



Complex bioenergy adoption?

*Leverages for the sustainability of biogas
development in Emilia Romagna's rural areas*



Lay-out

Introduction

Analysis and discussion of results

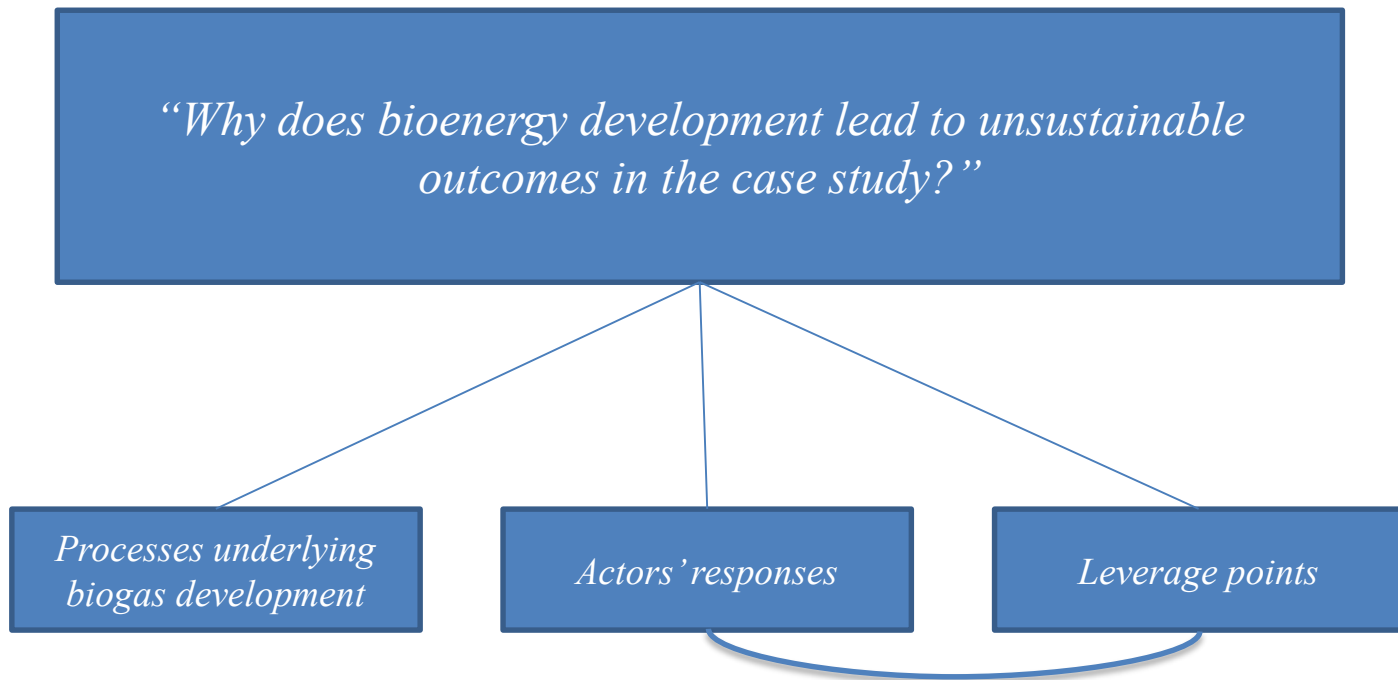
Conclusion



Introduction

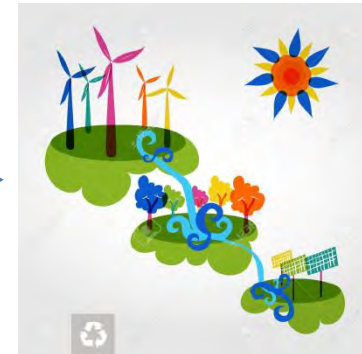
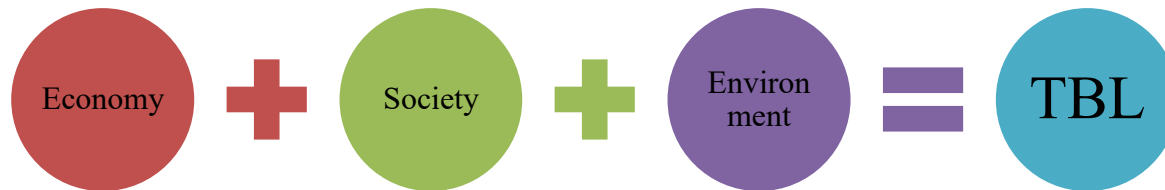
Reserach questions, approach and methodology

Research questions



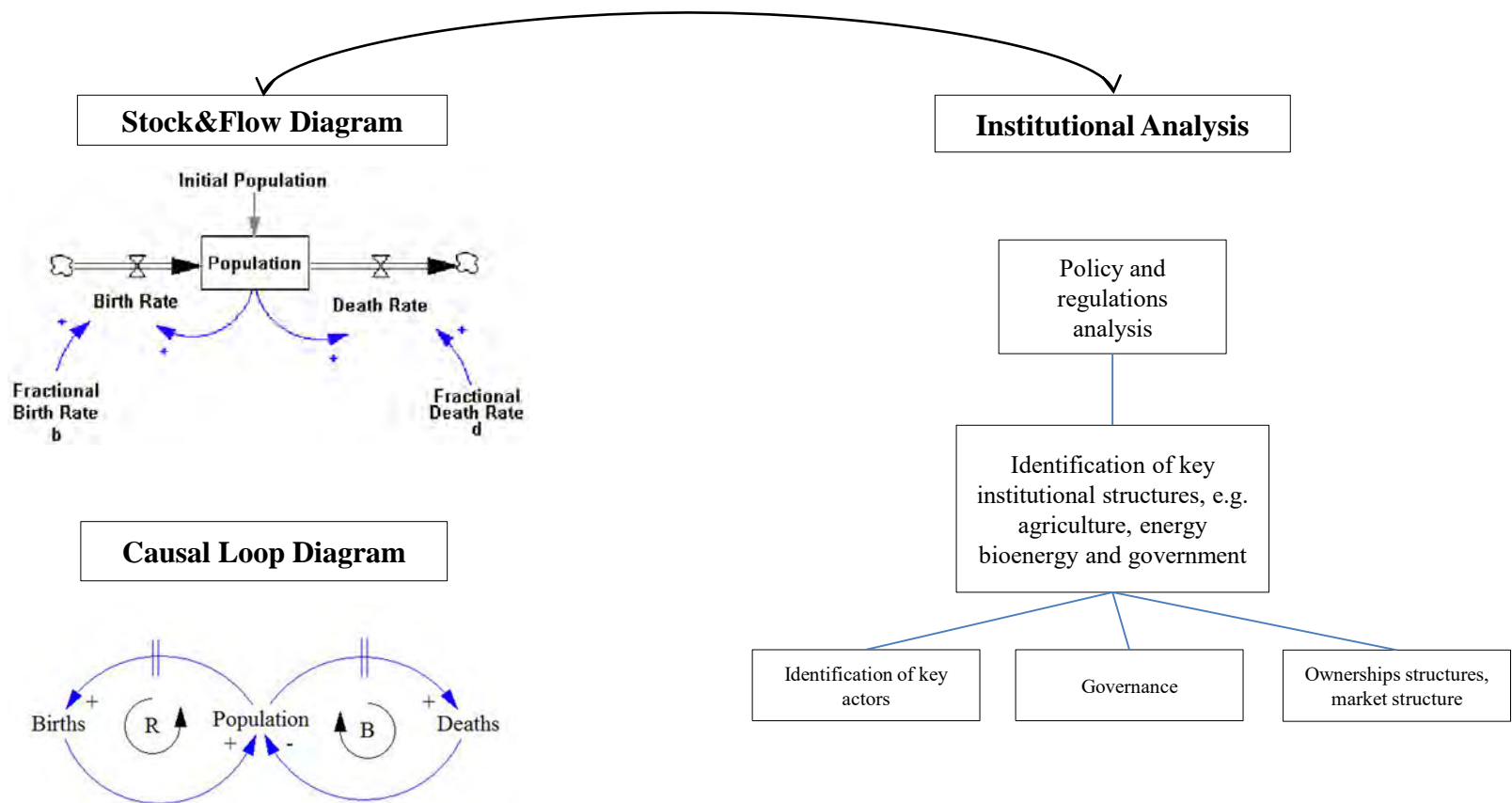
Analytical approach

Triple Bottom Line



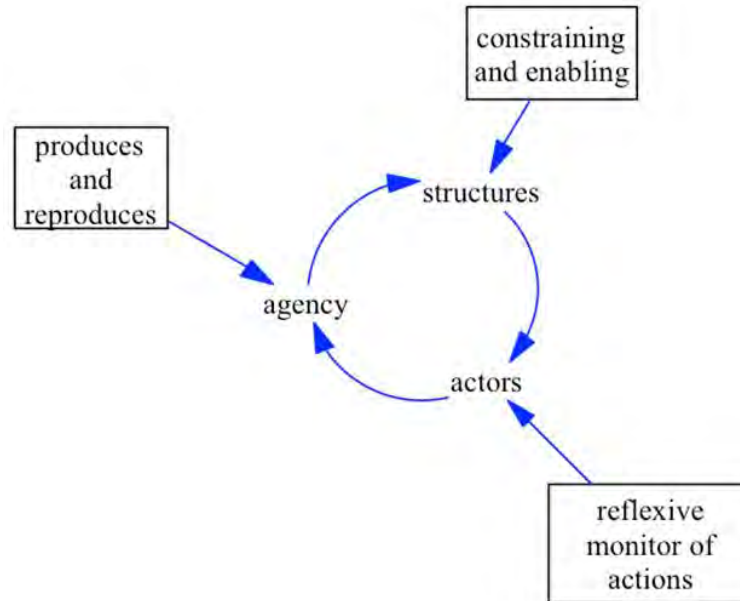
Proposed methodology

System Dynamics and Institutional Analysis

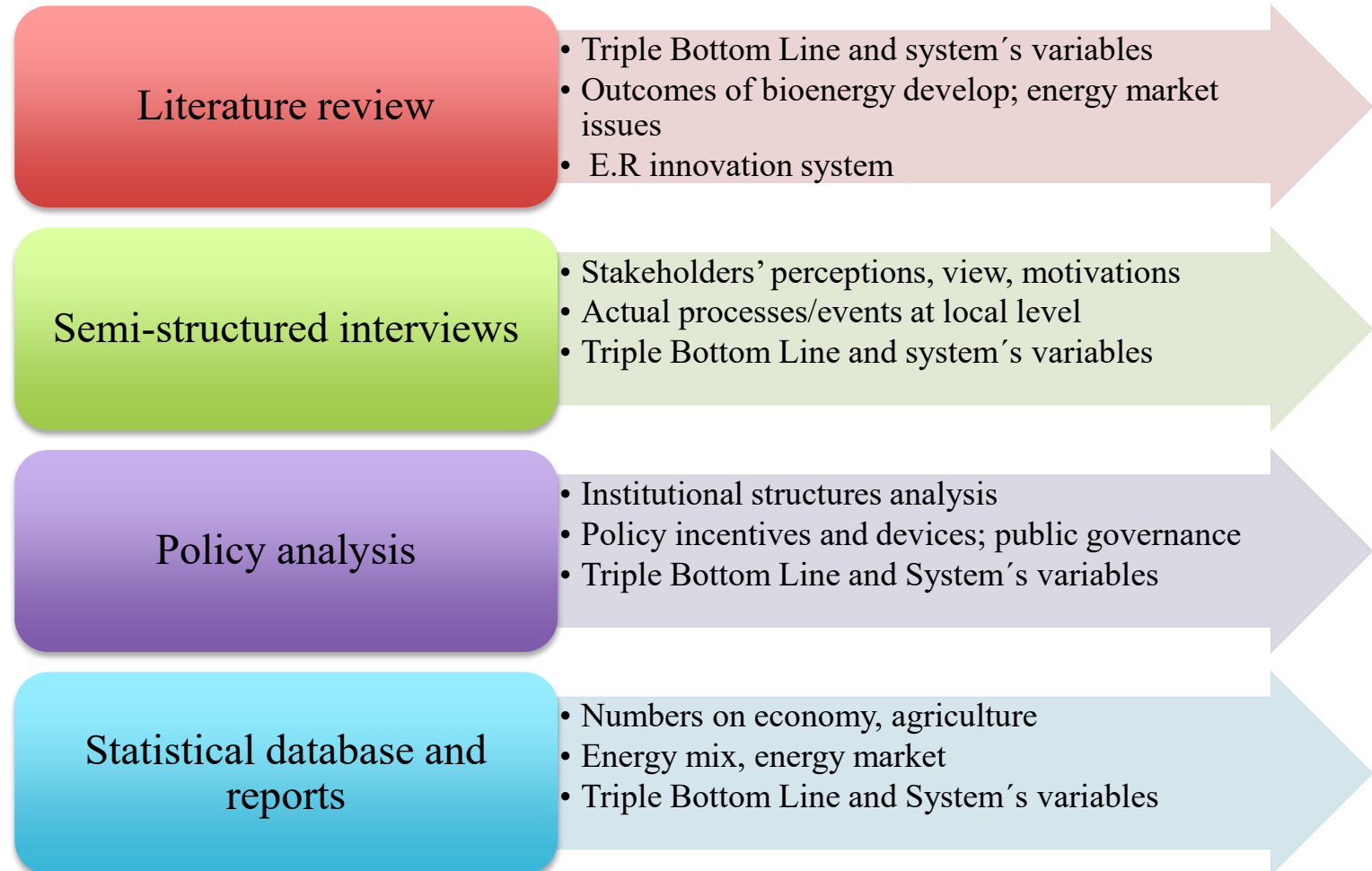


Institutional analysis...

Structuration theory (Giddens, 1984)



Methods





Analysis and discussion of results

Key facts, diagrams and leverages

Key facts



Agriculture 2.77%
GDP

Food crops
production and
livestock

Natural gas:
electricity&heating

Biogas: 27-172 plants
(2009-2013)

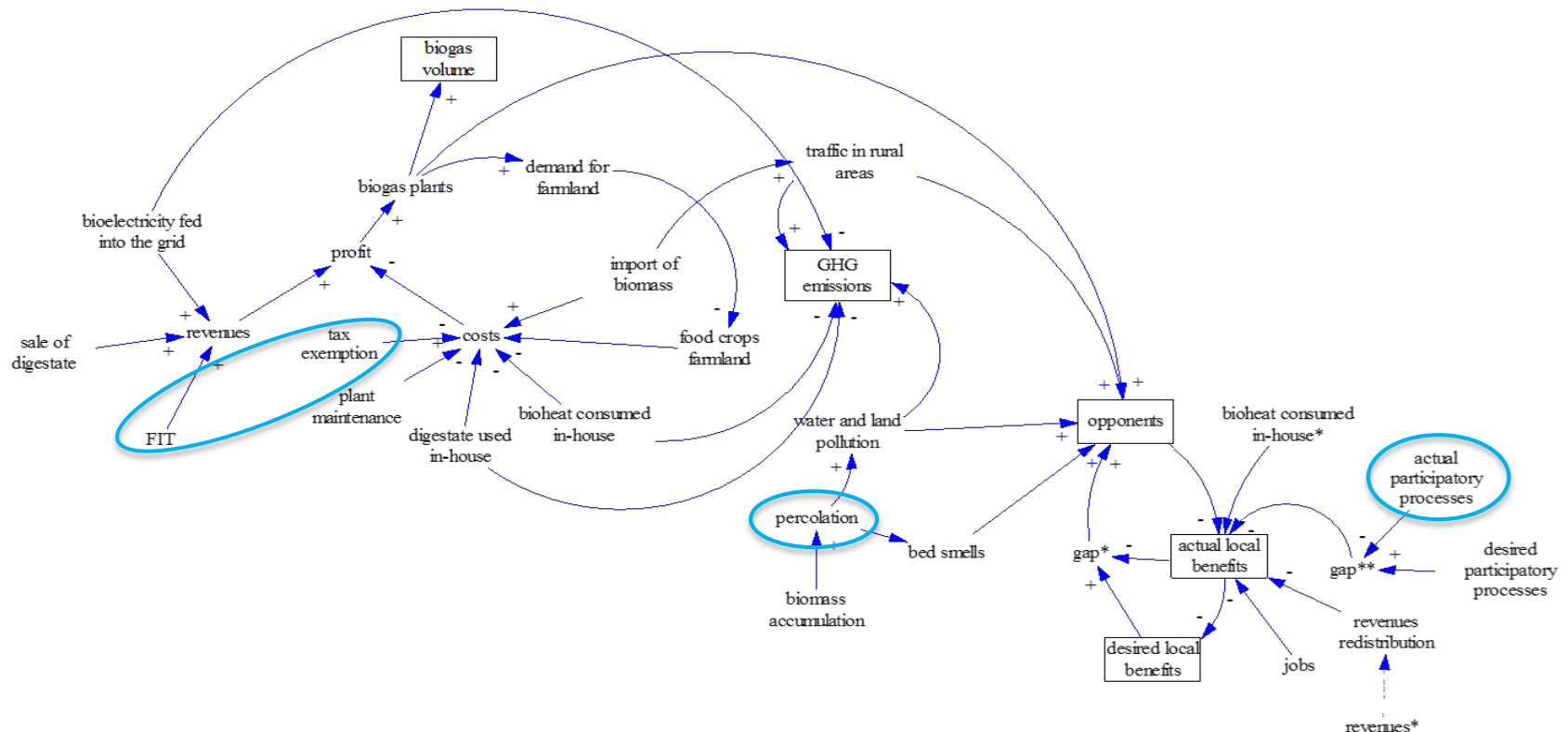
The basic model



Actors' responses

Is it enough?

Actors' responses



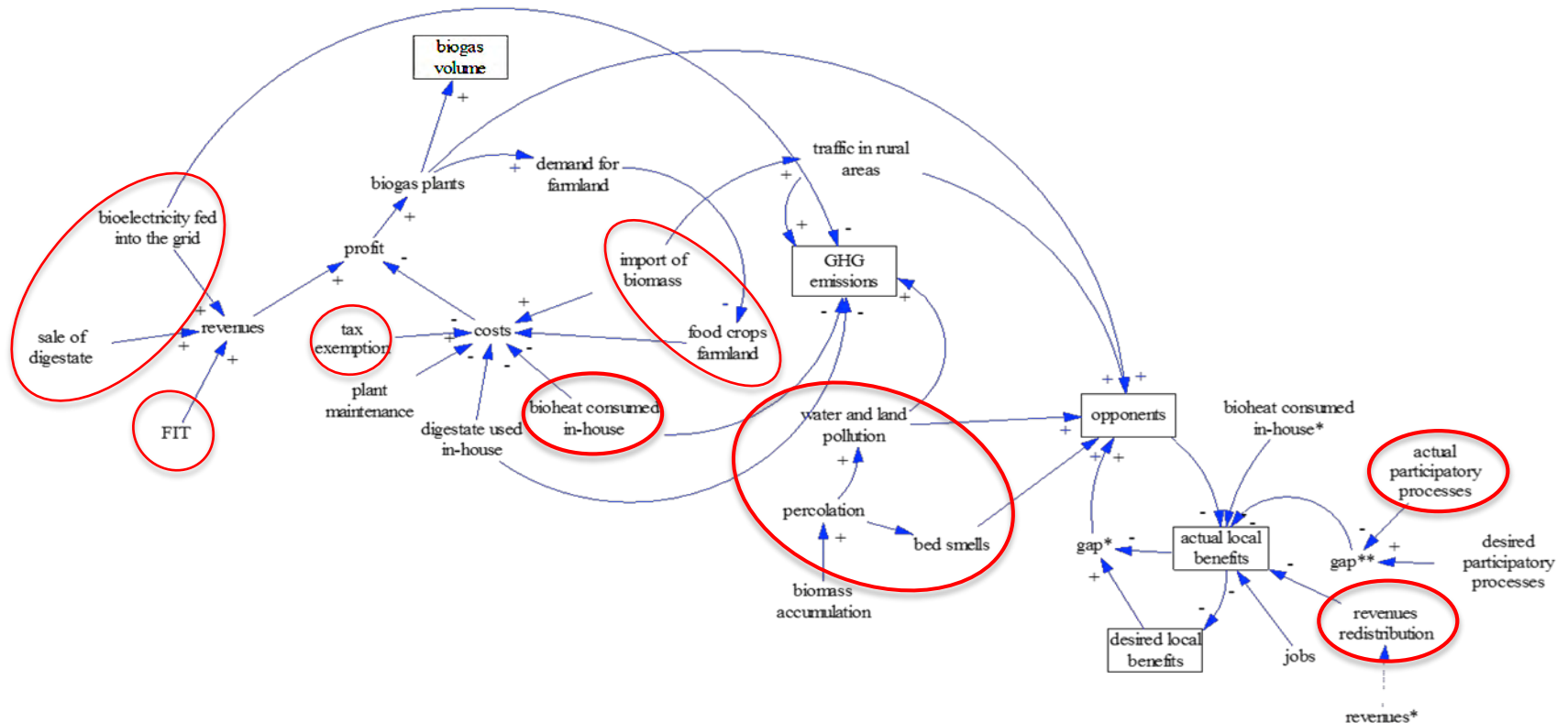
- New regional guidelines: biomass storage, use of digestate and plant maintenance; location of biogas plants (e.g. avoid parmigiano reggiano areas).
- ARPAs, USLs, farmers' unions and local administrators have acquired more knowledge on biogas and their control actions are more thorough.
- New feed-in tariff scheme since 2013 and removed the tax exemption on farm-based biogas

- Some municipalities have tried to involve local inhabitants and biogas entrepreneurs in local discussions with experts.
- Adaption of local energy plans although no binding power and focus on energy efficiency



Conclusion

...Leverages



- Support cross sectorial synergies, i.e. for biomass supply
- Foster product diversification (e.g. bioheat, biomethane, bioelectricity)
- Incentives diversification, stimulate demand side too (e.g. environmental taxes, feed-in tariff, binding targets to phase out fossil fuels; investment support)
- Decision making decentralization; support to local initiatives (e.g. through grants or demonstration projects); revenues redistribution
- Political discourse should focus on energy security

Thank you for your attention

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