

Sustainable energy policy

Mobilizing public and private investment
in developing countries



A reliable and
resilient
energy system

Reduced
emissions

Economic growth
and employment

Improved
public health

Improved
environmental
quality

Vast and
inexhaustible energy
supply

Stable energy
prices

What we do

- ▤ Defining priority technologies and actions based on country analysis.
- ▤ Developing policy frameworks that favour climate-friendly investments.
- ▤ Managing the deployment of renewable energy projects and programmes.
- ▤ Increasing the effectiveness and efficiency in terms of policy objectives through evaluation.

*“We will continue
until energy is sustainable
and available to all.”*



Donald Pols
senior manager Group Global Sustainability at ECN

“Contributing to an energy system that builds long-term equitable growth by connecting people, communities and our living environment is a daily inspiration. Collaborating with committed and dedicated professionals makes our work possible.”



Our mission: The needs and aspirations of current and future generations in developing countries are met through sustainable energy services.

The Group Global Sustainability of the Energy research Centre of the Netherlands (ECN) promotes the global transition to a clean economy. We do this by helping governments in developing and emerging economies to prepare for, attract and manage increased public and private sector investments in sustainable energy technologies to achieve broad development objectives.

ECN brings both technical expertise and a strong engagement with relevant stakeholders to the table, ensuring the long-term sustainability and impact of policies.

A portrait of Professor Bob van der Zwaan, a middle-aged man with brown hair, smiling and looking slightly to the right. He is wearing a dark blue button-down shirt over a light blue collared shirt. The background is a light grey wall with a yellow and green patterned curtain on the left.

Defining priority technologies and actions based on country analysis

Professor Bob van der Zwaan
Head Scoping and Prioritising

“This century, mankind needs to fundamentally transform the way energy is produced and consumed. Attempting to help meet this major challenge through sustainable energy technology analysis is tremendously inspiring.”

Scoping & Prioritising. We assess the potential future impact of new energy technologies, energy and climate policies and investment flows using the best international modelling tools. Our work accounts for multiple criteria, such as economic costs, employment benefits, CO₂ mitigation potential and water use.

Our studies help policymakers from both developing countries and major developed economies to design robust energy policies aligned with national climate and development goals. During a multi-country programme in Latin America (including Argentina, Brazil, Colombia and Mexico), we collaborated with policymakers to assess low-carbon technology deployment and the investments required to meet a range of climate mitigation targets.

Energy systems often have complex structures involving many different economic sectors, as well as numerous interdependencies among the various actors. Countries usually possess limited resources, while at the same time are confronted with competing priorities. To address these dilemmas, we support energy policy design using in-depth analyses of national and regional energy systems from a bird's-eye perspective. For this purpose, we have developed an

analytical approach that enables us to make an integrated assessment of the energy system, linking the energy sector to several other parts of the economy. This allows a country to select policy interventions that are appropriate and beneficial to the nation as a whole.

With our scenario analysis, we investigate possible evolutions of the energy system. A comparison of such scenarios can provide valuable insights related to answer questions such as: how will the introduction of energy or climate policies change the energy system? Which technologies are needed to achieve certain policy goals? What alternatives are available and what will they cost? Our sustainable energy technology and systems analysis is an important tool to understand the dynamics of the energy system and the interdependencies of different parts of this system in relation to those of other sectors in the economy.

Modeling The Fifth Assessment Report of the IPCC - of which Bob van der Zwaan is one of the lead authors - includes ECN's energy and climate scenarios generated with the TIAM-ECN model, particularly in the chapter on 'Assessing Transformation Pathways'.

A portrait of Xander van Tilburg, a man with curly brown hair and a light beard, wearing a light blue button-down shirt. He is smiling slightly and looking towards the camera. The background is a plain, light-colored wall.

Developing policy frameworks that favour climate-friendly investments

Xander van Tilburg
Head Policy and Planning

“Policy-makers in developing countries typically face complex challenges related to energy and climate. Balancing scientific rigour and pragmatic advice, I find it very exciting to help decision-makers prepare for tomorrow’s questions on these important topics.”

We help governments to design low-carbon development strategies and integrate climate analyses into existing development planning processes. We translate vision and ambition into concrete action plans, policies, and support requirements. For example, ECN develops Nationally Appropriate Mitigation Actions (NAMAs) with various countries, including Thailand, Kenya, and Indonesia. We also helped Ghana to frame their first green growth strategies and assisted Kenya in the development of the Climate Change Action Plan.

In our work, we consider and balance economic growth ambitions with environmental and social concerns and constraints. We believe that the transformation to a low-carbon, climate-compatible pathway creates many opportunities. We help policymakers to capitalize on these opportunities by advising on policies and plans that reflect the needs and interests of both public and private actors. Our main activities are developing long-term strategies and highlighting priorities, responsibilities and resources.

Our approach is output driven with a strong analytical evidence base. We have extensive experience in the design of policies and plans, always keeping the larger perspective in mind. This means that we analyse any potential barriers in great detail before suggesting solutions; we assess where a case can be made for public intervention before designing policies and we meet investors and project developers before suggesting how to improve private sector investments. We are fully aware of the international climate, energy debates and good practices.

Kenia Largely due to its solid policy framework Kenya is one of most attractive developing countries for climate-related investment according to a global assessment by Bloomberg (seventh position globally and second in Africa. source: [climatescope.org](https://www.climatescope.org/)) The implementation of Kenya’s Climate Action Plan will mobilize up to USD 20 billion and result in 70% ghg reductions by 2030 (in comparison BAU).

A photograph of Nico van der Linden, a man with dark hair wearing a light blue blazer over a light blue button-down shirt. He is sitting and looking slightly to his right with a thoughtful expression. The background is a soft-focus indoor setting.

Managing the deployment of renewable energy projects and programmes

Nico van der Linden
Head Renewable Energy Deployment

“Energy is an essential component of economic development and poverty reduction. Having the opportunity to contribute ideas and suggestions to help develop the best use of local renewable energy sources is very rewarding.”

Renewable Energy (RE) deployment involves the identification and development of concrete RE projects to achieve the formulated policy objectives. These projects aim to produce electricity, heat or biogas from renewable sources.

The actual implementation is done by project developers and ECN facilitates this process. We do so by engaging key stakeholders and developing business plans. We also identify potential investors willing to invest in the project, liaise with government departments and communities and build the necessary human capacity.

There are essentially two categories of RE projects: projects that produce energy that is fed into the national or regional grid and stand-alone RE projects that meet the energy needs of a single household, a limited number of households and/or small enterprises. Category one projects simultaneously contribute to the objectives of economic growth and a higher share of renewable energy and are therefore referred to as ‘green growth’ projects. Category two projects, on the other hand, typically aim to increase access to modern energy services

for communities that still rely on traditional biomass sources for their energy needs. These projects are generally labelled ‘pro-poor’ projects.

One example of a category two RE project is the mini-hydro system ECN developed with GIZ in North Lombok, Indonesia. The realization of this project took more than three years and involved numerous phases. These included a detailed assessment of the potential demand for electricity and intensive consultations with the local government and project developers. We also raised awareness among villagers so we could discuss how they might contribute to the project to make it financially viable. Once the construction of the mini-hydro system was completed and electricity started to flow to the village, it was striking to see just how much it improved the quality of life for the villagers and how it created new economic opportunities.

Indonesia Annually more than 800 students enroll at 5 Indonesian universities and 13 vocational schools for educational programmes developed by ECN which includes both a master and bachelor certificate. Several provincial Renewable Energy and Energy Efficiency Action Plans were developed by teams of high level policy makers and representatives from industry, research and civil society supported by ECN. The regional plans in turn served as input into the National Energy Policy.

A portrait of Lachlan Cameron, a man with short brown hair, wearing a light blue button-down shirt. He is smiling slightly and looking towards the camera. The background is a plain, light-colored wall.

Increasing the effectiveness and efficiency in terms of policy objectives through evaluation

Lachlan Cameron
Head Policy Evaluation

“As a policy advisor, I find this process to be rewarding for both ECN and the stakeholders we work with. Knowing that we can build on and improve existing efforts is an efficient way to provide advice and is very satisfying.”

We work with countries to increase the effectiveness and efficiency of existing policies and programmes in terms of achieving desired outcomes. It is essential to monitor and evaluate the effectiveness of policies after they have been implemented to determine whether they have been successful.

This is a critical tool for managing interventions, improving practices and ensuring accountability. However, our work does not stop at assessment. Depending on the results of the assessment, we then recommend changes to improve policy effectiveness.

We have an extensive history of working with this process of monitoring, evaluation and refinement for a variety of clients. These include national governments, city and provincial authorities and development agencies. This mix of assessment and advice requires a wide range of expertise, which our broad team can provide across the energy sector. Tailoring interventions to fit local needs creates value for all involved. Those meant to benefit from a policy or programme see the outcomes they desire. At the same time, implementing

organizations can achieve their goals efficiently by refining existing efforts and receiving recognition for their results.

Our work involves tasks such as identifying indicators, quantitative result assessments and providing complementary policy advice that builds on existing efforts. A selection of recent assignments includes:

- assessing feed-in-tariffs for the full range of renewable energy technologies;
- analysing emission trading schemes and their impacts on different industries;
- national monitoring of energy-efficiency outcomes across sectors;
- cross-country assessments of emerging concepts, such as low-emission development strategies and nationally appropriate mitigation actions.

International network ECN is a founding member and one of the “centers of excellence” of the Climate Technology Centre and Network, the operational arm of the UNFCCC Technology Mechanism.



ECN, international leader in energy innovation

ECN (Energy research Centre of the Netherlands) is an international leader in energy innovation. Since its founding in 1955 ECN has been developing new technologies to accelerate the transition to a sustainable energy system in collaboration with governments, entrepreneurs, industrial partners and investors.

The more than 500 staff work on reducing the cost of solar power, wind energy, and biomass. In addition we collaborate with partners making industrial processes more efficient and designing experimental installations, prototypes and high tech components. Based on our extensive in-house technical knowledge we provide governments with policy support to promote the use of sustainable energy and energy conservation.

ECN has worked for many international clients including the European Commission, UNFCCC, UNEP, UNDP, CDKN, DFID, GIZ, BMU/ICI, IPCC, DGIS, the World Bank and national governments. ECN is a founding member and one of the “centers of excellence” of the Climate Technology Centre and Network, the operational arm of the UNFCCC Technology Mechanism.

ECN

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