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**ECORails –
Energy efficiency and environmental criteria in the awarding of regional rail transport vehicles and services**



**Deliverable 13:
Description of the pilot applications
including test methodology**

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1. Introduction

The main focus of this paper is to describe the test methodology of the pilot applications in the ECORailS project. The common understanding and definition of the test methodology within the project team, especially WP 4 partners, shall ensure that the results of the pilot applications will be in line with the methodological needs of validating the Guidelines as a helpful and manageable instrument of including environmental criteria (energy efficiency, CO₂-emissions, noise, exhaust pollutants) in future awarding projects.

Furthermore, the test methodology shall ensure that we can show that the ECORailS Performance Indicators (1st level – reduction of energy consumption and CO₂ emissions; 2nd level - manageability) can be fulfilled.

As the description of the pilot applications is also subject of the Deliverable D 12 (“Pilot applications management plan”), in this paper the description will focus on those aspects which are relevant for defining and applying the test methodology.

2. General aims of the pilot applications

The pilot applications are an essential part of the ECORailS project. Four regions will conduct pilot applications. In each of these regions one or two awarding projects have been identified for which awarding texts will be elaborated by using the ECORailS Guidelines (2nd draft, Deliverable 20).

The tests which will be done in the pilot applications will focus on the “core part”, i.e. part III of the Guidelines, although some chapters of parts I and II may additionally be considered.

The main aims of the pilot applications are:

- Elaboration of awarding texts for different national and operational situations, thus testing the manageability, quality, and appropriateness of the Guidelines;
- To show the potential for the reduction of energy consumption and reduction of CO₂ emissions in regional passenger rail transport;
- To analyse the fulfilment of the ECORailS 1st level Performance Indicators (5/10/15 % reduction of energy consumption and CO₂ emission);
- Validation of the Guidelines in order to show also to external persons that the Guidelines can be used easily and appropriately in awarding projects (manageability);
- To develop proposals for the improvement of the Guidelines which shall be included in the final version before the end of the ECORailS project;
- Dissemination of the project aims and results in the regions and countries of the pilot applications.
- Recommendations concerning organisation (institutional framework), legislation in terms of awarding procedures, environmental legislation and R&D.
- Points of view and recommendations concerning the modality in which the new ECORailS methodology can be applied in all EU countries, according to the Guidelines.

2.1. Leading questions for the tests

The leading questions for the test methodology (“what do we want to test?”) derive from

- 1) the General aims of the project
- 2) the users’ needs and requirements
- 3) the validation strategy provided by WP 5.

The leading questions for the tests are:

- Are the Guidelines applicable to the awarding projects? (If not) What completions / modifications are proposed in order to achieve this?
- Are the proposals for compiling awarding texts appropriate? (If not) What completions / modifications are proposed in order to achieve this?
- Are the Guidelines manageable (i.e. easy to handle)? (If not) What completions / modifications are proposed in order to achieve this?
- Are the information given in the Guidelines correct and appropriate? (If not) What completions / modifications are proposed in order to achieve this?
- Which improvements in terms of energy efficiency, reduction of CO₂ emissions and related effects can be achieved by using the Guidelines? Could those improvements be easily evaluated using the Guidelines recommendation?

- Do the test sites represent relevant business cases? Are the results transferable to other regions and countries?
- How much of the Guidelines' instructions were used in the application tests, and which parts mainly?
- Are the Performance Indicators of ECORailS fulfilled?
- How can the 2nd draft of the Guidelines be improved, using the results and discussions of the pilot applications?

2.2. Elaboration of awarding texts including energy efficiency and environmental criteria

It is essential that the partners involved in the pilot applications elaborate awarding texts which could be included in real tenders or contracts. These texts should comprise all environmental and energy efficiency criteria which are considered relevant by the regional partners for the awarding project in question. It is not necessary that all criteria which are proposed in the Guidelines are used, but if the regional partners decide not to use one or more particular criteria which were considered being of high priority by the consortium (or WP4 partners), the reasons and main arguments should be provided in a comment. The shortlist should be agreed upon on the consortium meeting in Timisoara 19th/20th April 2010.

If the regional partners decide to use one or more criteria which are not provided in the GL, or to use a criterion in a substantially different way, this should also be commented in the test report.

In general, it would be helpful for all partners and users, if the regional partners could give a short reason why they selected a particular criterion and a particular solution for its application.

It is not necessary to elaborate a comprehensive awarding text (tender or contract) with all details about e.g. quality, fare system, social standards, etc., but it seems to be essential to clearly define the subject of the awarding, the services, the operational conditions, and all quality specifications for the services and/or the vehicles which could affect energy efficiency, noise or exhaust emissions. The elaborated awarding text must, at the same time, be properly elaborated to ensure the possibility for the energy savings and environmental protection evaluation, be related to an older real awarding tender (the base case).

It can be useful to elaborate two different awarding texts for the same application case, showing a "low-threshold" and an advanced approach. But in this case hints concerning the particular national situation should be given in order to decide which approach can show what potential in terms of energy efficiency and CO₂ reduction.

The awarding texts should be provided in both national language and English and be published in the ECORailS documentation.

2.3. Validation of the Guidelines (quality, manageability)

There is no "objective" scale or possibility to check the quality, validity and manageability of the GL within the frame of ECORailS. Only a mid-term or long-term use of the GL, compared to other solutions would provide opportunities for such an "objective" assessment. According to the WP5 evaluation and validation strategy "The main tool used to evaluate and validate the manageability conditions that will be revealed by the four tests, is a checklist that will

compare the ECORailS manageability objectives with the conclusions resulted in various stages of the tests and the tests' outcomes. The process is of internal nature requiring input solely from WP4, with very little or no outside information required. Since using the before mentioned evaluation and validation tool, final results are not mandatory to draw relevant conclusions, partial or preliminary data being just as useful, the checklist application will take the form of a continuous process until the tests' completion.

The alternative we have is to compile assessments and comments by practitioners and users who are involved in the pilot applications or can be interviewed after having read and analysed the Guidelines. The pilot applications shall ensure that the comments are profound, based on an intense analysis and application at least in a close-to-reality situation.

Comments from external persons can be helpful and important for the assessment. Their comments may show what the first impression is like or can even be based on a deep insight of awarding practice, but these comments should be compiled and analysed separately.

Comments from PTAs will probably be the most important ones, but also comments from TOCs, manufacturers and consultants can be of great relevance.

The following instruments are proposed for collecting and analysing comments from the stakeholders:

1. Questionnaire for all stakeholders (especially members of the four Site Stakeholder Groups, SSG) in the pilot applications (not focused on PTA only, but collected separately according to group of stakeholders);
2. Interviews with PTA representatives in the pilot application team /stakeholder group;
3. Interviews (or questionnaire) with relevant stakeholders outside of the project (but including members of the User Platform), based on knowledge of the core part of the Guidelines;
4. Assessment by the respective Site Working Group (SWG), basing on their own experience during the elaboration process and on the comments from the other stakeholders;
5. Common assessment of WP 4 members, considering the results of all regional pilot applications;
6. "External" assessment by WP 5, analysing the results of the former instruments.

The questionnaires for interviews and written answers should be both standardised and related to the particular situation at the regional test site. The standardisation is necessary in order to get comparable results. The reference to the particular situation is necessary, because the quality (manageability, validity etc.) of the Guidelines may differ with respect to e.g. type of operation, type of awarding, national awarding practice etc.

Please find attached in the Annex a compilation of questions and theses with special reference to the needs of WP 4.

WP5 foresees questionnaires which are specific to the evaluation and validation of results. The questionnaire + the interview represent evaluation/validation instruments mentioned in D15. If within WP4 some specific questionnaires will be drawn up, these will be differentiated from the ones elaborated within WP5.

2.4. Potential for improved energy efficiency and reduced CO₂ emissions by applying the Guidelines

Estimating the potential for improved energy efficiency and reduced CO₂ emissions by applying the Guidelines is for the following reasons important for the PTAs of the test site:

- The potential should be big enough to justify the efforts of using the GL.
- The estimated potential is important for the decision on the weighting of EE, ENV and other criteria.
- The estimated potential is important for the assessment of the risks which are related to the energy markets and the developing market for CO₂ emission certificates.
- The estimated potential is relevant for the decision to what extent offers with prices above the minimum should be accepted, and how bonus/malus or other incentive schemes should be designed.
- The savings potential of different solutions may be relevant for re-thinking some conceptual decisions or for the general rolling stock strategy e.g. new/old/modernised.

In some cases not only the potential of new solutions compared to the technology used at present will be relevant but also the expected differences between offers in terms of energy consumption and CO₂ emissions.

The following steps of analysis seem to be necessary:

1. Estimation of the present energy consumption and CO₂ emissions
2. Estimation of the reduction which can be achieved by renewal or modernisation without applying specific awarding criteria
3. Estimation of the additional potentials to be realised by applying the ECORailS Guidelines; estimation of the potential differences between offers
4. Elaborations of weighting and incentive schemes basing on the steps before
5. Analysis of the influence of infrastructure and conceptual decisions and then re-thinking of steps 1 to 4 if necessary.

2.5. Analysis of the 1st level Performance Indicators (PI) of ECORailS

The analysis of the 1st level Performance Indicators of ECORailS is not primarily the duty of the WP 4 pilot applications but of WP 5. Nevertheless, WP 5 has to rely upon data which are to be collected, analysed and calculated/estimated by WP 4 partners during the pilot applications (see chapter 2.5). Therefore the test methodology must be in line with the methodological requirements of WP 5.

2.5.1 Energy efficiency quantitative indicators

In the awarding documentation, prescriptions/ recommendations will be included regarding technical characteristics, technologies used and operation mode, according to the Guidelines and the documents from WP2, WP3 and other bibliographical materials established.

The energy efficiency indicators have to be clearly defined, measurable – the verification and measurement mode being indicated (upon equipment delivery and/or during exploitation).

The demands and efficiency indicators will be established in the awarding documentation, and the suppliers will have to answer to these requests by filling in custom forms, so that different offers can be easily compared between them.

In the awarding documentation, evaluation criteria will be established for the offers, which will lead to promoting the most competitive offers from the point of view of ECORailS criteria.

The quantitative evaluation will be done by:

- Analyzing each efficiency indicator, setting energy and emissions savings which will result in a specific time frame, depending on the evolution of the respective indicator.
- Verifying the assessment/measurement method of each indicator (upon equipment delivery and/or during exploitation) – from a technical point of view (according to regulations) and from the authorization point of view (standards, legal provisions, rail ratifications/ authorizations, metrology, instructions given by the supplier, etc.)
- Simplified LCC/CBA calculations through which savings will be determined that will result from introducing the ECORailS criteria and methodology in the awarding procedure.
- The calculation methodology could afterwards be completed with estimation/quantification methods resulting from examples realized and verified by the PTAs, TOCs, suppliers and/ or through other European/ international projects, norms, regulations or important scientific works.

The evaluation procedures for the quantitative indicators will be applied for the following three situations:

a) By comparing to the current awarding

The effects of modifications/new procedures introduced, will be traced. The results will be discussed and compared with the ECORailS objective of obtaining a 5% saving

b) By comparing to the currently used rolling stock

The results will be discussed and compared with the ECORailS objective of obtaining a 10% saving

c) By extrapolating the energy efficiency results (scenarios) in the regional transport by 2020.

The results will be benchmarked against the ECORailS objective of obtaining a 15% saving

Within the ECORailS project this quantitative evaluation will be done by:

- The tests carried on within WP4, in the four locations.

- The works under WP4 will start by preparing the pilot applications and establishing a test methodology. By leveling the sources (Guidelines and appendix documentation) and through the test methodology the standardization of test procedure will be assured. However, the different specific conditions at the four locations and the test objects will generate some distinct characteristics, as well as particular methods for solving them and, respectively, of evaluating the quantitative indicators.
- The final recommendations which will be made in WP4, taking into consideration the particularities of the four locations and the aim that the Guideline will permit the EU wide introduction of the ECORailS criteria and methodology.
- Tests' evaluation and validation within the WP5 activities and deliverables.
- The analysis which will take place within the User Platform, the ECORailS Campus, the trainings, the workshops and disseminations.

Regarding LCC calculations within the ECORailS tests:

- it's not necessary for the LCC calculation methodology to be standardized and unanimously accepted, but the methods used will be in line the sector-wide used tools.
- this methodology will be recommended by WP2 and/or by WP4 and WP5, for allowing the necessary calculations for quantifying the energy savings and for comparing with the ECORailS objectives.
- the LCC calculations do not refer to all operation and maintenance costs, but will constitute calculations referring to the savings which will be gained as a result of using the new technologies and the indicators established/recommended by the ECORailS project.

Regarding LCC calculations within real awarding:

- The specifications will impose that the suppliers offer only the results of the LCC calculations, results completed – on categories of expenses – according to some standardized forms, so that the offers can be easily compared and evaluated.
- The Contracting Authority will have to lay down the general operation conditions as well as the supplier's responsibility for the data supplied.
- The suppliers will establish the conditions and activities needed in the operation activity so as to respect the LCC data provided in the offer.
- The suppliers will install on the rolling stock, the necessary measurement equipment and the data diagnosis and recording software.
- The assistance software for the operation and maintenance activities, based on direct data collection, will allow for the recording of data related to the efficiency indicators and LCC, as well as for the verifying of the compliance with the conditions established by the supplier.

According to the elaboration and acceptance stage of some modern technologies for LCC calculations, especially for rolling stock and oriented towards emphasizing the energy saving and emission reductions (by means of Railenergy project and/or other projects), the operative application of these results within the tests and/or of ECORailS deliverables will be attempted.

2.5.2 Quantitative indicators referring to CO₂ reduction

In the award documentation prescriptions / recommendations will be introduced referring to the technical characteristics, the technologies applied and the operation modality, in keeping with the Guidelines and the documents from WP2, WP3 as well as with other bibliographical materials.

Technically, the CO₂ emission reduction indicators should be: clearly defined and possible to measure/ verify/ compare (upon equipment delivery and throughout its service life, respectively).

In the award documentation, the requirements and the CO₂ emission reduction indicators shall be set, while the suppliers shall meet these requirements by filling in certain standardized documents, so that various offers may be easily and rigorously compared and evaluated.

In the award documentation criteria for the evaluation and scoring of offers will be set, which should make it possible for the most competitive offers in terms of ECORailS criteria to be promoted.

The quantitative evaluation shall be made as a result of:

- the analysis of each CO₂ emission reduction indicator, by determining the savings resulted over a time duration according to the evolution of the respective indicator;
- the check up of the modality of verification / measure of the CO₂ emission reduction indicator (upon equipment delivery and / or during operation) – technically (according to the standards) and in point of authorization (standards, legal provisions, railway certifications / authorizations, metrology, manufacturer's instructions etc.);
- calculation methodology which may be completed with estimation / quantification modalities resulting from examples achieved and verified by PTAs, TOCs, suppliers and / or through other European projects or reference scientific papers.

The procedures for evaluating the quantitative indicators referring to the reduction of CO₂ emission shall be applied for the following 3 situations:

- a) By comparing to the present award procedure.

The effects of the modifications/ new procedures introduced shall be followed up. The results shall be commented upon and compared to ECORailS objective, namely a 5% saving.

- b) By comparing to the existing rolling stock.

The results shall be commented upon and compared to the ECORailS objective, namely a 10% saving.

- c) By extrapolating the results (scenarios) of CO₂ emission reduction in the regional transport by 2020. The results shall be commented upon/ compared to the ECORailS objective, namely a 15% saving.

Under ECORailS project, this quantitative evaluation shall be made through:

- The tests conducted under WP4, in the four locations.

The first data regarding the first level KPI (energy efficiency and CO₂ emissions) are to be collected from the tests in the four regions. Although the data have strong regional specificity they will represent the first step by offering an image of the potential of the achievement of the ECORailS goals in regards to energy efficiency and CO₂ emissions.

- The final conclusions to be made under WP4, taking into account the particular characteristics of the four areas and the target that the Guidelines may allow for ECORailS criteria and methodology to be implemented into all the EU countries

The ECORailS objectives in regard to energy efficiency and CO₂ emissions refer to potential savings by applying the Guidelines at EU level and thus WP5 will collect the estimations regarding the EU wide applicability of the Guidelines.

- The test evaluation and validation within WP5 activities and deliverables

Finally, WP5 will backtrack the calculations made regarding energy efficiency and CO₂ emissions at regional level and estimations regarding the EU wide applicable Guidelines and check for errors, inconsistencies between the calculations and estimations in each area. The independent evaluation in WP5 must confirm that the test results are accurate.

The analyses will be made under the Users' Platform, ECORailS Campus, the training workshops and disseminations.

2.5.3 Results regarding related effects

Starting from emission savings and energy savings, indicators that measure their effects (quality of life, social impact, comfort, safety degree, regularity) will also be estimated and determined, where possible, considering the distinct conditions in various regions. Scenarios will be designed and analyzed in order to present a complete image alongside indicators determined in the previous subtasks.

Three step evaluation methodology:

- Identifying the collateral effects (life quality, social impact, comfort, safety, environment)
- Investigating the existence of indicators and quantifying methods
- Quantifying connected effects for energy efficiency and CO₂ emissions savings.

2.6. Proposals for the improvement of the Guidelines

One of the most prominent aims of the pilot applications is to develop proposals for the improvement of the Guidelines wherever it is considered necessary or helpful by the stakeholders involved. There are mainly three ways of collecting and developing these proposals:

1. By documenting comments and proposals during the discussions of SWG and SSG; to fix conclusions when appropriate;
2. By inviting participants to send comments or proposals to the site manager;
3. By asking for comments and proposals in the questionnaires and interviews mentioned in chapter 2.4.

The proposals given by the stakeholders of every site should be collected, documented and commented by the site manager or SWG. These information should be made available to all WP 4 partners, all WP 5 partners and to the Editorial Group of the Guidelines.

All partners should be aware that a main purpose of the pilot applications is to improve the Guidelines as far as possible in order to have a very good final result.

2.7. Dissemination of ECORailS aims and results in the participating regions/countries

The pilot applications at the test sites should also be used for dissemination activities in the respective regions and countries. The integration of stakeholders in the test process might be an important opportunity for dissemination within the railway industry and the “PTA scene” of the country. Other activities could be considered as well.

The feedback which can be gained during these activities should be used for collecting ideas and proposals for the improvement of the Guidelines, even when these activities are not an integral part of the test process itself.

2.8. Recommendations concerning organisation of awarding, legislation and R&D

The main purpose of the pilot applications is to test, improve and validate the Guidelines. But it is likely that there will be needs be identified for the reorganisation of awarding procedures and institutions, for the enhancement of legislation (mainly that which concerns awarding), and concerning further R & D in terms of railway technology and methodology for the description of environmental effects.

These ideas should be collected, discussed and documented by the SWG or the site managers. Such recommendations could also be subject of the interviews and questionnaires but it should be clear that improvements and proposals for the Guidelines should have a more prominent role.

3. General approach for the pilot applications

All pilot applications should follow the seven phases which are shown in chapters 4.1 and 4.2 of the test version of the Guidelines (Deliverable 20, pp. 16 sqq.).

According to the work agreement we are not obliged to go further than phases A to D, but in order to have a valuable validation to the Guidelines, at least phases F and G should also be considered. The main phases and actions are basically the same for both competitive tendering and direct awarding, for the awarding of services and for the procurement of rolling stock although the wording may slightly differ. Also the actions of the PTA and the actions concerning environmental criteria are more or less the same.

This approach is proposed by the GL and all pilot applications should follow this approach and thus test whether the approach is appropriate and manageable.

Furthermore, the documentation of the tests should include a description of each test according to the structure given in chapter 4.2 of the Guidelines (pp. 19-20).

All pilot applications need to define a concrete awarding project. It is also essential to have a reference either in the present situation or in form of a recent awarding for the same or a similar operation. The optimum would be to have both. Such a reference is necessary in order to compare the potentials of the application of the GL with the present situation and with the current procedures of awarding.

The execution of the pilot applications is not only a technical duty but also a political one as well as a learning process for the involved persons and organisations. The site working group (SWG) plays the decisive role in this process. It will be the duty of the SWG to actually write and compile the awarding text which will be the output of WP 4. It is advisable to include Site Stakeholder Groups (SSG) in order to discuss the proposals, the Guidelines and the potentials for energy savings etc. These SSG will also be important sources for feedback. The actual composition and work plan of the SSG depends on the situation on-site and will be decided upon by the PTAs which are partner of ECORailS, in coordination with the respective site manager if not identical.

It is advisable to seek for consensus within the SSG, but if consensus cannot be achieved with reasonable efforts, the SWG will be the decisive body for all steps of the process and the elaboration of the awarding text. Nevertheless, all major points of dissent should be carefully examined and documented by the SWG, if possible even discussed with site managers of the other sites, as such dissents could be interesting parts of the feedback and provide considerable arguments for the validation of the GL.

All documentations, including dissents in the SSG and major rejected solutions should be made available to the project partners, at least within WP 4 and WP 5.

4. Methodological problems, legal constraints and solutions for the pilot applications

- No “objective scale” to assess validity, quality, appropriateness, manageability of the GL

Proposed solution: It is more important to have substantiated positive feedback by practitioners than to apply an “objective scale”. According to the WP5 evaluation and validation strategy “The main tool used to evaluate and validate the manageability conditions that will be revealed by the four tests, is a checklist that will compare the ECORailS manageability objectives with the conclusions resulted in various stages of the tests and the tests’ outcomes. The process is of internal nature requiring input solely from WP4, with very little or no outside information required. Since using the before mentioned evaluation and validation tool, final results are not mandatory to draw relevant conclusions, partial or preliminary data being just as useful, the checklist application will take the form of a continuous process until the tests’ completion”.

- Comments by stakeholders may not be representative for the industry.

Proposed solution: It is not relevant for us to get a “representative” view from the industry. Instead we need clear feedback and comments from persons who are committed to the improvement of rail transport in terms of its environmental effects and have relevant experience in the field of regional passenger rail transport. A critical mass of such experts should be aspired instead of a “representative view”.

- No sufficient data available about present energy consumption (“baseline”).

Proposed solution: At least in some pilot applications we will not have reliable data about the present energy consumption on the services in question. There are some options to assume the present energy consumption, given here in the order of priority:

1. Measurement for the purposes of the ECORailS pilot application
2. Using data about the energy consumption of the vehicle classes, drawn from test runs or simulations on other lines or according to Standard Service Profiles
3. Simulate the energy consumption on the operation in question provided that sufficient input data are available
4. Assume the energy consumption based on the technology of the tractive units used on the particular line

In any case the SWG should try to compile the data relevant for the definition of service profiles according to the Railenergy methodology.

- No real offers from bidders will be collected, thus the real potential of energy savings can only be estimated or assumed.

Proposed solution: The results of WP 2 (especially D6, W17, D7) and WP 3 should be used in order to estimate saving potentials, investment costs, operational costs, LCC analysis. Thus assumptions can be made what technologies and operational measures bidders might offer or use at what prices. These assumptions should be discussed with the SSG and experts involved in ECORailS WP2 (WP 3).

- The four test sites are not representative for the European regional passenger rail transport.

Although the four test sites are probably not representative as such for the European regional passenger transport, they cover the most important business cases. In spite of that, to conclude directly from the WP 4 site results to the general saving potentials and options for GL applications in the whole EU would not be permissible. At least three further assessments seem to be necessary:

1. WP 4 partners should make a qualitative and quantitative assessment (levels 1, 2, and 3), with contribution of WP 3, whether the results of the pilot applications are transferable to other European regions with respect to the legal and economic situations.
2. WP 2 should consider to what extent the results can be transferred to networks with differing technical conditions (DC/AC, gauges, topography, service profiles).
3. WP 5 should, as integral part of their validation duties, provide qualitative assessments for the ECORailS 2nd and 3rd level Performance Indicators and quantitative calculations in terms of weighting the results of the pilot applications with respect to the ECORailS 1st level PI.

5. Training for involved personnel

The issues of ECORailS and even awarding procedures as such may be quite new for the persons involved in the pilot applications. Even for the persons involved in the Guidelines elaborations the compilation of a tender or contract including EE/ENV criteria might be quite new. Therefore the training of the involved personnel is an important matter for the introduction and use of the GL. This leads to the following aspects:

- Especially at the beginning there must be some spare time for understanding of awarding procedures and the role of quality criteria like EE/ENV, as well as for clarifications about the process.
- On the one hand, resilient results about the manageability and appropriateness of the GL should not be expected from the first steps of the process. If there are positive or negative arguments about the GL in the early phase, these should be re-considered later on.
- On the other hand, it should be checked whether the GL are easy to apply for persons who are for the first time involved in compiling awarding documents including EE/ENV criteria.

6. Relation between WP 4 and WP 5

WP 4 and WP 5 will rely partially on the same data but use them from different points of view.

WP 4 has to focus on providing good examples for awarding texts, the feedback from the users, the improvement of the Guidelines and on the estimation of saving potentials according to the needs of the PTA.

WP 5 has to focus on the evaluation and validation of the test results from an “external” point of view, checking the appropriateness of the test methodology, the validity of the test results, the relevance of the feedback and comments. Furthermore WP 5 has to evaluate the ECORailS PI and for this purpose to make qualitative assessments and quantitative calculations/estimations using data which will be provided by WP 4.

WP 4 will have to provide essential data for WP 5:

- Calculations/estimations concerning the baseline of energy consumptions and CO₂ emissions
- Calculations/estimations concerning the baseline of pollutant and noise levels
- Comments from stakeholders via SSG, interviews and questionnaires
- Assumptions about the saving potential realised by the application of the GL
- By filling in the checklists provided by WP 5 (to assess the manageability of the GL)

Questionnaires or interview campaigns must not be doubled, therefore the elaboration of questionnaires etc. should be coordinated between WP 4 and WP 5.

The test methodology of WP 4 must allow a meaningful validation by WP 5.

Intermediate results of WP 5 might be used for enhancing the testing procedure and thus for achieving better results of ECORailS in general.

7. Annex

This is a preliminary list of questions and theses which can be used for the questionnaire dedicated to the evaluation of the test results. Further ordering and structuring is necessary and should be made on the basis of the first version of D 20.

	not really relevant	less important	important	essential	rather WP 5 than WP 4
Are the political arguments convincing?					
Are the different methods of awarding clearly described? Can the methods of awarding which are analysed in the pilot applications easily related to one of the methods being described in the GL?					
Are the different types of contracts and operations well described and can easily be related to the awarding projects (simulations) to be analysed?					
Does the description of the state of the art clearly show the potentials of the awarding project in question?					
Are the responsibilities (PTA, TOC, IM etc.) clearly described?					
Is the European and national legal and economical situation clearly and well described					
Are the awarding criteria well described and easy to handle?					
Are the indicators and technical solutions well clustered to be used by the PTA?					
Is it clearly to decide which criteria are relevant for the application in question?					
Are the criteria easy to handle (i.e. to be integrated in the tendering documents, the contract etc.)?					
Can the offers appropriately be evaluated in respect to the relevant criteria?					
Can the performance of the TOC sufficiently be monitored?					

Are the TOC (or the rail supply industry) able to fulfil the criteria, at least to a certain extent? Can the bidders easily and clearly handle the criteria?					
Is the cost situation analysed to a sufficient extent?					
Is the method to analyse the LCC sufficiently clear and easy to handle?					
Are the proposals for the weighting of the criteria reasonable?					