Cooling the pathway to energy transition: integrating renewable cooling technologies into Municipal SEAPs –

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Why are SEAPs relevant?

- **About the SEAPs in Europe**

- The Strategy Energy Action Plans in European cities were launched by the Covenant of Majors Agreement in 2008 under the umbrella of the COVENANT INNITIATIVE FOR CLIMATE AND ENERGY

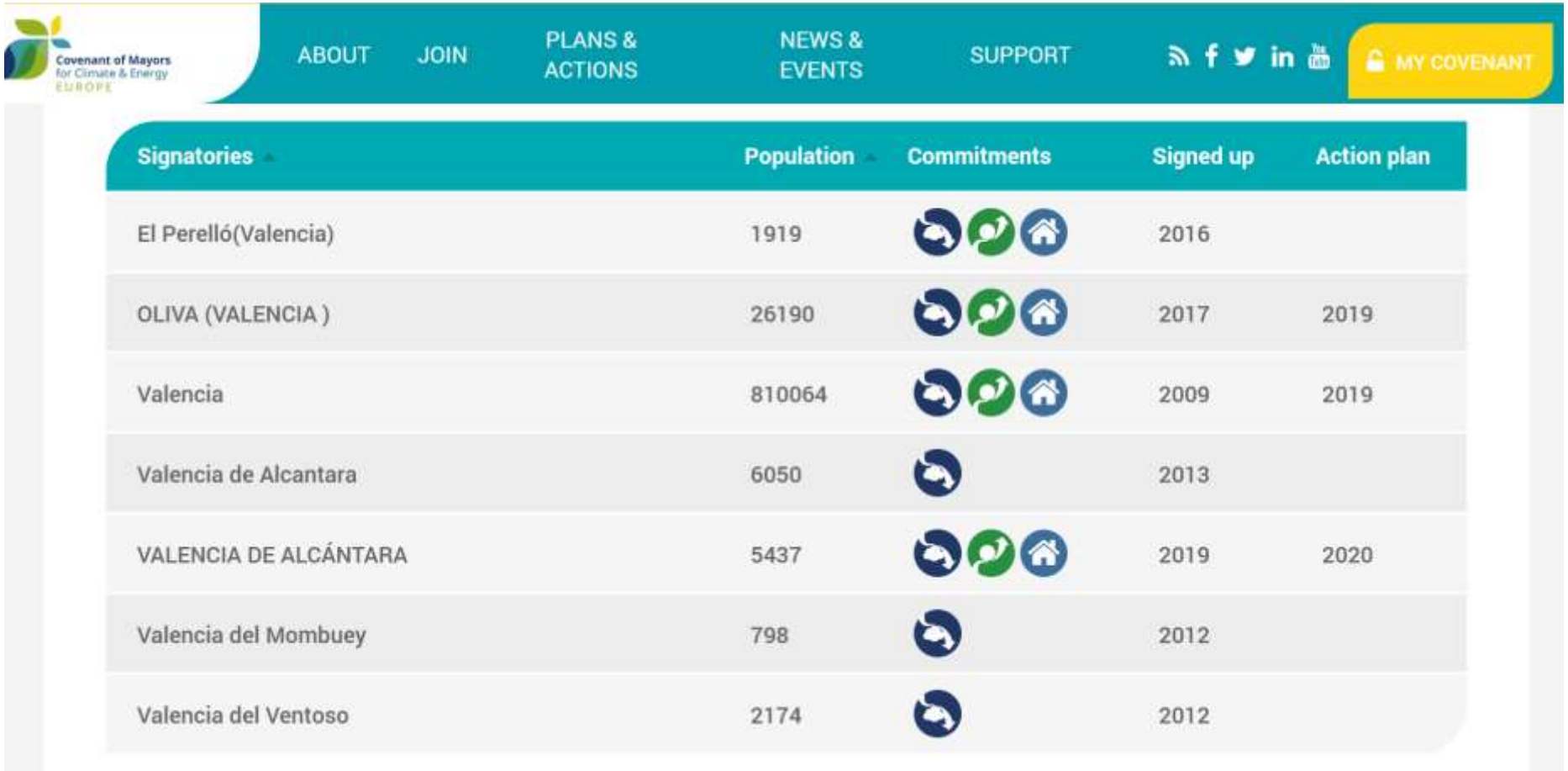
- Up to date, more than 11.000 EU cities have signed and the population covered is of about 341 Mio inh

Why are SEAPs relevant?

- The main idea is to realice the principle of “Think global but act local”, engaging cities and communities into the Energy Transition.

- To participate, **each signatory city** has to follow several steps including…
- Sign a commitment supported by the City Council
- Prepare a Strategic Energy Action Plan for the City following certain template rules
- Follow the subsequent revisions of the Actions

SEAPs are public and downloadable



Signatories	Population	Commitments	Signed up	Action plan
El Perelló(Valencia)	1919		2016	
OLIVA (VALENCIA)	26190		2017	2019
Valencia	810064		2009	2019
Valencia de Alcantara	6050		2013	
VALENCIA DE ALCÁNTARA	5437		2019	2020
Valencia del Mombuey	798		2012	
Valencia del Ventoso	2174		2012	

We have a SEAP!... why bother?

- SEAPs are developed following certain technical guidelines released by the CM infrastructure. But, there are two main concerns:

About the Baseline GHG Inventories (BEI)

- Given the technical complexity of estimating Green House Gas Emissions at local scale, for which there is no standard approach, cities use more or les simplified rules and schemes based on simplified bottom-up approaches but without being neither exhaustive nor precise.
- There are technical guidelines which fail to take into account a big portion of the GHG emissions

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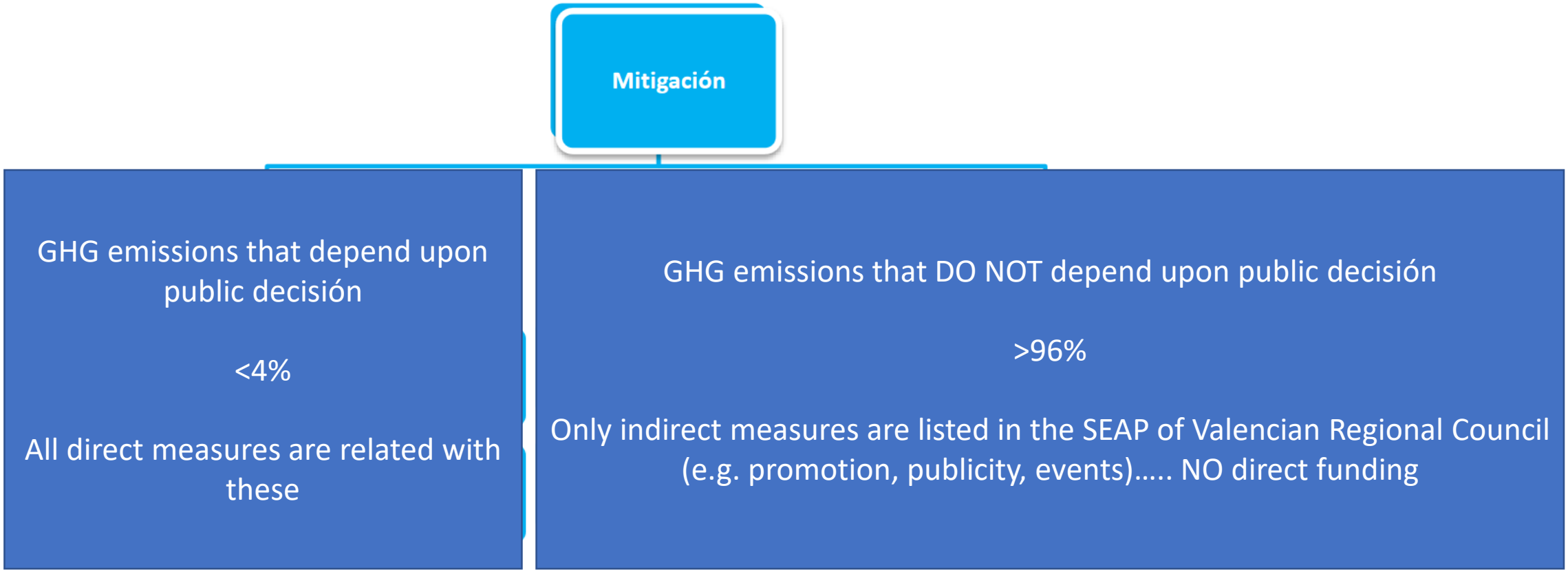
About the relationship between Measures and Decarbonization

  - SEAPs offer catalogues of measures to be followed in order to abat emissions, but there is no strategy neither to assess its impact nor to follow its success.

Measures = decarbonization ?

Metodología para el desarrollo de los documentos del Pacto de las Alcaldías para el Clima y la Energía en la provincia de Valencia

SEAP typical structure



M.a.i. NOMBRE DE LA ACCIÓN					
Mitigación ó Mitigación/Adaptación			Prioridad a Corto/Medio/Largo plazo		
Descripción de la acción:					
Inversión estimada: €					
Rentabilidad de la Inversión: kWh ahorrado/€ invertido					
Para la realización de esta medida se dispone de las siguientes ayudas: •					
Indicadores: • •					
Reducción de CO_2 (tCO_2)			Ahorro de energía (kWh)		
Repercusión en las emisiones del ámbito (%)			Repercusión en las emisiones totales del municipio (%)		
Año	**2018**	**2021**	**2024**	**2027**	**2030**
Implantación (%)					
Ahorro energía (kWh)					
Ahorro emisiones (tCO_2)					
Inversión estimada (€)					

Tabla 25 Ejemplo ficha acciones de reducción de emisiones de CO_2

SEAP TEMPLATE OF THE VALENCIAN REGIONAL COUNCIL

KP INDICATORS MENTIONED IN THE SEAP OF THE CITY OF VALENCIA

Área de intervención	Indicador
Edificios municipales - residenciales - terciarios	
Envolvente de edificios	Número/superficie de edificios aislados [-/m2]
Eficiencia energética en calefacción de espacios y suministro de agua caliente	Número de calderas sustituidas [-]; Número de bombas de calor sustituidas [-]; Número de expedientes de cambio realizados para esta topología [-]
Sistemas de alumbrado eficientes	Número de bombillas sustituidas [-]
Electrodomésticos eficientes	Número de electrodomésticos sustituidos [-]
Energía renovable para calefacción de espacios y suministro de agua caliente	Superficie de paneles solares térmicos instalados [m2]
Acción integrada	Número/superficie de edificios reformados [-/m2]
TIC	Número de edificios con contadores inteligentes instalados [-] / Número de nuevos edificios con sistemas de domótica [-]
Modificación de hábitos	Número de participantes en campañas de sensibilización [-] / Número de LFC distribuidas [-]

Can we do better? The SITE strategy

- Modern Information and Communication Systems can assist in:
  - Improving our understanding about the magnitude and origin of GHG at the local and regional scale and..
  - Help us identify the best measures (€/ton Co2 abatted), monitor and verify its success ?

What is SITE? A short context

- In 2015 three UPV professors established the “ICTvsCC” research group to develop ITC tools to aid the fight against Climate Change from the perspective of data handling and knowledge sharing.

- In 2017 the first version of the SITE (Territorial Emission Information System) METHODOLOGY was released to substantially enhance the availability of information about GHG emissions in the hand of local stakeholders, decission makers and companies.

- In 2019 Company GEMINIS TOOLS licensed the METHODOLOGY to turn SITE into a computable form as a DIGITAL PLATFORM.

- SITE is now being used by many municipalities and some economic sectors in our region.

- In 2022 with the Support of the Valencian Regional Government, an GHG observatory has been established at UPV to help spreading and improving all these tools within the wider community.

The SITE strategy

- Top-down data to get a first overall picture which helps identifying the most important sources of emissions in a …
- To identify the main emitters in the territory
- To carry out a digitally enhanced bottom-up follow up of those agents in the region identified as top emitters and funding recipients
- Hence we get:
- Impact Assesment + Monitoring + Verification at mínimum cost

SITE pilot cities

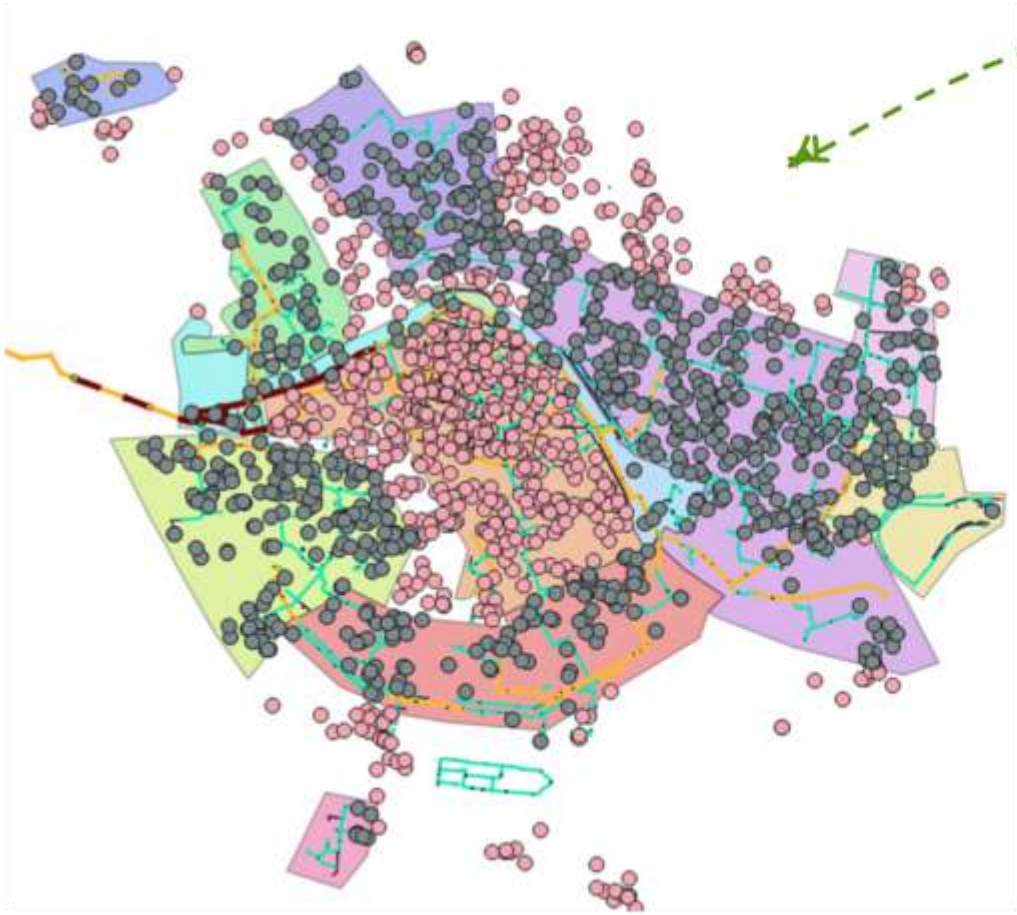
- The technology specific efficiency and energetic coefficients related to the different cooling technologies assessed in WP2 will be integrated into the platform (SITE) to allow, for different climatic situations and urban environments, the calculation of a correlation matrix between different sets of measures typically included in some SEAPs and their mitigating effect. Typical cost aspects in terms of €/tonCO2 abated will be included in the analysis…

- To establish a template for such “SEAP cooling chapter”, as a third step, the SEAP of the City of Valencia will be taken as a basis.

T3.2 Modelling at the local or municipal scale

from M1 (November 2022) to M24 (November 2024) UPV TASK LEADER!

Participants TUM, Fh:IEG, UNIPD; JER, RED, others)



Municipal buildings of the city of Valencia