

A COMPLEX SOLUTION TO SUPPLY  
REGIONS WITH DIFFERENT HOUSEHOLD  
AND INDUSTRIAL WASTE  
OBTAINED BY PROCESSING  
ELECTRICITY, HEATING AND FUEL.



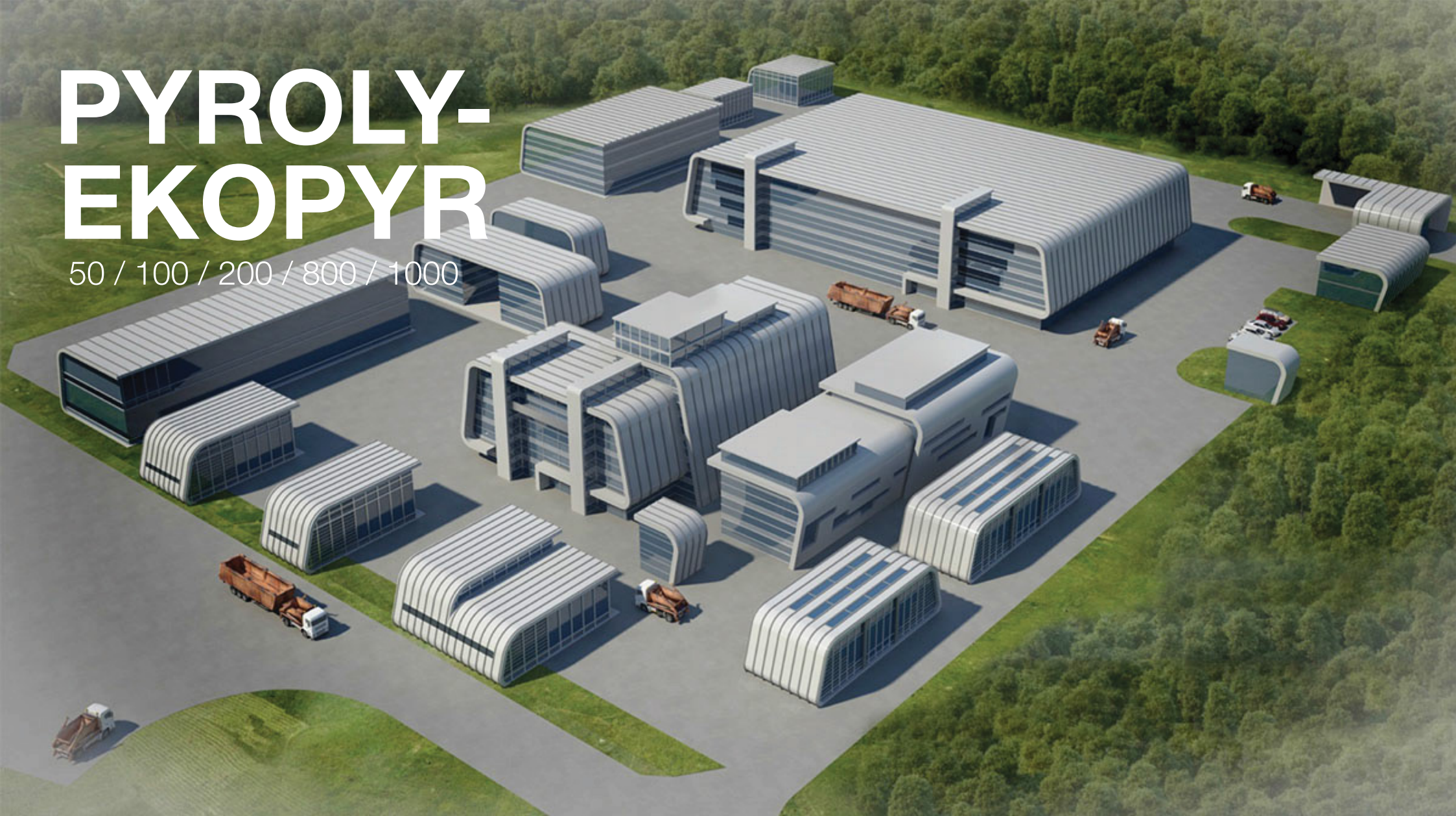
# OUR CURRENT PROBLEMS





# PYROLY- EKOPYR

50 / 100 / 200 / 800 / 1000



RECOVERY OF WASTE FOR FUEL AND ELECTRICITY PRODUCTION

## VISUAL PROFIT OVERVIEW

200 m<sup>3</sup>/ day = 125 tonnes\* / day \* Prepared crushed garbage


The medium-capacity plant processes 200 m<sup>3</sup> of garbage per day, which makes about 14 garbage trucks a day.




× 14  
TRUCKS


## PYROLY-EKOPYR 200 PRODUCTION DETAILS

 DIESEL EURO5  
790 tonnes/ month

 HEATING FUEL M100  
211 tonnes/ month

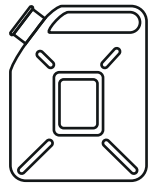
 TECHNOLOGICAL CARBON  
360 tonnes/ month

 GASOLINE A'92  
440 tonnes/ month

 HEAVY TAR  
90 tonnes/ month

 GAS  
345 tonnes/ month



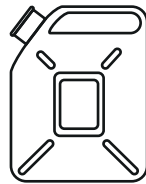


DIESEL EURO5  
**790 tonnes/ month**



GASOLINE AI-92  
**440 tonnes/ month**

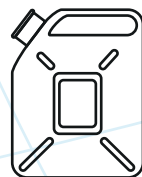
For the sake of simplicity, let us abandon the production of petrol in favor of diesel. PYROLY-EKOPYR technology and its components allow us to do this. We focus on the production of light fraction fuels. The production of by-products and heat remains the same, but is not used in this example.



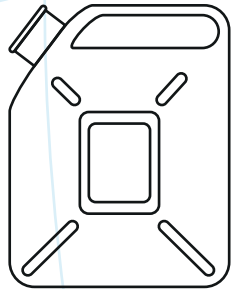
DIESEL EURO5  
**1230 tonnes/ month**

$$V \text{ litres} = ( m \text{ tonnes} / 0,769 ) \times 1000 \text{ L.}$$

LIGHT FRACTION FUEL (DIESEL EURO-5)



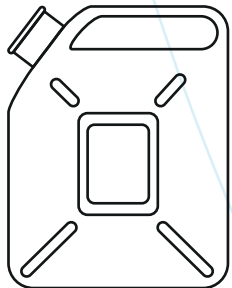
**1 599 479 L. / month**



LIGHT FRACTION FUEL

**1 599 479 L. /month**

**x 11** month



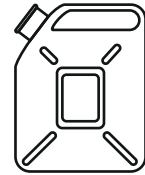
LIGHT FRACTION FUEL

**17 594 278 L./ year**

**13 534 tonnes/ year**



42 500 tonnes/ year 



LIGHT FRACTION FUEL  
13 534 tonnes/ year

1/48 Estonia needs 50 PYROLY-EKOPYR-200 production units,  
to fully meet your diesel needs

× 470



Estonian consumption  
DIESEL EURO5  
647 000 tonnes/ year

Estonian Statistics  
[www.stat.ee](http://www.stat.ee)

1/10



Garbage produced in Estonia  
20 000 000 tonnes/ year 

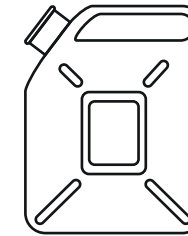
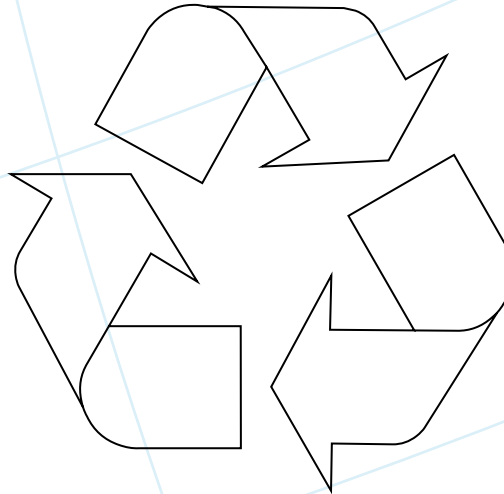


LIGHT FRACTION FUEL  
6 368 941 tonnes/ year

That's 10 times more your diesel needs.

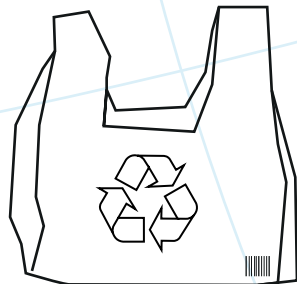


42 500 000 kg



DIESEL  
EURO5

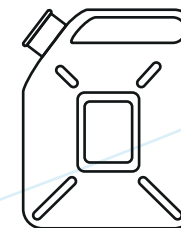
17 594 278 L.



3 kg

=

1 L



DIESEL  
EURO5





# Short description and key features

## **PYROLY-EKOPYR**

**It is intended for groups I to V,  
including used tires, plastics,  
for the treatment of polyethylene waste.**

## ECOLOGY



- Works without releasing combustion products into the atmosphere***
- Does not leave residual products***
- There is no chimney***



To ensure the ecology of production, the complex uses a combination of three filtration systems and harmful substances.



Two-stage purification of pyrolysis gas before entering the gas piston power plant and pyrolysis reactor.



These cleaning and filtration systems completely eliminate the possibility of gases and liquids entering the environment.



## TECHNOLOGY

High profitability is achieved due to the high-tech production of the production unit and there are practically no technical risks. Rapid internationalization and independence from the developed infrastructure, allows to organize activities in any place where garbage accumulates.



- Does not require a waste sorting step.*
- Without third party electricity, water and gas consumption.*
- Possibility to switch to different types of output products.*
- Online change and quality control.*
- Opportunity to develop activities based on your products.*
- Creating additional jobs.*
- Increasing the competitiveness of existing companies.*
- Fast commissioning and warranty service.*












The most acute problem at the moment is environmental problems, even in less developed countries. The constant rise in the price of fuel and electricity is a vital problem today and, in the context of the global crisis, is having catastrophic consequences. Energy is always a priority for modern humanity, ensuring the functioning of the vital infrastructure of modern society.

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- ***Profitability 3 years***
- ***Surplus raw materials***
- ***Highly demanded end products***
- ***Result of industrial production: fuel, electricity, heat, etc ...***

PYROLY-EKOPYR-50 PYROLY-EKOPYR-100 PYROLY-EKOPYR-200 PYROLY-EKOPYR-1000

 DIESEL EURO-5	168 tonnes/ month	336 tonnes/ month	790 tonnes/ month	4050 tonnes/ month
 GASOLINE A192	91 tonnes/ month	222 tonnes/ month	440 tonnes/ month	2100 tonnes/ month
 ELECTRICITY PRODUCTION	3 Mwh	6 Mwh	12 Mwh	60 Mwh
 HEAT ENERGY	2 580 000 Kcal	5 160 000 Kcal	10 320 000 Kcal	51 600 000 Kcal
 HEATING FUEL M100	33 tonnes/ month	108 tonnes/ month	211 tonnes/ month	1020 tonnes/ month
 HEAVY TAR	30 tonnes/ month	45 tonnes/ month	90 tonnes/ month	448 tonnes/ month
 SOOT	130 tonnes/ month	240 tonnes/ month	345 tonnes/ month	2160 tonnes/ month
 TECHNOLOGICAL CARBON	150 tonnes/ month	180 tonnes/ month	360 tonnes/ month	1760 tonnes/ month
 OWN CONSUMPTION	0,35 Mwh 400 Volt	0,7 Mwh 400 Volt	1,4 Mwh 400 Volt	5,6 Mwh 400 Volt
 PRICE €	4 290 000	9 750 000	19 860 000	89 600 000
 INVESTMENT RETURN	4 years	3.5 years	3 years	2.5 years



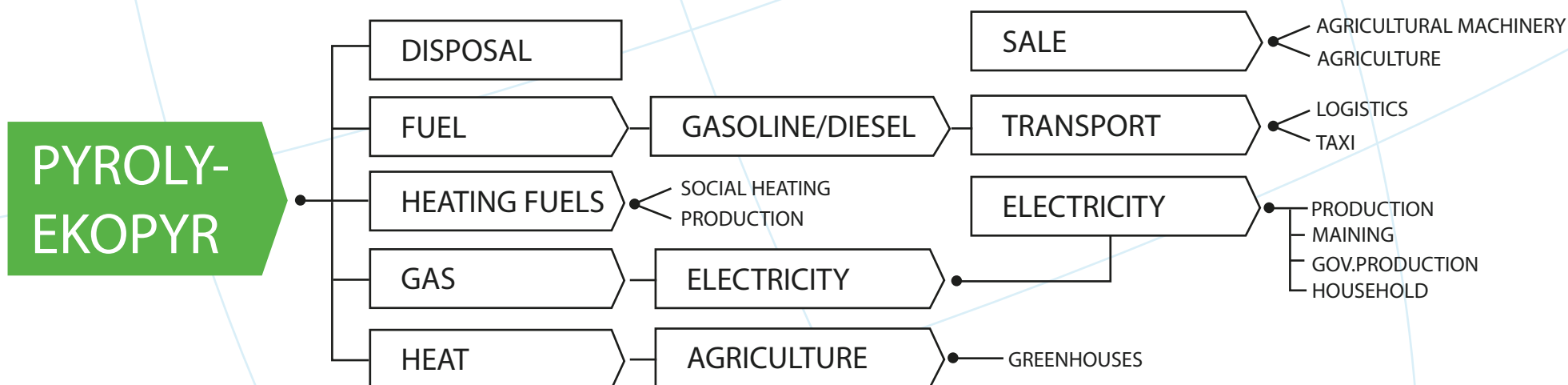


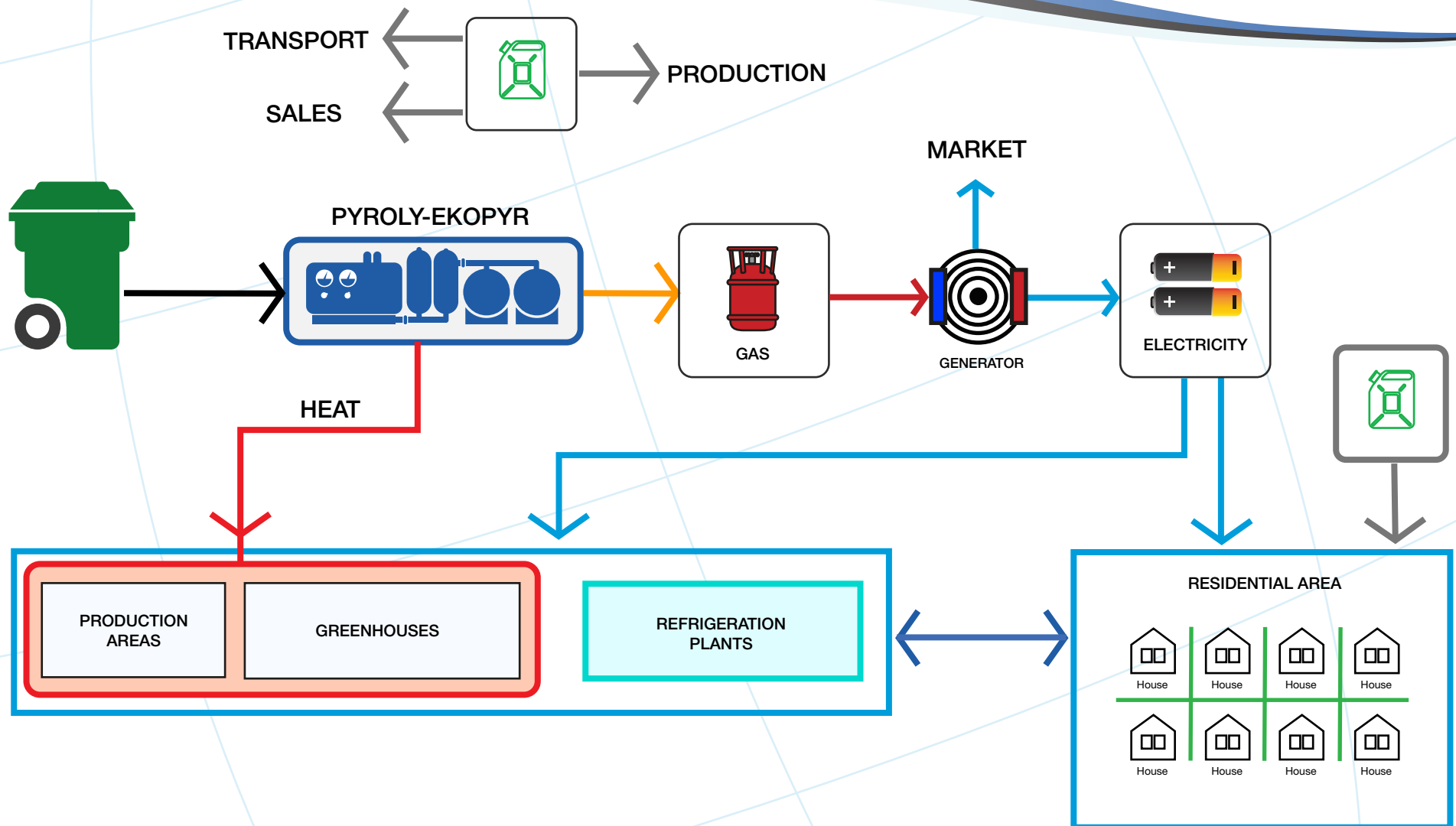
# The offer



# ACTIVITY

Having their own products from the disposal of various wastes, an investor can develop various infrastructure projects and attract both private and public investment. Each activity area inevitably becomes a leading one due to the availability of independent fuel or energy, which makes up the largest part of the costs determining the final price of a product or service.





## GREENHOUSE FARMS AND AGRICULTURE, IN GENERAL

An PYROLY-EKOPYR unit in combination with greenhouse farms allows for a new level of performance, eliminating the costs associated with northern locations. Vegetable farmers reach low product prices due to the natural favourable climatic conditions. Vegetable farming in northern areas implies additional costs for greenhouse heating. Whereas, due to the production mechanisms, PYROLY-EKOPYR units, have to constantly dump excessive high temperatures of a few hundred degrees, allowing to transfer the heat to greenhouse radiators, using the pipes. This provides the competitive advantage of southern farmers to northern manufactures. However, electricity is one of the most significant components of the product cost, and its price is continuously growing. The electricity produced by our units allows for northern farmers to reach incomparable competitive edge. The logistic costs may be also covered by fuel produced by PYROLY-EKOPYR units.

## SETTLEMENTS

The social processes in the modern world imply inevitable global migration, for many underlying reasons but with one conceptual trend – away from megapolices. The constant growth in prices for housing facilities and its imminent depreciation with time will sooner or later make the owners consider the existing problems. The housing, the heating, the electricity, the fuel. These are the unavoidable issues to be solved by any owner without much support from the government. The activity of settlement will greatly depend on the residents' mode of life and the ways they make their earnings. However owning an Ecopir unit will provide the vital components of life support, and here we are not talking about survival, but about wealth.



## HEATING OF SETTLEMENTS

The pyrolysis technology implies the necessity of high temperature heat dumping. This allows for utilizing an PYROLY-EKOPYR unit as a local central heating boiler house. The installation of such units solves a number of issues – it supplies heat to country towns, mono-settlements, including those in the northern regions. It provides fuel to villages, hard-to-reach, remote places, besides it solves the problem of garbage recycling in such regions. This doesn't only reduce the costs for maintaining such settlements, but also promotes young people's activities in these areas.

## TRANSPORT

The fuel cost is the main pricing aspect in logistics. Having cheap fuel, any logistic company or any other business with a high demand of fuel, has a clear competitive advantage and growth opportunities. Taking into account the increasing prices of fuel, the availability of fuel obtained by waste recycling will contribute to the development of transport sector and reduce the products costs in those businesses where logistics is the primary pricing component. Having independent fuel recourses will facilitate the development of both transportation services and agriculture, which, in turn, will promote small and medium businesses and entrepreneurship in food supply – the goods of both local and neighbouring countries production. Independent fuel recourses will support the sellers with transportation equipment and vehicles through the specially designed stipulation mechanisms.

## OTHER PYROLYSIS PRODUCTS

Heating fuel M100, technical carbon, dry ice and heavy tar – all of these are a good basis for entrepreneurship and production of new derivative products. All of them either support infrastructure or are used in highly technological production. There's a steady growing demand for these products, whereas their costs are significantly lower due to the to excessive waste resources, low manufacturing expenditures, the absence of highly expensive infrastructure associated with oil mining, processing and storage.

## ECOLOGY

Citizens, particularly those living in a megapolis face the problems they cause by themselves. Landfills in suburban areas are painful to see. Waste disposal costs keep constantly growing – being another challenge for all of us. The possibility to turn wastes into fuel, electricity and heat drastically changes our attitude to the issue.

## SOCIETY

The opportunity to get the pyrolysis products serve the population needs will help significantly decrease social tension in any country. Large societies of active young people will get the chance to use their potential to protect the environment and keep it pure. Heat and electricity supply in the outskirts of the country will boost the authorities profile.

## ENERGY

Electricity production by waste recycling will solve the main issue of green energy – instability in supply due to constantly changing weather conditions. The tandem of gas generators based on PYROLY-EKOPYR units compensates for the supply gaps in power generation based on wind and, particularly, solar batteries.

## EMPLOYMENT

The production of fuel, heat and electricity, the establishment of settlements and new heating lines, the development of independent farming, transportation, the creation of new greenhouse farms, roads construction, food production, the liquidation of landfills, environmental management – all these sectors will noticeably increase the employment level.





# OTECHESTVENNYE TEKHNologii LLC

Research and Production Association "Otechestvennyye Tekhnologii"  
Company Reg. No. 5047210651  
Patent No. RU 2810292 C1  
Vatutina Street, 4к2, Khimki, Moscow Region, 141402

[www.scitechno.ru](http://www.scitechno.ru)  
[info@scitechno.ru](mailto:info@scitechno.ru)

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[www.pyroly.com](http://www.pyroly.com)

ООО НПО  
«ОТЕЧЕСТВЕННЫЕ ТЕХНОЛОГИИ»  
"LLC Otechestvennyye Tekhnologii"

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