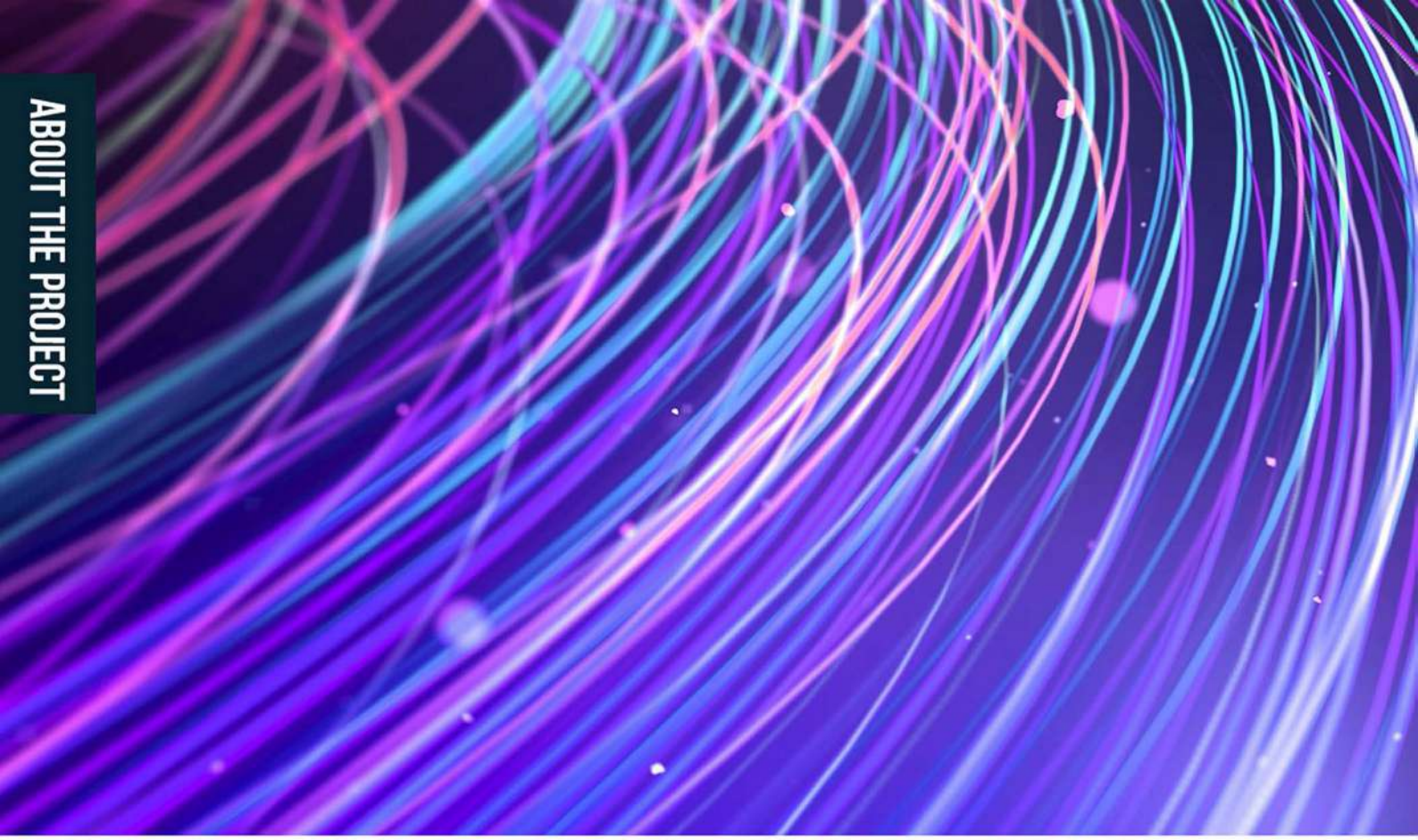
INVESTMENT OPPORTUNITY

MANUFACTURING OF OPTICAL FIBERS AND PREFORMS



ABOUT THE PROJECT

THE PROJECT INVOLVES THE CONSTRUCTION OF A PLANT FOR THE PRODUCTION OF PREFORMS AND OPTICAL FIBER WITH THE ANNUAL CAPACITY OF 6 MILLION KM PER YEAR BASED ON THE INITIATIVE OF PA "ENERGOCOMPLEKT" LLC

PROJECT DESCRIPTION

Setting up the production of optical fibers takes place within the dominance of cloud technologies and increasing consumption of Internet traffic. Cloud computing and Internet traffic are driving demand for more capacity and new fibre routes for data-centre-interconnect applications.

AMOUNT OF INVESTMENTS

Total investment costs of the project - 118 882 thsd. USD.

Among them: own resources -19 207 thsd.USD, investor resources – 99 675 thsd. USD.

PROJECT EFFICIENCY

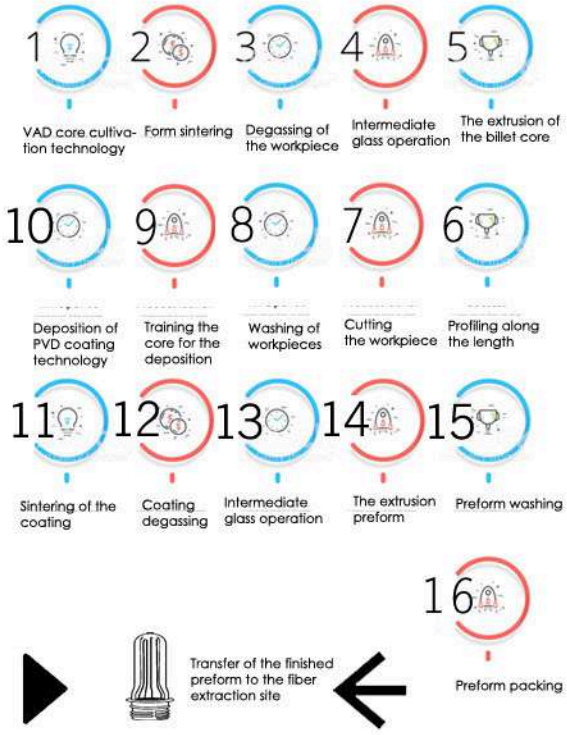
Calculation horizon,years	16
Annual revenue, thsd., USD	37696
Period of reaching the project capacity	4 years
Simple pay back period	10,54
Dynamic pay-back period	11,54
NPV, USD	67 884
IRR, %	11,09

PRODUCT DESCRIPTION AND INTENDED USE

PREFORMS

A preform is a workpiece in a structure designed to draw threads. The preform is a two-layer glass rod with a diameter of 150 to 200 millimeters and a length of approximately 1500-2500 mm, the inner and outer layer of which has different refractive indices of light streams.For the manufacture of blanks (preforms) used about twenty types of chemical elements, mainly different kinds of gases.

The optical fiber production process is carried out in 2 stages:

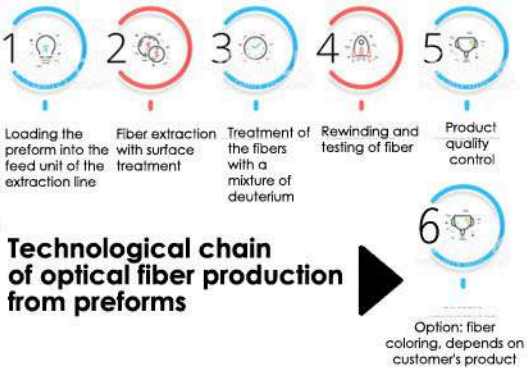


Optical fiber manufacturing process

OPTICAL FIBER

Optical fiber – a thread of optically transparent material used to carry light within itself by means of total internal reflection.

Preforms are used in the manufacture of optical fibers.



Technological chain of optical fiber production from preforms

In the manufacturing process, the rod together with the fiber mixture is heated to high temperatures, after which the threads are formed.The length of the resulting material can reach several kilometers, although the diameter remains unchanged – it is controlled by automated regulators.

Depending on where the fiber optics will be used, the material for it can be pre-treated with coatings that provide chemical and physical protection.As for the thread mixtures themselves, they usually include materials such as polyimide, acrylate and silicone.

PRODUCTION FACILITIES

The building area, including all planned buildings and structures is expected to be around 16,500 m2. The approximate area of the production building is planned to be around 11,800 m2. There is a parking area of 1000 m2, a zone of water supply and sewerage facilities, treatment facilities - 500 m2.

HEADCOUNT

200 people (total), nummber of employees engaged in the process of manufacturing - 80 people, the number of office workers - 14 people, managment team consists of 6 people.

APPLICATION AREA

Fiber optic find many uses in a wide variety of industries and applications. The use and demand for optical fiber has grown tremendously and optical-fiber applications are numerous Some uses of fiber optic include: Medical,Defense/Government,Data Storage,Sector of Telecommunications, Industrial/Commercial,Broadcast spheare and other applications.

Telecommunication applications are widespread, ranging from global networks to desktop computers. Optical fiber is also used extensively for transmission of data. Multinational firms need secure, reliable systems to transfer data and financial information between buildings to the desktop terminals or computers and to transfer data around the world. The high bandwidth provided by fiber makes it the perfect choice for transmitting broadband signals.

THE AMOUNT OF ENERGY CONSUMPTION

Power supply:

The organization is provided with electricity from local power grids .Power consumption is expected to be around 1 100 kW.The consumption of electric energy at the output to full production capacity is planned at the level of 9,060.0 thousand kWh.

Heat supply:

Source-own gas boiler room. Annual consumption of thermal energy: 850 Gcal.

Gas supply:

Source-high pressure gas pipeline P=1,2 MPa Ø273 mm. gas consumption :2 880 m3 / day, 918 thousand m3 / year.

Global fiber optics cable market share, by application,2018

MARKET OVERVIEW

PREFORMS

Optical fiber preform, playing an important role in the optical fiber and cable industry chain, seizes about 70% profits of optical fiber. Global demand for optical fiber preform stood at 16.2kt in 2018, but is projected to hit 25kt in 2025 with the growing demand from large-scale 5G construction, among others.Global optical fiber preform industry features a high concentration. There are just around 20 manufacturers, largely in Japan, the United States and China.

EAEU

The EAEU countries are net importers of preforms for optical fiber production.
Volume of import has been increased both in physical and in value terms due to setting up the first production of optical fiber on the territory of the EAEU countries.There are no production facilities for the production of preforms on the territory of the EAEU. The volume of imports of preforms for the production of optical fiber in 2017 amounted to 63 tons and valued at 7 million USD (an increase of 2.7 times and 8.7 times, respectively, compared to 2013). The volumes of export of preforms in the EAEU countries are insignificant.

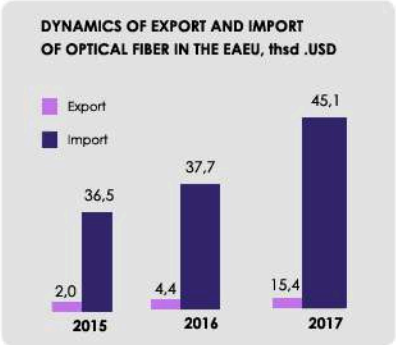
Belarus

In 2013-2017, the Republic of Belarus exported small volumes of preforms for the production of optical fiber to Armenia, the Russian Federation and Serbia. Products were Imported to the Republic of Belarus almost exclusively from the Russian Federation until 2017. In 2017, the volume of imports of preforms to the Republic of Belarus amounted to 14 tons valued at 457.9 thousand USD.

OPTICAL FIBER

The fiber optics market is expected to grow from USD 3.13 billion in 2016 to USD 5.00 billion by 2021 at a CAGR of 9.8% from 2016 to 2021. The growing importance of cloud computing, data transfer & storage, and IoT is driving the use of Internet, which is driving the fiber optics market, as it acts as the backbone for data transmission. The demand for the Internet is also driven by several other factors such as increase in the number of connected devices in homes and the increasing Internet access. All these factors have led to an increase in Internet users, which in turn has led to the higher usage of optical fiber cable to transfer information over the Internet, thus driving the fiber optics market.

EAEU



The volume of import of optical fibers in 2017 amounted to 556 tons (-0,8% by 2016 and +30.8 per cent in time for 2013) vallued at USD 45.1 million (+19.7 per cent by 2016 and 0.3% for 2013), the exports amounted to 106 tons (-3,1% by 2016, and growth of 6.4 times to 2013) valued at 15.4 million USD (increase 3.5 times by 2016, and growth of 5.9 times to 2013.)

Belarus

In 2017, the volume of **exports** of optical fibers in the Republic of Belarus amounted to 2.6 tons (+25.7% to 2013) valued at 257.3 thousand USD (an increase of 2.7 times to 2013). In 2017, the volume of **imports** of optical fibers in the Republic of Belarus amounted to 74 tons (+40.9% to 2016 and -1.2% to 2013) valued at 8.4 million USD (+54.9% to 2016 and -5.8% to 2013).

REPUBLIC OF BELARUS

Business Environment

EURASIAN ECONOMIC UNIT

INVESTMENT LEGISLATION

73 agreements on avoidance of double taxation

The Republic of Belarus is a member of the Multilateral Agency for Guarantees and Investments

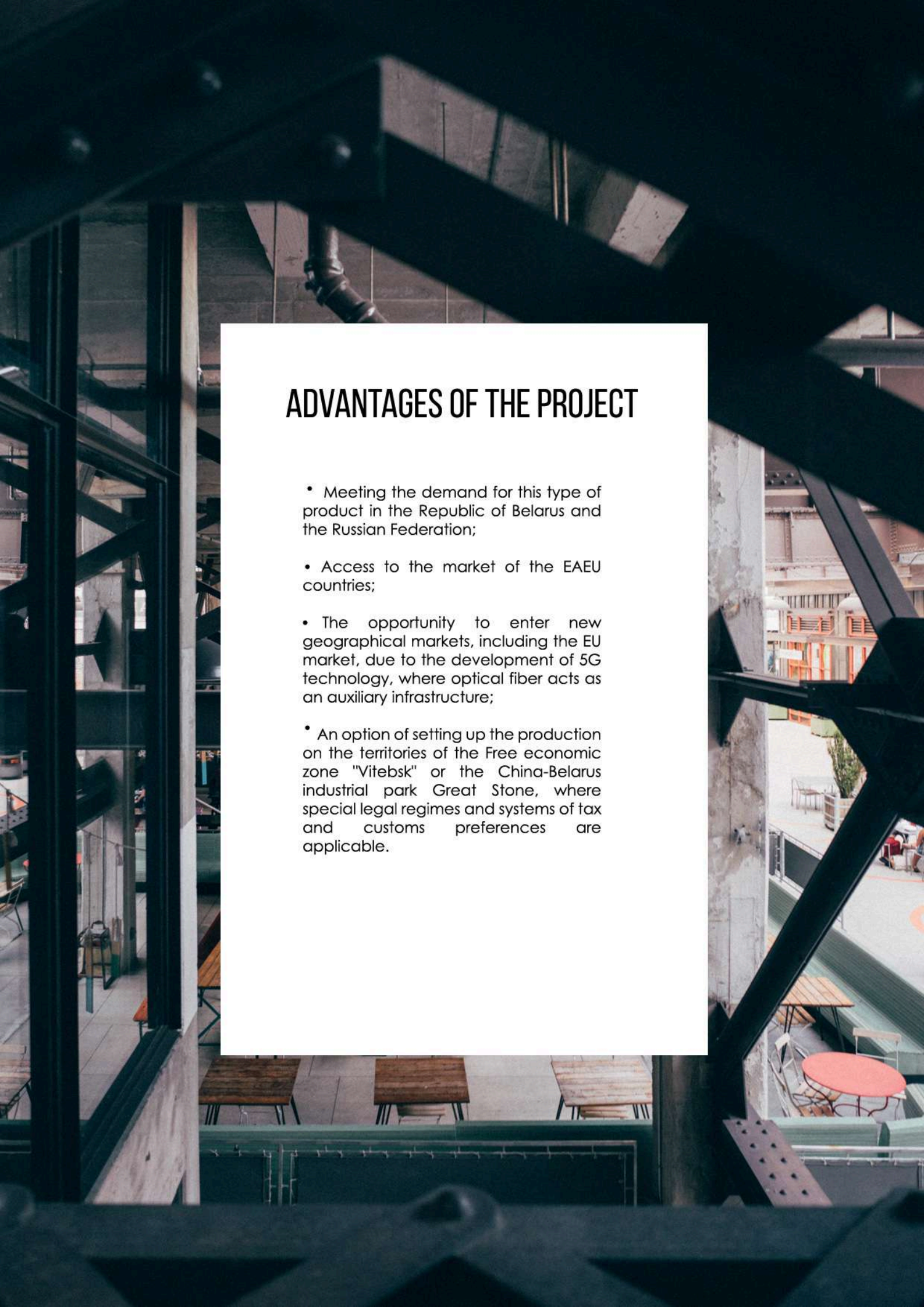
66 agreements on assistance in the mutual protection of investments

Law on investment

1. Protection against nationalization
2. Unhindered transfer of profit (income) abroad
3. Equality and non-discrimination of investors

VISA REGIME

In 2018, Belarus extended the visa-free stay for foreigners to 30 days. Visa-free visits are provided on condition of the entrance through the National Airport Minsk for citizens of 74 countries, including European countries, as well as Brazil, Indonesia, the United States, Japan and other countries.



ADVANTAGES OF THE PROJECT

- Meeting the demand for this type of product in the Republic of Belarus and the Russian Federation;

- Access to the market of the EAEU countries;

- The opportunity to enter new geographical markets, including the EU market, due to the development of 5G technology, where optical fiber acts as an auxiliary infrastructure;

- An option of setting up the production on the territories of the Free economic zone "Vitebsk" or the China-Belarus industrial park Great Stone, where special legal regimes and systems of tax and customs preferences are applicable.

NATIONAL AGENCY OF INVESTMENT AND PRIVATIZATION

The Agency is ready to help foreign investors interested in doing business in Belarus:

- Presentation of information on investment opportunities, preferential regimes and benefits, industries, legislation
- Provision of current information on investment projects
- Selection and provision of information on options for land and premises
- Search for potential partners for the implementation of the investment project; organization of meetings, negotiations with potential partners to establish cooperation
- Providing a platform for negotiations and support for the investor during the negotiations
- Organization of visits to the Republic of Belarus (development of a program of stay, assistance in obtaining a visa)
- Representing the interests of the investor in negotiations with government officials on the implementation of investment projects, as well as on improving business practices in the Republic of Belarus
- Post investment support

NATIONAL AGENCY
OF INVESTMENT
AND PRIVATIZATION
REPUBLIC OF BELARUS

Phone
+375 17 200 81 75
+375 17 226 41 66

Fax
+375 17 226 47 98

E-mail
mail@investinbelarus.by