



10-12 JUNE 2025

**EUROPEAN SUSTAINABLE
ENERGY WEEK**

#EUSEW2025



POLISH WAY TO NET ZERO DECARBONIZATION THROUGH AGROENERGY

M. Sc., Eng. Robert W Jankowski

SOLID PARTNERS



POLSKIE
FORUM KLIMATYCZNE

POLISH CLIMATE FORUM



MOTTO

„Green is good for you”

Stephen and Rachel Kaplan, PhD



I DECARBONIZATION

1. We all breath oxygen - O_2 and emit CO_2 – living organisms, industry and services.
2. Too much CO_2 in the atmosphere is not good for our planet.
3. Therefore, people in so called “Kyoto Protocol” agreed to limit the amount of CO_2 in the air. During the first accounting period Poland reduced CO_2 emissions by 32 %.
4. CO_2 is a gas heavier than air, so it mostly stays close to the ground. Green plants absorb CO_2 and emit O_2 . This is called fast (small) oxygen cycle.
5. NET ZERO can be reached by limiting emissions and rising absorption.
6. What we need is a stable balance in oxygen cycle. In Poland we have means to increase CO_2 absorption through biomass.

II HOW TO REPLACE FOSSIL FUELS



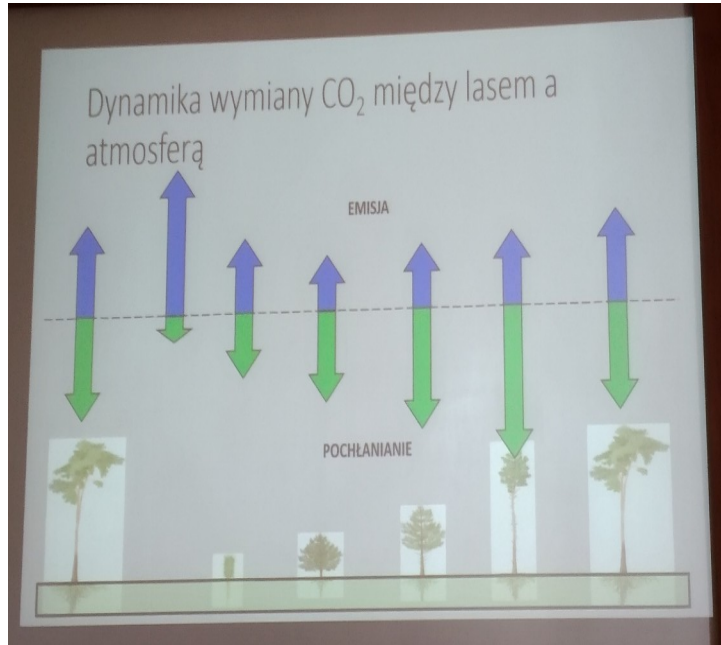
1. We still have a lot of fossil fuels, but in some areas they are finished or the cost is prohibitive.
2. Therefore, an answer to a question how to replace them is necessary.
3. We need to integrate locally produced “Carbon Credits” with EU ETS.
4. In Poland we do a lot of research on using biomass to generate energy.
5. There is still a lot of biomass wasted, which can be used to produce heat, electric energy or mobility.
6. Polish biogas sector can be 10 times bigger than is now, but we need to build small installations because of carbon footprint in transportation.
7. We need to increase production of agro biomass and develop installations for gasification.

The trees are what
really counts.

The initiative of
European Commission
was started in Poland,
but it stopped now.

[https://
mapmytree.eea.europa.e
u/#/home](https://mapmytree.eea.europa.eu/#/home)



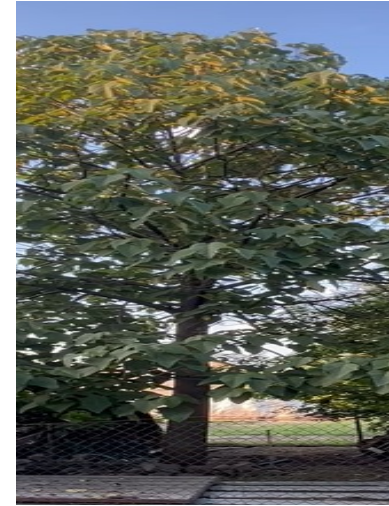


The trees are the most important, the game changer in CO₂ absorption is tree of “C₄-like” photosynthesis



III THE OFFER TO AGRO SECTOR

Paulownia Shang Tong 1 year old, 3 years and 6 years old





THE OFFER

Paulownia Shang
Tong best suits Polish
climate, soil quality
and industrial needs.
It's enough to plant no
more than 2 - 2,2 % of
total area of Poland to
reach NET ZERO by
year 2040.

Table: Fast growing trees

Species	Annual growth	Height of a tree of 3 years	Maximum height of an adult tree
Paulownia	3-5 m	10,5-15,5 m	15-28 m
Salix sepulcrali	1,5-4 m	7,5-12 m	15-25 m
Populus nigra	1,5-2,5 m	4,5-9 m	15-20 m
Populus deltoides	2,5-3,5 m	9-12 m	20-25 m
Quercus falcata	2,5-3,5 m	9-12 m	20-30 m
Eucalyptus tereticornis	2-2,5 m	7,5-9 m	15-20 m
Salix babylonica	2-2,5 m	6-9 m	10-15 m

The diagram illustrates the growth of a tree over time. A vertical green arrow on the left indicates height markers at 2,5 m, 12 m, and 16 m. Three stylized green trees are shown at the bottom, labeled '1 year', '2 years', and '5 years', showing increasing height and canopy spread.



The soil should be rich in carbon.

The more carbon in soil, the less CO₂ in the air.

Biochar is necessary.



IV HOW TO REACH NET ZERO BY 2040



1. In Poland in 2023 we emitted 148,8 mm Mg CO₂.
2. Polish forests absorbed 34,6 mm Mg CO₂.
3. Full implementation Forest Carbon Farming will give extra 25 mm Mg CO₂.
4. Balance $148,8 - 34,6 - 25 = 89,2$ mm Mg CO₂ (90 mm Mg).
5. We can reduce industrial emissions by maximum 40 mm Mg CO₂.
6. We fulfilled our reduction obligations resulting from “Kioto Protocol” in 34 %.
7. Remaining 50 mm Mg CO₂ we can absorb in fast rotation groves (agro).
8. By offsetting CO₂ emissions with “Carbon Credits” we can reach the goal.
9. In 3- year rotation, Paulownia Shang Tong can absorb 75 Mg CO₂ / ha / year.
10. We can get carbon footprint free energy – heat, electricity and mobility.
11. We can get up to 65 % permanent carbon sink through biochar – BioCCS.
12. We need to plant these trees on approx. 2 % of territory – now 5 % lies in waste.

POLISH CLIMATE FORUM



**Thank you very much
for your attention**

M. Sc., Eng. Robert W Jankowski
robwjank@interia.pl