



NEWSLETTER

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FROM THE CHAIRMAN

Dear members,

First of all, I would like to thank all of you for your patience. For it has been far too long since the last Newsletter dropped on your doormat. Which brings me to the second point, the electronic character of this newsletter. Cons, like the tangible nature of solid paper which supposedly contributes to the feeling of existence (opposed to the intangible nature of the electronic file which supposedly contributes to the ease of deleting our precious Newsletter from your mailbox) and pros like saving time and money because there is no need to fold and glue anymore, arose many times during discussions within the board. We hope that the final decision, made at this years annual meeting, results in advantages for editors as well as for readers.

And as you may have noticed, there is a new chairman. And - oh no, it's me! I have had the immense pleasure of receiving the chair from Annemarije. Because of her marvellous job last year, this train is already running at a nice speed. Big up for Annemarije!

When I first got in contact with YES-DC, I believe it was in 1998, I didn't expect myself to evolve into first the secretary and in 2001 ending up being the chairman. But as with most things in life, when looking back, the things that may seem strange at the outset, turn out to become a natural part of yourself in time. So here I am, being the chairman of a really nice group of people (see page 2 and 3 for our introductions), working together to reach out to you in as many ways as we can.

We have done so this year through various lectures and an excursion to van Melle's candy factory (see page 5). And there are plenty of things to come. Here I especially would like to mention the Lecture of Sheila Operacha on Gender and Energy due for next year. In my opinion this is a good example of the many interesting aspects of energy in relation to daily life and personal experiences. Another example hereof will hopefully be heard at our traditional Christmas lecture, where the relation between 'worldview' and energy (-policy) will be examined. But before that, many more interesting things are to come, check out our agenda on the last page of this Newsletter. Hope to see you there!

Best wishes,

Hugo Burger



Introducing: of the board of 2001

Tim, Ellen, Jeanette, Jan-Willem (board 2000), Hugo, Annemarije, Ellen, Jeroen (board 2000), Adrian

Ellen Hoog Antink

For the second year I have to write this introduction of myself and for the second year I keep on forgetting it. But here it finally is: I will be your new secretary for the coming year. This means I will dig in all your personal information and if you move, change jobs or go abroad you are supposed to let me know. Any other gossip is also welcome of course. Just mail it to info@yes-dc.org and I will take care of the dissemination. Furthermore I will also – like all other board members - be involved in the organisation of activities: a task I enjoyed doing last year. Just like I enjoyed all other tasks of a board member. By being a board member I am actively involved in all YES-DC activities and discussions, which is the main reason for continuing my efforts. I hope to see you all very often in the coming year!

Ellen

Jeanette Scherpenzeel

It is a true honour to be elected to perform the financial services for the society YES-DC. With great joy and pleasure I have been handling the financial affairs for two years now, and I am truly touched by the generosity of the YES-DC members to elect me for the third time. In normal life, I work for the EVD, where I keep myself busy with informing Dutch companies about Argentine and Bolivian markets. Also, I am trying to find my way around the labyrinth of the multilateral financing institutions, specifically the Inter American Development Bank and to assist Dutch enterprises with their contacts. During the weekends I like to spend my time in Enschede, during the week I enjoy with some volleyball, reading and making long phonecalls to Enschede. I hope to meet all of you at one of our meetings and I hope that will learn to write decent English some day. If you have questions regarding finances, Latin America or my personal life, please do not hesitate to contact me at jeanettescherpenzeel@hotmail.com.

Jeanette

Tim Mulder

A second year as member of the YES-DC board. The first year has been a more than pleasant one. This second year has already been a very interesting one regarding the subjects and activities undertaken. The DC-component in the YES-DC organisation is something that is still a component that has my interest. I am therefore glad to see that these subjects will be addressed this year. In daily professional life I am involved in international photo voltaic projects. The board meets regularly in Amsterdam which is very convenient as that is where I live as well. I love to go out boating through the canals which we have done with the whole board this year. Enough crap produced for this introduction. See you at one of the YES

Adrian Wals

Hi my name is Adrian and I want to be your friend ;-) Mmmmm, ok, and now a bit more serious: My name is Adrian Wals. I studied economics at the University of Buenos Aires in Argentina. I later studied one more year Environmental Sciences in Amsterdam, at both the UvA and the VU. Now I am working for ECN, mainly with the electricity market in Europe. I am working in various projects, that go from the analysis of the liberalisation process to emission trading in the Netherlands. The present year is my first year as a board member from YES-DC, and I hope to organise and participate in many activities that can contribute to increase everybody's knowledge.

Annemarije van Dijk

This will be my third year as a member of the board of YES-DC! I am glad to leave the worries of being the chairperson to Hugo, but I had not had enough of playing an active role in YES-DC. I am looking forward to lots of discussions (now also through the discussion list) with YES-DC members, and hope we will be able to bring members the excursions and activities they have been waiting for. With nearly all last year's board members staying on and two enthusiastic newcomers- we have loads of experience and energy to keep YES-DC sparkling with activity. But of course active participation of members and communication between members is the essence of YES-DC- so please join in the activities, take active part in the discussions, and share information and ideas with other YES-DC members! I am looking forward to seeing you at activities and excursions and reading your remarks and opinions on the discussion list.

Monique Hoogwijk

My name is Monique Hoogwijk. After finishing my MSc in chemistry and environmental science I'm started as a PhD at the Utrecht University in the department of Science, Technology and Society. The project aims to assess the potential of renewable energy sources (wind, solar and biomass) and their future role in the global energy mixture. This is a collaboration with the RIVM in Bilthoven where I also work for two days a week. This is my first year as a board member of YES-DC and I'm looking forward to meet you at one of the activities

Hugo Burger

On my way to my second year as a board member, I am glad to pick up where Annemarije (left) left. The world of energy and development is undergoing major changes. As a chairman, my goal is to stimulate myself and the board to pick out these pieces of information that reflect most of the different aspects of the energy world of today and tomorrow. Some personal stuff about myself: I'm 27 years of age, male, Dutch and after being born and raised in Andijk, West Friesland, I've been living in Amsterdam for the last eight years now. For mostly four days a week I work on developing new prospects for local climate policies and for the coming year I'll be developing www.energy.nl. I devote most of the rest of my time to friends and music. See you at one of the upcoming events!

Green electrons

What is green energy? How can customers of green electricity tell whether the electrons he or she is using are really green? In order to make the concept green electricity more tangible, Egbert Bouwhuis developed the GPX: a kWh meter for green electrons. The concept is based on a normal kWh meter that can be plugged into any household socket. The additional feature of this meter is that it is fitted with a reader for green certificates (on 'smart cards'). The idea is that a consumer can buy small green certificates, for example at the local supermarket, and then decide in which socket to use them at home. The green certificates account for a certain number of kWh that have actually been produced by a sustainable energy source.

The GPX was the subject for a YES-DC evening on 6 February. Egbert Bouwhuis presented the history how the idea had come about and had ripened to a marketing concept for renewable energy, visualised with a prototype 'green energy socket'.

Gerrit Jan Schaeffer, who works at the ECN unit Policy Studies, was invited as the Green Certificate expert of the evening. The few YES-DC members present had a lively discussion on how to make Green Energy understandable and an attractive product for a large market where renewable energy will be more expensive than grey electricity for the years to come. In the Netherlands, the price differences between grey and green are very small due to the REB (a tax on grey electricity). It looks like the situation is unfortunate for the GPX. However, the consumer awareness for green electricity is booming. Electricity suppliers are warning that green electricity will be practically sold out from the moment households get to choose the supplier for their green electricity on July 1st.

Annemarije

Keeping a fresh perspective

When you are working in a certain type of field, in my case researching possibilities for renewable energy and energy saving, you always get a certain bias or focus. No matter how hard I try to be aware of this, it can be difficult sometimes to keep a truly open perspective towards new ideas. And in this respect the lecture of Jip Lenstra was an eye-opener.

On the fifteenth of June, about twenty people gathered to listen to the presentations of Jip Lenstra, Ministry of VROM, and Martin

Junginger, AiO on the University of Utrecht, Department of Science, Technology and Society. What was at stake in this joint effort of a member of YES-DC (Martin) and of the 'Bezinningsgroep Energiebeleid' (Jip)? In the light of successful Dutch Climate Policy, Jip spoke about the importance of CO₂ storage and Martin emphasised the use of renewable energy sources.

Within my humble perspective, renewables stood for a change for the better and CO₂ storage equalled the unnecessary prolongation of fossil energy sources.

The world seems always easier in black and white. In a comprehensive and enthusiastic style, Martin pointed out that the costs of renewables had dropped significantly over the last ten years and as a consequence the world had witnessed a steady growth in the use of some of these sources. Especially wind energy is a cost effective renewable source. Although other sources, like PV, are still far too expensive and should therefore be considered as an option for the longer term, there are other reasons why there should be a strong focus on renewables. They contribute to a reduction of CO₂-emissions, it promises a more direct involvement of consumers and they create job opportunities.

Jip, somewhat anxiously awaiting his change at the sideline, then entered the stage.

Not very surprising for such an experienced person, he made a very strong statement indeed. He pointed out that the use of CO₂-storage is essential if we want to reach the fast reduction of CO₂-emissions in Western societies necessary to prevent an extreme climate change. Compared to most renewables, it is a very cheap and available option and can be implemented fast. Another interesting characteristic is that it can pave the way for a hydrogen-based energy economy.

All in all, my perspective changed significantly. From very suspicious towards CO₂-storage I became quite convinced that, together with renewables, it forms a very important weapon in the battle against climate change. And of course, there is no black and white.

Hugo

Sustainable Sweetness

On a sunny day in June, about a dozen people were introduced to the art of making sustainable sweet(nes)s. Thanks to Karlijn Arkenstijn, who organised the event, those people had the chance of grabbing a handful of warm caramel or (and!) munching on a mouthful of Mentos. And of getting sick of course. We were invited to visit the factory of Van Melle, Dutch-Italian multinational producer of Meller, Mentos and Fruitella, amongst other teeth-breaking sticky stuff.



Van Melle is famous for its sustainable way of doing business. In fact, it became so popular that the company decided to stop its guided tours. But for YES-DC they were willing to make an exception. The reason for the founder Isaac Van Melle to steer so strongly towards a more sustainable way of doing business is to continue his family business into the next century.

There are several aspects of sustainability that Van Melle is putting into practise. Out of a specially designed environmental fund which contains a certain percentage of the annual profit, it invests heavily in energy measures in their different plants. Low warmth heating systems, lots of solar boilers, the purchase of green electricity but also green transport measures for the Van Melle personnel are some of the measures. It was interesting to see that from a marketing perspective it was not the sweets that were sold as 'green brands', but that the company itself is marketed as green. A bit against my personal judgement, market research showed that customers were not particular interested in really green airheads.

Hugo



WANTED!



WEBWIZZARDZ!



YES-DC NEEDS U! * like to do something with the web? *** like to be in the forefront of YES-DC's digital development? *** THAN JOIN OUR WEBTEAM! *** we are looking for an enthusiastic and creative individual that can help us boost the our website into this millennium to make it our primary exchange medium *** FUN 2 DO, PROBALBLY LOOKS GOOD ON YOUR CV AS WELL ☺ *** SO, are you our new webmaster or do you have similar talents, please do no hesitate and e-mail to Hugo, burger@ecn.nl ***YES-DC NEEDS U!**

Gender and Energy *by Sheila Operacha*

ENERGIA the International Network on Gender and Sustainable Energy Network has made a thorough analysis of women's roles and interests in sustainable energy. This work was done in close collaboration with the Commission on Sustainable Development (CSD) NGO Women's Caucus and through a very comprehensive process. On the basis of this analysis, general recommendations for all agencies involved in working for a sustainable energy future have been worked out. In the text below, important facts from the analysis and a summary of the recommendations are presented.

Facts from the Analysis

Fuel Scarcity

Rural women (and their children) are the primary collectors of wood and residue fuels, which account for 80% of all household energy use in many developing countries. The proportions of rural women affected by fuel wood scarcity range from 60% in Africa, to nearly 80% in Asia, and nearly 40% in Latin America. Time spent in fuel collection in fuel-scarce areas can range from 1 to 5 hours per household per day.

Real Energy Crisis: Women's Time

The real rural energy crisis is rural women's time, with women working longer work days than men to provide human energy for survival such as fuel and water carrying, cooking, food processing, other household duties, non-monetised work which is largely invisible in national energy accounts and labour force statistics. Many income-generating activities of women in the informal sector - often critical to family economic survival - are fuel-intensive, and the viability of these activities is affected by energy prices and energy availability.

Energy/Water Scarcity

Energy scarcity impinges on the provision for other basic needs, such as water, health, and education. E.g., the proportions of rural women affected by water scarcity are estimated to be 55% in Africa, 32% in Asia, and 45% in Latin America, with the median time for collecting water in the dry season about 1.6 hours per day. 5% of technical positions. Despite the

Health

Women are victims of environmental pollution due to energy use. More than 50% of the world's households cook daily with wood, crop residues, dung, and untreated coal. They have the highest exposures to indoor air pollution, which is linked to, e.g., acute infections, chronic lung diseases, low birth weights, lung cancer, and eye problems. Women are also particularly vulnerable in their reproductive roles because of radiation after nuclear accidents.

Violence Against Women

Physical and psychological violence against women has been reported e.g. rapes while gathering fuel wood and bride suicides related to women's inability to meet their family's wood fuel needs.

Women as Activists

Women are effective activists on energy questions in health, environmental, children's and peace-related organisations and issues, ranging from community education for recycling, lobbying for sustainable energy, to anti-nuclear protests. Women are considered to be more favourable to energy conservation and renewable energy. In Sweden, in the late 1990's, 80% of young women were found to be against the long-term use of nuclear power.

Poor in the North

There is an increasing population in the North who are poor, and who are suffering energy poverty as well. Moreover, space-heating is needed for a larger part of the year in the North than in the South. 15.4% of women and 12% of men are below the poverty line in the USA. In 1991, in the UK, 7 million households (36% of total) suffered from fuel poverty.

Also in the North, poor single-parent families are often headed by women. Old women are left alone to struggle for meeting their energy needs, because they live longer than man.

Male Preserve

The energy industry is perceived as a male preserve. In the energy sector, in the industrialised countries more than 80% of employees are men and more than 90% of all managers are men. Women occupy less than

- Integrate energy access and financing for

increased access by women to science and engineering education, women still make up less than half of students enrolled in energy courses.

In the developing countries, the situation is even worse. There are few women who have access to the education, financing schemes, and support systems necessary to negotiate careers in the energy sector. This also hinders the development of energy policies and of technologies better suited to the needs and wishes of women, who are actually the major users of the energy.

Recommendations

- Address poor women's development needs for labour saving, for timesaving, for improved health, for security, and for income in rural energy projects and technology research by:
- Assign high priority to the cooking fuel crisis and its impacts on women's health,
- Increase the efficacy and the numbers of renewable installations as well as of sustainable public transport systems;
- Support capacity-building (education and resources) for women and men involved in energy to enable the development of a critical mass of women and men who can act to change the policies, programmes, and practices affecting women and their energy choices;
- Adapt and apply specific, proven "best practice" development-sector approaches to overcome institutional factors such as women's lack of access to credit, to training, and to employment in the energy sector;

- income generation in a holistic approach, offering a bundle of services to enable women to access improved energy, while at the same time enhancing women's entrepreneurial skills, self-respect, and self-confidence;
- Support and allow institutional representation of women in the decision-making of organizations that affect women's vital energy interests;
- Address issues of energy insufficiency in war-torn countries and in refugee camps, where women and children are especially vulnerable;
- Disaggregate information by gender at all levels in the energy sector (target groups, beneficiaries, project staff, planners, policy, etc.);
- Create more knowledge, analysis, and understanding of gender/energy linkages and needs;
- Provide technical, catalytic, moral, financial, and political support to efforts to promote joint initiatives between the (sustainable, ed.) energy sector and development-sector professionals, organisations, and projects;
- Support networks and partnerships for and about aid to women and their needs for energy.

For more Information, please contact

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WANTED: NEWSLETTER



EDITORS AND WRITERS!



YES-DC NEEDS YOU AGAIN! * this time we call upon you to JOIN OUR NEWS-
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almost a year *** so if you are INTERESTED in energy, developing countries and
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PROGRAM *** DO NOT HESITATE to e-mail to REMI RIJS: tnntrr@hetnet.nl
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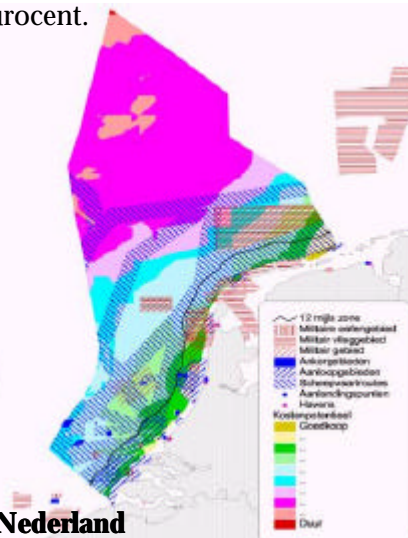
Offshore Windenergie: Nieuw Nederlands Exportproduct?

Door Marco Plantema

* the editor apologises for any inconvenience
* * due to the Dutch language used *

Utrecht, 15 oktober 2001 - Lezing van Henk-Jan Kooijman (ECN Windenergie) en Manuel de Noord (ECN Beleidsstudies)

Windenergie op zee staat de laatste tijd volop in de belangstelling. Het windaanbod is 20% groter dan op land, er is veel ruimte beschikbaar en de impact op landschap en natuur zijn minimaal. Er wordt dan ook hard gewerkt aan de ontwikkeling van windmolens met een groot vermogen, die ondanks de soms zware omstandigheden op zee goed blijven functioneren. De complicaties zijn legio: fundaties onder water, zeer lange aansluitkabels en de invloed van sterke wind en golven. Hierdoor is de prijs per kWh op zee nog duurder, dan die van op land. Op lange termijn zal deze prijs daar ruim onder zakken naar zo'n 5 eurocent.



Kansen voor Nederland

Reeds van oudsher is Nederland een windmolenland. De aanwas van landmolens verloopt echter moeizaam als gevolg van het zogenaamde "NIMBY-effect". Ver op de zee speelt dit niet. Er wordt dan ook driftig gewerkt aan de ontwikkeling van zeemolens. Lagerwey heeft een eigen ontwikkelingsprogramma. ECN werkt samen met het Deense Neg Micon aan onderzoek, ontwikkeling en demonstratie binnen het DOWEC-project (Dutch Offshore Wind Energy Converter). ECN heeft onderzoek gedaan naar het windenergiepotentieel op de Noordzee.

Na het uitsluiten van scheepvaartroutes etc. bleef er binnen het Nederlands economisch benutbaar zeegebied zo'n 30.000 km² over (zie onderstaande figuur *). In totaal kan theoretisch gezien in dit gebied zo'n 150 GW aan windturbines geplaatst worden. De kosten variëren echter sterk per locatie. Bij volledige benutting van alle locaties kan vijf maal in onze elektriciteitsbehoefte worden voorzien. De overheid wil echter, na het Nearshorepark (Egmond), geen windmolens meer in de 12-mijlszone. Redenen zijn o.a. horizonvervuiling en risico's voor vogels. Daarnaast ontstaat het risico van een "politieke bovengrens" aan de beschikbare ruimte als gevolg van de nationale doelstellingen voor duurzame energie(1500 MW offshore in 2020).

Buitenland

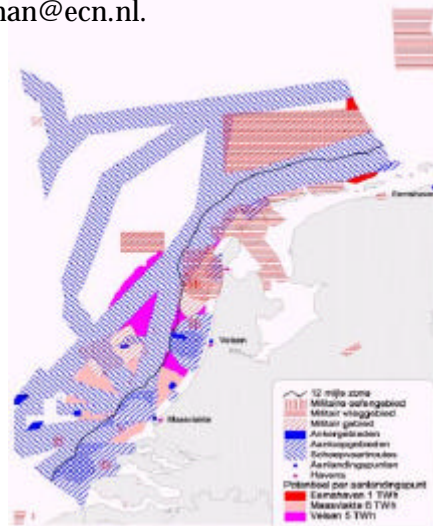
Andere zeeën en de oceanen bieden ook goede kansen voor de export van de in Nederland ontwikkelde offshorekennis en -ervaring. De offshore windindustrie staat nog aan het begin van haar ontwikkeling. Voor de concurrentie van de Denen hoeven we echt niet bang te zijn. Er is voorlopig nog genoeg plek op zee voor iedereen.

Nederlandse overheid

"We moeten deze boot niet missen", roepen Kooijman en De Noord. Er moet nog veel in offshorewind geïnvesteerd worden. De regering zou daarom meer zekerheid moeten verschaffen ten aanzien van de terugleververgoeding op lange termijn.

(* Bron: ECN, Resultaten analyse OWECOP-I).

Meer informatie: noord@ecn.nl of kooijman@ecn.nl



Electricity and Rural Poverty

By Petra v.d. Hengel

*On 31 November 2001 Winfried Rijssenbeek of RR Energy (Voorthuizen, Netherlands) held a presentation of **Electricity and poverty linking** in Utrecht. He discussed general information about rural electrification and links with the increase of welfare. Of course, the question of the way to implement this difficult issue arose. Rijssenbeek's conclusion in his presentation was to withdraw the influence of government in energy supply and to change the idea of electricity as a social common good.*

Introduction

'Energy supply will lead to welfare and rural development' was the statement Rijssenbeek started off with. He recalled a number of conditions and factors of importance in relation to this statement, such as the availability of raw materials, markets, management technology, etc. Consumptive uses, concept and definition of rural poverty and the assumptions, or better called hypotheses of the relationship between energy and poverty and the barriers to full exploitation were discussed. For the author, Rijssenbeek had some interesting issues towards the implementation of successful energy supply, which will be highlighted in the following.

Comparison of energy implementation with other sectors

Within the implementation of other sectors or just introduction of new technologies, many bottlenecks have been reduced by research, learning by doing, and experience in implementation. The same track will be followed with the implementation of energy supply in poor areas. Rijssenbeek wondered why the energy sector cannot be compared with other sectors. The group discussion led to water supply and commercial goods such as electronic goods: TV's and radio cassette players. The same factors are important, knowledge has to be available and providers look at the demand side of the market instead of the supply side. The example of a toll way was discussed. Users of the road have to pay for the distance (in the case of a grid system,

read length) of the road and have to pay a respective amount of money for this.

Why is this not possible for electricity or energy users? Why is it that the energy sector hardly looks at these well known projects, in which experience exists all over the world for a long period of time already. Maybe it is that the energy sector is a distinguished sector, which is completely different from other sectors? Is this sector that differential from all the other experiences in the world?

Energy supply in relation to the demand side instead of the suppliers' side

As we can see in the energy sector, there is often standard equipment, and this equipment is preferably bigger than smaller. Energy suppliers are creative in the assumption of demands and the needs of their consumers. The circumstances of rural populations in poor areas are almost forgotten. Why should somebody who has certain facilities and economic means, for example a light and radio, suddenly needs an electricity supply for double the assets? For a consumer who can buy a battery costing \$3 per month, a solar panel of 20 times the price and a higher capacity is not very feasible. Still (development) projects will subsidise, and in this way force the consumer to buy the actually unfeasible equipment.

As often can be seen, the implementation of (energy) equipment in (development) projects is mainly enforced with western norms and values. Rijssenbeek agreed with this. He mentioned that Chinese manufacturers of energy equipment had demonstrated a good marketing system which has proven to be feasible in many poor areas. Perfect, it could be said; but Rijssenbeek would preferably ask these factories to increase the durability of their goods, but it is viable to assume that this would in turn increase the price further and according to the author, reduce the feasibility in the field.

Influence of government in energy supply; protection or assault for the population?

As can be seen nowadays in many (developing) countries, governments are responsible for energy supply for the whole population.

Electricity is seen as a public good, although in the implementation of this supply the public good has suddenly a different appearance. By supplying energy governments gain political power and have influence on the population. Statements such as 'Within 2 years (coincidentally just after the election) this area will get electricity' (read; vote for me) can be heard often. It is therefore difficult for governments to withdraw their involvement in the supplying of energy or to establish a free market in the energy sector. It is good to realise that this is not only the case in developing countries, but also in first world countries: look for example at the situation in the Netherlands.

Conclusion

In many other sectors it can be seen that commercialisation is indirectly a way to increase the feasibility of equipment in the current circumstances. This suggestion was made to governmental organisations:

'Either invest in the energy supplying system and set strict conditions (quality, quantity, safety etc.) or DON'T'. According to the discussion during the presentation a few points were defined on how to implement a free market in the energy supply sector:

- Barriers should be reduced for local entrepreneurship in energy supply and facilities
- Minimum standards should be set which can be done by the government, in order to prevent total withdrawal from governmental involvement
- Energy tariffs should be taxed (e.g. water tariffs)
- The price of energy supply should be enforced, not on kWh basis, but on the deliver service concept

We then again come to the paradox of whether we have to define energy supply as a social good or a commercial good.

Status YES-UGANDA

By Simon Kuyvenhoven

"YES-Uganda" is currently the only project managed by the YES-Africa group. The project is briefly about setting up a local network in Uganda with all parties involved in the dissemination of renewables in Uganda.

Local parties would be people from the university in Kampala, NGO's, local government bodies, local distributors and representatives from end-users. Up till now the only real contact we have is with 5 people from the Makerere University. At the moment the project is still in it's proposal status, looking for an organisation to finance the project.

Because the AFFREI-team of the World Bank showed initial interested in this project, the proposal has been originally written in WB-format.

After submission in March this year, the YES-Uganda team has negotiated with the WB to get it approved, without success. This summer we have tried to consult other financiers like the Dutch NCDO and the Dutch embassy in Uganda but again without the proper result.

In June this year the board of YES-Africa has approved the change over of the two initiators of YES-Uganda – Jeroen van der Linden and Jeroen Verschelling, who also have written the WB-proposal – into two new ones: Karlijn Arkesteijn and Simon Kuyvenhoven.

At present the YES-Uganda team is thinking of reformulating the proposal in order to submit it to the Shell Foundation. Our contact there is Grant Ballard Tremeer, who considers a real chance of approval of the idea by the Shell Foundation. Let's try again and see. Hopefully we'll be successful one day and we can make a start of setting up a real network in Uganda.

FUSION: THE BASE-LOAD RENEWABLE ENERGY SOURCE FOR THE FUTURE?

By Simon Kuyvenhoven

Controlled Fusion Energy – or in short: ‘fusion’ – is a potential base-load energy source which enables to power a complete power plant in the order of 1 GW, for a reasonable price per kWh. Fusion is in principle a renewable energy source because of two reasons: during the fusion process no greenhouse gasses are produced and the main fuel – water – is available in such quantities that future fusion power plants can operate for tens of thousands of years. Besides, water is equally distributed over the globe like wind, sun and biomass.

Fusion in principle is a form of nuclear energy, but without the well known disadvantages - like the nuclear waste problem - which characterise the nuclear fission process which is applied in today's nuclear plants. During operation of a fusion power plant only helium is produced as a waste product, an inert and harmless gas. The fusion reactor though, becomes radio active during operation. But disposal materials of the active reactor are as harmful as radio-active waste materials from hospitals: after 100 years the radio activity will be less than the safety standards which excludes a burden for future generations. Besides, it's impossible to make atomic bombs from these materials. On top of that, a melt down of the reactor is in principle impossible too. A fusion power plant will be inherently safe.

The economic competitiveness of fusion in the future with fossil fuels will be determined by the extent to which costs of the climate change problem will be taken into account in the prices for fossil fuels. In the future, costs for fusion should also be compared with base load wind power. Because of the environmental friendliness of fusion and the infinity of it's fuel source together with it's base-load character, fusion combines the advantages of both renewable energy sources with today's power plants: a base-load renewable source for the future.

Fusion research is one of the most international oriented research programs of science: laboratories in the EU, Japan, Russia and the USA join their forces to beat the challenge of fusion. Up till now there has been no net power generated from a fusion experiment, yet. In 1997 however, scientists have reached a power of 16 MW in the biggest fusion experiment in the world under laboratory conditions. At present proposals are submitted to build a bigger machine with a capacity of 500 MW. The EU has already committed itself to this project.

Fusion research takes a couple of decades to reach it's goal because it's about the most complex technologies combined with unanswered questions of fusion physics. Today's expectation for fusion is a market introduction after 40 years from now. In order to tackle the problem of the global greenhouse effect, it's necessary to continue investment in fusion research.

Energy, Religion, Worldview... it's Christmas!



It's almost Christmas, well at least days are short and darkness falls across the land in an ever fastening pas. Whilst remembering the birth of Jesus Christ, the Christmas tree is installed in order to keep away the demons and celebrate the lengthening of days and the light as source of all life. Or maybe you will have different associations, like visiting your next of kin and enjoying special food. Or, as I do, you also start to wonder about the next YES-DC Christmas “Borrel”. Anyways, it is a truly remarkable mix of different elements that moulds the shape and thoughts of Christmas time.



This year we have chosen to celebrate this it in a truly nice atmosphere. ...

As for the subject of the evening, this fits well into this atmosphere. Although it is appearance is still a bit unsure, Bert de Vries, famous researcher at the RIVM, hopefully is going to talk about energy and worldview. Does our worldview influence the way in which we use energy? Does history has anything to tell us? Does this lead to any judgements we can make for the future?

What: lecture on Energy and worldview, dancing, drinking, laughing, etc.

Where: Above Café Baas, Lijnmarkt 8, Utrecht

When: 15 December, 19:30-0:00 hrs

Agenda

- 6 December: **Senter workshop** more info: jeanettescherpenzeel@hotmail.com
- 14 December: **Christmas Borrel** more info: burger@ecn.nl
- In the pipeline for 2002: Gender & Energy, Energy & Poverty (DEO-day, see below!), Green Certificates,

DEO-DAY: Energy & Poverty

YES-DC organises at least every two years a Debate on Energy and Development (DEO-dag) for those working on these issues in the Netherlands. This is a debate, which aims to address relevant (and hot) topics in the field of energy and development. It will not only be purposed for YES members, but also for non-YES members. The last time was a great success and a new one is coming up.

Before we can really take off in December, **we still need one person** to strengthen our team. the DEO-day is scheduled in the first half of next year and experience has shown that especially in the last few months you should be able to spend time on the organisation. Furthermore, one meeting in every two weeks during the whole period seems to be reality. However, you will not do this on you own and experience has also shown that those who organised these events in the pasts really enjoyed doing it. It involves: acquiring sponsors, inviting 'hot shots' (try Herfkens this time?), logistics etc.

Let us know if you are interested!

Do not hesitate to contact Monique Hoogwijk at m.m.hoogwijk@chem.uu.nl

Colophon

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