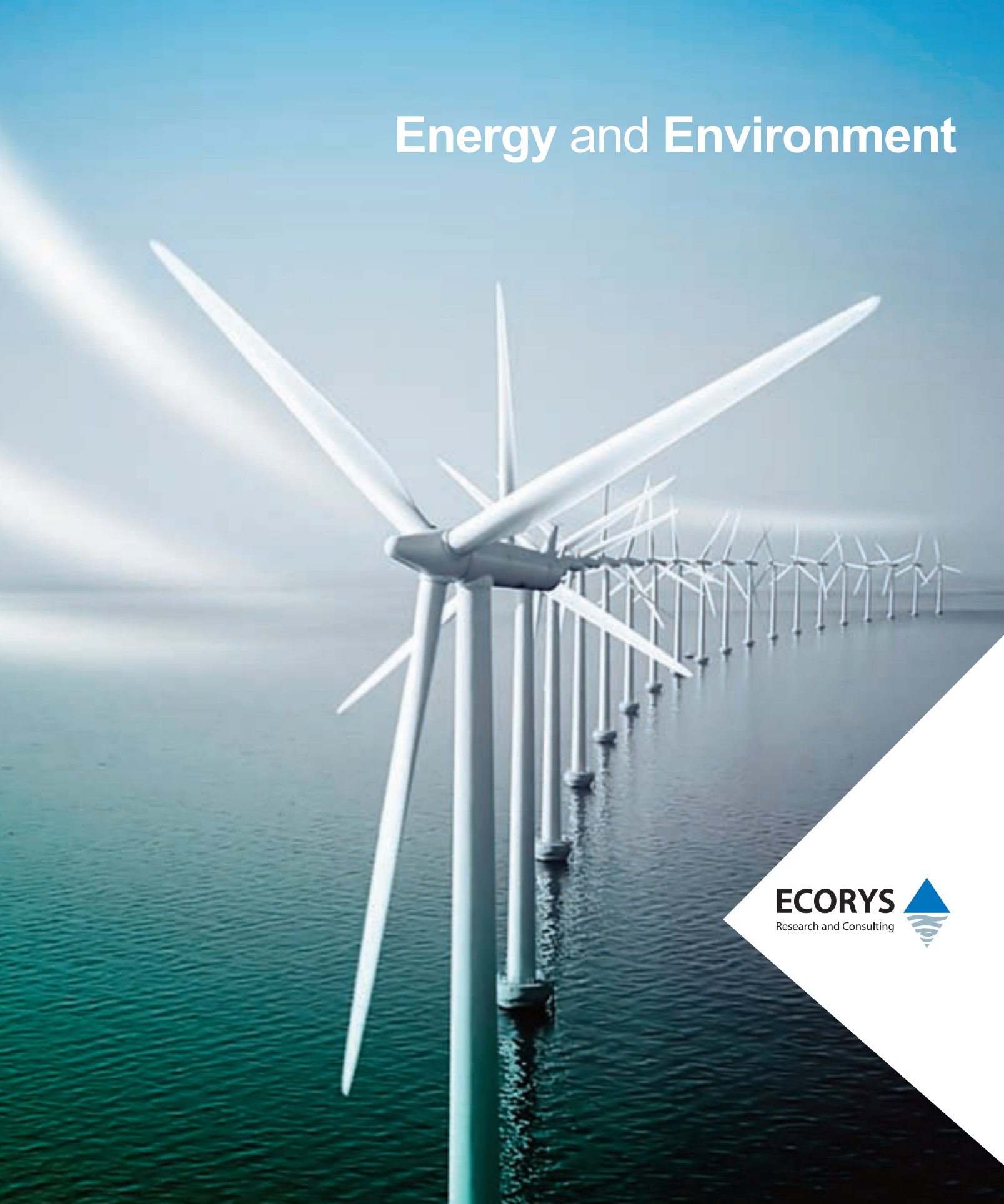


Energy and Environment



ECORYS
Research and Consulting



Colophon

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ECORYS Holding BV
ECORYS Marketing & Communications Team

Watermanweg 44
3067 GG Rotterdam
P.O. Box 4061
3006 AB Rotterdam
The Netherlands
T +31 10 453 86 76
F +31 10 453 87 55
E info@ecorys.com
W www.ecorys.com

About this brochure

This brochure was produced using paper stock derived from sustainable forests.

About ECORYS Energy & Environment

ECORYS holding

ECORYS is an international consulting company. Our aim is to improve public policy across the world and to deliver real benefits to society through the work we do. ECORYS employees have varied backgrounds in economic, environmental and life sciences. The different divisions at ECORYS provide consulting services in transportation, urban development, health, trade, finance, social policy, real estate and energy and environmental issues. Currently, ECORYS has around 600 staff working from 16 offices in 11 countries serving the interests of our clients (see map).



ECORYS Energy & Environment

ECORYS Energy & Environment is one of the fastest growing businesses of ECORYS. Being part of a large, multi-disciplinary organisation, ECORYS Energy & Environment is able to deliver strategic advice to policy-makers by combining in-depth energy and environmental expertise with a clear understanding of the societal and economic context in which new policies have to be implemented. Our client base stretches from local authorities and non-governmental organisations to government ministries, the European Commission and global financial institutions such as the World Bank and the European Bank for Reconstruction and Development.

In order to provide our clients with the high quality evidence they need for governance or corporate decision making, ECORYS Energy & Environment offers a wide range of environmental and energy consulting services. Typical services include:

- Energy and environmental policy advice
- Impact assessments (IA) & Evaluation and monitoring of programmes and policies
- Cost-benefit analysis & modelling and scenario-building

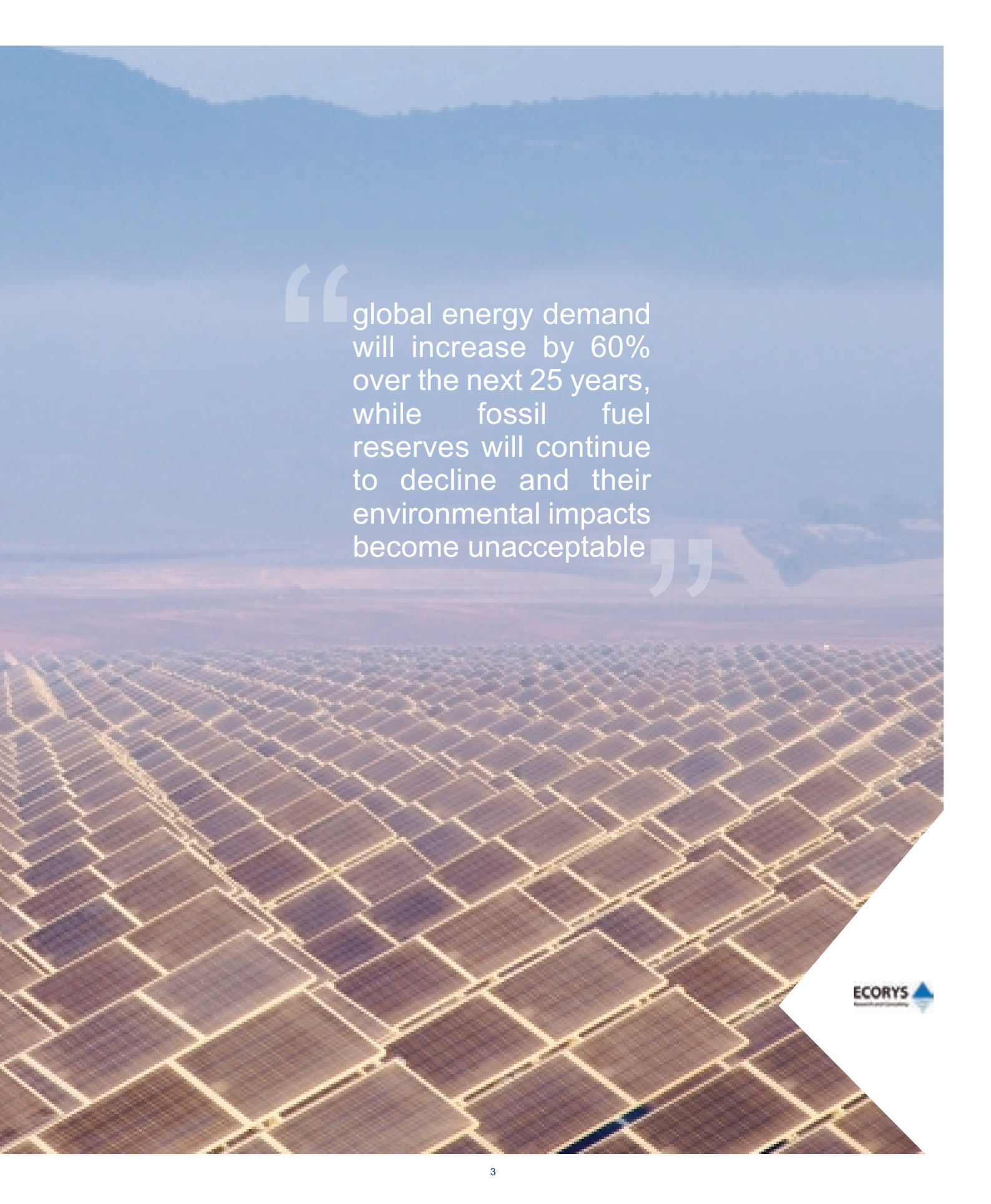
ECORYS - Energy

A sustainable, affordable and secure supply of energy is a fundamental requirement for a thriving economy. ECORYS Energy & Environment recognises that the energy market requires special attention and solutions for matching energy supply and demand, for the efficient and effective use of energy sources and the successful deployment and integration of renewable energy sources.

When it comes to matching energy supply and demand, huge investments will be needed in the physical and commercial infrastructure of the energy generation sector over the coming decades to meet increasing energy demand. Significant improvements in energy efficiency can be achieved in various sectors of the economy, including in the construction, transport, housing and the process and manufacturing industries. Finally, renewable energy sources can play a major role in tackling the twin challenges of energy security and global warming.

To advise policy-makers on these issues, we offer consulting services in the following areas:

1. Renewable energies
2. Energy efficiency
3. Fossil fuels
4. Common energy issues



“ global energy demand will increase by 60% over the next 25 years, while fossil fuel reserves will continue to decline and their environmental impacts become unacceptable ”

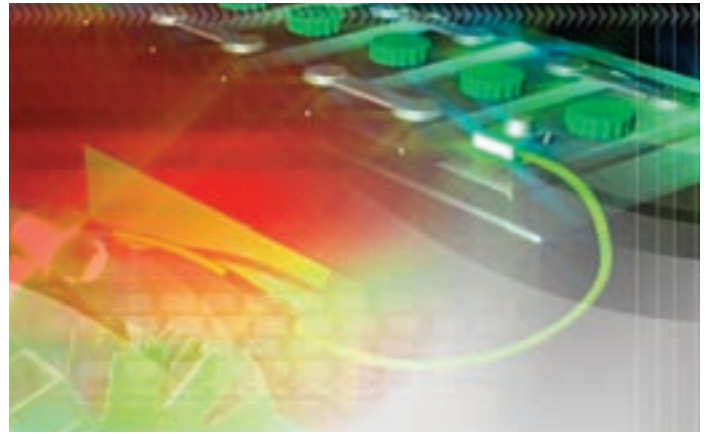


1. Renewable energy services

Over the past few years the volume of our renewable energy services has been increasing steadily. Our services related to renewable energy span a wide spectrum of technologies including solar power, on- and off-shore wind energy, and energy from biomass. Furthermore, our expertise covers analysis of the impact of renewables on energy infrastructure such as district heating networks, 'smart' grids and biogas hubs.

ECORYS's recent assignments include

- Providing the Netherlands Wind Energy Agency with a second opinion on the feed-in tariff for onshore wind parks.
- Exploring innovative instruments such as public private partnerships for financing various types of renewable energy projects, contributing significantly to the ambitious targets of the region, for the province of Gelderland.
- Carrying out a market analysis of the offshore wind potential and an overview and analysis of relevant parameters for preparing a challenging tendering procedure for pioneering wind parks in the North Sea on behalf of the Dutch Ministry of Economic Affairs.
- Compiling inventories for each renewable technology and identifying the barriers, other than those of a financial and technical nature that hinder renewable energy deployment in each Member State for the European Commission (DG ENERGY).
- A private sector UK client commissioned ECORYS to provide an analysis of the wider economic benefits of windfarm developments.



2. Energy efficiency

One of the most important ways to reduce carbon emissions is by saving energy through making various processes and products more energy-efficient. This is true for a variety of economic sectors, ranging from industry to transport, and from housing to consumer goods and services. Our energy-efficiency consulting services focus on the building sector, which currently accounts for nearly 40% of all EU energy use and therefore is of particular importance for energy efficiency measures. Besides the building sector, we also focus on services related to energy-efficient consumer goods and services. Innovation and efficiency at various stages in the production, distribution and consumption of consumer goods and services can play a significant role in achieving EU-wide energy efficiency gains.

ECORYS's recent assignments include

- Assisting the European Commission (DG ENERGY) to evaluate the EC initiative to upgrade the skills of the building workforce to implement measures with regard to energy efficiency and renewable energy.
- Assisting the Commission (DG ENERGY) by assessing the Impacts of the Recasting of the Energy Performance in Buildings Directive (EPBD).
- Calculating the economic, environmental and social impacts, and administrative cost of different policy options for implementation of the appropriate eco-design requirements for different products (for DG ENERGY).
- Carrying out the preparatory study for the Impact Assessment of the EU Energy Savings Action Plan 2020-2030 (DG ENERGY).
- Assisting the commune of Apeldoorn and its housing corporations in defining their role in contributing to more efficient use of energy in the building sector.
- Since 2002, ECORYS has evaluated numerous energy efficiency proposals submitted to the UK's Carbon Trust under the Low Carbon Innovation Programme.





3. Fossil fuels

Whilst renewable energy sources are growing rapidly, the great majority of households and factories in Europe remain fuelled by fossil fuel sources.

Our consulting services cover the entire fossil fuel value chain, from the extraction, transportation, distribution, retailing and trading of fossil fuels to derived energy sources. The natural gas and coal markets, as well as the electricity sector, are an area of particular expertise within ECORYS, including Liquefied Natural Gas (LNG) policy and carbon capture and storage (CCS) methods.

ECORYS's recent assignments include

- Performing a financial and statistical analysis of the roles of exchange-based and over-the-counter energy trading in European wholesale energy markets for DG Transport & Energy.
- Carrying out a study for the Dutch Ministry of Economic Affairs into seasonal flexibility in the Dutch gas market.
- Undertaking a study on behalf of the Dutch Ministry of Economic Affairs into the main determinants of Dutch petrol prices, including an international comparison, to get a better understanding of petrol prices and the formation thereof in the Netherlands.
- Assessing the investments needed in EU nuclear power plants, as well as fossil fuel and renewable energy generation technologies due to the effects of climate change and related adaptation measures on behalf of the European Commission (DG ENERGY).
- Warwickshire County Council commissioned ECORYS to update and model the energy/carbon statistics for this English county.



4. Common energy issues

The current energy system is in a transition from a centralised grid to a smart and more decentralised grid. Although large centralised generation will remain a key component of energy systems there is a growing trend towards decentralised and small scale generation. The widespread introduction of feed in tariffs will continue to promote growth in user – generators. The deployment of electric vehicles will also have a significant impact on the requirements of the electricity system. The increasing use of 'Smart' meters and controls to direct energy flows will lead the transition to a smart grid.

With regard to energy markets, transportation and smart grids, our services cover the whole range from energy infrastructure (e.g. large scale or high voltage DC interconnections) to the barriers, drivers and implications of smart metering, and beyond that, to subjects such as the regulation of the grid, energy investments, and development within energy markets.

ECORYS's recent assignments include

- Assessing the Dutch regulatory authority for energy and gas market (DTe) method for adjusting the regulated income of network operators following the transfer of high voltage networks from regional electricity distributors to the national electricity transmission operator.
- Performing an Ex-post Evaluation of the TEN-E Programme 2000-2006 for DG Transport and Energy.
- Providing DG ENERGY with a feasibility study, including specific recommendations, on how to proceed in order to set up an EU-OPEC Technology Centre.
- ECORYS developed an energy strategy for the West Midlands region in the UK, focusing on identifying actions that can be taken within the region to meet national targets for climate change mitigation.



ECORYS - Environment

The continued well-being and prosperity of humanity is ultimately dependent on the condition of the environment and its natural resources. A healthy, clean and thriving natural environment enables the supply of sufficient food, protection from disasters like floods and storms and provides the derived goods and services that fuel our economy, and are necessary to maintain the social cohesion of our communities. However, while the global demand for environmental services, including clean water, clean air, and sustainable land use is increasing; human activities combined with the effects of climate change, are increasingly disturbing ecosystems and threatening the stock of natural capital that provides these services.

Environmental consultancy work at ECORYS reflects these challenges:

- developing strategies for biodiversity protection,
- understanding forest degradation and fragmentation,
- analysing disaster scenarios and risk management response mechanisms,
- integrating green measures and instruments in economic and social policy-making,
- overcoming market failures that result in externalities,
- addressing environmental governance weaknesses, and
- assessing the environmental impacts of national and European policies on the state of the environment.





1. Biodiversity

The global wealth of biodiversity continues to decline at unprecedented rates, as human development and expansion result in the fragmentation and loss of habitats for flora and fauna. The worldwide loss of biodiversity is expected to continue at an increasing pace in the coming decades, as action to address the key underlying causes, linked to economic and market failures, is unlikely to be successful in the short term. The United Nations has declared 2010 the International Year of Biodiversity – and ECORYS intends to use this opportunity to promote the importance of biodiversity to policy-makers and business alike.

ECORYS conducts biodiversity consulting by providing strategic as well as technical advice to solve biodiversity challenges in an innovative way. Taking a holistic approach to the issue of maintaining biodiversity is one of the ways that ECORYS can add value to its clients as our expertise is based on the full range of economic, social and environmental know-how vital to find good solutions.

ECORYS's recent assignments include

- Being selected to provide options for an EU post-2010 biodiversity strategy. This follows on from ECORYS' recent study into the underlying causes of biodiversity-loss and the policy assessment framework, commissioned by the European Commission.
- Assessing the costs and benefits of monitoring systems of progress towards an EU post-2010 biodiversity target.
- Performing a cost-benefit analysis (CBA) for the Dutch Ministry of Environment on sustainable agriculture using increased biodiversity instead of traditional pesticides for biological control of pests.
- Undertaking the ex-post evaluation of the 'Green Spaces and Vital Links' programme in London, which aims to build capacity and secure environmental improvement in key locations across the UK Capital.



2. Forestry

Local, national, EU and international forest policies address a wide variety of issues ranging from sustainable forest management, to productive versus protective functions of forest resources, to forests and their relation to climate change, as well as the issues surrounding deforestation and forest degradation. Around 30% of the global total land area is covered by forests, of this; 11% is designated for the conservation of biological diversity and one-third is used for production of wood and non-wood products. Forests have multiple important environmental and socio-economic functions and their sustainable management is vital for sustainable development at the local, national and global levels. Despite ongoing policy efforts to reduce deforestation, around 13 million hectares of forests continue to be lost every year. Forests will also be affected by climate change, which over time might jeopardise their capacity to perform economic, social and ecological functions.

ECORYS' strength in integrated policy analysis offers a unique service to clients in the forest and forestry industries. We combine our analytical tools and services with our specific knowledge on forests and forestry as well as our expertise in other related fields, such as biodiversity and climate change, to provide sound policy solutions.

ECORYS's recent assignments include

- Investigating trends in the public perception of forests and forestry to gain a better understanding of societal demands and to advise the European Commission (DG Agriculture) on a revised forest communication strategy at EU and national levels.
- Carrying out a scenario-building and modelling exercise to better understand the linkages between different deforestation drivers and to estimate the effects of changes in these drivers on deforestation levels (both in hectares and in costs of avoiding deforestation) on behalf of the European Commission (DG Environment).
- Undertaking a case study on forest fire prevention, emergency response and the effects of varying policy measures implemented for the European Commission (DG Environment). This gave us an in-depth knowledge of EU forests and their vulnerability to forest fires.





3. Environmental emergencies and natural/man-made disasters

In recent years, the importance of disaster management – risk reduction, prevention, preparedness and response - has gained increased status on the international agenda. The frequency and intensity of natural and man-made disasters, including floods, drought, storms, volcanic eruptions, cyclones, landslides, locust and grasshopper infestations, earthquakes and tsunamis has increased considerably over the past decade. These hazards are having an increasing impact on humans. Over the past 20 years (1989-2008) 6248 disaster events have been registered worldwide, out of which 658 occurred in EU Member States. Climate change is expected to further increase the frequency and intensity of weather events in the future. The approach of the international community and national governments can no longer be business as usual.

ECORYS has a range of experience and expertise in the field of environmental emergencies and both natural and man-made disasters. ECORYS employs its knowledge for all areas of the disaster management cycle (risk reduction, prevention, preparedness, response, reconstruction/recovery) through risk/impact assessments, modelling and scenario building exercises and policy evaluations.

ECORYS's recent assignments include

- Developing a set of 11 reference scenarios of potential future disasters taking place in the EU and worldwide that would require activation of the EU Community Civil Protection Mechanism; Identifying potential gaps in future needs and their impacts (costs of no action) enabled the development of policy options for strengthening the European capacity to respond to natural and man-made disasters for our client, the European Commission (DG Environment).
- Taking part in a project assessing the potential for a comprehensive Community strategy for the prevention of natural and man-made disasters for DG Environment (European Commission). This project studied both the Community setting as well as Member State approaches toward prevention policy prior to offering sound policy recommendations.



4. Environment and Water

Water management has become an important theme in the debate on sustainable economic growth. Policy makers are increasingly using integrated approaches to economic and social development with the aim to combine technical and environmental aspects, with institutional, legal, financial, spatial, economic and communication components. They also face the major challenge of growing competition for and pressure on water sources from pollution, population increase and climate change affecting water distribution patterns.

ECORYS has a long history of providing services in this area, giving clients an economic and social perspective on integrated water management and related policies. More specifically, we work with our clients to bridge the gap between engineering solutions for spatial and water issues, and the financial/economic feasibility and social desirability of those solutions.

For many clients in the public and private sector we have offered a broad range of services, including research, advice, training and technical assistance, financial and economic cost-benefit analysis, water supply and demand forecasting, water pricing and economic scenario development.

ECORYS's recent assignments include

- Conducting the capacity development for the implementation of the Water Framework Directive in Estonia.
- Evaluating Danida's Global Water and Sanitation Programme in various countries (2005-2007).
- Providing Technical Assistance to the West Aegean River Basin District in Bulgaria, carrying out the economic and cost recovery analysis included in the River Basin Management Plan.
- Taking part in a study providing Technical Assistance to strengthen the competencies and skills of the ICZM Secretariat for the implementation of the Water Framework Directive on the Romanian Black Sea Coast.
- Providing courses in Flood Risk Management - Introduction on the Flood Directive and FRM, Climate change and Flooding, Flood risk assessment and Flood early warning systems.

For specific water topics you can contact:

Drs. Leo Beumer; Tel: 0031 10 453 88 22 Leo.Beumer@Ecorys.com





5. Environmental goods and services (EGS)

Environmental goods and services (EGS) are a growing part of the international economy, with EGS now estimated to be worth approximately €500 billion worldwide. The sector consists of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use. ECORYS' experience of the sectors that make up the EGS puts it in an ideal position to conduct policy-relevant research and give advice on how to stimulate the European EGS market.

ECORYS's recent assignments include

- Conducting an in-depth research study for the European Commission to show how the EGS industry in Europe can help to mitigate and adapt to climate change.
- Analyzing the competitiveness of the EGS sector in Europe for the European Commission (DG ENTR).
- As a follow-on from this research, ECORYS provided advice on how best to complete the European single market in EGS for the European Commission DG Enterprise.
- Carrying out a detailed mapping on the Environmental Goods and Services sector in the Yorkshire and Humber region of the UK for the regional development agency, Yorkshire Forward. This included a review of the growth prospect by sub sector, supply chain and innovation mapping, and the preparation of material for inward investment purposes.



6. Environmental jobs and green workforce skills

The transition to a low-carbon economy will require changes in the way we work, not just for traditional environmental jobs but for jobs across the whole economy. Many studies have shown that in Europe and elsewhere in the world there is a 'green' skills-gap, which could hamper progress towards a more sustainable economy and society. ECORYS is highly active in the field of green jobs and the skills sets required for these jobs.

ECORYS's recent assignments include

- Studying the links between green labour force skills and the environmental benefits these deliver, including an overview of where the current skills gaps exist, for the European Commission.
- Undertaking a study for the Department for Work and Social Economy of the Flemish government on how to best create green and sustainable jobs as a response to climate change – and also as an appropriate response to the recent financial crisis and economic recession.
- Carrying out a study for the North West Development Agency in the UK, into the skills implications of the move to the low carbon economy for the North West region. This required a wide review of low carbon policy areas and their skills implications followed up by a review of the current provision of training in these areas. The report concluded by identifying the priority skills gaps.
- Identifying the low carbon construction skill needs of London (for the Newham College of Further Education in London). This involved extensive consultations with construction companies and other stakeholders regarding the current and future requirements for workers with low carbon skills. This was then compared to data on the current provision of training in this area to highlight any gaps for project partners to address. A review of best practice provision across Europe was also carried out.





7. Integrated environmental policy

Environmental quality is greatly affected by patterns of economic activity, transport and building infrastructure, conservation practices, and a host of other socio-political factors and society is becoming ever more aware of the environmental impacts these activities bring about. ECORYS is not only experienced in the environmental field, but is also actively involved in the fields of industry, trade, development economics, regulation, health and business. This has generated a unique set of know-how and skills related to the interface of environment with other policy areas. Our areas of expertise include integrated products policy, green public procurement, and sustainable use of natural resources, environmental policies for small and medium enterprises, industrial environmental policies and environmental management systems. ECORYS offers a broad range of consulting services in these topics, ranging from scenario-building to environmental impact assessments of new infrastructure projects and of new European and national policies.

ECORYS's recent assignments include:

- Analysing the global long-term economic mega-trends shaping Europe's future environment, and of the Green New Deal's potential as a reply strategy on behalf of the European Environment Agency.
- Reviewing the progress that the 27 EU Member States have made in implementing the EU Sustainable Development Strategy (EU-SDS) for the European Commission in 2007.
- For two years in a row (2007 and 2008), ECORYS undertook an in-depth review of environmental policy in each of the EU's 27 Member States, also on behalf of the European Commission.
- Conducting an impact assessment for the European Commission of the environmental impacts of the various options for modifying state aid to the European coal industry.
- Carrying out a review of the effectiveness of inspections of regulated sites for the UK Environment Agency. This involved a detailed review of the generic intervention logic, and potential costs and benefits of site inspection. This approach was then applied to a number of specific regimes in consultation with policy officers and site contacts.



8. Climate change

Climate change is one of the greatest challenges currently facing humanity. Addressing this issue, and the range of environmental problems that it encompasses, will require a revolution in how we think and do everything. Effective climate policy involves a portfolio of both adaptation and mitigation activities. Even with high levels of mitigation – limiting global-mean temperature increase to no more than 2°C above pre-industrial levels – climate change impacts will require considerable adaptation efforts. The EU is driving climate change policies forward in many areas through environmental legislation, mandating reduced greenhouse gas emissions and an increase in renewable energy alongside measures to promote energy efficiency. The scale of the challenge faced in emissions, resource use and pollution will all require significant innovation.

The effects of climate change and our environment are intricately linked. ECORYS is actively involved in climate and environmental policies and frameworks. ECORYS has particular expertise in the field of market-based instruments for climate change and environment. These instruments include greenhouse gas emissions trading and the flexible mechanisms of the Kyoto Protocol (CDM/JI), markets for ecosystem services, carbon financing and the international carbon market, energy/emissions modelling and the valuation of positive and negative environmental externalities.

Recent projects ECORYS has been involved in include:

- Developing a brochure for the European Commission (DG Trade and Industry & DG Environment) which was distributed during the COP-15 International Climate Change Conference in Copenhagen on the topic of European ecological industries and their role in tackling climate change.
- Providing policy advice expertise to the Flemish Ministry of Environment for analysing the consequences for the Flemish harbours of including the maritime sector in the EU Emissions Trading System (after 2013).
- Carrying out a policy evaluation and writing the First Progress Report on the Implementation of the EU Action Plan on Climate Change and Development for EuropeAid (European Commission).
- Performing a sectoral impact analysis of climate policy on the Flemish labour market for the Flemish Interuniversity Research Network for Labour Market Reporting (VIONA). The quantitative and qualitative impact mapping exercise included a SWOT analysis of the green economy for the Flemish labour market; in addition to this, ECORYS has identified the quantitative impacts based on a quantitative model developed for this project, simulating the Flemish economy up to 2020, and identifying, based on scenario analysis, the impact of economic growth and climate policy for the Flemish economy.







ECORYS 
Research and Consulting

For continental Europe:

Koen Rademaekers

T: +31 10 453 8576

E: koen.rademaekers@ecorys.com

For the UK:

Dan Staniaszek

T: +44 (0) 7824 848 928

E: dan.staniaszek@ecotec.com

For Turkey:

Wietze Lise

T: +90 312 428 2060

E: wietze.lise@ecorys.com.tr

ECORYS

Energy and climate change unit

Watermanweg 44
3067 GG Rotterdam
P.O. Box 4061
3006 AB Rotterdam
The Netherlands
T +31 10 453 86 76
F +31 10 453 87 55
E info@ecorys.com
W www.ecorys.com



Sound analysis, inspiring ideas, effective delivery

ECORYS Holding BV

Watermanweg 44
3067 GG Rotterdam
P.O. Box 4061
3006 AB Rotterdam
The Netherlands

T +31 10 453 86 76
F +31 10 453 87 55
E info@ecorys.com
W www.ecorys.com

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