




# THE TRUE COSTS AND BENEFITS OF RENEWABLE ENERGY

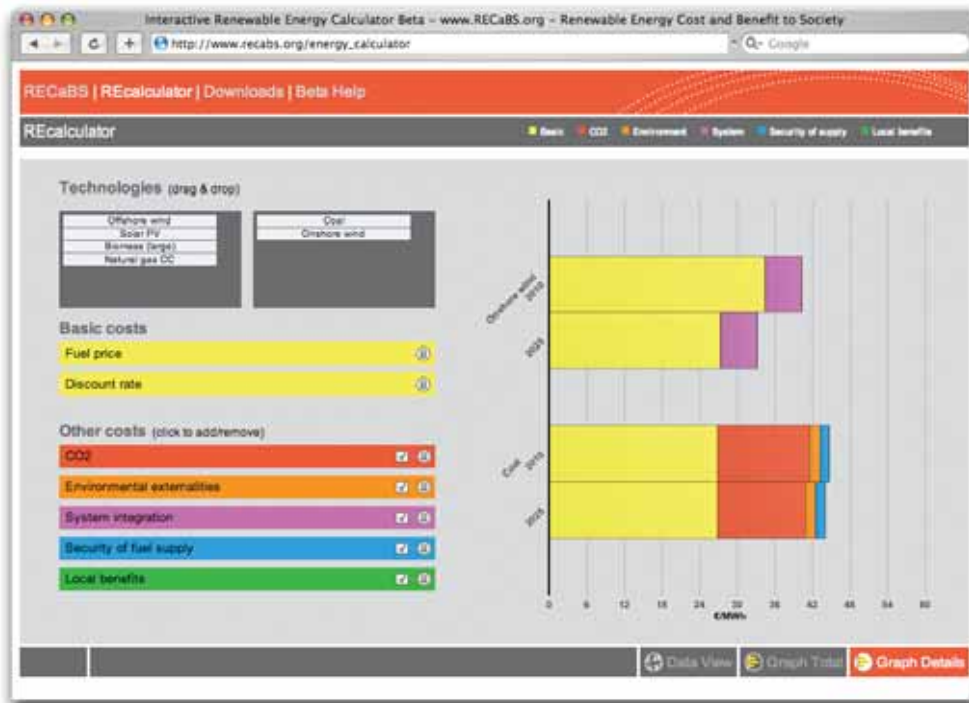
MAKE OPTIMAL INVESTMENT DECISIONS BASED ON BETTER KNOWLEDGE ABOUT THE LONG TERM BENEFITS OF RENEWABLES



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# HOW GOOD IS RENEWABLE ENERGY - MAKE YOUR OWN ASSESSMENTS

A new web-based Interactive Energy Calculator has recently been established: [www.recabs.org](http://www.recabs.org)



Example: Coal is cheaper than wind if compared at basic costs, but more expensive if the value of externalities are included.

Here you can easily do your own economic comparisons of renewable electricity generating technologies and traditional technologies. At the same time you can be certain that the data is well-documented and among the most reliable in the world. If you believe you have higher quality data, you are invited to submit them, so that other users may benefit from your insight.

## SPECIAL FEATURES

The website includes a template for comparison of electricity generating technologies. It includes generally accepted values of calculation parameters, which can be used as default. All economic and technology assumptions will be available at the site, fully referenced. Comparisons are based on the long-run marginal cost of electricity generation (EUR/MWh), including investment costs, operation and maintenance costs, and fuel costs. Technology data are based on Best Available Technology (BAT).

**There is data for two years:** 2010 (investment decisions of today) and 2025 (to illustrate the benefits of technology learning). The website allows the user to adjust key parameters to analyse the impact on competitiveness between technologies and fuels. All default assumptions are available at the site.

## MORE THAN THE USUAL BENEFITS INCLUDED

The benefits of renewable energy and the disadvantages of conventional technologies are often not sufficiently accounted for in energy markets and in energy planning. Thus, there is a need for a more level playing field between RE technologies and conventional fossil and nuclear technologies.

With the new tool, you can analyse various external costs and benefits at your own choice:

- Environmental externalities (CO<sub>2</sub> and other air pollutants)
- Grid integration (primarily extra costs to electrical infrastructure, power balancing costs and reduced capacity value for wind turbines and additional reserve capacity for nuclear power plants)
- Security of fuel supply (substitution of fuel imports with indigenous resources)
- Local benefits (primarily employment)

Thereby, the tool provides the basis for developing recommendations for international and national policies that could level the playing field for renewables by internalising externalities in energy prices.

## INFORMATION AS AN ICE BREAKER

Shared and transparent information will increase the common understanding - or at a minimum reduce misunderstandings.

A broader international consensus between utilities, national authorities, research institutes and international cooperational bodies can reduce barriers currently preventing implementation of optimum solutions.

With a better understanding of the socio-economic costs and benefits, governments can easier improve framework conditions for renewable energy, so that market actors will make optimal investment decisions from a societal point-of-view.

## WHAT IS THE NOVELTY?

The new calculator enables anyone to make cost-benefit analysis based on generally accepted values of calculation parameters. It also allows the user to adjust key parameters to replace default values for comparison of different technologies. Data and documentation rely on internationally respected sources.

## WHICH TECHNOLOGIES?

### THE FOLLOWING TECHNOLOGIES ARE INCLUDED IN THE PROJECT:

- Wind turbines, on-shore
- Wind turbines, off-shore
- Photovoltaic cells, grid-connected systems
- Solar thermal power
- Biomass, large-scale combustion, 100% biomass, cogeneration
- Biomass, large-scale combustion, 20% co-firing of biomass, cogeneration
- Biomass, medium-scale combustion in industries
- Biomass, small-scale gasification
- Biogas, centralised plants
- Incineration of municipal solid waste, cogeneration
- Small hydro
- Natural gas combined cycle
- Pulverized coal
- CO<sub>2</sub> capture and storage; as add-on to pulverized coal
- Nuclear power

## THE RECABS PROJECT

The project "Renewable Energy Costs and Benefits for Society" is initiated by the International Energy Agency's Implementing Agreement on Renewable Energy Technology Deployment (RETD). The primary objective of the RECaBS project is to estimate the costs and benefits of electricity from renewable energy sources compared to conventional technologies, in a fully documented and transparent way, including collecting and documenting the required and appropriate data. The web based Interactive REcalculator Energy Calculator is the main output from the project. The project was launched in November 2006 and it will be concluded in October 2007.

For more information contact the project leader Hans Henrik Lindboe, Ea Energy Analyses, recabs, hhl@eaea.dk.

Visit [www.recabs.org](http://www.recabs.org)  
and [www.iea-retd.org](http://www.iea-retd.org)

## THE RETD IMPLEMENTING AGREEMENT

The IEA Implementing Agreement on Renewable Energy Technology Deployment is supported by Canada, Denmark, France, Germany, Ireland, Italy, the Netherlands, Norway, and the United Kingdom, while Japan and New Zealand participate as observers.

### THE AIM OF THE RETD IS TO:

- Accelerate the deployment of renewable energy by carrying through a number of selected activities in the period 2006 – 2010. The target groups for the activities are policy makers and private companies dealing with energy. The main activities will be to identify cross-cutting barriers to deployment and providing best-practice solutions;
- Provide guidance to the private sector and policy makers on innovative business strategies and projects that encourage technology deployment;
- Facilitate ongoing international dialogue and public awareness of renewable deployment by contributing concrete examples of deployment solutions.

### DO YOU WANT TO KNOW MORE?

You can read about RETD and the activities at [www.iea-retd.org](http://www.iea-retd.org). You can download the report "Renewable Energy Technology Deployment – Barriers, Challenges, and Opportunities". You can also sign up for an email service that will keep you updated of RETD activities.

The RETD, also known as the IEA Implementing Agreement on Renewable Energy Technology Deployment, functions within a framework created by the International Energy Agency (IEA). Views, findings and publications from the RETD do not necessarily represent the views or policies of the IEA Secretariat or of all its individual member countries.