Carbon intensity and footprint solutions and services angle

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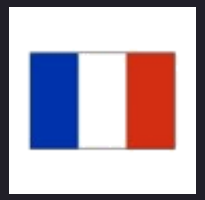
Decarbonising ? Why ?

An ambitious regulatory framework stimulating enterprise decarbonisation



SNBC (National Strategy for Low Carbon)

- -35% CO2 between 2015 & 2030. Carbon neutrality 2050 (-81%)

Tertiary Decree :

- Target 60 % Energy Efficiency by 2050

RE 2020

- -30% of Energy Consumption (E2)
- -80% Carbon reduction(C2)

BACS Decree

- Mandatory use of intelligent systems by 2025 for buildings Energy optimization

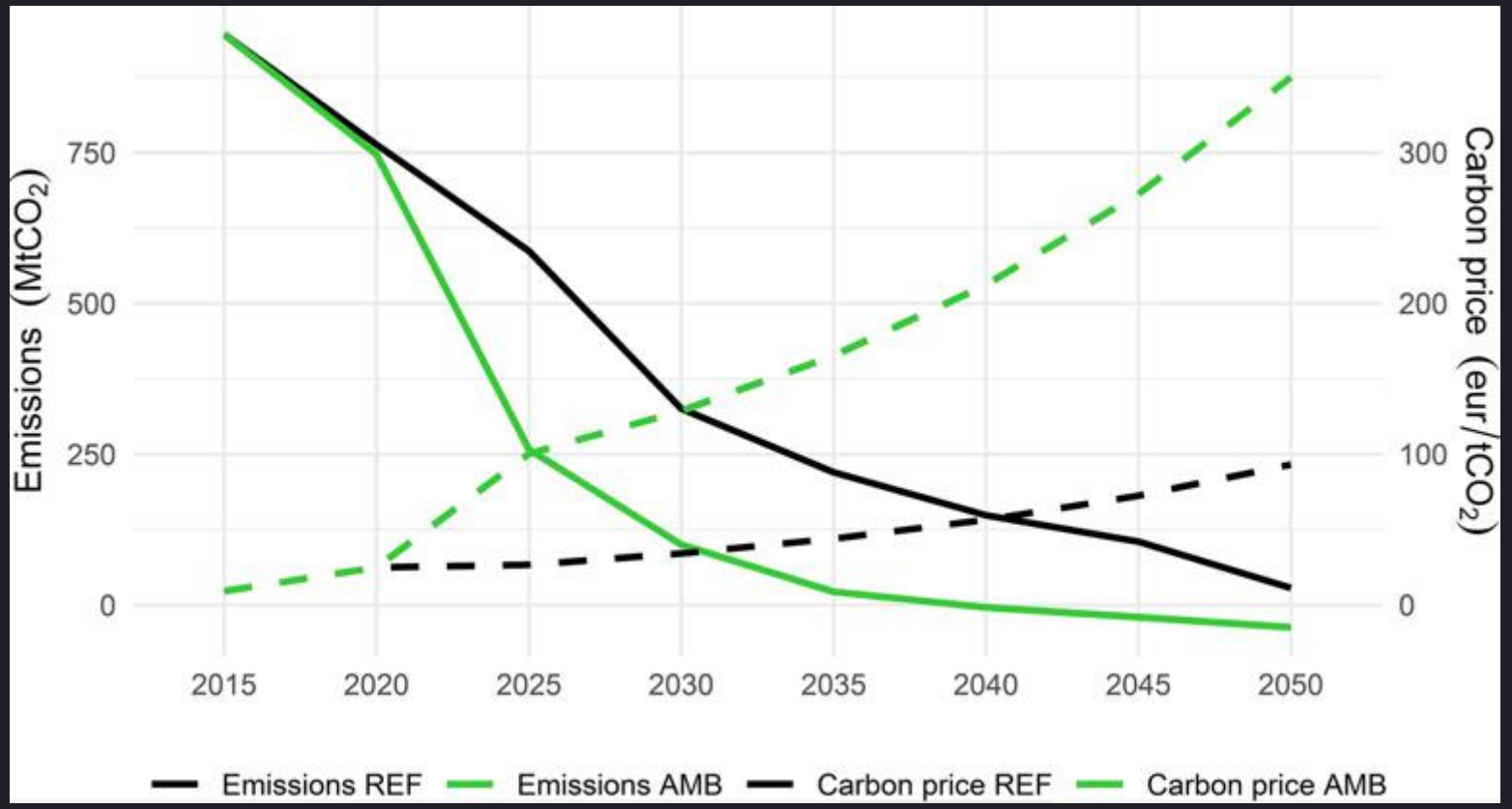
European Decrees

- Cabon neutral in 2050
- -55% of GHG by 2030 (ambitious scenario)
- NZEB energy neutral buildings
- BACS in 2025 for intelligent systems in buildings
- Setup of an EU ETS market (commission)

77% of the S&P500 companies have a carbon neutrality plan or they are working on it*.

* ecoact 2020

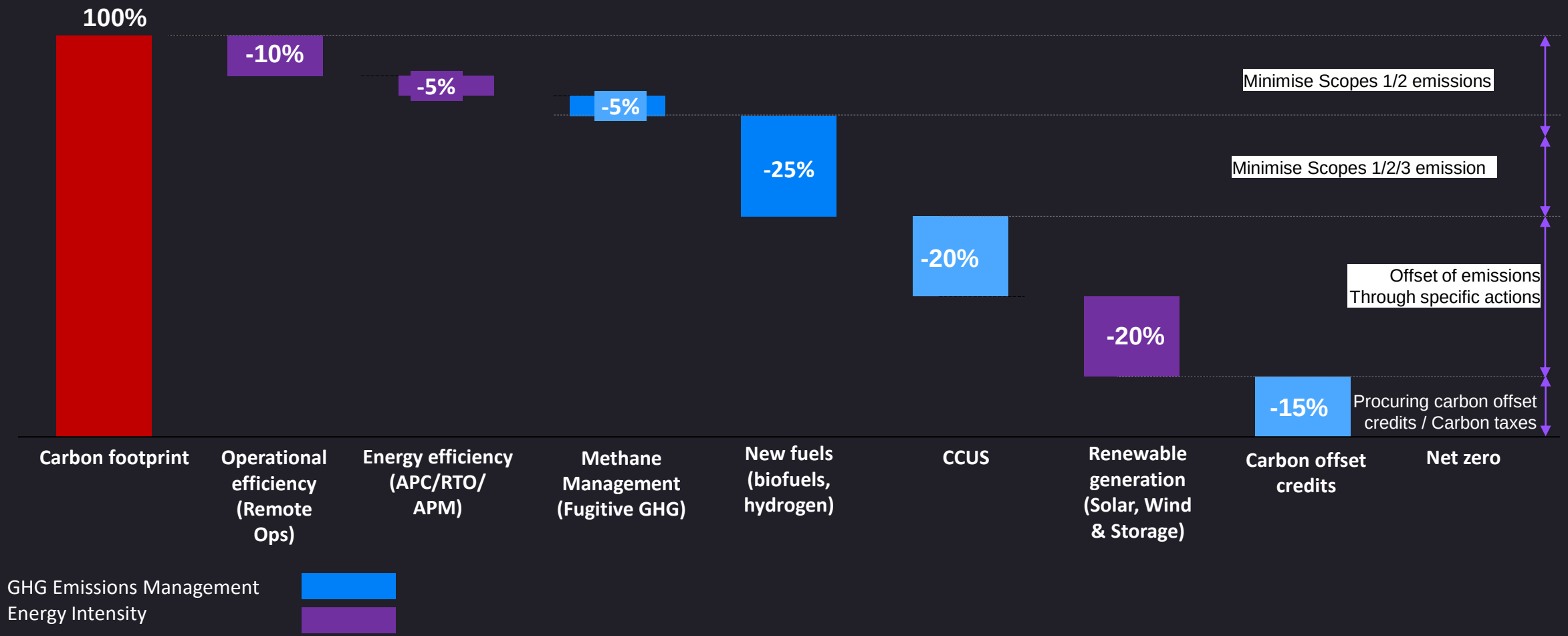
Ambitious scenario of -55% CO2 in 2030 leading to a carbon tax of more than 129 €/tCO2 in 2030 and more than 350 €/tCO2 in 2050 ?



Which raodmap for decarbonisation and what are the expected benefits ?

Typical scenarios to Net Zero

Metal, Steel, Chemicals, Cement and glass count for 72% of the industrial emissions



***Source :** International Energy Agency (IEA) : illustrative*

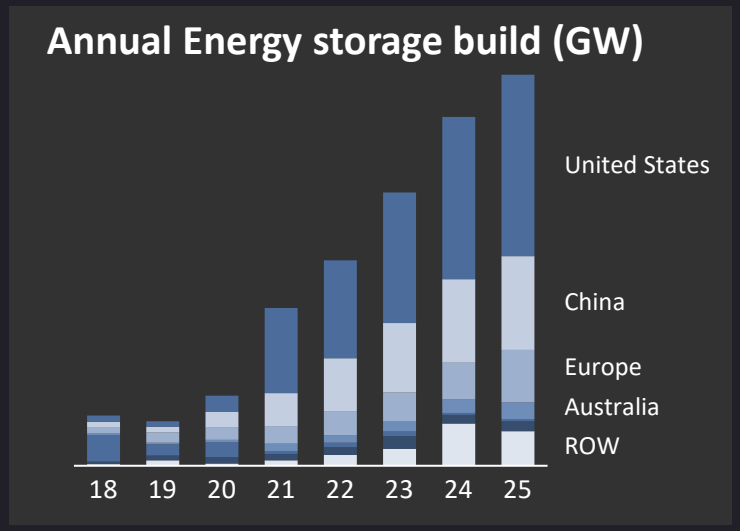
Decarbonising to avoid taking current and future risks

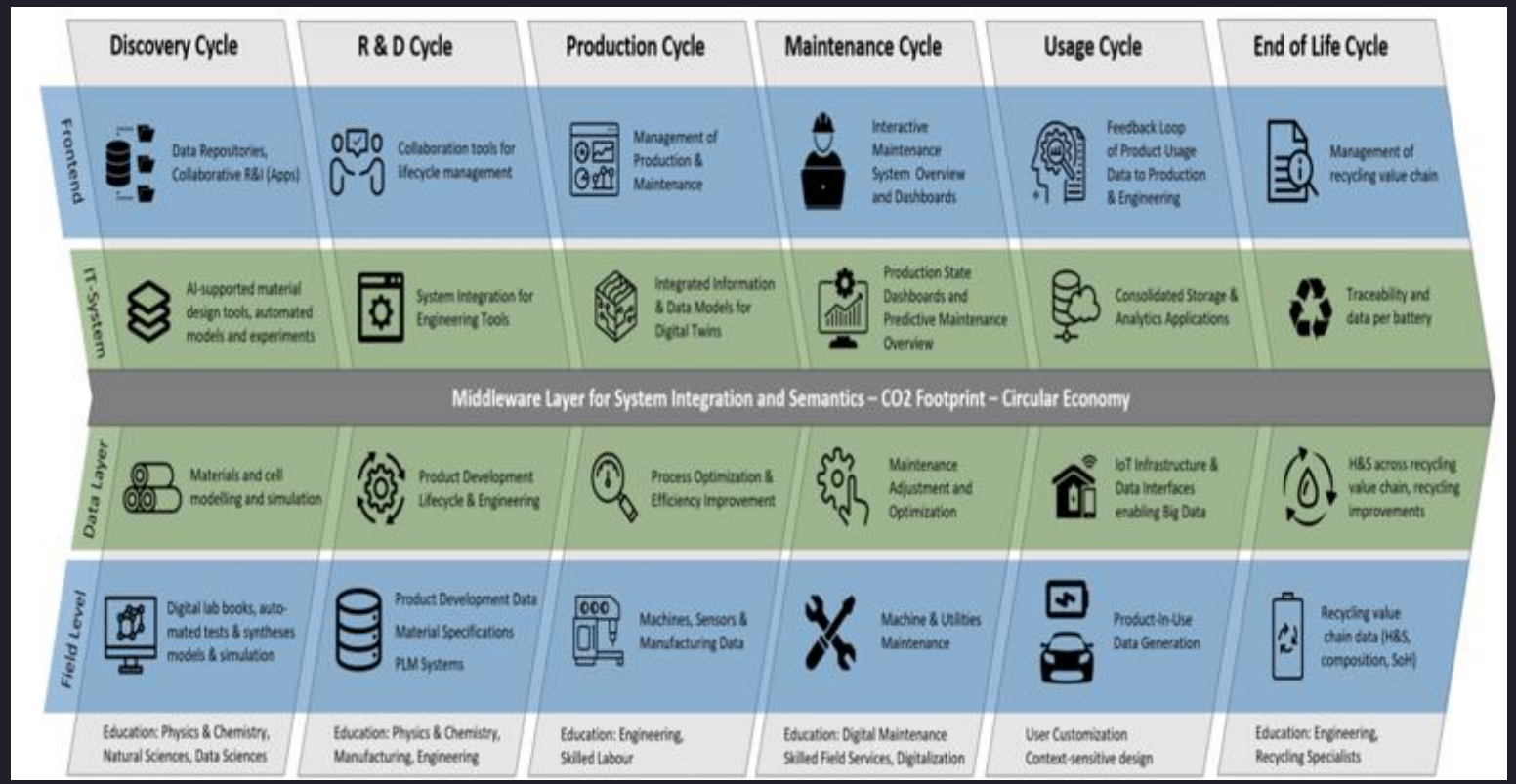
- Risk of entreprise image
- Compliance risk like penalities
- Risk of commercialisation of your own products
- Risk of entreprise profitability
- Risk of you assets valuation

What expectation in Battery factories ?

Digital innovations in the Batteries Value Chain

In 2021, the installations of battery storage more than doubled to reach 28.4 GW globally





Betteries and Renewables industry lead to a massive job creation

- ✓ **The European Battery Alliance** attracted more than **400 industrials** and innovation players
- ✓ **Batteries related projects** raised more than **4.7 Billion €** in total
- ✓ The acceleration plan should create more than **1 million jobs** in the **European Batteries** eco-system equivalent to **210 Billion €** in 2022
- ✓ The **Renewable Energy** sector counted **11 million jobs** in 2018 (IRENA)

Envision AESC

1re usine
9 GWh en 2024

2e atelier
9 GWh après 2026*

3e ou 4e atelier
9 GWh après 2026*

3e ou 4e atelier
4,5 GWh après
2026*

emplacement
envisagé pour
le poste électrique

Usine Renault

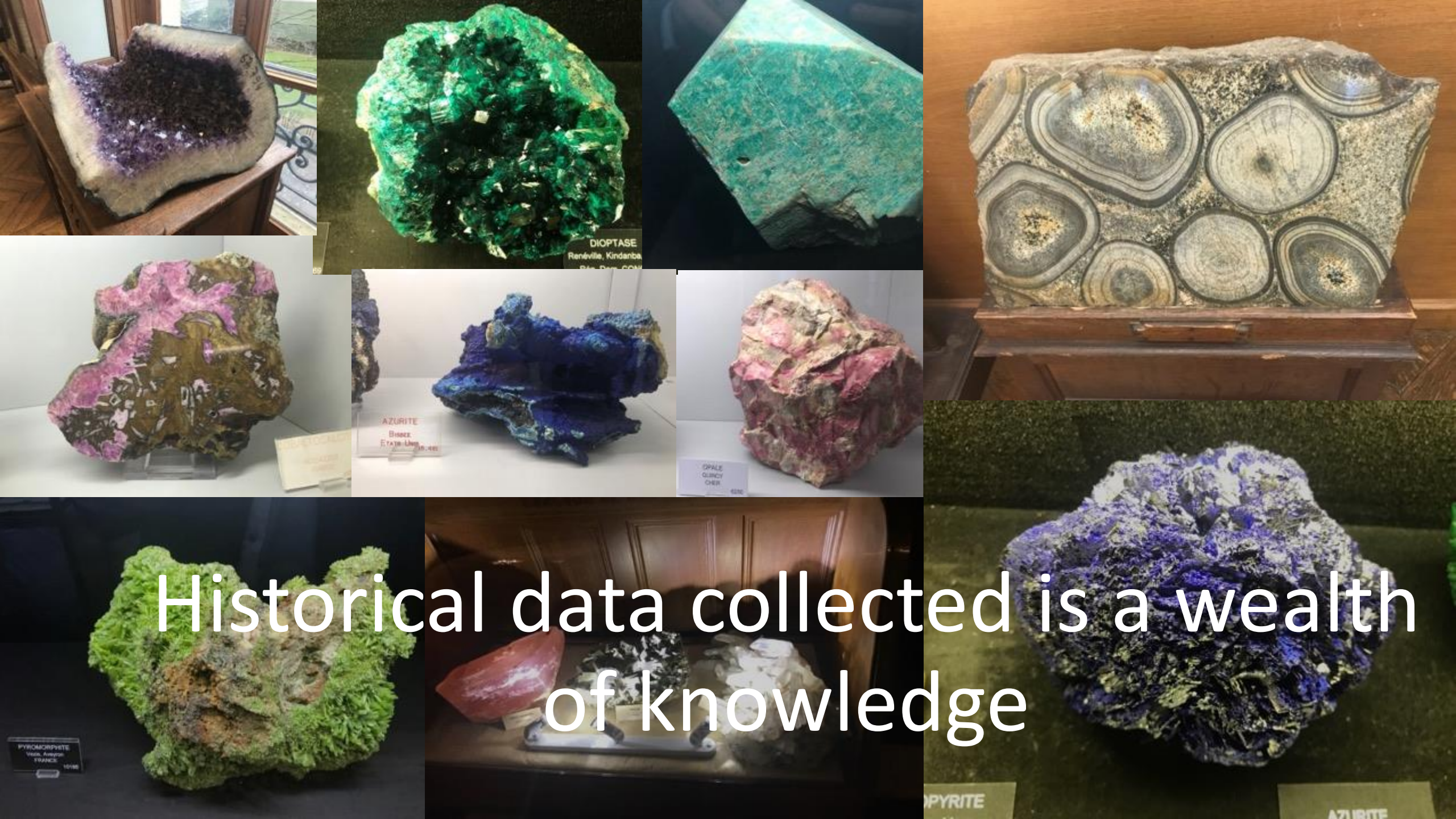
Envision Batteries carbon free factory in France

*selon les commandes
du constructeurs

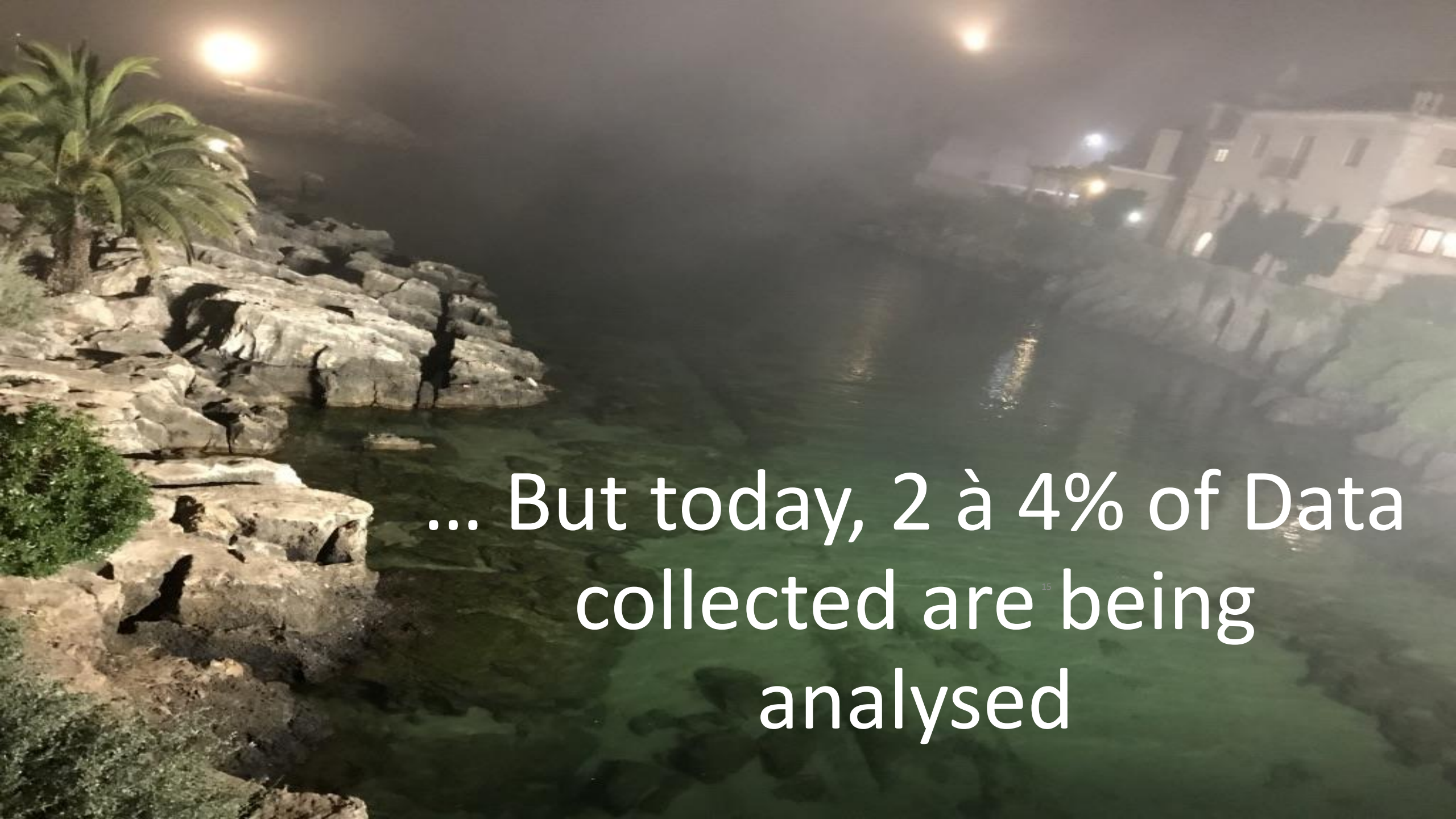
Photo repro Ph. F. - Infographie VDN P. Dew.

The new decarbonised industry revolution will be a digital revolution

Yesterday’s science fiction becomes today’s reality



Historical data collected is a wealth of knowledge


… But today, 2 à 4% of Data collected are being analysed

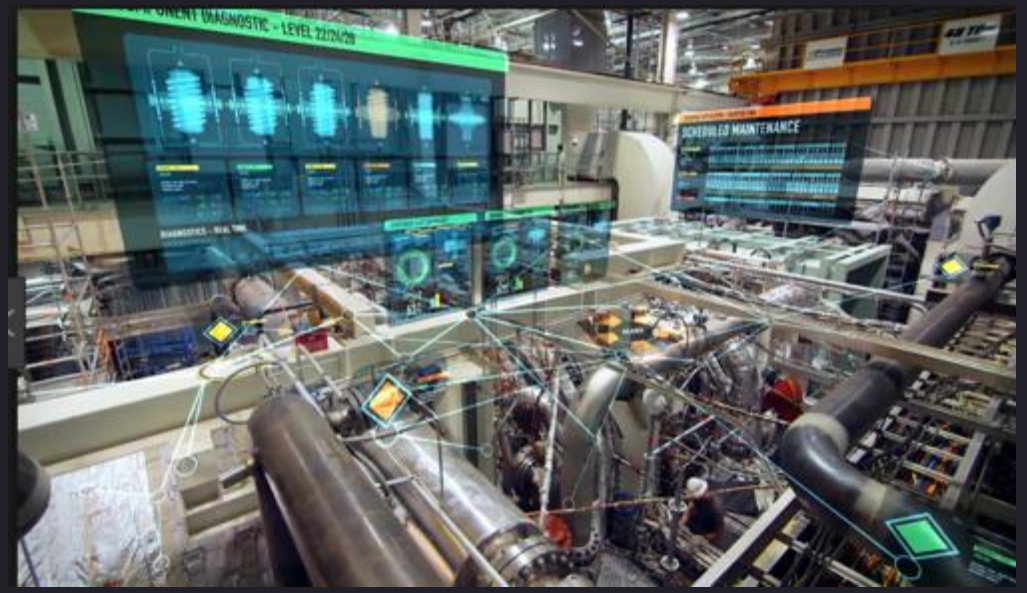
Unlock the power of Data

Artificial Intelligence (AI)

Machine Learning

Blockchain

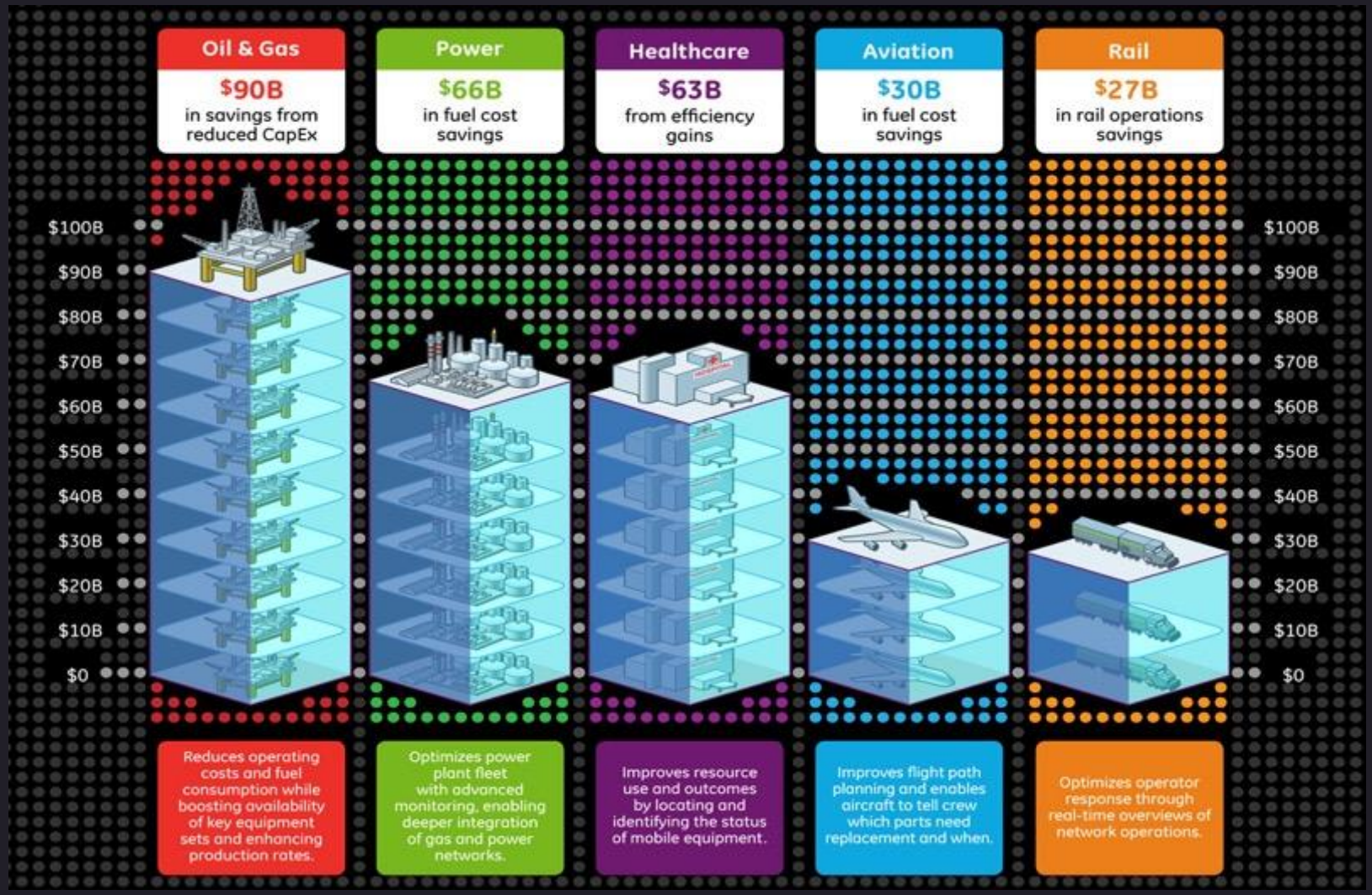
… with Data Science



Efficient and decarbonized industries

Intelligent decarbonized cities

The benefits of decarbonization of 15 years are estimated at 276 billion $ of savings every 1% of efficiency achieved



What do these cities have in common? Succeed in their energy transition and becoming low carbon and then carbon free cities

Denmark

Amsterdam

Paris

Helsinki

London

Barcelona

Smart Cities

Example of « Smart Nation Singapore” : decarbonation & digitalization

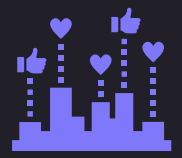
15% ↓
Energy Saved

5% ↑
Boost renewable energy yield

30% ↑
City Operation Efficiency

1+N


Lift monitoring


Smart Building


Smart Industry


Smart Port


Net Zero Industrial Park


Software Defined Charging Network

N applications

1. Reduce emissions
2. Save energy
3. Improve efficiency
4. Improve resilience
5. Expedite electric mobility
5. Net zero digital cluster

DECADA
(Powered by EnOS™)

EnOS™

ONE platforme connecting all assets and agencies

Envision digital

One-Stop-Shop Carbon Management Solution integrated with the ERP systems

Green Energy

- Wind Power
- Solar Power
- Hydropower

Envision Ark

Carbon Management

Carbon Abatement

Carbon Offset

Carbon Modelling

- Emission Factors
- Carbon Calculation Models
- Carbon Risk Analytics Models

Markets

- Renewable Energy
- Renewable Energy Certificates
- Carbon

Energy intensive devices and meters

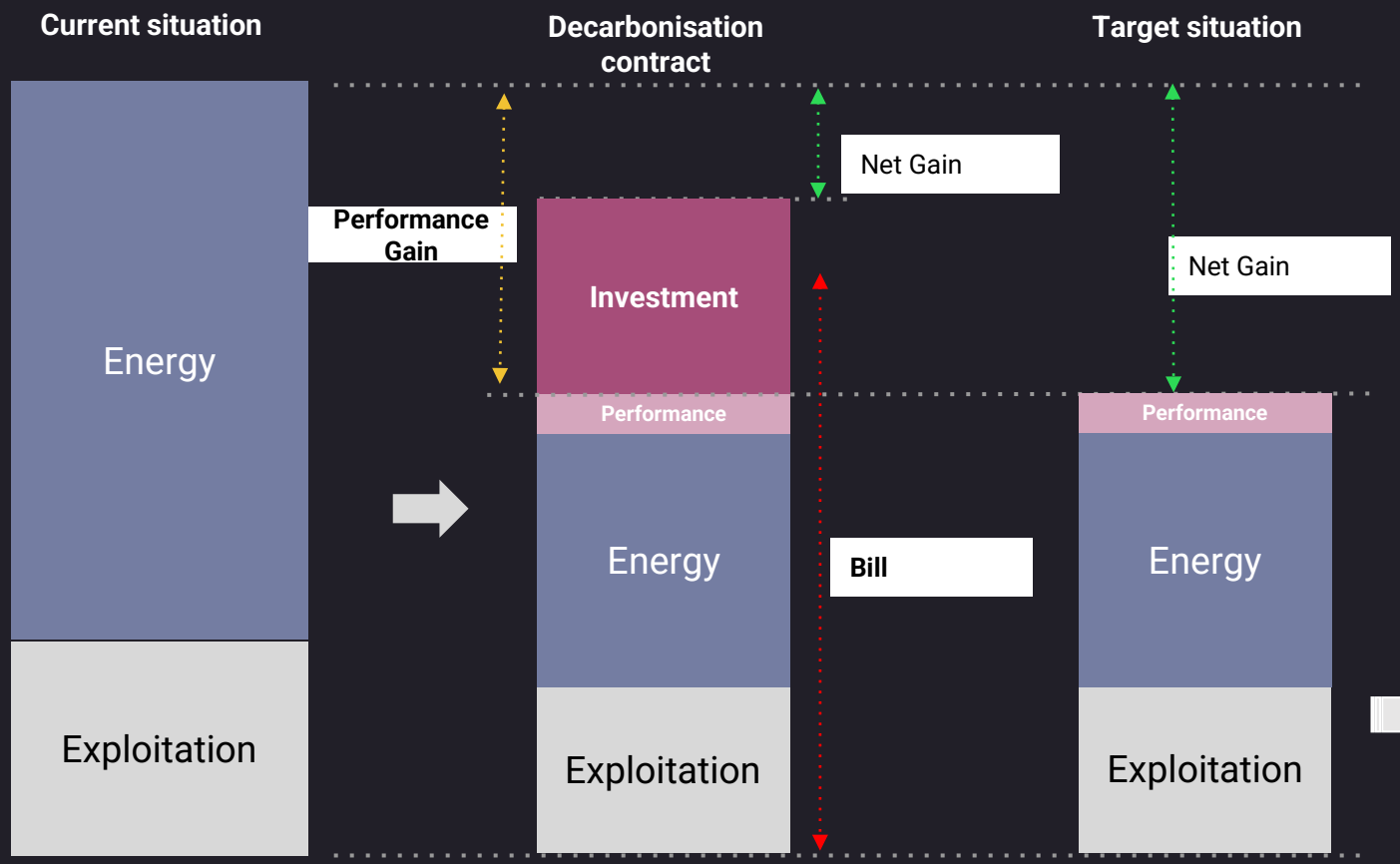
- Gas Meter
- Electricity Meters
- Renewable devices
- Steam Meter
- Water Meters

Integration with Enterprise Systems

- Energy Management System
- Travel: Uber, Ctrip, ...
- Supply Chain: SAP, ORACLE, ...
- Manufacturing Systems: MES, ...

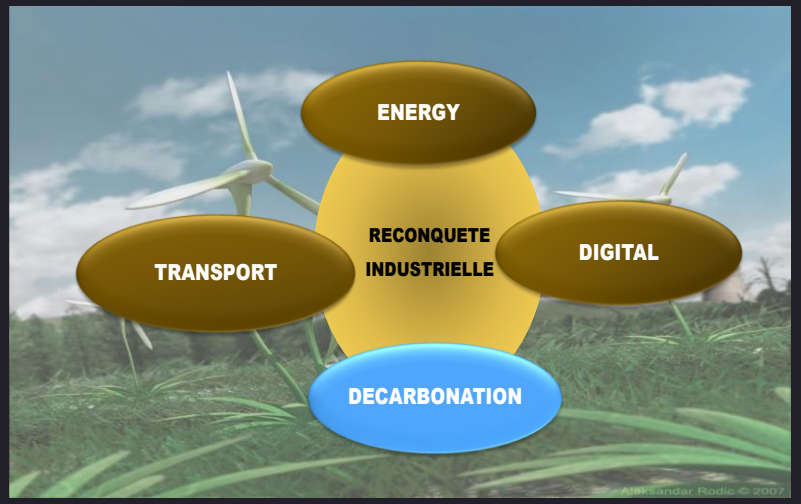
How to finance decarbonisation?

CAPEX, OPEX and ROI optimisation: Financing & performance guarantee for energy efficiency and decarbonisation



	Gain for the industrial	
	During the contrat	After the contrat
Service Provider financing	% Performance Gain	100% Performance Gain
Industrial Co-financement	% Performance Gain	

What perspective for change?

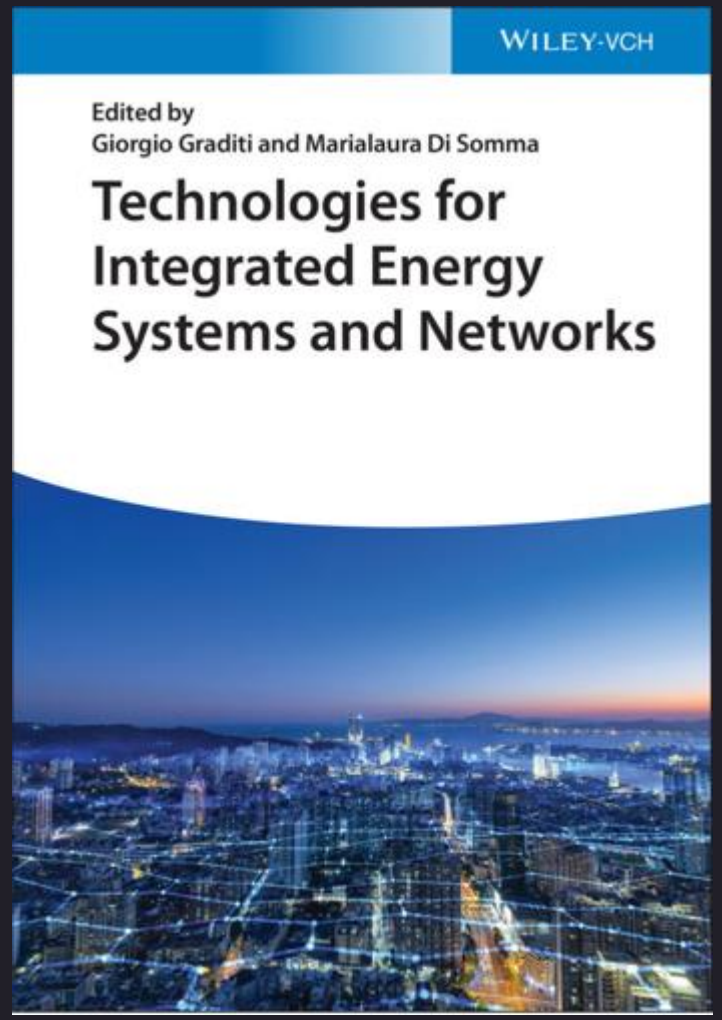


CONCLUSION

		WILL CHANGE TO …	BECOME	WITH AIOT …
1	CARBON	LIFECYCLE	NET ZERO	CARBON LCA
2	TRANSPORT	INTEGRATED	ELECTRIC	SMART TRANSPORT
3	INDUSTRY	EFFICIENT	DIGITAL	DIGITAL TWINS
4	CLIENTS	INFLUENCING	CENTRIC	DIGITAL CUSTOMERS
5	CITIES	DECARBONIZED	SUSTAINABLE	SMART CITIES

A cooperation of industrials and specialised acteurs in Digital CleanTech is needed towards achieving Net Zero !

Technologies for Integrated Energy Systems and Networks (book published in April 2022)



About the book:

Technologies for Integrated Energy Systems and Networks:

Explore emerging technologies that will play a central role in humanity's transition to a low-carbon future

Chapter 6 (40 pages)

Digitalization and Smart Energy Devices

Author : Maher Chebbo

Envision Digital is a global AIoT technology leader headquartered in Singapore with over 500 employees across ten offices in China, France, Norway, the Netherlands, the United Kingdom and the United States.

Envision Digital owns EnOS™ – the world-class AIoT operating system which currently connects and manages over 110 million smart devices and 360+GW of energy assets globally. Its monitoring, advanced analytics, forecasting and optimising applications provide insights to help clients better manage their assets and portfolio performance. Its offering extends to: Smart Renewables (Hydro, Solar, Wind); Smart Cities; Smart Buildings; Connected Energy; Smart Plants; and Smart Networks; partnering companies and governments in their digital transformation journey.

As a major player in the AIoT operating system, Envision Digital is growing an ecosystem of partners to enable energy and digital transformation globally. Its growing list of over 250 customers and partners spans across ten industries and includes: Accenture, Amazon Web Services, Govtech, Keppel, Microsoft, Nissan, Tableau, Total, PSA International, and Sonnen.

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