

**INTERNATIONAL ENERGY AGENCY**

**WORKING PARTY ON RENEWABLE ENERGY TECHNOLOGIES**

**STRATEGIC PLAN AND MANDATE  
2007-2009**

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**STRATEGIC PLAN 2007-2009**

*Responding to increasing challenge and extended responsibility*

## **1. Background and Situation Analysis**

### **A. The new energy context**

The world is not on course for a sustainable energy future. The threat of disruptive climate change, the erosion of energy security and the growing energy needs of the developing world all pose major challenges to energy decision-makers. Oil prices at historical highs raise concerns about the long-term supply-demand balance. CO<sub>2</sub> emissions have increased almost 20% over the last decade. Indeed, if the future is in line with present trends as illustrated by the IEA World Energy Outlook 2004 Reference Scenario, CO<sub>2</sub> emissions and oil demand will continue to grow rapidly over the next 25 years. Extending this outlook to 2050, as done by the recent IEA Energy Technology Perspectives 2006 (ETP), shows that these worrisome trends are likely to get worse with, CO<sub>2</sub> emissions almost two and a half times the current level and a strong growth in transport demand which will continue to put pressure on oil supply. The carbon intensity of the world economy is likely to increase due to greater reliance on coal for power generation.

But this outlook can be changed. By employing low carbon technologies that already exist or are under development the world could be brought onto a much more sustainable energy path. The ETP accelerated scenarios show how energy-related CO<sub>2</sub> emissions can be returned to their current levels by 2050, how the growth of oil demand can be moderated, and that energy efficiency measures can reduce electricity demand by a third below the Baseline levels. Increased use of all renewables energy technologies including biofuels for road transport were identified as one of the key areas where substantial changes could be made to achieve the results implied by the accelerated technology ETP scenarios

Implementing the Accelerated Technology Scenarios (ACT) will require a transformation in the way power is generated, in the way homes, offices and factories are built and used, and in the technologies used for transport. In the end, it is the private sector that will have to deliver the changes required. But the market on its own will not always achieve the desired results. Governments have a major role to play in supporting innovative research, development and demonstration (RD&D) and in helping new technologies to surmount some daunting barriers. Government, industry and consumers will have to work hard together.

### **B. The response of the IEA**

The May 2005 IEA Ministerial meeting called upon the Agency to “help to develop strategies aiming at a clean, clever, and competitive energy future”, “in order to bridge the gap between what is happening and what needs to be done”.

The June 2005 IEA Governing Board brainstorming called for, amongst other, better energy technology information, linked to policy development, and new products to help communicate the Agency’s analysis and maximise the usefulness of the IEA rich store of data.

The July 2005 gathering of G8 leaders in the United Kingdom echoed IEA Ministers in their request that the IEA, “advise on alternative energy scenarios and strategies. The G8 leaders at the July 2006 St. Petersburg Summit created a position paper on the issue of global energy security. It notes, “Energy is essential to improving the quality of life and opportunities in developed and developing nations. Therefore, ensuring sufficient, reliable and environmentally responsible supplies of energy at prices reflecting market fundamentals is a challenge for our countries and for mankind as a whole.”

In response to these challenges, CERT adopted in 2006 an Action Plan intended to deliver the following:

- 1) Stronger focus on the role of policy in developing cleaner, more efficient energy technologies, and in deploying them.
- 2) More frequent, more effective communication to policy makers of findings and messages stemming from the IEA RD&D network, notably from the Implementing Agreements, and from associated private-sector players and financial institutions.
- 3) More fruitful liaison within the IEA family.
- 4) More vigorous outreach to non-IEA countries.

### **C. State-of-the-art and prospects for renewables**

Renewable Energy is energy that is derived from natural processes that is replenished constantly. In its various forms, it derives directly or indirectly from the sun, or from heat generated deep within the earth. Included in the definition is energy generated from solar, wind, biomass, geothermal, hydropower, ocean resources, and biofuels and hydrogen derived from renewable resources.

Renewable energies are essential contributors to the energy supply portfolio as they contribute to world energy supply security, reducing dependency of fossil fuel resources, and provide opportunities for mitigating greenhouse gases.

Through international collaboration on RD&D a number of sustainable technologies have advanced and are gaining a growing market share while contributing significantly to energy supply. Hydroelectricity provides today 16% of global electricity generation while bioenergy and geothermal contribute a significant amount of both electricity and heat. Technologies such as wind and photovoltaics are becoming important global industries with annual sales of several billion US dollars.

There exist cross cutting barriers to renewable energy deployment. For instance, there is not a level playing field for renewable energy technologies: The incentives for governments and private companies to support renewable energy development are insufficient. Technology standards for renewable energy technologies and fuels are lacking. These , and other barriers, need to be addressed properly by international collaboration, e.g. the new Implementing Agreement on Renewable Energy Technology Deployment (RETD).

### **D. Implications for renewable energy policies and mechanisms**

The potential for renewable energy supply offers significant opportunities for further growth. Drawing on the experience of the last few decades and the lessons learned, it is clear that renewable energy can play a very important role in transitioning to a global sustainable energy supply by the middle of this century.

Intelligent setting of priorities will invariably facilitate market deployment of new and improved technologies. To this end, it will be necessary to refocus the renewable energy policy towards three general directions:

1. Increased targeted renewables RD&D funding;
2. Improved strategy for market deployment; and
3. Inclusion of externalities in policy considerations.

RD&D and market deployment complement each other and result in faster and more meaningful technology learning. In view of the impact of technology development and deployment policies in advancing the state of the art and expediting commercialisation, governments should continue to promote RD&D and seek new deployment policies that will facilitate renewables' market growth. RD&D and policy strategies need to differentiate among technologies in order to address diverse problems of particular and unique technical challenges.

Renewable energy technologies have different development profiles but potential benefits may be similar in terms of more secure and diversified energy supply, economic development and reduced environmental impact (for example, hydro/wind/PV). International technology collaboration can substantially contribute to the process of technological innovation. Many of the identified technology issues can be addressed through collaborative effort within the framework of the IEA.

By 2050, accelerated ETP scenarios show that the share of renewables in the electricity generation mix could increase from 18% today to as much as 39% by 2050 (according to the most optimistic scenario -Tech Plus).

## **2. The IEA Working Party on Renewable Energy Technologies: Mission and Vision**

### **A. The Working Party**

The International Energy Agency (IEA) Working Party on Renewable Energy Technologies, often referred to as the Renewable Energy Working Party (REWP), has served since April, 1982, as the principal advisory body to the IEA Committee on Energy Research and Technology (CERT) on all matters relating to renewable energy. The REWP oversees, supports and adds value to the RD&D efforts of nine renewable energy Implementing Agreements<sup>1</sup> and one addressing hydrogen. It also serves as a reference body for renewable energy issues within the IEA and represents the IEA to outside parties on these issues.

### **B. Mission**

The mission of the Renewable Energy Working Party is to help achieve steady and significant increases in renewable energy technological performance and market share.

### **C. Vision**

Over the next several decades, renewable energy technologies, thanks to their continually improving performance and cost, and growing recognition of their environmental, economic and social values, will grow increasingly competitive with traditional energy technologies, so that by the middle of the 21st century, renewable energy, in its various forms, will be supplying at least 40% of the world's energy needs, in line with the most favourable assumptions of the IEA long term scenarios.

## **3. REWP Objectives and Strategies**

To carry out its mission, the REWP has identified four principal objectives with associated supporting strategies:

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<sup>1</sup> These include: Bioenergy, Geothermal, Hydropower, Ocean Energy Systems, Photovoltaic Power Systems, Renewable Energy Technology Deployment, Solar Heating and Cooling, SolarPACES, and Wind Energy Systems.

**Objective 1:** Continue to strengthen Working Party's role as the primary source of analysis and information on renewable energy technologies and their implementation for IEA committees and offices, and non-IEA stakeholders.

- Strategy 1(a): Identify those renewable energy technologies that, in favourable resource areas, are expected to respond most effectively in the short and longer term to energy security concerns, environmental and economic goals of Member countries, and contribute to international collaboration in the development and market deployment of such technologies.
- Strategy 1(b): Identify and characterise RD&D priorities for renewable energy technologies, and the innovations that will lead to new and growing markets.
- Strategy 1(c): Strengthen the analytical capacity of the IEA Renewable Energy Unit through staff enhancement and support.
- Strategy 1(d): Provide input and be involved in the review process of key analysis of the Agency such as the World Energy Outlook, Energy Technology Perspectives and the Energy Technology Handbook.
- Strategy 1(e): Provide continuous input to CERT by facilitating the role of the CERT Liaison Officer and by periodically attending CERT meetings; utilise the annual Working Party Chairs meeting in order to discuss and facilitate common issues.
- Strategy 1(f): Utilise publications, conferences, seminars, workshops, media and other outreach mechanisms to communicate to all stakeholders the values of renewable energy technologies.

**Objective 2:** Help ensure the effectiveness of the REWP Implementing Agreements for developing and deploying renewable energy technologies.

- Strategy 2(a): Interact with the Executive Committees of Implementing Agreements, receiving suggestions on how to improve the programme efficiency, sharing identified opportunities for strategically synergetic action, and providing advice when needed.
- Strategy 2 (b): Periodically review and assess the effectiveness of Implementing Agreements and other international collaborative activities with a view to identifying gaps, overlaps and impact of existing coverage, renewing existing programmes and stimulating new collaborative activities, discontinuing or expanding activities, and encouraging closer collaboration with industry.
- Strategy 2(c): Enhance communication among various Implementing Agreements, and with the REWP, through regular joint meetings and the traditional spring workshop.
- Strategy 2(d): Encourage and facilitate enhanced interaction of the REWP and its Implementing Agreements with private sector and Non-Member Country representatives, as a means of strengthening RD&D and market acceleration efforts.

**Objective 3:** Identify and describe the broad range of policies, technical, financial, regulatory, and other market related factors that affect market deployment of renewable energy technologies.

- Strategy 3(a): Encourage and facilitate enhanced interaction of the REWP and its technology Implementing Agreements and the RETD Implementing Agreement.
- Strategy 3(b): Assess the impacts of utility restructuring on the market environment for renewable energy technologies.
- Strategy 3(c): Assess the implications for renewable energy technologies of the trend toward use of embedded, distributed generation and energy storage systems.

- Strategy 3(d): Evaluate the potential market impacts of customer preferences for renewable energy technologies and available mechanisms to facilitate exercise of customer choice.  
Strategy 3(e): Appraise the strategies and measures that can be adopted by Member and Non-Member Country governments to support renewable energy markets.
- Strategy 3(f): Calculate the investment needed to reduce the cost of energy from renewable energy technologies, and develop strategies to mobilise that investment.
- Strategy 3(g): Encourage and facilitate international processes leading to enhancing sustainable global energy markets with a substantial the share of renewable energy technologies.

Objective 4: Develop and help implement recommendations for accelerated market deployment of renewable energy technologies in the global energy markets.

- Strategy 4(a): Establish strategic partnerships with private sector business and financial organisations to incorporate their perspectives in the REWP strategy for accelerated market deployment, and to enhance their confidence in the potential of renewable energy technologies.
- Strategy 4(b): Establish strategic partnerships with multilateral organisations to ensure coordination in efforts to accelerate renewable energy market deployment, especially in Non-Member Countries.
- Strategy 4(c): Engage IEA Member and Non-Member Country governments so as to enhance their understanding of the status and benefits of renewable energy technologies, and provide assistance, if feasible, in understanding, analysing and strengthening renewable energy markets.
- Strategy 4(d): Continue and expand efforts to advise and support the OECD Energy Ministers, the IEA Governing Board, and IEA committees in their efforts to accelerate market deployment of renewable energy technologies. In particular, following the G8 mandate to the IEA, support the NEET Initiative dedicated to raising awareness of technology potential to the “plus five countries” and Russia and evaluating the results of these activities by assessing increased participation in the Renewable Energy Implementing Agreements.
- Strategy 4 (e) Encourage Implementing Agreements to invite experts from non-Member countries to participate in relevant meetings of Implementing Agreements and invite non-Member countries policy makers to attend in the capacity of an observer both the REWP meetings and workshops.

The implementation of the above Objectives will be carried out within the Mandate of the Renewable Energy Working Party, endorsed by the IEA Committee on Energy Research and Technology (CERT).

- Strategy 2(a): Interact with the Executive Committees of Implementing Agreements, receiving suggestions on how to improve the programme efficiency, sharing identified opportunities for strategically synergetic action, and providing advice when needed.

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**MANDATE 2007-2009**

## 1. Objective

The Working Party on Renewable Energy Technologies also known as Renewable Energy Working Party (REWP) shall provide advice to the IEA Committee on Energy Research and Technology (CERT) and other IEA bodies on: renewable energy sources and technologies, related policies, trends, projects, programmes and strategies which address energy security, diversity and environmental interests of Member countries, and activities to meet those needs through international co-operation and collaboration facilitated by the IEA process.

## 2. Functions

Having regard to the Shared Goals, adopted by IEA Ministers in 1993, and to the co-operation in long-term research, demonstration and deployment of renewable energy technologies, and to the encouragement to expand clean and clever energy markets, including renewables, adopted by IEA Ministers in 2005, and the Action Plan CERT defined as part of the response to the request from the G8 Summit in Gleneagles and St. Petersburg, the Working Party shall:

- Provide advice and suggestions on the promotion of collaborative research, development and demonstration (RD&D), removal of institutional barriers, policies and other means of accelerating market deployment, and identification and mitigation of environmental impacts.
- Continue strong oversight of and support for the REWP Implementing Agreements to help ensure the effectiveness of their programmes for developing and deploying renewable energy technologies.
- Continue and strengthen its role as a primary energy source of information and analysis on renewable energy technologies for IEA committees and offices, and non-IEA stakeholders.
- Liaison with selected non-Member countries, and other institutions and entities whose functions address the area of renewable energy technology, with a view to promote and structure international collaboration.

## 3. Membership, Structure and Procedures

All IEA Member governments and the European Commission are members of the REWP. Members shall be represented by delegates whose responsibilities are related to all or most of the renewable sources of energy including solar, wind, hydropower, biomass, geothermal, ocean, and hydrogen, both for RD&D and market deployment.

Each national representative shall report regularly on ongoing activities in his/her country, shall act as a conduit of information from and to the IEA Secretariat, shall provide contacts within the national region in relation to specific requests for participation or support of activities by the Working Party or Secretariat, and shall review and assess studies and reports as requested by the Working Party. Other national or international entities may be consulted as appropriate.

- The Working Party is given a renewable mandate of three years by the CERT. The revision and renewal of the mandate will be undertaken at the CERT meeting prior to the expiration of each three-year term. The Working Party will elaborate a Strategic Plan to be updated every three years and to be presented for acknowledgement and approval by the CERT. The REWP elects a Chairman and one or more Vice-Chairmen for a three-year period to lead its efforts. The Chair and Vice-Chairs meet between full REWP meetings in REWP Cabinet meetings with the Head of Renewable Energy Unit to provide continuity and direction to the REWP's ongoing activities. They report regularly to CERT also attending periodically the CERT meetings and Working Party and CERT Chairs joint meetings.

- The REWP is supported by the Renewable Energy Unit of the IEA Secretariat. The REU proposes activities to support the REWP's Strategy. The REU works according to an Operational Plan that is reviewed and approved by the REWP. In its capacity, the Renewable Energy Unit collects data and provides analysis on renewable energy technologies, markets and policies, oversees the collaboration with the Renewable Energy Implementing Agreements, provides link to other IEA Offices and other international organisations and supports dissemination of information.
- The REWP shall carry out its functions without the disclosure of confidential or proprietary information of any entity.