

The Case for an International Renewable Energy Agency (IRENA)



**Preparatory Conference for the
Foundation of IRENA**

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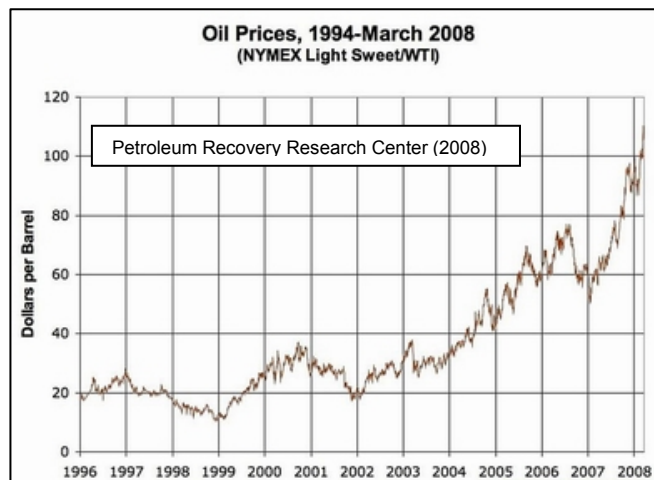
This paper is an introductory document for the Preparatory Conference for the Foundation of IRENA. The purpose of the paper is to provide input for the debate at the Conference and to stimulate an open exchange of thoughts. It shall not predetermine the results of the discussions.

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1. Global challenges – The broader context

The world is facing many challenges. Rarely before has the number of problems been so great or their scope so large. Key areas of concern include the following:

- **The world's population is forecast to grow by 2.5 billion by 2050**, reaching a total of some 9.2 billion. In addition, many economies are currently experiencing rapid expansion and industrialisation. As population grows and industry expands, so does the demand for energy. If governments around the world maintain their current policies, the **world's energy needs may increase by 50% or more by 2030**. In the past, these needs have been satisfied largely by finite energy sources. These will be exhausted in the future.
- Satisfying the growing demand for energy with the help of fossil fuels and nuclear power is becoming increasingly difficult and costly. **Oil prices almost doubled within the last year**, exceeding USD 100 a barrel for the first time in 2008. Prices for other conventional energy sources are rising fast as well. Experience shows that it is difficult to predict oil prices; however, there are many indications that prices will remain high or increase further in future. This will have a strong adverse impact on the global economy. Low-income economies that import fossil fuels are particularly susceptible to price increases, which have a highly negative effect on their balance of payments and so increase their vulnerability.
- The 4th Assessment Report of the IPCC predicts that temperatures will rise between 1.8°C and 4°C by the end of the twenty-first century. To limit **global warming** to no more than two degrees – as agreed at the UN Climate Change Conference in Bali in 2007 – we must reduce global greenhouse gas emissions by at least 50% compared to their 1990 level by 2050. The Stern Report estimates that, without swift action, economic losses due to climate change could amount to 20% of global GDP each year.
- **More than 1.6 billion people have no access to electricity**, and over 2 billion rely on wood and dung for fuel consumption. Constructing new grids to reach these people is often prohibitively expensive, while using fossil fuels as an energy source has negative implications for health.



►► Today we stand at a crossroads. The task facing us is to switch to a more secure, lower-carbon energy system without undermining economic and social development. We must take the path of renewable energy and achieve a fundamental change in energy systems. In short, we need a new energy revolution.

2. Answering the challenges – Renewable energy

Renewable energy can meet the challenges ...

- Renewable energy provides **sustainable power that will never run dry**. Even substantial increases in demand can be met by the enormous energy potential of wind, solar and other renewable energy sources.
- Renewable energy **brings energy prices under control**. With declining production costs, renewable energy guarantees stable energy prices. Indeed, many renewable energy options – particularly small-scale applications – are already competitive. Examples include hot water from solar collectors and electricity from small hydro and wind power.
- Renewable energy **makes it possible to reduce greenhouse gases** and air pollution. Renewable energy mostly causes only very small amounts of greenhouse gases and helps to reduce negative health effects.
- Renewable energy **can provide energy to the poorest in the world** – with no need for expensive grid solutions renewable energy can solve the energy needs of more than a billion people around the globe.

... while also offering some more key advantages

- One of the main advantages of renewable energy is **energy security**. Renewable energy is home-grown, universally available and not reliant on an electricity grid or oil/gas pipeline infrastructure. It reduces dependency on rapidly diminishing fossil fuel resources. Renewable energy is thus an appropriate option for **diversifying supply and increasing domestic supply**.
 - When applied in a sustainable manner, renewable energy **can reduce the pressure on natural resources**. It therefore helps to combat deforestation, desertification and the loss of biodiversity.
 - Renewable energy is **multifunctional** – it can meet electricity, heating and cooling needs as well as providing fuel for vehicles. Renewable technology installations have the advantage of being flexible with regard to scale and can be up and running in a comparatively short space of time. In addition they can be integrated into either the transmission or the distribution system.
 - Finally, renewable energy technologies **stimulate economic growth and job creation**. In 2007, more than USD 100 billion was invested worldwide in renewable energy plants, the manufacture of renewable energy devices and related research and development. Some 2.4 million jobs were created in 2006 alone. Renewable energy promotes economic growth and job creation particularly in the areas of industrial production, agriculture, plant construction and maintenance, and financial services. Since renewable energy installations are often less complex than conventional power facilities, they can be manufactured in many countries and so generate local jobs. Moreover, they are relatively simple to operate and can be managed by trained members of the local workforce.
- ▶▶ Renewable energies thus represent an adequate response to the challenges faced by the world's population. They are the key to achieving the three key global energy goals: energy security, cost efficiency and environmental protection. Their deployment and dissemination is of unrivalled significance.

3. Market development

Renewable energy offers a **huge potential**. The amount of power from renewable energy that could be accessed with current technologies supplies a total of 5.9 times the current global demand for power. Current technologies however still reach only a small fraction of the energy provided by renewable sources. In one day, the sunlight which reaches the earth produces enough energy to satisfy the world's current power demand for eight years. With future technologies a much larger size of the renewable energy potential might be tapped. The theoretical potential of renewable energy equals about 3,000 times the current world demand for power.

As time goes on, more and more of the full potential of renewable energy is being exploited. Thus in 2005, 12.7% of the world's total primary energy supply was supplied by renewable energy sources. This was double the level of energy produced by nuclear technology. Today, **renewable energy is the third largest contributor to global electricity** production, with a share of 17.9% of world power generation in 2005. **Recent years have seen strong growth in many sectors of renewable energy**. Wind power, in particular, grew at an average annual rate of 24.3% between 1990 and 2004. Recently, grid-connected solar photovoltaics leads the renewable energies in terms of growth with an annual 50% increase in cumulative installed capacity in both 2006 and 2007.

From a broader perspective, however, the picture is less bright for renewable energy. Since 1990, renewable energy production has grown at an average rate of 1.8% per year. This is at the same level as the increase in the world's primary energy supply. **The contribution of solar, wind and tidal energy remains marginal**, accounting for less than 0.9% of renewable energy and just 0.1% of the world's primary energy supply. Renewable electricity generation, in particular, grew by an average of only 2.4% per annum worldwide between 1990 and 2005. This is less than the growth rate of total electricity generation, which was 2.9%. Thus **the total share of renewable energy in global electricity production fell** from 19.5% to 17.9% over that period.

There are many **reasons why renewable energy has not yet achieved its full potential**. They include a lack of public awareness, market distortions favouring existing energy structures, political framework conditions contrary to the needs of renewable energy, insufficient technical or administrative know-how and a significant lack of proper information.

►► We need to close the gap between the enormous potential represented by renewable energy and its relatively small current market share. Greater effort is needed, from municipal right up to international level. An international institutional framework will ensure that all stakeholders in the area of policy work together to provide transparency and exploit the existing synergies.

4. The International Renewable Energy Agency (IRENA)

The idea of an international agency for renewable energy is by no means a new one. The first proposal for such an organisation was made in 1981 at the United Nations Conference on New and Renewable Sources of Energy in Nairobi. The idea was further discussed and developed by major organisations in the field of renewable energy, in particular Eurosolar.

International cooperation over renewable energy was further strengthened following the World Summit on Sustainable Development (WSSD) in 2002. In 2004, the International Parliamentary Forum on Renewable Energy hosted by the German Parliament again raised the issue of setting up an international renewable energy agency. Institutional questions also appeared on the agenda of the renewable energy conferences in Bonn in 2004 and Beijing in 2005, in the form of Political Declarations.

Now it is time for action. *The next step is to found* an international governmental agency for renewable energy, to be known by its acronym **IRENA**. This organisation should be established by a broad group of countries, including both large and small, industrialised and developing countries.

IRENA's main objective will be to foster and promote the large-scale adoption of renewable energy worldwide. This overall objective can be broken down into a number of concrete targets: improved regulatory frameworks for renewable energy through enhanced policy advice; improvements in the transfer of renewable energy technology; progress on skills and know-how for renewable energy; a scientifically sound information basis through applied policy research; and better financing of renewable energy.

Through its objective, IRENA will help to reduce the pressure on finite energy sources, provide a sound basis for meeting future energy demand, stabilize energy prices, improve access to energy particularly for the world's poorest, combat climate change and increase energy security. At the same time, it will contribute to economic growth and job creation.

To meet these goals, IRENA must become a **centre of excellence** facilitating renewable energy technology transfer and providing experience for practical applications and policies. Its focus should be on the requirements of renewable energy. It should act as a facilitator and catalyst, supporting various programmes and assisting national governments as well as the private sector. Its role should be to offer support on all issues relating to renewable energy, helping countries to benefit from the transfer of knowledge and technology.

IRENA will not aim to draw up international regulations or treaties. It will provide its services as and when requested by member states or groups of member states. It will not involve itself in states' energy policies of its own accord or try to enforce policies. All its activities will be decided upon by members.

5. Rationale for IRENA

One of the major reasons for the foundation of the IAEA in the 1950s was the desire to exploit the opportunities offered by a new energy source. The foundation of the IEA, in contrast, was triggered by the perception of a major risk – that of shortages in fossil fuel. Both institutions have served their purpose successfully.

Today, the situation is to some extent similar. **Once again, the risks and opportunities on the global energy market are high.** Renewable energy offers a unique opportunity to provide the world with cheap, reliable and clean energy for the future. At the same time, the economic risks connected with the current energy supply are comparable to those of the 1970s. Indeed, they are exacerbated today by major environmental risks and dangers to society. To meet these challenges we need an international agency for renewable energy.

IRENA will act as a driver for renewable energy on an international level. Its role will be to promote political processes that give due consideration to renewable energy. There is an urgent need for **renewable energy to play a stronger part in international political processes** – whether they are to do with trade, investment, environment, energy or other issues. IRENA, as an independent international institution, will ensure that the activities of other bodies do not form a barrier to action in the area of renewable energy. Its aim will be to create momentum for renewable energy on an international level.

IRENA is particularly necessary as renewable energy lags behind other energy sources in all areas. IRENA will constitute **an independent driving force** in the political process with the goal of creating a **level playing field for the development of renewable energy.** There are two reasons why this is needed. First, political structures often put renewable energy at a disadvantage compared to other energy sources. Second, current market requirements and structures impede the spread of renewable energy. Renewable energy requires different technology, power and service structures. The costs of these must be calculated differently. By comparison, fossil and nuclear energy currently have clear market advantages, including fully developed technology, established industries and market structures, powerful companies and a history of high subsidies over a number of decades and well into the future.

To date, only a minority of states have shown themselves willing or able to introduce efficient renewable energy policies (including appropriate legislation and institutional frameworks), develop effective industries, assess their national potential and promote research, development, education and training. We now need to disseminate best practice and lessons learned in order to give countries wishing to profit from the many benefits of using renewable energy the support they need to exploit their vast domestic potential. Furthermore, we need to support those countries which have not yet been able to realise their potential. **IRENA will carry out a broad range of activities to meet these needs.** Whether on its own or working together with other international institutions, IRENA will provide the services required by its member countries, including concrete policy advice, technology transfer and capacity-building.

Help is also needed **in implementing the ambitious quantitative and policy targets** set by many countries for renewable energy. Policy targets exist for renewable energy in more than 66 countries worldwide and more are to be expected: Many of them are ambitious and have tight schedules. The EU, for example, has committed itself to an EU-wide target of 20% of total energy being provided by renewable sources by 2020, while China is pursuing an aim of

15% of primary energy from renewable sources by 2020. Several other developing countries also set targets during 2006/2007. IRENA can provide vital support in meeting these targets.

Furthermore, **IRENA will close an institutional gap.** Many individual initiatives exist at present, but they lack a focal point. What is needed is an organisation which can guide and coordinate activities in the area of renewable energy on an international level so that their impacts are maximised. With their limited mandate and capacities, current international renewable energy associations and networks cannot fill the institutional gap the way that IRENA could.

IRENA is likely to be more cost efficient than the existing consultancy processes. It will reduce costs by taking over tasks currently performed inefficiently by bilateral exchange. It will also save money for donors by helping to coordinate existing activities better and avoid reduplicated work. Moreover, it will support donors and target countries by ensuring that current initiatives are fully effective – that is to say, that they have access to the necessary data, take international best practice into account, enjoy state-of-the-art technological know-how and are integrated into a network of related initiatives.

6. Are there alternatives to IRENA?

The IEA?

For more than a decade, the International Energy Agency (IEA) has been analysing cost-effective approaches to reducing CO₂ emissions, including the promotion of renewable energy technology. Its work covers all sources of renewable energy and questions relating to technology transfer.

Since April 1982, the *Working Party on Renewable Energy Technologies* (REWP) has served as the principal advisory body within the IEA, with a particular focus on research and development in renewable energy. Its specific mandate is to disseminate information on renewable energy to all interested parties, to support the ten Implementing Agreements for renewable energy, to advise on the promotion of international collaborative research and development, to work towards the removal of institutional barriers and other market hurdles, and to identify and reduce damage to the environment.

Although the IEA combines comprehensive know-how and experience in the area of renewable energy, *its activities are largely limited to* its members, the *OECD countries*. In fact, it has initiated some instruments (such as the Implementing Agreements) for cooperating with non-member and developing countries, but outreach to these countries remains limited in scope. Thus one important advantage of IRENA will be its global approach and membership.

The main mandate of IEA is to deal with questions of supply security and the needs of the energy markets. This is reflected in the allocation of its votes, which is based mainly on the oil consumption of different countries. IRENA would create an environment that will allow for a more visionary leadership on renewable energy.

The IEA is mandated to advise on general energy issues. Because of this broad mandate it does not cover in enough detail economic, political and social aspects of *renewable energy*. Thus in its in-depth country reviews, the IEA analyses the energy policy of member states without fully reflecting the potential of renewable energy or the regulatory needs. On the supply side, the IEA focuses on large-scale energy supply, without offering advice on how to adapt energy markets towards more decentralised energy sources such as renewable energy. IRENA will have in-depth know how and broad expertise on all relevant aspects relevant for a strong development of renewable energy in its member states.

The IEA provides guidance on research and development priorities in the field of energy. This is of unquestionable importance. However, in the light of the current challenges to energy policy – climate change, energy security and energy poverty – *a strategic energy policy needs to do more* than this. Decision-makers in governments and in the private sector need a knowledgeable partner in the international energy dialogue who can provide practical policy advice on renewable energy.

The IAEA provides a robust model for working in a complementary fashion alongside the IEA, demonstrating that effective cooperation is possible between a specialised agency and a broader-based agency. It is thus to be expected that *IRENA will be able to cooperate successfully with the IEA*, for example in the area of renewable energy research.

Existing networks?

A broad range of partnerships and networks already **exists** promoting the spread of renewable energy. This includes more than 20 type II (public-private) partnerships, such as the Renewable Energy and Energy Efficiency Partnership (REEEP), the Global Bioenergy Partnership (GBEP), and the Renewable Energy Policy Network (REN21) – an important global policy network which serves as a forum for a wide circle of stakeholders. These networks have raised the level of cooperation between different players in the renewable energy sector and have made a major contribution to building capacity and setting agendas, driving the global discourse forward.

However, **these networks generally have no mandate** to advise governments in drafting strategic concepts for promoting renewable energy. Their advantage lies in their ability to adjust quickly and flexibly to changes in the international context. Yet there **remains great demand for consultancy services for governments**, for expertise in administrative and legal questions (such as emission trading systems, WTO, etc.), for **human capacity-building and technology transfer**, including detailed technical information. Existing networks are unable to offer this kind of operational support – a gap that could be filled by an international governmental organisation such as IRENA.

A UN organisation?

Making **IRENA a new United Nations** or United Nations-affiliated organisation **does not appear to be a realistic option** for the time being. States that are sceptical about the rapid expansion of renewable energy would not support such a move, and the rule of consensus within the UN would therefore make it impossible.

A more valid alternative would be to **expand the activities of an existing** UN or UN-affiliated **organisation**. In fact, various such institutions currently deal with renewable energy, including UNDESA, UNEP, UNDP, UNIFEM and others. However, renewable energy generally plays only a minor role in their activities, and the initiatives undertaken by them are rather limited in scope. For example, UNIFEM focuses on the clean use of biomass as an energy source in the domestic environment and as an alternative to firewood. UNDP is involved in renewable energy in various activities, but its focus is on providing development assistance.

UNEP initially appears to be compatible with the activities of the envisaged organisation in terms of its mission and current activities. However, on closer inspection it is clear that **renewable energy involves many other areas apart from the environment**. Indeed, renewable energy is as much part of energy, development and economic policy as it is of environment policy. The best solution would therefore appear to be to create an independent governmental organisation incorporating all interested and like-minded countries. Such an organisation – IRENA – would be able to move the debate forward. Potential later affiliation with the UN could be a matter for further discussion.