Lewes District Council

EASTBOURNE Borough Council

Working in partnership with Eastbourne Homes

Appendix 1 Vehicle Replacement Strategy May 2022

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Abbreviations

EBC – Eastbourne Borough Council
SEESL – South East Environmental Services Limited
HGV – Heavy Goods Vehicle
RCV – Refuse/Recycling Collection Vehicle
EV – Electric Vehicle
HV – Hydrogen Vehicle
HVO – Hydrotreated Vegetable Oil
FAME – Fatty Acid Methyl Esters
NOx – Nitric Oxide
AWC – Alternate Weekly Collection

Executive Summary

The purpose of this report is to set out the replacement pathway for the waste and recycling fleet to circa 2035, which is a **mandatory service provided on behalf Eastbourne Borough Council**. This is against a backdrop of new and emerging technologies, fuels and energy vectors, ageing vehicles, and **the council's** 2030 Carbon Neutral target.

The **immediate priority is to upgrade the current fleet** at Courtlands Road Depot from where South East Environmental Services Limited (SEESL, Eastbourne Borough Councils Arms-Length waste company) operates. Industry standard replacement schedules for these collection vehicles are a **7–10-year cycle** and many of our vehicles are nearing the **end of their economic life**. It is business critical to secure a fit for purpose fleet **in-situ for SEESL by April 2024** that will see us through for 5 years, just ahead of the council's net zero 2030 milestone.

The requisite energy vector facilities will also need to be installed/provided in this interim period, either at the depot or in the vicinity, be that a charging infrastructure for EVs (Electric Vehicles, **Page8**) and/or HVs (Hydrogen Vehicles. **Page 8/9**) via the hydrogen hub in Newhaven.

Due to both the marketplace and depot infrastructure not ready for the immediate transition to EV or HV, we have **no option** but to continue to consider the continued use of diesel as a fuel as well as a diesel substitute, most especially HVO (Hydrotreated Vegetable Oil, **Page 9**) which is not done lightly but from a position of no immediate alternative option. HVO is also referred to as renewable diesel.

While ultra-low emission solutions are developing at a rapid pace, there are **significant advantages in delaying decisions** on new vehicle types while the market stabilises. The first version of electric RCVs (Refuse/Recycling Collection Vehicles) are beginning to be deployed at councils in London and other urban areas. The UK's first fuel cell hydrogen waste truck was launched in Aberdeen in February 2022.

The smaller fleet at SEESL, mainly streets collection vehicles and food collection vehicles, are suitable for the EV model, as range and charging capacity is not as restrictive as it is on the HGV fleet. It is recommended to invest in fully electric food waste vehicles in 2025 (in sync with the government mandate) once the depot has been modified followed by the streets fleet in 2029.

SEESL can position itself to procure the best fit vehicles from 2029 when the market has matured, prices have normalised, and the most appropriate fuel or energy source is in place conscious of the unprecedented rise in the cost in fuel as well as the vulnerability in respect of guaranteed supply considering the ongoing conflict overseas.

Our closing summary (**Pg16**) provides not only **our recommendation** in respect of the immediate procurement need, but also the headline **opportunities** as well as **headline risks** associated with our decision making.

Procurement Timelines

Below is a summary of the timeline in respect of fleet procurement, explained more fully within the report, in the lead up to the 2030 and 2035 carbon commitment milestones, offered in sympathy with fiscal challenges (hence the phased approach), evolving technologies (including alternative fuels) and DEFRAs mandate in respect of Food Waste collections, also conscious of the unknown impact of the Environment Bill.

23/24 – Rebody of existing RCV collection fleet (using alternative diesel)
25/26 – Food Waste (EV) and Mechanical Sweepers (EV)
29/30 – RCV collection fleet and Street Cleansing Fleet (EV/HV)

The above is based on Option 1 contained within the enclosed Appendix with fuller explanation contained within the narrative under "Bridging the Gap" **Page11.**

Background

The council fleet provides vehicles for specific job functions such as Refuse and Recycling collections, Garden Waste Collections, Trade Waste Collections, Clinical Waste Collections, Street Cleansing, Bulky Item Collections, Fly Tipping, and Workshop Maintenance.

This report considers the replacement strategy for the collections fleet.

The current fleet is primarily fueled with diesel. The vision for the entire council's fleet is set out in 'Eastbourne Carbon Neutral 2030 - A plan for action' where we state we will decarbonise our own fleet to save approximately 800 tonnes of CO2e per year. This informs the vehicle replacement pathway proposed in this report.

New vehicle technologies are rapidly developing primarily in the form of electric powered vehicles. Hydrogen cell fueled vehicles are now available but limited at present by hydrogen production and the infrastructure that is required to supply it.

In the context of limited resources and emerging technologies which may be effective but often initially expensive, the route to decarbonisation of the council fleet is a significant challenge.

A further challenge is the requirement for new clean fuel infrastructures and working with the partner organisations will be central to ensure that the council fleet is ready to take advantage of new technologies.

Current Collections Fleet

Current Refuse Fleet

The Refuse fleet consists of 9 vehicles and it is primarily HGV that fall under the remit of the Traffic Commissioner requiring O licences. The service schedules are every 6 weeks, and it is the **most expensive fleet to maintain** within the council, due to the workload on the vehicles each (like those in Recycling, Garden Waste and Trade below) working approx. 7hours daily, Monday to Friday (incl. Bank Holidays) plus additional days on Christmas and New Year Bank Holiday catch ups. The average age of the Refuse fleet is 9 years, and the expected lifespan of a refuse vehicle is 10 years, however we are confident we can "reuse" most if not all existing chassis, replacing their working bodies (rebody), so they remain roadworthy to pass annual tests up to the transformation to EV or HV fleet in 2029.

Crew	Reg	Service	Vehicle Size	Reg Date	Age	Owned
REF 1	GK13EOL	Refuse 1	26t split lift	01/04/2013	9	Yes
REF 2	GK13EOP	Refuse 2	26t split lift	01/04/2013	9	Yes
REF 3	GK13EOY	Refuse 3	26t split lift	01/04/2013	9	Yes
REF 4	GK13EOR	Refuse 4	26t split lift	01/04/2013	9	Yes
REF 5	GK13EOU	Refuse 5	26t Euro Lift	01/04/2013	9	Yes
REF 6 (SP)	GK13EPA	Refuse 6 (SP)	26t Split lift	01/04/2013	9	Yes
REF 7 (NA)	RK19ONC	Refuse 7 (N/A)	16t split lift	31/05/2019	3	Yes
REF Service	GK13EOO	Service Cover	26t split lift	01/04/2013	9	Yes
REF Service	GK13 EPL	Service Cover	26t Split lift	01/04/2013	9	Yes

26t Refuse Truck

Current Recycle Fleet

The Recycle fleet consists of 6 vehicles and are all HGV that fall under the remit of the Traffic Commissioner requiring O licences. The service schedules are every 6 weeks. The average age of the owned Recycle fleet is 9 years. As with the refuse fleet, we are confident we can "reuse" most if not all existing chassis, replacing their working bodies (rebody), so they remain roadworthy to pass annual tests up to the transformation to EV or HV fleet in 2029.

Crew	Reg	Service	Vehicle Size	Reg Date	Age	Owned
REC 1	GK13EOV	Recycle	26t split lift	01/04/2013	9	Yes
REC 2	GK13EOX	Recycle	26t split lift	01/04/2013	9	Yes
REC 3	GK13EOM	Recycle	26t split lift	01/04/2013	9	Yes
REC 4	GK13EOZ	Recycle	26t split lift	01/04/2013	9	Yes
REC 5 (NA)	RK19OMZ	Recycle N/A	16t Split lift	03/05/2019	3	Yes
REC Service	GK13EOS	Service Cover	26t split lift	01/04/2013	9	Yes

26t Recycle Truck

Current Garden Fleet

The Garden fleet consists of 2 vehicles and are all HGV that fall under the remit of the Traffic Commissioner requiring O Licences. As with the Refuse and Recycle Fleet, servicing schedules are every 6 weeks. Once again, we are confident, we can "reuse" the existing chassis, replacing their working bodies (rebody), so they remain roadworthy to pass annual tests up to the transformation to EV or HV fleet in 2029.

Crew	Reg	Service	Vehicle Size	Reg Date	Age	Owned
GAR 1	GK13EPD	Garden	26t split lift	01/04/2013	9	Yes
GAR 2	GK13EPF	Garden	26t split lift	01/04/2013	9	Yes

26t Garden Waste Collection Vehicle

Future Food Waste Fleet

We anticipate that the Food Waste fleet will consist of 5 vehicles including 1 service cover vehicle and are all HGV that fall under the remit of the Traffic Commissioner requiring O Licences. As with the Refuse and Recycle Fleet, servicing schedules are every 6 weeks. Our submission is based on an EV option.

Crew	Reg	Service	Vehicle Size	Reg Date	Age	Owned
FOOD 1	New	Food	7.5t Tail Lift			Yes
FOOD 2	New	Food	7.5t Tail Lift			Yes
FOOD 3	New	Food	7.5t Tail Lift			Yes
FOOD 4	New	Food	7.5t Tail Lift			Yes
FOOD Service	New	Service Cover	7.5t Tail Lift			Yes

Current Trade Collection Fleet

The Trade Collection service is presently undertaken by both the domestic Refuse and Recycling fleet, as this is the most efficient use of resources to service EBCs corporate properties with the trade element calculated using the governments WRAP formula (as is also the case in neighbouring Lewes District Council in respect of recycling collections). Hence the recommendations for these fleet are already captured above.

16t 'Narrow Access' collections vehicle for all commodities

Fleet Options

Electric Vehicle (EV) Option

It is expected that **new battery prices will fall 60% by 2030** (compared to 2020), rapidly reducing electric vehicle costs. The use of dedicated manufacturing platforms for battery electric vehicles will allow vehicle manufacturers to reduce costs by up to 25% thanks to simpler assembly, the use of standard battery packs, and the savings from producing higher volumes of various BEV models on the same chassis.

All of SEESL's HGVs are diesel-powered. For SEESL to switch to electric, batteries will need to deliver the equivalent range and payload capacity of a conventional RCV. Even if battery developers make these evolutionary breakthroughs, it will also require the installation of large rapid charging points at the depot.

The current EV RCV's have a stated range of 90 miles from the manufacturer, however this is an empty vehicle with a speed limit of 37mph maximum and **a price tag of £450,000**, twice the cost of a regular Diesel RCV. Once you start loading and going up hills the range decreases significantly, during trials a full RCV would be unable to complete a round in one charge, drive to the Energy from Waste (ERF) at Newhaven and return, given the average daily mileage of any of our HGV fleet is approx. 90miles. Note also that this is based on one trip to the tip and on some occasions, it can be more two trips (following Christmas, New Year and Easter holiday seasons).

EV RCV's are suitable for city councils and small boroughs, as the technology in the batteries does not currently exist for larger districts or like EBC where the tipping facility is out of borough. Many in the industry predict that electric vehicles are part of the transition to hydrogen and not a long-term transport solution in their own right.

It is hoped that by 2029/30 when the RCVs will be replaced, that improvements will have been made to EV batteries enabling a vehicle to cover the daily range required to meet the services rounds.

The smaller fleet at SEESL, mainly food collection vehicles and streets collection vehicles are suitable for the EV model, as range and charging capacity is not as restrictive as it is on the HGV fleet. It is recommended to invest in fully electric food waste vehicles in 2025 (in sync with the government mandate) once the depot has been modified followed by the streets fleet in 2029.

Hydrogen Vehicle Option

In January 2021 Europe's truck-makers agreed to work together to help create the right conditions for the mass-market roll-out of hydrogen trucks. Iveco, Daimler, and Volvo have joined forces with energy companies Shell and OMV to form H2Accelerate. They say hydrogen will be an essential fuel for the complete decarbonisation of the sector.

Julian Critchlow, director general for Energy Transformation and Clean Growth at the Department for Business Energy and Industrial Strategy (BEIS), told MPs on the Environmental Audit Committee in 2020, that the Government sees hydrogen "having a big role" in transport, especially for heavier vehicles. He highlighted the £23 million programme with the Office for Zero Emission Vehicles, which is looking at funding vehicles and refuelling stations, and the ultra-low emission bus scheme for hydrogen buses, along with the Prime Minister's commitment for 4,000 new zero-emission buses. "Upgrading fleet and refuelling infrastructure to adopt hydrogen or battery electric technology will be very expensive and the Government needs to help operators absorb that cost burden," he said.
Daimler Truck AG revealed its fuel-cell concept truck Mercedes-Benz GenH2 Truck in September 2020. It plans to begin customer trials in 2023, with series production to start in the second half of the decade. In November 2020, the Volvo

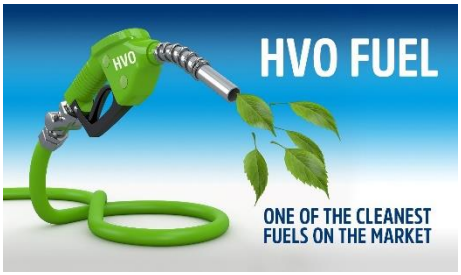
Group and Daimler Truck AG signed a binding agreement for a joint venture to develop, produce and commercialise fuel-cell systems. The latest unit price we have for a Hydrogen powered dustcart is £650,000.

Aberdeen city council has unveiled the first hydrogen fuel cell refuse collection vehicle (RCV) to be put into operation in the UK in February 2022. The RCV will run on hydrogen created by hydrolysis at Aberdeen's two refuelling stations and will begin collecting waste from around the city from early March. Manufactured and supplied to Aberdeen via European waste vehicle manufacturer Geesinknorba at an undisclosed cost, the RCV is one of seven which will be deployed across seven pilot sites in northwest Europe, including the Netherlands, France, Belgium, and Germany. The council says the RCV's proposed route in Aberdeen will result in an estimated saving of more than 25kg of CO2 equivalents per litre when compared to a diesel truck.

Interreg North-West Europe, a programme funded by the European Commission which aims to make North-West Europe a "key economic player" and an "attractive place to work and live", has part-funded Aberdeen's purchase of the vehicle. The programme has provided funding for the seven RCVs across Europe as part of its Hydrogen Waste Collection Vehicles in North-West Europe (HECTOR) project. Each RCV will be tested in a range of environments, from rural areas to city centres, in an attempt to demonstrate that hydrogen waste trucks are "effective" at reducing emissions from road transport whilst also capable of covering the daily road-mile range.

With the local plan for a Hydrogen facility in Newhaven, a Hydrogen powered fleet for SEESLs Refuse Service (noting that we will continue to tip at the Newhaven ERF as ESCC dictates this aspect of our service through their PFI with Veolia) might be a viable solution once the infrastructure is in place and assuming hydrogen vehicle costs reduce to an affordable and sustainable price point. An alternative to this may be a "hydrogen skid" (i.e. tank at the depot) which would be dependent on both the viability of the Hub option and of available space at the depot noting the introduction of the electrical infrastructure.

Diesel Vehicle Alternative Fuel HVO Option



Hydrotreated Vegetable Oil (HVO) is a biofuel made by the hydrocracking or hydrogenation of vegetable oil. Hydrocracking breaks big molecules into smaller ones using hydrogen while hydrogenation adds hydrogen to molecules. These methods can be used to create substitutes for gasoline, diesel, propane, kerosene and other chemical feedstock. Diesel fuel created by Hydrotreating is called green or renewable diesel and is distinct from the biodiesel made through esterification.

HVO Fuel suppliers claim that powering your engines and vehicles with this renewable fuel reduces greenhouse gas emissions by as much as 90%, NOx emissions by as much as 27% and Particle Matter emissions by as much as 84%, compared with conventional diesel, all which are key components in achieving improved air quality. Because HVO fuel is a stable product, it doesn't react with water so is less susceptible to bacterial attack than biodiesel. This enables it to have a shelf life of up to 10 years as opposed to around 1 year for mineral diesel, as long as tank cleanliness procedures are maintained throughout storage.

Biodiesel and diesel producers face stability issues with fuel due to legislative increases in FAME content. Regular biodiesel (FAME) is made up of fatty acid methyl esters with varying degrees of saturation which are susceptible to oxidation which can cause logistical problems such as clogged filters. That's because FAME attracts water and increases

diesel bug attack over time, meaning these fuels must be closely monitored to avoid equipment and machinery breakages. HVO fuel however is produced to remove unsaturation and contaminants, leading a pure hydrocarbon fuel. The main disadvantage of HVO fuel is its price. Compared to Diesel its cost is 4.5% higher per litre (ref Pg13/14). Fuel consumption is on a par with regular diesel.

We have been in conversation with Horsham District Council, who are using HVO for all their Diesel fleet, and have had no issues with vehicles since switching (and have the same fuel supplier as ourselves).

We have also engaged with Certas (our current approved Fuel Supplier) in respect of the HVO option (as well as other less options, with due diligence being executed on all noting it is a very fluid marketplace in respect of both product and price). We have found this dialogue to be invaluable in supporting our research into the most economically and environmentally viable fuel options moving forward and as a result have firmed up quarterly meeting with them to ensure that we remain "on pulse" with the evolution of varying fuel options.

To add, we are installing a 20,000litre bunded tank in our Courtlands Depot, which will afford us financial bulk buy power for whatever fuel options we decide upon, which will be in addition to the premium Forecourt Prices we are presently having to accept through the fuel card system (i.e. in the absence of a tank).

Fuel Costs

The table below indicates the costs of the various fuel options available to SEESL, prices based on a fuel tank on site. Although EV appears to be the lowest cost for an RCV, it is absolutely critical that each vehicle can service a daily round in full (sometimes including two runs to the tip) to negate the need to purchase additional vehicles to ensure a charged vehicle is available to continue to collect from the extremes of the Borough.

To date there are only 2 hydrogen RCV's in the UK and no fuel data is available currently for hydrogen.

EV	Distance per KWh in Miles	Cost per KWh	KWh per mile	Cost Per Mile
RCV	0.62	£0.28	2.41	£0.67
Van	3.5	£0.28	0.29	£0.08

Diesel	Distance per litre in Miles	Cost per litre	litres per mile	Cost Per Mile
RCV	0.62	£1.77	0.96	£1.69
Van	3.87	£1.77	0.24	£0.43

HVO	Distance per litre in Miles	Cost per litre	litres per mile	Cost Per Mile
RCV	0.62	£1.85	0.96	£1.77
Van	3.87	£1.85	0.24	£0.45

Hydrogen	Distance per kg in Miles	Cost per kg	kg per mile	Cost Per Mile
RCV	0	£0.00	0	£0.00
Van	0	£0.00	0	£0.00

Bridging the Gap – In order of our recommendation

As the Current SEESL HGV Collection fleet is **nearing its economical best**, there is **an urgent requirement to replace** by "reusing" existing chassis, replacing the bodies in order to safeguard the service delivery to 2029.

The EV Battery technology does not currently exist for it to be a viable option for the SEESL HGV fleet, due to a range of issues, cost, and infrastructure at the Courtlands Road Depot. To add, Hydrogen fuelled vehicle infrastructure and price are prohibitive factors at this time. SEESL is **undertaking trials of new fleet specifications** as a matter of course as part of our due diligence in advance of procuring the optimum solution in line with the prescribed 10year timeline, where we have full use of the vehicle for a minimum of one week, thereby **ensuring all staff have a first-hand opportunity to work with these vehicles** on collection rounds across the Borough.

However, as the marketplace continues to evolve and with it the understanding of associated infrastructural requirements, either of these options could become viable solutions from circa 2027/28. This therefore **presently leaves us with two fuel sources**, HVO or Diesel, and three options to acquire vehicles to bridge the gap shown below.

Whilst these options are solely related to **collection vehicles** (due to them being the greatest capital cost consideration and not as advanced in the marketplace in respect of alternative fuel types), all other fleet requirements are included in the (capital/fuel/carbon) "Figures" section and associated tables further down, namely: **Food Waste, Street Cleansing (including Mechanical Sweepers), Bulky Waste collections, Bin Deliveries and Supervisory vehicles.**

Bridging the Gap Options

Option 1 - Reuse of existing fleet – "Preferred"

For most of the current SEESL HGV collection fleet, the chassis could be cleaned up and re-bodied offering a cheap solution to extend the life of the vehicle for 5 years, from 2024 to 2029. We estimate that possibly 12 of the 15 required can be re-used. For those of the fleet where this is not viable the purchase of used chassis and re-bodied is also a cheaper option than new. The estimated cost per vehicle of doing this is **£100,000** for the chassis we keep and **£120,000** to include the cost of a second-hand chassis (from auction). Interim vehicle cover would need to be in place to enable us to release 3 vehicles at a time where they are to be rebodied (noting rebodying them takes approx. 12weeks), estimated cost £168k.

This is the cheapest capital expense option, and the **preferred option** for the officers.

Option 2 - Brand New Fleet

The second option we have is to replace the existing fleet with a brand-new fleet and depreciate this over 6 years instead of 10 in order to move to ZERO tailpipe emissions before 2030. This is a more expensive option than the Reuse/Re-Body option above, although there is potential for a residual value in 2029 after the 6 years are up – however, this is high risk as such is not guaranteed as we cannot predict the marketplace for diesel engines in 2029. There is also the option that hydrogen chassis conversions will be available by 2029 and we can convert the new diesel chassis to hydrogen, but again we cannot guarantee this a certainty. The cost of a brand-new Diesel vehicle currently stands at **£210,000** per vehicle.

Option 3 - Leased Fleet

The third option is to lease a fleet until 2029, eliminating the need for capital outlay. We have received quotes for this option. The cost per vehicle is £3,688 per month. The cost for this option is **£265,000** per vehicle for the 72 months (vs £100,000/£120,000 for the rebodied option, plus HVO), making this option the most expensive.

Any one of these options will "Bridge the Gap" allowing time for the new determined alternative fuel station infrastructure at Courtlands Road as well as realising the outcomes of the Environment bill and how that will shape the collections for the next ten years.

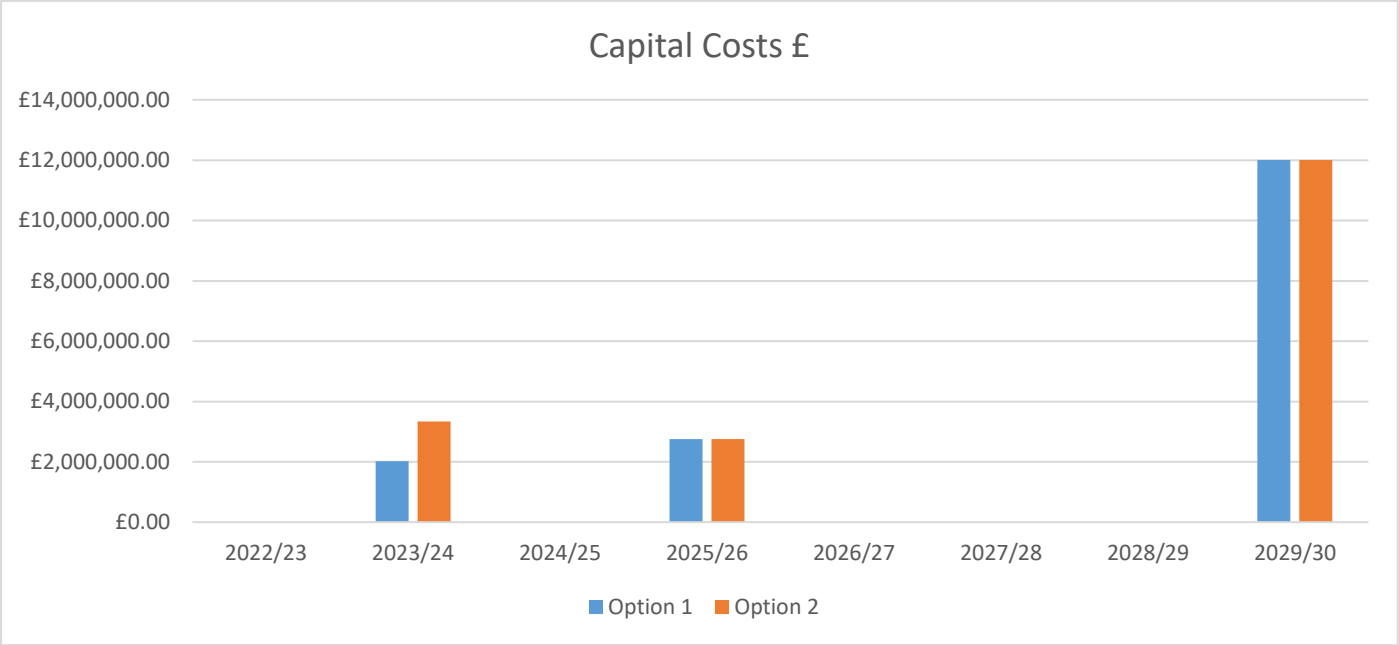
It will also allow the Newhaven hydrogen hub to become established from where we could potentially source our daily fuel stock requirements for our Refuse Service fleet and for SEESL to assess the ULE vehicle market further to ensure the vehicle selections are fit for the purpose of collecting waste with very little emissions.

Figures

Capital Costs

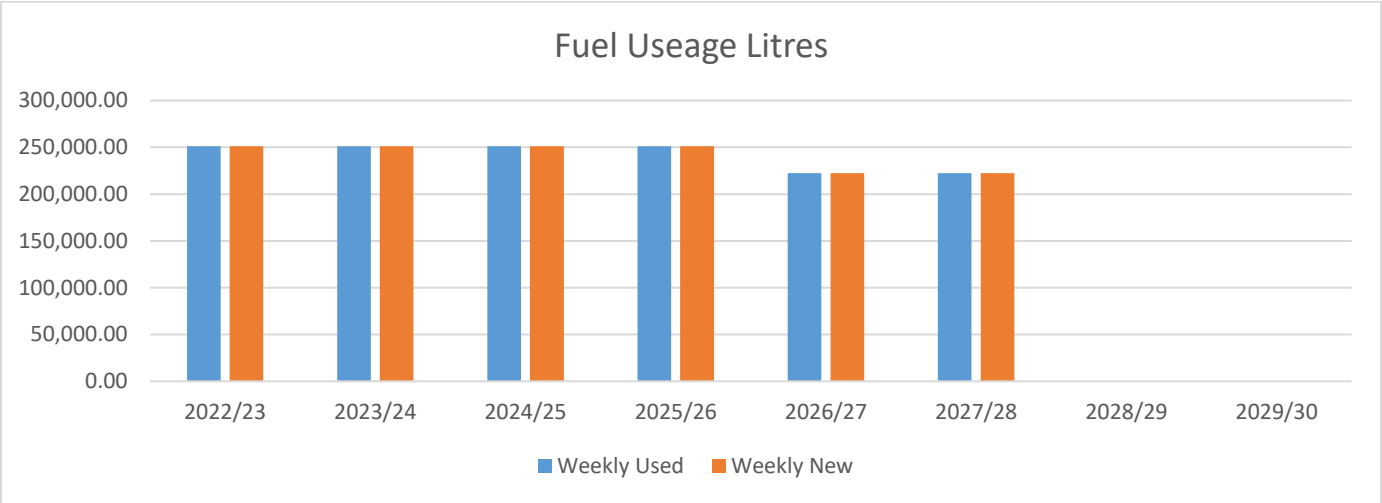
The table below details the capital costs SEESL will need to make available, dependant on the collection and Gap option selected.

The capital cost figures are based on quotes from suppliers see Appendix 2a and Appendix 2b.



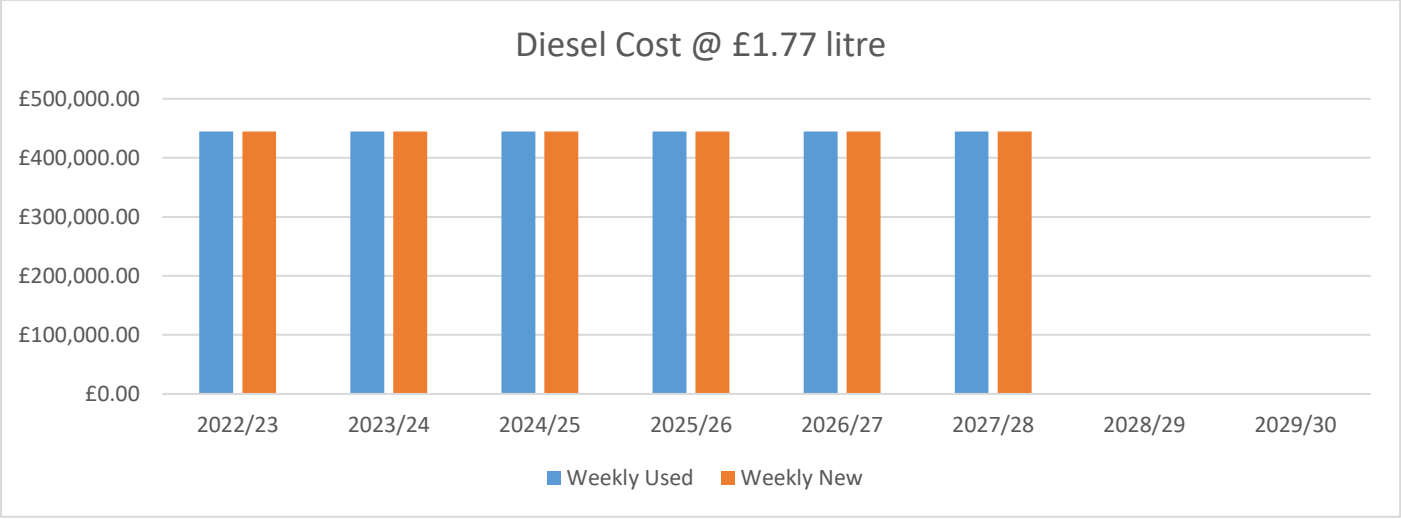
Predicted Fuel Usage

The table below details the predicted fuel usage in litres for the next 10 years. The figures are based on 2021 consumption by round, for full details see Appendix 2c



Predicted Fuel Costs Diesel

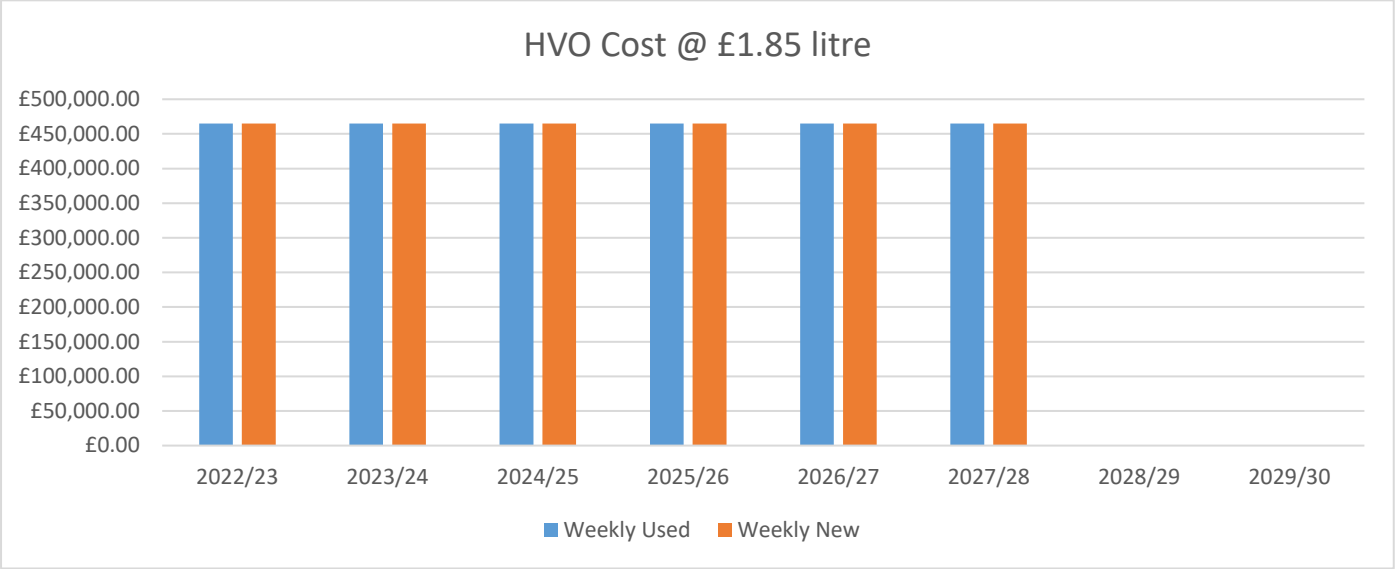
The table below details the predicted fuel costs for the next 8 years.
The figures are based on 2021 consumption and a unit price of £1.40 per litre by round (which is based on the move from the current Fuel Card Service Station approach to our own depot-based tank), see Appendix 2d



Predicted Fuel Costs HVO

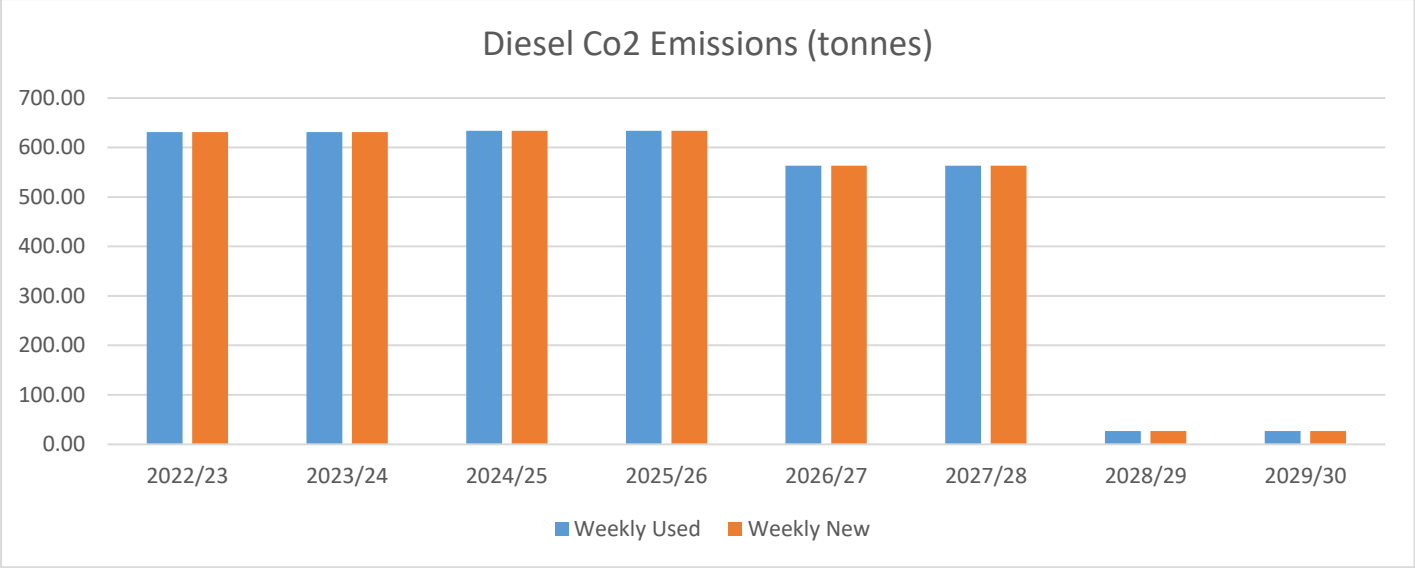
The table and chart below detail the predicted fuel costs should HVO be used instead of regular diesel for the next 8 years (commencing April 2023).

The figures are based on 2021 consumption and a unit price of £1.95 per litre by round, see Appendix 2e



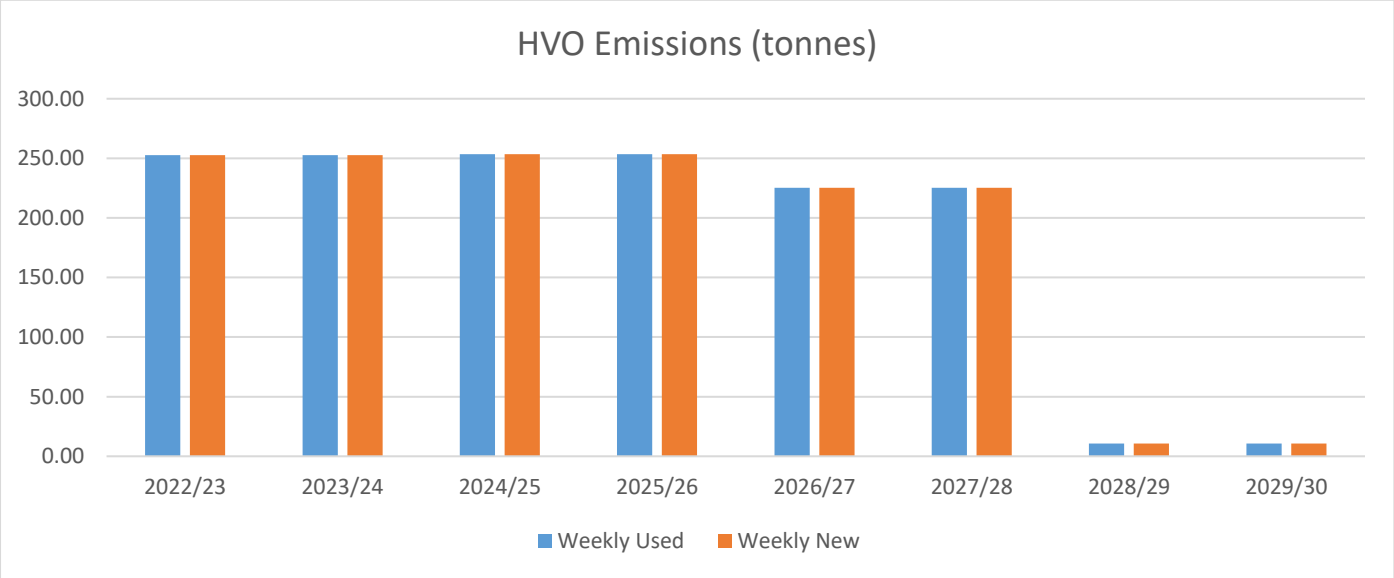
Predicted Carbon Emissions Diesel

The table and chart below detail the predicted carbon emissions based on diesel fuel emissions for the next 8 years. The figures are based on 2021 consumption and conversion figures of 1.239 per mile for diesel and 0.276 (Data compiled from LGA carbon accounting tool) for Electric, see Appendix 2f



Predicted Carbon Emissions HVO

The table and chart below detail the predicted carbon emissions based on HVO fuel emissions for the next 8 years. The figures are based on 2021 consumption and conversion figures of 0.7434 per mile for HVO and 0.276 for Electric (Data compiled from LGA carbon accounting tool), see Appendix 2g



Summary

Recommendation

We propose a hybrid of Diesel/HVO (for collections) and EV Fleet (for Food Waste) for the fleet replacement plan for the 2024 to 2029 service period (ref Bridging the Gap Options above) and as new technologies and alternative fuel options such as Hydrogen and Electric become economically viable as well as the provision of a depot infrastructure that can support our fleet, then we will switch out before 2030 to this technology to help achieve the council's target of Carbon Neutral by 2030.

Procurement Timeline by Vehicle Type and Year

- 23/24 – Rebody of existing RCV collection fleet (using alternative diesel)
- 25/26 – Food Waste (EV) and Mechanical Sweepers (EV)
- 29/30 – RCV collection fleet and Street Cleansing Fleet (EV/HV)

What's in ours/members control

- Right interim fleet choices in advance of the Carbon Neutral 2030 target
- Best use of council monies over the above timeline with the Recover and Reset background

What's NOT ours/members control

- Technological developments to meet our service needs and targets – marketplace dependent
- Depot fuel infrastructure, namely whether a Hydrogen Hub and/or UKPN electric supply
- Future costs of ULE fleet and costs of alternative fuels
- Global shortage of microchip (i.e., the brain of the engine)

Headline Opportunities

- Supporting EBCs Carbon Neutral 2030 target
- Having a dedicated Food Waste that seeks to optimise participation
- All the above will support the councils overarching Waste Reduction Strategy
- New fleet will positively impact on morale

Headline Risks

- **TIME -**
  - delays in the decision-making process at SEESL Board and Cabinet level
  - delays in the above impacting on speed of executing tender process
  - delays in the above impacting on placing our orders

- Missing "slots" on the successful supplier(s) fleet production line
- Supply of alternative fuels (HVO) against the ongoing conflict in Ukraine
- Running existing fleet beyond April 2024 – this is NOT an option!
- Cost limitations to ULE EV/HV fleet and to alternative fuel (HVO)
- Cost limitations to alternative fuel (HVO)
- Viability of EV Infrastructure at Courtlands Depot
- Viability of Hydrogen supply via Newhaven Hub or skid at Courtlands Depot
- Covid (or similar) if the world stops ….. again!
- Not choosing the recommended Option 1 for reasons contained within this paper.