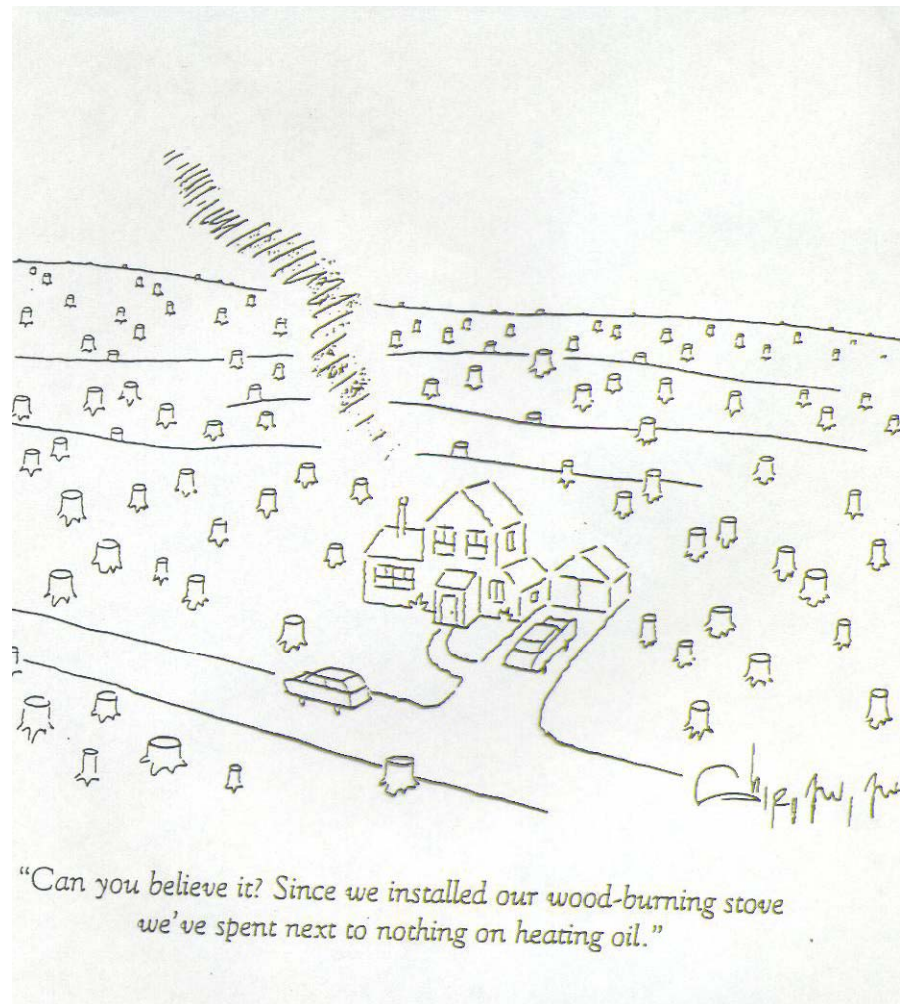


**Energy, Ecosystems and Livelihoods  
Survey of IUCN Knowledge and Expertise  
Summary Report  
December 2006**



**IUCN's Energy and Biodiversity Leveraging Initiative**

"IUCN as a global union can facilitate global dialogue on mainstreaming energy, nature and human well-being by providing a neutral platform for diverse stakeholders on cross cutting thematic areas including energy, climate change and biodiversity"

## Introduction

This survey was conducted in June and July 2006 on the issue of Energy and Biodiversity, one of the proposed IUCN Leveraging Initiatives. The aims of the survey were to:

- Identify areas of expertise and interest within the Union (Members, Commissions and Secretariat) related to energy and biodiversity;
- Identify and mobilise resources to bring into the energy stakeholders network;
- Identify and fill gaps in IUCN's knowledge and expertise through partnerships.

The online survey was sent to 215 participants based on previous lists, including Business and Biodiversity, Economics, WCPA and ORMA. 105 responses were received, implying a response rate of just under 50%, with between 64 and 69 participants providing responses to qualitative questions. Similarly, 67 respondents also indicated a willingness to be kept informed on the development of IUCN's Energy and Biodiversity work.

This report highlights the main responses to each question, and includes relevant quotes to illustrate key points. The response to the survey from the Energy and Biodiversity Leveraging Initiative and next steps are detailed in the conclusion. Their main points include:

- IUCN has a niche in sound science and credible research, policy and action, awareness-raising.
- IUCN will undertake assessments and develop tools for assessing potential implications for biodiversity and livelihoods of different energy options and technologies.
- Work will particularly address questions around biofuels and nuclear.
- Energy work will also link into climate change issues, especially on policy.

For more info on IUCN's work on energy visit [www.iucn.org/energy](http://www.iucn.org/energy).

## The respondents

Of the 105 respondents, most (73%) were directly affiliated to IUCN, with the majority based in academia or non-profit organisations, although 8 government and 4 private sector responses were also registered. The respondents had on average 12 years experience in the energy field, concentrated in climate change, energy policy or alternatives/renewables. Responses were received from all regions, mostly from West Europe, South and East Asia and North America. 67 respondents, with a similar regional and organisational distribution, would like to be kept informed on the development of IUCN's energy work.

### IUCN affiliation (responses = 104)

IUCN Affiliation	Commission Member	Member	No affiliation	Secretariat	Specialist Group	Former IUCN	Partner	Academic	Other
Number	35	33	16	14	6	4	7	2	3

### Respondent organisation (responses = 95)

Respondent organisation	Academic	Non-profit / NGO	International organisation	Independent / Consultant	Government	Private sector
Number	29	24	17	13	8	4

### Energy experience (responses = 99)

Experience	Climate change	Energy policy	Alternatives /renewables	Scientific research	Exploration /production	Law	Distribution	Sust. devplt	Protection/ assessment	Others
Number	61	60	53	21	15	11	9	3	3	2

### Region of respondents (responses = 102)

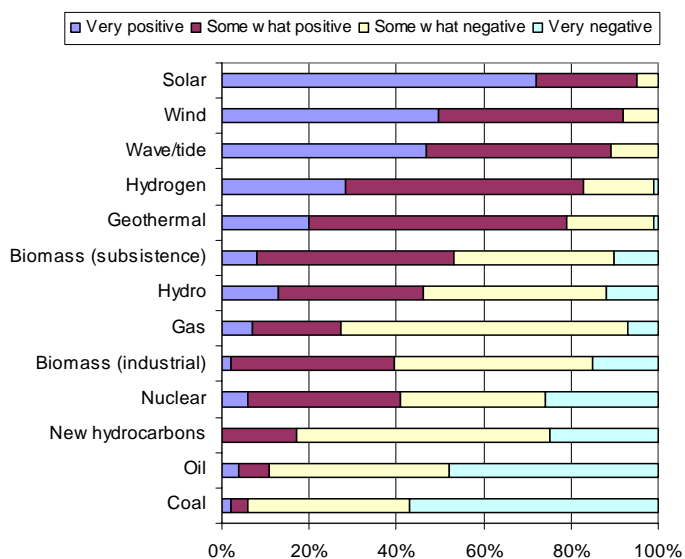
Region	West Europe	S. & E. Asia	North America	Africa	West Asia	Meso & S. America	Oceania	E. Europe, N. & C. Asia
Number	25	22	16	10	10	8	7	4

## Energy sources – biodiversity impact and potential

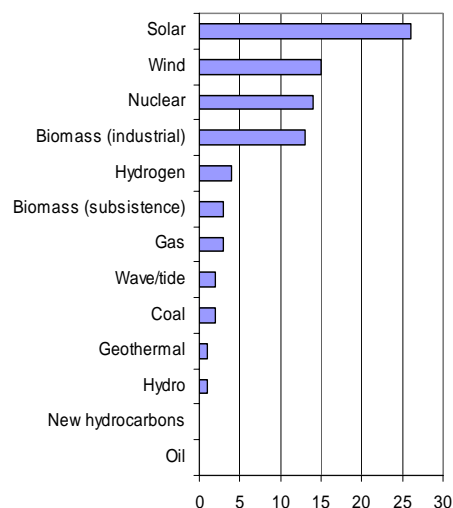
Respondents were asked to rate various energy sources (see chart below) for their impact on biodiversity and potential for sustainable energy over the next 20-30 years. Renewables solar, wind and tidal figured highly with average positive impact rates of more than 70%. Subsistence biomass was rated as having a slightly more positive than negative impact.

These results were partly reflected in the question on the energy source with the most sustainable potential, with primarily solar (31%) then wind (18%) being selected, with nuclear (17%) and industrial biomass (15.5%) also rating highly.

### Impact of energy sources on biodiversity, in order of average response (respondents = 86)



### Energy resource with biggest real potential for sustainable energy in next 20-30 years (respondents = 84)



These findings suggest that IUCN should initially concentrate on this knowledge gap: nuclear and industrial biomass are likely to be significant in future energy mixed but there is concern about their environmental impacts.

## Connection between energy systems, nature and wellbeing

Of the 69 responses received, a large majority stated that the connection between energy systems, nature and wellbeing was fundamental/interdependent as well as important/essential/critical. In particular, one-third of all respondents stated that energy was an essential tool for sustainable development and human wellbeing and achieving the Millennium Development Goals.

*“Energy systems are essential to human wellbeing.”*

*“None of the MDGs can be met without major improvements in the quality and quantity of energy services in developing countries.”*

*“The nature and efficiency of energy services available in a community is a good measure of the poverty and a richness of the community.”*

*“A high quality of life is associated with high energy consumption, but this does not have to be environmentally damaging if radical but feasible changes are made to energy systems.”*

*“There are misconceptions about this relationship [between energy systems, nature and wellbeing].”*

*“The impact of most technologies depends on the way that it is used.”*

*“Energy systems must be linked to efficiency in use and distribution.”*

*“Securing ecosystems’ life-support services will contribute to energy security and to overall human security.”*

*“Since natural (energy) resources are unevenly distributed on earth, trade is essential and should not be discouraged by mistaken ideas of ‘energy security’.”*

## Most relevant trend in energy in the past 5 years for IUCN

This question resulted in a mixture of answers. Of those that referred directly to IUCN, 11 highlighted a range of energy issues that IUCN has been involved in over the last 5 years including awareness-raising (3), livelihoods (3) and dialogue with producers (2). However, 5 respondents believed that IUCN has done little or nothing over the last 5 years or has no clear policy.

The majority of responses referred to key energy issues over the last 5 years for IUCN to consider:

<b>Issue and selected quotes (respondents = 65)</b>	<b>Number of mentions</b>
Renewables/alternatives <i>Positive: "pressure for small (single-user or community) energy generation", diversify sources of energy"</i> <i>Negative: "proliferation of wind energy", "hype for biomass"</i>	17
Climate change	9
Mainstream link between energy and biodiversity into policy/projects	8
Rising energy consumption/demand	6
Non-renewables <i>"more gas", "re-birth of coal", "conflict", "peak oil"</i>	5
Energy conservation/efficiency	4
Livelihoods <i>"broaden vision to include livelihoods in energy and biodiversity debate"</i>	3

## Predicted change to take place in the next 20-30 years with regards to energy and biodiversity

The 68 respondents were generally split between positive (40) and negative (30) reflections on the likely relationship between biodiversity and energy over the next 20 years. While negative answers primarily focused on the main causes of predicted biodiversity loss, including climate change, continued use of fossil fuels and bioenergies; alternatives such as biofuels were also most mentioned in more positive answers. A significant number of respondents referred to nuclear energy when discussing alternative energy sources. Energy efficiencies and increased awareness were also suggested as positive changes.

<b>Identified causes of predicted loss of biodiversity and selected quotes (from 30 comments)</b>	<b>Number of mentions</b>
<i>"increasing pressure on biodiversity", "major ecosystem change"</i>	
Climate change <i>"policy to avert needed", persuade US, China and India"</i>	9
Bioenergies <i>"unwisely implemented", "impact on food consumption", "potential negative impacts on biodiversity", "unsustainable demand"</i>	4
Continued use of fossil fuels <i>"business as usual", "peak oil...rush on remaining reserves..."</i> <i>"threat to protected areas", "decreasing willingness [of governments] to protect ecosystems"</i>	3
Shortage of energy/supply	2
No change <i>"too slow"</i>	1

<b>Potential positive changes and selected quotes (from 40 comments)</b>	<b>Number of mentions</b>
Renewables/alternatives <i>"especially solar", "diversification"</i> - nuclear <i>"plug gap in renewables", "twin problems of nuclear waste and weapons"</i>	15 (6)

- bioenergies <i>"will become competitive", "increased use"</i>	(3)
Increasing efficiencies <i>"through increasing price of other fossil fuels", "homes self-sufficient in energy"</i>	4
Understanding of fossil fuels, climate change and biodiversity	3
Increased awareness of habits/demand management	2
Increased public pressure to adopt low-emission energy policies	2
Involvement of society	2

From these responses, it is clear that climate change aspects of energy need to be addressed. The Energy Initiative can link to IUCN work on climate change, for example with on joint policy work. The BRIC countries (Brazil, Russia, India and China) have major impact and together will determine the future of energy and climate change. Work should also focus on bioenergies and potential impacts, both positive and negative, of different biofuel.

## Topics not adequately addressed in current energy debate

Respondents' suggestions covered a wide range of areas, primarily focusing on themes highlighted previously including promoting increased energy conservation and efficiencies (7) as well as the role of nuclear energy in the alternatives debate (6). Preventing potential negative impacts of biofuels (5) featured again. Poverty and development links to energy (5) and economic considerations (4) also featured.

<b>Topics and selected quotes (respondents = 64)</b>	<b>Number of mentions</b>
Energy efficiency/conservation <i>"with corresponding policies"</i>	7
Nuclear <i>"development", "storage", "non-proliferation issues"</i>	6
Biofuels – impacts and guidelines <i>"Not just biodiversity but landscapes"</i>	5
Energy poverty and development <i>"relationship between right to development and energy policy"</i>	5
Economics <i>"internalisation of costs", "circular economy", "subsidies for fossil fuels"</i>	4
Funding/investment for alternatives development	3
Access to energy	3
Energy trade-offs - local versus global impacts	2
Carbon capture and storage/sequestration	2
Legal issues	2
Local level/micro-management of energy	2

## Single most important contribution IUCN can make in the energy field

Many of the suggested contributions for IUCN reflect current IUCN practices and priorities. The emphasis on developing credible, rational science and research to support policy promotion and awareness-raising was reflected throughout the survey. Specific areas suggested include safeguards for biofuels and biodiversity impacts of various energy sources. Policy and action suggestions are generally split between developed and developing countries, with related education and training implications. Traditional areas of law and protected areas were also mentioned, as well as IUCN's convening role to promote partnerships in the energy and biodiversity discussions.

<b>IUCN contributions and selected quotes (respondents = 68)</b>	<b>Number of mentions</b>
Credible science/research	15

<p><i>“credible”, “clarify”, “current status/trends of biodiversity and energy”, “expert assessment”, “best ways of using energy sources”, “specialist group in each commission”</i></p> <ul style="list-style-type: none"> <li>- biofuels <i>“feasibility of large-scale biofuel”, “develop safeguards/best practice”</i></li> <li>- link biodiversity to energy debate <i>“ecosystem valuation”</i></li> <li>- help develop renewable energies <i>“especially for transport sector”</i></li> </ul>	<p>(3)</p> <p>(3)</p> <p>(2)</p>
<p>Influence policy and action</p> <p><i>“based on sound research and modelling”, “develop tools”, “not NGO projects”, “based on realism...not excessive (green) ideology”, “rationality and independence...not support green protectionism”, “encourage micromanagement of energy at local levels”</i></p> <ul style="list-style-type: none"> <li>- developed countries <i>“reduce carbon emissions”</i></li> <li>- developing/emerging countries <i>“change energy consumption patterns”, “rural participation to protect natural resources”, “transfer of clean technologies”</i></li> </ul>	12
<p>Awareness-raising/education/promotion</p> <p><i>“promote energy efficiency and conservation...as inputs to biodiversity conservation and sustainable development”, “get through to corporate/political decision makers through public”</i></p>	12
<p>Energy law</p> <p><i>“international consensus through soft law”, “minimum environmental standard for energy exploration”</i></p>	6
<p>Promote partnerships through convening</p> <p><i>“bring together lawyers, scientists, technologists”, “facilitate CCS/OPEC forum”, “facilitate global dialogue...neutral platform”</i></p>	5
<p>Protect biodiversity</p> <ul style="list-style-type: none"> <li>- protected areas <i>“ensure biodiversity areas of high importance not threatened by energy exploration/development”, “Amman declaration”</i></li> </ul>	3
<p>Climate change and adaptation</p>	2

## Further comments

Several respondents offered comments supportive of initiative; others provided specific suggestions for the survey or general comments of advice for IUCN.

### Suggestions for the survey:

- some questions are unclear or too simple
- some questions overlap
- survey aims unclear
- little focus on energy AND biodiversity

### Advice for IUCN:

- stick to niche (convening, protect protected areas, etc.)
- include all of IUCN (Secretariat, Commissions and Members)
- clear message on biodiversity use can be good (can't protect all)

## Response from Energy and Biodiversity Leveraging Initiative

From the survey, it is clear that IUCN has a niche in providing sound science and credible research, informing policy and action, and raising awareness. The leverage initiative will:

- undertake assessments and develop tools for assessing potential implications for biodiversity and livelihoods of different energy options and technologies – priority areas emerging from this survey include biofuels and nuclear
- convene stakeholder dialogues to map out ecologically sustainable, socially equitable and economically viable energy futures – priority regions emerging from this survey include Russia, China and Africa, with Brazil and India also critically important

IUCN's energy work will also be informed by and inform IUCN's climate change work and joint activities will be explored – particularly relating to policy work.