



Investment Proposal for the Establishment of a Hydrometallurgical Plant in Latvia

Organization Name:
Hidromet SIA
Registration Nr. LV 50103587441
Sept. 09th, 2012

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Form of Business:
Hydrometallurgical product (oxides /
ferro-alloys) processing and
manufacturing

Areas of expertise:
Metallurgy industry
Development of manufacturing
projects
Establishment and management of
Ferro-alloy and hydrometallurgy
factories
Hydrometallurgy technology and
production

Objectives:
Establish a hydrometallurgical
manufacturing plant in Latvia

Pay-Back Period
7 years

Funding Requirement:
Option 1: €1.5 million (1 line)
Option 2: €4.0 million (2 lines)
preferred

Use of funds
Purchase capital equipment

Interest on loan/investment:
7 % budgeted

A comprehensive business and financial
plan is available on request.

This proposal refers to the establishment of a hydrometallurgical plant in Latvia that will produce molybdenum, tungsten and other metal oxides and concentrates utilizing molybdenum (Mo), tungsten (W), vanadium (V), nickel (Ni), cobalt (Co) contained in the used catalysts from oil refinery factories, as well as ferro-alloys.

The OPPORTUNITY -

The demand for molybdenum, tungsten and other metal oxides has rapidly increased in metallurgy industry due to economic recovery and production growth rates in Europe and on a global level. The industry and market experts forecast positive development of metallurgy industry in the future. Extracting the non-ferrous metals from already utilized catalysts is of great economic and ecological importance.

The Company and the Developer: -

- An established track record of establishing hydrometallurgical plants;
- Team of experienced professionals who have extensive experience in the development of manufacturing projects;
- Cooperation with experts from metallurgy industry;
- Extensive and detailed knowledge about manufacturing technology, business processes, markets, purchase of raw materials, risks, etc.

The Advantages:

- The only plant in the European Union.
- Potential clients have great interest for purchasing molybdenum, tungsten and other oxides.
- Modern and cost-effective technology.
- Established cooperation with suppliers.
- Industry trends (demand for products is greater than the supply).

Sources of Income: - Product sales.

The Requirement: -

- A strategic or financial partner.
- Option 1: **€1.5 million** requirement where project cost is €2.3 million of which €0.8 million is provided by the Owners. IRR is 58%.
- Option 2: **€4.0 million** requirement where project cost is €6.4 million, of which €2.6 million is provided by the Owners. IRR is 44.5%.

The Rewards: 7% is budgeted for the full loan/investment. Equity shares are negotiable.



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1 FORWARD

“Hidromet” SIA is a Latvian company that is preparing to establish a hydrometallurgical manufacturing plant in Latvia that will produce molybdenum, tungsten and other metal oxides and concentrates utilizing molybdenum (Mo), tungsten (W), vanadium (V), nickel (Ni), cobalt (Co) contained in the used catalysts from oil refineries, and ferro alloys. There is no such plant in the EU.

Molybdenum and tungsten are elements that improve the strength and viscous properties of steel. Tungsten oxide is also used in producing tungstate for x-ray screen phosphorus and gas sensors.

Product price is determined mainly by the London Metal Exchange (LME) and is relatively stable.

The ideal situation would be to build a full-sized plant. This would require an investment of €20 million. However a more conservative approach is being considered involving two options.

The first option involves installing one hydrometallurgy line to produce oxides in rented facilities. The total capital investment required is €2.3 million of which €0.8 million is owner equity and **€1.5 million** is a loan or investment capital with a 7 year payback period and an Internal Rate of Return (IRR) is 58%. This would allow the business to get established.

The second option involves installing one hydrometallurgy line and one Ferro-Alloy line requiring a total capital investment of €6.4 million with an IRR of 44.5%, of which €2.6 million is provided by the Owners and **€4.0 million** is a loan or investment capital.

Hidromet is seeking an investor or strategic partner to develop this business in Northern Europe.

2 THE ORGANIZATION

“Hidromet” SIA, (SIA = Ltd) Registration Nr. LV 50103587441, is a Latvian registered company on Sept. 09th, 2012 specifically to establish a hydrometallurgical manufacturing plant in Latvia.

It's owners are Aija Kalniņa and Garri Poghosyan. An team of professionals is available to support the project. (see section 8 – Key Personnel)

Business plans in English and Latvian have been produced for all three scenarios (€20 million project, €2.3 million project and €6.4 million project) complete with full sets of financials.

Hidromet has already acquired the necessary production facilities, and has received state and municipal approvals. Site reconstruction has started and utilities are being provided.

Procurement of a production line has been initiated and the first payments for technology and production line design made.



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3 ABOUT LATVIA and ECONOMIC FACTORS

Location

Latvia is positioned between Russia and central Europe, and as such, is at the geographic centre of northern Europe.

The Riga International Airport is a regional hub facilitating travel and deliveries with convenient connections to the rest of the world and the immediate region. Riga is a central location.

The manufacturing plant will be close to the Port of Riga which is an ice-free port on the Baltic.



Latvia

Latvia regained its independence from the Soviet Union in 1991 and began the difficult process of converting from a planned to a free market economy. In the mid 90's, Latvia was experiencing the challenges of economic transition, including multiple banking crises, economic boycotts by Russia, unfamiliarity with western (particularly European) practices and politically-related development issues. Latvia is a western state that abides by EU regulations, having joined the European Union and NATO in 2004. This provides a more stable and predictable foundation.

The Economy

Post economic crisis Latvia has enjoyed a stable and growing economy, a trend which continues following the adoption of the Euro on 1st January 2014. According to Standard & Poor's, Latvia rates a positive outlook a Local Currency Rating at A-, the Foreign Currency Rating at A-, and the (T&C) at AAA as of June, 2015.

Latvia has benefited from its history with established traditions in banking, manufacturing, education and development that provide the foundations for future growth and development, but shares strong ties with both Russia and the west.

Latvia has favourable company tax rates of 15%. There are no restrictions on the repatriation of profits or the transfer of funds from the country. Latvian tax laws favours investment and allow Latvia to compete favourably with "off-shore" companies.

Advantages of working in Latvia

Latvia is in the European Union and borders the CIS, and so is well positioned to serve both.

Low labour costs and a skilled labour force provide a decided financial advantage of operating in Latvia.

There is a possibility for EU financing for development projects, but projects must be based on private funding in the initial stages.

Latvia has the 5th fastest Internet in the world (July 2013 data) with average peak broadband speed 140 % faster than the global average.

For further information see <http://www.liaa.gov.lv/about/latvia-facts>.





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4 TARGET MARKET

Production will be exported to Germany, the Netherlands, Russia, France, the Czech Republic and Armenia, where there is high demand for the metal oxides to further processing.

5 THE COMPETITION

Hidromet will produce niche products with a specific technological processes. The number of competitors is limited. There is strong demand for the processing of oxides for the production of ferrous alloys. Hidromet will initially focus on the oxide production.

Hidromet will be able to add value by eventually producing the ferro-alloys itself.

Hidromet has no competition in Northern Europe because only Hidromet has the necessary technology.



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6 MARKETING AND SALES STRATEGY

Customers: Metal oxides customers will be Ferro-alloy producers in Russia, Armenia, Czech Republic, France, China and Iran.

Metal oxides are listed in the London Stock Exchange Products and associated with stock exchange fixed prices. They will be sold either immediately or passed on to Ferro-alloys manufacturers, where through alumina thermal processes they are transformed into the same elements of Ferro-alloys - FeMo, FEW, FeV, FeNi, Feco which are also tied to the London stock exchange pricing. The difference in price between the oxide and Ferro-alloys with these elements containing the same percentage of the stock exchange listing. The international market transaction fee is 10%.

Metal oxides: Metal oxide buyers will be technology suppliers and the plants that they themselves have built in Russia, Armenia, Ukraine, Germany, France and the Czech Republic.

Ferro-alloys will be sold through the two types of marketing channels:

- steel producing enterprises;
- metal merchants.

"Hidromet" will focus on the European market, in particular the European Union (Sweden, Finland, Germany, Great Britain, Belgium, Denmark, France, Spain, Russia and Ukraine).

The following marketing activities will be used to promote cooperation and attract new customers:

- use of Garri Poghosyan's contacts (see section 8 – Key Personnel)
- Website development,
- Direct visits to potential customers.

Pricing: Product price is determined by the London Metal Exchange (LME). Product prices are published in the journal "Metal Bulletin" and "Platt's Metals Week." It is forecasted that Ferro Tungsten price may fluctuate between \$47-49/kg, tungsten accounts for 2/3 - 3/4 of the production process production. It is forecasted that the price of Ferro Molybdenum can range between \$28-29/kg. Financial forecast is conservative since it uses the weighted average price of \$38/kg.

Work with Clients: Hidromet plans to work with the following customers at the beginning:

- „АЛАПМЕТ” ("ALAPMET") Armenia;
- „Камышинский литейно-ферросплавный завод” ("Kamyshinsky Casting and Smelting Plant") Russia;
- „Днепропетцсталь” ("DSS") Ukraine;
- „Октемберянский завод ферросплавов” ("Hoktemberyan Ferroalloy Plant") Armēnija;
- „МЕТЧЕЛ” ("Mechel")Russia;
- „Hronimet” Germany;
- „Derek Rafael” Italy;
- „Emirates Steel” AAE;
- „Eurotungstene” France.



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7 OPERATIONS

The company will produce the following products:

- Oxides - molybdenum (Mo), tungsten (W), Vanadium (V), nickel (Ni), cobalt (Co), and other metal oxides;
- Ferro-alloys.

By-product of aluminum oxide (Al_2O_3): Aluminum oxide will compose 80% from the total manufacturing process of the valuable oxides and the ferro alloys. Aluminum oxide is a white powder, mainly used in foundries for the production of aluminum. Aluminum oxide can be used as filler due to its chemical properties of being inert and in light shade; Al_2O_3 can be used in manufacturing plastics as well as it can be found in cosmetic products and as an ingredient in sunscreen. Al_2O_3 also helps to provide dehydration of alcohols into alkenes. Aluminum oxide also supports catalysis and is utilized in eliminating water from the gas streams. The Al_2O_3 will be sold to road construction companies and other interested parties, yet it is perceived as a by-product of the production process.

All planned primary production volumes are already designated for the leading companies in this sector. Letters of Intent to purchase Hidromet production of molybdenum and Ferro Alloys have been received from the following companies: „Cronimet”, „Alapmet”, „Kuusakoski”, „Molybden Mobarakeh”, „Haldor Topsoe”, „Derek Rafael”, „Emirates Steal”, „Eurotungstene”

Source of Supply - Raw materials

Raw materials are used catalysts from oil refinery factories that contain molybdenum (Mo), tungsten (W), vanadium (V), nickel (Ni), cobalt (Co). Usually these elements are found in catalysts in the following mixtures: Mo-W, Mo-Ni, Ni-W, Mo-W-Co, Ni-Co, etc.

Oil refineries are increasingly exposed problems associated with the disposal of catalysts. Before the technology was developed to process these by-products, catalysts were stored in drums and sent to landfill or buried causing environmental concerns. The availability of raw materials is plentiful and supply risk is low. Raw materials are supplied in dry condition. They are ecologically safe. The suppliers of raw materials are oil refinery companies from Lithuania, Belarus, Russia, Ukraine and other neighbouring countries. The price of raw materials is \$1.5/kg and is governed by the Metal Exchange listing price at in the range of 30 to 35% of catalyst prices.

Raw material suppliers include Orlen in Lithuania, Lifosa in Lithuania, Naftan in Belarus, Lukoil in Russia and UkrTatNafta in Ukrain. Raw materials can also be purchased from plants on the stock market. Garri Poghosyan and his company, Panalmar, have considerable experience with this.

Technology and equipment

Option 1: “Hidromet” will install a hydrometallurgy line with a total monthly processing capacity of up to 200 t. The necessary production lines will be prepared, technologies and “know how” will be provided by specialist affiliates. Production premises will be located in Latvia (near Riga). Premises will be rented.

Option 2: Hidromet” will install a hydrometallurgy line and a Ferro Alloy line.

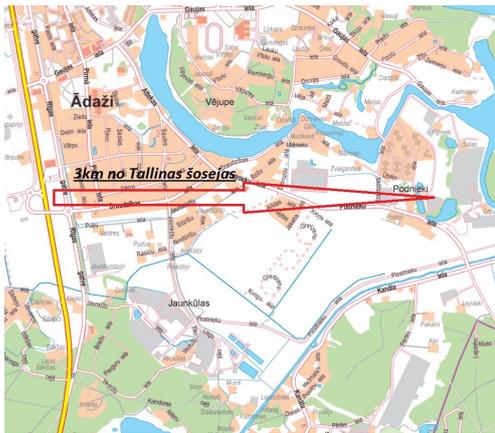
The lines are supplied by UAB “KEMEK Engineering” www.kemek.eu.



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Site

Both plant and office will be located in Ādaži, 20 km from the center of Riga and the Port of Riga, and 30 km from the Riga International Airport. The site area is 1.29 ha, while building area is 5118 m². Access is by paved road. All utilities are in the immediate area. Work is in progress to provide the necessary connections.



Approximately 50 people will be employed in 3 shifts for option 1, or 200 for option 2.



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8 KEY PERSONNEL

Owners

Aija Kalniņa is one of the two owners of Hidromet. Aija is a 1964 Engineering graduate from the Riga Technical University in Latvia and specialized in road design. She operates and owns “**ProVia**” SIA, a road design engineering company, as well as an asphalt manufacturing company in Latvia. As such, Aija is well aware of regulatory issues in the EU and the appropriate issues related to manufacturing facilities.

Garri Poghosyan is the other owner of Hidromet, and is a 1981 graduate in Engineering and Industrial Management of the Metallurgical Institute of Dnipropetrovsk, Ukraine, followed by a Masters Degree in Engineering technology from Moscow NII MINHIMMASH in 1982. As owner and director of "Panalmar" LLC, Garri has considerable experience in the installation of similar technology. Garri has internationally recognized experience in hydrometallurgical and ferro-alloy production process organization having been involved in the development of seventeen such installations. He is the technology expert in the group and will be responsible for project implementation and commissioning of the plant. Garri will also manage the procurement of raw materials for the new facility.

Management:

Dr. Dace Strode is an Environmental Expert having obtained her Bachelors in Chemistry in 1985, Masters in 1989, and Doctorate in Chemistry from the University of Latvia in 1991. Dace has completed the environmental impact assessment for the facility, and will be responsible for process control, quality control and environmental issues.

Ivars Grislis – BSc - Mechanical Engineering (Riga Polytechnic Institute, Latvia). MBA - Economics (Riga Polytechnic Institute, Latvia) is the Project Manager for the new facility and its eventual Plant Manager bringing to Hidromet his engineering design and project management experience since 1991.



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9 DEVELOPMENT AND EXIT PLANS

SWOT Analysis

Strengths:

- Experienced and qualified management;
- New, modern and proven equipment;
- The proximity and availability of raw materials;
- Focus on hydrometallurgy - oxides demand from manufacturers of ferro-alloys is greater than the supply;
- Advantageous geographical location

Weaknesses:

A new company that has to win its place in the market.

Opportunities:

- Possible to expand the existing production facility;
- Flexibility to produce a variety of products to mitigate market risks;
- The opportunity to significantly improve overall profitability concentrating on ferro-alloy production.

Threats:

Global Economy

Hidromet would welcome a strategic investment partner who would facilitate the development of the manufacturing and sales operation.



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10 FINANCES

The price of products is set in the London Metal Exchange (LME). Product prices are published in "Metal Bulletin" and "Platt's Metals Week" magazines. It is forecasted that the price of tungsten in ferro alloy fluctuates between \$50 and \$52/kg. The price of molybdenum in ferro-alloy is forecasted to fluctuate between \$25 and \$27/kg.

Alumina oxide revenue is not included in the cash flow statement, although Al₂O₃ Hidromet plans to sell it to refinery catalyst and ceramics manufacturers.

The financial forecast takes a more conservative view and takes the weighted average price of an element in ferro alloy at \$38/kg, whereas weighted average price of these elements in oxides – is \$34.2/kg.

Option 1 (€2.3 M Project)

"Hidromet" will install hydrometallurgy line to produce oxides with a total monthly processing capacity of up to 200 t. Production premises will be located in Latvia (near Riga). Premises will be rented.

Total cost of technology and equipment: €1.5 million. Technologies and equipment will be installed during the 1st year of the project and production will begin on the 2nd year.

Capital requirement: [L] [SEP]

- Owner's Equity: €0.8 million
- Loan: €1.5 million with repayment of 7 years.

Capital flow

	year 0	year 1	year 2	year 3	year 4	year 5	year 6	year 7
Equity (T. EUR)	802							
Credit payment (T. EUR)	-	1,494	-224	-299	-299	-299	-299	-75
Interest payment (T. EUR)		-105	-97	-78	-58	-37	-16	-3

Financial forecasts of the project have been made for 10 years, since the beginning of production (in year 2). It should be noted that the project forecasts are conservative and represent moderate increase in sales and total net income.

Forecasted Income Statement (1,000 EUR)

	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10
Manufactured tungsten and molybdenum, t	0	288	288	360	360	360	360	360	360	360
Sales, T EUR	0	7,106	7,177	9,061	9,151	9,243	9,335	9,429	9,523	9,618
Raw material expenses, T EUR	0	2,078	2,098	2,649	2,676	2,703	2,730	2,757	2,784	2,812
Other expenses, T EUR	0	2,250	2,408	2,705	2,715	2,724	2,734	2,744	2,755	2,765
Depreciation, T EUR	0	86	206	298	389	481	573	664	756	848
Administration expenses, T EUR	0	426	431	544	549	555	560	528	571	577
Interest expense, T EUR	105	97	78	58	37	16	3	0	0	0
Net income before tax, T EUR	-105	2,169	1,955	2,808	2,786	2,764	2,736	2,735	2,656	2,616
Tax, T EUR	0	325	293	421	418	415	410	410	398	392
Total net income, T EUR	-105	1,844	1,662	2,387	2,368	2,350	2,325	2,325	2,258	2,224

Main assumptions of the income statement:

- The average weighted price of the obtained molybdenum and tungsten in oxides – \$34.2k/t.
- Al₂O₃ composes 80% of the total production amount. It can be perceived as a by-product as it is not a valuable oxide; therefore, no income from the Al₂O₃ is incorporated in the forecasted financial



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accounts.

- Price of catalysts is estimated to be \$1.5k/t.
- Production will start on the 2nd year of the project with approx. 50 employees. The number of employees will remain constant during the following years.
- It is planned to increase the average wage of the employees by 5% on annual basis.
- Administration expenses will compose 6% of annual sales.

Starting with full years of production, the profitability ratios will stabilize and EBITDA margin will reach 31%, the gross margin 32% and the profitability margin 22%.

Forecasted cash flow (1,000 EUR)

	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10
Operating activities										
Net income T EUR	-105	1,844	1,662	2,387	2,368	2,350	2,325	2,325	2,258	2,224
Depreciation T EUR	-	86	206	298	389	481	573	664	756	848
Change in working capital T EUR	-	-723	187	-169	-8	-9	-9	-12	-6	-9
Cash flow from operating activities T EUR	-105	1,206	2,055	2,516	2,749	2,822	2,889	2,977	3,008	3,063
Investing activities T EUR	-2,291	-	-916	-916	-916	-916	-916	-916	-916	-916
Financing activities T EUR										
Credit T EUR	1,494	-224	-299	-299	-299	-299	-75	-	-	-
Equity financing T EUR	802	-	-	-	-	-	-	-	-	-
Cash flow from financing activities T EUR	2,296	-224	-299	-299	-299	-299	-75	-	-	-
Total Net Cash Flow T EUR	-100	982	840	1,300	1,534	1,607	1,898	2,061	2,092	2,146

Main assumptions of the cash flow:

- Production lines and equipment will be installed during the 1st year of the project.
- Production will start on the 2nd year of the project.
- Hidromet" will repay the credit (€1.5 million) in 7 years. The annual interest expense is 7%.

The Net Present Value (NPV) of the project is €2,952,424 and the Internal Rate of Return (IRR) is 58%.



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Option 2 (€6.4 M Project)

The total investment in the plant including manufacturing facilities equal €6.4 million

The total capital requirement:

- Owners investment - €2.6 million (38% of total funding);
- Additional financing - €4.0 million (62% of total funding).

Processing equipment costs €4.5 million.

Additional financing has been budgeted at a 7% interest rate, with 0.5% allocated to arranging financing.

It is expected that the initial budgeted income only from the sale of oxides will be at 60% of the plant's capacity. Revenue can be significantly increase by further processing of oxides into ferro-alloys. Additional income can be generated by selling alumina oxide, which is a by-product of the process.

Cash Flow

Naudas plūsma un peļņas vai zaudējuma aprēķins 10 gadiem

Pārdoti oksīdi tonnas	0	346	415	461	403	346	288	288	288	288
LVL/t	18 126	18 307	18 490	18 675	18 862	19 051	19 241	19 434	19 628	19 628
Pārdoti ferrosakausējumi	0	0	46	115	173	230	288	288	288	288
LVL/t		22 154	22 376	22 599	22 825	23 054	23 284	23 517	23 752	23 990
Pārdošanas iepēmumi	0	6 264 346	8 623 452	11 123 784	11 474 065	11 830 239	12 192 389	12 314 313	12 437 456	12 561 831
Mainīgās izmaksas	0	3 125 110	3 484 947	4 759 497	6 098 286	6 288 696	6 487 648	6 695 544	6 874 597	7 061 328
Darbinieku algas	0	1 313 369	1 838 716	2 413 315	2 533 980	2 660 679	2 793 713	2 933 399	3 080 069	3 234 073
Katalizatori	0	1 387 498	1 868 497	2 358 977	2 382 567	2 406 393	2 430 457	2 454 761	2 479 309	2 504 102
Fiksētās izmaksas	55 400	179 000	179 000	179 000	179 000	179 000	179 000	179 000	179 000	179 000
Ražošanas izmaksas kopā	55 400	3 663 947	4 938 497	6 277 286	6 467 696	6 666 648	6 874 544	7 053 597	7 240 328	7 435 105
EBITDA	-55 400	2 600 399	3 684 955	4 846 498	5 006 369	5 163 591	5 317 845	5 260 716	5 197 128	5 126 726
Būvju amortizācija	49 196	49 196	49 196	49 196	49 196	49 196	49 196	49 196	49 196	49 196
Iekārtu amortizācija	29 283	351 400	351 400	351 400	351 400	351 400	351 400	351 400	351 400	351 400
EBIT	-133 879	2 199 803	3 284 359	4 445 902	4 605 773	4 762 995	4 917 249	4 860 120	4 796 532	4 726 130
UIN(15%)	0	244 890	455 456	633 029	660 585	687 993	715 224	711 034	706 182	700 636
NOPAT	-133 879	1 954 913	2 828 903	3 812 873	3 945 189	4 075 002	4 202 025	4 149 086	4 090 349	4 025 494
Peļņa	-298 404	1 686 113	2 580 920	3 587 164	3 743 313	3 898 628	4 052 937	4 029 195	4 001 700	3 970 272
Amortizācija	78 479	400 596	400 596	400 596	400 596	400 596	400 596	400 596	400 596	400 596
Naudas plūsma	-219 925	2 086 709	2 981 516	3 987 760	4 143 909	4 299 224	4 453 533	4 429 791	4 402 296	4 370 868
Naudas atlikums pēc kredīta nomaksas *	75	1 789 399	4 452 713	8 099 998	11 879 598	15 789 011	19 825 447	23 808 945	27 733 705	31 315 681

* Pašu ieguldījums apgrozāmajos līdzekļos 220 000LVL, lai segtu pirmā gada 219 925LVL izdevumus

Project IRR of 44.5%.



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Financial data is presented in the local Latvian currency, the Euro.

Exchange rates as of Tuesday, June 9, 2015 are:

- 1.00 EUR = \$1.1285 US
- 1.00 EUR = £0.7336 GBP

Contact Information

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