



Local Energy – Positive Impact

Capital Markets Day

May 30th 2024 - Paris



TODAY'S SPEAKERS



**JULIEN
MOULIN**

*Executive
Chairman*



**ANTOINE
FORCINAL**

*Group Chief
Executive Officer*



**AURELIE
TAN**

*Group Chief
Financial Officer*



**DENIS
CLODIC**

*Head of Research,
Innovation &
Development*



**YANN
FOUANT**

*Project
Director*

Entrepreneur with 20 years of experience in the **investment** (Barclays, UBS, Maoming IM...) & **renewable energy** sector (Envision...)

Engineer with 18 years of experience in management of **E&P gas developments** globally

Financier with 20 years experience in the energy sector working for **banks** (BNPP, Natixis, Standard Bank...) & **corporate** (Seplat Energy)

PhD in Energy from **Mines Paris Tech** with **32 years** experience and co-winner of the **Nobel Peace Prize** in 2007 for his **contributions to the IPCC***

Mechanical and Production **Engineer with 15 years** of experience **Oil & Gas** projects for Total E&P and Perenco

*IPCC – Intergovernmental Group of Experts on climate change

- ◆ **INTRODUCTION**

- ◆ **FDE: MAKING NET ZERO HAPPEN**
 - ◆ **MARKET ENVIRONMENT**
 - ◆ **FDE'S ENERGY SOLUTIONS**
 - ◆ **FDE'S ESG ENGAGEMENT**
 - ◆ **RESEARCH, INNOVATION & DEVELOPMENT**
 - ◆ **FDE TODAY**

- ◆ **FOCUS ON THE GROUP'S PORTFOLIO**
 - ◆ **ELECTRICITY**
 - ◆ **HEAT**
 - ◆ **GAS**
 - ◆ **HYDROGEN**

- ◆ **FUNDING PLAN GOING FORWARD**

- ◆ **FDE'S 2030 GROWTH PLAN**

- ◆ **LISTING**

- ◆ **SHAREHOLDERS' QUESTIONS**



FDE: MAKING NET ZERO HAPPEN

CARBON NEUTRALITY CHALLENGE BY 2050



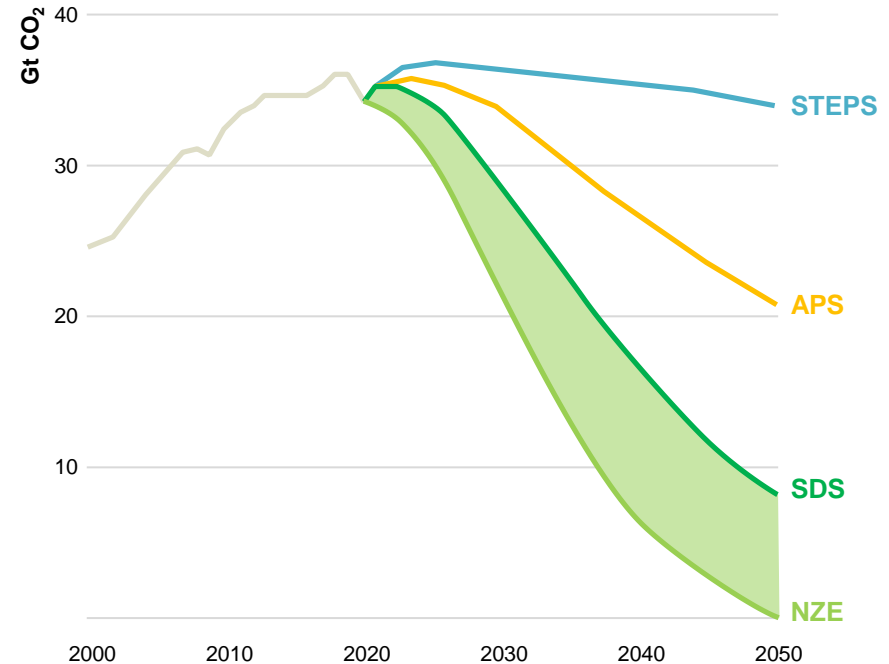
40 - 50 BILLION
TONS OF CO₂ EQ
GENERATED EVERY YEAR

NOW



NET ZERO
EMISSIONS
IN THE ATMOSPHERE

by
2050



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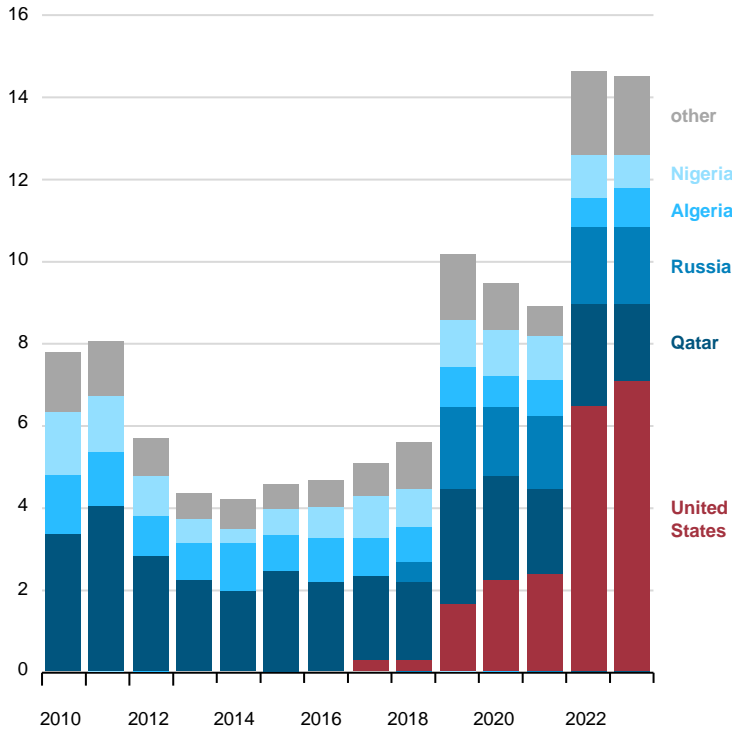
The APS pushes emissions down, but not until after 2030; the SDS goes further and faster to be aligned with the Paris Agreement; the NZE delivers net zero emissions by 2050.

Note: APS = Announced Pledges Scenario; SDS = Sustainable Development Scenario; NZE = Net Zero Emissions by 2050 Scenario.

Source: IEA Net Zero 2050 report

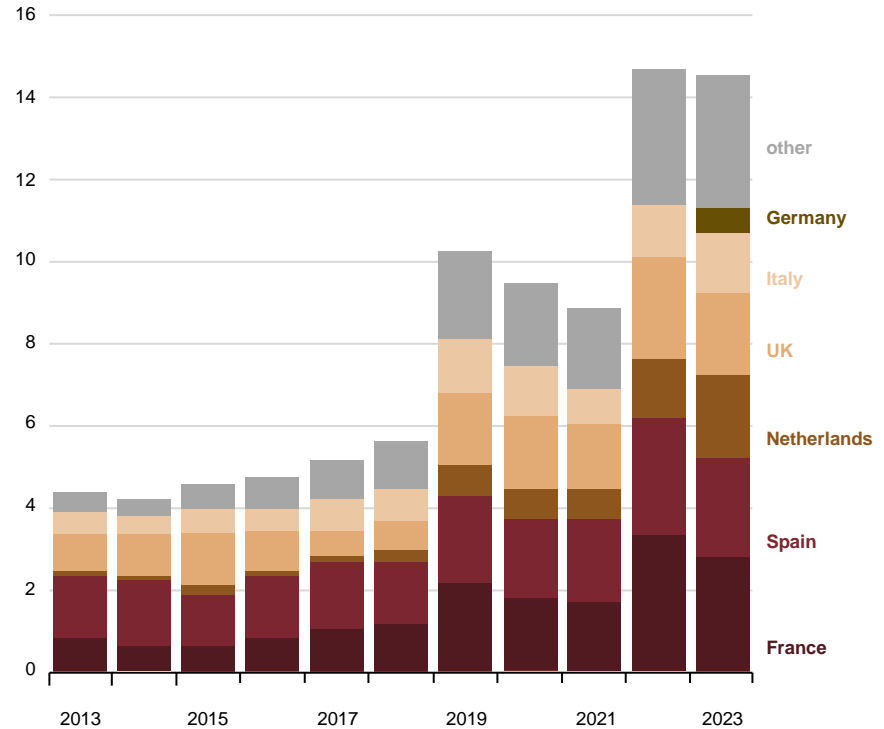
DOGMATIC POLICIES ARE COSTLY AND COUNTERPRODUCTIVE

Europe (EU-27 and UK) annual LNG imports by exporting country (2010-2023)
Billion cubic feet per day



Data source: CEDIGAZ and the International Group of Liquefied Natural Gas Importers (GIIGNL)
Note: *Other* includes Angola, Argentina, Australia, Cameroon, Egypt, Equatorial Guinea, Indonesia, Libya, Mozambique, Norway, Oman, Papua New Guinea, Peru, Trinidad and Tobago, United Arab Emirates, and Yemen. LNG=liquefied natural gas

Europe (EU-27 and UK) annual LNG imports by importing country (2013-2023)
Billion cubic feet per day



Data source: CEDIGAZ
Note: *Other* includes Belgium, Croatia, Finland, Greece, Lithuania, Malta, Poland, Portugal, and Sweden. LNG=liquefied natural gas

Source: Bruegel.org – May 2024

BUT EUROPE IS GETTING MORE PRAGMATIC



Focus on full life cycle analysis



Example of recent amendment voted at EU to confirm the classification of hydrogen based on CO2 footprint by kg of H2 produced rather than origin



Fossil fuel vs non fossil fuel debate is therefore outdated



Key and only focus is on impact



Simplification law are going through parliaments to allow faster and more efficient developments



A LEADING PLATFORM FOR LOW-CARBON ENERGIES IN EUROPE

PROVIDING VARIOUS SOLUTIONS



Using low-carbon fuels (biogas/RNG, abandoned mine methane, hydrogen)



Carbon capture and utilization/storage



ELECTRICITY



HEAT



GAS

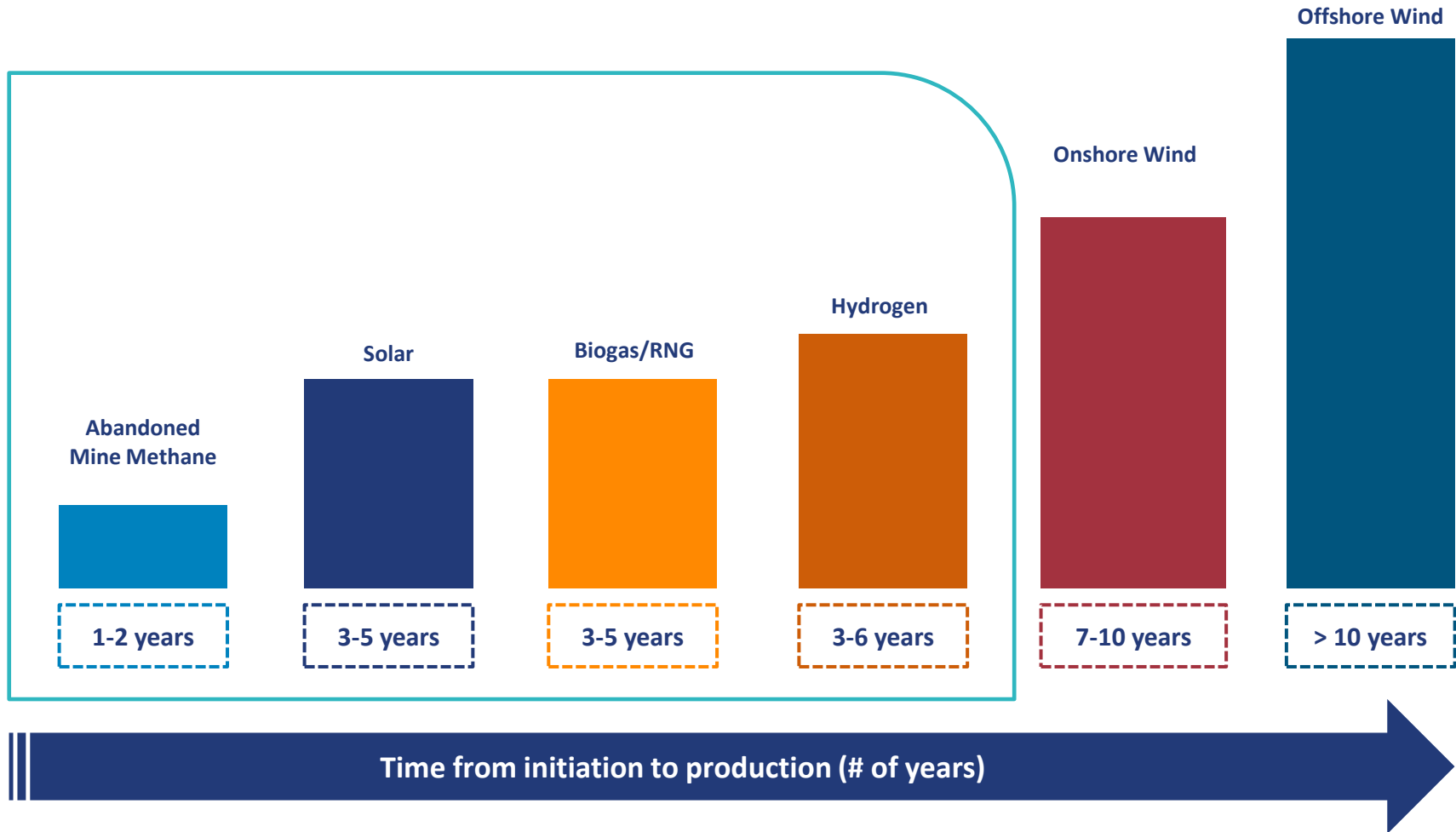


HYDROGEN



CO2

OPERATING ON ACTIVITIES WITH FAVORABLE TIME TO MARKET



* Renewable Natural Gas

Sources: BP. Statistical Review. Statistical Review of World Energy 2020, 69th edition. Regional consumption pattern 2019



BETHUNE HEATING PROJECT

Reduction of annual
energy bill of €400 per year,
and per household

8 FAMILY OF INTERNATIONAL PATENTS

Innovative system to
upgrade biogas and CO₂
into RNG and Bio-CO₂

**OVER 3,5 MILLION TONS
CO₂EQ
EMISSIONS AVOIDED ANNUALLY**

(of which 1,4 Million tons
are certified)*

* Sources: 2019 Ineris certification updated with a Global Warming Potential of 82,5 (AR6 – IPCC) and including the Béthune site and Avion 7 capacities (FDE extrapolation), 2022 Polytechnic University Mons study

FDE: FULLY ENGAGED IN THE ENERGY TRANSITION

THE KEY PILLARS TO OUR ESG APPROACH

- 1 CREATING TAILORED-MADE ENERGY SOLUTIONS AROUND ELECTRICITY, HEAT, GAS AND HYDROGEN**
- 2 FIGHTING GLOBAL WARMING BY PRODUCING LOCAL ENERGY FOR LOCAL CONSUMERS**
- 3 REDUCING THE CO2 EMISSIONS OF THE ENERGY PRODUCED AND CONSUMED**



FDE'S ELIGIBLE ACTIVITIES UNDER THE EU GREEN TAXONOMY



PHOTOVOLTAIC & SOLAR THERMAL POWER PLANT	PROCESSING AND LIQUEFACTION OF LGB AND BIO - CO ₂
PRODUCTION OF LOW CARBON HYDROGEN	CO ₂ SEQUESTRATION

Other activities qualify given the Environmental benefits: Capture of fatal gas (AMM), natural H₂, gas recovered and recycled in short circuits, CO₂ capture

65/100
ESG rating during 6 years
(vs. 58/100 in nov. 2020)

3 Green Bonds
Respectively 40M€, 20M€
and 60M€ issued



RESEARCH, INNOVATION, & DEVELOPMENT

Method and system for extracting Carbon Dioxide by anti-sublimation for storage thereof

1

Refrigeration process and system for recovering cold from methane by refrigerants

3

Method for frosting carbon dioxide contained in liquid methane

5

Process for solid-phase extraction of substances from gas mixtures

7

2

System for cooling a psychrometric mixture by coupling a condenser and an evaporator

4

Process for refrigerant subcooling

6

Method and device for coupling cooling and heating effects

8

Cryogenic process for the separation of CO₂ and H₂S

8 International patents in our portfolio

Pilot CO₂ capture projects on industrial flue gas to recover CO₂ in the liquid phase and already industrially proven to be **99.9% pure**

⇒ **Consequences:** CO₂ can be **used and sold** (e-fuels, food industry...) and used for **storage**

With the adoption in **April 2024** by the European Parliament of the EU Carbon Removal Certification Framework (EU CRCF), **acceleration of the development of new remediation technologies** to produce **negative emissions** based on **existing patents** is accelerated

DACCS: Direct air Carbon Capture and storage

Objective: low energy consumption solution to get CO₂ capture cost **below EUR 250/ton of CO₂**

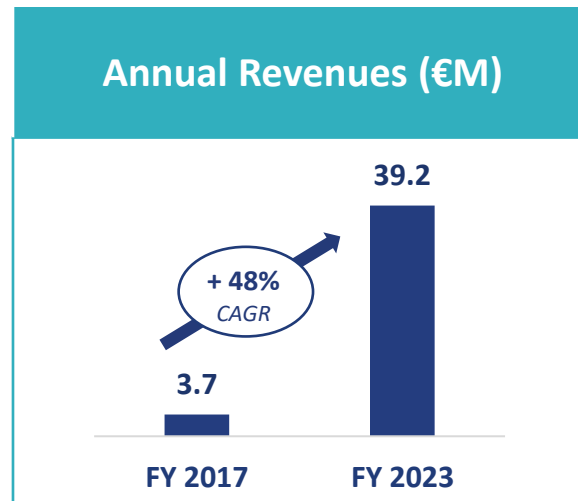
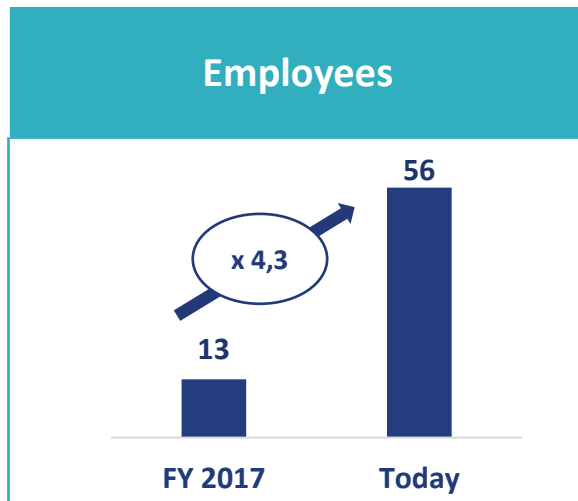
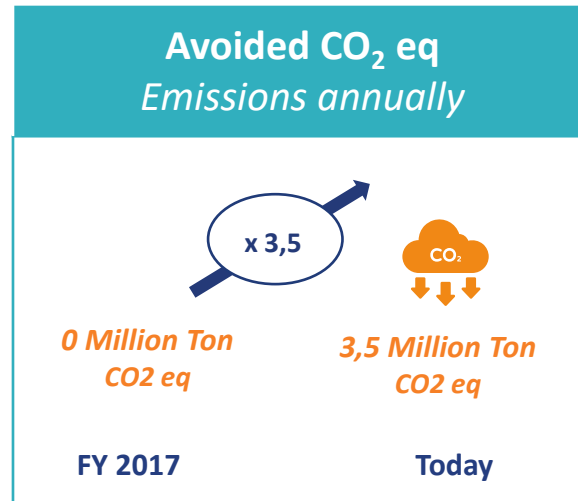
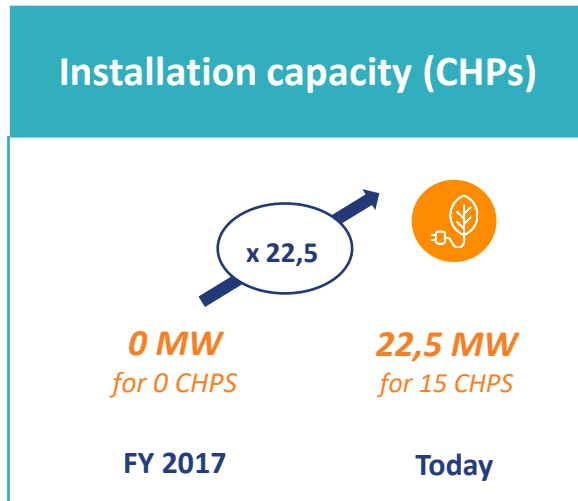
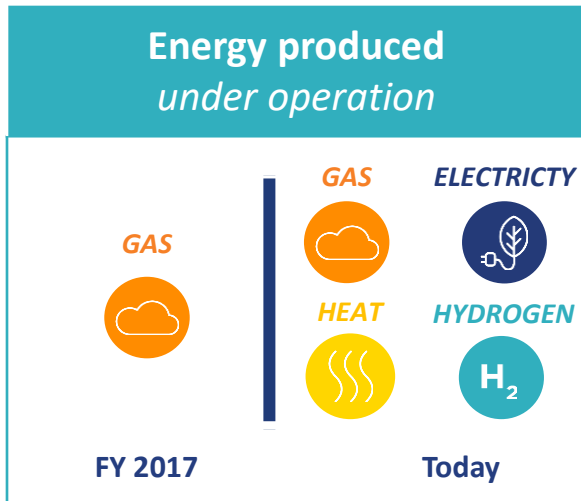
BECCS: Bioenergy with carbon capture and storage

Objective: develop access to **large sources of biogenic CO₂** and develop a methodology for low carbon methane

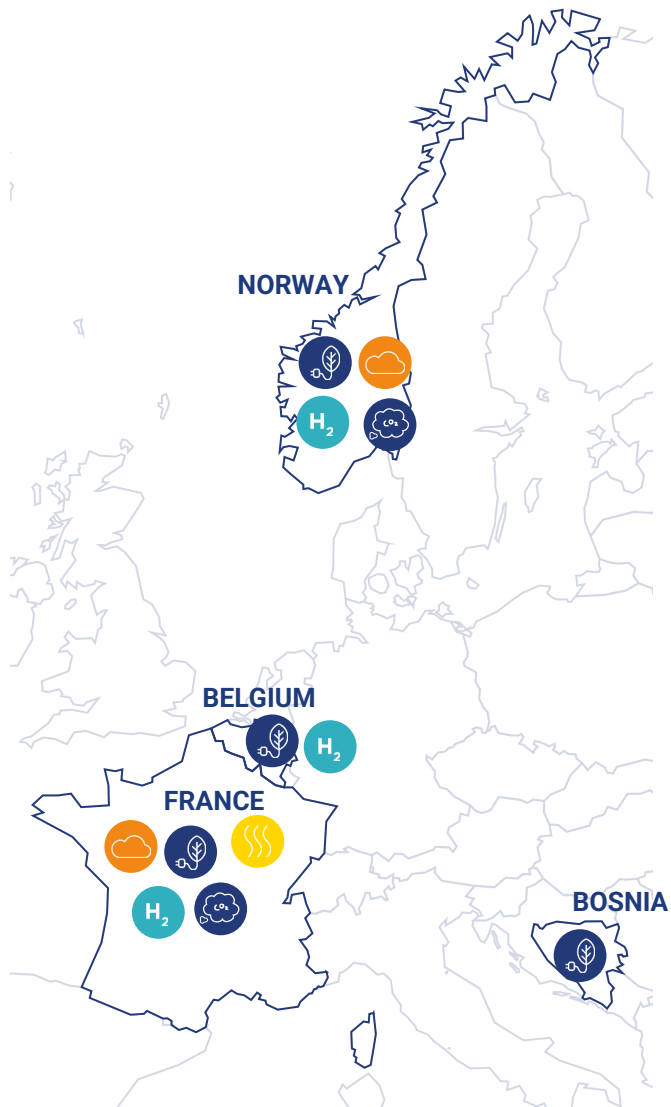


FDE TODAY

SINCE THE IPO: STRONG OPERATIONNAL GROWTH



DIVERSIFIED ASSET OPERATIONS BASE IN EUROPE



ELECTRICITY
FRANCE, BELGIUM & BOSNIA
NORWAY UNDER DEVELOPEMENT

HEAT
FRANCE

GAS (incl. RNG)
FRANCE
NORWAY UNDER DEVELOPEMENT

HYDROGEN
FRANCE & BELGIUM
NORWAY UNDER DEVELOPEMENT

CO₂
FRANCE & NORWAY UNDER
DEVELOPEMENT

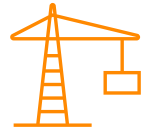
22,5 MW
installed
cogenerations
+
60 MW
installed PV

4 MW
installed

**300
GWH**
gas annual
production



Develop: FDE uses **local and industry expertise** identify promising projects **in the areas where it operates**, through key factors like cost-effective land, permits, grid capacity, and nearby offtake options. Early-phase investments are made in collaboration with strong local stakeholders



Build (and Finance): FDE use **proven technology** and a **standardized and industrialized approach** for a **large deployment (pre-assembled & shipped units)** in order to reach up to 15 months time to market from construction
FDE also finances the CAPEX with **project finance with available subsidies and 80-90% gearing**



Own: FDE owns the asset on the long-term for **steady cash flows** but may have **strategic partnerships** and allow SPV investments with select shareholders (eg PV)



Operate (and optimize): FDE runs the **operation and maintenance of its assets** to leverage on its expertise and **enhance efficiency and costs**.
FDE also **manages the offtake contracts and access several energy markets for hedging**

MANAGEMENT



JULIEN MOULIN
Executive Chairman
BOARD MEMBER

20 years' experience in financing & developing energy projects globally



ANTOINE FORCINAL
CEO
BOARD MEMBER

18 years' experience in management of E&P gas developments globally



AURELIE TAN
CFO

20 years' experience in M&A and fund raising in the energy sector for banks & corporates



KEY AREAS OF EXPERTISE



DENIS CLODIC
Research, Innovation & Development

32 years' experience and co-winner of the Nobel Peace Prize in 2007 for the IPCC



YANN FOUANT
Project Development

15 years' experience Oil & Gas projects for total E&P



BENJAMIN BARBEZ
Operation Director

15 years' experience as production engineer



FOULQUES BODEVEN
Industrialisation

15 years' experience as electrical project manager



EVA DESPINOY
Geoscience

5 years' experience in geoscience



VIEL JAREN HEITMANN
Pre-projects / Public Relation

15 years' experience in the public sector experience



STRONG FINANCIAL PROFILE BUILT FOR FUTURE GROWTH

PROFITABLE GROWTH

Revenues

FY 2023



EBITDA

FY 2023



Operational income

FY 2023



Net income (Group Share)

FY 2023



COMFORTABLE CASH POSITION – LOW DEBT LEVEL

Cash position

43 M€

Equity

74 M€

Gross Debt₁

68 M€

Net Debt / EBITDA 0,94 x

SUPPORTING BANKING RELATIONSHIPS



EDMOND
DE ROTHSCHILD

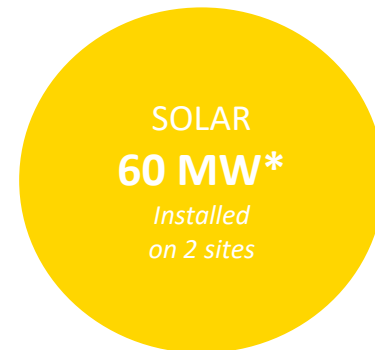
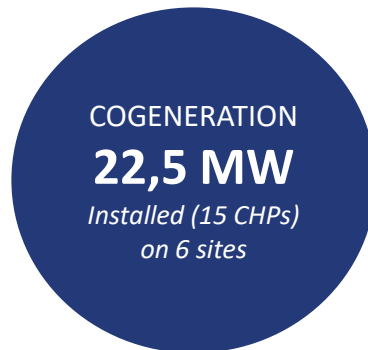
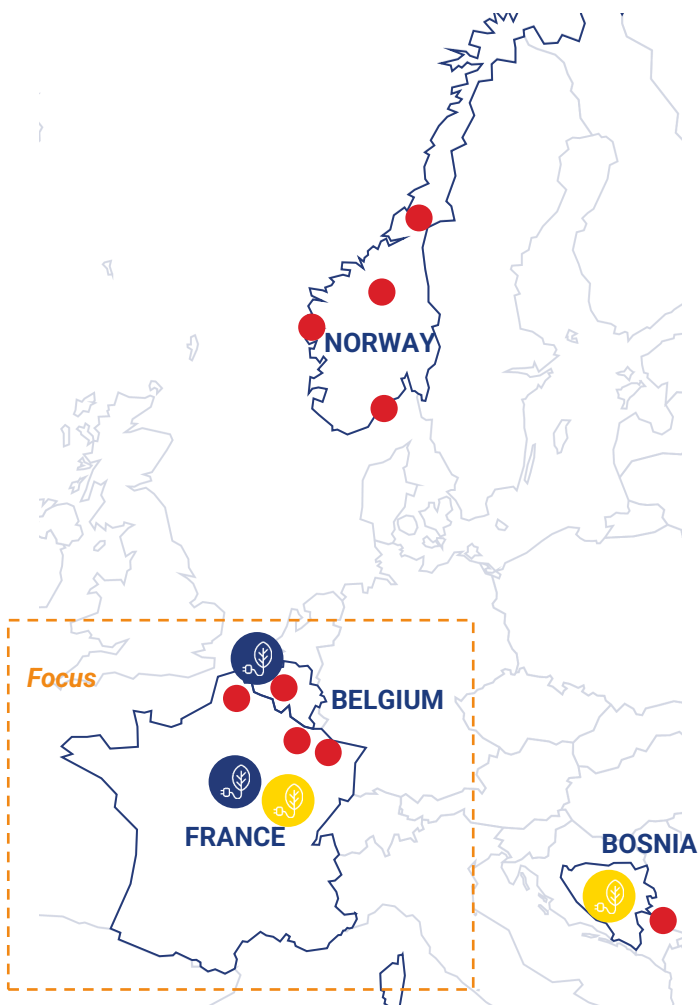


CAISSE D'EPARGNE

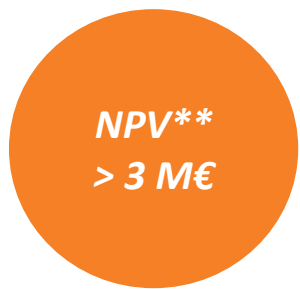
¹ On May 1st 24, FDE issued an **additional green bond of €60M** granted by Edmond de Rothschild Asset Management (EDRAM) for the development of its low-carbon energy production in Norway.



ELECTRICITY



● Solar PV Projects pipeline

STANDARD CHP SITE		▶ 1,5 MW	OUR COMMERCIAL PARTNERS   
INVESTMENTS	TOTAL CAPEX PER SITE – O/W FINANCED BY:	▶ Up to €2,5M	
	<ul style="list-style-type: none"> • EQUITY • DEBT 	▶ 10 % Equity ▶ 90 % Debt	
	TIME TO MARKET	▶ 12 - 24 months	
REVENUES	RECURRENT ANNUAL REVENUES PER SITE <i>(BASED ON 10 YEARS FEED-IN TARIFF @ €80/MWH and AUTOCONSUMPTION*)</i>	▶ €900K	
COSTS	ANNUAL OPEX PER SITE <i>(INCLUDING MAJOR OVERHAUL – EVERY 8 YEARS)</i>	▶ €250K	
KPI'S	PAYBACK	▶ < 3 years	
	PROJECT IRR	▶ > 20%	

* 94% availability rate **NPV at 8% after taxes












PV SITE EXAMPLE		▶ 17 MW	OUR COMMERCIAL PARTNERS
INVESTMENTS	TOTAL CAPEX PER SITE – O/W FINANCED BY:	▶ > €10M	
	<ul style="list-style-type: none"> • EQUITY • DEBT 	▶ 15 % Equity ▶ 85 % Debt	
	TIME TO MARKET	▶ 36 months	
REVENUES	RECURRENT REVENUES PER SITE (BASED ON 10 YEARS FEED-IN TARIFF @ €80/MWH)	▶ Min. €1,6M	
COSTS	OPEX PER SITE (INCLUDING MAINTENANCE)	▶ Av. €170K	
KPI	PROJECT IRR	▶ 8%	



* NPV at 8% after taxes



PIPELINE OF COGENERATION PROJECTS

<p>ROUVIGNIES Capacity: 4,5MW (3CHPs) Expected COD: 2025</p> 	<p>ESCAUDAIN Capacity: 4,5MW (3CHPs) Expected COD: 2027</p> 
<p>ANGRES Capacity: 3MW (2CHPs) Expected COD: 2024</p> 	<p>HULLUCH Capacity: 3MW (2CHPs) Expected COD: 2027</p> 
<p>ESTEVELLES Capacity: 4,5MW (3CHPs) Expected COD: 2026</p> 	<p>ANZIN Capacity: 3MW (2CHPs) Expected COD: 2027</p> 
<p>NOE-1 Capacity: 1,5MW (1CHP) Expected COD: 2026</p> 	<p>PETRIA Capacity: 3MW (2CHPs) Expected COD: 2026</p> 
<p>WAZIERS Capacity: 3MW (2CHPs) Expected COD: 2027</p> 	

PIPELINE OF SOLAR PV PROJECTS

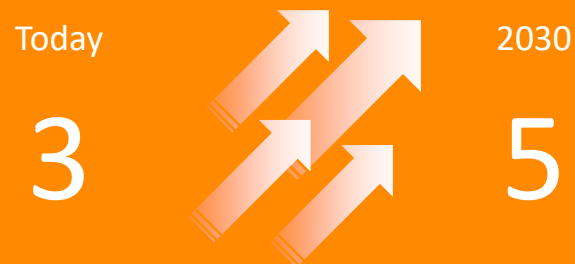
<p>FOLSCHVILLER Capacity: 7 MWc Expected COD: 2026</p> 	<p>ENGENE Capacity: 6 MWc Expected COD: 2025</p> 
<p>CREHANGE Capacity: 24 MWc Expected COD: 2027</p> 	<p>REDDAL Capacity: 9 MWc Expected COD: 2026</p> 
<p>AVION Capacity: 17 MWc Expected COD: 2027</p> 	<p>BRANDSRUT Capacity: 12 MWc Expected COD: 2027</p> 
<p>ANDERLUES Capacity: 17 MWc Expected COD: 2027</p> 	<p>PETJNIK ESS 2 Capacity: 22 MWc Expected COD: 2025</p> 
<p>GLAMSLAND Capacity: 9 MWc Expected COD: 2025</p> 	



Installed Capacity

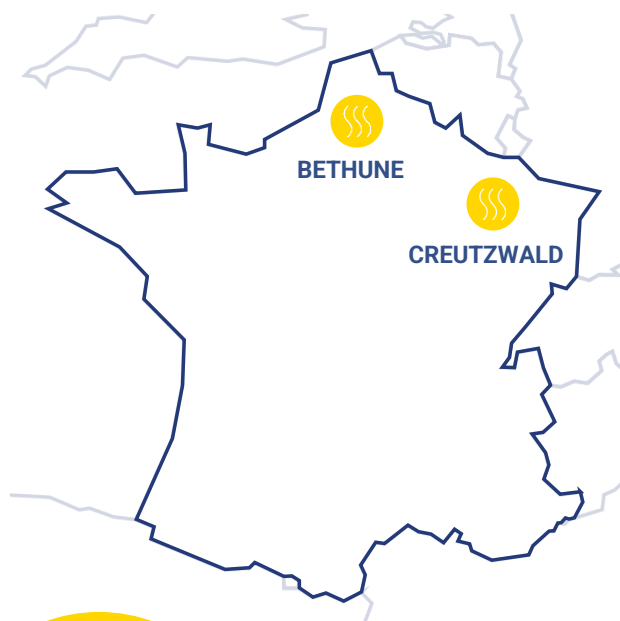


Countries *In operation*





HEAT



8 MW
*installed
on 2 sites*

HEAT DERIVED FROM COGENERATION ACTIVITIES, SOLAR OR H2

◆ Currently 2 Heat production sites in France

- ◆ **Bethune:** Since 2021, the city of Bethune is now equipped with one of the **largest urban heating networks in France, supplied with abandoned mine methane. The waste heat is reinjected into the heating network operated by Dalkia to heat the equivalent of 6,500 homes.**
- ◆ **Creutzwald:** Since 2021, FDE operates, in partnership with **ENES Creutzwald**, a municipal authority established in the region, the largest solar-thermal power plant in France to inject produced heat into an urban heating network. This installation supplies the **municipality's residential areas, along with many companies and public infrastructures, in a short circuit.**

◆ Further developments are in the pipeline to valorize the heat at least 5 new electricity sites in France, Belgium and Norway

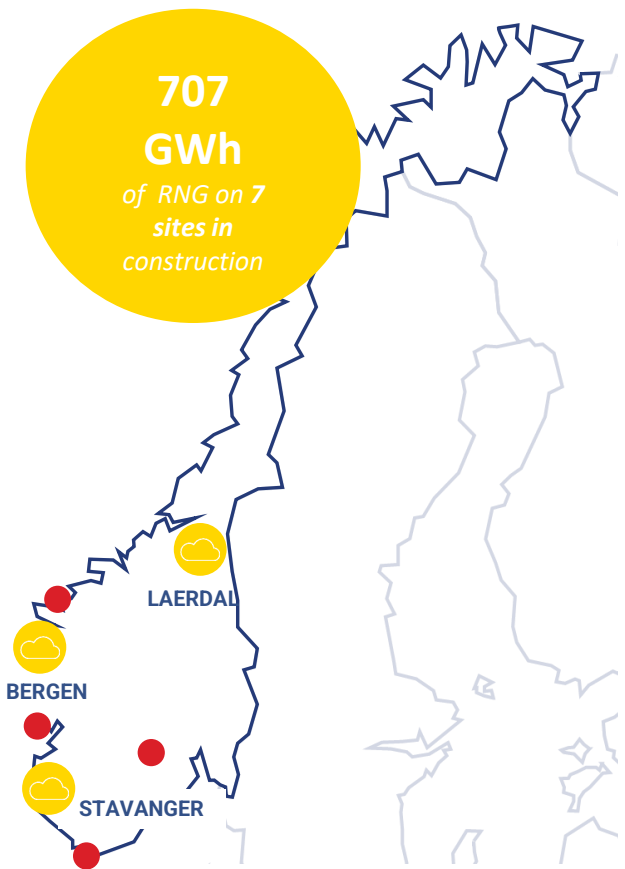
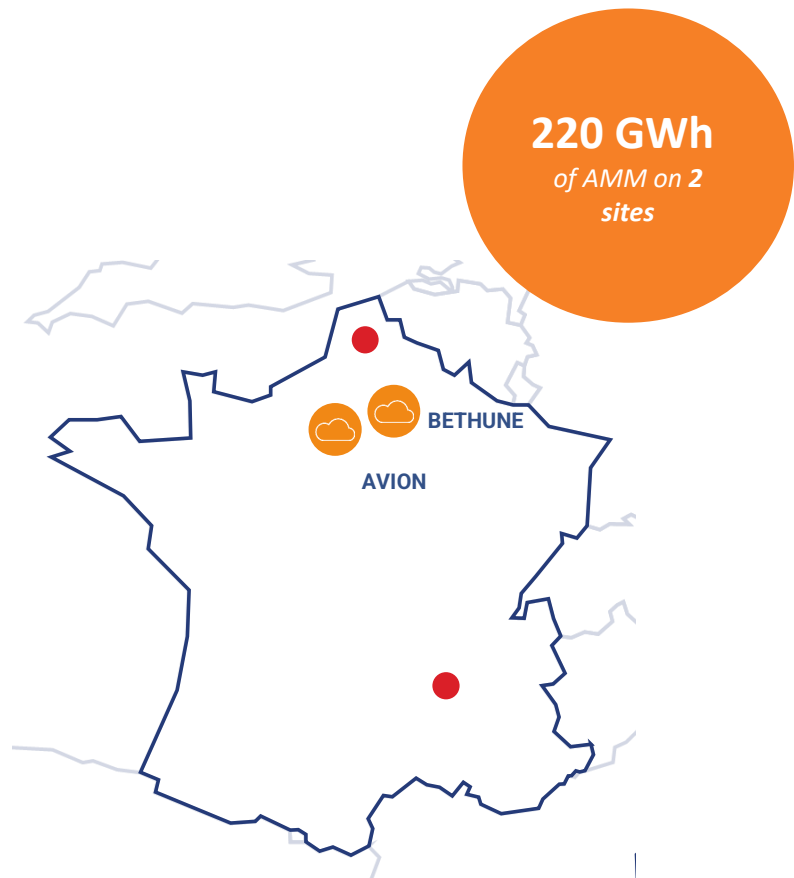
- ◆ Additional heat kit for CHP of 80k€ with an IRR of >40%



GAS

ABANDONED MINE GAS PORTFOLIO

RNG PORTFOLIO



● RNG Projects to be disclosed

STANDARD RNG SITE		▶ 2000 NM ³ /100 GWH/year	COMMERCIAL PROSPECTS
INVESTMENTS	TOTAL CAPEX PER SITE – O/W FINANCED BY:	▶ €35M	European industrials Global Maritime transport Traders Food and beverage industry
	<ul style="list-style-type: none"> • EQUITY • SUBSIDIES • DEBT 	▶ 15 % Equity ▶ 15 % Subsidies ▶ 70 % Debt	
	TIME TO MARKET	▶ 18 months	
REVENUES	RECURRENT ANNUAL REVENUES PER SITE	▶ €15M	
	<ul style="list-style-type: none"> • PRODUCTION 19 tons/d RNG @ 130€/MWH • PRODUCTION c. 15 tons/d Bio-CO2 @ 140€/tons 		
COSTS	ANNUAL OPEX PER SITE	▶ €3,3M	
	<ul style="list-style-type: none"> • INTRANTS • ELECTRICITY • MAINTENANCE 	▶ €1,5M ▶ €1,5M	
KPI'S	PAYBACK	▶ c. 5 years	
	PROJECT IRR	▶ c. 20%	

NPV*
c. 30 M€

* NPV at 8% after taxes

PIPELINE OF RNG PROJECTS



STAVENGER
Capacity: 101 GWh/year
Expected COD: 2025



PROJECT #4N
Capacity: 60 GWh/year
Expected COD: 2026



PROJECT #1F
Capacity: 65 GWh/year
Expected COD: 2025



BERGEN
Capacity: 101 GWh/year
Expected COD: 2026



PROJECT #5N
Capacity: 100 GWh/year
Expected COD: 2027



PROJECT #2F
Capacity: 65 GWh/year
Expected COD: 2025




LAERDAL
Capacity: 55 GWh/year
Expected COD: 2026

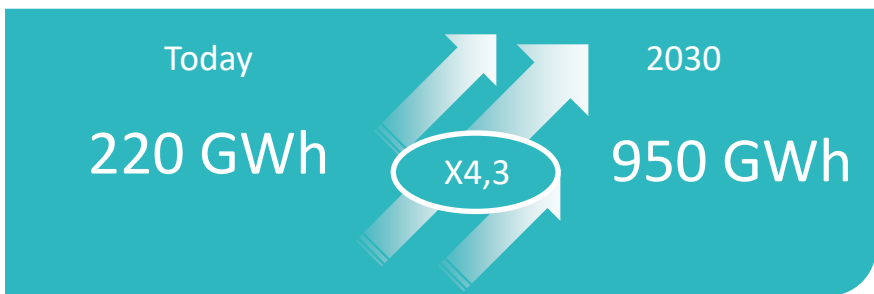


PROJECT #6N
Capacity: 60 GWh/year
Expected COD: 2028



PROJECT #7N
Capacity: 100 GWh/year
Expected COD: 2029

 Production Capacity

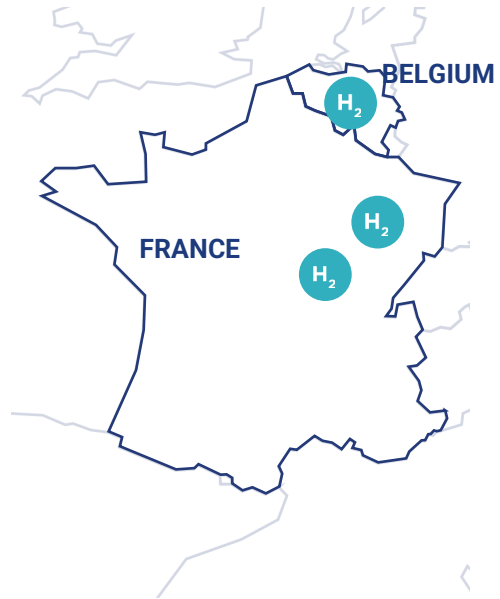


Countries
In operation

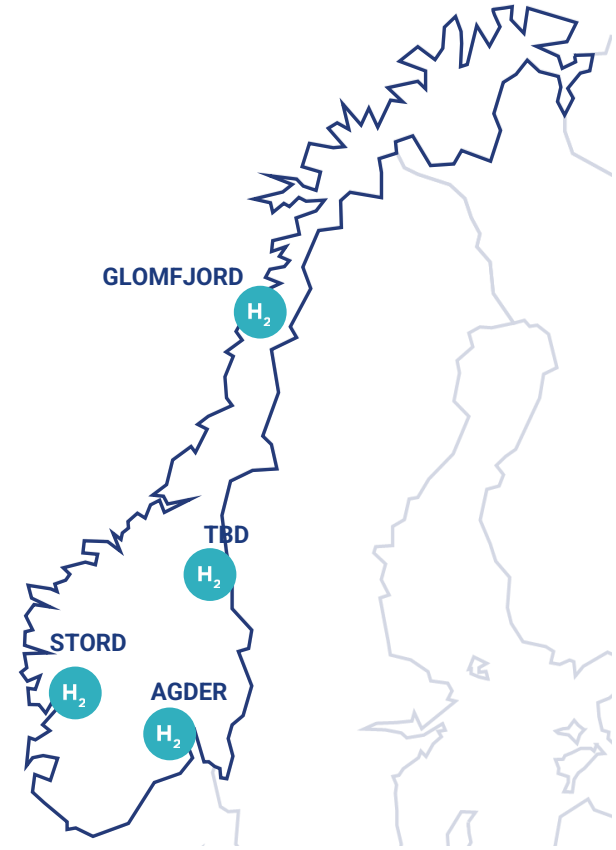




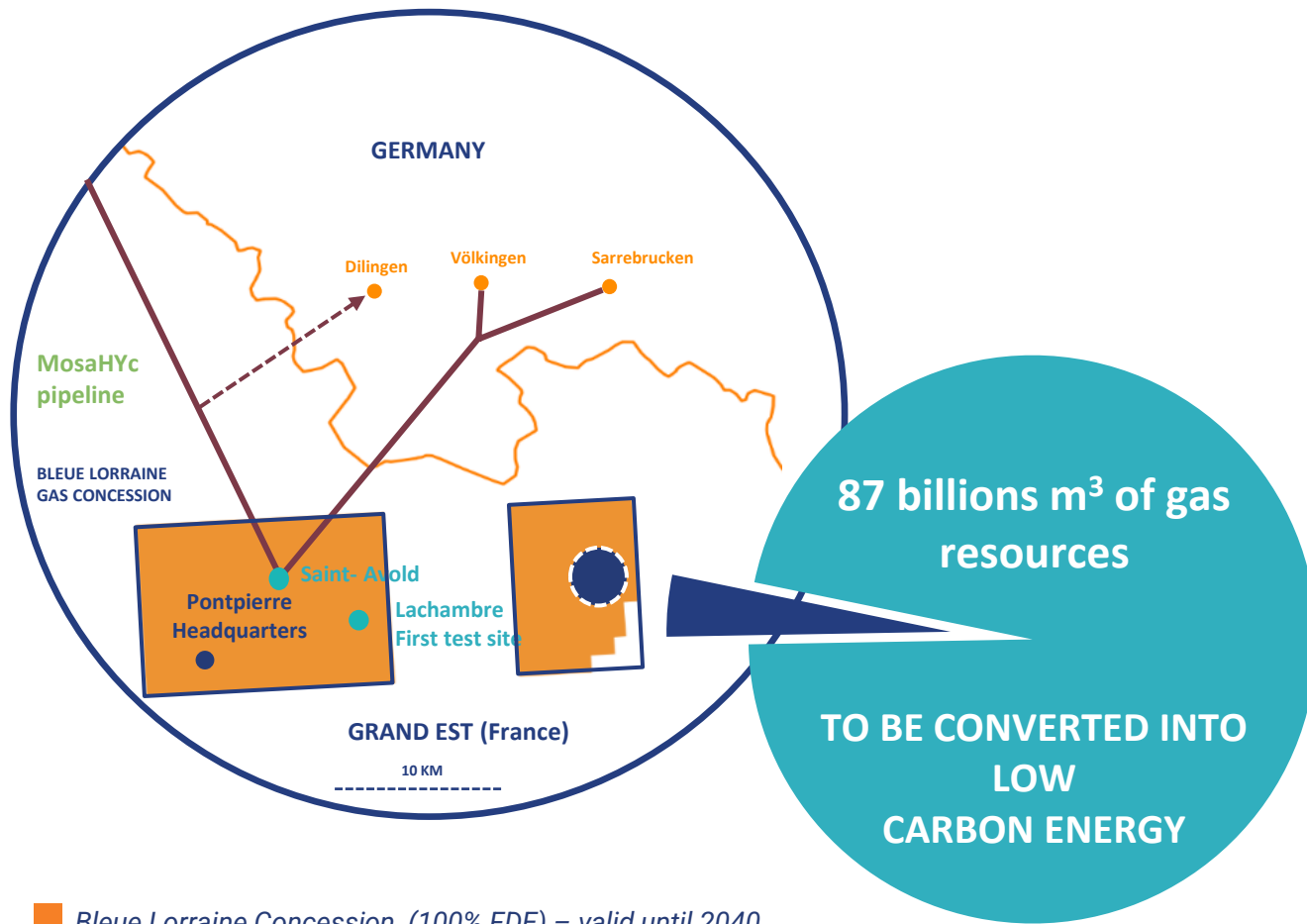
HYDROGEN



- ▶ 1 low carbon **H2 Project under development** in **France**, converting gas reserves into Blue H2 associated with CCUS
- ▶ 1 natural **H2 appraisal site** in France - A larger portfolio under construction
- ▶ 1 low carbon **H2 Pilot site** in **Belgium** as part of EDF and Materia Nova consortium



- ▶ 1 renewable **H2 site** in production in Norway
- ▶ 3 other renewable H2 Projects **under development**



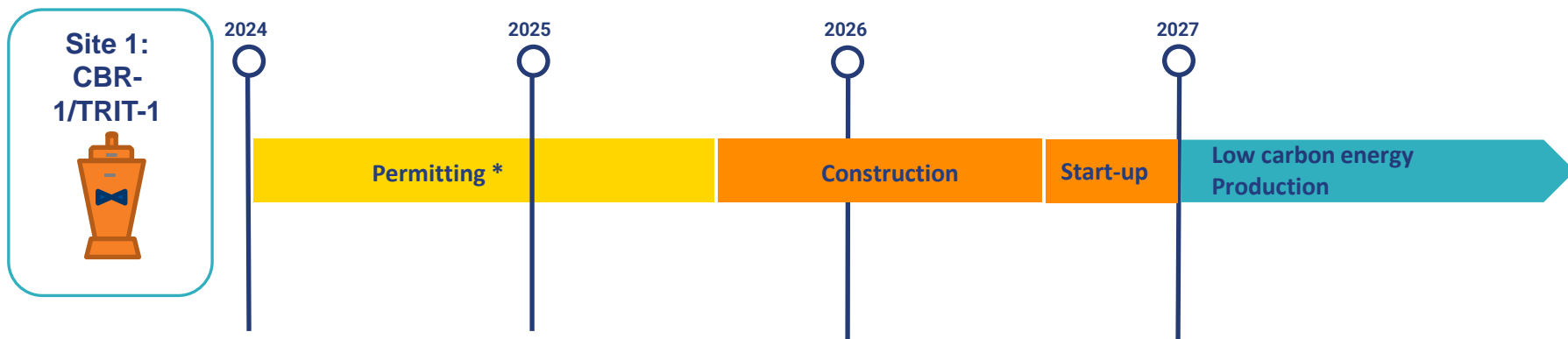
Valorisation options

- Power**
- Gas**
- Heat**
- Hydrogen**
- CO₂ Storage**

Bleue Lorraine Concession (100% FDE) – valid until 2040



Certified Contingent Ressources (2C) Bleue Lorraine, and surrounding areas (MHA, 2018)



* Authorisations to drill and produce / Re-enter and produce wells:

- ✓ Conversion of existing authorisations for the production lease requested (4 months) + ICPE authorisation (1 year);
- ✓ New drilling/exploitation authorisations to be obtained (1 year)

1st SITE		▶ Lachambre	COMMERCIAL PROSPECTS European industrials Transport and Mobility Traders
INVESTMENTS	TOTAL CAPEX PER SITE – <i>O/W FINANCED BY:</i>	▶ €17M	
	<ul style="list-style-type: none"> • EQUITY • DEBT 	▶ 25 % Equity ▶ 75 % Debt	
	TIME TO MARKET	▶ 18-36 months	
REVENUES	GAS ANNUAL REVENUES PER SITE	▶ €5,5M	
COSTS	ANNUAL OPEX AND LOCAL TAXES	▶ €2,5M	
KPI'S	PAYBACK	▶ < 5 years	
	PROJECT IRR	▶ >15%	

NPV*
> 7 M€

* NPV at 8%


- ◆ **3 first sites of production including one CO2 injector, ramping up from site#1 to site#3**
 1. **LACHAMBRE (existing site):** 2 production wells, 1 CO₂ injector
 2. **TRITTELING (existing site):** 3 production wells, 1 CO₂ injector
 3. **PONTPIERRE (new site):** 8 production wells, 1 CO₂ injector


- ◆ **3D seismic acquisition to position the wells on the next phase (site#4, #5,...)**

- ◆ **1 site for natural hydrogen testing (appraisal of the discovery):**
 - **PTP-1:** 1 well (4000m deep)

PIPELINE OF PROJECTS


LACHAMBRE (site#1)
Capacity: 125 GWh/y (eq to 38 GWh/y of H2)
Expected COD: 2027


TRITTELING (site#2)
Capacity: 145 GWh/y (eq to 44 GWh/y of H2)
Expected COD: 2027


PONTPIERRE (site#3)
Capacity: 250 GWh/y (eq to 76 GWh/y of H2)
Expected COD: 2027



Located on Elkem's industrial site in Kristiansand



Seafront location close to the harbour in Kristiansand, making it ideal for hydrogen supply to maritime customers



Kristiansand is a logistics hub for multiple companies, making the location attractive in the mobility segments



LOI with Glencore Nikkelverk for sale of oxygen. Oxygen pipeline concept study completed in June 2023



Potential use of excess heat from the facility in collaboration with Elkem Carbon




Secured Enova grant of NOK 148 million, improving project economics substantially

AGDER Phase 1
Capacity: 85 GWh
Expected COD: 2027

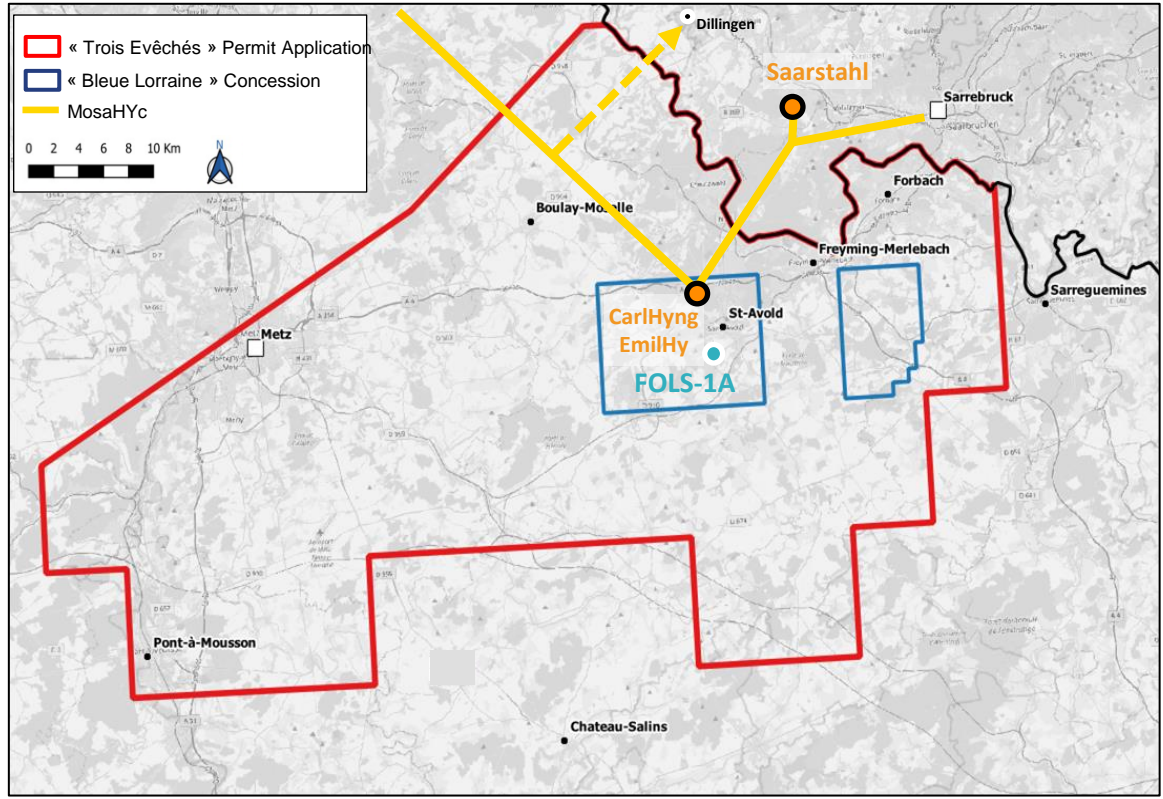


AGDER Phase 2
Capacity: +170 GWh
Expected COD: 2029



STANDARD H2 SITE		▶ 20 MW	OUR COMMERCIAL PARTNERS
INVESTMENTS	TOTAL CAPEX PER SITE – O/W FINANCED BY:	▶ Up to €37M	
	<ul style="list-style-type: none"> • EQUITY • SUBSIDIES • DEBT 	▶ 10 % Equity	European industrials Transport and Mobility Traders
TIME TO MARKET	▶ 50 % Subsidies	▶ 36 months	
REVENUES	RECURRENT REVENUES PER SITE	▶ Av. €25M	
COSTS	OPEX PER SITE (INCLUDING MAJOR OVERHAUL – EVERY 8 YEARS)	▶ Av. €15M	
KPI'S	PAYBACK	▶ 5 years	
	PROJECT IRR	▶ > 20 %	

* NPV at 8% after taxes

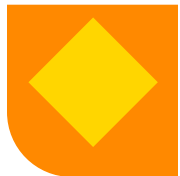
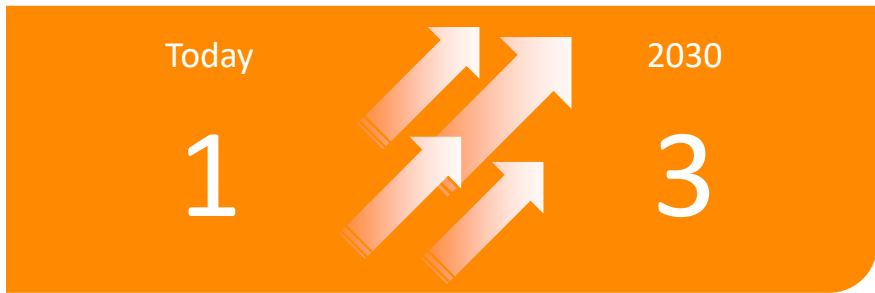


-  Significant discovery made in Folschviller (FOLS-1A)
-  Application for the « Trois Evêchés » permit (>2000 km²) submitted:
 - Evaluation of potential
 - Pilot well
 - Production test and certification
-  New consortium REGALOR II with planned appraisal program
 - FDE
 - Academic partners (universities, research labs)
 - Institutional partners (national surveys, research centers)
 - Industrial partners (listed companies, SME)

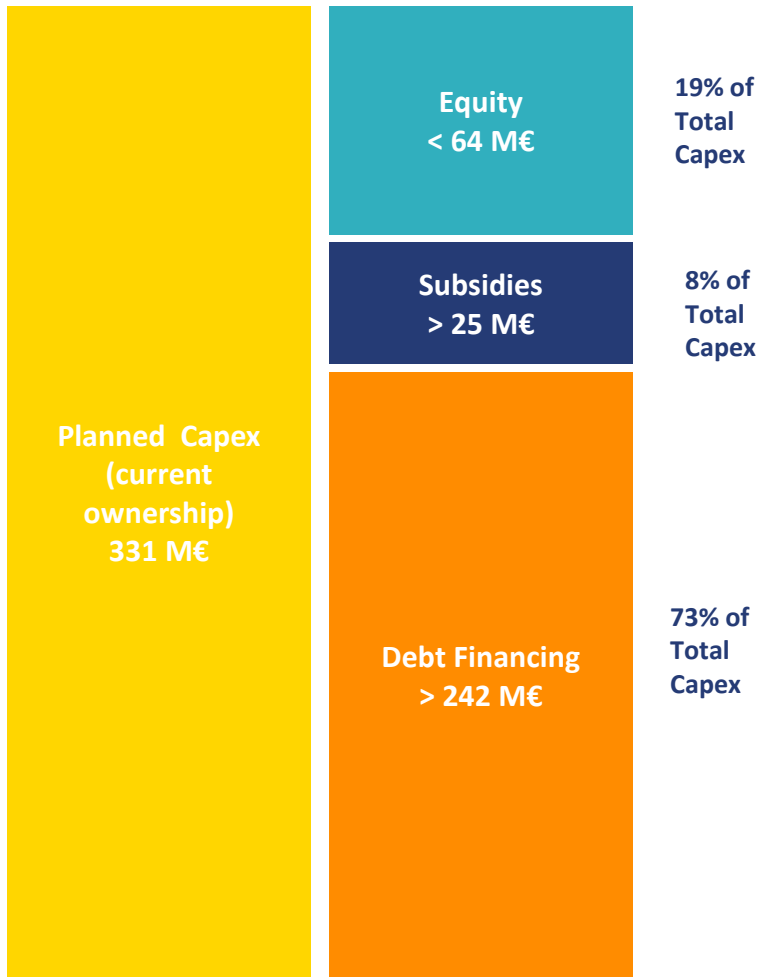
Production
Capacity



Countries
In operation



FDE INVESTMENT PLAN SECURED AND FULLY FUNDED



Planned investments 2024-2026 of c. **331 M€** (excluding Lorraine H2), based on current 100% asset ownership (except for PV)



Conservative ring- fenced **project finance** for decarbonated energy production assets:

- **Gearing c. 70-90%** => c. 241 M€ debt
- Tenor 10 years+, depending on duration of the offtake
- Current discussions with lending local and international institutions with **strong appetite**



Subsidies of at least c. 25 M€



Equity required of 64 M€

- Currently c. 30 M€ of cash available
- Does not include generation of operation cash flows during 2024-2026
- 60 M€ green bond available

2026 AMBITIONS

> 100 M€
annual revenues

> 50 M€
EBITDA

> 10 M
tons of CO₂eq emissions
avoided per year

TODAY'S STATUS
Reconfirmed



€

ANNUAL REVENUES
In €M

> €175 M



EBITDA
In €M

> €85 M



EMISSIONS
CO2 EQ
Avoided annually

> 20 MT/y



SELL SIDE COVERAGE

✓ BUY



Analyst: Veneta Nikolova
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✓ BUY



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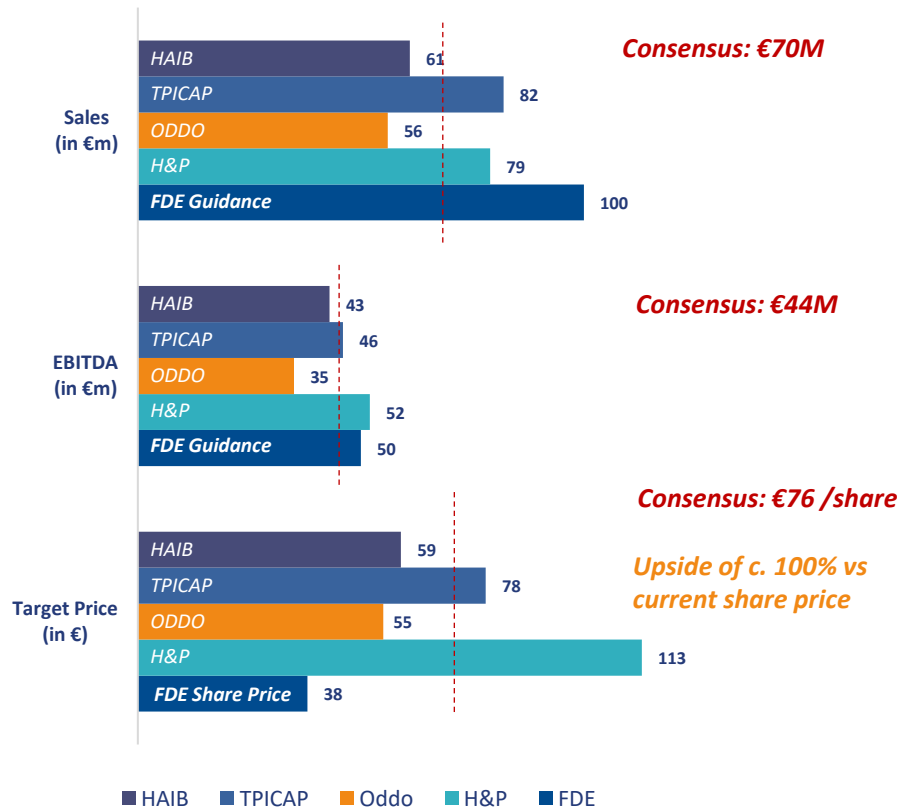
✓ BUY



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✓ BUY

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Share Price and Volumes traded



KEY CORPORATE INFORMATION
(as of 29th of May 2024 Closing)

Listing	Euronext Paris
Share price	€38,3 / share
Shares outstanding	5,2 M
Market capitalisation	189 M€
Ticker	FDE

**NEXT SCHEDULED ANNOUNCEMENT***FY 2024 Sales: 23rd of July 2024*

Q&A

Thank you for your attention !