

D9.9: Report on Intra-Project Collaboration Including Study Visits and Peer-to-Peer Workshops 4

+CityxChange | Work Package 9, Task 9.1

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Table of Contents

Table of Contents	2
1 Executive Summary	5
2 Learning Sessions (Online)	6
2.1 Scope	6
2.2 Learning Session: "Pathways to PEBs" – Lighthouse Cities Trondheim and Limerick (11 May, Online)	6
2.3 Investment Workshop: Present and review +CityxChange investment strategies in the light of the ongoing COVID-19 crisis (12 May, Online)	7
2.4 Learning Session: "Pathways to PEBs" – Võru, Sestao and Smolyan (14 May, Online)	9
2.5 Learning Session: "Pathways to PEBs" – Alba Iulia and Písek (15 May, Online)	10
3 PED Talks	12
3.1 PED Talk "The European Reference Framework on Positive Energy Districts and Neighbourhoods" (8 May 2020, Online)	12
3.2 PED Talk "What if COVID-19 isn't the biggest threat" (16 June 2020, Online)	13
3.3 Norwegian +CityxChange partner meet & official opening of Sluppen Citizen Observatory (10 September 2020, Lager 11, Trondheim)	14
4 Third Consortium Meeting: Cross-cutting partner sessions and External Expert Advisory Board (19-22 October, Online)	15
4.1 Scope	15
4.2 Storytelling Workshop (ISOCARP/Sestao)	15
4.3 Learning session on schools / next generation (Sestao)	16
4.4 Demo session (NTNU & Písek)	16
Bold City Vision Framework (TK, LCCC)	16
Integrated Decision Support Tool (IES)	16
ICT Ecosystem and Interoperability (NTNU/UL)	17
Local energy system design and grid operation (POW)	17
Platform for local trade (POW)	17
eMobility (4C)	17
Prosumer Dashboard (MPOWER)	17
Optimization Model Positive Energy Cities and Distribution Grids (NTNU)	17
Board Game PEB (E-City+) (NTNU)	17
M&E Reporting Tool MERT (FAC)	17
Mapping App (SE)	17
Citizen Playbook (COL)	18
4.5 Launch+workshop of the new Smart Cities Marketplace Initiative on Regulatory Frameworks (NTNU, TK & POWEL in cooperation with SCM)	18
4.6 Investment workshop: following up on individual city dialogues May-June-September-October (OV)	19

4.7 Replication & Knowledge transfer from WP1-2-3 to WP4-5-6: how to set up the handover and replication, updating the replication tables (R2M& EAP)	20
DP01 Model (IES)	20
DP02 Vision (ISOCARP/LHCs)	20
DP03 Engage (COL)	20
DP04 Regulatory Zone (LCCC)	21
DP05 Innovation Playgrounds (SE)	21
DP06 PEBs (EAP)	21
DP07 Community Grid/Microgrid (NTNU)	21
DP08 eMaas & Replication (4C)	21
DP09 Local Trading (MPower & Powel)	21
DP10 Flexibility Market (MPower & Powel)	21
DP11 Invest (OV)	22
5 Monthly Executive Board Meetings	23
6 Conclusion	24

List of Acronyms

API	Application Programming Interface
CIEMAT	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
ENEA	Energia Nucleare ed Energie Alternative
EU	European Union
FP7	Seventh Framework Programme, European Union
IREC	International Renewable Energy Conference
ISE	Fraunhofer Institute for Solar Energy Systems ISE
JPI UE	Joint Programming Initiative Urban Europe
KPI	Key Performance Indicator
LCCC	Limerick City and County Council, Ireland
LHC	Lighthouse City
MAI	Municipality of Alba Iulia, City of Romania
MP	Mesto Pisek, City of Czeck Republic
PED	Positive Energy District
SB	Sestao Berri 2010 Sociedad Anonima
SCC01	Horizon 2020 Smart Cities and Communities call
SMO	Obshtina Smolyan, City of Bulgaria
TK	Trondheim Kommune
VORU	Võru Linnavalitsus, City of Estonia
VTT	Technical Research Centre of Finland
WP	Work Package
ZenN	Near Zero Energy Neighbourhoods

1 Executive Summary

This report provides an overview of the study visits, peer-to-peer workshops, and other intra-project learning activities performed by the Lighthouse and Follower Cities and the other partners in +CityxChange, between 1 May 2020 and 31 October 2020 (M19-24).

These activities form part of Work Package 9 “Inter-Project Collaboration and Clustering”, Task 9.1 “Intra-Project Lighthouse and Follower City Cooperation”. They are designed to address the needs of the participating cities and solution providers in an effective manner, to better align goals and priorities, to promote cross-cultural communication, understanding and collaboration between the partners, and to speed up the learning process and iteration of results across the entire value chain.

As support to deliver better study visits and peer-to-peer workshops, the deliverable also describes ex-ante/ex-post evaluation of cross-cutting issues within clean energy, open innovation, gender, socio-economic science and humanities to increase impact and deliver practical recommendations to partners and beyond.

This report (D9.9) is complemented by D9.10: Report on attendance at events held by other SCC-01 co-ordinators 4. Some general content is repeated from the previous D9.7: Report on Intra-Project Collaboration, including study visits and peer-to-peer workshops 3.



2 Learning Sessions (Online)

2.1 Scope

The Learning Sessions are an internal forum for +CxC cities and solution providers to discuss cross-cutting challenges, exchange experiences, and develop solutions. They aim to support the Lighthouse and Follower Cities in their development of Positive Energy Blocks, in particular related to the tacit knowledge that is accumulated among partners and stakeholders in preparation of their PEB processes and solutions. As such, they form a valuable source of information for T7.4 Guidelines and recommendations. Non-confidential outcomes have also been included in the SCIS Solution Booklets (see D9.10).

Due to COVID-19 restrictions, we organised multiple learning sessions online, rather than 1 on-site learning workshop. The online format enables more partner representatives to participate within their financial and time budgets. As the format was experienced as successful, the series will be extended into Spring 2021, in cooperation with the External Expert Advisory Board.

2.2 Learning Session: “Pathways to PEBs” – Lighthouse Cities Trondheim and Limerick (11 May, Online)

In Spring 2020, each +CxC city was asked to present the processes they used to develop their PEBs, from the +CityxChange proposal phase onwards, and their learnings after 18 months of project experiences. These presentations were spread across 3 learning sessions in the course of 2 weeks.

During the first session, Lighthouse Cities TK and LCCC gave more background information on the process/approach they have taken to define and develop their PEBs:

- Where to start
- How to identify relevant solutions
- How to evaluate whether they would fit together
- How to integrate stakeholders and building owners, and with whom else to discuss

One of the main challenges discussed was anchoring - with building owners, regulatory authorities, and any other stakeholder that needs to be on board in order to make the PEB solution a long-term success. Anchoring includes how to align project requirements with the priorities and needs of the building owners, in particular when the PEB buildings are not owned by the municipality. It is important for the municipality to lead by example, facilitate the building owners with public-private partnerships, encourage them to use additional existing grant schemes, identify win-win solutions e.g. in integrating PEB solutions with planned deep renovation processes, emphasise the importance of social innovation, and create a shared feeling of moving towards a holistic approach, properly integrated in the municipality's urban planning and design strategy.

While some building owners are official beneficiaries in the EU-funded +CxC project, others are associated with the project through contractual agreements or MoUs. While MoUs are easier to accomplish when the cooperation is experimental and the outcomes are not sufficiently concrete to enable a contractual agreement, MoU might for example create challenges as they might not be accepted by insurance companies.

Cooperation with experienced insurance companies and regulatory authorities is vital in order to support experimental solutions such as the flexibility market, and to enable development of viable business cases for these experiments.

As the project moves forward, we will try to identify ways of making agreements that are adapted to the concrete needs of the solutions providers and building owners.

The outcomes of this session and other similar sessions will be used in WP6 to support the FCs in the development of their PEBs, in T7.4 to produce guidelines and recommendations, and in the SCIS Solution Booklet on PEDs (cf. D9.10).

2.3 Investment Workshop: Present and review +CityxChange investment strategies in the light of the ongoing COVID-19 crisis (12 May, Online)

On 12 May, +CityxChange partner OV hosted an online investment workshop, aiming to review +CityxChange investment strategies in the light of the ongoing COVID-19 crisis and consequent economic fallout. The workshop was intended to investigate and mitigate the impacts on investment strategy and potential new funding sources within European and national economic recovery plans. This workshop was the first of a series of online investments workshops, including city- and PEB-dedicated workshops.

OV started the workshop by presenting an overview of +CityxChange intended investment strategy as per:

- the project DoA (GA) in terms of scope and objectives
- work carried out in WP2 resulting in D2.1 and D2.4
- ongoing work with LHCs in T4.11 and T5.11
- work starting now with FCs in T6.3 and T6.5

The presentation continued with a recap of the main risks identified in the COVID-19 impact assessment carried out by the consortium between March and May 2020. Main risks related to investments in cities were presented as follows:

- Business/financial impacts to partners' companies
- Reduced availability of public funds for energy transition investments at local, national or EU scale
- Reduced investment capacity for private investors , such as building owners and local SMEs

- Reduced profitability in “green energy” due to the collapse of oil prices. Investments will result in less attractive to private and institutional financial actors (banks, Private Equity funds, etc.)
- Impossibility for social engagement events (mentoring/online workshops)

After that, an overview of what the EC is planning to do to tackle the crisis, and in some cases has already done, has been given.

Recent statements from the EU Commission President and the EU Energy Commissioner were reassuring that the EU commitment to energy transition and decarbonisation is upheld, and that the economy will not be harmed or reduced by the ongoing crisis. On the contrary there can be an additional driver to emphasise energy transition and decarbonisation more explicitly.

Several existing and new financial tools were presented with a focus on energy transition related finance for the SMEs and local authorities, alongside with examples of how to access the finance. OV presented a proposal for providing support to FCs in the project for their financial process toward the implementation of PEBs. OV proposed a calendar for first workshops with FCs, with the objective to have a status update on their feasibility studies and to review them.

Furthermore, as an example, an open call for financial intermediaries for PF4EE (Private Finance for Energy Efficiency) was presented. All cities have been invited to look into the call and website in order to check for financial institutions in their countries already present in the scheme. Alternatively, city representatives could prepare with their banks to apply for the scheme in order to be able in the near future to help them in financing their projects.

Other open and upcoming calls have been presented as well, namely the 100 Intelligent City Challenge and the EU City Facility, again inviting partners to check the provided documentation. Some FCs already applied for funding from the 100 Intelligent City Challenge and the EU City Facility call and will continue to do so for upcoming opportunities.

A questionnaire was prepared by OV to gather initial information about the cities' investments and their knowledge and familiarity with some of the tools and schemes presented previously during the workshop. The questionnaire, once finalised, will be sent to the cities before the next planned dedicated investment workshops with the FCs in order to make them aware and allow preparation

Other comments and questions were focused on investment alternatives like crowdfunding. Several of the +CxC cities have good experiences with crowdfunding, these could be shared with other partners and cities who are interested. This could be an important knowledge transfer, benefitting several tasks in the project, as this is a cross-cutting theme. OV added that they could research platforms that can be used in different countries and support the cities in their tasks.

Other alternatives, like OECD blended finance, were mentioned by the participants. OV will investigate and examine how this principle could be used in the +CityxChange project and

how to build-up and share a common methodology adapted for citizens' and stakeholder engagement, also replicable in FCs to design investment plans and opportunities in a PEB.

2.4 Learning Session: "Pathways to PEBs" – Võru, Sestao and Smolyan (14 May, Online)

On 14 May, Follower Cities Võru, Sestao, and Smolyan, presented the processes to develop their PEBs, the current status and their main challenges.

The first Follower City to present their current PEB planning was Võru. The demo areas selected are heritage protection areas of Võru old town and all the selected buildings are owned by the city of Võru. In the neighborhood, these are a combination of buildings owned by the city government and buildings owned privately. There are buildings owned by companies, mostly residential buildings as well as apartment buildings. All the buildings owned by the city government have received an energy label.

Võru presented the current status of their processes towards PEBs: the preliminary work is done, which means that the buildings are selected, and energy data has been collected. Their next step is to expand local energy expertise to start the analysis of the energy performance of buildings owned by the municipality.

Võru presented its main challenges: how to bring the city center back to life by providing vision, analyses and plans for the historical area. Võru is assessing if and how it is possible to make PEBs of the municipal owned buildings in the heritage area. This is a challenge that is shared by other cities as well and may lead to joint approaches. They are in the beginning of their pathway and now need more specific competence to be able to bring the work further.

The participants noted that there is an interesting potential in Võru to explore, and a great opportunity for creating a PEB. They suggested additional elements of focus, such as increasing the energy efficiency of the buildings. Võru concluded that the district heating is the most efficient at the moment, and that they consider increasing the energy efficiency through retrofitting. Using the potential of district heating better, for example by combining it with digitalisation strategies to enable more flexibility, is a strategy that is relevant for several of the +CxC LHCs and FCs - we will organise dedicated workshops on this topic in 2021.

The next Follower City to present its PEB process was Sestao. Sestao representatives presented their potential PEBs and all the buildings involved in their Demonstration Areas 1 and 2, as well as their efforts to make those buildings more energy efficient. Furthermore, Sestao presented the current status of their processes towards PEBs and their main challenges.

In terms of district heating, they presented the newly completed biomass boiler, which sources biomass from a sustainable local source. In terms of a potential solar farm, an analysis is being done by a local company. Several options are explored after an analysis of different options and proposed locations. Political and regulatory challenges are identified

as a main challenge in this process. One option for the energy production by large-scale PVs could be the option of self consumption by the buildings. The main problem with this option is the surplus of energy produced during the summer months. Further discussions and considerations need to be done in order to see this issue from an economic point of view.

The third Follower city to present their possible PEBs and the buildings which are included in the demonstration areas was Smolyan. In their DA1, there are four buildings that satisfy the basic energy efficiency measures and one of the buildings was fully renovated and commissioned in 2019. In DA1, the major task within +CityxChange is to increase the self-sufficient energy production and bring it to prosuming level forming a PEB, covering the demands for electricity for lighting in both sports buildings and for the surrounding training playgrounds as well as the domestic hot water in both buildings and the swimming pool. The whole DA will have smart metering in place and its lighting refurbished and upgraded to smart, autonomous city lighting, with the option to add Wi-Fi and sensors to it.

In DA2, the buildings and their construction type are mostly from the socialistic era and they are very energy inefficient. Most of the buildings in DA2 have already work designs and construction permits which allow full renovation and energy efficiency measures. In DA2, the major task within +CityxChange is to identify, design and upscale innovative replication interventions which will showcase the area as an inspirational PEB for locals and visitors. This also links to the citizen engagement parts, which have been designed into all DAs for at least one building. Readiness levels between the 3 DAs are staged, making the process a good candidate to learn and still adapt parts of the plans from DA1 implementation for subsequent replication. Smolyan is ready to quickly start the process of retrofitting, as soon as they have the finances available.

A main concern for Smolyan is to have the necessary minimum building area, since the city comprises mostly small buildings. The feasibility study and DST will help to estimate whether/how to proceed with the DA1 plans. While finances are an issue, some investors are interested for example in investing in roof PV.

2.5 Learning Session: "Pathways to PEBs" – Alba Iulia and Písek (15 May, Online)

On 15 May, the Follower Cities of Alba Iulia and Písek presented the processes to develop their PEBs, the current status and their main challenges.

Písek started the learning session by presenting different scenarios of PEBs creation in Písek, the PEB A (physical) and PEB B (virtual). PEB A consists of two buildings, DS01 Primary School J.K. Tyla and DS02 Frana Sramek Theater. As the district is in the city center, the area is sensitive to any emissions and therefore Písek has to work with emission constrained technologies. Covering the roof of the buildings with PVs is currently the only suitable solution. However, the balance between the current production and the potential was found to be negative, therefore further actions need to be taken. Písek has organised IoT devices for data collection, as monthly data is not very precise, while the updated electrical

smart meters register the data within five minutes. PEB B consists of three buildings, DS03 City Council, DS04 Primary school Jana Husa and DS05 Kindergarten.

Písek is examining at the moment three different scenarios: 1st scenario: Energy consumption through installing PVs and LED (lighting). 2nd scenario: Working with a local ESCO. 3rd scenario: Písek itself would install the PVs and ventilation system. The approach is mostly focused on how to show the way to deal with positive energy issues not only for the city but also for the citizens. The main effort is to attract the citizens and building owners together to co-create the positive energy city, as well as the financial part of this solution. For this reason, the focus is not only on EU funding but also on subsidies at national level and additional programmes to fund the project.

Písek presented as a main challenge the energy overproduction during the summer and they consider batteries as a solution to this challenge to redistribute or sell energy to improve the financial balance.

Alba Iulia gave a PEB overview and a DPEB area status update. The initial area proposed had a mix of buildings private and public of different uses, but was then considered not very functional from the project perspective after updated feasibility studies and analysis of legislative and energy related aspects. In the first 12 months, Alba Iulia has started organizing regular monthly meetings with the project team and the relevant departments within the municipality that will deal with the DPEB area and with the project activities. A stakeholders' map helps to maintain a close dialogue to ensure a smooth and successful replication of +CityxChange solutions.

Alba Iulia presented its two PEBs, PEB nr 1 around Municipality HQ, situated in the Central area and PEB nr 2, the Technical college "Dorin Pavel" situated in the Central area. The college installed solar panels thanks to a previous EU-funded project implemented by MAI. Around 80% of energy (over)produced (mainly in summer) currently goes back into the grid with no benefits for the college. There is no storage capacity and the buildings have low energy efficiency, which will be addressed through retrofits. The challenge is that additional need for gas-based heating is expensive (high costs in the winter). Opportunities include the use of a small grid system that is already in place, and synergies with other municipality projects. Storage at the needed level is costly. Scenarios of ESCOs are considered, similar to the other FCs. Other options include changing to electrical heating in some buildings for increased self consumption. Alba Iulia already has a Sustainable Energy Action Plan (SEAP), which guides some of the options.

The overall comments and discussions in the session were around organisational and regulatory aspects, but also included a number of detailed technical discussions and exchanges of ideas and experiences from the cities on how solutions may be adapted for a better fit.

3 PED Talks

NTNU has organised regular lunch talks in Trondheim, aiming to bring together local partners to discuss selected challenges across talks. Presentations would typically be held by a local +CityxChange partner presenting their work in the project, or a local stakeholder invited to bring an outside perspective into the project, for potential further cooperation.

When the COVID-19 lockdown necessitated a shift towards a digital format, we used the opportunity to extend the scope of our lunch talks to include additional Norwegian and +CityxChange partners, as well as other SCC01 project partners and members of EERA Joint Programme Smart Cities. We re-branded the format into “PED Talks”.

3.1 PED Talk “The European Reference Framework on Positive Energy Districts and Neighbourhoods” (8 May 2020, Online)

On 8 May 2020, NTNU organised a PED Talk where the PED Reference Framework was presented by Hans-Günther Schwarz (Chair of the SET-Plan Action 3.2, Austrian Ministry for Transport, Innovation and Technology) and Robert Hinterberger (Program Management of SET Plan Action 3.2, NEW ENERGY Capital Invest GmbH). Participants from the Norwegian EERA JP Smart Cities network, the Horizon Europe Norwegian Urban Partnership and +CityxChange received updated information about the European PED programme (positive energy districts) as managed within SET-Plan Action 3.2. A first step towards a framework for concerted European action is the PED Reference Framework, which has been developed in cooperation with experts from academia, public and private sector, as well as other stakeholder groups at national and transnational level.

The reference framework will contribute towards a common understanding of concepts and ambitions, and create input for standardisation, certification and monitoring activities. In order to operationalise the reference framework, the PED programme will engage in intensive dialogue with national funding agencies, cities and city administrations, real estate developers, energy system and network operators and other relevant experts and stakeholders in the next 6-10 months.

In order to structure the dialogue, the PED programme organises, amongst others, a PED City Panel. The participants of the PED Talk were encouraged to check whether relevant cities of their own countries and projects already are nominated to participate in this panel, and, if not, to check with their national contact points to investigate this opportunity.

The participants of the PED Talk suggested additional elements of focus, such as the integration of energy in urban planning, the management of local stakeholders, the organisation of sandboxes and other regulatory framework experiments, the roles and responsibilities of utilities, the added value of blockchain and other IoT-related approaches, and the positive connection between community energy and quality of life. It was also pointed out that we need to be able to explain PEDs better in order to gain more traction.

In short, the ambitious target of 100 PEDs by 2025 as set out by the PED programme needs urgent local action developing in parallel with frameworks, and we need cross-cutting cooperation between experts and stakeholders from all relevant sectors and types of cities and communities in order to succeed.

Further details on overall SET Plan contributions are discussed in “D9.10: Report on attendance at events held by other SCC-01 co-ordinators 4”.

3.2 PED Talk “What if COVID-19 isn't the biggest threat” (16 June 2020, Online)

Han Vandevyvere (VITO, NTNU) gave a PED talk to partners of the+CityxChange project and the Norwegian Research Centre on Zero Emission Neighbourhoods and Smart Cities. The presentation was titled “What if COVID-19 isn't the biggest threat? Smartly sustainable cities and the post-COVID recovery effort”. The presentation was related to an article that was originally published in a Belgian review, *Samenleving & Politiek* (Society and Politics)¹.

Exceeding the limits of the planetary carrying capacity is much more dangerous than COVID-19. Now or never is the moment to restore nature’s breathing space and to invest in sustainable infrastructures. The European Green Deal presents a unique opportunity for doing so.

The presentation gave rise to a discussion on how we can transcend a traditional building-by-building approach, and how to move beyond the restrictions of the BEST tables. Positive Energy Districts and Cities should be more comprehensive than what the BEST tables currently restrict it to. We need, amongst others, to rethink the role of urban form and space, lifestyles, learning and knowledge transfer. We need to shift processes from ad hoc to systematic.

Can we change the current “competition for capital” into a constructive process with all cities, that is necessary to effect change? The EU and national governments set very high ambitions for SDGs, the cities respond, and then, the cities are left to compete for the limited amount of capital that is made available to reach the ambition. How do we ensure more extensive support and a broader understanding of capital to enable cities to reach positive energy cities and SDGs by 2030?

According to funding and finance organisations, there is enough money available but the cities do not present the business case sufficiently well. How do we ensure better alignment between the funding and finance that is available, and the applications the cities prepare?

We already see this challenge in the current development of PEBs, and it is only going to be exacerbated in the transition towards the SET-Plan Action 3.2 goal to achieve 100 PEDs by 2025 (add reference) and the Horizon Europe Mission on Climate-Neutral and Smart Cities, aiming to achieve 100 climate-neutral and socially innovative cities by 2030 (add reference).

¹ <https://www.sampol.be/2020/04/wat-als-covid-19-niet-de-grootste-bedreiging-is>

3.3 Norwegian +CityxChange partner meet & official opening of Sluppen Citizen Observatory (10 September 2020, Lager 11, Trondheim)

Trondheim municipality invited the Norwegian +CityxChange partners to the official launch of the PEB Sluppen Citizen Observatory at Lager 11². The launch was originally scheduled to take place in Spring 2020, but was moved to Autumn 2020 in order to enable a physical meeting within COVID-19 restrictions. The launch included senior representatives of the Norwegian +CityxChange partners at management/CEO level. The official opening of the event was performed by the Norwegian Minister of Municipalities and Sustainability.

During the launch, several of the Norwegian partners were asked to share their experiences within the project, in particular how the project had reinforced the value proposition of their own companies and organisations.

The partners also discussed the added value of participating in an EU-funded project while one might be able to perform the activities much more customised using their own funding. The structure of the project has enabled some partners to scale their operations, and in one instance even to merge into a larger international company.

Everyone has experienced local visibility and increased networks due to the project. A new not-for-profit foundation has been created in Trondheim. The Norwegian +CityxChange demonstration projects have been extended beyond their original EU-funded scope through Norwegian innovation funding.

2

<https://www.trondheim.kommune.no/aktuelt/nyheter/barekraft-nyheter/plussbyen-nyheter/arbeidet-barer-frukter/>
<https://cityxchange.eu/sluppen-city-lab-opening-in-trondheim/>

4 Third Consortium Meeting: Cross-cutting partner sessions and External Expert Advisory Board (19-22 October, Online)

4.1 Scope

Towards the end of the second project year, the project is moving strongly into implementation of demonstration projects in LHCs and FCs. During the meeting, the discussions were focused mostly on the transition from WPs 1-2-3 to city WPs 4-5-6 and the challenges and opportunities around it. After an overview of all WPs on 19 October, a suite of sessions took a more detailed look at particular challenges.

Due to COVID-19, the consortium meeting was held digitally, including interactive digital/visual workshops and learning sessions.

After an update of the project's status, progress, financial reporting, upcoming activities for year 3 and the External Expert Advisory Board meeting on the first day of Consortium Meeting, 6 online sessions, 2 online sessions per day, were kicked-off. Any WP-specific meetings were held before, to keep the time for cross-cutting work.

The sessions were designed to start with the overall project status, then discuss specific cross-cutting topics and investment needs becoming highly important for the next project phase, give brief interactive demos of results achieved so far, and close with a session on replication of the work of the various Demo Projects with the Follower Cities.

4.2 Storytelling Workshop (ISOCARP/Sestao)

The storytelling workshops provide a venue within the consortium and in collaboration with other projects and stakeholders to exchange experiences in a narrative format.

This Storytelling Workshop was focused on experiences in Sestao, where the meeting was originally supposed to take place and where activities and networks were initiated, before it was moved to an online format. Guests from other SCC01 project cities in the Basque Country area were invited: Bilbao (ATELIER), Vitoria-Gasteiz (SmartEnCity), and Donostia/San Sebastian (REPLICATE).

Three main questions are the cornerstone upon which we built up our workshop:

- Starting point for citizen engagement: how to get people initially involved in projects?
- How to get people to interact with the PED, visit, learn, etc.?
- How to create PEDs which build upon the past and current identity of the area?

This workshop is reported in detail within the Deliverable D9.11: CityxChange storytelling workshops, inviting other LHCs and FCs 2.

4.3 Learning session on schools / next generation (Sestao)

The learning session was hosted by FC Sestao. In addition to the +CityxChange partners, external guests from local municipalities around Sestao and from other SCC01 projects were invited to participate in the session.

The aim of the learning session was to create a space where the partners that are involved with various school projects are able to present these, especially those that have the potential to be replicated and/or are seeking partners within the consortium/consortium ecosystem.

Sestao presented the school project, aiming for a sustainable green school competition. Písek presented some of their approaches with schools. The discussion centered around the engagement for schools and youth, and how to measure the energy performance, possibly aligned with existing initiatives such as United for Smart Sustainable Cities (U4SSC) and the ongoing +CxC Bold City Vision (BCV) processes.

4.4 Demo session (NTNU & Písek)

The session was led by NTNU and Písek. The participants were demo owners, cities, WP Leads and other project partners. The aim of the session was to present the results, frameworks, demonstrations (not just CityxChange Demonstration Projects but individual systems and innovations as well) from WP1 to WP3 and other work packages with results up to Year 2. Brief demos of all relevant parts ready for use were presented and interactive demo sessions took place.

The demo session showed in more detail some of the outcomes of the project so far, as presented in the earlier status session. Good results were there after 2 years, and for some demos, it was the first time that some partners saw them. This brought up good discussions on the demos and their continuation and handover into the cities after the conclusion of the first 3 WPs. It also provided more detail on the status of the demo projects and other innovations, which allowed for a flow into the last session on replication and knowledge transfer into the LHCs and FCs.

The Demo list included the following demo projects:

Bold City Vision Framework (TK, LCCC)

Trondheim Kommune and Limerick presented the Bold City Vision Framework and its use and adoption for the individual cities' Bold City Vision, linked to urban transformation processes towards the UN SDGs.

Integrated Decision Support Tool (IES)

IES held a live online demo of Limerick results and dashboards and presented the Interactive 3D model for all the districts in Limerick.

ICT Ecosystem and Interoperability (NTNU/UL)

The ICT Ecosystem and Interoperability is based on services, business (virtual enterprise), application and data processing, such as +CityxChange data space, technologies, physical infrastructure. The demo presented the use cases on the example of the eMobility system and app.

Local energy system design and grid operation (POW)

The demo of the PEB design tool showed the import of CIM files for grid topology to then simulate different grid loads, with the ability to forecast loads and run analyses.

Platform for local trade (POW)

Models were shown for local trade platforms to assess trade energy and energy balance in the future, and how to change area balance to satisfy constraints/requirements.

eMobility (4C)

Demonstration of how e-mobility options can be retrieved and presented to the users with a focus on the ecological impact, using dashboards and apps.

Prosumer Dashboard (MPOWER)

MPOWER demonstrated their dashboard for prosumers linked with their smart meters and the Community Grid operation.

Optimization Model Positive Energy Cities and Distribution Grids (NTNU)

A Microgrid model at the NTNU campus Gløshaugen is developed on a smart control optimization model of energy assets with live data, forecast data. The objective is to optimize energy demand and reduce cost for building owners.

Board Game PEB (E-City+) (NTNU)

A board game for children was presented that uses the project objectives of achieving Positive Energy Blocks for its game design.

M&E Reporting Tool MERT (FAC)

FAC presented their M&E reporting tool. The tool consists of all KPIs around Integrated Planning and Design, Common Energy Market, and CommunityxChange.

Mapping App (SE)

SE presented their collaborative crowdsourced mapping app. The target group are local communities of interest, especially those necessary to achieve positive energy innovation.

Citizen Playbook (COL)

The playbook contains guidance on how to support local authorities in transforming citizen participation into real local impact, and how to increase community engagement and build citizen trust.

4.5 Launch+workshop of the new Smart Cities Marketplace Initiative on Regulatory Frameworks (NTNU, TK & POWEL in cooperation with SCM)

The aim of this session was the launch of the SCM Initiative on Regulatory Frameworks. This Initiative aims to support the transition regulatory frameworks that better support the ambitions for positive energy blocks and districts (PEBs/PEDs) and climate neutral cities laid out in the European Green Deal. The Initiative is based on the experiences of +CityxChange and other SCC01 Lighthouse projects. This was an open session in cooperation with SCM and all participants were welcome, with specific interest for Cities and Energy partners³.

To kick off the session, the hosts presented the status on how regulation is executed today, including 11 main challenges they have identified regarding regulatory frameworks in order to achieve Positive Energy Blocks and District, and climate-neutral cities. The 11 challenges⁴ are:

- Strengthen incentives for digitalisation and creation of value-added services – including smart meters.
- Mandates and responsibilities in line with energy systems evolving from central to local centrality.
- Local energy communities – regulated to strengthen incentives for renewables.
- Local trade of flexibility - including local market operation.
- Local system operators are free to purchase services wherever these are located.
- Cost based grid tariffs – locally adjusted.
- Guidelines for how DSO and CSO must cooperate to be the best enabler for the overall goal.
- New buildings and districts – predictable regulations that enable future proof development.
- Refurbishment of buildings and districts – regulations that stimulate “green” actions and investments.
- Trustworthy and digitalised routines for understandable billing for customers in the local and global market.
- Regulations possible to overcome for new entrants and business models

3

<https://cityxchange.eu/invitation-action-cluster-meeting-and-launch-of-the-new-initiative-on-regulatory-frameworks/>

⁴ A new EIP-SCC Initiative on Regulatory Frameworks within the Integrated Planning, Policy and Regulation Action Cluster:

<https://cityxchange.eu/wp-content/uploads/2020/10/EIP-SCC-Initiative-Regulation-Framework-finished1.pdf>

- Tax regimes that stimulate to reach the overall goal: Climate-neutral and smart cities

In addition to a presentation of the scope of this initiative, presentations were held by the SCM Action Cluster leader, the European Commission's DG Energy and invited stakeholders to discuss the business perspective (Real Estate Company Entra ASA, Norway) and the city perspective (City of Rotterdam, the Netherlands) for this initiative. After the presentations, the participants were divided in three break-out groups to discuss their priorities and needs in further detail.

The presentations and discussions clearly emphasised the need for better regulations in order to de-risk energy investments and to enable better cooperative business models.

Coordinated cooperation towards influencing regulations was welcomed, and the Initiative was urged to investigate upcoming opportunities in 2021 where we can make a concrete difference already in the short term.

While waiting for regulatory changes, it is important that regulatory sandbox activities cooperate more with each other in order to learn faster and to avoid common pitfalls.

There was also a clear link to the SCM Initiatives on Standardisation as well as Business models that should be explored.

Representatives of the SCC01 projects suggested that a dedicated workshop can be held with interested partners from the SCC01 demonstration areas, as this would quickly give us a substantial collection of demonstration projects to work with.

In addition to the SCC01 projects, the SCM Initiative will reach out to other European platforms such as the BRIDGE Initiative, the Horizon Europe Mission Board on Climate-Neutral and Smart Cities, living-in.eu and similar initiatives to align cooperation and efforts.

4.6 Investment workshop: following up on individual city dialogues May-June-September-October (OV)

The investment workshop was hosted by partner OV. Its aim was to review the work done so far: RE investments and the outcomes of previous workshops, with the objective of filling some of the gaps that still exist in the models. The Intended participants of the investment workshop were LHC and FC representatives and all the partners involved in investment work and business models in LHCs and FCs, i.e. at least all participants to T4.11 and 5.11 and partners in PEB building and energy trading.

Following the definition of business model, the definition of "Ideal Business Model" approach was presented to be used for the business model innovation subtask of T5.11 concerning "monitoring, analysis and improvement of existing business models". The approach of the "Ideal Business Model" was the result of discussions and meetings with partners TK and NTNU. Partner OV has also presented a Business model questionnaire and a business modelling interview guide, as tools for mapping the existing business models. A

“simplified” version of the questionnaire has been used for an exercise during the workshop, in order to get feedback on its structure and content.

The answers and feedback provided during the workshop will be followed up in order to review the results and then plan one-to-one meetings with local stakeholders to move from the monitoring and analysis of Business Models on to their improvement.

4.7 Replication & Knowledge transfer from WP1-2-3 to WP4-5-6: how to set up the handover and replication, updating the replication tables (R2M& EAP)

The session was hosted by partners R2M and EAP. The session had three aims: to provide a progress update of the DP implementation per FC, to clarify for each FC what the next steps in the implementation of the different DPs are and to exchange experiences and, finally, to update the replication table included in the DoA.

The participants of the session were LHCs and FCs, WP leads, and all partners contributing to DPs, replicable results, demos, experience, and handover between WPs and for the FCs.

The intended aims were updating the replication tables, how to set up the handover and replication. For each Demo Project, the ambition and background was presented, followed by a brief discussion on the use for the FCs and the next steps.

DP01 Model (IES)

Aim: To apply the Decision Support Tool (DST) to each of the cities.

Integrate the ICT Ecosystem & Architecture to connect data sources in cities & DPEBs.

Analyse different ‘what if’ scenarios related to changes in energy consumption & supply, EMaas on the network, as well as socio economic impacts. Feedback on scenarios to aid the development of Bold City Vision.

DP02 Vision (ISOCARP/LHCs)

Aim: To create a BCV with the FCs in order for them to set targets to reach sustainable urban ecosystems by 2050.

DP03 Engage (COL)

Aim: To create the structures for a community-led innovation ecosystem to support the acceleration of becoming positive energy cities. If DP02 is the top down municipality-led development, DP03 represents the bottom up community-led processes. DP03 enables citizens to help share their future city.

DP04 Regulatory Zone (LCCC)

Aim: accelerate the transition to a low carbon future through innovation, within a regulatory sandbox or framework that protects the citizen. Allowing the demonstrators to be put up and energy to be traded.

Areas of interest: Building thermal upgrades, building integrated renewable technologies, community scale renewable energy generation in a city, electricity and thermal energy local storage and distribution, community led projects, incentives and legal entities, facilitating a diversity of local energy trading market.

DP05 Innovation Playgrounds (SE)

Aim: To accelerate change and disruptive solutions through innovation playgrounds.

DP06 PEBs (EAP)

Aim: It carries out activities and integrates technologies, which will create a positive annual energy balance in the block according to the DPEB definition and enable this energy to be optimised and balanced.

DP07 Community Grid/Microgrid (NTNU)

Aim: Smart control of energy assets. Minimising energy cost. Reduce the cost for owners of building. Don't have an APP optimizing model. First test run was 10-18 October. Need more test runs.

DP08 eMaas & Replication (4C)

Aim: Demonstrate an Innovative, multimodal, scalable mobility platform comprising eMaas with V2X functionality, that will prove economically viable and environmentally sustainable.

DP09 Local Trading (MPower & Powel)

Aim: To develop, deploy and demonstrate a marketplace for local trade of energy and flexibility. The local marketplace should allow market access for every asset, regardless of size. Enabling market participation should motivate investments into capacity and flexibility in order to achieve PEBs.

DP10 Flexibility Market (MPower & Powel)

Aim: To enable local players to efficiently take part in the local flexibility market. The solution will allow the asset owner to decide when, how much and at what price flexibility should be made available for the market or when flexibility should be acquired.

DP11 Invest (OV)

Aim: To make the building owners invest in their own buildings in order to enable the establishment and the operation of the PEB, which means reduced energy consumption,

local RES generation, local markets readiness. This is done by creating the conditions (technical, financial, social) for this to happen. All cities need to replicate this demo project.



5 Monthly Executive Board Meetings

According to the Project Management Structure in the Description of Action, the Executive Board, composed of the Project Coordinator and all Lighthouse and Follower Cities, will meet online or face-to-face on a quarterly basis. During the project kick-off meeting, the members agreed to start with monthly meetings, to support better interaction between the cities, to get a good rhythm going, to ensure that all cities would be fully engaged and included in the project, and to make sure that the Follower Cities would have the support they need to be successful in early replication.

During the monthly meetings, the cities receive an update from the Technical Board, and each city reports on its ongoing activities. Based on these talks, topics are selected for upcoming learning sessions. In the past months, risk registration and mitigation due to COVID-19 has been added to the agenda (also see D11.6: Risk Mitigation Registry 2). During the meetings, the EB discusses potential additional mitigation measures, and whether decisions have to be brought to the General Assembly.



6 Conclusion

Months 19-24 of the +CityxChange project continued with a transformation of activities from planning to implementation mode, with demonstration activities being initiated in the Lighthouse Cities. Due to COVID-19, several demonstration activities and events experience delays and uncertainty, which are being handled in the appropriate consortium bodies.

In order to keep project activities going, and to spur on communication and sharing of experiences across partners, we have shifted all meetings and talks to digital formats. This in fact enabled us to open up our activities to additional stakeholders (requiring no travel), which in turn has provided us with more inspirational content both from our own project partners and from our peer projects and platforms.

Local meetings within the Cities have partially been held during certain periods, especially on direct deployment work. In many cases though, the local meetings have taken up the overall collaboration mode of this distributed project and have shifted to online meetings. This has worked reasonably well. The project is experimenting with multiple additional online supporting tools and formats. More on this will also be discussed in future Deliverables, for example around citizen engagement in the period of social distancing.

The next six months will bring important updates regarding the viability of the demonstrations in the Lighthouse Cities, and their potential need for adjustments due to COVID-19, and feasibility studies of the Follower Cities, showcasing their needs, priorities and pathways to PEBs. As always, these experiences will be embedded in our upcoming deliverables and posted on our website to share, as we, likewise, look to our peers to be inspired.

