



European  
Commission

## Joint Research Centre

the European Commission's in-house science service



[ec.europa.eu/jrc](https://ec.europa.eu/jrc)

Joint  
Research  
Centre

# How is energy efficiency governed in the EU? Multi-level Governance of Energy Efficiency policies, strategies and targets at EU, National, Regional, and local level

**Giulia Melica Paolo Bertoldi,  
Andreea Iancu, Albana Kona,  
Silvia Rivas, Paolo Zancanella**



**Covenant of Mayors  
for Climate & Energy**



## Objectives of the study

- To analyse a form of collaboration for climate governance involving local and regional authorities that has arisen in the Covenant of Mayors (CoM)
- To tease out the key success factors of this model
- To understand how to replicate this model, to facilitate a further dissemination of the Covenant's principles and methodologies





## The local level as an appropriate level for action

Local governments can be more innovative and more responsive to local environmental preferences and economic circumstances if compared to national governments (Lutsey & Sperling, 2008)

In an increasingly urbanizing world, it is important to understand how municipal authorities and other actors might intervene to reduce their impact (Bulkeley, et al., 2009)

Local authorities are in a privileged position to involve the wider community in designing and implementing climate policies (Fudge, Peters & Woodman, 2015)

While cities are often seen as the source of many energy issues and problems [...] they may also be part of the ‘solution’, offering potential, wide-ranging opportunities for contributing to shifting energy policies onto more ‘sustainable’ pathways (Rutherford & Jaglin, 2015)





## Different modes of interaction in climate policies among various actors

Need for strategic energy planning, where national authorities support municipal planning with tools and guidelines (Sperling, Hvelplund, & Vad Mathiesen, 2011).

Climate change mitigation policies are driven by horizontal and vertical interaction across state levels and between public and non-public actors, requiring a considerable coordination endeavour (Ingold & Fischer, 2014).

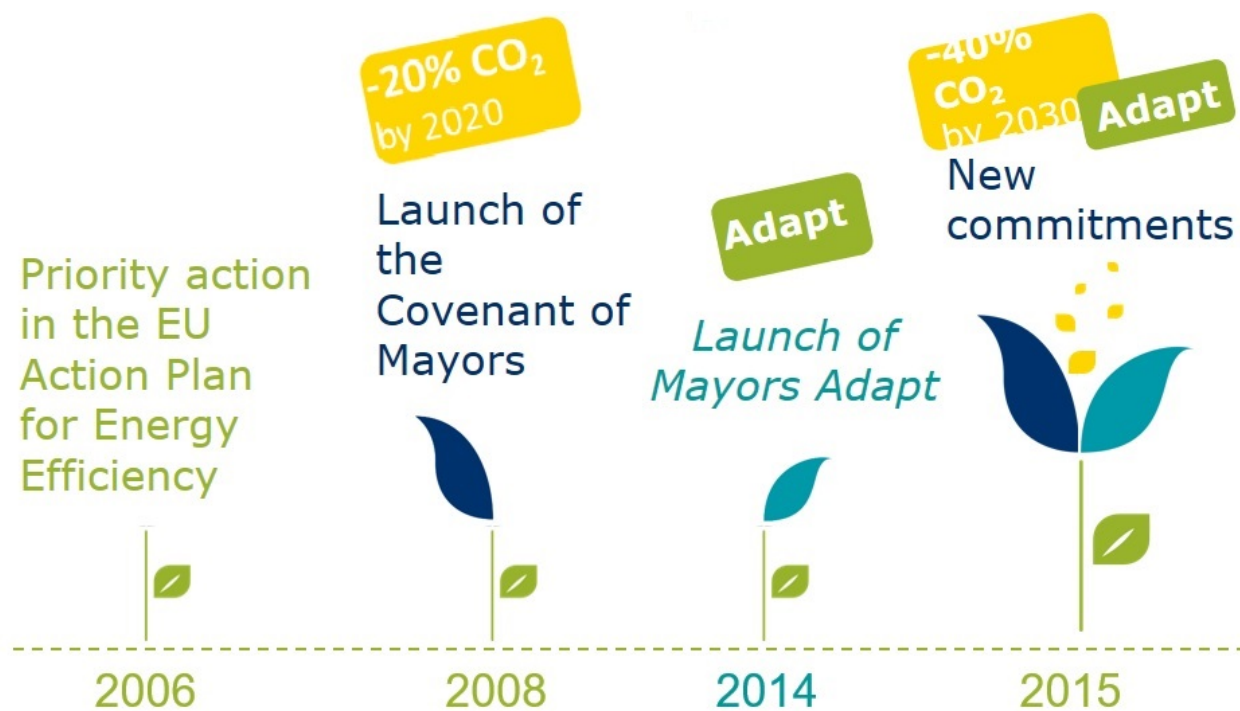
An analysis of multi-level governance for energy efficiency in Germany has highlighted a need for formal coordination mechanisms and institutions, combined with informal, horizontal coordination to exchange best practices (Ringel, 2016).



# What is the Covenant of Mayors?



**An EU initiative bringing together local and regional authorities which voluntarily commit to implement EU climate and energy objectives in their territories**



# The CoM commitments



## Signatories pledge to:

Reduce CO<sub>2</sub> (and possibly other GHG) emissions by at least 20%  
*by 2020*

*"Old" Covenant of Mayors --> no longer possible to sign*

Reduce CO<sub>2</sub> (and possibly other GHG) emissions by at least 40%  
*by 2030*

Increase their resilience to the impacts of climate change

Promote access to secure, sustainable, clean and affordable energy for their citizens  
*by 2020*

*"New" Covenant of Mayors for Climate and Energy*

Calculate a Baseline Emission Inventory, translate their political commitments into an Action Plan, report periodically on its implementation





## Regions and Provinces may join as Covenant Territorial Coordinators (CTCs)

- Support and coordination to **promote accession** to the CoM among municipalities in their territory
- Strategic **guidance, financial and technical support** to Covenant signatories
- Technical and strategic **assistance** to those municipalities lacking the necessary resources to **prepare a SE(C)AP**
- Financial** support and opportunities for municipalities to **develop and implement** their SE(C)AP





## Further activities of CTC:

- Development of **emissions' inventory and/or SEAPs**
- Adaptation of the methodology for preparing the SEAPs, by taking into account the **national or regional context**
- Training of local managers** who will look after their SEAPs







## Some benefits of this cooperation model:

- Action by LAs can contribute to **achieving regional targets** on GHG emissions mitigation, energy savings, renewable energy production
- Local **opportunities for jobs and investments**
- CTCs can **promote coordinated action** of municipalities within their territories
- **To incorporate rural areas** in territory-based sustainable development plans
- When CTCs are regions at the NUTS2 level, they also implement the **EU Regional Policy**





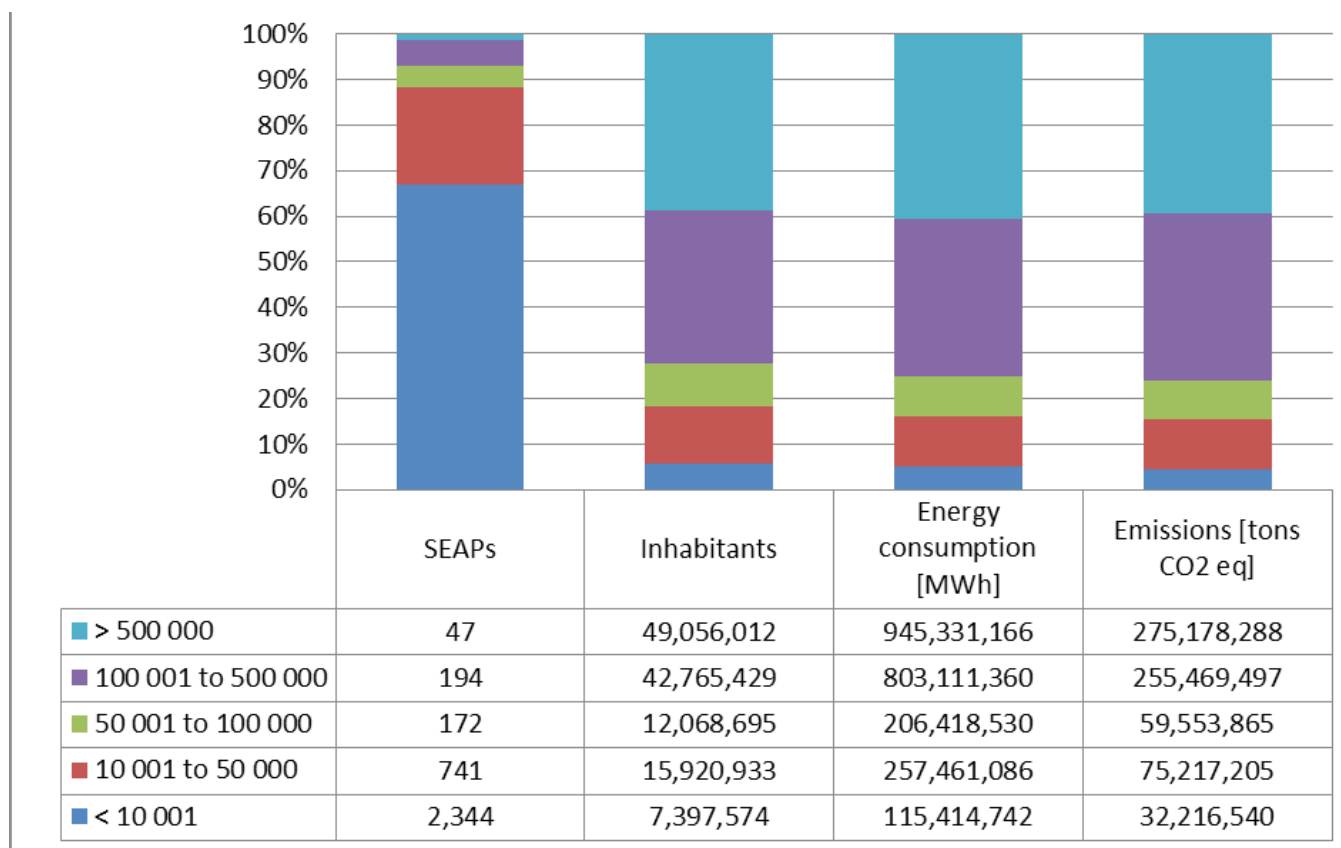
1. Group submitted SEAPs by population range to see which size of municipalities is the most represented in the initiative with respect to the no. of SEAPs and which share of emissions is associated with each category size.
2. See in which EU-MS the role of CTCs has been particularly noticeable (look at the no. of SIGNs and of CTCs and at the share of signatories and population covered by CTCs).
3. Analyse more in detail the three MSs with the highest share of signatories under a CTC: look at their administrative structure, NUTS classification, distribution of municipalities by pop. range.
4. Analyse one CTC per selected MSs.



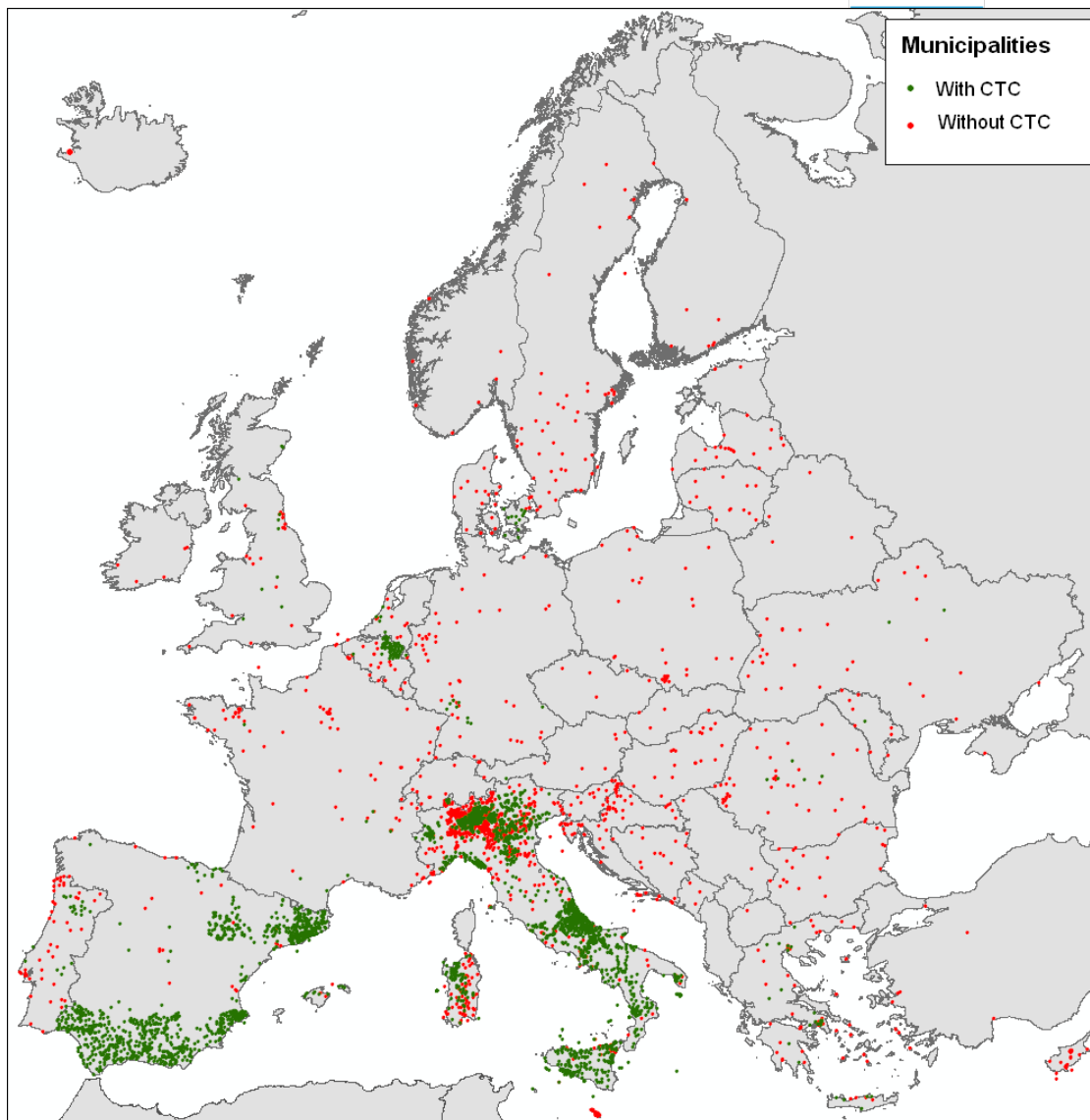
# Some figures on CoM signatories' size



## Analysis of submitted SEAPs by population range



# Involvement of CTCs by country



Joint  
Research  
Centre

Three countries show the **highest share of signatories under a CTC:**

- **Spain**
- **Belgium**
- **Italy**

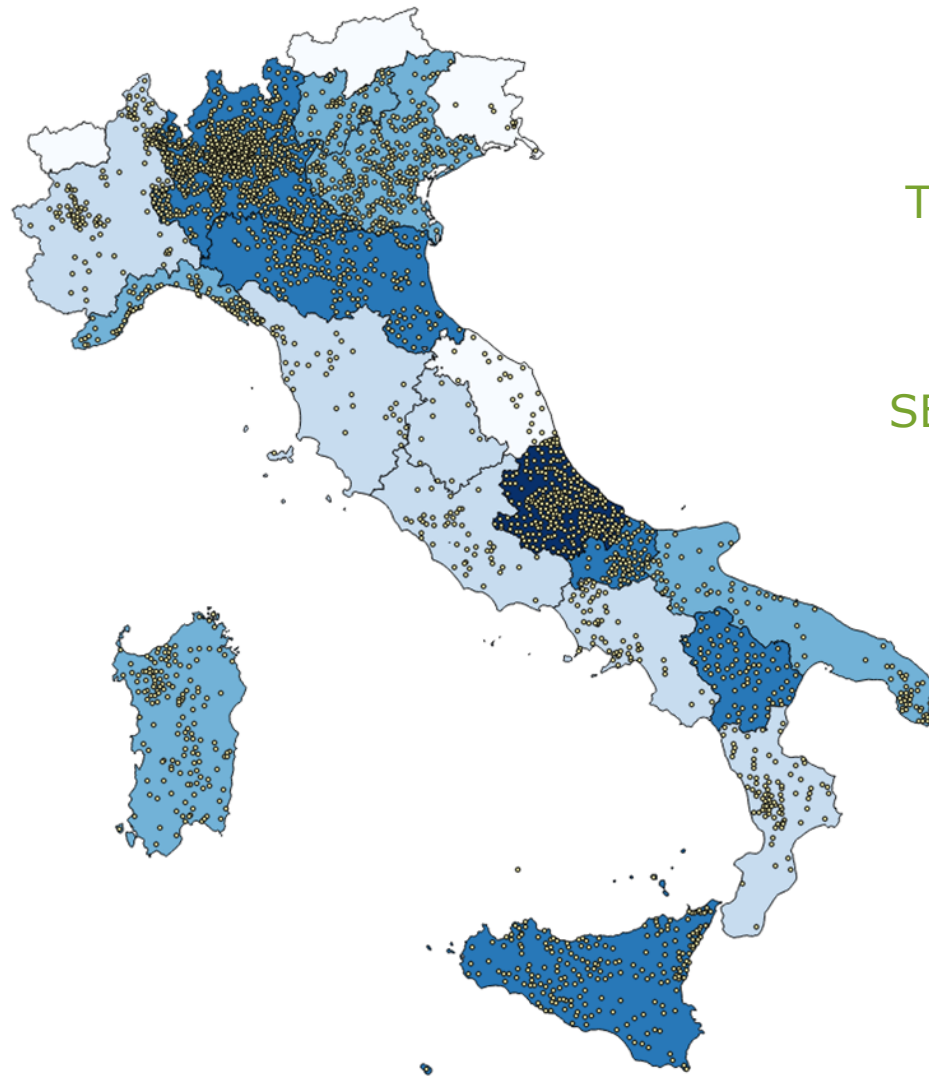
✓ Local authorities up to 50k inhabitants generally require support from government bodies at higher territorial levels



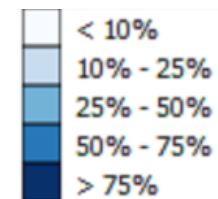
**Covenant of Mayors**  
for Climate & Energy



## No. SEAPs over no. of municipalities by region (NUTS2)



The involvement of a CTC is generally associated with a higher number of SEAPs received from a certain region.



# Regions in the EU: NUTS definitions



## Nomenclature of Territorial Units for Statistics (NUTS)

**Aim:** To provide a breakdown of the economic territory of the European Union into territorial units for the production of **regional statistics** and for targeting **political interventions** at a regional level

- a) The NUTS classification includes three hierarchical levels
- b) NUTS favours administrative units already existing in the Member States
- c) The NUTS Regulation lays down minimum and maximum thresholds for the population size of the Regions
- d) The NUTS are complemented at the lower level by local administrative units (LAU)



# Local authorities in the EU



- Districts and municipalities constitute a more detailed level than NUTS 3. These are called 'Local Administrative Units' (LAUs)
- Two levels (LAU 1 and LAU 2)
- Not all the Member States use the level of LAU 1; LAU 2 regions are defined for the whole EU

## *e.g. Germany*

NUTS 1	NUTS 2	NUTS 3	LAU 1 (1)	LAU 2
Länder (16)	Regierungsbezirke (38)	Kreise, kreisfreie Städte (402)	Verwaltungsgemeinschaften (1374)	Gemeinden (11238)



## A common feature to the three countries

LAU 1 level is missing in the administrative structure of BE, ES, IT.

	NUTS 1		NUTS 2		NUTS 3		LAU 1		LAU 2	
	Description	Count	Description	Count	Description	Count	Count	Count	Description	Count
BE	Gewesten / Regions	3	Provincies / Provinces	11	Arrondissementen / Arrondissementes	44	-	-	Gemeenten / Communes	589
ES	Agrupacion de comunidades Autonomas	7	Comunidades Autónomas, Ciudades Autónomas	19	Provincias, Consejos insulares y Cabildos	59	-	-	Municipios	8111
IT	Gruppi di regioni	5	Regioni	21	Provincie	110	-	-	Comuni	8101



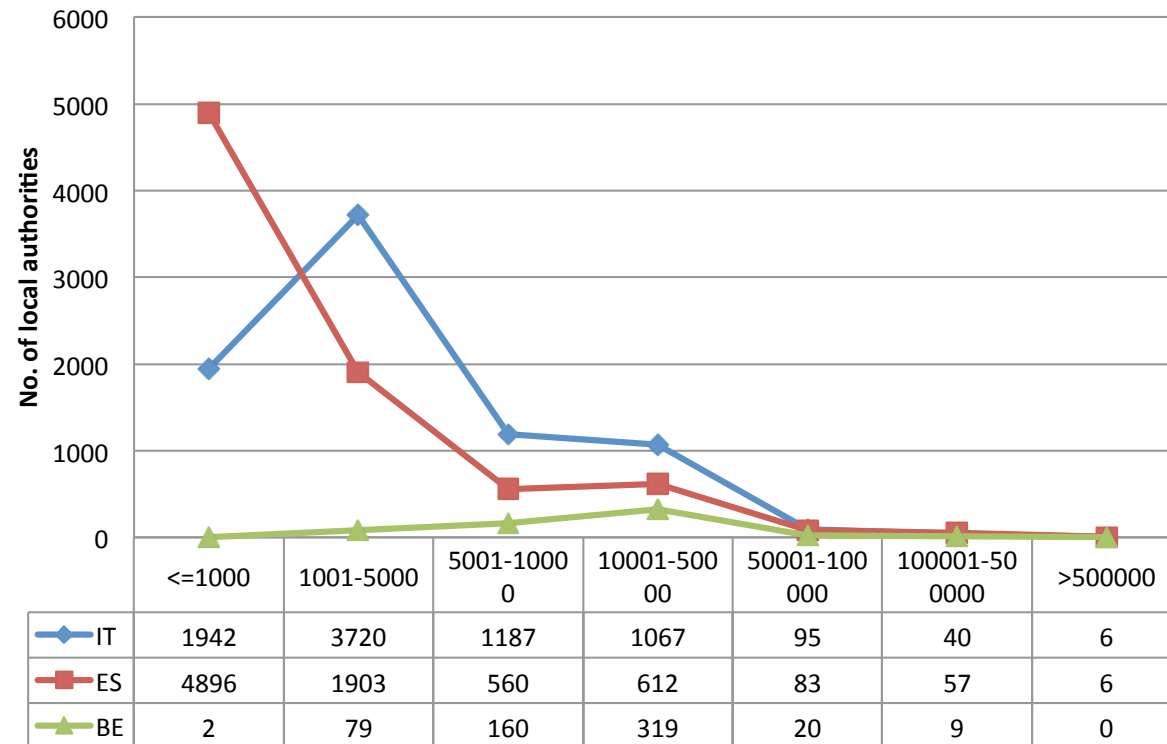
# High administrative fragmentation (IT, ES)



## Many local authorities <10 000 inh.

- ✓ ES: 91%
- ✓ IT: 85%
- ✓ BE: 41%

Local authorities (LAU 2) by population range



# Case studies



CTC	CoM-related activities
Province of Barcelona (ES)	<ul style="list-style-type: none"> <li>✓ 200 signatories, 189 submitted SEAPs</li> <li>✓ Technical support on inventories calculation and SEAP elaboration</li> <li>✓ Financial support via <b>ELENA technical assistance</b>: 190 feasibility studies for energy efficiency in buildings, public lighting, renewable energies and legal studies (122.5 million euros of investments)</li> <li>✓ Coordination of low cost actions: "Euronet 50/50" project on energy savings in school buildings</li> </ul>
Province of Limburg (BE)	<ul style="list-style-type: none"> <li>✓ 44 signatories:               <ul style="list-style-type: none"> <li>☐ 11 signatories &lt;10 000 inhabitants</li> <li>☐ <b>31 signatories from 10 000 to 50 000 inhabitants</b></li> </ul> </li> <li>✓ Scientific study to define the concept of climate neutrality</li> <li>✓ Technical support in data collection for inventories and for actions' impact estimations</li> <li>✓ "ESCOLIMBURG2020" project: partnership between the Province, an energy grid operator and a consultant. Aim: making the municipal and provincial buildings more energy-efficient and integrating renewable energy sources</li> </ul>
Regione Abruzzo (IT)	<ul style="list-style-type: none"> <li>✓ 305 signatories:               <ul style="list-style-type: none"> <li>☐ <b>278 signatories &lt;10 000 inhabitants</b></li> </ul> </li> <li>✓ Support for the SEAP elaboration from 2007-2013 <b>European Regional Development Fund (ERDF)</b> Operational Programme</li> <li>✓ 20.7 million euros from ERDF for <b>implementing one action</b> in each municipality: high demonstrative effect</li> <li>✓ Partner of the project "Alterenergy" for municipalities &lt;10 000 inhabitants. Aim: improving their capacity to plan and manage integrated actions of energy saving and the production of energy from renewable sources</li> </ul>



## Some considerations and findings

- ✓ In **IT and ES**, CTCs support small towns (**<10k inhabitants**) in CoM-related activities. In **BE**, CTCs support also medium-sized local authorities (**up to 50k inhabitants**)
- ✓ The experience of ES, BE, IT shows that **up to 50k inhabitants, local authorities generally require support from government bodies at higher territorial levels**





## Some considerations and findings

- ✓ Six MS (AT, HR, LV, NL, RO, SE) **do not have the LAU1 level** in their administrative structure (similarly to BE, IT, ES).
- ✓ Four out of those six (AT, HR, LV, RO) have a vast **majority of municipalities <10k inhabitants**. NL and SE have 46% and 42% of their population living in municipalities **<50k inhabitants**. Hence the governance model signatory-CTC could perform well also in those 6 MSs.
- Looking at the remaining 19 MS featuring the LAU1 level, we noted that in BG, FR, EL, HU, LU and SE LAU1-type **municipalities <50k inhabitants host more than 40% of the population of each respective country**.



# Conclusions



- ✓ Climate change has to and can be mitigated at **different levels of governance**.
- ✓ **The CoM** is an EU initiative to reduce CO2 emissions at local level and **complements national policies and measures**.
- ✓ In terms of no. of signatories, **the CoM has been successful with small cities**. However, **efforts and resources required by a small local authority (< 10,000 inhabitants)** to comply with the CoM commitments, such as drafting a SEAP and reporting on its implementation, **are very high if compared to a large city**.



# Conclusions



- The contribution by small cities represents a **small share of the total CoM emission reductions.**
- To make the most of the contribution by small local authorities to the Covenant of Mayors' target, the European Commission should adopt **strategies to reach and foster an active participation of an increasing number of CTC.**
- ✓ It is expected that the CoM governance model signatory-CTC can be **positively replicated in countries with an administrative structure similar to that of IT, ES, or BE or where a high share of population lives in municipalities <50k inhabitants.**

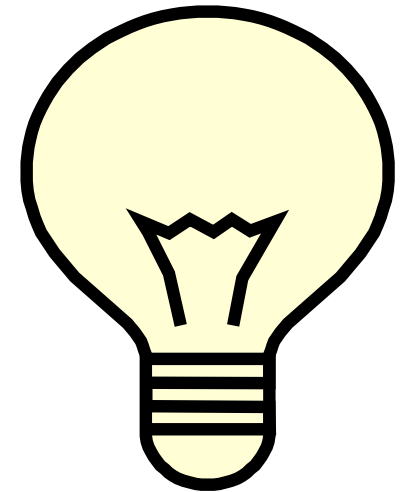


# Next steps



**Future studies** could:

1. Investigate **other possible circumstances** that have favoured this model:
  - **national policies** on sustainable energy
  - level of **decentralization** of competences on energy issues
2. Explore the role of CTCs on **adaptation** to climate change
3. Examine the role of CTCs in **SEAP implementation**:
  - have regional authorities succeeded in **executing** energy efficiency or renewable energy projects in municipalities?
  - have they created **economies of scale on SEAP implementation**?

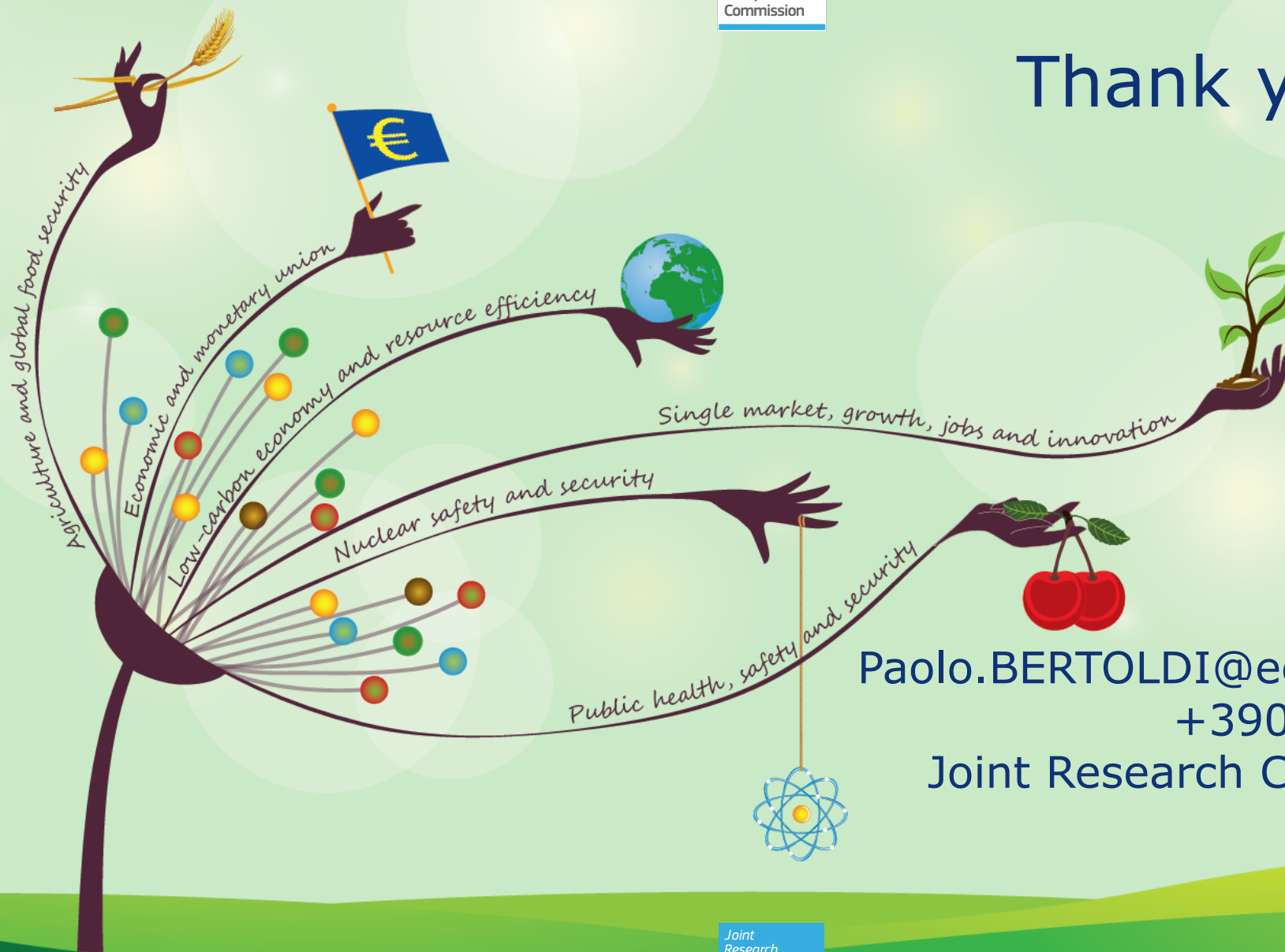


Covenant of Mayors  
for Climate & Energy



European  
Commission

# Thank you!



Paolo.BERTOLDI@ec.europa.eu  
+390332789299  
Joint Research Centre (JRC)

Joint  
Research  
Centre