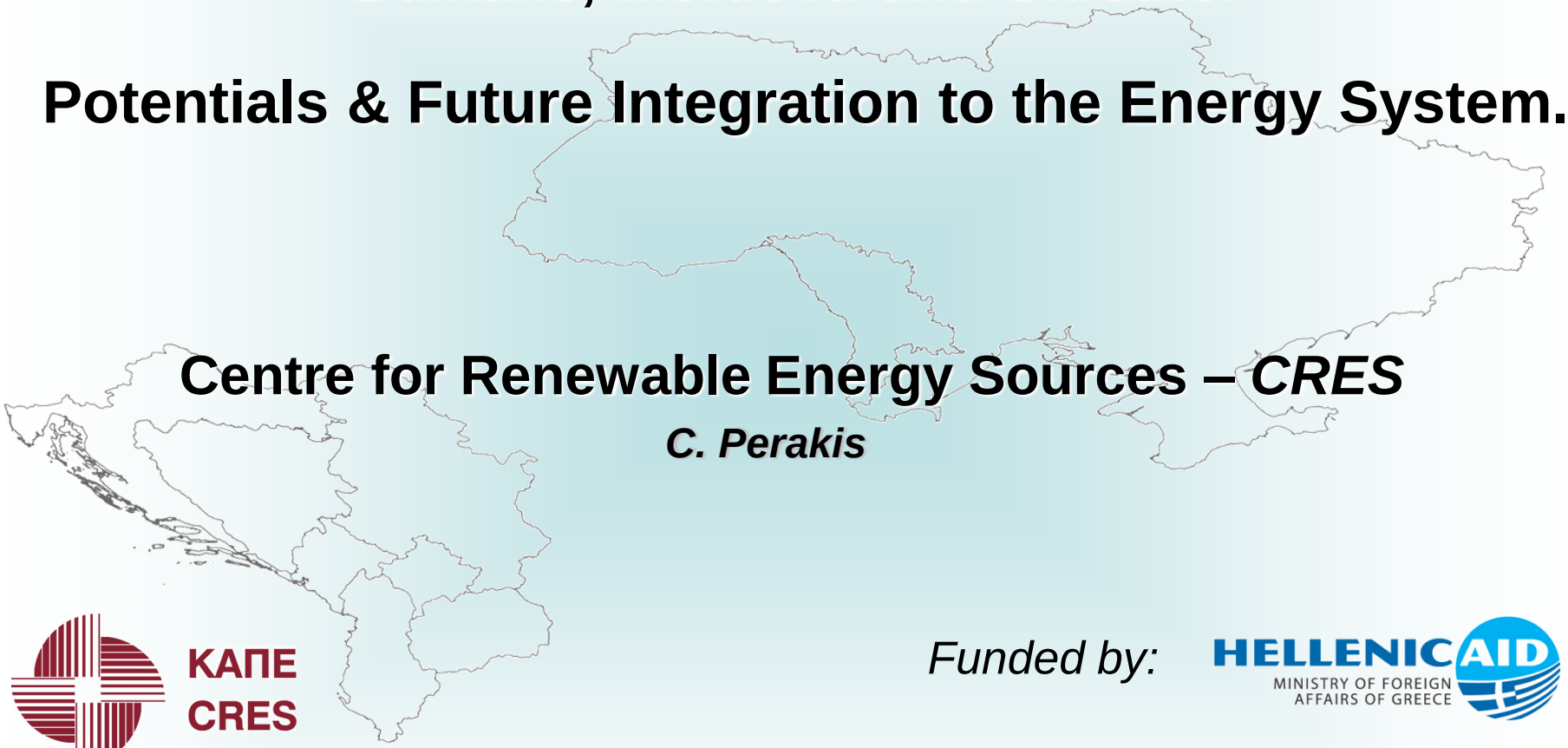
Role of Biomass in the Energy Market of Western Balkans, Moldova and Ukraine.

Potentials & Future Integration to the Energy System.



Centre for Renewable Energy Sources – *CRES*

C. Perakis

ΚΑΠΕ
CRES

Funded by: HELLENIC AID MINISTRY OF FOREIGN AFFAIRS OF GREECE

3rd International Scientific Conference on Energy & Climate Change

Athens, 7-8 October 2010

PROMITHEAS NET

BSEC

Project team

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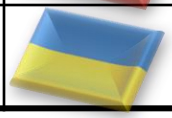
Moldova		C. Bordeianu (CAPMU)
Ukraine		T. Zheliezna; G. Geletukha (SEC Biomass LTD)

Biomass potential estimation Approach

Bottom up

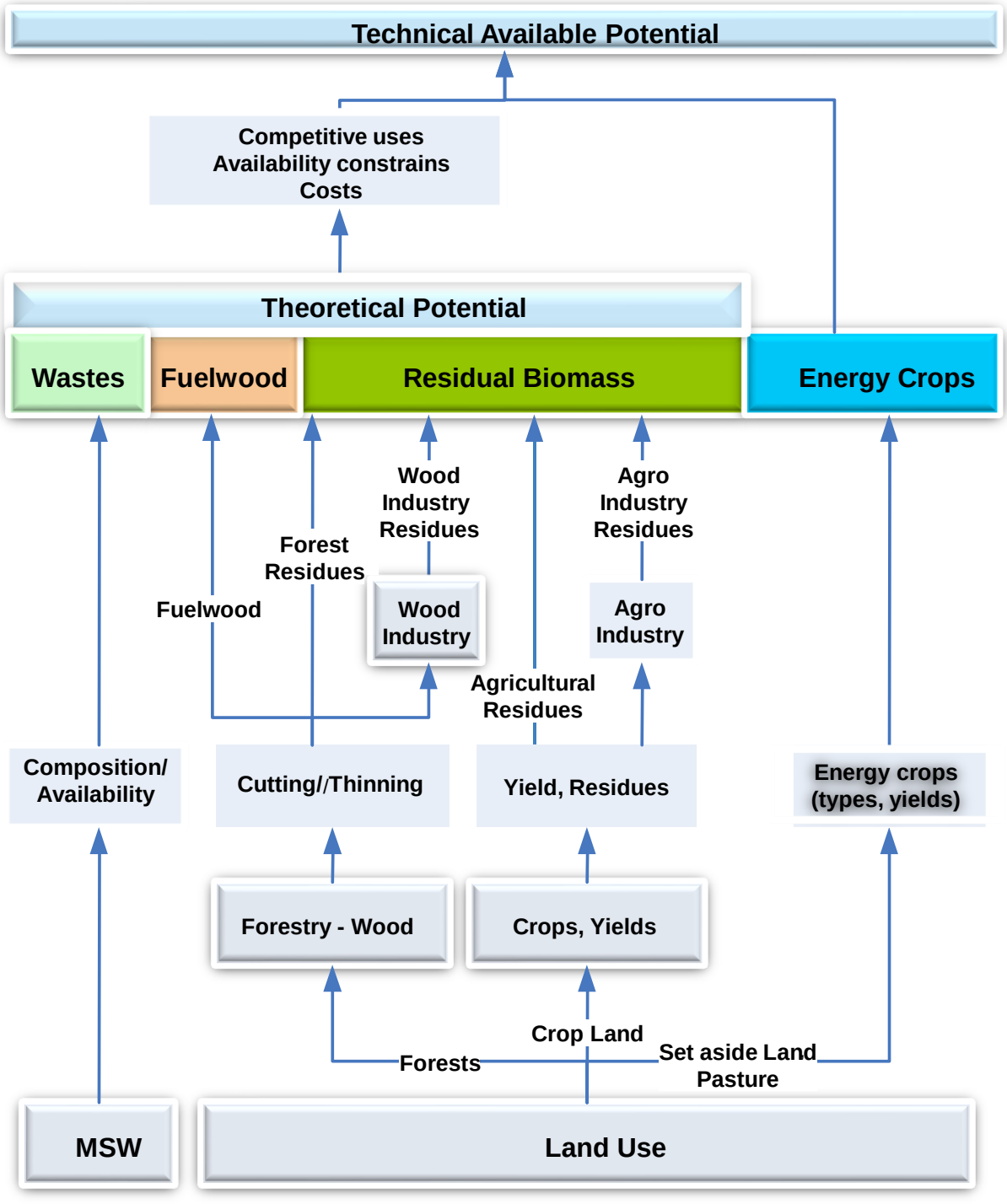
Reference year: 2008

Data sources

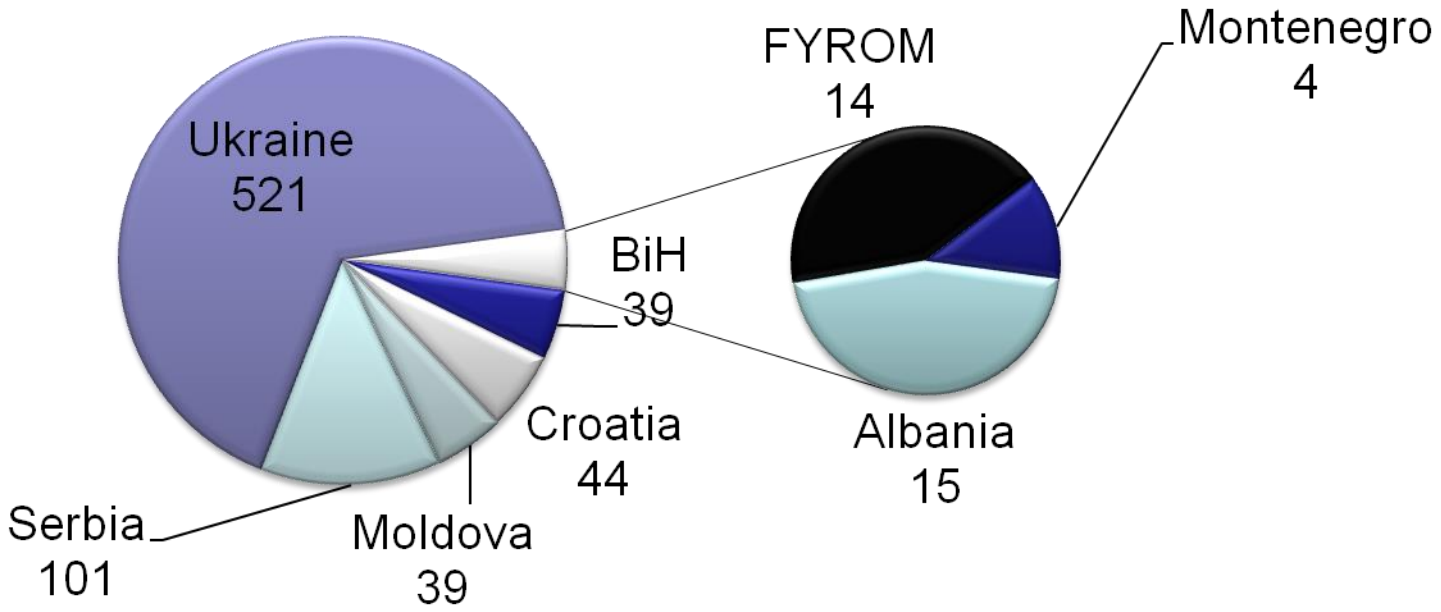
- National statistics
- Recent literature
- National Experts

Biomass feedstocks

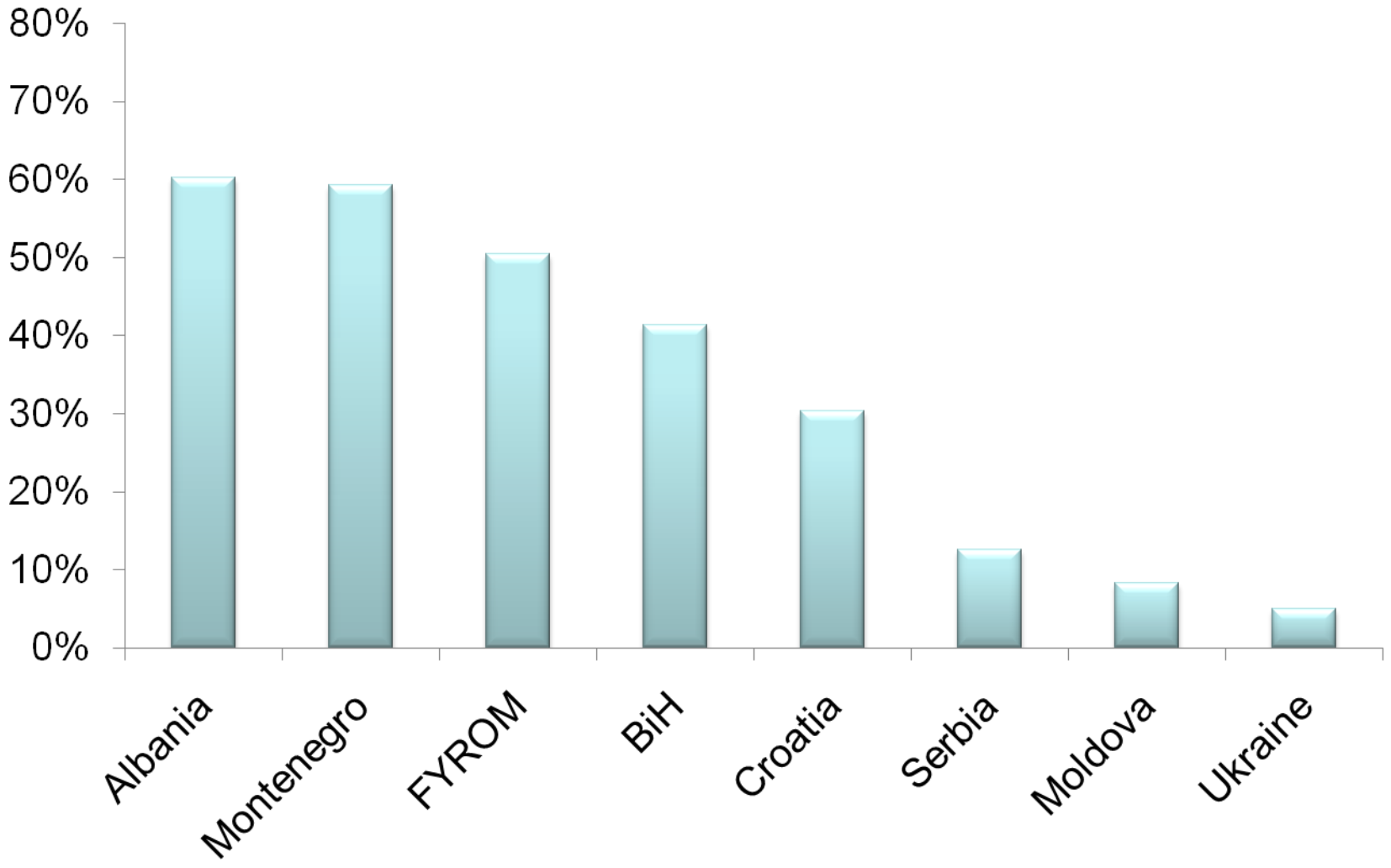
- Residual biomass
- Fuelwood
- Energy crops
- MSW (organic fraction)



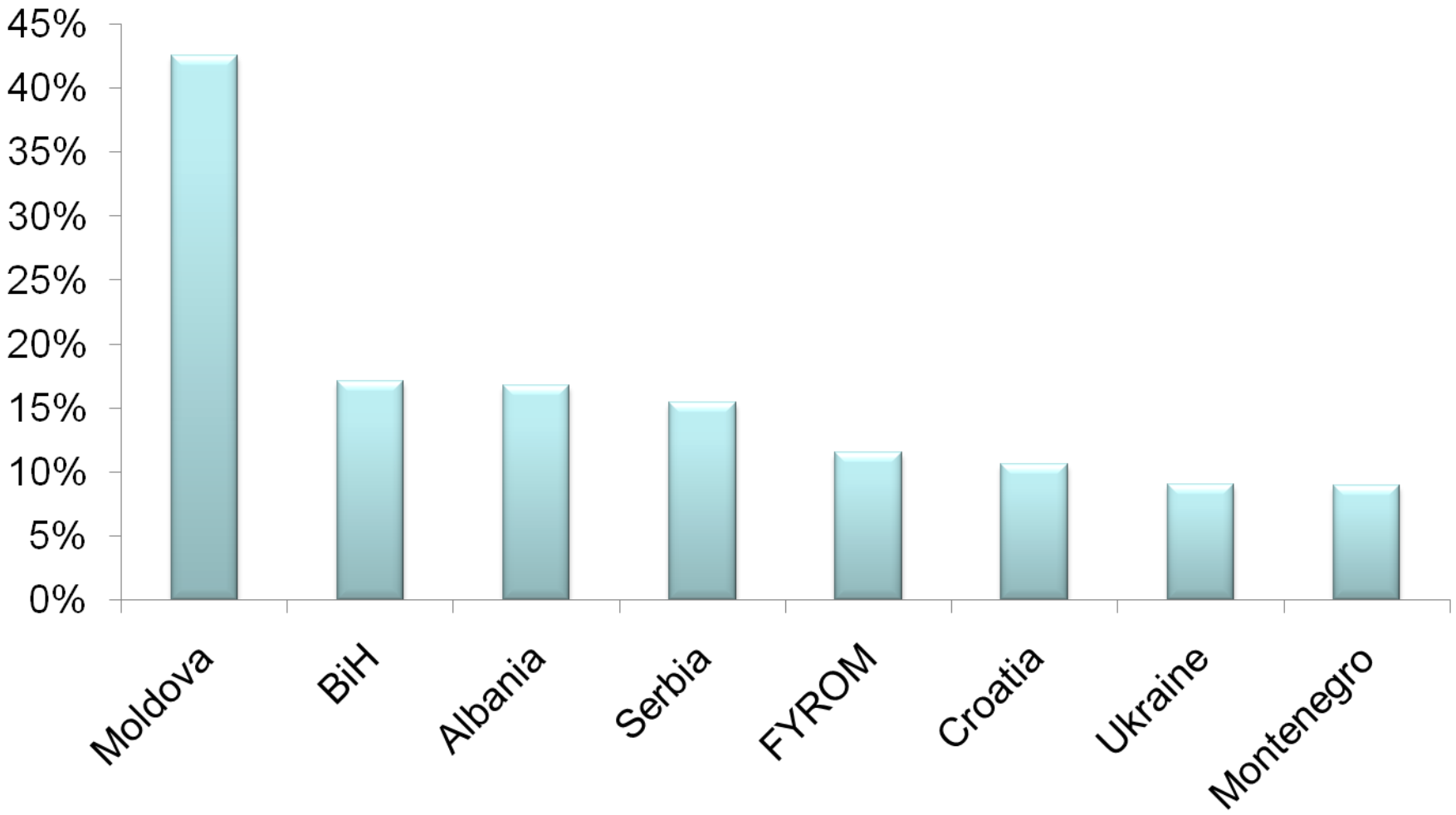
Countries' biomass technical potential (PJ)



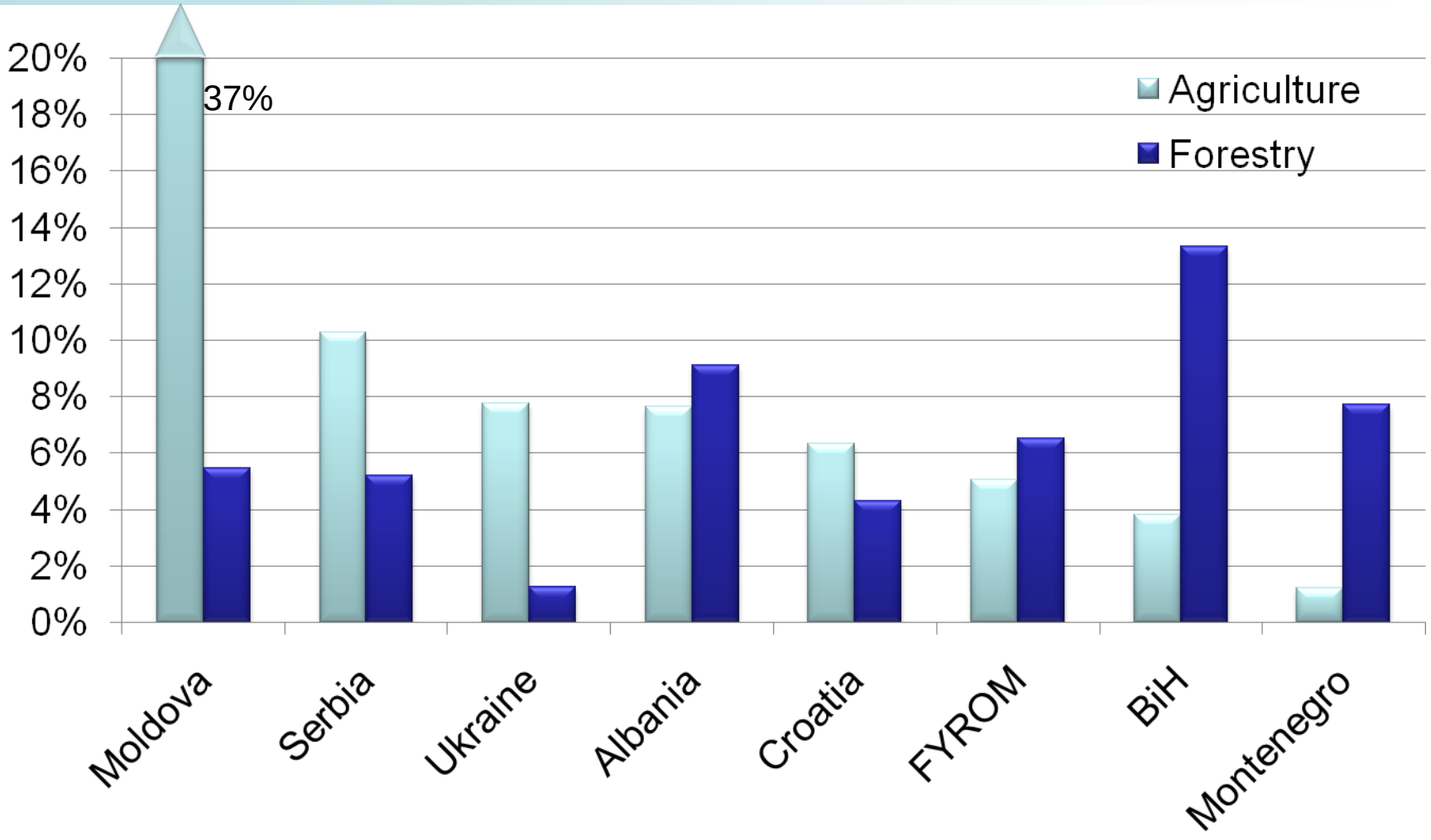
Current biomass use in relation to the potential



Biomass potentials as % of TPES



Relative contribution of agriculture & forestry to the biomass potentials as % of TPES

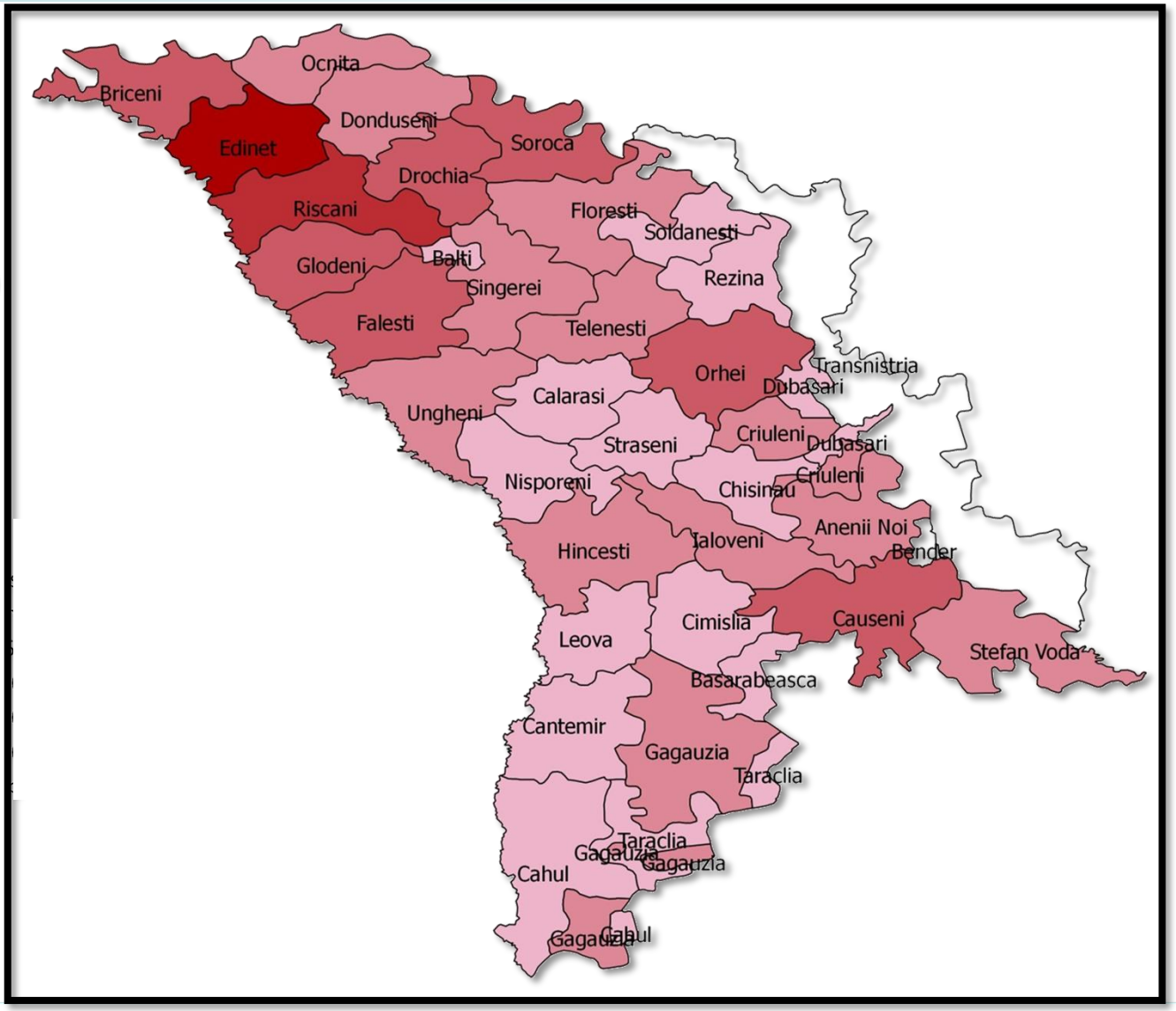


Biomass potential estimation at a regional (NUTS 3) level

Moldova

Livestock residues

Technical potential (PJ)



Bio-energy demand analysis

Biofuels for road transport

- 10% share (energy content) by 2020/15% by 2030
- Mix of 1st & 2nd generation

Co-firing

- 5% by mass of current use of solid fuel PP and DH units
- Woody biomass & energy crops

Biogas

- Decentralized CHP
- No pumping to natural gas grid
- Livestock residues

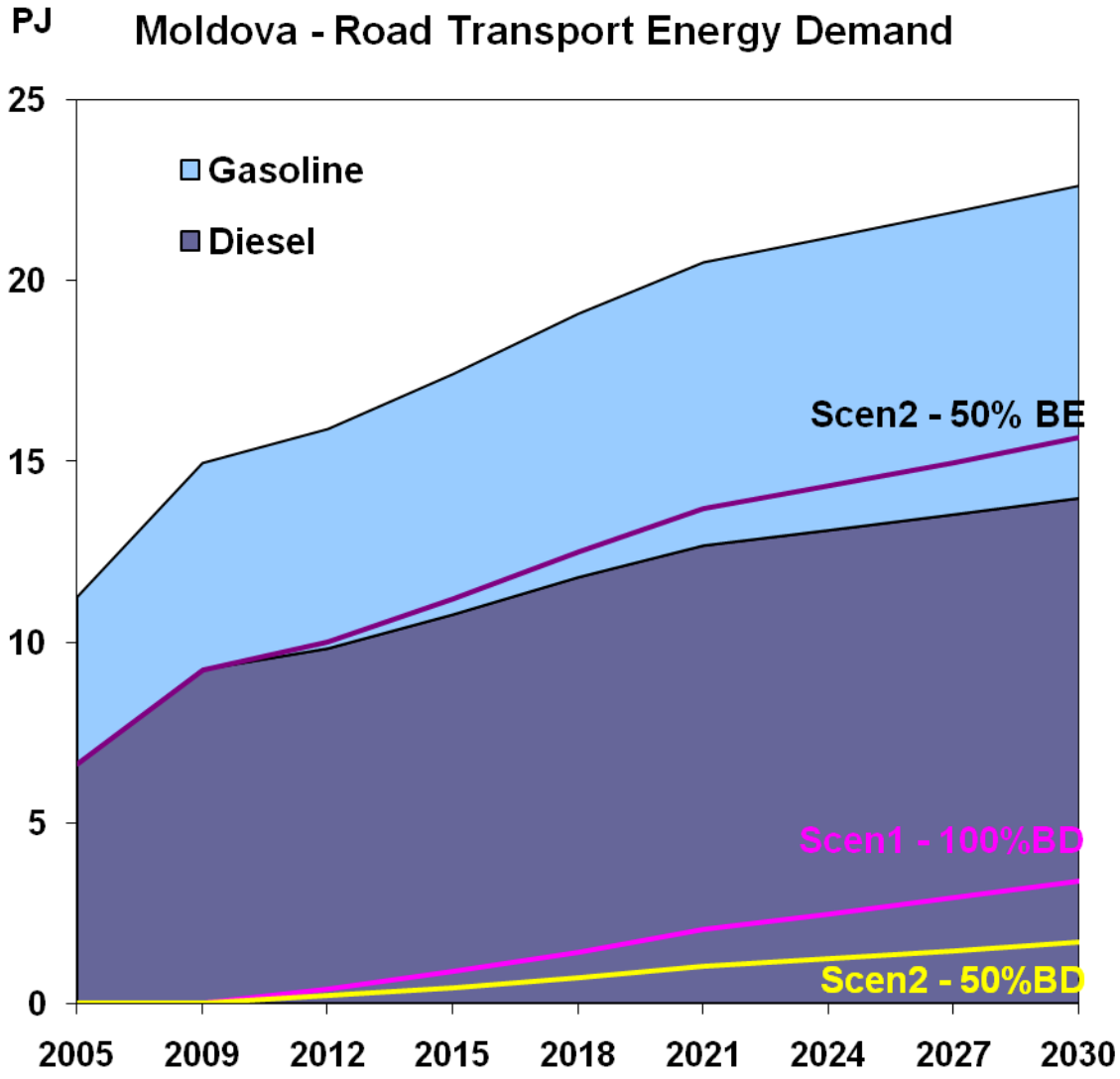
CHP

- Decentralized CHP units
- Woody biomass, straw, energy crops

Example of preliminary outcomes for BioFuels in Moldova

Road Transport Bio-fuels

- Projections using data for CEE countries from EC's "EU Energy Trends to 2030"
- Targets equal ~2,5 PJ for 2020 and 3,4 PJ for 2030
- Land requirements for own production:
  - Scen1 – 80,4 kha
  - Scen 2 – 69 kha



Conclusions

✓Fuelwood and residual biomass potential ranges from 4 – 521 PJ in the under study countries.

✓Agricultural biomass is dominant in UA, MD, SR and forest biomass in BA, ME, while in the rest both sectors contribute similar potentials.

✓Biomass potential ranges from 9 – 17% of TPES with the exception of Moldova (43%)

✓Regional level of analysis gives the opportunity to identify areas with high biomass concentration for future investment.

✓Current potential from residual biomass could contribute significantly to co-firing or existing DH plants in the immediate future.

✓Biofuels from conventional crops (1st gen.) not well developed but with good potential for 2020.

Recommendations for Future work

- ✓Improve statistical coherence for energy, agriculture and forestry.
  - ✓Harmonization with EU27
- ✓Cost analysis for well defined biomass to energy and fuel chains.
  - ✓Account for competition and alternative markets
  - ✓Value of co-products
- ✓Improved energy systems modeling analysis.
- ✓Bankable projects in the short and medium term.

Thank you