

## Candidate 2 evidence

**Does Scotland have the infrastructure to support the introduction of electric cars by 2032?**



Candidate Number:

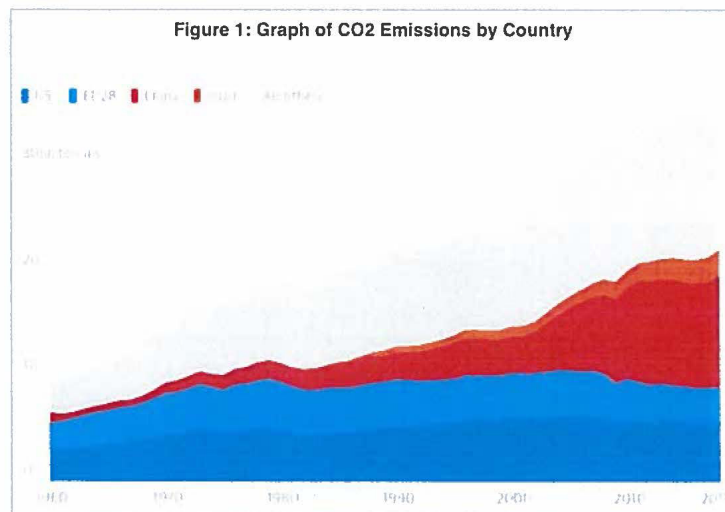
Word Count: 1,793

### Aim

To what extent does Scotland have the infrastructure to support future plans of replacing diesel and petrol cars with electric cars by 2032?

### Introduction

Climate change is a huge issue, with carbon dioxide raising to levels never recorded before<sup>1</sup> as seen in figure 1, and the United Nations saying there is only a decade left before the effects of climate change are irreversible<sup>2</sup>. The Scottish government has put in policies to act now.



<sup>1</sup>Chloe Farand, "Carbon dioxide levels in Earth's atmosphere reach 'highest level in 800,000 years', The Independent, 05/05/18 <https://www.independent.co.uk/environment/carbon-dioxide-concentration-atmosphere-highest-level-800000-years-mauna-loa-observatory-hawaii-a8337921.html>, accessed 01/10/18

<sup>2</sup>Jonathan Watts, "We have 12 years to limit climate change catastrophe, warns UN", The Guardian, 08/10/18, <https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>, accessed 10/10/18

In 2017, the ban of all new petrol and diesel cars and vans from 2032 was released in the Government's Programme for Scotland 2017-2018<sup>3</sup>. This policy is targeting one of the biggest culprits, transport, attributing to 26% of the UK's greenhouse emissions<sup>4</sup>. Electric vehicles (EV's) are to reduce the carbon footprint as they don't produce any harmful tailpipe emissions. However, there has been much controversy surrounding the use of electric cars as it would call for the reinvention of Scottish infrastructure.

There are 1,133 charging points in Scotland<sup>5</sup>, mostly surrounding major cities, like Glasgow and Edinburgh. People in the west end of Glasgow, argue that there are too few charging points and some car owners don't have private parking to charge their cars. Research shows that in a survey where 49% of people said they would not buy an EV, the main reasons was the poor availability of charging points<sup>6</sup>. Despite this, innovative solutions have been implemented such as lamp post-mounted electric vehicle charging points making EV ownership more accessible.

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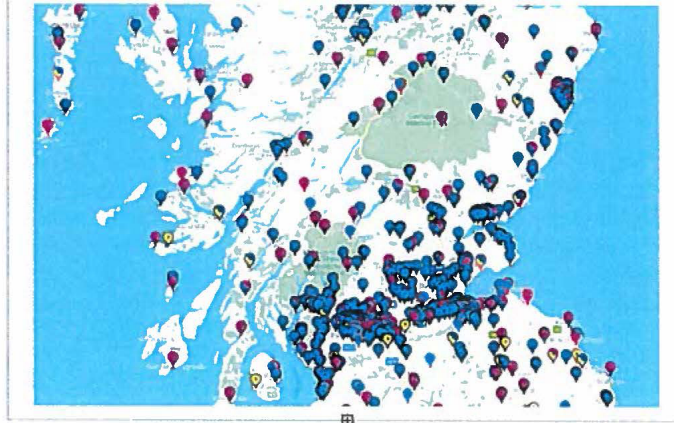
<sup>3</sup>Climate Change Plan: third report on proposals and policies 2018-2032 (RPP3)", Scottish Government, 12/09/18, <https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018-9781788516488/>, accessed 10/10/18

<sup>4</sup>Josh Gabbatiss, "Transport becomes most polluting UK sector as greenhouse gas emissions drop overall", The Independent, 06/02/18, <https://www.independent.co.uk/environment/air-pollution-uk-transport-most-polluting-sector-greenhouse-gas-emissions-drop-carbon-dioxide-a8196866.html>, accessed 15/10/18

<sup>5</sup>Scottish chargepoint usage 2017", RAC Foundation, 20/12/17, <https://www.racfoundation.org/research/environment/scottish-charge-point-data-usage-2017>, accessed 16/10/18

<sup>6</sup>Scottish Government collects new data on electric vehicles", Transport Scotland, 26/09/17, <https://www.transport.gov.scot/news/scottish-government-collects-new-data-on-electric-vehicles/>, 15/10/18

Figure 2: Distribution Of Chargepoints in Scotland



It is important that this policy is supported, as figures from government research in 2017 showed that vehicle pollution in the form of harmful emissions were responsible for the deaths of over 40,000 people yearly<sup>7</sup>. Additionally the number of people buying EVs has been steadily rising over the years, with an increase of 3,500 in 2013 to more than 192,000 by 2018 in the UK<sup>8</sup>. So it is crucial that the infrastructure reflect this demographic change, not only to combat Climate Change, but so the population has proper accessibility to charging points and the policy can be a success.

#### **Source 1**

"Scotland leads Electric Car Revolution", is an article published in the Herald by Brian Donnelly in March 2018. Donnelly is the Herald's business correspondent and his work focusses on businesses based in Scotland. While not being an expert himself in the fields of electric cars or climate change, his

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<sup>7</sup>Andrew Griffin, "Pollution is killing millions of people a year and the world is reaching 'crisis point', experts warn", The Independent, 19/10/17, <https://www.independent.co.uk/environment/pollution-air-clean-water-vehicles-diesel-car-lancet-report-deaths-fatal-disease-a8009751.html>, accessed 18/10/18

<sup>8</sup>Chris Lilly, "Electric Car Market Statistics", Next Green Car, 14/06/18, <https://www.nextgreencar.com/electric-cars/statistics/>, accessed 20/10/18

writing is factual and he uses expert opinions from the HSBC to create this article.

The Herald is a reputable and the world's oldest national running newspaper<sup>9</sup>. The Herald is owned by Newsquest, the leading media publisher with over 28 million digital users per month<sup>10</sup>.

The article provides a negative perspective, arguing that there are not enough charging points. Backed up by a report called "Re-energising the World" from the HSBC<sup>11</sup>, Donnelly states that *"despite rising demand for electric vehicles and increasing awareness of the health issues caused by poor air quality, there are currently almost 17,000 people for every publicly available charge point"*. This suggests that the current infrastructure is not suitable and as he uses statistics from the HSBC, a major multinational banking company that takes extensive research into subjects that affect the economy, to make his statement more reliable. The report Donnelly quotes from is written by Stephen King, who was Senior Economic Adviser of the HSBC, showing that the report is credible.

Donnelly also makes the point that "there are massive gaps in public charge point infrastructure" using an example from the HSBC that *"100,000 people must share each public charge point available."* Other sources like an article by the Express agree, arguing that *"only 71 public charging points are due to be added to the current nationwide total of 703"* and, rather dramatically, that this is *"leading to fears of potential chaos."*<sup>12</sup> However, a report by the BBC, say that this is not a concern with government plans of *"developing Scotland's first electric highway"* along the A9, stating that the biggest gap in charge points is

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<sup>9</sup>"About Herald Scotland", <https://www.heraldsotland.com/aboutus/>, accessed 30/10/17

<sup>10</sup>Newsquest Business, <http://www.newsquest.co.uk/portfolio/>, accessed 30/10/17

<sup>11</sup>Stephen King, " Re-energising the World", 08/01/18, <https://www.sustainablefinance.hsbc.com/reports/re-energising-the-world>, accessed 05/11/18

<sup>12</sup>David Scott, "Lack of charge points is threat to future of electric cars in Scotland", 02/08/18, Express, <https://www.express.co.uk/news/uk/998193/Lack-of-charge-points-electric-cars-Scotland-motoring-energy-environmental>, accessed 10/11/18

"about 88 miles"<sup>13</sup>, whereas the typical range of an EV is 114 miles and improving<sup>14</sup>.

Donnelly also says that while infrastructure is lacking, Scotland is "*second best in the UK for providing charging points for electric vehicles*" and also "*enjoy more than the UK average number of charge points per head.*" This article uses formal, impersonal language, stating facts and figures from the HSBC report and is a fair assessment of the capability of Scotland's infrastructure.

Overall this article is negative because it highlights that the infrastructure is lacking and people are struggling with the current situation. It does note that Scotland is doing better than other regions in the UK, but still requires a lot of improvement. It is a well-researched article using data gathered by experts from the HSBC. However this article has not examined the issue fully. The article heavily relied on the HSBC viewpoint but no other sources were provided to support the opinion that there will be future problems due to the perceived lack of charging points in Scotland.

### **Source 2**

The second source is a report called "Switched On Scotland Phase Two: An Action Plan For Growth", developed by Transport Scotland in 2018. Transport Scotland is the national transport agency for Scotland and oversees all transportation related issues. Meaning that the report is likely to be well-researched. Consequently the report may be biased as they are one of the leading organisations ensuring this policy is a success. For example, only advantages of electric cars are mentioned in the article and no problems with Scotland current infrastructure are mentioned.

The report takes a positive perspective on Scotland's infrastructure, making the point that a lot of progress has already been made in the short time the policy

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<sup>13</sup>Kevin Keane, "How would you turn the A9 into an 'electric highway'?", 10/10/18, <https://www.bbc.co.uk/news/uk-scotland-41551535>, accessed 13/11/18

<sup>14</sup>Fred Lambert, "Median electric car range increased by 56% over the last 6 years", 26/12/17, <https://electrek.co/2017/12/26/average-electric-car-range/>, accessed 15/11/18

was introduced. Transport Scotland uses language like “good” and “considerable” to describe the progress that has been made, which is subjective but shows their strong standpoint. They argue programs like ChargePlace Scotland provided “over 600 of publicly available charge points” in 2017 alone. They also include a report from Dundee council securing a loan of “£1.86 million from the Go Ultra Low City Scheme and £515,000 from the Ultra Low Emission Taxi Scheme” in order to supply more charging points.

The report rebutts some major problems that have been highlighted. It offers the solution of “[encouraging] private sector investments in infrastructure.” which means that the government could save money. The report does not develop this point further, but indicates that it has considered arguments from both sides as it is offering a solution.

This source takes a positive stance. The points it provides suggests that while infrastructure may not be suitable at present, many plans are in place to ensure it is ready by 2032. The article is credible as its written by experts but is also one-sided which could mean it is an inaccurate representation of how Scotland’s EV infrastructure truly is.

### **Source 3**

The final source is an article from 2017 called “*Scotland to ban petrol and diesel sales BEFORE rest of UK, but is it just Sturgeon spin?*” written by Alisdair Suttie, who started “writing about cars in 1993”<sup>21</sup>. His view alone is not sufficient and he does not provide any other references so the report lacks credibility from people/organisations that can provide other expertise.

The article argues that current EV infrastructure is unsuitable for tenement housing and says that “*this makes charging a vehicle from a domestic supply all but impossible*”. He also says that if there was sufficient infrastructure it would be an eyesore and that historic tenement streets will be “*littered*” with charging points. Furthermore, many other articles including an article by the

BBC called "Electric cars: What if you live in a flat?"<sup>15</sup> acknowledge that a third of car-owners in the UK have no off-street parking, living in a flat or a terraced house and talk of integrating convenient and hidden charging points in the lamp posts in the street.

Suttie also says that Scotland's geography and climate poses a threat to the acceptance of EVs and its infrastructure. He comments on how most people live in the central belt of the country and that people working in forestry and agriculture in other areas and more remote areas rely *"on their cars and vans to get about and earn a living"*. This is important as forestry employs over 25,000 people and worth about £1 billion a year<sup>16</sup> and other articles also highlight the uneven distribution of charging points saying *"local authorities plan to add just 71"*<sup>17</sup> charging points in main cities and not in the rural areas. Additionally no plans to tackle this lack for EV infrastructure in forestry and agriculture are noted under the official document for this plan, indicating that Suttie has found problems that needs to be examined before Scotland is ready for 2032 and has made a valid geographical point.

Scotland's cold climate, especially to the North, could create problems. He says with the harsh cold climate of some areas *"lights, heating and wipers will all drain the battery more quickly."* meaning that a greater number of charging points will be needed to top the battery up more frequently. A report by the Union of Concerned Scientists (UCSUSA) agree, saying *"Tesla reports that their Model S 70D model loses about 19% range when driving in 0 degree Fahrenheit weather with the heater on"*<sup>18</sup> which could put many people at a

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<sup>15</sup>Brian Milligan, "Electric cars: What if you live in a flat?", 16/02/18, BBC, <https://www.bbc.co.uk/news/business-42944523>, accessed 12/01/19

<sup>16</sup>"Scots forestry a hidden £1 billion economic success story", Forestry Commission Scotland, 30/11/15, <https://scotland.forestry.gov.uk/news-releases/scots-forestry-a-hidden-1-billion-economic-success-story>, accessed 16/02/19

<sup>17</sup>David Scott, "Lack of charge points is threat to future of electric cars in Scotland", 02/08/18, Express, <https://www.express.co.uk/news/uk/998193/Lack-of-charge-points-electric-cars-Scotland-motoring-energy-environmental>, accessed 16/02/19

<sup>18</sup>"Do Electric Vehicles Work in Cold Temperatures?", UCSUSA, 12/03/18, <https://www.ucsusa.org/clean-vehicles/electric-vehicles/cold-weather-electric-cars-batteries>, accessed 30/02/19

disadvantage especially people who live in the North of Scotland and tend to drive large distances because they are so isolated.

Overall this article brings up some interesting and little-mentioned arguments against Scotland's infrastructure being suitable or ready for EVs by 2032. This article suffers from a lack of mentioned sources, however many of the arguments made are reasonable. Suttie provides valid points as to why more infrastructure is needed, but other references would have added greater weight to his arguments.

### **Conclusion**

The research suggests that Scotland does not have the infrastructure to support the introduction of electric cars by 2032. The first and the last source agree that there isn't enough charging points and the second source, while providing many plans by the Government, fails to convince the reader that enough has been done currently. All the sources show that much investment by the government is required to prepare Scotland's infrastructure for this electric car revolution in 2032. However, according to research, the Government is leading the way in this environmental mission in comparison to the rest of the UK.

The first source, which is factual, is the strongest because it provides information from the HSBC, a reliable source and provides expert opinions, clearly outlining why Scotland's infrastructure is not yet sufficient for the EV future.

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RAC Foundation, "EV charge point use in Scotland up by almost a half", 19/10/18, <https://www.racfoundation.org/media-centre/scottish-ev-charge-point-data-2017>, accessed 18/03/18

#### **Figure 1**

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#### **Figure 2**

"Map of charging points for electric car drivers in UK: Zap-Map", Zap-Map, <https://www.zap-map.com/live/>, accessed 05/03/19

### Background Research

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