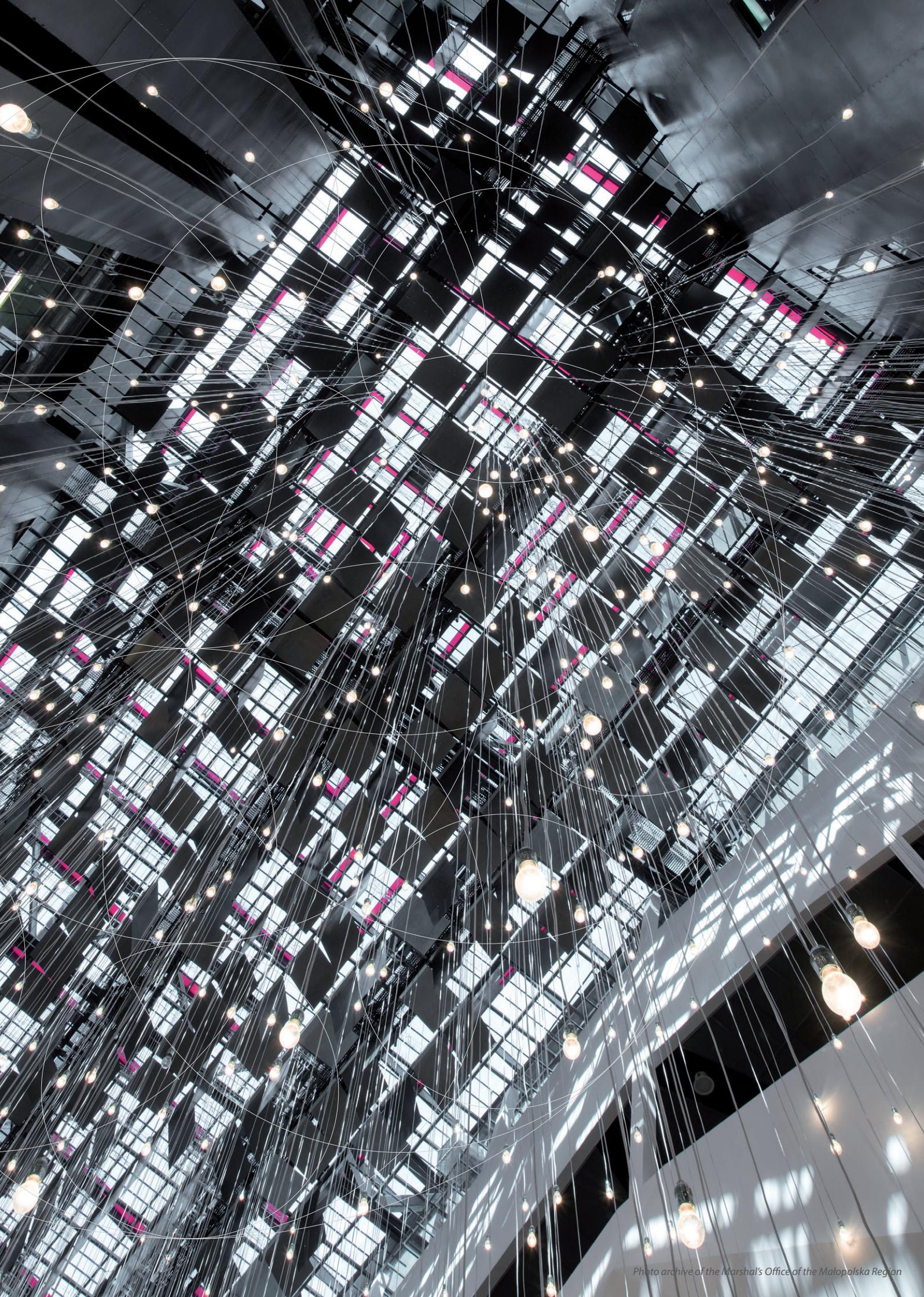


RENEWABLE ENERGY AND INTELLIGENT SYSTEMS IN BUILDINGS







Power up Your Business in Małopolska 2

Małopolska Regional Development Agency, Małopolska Region and Krakow Technology Park jointly implement the project entitled „**Power up Your Business in Małopolska 2**”, co-financed by the European Union under the Regional Operational Program of the Małopolska Region for the years 2014-2020.

The project is a reference to the experience of projects from 2008 - 2017 implemented under the slogan „Business in Małopolska”. The project „Power up Your Business in Małopolska 2” provides for activities in the area of promoting the Małopolska business offer, supporting the exports of Małopolska enterprises and improving the investment process in the region. It is addressed to entrepreneurs from the SME sector and potential external investors.

The project assumes, among others, organization of information meetings and forums for entrepreneurs from Małopolska, training for representatives of local government units, as well as economic missions of foreign entrepreneurs to Małopolska and participation in foreign fairs.

The project is co-created by the institutions

Małopolska Regional Development Agency

The largest regional business environment institution. MARR focuses on tasks important for positive change in the regional environment: restructuring of the economy, land development, servicing European programs, cooperation with local government, servicing investments, supporting entrepreneurship, as well as international cooperation and building the image of Małopolska in Europe and the world.

www.marr.pl

Małopolska Region

The Małopolska Region as a local government unit creates directions of economic policy by acting for the region's economic development. The Department of Ownership Supervision and Economy plays a special role within this area of region competence. The Małopolska Region actively supports the service of domestic and foreign investors interested in starting a business in the region, coordinates activities in the field of internationalization of the regional economy, with particular emphasis on the development of exports, it also conducts activities in the field of economic promotion of Małopolska.

www.malopolska.pl/en



Photo archive of the Marshal's Office of the Małopolska Region

Krakow Technology Park

Technological development of Małopolska Region, development of entrepreneurship, promotion of innovation and new technologies, creation of a positive business climate, and finally support for academic projects - these are just some of the main activities of the Krakow Technology Park, which significantly contributes to strengthening the socio-economic potential of the entire region.

www.kpt.krakow.pl/en

Project implementation period:
March 2019 - February 2022





I. MAŁOPOLSKA REGION

between tradition and modernity



Małopolska Region, together with the historical capital of Poland - Krakow, is one of the most recognizable regions in Europe. Unusual landscapes, unique nature, an impressive number of monuments, including 14 inscribed on the UNESCO World Heritage List and a unique atmosphere - all this means that every year our region is visited by several million tourists from Poland and around the world.

In addition, Małopolska Region is undoubtedly one of the most dynamically developing regions on the economic map of Poland and Europe. The strong position of our Małopolska Region is demonstrated by the dynamically operating companies in our region, recognized not only in the country but also abroad. It is not without reason that Małopolska is one of the leading destinations chosen for the organization of business and economic meetings, which only confirms the thesis that it is a perfect place for business development.

Małopolska Region is also characterized by the large scientific and research potential of Małopolska universities and research centres. Every year, about 150,000 young people study at universities in Małopolska; research works are carried out in several hundred research and development institutions, in domestic and foreign enterprises.

We invite you to read and contact the Business in Małopolska Centre.

I.1 The potential of Małopolska Region and Krakow

Current statistics on

- the state of the population,
- unemployment rates,
- average monthly gross salary in the enterprise sector,
- average employment in the enterprise

sector,

- the number of apartments completed,
- entities of the national economy,
- GDP per capita.



can be found at

krakow.stat.gov.pl/en

I.2. Małopolska Region export development trends



Export is a very important element of the Małopolska Region economy, and its volume and significance are growing every year. This is confirmed by a significant increase in the value of exports in 2017 compared to 2016 by 8.2%, which represents 4.7% of the country's export value. According to data for 2017, the value of goods and services exported from the region amounted to EUR 9.56 billion (6th place in the country). The total number of companies exporting from Małopolska in 2017 exceeded 3.8 thousand (an increase of 6.8% compared to 2016 and 4th place in Poland). According to PKD, the most important areas of economic activity in the region in terms of export value in 2017 are: manufacturing – EUR 7.68 billion; wholesale and retail trade, repair of motor vehicles, including motorcycles – EUR 1.46 billion; information and communication – EUR 131.50 million. In terms of the structure of the value of export products according to the Combined Nomenclature (CN), the most important sections are: machinery and equipment, electrical and electrotechnical equipment – EUR 2.52 billion (26.4%), base metals and products – EUR 1.44 billion (15%), transport equipment – EUR 1.35 billion (14.2%), and plastics and products – EUR 1.09 billion (11.4%).

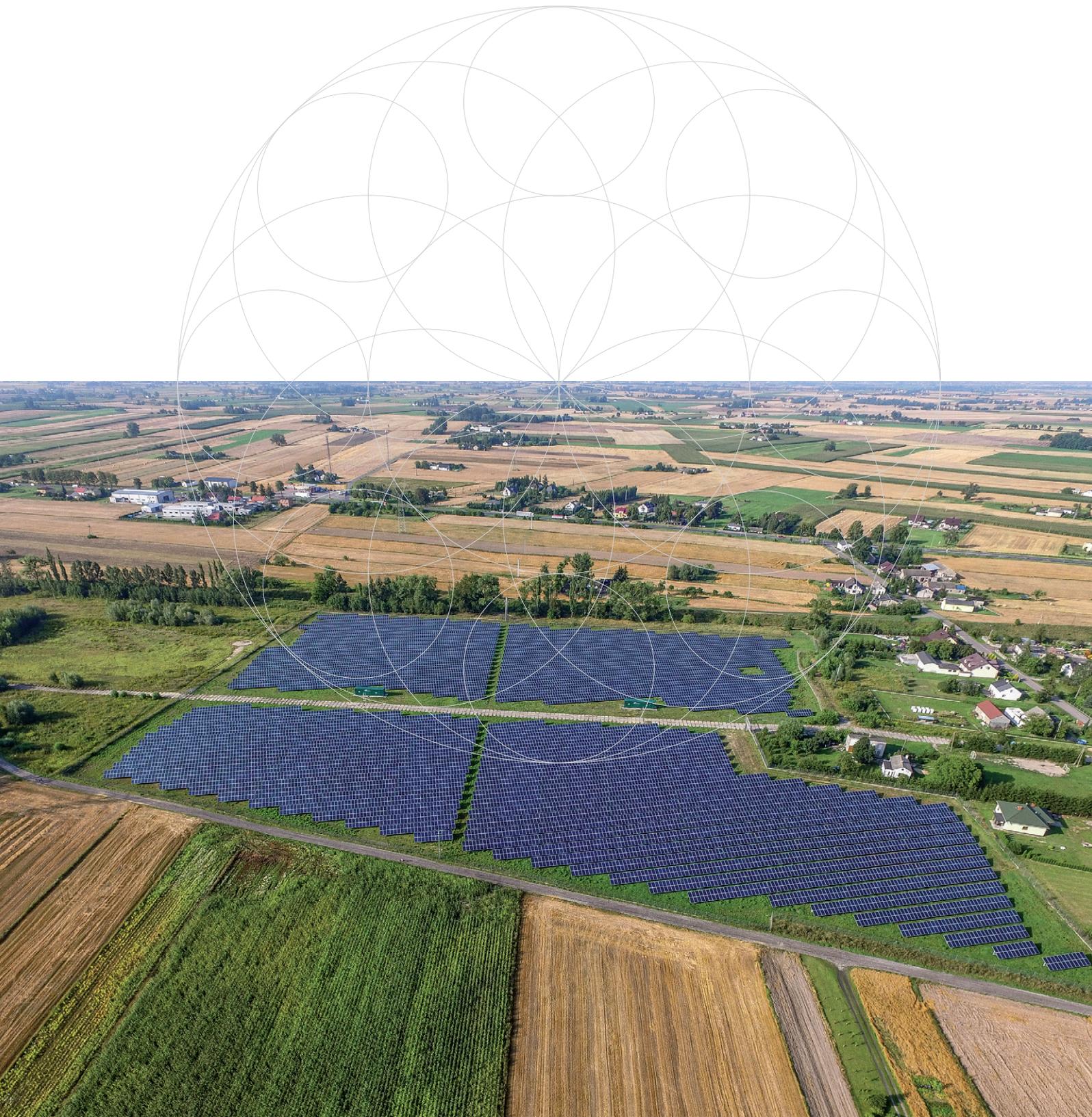


Photo archive of the Marshal's Office of the Malopolska Region

II. Modern construction technologies and sustainable energy industry



II.1. Characteristics of the modern construction technologies and sustainable energy market in Poland

In Poland, renewable energy includes solar, water, wind, geothermal energy, energy from solid biofuels, biogas and liquid biofuels, as well as ambient energy obtained by heat pumps. The obtaining of this form of energy has shown a slight upward trend in recent years. In the years 2014-2018 the share of energy from renewable sources in the total primary energy production increased from 12.12% to 14.31%. The pattern of energy obtained from renewable sources for Poland is primarily due to the geographical conditions characteristic for our country and the resources that can be managed.

Energy obtained from renewable sources in Poland in 2018 came mainly from:

- solid biofuels (68.88%),
- wind energy (12.55%),
- liquid biofuels (10.33%).

In 2018, the ratio of the share of energy from renewable sources in gross final energy consumption increased by 0.26% to 11.16% per year, and the total energy value of acquired primary energy from renewable sources in Poland in 2018 was 367 091 TJ.

The photovoltaic sector is one of the fastest growing renewable energy sectors in Poland and in the world. The photovoltaic market in Poland has enormous, but as yet highly untapped potential for development. The total installed capacity in photovoltaic sources at the end of 2018 was approx. 500 MW, and already in May 2019 it exceeded 700 MW. The growth of new PV installations is dynamic.

In 2018, Poland began to stand out from the rest of the EU and with an annual increase of 235 MW – it was already in 9th place. Considering current and real investments and trends, in 2019 Poland may be in 4th place in the EU in terms of annual increases in new solar power. According to estimates, in the whole of 2019 there will be even 1 GW of new PV installations, and the cumulative capacity of solar installations in Poland at the end of the year will be 1.5 GW.

II.2. Conditions for the development of the renewable energy sector in Poland

- dynamic economic growth in recent years, a growing number of business entities and an internal market with over 38 million inhabitants,
- the demand for green energy will grow due to energy policy goals: increasing the share of renewable energy in final energy consumption to 15.5% in 2020 (19.3% for electricity, 17% for heating and cooling, 10.2% for transport fuels),
- the need to reduce the amount of biodegradable municipal waste deposited in landfills by 35% and construction of thermal waste treatment plants will also be an important factor,
- by 2020, construction of agricultural biogas plants is planned in every Polish municipality,
- favourable natural wind conditions, high potential for biomass and biogas acquisition,
- investment incentives for renewable energy producers.



III. The market for modern construction technologies and sustainable energy in Małopolska Region



III.1. The largest manufacturing and service companies related to the sector of construction technologies and Renewable Energy Sources in Małopolska Region

ANew Institute - deals with the development of wind turbine technology dedicated to individual users and small companies and farms. Specializes in the design and production of VAWT (Vertical Axis Wind Turbines). The company was founded by a group of engineers, entrepreneurs and specialists in industrial production.

www.anew-institute.com

Bruk-Bet Solar - production of solar modules. It offers high quality photovoltaic modules and BIPV (Building Integrated Photovoltaics - photovoltaic panels to replace roofing). The products have European components.

www.solar.bruk-bet.pl/en

DR ZĄBER - is an engineering company founded in 1996 in Nowy Sącz and is a recognizable brand in the domestic and European market. Its scope of activity includes the construction and building of special machinery and equipment, process automation and the production of small wind farms. Such a wide offer is possible thanks to the highly qualified staff and cooperation with scientific and research units.

www.zaber.com.pl



Photo archive of the Marshal's Office of the Malopolska Region



Photo archive of the Marshal's Office of the Malopolska Region

ELTECO - operates on the market of backup power supply and renewable energy sources in the scope of CHP gas cogeneration systems (combined electricity generation and heating with the possibility of expansion to trigeneration or polygeneration systems generating additional cooling or technological steam) and biogas systems. The company offers its clients comprehensive service from concept, technical and economic analysis, consultancy in the selection of equipment, design, delivery, assembly and commissioning, to warranty and post-warranty service of devices, in particular gas cogeneration aggregates and emergency power supply systems based on power generators and uninterruptible power supplies UPS.

www.elteco.pl

Protech - is an experienced manufacturer of heating boilers; modern machinery parks, top-quality boiler components, multi-stage control processes. The company has ISO 9001 and ISO 14001 certificates.

www.protech.pl/en

GS Energia (from 2009) - offers comprehensive solutions for improving energy efficiency auditing and energy assessment of energy monitoring and energy management systems for renewable energy installations in low-energy buildings and passive cogeneration for the implementation of innovative energy solutions.

www.gsenergia.pl/gs-energia-en

HYMON ENERGY - has been the leader of the photovoltaic market in Poland since 2011, specializing in the implementation of solar farms. The company is also a distributor of the world's best producers of photovoltaic power plant components. Its fifty assembly teams allow to implementation of over 700 solar installations per month, ensuring continuity and high quality of service.

www.hymon.pl

MAKROTERM - heating and cooling systems with RecoEnergy heat recovery, which enables comprehensive management of heat



Photo archive of the Marshal's Office of the Małopolska Region

and cold economy in residential, commercial and industrial buildings. Smart central heating systems (gas and/or wood) are intended for heating single-family homes and providing domestic hot water.

www.makroterm.pl/en

PEC Geotermia Podhalańska - deals with the production and distribution of heat from geothermal sources for central heating, hot water supply and ventilation. The company was founded in December 1993 and since then it has been systematically expanding the distribution network and new customers are being connected.

www.geotermia.pl

RM-Instal (from 2005) - as an installation company in the field of mechanical ventilation, air conditioning, heat pumps and refrigeration. Its specialty is the service of industrial ventilation and refrigeration equipment; cold water chillers in technological refrigeration and air conditioning systems. RM-Instal performs customised tasks in the field of industrial ventilation, ventilation unit service, waste heat recovery, etc.

www.rm-instal.pl

SiGa-Tech - is a Polish engineering company that offers comprehensive solutions in the field of environmental protection, specializing in the design, production, assembly and commissioning of complete installations for the recovery and use of biogas and sludge processing.

www.sigatech.pl/en

Solgro - is one of the leading brands in the sector of Renewable Energy Sources (RES). Since 2005, it has been involved in the design, sale and assembly of solar collectors as well as comprehensive support for solar projects.

www.solgro.pl

IOS Thermex - with headquarters in Krakow is a design and production centre for pro-ecological installations. The main activity of the

company is the introduction of modern technologies, both in emerging and existing installations, the design of innovative and traditional devices and their co-contracting. The company deals with issues related to various aspects of thermal waste treatment.

www.thermex.com.pl

Vatra - develops complete heating and air-conditioning systems using renewable energy sources. Systems based on Vatra heat pumps have been working flawlessly in installations throughout Poland and Europe for many years. All heat pumps are tested on the only such test stand in Poland before being delivered to the customer. Vatra has capital links with the company WSK Polish Aviation Works Krakow and combines several decades of Krakow's industrial tradition with new technologies. The engineering staff coming from AGH University of Science and Technology, Cracow University of Technology and Polish Academy of Sciences have extensive experience in the design and production of technologically advanced devices and in the implementation of new technologies.

www.vatra.pl/en

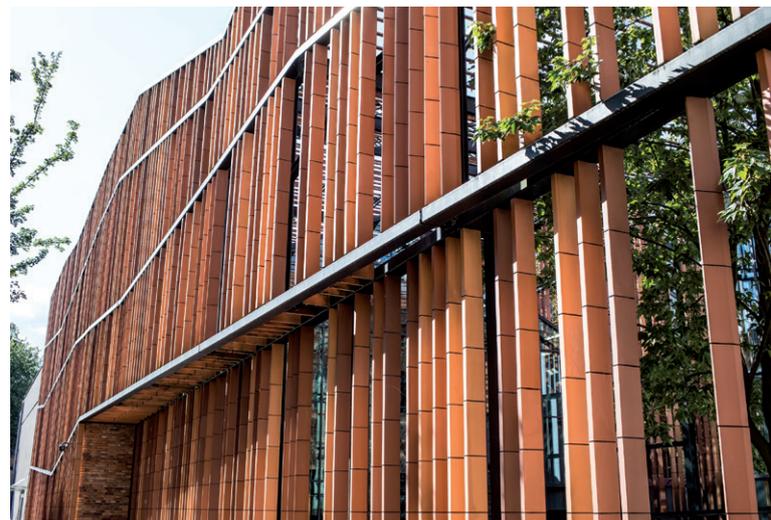


Photo archive of the Marshal's Office of the Małopolska Region

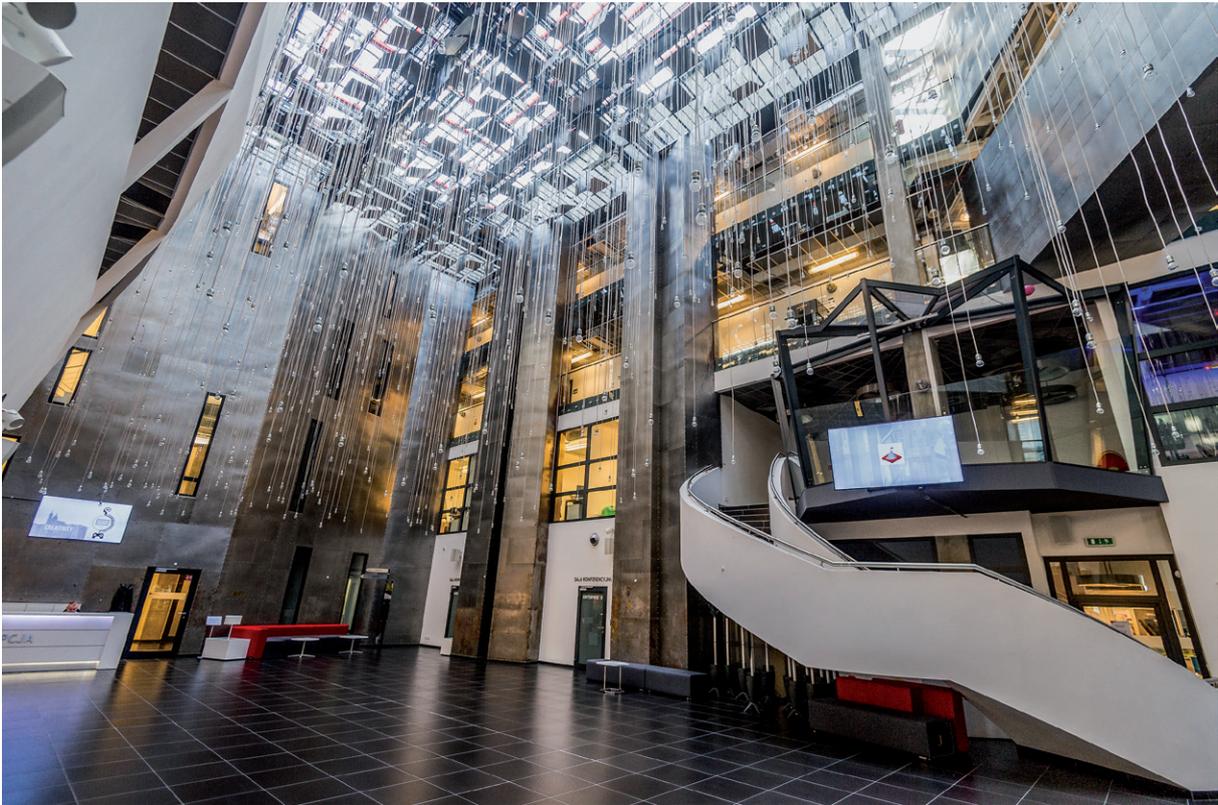


Photo archive of the Marshal's Office of the Malopolska Region

Bt electronics - is based in Krakow and has been operating on the Polish market since 1995. From the beginning, the company dealt with the development of its own computer software and the production of electronic devices. Bt electronics is a completely Polish company that employs Polish specialists.

www.bte.pl/en

HOMATIC - is a product of a Polish company, and thanks to the use of the latest technologies, networks of detectors, readers, touch screens and many advanced IT solutions, it integrates many independent systems. The HOMATIC system primarily manages the control systems and technical functions of rooms and common areas, which can be grouped into two subsystems: electricity and comfort. It is an on-line system, i.e. all events occurring in the system are visible in real time.

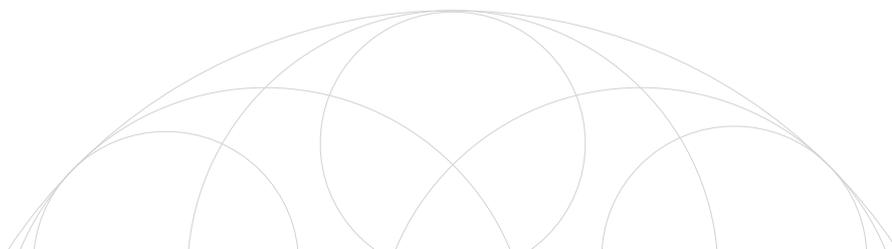
www.homatic.pl/en

ES-System - is a leading Polish company in the lighting industry. It designs, implements, produces and sells a wide range of professional high-performance LED lighting solutions for architectural, industrial, commercial and urban environments. Its products cover many lighting applications and offer numerous configurations, allowing solution of various lighting challenges, from small office interiors to shopping malls, concert halls, large stadiums, education centres and medical spaces.

www.essystem.pl/en

Intelektronik - designer and contractor of intelligent building installations based on devices of own production as well as leading foreign manufacturers, intelligent installations operate in cities such as Kraków, Katowice, Wrocław, Łódź, Poznań, and Warsaw.

www.intelektronik.pl





Juliz - frame houses (so-called Canadian) represent a number of health, economic and energy-saving arguments; almost the entire thickness of the outer walls are insulation materials (30cm). This makes it possible to achieve a heat transfer coefficient for walls at the level of $U = 0.14$; the company uses similar care to insulate the foundations and roof; the insulation parameters save up to 40% on heating costs.

www.juliz.pl

Norlys - is an international holding company with over sixty years of tradition, whose production plant is located in Nowy Sącz. The company draws its inspiration from Scandinavia, creates simple fittings, at the same time with the highest aesthetic values, in line with current trends of quality meeting the expectations of even the most demanding customers around the world.

www.norlys.pl

Strefa Energii - company specializing in Renewable Energy Sources. Over the past years, the company has completed several hundred solar installations. Above all, Strefa Energii offers professional equipment and solutions tailored to individual needs.

www.strefaenergii.com

HERZ Armatura i Systemy Grzewcze – is one of the absolute leading companies in the Polish installation industry. This year marks 25 years since the registration of the company HERZ Armatura i Systemy Grzewcze in Krakow - the Polish branch of the Austrian group HERZ Armaturen Ges.m.b.H.

HERZ has been introducing a wide range of modern regulating fittings to the Polish market for 25 years. The company boasts an impressive number of thermostats sold, at over 6 million. HERZ provides its clients with specialized technical consultancy in close cooperation with several hundred design offices. The most prestigious buildings in which HERZ installations work include, among others: Wawel Royal Castle, the Juliusz Słowacki theatre in Krakow, the Jagiellonian University in Krakow or the Manggha Museum of Japanese Art and Technology in Krakow.

www.herz.com.pl

OCHSNER – heat pump manufacturer. OCHSNER heat pump technology is based on the knowledge of engineers, research conducted in cooperation with many renowned technical universities and the selection of the most reliable and best components that are found in the world, as well as experience gained in the construction and assembly of over 60,000



Photo archive of the Marshal's Office of the Malopolska Region

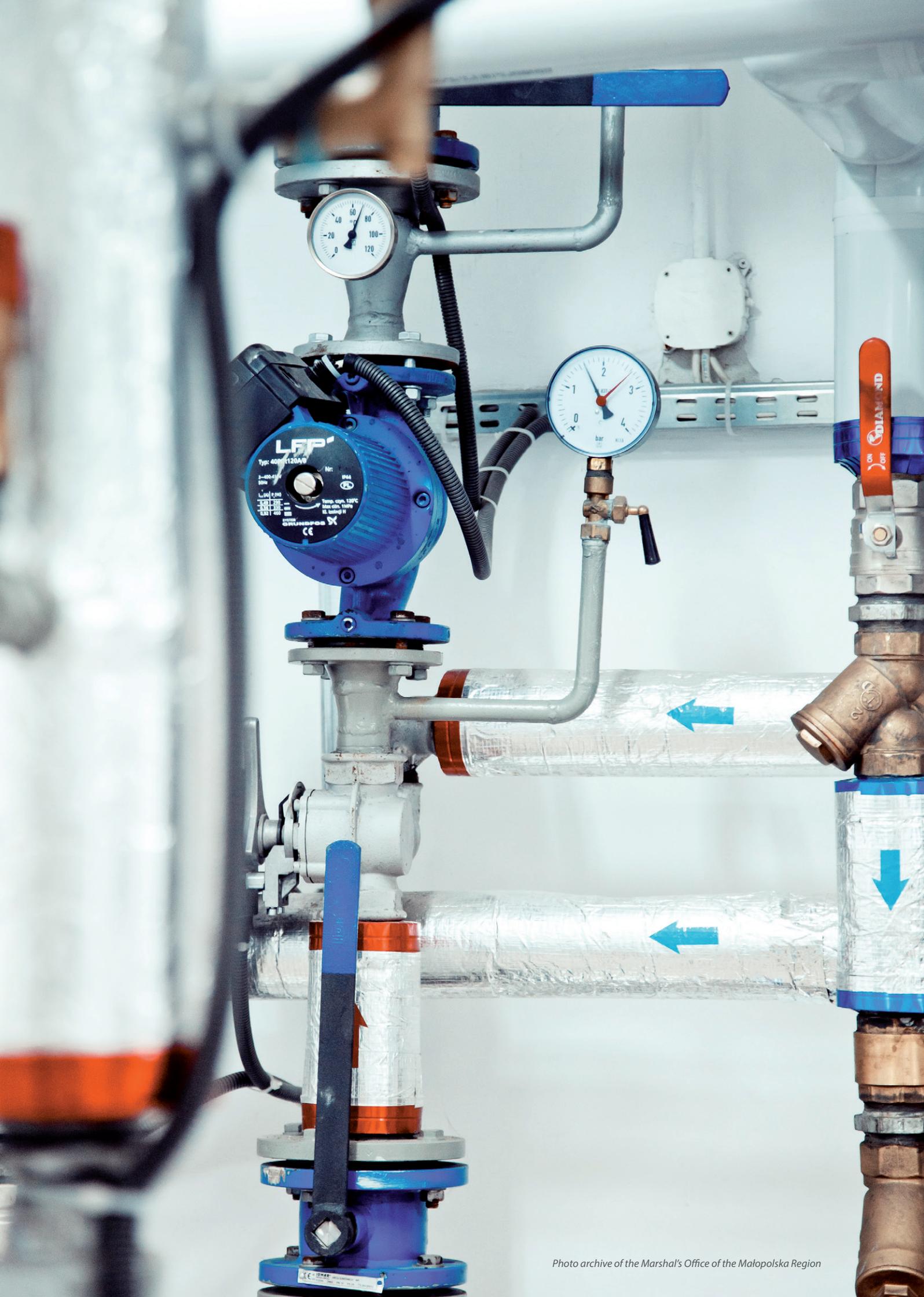


Photo archive of the Marshal's Office of the Małopolska Region

installations. Ochsner offers professional consulting, design and implementation. OCHSNER heat pumps are used in heating and cooling buildings and air conditioning.

www.ochsner.com/en

SKORUT Systemy Solarne - is a Polish manufacturer of high-efficiency flat solar collectors that allow the conversion of solar radiation energy into heat (most often used to heat utility water) without CO2 emissions. During 15 years of activity in the Polish market, SKORUT Systemy Solarne has implemented solar investments in facilities such as: hospitals, health centers, social welfare homes, sports facilities, aquaparks, swimming pools, hotels, guesthouses, schools, single-family and multi-family houses, and housing estates. The company has completed photovoltaic systems, among others, in projects for: road lighting, advertisements in

road lanes, lighting for summer houses, allotments and animal shelters. The SKORUT Systemy Solarne company is the contractor of the largest comprehensive investment in Europe consisting of 3,500 collectors at the Radogosz Zachód estate in Łódź.

www.skorut-solar.pl

IKOS-TERM – offers its clients over 15 years of experience in the industry. A well-trained, flexible and organized team of professionals performs orders reliably, in accordance with the requirements of their clients and with the least disturbance to them. The strength of Ikos-Term is the shortest possible time of order execution, and the absence of any problems in completing the necessary formalities, and the basic principle is care for the quality of the order and customer satisfaction. The company is a distributor of a wide range of devices in the



Photo archive of the Marshal's Office of the Małopolska Region

heating and solar industries as well as a contractor for water and sewage, central heating and gas installations.

www.ikos-term.pl

House Solutions - provides services in the field of efficient and convenient systems for the production of electricity, heating and cooling based on renewable energy sources. The company uses only pro-ecological solutions that have been widely adopted and used in many European countries and around the world. Renewable energy sources are based on the dedication of resources, the use of which, even for many years, is not associated with a long-term deficit. The whole process of obtaining natural energy is 100% safe for the natural environment and does not cause the deterioration of its current condition.

www.house-solutions.pl

Alter Power - operates in the renewable energy, ecology and environmental protection industries. The company offers photovoltaic panels, solar collectors, solar sets, heat pumps and home sewage treatment plants. The company provides installation assembly services.

www.alterpower.pl

ENERIDEA - deals with the implementation of renewable energy technologies, in particular the production of electricity from the Sun. The range of forms includes photovoltaic panels, inverters and assembly systems of the highest quality.

FFM - is an experienced entity in the implementation of investment projects from renewable energy sources (RES) in Poland and on the EU market. It designs and builds biogas plants based on the best parameters with the needs of clients in mind.

www.ffmpolska.pl



Photo archive of the Marshal's Office of the Malopolska Region



The examples described in this study do not exhaust the full range of the industry. The information contained herein is an invitation to contact the employees of the Business in Małopolska Centre, who have a full database of companies from Małopolska Region and provide assistance in establishing business relations.

Business in Małopolska Centre
Podole 60, 30-394 Krakow, Poland
e-mail: contact@businessinmalopolska.pl

This publication has been prepared as part of the implementation of the „Power up Your Business in Małopolska 2” project, sub-measure 3.3.1 of the Regional Operational Program of the Malopolska Region for the years 2014-2020.

Free publication.

Main sources of information:

- *company websites*
- *www.ogrodinfo.pl/rynki-i-prawo/energia-ze-zrodel-odnawialnych-w-2018-r/ based on data from the Central Statistical Office).*
- *ieo.pl/pl/projekty/raport-rynek-fotowoltaiki-w-polsce-2019*
- *information received from companies*
- *own information of the Business in Małopolska Centre*
- *the photographs used in this publication are taken from the Marshal's Office of the Małopolska Region (UMWM) photo database and a free photo stock*

Kraków / 2020

For more information scan here





Business in Małopolska

www.businessinmalopolska.com

