

Prospects concerning participation of local companies in realization of Polish nuclear programme

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Who we are

IGEOS is a self-governing economic organization representing Polish and foreign entities including enterprises of the entire Polish power industry

At present the Chamber has about 100 associate members including, among others, such entities as:

**Integrated
Energy
Groups**

**Power Industry
and
Environment
Protection
Manufacturers**

**Construction
and
Engineering
Companies**

**Service and
Trade
Providers**

**IT, Consulting,
Legal,
Finance,
Insurance,
Translation**

We are the leading business integrator and an essential partner to industry and politics in the development of efficient changes in the Polish power industry

Local content – Potential areas

Areas of Polish nuclear project to be subcontracted to Polish industry		Design	Product	Assembly	O&M
I.	Nuclear island				
	Auxiliary systems	●	●	●	●
	Piping - Secondary loop	●	●	●	●
	Safety DCS of reactor, Fire protection	●	●	●	●
	Own Energy consumption, emergency systems		●	●	●
I.	Turbine island				
	Turbine, generator			●	●
	Moisture separator	●	●	●	●
	Auxiliary systems	●	●	●	●
I.	Balance of the plant (BOP)				
	Electric components	●	●	●	●
	I & C	●	●	●	●
	Piping – non classified	●	●	●	●
	HVAC	●	●	●	●
	Steel structures	●	●	●	●
V.	Site preparation, civil works, marine installations, attendant infrastructure	●	●	●	●
V.	Grid connection (main transformer)	●	●	●	●

Possible involvement of Polish industry in Polish nuclear program = current experience of Polish companies in foreign projects

Possible involvement in first unit • Possible involvement in second unit (1 unit + c.a. 3-5 years) •

Polish industry has sufficient capabilities to deliver most of products/services in BOP and some of T/G components: Civil works, manufacturing and assembly of piping, HVAC and electric components, Some components of NSSS (manufacturing/erection) is in reach but requires additional investments in Polish industry.

Polish companies in realization of nuclear projects

Comprehensive assessment of national competences - Gap analysis results :

- 59 Polish companies with nuclear experience in past 10 years (for NPP and fuel cycle facilities, nuclear laboratories, CERN, ITER, Polish research nuclear reactor Maria, other),
- Another 21 Polish subsidiaries of foreign companies with nuclear experience in past 10 years,
- Another 25 Polish companies are in advanced preparation for nuclear cooperation,
- Another 220 Polish companies with sufficient capabilities/competencies for nuclear industry. Those companies will require only minor adjustments process to fulfill nuclear requirements (Tier 3 and 4 according to WNA).

Possible value of local content :

min. 40% at the first unit, significantly higher at the final stage (2 NPP: 6-9 units).

Polish industry experience - mega projects

Ability to play active role in similar to nuclear projects – mega projects. Only in Poland in recent years local industry participated with success in such projects: conventional energy and petrochemical sectors: Kozenice, Opole 5&6, Jaworzno III, Turów, EFRA

Manufacturing of modules/submodules for nuclear (as well as other safety related components) can be done in Poland following ASME N stamp. RCC or equivalent standards.

Project	Sector	Year	Value [US \$]	EPC contractor
Opole: 2x900 MWe new units	Energy	2012-2019	3,1 bln	Polimex Mostostal (PL), Rafako (PL)
Kozenice: 1075 MWe new unit	Energy	2012-2017	1,58 bln	Hitachi-Polimex Mostostal (PL)
Jaworzno: 900 MWe new unit	Energy	2014-2020	1,42 bln	Rafako (PL)
EFRA Lotos	Petrochemical	2015-2019	605 mln	Kinetics Technology

* Major mega projects in Poland 2012-19.

Most of identified Polish companies deliver products/goods for conventional energy, mining, petrochemical, gas, navy, off shore and steel sectors. In most of such cases only minor adjustment will be needed to become nuclear supplier (mainly to adapt nuclear quality standards)

Polish companies with significant experience in manufacturing

12 nuclear component manufacturers

Company	Scope	Project
APS	Manufacturing of electric devices	Rostowskaja, Kursk, Bilibinska, Nowoworoneż, Balakowskaja, Leningrad (RU), Białoruska (BY), Kudankulan (IN), Hanhikivi (FI), Akkuyu (TR), Buser (IR), Rovne (UA)
EPG	Manufacturing of upper and middle part of steel containment liner (Energomontaż Północ Gdynia)	Olkiluoto 3 (FI)
COTECH	Industrial Construction, Power industry and offshore	Olkiluoto 3, Finland
Valves	Valves manufacturing	Mohovce, Bohunice (SK), Temelin, Dukowany (CZ)
FAMET	Manufacturing of LP condensate cooler and feed water heater. Heat treatment after welding and machining of generator casings	Olkiluoto 3 (FI), Darlington (CA)
GAMBIT GROUP	Manufacturing of sealing systems	Fukushima Daici (JP)
ROCKFIN	Design, manufacturing of auxiliary turbine' systems	Flamanville 3 (FR), Laguna Verde (MX), Forsmark, Ringhals (SE), Borselle (NL), Hinkley Point 3 (UK)
TECHWIND	Design and manufacturing of cranes and lifting devices	Academik Lomonosov (floating nuclear power plant) (RU)
ZKS FERRUM S.A.	Upgrade of reactor's power: manufacturing and delivery of turbine casings, Manufacturing of turbine casings	Forsmark (SE), Hinkley Point C (UK)
POLNA	Hard fencing of existing valves of cooling systems Valves manufacturing	Mohovce (SK)
TRANSITION	IT Systems	Polish contribution to ICS cyber defense capabilities of the AP1000

Polish companies with significant experience in construction

10 enterprises with experience in NPP construction

Company	Scope	Project
Ecol	Hydrodynamic cleaning, Oil flushing and assistance in commissioning of steam generator	Temelin, Dukovany (CZ), Bohunice, Mochovce (SK), Zaporozhe (UA), Balakovo, Kalininsk, Rostov (RU)
ELEKTROBUDOWA SA	Manufacturing and assembly of electrical devices	Olkiluoto 3 (FI). Oskharsam (SE)
ERBUD	Civil works	Olkiluoto 3 (FI), Enrichment uranium plant Pierrelatte (FR)
EURO WEID	Assembly of cooling piping of reactor	Krsko (HR)
www engineering	Manufacturing and assembly on site of HVAC elements (ducts, silencers, dampers)	Olkiluoto 3 (FI). Flamanville 3 (FR), Radwaste repository Ignalina (LT), Exp. reactor Horowitz, Enrichment nuclear fuel factory Tricastin/Comurhex (FR), Thillange (BE)
mostostal krakow	Delivery and assembly of steel structure as part of dome and a site of spent fuels casks for temporary storage	Chernobyl Novarka project, temporary waste storage (UA)
POLBAU	Construction of building shells for the turbine hall, pumping station and auxiliary structures around the reactor	Olkiluoto 3 (FI)
Scotfold Polska	Design and assembly of supporting structures and scaffoldings	Olkiluoto 3 (FI), Joint Institute for Nuclear Research Dubna (RU), Chernobyl UA
warbud	Civil works	Olkiluoto 3 (FI)
wavenet	Delivery and assembly of fire systems, access control systems, DSO, CCTV	Olkiluoto 3 (FI)

Experience of the Polish industry in nuclear projects worldwide



- 3 continents – 24 countries
- 41 NPP, 2 nuclear laboratories, 2 nuclear installations
- New built, O&M projects
- Life extension, decommissioning projects

- Products/services delivered to most EU NPPs (and other nuclear installations)
- Some other NPP with Polish involvement (NPP in Ukraine, Byelorussia, Turkey, Russia, Canada, Mexico, Japan, India, USA). In UAE, Barrakha project (full power this week) Polish engineers also involved!
- Well established supply chain of global partners (Alstom->GE, Areva->EDF, Siemens, Rosatom, Hitachi, ABB, Schenider Electric and other nuclear customers - Tier 2,3,4 according to WNA).

National industry involvement – objectives and tasks

- Target of Government in PNPP – progressive increase of national involvement: **40% of project value** at first stage will be subcontracted to Polish industry, with increase in further stages – learning curve
- Direct dialogue: Government – Polish Industry (continuous activity)
- To achieve this target various activities should be deployed among others such as: series of trainings, seminars, trade and exports missions, transfer of nuclear technologies to Polish companies
- Support of Polish companies in obtaining costly quality certification
- Trainings and information activities in terms of standards and codes and norms in nuclear sector
- Promotion and support of Polish companies on international markets in order to get contracts abroad

All those preparatory activities should be implemented as early as possible to have finally – high level local content in Polish program.



Potential role of IGEOS in Polish Nuclear Project

Polish Chamber of Power Industry and Environmental Protection (IGEOS) with its knowledge, contacts and experience could play an important supporting role in the development of a nuclear project in Poland.

In the value chain IGEOS could be a perfect partner for technology suppliers

IGEOS could be a platform for communication and exchange of opinions concerning a nuclear project.

Therefore, we express our willingness and readiness to participate in that very ambitious and challenging project.



Thank you for your attention!



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