# COMPOSITE CYLINDERS ADVANCED

WHITE PAPER

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# INTRODUCTION

**Composite Cylinders Advanced** is the world's first financial investment blockchain project that combines advanced technologies in the field of finance and one of the most highly demanded products in the world market of industrial cylinders of type 4 for CNG, LPG and industrial gases from modern composite materials.

The aim of the project is to raise funds for the production of high and low pressure cylinders in the Czech Republic in accordance with the requirements of ECE R110:2013, ISO 11439, ADR / RID: 2013, ISO 11119-3 using high-strength carbon fibers and advanced polymer materials.

Decentralized direct investment in the project will be through the purchase of tokens. It is the "decentralization" of tokens that should ensure the independence of the project.

The rationale of the project is to develop and create production of ultralight, composite gas cylinders of type 4, surpassing the existing analogues in terms of technical parameters, competitive at cost, technological for assembly in batch production.

First of all, we are talking about a project with a quick payback, moderate risks and a strong background of professional experience.

The team of the project has expertise and experience in the field of design and construction of composite materials and has everything necessary for the implementation of the project.

## Objectives:

To raise 5 million USD for the production of modern innovative cylinders of type 4 for CNG, LPG and industrial gases;

Creation of production and launch of high-tech composite cylinders of type 4

# GLOBAL MARKET

Modern requirements for environmental protection and efficient methods of storing gases make composite cylinders (type 4) the most popular on the market. These types of constructions must comply with the requirements of ECE R110:2013, ISO 11439, ADR / RID:2013, ISO 11119-3. To date, cylinders are used in the following areas:

- *Gaseous motor fuel (CNG, LPG, HYDROGEN);*
- *Chemical industry:*
  - ✓ *compressed gases in accordance with the ADR/RID:2013 requirements;*
  - ✓ *liquefied and soluble gases – ADR/RID:2013.*

Currently, in all industrial sectors there is an increased demand for composite cylinders (type 4), that are adapted to a particular type of gas. This is the consequence of the main advantages of composite cylinders: lightweight, cost-effective maintenance and operational safety.

## Market structure

Today, the tendency to replace heavy steel cylinders (more than 90% of the market) that are susceptible to corrosion, with the light and burst-free type of composite cylinders of type 4 consisting of carbon fiber / fiberglass and modern polymers (1-2% of the market) is gaining strength.

**Main existing types of cylinders**

| Distinctive key features | Type I | Type II | Type III | Type IV |
|---|---|---|---|---|
| Casing | Steel | Metal | | Polymeric |
| Liner | All-metal cylinder | PCM[1] shell on a cylindrical basis | PCM sheath on the entire surface | PCM sheath on the entire surface |

## Advantages of type 4 cylinders:

- *Lighter weight (convenience, high capacity, the possibility of placement on the roof);*
- *Non-shatter destruction in a gas explosion;*
- *Lower maintenance costs;*
- *Corrosion free.*

## Competitive Advantages of CCA Cylinders

The advantages of COMPOSITE CYLINDERS ADVANCED composite cylinders in comparison with analogues are:

- *Low production cost (euro / l);*
- *Lighter weight compared with most analogues (l / kg);*
- *Low gas permeability of the cylinder (liner);*
- *Vacuumizing before refueling with gas;*
- *High filling speed of the cylinder.*

## Main trends

Factors contributing to the development of motor fuel market:

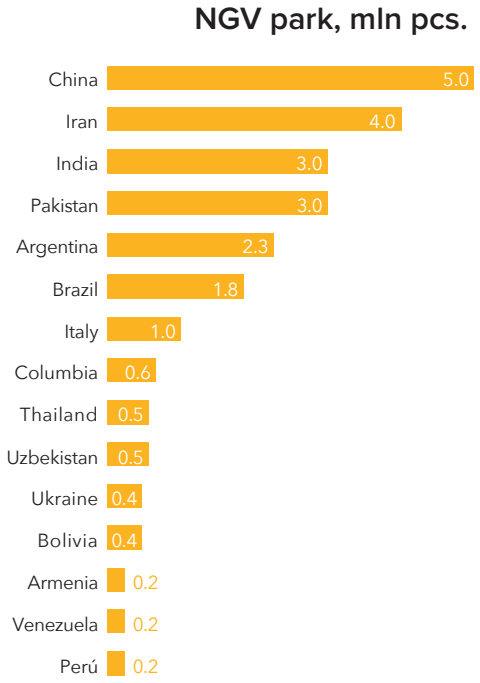
- *Greater availability and lower cost of natural gas;*
- *Significant savings on the cost of fuel using compressed natural gas, especially for the fleet of trucks;*
- *Significant delivery savings of natural gas to remote regions;*
- *Reduction of CO2, nitrogen oxides (NOx) and aerosols* emissions.

## Market size

The stimulation of the market development for gas motor fuel is the growing demand for CNG, which has advantages over standard fuels in terms of economy and environmental friendliness.

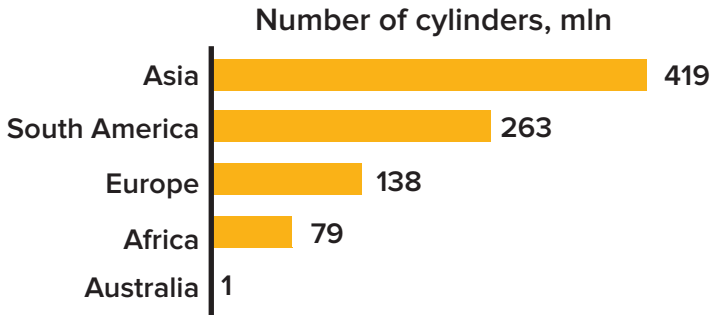
The total number of CNG cylinders in the world that are in operation as of 2017 was at least 110 million cylinders of which at least 75 million cylinders were in Asia. Over

the past 5 years, the number of CNG cylinders in the world that are in operation has increased by 50%. About 10 million CNG cylinders are produced annually, of which about 0.1 million (1%) cylinders are composite type 4 cylinders.




***Sources**: «Autogas Complex + Alternative Fuel» Magazine, publishing house "Innovative Mechanical Engineering" (Moscow), ISSN: 2073-8323*

The total number of LPG cylinders in the world that are in operation as of 2017 was at least 900 million cylinders of which at least 400 million cylinders were in Asia. Over the past 5 years, the number of LPG cylinders in the world that are in operation has increased by 10%. About 70 million LPG cylinders are produced annually, of which about 1.5 million (2%) cylinders are composite type 4 cylinders.




*Source: European association LPG (AELPG) and European standardization committee (CEN)*

## Competitors

The main producers of composite cylinders in the world market are the following companies:

- *Hexagon - http://www.hexagon.no*[3]
- *Quantum - http://www.qtww.com;*
- *Ullit SA - http://www.ullit.com.*

Hexagon (USA) is a key player (monopolist) in the market of composite cylinders (type 4), occupying up to 90% of this market, which influences the world prices for composite cylinders.

## PROSPECTIVE MARKETS

| Volume of orders / Markets | | | | | |
|---|---|---|---|---|---|
| CNG | pcs. | Country | LPG | pcs. | Country |
| Kamaz | 20 000 | Russia | Antargaz | 120 000 | France |
| IVECO | 10 300 | Czech Republic | Polskigaz | 100 000 | Poland |
| Volvo | 5 000 | Sweden | Fiamma | 2 640 | Italy |
| Skoda | 4 500 | Czech Republic | Flowgas | 1 320 | U.K. |
| GAZ | 3 000 | Russia | Progas | 1 320 | Germany |
| VAZ | 1 500 | Russia | | | |

## BUSINESS MODEL

COMPOSITE CYLINDERS ADVANCED has developed a new technology for producing high-pressure composite gas cylinders. Key investment indicators of the project for the production of CCA composite cylinders (1 line) are:

- *NPV – 10 million USD / IRR – 60%*
- *Profitability Index equals to 400%.*

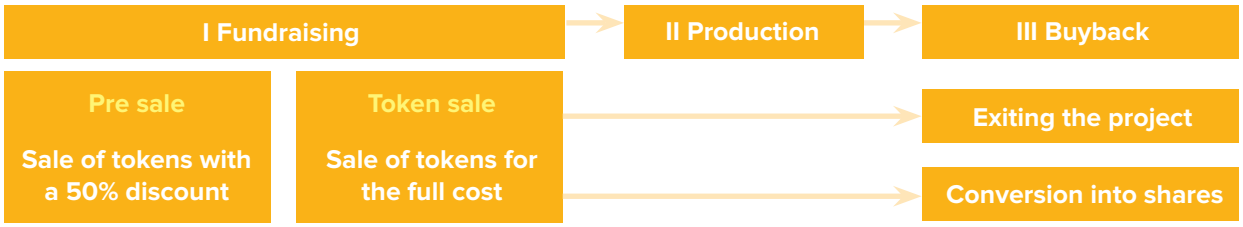
*2 According to industry experts*

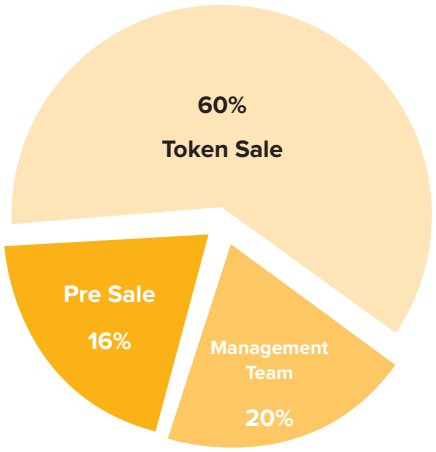
*3 Group of companies: Hexagon Ragasco, Hexagon Lincoln, Hexagon Raufoss, Hexagon Xperion. The group of companies owns a significant market share of composite cylinders (type 4)*

| Key performance indicators of the enterprise | | | |
|---|---|---|---|
| Rent of premises | | 25 000 | USD/Year |
| Cost of 1 production line | | 5 000 000 | USD |
| | CNG cylinders | | |
| Cost of production | | 6 | USD/Liter |
| Average market value of the cylinder sale | | 10 | USD/Liter |
| Average annual revenues from the sale of cylinders | | 8 000 000 | USD |
| Average annual sales volume of cylinders | | 10 700 | Units |
| | LPG cylinders | | |
| Cost of production | | 2 | USD/Liter |
| Average market value of the cylinder sale | | 2.5 | USD/Liter |
| Average annual revenues from the sale of cylinders | | 3 125 000 | USD |
| Average annual sales volume of cylinders | | 50 000 | Units |

## TOKEN SALE LAUNCH

The following scheme of functioning of a token is proposed:




| | |
|---|---|
| 60 million | Token sale |
| 20 million | Pre sale |
| 16 million | Management team |
| 2 million | Advisors |
| 2 million | B&M |

*4.Calculation of the indicators is based on the assumption of the launch of the 1 line for the production of cylinders for CNG*

*5.This yield is achieved within 5 years. The main stimulators of such high profitability are new technologies: allowing to reduce production costs; reducing the manufacturing time of one product; increasing the service life of a single cylinder*

# PROJECT IMPLEMENTATION MODEL

- *SOFT CAP - $5 MILLION;*
- *LIMITATION OF THE VOLUME OF TOKEN EMISSION;*
- *DISTRIBUTION OF REVENUE BETWEEN TOKEN HOLDERS.*

## 1. Stage Global Fundraising

Initially, the sale of tokens will be half price of the current (base) market value. In addition, the price of the option will grow evenly. The construction and start-up of production is carried out at the expense of the collected funds.

## 2. Stage Investment stage (Czech Republic)

**Rent of manufacturing space in the Czech Republic.**

1. Engineering;
2. Manufacturing of equipment;
3. Delivery and commissioning of equipment;
4. Manufacturing of samples for certification;
5. Certification of cylinders.

## 3.Stage Buyback

The buyback of tokens will be intiated at a later time after the fundraising is over. In case the company leaves the IPO, in addition, participants will be offered to exchange tokens for shares of the company.

The company sells cylinders to consumers and transfers 30% of revenue for the buyback of tokens on a monthly basis. After the buyback, the tokens are “burned” (ie completely out of circulation). The buyback is carried out through a smart-contract as follows:

- *With the funds that are allocated for the redemption of tokens, the Ether (ETH) crypto currency is bought at the stock exchange at the current exchange rate. It is used because it is the main currency of the Ethereum network, on which smart-contracts operate;*
- *Next, all the Ether received is sent to a smart-contract for the redemption of tokens;*
- *Also, smart-contract accepts tokens for exchange. Any number of tokens can be accepted. If the owner of the token changes his mind, he can pick up the token from the redeeming smart contract to a certain time when the transaction closes;*
- *When the transaction is closed, all tokens on the smart-contract are exchanged for Ether. Token owners receive Ether in proportion to the shares of tokens sent and not withdrawn from the contract.*

## TOKEN EXCHANGE MECHANISM

The average annual revenue is 11,125 thousand USD.

The average monthly revenue is 927 thousand USD.

The EBITDA margin is 35%. Soft cap - 5 million. USD.

**The total volume of tokens is 100 million**

The number of tokens sold during the PreSale is 20,000 thousand units. The price for which tokens are offered is 50% of the nominal value and is equal to 0.025 (USD per 1 token) = 5 000 000/100 000 000 * 0.5.

The maximum amount of raised funds pre sales is 500 thousand USD.

**1) Pre Sale 4Q 2017**

During the pre sales, buyers will be offered to buy tokens in the amount of 20,000 thousand pieces. at a price of 1 token = 0.025 USD with a total value of 500 thousand USD.

**2) Token Sale 1Q 2018**

During the pre sales, buyers will be offered to buy tokens in the amount of 60,000 thousand pieces. at a price of 1 token = 0.075 USD with a total value of 4 500 thousand USD.

3) **5 million. USD is the minimum amount of money for project launch. These facilities will be equipped with a production line, commissioning works will be carried out, and the production of Type IV cylinders will be launched.**

4) **The buyback procedure will begin in 1Q 2019 after several months of successful plant operation.**

**Annually, starting from January 2019, it is planned to begin reverse buyback of tokens. This will happen according to the following scheme:**

- *In 12 months on the last working day of the month profits are fixed;*
- *Revenues are directed to purchase ETH (at a later fixed rate);*
- *The next day, ETH is sent to a smart contract with a closing date of 10 calendar days;*
- *All token owners are informed through the website that they can exchange tokens;*
- *Those owners of tokens who want to sell their tokens, transfer them to a smart-contract;*
- *As new tokens are sent to the smart-contract, the total amount of tokens sent to it increases. Thus, at any time, the exchange rate = #ETH / # tokens. Obviously, the more tokens there are on the contract, the less favorable is the exchange rate;*
- *In the event that one of the senders is no longer satisfied with the exchange rate (too low), then they can pull their tokens or their part back, thus reducing the number of the tokens they "bet" and improving the exchange rate for the remaining participants;*
- *You can send / return tokens before the closing date. After this date, the number of tokens and participants is fixed and ETH is sent to all participants in proportion to the number of tokens sent and left on the contract.*

# TEAM

## Hanif Makhyanov - Chairman of the Board.

From 2000 to 2009 he was the chief and founder of a composite cylinders manufacturing company in the city of Pilsen, Czech Republic.

- *Creation of a new generation of composite cylinders, production and launch of an exclusively new product for the storage of liquefied hydrocarbon gases on the world market;*
- *Creation of technologies of mass production of cylinders made under proprietory technology to consumers.*

## Timur Akhiyarov - CEO

Head of Strategy and Finance with more than 10 years of

- *Attracting investments (attracted over $ 200 million);*
- *Development of business strategies;*
- *Development of new business trends;*
- *Crisis management;*
- *Management of financial flows.*

## Nikolay Leontyev - Director of Operations

Engineer-designer with 11 years of experience in the fields of:

- *Conducting research work, related to the development of new design and technological solutions in the field of composite materials;*
- *Development of concepts and solution architectures for automation of tasks of design and technological preparation of production;*
- *Preparation of product life cycle;*
- *Development, design and modeling of electronic drawings;*
- *Surveying enterprises of machine-building on the subject of design and technological preparation of production;*
- *Exploration and development of engineering projects in in relation to the preparation of the design documentation for manufacturing.*

## Alexander Leontiev - Production Manager

Engineer-designer with more than 40 years of experience in the fields of:

- *Development of flexible manufacturing operating systems (FMOS);*
- *Creation of a new generation of wind power stations;*
- *Development of new technologies for grinding vegetable materials to produce cellulosic bioethanol; Management of financial flows.*
- *Object management systems in real time.*
- *Creation of joint Russian-Italian enterprises in the field of IT technologies.*

## Viktor Goryachev - Design Manager

Engineer-designer with more than 30 years of experience in the fields of:

experience:

- *Development and production of knowledge-intensive solutions in the field of radio electronics and power engineering;*
- *Patent researches and definition of indicators of a technical level of designed products;*
- *Coordination of projects with representatives of the customer and supervisory authorities;*
- *Preparation of documentation for participation in scientific and technical competitions, innovative projects.*

## Aynur Motigullin - Engineer

Moscow State Technical University Named After Bauman.
Information and analytical support of the project, modeling and analysis of design solutions.