



PKN ORLEN Investor and Analyst Days

ENERGY

May 16-17, 2013



ORLEN

Agenda

➤ **Our strategy**

Our philosophy

Our projects



ORLEN

Over the next years PKN ORLEN will further develop existing energy segment



PKN ORLEN
in 2008...

... 2012...

... 2017...

... and 2022



Source: PKN Orlen

ORLEN

Competitive advantages

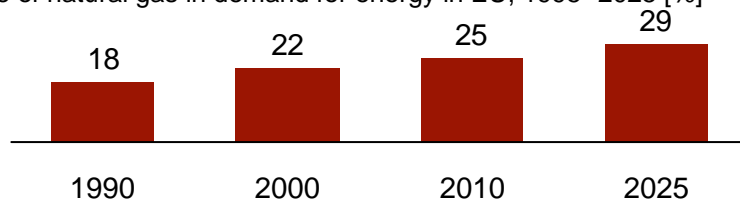
Business knowledge acquired in energy assets operation as well as on the natural gas market ...

- **Power plant in Plock** (345 MW, 1970 MWt) – the biggest industrial block in Poland
- **Heating oil, refining gas and natural gas** – fuels used for energy and heat production in plants in Plock and Wloclawek
- **PKN ORLEN is the biggest natural gas consumer** in Poland and active participant in **natural gas market liberalization**

... particularly in natural gas-fired power generation.

- **Natural gas as a low-emission fuel for the future** allowing to achieve climate policy goals
- **Essential element of energy system** considering unstable renewable energy sources

Share of natural gas in demand for energy in EU, 1995- 2025 [%]

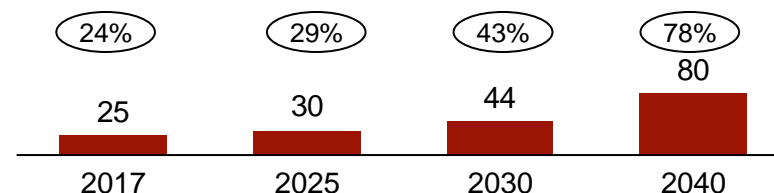


Source: PKN Orlen

... together with favourable perspectives for the energy market ...

- **Increase in electricity demand** not addressed by new projects in Poland
- **Increasing supply-demand gap** resulting from closures of old units

Plans for block closures
block as a % of total, 2012-2040



Best localizations and synergies of natural gas-fired power generation with other segments



ORLEN

Value creation levers

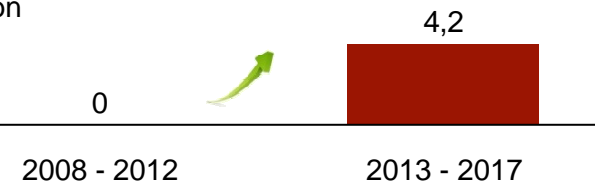
Solid business case of natural gas power plant in Wloclawek ...

- **Cogeneration** ensures high yearly average utilization and access to energy certificates subsidies
- **Energy consumption** by Group companies without distribution costs
- **Location** near natural gas pipeline (Gaz System) and energy network (PSE Operator)
- **Cost synergies** due to existing additional infrastructure

... supports strong development in the Energy Segment ...

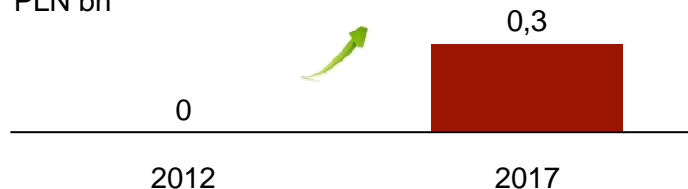
- **Base CAPEX PLN 1,8 bn:** including mainly construction of CCGT plant in Wloclawek
- **Accelerated CAPEX PLN 2,4 bn:** dedicated for CCGT in Plock, power plant in Litvinov and renewables – depending on final parameters of above mentioned projects and financial standing

CAPEX in energy segment
PLN bn



... and will secure stable cash flows just from 2016.

EBITDA LIFO
PLN bn



**High efficiency power generation
based on natural gas**



Source: PKN Orlen

ORLEN

Agenda

Our strategy

➤ **Our philosophy**

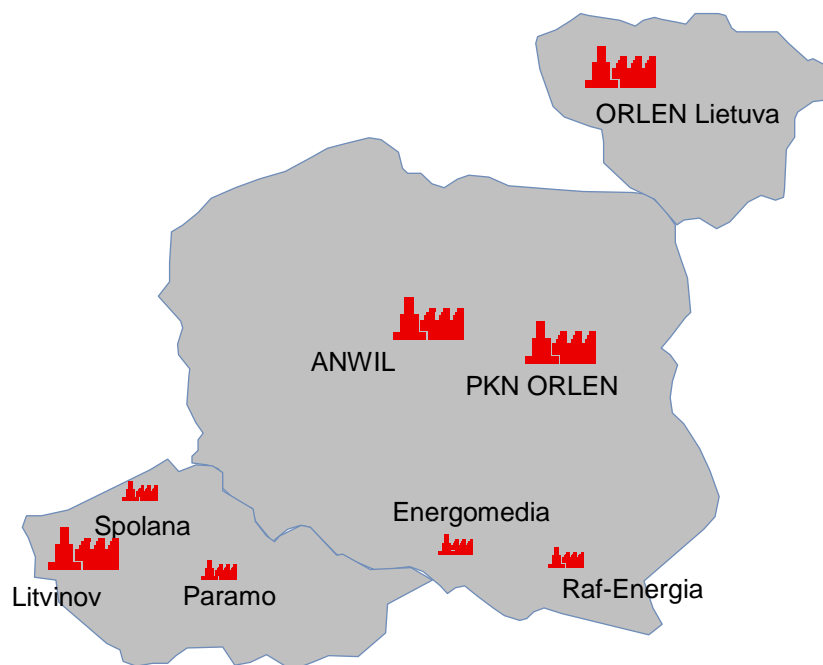
Our projects






ORLEN

PKN ORLEN has considerable experience in industrial power generation

Power generation assets, 2013



Total electric: 1340 MWe
Total thermal: 5271 MWt





Country	Assets
 Lithuania	ORLEN Lietuva ➤ Capacity: 160 MWe / 480 MWt ➤ Fuel: Heavy fuel oil
 Poland	EC Anwil / CCGT Włocławek ➤ Capacity Anwil: 125 MWe / 714 MWt ➤ Capacity CCGT: 463 MWe / 360 MWt ➤ Fuel: Heavy fuel oil, natural gas PKN ORLEN ➤ Capacity: 345 MWe / 2150 MWt ➤ Fuel: Vacuum residue, natural gas Energomedia ➤ Capacity: 5 MWe / 82 MWt ➤ Fuel: Heavy fuel oil, coal Raf-Energia ➤ Capacity: 3 MWe / 61 MWt ➤ Fuel: Heavy fuel oil, natural gas
 Czech Republic	Paramo ➤ Capacity: 3 MWe / 118 MWt ➤ Fuel: Heavy fuel oil Litvinov ➤ Capacity: 159 MWe / 753 MWt ➤ Fuel: Lignite Spolana ➤ Capacity: 77 MWe / 553 MWt ➤ Fuel: Lignite, heavy fuel oil



Source: PKN Orlen

ORLEN

Since 2009 we have been consistent in achieving milestones of our energy segment development roadmap

	Key missions to be accomplished	Status
New capacity	<ul style="list-style-type: none">➤ Contractor selection for the construction of CCGT Wloclawek➤ Start of construction works	
Existing assets	<ul style="list-style-type: none">➤ Preparing to upgrade existing assets (CHP Plock, OL, Litvinov) in order to meet IED 2016	
Operational excellence	<ul style="list-style-type: none">➤ Implementation of TPA for ORLEN Group (including retail)➤ Contracting natural gas from alternative suppliers	
Off-shore	<ul style="list-style-type: none">➤ Pre-development stage of up to 1200 MWe in offshore wind farms	

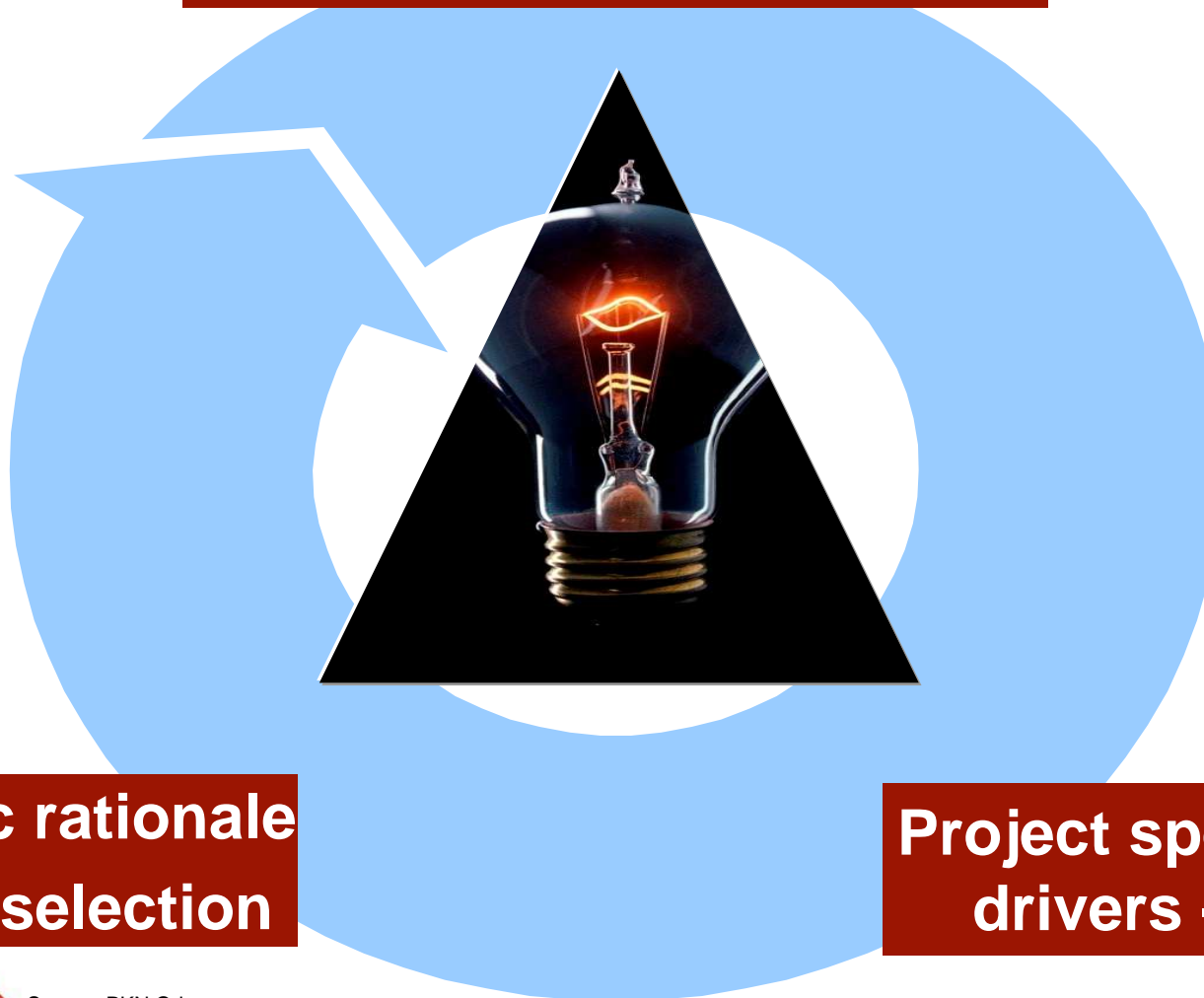


Source: PKN Orlen

ORLEN

We have prudent approach to project selection

Market outlook - *external*



**Strategic rationale
for fuel selection**

**Project specific value
drivers - *internal***



Source: PKN Orlen

ORLEN

Our Energy Strategy is based on synergies with other segments



DOWNSTREAM



NATURAL GAS



ENERGY

- **Experience** in industrial CHP
- **Own locations** with infrastructure
- **Stable demand** for steam and electricity

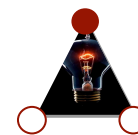
- One of the **biggest natural gas consumers** on Polish market
- **Active** in project of **liberalization** of natural gas market
- Future **synergies** in case of production of own natural gas

INDUSTRIAL COGENERATION PROJECTS

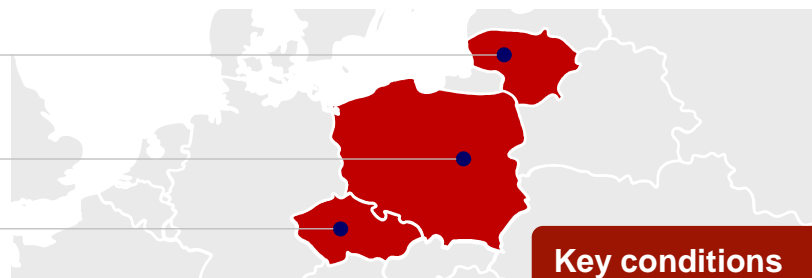


Source: PKN Orlen

ORLEN



Our focus is on Polish market



Key conditions

- Possible shortfall in available generation capacity
- Planned extension of cogeneration support systems
- Own localizations allowing for stable off-take of electric energy and heat



- Planned extension of petrochemical capacity
- Own locations enabling stable off-take of electric energy and heat
- Grid constraints in own locations



- Unpredictable electricity market
- Currently no access to EU natural gas market
- Sufficient levels of existing generation capacity

Conclusions

- Promising and growing market
- Significant potential especially for natural gas cogeneration

- Attractive market, but hard to enter
- Focus on own needs and effectiveness improvement

- No market premises to be involved in new generation capacity
- Future situation dependent on natural gas/electric energy market outlook

Source: PKN Orlen

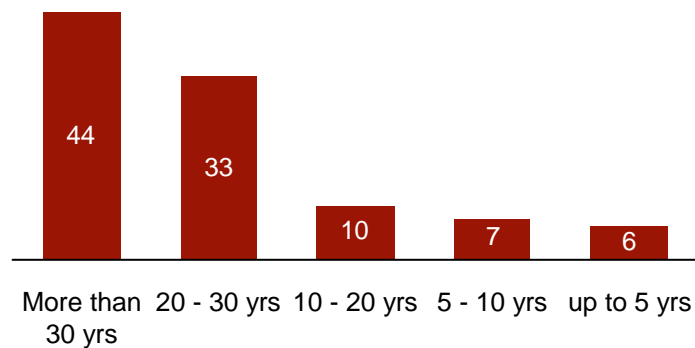


Polish power generating assets are aging...

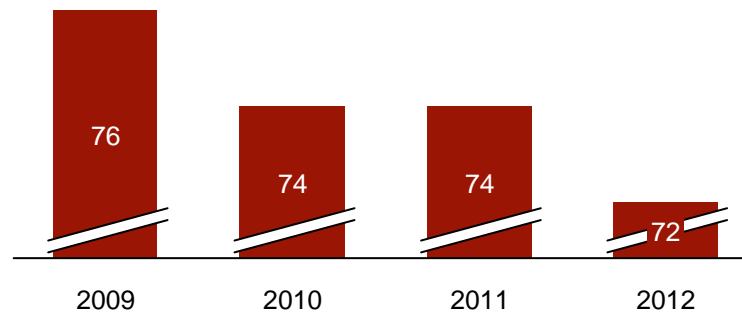


External
factors

Installed capacity age structure
(%)



Available-to-installed capacity
ratio (%)



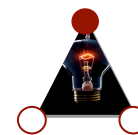
Decrease in *available-to-installed* capacity ratio indicates depreciation of power generation assets and the need for their restoration



Source: ARE, PSE

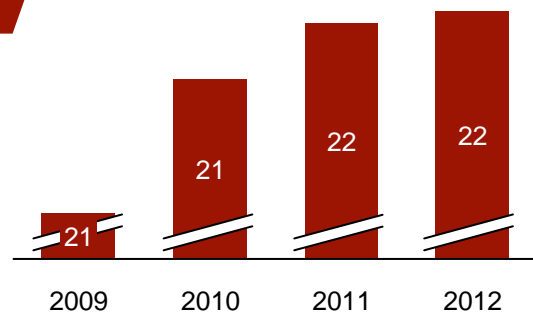
ORLEN

... yet, the exact 'supply gap' is difficult to predict

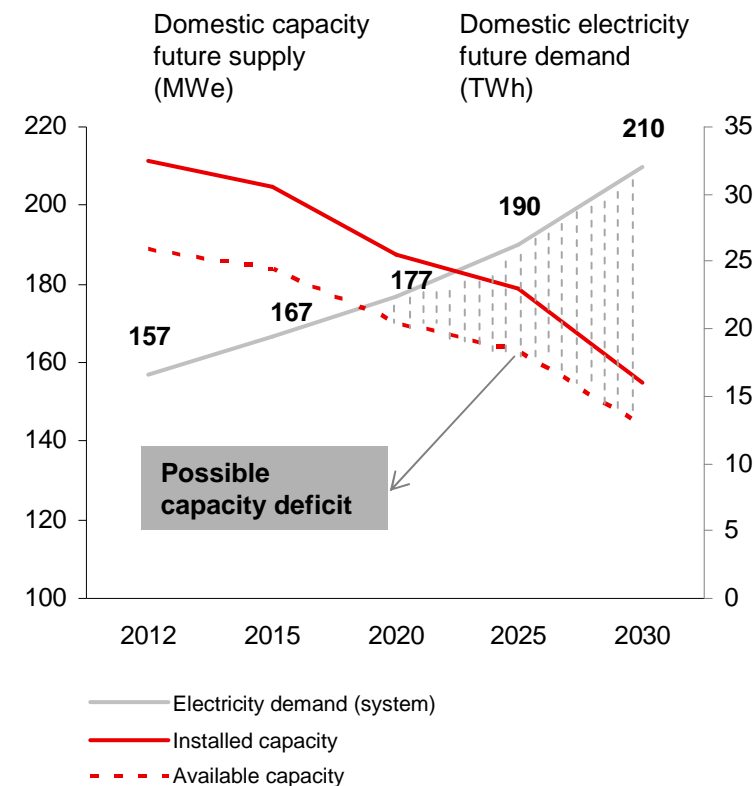
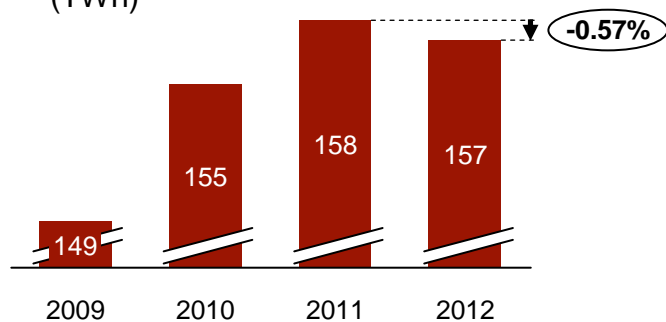


External factors

Capacity need in Poland (GWe)



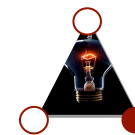
Annual demand for electricity in Poland (TWh)



Source: ARE, PSE

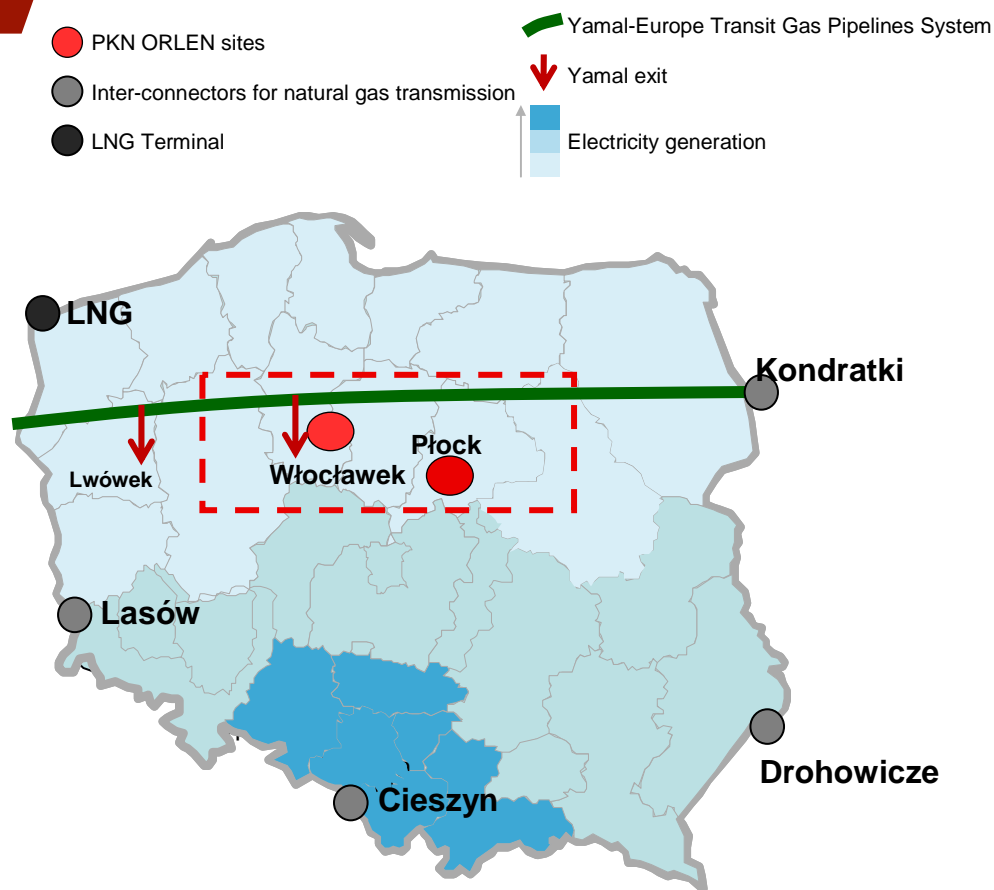
ORLEN

Our own locations allow fast, low cost project development



Internal factors

PKN Orlen's assets and energy map of Poland, 2012



- Locations with access to natural gas pipelines (Gas System) and grid connections (PSE)
- Locations in Northern Poland – area with weak power generation
- Existing infrastructure (water, waste etc.)
- Internal customers for electricity and steam



Source: PKN Orlen

ORLEN

Direct off-take of electricity and steam is the biggest competitive advantage of our projects



Internal factors

- Cogeneration **significantly improves** overall plant efficiency
- **Predictable work** regime driven by **stable steam demand**
- Cogeneration plants have **priority access** to the grid
- Own electricity production **reduces** network distribution **costs**
- An **increase in security** of heat & electricity supply for the PKN installations
- Planned extension of **support system** (yellow, orange certificates)



Source: PKN Orlen

ORLEN

Natural gas is fuel of choice for PKN ORLEN's new projects



Coal / Lignite

- No coal mining in CG ORLEN
- High costs of transportation
- No synergy with own natural gas production
- High CO₂ emission exposure
- High CAPEX/MW for new plants
- Long investment phase period



Natural Gas

- Strategic fuel for PKN ORLEN
- Synergy with today consumption and future upstream
- High flexibility of CCGT plants
- Low CO₂ emission
- Access to natural gas transmission infrastructure
- Short investment phase period
- Low CAPEX/MW (over 2 times lower than coal)



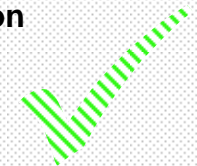
Nuclear power

- High CAPEX/MW
- Medium social acceptance in Poland and low in EU
- Very long investment phase period
- Zero CO₂ emission
- High capacity use factor – around 8'000 h/year vs 4'000 h/year for MEW
- Low variable costs (including fuel costs)



Renewables - Offshore

- High CAPEX/MW
- Zero CO₂ emission
- Long development / short construction
- Technology with a potential to grow
- Support system required
- Grid constraints



Source: PKN Orlen

ORLEN

Focus on industrial co-generation projects

Moderate market outlook

- Conservative approach to growing demand for available capacity
- Cautious approach to support systems
- No influence of shale gas in fuel pricing

Strategic rationale for fuel selection

- Approach to fuel selection from the long-term market perspective
- Natural gas as a fuel of choice
- Possible upside if own natural gas production materializes

Solid project assumptions

- Leverage of own locations
- Cogeneration plants
- Guaranteed off-take for min. 50% of energy produced



Source: PKN Orlen

ORLEN

Agenda

Our strategy

Our philosophy

➤ **Our projects**

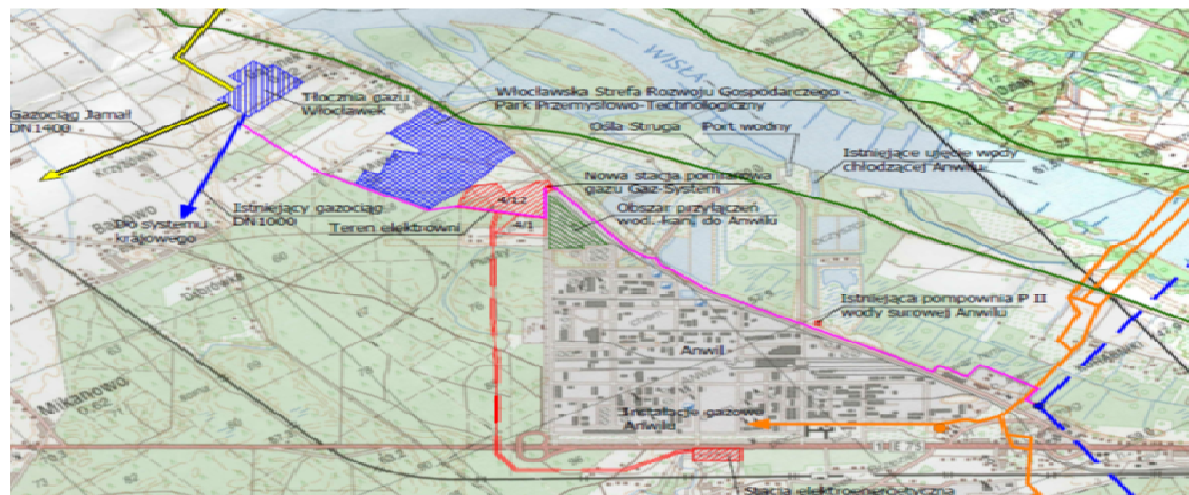


ORLEN

Włocławek – highly efficient CCGT plant...

Technical assumptions

- Plant will replace the old Anwil's CHP
- Power output: 463 MWe (condensing mode)
- Average overall plant efficiency: ~70%*
- High flexibility of the production – between 170 MWe and 463 MWe
- Commissioning date – December 2015
- Close to Gas System and PSE



*Over the lifetime of plant
Source: PKN Orlen



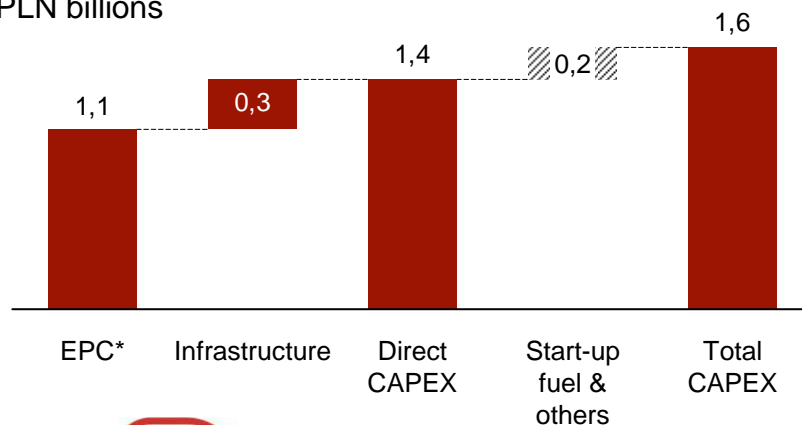
ORLEN

...with a solid business case

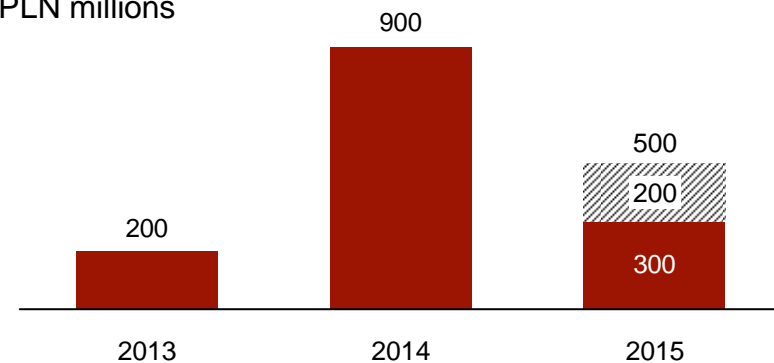
Business assumptions

- Contractor: Consortium General Electric & SNC Lavalin
- 50% of electricity production consumed internally
- 100% of steam consumed internally
- Auto-producer benefits – avoided costs of certificates and optimized network distribution costs of electricity delivered to Anwil and PTA
- Low EPC* cost – 570 kEUR / MWe
- Signed Long Term Service Agreement for maintenance of gas turbine

CAPEX 2013-2017
PLN billions



CAPEX 2013-2017
PLN millions

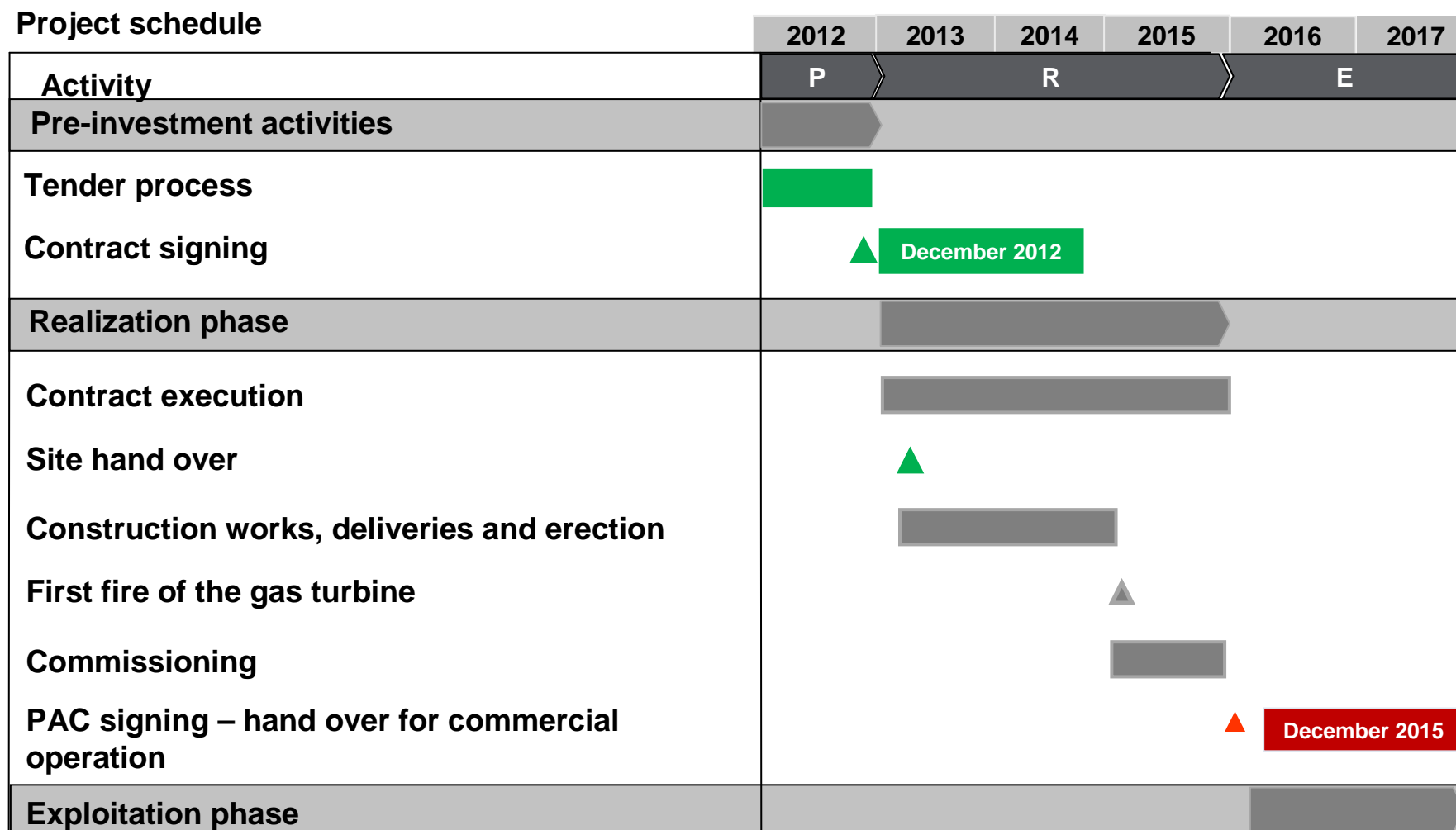


*EPC - Engineering, Procurement and Construction
Source: PKN Orlen



ORLEN

Plant will be commissioned in December 2015









P – Pre-investment activities, R – Realization phase, E – Exploitation phase

Source: PKN Orlen



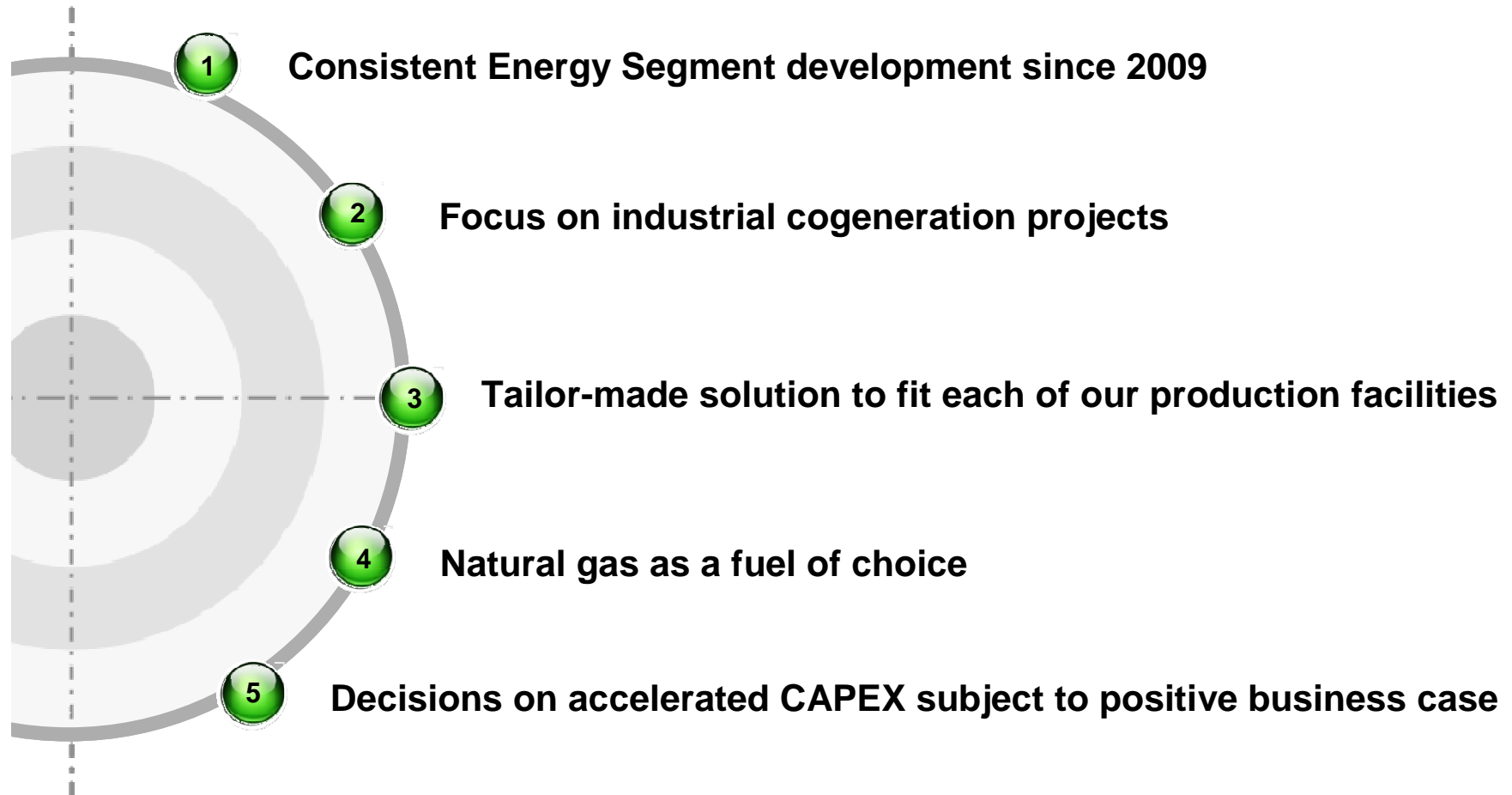
ORLEN

Projects from *accelerated capex* list are at the development stage

		Description	Status	FID*
	Litvinov T700 (lignite)	➤ Planned extension of operation – minimum investment required	➤ Preparation of detailed scope of modernization	-
	ORLEN Lietuva (HFO, raf. gas)	➤ Planned extension of operation – minimum investment required	➤ Preparation of detailed scope of modernization	-
	Trzebinia (coal)	➤ Modernization or new CHP	➤ Technical feasibility study	2014
	Płock CCGT	➤ 450-600 MWe CCGT unit in Płock	➤ Planned tender	2014
	Litvinov CCGT	➤ ~100 MWe CCGT unit	➤ Technical feasibility study	2015
	Off-shore	➤ Up to 1200MW wind farm	➤ Secured location	2017+

* FID – Final Investment Decision
Source: PKN Orlen

Key highlights



Source: PKN Orlen

ORLEN

Disclaimer

This presentation ("Presentation") has been prepared by PKN ORLEN S.A. ("PKN ORLEN" or "Company"). Neither the Presentation nor any copy hereof may be copied, distributed or delivered directly or indirectly to any person for any purpose without PKN ORLEN's knowledge and consent. Copying, mailing, distribution or delivery of this Presentation to any person in some jurisdictions may be subject to certain legal restrictions, and persons who may or have received this Presentation should familiarize themselves with any such restrictions and abide by them. Failure to observe such restrictions may be deemed an infringement of applicable laws.

This Presentation contains neither a complete nor a comprehensive financial or commercial analysis of PKN ORLEN and of the ORLEN Group, nor does it present its position or prospects in a complete or comprehensive manner. PKN ORLEN has prepared the Presentation with due care, however certain inconsistencies or omissions might have appeared in it. Therefore it is recommended that any person who intends to undertake any investment decision regarding any security issued by PKN ORLEN or its subsidiaries shall only rely on information released as an official communication by PKN ORLEN in accordance with the legal and regulatory provisions that are binding for PKN ORLEN.

The Presentation, as well as the attached slides and descriptions thereof may and do contain forward-looking statements. However, such statements must not be understood as PKN ORLEN's assurances or projections concerning future expected results of PKN ORLEN or companies of the ORLEN Group. The Presentation is not and shall not be understood as a forecast of future results of PKN ORLEN as well as of the ORLEN Group.

It should be also noted that forward-looking statements, including statements relating to expectations regarding the future financial results give no guarantee or assurance that such results will be achieved. The Management Board's expectations are based on present knowledge, awareness and/or views of PKN ORLEN's Management Board's members and are dependent on a number of factors, which may cause that the actual results that will be achieved by PKN ORLEN may differ materially from those discussed in the document. Many such factors are beyond the present knowledge, awareness and/or control of the Company, or cannot be predicted by it.

No warranties or representations can be made as to the comprehensiveness or reliability of the information contained in this Presentation. Neither PKN ORLEN nor its directors, managers, advisers or representatives of such persons shall bear any liability that might arise in connection with any use of this Presentation. Furthermore, no information contained herein constitutes an obligation or representation of PKN ORLEN, its managers or directors, its Shareholders, subsidiary undertakings, advisers or representatives of such persons.

This Presentation was prepared for information purposes only and is neither a purchase or sale offer, nor a solicitation of an offer to purchase or sell any securities or financial instruments or an invitation to participate in any commercial venture. This Presentation is neither an offer nor an invitation to purchase or subscribe for any securities in any jurisdiction and no statements contained herein may serve as a basis for any agreement, commitment or investment decision, or may be relied upon in connection with any agreement, commitment or investment decision.



Thank you for your attention



www.orken.pl

For further information please contact PKN ORLEN's Investors Relation Office:

telephone: + 48 24 256 81 80

fax: + 48 24 367 77 11

e-mail: ir@orken.pl

