



Gwasanaeth Ynni Energy Service

Cefnogi ymdrech Cymru i greu economi carbon isel lwyddiannus
Supporting Wales' drive towards a successful low carbon economy

Annual Report 2018-19





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Introduction

This report presents the achievements of the first nine months of the Welsh Government Energy Service, from July 2018 to March 2019.

Welsh Government has ambitious targets for reducing greenhouse gas emissions and generating locally owned, renewable energy.

The Energy Service supports the public sector and community groups to work towards these targets. The focus of the Service is to support energy efficiency and renewable energy projects set up across Wales.

The Service is running from July 2018 to March 2022, bringing together and building on previous Welsh Government programmes including Resource Efficient Wales, Green Growth Wales and the Local Energy service.





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Key outputs in 2018-19

Projects reaching financial close

At the financial close stage, energy efficiency or renewable energy projects have funding allocated to them and are ready to be bought then built or installed.

Number of energy efficiency projects

26



Number of renewable energy projects

16



Public sector savings and income (project lifetime)

£61,258,000

Community income (project lifetime)

£1,400,000

Renewable energy total installed capacity

3MW

Carbon reduction (project lifetime)

113,370 tCO2e

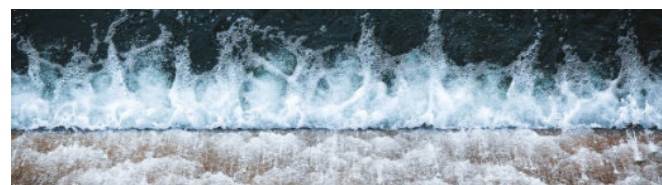
Value of projects financed by the Wales Funding Programme

£25,837,000



Total value of investment committed

£30,250,000



Key achievements in 2018-19

Projects added to the pipeline

Projects added to the pipeline include any new energy efficiency and renewable energy projects that the Energy Service is supporting at an early stage of their development, with potential for future implementation. The figures below refer to new projects added to the pipeline from 1st July 2018. Additionally, the Energy Service continues to support legacy projects that were initiated under previous Welsh Government programmes.

renewable energy total potential installed capacity

14MW

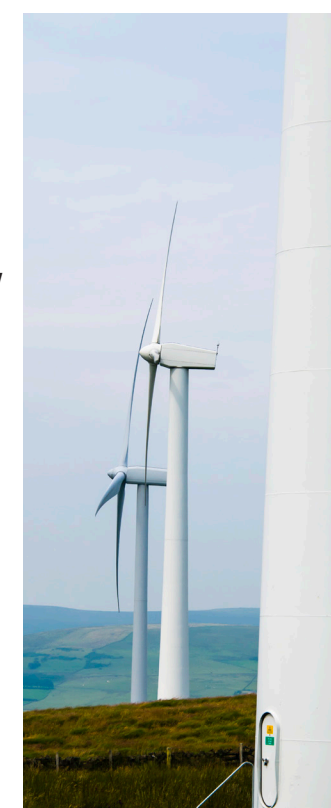
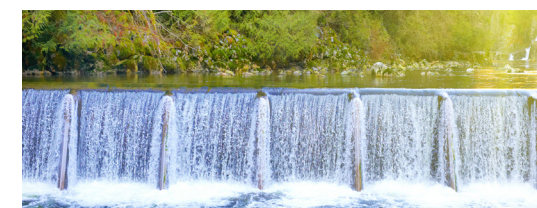


Number of energy efficiency projects

26

Number of renewable energy projects

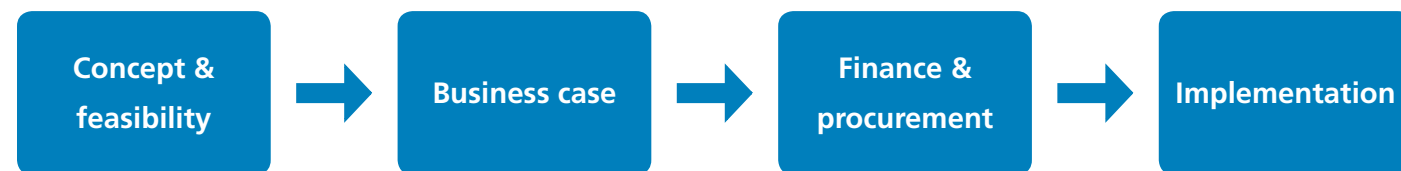
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What type of support does the Energy Service offer?

The Energy Service provides free technical, commercial and procurement support to help develop large scale energy efficiency or renewable projects, from concept stage through to completion. This involves working closely with public bodies, community groups and, where necessary, other stakeholders with an influence on project viability, such as district network operators.

All service users have support from a dedicated Energy Service development manager to coordinate and deliver support tailored to their needs, and a strategic lead to secure senior level commitment within their organisation and align project work with wider de-carbonisation and economic priorities at a regional and national level.



(Above) Figure 1: The Welsh Government Energy Service helps develop energy efficiency and renewable energy projects from concept through to implementation.



What types of projects received Energy Service support?

Typical projects supported by the Energy Service include:

- Estate wide energy efficiency: installing multiple energy efficiency technologies across multiple sites to reduce energy use and costs, for example insulation, efficient lighting and heating upgrades for local authority buildings;
- Building mounted renewable energy: installing renewable energy technologies in multiple sites to increase renewable energy generation and income, typically solar photovoltaic panels, usually linked to energy efficiency projects;
- Street lighting upgrades: upgrading street lighting to reduce energy use and costs, by switching to LED lamps, smart controls or reduced lighting hours;
- Renewable energy generation: developing wind, solar farms or hydro power schemes, locally owned by the public sector or community groups to generate renewable energy and income.

How are Welsh energy projects financed and delivered?

Energy Service users can be assisted to draw on the following support:

- Alternative routes to finance: such as power purchase agreements, community share offers or other arrangements where renewable energy is sold to other organisations.
- The Wales Funding Programme: interest free finance for public sector energy efficiency and renewable energy projects provided by the Welsh Government;
- The Development Bank of Wales: flexible loans and investment for community owned renewables;
- The Public Works Loans Board: low cost, long term public sector finance;
- Public sector internal funds: capital budgets or recycling funds;

"If we hadn't have had support from the Energy Service we probably wouldn't have taken the project forward because we would have had to have gone out for external support, which we would not have had the money or the support for. The fact that we can go to senior management and say support is available free of charge, it then gains support to take things forward."

Energy Service user

Re:fit Cymru: Energy Performance Contracts

Many public bodies have used the Re:fit Cymru framework to deliver large scale energy efficiency projects. This provides public bodies with an 'energy performance contract', a structure which guarantees savings on energy bills after energy efficiency or renewable energy technologies have been installed. Re:fit projects are in excess of £1 million each and can be financed using interest free loans from the Wales Funding Programme. Support to develop and progress Re:fit projects is provided by a dedicated team, funded by the European Union through the Welsh Government.

Who engaged with the Energy Service in 2018-19?

In Year 1 the Energy Service engaged with a wide range of Welsh organisations:

- 54** Community groups
- 22** Local authorities
- 11** Other public sector organisations*
- 10** Health Boards and Trusts
- 9** Universities and colleges
- 7** Town and Community Councils
- 3** Fire and Rescue services

*Includes Welsh Government, Natural Resources Wales, National Library, National Museums, NHS Shared Services, National Parks, Higher Education Funding Council for Wales, Arts Council and Sports Council



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Case Studies

This section presents five case studies of projects which were supported by the Energy Service in 2018-19.



Community Sector: Wind Power

Renewable Power Pembrokeshire are a Cooperative and Community Benefit Society covering the whole of Pembrokeshire. Their overarching objectives are to carry out activities that benefit the community and promote energy conservation and renewable energy in the county.

The 900kW East Williamston wind turbine has been supported extensively by the Energy Service through complex technical, commercial and procurement feasibility work, as well as securing land and planning consents, as it moves towards financial close and construction.



Welsh Government provided a grant to the community group to develop the project. The turbine itself will cost £1.1 million with an additional £300k required for grid connection and access. This is being supported by a £1.4 million loan from the Development Bank of Wales. The Energy Service assisted the community group to secure Feed-in Tariff for the project before the deadline of March 2019. This means the community group will receive a secured level of income from generating renewable electricity for 25 years. The project is expecting to energise in March 2020.

Community Sector: Solar Battery Storage

Gower Power is a community cooperative specialising in setting up, developing and securing finance for small socially and ecologically focused enterprises. Their aim is to establish the Gower in South West Wales as a flagship area for resilience and sustainability.

The Energy Service supported Gower Power to develop and implement a large scale battery storage system to a 1MW solar farm they have already put into community ownership. The storage project will help to maximise the benefits and income from the solar farm and will enable a direct supply of renewable electricity for local residential and business consumers. The Energy Service assisted with the technical, financial and commercial feasibility work for the project, helping to secure a £59,000 Welsh Government grant and a £315,000 loan to buy and install a 228kW rated Tesla battery with 912kWh of storage capacity.

Members of the local community will have the opportunity to invest in and/or consume renewable electricity from the Gower Power Solar Storage installation. The system will be installed in autumn 2019 and share offer launched in December 2019.

Public Sector: Estate Wide Energy Efficiency

Torfaen County Borough Council accessed Energy Service support to develop two large energy efficiency schemes, one for five leisure centres and the other for five council buildings, including adult learning centres.

This involved working closely with the council's property and energy teams and undertaking site visits and technical calculations to develop a package of suitable energy efficiency measures for the sites. The proposed measures included building insulation, pipework insulation, LED lighting, boiler rationalisation and upgrades, combined heat and power, ventilation upgrades, swimming pool covers, control optimisation for air handling units and solar photovoltaic panels.

The total value of these improvement measures is approximately £1.2 million. These two projects are expected to save the council approximately £2.9 million in energy costs and reduce carbon emissions by 6,700 tonnes over their lifetimes.

Public Sector: Street Lighting

The Energy Service worked with Neath Port Talbot County Borough Council to secure £982,000 through the Wales Funding Programme to invest in a major street lighting upgrade programme. This involved a comprehensive review of the existing street lighting and identifying a range of options for saving energy, costs and carbon by installing LED lighting and optimising the overall street lighting strategy.

The final approach was agreed with the council's energy and street lighting teams, taking into account health, safety, wellbeing and other council priorities. The Energy Service then prepared the business case and supported technical calculations which were used to secure approval from the council's finance team and to agree an interest free loan from the Wales Funding Programme. The project is expected to save the council £2.7 million in energy bills and 4,900 tonnes of carbon over the 20-year project lifetime.

1



2



1. Thanks to support from the Energy Service, Gower Power were able to install the Tesla battery, pictured opposite.

2. The Energy Service supported Torfaen County Borough Council in the replacement of their old, energy inefficient boilers.

Public Sector: Solar Farm

The Energy Service helped Cardiff Council to develop a major solar farm on a former landfill site. The 9MW solar farm, which will involve installing 33,000 solar photovoltaic panels, is a landmark project for the Welsh public sector. As well as generating locally owned renewable energy, the project will generate income for the council by selling green electricity to a nearby water treatment plant owned by Welsh Water.

Cardiff Council had considered building a solar farm at the Lamby Way landfill site for many years. The project had struggled to gain momentum largely because of uncertainty around subsidies for renewable energy generation and other competing pressures on the council's capital budget.

As an actively gassing former landfill site, with complex ecology and a requirement to reinstate public access around the coastal path, the site presented a number of significant challenges for development.



The Energy Service helped the council to maximise the benefits from developing the site itself instead of passing the opportunity to a private company. The Energy Service supported the council through the complex planning submission process, provided guidance throughout the procurement process and undertook detailed commercial modelling for a range of economic scenarios. This enabled the project to progress through the internal approval processes at council cabinet level, and the negotiation of a power purchase agreement (PPA) with Welsh Water. The solar farm is expected to be fully constructed and operational in spring 2020.

Strategic Activity

In addition to the core work on energy efficiency and renewable energy projects, the Energy Service completed a number of other activities across the Welsh public and community sectors:

Survey on decarbonisation in the Welsh public sector

The Welsh public sector has been taking action to reduce carbon emissions. Welsh Government commissioned the Energy Service to conduct a detailed survey of 54 public bodies to gain greater insight into the current status of this decarbonisation activity across the sector. The survey focuses on the Welsh public sector approach to:

- Decarbonisation targets and progress to date;
- Governance and resources for carbon management;
- Data and reporting on energy use and carbon emissions;
- Activity to reduce emissions from buildings, fleet, land use and renewable or low carbon energy generation;
- Procurement policies related to decarbonisation.

The results of this survey are currently being used to inform Welsh Government's development of a standardised methodology for reporting on carbon emissions, to assess progress towards the 2030 target for carbon neutrality in the public sector.

The raw data is also being used by the Welsh Government Energy Service to identify specific opportunities for implementing energy efficiency and renewable energy projects.



Strategic Activity

The Energy Service is working alongside stakeholders in the Cardiff City Region, the North Wales Economic Ambition Board and the Growing Mid Wales Partnership to create regional energy plans for each economic area. This work will embed energy topics into wider plans for economic development and growth and encourage a 'place-based' approach to decarbonisation. The plans will identify a pipeline of investable projects to enable carbon reduction in each region. The regional energy planning is split into two stages:

Stage 1: Energy Strategy Development



Stage 2: Energy Delivery Plan Development



Summary of State of Play SWOT Analysis

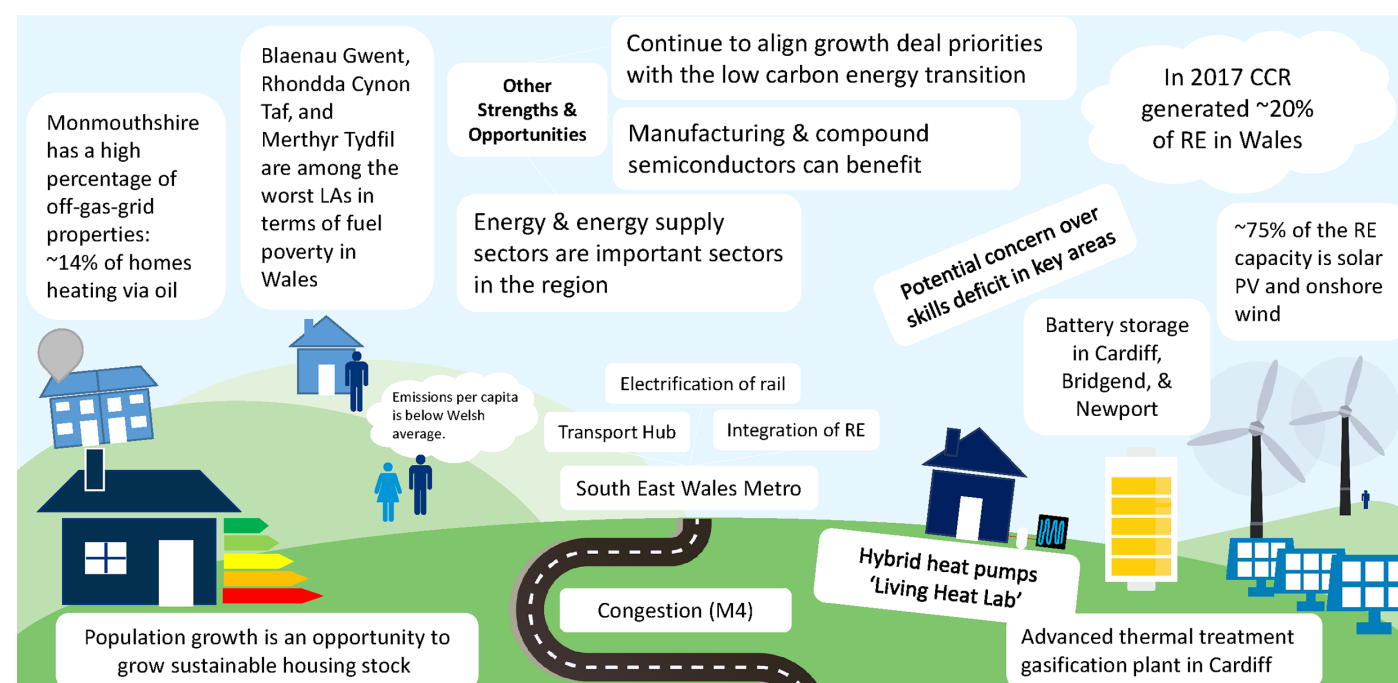


Figure 2: Example graphic from regional energy planning 'state of play' workshop undertaken by the Energy Service for the Cardiff Capital Region

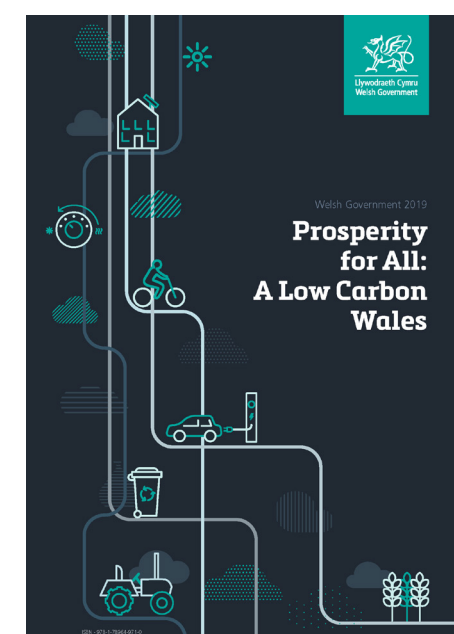
Fleet and electric vehicle infrastructure studies

Reducing greenhouse gas emissions from transport is an increasingly pressing challenge for the public sector. The Energy Service completed research studies into the potential for low carbon fleet in the Gwent region, with eight public bodies working collaboratively, and a separate study for the Vale of Glamorgan. This work resulted in:

- Detailed analysis of current vehicle usage patterns for the public sector
- Assessment of the technical potential for changing existing vehicle use patterns and using ultra-low emission vehicles to reduce greenhouse gas emissions
- Analysis of the costs and benefits of using ultra-low emission vehicles
- Options for rolling out vehicle charging infrastructure

Launch of Prosperity for All: A Low Carbon Wales

In March 2019 the Energy Service supported Welsh Government to launch 'Prosperity for All: A Low Carbon Wales' in Cardiff, with key note speeches from the First Minister, Mark Drakeford, the Future Generations Commissioner, Sophie Howe and other influential speakers. The document sets out an overarching decarbonisation plan for Wales and features the Energy Service throughout.



Projects supported by the Energy Service

Total projects supported141

Local authorities22

Authority	Hydro	Solar PV	Wind	Energy Eff.	Storage	Heat
Blaenau Gwent	1		1	3		1
Bridgend				1		2
Caerphilly	3		2	1		
Cardiff		8		13		
Carmarthenshire	1	1		3		
Ceredigion		1		1		2
Conwy		1	1	1		
Denbighshire	1	2	1	1		
Flintshire		2		3		1
Gwynedd	3	6	1	2		
Isle of Anglesey		3	1	1		1
Merthyr Tydfil		2		6		
Monmouthshire				2		
Neath Port Talbot	1	6	1	3		1
Newport		3		6		
Pembrokeshire		1	1	1		1
Powys				3		
Rhondda Cynon Taf		1	1	2		2
Swansea		3		2	1	1
Torfaen		1		5		
Vale of Glamorgan				2		1
Wrexham		1		3		

