

# EnerFuture MACCs

The unique Online Service for  
CO<sub>2</sub> Marginal Abatement Cost Curves



ENERFUTURE MACCs Powered by the  
**POLES Model**  
*(Prospective Outlook on Long-term Energy Systems)*

## What are future CO<sub>2</sub> reduction potentials and what are their costs across economic sectors?

To answer this question, Enerdata has leveraged 30 years of forecasting expertise and its globally recognised **POLES model** to create a NEW and UNIQUE Online Service that offers instant access to long-term Marginal Abatement Cost Curves.

## What are MAC Curves?

**Marginal Abatement Cost Curves (MACCs)** reflect the different levels of emissions reductions that can be reached at various carbon price levels in a given year, a given country, and a given sector. All MACCs are derived from a fully explicit baseline scenario.



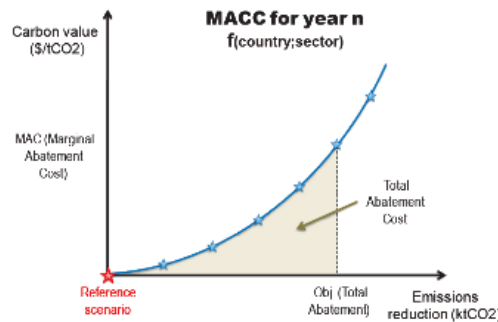
# Why MACCs?

The MACCs are a very powerful tool that is used by policy makers, researchers, and business analysts to assess climate policies, evaluate their costs and efficiency, and simulate carbon markets such as the EU ETS.



## Who Needs MACCs? And Why?

- **Government Agencies** - to shape CO2 mitigation policies and to set targets
- **Energy Companies** - to evaluate future scenarios vis-a-vis carbon constraints
- **Industry** - to formulate carbon strategy: carbon trading and emissions reduction
- **Energy Traders** - to evaluate future CO2 emissions credits, prices, and volumes



On a MAC Curve, the x-axis represents the emissions reduction, the y-axis the associated carbon value and the area under the curve the total abatement cost.

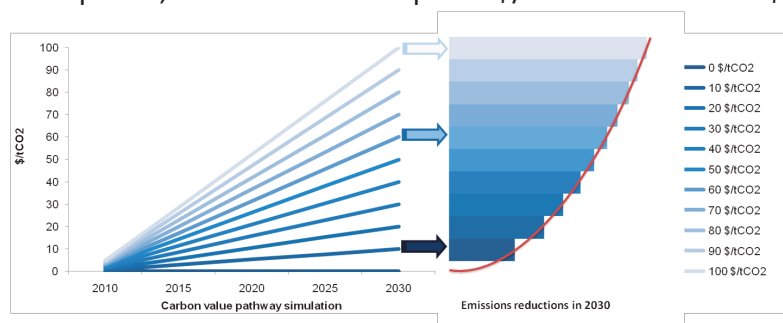
The MACCs in the Enerfuture Service are generated with the POLES-Enerdata model, they are available for 6 different time periods (2015, 2020, 2025, 2030, 2040 and 2050), 65 countries/regions, 15 sectors and two contrasted baseline scenarios.

## MACCs Sector Options

Option 1 AGGREGATED Sectors	Option 2 DETAILED Sub-Sectors
Energy	Power Generation, Other Energy Transformation
Industry Combustion	Steel, Non-metallic Minerals, Chemistry, Other Industry
Industry Processes	Steel, Non-metallic Minerals, Chemistry
Residential & Services	Households, Tertiary, Agriculture
Transport	Road, Air, Other Transport

The energy system that provides the basis of the MACCs does not include a GHG reduction policy (as described in EnerFuture’s Recovery & Depression scenarios). From this reduction-less and cost-less pathway, the MACCs establish, through a sensitivity process, the responses of the energy model to various shadow carbon prices that demonstrate the intensity of a climate policy. At each step of the calculation, emissions reductions compared to baseline scenarios are calculated for all economic sectors and all regions.

In order to have sufficient detail on abatement strategies at low carbon values, the calculation step is 5\$/tCO2 between 0 and 100\$/tCO2. At high emissions reduction levels with a limited number of points, the calculation step is 20\$/tCO2 between 100\$/tCO2 and 400\$/tCO2.



## Online Interface

The screenshot shows the Enerdata EnerFuture web portal interface. The main content area is divided into four columns: Countries, Years, Series, and Scenarios. The Countries column lists 65 countries/regions, including Europe, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, and Germany. The Years column has checkboxes for 2015, 2020, 2025, 2030, 2040, and 2050. The Series column lists various data sets such as Total GHG (excl. LULUCF), Total CO2, Power, Industry, and Residential-Services. The Scenarios column has checkboxes for S1 - Recovery and S2 - Depression. A 'Generate Excel file' button is at the bottom. Callout boxes point to the 'One-click access to our web portal' (top left), 'Scenario selection' (top right), 'Access 65 countries/regions' (middle left), and '31 different data sets' (middle right).

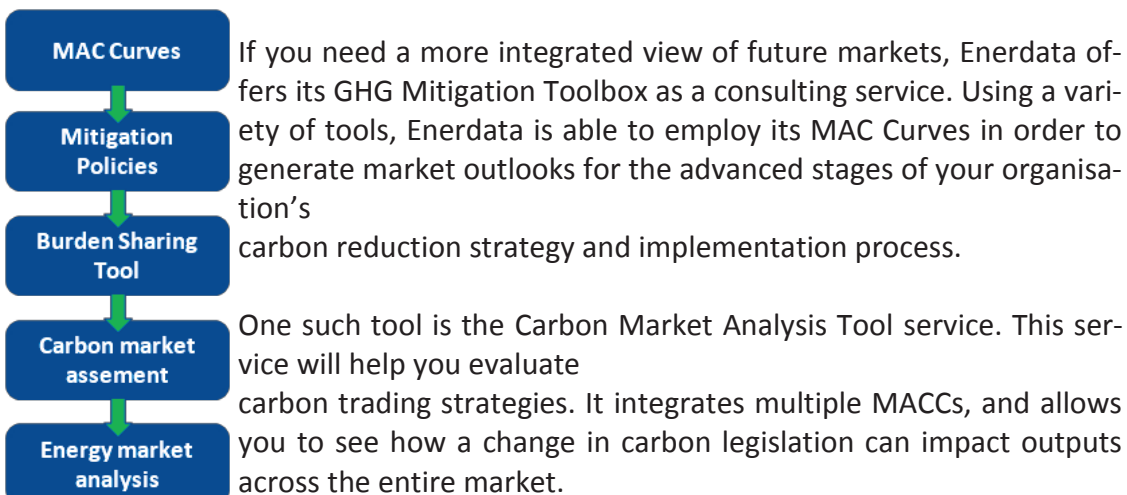
## KEY FEATURES

- Long-term Marginal Abatement Cost Curves (2015, 2020, 2025, 2030, 2040, 2050)
- Output data: projected CO2 reduction according to carbon prices
- 65 countries & regions covered
- CO2 emissions by sector aggregates: power, industry, transport, residential & services, total
- MACCs generated by the globally recognized POLES model
- Using 2 current EnerFuture scenarios: Recovery & Depression
- Sector details: Energy, industry-combustion, industry-processes, residential & services, transport (optional)

## KEY BENEFITS

- Get data and insight from one of the few recognised MACCs experts in the world
- Benefit from the time-tested and reputable POLES model
- **UNIQUE!** Have instant, online access to MACCs
- Receive MACCs seamlessly integrated into the EnerFuture service, or as a stand-alone service
- Modelling methodology made explicit
- 24/7 online access
- Enerdata experts at your service for data support

### Need further insight?



## COUNTRIES and REGIONS COVERED

### EUROPE

Austria  
Belgium  
Bulgaria  
Croatia  
Czech Republic  
Denmark  
Finland  
France  
Germany  
Greece  
Hungary  
Ireland  
Italy  
The Netherlands  
Norway  
Poland  
Portugal  
Romania  
Slovakia  
Slovenia  
Spain  
Sweden  
Switzerland  
Turkey  
United Kingdom  
Baltic States

EU 15  
EU 25  
EU 27

### ASIA

India  
China  
Indonesia  
Japan  
South Korea

Other South Asia  
Other South East  
Asia  
Australasia  
OECD Pacific

### NORTH AMERICA

Canada  
United States

### CENTRAL AMERICA and CARIBBEAN

Mexico  
Others

### SOUTH AMERICA

Brazil  
Others

### AFRICA

Algeria  
Egypt  
Libya  
Morocco  
Tunisia  
South Africa

North Africa  
Other Sub Saharan  
Africa

### MIDDLE EAST

Gulf Countries  
Others

### CIS

Russia  
Ukraine  
Other CIS

### How to subscribe?

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### About Enerdata

**Enerdata** is an independent information and consulting company specialising in the energy sector. Enerdata experts and analysts have incomparable experience in the analysis of energy markets and issues of the energy industry at a global level. Enerdata has been developing and maintaining powerful data & research services for more than 25 years.

### Other information services available:

#### Global Energy & CO2 Data

Historical CO2 emissions and multi-energies data for expert analysis on 184 countries

#### Global Energy Research

110 country reports for a comprehensive view of the local energy landscape

#### EnerFuture

Forecast of demand & prices for all energies and CO2 emissions by sector to 2030 as well as power mix by fuel

#### European Utilities Watch

A competitive benchmark of all major European utilities

#### Odyssee

Detailed energy consumption by end-use and energy efficiency indicators by branch

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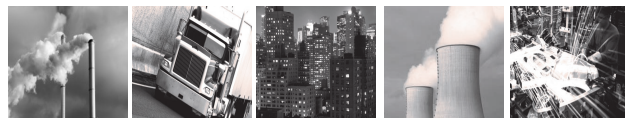
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