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REPORT TO:	HOUSING AND COMMUNITY SERVICES	AGENDA ITEM:	8
DATE OF MEETING:	7 <sup>TH</sup> OCTOBER 2004	CATEGORY:	DELEGATED
REPORT FROM:	DEPUTY CHIEF EXECUTIVE	OPEN:	
MEMBERS' CONTACT POINT:	PAUL EVANS (EXTN. 5764)	DOC:	s:\icent_serviccommittee reports\housing & community services\green fleet.doc
SUBJECT:	COUNCIL'S VEHICLE FLEET – OPTIONS APPRAISAL FOR A "GREEN" FLEET	REF:	PE
WARD(S) AFFECTED:	ALL	TERMS OF REFERENCE:	EDS 08/09/13/14

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## 1.0 Recommendations

- 1.1 That this Committee agrees the recommendation of the Environmental and Development Services Committee from its meeting on 19<sup>th</sup> August 2004. Namely and subject to the availability of funding to meet the financial implications:
- To retain current fuel sources for heavy and medium duty vehicles, making use of technology to reduce emissions of pollutants.
  - To explore with partners options for the trial of an electric/petrol dual fuel light duty vehicle.
  - That future fleet specifications take into consideration developments in technology.

## 2.0 Detail

- 2.1 This Committee and the Environmental and Development Services Committee requested a report on the environmental impact of the Council's vehicle fleet at their meetings in March. A report, (available on request) summarising the options for a 'Green Fleet' was considered by the E & D Committee on 19<sup>th</sup> August 2004 and is summarised below.
- 2.2 The main pollutants from vehicle emissions are as follows:
- Sulphur dioxide
  - Particulate Matter
  - Uncombusted hydrocarbons
  - Nitrogen oxides

- Carbon monoxide
- 2.3 The Council changed from using conventional diesel to using ultra low sulphur diesel (ULSD) in 1999. ULSD produces 90% less sulphur dioxide emissions than conventional diesel and also reduces Particulate Matter by around 20%.
- 2.4 A detailed Options Appraisal was presented to the E & D Cttee within the report which covered the following vehicle categories.
1. Heavy duty vehicles (Refuse freighters & similar).
  2. Medium duty vehicles (Housing Maintenance vans & similar).
  3. Light duty vehicles (Environmental Health vans & similar).
- 2.5 The options and issues for Members' comments may be summarised as follows: -

#### **Heavy Duty Vehicles (10 no.)**

- 2.6 Since 1999, as the heavy duty vehicles have been replaced, the replacements have been fitted with Continuously Regenerating Particulate Traps (CRTs). The traps reduce the pollutants considerably with the exception of Nitrous Oxides where the reduction is around 5%.
- 2.7 Some CRT systems can now be combined with a Selective Catalytic Reduction system (SCR) that will increase the reduction of Nitrous Oxide emissions to around 85%. SCR systems, however, do cost more money and require the storage, maintenance and use of hazardous chemicals. The CRT system currently used by the Council is not compatible as yet with a SCR system.
- 2.8 Another potential option is to change from using ultra low sulphur diesel to bio diesel (ultra sulphur diesel mixed with a natural additive such as rapeseed oil). The development of this fuel source so far has extended to around a 5% additive but that is likely to increase over time. The advantage of bio diesel is in the wider environmental sense in that additives such as rapeseed oil are renewable energy sources. This may be one for the future as the percentages that may be added are increased and engine manufacturers become less anxious about any detrimental effects.
- 2.9 The other options appraised are not considered suitable applications for heavy duty vehicles.

#### **Medium Duty Vehicles (22 no.)**

- 2.10 The Council's current medium duty vehicles operate on ultra sulphur diesel but have not been fitted with CRTs or SCRs. The technology to do so, however, has been developed in recent years.
- 2.11 The specification for replacement vehicles, therefore, could include the items. The consequences would be the same as those identified above with regard to heavy duty vehicles.
- 2.12 The vehicles could operate on bio diesel.

- 2.13 Another potential option is to change to Liquid Petroleum Gas (LPG) / Petrol. The environmental advantages are similar to those gained with vehicles using ultra sulphur diesel and being fitted with CRTs and SCR. The vehicles, however, would cost more money and would have a reduced payload. The issue of the Fuelling Facility would also need to be taken into account.
- 2.14 The other options appraised are not considered suitable applications for medium duty vehicles.

### **Light Duty Vehicles (6 no.)**

- 2.15 Technology using similar techniques to the CRT and SCR systems outlined above is being developed for light duty vehicles and can now be specified when new vehicles are purchased.
- 2.16 The vehicles could operate on bio diesel.
- 2.17 LPG is another option with the same caveats outlined in Paragraph 2.12.
- 2.18 Electric vehicles are available to a limited degree. This is the best option from an environmental point of view although there are operational downsides in terms of the limited range the vehicles can travel before they require recharging.
- 2.19 The other options appraised are not considered suitable applications for light duty vehicles.

### **3.0 Financial Implications**

- 3.1 Based on the current Vehicle Replacement Programme, the additional capital costs to the Council over the next three years if the CRT / SCR diesel option was chosen would be as follows:

2005/06	£6,000
2006/07	£6,000 (to be added to the 2005/06 cost).
2007/08	£16,000 (to be added to the 2005/06 and 2006/07 costs).

Currently new vehicles are normally purchased through Financial Leases spread over the expected working life of the vehicles. The costs of the CRT / SCR systems could be financed in the same way. The additional annual costs over the next three years would be as follows: -

2005/06	£1,080
2006/07	£1,080 (to be added to the 2005/06 cost).
2007/08	£2,880 (to be added to the 2005/06 & 2006/07 costs).

- 3.2 The capital costs allow for 75% grant funding through either the Powershift Grant or the Clean Up Grant both of which are administered by the Energy Savings Trust. The funding, however, is budget limited and, therefore, cannot be guaranteed. Indeed, the Trust ran out of money half way through last year and this year's budget has been cut by 30%. The costs detailed above will quadruple if no grant funding is obtained.

3.3 In addition to the additional capital costs, the additional annual maintenance costs would be as follows: -

2005/06	£750
2006/07	£750 (to be added to the 2005/06 cost).
2007/08	£2,200 (to be added to the 2005/06 and 2006/07 costs).

3.4 The annual costs are based on current fuel duty levels. There has been a gradual lowering of the fuel differential between diesel / petrol and alternative fuels in recent years.

#### **4.0 Community Implications**

4.1 The Council can set example to the community in caring for the environment by the provision of a clean and efficient Council vehicle fleet.

#### **5.0 Conclusions**

##### **Heavy Duty Vehicles**

5.1 The Council's current system delivers significant environmental advantages as well as operational effectiveness.

5.2 The fitting of SCR systems to replacement vehicles will reduce significantly the levels of Nitrogen Oxides although there are operational downsides to be considered.

5.3 The use of bio diesel is an option for the future.

5.4 The other options appraised are not considered to be suitable at this time.

##### **Medium Duty Vehicles**

5.5 The Council's current system is limited to the environmental advantages of using ultra low sulphur diesel.

5.6 Replacement vehicles could be fitted with CRT systems or CRT / SCR systems thereby achieving the same environmental advantages as those gained by the heavy duty vehicles. The use of bio diesel would remain an option for the future.

5.7 LPG / Petrol is a further option but with the operational downsides outlined in Paragraph 2.12.

5.8 The other options appraised are not considered to be suitable at this time.

##### **Light Duty Vehicles**

5.9 The Council's current system is limited to the environmental advantages of using ultra low sulphur diesel.

5.10 Replacement vehicles could be fitted with the equivalent of CRT / SCR systems thereby delivering similar environmental advantages to those outlined for the heavy and medium duty vehicles. The use of bio diesel would remain an option for the future.

- 5.11 LPG / Petrol is a further option but with the operational downsides outlined in Paragraph 2.12.
- 5.12 The development of electric powered vehicles is now moving on from cars to light duty vans. This is the best option from an environmental point of view although there are operational downsides in terms of the limited range the vehicles can travel before they require recharging. It may well be worth investigating a trial of such a vehicle in a suitable application.

### **Overall**

- 5.13 In general terms there is a need to balance environmental benefits with operational advantages such as that currently provided by a single source of fuel.
- 5.14 The Council's current specification for its heavy duty vehicles already delivers significant environmental advantages as well as operational effectiveness. The addition of SCR systems will further increase the environmental benefits at a relatively low cost whilst still maintaining the current operational performance. The same technology is now available for medium duty vehicles and its application will further enhance the Council's "green" credentials.
- 5.15 Technology is developing rapidly and whatever options are adopted at this time need to be kept under review. The trial of an electric vehicle in a suitable application would be a useful exercise at this stage.
- 5.16 There is a considerable mountain of information around about this subject, much of which is highly technical and complex and some of which is quite contradictory in terms of the claims made by different providers. This Options Appraisal sets out to clarify the implications of the options available to the Council in a straightforward manner so that the best way forward can be considered.

