



TOWARDS SMART ZERO CO<sub>2</sub> CITIES ACROSS EUROPE  
VITORIA-GASTEIZ + TARTU + SØNDERBORG

**Deliverable 8.7. Report on widening the scope of replication knowledge through Smart Cities Network and several European platforms**

WP8, Subtask 8.4.3

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<sup>1</sup> PU = Public

<sup>2</sup> Reviewed by Heike Iffland (SEZ) and Michele De Santis (RINA)



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## Abbreviations and Acronyms

Abbreviation/Acronym	Description
BoC	Board of Coordinators
D.xx	Deliverable (SEC report)
EIP	European Innovation Partnership
IEP	Integrated Energy Plan
IUP	Integrated Urban Plan
SCC	Smart Cities and Communities (European Commission programme)
SCIS	Smart Cities Information System
SmartEnCity	Towards Smart Zero CO <sub>2</sub> Cities across Europe
SEC	SmartEnCity
SECN	SmartEnCity Network
TG	Task Group
WP	Work Package

**Table 1: Abbreviations and Acronyms**

## 0 Publishable Summary

The overall objective of WP8 “Replication to Followers and Smart City Network” is to ensure the successful and large-scale replication of the systemic approach demonstrated in project Lighthouse Cities, fostering urban transformations processes into sustainable, smart and resource-efficient urban environments in Europe. The specific objective of WP8 is to develop a sound framework for effective replication to happen in the rest of the Lighthouse City districts and in the Follower Cities, as well as to enhance the possible replication of demonstration solutions and generated knowledge on much wider scale through a developed community of interest (SmartEnCity Network and alternative aligned initiatives).

Targeting that wider scale, Subtask 8.4.3 and D8.7 intend to reach European cities and communities to replicate the outcomes and lessons learned at SmartEnCity project, describing:

- The main replicable outcomes of the project (section 4):
  - Cities4ZERO urban decarbonization methodology and foresight approach for participated future scenarios' generation
  - Integrated Energy Plans of all 5 SEC Cities
  - SEC Solutions deployed in the pilot areas
- The means through which replicating those outcomes (section 5):
  - SEC Network (European and local levels; during and beyond project lifetime)
  - SCC-01 Replication Task group (collaboration with other Smart City projects)
  - Smart Cities Marketplace (European Commission initiative)
- Providing specific input for future replication activities (section 6):
  - Solution Booklets, Replication Toolkit, SEC Solutions repository, SmartEnCity Academy course (YouTube), the EnergyPLAN and Energy Balance tools, and methodological publications for strategic planning (links, reports, and scientific publications).

This replication objective targets any city intending to be involved in the Smart Cities paradigm as well as all those aiming at reducing their CO<sub>2</sub> emissions. After COVID-19 outbreak, those already existing objectives for European cities are even more in line with all recovery funds, Next Generation programme, and Green Deal ones.

In this sense, D8.7 works as a report where main replicable materials and replication means can be found by the reader, briefly presenting those contents, and redirecting through website hyperlinks to more thorough replicable contents.



# 1 SmartEnCity consortium involvement and activities

## 1.1 Contributions of partners

The following Table 2 depicts the main contributions from participant partners in the development of this deliverable.

Participant short name	Contributions
TEC	General structure and coordination, introduction chapters (1, 2, 3) and contribution to chapters 4, 5, and 6.
IBS	Contribution to chapters 4, 5, and 6.
ZERO	Contribution to chapter 5.
SEZ	Contribution to chapters 4, and 6.
ACC	Contribution to chapter 4.

**Table 2: Contribution of partners**

## 1.2 Relation to other activities in the project

The following Table 3 depicts the main relationship of this deliverable to other activities (or deliverables) developed within the SmartEnCity project and that should be considered along with this document for further understanding of its contents.

Deliverable Number	Contributions
D2.8	This deliverable provides the Cities4ZERO methodology
D8.1/ D8.3/ D8.5/ D8.8	These deliverables provide sequential updates of SmartEnCity Network activities
D8.2/ D8.9	These deliverables provide V1 and V2 of the replication toolkit
D8.4/ D8.6- D8.10	These deliverables provide the process of generating Integrated Energy Plans (IEPs), starting with the foresight process (D8.4), which orientates strategic planning towards the generation of IEPs (D8.6-D8.10)
D9.8/ D9.12	These deliverables contain more detailed information about the SmartEnCity Academy, the SmartEnCity solutions and the SmartEnCity booklet

**Table 3: Relation to other activities in the project**



## 2 Introduction

### 2.1 Objective and purpose

The overall objective of WP8 “Replication to Followers and Smart City Network” is to ensure the successful and large-scale replication of the systemic approach demonstrated in project Lighthouse Cities, fostering urban transformations processes into sustainable, smart and resource-efficient urban environments in Europe. The specific objective of WP8 is to develop a sound framework for effective replication to happen in the rest of the Lighthouse City districts and in the Follower Cities, as well as to enhance the possible replication of demonstration solutions and generated knowledge on much wider scale through a developed community of interest (SmartEnCity Network and alternative aligned initiatives).

Targeting that wider scale, Subtask 8.4.3 and D8.7 intend to reach European cities and communities to replicate the outcomes and lessons learned at SmartEnCity project, describing:

- The main replicable outcomes of the project (section 4)
- The means through which replicating those outcomes (section 5)
- Providing specific input for future replication activities (section 6)

### 2.2 Target group

D8.7 targets potential replicators of the approaches and solutions developed in SmartEnCity. Due to the characteristics of the Smart Cities and Communities programme, that potential replication mainly addresses cities that have an interest on Smart City Solutions and Climate Action. Through the intensive work of the SmartEnCity network, and beyond the two Follower Cities, the group of potential replicators is based on the member cities of such network, which now achieves 60 members, and still growing. On a second stage, the range of action of D8.7 targets all European cities, fostering the achievement of 2030/2050 EU CO<sub>2</sub> reduction goals, as well as any other city with an interest on Smart Solutions and Climate Action. For instance, the Covenant of Mayors initiative has 10.633 signatories, complementing the existing offices with regional branches in North-America, Latin-America and Caribe, China and South-East Asia, India and Japan, which gives an idea on the significant interest on this already global initiative.

### 2.3 Expected Impact

The main expected impact of this deliverable intends to exceed the limits of the project, by replicating SmartEnCity solutions and lessons learned in European cities.

This replication objective targets any city intending to be involved in the Smart Cities paradigm as well as all those aiming at reducing their CO<sub>2</sub> emissions. After COVID-19 outbreak, those already existing objectives for European cities are even more in line with all recovery funds, Next Generation programme, and Green Deal ones.



In this sense, D8.7 works as a report where main replicable materials and replication means can be found by the reader, briefly presenting those contents, and redirecting through website hyperlinks to more thorough replicable contents.

Regarding the expected impact within SmartEnCity project, D8.7 will provide visibility to the key generated contents of the projects as well as support to all SEC Network activities still to be celebrated with European cities, via workshops, webinars, and reports (i.e., Toolkit\_V2).





### 3 Overall Approach

D8.7 development has required a wide replication knowledge from the key partners involved in these tasks. Accordingly, the deliverable gathered the perspectives of main replication leaders within SEC:

- WP8 leader – As main responsible of Replication WP (Merit Tatar – IBS)
- WP9 leader – As main responsible of Dissemination and Communication WP (Bettina Remmele – SEZ)
- SmartEnCity Network leader – As main responsible of events' design and management with external cities (Kristina Bozhkova – ZERO)
- T8.4 leader – As main responsible of SEC cities' strategic planning/ IEPs (Koldo Urrutia – TEC)
- T8.5 leader – As main responsible of SEC cities' replication roadmaps/ Action Plans (Magdalena Rozanshka – ACC)

In a second step, the main replication materials and means were identified, gathered, and structured in sections 4, 5, and 6 of this deliverable:

- Section 4; gathering main replicable outputs of SEC, including brief descriptions.
- Section 5, presenting the main channels through which replicating those outcomes.
- Section 6, providing specific input for future replication activities.



## 4 Replicable SEC lessons; *What?*

In this section, the main replicable outcomes of the project are briefly described.

- 4.1 Strategic planning methodologies
  - Cities4ZERO: The Urban Transformation Strategy for Cities' Decarbonisation
  - Integrated energy planning process – Cities4ZERO Foresight
- 4.2 Integrated Energy Plans of 5 SEC cities
- 4.3 SEC solutions deployed in Vitoria-Gasteiz, Tartu and Sonderborg

Through this section, the reader can have an idea on the main replicable outcomes, finding links with more detailed information in section 6 *Input for future replication activities*.

### 4.1 Methodologies: Cities4ZERO and foresight approach

#### Cities4ZERO: The Urban Transformation Strategy for Cities' Decarbonisation

**Cities4ZERO** is a step-by-step **methodology for local authorities**, able to guide them through the process of developing the most appropriate plans and projects for an effective urban transition; all from an integrated, participatory, and cross-cutting planning approach. The Cities4Zero Strategy consists of **16 steps** that are structured in **three stages**. Stage A deals with the development of the **City Strategy towards decarbonisation**, while Stages B and C **develop the Key Projects** identified in Stage A:

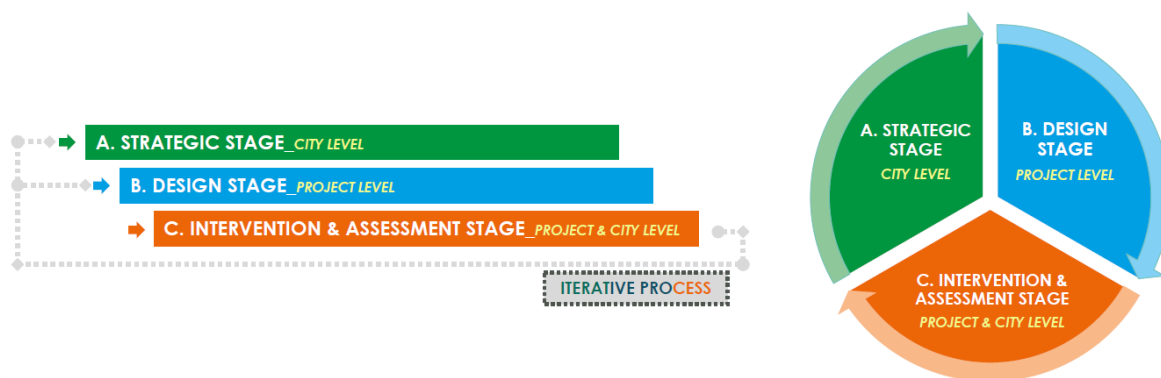


Figure 1. Cities4ZERO iterative process

- **A. Strategic Stage (STEPS 1 to 6):** A **strategic planning framework** enabling city administrations to perform an effective transition towards the Smart Zero Carbon City (SZCC), including:
  - Key **city stakeholders' engagement** and institutional analysis
  - **Analysis** and **diagnosis** of city strengths and opportunities
  - **Co-visioning** process for urban transformation towards energy transition, including potential **future scenarios**
  - Development of **Strategic Plans** to deploy that vision and **identification of Key Projects**, ensuring commitment of engaged stakeholders and municipal support

- **B. Design Stage (STEPS 7 to 11): Development of Key Projects** identified in Stage A, according to the Strategic Plans of the city, paving the way for tangible interventions towards the SZCC, including:
  - **Project prioritisation and selection** based on city needs
  - **City transformation framework** with policies, plans, best practices, regulation, etc.
  - **Funding & financing** mechanisms
  - **Citizen Engagement Strategies** for project development
  - **Project design** and tools
  - **Project implementation plan** & indicator systems
  
- **C. Intervention & Assessment Stage (STEPS 12 to 16): Implementation of Key Projects** identified in Stage A and designed in Stage B, finally transforming the urban environment, including:
  - **Intervention works**, solutions deployment, and commissioning
  - **Monitoring, maintenance**, and users training
  - Interventions' **performance and impact assessment**
  - Post management and communication through **City Information Open Platforms**
  - Project and strategy **validation**
  - **Up-scaling** of successful experiences

This step-by-step methodology is **as circular process** that cyclically iterates when felt partially obsolete to **readjust the focus of Strategies, Plans and Key Projects** towards the final decarbonisation goal, according to the co-formulated city vision.

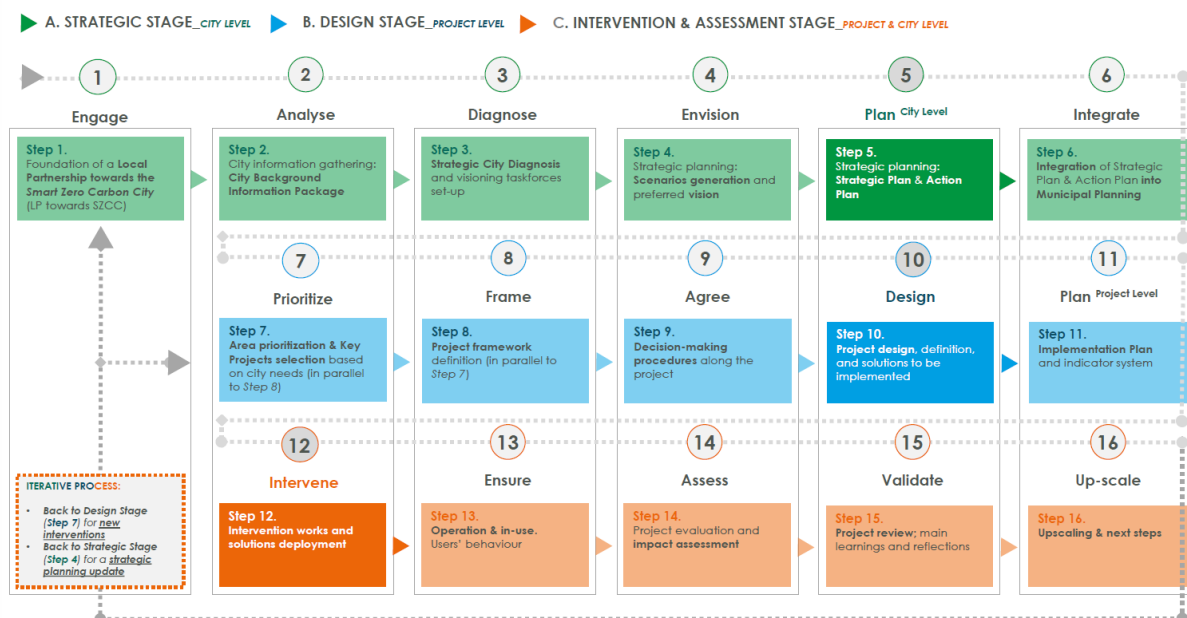


Figure 2. Cities4ZERO overall diagram

### Integrated energy planning process – Cities4ZERO Foresight

Decarbonising cities involves complex strategic planning, needs system level thinking and changes. Local governments increasingly realise this, but challenges remain while developing policies regarding the tools, involvement of stakeholders and obtaining commitment from the whole community. In order to overcome these challenges, the SmartEnCity project introduces participatory foresight methods as part of overarching Cities4ZERO framework to support the cities' strategic planning process.

This participatory process focuses on bringing together stakeholders to gather future intelligence and achieve unified scenarios and a common vision for future urban decarbonisation strategies. It helps to mobilise joint actions which will contribute greatly to shaping the cities' integrated energy plans and roadmaps.

Important key elements in the process determine the success of the result.

- Planning process starts with **setting up a task force** (e.g., Steering Committee) of key partners that will coordinate the IEP development process in the city and help to carry out the foresight exercises. Hiring external experts to help organise the joint scenario-building phase is also a good option.
- A good foresight exercise starts from **setting the strategic question** that guides the next activities (e.g., “How can we make our city carbon-neutral by 2030?”). The timeframe of the foresight process should not be more than 10-15 years into the future so to develop good courses of action.
- Scenario building techniques stress the importance of identifying key drivers, stakeholders, trends, constraints, and other important issues in a systematic way and ranking these items by importance and uncertainty. **Highly relevant, but uncertain drivers of change should lead to defining the main strategic actions to be taken.**
  - Uncertain + highly relevant = uncertain trends with a high impact that should be analysed as background information in future scenario-building workshops to agree on the best course of action in urban planning.
  - Likely + highly relevant = certain trends with a high impact that should be used as general background information in urban planning.
- **SWOT and PESTLE analyses** are valuable tools and even pre-conditions to provide input into city visioning and can be prepared together with the stakeholders or before the scenario -building and visioning workshops and then be validated with the stakeholders.



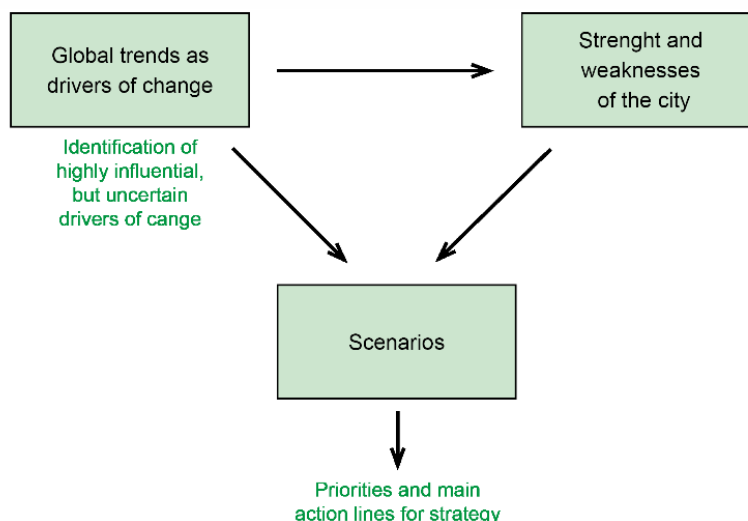


Figure 3. Cities4ZERO Foresight process from SWOT. Scenario analysis that informs strategy.

- **Visioning workshop(s)** are for establishing jointly scenario logics – this is a 2x2 matrix of the most impactful but uncertain trends that the participants have agreed on. The aim of the working group is to describe a future scenario whereby the city successfully takes advantage of the most important opportunities while avoiding the major threats. Finally, and through the discussions the most attractive and realistic scenarios will be picked and guide the vision development further on.

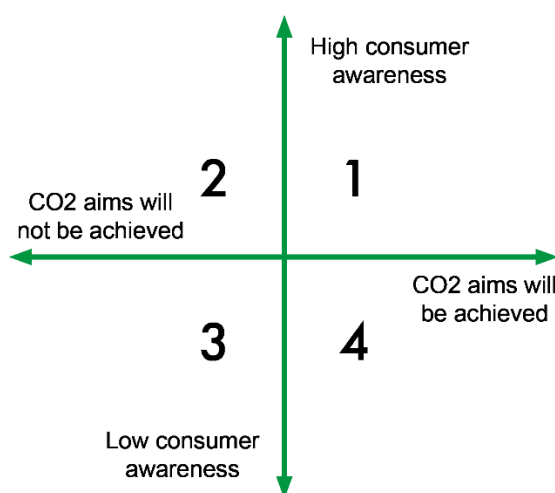


Figure 4, Scenario matrices from Tartu integrated energy planning process

- Planning and visioning process should be finalised by **sharing the results of the workshops to all stakeholders** and specifying next steps in the integrated energy plan development process. Stay in constant contact with your stakeholders!

Cities4ZERO foresight approach will provide valuable strategic input for the integrated energy plans as it focuses on describing a variety of potential future scenarios with relevant stakeholders, agreeing on a shared vision, and shaping the outcomes in the preferred direction. It goes further than just planning or forecasting, including aspects of networking and the preparation of decisions concerning the future! Bringing together various stakeholders and guiding their individual choices towards consensus is one of the main benefits and challenges of foresight.



## 4.2 Plans: Integrated Energy Plans

Both Lighthouse (Vitoria-Gasteiz, Tartu, and Sonderborg) and Follower SEC Cities (Asenovgrad, and Lecce) have developed a strategic planning process at city level to reduce their CO<sub>2</sub> emissions in the coming years. This process and their commitment in those terms has been stated by publishing an Integrated Energy Plan (IEPs), which has adopted diverse formats depending on each city and its local context (SECAP, Integrated Energy Transition Plans, Roadmaps, etc.). A brief abstract about each of those IEPs is included below:

- **Vitoria-Gasteiz.** Vitoria-Gasteiz has achieved the final draft version of its IEP in June 2021, which will be finally published by September 2021. The document is called Action Plan for an Integrated Energy Transition in Vitoria-Gasteiz (APIET 2030), and it provides the strategic framework to deploy the 42 actions that will help to cope with the mitigation of Climate Change in the city within the period 2021-2030. By the beginning of 2022, and adding the Climate Adaptation Plan of the city, the municipality will show its commitment in climate action terms, finally publishing the SECAP 2030 of Vitoria-Gasteiz.
- **Tartu.** Tartu officially approved its IEP, titled “Tartu Energy 2030” on 1<sup>st</sup> April 2021. The main aim of the new sustainable energy and climate action plan is to reduce CO<sub>2</sub> emissions by 40% by 2030 compared to the baseline year and take action to mitigate the impacts of climate change. To this end, the plan provides an overview of an action plan for key fields and sets several ambitious strategic goals. The plan is complemented by the “Tartu cycling strategic action plan 2020-2040” and the “Action plan for developing regional public transport and multimodal transport solutions”.
- **Sonderborg.** Sonderborg was the first of the LH Cities to complete its IEP. Sonderborg's IEP also called Roadmap2025<sup>3,4</sup> was a one-year process including the engagement of over 100 stakeholders into various workshops which was completed in December 2018, with the final approval of Sonderborg city council. This strategic energy plan presents 50 actions divided into 8 segments that will help the municipality reach 75% reduction of CO<sub>2</sub> by 2025 compared to the 2007 levels. Roadmap2025 is a part of series of Roadmaps on the way to zero carbon energy system by 2029<sup>5</sup>.
- **Asenovgrad.** Asenovgrad has prepared its IEP titled “Measures for Climate Change Mitigation and Adaptation and Reduction of Risk for Natural Disasters” as part of the Plan for Integrated Development of the Municipality 2021-2027” (PIDM). The PIDM was voted by the Municipal Council on 27 January 2021 and it is published on the website of Asenovgrad Municipality<sup>6</sup>. Together with the IEP, a Roadmap for its implementation has been developed comprising of 52 investment projects with total

<sup>3</sup> The Roadmap2025 can be accessed at:

[http://brightgreenbusiness.com/Admin/Public/DWSDownload.aspx?File=%2fFiles%2fFiles%2fdokumenter%2f2017%2fPZ-fonden%2fRoadmap2025\\_ENG\\_FINAL.pdf](http://brightgreenbusiness.com/Admin/Public/DWSDownload.aspx?File=%2fFiles%2fFiles%2fdokumenter%2f2017%2fPZ-fonden%2fRoadmap2025_ENG_FINAL.pdf)

<sup>4</sup> The actions are described in detail in a separate document (in Danish):

[https://www.projectzero.dk/Admin/Public/DWSDownload.aspx?File=%2fFiles%2fFiles%2fdokumenter%2f2017%2fPZ-fonden%2fRM2025\\_projekterne.pdf](https://www.projectzero.dk/Admin/Public/DWSDownload.aspx?File=%2fFiles%2fFiles%2fdokumenter%2f2017%2fPZ-fonden%2fRM2025_projekterne.pdf)

<sup>5</sup> Read more about this at <http://brightgreenbusiness.com/toppages/our-masterplan-roadmaps-2>

<sup>6</sup> Asenovgrad's PIDM can be accessed at <https://www.asenovgrad.bg/bg/strategii-za-razvitie/plan-za-integrirano-razvitie-na-obshtinata-za-perioda-2021-2027-godina/>



indicative investment of 28.3M Euro in six sectors: Energy Efficiency, Renewable Energy Sources, Transport, ICT, Climate Adaptation and Disaster Prevention, and Soft Measures (like citizen engagement, promotional campaigns, etc.). Indicative financial source(s) are attributed to each of the 52 projects. The IEP is in force and shows the strong commitment of Asenovgrad Municipality to deploy actions that will help to reach its long-term vision of carbon neutrality by the year 2050.

- **Lecce.** Lecce has drafted its IEP in December 2020, updated with four detailed replication roadmaps for the four most interesting actions in March 2021. The Municipality plans to approve the IEP within Fall 2021, in order to use it as one of the Strategic Tools for the next years of urban planning. The IEP contains 27 actions, classified according four strategic axes: Energy, Mobility, ICT and Governance. The IEP main goals are dual: from one side to define specific strategic lines with specific and defined actions to be taken in order to reduce environmental footprint of LECCE as a whole, with a reduction target of 40% of GHG emission (compared to 2007 data) by 2030; from the other side, to coordinate the Municipal Offices and all Public and Private Stakeholders in order to maximize the positive consequences of this shared process for making Lecce a Smart City.

The five cities have followed Cities4ZERO methodology (Strategic Stage) and foresight principles (section 4.1) in their IEP development process. The final result and feedback provided by the cities indicate that both methods are useful and applicable in real-life strategic planning processes at municipal level. Accordingly, both methods and the 5 IEPs can be helpful for other cities interested in replicating this process, having both theoretical and practical materials to be inspired by.

### 4.3 Smart Solutions: SEC solutions

At the SmartEnCity website, for each of the three Lighthouse City's innovative actions, a detailed description can be accessed, downloaded and printed in the format of the so-called "SmartEnCity City Solutions<sup>7</sup>": The City Solutions are categorised by the three Lighthouse Cities and each city has between 6 and 12 solutions on the website. The individual solutions are related to the three core topics of SmartEnCity, namely energy, mobility and ICT.

Sample of a printable 2-pager:

Each solution consists of a detailed description of the respective action directly readable at the website as well as a concise 2-page summary in printable PDF format that can be downloaded and distributed, for example, at events:

- Sample of a detailed version: [Vitoria-Gasteiz retrofitting package / SmartEnCity.eu](https://smartencity.eu/outcomes/city-solutions-best-practices/Vitoria-Gasteiz-retrofitting-package/)<sup>8</sup>
- Sample of a printable 2-pager: [PowerPoint-Presentation \(smartencity.eu\)](https://smartencity.eu/media/vitoria_retrofitting_package.pdf)<sup>9</sup>

The detailed version of the City Solutions consists of the following categories:

<sup>7</sup> Can be accessed at <https://smartencity.eu/outcomes/city-solutions-best-practices/>

<sup>8</sup> Can be accessed at <https://smartencity.eu/about/solutions/vitoria-gasteiz-retrofitting-package/>

<sup>9</sup> Can be accessed at [https://smartencity.eu/media/vitoria\\_retrofitting\\_package.pdf](https://smartencity.eu/media/vitoria_retrofitting_package.pdf)



- Title
- Main Sector
- Overview/Description of the solution (incl. pictures, graphs, figures)
- Business Model
- Citizen Engagement
- Process
- Benefits
- Stakeholders
- Investment/Finance
- Potential for Replication
- Contact Details

The purpose of these detailed descriptions of the solutions is that interested potential replicators can really learn from the SmartEnCity cases to get as much information about the specific action as possible. Therefore, more detailed information is provided about the applied business model, how citizens have been engaged, and how the overall process has been implemented. Also, information about involved stakeholders and the investments needed to implement the action are very relevant factors for potential replicators. In case further questions arise, readers can directly get in touch with the respective experts via the contact details.

The concise printable 2-pager consists of the following categories and texts in a more concise/shortened format:

- Title
- Overview
- Business Model
- Citizen Engagement
- Benefits
- Process
- Stakeholders
- Investment/Finance
- Potential for Replication
- Contact Details
- QR-code linking to full version on the website

The purpose of these concise versions is to have a printable format that fits in one page (front and back), so that it is convenient to take it to events and distribute it there to interested stakeholders. The concise PDF-versions contain the most important pieces of information and should serve as a kind of an appetizer to the more detailed information version on the website.

The City Solutions have been prepared over the course of the entire project duration. Whenever new activities have been implemented, new solutions have been added, and whenever an existing activity has developed, the respective City Solution has been updated by the partners in cooperation with SEZ. Moreover, the City Solutions have served as a basis for the development of the SmartEnCity booklet “The Journey Towards Zero Carbon Emissions - A Travel Guide for Cities” which has been published in June 2021 ([final Publication / SmartEnCity.eu.](#)).





The following City Solutions can be found at the website:

#### **Solutions in Vitoria-Gasteiz:**

- **[Summary of Vitoria-Gasteiz' demo activities and conclusions](#)**  
Project Partner VISESA has elaborated a summary of Vitoria-Gasteiz' activities in demo district Coronación with an analysis of the progress and conclusions as per April 2020.
- **[Vitoria-Gasteiz retrofitting package](#)**  
As one of the city's most vulnerable neighborhood, the Coronación district saw a considerable number of residential buildings fully renovated, including their facades, insulation, windows, and doors.
- **[Urban management system](#)**  
The city platform developed in Vitoria-Gasteiz integrates all the existing ICT systems and enables to monitor the use of energy in the retrofitted buildings as well as to provide feedback to and get feedback from the citizens.
- **[Biomass district heating system](#)**  
In addition to the retrofitting activities, a biomass heating network will be deployed in Vitoria-Gasteiz, leading to better energy prices, lower maintenance and operation costs and improved safety.
- **[Citizen engagement strategy for the retrofitting package](#)**  
As there are no local housing associations in the city, Vitoria-Gasteiz has prepared a citizen engagement strategy that helps to communicate and negotiate with each apartment owner of the pilot.
- **[The new Smart Electric Bus \(BEI\) - Electrification of the the city's public transport](#)**  
The deployment of high capacity and 100% electric public transport is crucial for sustainable mobility and to achieve carbon neutral cities in the near future. Therefore, the incorporation of 13 smart electric buses in Vitoria-Gasteiz' public transport was a major milestone.

#### **Solutions in Tartu:**

- **[Tartu retrofitting package](#)**  
The main idea of retrofitting activities in Tartu is to turn the Soviet-time "khrushchyovkas" into "smartovkas" buildings that offer an energy-efficient and high-quality living environment to the pilot area residents.
- **[District cooling station that uses residual heat](#)**  
A new district cooling system was installed in Tartu's pilot area buildings involving a heat pump that produces heat for the district heating system by using residual heat from cooling.
- **[Reusing old EV batteries](#)**  
Tartu has quite a large electric taxi fleet and seeks to repurpose these EV batteries by developing an energy storage solution that allows to partially recharge electric taxis with renewable energy that is produced on-site with PV panels.
- **[Public bike sharing system](#)**



As an additional mobility solution that the City of Tartu funded itself, an electric bike sharing system was set up, including 69 parking locations spanning across the entire city for maximum use and comfort.

- **[Gas buses in the whole city](#)**

The City of Tartu has purchased 64 brand new biogas buses to serve the public transportation network – this is a major step towards the goal of making public transportation 100% based on gas in Tartu.

- **[Smart home solution](#)**

In addition to the retrofitting package that will see Tartu's pilot area buildings fully renovated, the apartments will be supplied with a smart home system that connects to the Cumulocity cloud platform and enables data exchange and monitoring.

- **[LED lights with smart controllers](#)**

A smart streetlight control system that is based on a wireless mesh technology is now installed in more than 320 new LED streetlights in Tartu, including a number of detectors and sensors.

- **[Technical consultations and community meetings](#)**

For the retrofitting activities to succeed in Tartu, the respective housing associations need to be engaged and supported throughout the planning and implementation process – for this, several consultation measures are used.

- **[Lecture series “Planning an energy-efficient city”](#)**

In order to disseminate expert knowledge and educate citizens on various topics that relate to the development of smart cities, a lecture series has been launched in cooperation with the University of Tartu.

- **[Art solutions for pilot area buildings](#)**

In addition to the full renovation of the pilot area buildings, the City of Tartu organised an international art competition for finding artists who will create unique artworks for the pilot building facades.

- **[Study on attitudes towards technologies and the environment](#)**

The University of Tartu will conduct a study on the pilot area residents' attitudes towards technologies and the environment, exploring aspects like environmental awareness, actual behavior and consumption patterns.

- **[Social innovation experiments](#)**

A number of social innovation models will be experimented with in Tartu in order to facilitate behavioral change and mutual learning among the residents of the pilot area and Tartu as a whole.

### **Solutions in Sonderborg:**

- **[New biogas buses and biogas filling stations](#)**

As a zero-carbon mobility solution, 44 new energy-efficient buses fueled by biogas; improved digital services notifying users of departures etc. on apps and displays at major hubs; each of the new buses can carry 4 bikes on board, allowing a combined trip.

- **[Citizen engagement program](#)**

As part of Sonderborg's official strategy to become a zero-carbon emission community by 2029, a citizen engagement program has been developed for involving citizens and local housing associations in retrofitting activities.



- **Sonderborg retrofitting package**  
In Sonderborg, a total of 7 social housing departments will be fully retrofitted to reduce energy consumption, improve indoor climate and support Sonderborg in becoming a carbon-neutral city in 2029
- **Public electrical vehicle charging points**  
In total 31 EV chargers have been installed in the Sonderborg area. The implementation of public electrical vehicle chargers not only increases the available infrastructure but also serves as a awareness raising point in the city.
- **Solar cells with battery storage in housing associations**  
The combination of solar cell plants with a battery storage solution forms a reasonable alternative to feeding the produced electricity into the public grid.
- **Sonderborg ICT Platform**  
Sonderborg's long term vision is to build a Digital Ecosystem for city data and services by integrating various data inputs and sensor systems together into one City ICT Platform, where anyone could add their own Value Services and integrate them into the provided city platform.
- **Roadmap2025 - The Integrated Energy Plan (IEP) of Sonderborg**  
How to become CO<sub>2</sub> neutral by 2029? Sonderborg municipality has compiled the Roadmap2025 using the Integrated Energy Planning approach "Cities4ZERO" methodology, which was developed within SmartEnCity project.



## 5 Replication means; *How?*

This section describes the main replication means through which the project outcomes are to be replicated now and in the future.

### 5.1 SEC Network

Establishing the SmartEnCity Network (SECN) was an important and integral part of the SmartEnCity project, especially for the large-scale replication of the systemic approach demonstrated within the project. The SECN connects the findings from the SEC Lighthouse and Follower Cities with the ambitions for similar systemic transitions in all small and medium sized cities across Europe, which is the main focus of the SECN target group.

The SECN objective is to deploy and replicate the project solutions, having access to the knowhow and results of the project and a privileged contact with the project's partners. This will create a community of like-minded cities and more wide scale and successful replication of project results.

Participating in the SECN brings together cities and communities interested in designing and implementing their own district-scale renovation, ICT, and mobility integrated strategies, providing guidance and advice based on the experiences of flagship cities implementing district-wide renovation and integration of sustainable energy technologies. Participating in the network is providing these cities with a privileged access to sound replication plans, financing formulas, technology insights and proven experiences.

The initial 12 months (M01-M12) were focused on establishing a robust joint platform for recruiting cities to the SECN, to secure interested cities for a large-scale replication of the systemic approach demonstrated in the SmartEnCity project.

The following 12 months (M13-M24) have been focused on scaling up the number of participating cities, implement scheduled activities and developing content to start the joint City Journey towards IEPs for additional 15+ qualified and motivated replication SEC/N cities.

The following 24 months (M24 – M48) were focused on continuing to increase the number of SECN city members, establishing national based SECNs in the five core countries of the project (i.e. Estonia, Spain, Denmark, Italy and Bulgaria), sharing the knowledge generated about the Integrated Energy Plan (IEP) concept (formally known as IUP) to all SECN city members and engaging them in a deeper understanding of the concept via the SmartEnCity Network Bulletin, SmartEnCity Network Platform, the City Check-up Assessment, participation to events on the topic, etc.

### 5.2 Local SEC Networks; beyond the project lifetime

In 2018 the so called SECN 2.0 vision has been established, which still envisioned an increasing number of city members, replication of solutions, and IEP approaches. The difference in this vision was in the approach on how the replication should take place namely



through the establishment of national based SECNs within the 5 core project countries: Spain, Estonia, Denmark, Bulgaria and Italy.

The ambition was to grow the participating number of cities from 28 cities (as of M24) to 60 cities (until the **then** end of the project (July 2021, M66) which has been extended to July 2022, M78), based on a stronger country-focused approach, but still open for small and medium sized city-participants from across Europe.

The target broken down to country level has been set to:

- Estonia 8 members
- Denmark 8 members
- Spain 8 members
- Italy 8 members
- Bulgaria 8 members
- Other countries 20 members
- In total 60 members

To achieve the above ambitious targets, a more country-focused approach was needed, as also described in the SEC D8.3 and D8.5 Reports. The SECN 2.0 country approach is based on the learnings from the SECN DK experience and its workshops/ meetings with the ambitious Danish energy cities called <https://energibyerne.dk/>. Since the response to this national approach in Denmark was quite positive, know-hows and experiences from the Energibyerne, national based SECN in Denmark have been shared with the other SEC partners. National SECN leaders for each of the 5 core countries have been established and currently 4 out of 5 national networks are operational with the exception of the SECN-ES. The deployment of the Spanish SEC Network was hindered due to the COVID-19 outbreak and all restrictions that followed after including closing down of society, physical restrictions, etc. However, the SECN-ES plans to kick start in Q3 2021.

At the national based SECN meetings cities are discussing the various SEC solutions, approaches and strategic energy planning methodologies. The participating cities are exposed to know-how and experiences of the 3 Lighthouse and 2 Follower Cities, which is paving the way for IEP methodology replication within these cities.

This type of city collaboration is already proving to be successful in the common creation of project applications which is the case in the Energibyerne. After more than 3 years of regular meetings facilitated under the SEC project and SECN framework, the Energibyerne have reached the maturity to start discussing ideas for common projects, framing them and filing applications. They have also established a self-funded Energibyerne website and are participating as a network to national wide events such as the [Folkemødet](https://folkemoedet.dk/) / <https://klimafolkemoedet.dk/>. In Estonia, the national SEC Network has been operational since 2018. Locally called “The Estonian Smart Cities Club” (<http://tarkartu.ee/tark-linn/tarkade-linnade-klubi/>), its goal is to bring together local Estonian municipalities to discuss various sustainability and smart city topics, share experience and offer encouragement and support. The aim is to increase local level cooperation between municipalities and facilitate mutual learning. The Club meets twice a year, in pre-pandemic times, the meetings were F2F and took place in different club member cities, which offered members a chance to introduce their latest city developments and take visitors on a study tour as well.

The most discussed topics during meetings are city planning, smart solution implementation, smart tools, and funding opportunities. As of June 2021, the Smart Cities Club has helped



several municipalities find funding opportunities for various support activities (e.g., compiling energy plans), engaged them in international Network events and offered encouragement to increase international cooperation with other EU municipalities.

### 5.3 SCC1 Replication task group

The community of Lighthouse projects (18 in May 2021) has developed a cooperation structure since 2014 in support of better visibility, more impact, faster scale-up and wider replication of the Lighthouse projects and solutions. Replication Task Group is one joint working group within this cooperation where replication leaders and cities from Lighthouse projects cooperate. According to the Replication Task Group action plan, the aim of TG Replication is to accelerate replication and upscaling of the results of the 18 H2020 Smart Cities and Communities Lighthouse projects (SCC01), solutions as well as processes. This includes a continuous cooperation on overcoming challenges and barriers, and on promoting drivers for replication and upscaling. Each year task group also evaluates its activities and drafts objectives for the next operating year. In 2021 evaluating the activities and results of TG Replication served to:

- Draft the new TG Replication Action Plan 2021-2022.
- Focus the cooperation with energy research and replication networks: what do TG Replication members need, who can provide that, and what evidence-based knowledge do we have?
- Shape cooperation with the BoC and SCALE<sup>10</sup>.
- Contribute to the SCALE experts' database.
- Contribute to the Mission on Climate-neutral and Smart Cities.

According to the task group replication action plan, the focus is on the following objectives and activities for 2021-2022:

- Objective 1: Share knowledge between SCC-01 Lighthouse projects on replication strategies and results.
- Objective 2: Share knowledge between the SCC-01 Lighthouse projects on drivers for replication as experienced by the SCC-01 Fellow Cities' ecosystems
- Objective 3: Collaborate with European research and replication networks in support of scale-up and replication.

Collaboration within joint replication task group has enabled better experience sharing about methodologies, approaches, challenges and their solutions related to replication and has been evaluated highly as positive collaboration experience from all task group members.

As a specific example of replication among SCC-01 projects, Cities4ZERO methodology generated in SEC project and already tested in 5 SEC cities has been now applied to ATELIER<sup>11</sup> project cities (Bilbao, Amsterdam, Budapest, Bratislava, Copenhagen, Krakow, Matosinhos, and Riga). This case of replication is showing clear benefits:

<sup>10</sup> <https://energy-cities.eu/the-scale-initiative-launched-the-call-for-experts/>

<sup>11</sup> <https://smartcity-atelier.eu/>



- ATELIER cities have found an already tested strategic framework to develop their CO<sub>2</sub> reduction strategies and SECAPs, with Cities4ZERO and foresight methods already published, as well as having access to the experiences and plans of the 5 SEC cities.
- The experiences of ATELIER with Cities4ZERO methodology brings the opportunity to keep fine-tuning the original method, delving into more specific contents within the methodology.
- ATELIER becomes a multiplier for both SEC solutions, Cities4ZERO and foresight methods, helping in the dissemination and replication of SEC outcomes.

## 5.4 EC initiatives: SCIS and Smart Cities Marketplace

In addition to those replication means, several EU funded initiatives have been supporting SmartEnCity, along with other SCC-01 projects, in replication, as well as in communication of the results and in creation of further opportunities. The Smart Cities Information System (SCIS) gathered both quantitative (evaluation and monitoring) and qualitative information (stories, lessons learnt) and outputs from a wide array of energy-efficiency and smart cities related demonstration projects, thus creating a platform for experience and knowledge-sharing, bringing together different projects and stakeholders in urban transformation.

In a similar effort, the Marketplace of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC), as another EU-funded initiative directed to bring together cities, industries, SMEs, investors, researchers, and other smart city actors, to boost the European Smart City technology market, increasing European cities' competitiveness, while contributing to reach the European energy and climate goals. The main vehicle to accomplish these ambitious goals is a continuous matchmaking effort, to connect cities with developing Smart Cities projects together with investors, so bankable projects are financed and deployed. Also, within this initiative, a community was created and has been maintained, organised in a number of Action Clusters<sup>12</sup> and related initiatives within these, with the contribution of many EU-wide actors. In this context, SmartEnCity, along with its sister SCC-01 projects, has provided an experience and knowledge bank for proven solutions and business models, as practical examples of the actions to be replicated /developed throughout Europe.

In October 2020, the two initiatives described above merged into the Smart Cities Marketplace<sup>13</sup>, which takes on the same efforts and ambitions, and connects the knowledge generated within Smart Cities projects with the efforts from other EU cities and related stakeholders.

Since the beginning of the project, SmartEnCity has actively contributed to several activities within these initiatives, publicly sharing available project information, participating in events, conferences, and workshops, contributing to publications, jointly producing recommendations

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<sup>12</sup> More info on Action Clusters at <https://smart-cities-marketplace.ec.europa.eu/action-clusters-and-initiatives/action-clusters>

<sup>13</sup> Smart Cities Marketplace at <https://smart-cities-marketplace.ec.europa.eu/>



for policymakers, and generally exchanging with other projects and stakeholders within these knowledge-sharing environments.





## 6 Input for future replication activities

This section intends to provide the specific SEC input which can be valuable in future replication activities, with brief descriptions and links to more detailed materials.

### 6.1 Best/ worst practices Solution Booklet

In June 2021, the SmartEnCity solution booklet “The Journey Towards Zero Carbon Emissions - A Travel Guide for Cities” has been published at the SmartEnCity website as a digital PDF version, available under [Final Publication / SmartEnCity.eu](#). Additionally, in summer 2021, it will be produced as a printed booklet and distributed to the three Lighthouse and two Follower Cities of the project as well as individual further partners.

The booklet starts with a summary of the most successful – but also the least successful – implementations of the three Lighthouse Cities **Vitoria-Gasteiz** (Spain), **Tartu** (Estonia) and **Sonderborg** (Denmark). The booklet therefore contains the project’s **best practices** which have been developed on the basis of the SmartEnCity City Solutions. For the booklet, each city chose their three best cases. Additionally, the cities are also sharing their **worst practices**, with concrete examples of things that did not go as planned or less well than expected, so that certain mistakes can be avoided in the future by potential replicators.

The second half of the booklet focuses on the developed concepts and methodologies within SmartEnCity project: The **Cities4ZERO strategy** provides a step-by-step guide on how cities can shape their path to zero emissions. Starting from an **Integrated Energy Plan**, there are dedicated steps from planning to realisation, which are presented in detail. Moreover, the two SmartEnCity Follower Cities **Lecce** and **Asenovgrad** give practical insights into their experiences regarding the application of this method. As the involvement of **citizens** from the very beginning is the key to success, the booklet shares insights from key stakeholders’ engagement in the project. In order to further spread the knowledge of SmartEnCity, the booklet introduces the **SmartEnCity Network**, a strong community of ambitious cities with the goal of supporting each other.

Overall, the content of the booklet looks as follows:

- Editorial
- About SmartEnCity Project
- Smart Solutions & Worst Practices
  - Smart **Energy** Solutions:
    - Vitoria-Gasteiz: Retrofitting Package
    - Tartu: Smart Retrofitting
    - Sonderborg: Solar Cells with Battery Storage
  - Smart **Mobility** Solutions:
    - Vitoria-Gasteiz: Smart Electric Buses
    - Tartu: Electric Bike Sharing System
    - Sonderborg: New Biogas Bus Fleet
  - Smart **ICT** Solutions:
    - Vitoria-Gasteiz: Smart City Platform



- Tartu: District Cooling with Residual Heat
- Sonderborg: City Information Open Platform
- Worst Practices
- The Journey – Strategy and Implementation
  - The Strategy - Cities4ZERO
  - The Start - IEP Planning Process
  - The Implementation - Follower City Lecce
  - The Implementation - Follower City Asenovgrad
  - The Key - Citizen Engagement
  - The Community - SmartEnCity Network
- SmartEnCity Project Partners & Social Media

The purpose of the booklet is to provide interested stakeholders and potential replicators with a concise booklet that contains all the most important pieces of information that you need to get started with your own transition to become a Smart City. It is informative enough to help readers get started but not too lengthy so that they might become overwhelmed. At the end of each page, a QR-code links to more detailed information on the SEC website in case the reader requires further details.

The booklet will be distributed by the Lighthouse- and Follower Cities and all partners at local as well as national and international events, especially the project's final conference that is currently planned for early summer 2022. The digital version will be available as a download at the website and will be actively promoted via the website's news section, the SmartEnCity newsletter, the SmartEnCity Network Bulletin as well as the respective social media channels and of course, also at digital events, such as the Sonderborg Climate Neutrality Conference in September 2021.

## 6.2 Replication toolkit

The SmartEnCity replication toolkit will guide the journey towards zero carbon emissions and encourage the development of individual integrated energy plans and replication roadmaps by the project's Follower Cities of Lecce and Asenovgrad, the SmartEnCity Network members or other small and medium-sized cities within and beyond Europe.

Besides outlining the SmartEnCity integrated approach and giving strategic and methodological advice on how a city could start its own integrated energy planning process, the toolkit also outlines the main replication tools used in the project to increase the smart city awareness and planning skills of other interested cities. This toolkit will be one of the core outcomes from the replication and will be presented in an interactive way as a journey map on SmartEnCity website. Its purpose is to give a reader a compact, quick and easily captured understanding of important phases in integrated energy planning and implementation together with quickly captured tools and advice from real time practices. SmartEnCity Replication Toolkit will be ready at the end of 2021 at SmartEnCity website (<https://smartencity.eu/>).



## 6.3 Solutions repository

At the SmartEnCity website, for each of the three Lighthouse City's innovative actions, a detailed description can be accessed, downloaded, and printed in the format of the so-called "SmartEnCity City Solutions". See more information at Section 4.3.

- Overview of all City Solutions: [City Solutions / SmartEnCity.eu](https://www.smartencity.eu/city-solutions/)

## 6.4 SmartEnCity Academy for Zero Carbon Transition

"The SmartEnCity Academy for Zero Carbon Transition" was an online training course for cities, municipalities and smart decision making that took place in 2020. As part of this Academy, SmartEnCity hosted a series of four online training courses to learn from the experiences of the SmartEnCity project partners as well as selected external professionals from the field.

The aim of the SmartEnCity Academy was to follow the straightforward steps of the "Cities4ZERO Urban Transformation Strategy for Cities' Decarbonisation", a strategy developed as part of the SmartEnCity project. It has been designed to **qualify city and municipality representatives, planners and developers as ambassadors for a carbon free future** and to provide them with the necessary tools to help their cities reach their goals of decarbonisation in the near future.

In **four interactive sessions** with hands-on examples, the speakers took interested participants by the hand and explained the methodologies step by step, thus encouraging the participants to start their own smart zero carbon transition. Moreover, especially invited **external guest speakers** from the Smart City community, such as experts from the sister Smart Cities and Communities projects or the related initiatives [SCIS](#) or [EIP-SCC](#), brought in additional expertise.

The **format** of the lessons was clear explanations and practical examples from real life combined with interactive exchanges. The SmartEnCity Academy was different in the sense that interested participants were directly addressed before, during, in-between and after the individual lessons, in order to identify and meet the cities' needs. At registration, participants were invited to fill in a **short assessment questionnaire** in order to receive tailor-made advice from the SmartEnCity experts, experienced Lighthouse- and Follower City representatives and professionals from industry and politics during the training course.

Participants that successfully attended all four lessons of the online training course received a **SmartEnCity certificate** signed by the Project Coordinator.

The four lessons looked as follows and included the following speakers:

### **Lesson 1: The SmartEnCity Way towards Zero Carbon City: The Cities4ZERO Strategy and Integrated Energy Planning**

**Date:** 20. February 2020 at 2 PM

- [Watch recording of lesson 1 here](#)
- [Find presentation here](#)



**Content:** Moderated by Koldo Urrutia Azcona of TECNALIA Research & Innovation, this Panel Discussion with various SmartEnCity experts introduced the Cities4ZERO Urban Transformation Strategy for Cities' Decarbonisation (the Cities4ZERO Strategy) and Integrated Energy Planning (IEP). There was a focus on the SmartEnCity Lighthouse Cities Sonderborg, Tartu and Vitoria-Gasteiz, speaking about their individual ways of approaching this journey.

**Speakers:**

- Aitor Albaina Vivanco, City of Vitoria-Gasteiz, Lighthouse City Vitoria-Gasteiz
- Jaanus Tamm, Tartu City Government, Lighthouse City Tartu
- Peter Rathje, ProjectZero, Lighthouse City Sonderborg

**Lesson 2: Mastering Governance & Political Barriers: Engage and Integrate**

**Date:** 14 April 2020 at 2 PM CEST

- [Watch recording of lesson 2 here](#)
- [Find presentation here](#)

**Content:** Moderated by Francisco Rodríguez Pérez-Curiel of TECNALIA Research & Innovation, Project Coordinator of SmartEnCity, this Panel Discussion with political representatives from the SmartEnCity Lighthouse Cities Sonderborg, Tartu and Vitoria-Gasteiz focused on how governance can be secured through organizational setups.

**Speakers:**

- Juan Carlos Escudero, City Council, Lighthouse City Vitoria-Gasteiz
- Raimond Tamm, Deputy Mayor, Lighthouse City Tartu
- Peter Rathje, ProjectZero, Lighthouse City Sonderborg

**External Guest Speaker:**

- Baha Kuban, Demir Enerji (Remourban)

**Lesson 3: Where Are We Now? City Analysis and Diagnosis**

**Date:** 04 June 2020 at 2 PM CEST

- [Watch recording of lesson 3 here](#)
- [Find presentation here](#)

**Content:** This third training course was moderated by Michele de Santis from RINA Consulting S.p.A. It focused on the needs to be included in a city description according to the Paris Agreement, SmartEnCity, Covenant of Mayors, etc. and according to the visions of the cities. It presented the elements that have to be included in the baselines and diagnoses in our three Lighthouse Cities, with a focus on Sonderborg. Follower City Asenovgrad will talk about their local approach.

**Speakers:**

- Ivanka Pandelieva-Dimova, Sofia Energy Centre, Follower City Asenovgrad
- Simon Stendorf Sørensen, PlanEnergi, Lighthouse City Sonderborg



#### External Guest Speaker:

- Alis Daniela Torres, Climate Action and Smart Cities - Monitoring, Reporting and Verification Expert - Task Force 5. European Covenant of Mayors.

#### **Lesson 4: Envision and Planning: The SmartEnCity Planning Process**

**Date:** 22 September 2020 at 2 PM CEST

- [Watch recording of lesson 4 here](#)
- [Find presentation here](#)

**Content:** This final training course focused on illustrating how the planning process in practice has been used in the SmartEnCity Lighthouse Cities Tartu and Vitoria-Gasteiz. What are the obstacles for actions and how are they solved? Additionally, the approach from the Follower City Lecce was presented and explained.

#### Speakers:

- Merit Tatar, Institute of Baltic Studies, Lighthouse City Tartu
- Michele De Santis, RINA Consulting S.p.A, Follower City Lecce
- Alberto Ortiz De Elgea Olasolo, VISESA, Lighthouse City Vitoria-Gasteiz

#### External Guest Speaker:

- Judith Borsboom-van Beurden, Locality Europe & EIP-SCC

The online training course was free of charge and neither the course itself nor signing up for it came with any obligations. Overall, more than 250 city and municipality representatives, project developers, researchers and other interested stakeholders took part in the four lessons, learning more about the SmartEnCity approach to Smart City development.

All details including presentation slides and recordings of all lessons can be found at the SmartEnCity Academy subpage on SEC website under [SmartEnCity Academy / SmartEnCity.eu](#).

## 6.5 EnergyPLAN and Energy Balance tools

In order to start an urban energy transition, EnergyPLAN and Energy Balance tools have demonstrated their potential to characterise urban energy systems as well as to generate future decarbonisation scenarios. Both tools have been used in SEC Cities, but generated externally to SEC project by Aalborg University and PlanEnergi respectively.

- **Energy Balance Tool** (developed by PlanEnergi from an original idea by Aalborg University and PlanEnergi)
  - [Download 'Energy Balance Tool' \(trial version\)](#)
  - [Guideline on how to use the "Energy Balance Tool"](#)
- **Energyplan.eu** (developed by the Sustainable Energy Planning Research group at Aalborg University in cooperation with PlanEnergi and EMD A/S)
  - [Visit the website \(including a download section\) / Training section](#)



## 6.6 Citites4ZERO methodology (D2.8)

Beyond details on Section 4.1, further details on Cities4ZERO methodology can be found at:

- At SmartEnCity website (D2.8 - <https://smartencity.eu/media/del.2.8..pdf>)
- Sustainability scientific journal (MDPI): **Cities4ZERO: Overcoming Carbon Lock-in in Municipalities through Smart Urban Transformation Processes** <https://doi.org/10.3390/su12093590>
- At *Smart Solutions for CO<sub>2</sub> Reduction – City Practitioner’s Summary guide*, part of SCIS and very aligned with Cities4ZERO contents: [https://www.researchgate.net/publication/349685948\\_Smart\\_Solutions\\_for\\_CO2\\_Reduction\\_-\\_City\\_Practitioner's\\_Summary\\_guide\\_-\\_EU\\_Smart\\_Cities\\_Information\\_System](https://www.researchgate.net/publication/349685948_Smart_Solutions_for_CO2_Reduction_-_City_Practitioner's_Summary_guide_-_EU_Smart_Cities_Information_System)

## 6.7 Foresight approach (D8.3)

Beyond details on Section 4.1, further details on Foresight approach can be found at:

- At SmartEnCity website (D8.4 - **Report on foresight workshops; IEP Planning Process** - [https://smartencity.eu/news/detail/?rx\\_call=328](https://smartencity.eu/news/detail/?rx_call=328))
- Energies scientific journal (MDPI): **Cities4ZERO Approach to Foresight for Fostering Smart Energy Transition on Municipal Level** <https://doi.org/10.3390/en13143533>

## 6.8 SCIS Solution Booklets

SmartEnCity project has also provided input to generate the Solution Booklets from Smart Cities Information System (SCIS)/ Marketplace. These booklets are oriented to support cities in the implementation of Smart City technologies and processes, gathering experiences from SCC-01 projects and research. All solution booklets can be downloaded at <https://smart-cities-marketplace.ec.europa.eu/insights/solutions>. The topics included are:

- Smart Cities Guidance Package
- Batteries and PVs
- Building Envelope Retrofit
- Building Integrated PVs
- Citizen Engagement
- District Heating and Cooling (direct participation from SEC)
- E-Buses
- Electric Vehicles & the Grid
- Energy Communities
- From Idea to Implementation
- Heat Pump Driven District Heating Systems
- Positive Energy Districts (PEDs)
- Urban Freight Logistics (direct participation from SEC)
- Smart Solutions for CO<sub>2</sub> Reduction – City Practitioners Guide



## 7 Deviations to the plan

No main deviations to the plan.

As a small remark, and because of SmartEnCity project extension, the *Replication Toolkit\_V2* has been delayed a few months in order to compile the most possible amount of information in it. This fact makes impossible to provide the exact website link to it within this report. Anyway, and as aforementioned in Section 6.2, the *Replication Toolkit\_V2* will be available in SEC website by the end of 2021.



## 8 Outputs for other WPs

The scope of replication knowledge is being extended by the SmartEnCity Communication Cascade, which means the Communication and Dissemination Secretariat ensures an effective distribution of SEC Cities' outcomes at local, regional, country and EU-level.

All activities mentioned within this deliverable have constantly been disseminated and communicated (and will continued to be) via the various SmartEnCity communication channels like the website, the social media channels, via press releases, at events, etc., as part of WP9.

