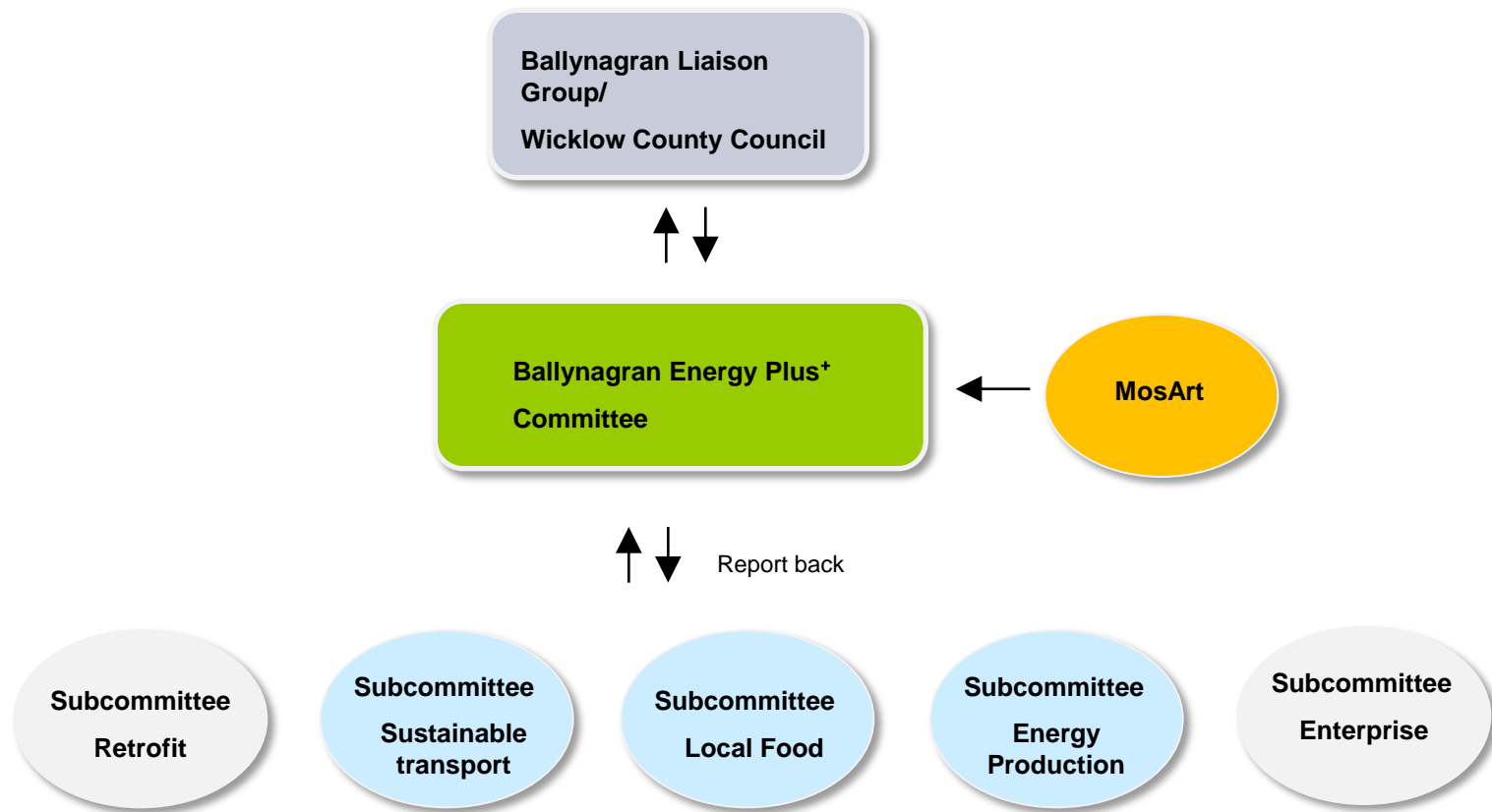


Potential Community Benefits





Ballynagran organizational structure





Key achievements to date



Organisational aspects

Delivered Projects

2011

Set up organisation as legal entity.
Set up logo and website

Energy Audit
350 homes

Prepare strategy and action plan

Distribution of Low Energy
Light Bulbs and Radon Testing

Sign up community members to the
scheme

Partial Retrofitting of Glenealy Primary
School

Database of Energy Use in Homes and
recommendations for energy savings

Set up sub - committees

Retrofitting of 72 homes

Continue retrofitting
homes and businesses

Low Carbon
Transport

Community Wind
Farm /Biogas Facility

Support local food
and produce

2012 -
2020



Energy Assessment of 350 homes

ENERGY AUDIT & ADVISORY REPORT.



Owner : _____
Address : _____
Reference No : _____
Report Date : _____
Floor Area m² : 144

Your Current Energy Audit

This energy audit is an indication of the energy performance of your dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m²/yr).

Existing Primary Energy Usage (kWh/m ² /yr)	Existing Indicative Energy Costs Per Year**	Existing Energy Audit Rating
264.95	€3,815	D2

Energy Advisory Recommendations:

Please find below advice on individual improvement measures that would improve the energy efficiency of your home. Please note that these are recommendations only and are based on a pragmatic and cost effective approach.

Low Cost Measures:

- Fitting 100% low energy fixed lighting.

€150 -2.6% €3,715 -€100 1.5 years D1

Medium Cost Measures:

- Installing a minimum 300mm (12inches) insulation to attic space.

€350 -0.7% €3,788 -€27 13 years D2

High Cost Measures:

- Carry out Air Permeability Test & Implement recommendations.

€1,000 -4.7% €3,634 -€181 5.5 years D1

- Fitting a new Heating Programmer + Room thermostat + Thermostatic Radiator Valves (TRVs) to all Radiators + 80mm minimum insulation to Hot Water Cylinder

€1,000 -9.8% €3,442 -€373 3 years D1

- Fitting a new oil boiler with minimum 93% seasonal efficiency.

€1,750 -9.5% €3,451 -€364 5 years D1

- Install Solar Panels for domestic hot water supply.

€5,000 -10.1% €3,431 -€384 13 years D1

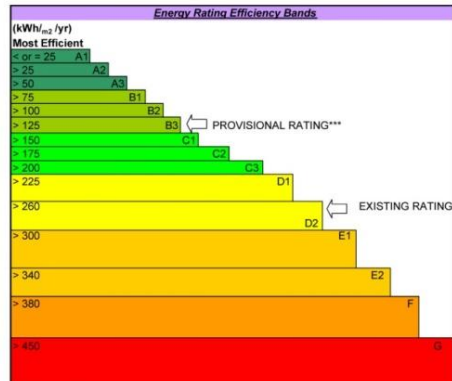
- Replacing all existing single glazed windows with energy efficient windows with maximum u value of 1.0.

€1,500 -2.8% €3,710 -€105 14 years D1

- Fit minimum 100mm external wall insulation to entire house.

€11,000 -16.0% €3,203 -€612 18 years C3

PROVISIONAL OVERALL COSTINGS, SAVINGS & RATING: €21,750 -56% €1,668 -€2,147 10 Years B3***



Least Efficient

AVAILABLE GRANTS

The Sustainable Energy Authority of Ireland (SEAI) are offering grants to home owners to carry out improvement works to improve the energy efficiency of their homes. To see if you qualify for a grant, please log onto their website and click on the "Home Energy Saving Scheme" & "Greener Homes Scheme" links.

- www.seai.ie

BALLYNAGRAN COMMUNITY

For further information and to keep updated with news, advice and future events please log onto our website and register as a friend of our facebook page.

- www.ballynagran.com

- www.facebook.com/ballynagranenergyplus

- Follow us on Twitter - twitter.com/ballynagran

Note:

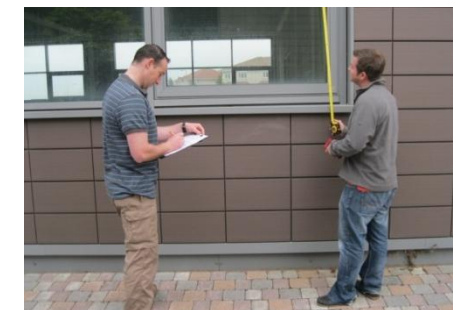
Please note that some improvement works may require the use of suitably qualified installers or professional advice and all works should be completed to the relevant health and safety standards.

OVERALL COST SAVINGS: 56% SAVING

* = Please note that the estimate costs are indicative only and prices for improvement works will differ for individual houses.

** = Please note that the energy costs are indicative based on average domestic fuel prices as per SEAI data last updated Oct 2010.

*** = Please note that the provisional overall rating provided is the result of the accumulation of all recommended improvement works being carried out.





Summary Tables for Energy Assessments



Townland

Total Energy
usage

Energy Rating

Roof
insulation

Lighting

TOWNLANDS	SIGN	UP	%	KwH/M2/YR USAGE	kgCO2/m2/yr USAGE	Total kgCO2/yr	A1 to A3 < 75	B1 > 75	B2 > 100	B3 > 125	C1 > 150	C2 > 175	C3 > 200	D1 > 225	D2 > 260	E1 > 300	E2 > 340	F > 380	G > 450	unknown mm	0 mm	50 mm	100 mm	150 mm	200 mm	250 + mm	Fixed Lighting	Existing Low Energy	Required Low Energy
Ashtown	3	75		1,739	526	71,722	0	0	0	0	0	0	0	1	1	0	0	0	1	-	1	-	1	1	-	-	50	8	42
Ballinacloagh	7	78		2,067	419	85,238	0	0	0	0	0	1	0	1	3	1	0	0	1	-	-	-	5	2	-	-	232	21	211
Ballinacooly	42	55		14,746	4,042	460,928	0	0	0	3	1	3	0	1	8	8	2	6	10	4	2	1	15	12	3	5	1,064	150	914
Ballinameesda Lower	6	38		2,313	577	89,371	0	0	0	1	0	0	0	1	0	0	0	3	1	1	-	-	3	1	-	1	179	51	128
Ballinameesda Upper	0	-		-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Ballinaclare	2	100		887	228	39,795	0	0	0	0	0	0	0	0	0	0	0	1	1	1	-	-	1	-	-	-	40	7	33
Ballintesk	26	67		8,233	2,348	239,928	0	0	0	0	2	0	5	5	1	2	2	6	3	1	1	1	4	13	2	4	670	138	532
Ballydowling	1	50		209	53	7,087	0	0	0	0	0	0	1	0	0	0	0	0	0	-	-	-	-	1	-	-	28	4	24
Ballyfree East	5	33		2,773	707	66,772	0	0	0	0	0	0	0	0	0	0	1	3	1	2	1	-	2	-	-	-	111	1	110
Ballygonnell	3	60		1,233	303	52,009	0	0	0	0	0	0	0	1	0	0	0	1	1	1	-	-	1	1	-	-	170	2	168
Ballykeppoge	6	86		1,365	294	55,803	1	0	0	1	1	0	1	0	0	1	0	1	0	-	-	-	2	2	-	2	169	65	104
Ballykillavane	6	46		1,777	445	55,945	0	0	0	0	0	1	2	0	0	0	1	2	0	-	-	-	1	3	2	-	160	28	132
Ballymanus Lower	53	56		10,617	2,415	330,962	0	0	0	4	18	10	7	9	4	0	0	0	1	-	-	-	16	24	10	3	1,543	173	1,370
Ballymerrigan	12	52		3,771	935	117,050	0	0	1	0	0	0	1	1	2	3	1	2	1	2	-	-	4	2	2	2	381	83	298
Ballymoat	14	41		3,059	758	126,774	0	0	1	2	3	1	0	3	1	3	0	0	0	1	-	-	4	-	6	3	432	90	342
Ballymoney	3	38		890	220	49,758	0	0	0	0	0	0	1	0	1	0	0	1	0	-	-	-	1	1	1	-	142	13	129
Ballymurrin Lower	12	86		4,060	1,014	153,318	0	0	0	0	1	0	1	3	2	2	0	1	2	-	-	-	8	1	1	2	377	64	313
Ballymurrin Upper	3	60		1,203	301	43,744	0	0	0	0	0	0	0	0	1	0	1	0	1	1	-	-	2	-	-	-	61	12	49
Ballynabarny	17	55		6,308	1,689	177,892	0	0	0	0	0	2	2	0	3	5	1	1	3	2	-	-	8	4	2	1	299	59	240
Ballynagran	3	75		590	146	25,979	0	0	0	0	1	0	2	0	0	0	0	0	0	-	-	-	-	1	2	-	173	1	172
Ballynerrin Upper	47	43		13,894	3,422	396,366	0	0	0	1	7	11	5	7	3	2	2	2	7	4	1	1	17	12	9	3	1,283	273	1,010
Bonabrocka	4	80		1,364	352	77,192	0	0	0	0	0	1	0	0	1	0	0	1	1	1	-	-	-	2	-	1	158	8	150
Carrigmore	1	50		420	29	4,903	0	0	0	0	0	0	0	0	0	0	0	1	0	-	-	-	1	-	-	-	26	3	23
Coolacork	5	100		1,469	367	73,745	0	0	0	0	1	0	0	1	0	1	0	2	0	-	-	-	3	2	-	-	138	20	118
Coolbeg	4	80		1,377	348	32,536	0	0	0	0	0	1	0	0	0	2	0	0	1	-	-	-	2	1	1	-	95	15	80
Gormanstown	3	60		608	153	34,771	0	0	0	1	1	0	0	0	0	1	0	0	0	-	-	-	1	1	1	-	72	7	65
Hawkstown Lower	5	83		1,392	370	54,455	0	0	0	1	1	1	0	0	0	1	0	0	1	-	1	-	1	1	1	1	210	27	183
Hawkstown Upper	0	-		-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	0
Kilbride	4	67		1,188	295	64,541	0	0	0	0	0	0	0	2	1	0	0	0	1	1	-	-	2	1	-	-	219	2	217
Kilcandra	11	100		3,386	829	128,430	0	0	0	0	3	1	2	0	1	0	1	1	2	-	1	-	5	4	1	-	426	73	353
Kilnamanagh Beg	6	100		1,586	390	53,477	0	0	0	0	1	0	1	0	2	1	0	1	0	-	-	-	2	3	1	-	194	14	180
Kilnamanagh More	8	80		2,259	616	84,246	0	0	0	1	1	1	1	2	1	0	0	0	1	1	-	-	1	4	1	1	314	28	286
Newtown	4	50		1,063	283	66,485	0	0	0	0	0	1	0	0	2	1	0	0	0	1	-	-	1	1	1	-	124	11	113
Roscath	12	80		4,021	1,050	123,141	0	0	0	0	1	1	0	1	2	3	0	1	3	-	2	1	7	1	1	-	353	23	330
Totals	338			101,866	25,930	3,444,363	1	0	2	15	43	36	32	39	40	37	12	37	44	24	10	4	121	101	49	29	9,893	1,474	8,419



Community Report summarizing findings



Ballynagran
Ireland's Energy Plus+ Community

Draft Community Energy Survey Report

August 2011

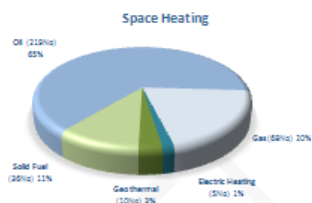


Figure 2.5 Space heating systems in the community

Solid fuel stoves as the primary fuel source account for 11% of the surveyed properties.

A comparison with the national Census 2011 (Housing, table 40c - rural areas) indicates that the proportion of oil fired heating systems in Ballynagran (65%) is slightly less than national average in rural areas (national average 69%). Conversely there is a much higher proportion of natural gas heating systems (20%) compared to the national average in rural areas (2%), due to the existing gas supplies in the two settlement areas within Ballynagran.

2.3.2 Secondary Space Heating System

The assessment of secondary space heating systems shows that a large majority of homes (82%) in the Ballynagran community use solid fuel in their homes. Most of these dwellings have open fire places; approximately 20-30% have solid fuel stoves.



Secondary heating system

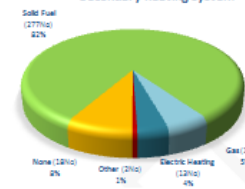


Figure 2.6 Secondary heating systems

2.3.3 Boiler Efficiency

As part of the energy assessment efficiency of boilers in participating households were assessed. It shows most boilers used in the community are inefficient. Over 84% of assessed boilers in the community do not meet the 2011 building regulations standard of having a minimum seasonal efficiency of 90% and almost half of the boilers had an efficiency below 80%.

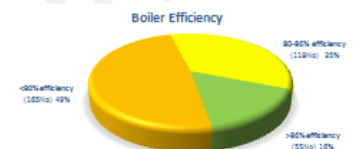


Figure 2.7 Boiler efficiency



Housing Retrofit Scheme



Ballynagran Small Grant Scheme 2011

Wicklow County Council and the Ballynagran Landfill Community Liaison Committee invite applications, under its Small Grant Scheme 2011, towards energy efficiency improvement work in owner occupied house in the locality of the Ballynagran Landfill.

This scheme is being funded through the proceeds of the levy on the Ballynagran Landfill Facility.

Grants of up to 90% available subject to a maximum grant of €5,000 per household.

Applications under this heading can include:

- Attic Insulation
- Wall Insulation – Cavity, External, Internal Dry Lining
- High Efficiency Oil/Gas Boiler with controls
- Heating Controls Upgrade only
- Solar Heating
- Double Glazed Windows

Wicklow.ie
WICKLOW COUNTY COUNCIL
Comhairle Chontae Chill Mhantáin

Home	
All Services	▶
Your Council	▶
Online Services	▶
Town Councils	▶
Associated Sites and Links	
Accessibility	▶
Arts Office	▶
Business	▶
Community, Cultural and Social	▶
Corporate Services	▶
Civil Defence	▶
Environment	▶
Film Commission	▶
Finance	▶
Fire Service	▶
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Higher Education Grants	▶
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Special Projects	▶
Wicklow County Campus	▶

Alternatively, click [here](#) to go to the sitemap for full navigation.

Contact Us

Wicklow County Council
Whitegates, Wicklow Town
Phone: 0404-20100
Fax: 0404-67792
Email: casec@wicklowcoco.ie

Sonraí Teagmhála



You are in:

Ballynagran Small Grant Scheme 2011

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- Solar Heating
- Double Glazed Windows

Application forms and guidelines are available from:

- [Ballynagran Small Grants Scheme 2011/2012 Word Version - 4539kb](#)
- [Ballynagran Small Grants Scheme 2011/2012 PDF Version - 268kb](#)

The Office of Community, Cultural and Social Development
Wicklow County Council
County Buildings
Wicklow
Tel: 0404/20208. Fax: 0404/20113.
Email: mtuite@wicklowcoco.ie

Completed application forms should be returned to the Office of Community, Cultural and Social Development not later than 12 noon Friday 9th September, 2011.

It is envisaged that a Capital Grant Scheme for Community Projects and Works will be advertised in late 2011/early 2012.



Retrofitting of over 70 homes





Retrofit project for Glenealy National School



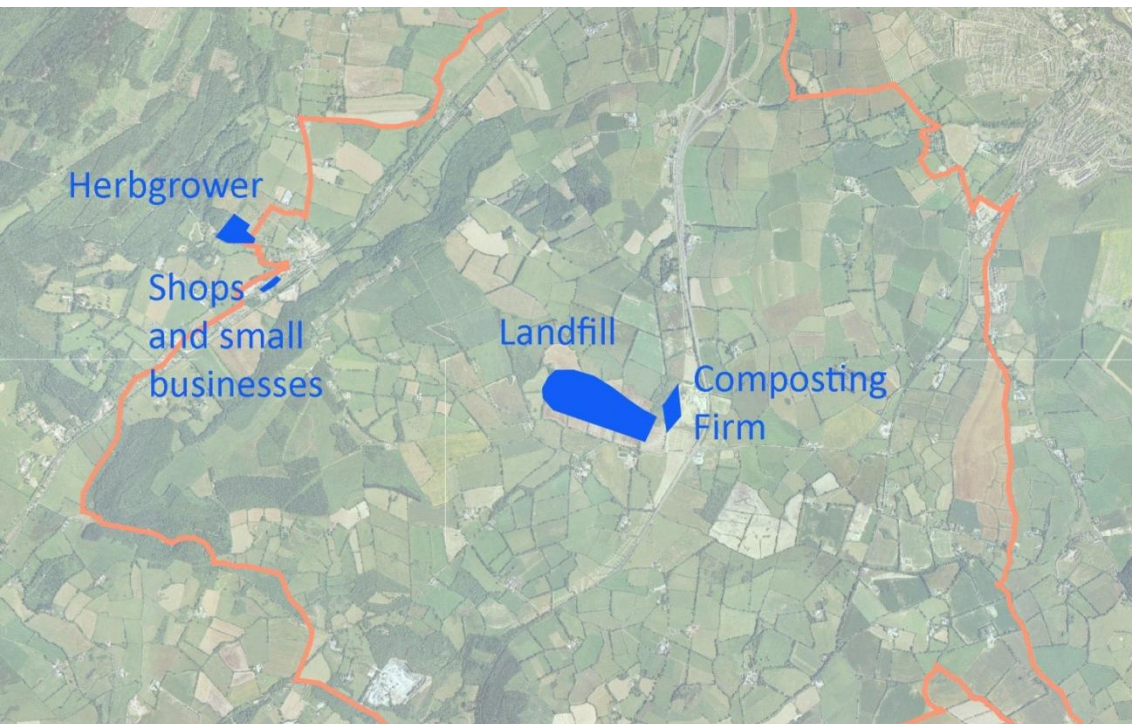


Glenealy School Official Opening 12/2011





Improving local businesses



Ballynagran Ireland's Energy Plus Community

Business/ Industry Survey

Please take a moment to complete this community survey. Its sole purpose is to gather information on the total energy consumption of the Ballynagran Community for a research project. Information gathered will be used to identify the measures required by the Ballynagran Energy Plus Community to achieve its goal of becoming a sustainable energy plus community. All individual details entered will be treated confidential.

Date: Reference Number:

Your contact details:

Contact Email: Tel:

Details of your Business

Type of business:

Total floor area all buildings: Age of main property:

Electricity

Please tick where applicable:

☐ Total Annual Electricity Consumption 1990 kWh

☐ Total Annual Electricity Consumption 2011 kWh

☐ Total Renewable Annual Electricity Generation fed into Grid Generation 2011 kWh

Type of Generation:

☐ Where do you see electricity saving potentials in your business please describe:

Page 1

Ballynagran Ireland's Energy Plus Community

Business/ Industry Survey

Heating Systems

Please tick where applicable:

☐ Total Annual Gas Consumption 1990 kWh

Please state total amount of kWh (if not available please state annual cost) 2011

Gas fired heating system Age: No kW

☐ Total Annual Oil Consumption 1990 kWh

Please state total amount in litres (if not available please state annual cost) 2011

Oil fired heating system Age: No kW

☐ Solid Fuel Consumption 2011

Coal kg

Peat kg

Timber m3

Pellets ton

☐ Other Sources of Heating 2011 please describe:

☐ Where do you see heat saving potentials in your business please describe:

Page 2





Current Research in Ballynagran



ZECO₂S

Zero CO_{2e} Emission Certification System



DEVELOPMENT OF ZERO CO₂ EMISSION CERTIFICATION SYSTEM AS A TOOL FOR SUSTAINABLE COMMUNITIES

Develop a standard and internationally acceptable Zero Co₂ Emission (ZE) Certification System for Communities .



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

STUDY OF MATERIAL FLOWS IN BALLYANGRAN

PhD project to develop initiatives and politics to reduce the carbon footprint of the community



seai SUSTAINABLE
ENERGY AUTHORITY
OF IRELAND

ENERGY USE IN FARMS IN BALLYAGRAN

SEAI supported internship in Wicklow County Council



Planned Future Activities



Complete Energy Baseline

Prepare Energy Masterplan

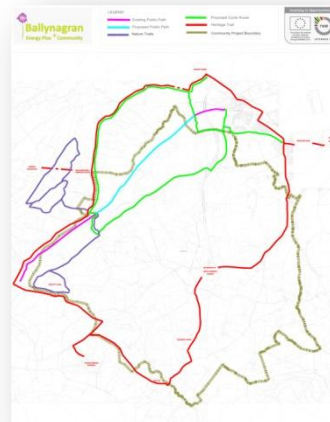
Implement Energy Saving schemes

Investigate community wind farm and biogas system

Develop a local transport strategy

Establish a food and bio fuel network

Increase stakeholder engagement





Current and potential funding sources



Current funding sources

Landfill community Fund

SEAI grant schemes

Donations from companies

Sponsoring from landfill operator

Free advise from specialist consultants

INTERREG

Cost savings through bulk buying

Potential funding sources

Partnerships with private companies

Low interest loans from Credit Union

Pay as you save schemes

LEADER projects

Co-op membership fees

Carbon Certificates



Engagement with the community



- LEARN ABOUT THE PROJECT
- OUR COMMUNITY
- MY HOME
- BALLYNAGRAN FOOD NETWORK
- SUSTAINABLE TRANSPORT
- LOCAL ENERGY GENERATION
- ENERGY SAVING PROJECTS
- PUBLIC EVENTS MEETINGS
- LATEST NEWS



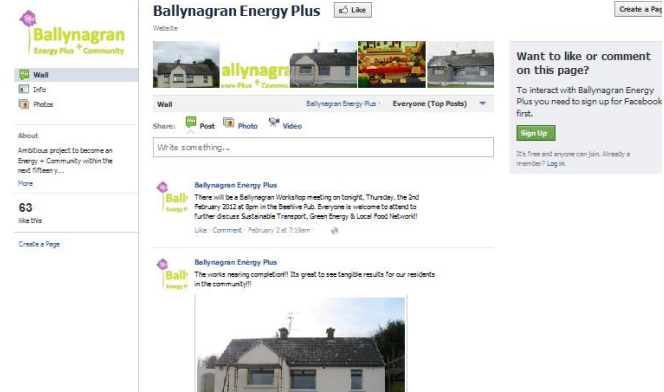
Community Assets

Ballynagran lies in Co Wicklow, the 'Garden of Ireland' and has a wealth of Gardens and Woodlands such as Deputies Pass, Mount Usher Gardens and Kilmaccurragh within its vicinity.

It also features the first certified Passive House built in Ireland, and a recently restored historic Quaker settlement.

Public buildings within the community such as Glenealy Hall, Glenealy National School and Kilbride Church are currently being repaired and upgraded to higher energy efficiency levels.

- 1 Mount Usher Gardens
- 2 Clermont Centre of Excellence





Get involved in the Ballynagran Energy Plus+ Community

Free Energy Audit of your home
Free Radon Assessment of your home
Free low energy light bulbs
Lots of other community benefits

Ballynagran Energy Plus+ Community

Newsletter January 2012

Community Workshop Meeting Announcement
 A workshop / sub-committee meeting is to be held at the Beehive Pub on Thursday 2nd of February, at 8pm.
 At the meeting we have to agree proposed actions for this year to be the Local Green Energy Production, Local Food network, Energy Saving initiatives and Sustainable Transport. Every member of the community is welcome to attend!

Retrofitting classrooms officially opened
 The Minister for the Environment, Phil Hogan TD visited Glenealy National School to officially open the refurbished classrooms on the 22 December 2011. Great singing, local food products, tea and coffee were enjoyed by all. Thank you to all the local residents who attended and made the visit a great success!







Ballynagran Public Meetings





Barriers and how to overcome them



High degree of complexity.

Lack of organizational experience and specialist skills.

High Capital Costs of some schemes.

Financial Risks involved.

Planning Permission & Planning Delays.

Lack of interest & Mistrust.

Concentrate on a small number of actions.

Regularly engage with the community and stakeholders.

Establish a support structure of local stakeholders but also professionals.

Establish partnerships with potential investors.

Maximize public funding and sponsoring sources.



www.ballynagran.com

www.zecos.eu

www.energypluscommunities.ie

christoph@mosart.ie