



**From waste to resource:  
Biomass and soil carbon as the key to  
sustainability**

Agro-energy as an element of sustainable agriculture.

# Soil Organic Carbon: The Key to Regeneration

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- Increasing the organic carbon content improves soil structure, water retention and nutrient availability.
- The lack of rational effective management of Biomass leads to the loss of soil regeneration potential.
- Increasing the organic carbon content of the soil translates into higher yields and better crop quality.



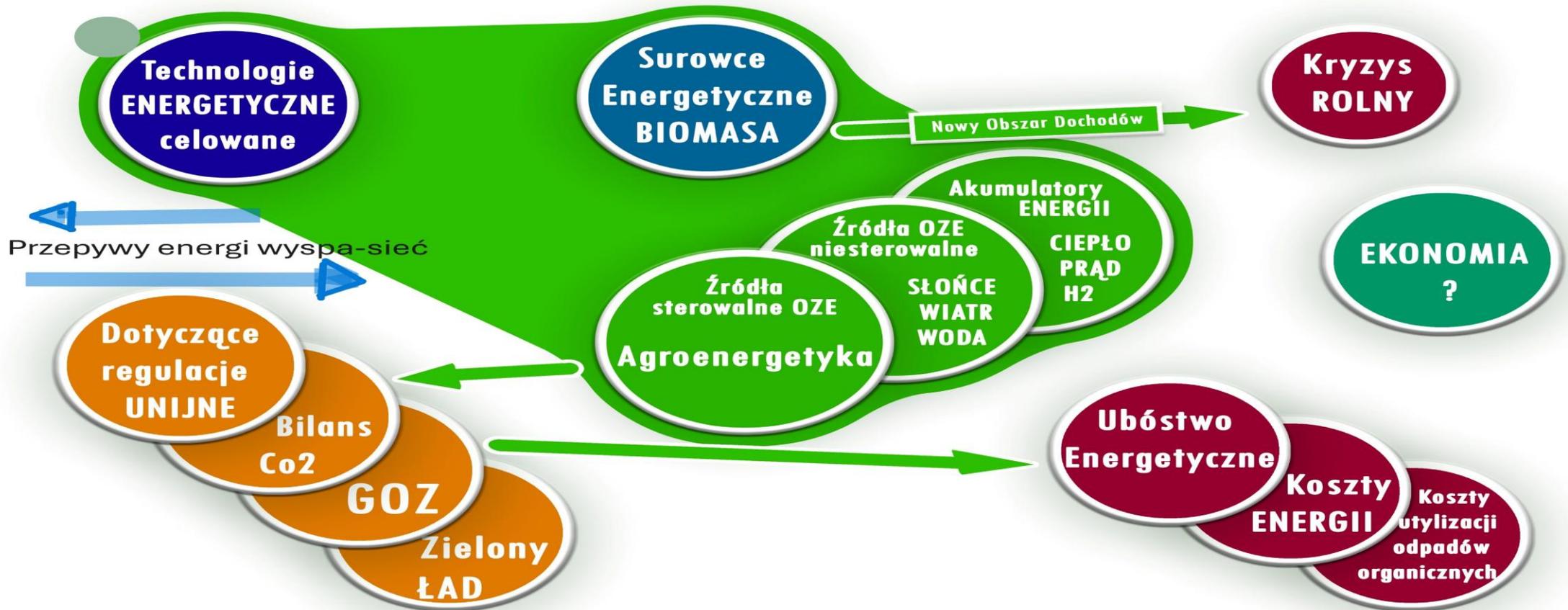
# Use of biomass and ashes:

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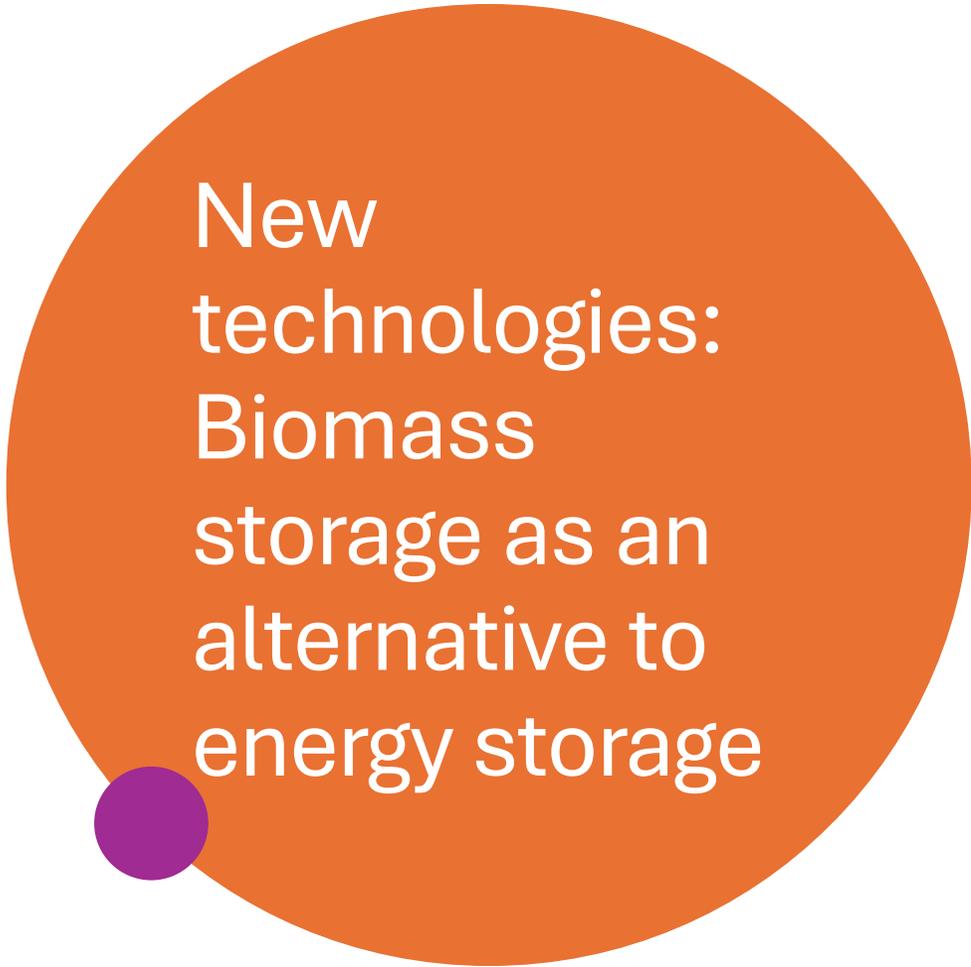
- Biomass ashes, such as wood ash, are rich in minerals such as calcium, potassium and phosphorus, which will improve soil fertility.
  - Proper use of ashes can balance the pH of the soil and improve its chemical properties.
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# Biomass as the foundation of energy self-sufficiency



Organizacja sieci współpracy w zakresie rozwoju OZE na wsparcie rozwoju lokalnego - misja Zielonej Lokomotywy



New  
technologies:  
Biomass  
storage as an  
alternative to  
energy storage

- Using Biomass for Power and Biochar Production
- Restoration and maintenance of the carbon profile on energy crop plantations as an element ensuring soil well-being
- Organic composite fertilizers (ONKs) – biochar, soil bacteria and biomass ashes

# System Integration : Waste as a Resource .



CONVERSION OF AGRICULTURAL AND FORESTRY WASTE  
INTO VALUABLE ENERGY PRODUCTS.

APPLICATION OF GASIFICATION AND PYROLYSIS  
TECHNOLOGY TO MAXIMIZE ENERGY EFFICIENCY..



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## Agroenergetics as an element of sustainable agriculture:

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- Agroenergy, i.e. the use of biomass for energy production, can contribute to the reduction of greenhouse gas emissions and increase the profitability of farms by selling surplus energy.
  - The introduction of agro-energy systems can also support local communities, creating new jobs and increasing the energy independence of regions
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