LIFE CIRCULENERGIES

WP2 – Innovative packages development and financing solutions

Market study of business parks in France

Version: 1

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LIFE CirculEnergies project

LIFE CirculEnergies (LCE) brings together **4 multi-expertise partners** in the **low-carbon transition of territories** (GreenFlex, Tecsol, Valoen, and LLC & Associates), to engage **economic activity zones** (EAZ) in a **low-carbon** and **resilient ecological transition**.

As one of the **main economic activity hubs in territories**, EAZ need to reinvent their model, inherited from urban planning forms that no longer correspond to the challenges of tomorrow.

LCE aims to make those territories **attractive**, and **resilient** by developing "**turnkey**" **solution** packages that facilitate their **energy transition**. The solutions include support in all stages of a project (**study**, **design**, **financing**, **implementation**, and **monitoring**) and address key energy challenges of future activity zones: **energy sobriety, energy efficiency, renewable energy production,** and the development of **low-carbon energy** services such as **electric mobility**.

LCE presents an **innovative** approach by addressing the issues of EAZ comprehensively to offer relevant and environmentally **virtuous local energy loops**, while ensuring a **relevant** and **competitive** economic model. Beneficial new models of **local governance**, such as **energy communities**, are also integrated.

LCE primarily targets EAZ's **small** and **medium-sized** enterprises to support them in their **ecological transition**, although all actors are welcome to join the project.

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The partners

GreenFlex

GreenFlex is a company that helps its clients thinking and deploying their ecological & energetic transition, through support & consulting services, data intelligence & financing solutions. Since its creation in 2009, GreenFlex has been to accelerate the energy and strategic transition of companies. GreenFlex helps them to be more competitive by reducing their costs or by growing their turnover by adding value. GreenFlex has developed a unique model which connects an eco-friendly approach with the economic reality of companies by bringing together three very different activities: Consulting; Project development and data intelligence; Financing.

Tecsol

TECSOL is an Engineering and design office (OPQIBI 2011 certification) with 40 years' experience in solar thermal and photovoltaic systems and is also a certified training organisation. TECSOL carries out feasibility studies and project management for local authorities and businesses on roof-integrated projects for industrial or commercial buildings, as well as ground-mounted projects and agrivoltaic greenhouses. The company's head office is in Perpignan, with branches in France in: Toulouse, Lyon, Bordeaux, Angers, Strasbourg, Perpignan, Orange and Ile-de-France.

Valoen

Valoen is a consulting firm located in Rennes (Brittany region). Valoen has been formed by two partners with 10+ years of joint work experience. The fields of expertise are the following: (1) land planning and use in business parks, (2) solar photovoltaics massification, (3) collective self-consumption and energy communities. Valoen has a sound experience in both business parks strategies and transactive energy models, fitting the objectives and issues addressed in LCE project.

LLC & Associates

LLC is a several times rewarded full-service law firm dedicated to providing legal services to public and private companies, local governments, and civil society stakeholders. LLC' scope of action covers the whole French territory (continental and overseas), both from the Paris office and through its local partners. The range of activities provided by the Energy and Business department based in Paris encompasses the whole legal playing field, such as contractual, corporate, tax, financing, regulation and public law and procurement.

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I. Objectives and scope of the Market investigation

A. Objectives of the study

The aim of this market study is to understand the panorama of business parks in France. The objectives are :

- Identify the various characteristics of business parks (surface area, type of operators present, etc.)
- Gain an overview of the potential for installations (photovoltaic panels, car charging stations, etc.) that could be installed in the business parks.
- Identify the potential for the use of LIFE CirculEnergies deployment in France.

The LIFE CirculEnergies project aims to accelerate the energy transition of business parks by developing a turnkey offer for the identification, development, financing, implementation and monitoring of:

- Projects to reduce energy consumption.
- Projects for the production and use of electricity from renewable energy sources.
- Energy services projects through an energy community.

The aim of this market study is to understand the panorama of business parks in France prior to the implementation of the actions carried out as part of the LIFE CirculEnergies project.

B. Methodology

This study is based on the available **bibliography** (see References), in order to collect both quantitative and qualitative data, for the following regions: Île-de-France, Bretagne, Provence-Alpes-Côte d'Azur (PACA), Auvergne-Rhône-Alpes.

These regions seem relevant because they represent the diversity of French territories in the four corners of France, with more rural regions such as Bretagne and more urban regions such as Île-de-France. The most populous and economically dynamic region is Île-de-France, which includes the Paris region and its suburbs. This region is France's main economic center, with a wide range of business sectors including financial services, information technology, communications, and media. Other economically important regions are the Rhône-Alpes region, which is a major industrial center, and the Provence-Alpes-Côte d'Azur region, which is a major tourist area. Bretagne is also an important agricultural area.

These areas are large enough to gather sufficient data to draw initial conclusions about plans for industrial parks. They are also the studies that combine the greatest number of the research criteria listed below.

Very few recent figures are available for industrial parks in France. The most recent national figures come from studies carried out in 2007 and 2008 and may have changed in recent years. General data was difficult to collect, making it difficult to draw general conclusions.

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The second source of information is a quantitative data analysis based on the **SIRENE database** and **open Street Map** (data from 2023), which made it possible to collect data on a larger scale to compensate for this lack of national data, carried out by Tecsol. 12 departments were selected to represent most sides of France (North, South, East, West) and to study 3 criteria namely:

- % of commercial industrial estates,
- % of tertiary business parks,
- average % of SME by industrial estate.

And the Britanny Region was chosen to focus further focus on charging points, cars parks, and other criteria listed below in the data collection section.

These are the criteria studied by LIFE CirculEnergies, as the project focuses mainly on mixed areas with a majority of SMEs:

- **Types of business parks according to their sectors of activity (specialised or mixed zones).** LIFE CirculEnergies decided to focus on mixed zones rather than specialised ones, as they target different types of SMEs from different sectors of activity.
- **Main governance structure of the business parks (public inter-municipal cooperation bodies, presence of trade unions, etc.).** In order to understand the organisation of the industrial parks, LIFE CirculEnergies intends to contact and work with intermediaries. Public Intercommunal Cooperation Establishments (PICE) are an obvious entry point for companies located in industrial parks. Since 2017, they are responsible for the management of these zones. Trade unions and business associations are also a point of contact, as they are represented by business members and represent the interests of businesses.
- **Number of business parks per area and total surface area occupied, land** (surface area, % occupied, land price). Thhis information is key to the success of the project, as it can help to estimate the potential reach of LIFE CirculEnergies on the zones.
- **Ownership of buildings:** proportion of businesses that own their buildings, proportion of businesses that rent, type of actor that owns, etc. This type of information is important for the project as it helps to collect data from the businesses and better target the solutions that can be implemented.
- **Geographical location**: average distance from the main town. This data can be used to see to if people come to the business parks by car or on public transport and to assess the potential for electric charging points.
- **Transport access** (road, rail, etc.). Gathering transport information will help determine if there is a potential for electric mobility.
- **Average size of a business park, number of businesses per business park and number of jobs**. This information helps to estimate the potential outreach of LIFE CirculEnergies and to exclude those that are not considered relevant for the project.

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- **Proportion of SMEs among the companies present in the business parks**, depending on the type of the business park. This data is crucial for the project as LIFE CirculEnergies mainly focuses mainly on SMEs and their energy transition.
- **Size of companies and level of energy consumption**. This data is crucial to assess the potential of energy management solutions that can be implemented by LIFE CirculEnergies.
- **Types of buildings (date of construction, building materials, etc.)**. This information is needed to understand the needs for energy renovation.

II.Context

A. Definition and overview

According to Article L318-8-1 of the French Town and country Planning Code, industrial estates (or business parks) are "industrial, commercial, tertiary, craft, tourist, port or airport activity zones referred to in Articles L. 3641-1, L. 5214-16, L. 5215-20, L. 5216-5, L. 5217-2 and L. 5219-1 of the General Local Authorities Code".[1]

B. Business parks in France

In France, a business park is an area specifically designed for the establishment of businesses. These areas are managed by the PICE since the promulgation in 2015 of the French law on the New Territorial Organisation of the Republic (NOTRe). Local communities and businesses must therefore form a partnership to achieve the economic growth in these zones. These areas tend to be located on the outskirts of major cities due to their proximity to transport infrastructure and under land pressure and lack of space. This implementation gives them a regional, national, or even international presence and access to jobs and services.

Created in response to the economic changes of the 1960s, business parks represent an innovative approach to the distribution of responsibilities with the aim of achieving a better balance of wealth. Key elements of their success include their ability to increase the area's attractiveness of the are to external economic actors (exogenous development) and to support nearby businesses (local development).

They can be divided into about ten categories: artisan zones (ZA), commercial zones (ZAC), industrial zones (ZI), logistic zones (storage and distribution of products), service activity zones, mixed zones (industrial, logistic, technological, commercial activities), port and airport zones, technological activity zones, specialised zones (specific industrial activities) and technopoles, which bring together companies, research centres and universities. Business parks vary in size from a few thousand square metres (craft zones) to several thousand hectares (the 7,000-hectare industrial and port zone at Fos sur Mer).

Business parks must meet standards of urban coherence and now play a role in the city, acting as a showcase to promote the city and the region, both in France and abroad. They now face

[1] LegiFrance, Code de l'urbanisme, Article L318-8-1, peut être consulté sur : https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043968264/2022-03-04

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the challenge of remaining attractive and competitive, but also compatible with sustainable urban development models. They will reach their full potential if they are integrated into a sustainable development plan, an essential aspect in the increasingly demanding process of environmental protection. This demand for quality will enable business parks to strengthen their role in the economy and convey a strong image to the companies located there and to potential investors.

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According to a 2007 study by the Ministère de l'Ecologie, de l'Energie, du Développement durable et de l'Aménagement du territoire (MEEDDAAT)[2], there were around 24,000 industrial zones and business parks in France, covering more than 10% of the country's territory. These zones were located in more than 12,000 municipalities. It should be noted that this estimate may be inaccurate and that the actual number of industrial estates and **business parks could be between 24,000 and 32,000**.

In order to facilitate the implementation of the "zero net artificialisation" objective, the Climate and Resilience Act now requires an accurate inventory of business parks to be drawn up by intermunicipalities within a specified timeframe. This inventory should be completed no later than 2 years after the promulgation of the law, i.e. no later than 21 August 2023.

According to a 2008 study by Oree, only a small number of industrial estates in France (less than 0.5%) have demonstrated good environmental management and sustainable development. This is evidenced by the fact that only about fifteen zones have obtained ISO 14001 certification and only one is registered under the Eco-Management and Audit Scheme (EMAS). In addition, only 50 to 100 zones are involved in Progress initiatives, which vary in ambition and structure from simple declarations of good intent to comprehensive strategies for continuous improvement in sustainable development.

As cities have developed, workplaces and places of activity have become increasingly important. Initially located in or near urban centres, the need for space, resources (especially energy) and efficient infrastructure, as well as the potential negative impact on the surrounding area, has led to a move away from such locations.

This trend was particularly evident during the post-war period of industrial expansion, which led to the creation of numerous business parks, often associated with the conversion of mining industries. These business parks, often located in close proximity to each other, tend to disrupt the natural landscape as they are often built on the agricultural land closest to urban areas, resulting in land fragmentation. While these industrial estates are often seen as a constraint, they also represent important opportunities for the development and attractiveness of the region. In the past, the cost of land was the main consideration for businesses when choosing a location, but today factors such as the quality of space, facilities and services on offer, as well as the environment and sustainable development, are just as important. Each business park has its own characteristics, such as proximity to the city, compatibility with the intended use and transport links, as well as factors relating to the surrounding environment, such as landscape, architectural quality and environmental impact. The wellbeing of the people who use the park, including employees, employers and visitors, is also a key consideration.

Some business parks do not have a positive image. For example, logistics zones are often associated with a poor image for a variety of reasons: the amount of traffic generated by the activities, the risk of pollution, the negative impact on the environment, etc. Furthermore, "obsolete" business parks can cause a number of problems, such as: poor transport links, the presence of industrial wasteland and/or vacant buildings that are difficult to bring back onto

[2] Grenelle de l'environnement, Groupe 6 : Promouvoir des modes de développement écologique favorable à la compétitivité et à l'emploi, 2007. Peut être consulté sur : http://www.oree.org/docs/evenements/grenelle/gt-6-observatoirepa-2.pdf

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the market after companies have left, the obsolescence of business premises (mainly warehouses affected by standardisation constraints), the weakening of certain areas, environmental degradation, lack of security, etc.

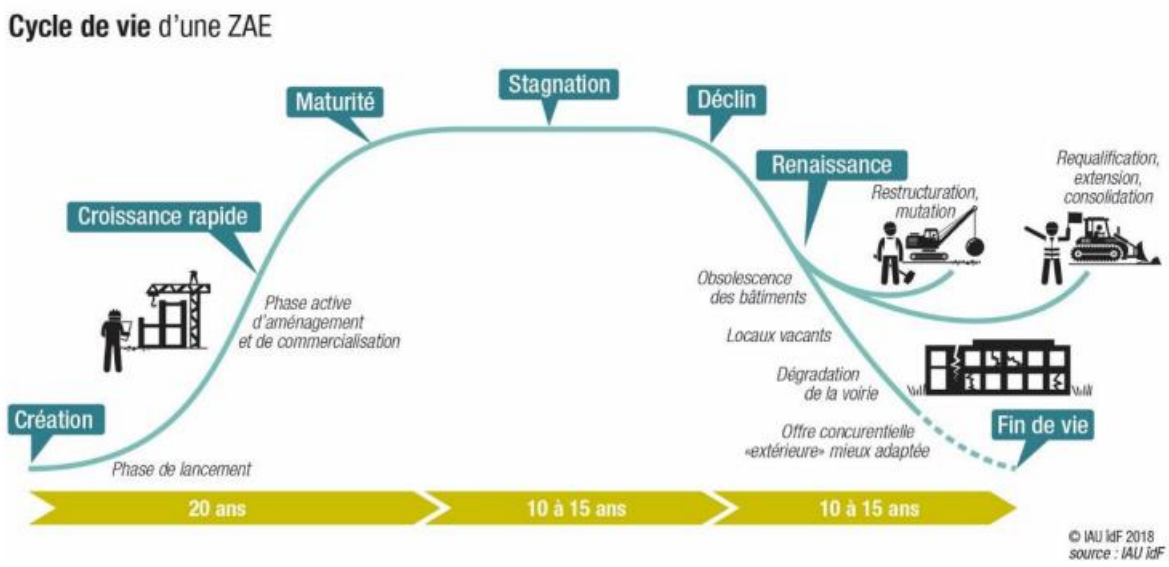

Figure 1 - Life cycle of a business park

After the age of 35, the ZAE begins to decline, with a loss of attractiveness due to dilapidated buildings, deteriorating roads, lack of services for companies and employees, and so on. Aging and unattractive business parks are no longer able to fulfil their original purpose: to provide the best possible working conditions for companies and their employees. And yet some areas continue to expand without considering the new challenges of the energy transition. Unlike

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cities and large companies, business parks and the SMEs located within them are lagging behind and need to reinvent themselves.

Business parks need to understand the stakes involved in the ecological transition. In France, this transition is increasingly rooted in regulation:

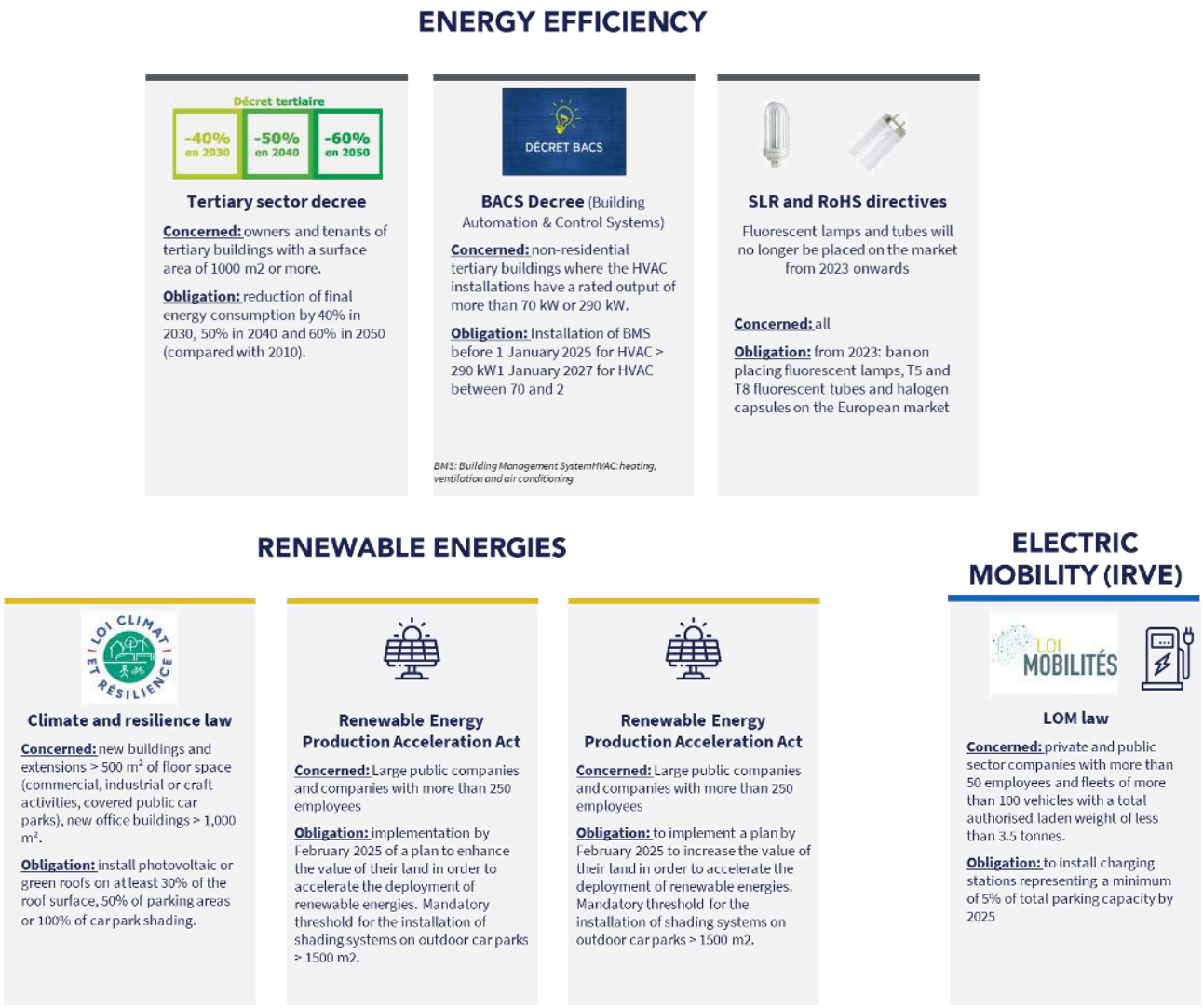

Figure 2 - Main regulations related to energy for SMEs

III. Data collection

A. Comparison of quantitative date by area

Data collected from public reports by local authorities, regions, etc.

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	Ile de France	Bretagne	PACA	Rhône	Rhône (Communauté de commune du Pays de l'Ozon)
Data	Regional	Regional	Regional	Departmental	Intercommunality
Number of business parks	1,422	1,587		414	19
Number of businesses per business parks		An average of 31 establishments per business park	51,200 establishments in total		
Number of SMEs				159/414=38.4% of businesses are SMEs	
Total surface area of business parks	31,722 ha	27,717 ha		4,239.9 ha	402.4 ha
Surface area of a business park	31,722ha/1,422 business parks = 22,3 ha per business park in average	27,717 ha/1,587 business parks = 17.5 ha per business park in average	Surface PACA Between 7 and 56.8 ha i.e., 29ha per business park in average	4,239.9 ha/414 business parks = 10.2 ha per business park in average	402.4/19 business parks = 21.2 ha per business park in average
Share of business parks per size	- 51.3% of business parks of less than 10 ha - 32.4% of business parks between 10 and 40 ha - 16.3% of business parks of more than 40 ha	6% business parks of more than 100 ha	- 57% of business parks of less than 10ha - 3% of more than 100ha		
Jobs	50 jobs/ha	450 jobs/business park 450/17.5 ha = 25 jobs/ha Major territorial disparities	15 jobs/ha	70,172 jobs in business parks 16.5 jobs/ha	5,782 jobs in business parks 14.37 jobs/ha
Types of zones	**Mixed (predominant)** Tertiary Logistics Industrial	% of areas with dominant: **36% mixed zones (predominant)** 22% craft industry 19% industrial and logistics 10% tertiary 10% commercial	**Mixed (predominant)** Breakdown of business activities: 17% retail trade 17% wholesale / logistics 29% industry / construction 29% business services 8% personal services		Breakdown of business activities: 6% other services 17% business services, finance, real estate 10% transport, logistics 10% retail trade 19% wholesale 14% construction 23% industry, energy, environment

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For the Ile-de-France region, some illustrations of the age of business parks and buildings were available, allowing a better overview and understanding of the territory (see Figure 3 below).

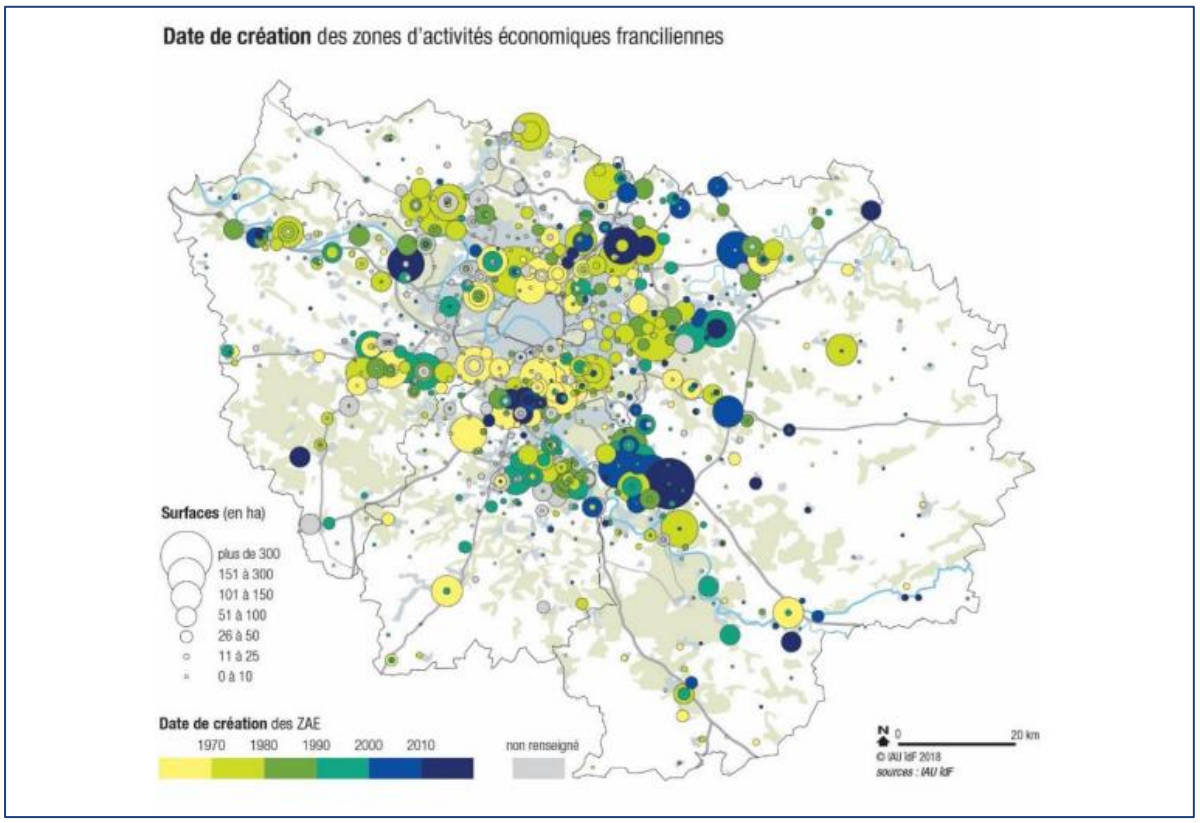
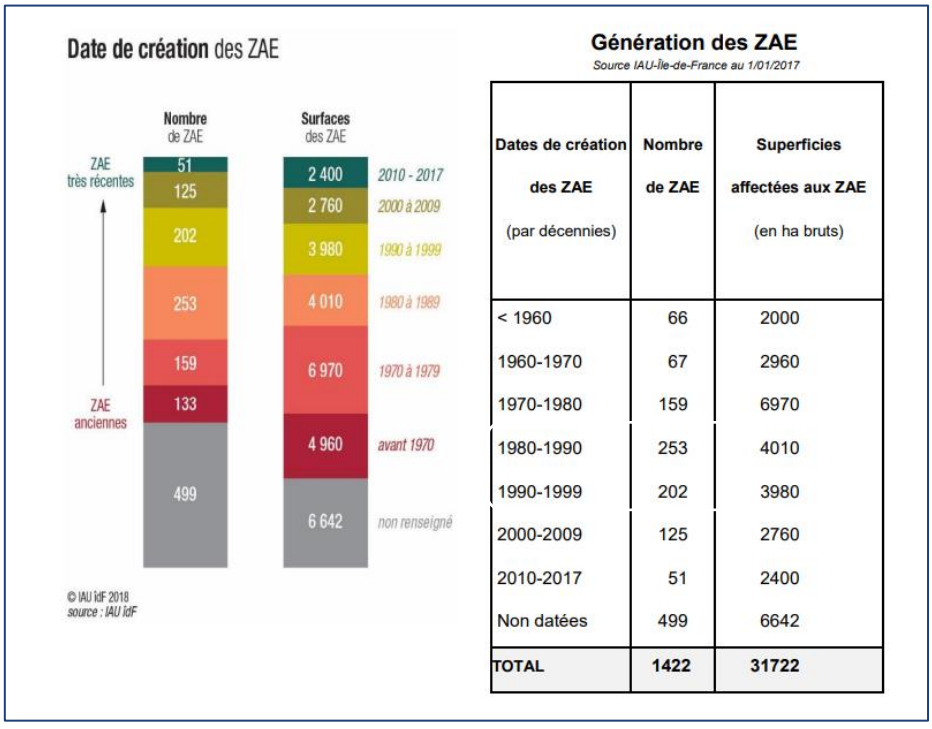


Figure 3 - Date of creation of business parks in the Paris region



Génération des ZAE

Source IAU-île-de-France au 1/01/2017

Dates de création des ZAE (par décennies)	Nombre de ZAE	Superficies affectées aux ZAE (en ha bruts)
< 1960	66	2000
1960-1970	67	2960
1970-1980	159	6970
1980-1990	253	4010
1990-1999	202	3980
2000-2009	125	2760
2010-2017	51	2400
Non datées	499	6642
TOTAL	**1422**	**31722**

Figure 4 - Date of creation of business parks and generation of Ile-de-France business parks

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In terms of age, most of the business parks in Ile-de-France were built between the 1970s and 2000s.

Un cycle de renouvellement des ZAE important et un potentiel de mutation élevé

Années de création	Nbre de ZAE	Surface Brute Totale	Surface cessible	Surface commercialisée	Surface disponible
< 1960	66	1999	1735	1726	9,53
1960-1969	67	2957	2375	2339	36,45
1970-1979	159	6972	5382	5234	148,1
1980-1989	253	4014	3192	2983	208,9
1990-1999	202	3983	2678	2353	324,7
2000-2009	125	2763	2011	1324	686,7
2010-2017	51	2395	1365	507,4	857,9
Total	**923**	**25083**	**18738**	**16466,4**	**2272,28**

Source IAU-Île-de-France au 1/01/2017

Figure 5 - A major business parks of Ile-de-France renewal cycle and high potential for change

Business parks built between the 1970s and 2000s are larger than others, as shown in Figure 5. They represent almost 60% of the total area of business parks in Ile-de-France.

B. Business parks database (OpenStreetMap)

There is currently no public database of business parks at the scale of France.

LIFE CirculEnergies decided to use OpenStreetMap©, an open geographic database updated and maintained by a community of volunteers. The business parks are area objects, which are given a name (not systematically) and displayed on the map with a pink colour. Below is an example of the "ZI Les Perruches" industrial estate:

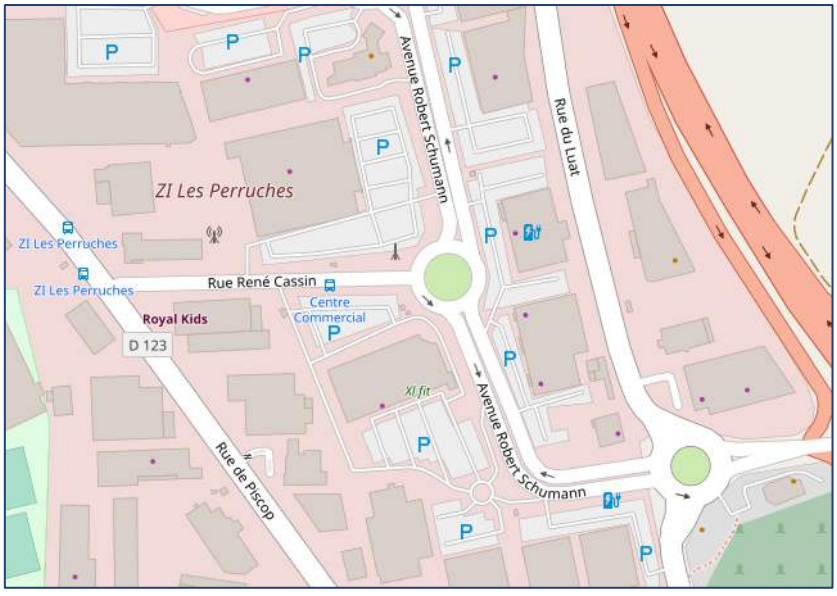

Figure 6 - Example of a business park on OpenStreetMap

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In OpenStreetMap database (September 2023), there are 2,343 areas tagged as activity areas in Brittany region which is a consistent and relevant number compared to the 1,587 business parks in the FNAU report (2017).

The cars parks and Charging Stations are also tagged on OpenStreetMap and are used for this study.

C. SIRENE database

To analyse the mapping of SMEs in business parks, we used the SIRENE database with geolocation information provided and updated by INSEE (see references). The detailed steps of this study are as follows.

1. Collect the list of legal information (SIRENE database) for businesses (filter SME or all sizes) at the level of an intercommunality (https://www.sirene.fr/sirene/client/recapitulatif-fichier.action)
2. Search for keywords (Pole, Zone, Park, Activity, ZA, ZI, ZAC, ZAE) in the fields "complementAdresseEtablissement" and "libelleVoieEtablissement".
3. Using the results of step 2, compile a list of the names of the business parks and compare them with the toponymy on OpenStreetMap.
4. Create a table listing the industrial estates by size and category of activity (based on the NAF v2 code registered in the SIRENE database).

Through a spatial correlation with the OpenStreetMap activity areas, CirculEnergies was able to estimate some key information for this market study:

- Total number of companies per industrial estate
- Total number of SMEs per business park
- Average % SME per industrial estate

The table below shows these 3 criteria from 12 départements.

Department	Ain	Alpes-Maritimes	Charente-Maritime	Finistère	Gers	Ile-et-Vilaine	Meurthe-et-Moselle	Morbihan	Oise	Pyrénées-Orientales	Var	Val-d'Oise	Total
Number of communities of municipalities analysed	1	7	1	2	16	1	15	1	1	1	14	11	71
Number of municipalities with business parks	13	52	16	14	55	32	80	26	5	17	67	75	452
Number of business parks identified	18	288	36	55	106	109	132	81	6	39	155	184	1209
% Commercial business parks	17%	20%	14%	15%	25%	10%	17%	5%	33%	3%	15%	29%	17%
% tertiary business parks	50%	78%	86%	96%	74%	88%	73%	84%	83%	87%	80%	82%	80%
Total number of companies by business park	425	1958	1159	1125	1083	2528	1546	4548	67	1431	4986	2289	23145
Total number of SMEs by business park	301	1334	746	645	726	1461	1546	2966	29	849	4986	1610	17199
Average % SME / business park	71%	68%	64%	57%	67%	58%		65%	43%	59%		70%	62%

Figure 7 - LIFE CirculEnergies business parks analysis (extract)

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IV.Data Analysis

Here is what we learned from the study of public reports:

A. Area of an industrial estate

The average size of an industrial estate varies from region to region. In the PACA region, for example, the average size of an industrial estate is higher (29 ha) than in the other regions surveyed. This can be explained by the greater availability of land due to the structure of the region. On the other hand, a large majority (around 4/5) of the business parks in the Ile-de-France region have a surface area of less than 40 ha. This could be explained by the high population and building density. In these two regions, 30% of the business parks are between 10 and 40 ha, which seems to be the norm.

B. Jobs per hectare

The number of jobs per hectare is fairly similar (between 15 and 25 jobs/hectare) depending on the region, department, etc. However, Ile-de-France stands out with a number of jobs per hectare that is twice the average (50 jobs/hectare). This can be explained by the densification of space in the Ile-de-France region, which is linked to the cost of land.

C. Types of zones

Today, mixed zones predominate in the regions studied. Figure 8 illustrates this with grey dots: mixed zones bring together several activities and promote their joint development and sustainability.

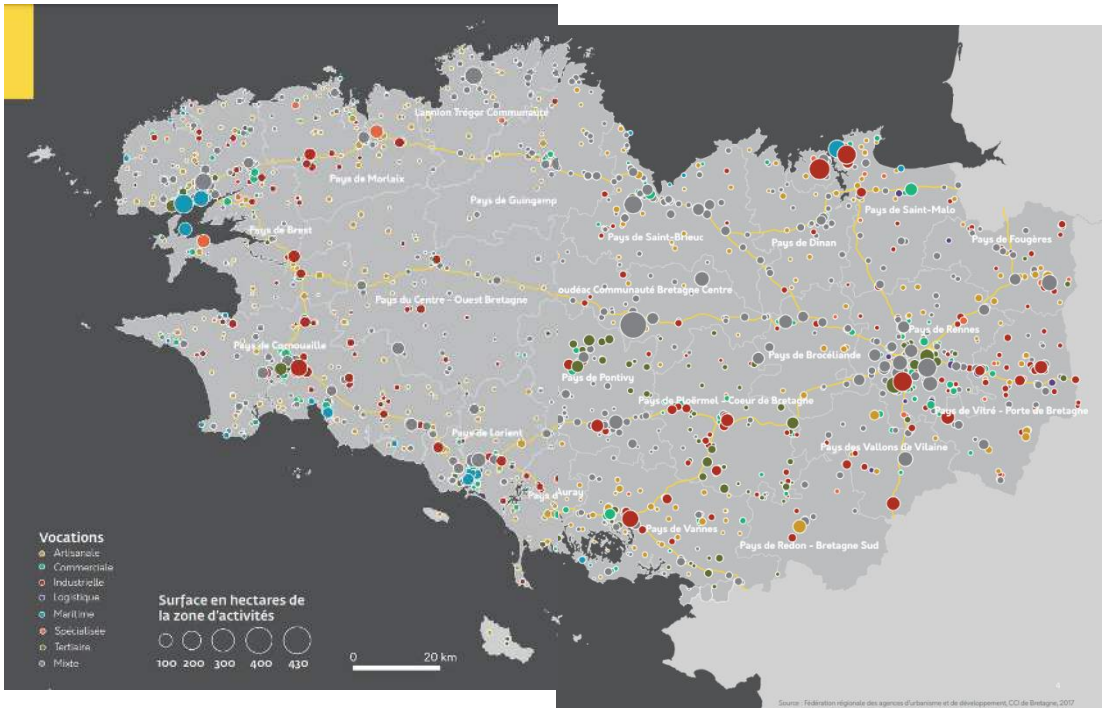

Figure 8 - business park types in Bretagne

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Looking at OpenData, commercial and tertiary business parks represent on average 17% and 80% of business parks respectively. The departments in the north of France (Oise 33% and Val d'Oise 29%) seem to be more commercial than the rest of France:

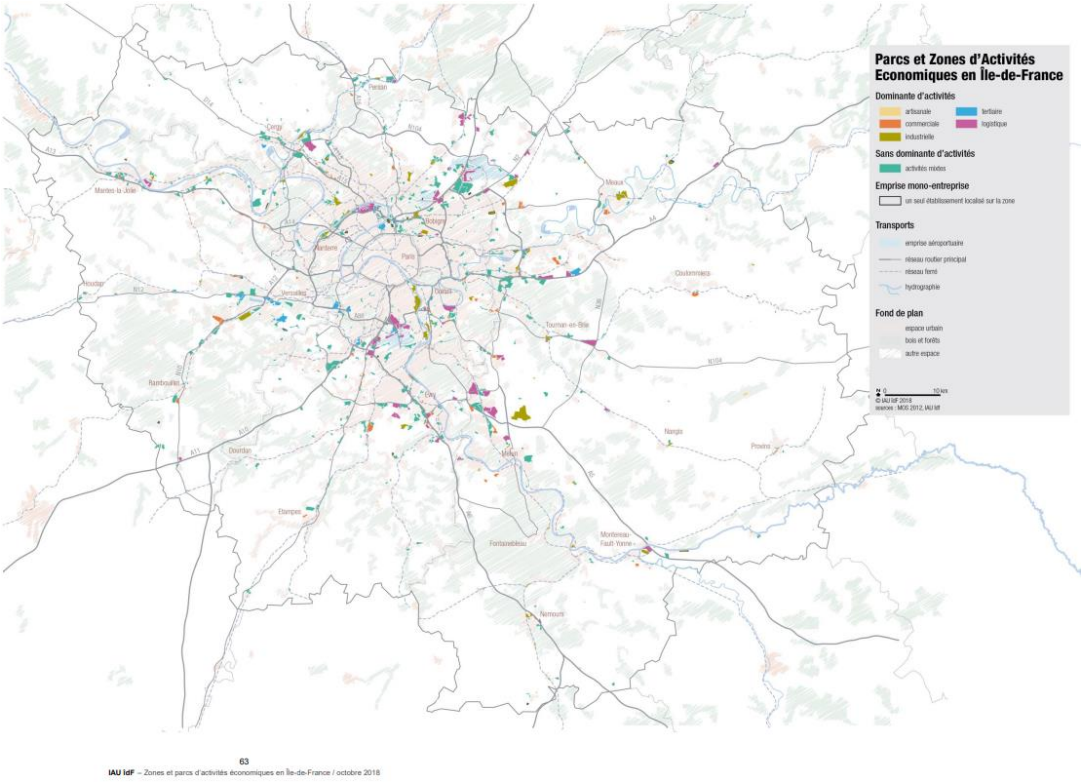

Figure 9 - Business park types in Ile-de-France

D. Average % of SMEs by industrial estates

Based on the analysis of the public reports, it can be concluded that the average percentage of SMEs per business park is 62%. In the Rhône study, only 38% of SMEs were found, which could be explained by the fact that it is mainly an industrial area.

LIFE CirculEnergies has also carried out the analysis on a sample of the 839 largest business parks (based on the number of companies registered in the INSEE database within the area) in the Brittany region, tagged in OpenStreetMap and correlated with the SIRENE database. In order to simplify the analysis, the business parks have been classified into four categories:

- Tertiaire = predominance of tertiary activities
- ZI = predominance of industrial activities
- Z.A. = "Zone Artisanale"
- ZAC = predominance of commercial activities

See below the mapping of the sample of 839 industrial estates that has been analysed:

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Département	Nb inhabitants (in 2020)	Density (inhab./km²)	TOTAL nb of ZAE (sample)	Tertiaire	ZI	Z.A.	ZAC
D22 - Côtes-d'Armor	603 640	88	130	7	58	11	54
D29 - Finistère	917 179	136	230	36	83	16	95
D35 - Ille-et-Vilaine	1 088 855	161	301	57	121	12	111
D56 - Morbihan	764 161	112	178	21	87	14	56
TOTAL :	3 373 835		839	121	349	53	316

Figure 10 - LIFE CirculEnergies business parks sample table

The table below analyses the distribution of business parks by department and typology.
It can be noted that:

- The average %SME is in each case between 50% and 70%.
- The density of SMEs is highest in the industrial zone (ZI) (average between 38 and 51).
- There is a significant difference in the density of tertiary SME between the departments.

% SME :	D22	D29	D35	D56
Tertiaire	60%	58%	54%	67%
ZI	55%	58%	56%	62%
Z.A.	61%	62%	63%	65%
ZAC	58%	54%	58%	61%
Average number of PME by ZAE	D22	D29	D35	D56
Tertiaire	17	28	63	68
ZI	51	38	49	40
Z.A.	20	29	23	47
ZAC	24	31	35	47

Figure 11- LIFE CirculEnergies analysis on business parks sample

E. Access by Transport

Most areas are well served by transport, being close to major roads (motorways, regional and departmental roads, etc.) but not necessarily by soft mobility.

As far as road access is concerned, the attractiveness of business parks depends on the type of roads used to access them. Areas close to the motorway are indeed more attractive than those that have to cross urban areas to be accessed.

According to the study carried out by L'agence de développement et d'urbanisme du Pays de Montbelliard, business parks are very accessible from the motorway. Only 3 of the 41 zones are more than 20 minutes away from a motorway junction. More than half of the business parks are less than 5 minutes from the motorway. This road accessibility also provides efficient access to other structuring modes of transport, such as the Belfort-Montbéliard TGV station and the Euroairport Basel-Mulhouse, which can be reached in between 50 and 70 minutes.

Public transport to business parks is more varied. Only 8 areas in the Pays de Montbéliard are served by a structuring line of the network and 6 by a conventional line. This means that two

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thirds of the business parks are not directly served by urban transport. This is a handicap for the more inaccessible areas.

F. Access to EVSE

The number of installed EVSE was analysed in the sample of 839 business parks (Brittany region).

The percentage of business parks (per departement and typology) equipped with at least one EVSE is shown below.

It is worth noting that:

- Tertiary industrial areas are the best equipped, but without complete coverage (between 10% and 43%).
- Industrial (I) and artisanal (A) areas, mostly on the outskirts of urban centres, are the least equipped with EVSE equipment (between 0% and 14%).

	D22	D29	D35	D56	Average
Tertiaire	43%	14%	18%	10%	21%
ZI	14%	13%	13%	10%	13%
Z.A.	9%	6%	0%	7%	6%
ZAC	24%	27%	23%	21%	24%
Average	22%	15%	14%	12%	

Figure 12- LIFE CirculEnergies - EVSE analysis on business parks

G. Age of industrial estates

Little information available in the reports, but information can be obtained from mapping. Most of the business parks and buildings in Ile-de-France are old (Figures 3 and 4).

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V.Conclusions and recommendations

This study has led to the following conclusions and recommendations.

A. General conclusions

1. Throughout our research, we realised that there was an obvious lack of studies and information on business parks, which made it difficult to gather information that could be useful for the development of our project. As part of the Climate and Resilience Act, an accurate inventory of business parks had to be made by 21 August 2023. Intercommunes will therefore be able to provide this type of information. Moreover, thanks to the LIFE CirculEnergies project, we will be able to collect more information directly from the actors to complete the existing data.

2. It is difficult to find information on European industrial parks because the names are not the same from one country to another. It would be interesting to go further and study the issue in Europe.

B. Conclusion on business parks

1. All regions are different (economic context, historical choices, etc.), which makes it difficult to have a pattern. The project must be adapted to the specificities of the places where business parks are located.

2. As most business parks are surrounded by roads, people usually come by car, which makes the development of electric charging stations even more interesting. Our analysis of the Brittany region shows that ZAE are still under-equipped with EVSE infrastructure (between 0% and 43%). All types of ZAE are affected by this lack of equipment and can be targeted by the LIFE CirculEnergies project.

3. There is a majority of mixed business parks with many different types of companies. There is a need to offer solutions that can be adapted to each type of company and that can address all companies at the same time.

4. There are many SMEs in business parks, more than 50% in each of the regions studied. This confirms that there is a wide range of companies that could potentially be targeted by the LIFE CirculEnergies project. Our studies on the Brittany region show that an interesting number of SMEs is concentrated in tertiary ZAE of urbanised areas and industrial areas (on each department), which can constitute a prior target for the LIFE CirculEnergies project.

5. Medium-sized industrial estates predominate (between 10 ha and 40 ha). This means that there is a sufficient number of companies within them to create synergies between them and to make decisions at the business park level, without being too complicated.

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6. ZAEs over 35 years old are obsolete buildings and those over 50 years old are at the end of their life cycle.

C. LIFE CirculEnergies lessons learned

1. Older buildings allow for energy efficiency projects due to the need for renovation. This makes it easier to incorporate energy management projects than in new buildings.

2. Large roofs and car parks allow projects to produce and use renewable electricity in a short cycle. In fact, it is possible to install solar panels on roofs or shades on large surfaces rather than small ones.

3. Older industrial estates often have large areas of buildings and car parks, which are much sought after by local authorities to increase the density of their industrial estates. Indeed, land has become expensive and scarce, and regulations are tending towards less spacious business parks (environmental regulations, zero net artificialisation, etc.).

4. Business parks that are not well served by public transport can expect e-mobility projects to improve access to their sites.

5. All the available information gives a good first overview of the zones, but it seems that the LIFE CirculEnergies project will have to work case by case.

At the end of this study, with the data available to us so far, here is the ideal approach to take in the search for ZAEs suitable for CirculEnergies experiments: we give priority to business parks with mixed zones, of medium size (10 ha to 40 ha) and that have been in existence for over 35 years.

VI. To continue this study

Thanks to the work of LIFE CirculEnergies with the intermunicipalities, it will be possible to gather more information, such as:

- Age of industrial parks
- Dynamics of business parks
- Number of business parks per area and total area occupied, land (area, % occupied, land price). This information is key to the success of the project, as it can help to estimate the potential reach of LIFE CirculEnergies on the zones
- Estimate the energy consumption of the different business parks

A V.2 of this study will be carried out later to provide more details on the above issues.

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VIII. Appendix

A. Types of zones of interest for market research

This study will focus on all the types of business parks with a particular interest for commercial, service and craft activity zones.

- **Retail business parks**

Within these business parks, retail space makes up a significant proportion and is referred to as commercial urbanism. These areas often originate from a single commercial establishment which then attracts other commercial businesses. The organisation of these areas can be significantly influenced by commercial development.

- **Tertiary activity areas**

These areas are mainly made up of service businesses located in offices.

- **Craft zones**

This zone is reserved for small craft and manufacturing businesses. It allows the coexistence of several companies with different activities in the same area.

- **Port and airport zones**

Imports and exports to the region pass through these zones. They are generally isolated from towns and are located near or within a port or airport base. They are the largest in terms of area.

- **Industrial zones**

These areas are reserved for industry (factories, warehouses, etc.).

- **Logistics zones**

These areas are usually located near road junctions and interchanges. They must be easily accessible for heavy goods vehicles and allow for the storage and distribution of products. These zones cover large areas.

- **Technology business parks**

These are newer zones, usually focused on nanotechnology or IT. The aim is to bring together complementary businesses.

- **Technopoles**

These areas are essentially made up of structures dedicated to scientific development, research and production (laboratories). They bring together medium-sized companies in a high-quality environment.

- **Mixed zones**

Mixed zones are areas that can combine different functions (industry, technology, logistics, retail, etc.) and are generally located at the entrance to agglomerations.

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