

POLAND



MINISTRY
OF THE ENVIRONMENT



Polish Geological Institute
National Research Institute



National Fund
for Environmental Protection
and Water Management



OIL AND GAS IN POLAND

LICENSING ROUNDS, TENDER BLOCKS, INFORMATION AND OPPORTUNITIES IN 2019

MARCIN **JANAS**¹

GRZEGORZ **JAGIELSKI**²

MARTA **FIJOREK**²

AGATA **KASIŃSKA**²

EWELINA **KRZYŻAK**¹

JOANNA **ROSZKOWSKA-REMIN**¹

ŁUKASZ **SMAJDOR**¹

MARCIN **WESOŁOWSKI**²

KRYSTIAN **WÓJCIK**¹

1. Polish Geological Institute – National Research Institute
2. Ministry of the Environment

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OIL AND GAS IN POLAND

5 TENDER BLOCKS

LICENSING ROUND
INFORMATION AND
OPPORTUNITIES
2019



TENDER PROCEDURE

E&P COMPANY NEEDS TO UNDERGO THE QUALIFICATION PROCEDURE

SELECTION OF THE TENDER AREAS

by the Ministry of the Environment and the PGI-NRI

PREPARATION OF THE TENDER AREA INFORMATION PACKAGES

by the PGI-NRI and the Ministry of the Environment

REQUIREMENTS IN THE CASE OF AN ONSHORE TENDER AREAS

- **approval** *by the Ministry of Energy*
- **opinion** *of the Head of the local administration by the Ministry of the Environment*

PUBLICATION OF A TENDER NOTICE IN THE OFFICIAL JOURNAL OF EU

by the Ministry of the Environment

TIME FOR PREPARATION AND SUBMISSION OF AN OFFER

EVALUATION AND SELECTION OF THE MOST FAVOURABLE OFFER

by the Ministry of the Environment

THE GRANTING OF A CONCESSION, ESTABLISHMENT OF THE MINING USUFRUCT

by the Ministry of the Environment

TIME TO EXPLORE!

HOW TO GET THE LICENSE IN POLAND?

OPEN DOOR PROCEDURE

E&P COMPANY NEEDS TO UNDERGO THE QUALIFICATION PROCEDURE

SUBMISSION OF A CONCESSION AREA AND EXPLORATION WORKS OFFER

ANNOUNCEMENT OF THE CONCESSION AREA OFFER

IN THE OFFICIAL JOURNAL OF EU

by the Ministry of the Environment

TIME FOR PREPARATION AND SUBMISSION OF A POSSIBLE COMPETITIVE OFFERS

EVALUATION AND SELECTION OF THE MOST FAVOURABLE OFFER

by the Ministry of the Environment

REQUIREMENTS IN THE CASE OF AN ONSHORE CONCESSION AREAS

- **approval** *by the Ministry of Energy*
- **opinion** *of the Head of the local administration by the Ministry of the Environment*

REQUIREMENTS IN THE CASE OF AN OFFSHORE CONCESSION AREAS

- **different approvals required**

THE GRANTING OF A CONCESSION, ESTABLISHMENT OF THE MINING USUFRUCT

by the Ministry of the Environment

TIME TO EXPLORE!

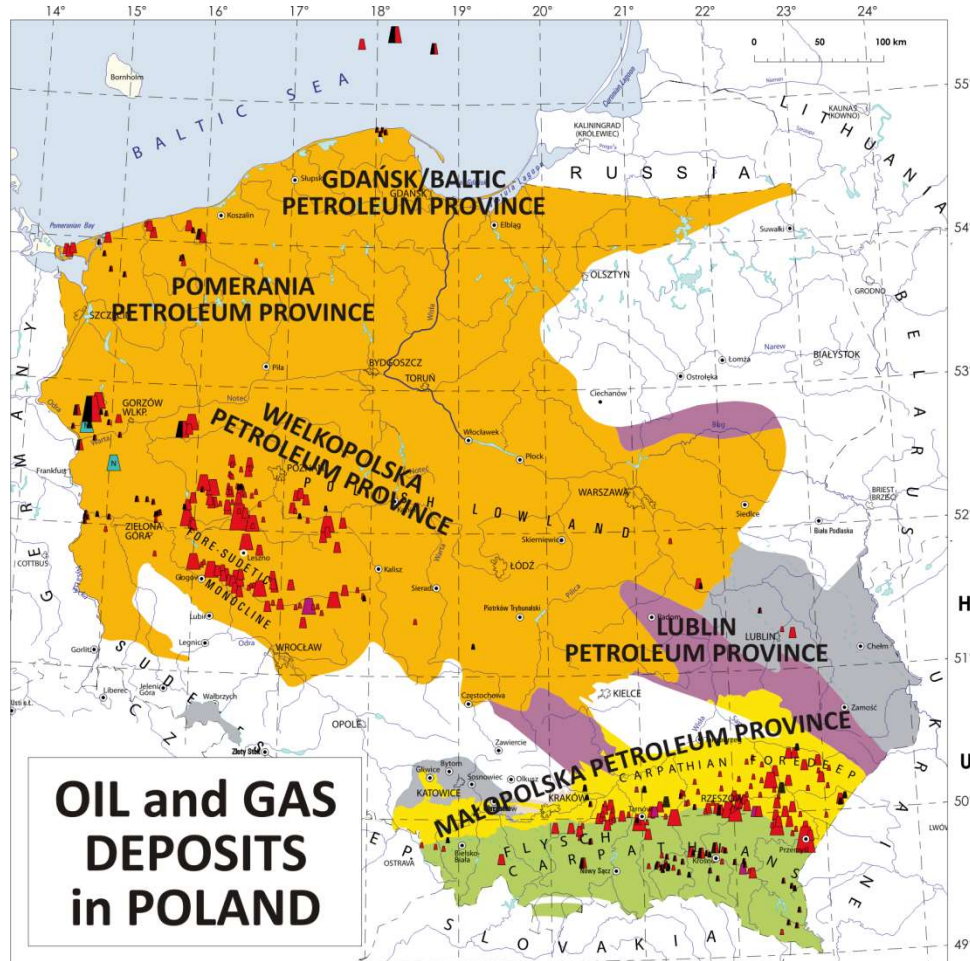


OIL AND GAS IN POLAND – RESOURCES, DEPOSITS, PRODUCTION AND DEMAND





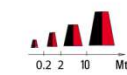
OIL AND GAS IN POLAND – RESOURCES, DEPOSITS, PRODUCTION AND DEMAND



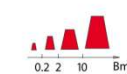
RESOURCES:



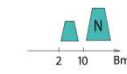
Oil reservoirs



Oil and gas reservoirs



Gas reservoirs



High-nitrogen natural gas reservoirs



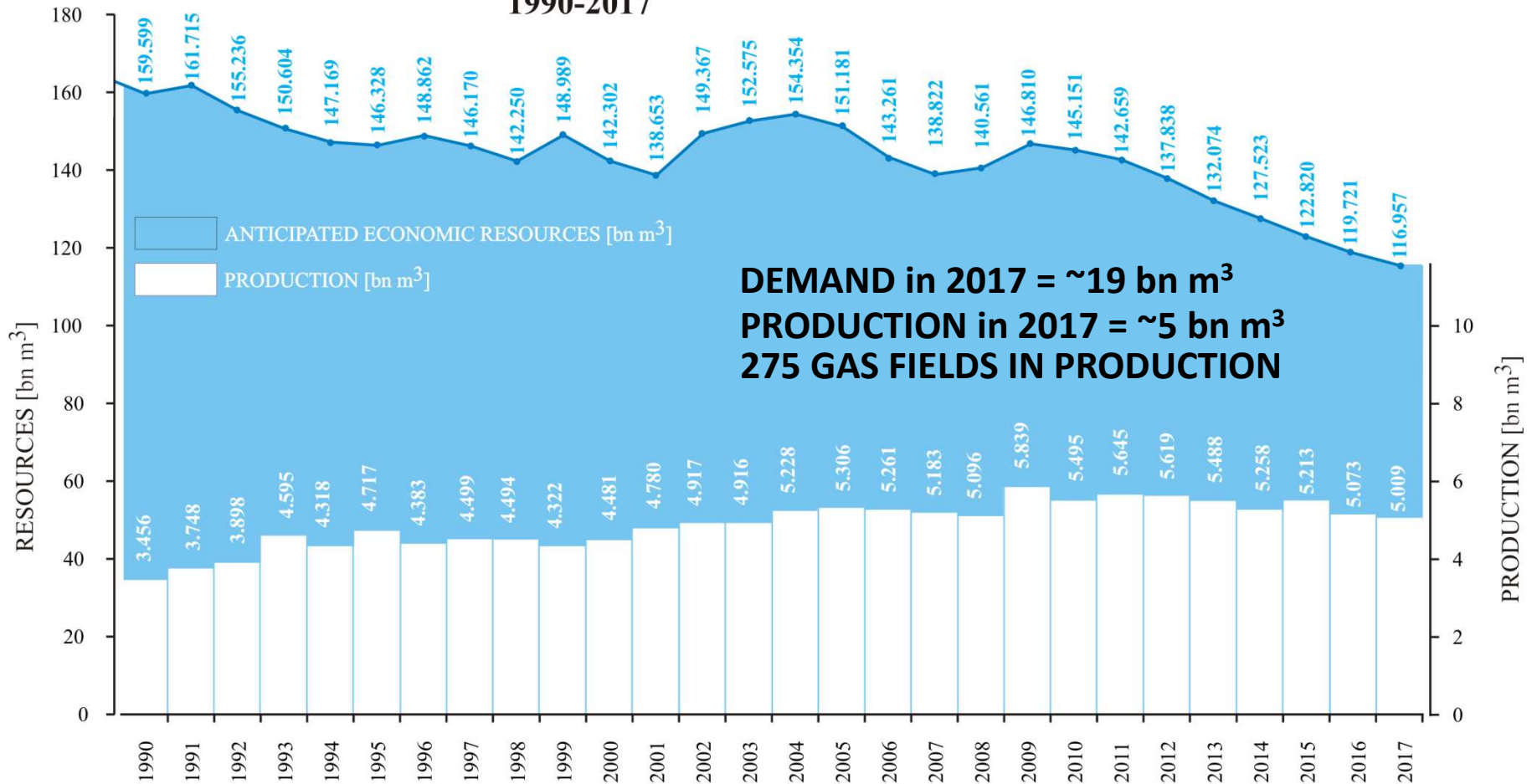
Underground gas storage

- Oil- and gas-bearing rocks of the Carpathian foredeep
- Oil- and gas-bearing rocks of the flysch Carpathians
- Permian (Zechstein & Rotliegend)
- Carboniferous oil- and gas-bearing formations
- Pre-Carboniferous oil- and gas bearing formations
- Areas without prospective oil and gas occurrences



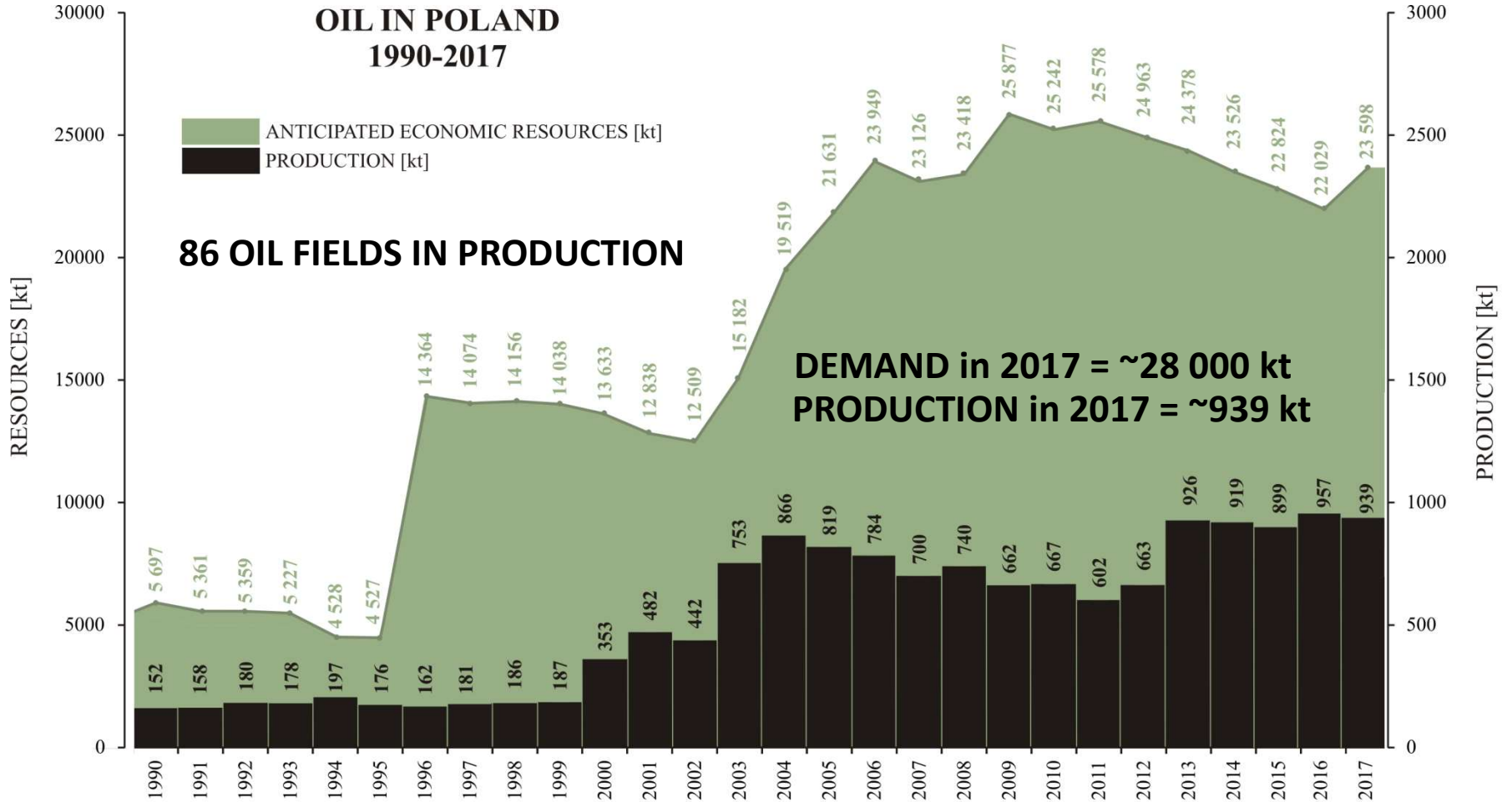
OIL AND GAS IN POLAND – RESOURCES, DEPOSITS, PRODUCTION AND DEMAND

GAS IN POLAND 1990-2017



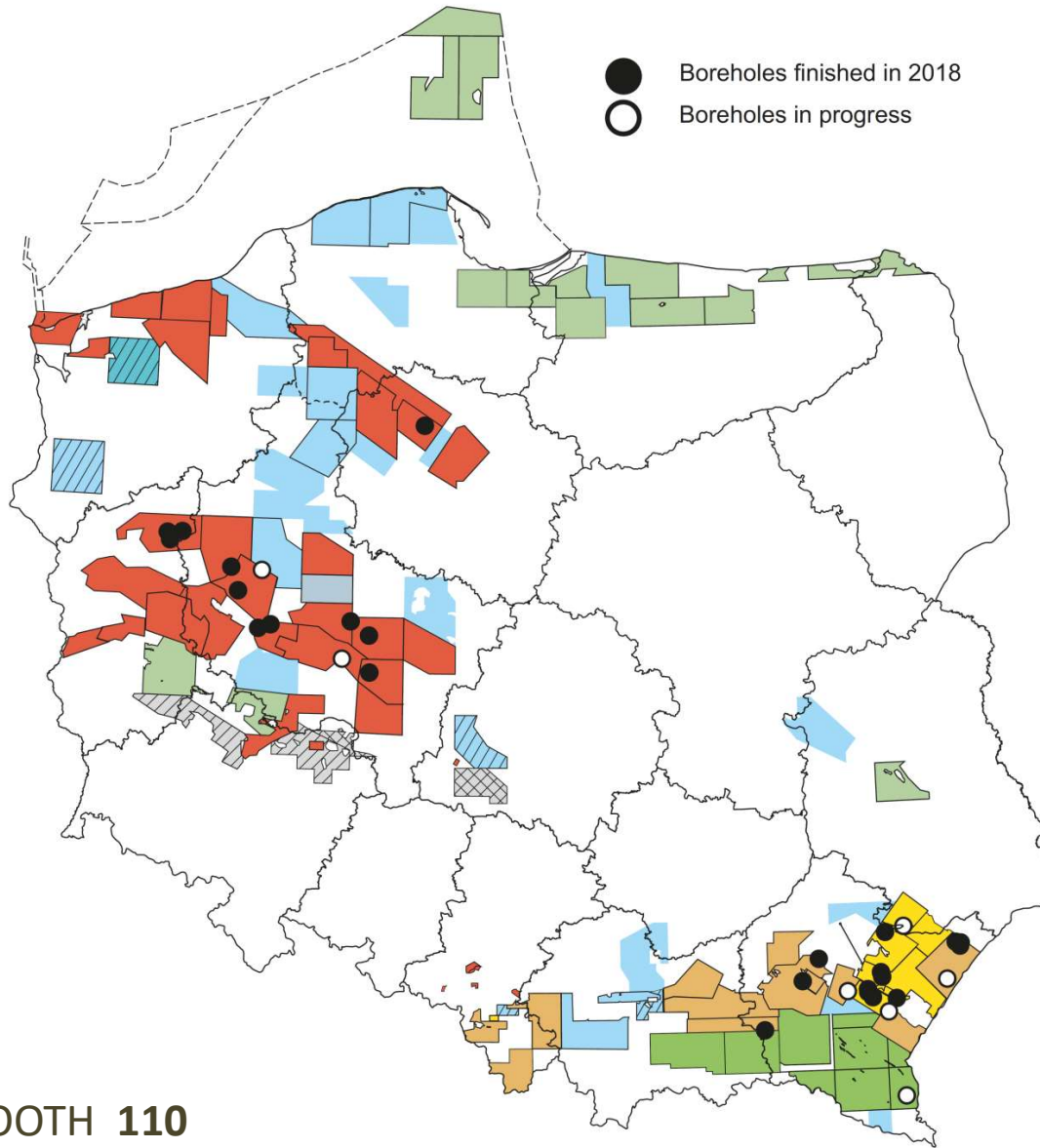


OIL AND GAS IN POLAND – RESOURCES, DEPOSITS, PRODUCTION AND DEMAND





OIL AND GAS IN POLAND – CURRENT WORKS



● Boreholes finished in 2018
○ Boreholes in progress

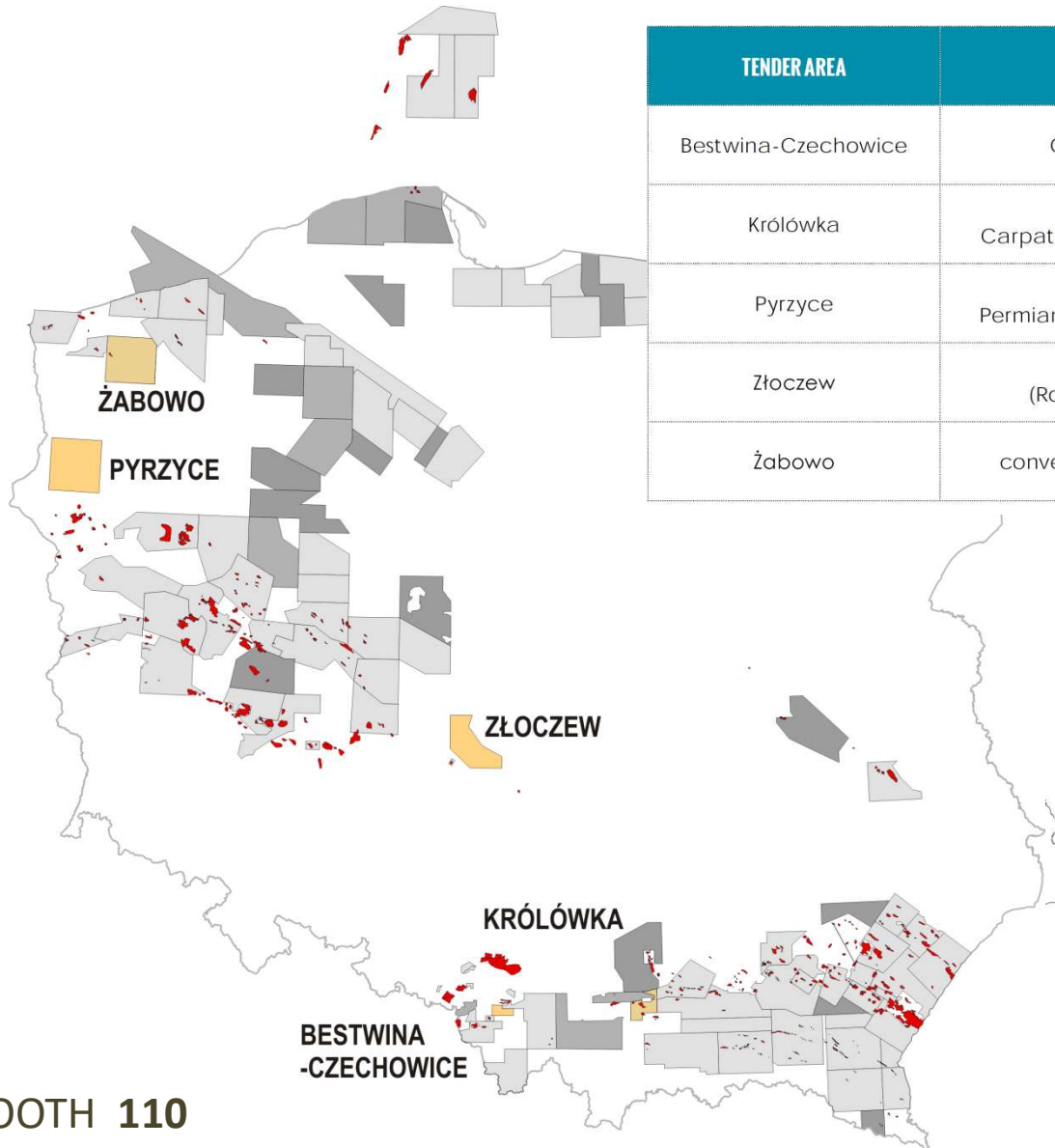
24 BOREHOLES FINISHED
7 BOREHOLES IN PROGRESS
as of 31-01-2019

- LOWER PALEOZOIC OR PALEOZOIC AND MESOZOIC
- UPPER PALEOZOIC
- UPPER PALEOZOIC OR PALEOZOIC AND MESOZOIC
- MIOCENE (CARPATHIAN FOREDEEP)
- CARPATHIAN BASEMENT
- CARPATHIAN FLYSCH
- AP. FOR HYDROCARBON CONCESSIONS
- TENDER AREAS (II, III rounds)
- TENDER AREAS (IV round)

MAP OF HYDROCARBON CONCESSIONS
DIVIDED ACCORDING TO THE EXPLORATORY
TARGET AS OF 31-01-2019



WHERE TO PROSPECT AND EXPLORE FOR HYDROCARBONS IN POLAND?



TENDER AREA	TARGET
Bestwina-Czechowice	conventional and unconventional/hybrid: Carpathian Foredeep, Carpathian Paleozoic basement (Devonian and Carboniferous)
Królówka	conventional and unconventional/hybrid: Carpathians, Carpathian Foredeep, Carpathian Paleozoic basement
Pyrzyce	conventional and unconventional: Permian (Rotliegend and Zechstein/Weissliegend and Main Dolomite)
Złoczew	conventional: Carboniferous and Permian (Rotliegend and Zechstein/Z. Limestone and Main Dolomite)
Żabowo	conventional: Permian (Rotliegend and Zechstein/Main Dolomite)

IVth LICENSING ROUND

5 TENDER AREAS

IV LICENSING ROUND

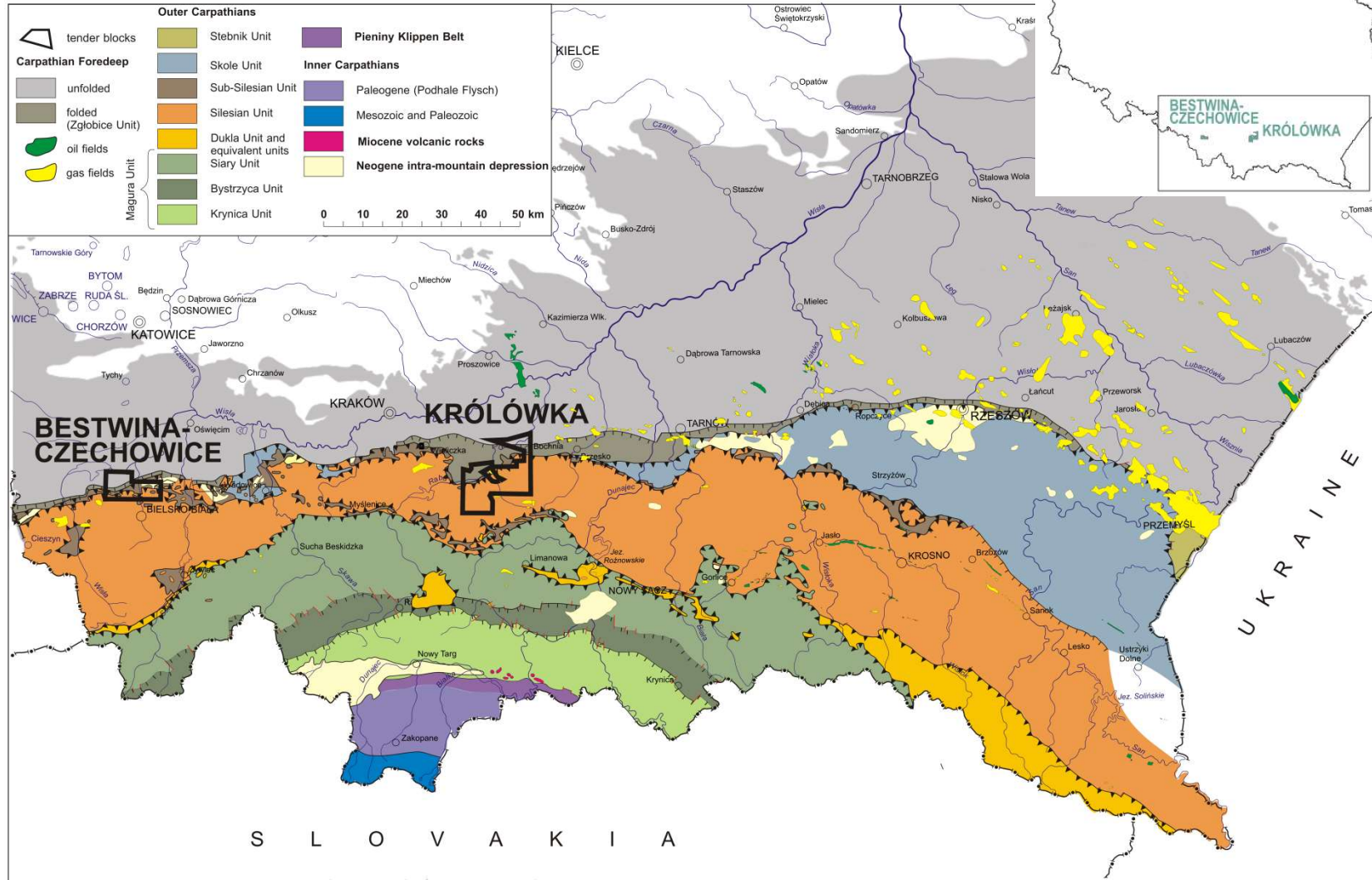
START: 2019/2020

NEW OPEN DOOR POLICY

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CARPATHIANS



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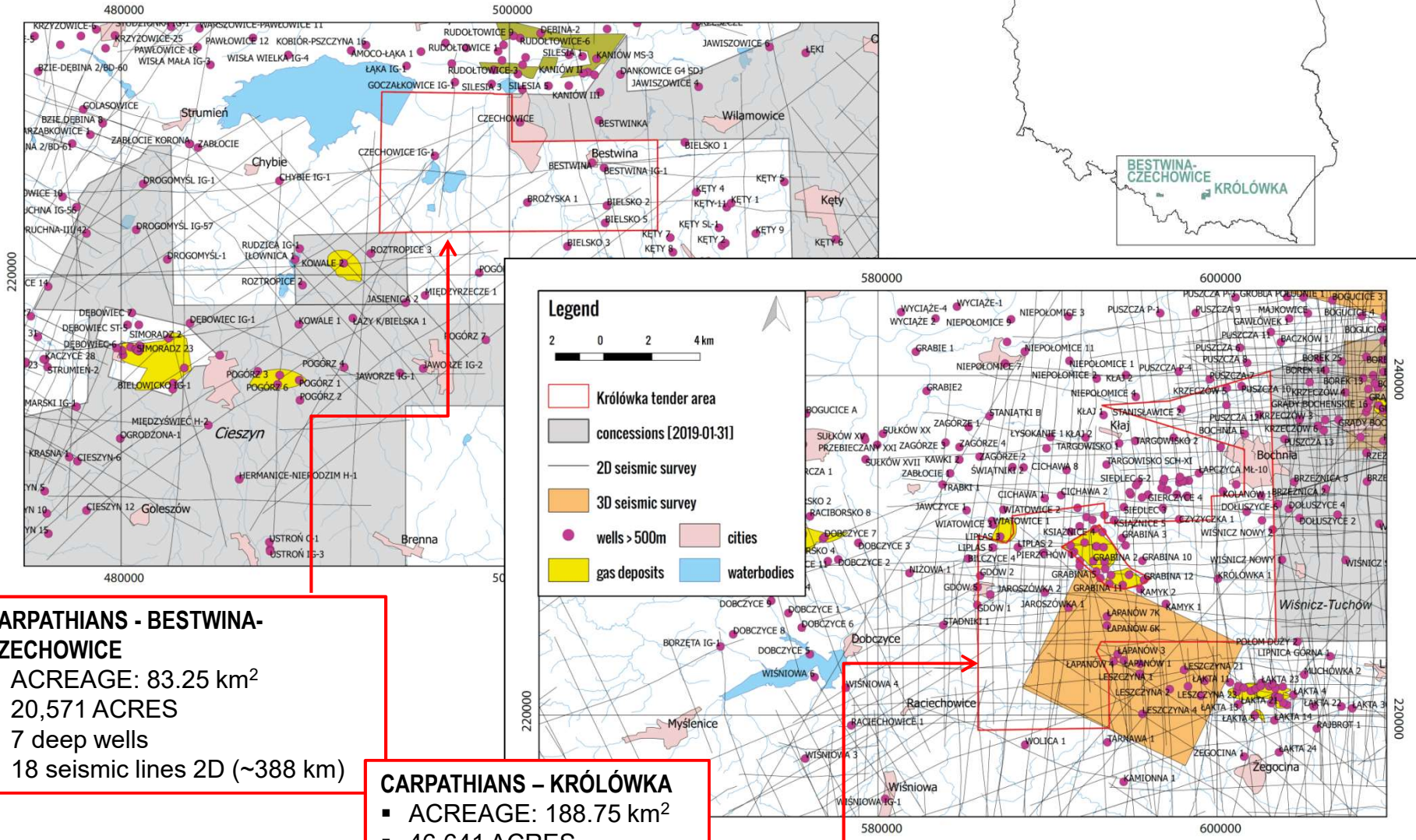
POPRAWA, P. 2010. RECONSTRUCTION OF THE PETROLEUM PLAYS IN OUTER CARPATHIANS. PGI-NRI, WARSAW.



CARPATHIANS



BESTWINA-CZECHOWICE
KRÓLÓWKA



CARPATHIANS - BESTWINA-CZECHOWICE

- ACREAGE: 83.25 km²
- 20,571 ACRES
- 7 deep wells
- 18 seismic lines 2D (~388 km)

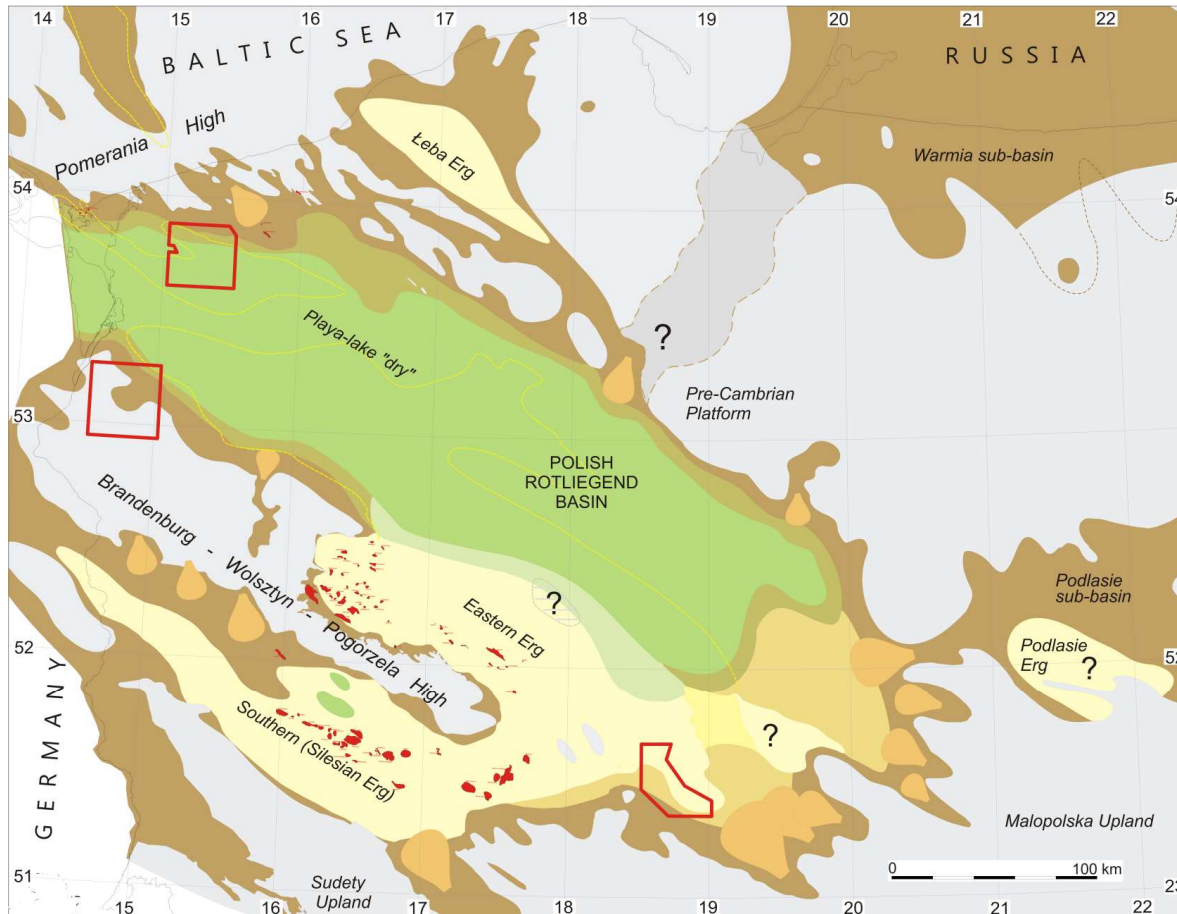
CARPATHIANS – KRÓLÓWKA

- ACREAGE: 188.75 km²
- 46,641 ACRES
- 52 deep wells
- 101 seismic lines 2D (~1437 km)
- 3D seismic survey

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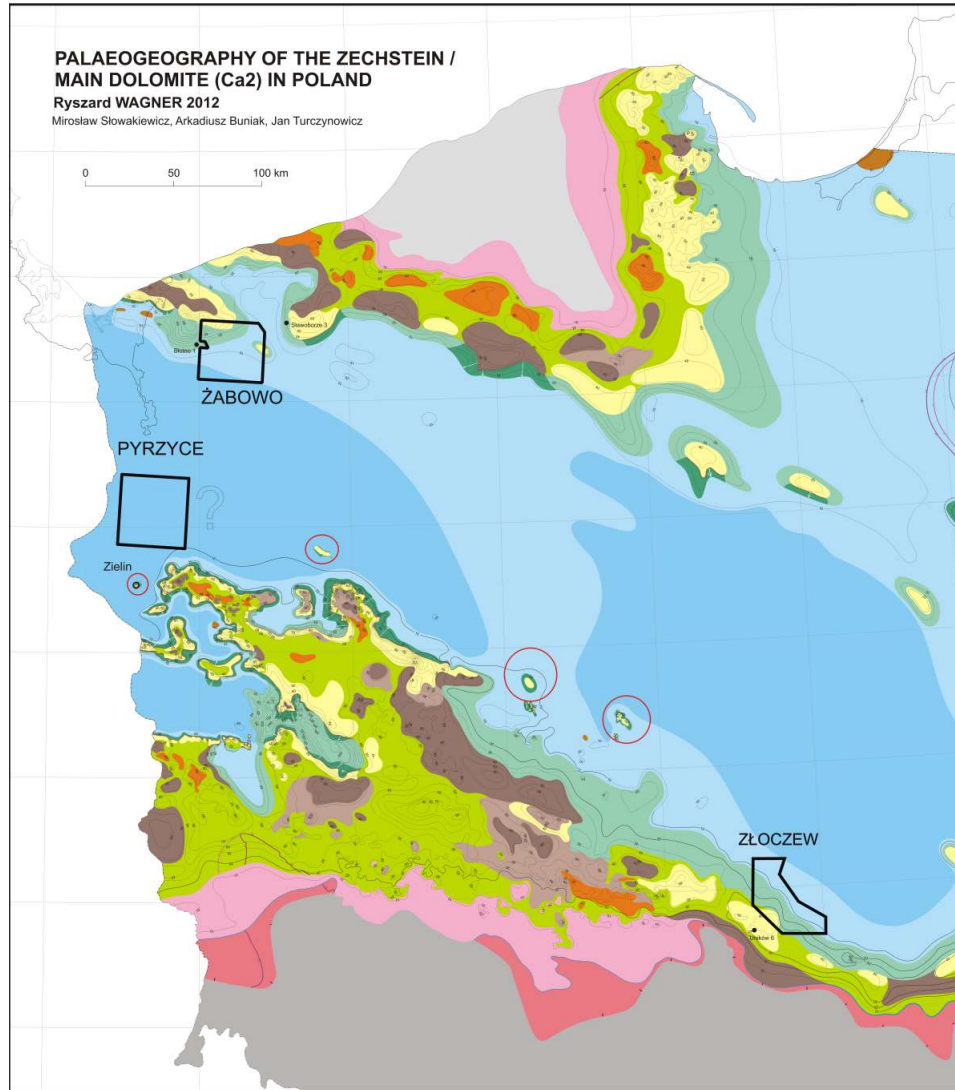
ROTLIEGEND SANDSTONES TARGET



- playa-lake mudstones, claystones and fine grained sandstones
 - playa-lake margin mudstones and fine grained sandstones interbedded with aeolian sandstones
 - alluvial and fluvial sandstones and mudstones interbedded with aeolian sandstones
 - aeolian dune and interdune sandstones
 - playa-lake margin mudstones and fine grained sandstones
 - alluvial fan and plain sandstones and conglomerates
- Source areas without Rotliegend sedimentary cover:**
- acc. H. Kiersnowski, 2010 (PIG - PIB)
 - tender area
 - gas deposits in Upper Rotligend



ZECHSTEIN – MAIN DOLOMITE TARGET



A. Land

- low-relief land
- hilly land
- presumed direction of terrigenous material transport

B. Platform/isolated carbonate platform (shallow shelf)

- carbonate platform
- ooid-oncoid shelf-edge barrier
- ooid-oncoid shoal within carbonate platform
- high-energy carbonate platform
- low-energy carbonate platform
- lagoon

C. Subaerial part of carbonate platform

- sulfate-carbonate sabkha
- sulfate-siliciclastic sabkha

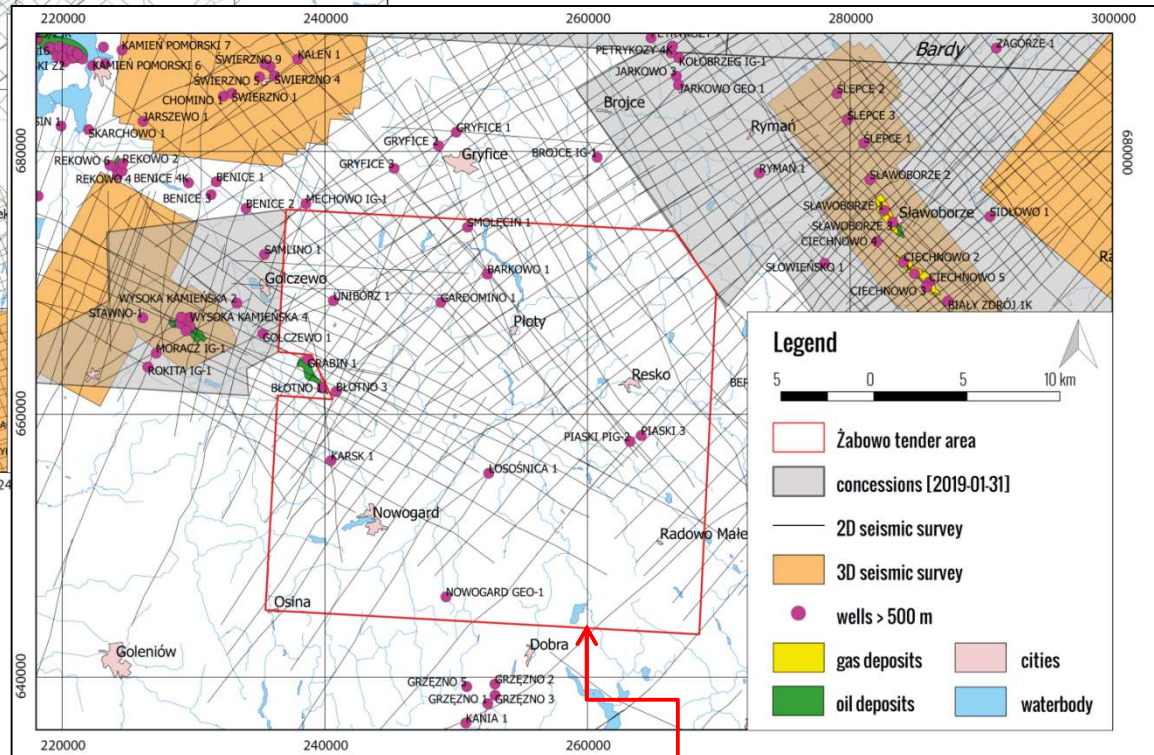
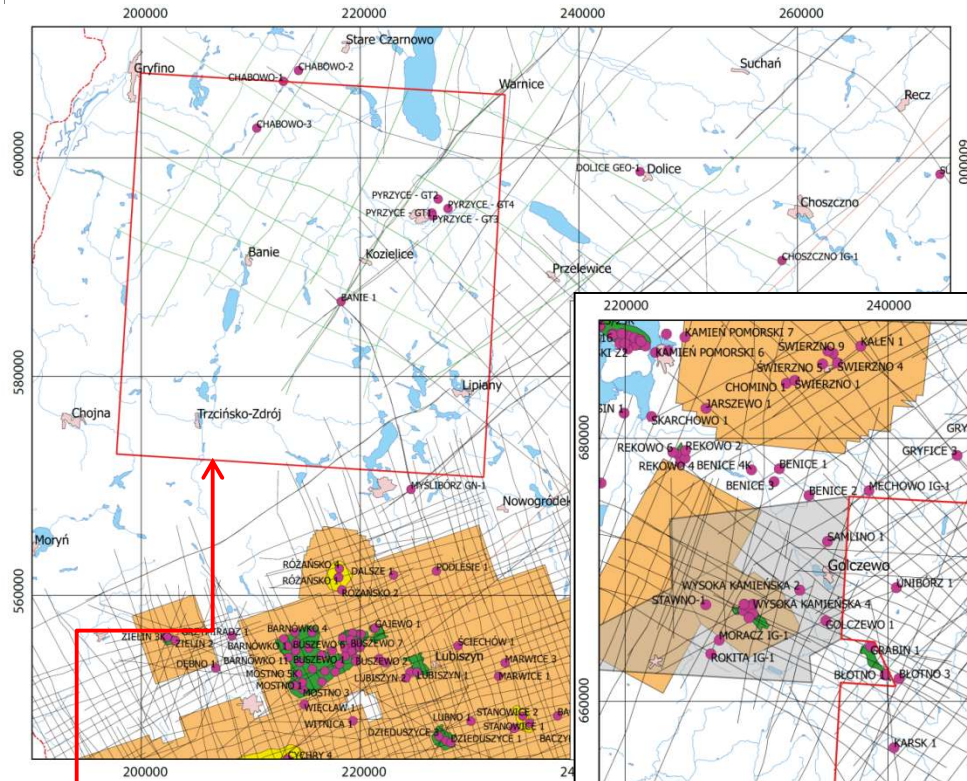
D. Slope of carbonate platform/ isolated carbonate platform

- gentle slope
- steep slope
- zone of gravity flows

E. Basin plain (deep shelf)

- shallow part
- deep part
- shoal
- carbonate platform edge
- palaeoizopachs in m
- pre-erosional range of Ca₂
- pre-erosional range of PZ2 cyclotheme
- range of complete erosion of Ca₂ and PZ2
- range of partial erosion of Ca₂

TENDER BLOCKS:



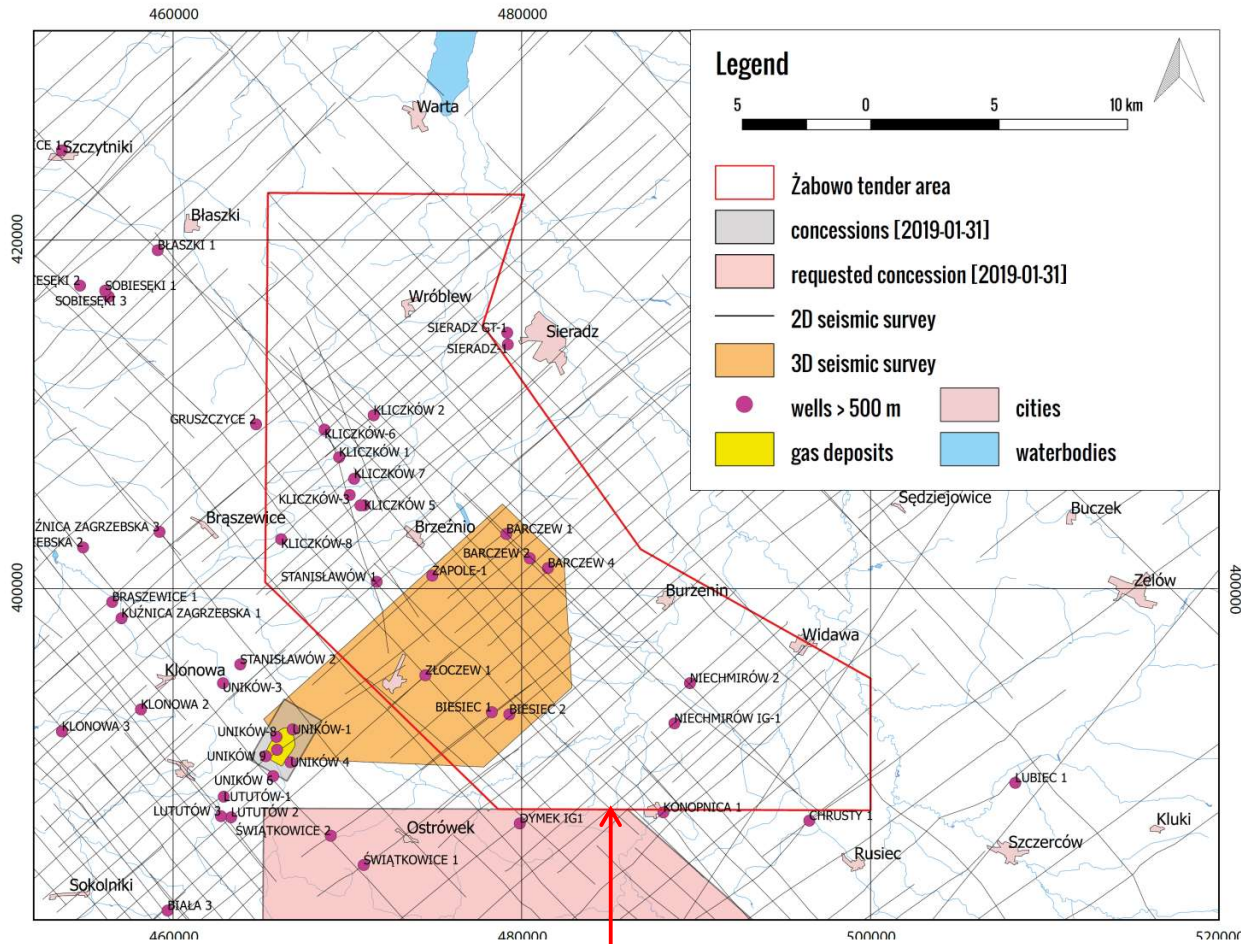
ROTLIEND AND ZECHSTEIN / MAIN DOLOMITE TARGET - PYRZYCE

- ACREAGE: 1172.72 km²
- 289,538 ACRES
- 21 deep wells
- 28 seismic lines 2D (~288 km)

ROTLIEND AND ZECHSTEIN / MAIN DOLOMITE TARGET- ŻABOWO

- ACREAGE: 990.32 km²
- 14 deep wells
- 99 seismic lines 2D (~1370 km)

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ROTLIEGEND AND ZECHSTEIN / MAIN DOLOMITE TARGET - ŻŁOCZEW

- ACREAGE: 702.48 km²
- 173,586 ACRES
- 23 deep wells
- 77 seismic lines 2D (~1039 km)
- 3D seismic survey (120 km²)



OIL AND GAS IN POLAND – OPPORTUNITIES

Lublewo LEP-1ST1H well:

Sasino Fm (Ordovician)
wet gas + condensate

AVG. 11013-14239 Nm³/d + 23 toe
(AVG. 396-512 MSCF/d + 157 b/d)

Łebień LE-2H well:

Sasino Fm (Ordovician)
wet gas

AVG. 8500-11124 Nm³/d
(AVG. 305-400 MSCF/d)

Gapowo B-1A well:

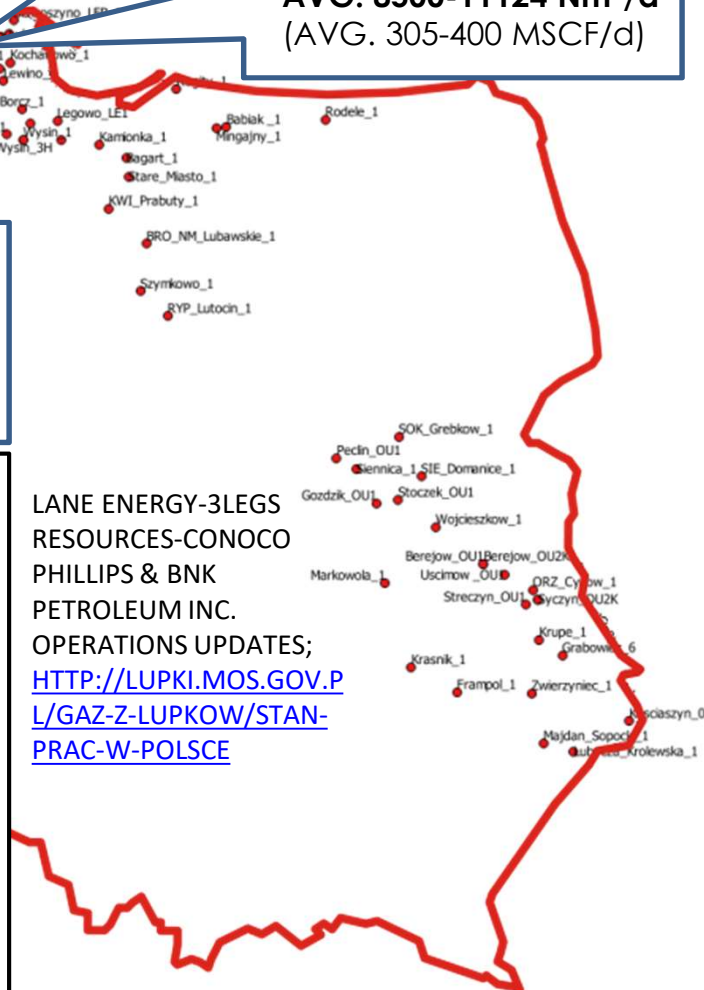
Jantar Mb (Silurian)
dry gas

AVG. 5562-11124 Nm³/d
(AVG. 200-400 MSCF/d)

**OPEN DOOR
FOR CONVENTIONAL
AND UNCONVENTIONAL
EXPLORATION
OPPORTUNITIES:**

- **SHALE OIL AND GAS**
- **TIGHT GAS**
- **CBM**

LANE ENERGY-3LEGS
RESOURCES-CONOCO
PHILLIPS & BNK
PETROLEUM INC.
OPERATIONS UPDATES;
[HTTP://LUPKI.MOS.GOV.PL/L/GAZ-Z-LUPKOW/STAN-PRAC-W-POLSCE](http://LUPKI.MOS.GOV.PL/L/GAZ-Z-LUPKOW/STAN-PRAC-W-POLSCE)



- **E&P companies involved in shale oil and gas exploration in 2010-2015:** ExxonMobil, Chevron, Conoco Phillips, Marathon Oil, Talisman Energy, ENI, BNK Petroleum, Lane Energy, 3Legs Resources, Total, Cuadrilla, San Leon Energy, PGNiG, Orlen Upstream, Lotos Petrobaltic and others
- **66** wells drilled within the lower Paleozoic basin at the East European Craton(2010-2015)
- **14** horizontal and directional well sections were hydraulically fractured in the whole lower Paleozoic Basin
- Best average initial natural gas flow tests around **11000+ Nm³/d (400 MSCF/d)** reported by the E&P companies in the Baltic Basin



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<https://bip.mos.gov.pl/koncesje-geologiczne/>

<https://www.pgi.gov.pl/obszary-przetargowe.html>

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