



Essex Police, Fire and Crime Commissioner Fire and Rescue Authority

Decision Report

Report reference number: 059-22

Government security classification: Not protectively marked

Title of report: Essex Fire Volvo XC40 (Greener Fleet)

Area of county / stakeholders affected: Service wide

Report by: Karl Edwards (Director of Corporate Services)

Date of report: 27th January 2023

Enquiries to: Karl Edwards (Director of Corporate Services)

1. Purpose of the report

The purpose of this report is to seek approval to purchase 20 Volvo XC40 (Plug-In Hybrid) PHev provided officer vehicles.

2. Recommendations

The Director of Corporate Services is making a recommendation to procure 20 Volvo XC40 PHev vehicles via direct award through the procurement framework CCS RM6244.

The Police, Fire and Crime Commissioner Fire and Rescue Authority is asked to approve the purchase of 20 Volvo XC40 PHev vehicles at a total cost of £886,100. [REDACTED]

The vehicles will replace 20 vehicles within our current fleet, providing 20 flexi officers on provided vehicles with a new provided flexi-officer car. The plan below shows the 20 flexi-officer cars that will be replaced by the Volvo XC40 PHev vehicles. The replaced vehicles will then be cycled through the replacement schedule to ensure we are disposing of the oldest first.

It is anticipated to generate capital receipts of approximately £120,000 from the disposal of the 20 current fleet assets. These capital receipts will be reinvested to part fund the purchase of the new vehicles being purchased.

This will leave a remaining balance of £766,100, which is to be funded from the Capital Receipts Reserve.

The Police, Fire and Crime Commissioner Fire and Rescue Authority is also asked to provide authorisation for the Chief Financial Officer to approve the purchase order for the new vehicles in our finance system

3. Benefits of the proposal

The benefits of plug-in hybrid in vehicles:

- This will enable the service to start progressing towards the net zero carbon emissions target by 2050.
- Zero tailpipe emissions – When using their electric-only mode, plug-in hybrids create no emissions when travelling at lower speeds. This means they're great for journeys in urban areas reducing harmful exhaust emissions.
- Reduced fuel bills – Depending on requirements from a car, a plug-in hybrid can drastically reduce fuel bills. For example, for relatively short commutes, they can do it all without once needing use of the combustion engine and for longer commutes will establish the optimum journey time to use electric or fossil fuel.
- Refuelling for longer journeys - A plug-in hybrid means you aren't bound to the still-developing public charging network, reducing urgency / time when it comes to making longer journeys.
- Familiarises drivers and fleets departments with electric technology – Driving a plug-in hybrid encourages the habit of plugging in the car and introduces the future of motoring, without the commitment of choosing an all-electric vehicle. They are a perfect stepping-stone into the next generation of electric cars.

Efficiency of plug-in hybrid vehicles

When it comes to PHEVs, driver behaviour has the biggest effect on running costs.

Regularly charging the car and driving mostly within the vehicle's electric range could achieve the figures highlighted below. Emissions Analytics claims the overall average of plug-in hybrids is 37.2mpg once the electric range has been used. Using this as a baseline, the table below illustrates what can be achieved depending on how much driving is completed in EV mode.

Electric driving share	Fuel efficiency
0% in EV mode	37.2mpg
25% in EV mode	49.6mpg
50% in EV mode	74.4mpg
75% in EV mode	148.8mpg

The provision of the XC40 (plug-in hybrid) PHEV vehicles will be a first step for ECFRS in reducing the carbon footprint of the service and enable it to build its knowledge base of how the opportunities of an alternative fuel / green fleet can be realised within our transport operations.

If the purchase of these vehicle is approved, Volvo has committed build slots for these vehicles, scheduled by the manufacturer, which will decrease the lead times for emergency services fleets in the current marketplace. If approved, ECFRS would be able to take delivery of these asset some 12/18 months ahead of normal delivery times in the current marketplace, the expected delivery into the service being end of March 2023 (within this financial year).

An immediate move to fully electric vehicles is currently not viable as the EV infrastructure across the estate is still in the planning phase, therefore this option provides ECFRS with an opportunity to move to greener vehicles ahead of the implementation of the electric charging facilities.

It should be noted that there is a plan to enable electric vehicle charging points at the service HQ within Q4 of 2022/23 and a scheme for home charging facilitation. There is also a joint EV plan being developed in collaboration with ECFRS and EP.

The acquisition of the greener PHEV vehicles will enable a reduction of time served diesel vehicles to be disposed of.

The provision of a single make and model of vehicle with a standardised specification for the role will allow for better flexibility and ease of vehicle management as the vehicles can be maintained efficiently, with in-house servicing of the asset at a reduced cost compared to external providers, thus reducing whole life costs and increasing residual values.

4. Background and proposal

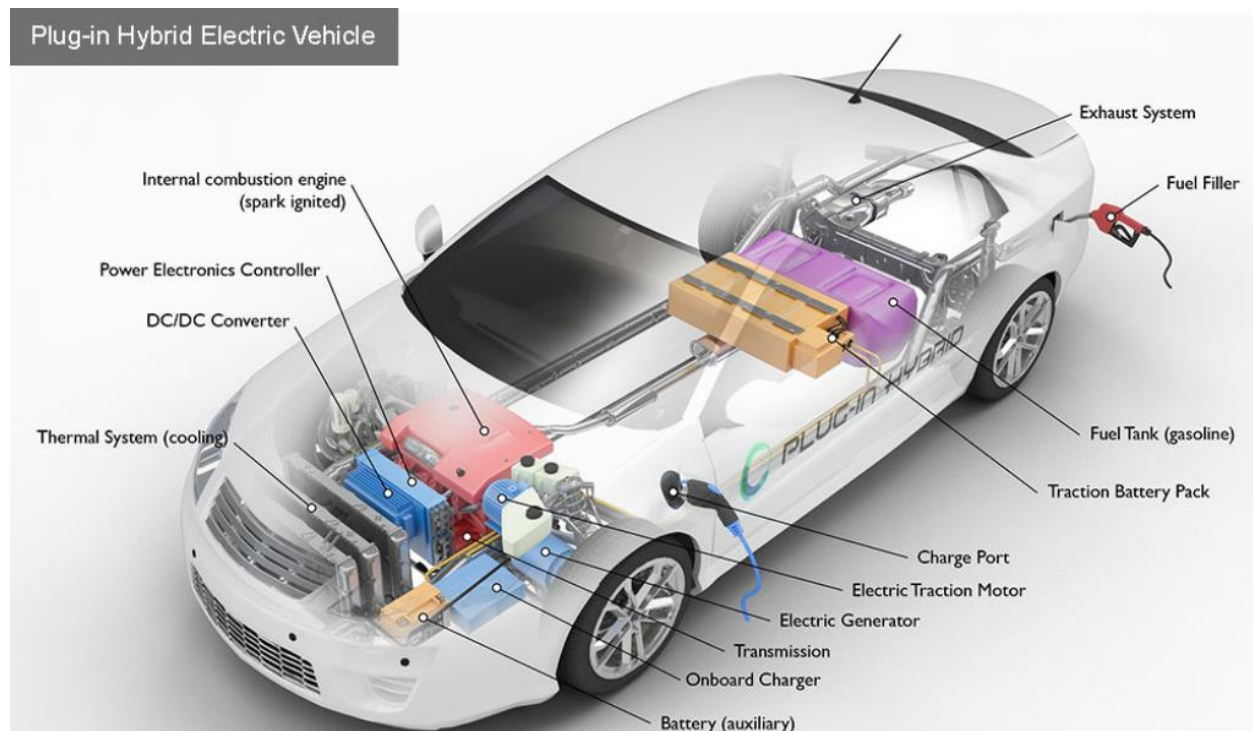
The automotive industry is fast moving towards electric vehicles. Every international automaker is introducing battery cars, and plug-in hybrid options are increasingly part of model lines. Some auto companies have gone further and have set dates for when they will produce only "electrified" cars (batteries and hybrids) and / or pure EVs. Others have set dates certain when they're going to stop developing internal-combustion engines and some have already stopped.

When in hybrid mode, most plug-in hybrids reduce life cycle green-house gas emissions (such as CO₂) by 15%-30% compared to an equivalent fossil fuel model. This is principally due to the increase in fuel efficiency which results from hybridising the drivetrain.

When in electric-only mode, plug-in hybrid cars charged using average UK 'mains' electricity show a significant reduction in CO₂ – the figures suggest a reduction of around 40% compared to a small petrol car (tailpipe 130 gCO₂/km). Renewable electricity reduces fuel life cycle emissions to almost zero.

Although highly dependent on the driving and fuelling routines of each owner, initial experience suggests that plug-in hybrid cars tend to be powered on electricity for around half of the miles driven. Plug-in hybrids are effectively electric cars for some of the time, and low emission hybrids for the remainder, which means that overall, emissions are significantly reduced.

The CO₂ benefits are particularly apparent in congested driving conditions when the electric mode is more often used, and the hybrid mode is able to utilise electric drive and regenerative braking to recoup some of the energy that would otherwise be lost on start-stop driving.



5. Alternative options considered and rejected

Alternative options considered and rejected include:

- Maintaining the status quo where the current vehicle type would be replaced with a diesel-powered vehicle which would not be conducive to the aspiration of reducing the service's carbon footprint. This would also place the service in a position of experiencing the long lead times for build and delivery currently being experienced in the automotive industry.
- Moving to full electric vehicle provision – This has been considered and rejected on the grounds that ECFRS does not currently have full EV charging infrastructure across the estate. Furthermore, the use of a fully electric vehicle requires downtime for re-charging

and has a limited mileage range (which is further diminished when driving under blue light conditions), which presents a logistical issue which is not conducive to our current operating model. It should be noted that, with the rapid development of EV technology and ECFRS's plans for the implementation of EV charging infrastructure, full electric vehicles will evolve further over the next 5+ years.

6. Strategic priorities

FIRE AND RESCUE PLAN PRIORITIES	
Prevention, Protection and Response	EV / hybrid vehicles are rapidly developing, and it is essential that ECFRS embarks on a programme to move to ultra-low emissions and progressively to zero carbon. To achieve this, moving to hybrid vehicles in the first instance will help us to learn more about the evolving technology and how we can start to wrap our planning and strategy to deliver a net carbon zero fleet by 2050. The learning of this new technology will help us to develop PP&R strategies that align to our environmental strategy and gain an improved understanding of how we need to work now to be fit for future changes within the arena of electric vehicles.
Improve Safety on our Roads	Understanding more now about electric / hybrid vehicles and the associated infrastructure will help us to improve our management of incidents on the roads of Essex that involve EV / hybrid vehicles.
Help the Vulnerable to Stay Safe	The more modern and up to date our fleet assets are, the greater the opportunity to ensure that our staff are able to respond to our communities in the most effective and efficient way possible. Having a vehicle that is equipped to a high standard will enable flexi-officers to operate in a range of diverse environments.
Promote a Positive Culture in our Workplace	ECFRS strives to be at the forefront of ensuring that we are able to respond to and actively demonstrate our ability to reduce our carbon footprint. This is an important factor to our employees that are keen for there to be a clear move to ensuring we are making positive impacts towards climate change.
Develop and Broaden the Roles and Range of Activities undertaken by the Service	As we move to utilisation of new electric vehicle technology, it brings new opportunities to assess new ways of working that can help us to be more agile. It will also allow us to broaden the role of our fleet services and estates function as the focus moves closer towards sustainability and environmental impact.
Be Transparent, Open and Accessible	ECFRS is keen to demonstrate how it is supporting climate change initiatives and what actions we are taking as a service to reduce our own carbon footprint. How we achieve this needs to be transparent and achieved in partnership with all of our key stakeholders.
Collaborate with our Partners	The move to a hybrid vehicle fleet and full EV in the future further supports the ECFRS and Essex Police joint Environmental Strategy. This will also complement the recent joint working around shared EV infrastructure.
Make Best Use of Our Resources	The move to a hybrid vehicle is the starting point and bridge to moving to a full EV fleet over the forthcoming years. It is essential that we demonstrate to future generations that all of our resources are procured with a focus towards environmental impacts. An Ultra-Low Emissions

	Programme is being developed to allow us to move closer to our target of net zero carbon by 2050.
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7. Operational implications

The specification of these vehicles meets with the requirements put forward by the flexi officer group. As these vehicles are hybrid vehicles, the service wants to ensure that this aspect is maximised in terms of the benefits to be derived from both the environmental aspects and the improved fuel economy, providing they are being charged on a regular basis.

In recognition of the above, the service is exploring a number of areas regarding EV infrastructure provision, which include: -

- ✓ Potential financial contribution to home charging point installation and reimbursement of electricity used for charging of a service vehicle.
- ✓ EV charging infrastructure trial at ECFRS HQ for use by all service personnel, partner organisations and paid for charging by service personnel with private electric vehicles.
- ✓ Roll out of EV infrastructure post external review recommendations, working in collaboration with Essex Police to maximise opportunity and efficiency across both service estates.

As this is the service’s first move to hybrid electric vehicles it presents a great opportunity to learn and understand further the different aspects involved in operating this type of fleet. It will allow us to build learning prior to progression to full electric vehicle infrastructure.

As previously mentioned, this will also allow the service to look at simplification of car schemes to allow greater flexibility and efficiency of fleet resources whilst also ensuring that the end user requirements of the flexi officer role are delivered in an effective way.

8. Financial implications

It is the intention to purchase these 20 vehicles and use them under the provided car scheme which allows for VAT to be reclaimed in full as the vehicles are being used for business purposes.

The net cost to the service of each Volvo is £33,171, [REDACTED]

[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

In addition, there is expected to be a cost of approximately £4,500 per vehicle that relates to the converting the vehicle for blue light purposes, meaning the total cost to the service for each vehicle is £45,305. The total cost for purchasing 20 vehicles is therefore £886,100. [REDACTED]

The vehicles will replace 20 vehicles within our current fleet (please see replacement plan). It is anticipated to generate capital receipts of approximately £120,000 from the disposal of the 20

current fleet assets. These capital receipts will be reinvested to part fund the purchase of the new vehicles being purchased.

This will leave a remaining balance of £766,100, which is to be funded from the Capital Receipts Reserve.

The nature of this decision is to progress us towards simplification of the car schemes and to a standardised vehicle specification for all flexi officers. The flexi officer group has already approved a standard spec.

To maximise the benefits of both the proposed purchase of these hybrid vehicles and other service hybrid vehicles that are already in use, it is the intention to equip hybrid users with the facility to utilise a home charging point. It is anticipated that each charging point is approximately £1,000 per installation. ECFRS has seven hybrid vehicles currently within the fleet and with the approval of the 20 Volvo XC40 this would equate to 27 hybrid vehicles in total and therefore an estimated cost of £27k for the installation of home charging points. ECFRS is also considering the calculation and process of reimbursement of home provided electricity costs for those provided officers with provided hybrid vehicles.

One of the next stages will be to give officers the option to use this vehicle for private use. If the user identifies that they wish to elect for private use (which is in effect the terms of the principal officer lease car scheme), the service would have to re-pay the VAT on that vehicle. The users currently on the Provided Car Scheme are not to use the vehicles for private use once this is an option, as this also has personal tax implications along with impacts on mileage claims. This will be more applicable for further purchases.

9. Legal implications

The service is using a compliant Crown Commercial Services (CCS) framework and is able to make a direct award under RM 2644.

There are no other legal implications known at this stage that would impact the service through the purchasing of these vehicles.

10. Staffing implications

The Director of Corporate Services has held a series of flexi officer engagement meetings to discuss the current circumstances concerning the simplification of car schemes and has also provided an update with regards to the intended purchase of these vehicles that will come into the operational flexi officer fleet. The design specification of these vehicles meets the operational requirements put forward following a flexi officer engagement session in June 2022.

It is recognised that further consultation and communication of tax liability implications is required to all flexi officers as we transition to the simplification of car schemes.

It should be noted however that the purchase of these 20 vehicles will not change the terms of the current flexi officer car schemes as they will initially be for provided for business use only until we can transition to a provided car policy that allows private use.

11. Equality and Diversity implications

We have considered whether individuals with protected characteristics will be disadvantaged as a consequence of the actions being taken. Due regard has also been given to whether there is impact on people who identify as being part of each of the following protected groups as defined within the Equality Act 2010:

Race	N	Religion or belief	N
Sex	N	Gender reassignment	N
Age	N	Pregnancy & maternity	N
Disability	N	Marriage and Civil Partnership	N
Sexual orientation	N		

The Core Code of Ethics Fire Standard has been fully considered and incorporated into the proposals outlined in this paper.

12. Risks

There are no current risks identified with the purchasing of these vehicles. It should however be noted that the wider and longer term move to full electrification of all fleet assets is likely to see increased cost requirements / funding. These increased costs are being seen within the fleet industry as a whole but particularly across the EV infrastructure as there are associated costs to upgrade sub-stations and install underground electrical ducting to enable vehicle charging. This is a risk to be aware of but is not current with the purchase of these vehicles.

The other risk identified when considering this purchase was regarding that of moving to fully electric vehicles. This currently presents a challenge in that ECFRS does not yet have a full EV infrastructure to support on-premise charging. Furthermore, there is a degree of electric range anxiety in that a flexi officer may have occasions when they either exceed the full range available or they do not have enough downtime to facilitate re-charging. ECFRS is looking to trial fully electric vehicles within the flexi-officer fleet to gain a better understanding of requirements.

13. Governance Boards

This paper was approved by the Service Leadership Team (SLT) Strategic Meeting on 13th December 2022 for submission to the PFCC for approval.

The Chief Fire Officer briefed the Police, Fire and Crime Commissioner Fire and Rescue Authority on the proposal at their formal Performance Meeting on 9 February 2023.

14. Background papers

None

Decision Process (059-22)

Step 1A - Chief Fire Officer Comments

(The Chief Fire Officer is asked in their capacity as the Head of Paid Service to comment on the proposal.)

.....I support this recommendation



Sign:

.....

Date:.....31/1/23.....

Step 1B – Consultation with representative bodies

(The Chief Fire Officer is to set out the consultation that has been undertaken with the representative bodies)

.....NA.....

Step 2 - Statutory Officer Review

The report will be reviewed by the Essex Police, Fire and Crime Commissioner Fire and Rescue Authority's ("the Commissioner's") Monitoring Officer and Chief Finance Officer prior to review and sign off by the Commissioner or their Deputy.

Monitoring Officer

Sign:



Print: P. Brent-Isherwood

Date: 9 February 2023

Chief Finance Officer

Sign:



...

Print:Neil Cross.....

Date: 31/1/23

Step 3 - Publication

Is the report for publication? **YES/NO**

If 'NO', please give reasons for non-publication (Where relevant, cite the security classification of the document(s). State 'none' if applicable)

Subject to redaction – please see below

If the report is not for publication, the Monitoring Officer will decide if and how the public can be informed of the decision.

Step 4 - Redaction

If the report is for publication, is redaction required:


- | | | |
|---|-------------------|-----|
| 1 | Of Decision Sheet | YES |
| 2 | Of Appendix | N/A |

If 'YES', please provide details of required redaction:

- Reference to Volvo pricing information throughout document as commercially sensitive
- Page 2 – table showing vehicle registrations and names (due to GDPR)

Date redaction carried out: 9th March 2023


If redaction is required, the Chief Finance Officer or the Monitoring Officer are to sign off that redaction has been completed.

Sign :  Print: ...Neil Cross.....

Date signed: 9th March 2023.....

Step 5 - Decision by the Police, Fire and Crime Commissioner or Deputy Police, Fire and Crime Commissioner

I agree the recommendations to this report:

Sign:  (PFCC / ~~DPFCC~~)
Print: ..ROGER HIRST..... Date signed: 10 February 2023.....

I do not agree the recommendations to this report:

Sign: (PFCC / DPFCC)
Print: Date signed:

