

## **The Aviation Sector in Poland**

### **Sector profile**



Polish Information and Foreign Investment Agency 2013

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Financed by the Ministry of the Economy

ISBN 978-83-63371-05-0

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## Outline of the sector worldwide

The aviation sector is a highly innovative industry whose development largely depends on transnational cooperation and the situation on the global markets.

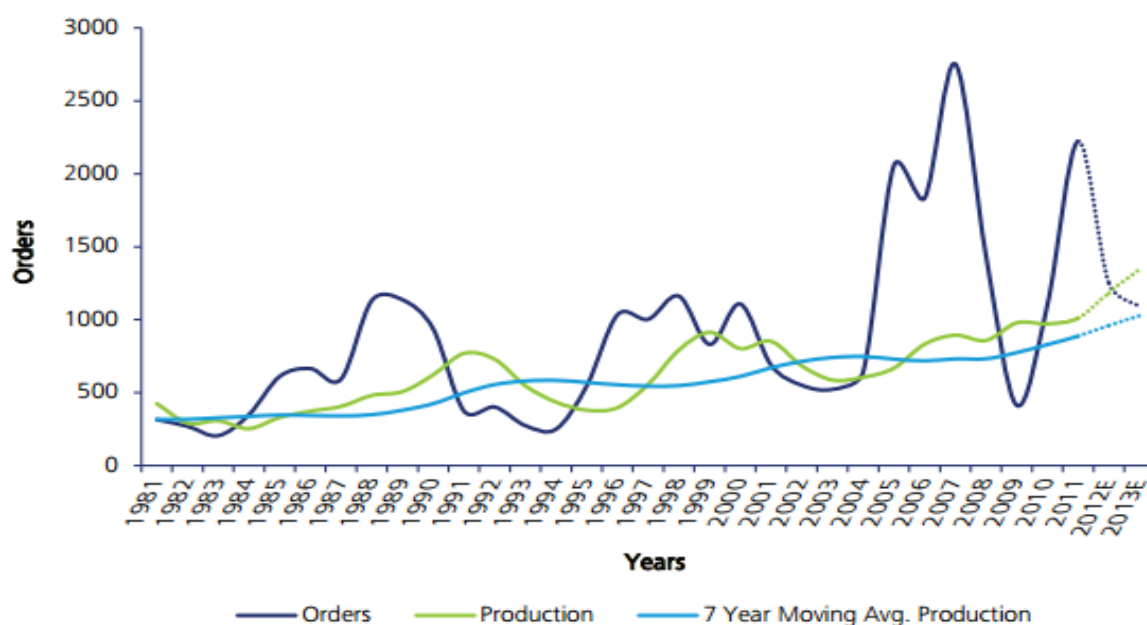
**Over the past 20 years, the volume of aircraft production on the global market has doubled.** Deloitte report (2012) entitled “Global aerospace and defence industry outlook: A tale of two industries” provides that commercial aircraft production will consistently increase (Boeing and Airbus have announced increase in the production), while army purchase orders will record a slow decline. It is related to the budget cuts in defence spending in the U.S. and Europe. (2012).

According to PwC, the value of the aerospace and defence industry (100 largest companies) in 2011 is estimated at \$677 billion. The largest producer is the U.S. (approx. 60% of the aerospace and defence sector), next comes Europe, and the third – the Asia-Pacific region.

The three biggest players in the global aviation market are Boeing (USA), EADS (a European corporation) and Lockheed Martin Corporation (USA).

The main promoters of demand in the aviation sector are environmental standards, rising fuel prices, which necessitate the purchase of new, energy-efficient technologies and the growing demand for new, developing markets such as China and India.

Figure 1. Thirty year history and forecast for large commercial aircraft orders and production (1981-2013)



Source: Deloitte, 2012 Global aerospace and defense industry outlook: A tale of two industries

### Sector overview in Poland

Poland can boast over 100 years of aviation history and tradition of the aviation industry. Already in the interwar period, light aircraft, gliders, engines and avant-garde construction solutions were created in our country. The education of aviation engineers at the Faculty of Mechanical Engineering of Warsaw University of Technology began, while in Dęblin the Polish Air Force N.C.O.'s Training School was established.

Investment in the construction of the Central Industrial Region, in particular the construction of aircraft factories – Airframe Plant in Mielec and Engine Plant in Rzeszow – were of **paramount importance** for the sector development.

**Strong academics and engineers environments** played a key role in the development of the sector. They largely led to its reconstruction from scratch after 1945 and successfully got through a difficult **restructuring period of the 1990's**. Stringent cuts in the sector (half of the 40.000 people working in aviation remained) meant that only the **top specialists and technologies remained in the industry**. The initial phase of testing by prospective investors the potential of the sector (Goodrich and Hispano Suiza projects) **was quickly followed by the stage of large investment** – both related to privatization and greenfield investments (e.g. Avio Polska, Hamilton Sundstrand, MTU Rzeszow).

Currently, domestic companies in the aviation sector are engaged in the design, testing, implementation and modification of the constructed aircrafts, including unmanned aircrafts and components for the aerospace industry. Manufacturers support the client throughout the product life cycle. One of the important tasks in the industry is also a civil and military certification.

Aviation companies consistently develop the **chain of local suppliers**. The Polish industry also collaborates with leading universities and scientific research centres in the development of technologies, conducting research, and testing the latest solutions for the aviation industry. Joint action to prepare future personnel for the aviation industry is crucial. In 2009, the R&D expenditure of the 128 companies from the aviation industry amounted to PLN 35,468k.

New opportunities for the aviation industry in Poland were brought by Poland's accession to the European Union. There are numerous sources of research funding (e.g. Framework Programmes, CleanSky, DREAM, SCARLET, OPENAIR) and the access to goods and services markets is wide, while financial risk decreased.

## Investment and market potential

A total of over 100 companies operate in the aviation sector in Poland. More than 90% of their production is exported. Foreign investors in this industry are mainly from the USA, Italy, France, UK and Canada. The table below presents the key foreign-owned companies.

Table 1. Key foreign-owned companies in the sector

Company	Location	2012 employment	2012 sales (EUR)	Export (%)
WSK PZL Rzeszów / UTC	Rzeszów	4000	approx. 245m	approx. 90%
Pratt & Whitney Kalisz / UTC	Kalisz	1445	approx. 70m	89.5
PZL Mielec (Sikorsky) / UTC	Mielec	2137	approx. 170m	84%
UTC Aerospace Systems	Wrocław	565	no data	no data
Goodrich Aerospace Poland / UTC Aerospace Systems	Krosno/ Tajecina	530	4.65m	99%
Hispano-Suiza Polska	Sędziszów Małopolski	500	40m	100
Avio Polska	Bielsko Biała	465	approx. 10m	99.9
MTU Aero Engines	Rzeszów	460	50m	over 90
Pratt & Whitney AeroPower	Rzeszów	143	no data	no data
PZL Świdnik AgustaWestland	Świdnik			

Source: PAIiZ's own study based on the data made available by the companies

In the years 2009-2011 PAIiZ supported investors who decided to implement six investment projects in the aviation sector with a total value of EUR 140m and employed 1180 people. This confirms that the aviation sector offers great potential for greenfield and brownfield investments.

Representatives of the Aviation Valley (the largest aviation cluster in Poland, where 80% of the industrial sector is concentrated) do not expect in the nearest future any significant investments – such as mergers and acquisitions – in the sector.

Polish foreign-owned companies produce high-tech and popular aviation equipment on the market:

- PZL Mielec (a Sikorsky Aircraft subsidiary) is a manufacturer of one of the world's most reliable military helicopters (the Black Hawk) as well as aircrafts of its own design (such as the M28 Skytruck, the M28B Bryza and the Dromader).
- PZL Świdnik (AgustaWestland) is a manufacturer of the W-3PL Głuszcak helicopter, which is a modified military version of a the W-3WA Sokół helicopter – the winner of the 2007 Defender Award at the defence industry exhibition Kielce 2007 – as well as a manufacturer of the training helicopter SW-4Na. Works on the new multipurpose AW-149 helicopter are nearing completion.
- WSK Rzeszów is a manufacturer of complete aircraft engines and drive assemblies for aircrafts. The factory produces, among others, the PW 1000 motor reducer unit – an extremely innovative design used in the best-selling aircrafts Airbus 320 and Neo Boeing 737 Max.
- Hispano Suiza Polska is a manufacturer of the CFM 56 motor reducer unit, which is the best-selling type of turbofan engine. The company sells approximately 1000 units per year.
- Goodrich supplies the complete chassis for Boeing 737.
- Hamilton Sundstrand is a manufacturer of complete ATUs (small turboshaft engines for starting the main engines and providing electric power and air-conditioning when the aircraft is parked).
- MTU is a manufacturer of low-pressure turbines to the V2500 engine used in aircrafts such as the Airbus A319, the Airbus A320 or the Airbus A 32. On 11 September 2012, ARP S.A. granted to MTU Aero Engines Polska Sp. z o.o. a new permit for business operations. The company will invest PLN 65m in the Trzebowisko Subzone and will create 50 jobs.
- Avio Polska designed and implemented low-pressure turbine blades for one of the most advanced engines in the world (GENx-2B).

Polish aviation industry is characterized by a large number of small and medium-sized businesses, including family businesses. This makes it relatively resistant to turbulence in the world economy. These companies are able to manufacture parts to the most modern aircrafts, such as the Boeing 737, the Airbus A380 and the Boeing 787 Dreamliner. This is particularly important in times of crisis when the major manufacturers began to look for cheaper suppliers that are still able to ensure the highest quality. Almost every aircraft in the world is equipped with at least one item made in Poland.

## Labor market potential

Poland has more than **80 years of tradition in training pilots and aviation personnel. Universities which educate aviation engineers are located in most of Poland's major cities.** These include, among others: Military University of Technology, Warsaw University of Technology, Silesia University of Technology, Rzeszow University of Technology, Lodz University of Technology, Krakow University of Technology, Wroclaw University of Technology, Kielce University of Technology, Lublin University of Technology, Poznan University of Technology, Częstochowa University of Technology and University of Technology and Humanities in Bielsko-Biala.

Approximately 20.000 graduates in engineering and technology leave Polish universities each year. This corresponds to the market needs. In R&D centres alone there is a need for at least 300 new engineers each year. According to the Aviation Valley estimates, in the coming years the sector in Poland will need about a thousand new highly skilled workers.

In order to ensure aviation companies the best qualified staff, the clusters actively collaborate with the academic environment and other educational institutions. This collaboration results, among others, in the following initiatives:

- **training and internship programs** in key companies of the sector;
- agreements with technicians and practical training centres to **coordinate curricula with the industry needs**;
- regular **exchange of business information with universities** regarding staffing needs;
- **promoting and encouraging young people to study engineering programmes**;
- training for teachers in aviation companies in Poland and abroad;
- equipping training facilities with modern machinery, tools and software.

A notable trend is the opening in recent years by a number of universities of new aviation-related programmes, such as Aviation Management at the School of Information Technology and Management in Rzeszow or Air Transport Infrastructure at the Cracow University of Technology. The new programmes are launched by increasingly using EU funds.

According to the estimates by K&K Selekt – the only HR company belonging to the Aviation Valley – wages in the aviation industry are at the following rates (converted to EUR based on the average annual exchange rate of the National Bank of Poland for 2011):

Table 2. Approximate wages in the industry

POSITION	SALARY*
Qualified production worker (e.g. machine operator, CNC operator, mechanic)	560 – 1025
Graduate engineer (quality/logistics/production/purchase/technology)	610 – 780
Experienced engineer (quality/logistics/production/purchase/technology)	850 – 1 560
R&D engineer/constructor**	805 – 1 950
Specialist – administration/HR/accounting	730 – 1 465
Manager (production/engineering)	1 950 – 3 900
Manager (quality/purchase/logistics/supply chain)	1 710 – 3 540
Manager (finance/accounting)	1 780 – 4 390
Manager (HR)	1 950 – 3 660
Plant Manager/Operations Manager	1 446 – 7 317

\* approximate gross salary, depending on the employee's experience, company size, exact location and specific nature of production operations (data for 2012)

\*\* According to data by the Aviation Valley, the salary of an R&D engineer/constructor may reach 2,500, depending on the experience and knowledge of English

## Research facilities

Since 2000, at the Warsaw **Institute of Aviation, General Electric** has been developing **the largest Polish and European research and construction centre** for the industry and aviation. Currently it employs approximately 1500 engineers and researchers, and the laboratory is steadily growing.

Every year the company invests a dozen million zlotys in new laboratories. The centre deals with, among other, the design and verification of new aircraft engine technologies.

Rzeszów University of Technology is the initiator and coordinator of the **Centre of Advanced Technologies AERONET Aviation Valley**. It is the largest consortium in Poland, combining business and academic institutions, and it was established under an agreement signed in 2004. The purpose of AERONET is to link its partners' potentials and jointly develop the most



technically advanced solutions. As part of this initiative, the Rzeszów University of Technology has created one of the most advanced laboratories in Europe – Materials Research Laboratory for the Aviation Industry. It conducts, among others, research in modern manufacturing technologies, including plastic forming and surface engineering.

Another important project is the **Cold Flow Turbine Test Facility**. The EUR 50m worth investment is carried out by a research-industrial consortium Laboratorium Badań Napędów Lotniczych "Polonia Aero" together with Avio Polska, WZL Nr 4 S.A. and two technical colleges (Warsaw University of Technology and the Military Technical Academy). It is the world's most modern industrial research and development laboratory in the field of testing low pressure turbine prototypes. The laboratory will be available for all companies interested in this matter. The investment is expected to be completed in 2014.

In January 2012 the **National Research and Development Centre** signed an agreement with the **Polish Aviation Technology Platform (InnoLot Program)**, under which it is committed to invest approximately EUR 73m (60% of the project budget) in research, development and measures supporting transfer of the results to the aviation industry. The remaining 40% will be provided by the members of the following associations: Aviation Valley in Rzeszow, Wielkopolski Aviation Cluster in Kalisz and the Federation of Airline Companies Bielsko in Bielsko-Biala. It is estimated that as a result of research programs funded under this agreement, about 30 Polish prototypes and technology demonstrators to be used in aerospace products may be formed. Only those projects that bring tangible commercial gain and benefit to the industry will be funded. The program will begin in 2013 and will last five years.

Śląskie Centrum Naukowo-Technologiczne Przemysłu Lotniczego Spółka z o.o. in Czechowice-Dziedzice implements the project **'Creation of Infrastructure for Śląskie Centrum Naukowo-Technologiczne Przemysłu Lotniczego Sp. z o.o.'**. It started in June 2012 and is worth EUR 12.5m. The project will include the creation of facilities equipped with the necessary machinery and equipment that allow to conduct research on composite plastics.

**WSK Rzeszów** is building the research and development centre implemented as part of the project entitled **'The Creation of the Aircraft Propulsion Research and Development Centre at the WSK PZL-Rzeszów S.A.'** as part of the Operational Programme Development of Eastern Poland 2007-2013. The cost of the investment, to be completed in 2014, is several dozen million zlotys. The commissioning of the centre will create new opportunities for the design and engine testing at WSK Rzeszów.

In December 2012, the **Aircraft Research and Testing Centre at PZL Mielec** will be opened.

### Clusters

The creation of the cluster initiatives is the expression of the aspirations of companies operating in the aviation sector to increase competitiveness. As part of the clusters, collaboration between companies (including between business competitors) is being established to enable the use of synergies in business activities. Sample forms of cooperation include the preparation of joint bids, conducting lobbying activities, joint ordering, bonding distribution channels etc. The clusters often involve the participation of the representatives of scientific environments (looking for ways to commercialize their research results), business organizations and local governments interested in developing entrepreneurship in their regions.

#### AVIATION VALLEY

The Aviation Valley Association is the largest and the most active cluster in Poland. The companies representing this sector are willing to locate their business here because of the conducive investment climate.

Therefore, it is not surprising that about 80% of all investment in the aviation sector is based in the cluster. The Aviation Valley provided jobs for over 23 thousand engineers and operators. The export of helicopters and aircraft components brought approximately \$1.5 billion revenue in 2011, a 25% increase compared to 2010. The companies associated in the cluster are located predominantly in Podkarpackie Voivodeship (although the companies from Silesia and Lubelskie Voivodeship are also among the members), and the entire project is centred in Rzeszów.

The main areas of activity of the Aviation Valley include production of gliders, light and ultra-light aircraft, unmanned aircraft, helicopters, production of aircraft components for large global companies and production of chassis and modules for aircraft engines.

Owing to dynamic development of the Aviation Valley, the companies that have recently opened their plants in the cluster are already planning expansion.

The Aviation Valley collaborates closely with universities and other educational facilities to provide the market with high-skilled professionals whose skills are tailored to investors' needs. New companies investing in the Podkarpacie region can benefit from the so-called "Core group" (grupa rdzeniowa) - a team of highly qualified and experienced engineers providing support and assistance for younger experts.

The Aviation Valley collaborates with a number of EU and non-EU clusters (mainly from France, Germany and the UK, Canada and USA). The cluster is also committed to attracting investors from other parts of the world, e.g. the Far East (mainly Japan and China).

### SILESIA AVIATION CLUSTER

The cluster was established in 2006 on the initiative of the companies operating in the aviation sector of the Bielsko Biala region. It currently has 26 members whose turnover in 2011 amounted to about EUR 122m (15% from export), and provides employment to approximately 3000 people.

The cluster offers advanced infrastructure for the aviation industry, professional hardware facilities, research laboratories and a wide range of services dedicated to the sector. It focuses on production of gliders, light and ultra-light aircraft, unmanned aircraft, turbine drives and composite processing.

Currently the cluster is implementing a project funded through the Innovative Economy Operational Programme, under which it is planning to purchase modern aviation engineering machinery for the amount of PLN 16.5m. The new equipment will be available to all cluster members, helping them to maintain a high-quality of their ultra-light and light aircraft.

The cluster is lead by Avio Polska – a Bielsko-Biala based company specialising in the manufacture of turbine blades, stator blades, gearboxes and turbine rotors. The company also conducts research and development activities. Avio designed and commenced production of low-pressure-turbine blades for one of the world's most advanced engine Genex-2B. So far, the cluster has manufactured about 600 gliders and aircraft (finished products). It also collaborated closely in developing and launching several type of gliders (Swift, Fox, Diana, Mirage, Orka and Bielik).

### WIELKOPOLSKA AEROSPACE CLUSTER

The cluster was established in 2009 on the initiative of four Kalisz based companies: WSK "PZL-Kalisz" (the largest aviation company in Wielkopolska and initiator of the cluster), Pratt & Whitney Kalisz, Vac Aero Kalisz and Meyer Tool Poland.

Since then, the cluster has been joined by two more aviation companies: Hamilton Sundstrand Kalisz and Technequip Kalisz.

The Wielkopolska Aerospace Cluster employs about 3000 people. Currently, it associates 23 entities with various business profiles. PZL-Kalisz has developed and launched production of a fuel injection system for Asz-62 engine – one of the first such systems for piston engines.

### MAZOVIA AVIATION CLUSTER – AVIATION MAZOVIA

With the dynamic development of the aviation sector, many companies actively pursue new cooperation opportunities within the sector. A good example is Aviation Mazovia – an aviation cluster located in Mazovia. Established in 2008, the cluster is still forming its structures. Its activities will include research in the following areas: UAV and VTOL UAV (structures, new technologies, flight autonomy); helicopters and new technologies for rotorcrafts and composites (e.g. GLARE) in aircraft constructions.

### TECHNOLOGICAL SUPPORT FOR INNOVATIVE AVIATION PROJECTS

The main goal of the co-operation agreement “Technological Support for Innovative Aviation Projects” is to stimulate innovation-oriented activities in the aviation industry and to facilitate access for small and medium-sized aerospace companies and research institutions to modern research base. The cluster is specifically dedicated to provide aviation sector companies with access to modern research base for robotisation of the manufactured aerospace structures, applied aerodynamics and test benches for piston and rocket engines used in General Aviation and unmanned aircraft. The cluster is lead by the Institute of Aviation, Air Force Institute of Technology, Military University of Technology and Warsaw University of Technology. It currently has 23 members. In connection with the Polish accession to the ESA, the cluster has expanded its activities to include space technologies in the field of space drives and acquisition and analysis of images obtained from satellites and unmanned aircraft.

### MILITARY ENTERPRISES

Airbus Military – a company formed after privatisation of PZL Warszawa Okęcie. The company formerly manufactured PZL-104 Wilga, PZL-110 Koliber and PZL-106 Kruk aircraft. Currently, it supplies electrical harnesses and airframe components for Airbus and Casa and runs Aircraft Service Centre for C-295 Casa.

Wojskowe Zakłady Lotnicze Nr 1 w Łodzi i Dęblinie (Military aviation Works No. 1 in Lodz and Dęblin) specialise in overhaul and upgrade of Mi-2, Mi-117, Mi-24 and Mi-8 helicopters and their engines. WZL-1 signed a collaboration agreement with Eurocopter for assembly and service of Eurocopter helicopters.

Wojskowe Zakłady Lotnicze Nr 2 w Bydgoszczy (Military Aviation Works No. 2 in Bydgoszcz) specialise in overhaul and upgrade of Mig-29, Su-22 and C-130 Hercules aircraft. The company has a professional paint shop and is a certified painting service provider for F-16 aircraft. It also provides maintenance for “general aviation” Piper, Cirrus and other aircraft. In the future, it also plans to erect a new hangar and launch maintenance services for large

passenger aircraft. The Field Aviation Workshops provide service for W-3 Sokół and Głuszcak Helicopters.

Wojskowe Zakłady Lotnicze Nr 4 w Warszawie (Military Aviation Works No. 4 in Warsaw) specialise in overhauls of turbojet and turboshaft engines. The enterprise has a modern engine test stand in Zielonka (near Warsaw) for testing military engines and engines for large passenger planes (CFM-56).

Wojskowe Centralne Biuro Konstrukcyjno-Technologiczne S.A w Warszawie (Central Military Bureau of Design and Technology Joint Stock Company in Warsaw) specialises in development, design, manufacture and overhaul of handling equipment for the air-force (power generators, air conditioners, dehumidifiers and training and maintenance equipment). The equipment is constantly upgraded and adapted to suit the current needs of the military.

## MAINTENANCE ORGANISATIONS

Lot Aircraft Maintenance Services (LOT AMS) is the largest certified maintenance base in Poland, providing maintenance for Atr-72/42, Dash- Q400 and Boeing 737, 767 and 787 passenger aircraft. LOT AMS also provides upgrade packages for the military versions of Boeing 707.

## Available forms of public assistance

Entrepreneurs carrying out new investment projects in Poland may take advantage of various forms of investment incentives granted as part of public assistance, in particular:

- tax exemptions in Special Economic Zones (SEZ),
- exemptions from local taxes, including property tax,
- government grants for strategic investments,
- support from EU funds,
- tax incentives for the acquisition of new technologies, and research and development,
- technology and industrial parks.

The primary tax incentive is exemption from income tax in one of 14 special economic zones that will remain active until 2026. Each zone has numerous sub-zones in various parts of Poland. In the special economic zones investors may count on the availability of attractive investment lands equipped with the necessary utility infrastructure and comprehensive assistance in legal and administrative procedures related to their project.

Communes also incentives have at their disposal – they are authorized to grant exemptions from local taxes and levies, including property tax.

Cash subsidies for the support of new investments come from the State budget (government grants) and EU funds.

Government grants (for the creation of new jobs and investments) are granted under the Program for supporting investments of major importance to the Polish economy for the years 2011–2020 for investments in the following sectors:

- automotive,
- electronic,
- aviation,
- biotechnology,
- modern services,
- research and development activity.

Moreover, considerable investments from other sectors (creating at least 200 new jobs with qualified costs of at least PLN 750 million or creating at least 500 new jobs with qualified costs of at least PLN 500 million) may also be eligible for support under the Program.

As a member of the EU, Poland is the largest beneficiary of support from EU funds. The funds are allocated to, among others, innovative investments, research and development, infrastructural projects, environment protection, renewable sources of energy, employee trainings.

Throughout 2007-2013 Poland had at its disposal approx. EUR 67 billion and in the new 2014-2020 budget this will be approx. EUR 73 billion. The priority in the new budget will be to support the research and development activity of enterprises. As the investment incentives are available under various programs, and vary in terms of conditions and availability in time, we suggest contacting the Polish Information and Foreign Investment Agency to obtain current information about available incentive packages.

## Testimonials

During the twenty years of intense economic transformations in Poland, the aviation industry has become something of a "specialite de la maison". Over 80-year tradition of the native aviation industry supported by a consistent and wisely conducted transformation programme have produced the desired results. Difficult restructuring that laid the foundation for the privatization and modernization of state-owned enterprises, such as the WSK Rzeszów PZL Mielec, helped find high-end global investors in the aviation industry.

A comprehensive range of educational activities covering all levels of education (from primary schools to students and teachers), modernization and development of teaching and laboratory infrastructure, make the aviation sector in Poland an efficient mechanism that will ensure further development of the industry.

On this basis, I can say with full responsibility that the current landscape of the Polish aviation industry, which has already reached global production levels and is aggressively pursuing R&D investment, allows for a reliable diagnosis – we are set for growth!

Marek Darecki  
President of the Board  
SGPPL "Dolina Lotnicza" and WSK „PZL-Rzeszów” S.A.

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“The decision to locate Hispano-Suiza Polska in Sędziszów Małopolski was not aleatory. Podkarpacie region has been known of more than 75-year tradition of aviation industry and related availability of skilled operators and engineers which is also associated with excellent education centers. The decision had also economy base such as low operating costs and political and economic stability.”

Ryszard Łęgewicz, President & CEO Hispano-Suiza Polska

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„Selecting Poland and Aviation Valley as a new plant location for MTU Group was a strategic decision not a choice made based on ups and downs of the economy. Region’s suitable infrastructure, investor friendly environment as well as cost effective well qualified work force made basis for development, production and repair combined under one roof, that has become a hallmark of whole MTU’s group.”

Krzysztof Zuzak  
MTU AE Polska

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“Sikorsky Aircraft’s investment in PZL Mielec proved to be a win-win business venture. Local aviation heritage, skills and commitment combined with the foreign capital and high technology resulted in the final products made in Poland that are top quality, delivered on time and price-competitive. There is still a huge potential in the Polish aviation industry that could be utilized in a similar way.”

Janusz Zakręcki  
President of the Board, General Manager  
Polskie Zakłady Lotnicze / a Sikorsky Company

### Trade fairs and conferences

Name	Description
<b>Airport Technologies and Infrastructure (Technologia i Infrastruktura Lotnisk - TIL)</b> <b>Kielce</b> <a href="http://www.targikielce.pl">www.targikielce.pl</a>	TIL is an international trade fair which facilitates presentations of equipment, technologies, as well as services for airports and airlines.
<b>Air Fair</b> <b>Poznań, August</b> <a href="http://www.poznanairfair.pl">www.poznanairfair.pl</a>	An event organized by the Poznań International Fair bringing together industry experts and practitioners to discuss latest trends and challenges faced by the Polish aviation industry.
<b>Aviation Career and Education Fair, Avia-Tor, May</b> <a href="http://www.targilotniczetorun.pl">www.targilotniczetorun.pl</a>	Organized for the first time in 2012, the event features seminars, conferences, workshops and presentation of aviation equipment.
<b>Para Rudniki Light Aviation Fair</b>	The event takes place at Rudniki airport near Częstochowa. It was firsts organized in

**Częstochowa, June**

[www.pararudniki.pl](http://www.pararudniki.pl)

2012. Visitors have an opportunity to become familiar with the offer of domestic and foreign aviation equipment manufacturers, as well as aviation training centres, service companies and operators providing services to the aviation market. The fair also features a marketplace for used aviation equipment.

**Aviation Job Fair**

**Dęblin, October**

[www.wsosp.deblin.pl](http://www.wsosp.deblin.pl)

Organized by the Polish Air Force Academy in Dęblin.

**Air Passion (air show)**

**Poznań, April**

<http://www.poznanairfair.pl/pl/>

Air Passion was first organized in 2013 by the Poznań International Fair. During the event visitors will have an opportunity to attend industry seminars and conferences, and learn the offer of training centres and manufacturers of aircraft, parachutes and aviation accessories.

**Main institutions and industry organizations**

**Stowarzyszenie Grupy Przedsiębiorców Przemysłu Lotniczego DOLINA LOTNICZA (AVIATION VALLEY – Association of Aviation Industry Group of Entrepreneurs)**

ul. Szopena 51  
35-959 Rzeszów  
Tel: + 48 17 850 19 35/7  
[www.dolinalotnicza.pl](http://www.dolinalotnicza.pl)  
[info@dolinalotnicza.pl](mailto:info@dolinalotnicza.pl)  
[andrzej.rybka@dolinalotnicza.pl](mailto:andrzej.rybka@dolinalotnicza.pl)

**Śląski Klaster Lotniczy (Silesian Aviation Cluster)**

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Tel: +48 22 562 33 70  
[www.aerosilesia.eu](http://www.aerosilesia.eu)  
[biuro@aerosilesia.eu](mailto:biuro@aerosilesia.eu)

**Stowarzyszenie Przedsiębiorców Przemysłu Lotniczego "Wielkopolski Klaster Lotniczy"**

**(Association of Aviation Industry Entrepreneurs "Wielkopolska Aerospace Cluster")**

ul. Elektryczna 6  
62-800 Kalisz  
Tel: +48 62 752 51 16  
[www.wkl.org.pl](http://www.wkl.org.pl)  
[biuro@wkl.org.pl](mailto:biuro@wkl.org.pl)

**Polska Platforma Technologiczna Lotnictwa (Polish Aeronautical Technology Platform)**

WSK „PZL-Rzeszów” S.A.  
ul. Hetmańska 120  
35-078 Rzeszów  
Tel: +48 17 866 7388  
[www.pptl.pl](http://www.pptl.pl)  
[haligowski.robert@wskrz.com](mailto:haligowski.robert@wskrz.com)

**Stowarzyszenie Polskiego Przemysłu Lotniczego (Association of Polish Aviation Industry)**

ul. Szopena 51  
35-959 Rzeszów  
Tel. +48 17 850 19 35  
[www.sppl.org.pl](http://www.sppl.org.pl)



[info@apai.pl](mailto:info@apai.pl)

**Instytut Lotnictwa (*Institute of Aviation*)**

al. Krakowska 110/114  
02-256 Warszawa  
Tel: +48 022 846 00 11  
[www.ilot.edu.pl](http://www.ilot.edu.pl)

**Instytut Techniczny Wojsk Lotniczych (*Air Force Institute of Technology*)**

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[//www.itwl.pl/](http://www.itwl.pl/)

**AERONET - Dolina Lotnicza (*Aviation Valley*)**

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The access to raw materials, the generation and transmission of electricity are among the primary issues determining the efficient operation of an economy. Assuming a global economic growth of 2.8 per year until 2040 (including 4.5% in non-OECD countries and 1.9% in the OECD) and a 35% improvement in energy utilization efficiency in this period, the growth of demand in this sector is estimated at 1.3% per annum.<sup>1</sup> This growth will also vary for the respective sources of energy. According to forecasts, the annual average growth of demand for oil-based energy until 2040 will amount to just 0.5% with the peak of demand falling around 2030.

On the one hand, demand for oil will be curbed by high prices, technological advances and environment protection policies, on the other, it will be fuelled by emerging markets, recording growing income, and the popularization of private transportation. Renewable sources will see the fastest growth – according to Statoil's forecast, this sector will grow at a pace of 8.9% per annum.

The energy sector has always been immensely popular with investors. Despite the drop in the value of foreign direct investment in the sector of the supply of electricity, gas and water by 28% in 2012 (effect of the persisting economic crisis in developed countries), the share of the sector in global FDI amounted to 8.9%.<sup>2</sup> The sector also has a nearly 5% share in the value of global cross-border mergers and takeovers.

## Contact details for investors

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<sup>1</sup> Statoil, Energy Perspectives 2013.

<sup>2</sup> UNCTAD, World Investment Report 2013, share in FDI carried out by sovereign wealth funds.