

# YEARBOOK 2021





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# Viru Keemia Grupp

Always safe, creating added value,  
with an increasingly smaller carbon footprint.



## Our values are:

- **Openness**
- **Commitment**
- **Development**

We advance our strategy which is based on safety, a value-adding principle of activity, and the constant reduction of our environmental footprint. We achieve our objective by constantly improving the efficiency of the shale oil and electricity co-production process as well as by basing our activities on a responsible business model.

We work towards a better and cleaner future. Every day.

# Main indicators of 2021



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4 530 000

tonnes of processed oil shale

↓ -1%

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599 685

tonnes of commercial shale oil

↓ -2%

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2 147

tonnes of fine chemistry and phenol products

↓ -6%

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958

MWh of heat and electricity

↓ -4%

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2,3

million tonnes or 96% of waste rock re-used as raw material 96%

↑ +21%

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1 172

registered dangerous situations

↑ +164%

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97%

of the clients of VKG Soojus installed with remote-readable meters

↑ +6%

# Chairman's letter



Dear reader!

2021 was a year of important strategic choices for Viru Keemia Grupp. Despite the rather confusing development of the European Green Transition and the continued COVID crisis, VKG initiated several projects that are of decisive importance for the company in this decade. The decision to launch a project to open the Uus-Kiviõli mine and to initiate the preparation of a special spatial plan in order to take the first step in establishing a bioproducts production complex sets a direction for the development of VKG as Estonia's own large industrial enterprise.

On the level of everyday work, the coronavirus also touched us in the past year. Despite the level of vaccination of over 80%, every fifth employee was away from work at the peak moments of the virus outbreak and ensuring full-scale production was a real challenge. Still, we managed to process 4.53 million tonnes of oil shale in 2021 and produced 618,000 tonnes of shale oil products and 918 GWh of various forms of electricity for our customers. The financial results of the year reflect the growing demand for low sulphur content shale oil in the ship fuel market and the increasing prices of energy carriers. Although the carbon tax expense grew steeply, we ended the year with a net profit of 49.78 million euros.

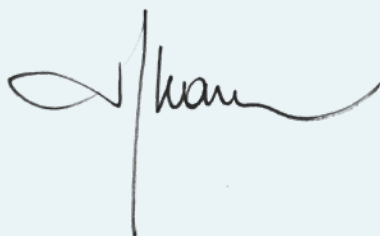
The foreseeability of the Estonian business environment is very poor for making strategic decisions. The roadmap for moving towards Europe's net zero carbon emissions goal has not become any clearer. The Fit for 55 regulations package presented by the European Commission was based on pre-COVID data and has lost any topicality and believability. Proposals concerning the emission trade system did not take into account the fact that the prices of carbon quota that have become a trading item of speculators had tripled in a year. If we add the lack of clear positions of the Estonian state, we are facing a full-blown storm in terms of regulations.

Viru Keemia Grupp is a firm advocate of the market economy and wishes to operate in areas where natural demand and free competition exist. As a participant of the volatile oil market, we are always forced to assess various risks and make decisions in the conditions of deficient information. We understand that the Green Transition is the state's intervention in the economy in an unprecedented extent, which will not leave any companies in this area untouched. However, it is also clear that no technologies currently exist for a full Green Transition, Europe's own green energy production does not even come close to covering the needs of its industry and households and Europe cannot afford losing the competitiveness of its industry in the mid-long-term perspective.

Considering the above, we passed a decision to launch a project for opening the Uus-Kiviõli mine that ensures a raw material supply for Viru Keemia Grupp at least until 2038. We started establishing the aboveground infrastructure immediately, but the majority of investments will be made in 2023–2025. As we value economic management, we will use the existing Ojamaa production complex to the maximum possible degree and the establishment of a new mining operation will not entail a significant additional environmental impact.

The maximum reuse of the industrial infrastructure existing in Ida-Viru County is one of the key components also in the new bioproducts production complex project initiated by Viru Keemia Grupp. The current low level of added value of Estonian timber or the export of Estonian timber even without adding value, the industry traditions and the existing infrastructure in Ida-Viru County, the high demand for bioproducts in global markets and the experience of Viru Keemia Grupp in establishing and operating large industrial enterprises are strong favourable preconditions for the emergence of a new economic sector. We find that the production of bioproducts and the development of wood chemistry is inevitably necessary for the Estonian economy and certainly also for the development of Ida-Viru County. The support of local residents and local governments obligates us to act promptly, thoroughly and with commitment.

In conclusion, we continue operating as a producer of ship fuels and as a responsible member of the business community. We are committed to development and constantly seek opportunities to apply the strengths of Ida-Viru County in the best possible way. We continue active work in the name of improving the business environment. The initiative started by Viru Keemia Grupp for creating Estonia's own climate act has launched discussions and forced decision-makers to think along. Together, we can make Estonia better!



**Ahti Asmann**

Chairman of Management Board of Viru Keemia Grupp



# About the company



Viru Keemia Grupp, a private capital-based enterprise located in Kohtla-Järve, is the largest shale oil producer in Estonia, proudly continuing the Estonian tradition of adding value to oil shale that dates back to 1924. The enterprise is based on private capital since 1997 as a result of the privatisation of RAS Kiviter.

Our central values are openness, dedication to our work, and continuous development. We believe that every step and every action we take must create value for everyone – our employees, partners, clients, and the local community alike.

The principle of our vision is to maintain the role of the leader of a sustainable oil shale industry in the changing market situation and to remain competitive in the global market. We can do this thanks to improved efficiency. Safe and coordinated activities help us solve the problems our industry faces and act as a steppingstone in taking advantage of opportunities.

## Our strategic objectives

1. **Extracting the maximum amount of energy from oil shale,**
2. **Adding maximum value to end products,**
3. **Promoting an organisation culture aimed at efficiency,**
4. **Competitiveness of shale oil products**

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## The Group's strategic environmental objective

**is to create possibilities for reducing carbon dioxide emissions by up to 40% by 2030.**



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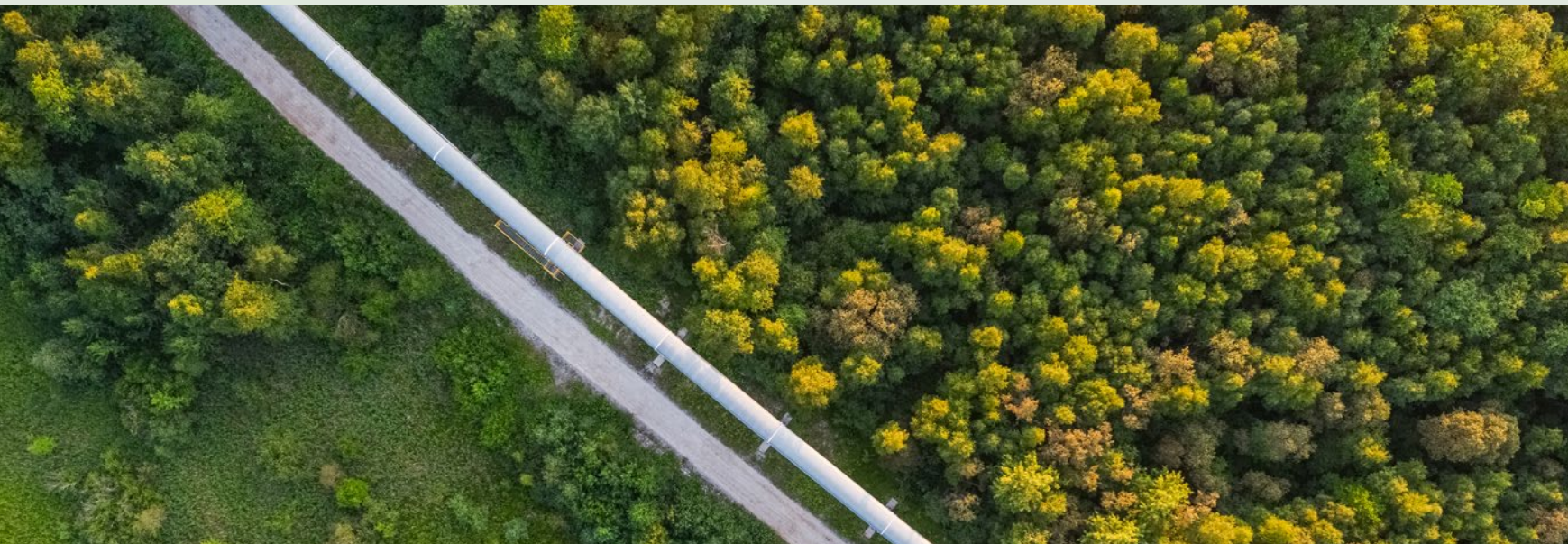
## The Group's strategic occupational safety objective

**is to ensure our own employees, partners and city residents a safe working environment that is free from work accidents.**





VKG Group comprises 8 subsidiaries of which three are involved in production and five are engaged in the provision of services to end consumers within the Group and one is engaged in investment activities outside the Group's core activities.



## Production



### VKG KAEVANDUSED

2021 turnover

**74,9 million €**

Number of employees as at the end of 2021

**506**



### VKG OIL

2021 turnover

**275,9 million €**

Number of employees as at the end of 2021

**626**



### VKG ENERGIA

2021 turnover

**94,9 million €**

Number of employees as at the end of 2021

**99**

## Services



### VKG SOOJUS

2021 turnover

**15,7 million €**

Number of employees as at the end of 2021

**12**



### VKG ELEKTRIVÖRGUD

2021 turnover

**18,1 million €**

Number of employees as at the end of 2021

**35**



### VKG LOGISTIKA

2021 turnover

**10,1 million €**

Number of employees as at the end of 2021

**118**



### VIRU RMT

2021 turnover

**10 million €**

Number of employees as at the end of 2021

**125**



### VKG INVEST

2021 turnover

**0 million €**

Number of employees as at the end of 2021

**1**



### VIRU KEEMIA GRUPP

2021 turnover

**29,2 million €**

Number of employees as at the end of 2021

**88**

## Our main products and services

- Ship fuels
- Heating oil for local heating boiler plants
- Electrode coke for electrode manufacturers
- Oil shale fine chemical products for perfumery, cosmetics, and textile industries
- Steam and air conditioning for large-scale industrial companies
- Oil shale gas for production of heat and power
- Production, transfer and sale of heat and energy to households and companies
- Repair, assembly and rental services of machinery and equipment
- Consulting services in the field of oil shale processing technology

# Our products reach

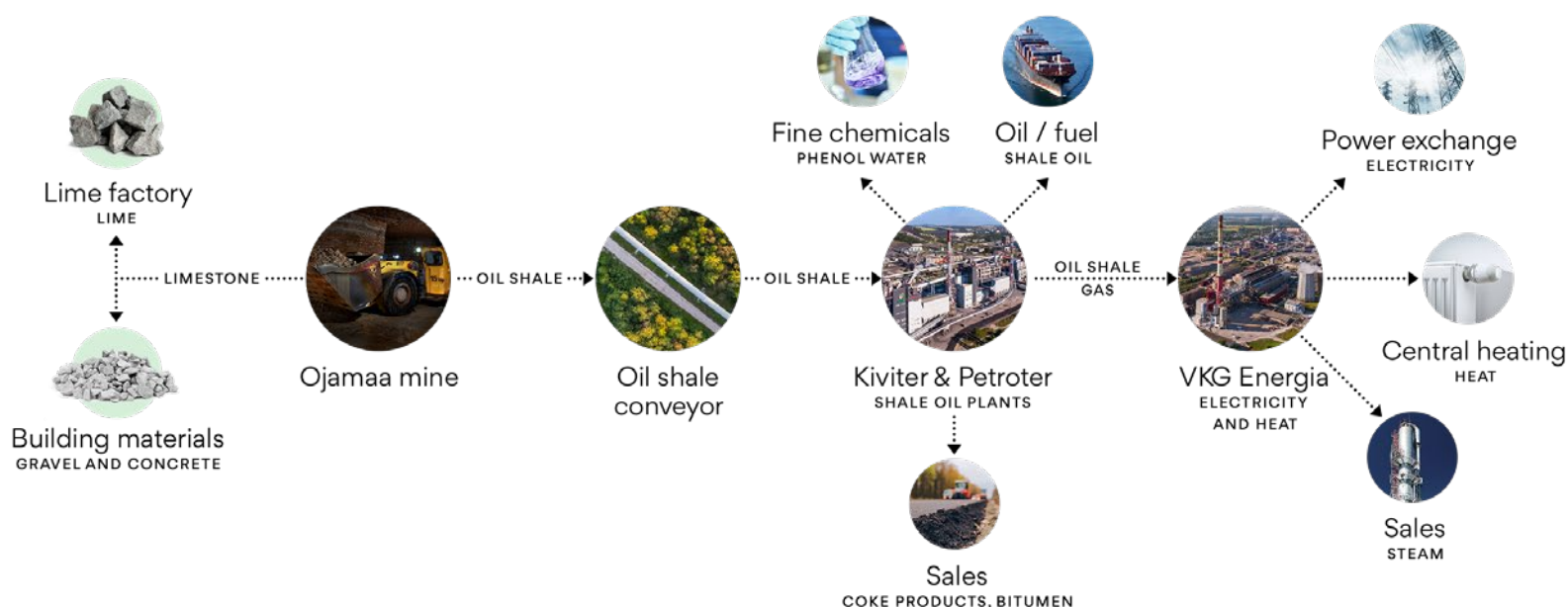
- Belgium
- Estonia
- China
- India
- England
- Italy
- Japan
- South Africa
- Latvia
- Norway
- Poland
- Germany
- Singapore
- Slovenia
- Switzerland
- Thailand
- Turkey
- Ukraine
- USA
- Russia
- Vietnam





# Fields of activity

Our goal and one of the most important principles is adding the value to the oil shale processing value chain and its extension. The existing value chain at VKG is the longest in Estonia and one of the longest in the world.



In order to add maximum value to oil shale as the main input in oil production, we also operate in the following areas in addition to our core activities:

- **Excavation of oil shale**
- **Production of shale oil**
- **Production and sales of oil shale fine chemicals**
- **Production, distribution and sales of heat and electricity**
- **Production of lime**
- **Special projects commission by clients**

# Excavation of oil shale

The excavation of oil shale at VKG takes place at the Ojamaa mine, which is the most recent in Europe and the first new mine in Estonia that was built after regaining independence. Since the layer of oil shale is deposited in the bed that is more than 30 metres deep, underground extraction is used at Ojamaa.



Every day about 150 units of wheeled machines are working underground, and 27 km of conveyors are used on a regular basis. Mining provides employment to about 540 people. By a good tradition, the friendly team of the mine selects the best of the best each year, who are awarded an honourable 'Honorary

Miner' title. The best workers are also acknowledged on the last Sunday of August, i.e. on the Miners' Day. So far, 70 workers of the Ojamaa mine, whose work has been acknowledged by their co-workers and the management of VKG, have been awarded this title.

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The total surface area of the Ojamaa mine is **23,7 km<sup>2</sup>**

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The excavated area since the opening of the mine has been **10 km<sup>2</sup>**

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The annual production capacity is **4,5 million tons** of oil shale

In 2021, the Ojamaa Mine restored the production of commercial oil shale to the pre-crisis level of 4.39 million tonnes which is the largest quantity of commercial oil shale produced by the mine (4.14 million tonnes in 2020). The stabilised prices of energy carriers on the global market were a precondition to producing the said quantity. It is worth noting that thanks to a more efficient organisation of work the mine managed to achieve this despite having had its workforce reduced by ten people and 20% more sickness leave days due to COVID-19 than in

2019. On a negative note, we concluded as a result of reviewing the restrictions and extensions related to the Ojamaa Mine that the resource released from the mine will end in 2028, i.e. two years sooner than we formerly presumed. We therefore started investing into establishing a new mine in the neighbouring Uus-Kiviõli mining field in 2021. The company's priority in the coming years is to ensure as smooth and effective transition as possible from the Ojamaa Mine to the Uus-Kiviõli Mine.

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## Production volumes of the Ojamaa Mine:

**2019**

**4,37**

million tonnes of commercial oil shale

**2020**

**4,14**

million tonnes of commercial oil shale

**2021**

**4,39**

million tonnes of commercial oil shale

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## Availability of oil shale resource

VKG assesses the availability of the oil resource in the short-term perspective, i.e. current supply, and in the long-term perspective, i.e. future supply.

### Current supply

Considering all the oil production capacities, VKG's need for oil shale is a total of 4.1 tons of the geological resource a year, i.e. 5.1 million tons of commercial shale. The mining permits issued to VKG allow the extraction of 2.77 million tons of the geological resource at the Ojamaa Mine, (3.5 million tons of commercial

oil shale) and if other market participants do not extract their allowed volume in the full extent, the extraction volumes at the Ojamaa Mine can be increased to 3.5 million tons (4.35 million tons of commercial shale) through the retrospective extraction mechanism. This means that in order to purchase the missing 750,000 tons (15%) of commercial shale, VKG has to reach agreements with other market participants.



Cooperation with Kiviõli Keemiatööstus in purchasing oil shale continued in 2021. During the year, we did not succeed in restoring Eesti Energia's oil shale concentrate purchase contract that had been suspended in March 2020 due to the COVID-19 crisis. Referring to the ongoing court dispute about an earlier unfairly priced oil shale sale contract, Eesti Energia did not wish to make a new price offer before the final ruling is clear. Due to this, one of the three Kiviter plants was shut down for the entire year due to a lack of oil shale.

## Future supply

Considering VKG's extraction volumes and assessing the various restrictions and extensions of the Ojamaa Mine, we concluded that the Ojamaa resource will probably be exhausted

about 2 years sooner than previously thought, i.e. in 2028. This means that in order to ensure a sufficient oil shale supply upon the exhaustion of the Ojamaa resource, VKG has to start investing into opening the Uus-Kiviõli Mine in 2022. From the viewpoint of environmental sustainability, issuing the Uus-Kiviõli mining permit to VKG was the only right solution, as the said mining field is logistically at the best possible location in terms of VKG's oil shale processing units in Kohtla-Järve and allows the maximum use of the existing infrastructure. The oil shale enrichment plant at the Ojamaa Mine will be able to ensure the processing of the production from the new mining field and there is no need to perform additional aboveground construction works and disturb the nature. The Uus-Kiviõli Mine should ensure a supply of oil shale for the Group until 2038.

In November 2021, the Supreme Court ended the court dispute between Viru Keemia Grupp and Eesti Energia's subsidiary Enefit Power AS. The object of the court dispute was the unfairly high price of oil shale at which Enefit Power AS was selling oil shale to Viru Keemia Grupp's subsidiary VKG Oil AS. The Supreme Court did not give leave to appeal to Enefit Power AS' appeal in cassation and the ruling of Tartu Circuit Court therefore entered into force on 21 May 2021, partly satisfying the action of VKG. The action proceedings have passed three court instances and entire proceeding took more than six years.

VKG is satisfied that the Circuit Court and Supreme Court's interpretation of European-style competition law is similar to the understanding of VKG. The ruling gave VKG and more broadly to Estonian private companies an assurance that the Estonian court system is capable of making fair decisions in very complex competition disputes.



# Shale oil

The main product of Viru Keemia Grupp is shale oil, which is obtained as a result of processing oil shale.



We have been dealing with shale oil production since 1924. We have been processing oil shale using the Kiviter technology for over 90 years, and since 2005, we have been developing the Petroter technology, too: Petroter I (2009), Petroter II (2014) and Petroter III (2015). The aggregate processing capacity of six production units is 5 million tons of oil shale a year, of which the Petroter plants make up 70%.

Kiviter oil plants are operating on the basis of lump oil shale, and oil is manufactured in vertical retorts, where gas is used as a heat carrier. The plants that are operating on the basis of Petroter technology use fine oil shale, and the manufacturing process takes place in horizontal retorts, while ash is used as a heat carrier.

Shale oil is used due to its small viscosity, low chilling point, and insignificant sulphur content mainly in order to improve the

properties of heavy fuel oils, including as an additive to marine fuels, as a raw material in the chemical industry, and as fuel for boilers and industrial furnaces. Although the majority of the production is exported, shale oil is also used locally in driers, asphalt factories, and industrial and small boilers.

We shall remember the year 2021 in the oil market primarily by the extremely volatile prices, with volatility reaching record levels in certain periods, both in terms of daily trading and on a weekly and monthly basis. Similarly to 2020, consumption and the market were influenced by the COVID-19 virus with its different strains. By the last months of the year, however, certain goods groups, such as marine fuels reached consumption levels comparable to the figures of the respective periods of the pre-pandemic year of 2019. The recovery of airplane fuels has been more difficult, as many airline companies were forced to

discontinue their existence in 2020–2021. By estimation, the sales volume of that sector was at the end of 2021 about 75% of the pre-pandemic level.

Across the year, the prices of all the oil products increased, with several quotations rising to the highest level since 2014 in December. This increase partly stemmed from international tensions, the unwillingness of OPEC+ to expand product volumes and an overall flow of money to the markets, both in raw material markets and equity markets. Various agencies and

investment banks predict that the price of Brent crude oil will rise over the 100 USD/bbl level in 2022, while the increase in the price of energy resources accelerates the global inflation and inevitably increases the difference between the level of the GDPs of wealthier and poorer countries.

The 2021 oil sales figures remained a bit more modest compared to the previous year, mainly due to frequent shutdown in various production units.

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The Group's oil plants processed **4.53 million tonnes of oil shale** in 2021 (–4.6%), which was made into **618,099 tonnes of shale oil products** (+1,8%). The sales of commercial shale oil amounted to **587 313 tonnes**, of which 95% was exported.

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## The Group's shale oil production, 2018 – 2021

Tonnes



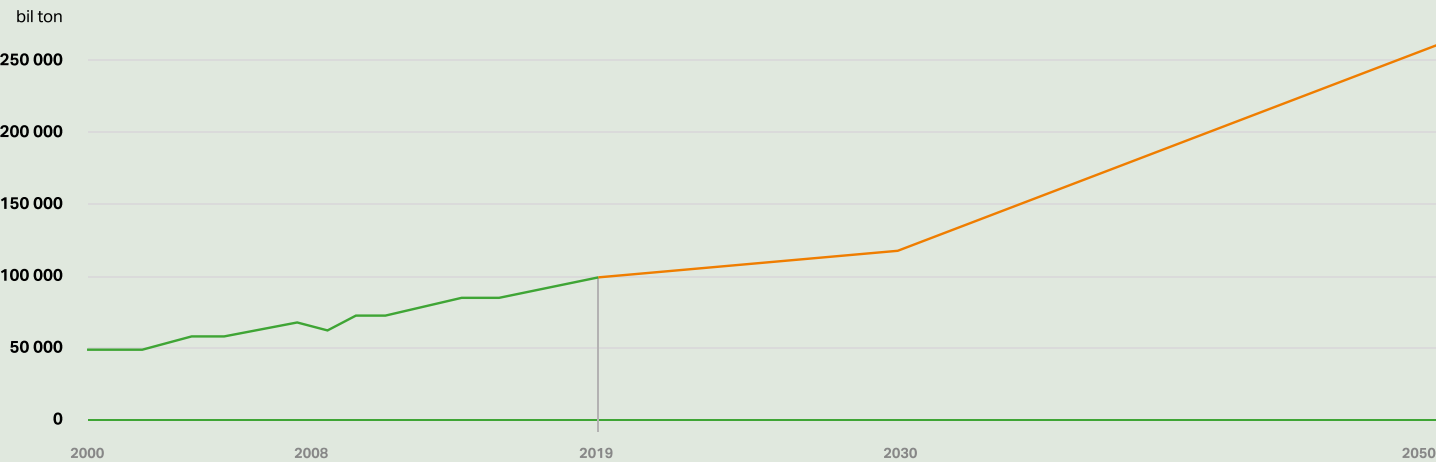
## Global demand for shale oil continues to grow in the coming decades

Unlike electricity production, shale oil has a clear potential and high added value as ship fuel. According to OECD's forecast, maritime transport volumes will grow by nearly three and a half times in the coming 30 years. The multiplication of cargo transport volumes naturally also means a growing demand for ship fuels. The global ship fuel market will grow and there are currently no alternative carbon-neutral solutions for ocean ships.

Eighty percent of the fuel consumption of the shipping sector comes from international trade which has undergone a notable improvement in energy efficiency – the GHG emission per shipped ton is 32% lower than in 2000. There are currently more than 120,000 ships with a capacity of over 100 tons. Of these, 90% are cargo ships with an average useful life of 21 years. Which in turn means that any technological innovations will take time.



# Volume and growth forecast of international maritime trade



Sources: United Nations Conference on Trade and Development (UNCTAD), 2020. Review of Maritime Transport 2019. International Transport Forum, OECD (ITF&OECD), 2019. Transport Outlook 2019

# Manufacturing heat, steam, and electricity

A hundred years of experience in refining oil shale has taught us to get much more than just oil out of oil shale. Refining oil shale in VKG means the combined production of oil, heat and power, which is the most eco-friendly and economically efficient way to use this resource.



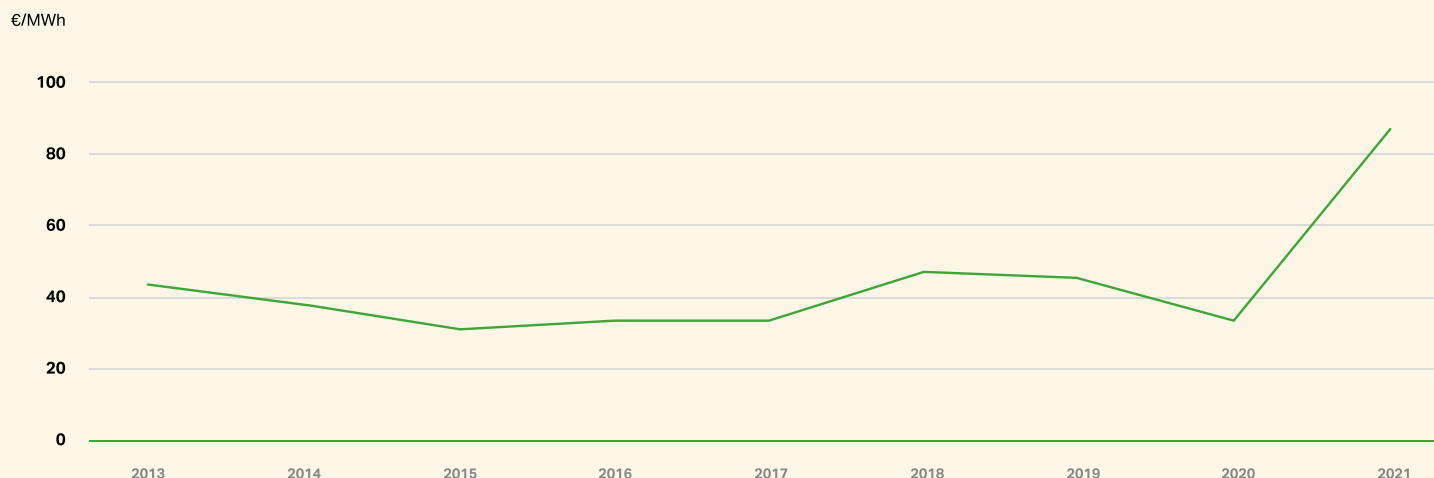
The shale oil production process generates oil shale gases that do not condense into oils and are transferred to VKG Energia where they are used for manufacturing heat, steam, and electricity. Heat energy is forwarded to the local central heating system, steam is sold to production companies located in the neighbourhood, and most of the electricity is consumed by the companies of the Group. In addition to that, we also use oil shale gases at the limestone plant, whose produce is consumed by

our own sulphur-trapping devices that purify exhaust gases. This production chain guarantees the ultimately efficient and environmentally-friendly use of energy contained in oil shale.

VKG Energia produced 409 GWh of electricity in 2021, which is 9% better compared to the previous reporting period. The price of electricity started growing in leaps from September last year.

## The average prices of electricity in the price region of Nord Pool Spot Estonia in 2013–2021

The price of electricity on the exchange, EUR/MWh. The high price of electricity has been caused by several factors: an increase in consumption, an increase in the price of natural gas, the record level of CO<sub>2</sub> quota prices, the low level of hydro-resources in the Nordic countries.



Source: Nord Pool

## What is the impact of the green movement on energy production?

The European Union having set its clear aim at carbon-neutrality has an impact on the entire energy sector. Ever increasing amounts of uncontrollable renewable electricity is entering the electricity market. This means that in order to keep the electricity system stable we also need stable controllable power plants and strong connections between power systems. We are technically very suitable for the role of a controllable power plant. New services will definitely come to the market, which are essential for balancing the production and consumption of electricity at any point of time and for maintaining frequency in the

power system. The price of the CO<sub>2</sub> quotas plays an important role and may quickly remove fossil fuels from market competition. Although the climate policy and the cost of the CO<sub>2</sub> quotas significantly limits the use of fossil fuels, natural gas still has an important role to play in the energy sector. Our big challenge is to constantly find ways to increase efficiency and stay competitive, as well as to think about the future – about reasonable ways to ensure regional district heating and heat supply in the long-term perspective.



## What challenges will the energy sector be facing in the coming decades?

Due to uncontrollable renewable electricity sources, primarily wind turbines and solar power, the price of electricity will increasingly fluctuate and controlling the consumption will become ever more important. The consumption of electricity will grow significantly, as electricity has an ever increasing role in the convenient functioning of society. Several sectors – one of the largest of which is transport – will start to increasingly use electricity. The storage of electricity will become more attractive, be it in the form of electrical car batteries or pump-hydro-electricity plants. Besides the electricity market, changes are also happening in the heating and fuel markets. In the heating market, oil and natural gas are increasingly replaced by wood chips and biogas. In the fuel market, adding biofuel to engine fuels has become mandatory. The issue of whether considering wood carbon-neutral is justified has been recently raised.

If wood is no longer considered carbon-neutral, Estonia will be facing a great challenge in replacing the use of wood with other renewable sources. It is clear that in addition to uncontrollable renewable energy, any systems also need stable and controllable sources and therefore fossil fuels, particularly natural gas will still have an important role.

### Marek Tull

Member of the board VKG Energia



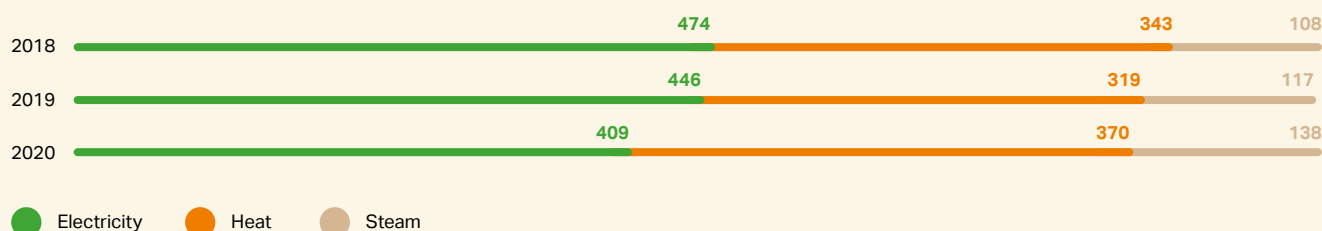
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Unlike 2020, when the prices of electricity were low and the average air temperature in Estonia was at a record high level, 2021 was favourable for the business of heating and power plants. 2021 was a cold year, the average ambient air temperature during the heating season was  $-0.9^{\circ}\text{C}$ , which was  $3.3^{\circ}\text{C}$  lower than in 2020. During 2021, VKG Soojus sold **297 GWh of heat** to customers in its service area. Due to the heating period being colder than usual, **20% more** heat was sold than in the previous year.

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## The Group's production of heat and electricity and steam

GWh



## Energy for over 30,000 clients in Narva, Narva-Jõesuu and Sillamäe

The sale of electrical power and network services is handled by VKG's north-east Estonian subsidiary VKG Elektrivõrgud. The company's service area includes Narva, Narva-Jõesuu and Sillamäe.

In 2021, the company distributed 253.9 GWh of electricity. Compared to 2020, the volume of network services to clients grew by 5.6% in 2021. Consumption volumes grew in all the client groups. Consumption by corporate clients was primarily influenced by the fact that the anti-coronavirus measures were more lenient than in the previous year.

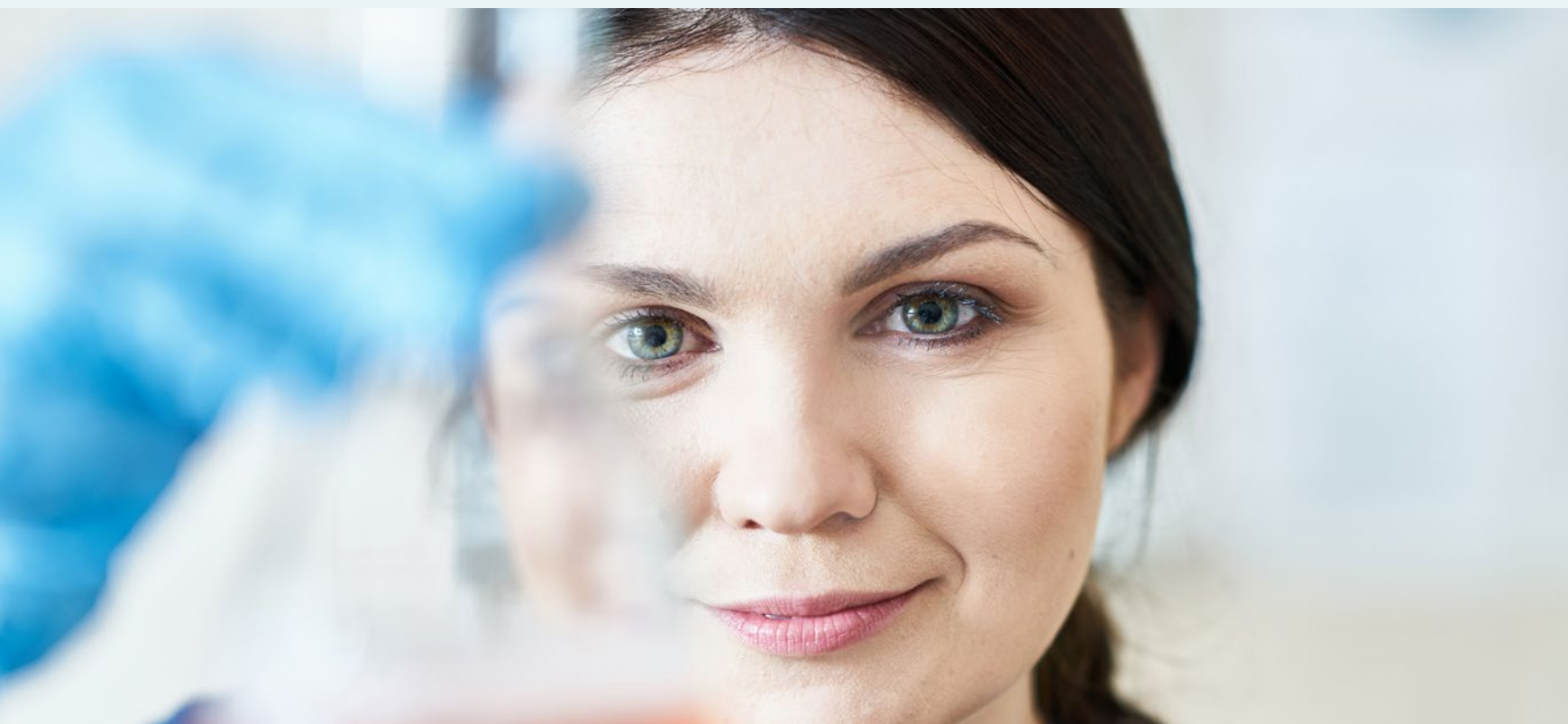
VKG Elektrivõrgud sells electricity in the free market on the basis of price packages developed by VKG Elektrivõrgud or in the form of general services to clients who consume electricity without an electricity contract. Compared to 2020, the electricity sales volume grew by 8.2% in 2021. The exchange prices of

electricity grew in leaps in 2021 and the realisation of electricity was therefore significantly higher than in 2020. The company sold 110.9 GWh of electricity in 2021.

Every year, VKG Elektrivõrgud invests considerable amounts into the maintenance of power lines, substations and other equipment, thus increasing network reliability and reducing network losses. In 2021, VKG Elektrivõrgud commissioned new installations and reconstructed existing installations for 1.8 million euros. The enterprise pays great attention to electrical safety and constantly holds further training courses of its employees.

# Oil shale chemicals

Unlike other processors of oil shale, VKG uses the entire potential of oil shale. The organic part is used for producing very expensive chemicals with a purity level of over 99%, which are used in cosmetics, pharmaceutical, tyre and electronics industries. End users include renowned companies such as Schwarzkopf, Lexus, Samsung, LG.



In 2021, we produced 2,224 tonnes of fine chemistry and phenol products, which the company sold to clients both in Estonia and abroad. VKG's chemistry products were mainly sold to the UK, Indian, Italian, Belgian and US markets. In the sales of phenol products, we continued at positions achieved in the previous year, fulfilling long-term supply contracts and also concluding new ones.

Oil shale chemistry can be divided into two groups: oil shale chemicals (alkyl resorcinol fractions) and fine chemicals. The first group is widely used in rubber and plywood industry, the production of moulded forms, etc. The second group includes products with a high level of purity, which are used in cosmetics, perfume manufacture, and electronics. The main field of application of fine chemicals is the synthesis of medications and



the manufacture of hair dyes. For example, fine chemicals produced in Estonia can be found in the products of such companies as Keune, Estel, and Schwarzkopf. Besides, they are used in the process of production of liquid crystals for LCD monitors.

Oil shale phenol fractions are used in the form of resin adhesives in the tyre, plywood, and oil industries and in the process of manufacture of tyres with high durability level (Goodyear, Pirelli and Bridgestone) as well as in the manufacture of Lexus and Toyota spare parts.

The production of fine chemicals contributes to the development of the national economy and oil shale industry since they are manufactured from the by-products of oil shale processing. Extensive research and development expenses as well as marketing expenses still remain a challenge in the oil shale chemical industry.

The obligation to register chemical substances in accordance with the European Union REACH Regulation also entails significant expenses.

The chemistry market is generally a large and not easily comprehensible sector of industry which is significantly affected by volatility. In connection with this, long-term contracts have become a thing of the past. As dependence on what is happening in the raw material and logistics markets is very strong, contracts are increasingly concluded for short periods – a month, a quarter, half a year. If the Suez Canal is closed for a week, chaos immediately ensues in the chemical raw material market as well as other raw material markets in general. Thus, logistics solutions affect the price and the length of the supply chain.

More information about fine chemicals is available here

[www.finechem.eu](http://www.finechem.eu)

The sales of VKG Oil's phenol products fully corresponds to the production capacity, i.e. everything that is produced is sold. The demand for our products is actually higher than we are currently producing.

The benchmark product for us is resorcin. Fortunately, its market price is currently at a level which ensures that our products are competitive. This in turn means that we have to carefully monitor this market and, if necessary, react in time, as the trends in the resorcin market have a direct impact on the sales of our phenol products. In addition, we have changed the sales structure of phenol fractions – while we previously focused on crude phenols, we now sell products from the same raw material that have been given added value in the course of the production process, such as Rezol and Honeyol, which are included in the rubber resin recipes of our clients. The demand for these products is strong and Asia is the main sales growth area, with nearly 90% of our phenol products going there.

## Nikolai Petrovič

Member of the board VKG Oil



# Limestone production

VKG's lime factory operates since summer 2014. The factory uses limestone from Karinu quarry, which is used to produce lime necessary for the operation of the desulphurisation device.



Semi-coke and generator gases deriving from the production processes of shale oil are used to get energy for decarbonisation. Both the purified char gas and the mixture of semi-coke and generator gases can be used in the operating process. To mix and dose gases, a modern mixing unit has been built. It was developed by Viru Keemia Grupp and is a unique solution developed in Estonia for limestone production.

In 2021, we produced **26,951 tonnes of lime**, all of which was used in the process of capturing SO<sub>2</sub> from flue gases. The average content of free lime in the finished product grew by 1.5% from the previous year, reaching 76.1%. The OEE of the lime factory grew by 4%, reaching 76.1%. The improvement of the

quality and the increase in the quantity of the produced lime has reduced the overall consumption of lime in VKG Energia's desulphurisation devices. This allowed us to save on purchases of additional lime quantities.

The lime factory's production capacity fully covers all the current and future needs of VKG and also provides an opportunity to sell a certain amount of limestone to consumers outside of the Group. Some of the products of desulphurization find use in agriculture. The product complies with the quality requirements set for lime fertilizers in the Fertilizers Act, which is also proven by a certificate issued to the company.

# Special projects

The Group's subsidiary Viru RMT is an engineering and project management centre with diverse know-how operating in the international market. The company has several decades of experience and offers repair and assembly services as well as the production, installation and maintenance of metal structures and metal components.



## Areas of activity of Viru RMT

- electrical works from the lamps in the ceiling to transforming substations;
- design, production and installation of technical equipment;
- automatic management systems design, software development and installation;
- installation and repair of control and measuring instruments;
- maintenance and repair of lifting equipment, and lifting works;
- project management for the performance of integral technical solutions



## Main projects launched and implemented in 2021

- VKG Oil's monitoring system of flue gases from the generator gas distillation equipment (Opsis);
- Modernisation of VKG Oil's railway loading facilities;
- Nitrogen breather system for VKG Oil's containers;
- Production and delivery of equipment to Hamar ehf Iceland;
- Design and construction of 6kV land cable lines for Tbhawt Manufacturing OÜ;
- Design and construction of 6kV land cable lines for Eastman Specialties OÜ;
- Renovation of the Roela 110 kV substation of Elering AS into a compact substation;
- Stage 1 of the renovation of the street lighting infrastructure in the City of Narva-Jõesuu.

An overview of the works performed is available on the homepage of Viru RMT

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



### THE ICELANDIC PROJECT

Viru RMT already had a positive experience from previous cooperation with an Icelandic company, so that a good reputation and the cooperation partner's recommendation opened doors and laid the ground for launching a new project with another company. It was a unique project for Viru RMT – we had to make, deliver and assemble equipment for a geothermal power plant in Iceland. In terms of technical capabilities, Viru RMT would be able to carry out such a project independently, but as the scope of the work was very large and delivery terms were short, subcontractors were also engaged in order to comply with the terms. The main challenges in the project included:

- performing very large-scale works in a short time, about 400 tonnes of products in six months;
- some products are very big (over 8 metres), so that a part of the assembly work has to be done at the port, followed by loading on ships.



### RECONSTRUCTION OF A SUBSTATION

The reconstruction of the Roela 110 kV substation, in the course of which the switchgear and the building of the old substation had to be demolished, after which a new 110 kV switchbay and a new control building were designed and built. This project was carried out in cooperation with EPCM Consulting. It was an important project for Viru RMT, but not a novel one, as the team has been performing similar works for several years by now.



### RECONSTRUCTION OF STREET LIGHTING

The reconstruction of street lighting in Narva-Jõesuu, Olgina, Soldina, Kudruküla, Sinimäe and Vaivara was one of the important and large-scale projects. In the course of this project, more than 1,000 new lights, 8 km of mainline cables and 16.5 km of new air cables were installed. Viru RMT carried out the project in cooperation with EPCM Consulting OÜ. The team of Viru RMT has previously performed similar works in the course of construction of the Jõhvī promenade and the Sillamäe traffic junction.

# Economic environment

2021 was a year of recovery from the shock of COVID-19 in the economy of the world. Although COVID-19 still affected our everyday activities, the overall economic activity improved in a surge thanks to the rapid dissemination of vaccines and the money-printing of central banks.



While the global economic growth of -3.3% in 2020 was according to the World Bank the lowest since the end of World War II, the global economic growth of 5.5% expected for 2021 tends towards the other extreme on that diagram. The global economic growth was last more rapid in 1972 and 1973 when it was similarly to today driven by a rapid increase in the prices of energy carriers.

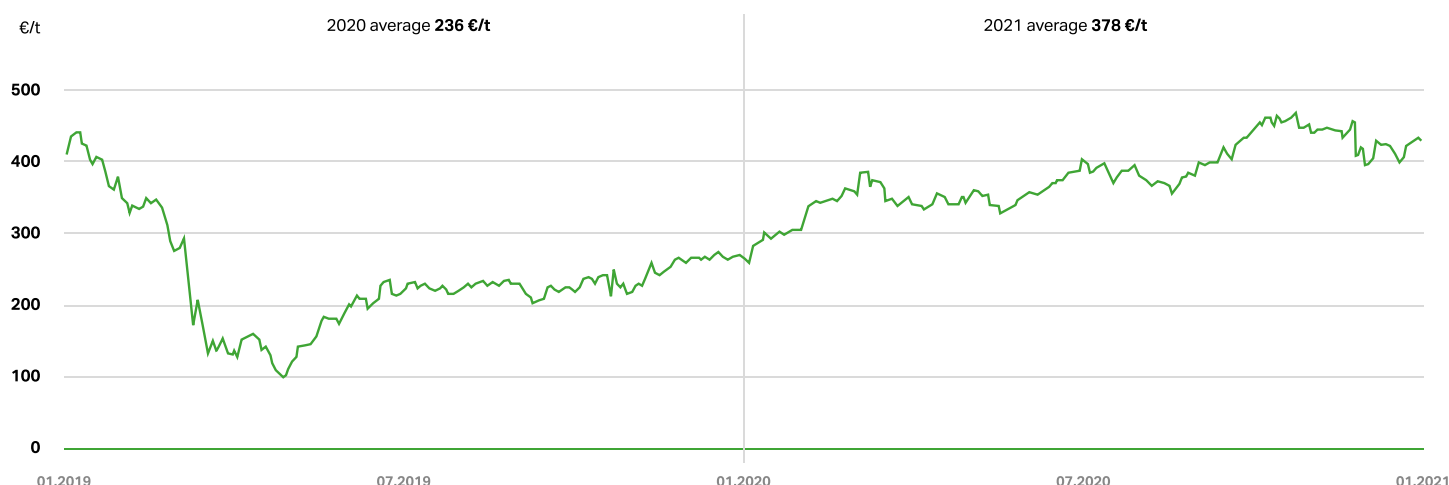
The small and open Estonian economy raced at an even faster pace in 2021. According to Statistics Estonia, Estonia's gross domestic product (GDP) made the fastest leap in the past 15 years: 8.3% (2020: -3.0%). As the growth of the average gross salary of 6.9% (2020: 2.9%) remained near the average level of recent years, it was for the first time in 10 years lower than the GDP growth. The salary increase is expected to continue to ac-

celerate in 2022, but economic growth forecasts are tentative due to the war started by Russia in Ukraine.

VKG's financial results are influenced the most by what is happening on the global oil market. The rapid growth in the overall economic activity also restored the demand for fuels, but as OPEC+ increased the supply of oil carefully and it takes time for the US shale oil producers to recover from the crisis, the prices of fuels mainly moved up in 2021 on the backdrop of limited supply and growing demand. The year started with the Brent price of 51 \$/bbl, reaching the peak by the end of October at 86 \$/bbl. News of the spread of the new and particularly contagious Omicron strain brought the price of crude oil back to

around 70 \$/bbl by the beginning of December, but as a result of a leap made in the last week of the year, Brent ended 2021 at the level of 78 \$/bbl. The average price of the year was 71 \$/bbl, which was 65% higher than in the previous year of the crisis.

VKG sells most of the produced oils on the basis of the price of fuel oil with 1% sulphur content. Compared to the Brent crude oil, the 1% fuel oil market is less liquid and the price of fuel oil may move differently from Brent, depending on the ratio between supply and demand. As VKG's expenses are denominated in euros, the company's results are also influenced by the US dollar rate. Thus, the Group's results are best characterised by the following fuel oil price curve.



Source: OMJ

As can be seen from the above diagram, the price of the 1% heating oil also rose notably in 2021, starting the year at the level of 260 €/t and ending it as the level of 420 €/t. The year's average price of heating oil was 378 €/t, which was 60% higher

than the year before. Compared to Brent, the increase of the average price of heating oil was a tad smaller, mainly due to the weaker dollar exchange rate, with was 1.8 on the average (2020: 1.14).

VKG's economic results are largely dependent on the impact of the external environment in three areas:

1. shale oil as VKG's main product competes with other types of fuel in the globally open raw materials market where prices are volatile and beyond the Group's ability to influence;
2. the availability of the oil shale resource as VKG's main production input depends on regulative decisions;
3. the regulative environment on the global, European Union (EU) and national level has a significant effect on the activities of VKG through various environmental regulations and rules.



# Economic indicators

## Income statement

In thousands of euros

	2018	2019	2020	2021
Sales revenue	208 924	256 763	207 841	285 523
Cost of goods sold	-170 362	-215 743	-216 077	-275 972
<b>GROSS PROFIT</b>	<b>38 563</b>	<b>41 020</b>	<b>-8 236</b>	<b>-9 551</b>
Marketing expenses	-5 841	-5 304	-5 548	-5 232
General administrative expenses	-9 724	-11 123	-11 179	-12 631
other business earnings	12 225	20 595	40 942	66 106
Other business expenses	-853	-2 140	-1 232	-1 616
<b>BUSINESS PROFIT</b>	<b>34 370</b>	<b>43 047</b>	<b>14 747</b>	<b>56 178</b>
Total financial income and expenses	-6 901	-6 077	-4 424	-1 859
<b>PROFIT BEFORE INCOME TAX</b>	<b>27 469</b>	<b>36 970</b>	<b>10 323</b>	<b>54 319</b>
Extraordinary expenses				
Income tax	-560	-293	-244	-4 532
<b>NET PROFIT FOR THE REPORTING YEAR</b>	<b>26 909</b>	<b>36 677</b>	<b>10 079</b>	<b>49 787</b>

The Group's 2021 consolidated sales revenue increased by 37% compared to the previous year. The turnover growth mainly stemmed from the world market fuel prices recovering compared to the previous year of the crisis. However, the production of both shale oil products and electricity decreased in 2021

(-2% and -8%, respectively) due to the diminished working time of the Petroter plants. In conclusion, we can be satisfied with the financial results of 2021, as the improved market conditions allowed the company to earn a net profit of 49.8 million euros.

## Investments

In 2020, in the conditions of the COVID-19 pandemic and the oil market crisis, the Group reduced the volume of investments to 14 million euros. The volume of investments grew again in 2021, reaching **23.9 million euros**, being 68% higher than last year.

The estimated volume of the project in 2022 will be 12 million euros. The remaining 24 million euros of investments will be divided into investments into ensuring the Group's reliability in the amount of 18 million euros, development investments in the amount of 5 million euros and investments into the environment and work safety in the amount of 1 million euros.

## Investments into reliability

Investments into reliability made up **16,4 million euros** of that, including 3.8 million euros on the replacement and renewal of depreciated mining machinery in VKG Kaevandused, underground drifting investments in the amount of 3.7 million euros, investments related to major oil factory repairs in VKG Oil in the amount of 4.7 million euros, and the various reliability projects of VKG Energia, VKG Soojus and VKG Elektrivõrgud 2.4 million euros in total.

## Development investments

In millions of euros



Development investments amounted to **6,3 million euros**, the largest of which included VKG Oil's reconstruction project of Petroter I in the amount of 3.7 million euros, VKG Oil's other projects in the amount of 0.7 million euros, VKG Energia's 0.5 million euros, and VKG's IT developments in the amount of 0.7 million euros.

## Environmental and occupational safety investments

In millions of euros



Environmental and occupational safety investments amounted to a total of **0,8 million euros**, of which the various environmental projects of VKG Oil and VKG Kaevandused made up 0.4 million euros each.

The planned volume of investments in 2022 has been raised to 36 million euros, mainly due to the Petroter I reconstruction project started in 2021.

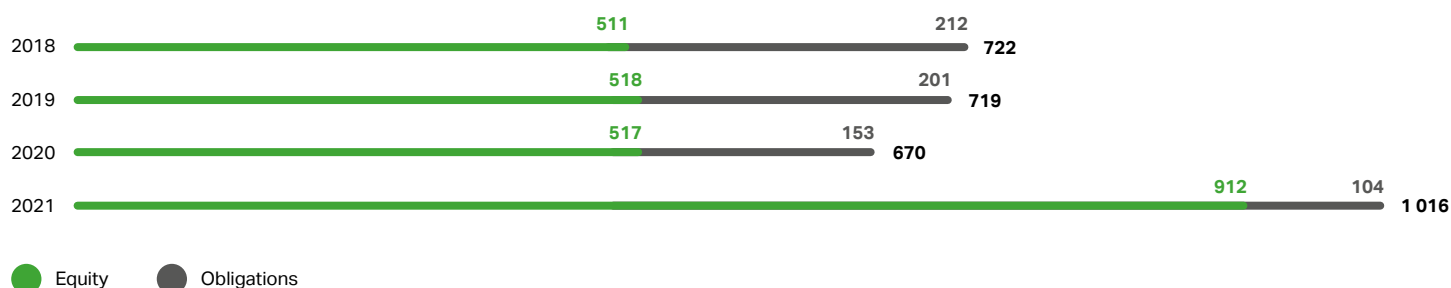
## Balance sheet volume

In thousands of euros

	2018	2019	2020	2021
<b>ASSETS</b>				
Current assets	108 992	149 819	158 936	198 028
FIXED ASSETS	613 357	568 980	511 395	817 909
<b>TOTAL ASSETS</b>	<b>722 348</b>	<b>718 800</b>	<b>670 331</b>	<b>1 015 937</b>
<b>LIABILITIES AND EQUITY</b>				
Total current liabilities	172 469	76 640	51 435	76 586
Total long-term liabilities	44 673	128 877	102 191	27 334
<b>TOTAL LIABILITIES</b>	<b>217 142</b>	<b>205 517</b>	<b>153 626</b>	<b>103 920</b>
Total equity	505 206	513 283	516 705	912 017
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>722 348</b>	<b>718 800</b>	<b>670 331</b>	<b>1 015 937</b>

## Balance sheet

In millions of euros





# Operative framework

The more important developments in the legislative environment which influence VKG's competitiveness were the following in 2021.



## The COVID-19 pandemic

The emergency situation established by the Government in 2020 in connection with the COVID-19 pandemic continued also in 2021. Special measures set forth in the Emergency Act were applied during that period. Even at the relatively high level of vaccination at the company, the quarantine rules had an

impeding effect on the continuity of production processes due to the long absences of employees. VKG made a proposals to the Government of the Republic to alleviate the quarantine requirements.



In addition, an amendment to the Occupational Health and Safety Act entered into force from 1 January 2021, pursuant to which employers were obligated to pay sickness benefit to employees from the second to the fifth day in the period of 1 January to 30 April. This entailed an additional expense for the company.

The specification stipulated in the Fiscal Marking of Liquid Fuel Act allowing undertakings that hold an extraction permit to use

specific-purpose diesel fuel in mines and ash deposit sites was extended by a year (until 30 April 2023). Over the four years as of 1 May 2023, a gentle restoration of the fuel and electricity excise rates to the pre-crisis levels is foreseen. Considering the fact that fiscally marked diesel fuel is intended for industrial machinery that does not drive on public roads, we made a proposal to the legislator to continue the excise specification also after the end of the emergency situation.



## The EU Climate Law

In December 2019, the European Commission approved the European Green Deal, the aim of which is to apply political, economic and social measures in order to achieve carbon neutrality in the European Union by 2050. In December 2020, the representatives of the Member States agreed on an increased interim Green Deal objective for 2030, raising the greenhouse gas reduction goal from the former 40% to 55% compared to 1990. The EU's Climate Law entered into force in July 2021. No individual objectives were established for the Member States and they bear solidary liability for achieving the established goals. By 2020, Estonia had reduced greenhouse gas emissions by more than 70%. It can be presumed that the need to achieve the goals of the EU Climate Law will entail a pressure to reduce the offering of the EU Allowances (carbon credits) to the undertakings included in the area of regulation of the EU Emission Trading System, which will increase the price of carbon credits

in the Trading System. In its published form, the package will impair the competitiveness of the Estonian shale oil industry in the global fuel market. The increased expense of the CO<sub>2</sub> quota tax entails a higher variable cost of production. It is notable that the price of a CO<sub>2</sub> emission credit which companies have to pay nearly tripled in 2021, to 90 euros per tonne, exceeding the 2030 price level foreseen in the impact assessments of the European Commission manyfold. Analysts have forecast that the price of the carbon credits will be 80 to 120 euros per tonne by 2030. Considering that the EU Emission Trading System is not a free market, but an administratively shaped and controlled tax measure, we made a proposal to the Government of the Republic to replace the former difficult-to-control system with a tax system which is more clearly predictable for undertakings and in which the credit price would be fixed.



## The Fit for 55 package

A package of draft legal acts necessary for achieving the EU's 2030 goal of reducing greenhouse gas emissions (-55% vs 1990) was published in July 2021. The plan is to adopt the package during 2023. Upon entry into force the package will force the reorganisation of production and consumption in Estonia.

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„Fit for 55“ is a massive 12,000-page legislative proposal the most important provisions of which that have an effect on the activities of VKG are the following:

1. Changes in the emission trading system (ETS) - the emission trading system continues to be the main tool for implementing Europe's green policy and is based on the taxation

of CO<sub>2</sub> emissions of selected economic sectors. Estonia's shale oil production is also included among these sectors that have to pay tax into the European Union treasury for CO<sub>2</sub> emissions. As shale oil competes with other oil products in the global market, the establishment of a tax burden on carbon would render shale oil unable to compete compared to producers outside Europe who do not have to pay tax for carbon emissions. Shale oil production is therefore included among production sectors with a risk of carbon leaks and producers are issued free of charge CO<sub>2</sub> quotas in order to maintain their competitiveness. The proportion of the free of charge quotas varies from year to year and as the average over the past four years, VKG has been issued free of charge quotas in the extent of about 80% of the emissions. This means that 20% of the emissions have to be covered with quotas bought from the market. Considering the CO<sub>2</sub> price rise that we saw in 2021, VKG's annual tax burden has risen from the former 8 million euros to 20 million euros and there is absolutely no clarity as to how rapidly this will continue to grow in the future. The steep CO<sub>2</sub> price increase was caused by the proposal made by the European Commission in the Fit for 55 package to reduce the overall amount of the free of charge quotas to be issued in 2021–2030 by the average of 4.2% a year. The reduction of the quota supply is supposed to take the CO<sub>2</sub> price up and that in turn is supposed to reduce emissions, as companies would be looking for solutions to reduce the CO<sub>2</sub> expenses or, if they cannot do that, the weaker ones will die out and the demand will decrease as a result. The presentation of the proposals caused CO<sub>2</sub> price to rise rapidly in 2021 and this was taken advantage of by speculators who discovered that it is an investment opportunity with a guaranteed yield. In total, the CO<sub>2</sub> price nearly tripled in 2021, rising from 32 euros/t at the beginning of January to 89 euros/t during the cold period at the beginning of December. This increase is multiple times more rapid than any impact assessment or analysts could forecast even at the beginning of the year. In theory, the rapid CO<sub>2</sub> price increase should have steeply reduced emissions, but in reality the emissions grew everywhere in Europe in 2021 due to the economic activity recovering after the corona crisis. It can therefore be concluded that the current ETS does not fulfil its purpose, because emissions grow despite the CO<sub>2</sub> price rise. In addition, the unpredictability of the ETS means that companies lack clarity as to how quickly the CO<sub>2</sub> price rise will render them insolvent and whether it is worth making any investments

into reducing their footprint. Thirdly, the steep increase in the CO<sub>2</sub> tax burden has through soaring energy prices reached the end consumers who suffer the most because of that, while speculators and politicians who distribute the collected money at their own discretion reap the profits. As the current system has turned out to be unpredictable and uncontrollable, VKG made a proposal to the Government of the Republic to replace the current complex ETS with a simple transparent and predictable carbon tax which would allow companies to assess the feasibility of investments into reducing the CO<sub>2</sub> footprint and would not allow speculators to get rich on account of the green policy. The Government understands the problems, but admits that it is not able to control the process, as the steering wheel has been given to the European Commission.

2. Increased CO<sub>2</sub> removal targets - in addition to the reduction of emissions, a proposal was also made to increase the net removal of greenhouse gases (GHG) in the EU's forestry and land use sectors (LULUCF) to at least 310 million tonnes of CO<sub>2</sub> equivalent by 2030. Estonia received a proposal to increase the net removal of GHG from the former 0.7 million tonnes to 2.5 million tonnes by 2030. Such a goal is clearly disproportionate for Estonia and would mean a rapid contraction of the Estonian forestry sector by at least a third. This proposal influences VKG through the proposed bio-products production complex investment project. Although the said production complex would entail capturing 0,46 million tonnes of CO<sub>2</sub> equivalent into bioproducts, making the investment would be impossible if a decision is made to abruptly reduce felling volumes in order to achieve short-term goals by 2030, as there would be no raw material in the market to supply the production complex. Considering the overall wellbeing of the Estonian nation, VKG has made a proposal to the Government of the Republic to reject the GHG net removal targets for 2030 that have been assigned to Estonia.

„The Fit for 55“ package also contained many other proposals that would have a direct or indirect effect on the activities of VKG (among other things, the replacement of free of charge quotas with a carbon border adjustment mechanism, more economic fuels in marine transport, etc.). The impact of those proposals on VKG is currently difficult to assess, but it is clear that those proposals rather impair the competitiveness of the Estonian shale oil industry on the global fuel market.



## Fluctuation of the CO<sub>2</sub> market price, 2017 - 2020



As a part of the legislative package, a proposal for the wording of the LULUCF Regulation is made, obligating Estonia to bind 2.5 million tonnes of CO<sub>2</sub> equivalent in the forestry and land use sectors by 2030. This goal is clearly disproportionate for Estonia and would mean the contraction of the Estonian forestry sector by more than a half. The forest management and environmental protection objectives would in essence be replaced by the objective of achieving the CO<sub>2</sub> targets.

In the coming years, VKG is planning to invest in a bioproducts production complex which will entail binding 0.46 million tonnes of CO<sub>2</sub> equivalent into products. The planned project cannot be implemented, if it is not possible to valorise Estonia's renewable forest resource due to the fulfilment of climate goals. VKG has made a proposal to the Government of the Republic to reject

the wording of the LULUCF obligation to be placed on Estonia and to support the management of Estonian forests, aiming at a reasonable management of forests.

The Riigikogu approved the fundamental positions of the Government of the Republic for negotiating the package only at the beginning of 2022. Regrettably, the positions of the Government of the Republic did not take into account the proposals made by VKG and the Estonian Chemical Industry Association and other professional associations and primarily the need to shape Estonia's positions on the basis of a thorough impact assessment and substantive inclusion. The Fit for 55 negotiations will last until the second half of 2023. The plan is to achieve political agreements on Fit for 55 at the EU Council level in the summer of 2022

# Taking care of the environment

In shaping its environmental policy, VKG places great value on social responsibility and understands that environmental impact management is a prerequisite to sustainable development. We have created an integral and systemic approach to environmental issues, which is in accordance with European Union and Estonian legal acts as well as the environmental requirements arising from the Best Available Technology (BAT) framework documents.

All VKG's production units are in conformity with environmental requirements, but we are still constantly looking for ways to optimise processes and reduce the production footprint. Our aim is to make full use of the potential of oil shale in accordance with the principles of a circular economy with the smallest possible footprint.

In 2021, the European Green Deal was in the focus of environmental activities and Estonia also presented its framework po-

sition on the matter. The Group had the opportunity to provide its shale oil sector input into the development of the position, which was partly taken into account in the final document. We also participated in various EU initiatives, including the preparation of the European Climate Law, the carbon border adjustment mechanism, the planned changes in the greenhouse gas trading system, etc.

## Environmental areas of activity in 2021

### REDUCTION OF THE EMISSION OF ODORIFEROUS SUBSTANCES

As the largest Estonian shale oil producer, our activities have an effect on the surrounding environment and the local community. In planning our activities, we rely on the odoriferous substance reduction action plan. In 2021, we launched the project of reconstruction of the Petroter I shale oil plant. The project includes the installation of a new flue gas utilisation boiler and an electrical filter, which will significant-

ly reduce the impact of VKG's production activities on ambient air quality in the City of Kohtla-Järve and its vicinity.

### GREENHOUSE GASES

The 4th period rules of the EU carbon credits trading system entered into force in 2021. On account of an increase in the 2019 and 2020 production volumes and a change of methodology, we proved an additional 316,000 free of charge carbon credits.

## MINERAL EXTRACTION PERMITS

VKG Kaevandused filed an application for the amendment of the environmental permit of the Uus-Kiviõli Mine. The company wishes to increase the allowed maximum annual limit in the permit from 2 million tonnes of oil shale to 5 million tonnes a year and to change the mineral transport solution. The Environmental Board initiated an environmental impact assessment in April. VKG Kaevandused OÜ and Enefit Power AS started to jointly prepare an EIA programme at the end of 2021.

VKG Kaevandused submitted an application to the Environmental Board for the extension of the mining claim of the Ojamaa oil shale mine to the Aidu and Kohtla mining fields and the Ojamaa exploration field, which would increase the area of the mining claim by 279.16 ha. As a result of the requested extension, the active proved reserves of oil shale related to the mining claim would be increased by 10,091,000 tonnes. In April 2021, the Environmental Board initiated an environmental impact assessment with regard to the requested activities. VKG Kaevandused started preparing an EIA programme at the end of 2021.

## A STUDY OF THE BEST AVAILABLE TECHNOLOGY FOR SHALE OIL

Under the leadership of the Ministry of the Environment, the preparation of a study of the best available technology for the Estonian shale oil production commenced in 2021. VKG has been participating in the workgroup preparing the study and has submitted an input with regard to the effectiveness of the technologies used in the Group. The process continues in 2022.

## OIL SHALE INDUSTRY WASTE DEPOSITORY

In autumn 2021, VKG started an attempt to landscape the oil shale industry waste depository, in the course of which it is testing the option of using stabilised wastewater sediments from a neighbouring enterprise to plant greenery on the slope of the depository.

In 2021, we invested **10.2 million euros** in environmental projects and increasing reliability and efficiency, of which direct investments in reducing environmental impact made up 5.3 million euros.

Important activities in 2021 included having a say in shaping Estonia's positions on Fit for 55, the extension of the Ojamaa Mine, the assessment of environmental impact in the Uus-Kiviõli mining field, and participating in the workgroup for the study of the best available technology for the production of shale oil. Priorities include the process of conducting a strategic environmental assessment of the special spatial plan for oil shale industry waste and the special spatial plan for the bioproducts

production complex. We also have to critically assess the effect of the opening of the Industrial Emissions Directive on our environmental activities.

In the coming years, VKG's development and environmental activities will continue to be focused on efficiency, waste reuse, reduction of air emissions, and projects related to the climate neutrality policy.



# Developing future solutions

The Group's subsidiary Viru RMT is an engineering and project management centre with diverse know-how operating in the international market. The company has several decades of experience and offers repair and assembly services as well as the production, installation and maintenance of metal structures and metal components.

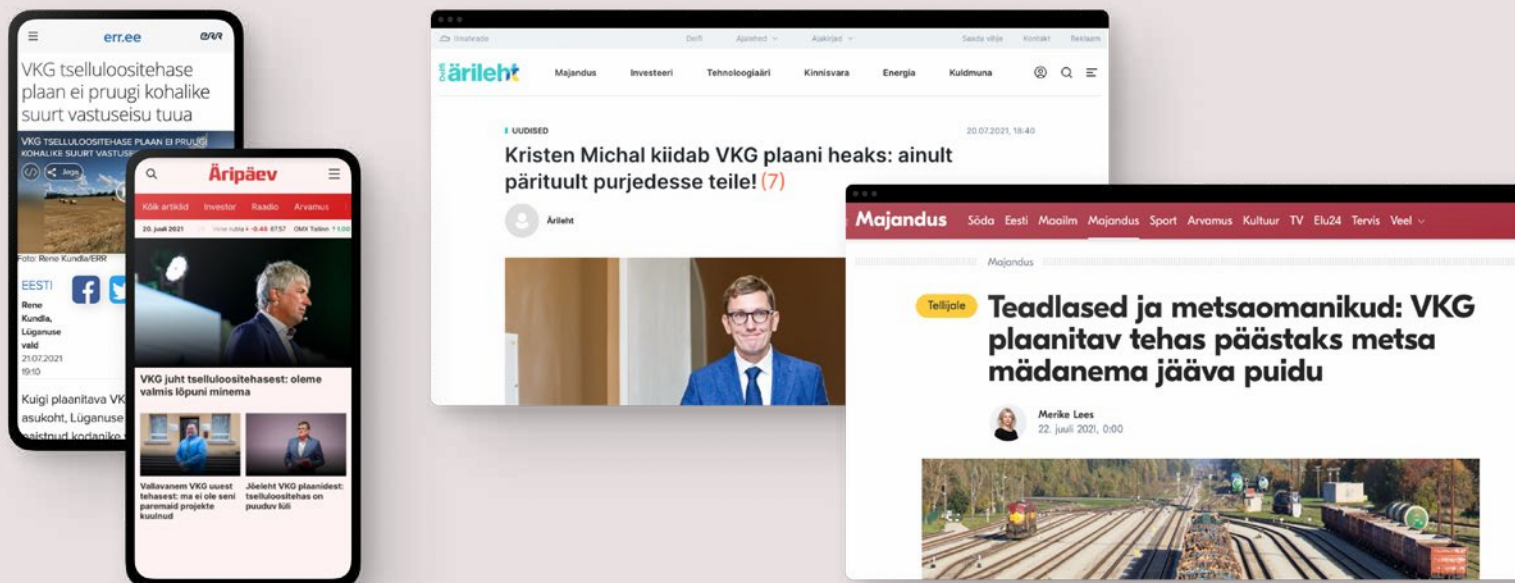


The planned product range would include cellulose, soluble cellulose and tall oil. Demand for products made from such environmentally friendly materials is growing rapidly on the world market. The planned complex would use the most modern and

flexible KRAFT technology, which involves a chemical processing of wood and is today the best available technology for producing cellulose, using both coniferous and non-coniferous wood.

VKG sees a need to add value to the currently exported wood here. Estonia has the necessary wood resource 80% of which is currently exported to the Nordic countries in the form of paper wood and wood chips. Estonia needs a modern bioproducts plant for adding value to low-quality wood and Ida-Viru County

has the preconditions for establishing such a new production facility. A bioproducts production complex would help take a step forward towards diversifying the economy of Estonia and Ida-Viru County and achieving the environmental goals.



When we manage Estonian forests, the value which we would get from the managed forest would be added in Estonia to the largest possible extent, which means that we should develop adding value to wood locally. And when it develops in a way that it keeps up with our new technologies and takes into account different environmental conditions and creates new jobs in Ida-Viru County where the level of unemployment is very high, it is doubtlessly a rather positive phenomenon.

**Tõnis Mölder**

Minister of the Environment, July 21st 2021



On 25 August 2021, the rural municipality of Lügänuše initiated a special spatial plan for establishing a bioproducts production complex and by now the terms of reference for preparing the special spatial plan and the strategic environmental assessment intent have been determined. The special spatial plan process is led by the rural municipality of Lügänuše and it will take about three years. The earliest time of launching the complex is 2027.



For more information about this development project, please visit our homepage at [www.vkg.ee/en/bioproducts/](http://www.vkg.ee/en/bioproducts/)



# Plastic waste into oil and gas



In seeking solutions not only to the problem of waste generated in the course of shale oil production, but also to the world's biggest problem, Viru Keemia Grupp and Kiviõli Keemiatööstus last year launched a joint project for turning plastic waste into oil and gas. The plan is to adapt the processes used in shale oil factories for processing plastic waste. Technologically, ash or semicoke generated in the production of shale oil can be re-used as a solid heat carrier in the plastic waste pyrolysis process. Processing plastic waste into oil and providing it again as raw material for the plastic industry is significantly more beneficial and more environmentally friendly compared to burning such waste. Thanks to the developed technology, the plant will be able to process up to 130,000 tonnes of plastic waste a year; the capacity will be limited by the availability of plastic waste in the region and the cost of transporting the waste.

The joint project complies with the companies' principles of sustainable production and contributes to the achievement of environmental and circular economy related objectives.

By today, cooperation partners have conducted considerable preliminary work, commenced applied studies and announced

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Estonia's annual volume of plastic waste produced is over

72,000

tonnes, which corresponds to 55 kg per person

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several international procurements for finding testing and design partners. The project is supported by the European Regional Development Fund via the Estonian Business and Innovation Agency. At the earliest, the planned industrial experimental plant could start operating in five years and help solve the ever increasing plastic waste problem in line with circular economy principles.

There are very many different plastics in circulation and their use grows from year to year. It is impossible to mechanically re-cycle all those plastics, plus many plastics lose their qualities with each subsequent reuse cycle, meaning that they cannot be indefinitely recycled. In our project, we shall only focus on the pyrolysis of plastic waste – and not on pyrolysis together with oil shale, as we wish to contribute to the circular economy solution without using any additional fossil fuel. The strength of the joint project lies in processing unsorted and contaminated plastic waste and also using plastic waste that previously could only be landfilled or combusted. Technologically, ash or semi-coke generated in the production of shale oil can be reused as a solid heat carrier in the plastic waste pyrolysis process. Processing plastic waste into oil and providing it again as raw material for the plastic industry is significantly more beneficial and more environmentally friendly compared to burning such waste.

## Indrek Aarna

VKG's Head of Development Department



## The 2022 development activities are mainly focused on the following topics:

1. Continuing with the special spatial plan for the bioproducts production complex and initiating the preparation of a draft design,
2. Developing the plastic waste pyrolysis technology with Kiviõli Keemiatööstus,
3. Developing renewable energy projects,
4. Analysing new business opportunities.

# IT developments

In the area of IT, the Group mainly focused on ensuring the reliability of existing programmes in 2021. The implementation of the approved IT Strategy continued.



In 2022, the IT Department will replace the equipment of the Group's core network, thereby increasing the data throughput speed, the security of data transmission and the reliability of the core network. By adding new equipment to the server fleet, we will increase the resources of the fleet and continue implementing the virtualisation strategy. We shall take into use a new network drive array, which will increase the volume of the Group's data storage capacity as well as the speed of data pro-

cessing. By launching a new backup solution, we will increase the sustainability of continuity and ensure a long-term secure backup of the Group's data.

We shall also introduce a new high-end version of the cyber threat prevention software, improve log administration and continue developing the monitoring capacity in 2022.



# Social responsibility and sustainable activities

VKG has been implementing an integral policy of social responsibility and sustainable development for 13 years by now. In both short-term and long-term perspective, the Group's strategy includes sustainable development tasks in a period of changes in the energy sources market and the interests of society.



RESPONSIBLE  
BUSINESS INDEX  
BRONZE LEVEL 2021



Global  
Reporting  
Initiative™



Responsible Care®  
OUR COMMITMENT TO SUSTAINABILITY

In strategic planning, we take into account risks and opportunities related to climate change and the transition to low carbon emission energy production, including the European Union's Green Deal and the Fit for 55 package.

The Group's overall strategy is based on strict requirements for the environmental sustainability of production, social responsibility, and occupational safety. We have mapped the ESG (environmental, social and corporate governance) objectives and

focus on seven topics which we handle as a part of a consistent process. One integral part of our sustainability strategy is the responsible use and rational enrichment of natural resources. We are aware that the extraction and production of any mineral resources has an impact on the surrounding environment and we therefore always strive to do more than prescribed by laws or regulations.

# VKG's sustainable development priorities

## Increasing the efficiency of the main activities

- Production and occupational safety
- Minimising the environmental impact
- Energy efficiency and saving
- Development of employee potential
- Supporting regional development

## Guiding principles

- Openness and transparency
- Honesty and correctness
- Principle of acting responsibly
- Compliance with international standards

## Supporting initiatives and membership in associations

- We share the principles of the United Nations Global Compact.
- Our sustainable development objectives and areas of activity are related to the UN Sustainable Development Goals.
- We take into account the Paris Climate Agreement objectives, the EU's Fit for 55, and the goal to achieve climate neutrality in the EU by 2050.
- Participation in associations: Vastutustundliku Ettevõtluse Foorum (Corporate Social Responsibility Forum), Hoolime ja Vastutame (Responsible Care), United Nations Global Compact, Global Reporting Initiative

# Organisation culture

We integrate the principles of corporate responsibility into our organisation culture: the prevalence of the safety of people, the environment and the Group's property, compliance with human rights, equality of opportunities, and compliance with occupational ethics standards.

The Group's values - openness, commitment, development – as an integral part of our business activities and consolidate the interests of the Group and its employees. The values influence the adoption of decisions, shape our reputation, and determine our work principles.

## Organisation culture values and principles that support sustainable development:

1. **Safety of people, the environment, and property**
2. **Working conditions based on respect**
3. **Attentiveness and respect towards colleagues**
4. **Equal and understandable requirements for all business partners, compliance with business ethics standards**
5. **Responsible attitude towards assets**
6. **No corruption, conflicts of interest and misuse of inside information**



# Cooperating with stakeholders and supporting the region



Viru Keemia Grupp constantly cooperates with stakeholders, holding dialogues for the purpose of analysing the internal and external social environment and taking into account the Group's strategic objectives and the priorities of the stakeholders.

Cooperation with stakeholders is aimed at achieving the sustainable development goals and mapping the expectations and joint interests of the parties. We have selected a number of target groups whose interests are notably related to our activities and may have a substantial effect on the fulfilment of our strategic objectives. We place particular importance on including the local community in the case of development projects. The bioproducts production complex development project initiated last year is a good example of inclusion, in the framework of presenting which we held meetings with local residents in various rural municipalities. Including the community gives the developer valuable input and creates an opportunity for a mutual dialogue.

Viru Keemia Grupp is a good partner for local organisations which help promote cultural, sports and education life in the region. In 2021, we supported almost 30 initiatives and

projects with a total amount of 200,000 euros. Our focus is on the local youth. The Group has a number of its own initiatives aimed at promoting life in the region: the Five Schools Competition, the Jõhvi Ballet Festival (in cooperation with the Jõhvi Concert Hall), educational projects, e.g. STEM, and the celebration of the Miners' Day and the Chemists' Day. Every year, we support either the paediatric or the maternity department of the Ida-Viru Central Hospital. The support is usually aimed at acquiring medical equipment or improving the conditions of patients. We also have various projects at the local government level, particularly with the City of Kohtla-Järve and the rural municipality of Lügánuse. There are also initiatives where our contribution is non-financial – volunteer work day in the City of Kohtla-Järve, tree-planting, volunteer work day at the Kiikla Orphanage, cooperation with blood centres, etc.

## Reporting

Since 2008, VKG prepares and discloses a report on corporate responsibility which is in accordance with the sustainable development reporting principles (GRI Guidelines) of the Global Reporting Initiative (GRI).



In preparing the report, we also share and apply the Oil and Gas Industry Guidance on Voluntary Sustainability Reporting (IPIECA/ API, 2016). The social responsibility and sustainable development reports are available on the Group's homepage

at [www.vkg.ee/en/reporting/](http://www.vkg.ee/en/reporting/) under Sustainable Development Report. We are currently preparing a report that covers the results and progress of 2020 and 2021. The report will be published in the 3rd quarter of this year.



# Our employees

With its 1,613 employees (1,612 in 2020), VKG is one of the biggest employers in Ida-Viru County. Through the family members of suppliers, cooperation partners and employees, the wellbeing of the Group indirectly influences the wellbeing of another several thousand people in the region.



VKG feels great responsibility in supporting the development of Ida-Viru County. Our aim is to offer our people stability and a sense of security for the future, but this goal may not always be achievable considering the volatility of the oil market.

Our employees are highly qualified and innovative specialists who are dedicated and loyal in their work duties.

Our employees' national, gender, age and language diversity places higher demands on us with regard to equal treatment, engagement and notification. The uniform code of conduct described in the personnel policy ensure honest and fair conditions for everyone.

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The average job tenure in the company is **10 years**, and the longest job tenure has so far been 55 years.

As at the end of December 2021, the Group employed **1,246 men and 367 women**. The proportion of men is larger due to the hard physical nature of work.

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Efficient and motivated work is directly reflected in the economic results of the enterprise. When paying our employees for their work, we proceed from the situation on the labour market in our area, the terms and conditions that are valid on the salary market in different sectors, the level of responsibility of

the employee, his or her skills, and other factors that can affect the basics of wages accounting. The Group has established a transparent performance pay system based on clearly defined principles. Balanced working conditions and a fair remuneration system ensure that our employees are motivated and loyal.

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The average age of our employees is **45 years**.

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Nearly 900 employees are in the age group of 35–54 years.

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In 2021, 186 new employees started work and 173 left.

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The labour turnover rate was 10% of which voluntary turnover was 6%.

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In 2021, 14 employees of the Group graduated from a higher education establishment, 11 of them from the TalTech Virumaa College.

Expectations to the conduct of the employees are presented as rules and principles of conduct in a single document titled „**Code of Ethics and Operating Principles**“.



**We recognise**



**We value**



**We nurture  
teamwork**



**We foster and  
develop young  
future employees**



**We create a safe working  
environment**

The Group focuses on ensuring a constant flow of young new employees and increasing the qualification of existing employees.



In autumn 2021, we launched a project for new technological equipment operators for VKG Oil. In an extensive advertising campaign, we recruited a group of trainees who commenced studies under the workplace-based study programme of the Ida-Viru Vocational Education Centre and work as technological equipment operators at VKG Oil. Those who complete the workplace-based studies will in 2023 be an important addition to our qualified employees.



In 2021, we focused more than before on training the Group's employees, establishing our development priorities, training plans and action plans for developing internal training instructors, in order to ensure a systemic internal conveyance of professional competences as well as a readiness to fulfil internal need-based training orders. The development of employees in order to achieve new work techniques, an efficient work organisation and a high management culture continues to be our priority also in 2022.



In 2022, the Group, in cooperation with the Unemployment Insurance Fund and the Ida-Viru Vocational Education Centre, contributes to an advertising campaign for putting together a group of trainees for chemical process operators, in order to ensure the consistency of vocational studies in a profession that is important for VKG, but not very popular.



We continued paying scholarships last year via the TalTech Development Fund to students of applied higher education, bachelor's, and master's degrees. Scholarships were awarded to seven students who are acquiring an education in the areas of electrical power engineering and mechatronics, Earth's crust resources, environmental, energy or chemical technology or thermal energy at the TalTech School of Engineering.

## Focal points of our personnel policy

1. **We value**
2. **We recognise**
3. **We support the team spirit**
4. **We foster and develop young future employees**
5. **We create a safe working environment**

## Safe working environment

Occupational safety is one of the basic values of Viru Keemia Grupp. We believe that all serious work accidents can be prevented, and we apply the 0 accidents vision in our activities. In order to achieve that, we have formulated four development areas: visibility of safety, safe conduct, learning, and indicators.



We registered 28 incidents last year, of which 10 involved serious injuries, 12 light injuries and 4 required first aid. We shall

present a more detailed overview in the Sustainable Development Report to be published in autumn.



# Management

The executive management of the Group is the responsibility of the Management Board of Viru Keemia Grupp, which consists of five members.

Three Management Board Members – **Ahti Asmann**, **Meelis Eldermann** and **Jaanis Sepp** – manage the activities of the Group as a whole and are also Supervisory Board Members of subsidiaries. Two Management Board Members – **Margus Kottise** ja **Nikolai Petrovitš** – are the Managers of the strategically most important subsidiaries of the Group. There were no changes in the members of the Management Board during the year.

The Group's Management Board adopts all the important decisions concerning economic activities and is tasked with representing the enterprise. In all legal procedures of the Group, an enterprise is always represented by two Management Board Members together, whereas one of them must be the Chair or Deputy Chair of the Management Board.

The Management Board Members are paid a monthly remuneration consisting of the pay for performing the duties of a Management Board Member and the pay for keeping business secrets and for respecting the competition prohibition. The duties of the Management Board Members are stated in service contracts signed with the Management Board Members. According to the service contracts, the Management Board Members can get additional monetary remuneration which is paid according to the relevant decisions of the Supervisory Board.



**Ahti Asmann**

Chairman of the  
Management Board

Time of appointment  
21.09.2015



**Meelis Eldermann**

Vice Chairman of the Board /  
Technical Director

Time of appointment  
06.03.2008



**Jaanis Sepp**

Member of the Board /  
Financial Director

Time of appointment  
15.04.2016



## Margus Kottise

Member of the Board /  
Member of the Board VKG  
Kaevandused

Time of appointment  
09.05.2000

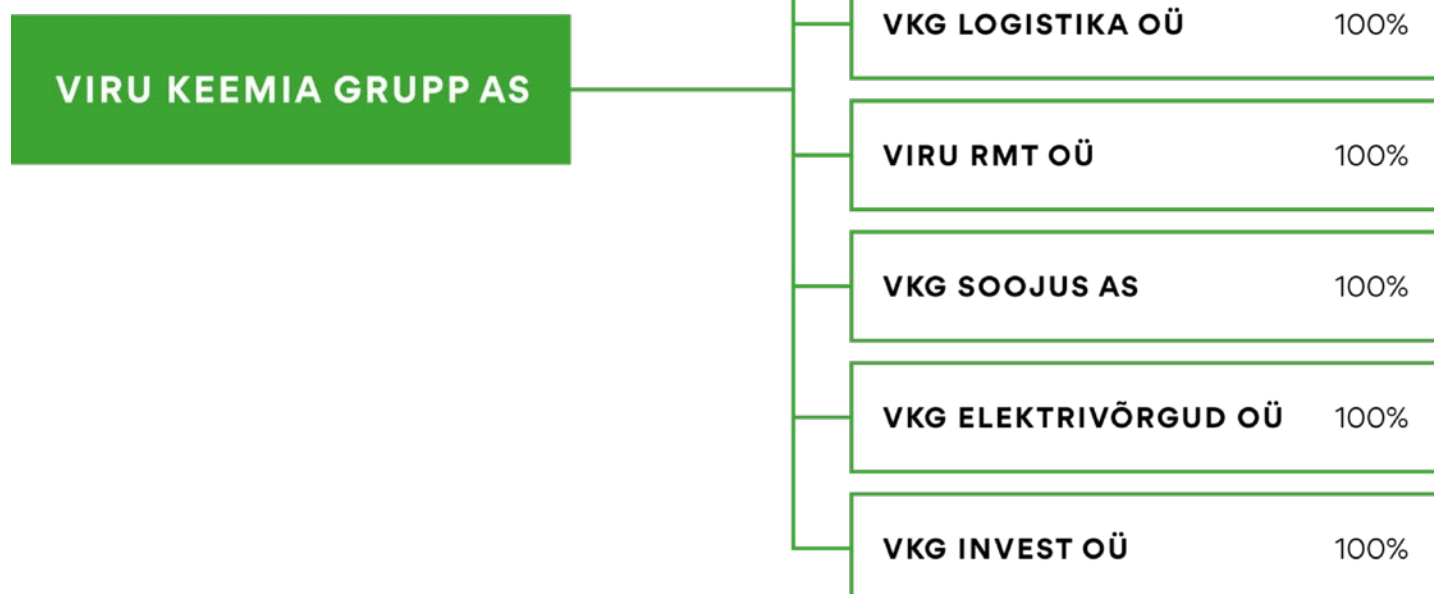


## Nikolai Petrovitš

Member of the Board /  
Member of the Board VKG Oil

Time of appointment  
26.04.1999

Legal structure as of 31.12.2021



## General corporate management

We believe that efficient general corporate management is the basis of good business activities. Efficient general management allows the enterprise to work smoothly, ensuring that everyone has a clear understanding of the distribution of roles, obligations, rights and responsibilities.

The activities of the Management Board of the parent company is supervised by a five-member Supervisory Board which includes:



**Toomas Tamme**  
Chairman



**Priit Piilmann**



**Margus Kangro**



**Ants Laos**



**Elar Sarapuu**

The composition of the Supervisory Board did not change during the reporting period. The meetings of the Supervisory Board take place once a month, as a rule, on the last Wednesday of the month.



## Audit Committee

Pursuant to the Authorised Public Accountants Act of the Republic of Estonia, VKG is considered to be an entity subject to the public interest and is thus required to have an Audit Committee.

According to the Statutes, the Audit Committee is an advisory body for the Supervisory Board of VKG in the fields of accoun-

tancy, auditing, risk management, internal audits, supervision and budgeting and the legality of activities. The members of the Audit Committee of VKG are Ants Laos (Chair of the Committee), Priit Piilmann, Margus Kangro and Elar Sarapuu.

## Shares and share capital

As of 01.01.2022, the nominal value of the share capital of VKG was 6,391,164.21 euros. There were no changes in the share capital in the years 2008– 2021. VKG's shares are not noted on the securities market.

The Group has four shareholders with the following holdings as of 31.12.2021:

- **OÜ Tristen Trade 38,91%,**
- **OÜ Alvekor 25,49%,**
- **OÜ Revellis Invest 19,53%,**
- **OÜ Sergos Invest 16,07%.**

# Risk management

The Management Board of the Group has the duty of shaping the risk management policy and supervising risk management at Viru Keemia Grupp.

The last review of the risk management report took place in the 4th quarter of 2020. The report covers the risks of various areas: strategic, operating, financial and compliance risks. Every risk is assessed for its probability and impact: critical, conditional, low-impact, low-significance and insignificant. Every risk

is assigned a responsible person and a hedging plan. The risks are determined on the basis of the Group's most important targets, related to VKG's striving to value oil shale as much as possible and to process it as efficiently as possible.

Our risk management activities are:

- Risk identification;
- planning the measures aimed at risk minimisation;
- risk monitoring and the check-up of the implementation of measures aimed at risk minimisation.

The risk management objectives of Viru Keemia Grupp are:

- to support the making of management decisions;
- to avoid or diminish any damages to the Group's assets and reputation;
- to increase the effectiveness of the Group's activities;
- to increase the efficiency of using the Group's resources (capital, energy);
- to reduce occurrences of unexpected situations and to prepare action plans and risk scenarios for such situations.



## MARKET RISKS AND LEGAL RISKS

The sale of shale oil makes up  $\frac{1}{3}$  of the Group's net turnover and therefore the risk of changes in the market prices of oil and oil products is an inevitable part of the Group's activities. The majority of sales contracts have been concluded on the condition that the sale price of the product depends directly on the exchange prices of oil products. The rest of the contracts depend indirectly on world market prices. The sale price of shale oil may drop in connection with a decrease in the world market price of oil and the weakening of the dollar. In order to hedge the risk of price fluctuations in the oil market, we use risk hedging instruments such as future transactions, a

monetary reserve, constant monitoring of the market situation and an up-to-date financial model, adjusted in accordance with the strategic tasks.

The market price of the CO<sub>2</sub> quota and the number of quotas allocated pose another important market risk. The considerable price increase of the CO<sub>2</sub> quota places an additional tax burden on oil production and the production cost of oil production therefore rises higher than the market price of oil, removing any prospects from the business.

The shale oil industry is a part of the EU oil refining and carbon leak sector which is allocated free CO<sub>2</sub> quota. The trading rules and the methodology of allocating free CO<sub>2</sub> quota are current-

ly known until 2025. The methodology to be used thereafter is being developed. The decisions adopted in the European Parliament and the Commission in the course of the Green Revolution play an important role in ensuring the Group's economic activities and competitiveness, as they can significantly reduce the number of free CO<sub>2</sub> quota allocated to shale oil production and increase the purchase price of the quota.

Risk hedging measures include the monitoring of regulations, timely investments into reducing the CO<sub>2</sub> footprint, the purchase of the needed CO<sub>2</sub> quota from the market, etc.

## RISKS RELATED TO THE NATURAL ENVIRONMENT

Since VKG is a representative of the processing industry and a manufacturer of the fuel containing carbon, significant environmental risks accompany the activities of VKG, which manifest themselves both in oil shale extraction, boosting its value, and marketing oil shale products. The goal of VKG is to become a pioneer in this branch of industry and set an example of how it is possible to resolve environmental risks within traditional production in a smart and rational way, using modern technologies. Within the past 15 years the Group has made an investment in the total amount of 86 million EUR into different environmental project, aiming at minimising its environmental footprint. Investments has mainly been focused on the efficient use of resources and the minimisation of accompanying environmental effects.

In addition to the minimisation of environmental risks that accompany production activities, it is as important to talk publicly about them as well as involve different interest groups into the discussion of how to change things for the better.

## OPERATING RISKS

Operating risks stem from deficient and ineffective processes and systems as well as the insufficient competences or ac-

tivities of people in managing the work processes. In order to avoid operating risks, the Group has developed risk management principles, various standards and management systems. We understand operating risks to include technological and IT risks as well as operating risks related to the external environment, such as those arising from clients and suppliers.

We pay great attention to risks related to occupational safety and the working environment. All the Group enterprises implement the respective systems for managing and monitoring activities. We handle occupational safety risks on the principle that prevention is more important than dealing with consequences. The Group implements a system for registering dangerous situations, which is accessible to all the employees, partners and visitors to the production territory. An in-depth analysis and timely elimination of registered dangerous situations has prevented several potential work accidents.

Relying on the experience from the previous year, we treat widely spread epidemics and pandemics (e.g. COVID-19) as a separate risk which may cause complex problems for the enterprise:

- a possible effect on the employees' health;
- an extensive spread of a disease may cause production downtime;
- the measures taken to limit the wide spread of a disease may cause a decrease in the demand for oil.

A special focus is on the management of the risk of fraud. In order to reduce the threat of the risk of fraud and theft as well as the threat of possible damage, we primarily concentrate on preventive measures and increasing efficiency. We regularly perform random checks and increase the efficiency of process transparency. Great attention is paid to the detection of cases of fraud and to the speed of responding to such cases. The focus is on everyday work towards informing the Group's employees and encouraging them to provide feedback, for which purpose various operative channels have been created.



# Combating the risk of corruption

The fight against corruption has always been important for the Group. VKG has identified three major risks of corruption together with the methods used for hedging these risks:

- **Giving bribes to achieve the interests of the Group**  
VKG is a responsible and transparent enterprise that has established zero tolerance for corruption and bribery.
- **Accepting bribes in the selection of suppliers and cooperation partners**  
The Group has established a procurement policy aimed at avoiding skewed procurements and always choosing the most favourable cooperation partner for the Group. Compliance with the procurement policy is supervised by internal audit via regular monitoring
- **Conflicts of interest of executive employees in representing the interests of the enterprise**  
The Group has developed a procedure for submitting

statements of economic interests, in the course of which executive employees have to report their holdings and connections in external companies. The members of the Management Board are prohibited from competing in any area of activity of VKG without the prior written consent of the Supervisory Board.

There is a special confidential channel ([vihje@vkg.ee](mailto:vihje@vkg.ee)) functioning in the Group, which can be used by employees or people outside of the Group to send a notice about various violations related to the activities of the Group, let it be the issues related to professional activities, corporate management and corporate ethics, human rights, work organisation, social aspects, industrial and environmental safety, protection at the workplace, quality of goods and services, or any other issues, including the matters related to corruption.

# Prevention of Possible Conflict of Interests

**The corporate management system of the Group incorporates a set of norms and procedures, which are aimed at prevention of the conflict of interests between control bodies within the Group.**

If the conflict arises, there are certain mechanisms aimed at implementing required measures for the complete resolution of the conflict, and for creating the conditions that would prevent the occurrence of such conflicts in the future.

The Internal Audit Service and other competent subdivisions of the Group deal with the prevention of conflicts of interest within the Group by cooperating with each other. In order to prevent possible conflicts of interest, there are certain limitations existing in the Group as well as the requirements for the

Council and the member of the Board. Management Board Members are prohibited from competing with Viru Keemia Grupp AS in its field of activities, unless having the prior consent of the Supervisory Board.

Within the reporting year, no conflicts of interest between the members of the Council or the Board occurred.

In order to avoid conflicts of interest, all Management Board Members and middle-level managers of the business associations belonging to the Group are required to submit upon any changes a declaration in the approved format, stating their holdings in legal entities and/or membership in management bodies of legal entities and/or activities as self-employed persons.

# Events of 2021

## January



Estonia's new coalition wrote in the coalition agreement that the world will be saved when the oil shale industry packs up. According to the signed agreement, the aim is to end the production of electricity from oil shale by 2035 at the latest and to entirely give up the valorisation of oil shale by 2040. As the demand for our products continues to be high, we sell shale oil for export to the global ship fuel market, the volume of which is forecast to grow by another 2.5 times in the coming 30 years. We also gain assurance from the fact that no extensive climate neutral alternatives are foreseen in shipping in the nearest decade, and we still have oil shale resources for at least another 20 years. We plan to also valorise this resource over that time. We have taken the aim to explain to leaders and decision-makers the risks entailed in ill-conceived decisions.



In the middle of January, Ida-Viru County was represented at the Five Schools Competition the best students of sciences and natural sciences of the Jõhvi Upper Secondary School, who also won the preliminary round.

## February



The second month of the year greeted us with the starting CO<sub>2</sub> price spurt. Over the year, the CO<sub>2</sub> quota price has tripled as a result of uncontrollable growth. The price of a CO<sub>2</sub> credit was about 30 euros at the beginning of the year and approximately 85 euros in December. Such a pace is not sustainable. In the EU, Member States are discussing extensive electricity price mitigation packages and cast doubt on the reasonability and sustainability of a system where the consumers' money goes to speculators in the emission trade system.



Regarding the COVID-19 virus, VKG wished to offer its employees all the available opportunities for protecting themselves and their close ones and preventing the spread of the virus. We therefore took steps to receive vaccines as a first priority.

## March



A study was launched to determine the optimal buffer zone and time-limit for the performance of explosive work in the vicinity of the permanent habitat and courtship area of wood grouse at Kiikla. The Environmental Board gave its approval to a new monitoring methodology which is based on acoustic study (analysis is based on recorded sound). Pursuant to the Ojamaa mineral resource extraction permit, we have to perform an annual quantitative count of wood grouse at the Kiikla permanent habitat. As of last year, we authorised the Environmental Agency to find an entity to perform the monitoring and it is now covered under the national monitoring programme. For VKG, this means that the monitoring of wood grouse will now be done as an integral part of national monitoring.

## April



In April, we focused on the topic of work safety from every angle and in every possible way. For the first time, we held a Work Safety Month instead of a Work Safety Week. In the framework of that, we organised various web seminars to discuss current issues, and announced competitions related to work safety. At the end of the month, we held a substantive discussion round, 'Can the injury indicator be reduced to zero in a production company?'.



The Prime Minister of Estonia, Kaja Kallas, visited Viru Keemia Grupp during her first county visit. Representative of the shareholders and the management of VKG took part of the meeting. At the meeting, the parties discussed the coalition agreement clause concerning the termination of oil shale valorisation, the regulations related to the sector, and the impact of the Green Transition on the region and on the Estonian economy on the whole.

## May



We started vaccinating the Group's employees and their family members regardless of their age and of whether they belonged to any risk groups. In essence, we showed initiative and set an example in this area. Things got really bad in spring and the epidemiological situation in our county jeopardised not only the uninterrupted provision of vital services in Ida-Viru County, but also our people. Thanks to the responsible attitude of our employees, we managed to keep the pandemic away from production and continued working in the ordinary mode.



## June



Viru Keemia Grupp again took part in the corporate responsibility index survey held by the Corporate Social Responsibility Forum in order to obtain an assessment of the company's responsible and sustainable activities also from external experts. Activities were assessed in three categories in 2021: governance, climate and the environment, and society and the social environment. The survey included 63 companies and 53 of these obtained a new badge. Our Group was awarded a bronze badge.



Viru Keemia Grupp concluded a cooperation agreement with the Jõhvi Programming School in order to contribute to IT education. We think it is extremely positive that the spread of digital education is picking up pace in Ida-Viru County which is primarily known as an industrial region. For decades, VKG has been a supporter of specialised education, mainly focusing on encouraging the local youth and offering broader education opportunities. This cooperation initiative is valuable for both parties, as it benefits the future specialists as well as VKG as a future employer. One of VKG's advantages is that it offers practical experience on site at a large industrial enterprise, thanks to which students gain an understanding of applying the knowledge they are acquiring in actual production processes.



Since 2003, the Group motivates the most successful TalTech students in acquiring needed professions with scholarships twice a year. This way, we send a clear signal that we welcome young purposeful specialists to join our Group.

## July



Viru Keemia Grupp introduced its new development project 'Estonia's Own Bioproduction'. We started exploring a possibility of creating a bioproducts production complex in Ida-Viru County by submitting an application to the Lüganuse rural municipality for initiating a local government special spatial plan. A bioproducts production complex would allow adding value to Estonian wood locally, broadening the possibilities of developing wood chemistry and diversifying the economy in Ida-Viru County. The proposed plant would add value to paper wood generated in Estonia and produce bioproducts and renewable energy.

Our development plan drew active feedback from various experts, stakeholders, organisations and communities – there was approval and support as well as neutral and anxious opinions. As the developer of the future production facility, we placed great importance on a constant and open dialogue with the local community and therefore held four public meetings in the subsequent months – at the villages of Aa and Saka and in Kohtla-Nõmme and Kohtla-Järve – in the course of which we presented a more thorough overview of the planned facility, answered questions and received important feedback.

The new development would create 250 direct new and well-paid jobs in the region. The estimated investment volume of the project is 800 million euros and production would commence in 2027 at the earliest.



The EU climate policy assumed an even more ambitious aim: on 14 July, the European Commission announced a package of draft acts called Fit for 55, the goal of which is to set even higher objectives with regard to reducing carbon emissions. According to the new ambition, all of the EU should instead of 40% achieve a 55% reduction of greenhouse gas emissions compared to 1990. The 3,200 pages of the document brought no clarity, instead raising even more questions and confusion. Without agreed legal boundaries, the Green Transition would mean an insecure business environment where no long-term decisions and investments can be made. The Estonian state has to adopt its own climate policy positions, determine its boundaries and establish processes for implementing changes.

## August



In connection with the Green Transition, we have been more cautious in investing into oil production. Viru Keemia Grupp made a decision to work more actively in finding eligible investment projects also outside the oil shale sector. For this purpose, we renamed the formerly non-operating subsidiary VKG Diisel as VKG Invest and invited Sten Pisang to lead our investment activities. The new company is seeking investment opportunities outside VKG's traditional fields of activity and does not influence VKG's investment strategy.



The Lügänuuse rural municipality council approved the initiation of the special spatial plan for the proposed bioproducts production complex of VKG. Two possible planning areas are located near VKG's current production complexes. The local government special spatial plan will be prepared in two stages. In the first stage, the possible locations of the production complex are compared and analysed and the most suitable one will be selected. In the second stage, a more detailed solution will be developed, such as the number of buildings, the exact location on the plan, etc. The special plan process includes a strategic environmental impact assessment with regard to both potential locations and the overall impact of the proposed production unit. An environmental analysis of the combined effect with other production facilities will also be conducted.



On the Wisdom Day, 60 children of VKG's employees started school for the first time and were all invited to the traditional school-bell party in Rakvere. Although we have suspended several of our beloved traditional events in recent years due to the spread of the coronavirus, we decided that children must have their party. We naturally applied various precautionary measures in order to minimise the possibility of spreading the virus, and the very high level of vaccination in the Group favoured the event.

## September



We submitted a proposal to the parliamentary parties and the Prime Minister's Office to develop the Estonian Climate Act that would express the social agreement necessary for fulfilling Estonia's climate goals. The Estonian state has supported the EU's climate neutrality goal and the incorporation of that into a regulation. In order to achieve climate neutrality, the entire social arrangement of Estonia has to be thoroughly reorganised, including the reorganisation of and tax policy management in the areas of transport, waste management, construction, agriculture, energy, industry and forestry. There is currently a legal vacuum in the area of climate neutrality in Estonia, which urgently needs to be filled, as the fulfilment of the EU's climate policy goals requires the regulation

of conduct in the Estonian society across sectors as well as the assignment of obligations to specific sectors.

The Climate Act would allow us to clearly and in detail stipulate Estonia's national and area-specific climate goals, their timeframe, links to other acts, the EU law and international agreements, the climate terminology, appropriate and proportionate restrictions of personal rights and freedoms, the rights and obligations in fulfilling the climate goals, and the necessary standards for ensuring the fulfilment of the rights and obligations.



VKG takes part in the World Clean-up Day that was started in Estonia and has grown into an international movement in the course of which public attention is drawn to the global waste problem. The team of VKG's employees contributes to improving the living environment in Kohtla-Järve: last year, we cleaned the Forest Park greenery zone and planted chestnut trees there.



We took another step towards making VKG's shale oil production waste depository green. We concluded a cooperation agreement with our neighbouring company Järve Biopuhastus, in the framework of which we will test the reuse of stabilised wastewater sediment (in other words, compost) in planting the slopes of VKG's waste depository. In the coming years, we shall test how the compost facilitates the growth and resilience of grass. In the course of the testing, the compost will be mixed with ash generated in oil production and grass seeds will be added to the mix. The mix will then be spread on the slopes. We chose the ash hill slopes facing the City of Kohtla-Järve as the testing area, as these will definitely be more pleasing for the eye and the city landscape when they are green. If the results are good, we shall extend the cooperation and permanently introduce the environmentally friendly and reuse-based greenery technology.

## October



By October, 1,417 (87%) of the Group's employees were vaccinated against the coronavirus with at least one dose, with 97% of them having completed the entire vaccination treatment.



Safety First! At the end of October, VKG Elektrivõrgud and the Rescue Board held a joint exercise in central Narva in order to practice cooperation in the case of a fire in the electrical installations of a junction substation. Practical experience and the necessary knowledge with regard to communication and access for rescue equipment will help ensure maximum safety and the functioning of the power network also in an emergency situation.



## November



The Chairman of the Management Board of the Group, Ahti Asmann, and the Chairman of the Management Board of the Estonian Unemployment Insurance Fund, Meelis Paavel, signed a cooperation agreement between the two organisations. The cooperation agreement is a practical outlet for private and public sector cooperation so far and has several objectives: to offer development opportunities, increase qualifications and organise training in increasing labour demand and competition conditions and to apply support measures in jobs where the education system has not produced a sufficient number of suitable employees.



In November, court proceedings that had lasted for years were closed and Tartu Circuit Court made a decision in favour of VKG in the matter of unfair pricing of oil shale. In essence, it was not a dispute between us and Eesti Energia – the core issue was how competition law is interpreted in Estonia.



The Lügánuse rural municipality appointed Hendrikson&Ko as the performer of the strategic environmental impact assessment. This is followed by a preliminary selection of location and then the environmental impact assessment process, all of which will take approximately three years. Considering that the construction of such plants takes two years, the earliest possible time of commencing operation would be 2027, provided that preparations go smoothly.

## December



President Alar Karis visited VKG on his tour in Ida-Viru County. In the course of the meeting, thoughts were exchanged about Estonia's choice on the road to climate neutrality. VKG's bioproducts production complex development plan was also an important discussion topic.



VKG again recognised successful students and held a festive ceremony for awarding scholarships. We motivate and support successful TalTech students with VKG's scholarships. This is our contribution to the future, as educated, purposeful, forward-looking and broad-minded people are capable of doing great things. Over the years, we have awarded scholarships of over 120,000 euros in total.



Viru Keemia Grupp bought the Tallinn and Riga department stores from Stockmann. We are pleased to be cooperating with Stockmann in the Baltic countries. Both department stores are located in the heart of the growing capitals of Estonia and Latvia and we are therefore excited to explore further investment opportunities in order to support Stockmann's core activities in the future. The price of the transaction was about 87 million euros in total.



We continued our good tradition and instead of hundreds of corporate presents we made a donation to the maternity department of the Ida-Viru Central Hospital. This kind of a Christmas present is doubtlessly notably important and valuable, and we hope that this good deed will make the first days of adaptation more pleasant and safe for mothers and newborns at the Ida-Viru Central Hospital. The donation will be used to purchase two scales for weighing newborns, two bilirubin measurement instruments and two bags for carrying equipment.



The end-of-the-year 'Moving for Your Health!' initiative announced on YuMuuv in the middle of November included four health challenges – three individual ones and one joint challenge. We achieved the joint goal of making 30 million steps and even exceeded it by making 3 million steps!

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