

# Decarbonisation lost in translation

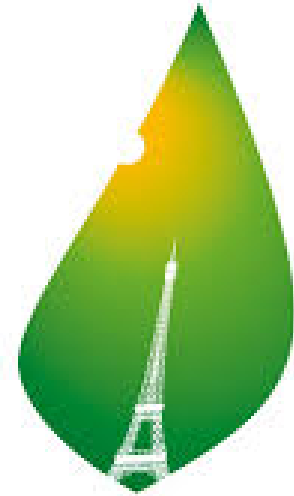
## How to improve the dialogue between research and cities

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IEA-EBC Working Group on Cities and Communities

# The target is clear ...

Net zero greenhouse gas emissions  
in the second half of this century



COP21 · CMP11  
**PARIS 2015**  
UN CLIMATE CHANGE CONFERENCE

# Facts

**2%**

the earth's surface is consumed by cities

**53%**

the world population lives in cities

**70%**

of world-wide CO<sub>2</sub>-emissions are in cities

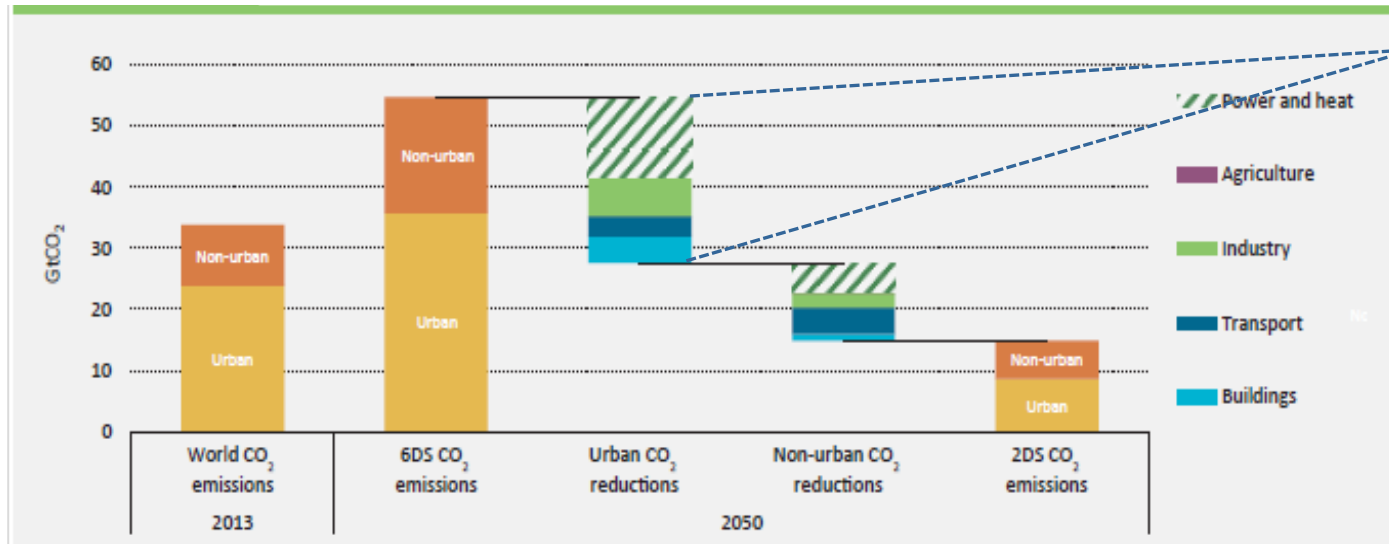
# Towards Sustainable Urban Energy Systems

“Cities are at the heart of the decarbonisation efforts”



# “Cities are at the heart of the decarbonisation effort”

## Carbon emissions reduction in the buildings and transport sectors, 2013-50



2/3 “Urban“:

- Power&Heat
- Industry
- Mobility
- Buildings

➔ Role of the cities?

# Transformation needs investment

## City of Salzburg, Austria (pop. 150.000)

- 3% /a renovation rate
- 8,4 Mio m<sup>2</sup> BGF living space
- 252.000 m<sup>2</sup>/a á 400 €/m<sup>2</sup> renovation costs

→ Required Investments: >100 Mio €/a

- + Non-residential Buildings (appr. 5 Mio m<sup>2</sup>)
- + Costs for transformation of energy and mobility infrastructure!

**Common strategies and decision on investments by city, investors, energy supplier, mobility provider, ...**

# Energy & Urban Planning – Wicked Problems

## Multiple stakeholder group

Municipality: politicians, administration

Housing associations, investors, ...

Architects, planners, ...

People, Tenants

## and ...

Conflicting objectives, interests

Long project duration

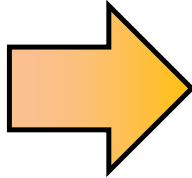
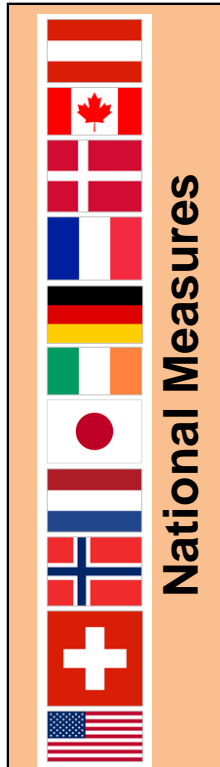
Dynamic „State-of-the-art“ in technologies

Lack of (binding) instruments for implementation

## Multiple issues

- Vision and targets
- Process and organisation
- Support and involvement
- Skills and know-how
- Technological concepts
- Monitoring
- Tools and methods
- Financing
- Legal issues
- Spin-off effects, co-benefits

# Put energy in urban planning processes



<b>Strategic Measures</b>	
	Set Vision and Targets
	Develop Renewable Energy Strategies
	Make Full Use of Legal Frameworks
	Design of Urban Competition Processes
	Make Use of Tools Supporting the Decision Making Process
	Implement Monitoring of Energy Consumption and GHG Emissions
	Stakeholder Engagement & Involvement
	Include Socio Economic Criteria
	Implement Effective and Efficient Organisational Processes

Activities / Instruments categorized in:

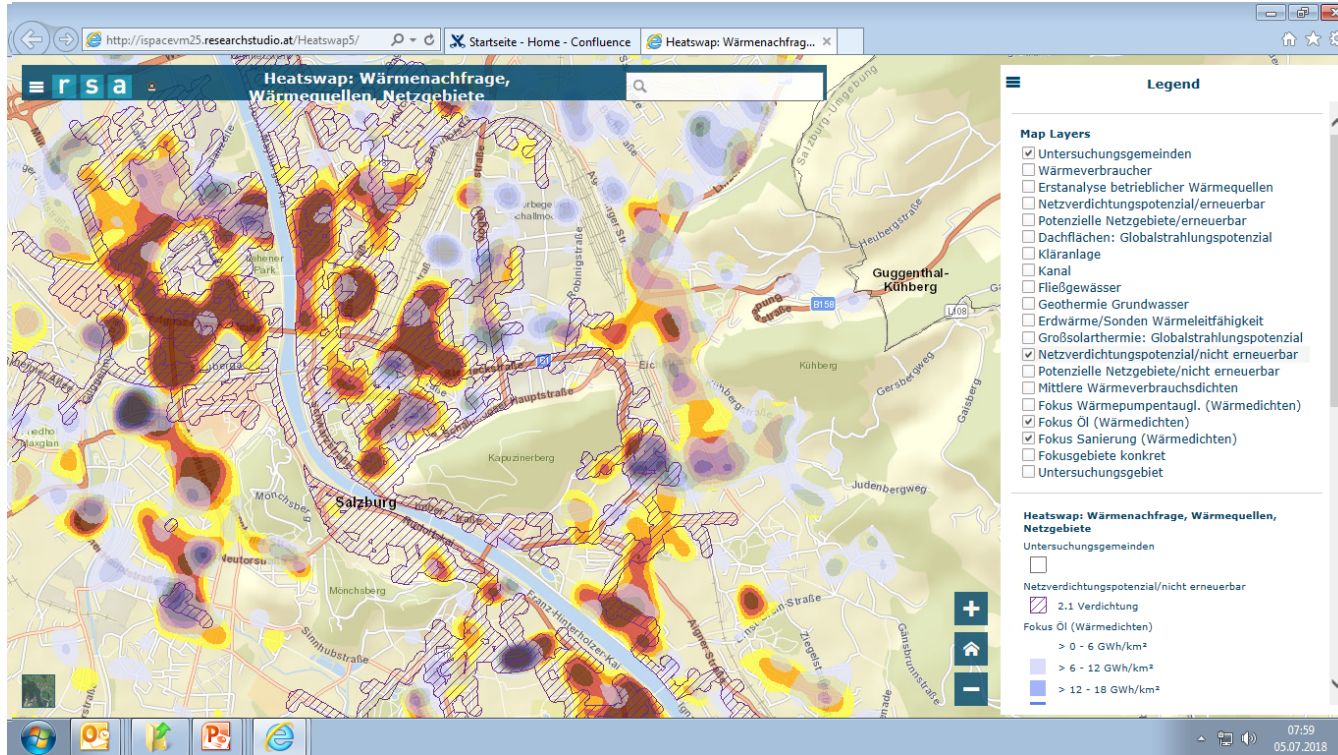
**Enable**

**Encourage**

**Enforce**



# Develop Renewable Energy Strategies



GIS-based heat maps as the basis for

- ✓ development of decarbonization strategies
- ✓ Integral planning processes
- ✓ binding regulations

# Develop Renewable Energy Strategies



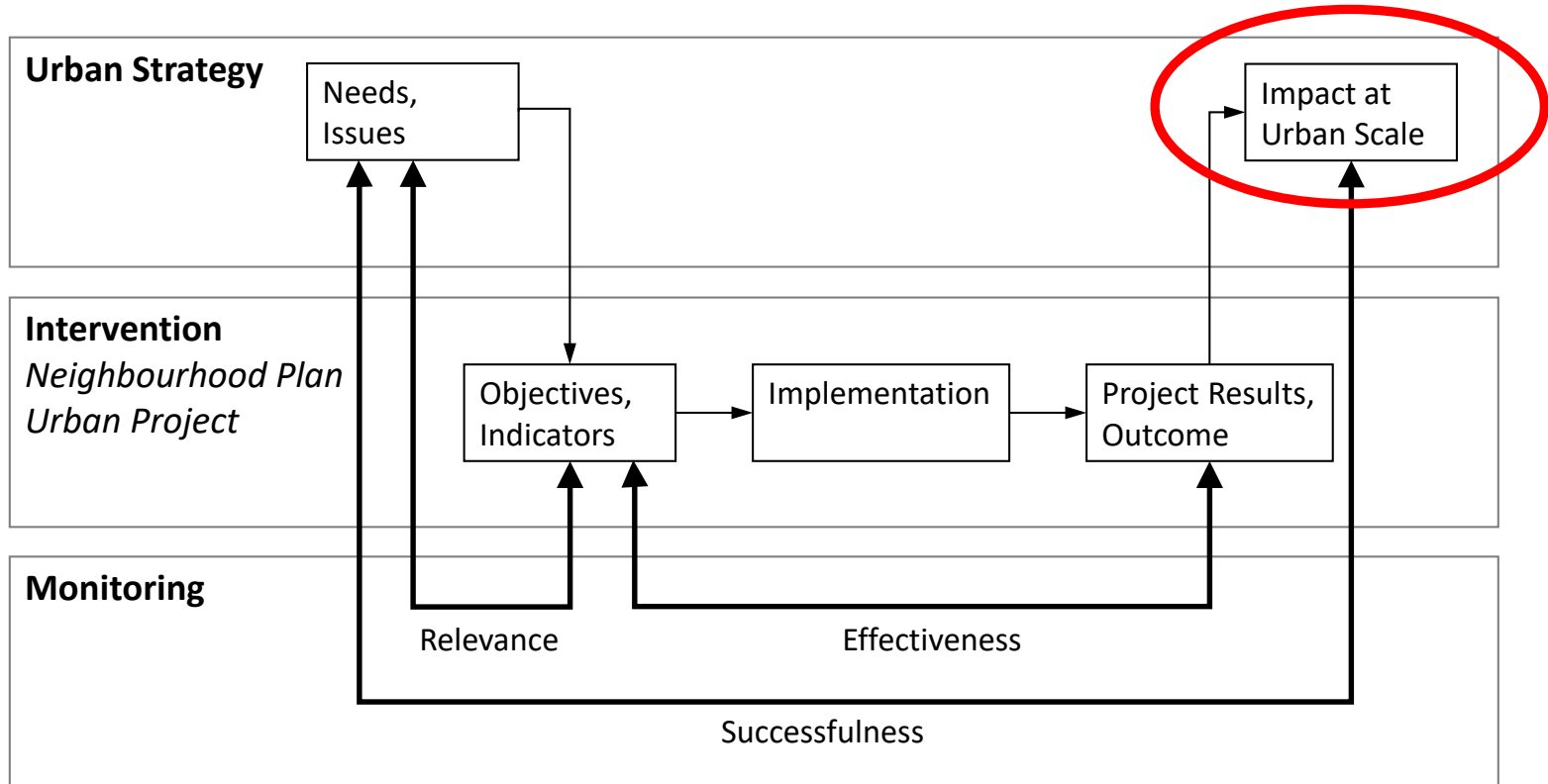
## Defined applications

- ✓ Strategic planning and monitoring
- ✓ Spatial Planning
- ✓ Site development / project planning

## Planned extension

- electricity, mobility
- + further federal states of Austria

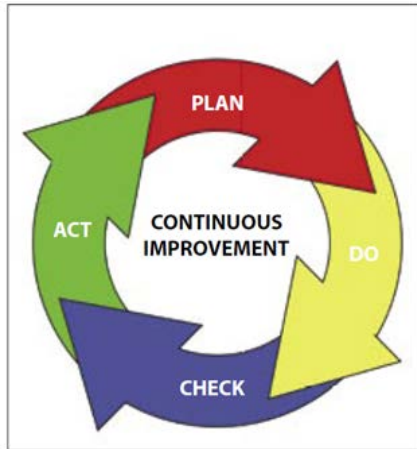
# Implementing Monitoring



# Implementing Monitoring

## City Scale

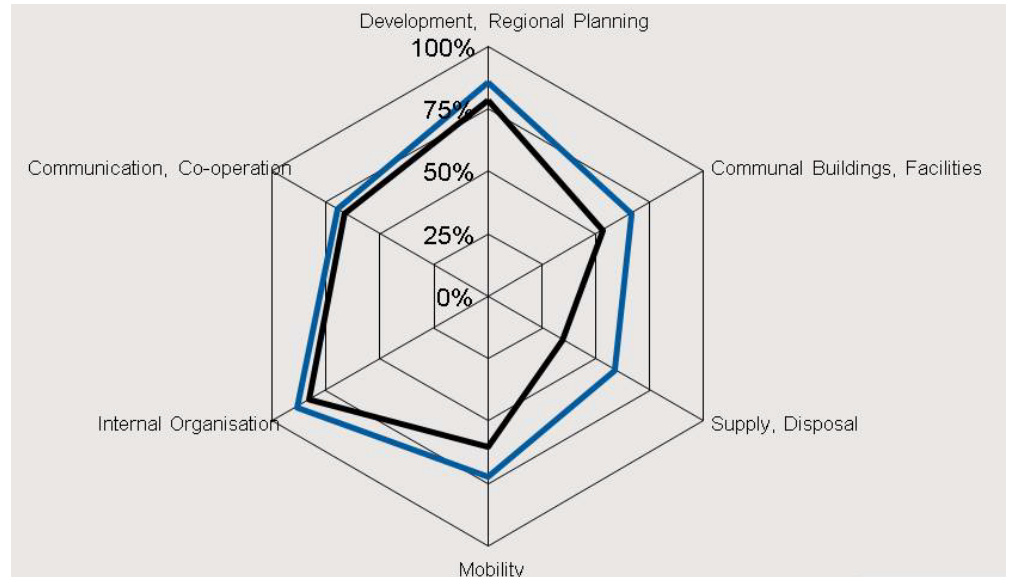
- Quality Management Process
- Continuous Application



[www.europeanenergyaward.org](http://www.europeanenergyaward.org)



[www.e5-gemeinden.at](http://www.e5-gemeinden.at)



# Make Use of Tools supporting the Urban Decision making Processes

**City**

**Site**

**Building**

**QM for Cities**



**Austrian  
Site Certification**

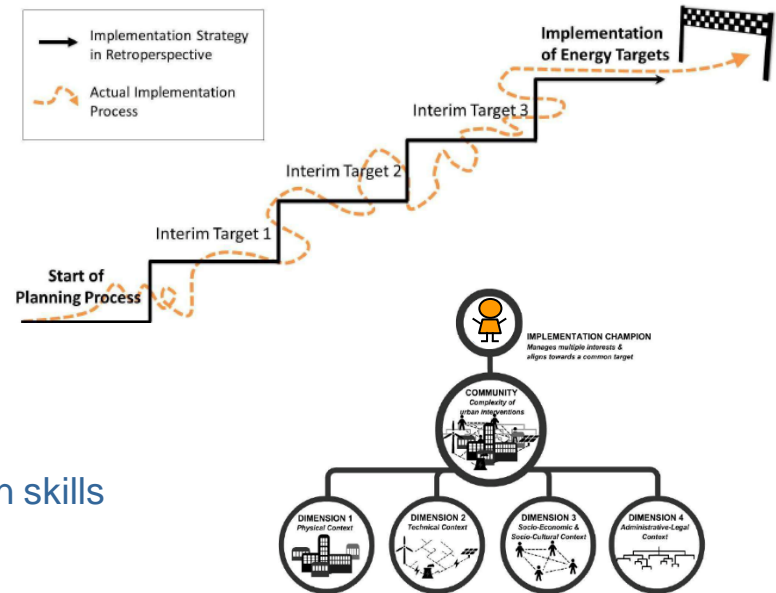


**Building Labels**

# Implement Effective and Efficient Organization and Processes

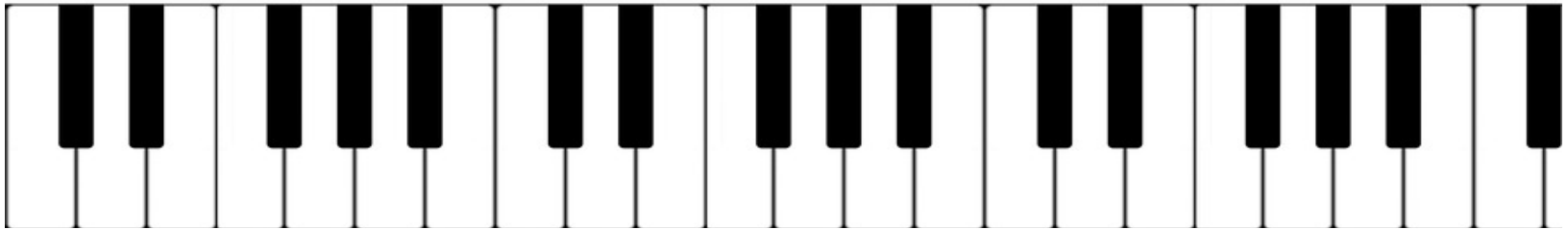
## Competencies supporting effective implementation champions (IC)

1. Create an incubation room for IC
2. Strengthening strategic competencies among IC
  - Technical
  - Socio-economic
  - Political
  - Managerial
  - Planning
  - Local community engagement
  - Facilitation
3. Recognizing the intuitive character of implementation skills
  - Ability to adjust the process to each situation
  - Learning-by-doing



# Conclusions

- Transformation of Energy System is a Challenge
- It's not only a technological issue, it's about the whole range of local policy
- A wide range of skills and knowledge is needed + a “common language” for better understanding each other



**Innovation is in the process**

# Towards Sustainable Urban Energy Systems

“Cities are at the heart of the decarbonisation effort”

“Mobilizing the urban sustainable energy potential requires strong support from national governments to local policy makers”





# Austrian Smart Cities Platform

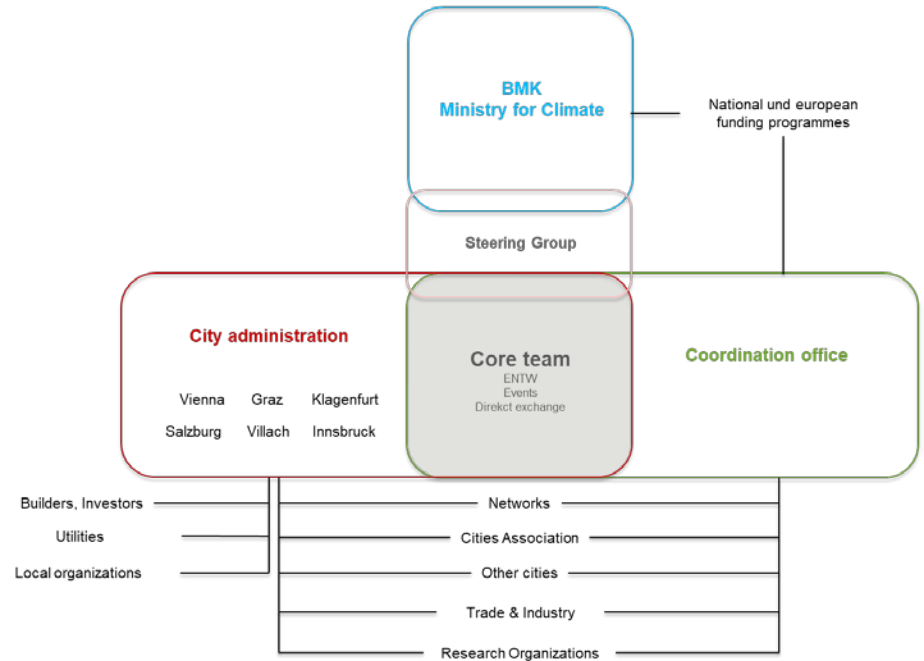
Support and acceleration of municipal innovation processes in cities towards smart cities

by ...

- Building up and intensifying local organizational structures
- Experience exchange

Topics of common interest

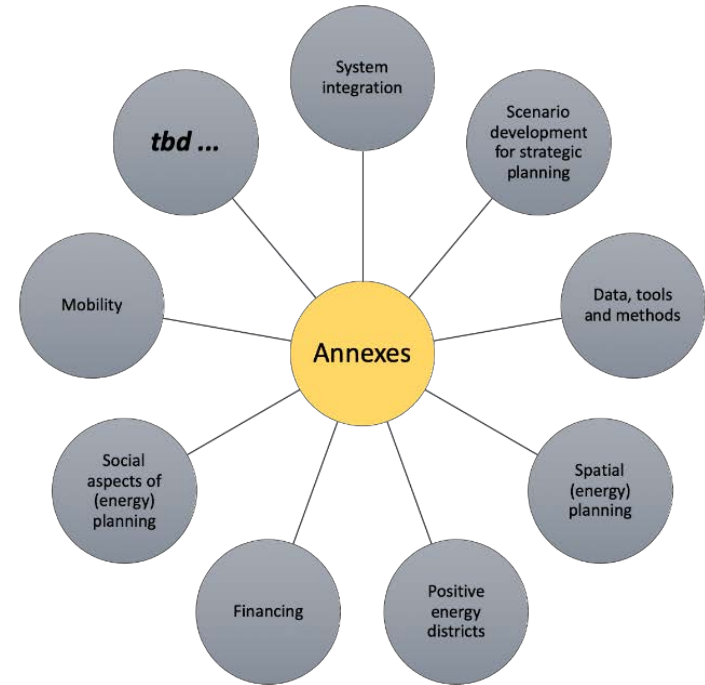
- Spatial Energy Planning
- Smart City and Digitalization
- Positive-Energy Districts



# Decarbonization of Cities and Communities (DoCC)

Planned new TCP, based on the current EBC Working Group on Cities and Communities, which aims to provide

- scientific and evidence-based information, tools, and recommendations to support urban decarbonisation efforts, and
- an international forum and communication channel for the exchange between TCPs and between TCPs and practitioners to share best practices and pool resources.



# Decarbonization of Cities and Communities (DoCC)

## Committed

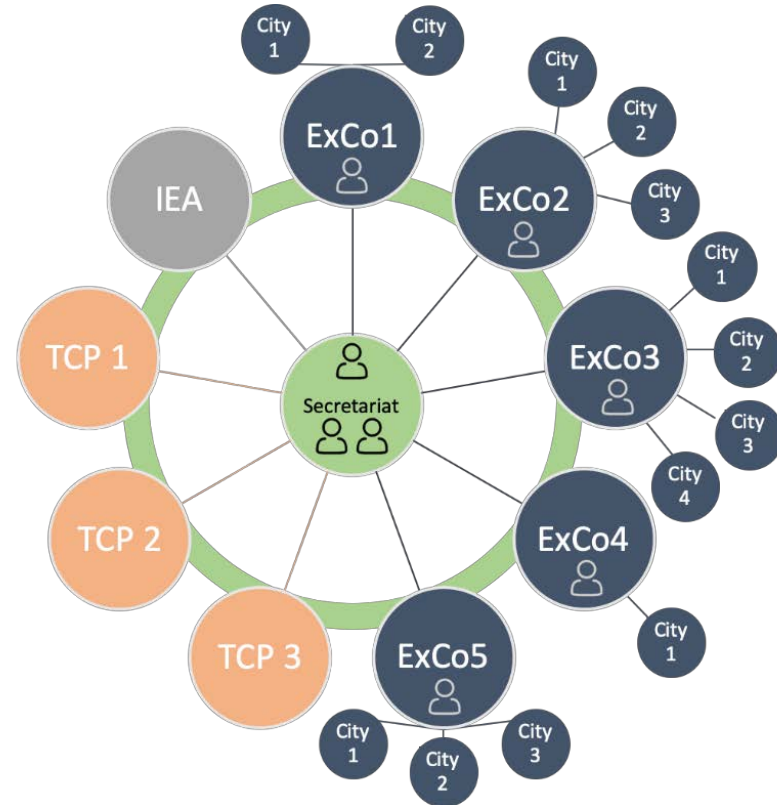
- AUT

## In negotiation

- FIN, FRA , GBR, GER, NL, NOR, SWE  
+ CAN, JAP, USA, PRC, ...

## Associated TCPs

- EBC, DHC, HEV, HPT, SHC (+ ECES,  
ISGAN, PVPS, Users, ETSAP, AMF,  
Bioenergy)



# Contact

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<https://www.iea-ebc.org/working-group/cities-communities>

<http://annex63.iea-ebc.org/>

[www.european-energy-award.org](http://www.european-energy-award.org)