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Final Evaluation of the Ynni'r Fro Renewable Energy Support Scheme – Final report

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Glossary of acronyms

CRE	**Community Renewable Energy**
DECC	**Department of Energy and Climate Change**
DEFRA	**Department for Environment, Food and Rural Affairs**
EOI	**Expression of Interest**
ERDF	**European Regional Development Fund**
EST	**Energy Saving Trust**
FIT	**Feed in Tariff**
JV	**Joint Venture**
KPI	**Key Performance Indicator**
LPA	**Local Planning Authority**
NRW	**Natural Resources Wales**
RESP	**Renewable Energy Support Programme**
SME	**Small-Medium Enterprise**
TDO	**Technical Development Officer**
WCVA	**Wales Council for Voluntary Action**
WEFO	**Welsh European Funding Office**

Executive summary

Background

1. Ynni'r Fro was designed as a programme to encourage the development of community renewable energy (CRE) in Wales. Its goal was to support the development of community social enterprises that would generate a sustainable income from renewable energy installations.
2. The support provided to community groups included project advice and organisational capacity-building, as well as grant and loan funding. The programme was jointly funded by the Welsh Government and the European Regional Development Fund administered via the Welsh European Funding Office (WEFO), and reported against a number of Key Performance Indicators for the Competitiveness (East Wales) and Convergence (West Wales and the Valleys) regions.
3. This final evaluation has been undertaken against a broad appreciation of the changing context for CRE in Wales over the duration of the programme. This includes the growing maturity of the CRE sector and community-led financing models, as well as changes to the policy landscape such as the Energy Wales programme, the Well-being of Future Generations (Wales) Act and an increased focus on poverty in policy in Wales, the adoption of a UK Community Energy Strategy by DECC, and changes to the UK regime of financial incentives for renewable energy, notably degressions to Feed in Tariffs.

Aim and methods of the evaluation

4. The aim of the final evaluation was to build on the mid-term evaluation and conduct a comprehensive review of Ynni'r Fro over its five years of operation to establish its effectiveness, efficiency and impacts, as well as the key implications for the design of a potential successor scheme. As some of the delays to the completion of projects supported by Ynni'r Fro were shown during the mid-term evaluation to be outside the influence of the programme, and may not have been possible to resolve before the end

of the funding period, the final evaluation also took into account likely future outcomes and impacts.

5. The evaluation approach combined quantitative and qualitative evidence-gathering from a range of sources to triangulate findings. The research included:
   - Review of documentary evidence and programme data;
   - In-depth qualitative interviews with 23 stakeholders and 23 supported community groups; and
   - Analysis of market need for support to CRE projects.

Delivery model

6. The programme was managed by the Energy Saving Trust (EST) on behalf of the Welsh Government, and advice was delivered through a network of seven locally-based Technical Development Officers (TDOs).
7. Grants for preparatory funding of projects (to undertake feasibility studies and other pre-planning work) were administered by EST. Later on in the programme the WCVA was appointed to manage a newly introduced capital loan fund; and an Investment Panel of independent experts was set up to approve capital loans and grants, and bids for expenditure beyond the standard scheme limits.
8. The funding mechanisms were suspended for the first 18 months of the programme while rules about State Aid, grants and feed in Tariffs (FITs) were clarified between the EU and UK government. As a result of the clarification, new restrictions were applied to Ynni'r Fro preparatory grants and a capital loan fund was set up in addition to capital grants so that groups could still benefit from FITs within State Aid rules.
9. Further changes were made to the programme in response to the findings of the mid-term evaluation, in particular the considerable challenges that CRE groups were facing in delivering the larger scale wind and hydro projects, which had been the original focus of the programme.

- The eligibility criteria were broadened to enable smaller-scale and solar PV projects to be supported, and an increasingly pragmatic approach was adopted to supporting the communities working with developers on shared ownership projects;
- The performance KPIs were adjusted downwards;
- As it became clear that most groups would not complete before the WEFO funding deadline, the Welsh Government provided additional parallel funding to enable pipeline projects to continue;
- A process for the design of a successor scheme was established, to allow continued support to ongoing projects.

10. In addition to programme funding, a number of projects were able to pull in finance from other (mainly third sector) sources; and the programme as a whole benefited from support and advice available more widely in the community and renewable energy sectors in Wales.

Outcomes, impacts and wider benefits

11. Findings from this final review largely reinforce those from the mid-term evaluation, which identified a picture of mixed performance against the programme's KPIs, mediated by a range of factors both internal and external to the programme. There is some evidence that changes made to the eligibility criteria and delivery since the interim have helped to accelerate progress.
12. The programme clearly met its objective to support the development of community enterprises and community-owned renewable energy capacity in Wales. It also made a difference at sector level at an early stage in the market development of CRE in Wales. It made an important contribution to the development of know-how and a network infrastructure that will enable the CRE sector to grow and accelerate. The ambition of some of the groups supported has increased, leading to their development of area-wide capabilities and scale which will help support the retention of knowledge and skills.

13. With specific reference to the WEFO KPIs, in both Convergence and Competitiveness regions Ynni'r Fro met or was close to meeting its performance targets for enterprise support but other targets for renewable energy and jobs were missed by a wide margin. 216 enterprises expressed an interest in receiving support through Ynni'r Fro and 112 enterprises went on to receive advisory support. Only two of the 57 schemes classed as 'pipeline' projects were completed by March 2015, and therefore able to report energy outcomes, but there is an active pipeline of 55 further projects continuing to receive support.
14. The March 2015 cut-off for assessing performance is potentially misleading since many of the benefits from the programme will only be realised over the next 2-3 years as the remaining projects complete. For example, compared to a generating capacity of 42 kW of the two projects completed by March 2015, a further 17,436 kW of capacity from projects supported by Ynni'r Fro has been assessed as very likely or likely to complete, with potentially more from projects where the prospects are uncertain (e.g. because they are currently going through the planning system).
15. In addition, the narrow framing of the WEFO targets does not capture the potential for CRE projects to contribute more widely to community resilience and social benefits, including key goals of the Wellbeing of Future Generations Wales Act. Wider benefits from the supported projects include skills and employability benefits; mobilising local capital for local benefit through community share issues; awareness raising about renewable energy; revenue support for other activities (e.g. to promote energy efficiency, improve local assets, or sustain voluntary services) and setting up locally-run grant funds or loans for other community groups that will provide an alternative to government funding. Some of these benefits (e.g. awareness raising and peer support to other CRE groups) will arise from projects that will not complete, for example where planning consent has been declined.

Effectiveness

16. Ynni'r Fro was widely seen as having provided effective, and in many cases critical, support to CRE projects, most notably through the TDO advisory support and the provision of 100% funded preparatory grants.
17. It was felt that the initial focus of the programme's eligibility criteria on large-scale wind and hydro projects had been overly optimistic, but equally that subsequent changes to include smaller projects that might progress more quickly had increased the programme's effectiveness.
18. The programme's flexible approach to the diverse needs of community groups was also widely seen as a strength which contributed to its overall effectiveness (although it was suggested that a more prescriptive approach to the provision of support may enable support to be delivered more cost-effectively in any successor to Ynni'r Fro).
19. The programme was less effective in areas related to leadership, oversight, management and communication, both internal and external. As a result, opportunities may have been missed to target support more strategically at projects with the greatest potential to succeed; and to address the key external barriers relating to the planning and consents processes.
20. Each of the delivery partners was effective in some areas and less effective in others.
    - **Welsh Government** managers were responsive to the issues identified in the mid-term review and made beneficial changes, but there were issues of inconsistency in leadership and contract management. A greater focus on strategic direction and governance will be required in a successor scheme.
    - **The Energy Saving Trust** was effective at administering the preparatory funding but failed to deliver the programme's objectives relating to external communication and there are weaknesses in the monitoring data.

- **Technical Development Officers** were very effective at engaging and motivating groups, providing essential support, advice and sign-posting in the initial stages of development but may lack detailed expertise in areas related to planning, finance and project management that could be supplemented by other providers.
- The **Investment Panel** and **Wales Council for Voluntary Action** command authority from stakeholders but the capital funding processes were largely untested because of the small number of groups that progressed far enough to qualify. The evidence suggested a case for providing groups with financial advice at an early stage in the development of their projects.

21. There is clear evidence that the programme was effective in helping the supported groups to develop the capacities, skills and organisational structures needed for taking forward their energy projects.
22. There were also some external barriers that the programme was unable to influence but were key causes of project delays. These barriers related principally to planning and consent.
23. While some progress in addressing these since the mid-term evaluation was noted, this remains an area where continuing effort is required if the potential of the CRE sector is to be fully realised. Considerations to take forward into the design of a successor scheme include high-level championing of CRE at policy level and ways to enhance the capability of groups in achieving planning permission.

Market need

24. A preliminary analysis of the potential for CRE in Wales shows that it could play a significant role in the broader progress of renewable energy generation. It could deliver significant benefits to communities, help reduce CO_2 emissions and contribute to long-term sustainability goals.

25. Through its provision of preparatory funding and TDO support, Ynni'r Fro made an important contribution to the growth of the sector and continues to support the majority of CRE projects (75%) and CRE generation capacity (93%) under development in Wales. If the indicative CRE potential is to be realised, the demand for support is likely to continue and grow.
26. The financing market for CRE is still in the early stages of development and the capital mechanisms in Ynni'r Fro were largely untested. Evidence from the review suggests it may be difficult for CRE schemes to access commercial capital as a standalone loan and any successor scheme will therefore need to consider how to continue to encourage private finance alongside finance that which groups can raise from community share schemes or from third sector funders.

Implications for a successor scheme

27. The conclusions to the report identify implications from the research for a successor programmes to Ynni'r Fro, as follows:

Issues	Considerations for a successor programme
Scope and Eligibility	The evaluation raises questions as to whether the broad and inclusive nature of Ynni'r Fro should be carried through into a successor programme. Judgements will need to be made as to where it is most effective to focus support. For example, should support focus on experienced groups with a stock of know-how that have a high probability of executing big and complex projects? Or should it be open and inclusive to all manner of groups in the CRE sector? Should all technologies be eligible? The answers to these questions relate to what the primary policy objectives of the programme will be - is it principally an energy programme with wider social benefits; or a social programme with energy benefits; or an economic regeneration programme with social and environmental benefits? It is unlikely that a single scheme can be large in impact, rapid and fully inclusive.

Flexibility	Learning from Ynni'r Fro was that it was difficult to pick 'winners' five years ahead and at the same time be sufficiently flexible to be responsive to developments in the market, sector and incentives regimes. Looking forward, there are increasing uncertainties around future government support for wind projects, and the levels of future FiTs for all technologies. There are also emerging opportunities from developments in the CRE sector, for example renewable heat or shared ownership schemes. The design of a successor programme should aim to maximise its ability to provide foresight (e.g. through specialist CRE sector input) and be structured in such a way that it can respond rapidly to threats and opportunities as they emerge.
Targets and Indicators	The targets set need to reflect the long-term timescales of some of the benefits of CRE projects and the range of indicators used should take into account the wider benefits achievable (e.g. those that relates to the Wellbeing of Future Generations goals). Risk of unintended bias (e.g. towards particular technologies) should be considered explicitly when setting targets. Improved data management systems would be required to support progress reporting and strategic decision-making.
Ongoing Challenges and Barriers	The evaluation has highlighted that significant barriers to the development of CRE projects remain, most notably: • **The capacity of community groups/social enterprises** – particularly in the context of the significant time, skill, experience and money currently necessary to develop a CRE project. Capacity 'gaps' are reflective of the relative immaturity of the CRE sector in Wales: there is a growing cohort of groups with one project underway and a few undertaking multiple projects, with the prospect of a large number of new entrants, according to the market need analysis. A successor programme may therefore wish to consider if support should be differentiated according to the needs and capabilities of groups, potentially offering a menu of support options. • **Difficulties securing planning approval and consent** – particularly in terms of the capacity of groups to steer and sustain a project through the planning process. There is a strong case for any successor programme to address this challenge from both sides: by supporting groups to be as effective as they can be in their approach to planning (e.g. through peer learning, using evidence of wider benefits to support their case, and/or by the programme employing a planning and consent expert to support groups in preparing applications); and by further developing the dialogue between programme officers and officers in NRW and

	LPAs. Actions to engage and promote CRE at Welsh Government level would also be beneficial to the effectiveness of a future programme. • **Additional challenges** are also likely to increase in importance as more CRE projects in Wales progress further in their development, in relation to accessing capital finance and securing a grid connection.
Future support and advice	There was a widespread perceived need for TDO support (or something equivalent to it) beyond the lifetime of Ynni'r Fro. In addition, a future programme may need to offer a facility for groups to access more specialist support in certain aspects of project development, notably planning, legal and finance aspects.
Future preparatory funding	Preparatory grant funding provided by Ynni'r Fro was vital to the development of a pipeline of potentially viable projects, strongly suggesting it should be retained in a successor programme. The evidence also suggests a combination of preparatory grant funding to meet early project development costs, and preparatory loan funding to meet later development costs (particularly in the planning and consent phase) may be the most effective means of supporting projects within the current restrictions imposed by State Aid rules.
Future capital funding	The market need analysis indicates significant growth potential of the CRE sector and an increased demand for capital finance in future, although this could be dampened significantly by UK policy changes on FiTs during the next year at least. In addition, the capital market for CRE is at an early stage of development; and the small scale of CRE projects is a barrier to them accessing private finance. Together, these factors strongly indicate a continuing need for a government funded capital programme to complement other sources of finance. The flexible ways in which Ynni'r Fro capital loans were employed (for example to enable groups to access other sources of capital, reduce the financial risks they are exposed to, and fill gaps where needs are not fully met by the market) was also seen a key positive, suggesting this flexibility should be retained in any successor programme. Alongside this, feedback from the evaluation suggests specialist advice around capital finance should be provided to community groups at an earlier point in their development than was generally the case during Ynni'r Fro.
Management and Governance	The evaluation identified areas of weakness in the management and governance of Ynni'r Fro which need to be addressed in any successor programme. This includes consideration of the best ways in which to access strategic guidance and sector expertise, establishing clear lines of responsibility and communication, improved data management and monitoring, and closer links with important external stakeholders

	(including NRW, LPAs, Ofgem and district network operators).

1 Introduction

The Welsh Government's Ynni'r Fro programme ran for five years from 2010 to 2015. This chapter sets out the aims of the programme, the objectives and method of the evaluation, and the wider policy and sector context in which the programme was delivered and against which its outcomes need to be considered.

Aims and overview of the Ynni'r Fro programme

1.1 Ynni'r Fro was designed to encourage the development of community renewable energy (CRE) in Wales, in the Competitiveness (East Wales) and Convergence (West Wales and the Valleys) regions. Its goal was to support the development of community social enterprises[1] that would generate a sustainable income from renewable energy installations. In doing so, it would also invest in clean energy, build skills and expertise in a new sector, and help demonstrate best practice in an emerging field.

1.2 Ynni'r Fro was jointly funded by the Welsh Government and the European Regional Development Fund (ERDF) administered via the Welsh European Funding Office (WEFO). The jointly funded programme ran from January 2010 to 31st March 2015.

1.3 It delivered advisory support through a locally-based network of seven Technical Development Officers (TDOs) and it offered financial support through preparatory grants and capital loans. Chapter 2 describes the delivery model and its evolution in more detail.

Mid-term evaluation

1.4 A mid-term qualitative evaluation was conducted in 2013. Its findings suggested that Ynni'r Fro was having a significant impact in enabling community groups to progress through the initial stages of developing a renewable energy initiative. In particular, the wide-ranging advice and

[1] In the report, references to community group(s) ('group(s)') are interchangeable with social enterprise(s) ('enterprise(s)') and vice versa.

support delivered by its network of TDOs was often seen as having been crucial to this development. However, significant external challenges had limited projects' progress, including local opposition, the high costs of preparatory work and difficulties in gaining planning approval and consent. Aspects of the programme's design and delivery were also found to have mitigated its impact.

1.5 Key recommendations for future support through Ynni'r Fro and any potential successor programme included continuation of the TDO role, building relationships with external stakeholders, and considering the introduction of contingent loan funding for preparatory work.

Evaluation objectives

1.6 Building on findings of the mid-term review, the aim of the final evaluation was to develop a comprehensive assessment of the effectiveness, efficiency and impacts of Ynni'r Fro over its five-year lifespan and to identify recommendations for a potential successor scheme.

1.7 The Welsh Government and WEFO specified the following aspects to be assessed:

- delivery against the aims, objectives and targets, taking into account the achievability of those targets in light of the barriers faced by community groups in developing renewable energy, as highlighted in the mid-term evaluation;
- whether the recommendations from the mid-term evaluation have improved the performance of the scheme;
- the performance of the third party providers managing and delivering the Ynni'r Fro scheme;
- the Investment Panel, its structure and effectiveness, and highlight areas where process improvement may be required
- the extent to which Ynni'r Fro has contributed to structural change, increasing the sustainability of supported enterprises and supporting the move from a grant to an investment culture,

including increased access of mainstream finance by supported enterprises.

- the current pipeline projects[2] and their contribution to the economy, the environment and the social needs of communities, in the context of the goals set within the Well-being of Future Generations (Wales) Bill;
- the way in which the programme has been accessed in socially deprived areas, and any changes necessary to ensure that a future programme meets the needs of these areas;
- how the project actions and outputs have contributed to the cross cutting themes of Equal Opportunities and Environmental Sustainability;
- the demand for the grants and loans provided through Ynni'r Fro;
- the market need for community generation; and
- proposals for a successor scheme where all revenue generated by the project will be recycled.

Evaluation approach and method

1.8 The research sought to quantify gross impacts for key performance indicators[3]; to assess qualitatively the extent to which Ynni'r Fro could reasonably be said to have contributed to those impacts and wider outcomes; and to develop rich qualitative evidence for an assessment of the programme's effectiveness. The approach chosen followed government social research guidance (the Magenta handbook) for situations where a full quantitative impact and cost-benefit analysis is not appropriate (for example, as in this case, where there are limitations on the data that can be developed).

1.9 The three main data collection methods (described in more detail in Appendix 1) were:

[2] A pipeline project was defined by EST as "any viable project that is currently receiving TDO support". Please see appendix 2 for a list of the pipeline projects.
[3] See Table 2 in chapter 2.

- A review of programme documentation and monitoring data;
- In-depth qualitative interviews with 23 stakeholders and 23 supported community groups; and
- A desk-based expert review of 'market need' for future support for CRE projects in Wales.

1.10 As reported in the mid-term evaluation, progress was slower than had been expected, meaning that many of the supported schemes would not complete before the end of the programme in 2015. This was due to a range of factors, including some significant ones outside the direct influence of the programme (e.g. FITs and State Aid – see 'Context' below) and others related to how quickly groups were able to develop schemes (e.g. to proceed through the planning process). In order to provide a complete picture, therefore, the final evaluation took into account likely future outcomes and impacts from projects in the pipeline as well as those from completed projects.

Interpreting the evaluation findings

1.11 The focus of the evaluation was on making a qualitative assessment of the outcomes, impacts and effectiveness of Ynni'r Fro, supported by gross quantitative cost, outcome and impact figures and estimates; it was not intended to provide a systematic cost benefit analysis of the programme. The evaluation does however provide a comprehensive insight into the delivery and effectiveness of Ynni'r Fro, as well as challenges it encountered and lessons learned that could feed into the design of a successor scheme.

Context

1.12 Ynni'r Fro was devised at an early stage in the development of the CRE sector, both in Wales and the UK more widely. The state of knowledge in and about the CRE sector has changed very significantly over the last five years and this aspect needs to be borne in mind when assessing

what the programme tried to do, some of the barriers it encountered, and what it achieved, as well as implications for a successor programme.

Policy and sector context in Wales

1.13 Support for community energy is part of the Welsh Government's commitment to encouraging the development of low carbon renewable energy in Wales, as set out in Energy Wales (2012). A key priority has been to support CRE projects that direct and reinvest benefits into local communities as well as generating low carbon energy.

1.14 Renewable energy policy was, and continues to be, part of a wider Welsh Government commitment to sustainable development which places a statutory duty on public sector bodies to consider sustainable development in all areas of policy and the delivery of services. Wales is unique in the UK in this regard.

1.15 During the lifetime of Ynni'r Fro the Welsh Government developed and passed the Well-being of Future Generations Wales Act (April 2015), which sets out how the sustainable development duty should be implemented. It sets out seven wellbeing goals: a prosperous Wales; a resilient Wales; a healthier Wales; a more equal Wales; a Wales of cohesive communities; a Wales of vibrant culture and thriving Welsh language; a globally responsible Wales. These goals, especially those surrounding community cohesion, prosperity, resilience, and global responsibility, align with the documented benefits of CRE set out in Energy Wales and in DECC's Community Energy Strategy.

1.16 A further key development was the establishment of Natural Resources Wales (NRW), bringing together three natural environment bodies including the former Environment Agency Wales, which is a key stakeholder in the planning and permitting process for renewable energy. NRW is tasked with delivering a new Natural Resource Management approach which reflects the government's priorities on living sustainably, reducing poverty and improving equality. NRW will be key in the delivery of the forthcoming Environment (Wales) Bill.

1.17 Also relevant to a possible successor scheme to Ynni'r Fro is the recently passed Planning (Wales) Act, which sets out measures to improve the existing planning process, with the intention of making it less complex and more accessible. This change was too recent to impact on the progress of Ynni'r Fro by March 2015 but may have an influence on supported schemes that are still in the pipeline.

1.18 Beyond government, the expertise and networks from which CRE groups can benefit have grown substantially in Wales in the last five years. In addition to informal peer networking that happens between individual CRE groups, notable sources of support beyond Ynni'r Fro include:

- Renew Wales, a practitioner-led programme that was initially funded through the Big Lottery Fund and has provided support to over 200 community projects working on climate change, including CRE groups, though energy is not its core focus;
- Community Energy Wales (CEW), a membership organisation supported by Cynnal Cymru and others. It was launched in 2012 to offer "assistance and a voice to community groups working on energy projects in Wales";
- The Community Energy Fund managed by the Robert Owen Community Bank, developed by the Big Lottery and CEW in 2013 to create a revolving loan fund for CRE projects in Wales.

Wider UK policy context

1.19 Prior to the introduction of Ynni'r Fro in January 2010, community groups in Wales were largely reliant on a number of small, short-term support schemes delivered on a UK-wide basis.[4]

1.20 A significant change since then has been the development of a UK incentives regime for small-scale renewable energy, of which the most critical for CRE in Wales was the introduction of Feed in Tariffs (FITs) by

[4] For example, DECC's LEAF programme and the Renewable Energy Advice pilots (run through EST energy efficiency advice centres).

the UK Government in April 2010. FITs were designed to encourage investment by supporting a fixed rate of return by means of guaranteed, index-linked payments for electricity generated by individuals, groups or organisations.

1.21 FITs were designed to replace government grants. According to EU State Aid rules, beneficiaries could not be in receipt of both grants and FITs but there was significant uncertainty at the start of the regime about the precise rules and exceptions, which required clarification between the UK's DECC and the EU. Clarifications were issued in 2011. This early period of uncertainty influenced how the CRE sector developed across the UK, not only in Wales.

1.22 Since then there have been sizeable degressions in the level at which FITs are paid, which have progressively reduced the financial return community groups can receive[5]. FiTs for solar PV projects have been subject to particularly sharp degressions in 2015. FITs degression has been challenging for the CRE sector generally, not only in Wales, because groups may not be able to get through development and planning quickly enough to qualify for the level of FIT that is built into their business plan, with the consequence that some schemes cease to be viable.

1.23 The outlook for the UK renewable energy incentives regime remains uncertain and is a key consideration for the design of a potential successor to Ynni'r Fro. Future directions for FITs, and the UK policy stance towards support for onshore wind, are key areas of uncertainty.

1.24 More positively, the Renewable Heat Incentive (RHI), introduced more recently than FITs, may create new opportunities in the CRE sector. Under the previous coalition government, DECC also introduced a UK

[5] Once a CRE project has been installed and registered for the FITs, the tariff levels are fixed and subject only to index-linking for inflation. As most renewable energy technologies were expected to get cheaper over time, to compensate for this and to ensure that the support costs decreased over time, the FITs were planned to be reduced progressively through degressions. Originally degressions were planned to be made on the basis of fixed annual percentage reductions, depending on the technology, but the approach was seen to be insufficiently responsive to keep up with the high rates of cost reduction experienced in the early years of the FITs. A more complex degression mechanism was therefore developed. http://www.fitariffs.co.uk/FITs/principles/degression/

Community Energy Strategy which outlined the benefits of, and potential for, the sector and an intention to encourage its development. Future directions are likely to be heavily shaped by significant changes to the FiTs regime from October 2015 and the outcome of the forthcoming FiTs review.

1.25 In addition to the specific sector developments in Wales noted above, the CRE sector has also developed significantly across the UK, which means that groups starting out today have a wider range of expertise and resource to draw upon than those who started out in 2010, from outside Wales as well as within. This includes significant development in the 'state of the art' in community-led finance and business models, including for example community share issues and the recent evolution of 'white label' providers working with communities to implement effective business models[6].

[6] Whereby a third party independent energy supplier works with a community to establish a local co-operative energy supply arrangement which may integrate energy supplied by local renewable energy generation projects. For example: www.ovoenergy.com/energy-plans/communities/ and www.pureleapfrog.org/.

2 The design, delivery and evolution of Ynni'r Fro

This chapter describes the design of the Ynni'r Fro delivery model and how it evolved in response to various external challenges and early learning within the programme. This evolution is central to an understanding of the effectiveness of the programme, which is covered in chapter 4.

Design of the programme

2.1 The programme was designed by the Welsh Government following consultation with a range of community groups, including the few CRE groups that existed in Wales in 2010. A Business Plan was submitted to and agreed with WEFO for ERDF funding, matched by funding from the Welsh Government. Performance targets and indicators were agreed with WEFO.

2.2 To address the perceived capacity and financial barriers to CRE groups realising their full potential, the programme was designed to do the following:

- Encourage expressions of interest for support and determine groups' eligibility
- Provide hands-on advisory support to help groups develop technically feasible and financially viable schemes
- Provide preparatory funding to cover early development work on schemes (e.g. technical feasibility studies, business planning)
- Provide capital funding to support construction

2.3 The programme was managed and delivered on behalf of the Welsh Government by EST, working with seven Technical Development Officers (TDOs), from three partner organisations, who provided direct support to groups. Later on in the programme the WCVA was appointed to manage a newly introduced capital loan fund; and an Investment Panel of independent experts was set up to approve loans.

2.4 Specific details of each element of the programme, and how they evolved in response to external challenges and early learning are outlined in Table 1.

Table 1 – Design and evolution of Ynni'r Fro

	Original design	Revisions	Rationale for revisions
Delivery partners	EST - programme managers, providing co-ordination, oversight and reporting to Welsh Government as well as responsibility for external communications 7 Technical Development Officers to work directly with community groups (TDOs) provided by three contracted organisations: Severn Wye Energy Agency (4), Awel Aman Tawe (2) and Eco Dyfi (1)	In addition to the continuing roles of EST and the TDOs, during 2013: • WCVA appointed to manage the new capital loan fund and advise applicants (see under "funding" below) • Set up of an Investment Panel of legal, finance and other experts to provide independent advice and approval of capital funding decisions and preparatory grants over the standard £30,000 threshold[7].	To provide appropriate mechanisms for the management and governance of the capital loan fund. The loan fund replaced the original intention to offer capital grants. The new fund provided a mechanism to enable groups to benefit from the recently introduced Feed in Tariffs (FIT) yet still be able to access capital support within State Aid rules.
Eligibility criteria for groups (continued over page)	• Legally constituted social enterprises[8] located in Wales • Projects must be based in Wales and generate energy from a renewable source • Projects should be able to employ at least 1 part time employee within the first 2 years of completion • Hydro schemes should expect to generate at least 240,000kWh per annum, raising a minimum gross income of £30,000	Eligibility criteria were relaxed at around the mid-point of the programme to encourage: • Smaller scale projects • Solar PV projects (excluding roof-mounted schemes) An increasingly pragmatic approach was adopted towards shared ownership projects between community groups and private developers.	The original criteria favoured large wind and hydro projects, in part so that the income generated could support the job creation targets agreed with WEFO. This led to an initial focus support on 22 large pipeline projects. By the mid-term it was clear that the barriers groups were facing would mean that projects of this scale would take longer to develop than the programme term, so the focus was expanded to cover other types of scheme that had the potential to deliver benefits more quickly.

[7] Welsh Government established that the panel needed expertise to consider the governance, legal and financial aspects of the bids. Legal expertise was provided by Geldards and accountancy expertise by Clay Shaw Butler. The other members of the panel were WCVA and Wales Co-op Centre. A representative from Welsh Government and the TDOs were invited to attend meetings. The TDO also provided technical advice, but were not allowed to take part when a group they had been involved with was being considered.

[8] Defined as "an organisation that, in the reasonable opinion of the Energy Saving Trust, is engaged in the carrying on of a business with primarily social purposes (other than the provision of schooling or social housing), meaning that it is involved in some form of trading, but that it trades primarily to support a social purpose (other than schooling or social housing) and seeks to reinvest any surpluses principally in the business or in the community to enable it to deliver on its social objectives".

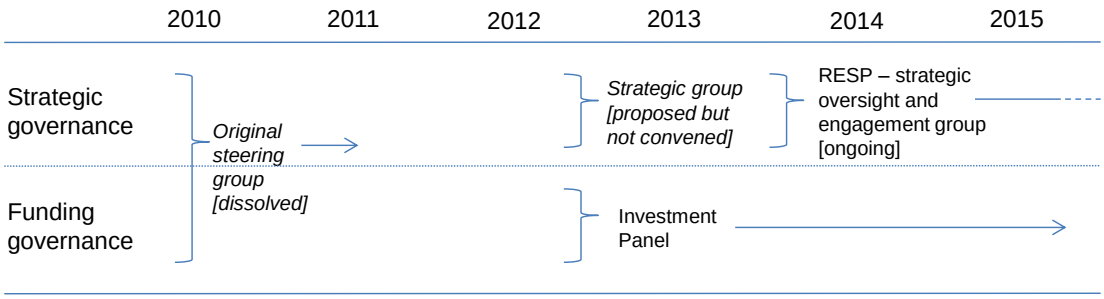
	• Wind schemes should expect to generate at least 800,000kWh per annum, raising a minimum gross income of £70,000.		The pipeline increased to 57 schemes.
TDO advisory support	This remained essentially the same throughout the programme. Expressions of interest were sought from community groups and assessed by TDOs and EST for eligibility. Each TDO had a 'case-load' of supported projects as well as providing other advice and information (e.g. signposting to other avenues of support) to projects that did not become part of the supported pipeline. To enable learning and knowledge sharing about emerging good practice, TDOs were also involved in networking in the CRE sector in both professional and personal capacities.		
Funding to groups	• Preparatory stage grants of up to £30,000 to fund early stage feasibility work and associated group development (e.g. legal and business planning) • Grants of up to £300,000 towards the capital costs of constructing a renewable energy project	Preparatory and capital funding through Ynni'r Fro was suspended for the first 18 months while issues relating to State Aid rules around grants and FITs were being clarified. Following this clarification, preparatory grants were issued as originally intended, but with some restrictions on what the grants could be used for. The intended capital grant provision was largely replaced by a capital loan fund[9]. This would provide a means for groups to access capital without later disqualifying them from receiving FITs under State Aid rules. State Aid rules also dictated that Ynni'r Fro loans could only be offered at interest rates that were comparable to or higher than commercial rates. The intention was that the Ynni'r Fro loan fund would act as lender of last resort – with groups expected to raise the majority of their capital finance from other sources.	EU regulations prohibit national governments from providing financial support (State Aid) where such intervention may distort competition and affect trade between EU member states. The EU decided in April 2010 that the UK FITs regime constituted state aid but further clarification was sought by DECC during 2010 (i.e. in the first year of Ynni'r Fro). Clarification was provided by the EU in 2011. As a result, any group receiving a capital grant through Ynni'r Fro (or other UK CRE programmes) would not be able to later receive income through FITs. Groups could still receive preparatory grants and later qualify for FITs but there were still some restrictions on what these grants could be used for, including to meet the costs of preparing a planning application.

[9] Certain development costs (e.g. the upgrade of an existing district grid connection and the building a fish pass) were deemed to be exempt from the State Aid rules, meaning that Ynni'r Fro was still able to offer a capital grant in a small number of instances to enable groups to meet these costs without affecting their subsequent eligibility for FITs.

Targets and KPIs	See table 2 for specific targets KPIs for enterprise support, jobs created, energy generated and ERDF cross-cutting targets for equal opportunities and environmental sustainability	Targets for job creation and energy generation were revised downwards significantly in 2013/14.	Targets were revised in recognition of slower than expected progress and learning about the barriers groups were facing, which may not have been fully appreciated at the start of the programme (as reported in the mid term review).

2.5 Governance arrangements also evolved during the course of the programme in response to changing circumstances and needs, as outlined in Figure 1.

Figure 1: Evolution of Ynni'r Fro governance groups



2.6 The original steering group was dissolved because it was felt to have little purpose while the issues surrounding the State Aid rules were being worked through. Once issues with the funding regime were resolved, a decision was taken to divide the two functions of the original steering group (funding and strategic) in recognition that each required different skill sets.

2.7 While the Investment Panel was convened in 2013 the strategic oversight group was not set up at the same time, in part because the timing coincided with a drive in Wales (through the Energy Wales programme) to rationalise the number of steering groups associated with energy performance. Those involved in programme management reported that the Investment Panel meetings had become a useful forum for strategic discussions in the absence of a formal steering group and that regular management meetings also provided opportunities to consider strategic issues, though without independent input.

2.8 Eventually, the Welsh Government established a strategic group – including stakeholders outside government - to lead the design process for a potential successor scheme in December 2014.[10]

[10] Initially Welsh Government gathered a group of stakeholders who had shown interest in a successor scheme to Ynni'r Fro. The stakeholders met and decided to split into smaller

Targets, monitoring and reporting

2.9 The Ynni'r Fro programme reported against a number of KPIs agreed with WEFO to meet the funding requirements of the ERDF. The KPIs were adjusted during the programme in the light of slower than expected progress and learning about the barriers projects were encountering.

Table 2 – Ynni'r Fro WEFO KPIs and targets

	Original (2010)	Revised (2013/14)
Convergence region		
Enterprises Assisted[11]	125	100
Enterprises Created	10	10
Renewable Energy Generated (GWh)	31.06	0.9
Gross Jobs Created	20	7
Reduction in Greenhouse Emissions (KtC)	4.55	2
Enterprises adopting or improving equality strategies and monitoring	10	10
Enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions	20	20
Competitiveness region		
Enterprises Assisted	15	15
Enterprises Created	2	2
Renewable Energy Generated (GWh)	3.1	0.23
Gross Jobs Created	2	0.5
Reduction in Greenhouse Emissions (KtC)	0.45	0.03
Enterprises adopting or improving equality strategies and monitoring	1	1
Enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions	2	2
Source: data provided by EST and Welsh Government		

groups to work on the design (the groups being Technical Support, Broader Delivery Support, Financial Support and Strategic Oversight and Engagement).

[11] Any group or enterprise that received seven or more hours of TDO support.

2.10 No formal targets were established for EST, although progress against the programme's WEFO KPIs was integrated into their monitoring and reporting responsibilities. These responsibilities included gathering and collating monthly reporting from TDOs on general project activity, any issues and future project plans. This was reported to Welsh Government on a monthly basis. EST and Welsh Government also submitted quarterly reports to WEFO, detailing activity and funds that had been granted, to accompany their grant claims. No formal reporting was required from community groups, other than feeding back progress to TDOs.

Programme costs

2.11 Table 3 below details expenditure on the various elements of the Ynni'r Fro programme. In cases where the expenditure relates to a small number of projects, this number is given in brackets.

2.12 Expected capital costs of £11,052,633 were identified in the original Business Plan (including an expected private sector contribution) but this was scaled down in consultation with WEFO as it became apparent that most projects were not going to be completed by the WEFO deadline of March 31st 2015.

2.13 To provide transitional support to projects unable to complete by the end of the WEFO deadline, the Welsh Government provided additional parallel funding, as shown in Table 4. It provided preparatory funding to 27 projects, capital loans to two projects, and supported a12 month extension of EST and TDO activity.

Table 3 – Ynni'r Fro programme costs

Expenditure	Spend by March 15	Conv.	Comp.
Capital grants and loans for construction	£193,919 [2 projects]	£113,919 [1 project]	£80,000 [1 project]
Capital grants and loans for construction funded by the private sector[12]	£413,912 [2 projects]	£391,912 [1 project]	£22,000 [1 project]
Preparatory grants to community groups	£1,083,723	£978,483[13]	£105,240
TDO support[14]	£1,261,916	£1,148,098	£113,818
Programme management by EST	£951,561	£854,088	£97,473
Contract management by Welsh Government	£151,016	£135,914	£15,102
Evaluation costs	£100,000	£90,000	£10,000
Total	**£4,156,047**	**£3,712,414**	**£443,633**
Expenditure on projects which did not get past the feasibility stage	£263,683	£187,938	£75,745
Source: Welsh Government monitoring			

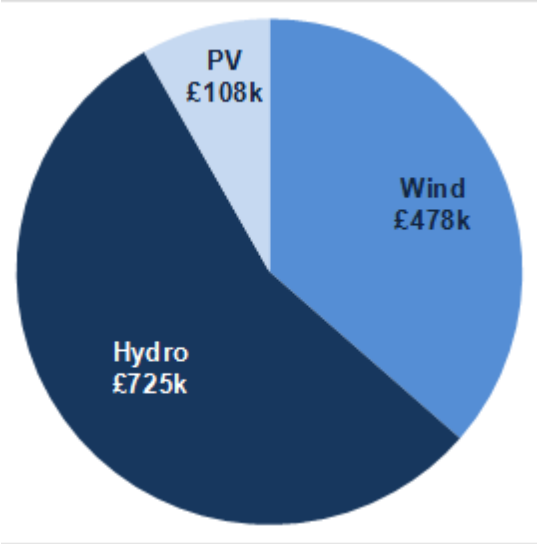
Table 4 – Ynni'r Fro additional parallel funding

	TDO costs	EST costs	Preparatory grants	Capital loans	Total
2012-13			£199,691		£199,691
2013-14	£32,718	£9,278	£200,000		£200,000
2014-15	£84,118		£157,518	£78,841[15]	£320,477
Total					**£762,164**

[12] Includes any source of funding outside Ynni'r Fro, whether from the private or third sectors.
[13] £1,129,032 was offered with £975,483 claimed.
[14] The cost of the TDO support includes costs not attributable to individual schemes, such as networking, research and travel. It is not possible to calculate the proportion of TDO costs spent on each project or group, as their time monitoring systems were only designed to track outcomes in terms of the 'enterprise assisted' WEFO KPI (i.e. TDO support to a group over the threshold of 7 hours).
[15] Afon Anafon (Abergwyngregyn) £69,079 and LGV Ventures (Cwmgu) £9,762.

2.14 Reflecting the focus of the programme, the majority of the funding awarded to the current pipeline projects has gone to hydro and wind schemes, with PV receiving the lowest proportion (Figure 2); and to schemes which have now been granted planning permission (Figure 3). While the majority of pipeline schemes are still at an earlier planning stage, on average they have received less funding, which reflects the evolution of support towards smaller projects.

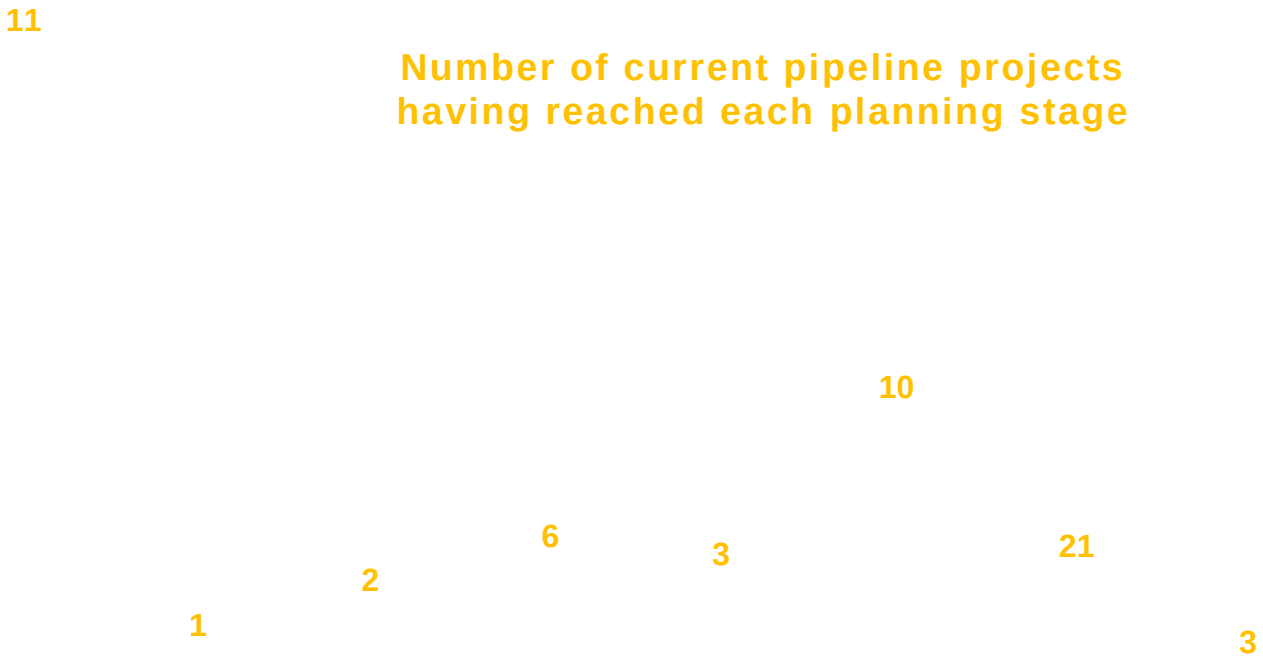
Figure 2 – Breakdown of funding to the 57 pipeline projects as at March 2015 by technology type[16]



Source: EST pipeline database, end March 2015

[16] Including both Ynni'r Fro programme funding and additional parallel funding.

Figure 3 – Amount of total funding[17] awarded to pipeline projects, by their current planning status (March 2015) and by technology type



[17] Ynni'r Fro programme funding and additional parallel funding.

Additional non-scheme finance secured by Ynni'r Fro

2.15 The two projects that completed by March 2015 – Penllergare and Dyffryn Crawnon - raised a total of £413,912 in external capital finance (details in Table 3).

2.16 It was not possible to estimate the aggregate amount of additional finance already secured or in negotiation for the rest of the pipeline projects, either capital or revenue. Many projects have not yet reached the point where they feel ready to embark on trying to secure capital, while the programme monitoring data does not provide systematic records of non-programme funding and a comprehensive survey of all groups was outside the scope of this evaluation. Some indication of leverage from Ynni'r Fro funding was however provided in the qualitative interviews.

2.17 At least half of the 23 groups interviewed have received funds from elsewhere, either capital loans or grants related to preparatory stages of a project. External funders have tended to be charitable rather than commercial lenders (such as Robert Owen Community Bank, Charity Bank, the Waterloo Foundation and the EAGA Charitable Trust).

2.18 Some groups have also launched their own community loan offer or share issue and others are currently exploring this option. Three groups have so far raised over £1 million in this way (see Appendix 2 for project details):

- Abergwyngregyn raised around £450,000 from a share offer;
- At the time of the interview Corwen Electrical were on course to raise £300,000 from a local share offer; and
- Transition Bro Gwaun raised some £285,000 from a local loan offer.

3 Outcomes and impacts

This chapter outlines outcomes from Ynni'r Fro, impacts to the end of the WEFO-funded element of the programme in March 2015, as well as wider benefits of the ongoing pipeline projects and their projected future benefits. The data used in this chapter has been collated from Ynni'r Fro monitoring databases provided by EST, including for the 57 pipeline projects for which the monitoring information is the most comprehensive and up to date. Where relevant, the quantitative evidence has been supplemented with qualitative evidence gathered during the in-depth interviews.

Engagement and support

3.1 This section characterises the number and types of CRE initiatives that were engaged and supported through Ynni'r Fro.

Demand for Ynni'r Fro support

3.2 As of the end of March 2015, the Ynni'r Fro programme had attracted 216 expressions of interest, which have translated into 112 groups/enterprises assisted, 47 of which received preparatory funding. As at the end of March 2015, there were 57 'pipeline' projects[18:] two of which had recently completed (as shown in Table 5).

3.3 As noted in chapter 2, under WEFO rules only projects that would complete by March 2015 were eligible for capital funding from the programme, hence only two received capital support from Ynni'r Fro. Other projects that benefited from early stage funding from Ynni'r Fro will continue to seek capital finance elsewhere, including Welsh Government parallel funding.

[18] As explained in chapter 2, the number of pipeline projects was increased from 22 to 57 as a result of changes to eligibility made around the mid-point of the programme.

Table 5 – Ynni'r Fro engagement and support

Engagement or support type	Number by March 31st 2015
Expressions of interest	216[19]
Enterprises assisted	112[20]
Enterprises awarded Ynni'r Fro programme preparatory funding	47[21]
Enterprises awarded Welsh Government additional parallel preparatory funding	27[22]
Projects awarded Ynni'r Fro programme capital funding	2
Projects awarded Welsh Government additional parallel capital funding	2

Types of group supported

3.4 The programme attracted demand from a wide range of community-led groups that had an interest in developing a renewable energy generating capacity, both for emissions reduction reasons and to secure long-term revenue to sustain the delivery of community benefits (as described later in this chapter).

3.5 A survey and in-depth interviews with groups in the mid term evaluation, and the interviews from this final evaluation, revealed the following key characteristics of groups that had sought support from Ynni'r Fro.

[19] EOIs that were not from a social enterprise or for a renewable technology and therefore immediately ineligible received an email response from EST. All other EOIs were followed up with a phone call to the group from EST or a TDO. At this point the decision was taken on whether or not the project was eligible for support. The decisions were mostly taken by the TDOs, but they could discuss any uncertainties with EST. There is, however, no record of these decisions. EST stated that the EOIs not supported would have been ruled out due to not being an eligible organisation, or the project was deemed as not being feasible, or a project not in line with programme targets, or the project may have dropped out themselves.
[20] This is greater than the number of community energy organisations operating in Wales in June 2015, as set out in appendix 4; the difference may be due to the fact that some of those assisted do not classify themselves as community energy organisations, or because the figure presented in the table is representative of support across 5 years of the Ynni'r Fro programme, compared to the 'snapshot' figure of 67 in June 2015.
[21] 11 preparatory funding applications from 10 groups were either rejected or withdrawn, for reasons such as projects not progressing though stages of planning, or not being able to complete in the programme timeline, or the group going into liquidation.
[22] 12 of which had also been awarded Ynni'r Fro programme preparatory funding.

- Most of the groups engaged with Ynni'r Fro were fairly well established and experienced at running community projects, most having existed for 5 years or more;
- Some were specialist CRE groups while others were looking to develop CRE as an extension to their usual activities (e.g. community venues, clubs and volunteer delivered services).
- Not all were social enterprises (only half of the mid-term survey respondents were) and a challenge facing many groups was to develop their organisational structure so that it was legally fit for undertaking a CRE project.
- Some had paid staff but only few, and almost all groups relied heavily on volunteers to push forward and deliver their CRE projects.

3.6 A notable feature of the groups supported by Ynni'r Fro is their reliance on volunteers. This is one of the features which distinguishes them from commercial renewable energy companies and is key to understanding the constraints on the speed of progress of some of the projects, where the 'social entrepreneurs' are often running groups on top of their main employment. One of the TDOs voiced a warning about the risk of 'burnout' from trying to push groups too hard or too fast.

3.7 A number of the groups had multiple pipeline projects (including LGV Ventures, Pentir Pumlumon and Carmarthenshire Energy Trust), as can be seen in the list of pipeline projects in Appendix 2. Some groups had considered the idea of future CRE projects, but few had concrete plans along these lines at the time of their interview.

Programme access in socially deprived areas

3.8 One of the Welsh Government's interests in promoting CRE is its potential role in alleviating poverty – although this was not a focus of the initial design of the programme. Making a contribution to equal opportunities was also one of the objectives attached to the WEFO

funding. The research therefore explored the extent to which Ynni'r Fro had delivered benefits in socially deprived communities by examining the geographical distribution of projects in relation to official indices of multiple deprivation.

3.9 The analysis was inconclusive, in large part because of the lack of granularity in official statistics (e.g. the limitations of deprivation indices to capture pockets or specific types of deprivation in rural areas, as one TDO reported) and being able to differentiate between where income would be generated (the generating site or group HQ address) and who the community beneficiaries would be, who might be located somewhere else. Further discussion and examples of the data limitations are set out in Appendix 3.

3.10 Nonetheless, and bearing those caveats in mind, data analysis using the Welsh Index of Multiple Deprivation (WMID) is shown in Tables 6 and 7, to show the level of funding provided to pipeline groups across areas of deprivation. The deprivation level is based on the IMD score[23] for groups' registered postcodes and site grid references[24], where 1 represents the most deprived communities and 5 represents the least deprived communities.

3.11 This particular analysis suggests that the majority of the funding has been awarded to projects in areas of low deprivation. Because of the limitations noted above, however, this does not mean necessarily that the individual beneficiaries experience low levels of deprivation. Some groups, for example, have a specific mission to address aspects of deprivation by using income from their CRE project (see the section on wider benefits later).

[23] http://wimd.wales.gov.uk/

[24] NB not necessarily the same: a group could be registered in one place and its intended generating site be located elsewhere. Data coverage for the latter was poor, to some extent because sites are still under consideration in some projects.

Table 6 – Ynni'r Fro funding across areas of deprivation for pipeline projects (project postcode – group postal address)

Base: All pipeline groups that provided a postcode [n=50]			
Deprivation level*	**Total number of projects**	**Ynni'r Fro programme funding received**	**Total funding received (Ynni'r Fro programme plus additional parallel)**
1	2	£34,452	£34,452
2	1	£51,748	£66,748
3	5	£87,502	£109,235
4	5	£59,658	£181,046
5	16	£600,928	£749,862

**1, most deprived, to 5, least deprived.*[†]

Table 7 – Ynni'r Fro funding across areas of deprivation for pipeline projects (project grid reference – generation site)

Base: All pipeline groups that provided a grid reference [n=35]			
Deprivation level*	**Total number of projects**	**Ynni'r Fro programme funding received**	**Total funding received (Ynni'r Fro programme plus additional parallel)**
1	0	£0.00	£0.00
2	3	£84,988	£99,988
3	2	£8,965	£8,965
4	6	£149,371	£183,956
5	14	£610,711	£765,643

**1, most deprived, to 5, least deprived.*[†]

3.12 The interviews with community groups suggested a more nuanced picture, though it should be noted that only 23 of the 57 pipeline projects were interviewed in this research. Sometimes referring to official indices or specific local issues such as fuel poverty, around half of the community groups interviewed stated that the community in which they

[†] These scores are based on the contact postcode for each project. As such, they may not be a truly accurate representation of the location of the communities to which the projects will provide benefit.

were based, or with which they intended to share the benefits from their project, experience social deprivation. Generating income to enable the group to run activities to alleviate fuel poverty (e.g. through energy efficiency actions in the community) appeared to be a significant motivator for some groups.

3.13 Other groups (around a quarter of those interviewed) claimed that the communities they plan to benefit from their projects are 'mixed', meaning that they contain pockets of both higher and lower deprivation. The completed Penllergare Trust project is a good example, where the interviewee reported that the 'community' engaged with, or benefiting from, their project is comprised of two distinct communities that have very different levels of deprivation. This nuance would not be captured in analysis based on IMD data.

3.14 On balance, it is reasonable to suggest that at least 1 in 5 pipeline projects are likely to provide some benefit in socially deprived communities. It is also reasonable to suggest that any analysis based on the IMD data alone will provide too blunt an assessment of the benefits of Ynni'r Fro to deprived communities and households. Drawing from the qualitative research, specific examples of wider community benefits are outlined later in this chapter. Specific issues relating to capacity for the development of CRE projects in more deprived communities are returned to in chapter 4.

Impacts of Ynni'r Fro against WEFO targets to the end of March 2015

3.15 The data in Table 8 (overleaf) show that the various targets related to enterprise support were met or nearly met in all cases but targets for job creation, renewable energy generation and reduction in greenhouse gas emissions were all missed by a wide margin. The picture was similar in the Convergence and Competitiveness regions.

3.17 The gap in performance between the two types of target is largely attributable to the slower than envisaged rate of progress of the projects supported by Ynni'r Fro. As outlined in the mid-term evaluation, reasons for slow progress were due to a combination of both programme design and delivery issues, and wider barriers such as the funding hiatus resulting from issues around State Aid and FITS, and planning issues.

3.18 Changes to the programme since the mid-term evaluation appear to have been successful in accelerating the number of projects receiving support and moving forward with their development but, because of their relatively late start it was not feasible for those projects to get to the capital funding stage, which required completion of construction before the March 2015 deadline.

3.19 As noted in the mid-term evaluation, it may in any case have been over-optimistic to expect a large number of the projects to start generating electricity before the end of the programme given the amount of time that a community wind or hydro project might take to develop into a feasible project, achieve planning permission, secure capital funding and arrange grid connection (solar PV projects can typically be developed faster but these were not initially a focus for Ynni'r Fro support).

Table 8 – Progress of Ynni'r Fro to date against WEFO targets

	Target	Achieved by mid-term (2013)	Achieved by 31 March 2015*
Convergence region			
Enterprises Assisted	100	80	95
Enterprises Created	10	2	11
Renewable Energy Generated (GWh)	0.9	0	0.47
Gross Jobs Created	7	0	0
Reduction in Greenhouse Emissions (KtC)	2.0	0	0.047
Enterprises adopting or improving equality strategies and monitoring	10	10	10
Enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions	20	18	18
Competitiveness region			
Enterprises Assisted	15	15	17
Enterprises Created	2	2	3
Renewable Energy Generated (GWh)	0.23	0	0
Gross Jobs Created	0.5	0	0
Reduction in Greenhouse Emissions (KtC)	0.03	0	0
Enterprises adopting or improving equality strategies and monitoring	1	1	1
Enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions	2	2	2
Total			
Enterprises Assisted	115	95	112
Enterprises Created	12	12	14
Renewable Energy Generated (GWh)	1.13	0	0.47
Gross Jobs Created	7.5	0	0
Reduction in Greenhouse Emissions (KtC)	2.03	0	0.047
Enterprises adopting or improving equality strategies and monitoring[+]	11	11	11
Enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions[+]	22	20	20

**Figures in light grey are those which have not met targets.*

[+] Agreed KPIs for ERDF cross-cutting indicators relating to Equal Opportunities and Environmental Sustainability

Figures for energy generated and CO_2 reductions are for the two projects that completed in 2015 and therefore cover a very short generating period. Though recently completed, energy generation figures from Dyffryn Crawnon were not available at the time of the research.

WEFO cross-cutting indicators for equal opportunities and environmental sustainability

3.20 As an ERDF funded programme, Ynni'r Fro was required by WEFO to incorporate actions to address the Cross Cutting Themes (CCTs) of Equal Opportunities and Environmental Sustainability. Two KPIs were agreed to measure performance against these CCTs:

- The number of enterprises adopting or improving equality strategies and monitoring.
- The number of enterprises operating environmental management at a level that requires monitoring and reporting of carbon emissions.

3.21 Enterprises supported by Ynni'r Fro were required to provide documentary evidence to EST of the systems, licences and certifications they had in place in relation to both of these indicators.

3.22 As illustrated in Table 8, programme-level performance against these indicators was positive – the target of 11 enterprises adopting or improving equality strategies and monitoring was achieved and 20 out of the target of 22 enterprises met the criteria for operating environmental management at a level that requires monitoring and reporting of carbon emissions by 31 March 2015.

3.23 Beyond the narrowly drawn KPIs for equal opportunities and environment sustainability there is additional evidence of how Ynni'r Fro has contributed to the CCTs.

3.24 In terms of equal opportunities:

- Ynni'r Fro has supported the development of projects in Welsh-speaking communities and directly involving Welsh-speakers – notably in parts of North Wales. This was reflected in the fact some of the interviews with community group representatives carried for the mid-term and final evaluation of Ynni'r Fro were conducted in Welsh.
- As discussed earlier in this chapter, Ynni'r Fro has also supported the development of projects in socially deprived areas. The only caveat to this is that Ynni'r Fro did not support roof-mounted PV

projects which some interviewees suggested may be the only viable starting point for some deprived communities in urban areas.

- In addition, a number of Ynni'r Fro projects are intending to use income from their renewable energy schemes to benefit individuals from disadvantaged backgrounds. This includes, for example, self-funding for groups to continue to provide voluntary services in deprived areas (e.g. Senghenydd youth centre) or a scheme to support energy efficiency retrofit aimed at alleviating fuel poverty by Carmarthenshire Energy). There is a more detailed section on wider benefits later in this chapter.

3.25 In terms of environmental sustainability:

- This was at the core of what Ynni'r Fro was designed to achieve – in terms of increasing the amount of energy generated from renewable sources. Energy generated by projects supported through Ynni'r Fro by 31 March 2015 was well below the targets agreed with WEFO. However, as discussed later in this chapter, projected energy and carbon reduction impacts from the ongoing Ynni'r Fro pipeline are likely to be many times greater than what has been achieved to date.
- In addition to the direct impact of generating renewable energy (and as evidenced in the Wider Benefits section later) projects supported under the programme are raising the profile of and interest in renewable energy (e.g. local workshops, web promotion and engagement activities reported by Abergwyngregyn); and a number are intending to support and encourage the take-up of energy efficiency measures.
- At sector level, external stakeholders felt the programme has helped significantly to build the capacity of the CRE sector in Wales by increasing know-how, skills development and training opportunities, and peer networking. For example, Abergwyngregyn spoke about giving and getting advice from other community groups on an informal basis about CRE, some through their own networks some through TDO; and Afon Caledffrwd mentioned support from

other community groups doing CRE in the area as the most important source of support.

- This meant there is now a stronger, larger base of community groups with the potential to develop CRE projects in the future, and contribute further to environmental sustainability in Wales (e.g. Llangattock Green Valleys, see also discussion of wider benefits later in this chapter).

Projected impacts from the Ynni'r Fro pipeline

3.26 While only impacts arising to date from projects completed by the end of March 2015 can be included in the reporting against WEFO targets, this does not do full justice to the Ynni'r Fro scheme. The WEFO KPIs do not take into account lifetime impacts from the two projects already completed, nor the contribution to installed renewables capacity and future electricity generation of projects that Ynni'r Fro has supported through the initial stages of development. This section therefore considers outcomes that will or are likely to arise from the development pipeline of projects that received Ynni'r Fro support and/or funding.

3.27 The evidence is drawn from projections estimated by EST, based on assumptions set out in Appendix 3. It was outside the scope of this evaluation research to independently verify or re-estimate all of these projections so most have been taken at face value. However, load factors for solar were very high compared to published figures[25], so these were adjusted as described in Appendix 3. In addition, it should be noted that the estimated load capacity figure used by EST to calculate projections of energy generated from wind may be high for the smaller-scale projects supported by Ynni'r Fro[26]. The projections for energy

[25] EST used a load factor of 25% for solar PV; published figures suggest a factor of 9-12%: www.gov.uk/government/uploads/system/uploads/attachment_data/file/66610/7366-impact-assessment-for-the-government-response-to-t.pdf (page 27). The projected impacts for solar PV projects were therefore recalculated using a factor of 10%.

[26] www.gov.uk/government/uploads/system/uploads/attachment_data/file/42912/5900-update-of-nonpv-data-for-feed-in-tariff-.pdf (pages 8-9)

generated (and hence also projections of CO_2 savings) may therefore be overestimated.

3.28 In addition to this limitation to the projected impacts figures, there is also a high level of uncertainty around completion of CRE projects, although a qualitative indication of the likelihood to complete of each pipeline project was elicited from TDOs during this research. The figures should not be seen as accurate forecasts, which would require a full economic analysis; they provide only an approximate indication of potential future impacts and are at risk of not being realised due to the uncertainty associated with projects reaching completion.

3.29 Looking first at the two completed projects, it can be seen that the impacts reported under the WEFO KPIs in Table 8 above are only a tiny proportion of benefits that could be expected to accrue from the capacity installed.

Table 9 – Projected impacts for completed projects

Projected impact[1]	Penllegare Trust	Dyffryn Crawnon	Total
Technology	Hydro	Hydro	
Total installed capacity (kW)	24	18	42
Lifetime Energy Generated (GWh)	1.97	1.34	3.31
Lifetime CO_2 Savings (tCO_2)	947	644	1,591

1 All projections sourced from EST database, not independently verified or assessed.

3.30 Table 10 shows total lifetime projections for key indicators for all other pipeline projects and by Convergence and Competitiveness regions. Significant benefits are projected in terms of renewable energy generation and CO_2 savings.

Table 10 – Projected impacts for all current pipeline projects

Projected impact[1]	Convergence region	Competitiveness region	Total
Total projected installed capacity (kW)	20,309	6,358	26,667
Hydro [number of projects]	1,349 (21)	508 (10)	1,857 (31)
Wind [number of projects]	11,060 (15)	600 (3)	11,660 (18)
Solar PV [number of projects]	7,900 (4)	5,250 (2)	13,150 (6)
Lifetime Energy Generated (GWh)	778	160	938
Lifetime CO_2 Savings (tCO_2)	373,374	76,961	450,335

1 All projections sourced from EST database, not independently verified or assessed.

3.31 It is impossible to be certain about how much of the projected capacity will end up being installed, even including the 11 (of 55) projects that have received planning permission (as shown in chapter 2) as full capital finance for many projects remains to be secured. To provide a broad indicator of the likelihood of completion, TDOs were asked as part of this research to rate, for each project they have supported, the likelihood of it completing on a 5 point scale.

3.32 While this provides a reasonable indication of future outcomes based on the information currently available, it needs to be acknowledged that: a) TDOs may have over-estimated the likelihood of projects successfully completing; and b) the level of energy and/or income that individual projects ultimately generate if they successfully complete may be lower or higher than is being projected now, for example because of future changes that have to be made as a condition of securing planning permission or consent, and/or delays that result in a FITs degression deadline being missed.

3.33 The TDOs were able to provide ratings for 52 of the 55 pipeline projects not completed at March 31st 2015. They rated 14 of the projects as ‘very likely’ to complete and a further 15 as ‘likely’. However, 17 were rated as unlikely or very unlikely to complete. Applying those ratings to the installed capacity of the projects, and to the EST projections of lifetime

benefits (noting the significant limitations of that data), the very likely/likely benefits could be in the order of those shown in Table 11.

Table 11 – Projected impacts for current pipeline projects 'very likely' or 'quite likely' to succeed

Projected impact[1]	Convergence region	Competitiveness region	Total
Total projected installed capacity (kW)	11,301	6,385	17,686
Hydro [number of projects]	901 (11)	285 (6)	1,186 (17)
Wind [number of projects]	6,000 (6)	850 (2)	6,850 (8)
Solar PV [number of projects]	4,400 (2)	5,250 (2)	9,650 (4)
Lifetime Energy Generated (GWh)	438	155	593
Lifetime CO_2 Savings (tCO_2)	210,257	74,192	284,449

1 All projections sourced from EST database, not independently verified or assessed.

3.34 Comparing figures in Tables 10 and 11 suggests that 66% of the generating capacity in the Ynni'r Fro pipeline is likely or very likely to be completed. The rough projections suggest that 593 GWh of electricity might be generated over the lifetime of those 'likely'/'very likely' projects. Perhaps not surprisingly the biggest uncertainty is around larger wind projects, where planning is a major perceived project risk.

3.35 Based on the projected investment in generating capacity and resultant income benefits to communities, EST developed monetised figures for projected community benefits from the pipeline projects. These estimates used conversion factors, according to the project technology type[27], of the estimated net income (£) that each GWh of electricity generated over the lifetime of a project would provide. The factors were based on the financial projections from the more advanced pipeline projects and others across the UK. EST noted that the figures are approximated and insufficiently robust to present in detail, but it is worth

[27] £50,000 per GWh for wind projects, and £70,000 per GWh for hydro and photo voltaic projects.

noting that the projections suggested that the pipeline projects might accrue tens of millions of pounds over the estimated lifetime of 20 years.

3.36 A more detailed cost benefit analysis of Ynni'r Fro conducted in 2014 calculated net benefits of £11.8 million (though it should be noted there have been changes in the capacity of some of the pipeline projects since this calculation was made and FITs degression could not be factored into the analysis).

3.37 Some of the difficulty in quantifying future benefits from the Ynni'r Fro pipeline relates to the future impact of FITs degression and reform (in addition to the risks of some projects not progressing because of planning). Some groups reported they had experienced delays (mainly for planning but also other reasons) which had resulted in them being caught up in FITs degression, which would consequently reduce the scale of community benefit from their project. For example, Corwen Electrical (a small-scale hydro project) reported that its initial projection of £3,000 per year of community benefit was now £1,000 per year because FITs degression had occurred over the time it had taken to develop and complete the project. A few groups mentioned that FITs degression could threaten their project's financial viability.

3.38 Even for projects that complete, community benefits may be tempered in the short term by the need to service loans or pay dividends to community shareholders. At least one of the groups interviewed was weighing up the optimum profile for servicing debt and distributing funds to the community. Overall, it is possible that community benefits will come later, and the long-term nature of the potential outcomes from CRE should therefore be a consideration in how the metrics for support schemes are designed.

3.39 It was outside the agreed scope of this evaluation to prepare a full risk-assessed cost benefit analysis of monetised community benefits but the research explored qualitatively what wider benefits have been and will continue to be delivered as a result of Ynni'r Fro investment.

Wider benefits to communities from Ynni'r Fro pipeline projects

3.40 In order to provide additional insights into wider benefits achieved by Ynni'r Fro, TDOs were asked to provide a qualitative rating for each project they had supported against a list of themes. These themes were based on the evaluation team's wider research and knowledge of CRE in the UK. They were designed to capture not only economic benefits but also aspects that are relevant to community resilience and self-reliance, including evidence of a move from grant dependency to an investment culture (which was one of the Welsh Government's aspirations for Ynni'r Fro[28]). The themes were also explored in the interviews with groups and stakeholders.

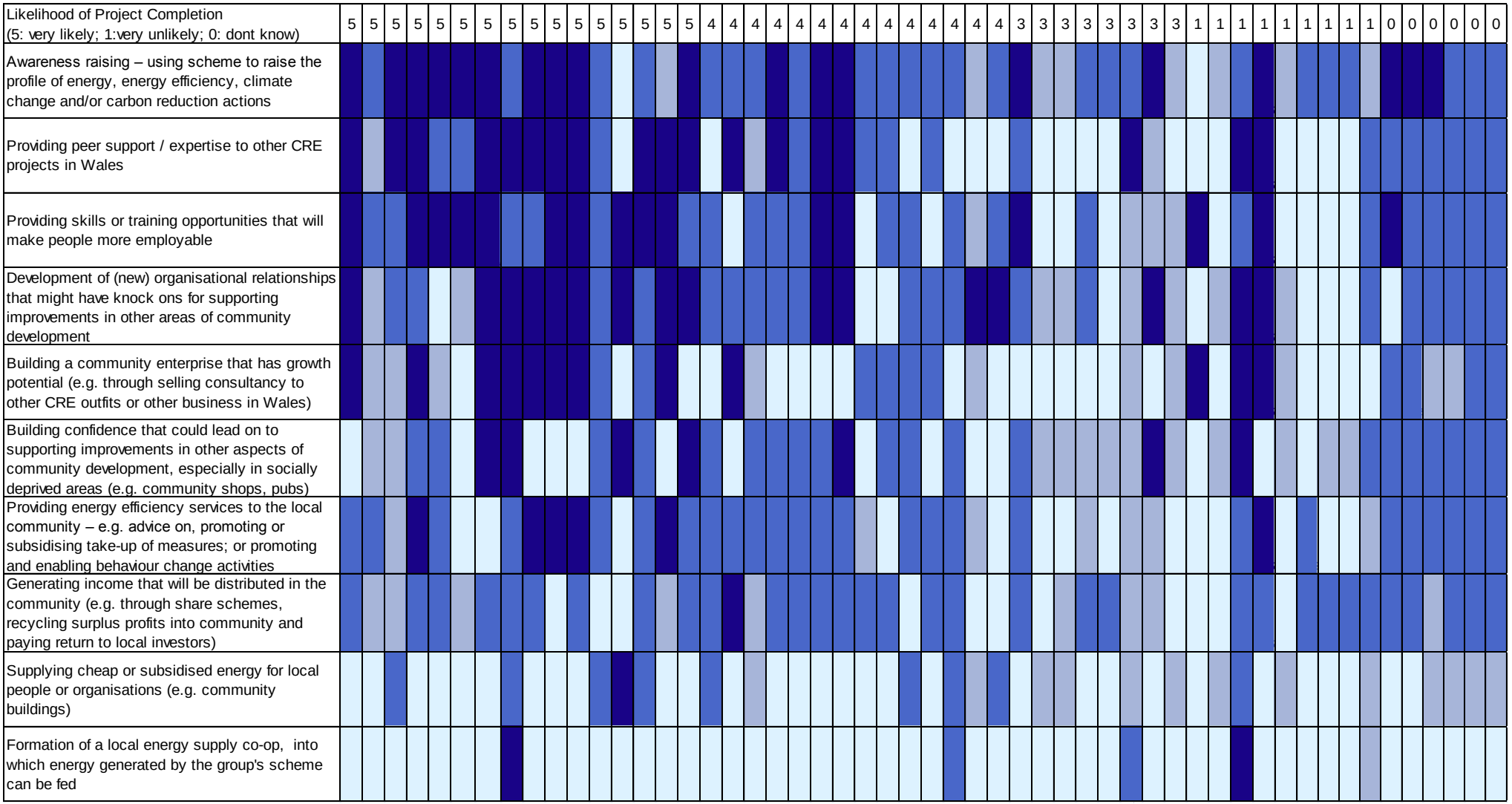
3.41 Figure 4 sets out the scale and depth of potential wider benefits to pipeline project communities, both achieved by the end of March 2015 and that are expected over the lifetime of their project on the basis of the feedback from the TDOs.

3.42 The findings suggest that numerous wider benefits have been achieved already, or are expected to be achieved within 1-2 years from projects under construction or soon to start, particularly around awareness raising of renewable energy and energy efficiency. Notably some of those benefits arise from projects that are unlikely to proceed as well as the completed and imminent projects.

3.43 Providing services to enhance household take-up of energy efficiency measures (in many cases enabled by income generated from energy generation) has also been achieved in five projects and is anticipated for a further 26 of the pipeline projects within two years, according to TDOs.

[28] The Business Plan for Ynni'r Fro states that "Significant benefits will be created for the local community through…A sustainable income stream for the social enterprise and re-investment in the local area reducing grant dependency".

Figure 4 – Wider benefits provided by pipeline community groups*



**Four pipeline projects excluded due to being at an early stage.*

3.44 Other notable benefits that are reported to have been achieved or are imminent relate to capacity building in the CRE sector in Wales, where the qualitative evidence is unambiguous that support from the Ynni'r Fro scheme has made a material difference (as outlined further in chapter 4). This includes groups contributing towards the 'soft infrastructures' that are developing in Wales to support future development of CRE, including know-how, skills development and training opportunities, and peer networking.

3.45 Capacity building is also manifested in groups becoming more self-reliant (and less grant-dependent) as a result of the income they will generate from their energy projects, that being one of the key objectives of the WEFO and Welsh Government funding. The in-depth interviews with pipeline projects (see Appendix 2 for project details) provided examples of expected revenue that would be generated to the benefit of communities, including:

- Abergwyngregyn estimate that the income for the community from their project (due to be completed by the end of 2015) will be in the region of £30,000-40,000 per year. This will also rise year on year as loans are repaid and share dividends paid.
- Friends of Taff Bargoed estimate that the income for the community from their project (due for completion in early 2016) will be around £20,000-25,000 a year for the first 5-6 years, and that it could rise to around £80,000 a year after the tenth year.
- Transition Bro Gwaun (whose project is due to be completed later this year) is expected to generate an estimated £700,000 of community benefit over 20 years, after having paid back all costs, loans, interest etc.

3.46 Examples from interviews with the pipeline projects also indicated how revenue is expected to support a range of community investments and activities including, for example:

- As noted above, providing community based energy efficiency advice and support services as an addition to official programmes.

- Improving the management of local assets such as parks and woodlands (e.g. Taff Bargoed; Afon Anafon).
- Supporting community voluntary services (e.g. Senghenydd Youth Drop in Centre which intends to use energy income to pay staff to support its youth engagement work in a deprived area).
- Developing a community-led grant and/or loan fund to which local groups can apply for funding, some specifically to support energy efficiency work (e.g. Abergwyngregyn) and others community action more generally (e.g. Corwen Electrical), including some deprived communities (e.g. Ward of Blackmill).

3.47 The two groups that had completed their CRE projects by the end of March 2015 (and whose wider benefits can be most clearly attributed to the WEFO funding), illustrate some of these wider benefits in the context of the whole project, in case study Boxes 1 and 2 below.

Box 1: Wider Benefits Case Study —The Penllergare Trust

- The Penllergare Trust was formed in 2000 with the mission of restoring the Penllergare woodland and cultural landscape, opening it up for public access and benefit. As a part of this initiative, the Trust was to set up a hydro scheme in the Penllergare Falls, which would generate money for the restoration work, and electricity for a community coffee shop and Woodland Centre.

- Having completed a feasibility study for the hydro scheme, The Penllergare Trust received £113,919 capital grant from Ynni'r Fro, which was critical in allowing them to proceed with the project.

- Work on the 24kW hydro project was completed in December 2013, and it has been up and running since February 2014. The electricity generated is, as planned, being supplied to the community coffee shop, which has been able to reduce its electricity bills by 60%. Electricity is also being supplied to woodland offices, as well as the Woodland Centre — an outdoor education centre for schools. FIT accreditation has been received and an estimated £16,000 per year will be generated, which will go towards maintenance of the woodland. This income will also be used to support employment of General Managers and Wardens — which will represent the first regular paid staff at the Trust. EST estimate that the project will provide community benefits of approximately £6,900 per year over an estimated project lifetime of 20 years.

- The project has strengthened organisational relationships and engagement with local community groups and youth groups, and improved relationships with the Local Authority. It has also raised the profile of renewable energy in the area, and evoked an interest amongst the community.

- The success of, and enthusiasm for, the hydro project has fuelled ambitions for further renewable energy schemes, with suggestions of a PV development, and an additional hydro project.

Box 2: Wider Benefits Case Study — Dyffryn Crawnon Green Energy

- Dyffryn Crawnon Green Energy (DCGE) was established in 2009 with the specific aim of undertaking activities to support the remote farming community of Dyffryn Crawnon and its surrounding areas. DCGE aimed to promote carbon reduction through renewable energy generation, so, in partnership with The Green Valleys Hydro Ltd, DCGE established a micro hydro scheme on the Nant y Wenynen to help the region achieve a carbon neutral status and provide long-term income to support the sustainable development.

- Having received grant funding, totalling £22,000, from the Waterloo Foundation and the EAGA Charitable Trust, DCGE obtained a lease and planning permission from Natural Resources Wales (NRW) to build a 18 kW micro hydro scheme.

- In 2013, DGCE received a capital loan of £80,000 and a grant of £7,198 from Ynni'r Fro to facilitate the construction of the hydro project.

- The project started generating electricity on 12th March 2015. The return from the scheme over 20 years of FITs was estimated, in the project's application to the Investment Panel for capital funds (forecast produced by TGV), to be in the region of £235,000, with income in the first year projected at £17,000, and community benefit in the first 5 years in excess of £18,000.

- The project has generated wider benefits in terms of raising awareness of renewable energy and climate change, and providing skills to the local community. In the coming years, DCGE is confident that it can develop organisational relationships that will support future community development, and hopes to offer peer support and share expertise with other CRE schemes.

Box 3: Wider Benefits Case Study - Menter Môn

- Menter Môn was established in 1995 to facilitate rural economic regeneration on Anglesey.
- It is a third sector company with a board of directors from the private, voluntary and community sector.
- In 2013 Menter Môn were successful in obtaining a grant of £19,807 from Ynni'r Fro for a feasibility study on a marine turbine in the Menai Straits. The study highlighted possible environmental issues at the initial site, so they explored other sites around Anglesey.
- This work provided them with strong links with academics and the marine renewables sector, which they used when bidding to the Crown Estates for a contract to manage the West Anglesey Demonstration Zone to help encourage and accelerate technology development in marine energy generation.
- In July 2014, Menter Môn won this contract and set up Morlais Marine Energy. Their aim was to establish Anglesey as a marine energy hub, securing maximum added value for the local economy by hosting marine technology developers and servicing their requirements on Anglesey. They currently employ 3.5 FTE and are committed to developing local supply chains where possible to deliver a wide range of these services and skills in the area to increase employment opportunities.
- Morlais Marine Energy commissioned a report to look at the potential opportunities for Anglesey's commercial fisheries community to benefit from the potential growth in the tidal energy sector through using its skills and marine experience, and its vessels, and to estimate the benefits that this could provide to the wider community. The value of potential contracts associated with vessel use could be as much as £3.5m over 10 years.

4 Effectiveness

This chapter presents qualitative evidence from the evaluation on the perceived effectiveness of Ynni'r Fro – overall and in terms of its different elements, and the different delivery partners involved. It also considers if and how changes made since the mid-term evaluation have contributed to its effectiveness.

Overall effectiveness

4.1 Views on the overall effectiveness of Ynni'r Fro partly reflected how respondents perceived the performance of the programme. On the basis that its targets for energy generation and job creation had not been achieved, some felt the programme could not be judged as having been effective. More frequently, however respondents felt that any assessment on this basis was overly simplistic.

4.2 Firstly, the programme was seen to have faced significant external challenges (most notably the State Aid and FITs issues that led to the suspension of financial support for the first 18 months of Ynni'r Fro) which had caused delays and were beyond the control of the programme to influence.

4.3 Secondly, those involved in the delivery of Ynni'r Fro and several groups felt that any assessment of effectiveness based on energy generation and jobs created could only be made in 1-2 years time, when it was expected that projects that had received support through Ynni'r Fro would have progressed further.

4.4 Thirdly, the findings reported in the previous chapter highlight wider benefits that were achieved in the lifetime of Ynni'r Fro but not directly reflected in its KPIs. Respondents generally made a more positive assessment of the effectiveness of the programme when these wider benefits were considered. In particular, it was felt to have been effective in increasing the capability of community groups to develop financially sustainable renewable energy projects and contributing to the significant growth of the CRE sector in Wales.

4.5 Overall, and taking into account these various factors, there was a general consensus that the programme "could have done better" and that some elements had been more effective than others. The following sections discuss the effectiveness of each element of the programme, and in so doing also address the effectiveness of the delivery partners involved. Key themes that recur across a number of different elements and delivery partners include the programme's flexibility and its combination of hands-on and financial support (which were generally felt to have benefited its effectiveness) and communication – both within the programme and externally (which were generally felt to have constrained its effectiveness).

Eligibility criteria

4.6 As in the mid-term evaluation, stakeholders and those involved in the delivery of Ynni'r Fro all perceived that the initial eligibility criteria had been overly optimistic, and had ultimately inhibited the effectiveness of the programme. It was felt that if more smaller-scale and PV projects had been supported from the outset, this would have led to more projects having been completed and generating energy in its lifetime. The groups involved may also have gone on to develop further, potentially large-scale, projects, while their example would have generated a sense of momentum and "success stories" that could have motivated other groups too.

4.7 Although some TDOs reported that they had re-contacted projects initially turned down following changes to the eligibility criteria (for example the Penllergare project that was initially judged ineligible but later received capital funding through Ynni'r Fro), this re-contacting did not appear to have been undertaken on a comprehensive basis across the programme.

4.8 Indirectly, it was also suggested that the initial eligibility criteria may have limited the extent to which Ynni'r Fro supported projects in socially deprived areas. Communities in such areas were felt to be less likely to have the organisational and financial capacity necessary to develop a

project of the scale required to meet these initial criteria. Additionally, communities in socially deprived urban areas were unlikely to have access to sites for large scale wind or hydro projects.

4.9 Respondents felt the changes made to the eligibility criteria during and after the mid-term evaluation had benefited the effectiveness of the programme, and that if anything they could have been made earlier and gone even further than they did. For example, TDOs reported that they had started to support smaller projects and shared ownership projects towards the end of the programme which had progressed significantly over a relatively short space of time – albeit not quickly enough or in great enough numbers to dramatically alter the overall outcomes Ynni'r Fro had achieved by March 2015.

4.10 However, several respondents were critical of how the changes in eligibility had been communicated (both within the programme and externally to potential beneficiaries) and a perceived lack of transparency in deciding the eligibility of individual projects. For example, some TDOs themselves said they had not been sure of exactly what the criteria were at different points in the programme. Exceptionally, it was also suggested that decisions about eligibility may have been inconsistent, for example with one group being told they were eligible but another very similar project being told they were not.

4.11 Changes to the criteria were not formally documented. It was reported that decisions on eligibility were primarily made on a case-by-case basis by EST in consultation with the Welsh Government, and in certain circumstances subsequently being further discussed between Welsh Government and WEFO, rather than according to a revised set of formal criteria. Publicly available information on the EST website was also not updated to reflect any changes in the eligibility criteria.

4.12 In terms of socially deprived areas, it was felt the changes in Ynni'r Fro eligibility during its lifetime had removed some of the potential barriers to them receiving support - but equally that any successor programme would potentially have to go even further. For example, small scale roof-mounted PV projects may be the only immediately viable option for such communities, suggesting they should be eligible for future support. One

respondent also indicated that there had been some discussion within the programme about facilitating linkages between urban communities and groups developing wind, hydro and ground-mounted PV projects in surrounding rural areas. This did not appear to have been pursued in the lifetime of Ynni'r Fro but may merit further exploration in the design of any successor programme.

4.13 Interviewees volunteered thoughts on the eligibility criteria of a successor programme, including its need to be focused yet flexible enough to be able to respond to sector developments, and to be open to all viable renewable energy technologies, shared ownership schemes and smaller scale projects – although there were mixed views on the merits of small projects and questions around supporting groups with little experience and existing capacity.

Technical Development Officer Support

4.14 The mid-term evaluation reported that "the often intensive and wide-ranging support that TDOs have been providing appears to have been effective in helping groups address the challenges posed by limited capacity and shortage of skills and experience" and that "groups consistently rated the importance of this support to the development of their project highly". The final evaluation interviews reinforced these findings. TDOs were said to have continued to provide similarly intensive and wide-range support which groups, the TDOs and wider stakeholders felt had been effective and important to the progress projects had made.

4.15 Groups also emphasised the role that TDOs had often played in helping them access other additional sources of support that had aided their development. A recurrent feature of the most advanced pipeline projects was that they had benefited from a combination of financial and non-financial support from multiple sources – thanks in part to connections the TDO had helped them make.

4.16 At a broader level, TDOs were also seen to have contributed significantly to the growth of the CRE sector in Wales, because of the linkages, accumulation and sharing of knowledge they had facilitated.

Several TDOs were working on a professional or voluntary basis for other organisations in the sector alongside their Ynni'r Fro duties, and this had helped to catalyse some organic but beneficial synergies. For example, no formal or contractual relationship existed between Ynni'r Fro and entities such as Renew Wales and Robert Owen Community Bank but regular dialogue and a high degree of co-operation was reported to exist between them, largely through TDOs who were involved in both. This was partly reflected in the fact several projects supported by Ynni'r Fro also reported benefiting from support from one or both of these other organisations.

4.17 However, there were some perceived limits to what TDOs could effectively do. Securing planning permission and consent was again a significant, possibly the most significant, barrier reported to projects progressing. Several pipeline projects were reported to have been turned down for planning and/or consent, and had either been abandoned or were in the process of preparing an appeal. Although some steps had been taken to address this at a strategic level since the mid-term evaluation (see below) TDOs still perceived this to be a largely intractable barrier that they themselves could not wholly enable groups to overcome.

4.18 Some external stakeholders suggested that TDOs may have lacked a complete understanding of how planning and consent decisions were made, or at times adopted somewhat adversarial attitudes towards decision making organisations. They felt TDOs might have been stronger in facilitating dialogue between groups they were supporting, the LPAs and NRW while projects were at an early stage, so that groups could get advice on how to design and present their project in order to maximise its prospects of being approved.

4.19 TDOs' self-assessment was also mixed on how well they had been able to advise groups on accessing capital finance, particularly with regard to loan finance from commercial lenders. Several had effectively directed groups to sources of free expertise on setting up a share offer and referred groups to WCVA to explore the option of applying for an Ynni'r Fro capital loan. However, most indicated they had felt less able to offer

expert advice or referrals when it came to potential sources of a commercial loan.

4.20 More generally, it was suggested that TDOs were too stretched at times to be wholly effective. This was due to a combination of the number of projects they were supporting and the often intensive, time-consuming needs of some groups that may have diverted attention from others.

4.21 Some respondents also felt that, with the benefit of hindsight, the TDO support may have been too flexible for its own good. TDOs were felt to bend over backwards to support the visions that different groups had for their projects, and invested a lot of their time to compensate for the lack of capacity or technical knowledge groups themselves often had. Equally, this approach enabled groups completely new to renewable energy to develop potentially viable projects.

4.22 There was a general consensus that the TDO function (or something equivalent to it) should be maintained in any successor programme, and as far as possible the existing TDOs retained too because of the knowledge and linkages they had accumulated through Ynni'r Fro. Equally, and in light of the issues highlighted above, there were several suggestions about how TDO support could be reshaped, complemented or delivered differently in any successor programme These included:

- Having a larger number of TDOs, with a broader range of expertise but who were employed for a smaller proportion of their time (e.g. 2 days a week rather than the 4 days a week that was the case on Ynni'r Fro).
- Retaining a similar number of TDOs, will similar expertise, but complemented by 1 or 2 experts, e.g. in planning and capital finance, which TDOs could refer groups to.
- Providing access to a range of experts through a framework contract structure, to allow groups to call out specialist support using funding they had been awarded or raised.
- Potentially, and not a view shared by all, more focused targeting of support to projects with the highest chance of success.

Financial support

Preparatory funding

4.23 Overall, the administration of preparatory grants by EST was felt to have been efficient and effective. Groups praised the straightforwardness and speed of the grant application process, and those involved in the delivery of Ynni'r Fro also cited this as a notable positive. In particular, the speed of the process was seen to have been important in enabling groups to avoid delays in the development of their project and reduce the risk of them failing to achieve key milestones before the next FITs degression. One or two examples were given of apparent delays in grant applications being processed but these appear to have the exception rather than the rule throughout the lifetime of Ynni'r Fro. EST was also reported to have been "good with the groups" and to have given useful advice and information to groups making a grant application.

4.24 In terms of the preparatory funding itself, this was cited by all respondent types as having been crucial to ability of groups to get their projects "off the ground" and complete essential tasks in their initial development. Groups generally were aware of some other sources of grant funding, and had often also benefited from these, but most did not think that they could have continued to progress their project just relying on these other sources. The Ynni'r Fro grant funding was also thought to have certain distinct advantages over other sources. One was the speed with which it could be accessed, as discussed above. Another was that it provided groups with 100% of the costs they needed to undertake key tasks in their development without requiring match funding.

4.25 The amount of grant funding Ynni'r Fro was able to provide to individual groups was also ultimately important. Some of the most advanced pipeline projects had received grant funding totalling up to and even in some cases slightly more than £30,000. Those involved in the delivery of Ynni'r Fro and external stakeholders reported the preparatory costs of a larger-scale wind or hydro project were typically over £30,000 and as

such felt it was a positive feature of Ynni'r Fro that the programme had been flexible in awarding grants to meet the majority of these costs.

4.26 The main perceived drawback or limitation of the Ynni'r Fro preparatory funding were restrictions on what it could be used for – although to a large extent this was attributed to factors beyond the immediate control of the programme. Specifically, State Aid rules impose restrictions on the extent to which preparatory funding could be used by groups to prepare applications for planning permission and consent (and also prepare appeals if their initial application was unsuccessful), and to contribute to grid connections.

4.27 There were also some apparent grey areas as to what preparatory funding could or could not be used for. For example, one group had initially understood they could not use grant funding for publicity materials but were later informed that they could. There was a general consensus that (as far as State Aid rules would allow) groups should be able to use grant funding flexibly and for a broader range of tasks than had been the case during Ynni'r Fro, including the use of grant funding to buy-in project management support. Transparency about the limitations would be essential from the outset.

Capital funding

4.28 Because few projects had progressed to the construction phase in the lifetime of Ynni'r Fro there is limited evidence on which to base any assessment of the effectiveness of the programme's capital funding or the delivery partners administering it.

4.29 As reported in chapter 2, administration and decision making for capital funding was the responsibility of the WCVA and the Investment Panel. While only six groups had been referred to the WCVA (by EST or a TDO) during the programme, it was widely felt that both bodies had been as effective as they could be with respect to their core remit and both had performed useful functions beyond approving and administering loans.

4.30 There was some criticism to the effect that groups should have been encouraged earlier in their projects to develop detailed financing plans and engage with financial experts, but this was a criticism of the programme design and implementation overall rather than either the WCVA or the Investment Panel specifically. It was felt that sometimes groups did not engage effectively with financing issues until they were well into or through the planning process.

4.31 Groups that had been supported by the WCVA to apply for a loan process indicated it had been relatively straightforward, and an external stakeholder compared it favourably to the equivalent process of accessing loan finance from a commercial lender.

4.32 It was reported that, owing to the relative inexperience groups had in capital finance, the WCVA had often provided more general advice and support to loan applicants to enable them to undertake income projections and explore their different options for accessing capital and had sometimes acted as a broker for groups in discussions with potential lenders (including Charity Bank and Triodos). These activities involved spending significantly more time with each group than initially envisaged.

4.33 Some respondents felt that groups would have benefited from earlier engagement with the WCVA (or another expert source on capital finance) because they could inadvertently "do more harm than good" by approaching potential lenders themselves or entering into commercial agreements that could later compromise their ability to access loan finance.

4.34 Respondents that had come into contact with the Investment Panel expressed a high degree of confidence its rigour and decision-making ability. The panel was thought to comprise a sound mix of professionals with different expertise and the participation of representatives of the Welsh Government was also reported to have facilitated valuable strategic discussions at Panel meetings. Equally, some respondents were critical of what they perceived as being the infrequent meetings of the Panel, and suggested this may have resulted in some groups facing a long wait for an application for Ynni'r Fro funding to be considered. In

the context of FIT degressions, and the possible implications of any delays in a project's development, this was seen as an important issue.

4.35 In terms of the effectiveness of the Ynni'r Fro capital funding itself, views were mixed and it is difficult to assess performance objectively because there were so few loans. Following the changes made in response to the State Aid and FITs issues reported in chapter 2, the main form of capital finance Ynni'r Fro could offer groups was a loan of up to £250,000. This was always intended to only meet a proportion of a project's total capital costs and, following the strict guidelines prescribed under the state aid rules, the interest rate on a Ynni'r Fro capital loan was also typically slightly higher (at around 7.5%) than that offered by other lenders in the sector. This was widely cited as a disadvantage, and had influenced at least one group interviewed to seek and secure all their capital finance from other sources (a loan from a commercial lender and a share offer).

4.36 However, other respondents perceived that the Ynni'r Fro capital funding had still been important and effective in enabling some groups to progress. Firstly, it was seen to have been influential in certain cases in enabling groups to access additional capital funding from other sources. Lenders were said to be more willing to give projects a loan if they had the "reassurance" that the group was also receiving capital funding from a Welsh Government programme. In at least one instance it was also reported that Ynni'r Fro capital funding had been used to enable a lender to provide a group with an initial loan for a proportion of their capital costs (with the remaining proportion being met by a Ynni'r Fro loan), and then increase the size of their loan at a later date if they chose to.

4.37 Secondly, it was reported that Ynni'r Fro loans had been used flexibly to de-risk aspects of the development process for individual projects. This included offering groups that were undertaking a share offer a capital loan that they could "fall back on" if their share offer did not raise the expected amount. This avoided the possibility that in such a scenario groups may have to delay their project, and potentially miss a FIT degression deadline, while they sought capital funding from another source. It also included offering a loan groups could use to meet the

costs they incurred after the construction phase of their project but before they started to receive FIT payments. Commercial loans were reported not to cover these costs. In addition, it was reported that the terms of repayment on an Ynni'r Fro capital loan had been quite flexible depending on the aspirations of individual groups.

4.38 Reflecting the above, views on the provision of any capital funding by a successor programme were mixed. Some respondents perceived an ongoing need for this, particularly if more projects in deprived areas (that may only be able to raise limited amounts of capital through local share offers) are to develop. Others were more confident that groups could access sufficient capital funding from other sources and felt the provision of preparatory funding should take precedence over any future provision of capital funding. But as in the mid-term evaluation, commercial lenders were still reported to view CRE projects as "high risk" and be reluctant to provide loans below a certain threshold – e.g. £1m – which currently precludes most or all CRE projects.

Management and co-ordination

4.39 Overall, the qualitative findings suggest there were positive aspects of the management of Ynni'r Fro and improvements made following the mid-term evaluation but also aspects that still could have been delivered more effectively.

Communication within Ynni'r Fro

4.40 Several of these aspects relate to communication between the different individuals and partners involved in delivering Ynni'r Fro. Those involved in the delivery of Ynni'r Fro felt this this had been challenging throughout, partly because of the number of layers the programme had (from WEFO down to Welsh Government, EST, the TDOs, WCVA, and groups receiving support).

4.41 Representatives of both the Welsh Government and EST acknowledged that contract management could have been more rigorous than it had

been throughout the programme. Some mitigating circumstances – such as lack of resource in the Welsh Government in the early part of the programme – were cited. While performance against the basic requirements of the contract was said to be monitored and reported adequately some key aspects had apparently not been followed through or enforced. These included external communications in EST's contract ("news updates via e-bulletins, newsletters and website messaging" and "an online forum", none of which appears to have been introduced or maintained for any length of time during the programme) and creation of a central library of resources for CRE groups (which was also a recommendation made in the mid-term evaluation)[29].

4.42 More fundamentally, one respondent suggested that the nature of the contract itself, which was based around the delivery of support rather than the achievement of outcomes, had been flawed from the outset.

4.43 Communications around the eligibility criteria and their evolution during the programme was a source of criticism by some groups and TDOs, who felt that greater clarity and transparency was needed.

4.44 It was also suggested that more could have been done by EST to facilitate contact between the WCVA and groups, so that groups could benefit from expert financial advice earlier on (for the reasons outlined under 'financial support' above). It was reported that WCVA had asked EST for the details of all the Ynni'r Fro pipeline projects so they might contact the groups concerned proactively, but that these details had not been provided.

Data management and reporting

4.45 Some interviewees involved in the delivery of Ynni'r Fro felt TDOs had been over-optimistic in their reporting to EST of how far and how fast the projects they were supporting would progress – particularly early in the programme.

[29] Although, at the time of writing, a CRE toolkit was being developed by EST, as part of their contract with the Welsh Government to continue Ynni'r Fro after March 2015. It was reported that the toolkit would be completed in July 2015.

4.46 Representatives of the Welsh Government indicated they had been broadly satisfied with the management and reporting of data (for example on the number of EOIs received, groups being supported, grants awarded, etc.) by EST during the programme. Some TDOs felt EST could have "done more" with this data (e.g. analysis of which groups had most potential to develop, which could be used to allocate support in a more targeted way) but otherwise raised few issues with the data itself. The data maintained by EST was also reviewed and analysed for this evaluation, and this suggested some failings. These included inconsistencies in figures recorded in different documents, the incorrect application of formulae to calculate some figures, and missing data.

Publicity

4.47 Interviewees were critical of the perceived lack of publicity of Ynni'r Fro. Respondents indicated they were not aware of any proactive marketing of the programme by EST to potential beneficiaries or wider stakeholders beyond information about it provided on their website. Respondents involved in the delivery of Ynni'r Fro indicated this may have been partly pragmatic – on the basis that the programme would not have had the resources to offer support to a significantly larger number of projects.

4.48 It was felt this had meant groups with the potential to achieve significant outcomes with support from Ynni'r Fro may have been entirely "missed" by the programme. Interviewees also saw an important need (which was not addressed during the programme) for successes and the achievement of key milestones by groups receiving support to be publicised and build up a sense of momentum within the programme.

Leadership

4.49 Linked to the above, it was reported that Ynni'r Fro had lacked a strong sense of leadership. One respondent commented that the management

of the programme “had not been inspirational” – which largely summed up wider sentiments about Ynni’r Fro. Neither EST nor representatives of the Welsh Government were seen to have been very active in promoting the programme, for example at events or through the media. This was contrasted with some other UK CRE programmes where it was said there had been a central organisation or individual regularly publicising the achievements of the groups they were supporting through these channels. It was felt that without this, Ynni’r Fro had missed opportunities to attract additional groups to apply for funding, encourage and motivate groups already being supported, and “educate” wider stakeholders like LPAs and NRW about the wider social and economic benefits CRE projects can deliver.

Communication between Ynni’r Fro and external bodies

4.50 The mid-term evaluation reported that representatives of Ynni’r Fro had met with LPAs at the start of the programme but this had not been followed by any subsequent dialogue. Some steps were reported to have been taken since the mid-term evaluation to address these. This included a ministerial letter sent to all Welsh LPAs concerning CRE in 2013. Views were mixed on the impact of the letter. One respondent involved in the delivery of Ynni’r Fro felt it had been effective, on the basis that TDOs had reported that when meeting planning officers that letter was occasionally mentioned. However, an external stakeholder indicated the letter had not been seen as “a big deal” in the LPA they had been working in at the time and had not prompted a change in approach to planning applications for CRE projects - although this respondent was at pains to stress that they could not speak on behalf of other LPAs.

4.51 It was reported that efforts had been made to highlight the challenges groups had been experiencing in the consents process to NRW, and there was more evidence that this may have had some positive impact in enabling groups to navigate the process. For example, at least one TDO and one external stakeholder felt this had become less challenging for

groups since the mid-term evaluation and attributed this at least partly to the efforts of Ynni'r Fro.

4.52 In addition, it was reported that since March 2015, new processes had been introduced between the Welsh Government and NRW to improve the mutual understanding of the CRE sector. As part of this NRW had provided training to TDOs and representatives of the Welsh Government on the consents process – a development which all sides were positive about but which had come about too late to have benefited groups that were supported during the lifetime of Ynni'r Fro.

4.53 Additional challenges were also reported to have been experienced by some groups with securing a grid connection, although many more had not yet progressed to a point where it was an active concern.

Strategic engagement

4.54 In order to also address challenges to the programme at a strategic level, one of the recommendations of the mid-term evaluation was to establish a multi-agency steering group for Ynni'r Fro, attended by representatives of NRW and LPAs (and potentially other external bodies such as district network operators and Ofgem). As discussed in chapter 2, it was reported that various attempts had been made to do this but that, for a variety of reasons within the Welsh Government, this was not immediately possible following the mid-term evaluation.

Changes in response to the mid-term evaluation recommendations

4.55 Table 12 sets out the recommendations that were made in the mid-term evaluation of Ynni'r Fro and provides a short qualitative summary of the progress made against these. The recommendations were made partly to inform the delivery of Ynni'r Fro for the remainder of its lifetime and also partly to inform the design of any successor programme that followed it. It was not expected that changes would have been made to Ynni'r Fro in response to all of the recommendations.

Table 12 – Changes made to Ynni'r Fro in response to the mid-term evaluation recommendations

Recommendations	Changes
Aims, indicators and targets	
• Set future targets that reflect the current challenges and timescales in sector, and which allow smaller-scale projects to be supported	Changes in the eligibility criteria following the mid-term evaluation were widely seen to have improved the effectiveness of the programme by increasing the number of live pipeline projects.
• Develop additional indicators to measure intermediate impacts	No change – as noted in chapter 3 the retained WEFO KPIs do not capture the breadth and ultimate scale of impact resulting from Ynni'r Fro support.
• Adopt more flexible indicators to reflect the broader social and economic impacts of CRE projects	No change - interviewees generally felt these KPIs did not fully reflect the broader social and economic impacts of projects supported by Ynni'r Fro.
Barriers and constraints	
• Use data collected through Ynni'r Fro, and other sources, to better demonstrate the benefits of CRE to other public bodies	Apart from instances of dialogue between Ynni'r Fro and some public bodies at a project and programme level (see below) this has largely not happened. As noted above, some interviewees felt that Ynni'r Fro suffered from a lack of championing and this would need to be addressed in a successor scheme.
• At a project-level – support on-going dialogue between TDOs and officers in NRW and LPAs	There was some evidence of TDOs having entered into dialogue with NRW and LPA officers in relation to individual projects they were supporting, but this did not appear to have been co-ordinated or consistent across the programme as a whole. Better dialogue between groups, TDOs and NRW and LPAs remains an area for improvement.
• At a programme-level – establish a multi-agency steering group attended by representatives of NRW, LPAs, and potentially other stakeholders such as Ofgem and district network operators	This was not achieved and there remains no high level forum where issues around planning and grid connections for CRE are discussed and problems shared between influential stakeholders.
• At a Welsh Government level – consider formal measures to promote CRE in Wales, e.g. the setting of targets and revisions to the current planning guidance	Following the mid-term evaluation, a ministerial letter was sent to all LPAs concerning CRE, but this was perceived to have had little impact. The absence of Welsh Government targets for CRE and existing planning guidance on renewable energy were still cited as factors limiting the ability of Ynni'r Fro or any successor programme to support large numbers of projects through to successful completion.

Programme improvements	
• Review the existing method of allocating support through Ynni'r Fro and consult with stakeholders on the approach to be adopted in any successor programme	No formalised changes were made to the allocation of support through Ynni'r Fro although the large increase in the number of pipeline projects is indicative of a change in the emphasis of support in the last two years of the programme. Welsh Government has initiated stakeholder involvement in the design of a successor scheme where issues of targeting and focus will be considered.
• Continue and ring-fence the TDO support currently delivered through Ynni'r Fro	This has been managed effectively. TDO support was continued following the mid-term evaluation and transition arrangements were made for additional parallel funding from Welsh Government used to ensure this could continue for pipeline projects unable to complete by the March 2015 deadline.
• Create a central library of resources for community groups	Not effective - although signposting groups to external sources of advice and support by TDOs and WCVA appears to have been valuable and valued where it happened. .
• In the short-term – continue to provide preparatory grant funding	This was widely reported to be one of the most important and effective aspects of Ynni'r Fro. Preparatory grant funding was continued following the mid-term evaluation and additional parallel funding from Welsh Government used to ensure this could continue for pipeline projects unable to complete by the March 2015 deadline.
• In the longer-term – give consideration to introducing a contingent, revolving loan fund alongside preparatory grant funding, or supporting a loan fund for CRE in Wales introduced by another body	The existing mechanisms in Ynni'r Fro, alongside other community funders and groups' own share schemes appear to have been sufficient during the lifetime of Ynni'r Fro to meet groups' needs but projections for CRE in Wales suggest demand will increase and this option for sustainable funding needs to be considered for a successor scheme.
• Start discussions with groups about capital finance at the earliest opportunity, and give serious consideration to the provision of additional advice and support in this area	This did not appear to have been fully addressed within Ynni'r Fro since the mid-term evaluation and remained a key area of criticism from interviewees. It needs to be factored into programme design in any successor scheme.
Transition and succession	
• Continue the provision of TDO and financial support to community groups beyond the current Ynni'r Fro programme	This was addressed effectively through Welsh Government parallel funding which has provided some degree of continuity while a successor scheme is developed.
• Develop a transition strategy for Ynni'r Fro that gives groups certainty about future sources of support	In progress - the extension of support beyond the end of the ERDF-funded period (to March 2015) and the establishment of design groups for a successor programme suggest provision has been made for managing this transition.
• Put mechanisms in place to capture learning from Ynni'r Fro, for example through learning diaries and case-studies, to inform a successor programme	This is an area of weakness. A small number of project case studies had been compiled by EST since the mid-term evaluation. EST is also developing a CRE project toolkit, due to be completed in July 2015. Beyond these, mechanisms were not in place to capture learning during Ynni'r Fro.

5 Market need

5.1 One of the WEFO requirements of the evaluation was to place the demand for a CRE support programme within the context of market need. This chapter therefore discusses the potential of CRE in Wales and the market need for support to the development of CRE. The chapter draws from a more detailed analysis, presented in full in Appendix 4, which was undertaken by the CRE expert supporting the research team.

5.2 'Market need' is a function of the response to market failures (a) constraining the delivery of renewable energy (i.e. barriers described in chapter 4 such as planning and consents) and (b) constraining community entrants (i.e. barriers described in chapter 4 such as capacity in community groups and their related need for support of different kinds as their project develops). As shown in this evaluation and elsewhere (e.g. the UK Community Energy Strategy) community renewable energy can provide a range of economic, environmental and social benefits that can both benefit communities and contribute to policy goals in Wales.

5.3 The degree to which failures constraining both the delivery of renewable energy and community entrants are addressed, through responding to the market need, will underpin the growth of the sector, the degree to which the sector's potential is met, and the extent to which beneficial economic, environmental and social outcomes are secured.

5.4 The analysis outlined below examined the recent growth of CRE in Wales, the current pipeline, and preliminary future scenarios of CRE in Wales to 2020 based on scenarios developed for DECC for the UK Community Energy Strategy[30]. It also identifies the contribution of Ynni'r Fro to recent CRE development and the future pipeline.

5.5 It should be noted that these are preliminary, indicative estimates only to illustrate the notional range of market need for CRE in Wales, developed within a limited budget and without a detailed viability assessment. The

[30] By allocating a share of an estimate of UK potential growth to Wales, with reference to the comparable renewable energy resource and ability to raise community finance in Wales and the rest of the UK. Please see appendix 4 for details of this analysis.

figures should be seen as broad indicators of *potential* based on a set of critical assumptions and not as the basis for *targets* which the sector should be aiming towards. More detailed work would be required to verify and refine the assumptions if the Welsh Government wished to develop targets.

Recent development and the existing pipeline

5.6 As noted in chapter 1, the Ynni'r Fro programme was developed at a very early stage in the development of CRE in Wales and, indeed, in the development of a CRE sector across the UK. The economic and policy landscapes influencing the opportunities and viability of CRE have evolved rapidly during the last 5 or so years.

5.7 The full analysis in Appendix 4 illustrates how the community energy sector in Wales has grown significantly since 2013 (the date at which the UK analysis was undertaken for DECC), in terms of **active community energy organisations and projects under development**. The number of CRE groups in Wales has doubled in the last 20 months; and the share of these supported by Ynni'r Fro has gone from 60% to 75% over the same period (though, as is also made clear in the report, projects have received support from multiple sources not just Ynni'r Fro).

5.8 **The level of installed capacity** has developed more slowly, due at least in part to a heavy early emphasis on wind and hydro by community energy groups. Those types of project typically take several years to develop, from original idea to completed and grid-connected installations, and progress can often be delayed by the external barriers outlined in chapter 4. The installed capacity in Wales has nonetheless grown by 45% since 2013, from over 850kW to nearly 1,240kW in June 2015.

5.9 The analysis shows that projects supported by Ynni'r Fro currently make up only a small proportion of the installed CRE capacity in Wales, but forms 93% of the capacity currently under development. This proportion of development capacity in Wales supported by Ynni'r Fro has grown from 84% in 2013.

5.10 The development pipeline of CRE in Wales in 2015 has a far heavier reliance on solar PV than its development pipeline in 2013, bringing the prospect of increased installation rates for community energy projects and the development of more tangible evidence and track record for the sector, largely because solar PV tends to be less affected by the barriers that affect wind and hydro. The total CRE pipeline amounts to 29.5 MW (i.e. a significant increase on existing installed capacity) though not all of this is likely to reach completion (as set out in chapter 3).

The potential for community renewable energy in Wales

5.11 As noted above, the analysis outlined in Appendix 4 draws on the UK research[31] undertaken during the development of the UK Community Energy Strategy to estimate the potential for growth of the community renewables sector in Wales by 2020. The estimates are based on, and should not be considered in isolation from, a range of key assumptions that relate to each of the three scenarios developed, including the availability of community finance in Wales (e.g. community share schemes). The upper scenario, for example, is based on assumptions of a highly favourable environment with respect to policy, finance and evolution of the CRE sector.

5.12 The UK policy and incentive landscape for renewable energy is currently unstable and recent announcements from DECC run counter to the assumptions made in the upper scenario, with potentially dampening implications for the other two scenarios. As it currently stands, the scenario analysis suggests that by 2020 in Wales there could be potential for between 58MW and 79MW of CRE capacity (specifically solar PV, onshore wind and hydro, but not including renewable heat) according to the Low and Medium scenarios. This is clearly a broad

[31] Capener P. (Jan 2014) Community Renewable Electricity Generation: Potential Sector Growth to 2020, www.gov.uk/government/uploads/system/uploads/attachment_data/file/274746/20140108_Community_Energy_Modelling_FinalReportJan.pdf

range in potential but even the lower estimate indicates a continuing, and significant, increase in CRE schemes.

5.13 The current growth rate in the number of community energy organisations in Wales, whilst not yet reflected in growth in installed capacity, is substantial and exceeds growth in the rest of the UK. However if the market growth to 2020 referred to in the scenarios above is to be met, then the rate in organisational growth needs to increase further. In addition, sustained higher rates of growth assume a shift in the nature of community energy projects, with a greater emphasis on area based community energy enterprise than one-off projects by individual groups, although those types of project remain part of the picture. Area based enterprises that are run as energy-focused social businesses, with paid staff and thus retained skills and capacity, are seen to be better equipped to scale and replicate the community energy model (e.g. as some of the Ynni'r Fro groups have started to do or are planning). Shared ownership projects between community and private sector partners are also heavily implicated in sector growth in the scenarios.

5.14 There is some early evidence of these changes happening but it is difficult to be more precise about the most realistic trajectory for community energy in Wales given uncertainty about the UK incentives regime and the future of support for CRE in Wales. The evidence and scenarios in this report provide a starting point for further detailed consideration of the sector's potential and needs in Wales.

Implications for market need and a CRE support programme

5.15 The evidence in the report and the analysis in Appendix 4 suggests that the CRE sector/market in Wales is emerging from an initial growth and learning phase to one where there is potential for development to accelerate if the right conditions are in place. However, community groups and CRE enterprises still face significant barriers to entry and to growth that could hold back further development of the sector.

5.16 The analysis, together with feedback from the group and stakeholder interviews, points to a continuing need and demand for CRE support services that will help develop capacity and bring finance into the sector, so that the number and scale of CRE groups/enterprises can grow, and the direct and wider benefits be realised. As the sector matures the shape of support that is required may evolve. The implications of the analysis in this chapter and evidence from the rest of the evaluation are drawn together in the conclusions with respect to a possible successor scheme to Ynni'r Fro.

6 Conclusions

6.1 The final review of Ynni'r Fro has evaluated whether and how the programme met its aims, objectives and targets. In assessing performance the achievability of the objectives was taken into account, in light of the constraints on delivering CRE projects in Wales that were identified in the mid-term evaluation. This chapter draws conclusions and outlines the implications of the findings for the development of a successor programme, which is currently under consideration by Welsh Government and stakeholders.

6.2 The conclusions are based on the evaluation team's interpretation of the preceding findings presented in the report. They do not necessarily represent the views of all the groups and stakeholders who participated in the evaluation or the views of the Welsh Government. Decisions about the future of Ynni'r Fro and support for the CRE sector will clearly also be based on considerations beyond the scope of this evaluation. As such, the forward-looking conclusions made here are primarily intended to stimulate and aid this decision-making process rather than provide definitive recommendations.

6.3 The conclusions have been organised around the main evaluation themes covered in each chapter of the report to:

- summarise the broader context for the assessment of the programme's performance with respect to developments in the CRE sector more generally;
- consider performance of the programme against its aims, indicators and targets;
- consider the effectiveness of delivery – of both the delivery partners specifically and the programme overall, highlighting the key factors that mediated performance;
- consider the market need for CRE and support to the sector, and the contribution of Ynni'r Fro to date; and
- identify aspects and issues that need to be considered in the design and delivery of any successor programme.

The CRE context

6.4 The conclusions about the performance of the Ynni'r Fro programme need to be set in the wider context of the development of the CRE sector, in general and in Wales in particular. The programme was developed in 2009 and started in 2010 when the CRE sector in the UK was in its infancy and many of the development and finance models were at an almost experimental stage. Only a small number of CRE groups were up and running at that time in Wales.

6.5 The aims and targets for the programme drew on the best knowledge and practice available at the time but there has been significant evolution since then, both in terms of know-how, the range of advisory and financial support available to CRE groups and the policy, regulation and incentives regime (notably planning and feed-in-tariffs, and the publication of a Community Energy Strategy by DECC). The extent to which a programme such as Ynni'r Fro could respond to the speed at which this nascent CRE 'market' was moving was one of the mediating factors taken into account when evaluating the effectiveness of the programme. How to respond to the shape and direction of future market/sector development is also a key consideration for any successor programme.

Outcomes and impacts against the aims, indicators and targets for Ynni'r Fro

6.6 The current findings largely reinforce those from the mid-term evaluation which identified a picture of mixed performance mediated by a range of factors both internal and external to the programme. There is some evidence that changes made to the eligibility criteria and delivery since the interim have helped to accelerate progress.

6.7 This improvement has not had time to feed into quantifiable impacts within the timeframe of the WEFO funding period to the end of March 2015. A more realistic assessment of programme outcomes and impacts could be made in 2-3 years' time in order to give the currently supported

projects enough time to secure capital funding, build and complete their projects. Interview feedback in this research suggested that development timelines for CRE projects (notably for wind and hydro, which were the original focus of the programme) are realistically much longer than 5 years. A review in 2-3 years may also provide a fairer assessment given the delays early on in the programme delivery that arose from the time it took to resolve the State Aid issues and to agree an acceptable solution between the parties involved.

6.8 Bearing that broader context in mind, and with specific reference to the targets agreed with WEFO, the programme appears to have met or was close to meeting its enterprise support targets (including specific targets for Equal Opportunities and enterprises with environmental management systems) but the targets for renewable energy and job creation were missed by a wide margin. The programme has therefore met its broader aim to develop the capacity of social enterprises and support exemplar CRE projects but, as noted above, the full impacts and benefits from the work started during the funding period will only be realised in the future.

6.9 The scale of future impacts is expected to be far greater than those achieved to date. Compared to a generating capacity of 42 kW of the two projects completed by March 2015, a best estimate of projects that will complete in the next 2 years indicates a further 17,686 kW of capacity from projects supported by Ynni'r Fro (as shown in Table 11). As well as contributing to renewable energy generation in Wales, this capacity will generate significant income which will be used to support local jobs, community services and activities.

6.10 The research has also identified a range of broader benefits arising from projects supported by the programme which are not captured in the WEFO targets nor in standard appraisals of community benefit. This includes outcomes that will contribute towards community resilience and the goals of the Wellbeing of Future Generations. In addition to the direct benefits of generating renewable electricity and enterprise revenue, other notable benefits relate to: skills and employability; mobilising local capital for local benefit through community share issues; awareness raising about renewable energy and energy efficiency; revenue support

for activities to promote and increase the take-up of energy efficiency measures; revenue support to improve local assets or sustain voluntary services; and locally-run grant funds or loans for other community groups that will provide an alternative to government funding. Some of these benefits (e.g. awareness raising or peer support to other projects) will be delivered by projects that are unlikely to complete a renewable installation as well as those continuing.

6.11 Against these undoubted wider benefits, the evidence is inconclusive on the extent to which Ynni'r Fro has helped socially deprived communities to access the benefits from CRE. While most of the funded groups are in less deprived areas this may not fully reflect who in those communities will benefit, for example where income is being used to address fuel poverty or support services for vulnerable individuals. The programme's preference against roof-mounted PV may be at odds with developing CRE in deprived communities in urban areas where a lack of sites and community capacity to run big and complex schemes are barriers.

6.12 It was outside the scope of this evaluation to conduct a formal cost benefit analysis of future income and benefits but rough projections by EST (subject to significant caveats) and a previous cost-benefit analysis by Welsh Government economists both suggest aggregate benefits of tens of millions of pounds over the lifetime of the projects, based on electricity generation and income. More detailed analysis is required to validate those estimates, with a full assessment of the risks around project completion and economic factors such as FITs degression. Ways to capture the value of broader social benefits and enhanced community resilience also need to be considered.

6.13 More generally, there is clear evidence that the programme has made a difference to CRE at the sector level in Wales in terms of enhancing capacity. At an early stage in the market development of CRE in Wales, the programme made an important contribution to the development of know-how and a network infrastructure that will enable the CRE sector to grow and accelerate. While there are other organisations involved in supporting the development of CRE, the scale of resource for development activity available via Ynni'r Fro was not available anywhere

else: this relates not only to direct enterprise support but also the wider networking and relationship building activities of the TDOs that were enabled through Ynni'r Fro. The programme also helped to support the ambition of some groups to develop area-wide capabilities and scale, which will help retention of their know-how and skills in the sector and their own capacity to develop further projects.

Effectiveness and efficiency of the programme and delivery partners

Overall delivery effectiveness

6.14 Ynni'r Fro was widely seen as having provided effective, and in many cases critical, support to CRE projects, most notably through the TDO advisory support and the provision of preparatory grants. The programme's flexible approach to the diverse needs of community groups is also widely seen as a strength which contributed to its overall effectiveness.

6.15 The mechanisms for capital funding have only been partially tested because of the small number of projects (6) that have reached the stage of making a loan application.

6.16 The programme was less effective in areas related to leadership, oversight, management and communication, both internal and external.

6.17 These issues, as well the amount of time needed to secure approval for changes from WEFO, meant that adaptations to the programme took a long time to be put in place. In turn, this undermined the programme's ability to meet the evolving needs of the CRE sector in a timely manner: notably the realisation that a focus on wind and hydro schemes in the context of the barriers projects were facing would not deliver target impacts in time and the consequent decision to support smaller projects and solar PV projects.

6.18 The programme managers, EST, did not deliver against the communications objectives for the programme (including promotion of the scheme and development of resources for CRE groups) and there was a shared failure to develop systematic monitoring data that could

provide consistent and useful management information beyond that needed to report against the narrow WEFO targets.

6.19 While the feedback on TDO support was universally positive with respect to their role in engaging and motivating groups (by stakeholders as well as groups), and providing 'essential' support in the initial stages of projects, they may lack skills that will support the later-stage development of projects. This includes specialist areas of expertise such as detailed planning, financial and project management advice.

6.20 It was also suggested that the challenges relating to planning, consent and capital finance may not have been broached with groups being supported by Ynni'r Fro at an early enough opportunity in their development, for fear of overwhelming or deterring them from proceeding.

6.21 Suggestions were also made as to how TDO (and other Ynni'r Fro support) could potentially have been targeted more strategically at projects with the greatest potential to succeed. However, there is a trade-off between the potential gains in efficiency and effectiveness such an approach could bring versus the potentially negative implications of not providing support to groups with less immediate potential to progress – particularly if more of these groups are located in socially deprived parts of Wales.

6.22 Finding the right balance between these two competing considerations is clearly not easy but this is an issue that the Welsh Government and its wider stakeholders will need to consider and ultimately address in the design of any successor to Ynni'r Fro. If a more strategic approach was to be adopted in a successor programme, it also likely that the data management processes would have to be more rigorous and sophisticated than they were in Ynni'r Fro, in order to allow the development and potential of different projects to be assessed, and support allocated accordingly.

Changes in delivery in response to recommendations in the interim evaluation

6.23 Changes made in response to recommendations in the mid-term evaluation have improved the delivery and progress of Ynni'r Fro. The inclusion of smaller-scale and solar PV projects, and the increasingly pragmatic approach to supporting groups working with developers on shared ownership as this emerged as a more common approach, are notable positives. Lack of coherent communication about these changes may have mitigated their potential however.

6.24 Other positive changes since the mid-term include Welsh Government actions to engage with NRW to improve the mutual understanding of the CRE sector and the permitting processes and new arrangements to improve strategic direction and oversight (delivery partner meetings and the Investment Panel). The latter appear to have performed some or all of the functions that would have been delivered by a Steering Group, which was identified as a key gap at the mid-term review.

6.25 On a more negative note, while WEFO impact targets were reduced in response to the barriers to progress identified in the mid-term evaluation, the performance criteria were not broadened as recommended. As noted above, this means that the full outcomes from the programme will be under-estimated, notably benefits from projects underway but not completed, the wider community benefits from individual projects, and the important role that Ynni'r Fro has played in the 'market' development of a CRE sector in Wales.

External factors mediating effectiveness and impacts

6.26 The mid-term evaluation explored the barriers to effectiveness in detail. Those barriers continued to mediate the impacts that could be achieved within the WEFO funding period, in spite of the changes made to the design and delivery of the programme. Planning and consent remains an overriding barrier and constraint on the speed of progress. As in the mid-term evaluation, there was a general consensus that more could have been done within Ynni'r Fro to tackle these issues (by earlier and greater

engagement with LPAs and NRW) but equally that changes outside the programme (in the form of changes to planning policy and guidance) would have been required to fully address this barrier.

6.27 Even if planning authorities are more amenable to CRE projects (which cannot be assessed from the evaluation research) projects still face the very significant barrier of preparing applications and often also subsequent appeals. The inability of Ynni'r Fro to provide preparatory funding to groups to meet the financial and resource costs of undertaking this process, due to State Aid rules, also limited the extent to which the programme was able to address this issue. This does strengthen the case for the provision of preparatory loan funding (which would not fall foul of the same State Aid rules as preparatory grants) in any successor programme.

6.28 Issues were reported to have been experienced by some groups with securing a grid connection, although many more had not yet progressed to a point where it was an active concern – suggesting it may become an increasing challenge to CRE projects in Wales as more progress in their development.

6.29 Capital funding was not a barrier to the achievement of impacts within the WEFO timeframe as only two projects progressed far enough to qualify. Since only a small amount of capital has been accessed so far the provision of capital funding has not been tested fully. The CRE sector has grown quickly in recent years but the financing market is still in the early stages of development: there was no evidence of commercial lender involvement in Ynni'r Fro projects. Potential sources of funding outside the programme include third sector loan and grant funds, the commercial sector and individuals/residents through community share issues, but these sources may not be able to supply the large amounts of capital projected to be required by the developing CRE sector over the coming years. As in the mid-term evaluation, commercial lenders were still reported to view CRE projects as "high risk" and be reluctant to provide loans below a certain threshold – e.g. £1m – which currently precludes most or all CRE projects. This uncertainly poses the question as to how a successor scheme to Ynni'r

Fro might encourage private finance, alongside community and third sector contributions, to meet the future demand for capital funding.

6.30 The recent DECC announcement of the closure of the Renewables Obligation to wind projects in 2016, the planned removal of pre-accreditation for FiTs and the broad review of the FiT programme all exacerbate the risk and uncertainty around FITs and planning.

Did the programme meet the market need effectively?

6.31 Projects supported by Ynni'r Fro currently make up only a small proportion of the installed CRE capacity in Wales, but form 93% of the capacity currently under development, which underlines how important the programme has been to the early stage development of a CRE sector in Wales. The number of CRE groups in Wales has doubled in the last 20 months; and the share of these supported by Ynni'r Fro has gone from 60% to 70% over the same period.

6.32 The analysis of the potential for CRE in Wales shows that it could play a significant role in the broader progress of renewable energy generation, and the evidence from the evaluation has indicated that CRE projects have the potential to deliver a wide range of benefits both prior to and following completion. If completed, CRE projects can provide a reliable source of direct economic, social and environmental benefits in Wales, through generating income and building capacity in communities, and reducing CO2 emissions, thereby contributing to long-term sustainability goals.

6.33 Using preliminary estimates that are in-line with the projections in DECC's community energy strategy, the scale of CRE potential in Wales could be significantly greater than the capacity currently in the pipeline, although realisation of this potential is dependent on a number of key assumptions about the policy, planning and economic landscape as well as the potential of communities to raise capital from residents and elsewhere. As a result of recent announcements by DECC, there is significant uncertainty around the future of incentives for renewable energy which impacts on the assumptions underpinning the scenario

estimates. More in-depth research would be required to refine the estimates.

Implications for a successor scheme to Ynni'r Fro

6.34 The parallel funding provided by the Welsh Government has provided useful support to Ynni'r Fro pipeline projects during the transition to a possible new support scheme for small scale renewables. Drawing from the evidence developed in this and the mid-term evaluation, the following table lists key issues and insights from the findings that are relevant to a successor scheme to Ynni'r Fro.

Issues	Considerations for a successor programme
Scope and Eligibility	The evidence from the evaluation raises questions as to whether the broad and inclusive nature of the Ynni'r Fro programme should be carried through into a successor programme. Judgements will need to be made as to where it is most effective to focus support. For example, should support focus on experienced groups with a stock of know-how that have a high probability of executing big and complex projects? Or should it focus on building capacity in new entrant groups or those with less capacity and confidence, for example in deprived areas? Or should it be open and inclusive to all manner of groups in the CRE sector? The answers to those questions clearly relate to decisions about the primary objectives of the programme. Is it principally an energy programme with wider social benefits; or a social programme with energy benefits; or an economic regeneration programme with social and environmental benefits? The extent to which the successor is expected to engage in socially deprived communities needs to be considered as part of this, and balanced against considerations such as the desired scale and speed of development. It is unlikely that a single scheme can be large in impact, rapid and fully inclusive. Feedback collected during the evaluation suggested that the successor scheme also needs to decide how and to what extent it will support shared ownership schemes (including joint ventures). These could be a route to communities sharing in the benefits from renewable energy without having to take on the full burden and risk of developing a scheme. However, they do also raise challenging issues as to what extent Government support should be given to projects with a commercial interest.

Flexibility	The evidence shows that flexibility was an important element of the programme, allowing it to adapt to the changes in the CRE sector, but that the need for these changes could have been identified sooner and the changes made earlier. A view will be needed on whether there should be a prescribed technology mix in the successor programme. Looking forward, there are increasing uncertainties around future government support for wind projects, and how changes to FITs levels and accreditation will impact on the financial viability of community energy projects.. There are also emerging opportunities from developments in the CRE sector, for example renewable heat or shared ownership schemes. The design of a successor programme should aim to maximise its ability to provide foresight (e.g. through external stakeholder input) and be structured in such a way that it can respond rapidly to threats and opportunities as they emerge. Changes also need to be clearly communicated to potential recipients of support, although there is inevitably likely to be a trade-off between these differing considerations. Any successor programme will have to strike a careful balance between flexibility and transparency.
Targets and Indicators	The targets set need to reflect the long-term timescales of some of the benefits of CRE projects and the range of indicators used should take into account the wider benefits achievable (for example those that relates to the Wellbeing of Future Generations goals). Risk of unintended bias (e.g. towards particular technologies) should be considered explicitly when setting targets. The data management system should also be considered, for example use of a customer relationship management system to track individual groups (including the level of support provided to each and what happens to them), as well as systems to record its full range of impacts and full details of programme costs.
Ongoing Challenges and Barriers	The evaluation has highlighted that significant barriers to the development of CRE projects remain, most notably: • **The capacity of community groups** – particularly in the context of the significant time, skill, experience and money currently necessary to develop a CRE project. Estimates of future potential imply that the ongoing need for early capacity building and funding support to address these challenges will continue if the potential of CRE in Wales is to be realised. Capacity 'gaps' are reflective of the relative immaturity of the CRE sector in Wales: there is a growing cohort of groups with one project underway and a few undertaking multiple projects, with the prospect of a large number of new entrants, according to the market need analysis. Although there are other sources of support available, these are not available on the scale required to replace the support provided through Ynni'r Fro. A successor programme may wish to consider if support should be differentiated according to the needs and capabilities of groups at different levels of development, potentially even offering a menu of support options. The needs of, and options available to, groups in socially deprived areas also need to be considered.

	• **Difficulties securing planning approval and consent** – particularly in terms of the capacity of groups to steer and sustain a project through the planning process. There is a strong case for any successor programme to address this challenge from both sides:
	  ○ by supporting groups to be as effective as they can be in their approach to planning (e.g. through peer learning, using evidence of wider benefits to support their case and/or by the programme employing a planning and consent expert to support groups in preparing applications.);
	  ○ and by further developing the dialogue between programme officers and officers in NRW and LPAs, potentially via a multi-agency steering group, to co-develop ways to address the challenges CRE groups face in the planning system. Actions to engage and promote CRE at Welsh Government level would also be beneficial to the effectiveness of a future programme (e.g. consideration of sector-level targets or aspirations)
	• **Additional challenges** - as more CRE projects in Wales progress further in their development these relate to accessing sufficient capital finance to meet the costs of construction and securing a grid connection.

Future support and advice	There was a widespread perceived need for community groups to be able to access TDO support (or something equivalent to it) beyond the lifetime of Ynni'r Fro. However there were also perceived limits to what TDOs could reasonably to be expected to do, and a recognition that they may be more efficient or impactful ways of providing support of this nature in the future. In addition, a future programme may need to offer a facility for groups to access more specialist support in certain aspects of project development, notably planning, legal and finance aspects. Different suggestions (reported in chapter 4) included complementing locally based officers with specialists in certain aspects of project development, notably planning, legal and finance aspects. The pros and cons of this and other options will need to be weighed up and acted upon in the design of any successor scheme.
Future preparatory funding	As in the mid-term evaluation, the evidence showed that the preparatory grant funding provided by Ynni'r Fro was vital to the development of a pipeline of potentially viable projects. The implication of this is that preparatory funding support should be retained in a successor programme. While views were sought on the potential value of preparatory loan funding (repayable only if the project is completed) the evidence was insufficient to draw definitive conclusions. However the evidence does suggest a combination of preparatory grant funding to meet early project development costs, and preparatory loan funding to meet later development costs (particularly in the planning and consent phase) may be the most effective means of supporting projects within the current restrictions imposed by State Aid rules.

Future capital funding	The market need analysis indicates significant growth of the CRE sector and an increased demand for capital funding in future. In addition, the capital market for CRE is at an early stage of development; and the small scale of CRE projects is a barrier to them accessing private finance. Together, these factors strongly indicate a continuing need for a government funded capital programme to complement other sources of finance. The flexible ways in which Ynni'r Fro capital loans were employed (for example to enable groups to access other sources of capital, reduce the financial risks they are exposed to, and fill gaps where needs are not fully met by the market) was also seen a key positive, suggesting this flexibility should be retained in any successor programme. Alongside this, feedback from the evaluation suggests specialist advice and support around capital finance should be provided to community groups at an earlier point in their development than was generally the case during Ynni'r Fro, in order to maximise their ability later in their development to access capital.
Management and Governance	The evaluation identified areas of weakness in the management and governance of Ynni'r Fro which need to be addressed in any successor programme. This includes consideration of the best way(s) in which to access strategic guidance and sector expertise, improved data management and monitoring, establishing clear lines of responsibility and communication, and closer links with important external stakeholders (including NRW, LPAs, Ofgem and district network operators).

7 Appendix 1 – Evaluation methodology

7.1 The evaluation approach, following guidance in the Magenta handbook, combined quantitative and qualitative evidence-gathering from a range of sources, to triangulate evidence and provide confidence in the assessment. The approach included:

- quantifying the actual and expected outcomes and impacts of Ynni'r Fro and projects the programme has supported;
- collection of evidence from a range of sources and perspectives to identify, qualitatively, the contribution of Ynni'r Fro (alongside other potentially contributing factors or alternative support mechanisms) to the outcomes and impacts; and
- development of qualitative evidence to support an assessment of the effectiveness of Ynni'r Fro processes in contributing to the outcomes and impacts.

7.2 As noted in the mid-term evaluation, the ability of Ynni'r Fro to support CRE projects through to completion within its five years of operation was mediated by some external factors beyond the immediate influence of the programme – most notably the State Aid and FITs issues that led to the suspension of financial support for the first 18 months of Ynni'r Fro. In order to provide a complete picture, therefore, the final evaluation took into account likely future outcomes and impacts, bearing in mind risks around project completion, as well as those from completed projects.

7.3 The in-depth qualitative research also provided contextual accounts of 'the journey travelled' for supported projects, to support the quantification of outcomes and impacts as well as an assessment of progress and delivery effectiveness since the mid-term report.

7.4 The first phase of the research provided a **review of documentary evidence and data compilation**. This phase involved:

- review of programme documentation and monitoring information;
- development of understanding and descriptions of impacts (e.g. wider benefits) and effectiveness used to frame questions in the subsequent in-depth interviews; and

- identification of other aspects that needed to be followed-up during the in-depth interviews (e.g. risks to development of projects or their financial sustainability).

7.5 The second phase of the research involved **in-depth qualitative interviews** with stakeholders and supported community groups. The interviews were conducted by telephone using topic guides developed for this purpose. The objective of the interviews was to collect more detailed and in-depth insight, from the varying perspectives of those directly and indirectly involved in the programme, on aspects such as evidence of the wider impacts of Ynni'r Fro, the effectiveness of the delivery of the programme and any changes to the delivery model, and reflections on designs for a successor scheme. The interviews also covered issues specific to the audience, including the experiences TDOs had had of supporting community renewable energy projects and the management and design of Ynni'r Fro, and the experiences community groups had had of developing their renewable energy project and their engagement with the programme.

7.6 The following stakeholders (or representatives of the following stakeholder organisations) were invited to interview, and a total of 23 stakeholder interviews conducted. More details on the respective roles of these different stakeholders in relation to Ynni'r Fro are provided in chapter 2:

- individuals and organisations involved in the delivery of Ynni'r Fro (the 7 TDOs, Severn Wye Energy Agency, Energy Saving Trust (EST), Welsh Government and the WCVA);
- organisations that provide a potential source of other financial support to projects in Wales (Robert Owen Community Banking Fund and FSE Community Generation Fund);
- organisations responsible for determining whether projects receive planning approval and consent (NRW and Welsh Government Planning); and

- organisations active in the CRE sector in Wales and other parts of the UK (Renew Wales, Community Energy Wales, the National Trust, WRAP and Community Energy Scotland).

7.7 Interviews were also conducted with 23 pipeline project community groups covering 24 Ynni'r Fro projects. 12 of the projects had been the subject of interviews during the mid-term evaluation and 12 had not been previously interviewed. The projects were also split between those newly supported and those that had received support over a longer period. The sample of community groups was proposed by EST cross-reference across a range of criteria (type of funding received, technology type and supporting TDO) to ensure it represented a suitable range of pipeline projects.

7.8 The third phase provided a **review of 'market need'** for support to CRE projects, based on expert knowledge within the team, known existing evidence, and qualitative insights developed from the in-depth interviews.

7.9 Evidence gathered from the various sources across the three phases was synthesised to address the objectives of the evaluation.

The evaluation methodology had certain limitations which should be borne in mind in interpreting the findings. In summary:

- There is no guarantee that the sample of 23 community groups that took part in the interviews is wholly representative of the total population of 216 groups that expressed an interest in receiving support through Ynni'r Fro or the 112 groups that went on to receive support;
- Respondents were also sometimes being asked to recall details and events that occurred several years previously; and
- The 23 stakeholders who were interviewed constituted a relatively small sample, with differing perspectives and levels of knowledge of the Ynni'r Fro programme.

8 Appendix 2 – Pipeline projects list

8.1 This appendix lists only the 57 pipeline projects supported by Ynni'r Fro on 31st March 2015 as recorded in the EST database. Its purpose is to provide a snapshot at a point in time about the community enterprises that are developing projects, the technologies involved and the relative scale of pipeline projects. As noted elsewhere in the report, project status (including size of project) is dynamic and the capacity figures may therefore change over time. Those shown in grey text are projects where the research has indicated that capacity is likely to change, including upscaled as well as downscaled or halted projects.

Project Name	Technology	Generation capacity (kW)
Completed pipeline projects		
Dyffryn Crawnon	Hydro	18
Penllergare Trust	Hydro	25
Ongoing pipeline projects (as at 31 march 2015)		
Afon Anafon - Abergwyngregyn	Hydro	270
Afon Caledffrwd - Coedtir Mynydd	Hydro	100
Afon Goch - Ynni Padarn Peris	Hydro	70
Afon y Foel - Menter Iaith Conwy	Hydro	80
Allt Cafan Hydro	Hydro	100
Antur Aelhaearn	Wind	500
Antur WaunFawr	Hydro	70
Awel Aman Tawe	Wind	4000
Bro Dyfi Community Renewables	Wind	500
Brymbo Heritage Group	PV	250
Carmarthenshire Energy Trust - Castell Draenog	Wind	250
Carmarthenshire Energy Trust - Llanddarog Road	Wind	500
CANCO	Hydro	15
Cardigan Community Renewables	Wind	500
Ceredigion Community Renewables	Wind	500
Community Energy in Pembrokeshire	Wind	250
Corwen Electrical	Hydro	42
Cwm Arian	Wind	500
Cwm Cadian	Hydro	100
Cwm Ogwr Development	Hydro	46
Cwm Penamnen - Ynni'r Dyffryn	Hydro	100
Cwmni Nod Glas Dinas Mawddwy	Hydro	36
Cwmynyscoy	Hydro	48
Dee Valley Trust CIC	Hydro	50
Dolgellau Partnership	Hydro	99
Friends of Taff Bargoed	Hydro	100
Glyncoch Regeneration	Hydro	23
Gower Power (Illston)	PV	1000
Gower Power (Pencefnarda)	PV	3600
Gwent Energy	PV	5000

Gwern y Bwlch – Ecodyfi	Wind	100
LGV Ventures - Phase 1 – Cwmgu	Hydro	30
LGV Ventures - Phase 2 - Nant Gadair & Garwy Fach	Hydro	58
LGV Ventures - Phase 2 - Blaen Dyar	Hydro	23
LGV Ventures - Phase 2 - Nant y Hafod	Hydro	13
Llanegryn Community Energy Group	Wind	10
Llechwedd (Cwmni Cymunedol Bro Ffestiniog)	Wind	2500
Menter Mon	PV	2500
Mountain Ash Wind Project	Wind	50
Nant Carfan	Hydro	50
NSA Afan	Hydro	40
Partneriaieth Eco Dyfi - Cemaes Wind	Wind	250
Pentir Pumlumon (Maesnant)	Hydro	30
Pentir Pumlumon (Pont Cuenant)	Hydro	50
Pont Ogwen - Partneriaieth Ogwen	Hydro	100
Seren Lampeter Wind	Wind	500
SYDIC	Wind	500
The Green Valleys	Hydro	48
The Ward of Blackmill	Hydro	36
Tillery Action For You Limited	Hydro	30
Transition Bro Gwaun	Wind	250
Welcome To Our Woods Ltd	Hydro	20
Y Felin Ddwr Charitable Trust	PV	800
Ymlaen Llandysul	Hydro	50
Ynni Cymunedol Talybolion	Wind	500

9 Appendix 3 – Data assumptions for the outcomes and impacts analysis

9.1 This appendix lists and explains the assumptions and figures used for the quantitative analysis of the Ynni'r Fro programme outcomes and impacts in chapter 3. It also provides further detail to caveats highlighted in the text of the chapter.

Index of Multiple Deprivation analysis

9.2 The key issue with regards to the data on deprivation and project benefits is that neither the project postcode, nor the grid reference, are accurate reflections of the intended beneficiaries' location. The level of deprivation indicated by the postcode or grid reference may differ, potentially significantly, from that of the community or area in which the benefits are intended to be distributed.

9.3 Grid references more accurately reflect the location of the CRE installation, but this may be some distance from the community which is delivering and benefitting from the project. In regards to wind projects in particular, it seems unlikely that wind turbines would be built directly adjacent to the communities undertaking the project, especially given considerations around visual impact.

9.4 This is true of postcodes as well, as a single postal address may not accurately reflect the full range of households that are going to benefit from the project. For example, in Penllergare the CRE installation is located in woods in a valley. Both sides of the valley benefit from the project but each side of the valley is very different in terms of deprivation. The Ynni Padarn Peris group also intend to share the benefits of their project among several villages in the area, each of which has very different levels of deprivation. In each of these cases the IMD 'rating', based on the single registered postcode, does not tell the whole story.

Future impact projections

9.5 The evidence was drawn from projections that are estimates calculated by EST using the assumptions set out below. It was outside the scope of this evaluation research to independently verify or re-estimate all of these projections so most have been taken at face value. The load factor for solar PV used in EST's calculations was adjusted however because it appeared high compared to published norms (as explained in chapter 3).

9.6 EST calculated projected impacts over projects' lifetimes, which was assumed to be 20 years.

9.7 Energy generated was based on the following factors:

	Generating Hours	Load Capacity
Wind	8765	27%
Hydro	8765	45%
Solar PV	8765	10%[32]

9.8 Annual energy generated was calculated as the product of a project's total installed capacity, generating hours and load capacity. Lifetime energy generated was calculated from the annual energy generated multiplied by 20 years.

9.9 CO2 savings as a result of renewable energy generated were calculated by multiplying the estimated energy generated over the lifetime of the project by a standard factor of 480, based on an adjustment of a conversion factor of 0.543 kgCO2/kWh (to take account of the carbon intensity of grid electricity reducing over 20 years).

[32] Adjusted down from the factor of 25% used by EST.

10 Appendix 4 – Analysis of 'market need' and the potential for community renewable energy in Wales

Introduction

10.1 CRE can provide a range of benefits, both direct benefits such as reductions in CO_2 and income for communities, and wider benefits such as those described in chapter 3[33].

10.2 Given that these benefits would contribute to policy aims in Wales (see chapters 1 and 3), this Appendix discusses the potential of CRE in Wales and the market need for support to the development of CRE. The analysis was prepared by the CRE expert supporting the research team.

10.3 'Market need' is a function of the response to market failures constraining the delivery of renewable energy (i.e. barriers described in chapter 4 such as planning and consents), as well as the response to the market failures constraining community entrants (i.e. barriers described in chapter 4 such as capacity in community groups). Chapter 4 also described the qualitative feedback from interviewees on how their needs for support from a programme like Ynni'r Fro tend to change as their specific project develops or the ambition of their group expands as they become more experienced (i.e. the need for 'hand-holding' support might diminish but not disappear).

10.4 The degree to which failures constraining both the delivery of renewable energy and community entrants are addressed, through responding to the market need, will underpin the growth of the sector, the degree to which the sector's potential is met, and the extent to which beneficial economic, environmental and social outcomes are secured.

[33] Including: awareness raising around renewable energy, climate change, energy efficiency; energy efficiency services, either advice or subsidies; skills or training that will increase employability; confidence building; development of new organisational relationships that might support improvements in other areas of community development; peer support to other CRE projects in Wales; building a community enterprise that has growth potential; supplying cheap or subsidised energy to local people or organisations; and/or formation of local energy supply co-ops.

10.5 This Appendix provides estimates of the current and potential CRE capacity in Wales that draw on research conducted for DECC's Community Energy Strategy (developed under the former coalition government)[34], illustrating scenarios that are comparable to those in the UK strategy.

10.6 The purpose of the analysis is to provide insight into Ynni'r Fro's contribution to the development of the CRE sector in Wales (as discussed in chapters 2, 3 and 4). The analysis also provides an indication of the role that a successor scheme might play in future, through reviewing the current state of the CRE sector in Wales, its recent growth and estimating its potential growth to 2020[35.]

10.7 It should be noted that these are indicative estimates only, developed within a limited budget and without a detailed viability assessment. The estimates also pre-date the most recent announcements from DECC about proposed further changes to policy and the incentives regime for renewable energy. These changes have implications for the relative achievability of the scenarios outlined.

Detailed analysis

10.8 In order to develop a sense of the potential for CRE in Wales the following analysis has reviewed the current state of the CRE sector in Wales, its recent growth and the potential growth of the sector across the UK. It then allocated a share of the UK potential growth to Wales, with reference to the comparable renewable energy resource and ability to raise community finance in Wales and the rest of the UK. Details of workings and assumptions of the estimates are provided in the following sections of the appendix.

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[34] Capener P. (Jan 2014) Community Renewable Electricity Generation: Potential Sector Growth to 2020, www.gov.uk/government/uploads/system/uploads/attachment_data/file/274746/20140108_Community_Energy_Modelling_FinalReportJan.pdf

[35] By allocating a share of an estimate of UK potential growth to Wales, with reference to the comparable renewable energy resource and ability to raise community finance in Wales and the rest of the UK.

Current state of the CRE sector in Wales

10.9 Drawing on data collected by the Ynni'r Fro programme, research carried out in 2013[36] (which was published alongside DECC's Community Energy Strategy[37] - see Box 3), together with a review of the FCA's mutual database[38], Ofgem's FIT database[39,] discussions with Welsh community practitioners and web searches, it has been possible to compare how the Welsh community energy sector has grown since 2013 and with respect to the UK as a whole.

10.10 It was not possible to always match project specific information linked to individual organisations and more generic information on FIT project installation from Ofgem's database.

Box 3: Research into the growth of UK Community Renewable Electricity capacity to 2020

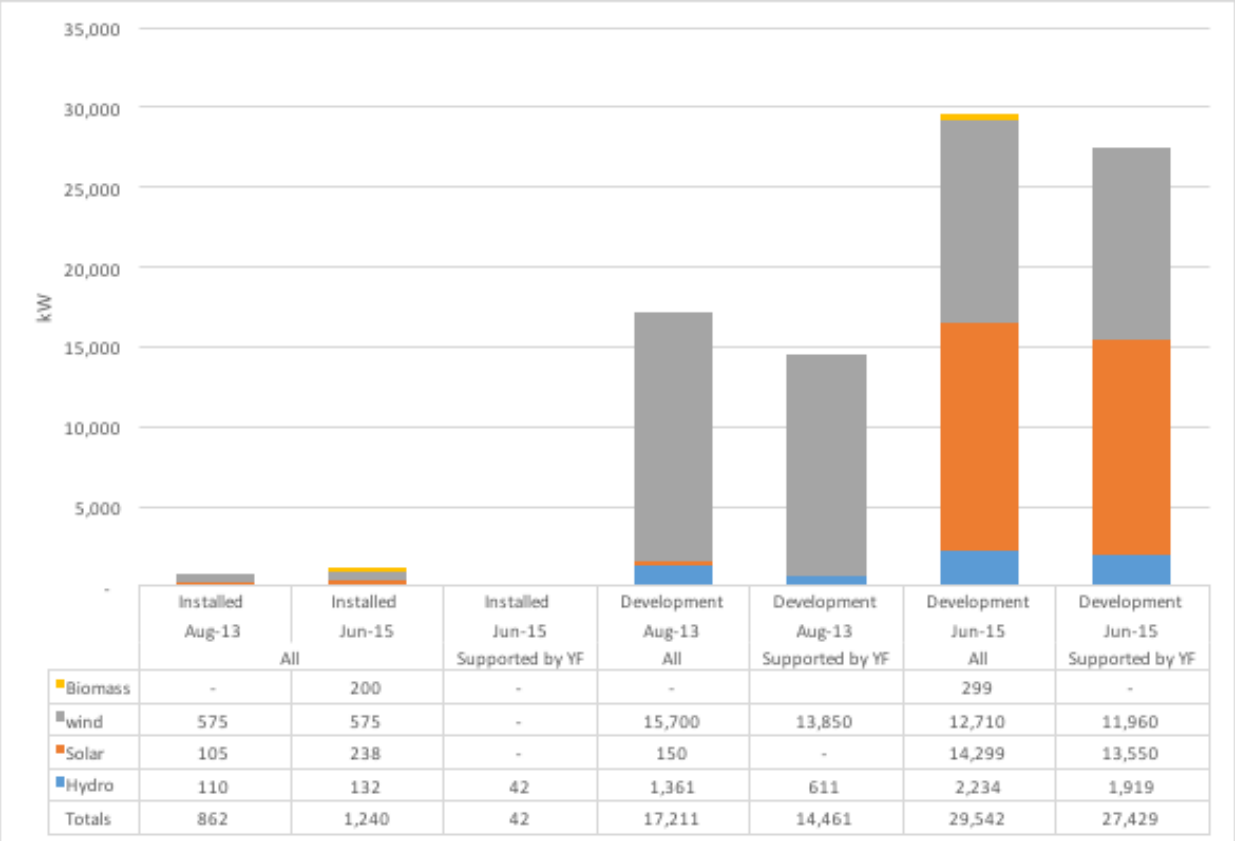
- During the development of the UK Government's first ever Community Energy Strategy published in January 2014, DECC commissioned research into the potential growth of the community energy sector across the UK to 2020.
- This research focused on solar PV, onshore wind and hydro. These were considered by DECC as the technologies where there was tangible evidence of a proven delivery model within the community energy sector. They are also the technologies where there was existing background analysis of the forecasted installation rates and cost curves to 2020 for commercial development.

10.11 In June 2015 there was 1.175 MW of primarily solar PV categorised within the FIT database as being 'community', installed in Wales across some 101 projects. However, the definition of community within the FIT database lacks clarity. This appears to have been recognised by Ofgem, who from 1/12/2012 specifically asked applicants whether their project was community or school based. Since then only two projects out of the 27 registered as 'community' have said their project was community or

[36] Ibid. 33
[37] DECC (Jan 2014) Community Energy Strategy, www.gov.uk/government/publications/community-energy-strategy
[38] FCA's mutual database, mutuals.fsa.gov.uk
[39] Ofgem FIT installation data, www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme/feed-tariff-reports/installation-reports

school based, representing 35 out of 432kW of capacity. So if this proportion held true for the rest of the database defined as 'community' there might be a further 95kW of primarily solar PV installed by communities or schools in June 2015 and 72kW in August 2013. These figures have therefore been included within the installed capacity figures.

Figure 5: Recent growth in community renewables capacity installed and under development in Wales[40]



	Installed Aug-13 All	Installed Jun-15 All	Installed Jun-15 Supported by YF	Development Aug-13 All	Development Aug-13 Supported by YF	Development Jun-15 All	Development Jun-15 Supported by YF
Biomass	-	200	-	-		299	-
wind	575	575	-	15,700	13,850	12,710	11,960
Solar	105	238	-	150	-	14,299	13,550
Hydro	110	132	42	1,361	611	2,234	1,919
Totals	862	1,240	42	17,211	14,461	29,542	27,429

10.12 Community renewables capacity refers to capacity owned by community energy organisations, including the community owned part of shared ownership schemes.

10.13 Based on the data summarised in Figure 5, it is possible to draw the following conclusions:

[40] August 2013 data drawn from the data set generated as part of research in ref 1, provided by the author. June 2015 data drawn from the Ynni'r Fro programme, web searches and discussions with Welsh community practitioners.

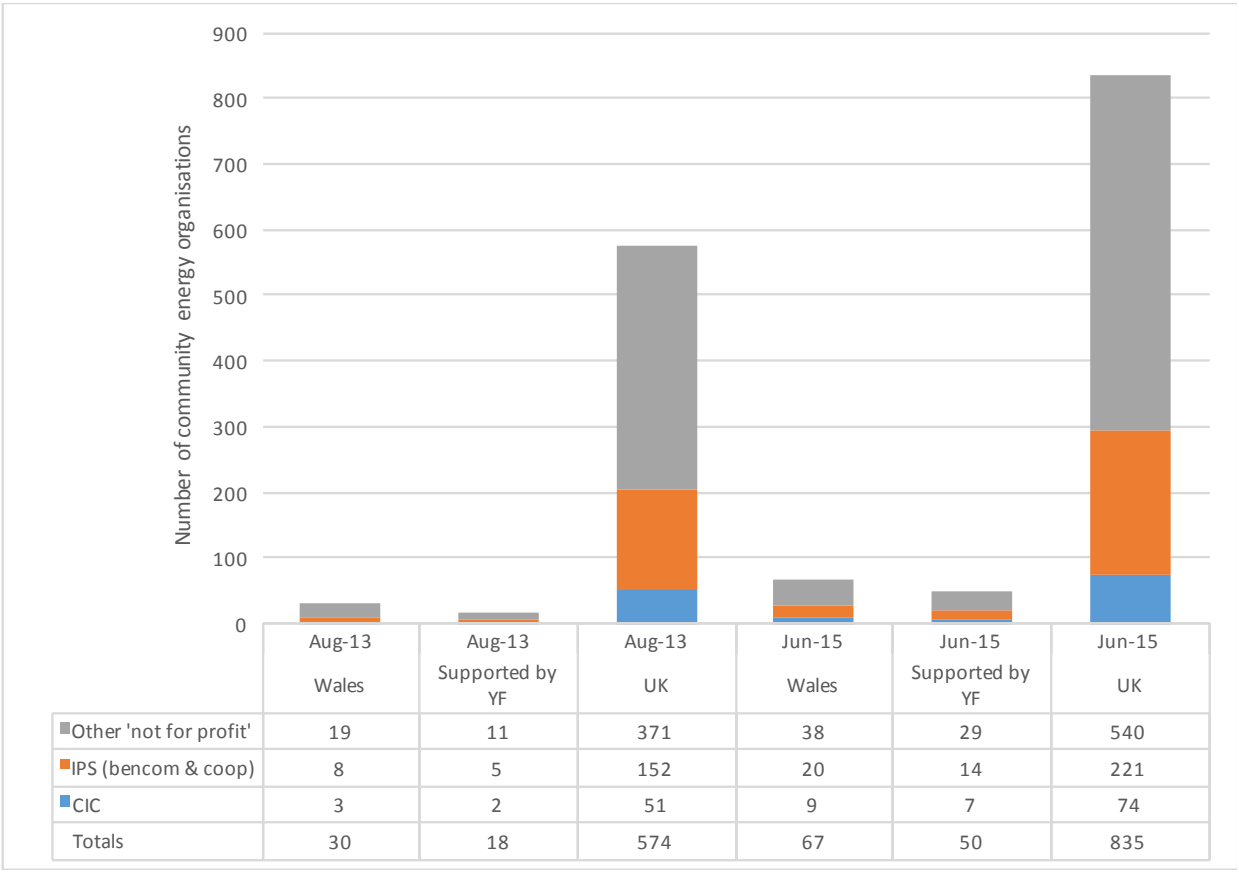
- The installed capacity in Wales has grown by 45% from over 850kW to nearly 1,240kW, while capacity under development has grown by 72% to just under 30MW.
- Projects supported by Ynni'r Fro make up only a small proportion of the installed capacity in June 2015, but make up 93% of the total capacity currently under development.
- The proportion of development capacity that Ynni'r Fro has provided either support or funding to has grown from 84% in August 2013. Though as is made clear in earlier sections, projects have received support from many sources, not just Ynni'r Fro.
- Of the 17.2MW under development in August 2013, many of the larger wind projects have fallen by the wayside, such as the 6MW Bedlinog and 1.6MW Cwm Arian projects, or are still under development, such as the 4.6MW Awel Amen Tawe project[41].
- The majority of the projects under development in June 2015 have been initiated in the last two years and have a far higher proportion of solar PV than in August 2013.
- Even though community renewable heat represents a more challenging focus for communities, both in terms of technology development and investment risk, there are now examples of community renewable heat projects being developed. For example by organisations such as Narberth Energy[42] and Harlech Sustainable Energy Coop[43], which are both linked to swimming pools and are seeking to claim RHIs.

[41] Drawn from a review of DECC's Renewable Energy Planning Database www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract
[42] narberthenergy.co.uk/
[43] www.renewwales.org.uk/resources/case-studies/harlech-sustainable-energy-coop-ltd-biomass-boiler-for-swimming-pool-58.asp

10.14 The heavy reliance in 2013 on wind and hydro with longer and more complex development periods and higher planning and permitting risk than solar PV, helps in part explain the fact that installed capacity has grown slower than capacity under development. Wind and hydro projects tend to take years, with the experience in England suggesting that hydro often can take very many years, although in Wales the experience has been that wind has taken longer than micro hydro. Solar PV can take between a few months, up to 12-18 months, depending on the scale of the project and the complexity of the community financing model. Whilst planning success rates tend to be much higher for solar PV, particularly following the changes in permitted development, it remains an issue for larger ground mounted schemes.

10.15 The project development portfolio in June 2015 is therefore not only significantly larger but is also stronger and more likely to deliver in the short term with nearly 50% of it coming from solar PV. This includes one shared ownership project currently being developed by Gower Power Coop.

Figure 6: Recent growth in community energy organisations in Wales[44]



	Aug-13 Wales	Aug-13 Supported by YF	Aug-13 UK	Jun-15 Wales	Jun-15 Supported by YF	Jun-15 UK
Other 'not for profit'	19	11	371	38	29	540
IPS (bencom & coop)	8	5	152	20	14	221
CIC	3	2	51	9	7	74
Totals	30	18	574	67	50	835

10.16 However, it is likely to be an underestimate as there may be organisations developing projects that have not been identified.

10.17 Figure 6 provides data on community energy organisations that have identified a potential renewable energy project and are actively developing it, as opposed to the very many more organisations and communities that are interested or would like to do so.

10.18 Based on this data, as summarised in Figure 6, it is possible to draw the following conclusions:

- The number of community energy organisations in Wales that are developing projects has more than doubled in the last 20 months.

[44] August 2013 data drawn from the data set generated as part of research in ref 1, provided by the author. June 2015 data for Wales drawn from the Ynni'r Fro programme, web searches and discussions with Welsh community practitioners. June 2015 data for UK IPS numbers drawn from ref 3. Number for other types of community group scaled up proportionally from August 13 UK figures.

- As a proportion of the active UK organisations, the number of Welsh community energy organisations has grown from 4% to 8%, indicating a significantly stronger growth rate that in the rest of the UK.
- The number of community energy organisations supported by Ynni'r Fro has grown as a proportion of the total in Wales from 60% to 75%.[45]
- There has been a significant increase in the number of organisations in Wales, such as Llangattock Green Valleys or Gower Power Coop, who are committed to developing renewable energy as community assets on an area wide basis and so will be focused on delivering multiple projects.

10.19 This last point is worth reflecting on. It appears that experience in Wales is reflecting that in England where, as the community energy sector matures, there is an increase in the number of these sorts of community energy enterprises set up specifically to focus on the development of community renewables, based on financially sustainable business models and with the ability to build internal capacity, rather than relying solely on voluntary input. These sorts of area-based organisations will be looking to lever their knowledge, understanding and experience across multiple projects, supporting multiple communities, as opposed to some community organisations that are focused primarily on their own site, whether school or community building. These one off projects bring many benefits in themselves, but a community organisation goes up a steep learning curve to develop a project but then often does not use the knowledge gained again. Without the drive, knowledge base and capacity of area based community energy enterprises, the sector may struggle to lay the foundation necessary to deliver the growth rates outlined in Table 13 below. Not all community

[45] The figures for organisations supported by Ynni'r Fro are based on numbers of community energy organisations rather than number of projects. Hence the graph shows 50 community energy organisations supported by Ynni'r Fro, rather than the 57 referred to in earlier sections.

groups will want to take this path, but as the sector continues to mature they will be able to draw support from those that are.

The potential for the UK community energy sector by 2020

10.20 The DECC commissioned research during the development of the Community Energy Strategy (see Box 3) developed three scenarios, that characterised strong and sustained growth, stop-start growth, and low growth based on a range of assumptions. This research did not cover renewable heat, as at the time there was not the evidence base to build on for community renewable heat. Nor was there the underpinning research on potential growth rates and cost curves to 2020 for commercial technology development that DECC had done for renewable electricity technologies.

10.21 The research characterised three scenarios, outlined below. When contemplating how these scenarios might play out in Wales, clearly Ynni'r Fro and any successor scheme, plus other Welsh Government activities and policy will be of great relevance. For example in the Strong & Sustained scenario the role of the Welsh Government will have a direct bearing on bullets 1, 2 and 4 in paragraph 10.28.

10.22 High (Strong & Sustained) scenario – assumes significantly increased rates of growth to 2020. It is characterised by:

- An accessible, strong and stable policy and regulatory framework with respect to community entrants and their potential partners;
- Strong messages from all levels that community energy will be a significant contributor to the UK's response to climate change and energy security;
- A flourishing market for personal investment and debt finance for community energy projects;
- Proactive support and guidance for community energy action that enables communities to learn and grow effectively and efficiently;

- A market that brings forward split or shared ownership schemes between commercial developers and communities as the norm for onshore renewable energy projects; and
- Growing enthusiasm, ambition and commitment to engage on community energy from within the community and voluntary sector.

10.23 Medium (Stop-Start) scenario – assumes variable rates of growth to 2020. It is characterised by intermittent support for community energy action and an unstable policy and regulatory framework. Instability has a significant impact on community and investor confidence undermining the rate of sector growth, as well as funds raised and projects installed as a result.

10.24 Low (Constrained) scenario – assumes that the rates of sector growth remain fairly constant to 2020 with the exception of the growth in share offer size, which is a lot lower than current growth rates. Little additional support for community groups, coupled with existing barriers and difficulties accessing finance mean that overall growth is heavily constrained and limits community ambition as a result.

10.25 Some of the key findings from the UK research are summarised in Table 13.

Table 13: UK community energy sector delivery by 2020 across scenarios[46]

By 2020	Installed capacity	Wind (MW)	Solar (MW)	Hydro (MW)	% capacity (solar, wind, hydro)	% total electricity generation
High growth (strong and sustained)	2,998	1,000	1,914	83	14%	1.4%
Medium growth (stop-start)	649	248	384	17	3.0%	0.3%
Low growth (constrained)	475	190	272	12	2.2%	0.2%

[46] The research did not cover renewable heat, as at the time there was not the evidence base to build on for community renewable heat.

10.26 The outcomes from the ‘stop start’ scenario highlight the danger of a lack of consistency within policy in an area where confidence is so crucial, amongst investors but also within the communities themselves. In reality, a cycle of sharp growth followed by stagnation is not much better that marginal but consistent growth over the same period.

10.27 The UK policy and incentive landscape for renewable energy is currently unstable and recent announcements from DECC (most notably in relation to the future of FITs) run counter to the assumptions made in the upper ‘Strong’ scenario, with potentially dampening implications for the other two scenarios. There is a risk that proposed changes could fundamentally change the investment equation for CRE groups but the precise scope and extent of the risk will remain uncertain until DECC concludes it review of FITs and confirms its decision about FITs pre-accreditation.

Relationship of the UK analysis to potential growth in Wales

10.28 In addition to uncertainty around the incentive regime, factors that will affect the growth of the sector in Wales include:

1. The potential renewable energy resource in Wales;
2. The availability of community finance;
3. The availability of debt finance;
4. The availability of development finance;
5. The ability of the community energy sector to skill up and scale;
6. The support for CRE within the planning and permitting process; and
7. The ability for community renewables to secure grid connection.

10.29 Of these issues, point 6 and 7 will be addressed within any assessment of point 1. Though greater local support generated through a community approach may well have a beneficial impact within the planning process.

10.30 Points 2, 4 and 5 could be considered as not being specific to Wales and so are effectively incorporated within the UK analysis. Though this is clearly the area where Ynni’r Fro and any successor programme will play a vitally important role. This analysis therefore assumes that these

issues are dealt with through a Ynni'r Fro successor programme, in line with the assumptions incorporated within the characterisation of the Strong and Sustained Policy Scenario.

10.31 In order to develop a view on the Welsh contribution to the potential scoped out in the UK analysis it will therefore be necessary to consider in more detail point 1 and 2, the potential for renewable energy and the potential availability of community finance in Wales.

The potential for renewable energy in Wales

10.32 Figure 7 below is drawn from Welsh Government's 2010 Energy Policy Statement, A Low Carbon Revolution and suggests that by 2020 there could be 3GW of onshore wind, solar PV and hydro installed in Wales.

Figure 7: Renewable energy capacity to 2020/2025 in Wales[47]

Appendix 1: Wales' 'sustainable' renewable energy potential to 2020/2025

Technology	Capacity either operational or consented (GW)*	Total capacity (GW)	Load factor (%)	Annual energy output (TWhr)	Deliverable in main by	kWh/d/p in Wales
Onshore wind	0.7	2	30	5	2015/17	4.5
Offshore wind	0.9	6	40	21 (Of which 20% is shared with England)	2015/16	15.5
Biomass (electricity)	0.5	1	75	7	2020	3 imports and 3 indigenous
Tidal range	0	8.5	25	18 (Of which 50% is shared with England)	2022	8
Tidal stream/ Wave	0	4	25	9	2025	8
Local electricity generation (mainly PV/ wind/hydro)	Data currently not available	1	10	1	2020	1
Electricity subtotals in Wales	2 GW	22.5GW	-	48		43

NB. Wales' current annual electricity consumption is around 23 TWhr
* Capacity either operational or consented as of 1 October 2009

[47] WAG (March 2010) A Low Carbon Revolution – Energy Policy Statement, www.mng.org.uk/gh/resources/100315energystatementen.pdf

Availability of community finance

10.33 Whilst there will be aspects of the search for community finance that are similar across the UK, like market conditions, the regulatory framework for investment, tax incentives, etc., at the core is the ability of individuals to invest in renewable energy. Investment in community renewables has to date been primarily from people who are interested in supporting renewable energy, who like the community focus and who have available finance to invest. The last point is particularly pertinent and feeds into the analysis of sector growth in Table 15 below, as explained below and in footnote [58].

10.34 In terms of support for renewable energy there appears to be little difference between Wales and the UK with a recent YouGov poll for Renewable UK Cymru[48] suggesting that over 60% of people support wind energy, rising to over 80% of people supporting solar PV. These are very similar figures to that recorded by DECC's annual public opinion tracker for the whole UK[49]. There is no evidence to suggest that the level of support for community action is any lower in Wales than in the rest of the UK.

10.35 The level of finance people have to invest is more complex an issue to determine. But an impression can be gained by comparing disposable income and investment via ISAs in Wales and the UK, as summarised in Table 14.

[48] YouGov Poll on Public Attitudes on Renewable Energy (March 2014), www.renewableuk-cymru.com/new-poll-shows-continued-strong-support-for-wind-energy-in-wales/
[49] UK Public Attitudes Tracking Survey (April 2015) www.gov.uk/government/statistics/public-attitudes-tracking-survey-wave-13

Table 14: ISAs investment and disposable income in Wales and UK[50,51]

	Wales	UK	% difference
% population who invest in ISAs	45.0%	45.6%	1.3%
Average ISA market value	£17,471	£19,854	13.6%
Average disposable income/head	£15,413	£17,559	13.9%

10.36 Whilst it appears that roughly the same proportion of people invest in ISAs in Wales as in the rest of the UK, there is a 13-14% reduction in the amount they invest on average, similar to the % reduction in the average disposable income per head between Wales and the rest of the UK.

10.37 Whilst investing in ISAs has a different risk profile than investing in CRE, there is no evidence to suggest that people in Wales are any less risk averse than those in the rest of the UK, beyond that generated by the lower availability of finance as outlined above.

Potential Community Renewable Electricity in Wales by 2020

10.38 Table 15 below summarises the current and potential capacity of renewable electricity and community renewable electricity projects in both Wales and the UK based on the three scenarios outlined earlier in this chapter. This analysis follows the same approach utilised within the research into the potential of the community energy sector to 2020, referred to above[52].

[50] ONS (May 2015) Regional Gross Disposable Household Income 2013 www.ons.gov.uk/ons/dcp171778_405192.pdf

[51] HMRC (April 2015) Individual Savings Accounts (ISA) Statistics www.gov.uk/government/uploads/system/uploads/attachment_data/file/423425/Full_Statistics_Release_April_2015.pdf

[52] Focussing on solar PV, onshore wind and hydro as the key technologies of relevance to community development. This underestimates the impact of community energy as it does not take into account the potential for community renewable heat projects.

Table 15: Summary of key statistics for solar, onshore wind and hydro in the three scenarios

	Wales (MW)	UK (MW)	Wales as a % of UK
Current renewable electricity capacity 2014[53]	1,700	15,252	11.1%
Renewable electricity potential by 2020	3,000[54]	21,299[55]	14.1%
Strong & Sustained Policy Scenario			
Unadjusted community renewable electricity potential by 2020	422[56]	2,998[57]	14.1%
Adjusted community renewable electricity potential by 2020	363[58]	2,998[59]	12.1%
Stop-Start Policy Scenario			
Unadjusted community renewable electricity potential by 2020	91[60]	649[61]	14.1%
Adjusted community renewable electricity potential by 2020	79[62]	649[63]	12.1%
Business as Usual Constrained Policy Scenario			
Unadjusted community renewable electricity potential by 2020	67[64]	475[65]	14.1%
Adjusted community renewable electricity potential by 2020	58[66]	475[67]	12.1%

10.39 Based on these figures it is possible to draw the following conclusions:

[53] Drawn from: www.gov.uk/government/statistics/energy-trends-section-6-renewables
[54] Drawn from: www.gov.uk/government/statistics/energy-trends-section-6-renewables
[55] Ibid.47; Original data drawn from DECC Comprehensive FIT Review and EMR Draft Delivery Plan.
[56] Figure calculated as same proportion of UK CRE potential as for RE potential (i.e.14.1%).
[57] Ibid.47: Strong & Sustained policy scenario
[58] Figure calculated by reducing the unadjusted figure by 14%, the average % reduction in disposable income and in ISA investment per head in Wales when compared to the rest of the UK taken from table 14.
[59] Ibid. 47: Strong & Sustained policy scenario
[60] Ibid. 58
[61] Ibid. 47: Stop-Start policy scenario
[62] Ibid. 58
[63] Ibid. 47: Stop-Start policy scenario
[64] Ibid. 58
[65] Ibid. 47: Constrained policy scenario
[66] Ibid.58
[67] Ibid. 47: Constrained policy scenario

- The current renewable energy capacity is 11% of the total UK renewables capacity whereas the potential capacity in 2020 in Wales is more like 14% of the UK total. This suggests that in delivering the potential for renewable energy in Wales by 2020, the rate of installation will have to increase in comparison to the rest of the UK; and
- Community energy therefore has an even more important role to play in increasing support for onshore renewables projects.

10.40 The potential for community renewable electricity projects, specifically solar PV, onshore wind and hydro, ranges from 363 – 422MW, assuming the Strong & Sustained policy scenario, with the range depending on the impact of the potential lower availability of community finance in Wales when compared to the rest of the UK.[68]

10.41 This falls to 79-91MW within the Stop-Start Policy scenario and 58-67MW in the Constrained policy scenario, highlighting again (as flagged above) that a cycle of strong support followed by stagnation can have a disproportionate impact on potential sector outcomes, due to the subsequent negative impact on investor and community sector confidence.

10.42 Delivering 420 MW, based on the assumptions in the UK research for the Strong & Sustained scenario, would require in the order of 1100 active community energy organisations[69] raising around £250-600 million from community share offers, depending on the level of debt finance that can also be secured. The rate of growth in community energy organisations actively developing renewables projects seen in this analysis between August 2013 and June 2015 needs to grow on average by 10-15% per month to December 2020, if the sector is to be large enough to deliver the required capacity growth in the Strong scenario.

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[68] Ibid. 72

[69] Data drawn from the data set generated as part of research in box 3, provided by the author.

10.43 However, this assumes that the growth (which tends to be high in the early stages of sector growth) continues over the coming years. There are also many dependencies around ongoing support, finance, project delivery success rate, etc., as described in chapter 4. While it is looking unlikely that the conditions for the Strong and Sustained scenario are going to be in place for the short term at least, it is difficult to be more precise about the most realistic trajectory for community energy in Wales over the longer term given uncertainty about the UK incentives regime and the future of support for CRE in Wales. The evidence and scenarios in this report provide a starting point for further detailed consideration of the sector's potential and needs in Wales. It provides some evidence that we need to be doing more in terms of support, rather than less if we are to see the sector meet its potential.

Summary of the analysis of the potential for CRE in Wales

Recent trends

10.44 The detailed analysis has shown how the community energy sector in Wales has grown significantly since 2013, in terms of active community energy organisations and projects under development but the level of installed capacity is similar due at least in part to a heavy early emphasis on wind and hydro by community energy groups.

10.45 The analysis shows that projects supported by Ynni'r Fro currently make up only a small proportion of the installed CRE capacity in Wales, but forms 93% of the capacity currently under development. This proportion of development capacity in Wales supported by Ynni'r Fro has grown from 84% in 2013. This growth in reach of Ynni'r Fro is also reflected in the proportion of community energy organisations in Wales supported by Ynni'r Fro. Though as is also made clear in the report, projects have received support from multiple sources not just Ynni'r Fro.

Future potential

10.46 The development pipeline of CRE in Wales in 2015 has a far heavier reliance on solar PV than its development pipeline in 2013, bringing the

prospect of increased installation rates for community energy projects and the development of more tangible evidence and track record for the sector.

10.47 Analysis outlined below drew on the UK research undertaken during the development of the UK Community Energy Strategy to estimate the growth of the community renewables sector in Wales by 2020. This analysis suggests that by 2020 in Wales there might be between 58MW to 422MW of CRE capacity, depending on the UK growth scenario adopted and comparative assumptions about the availability of community finance in Wales. The upper scenario is dependents

10.48 The analysis also suggests that the current growth rate in numbers of community energy organisations in Wales, whilst not yet reflected in growth in installed capacity, is substantial and exceeds growth in the rest of the UK. Together with the growth and change in the profile of the development pipeline, the short term prospects for the delivery of community renewables in Wales are much stronger than in 2013. However if the potential market growth to 2020 referred to above is to be met, then the rate in organisational growth needs to increase further.

10.49 It should be noted again that the upper range in potential capacity by 2020 is based on analysis that assumes the conditions outlined within the ‘Strong and Sustained’ policy scenario from the UK research referred to in 5.6 above are in place to facilitate the growth. This includes an assumption that there would be a greater emphasis on area based community energy enterprise (i.e. establishing financially sustainable energy focussed community enterprises that are better equipped to scale and replicate the community energy model) and a heavy emphasis on shared ownership projects between community and private sector partners.