

# Feasibility Study of an electric vehicle car club, household energy and larger potential community energy projects in Mellor



A Report on behalf of

Mellor Parish Council

Funded by Rural Community Energy Fund (RCEF) Stage 1

Dave Green and Fran Hunt, Shareenergy

Susan Ross, Derwent Valley Car Club

Version 1 Final January 2023

# Contents

1.	Executive Summary .....	2
1.1.	Context - Introduction to Mellor .....	4
1.2.	Socio-economic and demographic overview.....	4
1.3.	Parish & Household Carbon Emissions.....	6
2.	Community Engagement.....	8
2.1.	Community car club survey.....	8
2.2.	Village Show Consultation.....	8
3.	Community EV car club Feasibility Study .....	9
3.1.	Introduction to Car Clubs .....	9
3.1.1.	Car clubs v car rental.....	9
3.1.2.	Types of car clubs and car sharing .....	9
3.2.	Community Car Club – Mellor.....	11
3.2.1.	Types of car- sharing models.....	11
3.2.2.	Existing local car sharing provision .....	11
3.3.	Understanding demand.....	11
3.3.1.	Survey .....	11
3.4.	Feasibility of different car club models.....	20
3.4.1.	Potential models .....	20
3.4.2.	Car sharing .....	23
3.5.	Analysis of delivery models.....	23
3.5.1.	Recommended models .....	28
3.6.	Community benefits of car clubs and car sharing .....	28
3.7.	Carbon savings.....	29
4.	Household Energy Surveys & Opportunities .....	30
4.1.	Energy Performance Certificates (EPCs) .....	31
4.2.	Recommendations Made .....	33
4.3.	Funding & Advice re Energy Efficiency & Heat Pumps.....	34
4.4.	Community Energy Advice Schemes .....	35
4.5.	Community Renewable Energy Opportunities .....	37
5.	Next Steps.....	40
6.	Appendices.....	41
6.1.	Appendix A Mellor Electric Car Club Survey Results.....	41
6.2.	Appendix B Potential Car Club Funders.....	41
6.3.	Appendix C Impact Report - Mellor .....	41
7.	Document control.....	42

# 1. Executive Summary

In 2022, Mellor Parish Council applied for and secured funding through the UK Government's Rural Community Energy Fund (RCEF) to undertake a feasibility study to ascertain the potential of incorporating

renewable energy solutions within the parish of Mellor in Lancashire.

The feasibility study considers three aspects in relation to renewable energy:

- The potential need for an electric vehicle (EV) car club
- Advice to four householders on energy upgrades to their properties, with consideration of alternative finance routes and the possibility of a rooftop photovoltaic buyers' club
- Initial feasibility studies on larger potential community energy schemes, e.g wind turbines or ground mounted solar.

Shareenergy were commissioned by Mellor Parish Council to carry out this study, with Derwent Valley Car Club assisting with the EV car club element.

Shareenergy<sup>1</sup> is a not-for-profit organisation that helps communities find, build and own renewable energy generation throughout the UK. They often work with new groups to identify possible new projects – and then work alongside technical specialists to see what might really work.

Derwent Valley Car Club (DVCC)<sup>2</sup> is a community owned and run club, providing electric cars for members to hire. They also operate a volunteer driving scheme within the club for those who cannot drive themselves. DVCC are based at Blackhall Mill Community Centre, Gateshead.

This study was undertaken between June and December 2022.

A survey was carried out within the community, and the team attended the Mellor Village Show to engage in person with local residents.

The main focus of the report is around the feasibility of a car club. In summary, there is a small but defined need for a community car club in the area. Car sharing in general is a significant behavioural change and it takes time to create that modal shift. It would therefore be sensible, should the Parish Council wish to do so, to start small and build the user base.

Community car clubs do not require large numbers of users to be successful but a small number of regular users. This survey has highlighted a small group of individuals who have said that they would use a scheme on a daily, bi-weekly and weekly basis. Based

---

<sup>1</sup> <https://www.shareenergy.coop/>

<sup>2</sup> <https://www.facebook.com/derwentvalleycarclub/>

on those numbers it would be possible to operate a community car club with one or two vehicles initially and then grow depending on the uptake in the area.

In addition to the survey, the interest from the Village Show also highlighted the interest from people in such a scheme. Although many felt it wasn't for them currently, due to having sufficient vehicles within their households, if a scheme was in place it would allow some of those people to reconsider the need for multiple vehicles within their households. As highlighted in the survey there is potential to remove up to twenty-two vehicles from the village if a scheme was created.

It would be advisable if developing a community scheme to seek grant funding, so that the scheme has time to grow organically and build the member base into a sustainable scheme. It would also be possible to include a voluntary driver scheme within the village to support members of the community who are unable to drive and there is a clear set of volunteers who are willing to give their time to support this aspect of the scheme.

Four of the houses in the village were studied in depth in relation to their energy consumption. For these four houses, the improvement recommendations included:

- wall insulation
- roof insulation
- draughtproofing
- radiator panels

As regards community renewable energy opportunities, Mellor Parish is very rural and lacking in large energy users who can take the electricity generated by a community owned renewable asset. The Village Hall already has PV panels and air source heat pumps. The only potential site is Thwaites Brewery; this could be a good site for community rooftop solar. Although this site is outside the Parish and is a stand-alone site, it could be a viable site for the Big Solar Co-op if the Parish Council wished to contact within the firm.

Mellor is also a windy location, so the other technology that could be considered is wind energy. There are some areas SW of Mellor where wind speeds are high, and a turbine could be placed at a reasonable distance from housing of around 400m. However, again this is unlikely to be viable at the moment if grid connected and no large-scale users have been identified who could make use of the electricity generated. There are also currently quite strict planning restrictions on onshore wind turbines, though this may change soon, and public acceptance of wind turbines seems to be much higher than it was a few years ago when the restrictions were brought in.

If electricity export prices continue to rise and the planning restrictions are lifted, then a wind turbine could be investigated further.

Recommendations of the next steps that Mellor Parish Council could take can be found in section 5 of this report.

## 1.1. Context - Introduction to Mellor

Mellor is situated on a high ridge overlooking the low-lying area of the Fylde, Ribble Valley and Blackburn. It is just 3.5 miles north-west of the town of Blackburn. It is a delightful village set in the rural backdrop of the Ribble Valley and a mile or so from the river Ribble. With a growing population of 1490 at the last census, it is a thriving, bustling community consisting of a primary school, two churches, a village hall, a library, a GP surgery, a bus service and a small number of local shops and pubs. There is a mix of housing types with a solid core of pre-1900 properties with solid stone or brick walls. Mains gas is available for most of the parish, but there are a few properties with oil heating.



*Figure 1 Mellor Parish*

Mellor boasts many groups and organisations catering for all ages from preschool facilities, a parent and toddler group, Rainbows, Brownies, Girlguiding and Scouting groups for children of all ages, a youth club, a youth fellowship, and teenage pool club to indoor bowling, badminton, gardening, luncheon clubs, Mothers' Union, Men's Group and Ladies' Fellowship.

Mellor Village Hall already has a sizeable PV array, air source heat pumps and EV charging points. The facility is well used. Close to Mellor's village hall is a playing field and a tennis court which proves extremely popular in the summer.

Mellor has close links with the neighbouring village of Mellor Brook, through which the eponymous stream flows, although only part of the village is contained within the Mellor Parish. There is a community centre in Mellor Brook but it is outside the Mellor Parish. The parish and community link with neighbouring Ribble Valley parishes, namely Balderstone, Clayton-Le-Dale, Osbaldeston, Ramsgreave; and to their immediate northwest is Samlesbury in South Ribble.

The active Parish Council and Village Hall committee work to ensure that there are lots of activities to meet the needs of the growing community.

There is no industry within Mellor Parish but there is a large BAE factory and Thwaites Brewery plus a haulage contractor and plant hire site just to the west.

## 1.2. Socio-economic and demographic overview

Mellor is situated within the Ribble Valley and as such the socio-economic and demographic profile is predominantly based at this output level. It gives an indication

to the high-level demographic and socio-economic profile within the area; however, it can also mask more locality-based disadvantages. The Ribble Valley in East Lancashire, is in geographic terms, the largest district in Lancashire covering 583 square kilometres. The rural nature of the area means that the number of people per km<sup>2</sup> is the lowest in the county and only a third of the England and Wales average.<sup>3</sup>

The population of Mellor as a whole, is older than the national average. The population of Mellor is also older than the average in all age categories, beyond the age of forty-five. Mellor has a higher level of residents born in the UK than the national average and a lower rate of residents either born in other EU countries or outside the EU, meaning that it does not have a significant immigrant population. It has been well documented that people are living longer and that the older age-groups will record dramatic increases over future years, with associated financial implications and demand for health and social care services.

The 2019 Indices of Multiple Deprivation revealed that Ribble Valley was ranked within the top fifty least deprived areas out of 317 districts and unitary authorities in England.

A high number of families in Ribble Valley have an income level that led to them opting out of receiving child benefit (8.8% compared to UK average of 6.4%). There is a dwindling number of employment and support allowance claimants, and the housing benefit claimant numbers are small. In comparison to the national average, there is a low percentage of the working age population that is reliant on welfare benefits.

The Ribble Valley had a health index score of 122 in 2020 placing it as the second highest place among English local authorities, behind Hart in Hampshire. The Ribble Valley Health Profile, published by Public Health England, reveals that the health of people in the area is better than the England average.

Mellor has a higher rate of home ownership, either outright 41.9% or via a mortgage 34.17% than the national average which scores 30.6% and 32.8% respectively, which suggests that Mellor is an affluent area.

---

<sup>3</sup> The data in section 1.2 has been collated from the Lancashire Insight Page [Ribble Valley district - Lancashire County Council](#)

### 1.3. Parish & Household Carbon Emissions.

The Impact tool website provides a carbon assessment of Mellor Parish (see Appendix C).

This figure shows the annual carbon emissions (measured in tonnes CO<sub>2</sub>e<sup>2</sup>) emitted as a result of the different activities that residents within your parish’s boundary engage in – from heating to eating.

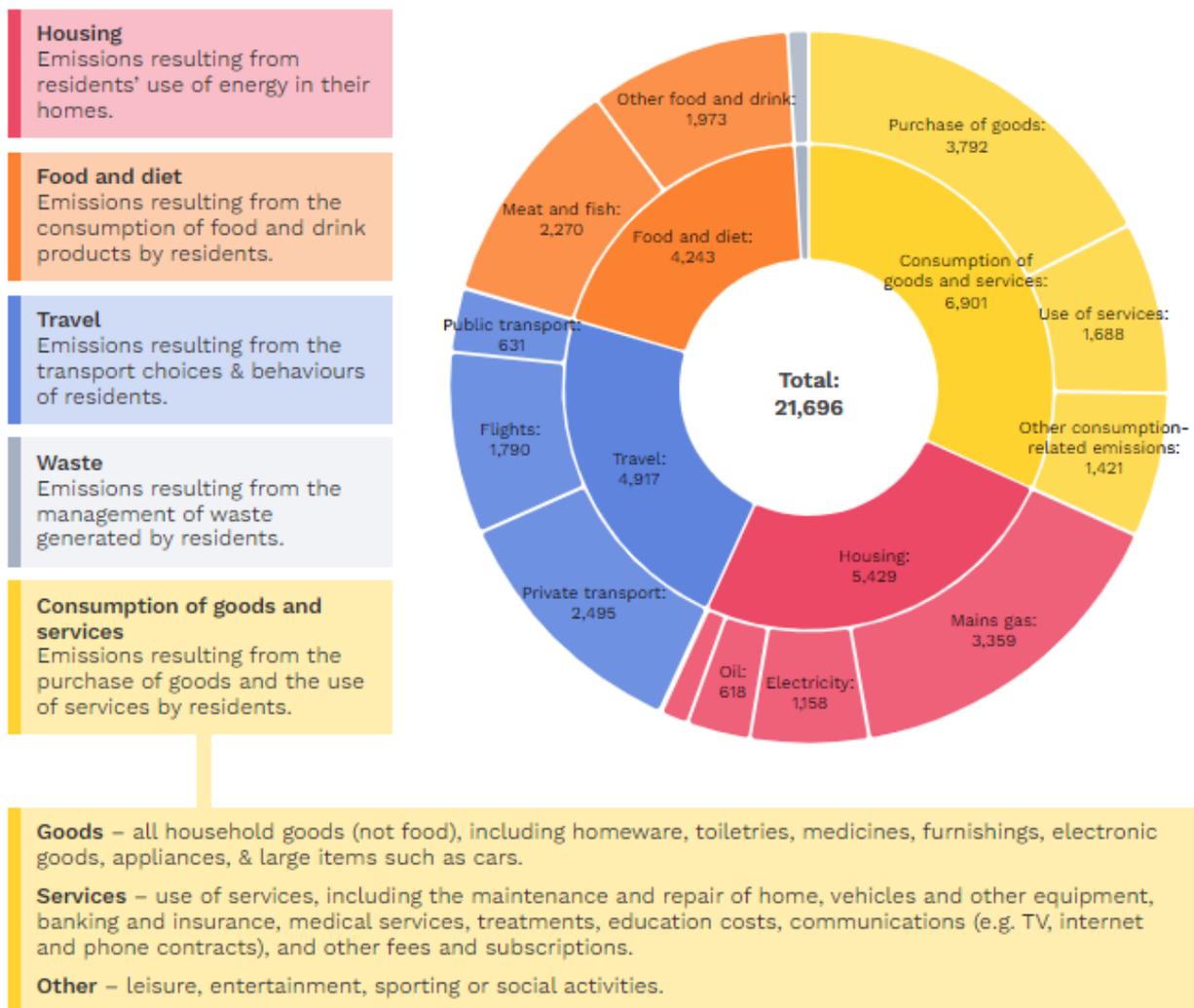


Figure 2 Table of total Mellor Parish carbon emissions from the Impact Tool<sup>4</sup>

Of the total carbon footprint 25% is from housing, 23% from transport.

<sup>4</sup> <https://impact-tool.org.uk/report?regionId=E04005267&geography=parish>

	Total emissions (t CO <sub>2</sub> e)	Per-household emissions (t CO <sub>2</sub> e)	%
<b>Total emissions</b>	<b>21,696</b>	<b>23</b>	<b>100</b>
Consumption of goods and services	6,901	7.2	32
Housing	5,429	5.7	25
Travel	4,917	5.1	23
Food and diet	4,243	4.4	20
Waste	206	0.2	1

Figure 3 Breakdown of Mellor Parish carbon emissions (ibid)

The per household carbon emissions in Mellor Parish are 15% higher than for the Ribble Valley as a whole and 40% higher than the UK average with all sectors showing increases but the largest being in housing (Mellor at 5.7t is 60% above the GB average) and transport (Mellor at 5.1 tonnes is 65% above the GB average).

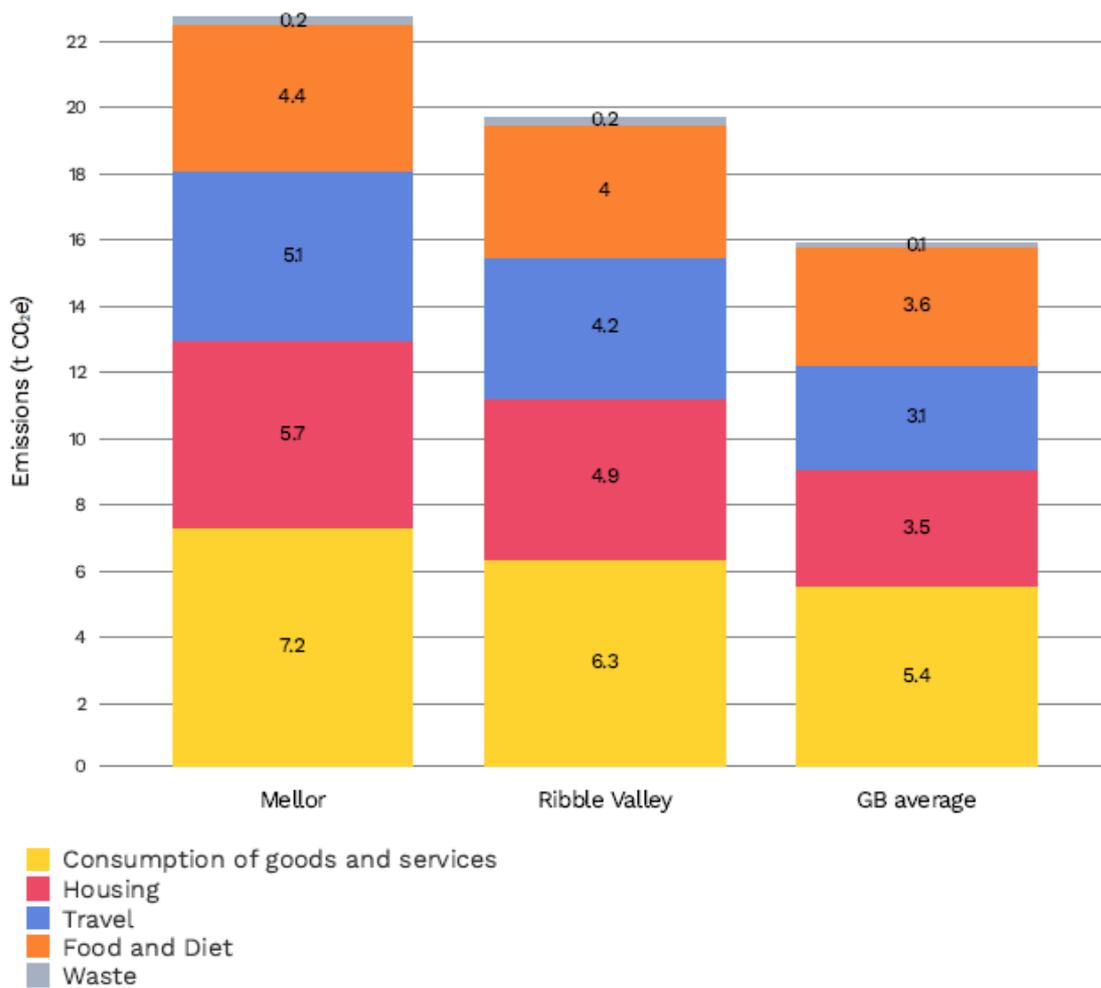


Figure 4 Mellor per household carbon emissions compared to Ribble Valley & GB averages (ibid)

It is easy to understand why transport, food and general consumption are high in Mellor due to its rural location and relative affluence, but the high housing figure is slightly surprising considering most of the houses have gas heating with gas being a lower carbon fuel than oil or electricity. Presumably this again is a reflection of higher affluence.

## 2. Community Engagement

The Mellor feasibility study required the potential for an electric vehicle (EV) car club to be investigated, to effectively understand the potential demand for a community car club within Mellor. To do this it was essential to consider the appropriate methods of communication and engagement to ascertain a range of views. This was discussed in detail with the lead Parish Council representative. It was agreed to undertake a multifaceted approach as highlighted below.

### 2.1. Community car club survey

An online survey was created to establish the potential interest for a car club, and to ask respondents whether they would be interested in a free household energy audit. The online survey was supported by posters throughout the village with a QR code and web address for ease of use. This was also followed up with a flyer which was delivered to every home in the village to encourage survey responses.

To reach as broad an audience as possible and to communicate with stakeholders from across the community, we utilised local communication channels including the Parish Councils existing networks within the community, highlighting the survey through their newsletters and website. We also communicated through social media groups and channels, through the village hall noticeboard and electronic noticeboard. The school shared details of the survey through their newsletter.

### 2.2. Village Show Consultation

To communicate directly with residents, the feasibility study team held a stall at the Mellor Village Show on Sunday 4th September 2022. At the show leaflets were handed out about car clubs and discussions held with residents so that they could give feedback directly to the team, to encourage them to sign up for the energy audit and to complete the online survey.

The event attracted a wide cross-section of the community and there was a very good turnout at the event with approximately 200 people in attendance. The qualitative data received through this process was incredibly detailed with some longer conversations. People were happy to engage and discuss the concept of a car club and how it could potentially work within the village. It is estimated that we talked to over 80 people within the 2-hour session. The feedback tended to fall into 3 categories:

- *Good idea but not sure it is for me as I have my own vehicle currently, maybe in the future.*
- *Good idea for the community and I would be interested in becoming a member.*

- *The voluntary driver scheme is a good idea for some of the less mobile members of the community.*

No one said that a car club was not needed, however one couple did suggest that the demographic profile of the community and relative affluence meant that some residents may not engage with the scheme. This is of course reflected in many communities where the move to shared vehicles is a significant behavioural change and will not work for all residents of any community for a multitude of reasons, however without creating options for car sharing the ability to car share is impossible.

The potential for a voluntary driver scheme in the area must be considered, linking to the higher-than-average population age groups and increasingly aging population.

## 3. Community EV car club Feasibility Study

### 3.1. Introduction to Car Clubs

Car clubs provide residents, visitors and or businesses with access to a vehicle when they require it. They are flexible and responsive to members. There is a move to electric vehicles (EVs) in car clubs to further reduce emissions and support the drive to net zero. This section explains the different options of car clubs, car rental and car sharing.

#### 3.1.1. Car clubs v car rental

Car clubs are member based and tend to be hired for short-term rentals by the hour or day. To use a car club you need to register and pay a joining or monthly membership fee. Car clubs can offer an array of vehicles including cars, vans, and micro mobility options such as e-bikes, e-cargo bikes, and e-scooters (please note that e-scooters are currently limited to where trials are taking place nationally).

Car rental schemes tend to be hired for longer periods of time, by the day or week and do not require membership. They offer a range of vehicle types including vans but not micro mobility. Operators such as Enterprise offer a car club for regular shorter journeys and a discount for car club members when using their rent-a-car scheme for longer journeys.

#### 3.1.2. Types of car clubs and car sharing

Car clubs are run across the country in a number of different formats:

- **Commercial car clubs** are run by larger operators including Enterprise, Hertz, and Co-Wheels. The operators manage all aspects of the vehicle and booking platforms including insurance, membership, and fuel costs. Charges are hourly or daily and include a mileage fee in addition. Traditionally these have been successful in urban localities, however operators such as Enterprise are expanding car clubs into smaller towns in the UK.
- **Community car clubs** are run independently by community organisations such as the Derwent Valley Car Club and Tisbury Electric Car Club. They also manage all aspects of their scheme as per the commercial clubs including insurance, membership, and fuel costs. Charging an hourly or daily rate which they can set

locally based on their community’s needs. Community car clubs tend to be more price sensitive and charge a lower hourly rate than commercial operators, some choosing not to charge additional mileage fees.

There are also community car clubs which partner with a commercial operator or run under licence from a national operator such as the Enterprise scheme based in Hartlepool. There are also hybrid clubs which run their own schemes but use a national platform such as the Karshare platform to manage the interface between the users and the club’s vehicles. Strathaven in South Lanarkshire provide a hybrid community car club model using the Karshare system for booking and insurance.

- **Peer-to-peer car sharing models** allow individuals to share their vehicles with other users and do this through a car sharing platform such as Karshare, Turo, and Hiyacar. These national models are particularly popular in urban areas although some operate outside of cities. The users rent vehicles through a dedicated platform that takes a commission from the hire fee which covers the insurance of the vehicles when hired through the scheme.

There are in effect multiple ways to access vehicles. The diagram below highlights some of the ways in which people can access vehicles from personal, exclusive use and ownership to private hire and informal lift sharing with friends or colleagues.

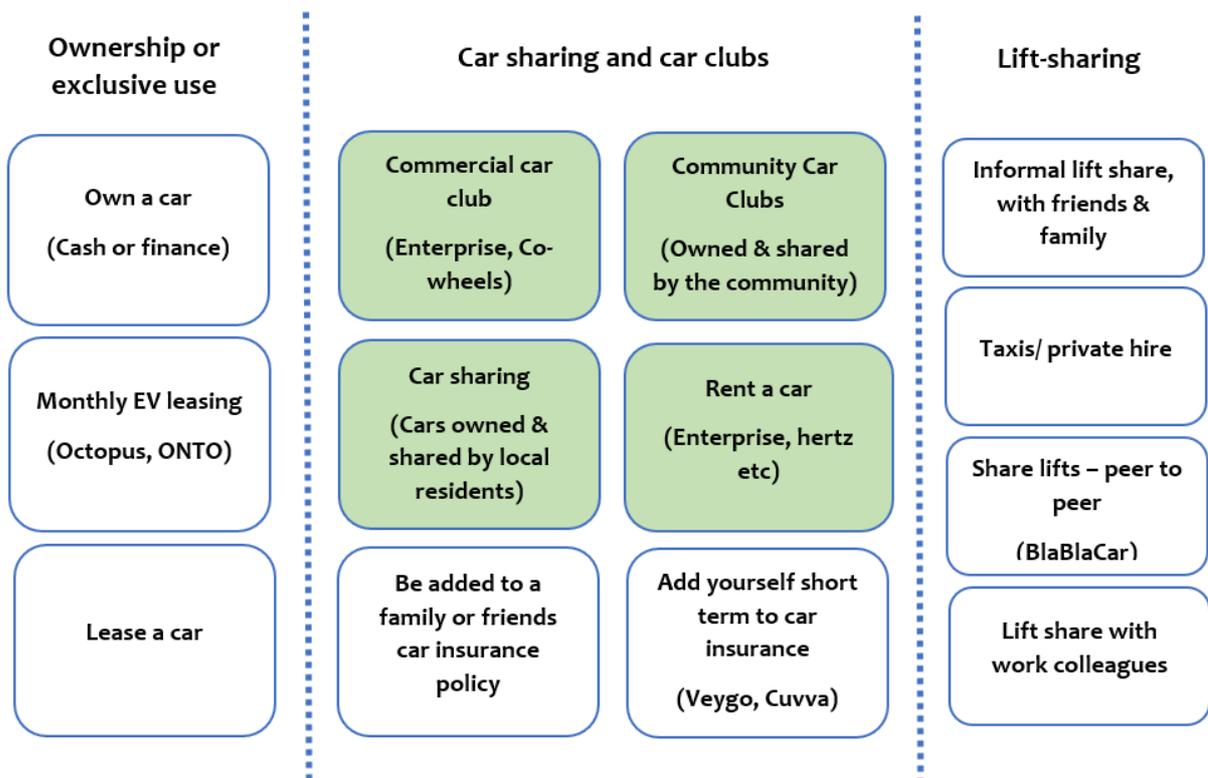


Figure 5 Ways in which people can access vehicles

In addition to the different models of car clubs and car sharing they can operate in a number of ways:

- **Back to base** is the most generic form of car club in the UK whereby cars must be returned to their designated parking space where they are hired from.
- **Back to area or geofenced** is like the back to base model, but rather than returning the car to a designated parking space, it is returned to a small defined area, typically a street or two. Geofencing uses technology to ensure that the user leaves the car within a certain geofenced area, so that other members can access the vehicle, without it having to be returned to a dedicated parking bay.
- **One-way** is becoming more common place and is a variation of the traditional scheme. It allows users to pick up a car within a defined area and drop it off elsewhere in an approved location. This can be beneficial for tourists and commuters but can be logistically more difficult for operators to manage as it requires the ability to move vehicles across locations to meet demand.

## 3.2. Community Car Club – Mellor

### 3.2.1. Types of car- sharing models

There are several different models of car sharing, as highlighted in section 3, however the focus set by the Parish Council was specifically a community car club. Therefore, other models were not specifically consulted upon in the survey.

### 3.2.2. Existing local car sharing provision

#### Community Car Clubs

At present, there are no community car clubs in the Mellor vicinity. The closest is Hour Car which is within the Calder Valley which is approximately twenty-six miles and an hour's drive away. Hour Car operates five vehicles from Hebden Bridge, Todmorden and Mytholmroyd.

#### Commercial Car Clubs

The closest commercial car club operates in Preston (eight miles and a twenty minute drive away) and Burnley (fourteen miles and a half-hour drive away). Both locations are operated by Enterprise Car Club.

#### Car Sharing

There are no local online car sharing schemes, Karshare is the closest and operates around the Manchester area.

## 3.3. Understanding demand

### 3.3.1. Survey

An online questionnaire was created to understand the potential demand in Mellor.

A total of thirty-six people took part in the online survey. The detailed analysis is provided in Appendix A, and a summary is provided below.

Eighty-five percent of respondents to the survey were from Mellor. Nine percent were from Ramsgreave, three percent were from Bolton and Preston, respectively. The

demographic profile of respondents is representative of the community with a higher number of respondents in the forty-five and over categories.

### 3.3.1.1. Access to vehicles

Respondents to the survey were asked questions relating to the number of driving licences in the household, and the number of vehicles they had access to. This allowed a picture to be built understanding the potential need for a car club. There were no households without a licence, most respondents hold two licences in the household and six people have only one license.

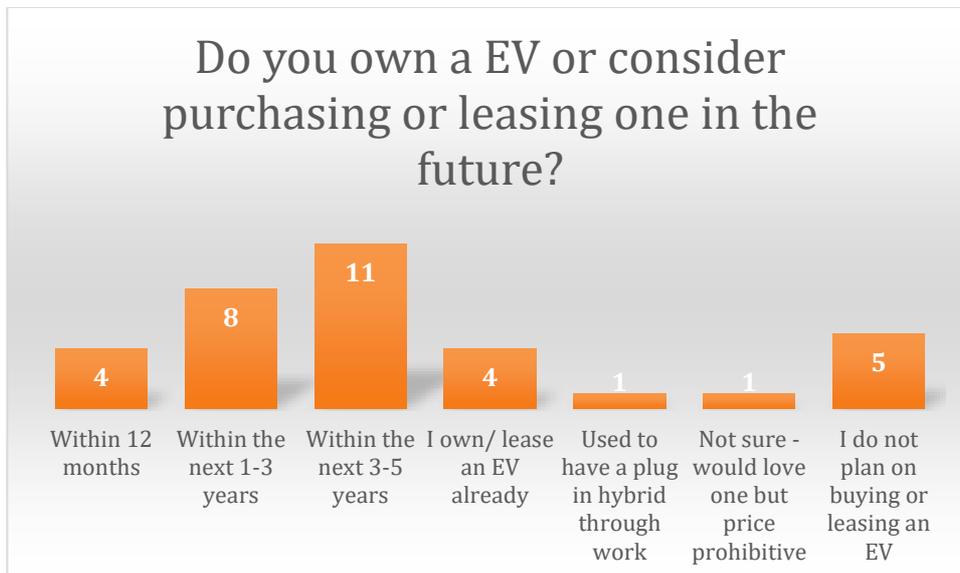
Over half of respondents have access to two vehicles within their household, nine have access to only one vehicle, some households had access to three and four vehicles.

The nine households who have access to one vehicle might require the services of a car club for some journeys; to check this hypothesis the data was cross tabulated with the licence data. Five of the respondents with only one licence have access to one vehicle; of these, two are single person households, which means that three of these respondents are potential car club users. Four households with two licences have access to one vehicle. Four households have three licences with access to two vehicles and one household has four licences with access to three vehicles. This is not a definitive guide as there are some two person households who may reduce from two vehicles to one if a car club was created in the village, but does highlight a potential need in the community.

### 3.3.1.2. Electric Vehicles (EVs) and EV charging

The survey looked into the use of EV within the community currently and in the future, it also asked about respondents' potential move to EVs over the next five years and their potential charging demands.

Four of the respondents currently own or lease an EV, a further four plan to buy/lease in the next 12 months. Eight plan to buy/lease in the next 1-3 years, and eleven within the next 3-5 years. Five do not plan to buy nor lease an EV. One used to have a hybrid, and one would love to purchase an EV, but the cost puts them off.



*Figure 6 EV ownership*

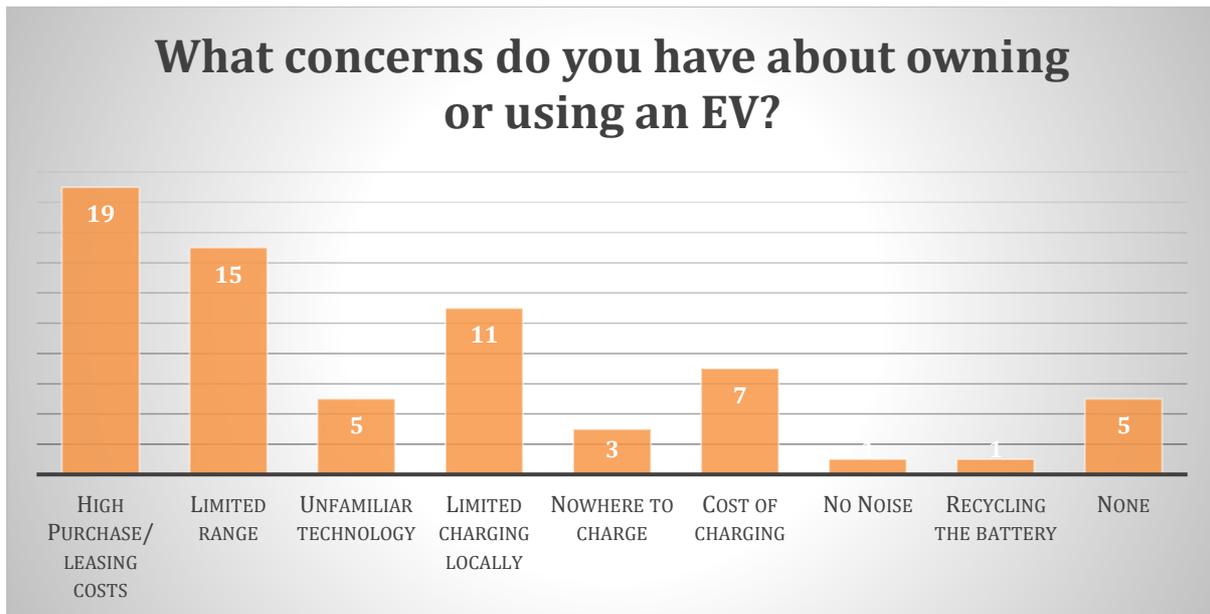
In terms of current and future charging demands, thirteen plan to install an EV charger at home, six people said they would use a home charger and public charger where necessary. Four answered they have an EV charger at home which correlates with the four who currently own an EV. A further four answered that they would use public chargers. One said that they would charge at work and five answered 'not applicable' which correlates with the five who do not plan to own or lease an EV.

When asked about the speed of chargers that they would require for public charging within their community, fourteen require rapid charging, six would use a fast charger, one would use a slow charger, seven people did not know, and two said they would use a mixture.

This data was then correlated against the data set related to current and future ownership of EVs. The four who currently own their own EV require rapid charging in the community alongside their home charger. Of those who plan to buy or lease an EV within the next twelve months, two require fast charging, and one requires slow charging. Of the eight people who plan to buy or lease a vehicle within 1-3 years, four require a rapid charger, and two require a fast charger. Of the eleven people who plan to buy or lease within 3-5 years five require rapid charging, two would like fast charging, one requested slow and four don't yet know.

There are currently two 22kW (fast) EV chargers within the community based at the village hall. There is clearly potential for rapid charging within the community depending on the grid capacity, providers, and actual EV take up over the next few years.

Respondents were then asked 'what concerns, if any, they may have about owning or using an EV?' This was a multiple-choice question, a total of sixty-seven answers were recorded. These are highlighted in the table below.



*Figure 7 EV concerns*

The highest concern was around the high purchase/ lease costs, followed by the limited range of EVs. Eleven said limited charging locally was a concern and three said they were concerned they would have nowhere to charge. Seven stated rising costs and five were concerned about the unfamiliar technology. One had concerns about the lack of noise, and another was worried about recycling the battery. Five people had no concerns related to owning or leasing an electric vehicle.

As cost is highlighted as the largest barrier to owning or leasing an EV, it may be that these respondents would be more likely to convert to a car club scheme with EVs to remove this cause of concern. If a car club was created in Mellor, it would be important to ensure that the range of the vehicles was sufficiently high to relieve range anxiety.

#### **3.3.1.3. Existing forms of transportation**

Participants were asked about the type of transport they currently use and the frequency of usage. The graph below highlights the type of transportation and frequency of use. Use of a car or van was the highest and most frequent type of transportation with twenty-six people using a car on a daily basis. Six people use a car or van a couple of times per week. Walking was the second most popular form of transport with seventeen people choosing to walk daily. The responses showed a lack of public transport usage in the form of trains and particularly buses in the area which links to the lack of local public transport infrastructure. The informal lift sharing with friends and family does show a potential in relation to car sharing and a more formalised scheme within the community.

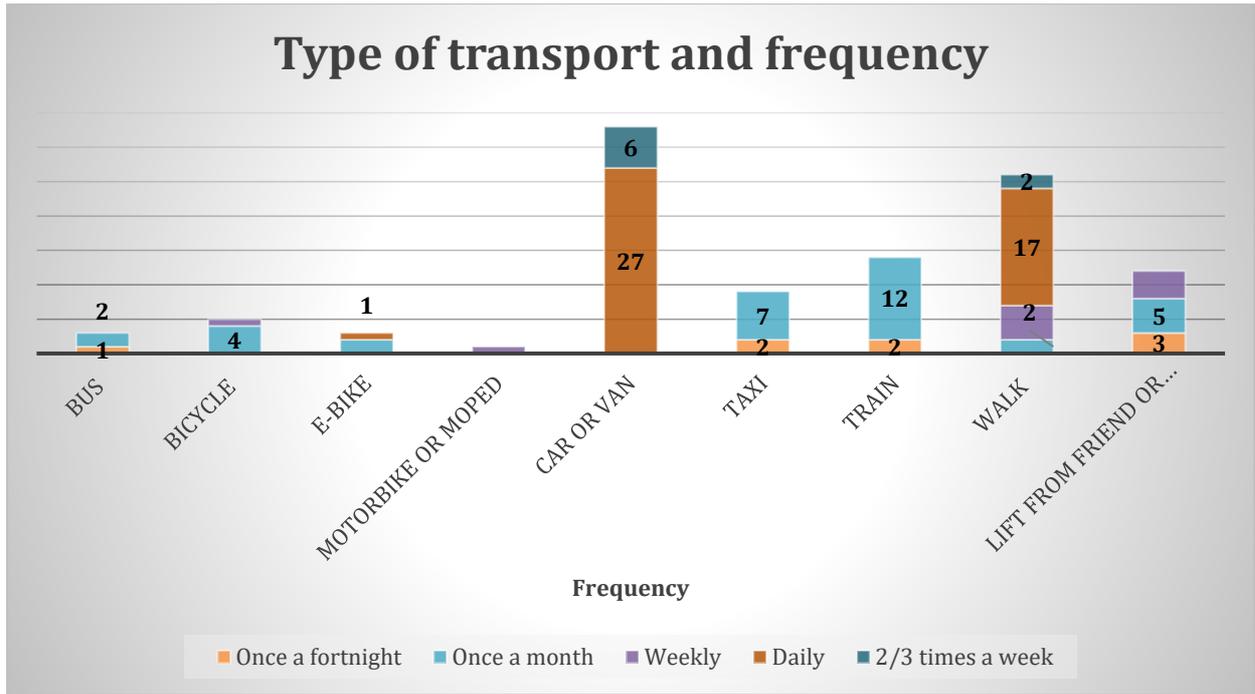


Figure 8 Existing transport use

#### 3.3.1.4. Car clubs

Participants were asked whether or not they had used a car club before. Thirty-three people said that they had not used a car club before, with only one person saying they had used a car club. This is not unsurprising due to the lack of car clubs in the immediate vicinity of Mellor.

The survey then asked 'If a community EV car club was developed in your community would you be interested in using it?' Nineteen people said that they may use a car club if one was to be developed in their area, eleven said yes, three people said no and one person stated 'Other'.

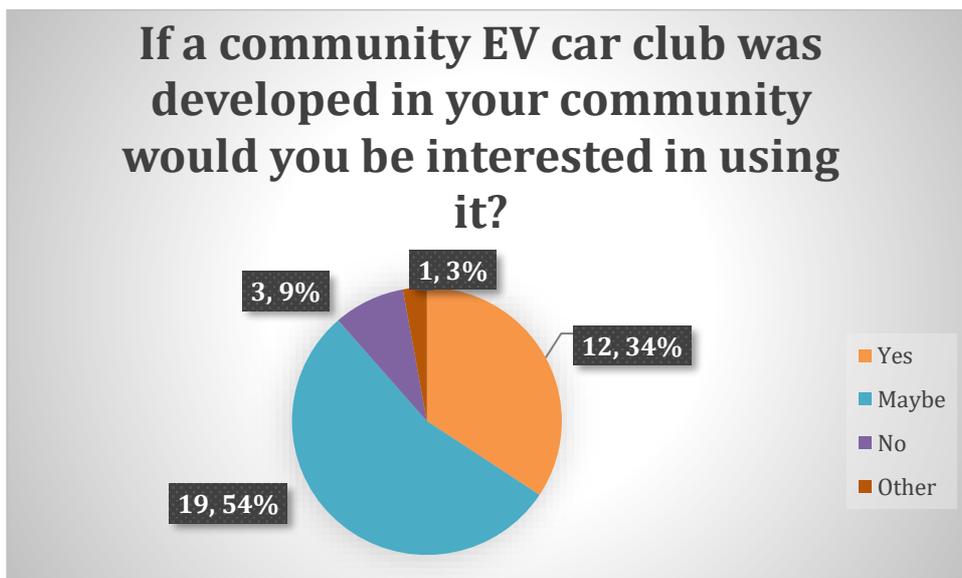


Figure 9 Interest in a potential car club

People were asked what type of car club services they may wish to use and how often. Twenty-seven people wished to use an electric car, three people on a daily basis, eight said two-three times a week and a further nine said that they would use it on a weekly basis. One person said they would use an electric car once a fortnight and two people answered once a month.

One person requested an electric van two-three times a week, one person wanted to use an e-van weekly and three people would use an e-van monthly with fourteen saying they would use an e-van rarely.

Three people would use a voluntary driver scheme two to three times a week. Thirteen said they would use a voluntary driver scheme rarely.

Although these figures are not high, if you have three people using a community vehicle daily, eight using it two-three times a week and nine using it on a weekly basis that would give sufficient usage to sustain one, potentially two, community car club vehicles.

### 3.3.1.5. Benefits of a car club

Respondents were asked to consider the benefits a community car club could bring to their community. Thirty-four people responded with 139 positive benefits. The highest responses cited benefits including a reduction of carbon emissions, reduction of the costs of using a car, reduction of the number of cars in the community and encouraging the take up electric vehicles. The table shows this information below.

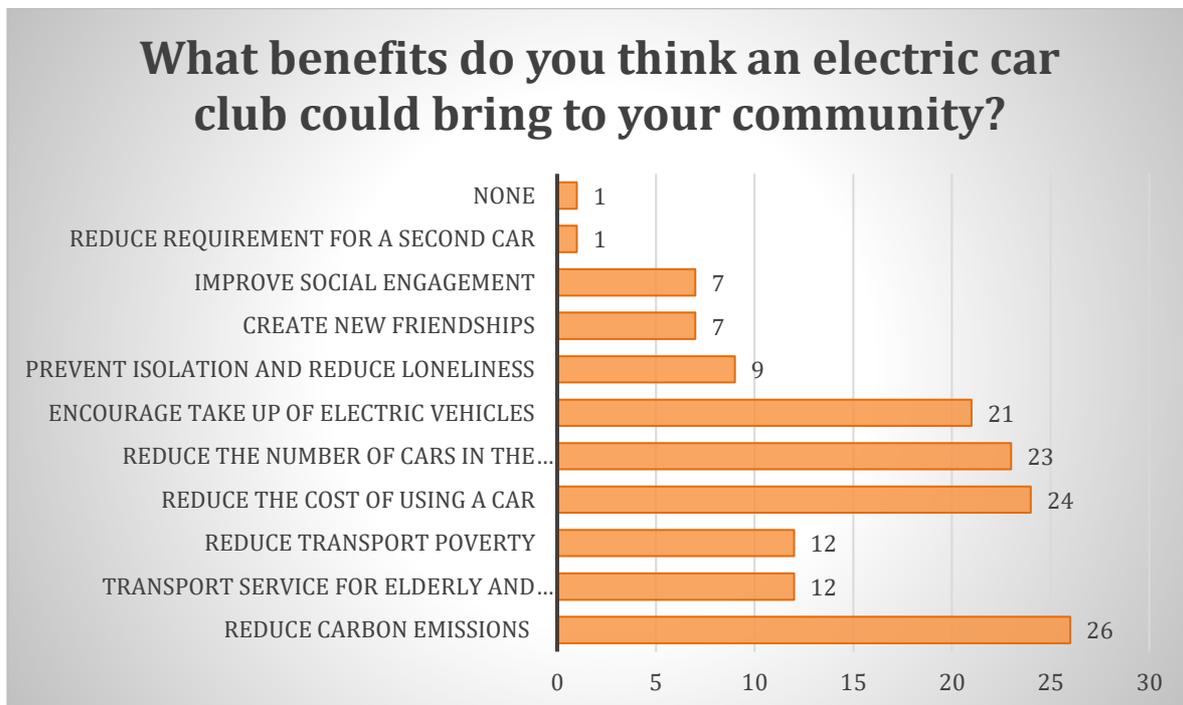


Figure 10 Car club benefits

Respondents were asked if Mellor had a car club would they consider reducing car ownership in their household. Twelve people answered yes, ten people answered no, ten people answered maybe, and one answered other stating they do not travel long distances.

This data suggests that having a car club in Mellor could remove between twelve and twenty-two vehicles from the road within this small sample size. This is the starting point and if set up, could encourage more take up of EVs and reduce car ownership within the wider community.

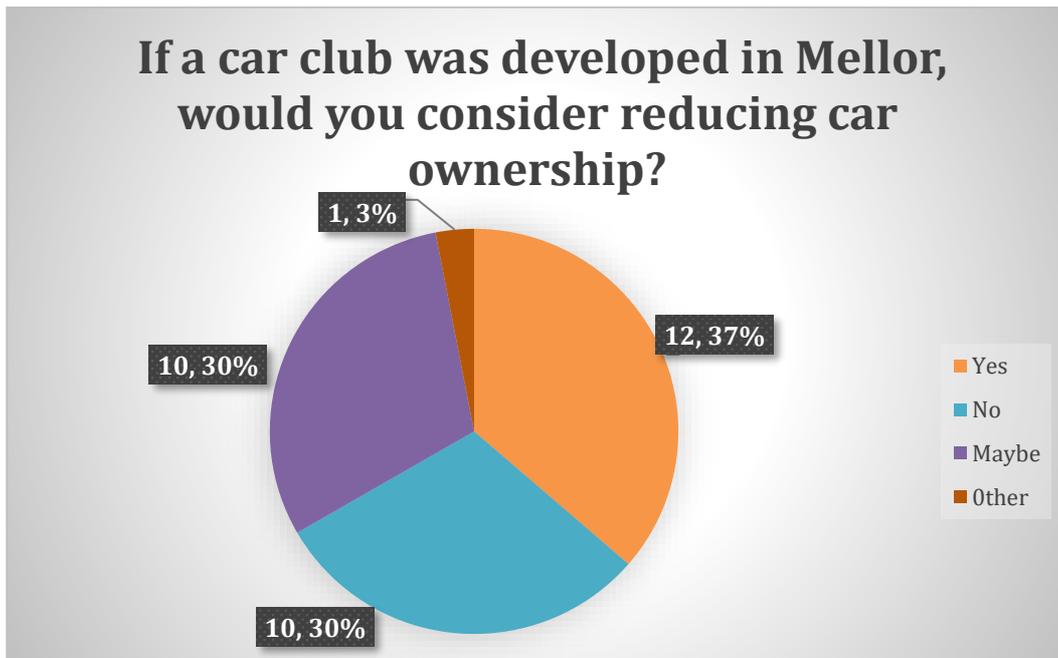


Figure 11 Reducing car ownership

### 3.3.1.6. Car Club Voluntary Driver Scheme

The survey asked respondents ‘if a Voluntary Driver Scheme primarily targeted at elderly and disabled people would be beneficial to people in Mellor?’ Twenty people said yes, ten people answered ‘maybe’, five people said they did not know. No responses were received for ‘no’.

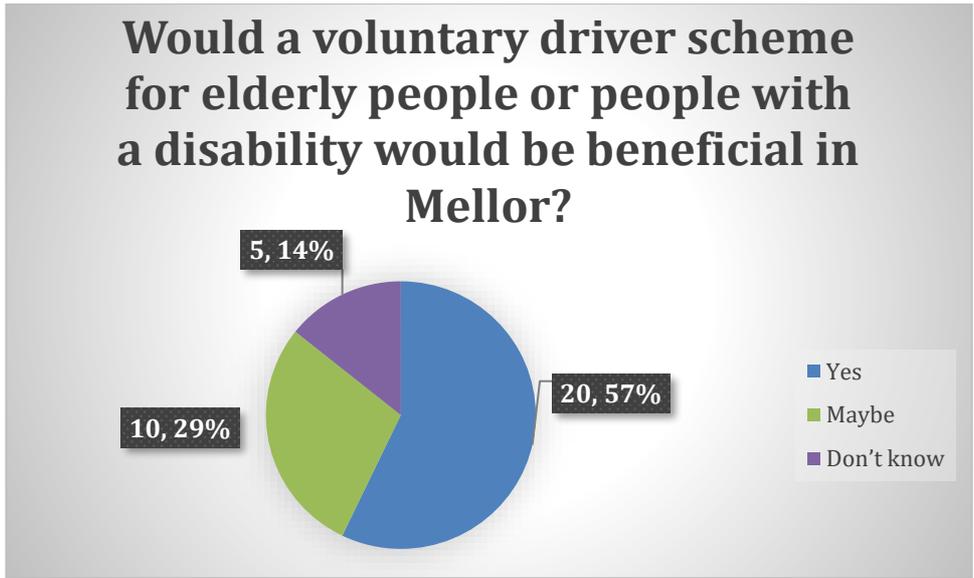


Figure 12 Voluntary driver scheme

Participants were then asked if a Voluntary Driver Scheme was established, would they be interested in volunteering as a volunteer driver? Eight said yes, eighteen said maybe and nine said no. Of the 'yes' and 'maybe' responses sixteen left their contact details for follow up.



Figure 13 Volunteering interest

To understand the reasoning and motivation behind potential volunteers for the scheme respondents who said that they would or may volunteer we asked them 'what do you think the benefits of becoming a volunteer driver are?' All the potential volunteers responded, with seventy-one responses received.

The highest responses were 'giving back to the community', and 'helping people more vulnerable within my community'. 'Decreasing rural isolation', and 'reducing carbon emissions', were also highlighted followed by the more social aspects of the scheme including 'making new friends' and 'a new social activity'. This suggests that the social

impact and value of such a scheme is well understood and supported within the community.



Figure 14 Benefits of being a volunteer driver

### 3.3.1.7. Future follow up

People were then asked would you be interested in attending a virtual meeting to find out more about developing a community car club? Twenty-one people answered 'maybe,' eight people answered 'yes', with five people saying 'no'.

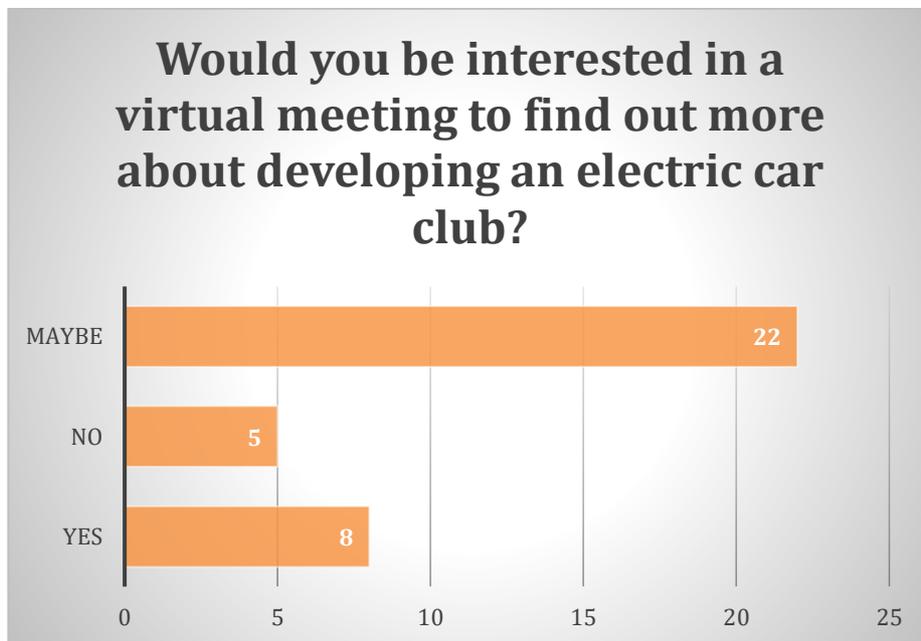


Figure 15 Interest in a follow-up meeting

Respondents were asked if they would like to be contacted in the future regarding the development of a car club in the Mellor area. Seventeen people answered yes, twelve people said maybe and five people answering no. The 'yes' and 'maybe' responses

equate to ninety-five percent of responses. Nineteen people chose to leave their contact details for follow up.

#### **3.3.1.8. Other Comments**

Respondents were given the opportunity to leave any additional comments, they are detailed below (in no specific order):

*"I have considered car clubs before but there wasn't one in the area. Definitely interested in hearing more about it. I use my car quite rarely, and yet do still need one for some things - car club would make a lot of sense for me".*

*"A volunteer driving scheme with a community EV would be an excellent way of supporting the elderly and vulnerable in our community".*

*"A car club sounds a good idea. However additional charging points at the village hall would be required so that the car club fleet don't take up all available charging points all the time. Living in a terrace house, the use of the charging points to charge my EV is very important".*

*"I would like to know more about the capital outlay & running costs of setting up a car club, funding etc. Unfortunately I can't make the virtual meeting tomorrow night".*

*"An electric van would be a good idea. We would definitely use it once a month would also be good for taking excess rubbish to the recycling centre for the whole village".*

#### **3.3.1.9. Energy audit**

Respondents were finally given the opportunity to leave their details for a free home energy audit, five people chose to do so.

### **3.4. Feasibility of different car club models**

#### **3.4.1. Potential models**

Mellor Parish Council have suggested a preference for a community car club model which has been investigated through this study. There are two slightly different operational models which are highlighted below. It should also be noted that a commercial model may be an option, should the Council wish to reconsider their preferred model. There are of course 'pros and cons' to each model.

##### **3.4.1.1. Community Car Club.**

There are multiple ways of operating a community car club from a fully independent scheme which the Parish Council or a community organisation could create, to a hybrid scheme which would utilise a commercial operator's platform such as Karshare.

##### **3.4.1.2. Independent Community Car Club**

An independent community car club can be run by a community organisation. There are examples of this model including the Derwent Valley Car Club and Tisbury Electric

Car Club. The two models are similar but have different aspects based on the technical platforms used.

Derwent Valley Car Club has been operating in a small rural area of Gateshead and more recently County Durham for almost ten years. The Derwent Valley Car club has created its own online booking system and website to manage the booking and back-office operations. This includes invoicing and payment systems. However, it is a 'low technology' operator in that it does not use telematics within its vehicles. Instead, it has key safes at the vehicle locations. This can be a benefit as the overheads and operational costs are significantly lower than telematic systems and there are no issues with 'blackout areas' when accessing vehicles in areas with poor internet connectivity.

Alternatively, the Tisbury Electric Car Club has been in operation since early 2021 and uses a co-operative booking system called TMF (The Mobility Factory) to manage its operations and has telematic enabled keyless vehicles. This system is effective but involves an initial payment to use the system, purchasing of the telematic equipment for the vehicles and then an ongoing subscription per vehicle. Both operations require co-ordination at a local level for 'inducting' or 'onboarding' members and general troubleshooting.

The benefits of a community scheme are that it can be run as a social enterprise or linked to an existing community organisation. As a not-for-profit operation the costs for the community to hire the vehicles can be significantly lower and more affordable than a commercial operator. The vehicle(s) are chosen by the community; they can determine the type of vehicle(s) involved. If they utilise EVs then the carbon savings are much higher than an operation utilising petrol, diesel or hybrid vehicles.

As the scheme is fully controlled by the community organisation, they can choose to integrate other types of vehicles including micro mobility where appropriate and or a voluntary driver scheme to support members of the community who are unable to drive. This is something that the Derwent Valley Car Club has operated for many years and is a key aspect of its operation. This is not part of the Tisbury scheme as they have a community transport operator in the area.

The disadvantages of a community car club are that it requires more local leadership, drive and commitment with support of a co-ordinator or volunteers to run. The club needs to lease or purchase their own vehicle(s), insurance and the club would be responsible for looking after and maintaining their vehicle(s). As a social enterprise or charitable organisation, it would be possible to look for grants to initiate such as scheme. This was the case for both the Derwent Valley and Tisbury clubs.

#### **3.4.1.3. Hybrid Community Car Club Model**

A hybrid model is where the community runs their car club using a commercial providers platform. Climate Action Strathaven in South Lanarkshire run such a scheme in partnership with the Karshare platform. Initially the concept was that residents could place their cars on to the Karshare platform and a number of community car club vehicles would also be made available through the platform. The scheme has worked well for the car club vehicles, however, the utilisation rates of residents' vehicles was less successful, as users preferred to hire the community vehicles.

There are benefits to the Karshare system in that the commercial operator runs the booking and insurance elements of the scheme. It is a technology driven system using keyless access and facial recognition to lock and unlock vehicles through a mobile phone device. The operator undertakes all of the onboarding of members, bookings, and payments. The operator then takes a percentage of the income and returns the balance to the organisation.

It does still require community involvement in relation to the vehicle purchase or leasing (leasing can be arranged through Karshare), maintenance, and insurance of the vehicle (when not in use by a Karshare member) needs to be covered by the community. This means that the community can choose the type of vehicle(s) involved and may have higher carbon savings if choosing to operate with EVs.

This type of operation can make the scheme less onerous for the community, but they may also have less involvement with the members of the scheme as this is operated by the commercial provider and the social aspects of such a scheme may be reduced. There are also additional booking fees for the user which can make the scheme rather expensive.

It is also harder to integrate other services of a community car club such as micro mobility options and a voluntary driver scheme.

#### **3.4.1.4. Commercial car club model**

This approach has not been formally investigated through this feasibility study. However, it would be inappropriate not to mention this potential option within the study. It would need discussion with a commercial provider directly, but that may be an area the Council wishes to consider.

Enterprise Car Club is the largest commercial operator in the area currently and they are continually expanding their operation of car clubs nationally.

The benefit of a commercial operator such as Enterprise is that it can link to other clubs which the provider operates nationally. Enterprise in particular link to the rent-a-car side of their business by offering a discount to their car club members if they require a longer hire period, provided through the rent-a-car side of their business.

There are other commercial operators that could be considered such as Co-Wheels who operate in Manchester but their operations in the area are much smaller than Enterprise and focus on urban settlements.

A key differential between the commercial and community operations is price. Commercial operators charge a higher price point than community schemes due to their higher overheads and commerciality. This could be prohibitive for some residents.

In addition, while commercial operators are moving towards electric vehicles initially diesel, petrol or hybrids may be provided rather than full EVs.

The other potential disadvantage of a commercial operator is that the local community has little or no involvement and control of the scheme. It currently lacks the ability to integrate other micro mobility solutions within this model. However, for some this can be a benefit if organisations wish for a less intensive, hands-off approach.

### 3.4.2. Car sharing

Informal car sharing is already happening in Mellor as evidenced in the survey. There may be options to formalise and expand this offer, however finding a provider who wishes to operate their system in a rural area may be difficult due to current economic conditions. Operators such as Karshare are focusing their core work into urban areas. A hybrid model would be possible but a full car sharing model may be more difficult due to the rural nature of the area.

In summary the community, hybrid and commercial car club models could be applied in Mellor, depending funding, and on the commitment and levels of involvement by the community and Parish Council.

## 3.5. Analysis of delivery models

Should a commercial operator choose to deliver their services in Mellor there would be no role for the Parish Council to play other than the initial instigation of highlighting the need to an operator and encouraging and promoting the use of the scheme.

The delivery of the hybrid or community models will require significantly more input from the Parish Council or another community organisation. For both models they will need to:

- Lease or purchase a vehicle(s)
- Access insurance for the vehicles and public liability (if not already covered through their existing policies)
- Expand the EV charging infrastructure, this may require dedicated charging and a parking bay
- Consider and agree an operating system for the club and ways to access the vehicles:
  - Karshare does not require an ongoing fee for its services but takes a percentage of income once the cost of the telematics is covered. Keyless technology.
  - The Mobility Factory system could be investigated in line with the Tisbury approach. Keyless technology.
  - Create a Mellor system, this can be as simple as a Supersaas<sup>5</sup> online calendar or a more detailed online system could be created such as the Derwent Valley platform. Key safes would be required.
- Create the marketing and branding for the scheme, promote it locally to engage members
- Recruit a Co-ordinator or volunteers to set up and operate the scheme.

---

<sup>5</sup> <https://www.supersaas.com/>

To make either a hybrid or a community car club model work will require grant funding initially to set up the scheme. The grant funding will be different depending on whether a car is purchased or leased. The lease model requires less upfront funding than the purchased model. However, through the purchased model, the Council will have an asset for the community. Both models include a level of funding for either depreciation and vehicle replacement costs or to cover the down payment on the subsequent lease agreement.

All models are based on one vehicle with twenty members paying a monthly membership fee of £5 per month, using the car twice per month at an average hire of 5 hours per hire, this is a low estimate but allows for an appraisal to be created. £60/annum per member with 20 members brings in £1,200/annum.

This model does not include mileage fees which could be added on top to bring in an additional income and offset any increasing electricity charging costs. If charged at 20p/p/m at an average of 25 miles per trip that would bring in an additional income of £200 per month or £2400 per annum. Again, this is a very modest assumption and there is likely to be a much higher utilisation rate.

Initial costs are based on a flat rate of £5 per hour, this could be increased which would again bring in a higher income level but may be less affordable. Some additional testing with community members would support additional understanding around the price point. Commercial car clubs charge around £7 per hour, plus membership fees and mileage rates.

### Car leasing model - community car club

Income	Year 1	Year 2	Year 3
Annual membership fees	£1200	£1200	£1200
Annual usage fees	£12,000	£12,000	£12,000
Initial grant	£25,000	£0	£0
<b>Total</b>	<b>£38,200</b>	<b>£13,200</b>	<b>£13,200</b>
Expenditure	Year 1	Year 2	Year 3
Vehicle cost	£5,850	£4,200	£4,200
EV Charge Post	£5,000	£0	£0
Insurance	£2,500	£2,500	£2,500
Operating system independent	£3,550	£600	£600
Staff costs	£12,000	£0	£0
Service and Maintenance	£600	£600	£600
Set up costs, key safe etc	£500	£0	£0
Cleaning	£480	£480	£480
Electricity	£600	£600	£600
Social Media Advertising	£120	£120	£120
Marketing	£1,550	£600	£600
Replacement fund deposit set aside for year 4.	£660	£660	£660
<b>Total</b>	<b>£33,410</b>	<b>£10,360</b>	<b>£10,360</b>
<b>Balance/ surplus</b>	<b>£4,790</b>	<b>£2,840</b>	<b>£2,840</b>

Figure 16 Table 1 - Community car club, leasing figures

\*Please note the leasing cost is higher in the first year due to the upfront payment of £1650. Based on a Nissan Leaf with a maximum annual usage of 10,000 miles.

This model requires an initial grant of £25,000 to allow for a co-ordinator part time (approx. 2 days per week self-employed, once set up the schemes can be run by volunteers), initial leasing fee, set up costs for the insurance, operating system, marketing etc. In utilising grant funding for the first year to off-set some of the costs it allows the scheme to grow at a steady rate which means that if the take up is not as quick as planned it can still cover its costs.

A small balance/surplus is forecast for each year, alongside a depreciation fund. This is essential even with a leased model as leasing companies require a non-refundable deposit at the start of the contract.

There are multiple variables in the models particularly around forecasted user numbers and price points which can be amended or changed to allow more income to be generated.

### Car Purchase model – Community car club

Income	Year 1	Year 2	Year 3
Annual membership fees	£1200	£1200	£1200
Annual usage fees	£12,000	£12,000	£12,000
Initial grant	£60,000	£0	£0
<b>Total</b>	<b>£73,200</b>	<b>£13,200</b>	<b>£13,200</b>
Expenditure	Year 1	Year 2	Year 3
Vehicle cost	£35,000	£0	£0
EV Charge Post	£5,000	£0	£0
Insurance	£2,500	£2,500	£2,500
Operating system independent	£3,550	£600	£600
Staff costs	£12,000	£0	£0
Service and Maintenance	£600	£600	£600
Set up costs, key safe etc	£500	£0	£0
Cleaning	£480	£480	£480
Electricity	£600	£600	£600
Social Media Advertising	£120	£120	£120
Marketing	£1,550	£600	£600
Replacement/ vehicle depreciation fund	£4,800	£4,800	£4,800
<b>Total</b>	<b>£66,700</b>	<b>£10,300</b>	<b>£10,300</b>
<b>Balance/ surplus</b>	<b>£6,500</b>	<b>£2,900</b>	<b>£2,900</b>

Figure 17 Table 2 - Community car club purchase figures

This model requires an initial grant of £60,000 (it could be slightly less) to allow for a co-ordinator part time (approx. 2 days per week self-employed. Once set up the schemes can be run by volunteers), vehicle purchase costs, set up costs for the insurance, operating system, marketing etc. As with the leased model by utilising grant funding for the first year it can off-set some of the costs and allows the scheme to

grow at a steady rate, which means that if the take up is not as quick as planned it can still cover its costs and become sustainable.

A small balance/surplus is forecast for each year, alongside a depreciation fund. This is essential so that when the vehicle reaches the end of its life there will be a fund available to replace the vehicle. This could be invested over the lifetime of the scheme to bring additional interest into the club.

There are multiple variables in the models particularly around forecasted user numbers and price points which can be amended or changed to allow more income to be generated. It would also be possible to purchase a second-hand vehicle to reduce the initial costs.

### Hybrid Community Car Club models

To understand the differences in an independent car club model and a model using a commercial providers platform, we have modelled the leased and owned models again using the Karshare platform (others could be sourced). The advantage of the Karshare platform is that there are no upfront fees to the club whereas other commercial operators charge a fee in excess of £4,000 per annum to use their platforms. This is unsustainable for rural car clubs.

The percentage of revenue charged by the Karshare is 30% of the hire cost. There would be savings on the insurance cost and the operating system however it does affect the income levels as highlighted in the models below.

The income to the car club would be 70% of the hire fee. To calculate this figure based on the same costs above, we have created the following calculations:

#### Lease model – Community Car Club using Karshare platform

Income	Year 1	Year 2	Year 3
Annual usage fees	£8,400	£8,400	£8,400
Initial grant	£25,000	£0	£0
<b>Total</b>	<b>£33,400</b>	<b>£8400</b>	<b>£8400</b>
Expenditure	Year 1	Year 2	Year 3
Vehicle cost	£5,850	£4,200	£4,200
EV Charge Post	£5,000	£0	£0
Telematic cost	£195	£0	£0
Insurance	£400	£400	£400
Staff costs	£12,000	£0	£0
Service and Maintenance	£600	£600	£600
Cleaning	£480	£480	£480
Electricity	£600	£600	£600
Social Media Advertising	£120	£120	£120
Marketing	£1,550	£600	£600
Replacement fund deposit set aside for year 4.	£660	£660	£660
<b>Total</b>	<b>£27,455</b>	<b>£7,660</b>	<b>£7,660</b>
<b>Balance/ surplus</b>	<b>£5,945</b>	<b>£740</b>	<b>£740</b>

Figure 18 Table 3 - Community car club, leasing using Karshare

### Owned model – Community Car Club using Karshare platform

Income	Year 1	Year 2	Year 3
Annual usage fees	£8,400	£8,400	£8,400
Initial grant	£60,000	£0	£0
<b>Total</b>	<b>£68,400</b>	<b>£8,400</b>	<b>£8,400</b>
Expenditure	Year 1	Year 2	Year 3
Vehicle cost	£35,000	£0	£0
EV Charge Post	£5,000	£0	£0
Telematic cost	£195	£0	£0
Insurance	£400	£400	£400
Staff costs	£12,000	£0	£0
Service and Maintenance	£600	£600	£600
Cleaning	£480	£480	£480
Electricity	£600	£600	£600
Social Media Advertising	£120	£120	£120
Marketing	£1,550	£600	£600
Replacement/ vehicle depreciation fund	£4,800	£4,800	£4,800
<b>Total</b>	<b>£60,745</b>	<b>£7,600</b>	<b>£7,600</b>
<b>Balance/ surplus</b>	<b>£7,655</b>	<b>£800</b>	<b>£800</b>

Figure 19 Table 4 - Community car club purchase using Karshare

Through the Karshare model it would be possible to apply for a lower grant amount initially for the set-up costs. However, the income levels and overall balance are significantly lower in subsequent years in the leased and owned schemes with the Karshare model. This partly due to the loss of membership fees. They could be recovered by charging members a higher hourly or daily rental.

However, it must also be noted that there are additional costs for the user when booking a vehicle through Karshare, which can make the hire more expensive. As highlighted in the tables below:

Petrol Car	2 Hour hire cost	Day hire costs
Hire fee	£10	£32.00
Insurance fee	£9.97	£9.97
Booking fee	£8.00	£8.00
VAT	£1.60	£1.60
<b>Total Cost</b>	<b>£29.57</b>	<b>£51.57</b>
Electric Car	2 Hour hire cost	Day hire costs
Hire fee	£10.00	£27.00
Insurance fee	£18.12	£18.12
Booking fee	£8.00	£8.00
VAT	£1.60	£1.60
<b>Total Cost</b>	<b>£37.72</b>	<b>£54.72</b>

Figure 20 Table 5 - Additional costs with Karshare

The figures are based on the Strathaven vehicles current rates. The day rate (£27/ £30) and hourly rate (£5) is reasonable however the additional costs that the user pays on

top can make a short journey rather expensive. A single two hour EV hire works out at £37.72 which equates to an £18.86 hourly rate.

There is also a £250 damage deposit to be paid 48 hours before the booking. However, it must be noted that with the additional charges of insurance, booking fee and VAT the costs for a short booking are already substantial for the user and are higher than the equivalent hire period with a commercial car club.

### 3.5.1. Recommended models

Based on the above analysis, it is recommended that the Parish Council consider either a community car club model, leased or owned depending on preference and availability of grant funding. Or consider approaching a commercial operator to provide a scheme in the area. The levels of income with the Karshare model are too marginal to recommend that approach.

## 3.6. Community benefits of car clubs and car sharing

Car clubs can benefit users and communities by:

- Offering cost savings of between £1,000 and £3,500 per annum depending on the type of club, vehicle usage rates, and charges
- Reducing congestion by removing 18-20 vehicles from the road per car club vehicle
- Giving access to newer, safer, and more environmentally friendly vehicles (car club vehicles are an average age of 1.8 years as opposed to average age of 8 years for a private vehicle)
- Removing the costs and hassle of vehicle ownership (insurance, MOT and servicing costs, fuel, and repair bills)
- Removing the expense of car ownership or expensive car financing schemes and avoids vehicle depreciation costs
- Remove issues related to car parking in communities and charging for homes with a lack of off-street parking
- Supporting infrastructure (EV charge point) development and providing the potential to create additional electric car charging infrastructure in communities, which brings benefits to car club users and private EV owners
- Providing access to employment, training opportunities and services where public transport is less viable
- Reducing community isolation and increases access to services where a voluntary driver scheme is operated as part of a car club
- Allowing access to a range of vehicles which are most appropriate to the journey e.g. city cars for smaller shorter trips, family vehicles, and vans

- Supporting a fair and just transition to EVs in communities and allowing users to try EVs without needing to purchase one
- and
- Where a car club replaces a second vehicle, potential longer-term change by encouraging the take up of EVs when the primary household vehicle is replaced

By having multiple options of vehicles and sharing schemes within an eco-system of car sharing allows the move from private or exclusive ownership to sharing, and ultimately the reduction of vehicle use, carbon emissions, air pollution, parking issues and congestion.

It should also be noted that car clubs and car share users think proactively about the most efficient way to make their journey and will walk, cycle, bus, or train before using a car, which means that moving to a car club reduces vehicle usage.

### 3.7. Carbon savings

Carbon savings for EVs versus 'ICE' (traditional petrol and diesel) vehicles are around 67% higher. It is difficult to calculate the precise savings without comparing precise vehicles against each other, understanding the mileage driven and fuel consumption. However, the average annual carbon dioxide (CO<sub>2</sub>) emissions of a typical passenger are about 4.6 metric tons of carbon dioxide per year.

Vehicles which operate exclusively on electricity (EVs) do not emit any tailpipe emissions. There are emissions linked to the creation of vehicles and the emissions linked to the energy production to power EVs. Where vehicles are charged using clean energy this reduces the linked CO<sub>2</sub> emissions. The table below highlights the lifecycle greenhouse gas emissions of a conventional car versus a Nissan Leaf.

Lifecycle greenhouse gas emissions: conventional v Nissan Leaf

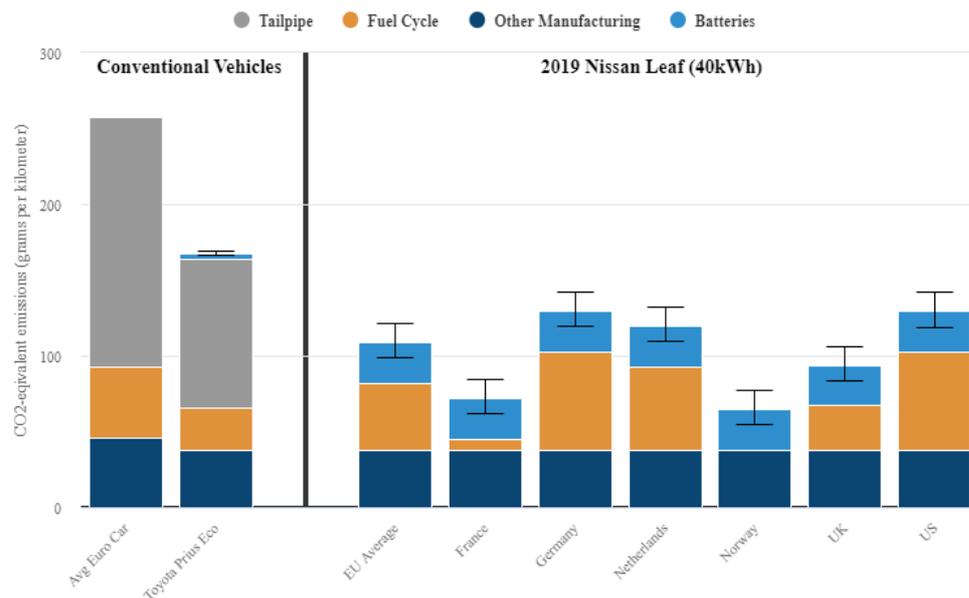


Figure 21 Carbon emissions of vehicles compared

In the UK, average CO2 emissions per car are 138.4 grams per km (or 221.4 grams per mile) Utilising a carbon calculator ([Carbon Footprint Of Electric Cars - Co2 Emissions \(homechargingstations.com\)](https://www.homechargingstations.com/carbon-footprint-of-electric-cars-co2-emissions)) and estimating the average mileage of around 7,000 per year, with a 30kwh EV , The calculations used the UK's emission level of 0.17kg CO2/kwh of electricity. This estimates the yearly CO2 savings would be 1,143.7 kg, estimated monthly CO2 savings of 95.3 kg and an estimated daily CO2 savings: 3.1kg. This figure is per vehicle and could be much higher depending on the number of users who move to a car club which could be up to 20 per vehicle.

## 4. Household Energy Surveys & Opportunities

Three households in Mellor and one in Mellor Brook were provided with free energy advice visits and reports as part of this project. A further three households had expressed an interest in having a survey but for various reasons they were unavailable when the surveys were undertaken in October 2022.

The householders were promised anonymity so we cannot provide full details of the properties visited but they consisted of:

- 1 Older solid stone cottage (with modern extensions to side and rear)
- 1 1930s semi-detached
- 1 1950s mid terrace house
- 1 Detached cottage re-built almost completely with good levels of insulation, PV panels etc.

All of the properties had carried out some thermal improvement work, all had modern gas boilers and double glazing. The two newer properties both had cavity fill insulation, with no problems reported. All had reasonable levels of loft insulation. Two of the

properties had photovoltaic panels (PV) fitted, one has recently fitted a battery system. None had heat pumps fitted or solar thermal systems. None of the households were planning major retrofit work.

Table 1. The properties surveyed

	EPC Rating	Gas Use kWh/a	Electricity Use kWh/a	Other fuel
Pre 1900 stone cottage	D 61	8,340	10,260 <sup>1</sup>	
1930s semi	D 68	8,600	2,870	
1950s mid terrace	n/a <sup>2</sup>	8,520	1,800	250 kg coal
Rebuilt detached stone cottage	A 92	15,700 <sup>3</sup>	3,120 <sup>4</sup>	wood

Notes:

1, This property has an electric AGA which accounts for the high electricity use. Use of this is being reduced and it was recommended to fit a larger radiator in the kitchen so the occupants could survive without using the AGA in colder weather as this is currently not possible.

2, There is no EPC for this property but an adjacent property which seems to be very similar scores C75.

3, This gas use seems high given the standard of the property but the property is well occupied, the underfloor heating is difficult to adjust and the lounge is open to the stairs. It is also the only detached property on the list. The other 3 properties are all heated intermittently and have lower than average gas use making the fourth property seem high in comparison.

4, the new batteries should enable more of the PV generation to be used directly so reducing this electricity use in future.

## 4.1. Energy Performance Certificates (EPCs)

Domestic Energy Performance Certificate (EPC) ratings are based on a theoretical cost of heating, hot water and lighting for each square metre of the property. Smaller properties will not therefore score better than larger ones. The number of occupants is assumed based on the size of the property and standard hours of heating and standard temperatures are used. This is done so that EPCs from different properties can be compared. The costs given do not allow for all the energy used in the property or take into account higher or lower occupancy. In older properties they may also miss out certain features if no evidence was available for them, e.g internal wall insulation.

A is the best rating and therefore A rated properties should be the cheapest to run. F and G rated properties are the worst, i.e. the most expensive to run. F and G rated properties should not be rented out unless an exemption has been granted.

There is a separate rating at the end of the EPC that shows how much carbon the property should emit under standard usage, but this environmental rating is for information purposes only.

All EPCs can be found at <https://www.gov.uk/find-energy-certificate>.

All the properties visited are scoring average or above on their EPCs so it appears that despite efforts to survey a range of properties, due to its small size the sample may not be representative of properties in the area.

We have surveyed a range of postcodes in Mellor and out of 171 EPCs only 7 were F rated.

Rating	7EW	7HB	7HD	7HF	7JP	7EP	7RX	7JL	7EX	%
A	1	1								1%
B		1							1	1%
C	5		2	1	5	3		2	8	15%
D	2	9	12	10	17	11	3	9	20	55%
E	6	5	4	3		3	1	7	12	24%
F						2		2	3	4%
G										0%
Total	14	16	18	14	22	19	4	20	44	171

No G rated properties were found. All of the F rated properties have gas central heating bar one on electric storage heating, two lacked loft insulation, two lacked cavity insulation.

It has to be borne in mind though that many properties don't have an EPC and those that don't tend to be of poorer quality as they are likely to be older and have not changed hands since 2009 when EPCs first came in.



*Figure 22 Terraced solid wall properties on Mellor Lane*

## 4.2. Recommendations Made

A range of recommendations were made.

### Wall Insulation

No properties that could have cavity wall insulation were lacking it but it is interesting that no problems had occurred in the two properties that had cavity fill insulation already. Mellor is an exposed location with high wind speeds, it is known locally as Windy Mellor. These high wind speeds are not restricted to properties at the top of the hill. Fitting cavity wall insulation in exposed areas needs to be done with great care if at all, as damp problems can occur if driving rain is forced into the cavity insulation. One property could benefit from internal wall insulation, but it is in such an exposed situation that this was not recommended. No properties were identified as being suitable for external wall insulation.

Solid wall insulation can be a very effective way of reducing heat loss, especially if applied externally. However, it is not suited to all properties and at the moment there is no grant support to install it.

### Roof Insulation

Two of the properties could benefit from a loft insulation top up or tidy up. Loft insulation needs to be 200mm minimum and to be fairly consistent and to not be squashed by belongings. Loft legs can be useful to raise any boarding up higher to allow for a good depth of insulation underneath.

One of the properties could benefit from sloping ceiling insulation. Sloping ceilings are often ignored when insulation is considered. Newer roofs should have been insulated when they were built and sometimes old sloping ceilings have been insulated when the property has been re-roofed, but many have not been touched. The easiest way to check this is by using a thermal imaging camera. If the rafters show up as cold spots the space between must be insulated, if they are showing warm then the space between is not insulated. You can now get thermal imaging cameras that attach to a smart phone, or some organisations have thermal cameras available on loan.

Insulating sloping ceilings is more complicated than insulating lofts but it is still highly recommended. The most thorough way is to remove the existing ceiling, place insulation between the rafters (leaving a 50mm air gap below the roofing felt) and finish off with an insulated plasterboard. The alternative is just to put an insulated plasterboard under the current plastered finish if room allows. Use of dense foam insulation (e.g. Kingspan or Celotex) is recommended for sloping ceilings as it gives twice the insulation value per inch of other insulation materials. The use of multi foil insulation is controversial and is not recommended.

### Draughtproofing

Many of the properties had issues with draughts; these can increase heat loss and reduce thermal comfort. Products such as Stop-gap and Draughtex can be useful, nail on draught strips are preferred to stick on ones. However, care must be taken not to reduce ventilation too far if there are wood stoves or similar that require an air supply to operate safely and effectively.

### Radiator Panels

Foil panels behind radiators on external walls can reduce heat loss, enable faster response times when the heating is switched on, and are easy to fit.

### Other Recommendations

The rebuilt stone cottage has an inflexible underfloor heating system that cannot turn down when the wood stove is lit. It was recommended to run this at a very low temperature and to consider fitting an extra radiator to compensate. However, the controls are being replaced shortly and this may reduce the problem.

At the property with the electric AGA it was recommended to reduce the use of the AGA as much as possible and to fit a larger or second radiator in the kitchen dining area to allow for comfortable use of this space in colder weather without the AGA. Electricity is currently 33p/kWh and is likely to rise further when the domestic energy support is removed in the spring. Gas is around a third of this price meaning that even allowing for boiler efficiency it is much cheaper to heat with gas than electricity.

### Not Recommended

#### Heat Pumps

We have not recommended heat pumps for any of the properties visited. Three of the properties have relatively low gas usage and intermittent heating which is not ideal for a heat pump. Heat pumps work on lower flow temperatures than a boiler so are best used to maintain a relatively even temperature as they cannot raise the house temperature quickly. The property with the higher gas usage could be suitable for a heat pump but has had a new boiler fitted relatively recently. One other property could have a heat pump but no acceptable site for the outside unit could be found.

Fitting a heat pump can drastically reduce carbon emissions but at current fuel prices will not save money if the current heating is from mains gas. We expect this to change in the next few years though as the use of fossil fuels will be discouraged.

#### Photovoltaic panels (PV)

Two of the properties have PV panels already. The two properties without panels do not have a high enough daytime electricity usage to justify fitting a PV system. There is no longer a Feed in Tariff scheme subsidising PV panels and the amount you can get paid for exporting electricity to the grid is fairly low so high direct use is needed to justify the investment if fitting a PV system. Anyone who fits a heat pump and EV chargers should look at fitting PV panels as well.

## 4.3. Funding & Advice re Energy Efficiency & Heat Pumps

### Grant Schemes

ECO funding is available for those on benefits who require cavity wall insulation or loft top up. It can also provide replacement boilers, but only if the current boiler is non-condensing. Installers need to show that the improvements made will get the property up to at least a D rating<sup>6</sup>.

---

<sup>6</sup> <https://energysavinggenie.co.uk/changes-to-eco-what-you-need-to-know-about-eco4/>

Some funds are also available through Local Authorities who can decide on their own priorities for allocating funding. The latest round of this, HUGs 2, focuses on off gas grid properties so is not applicable to most of Mellor.

The Boiler Upgrade Scheme can provide £5k of upfront funding for fitting a heat pump, this grant has no income criteria. An MCS registered installer<sup>7</sup> must be used, the system must work by supplying hot water through radiators, not warm air, and it needs to be shown through an EPC that basic measures like loft and cavity insulation have been fitted.

### Other Funding

No central government funding is easily available at the moment for those not on benefits but who do not have the ready capital to fit more expensive items such as solid wall insulation (apart from the Boiler Upgrade Scheme).

In Powys a zero-interest loan scheme is run by the Robert Owen Community Bank<sup>8</sup> with capital provided by Powys County Council. Up to £10k is available and it's normally repaid over 5 years. We are not aware of any similar schemes operating in England. Lendology are offering low interest loans with fixed interest rates and no early repayment charges, however they operate mostly in SW England and only work in areas where they have set up an agreement with the local council.<sup>9</sup>

### Energy Advice

Ribble Valley Borough Council offer an Energy Advice Service as part of Cosy Homes in Lancashire.<sup>10</sup> They can help with grants and access to the warm homes discount. Through Hyndburn Homewise they can also provide home improvement services.

## 4.4. Community Energy Advice Schemes

Before the arrival of the Feed In Tariff in 2010 most Community Energy schemes were based around energy efficiency. In the last 12 years the emphasis has been on community renewables but now thought is returning to energy efficiency projects. Notable examples include Lightfoot's Home Energy Surveys, the CHEESE project in Bristol and Green Open Homes.

Lightfoot use volunteer energy surveyors to visit their friends and neighbours to gather information which is passed to an Energy Officer who produces a report for the property. This report aims to relate not only to the property but to the occupants as well, so notice is taken of how much energy is used and how the occupants heat the building. Advice is given on what to do, how to do it and what installers are available locally. If energy usage information is available a carbon footprint can be calculated, and transport can be included. A thermal imaging camera is also available.<sup>11</sup>

---

<sup>7</sup> <https://mcs-certified.com/installers-manufacturers/>

<sup>8</sup> [https://www.rocbf.co.uk/home\\_loans\\_mid\\_wales/](https://www.rocbf.co.uk/home_loans_mid_wales/)

<sup>9</sup> <https://www.lendology.org.uk/>

<sup>10</sup> <https://www.ribblevalley.gov.uk/energy-efficiency/energy-efficiency-advice>

<sup>11</sup> <https://lightfootenterprises.org/household-energy-surveys/>

CHEESE (Cold Homes Energy Efficiency Survey Experts) is a Bristol based Community Interest Company (CIC) that aims to reduce domestic energy losses at low cost. They combine thermal imaging with a pressure test to identify where energy is being lost from the property.<sup>12</sup>

Green Open Homes are a very effective way of sharing successful home improvements. Householders love to show off what they have done, and it is always good to hear from someone who has had work carried out rather than relying on installers or even energy advisors.<sup>13</sup>

Rosendale Valley Energy are a relatively new group offering energy advice and looking to carry out building monitoring to determine the most effective measures to undertake.<sup>14</sup>

Community energy efficiency schemes can be very powerful but do require a lot of volunteer input to get them started and to keep them running, plus normally significant grant support. Green Open Homes has the benefit of being an annual event rather than an ongoing service.

---

<sup>12</sup> <https://cheeseproject.co.uk/>

<sup>13</sup> <https://www.greenopenhomes.net/>

<sup>14</sup> <https://rvenergy.org.uk/decarbonising-rossendale/>

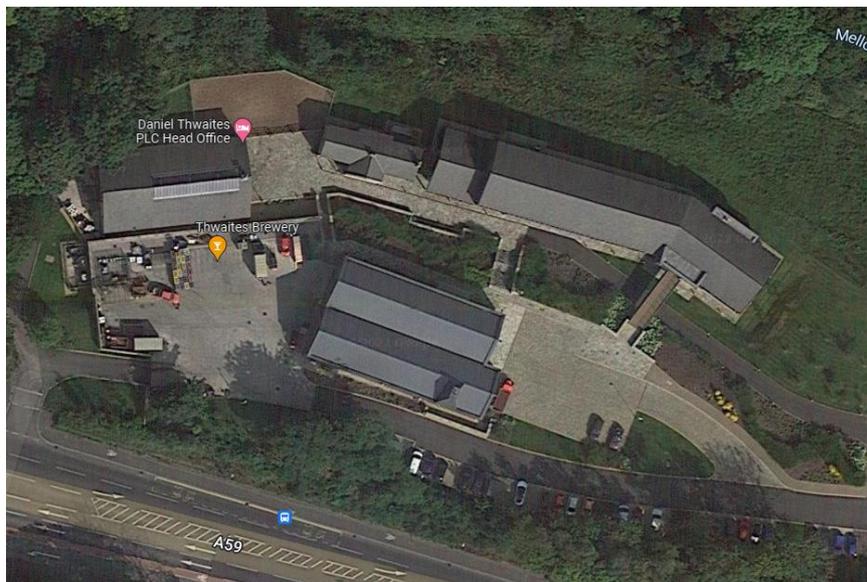
## 4.5. Community Renewable Energy Opportunities

As the Feed In Tariff is no longer available for renewable energy schemes and the amount you can get paid for exporting to the grid is fairly low, any small to medium renewable energy scheme only works if the electricity generated can be sold to someone directly, i.e. by connecting to an office, factory, school or care home.

Rooftop photovoltaic (PV) panels are probably the easiest community renewable to install, but if you are mounting the panels on to the building you are selling the electricity to, you are at risk of that building becoming redundant or unused. It is therefore recommended now that any community society fitting rooftop PV has a mix of sites with a total of at least 1MW (around 2,500 panels). The Big Solar Co-op<sup>15</sup> has been set up to enable rooftop PV to be installed on a range of sites across the UK to reduce the risk factor. See The Big Solar Co-op is a national society, but it is very reliant on local volunteers.

Mellor Parish is very rural and lacking in large energy users who can take the electricity generated by a community owned renewable asset. The Village Hall already has PV panels and air source heat pumps. There are some industrial units west of the Parish though most of these seem to be part of BAE systems who may be difficult to engage with. There are some other buildings which appear to belong to a plant hire company and a haulage company. The only potential site we have noted is Thwaites Brewery, this could be a good site for community rooftop solar. We have not produced a potential PV layout for Thwaites, however, as it is outside the Parish and is a stand-alone site.

Thwaites Brewery could be a good site for the Big Solar Co-op if the Parish Council has a directcontact within the firm.



*Figure 23 Thwaites Brewery*

<sup>15</sup> [www.bigsolar.coop](http://www.bigsolar.coop).

As previously noted, Mellor is a windy location so the other technology that could be considered is wind energy. There are some areas SW of Mellor where wind speeds are high, and a turbine could be placed at a reasonable distance from housing of around 400m. However, again this is unlikely to be viable at the moment if grid connected and no large-scale users have been identified who could make use of the electricity generated. There are also currently quite strict planning restrictions on onshore wind turbines, though this may change soon, and public acceptance of wind turbines seems to be much higher than it was a few years ago when the restrictions were brought in.



Figure 24 Wind speeds around Mellor from NOABL web site<sup>16</sup>

There do not appear to be any Sites of Special Scientific Interest (SSSIs), Areas of Outstanding Natural Beauty (AONBs) or National Parks within the vicinity of Mellor, apart from the Darwin River at Nabs Head. The Forest of Bowland AONB is 7km to the north.

<sup>16</sup> <https://www.rensmart.com/Maps#NOABL>



Figure 25 Landscape Designations near Mellor<sup>17</sup>

If electricity export prices continue to rise and the planning restrictions are lifted, then a wind turbine could be investigated further.

### Bulk Buying of Renewables

It is very difficult to arrange a community energy scheme that owns renewable assets on individual houses. One alternative is to set up a bulk buy scheme to get discounts and verified installers to encourage people to fit their own renewables. One example of this is Solar Made Easy, run by Cumbria Action for Sustainability (CAFS)<sup>18</sup>

However, with the current spike in energy prices there is already considerable interest in fitting PV panels etc. so it is a sellers' market. Installers are also reluctant to give quotes that are valid for longer than a few weeks as equipment prices have been volatile. In these circumstances it would be very difficult to set up and run an effective bulk buy scheme.

<sup>17</sup> <https://magic.defra.gov.uk/magicmap.aspx>

<sup>18</sup> <https://cafs.org.uk/solar-made-easy/>

## 5. Next Steps

In order to progress, we recommend the Parish Council should:

- Consider whether or not they wish to proceed with the development of a community car club or a commercial model. If a community car club is preferred, then it should seek funding for implementation. A list of potential funders is included in Appendix B,
- Consider whether it wishes to pursue any energy efficiency work with the residents of Mellor and if so, investigate possible ways of funding this,
- Consider setting up a local Green Open Doors event; and
- Keep an eye open for possible future community energy or bulk buy schemes for renewables when conditions become more favourable.

## 6. Appendices

6.1. Appendix A Mellor Electric Car Club Survey Results

6.2. Appendix B Potential Car Club Funders

6.3. Appendix C Impact Report - Mellor

## 7. Document control

Date	Version number	Created By	Reviewed by	
12/1/23	Draft ver 1	FH (Fran Hunt)	Rebecca Oliver	
16/1/23	Draft ver 2	FH	Dave Green	
16/1/23	Draft ver 3	FH	Susan Ross	
17/1/23	Draft ver 4	FH	Rebecca Oliver	
18/1/23	Final ver 1	FH		