



Wroclaw University of Technology

CO-OPERATING FOR SUCCESS

ENERGYREGION - Effective development of dispersed renewable energy in combination with conventional energy in Regions

Wrocław University of Technology

Consumption, behavior, perception - results of a transnational survey on end consumers

Dr Krzysztof Pawlikowski

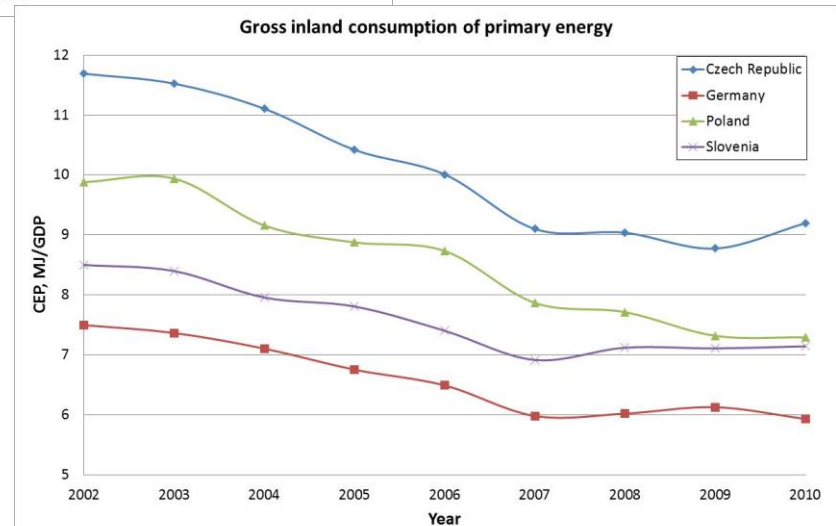
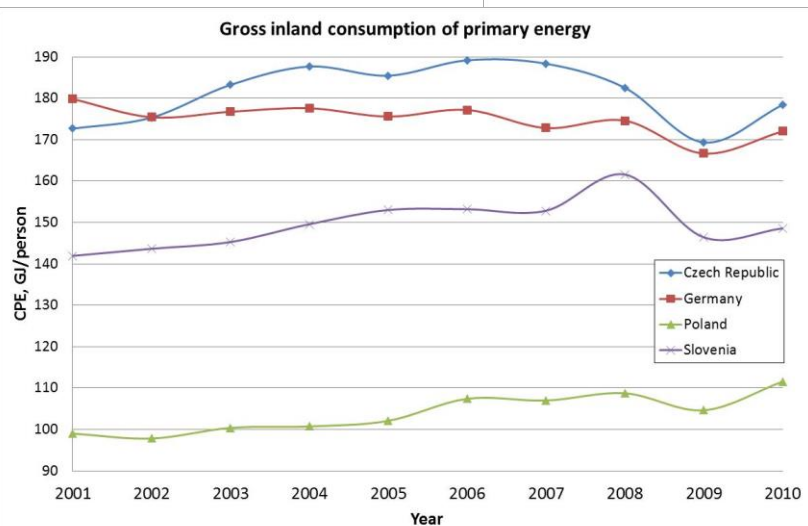
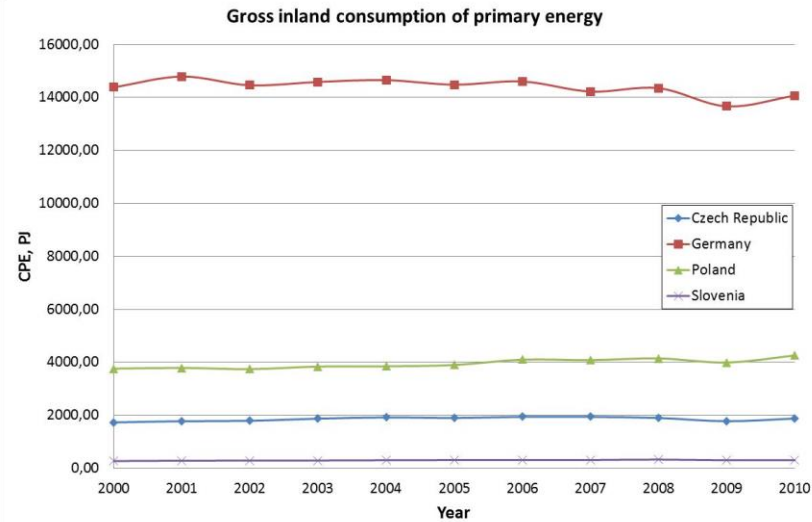
Opava, 23th - 24th of May 2013, Czech Republic



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GDP [source: EUROSTAT]

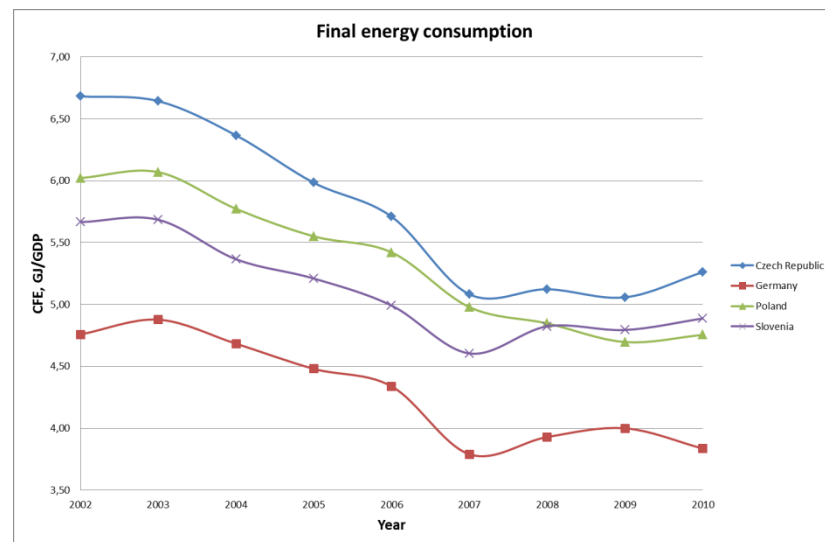
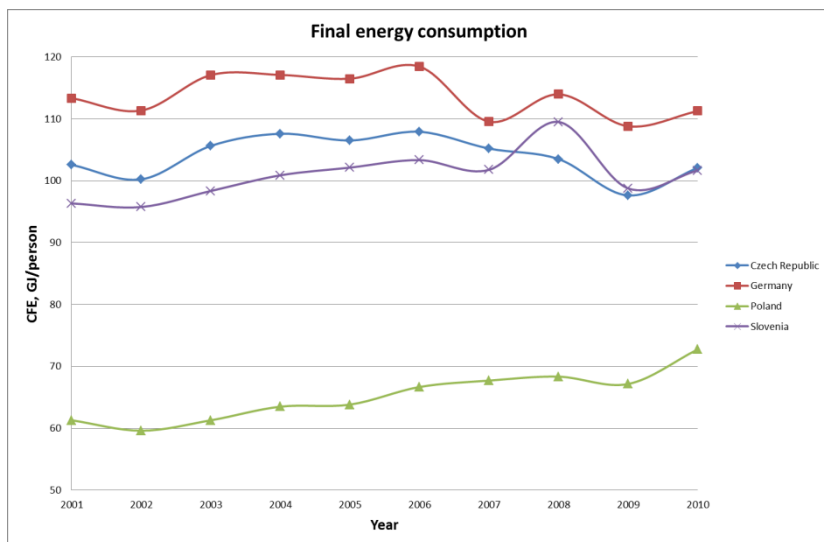
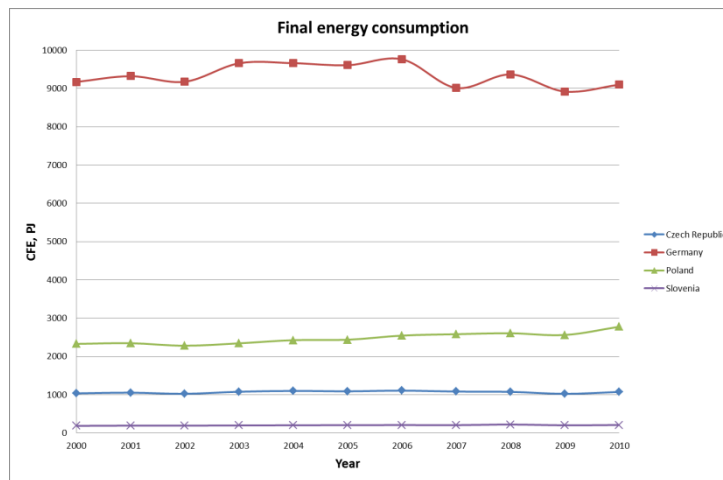




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Consumption - final energy [source: EUROSTAT]

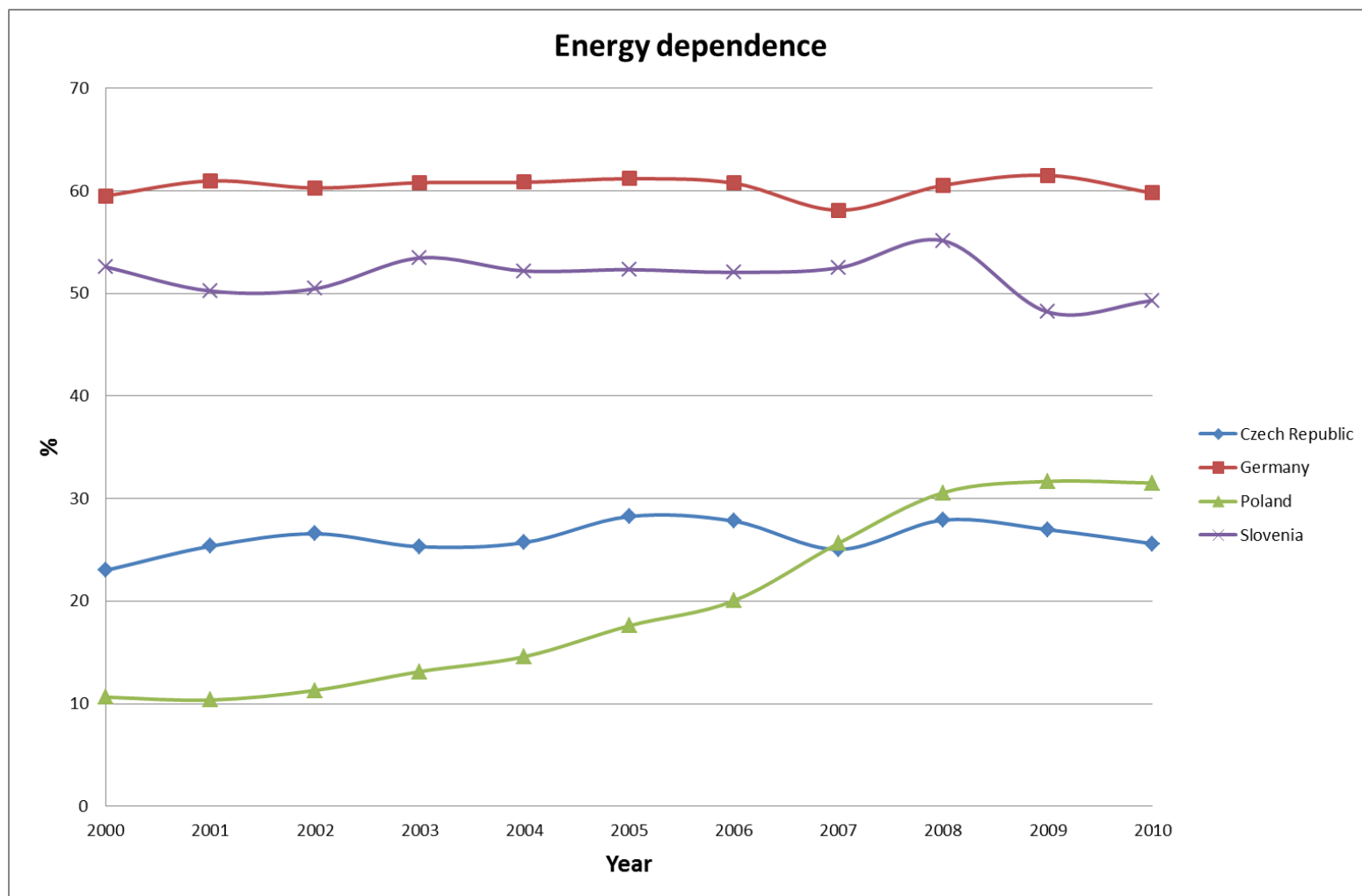




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Consumption - energy dependence [source: EUROSTAT]

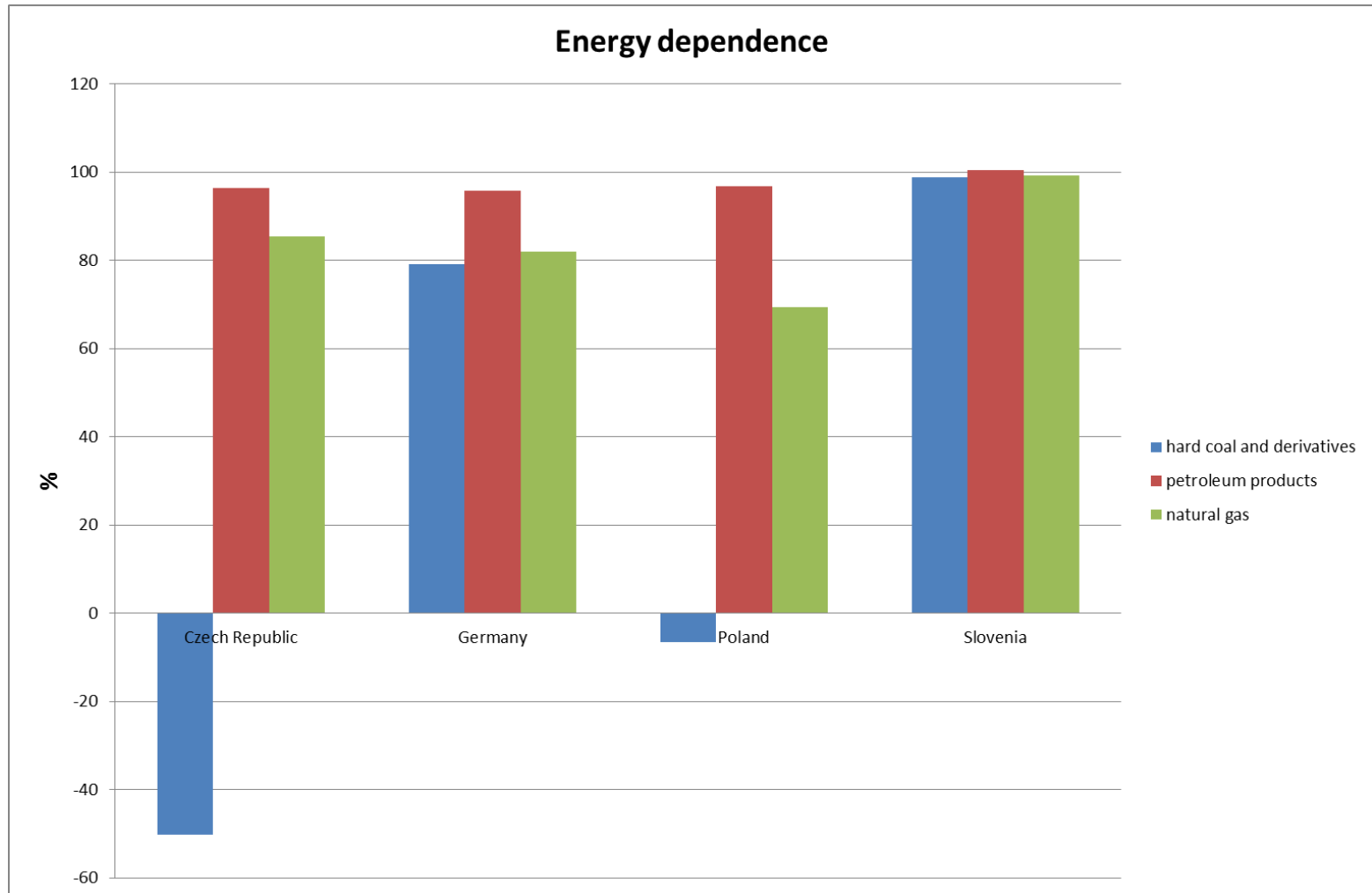




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Consumption - energy dependence (energy sources) [source: EUROSTAT]

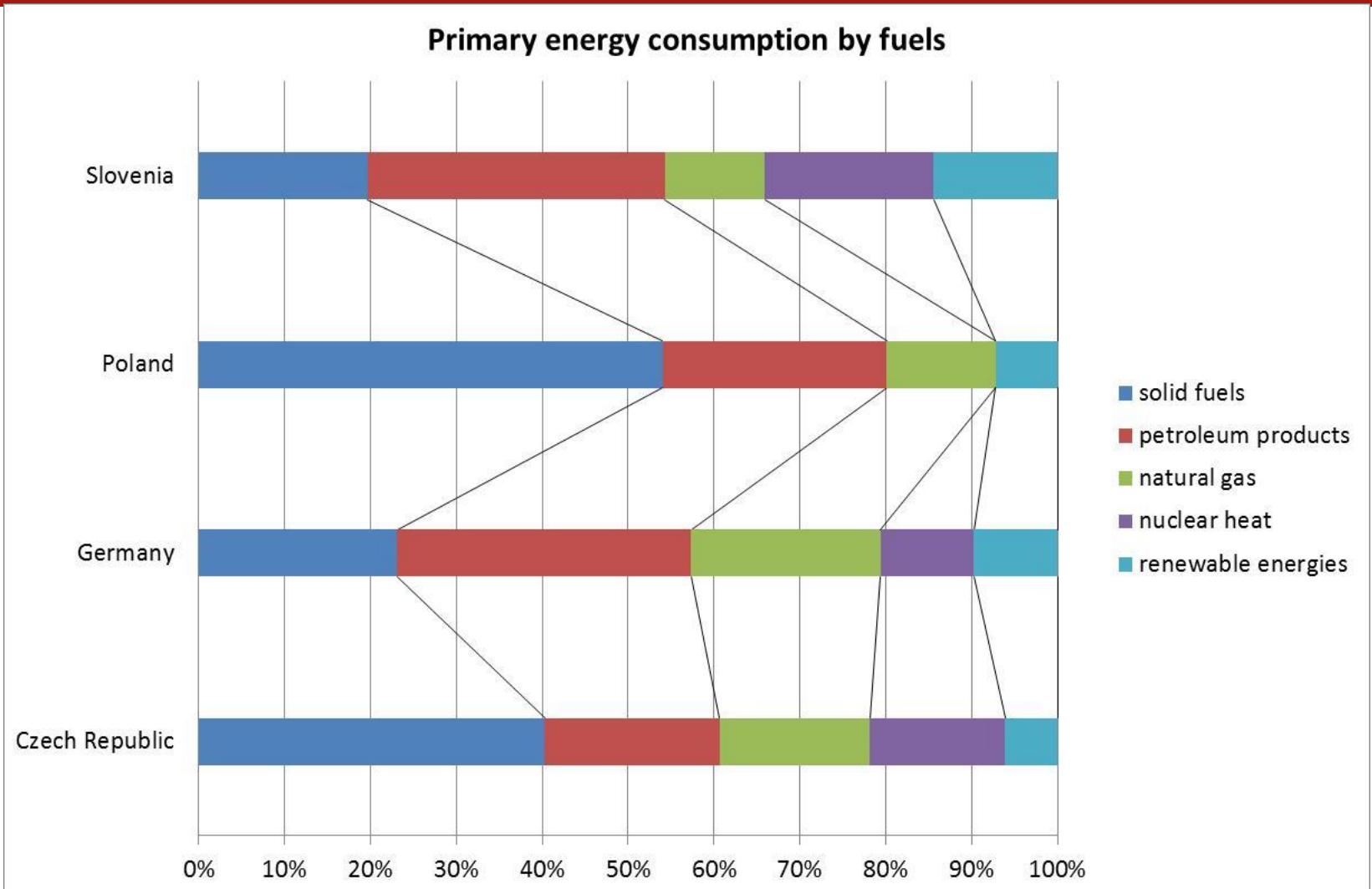




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Consumption - primary energy [source: EUROSTAT]



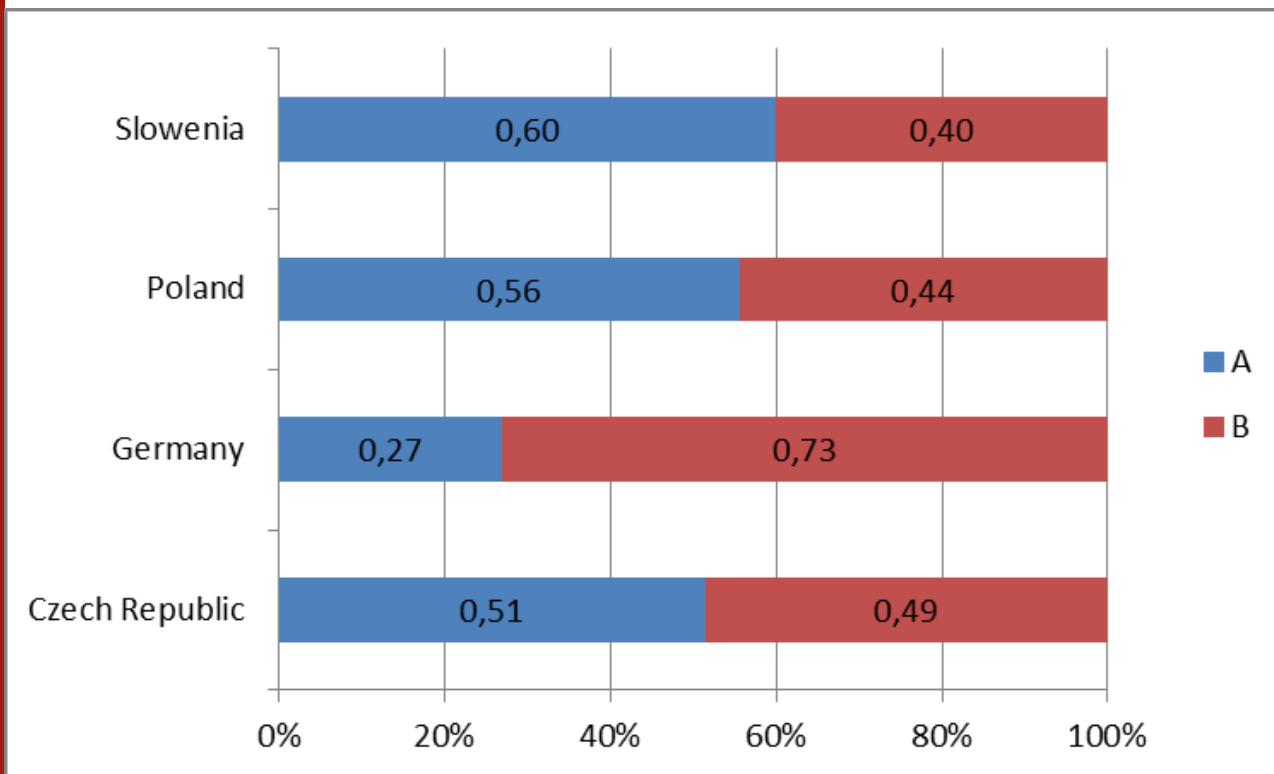


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Consumers perception - [source: SPECIAL EUROBAROMETER]

What are the most important issues facing today?



A - protecting the environment
B - energy related issues (energy prices, energy shortages, etc.)

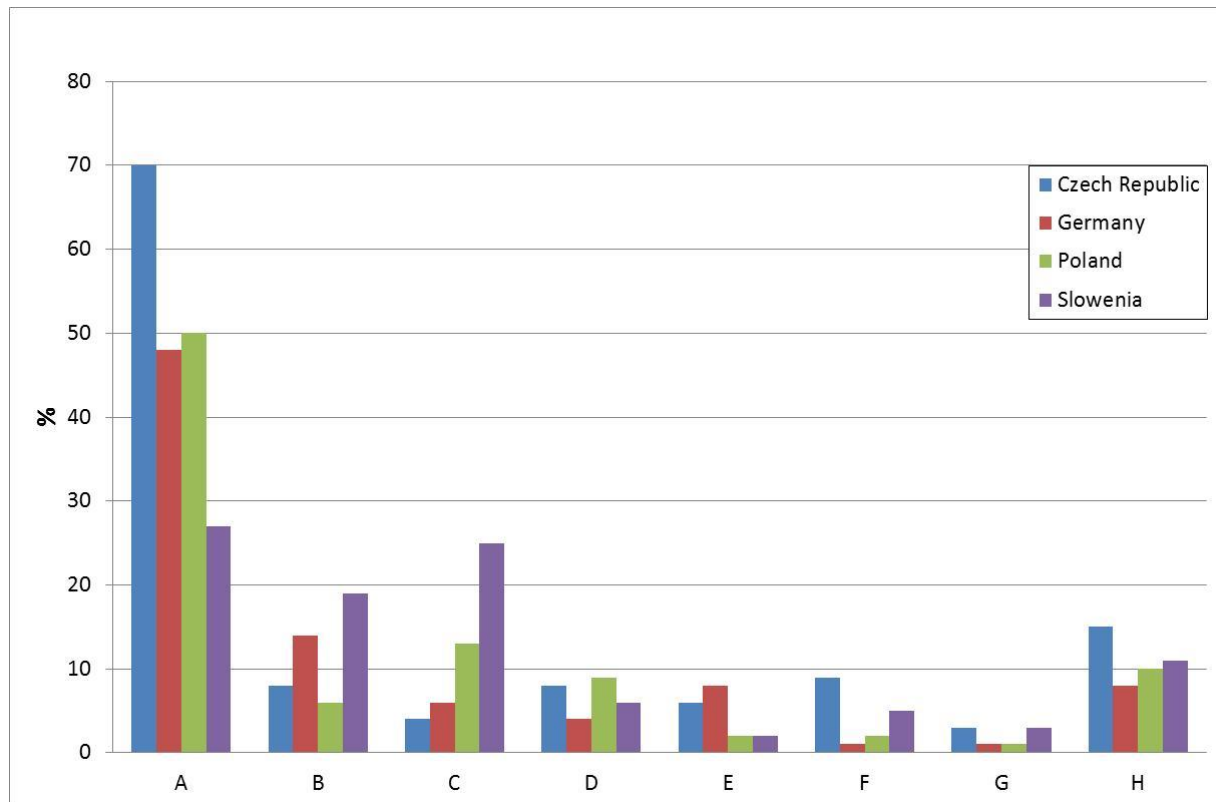


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Consumers perception - [source: SPECIAL EUROBAROMETER]

When you think about energy-related issues, what comes first into your mind?



- A - energy prices (increases, high prices, costs, etc.)
- B - renewable sources of energy (water, wind, sun, etc.)
- C - electricity supply
- D - limited energy sources (energy shortages, lack of energy, etc.)
- E - nuclear energy
- F - environmental issues (pollution, safety, etc.)
- G - fuel
- H - others

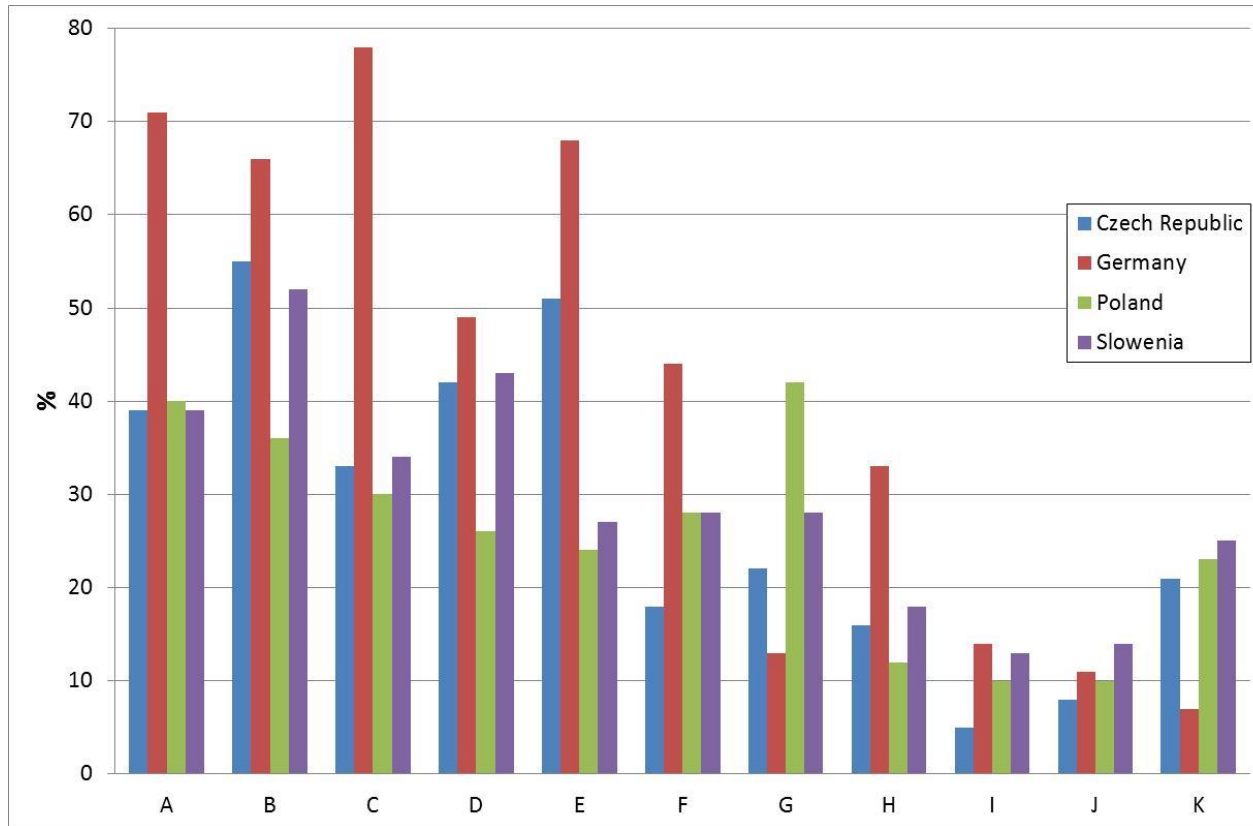


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Consumers perception - [source: SPECIAL EUROBAROMETER]

In the context of energy production, which, if any, of the following have you heard of?



- A - nuclear fusion
- B - hydrogen energy and cars
- C - geothermal energy
- D - ocean energy (tidal \ wave \ marine currents)
- E - fuel cells
- F - 4th generation nuclear reactors
- G - clean coal
- H - carbon capture and storage (CCS)
- I - ITER
- J - negawatt and sustainable decrease
- K - none of these

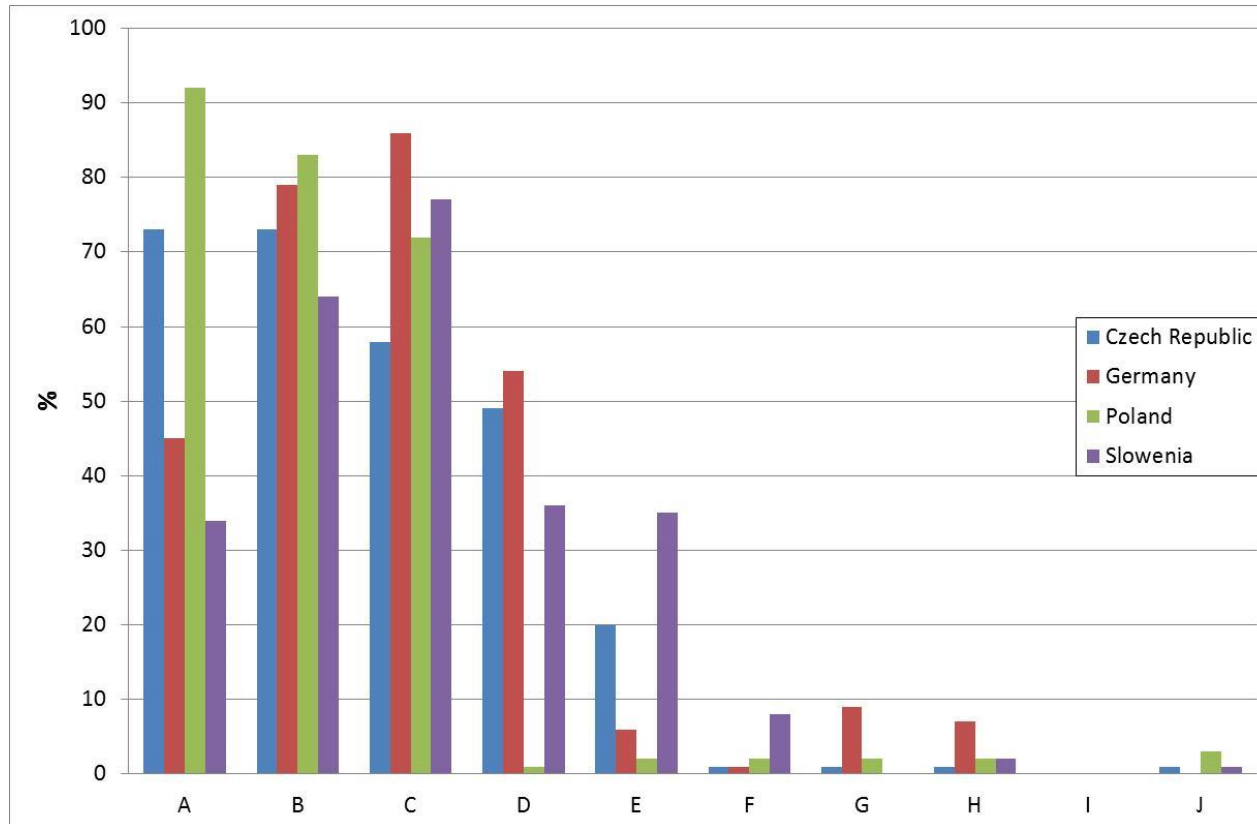


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Consumers perception - [source: SPECIAL EUROBAROMETER]

According to you, which of the following are the most used energy sources in?



- A - coal
- B - gas
- C - oil
- D - nuclear energy
- E - hydroelectric energy
- F - biomass energy
- G - wind energy
- H - solaenergy
- I - ocean energy
- J - don`t know



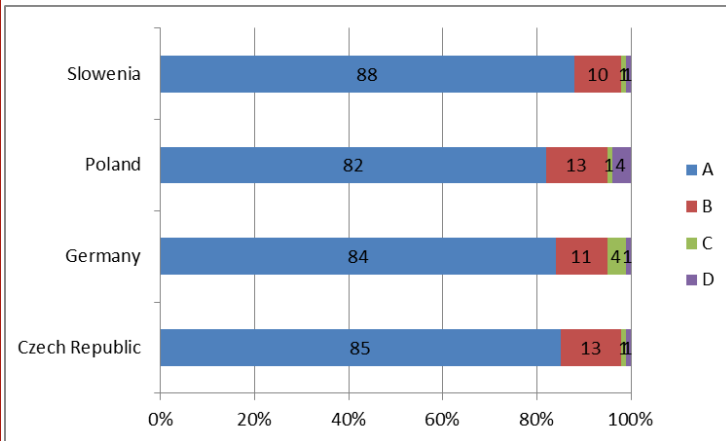
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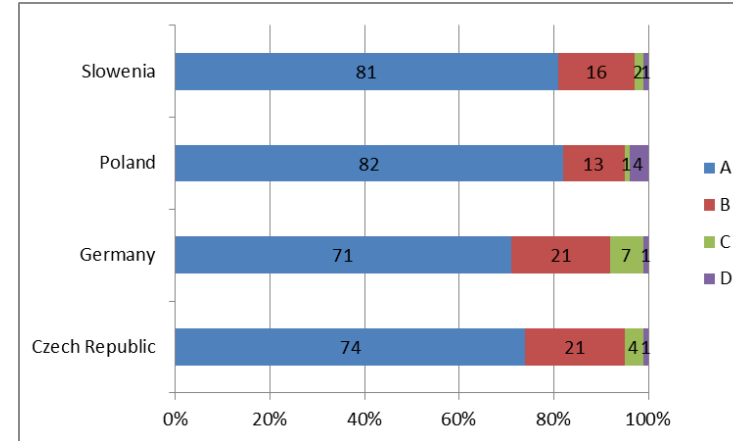
Consumers perception - [source: SPECIAL EUROBAROMETER]

Are you in favour or opposed to the use of these different sources of energy in your country?

SOLAR ENERGY



WIND ENERGY



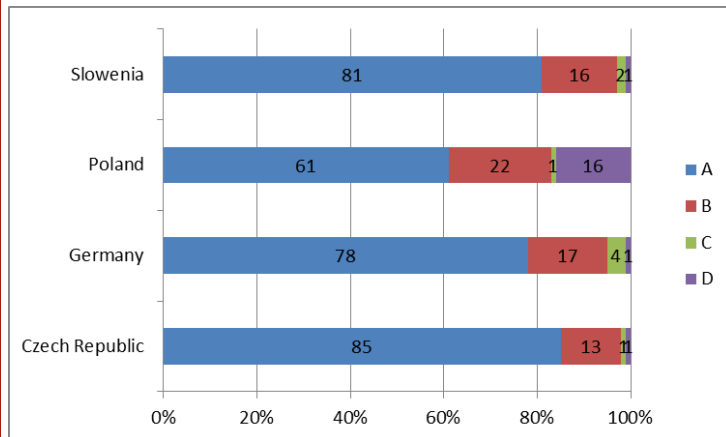
A - in favour

B - balanced views

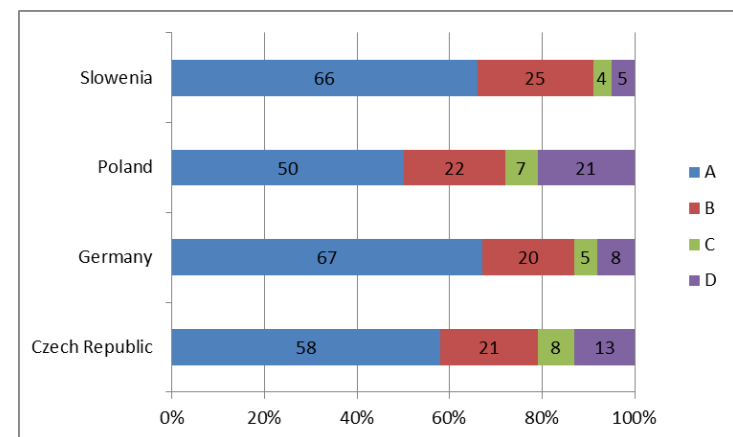
C - opposed

D - don't know

HYDROELECTRIC ENERGY



OCEAN ENERGY





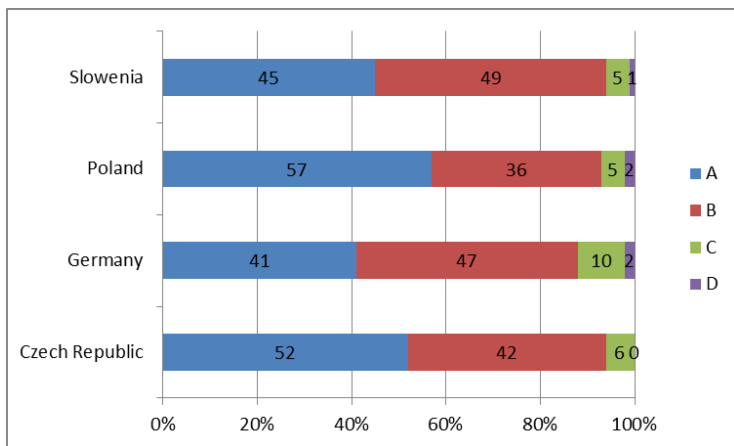
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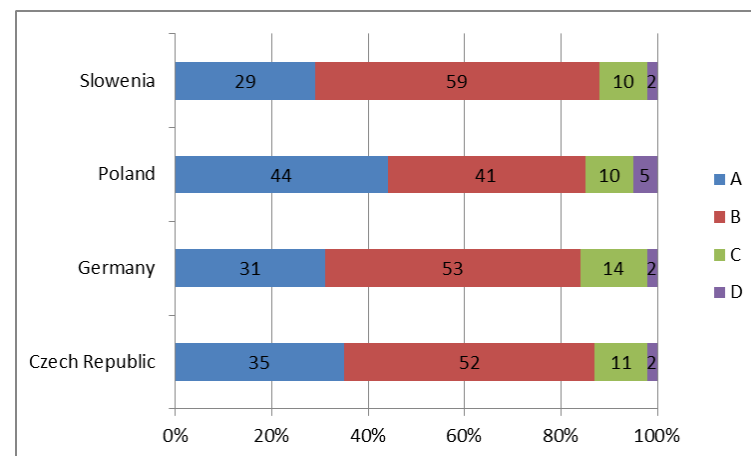
Consumers perception - [source: SPECIAL EUROBAROMETER]

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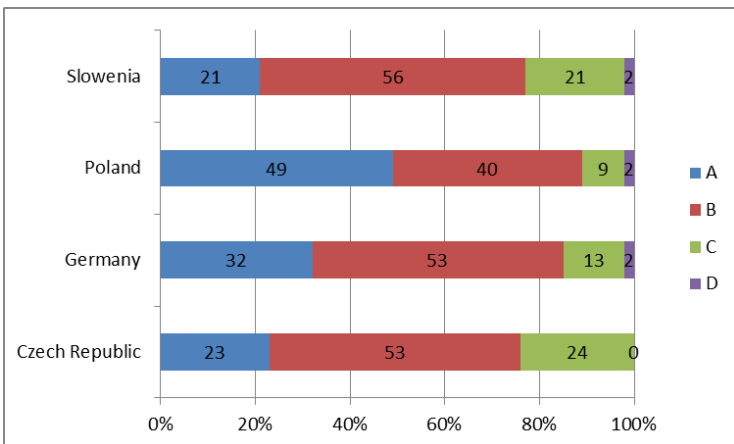
GAS



OIL



COAL



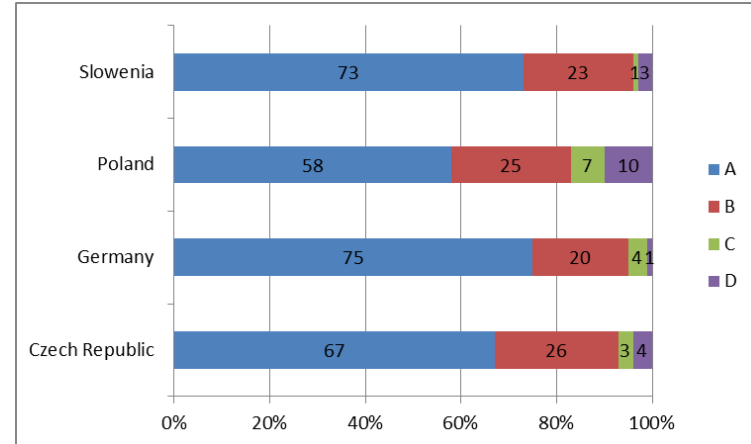
A - in favour

B - balanced views

C - opposed

D - don't know

BIOMASS



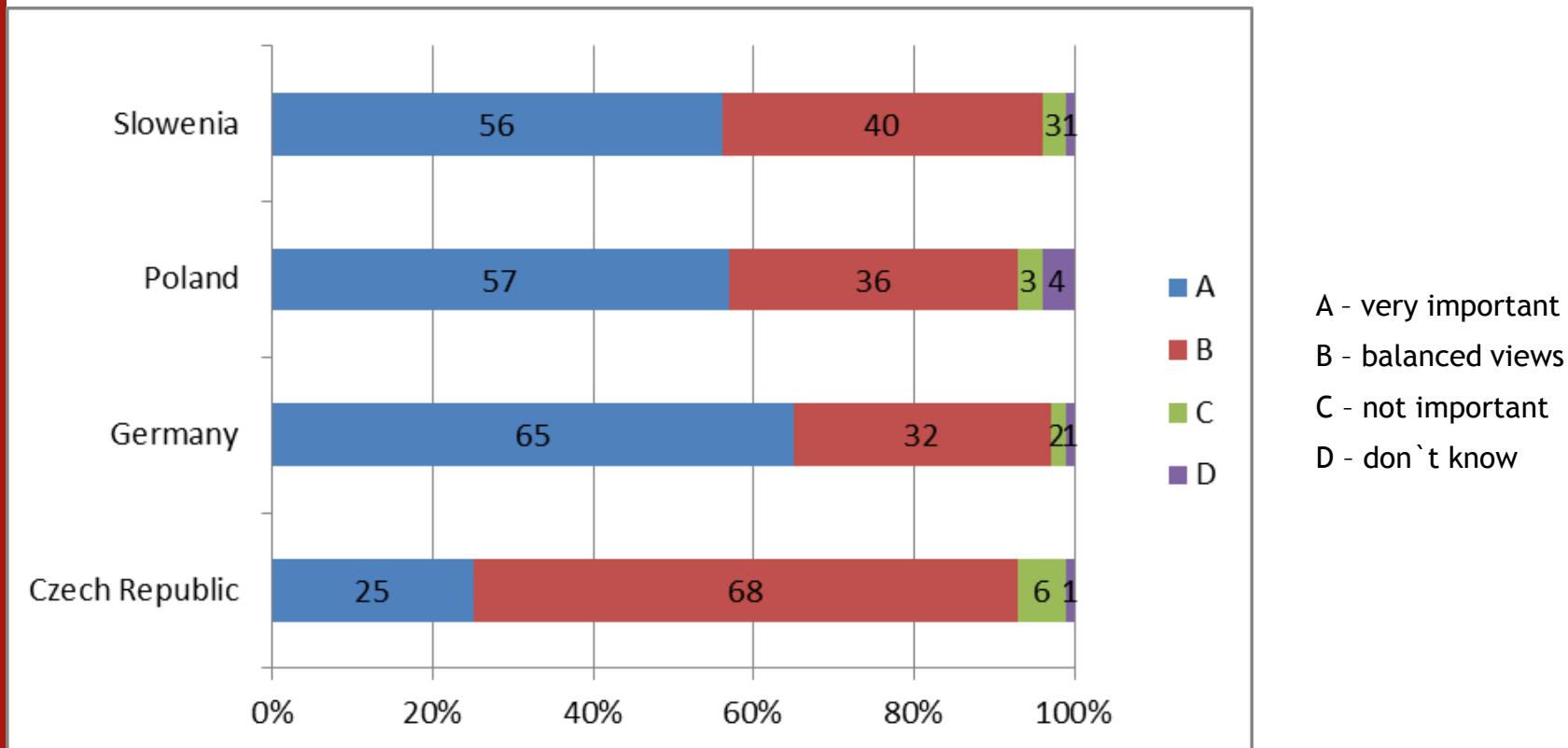


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Consumers perception - [source: SPECIAL EUROBAROMETER]

How important do you think it is to reduce energy consumption in your country?



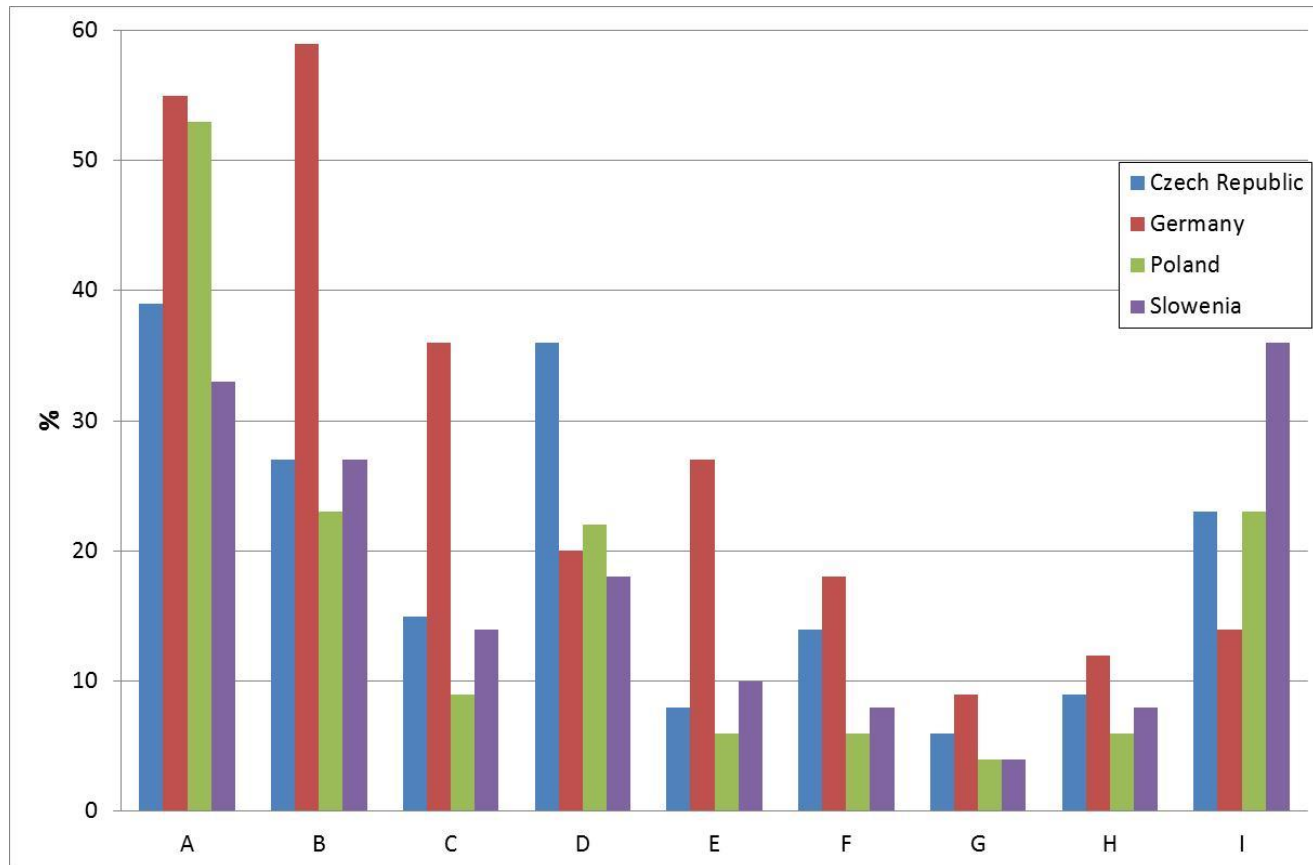


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Consumers perception - [source: SPECIAL EUROBAROMETER]

During the past year, have you done any of the following to save energy?



- A - cut down on lighting and the use of domestic electrical appliances
- B - cut down on heating and/or air conditioning
- C - used your car less
- D - insulated your house (walls, windows, etc.)
- E - reduced your driving speed
- F - used public transport more
- G - took initiatives to save energy at work
- H - changed your car to another one which uses less fuel
- I - none

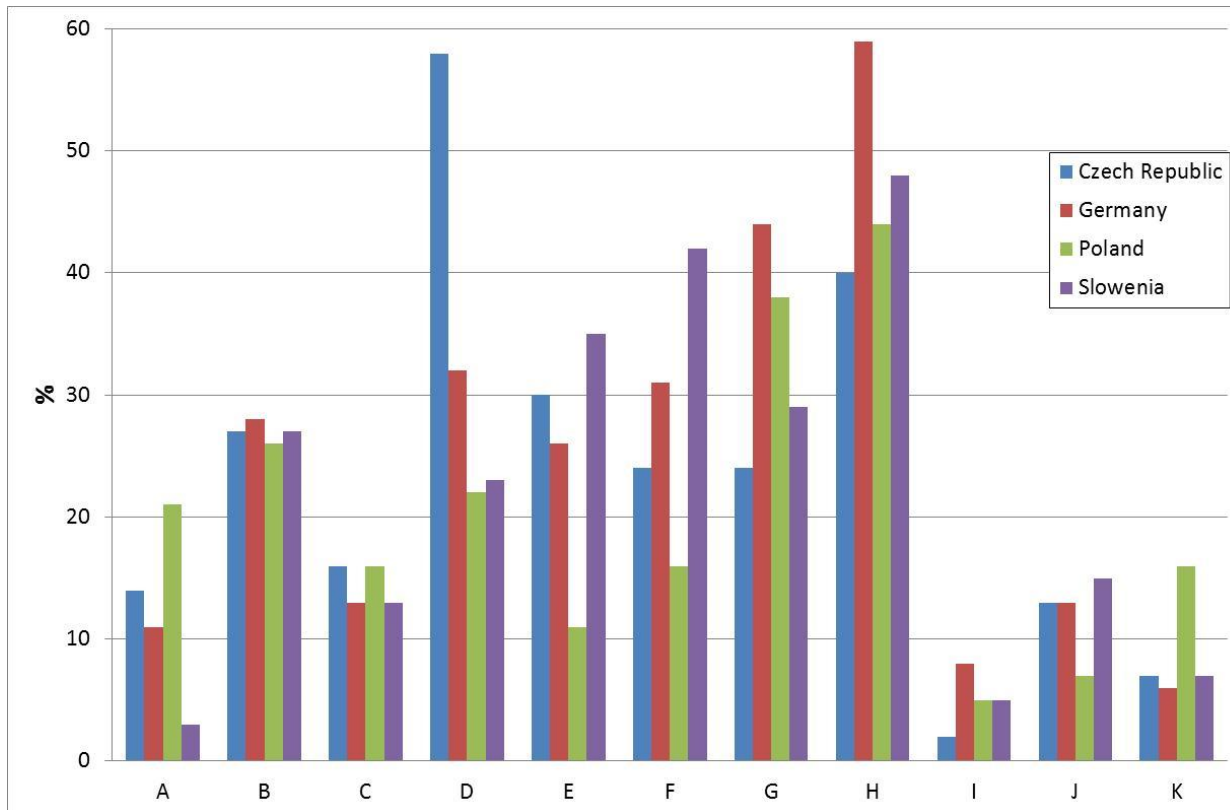


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Consumers perception - [source: SPECIAL EUROBAROMETER]

Thinking about energy in 30 years, which do you think will be the three most used energy sources in your country?



- A - coal
- B - gas
- C - oil
- D - nuclear energy
- E - hydroelectric energy
- F - biomass energy
- G - wind energy
- H - solar energy
- I - ocean energy
- J - another source of energy
which is not used today
- K - DK



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Transnational database - Guideline Document



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ENERGY REGION

Guideline Document

WP-3 (Core Output Task 3.1.2)

„Methodology for recognition of energy needs of consumers

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inż. Paweł Zimnowłodzi

A questionnaire templates for:
individual/public/industrial energy end-consumer,

1. GENERAL INFORMATION					
A. Location					
city (20000-30000 residents)		city (5000-15000 residents)		village (5000-10000 residents)	
village (approx. 5000 residents)					
B. Budget unit type					
city office/commune office		Hospital, Clinic		school/university/library	
theater/cinema/opera/museum		fire-brigade/police/city-police		others (please specify)	
C. Usable area					
D. Number of employees					
E. Mean number of clients (monthly/annual)					
2. ACCESS TO ENERGY CARRIERS AND SERVICES					
A. Access to energy services and distance from service (in km)					
power network		gas grid			
heat distribution network		combustible depot			
liquid fuels LPG depot		gas station			
B. What do you think about your access to energy carriers and services? RANGE: A – very good, B – good, C – sufficient, D – poor, E - bad					
ENERGY CARRIER	RANGE	ENERGY CARRIER	RANGE		
electricity		hard coal/coke/briquette/others			
natural gas		biomass (what kind?)			
liquid gas LPG		petrol/diesel			
furnace oil					
3. ENERGY SAFETY					
A. Does the stoppages of supplies of energy carriers and services occurs in your unit? RANGE: A - no, B – momentary, C – one hour, D – longer than one hour, E – 24 hour, F – longer than 1 day					
ENERGY CARRIER	RANGE	ENERGY CARRIER	RANGE		
electricity		water			
natural gas		heat from network			
Please describe, if you know, reasons of energy carriers and services supplies stoppages:					
B. Have you got any energy emergency services installed? (for ex. emergency current generator, etc.)					
yes	no	no, but I have plans for a such investment (when?)			
4. ENERGY CARRIERS AND SERVICES					
A. Mean cost of energy carriers <u>per year</u>					
ENERGY CARRIER	COST	ENERGY CARRIER	COST		
electricity		hard coal/coke/briquette/others			
natural gas		biomass (what kind?)			
liquid gas LPG		petrol/diesel			
furnace oil					
B. Percentage of energy cost in unit budget (without transport)					
lower than 5%	5% - 10%	10% - 20%	20% - 30%	30% - 40%	above 40%
C. Percentage of fuel cost in unit budget (transport only)					
lower than 5%	5% - 10%	10% - 20%	20% - 30%	30% - 40%	above 40%



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Transnational database - Guideline Document

A questionnaire template for an individual energy end-consumer

- GENERAL INFORMATION
- ENERGY CARRIERS AND SERVICES
- COOPERATION WITH SUPPLIERS AND ENERGY SERVICES
- ENERGY SAFETY
- CONDITION OF ENERGY RECEIVERS
- INCREASE THE EFFECTIVENESS OF THE USE OF MEDIA AND ENERGY SERVICES
- IMPLEMENTATION OF A NEW TECHNOLOGY, RENEWABLE ENERGY SOURCES, ENVIRONMENTAL PROTECTION, CREATING ENERGY SELF-SUFFICIENT FACILITIES

1. GENERAL INFORMATION					
A. Location					
city (20000-30000 residents)	city (5000-15000 residents)	village (5000-10000 residents)			
village (approx. 5000 residents)					
B. Budget unit type					
city office/commune office	Hospital, Clinic		school/university/library		
theater/cinema/opera/museum	fire-brigade/police/city-police		others (please specify)		
C. Usable area					
D. Number of employees					
E. Mean number of clients (monthly/annual)					
2. ACCESS TO ENERGY CARRIERS AND SERVICES					
A. Access to energy services and distance from service (in km)					
power network		gas grid			
heat distribution network		combustible depot			
liquid fuels LPG depot		gas station			
B. What do you think about your access to energy carriers and services?					
RANGE: A – very good, B – good, C – sufficient, D – poor, E - bad					
ENERGY CARRIER	RANGE	ENERGY CARRIER		RANGE	
electricity		hard coal/coke/briquette/others			
natural gas		biomass (what kind?)			
liquid gas LPG		petrol/diesel			
furnace oil					
3. ENERGY SAFETY					
A. Does the stoppages of supplies of energy carriers and services occurs in your unit?					
RANGE: A - no, B – momentary, C – one hour, D – longer than one hour, E – 24 hour, F – longer than 1 day					
ENERGY CARRIER	RANGE	ENERGY CARRIER		RANGE	
electricity		water			
natural gas		heat from network			
Please describe, if you know, reasons of energy carriers and services supplies stoppages:					
B. Have you got any energy emergency services installed? (for ex. emergency current generator, etc.)					
yes	no	no, but I have plans for a such investment (when?)			
4. ENERGY CARRIERS AND SERVICES					
A. Mean cost of energy carriers per year					
ENERGY CARRIER	COST	ENERGY CARRIER		COST	
electricity		hard coal/coke/briquette/others			
natural gas		biomass (what kind?)			
liquid gas LPG		petrol/diesel			
furnace oil					
B. Percentage of energy cost in unit budget (without transport)					
lower than 5%	5% - 10%	10% - 20%	20% - 30%	30% - 40%	above 40%
C. Percentage of fuel cost in unit budget (transport only)					
lower than 5%	5% - 10%	10% - 20%	20% - 30%	30% - 40%	above 40%

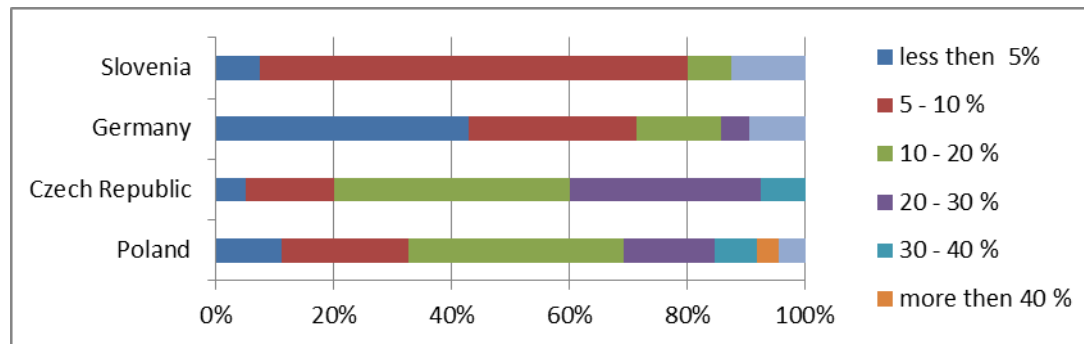


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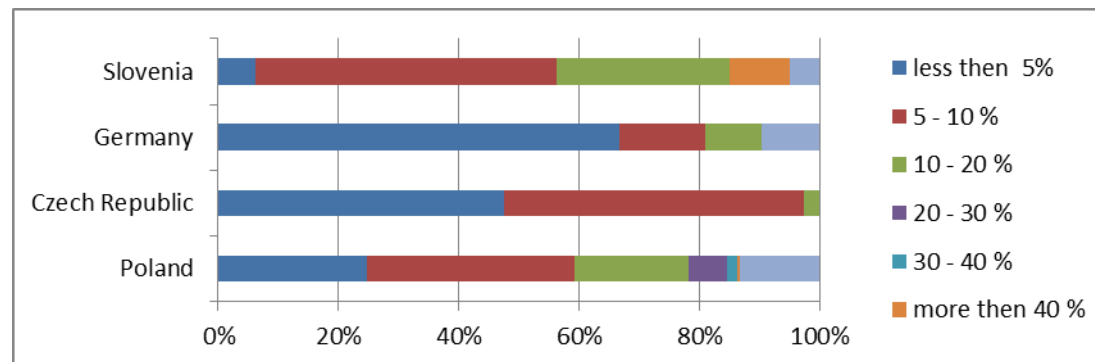
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Transnational database PART 2. ENERGY CARRIERS AND SERVICES

Question 2B. Percentage of energy cost in home budget (household only)



Question 2C. Percentage of fuel cost in home budget (transport only)





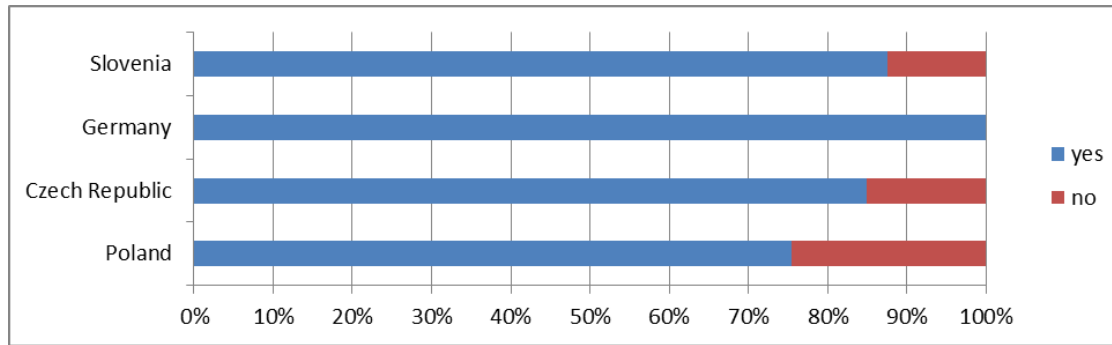
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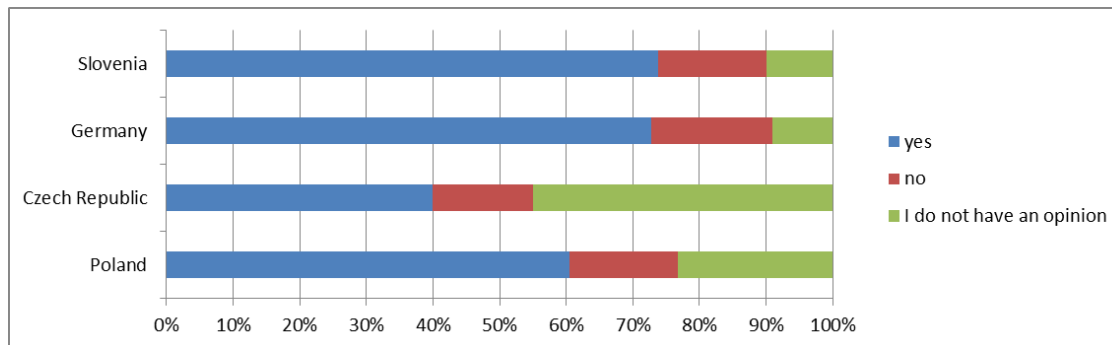
Transnational database

PART 3. COOPERATION WITH SUPPLIERS OF ENERGY CARRIERS AND SERVICES

Question 3A. Do you know about possibilities to choose energy carriers and suppliers (electricity, natural gas, etc.)?



Question 3B. Do the suppliers of energy carriers and services fulfill your requirements?





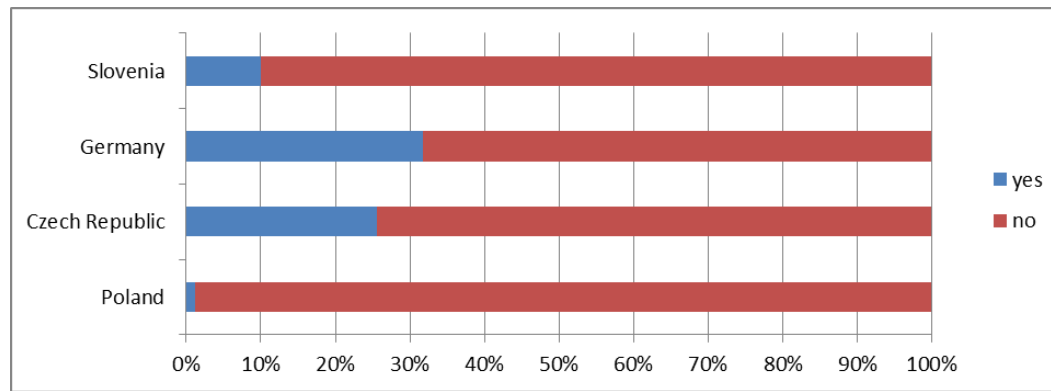
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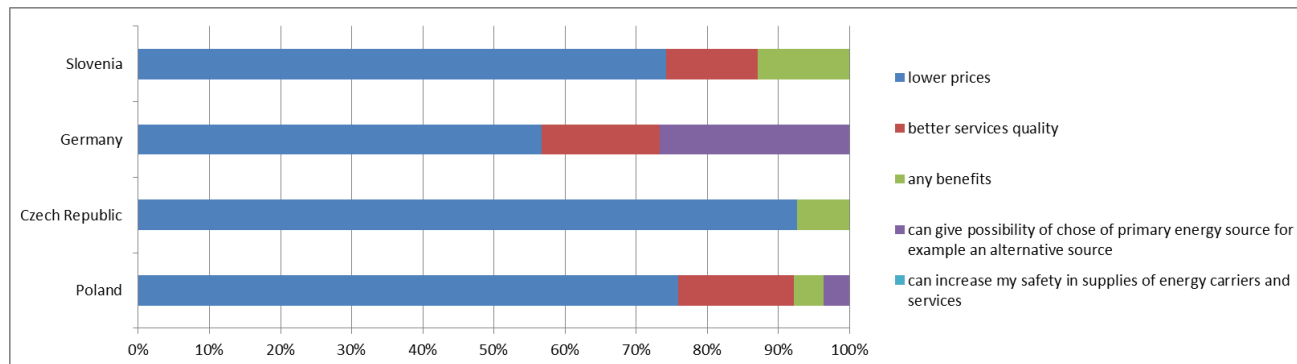
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PART 3. COOPERATION WITH SUPPLIERS OF ENERGY CARRIERS AND SERVICES

Question 3C. Did you change energy carriers and services supplier since last year?



Question 3D. What benefits, in your opinion, can give change of energy carriers and services supplier?





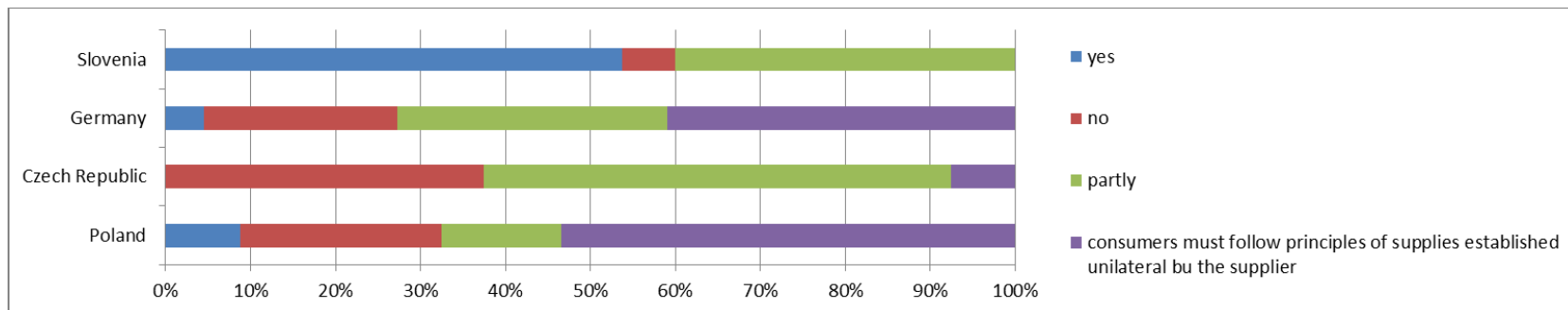
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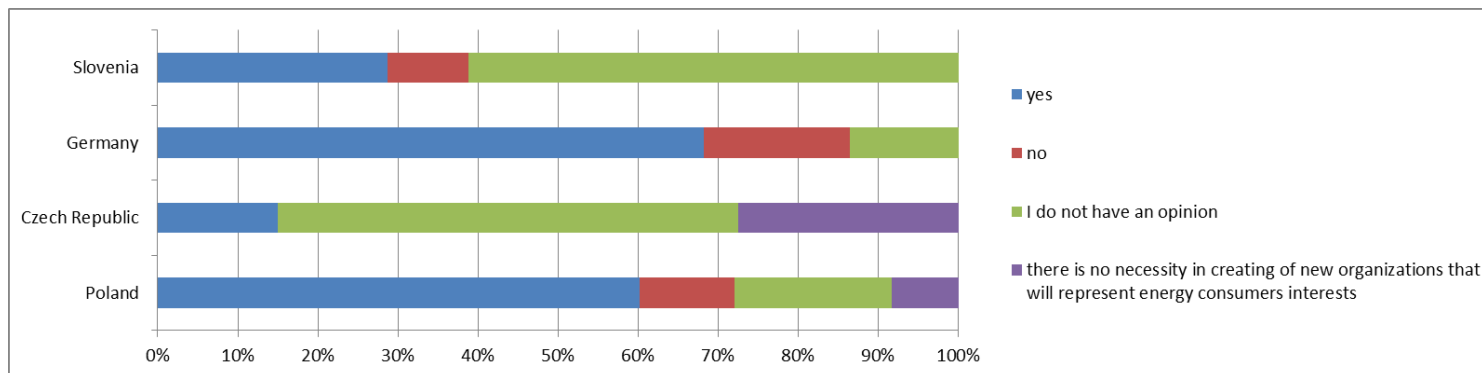
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PART 3. COOPERATION WITH SUPPLIERS OF ENERGY CARRIERS AND SERVICES

Question 3G. Do you think that suppliers are open for consumers needs in changes of supplies range?



Question 3H. Do you think that creation of consumers organizations will be helpful for better interests representation in contacts with suppliers?





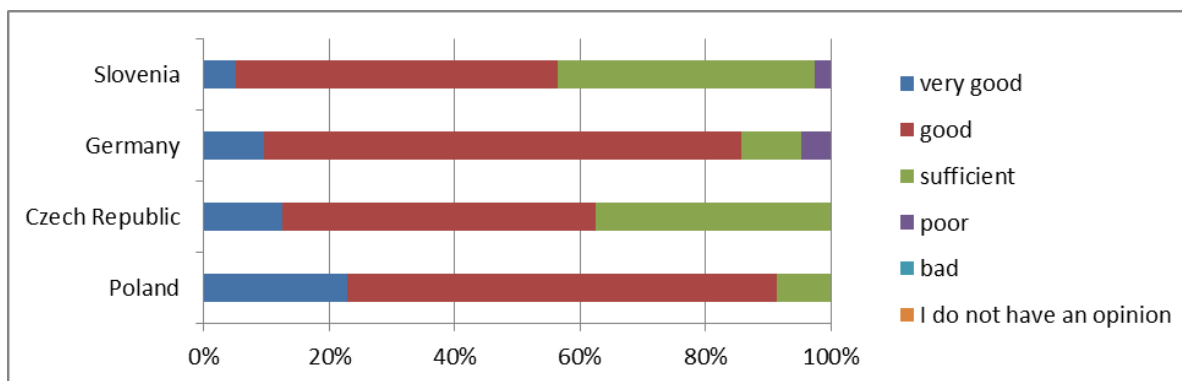
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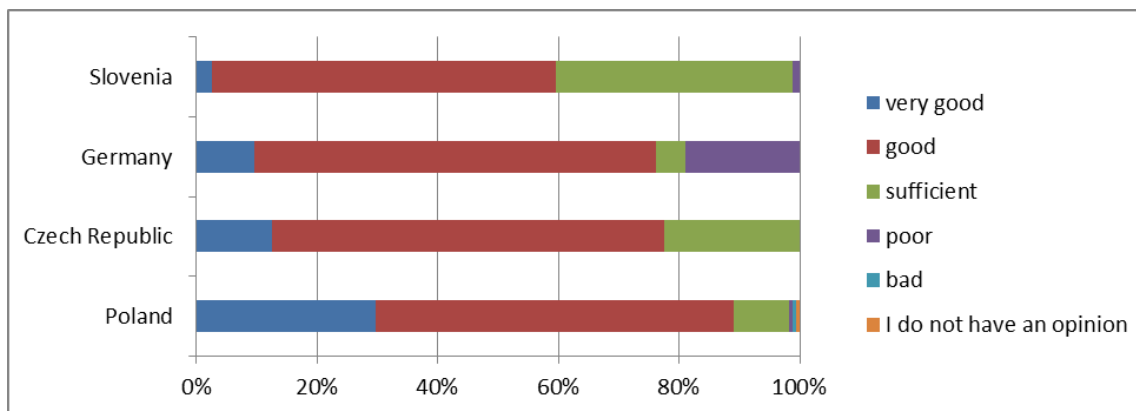
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PART 5. TECHNICAL STATE OF ENERGY RECEIVERS

Question 5B. Please specify technical state of electricity receivers in your household



Question 5C. Please specify technical state of heating units in your household





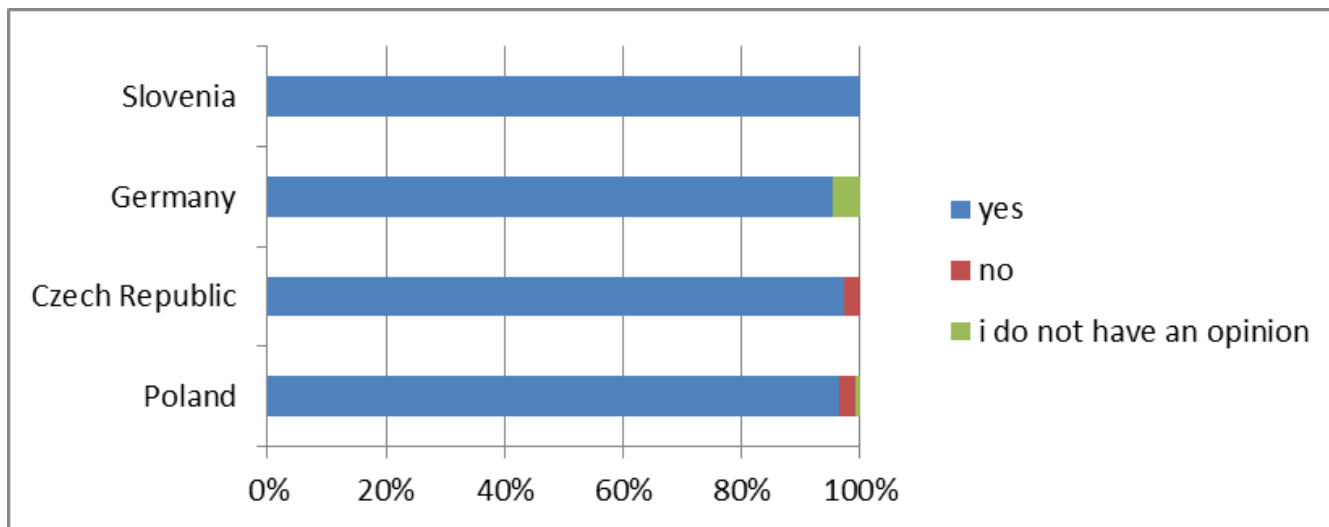
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PART 6. RAISE OF EFFICIENCY OF ENERGY CARRIERS AND SERVICES CONSUMPTION

Question 6A. Do you think that energy saving is important?





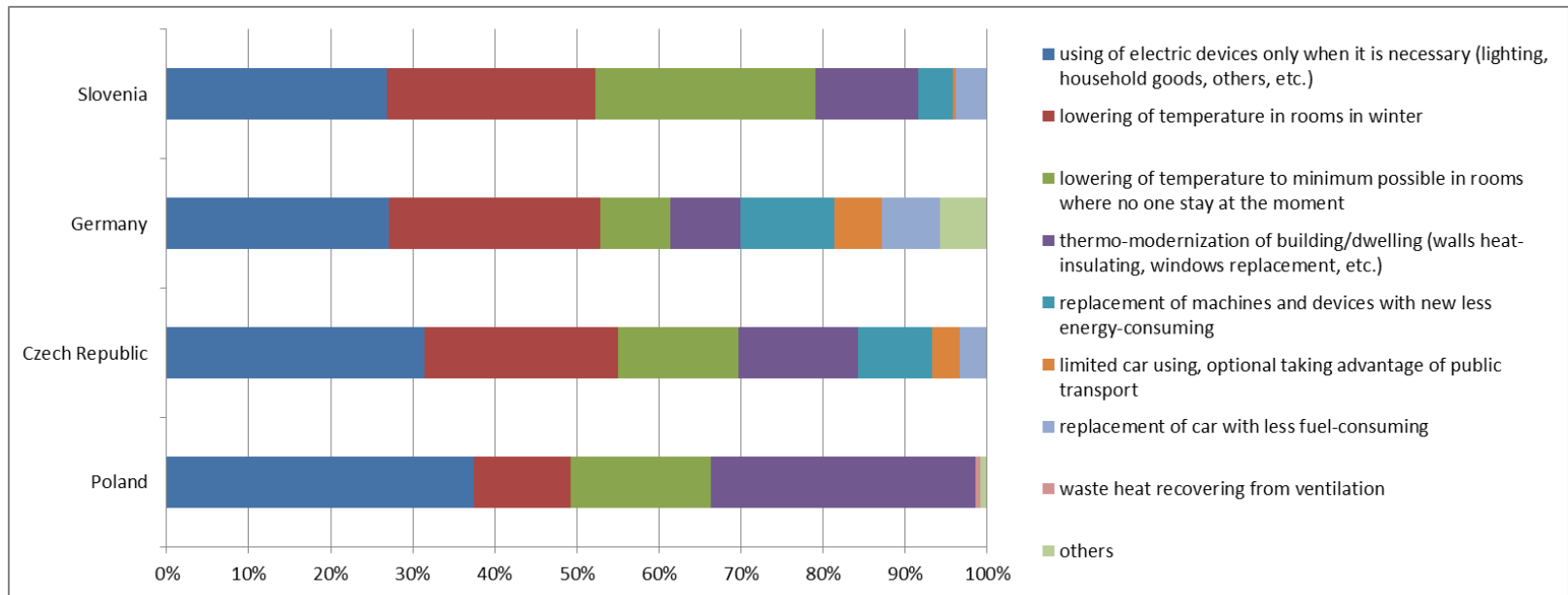
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PART 6. RAISE OF EFFICIENCY OF ENERGY CARRIERS AND SERVICES CONSUMPTION

Question 6B. What kind of actions do you perform for energy saving?





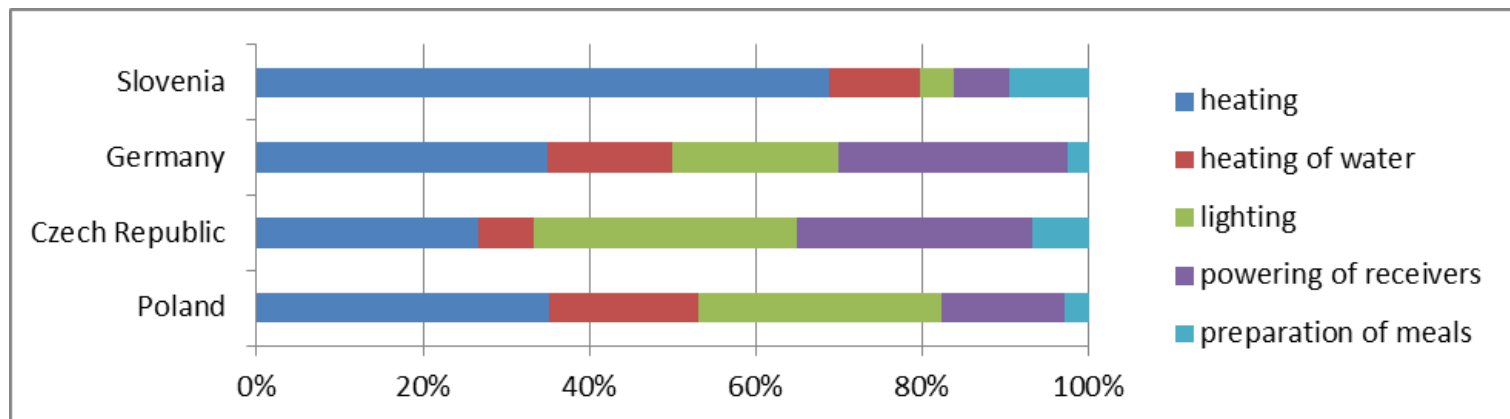
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PART 6. RAISE OF EFFICIENCY OF ENERGY CARRIERS AND SERVICES CONSUMPTION

Question 6C. In which area energy saving is most important in your opinion?





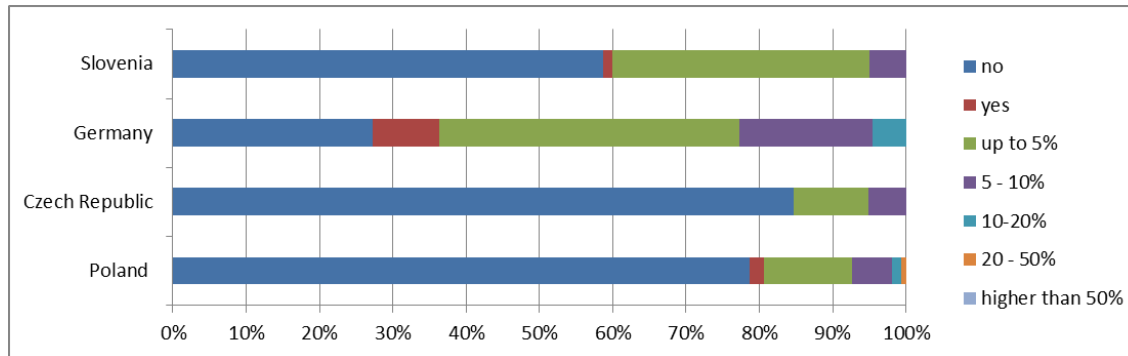
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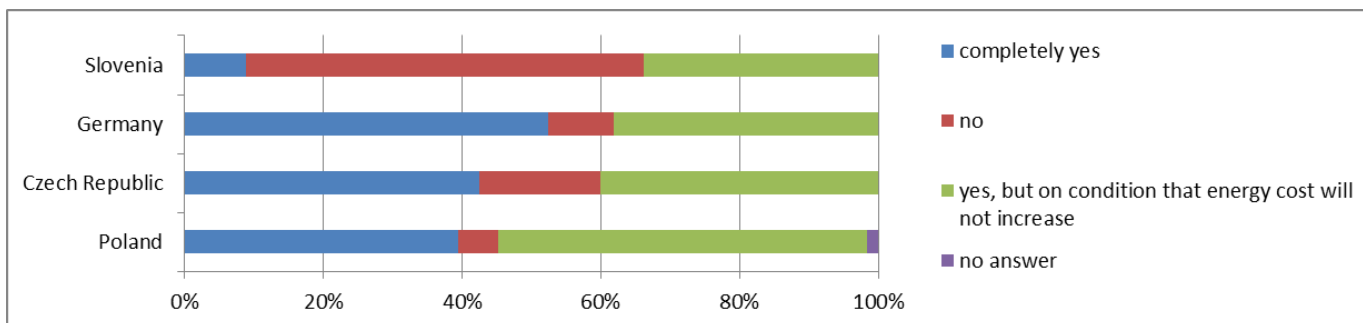
Transnational database

PART 7. POSSIBILITY OF USING NEW TECHNOLOGY, RES, ENVIRONMENT PROTECTION, AND NECESSITY OF ENERGY SELF-SUFFICIENT OBJECTS

Question 7A. Would you consent to pay higher cost for energy if it would be connected with RES or innovative energy technologies use?



Question 7B. Do you think that setting of self-sufficient energy centers ensuring safety of energy supplies in your Region/city/place/commune/settlement is right?





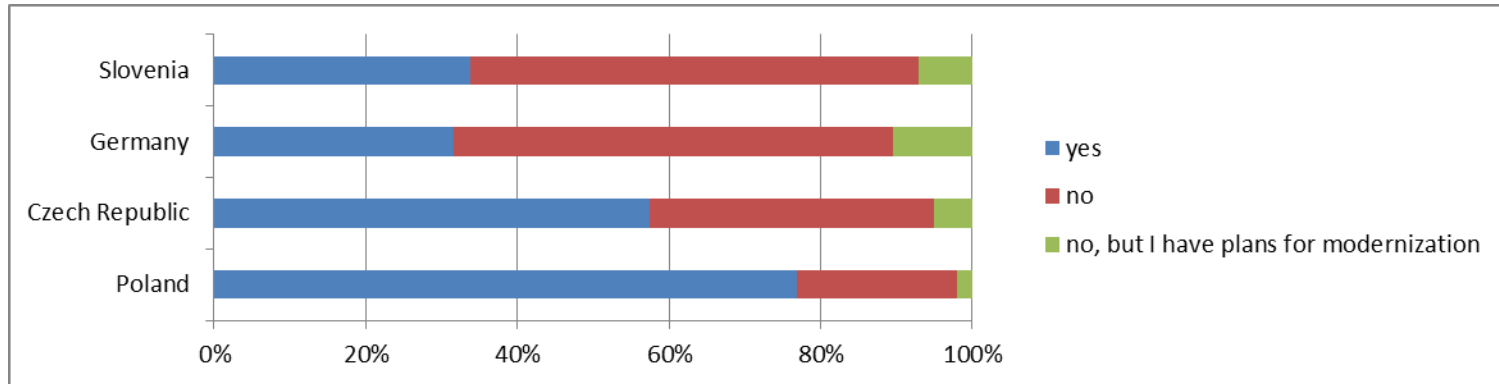
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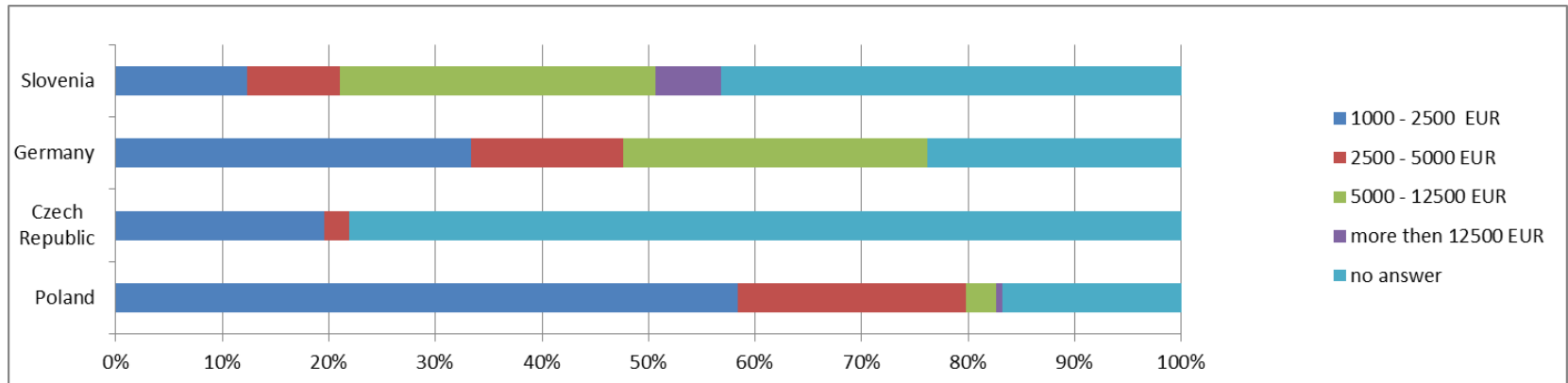
Transnational database

PART 7. POSSIBILITY OF USING NEW TECHNOLOGY, RES, ENVIRONMENT PROTECTION, AND NECESSITY OF ENERGY SELF-SUFFICIENT OBJECTS

Question 7C. Does your household was thermo-modernized recently?



Question 7D. How much money would you like to invest in RES installations to cover your personal demand?





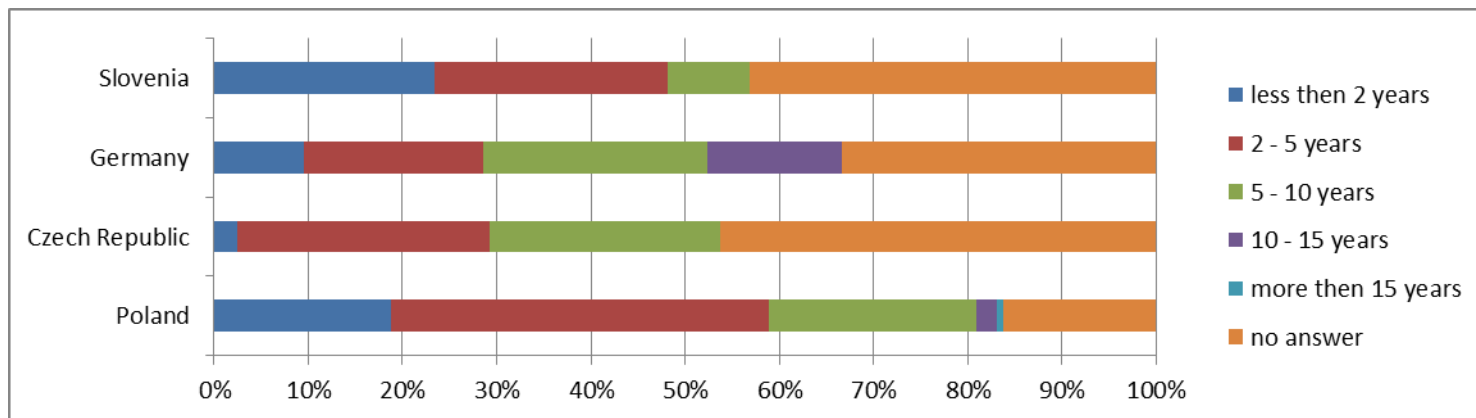
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PART 7. POSSIBILITY OF USING NEW TECHNOLOGY, RES, ENVIRONMENT PROTECTION, AND NECESSITY OF ENERGY SELF-SUFFICIENT OBJECTS

Question 7E. What RES investment payout time/ROI would be satisfying for you?





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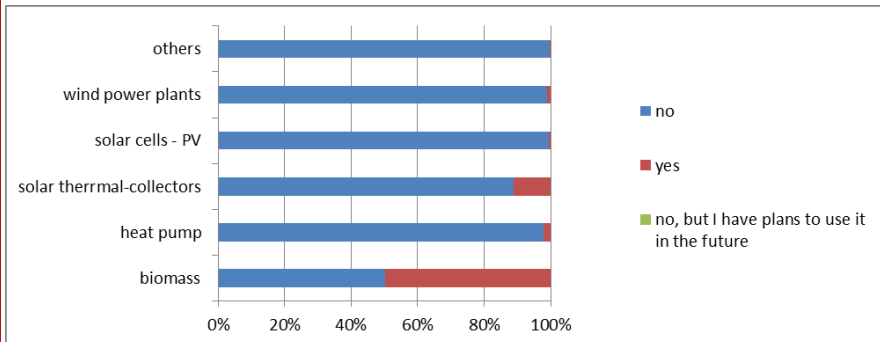
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Transnational database

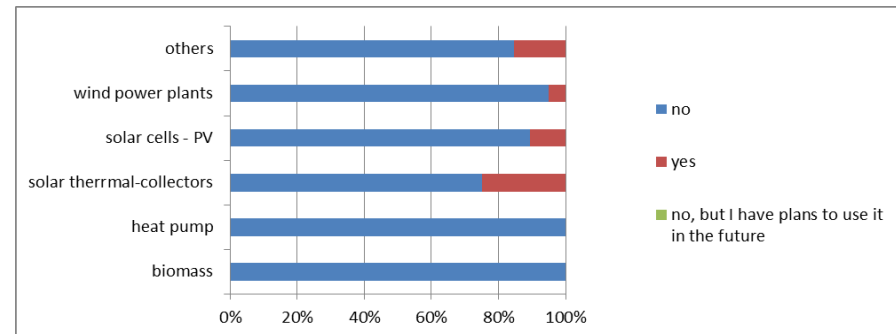
PART 7. POSSIBILITY OF USING NEW TECHNOLOGY, RES, ENVIRONMENT PROTECTION, AND NECESSITY OF ENERGY SELF-SUFFICIENT OBJECTS

Question 7F. Do you use energy from RES ?

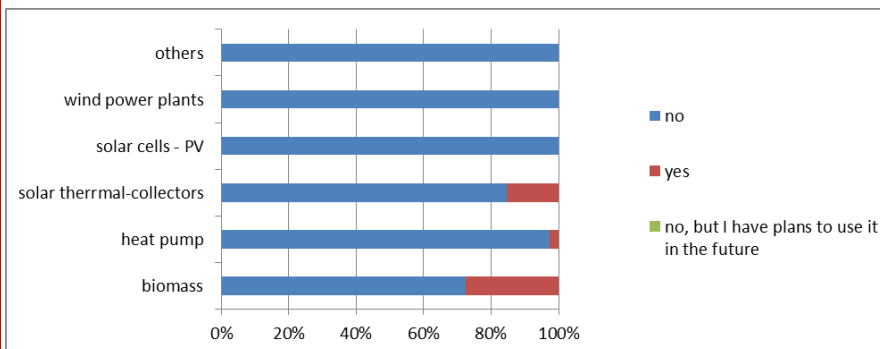
Poland



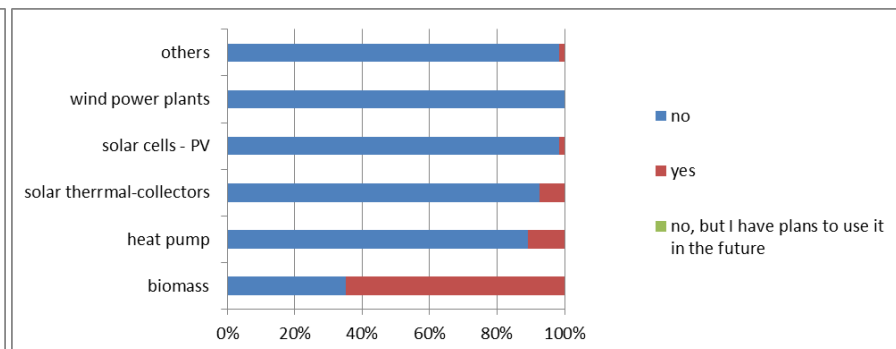
Germany



Czech Republik



Slovenia





CO-OPERATING FOR SUCCESS

ENERGYREGION - Effective development of dispersed renewable energy in combination with conventional energy in Regions

Conclusions

The results of the transnational survey on the energy end-consumers showed that:

- the knowledge about different topics related to the energy consumption is different in regions,

Energy topics:

- consumption is increasing
- energy prices are increasing everywhere
- using of the different sources of energy
- reduce energy consumption and saving energy
- energy dependence/energy safety
- consumer - supplier relationships
- consumer as a player/payer on the energy market ?