DECLYC

The results of the studies carried out as part of the Low-Carbon Industrial Zones (ZIBaC) program reflect above all the collective vision of the involved industrial stakeholders. These pathways provide a structuring contribution to the development of national decarbonisation strategies, but do not constitute an established or official vision of those strategies.

The DECLYC project aims to define decarbonisation strategies to reduce CO_2 emissions and the environmental footprint of the Chemistry Valley and neighbouring areas, to establish governance models for potential shared solutions that may emerge, and thereby to maintain the competitiveness and long-term sustainability of industrial and R&D centers.

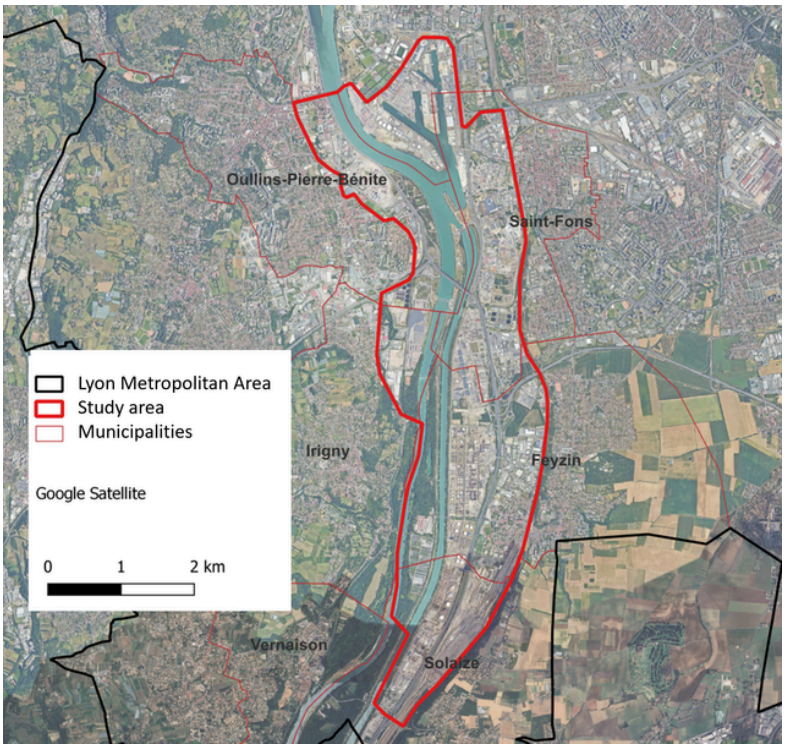
Work Package 5
Photovoltaic

Context and Objectives

This study focuses on the development of photovoltaic energy at the scale of the chemistry valley. Its objective is to establish the foundations for a local photovoltaic electricity production strategy, in order to meet locally the needs of industrial stakeholders and the territory.
The area's solar potential is based on various identified or yet-to-be-explored resources, including rooftops, car parks canopies, ground surfaces, sports facilities, and water bodies compatible with existing uses.

Methodology

To build this roadmap, the study is based on an analysis of the different surfaces available across the chimistry valley. Technical, regulatory, economic, and organizational constraints are examined, along with grid connection options, electricity valorization mechanisms, and available financing schemes for photovoltaic projects, in order to consolidate a mobilizable potential.
This global approach is complemented by a territorial perspective, supported by consultations with local stakeholders and the analysis of concrete case studies. It takes into account local constraints, existing uses, and real implementation conditions, enabling the identification of realistic photovoltaic solutions tailored to the specific characteristics of the area.



Identification of surfaces available for the development of photovoltaic power plants

Analysis of technical and regulatory constraints for the development of photovoltaic power plants

Analysis of production valuation models, for sale or self-consumption

Study of third-party financing models for project development

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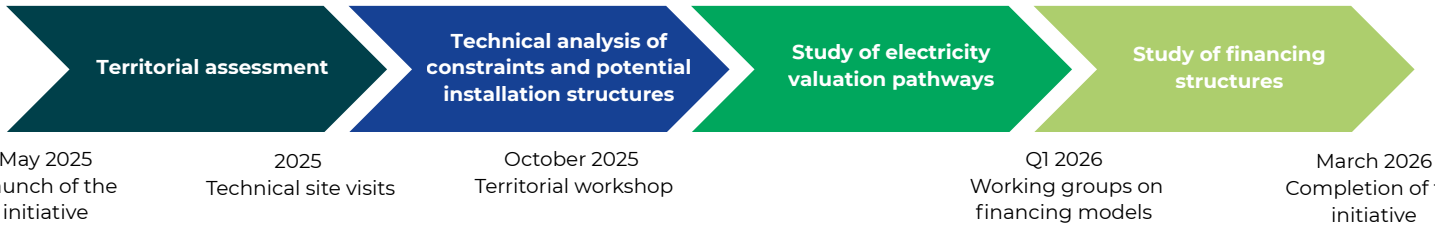
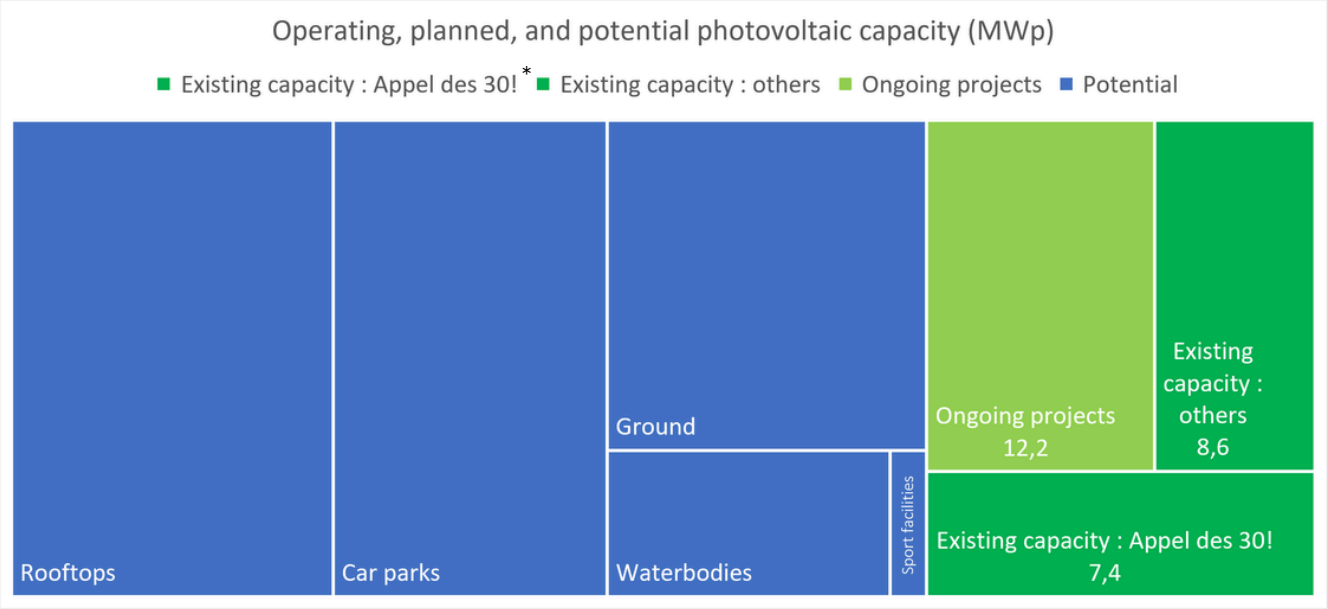
Key stages



Results

The study highlights a real photovoltaic potential in the chemistry valley, although unevenly mobilizable depending on the type of surface. The main resource lies in rooftops, with a significant but highly dispersed volume, technically heterogeneous and often complex to implement in the short term.
Car parks areas appear to be a more operational lever, enabling larger-scale projects, in a context strengthened by regulatory requirements for solar deployment, particularly under the APER law aimed at accelerating renewable energy production.
Ground-surfaces potential remains more limited due to strong land-use constraints; small unused spaces within industrial sites do exist but are difficult to assess at a macro scale. Other types of surfaces (such as water-bodies) or sports facilities) represent only a complementary resource.
The photovoltaic capacities of projects already completed, planned, or identified as potential in this study are illustrated in the following graph:



*The "Appel des 30!" project is a call for proposals launched by the Lyon Metropolitan Authority in 2017, which enabled the installation of solar panels on parking lots across six industrial sites: the first large-scale installations in the Vallée de la Chimie area, with a total combined capacity of 7.4 MWp.

Photovoltaic development in the chemistry valley takes place within a highly constrained environment. Industrial and natural risks, metropolitan land-use planning regulations (PLU), insurability and safety requirements, as well as the nature of existing surfaces, strongly frame project feasibility.
At the same time, the high electricity demand from local industrial stakeholders leads projects toward on-site self-consumption, which is more relevant than collective self-consumption in this context.
Eventually, the use of third-party financing appears to be a key success factor for project implementation, as direct investment remains challenging for many industrial players. As a result, the conversion of this potential into concrete projects will largely depend on both individual and collective efforts to overcome technical and financial barriers.
Nevertheless, existing and upcoming projects in the chemistry valley demonstrate the technical and regulatory feasibility of photovoltaic development in this territory and provide valuable feedback for future initiatives.

Perspectives

In light of the study, the key challenges to be addressed in order to enable the development of photovoltaic energy in the chemistry valley are as follows :

Mobilization of a highly dispersed resource base

- Best practices to be promoted, notably by systematically integrating photovoltaic considerations into new-build and renovation projects.
- The need to share feedback and lessons learned to better address the specific challenges of the chemistry valley.
- Existing and proven technical solutions enabling the development of photovoltaic plants on sites with diverse constraints.
- Communication on the benefits of photovoltaic energy, particularly in the context of the Eco-Energy Tertiary Decree.

Constrained regulatory and economic context

- Challenges related to land-use sustainability within an evolving industrial landscape.
- Limited investment capacity of industrial sites, with a preference for rapid returns on investment or reliance on third-party investors.
- The need to clarify and stabilize the regulatory framework, both at national level (implementation decrees of the APER law) and local level (evolution of the Lyon Metropolitan PCAET), to enable the development of a clear long-term strategy.
- Regulatory solarization requirements that are difficult to implement economically due to strong local technical constraints (adaptations to PPRT, SEVESO sites, ICPE and ATEX zones).

Territorial collective initiatives

- Relevance of collective or shared projects to reduce costs, improve economic viability, and better integrate technical constraints.
- Territorial governance to coordinate and support collective projects.
- While the benefits of a collective approach are numerous for project development, the valorization of the electricity produced remains more relevant at the individual level. Collective self-consumption does not emerge as an obvious solution given the identified potential and the constraints related to energy valorization.

Lead

Co-lead

Co-financing partners

Engineering consultancy

Contacts & More Information

declyc@axelera.org
https://www.axelera.org/fr/pages/declyc

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