

Support financial actors in their decarbonization journey

Energy & climate-related data solutions

Summary

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- 02 | Who we are
- 03 | Our solutions
- 04 | Our Credentials & tools

What is at stake?

Race to 2050 Net-Zero is launched; Now the hardest is still to come

Context

- > The urgent call for climate action is driving more and more **Financial Institutions to set net-zero GHG emissions targets by 2050 or earlier**
- > Regulators and stakeholders are building up number of industry-led initiatives and standards; **methodologies and tools are flourishing to better assess their risks and opportunities of the Energy-Climate transition**
- > Beyond multistakeholder high-level commitments, **it is high time to operationalize energy-climate roadmaps, sector by sector in order to consider a soft landing of Paris-compatible trajectories**



Main challenges: Data, data and data

1. **Data as standardized as possible:** Methodology convergence and regulation needed to speed up to energy-climate analysis framework
2. **Data as disaggregated as possible:** Sectoral and regional data is required as transition will affect some sectors more than others (e.g. energy-intensive industries)
3. **Forward-looking data as robust as possible:** Due to inertia of energy systems, there is a need for long term vision with inherent uncertainties to manage

Who we are



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Since 1991, we have proven a renowned expertise in energy-climate scenario modelling services

- > Independent energy research & consulting company since 1991
- > Expert in analysis and forecasting of global energy & climate issues
- > **In-house** and globally recognized **sectoral databases** and **forecasting models**



60+
committed
Consultants
and Experts

- > Headquartered in the **Grenoble (French Alps) research cluster**; a subsidiary in **Singapore**
- > **Global reach**: Clients and projects in Europe, Asia, Americas, Middle East, Africa
- > **Connected** with **leading public institutions, financial and corporate actors, academia and NGO actors**

We leverage our fields of expertise on energy & climate (E-C) from research, data science and modelling



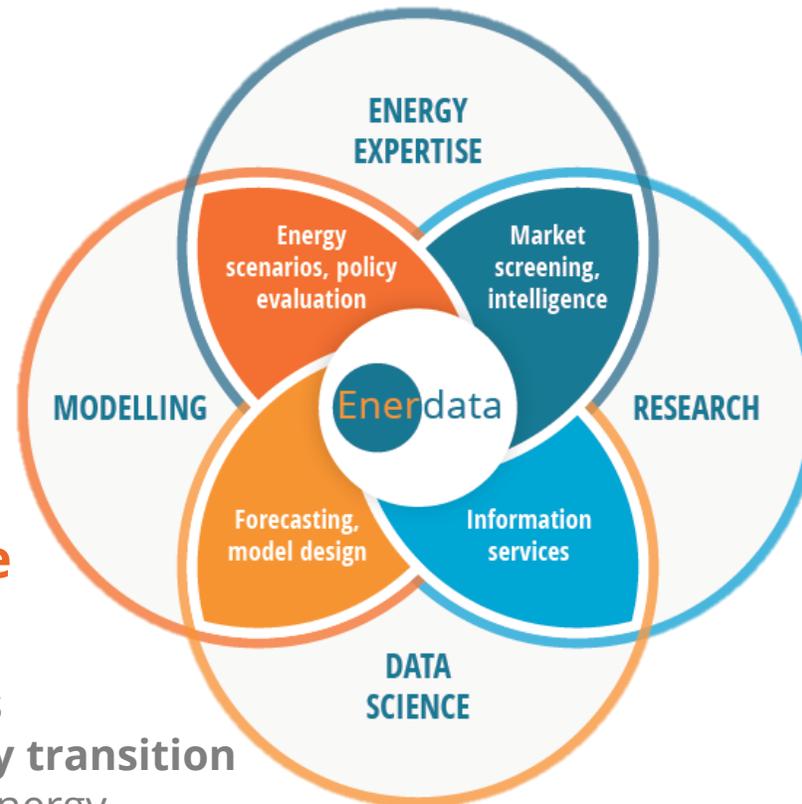
Modelling

- Creation of E-C scenarios, **climate alignment trajectories**
- Identification of alignment pathways by sector and by country



Expert in energy-climate issues

- Knowledge of **market drivers**
- **Expertise covering all energy transition pillars:** mix decarbonization, energy efficiency, sufficiency
- **Large coverage: all energies, all sectors and 150+ countries**



Market intelligence

- Business intelligence, **energy market watch**
- Tracking of E-C policies worldwide



Data science

- Gathering, consolidating and analyzing **energy data**
- **Market forecasts: supply, demand and prices**

Our solutions



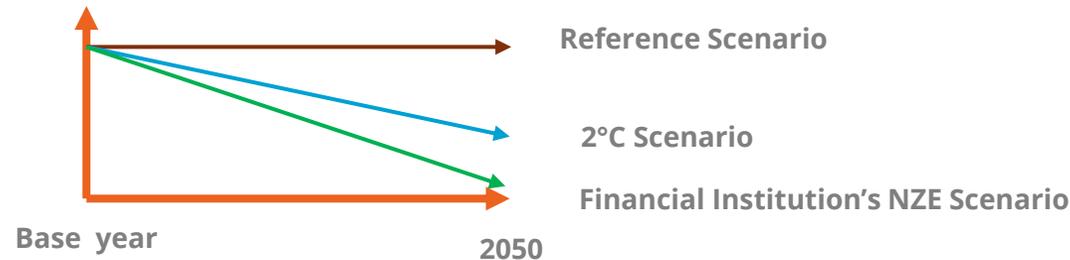
1. Start from the beginning: *define your Net-Zero vision(s) and be trained in energy-climate scenarios* at the same time

Your needs

- > From discussions with Risk Managers and ESG & Climate experts within Financial Institutions (FIs), we detected a **real need to be adequately trained in energy-related macroeconomics, the interpretation of energy-climate (E-C) scenarios and the field of expertise given by the scenario analysis.**
- > Likewise, transition pathways to Net-Zero are certainly not ready made: Net-Zero strategies shall be able to **anticipate different transitions** in which **the financial actors will be able to quickly adapt.**
- > That's why, financial institutions need to **design their own long-term visions with adaptative scenario modelling tools.**

Our Solutions

1. Conduct **training sessions** on energy market prospects, the interpretation of E-C scenario outputs and even modelling, Enerdata's core competencies.
2. Co-design your **in-house Net-Zero visions** with FI' Management team and experts during **workshops.**
3. Define your **sectoral climate objectives** aligned with your Net-Zero visions.





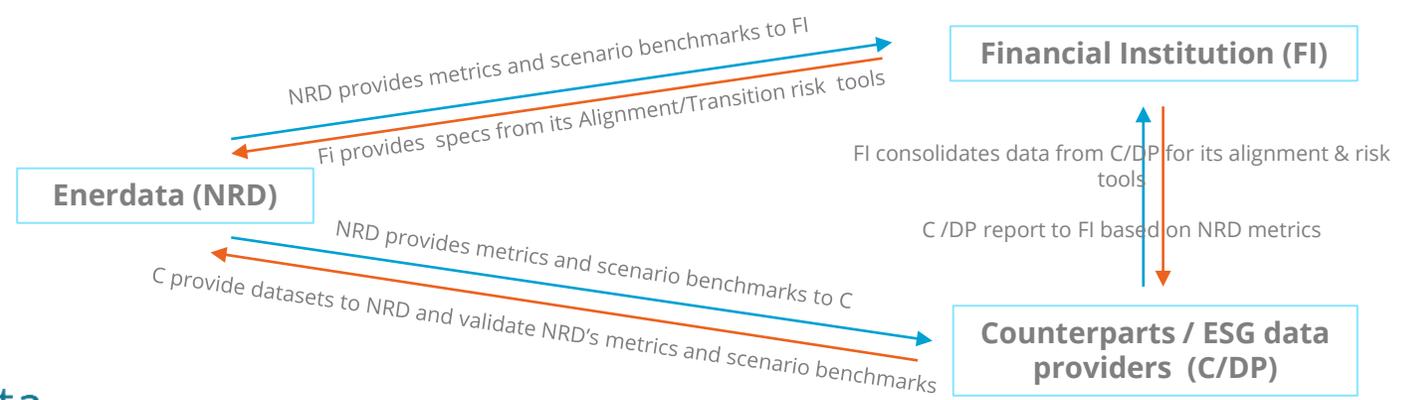
2. Dive into the metrics to translate your Net-Zero visions by sectors and geographies (1/2) - *Provide thorough sectoral data*

Your needs

- > FI's climate strategic roadmaps are necessary **but not sufficient to operationalize it**, notably **when it comes to discuss and tackle E-C issues with their counterparts, sector by sector, geography by geography.**
- > The **main obstacle currently** lies in the **lack of extra-financial data availability from the counterparts on one hand and reference scenario benchmarks on the other hand** for most sectors and regions.
- > Thus, a **critical need** is expressed by financial actors to **use good quality disaggregated data in all sectors and geographies where they operate** in order to adequately use them in their **Paris alignment methodologies and climate-related transition risk modelling tools.**

Our Solutions

- > It will necessarily be a **tripartite work** involving the **Finance Institution**, their **Counterparts / ESG data providers** and **Enerdata**
- > **Enerdata** will help build the **scenario benchmarks at finest granular level, using its sectoral expertise in energy uses.**



Definition: Scenario benchmark
Based on global E-C macro scenarios data, the scenario benchmark translates at sectoral level the quantitative indicator against which the financial institution shall target each year to be aligned with scenario projections.





2. Dive into the metrics to translate your Net-Zero visions by sectors and geographies (2/2) - *Provide thorough sectoral data*

Our Solutions

> Here below, a list of scenario metrics we can provide and can be customized as needed for two sectors as illustration.

Sector	Scenario benchmark metrics	Unit	Geographical scope	Enerdata's tools	Horizon
Building - Residential	Total sector consumption	kWh	50+ Countries	EnerFuture/POLES	2050
	Total sector emissions (scope 1+2)	tCO2	50+ Countries	EnerFuture/POLES	2050
	Consumption per energy	kWh	50+ Countries	EnerFuture/POLES	2050
	Carbon content	gCO2/kWh	50+ Countries	EnerFuture/POLES	2050
	Carbon intensity	gCO2/m2	50+ Countries	EnerFuture/POLES	2050
	Total heat consumption	kWh	10+ Countries	CEDF/MEDPRO	2050
	Unitary consumption	kWh/dwelling	10+ Countries	CEDF/MEDPRO	2050
	New building stock	m2	10+ Countries	CEDF/MEDPRO	2050
Power Generation	Total production per technology	GWh	50+ Countries	EnerFuture/POLES	2050
	Total capacity per technology	GWh	50+ Countries	EnerFuture/POLES	2050
	Average carbon content per technology	gCO2/kWh	50+ Countries	EnerFuture/POLES	2050
	Investment per technology	€	50+ Countries	EnerFuture/POLES	2050
	Development plan per company and technology	GW	200+ Companies	Power Plant Tracker /Company Dashboard	2025



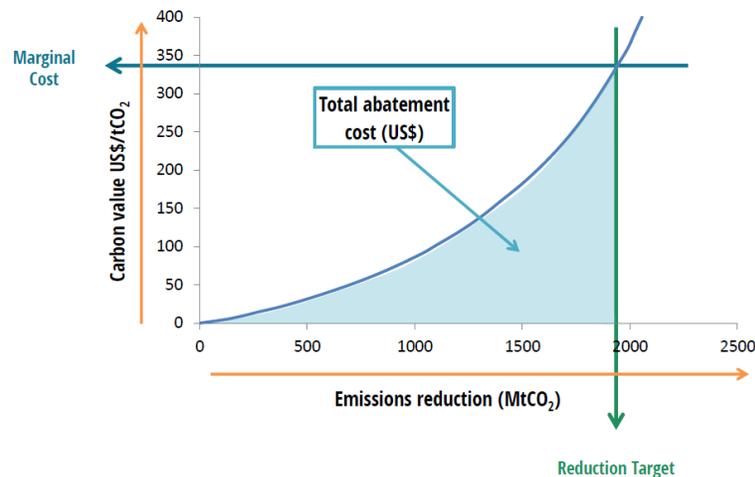
3. Provide you the adequate support for your climate stress-testing exercises (1/2) – *Sectoral abatement costs with MACCs*

Your needs

- > **Climate stress-testing exercises**, initiated by central banks (ACPR in France, Bank of England, etc.) will be increasingly required by supervisory authorities (ECB, etc.) to assess the finance institutions' resilience to financial and economic shocks from climate transition and physical risks.
- > Pilot exercises are being led, but **standardized methodologies are lagging** to properly assess finance institutions' exposure to climate transition risks. Therefore, **financial actors rapidly need to substantiate their analysis to comply with upcoming climate finance regulation.**

Our Solutions

1. As an expert in scenario modelling, we can **help you first navigate the IAM models and data** (NGFS scenarios, IIASA scenario database explorer, etc.) , **scope the exercise, refine scenario assumptions** and **select the range of scenarios for the stress-test.**
2. Beyond **scenario customization** enabled by our POLES-Enerdata model, we can also deliver relevant **sensitivity analysis tools** related to your exercise, with the help of fine-tuned **Marginal Abatement Cost Curves (MACCs)** and provide **sectoral abatement cost**



MACCs produced by POLES-Enerdata cover:

- **60+** countries/regions
- Around **20 emitting sectors**
- **6 GHGs** (from energy and industrial activities)
- All years **up to 2050**



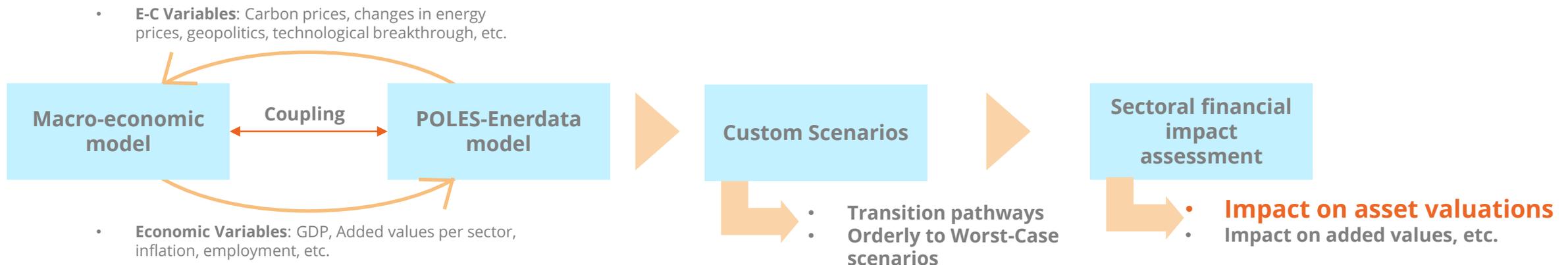
3. Provide you the adequate support for your climate stress-testing exercises (2/2) – *Impact of transition risk on sectoral valuations*

Your needs

- > Climate stress-testing is a complex exercise that requires the **robust coupling of a macro-economic model** (e.g. NIGEM model) with an **energy-climate model** a minima to properly assess the impacts of E-C variables on economic sectors (e.g. Probability of Default, etc.).
- > **NGFS scenario framework** is currently the reference for climate stress-testing and risk assessment, but **it does not offer the necessary flexibility to select your own macro-economic assumptions and your transition pathways and quantify the related financial impacts.**
- > You will increasingly need to develop **your own modelling capabilities** to become autonomous on climate scenario analysis.

Our Solutions

1. We can propose you to **specifically work on the coupling of the macro-economic models with our energy-climate POLES-Enerdata model** to build up **rigorous connections between energy-related and macro-economic systems at granular levels.**
2. We can **partner with renowned macro-economic research institutions** to couple their models with POLES model.





4. Provide our *up-to-date* and *robust models and databases* to feed in your Decarbonization & Sustainability analysis framework

Your needs

- > As part of your ESG/Climate analysis framework, you will increasingly need to strengthen your raw data sources with sectoral **up-to-date and comprehensive databases that aggregate physical assets, CAPEX projections, etc.** The databases will help you to factor in decarbonization and sustainability issues in your portfolio management process.
- > **Forward-looking data** is key to prepare transition plans, **avoid lock-in effects** and the emergence of **stranded assets** as **potential financial losses**. **Projections in future sectoral demand** (e.g., number of electric vehicles, heat pumps, etc.) give **clear signals on low-carbon market risk and opportunities**.

Our Solutions

1. We provide **thorough up-to-date forecasts products** along with **asset-level databases** that will satisfy your need for raw data.



Country
Energy
Demand
Forecast

Country Energy Demand Forecast: Created from **MedPro** model, CEDF is an innovative service offering **consumption projections to 2050, drilling down to end-uses and industrial branches.**



EnerFuture

EnerFuture: Created from **POLES** model, EnerFuture provides energy projections to 2050. Our service **offers clear insights into the future of energy demand, electricity generation, prices and GHG emissions by energy source and sector at both country and regional levels.** EnerFuture distinguishes three scenarios : EnerBase, EnerBlue and EnerGreen.



EnerDemand

EnerDemand: Provides a unique selection of data to **monitor energy efficiency trends and access detailed information for the world's most energy-consuming countries.** This service provides **energy consumption data by sector and by end-use, energy efficiency trends, indicators and drivers from 2000 to 2019.**



Power
Plant
Tracker

Power Plant tracker: is a powerful database to **screen and benchmark power generation development, assets, and companies covering 85% of the world's power capacity.**
→ PPT includes the **Company DashBoard module**, which provides strategy, operational and financial indicators for power companies around the world (**200+ companies from Asia, Europe and America**).

Our credentials



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We assist public and private actors on various energy-climate issues



(2021)

Price forecasts & E-C outlook

Energy price forecasts and prospective energy-climate analysis **for a large institutional investor**



(2019)

Carbon neutrality pathway

Setting up of the roadmap enabling the SNCF Group to achieve carbon neutrality by 2050



(2019)

PPA Price Estimate

Modelling of renewable PPA prices and of renewable technologies production costs in Europe to 2050



(2021)

Transport Scenarios

Calculation of energy demands and GHG emissions at 2030 and 2050 for the Transportation sector



(2021)

Residential Scenarios

Study of the levers and issues of the low-carbon transition of the residential sector in the medium and long terms



MINISTÈRE
DE LA TRANSITION
ÉCOLOGIQUE

(2018)

UE Package E-C 2030

Modelling of different prospective energy-climate scenarios for the European Union by 2050



Department for
Business, Energy
& Industrial Strategy

(Since 2009)

Providing E-C data

Providing to BEIS E-C data from 1990 to 2050 and marginal abatement cost curves (i.e. "MACC") based on the WEO of the IEA



(2018)

ZEN 2050 Project

Assistance for the construction of a Net Zero Emissions scenario for France by 2050



(2021)

PER 2050 Project

Assistance for the design of prospective scenarios designed to offer visions of a sustainable energy and climate future

ROYAUME DU MAROC



Ministère de l'Énergie, des Mines
et du Développement Durable

(2020)

Vision Morocco 2050

Assistance to the elaboration of the National Low Greenhouse Gas Development Strategy (LT-LEDS) of Morocco

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About Enerdata

Enerdata is an energy intelligence and consulting company established in 1991.

Our experts will help you tackle key energy and climate issues and make sound strategic and business decisions.

We provide research, solutions, consulting and training to key energy players worldwide.

<https://www.enerdata.net/>

