

Edinburgh Napier
UNIVERSITY



Community Energy in Scotland:
An Analysis of the Sector and the
Government's 2020 Target

A dissertation submitted in partial fulfillment of the requirements of the
degree of

Master of Science in Environmental Sustainability

by

Craig Blyth-Moore

August 2015

Abstract

This dissertation analyses the community energy sector in Scotland and suggests improvements to the Scottish Government's target to produce 500MW of generating capacity from community and locally-owned energy sources by the year 2020. Three key issues have been identified:

- Despite being amalgamated into the same target, community and locally-owned energy resources are not the same
- In the Scottish Government's Community Energy Policy Statement Draft, which details current progress towards the target, community and locally-owned energy are fused into 'community energy', which is misleading as community energy in fact makes up only 15% of current progress towards the target (Energy Saving Trust, 2014, p. 15)
- One consistent definition of community energy currently does not exist anywhere, which causes confusion in the community energy sector

The effects of these three issues on the community energy sector in Scotland are discussed in detail through the answering of a number of research questions. In addition, the dissertation uses database and survey analysis in order to analyse the community energy sector and the Scottish Government's target. This analysis leads the following core conclusions:

- Community and locally-owned energy should have separate targets for 2020 and beyond
- If separate targets are not given, the Scottish Government must consistently refer to 'community and locally-owned energy' in all of its publications, so as to avoid confusion
- If a separate target is given for community energy, this target should contain one overall definition to define community energy, such as for example: all delocalised renewable energy projects in which a local community has a stake that goes beyond simple energy use. However, within this general definition there should be individual definitions for different types of community energy such as full ownership and shared-ownership

- Consistency between the viewpoints of Community Energy Professionals and Scottish Government Policy Makers must be prioritised within the community energy sector. Currently the lack of consistency between these key stakeholders is damaging to the sector

Table of Contents

Abstract.....	i
Table of Figures	vii
List of Tables	viii
Abbreviations.....	ix
Acknowledgements.....	x
Chapter 1: Introduction.....	1
1.1 Aims and Objectives.....	1
1.2 Research Questions and Working Hypotheses	1
1.3 Dissertation Structure.....	4
Chapter 2: Literature Review	5
2.1 Introduction.....	5
2.2 Community Energy	5
2.2.1 Critical Analysis.....	5
2.3 The Positives of Community Energy	6
2.3.1 Critical Analysis.....	7
2.4 The Negatives of Community Energy	10
2.4.1 Critical Analysis.....	11
2.5 Successful Model: Germany	12
2.5.1 Critical Analysis.....	13
2.6 Community Energy in Scotland.....	14
2.6.1 Critical Analysis.....	18
2.7 The Scottish Government Target.....	19
2.7.1 Critical Analysis.....	20
2.8 Gaps in research.....	20
2.8.1 Critical Analysis.....	23
2.9 Summary	23
Chapter 3: Methodology	25
3.1 Introduction.....	25
3.2 Database Work.....	25
3.2.1 Rationale for Database Work.....	26
3.3 Database Analysis.....	26
3.3.1 Rationale for Database Analysis	26
3.4 Survey	28
3.4.1 Rationale for Survey Work	29

3.4.2 Introduction to the Survey.....	29
3.4.3 Question 1: The Community Energy Sector	30
3.4.4 Question 2: The definition of Community Energy	31
3.4.5 Question 3: The Scottish Government Target.....	32
3.4.6 Question 4: The Scottish Government’s CEPSD.....	33
3.4.7 Question 5: The CARES Scheme	34
3.4.8 Question 6: Renewable Energy Technologies	35
3.4.9 Question 7: Local Council Areas	36
3.5 Summary	37
Chapter 4: Results	38
4.1 Introduction.....	38
4.2 Database Analysis.....	38
4.2.1 The Number of Community Energy Projects Currently Located in Scotland	38
4.2.2 The Percentage of Community Energy Projects in Scotland Compared to Locally- Owned Projects	38
4.2.3 The Number of Community Energy Projects in Scotland which are CARES funded	39
4.2.4 A Comparison of Renewable Energy Sources in Community Energy Projects.....	39
4.2.5 The Locations of Community Energy Projects in Scotland.....	40
4.2.6 The Number of Projects per Square Mile in Each Local Council Area.....	42
4.2.7 The Number of Projects per 1000 People in Each Local Council Area.....	44
4.3 Surveys.....	46
4.3.1 Question 1 Results	46
4.3.2 Question 2 Results	47
4.3.3 Question 3 Results	47
4.3.4 Question 4 Results	49
4.3.5 Question 5 Results	50
4.3.6 Question 6 Results	51
4.3.7 Question 7 Results	52
4.4 Summary	52
Chapter 5: Analysis and Interpretation	53
5.1 Introduction.....	53
5.1.1 Analysis Techniques Considered.....	53
5.1.2 Analysis Techniques Chosen	53
5.2 Database Analysis.....	54
5.2.1 The Number of Community Energy Projects Currently Located in Scotland	54
5.2.2 The Percentage of Community Energy Projects in Scotland Compared to Locally- Owned Projects	55

5.2.3 The Number of Community Energy Projects in Scotland which are CARES funded	55
5.2.4 A Comparison of Renewable Energy Sources in Community Energy Projects.....	56
5.2.5 Local Council Areas.....	58
5.3 Limitations of Database Analysis	59
5.4 Survey Analysis	60
5.4.1 Analysis of Question 1	60
5.4.2 Analysis of Question 2.....	62
5.4.3 Analysis of Question 3.....	62
5.4.4 Analysis of Question 4.....	65
5.4.5 Analysis of Question 5.....	66
5.4.6 Analysis of Question 6.....	67
5.4.7 Analysis of Question 7.....	69
5.4.8 Scottish Government Policy Makers vs. Community Energy Professionals	70
5.5 Limitations of Survey Analysis.....	72
5.6 Summary of Chapter 5	73
Chapter 6: Conclusion.....	74
Aims and Objectives	74
Research Questions and Hypotheses.....	75
Final Conclusions.....	78
Recommendations.....	79
Bibliography	81
Appendices.....	89
Appendix 1: The Exact Number of Community Energy Projects in Scotland per Technology Type	89
Appendix 2: The Details of Community Energy Projects in Scotland	90
Appendix 3: Proof of Work with Scene.....	92
Appendix 4: Answers Given in the Survey.....	93
Question 1	93
Question 2.....	94
Question 3.....	95
Question 4.....	96
Question 5.....	96
Question 6.....	97
Question 7.....	97
Appendix 4: Transcript of Interview Additional Questions.....	99
Survey 1: Ragne Low, ClimateXChange Project Manager	99

Survey 2: Emily Cremer, Postdoctoral Researcher in Sustainable Lifestyles at the University of Edinburgh.....	101
Survey 3: Paul Phare, Scotland Development Manager at Energy4All.....	102
Survey 4: Tom Black, Community Energy Manager: North and Central Scotland for Foundation Scotland	104
Survey 5: An Anonymous Community Energy Professional	107
Survey 6: Jamie Macleod and Laura McGlynn, Renewables Policy Officers at the Scottish Government.....	110
Survey 7: Anne Schiffer, Energy Campaigner (Community Power) for Friends of the Earth Scotland.....	115

Table of Figures

Figure 1: Community Solar Panels at Gorgie City Farm, Edinburgh (C.Blyth, 1.4.15).....	ix
Figure 2: The Difference between Centralised and Decentralised Energy Systems (John, 2011)	7
Figure 3: Main Grid Connection in Scotland (University of Strathclyde, 2015).....	11
Figure 4: Community Wind Turbines in Feldheim, Germany (Guevara-Stone, 2015)	13
Figure 5: The Community Energy Scotland Logo (Community Energy Scotland, 2015).....	15
Figure 6: Isle of Gigha Wind Turbines (Community Energy Scotland, 2013).....	16
Figure 7: The Proposed Site of the Viking Wind Farm in Shetland (Sustainable Shetland, 2015)	17
Figure 8: the Edinburgh Community Co-operative Logo (Edinburgh Solar Community Co- operative, 2015)	18
Figure 9: Progress towards the 500MW Target as of June 2013 (Scottish Government, 2014, p. 13)	19
Figure 10: June 2013 capacity by sector, showing that CE only makes up 15% (Energy Saving Trust, 2014, p. 5).....	21
Figure 11: Scene’s Logo (Scene Consulting Ltd, 2015)	25
Figure 12: The Energy Saving Trust Logo (Energy Saving Trust, 2015).....	25
Figure 13: Renewable Energy Technologies in CE Projects (Updated Scene Database, C.Blyth)	40
Figure 14: The Number of Community Energy Projects per Local Council Area (Updated Scene Database, C.Blyth)	41
Figure 15: CE Projects per Square Mile (Updated Scene Database, C.Blyth).....	43
Figure 16: The Number of Projects per 1000 People (Updated Scene Database, C.Blyth).....	45
Figure 17: Survey Question 1 Average Ranks	46
Figure 18: Survey Question 2 Average Ranks	47
Figure 19: Survey Question 3 Average Ranks	48
Figure 20: Survey Question 4 Average Ranks	49
Figure 21: Survey Question 5 Average Ranks	50
Figure 22: The Number of CEPs in the Original Energy Saving Trust Database and the Updated Scene Database	54
Figure 23: Harlaw Hydro Scheme, Balerno, Edinburgh (Harlaw Hydro, 2015)	57
Figure 24: The Definition of Sustainable Development Proposed by the Publication 'Our Common Futures' (Slideshare, 2015).....	61

List of Tables

Table 1: Energy figures for the UK and Germany in 2012, showing that Germany produces significantly more CE (Carrington, 2012)	12
Table 2: Survey Question 6 Average Ranks	51
Table 3: Survey Question 7 Average Ranks	52
Table 4: A Comparison of Community Renewable Energy in Each Local Council Area	58
Table 5: Question 6 Database Analysis Results versus Survey Results	68
Table 6: Question 7 Database Results vs. Survey Results	70
Table 7: CE Projects per Energy Source (Updated Database)	89
Table 8: Detailed Figures on CE in Scotland (Updated Scene Database, C.Blyth) (National Records of Scotland, 2011)	90
<i>Table 9: Question 1 Results (Survey)</i>	<i>93</i>
<i>Table 10: Question 2 Results (Survey)</i>	<i>94</i>
<i>Table 11: Question 3 Results (Survey)</i>	<i>95</i>
<i>Table 12: Question 4 Results (Survey)</i>	<i>96</i>
<i>Table 13: Question 5 Results (Survey)</i>	<i>96</i>
<i>Table 14: Question 6 Results (Survey)</i>	<i>97</i>
<i>Table 15: Question 7 Results (Survey)</i>	<i>97</i>

Abbreviations

- Bencom: Society for the Benefit of the Community
- CARES: Community and Renewable Energy Scheme
- CE: Community Energy
- CEP: Community Energy Professional
- CES: Community Energy Scotland
- LOE: Locally-Owned Energy
- LOS: Local Energy Scotland
- Scene: Scene Consulting Ltd
- The Scottish Government's CEPSD: The Scottish Government's Community Energy Policy Statement Draft
- SGPM: Scottish Government Policy Maker
- UK: United Kingdom



Figure 1: Community Solar Panels at Gorgie City Farm, Edinburgh (C.Blyth-Moore, 1.4.15)

Acknowledgements

- Thank you to Vijay Bhopal, Projects Manager at Scene Consulting Ltd, for the opportunity to gain first-hand experience of the community energy sector through writing my dissertation in conjunction with the consultancy. I hope it does the sector justice
- Thank you to my dissertation advisor at Edinburgh Napier University for all of the advice
- Thank you to all who took part in my interviews for their valuable insights
- Thank you to my wife Vivienne for her unwavering support over the last 3 months
- Thank you to Lesley Blyth, Andrew Bauer-Moore and Marit Bauer-Moore for taking the time to proof-read my work

Chapter 1: Introduction

The dissertation will begin with an introduction which will take the following format:

- Aims and Objectives
- Research Questions and Working Hypotheses
- Dissertation Structure

1.1 Aims and Objectives

There are two main aims and objectives of this dissertation:

- To gain an understanding of, and suggest improvements to, the community energy (CE) sector in Scotland
- To analyse, and suggest improvements to, the Scottish Government's 2020 target for community and locally-owned energy (LOE)

1.2 Research Questions and Working Hypotheses

In order to meet the objectives stated in section 1.1, various research questions are posed. These, along with working hypotheses, are now detailed:

Research question: would the CE sector in Scotland benefit from one, consistent definition of CE?

- Working hypothesis: the CE sector in Scotland would benefit from one, consistent definition of CE

Research question: is the Scottish Government's target to produce 500MW of generating capacity from CE and LOE by 2020 clear?

- Working hypothesis: the Scottish Government's target to produce 500MW of generating capacity from CE and LOE by 2020 is unclear

Research question: is the Scottish Government's target to produce 500MW of generating capacity from CE and LOE by 2020 beneficial to the CE sector?

- Working hypothesis: the Scottish Government's target to produce 500MW of generating capacity from CE and LOE by 2020 is detrimental to the CE sector

Research question: should changes be made to the description of the Scottish Government target in order to benefit the CE sector?

- Working hypothesis: changes should be made to the description of the Scottish Government target in order to benefit the CE sector

Research question: should CE and LOE have separate targets for 2020 and beyond?

- Working hypothesis: CE and LOE should have separate targets for 2020 and beyond

Research question: is referring to CE and LOE as simply 'community energy' in the Scottish Government's Community Energy Policy Statement Draft (CEPSD) misleading?

- Working hypothesis: referring to CE and LOE as simply 'community energy' in the Scottish Government's CEPSD is misleading

Research question: does referring to CE and LOE as simply 'community energy' in the Scottish Government's CEPSD have an effect on the CE industry?

- Working hypothesis: referring to CE and LOE as simply 'community energy' in the Scottish Government's CEPSD is detrimental to the CE industry

Research question: how many CE projects are there in Scotland?

- Working hypothesis: There are 200 CE projects in Scotland

Research question: has the Community and Renewable Energy Scheme (CARES) been successful in Scotland?

- Working hypothesis: the CARES scheme has been very successful in Scotland

Research question: should more money be made available for more projects from the CARES scheme?

- Working hypothesis: the CARES scheme could be rolled out further to improve CE in Scotland

Research question: is the CARES scheme easy to understand and accessible?

- Working hypothesis: the CARES scheme is easily accessible and easy to understand

Research question: how many CE projects in Scotland are CARES funded?

- Working hypothesis: 50% of CE projects in Scotland are CARES funded

Research question: which renewable energy source has been the most prevalent in CE projects in Scotland?

- Working hypothesis: wind energy has been the most prevalent renewable energy source in CE projects in Scotland

Research question: which Scottish local council areas have best facilitated the uptake of CE in Scotland?

- Working hypothesis: Highlands and Islands (Orkney, Shetland, Outer Hebrides, Argyll and Bute) are the Scottish local council areas which have best facilitated the uptake of CE in Scotland

Throughout the dissertation the above research questions will be answered, and the working hypotheses confirmed or rejected, in order to fulfil the objectives stated in section 1.1.

1.3 Dissertation Structure

The dissertation will take the following structure:

- Literature review
- Methodology
- Results
- Analysis and interpretation
- Conclusion

Chapter 2: Literature Review

2.1 Introduction

Chapter 2: Literature Review will give relevant background information on CE in order to tie the topic into Scotland and its 2020 target. It will also identify gaps in current research which will be addressed.

2.2 Community Energy

Currently no one accepted definition exists for the expression ‘community energy.’ According to the Scottish Government’s CEPSD, CE refers to **“projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community (Scottish Government, 2014, p. 3).”** However, other definitions exist, such as “an installation of one or more renewable energy technologies in or close to a rural community, with input from members of that community (Ruggiero, et al., 2014, p. 54).”

Traditionally, CE sources fitting either of the above definitions have not been common in the United Kingdom (UK). However, recently government interest in the field has increased slightly along with a global drive to transition towards sustainable, low carbon societies (Rogers, et al., 2011, p. 239). In Scotland, this has manifested itself in a Scottish Government target to develop 500MW of generating capacity through CE and LOE by the year 2020 (Scottish Government, 2014, p. 4).

2.2.1 Critical Analysis

For the purpose of this introductory discussion the expression ‘community energy’ shall be taken to mean all delocalised renewable energy projects in which a local community has a stake that goes beyond simple energy use. However, as hypothesised in section 1.1, it is thought that one consistent widely accepted definition for CE would be useful to simplify understanding of the sector. This point has already been flagged up in the Scottish Government’s consultation paper *securing the benefits of Scotland’s next energy revolution*, where “many responses for different questions flagged the need for

greater clarity or shared understanding over the core terms community and benefit (The Scottish Government, 2010, p. 1).” The question of a consistent definition will be discussed in detail at a later point.

In section 2.2, the two definitions selected come from the Scottish Government’s CEPSD and the journal article *Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence*. The Scottish Government’s CEPSD is inconsistent in its use of its chosen definition of CE as it begins by using this definition, and subsequently amalgamates LOE into the same definition, which leaves the reader confused as to the meaning of CE. This point will be discussed in greater detail in section 2.8. In contrast, the journal article is clear from the outset about its chosen definition, and consistently applies it at later points.

2.3 The Positives of Community Energy

There are a number of general positives that come from the community ownership of renewable energy sources. Such sources allow communities to take control of their own resources in order to directly benefit themselves first and foremost (Scottish Government, 2014, p. 17). For example, all financial gains, such as reduced energy bills, go directly to the community itself, leading to further investment in and greater development of local areas (Scottish Parliament, 2012, p. 45). These gains are also generally significantly higher than gains from commercial renewable energy developments (Slee, 2014, p. 546). Another positive is that CE sources can provide employment both in the implementation and running stages of energy sources, which can attract people to rural communities and/or provide employment for local people so that they do not have to leave (Scottish Parliament, 2012, p. 45). Moreover, in many cases, this income can replace the funding that has been cut from local public services in Britain as in many countries around the world due to the financial crash and subsequent economic recession (Slee, 2014, p. 547).

In addition, a major advantage of CE sources is that if a renewable energy project is owned by the community it is less likely to be opposed as the community will reap the direct benefits of it (Musall & Kuik, 2011, p. 3253). In 2012 the then chairman of the UK Committee on Climate Change, Lord Turner, described how more people would

support a wind turbine if it was community-owned, saying that “rather than looking at it and saying 'that big company dumped it here to make profit', they look at it and say 'that's ours and I get some profit from it' and as a result it turns out aesthetic perceptions are deeply subjective and you say 'I rather like it' rather than 'I rather dislike it' (Carrington, 2012).” CE projects has a number of benefits outside the community, such as helping governments to meet their own renewable energy targets and ultimately helping to reduce global CO₂ levels and fight climate change (Doci, et al., 2015, p. 85). Since CE projects directly involve community members in their operation, they simultaneously teach local people about renewable energy and the benefits that their system is having on a global as well as a local scale (Rogers, et al., 2011, p. 240). Community acceptance of renewable energy projects can also aid the development of more efficient renewable energy technologies which include the active involvement of community members (Dvarioniene, et al., 2014, p. 513).

Finally, CE is positive in that it can help contribute to a decentralised energy system where energy is produced and consumed in the same area rather than being transported long distances through national grids (van der Schoor & Scoltens, 2014). In the 1960s and 1970s many countries created a centralised energy grid system with little energy produced locally (Armstrong & Bulkeley, 2014, p. 67). However, a decentralised energy system is more desirable as it reduces carbon emissions by lowering transmission, material and financial costs, and by reducing energy loss that is inherent in transmission (E.on, 2015).

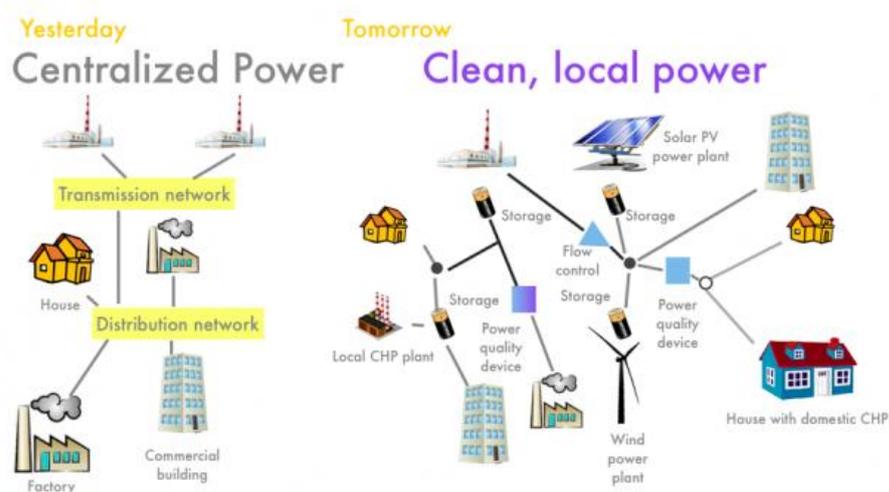


Figure 2: The Difference between Centralised and Decentralised Energy Systems (John, 2011)

2.3.1 Critical Analysis

In section 2.3 a number of sources are used to examine the advantages of CE:

1. **The Scottish Government's CEPSD.** This was published in 2014 and is therefore relatively up-to-date, and provides good specific information on CE in Scotland, including the benefits of the sector. However, it is at points unclear, which will be further discussed
2. **The Scottish Parliament's *Report on the achievability of the Scottish Government's Renewable Energy Targets*.** This report is extremely detailed and emphasises well the positives of CE by including extracts of interviews with CE professionals
3. **The journal article *Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs*.** This journal is an excellent resource as it uses examples, such as Wales, to highlight the positives of CE, which emphasises the points made
4. **The article *Debate whether windfarms are ugly but not their efficiency, says Lord Turner* by Damian Carrington in the Guardian newspaper.** While this article makes a valid point, it does so by referencing the then chairman of the UK Committee on Climate Change, Lord Turner. Moreover, since it is a newspaper article, it is possibly less reliable and less objective than a journal article
5. **The journal article *Exploring the transition potential of renewable energy communities*.** In spite of the promising title, this source is unclear and often struggles to put across its points. For example, it makes various references to the transition potential of renewable energy, references which are very vague, poorly elaborated, and add very little to the debate

6. **The journal article *Social impacts of community renewable energy projects: findings from a woodfuel case study***. This source discusses the social impacts of CE projects by focusing on a wood-fuel project in England. A case study is used very well to highlight a real-life example, demonstrating the positives of CE
7. **The journal article *Stakeholders involvement for energy conscious communities: The Energy Labs Experience in 10 European Countries***. In general, this journal is very effective at making many different points about the positives of CE, and does so by referencing ten different examples from ten different countries, giving the reader a good understanding of the topic
8. **The journal article *Power to the people: Local community initiatives and the transition to sustainable energy***. This source is effective in showing how CE can lead to a decentralized energy system through the use of a case study based in the Netherlands
9. **The journal article *Micro-hydro politics: Producing and contesting community energy in the North of England***. This was used to make the point that in the 1960s and 1970s many countries created a centralised energy grid system with little energy produced locally. This point is well made, and in general this journal article is effective in conveying some of the barriers involved in creating CE projects, especially through its case study based in Hexham, England
10. **E.on's website on decentralised energy**. This source talks about the advantages of decentralisation. Despite being a corporate website, this source is clear and concise in providing easy to understand information on decentralised energy systems

2.4 The Negatives of Community Energy

There are also a number of negative aspects of community renewable energy which must be discussed. First, renewable energy projects are generally capital intensive which many communities cannot afford (Scottish Government, 2014, p. 7). Exacerbating this is the fact that projects normally have lengthy amortisation periods before the financials become positive (Pierpont, et al., 2011). CE ownership involves a significantly higher risk to communities themselves who would directly suffer the consequences of poor performance or fluctuations in prices (Meacham, 2012, p. 15) (Scottish Government & Scottish Agricultural Council, 2010, p. 10). Also, despite the afore-mentioned benefits of CE projects, sometimes such projects can divide communities if certain members do not agree with them (Armstrong & Bulkeley, 2014, p. 67). This has been an issue with onshore wind as these installations are seen by many as eyesores, especially in rural areas (Slee, 2014, p. 546).

Another potential pitfall of CE projects is the lack of proper grid connection, especially in rural areas. In many countries an improved grid is required to allow the connection of CE projects in remote areas which are currently not connected at all (Slee, 2014, p. 546). This means that in order to use and/or extract profits from CE projects, community groups must often either wait for the government to improve grid connections, which could take years, or they must undertake the improvements themselves, which can be a hugely expensive add-on to an already almost unaffordable project. This is a particular problem in Scotland where, for example, large parts of the Highlands and Western Isles are not connected to the main grid (figure 3).

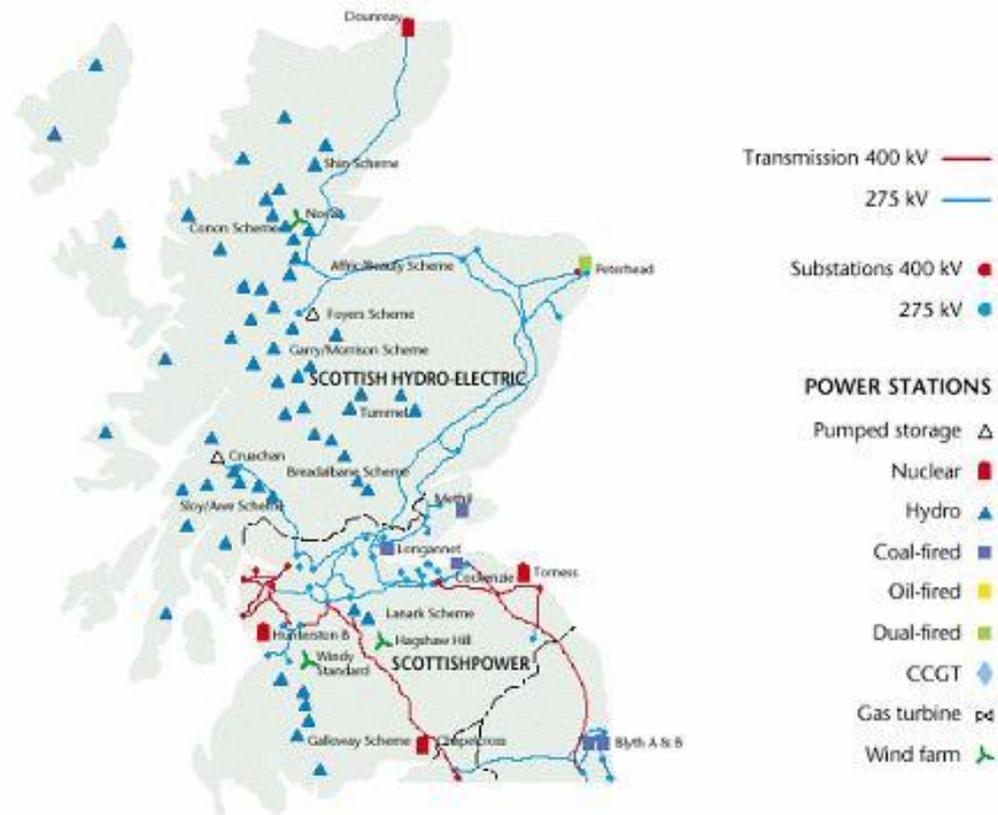


Figure 3: Main Grid Connection in Scotland (University of Strathclyde, 2015)

2.4.1 Critical Analysis

There are a number of sources in section 2.4 which highlight the negatives of community ownership of renewable energy projects. Each source makes valid points about the negatives involved in the process, and all relate well to the reader. However, there is one source which is particularly good: the journal article *Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs*. This source is excellent because it gives multiple negative factors of CE plus examples, such as in Scotland.

2.5 Successful Model: Germany

Germany is an example of a country which has been successful in growing its CE sector. Recent figures show that Germany has 73GW of installed renewable energy capacity, of which only 5% is owned by the ‘big four’ power companies and upwards of 65% is owned by individuals or communities. (Carrington, 2012). As shown in table 1 this is a significantly higher percentage than in the UK, which stood at around 10% in 2012.

Table 1: Energy figures for the UK and Germany in 2012, showing that Germany produces significantly more CE (Carrington, 2012)

	Germany	UK
Population (millions)	82	62
Electricity Production in 2011 (Twh)	612	317
Individual or community owned renewable energy capacity 2010 (%)	>65%	<10%

There are many reasons why the CE sector has been so successful in Germany. Firstly, there is a long-term strategy designed, in part, to oversee the planning and implementation of CE projects, known as ‘Energiewende’, or ‘the restructuring of the energy industry’ (Nolden, 2013, p. 546). This strategy is part of an overall transition to clean energy, which includes CE (Energy Transition: The German Energiewende, 2015). Also, German state-owned banks provide manageable loans for CE projects which allows communities to access the capital required for initial development (Nolden, 2013, p. 548). In contrast, UK banks such as Triodos and the Co-operative bank also provide loans for CE projects, but are far more reluctant to do so for smaller schemes, posing funding problems for such projects (Parliament, 2012, p. 1452). In Scotland, the main funding comes from the Scottish Government’s CARES scheme, which will be discussed in detail in section 2.7.



Figure 4: Community Wind Turbines in Feldheim, Germany (Guevara-Stone, 2015)

2.5.1 Critical Analysis

The first source were relied on in section 2.6 to analyse CE in Germany:

1. **The article *Germany's renewable energy revolution leaves the UK in the shade* by Damian Carrington in the Guardian newspaper.** This source is an interesting article which provides relevant information illustrated with figures such as table 1 above. However, since it is a newspaper article it is potentially less reliable and less objective than a journal article
2. **The journal article *Governing community energy— Feed- in tariffs and the development of Community Wind Energy Schemes in the United Kingdom and Germany*.** This source is a thorough comparison between the sectors in the two countries, and provides a more objective comparison than the afore-mentioned Guardian article as it delves deeper into the differences between the two nations and contains significant data analysis
3. **The Scottish Parliament's official report from the Economy, Energy and Tourism Committee.** This is useful as it gives examples of interviews with community member, thus giving first-hand points of view

4. **A report entitled *Community Energy Strategy: DECC consultation* by Alan Simpson.** This is an excellent report which gives detailed information on the CE sectors in Germany, as well as the UK. It is written from the viewpoint that CE in the UK could be much more effective than it presently is, and uses the comparison with Germany, a country with a successful CE sector, to prove this.

2.6 Community Energy in Scotland

According to the UK Government, there are as many as 5000 CE projects in the UK at the present moment (UK Government, 2015). However, it has also been claimed that the total is in fact closer to 10,000, which shows real discrepancy in the data available (Hargreaves, et al., 2012, p. 871). It is currently unknown exactly how many CE projects are located in Scotland, a point which will be discussed in detail in section 2.10.

In Scotland there is considerable legislation, grants and programmes which promote community engagement in renewable energy:

- **Land Reform Scotland Act 2003 (Scottish Parliament, 2003):** gives communities the right to buy, paving the way for CE
- **Rural Development Programme for Scotland (Scottish Government, 2015):** supports sustainable rural development by providing grants to support CE projects
- **The Community Empowerment (Scotland) Bill (Scottish Parliament, 2014):** encourages community development and assists communities in acquiring land that can be used for renewable energy projects
- **Scottish Land Fund (Scottish Government, 2014, p. 11) (Scottish Government, 2011):** a multi-million pound grant given to local communities which has recently been extended to 2020
- **Renewable Energy Investment Fund (Scottish Enterprise, 2015):** available to CE projects in order to aid the achievement of financial closure

In addition to legislation, grants and programmes the Scottish Government has also published a *Renewable Energy Toolkit* to guide communities in best-practise when designing and implementing renewable energy sources (Scottish Government, 2011). Also, Community Energy Scotland (CES) is a Scottish charity that provides advice and assistance to communities setting up renewable energy projects (Community Energy Scotland, 2015). In 2014 a total 25MW of development aided by CES had been implemented while an extra 150MW was at the planning phase (Slee, 2014, p. 542).



Figure 5: The Community Energy Scotland Logo (Community Energy Scotland, 2015)

However, the most important Scottish Government fund for CE is the CARES loan fund, which is a Scottish Government funding initiative designed to provide loans towards renewable energy projects which have “significant community engagement (Scottish Government, 2013).” It is managed by Local Energy Scotland (LES) and provides funding for pre-planning costs to reduce the original risks of the development (Meacham, 2012, p. 17). Loans are repaid, with interest, at financial closure (Meacham, 2012, p. 17). The fund was launched in 2011 and commenced in the 2012 financial year, with 42 projects granted loans from April to October 2012 (Meacham, 2012, p. 17). There are various different types of CARES fund which exist for different types of developments. The CARES loan for communities and rural businesses allow community groups to develop renewable energy projects on land that they own or lease and can be used for up to 95% of pre-development costs (Meacham, 2012, p. 17). The CARES infrastructure grant gives funds to community ownership projects that seek to enhance grid connection networks, while the CARES urban grant provides funding for renewable energy sources in buildings in areas of high economic deprivation (Meacham, 2012, p. 17). Research has been conducted into the success of the CARES scheme by the Scottish Parliament in their 2012 *Report on the achievability of the Scottish Government’s renewable energy targets* (Scottish Parliament, 2012). In it, CE

groups were asked how successful the scheme has been and the feedback was positive, with respondents describing it as a “great facility”, “hugely effective” and “the only way to get into the game (Scottish Parliament, 2012, p. 45).” An example of a CE project that has taken advantage of the CARES scheme is the Fraserburgh Development Trust, which received a grant at the initial planning stage (Local Energy Scotland, 2015). This loan has been a great benefit to the Trust, which has gone on record saying “the funding comes with a cost, but it is the only way to get into the game, so it is a great facility (Scottish Parliament, 2012, p. 1454).

In Scotland there are three main types of CE projects: full ownership, co-ownership and cooperative projects (Slee, 2014, p. 545). Full ownership projects are completely owned by the community and a number of such projects are established in Scotland, for example on the Isle of Gigha and in Udney, Aberdeenshire (Isle of Gigha Heritage Trust, 2015) (Triodos Bank, 2015). In addition to this, there are a number of full ownership CE projects at the planning stage, such as the Rosneath Project in Argyll and Bute (Rosneath Peninsula West Community Trust, 2015).



Figure 6: Isle of Gigha Wind Turbines (Community Energy Scotland, 2013)

Co-ownership schemes, in contrast, are where communities are joint owners of a renewable energy project, normally with private entities (Community Pathways, 2013). Such renewable energy models exist in Fintry in Stirlingshire, where a wind turbine has been built in conjunction with a local farm (Fintry Development Trust, 2015).

Moreover, the proposed Viking Wind Farm Development in Shetland, which will produce 370MW of power from 103 wind turbines, is a joint venture between the Shetland Community and energy company SSE (Viking Energy, 2015). Co-ownership is a less risky option than full community ownership as all costs, including pre-planning costs, are shared between the community and its partner (Slee, 2014, p. 545).

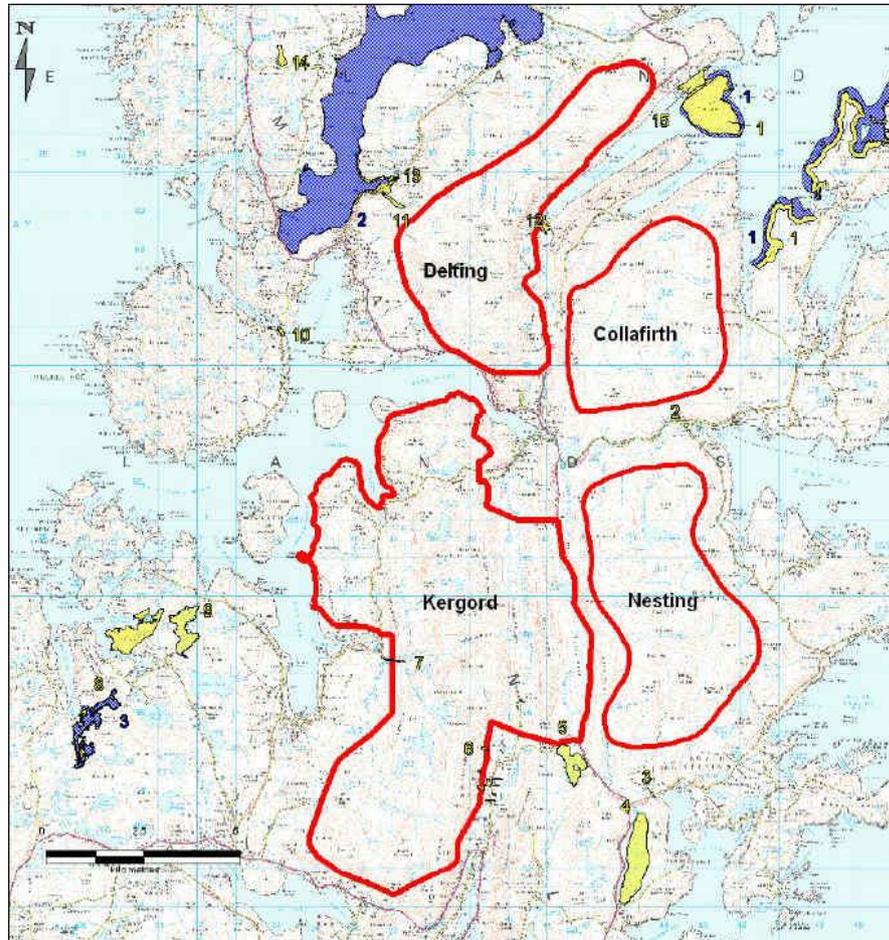


Figure 7: The Proposed Site of the Viking Wind Farm in Shetland (Sustainable Shetland, 2015)

Finally, co-operative projects are independent association of members who work together and run the project on a democratic basis for the benefit of the members (Co-operative Development Scotland, 2010). There are a number of examples of co-operative community renewable projects in Scotland, such as the Byonde Wind Farm Co-operative in Aberdeenshire (Byondie Wind Farm Co-operative, 2015) and the Edinburgh Community Solar Co-operative (Changeworks, 2015).



Figure 8: the Edinburgh Community Co-operative Logo (Edinburgh Solar Community Co-operative, 2015)

2.6.1 Critical Analysis

There are a number of sources used in section 2.6 to discuss CE in Scotland:

1. **The journal article *Grassroots innovations in community energy: The role of intermediaries in niche development***. This source is on the whole rather confusing as it delves into topics such as intermediaries and niche management, both of which are complicated and don't bring very much to the overall understanding of CE
2. **The official Scottish Government website on the CARES scheme**. This source is detailed and provides up-to-date, relevant information on the scheme in Scotland
3. **The report *Renewable Energy: Community Benefit and Ownership* by Theresa Meacham**. This is a clear, concise report that provides a great deal of information on community energy in Scotland
4. **The journal article *Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs***. This source is an excellent resource as it uses examples, such as Wales, to highlight the positives of community energy, which really emphasises the points made

2.7 The Scottish Government Target

The Scottish Government has set itself an ambitious target to produce 100% of the country's electricity from renewable energy sources (Scottish Government, 2013, p. 3), and reduce carbon emissions by 42% (Scottish Government, 2011, p. 4), by the year 2020. Included in this target is the goal of developing 500MW of CE and LOE generating capacity in the same time period (Scottish Government, 2014, p. 4). It has been calculated that the completion of this CE and LOE target will produce revenue of up to £2.2 billion over the lifetime of the projects, along with benefits to communities and to the environment (Scottish Government, 2014, p. 4).

Impressive progress has been made towards the Scottish Government's 2020 target. According to the Energy Saving Trust, by 2013 285MW of CE and LOE was in operation in Scotland, which was a 40% increase from the previous year (Energy Saving Trust, 2014, p. 4). In order to calculate this, the Energy Saving Trust was asked to produce a database of all the CE and LOE sources by the Scottish Government, which the government then based its figures in its CEPSD on. From this database, it was also calculated that in 2013 there was significant extra CE and LOE at the planning and scoping stage, as shown in figure 9 which details the progress made towards the target as of June 2013 along with potential projects in the pipeline.

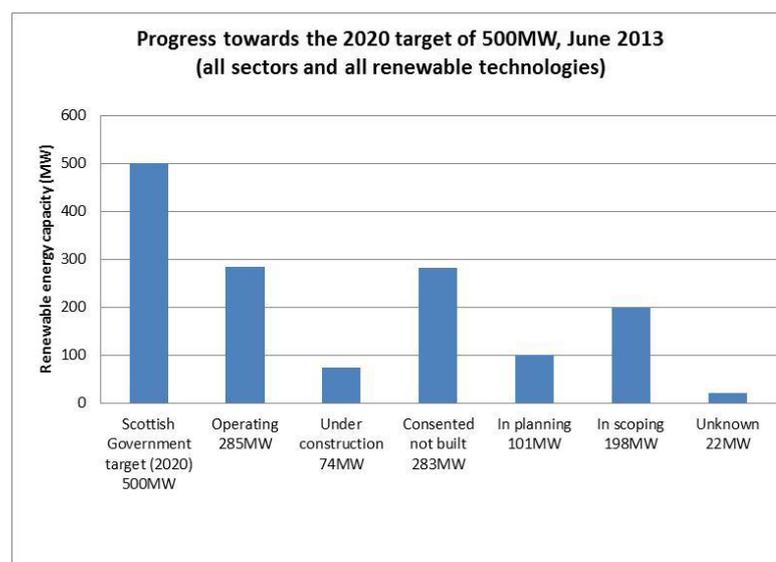


Figure 9: Progress towards the 500MW Target as of June 2013 (Scottish Government, 2014, p. 13)

2.7.1 Critical Analysis

The only source used to analyse the Scottish Government target for CE and LOE is the report *Community and locally owned renewable energy in Scotland at June 2013: A report by the Energy Saving Trust for the Scottish Government*. This source is very useful in that it is currently the most up-to-date analysis that includes community energy in Scotland. However, the issue is that it does not include the absolute latest information as it misses out a great number of CE projects. This point will be further discussed in sections 2.10 and Chapter 3.

2.8 Gaps in research

An obvious issue with the Scottish Government target for CE and LOE is that CE and LOE are very different, despite being grouped together in the same target. CE sources are, as discussed, defined by the Scottish Government as “projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community (Scottish Government, 2014, p. 3).” In contrast, LOE sources are defined by the Scottish Government in the same policy statement as “projects led by regional organisations which are not profit-distributing and have charitable aims such as housing associations and educational institutions or local authorities, as well as commercial businesses including farmers, land managers, rural small and medium-sized enterprises and profit-distributing co-operatives (Scottish Government, 2014, p. 3).” Essentially, the distinction here is that CE sources are clearly set up and running for the benefit of the host community, while LOE sources includes both non-profit sources and those that are based locally but are set up and running for their own benefit. In spite of the very clear differences between the two, the Scottish Government has grouped together community and LOE sources into one target. The grouping of two different sources results in a distortion which renders the analysis of the sector problematic.

In addition, the Scottish Government’s use of the terms is not consistent. The CEPSD on their 500MW 2020 target begins with the definitions of both CE and LOE detailed above in order to differentiate between the two types of energy (Scottish Government, 2014, p. 3). However, on the very next page in the introduction and overview section,

CE and LOE energy sources are amalgamated into simply ‘community energy’, while the term ‘locally-owned energy’ is not mentioned again in the section (Scottish Government, 2014, p. 4). This amalgamation is in fact extremely misleading as the reality of the situation is, according to the Energy Saving Trust report on which the Scottish Government’s official policy statement is based, that despite both sources being combined into ‘community energy’, community sources, which are running for the benefit of the community, only make up 15% of the most recent 2013 total, while LOE makes up the rest (figure 10).

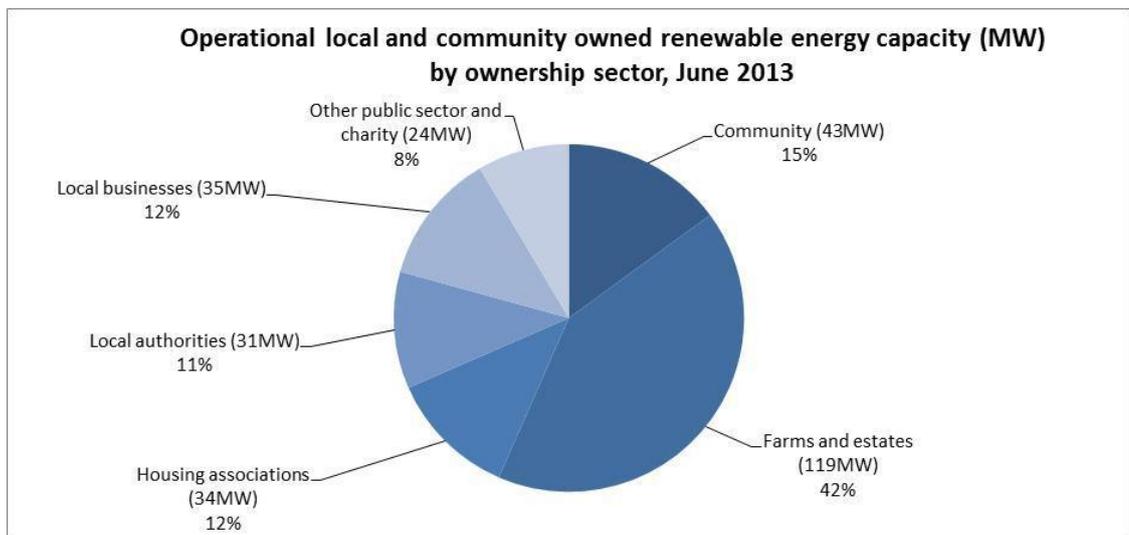


Figure 10: June 2013 capacity by sector, showing that CE only makes up 15% (Energy Saving Trust, 2014, p. 5)

This means that the Scottish Government information is distorted as it suggests that CE is doing extremely well, when in reality it is mainly local energy which is doing well. This amalgamation also makes it rather difficult to track the specific progress of CE in the run up to 2020 as it is more difficult to separate them. On a number of occasions it has been suggested that amalgamating both sources into ‘community energy’ is confusing and as such that they should be kept separate with separate targets. For example, in his response to this terminology, Vijay Bhopal of Scene states: “we urge the government to ensure that ‘community energy’ is not used as a hold all term for ‘community and locally-owned energy.’ This is a highly misleading usage of terminology, as explained on page 13 where it is stated that only 15% of current progress towards the 500MW target is accounted for by community energy (Bhopal, 2014, p. 1).” Similarly, the Scottish Parliament’s 2012 report on Scotland’s renewable energy targets states that it is “unhelpful to lump community and locally-owned under

one target” since “communities and local entrepreneurs are likely to have very different needs and the benefits that will accrue from a local, privately owned installation are likely to be very different from one owned by the community (Scottish Parliament, 2012, p. 45).” This shows that it is widely acknowledged that CE and LOE sources should not be put together as ‘community energy’ as it is misleading. However, a gap in research is that it has not been analysed whether this clumping of CE and LOE has had a detrimental effect on CE in Scotland. Another gap is that the question of whether CE and LOE should be given separate targets for 2020 and beyond in order to improve the CE sector.

Furthermore, the database compiled by Energy Saving Trust, on which the Scottish Government’s policy on their target to produce 500MW of power from CE and LOE sources by 2020 is based, is now out of date as there are in fact more CE sources in the country than have been noted in it. As a result, a new, more accurate database will be compiled as part of this dissertation, which will detail how many CE projects there are in Scotland, which are CARES funded, and the actual percentage of CE compared to LOE. Moreover, this database will plug two further gaps in research in the sector: which area in Scotland contains the most CE projects, and which energy technology is the most prevalent in CE projects in Scotland.

Finally, the last gap in research that will be addressed is whether the CE sector would benefit from one, standard definition of CE.

2.8.1 Critical Analysis

In section 2.10 the following sources are used in order to analyse the gaps in research at present:

1. **The Scottish Government’s CEPSD.** This has been discussed in detail in section 2.10
2. **Scene’s response to the Scottish Government’s CEPSD.** This source which valid points about the inadequacies of the Scottish Government’s policy document in a clear and concise manner
3. **The Scottish Parliament’s official report from the Economy, Energy and Tourism committee.** This is very useful as it gives examples of interviews with CE members

2.9 Summary

In Chapter 2 a detailed review of the current literature on CE has been undertaken. This has produced the following gaps in research:

- Whether the CE sector would benefit from one, standard definition of CE
- Whether the CE sector would benefit from a change to the description of the Scottish Government’s target
- Whether CE and LOE should be given separate targets for 2020 and beyond in order to improve the CE sector
- Whether the amalgamating of CE and LOE into ‘community energy’ in the Scottish Government’s CEPSD (Scottish Government, 2014, p. 14) has had a detrimental effect on the CE sector
- How many CE projects there are in Scotland
- How many CE projects in Scotland are CARES funded
- Which renewable energy project is the most prevalent in CE projects in Scotland
- Which local council area in Scotland has best facilitated the uptake of CE

There are a number of reasons why it is important to fill these gaps in research. Generally speaking, filling these gaps is important as it could be that they are having a negative effect on the CE sector and, consequently, on communities themselves. If this is the case, and the gaps are not identified and dealt with effectively, then the sector and communities will continue to suffer. It is also important to fill the gaps in research identified in order to ensure that the target is as effective in driving the CE sector as possible. While it is laudable that a target exists, the author believes that changing the target in some way could further benefit CE in Scotland. Finally, the gap in research regarding the lack of one, consistent definition is vital and must be analysed. Since there is no one accepted definition, policy makers are free to select whichever definition best matches their needs, thus affording themselves great flexibility. However, a drawback of this is that it makes it very difficult to enforce a common goal because there is no common definition.

For the purpose of the analysis and discussion that follows, the author has adopted the following definition of community energy: energy generated by organisations that are clearly set up and running for the benefit of the host community.

The methods used to fill these gaps in research will now be discussed in detail in chapter 3.

Chapter 3: Methodology

3.1 Introduction

Chapter 3 offers a description of the research methods that will be used to fill the gaps in research identified in Chapter 2: literature review. It also gives rationale for the methods used. This is split into two main parts: database work and interviews.

3.2 Database Work

In order to fill a number of gaps in research, two separate databases containing lists of such projects will be amalgamated by the author in his role as Research Assistant for Scene. The first database comes from the Energy Saving Trust and was the information on which the Scottish Government based its CEPSP and most recent figures regarding CE and LOE. For the purpose of this project the LOE projects will be ignored. The CE projects in the energy saving trust database will then be combined with a similar database compiled by Scene, which contains their list of all CE projects in Scotland. The new database will also detail exactly how many of the CE projects are CARES funded by the Scottish Government, to give an accurate representation of this service.



Figure 11: Scene's Logo (Scene Consulting Ltd, 2015)



Figure 12: The Energy Saving Trust Logo (Energy Saving Trust, 2015)

3.2.1 Rationale for Database Work

It was decided that the database work described was the best method to gain accurate information of CE in Scotland as both databases were available and ready to be amalgamated to create a more accurate database.

3.3 Database Analysis

Comprehensive analysis will be undertaken on the combined Energy Saving Trust and Scene database. The new database will detail the following, which are currently gaps in research:

- The number of CE projects currently located in Scotland
- The percentage of CE projects in Scotland compared to LOE projects
- How many of these projects are CARES funded
- The locations of CE projects in Scotland
- The most prevalent renewable energy sources for CE projects in Scotland

3.3.1 Rationale for Database Analysis

Database analysis will be undertaken in order to fill gaps in research that currently exist. It will also be done so that comparisons can be made between the data contained in the database and the feeling among Community Energy Professionals (CEPs) and policy makers. Specific justification for database analysis is now detailed.

3.3.1.1 The Number of CE Projects Currently Located in Scotland

The first piece of analysis that will be done is to determine how many CE projects there are in Scotland. This analysis will be undertaken as such a list does not currently exist.

3.3.1.2 The Percentage of CE Projects in Scotland Compared to Locally-Owned Projects

The second piece of analysis that will be undertaken is to calculate the percentage of CE projects in Scotland compared to LOE projects. This will be done by comparing the amount of CE projects calculated in the new database with the number of LOE projects contained in the Energy Saving Trust website. This analysis will be done in order to compare the findings with the current percentage quoted by the Scottish Government, which is that CE makes up 15% of the total current progress towards the target (Scottish Government, 2014, p. 13) (Energy Saving Trust, 2014, p. 5).

3.3.1.3 The Number of CE Projects in Scotland which are CARES funded

The third piece of database analysis that will be undertaken will be to calculate how many of the total CE projects in Scotland are CARES funded. This will be done since currently no such information exists.

3.3.1.4 A Comparison of Renewable Energy Sources in CE Projects in Scotland

The fourth piece of analysis that will be done is to calculate which renewable energy sources are most prevalent in CE projects in Scotland. This will be done as currently it is not known for certain which source is most prevalent. Furthermore, this analysis will allow for a comparison to be made with the opinions of industry professionals as to which source has been most prevalent in the surveys, which follow on.

3.3.1.5 The Locations of CE Projects in Scotland

The fifth piece of analysis that will be undertaken is to identify which local council areas in Scotland have best facilitated the uptake of CE. This will be done primarily because no such list currently exists with public access. Also, this analysis will allow for a comparison to be made with the feeling of industry professionals as to which local council areas contain the most CE projects.

3.3.1.6 The Number of Projects per Square Mile in Each Local Council Area

The sixth piece of analysis that will be undertaken is to calculate the number of CE projects per square mile in each local council area in Scotland. This analysis will be done in order to give a proportional representation of how CE is distributed geographically in Scotland.

3.3.1.7 The Number of Projects per 1000 People in Each Local Council Area

The final piece of analysis that will be done is to calculate the number of projects per 1000 people in each local council area in Scotland. This calculation will be undertaken in order to know how many people, proportionally, have access to CE projects in each local council area.

3.4 Survey

A survey will be carried out in order to further fill the gaps in research and get first-hand information on the topic. All questions will be formulated in a way that allows for detailed analysis in Chapter 4. The survey will be completed by the following CEPs and Scottish Government Policy Makers (SGPMs):

- Anne Schiffer, Energy Campaigner (Community Power) for Friends of the Earth Scotland
- Tom Black, Community Engagement Manager (North and Central Scotland) at Foundation Scotland
- Emily Creamer, Postdoctoral Researcher in Sustainable Lifestyles at the University of Edinburgh
- Ragne Low, Project Manager at ClimateXchange
- Jamie Macleod, Renewables Policy Officer at the Scottish Government
- Laura McGlynn, Renewables Policy Officer at the Scottish Government
- Paul Phare, Scotland Development Manager at Energy4All
- A CEP who chose to remain anonymous

Interviewees will also be asked to expand on their choices and explain why they have rated certain statements the way they have.

3.4.1 Rationale for Survey Work

A survey will be used in order to create standardised, structured responses that can be easily analysed and compared. The survey has been formatted in a way that both closed-end and open-end questions are used (Sincero, 2015). Each question is closed-end as respondents are being asked to rate statements and definitions based on criteria set by the questionnaire. This type of question will be used in order to provide answers that can be compared easily in the results section and will form the basis of the survey. As well as this, open-end questions will be used when respondents are asked to expand on why they have rated a statement or definition a certain way. This has been done in order to further explore the meaning of the responses since one of the main disadvantages of closed-end questions are that respondents may be forced to select a rating that does not exactly reflect their opinion (Xiong, 2011, p. 267). However, since it is difficult to compare the answers given to open-end questions, the answers given will be treated as extra information.

3.4.2 Introduction to the Survey

The following is the introduction to the survey:

This interview explores community owned energy in Scotland and the Scottish Government's target for 500MW of renewable energy generating capacity through CE and LOE sources by the year 2020 (Scottish Government, 2014, p. 1).

The Scottish Government's target sees CE and LOE combined into the same target. However, as of 2013 CE only makes up 15% of the current progress towards the target (Scottish Government, 2014, p. 13) (Energy Saving Trust, 2014, p. 5). Moreover, the Government's policy statement draft, released in 2014 sees the term CE used as a catch all term for CE and LOE in the introduction and overview section (Scottish Government, 2014, p. 4). Despite it making up 85% of the 2013 total, LOE is only mentioned once in the overview and introduction section of the document, and is

replaced by ‘community energy’ (Scottish Government, 2014, p. 4). *This survey will discuss this.*

The survey also deals with the different energy sources utilised in the CE sector, the distribution of CE projects in Scotland and CARES funding.

3.4.3 Question 1: The Community Energy Sector

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

<i>Rank: 1– 10</i>
<i>The CE sector is successful in Scotland</i>
<i>The CE sector would benefit from one consistent definition of CE</i>

3.4.3.1 Rationale for Question 1

- The first statement of question 1 will be asked in order to introduce the topic and gauge the feeling on the sector in Scotland
- The second statement of question 1 will be asked as this is a gap in current research, and because one of the original hypothesis set out in the introduction of this dissertation was that the CE sector suffers due to a lack of a clear, consistent definition

3.4.4 Question 2: The definition of Community Energy

Please rank the following definitions of CE out of 10 in terms of their accuracy. 1 is very inaccurate and 10 is very accurate.

<i>Rank: 1 -10</i>
<p><i>“Projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community, including ‘Bencoms.’ (Scottish Government, 2014, p. 3)</i></p>
<p><i>“An installation of one or more renewable energy technologies in or close to a rural community, with input from members of that community.” (Ruggiero, et al., 2014, p. 54)</i></p>
<p><i>“Grassroots initiatives that invest in ‘clean energy’ in order to meet consumption needs and environmental goals and thereby – often unwittingly – conduce to the spread of renewables.” (Doci, et al., 2015, p. abstract)</i></p>

3.4.4.1 Rationale for Question 2

This question will be asked in order to see which of the three chosen definitions best fit CE, and to see whether interviewees go for different definitions. It is also asked to gauge how well the first definition, which is the Scottish Government’s official definition on CE, fares.

3.4.5 Question 3: The Scottish Government Target

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

<i>Rank: 1-10</i>
<i>The Scottish Government's combined target for CE and LOE is clear</i>
<i>The Scottish Government's combined target for CE and LOE is beneficial to the CE sector</i>
<i>The Scottish Government's combined target for CE and LOE is a useful driver to the CE sector</i>
<i>Changes should be made to the Scottish Government's description of their target to benefit the CE sector</i>
<i>CE and LOE sources should have separate targets for 2020 and beyond</i>
<i>The Scottish Government will meet the current target CE and LOE in 2020 (500MW generating capacity)</i>

3.4.5.1 Rationale for Question 3

This question is asked as the Scottish Government's target, and its implications, is at the heart of this dissertation. Many parts to the question are working hypothesis which will be confirmed or rejected based on the opinions of the interviewees.

- Statement 1 is asked due to the fact that a working hypothesis is that the Scottish Government target is unclear
- Statement 2 is asked because another working hypothesis is that combining CE and LOE is detrimental to the CE sector. This is also a gap in research which has not been analysed

- Statement 3 is asked as another working hypothesis is that the Scottish Government's target is actually holding back the community sector. Again, this is a gap in research which has not been analysed
- Statement 4 is asked as a working hypothesis is that changes should be made to the Scottish Government's target to improve CE in the country, and this question will show whether professionals are of this opinion
- Statement 5 is asked because another working hypothesis is that separate targets for CE and LOE is the best change that could be made to benefit the CE sector
- Finally, statement 6 is asked in order to gain an understanding of whether professionals think that the Scottish Government is on track to reach the target, which can be compared with current progress

3.4.6 Question 4: The Scottish Government's CEPSD

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

<i>Rank: 1 -10</i>
<i>In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is misleading</i>
<i>In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is detrimental to the CE industry</i>

3.4.6.1 Rationale for Question 4

- The first statement of question 4 is asked because it has been stated in the literature review that referring to CE and LOE as simply 'community energy' is indeed misleading, and it will be useful to see whether the interviewees agree with this or not
- The second statement of question 4 is asked because another gap in research detailed in the literature review is whether referring to CE and LOE as simply

‘community energy’ is detrimental to the CE industry. On this point, the working hypothesis is that it is detrimental, and this question will prove this to be correct or incorrect

3.4.7 Question 5: The CARES Scheme

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

<i>Rank: 1-10</i>
<i>The CARES scheme has been successful in improving CE in Scotland</i>
<i>More CARES funding should be made available for more projects in order to improve the CE sector</i>
<i>The CARES scheme is easily accessible</i>
<i>The CARES scheme is easy to understand</i>

3.4.7.1 Rationale for Question 5

Question 5 deals with the Scottish Government’s CARES scheme, discussed in detail previously in section 2.7. This topic is covered since it is the most important Scottish Government scheme related to CE. Also, much has been written about the benefits of the scheme from the Scottish Government (Scottish Parliament, 2012), and it is important to see whether other CEPs agree with this analysis or not.

- Statement 1 of question 5 is asked in order to question the evidence given by the Scottish Government that CARES has been very successful
- Statements 2, 3 and 4 have been included as these points have already been made in the literature review, but may be confirmed or rejected by the interviewees

3.4.8 Question 6: Renewable Energy Technologies

Which of the six following renewable energy technologies have been most prevalent in CE projects? Please grade from the most successful (number 1) to the least successful (number 6).

<i>Technology</i>	<i>Rank: 1 – 6</i>
<i>Wind</i>	
<i>Hydro</i>	
<i>Solar</i>	
<i>Marine</i>	
<i>Bioenergy (including anaerobic digestion)</i>	
<i>Heat Pumps</i>	

3.4.8.1 Rationale for Question 6

Question 6 has been included in the survey in order to fill a gap in research identified in the literature review. This gap is that no publicly available research has been done as to which type of renewable energy technology is the most successful in CE projects in Scotland. In addition, the posing of question 6 allows for a comparison to be made between the perception of industry members and the reality of which technology is most successful, since the database work undertaken will provide an accurate list of which technology is actually the most successful in renewable energy projects in Scotland.

3.4.9 Question 7: Local Council Areas

In your opinion, which six local authority areas have facilitated the uptake of CE most successfully? Please specify the most successful (number 1), the second most successful (number 2), the third most successful (number 3), the fourth most successful (number 4), the fifth most successful (number 5) and the sixth most successful (number 6).

Please choose from the list below. If you cannot name 6 please name as many as possible. A map is available of all the local council areas and their locations.

<i>Local Council Area</i>	<i>Rank: 1, 2, 3, 4, 5, 6</i>
<i>Aberdeen</i>	
<i>Aberdeenshire</i>	
<i>Angus</i>	
<i>Argyll and Bute</i>	
<i>Clackmannanshire</i>	
<i>Dumfries and Galloway</i>	
<i>Dundee</i>	
<i>East Ayrshire</i>	
<i>East Dunbartonshire</i>	
<i>East Lothian</i>	
<i>East Renfrewshire</i>	
<i>Edinburgh</i>	
<i>Falkirk</i>	
<i>Fife</i>	
<i>Glasgow</i>	
<i>Highland</i>	
<i>Inverclyde</i>	
<i>Midlothian</i>	
<i>Moray</i>	
<i>Na-h Eileanan Siar</i>	
<i>North Ayrshire</i>	
<i>North Lanarkshire</i>	

<i>Local Council Area</i>	<i>Rank: 1,2,3,4,5,6</i>
<i>Orkney</i>	
<i>Perth and Kinross</i>	
<i>Renfrewshire</i>	
<i>Scottish Borders</i>	
<i>Shetland Islands</i>	
<i>South Ayrshire</i>	
<i>South Lanarkshire</i>	
<i>Stirling</i>	
<i>West Dunbartonshire</i>	
<i>West Lothian</i>	

3.4.9.1 Rationale for Question 7

Question 7 has also been included in the survey in order to fill a gap in research identified in the literature review. This gap is that no research has been undertaken as to which Scottish local council area has been the most successful in facilitating the uptake of CE. In addition, the posing of question 7 allows for a comparison to be made between the views of industry members and the reality of which local council has been most successful, since the database work undertaken will show which local council has been the most successful up to this point.

3.5 Summary

Chapter 3 has discussed the methodology to be used to fill the gaps in research detailed in section 2.9 as well as extra questions posed. Two main methodology techniques will be used - database analysis and surveys – and each method was discussed in detail in Chapter 3. The results of this methodology will now be detailed in Chapter 4.

Chapter 4: Results

4.1 Introduction

Chapter 4 contains a detailed write-up of the results of the methodology. This is split into database analysis and interviews.

4.2 Database Analysis

It must be noted that the newly-created database which combines the Energy Saving Trust and Scene databases is not necessarily completely accurate, as it may be the case that additional CE projects exist which are not contained in either database. However, the results are now detailed.

4.2.1 The Number of Community Energy Projects Currently Located in Scotland

According to the work amalgamating the Energy Saving Trust and Scene database, there are the following number of CE projects currently in Scotland:

620

These projects are at different stages, from the early feasibility stage to the operational stage.

4.2.2 The Percentage of Community Energy Projects in Scotland Compared to Locally-Owned Projects

In the original Energy Saving Trust database there were **712** LOE projects. This means that the combined total of CE and LOE sources in Scotland, taking into account the updated figure for CE in section 4.2.1, is:

1333

This means that according to the database figures, CE makes up the following percentage of CE and LOE projects currently in Scotland:

47%

4.2.3 The Number of Community Energy Projects in Scotland which are CARES funded

Unfortunately it proved impossible to answer this research question through the database work undertaken. While the Scene database contained detailed information on which projects were CARES funded, the Energy Saving Trust website contained no such information. As a result, an attempt was made to discover which of these projects are CARES funded through LES's CARES interactive map of CARES funded projects in Scotland (Local Energy Scotland, 2015). However, this map was also incomplete as it only held information for hydro, wind and solar projects, meaning that this information could not be added for many of the projects. Moreover, there proved to be no other information available on CARES funded projects in Scotland. Subsequently, it was not possible to ascertain whether many projects in the database were CARES funded or not.

4.2.4 A Comparison of Renewable Energy Sources in Community Energy Projects

Figure 13 (overleaf) shows the results of the research done in section 3.3.1.5 to determine which renewable energy source is most prevalent in CE projects in Scotland:

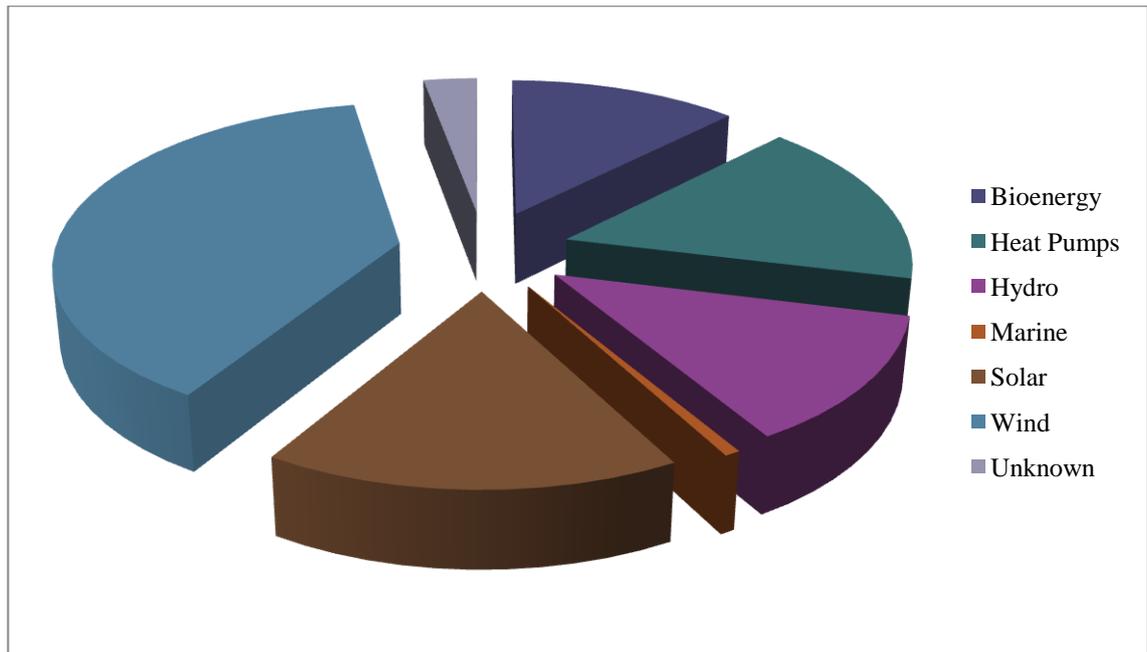


Figure 13: Renewable Energy Technologies in CE Projects (Updated Scene Database, C.Blyth-Moore)

Figure 13 shows that, according to the new Scene database, wind is currently the most prevalent technology for community renewable energy, followed by solar, heat pumps, hydro, bioenergy and marine. The precise numbers used to calculate the pie-chart are detailed in appendix 1.

4.2.5 The Locations of Community Energy Projects in Scotland

Figure 14 (overleaf) details the number of CE projects in each local council area in Scotland. This was calculated from the amalgamated database.

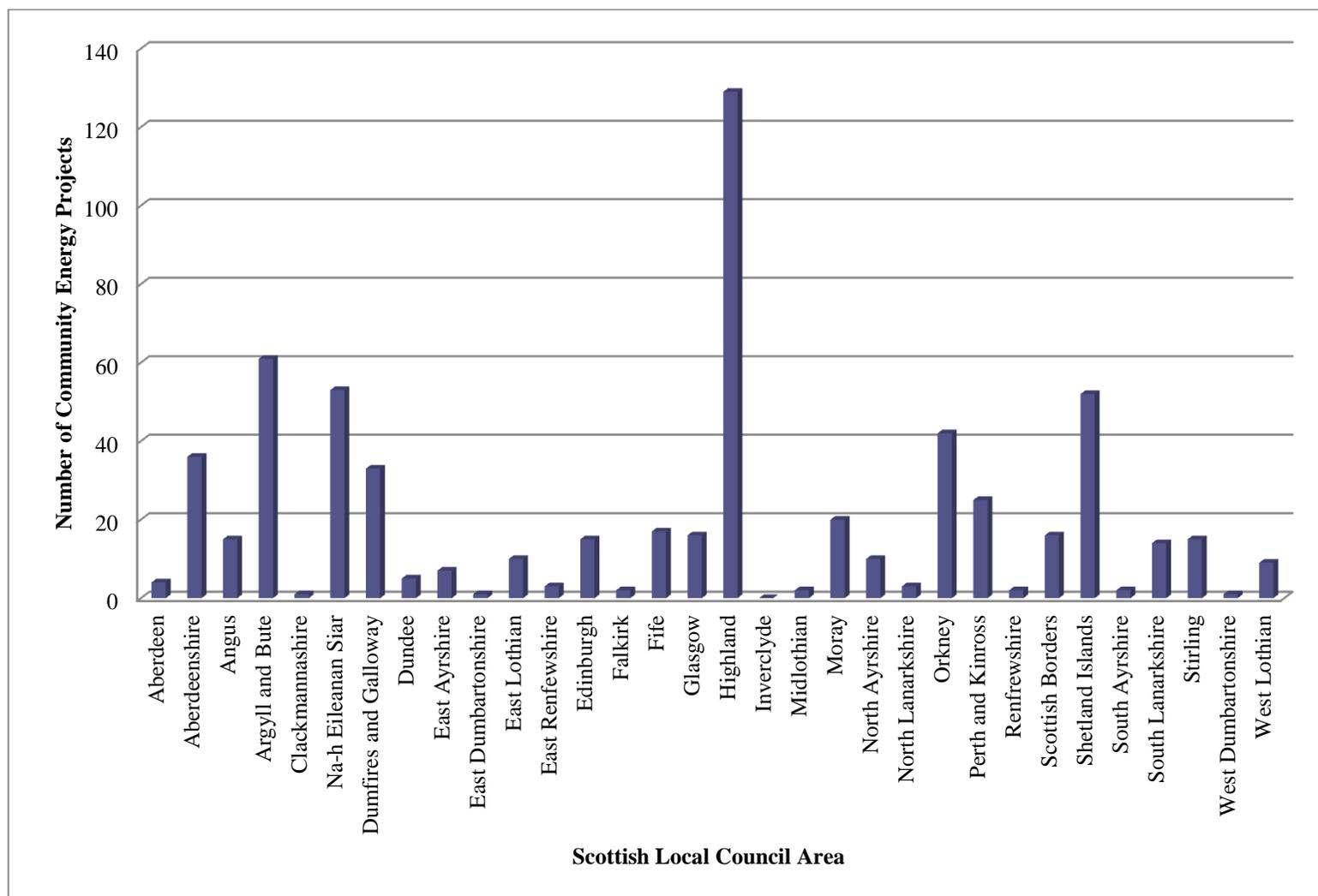


Figure 14: The Number of Community Energy Projects per Local Council Area (Updated Scene Database, C.Blyth-Moore)

Figure 14 shows that the Highlands have best facilitated the uptake of community renewable energy in Scotland, followed by Argyll and Bute, Na-h Elieanan Siar, Shetland Islands, Orkney and Aberdeenshire. The precise numbers used to calculate the pie-chart are detailed in appendix 2.

4.2.6 The Number of Projects per Square Mile in Each Local Council Area

Figure 15 (overleaf) shows the number of projects per square mile for each local council area in Scotland.

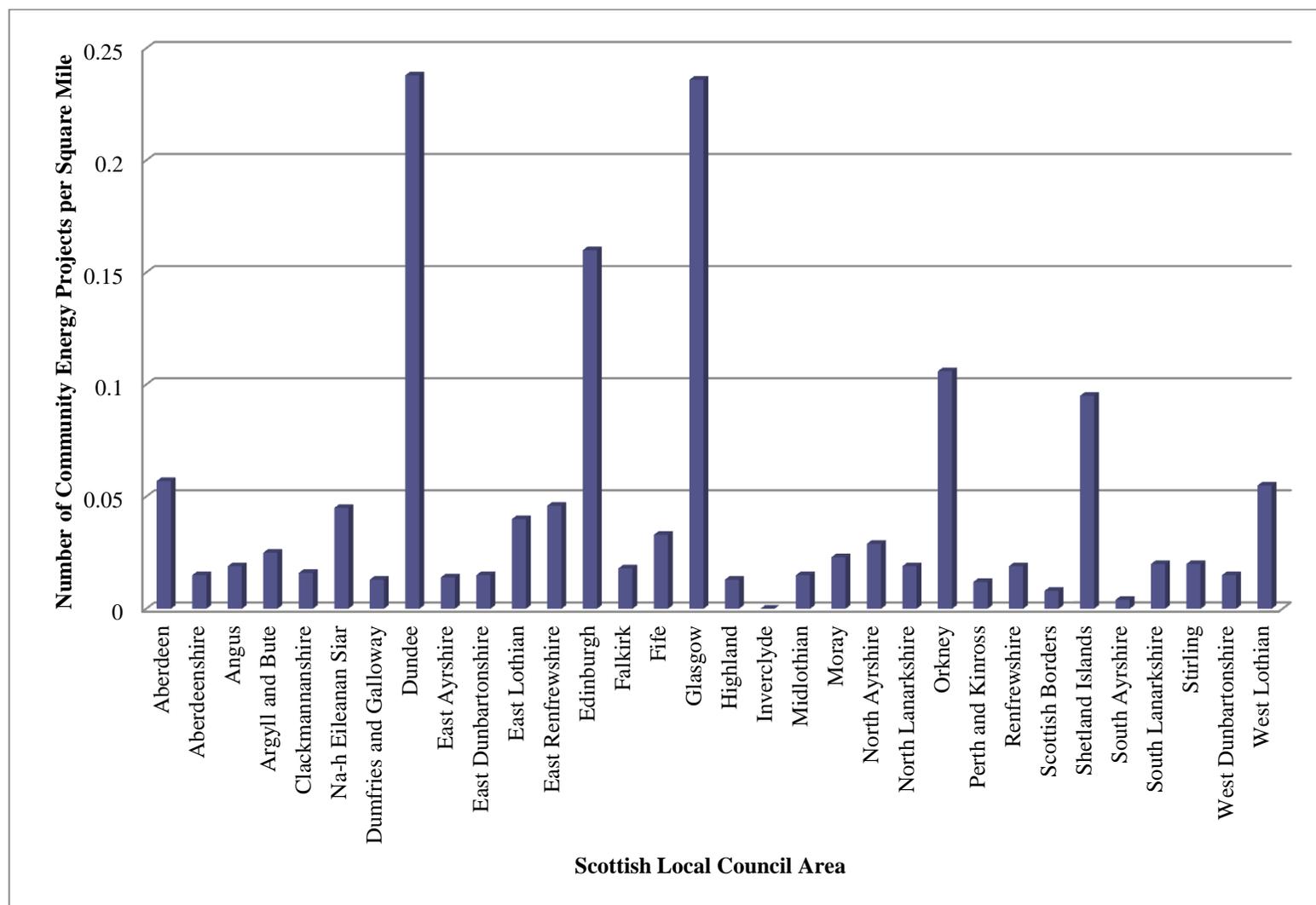


Figure 15: CE Projects per Square Mile (Updated Scene Database, C.Blyth-Moore)

Figure 15 shows that, according to the new Scene Database, Dundee contains the most CE projects per square mile, followed by the Glasgow, Edinburgh, Orkney, Shetland Islands and Aberdeen city. The exact figures used to create this graph can be found in appendix 2.

4.2.7 The Number of Projects per 1000 People in Each Local Council Area

Figure 16 (overleaf) shows the number of projects per 1000 people in each local council area in Scotland.

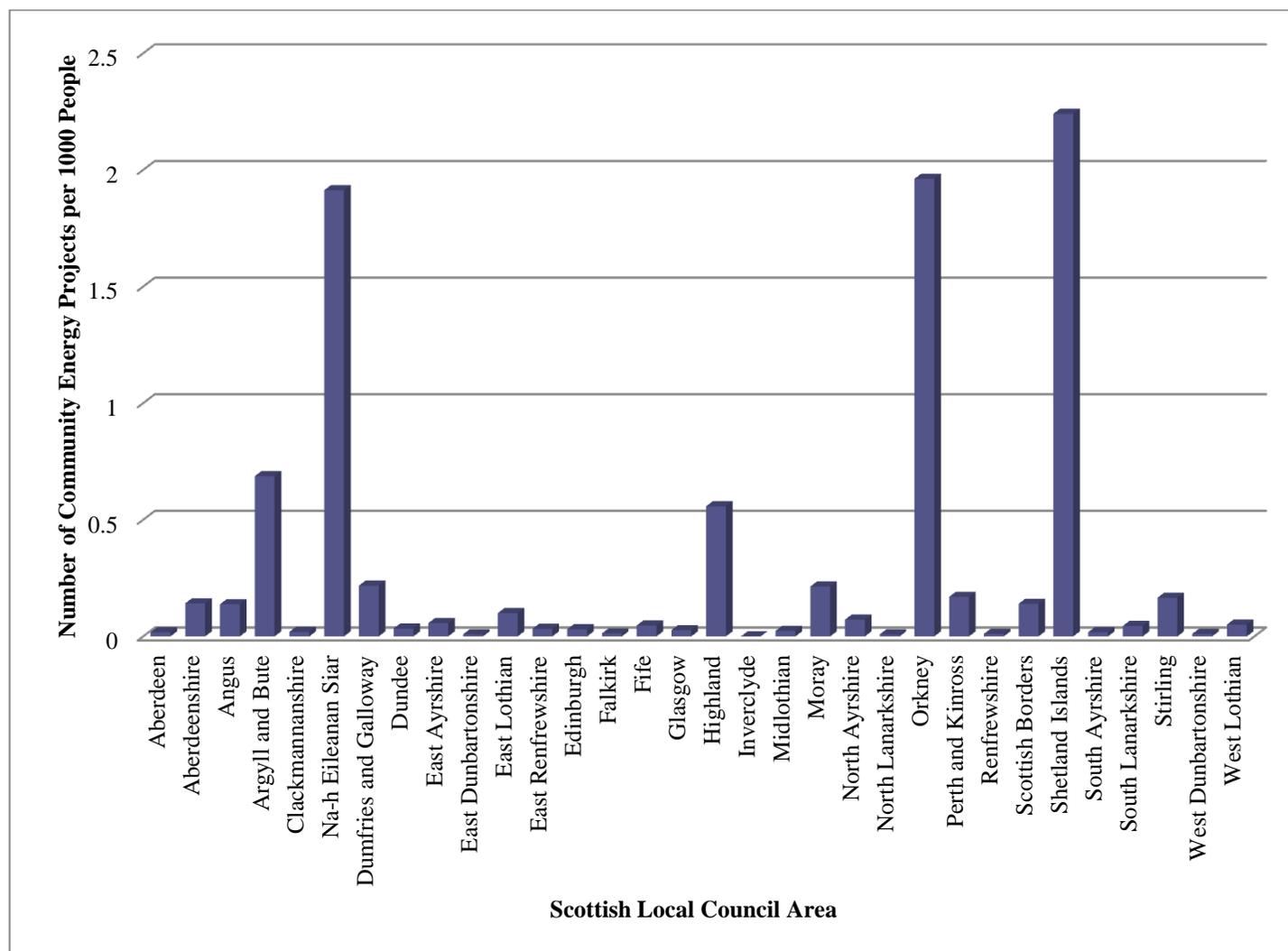


Figure 16: The Number of Projects per 1000 People (Updated Scene Database, C.Blyth-Moore)

Figure 16 shows that the Shetland Islands have the most CE projects per 100 people, followed by Orkney, Na-h Elieanan Siar, Argyll and Bute, the Highlands and Moray. The exact figures used to create this graph can be found in appendix 2.

4.3 Surveys

Section 4.3 contains the results of the surveys completed by a variety of CEPs and SGPMs. The results are divided into each individual question asked, and the details of the results can be found in appendix 4.

Clearly, the results of the survey do not speak for everyone in the sector and the Scottish Government. However, they are a good indicator of current viewpoints.

4.3.1 Question 1 Results

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

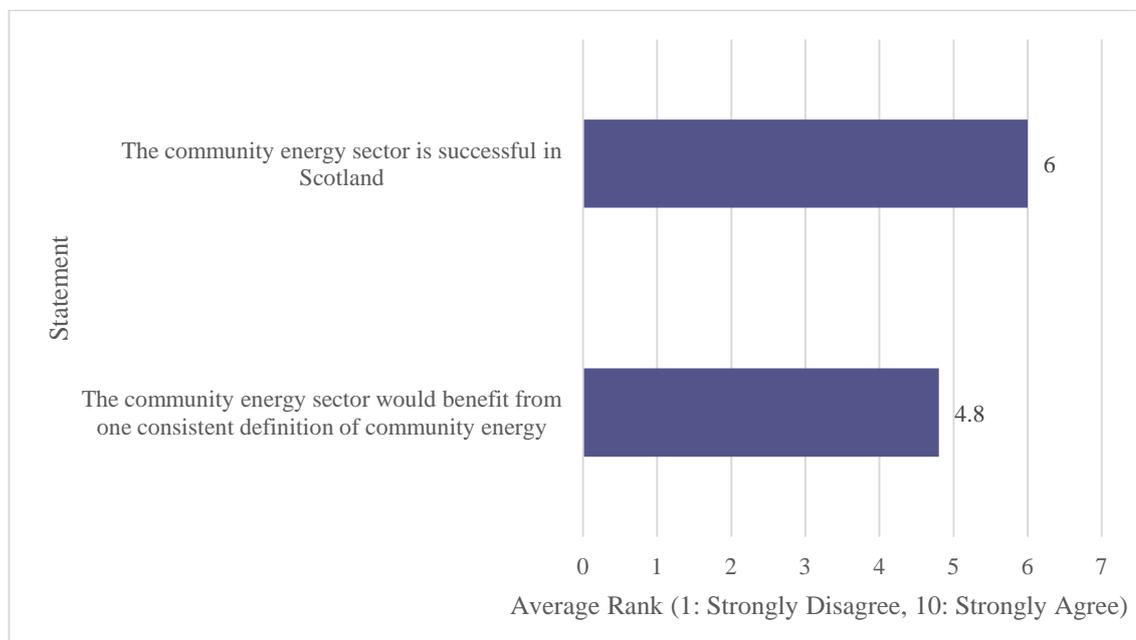


Figure 17: Survey Question 1 Average Ranks

This graph shows that respondents agreed with the statement ‘the CE sector is successful in Scotland’, but disagreed with the statement ‘the CE sector would benefit from one consistent definition of CE.’

4.3.2 Question 2 Results

Please rank the following definitions of CE out of 10 in terms of their accuracy. 1 very inaccurate and 10 is very accurate.

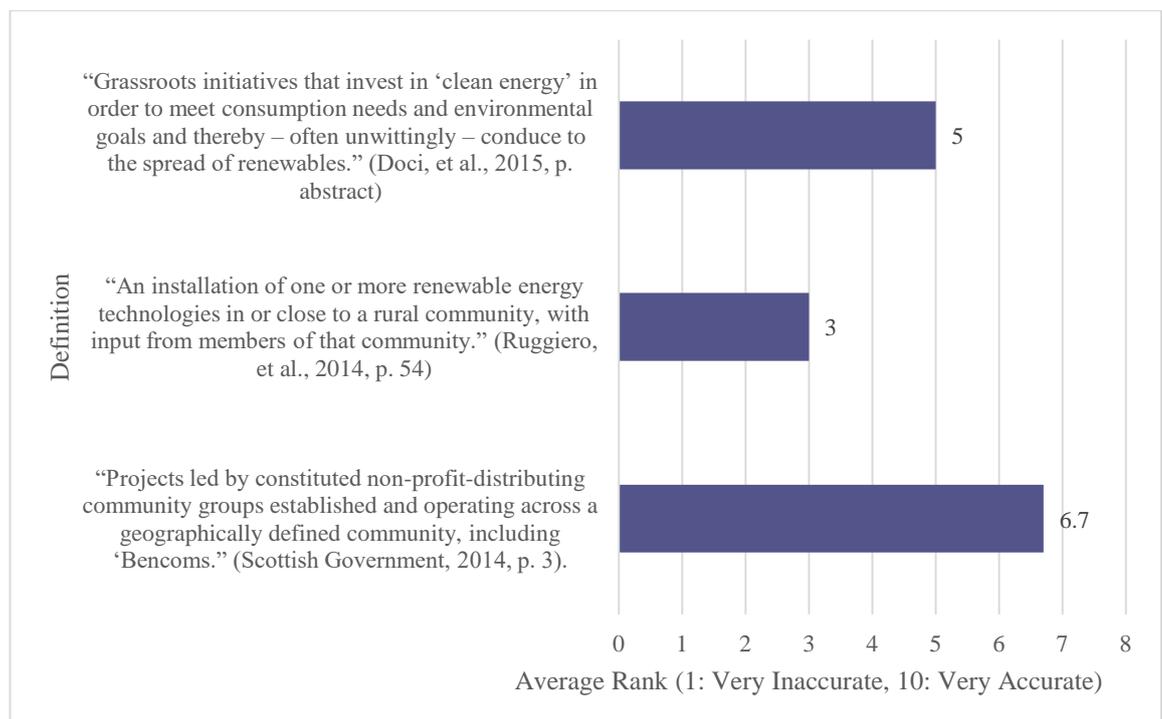


Figure 18: Survey Question 2 Average Ranks

This shows that the Scottish Government’s definition on CE is considered to be accurate, and is in fact rated the most accurate of the three definitions used.

4.3.3 Question 3 Results

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

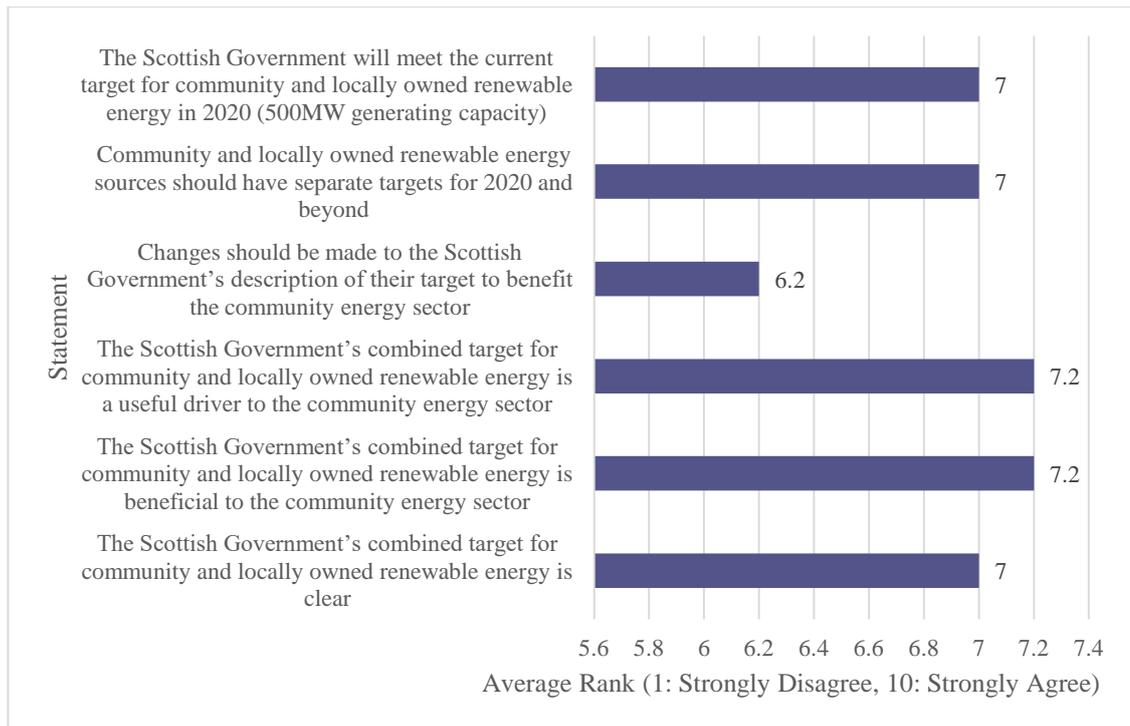


Figure 19: Survey Question 3 Average Ranks

This graph shows that, on average, respondents agreed with every statement used in question 3.

4.3.4 Question 4 Results

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

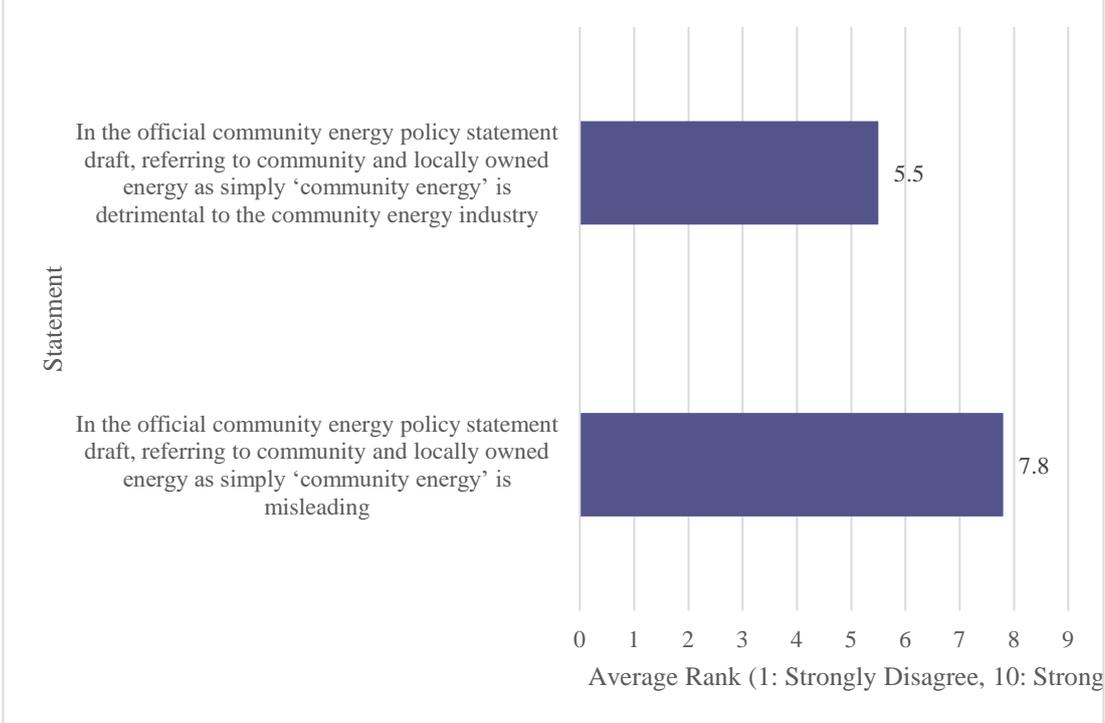


Figure 20: Survey Question 4 Average Ranks

This graph shows that, on average, respondents agreed with both statements in question 4.

4.3.5 Question 5 Results

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

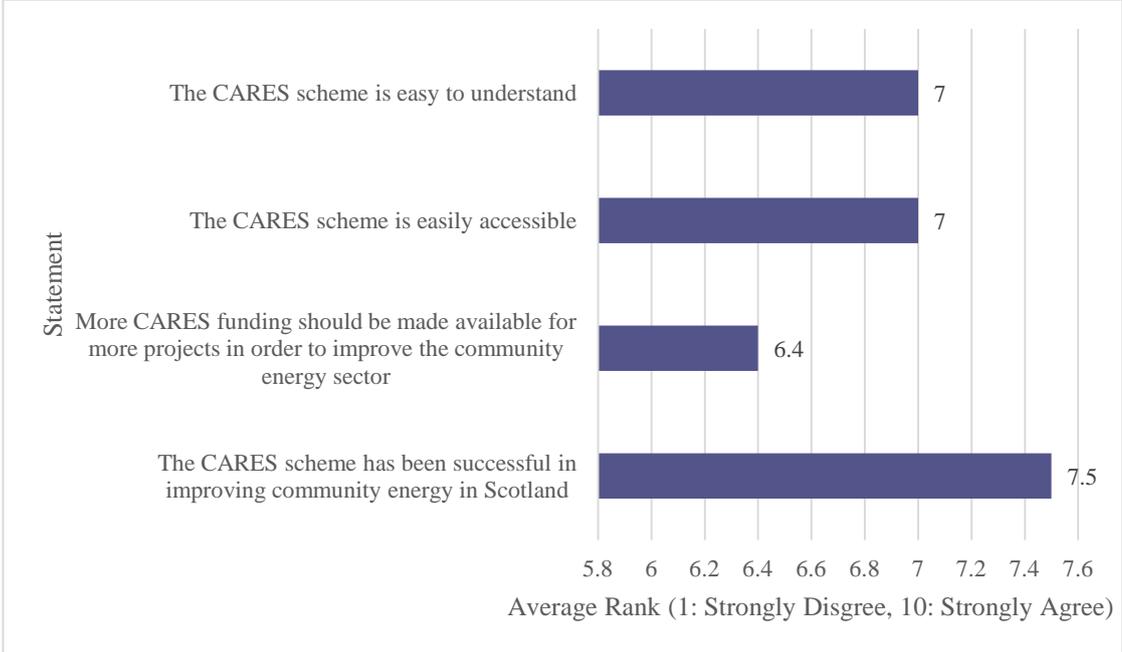


Figure 21: Survey Question 5 Average Ranks

This graph shows that, on average, respondents agree with every statement in question 5.

4.3.6 Question 6 Results

Which of the six following renewable energy technologies have been most prevalent in CE projects? Please grade from the most successful (number 1) to the least successful (number 6).

Table 2: Survey Question 6 Average Ranks

Technology	Average Rank
Wind	1
Hydro	2.4
Solar	3.4
Heat Pumps	4
Bioenergy (including anaerobic digestion)	4.2
Marine	6

Table 2 shows that, on average, respondents felt that wind has been the most prevalent renewable energy technology in CE projects, followed by hydro, solar, heat pumps, bioenergy and marine.

4.3.7 Question 7 Results

In your opinion, which six local authority areas have facilitated the uptake of CE most successfully? Please specify the most successful (number 1), the second most successful (number 2), the third most successful (number 3), the fourth most successful (number 4), the fifth most successful (number 5) and the sixth most successful (number 6).

Please choose from the list below. If you cannot name 6 please name as many as possible. A map is available of all the local council areas and their locations.

Table 3: Survey Question 7 Average Ranks

Local Council Area	Average Rank
Orkney	2.3
Na-h Eileanan Siar	2.8
Highlands	3.2
Argyll and Bute	3.3
Shetland	3.3
Edinburgh	5.3

Table 3 shows that, on average, respondents felt that the Orkney has best facilitated the uptake of CE in Scotland, followed by Na-h Eileanan Siar, the Highlands, Argyll and Bute, the Shetland Islands and Edinburgh.

4.4 Summary

Chapter 4 detailed the results of the methodology conducted in order to answer the research questions posed in section 1.1. These results were split into database work and surveys. These results will now be analysed in Chapter 5.

Chapter 5: Analysis and Interpretation

5.1 Introduction

Chapter 5 will provide analysis of the results detailed in Chapter 4. It will also include a discussion on limitations of the results.

5.1.1 Analysis Techniques Considered

A number of statistical techniques were considered but ultimately rejected when analysing both the results of the database work and the survey:

- Standard/mean deviation: Standard deviation measures how much numbers deviate from each other, while mean deviation calculates how much each number deviates from the mean (AGA Institute, 2015). It was decided against using either of these techniques since they would not have been useful for the analysis conducted. There was no reason to know the standard deviation or the mean deviation in the analysis
- Pearson's Chi-squared analysis: this test assesses the likelihood that differences between data are present by chance (Laerd Statistics, 2015). Again, it was decided that this method was not appropriate

5.1.2 Analysis Techniques Chosen

Ultimately a number of simple techniques were used in order to analyse the data produced:

- Adding up results: database results will be added and analysed in order to give a clear picture of CE in Scotland
- Average ranking: certain questions have been ranked in terms of their average score to give a clear picture of CE in Scotland
- Standard mean: standard mean has been used throughout the analysis section in order to show the average rating of respondents of the survey

5.2 Database Analysis

5.2.1 The Number of Community Energy Projects Currently Located in Scotland

As stated in section 4.2.1, the amalgamated Energy Saving Trust and Scene database, completed as part of this dissertation, calculated a total of **620** CE projects in Scotland.

When the original energy saving trust database was divided into CE and LOE sources, only **509** CE projects were found. This means that the Energy Saving Trust Database, on which the Scottish Government's official policy statement on their 500MW 2020 target is based, is currently missing **111** CE projects that have been found in the new database. This difference is shown schematically in figure 22 below.

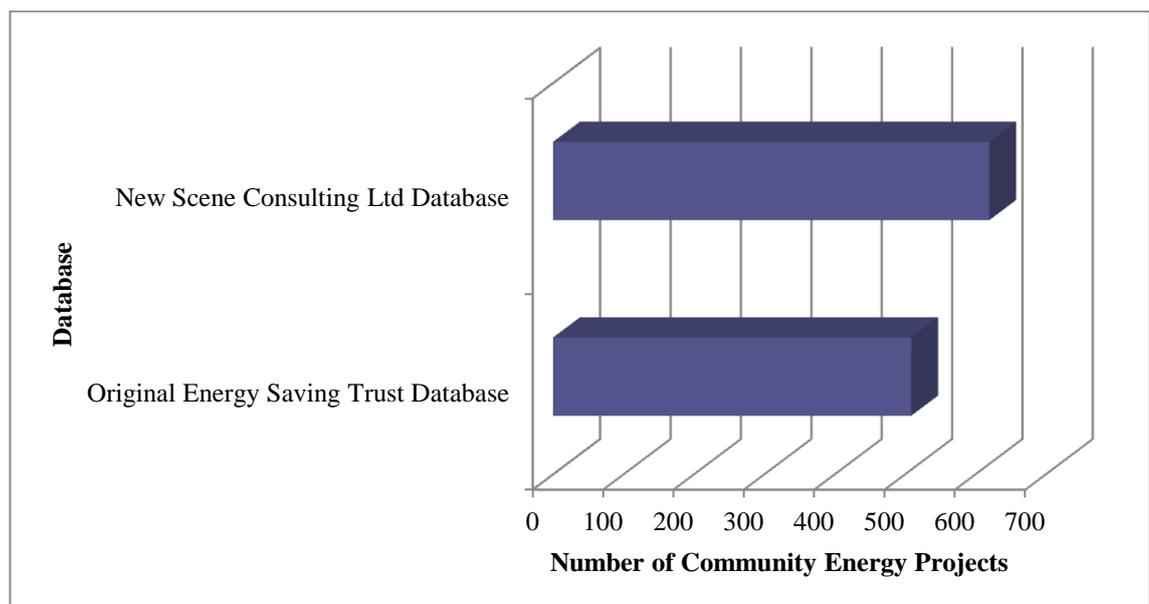


Figure 22: The Number of CEPs in the Original Energy Saving Trust Database and the Updated Scene Database

Many of the extra projects contained in the original Scene database are projects that have stalled. However, they still exist and therefore should still be included in any calculations as to the number of CE projects in Scotland. Moreover, again it must be noted that it is possible that there are even more CE projects than are contained in the newly created database, which are not publicly available. However, the new Scene database gives a more accurate number of CE projects in Scotland.

5.2.2 The Percentage of Community Energy Projects in Scotland Compared to Locally-Owned Projects

As mentioned, the Energy Saving Trust report and the subsequent Scottish Government 2014 official policy statement put CE generating capacity at 15% of the overall progress towards the 2020 target (Energy Saving Trust, 2014, p. 5) (Scottish Government, 2014, p. 13). Unfortunately, it proved impossible to make a similar calculation from the new database as many entries from the Energy Saving Trust database did not contain the energy capacities of the projects. However, it is a reasonable assumption that with 160 new entries added to the database through the amalgamation with the Scene. database the percentage generating capacity of CE towards the overall goal is superior to the originally stated 15%.

5.2.3 The Number of Community Energy Projects in Scotland which are CARES funded

Unfortunately no analysis can be carried out at this point as, as detailed in section 4.2.3, it was not possible to calculate how many projects are CARES funded.

5.2.4 A Comparison of Renewable Energy Sources in Community Energy Projects

Figure 13 in section 4.2.4 shows which renewable energy sources have been most prevalent in CE projects in Scotland according to the database work undertaken. The research placed the technologies in the following order of prevalence:

1. Wind
2. Solar
3. Heat Pumps
4. Hydro
5. Bioenergy
6. Marine

These results prove the hypothesis, stated in section 1.1, that “wind energy has been the most prevalent renewable energy source in CE projects in Scotland.”

There are a number of reasons why these results have been found. Wind is the most prevalent technology in CE projects in Scotland because it is a mature technology which is cost effective, proven to function and suited to the climate of Scotland, where in many areas average wind speeds exceed 25 knots (Met Office, 2015) (Strategic Energy Technologies Information System, 2015). Similarly, solar is a mature technology which is relatively cheap for communities to implement and takes next to no maintenance once implemented (Energy Saving Trust, 2015). However, it is in second place to wind largely due to the low numbers of daylight and sunshine hours in Scotland. Heat Pumps are next because they are cheap to install, extremely cost effective, and useful in cold climates such as Scotland (Energy Saving Trust, 2015) (Energy Saving Trust, 2015).

In contrast, hydro is not as popular in CE projects because of the relatively high capital expenditures required to implement it and the fact that it requires specific terrain to function productively (EDF, 2015). However, hydro has increased in Scotland in recent years through projects such as Harlaw Hydro in Balerno, Edinburgh (Harlaw Hydro, 2015). Bioenergy is also popular due to biomass boilers, which are a cheap, effective and renewable way of heating properties, especially in a cold climate such as Scotland (Renewable Energy World, 2015). Finally, marine technology is not popular with CE projects because it is a technology in its infancy which is extremely difficult for

communities to get involved in as the costs are so high (The European Marine Energy Centre, 2015).



Figure 23: Harlaw Hydro Scheme, Balerno, Edinburgh (Harlaw Hydro, 2015)

5.2.5 Local Council Areas

Table 4 (below) shows the results of the database analysis into the number of CE projects in each local council area, the number of CE projects per square mile and the number of CE projects per 1000 people in each local council area.

Table 4: A Comparison of Community Renewable Energy in Each Local Council Area

Rank	The Number of CE Projects	The Number of CE Projects per Square Mile	The Number of CE Projects per 1000 People
1	Highlands	Dundee	Shetland
2	Argyll and Bute	Glasgow	Orkney
3	Na-h Elieanan Siar	Edinburgh	Na-h Elieanan Siar
4	Shetland	Orkney	Argyll and Bute
5	Orkney	Shetland Islands	Highlands
6	Aberdeenshire	Aberdeen	Moray

What is clear from table 4 is that rural areas such the Highlands, Argyll and Bute and Na-h Elieanan Siar contain more CE projects than urban areas such as Aberdeen, Edinburgh, Glasgow and Dundee. However, it cannot be claimed that in general rural areas have facilitated the uptake of CE better than urban areas, since there are many rural areas which have done poorly. It is therefore thought that the Highlands, Argyll and Bute, Na-h Elieanan Siar, Shetland, Orkney and Aberdeenshire have facilitated the uptake so well partly because of their geography, which lends itself to renewable energy but also because they have progressive councils who are looking to make changes. However, this would have to be confirmed. In addition, it is interesting that the local council areas with the highest density of community energy projects are urban areas Dundee, Glasgow, Edinburgh and Aberdeen, along with Orkney and Shetland. It is to be expected that urban areas have a high density due to a higher number of businesses, but it is unexpected in Orkney and Shetland. However, this could be due to both islands being more community orientated and environmentally-aware than other local council areas. Again, this would have to be investigated. Finally, it is the same rural local council areas, plus Moray, which do well in the projects per 1000 people column.

Again, it is thought that this is down to good community spirit and interest in the environment, but this would have to be examined.

5.3 Limitations of Database Analysis

There are a number of limitations to the database analysis conducted in section 5.2. Firstly, an issue with this analysis is the definition of CE used when amalgamating the Energy Saving Trust and Scene databases. Since CE has no one, consistent definition, it was agreed that for the purpose of this work the following distinction between CE and LOE sources would be used:

- LOE: local organisations that are clearly set up and running for their own benefit
- CE: organisations that are clearly set up and running for the benefit of the host community

The use of these two definitions meant that in many cases whether a project was community or locally-owned was subjective and very much down to interpretation. Had a different definition been used, then the results achieved would surely have been slightly different. This means that, due to the fact that no one definition of CE exists, similar research done in the CE sector will always yield slightly different results depending on who undertakes it.

A second limitation was that it proved impossible to analyse how many CE projects in Scotland are government CARES funded. This is because no such information was present in either of the two original databases, and also because this information is not available publicly. As well as this, a limitation was that the original Energy Saving Trust database was missing a great deal of information, including the energy-generating capacities of over 100 projects. This meant that it proved impossible to validate the Energy Saving Trust's claim that CE generating capacity makes up 15% of the current progress towards the 2020 target (Energy Saving Trust, 2014, p. 5). The only way to accurately make this comparison would have been to contact each CE group individually in order to find out the generating capacity of their source, but it was decided that this was too great a task for this piece of work.

Finally, a major limitation of the database work undertaken is that there is no guarantee that the information contained in the new database is completely up-to-date, since more community projects could well exist that are not accounted for. Since the Scottish Government's target is poorly defined in the CEPSD, the statistics taken from the updated Scene database could be misleading. Moreover, the CE sector is a fast-growing industry, meaning that new projects not contained in the new database are being built every day.

5.4 Survey Analysis

The results of the survey will now be analysed.

5.4.1 Analysis of Question 1

As stated in section 4.3.1, the statements used in question 1 of the survey received the following average ratings (where 1 is strongly disagree, and 10 is strongly agree):

- The CE sector is successful in Scotland: **6**
- The CE sector would benefit from one consistent definition of CE: **4.8**

The results of the first statement in question one shows that on average respondents agreed with the fact that the CE sector is successful in Scotland. This is important as it shows that the overall feeling from professionals in Scotland is that the sector is successful in the country. However, six out of ten is not a great score, which shows that while the sector is doing well, there is real scope for improvement.

The results of the second statement of question 1 are important as they disprove a hypothesis stated in section 1.2: that the CE sector suffers due to a lack of a clear, consistent definition. Since the statement was rated at 4.8, which equates to disagreement, it is clear that, according to the CEPs and policy makers asked, one consistent definition of CE would not be beneficial to the sector. When asked to expand on their decision, the same reason was given by multiple respondents: that utilising one definition of CE would be restrictive in that it would probably exclude certain types of

CE as they could not all fit into it. Not only that, but respondents felt that it would be practically impossible to agree on one definition between all the different actors within CE and that it would prove impossible to accurately define CE in one statement. This is interesting, as it shows that professionals take advantage of the lack of one definition to essentially select whichever definition suits them best. However, it is the view of the author that this flexibility is in fact a bad thing as no common definition leads to the inability to enforce a common goal and effectively validate policies. It is recommended that CE adopt one standard definition to be used by all. This, for example, has taken place with sustainable development, which is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations, 1987, p. 41)” by the 1987 Brundtland report (also known as Our Common Future), a definition which is widely accepted by all.

Sustainable Development

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

Brundtland Commission
“Our common future” 1987

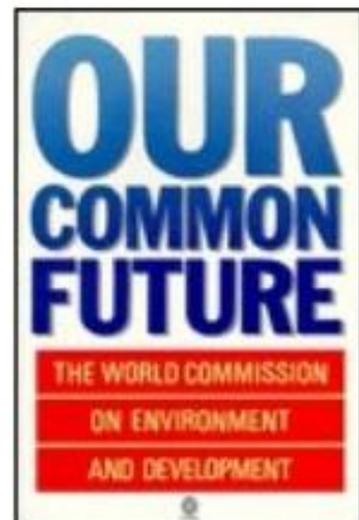


Figure 24: The Definition of Sustainable Development Proposed by the Publication 'Our Common Futures' (Slideshare, 2015)

5.4.2 Analysis of Question 2

As stated in section 4.3.2, the statements used in question 2 of the survey received the following average ratings (where 1 is very inaccurate and 10 is very accurate):

- “Projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community, including ‘Bencoms.’” (Scottish Government, 2014, p. 3): **6.7**
- “An installation of one or more renewable energy technologies in or close to a rural community, with input from members of that community.” (Ruggiero, et al., 2014, p. 54): **3**
- “Grassroots initiatives that invest in ‘clean energy’ in order to meet consumption needs and environmental goals and thereby – often unwittingly – conduce to the spread of renewables.” (Doci, et al., 2015, p. abstract): **5**

Definition one, which is the official Scottish Government definition of CE, was deemed the most accurate by respondents. This shows that, despite the fact that CE is a difficult term to define; the Scottish Government has successfully come up with a definition which CEPs in Scotland accept.

5.4.3 Analysis of Question 3

As stated in section 4.3.3, the statements used in question 3 of the survey received the following average ratings (where 1 is strongly disagree and 10 is strongly agree):

- The Scottish Government’s combined target for CE and LOE is clear: **7**

The result of this statement shows that, on average, respondents agree with the fact that the Scottish Government’s combined target for CE and LOE is clear. The main reason given for this is that the target itself, which is 500MW, is clear. However, various respondents also said that the description of the target is not clear as the Scottish Government’s description of what constitutes CE and LOE is confusing. This disproves the hypothesis stated in section 1.1 that “the Scottish Government’s target to produce 500MW of generating capacity from CE and LOE sources by 2020 is unclear.”

The results of this question show that the Scottish government has done a good job in producing a 500MW target that is clear and easy to understand. However, since a score of only seven was given, it is clear that improvements could still be made. It is not the target itself but its description and the decision to put CE and LOE together which is misleading and should be rectified.

- The Scottish Government’s combined target for CE and LOE is beneficial to the CE sector: **7.2**
- The Scottish Government’s combined target for CE and LOE a useful driver to the CE sector: **7.2**

The result of these statements shows that on average the respondents agree with the fact that the Scottish Government’s target for CE and LOE is beneficial and a useful driver to the CE sector. The main reasons given for agreeing with this statement are that the support mechanisms around it make it beneficial, that it has allowed CEPs to pitch products as contributing to the project, and that such an optimistic target forces the CE sector to try extra-hard to try and achieve it, which drives on the sector

These results disprove the hypotheses stated in section 1.1 that “the Scottish Government’s target to produce 500MW of generating capacity from CE and LOE sources by 2020 is detrimental to the community energy sector”, and “the Scottish Government’s target to produce 500MW of generating capacity from CE and LOE sources by 2020 is detrimental to the CE sector.”

The author agrees with the respondent’s approval of both statements as it is beneficial that Scotland has any target at all, while many countries do not. However, it is thought that a separate target focusing solely on CE would be superior.

- Changes should be made to the Scottish Government’s description of their target to benefit the CE sector: **6.2**

The result of this statement shows that on average the respondents agree that changes should be made to the description of the Scottish Government’s target in order to benefit the CE industry in Scotland. Justification for their answer was given by two respondents, who said that they ranked the statement positively because they would like to see targets placed within the target, and because they would like LOE to offer shared ownership. This result is consistent with the hypothesis given in section 1.1, which states that “changes should be made to the description of the Scottish Government target in order to benefit the CE sector.”

While on average respondents were in favour of changes to the description of the Scottish Government’s target, no changes were suggested. However, what is clear from the remainder of the survey is that the changes wanted are separate targets.

- CE and LOE sources should have separate targets for 2020 and beyond: 7

The result of this statement shows that, on average, respondents agree with the viewpoint that CE and LOE sources should have separate targets for 2020 and beyond. Reasons given for agreeing with this statement were that fundamentally the two sources are different and should therefore have different targets, and that it would allow for CE to be given a clear driver. This is consistent with the hypothesis stated in section 1.1, which says that “CE and LOE sources should have separate targets for 2020 and beyond.” The author is still in complete agreement with the hypothesis, since CE is different than LOE, and should therefore have a separate target.

Overall, the author is in agreement with the views of the respondents to this statement, since, fundamentally, separate sources should have separate targets. CE and LOE sources are clearly not the same thing, and as such should not be grouped together in the same target.

- The Scottish Government will meet the current target CE and LOE in 2020 (500MW generating capacity): 7

The result of this statement shows that, on average, the respondents do believe that the Scottish Government will meet the 2020 target for CE and LOE. It is the opinion of the author that the government will indeed meet their target in its current form with CE and LOE together. This is due to the excellent progress that has been made (Scottish Government, 2014, p. 13) and despite the fact that renewable energy does not seem to be a priority for the current Conservative UK government (Vaughan & Macalister, 2015). However, it is believed that this success is somewhat diminished from the side of the CE sector because LOE has been included in the target and reportedly makes up 85% of the current progress (Energy Saving Trust, 2014, p. 5). It was noted in the survey by one respondent that LOE sources were included in the target because of lobbying by influential landowners, such as the late Maitland Mackie. While this cannot be confirmed at this point, what is undeniable is that the Scottish Government has benefited enormously from the inclusion of LOE in the target as such sources have provided a high number of megawatts. In this sense the inclusion of LOE can be seen as a political move, as the Scottish Government were aware that the number of megawatts would be increased by the addition, which would reflect better on them. Cynically, it can then easily be claimed that the Scottish Government purposefully misled readers in their CEPSD to think that the progress was more community-based than it actually is, since CE is looked on more favourably than LOE.

5.4.4 Analysis of Question 4

As stated in section 4.3.4, the statements used in question 4 of the survey received the following average ratings (where 1 is strongly disagree and 10 is strongly agree):

- In the Scottish Government's CEPSD, referring to CE and LOE energy as simply 'community energy' is misleading: **7.8**
- In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is detrimental to the CE industry: **5.5**

The result of this statement show that, on average, respondents felt that referring to CE and LOE as simply 'community energy' in the Scottish Government's CEPSD is both misleading and detrimental to the CE sector. One respondent gave an answer as to why it was misleading, stating that it is misleading since they are not consistent with their

terminology. This professional stated that the Scottish Government should refer to ‘community and locally-owned’ energy at all times in order to not mislead. In terms of it being detrimental, a few reasons were given, such as the view that amalgamating CE and LOE denies resources to community projects, and that the amalgamation negatively affects public recognition and acceptance of CE projects.

The result of these statements is consistent with the hypotheses outlined in section 1.1, that referring to CE and LOE as simply ‘community energy’ in the Scottish Government’s CEPSD is misleading, and that it is detrimental to the CE sector.

In this case, it is thought that respondents are correct in their assertion regarding both statements, as the amalgamation is both misleading and detrimental to the CE sector. It is misleading quite simply because the introduction and overview section of the document give the impression that CE is doing far better than it is. It is also detrimental because the public, if they read the document at all, are only likely to read the introduction and overview section to get an idea of the topic. If this is done, then readers will get an incorrect view of the CE sector, which means that it will get less attention as people will not realise it needs more help.

5.4.5 Analysis of Question 5

As stated in section 4.3.5, the statements used in question 5 of the survey received the following average ratings (where 1 is strongly disagree and 10 is strongly agree):

- The CARES scheme has been successful in improving CE in Scotland: **7.5**
- The CARES scheme is easily accessible: **7**
- The CARES scheme is easy to understand: **7**

The result of this statement shows that, on average, the respondents agree with the four statements. Reasons given for this positive rating included that it is a well-run scheme which provides good support, that in the last couple of years the format has changed and this change has been extremely successful, and the fact that you can always talk to someone on the phone that is very helpful. The result of these statements confirms the

hypotheses stated in section 1.1, that “the CARES scheme has been very successful in Scotland” and the CARES scheme is easily accessible and easy to understand.”

On the whole the author agrees with these assertions, since both the literature analysed in Chapter 2 and the respondents of the survey have said that the scheme is successful, accessible and easy to understand. This shows that the SGPM’s claim that the scheme is successful is correct and not simply propaganda.

- More CARES funding should be made available for more projects in order to improve the CE sector: **6.4**

The result of this statement shows that, on average, respondents think that more CARES funding should be made available in order to improve CE projects. One respondent gave a detailed reason for agreeing with this statement, which was that CE is still growing in Scotland and there are still many projects which could benefit from funding but have not yet had access to it. However, many respondents also made the point that it is not a good idea to simply throw money at projects as the money must be invested in the right way, and that giving too much money too quickly may also be detrimental to CE projects. This is consistent with the hypothesis stated in section 1.1, that “the CARES scheme could be rolled out further to improve CE in Scotland.”

On the whole the author agrees that more CARES funding should be available, as this would allow for more CE projects to be developed, thus aiding the transition to a decentralised, low-carbon society.

5.4.6 Analysis of Question 6

As stated in section 4.3.6, individual renewable energy technologies received the following average ratings in terms of their prevalence in CE projects in Scotland (1 being the most prevalent and 6 the least prevalent):

- Wind: **1**
- Hydro: **2.4**

- Solar: **3.4**
- Heat Pumps: **4**
- Bioenergy (including anaerobic digestion): **4.2**
- Marine: **6**

There are differences between which renewable energy sources respondents think are most prevalent in CE projects, and the results of which sources are most prevalent found from the database work (table 5 below).

Table 5: Question 6 Database Analysis Results versus Survey Results

Rank	Database Analysis	Survey Results
1 st	Wind	Wind
2 nd	Solar	Hydro
3 rd	Heat Pumps	Solar
4 th	Hydro	Heat Pumps
5 th	Bioenergy (including anaerobic digestion)	Bioenergy (including anaerobic digestion)
6 th	Marine	Marine

Wind energy comes out on top both in the database and survey analysis, while bioenergy and marine come in fifth and sixth place respectively in both cases. The only difference between the database and survey results is that in the database second, third and fourth is solar, heat pumps and hydro, while in the survey second, third and fourth is hydro, solar and heat pumps. Since SGPMs did not answer this question, this shows that CEPs feel that hydro is more prevalent than the database suggests in CE projects. Also, these results show that CEPs felt that solar and heat pumps are less prevalent than the new database suggests. It is thought that the difference in results between the database and CEPs is down to poor communication links between professionals, meaning that they are often uninformed about the reality of the sector around the country. Therefore, it is recommended that the newly completed Scene database be made available to all professionals in order for them to download relevant information and upload information about their own projects.

5.4.7 Analysis of Question 7

As stated in section 4.3.7, Scottish local council areas received the following average ratings in terms of facilitation of CE projects (1 being the most successful and 6 the least successful):

- Orkney: 2.3
- Na-h Eileanan Siar: 2.8
- Highlands: 3.2
- Argyll and Bute: 3.3
- Shetland: 3.3
- Edinburgh: 5.3

There are differences between which local council respondents think have best facilitated the uptake of CE in Scotland, and the results of which local council areas have the most community renewable energy projects found from the database work and detailed in section 4.2.5.

Table 6: Question 7 Database Results vs. Survey Results

Rank	Database Analysis	Survey Results
1 st	Highland	Orkney
2 nd	Argyll and Bute	Na-h Eileanan Siar
3 rd	Na-h Eileanan Siar	Highlands
4 th	Shetland Islands	Argyll and Bute
5 th	Orkney	Shetland Islands
6 th	Aberdeenshire	Edinburgh

In Table 6 the only difference between the results of the database analysis and the surveys is that Aberdeenshire, which came 6th in the database, is replaced by Edinburgh in the surveys. It is thought that this is because many of the survey respondents live and work in Edinburgh, and so have more knowledge of the area.

5.4.8 Scottish Government Policy Makers vs. Community Energy Professionals

Since the SGPMs declined to rate the statements posed in the interviews it was not possible to compare the ratings of each group. However, since Government Policy Makers gave their feedback on each statement, some comparisons can be made.

SGPMs and CEPs both agreed with the following statements:

- The CE sector is successful in Scotland
- The Scottish Government's combined target for CE and LOE is clear
- The Scottish Government's combined target for CE and LOE is beneficial to the CE sector
- The Scottish Government's combined target for CE and LOE is a useful driver to the CE sector
- The Scottish Government will meet the current target for CE and LOE in 2020 (500MW generating capacity)
- In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is misleading

- The CARES scheme has been successful in improving community renewable energy in Scotland
- The CARES scheme is easily accessible
- The CARES scheme is easy to understand

However, CEPs and SGPMs disagreed with a number of statements which will now be analysed.

Statement: The CE sector would benefit from one consistent definition of CE.

- Discussion: CEPs disagreed with this statement while SGPMs agreed with it. It has already been stated that the reason that CEPs disagree with this statement is because they enjoy the flexibility that multiple definitions affords. In contrast, SGPMs agreed with this statement as they felt that one definition would make work easier across the UK

Statement: Changes should be made to the Scottish Government’s description of their target to benefit the CE sector.

- CEPs agreed with this statement while SGPMs disagreed with it. The reason given by Government Policy Makers for this disagreement is that if they were to start changing the target, then they would have to also alter the data that makes up the target to ensure that any changes are reflected

CE and LOE sources should have separate targets for 2020 and beyond.

- CEPs agreed with this statement since they widely believed that because CE and LOE are different they should have different targets. In contrast, SGPMs disagreed with the statement due to the fact that they felt that CE and LOE will in the future become more alike, meaning that a joint-target is useful

In the Scottish Government’s CEPSD, referring to CE and LOE as simply ‘community energy’ is detrimental to the CE industry

- CEPs agreed with this statement, although many were unable to give a reason as to why this might be the case. Two respondents however gave reasons for agreeing, which were that amalgamating CE and LOE denies resources to

community projects, and that the amalgamation negatively affects public recognition and acceptance of CE projects. In contrast, Government Policy Makers disagreed with the statement as they could not see a reason why it would be detrimental.

There are a number of interesting points which can be taken from these disagreements. Firstly, it is noticeable that the Scottish Government Policy states that they would like one, consistent definition of CE while Policy Makers claim not to want this. The reason for CEPs rejecting this statement was that they enjoy the flexibility that multiple definitions affords them. Again, it is thought that one definition would be superior, especially in the context of the United Kingdom, where it would be useful for each nation to be working together under the same definition with similar targets. Another interesting point to be made from the disagreements is that while Government Policy Makers agreed that changes should be made to the Scottish Government's description of their target, no examples of changes were suggested. However, it is clear from the responses to the statement "community and locally-owned renewable energy sources should have separate targets for 2020 and beyond" that the changes wanted by policy makers are separate targets. Another point from the disagreements that must be noted is that CEPs and SGPMs seem to have very different views on the difference between CE and LOE. While CEPs emphasised that both are very different and should not be in the same target, SGPMs were of the view that they are quite similar, will move closer together, and as a result should have the same target. This is a fundamental difference in understanding and opinion between CEPs and SGPMs which must be rectified in order to improve the sector. It is strange that the SGPMs stated that the two sources would move closer together, as there is absolutely no evidence to suggest that this will happen, or that it should. Finally, it is interesting that SGPMs agreed that their CEPSD is misleading, but that it is not detrimental to the sector. It is the opinion of the author that it is not possible for something to be misleading and not have a negative effect, and that the Scottish Government should not be suggesting that this is the case.

5.5 Limitations of Survey Analysis

There are a number of limitations of the survey analysis conducted. Firstly, not all respondents answered all of the questions, either because they felt they were unable to, or because they did not want to. This meant that the analysis was not as complete as it could have been had all the respondents answered every question. However, this did not mean that the analysis could not be done as, for example, averages were calculated with one less response. As well as this, a limitation of the survey analysis is that it proved impossible to directly talk to anyone from CE groups and nobody was available for comment. While this was not a requirement of the dissertation and does not in any way diminish the results, it would have been interesting to see what the views were at grassroots level. Finally, another limitation was that for question 7 (rating the local council areas), the average results had to be modified to include only local council areas which had received at least three ratings. This was done because otherwise the average results could have been skewed by one local council area being picked out by only one respondent.

5.6 Summary of Chapter 5

Chapter 5 has given detailed analysis and interpretation of the results of the database completion and surveys, along with the limitations of both methods. The dissertation will now be rounded off in section 6: conclusion.

Chapter 6: Conclusion

Aims and Objectives

There were a number of objectives in this dissertation, as stated in section 1.1. These aims and objectives will now be discussed.

Aim/objective: To gain an understanding of, and suggest improvements to, the CE sector in Scotland.

- Outcome: A detailed understanding of the CE sector has been gained through the literature review, the author's work as a research assistant for Scene, the updated database created in this position and the surveys completed. From this, it has become clear that the CE Sector in Scotland is a successful sector which the country should be proud of. However, there are many improvements that should be made; not least the clarification of the Scottish Government's CEPSD and the creation of separate targets for CE and LOE. Moreover, there are many differences in opinion both within the sector and between SGPMs and CEPs, which must be rectified if the sector is to progress

Aim/objective: To analyse, and suggest improvements to, the Scottish Government's 2020 target for CE and LOE.

- Outcome: The target was analysed and found to be generally successful. It was also found that it is noteworthy and very positive that such a target exists, since many countries do not have an equivalent target or programme. Moreover, the target itself, 500MW, is clear and easy to understand. However, the problems discovered do not stem from the target, but rather with the description of the target and the decision to combine CE and LOE into the same target, which is misleading and detrimental to CE sector. The author believes that the best solution is to create separate targets for CE and LOE so that the CE sector can be allowed to flourish independently. Separate targets would also have the effect of emphasising that CE is not doing as well in Scotland as is currently thought, which if recognised would result in more emphasis being put into helping CE achieve their own target. Moreover, the Scottish Government's CEPSD, which details the progress made towards the target, is extremely misleading as it refers

to CE and LOE as simply ‘community energy’, despite CE making up only 15% of current progress towards the target (Energy Saving Trust, 2014, p. 5). To rectify this, it is suggested that, if separate targets are not created, the Scottish Government consistently refer to ‘community and locally-owned energy’ in order to avoid confusion.

Research Questions and Hypotheses

A number of research questions were detailed in section 1.2, along with working hypotheses. The findings of these questions are now summarised.

Research question: would the CE sector in Scotland benefit from one, consistent definition of CE?

- Findings: CEPs thought that the sector would not benefit, while SGPMs felt that it would. The author agrees with SGPMs that one definition would be beneficial to the sector

Research question: is the Scottish Government’s target to produce 500MW of generating capacity from CE and LOE sources by 2020 clear?

- Findings: both CEPs and SGPMs agreed that the Government’s target is clear. Having done the research, the original hypothesis has therefore been abandoned in favour of stating that the target is clear despite not being as beneficial as it could be

Research question: is the Scottish Government’s target to produce 500MW of generating capacity from CE and LOE sources by 2020 beneficial to the CE sector?

- Findings: CEPs felt that the target is not beneficial to the sector, while SGPMs felt that it is beneficial. The author is in agreement with the CEPs thinking that the target is not beneficial as it puts two sources, CE and LOE, together and gives the impression that they are the same when they are not

Research question: Should changes be made to the description of the Scottish Government target in order to benefit the CE sector?

- Findings: CEPs felt that changes should be made, while SGPMs felt that the target should stay the same. The author is of the opinion that changes should be made, with separate targets being encouraged as this would more effectively drive the CE sector

Research question: should CE and LOE have separate targets for 2020 and beyond?

- Findings: CEPs agreed that there should be separate targets, while SGPMs disagreed. The author is also of the opinion that CE and LOE should indeed have separate targets, for the reasons detailed above

Research question: is referring to CE and LOE as simply ‘community energy’ in the Scottish Government’s CEPSD misleading?

- Findings: both CEPs and SGPMs agreed that this amalgamation is misleading. The author is also in agreement, since referring to both sources as ‘community energy’ gives the impression that CE is doing much better than it actually is

Research question: Does referring to CE and LOE as simply ‘community energy’ in the Scottish Government’s CEPSD have an effect on the CE industry?

- Findings: CEPs felt that this was detrimental to the industry, while SGPMs disagreed. The author feels that it is indeed detrimental as it gives the impression that CE in Scotland is doing much better than it actually is, which means that the sector will get less attention and less help than it may need

Research question: how many CE projects are there in Scotland?

- Findings: according to the updated Scene database, there are 620 CE projects in Scotland

Research question: has the CARES scheme been successful in Scotland?

- Findings: both CEPs and SGPMs agreed with this statement. The author is also in agreement, since everyone interviewed and the research conducted in the literature review stated that CARES has been successful

Research question: should more money be made available for more projects from the CARES scheme?

- Findings: CEPs agreed with this statement, while SGPMs disagreed with it. The author agrees with the statement, as more funding would allow for more CE projects to be developed, thus aiding the transition to a decentralised, low-carbon society

Research question: is the CARES scheme easy to understand and accessible?

- Findings: both CEPs and SGPMs agreed that it is easy to understand and accessible. The author is in agreement, since the research done in the literature review confirmed this fact

Research question: how many CE projects in Scotland are CARES funded?

- Findings: it proved impossible to answer this question, as detailed in section 4.2.3

Research question: Which renewable energy source has been the most prevalent in CE projects in Scotland?

- Findings: according to the updated Scene database, wind is the most prevalent renewable energy source in CE projects in Scotland

Research question: which Scottish local council areas have best facilitated the uptake of CE in Scotland?

- According to the updated Scene database the Highlands local council has best facilitated the uptake of CE, followed by Argyll and Bute, Na-h Eileanan Siar, Shetland Islands, Orkney and Aberdeenshire

Final Conclusions

As stated, the CE sector in Scotland is on the whole a successful industry. The sector has reached this point due to generous funding from the Scottish Government who have encouraged the sector to flourish, as shown by the fact that a target exists for CE and LOE in Scotland. However, despite this encouragement, it is clear that the Scottish Government's assistance to CE is not as effective as it could be. The answers given by the two policy makers interviewed were somewhat worrying as they seemed out of tune with the sector. For example, they felt that CE and LOE sources would become more similar, when there is absolutely no evidence to suggest that this will happen. It is the opinion of the author that CE and LOE sources are two very different sectors and that they will not, and should not, become more similar. Not only this, but the two Government policy makers accepted that their CEPSD is misleading, but did not accept that this lack of clarity was detrimental to the CE sector. The notion that something can be misleading but nevertheless not cause any kind of problem is confusing, and the author is of the opinion that the Policy Statement is both misleading and detrimental to the CE industry. What became clear from the surveys conducted was that the Scottish Government's combined target of CE and LOE, and the Scottish Government's CEPSD, which details the target and progress made, were sources of frustration for CEPs. SGPMs did concede that the wording of the CEPSD could be clarified, which is a positive finding for the CEPs who would benefit from such a clarification. However, since the SGPMs made it very clear that CE and LOE will not be given separate targets, it is clear that this particular frustration will continue.

However, the current Conservative UK Government is far worse than the Scottish Government in this regard. In the last two months since the general election, it has demonstrated a complete disregard for the environment by scrapping or reducing ten environmental policies, including subsidies to onshore wind and solar (Vaughan & Macalister, 2015). There has been outrage in the UK over these decisions, with major environmental groups such as Greenpeace, Friends of the Earth, the RSPB and the National Trust writing a joint letter to Prime Minister David Cameron on the 31st July 2015, stating their "major concern" at the policy changes, and stating that they have seen "no positive new measures that would restore the health of the environment or

grow the low carbon economy (Scribid, 2015). It is yet to be seen if the Government will heed the warning of the environmental groups, but the fact that their stated goal is to go “all out for shale gas (fracking) (Withnall, 2014)”, one would think that the groups will not be listened to. While none of the policies that have been curbed directly affect CE in Scotland, it is hard to see how the sector could flourish while all other environmental sectors around it are crumbling.

Sadly, Conservative governments with little or no regard for the environment are not exclusive to the UK. Both Canada and Australia, countries with significant political and economic influence, are currently run by Conservative governments who have prioritised dirty energy over clean energy and consequently attacked renewable energy policy. In the case of Canada, Alberta tar sands have been given precedence, while in Australia coal has been the fuel of choice (Struzik, 2012) (Hannam, 2014). Unfortunately, the governments of the UK, Canada and Australia have prioritised short-term energy sources with little thought for the future, most likely because they work on four-year cycles and wish to remain in power. However, beyond this the real issue lies with right-wing conservatism, which has proven itself to be an enemy of our environment and renewable energy around the world. If we are serious about changing to a low carbon green economy, then the current, dominant right-wing, neo-liberal political ideology must be defeated in some way.

Recommendations

Unfortunately the reality of the situation is that in many of the most powerful countries, right-wing ideology holds power. Therefore, the renewable energy industry, and by definition the CE sector, must do the best it can under the current conditions, while hoping that somehow the political system can be changed. In Scotland, this means that a consistent definition of CE must be created and agreed on by all, in order to work together. The author recommends that a restructuring of how community energy is defined takes place whereby a general ‘catch-all’ definition be used to define CE, such as “all delocalised renewable energy projects in which a local community has a stake that goes beyond simple energy use.” The author also feels that this should be followed by extra definitions within this overall definition for different types of CE such as full ownership, co-ownership and co-operative projects. This is vital as it would frame the

sector and avoid inconsistencies between actors, as is the case in Scotland. It would no doubt prove problematic for such definitions to be agreed on around the world, but in the author's opinion such an agreement is completely necessary if the CE sector is to flourish as much as possible under the current conditions

In Scotland, the author also recommends that the industry present a united front with everyone, including the Scottish Government, pulling in the same direction. With consistent backing and agreement, the global CE sector in Scotland could play a fundamental part in a change to a Scottish low-carbon, green economy desired by so many. However, if the industry does not work together and present a united front against Conservatism, then this will prove very difficult, if not impossible, to achieve.

One of the biggest disappointments of this dissertation was that the original Energy Saving Trust database did not contain the generating capacity for most of the projects, and that the information could not be found. This meant that it proved impossible to calculate the percentage of CE generating capacity compared to the overall generating capacity of CE and LOE and compare it to the 15% quoted by the Government as CE's contribution to the overall capacity. In order to rectify this issue the author recommends that information on the capacity of all community energy projects in Scotland be made more readily available so that more criticism and analysis can be done as the Scottish Government moves towards their 2020 goal.

Overall, the topic chosen for this dissertation was a complicated one which leaves great scope for further research. It is recommended that more detailed research be done into the CE sector in Scotland and the Scottish Government's 2020 target for CE and LOE to ensure that the CE sector in Scotland function as effectively as possible in the future.

Bibliography

AGA Institute, 2015. *Calculating the Mean and Standard Deviation*, Bethesda: AGA Institute.

Armstrong, A. & Bulkeley, H., 2014. Micro-hydro politics: Producing and contesting community energy in the North of England. *Geoforum*, Issue 56, pp. 66-76.

Bhopal, V., 2014. *Community Energy Policy Statement Response: Scene Consulting Ltd*, Edinburgh: Scene Consulting.

Bomberg, E. & McEwan, N., 2012. Mobilizing community energy. *Energy Policy*, Issue 51, pp. 435-444.

Byondie Wind Farm Co-operative, 2015. *Welcome to Byondie Wind Farm Co-operative*. [Online]

Available at: http://www.boyndie.coop/boyndie_home.asp

[Accessed 15 May 2015].

Carrington, D., 2012. *Debate whether windfarms are ugly but not their efficiency, says Lord Turner*. [Online]

Available at: <http://www.theguardian.com/environment/2012/feb/27/adair-turner-windfarm-interview>

[Accessed 15 May 2015].

Carrington, D., 2012. *Germany's renewable energy revolution leaves UK in the shade*. [Online]

Available at: <http://www.theguardian.com/environment/2012/may/30/germany-renewable-energy-revolution>

[Accessed 31 May 2015].

Carrington, D., 2012. *Giving power to the people can solve the wind farm stand-off*. [Online]

Available at: <http://www.theguardian.com/environment/damian-carrington-blog/2012/jun/04/wind-farm-power-opposition>

[Accessed 15 May 2015].

Changeworks, 2015. *Edinburgh Community Solar Co-op*. [Online]

Available at: <http://www.changeworks.org.uk/projects/edinburgh-community-solar-co-op>

[Accessed 15 May 2015].

Community Energy Scotland, 2013. *Gigha Battery Project*. [Online]

Available at: <http://www.communityenergyscotland.org.uk/gigha-battery-project.asp>

[Accessed 16 June 2015].

Community Energy Scotland, 2015. *Home*. [Online]

Available at: <http://www.communityenergyscotland.org.uk/index.asp>

[Accessed 17 May 2015].

Community Pathways, 2013. *Summary: Models for Community Benefit or Shared Ownership of Commercial Renewable Energy Projects*. [Online]

Available at: <http://www.communitypathways.org.uk/approach/models-community-benefits-or-shared-ownership-commercial-renewable-energy-projects>

[Accessed 24 May 2015].

Co-operative Development Scotland, 2010. *Co-operative for growth: growing Scotland's renewable energy sector*, Glasgow: Co-operative Development Scotland.

Department of Energy & Climate Change, 2015. *Community Energy Strategy Update*, London: UK Government.

Doci, G., Vasileiadou, E. & Petersen, A. C., 2015. *Futures*, Issue 66, pp. 85-95.

Doci, G., Vasileiadou, E. & Petersen, A. C., 2015. Exploring the transition potential of renewable energy communities. *Futures*, Issue 66, pp. 85-95.

Dvarioniene, J. et al., 2014. Stakeholders involvement for energy conscious communities: The Energy Labs Experience in 10 European Countries. *Renewable Energy*, Issue 75, pp. 512-518.

E.on, 2015. *What is decentralised energy?*. [Online]

Available at: <https://www.eonenergy.com/for-your-business/large-energy-users/manage-energy/energy-efficiency/decentralised-energy-experts/What-is-decentralised-energy>

[Accessed 31 May 2015].

EDF, 2015. *What is Hydropower?*. [Online]

Available at: <https://www.edfenergy.com/energyfuture/hydromarine>

[Accessed 30 June 2015].

Edinburgh Solar Community Co-operative, 2015. *Home*. [Online]

Available at: <http://www.edinburghsolar.coop/>

[Accessed 16 June 2015].

Energy Saving Trust, 2014. *Community and locally owned renewable energy in Scotland at June 2013: A report by the Energy Saving Trust for the Scottish Government*, Edinburgh: Energy Saving Trust.

Energy Saving Trust, 2015. *Air source heat pumps*. [Online]

Available at: <http://www.energysavingtrust.org.uk/domestic/air-source-heat-pumps>

[Accessed 30 June 2015].

Energy Saving Trust, 2015. *Ground source heat pumps*. [Online]
Available at: <http://www.energysavingtrust.org.uk/domestic/ground-source-heat-pumps>
[Accessed 30 June 2015].

Energy Saving Trust, 2015. *Home*. [Online]
Available at: <http://www.energysavingtrust.org.uk/scotland>
[Accessed 31 July 2015].

Energy Saving Trust, 2015. *Solar Panels*. [Online]
Available at: <http://www.energysavingtrust.org.uk/domestic/solar-panels>
[Accessed 30 June 2015].

Energy Transition: The German Energiewende, 2015. *Why the Energiewende*. [Online]
Available at: <http://energytransition.de/>
[Accessed 27 July 2015].

Fintry Development Trust, 2015. *The wind turbine*. [Online]
Available at: <http://www.fintrydt.org.uk/the-wind-turbine/>
[Accessed 15 May 2015].

Guevara-Stone, L., 2015. *How a German Village Created an Independent Grid and a Renewable Energy Future*. [Online]
Available at: <http://ecowatch.com/2014/02/20/german-village-independent-grid-renewable-energy-future/>
[Accessed 13 July 2015].

Hannam, P., 2014. *Australia's environment is 'going backwards', green alliance says*. [Online]
Available at: <http://www.smh.com.au/environment/conservation/australias-environment-is-going-backwards-green-alliance-says-20141109-11iv6u.html>
[Accessed 1 August 2015].

Hargreaves, T., Hielscher, S., Seyfang, G. & Smith, A., 2012. Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environmental Change*, Issue 23, pp. 868-880.

Harlaw Hydro, 2015. *Home*. [Online]
Available at: <http://www.harlawhydro.org.uk/>
[Accessed 30 June 2015].

Isle of Gigha Heritage Trust, 2015. *Frequently Asked Questions About The Gigha Windmills*. [Online]
Available at: <http://www.gigha.org.uk/windmills/TheStoryoftheWindmills.php>
[Accessed 15 May 2015].

John, F., 2011. *The Challenge of Reconciling a Centralized v. Decentralized Electricity System*. [Online]

Available at: <http://www.ilsr.org/challenge-reconciling-centralized-v-decentralized-electricity-system/>
[Accessed 13 July 2015].

Laerd Statistics, 2013. *Standard Deviation*. [Online]
Available at: <https://statistics.laerd.com/statistical-guides/asures-of-spread-standard-deviation.php>
[Accessed 13 July 2015].

Laerd Statistics, 2015. *Chi-Square Test for Association using SPSS Statistics*. [Online]
Available at: <https://statistics.laerd.com/spss-tutorials/chi-square-test-for-association-using-spss-statistics.php>
[Accessed 7 August 2015].

Local Energy Scotland, 2015. *CARES Funded Projects*. [Online]
Available at: <http://www.localenergyscotland.org/about/cares-funded-projects/>
[Accessed 17 May 2015].

Meacham, T., 2012. *Renewable Energy: Community Benefit and Ownership*, Edinburgh: SPICe.

Met Office, 2015. *Where are the windiest parts of the UK*. [Online]
Available at: <http://www.metoffice.gov.uk/learning/wind/windiest-place-in-UK>
[Accessed 11 August 2015].

Musall, F. D. & Kuik, O., 2011. Local acceptance of renewable energy—A case study from southeast Germany. *Energy Policy*, Issue 39, pp. 3252-3260.

National Records of Scotland, 2011. *2011 Census: First Results on Population and Household Estimates for Scotland - Release 1B*, Edinburgh: National Records of Scotland.

Nolden, C., 2013. Governing community energy—Feed-in tariffs and the development of Community Wind Energy Schemes in the United Kingdom and Germany. *Energy Policy*, Issue 63, pp. 543-522.

Parliament, S., 2012. *Official Report: Economy, Energy and Tourism Committee*, Edinburgh: Scottish Parliament.

Pierpont, B., Varadarajan, U., Nelson, D. & Schopp, A., 2011. *Renewable Energy Financing and Climate Policy Effectiveness*, San Francisco: Climate Policy Initiative.

Renewable Energy World, 2015. *Bioenergy*. [Online]
Available at: <http://www.renewableenergyworld.com/bioenergy/tech.html>
[Accessed 23 July 2015].

Rogers, C. J., Simmons, A. E., Convery, I. & Weatherall, A., 2011. Social impacts of community renewable energy projects: findings from a woodfuel case study. *Energy Policy*, Issue 42, pp. 239-247.

Rosneath Peninsula West Community Trust, 2015. *Home*. [Online]
Available at: <http://www.rosneathpeninsulawest.com/>
[Accessed 15 May 2015].

Ruggiero, S., Onkila, T. & Kuittinen, V., 2014. Realizing the social acceptance of community renewable energy: A process-outcome analysis of stakeholder influence. *Energy Research & Social Science*, Issue 4, pp. 53-63.

Scene Consulting Ltd, 2015. *What is Scene*. [Online]
Available at: <http://www.sceneconsulting.com/>
[Accessed 31 July 2015].

Scottish Enterprise, 2015. *Renewable Energy Investment Fund*. [Online]
Available at: <http://www.scottish-enterprise.com/services/attract-investment/renewable-energy-investment-fund/overview>
[Accessed 17 May 2015].

Scottish Government & Scottish Agricultural Council, 2010. *A Community and Landowner Renewable Energy Loan Fund*, Edinburgh: Scottish Government & Scottish Agricultural Council.

Scottish Government, 2009. *Scottish Local Government Finance Statistics*. [Online]
Available at: <http://www.gov.scot/Publications/2009/03/24121531/1>
[Accessed 23 June 2015].

Scottish Government, 2011. *Community Renewable Energy Toolkit*, Edinburgh: Scottish Government.

Scottish Government, 2011. *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022*, Edinburgh: Scottish Government.

Scottish Government, 2011. *Scottish Land Fund*. [Online]
Available at: <http://wayback.archive-it.org/3011/20130201195535/http://www.scotland.gov.uk/News/Releases/2012/11/scottish-land-fund081112>
[Accessed 24 May 2015].

Scottish Government, 2013. *2020 Update for Renewable Energy in Scotland - Update*, Edinburgh: Scottish Government.

Scottish Government, 2013. *Scottish Government Community And Renewable Energy Scheme (CARES)*. [Online]
Available at: <http://www.gov.scot/Topics/Business-Industry/Energy/Energy->

[sources/19185/Communities/CRES](#)

[Accessed 17 May 2015].

Scottish Government, 2014. *Community Energy Policy Statement: Draft for Public Consultation*, Edinburgh: The Scottish Government.

Scottish Government, 2015. *Scottish Rural Development Programme*. [Online]

Available at: <http://www.gov.scot/Topics/farmingrural/SRDP>

[Accessed 15 May 2015].

Scottish Parliament, 2003. *Land Reform (Scotland) Act 2003*, Edinburgh: Scottish Parliament.

Scottish Parliament, 2012. *Official Report: Economy, Energy and Tourism Committee*, Edinburgh: Scottish Parliament.

Scottish Parliament, 2012. *Report on the achievability of the Scottish Government's Renewable Energy Targets*, Edinburgh: Scottish Parliament.

Scottish Parliament, 2014. *Community Empowerment (Scotland) Bill (An Introduction)*, 2014: Scottish Parliament.

Scribd, 2015. *UK green groups letter to David Cameron*. [Online]

Available at: <http://www.scribd.com/doc/273124041/UK-green-groups-letter-to-David-Cameron>

[Accessed 1 August 2015].

Seyfang, G. et al., 2014. A grassroots sustainable energy niche? Reflections on Community Energy in the UK. *Environmental Innovations and Societal Transitions*, Issue 13, pp. 21-44.

Seyfang, G., Park, J. J. & Smith, A., 2012. A thousand flowers blooming? An examination of community energy. *Energy Policy*, Issue 61, pp. 977-99.

Simpson, A., 2013. *Community Energy Strategy: DECC consultation*, Nottingham: Alan Simpson.

Sincero, S. M., 2015. *Types of Survey Questions*. [Online]

Available at: <https://explorable.com/types-of-survey-questions>

[Accessed 8 July 2015].

Slee, B., 2014. Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs. *Renewable and Sustainable Energy Reviews*, Issue 41, pp. 540-549.

Slideshare, 2015. *Sustainable Business*. [Online]

Available at: <http://www.slideshare.net/NordicBaristaCup/20131109-nordic-roaster->

[forum-hrnn-hrafnsttir-28070678](#)

[Accessed 31 July 2015].

Spear, S., 2014. *Samsø: World's First 100% Renewable Energy-Powered Island Is a Beacon for Sustainable Communities*. [Online]

Available at: <http://ecowatch.com/2014/05/01/samsø-renewable-energy-island-sustainable-communities/>

[Accessed 31 May 2015].

Strategic Energy Technologies Information System, 2015. *Wind Energy*. [Online]

Available at: <https://setis.ec.europa.eu/technologies/wind-energy>

[Accessed 30 June 2015].

Struzik, E., 2012. *Oh Canada: The Government's Broad Assault on Environment*. [Online]

Available at:

<http://e360.yale.edu/feature/oh-canada-the-governments-broad-assault-on-environment/2548/>

[Accessed 1 August 2015].

Sustainable Shetland, 2015. *Viking Wind Farm Site Quadrants*. [Online]

Available at: <http://www.sustainableshetland.org/viking/site-quadrants.htm>

[Accessed 16 June 2015].

The European Marine Energy Centre, 2015. *Marine Energy*. [Online]

Available at: <http://www.emec.org.uk/marine-energy/>

[Accessed 30 June 2015].

The Scottish Government, 2010. *Securing the Benefits of Scotland's Next Energy Revolution*, Edinburgh: The Scottish Government.

Triodos Bank, 2015. *Udny Community Wind Turbine*. [Online]

Available at: <https://www.triodos.co.uk/en/about-triodos/what-we-do/who-we-lend-to/results/?projectId=432779>

[Accessed 15 May 2015].

UK Government, 2015. *Guidance: Community Energy*. [Online]

Available at: <https://www.gov.uk/community-energy>

[Accessed 2 June 2015].

United Nations, 1987. *Report of the World Commission on Environment and Development: Our Common Future*, New York: United Nations.

University of Strathclyde, 2015. *Introduction to Integrating Renewable Technologies*. [Online]

Available at: http://www.esru.strath.ac.uk/EandE/Web_sites/01-

[02/RE_info/integration.htm](#)

[Accessed 13 July 2015].

van der Schoor, T. & Scoltens, B., 2014. Power to the people: Local community initiatives and the transition to sustainable energy. *Renewable and Sustainable Energy Reviews*, Issue 43, pp. 666-675.

Vaughan, A. & Macalister, T., 2015. *The nine green policies killed off by the Tory government*. [Online]

Available at: <http://www.theguardian.com/environment/2015/jul/24/the-9-green-policies-killed-off-by-tory-government#comments>

[Accessed 28 July 2015].

Viking Energy, 2015. *The Project*. [Online]

Available at: <http://www.vikingenergy.co.uk/the-project>

[Accessed 15 May 2015].

Wen Li, L., Birmele, J., Schaich, H. & Konold, W., 2013. Transitioning to community-owned renewable energy: Lessons from Germany. *Procedia*, Issue 17, pp. 719-728.

Withnall, A., 2014. *David Cameron goes 'all out for shale' with tax boost for councils willing to approve projects*. [Online]

Available at: <http://www.independent.co.uk/news/uk/politics/david-cameron-promises-fracking-tax-boost-for-councils-willing-to-approve-projects-9055280.html>

[Accessed 1 August 2015].

Xiong, Z., 2011. Open and Closed Questions in Decision-making. *Electronic Notes in Theoretical Computer Science*, Issue 278, pp. 261-274.

Appendices

Appendix 1: The Exact Number of Community Energy Projects in Scotland per Technology Type

Table 7 divides the total number of CE projects into technology types:

Table 7: CE Projects per Energy Source (Updated Database)

Technology	Number of CE Projects in Scotland
Bioenergy	77
Heat Pumps	102
Hydro	78
Marine	4
Solar	103
Wind	238
Unknown	18

Appendix 2: The Details of Community Energy Projects in Scotland

Table 8 gives details of CE projects in Scotland, including the number of CE projects in each local council area, the number of community projects per square mile in each local council area, and the number of projects per person in each local council area.

Table 8: Detailed Figures on CE in Scotland (Updated Scene Database, C.Blyth-Moore) (National Records of Scotland, 2011)

Local Council Area	Number of CE Projects	Area (Square Miles)	Number of Projects per Square Mile	Population	Number of Projects per 1000 People
Aberdeen	4	70	0.057	222,800	0.018
Aberdeenshire	36	2,439	0.015	253,000	0.142
Angus	15	843	0.019	116,000	0.138
Argyll and Bute	61	2712	0.025	88,200	0.687
Clackmannanshire	1	61	0.016	51,400	0.02
Na-h Eileanan Siar	53	1185	0.045	27,700	1.913
Dumfries and Galloway	33	2489	0.013	151,300	0.218
Dundee	5	21	0.238	147,300	0.034
East Ayrshire	7	492	0.014	122,700	0.057
East Dunbartonshire	1	68	0.015	105,000	0.009
East Lothian	10	257	0.04	99,700	0.1
East Renfrewshire	3	65	0.046	90,600	0.033
Edinburgh	15	100	0.16	476,600	0.031
Falkirk	2	113	0.018	156,000	0.013
Fife	17	517	0.033	365,200	0.047
Glasgow	16	68	0.236	593,200	0.027
Highland	129	10,085	0.013	232,100	0.558

Local Council Area	Number of CE Projects	Area (Square Miles)	Number of Projects per Square Mile	Population	Number of Projects per 1000 People
Inverclyde	0	64	0	81,500	0
Midlothian	2	135	0.015	83,200	0.024
Moray	20	864	0.023	93,300	0.214
North Ayrshire	10	343	0.029	138,200	0.072
North Lanarkshire	3	154	0.019	337,800	0.009
Orkney	42	396	0.106	21,400	1.962
Perth and Kinross	25	2083	0.012	146,700	0.17
Renfrewshire	2	102	0.019	174,900	0.011
Scottish Borders	16	1825	0.008	113,900	0.14
Shetland Islands	52	568	0.095	23,200	2.241
South Ayrshire	2	475	0.004	112,800	0.018
South Lanarkshire	14	686	0.02	313,800	0.045
Stirling	15	866	0.02	90,200	0.166
West Dunbartonshire	1	68	0.015	90,700	0.011
West Lothian	9	165	0.055	175,100	0.051

Appendix 3: Proof of Work with Scene

 **SCENE**
CONSULTING

Scene Consulting
Edinburgh Centre for Carbon Innovation
High School Yards
Infirmary Street
EH1 1LZ

I can confirm that Craig Blyth-Moore has utilised data from Scene Consulting, and a data extract from the Energy Savings Trust's 'Community and Locally Owned Renewables' database to carry out analysis for use in this work.

The analysis is his own and has not been checked by members of either Scene Consulting or the Energy Savings Trust.



Vijay Bhopal
Projects Director
Scene Consulting



Appendix 4: Answers Given in the Survey

Appendix 4 lays out the answers given to each survey question.

Question 1

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

Table 9: Question 1 Results (Survey)

	<i>Rank: 1– 10</i>
<i>The CE sector is successful in Scotland</i>	8, 5, 4, 6, 6, 7
<i>The CE sector would benefit from one consistent definition of CE</i>	6, 5, 2, 5, 6, 5

Question 2

Please rank the following definitions of CE out of 10 in terms of their accuracy. 1 very inaccurate and 10 is very accurate

Table 10: Question 2 Results (Survey)

Definition	Rank: 1 -10
<p>“Projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community, including ‘Bencoms.’” (Scottish Government, 2014, p. 3).</p>	6, 7, 5, 8, 7, 7
<p>“An installation of one or more renewable energy technologies in or close to a rural community, with input from members of that community.” (Ruggiero, et al., 2014, p. 54)</p>	3, 2, 2, 4, 5, 2
<p>“Grassroots initiatives that invest in ‘clean energy’ in order to meet consumption needs and environmental goals and thereby – often unwittingly – conduce to the spread of renewables.” (Doci, et al., 2015, p. abstract)</p>	3, 8, 6, 2, 6, 5

Question 3

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

Table 11: Question 3 Results (Survey)

Rank: 1-10	
<i>The Scottish Government's combined target for CE and LOE is clear</i>	9, 10, 1, 9, 5, 8
<i>The Scottish Government's combined target for CE and LOE is beneficial to the CE sector</i>	9, 7, 8, 9, 6, 4
<i>The Scottish Government's combined target for CE and LOE is a useful driver to the CE sector</i>	8, 5, 8, 9, 6, 7
<i>Changes should be made to the Scottish Government's description of their target to benefit the CE sector</i>	5, 5, 9, 7, 9, 2
<i>CE and LOE sources should have separate targets for 2020 and beyond</i>	3, 7, 10, 9, 10, 3
<i>The Scottish Government will meet the current target for CE and LOE in 2020 (500MW generating capacity)</i>	6, 2, 10, 7, 8, 9

Question 4

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

Table 12: Question 4 Results (Survey)

Rank: 1 -10	
<i>In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is misleading</i>	2, 8, 10, 10, 8, 9
<i>In the Scottish Government's CEPSD, referring to CE and LOE as simply 'community energy' is detrimental to the CE industry</i>	2, 4, 5, 9, 7, 2, 4

Question 5

Please rate each statement from 1-10, where 1 is strongly disagree, and 10 is strongly agree.

Table 13: Question 5 Results (Survey)

Rank: 1-10	
<i>The CARES scheme has been successful in improving CE in Scotland</i>	8, 10, 5, 8, 8, 6
<i>More CARES funding should be made available for more projects in order to improve the CE sector</i>	5, -, 3, 9, 6, 9
<i>The CARES scheme is easily accessible</i>	-, 6, 5, 8, 9, 7
<i>The CARES scheme is easy to understand</i>	-, 6, 5, 6, 9, 9

Question 6

Which of the six following renewable energy technologies have been most prevalent in CE projects? Please grade from the most successful (number 1) to the least successful (number 6).

Table 14: Question 6 Results (Survey)

Technology	Rank
Wind	1, 1, 1, 1, 1, 1
Hydro	-, 2, 2, 3, 2, 3
Solar	-, 4, 3, 4, 4, 2
Marine	-, 6, 6., 6, 6, 6
Bioenergy (including anaerobic digestion)	-, 3, 4, 5, 5, 4
Heat Pumps	-, 5, 5, 2, 3, 5

Question 7

In your opinion, which six local authority areas have facilitated the uptake of CE most successfully? Please specify the most successful (number 1), the second most successful (number 2), the third most successful (number 3), the fourth most successful (number 4), the fifth most successful (number 5) and the sixth most successful (number 6).

Please choose from the list below. If you cannot name 6 please name as many as possible. A map is available of all the local council areas and their locations.

Table 15: Question 7 Results (Survey)

Local Council Area	Rank: 1, 2, 3, 4, 5, 6
Aberdeen	3, 6
Aberdeenshire	6
Angus	
Argyll and Bute	5, 1, 5, 2
Clackmannanshire	

<i>Local Council Area</i>	<i>Rank: 1,2,3,4,5,6</i>
<i>Dumfries and Galloway</i>	
<i>Dundee</i>	
<i>East Ayrshire</i>	
<i>East Dunbartonshire</i>	
<i>East Lothian</i>	
<i>East Renfrewshire</i>	
<i>Edinburgh</i>	6, 6, 4
<i>Falkirk</i>	
<i>Fife</i>	6
<i>Glasgow</i>	
<i>Highland</i>	1, 3, 4, 3, 5, 3
<i>Inverclyde</i>	
<i>Midlothian</i>	
<i>Moray</i>	4, 4
<i>Na-h Eileanan Siar</i>	2, 2, 2, 3, 5
<i>North Ayrshire</i>	
<i>North Lanarkshire</i>	
<i>Orkney</i>	1, 5, 1, 2
<i>Perth and Kinross</i>	
<i>Renfrewshire</i>	
<i>Scottish Borders</i>	1
<i>Shetland Islands</i>	4, 4, 4, 1
<i>South Ayrshire</i>	
<i>South Lanarkshire</i>	
<i>Stirling</i>	
<i>West Dunbartonshire</i>	
<i>West Lothian</i>	

Appendix 4: Transcript of Interview Additional Questions

Appendix 4 contains the answers given by CE professionals to additional questions posed throughout the survey. The questions asked depended on each individual interview and the candidate's willingness to give extra information.

Survey 1: Ragne Low, ClimateXChange Project Manager

Question: Why did you select 6 for the statement “the CE sector would benefit from one consistent definition of CE”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think a lot of people in the sector probably either understand the definition that exists or make use of it flexibly. Intellectually I think it would be nice to have a more consistent definition but I think the flexibility that the current definition affords is actually helpful in some contexts. The policy landscape is shifting and you are never going to get a specific definition that everyone signs up to over time, or over a long period of time, as the ground would shift under it, so I think probably a slightly flexible or open definition is actually helpful in most regards

Question: Do you have any comments on question 2: the definition of CE?

- I think there are pragmatic and political reasons why certain definitions are more useful than others. As I say probably intellectually it would probably be nice to pin something down, a kind of three word definition, but that may be impossible to agree on and also may not allow the Scottish Government and others to actually fund and pursue some of the projects that they might want to, so I think there is merit in it

Question: Why did you select number 3 for the statement “CE and LOE sources should have separate targets for 2020 and beyond”? (1 is strongly disagree, 10 strongly agree)

- Answer: It's the same point I made before. I think over-defining and constraining something like this where there is a lot of fuzziness is bad, and if you look at the direction the Scottish Government's CEPSD points in now in terms of local energy where you're talking about multiple actors, both public sector and private sector, NGO and community. If you want to actually

empower a whole range of actors to do stuff then really tightly defining what you are looking for is not particularly helpful. So, I think starting to talk about separate targets for different components of the energy economy is unhelpful

Question: Why did you select number 2 for the question “in the Scottish Government’s CEPSD, referring to CE and LOE energy as simply ‘community energy’ is misleading”? (1 is strongly disagree, 10 strongly agree)

- Answer: It is done intentionally and clearly, transparently. My reading of it is that they have decided to use a shorter term to save space and simplify the language using the statement, so I would disagree that is misleading because I think they have been clear when they say what they mean is the longer thing

Survey 2: Emily Cremer, Postdoctoral Researcher in Sustainable Lifestyles at the University of Edinburgh

Question: Why did you select 5 for the statement “the CE sector would benefit from one consistent definition of CE”? (1 is strongly disagree, 10 strongly agree)

- Answer: I don’t know whether I agree or I disagree, so that’s why I said 5. I think that the problem with having one consistent definition is that it makes it harder for all communities to fit into it. Community is not a something that is very easy to define. Firstly, I think it is impossible to have a standardised definition of CE, so I think that if you do it you’ll end up cutting some people out, which would be detrimental to the ambitions of CE as I understand them. But, at the same time, I think it would be good to try and have a better understanding of what we mean when we are talking about CE

Question: Why did you select 7 for the statement “CE and LOE sources should have separate targets for 2020 and beyond”? (1 is strongly disagree, 10 is strongly agree)

- Answer: because I think that CE is different to LOE, so it would be good to differentiate between them in some way

Question: Why did you select 2 for the statement “the Scottish Government will meet the current target for CE and LOE in 2020”? (1 is strongly disagree, 10 strongly agree)

- Answer: I just don’t have a lot of faith that the Scottish Government is going to continue to support CE in the way that I see it. So I suppose when I think about the target I think only about community renewables, so in my eyes the way things are going is more towards community benefits, which I don’t think of as CE, and I think community benefits are going to replace CE

Question: Why did you select 4 for the statement “in the Scottish Government’s CEPSD, referring to CE and LOE as simply ‘community energy’ is detrimental to the CE industry? (1 is strongly disagree, 10 strongly agree)

- Answer: Because I don’t really know why it would be detrimental to the CE industry. I think it is detrimental to our understanding of CE, but not to the industry. I don’t think it is damaging to existing CE projects

Survey 3: Paul Phare, Scotland Development Manager at Energy4All

Question: Why did you select 2 for the statement “the CE sector would benefit from one consistent definition of community energy”? (1 is strongly disagree, 10 strongly agree)

- Answer: Because if it was defined by the government it would be one thing, and if it was defined by the people out there it would be something else. There are many different ways of defining community and the danger with all this is that somebody, somewhere, with an agenda, dictates what it is. It should be left to open to communities to decide how they define themselves. Also, it is very difficult to be accurate about what community energy is in one statement

Question: Why did you select 1 for the statement “the Scottish Government’s combined target for CE and LOE is clear”? (1 is strongly disagree, 10 strongly agree)

- Answer: It’s not clear because I think what the government is doing is that it’s saying we’re supporting community energy, and using the word ‘community’ to mean a local geographic community, but at the same time they are lumping in local landowners and saying that is community as well. Even though they say community and local people just hear community. The whole community movement of renewables, since it started in Denmark, has been about ordinary people owning and participating in renewables. LOE is owned by local farm-owners and businesses, which is not community at all. But the Government were pressured by Maitland Mackie when they were setting all this up to allow landowners to benefit from this scheme in some way, so it was a political decision. And they also realised that they would get a lot more megawatts into the target by including local landowners, because they were a lot more active and a lot more successful than communities were. So, for all those reasons I think it is a poor definition of community energy

Question: Why did you select 5 for the statement “in the Scottish Government’s CEPSP, referring to CE and LOE as simply ‘community energy’ is detrimental to the community energy sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: Well, it’s detrimental in that it’s an opportunity lost. By putting all the resources into local landowners you are denying resources to community groups,

and because the government has this very narrowly defined definition of what community is, i.e. non-profit distributed and charitable organisations, with Benomes coming in and starting to be accepted, this denies resources to community groups. If they'd brought in the idea of community being all of Scotland rather than just purely the local community they would have done a lot bigger projects and a lot more of Scotland would be owned by communities rather than the private sector. I think the government is, and always will be, backing the private sector. The private sector is bread and butter and the government knows that the private sector will do things. That's one thing you've got to say about the private sector, it is efficient, as has been proven by the amount of megawatts that have gone in and that Westminster have just decided to cut all the subsidies since they have got to their targets early. The private sector is very efficient in delivering, and the community sector is appalling. Let me tell you, it's absolutely appalling. It's like herding cats; hard work, nobody has any concept of timescale and it's very difficult to make it deliver. But, this is a changing culture and it is something that is going to take time. However, I don't think governments have time as they are on four year cycles to deliver, so therefore they go to the reliable sources delivering projects, which is the private sector

Question: Why did you select 5 for the statement “the CARES scheme has been successful in improving community energy in Scotland”? (1 is strongly disagree, 10 strongly agree)

- Answer: It depends what you mean by ‘improving.’ It certainly been successful in getting people to think about renewable energy, so in a cultural way it has been good. It's been bad in that it has put all its money in the wrong projects

Question: why did you select 3 for the question “more CARES funding should be made available for more projects in order to improve the community energy sector”?

- Answer: It's not about the money; it's about putting the money in the right places and getting the right support

Survey 4: Tom Black, Community Energy Manager: North and Central Scotland for Foundation Scotland

Question: Why did you select 6 for the statement “the CE sector is successful in Scotland?” (1 is strongly disagree, 10 strongly agree)

- Answer: Because I think that there has been so much positive stuff. There’s been clear growth and we have quite a different model. People point to Denmark and say that it (CE) is really big there, but actually these community schemes are really just investment schemes open to individuals who already have income to invest, so its pension funds and things like that from local people, rather than CE being owned by a not-for-profit, asset-locked, community led body, and Scotland has a strong emphasis on that. It is certainly ahead of England, but I think there has been some missed opportunities in relation to shared ownership, and although the strategy has just been announced, it’s actually been announced right at the time when the industry in Scotland might be ending as we know it

Question: Why did you select 5 for the question “the CE sector would benefit from one consistent definition of CE”? (1 is strongly disagree, 10 strongly agree)

- A clear definition might help in some ways, but then it could also put things in a strait jacket, and then you are not going to get necessarily the most creative solutions. Funding streams could also block out alternative models.

Question: Why did you select 9 for the question “the Scottish Government’s combined target for CE and LOE is clear”? (1 is strongly disagree, 10 strongly agree)

- Answer: It’s clear what the target is, 500MW. I would say that the definition of what makes up CE and LOE has been fudged a bit, but the target is clear

Question: Why did you select 9 for the statement “the Scottish Government’s combined target for CE and LOE is beneficial to the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: Yes I think it is beneficial, certainly in the projects that I’ve been involved in where it has enabled us to pitch products as that they are going to go towards this target. They’ve all been community projects, not local projects, but

the target itself is beneficial because it is a driver for community projects within that.

Question: Why did you select 9 for the question “changes should be made to the Scottish Government’s description of their target to benefit the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: Possibly, I don’t know actually if that is useful. I think it is useful to have a target for CE within the broader target. I think they should have a target within the target so that it is more of a quality advancer

Question: Why did you select 9 for the statement “CE and LOE sources should have separate targets”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think it would be useful to put a very clear driver behind CE over and above LOE. LOE includes local authority owned, housing association owned, small business, rural business, farmer owned, and while that is all good stuff, it’s not got quite as high social and equity benefits as wholly community-owned

Question: Why did you select 7 for the statement “the Scottish Government will meet the current target for CE and LOE energy in 2020?” (1 is strongly disagree, 10 strongly agree)

- Answer: I think that is going to be dependent on shared ownership projects going ahead. They’re just starting to build momentum in the industry around shared ownership projects, but with Amber Rudd’s announcement this could be reduced

Question: Why did you select 9 for the statement “in the official community policy statement draft, referring to CE and LOE energy as simply ‘community energy’ is detrimental to the CE industry”? (1 is strongly disagree, 10 strongly agree)

- Answer: Because I think it promotes two different kinds of energy ownership and then describes them as one. It’s misleading and it could still make up the target with just LOE, and CE could be nowhere, but they describe it as CE, and actually that’s also got issues for wider public recognition and acceptance of CE projects, because if they think that a farmer owning a turbine that offsets his

costs so generates income for him so that he can disappear to Ibiza for six months of the year is CE then that is detrimental

Question: Why did you select 8 for the statement “the CARES scheme has been successful in improving CE in Scotland?” (1 is strongly disagree, 10 strongly agree)

- **Answer:** My understanding is that it has been. It’s done a fair bit and it’s a good scheme with different strands to it that help community projects at different stages. I don’t think the funding is the barrier to CE, the issue is wider community acceptance, building consensus, it is grid connection, it is the amount of volunteer hours that have to be put in to take forward a project and volunteer burnout, the amount of time it takes. The CARES scheme could actually be improved to provide some kind of payment to project officers

Question: Why did you select 9 for the statement “more CARES funding should be made available for more projects in order to improve the CE sector?” (1 is strongly disagree, 10 strongly agree)

- **Answer:** Because I think the CE sector in Scotland is still growing and there is still a healthy appetite in Scotland. You come across communities all the time that want to do this. Hydro and wind are the main ones, solar as well, and there is even a bit of appetite that I know of in relation to offshore wind, and that needs funded

Question: Why did you select 6 for the statement “the CARES scheme is easy to understand”? (1 is strongly disagree, 10 strongly agree)

- Well there are some issue with it. I was looking around on the website the other day looking for information on a grant of up to £20,000 which I know they give to communities to explore joint ventures and shared ownership but I couldn’t find any information on it

Survey 5: An Anonymous Community Energy Professional

Question: Why did you elect 6 for the statement “the CE sector is successful in Scotland”? (1 is strongly disagree, 10 strongly agree)

- Answer: It is successful compared to other countries globally. The support system now, although it took some time to get it right, is one of the better ones in the world. So, I think in the next 5 years if things stay the same, also at UK level, with the FiT and everything, we are going to see continued growth

Question: Why did you select 6 for the statement “the CE sector would benefit from one consistent definition of CE”? (1 is strongly disagree, 10 strongly agree)

- Answer: It’s true what you say the Government is conveniently lumping CE and LOE together. But, I do think on a larger scale these two are not necessarily competing, they’re helping each other out, because they benefit from the same policy. So I would say other forms of local ownership are not the problem. We have bigger problems regarding the question of commercial vs. community, decentralised vs. Centralised. So, I would say that all of this makes the question difficult to answer, but that yes, absolutely

Question: Why did you select 6 for the statement “the Scottish government’s combined target for CE and LOE is beneficial to the CE sector” (1 is strongly disagree, 10 strongly agree)

- Answer: We are lucky to have a target at all. I mean, compared to other countries. You’re right; to have separate targets would be the ideal scenario. Especially given that it’s currently being lumped together as if they are the same, when actually they are different

Question: Why did you select 10 for the statement “CE and LOE should have separate targets for 2020 and beyond”? (1 is strongly disagree, 10 strongly agree)

- Because what is currently happening in policy documents and reports is that they are lumping them together and pretending that they are all community. So, in a sense what they are nearly doing is changing the working definition of CE to something to which a large number of these projects would disagree with.

They face different problems; land ownership is a massive constraint for community organisations, so it makes sense to have a separate target to guarantee some degree of take-up on the community organisation side of things

Question: Why did you select 7 for the statement “in the official community policy statement draft, referring to CE and LOE as simply ‘community energy’ is detrimental to the CE industry”? (1 is strongly disagree, 10 strongly agree)

- Answer: Well, because we have a scenario in which the 500MW target can be totally claimed, hypothetically, by landowner projects. Although, in practise that probably wouldn’t happen now because this grant is being coordinated by LES, and before it was coordinated by CES, and they wouldn’t let that happen. And LES are very open and very aware of the entire sector and they’ve just been very transparent. I don’t think that would ever happen in practise, but as a policy framework in itself it makes sense to separate them

Question: why did you select 8 for the statement “the CARES scheme has been successful in improving CE in Scotland”? (1 is strongly disagree, 10 strongly agree)

- Answer: This is tricky because the CARES scheme has changed quite substantially over time. The initial format I would say wasn’t hugely successful to encourage large projects from taking off and setting up generally a more sectorised support framework around these funds. The second half, so the last couple of years, has seen the framework reformed and it is really operating very well right now

Question: Why did you select 6 for the statement “more CARES funding should be made available for more projects in order to improve the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think they are doing the best they could possibly be doing right now. More money is always good but there is also the question of too much too fast if, for example, you look at Germany

Question: Why did you select 9 for the statements “the CARES scheme is easily accessible” and “the CARES scheme is easy to understand”? (1 is strongly disagree, 10 strongly agree)

- **Answer:** Because there are now people that you can call up and any question you could possibly have they have an answer for it and the website is extremely clear, the guidance is extremely clear, the application is short, the timelines are short. It’s just managed extremely well right now. And, what is very, very good right now is that apart from CARES we have a number of other options which means that we have got competition between schemes, and the moment that you’ve got competition it starts to behave like an actual market and you can leverage between one and the other to get the best deal for communities

Survey 6: Jamie Macleod and Laura McGlynn, Renewables Policy Officers at the Scottish Government

Rather than follow the original format of the survey, both Jamie and Laura requested that they discuss each of the statements and not rate them.

Statement 1: The CE sector is successful in Scotland

- Feedback: We feel that we offer quite a bit of support and we are proud of the support that we're able to offer. It gets quite a lot of international recognition over CARES and the like. As it is it is successful and we feel that the CE sector, not just because of the support that we have provided, but mainly due to the hard work of the community groups and the other people that support them, that Scotland is now seen as quite a progressive place for CE, and it is definitely a high priority for us, but we do feel that there is potential for there to be a move towards it being the norm for there to be local energy systems rather than the centralised systems that exists at the moment. It's successful, but it's a developing area

Statement 2: The CE sector would benefit from one consistent definition of CE

- Feedback: We think so, yes. For practical reasons first of all because we, as we've said, are keen to support CE. We know that DEFRA (Department for Environment, Food and Rural Affairs) are keen to support CE, and if they're going to be making mechanisms to try and support that, that needs to work in England, Wales and Scotland, so if they're using a different definition to what we're using then there's more chance of people falling through the net and not actually getting that support that they might be entitled to. We think the community sector would benefit from that consistent definition. We've put forward a definition in the Scottish Government's CEPSD, but if the sector in general moved towards a different definition then we would work with whatever the sector said. However, we think we summed it up well with the definition that we have put forward but this is a draft document and nothing's ever perfect, so we are open to feedback. One reason we like our definition is because it is flexible. There are different ways of doing it (CE), and you don't want to be too rigid about it

Definition 1 of CE: “Projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community, including ‘Bencoms.’” (Scottish Government, 2014, p. 3)

- Feedback: What’s maybe missing is that it’s talking about projects led by these people, and led is maybe slightly less accurate, but it does sort capture the fact that there needs to be some sort of figurative ownership, not that communities necessarily own the turbines, but the community needs to have an empowered part of a project

Statement 3: The Scottish Government’s combined target for community and CE and LOE is clear

- Feedback: We would say that it is clear. It is a measurable number. We’ve had some feedback about clarity and whether that target is enough, but we feel that putting the target on its own is clear as long as you take the definition of CE and LOE energy to be pretty clear, and we think it’s pretty clear, although we’re sure it could be improved in some way

Statement 4: The Scottish Government’s combined target for CE and LOE energy is beneficial to the CE sector

Feedback: We think it is. We think to give something to aim for at a realistic level, and to provide something to gauge success against to find out if more effort needs to be put in

Statement 5: The Scottish Government’s combined target for CE and LOE is a useful driver to the CE sector

- Feedback: We do think that as a combined target it is a useful driver for the CE sector. In terms of why they are together at the moment, we think that CE and LOE will be more linked in the future

Statement 6: Changes should be made to the Scottish Government’s description of their target to benefit the CE sector

- We're of the opinion that consistency is useful, and if we start changing the target then maybe we need to go back to the data which is underlying that to make sure that any changes are reflected. We don't feel at the moment that changes are needed and we haven't had a lot people tell us that we need to make changes. If anything, it's just about changing the numbers involved, which some people sometimes reject

Statement 7: Changes should be made to the Scottish Government's description of their target to benefit the CE sector

- Feedback: We haven't decided on what our targets are going to be for 2020 and beyond and we are looking into that and we will consult, find out what the prevailing view is at the time and have a good think about it. It might be the case that at that point separate targets are needed, but, having said that, we feel that with a move to local energy economies where there are greater levels of shared ownership and greater levels of co-operation between local authorities and community groups, private businesses to make low carbon energy happen and to spread benefits to where the energy is based, we think that it is likely that there will be more of a blurring of boundaries rather than a separation. You can kind of see that with the community energy challenge, and there's an argument that separating them would maybe undercut our message. To take the point that you made in your introduction, CE is less developed, or less implemented, than LOE. Whether that needs to be singled out to say "right, this is what we're going to go for", "we want CE, and we would like to have LOE but CE is our priority." Potentially, something like that could happen, but it's a way away

Statement 8: The Scottish Government will meet the current target for CE and LOE in 2020 (500MW generating capacity)

- Feedback: We're on course, fingers crossed. We're optimistic at the moment Hopefully people don't think that because we're doing well against the target we're complacent, thinking "oh it doesn't matter." We do prioritise CE as well, and a lot of our support is aimed towards communities. We do need to work out how we can up that percentage (the current total)

Statement 9: In the Scottish Government’s CEPSD, referring to CE and LOE as simply ‘community energy’ is misleading

- Feedback: It is a draft so we can take that into account. You’ve got a bit of a point there. It’s certainly not intentionally misleading but it is maybe not as clear as it could be and we suppose that there is the opportunity for people to get confused between CE doing better than it is, whereas CE and LOE is doing well, rather than just the community aspect of that. We would say that it is a draft document; it’s something we can look at, to potentially clarify it. Both have value, CE and LOE, and like we said before we think the lines between them might get a bit more blurred. But, one thing we would say is this: it is titled ‘community policy statement draft’, so I think probably when we’re writing the introduction we’ve been focusing on “right we’re talking about CE”, and maybe the local energy side of that has sort of been lost in translation...a lot of it is about communities and the support that we are putting in there. We do have sections on how we support rural businesses and we do have that separate definition of local-energy, so we don’t think that we of the opinion that as a whole the document is misleading, and when we refer to a target we do always refer to it as community and local-owned, and we do break down the proportion of each and where that comes from, but that first bit needs to be as clear as possible so we take your point there

Statement 10: In the Scottish Government’s CEPSD, referring to CE and LOE as simply ‘community energy’ is detrimental to the CE industry

- Feedback: The only reason we can see why it negatively affect it is if by reporting the progress of both together, where you’d be sweeping under the carpet the lower progress of community only, and therefore we weren’t focusing on that, but that isn’t the case at all. We have a lot of our focus on supporting communities

Statement 11: The CARES scheme has been successful in improving CE in Scotland

- Feedback: We’re pretty happy with the CARES scheme. In general it does what we want it to do, and it does respond as well to suggestions that have been made as to how it could be improved

Statements 11, 12 and 13: More CARES funding should be made available for more projects in order to improve the CE sector/ The CARES scheme is easily accessible/ The CARES scheme is easy to understand

- Feedback: We want to make the scheme as easy to understand and as accessible as possible, and we'd be interested to know whether people think that it is successful and easy to understand. Part of that was the consultation that we put out asking people "is what we're doing enough?" We are asking people their thoughts on this. It is an ongoing thing as well and we do take on board things people have said

Survey 7: Anne Schiffer, Energy Campaigner (Community Power) for Friends of the Earth Scotland

Question: Why did you select 7 for the statement “the community energy sector is successful in Scotland”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think it depends on the context. Obviously, as you highlighted in the introduction, the community part of the target is currently only 15%, but if you compare Scotland and the support mechanisms available for CE with other places in Europe I’d say very successful. So, for me it depends on the context. Within our project we often use Scotland as a positive example to say “there are lots and lots of different projects going on, there is a lot of government support, there’s a target for community and locally-owned energy”, and we see that internationally as a very powerful tool for other countries to use. So, based on that, I would say 7, recognising that countries such as Germany and Denmark are much further ahead

Question: Why did you select 5 for the statement “the CE sector would benefit from one consistent definition of CE”? (1 is strongly disagree, 10 strongly agree)

- Answer: It depends on how you define CE I guess. So my concern is that if it becomes too tight you start to exclude projects. Obviously, I think what you are getting at is if we are using the terms community and locally-owned, and community is only 15%, then that’s not really helpful either. So, I’m kind of in the middle. Within the project that I work on we find that internationally we can’t actually define what CE is, and so we have a list of common characteristics which are non-profit, renewable energy, communities benefiting and so on. So, I wouldn’t necessarily say that giving it a better or tighter definition is necessarily helpful. So I’ll go with 5, in the middle

Question: Why did you select 8 for the statement “the Scottish Government’s combined target for community and locally-owned energy is clear”? (1 is strongly disagree, 10 strongly agree)

- Answer: To me it’s clear, so I’ll go with an 8, but I don’t know if it’s clear to communities. In a sense I hope that it’s not so clear to people abroad or

elsewhere in the UK because it means that they can use that to lobby, but to me it's clear

Question: Why did you select 4 for the statement “the Scottish Government’s combined target for community and locally-owned energy is beneficial to the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think it is...I think it is beneficial, the target in itself and the support mechanisms around it, which are supporting community renewables, and I think there is currently something in the pipeline which will hopefully ensure that locally-owned energy projects, which are generating I think 50kW, have to offer shared-ownership. But I also think that it is quite misleading in a sense

Question: Why did you select 7 for the statement “the Scottish Government’s combined target for community and locally-owned energy is a useful driver to the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: I do think it is because I think although it's a bit misleading actually what we want is a lot of decentralised renewable energy, we want more communities to benefit as opposed to just one landowner, but I think otherwise the Scottish Government might have a very un-ambitious target like 100MW, and that really wouldn't justify that financial incentives put into it

Question: Why did you select 2 for the statement “changes should be made to the Scottish Government’s description of their target to benefit the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: I don't think that changes need to be made to the target. I think changes need to be made in terms of how support mechanisms to meet that target are distributed. So the target itself is fine

Question: Why did you select 3 for the statement “community and locally-owned energy should have separate targets for 2020 and beyond”? (1 is strongly disagree, 10 strongly agree)

- Answer: Yes, so, we are currently asking for the current target of community and locally-owned energy to be doubled by 2020, and we're also asking for a

2GW target by 2030. Again the target is an important driver here, but also it is a very useful tool for other countries to say “actually, Scotland have a target, can we have a target?” So, in that sense I would disagree with the statement, but I would again emphasise that it depends on how the support mechanisms to meet the target are interpreted

Question: Why did you select 9 for the statement “The Scottish Government will meet the current target for community and locally-owned energy in 2020 (500MW capacity)”? (1 is strongly disagree, 10 strongly agree)

- Answer: I’m fairly confident they will. I think there’s a bit of worry with the current UK government changes to wind and the feed-in-tariff progression, but we’re so far into the target so I think we will do

Question: Why did you select 9 for the statement “in the Scottish Government’s CEPSD, referring to community and locally-owned energy as simply ‘community energy’ is misleading”? (1 is strongly disagree, 10 strongly agree)

- Answer: I would agree with that. They should be consistent and it should say ‘community and locally-owned energy.’ We, when we refer to the Scottish Government target, we always say that, and so should they

Question: Why did you select 4 for the statement “in the Scottish Government’s CEPSD, referring to community and locally-owned energy as simply ‘community energy’ is detrimental to the CE sector”? (1 is strongly disagree, 10 strongly agree)

- Answer: I don’t know if it’s really detrimental because everybody working at policy level knows that that they are talking about is community and locally-owned energy. I’m not sure how much that matters to local authorities and people who are delivering projects on the ground or involved with communities directly. However I think that to us, we know what they are talking about, so it’s probably not detrimental

Question: Why did you select 6 for the statement “The CARES scheme has been successful in improving CE in Scotland”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think it has been, but it probably hasn’t been as much as it could have. I think there have been differences depending on who has run the scheme and

what they've pushed for. However, if we think that it is the main mechanism for support in Scotland, and we look at countries like Germany and Denmark and see the uptake there, then perhaps it's not so successful

Question: why did you select 9 for the statement “more money should be made available for more projects in order to improve the CE sector?” (1 is strongly disagree, 10 strongly agree)

- Answer: I'm not sure that simply throwing more money at it is really the answer because to me the bigger threat in terms of financing is around the feed-in-tariff. So I think CARES offers a lot of good support in terms of loans and feasibility grants and so on for CE projects, so I don't think it's as much about giving more money, and there's other funding available in Scotland which I think people find difficult to get rid of. It's the feed-in-tariff and the subsidy guarantees which CE projects struggle with, and things around grids, which the Scottish Government handle. So I think there should be a longer-term commitment, so I think, as we said, we want to have a 2030 target that maybe includes more heat-related projects and so on, then yes we need to have more CARES funding, as we need to meet that target

Question: why did you select 7 for the statement “the CARES scheme is easily accessible”? (1 is strongly disagree, 10 strongly agree)

- Answer: I think it is fairly easily accessible now, and projects that previously weren't able to access government grants weren't able to. But, it depends on how you define accessibility. If you know that it exists, you can probably get it, but we've seen recently that a lot of community councillors had actually never heard of CE, and so have probably never heard of CARES. So in terms of access and how easily you can get this, then probably not, but if people know it's there they can probably get it, although I've heard a few people say that sometimes it takes a long time. So I would agree with that and say it is easily accessible, but give it just a 7

Question: why did you select 9 for the statement “The CARES scheme is easy to understand?” (1 is strongly disagree, 10 strongly agree)

- Answer: Because personally I think they've done a really good job with the website and who you can talk to