

Investing into production of ECOPARIES construction panels for residential housing



ENSAT GROUP

ENERGY PROJECT GROUP CONSORTIUM

RUSSIAN INVESTMENT ALLIANCE

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INTERNATIONAL INVESTMENT PROGRAMME IN BRIEF

The proposed International Investment Programme is targeted at commencing production of innovative construction panels for building residential housing throughout the world and in particular in Russia.

The Investment Programme offers construction industry businesses a distinctive competence as opposed to other construction materials production projects – access to patented German ECOPARIES construction materials technology and know-how. The product range includes modular interior and exterior wall, ceiling and roof elements. Construction panels produced will be subsequently used for erection of buildings up to 18 floors tall.

ECOPARIES PLANTS

The Programme encompasses construction of 30+ plants producing construction panels throughout Russia (the profile of a typical ECOPARIES panel-producing plant is laid out in table below):

- Moscow region – 8 plants
- Kaliningrad – 3 plants
- Yekaterinburg – 3 plants
- Bashkortostan, Tatarstan – 9+

Investment profile of an ECOPARIES plant	
Capacity, panel production, sq. m p.a.	135 thsd.
Resulting housing production, sq. m p.a.	180 thsd.
Resulting housing cost, \$/sq. m	400
CAPEX, \$ mln	31
NPV, \$ mln	470
IRR, %	60%
Payback period, yrs	2,3

MAIN GOALS

- Satisfying the need for cost-optimised, environmentally friendly and consumer-appealing residential housing solutions through:
 - Lower cost of construction
 - Reduced housing price for the consumer
 - Shorter construction period
 - Greater flexibility: European standard, individually tailored
 - Other benefits: energy saving technology, built-in latest IT architecture
- Transferring industry best practices to the Russian construction materials and services landscape
- Paving the way for utilization of ECOPARIES technology in emerging economies



INTERNATIONAL INVESTMENT PROGRAMME BENEFITS

The Investment Programme will create a sustainable competitive advantage for any participating business:

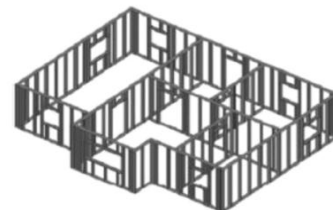
Market challenges and Investment Programme benefits	
Challenge 1: High overall cost of housing – \$1 052/m ² Russian market average	Cost of residential housing based on ECOPARIES technology is \$400/m ²
Challenge 2: Current housing price – \$1.5 thsd./sq. m too high for most Russian people, with average income approaching \$0.6- 0.8 thsd. per capita per month	Affordable (lower-segment) housing price might be reduced by up to 50% to \$1 thsd./sq. m, which is going to boost sales in the segment
Challenge 3: Low availability of housing – 21 m ² per capita, Russia vs. 35-45 m ² per capita, Europe, among other reasons due to lengthy construction periods	ECOPARIES construction process requires 2,5 to 3 times less time vs. conventional concrete, brick or block construction
Challenge 4: Poor quality of housing – 500 mln sq. m of housing are shabby, 50% of housing are 40+ yrs old	ECOPARIES technology: German quality, innovative, easily scalable on the market

TECHNOLOGY DETAILS

TECHNOLOGY DESCRIPTION

ECOPARIES Technology includes the following technological processes:

- Computer-aided design of facilities according to individual customer requirements
- Manufacturing of modular construction elements
- Delivery of modular elements to the construction site
- Installation (optional)



Raw materials and supplies required for production of ECOPARIES panels are: cement, sand, water, rolled steel (1 mm thick).

ECOPARIES-based production process makes possible faster construction of multi-purpose buildings:

- Construction of a private house (cottage) for a family of 5 people, appx. 150 sq. m, takes 2 days. It requires 4 workers and a construction crane
- Construction and assembly of an eight-floor building takes 2 months



The entire ECOPARIES production process is fully automated. The technology is protected by European patents and certified in Europe. ECOPARIES know-how complies with European construction standards and has been recognized and recommended for use in the Russian market by Rosnanotech experts.



TECHNOLOGY VS. INDUSTRY BENCHMARKS

ECOPARIES technology is most effective and friendly to the environment:

- Higher burden resistance (up to 18 floors)
- Lower weight (60% lighter than traditional materials)
- Higher seismic resistance
- Higher resistance to cold, heat, fire
- Lower energy consumption (1mW per day vs. 6 mW per day with the traditional technology)
- Requires no repairs / renovation for 50 yrs

Type of technology	ECOPARIES vs. other technologies		
	ECOPARIES panels / modules	Concrete panels with polystyrene core	Concrete sandwich panels
Thermal conductivity, W / (m*K)	0,28	0,35	0,32
Endurance, MPa	35	25	30
Seismic resistance	10	10	10
Manufacturing clearance limits, mm	±1	±5	±3
Density, kg / cu. m	400 - 1200	800-1800	800-1400
Fire resistance	REI 60-120	REI 40-80	REI 60-120
Frost resistance	F350	F250	F350
Cost of 1 sq. m, thsd. Roubles (delivery and installation)	7	15	16
Guaranteed lifetime	100	50	50

INTERNATIONAL INVESTMENT PROGRAMME DETAILS

MARKET RESEARCH

In 2010 the Russian housing construction market had the following key characteristics:

- Total volume of housing – 3299 mln sq. m
- Old and unsafe housing as % of total – >50%
- Actual new housing construction was 70 mln sq. m p.a., whereas estimated volume of new housing construction required to cover the old & shabby housing gap should be 150 mln sq. m p.a.

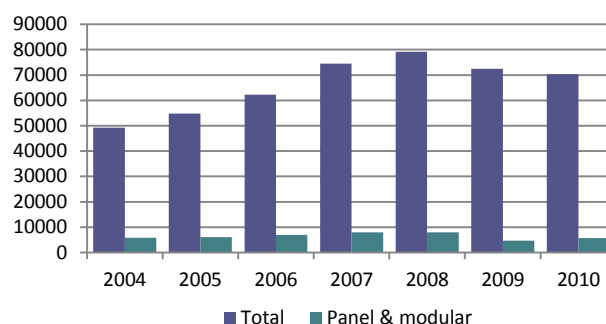
Panel & modular construction accounts for appx. 5-10% of the housing market. This segment is swiftly growing, particularly since 2009. The demand for state-of-the-art construction materials similar to ECOPARIES materials is projected to grow:

- Share of panel constructed housing in Russia has been rapidly increasing in the recent 1-3 yrs and is forecasted to gain further momentum
- The market for modular construction materials is on the rise too and has a huge potential

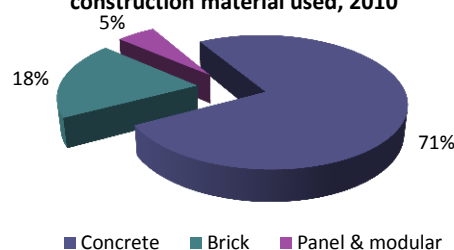
In 2009-2010 housing construction market profitability decreased because of the slowdown in housing prices with construction costs still rising (average EBIT in the housing market in 2010 was equal to 36%).

Sources: Russian Federal State Statistics Service, ASN-info News Agency (asninfo.ru), ENSAT Group

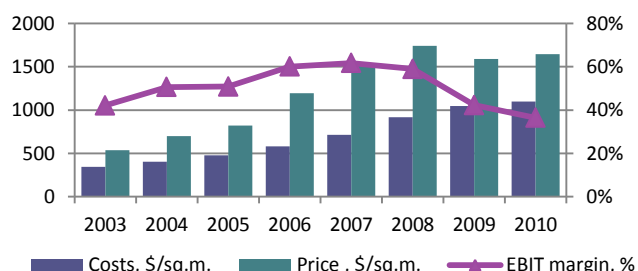
New residential housing, sq. m p.a.



Russian housing market: breakdown by construction material used, 2010



Russian housing market: financials



PROGRAMME PARTICIPANTS

- ENSAT Group is a private group of companies involved in energy service, high-tech and investment businesses. As at end of 2009 ENSAT had 10+ subsidiaries and affiliated companies
- PHILCO Technologies GmbH – a German engineering company, since 1994 implementing projects in construction materials. From 1994 to 2008 the company completed a number of projects totaling \$65 mln, which is equivalent to 1 mln sq. m residential housing built p.a.

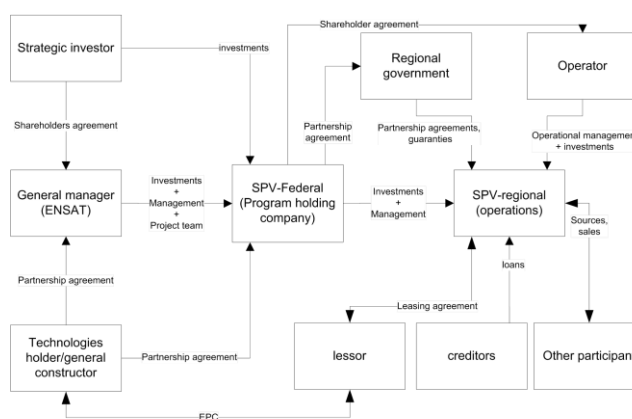
Main participants of the Investment Programme

Initiator, General manager, Investor	ENSAT Group
General contractor	PHILCO Technologies GmbH (Germany)
Equipment supplier	PHILCO Technologies GmbH (Germany)
Lessor	Rheinisch-Westfälische Leasing GmbH (Germany)
Government bodies	Moscow Region, Voronezh region, Kostroma Region, Ministry for Economic Development
Operating companies	Filko Tambov, JSC SG Brick, JSC Experimental construction, JSC The National Housing Corporation, etc.

DEAL STRUCTURE IN RUSSIA

ENSAT Group, acting as Project Manager, is supposed to create a special purpose vehicle (SPV-Federal) utilizing ENSAT PM expertise and lobbying capabilities, as well as resources of strategic investors, technology suppliers and contractors.

For the purpose of pursuing individual projects based on ECOPARIES technology in the Russian Regions SPV-Federal is going to establish and fund another SPV (SPV-Regional) to be managed by selected operating companies located in Russian Regions.



A detailed deal structure will be developed for specific Projects executed as parts of the Investment Programme.

CAPEX

Total volume of investments according to the present Investment Programme amounts to more than \$1 bln. The Programme comprises construction of 30+ factories targeted at construction panel production. The requirements in respect of the production site are as follows (for a single ECOPARIES plant):

- Production site – 10 hectares.
- Production buildings – 150x63x12 m (LxWxH)
- Electricity – 800 kW per day
- Water – 100 cu. m/day
- Gas – 80 cu. m/day

CAPEX profile of an ECOPARIES plant, \$ mln.	
Equipment (incl. delivery, commissioning, personnel training)	26
Renovation of production buildings	4
Working capital	2
Total	32

The construction period of a single ECOPARIES factory is 30 months. For CAPEX requirements of a single plant (capacity 180 thsd. sq. m of housing p.a.) refer to Table 5.

INVESTMENT RATIOS

Investment into construction of a single ECOPARIES plant demonstrates attractive investment ratios:

- NPV.....\$470 mln
- IRR.....60%
- Payback.....2,3 yrs

INVESTMENT OFFER

- The Investor is offered shares of SPV-General in the Project or Projects commenced under the Investment Programme.
- All equity and debt capital will be invested in holding SPV and reinvested in regional factories (regional SPV).
- The form of equity investments return is dividend. Return of debt is an accelerated repayment
- Exit from the Investment Programme can be accomplished through the sale of shares of SPV-General to a strategic investor or through an IPO.

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