



**Social Sciences**

## **Energy Transitions**

**Subsidy Round 2009**



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# 1 Introduction

**The Dutch Ministry of Economic Affairs (EZ) together with the Netherlands Organisation for Scientific Research (Social Sciences division) decided to finance a long-term research programme (2009-2013) on the transition towards a sustainable energy system in the Netherlands. The Energy Transitions programme aims to stimulate innovative multidisciplinary research that results in knowledge, insights and tools that will support the Dutch government in its ambition to promote a sustainable energy transition. Therefore this programme has a strong policy-driven focus. The Dutch Cabinet's Energy Innovation Agenda forms the policy framework of the programme. This document is included on the NWO Subsidy website for further reading. The scientific framework is formed of two research lines: understanding transitions to sustainable energy; and governing energy transitions.**

The programme is open for applicants from research groups working in Dutch universities, university research institutes and NWO and KNAW institutes. Proposals should consist of at least two projects that are scientifically excellent and that will also clearly contribute to solving issues in the Energy Innovation Agenda. The programme will support primarily social science research, but encourages collaboration with the natural and engineering sciences. The programme will be carried out with financial contributions from the Ministry of Economic Affairs and the NWO Social Sciences division. For this first round, EUR 2.6 million are available to fund research. The contribution from the scientific institutes consists of a supplement to the NWO contribution up to the level of the actual costs of the researchers, as well as supervision of the research.

The programme builds on the following developments:

- The urgency for new knowledge to support and speed up energy transition processes as described by the Dutch government in the 2008 Energy Innovation Agenda and the Energy report 2008 of the Ministry of Economic Affairs<sup>1</sup>;
- The need for innovative socio-economic research to complement the Energy Research Programme (EOS) that is focussed on specific technologies. EOS is carried out by SenterNovem on behalf of the Ministry of Economic Affairs;
- Energy & Resources is one of the domains of the Sustainable Earth theme of NWO;
- The ending of the current NWO/SenterNovem Energy Research Stimulus Programme that was focussed on beta-gamma interaction and gave promising results;
- The advice of the Commission on Renewable Energy R&D (CODE) that argues for socio-economic research on transitions (with reference to the Theme Sustainable Earth of NWO); and
- The advice for the EOS programme by Van Soest (2007) on socio-economic research related to governance, innovation and deployment of new energy technologies.

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<sup>1</sup> The relevance of this programme has been described in the following recent policy documents:

- The Energy Report 2008 (Ministry of Economic Affairs) sets priorities on secure access to energy resources, the creation of a sustainable energy mix in the Netherlands and the necessary infrastructure;
- The Energy Innovation Agenda (2008) sets out an 'innovation systems' approach to realizing a transition to a sustainable energy system. It identifies seven priority themes for Dutch energy innovation strategy over the coming years, arguing that besides new technologies, knowledge about economic, institutional and social processes is also needed to achieve breakthroughs.

This document presents the scientific rationale and framework of the research programme on Energy Transitions, and sets out the application, assessment and selection procedures that will be followed. The contents of this document are intended to stimulate and challenge scientists in the Netherlands to develop innovative knowledge and insights that are important to policy aimed at the transition towards a sustainable energy system. Research must meet the highest standards of scientific quality.

### **NWO research theme**

The Energy Transitions programme is carried out within the framework of the NWO theme Sustainable Earth ([www.nwo.nl/DA](http://www.nwo.nl/DA)). This theme supports multidisciplinary research on the interrelations between people and the environment on different spatial and temporal scales. The theme has three domains: *Environmental Variability and Global Change*, *Global Concerns/Local Resources*, and *Energy and Resources*. The Energy Transitions programme described here will support integrated, multidisciplinary research that will contribute to a long-term transition to the more sustainable use of energy and resources in The Netherlands and internationally.

### **Societal context**

The Dutch government, in the context of European and international energy and climate policy, has set challenging targets for increasing energy efficiency, the growing use of renewable energy and reducing greenhouse gas emissions. In addition, the security and diversity of energy supply has become a major concern. Achieving these goals requires a supply of new technologies, but crucially also an understanding of the economic, institutional and social factors that contribute to change in energy and resource systems. In a series of recent policy statements, the Dutch government has set out a vision and strategy for achieving a radical, sustainable transformation of the Dutch energy system in the coming 20-40 years. To achieve this there is a demand from policymakers for more insight into:

- the actions necessary to speed up the transition towards a sustainable energy system;
- the social, political and economic processes associated with such a transition;
- the impacts, both positive and negative, of energy transitions.

The Energy and Resources domain of Sustainable Earth theme has been developed in the context of other research programmes, in particular the new Knowledge for Climate ('Kennis voor Klimaat') programme and the now finalised NWO/SenterNovem Energy Research Stimulus.

The Energy Transitions programme will place emphasis on socio-economic research related to energy systems, energy transitions and energy demand. The programme has also been developed in the context of climate, energy and innovation policies in The Netherlands and the EU. The Energy Transitions programme complements other research funding programmes on energy and transitions in the Netherlands, including the SenterNovem EOS programme, the NWO/KNAW programme Agriculture Beyond Food and the Knowledge Network for System Innovations and Transitions (KSI). This programme aims to fund research that is not carried out in these programmes.

## 2 Aim

The objectives of the Energy and Resources domain in the NWO Sustainable Earth theme are:

- To develop integrated and dynamic models of sustainable energy, food and water resources systems;
- To generate and assess long-term scenarios for the transformation of energy, food and water systems at multiple scales;
- To analyse the sustainability of alternative combinations of energy sources, technologies and patterns of consumption;
- To propose novel concepts for the governance of transitions towards the sustainable use of resources;
- To contribute to Dutch, European and international policy debates about achieving more sustainable energy and resource use;
- To recommend innovative interventions that will lead to more sustainable patterns of energy and resource consumption.

### 2.1 Scientific scope

The Energy Transitions Programme is an important element of the Energy and Resources domain. This programme aims **to improve understanding of the social, economic and legal conditions that determine transitions to sustainable energy systems and to contribute to better governance and implementation strategies**. Energy is fundamental to economic growth and social welfare. Most energy production and consumption also lies at the root of many of the most pressing resources, security and environmental problems. For reasons of resource depletion, climate protection and energy security, a switch away from fossil-based energy and towards renewable energy is planned in Europe and globally, with The Netherlands playing a significant role. Transitions to more sustainable energy systems demand radical shifts in the sources, conversion, infrastructures and uses of energy, implying a set of inter-related technological, economic, institutional and cultural changes over the coming decades. To date, the required changes in the energy system have been too slow to meet key targets for greenhouse gas emissions reduction and sustainable use of natural resources. Insight into how systematic implementation of sustainable alternatives can be accelerated is therefore of utmost importance.

Three fundamental interactions will unfold in the already on-going transitions to more sustainable energy systems: first, between fossil and renewable sources of energy; second, between different forms of renewable energy (water, sun, wind, geothermal, marine); and third between renewable energy and other resources (such as food, water, biodiversity, space). Beyond the generation of technological innovations, these interactions (both trade-offs and synergies) will determine the speed and direction of energy transitions. These interactions will be subject to governance; although this does not imply that they are governable, since each transition will have unique, emergent properties.

The scientific challenge is to understand and model these many overlapping interactions, to investigate how energy systems are being transformed by institutional, economic and technological changes, and to examine alternative approaches to governing processes of transformation. Since energy systems, and their interactions with other resources stretch from the local to the global, research will need to span different scales, spatially and temporally. Research questions include: what is the spatial distribution of fossil and renewable energy resources? What combinations of energy sources, conversion technologies and consumption patterns currently exist, and how might these change in the future? What are

feasible scenarios for exploiting the huge potential for renewable energy? What changes in consumption patterns may support a transition? What are the important trade-offs (environmental, economic, societal) between fossil and renewable-based energy systems? What will be the continued role for fossil-based energy? How does the growth of renewable energy conflict with production and consumption of other resources? Is policy being effective in stimulating a transition to sustainable energy? What alternative governance approaches are there? How can we govern political and resource conflicts that will arise in energy transitions?

### Programme lines

Research under the Energy Transitions programme will be organised in two programme lines, each specified into a number of sub-themes:

#### 1. Understanding transitions to sustainable energy

The aim of research under this programme line is to analyse and model socio-technical transition processes at different scales and related to different energy systems.

##### *a. Quantifying and modelling energy and other resources*

There is a need for formal engineering and economic analysis of energy systems under transition. The dynamics of energy sources, technologies and markets would be analysed, as well as the interaction with the supply and demand for other resources (water, food, land, biodiversity). Examples of research include:

- Whole system analysis of specific technology supply and demand options, as well as portfolios of options;
- Systems and economic modelling of alternative energy infrastructures (distributed/centralised); and
- Calibration, validation and comparison of current energy and economic models, and their extension.

##### *b. Theories and models of transitions*

System innovations require changes at different levels. Path dependency and uncertainties must be considered in assessing processes of path creation. Important concepts include life-cycles, thresholds and reconfiguration of the structure and function of systems. Examples of research include:

- Theories of transition processes, linking new and existing theories in social science and economics;
- Integrating theories on change at societal, organisational and individual levels;
- Innovative quantitative and qualitative methods for measuring and monitoring transitions (including formal models); and
- Empirical and comparative analysis of energy transition processes, including economic, institutional and legal analysis.

##### *c. Scenarios and experiments for energy transitions*

Scenarios are analytical and participative methods for opening-up expectations about longer-term change. Scenarios can form the basis for shaping expectations and encouraging robust and diverse strategies. Sustainability experiments in novel socio-technical niches encourage learning and the configuration of technologies, consumers and markets. The contribution of experiments to longer-term transformations projected in scenarios needs to be analysed. Relevant examples of research would be:

- Innovative scenario methods combining qualitative and quantitative elements;
- Experimenting through piloting social, technical and other interventions promoting sustainable patterns of consumption;
- Linking global with national and local energy experiments; and
- Mapping and observing changing consumption patterns and assessing their role in shaping future energy transitions.

#### *d. Resource interactions in transitions to sustainable energy*

Innovation and deployment of sustainable energy systems is influenced by competition from incumbent fossil-based energy systems. Renewable and sustainable energy systems also generate negative economic, environmental and social impacts which need to be managed.

The aim of research would be to deepen understanding of these technological, economic and institutional interactions, and to develop assessment methods. While much attention has recently been paid to sustainability aspects of bio-energy, these issues apply to all renewable and low-carbon alternatives (energy efficiency, wind, solar, nuclear, marine). Relevant topics are:

- Development of integrated models for analysing resource interactions;
- Long-term analysis of resource interactions (both historical and forward looking);
- Impact analysis of alternative production, distribution and consumption systems for energy. The analyses should include impacts on CO<sub>2</sub> balance, ecological, social, legal and economical aspects; and
- Methodological frameworks for sustainability assessment of technologies and projects.

## **2. Governing energy transitions**

Governments, business, citizens, consumers and civil society all play a role in fostering and influencing transitions towards more sustainable and secure energy systems. Research under this programme line will investigate and make recommendations to resolve problems of incentives, coordination and evaluation associated with transition processes.

#### *a. Governance and transitions*

System transitions involve a complex interplay between autonomous and 'governed' processes in markets and in society more generally. The problem of governance is to shape innovation and change over long time periods and under conditions of uncertainty. This may include establishing broad principles, such as liberalised markets, as well as more specific regulatory or incentive-based interventions. Trade-offs between costs in the short-term and benefits in the long-term are subject to political choices in which expectations, actor constellations and the distribution of resources (broadly defined) all play important roles. Relevant topics are:

- The political economy of socio-technical transitions (for instance, the role of power and shifting power relations, governing distributional effects);
- Economic, institutional and behavioural analysis of transitions (for instance, governing socio-political conflict in energy transitions);
- Improve insights into the costs and benefits of energy transition pathways, using advanced economic modelling approaches; and
- New concepts for governance of transitions, including perspectives from economics, political science, policy studies and law.

#### *b. The European and international context of energy transitions*

Transitions to more sustainable energy systems will take place in an international context. Businesses producing, distributing and using energy operate in global markets and respond to national and international policies. Similar energy transition processes are underway around the world. Coordination between these processes is becoming increasingly vital. There are major opportunities for learning between cases and for assessing how coordination could be achieved, especially in the context of climate change and the drive to energy security at different political levels. Possible topics for research under this line would be:

- Comparative studies of energy transition policies and processes in Europe and internationally;

- Analysis of alternative options for global emission reduction; e.g. coalitions and burden sharing, issue linking, barter of different agreements; and
- The development of global institutions and agreements (understood as rules and routines for channelling collective decision-making) to foster energy transitions.

### *c. Public policy for energy transitions*

Sustainable energy transitions will be shaped by economic, energy, environmental and innovation policies. The Dutch Government has been implementing a transitions policy in the energy and other fields since 2001. Different European and international governments have pursued a variety of strategies and policies. Policymakers are interested in learning what the role for public policy could be and which approaches are likely to be successful in promoting rapid system change.

Possible topics include:

- Policy instruments and portfolios to stimulate and govern energy transitions;
- Understanding the effectiveness of policy approaches and instruments;
- Comparing different policy approaches to energy transitions;
- Interactions between policies, and with market and behavioural change (such as interactions between behavioural change and changes in the provision of goods and services, and the role of information); and
- Roles of citizens/consumers in energy transitions.

## **2.2 Relevance to society and policy**

The Dutch cabinet's policy plan calls the sustainability of the Netherlands' energy supply one of the most important challenges of the next few years. This policy statement is also included in the government's policy programmes entitled *Clean and Efficient: New Energy for Climate Policy*, and *The Netherlands: a country for innovation* (NOI). The Clean and Efficient project aims to achieve a break in the trend of how society uses and produces energy, and stipulates the policy objectives for 2020. The main goal is a 30% overall reduction of CO<sub>2</sub> compared to 1990 levels. This amounts to a reduction in CO<sub>2</sub> emissions of 96 million tons, compared to a 'business as usual' policy. In order to achieve this objective, energy conservation and the use of sustainable sources take centre stage. The NOI project focuses on making better use of current knowledge and innovative entrepreneurship to resolve social challenges.

Innovation is also important for our long-term future: making our energy supplies more sustainable will take many decades, comparable to the transition from coal to gas, or the introduction of wind energy. Encouraging innovation must also be continued after 2020. This harmonises with the approach taken by the European Union (EU), as defined in the Strategic Energy Technology Plan. Of course, innovation not only contributes to the policy statement for the Clean and Efficient programme, but also offers the business community opportunities to sell sustainable products on the open market. This market is growing fast and has enormous potential. The challenges before us are also the challenges facing the entire world. Innovation therefore forms our 'ticket to the future' in two ways: as a solution and an opportunity.

The Energy Innovation Agenda<sup>2</sup> indicates the various themes that the cabinet will focus on in the next few years. The Coordination Body for Energy Transition ("Regie Orgaan Energie Transitie") and its various associated platforms form an important source of inspiration. They have indicated that it is sensible to focus on a wide range of options, which are clustered into so-called 'transition paths'. The innovation activities will focus on the following themes:

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<sup>2</sup> Energy Innovation Agenda, 2008, [www.energietransitie.nl](http://www.energietransitie.nl)

- Green raw materials;
- New gas;
- Sustainable electricity supplies;
- Sustainability mobility;
- Chain efficiency;
- Built environment;
- The greenhouse as a source of energy.

Successful innovation depends not just on the availability of new technology. Removing bottlenecks and introducing new ideas are just as important. These may include social, economic and institutional factors (comprising the 'innovation system'), or new regulations that constrain rather than encourage innovation. Only by looking at these factors in a holistic approach can we increase the chance of new promising and sustainable innovations succeeding.

In the Energy Innovation Agenda more than 35 transition paths have been analyzed. The following obstacles to the innovation processes are highlighted in many of the transition paths:

- Insufficient direction is given to the process. For market parties it is often unclear which direction should be taken in their innovation strategy. If the government also does not provide any indication of direction, this uncertainty becomes greater, and the market prospects unclear. Knowledge development and commercialisation of new technology is therefore damaged;
- There is too little room created for learning and experimenting. Excessive pressure is placed on short-term success, and the need to avoid failures leads to risk-avoidance behaviour, whereby drastic (and thus inherently high-risk) innovations are not sufficiently developed;
- There is too little harmonisation between knowledge development (by various knowledge institutes) and the needs of the market, from the viewpoint of achieving the required sustainability of energy systems. Partly this is explained by lack of innovative capabilities in firms;
- There is too little collaboration between knowledge institutes and companies, between knowledge institutes themselves, and between the business community as a whole. Knowledge development and marketing is therefore too fragmented (particularly in specific niche markets), and there is too little effort of any reasonable size to be given the term 'system innovation';
- There is insufficient recognition of the links to other transition paths;
- The fragmented work method within the new sustainable innovation system does not stimulate the existing fossil-based innovation system enough to bring about change; there is an unequal power position, which hinders the transition to a sustainable energy supply;
- There is too little international orientation, particularly with respect to harmonisation with EU programmes;
- There is too little attention for knowledge developed in other countries.

On the NWO subsidy website of the Energy Transition programme, the Energy Innovation Agenda is included as a separate document. In that document the results of the innovation system analyses are presented. The obstacles and the system failures of more than 35 transition paths are described. All the research programmes in this programme must have a high degree of society and policy relevance. Therefore research projects in this programme must address one or more of the system failures described in the Energy Innovation Agenda. On pages 104 to 111 of the Energy Innovation Agenda, the system failures are summarised.

## 3 Guidelines for applicants

### 3.1 Who can apply?

- An application for programme funding (consisting of at least 2 interlinked projects) can be submitted on behalf of a consortium by a professor or associate professor (UHD) in the social sciences working at a Dutch university, university research institute and NWO and KNAW institute<sup>3</sup>. Scholars working in the fields of psychology, law, economics, social sciences and innovation studies are welcome to submit a proposal, as well as researchers working on social energy and environmental issues who wish to collaborate with scholars in the social sciences. A list of which disciplines are regarded by NWO as social sciences is attached as a separate document on the NWO subsidy website of the Energy Transitions programme;
- An applicant can only submit one proposal. He/she can be a co-applicant on one other application;
- A consortium should consist of at least 2 university organisations (see first bullet of this chapter for eligible organisations) in the Netherlands; the research leaders must have an excellent track record in conducting and managing research. University organisations can participate in more than one consortium;
- Inter-university cooperation is encouraged but not mandatory;
- The multidisciplinary cooperation within and between sub-programmes is an important aspect of the Energy Transitions programme. Proposals consisting of multidisciplinary social sciences projects are eligible, as well as proposals consisting of social sciences and natural science projects as long as the balance of the programme rests with the social sciences. For example in a programme comprising 3 projects, at least 2 projects have to be social sciences projects;
- Applicants are expected to be prepared to bear scientific, organisational and financial responsibility for the research, if the subsidy is granted. This entails the compilation of progress reports, contributing to the interim and final evaluations and participating in the publication and dissemination of research results, both interim and final, to potential users;
- Applicants are expected to make special efforts to communicate and interact with governmental and other stakeholders of the research. Stakeholder engagement would be expected to start at the beginning of the research process, working towards a co-production of knowledge;
- Within the theme Sustainable Earth, an "integrating call for postdoctoral research", will be carried out. This is a separate call from the Energy Transitions call. The integrating call aims at integrating the research carried out in the 3 domains of the theme Sustainable Earth, namely *Energy and Resources*, *Global Change and environmental variability* and *Global concerns, regional and local solutions*. Applicants who receive funding in the Energy Transitions programme could be asked to exchange information and if possible, to collaborate with post-doctoral researchers who receive grants in the integrating call.

### 3.2 What can be applied for

The programme is not focussed on specific energy technologies in The Netherlands, but will analyse the relationship between energy and other resources in their social, economic, institutional and technological context. The Energy Transitions programme is multidisciplinary and interdisciplinary in nature and comprises two research lines,

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<sup>3</sup> A consortium can comprise a combination of these organisations but should at least consist of two different university organisations and have a multidisciplinary composition.

which will form the foundation for research programmes with PhD projects and post-doctoral projects. Research that addresses issues that are not included in the programme lines and specifications that are not included in the Energy Innovation Agenda, is ineligible for funding.

The research will be conducted by a multidisciplinary consortium. Funding can be requested for research programmes consisting of a combination of PhD and/or Post-doctoral projects and associated materials, up to a maximum of € 675.00 euros per application.

It is expected that the indirect government funding for research ('eerste geldstroom') will be used to ensure proper supervision of the researchers appointed to work on the programmes that receive subsidies, as well as a provision for the usual overhead for conducting research. As is customary for NWO programmes, the contribution from the institutes involved will come in the form of supervision, provision of basic facilities and overhead.

The only costs that can be subsidised are costs that can be attributed directly to the implementation of the research programme and the scientific research being conducted in that context. It is possible to apply for a subsidy to cover the costs of both personnel and materials for the research. The duration of the subsidy and/or the appointment of researchers depends on the nature of the research and the researchers engaged in the programme. The scope of the requested subsidy, the duration of the appointment and the level of the researcher(s) should be proportionate to the research to be conducted. It is not possible to exceed the budget of a subsidy that has been granted. In all cases, research appointments are at a university or another research institute, not with the NWO. If the researcher is not appointed to a position at the university but at a research institute, the university rates set by the VSNU will be used. NWO will not agree to other rates. In case of doubt, please contact the secretariat prior to submitting a request for subsidy.

### **Subsidy for personnel costs**

The subsidy for personnel costs can be used to pay for the costs of project implementation staff. Budgets must be in accordance with the agreements that NWO has with the universities. These are lump sums in which salary costs are indexed, including a risk premium. Subsidy for personnel costs is based on the following categories:

#### *PhD student (AIO)*

- A PhD student is appointed for a period of four years to conduct doctoral research. The current amount is € 197.655 for a full-time appointment for four years;
- A bench fee of € 5,000 for a 4-year period is provided for conference attendance and dissertation costs.

#### *Post-doctoral researcher*

- A post-doc is a researcher who has recently completed his/her PhD (< 2 years earlier), who is at the start of an academic/scientific career;
- The duration of the appointment for a post-doc is for a maximum of three years. The amount available is € 194.070 for a full-time appointment for three years. It is also possible to choose a 0.75 FTE appointment for a period of four years;
- A bench fee of € 5,000 for a 3-year period is provided for conference attendance and poster presentations;
- The appointment of a post-doctoral researcher should be motivated in terms of the complexity and difficulty of the research.

### Subsidy for material costs

This subsidy can be used to pay for the costs of the research. This could include:

- The purchase of special equipment and non-durable items required for the research, with the exception of computers;
- Conducting interviews and surveys;
- Purchasing data files;
- Travel, both domestic and international, which is necessary in the framework of the research.

Not all costs will be eligible for compensation:

- The costs of computer use at university computing centres and the costs of laboratory time are not eligible for subsidy;
- Housing, overhead and depreciation costs are not eligible for subsidy;
- The costs of equipment, non-durable items, or administrative or technical assistance, which should be part of the usual facilities at a university or research institute, are similarly not eligible for compensation, unless the supported research requires the use of facilities that clearly exceeds normal use;
- The teaching costs for PhD research assistants in training (OIO) are specifically the responsibility of the institute at which the research is being done.

Other costs that are not covered include:

- Costs incurred to acquire an audit certificate;
- Costs incurred to mediate on behalf of and/or acquire and carry out contract research, including the indirect costs that can be attributed to such;
- Reservations for future costs and/or maintaining reserves.

## 3.3 When can applications be submitted

Scientific programme applications in the framework of the Energy Transitions programme will be submitted in one round in 2009. In order to gauge the interest and structure a sufficient assessment procedure, Letters of Intent (LOI) should be submitted before, but no later than **20 May 2009** before 12 noon. **Submitting a Letter of Intent is compulsory.** Applicants who do not submit a Letter of Intent will also be excluded from submitting a full application later. In this context, see also section 3.6 and the indicative timeline in the appendix. Applications cannot be corrected or supplemented after the deadline. A number of applicants will be invited to submit full proposals. Other applicants will be strongly advised by the Programme Committee not to develop full proposals. Furthermore, particular attention will be given to the degree to which the LOI meets the specified criteria in section 4.2 and anticipates certain factors:

- the Energy Transitions programme lines set out in section 2.1,
- the originality of the proposals;
- the policy relevance (Energy Innovation Agenda);
- the multidisciplinary research approach; and
- the multidisciplinary composition of the consortium.

An important condition for funding is the transfer of knowledge and insights to potential users throughout the duration of the programme. The Programme Committee will pay particular attention to this aspect, as well as drawing up a communication plan.

## 3.4 Drawing up an application

Subsidy applications must be submitted according to the instructions in this brochure; the proposed format should be written in English. Letter of Intent forms for subsidy applications and the accompanying instructions can be downloaded from

the NWO website as per mid-April 2009: <http://www.nwo.nl/ET>. Electronic submissions should use the Iris system, which can be accessed via the NWO website ([www.iris.nwo.nl](http://www.iris.nwo.nl)).

### 3.5 Specific conditions

In order to be eligible for admission to the procedure, each application has to meet a number of formal requirements, as described below. The NWO Subsidy Approval Regulations also apply.

Applications are first assessed on the basis of the following formula. Only applications that meet these criteria will be processed and enter the selection procedure. An application will not be processed if one or more of the following applies:

- the application form is inaccurate, incomplete or not filled out according to the instructions;
- the application was not submitted by an established (social sciences) researcher on behalf of a consortium of eligible university organisations (see also 3.1);
- the application was not submitted via the Iris system;
- the application was not submitted on time.

In the event that one of the first three oversights occurs, then the applicant will be given the opportunity to correct his/her application within 48 hours. If the application is not corrected within that timeframe, the application will definitely not be taken into consideration. Finally, please note that the submission of a Letter of Intent is required. Applicants who do not submit a Letter of Intent will also be excluded from submitting a fully developed application at a later stage.

#### Expected research results

Funded research should lead to excellent scientific publications in international peer-reviewed journals and books. Besides scientific publications, articles in professional journals, contributions to popular science and documents containing policy recommendations also count towards the results of the research. It is important that research outputs and results should benefit the co-financing government ministry (Economic Affairs, EZ), provincial and local governments and other possible users, for example by means of study days, workshops or conferences. From the time that the research starts, active exchange will take place with potential knowledge users and policy-makers in national, regional and local government. The scientific programme leader will define which user group and contact persons are of importance for the application. In consultation with the Programme Committee other contacts with user groups may be included. Exchange programmes by representatives from policy and practice should also have a place in the programme. It should be noted that this form of knowledge dissemination requires the active involvement from both the policy and the research sectors. The assessment of the proposals will take into account how the knowledge transfer to potential users is structured in the application. The Programme Committee will monitor knowledge transfer activities throughout the programme.

### 3.6 Submitting an application

Applications can only be submitted using the Iris electronic application system. To use the Iris system, you must request an access code on the NWO website: <http://www.iris.nwo.nl>. More information on Iris is available from the NWO website. If you have questions of a technical nature, please contact the Iris service desk. The service desk can be reached Monday through Friday from 11 a.m. to 5 p.m. on telephone number: 0900 – 6964747. This number can only be called from within the Netherlands.

# 4 Assessment procedure

## 4.1 Procedure

The valid applications (see section 3.5) are assessed in a two-stage 'open competition', in which scientific quality, relevance to the programme issues and the contribution to the Energy Innovation Agenda are used to make a selection of proposals to receive funding. The general procedure for proposal submission and assessment is as follows.

In this brochure, the Programme Committee is publishing a *call for proposals*, accompanied by requirements that proposals must meet. Potential applicants should submit a *Letter of Intent* in the initial outline stage (see also the indicative timeline in section 6). A Letter of Intent contains among other things, information on how the problem is defined, the Energy Transitions programme line(s) pertinent to the application, the policy relevance, the research strategy and the intended composition of the consortium. The Programme Committee will assess the Letter of Intents. The Programme Committee may be supplemented with ad hoc members for this purpose. Promising applications will be invited to submit full programme proposals.

Full applications will be assessed by (inter-) national peer reviewers, after which the applicant will be invited to provide a written response in which he/she can respond to the assessment and answer questions. An Ad Hoc Assessment Committee, consisting of (inter-) national scientists other than the members of the Programme Committee will assess whether the application can be subsidised and offer an indication as to whether the applications that could be subsidised deserve high, average or low priority. The committee may also recommend that parts of the application, such as a sub-project, should not be funded.

On the basis of the assessments drawn up by the Assessment Committee, the Programme Committee will rank the applications in order of priority and make a recommendation to the Steering Group. The Steering Group, consisting mainly of representatives from the financing institutions, supervises the implementation of the Energy Transitions research programme and makes the formal decision to grant the subsidies.

It is possible, should there be unforeseen circumstances, that the application and assessment procedure could be changed. Applicants will be notified of any changes immediately.

## 4.2 Criteria

Applications will be considered on the basis of the following assessment criteria to judge their scientific objectives and quality, relevance to policy and society, and Financial and organisational aspects. *All four* of the sets of criteria will be taken into consideration. This, for example means that an excellent track record does not constitute sufficient grounds on its own to achieve a good assessment.

### Scientific quality

- The scientific relevance of the research in theoretical, methodical and descriptive respects;
- The originality of the problem as formulated, contribution to the creation of new theories or research methods;

- Methodological and technical structure, appropriateness of the methods and techniques, availability of any data, clarity and motivation;
- Completeness, coherence and consistency; clear development of the problem, including in relation to the theoretical framework; clear delineation of the proposed research;
- Workability and feasibility of the sub-projects, including work and publication plan.

#### **Scientific objective**

- The proposal must fit within the framework of the research as described in this brochure;
- The proposal should connect to knowledge in this field in other countries, and to make use of that knowledge (international connection and anchoring)- if applicable;
- The proposal should address possible linkages to existing programmes in this area (such as EOS) and whether or not there is synergy- if applicable;
- Inter-university cooperation is regarded as positive;
- The research should contribute to strengthening the knowledge infrastructure;
- There should be multidisciplinary cooperation within and between sub-projects;
- The integrative nature of the application; there should be good cross-connections between the sub-projects.

#### **Relevance to society and policy**

- Relation of the research to strategic policy issues, as described in Chapter 2.2 and the Energy Innovation Agenda,
- Definition of which problem the application addresses in the Energy Innovation Agenda (see p.104-111 of the Energy Innovation Agenda), and how the proposed research will make a contribution;
- The extent to which the research contributes to the solution to societal and policy issues addressed in the Energy Innovation Agenda;
- Proposals must indicate the expected policy relevant research results; who these results are of interest to and how these results will be disseminated to potential audiences in the government ministries (EZ), local and regional governments, civil society organisations and/or the business community;

#### **Organisation and finance**

- The consortium should consist of at least 2 eligible university organisations as described in 3.1 "who can apply", including leading researchers with an excellent track record (consortia consisting of two or more universities are encouraged);
- The consortium must have a multidisciplinary composition;
- The main application should be a social scientist. Programmes must consist of primarily social sciences projects, although natural science projects can be included as long as the balance of the programme rests with the social sciences. See the "Disciplinelijst MaGW" on the subsidy website for which scientific disciplines are regarded as social sciences;
- Balanced combination of junior and senior researchers;
- Management of the research programme;
- Soundness of the budget.

Applications that receive a positive assessment will then be compared on the basis of a) the assessment criteria for the application and b) and the importance or salience of the issues addressed. The Programme Committee can also base its prioritisation on how the applications are distributed across the Energy Transitions programme lines.

### 4.3 Composition of committee

The Energy Transitions research programme has a Programme Committee, an Ad Hoc Assessment Committee and a Steering Group of the NWO Theme Sustainable Earth. The Steering Group comprises representatives of the NWO- Boards and of co-financing partners of the theme Sustainable Earth, including the Ministry of EZ. The ministry of EZ is also represented on the Programme Committee, which includes a number of scientists recommended by NWO. On behalf of the ministry of Economic Affairs, SenterNovem will support the Program Committee, especially on the relevance and the contribution of the projects to the energy transition policy. If necessary, the Programme Committee can be supplemented by several ad hoc members during an assessment round.

The NWO Code of Conduct regarding conflicts of interest is applicable to all members of the below-named committee.

The programme Committee consist of the following members:

- Prof.dr. F.G.H. Berkhout (Vrije Universiteit Amsterdam) – Chairman (“technisch voorzitter”)
- Prof.dr. A. Verbruggen (University of Antwerp)
- Mw. Prof.dr. M. M. Roggenkamp (University of Groningen)
- Prof.dr. A.P.C. Faaij (University of Utrecht)
- Mw. Ir. A.A. Swets (Ministry of Economic Affairs)
- Mw. Dr. C.T. Hoogland (Erasmus University Rotterdam)
- Dr. ir. R.P.J.M. Raven (Eindhoven University of Technology)

The Programme committee will:

- write and issue the call for proposal;
- assess the Letters of Intent;
- propose members for the independent Ad Hoc Assessment Committee who will assess the full application;
- draft a funding recommendation for the Steering Group of the full applications on the basis of the results of an Ad Hoc Assessment Committee;
- supervise the execution of the programme;
- monitor the progress of the funded projects;
- approval of the final reports of the projects; and
- active involvement of stimulating activities of the transfer of knowledge to the users.

The Steering Group of the Sustainable Earth programme has authority to make decisions on a number of aspects of the Energy Transitions programme, including definitive approval of the programme brochure, the appointment of the Ad Hoc Assessment Committee, decisions about eligibility and ineligibility of proposals and decision on granting the proposals.

An Ad Hoc Assessment Committee assesses whether a full application could be subsidised and offers advice on priorities, based on the assessment criteria. It may also recommend that parts of the application, such as a sub-project, should be excluded from funding. An assessment committee is composed of independent Dutch and international experts in disciplines relevant to the Energy Transitions research programme; it reports to the Programme Committee.

*Secretariat:*

- M.A. Wassenaar-Verschuur, policy officer at NWO Social Sciences, [verschuur@nwo.nl](mailto:verschuur@nwo.nl), tel: 070 3440957
- M. Melo-Salmon, secretary at NWO Social Sciences, [salmon@nwo.nl](mailto:salmon@nwo.nl), tel: 070 3440917

# 5 Other information

## 5.1 Contact

The most recent information on the Energy Transitions research programme can be found on the NWO website ([www.nwo.nl/ET](http://www.nwo.nl/ET)). In addition, on the subsidy website the Energy Innovation Agenda, the "Disciplinelijst MaGW" and the Letter of Intent application form can be downloaded.

Should you have any questions about the programme, please contact the secretariat.

# 6 Appendix

## 6.1 Timeline

The *indicative* timeline for the round of subsidy applications is as follows:

<b>Date</b>	<b>Activity</b>
15 April 2009	Brochure and letter of Intent form on NWO website
20 May 2009	Deadline for submission of applicants' Letters of Intent
Mid July 2009	Advice to applicants regarding submitting full application
Beginning of November 2009	Submission of applicants full application
Beginning of March 2010	Definitive decision by the Supervisory Board regarding the acceptance of applications