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Volume of investments required – \$ 15 million.

Summary

1. **Production** – lower-power steam turbines, turbine-generator sets and turbine drives on their basis.
2. **Trade marks** – “Dvina”.
3. **Sales 2007** – \$ 117 ths.

Company profile

Date of establishment – Joint company with limited liability “NTC ENOTECH” was established in 2005 through restructuring of CoLtd “Scientific Technical Center for Energy Optimal Technologies”, registered in January 1993, Minsk, Belarus.

Description and value of capital assets – \$ 22 ths, office equipment.

Previous rounds of investments – \$ 40 ths, statutory fund formation.

Signs of public recognition – participation in the State Program for Innovational Development.

Number of employees – 27 persons, including 15 staff members.

Structure of ownership

Legal entity – JSCoLtd “Energoeffectas”, Lithuania	48%
Natural persons – citizens of Belarus (2)	52% (26%, 26%)
Aggregate share of government property	0%

Team

Consists of highly-skilled specialists with higher education, who have deep professional knowledge in energy, machinery and engineering. The company has 3 PhDs in Technical Sciences among its staff.

Key members of the project:

Krupnov Valery – Director, 55 y.o. PhD in Technical Sciences, work experience since 1993 as the director of the company, has experience in arranging the production of gas analyzers.

Spagar Igor – Chief Engineer, 37 y.o. PhD in Technical Sciences, Associate Professor.

Lebedeva Maryna – Deputy Director. Contact person of the Project, Chairman of Innovation development committee “MCAEaE”, higher technical and economic education.

Production

Different steam pressure required for the production needs and generated by boilers demands special reduction devices to lower pressure or exploitation of steam boilers in off-design reduced power conditions. In the first case, steam potential is irrevocably lost under reduction (lower pressure), in the second, there is a considerable overexpenditure of fuel and electricity on the boilers own needs.

To solve this problem effectively, Dvina lower-power steam turbines are used. They are meant for gearing different mechanisms, including electric generators, pumps, compressors, fans, air blowers, and can be used instead of or together with existing reduction sets, and also independently in case there is a need to lower steam pressure.

Turbine-generator sets (TGS) and turbo drives, based on Dvina steam turbines, are aimed for generating electric power at boiler plants and enterprises of manufacturing and communal sectors. Introduction of Dvina turbines, Dvina-based turbine-generator sets and turbo drives allows for a substantial increase in efficiency of steam potential.

Mechanical power generated by Dvina turbines can be used to drive generators, pumps, air blowers, compressors, etc. Due to the composition of the set that is used, there are turbo generator and turbo drive variants in using Dvina turbines.

The capacity of Dvina steam turbines (50–350 kW) allows its common use together with steam boilers at the capacity of 4–10, 16–25 tones of steam / hour. This helps to significantly increase the efficiency in using organic fuel, reduce the consumption of electric power from external network systems. The boiler house can be transformed into a mini heat station to generate and sell electric power.

Steam turbines and turbine-based sets are supplied by all the required protection and control devices:

- Control and protection cabinets with microprocessor controlling system;
- Generator switch cabinets (turbine-generator sets);
- Steam turbine shut-off-and-safety (stop) valves and control valves.

Parameters, defining competitive advantages of the products in comparison to analogs – steam screw-rotor machines:

- Extended workload range (10–100%);
- Absence of oil system and use of grease-packed rolling bearings which simplifies the form-factor, maintenance conditions and increases reparability;

- Small dimensions and compact size do not require a separate place and allow to locate the set directly in the boiler room;
- Simplicity of design ensures quick start of the set from halted state;
- Constructive design of the set allows for additional generation of steam from turbines of 2 different parameters.

The products have 5 patents (Belarus, Russia, Ukraine).

Current state

Since 2005, the joint stock company with limited liability has produced and delivered 6 turbogenerator sets at the overall capacity 1.5 MW, of which 3 sets – OAO Homeldrev (PLC); 1 set – OAO Lakokraska (PLC); 1 set – RUP (Republican Unitary Enterprise) Minskkrystal; 1 set – OAO Svetlogorskoye Khimvolokno (PLC).

At present, 5 turbogenerator sets for the needs of the enterprises of the Republic of Belarus are being manufactured. A tender has been won to deliver 3 turbogenerator sets at the overall capacity 750 kW.

Development strategy

Use of funds

1. R&D	5%
2. Acquisition of fixed assets	70%
3. Marketing	20%
4. Acquisition of current assets	5%

Prospective outcome of investment

Attracting investment will enable to build a steam turbine and turbogenerator manufacturing plant, to create specialized flexible production with an opportunity to make products in-house on a regular and continuous basis (up to 85–90%). This will lead to lower costs, increased quality; working capital will help to decrease lead times. The company is planning to produce about 50 turbogenerators a year.

Marketing & Markets

Planned market size: The Russian Federation – 50 000 MW (approximately 200 000 units, estimated at about \$25 bln); The Republic of Belarus – 250 MW (approximately 1000 units, estimated at about \$125 mln). Possibilities of selling in the EU are being analyzed.

The company's basic views on market entry can be seen as creation of dealer network in turbogenerator set sales and after-sale service. Planned market share of the Belarusian market – 100%, the Russian market – 55%.

Interaction with investor

Agreement on the terms of cooperation is in the course of work.

Financial characteristics, \$ thousand

Data	Facts			Forecast	Forecast with the investment required			
	2005	2006	2007	2008	2009	2010	2011	2012
Sales	25	137	117	720	4500	5800	7500	10 000
Operating income	5	24	21	120	200	260	400	520