
Business Plan

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PREPARATION OF A BUSINESS PLAN FOR IMPROVING MANURE MANAGEMENT IN POULTRY FACTORIES IN THE LENINGRAD REGION, RUSSIA

**Generic Business Plan for Possible Poultry Manure Final
Disposal Solutions, Leningrad Region**

**NORDIC ENVIRONMENT FINANCE CORPORATION
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ACRONYMS

BP	Business Plan
CIF	Cargo, insurance, freight
FOT	Free on Truck
FS	Feasibility Study
IFI	International Financing Institution
IRR	Internal Rate of Return
LNG	Liquefied Natural Gas
N	Nitrogen
NPV	Net Present Value
P	Phosphorus
SPV	Special Purpose Vehicle

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Generic Business Plan for Possible Poultry Manure Final Disposal Solutions, Leningrad Region

EXECUTIVE SUMMARY

This business plan examines various possible technical solutions for the beneficial use and final disposal of relatively large amounts of poultry manure waste. With the annual amount of waste produced in Leningrad region being on the order of 1 million tonnes, the examination undertaken here is of solutions for disposing of 200 000 tonnes per annum.

The technical solutions examined are the following*:

- **Incineration, and commercialisation of the ash in Russia.** Incineration will result in a considerable reduction in volume (200 000t manure = 20 000t ash). The ash has commercial application in Russia in the creation of mineral fertilizers. Total investment cost: €77 million, which includes reception and storage facilities and the incinerator itself.
- **Digestion, biogas compression for sale in Finland, and composting of the digestate.** 200 000t of manure will create upgraded gas with 190 GWh of energy. A connection to an existing pipeline to Finland will be made to transport the gas, and the composted digestate will be commercialised. Total investment cost: €44 million, which includes digesting facilities, compressor and link to the existing pipeline, and composting facilities;
- **Digestion, biogas compression for sale in Finland, and incineration of the digestate.** The biogas will be treated as above, and the incinerated digestate will be treated as with the incineration only option. Total investment cost: €107 million, which includes digesting facilities, compressor and link to the existing pipeline, and an incinerator;
- **Digestion, biogas liquefaction for sale in Sweden, and incineration of the digestate.** 200 000t of manure will give 15 100t of liquefied biogas, which will be exported by sea. This will necessitate the construction of a biogas terminal at a near-by port. Total investment cost: €178 million, which includes digesting facilities, a liquefaction plant, a port terminal to load the LNG carriers, and an incinerator.

The poultry producers will require technical and financing partners if such investments are to be realised.

For each of these options it is assumed that a dedicated company (a Special Purpose Vehicle – SPV) will be created to be the owner and operator of the required infrastructure. The SPVs will be created by two or more participating poultry farms in partnership with foreign technology and/or financing partners. For the sake of simplified discussion in the present business plan, it is assumed that the SPV ownership structure will be: poultry producers all together – 50%; foreign partners all together – 50%.

* The solutions which involve the generation and capture of bio-energy assume foreign (Finnish and Swedish) markets for the energy. This is because of the artificially depressed prices alternative energy sources receive in the domestic (Russian) market. Alternative energy prices are depressed in Russia because of the subsidisation of traditional energy sources in the country, that is hydrocarbons and electricity generated by traditional mean. Bio-energy is a substitute for traditionally sourced energy.

The SPV will be capitalised by: a) the paying in of share capital; b) shareholders' loans which, with the paying in of shares, will equal approximately 50% of total capital requirement; and c) external IFI loans, which will make up the remaining 50% of the capital requirements.

Also for the sake of simplicity in the present business plan, it is assumed that all of the production from each of the technical solutions will find markets. The selling prices for each of the relative products will be as follows:

- Ash from incineration, of either manure or digestate: €1 050/t at the factory gate of the incinerator. This is a computed price which has been calculated so as to ensure that the incineration alone option is financially viable. As there is, at present, no incineration of livestock manure in Russia, there is no established market price for the resulting ash. However the market price in Finland for phosphorus in August 2011 was approximately 150 €/t. The difference between this price and the price calculated as being necessary to make incineration viable is vast. If the Russian market were to sustain ash prices even two or three times the Finnish price, the incineration investment would still not be viable. Russian prices must be seven times more than Finnish prices for that to happen.

The price difference, between the price computed for ash to make the incineration option viable, and the current price of phosphorus in Finland (as an indicator), is so great that it is not realistic to expect that market mechanisms by themselves would bridge the gap. Non-market mechanisms, for example a subsidy of the ash price, or the removing of distortions in the price of phosphorus by lifting the subsidies to mineral fertiliser producers, would be necessary;

- Compost product, €39/t of original input of manure. This price is at the compost facility gate. This price is based upon the current price for compost in Leningrad Region;
- Compressed biogas in Finland, €400/1000Nm³. This is an estimate based upon current Finnish prices for natural gas;
- Liquefied biogas in Sweden, €460/1000t. This is an estimate based on current prices in Sweden for liquefied natural gas originating in Norway.

None of the solutions contemplate the SPV charging the poultry producers a gate fee for the manure that they deliver to the treatment facilities. This is because of the very low willingness to pay such a fee by the producers, which would be on top of the requirement that the producers support the transportation costs of manure to the facilities – which could be 50 – 60 or more kilometres distant from the farms. This assumption is inconsistent with international practice. It also means that the polluter pays principle will not be strictly adhered to. However it is made so as to provide further incentive to the polluting farms to participate in one or another of these investment schemes. As the incentives for the poultry producers to properly dispose of their manure arising from environmental legislation are weak, the farms must be enticed into participating in this environmental project by various means. One of these means is to keep their costs of participating limited, where possible.

Operations and operating costs for the potential solutions are estimated based on the understood technical specifications of each of solution, plus the prevailing costs of locally procured inputs (power, labour, transport, etc.) Costs of capital are derived from the loan conditions understood to be prevailing with external IFIs. A discount rate of 7%* is applied.

* The financial analysis is undertaken in constant 2011 Euro. A 7% discount rate for constant 2011 Euros reflects the opportunity cost of capital in Russia, expressed for Euro. This discount rate is a reflection of the Russia country risk as it applies to commercial and exchange rate risk.

Each of the possible solutions is assessed financially in the business plan. The financial models developed for these assessments are attached as Appendices 1 – 4 respectively.

The assessments conclude the following:

- **The incineration alone option**, under the technical, commercial and financing conditions laid out, could be viable. However given that there currently exists no manure ash market in Russia, it must be remembered that this assessment was made using a manure ash selling price that had been calculated so as to make the investment viable. Whether this manure ash selling price would actually be acceptable in the Russian market is unknown. A known Finnish market price is approximately 85% less than this computed price. If the Finnish price were to prevail in the Russian market also, the investment would not be viable.
- **The compressed biogas with composting option**, under the technical, commercial and financing conditions laid out, would be not be viable. Revenues would not cover costs. A major question, which has not been resolved, is whether the main pipeline operator would allow the SPV to enter into a direct selling contract for biogas with a Finnish consumer, and therefore treat the pipeline as a transport issue only. Or would the pipeline operator require the SPV to sell the biogas to it, which it would then commercialise in Finland?

In the former case the SPV would receive Finnish prices for its gas, less transport and other transaction costs. In the latter case the SPV will receive Russian gas prices – but have fewer transport and transaction costs. The former of these options is likely the better one for the SPV, but it is not known if this is achievable. The analysis, at any rate, assumes revenues to the SPV based on Finnish gas prices.

The financial contribution of the composting activities to the viability of the SPV will not compensate for the financial weaknesses of the digestion/compression/gas sales activities.

- **The compressed biogas with incineration option** may be viable. The issue of biogas commercialisation, as above, will have an impact on this solution as well. However the commercialisation of the digestate ash, assumed to be for the same selling price as in the incineration alone solution, will compensate for the weaknesses in the compressed biogas activities. But again it must be remembered that the ash selling price is calculated to make the incineration alone solution viable.

If this ash price is not achievable, and/or if the Finnish gas price is not permitted by the pipeline operator, this option will also not be viable.

- **The biogas liquefaction and incineration of the digestate option** will not be viable. The investment cost will be too large for production volumes, which will be small, for this investment to pay for itself. If the costs of developing an export terminal for liquefied biogas could be off loaded onto another investment, allowing thus the SPV simply to use the terminal as a shipper of cargo, the viability of the investment would be greatly enhanced. However as long as Russia continues to build pipelines westward to export gas, it seems unlikely that a liquefaction and LNG export terminal will be developed on the Baltic coast of Russia.

At the same time, the incineration of the resulting digestate, even if the ash is commercialised at the computed price as above, will not compensate for the very weak liquefied biogas activities.

Environmental impacts will mostly be related to biogas production and incineration of poultry manure. Other possible technical solutions addressed in this Generic Business Plan are of minor importance from the perspective of their environmental impact.

All of the solutions will require increased transport by road, of the manure itself and of some of the product outputs of treatment. This will mean more lorry traffic, and so more emissions to air from the lorries. However these emissions will be localised and minor. Similarly, impact from composting of manure or digestate will mostly be limited to malodorous compounds emitted to air. However these can be dealt with by capturing ventilation air and cleaning it.

From incineration, filtering and scrubbing of emissions will remove particulates and flue gases, rendering very slight the environmental impact. On the other hand the ash remaining from incineration, which has beneficial use, should be granulated to avoid dust issues.

1. INTRODUCTION

This business plan examines various possible solutions for the final disposal of relatively large amounts of poultry manure waste. With the annual amount of waste produced in Leningrad region being on the order of 1 million tonnes, the examination undertaken in this business plan is of solutions for disposing of 200 000 tonnes per annum.

The possible solutions examined:

- Incineration and commercialisation of the ash in Russia;
- Digestion, biogas compression for sale in Finland, and composting of the digestate;
- Digestion, biogas compression for sale in Finland, and incineration of the digestate;
- Digestion, biogas liquefaction for sale in Sweden, and incineration of the digestate.

required investment ranging from almost €40 million to almost €200 million, depending on the chosen solution. Because of this, the poultry farms will need to find considerable financing support/partners in order to realise the investment project, whichever it might be. Significant infrastructure will have to be developed in all cases.

A considerable part of the projected investment costs for the digestion options, whether for compression and sale to Finland or liquefaction and sale to Sweden, arises because of the lack of viable options in the domestic energy market. Natural gas prices are administratively depressed in the Russian Federation, as is the price of electrical power. Biogas produced with the intention of being commercialised in the domestic energy market must be able to meet these prevailing prices. If this is not possible, then the owners of the investment project must consider the options of realising world market prices by means of exporting the biogas. But to export requires considerable extra infrastructure. Thus the elevated investment costs. In the digestion options considered in this business plan the world market price option is considered, and not the domestic market price.

As noted, four technological solutions are examined for the final disposal of the manure:

- Incineration with the intention of significant volume reduction down to about 20 000 t/a ash, and selling this phosphorus (as well as some potassium) containing raw material to one or several main mineral fertiliser producers in Russia.
- A digestion solution to produce biogas for compression and sale in Finland. Approximately 190 GWh/a, i.e. 20,2 million Nm³/a of upgraded gas, will be produced this way. This gas will be delivered to Finland via existing pipelines. The digestate will be either composted or incinerated;

- A digestion solution where the biogas is liquefied for export by sea to Sweden. In this solution a liquefied biogas loading terminal needs also to be included in the investment cost. Approximately 15 100 t/a of liquefied biogas will be produced. The digestate will be incinerated.;

Investors (except NEFCO) for these possible solutions are not identified in this business plan. It is assumed that such investors could primarily be identified in the future through the contacts of NEFCO in Russia or by other interested parties. Rather, this BP examines the technical and financial viability of the proposed technical solutions.

As far as environmental impacts are concerned, they are mostly related to biogas production and incineration of poultry manure. Other possible technical solutions addressed in this Generic Business Plan are of minor importance from the perspective of their environmental impact.

- All of the large-scale alternatives identified here for the treatment of poultry manure require prior transportation of the manure to treatment sites, and the transportation of the product of treatment after treatment. This will cause increases in traffic of lorries to and from the large-scale treatment sites, as well as localised emissions to air with minor local importance.
- With respect to biogas production, the reception and subsequent composting of digestate are potential sources of malodorous compounds emitted to air. These air emissions can be mitigated by arranging the reception under a covered area (usually in a hall) with proper ventilation. The treatment of ventilation air exhaust can be arranged with dedicated bio-filters, which are widely applied at biogas plants. The same applies to the pre-treatment hall and digestate extraction, eventual water separation, and post-composting operations. All of these unit operations can have their exhaust air captured and treated.
- For poultry manure incineration the principles for emission control of reception hall and pre-treatment hall ventilation are the same as described above regarding exhaust air treatment of biogas reception and pre-treatment. For the incineration process itself, and the flue gases generated from the furnace, there must be emission control equipment installed to remove impurities. Of particular concern are impurities such as particulate matter and nitrogen oxides. Emission control equipment typically consists of a combination of fabric filters and flue gas scrubber. Flue gas emissions should meet the respective Russian air pollution control standards for installations of this type. When such equipment is installed, the remaining impact to the ambient air is very small.
- The beneficial use of solid material output is different with biogas and incineration plants. Composted digestate is used in agriculture and spread on the fields as fertiliser material containing nitrogen, phosphorus and potassium. It is not a source of malodorous air emissions if the composting method and time requirements are properly designed and applied. Ash from incineration, on the other hand, is also used in a beneficial way as it contains phosphorus and potassium. Ash can and should be granulated to avoid dust emissions while being spread on agricultural land.

The use of both digestate and ash products require product certificates from Russian authorities. In order to get these certificates producers must

demonstrate, with appropriately and extensively measured composition solubility and cultivation tests, that the products are safe from the environmental and occupational health points of view. If this can be shown, i.e. if a producer is granted a certificate, the environmental impacts of the use of these products are very small.

2 PROJECT OWNER

The owner of the project is assumed to be a special purpose vehicle/company (SPV) created for this investment. The likely characteristics of the shareholders of the SPV are identified in section 2.2, below, and the project owner, “the SPV”, in section 2.1, also below.

2.1 Borrower/Investors

The investment costs in this case are projected to be approximately:

- Euro 77 million for the incineration alone option;
- Euro 44 million for a digestion option with composting of the remaining solid;
- Euro 107 million for a digestion option with incineration of the remaining solids;
- EURO 178 million for shipping liquefied biogas to Sweden with incineration of the remaining solid.

For the purpose of this study a simplified financing plan has been prepared assuming mainly international financing sources for project financing. Eventually, the investors and lenders might just as well be Russian banks, and/or public investment subsidies, or stakeholders interested in end products such as biogas or green electricity. Because of the scale of these investments, a financing plan incorporating NEFCO plus other owners of the SPV, one or more poultry farms, and possibly various technology suppliers, will likely be insufficient. As a lender, NEFCO is limited to lending €5 million. As the investments in these possible solutions are so large, another International Financing Institution (IFI) will also need to involve itself. For the purposes of this BP, we will refer to foreign concessional financing, which could include participation of the EBRD, the NIB, EIB, IFC, etc. (in addition to NEFCO), as IFI financing.

Of the potential IFI candidates, most will limit their lending to 50% of the total investment cost. Therefore the IFI lending to the investment is limited to the total investment cost times 50% plus €5 000 000 (which is NEFCO’s maximum.)

The borrower of the IFI credits will be the SPV, which will be set up to be the legal body which will own the installations.

The SPV will be a company established under Russian Law and will be registered in Leningrad Oblast. It will be a ZAO or OOO company type, both of which equate in English roughly to semi-closed private companies.

2.2 Owners of the Borrower

The owners of the borrower are the following:

	Shareholder	Share
	Investor 1 – Quite possibly one or several of the larger poultry farms	50 %
	Investor 2 – An equity partner which could bring technological assets or expertise to the investment, or simply a financing partner.	50 %
	Total number of shareholders (However this is extremely flexible. Other shareholders would also be able to contribute to the investment in various ways.)	2

2.3 Location

The location of the project could be, for example:

- Somewhere in the south-western part of Leningrad oblast
- Somewhere in the northern part of Leningrad oblast near one or several of the major poultry farms at Sinyaviskaya, Severnaya or Roskar.
- For the alternative involving the liquefaction of the biogas, proximity to a port would be preferable. Port infrastructure requirements include the ability to store and load liquefied biogas.

For all of the alternatives, it would be relatively efficient to collect and transport the poultry manure from 2 to 4 major and medium-size poultry farms from a distance equivalent to what these farms are currently transporting most of their manure (and disposing it free of charge to agricultural land or temporary storage facilities close to the farm). This is why it is not expected that the poultry farms would pay any gate fees (which is the common practice elsewhere in the world) for the incineration and volume reduction of their manure. But it is reasonable to expect that they would cover the cost of transporting the manure up the incineration or digestion plant.

Since the poultry manure incineration requires a continuous supply of support fuel, which has been assumed here to be primarily natural gas or biogas, and it would make a lot of sense to utilise the heat and power generated from the incineration at an industrial operation. In the alternatives without on-site biogas production, the plant is assumed to have a natural gas connection to the site readily available, otherwise an additional investment for natural gas supply to the site should be added in the investment calculation.

On the other hand the technical solution which assumes the liquefaction of the biogas should be situated, as noted, near a port. A preferred solution is to transport liquefied biogas only short distances by road, because of the need of special purpose built trucks and their limited availability. A risk to public safety is minimal, when proper equipment and safety precautions are used.

Similarly, if a suitable port with suitable infrastructure for loading liquefied gas is not available, as is in fact the case, the investment cost for creating such infrastructure must also be considered

3 MARKET OVERVIEW

The current situation, and future potential of the Russian fertilizer, market can be summarized by dividing it into various areas as follows:

- **Incineration of manure** Mineral fertilisers, to which manure ash is added: highly consolidated, well established and growing market; widely exported product. Russian producers enjoy an 11% share of global production, while consumption in Russia represents some 2% of global consumption (9.5 and 1.5 BEURO respectively in 2008).
- **Incineration of manure** "Branded" organic and mineral-organic fertilisers: low consolidation; low volumes (turnover under 0.2 BEURO in Russia in 2008); growing market; business to consumer mostly, in small sized packaging. Entering the market requires a heavy commitment to marketing of the product. Export to other regions/countries would be highly desirable.
- **Incineration of manure** Bulk organic fertiliser production, of which ash: consolidation is low while integration (farm+field) is not uncommon; locally traded product; bulk transportation. Cost of transportation puts limits to export to other regions/countries. Growing market in Europe.
- **Digestion and biogas sales to Finland** Biogas, when sufficiently cleaned and upgraded, has properties similar to natural gas. Therefore the propose investment project will link the biogas production to the existing gas pipeline to Finland for sale in that country.
- **Liquefied biogas sales to Sweden** Liquefied biogas will be exported to Sweden – to the terminal at Nynäshamn. It is expected that the total production, of approximately 15 000 tonnes of liquefied biogas per annum will be absorbed completely by the Swedish market. Ash resulting from the incineration of digestate will be treated as per the incineration points above.
- **Composted digestate.** After digestion, with the gas sent either to Finland or Sweden, the residue can be composted. With additive, production can be up to 200 000 tonnes of compost material. Approximately 50% could go to St Petersburg for urban landscaping, parks, green spaces, etc. The rest to other urban areas and/or as bulk to larger scale agriculture.

In 2009 the Central, South and Volga regions together represented 88% of Russia's mineral fertilizer consumption. Consumption in the Northwest region of Russia, where Leningrad Oblast is situated, was only about 2%.

The total fertilizer consumption of the Northwest region as nutrient content was 0.12 million tons in 2009. The consumption of mineral fertilizers in 2007 in Leningrad region (representing part of the Northwest region) was 1 350 t/a phosphorus and 6 340 t/a nitrogen. This total fertiliser phosphorus consumption is about the same order of magnitude as is the approximate amount of total phosphorus (1 250 – 1 500 t/a depending on the moisture content of the manure) which is contained in 200 000 t/a of poultry manure. Nevertheless, the potential markets of mineral fertiliser products manufactured from ash of manure incineration extend far outside the Leningrad Region.

4 INVESTMENT PROJECT

4.1 Justification for the proposed technical solution

The technical solution(s) adopted have been chosen for the following reasons:

Digestion and biogas liquefaction:

- Digestion and the commercialisation of the resulting bio gas to energy markets, either as gas or as electricity, is an outcome which is usefully applied in many places. However with the energy prices distorted in the Russian Federation as they currently are, the viability of the conversion of bio gas into energy in Russia in the present project is to be questioned. Fortunately, a natural gas pipeline to Finland runs thorough Leningrad region to the north of the Gulf of Finland. This allows access to the international market.
- A newly online (since May 2011) liquefied natural gas (LNG) terminal at Nynäshamn, Sweden provides a ready client for the liquefied biogas which pays world market prices.
- Following digestion and the liquefaction of biogas, the remaining digestate will be disposed of as compost product or incinerated.

Incineration:

- There is some experience of the technology and operation of poultry manure incineration during the last 20 years.
- Availability of other required inputs and resources (relatively dry manure, energy for drying and competent labour for operation of the plant).

4.2 Proposed investment

4.2.1 Incineration of Poultry Manure

The investment in incineration would consist of the following main elements:

- Reception hall for untreated poultry manure, pre-screening equipment and conveyors to pre-drying of manure;
- Drying drum and conveyors to incineration;
- Incineration of manure with heat and electrical power generation and flue gas cleaning equipment;
- Bottom ash and flue gas cleaning ash extraction and bulk storage of ash;
- Loading system for ash to trucks for road transportation.

The investment for poultry manure incineration will be comprised of the following main cost categories:

Investment cost € fixed assets	75 000 000
Investment cost, €design & engineering	1 200 000
Investment cost, €project management	900 000
Initial working capital requirement, €	0
Total Investment Cost €	77 100 000

4.2.2 Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Composting of Solid Output

The investment in digestion, biogas cleaning and compression, connection to the existing pipeline, and facilities to compost the digestate, would consist of the following main elements:

- Reception hall for untreated poultry manure and other organic waste (such as cattle manure, pig manure or similar organic waste from agriculture) as additional feedstock, pre-screening equipment, mixing equipment for different incoming material streams and conveyors to digestion process;
- Anaerobic digesters for the production of biogas;
- Biogas cleaning equipment to reduce the amount of e.g. carbon dioxide, sulphur and water;
- Prior biogas compression (to approximately 65 – 70 bar pressure) for the pipeline transportation of biogas via Gazprom gas pipelines to Gasum Oy's pipeline in Finland;
- Composting of the solid output of the biogas plant with a combination of tunnel composting and windrow composting;
- Storage for bulk compost product.

For the digestion and digestate composting option, the investment will be comprised of the following main cost categories:

Investment cost € fixed assets	42 000 000
Investment cost € design & engineering	700 000
Investment cost € project management	500 000
Initial working capital requirement, €	770 000
Total Investment Cost €	43 970 000

4.2.3 Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Incineration of Solid Output

The investment in digestion, biogas cleaning and compression, connection to the existing pipeline, and facilities to incinerate the digestate, would consist of the following main elements:

- Reception hall for untreated poultry manure and other organic waste (such as cattle manure, pig manure or similar organic waste from agriculture) as additional feedstock, pre-screening equipment, mixing equipment for different incoming material streams and conveyors to digestion process;
- Anaerobic digesters for the production of biogas;
- Biogas cleaning equipment to reduce the amount of e.g. carbon dioxide, sulphur and water;
- Prior biogas compression (to approximately 65 – 70 bar pressure) for the pipeline transportation of biogas via Gazprom gas pipelines to Gasum Oy's pipeline in Finland;
- Drying drum for solid material from biogas production and conveyors to incineration;

- Incineration of manure with heat and electrical power generation and flue gas cleaning equipment;
- Bottom ash and flue gas cleaning ash extraction and bulk storage of ash;
- Loading system for ash to trucks for road transportation.

For the digestion and digestate incineration option, the investment will be comprised of the following main cost categories:

Investment cost € fixed assets	104 000 000
Investment cost € design & engineering	1 700 000
Investment cost € project management	1 300 000
Initial working capital requirement, €	0
Total Investment Cost €	107 000 000

4.2.4 Digestion, Biogas Liquefaction Investment and Port Installations Investment for transportation of Liquefied Biogas, Incineration of the Residue

The investment in digestion, biogas cleaning and liquefaction and storage of liquefied biogas at a selected port would consist of the following main elements:

- Reception hall for untreated poultry manure and other organic waste (such as cattle manure, pig manure or similar organic waste from agriculture) as additional feedstock, pre-screening equipment, mixing equipment for different incoming material streams and conveyors to digestion process;
- Anaerobic digesters for the production of biogas;
- Biogas cleaning equipment to reduce the amount of e.g. carbon dioxide, sulphur and water;
- Biogas compression and liquefaction (to approximately – 160 degrees centigrade temperature) prior to an interim on-site storage, and loading and transportation of liquefied biogas with special liquefied natural gas trucks to the export storage at port in the region which is suitable for oil and gas exports;
- Liquefied biogas storage in a port with capacity of 20 000 t, as well as equipment for unloading from trucks, and pumping and loading to special liquefied natural gas vessels for sea transport;
- Drying drum for solid material from biogas production and conveyors to incineration;
- Incineration of manure with heat and electrical power generation and flue gas cleaning equipment;
- Bottom ash and flue gas cleaning ash extraction and bulk storage of ash;
- Loading system for ash to trucks for road transportation.

For the digestion and biogas liquefaction option, incorporating incineration of the digestate, the investment will be comprised of the following main cost categories:

Investment cost € fixed assets	172 000 000
Investment cost € design & engineering	3 400 000
Investment cost € project management	2 500 000
Initial working capital requirement, €	50 000
Total Investment Cost €	177 950 000

4.3 Procurement principles

The procurement will be handled by the SPV under the direction of its management and operators. Where feasible, acceptable competitive tendering practices will be applied.

Where specific technologies are required for which specific branded items are deemed to be necessary, these items will be procured on a shopping basis from competent and professionally proven suppliers.

5 PROJECT RISKS

The risks to the project are of two general varieties: technical risk and financial/economic risk associated with socio/political risk.

5.1 Technical Risk

5.1.1 Incineration Investment

There are few incineration plants that have been constructed for poultry manure since early 1990s. The main manufacturers of such plants are, according to the contacts taken during this project, not very keen to supply plants of such small volume capacity as for poultry manure. Therefore, there are only 2 – 3 serious West European suppliers which are available to supply technology for this market segment. Each of them have manufactured until now only a few boilers for poultry manure incineration, and hence the number of reference plants is relatively small.

Therefore, the technology risk can be considered moderate due to the fact that there are relatively few comparable reference plants using fuel and grate firing or fluidised bed technology.

In addition, the ash from incineration of poultry manure is classified as ash from waste incineration. The beneficial use of this ash requires relevant permits in Russia, which probably require extensive testing and analytical work before all required permits will be granted. These procedures imply also a time schedule risk due to unforeseen delays.

5.1.2 Digestion Investment

The digestion of poultry manure would require approximately one third of other organic waste as feedstock, in order to have stable operations of the digestion and biogas production. The sourcing of all this material is possible from the study area, but there might be some problems to collect the full volume needed, i.e. about 100 000 t/a cattle manure or pig manure. In order to reduce this risk, it is assumed in the calculations, that the cattle and pig farms would not pay anything for the digestion of their material.

Another risk is the disposal and beneficial use of the solid material generated at the biogas plant, which is the order of magnitude to 300 000 t/a. It has turned out in connection with the other business plans of this project, that beneficial use of solid material volumes at the scale of 50 000 t/a would require a special sales and marketing skills and efforts. As the current market demand is approximately

50 000 t/a, this doubling of supply would require a significant increase in demand to absorb it all.

5.1.3 Digestion, compression and pipeline transfer of biogas

In addition to the risks mentioned in section 7.1.2 related to digestion, the compression and pipeline transfer would involve the following risks:

- The compression of biogas requires heavy duty compressors, which can be out of operation. This risk can be mitigated by installing redundant compressor capacity, and having adequate spare parts on site and/or investing in gas bell;
- The pipeline routing and permitting can create significant delays and hurdles as the location of the plant is unknown. The possibility of utilising Gazprom's pipeline is at present unknown.

5.1.4 Biogas Liquefaction Investment

In addition to the risks mentioned in 7.1.2, the liquefaction and transport of liquefied biogas would have several other types of risks. The liquefaction technology is technically more demanding and complex, it entails significant fire and explosion hazards and the transportation requires special liquid natural gas trucks. For example vehicles which transport liquefied but inert nitrogen or other non-explosive gas would not be suitable for these liquefied biogas transports.

The liquefaction needs a heat transfer medium, which in this case is assumed to be liquid nitrogen. The availability and transferability of liquid nitrogen needs to be addressed carefully in further project development. Furthermore the removed CO₂ and other components need to be stored and transferred. Special equipment and precautions are needed to handle these.

5.1.5 Port Terminal Investment

The storage, loading and unloading systems at the port where the liquefied biogas would be stored before shipped out from Russia would require dedicated areas at ports, which are classified in land use planning and port operation for gaseous / liquefied gas storage. These types of areas would more probably be available only in oil and gas ports like Primorsk or major new ports like Ust-Luga, but most probably not like ports of Vyborg or St Petersburg, where also the proximity of residential areas might limit the location of liquefied gas storage and handling.

5.2 Financial/Economic & Socio/Political Risk

Financial/economic risk centres on the ability of the SPV to commercialise its product, namely ash fertiliser delivered in bulk form to mineral phosphorus fertiliser producers, and/or biogas to Finland, and or liquefied biogas delivered to the LNG terminal at Nynäshamn, Sweden, and/or compost product.

While demand for ash fertiliser is currently not very high, it is tempered by the fact that mineral fertiliser is highly subsidised in the Russian Federation. Because the parties with an interest in the subsidies include the corporate mining sector, an

influential lobby group, it is thought unlikely that these subsidies will be reduced or removed in the near term future. The same market constraint applies to compost fertilizer products.

The transport costs via Gazprom's pipeline to Finland are unknown (and estimate at €0.10/Mn3). It should be noted there is a good possibility that Gazprom will not allow the biogas into its pipeline against the payment of transport cost only. In this case, Gazprom would likely require that it purchase the biogas from producer and sell it to Finland to Gasum Oy itself.

With respect to liquefied biogas, financial risk is associated with the costs of landing the biogas at its designated marked (Sweden) at a still competitive price. Currently the LNG terminal is receiving LNG by sea from Norway. The investment must be able to land liquefied biogas of similar quality as the Norwegian LNG at a similar cost.

A second component of financial risk for the investment, and therefore for financiers arises with the general country risk associated with the Russian Federation, and with attendant exchange risk. Foreign financing of an investment in the SPV, either through debt or through equity, will in the final analysis have to be realised in Roubles. However remuneration of foreign financing will have to be made in EURO. A foreign financier can either take on the exchange risk directly, or, as a primary financier of the SPV, indirectly. By pushing the primary exchange risk on to the recipient, the SPV, a foreign financier will to some degree at least undermine the viability of the company. This will have some affect on the ability of the company to compensate the foreign financier for its financing, and so push some of the risk back to financier.

A general country risk as above, and specifically the foreign exchange risk identified, will affect any possible external financier, either shareholder or creditor.

Otherwise general commercial risk related to projected production and revenues, and to projected investment and operating costs, for each possible investment project also exist. It is strongly recommended that any investigation by a potential investor into any of these investment options also include a full and proper assessment of all of the commercial conditions of each of the potential projects.

6 FINANCIAL ASSESSMENT

6.1 Assumptions of the analysis

Assumptions of the financial assessment can be divided into two general categories:

1. Assumptions related to the operating environment outside of the SPV. These include assumptions in respect of the operations of the various and related infrastructures and of the demand for the products of the different possible solutions..
2. Assumptions internal to the operations of the SPV.

These can be further divided into the relative sub-sectoral areas of interest, i.e.: digestion and the production of liquefied biogas; composting; and incineration.

6.1.1 Assumptions in respect of the operating environment of the SPV

Production quantities at the company will be determined by the manure available. It is assumed in the analysis that 200 000 t/a of poultry manure will be available.

Digestion, bio gas and liquefied bio gas production

- Energy – The biogas produced by 200 000 t/a of manure will be approximately 190 GWh/a
- Volumes – The biogas produced by 200 000 t/a of manure will be 27 500 000 Nm³ after digestion, and 20 200 000 Nm³ after upgrading.. The coefficient by which upgraded bio gas (measured in m³) is reduced to liquefied biogas (measured in tonnes) is 1/1330;
- All of the compressed bio gas will be transported to Finland for sale, and all of it will find a market in Finland.
- All of the liquefied biogas to be produced will find a market in Sweden;
- The selling price for the liquefied biogas in Sweden identified in the analysis is CIF, Nynäshamn.

Incineration

- Incineration reduces the manure mass by a factor of 10 – from 200 000 tonnes of manure to 20 000 tonnes of ash;
- Demand for ash fertilizer product in Russia will be sufficient to absorb all of the company's production. All deliveries of ash fertilizer product to clients will be in bulk form and can be transported with trucks transporting boiler ash.
- The bulk ash product of the SPV" will be sold to clients Free on Truck (FOT) at the company's factory gate. Therefore transport costs of the final product to the customer are not included in the financial assessment.
- VAT on the selling price of the company's product is also not included in the selling price.

6.1.2 Assumptions in respect of the of the SPV's operations

- The assessment is made in constant current year EURO. A deflator is applied only to future depreciation charges so as to bring them to current year EURO.
- For items first priced in RUB, the exchange rate used, as of end March 2011, is EURO 1 = RUB 40.
- Investment costs break down (as per the cost categories presented above).

- IFI financing, on a credit basis, will be equivalent to the total investment cost times 50% plus €5 million. This is because most IFIs limit their participation in any given investment to 50% of the total investment costs. NEFCO, which has a similar rule, puts a total cap of € 5 million on any investment it participates in. Therefore, assuming two IFIs participate, one of which is not NEFCO, a 50% plus €5 million limit is applied.
- The loan conditions for all IFI credits will be identical.
- Equity partners, Investors 1 and 2, will respectively finance part of their share by equity and part by shareholders' loans. For each the equity contribution will be exactly the same, and for each the size of the shareholders' loans will also be exactly the same. The loan conditions for both shareholders' loans will be identical.
- Russian legislation in respect of depreciation, on a straight line basis, applies:
 - Civil works – 2.5% per year, or 40 years to full depreciation
 - M&E – 14.3 % per year, or 7 years to full depreciation.
 - Non-fixed assets investment components (design and engineering, project management, initial working capital) are depreciated on a pro-rata basis with fixed assets.
- Note that the replacement of M&E assets in year 8 is not considered in the assessment. Therefore the internal rate of return (IRR) calculation, which also takes into account the residual value of the fixed assets at the end of the assessment period, is made at the end of year 7. This is also when the IFI credits will reach maturity. A second IRR calculation, which calculates to year 15, is undermined by the lack of consideration of the need to renew assets.
- Debt terms and conditions:
 - IFI credits:

Grace (principle only), years	2
Repayment, years	4
Interest rate	7.5 %
Administration fee	1.5 %
Commitment fee, on undisbursed amount.	0.5 %
 - Shareholders' loans (identical for both):

Grace (principle only), years	2
Repayment, years	5
Interest rate	7.5 %
Administration fee	1.5 %
Commitment fee, on undisbursed amount.	0.5 %
- Initial working capital requirement is financed as part of the investment cost. Working capital assumptions are :
 - Accounts receivable, average payment - 35 days declining to 30 days;
 - Accounts payable, average payment – 35 days;
 - Stock turnover – 35 days
 - Advance payment – 1% of sales increasing to 3%

- Ash fertilizer sales price, EUR 1 050/tonne, is a FOT price at the installations of the ash fertilizer seller, the SPV – exclusive of VAT. (Computed price to ensure viability.)¹
- The landed (CIF) price of liquefied biogas at Nynäshamn, Sweden, is €460/1000Nm³ of gas, which translates to €588/tonne of liquefied biogas.²
- The selling price of compressed natural gas in Finland is €400/1000Nm³.
- Green feed in tariffs are not an issue in the current assessment. This is for two reasons:
 - The products or outputs arising from the investment which enter in the energy market, compressed or liquefied bio gas, will be commercialised abroad – in Finland and Sweden respectively.
 - At any rate in Russia green tariffs are not yet operational. Legislation since 2007 (Federal Law No 35 "On electroenergetics" of 26.03.2007 (as amended 4.11.2007) / *Федеральный закон N35 "Об электроэнергетике" (с поправками от 4 ноября 2007 г.)*) permits the applying of green tariffs in certain conditions, including for the generation of power from biofuels. However the regulations of the legislation have not yet been fully promulgated such that green tariffs are not yet fully defined, and so not implemented.
- No gate fee is assumed to be charged to farms/manure producers because of the very low willingness to pay such a gate fee, on top of the farms' requirement to pay the raw manure transportation costs: that is from up to 50 – 60 km or more distant from the SPV. While this assumption is inconsistent with international practice, and means that the polluter pays principle is not strictly adhered to, it is made so as to provide further incentive to the polluting farms to participate. As the incentives arising from environmental legislation for the farms to properly dispose of their manure are weak, the farms must be enticed into participating in this environmental project by various means. One of these means is to keep their costs of participating limited, where possible.

6.2 Financial projections

See attached financial models – Appendices I - IV

6.3 Affordability from the poultry farms' perspective

Most poultry farms are paying currently about 7 Euros/tonne of manure for simple storage and treatment as well as transportation of manure up to about 60 km to agricultural lands.

Because the intended location of the manure incineration is within an average distance of about 60 km from the supplying poultry farms, manure producers

¹ The price difference, between the price computed for ash to make the incineration option viable, and the current price of phosphorus in Finland as an indicator, €150/tonne, is so great that it is not realistic to expect that market mechanisms by themselves would bridge the gap. Non-market mechanisms, for example a subsidy of the ash price, or the removing of distortions in the price of phosphorus by lifting the subsidies to mineral fertiliser producers, would be necessary

² Assumption is Norwegian LNG from Snøhvit gas field (properties 0,782 kg/m³ (gas) and 449 kg/m³ (LNG)).

would not pay more than they are currently paying for manure storage and transport. This is because less storage cost at their farms will be incurred, and because somewhat reduced transportation costs will be realised because bigger trucks can be used to supply incineration than are used to supply manure to agricultural land (because of the small farm roads which are the access routes to agricultural land). Therefore, the costs of manure handling would, in this case, be roughly the same as at present, or at least not greater than at present, and can be considered affordable from the poultry farms' perspective.

In the unlikely case that the manure incineration would be located at one of the farms supplying manure, the costs to the farm would be the same, since then it would be expected that this farm would pay a corresponding 7 Euros/tonne gate fee to the investor in manure incineration. This should be done in order to keep the terms of supply for all poultry farms roughly equal.

6.4 Profitability of the final disposal alternatives

6.4.1 Manure incineration without biogas production

With the assumptions as given above and in Appendix I, specifically:

- the projected investment cost - €7 million:

Investment cost € fixed assets	75 000 000
Investment cost € design & engineering	1 200 000
Investment cost € project management	900 000
Initial working capital requirement, €	-910 000
Total Investment Cost €	76 190 000

- projected O&M costs once production is at full capacity :

	Constant Year 1 Euro
Labour and Power €/a	1 100 000
Chemicals €/a	Chemicals €/a
Manure intake, tonnes/a	200 000
Transport of ash fertilizer product, €/t for 125 kms	0,0
Maintenance, annual % of original invest costs	2,5 %

- the manure ash selling price demand - €1 050/tonne (constant Year 1 Euro)³

the investment will be able to sustain itself. By year 7, under these conditions, the Internal Rate of Return on the investment will be 7%, which is equivalent to the discount rate required to make the Net Present Value equal to 0 by the same time.

The calculation of IRR and (net present value) NPV beyond year 7 is made in the Indicative Financial Statements of the Appendix I. However these calculations are undermined beyond Year 7 because of the lack of inclusion, after year 7, of the investment required to replace the Mechanical and Electrical fixed assets which will fully depreciate by then. Thus any IRR or NPV calculated beyond year 7 will be knowingly optimistic. On the other hand factoring into the model new M&E

³ See Footnote 1, above.

investment in year 8 would require information on financing terms and conditions, etc, which are not available. Thus conclusions on the financial viability of the investment are limited to year 7.

The financial ratios for the investment, calculated also in constant year 1 Euro until year 7, are as follows:

		Year	1	2	3	4	5	6	7
Operating Income	Euro		9 175 000	17 397 909	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000
Operating Margin	%		87,4 %	82,8 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %
EBITDA	Euro		13 152 912	21 578 584	20 526 376	20 397 077	20 267 778	20 138 478	20 009 179
Return on Investments	%		110 %	152 %	38 %	62 %	71 %	81 %	95 %
Debt Service Coverage Ratio	Ratio		3,3	3,9	3,8	1,0	1,0	1,1	1,2

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

Under the financing conditions laid out above, the investment would be viable.

However, it must be remembered that this assessment is made using a manure ash selling price which has been fixed so as to make the investment viable. Whether this selling price will be accepted by the market, as well as the terms of delivery, i.e. at the factory gate of the SPV, is presently not confirmed.

6.4.2 Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Composting of Solid Output

With the assumptions as given above and in Appendix II, specifically:

- The projected investment cost - €14 million:

Investment cost € fixed assets	42 000 000
Investment cost € design & engineering	700 000
Investment cost € project management	500 000
Initial working capital requirement, €	770 000
Total Investment Cost €	43 970 000

- Projected O&M costs once production is at full capacity :

Constant Year 1 Euro

Operating Costs - Digestion, Gas Transport	
Labour and Power €/a	1 900 000
Chemicals €/a	0
Manure intake, tonnes/a	200 000
Transport of compressed gas to Finland, €/m ³	0,5
Annual Operating Costs (from year 2) Composting	5 960 000
Maintenance, annual % of original invest costs	2,5 %

The most important issue with this alternative is if the SPV can achieve direct access to the Finnish market for gas sales. It is not clearly understood at the time

the of the elaboration of this business plan if the pipeline operator would allow the SPV to use existing pipelines as a transport means only, or if the operator would require the SPV to sell it the biogas at Russian market prices, and then resell the gas in Finland at Finnish market prices. If the SPV is obliged by the pipeline operator to sell the biogas in the Russian market, biogas sales revenues will decline by 75%

The assumption is made in the analysis that the SPV will be able to achieve direct sales in Finland, and thus treat the pipeline simply as a transport service. Therefore in the analysis a Finnish market sales price is used to calculate the revenues of the company, and a transport cost (by pipeline - €0.10/Nm³) is charged to operating costs.

200 000t/a of manure will create 20.2 million Nm³ of sellable biogas per year. This is the amount which will be transported. It sells in Finland at a net price of €400/1000Nm³.

Otherwise composting O&M costs, as well revenues, are assessed from the previous composting business plan's estimations, scaled up to 200 000t/a of manure from 51 000t/a in the composting business plan. As a result, the projected revenues for the composting operations, once full capacity utilisation has been reached, is €7.8 million per year, as against O&M costs of €6 million per year (excluding depreciation and debt service).

While Appendix II presents the whole of the model for this alternative, the analysis suggests the in this combination (digestion, gas to Finland, composting of residue) the project will not be viable. Revenues will not cover all costs, including depreciation and capital costs, and until the 7th year the project will return a negative IRR and NPV. Revenues would need to increase by more than 60% in order for this investment project to reach viability. (Viability is defined as an IRR of 7%, i.e. the opportunity costs of capital, and/or the discount rate used in the NPV calculation.)

The financial ratios for the investment, calculated also in constant year 1 Euro until year 7, are as follows:

		Year	1	2	3	4	5	6	7
Operating Income	Euro		-1 075 000	-2 687 893	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696
Operating Margin	%		-26,6 %	-33,3 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %
EBITDA	Euro		1 200 498	-300 300	6 902 445	6 828 602	6 754 759	6 680 916	6 607 073
Return on Investments	%		47 %	49 %	20 %	39 %	46 %	56 %	70 %
Debt Service Coverage Ratio	Ratio		0,0	0,0	1,5	0,4	0,5	0,5	0,6

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

6.4.3 Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Incineration of Solid Output

With the assumptions as given above and in Appendix III, specifically:

- The projected investment cost – approximately € 107 million, which breaks down as follows:

Investment cost € fixed assets	104 000 000
Investment cost € design & engineering	1 660 000
Investment cost € project management	1 250 000
Initial working capital requirement, €	290 000
Total Investment Cost €	107 200 000

- Projected O&M costs once production is at full capacity in biogas production and digestate incineration are as follows:

Constant Year 1 Euro	
Operating Costs – Digestion, Gas Transport	
Labour and Power €/a	1 800 000
Chemicals €/a	200 000
Manure intake, tonnes/a	200 000
Transport of cattle manure (100 000 t/a) 60 kms	5,0
Incineration costs at year 3 (per Appendix I)	4 525 000
Maintenance, annual % of original invest costs	2,5 %

This investment option suffers from the same general uncertainty in respect of bio gas gaining direct access to the Finnish market as does the digestion and composting option in section 8.4.2, above. That is, it is uncertain whether or not the pipeline operator would permit the SPV to use the pipeline simply as a means of transporting biogas to the market. As with the previous alternative, however, the assumption is made that such access can be gained, and that the SPV can achieve a selling price of €400/1000Nm³ – less transport costs.

In the second component of this alternative, the incineration of digestate residue rather than its composting, investment costs are considerably higher than in the composting alternative. However operating costs are, relatively, lower, and the resulting manure ash, while only 10% of the mass of the original manure, is assumed to sell for a much higher price than compost product. (The assessment uses the same values for inputs variables related to incineration as in Appendix I). The results of the analysis for this option are much more positive.

Appendix III suggests the IRR of the investment will be positive by year 7, that is above 0, but it will not reach the opportunity cost capital used. Nor will it reach, therefore, the discount rate applied in the NPV calculation. This suggests that under the conditions assumed in the analysis, the investment will be able to sustain itself. However it also suggests that investors hoping to maximise their returns would be better off putting their capital elsewhere. Better results can be achieved.

It should be noted that the results of this alternative are worse than of the option of incineration alone. This suggests that in addition to having some questions regarding whether direct bio gas sales to Finland can even be realised, there must also be a concern as to the viability of this of direct bio gas sales to Finland.

The financial ratios for the investment, calculated also in constant year 1 Euro until year 7, are as follows:

		Year	1	2	3	4	5	6	7
Operating Income	Euro	10 852 500	20 384 346	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000
Operating Margin	%	74,6 %	70,1 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %
EBITDA	Euro	14 172 940	24 490 927	23 084 573	22 957 566	22 830 558	22 703 550	22 576 543	22 576 543
Return on Investments	%	124 %	144 %	31 %	42 %	46 %	49 %	53 %	53 %
Debt Service Coverage Ratio	Ratio	2,4	3,0	2,9	1,0	1,1	1,2	1,3	1,3

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

6.4.4 Biogas Production and Liquefaction, Incineration of the Residue

With the assumptions as given above and in Appendix IV, specifically:

- The projected investment cost – approximately € 178 million, which breaks down as follows:

Investment cost € fixed assets	172 000 000
Investment cost € design & engineering	3 400 000
Investment cost € project management	2 500 000
Initial working capital requirement, €	50 000
Total Investment Cost €	177 950 000

Fixed assets include a bio gas plant with cleaning and liquefaction, plus an integrated incinerator, plus a port terminal for export of the liquefied biogas by sea.

- Projected O&M costs once production is at full capacity in biogas production and liquefaction of that gas:

Labour and Power	2 900 000
Chemicals	1 400 000
Maintenance	4 300 000
Consumables	350 000
Transport of cattle manure	500 000
Transport of liquefied biogas	908 580
Incineration costs	4 525 000
Total O&M Costs	14 883 580

In this alternative it is primarily assumed that the produced biogas is cleaned, upgraded and liquefied at or near a port. The port terminal needs to be constructed, however, so that the investment cost for the port is included in the project. The liquefied biogas will then be sold to Sweden, and delivered to the facility at Nynäshamn.

The digestate arising from the digestion process will be incinerated as per the conditions used in the incineration alone alternative (8.4.1, above.)

This investment will not, under these conditions, be able to sustain itself to year 7. The IRR and NPV are both negative. The need to develop and operate a port terminal to allow the storing and loading of liquefied biogas, which is estimated to be more than €65 million, is debilitating.

The incineration alone alternative has been found to have a relatively better prospect of viability

The financial ratios for the investment, calculated also in constant year 1 Euro until year 7, are as follows:

Year		1	2	3	4	5	6	7
Operating Income	Euro	9 854 210	17 517 329	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420
Operating Margin	%	65,1 %	57,8 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %
EBITDA	Euro	17 901 011	26 293 754	23 913 409	23 641 973	23 370 537	23 099 101	22 827 666
Return on Investments	%	229 %	355 %	19 %	40 %	47 %	57 %	73 %
Debt Service Coverage Ratio	Ratio	1,1	1,4	1,3	0,3	0,4	0,4	0,4

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): $(\text{Net Profit} + (-\text{Interest Cost}) + \text{Depreciation}) / (\text{Interest Cost} + \text{Principle Repayment})$

Appendix I

Financial Analysis

Incineration and Manure Ash Production Only

Capital Costs

Constant Current Year Euro

Investment cost €, fixed assets	75 000 000	
Investment cost €, design & engineering	1 200 000	(Year 1 only)
Investment cost €, project management	900 000	
Initial working capital requirement, €	0	(Year 1 only)
Total Investment Cost €	77 100 000	

Denotes input cell

Investment share Year 1	50 %
Investment share Year 2	50 %
Civil Works share	35 %
M&E share (all year 1)	65 %

Annual depreciation charge, civil works	2,5 %	40,0 years
Annual depreciation charge, M&E	14,3 %	7,0 years

Credit financing, % of total investment	74 %
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Debt Financing			Total Financing		
	Euro		Euro	%	
IFIs	43 496 478	Loan	43 496 478	56 %	
Investor 1	6 801 761	Loan	16 801 761	22 %	
Investor 2	6 801 761	Loan	16 801 761	22 %	
	57 100 000		77 100 000	100 %	

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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Investment Cost															
Civil Works	13 702 500	13 282 500	0	0	0	0	0	0	0	0	0	0	0	0	0
M&E	25 447 500	24 667 500	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	39 150 000	37 950 000	0	0	0	0	0	0	0	0	0	0	0	0	0

Paying in of Shares

IFIs	0														
Investor 1	10 000 000														
Investor 2	10 000 000														
Total paid in capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Loan Disbursements

IFIs	annual	19 150 000	24 346 478												
Investor 1	annual	0	6 801 761												
Investor 2	annual	0	6 801 761												
Total	annual	19 150 000	37 950 000	0	0	0	0	0	0	0	0	0	0	0	0

Depreciation

Civil Works (Current €)	342 563	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625
M&E (Current €)	3 635 350	3 635 350	3 635 350	3 635 350	3 635 350	3 635 350	3 635 350	0	0	0	0	0	0	0	0
Total Deprecia, Current €	3 977 912	4 309 975	4 309 975	4 309 975	4 309 975	4 309 975	4 309 975	674 625	674 625	674 625	674 625	674 625	674 625	674 625	674 625
Annual inflation	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %
Total Deprecia, Constant €	3 977 912	4 180 675	4 051 376	3 922 077	3 792 778	3 663 478	3 534 179	532 954	512 715	492 476	472 238	451 999	431 760	411 521	391 283

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INCOME STATEMENT															
Revenues	10 500 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000	21 000 000
Operating Costs	1 325 000	3 602 091	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000	4 525 000
Depreciation	3 977 912	4 180 675	4 051 376	3 922 077	3 792 778	3 663 478	3 534 179	532 954	512 715	492 476	472 238	451 999	431 760	411 521	391 283
Cost of debt	2 482 500	4 282 500	4 282 500	3 262 888	2 243 276	1 223 665	204 053	0	0	0	0	0	0	0	0
Change in working capital	910 479	743 200	57 947	145 419	-332	0	0	0	0	0	0	0	0	0	0
Result before taxes	1 804 108	8 191 533	8 083 177	9 144 616	10 439 278	11 587 857	12 736 768	15 942 046	15 962 285	15 982 524	16 002 763	16 023 001	16 043 240	16 063 479	16 083 718
Corporate Profit Tax	21 %	378 863	1 720 222	1 697 467	1 920 369	2 192 248	2 433 450	2 674 721	3 347 830	3 352 080	3 356 330	3 360 580	3 364 830	3 369 080	3 373 331
Profit After Tax	1 425 246	6 471 311	6 385 710	7 224 247	8 247 030	9 154 407	10 062 047	12 594 217	12 610 205	12 626 194	12 642 182	12 658 171	12 674 160	12 690 148	12 706 137

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW															
Revenues + depreciation	14 477 912	25 180 675	25 051 376	24 922 077	24 792 778	24 663 478	24 534 179	21 532 954	21 512 715	21 492 476	21 472 238	21 451 999	21 431 760	21 411 521	21 391 283
Operating Costs	-1 325 000	-3 602 091	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000	-4 525 000
Change in working capital	910 479	743 200	57 947	145 419	-332	0	0	0	0	0	0	0	0	0	0
Investment	-39 150 000	-37 950 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt service	-2 482 500	-4 282 500	-4 282 500	-16 857 712	-15 838 100	-14 818 489	-13 798 877	-2 720 704	0	0	0	0	0	0	0
Corporate Profit Tax	-378 863	-1 720 222	-1 697 467	-1 920 369	-2 192 248	-2 433 450	-2 674 721	-3 347 830	-3 352 080	-3 356 330	-3 360 580	-3 364 830	-3 369 080	-3 373 331	-3 377 581
Net cash flow	-27 947 971	-21 630 938	14 604 355	1 764 414	2 237 097	2 886 540	3 535 581	10 939 420	13 635 635	13 611 146	13 586 657	13 562 168	13 537 680	13 513 191	13 488 702

	Year 7	Year 15
IRR	7 %	15 %
NPV @ 7 %	729 033	36 174 171

(Year 15 ignores the need to renew fixed assets. Therefore it is overly optimistic.)

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BALANCE SHEET															
Fixed Assets															
Procurement of Fixed Assets	39 150 000	37 950 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets Cumulative	39 150 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000	77 100 000
Depreciation	3 977 912	4 180 675	4 051 376	3 922 077	3 792 778	3 663 478	3 534 179	532 954	512 715	492 476	472 238	451 999	431 760	411 521	391 283
Net Fixed Assets	35 172 088	30 991 413	26 940 036	23 017 960	19 225 182	15 561 704	12 027 524	11 494 571	10 981 856	10 489 379	10 017 142	9 565 143	9 133 383	8 721 862	8 330 579
Current Assets															
Inventories	74 315	141 199	134 139	127 432	127 397	127 397	127 397	127 397	127 397	127 397	127 397	127 397	127 397	127 397	127 397
Receivables	1 006 849	1 913 014	1 817 363	1 726 495	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027	1 726 027
Cash and banks	-27 947 971	-21 630 938	14 604 355	1 764 414	2 237 097	2 886 540	3 535 581	10 939 420	13 635 635	13 611 146	13 586 657	13 562 168	13 537 680	13 513 191	13 488 702
Total Current Assets	-26 866 807	-19 576 726	16 555 857	3 618 341	4 090 521	4 739 965	5 389 006	12 792 844	15 489 060	15 464 571	15 440 082	15 415 593	15 391 104	15 366 615	15 342 126
TOTAL ASSETS	8 305 281	11 414 687	43 495 894	26 636 300	23 315 703	20 301 668	17 416 530	24 287 415	26 470 915	25 953 950	25 457 224	24 980 736	24 524 487	24 088 477	23 672 706
Equity Capital															
Share capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shareholder's equity	-17 259 765	-7 773 817	19 159 064	-12 057 634	-17 242 621	-22 074 582	-26 662 765	-14 685 687	-12 345 629	-12 910 560	-13 455 252	-13 979 706	-14 483 921	-14 967 897	-15 431 634
Additional Paid in Capital (APIC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained Earnings/(Losses)	1 425 246	7 896 557	12 857 021	13 609 957	15 471 277	17 401 437	19 216 454	22 656 263	25 204 422	25 236 399	25 268 376	25 300 353	25 332 331	25 364 308	25 396 285
Profit/(Loss) for the Period	1 425 246	6 471 311	6 385 710	7 224 247	8 247 030	9 154 407	10 062 047	12 594 217	12 610 205	12 626 194	12 642 182	12 658 171	12 674 160	12 690 148	12 706 137
Total Equity Capital	5 590 726	6 594 051	38 401 795	8 776 570	6 475 685	4 481 262	2 615 736	20 564 793	25 468 998	24 952 033	24 455 306	23 978 819	23 522 570	23 086 559	22 670 788
Current Liabilities															
Accounts payable*	127 055	328 136	391 598	372 019	371 918	371 918	371 918	371 918	371 918	371 918	371 918	371 918	371 918	371 918	371 918
Advance payments	105 000	210 000	420 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000	630 000
Total Current Liabilities	232 055	538 136	811 598	1 002 019	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918	1 001 918
Non-Current Liabilities															
Long Term Loans	2 482 500	4 282 500	4 282 500	16 857 712	15 838 100	14 818 489	13 798 877	2 720 704	0	0	0	0	0	0	0
Total Non-current Liabilities	2 482 500	4 282 500	4 282 500	16 857 712	15 838 100	14 818 489	13 798 877	2 720 704	0	0	0	0	0	0	0
TOTAL EQUITY CAPITAL AND LIABILITIES	8 305 281	11 414 687	43 495 894	26 636 300	23 315 703	20 301 668	17 416 530	24 287 415	26 470 915	25 953 950	25 457 224	24 980 736	24 524 487	24 088 477	23 672 706

Financial Ratios

Constant Current Year Euro

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Operating Income	Euro	9 175 000	17 397 909	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000	16 475 000
Operating Margin	%	87,4 %	82,8 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %	78,5 %
EBITDA	Euro	13 152 912	21 578 584	20 526 376	20 397 077	20 267 778	20 138 478	20 009 179	17 007 954	16 987 715	16 967 476	16 947 238	16 926 999	16 906 760	16 886 521	16 866 283
Return on Investments	%	110 %	152 %	38 %	62 %	71 %	81 %	95 %	68 %	62 %	63 %	65 %	66 %	67 %	68 %	70 %
Debt Service Coverage Ratio	Ratio	3,3	3,9	3,8	1,0	1,0	1,1	1,2	6,1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

Appendix II

Financial Analysis

Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Composting of Solid Output

Capital Costs

Constant Current Year Euro

Investment cost €, fixed assets	42 000 000	
Investment cost €, design & engineering	700 000	(Year 1 only)
Investment cost €, project management	500 000	
Initial working capital requirement, €	370 000	(Year 1 only)
Total Investment Cost €	43 570 000	

Denotes input cell

Investment share Year 1	50 %
Investment share Year 2	50 %
Civil Works share	35 %
M&E share (all year 1)	65 %

Annual depreciation charge, civil works	2,5 %	40,0 years
Annual depreciation charge, M&E	14,3 %	7,0 years

Credit financing, % of total investment	77 %
---	------

Debt Financing		Euro	Total Financing	Euro	%
IFIs	Loan	26 785 000	IFIs	26 785 000	61 %
Investor 1	Loan	3 392 500	Investor 1	8 392 500	19 %
Investor 2	Loan	3 392 500	Investor 2	8 392 500	19 %
		33 570 000		43 570 000	100 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Investment Cost															
Civil Works	7 747 250	7 437 500	0	0	0	0	0	0	0	0	0	0	0	0	0
M&E	14 572 750	13 812 500	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	22 320 000	21 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0

Paying in of Shares

IFIs	0														
Investor 1	5 000 000														
Investor 2	5 000 000														
Total paid in capital	10 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Loan Disbursements

IFIs	annual	12 320 000	14 465 000												
Investor 1	annual	0	3 392 500												
Investor 2	annual	0	3 392 500												
Total	annual	12 320 000	21 250 000	0	0	0	0	0	0	0	0	0	0	0	0

Depreciation

Civil Works (Current €)	193 681	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619
M&E (Current €)	2 081 817	2 081 817	2 081 817	2 081 817	2 081 817	2 081 817	2 081 817	0	0	0	0	0	0	0	0
Total Deprecia, Current €	2 275 498	2 461 436	2 461 436	2 461 436	2 461 436	2 461 436	2 461 436	379 619	379 619	379 619	379 619	379 619	379 619	379 619	379 619
Annual inflation	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %
Total Deprecia, Constant €	2 275 498	2 387 593	2 313 750	2 239 907	2 166 064	2 092 220	2 018 377	299 899	288 510	277 122	265 733	254 345	242 956	231 567	220 179

Operation and Maintenance Costs

Constant Current Year Euro

Operating Costs - Digestion, Gas Transport

Labour and Power €/a	1 900 000
Chemicals €/a	0
Manure intake, tonnes/a	200 000
Transport of compressed gas to Finland, €/m3	0,1
Operating Costs (from year 2) Composting	5 960 000
Maintenance, annual % of original invest costs	2,5 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Labour and Power	950 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000	1 900 000
Chemicals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance		537 893	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000	1 050 000
Consumables	175 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000	350 000
Transport, product to client	1 010 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000	2 020 000
Composting	2 980 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000	5 960 000
Total O&M Costs	5 115 000	10 767 893	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000

Transport: €*XXXXXX/30 m3 of Pellitized Fertilizer Farm to Average Location in St Petersburg (Not Applicable. Product selling price is FOT at factory gate)

= €/m3

= €/t Fertilizer: 1 m3 = tonnes

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INCOME STATEMENT															
Revenues	4 040 000	8 080 000	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696	15 868 696
Operating Costs	5 115 000	10 767 893	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000	11 280 000
Depreciation	2 275 498	2 387 593	2 313 750	2 239 907	2 166 064	2 092 220	2 018 377	299 899	288 510	277 122	265 733	254 345	242 956	231 567	220 179
Cost of debt	1 533 800	2 517 750	2 517 750	1 913 756	1 309 763	705 769	101 775	0	0	0	0	0	0	0	0
Change in working capital	-365 216	-373 655	907 281	166 135	38	0	0	0	0	0	0	0	0	0	0
Result before taxes	-4 519 082	-7 219 581	-1 150 085	268 898	1 112 831	1 790 707	2 468 543	4 288 797	4 300 186	4 311 574	4 322 963	4 334 351	4 345 740	4 357 128	4 368 517
Corporate Profit Tax	21 %	0	0	56 469	233 695	376 048	518 394	900 647	903 039	905 431	907 822	910 214	912 605	914 997	917 389
Profit After Tax	-4 519 082	-7 219 581	-1 150 085	212 429	879 137	1 414 658	1 950 149	3 388 150	3 397 147	3 406 144	3 415 141	3 424 137	3 433 134	3 442 131	3 451 128

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW															
Revenues + depreciation	6 315 498	10 467 593	18 182 445	18 108 602	18 034 759	17 960 916	17 887 073	16 168 595	16 157 206	16 145 817	16 134 429	16 123 040	16 111 652	16 100 263	16 088 875
Operating Costs	-5 115 000	-10 767 893	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000	-11 280 000
Change in working capital	-365 216	-373 655	907 281	166 135	38	0	0	0	0	0	0	0	0	0	0
Investment	-22 320 000	-21 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt service	-1 533 800	-2 517 750	-2 517 750	-9 967 006	-9 363 013	-8 759 019	-8 155 025	-1 357 000	0	0	0	0	0	0	0
Corporate Profit Tax	0	0	0	-56 469	-233 695	-376 048	-518 394	-900 647	-903 039	-905 431	-907 822	-910 214	-912 605	-914 997	-917 389
Net cash flow	-23 018 518	-24 441 705	5 291 977	-3 028 737	-2 841 909	-2 454 151	-2 066 346	2 630 947	3 974 167	3 960 387	3 946 607	3 932 827	3 919 046	3 905 266	3 891 486

	Year 7	Year 15
IRR	#NUM!	0 %
NPV @ 7 %	-30 784 047	-24 470 984

(Year 15 ignores the need to renew fixed assets. Therefore it is overly optimistic.)

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BALANCE SHEET															
Fixed Assets															
Procurement of Fixed Assets	22 320 000	21 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets Cumulative	22 320 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000	43 570 000
Depreciation	2 275 498	2 387 593	2 313 750	2 239 907	2 166 064	2 092 220	2 018 377	299 899	288 510	277 122	265 733	254 345	242 956	231 567	220 179
Net Fixed Assets	20 044 502	17 656 909	15 343 159	13 103 253	10 937 189	8 844 969	6 826 591	6 526 692	6 238 182	5 961 060	5 695 327	5 440 983	5 198 027	4 966 459	4 746 280
Current Assets															
Inventories	302 534	574 815	546 074	518 771	518 630	518 630	518 630	518 630	518 630	518 630	518 630	518 630	518 630	518 630	518 630
Receivables	387 397	736 055	1 373 294	1 304 630	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276	1 304 276
Cash and banks	-23 018 518	-24 441 705	5 291 977	-3 028 737	-2 841 909	-2 454 151	-2 066 346	2 630 947	3 974 167	3 960 387	3 946 607	3 932 827	3 919 046	3 905 266	3 891 486
Total Current Assets	-22 328 587	-23 130 835	7 211 346	-1 205 337	-1 019 003	-631 244	-243 439	4 453 854	5 797 074	5 783 293	5 769 513	5 755 733	5 741 953	5 728 173	5 714 393
TOTAL ASSETS	-2 284 085	-5 473 926	22 554 505	11 897 916	9 918 186	8 213 724	6 583 152	10 980 546	12 035 256	11 744 354	11 464 841	11 196 716	10 939 980	10 694 632	10 460 673
Equity Capital															
Share capital	10 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shareholder's equity	-5 310 601	9 904 857	28 262 949	1 252 701	-2 818 714	-5 656 932	-8 290 014	-506 087	449 629	131 736	-174 768	-469 884	-753 611	-1 025 949	-1 286 899
Additional Paid in Capital (APIC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained Earnings/(Losses)	-4 519 082	-11 738 663	-8 369 667	-937 656	1 091 566	2 293 795	3 364 807	5 338 299	6 785 296	6 803 290	6 821 284	6 839 278	6 857 272	6 875 266	6 893 260
Profit/(Loss) for the Period	-4 519 082	-7 219 581	-1 150 085	212 429	879 137	1 414 658	1 950 149	3 388 150	3 397 147	3 406 144	3 415 141	3 424 137	3 433 134	3 442 131	3 451 128
Total Equity Capital	-4 348 764	-9 053 387	18 743 197	527 474	-848 011	-1 948 479	-2 975 057	8 220 362	10 632 072	10 341 170	10 061 656	9 793 532	9 536 796	9 291 448	9 057 489
Current Liabilities															
Accounts payable*	490 479	980 911	976 184	927 374	927 123	927 123	927 123	927 123	927 123	927 123	927 123	927 123	927 123	927 123	927 123
Advance payments	40 400	80 800	317 374	476 061	476 061	476 061	476 061	476 061	476 061	476 061	476 061	476 061	476 061	476 061	476 061
Total Current Liabilities	530 879	1 061 711	1 293 557	1 403 435	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184	1 403 184
Non-Current Liabilities															
Long Term Loans	1 533 800	2 517 750	2 517 750	9 967 006	9 363 013	8 759 019	8 155 025	1 357 000	0	0	0	0	0	0	0
Total Non-current Liabilities	1 533 800	2 517 750	2 517 750	9 967 006	9 363 013	8 759 019	8 155 025	1 357 000	0	0	0	0	0	0	0
TOTAL EQUITY CAPITAL AND LIABILITIES	-2 284 085	-5 473 926	22 554 505	11 897 916	9 918 186	8 213 724	6 583 152	10 980 546	12 035 256	11 744 354	11 464 841	11 196 716	10 939 980	10 694 632	10 460 673

Financial Ratios

Constant Current Year Euro

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Operating Income	Euro	-1 075 000	-2 687 893	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696	4 588 696
Operating Margin	%	-26,6 %	-33,3 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %	28,9 %
EBITDA	Euro	1 200 498	-300 300	6 902 445	6 828 602	6 754 759	6 680 916	6 607 073	4 888 595	4 877 206	4 865 817	4 854 429	4 843 040	4 831 652	4 820 263	4 808 875
Return on Investments	%	47 %	49 %	20 %	39 %	46 %	56 %	70 %	42 %	38 %	39 %	40 %	41 %	42 %	43 %	44 %
Debt Service Coverage Ratio	Ratio	0,0	0,0	1,5	0,4	0,5	0,5	0,6	3,4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

Appendix III

Financial Analysis

Digestion, Biogas Cleaning and Compression Investment for Pipeline Transportation with Incineration of Solid

Capital Costs

Constant Current Year Euro

Investment cost €, fixed assets	104 000 000	
Investment cost €, design & engineering	1 700 000	(Year 1 only)
Investment cost €, project management	1 300 000	
Initial working capital requirement, €	0	(Year 1 only)
Total Investment Cost €	107 000 000	

Denotes input cell

Investment share Year 1	50 %
Investment share Year 2	50 %
Civil Works share	69 %
M&E share (all year 1)	31 %

Annual depreciation charge, civil works	2,5 %	40,0 years
Annual depreciation charge, M&E	14,3 %	7,0 years

Credit financing, % of total investment	81 %
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Debt Financing		Euro	Total Financing	Euro	%
IFIs	Loan	58 500 000	IFIs	58 500 000	55 %
Investor 1	Loan	14 250 000	Investor 1	24 250 000	23 %
Investor 2	Loan	14 250 000	Investor 2	24 250 000	23 %
		87 000 000		107 000 000	100 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Investment Cost															
Civil Works	37 705 313	36 525 938	0	0	0	0	0	0	0	0	0	0	0	0	0
M&E	16 644 688	16 124 063	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	54 350 000	52 650 000	0	0	0	0	0	0	0	0	0	0	0	0	0

Paying in of Shares

IFIs	0														
Investor 1	10 000 000														
Investor 2	10 000 000														
Total paid in capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Loan Disbursements

IFIs	annual	34 350 000	24 150 000												
Investor 1	annual	0	14 250 000												
Investor 2	annual	0	14 250 000												
Total	annual	34 350 000	52 650 000	0	0	0	0	0	0	0	0	0	0	0	0

Depreciation

Civil Works (Current €)	942 633	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781
M&E (Current €)	2 377 808	2 377 808	2 377 808	2 377 808	2 377 808	2 377 808	2 377 808	0	0	0	0	0	0	0	0
Total Deprecia, Current €	3 320 440	4 233 589	4 233 589	4 233 589	4 233 589	4 233 589	4 233 589	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781	1 855 781
Annual inflation	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	
Total Deprecia, Constant €	3 320 440	4 106 581	3 979 573	3 852 566	3 725 558	3 598 550	3 471 543	1 466 067	1 410 394	1 354 720	1 299 047	1 243 373	1 187 700	1 132 027	1 076 353

Debt Service

Constant Current Year Euro

IFIs	Terms and Conditions
Grace (principle only), years	2
Repayment, years	7
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Investor 1	Terms and Conditions
Grace (principle only), years	2
Repayment, years	7
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Investor 2	Terms and Conditions
Grace (principle only), years	2
Repayment, years	7
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Debt Service IFIs																
Credit Disbursement	34 350 000	24 150 000	0	0	0	0	0	0	0	0	0	0	0	0	0	58 500 000
Disbursement, Cumulative	34 350 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	58 500 000	
Administration fee	877 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	877 500
Total Commitment Fee	120 750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120 750
Principle repayment	0	0	0	8 357 143	8 357 143	8 357 143	8 357 143	8 357 143	8 357 143	8 357 143	0	0	0	0	0	58 500 000
Interest	2 576 250	4 387 500	4 387 500	3 760 714	3 133 929	2 507 143	1 880 357	1 253 571	626 786	0	0	0	0	0	0	24 513 750
Total Debt Service	3 574 500	4 387 500	4 387 500	12 117 857	11 491 071	10 864 286	10 237 500	9 610 714	8 983 929	8 357 143	0	0	0	0	0	84 012 000

Debt Service Investor 1																
Credit Disbursement	0	14 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0	14 250 000
Disbursement, Cumulative	0	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	
Administration fee	213 750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213 750
Total Commitment Fee	71 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71 250
Principle repayment	0	0	0	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	0	0	0	0	0	14 250 000
Interest	0	1 068 750	1 068 750	916 071	763 393	610 714	458 036	305 357	152 679	0	0	0	0	0	0	5 343 750
Total Debt Service	285 000	1 068 750	1 068 750	2 951 786	2 799 107	2 646 429	2 493 750	2 341 071	2 188 393	2 035 714	0	0	0	0	0	19 878 750

Debt Service Investor 2																
Credit Disbursement	0	14 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0	14 250 000
Disbursement, Cumulative	0	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	14 250 000	
Administration fee	213 750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213 750
Total Commitment Fee	71 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71 250
Principle repayment	0	0	0	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	2 035 714	0	0	0	0	0	14 250 000
Interest	0	1 068 750	1 068 750	916 071	763 393	610 714	458 036	305 357	152 679	0	0	0	0	0	0	5 343 750
Total Debt Service	285 000	1 068 750	1 068 750	2 951 786	2 799 107	2 646 429	2 493 750	2 341 071	2 188 393	2 035 714	0	0	0	0	0	19 878 750

TOTAL DEBT SERVICE																
Credit Disbursement	34 350 000	52 650 000	0	0	0	0	0	0	0	0	0	0	0	0	0	87 000 000
Disbursement, Cumulative	34 350 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	87 000 000	
Administration fee	1 305 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 305 000
Total Commitment Fee	263 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263 250
Principle repayment	0	0	0	12 428 571	12 428 571	12 428 571	12 428 571	12 428 571	12 428 571	12 428 571	0	0	0	0	0	87 000 000
Interest	2 576 250	6 525 000	6 525 000	5 592 857	4 660 714	3 728 571	2 796 429	1 864 286	932 143	0	0	0	0	0	0	35 201 250
Total Debt Service	4 144 500	6 525 000	6 525 000	18 021 429	17 089 286	16 157 143	15 225 000	14 292 857	13 360 714	12 428 571	0	0	0	0	0	123 769 500

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INCOME STATEMENT															
Revenues	14 540 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000	29 080 000
Operating Costs	3 687 500	8 695 654	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000	9 975 000
Depreciation	3 320 440	4 106 581	3 979 573	3 852 566	3 725 558	3 598 550	3 471 543	1 466 067	1 410 394	1 354 720	1 299 047	1 243 373	1 187 700	1 132 027	1 076 353
Cost of debt	4 144 500	6 525 000	6 525 000	5 592 857	4 660 714	3 728 571	2 796 429	1 864 286	932 143	0	0	0	0	0	0
Change in working capital	942 729	742 690	110 353	230 091	-312	0	0	0	0	0	0	0	0	0	0
Result before taxes	2 444 831	9 010 075	8 490 073	9 429 486	10 719 040	11 777 878	12 837 029	15 774 647	16 762 463	17 750 280	17 805 953	17 861 627	17 917 300	17 972 973	18 028 647
Corporate Profit Tax	21 %	513 414	1 892 116	1 782 915	1 980 192	2 250 998	2 473 354	2 695 776	3 312 676	3 520 117	3 727 559	3 739 250	3 750 942	3 762 633	3 774 324
Profit After Tax	1 931 416	7 117 959	6 707 158	7 449 294	8 468 042	9 304 524	10 141 253	12 461 971	13 242 346	14 022 721	14 066 703	14 110 685	14 154 667	14 198 649	14 242 631

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW															
Revenues + depreciation	17 860 440	33 186 581	33 059 573	32 932 566	32 805 558	32 678 550	32 551 543	30 546 067	30 490 394	30 434 720	30 379 047	30 323 373	30 267 700	30 212 027	30 156 353
Operating Costs	-3 687 500	-8 695 654	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000	-9 975 000
Change in working capital	942 729	742 690	110 353	230 091	-312	0	0	0	0	0	0	0	0	0	0
Investment	-54 350 000	-52 650 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt service	-4 144 500	-6 525 000	-6 525 000	-18 021 429	-17 089 286	-16 157 143	-15 225 000	-14 292 857	-13 360 714	-12 428 571	0	0	0	0	0
Corporate Profit Tax	-513 414	-1 892 116	-1 782 915	-1 980 192	-2 250 998	-2 473 354	-2 695 776	-3 312 676	-3 520 117	-3 727 559	-3 739 250	-3 750 942	-3 762 633	-3 774 324	-3 786 016
Net cash flow	-43 892 245	-35 833 499	14 887 011	3 186 037	3 489 962	4 073 053	4 655 767	2 965 534	3 634 562	4 303 590	16 664 797	16 597 432	16 530 067	16 462 702	16 395 337

	Year 7	Year 15
IRR	5 %	9 %
NPV @ 7 %	-5 413 737	9 844 554

(Year 15 ignores the need to renew fixed assets. Therefore it is overly optimistic.)

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BALANCE SHEET															
Fixed Assets															
Procurement of Fixed Assets	54 350 000	52 650 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets Cumulative	54 350 000	107 000 000	107 000 000	107 000 000	107 000 000	107 000 000	107 000 000	107 000 000	107 000 000	#####	#####	#####	#####	#####	#####
Depreciation	3 320 440	4 106 581	3 979 573	3 852 566	3 725 558	3 598 550	3 471 543	1 466 067	1 410 394	1 354 720	1 299 047	1 243 373	1 187 700	1 132 027	1 076 353
Net Fixed Assets	51 029 560	46 922 978	42 943 405	39 090 839	35 365 281	31 766 731	28 295 188	26 829 121	25 418 727	24 064 007	22 764 960	21 521 586	20 333 886	19 201 860	18 125 507
Current Assets															
Inventories	243 322	462 312	439 196	417 236	417 123	417 123	417 123	417 123	417 123	417 123	417 123	417 123	417 123	417 123	417 123
Receivables	1 394 247	2 649 068	2 516 615	2 390 784	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137	2 390 137
Cash and banks	-43 892 245	-35 833 499	14 887 011	3 186 037	3 489 962	4 073 053	4 655 767	2 965 534	3 634 562	4 303 590	16 664 797	16 597 432	16 530 067	16 462 702	16 395 337
Total Current Assets	-42 254 677	-32 722 119	17 842 822	5 994 057	6 297 222	6 880 313	7 463 027	5 772 794	6 441 822	7 110 850	19 472 057	19 404 692	19 337 327	19 269 962	19 202 598
TOTAL ASSETS	8 774 883	14 200 860	60 786 227	45 084 896	41 662 503	38 647 044	35 758 215	32 601 915	31 860 549	31 174 857	42 237 017	40 926 278	39 671 213	38 471 822	37 328 104
Equity Capital															
Share capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shareholder's equity	-19 731 446	-9 574 414	32 284 105	3 765 238	-1 504 422	-6 279 451	-10 746 077	-18 448 400	-22 139 091	-24 233 765	-1 611 373	-3 054 058	-4 441 069	-5 772 406	-7 048 070
Additional Paid in Capital (APIC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained Earnings/(Losses)	1 931 416	9 049 376	13 825 117	14 156 452	15 917 335	17 772 565	19 445 776	22 603 224	25 704 317	27 265 067	28 089 424	28 177 388	28 265 352	28 353 316	28 441 280
Profit/(Loss) for the Period	1 931 416	7 117 959	6 707 158	7 449 294	8 468 042	9 304 524	10 141 253	12 461 971	13 242 346	14 022 721	14 066 703	14 110 685	14 154 667	14 198 649	14 242 631
Total Equity Capital	4 131 387	6 592 921	52 816 380	25 370 983	22 880 954	20 797 638	18 840 952	16 616 795	16 807 572	17 054 022	40 544 754	39 234 015	37 978 950	36 779 559	35 635 841
Current Liabilities															
Accounts payable*	353 596	792 138	863 247	820 085	819 863	819 863	819 863	819 863	819 863	819 863	819 863	819 863	819 863	819 863	819 863
Advance payments	145 400	290 800	581 600	872 400	872 400	872 400	872 400	872 400	872 400	872 400	872 400	872 400	872 400	872 400	872 400
Total Current Liabilities	498 996	1 082 938	1 444 847	1 692 485	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263	1 692 263
Non-Current Liabilities															
Long Term Loans	4 144 500	6 525 000	6 525 000	18 021 429	17 089 286	16 157 143	15 225 000	14 292 857	13 360 714	12 428 571	0	0	0	0	0
Total Non-current Liabilities	4 144 500	6 525 000	6 525 000	18 021 429	17 089 286	16 157 143	15 225 000	14 292 857	13 360 714	12 428 571	0	0	0	0	0
TOTAL EQUITY CAPITAL AND LIABILITIES	8 774 883	14 200 860	60 786 227	45 084 896	41 662 503	38 647 044	35 758 215	32 601 915	31 860 549	31 174 857	42 237 017	40 926 278	39 671 213	38 471 822	37 328 104

Financial Ratios

Constant Current Year Euro

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Operating Income	Euro	10 852 500	20 384 346	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000	19 105 000
Operating Margin	%	74,6 %	70,1 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %	65,7 %
EBITDA	Euro	14 172 940	24 490 927	23 084 573	22 957 566	22 830 558	22 703 550	22 576 543	20 571 067	20 515 394	20 459 720	20 404 047	20 348 373	20 292 700	20 237 027	20 181 353
Return on Investments	%	124 %	144 %	31 %	42 %	46 %	49 %	53 %	59 %	60 %	61 %	45 %	47 %	48 %	50 %	51 %
Debt Service Coverage Ratio	Ratio	2,4	3,0	2,9	1,0	1,1	1,2	1,3	1,3	1,4	1,5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)

Appendix IV

Financial Analysis

Digestion, Biogas Liquefaction Investment and Port Installations Investment for transportation of Liquefied Biogas

Capital Costs

Constant Current Year Euro

Investment cost € fixed assets	172 000 000	
Investment cost €, design & engineering	3 400 000	(Year 1 only)
Investment cost €, project management	2 500 000	
Initial working capital requirement, €	0	(Year 1 only)
Total Investment Cost €	177 900 000	

Denotes input cell

Investment share Year 1	50 %
Investment share Year 2	50 %
Civil Works share	46 %
M&E share (all year 1)	54 %

Annual depreciation charge, civil works	2,5 %	40,0 years
Annual depreciation charge, M&E	14,3 %	7,0 years

Credit financing, % of total investment	89 %
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Debt Financing		Euro	Total Financing	Euro	%
IFIs	Loan	93 950 000	IFIs	93 950 000	53 %
Investor 1	Loan	31 975 000	Investor 1	41 975 000	24 %
Investor 2	Loan	31 975 000	Investor 2	41 975 000	24 %
		157 900 000		177 900 000	100 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Investment Cost															
Civil Works	41 602 779	40 042 388	0	0	0	0	0	0	0	0	0	0	0	0	0
M&E	49 047 221	47 207 612	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	90 650 000	87 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0

Paying in of Shares

IFIs	0														
Investor 1	10 000 000														
Investor 2	10 000 000														
Total paid in capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Loan Disbursements

IFIs	annual	70 650 000	23 300 000												
Investor 1	annual	0	31 975 000												
Investor 2	annual	0	31 975 000												
Total	annual	70 650 000	87 250 000	0	0	0	0	0	0	0	0	0	0	0	0

Depreciation

Civil Works (Current €)	1 040 069	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129
M&E (Current €)	7 006 731	7 006 731	7 006 731	7 006 731	7 006 731	7 006 731	7 006 731	0	0	0	0	0	0	0	0
Total Deprecia, Current €	8 046 801	9 047 860	9 047 860	9 047 860	9 047 860	9 047 860	9 047 860	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129	2 041 129
Annual inflation	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %	3,0 %
Total Deprecia, Constant €	8 046 801	8 776 425	8 504 989	8 233 553	7 962 117	7 690 681	7 419 246	1 612 492	1 551 258	1 490 024	1 428 790	1 367 557	1 306 323	1 245 089	1 183 855

Debt Service

Constant Current Year Euro

IFIs	Terms and Conditions
Grace (principle only), years	2
Repayment, years	4
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Investor 1	Terms and Conditions
Grace (principle only), years	2
Repayment, years	5
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Investor 2	Terms and Conditions
Grace (principle only), years	2
Repayment, years	5
Interest rate	7,5 %
Administration fee	1,5 %
Commitment fee, on undisbursed amnt.	0,5 %

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Debt Service IFIs																
Credit Disbursement	70 650 000	23 300 000	0	0	0	0	0	0	0	0	0	0	0	0	0	93 950 000
Disbursement, Cumulative	70 650 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	93 950 000	
Administration fee	1 409 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 409 250
Total Commitment Fee	116 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	116 500
Principle repayment	0	0	0	23 487 500	23 487 500	23 487 500	23 487 500	0	0	0	0	0	0	0	0	93 950 000
Interest	5 298 750	7 046 250	7 046 250	5 284 688	3 523 125	1 761 563	0	0	0	0	0	0	0	0	0	29 960 625
Total Debt Service	6 824 500	7 046 250	7 046 250	28 772 188	27 010 625	25 249 063	23 487 500	0	0	0	0	0	0	0	0	125 436 375

Debt Service Investor 1																
Credit Disbursement	0	31 975 000	0	0	0	0	0	0	0	0	0	0	0	0	0	31 975 000
Disbursement, Cumulative	0	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	
Administration fee	479 625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	479 625
Total Commitment Fee	159 875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159 875
Principle repayment	0	0	0	6 395 000	6 395 000	6 395 000	6 395 000	6 395 000	0	0	0	0	0	0	0	31 975 000
Interest	0	2 398 125	2 398 125	1 918 500	1 438 875	959 250	479 625	0	0	0	0	0	0	0	0	9 592 500
Total Debt Service	639 500	2 398 125	2 398 125	8 313 500	7 833 875	7 354 250	6 874 625	6 395 000	0	0	0	0	0	0	0	42 207 000

Debt Service Investor 2																
Credit Disbursement	0	31 975 000	0	0	0	0	0	0	0	0	0	0	0	0	0	31 975 000
Disbursement, Cumulative	0	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	31 975 000	
Administration fee	479 625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	479 625
Total Commitment Fee	159 875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159 875
Principle repayment	0	0	0	6 395 000	6 395 000	6 395 000	6 395 000	6 395 000	0	0	0	0	0	0	0	31 975 000
Interest	0	2 398 125	2 398 125	1 918 500	1 438 875	959 250	479 625	0	0	0	0	0	0	0	0	9 592 500
Total Debt Service	639 500	2 398 125	2 398 125	8 313 500	7 833 875	7 354 250	6 874 625	6 395 000	0	0	0	0	0	0	0	42 207 000

TOTAL DEBT SERVICE																
Credit Disbursement	70 650 000	87 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0	157 900 000
Disbursement, Cumulative	70 650 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	157 900 000	
Administration fee	2 368 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 368 500
Total Commitment Fee	436 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	436 250
Principle repayment	0	0	0	36 277 500	36 277 500	36 277 500	36 277 500	12 790 000	0	0	0	0	0	0	0	157 900 000
Interest	5 298 750	11 842 500	11 842 500	9 121 688	6 400 875	3 680 063	959 250	0	0	0	0	0	0	0	0	49 145 625
Total Debt Service	8 103 500	11 842 500	11 842 500	45 399 188	42 678 375	39 957 563	37 236 750	12 790 000	0	0	0	0	0	0	0	209 850 375

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INCOME STATEMENT															
Revenues	15 146 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000	30 292 000
Operating Costs	5 291 790	12 774 671	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580	14 883 580
Depreciation	8 046 801	8 776 425	8 504 989	8 233 553	7 962 117	7 690 681	7 419 246	1 612 492	1 551 258	1 490 024	1 428 790	1 367 557	1 306 323	1 245 089	1 183 855
Cost of debt	8 103 500	11 842 500	11 842 500	9 121 688	6 400 875	3 680 063	959 250	0	0	0	0	0	0	0	0
Change in working capital	751 966	492 316	73 345	267 331	-183	0	0	0	0	0	0	0	0	0	0
Result before taxes	-7 048 057	-3 593 911	-5 012 413	-2 214 151	1 045 611	4 037 676	7 029 924	13 795 928	13 857 162	13 918 396	13 979 630	14 040 863	14 102 097	14 163 331	14 224 565
Corporate Profit Tax	21 %	0	0	0	219 578	847 912	1 476 284	2 897 145	2 910 004	2 922 863	2 935 722	2 948 581	2 961 440	2 974 300	2 987 159
Profit After Tax	-7 048 057	-3 593 911	-5 012 413	-2 214 151	826 033	3 189 764	5 553 640	10 898 783	10 947 158	10 995 533	11 043 907	11 092 282	11 140 657	11 189 032	11 237 406

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH FLOW															
Revenues + depreciation	23 192 801	39 068 425	38 796 989	38 525 553	38 254 117	37 982 681	37 711 246	31 904 492	31 843 258	31 782 024	31 720 790	31 659 557	31 598 323	31 537 089	31 475 855
Operating Costs	-5 291 790	-12 774 671	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580	-14 883 580
Change in working capital	751 966	492 316	73 345	267 331	-183	0	0	0	0	0	0	0	0	0	0
Investment	-90 650 000	-87 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt service	-8 103 500	-11 842 500	-11 842 500	-45 399 188	-42 678 375	-39 957 563	-37 236 750	-12 790 000	0	0	0	0	0	0	0
Corporate Profit Tax	0	0	0	0	-219 578	-847 912	-1 476 284	-2 897 145	-2 910 004	-2 922 863	-2 935 722	-2 948 581	-2 961 440	-2 974 300	-2 987 159
Net cash flow	-80 100 523	-72 306 430	12 144 253	-21 489 884	-19 527 599	-17 706 373	-15 885 369	1 333 767	14 049 674	13 975 581	13 901 488	13 827 395	13 753 302	13 679 209	13 605 116

	Year 7	Year 15
IRR	#NUM!	-1 %
NPV @ 7 %	-114 723 247	-104 890 804

(Year 15 ignores the need to renew fixed assets. Therefore it is overly optimistic.)

Indicative Financial Statements

Constant Current Year Euro

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BALANCE SHEET															
Fixed Assets															
Procurement of Fixed Assets	90 650 000	87 250 000	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets Cumulative	90 650 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000	177 900 000
Depreciation	8 046 801	8 776 425	8 504 989	8 233 553	7 962 117	7 690 681	7 419 246	1 612 492	1 551 258	1 490 024	1 428 790	1 367 557	1 306 323	1 245 089	1 183 855
Net Fixed Assets	82 603 199	73 826 775	65 321 786	57 088 233	49 126 116	41 435 434	34 016 189	32 403 697	30 852 439	29 362 414	27 933 624	26 566 067	25 259 745	24 014 656	22 830 801
Current Assets															
Inventories	344 418	654 395	621 675	590 591	590 431	590 431	590 431	590 431	590 431	590 431	590 431	590 431	590 431	590 431	590 431
Receivables	1 452 356	2 759 477	2 621 503	2 490 428	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753	2 489 753
Cash and banks	-80 100 523	-72 306 430	12 144 253	-21 489 884	-19 527 599	-17 706 373	-15 885 369	1 333 767	14 049 674	13 975 581	13 901 488	13 827 395	13 753 302	13 679 209	13 605 116
Total Current Assets	-78 303 749	-68 892 558	15 387 431	-18 408 865	-16 447 415	-14 626 188	-12 805 184	4 413 952	17 129 859	17 055 766	16 981 673	16 907 580	16 833 487	16 759 394	16 685 301
TOTAL ASSETS	4 299 450	4 934 216	80 709 217	38 679 368	32 678 701	26 809 246	21 211 005	36 817 649	47 982 297	46 418 180	44 915 297	43 473 647	42 093 232	40 774 050	39 516 102
Equity Capital															
Share capital	20 000 000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shareholder's equity	-10 366 828	5 860 955	80 591 574	588 497	-11 569 656	-22 485 945	-32 454 858	-5 455 626	13 057 131	11 347 889	9 699 881	8 113 108	6 587 568	5 123 262	3 720 189
Additional Paid in Capital (APIC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retained Earnings/(Losses)	-7 048 057	-10 641 968	-8 606 325	-7 226 565	-1 388 119	4 015 797	8 743 404	16 452 423	21 845 941	21 942 690	22 039 440	22 136 189	22 232 939	22 329 689	22 426 438
Profit/(Loss) for the Period	-7 048 057	-3 593 911	-5 012 413	-2 214 151	826 033	3 189 764	5 553 640	10 898 783	10 947 158	10 995 533	11 043 907	11 092 282	11 140 657	11 189 032	11 237 406
Total Equity Capital	-4 462 942	-8 374 924	66 972 836	-8 852 219	-12 131 742	-15 280 385	-18 157 813	21 895 581	45 850 229	44 286 112	42 783 229	41 341 579	39 961 164	38 641 982	37 384 034
Current Liabilities															
Accounts payable*	507 432	1 163 720	1 288 041	1 223 639	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308	1 223 308
Advance payments	151 460	302 920	605 840	908 760	908 760	908 760	908 760	908 760	908 760	908 760	908 760	908 760	908 760	908 760	908 760
Total Current Liabilities	658 892	1 466 640	1 893 881	2 132 399	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068	2 132 068
Non-Current Liabilities															
Long Term Loans	8 103 500	11 842 500	11 842 500	45 399 188	42 678 375	39 957 563	37 236 750	12 790 000	0	0	0	0	0	0	0
Total Non-current Liabilities	8 103 500	11 842 500	11 842 500	45 399 188	42 678 375	39 957 563	37 236 750	12 790 000	0	0	0	0	0	0	0
TOTAL EQUITY CAPITAL AND LIABILITIES	4 299 450	4 934 216	80 709 217	38 679 368	32 678 701	26 809 246	21 211 005	36 817 649	47 982 297	46 418 180	44 915 297	43 473 647	42 093 232	40 774 050	39 516 102

Financial Ratios

Constant Current Year Euro

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Operating Income	Euro	9 854 210	17 517 329	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420	15 408 420
Operating Margin	%	65,1 %	57,8 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %	50,9 %
EBITDA	Euro	17 901 011	26 293 754	23 913 409	23 641 973	23 370 537	23 099 101	22 827 666	17 020 912	16 959 678	16 898 444	16 837 210	16 775 977	16 714 743	16 653 509	16 592 275
Return on Investments	%	229 %	355 %	19 %	40 %	47 %	57 %	73 %	42 %	32 %	33 %	34 %	35 %	37 %	38 %	39 %
Debt Service Coverage Ratio	Ratio	1,1	1,4	1,3	0,3	0,4	0,4	0,4	1,2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Operating Income (Revenues less variable costs)

Operating Margin: Operating Profit/Revenues

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

Return on investment: EBIT/Balance sheet total

Debt Service Coverage Ratio (DSCR): (Net Profit + (-Interest Cost) + Depreciation)/(Interest Cost + Principle Repayment)