



**REPORT TO: ECONOMIC DEVELOPMENT AND INFRASTRUCTURE
SERVICES COMMITTEE ON 7 FEBRUARY 2023**

**SUBJECT: UPDATE ON ZERO EMISSION FLEET REPLACEMENT
STRATEGY**

**BY: DEPUTE CHIEF EXECUTIVE (ECONOMY, ENVIRONMENT AND
FINANCE)**

1. REASON FOR REPORT

- 1.1 To provide Members with an update on the approach and progress to date in decarbonising the Council's fleet.
- 1.2 This report is submitted to the Economic Development and Infrastructure Services Committee in terms of Section III (F) 15 of the Council's Scheme of Administration relating to the function of the Council as Roads Authority.

2. RECOMMENDATION

2.1 It is recommended that Committee:

- (i) notes the progress being made by Fleet Services to contribute to the Council meeting its ambitious net zero targets;**
- (ii) notes the challenges faced within the transport sector as outlined in this report means it is highly unlikely that Moray Council will be able to remove all of its fleet carbon emissions by 2030;**
- (iii) agrees to align Moray Council targets for fleet decarbonisation with the Scottish Government targets to phase out light commercial vehicles by 2030 and heavy duty vehicles by 2040 which will allow Moray Council to replace vehicles with low energy alternatives as soon as is practically feasible;**
- (iv) notes that adopting this approach may save money by delaying purchase of certain vehicles until the market has stabilised, but will still require capital investment which will be subject to consideration as part of the standard financial planning process going forward; and**
- (v) notes that implications on any delay in reducing Moray Council carbon emissions from fleet vehicles will be worked into the update of the Moray Council's Route Map to Net Zero (RMNZ) which is being reported to this Committee in May 2023.**

3. DEFINITIONS

- 3.1 BEV – Battery electric vehicle
FCEV – Hydrogen fuel cell vehicle
ZEV – Zero emissions vehicle
HDV – Heavy duty vehicles
ICE – Internal combustion engine vehicle (powered by diesel or petrol)
LCV – Light commercial vehicle (gross vehicle weight of up to 3.5 Tonne)
RCV – Refuse collector vehicle

4. BACKGROUND

- 4.1 The Scottish Government (SG) have set a target to replace all public body operated fossil fuel passenger cars by 2025 with a further target for these bodies not to purchase fossil fuel light commercial vehicles under 3.5T after 2025 and have these vehicle types phased out in Scotland by 2030. The SG target for phasing out Heavy Duty Vehicles (HDV) is by 2040.
- 4.2 On 10 March 2021 (para 13 of minute refers), the Council adopted a Climate Change Strategy for 2020-2030. The strategy set a goal of the Council being carbon neutral by 2030 and that the Council, its officers and members will work with others across Moray to deliver that goal. To be net-zero means that the Council will reduce its carbon emissions as much as possible and offset any remaining emissions.
- 4.3 On 6 April 2022 (para 18 of the Minute refers) the Council adopted a route map to start the process of calculating how the Council would reach net zero emissions by 2030. This route map recognised the difficulty in converting Council fleet vehicles and estimated that 75% of fleet vehicles would be transferred to ultra-low emissions vehicles by 2030. The residual emissions would have to be offset until the remaining fossil fuel vehicles were phased out.

5. CURRENT POSITION/ACTIVITY TO DATE

- 5.1 Moray Council's Fleet Strategy is very much focussed on supporting front line Services as the council transitions from petrol/diesel vehicles and plant machinery to a zero-emission fleet (ZEV). The fleet plays a vitally important role in providing frontline services to the residents of Moray and this must be done in a cost effective, efficient, and environmentally friendly way.
- 5.2 The clear commitment to net zero targets was initiated by Fleet Services in 2010 with the purchase of the Council's first fully electric vehicle, the car is still operational as a test bed to determine ultimate battery life. This vehicle transition programme has continued to gather momentum since that time.
- 5.3 At present, the council's existing fleet contains a total of 44 electric vehicles, which have been well received by Council staff and the wider community. This early and committed ambition to vehicle transition has put the Council in a

strong position to ensure continued compliance with government targets on a net zero approach. It is planned to continue with the current 10 year capital replacement programme to enable the Council to remain on target, identify challenges and ensuring the adoption of zero-emission fleet vehicles meet current national policy commitments.

- 5.4 The council's approach to vehicle safety and compliance is and will continue to be a top priority. Many vehicles operate under the Driver and Vehicle Licencing Agency Goods Vehicle Transport's Operator licencing conditions and with that comes significant responsibility to ensure 100% compliance.
- 5.5 The Fleet Service team continues to work with all relevant service areas across the Council to identify their vehicle needs requirements moving forwards. Table 1 below outlines the current makeup of low or zero emission vehicles currently in operation.

Table 1 – Current low emission Fleet in operation

Vehicle type	Number of vehicles
EV Car	13
EV small van	2
EV medium size van	27
Mini - bus	1
34no seater bus	1
Total	44

- 5.6 Over the last 12 years the Council has taken advantage of Government grant funding to support its EV charging infrastructure investment. To date £203k for infrastructure has been funded by the Energy Savings Trust (EST), which has led to the installation of 31 charging points and a further 21 single head charging points currently in the tender process stage. These are on the whole owned and operated by the Council for its own vehicle fleet. Most of these units are double headed which ensures it is possible for up to 61 vehicles to be charged at any time across the whole Council area.

6. WHY ZEV BY 2030 WILL BE A CHALLENGE

- 6.1 Migration to a zero-emission fleet is going to be a complex process which will take a number of years. Whilst good progress has been made it is evident that issues such as supply chain pressures and price inflation are extending the lead times for vehicles and infrastructure. Many manufacturers are still at the prototype stage and this makes whole life costing, including estimating residual value of vehicles, difficult to predict.
- 6.2 High upfront cost of purchasing ZEVs and the additional cost of project management for installing charging infrastructure and ongoing management of the infrastructure is proving difficult. The lack of certainty of future capital funding required to fund the migration is also of concern. At the present time whilst officers can report the cost of EV cars has significantly reduced over the last few years, the cost for large vehicles is still in the region of 2 and 3 times more expensive than the current comparative vehicle on existing fleet, such as buses, refuse lorries, gritting vehicles etc. There are also widely reported

concerns from the vehicle industry that many vehicle suppliers have not begun to consider ZEV alternatives for specialist and bespoke vehicles.

- 6.3 Consideration will be made to migrate the council's larger HDVs to hydrogen but again this is not straightforward. Until hydrogen vehicles are available in more commercial quantities the cost will remain high, likewise the production and distribution of hydrogen is of equal concern. Industry experts predict that it will be after 2025, and closer to 2030, before manufacturers are producing vehicles in any reasonable quantity.
- 6.4 The introduction and maintenance of charging units or hydrogen refuelling stations to support ZEVs would create a substantial additional budget pressure. At present, hydrogen is not commercially available in Moray although there are on-going discussions with an external partner who is looking at options to produce, transfer and supply hydrogen in the future.
- 6.5 The council's Fleet Manager is continuing to report real concern with the lead times of electric vehicles being provided once orders have been committed. In some instances vehicles have taken in excess of 24 months to arrive. One recent order for a large electric bus was cancelled by the vehicle supplier 12 months after the initial award, due to internal build issues of the vehicle. This is now being reported as being more commonplace across the industry with many other local authorities reporting similar supply issues. The well published global shortage in semi-conductors and the on-going impact of the pandemic continues to be an obstacle in the long lead times for ZEVs being quoted.
- 6.6 Many depots and buildings are likely to have reached their electrical capacity. Recent infrastructure works at Ashgrove depot have now taken up the available electrical capacity and it is now the case that substations and grid upgrades will be needed to facilitate any future additional charging points.
- 6.7 The lead time for the installation of appropriate charging infrastructure is a major factor and a certain level of contingency needs to be allowed for. Applications for electricity grid connections have quadrupled in the last 4 years and requesting estimates for proposed upgrades/new infrastructure from the council's electrical District Network Operator (DNO) is proving difficult due to the challenges and demand they are facing on their network.
- 6.8 The service continues to develop its 10 year rolling fleet replacement plan and will need to secure additional capital funding if it is to transition all of the fleet to ZEV. Work is ongoing with Finance colleagues to identify the potential scale and timings of investments that will be required to ensure the council can manage the transition.
- 6.9 The current annual Vehicle and Plant replacement capital budget is £3.53m. As identified in 5.2 above, replacement ZEV's are currently 2 to 3 times the cost of fossil fuel vehicles and plant, dependant on type and hydrogen is in the region of 4 times that of fossil fuel both plus infrastructure. It is therefore estimated that as ZEV's and hydrogen become readily available from major manufacturers that the capital annual replacement budget will need to increase incrementally, as the market develops and vehicles become available. Initial projections set out phased capital increases from 24/25 rising

to approx. £9m by 2030/31 to cater for the larger/specialist vehicle replacement. Initial estimates suggest this could be a total increase of up to £32m over the period.

- 6.10 Due to rapidly advancing technology and an unstable global vehicle and plant market, the phasing of capital required to meet Moray Council and Scottish Government targets will be reviewed on an annual basis.

7. PROPOSED APPROACH/ENABLERS

7.1 Small cars & vans

It is proposed to continue to purchase suitable ZEV cars and small vans when they are due for replacement due to the success of early transition and the need to meet the Council and Government net zero targets. The aim is to not purchase ICE vehicles after 2025 where a commercially viable option exists and is deliverable in line with our fleet replacement programme to ensure climate change targets are met.

7.2 Medium, large and specialist vehicles

For the next 2 years (2023/2025), to allow for the ZEV vehicle market to further develop and mature, it is proposed to continue replacing the larger type and specialist vehicles with diesel (low emission Euro 6 and Euro 7 where available) but on the proviso at next replacement cycle they are replaced with comparable ZEV that is available at that time.

- 7.3 It is also recommended that where a ZEV specialist or large vehicle is available that these are trialled between 2025 and 2027 and purchased at small scale to robustly test suitability for service users and ensure value for money to the Council is achieved in its transition from petrol/diesel vehicles to ZEVs.

7.4 Charging Infrastructure

The Council has an on-going depot and buildings review which will influence the future charging infrastructure strategy that will be required to transition all of the Council's fleet. Longer term plans for depots/buildings are currently in development which will facilitate the required planning of infrastructure with the council's District Network Operator.

- 7.5 In the meantime, charging infrastructure will continue to be installed at the most suitable locations throughout Moray.

- 7.6 The Council has been undertaking various workstreams across the broad area of electric mobility, one of which has been for the Council to engage with an external consultant to deliver a public infrastructure and electric vehicle fleet replacement study. Jacobs consultants have been commissioned to assist and offer a sense check approach to the work being progressed by the Fleet team and offer advice on the optimum timing and sequence of the Council's continued move to a zero emissions fleet of its own vehicles. However, this work by Jacobs is still in development and a further update will be reported through committee at a later date.

7.7 Alternative Fuels

A separate piece of work has been completed to develop a hydrogen strategy for the Council, which has now been approved and sets out the Council's vision to support the emerging hydrogen economy within the region whilst clarifying the role the Council will play in supporting this energy transition.

- 7.8 Officers within the Fleet team have participated in a number of working groups and have developed good relationships with other local authorities who are currently progressing with ZEV alternative vehicle trials.

7.9 Training

Across the sector industry there is currently a lack of EV training available and other authorities including Moray need to develop training plans to ensure staff and external suppliers have the right skills and working environment to maintain the zero-emission fleet. Training is an important area to consider both from a generic and technical perspective. Local authority staff who are driving electric vehicles also need to understand how to use chargers, when to charge vehicles and to what capacity.

8. ENERGY SAVINGS TRUST RECOMMENDATIONS

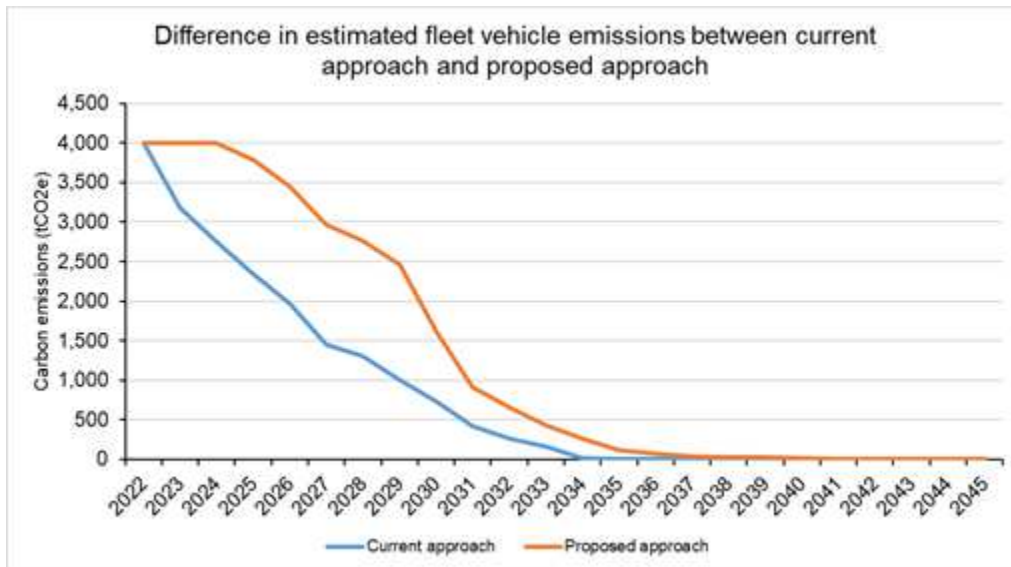
- 8.1 For 2020/21 the Switched on Fleets funding was administered by the Energy Savings Trust (EST) who introduced a programme to provide fleet decarbonisation support. This support programme is designed to help local authorities achieve their fleet decarbonisation commitments. Key data on the existing fleet and how the council use it was collated and a decarbonisation report produced. This report has been uploaded to the Committee Information Management System (CMIS) as an additional meeting document for information.
- 8.2 The Council approach to replacing cars has been recognised within the EST fleet decarbonisation report who recognise that "all of your cars are due to be replaced before 2025, so you are on track to meet the government's target provided these vehicles are replaced on schedule with ZEVs."
- 8.3 In addition, the council's commitment to its fleet replacement strategy has been recognised by EST who note that the council have a varied fleet, with some expensive specialist and purpose-built vehicles that have long replacement cycles to maximise the return on their investment. Vehicle replacement cycles currently range from 3 years on average for cars, to 7 years for the light fleet, and 10 years for the heavy fleet.
- 8.4 The EST fleet decarbonisation report has included a summary of its recommendations in an attempt to help influence the Council in its efforts to decarbonise its fleet. Table 2 below highlights the summary of the recommendations made and the progress already made by the Council.

Table 2 – Summary of EST fleet decarbonisation recommendations

Description of recommendation	Progress to date	Timescale
Install driver behaviour telematics in all vehicles	75% completed	Aim to be 100% by End March 2024
Implement a robust travel hierarchy that will reduce unnecessary journeys and encourage active travel	Report approved by E,D & I S committee 15 th November 2022.	Complete
Replace all Internal combustion engine (ICE) cars with ZEV alternatives at the next replacement cycle	On-going but subject to vehicle availability and appropriate infrastructure.	2030
Replace all ICE LCV's with ZEV alternatives at the next replacement cycle	On-going but subject to vehicle availability and appropriate infrastructure. The technology very much in its infancy.	2030
Downsize fleet vehicles where possible	Council to commission an operational review by all departments of their vehicle and plant requirements.	
Develop the financial plan for replacing all vehicles with ZEVs	On -going	

9. Carbon Reduction Implications

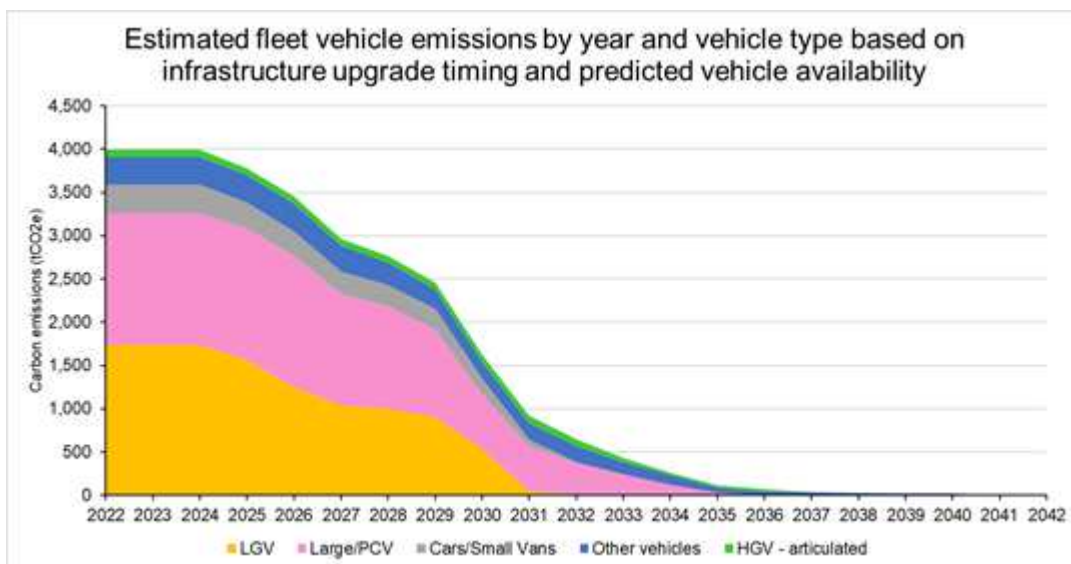
- 9.1 The proposed approach in section 6 will have the implication of adopting a slightly slower rate of reduction in carbon emissions of the Council fleet of vehicles. If it was possible to replace every vehicle with a ZEV option at the end of its life then the estimated carbon reductions are shown by (blue line) in Chart 1. However, the more pragmatic approach being proposed (orange line) will have the effect of altering this reduction as shown below. This will not meet with Moray Council 2030 net zero target but will meet revised targets aligned to SG targets. While neither approach for our vehicle fleet will reach zero emissions by 2030, the revised approach will contribute to reducing carbon emissions considerably by 2030 and this will be considered in the route map review to be undertaken later in the year.



9.2 The proposed approach is therefore estimated to lead to an increase in the Council's anticipated carbon emissions of 11,997 tCO₂e. This includes an estimated excess of 2,554 tCO₂e beyond the Council's 2030 net zero target date.

9.3 Most of the difference is around the delay in replacing specialist or large vehicles. By their nature these are large emitters of carbon compared to other fleet vehicles, and the time required to wait for suitable replacements leads to prolonged use of fossil based alternatives. It should be noted that the expectations in carbon reductions for cars and LGVs is still challenging to reach the targets within the replacement cycle.

9.4 The estimated carbon emissions of each vehicle type are highlighted in Chart 2 below. It should be noted that this is based on projected infrastructure upgrade timing and predicted vehicle availability. However, it must be highlighted that these factors are out of the council's direct control as identified in section 5 above.



9.5 The calculations are based on replacement cycles of vehicles and do not take into account difficulties in depot changes or any downsize of fleet vehicles. The high upfront financial cost of purchasing ZEVs and of possible depot

improvements means it is essential that business case calculations should take into account the social cost of carbon emissions as well as financial costs to allow a more whole life approach to investment to influence funding decisions.

10. SUMMARY OF IMPLICATIONS

(a) Corporate Plan and 10 Year Plan (Local Outcomes Improvement Plan (LOIP))

The work done to date and proposed plan to continue to develop the council's ZEV strategy and to transition our fleet aligned at a pace to SG targets sits within the approach of the council in its Corporate Plan to facilitate Moray being recognised as an outward facing and ambitious Council delivering a sustainable economy.

(b) Policy and Legal

Legal - Failing to achieve the Scottish Government's target is more of a reputational risk than a legal risk.

(c) Financial implications

The financial cost of decarbonising the LGV fleet is significant. The cost of LGVs powered by electric and hydrogen remain prohibitively high. Generally EV costs are double and hydrogen costs are treble the cost of diesel vehicles. There are financial implications associated with the future decarbonisation of the fleet and building of required infrastructure.

Initial indicative projections set out phased incremental capital increases of £2m each year through to 2030 to facilitate vehicle transition to ZEV. This high level approach is based on smaller vehicles are much cheaper to replace and do not drastically increase the capital costs but as we progress to replace the larger vehicles costs will increase. High level projections suggest combining all vehicles and total volumes of replacements over the next 10 years is projected to cost in the region of £32m.

More detailed work is underway to accurately forecast what total investment will be based on current prices and this will be reported at future committee. It must be pointed out that there will likely be costs savings in running an EV fleet as a result of the difference between cost of electricity and cost of diesel. Another cost assumption is the EV sector suggests a reduction in maintenance costs but this is not proven at this time and difficult to quantify.

It is also assumed that the current ZEV replacement costs that are double and treble of current diesel vehicles will become less as the external market develops. We shall require to utilise our own capital and revenue budgets alongside grants and bids to Scottish funding streams. There will be pressure on the market to supply ZEVs which will impact on pricing and availability as organisations move to replace their fleet to meet internal and national targets.

As reported there will be financial implications with regards to the associated infrastructure required whether this be electrical underground, electrical battery, solar, wind or hydrogen. It is crucial that the on-going depot and buildings review is completed which will influence the most suitable and appropriate charging infrastructure required at key locations to transition all of the Councils fleet.

(d) Risk Implications

Budget Pressures – Officers will seek to maximise the funding available from Scottish Government to assist with the transition to zero emission vehicles and build the required infrastructure.

ZEV availability – MC will not receive vehicles in time to reach SG targets.

Workforce – Investment in our Depots and Training will be provided to ensure our teams and the right skills and working environment to maintain a zero-emission fleet.

Road to Net Zero Challenges – The actions from this report will support the reduction of CO2.

Infrastructure – It is challenging to receive advice, estimates on cost and installation timescales from our DNO operator within reasonable timescales and this is widely the same across all regions, simply due to the demand and capacity issues across the network.

(e) Staffing Implications

To meet the council's net zero aspirations is challenging within current workforce. The market is rapidly changing and appropriate resourcing, including project management support is crucial to manage infrastructure installations, power sources and planning/building warrant issues.

The change required to transition all the fleet will require on going management and administration of the back office infrastructure function such as control of charging cards/Invoicing/repairs to infrastructure responding to out of hours emergencies.

Training will be required at all levels throughout the organisation.

Recruitment and retention of fleet staff remains an issue.

(f) Property

The depot review is critical to allow for better understanding of what depots and building assets are to remain in the Council's long term plans moving forwards. This will provide the strategic direction to assist with planning of the infrastructure, carrying out reviews to identify capacity issues at depots/buildings which will then require planning and building warrant control.

(g) Equalities/Socio Economic Impact

The transition to a more environmentally friendly fleet will result in improved air quality for our local communities.

(h) Climate Change and Biodiversity Impacts

There is a reputational risk of not meeting the Scottish Government and Moray Council objectives in relation to its climate change agenda and ambitious net zero targets.

The approach proposed in this report is estimated to lead to an increase in the Council's anticipated carbon emissions of 11,997 tCO₂e. This includes an estimated excess of 2,554 tCO₂e beyond the Council's 2030 net zero target date.

The operation of fossil fuel powered vehicles contributes to local air pollution and the approach proposed in this report will prolong release of air pollutants and resultant exposure to employees and the wider public. However, it is noted that the proposed replacement vehicles will emit lower levels of air pollution than the current models in operation.

(i) Consultations

The Depute Chief Executive (Economy, Environment and Finance), Head of Environmental and Commercial Services, Legal Services Manager, Chief Financial Officer, Committee Services Officer (L Rowan), and Equalities Officer have all been consulted and their comments incorporated into this report.

11. CONCLUSION

- 11.1 The SG target for phasing out HDV vehicles is by 2040. However, the ambitious Council target is to replace or offset all these emissions by 2030 which will require the large vehicles to be replaced by 2030. As a result of the factors identified above, which includes cost, suitable fleet availability and the required charging infrastructure this is felt to no longer be reasonably achievable for this asset type.**
- 11.2 Subject to approval it is proposed to continue to develop the council's ZEV strategy and transition the fleet aligned at a pace to SG targets where between now and 2040 the market is expected to mature significantly with greater choice and reduced costs.**
- 11.3 This approach will inform forward capital funding requests as part of the capital planning process.**
- 11.4 Work will continue to more closely align the separate strategies being developed by the Council under its climate change agenda. Currently separate teams are responsible for the development of hydrogen strategies, EV public infrastructure, Fleet decarbonisation and council owned infrastructure.**

Author of Report: Mark Atherton, Roads Maintenance Manager

Background Papers:

Ref: SPMAN-524642768-841