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## First Bi-annual Progress Report

Reporting period: 16.07.2013 – 15.01.2014

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This First Bi-annual Progress Report has been written according to the contract between the European Investment Bank (EIB) and Aarhus Letbane I/S (contract number ELENA-2011-031).

Signature of the contract between the European Investment Bank and Aarhus Letbane I/S is the 16th of July 2013. The report covers the first six months, i.e. 16.07.2013 - 15.01.2014.

The report uses the following abbreviations:

Abbreviation	Meaning (short for)
AALRT	Aarhus Light Rail Transit - Construction Company (Aarhus Letbane I/S)
ALDIS	Aarhus Light Rail Transit - Operation Company (Aarhus Letbane Drift I/S)
Aarhus LRT project	The ELENA funded programme
LCC	Life Cycle Cost
CMC	Construction and Maintenance centre
ERTMS	The European Traffic Management System

## 1. Work Progress

This section lists the main achievements in the reporting period, the progress made by the Programme Management Unit and the progress made project by project.

### 1.1. Attained and expected results

The main achievements of the period are:

- Implementation of a new organizational setup to secure a strong collaboration and achieving result following the legally establishment of The Aarhus Light Rail Operating Company by 31<sup>st</sup> of August 2013
- Establishing a Programme Support Facility to secure progress and quality. This includes recruitment processes for staff upgrades.
- Process in order to get the Aarhus LRT programme adopted within the AALRT and ALDIS organisations
- Setting up structure for tendering
- Contracting two external consultants to the programme
- Setting up a homepage for the programme ([www.letbanen.dk/om-letbanen/elena/](http://www.letbanen.dk/om-letbanen/elena/))

The cost of the Project Development Service (staff cost+external experts) have amounted to a total of 101.500 EUR in the reporting period. Staff cost has amounted to 61.912 EUR and external experts to 39.588 EUR.

This is less than the estimated budget in the ELENA application (Annex 1, section 4). Here the budget for Project Development Services in 2013 is estimated to 171.000 EUR for staff cost and 803.000 EUR to external experts.

The main reason for this is that in order to secure results some time has been invested in getting a solid foundation for the programme. Work has been done in order to get the right organizational set up and staff upgrading. Consequently little technical consultancy have been bought. At this moment, staff upgrades are in place, and the process of hiring external consultants to help in the all the projects is ongoing. This means that the cost of the Project Development Services will increase in the next reporting period, and it is expected that we will meet our estimated budget.

The total cost of the implementation of the AALRT Investment Programme is 19.760.805 EUR in the reporting period. The calculated leverage factor is 260 for the reporting period.

## 1.2. The Programme Management Unit

Following the legal establishing of ALDIS the need for some changes in the project organization has been implemented (See section 4 for further description). In the reporting period, work has been done in order to implement and set up a strong Programme Management Unit.

The Programme Management Unit consist of a Support Group and a Project Director. The unit is responsible for the day-to-day development of the Aarhus LRT Programme. The Project Director was hired as of November 1<sup>st</sup> 2013 and a part time finance controller was hired by January 1<sup>st</sup> 2014. Currently the Support Group also relies on support from a lawyer and a communication assistant (not ELENA funded). If needed the staff will be supplemented by a communication worker and maybe a student worker.

The Programme Management Unit has initiated an EU-tender for technical assistance and contracted with one external specialist.

In order to secure ownership and coordination with stakeholders in the organization meetings have been held in the Steering Group, Energy Group and Technical Group. Furthermore, the Project Director has been initiating ad hoc meetings with relevant employees (internally in the AALRT and ALDIS), stakeholders and potential partners in order to concretize and coordinate the need for technical assistance. In addition, the Programme Management Unit has provided technical assistance for the project groups and has been participating in the meetings of the AALRT project in general.

In order to manage the programme successfully, have control of resources, and the ability to manage project risk more effectively the Programme Management Unit has started to refine the project management tools. The management system will build on the basis of PRINCE2. Work has started on a Quality Plan, Communication Plan, Project Initiation Documents and Lessons Learned Log. Where possible tools that are already used in AALRT will be adopted and scaled to the Aarhus LRT Programme. Furthermore work has started on refining the financial and review tools.

The Programme Management Unit has set up a website ([www.letbanen.dk/om-letbanen/elena/](http://www.letbanen.dk/om-letbanen/elena/)) with information about the program. The website will be developed further in the coming months.

Planned activities for the next reporting period:

- Continue work tendering and contracting for external technical assistance in order to secure on time delivery of the AALRT Investment Programme.
- Complete project management tools and incorporate them fully in the projects to secure a successful managing.
- Develop models to refine the calculations on saved CO2 and energy efficiency within the programme. This work will be done in collaboration with Aarhus Municipality (Climate Secretariat)
- Continue the initiation of meeting activities on all levels in the organisation of the programme.

### 1.3. Meeting activities

In the first six months, there have been meetings in all levels of the organization.

The AALRT board and the ALDIS board have been introduced to the Aarhus LRT Programme.

The Steering Group had their first meeting December 12<sup>th</sup> 2013. At the first meeting, the members discussed the start-up of the programme, the need for technical assistance, budget and approval of the work program. The Steering Group is expected to meet 6-8 times a year. The Second meeting is planned for the 7<sup>th</sup> of February 2014.

The Technical Group and the Energy Group has had two joint meetings on the 4<sup>th</sup> of September 2013 and the 11<sup>th</sup> of October 2013. On the first meeting, the general framework of the Aarhus LRT Programme was introduced. The second meeting was a workshop where the different projects, project management, need for technical assistance was discussed. The two groups are expected to meet 3-6 times a year.

Project Groups: The project groups has had frequent meetings in the reporting period. Project Managers have been chosen individually for the different projects. Since it is believe that a strong project basis is important in order to achieve results the project managers all have invested time in getting the projects aligned with stakeholders and the rest of the activities in both ALIS an AALRT. For the work with the infrastructure management contracts a Project Manager with judicial background

has been hired as of 25<sup>th</sup> of October 2013. Furthermore a specialist on management regarding tools for the safety approval process and operational rules has been hired as of October 1<sup>st</sup> 2013.

#### 1.4. Progress project by project

In the following, a short status project by project is given. Focus is on the achieved results and changes since the last report (Inception Report).

In appendix C is an updated time- and activity plan for the programme.

##### **Project 1: Innovative Platform Fronts**

Progress of work:

- The platform fronts are one of the last things to be implemented, and the work is not as time-critical as others are. In a start-up phase it is important to prioritize the efforts between the projects. Consequently, it has been decided to move the start-up to Q1, 2014.
- Preparation for tendering for external consultants to help develop a handbook of possible solutions is being prepared.
- The staff to support the approval process is in place.

Planned activities for the next reporting period:

- External consultants to help analyse possible solutions will be contracted
- Analysis on possible solutions will be done by the end of June 2014.

##### **Project 2: Immunization of Legacy Signaling Assets**

Progress of work:

- Overall, the project is going according to plan
- An immense effort has been put into the planning of this project and it has taken a month longer than anticipated to get it right. The plan at first was to hire technical assistance - to make a study on innovative solutions for immunization – on the basis of a tendering process. This concept has been change. Instead, it has been decided that AALRT and Rail Net Denmark will join forces in developing the studies. Working closely with Rail Net Denmark has many advantages. Rail Net Denmark own the signalling assets, and they are in charge of the approval process. We believe that working with the asset owner and technical approvers in a holistic project approach gives a unique opportunity for finding innovative solution and reduces risk. It is expected that the contract will be signed by mid-February 2014.
- A project work group has been established. A project manager, specialist and technical approvers will work closely together on the studies in order to find innovative ways to implement immunization in Aarhus Rail Yard.
- Changes in the time- and activity plan has been made, so that innovative studies, functional requirements and approvals process will start at the same time as part of an integrated process

- A project organisation with specialist from Rail Net Denmark, Technical approvers and AALRT is in place.

Planned activities for the next reporting period:

- Rail Net Denmark and AALRT will have signed partnership agreement on finding innovative solutions for the immunization of Aarhus H by end of February 2014
- Study on immunization will be done by the end of April 2014
- Frequent meetings between AALRT and Rail Net Denmark to secure a strong project organisation working towards finding results.

### **Project 3: Remote control operations and securing access of freight transport in the light rail system**

This planned activity under this project has been combined with project 4. The reason for this is that it was found, that the two project has several interfaces and synergies and it will lead to a better result and save cost if they where combined.

For more information read below and section 4 – Changes in the planned activities.

### **Project 4: Operational Rules for Aarhus LRT**

Progress of work:

Overall, the project is going according to plan. The following activities have been completed:

- Overall, the project is going according to plan
- A specialist in safety management process has been hired in order to strengthen the safety management organization. The specialist will assist the Safety Manager in developing management tools for the safety approval process and interface management of the freight train and integration of existing railways.
- Work on planning the organization of the safety approval process is ongoing.
- Several pre-dialog meetings have been held with Trafikstyrelsen (The Danish Transport Authorities) in order to balance the expectations of the approval process and requirements for application materials
- Meeting have been held with Rail Net DK's ERTMS Operational Rules Expert team learning of their project management system and process tools.

Planned activities for the next reporting period:

- Tendering for a specialist to provide technical assistance to the Safety Management team will be procured in March 2014.
- Contract for technical assistance will be signed by the end of May, 2014.

### **Project 5: Infrastructure Management contracts and agreements with existing owners**

Progress of work

Overall, the project is going according to plan. The following activities have been completed:

- The organization for the negotiation processes has been established in a partnership between AALRT and ALDIS. This includes hiring of a project manager as of October 25<sup>th</sup> 2013.
- A contract has been signed with a railway specialist from TrailC. The contract is given on the basis of a mini tender under the AALRT-Qualification System (<http://www.letbanen.dk/om-letbanen/udbud/raadgivningsydelser/>)
- Work on developing the framework for the Infrastructure management contract (meeting structure, supplies, milestones ) has been established.
- A project group is established. Meetings are held every two weeks.
- Approval Plan for the ALDIS board is being prepared.

Planned activities for the next reporting period:

- The project initiation phase ends by mid-February
- The work on getting the infrastructure management contract with Rail Net DK has entered the negotiation phase
- Work on getting the infrastructure management contract with Midtjyske Jernbaner has started.

#### **Project 6: Energy efficient power supply system**

Progress of work

- The AALRT-Qualification System has been expanded with a category regarding energy planning and energy consultants. The deadline for submission for prequalification is February 28<sup>th</sup> 2014.
- Tender is under preparation. It is expected to be procured in February 2014.
- The work is slightly delayed due to the tender process.
- A Meeting have been held with the Climate Secretariat of Aarhus Municipality. The Climate Secretariat of Aarhus are responsible for the the development of Sustainable Energy Action Plans. The agenda was to find ways to collaborated in finding innovative solution on incorporating intelligent energy systems
- A Meeting has been held with NRGI, which is an electrical supply company (one of three along the alignment). The scope of work within this project was discussed.

Planned activities for the next reporting period:

- Contract for technical assistance will be signed by the end of April 2014.
- Studies on the most efficient/reliable power system has started.

#### **Project 7: Energy storage and conservation**

Progress of work

- In accordance with tender rules contracts have been made with a specialist consultant in energy planning of railways.
- An evaluation model to be used as part of an LCC evaluation in our procurement process for the transportation system has been developed. The model will be



further developed and is to be use throughout the rest of the tender process, implementation and operation.

- The AALRT-Qualification System has been expanded with a category regarding energy planning and energy consultants. The deadline for submission for prequalification is February 28<sup>th</sup> 2014.
- Tender is under preparation. It is expected to be procured in February 2014.
- The work is slightly delayed due to the tender process.

Planned activities for the next reporting period:

- Studies on energy storage and conservation has finished
- Further development of the LCC evaluation model has been initiated

### **Project 8: Sustainable CMC**

Progress of work

- Tendering for a specialist and planning the project is ongoing

Planned activities for the next reporting period:

- Contract to gain technical assistance regarding sustainable building is expected by mid-February.
- Work on project catalogue for sustainable investments in the CMC has finished
- Work on deciding on the implementation strategy has started.

## **2. Identified problems and risk for implementation**

There are many stakeholders involved in establishing the first light rail in Denmark. A light rail that also have to have freight capacity. This has proven a difficult task and repeatedly this process turns to be time consuming. Furthermore, following the legal establishing of ALDIS it was decided to adjust the project organisation in order to secure a solid foundation for handling the coordination between AALRT, ALDIS and their stakeholders. The new project organization and staff upgrades will help this processes securing delivery on time by creating focus on collaboration, procedures, quality management in projects that both companies have shares in. A description of the project organisation is described in section 4.

Tendering for a “design-and-build-contract” for the delivery of the transportation system (trains, tracks and electrification system) is ongoing. It is expected that the contract will be concluded in May 2014. Some of the ELENA funded projects are closely linked to scope of work within the design-and-build contract. This can potentially be a risk for implementing extra actions regarding energy efficiency and CO<sub>2</sub> reduction because the initiatives have to be introduced in the negotiations procedures or after the contract is signed. In order to secure results, there is a close dialogue between the people in charge of the tender process and the Project Director Team.

### 3. Contracts of technical assistance

The estimated cost for technical assistance in the programme is 1,694,000 EUR. Contracts for an estimated 167.500 EUR have been concluded in the reporting period.

AALRT have made a qualification system (cf. the Utilities Directive) on 18th July by making an EU notice through the Official Journal. The notice states that the procurement is financed by ELENA as we expect some of the contracts is to be financed by ELENA (See EU notice 2013/S 138-240326).

In september 2013 we made a mini-tender under this qualification system for a railway specialist to assist the work on infrastructural management contracts. Five prequalified companies were chosen from the list of the qualification system to make an offer.

One external consultancy have been initiated without tender, but in agreement with the procurement rules. The reason for not tendering the assignment was that the timeframe for delivering the result was very short, since the work had to be introduced into the tender material of the transportation system.

See appendix A for a list of contracts of technical assistance (external experts/subcontracts) committed/completed in the period.

### 4. Changes in the planned activities under the Project Development Services or in the Investment Programme and other useful information

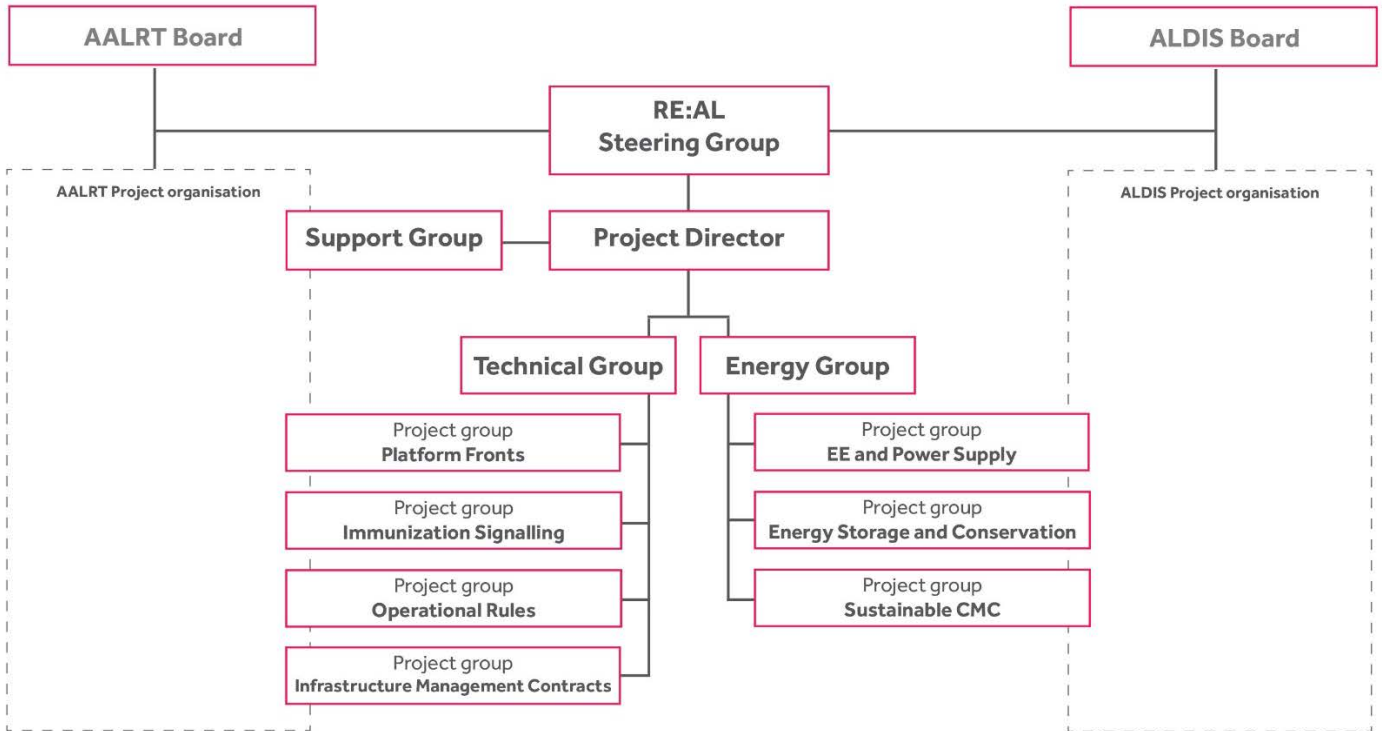
Over all the work is proceeding according to the plan. As described in the previous section there has been identified some minor changes in terms of milestones and projects. Furthermore, there are some minor delays in some of the projects. This is mainly because setting up the project organization has taken more time than first anticipated.

#### 4.1. Change in the organization of the investment programme

The Aarhus LRT Operating Company was legally established August 31, 2013. The two companies have several complex interfaces.

As described in the Inception Report (dated 15.11.2013) a new organization has been implemented in the project. The project organization is aimed at securing a good corporation and integration of activities between ALDIS and AALRT. We believe this is crucial in order to stay focused on finding innovation solutions throughout the investment programme.

A diagram of the project organization is shown below.



The daily work with the planning and execution of the projects is handled by the Project Director, the Support Group and in the project groups.

**The Project Director** is responsible for the daily directing of the Project Development Services, adopting and concretizing the framework for the program within the two companies, communicating results and establishing management tools. The Project Director is part of the overall team of Project Directors in AALRT.

**The Support Group** assist the project groups, provide tendering and contracts, communication (press releases, website, etc.) organize meetings, handle finance and accounting and reporting to EIB.

**The Project Groups** are responsible for the day to day planning of the 7 projects. A project management team will be designed for each of the projects. A project manager for the infrastructural management contracts and a project specialist has been hired two assist this work.

**The Technical Integration Group and Energy Group** are responsible for development and overall coordination of projects within their respective area. The two project groups consist of employees from AALRT and ALDIS. The focus is in implementing, coordination, interfaces and time schedules in order to stay focused on achieving results.

**The Steering Group** is responsible for the use of ELENA funding within the established framework, approval of Inception and biannual progress reports as well evaluating major and fundamental issues.

**The board** of AALRT and ALDIS is the highest level of the project. The two boards will approve the interim report and final implementation report. In addition, the boards will be involved in large, fundamental questions.

It is expected that the staff upgrading within the new project structure will be able to be implemented within the economic framework of the original application (annex I of the contract)

#### 4.2. Two projects are combined into one

The project regarding *remote control operations and securing access of freight train in the rail system* have been incorporated into the project regarding *Operational Rules for Aarhus Light Rail*.

The reason for this is that the two project has several interfaces and synergies and it will lead to a better result and save cost if they are combined.

AALRT still has to develop a concept for the interchange and define instructions for operation of freight train.

#### 4.3. Request to change title of programme

At the moment the project title is Aarhus LRT Project. If permission is given from EIB we would like to change this to RE:AL (Rethink Energy in Aarhus Light Rail).

The title - The Aarhus LRT project is often confused to be Aarhus Light Rail Project in general. Consequently we find that the current project title makes it hard to communicate about the intentions of the project both to the public and with stakeholders and partnerships.

We would like to be able to highlight the energy aspects of the work programmes. The proposed new project title is an acronym. R refers to Rethink, which is a general strategic approach within the municipality of Aarhus. For instance, Rethink is used as part of the approach to developing the programme, when Aarhus has to be European Cultural Capital in 2017. E refers to the energy efficiency aspect of the program. AL refers to Aarhus Light Rail.

The Support Group have developed a first example of a logo for RE:AL (see below).



#### 4.4. Change of address change of contact person

AALRT has moved into a new office as of February 1<sup>st</sup> 2014. The new address is:

Aarhus Letbane I/S  
Søren Frichs Vej 38  
8230 Åbyhøj  
Denmark

Following the hiring of a Project Director, we would like to change the contact person. New contact information is inserted below:

Company	Aarhus Letbane I/S
Contact person	Britta Lyager Degn
Title	Project Director
Function/Department	
Address	Søren Frichs Vej 38, 8230 Åbyhøj
Phone	+45 3070 3957

## 5. Financial Statement

See the attached appendix B for a financial status covering the reporting period.

Appendix A      Contracts for technical assistance (external experts/subcontracts) committed/completed in the reporting period)

Nb of subcontract	Name of external consultant / subcontractor	Short description of mission	Expected total costs of subcontracts	Duration of subcontracts (start and end date)		Procurement procedure applied	Tender publication references (e.g. OJEU announcement)	Comments
			[EUR]					
1	Macroplan	Specialist in transport LCC and innovation	55.000	03.09.2013	31.12.2015	Invited offer	None	
2	TrailC	Specialist in infrastructure management contracts	112.500	13.11.2013	31.12.2015	Mini -Tender	2013/S138-240326	Mini-tender under Qualification System

## Appendix B      Financial statement

<b>European Investment Bank ELENA - European Local Energy Assistance Financial Statement</b>					
<b>Name of project:</b>		Aarhus LRT Project			
<b>Number of project:</b>		ELENA – 2011 -031			
<b>Reporting period from: aa/bb/cc to xx/yy/zz</b>		16.07.2013-15,01.2014			
<b>Currency used: (three letter abbreviation)</b>		EUR			
<b>STAFF COSTS (Justification for labour costs may be requested by the Bank)</b>					
Line N°	Name	Category name (e.g. senior expert, engineer, etc.)	Number of man- hours	Hourly rate	Staff costs amount
			A	B	AxB
1	Britta Degn	Project Director	345,00	77,36	26.689
2	Birger Christensen	Project Manager	382,00	65,94	25.189
3	Helle Koch Di Diego	Specialist	129,00	57,07	7.383
4	Willy Pedersen	Senior Controller	38,00	69,75	2.651
5					
		<b>Total</b>	<b>897.00</b>		<b>61.912</b>
The cost of staff assigned to the action, comprising actual salaries plus social security charges and other statutory costs included in the remuneration, provided that this does not exceed the average rates corresponding to the beneficiary's usual policy on remuneration.					
<b>EXTERNAL EXPERTS / SUBCONTRACTING</b>					
Line N°	Name of Subcontractor	Description of the work undertaken			Amount
1	Macroplan	Specialist in transport LCC and innovation			33.058
2	TrailC	Specialist in infrastructure- management			6.530
3					
4					
5					
				<b>Total</b>	<b>39.588</b>
<b>TOTAL ELIGIBLE COSTS FOR THE PERIOD</b>					
	Direct staff costs				61.912
	External Experts / Subcontracting				39.588
				<b>Total</b>	<b>101.500</b>

## Appendix C Time- and activity plan

		2013		2014				2015				2016	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<b>Project</b>	<b>WP1: Technical integration for freight trains and light rail</b>												
<b>1</b>	<b>Innovative platform fronts</b>												
	1.1 Exploring solutions for platform fronts and establishing technical, architectural and economical requirements												
	1.2 Choosing the most effective way for the implementation and preparation i.e. tendering and (if necessary) prototype/production methods hereof												
	1.3 Developing and choosing the right design of the platform front												
	1.4 Official approval of platform front												
	1.5 Preparation of the implementation (civil works contracting)												
	1.6 Implementation (civil works) – not funded by ELENA												
<b>2</b>	<b>Immunization of Legacy Signalling Assets</b>												
	2.1 Planning and tendering for expert consultants												
	2.2 Innovative studies on immunization												
	2.3 Definition of functional requirements												
	2.4 Planning and tendering for investment programme (Supplier PQ)												
	2.5 Commissioning and approvals process												
	2.6 Monitor of implementation and timely execution of contracts												
<b>3</b>	<b>Operation rules for Aarhus Light Rail</b>												
	4.1 Establishing and strengthening the organization (hiring of a specialist)												
	4.2 Planning the organization of the Safety Approval Process												
	4.3 Tendering for specialist												
	4.4 Preparation of Operation rules												
<b>4</b>	<b>Infrastructure management contracts and agreements with existing infrastructure owners</b>												
	5.1 Establishing the organization for the negotiation processes (including hiring of project manager)												
	5.2 Mini-tender for railway specialist												
	5.3 Establishing management tools for the contract negotiations												
	5.4 Infrastructure management contract with Banedanmark												
	5.5 Agreement DSB (the national operating company)												
	5.6 Infrastructure management contract with Midtjyske Jernbaner												
	<b>WP2: Energy efficiency and power supply</b>												
<b>5</b>	<b>Energy efficient power supply system</b>												
	6.1 Planning and tendering for specialist consultant												
	6.2 Setup corporation with electrical supply companies												
	6.3 Studies on the most efficient/reliable power supply system												
	6.4 Decision on implementation strategy												
	6.5 Implementation power supply system (not funded by ELENA)												
<b>6</b>	<b>Energy storage and conservation</b>												
	7.1 Evaluation model (LCC/Energy) for use in the procurement of the transportation system.												
	7.2 Planning and tendering for specialist												
	7.3 Study – Energy storage and conservation (cost-benefit catalogue)												



		2013		2014				2015				2016	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	7.4 Implementation strategy												
	7.5 Implementation												
<b>7</b>	<b>Sustainable CMC</b>												
	8.1 Planning and tendering												
	8.2 Project catalogue for sustainable investments in CMC												
	8.3 Implementation strategy												
	8.5 Implementation												