

FOCUS CENTRE BASSIN DE PARIS

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ENJEUX TERRITORIAUX



H2020-LC-SC3-NZE-3-2018: Strategic planning for CCUS development (CSA)

STRATEGY CCUS - STRATEGIC PLANNING OF REGIONS AND TERRITORIES IN EUROPE FOR LOW-CARBON ENERGY AND INDUSTRY THROUGH CCUS

French partners (3 partners of 17)



Coordinator



<https://www.strategyccus.eu/>

H2020-LC-SC3-NZE-6-2020: Geological Storage Pilots (RIA)

PilotSTRATEGY- CO2 GEOLOGICAL PILOTS IN STRATEGIC TERRITORIES

French partners (5 partners + third parties of 16)



Coordinator



<https://pilotstrategy.eu/>

ENJEUX TERRITORIAUX

Quick look of French emissions

Data from IREP 2018:

1. 944  → 118 Mt of CO2

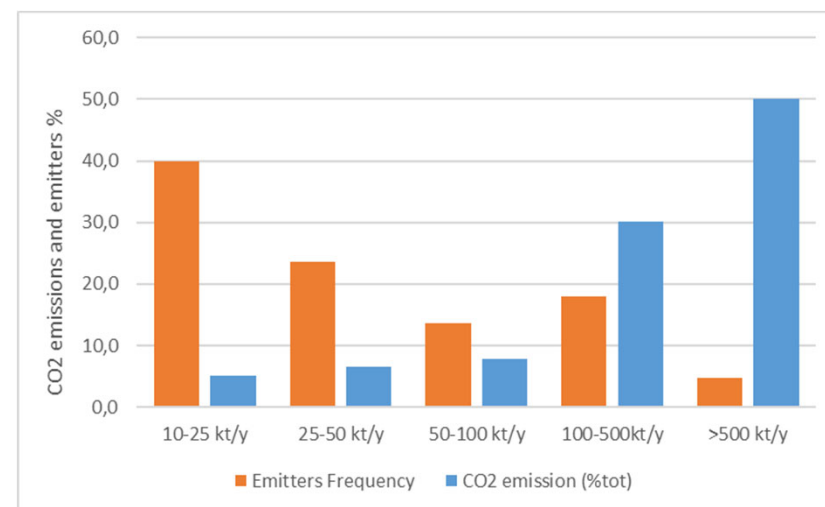
2. 50 % (59 Mt of CO2)

low-medium emitters (10-500kt)

899  (95%)

3. Waste to Energy : 148  ~13 Mt

4. Cement (+lime): 49  ~14 Mt



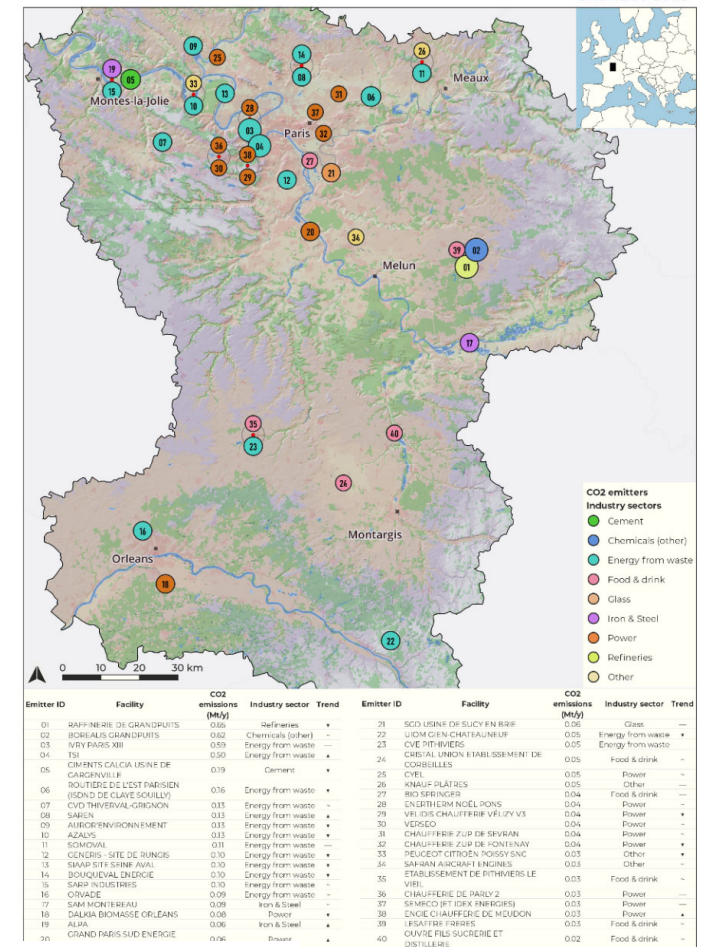
Frequency of emitters (%) and their emission amount (%)

Enjeux territoriaux

Objectives – Paris Basin:

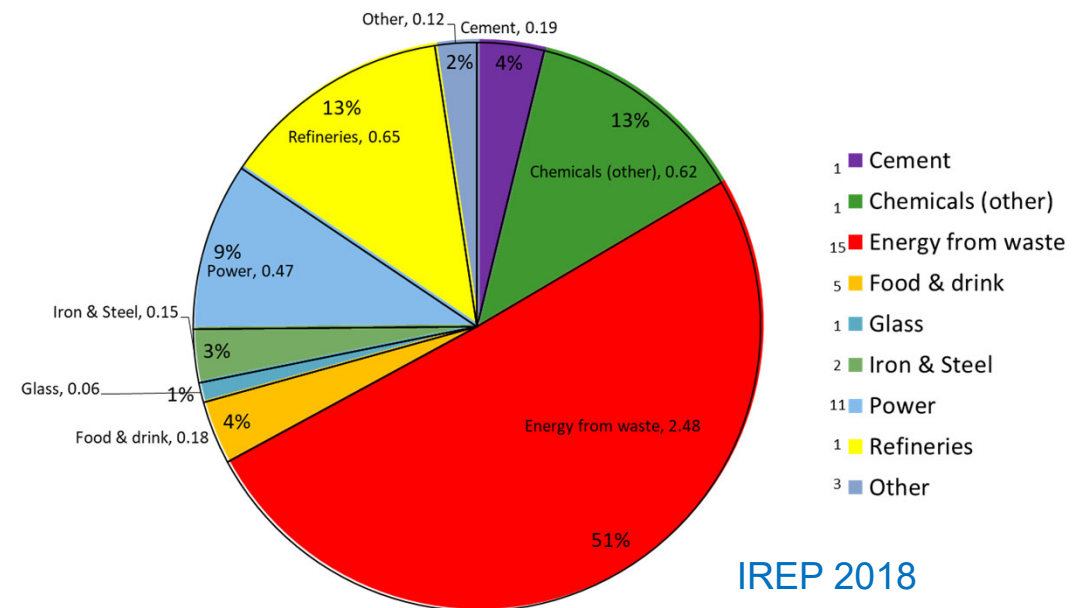
1. Local CCUS plans: local business models 2030, 2040 and 2050
 - based on technical aspects
 - emission+storage+transport+ETS+CO2 uses
 - societal aspects: Regional Stakeholder Committees, surveys
2. Long-term evaluation of emissions
3. Following SNBC Stratégie National Bas Carbone

Paris basin | Emitters



STRATEGY CCUS – Paris Basin

- Ile de France and Loiret
- 40 sources selected in the STRATEGY CCUS
- Accumulated emissions: 6 Mt/y in 2019
- small emitters - widespread around Paris town
- 6 emitters > 350 Kt/y in 2019
 - Refinery at Grandpuits (FR1.ES.1): 541 kt/y
 - being converted to renewable diesel and bioplastic production by 2024
 - Fertilizer plant at Grandpuits (FR1.ES.2): 646 kt/y
 - Waste incineration plants in
 - Saint-Ouen (416 kt)
 - Ivry : 572 kt/y (FR1.ES.003)
 - Issy-les-Moulineaux: 384 kt/y (FR1.ES.004)
 - Heating installations in Saint-Ouen (522 kt/y)



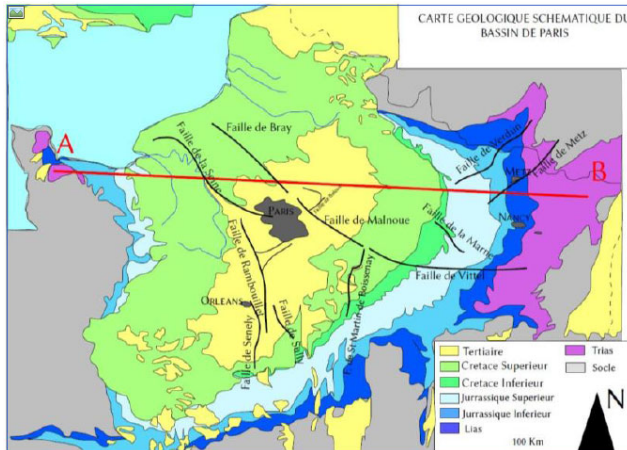
2018 reported CO2 emissions : 4.9 Mt/y

2018 Reported CO2 emissions from biomass : 0.7 Mt/y

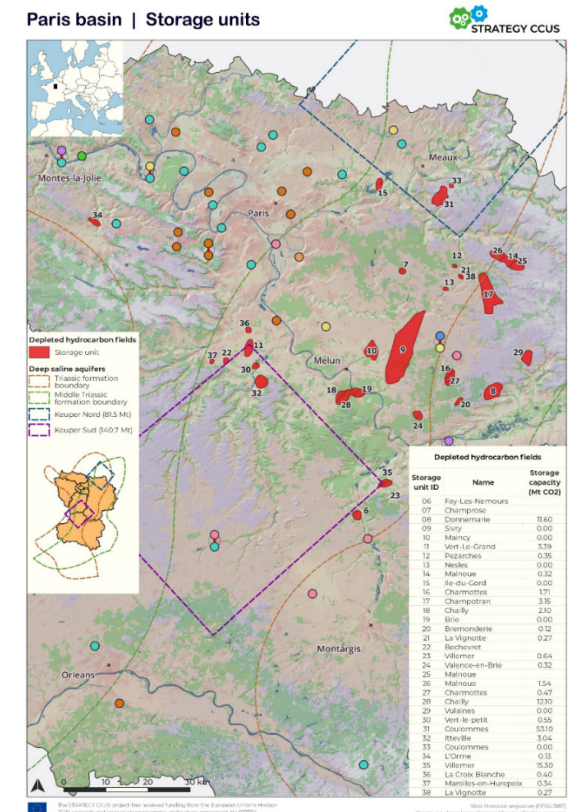
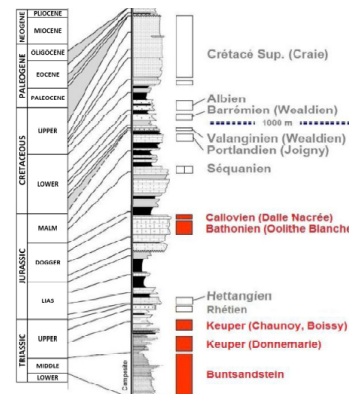
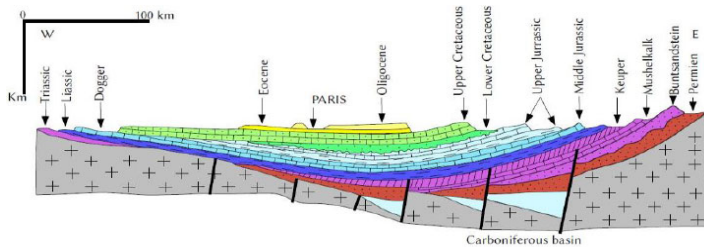


STRATEGY CCUS – Paris Basin

Large Storage Capacity



- The Paris Basin **largest onshore French sedimentary basin**
- Deep Saline Aquifers (DSA): 220 Mt as Tier2 (more than 1 Gt as Tier 1)
- Depleted Hydrocarbon Fields (DHF): 111 Mt as Tier 2



Stakeholders Group view (STRATEGY CCUS)

Composition

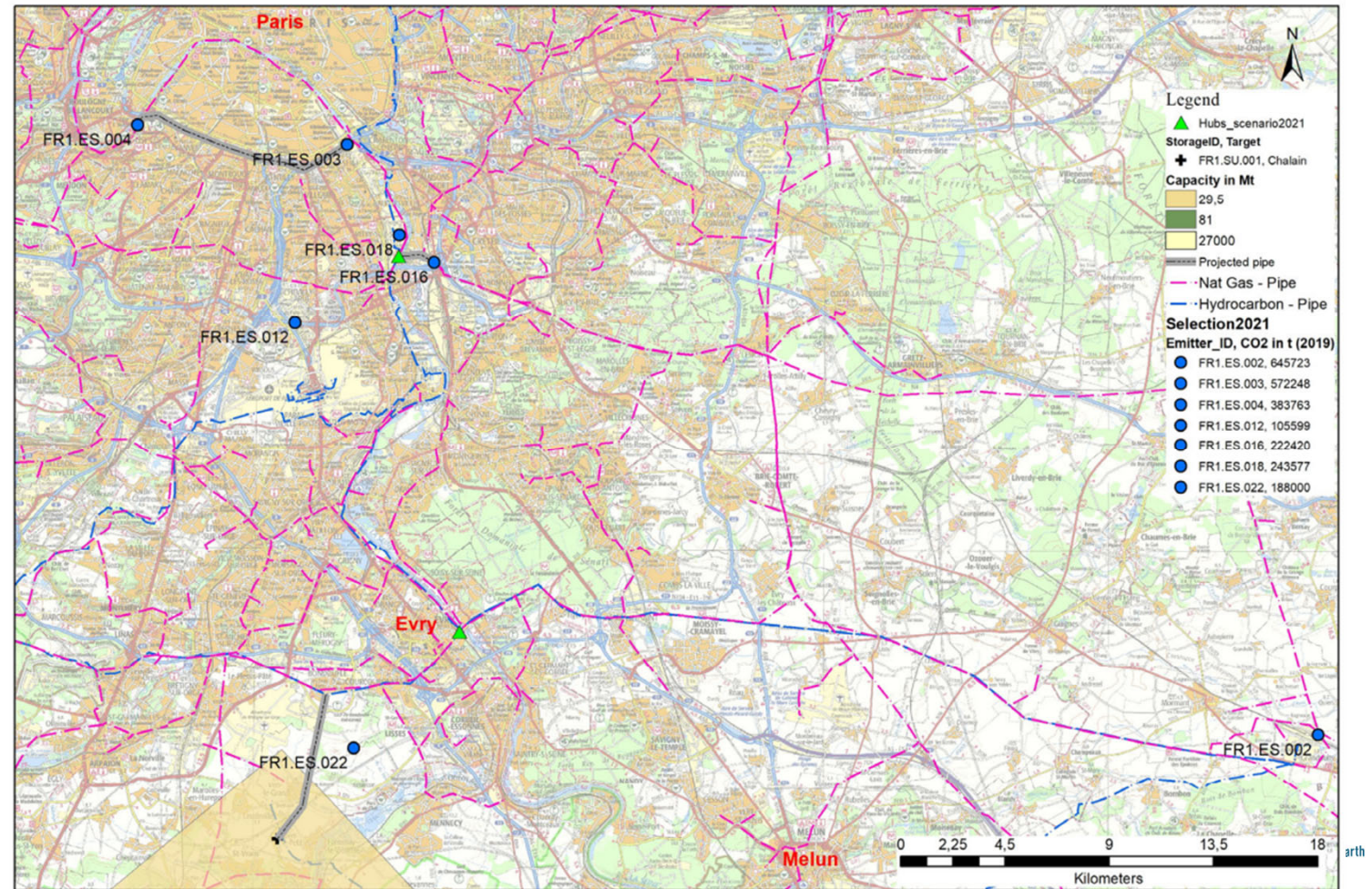
- Administration (DREAL, DRIEEE), ministère (DGEC)
- Industrie (énergie, environnement, déchets, chimie,...)
- Associations
- BE énergie/environnement, acteur sous-sol

- 1^{ère} réunion du comité: point de vue *a priori* des parties prenantes sur la technologie CCUS et sur son développement dans le bassin de Paris
- 2^{ème} réunion du comité: retour des parties-prenantes sur les scénarios en cours de développement par les équipes STRATEGY CCUS

- Drivers: storage potential of the geological formation, and existence of an "ecosystem" for subsurface utilities: geological knowledge (wells in operation), industrial skills (drilling companies...).
- Barriers: economic feasibility, environmental impact (LCA and energy), governance, social acceptability

STRATEGY CCUS – Paris Basin

Emitters, storage units, pipelines and projected hubs to collect CO₂ for the main CCS scenario of Paris Basin

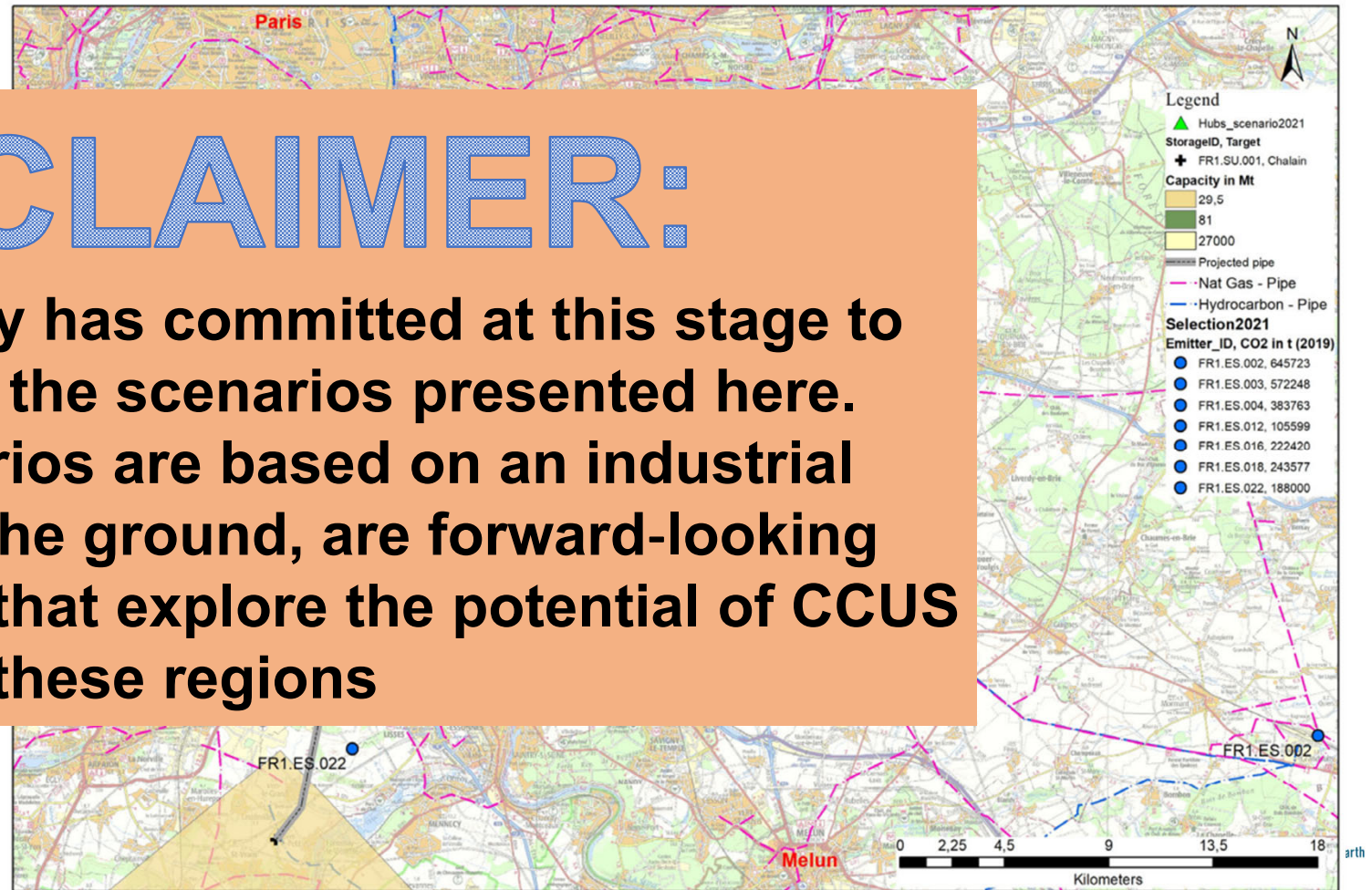


STRATEGY CCUS – Paris Basin

Emission
units,
project
collect
main C
of Par

DISCLAIMER:

No industry has committed at this stage to implement the scenarios presented here. The scenarios are based on an industrial reality on the ground, are forward-looking scenarios that explore the potential of CCUS in each of these regions



STRATEGY CCUS – Paris Basin

Scénario Bassin de Paris: court-moyen terme (2027-2035)

• Captage

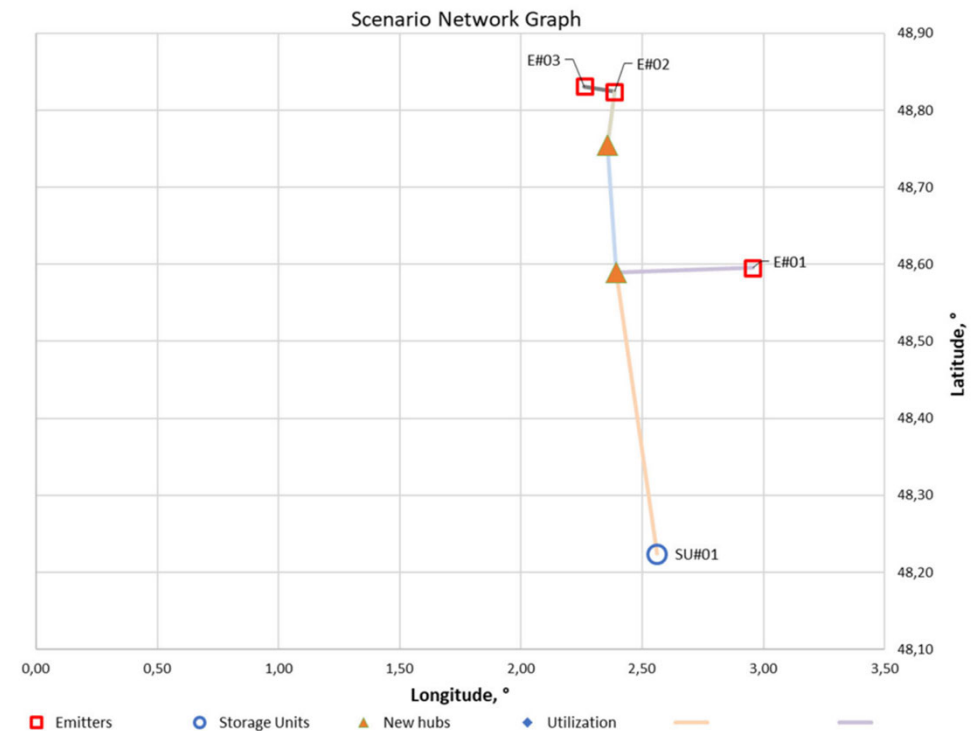
Emitter	Type	Location	CO2 emissions in 2019 (kt)	Considered annual CO2 emissions (kt)	Capture rate	Captured CO2 (kt/y)	Start capture year	Cumulated CO2 captured by 2035 (Mt)
E#01 (FR1.ES.002)	Chemistry	Grandpuits	646	350	Not applicable	350	2027	3,15
E#02 (FR1.ES.003)	Energy from waste	Ivry-sur-Seine	572	300	85%	255	2030	1,53
E#03 (FR1.ES.004)	Energy from waste	Issy-les-Moulineaux	384	384	85%	326	2032	1,30

• Transport

- Construction nouveaux pipelines
- Manque d'information sur d'éventuels abandons de gazoducs et oléoducs
- Création de 2 hubs

• Stockage

- Aquifère de Chailan (Keuper) → France Nord project



STRATEGY CCUS – Paris Basin

Scénario Bassin de Paris: long terme (2035-2050)

• Captage

- Emetteurs du scénario CT-MT
- +Emetteurs supplémentaires sur le trajet:

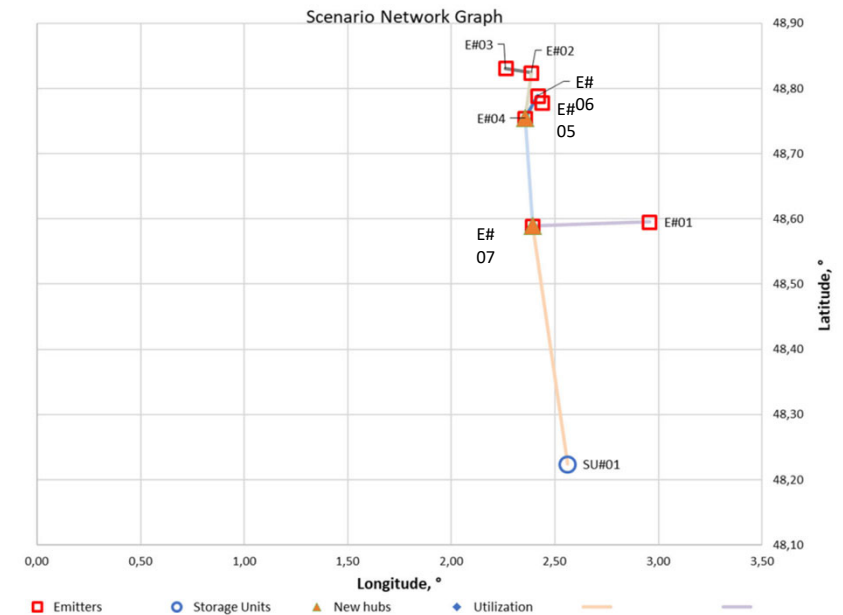
Emitter	Type	Location	Capacity per year	Production / Incineration	CO2 emissions in 2019	Planned capture start
E#04	Energy from waste	Rungis	150 kt of waste	114 kt of waste (2020)	106 kt	2036
E#05	Energy from waste	Créteil	244 kt of waste	220 kt of waste (2018)	222 kt (239 kt in 2018)	2037
E#06	Heat and power	Vitry-sur-Seine	NA	NA	243 kt	2038
E#07	Energy from waste	Vert-le-Grand	241 kt of waste	209 kt of waste (2019)	188 kt (2018)	2036

• Transport

- Construction d'1 nouveau pipeline

• Stockage

- Aquifère de Chailan & Grès Int (Keuper) → France Nord project

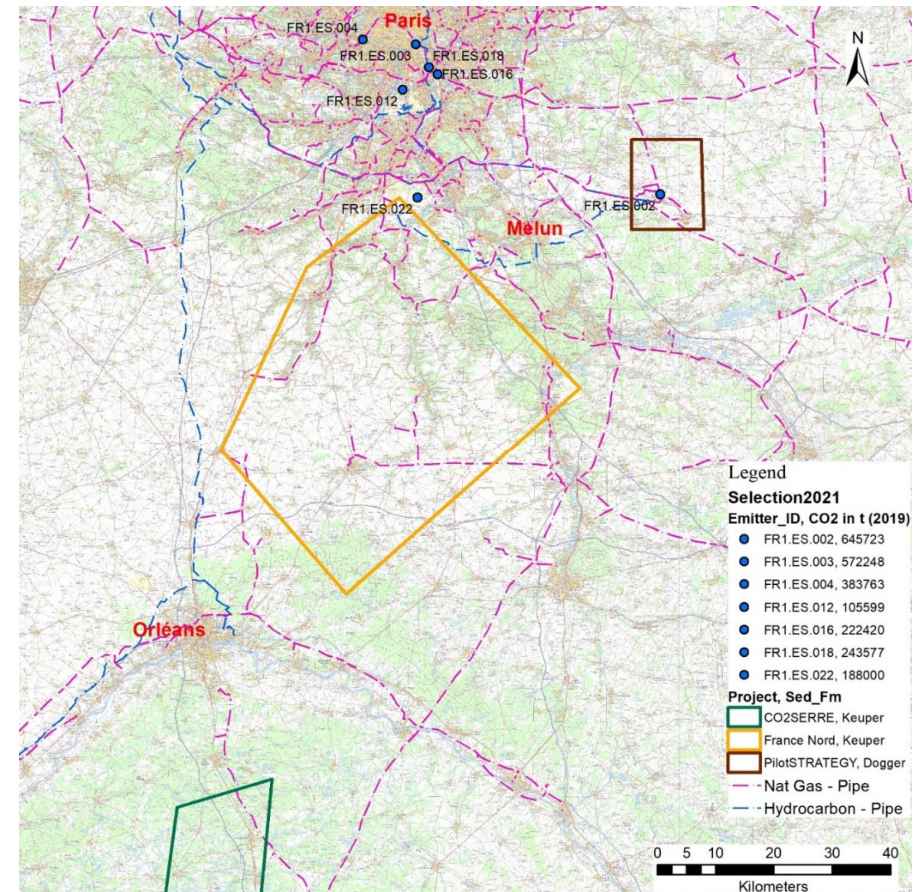


Enjeux territoriaux

Objectives – Paris Basin:



1. Full characterization of the storage complex
 - CO2 storage pilot in DSA Deep Saline Aquifers resources (EC directive)
 - site's containment, injectivity, capacity, integrity, hydrodynamics, and monitorability (new data: 3D seismic)
2. to ensure safe and permanent storage of CO2
3. Ready for the Final Decision (pre-FID phase): Pre-FEED studies
4. To involve regional stakeholders in the pilot conceptualization, design and monitoring strategy





Thank you for listening

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