



Economic aspects of small biogas plants and financial support mechanisms in Poland

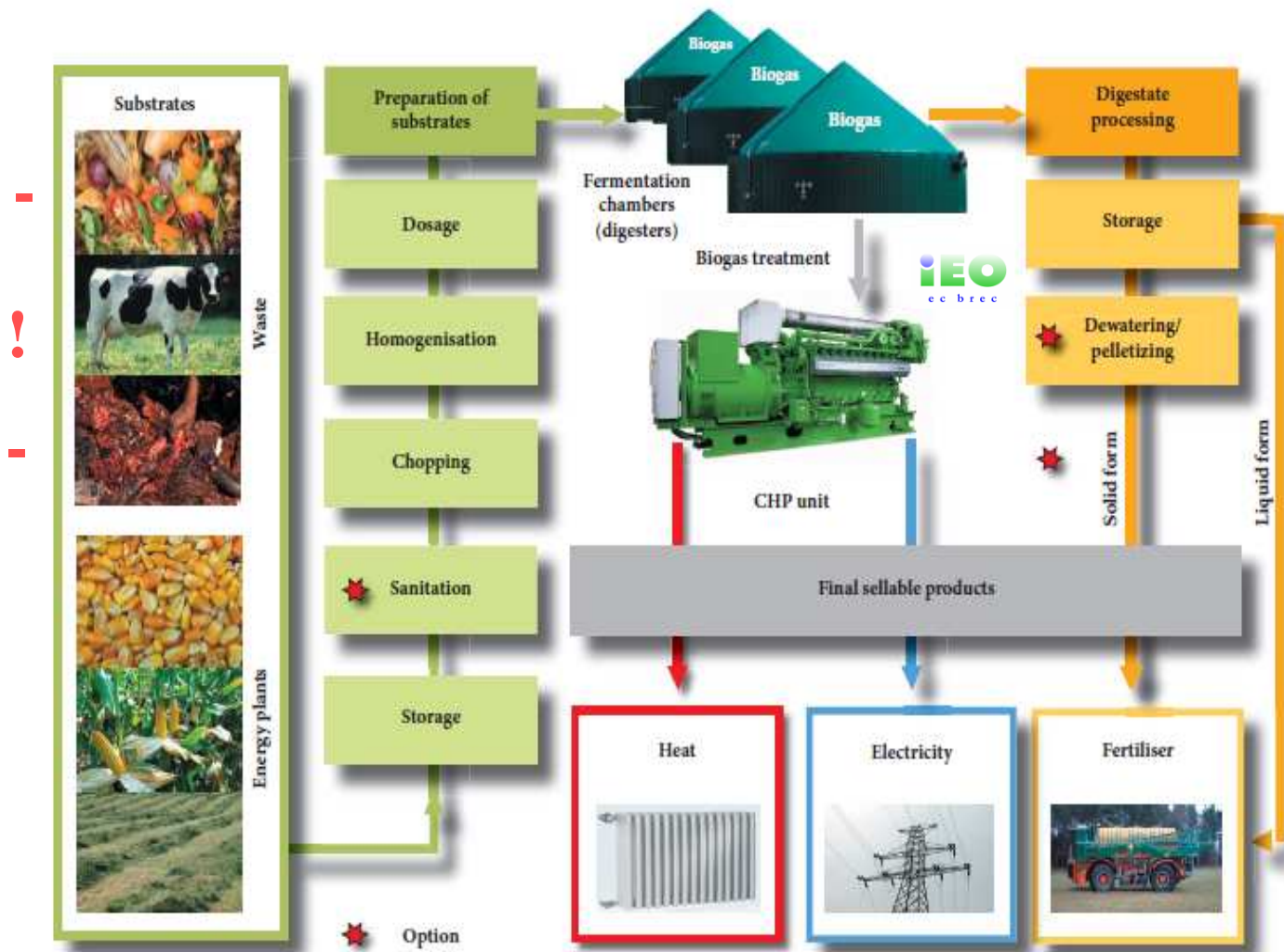
Anna Oniszk-Popławska

EC BREC IEO

**Baltic Manure – turning manure problems
into business opportunities**

23th November 2011

Energy from slurry: agricultural biogas plants

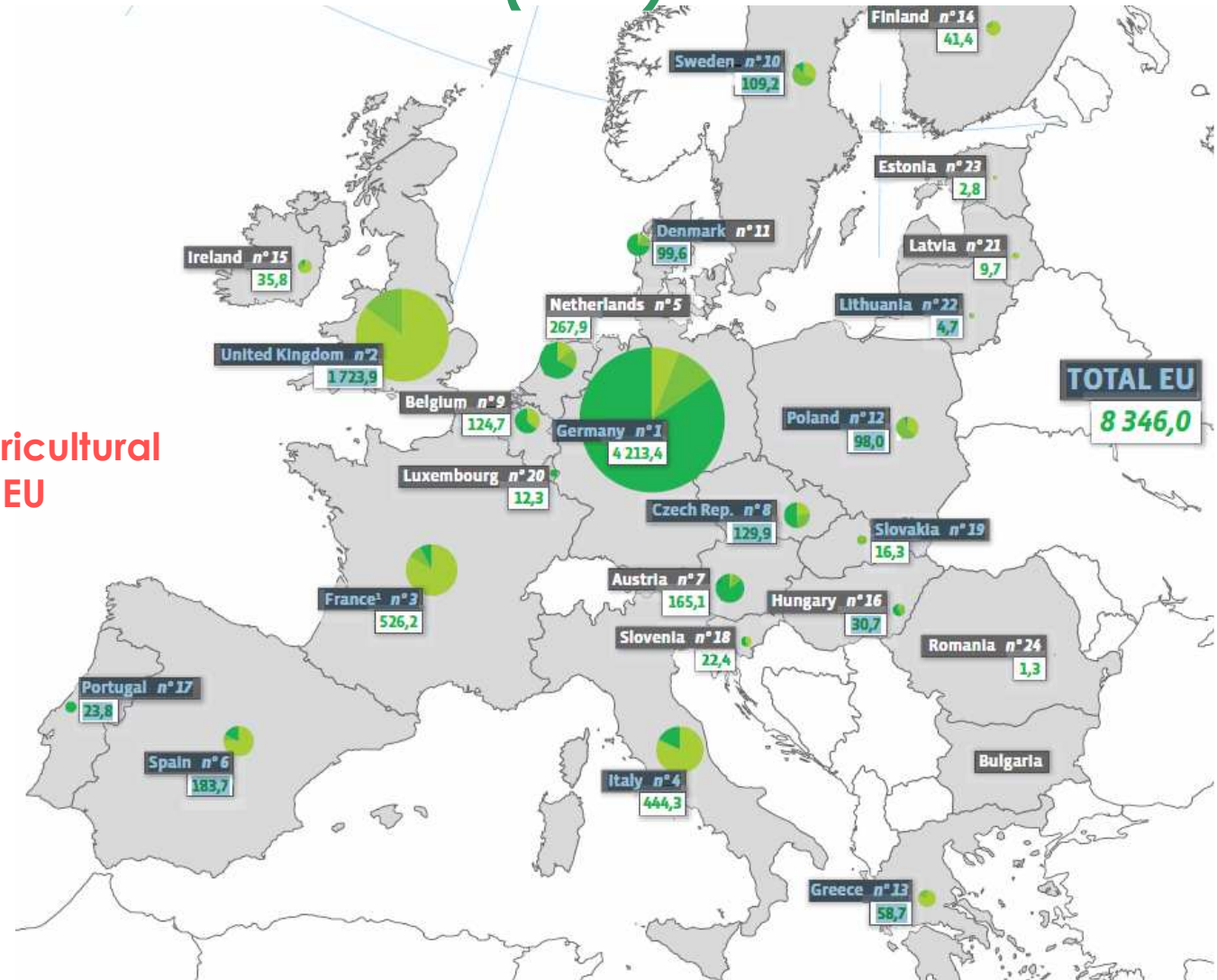




e c b r e c

- Landfil biogas
- Sewage biogas
- Other biogas incl. agricultural

Primary energy production from biogas EU 2009 (ktoe)



Germany over 80% of agricultural biogas production in the EU

Should the support mechanisms applied in Germany be copied in Poland?
Does Poland require tailor made support policies for small biogas plants?

What is a microbiogas plant

Cogeneration Directive 2004/8/WE

micro-cogeneration - maximum capacity below 50 kWe;
small scale cogeneration - below 1 MWe;

But in reality the size of the microbiogas plant
is implicated by the support level treshold in a given country

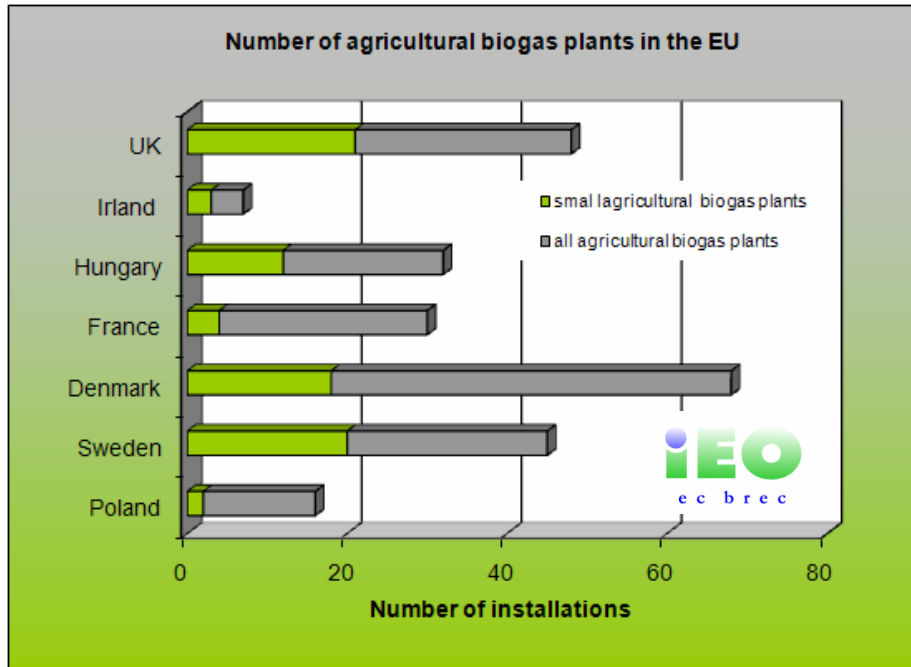
Country	Treshhold for small
Germany	<=150 kW <=75 kW
Austria	<=250 kW
GB	<=250 kW
France	<=150kW
Slovenia	<= 50 kW
Canada	<=10 kW

RES Law
Proposal for new legislation in Poland:
no technological split-up

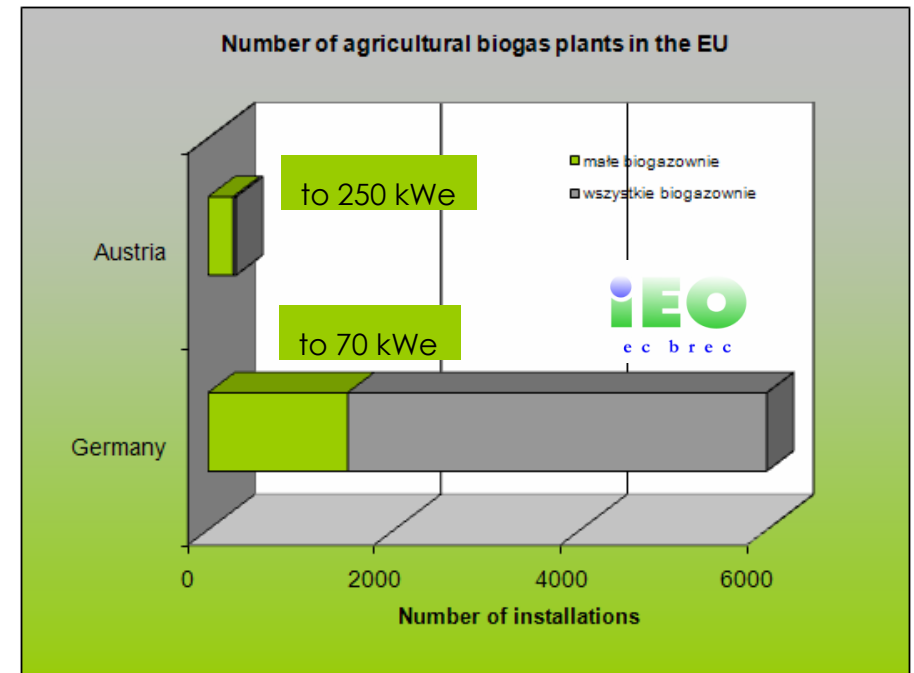
Mini 101-250 kWe

Mikro <100 kWe

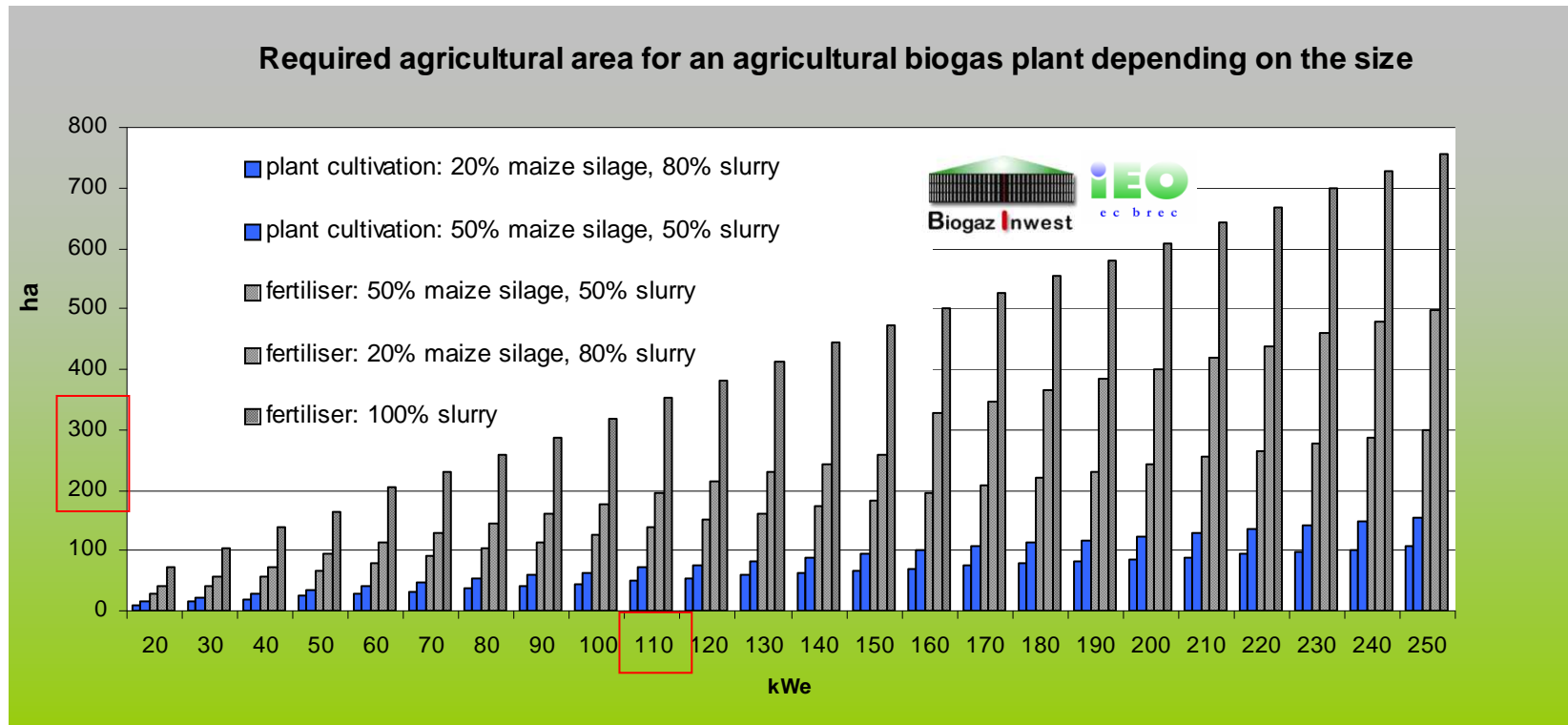
Development of microbiogas plants in the EU



Germany over 80% of agricultural biogas production in the EU



Targeted farm size



Lubelskie voivodship

20 - 50 ha – 9,4 '000

50-100 ha – 1,2 '000

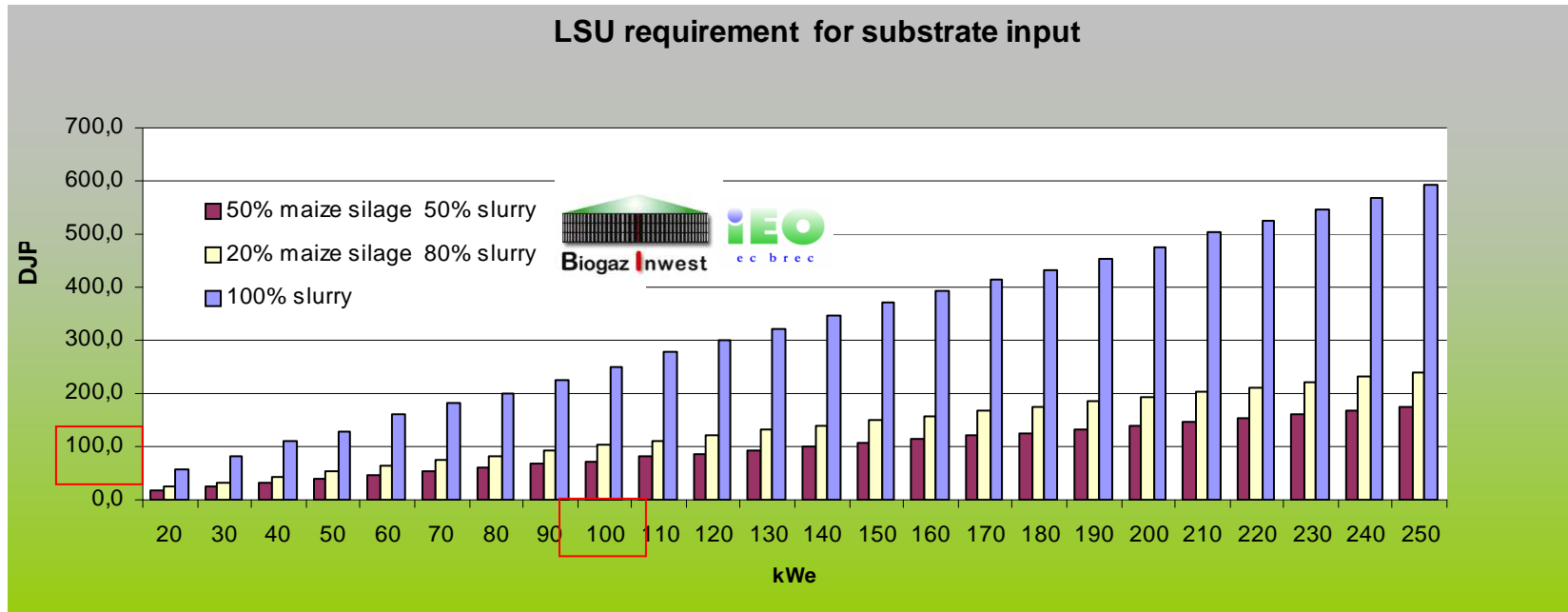
> 100 ha 0,3 '000. average size 257 ha

Roadmap

1st biogas plants on farms > 100 ha, i.e. 110 kWe

2nd horizontally consolidated farms for biogas production

Targeted farm size



Lubelskie voivodship

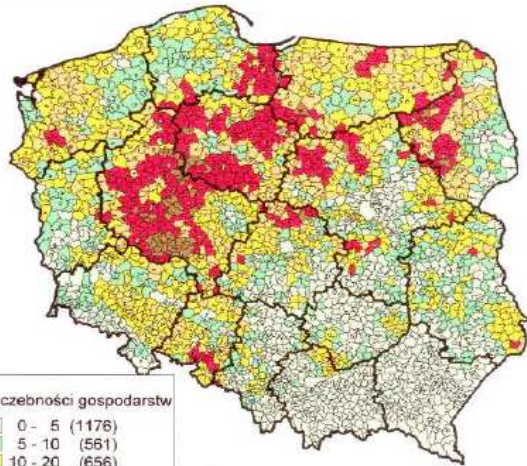
above 50 DJP -500 farms

Roadmap

1st biogas plants in farms above 100 LSU i.e. 100 kWe

2nd horizontally consolidated farms for biogas production

Targeted farm size

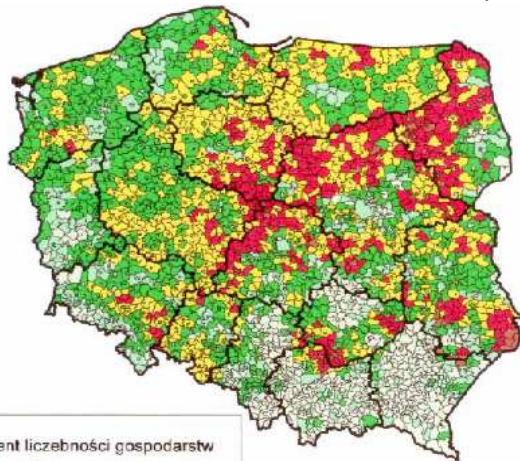


Procent liczebności gospodarstw

0 - 5	(1176)
5 - 10	(561)
10 - 20	(656)
20 - 30	(334)
30 - 50	(277)
50 - 75	(42)

Large scale of production farms (Census 2002)

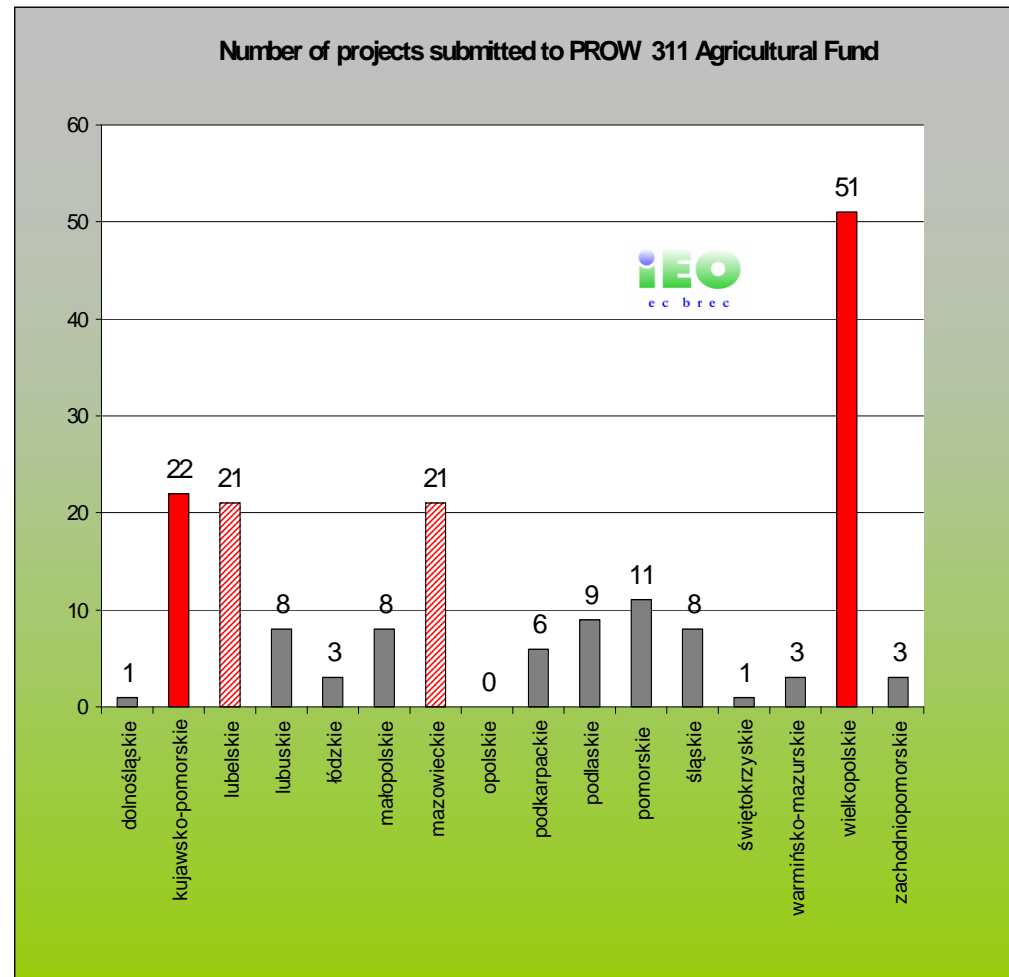
medium scale of production farms (Census 2002)



Procent liczebności gospodarstw

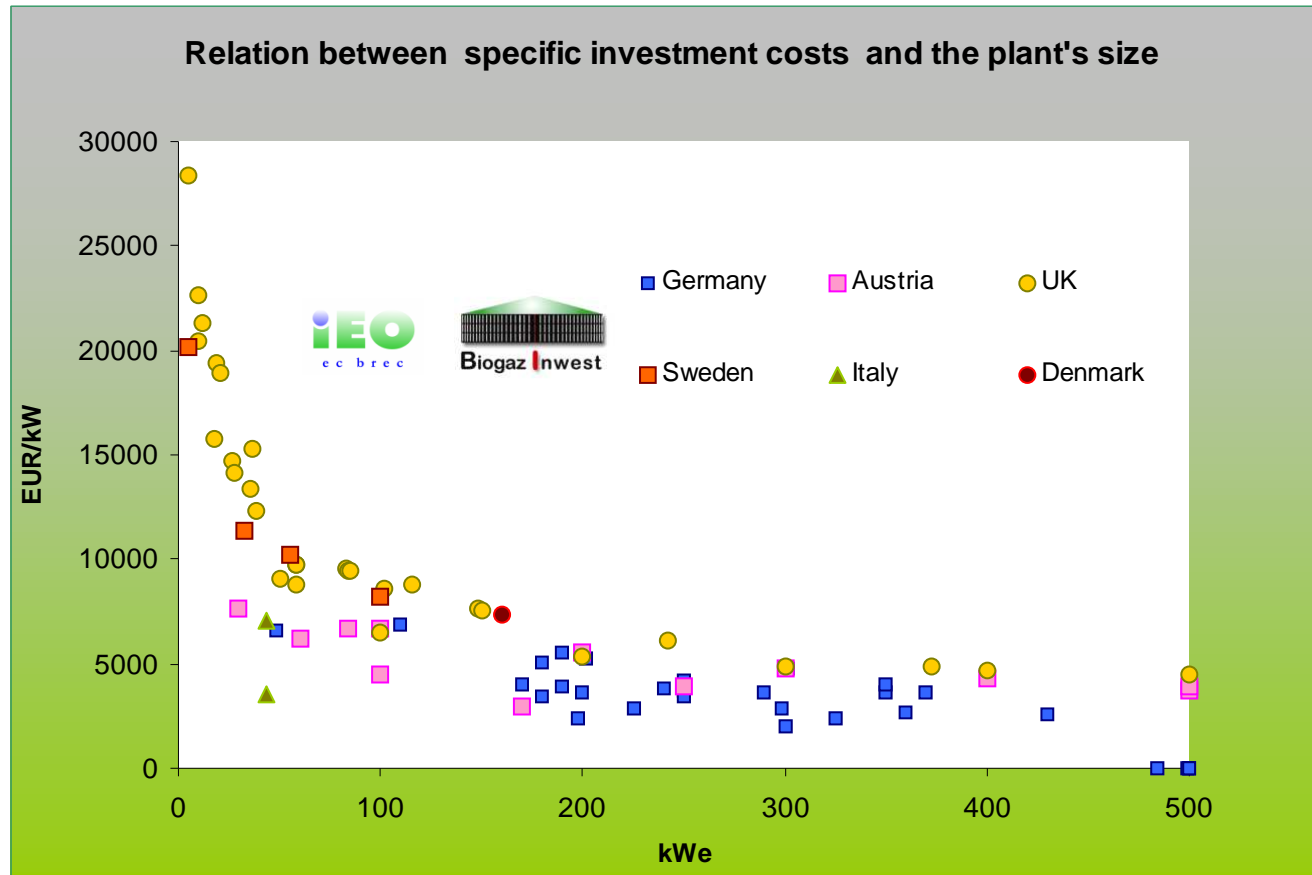
0 - 5	(643)
5 - 10	(443)
10 - 20	(884)
20 - 30	(722)
30 - 40	(325)
40 - 50	(29)

Source: Michna W. IERIGZ



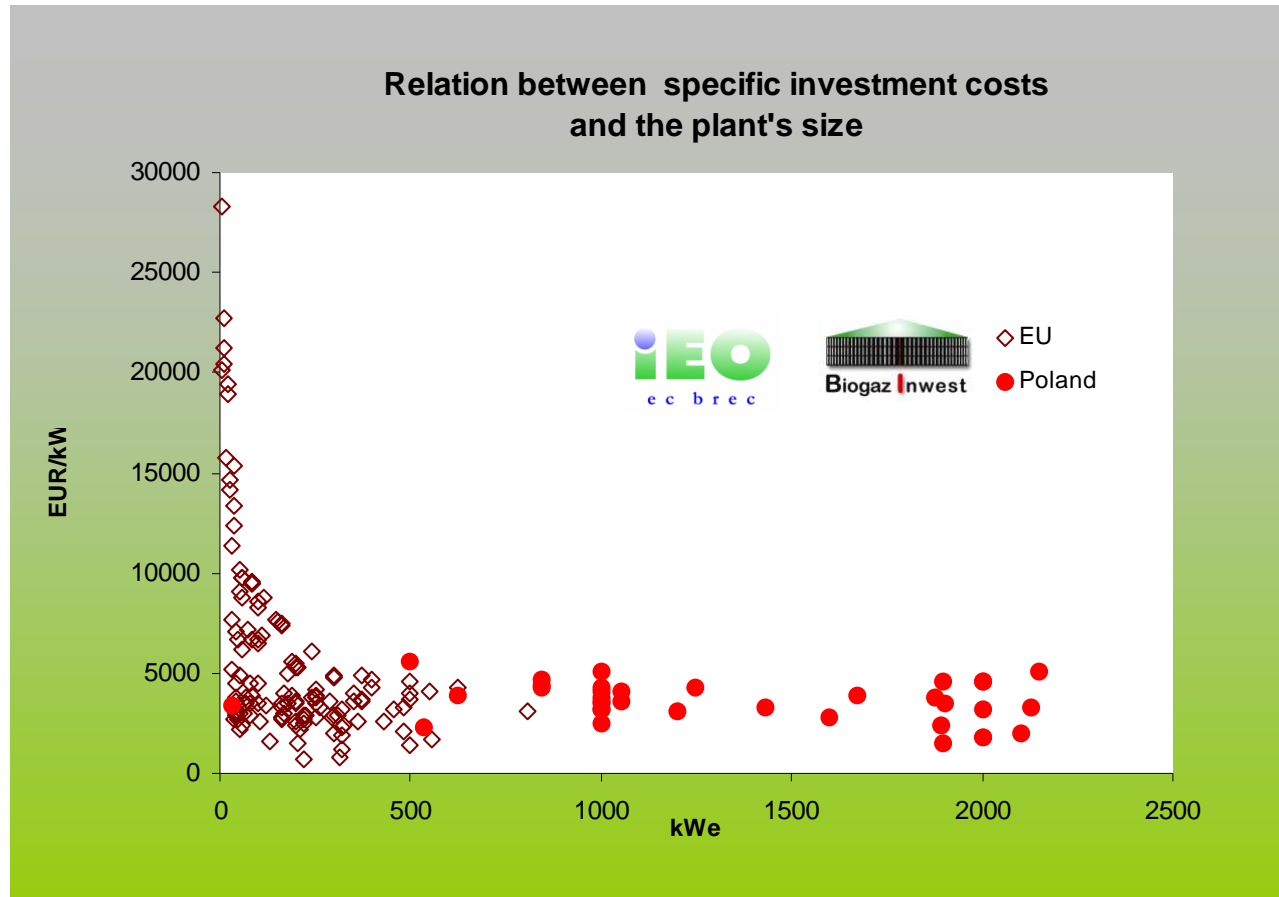
Source: ARiMR

Investment costs



Logarithm curve, strong dependence for <100 kWe

Investment costs

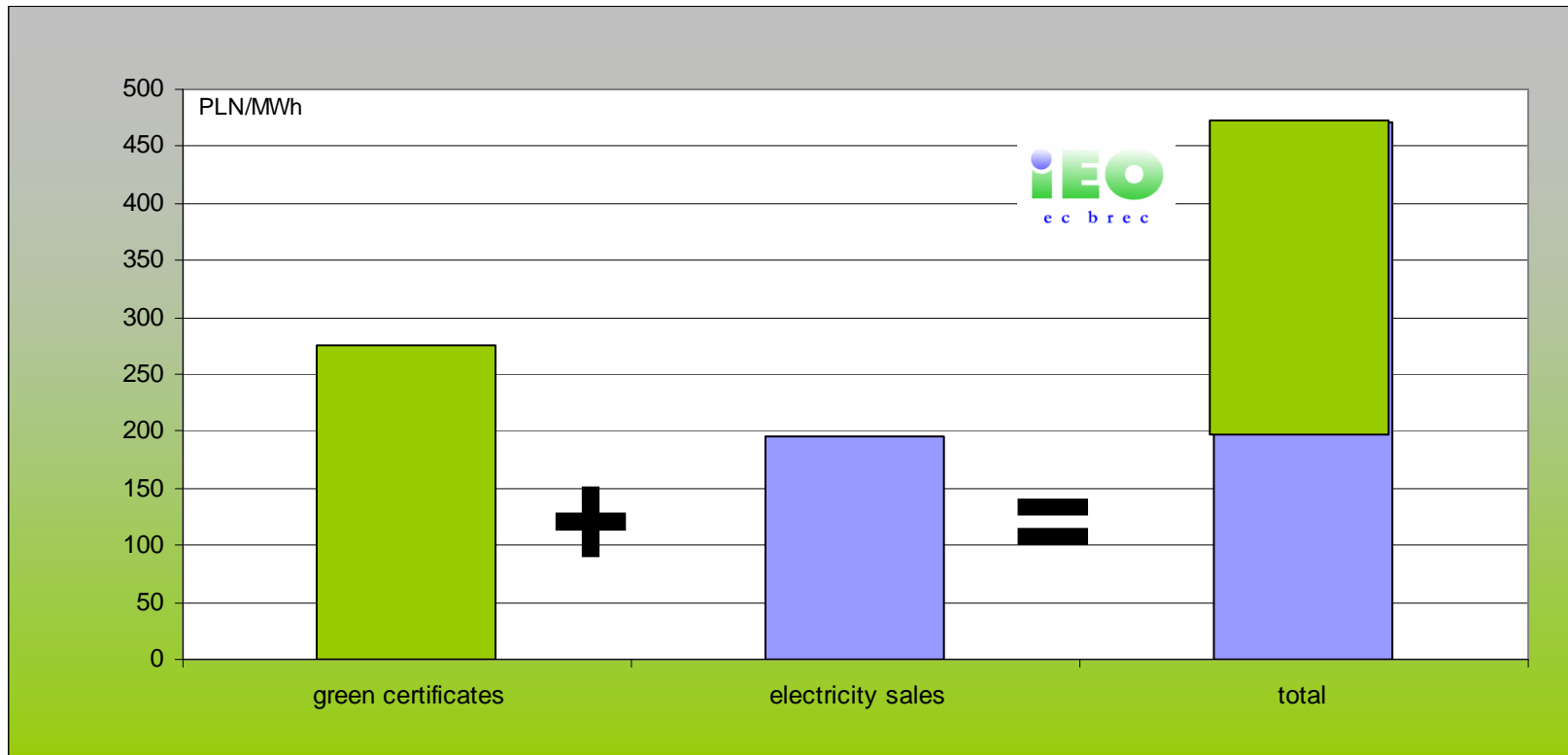


Rentability



! most sensitive elements for rentability

Rentability - Income



Current system: unpredictable income

Difficult to handle for small investors (farmers)

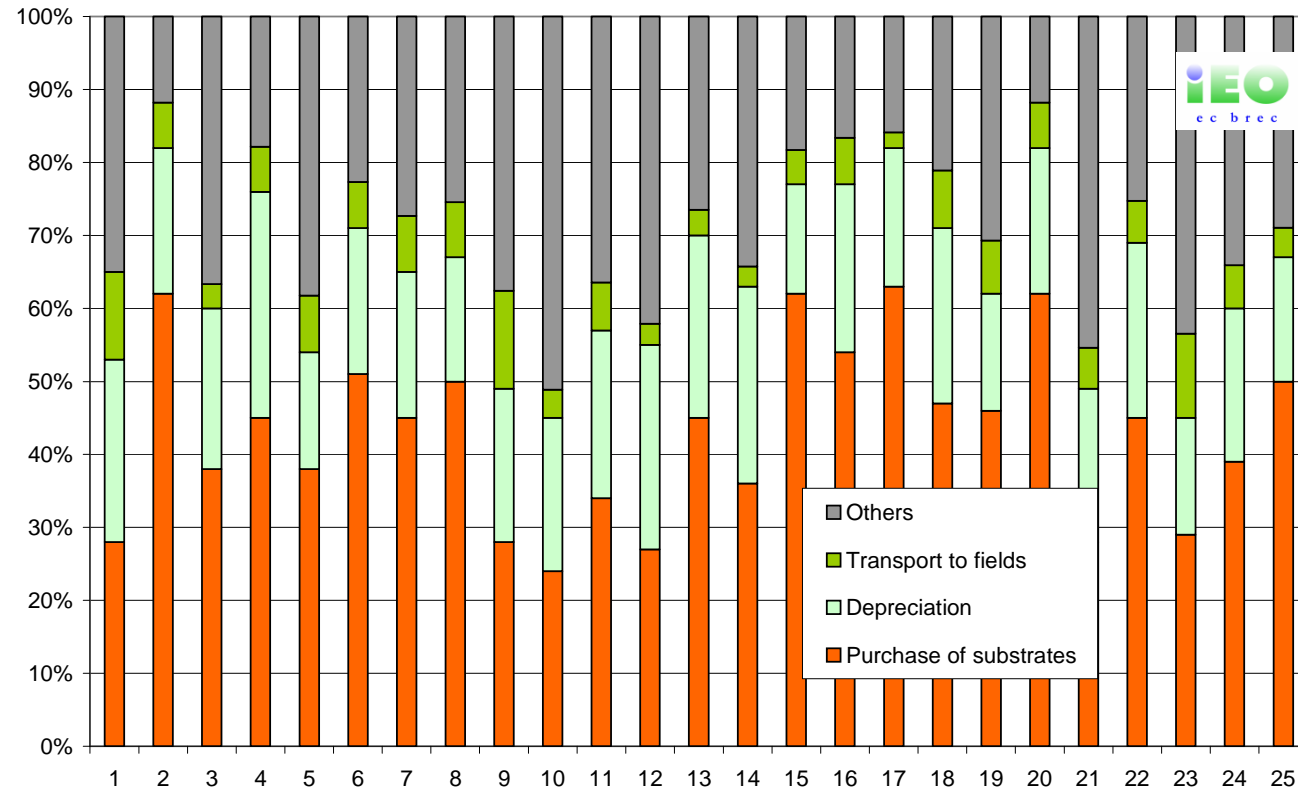
Advantage for bigger projects

„Colourful” support for green energy

Certificate	green	yellow	purple	brown
Type	RES	cogeneration	cogeneration	Biomethane for grid injection
Predicted price PLN/MWh	<275	<129	<59	<275*
Period	2005-2017	2010-2012	2010-2018	2011-2017
Prohibitions of common application	with brown	with purple	with yeallow	with green

Is the „rainbow” support really the best option for microbiogas plants?

Rentability- Costs



Price of substrate is crucial

Maize silage

Own production 100 PLN/t

Contracted up to 160 PLN/t

Why FIT (feed-in tariffs) for micorbiogas – the shape of new RES Law

- This system has been tested and optimized several times (since 2001) by leading agricultural biogas-producing countries,
- a stable system that provides economic stability by ensuring an adequate level of energy sales in the 15-20-year period,
- Less complicated system for the small inverstors: it allows the owner of a biogas plant to overcome organizational barriers such as registration certificates of origin, price negotiations with the energy distributor,
- reduces the transaction costs of the sale of certificates of origin and thus optimizes the implementation of the system,
- The European Commission has clearly stated that FIT is not a form of public support, which was not clearly stated in the case of certificates of origin.
- Lets's use experience of others instead of inventig oryiginal systems.

What support option will be chosen by the Ministry of Economy in a new RES Law?

Rentability – legal proposal

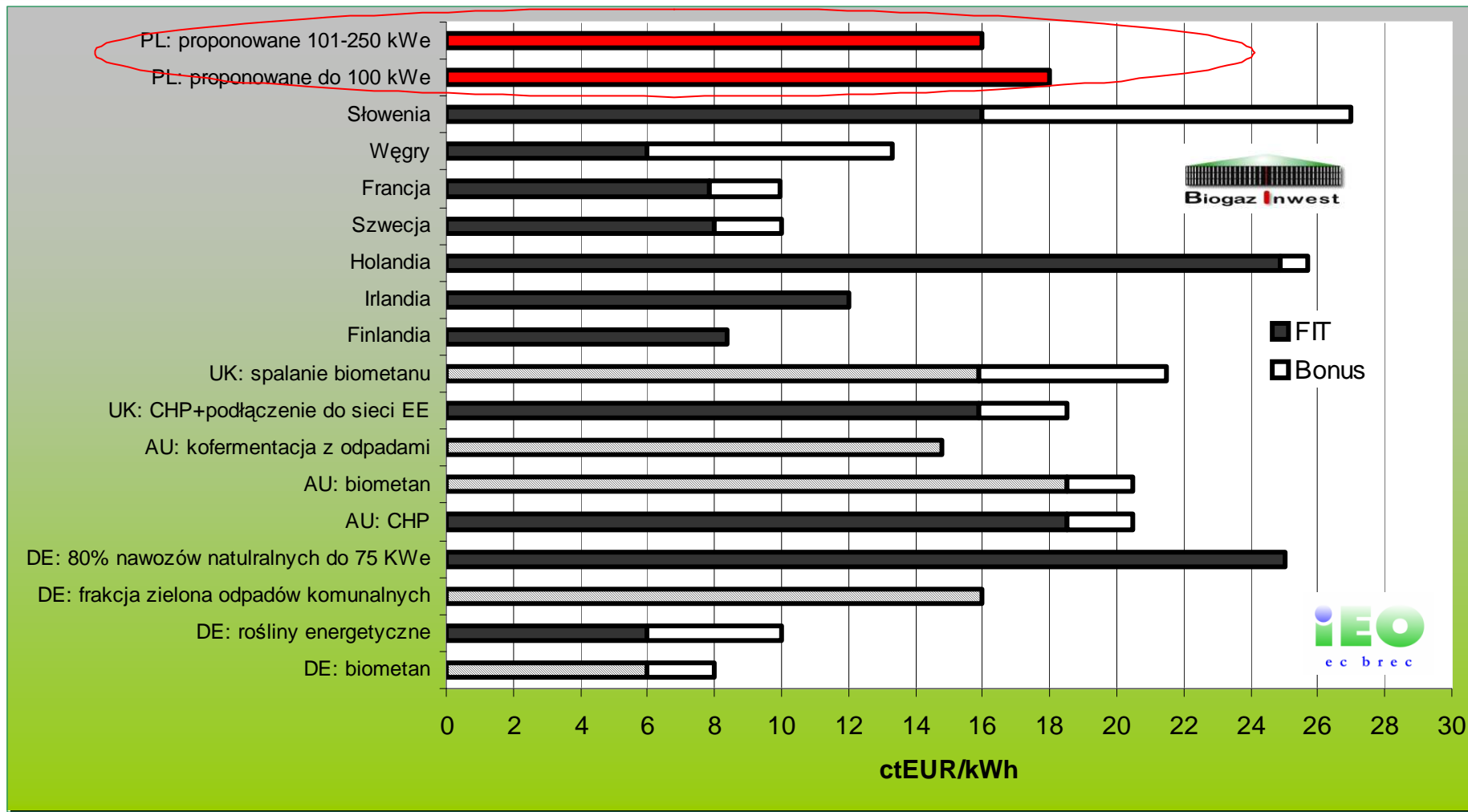


--- FIT in German EEG 2012 up to 75 kWe, 80% of slurry input

— proposed level of support for FIT
 up to 100 kWe: at 180 EUR / MWh (800 PLN / MWh)
 101-250 kWe: at 160 EUR / MWh (700 PLN / MWh).

▼ Additional subsidies , treshhold up to 70 kWe

FIT in other countries



Is the proposed level of support too high or too low?

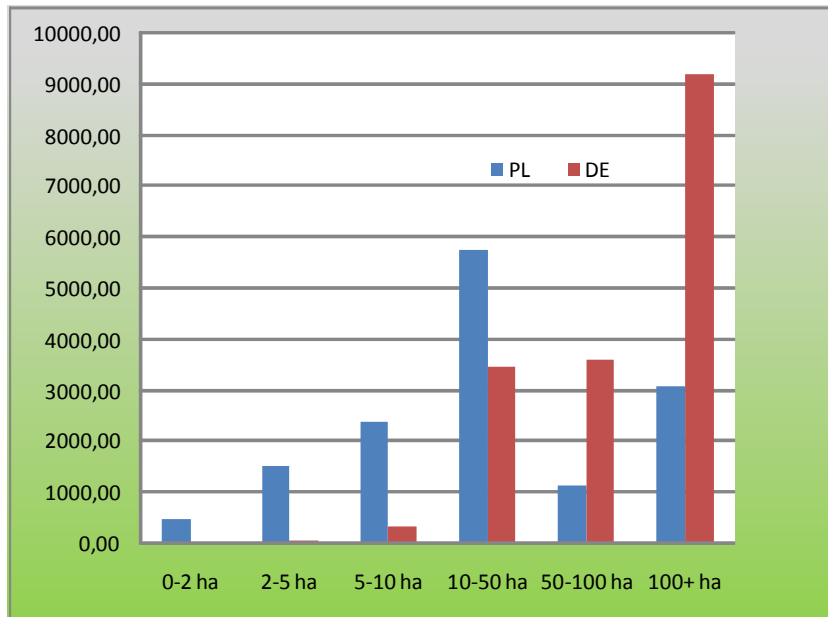
Summary

farms >50 ha

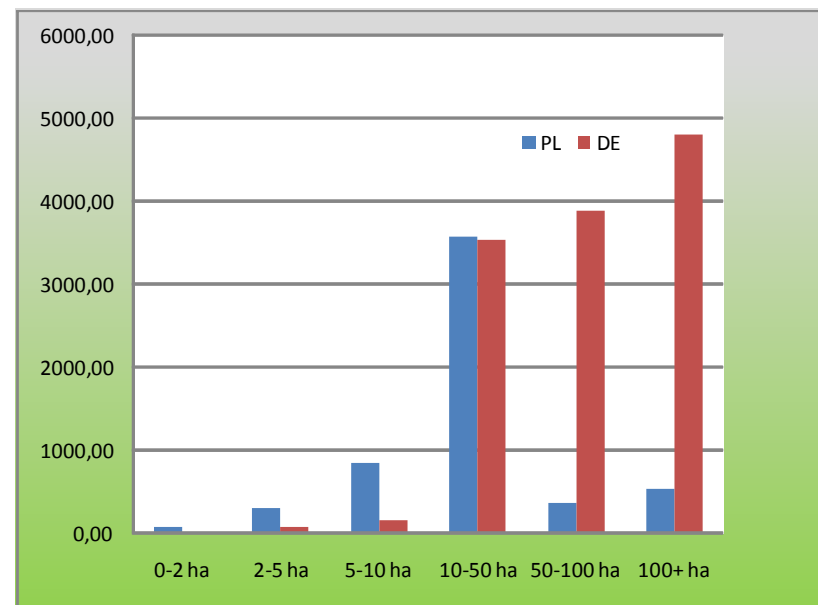
DE: 85'000

PL: 24'000

Acreage: UAA (1000 ha) in 2010



Breeding: cattle (1000 heads) in 2010



Source: Eurostat

Should the support mechanisms applied in Germany be automatically copied?

Does Poland require tailor made support policies for small biogas plants?



Thank you for your attention!

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Additional information:

- www.ieo.pl