# Faster introduction of cleaner vehicles and operations: The ECOSTARS Fleet Recognition Scheme

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Road transport has significant impact on local air pollution and has been identified as the main source of air pollution in Europe together with the energy production sector. Pollution continues to undermine local air quality, particularly in urban areas. The ECOSTARS Fleet Recognition Scheme was first developed as part of a regional air quality initiative in South Yorkshire, UK. The scheme encourages the faster introduction of vehicles using clean fuel technologies and associated efficient operations. It now provides cities and regions in 6 countries with a method of engagement with goods and passenger fleet operators.

## Background

The ECOSTARS Fleet Recognition Scheme was developed for the South Yorkshire Transport Plan Air Quality Steering Group, and launched in 2009, as part of a regional Air Quality Initiative. This was in response to the decline of heavy industry in South Yorkshire, with the impact of road transport on local air quality increasing accordingly: Commercial vehicles now make a significant contribution to local emissions in terms of pollutants, and greenhouse gas emissions.

The ECOSTARS Fleet Recognition Scheme was subsequently developed to provide public recognition for operators of commercial vehicles who are actively taking steps to improve efficiency, reduce fuel consumption and reduce their impact on local air quality, including maximising carbon savings. The original scheme now covers over 5,500 vehicles and has been publicly welcomed by a number of prominent fleet operators.

ECOSTARS Europe established seven local schemes in European cities and regions in which vehicles and operating practices are being rated applying star rating criteria.

These local schemes are:

Table 1: Local schemes of the ECOSTARS Europe

| Local Scheme | Scheme Manager |
|---|---|
| Basque region (ES) | Basque Logistics Institute (IVL) |
| Cantabria (ES) | Foundation Innovation Centre on Integral Logistics Cantabria (CTL) |
| City of Edinburgh (UK) | City of Edinburgh Council with support from Transport & Travel Research Ltd |
| City of Ostrava (CZ) | Transport Research Centre (CDV) |
| City of Parma (IT) | Infomobility SpA |
| City of Rotterdam (NL) | Municipality of Rotterdam |
| Southeast Sweden (SE) | Energy Agency for Southeast Sweden |

## Measures

Operators, which are member of a local scheme, receive tailor-made support to ensure the fleet is running as efficiently and economically as possible, to help them progress to higher ratings within the scheme. Scheme membership, in return, provides visibility and publicity for the joining fleet operator

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whose operational and environmental profile will be raised, particularly in the eyes of other operators, customers, and local communities.

Common scheme standards are being developed to facilitate the uptake of additional local schemes, guided by a European reference group of stakeholders which serves as a forum for learning and facilitates communication with the respective target groups.

## Local Scheme Implementation

Basis the implementation procedures of the original scheme developed in South Yorkshire, local implementation at the seven additional sites is dependent on common scheme definitions and standardised procedures to achieve a common European standard for assessment and grading of fleet operators. Thus the local implementation at each of the sites is built on common procedures for auditing and assessment with a joint visual profile. This includes a standardised organisation for the local scheme management for each of the sites.

The local scheme management consists of a Local Scheme Manager (LSM) and a Local Scheme Auditor (LSA). The LSM of each scheme is typically the municipality of that site whilst the auditing process made performed by the LSA is most commonly assigned to a third party organisation.

The LSM is responsible for the running and maintenance of each local scheme including recruitment and publicity at the local site. Furthermore, it is the responsibility of the LSM to make sure that the local scheme meets the set standards of the common scheme through reporting and follows up to the European Project Coordinator.

The LSA at each site is assigned to perform the auditing of each member fleet organisation. The audit process includes site visits, fleet data analysis and lastly the tailor made ‘Road Maps’ giving the member support in how to increase their environmental efficiency through specific actions.

## Auditing

The evaluation of a vehicle fleet operation includes an assessment of each individual vehicle and an assessment of the overall operational management of the fleet operator. The audit results forms the basis for the grading and certification on the fuel efficiency of the fleets.

The assessment on individual vehicles includes an assessment of the EURO class of the engine. Basis the EURO class a basis star is provided. Furthermore, so called ‘booster’ stars can be given if additional fuel saving technologies is installed such as in-cab telematics, selective catalytic reduction, anti-idling equipment etc. Booster stars are also given if the vehicles use alternative fuels or a mixture thereof in addition to fossil fuels.

At the operational management level the auditing process involves an assessment on how procedures and management of the fleet supports increase fuel efficiency and a proactive introduction strategy for cleaner vehicle technologies.

The key aspects included in the audit process on the operational management level are:

Table 2: Operational aspects included in the audit process

| Section | Content |
|---|---|
| 1. Fuel Management Programme | *The organisation needs to show great awareness of factors affecting fuel consumption and take necessary actions to increase fuel efficiency by:*<br>*- appoint Fuel Champions and set up Fuel Champion Action plans*<br>*- setup fuel consumption and fuel management targets*<br>*- monitor fuel consumption regularly*<br>*- develop and maintain accurate fuel stock records*<br>*- research alternative fuel options* |
| 2. Driver Skills Development | *The drivers of the organisation needs to be made aware of the importance of reduced fuel consumption and it is the responsibility of the fleet operator to work actively to increase the awareness by i.e.:*<br>*- monitor individual drivers fuel use*<br>*- benchmark between drivers on fuel use*<br>*- develop and use performance tables*<br>*- incentivising driver behaviour to minimise fuel consumption*<br>*- incorporate fuel efficiency in recruitment and introduction process*<br>*- regular training in ECO-driving*<br>*- deliver anti-idling awareness training* |
| 3. Vehicle Specification and Maintenance | *The operator needs to show proof that there are robust vehicle specification processes in place and a sound preventative maintenance system to ensure vehicle efficiency. The auditor asks for proof by collecting details such as:*<br>*- how procurement of new vehicles matches the specification needed for the an individual vehicle*<br>*- the correlation between EURO engine standards and the emission levels of the fleet*<br>*- whether the operator is aware of 'vehicle whole life costing'*<br>*- if the operator is aware of the importance of preventative and robust vehicle maintenance on vehicles to increase fuel efficiency* |
| 4. Use of Support Systems | *By the use of support systems the operator can increase the operational efficiency of their fleet. The auditor assess whether the operator understands the role of IT as a tool to maximise efficiency of the fleet by evaluating whether they:*<br>*- are aware of the routing and scheduling systems available on the market and how they assist in managing the fleet more efficiently*<br>*- understand the range of operational support systems available to monitor vehicle and driver performance* |
| 5. Performance Monitoring and Targeting | *Efficient targeting and monitoring of performance within the operators fleet needs be systematic to fulfil its purpose. To meet the requirements asked for in the auditing process the operator needs to show proof of that the following procedures are in place:*<br>*- processes to collect, analyse and cleanse irrelevant operational data*<br>*- review and evaluate data derived from the data analysis*<br>*- measure performance from a suite of key performance indicators* |

The results of the audit process are collected and an overall assessment on the operator's fleet's performance consists of both the individual vehicles technical specification and the overall management practices in place. The evaluation of the fleet performance on fuel efficiency of which is based on the common ECOSTARS performance indicators on fuel efficiency, results in a grading from 1 to 5 stars.

## Results and Future Development

The implementation of the ECOSTARS common scheme standards in each of the local schemes all aims at recognising best practices for increase the environmental performance of the fleet. By increased fuel efficiency emission levels will be lowered and contribute to a positive impact on local air quality.

Each of the local schemes has set targets for the number of vehicles that should be added by May 2014.

Table 3: Accumulated Vehicle Target for ECOSTARS Europe local schemes

| Scheme | Y1 Vehicle Target | Y2 Vehicle Target | Y3 Vehicle Target |
|---|---|---|---|
| Basque Region | 3,000 | 4000 | 4000 |
| Cantabria | 3,000 | 4000 | 4000 |
| Czech Republic | 3,000 | 4000 | 4000 |
| Edinburgh | 1,000 | 1300 | 1500 |
| Parma | 3,000 | 4000 | 4000 |
| Rotterdam | 3,000 | 4000 | 4000 |
| Southeast Sweden* | 75 | 350 | 700 |
| Barnsley** | 2,500 | 2000 | 2000 |
| Total | 18,575 | 23,650 | 28,200 |

**For the ESS scheme in Southeast Sweden the region is rural in nature therefore the targets are lower. This case study explores how the scheme would work within a rural location.*
***For the Barnsley South Yorkshire scheme the project years 1-3 will be years 3-5 of the local scheme*

Based on the number of vehicles targeted to be part of the ECOSTARS Europe by beginning of 2014 the recognition and tailor made roadmaps aims at reducing emission levels by 112,005t CO2e/year.

Results from the original ECOSTARS Scheme in South Yorkshire in 2010 based on the review of two member operators fleets profiled for four years showed the following improvements:

Table 4: Evaluation of results from South Yorkshire scheme in 2010 on two member fleets

| Urban Local Authority (LA) Fleet | 3rd Party Logistics (3PL) company |
|---|---|
| 25 % reduction in $NO_X$ emissions | 50 % reduction in $NO_X$ emissions |
| 50 % reduction in $PM_{10}$ | 75 % reduction in $PM_{10}$ |

Basis this review it was revealed that fleet renewal has the most significant impact in a short timescale.

Common scheme standards have been developed to facilitate the uptake of additional local schemes, guided by a European reference group of stakeholders which serves as a forum for learning and facilitates communication with the respective target groups. Already at present, three additional schemes have been added to the ECOSTARS schemes (outside the IEE financed project).

These are:

Table 5: Additional schemes that joined the ECOSTARS Fleet Recognition Scheme

| Local Scheme | Scheme Manager |
|---|---|
| Gedling Borough (UK) | *Gedling Borough Council in collaboration with Transport & Travel Research Ltd (TTR)* |
| Mid Devon District (UK) | Mid Devon District Council in collaboration with Transport & Travel Research Ltd (TTR) |
| Thurrock (UK) | Thurrock Council in collaboration with Transport & Travel Research Ltd (TTR) |

By the inclusion of further local schemes based on the ECOSTARS the savings in emission levels a foreseen to be even greater than the original target in CO2e/year for the coming years.

The ECOSTARS Fleet Recognition Scheme is under periodic revision on the requirement levels asked for to provide operators with maximum recognition on environmental excellence. Legislations and technological developments in cleaner vehicles are met by reviews of the audit criteria's as to not let the ECOSTARS scheme to become obsolete and powerless. I.e. the first revision of the original criteria's is currently on-going due to the introduction of EURO class 6 engines in the market.

## Conclusion

ECOSTARS schemes aim to encourage a faster introduction of vehicles using clean fuel technologies, the promotion of fuel efficient operational management practices (such as regular eco-driving skills for drivers) as well as knowledge and experience transfer. As local ECOSTARS schemes grow, they will help to introduce greater awareness of the importance of selecting energy efficient and clean transport fleets.

Within the project, a range of performance indicators will be evaluated before, during and after the schemes are implemented to evaluate the increase in the number of fleet vehicles using clean fuel technologies. At least 160 fleet action plans giving advice on clean vehicles, fuel management and eco-driving will be generated until 2014.

ECOSTARS secures improvements in fleet operations through voluntary means. Uniquely, all participating cities are committed to engaging with both the freight and passenger transport sectors in a joint scheme. ECOSTARS which is a free to join scheme provides such a means and therefore is a key part of the activity being undertaken to improve energy efficiency and air quality.

The scheme can be implemented in any local or regional environment looking to increase engagement with industry, to reduce air pollutants and carbon emissions together. ECOSTARS Europe encourages authorities across Europe to set up local ECOSTARS schemes, and makes the common scheme standards and assessment criteria available for application across Europe.

In addition to offering the ready-made scheme the consortium supports authorities who wish to set up their own ECOSTARS scheme: A tool kit including common scheme documents will help, case studies with first-hand experience will give valuable advice on expected work load and budget estimations; and training for new auditors can be provided. Under development is a full guide for local authorities into setting up ECOSTARS schemes so that the lessons from the project can be used in the future.

Comparing the launch preparation of the various ECOSTARS schemes made the diverse conditions and constraints for recognition schemes across Europe clear. While in some places fleet operators are afraid to be labelled with low star ratings, high ratings are normal elsewhere and fleet operators' demand goes further. It is also getting clearer that fleet operators who join are also interested in

gaining, in addition to the scheme benefits, some tangible benefit from their association with the local authority.

A range of performance indicators have been and are being evaluated before, during and after the schemes are implemented to evaluate the increase in the number of fleet vehicles using clean fuel technologies.

As local ECOSTARS schemes grow, they will help to introduce greater awareness of the importance of selecting energy efficient and clean transport.

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EEA (2011) *European Union emission inventory report 1990–2009 under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP)*