



ECOFYS

A SUSTAINABLE ENERGY SUPPLY FOR EVERYONE

Sustainable energy services and innovations



# Our mission: a sustainable energy supply for everyone

The consequences of climate change present considerable challenges to companies and citizens alike.

Above all, business requires stability and predictability. As a result many companies are looking for cost-effective ways to reduce CO<sub>2</sub> emissions by investing in energy efficiency and renewable sources of energy.

There is no doubt that working towards a sustainable energy supply is a strategy that pays off in the long run. However, there are also more immediate benefits that can be achieved right now. These include lower costs and reduced emissions. The solutions and innovations that we offer at Ecofys enable businesses to achieve both profitability and social accountability. But we do more – we also work with the public sector on implementing more effective policies and campaigns. Our mission is to move towards a sustainable energy supply for everyone.

## Combining expertise and knowledge

You can benefit from the hands-on expertise and sound knowledge that we have built up over the years at Ecofys. Our ability to integrate know-how on just about every aspect of sustainable energy and energy efficiency with knowledge of a wide variety of market segments is the key to our success. Our solutions cover energy strategy, renewable energy projects and product development as well as energy management and publishing. Our clients range from major industrial players and small and medium-sized enterprises to housing associations, non-government organisations, financial institutions and public authorities.

Market segment	Main activity
Industry and energy suppliers	Energy strategy, renewable energy projects, corporate carbon solutions
Building and real estate	Energy use in buildings, energy management, energy supply, energy infrastructure
Authorities	Energy strategy, policies and campaigns
All sectors	Innovation

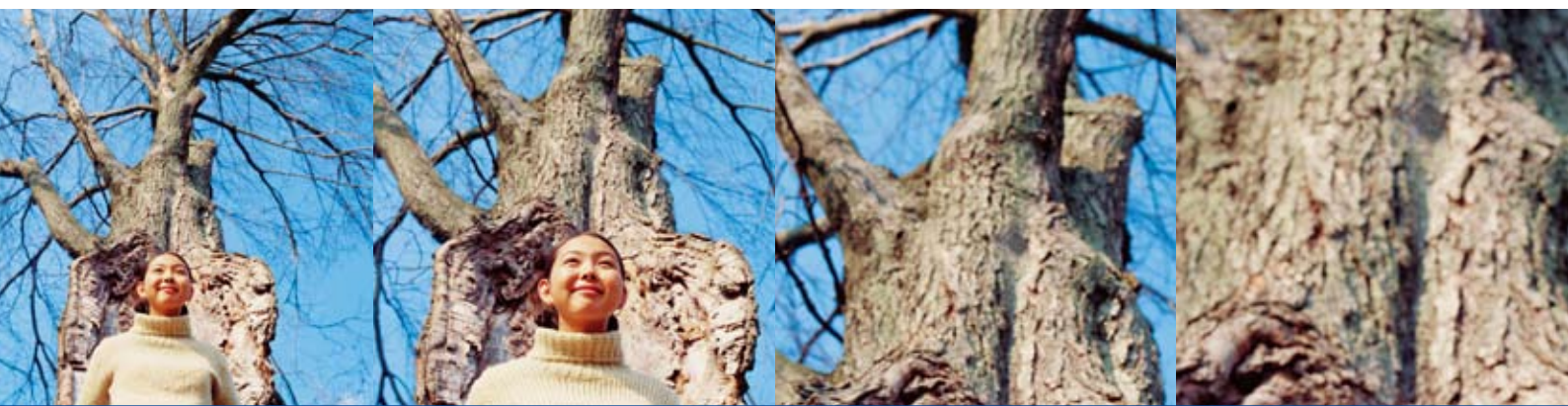
## Results that make a difference

We always aim to balance the needs of economy and ecology and our dedicated, talented professionals have been producing results that make a difference to organisations like yours since 1984. We have access to all the expertise needed to help clients achieve sustainable energy and carbon solutions. The professionalism of our specialists ensures optimum results, all the way from initial research through to implementation.

# Profiting from renewable energy and emission management

We have considerable experience of identifying opportunities in renewable energy production such as wind, biomass power generation, biofuels for transportation and solar energy systems. Acting as your partner throughout the whole project, we operate as a sounding board for your ideas and offer practical solutions and opportunities that you may well not have considered possible.

As a leading business consultant, we are able to offer a comprehensive package of carbon services that enable clients to comply with emissions legislation and help clients to formulate socially responsible energy strategies. We are also able to optimise the costs involved thanks to our expertise in emissions trading and in taking advantage of abatement opportunities.



## **ECOFYS ENERGY EFFICIENCY AND GREENHOUSE GAS SOLUTIONS:**

- Strategy development
- Asset management & trading support
- Monitoring and reporting
- Management tools & systems
- Abatement planning and implementation

## **ECOFYS PROJECT DEVELOPMENT SERVICES:**

- Quick scans and feasibility studies
- Technical optimisation
- Permits/environmental impact assessments
- Procurement and Power Purchase Agreement (PPA)
- Subsidies and finance



## OFFSHORE WIND POWER

We played a leading role in realizing the 120 MW Princess Amalia wind farm – the largest off the coast of the Netherlands – which was opened in June 2008. Our wind resource assessment and technical due diligence work contributed to this becoming the first non-recourse financed offshore wind farm. Providing the technical team for the owner, we developed foundations, wind turbine and electrical packages for construction further offshore (23 km) and in deeper water (up to 24 m) than ever before. During construction, we monitored the underwater noise generated by driving mono-piles and we carried out quality control during installation and planned the O&M strategy. Now the farm is in operation, we continue to provide environmental monitoring and short-term wind energy predictions (WPS).

- **Offshore wind farms in the UK, the Netherlands, Belgium and Germany**
- **Specialised project development services**
- **Optimised wind farm design**

## BIOFUELS INNOVATION

Delta, a Dutch utility company, was looking for ways to widen its range of fuels for co-firing. Ecofys assessed the feasibility of co-firing biomass using torrefaction technology in Delta's 600 MWe coal plant. Torrefaction is a process that is technically comparable with the roasting of coffee beans. By torrefying biomass such as wood and verge grass, these materials can easily be pulverised. This enables Delta to mix biomass fuels directly with their coal, which not only extends the range of fuels they can use for co-firing, but also increases the volume of biomass that can be co-fired and thus cuts operational costs.



- **Dutch utility company**
- **Co-firing biomass**
- **Fuel flexibility**
- **Cost reductions**

# Smart solutions for energy-efficient buildings



In recent years we've seen significant progress in sustainable solutions for all kinds of office buildings, business parks and housing estates. Being energy efficient brings both economic and environmental benefits. We can help you get the best from the energy that is used in your building by creating effective solutions that ensure the highest level of building comfort at the lowest level of operating cost. This is just one example of ways in which smart solutions from Ecofys are able to enhance the quality of life, now and in the future.

## ECOFYS SERVICES FOR THE BUILT ENVIRONMENT:

- Energy concepts and plans
- Implementation of sustainable energy solutions
- Project management

## SOLAR HOUSING ESTATE

Ecofys has developed a number of housing estates which demonstrate innovative solar energy applications in the built environment. We create concepts for solar renovation, manage projects, supervise quality control and carry out social demographic research.

Köln–Bocklemünd is a large housing estate in North-Rhine/Westphalia that was built in the 1960s. We were instrumental in redeveloping and transforming it into a highly energy-efficient, solar housing estate for two housing corporations.

This project demonstrates the added value of housing designs that combine energy saving with renewable energy sources. What's more, the tenants did not have to pay any additional rent. It is now a very popular residential area. Indeed, the innovative nature of this project has received a great deal of exposure and its success was reflected in the award of the Stern Ecocity prize in 2002.



- **Housing association**
- **Energy-efficient**
- **High-quality residential area**

## ENERGY MANAGEMENT



Energy management is both an art and a science, which involves controlling and improving energy use and costs. Our holistic approach combines elements such as monitoring, audits and improvements in energy efficiency. The work we've done in Dutch railway stations demonstrates the benefits of energy management.

The number of tenants in railway stations has increased dramatically over the past decade, from small shops to Prorail, the national organisation responsible for passenger traffic in stations. This presented a complex energy challenge, in particular because a single energy meter generally served the whole station.

So we developed a method to allocate energy to the various tenants and a subsequent energy-efficiency plan for both the railway stations and Prorail. Not surprisingly, the largest potential saving was on lighting. In addition to supporting the implementation of the measures and monitoring improvements, we continue to advise Prorail and the railway stations on further ways to enhance energy management.

- **Public buildings**
- **Monitoring and managing energy**
- **Cost-saving**

# Ensuring effective policies for a sustainable future

Energy is a precious commodity. Growing industrial and residential demand requires a sustainable supply of renewable energy and energy-efficient systems. To achieve this, a clear strategy is essential. At Ecofys we seize every available opportunity to demonstrate that a sustainable energy supply is in the interests of everyone. We contribute to public sector policy-making and clear target setting as well as government campaigns that support appropriate technological and environmental solutions.



## ECOFYS SERVICES AT BOTH THE NATIONAL AND PAN-EUROPEAN LEVEL:

- Environmental research on climate change and renewable energy
- Advice on policy initiatives and development
- Translation of policies into practical solutions
- Advising on energy conservation and the reduction of emissions
- Monitoring, tracking and evaluating policies
- Advice on energy campaigns to accelerate the use of renewable energy in households

## ASSESSING EU RENEWABLE ENERGY POLICIES

Ecofys regularly analyses progress made in devising and implementing renewable energy as well as renewable energy policies in EU nation states. These quantitative analyses are complemented by an evaluation of how relevant EU directives have been implemented at the national level and the design of instruments to overcome specific market barriers.

On behalf of the European Commission, we carried out an extensive stakeholder consultation as part of the European OPTRES project. The aim was to identify the barriers to the commercial introduction of renewable electricity in the EU and the different experiences of stakeholders with regard to support schemes for renewable energy sources. This enabled the European Commission to formulate its 2005 report on support schemes as indicated in article 4 of the Directive on promoting electricity generation from renewable energy sources (2001/77/EC).



- Evaluation of support instruments
- National and european policies
- Development of renewable energy

## LOCAL CAMPAIGNS



Local authorities have climate targets, which might be those formulated by government at the national level or even more ambitious targets that they have set themselves.

Ecofys has introduced a variety of services to help local authorities achieve such targets. A campaign known as WarmWonen (Keeping warm in the home) was launched for consumers living in and around the city of Leiden in the Netherlands. We provided house owners with information about various energy saving possibilities via a website and phone number. Agreements were also made with suppliers and installation firms to offer special deals on energy-saving products and services for the local residents.

- Municipalities
- Energy-saving campaign
- Achieving climate targets



# Working on tomorrow's products today



Product and system innovation is vital if we are to meet the growing demand for sustainable supplies of energy. Products and systems need to become more efficient and reliable, cheaper to produce, easier to install and manage, while continuing to look good and work efficiently. We believe that the market for renewable energy can grow significantly through improved products and systems. By coupling knowledge and innovative technology to a clear vision of the market, we can help you transform creative ideas into attractive, competitively priced products.

## ECOFYS INNOVATION SERVICES:

- Developing sustainable energy products, systems, websites and databases
- Creating industrial and conceptual design, basic design and engineering
- Installing, testing and improving prototypes
- Developing, improving and managing industrial production processes
- Managing the logistics of delivering unique products

## URBAN TURBINES

Realising the huge potential that wind energy to offer, Ecofys looked for innovative ways to benefit from the power of the wind in the urban environment.

This search resulted in a range of Urban Turbines®, innovative wind turbines designed specially for built-up areas. The turbines can be placed on buildings, near buildings or integrated into street architecture. Blending elegantly into the built environment, these turbines are a landmark for sustainable energy.



- **Built environment**
- **Innovative**
- **Landmark**



## CLOSED GREENHOUSE

Ecofys has developed an innovative concept for boosting the share of renewable energy sources in the greenhouse industry and ensuring compliance with ambitious environmental targets for energy savings.

The 'Closed Greenhouse' concept is based on subterranean energy storage. In summer the windows in the greenhouse are shut and the excess heat is stored underground. Heat pumps use the stored energy to create the right temperature for heating the greenhouse at night and in wintertime. Apart from energy savings and the usage of renewable energy, this innovative technique results in higher levels of production, less water consumption and less need for potentially polluting crop protection products.

- **Greenhouse industry**
- **Energy savings**
- **Use of renewable energy sources**
- **More ecological production methods**

## Ecofys is a leading company in the field of sustainable energy services and innovations

To find out how Ecofys can help you achieve your ambitions, please contact us. For a complete overview see [www.ecofys.com](http://www.ecofys.com).

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