

HORIZON
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Sustainable energy Positive & zero cARbon Communities

Rapports

Informations projet

SPARCs

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[Site Web du projet](#)

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Periodic Reporting for period 3 - SPARCs (Sustainable energy Positive & zero cARbon Communities)

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Résumé du contexte et des objectifs généraux du projet

Cities were one of the key actors in the Paris climate summit in 2015, where 175 countries committed to limiting the global temperature increase well below 2 degrees. Specific aims for global city development were further defined in the United Nations 2030 Agenda for Sustainable Development Goals, supporting transition for low-carbon and inclusive cities. The EU has committed to these global

goals by developing a Strategic Energy Technology Plan (SET plan) and introducing the Smart Cities Initiative targeting 30 European Cities acting as lighthouse cities, and fostering replication, at the forefront of the transition towards a low carbon future. SPARCS is one of these projects.

SPARCS demonstrates, and validates, the technical and socio-economic viability, and impacts, of scalable, innovative solutions for planning, deployment and roll out of smart and integrated energy systems as an efficient mean for the urban transition into a citizen centered zero carbon ecosystem, enabling a high quality of life. SPARCS promotes the replication of the urban energy transition widely in Europe for developing blocks of buildings and districts into active energy ecosystems and pioneering business models tailored on interactions between the citizen, building and the urban energy systems. Lighthouse cities Espoo (FI) and Leipzig (DE) implement large demonstrations. Fellow cities Reykjavik (IS), Maia (PT), Lviv (UA), Kifissia (EL) and Kladno (CZ) prepare replication. SPARCS identifies bankable actions to accelerate market uptake, pioneers innovative, exploitable governance and business models boosting the transformation processes, joint procurement procedures and citizen engaging mechanisms toward the bold City Vision 2050.

Travail effectué depuis le début du projet jusqu'à la fin de la période considérée dans le rapport et principaux résultats atteints jusqu'à présent

SPARCS addresses the following 9 objectives:

1. To enable, inform and support the efficient urban transformation of cities into carbon free societies, including especially smart networks, low carbon transport solutions, a sustainable energy transition, and improved air quality. Progress until M12: The city diagnosis process is under development SPARCS Cities are collecting Use Cases and developing their bold City Visions for 2050.
2. To deploy wide scale demonstration of innovative technologies for integrated, mixed-use, positive energy building blocks in the lighthouse cities, Espoo and Leipzig, and selected feasibility tests in 5 fellow cities. During 1st year: Detailed demonstration plans have been co-created with partners and relevant stakeholders. 100+ demonstration actions are on-going.
3. To roll out an extensive monitoring and evaluation programme with associated Key Performance Indicators (KPIs), for the holistic assessment of SPARCS interventions. During 1st year: A holistic framework for monitoring and impact assessment and preliminary KPIs are defined.
4. To implement community engagement actions and promote a citizen-centric approach for enabling inclusive, integrated, and sustainable urban development, planning and management practices and governance models. During 1st year: The Quality Assessment Template developed and collected social engagement tools and procedures. Inputs provided into best citizen-engagement, dissemination and communication practices and demonstration across cities and on EU/regional levels.

5. To replicate demonstrated smart and integrated lighthouse city solutions in fellow cities and lay the foundations for European wide adoption and upscaling. During 1st year: Developing information packages on energy and mobility solutions that enable replication in different contexts. Analysing and benchmarking all SPARCS cities for replication potential.
6. To generate a bold city-vision 2050 in line with the new EU carbon neutrality climate and energy strategy. During 1st year: SPARCS Cities are developing the city visions.
7. To pro-actively cooperate with other Smart Cities and Communities projects funded under Horizon 2020, the European Innovation Partnership on Smart Cities and Communities (EIP-SCC) and other relevant projects, networks and initiatives, and create joint recommendations in order to maximize impact, replication, and scale-up of smart city solutions. During 1st year: Regular and proactive collaboration on-going.
8. To support the development of competitive new services, business models and financing instruments for sustainable, forerunner energy positive smart districts, and the creation of business ecosystems. During 1st year: Supporting cities and their stakeholders through business models, new services and funding schemes at PED scale.
9. To actively and efficiently promote the SPARCS project and its outcomes on local and European levels, raise awareness of the European smart city concept, and support wide-spread knowledge sharing across solutions. During 1st year: Active promotion through the website, events, social media, newsletters and promotion products.

Progrès au-delà de l'état des connaissances et impact potentiel prévu (y compris l'impact socio-économique et les conséquences sociétales plus larges du projet jusqu'à présent)

SPARCS targets innovation in following contexts:

1. Integrated urban planning and management - Policy and regulation: SPARCS integrates and coordinates urban and energy planning, while ensuring an inclusive engagement of local governments, stakeholders and citizens. Shared city vision promotes participative and evidence-based urban planning. Reflections for the upcoming legislation on Energy Communities.
2. Positive energy building blocks and district: systemic integration of technologies on-going: district heating and cooling; PV integration, energy storage and heat recovery technologies, demand response, virtual power plant, virtual energy community, and energy services for citizens. EV integration through an enhanced MaaS (mobility as a service), the second life of EV batteries, optimal charging, and interoperability. Adopting citizen-centered approach: eParticipation tools, open data and services.
3. Context-Aware Energy Behavioural and Demand Flexibility Profiling, to enable personalized and

human-centric self-consumption strategies.

4. ICT Platforms for PEDs to deliver open data and services, including Internet of Things and scalable real time intelligent platforms.

5. Community Demand Management Systems for Collective Urban Self-Consumption with bottom-up citizen engagement and empowerment that enables collective energy optimization and self-consumption at the city level.

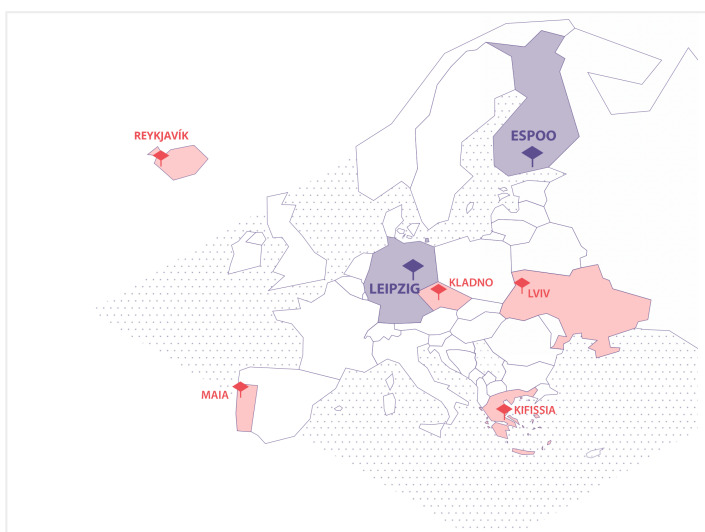
6. The sustainability metrics: Developing guidelines for ambitious monitoring programmes. Lighthouse cities continue on their sustainability path and contribute to strengthen the monitoring of the SEAP/SECAPs of cities.

7. Business models, procurement and funding: Identifying new business models and evaluating bankability.

Flexible dynamic pricing models for citizens are configured and validated. Blockchain application will be used for peer to peer transactions in energy markets.

8. Joint procurement based on function approach at Urban Planning (instead of technology-lead solutions) will be developed.

The impacts of SPARCS span economic growth, improved quality of life, and environmental benefits towards the EC policy framework for climate and energy, the SET plan and UN Sustainable Development goals. SPARCS co-creation brings together citizens, companies, research organizations, city planning and decision-making entities, transforming cities to carbon-free inclusive communities.



SPARCS cities on map

Permalink: <https://cordis.europa.eu/project/id/864242/reporting/fr>

European Union, 2025

