

Annex I**ACTIVITIES IMPLEMENTED JOINTLY****REVISED UNIFORM REPORTING FORMAT (URF 01)****A. Governmental acceptance, approval or endorsement**

- Date of this report: 31/03/2006
- This report is a (*please underline*):
 - First report
 - Interim report
 - Final report
- Please indicate here which sections were modified since the last report (*e.g. B.2, E.2.4, F.2*): Report is newly completed on the Revised Uniform Reporting Format.

B. Summary of AIJ project**B.1 Title of project:**

Daugavgriva (Rigas Siltums), Boiler Conversion project

B.2 Participants

- The donor country is Sweden, represented by a governmental institution – Swedish Energy Agency (STEM).
- The host country local organisation, which owns or operates the facility, where investment is made is JSC Riga Siltums.
- The host country primary institution responsible for the Framework Convention on Climate Change and all other climate related issues is The Ministry of Environment.
- The technical assistance during project implementation and follow-up activities were provided by STEM consultants (ÅF-International).

Projects performance data collection and reporting activities are carried out by SIA “Ekodoma”

Please describe briefly the role(s) of the main participating organization(s) and provide detailed contact information in annex 1:

B.3 Activity summary

B.3.1 General description: Daugavgriva, a part of Riga town, is situated west of the river Daugava and close to the Gulf of Riga. The boiler house supplies the inhabitants of Daugavgriva region with heat but was earlier also energy centre for the Russian submarine base. The plant consists of four identical oil fired steam boilers DKVR-10/13 and two oil fired hot water boilers KGVM10. The annual heat production is about 80 000 MWh.

B.3.2 Type of activity:

| Sector | Activity |
|--------|----------|
|--------|----------|

| | |
|--------|---|
| Energy | Fuel-switching (from heavy oil to biofuels) |
|--------|---|

Please use project type descriptors contained in annex 2.

B.3.3 Location (e.g. city, region, state): Daugavgriva, Riga, LATVIA

B.3.4 Stage of activity (*Please underline the appropriate option*):

- Pre-feasibility study completed
- Feasibility study completed
- In start-up or construction phase
(e.g. ensuring financing, construction of site, purchase of land, installation of new equipment)

B.3.4 Stage of activity (continued)

- In operation
(e.g. new windmill plant is connected, converted boiler reconnected, etc. and real, measurable and long-term GHG emission reductions or removals by sinks are generated)
- Completed
(AIJ project activity no longer generates GHG reductions or removals by sinks or has been terminated)
- Suspended
(Please indicate date when AIJ project activity is expected to resume, and give brief explanation of reasons for suspension (up to half a page)):

B.3.5 Lifetime of AIJ project activity:

- Approval date: 2. June 1995 (Letter of Intent)
(Date at which the AIJ project activity was mutually approved by designated national authorities of all Parties involved.)
- Starting date: May 1996
(Date at which real, measurable and long-term GHG reductions or removals by sinks will begin or began to be generated.)
- Ending date (expected): Loan expire date 31. March 2006
(Date at which AIJ project activity is expected to no longer generate GHG reductions or removals by sinks.)
- Ending date (actual): in operation
(Date at which AIJ project no longer generated GHG reductions or removals by sinks or was terminated.)
- Ending of the operational life of the project if different from the ending date of the AIJ project activity: Expected technical lifetime is 15 years, which means that the plant is expected to be in operation until 2010
- Reasons for the choice of lifetime dates (*Describe briefly (up to half a page)*):

Heat production plants (bio fuel)

| | |
|----------|--|
| 25 years | New installation of all main equipment parts (fuel handling system, firing |
|----------|--|

| | |
|----------|---|
| | equipment and boiler) and modernisation of secondary equipment. |
| 15 years | Conversion of existing boiler but new installation fuel handling system and firing equipment. Modernisation of secondary equipment. |
| 10 years | Limited installation of new equipment (only one part of the three main parts, normally the firing equipment). Modernisation of other equipment. |

Heat distribution systems and sub-stations

| | |
|----------|--|
| 25 years | Pre-fabricated pipes and installations using certified contractors and supervisor according to EN norms and applicable district heating practise |
| 15 years | Pre-fabricated pipes and installations without using certified contractors and supervisor |
| 10 years | Modernisation of existing pipes. |

Energy efficiency in buildings

| | |
|----------|--|
| 25 years | Additional insulation roofs walls etc. with Scandinavian technology. New installed heating systems. |
| 15 years | Renovation and balancing of heating systems including thermostat valves. |
| 10 years | Weather stripping windows, doors etc. |

* if a combination of measures is done a reasonable lifetime for the project have to be calculated

B.4 Determination of the baseline

B.4.1 Date of completing the baseline determination: 1997 first report

B.4.2 Carried out by (name): STEM/ÅF-International
(Please provide detailed contact information in annex 1)

B.4.3 Type of baseline methodology applied and described in detail in section E.1
(Please underline the appropriate option(s))

- Project-specific by:
 - I. Simulating a likely situation that would have existed without the project
 - II. Taking an actual reference case project
 - III. Other (Please specify (insert lines as needed)):
- Multi-project by using (please specify briefly):

B.4.4 Describe the scope of the project boundary (Please summarize briefly the related information provided in section E. 2): One of the DKVR 10-13 boilers has been converted to biofuels, through the installation of a moving inclined grate in a separate pre-furnace. The project also comprises automatic fuel storage, flue-gas cleaning and a wood chipper. After conversion the output power of the boiler is estimated to 6 MW, with an estimated annual heat production based on bio-fuel of 40 000 MWh.

B.4.5 Describe the degree of aggregation of the multi-project baseline (Please summarize briefly the related information provided in section E. 1):

Multi-project baselines have recently been used as a synonym to “benchmark baselines”. Benchmark baselines are GHG emissions intensities developed for an entire sector in a country or region based upon historical data and trends. These GHG emissions intensities can be expressed in a unit of production, such as CO₂ per tonne of iron or CO₂ per MWh electricity. Benchmark baselines are also called “top-down” baselines because the data, which is used, is typically aggregated and extrapolated without taking into

account individual facility conditions or assumptions. In this document, DNV uses the term “multi-project baselines” to describe the mean baselines emissions intensity which is calculated from the case study data.

C. General compatibility with and supportiveness of national economic development and socio-economic and environment priorities and strategies

Describe briefly, to the extent that information is available (up to one page) and refer to documents, decisions and laws, as appropriate:

The Swedish side considers that the project meets the following objectives in the Latvian Energy Law:

- Efficient use of energy resources;

- Creation and usage of energy efficient technologies, fuel/energy consuming and diagnostic equipment, construction and insulation materials; energy flow metering and control devices, automated energy consumption control systems;

Latvia became a Party of the United nations Framework Convention on Climate Change (UNFCCC) in 1992.

In accordance with Kyoto Protocol to the UN FCCC on 10 December 1997, Latvia individually or jointly should ensure, that its aggregate anthropogenic CO₂ equivalent emissions of CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ in 2008 - 2012 should be 8% below the 1990 level

D. Environmental, economic and social and cultural impacts

D.1 Environmental impact (positive and/or negative)

Annual emission reductions calculated on the baseline scenario with an estimated heat production of 40,000 MWh based on biofuel.

- 13 000 ton CO₂
- 210 ton SO₂
- 22 ton NO_x

Wood waste from board factory can be used.

D.2 Economic impact (positive and/or negative)

Decreased fuel costs approx. 6 USD/MWh.

D.3 Social and cultural impact (positive and/or negative)

- More stable energy supply.
- Improved working conditions and increased motivation.
- Improved trade balance.

E. Calculation of real, measurable and long-term environmental benefits related to the mitigation of climatic change, that would not have occurred otherwise

E.1 Assumptions and characteristics of the baseline

E.1.1 Assumptions of the baseline

(Describe (up to 1 page)):

The project based status quo baseline had been assumed to be static for the project. The key parameters for the used baseline are:

- Baseline fuel – mazout;
- Baseline efficiency of the fossil fuel boilers is 85%;
- Total heat production of the boiler plant before boiler conversion 80 000 MWh

It has been assumed that these parameters used for baseline will not change during whole period. The numerical data are presented in section E.1.4.

E.1.2 Describe the baseline:

Present data reflect emission reductions using status quo (emissions in the period before the conversion to renewable fuel) for the baseline case. Calculations, according to the top-down method, for emissions from different types of projects in the baseline case are being made. The changed calculation method will result in a change in emission reduction. The new data will be introduced as soon as available.

(Please describe the baseline as well as leakage effects (up to 1 page)):

E.1.3 Reasons for selecting a baseline and its methodology

(Describe (up to 1 page)):

The project specific baseline as status quo case has been initially selected to start reporting on AIJ with the future plans to re-evaluate chosen baseline at pre-determined intervals in order to account for developments in the heating sector and indirect effects.

E.1.4 Calculation of values reported in ‘Baseline scenario’ in table E.5.1 column (A):

Calculation of values reported in ‘Baseline scenario’ in table E.5.1 column (A):

CO₂ emissions values are calculated according to the IPCC guidelines (1996). Carbon Emission Factor (CEF) are used to calculate CO₂ emitted during fuel combustion. Calculate CO₂ emission (M_{CO₂}). Formula for this calculation as follows:

$$M_{CO_2} = Q_{fb} * q_{CO_2} * 100 / \eta_b$$

Where,

Q_{fb} – boiler(s) heat production, MWh/year,

K_c - fraction of carbon oxidised,

q_c - carbon emission factor, tC/TJ,

η_b - annual efficiency of boiler(s), i.e. baseline efficiency of fossil fuel boilers.

Documentation box *(Please provide numerical data referred to in this section):*

The following data are used for calculation of the baseline scenario CO₂ emission reductions:

Total heat production of the boiler plant before boiler conversion – 80 000 MWh/y

Baseline efficiency of the fossil fuel boilers – 85%

Carbon emission factor for heavy fuel oil – 0.274 CO₂/MWh

E.2 Assumptions and characteristics of the project scenario

E.2.1 Assumptions for the AIJ project activity and its boundary

The project activity is heat production and this includes emissions from on-site combustion of fossil fuels and bio fuels. These emissions are under control of the boiler house staff. The project and baseline heat production activity is assumed to be equal.

E.2.2 Describe the project scenario:

Emission reductions are calculated using the IPCC Guidelines, using the Carbon Emission Factor (CEF) for different types of fuel, using actual system efficiency. For boiler conversion, the decrease in emissions

is calculated in relation to the amount of fossil fuel replaced (status quo). For energy efficiency project the decrease in emissions reflects the amount of fuel that is saved through the project. In the case that the system uses renewable fuels, the reduction is calculated comparing the amount of fossil fuels that was used before the conversion to renewable fuels.

The comparison below is based upon that the base-line scenario represents a status quo solution

(Please describe the project scenario as well as effects occurring outside the project boundary (up to 1 page)):

E.2.3 Please explain why the AIJ project activity would not have taken place anyway

(Describe (up to 1 page)):

As a party to the Climate Convention, Latvia has started to facilitate the transformation toward an ecologically sustainable energy system as subject to the conditions of the Convention. Several factors have been restrained implementation AIJ projects:

- Lack of investment capital for renewable energy sources and energy efficiency projects, allowing financing at reasonable costs as long-term loans at reasonable interest rates;
- Lack of sufficient institutional responsibility for implementation AIJ projects;
- A weak local tradition using wood waste from industry and from forest as a fuel in the boiler plants and applying an up to date technology for energy saving. The local technology for the wood fuels firing has largely been missing;
- Lack of wood fuels firing know-how.

During the implementation of the EAES Programme in Latvia these barriers have been over-come by transfer reliable wood fuels firing technology and know-how.

E.2.4 Calculation of values reported in ‘Project scenario’ in table E.5.1, column (B)

According to the section E.1.4 the following is used to calculate CO₂ emission:

$$M_{CO_2} = Q_{fb} * q_{co_2} / \eta_b$$

Were,

Q_{fb}– boiler(s) heat production, MWh/year,

K_c - fraction of carbon oxidised,

q_c - carbon emission factor, tC/TJ,

η_b - annual efficiency of boiler(s), i.e. baseline efficiency of fossil fuel boilers

Documentation box *(Please provide numerical data referred to in this section):*

The following data are used for calculation of the baseline scenario CO₂ emission reductions:

Total heat production of the boiler plant before boiler conversion – 80 000 MWh/y

Baseline efficiency of the fossil fuel boilers – 85%

Carbon emission factor for heavy fuel oil – 0.274 CO₂/MWh

E.3 Revision of the baseline for the project

E.3.1 Baseline revisions are planned (please underline): Yes/ No

If yes, please complete the remainder of section E.3.

E.3.2 Revisions are planned at regular intervals (please underline): Yes/ No

- If yes, please specify date of first planned revision and the length of the intervals:

- If no, please explain revision schedule *(up to half a page):*

E.3.3 Information on revisions

- If a baseline (and/or the project scenario) revision is covered by this report, describe briefly the nature of this revision, including parameters changed in the revision as well as the calculation of the new set of values in the column 'Baseline scenario' in a revision of table E.5.1, column (A): *(up to one page)*
- Date of last baseline revision: *(DD/MM/YYYY)*
- Date of next baseline revision: *(DD/MM/YYYY)*

Documentation box *(Please provide numerical data referred to in this section):*

E.4 Scope and performance of the actual project

Provide actual project data (E.5.2. Column B) and the calculations of the actual real, measurable and long-term emission reductions and/or removals as measured against the relevant (original/revised) baseline scenario values

| Year | Year 1 = 1996 | Year 2 = 1997 | Year 3 =1998 | Year 4 =1999 | Year 5 =2000 | Year 6 =2001 | Year 7 =2002 | Year 8 =2003 | Year 9 =2004 | Year10 =2005 | ... | Year 15 =2010 |
|------------------------|------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|------------------|
| Heat preductio n | 27260 | 32220 | 31000 | 35230 | 30820 | 48664 | 52820.2 | 52759 | 48671 | 49718 | | 31306* |

Documentation box *(Please provide numerical data referred to in this section):*

E.5 Tables on real, measurable and long-term GHG emission reductions or removals by sinks (in CO₂ equivalent)**E.5.1 Projected real, measurable and long-term GHG emission reductions or removals by sinks**

Projected real, measurable and long-term GHG emission reductions or removals by sinks over the lifetime of the AJJ activity
(Please underline and fill, as appropriate: This is the initial table or this is revision ___ of this table)

| Year | Baseline scenario ^b (A) | | | | Project scenario ^b (B) | | | | Projected real, measurable and long-term GHG emission reductions (-) or removals by sinks (+) <i>((B)-(A))</i> | | | |
|--------------|---------------------------------------|------------------------------|-------------------------------|--------------------|--------------------------------------|------------------------------|-------------------------------|--------------------|---|-----------------|------------------|-------|
| | CO ₂ | CH ₄ ^a | N ₂ O ^a | Other ^a | CO ₂ | CH ₄ ^a | N ₂ O ^a | Other ^a | CO ₂ | CH ₄ | N ₂ O | Other |
| 1996 | 13000 | | | | 0 | | | | -13000 | | | |
| 1997 | 13000 | | | | 0 | | | | -13000 | | | |
| 1998 | 13000 | | | | 0 | | | | -13000 | | | |
| 1999 | 13000 | | | | 0 | | | | -13000 | | | |
| 2000 | 13000 | | | | 0 | | | | -13000 | | | |
| 2001 | 13000 | | | | 0 | | | | -13000 | | | |
| 2002 | 13000 | | | | 0 | | | | -13000 | | | |
| 2003 | 13000 | | | | 0 | | | | -13000 | | | |
| 2004 | 13000 | | | | 0 | | | | -13000 | | | |
| 2005 | 13000 | | | | 0 | | | | -13000 | | | |
| ... | | | | | | | | | | | | |
| 2010 | 13000 | | | | 0 | | | | -13000 | | | |
| TOTAL | 195000 | | | | 0 | | | | -195000 | | | |

^a Please convert values into global warming potentials, referring to annex 3 for conversion factors.

^b Including effects occurring outside the project boundary (leakage) as described in sections E.1.4, and E.2.4, as applicable

E.5.2 Actual real, measurable and long-term GHG emission reductions or removals by sinks

Actual real, measurable and long-term GHG emission reductions or removals by sinks of the AIJ activity
(in metric tons of CO₂ equivalent^d)

Please insert values assessed *ex post* i.e. after measurement. Insert rows as needed.

| Year | Baseline scenario ^{b c} (A) | | | | Actual project ^{b c} (B) | | | | Actual real, measurable and long-term GHG emission reductions (-) or removals by sinks (+) ((B)-(A)) | | | | Values indicated are assessed independently (Yes/No) |
|--------------|---|------------------------------|-------------------------------|--------------------|--------------------------------------|------------------------------|-------------------------------|--------------------|---|-----------------|------------------|-------|--|
| | CO ₂ | CH ₄ ^a | N ₂ O ^a | Other ^a | CO ₂ | CH ₄ ^a | N ₂ O ^a | Other ^a | CO ₂ | CH ₄ | N ₂ O | Other | |
| 1996 | 9 400 | | | | 0 | | | | -9400 | | | | Yes |
| 1997 | 11 110 | | | | 0 | | | | -11110 | | | | Yes |
| 1998 | 10 700 | | | | 0 | | | | -10700 | | | | Yes |
| 1999 | 12 150 | | | | 0 | | | | -12150 | | | | Yes |
| 2000 | 10 630 | | | | 0 | | | | -10630 | | | | Yes |
| 2001 | 15 801** | | | | 0 | | | | -15801 | | | | Yes |
| 2002 | 14 267 | | | | 0 | | | | -14267 | | | | Yes |
| 2003 | 11 188 | | | | 0 | | | | -11188 | | | | Yes |
| 2004 | 10 508 | | | | 0 | | | | -10508 | | | | Yes |
| 2005 | 10 305 | | | | 0 | | | | -10305 | | | | Yes |
| ... | | | | | | | | | | | | | |
| 2010 | 11 606* | | | | 0 | | | | -11 606 | | | | Yes |
| TOTAL | 116 058 | | | | 0 | | | | -116 058 | | | | |

^a Please convert values into global warming potentials, referring to annex 3 for conversion factors.

^b Including effects occurring outside the project boundary (leakage) as described in sections E.1.4, E.2.4, E.3.4 and E.4, as applicable.

^c Values that differ from those in table E.5.1 should be marked in **bold**.

* - Average figure for previous full years of operation

** - CO₂ emission reduction have increased slightly due to the increased energy production

E.6 Mutually agreed assessment procedures

If the AIJ activity provides for mutually agreed assessment procedures, please fill subsections E.6.1 or E.6.2, as applicable.

E.6.1 Assessment procedures that use all or one of the following steps:

E.6.1.1 Initial independent assessment of the project activity:

- Has the project design been subject to such an assessment?
(Please underline): Yes/No
- If yes, what organization(s) is/are involved: (Please indicate the type of organization(s) (consultancy, accredited certification body, government body, university, etc.) and provide their detailed contact information in annex 1 to this report).

E.6.1.2 Monitoring

- Does the project have a monitoring plan? (Please underline): Yes / No
- Summarize briefly the key elements of the monitoring plan (i.e. which parameters are being monitored, with what frequency, providing sampling intensities if appropriate, methods and equipment; associated uncertainties, etc.) (not more than 1 page):

STEM has continued its assistance in monitoring and reporting the projects in the host countries. Experts from STEM, as well as the Swedish consultancy company ÅF-International provided guidance in methodology. For the regular follow-up activities a special format has been developed to collect performance data from each plant for each heating season. The monitoring activities have continued by local experts for preparing Swedish AIJ reports.

The following monthly data are collected and monitored:

- Heat production on bio fuels;
 - Heat production on fossil fuels;
 - Total heat production of the boiler house;
 - Bio fuels consumption;
 - Fossil fuels consumption
-
- Is the monitoring conducted by project proponents? (Please underline): Yes / No
 - If no, which organization(s) is/are involved: (Kindly indicate the type of organization(s) (consultancy, accredited certification body, government body, university, etc.) and provide their detailed contact information in annex 1 to this report).

E.6.1.3 Independent assessment of the project performance

- Is the activity subject to such an assessment? (Please underline): Yes / No
 - If no, is such an assessment intended? (Please underline): Yes / No
 - If yes, what organization(s) is/are involved: (Please indicate the type of organization(s) (consultancy, accredited certification body, government body, university, etc.), and provide their detailed contact information in annex 1 to this report. Indicate the frequency of the assessments, how many assessments have taken place to date, and whether the assessment report(s) is/are publicly available if requested).
-
- Summarize briefly the key elements of the assessment activities: (Please describe issues such as criteria used; the project design; project implementation; key project parameters being verified; the frequency of assessment/surveillance; sampling approach applied by the assessing organization) (up to one page):

E.6.1.4 Provision of written statement by an independent entity regarding the performance of the project activity

(Please note that such a statement is not a formal requirement under the AIJ pilot phase (see also the note at the beginning of section E.6). If the project has made provision for such a statement, please indicate the name of the independent body and attach a copy of the written statement(s)).

E.6.2 Other form of mutually agreed assessment procedure *(please specify)*:

E. 7 Cost (to the extent possible)

E.7.1 The cost information is *(Please underline)*:

- Provided below
- Not provided because the data are *(Please underline)*:
 - Not yet available
 - Classified as confidential

E.7.2 AIJ project activity costs

Please list cost figures per year (insert rows as needed)

| Country | | Daugavgriva BC | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2005 |
|-----------|--------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 1 | 2 | 3 | 4 | 5 | 9 |
| A. Sweden | Investment | 1. Loan/debt to STEM | 584000 | 611200 | 585500 | 507350 | 433875 | 355085 | 392542 |
| | | 2. Added costs | 600 | 27200 | 13400 | 0 | 4674 | 7319 | 0 |
| | AIJ/JI costs | 3. Technical assistance | 70000 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 4. Follow up | 0 | 8500 | 2200 | 2267 | 2139 | 1265 | 2852 |
| | | 5. Reporting costs | 0 | 850 | 2000 | 744 | 301 | 282 | 810 |
| | | 6. Administration | 40000 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 7. Difference in interest | 4% | 24448 | 23420 | 20294 | 17355 | 14203 | 15702 |
| | | 8. Accum. costs for AIJ/JI | 110000 | 143798 | 171418 | 194723 | 214519 | 230269 | 233931 |
| | | 9. Total costs | 694600 | 754998 | 756918 | 702073 | 648394 | 585355 | |
| Latvia | Investment | 1. Investment/amortization | 0 | 0 | 39100 | 78150 | 78150 | 86109 | 0 |
| | | 2. Reporting costs | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | AIJ/JI costs | 3. Other costs | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 4. Accum. costs for AIJ/JI | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 5. Total costs | 0 | 0 | 39100 | 117250 | 195399 | 281508 | |
| 1 USD= | 10 | SEK | | | | | | | |

F. Financial additionality

*Bearing in mind that the financing of AIJ shall be **additional** to financial obligations of Parties included in Annex II to the Convention within the framework of the financial mechanism, as well as to current official development assistance (ODA) flows (decision 5/CP.1):*

Please list sources and the purpose:

| Category of funding (For each source one line) | Amount (US dollars) |
|--|-------------------------------|
| Loan from NUTEK/STEM* | 778.731 USD |
| Grant from NUTEK/STEM for technical assistance | 92.781 USD |

1 USD = 7,5 SEK

* From 1 January, 1998, the new Swedish National Energy Administration was established – from 1 January 2002 the name in English has been changed to the Swedish Energy Agency - has taken over the responsibility for the Programme for an Environmentally Adapted Energy System in the Baltic region and Eastern Europe (EAES Programme) from NUTEK (Swedish National Board for Industrial and Technical Development).

G. Contribution to capacity building, transfer of environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties

G.1 Identification of environmentally sound technology and know-how

- Name of manufacturer: Järnforsen Energy System AB (main contractor of the combustion equipment)
- Place of manufacture (*country*): Sweden
- Model names and numbers of equipment (*where appropriate*):

The main parts of the delivery have been:

- Fuel silo
- Silo scrapers
- Hydraulic cylinders
- Shredder roller
- Fuel conveyor
- Fuel damper
- Distribution conveyor
- Primary air fan
- Secondary air fan
- Furnance TRF 5/19
- Existing steam boiler
- Existing economiser
- Slag conveyer
- Slag damper
- Ash conveyer
- Container
- Flue gas cleaner
- Dust conveyer
- Container
- Flue gas reticulation fan
- Any other relevant key specific technology characteristics:
 - Boiler type DKVR-10/13
 - Prefurnance Moving incilined aircooled grate
 - Boiler out put after conversion 7 MW
 - Flue gas cleaning Multicyclone, <300 mg/Nm³
 - Automated fuel store capacity 220m³

- Main fuel store capacity 1000 m³
 - Fuel type wood chips, 35-55% RH
 - Previous fuel mazout
 - Estimated heat production 40 000MWh/year
 - Total production of the boiler plant 80 000MWh/year
 - Total conversion costs 6 MSEK
 - Commissioned may 1996
- Where applicable, name and location of provider and nature of training:
 - Special training courses for boiler house operators were arranged by the main contractor on operation/
 - maintenance of wood fuel burning plant.
 - Translation of manuals and safety regulations for boiler operation.
 - The staff from the boiler plant has been invited to different seminars and workshops, documentation for training has been handed over.

G.2 **Characteristics of environmentally sound technology**

The technology is (underline the option):

- At a research and development stage
- Being tested or demonstrated in similar conditions outside the host country
- At the initial stage of introduction into the world market
- At the initial stage of introduction into the host market
- Commercially available and deployed in the world market
- Commercially available and deployed in the host market
- Not characterized by the above options. *Please describe:*

G.3 **Impact of the AIJ project on capacity-building and transfer of environmentally sound technology and know-how (up to two pages):**

Systematically, the capacity building and transfer of know-how have involved the following activities over time and have taken place through:

i) Technology transfer through NUTEK/ STEMs technical specialist during the implementation of the project.

Technology transfer has taken place through NUTEK /STEMs technical specialist support to the local project leader and municipality as well as boiler plant staff.

ii) Technology transfer through cooperation between foreign supplier and local partner

Local companies took part in the project implementation phase (ground works, building, civil engineering works), the main contractor for the equipment delivery has been company Järnforsen Energy Systems (Sweden)

iii) Conferences, seminars, documentation and training.

Special training courses for boiler house operators were arranged by the main contractor on operation/ maintenance of wood fuel burning plant.

Translation of manuals and safety regulations for boiler operation.

The staff from the boiler plant has been invited to different seminars and workshops, documentation for training has been handed over. The following seminars in Latvia have been organized by support from STEM:

- ◆ “Environmentally Adapted Energy Systems in Baltic States and Eastern Europe”, Cesis, 23 November, 1994;
- ◆ “Prospects for small boiler conversion to biofuel in Latvia”, Rauna, March, 1996

- ◆ “Possibilities for wood fuel utilization in Latvia”, Broceni, 17 April, 1997;
 - ◆ “Waste wood for boiler houses”, Liepa municipality, 5 June, 1998
- Presentation of book translated from Swedish to Latvian “Environmentally adapted local energy systems”, author Niels Moe (STEM), seminars in Balvi, Jelgava, Saldus, 6-8 May, 1998

iv) Stimulate ”net-working” for the exchange of experience between plant owners with similar problems, e.g. ”bio-clubs”

Specialists of other boiler houses have visited the boiler plant, the staff has an exchange of experience with other boiler plants. The management was active in the “bio-club“ established in 1994 and is now member of Bioenergy Association

H. Additional comments

Complete as appropriate:

) Any practical experience gained:

The boiler house manager has become very skilled with biofuel-fired plants and is often hired by other plant owners to give advice about, adjust and optimise their equipment.

The plant has a good location for visitors. Students from Riga Technical University are making practical works and measurements at the site.

2) Technical difficulties:

The project building/erection phase took place during harsh winter conditions. Low temperatures resulted to some delay in the project’s time schedule.

3) Effects encountered:

The project realization gave:

- ◆ Reduced fuel costs;
- ◆ Improved environment;
- ◆ New working places for fuel supply, and plant operation;
- ◆ Reduced dependence from the imported fuel;
- ◆ Better economy for the local regional level;
- ◆ Cooperation between Baltic and Nordic countries;
- ◆ Involvement of local companies for project implementation;
- ◆ Ideas for new fuel conversion projects.

4) Impacts encountered:

The heat supply to the customers has become more stable.

5) Other obstacles encountered:

At the end of the project the ownership of the plant was transferred to Riga City Council and leased to the newly created heating company for the whole of Riga City, Riga Siltums. They were not interested in the converted boiler and did not want to take over the loan. The commission of the boiler was delayed for 6 months, before the problem was solved

Annex 1 to the revised uniform reporting format (URF 01)**PARTICIPANTS' CONTACT INFORMATION**

Please provide contact information for *each* organization. Add rows as required (by copying and pasting)

| Name | Address ^a | Voice/Fax/E-mail |
|---|--|---|
| Organization(s) ^b: Swedish Energy Agency[*] | | |
| Function(s) within activity^c: Financing/Project development | | |
| Officer responsible: | The System Analysis Department, Climate Change Division Kungsgatan 43 BOX 310 S-63104 Eskilstuna SWEDEN http://www.stem.se | Tel: +46 16 544 20 81 Fax: +46 16 544 22 64 E-mail: bengt.bostrom@stem.se |
| Contact person, if different from above: Gudrun Knutsson | Head of Section, Climate Investment Programme | Tel: +46 16 544 20 72 Fax: +46 16 544 22 54 E-mail: <u>Gudrun.Knutsson@stem.se</u> |

| Name | Address ^a | Voice/Fax/E-mail |
|--|--|---|
| Organization(s) ^b: Ministry of the Environment of the Republic of Latvia | | |
| Function(s) within activity^c: Designated national authority/reporter | | |
| Officer responsible: | Climate and Renewable Energy Department Peldu str. 25; LV 1494, Riga; | Tel.: 371- 7026508 Fax: 371-7820442 Ingrida.apene@vidm.gov.lv |
| Contact person, if different from above: Apene Ingrida | Senior official | Tel.: 371-7026508 Fax: 371-7820442 Ingrida.apene@vidm.gov.lv |

| Name | Address ^a | Voice/Fax/E-mail |
|--|--|--|
| Organization(s) ^b: SIA "Ekodoma" | | |
| Function(s) within activity^c: Local reporter | | |
| Officer responsible: | Noliktavas 3-3; LV 1010, Riga, Latvia | Tel:371-7323212 Fax:371-7323210 E-mail: ekodoma@ekodoma.lv |
| Contact person, if different from above: Dagnija Blumberga | Local project leader | Tel:371-7323210 Fax:371-7323212 E-mail: ekodoma@ekodoma.lv |

| Name | Address ^a | Voice/Fax/E-mail |
|------|----------------------|------------------|
|------|----------------------|------------------|

| | | |
|---|--------------------------------------|--|
| Organization(s) ^b : JSC Riga Siltums | | |
| Function(s) within activity ^c : <i>Project owner/borrower</i> | | |
| Officer responsible: | Cesu street 3; LV-1539; Riga, Latvia | Tel: +371 7320680 Fax: +371 7220785 E-mail: |
| Contact person, if different from above: Krilovs Nikolajs | Boiler House Manager | Voice: +371 7 432397 Fax: +371 7 432397 E-mail: |

^a Address should include: department; street; postal code; city; country and the Internet address of the organization (if available).

^b Organization includes: institutions, ministries, government agency closely following the activity, companies, non-governmental organizations, etc. involved in the activity.

^c Function within activity: please use the following categories:

| <i>Function</i> | <i>Description of function</i> |
|---|---|
| <i>Project development</i> | <i>Designing/developing the AIJ project and/or submitting the AIJ project proposal</i> |
| <i>Project operator</i> | <i>Implementing and administering the AIJ project activities</i> |
| <i>Government regulation/oversight</i> | <i>Ensuring compliance of the project with laws and regulations</i> |
| <i>Technical assistance</i> | <i>Providing scientific or other technical guidance or support for the purposes of project development and/or project administration, implementation, training and education activities</i> |
| <i>Financing</i> | <i>Serving as a source of funding for the AIJ project</i> |
| <i>Initial independent assessment of project activity</i> | <i>Assessing whether the project activity meets a given set of criteria</i> |
| <i>Monitoring</i> | <i>Monitoring the environmental and/or socio-economic results of the project in accordance with a monitoring protocol</i> |
| <i>Independent assessment of project performance</i> | <i>Assessing the performance (environmental and/or socio-economic) achieved by a project against pre-set criteria</i> |
| <i>Providing independent written statement on performance</i> | <i>Providing written assurance that a performance is achieved and/or a set of criteria is met by an activity</i> |
| <i>Designated national authority</i> | <i>Entity authorized to officially accept, approve or endorse the AIJ project</i> |
| <i>Other (please specify)</i> | |

Annex 2 to the revised uniform reporting format (URF 01)**PROJECT TYPE DESCRIPTORS**

To describe the type of project activity, please specify the sector(s) and activity(ies). Use a combination from the first column (sector) and one option from the second column (activity):

| Sector | Activity |
|--|---|
| Energy | Fuel-switching, renewable energy generation, alternative energy generation, improving energy efficiency, reduction of fugitive emissions from fuels, other (please specify) |
| Industrial processes (Excluding GHG emissions from energy production) | Material substitution, process or equipment change, waste treatment, recovery or recycling, other (please specify) |
| Solvent and other product use | Material substitution, process or equipment change, waste treatment, recovery or recycling, other (please specify) |
| Agriculture | Livestock productivity management, livestock manure management, crop management, crop-switching, fertilizer management, fertilizer substitution, other (please specify) |
| Land-use change and forestry | Afforestation, reforestation, forest preservation, agroforestry, silviculture (forest management), fire management, sustainable harvesting, reduced impact logging, manufacture of durable wood products, other (please specify) ^a |
| Transport | |
| Waste | Solid-waste management, landfill methane recovery, waste-water management, other (please specify) |
| Other | Please make a proposal for the sector and activities |

Note: One AIJ project activity may cover several project types.

^a Parties may wish to further revise these activity categories in the light of results of methodological work on land use, land-use change and forestry.

Annex 3 to the revised uniform reporting format (URF 01)**1995 IPCC GLOBAL WARMING POTENTIAL (GWP) VALUES^a BASED ON THE EFFECTS OF GREENHOUSE GASES OVER A 100-YEAR TIME HORIZON**

| Greenhouse gas | Chemical formula | 1995 IPCC GWP |
|---------------------------|---|---------------|
| Carbon dioxide | CO ₂ | 1 |
| Methane | CH ₄ | 21 |
| Nitrous oxide | N ₂ O | 310 |
| Hydrofluorocarbons (HFCs) | | |
| HFC-23 | CHF ₃ | 11700 |
| HFC-32 | CH ₂ F ₂ | 650 |
| HFC-41 | CH ₃ F | 150 |
| HFC-43-10mee | C ₅ H ₂ F ₁₀ | 1300 |
| HFC-125 | C ₂ HF ₅ | 2800 |
| HFC-134 | C ₂ H ₂ F ₄ (CHF ₂ CHF ₂) | 1000 |
| HFC-134a | C ₂ H ₂ F ₄ (CH ₂ FCF ₃) | 1300 |
| HFC-143 | C ₂ H ₃ F ₃ (CHF ₂ CH ₂ F) | 300 |
| HFC-143a | C ₂ H ₃ F ₃ (CF ₃ CH ₃) | 3800 |
| HFC-152a | C ₂ H ₄ F ₂ (CH ₃ CHF ₂) | 140 |
| HFC-227ea | C ₃ HF ₇ | 2900 |
| HFC-236fa | C ₃ H ₂ F ₆ | 6300 |
| HFC-245ca | C ₃ H ₃ F ₅ | 560 |
| Perfluorocarbons | | |
| Perfluoromethane | CF ₄ | 6500 |
| Perfluoroethane | C ₂ F ₆ | 9200 |
| Perfluoropropane | C ₃ F ₈ | 7000 |
| Perfluorobutane | C ₄ F ₁₀ | 7000 |
| Perfluorocyclobutane | c-C ₄ F ₈ | 8700 |
| Perfluoropentane | C ₅ F ₁₂ | 7500 |
| Perfluorohexane | C ₆ F ₁₄ | 7400 |
| Sulphur hexafluoride | SF ₆ | 23900 |

^a As provided by the IPCC in its Second Assessment Report. Please refer to conclusions of the SBSTA at its fourth session (FCCC/SBSTA/1996/20) and decision 2/CP.3 (FCCC/CP/1997/7/Add.1).

Annex 4 to the revised uniform reporting format (URF 01)

For the text of the decision adopting the revised URF and requesting Parties to use this format see the report of the eighth sessions of the Conference of the Parties.

Decision 5/CP.1**Activities implemented jointly under the pilot phase**

The Conference of the Parties,

Recalling that, in accordance with Article 4.2(d) of the United Nations Framework Convention on Climate Change, the Conference is required to take decisions regarding criteria for joint implementation as indicated in Article 4.2(a),

Noting that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs,

Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions,

Recognizing that,

(a) According to the provisions of the Convention, the commitments under Article 4.2(a) to adopt national policies and to take corresponding measures on the mitigation of climate change apply only to Parties included in Annex I to the Convention (Annex I Parties), and that Parties not included in Annex I to the Convention (non-Annex I Parties) have no such commitments,

(b) Activities implemented jointly between Annex I Parties and non-Annex I Parties will not be seen as fulfilment of current commitments of Annex I Parties under Article 4.2(b) of the Convention; but they could contribute to the achievement of the objective of the Convention and to the fulfilment of commitments of Annex II Parties under Article 4.5 of the Convention,

(c) Activities implemented jointly under the Convention are supplemental, and should only be treated as a subsidiary means of achieving the objective of the Convention,

(d) Activities implemented jointly in no way modify the commitments of each Party under the Convention,

1. *Decides:*

(a) To establish a pilot phase for activities implemented jointly among Annex I Parties and, on a voluntary basis, with non-Annex I Parties that so request;

(b) That activities implemented jointly should be compatible with and supportive of national environment and development priorities and strategies, contribute to cost-effectiveness in achieving global benefits and could be conducted in a comprehensive manner covering all relevant sources, sinks and reservoirs of greenhouse gases;

(c) That all activities implemented jointly under this pilot phase require prior acceptance, approval or endorsement by the Governments of the Parties participating in these activities;

(d) That activities implemented jointly should bring about real, measurable and long-term environmental benefits related to the mitigation of climate change that would not have occurred in the absence of such activities;

(e) That the financing of activities implemented jointly shall be additional to the financial obligations of Parties included in Annex II to the Convention within the framework of the financial mechanism as well as to current official development assistance (ODA) flows;

(f) That no credits shall accrue to any Party as a result of greenhouse gas emissions reduced or sequestered during the pilot phase from activities implemented jointly;

2. *Further decides* that during the pilot phase:

(a) The Subsidiary Body for Scientific and Technological Advice will, in coordination with the Subsidiary Body for Implementation, establish a framework for reporting, in a transparent, well-defined and credible fashion, on the possible global benefits and the national economic, social and environmental impacts as well as any practical experience gained or technical difficulties encountered in activities implemented jointly under the pilot phase;

(b) The Parties involved are encouraged to report to the Conference of the Parties through the secretariat using the framework thus established. This reporting shall be distinct from the national communications of Parties;

(c) The Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation, with the assistance of the secretariat are requested to prepare a synthesis report for consideration by the Conference of the Parties,

3. *Further decides*:

(a) That the Conference of the Parties shall, at its annual session, review the progress of the pilot phase on the basis of the synthesis report with a view to taking appropriate decisions on the continuation of the pilot phase;

(b) In so doing, the Conference of the Parties shall take into consideration the need for a comprehensive review of the pilot phase in order to take a conclusive decision on the pilot phase and the progression beyond that, no later than the end of the present decade.

7 April 1995

10th plenary meeting
