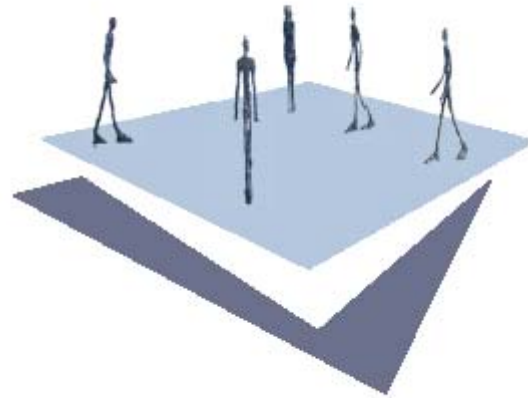


From Idea to Action

Local energy innovation in Europe



Maarten Arentsen

(Work in progress)

Point of departure

- How to explain socio-technical change at sector level?
 - Economic explanations
 - Political explanations
 - History of technology
 - Science technology studies (sociology of technology)
 - Mixtures: multidisciplinary approaches
- All have own language, focus and perspective
- Basically focusing at big picture, long term change process
- Not able to explain satisfactory how short term innovation and diffusion adds to longer term change
- Core sociological explanation: Institutionalisation of new technology
 - Getting new technology in daily routines
 - Interplay actors, networks and institutions
 - But relationship unspecified.....

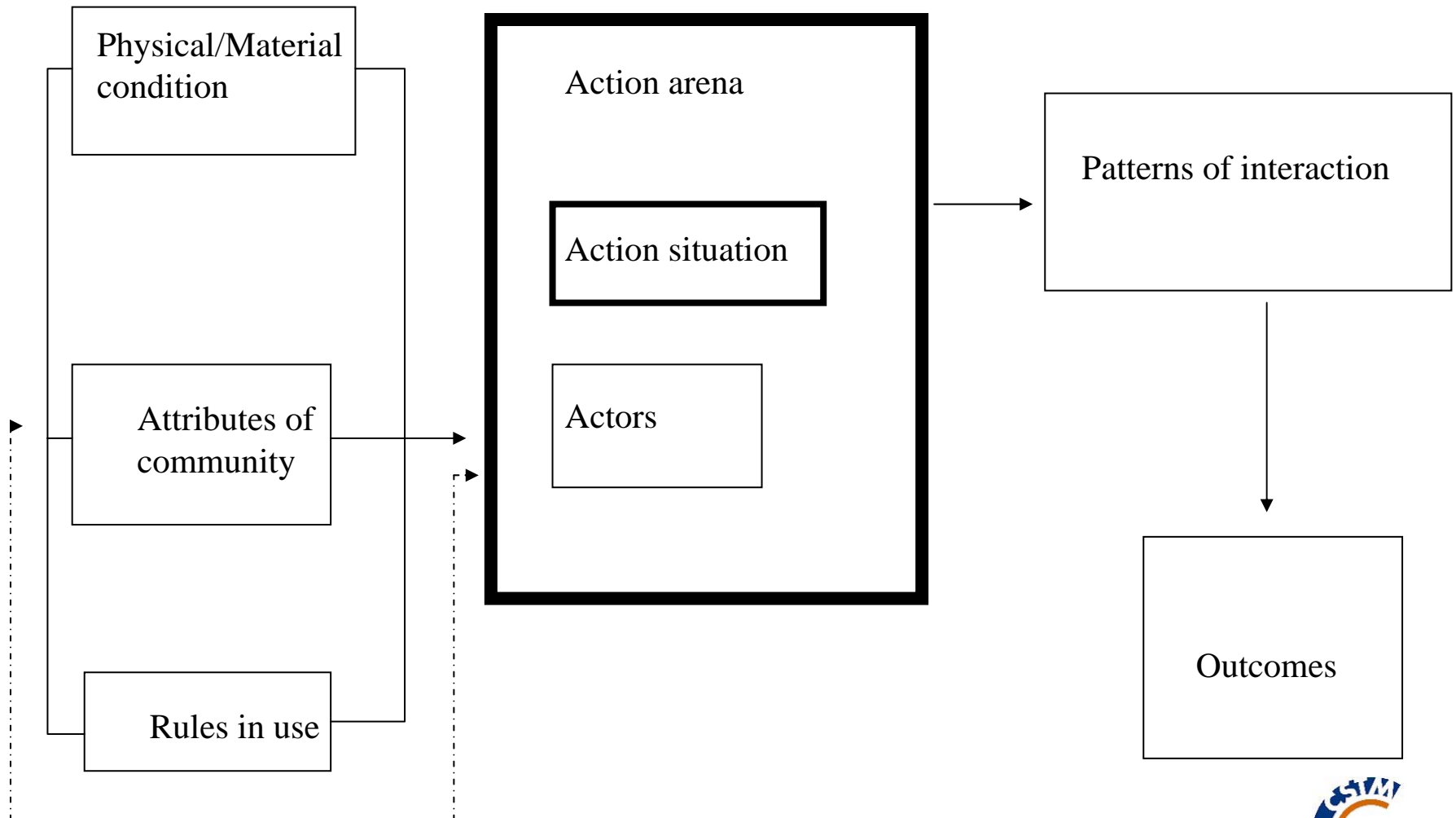


In search for theoretical inspiration

- Elinor Ostrom's rule-based institutional approach
- Mega analytical perspective integrating findings from economy and sociology
- Provides a framework for comparison
- Institutional language is a common language of sociology, economy, political science and science technology studies
- Institutions: rules of the game
- Distinction between:
 - Framework (elements of institutional analysis)
 - Theory (assumptions and hypotheses about relations between elements)
 - *Model (Fine tuning in formal models)*



Ostrom's framework for institutional analysis



Action Arena

Rule based institutional setting

- Position rules (who takes part)
- Boundary rules (entry and exit rules)
- Scope rules (what type of outcome is at stake)
- Authority rules (Who does what)
- Aggregation rules (how to make decisions)
- Information rules (how to communicate)
- Pay-off rules (division of costs and benefits)



Local energy innovation

Conceived as a change of rules

(local action arena for energy supply)

- Redefining the local energy action arena
 - Redefining set of rules
- Redefining local alliances, activities and interactions
 - Redefining content of rules
- Redefining outcomes
 - Redefining types of energy options/solutions/techniques

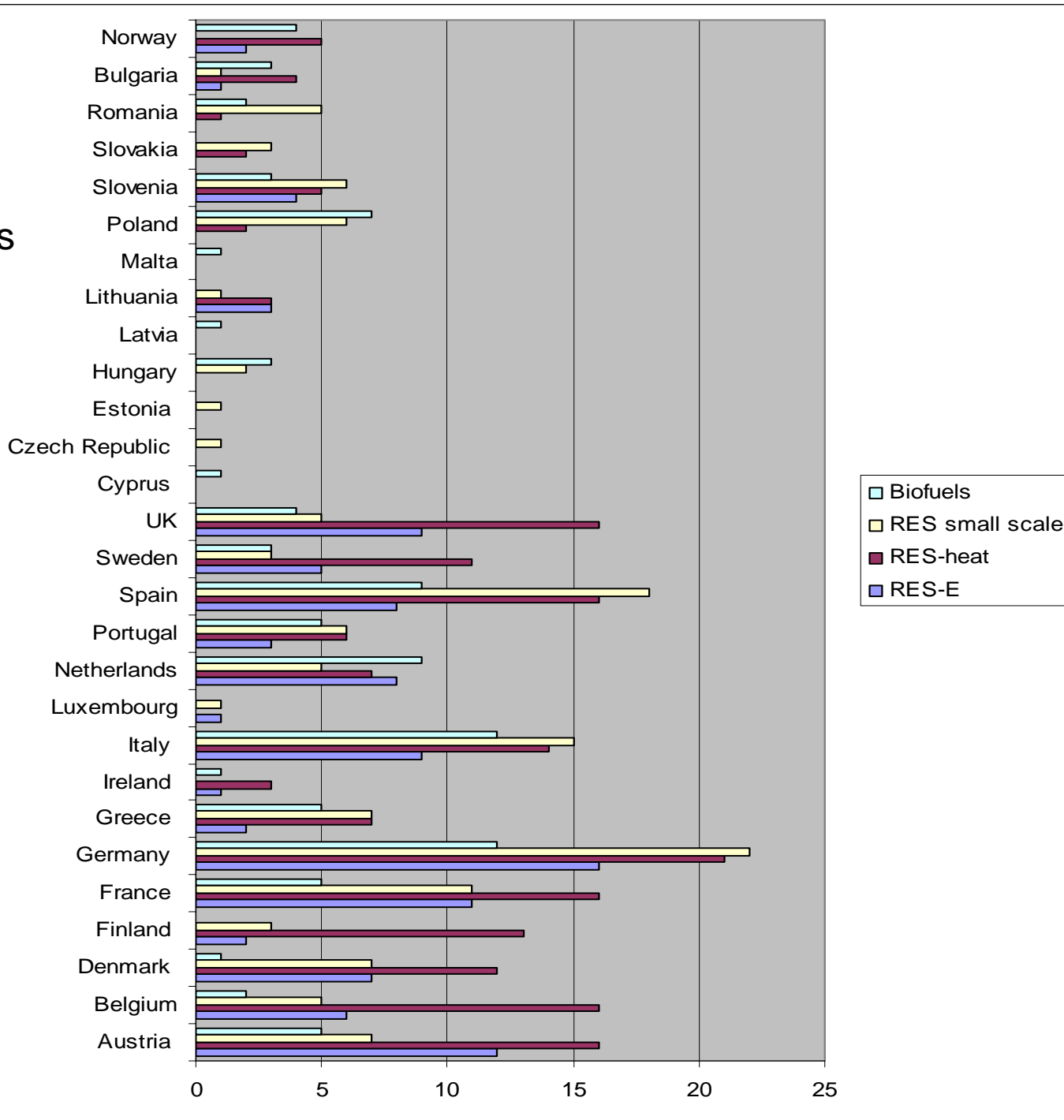


Empirical testing

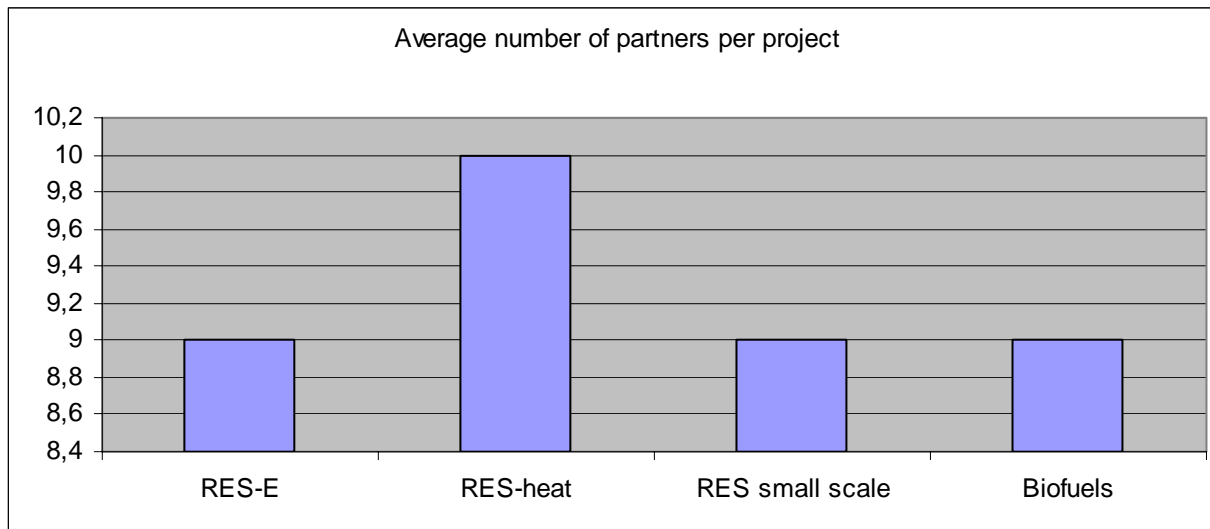
- Local energy innovation activities in Europe
 - Ambition: As many cases as possible in a datafile
 - Realized:
 - 62 IEE funded energy projects (2005-2007)
 - 13 projects on RES-E
 - 21 projects on RES-Heat
 - 15 projects on RES-small scale applications
 - 13 projects on biofuels
 - Survey 60 EEA communities
Germany, Austria and Switzerland



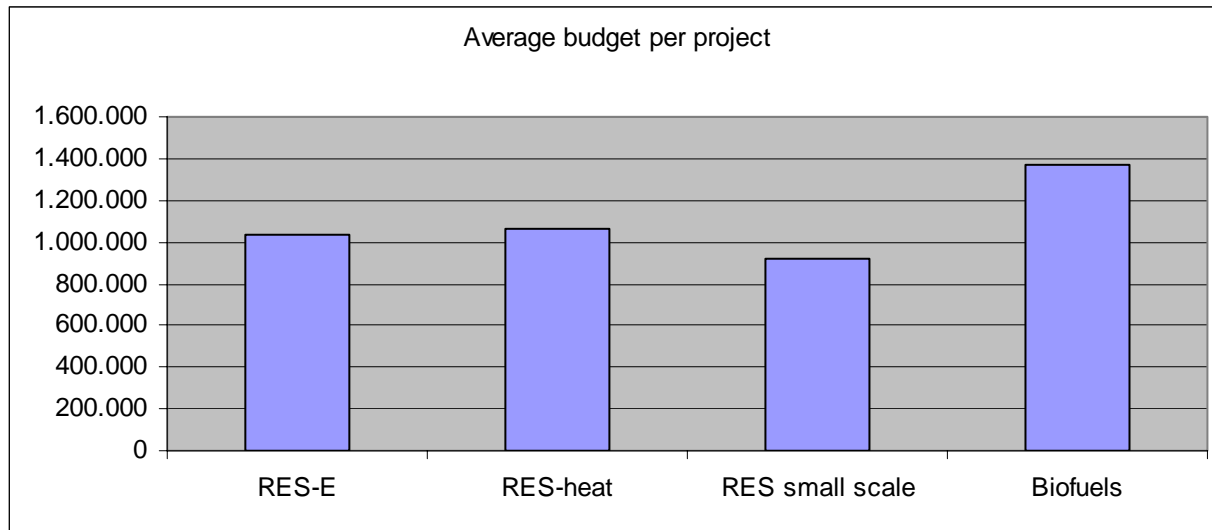
Who is doing the IEE projects Partner origin



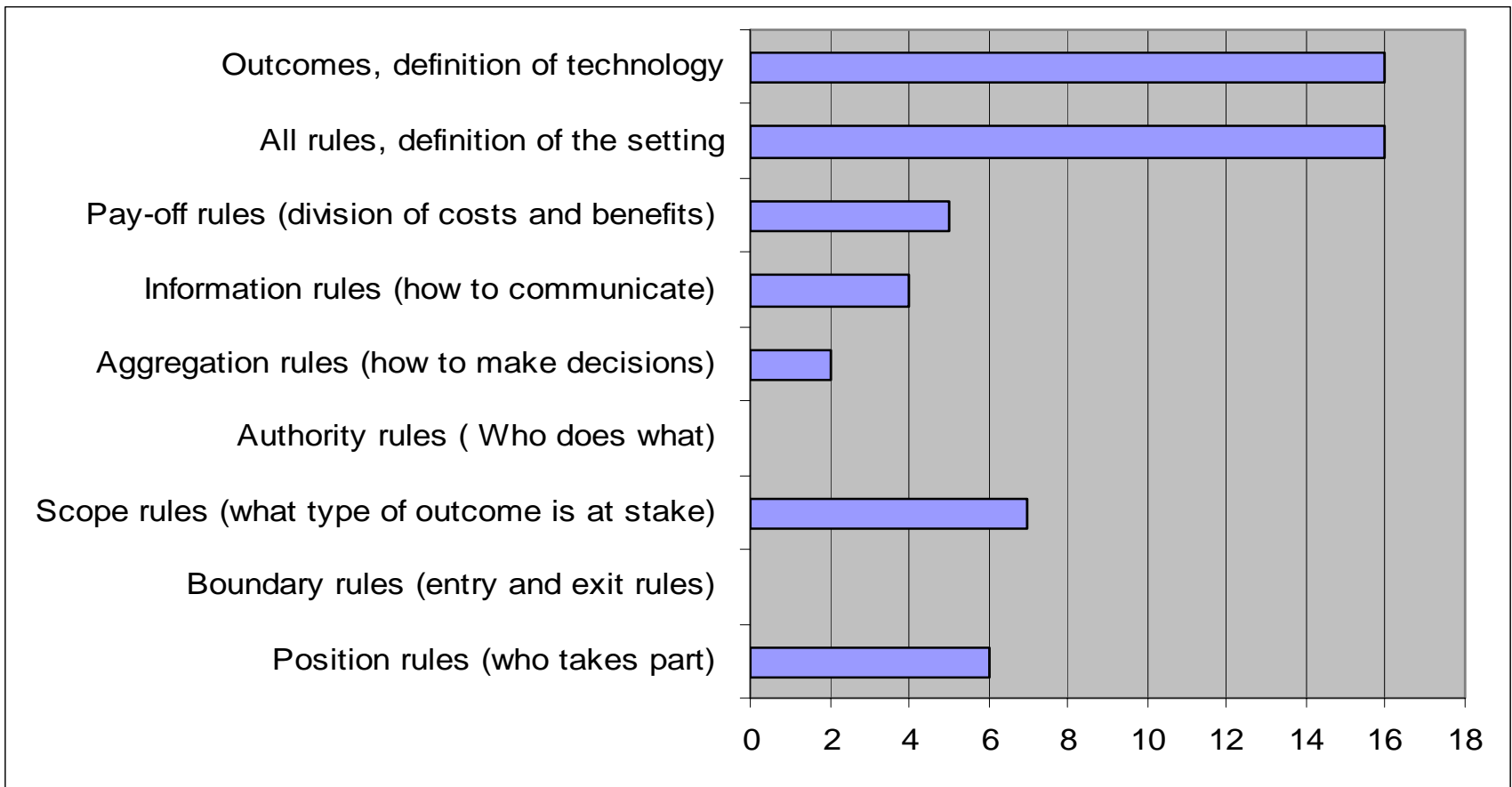
How the IEE projects are done



Average IEE project budget



Focus of IEE projects



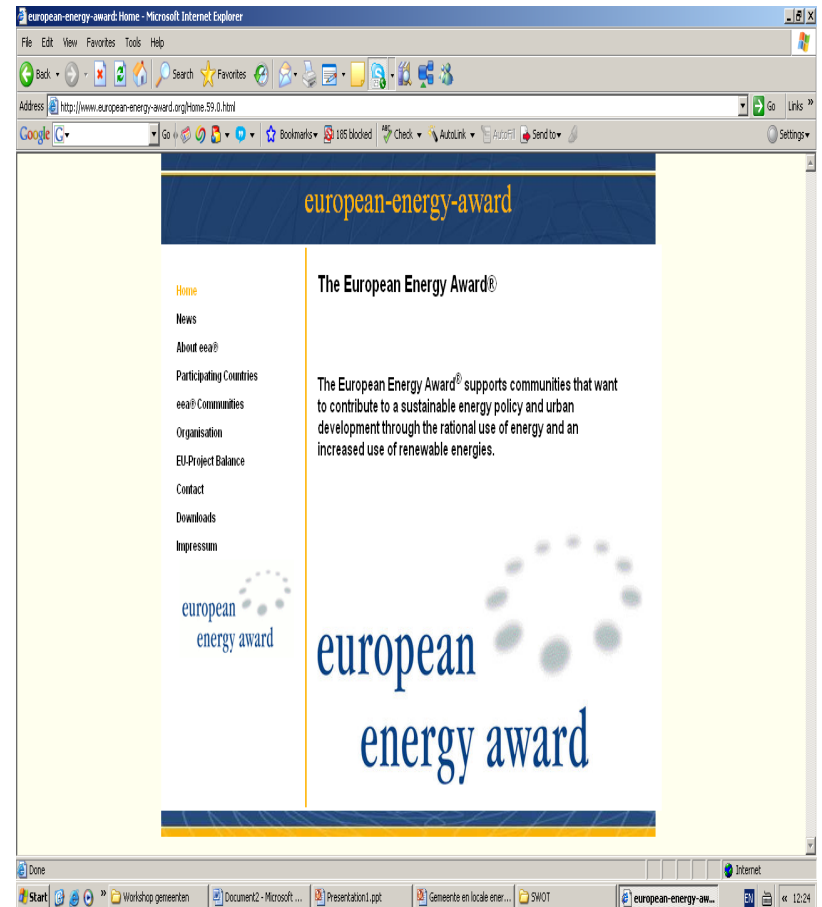


Findings EEA survey

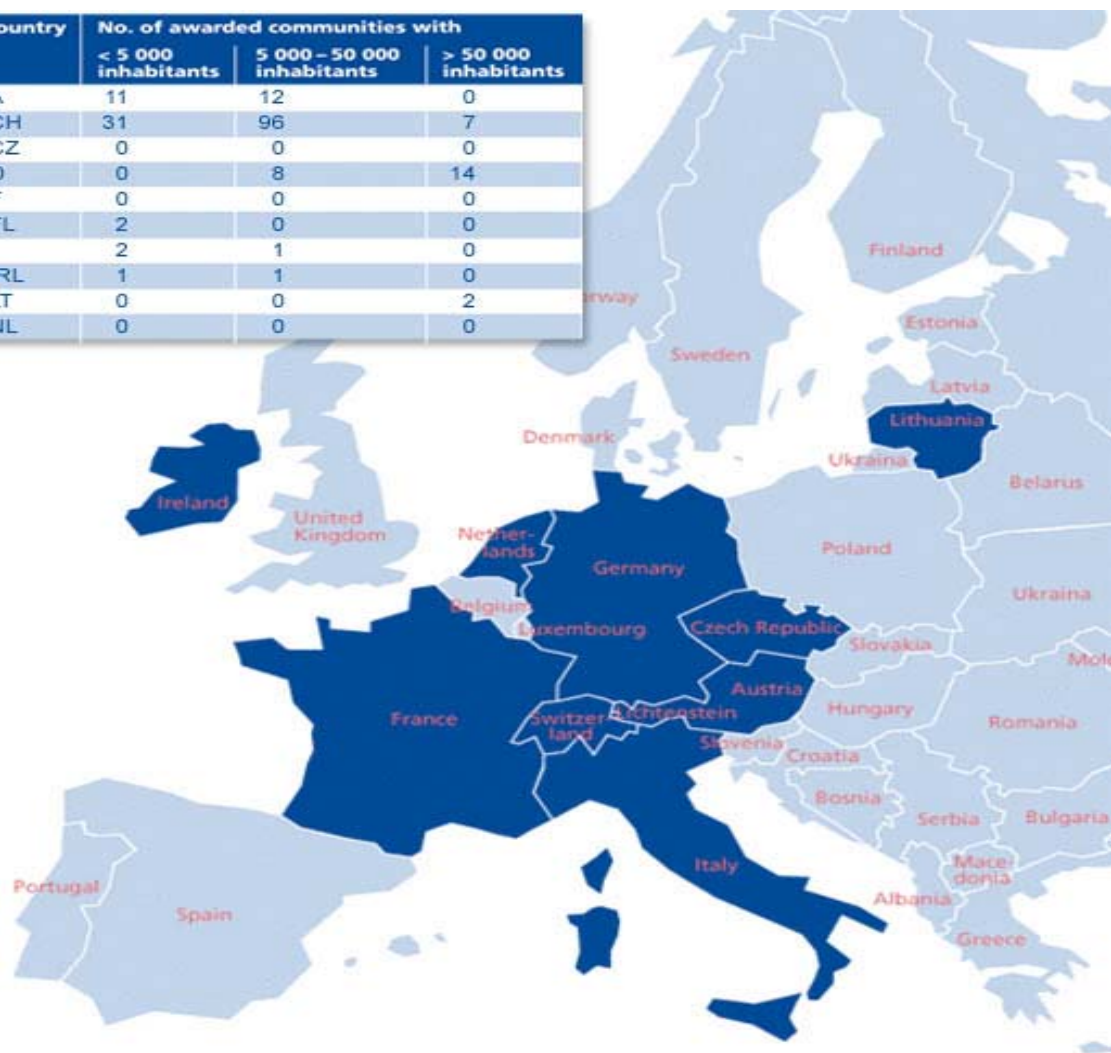
- What is European Energy Award?

European Energy Award

- Europe wide methodology for local energy innovation
- Standardised performance monitoring
- EU wide benchmark of local energy performance and certification
- Bronze, silver and gold award



| Country | No. of awarded communities with | | |
|---------|---------------------------------|----------------------------|----------------------|
| | < 5 000 inhabitants | 5 000 – 50 000 inhabitants | > 50 000 inhabitants |
| A | 11 | 12 | 0 |
| CH | 31 | 96 | 7 |
| CZ | 0 | 0 | 0 |
| D | 0 | 8 | 14 |
| F | 0 | 0 | 0 |
| FL | 2 | 0 | 0 |
| I | 2 | 1 | 0 |
| IRL | 1 | 1 | 0 |
| LT | 0 | 0 | 2 |
| NL | 0 | 0 | 0 |



EEA Energy measures

1 Development, Regional Planning

- 1.1 Communal Development Planning
- 1.2 Innovative Town Development
- 1.3 Construction Planning
- 1.4 Construction Approval & Supervision

2 Communal Buildings, Facilities

- 2.1 Energy & Water Management
- 2.2 Prototypical Effect, Target Values
- 2.3 Special Measures - Electricity

3 Supply, Disposal

- 3.1 Involvement, Co-operation, Contracts
- 3.2 Products, Tariffs, Output
- 3.3 Local & District Heating
- 3.4 Energy Efficiency - Water Supply
- 3.5 Energy Efficiency - Sewage Treatment
- 3.6 Tariffs for Water Supply & Sewage
- 3.7 Energy from Waste

4 Mobility

- 4.1 Mobility in Community Assets
- 4.2 Traffic Reduction, Parking
- 4.3 Human Power Mobility
- 4.4 Public Transport
- 4.5 Mobility Marketing

5 Internal Organisation

- 5.1 Internal Structures
- 5.2 Internal Processes
- 5.3 Finances, Funding Programmes

6 Communication, Co-operation

- 6.1 External Communication
- 6.2 General Co-operation
- 6.3 Special Co-operation
- 6.4 Support for Private Activities



Findings EEA survey

- Response 10% (bad timing)
- First RES initiatives mid 1990s
- Budget RES projects is decided every year and very different among communities
- The local RES alliance is not yet consolidated
 - Composition is changing by project to semi-permanent

Alliance membership

Alliance member(s) belonging to

Municipal organisation

Technical expert organisations

Financial expert organisations

Industrial organisations

not for profit service organisations

Scientific organisations

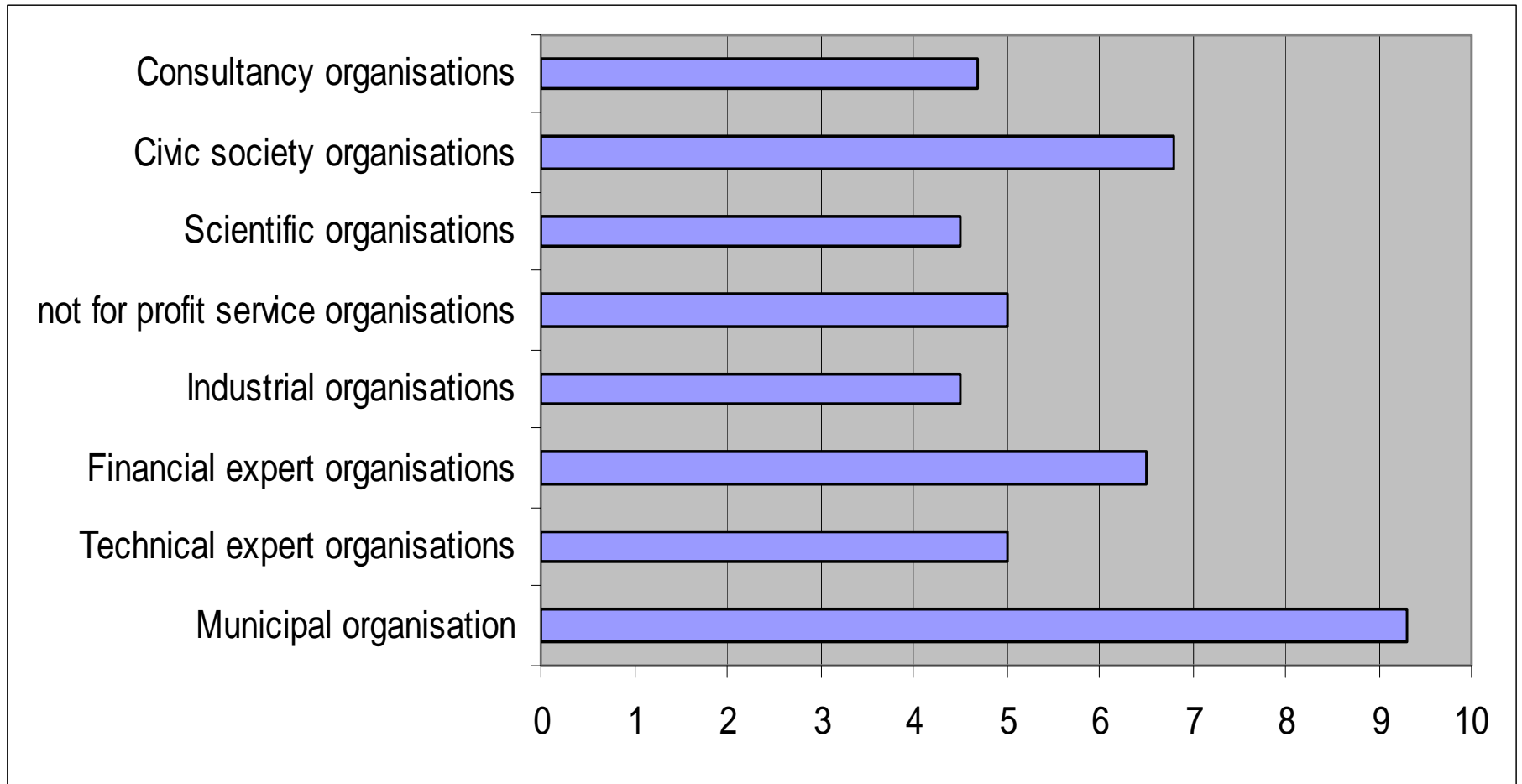
Civic society organisations

Consultancy organisations

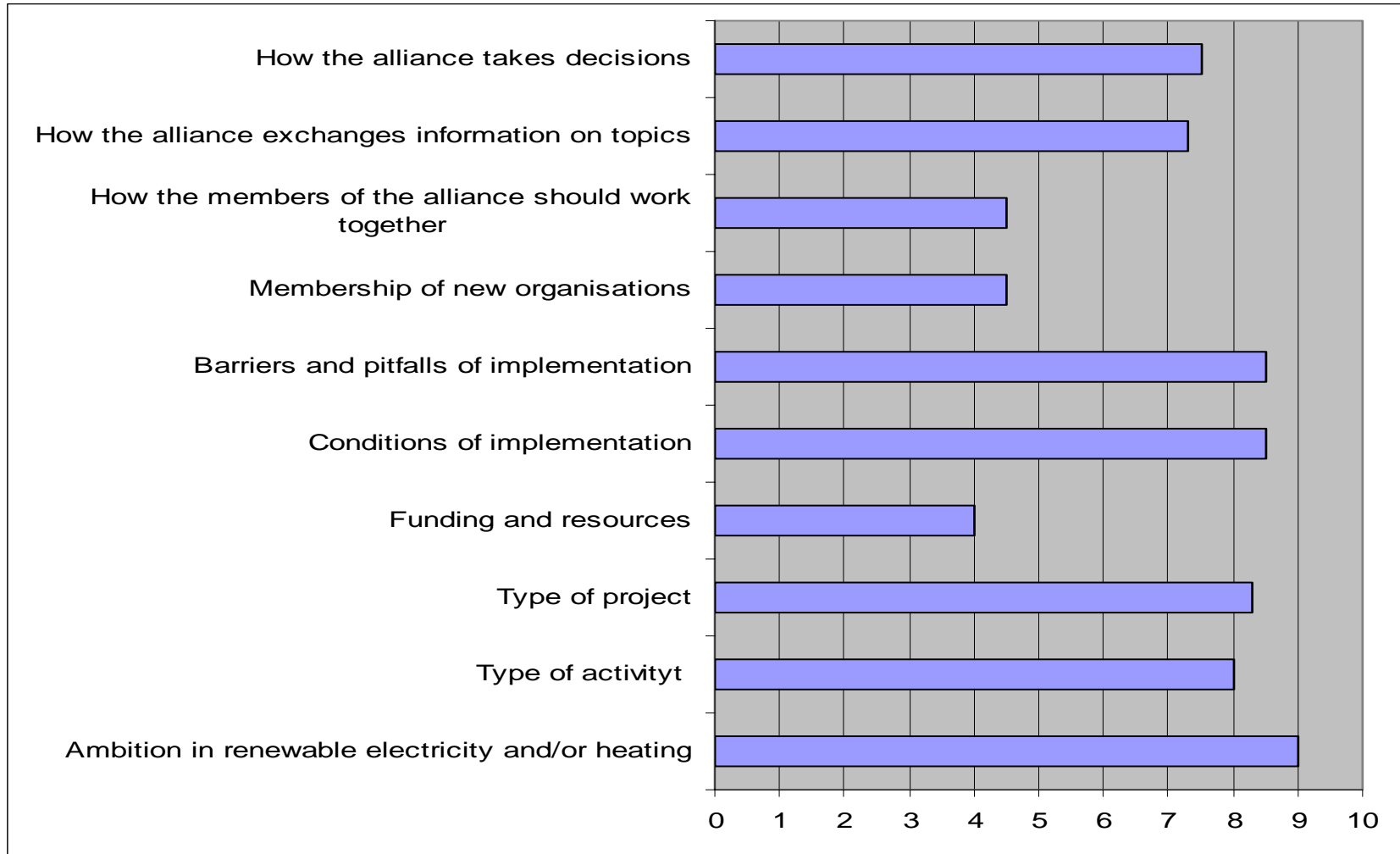
Permanent member

Incidental members

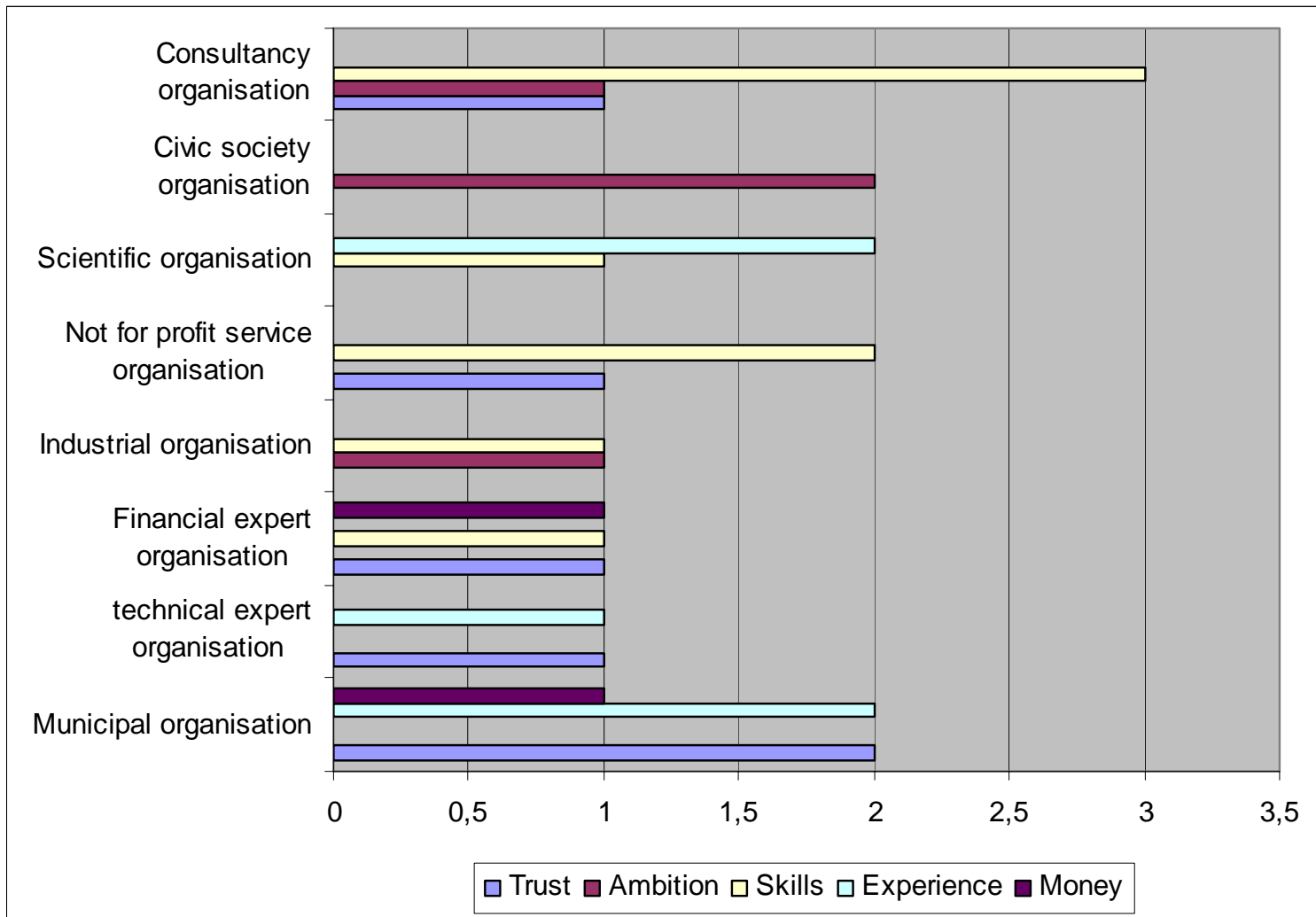
Significance alliance members for projects (1= low, 10=high)



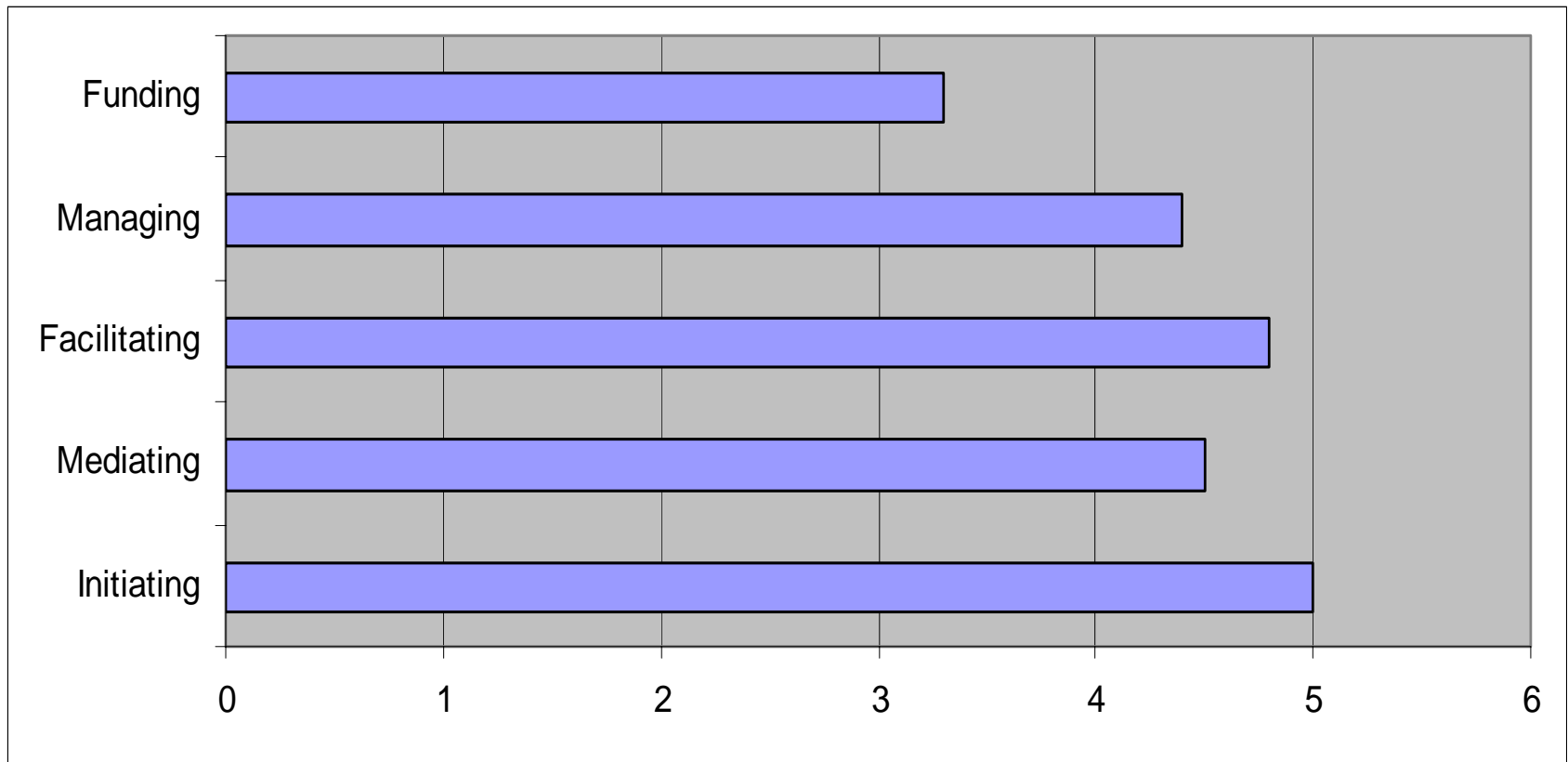
Significance of topics discussed by the local RES alliance (1=low, 10=high)



Contribution of alliance members



Relative importance different roles municipality (1=low, 5=high)





Top 3 decisive local factors from the survey

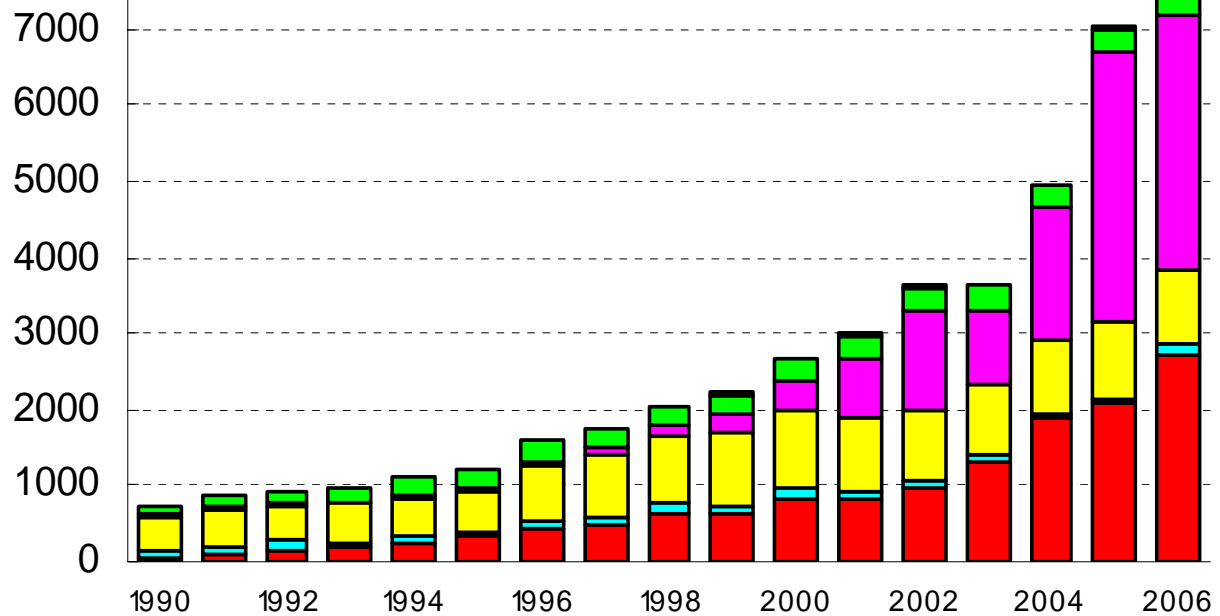
- Motivation / Political will
- Resources
 - Financial and human
- Participation
 - NGO / Civic society

Conclusion

- Local energy innovation =
 - Maturation of new technology
 - Designing outcomes
 - Designing new action arenas
 - Redefining the set of rules
 - Re-establishing local practices
 - Redefining content of rules
- Special role local authority
 - Providing trust, political ambition and political will

Elektricitets productie

8000 [GWh]



■ Wind ■ Hydro ■ Waste ■ Biomass incineration ■ Biogasification ■ PV



Thanks for your attention

Work in Progress

