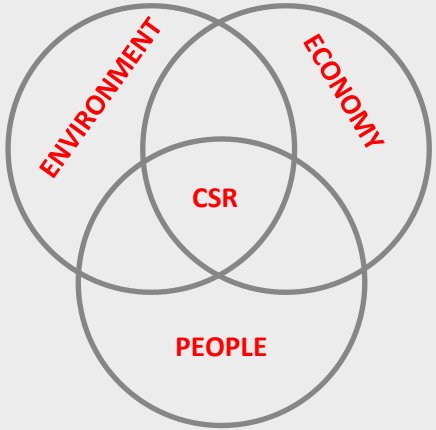
PGG S.A.
INTO
„GREEN ENERGY”

Katowice, December 2018

Renewable energy sources in PGG S.A.

According to **Corporate Social Responsibility (CSR),** PGG S.A. as the largest coal Company in Europe, undertake actions aimed at building a strategy that takes account into social interests and environmental protection.

PGG S.A. proves, that in traditional industry will be a place for „Green Energy”.



Renewable energy sources in PGG S.A.

The main assumption was to determine the possibilities renewable energy sources development.

Fot. Farma fotowoltaiczna w Gdańsku. Źródło www.media.energa.pl

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What gives renewable energy sources development in PGG S.A.?

- Balancing own energy needs with renewable energy sources


Fot. Witold Gałązka, www.netto.pl


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Fot. Farma fotowoltaiczna w Gdańsku, Źródło www.media.energa.pl

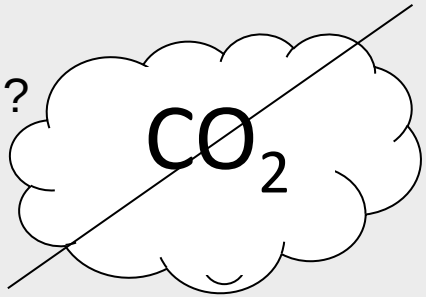

Fot. Maciej Doroszuk, www.netto.pl


Fot. ENEA, www.netto.pl

Renewable energy sources in PGG S.A.

What gives renewable energy sources development in PGG S.A.?

- Reduction of Greenhouse gasses emission (CO_2).
- Post-industrial areas development - using dormant possibilities in them.



Fot. www.radio90.pl

Fot. Jarosław Galusek ARC, www.nettg.pl

Renewable energy sources in PGG S.A.

POWER

95 MWp – total PV power potential on **105 ha** area

63 MWp of power- the potential,
68 ha on post-industrial areas owned by **PGG S.A.**

15 MWp of power- the potential,
22 ha on building roofs owned by **PGG S.A.**

17 MWp of power- the potential,
15 ha on others post-industrial areas.

Fot. Farma fotowoltaiczna w Gdańsku. Źródło www.media.energa.pl

Fot. Jarosław Gałusek ARC, www.nettg.pl

Fot. PTWP (Andrzej Wawok), www.wnp.pl

Renewable energy sources in PGG S.A.

Possibility simulation

1. **15 MWp-** Underground Coal Mine Sośnica branch,
2. **8,5 MWp-** Underground Coal Mine ROW branch Chwałowice,
3. **3 MWp-** Underground Coal Mine ROW branch Chwałowice.

2

Fot: Raport: określenie potencjału rozwoju projektów fotowoltaicznych dla PGG S.A.

1

Fot: Raport: określenie potencjału rozwoju projektów fotowoltaicznych dla PGG S.A.

3

Fot: Raport: określenie potencjału rozwoju projektów fotowoltaicznych dla PGG S.A.

Renewable energy sources in PGG S.A.

Institute areas

15 MWp of power- the installations on building roofs owned by PGG S.A., will be the biggest PV installations on national scale owned by one economic entity.

Renewable energy sources in PGG S.A.

Examples of buildings included in audit

1. **0,590 MWp -** Underground Coal Mine ROW branch Marcel,
2. **0,890 MWp-** Underground Coal Mine ROW branch Jankowice,
3. **0,805 MWp-** Underground Coal Mine ROW branch Chwałowice.

Fot. ARC, www.nettg.pl

Fot. www.abcenergia.pl

Renewable energy sources in PGG S.A.

Approximate investment expenditures

≈ **3 300 000 PLN/MW net amount** - PV installations on building roofs.

≈ **2 900 000 PLN/MW net amount** - PV installations on post-industrial areas and other territories.

≈ **300 000 000 PLN** - Total expenditure on 100 MWp PV installations.

The potential investment expenditures prices were from 2018. The cost trend is decreasing along with a decrease in price of PV panels and the power trend of a single panel is growing up.

POLSKA GRUPA GÓRNICZA

Renewable energy sources in PGG S.A.

Installation

Fot. Farma fotowoltaiczna w Gdańsku. Źródło www.media.energa.pl

Production

Emission

-60 000 ton

Fot. Shutterstock. Źródło www.energetyka.wnp.pl

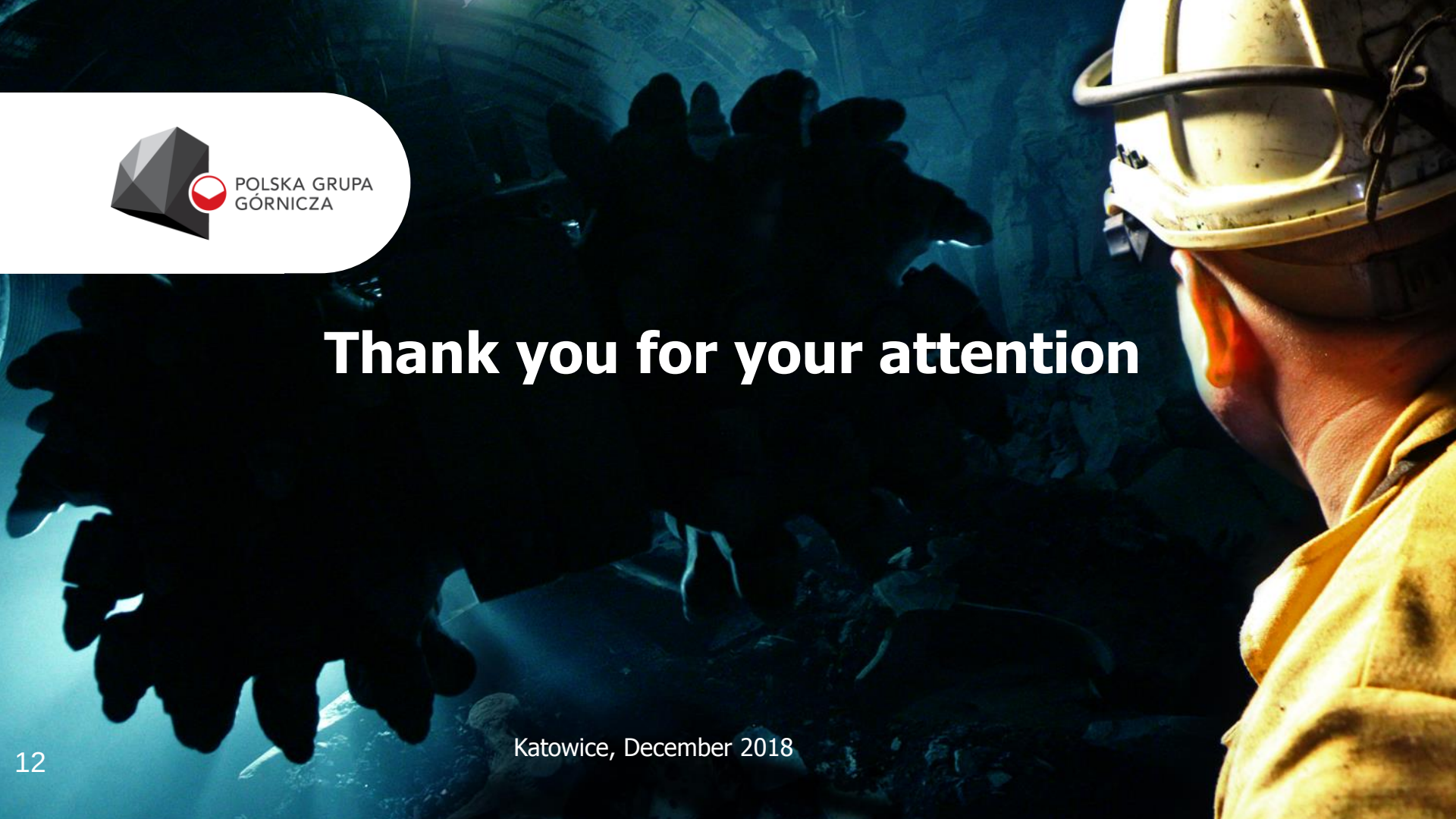
Fot. www.int.krone-trailer.comga.pl

Approximate reduction of the **CO_2 emission** to the atmosphere **in one year**

365 days

100 000MWh

Expected **total energy production** from PV **in one year**



Thank you for your attention

Katowice, December 2018