



norden

Nordic Energy Research

Where did they all go?

**Nordic Energy Research Doctorates –
Career Patterns and Experiences**

PREFACE	1
NORDIC ENERGY RESEARCH OVER THE YEARS	3
WHO ARE THEY?	6
PART OF THE NORDIC FAMILY Erik Ahlgren	8
ANALYSING THE NORDIC ELECTRICITY MARKET Niclas Damsgaard	10
– CHOOSE A SUBJECT YOU CARE ABOUT! Sigurð í Jákupsstovu	12
EMBED YOUR PH.D. IN A BUSINESS CONTEXT Susanne Poulsen, Maersk Oil	14
“I REALLY ENJOYED THE DANISH WAY OF LIFE” Pertti Kauranen	16
– GET OUT AND DO IT! Ragnheiður Inga Þórarinsdóttir	18
THE ENTREPRENEUR Jon Agust Thorsteinsson	20

Preface

The demanding energy and climate challenges we are facing have led to an increased consciousness among decision-makers and the general public concerning the need for new, affordable and cleaner energy technologies. However, a transition towards more sustainable energy systems requires public and private investments in energy research and innovation.

Investment in energy research and innovation is more than financial figures, value added results and new products. Research is done by people. Skilled researchers are needed to carry out important work in the laboratories and offices. This calls for a renewed effort in getting young people to choose a research education, and also to increase the educational focus on energy. The education of young researchers is crucial in order to contribute to the future research and innovation capabilities in the Nordic countries. Behind each research project there are people with unique experiences, backgrounds and knowledge.

Nordic Energy Research has financed close to 300 PhDs during the past 20 years. With this publication, we want to show what has happened to the Nordic Energy Research PhDs after they have finished their theses. What have they appreciated from their time as a Nordic PhD student, what has influenced their career choices and what is their advice to the future generation of PhD students. We have made a short e-survey and seven follow-up personal interviews. Project Assistant Amund Vik has done much of this work alongside his own Master studies.

This publication shows that embarking on a Nordic PhD project can be the beginning of an exiting career in energy research, private business and public service.

Birte Holst Jørgensen
Managing Director



Nordic Energy Research over the years

In 1986 the Nordic cooperation in energy research was launched as a research programme chaired by *Energiforskningsutvalget* (The Energy Research Committee) with representatives from the five Nordic countries. The practical research work was organised in colleges of Nordic researchers in specific areas and much emphasis was put on educating young researchers.

Hans Otto Haaland from the Research Council of Norway stated in 2007 that *“The Nordic countries complement each other in several areas, and would, therefore, have great output from increased cooperation – through, for instance, using fewer resources on trying to become the best in every area individually but rather by pooling our resources.”*

The idea of pooling the Nordic resources in order to create synergy and critical mass of Nordic energy research communities is something that has been embedded in the idea of Nordic Energy Research from the very beginning.

The thematic research areas have changed over time reflecting the priorities in the Nordic energy cooperation and research needs. When the cooperation started in 1986, focus was on areas such as petroleum geology, petroleum technology, district heating, combustion and bio energy. Today the thematic research areas are on renewable energy, energy efficiency, the hydrogen economy, integration of the energy market and the impact of climate change on the energy sector.

	1986	1987	1988	1989	1990	1991
Chairman of the Board	Morten Lange Professor Copenhagen University DK	Morten Lange Professor Copenhagen University DK	Jan Magnusson Deputy Director General STEV SE	Jan Magnusson Deputy Director General STEV SE	Henrik Ager-Hansen Director, Statoil NO	Henrik Ager-Hansen Director, Statoil NO
Secretariat/ Director			Gunnar Wilhelmsen	Gunnar Wilhelmsen	Gunnar Wilhelmsen	Gunnar Wilhelmsen

Nordic Energy Research over the years

During the period from 1986 to 1999, the formal Nordic energy research cooperation underwent several changes. Most notably in this period were the changes in the secretariat. During the first years, Professor Morten Lange, Copenhagen University, headed the secretariat.

In 1988, the secretariat was located at the Norwegian SEFO (*Senter for forskningsoppdrag*) in Ås, and was headed by Director Gunnar Wilhelmsen.

In 1999, the Nordic Energy Research Programme became an independent Nordic institution to align the activities with other Nordic cooperation areas and also to promote the research activities. The director of *Nordisk Indus-*

trifond (Nordic Industrial Fund) Reinhold Enqvist became the first director of Nordic Energy Research. Shortly hereafter, the secretariat was moved to Oslo in centrally located offices together with two other Nordic research and innovation funding institutions.

Today Nordic Energy Research has 15 large research and innovation projects in its portfolio, in addition to several EU ERAnet projects, NORIA energy technology policy projects, secretariat functions for the Nordic energy cooperation and other initiatives.

	1992	1993	1994	1995	1996	1997	1998	1999
Chairman of the Board	Jakob Björnson Director General ORKUSTOFNUN SE	Jakob Björnson Director General ORKUSTOFNUN SE	Mikko Ylhäisi Director General Ministry of Trade and Industry FI	Mikko Ylhäisi Director General Ministry of Trade and Industry FI	Ove W. Dietrich Consultant DK	Ove W. Dietrich Consultant DK	Trond Moengen Director Energianalyse AS NO	Thorkell Helgason Director ORKUSTOFNUN IS
Secretariat/ Director	Børre-Henrik Børresen	Børre-Henrik Børresen	Børre-Henrik Børresen	Børre-Henrik Børresen	Børre-Henrik Børresen	Børre-Henrik Børresen	Børre-Henrik Børresen	Reinhold Enqvist

My suggestion is to involve in the Nordic-post graduate research cooperation some more students and universities/institutions from developing countries.



While Nordic Energy Research has changed in many ways over the last 20 years, one thing has not changed. Senior Officer Unni Bruaset has worked with Nordic Energy Research since SEFO first provided the secretariat for the cooperation. Nordic Energy Research has had 16 chairpersons of the Board and five directors, but only one Unni Bruaset. Looking back on these years, she says, “It has been a pleasure for me to follow these young, nice students, from the first trembling research presentation at the annual meetings and to the final thesis presentation. And in between, I had to gently push them to get the annual reports in due time.”

2000	2001	2002	2003	2004	2005	2006	2007
Per Buch Andreasen, Dr. med. Copenhagen County Hospital Gentofte DK	Robin Gustavson Advisor TEKES FI	Trond Moengen Director Energianalyse AS NO	Lars Guldbrand Head of Section Ministry of Sustainable Development SE	Thorkell Helgason Director ORKUSTOFNUN IS	Hans Jürgen Stehr Head of Section Danish Energy Authority DK	Trond Moengen Director Energianalyse AS NO	Solveig Roschier Senior Technology Advisor Tekes FI
Reinhold Enqvist	Reinhold Enqvist	Per Ø. Hjerpaasen	Per Ø. Hjerpaasen	Per Ø. Hjerpaasen	Birte Holst Jørgensen	Birte Holst Jørgensen	Birte Holst Jørgensen

Who are they?

An e-survey was made in September 2007 and sent to the e-mail address of 168 previous Nordic PhD students. Fifty-four answered the short questionnaire on their thesis, institutional affiliation and following career, 14 women and 40 men.

The respondents represent 16 different nationalities. Most, or 3/4, of the previous PhD students come from the Nordic countries. Some, or 12%, come from the three Baltic countries since as from year 2000 10% of the Nordic Energy Research funds have been earmarked to researchers from the adjacent areas. The programmes have also been open for students from other European countries and the rest of the world, and students from for instance Italy and the Cameroon participated in the survey.

The vast majority of the students have remained in the energy sector. When asked what describes their field, most answer “Renewable energy and new energy technology”.

Most previous students have continued with research and teaching in the academic world. Sixty percent state that they now work in university and research institutes.

In academia, the most common title for recently educated researchers is “Research Fellow”, some researchers have continued their careers to become professors and directors and some of our former students are now chairmen and CEOs.

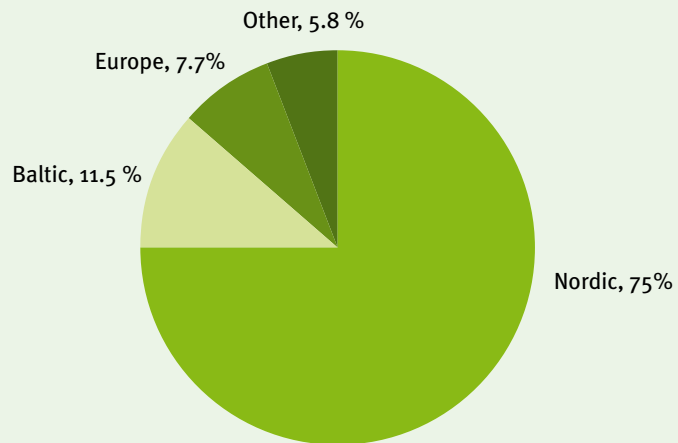
The majority of the Nordic doctorates are working in the public sector. This accounts for the university, research institutes and energy authorities. Some doctorates have made a career in the private sector; both large energy companies as well as small start-up companies.

In addition to the e-survey, we have interviewed seven persons to shed light on different career paths available to the Nordic research doctorates. The persons we talked to represent different nationalities, research areas and interests. They have all established themselves as prominent experts in the Nordic energy sector – though they have done so within different areas and in different ways. As these interviews show, the road from taking the PhD to taking a job at a university or research institute can be full of interesting twists and turns.

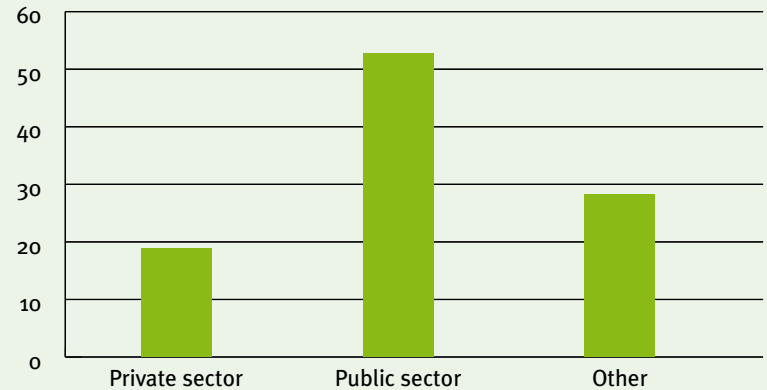
“To have new impulses was very, very important to me during the PhD studies. I learned to communicate about my work and to network.”

“The participation has helped open up contacts, not only within the group because of the high level of international communication.”

REGIONS, PERCENT



Percent



Part of the Nordic family

ERIK AHLGREN

Associate Professor [Docent] Erik Ahlgren is working in the field of electrochemistry. Today Erik works with energy systems analysis and heads the Division of Energy Technology, Department of Energy and Technology, Chalmers University of Technology, but he started out looking at thermoelectric elements in solid fuels. From 1991 to 1994 Erik worked on his PhD at Risø National Laboratory in Denmark, formally taking his PhD at DTU (Technical University of Denmark).

While Erik did not have any research stay at other universities in other Nordic countries, he enjoyed extensive cooperation with NTNU/SINTEF and University of Oslo in Norway.

After finishing his PhD, Erik worked as a postdoctoral fellow at the Kyoto University for three years – focusing on the same issues he worked on in his PhD. After that he returned to Denmark.

Chalmers University of Technology is, as they write on their website: “a university of technology in which research and teaching are conducted on a broad front within technology, natural science and architecture. Our inspiration lies in the joy of discovery and the desire to learn. Underlying everything we do is a wish to contribute to sustainable development both in Sweden and world-wide”.

NORDIC PEOPLE

Most of the PhD students we have talked with emphasise the value of becoming part of the Nordic community. Erik also stresses that taking his PhD under a Nordic Energy Research programme enabled him to become a true Nordic citizen.

– Getting the opportunity to live in Denmark while I wrote my thesis made me realize how much alike the Nordic people are, and how much we have in common. During my time as a Nordic student I went from being a Swede to becoming a truly Nordic citizen.



– Professionally, being part of a bigger group of Nordic PhD students was very rewarding. A special mutual connection arose between us who took our PhD through a Nordic programme. This was especially exemplified at the Geilo gatherings that the University of Oslo arranged. Being a part of the bigger professional environment in the Nordic region really made a difference for me.

When we ask whether he has used his Nordic contacts later in life, the answer is yes. Erik states that he has used his network from that time actively, but that the most important thing is not the contacts themselves. The most important lesson “network wise” that Erik learned from this time was experiencing that there is a Nordic arena, and that participating on that arena dramatically increases both the professional and social gains.

While Erik recollects good professional experiences from his time as a Nordic PhD student, he also has personal reasons for remembering that specific time in his life.

– If I were to just mention one thing about that time it would have to be meeting my wife. By sending me to Denmark, Nordic Energy Research really changed my life, Erik says.

WANT IT

If Erik was to give a piece of advice to people considering taking a PhD he would ask them to really want to do it.

– You have to want to get a PhD, if not, the process can become very long and tiresome. But if you do want it, you can really appreciate that taking a PhD is a unique time in your life. Taking a PhD is something you only do once, so you should really get the most out of it.

– Additional advice would be that you should try to get an international network. A great way to do this is to take the PhD through an international project, such as those financed by Nordic Energy Research.

Analysing the Nordic electricity market

NICLAS DAMSGAARD

– The contacts I got from taking my PhD in a Nordic context have been very important in my work since finishing my thesis.

Head of division in Econ Pöyry Niclas Damsgaard took his PhD in economics through the Nordic Energy Research project “Energy and Society”. Niclas’ thesis was about the consequences of regulation and de-regulation in the energy market. Niclas took his PhD at the Stockholm School of Economics in the period 1999 to 2003.

Niclas has remained in the field of energy and energy markets. Currently, he is the director of the Climate and Energy policy group in Econ Pöyry. His primary focus is Nordic and European energy policy.

“Econ Pöyry is the Nordic branch of the global consulting and engineering company Pöyry Plc, listed on the Helsinki stock exchange. We offer insight and understanding into the complex interaction between markets, policies and technology.

Econ has provided research, analysis and advisory services of highest professional standards for more than 20 years to clients within the private and public sectors, in the Nordic countries and to international institutions.”

Niclas started in ECON (now Econ Pöyry) just after finishing his PhD, and has had an impressive career in the company. Recently he also authored a report for the Nordic Council of Ministers’ Electricity Market Group on the prospect of a Nordic Transmission System Operator.

Since joining ECON, Niclas has increased his expertise in energy relations greatly. He has even published a book evaluating the Swedish electricity market deregulation “Regulatory reform in the Swedish electricity industry – good or bad?” The book was co-authored with Professor Richard Green, whom Niclas first met at conferences arranged by the “Energy and Society” programme.



Niclas Damsgaard
Partner and Head of Division
Econ Pöyry
PhD in economics

A NORDIC EXPERIENCE

The Nordic students travel around the Nordic countries, learning from different supervisors along the way. According to Niclas, this yields good results, both professionally and socially.

– One of the things I remember most from the time as a Nordic PhD student is being able to travel to the other Nordic countries. I especially remember walking in the mountains around Bergen (NO), and walking the mountains surrounding Reykjavik (IS) with my host in Iceland, Fridrik M. Baldursson, Niclas says.

– The trips and research stays in the other Nordic countries were rewarding also in a more professional sense. However, while the content of the workshops and seminars was important, the most important element was the feed-back from other Nordic PhD students and senior researchers during these conferences.

Being a Nordic PhD gives the students a good opportunity to establish networks in their fields. Niclas also comments on the value of these networks. He keeps in touch with his colleagues from his days as a PhD student. Especially those he shared offices with.

– The networks that one gets from the Nordic cooperation are extremely rewarding. Actually, we recently hired another PhD from my Nordic project. I have benefited from the Nordic network a lot since taking the PhD, Niclas says.

BE INTERESTED AND ENGAGED

Niclas underlines that while there are certainly jobs where a PhD is a requirement, a PhD is also increasingly seen as an asset in international consultancy.

– If you are interested and engaged in your research, taking a PhD is very good idea, Niclas says. For me, taking a PhD that was closely connected with real life, made the work go easier, but this is an individual choice.



– Choose a subject you care about!

SIGURÐ Í JÁKUPSSTOVU

After working as an engineer in Denmark and in the Middle East for five years, Sigurð í Jákupsstovu wished to return to the Faroe Islands. Wanting to work from the Faroe Islands, he applied for a PhD at DTU (Technical University of Denmark). The financing for his PhD in petroleum reservoir modelling came from Nordic Energy Research programme “Petroleum Technology” and from the Faroese Research Council.

The career of Sigurð í Jákupsstovu is remarkable. His professional experience ranges from on-site offshore engineering, to implementing the current electricity legislation in the Faroe Islands. Until recently Sigurð was director of the Faroese energy authority Jarðfeingi, overseeing the energy sector in the Faroe Islands. The institution, Jarðfeingi, is the result of the merging of the Faroese Geological Survey and the former Petroleum Administration – a merger Sigurð oversaw as the director of both organisations in the process.

Today he works in Iceland as an advisor to Jarðfeingi, focusing on implementing the first ever electricity regulation in the Faroe Island.



– My tasks as an advisor are to work on the energy- and regulative aspects of the new electricity bill. This is the first attempt in the Faroe Islands to partly liberalize the electricity market and is actually the first electricity regulation law ever passed in the Faroe Islands, Sigurð says.

As the Faroe Islands is a very small country¹, the liberalisation of the energy market is done in steps – and during this process they look to Iceland, another small country that has liberalized its electricity market.

WORKING IN SAN FRANCISCO

Looking back on the time as a Nordic PhD student, Sigurð remembers staying with Chevron at their headquarters outside San Francisco, USA.

– If I was to mention just one thing about my time as a Nordic PhD student, it would have to be staying with Chevron for five months. The stay there was extremely instructive.

– I also remember the annual meetings in the Nordic project group, where we as students could present our work and meet others in the same situation as ourselves, Sigurð says. Sometimes these meetings were held in connection with an energy conference, making the meeting a really fruitful addition to our work as PhD students.

¹ The Faroe Islands are an autonomous region of the Kingdom of Denmark since 1948.



Sigurð í Jákupsstovu
Advisor to Jarðfeingi, Iceland
PhD in petroleum technology

Writing a PhD can be a lonely experience. According to Sigurð, taking the PhD through a Nordic programme gave him the opportunity to exchange professional experiences, as well as the chance to meet others in the same situation.

– Working with my PhD in the Faroe Islands meant that the professional community was far away. Since this was before they began petroleum exploration in the Faroe Islands, the meetings in the Nordic project group were a good way to get professional input on my work.

Towards the end of the 1990ies and the early 2000s, the international oil companies began searching for oil within the Faroese area. This created a need for qualified personnel. Sigurð was then ideally positioned to participate in forming the first educational programmes in petroleum technology at the local university.

– All in all, taking the PhD in the Faroe Islands was a rewarding and exciting experience, Sigurð says.

This is no surprise, as taking the Nordic PhD placed him in among the top energy people there. Sigurð participated in the beginning of the petroleum adventure in the Faroe Islands, and now he is implementing the very first electricity bill ever passed there.

The Faroe Islands also have an abundance of renewable energy sources, such as wind and water.

– In connection with our work on renewable energy resources, I again met some of the people I met during my time as a Nordic PhD student. One example of the fruitful cooperation between the Faroe Islands and Nordic Energy Research is the Nólsoy project, which is a continuation of the so-called West Nordic project, administered by Nordic Energy Research. The goal is to establish a full scale plant for wind-hydrogen energy production on the island of Nólsoy. The Faroese authorities, Jarðfeingi, together with relevant energy companies are responsible for the implementation of the project.

THE NORDIC EXPERIENCE

– The support from Nordic Energy Research was very important, Sigurð says, and reemphasises the value of having a professional and social network while writing a PhD.

Embarking on a PhD or any other lengthy education can be both frustrating and rewarding. For Sigurð, having the Nordic institutions and the Petroleum Technology project as a foundation eased the professional solitude, and presented him with an opportunity to return to the academic sector after working five years in the oil industry.

For future students and those contemplating to start a PhD education, Sigurð í Jákupsstovu has only one piece of advice:

– Choose a subject you care about. If you are thinking about taking a PhD degree, studying a subject you care about and are interested in is the best way to stay motivated and engaged throughout the process.

Embed your Ph.D. in a business context

SUSANNE POULSEN

Susanne Poulsen, Denmark, took her PhD within the Nordic Energy Research programme "Petroleum Technology" from 1998 to 2001. Following her PhD, she has pursued a career in the Danish petroleum sector. She started out as a well-site engineer for Maersk Oil in the North Sea. From the North Sea she proceeded to Qatar, continuing there as a well-site engineer. Today Susanne is working in Copenhagen, at the main offices of Maersk Oil, focusing on reservoir engineering.

The issues she is working on now are the same as her PhD from DTU (Technical University of Denmark). Her professor at DTU was Erling H. Stenby, Petroleum Engineering.

– After spending some years off shore, and in various positions in the company, I now work with exactly the same issues that I studied in my PhD, Susanne says. When I took my PhD I studied the issues with a more scientific focus, now I am able to focus on these issues from a more practical angle.

Maersk Oil is, as the company writes on their website, "a midsize international oil and gas company, operating an oil production of more than 600,000 barrels per day and a sales gas production of up to some 1,000 million cubic feet per day." From her position in the Petroleum Engineering Department in the company, Susanne is well placed to play a role in the Nordic energy sector.

SOCIAL AND PROFESSIONAL SUPPORT

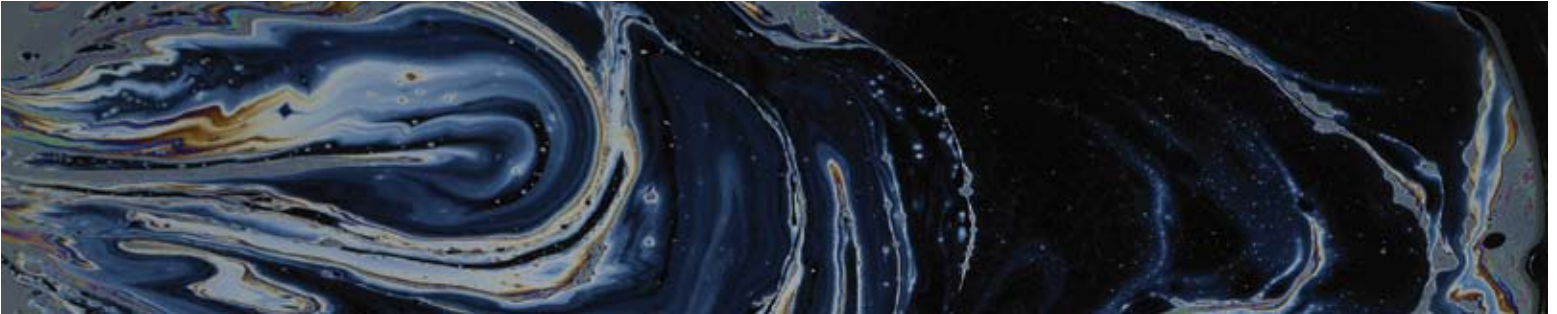
Talking about her experiences as a Nordic PhD student, Susanne emphasises the value of the social network that arose from being part of a larger Nordic context.

– Writing a PhD thesis can be a lonely journey if one does not have a good social and professional network. The meetings and conferences in with the Nordic collaboration were very important in this respect.

As Susanne points out, the most demanding part of writing a PhD is not necessarily the technical and academic challenges, but the psychological challenges arising from managing a one-man project that lasts for three years.

– Meeting other PhD students and seeing that they are going through the same as you are is a reassuring feeling. Through Nordic Energy Research you meet other like-minded persons that you can share and exchange experiences with. In my PhD work, the cooperation with other Nordic students helped me to gain new professional perspectives, Susanne states, also focusing on the value of being exposed to business perspectives as well.

– One experience that really stands out was my posting at Norsk Hydro's research centre in Bergen. I was only supposed to be there for six months, but I actually ended up spending an entire year there. Seeing my work from a



business perspective was a real "reality check" for me, as I imagine it would be for many people working on more academic issues for a long time.

The annual meetings in the project group are also one of the things Susanne mentions when discussing the time as a Nordic PhD candidate.

– The network formed in these meetings, and the general cooperation in the project is something I still use from time to time, Susanne says, adding; although mainly for social purposes.

From the time she handed in her PhD at DTU, Susanne has had different positions in Maersk Oil. The company has achieved a good position in the Nordic energy market and is engaged in activities in the Danish, British, German and Norwegian sectors of the North Sea, Qatar, Algeria, Angola, Kazakhstan, Turkmenistan, Oman, Morocco, Colombia, Brazil and Suriname.

As a growing company Maersk Oil shares the challenges of other companies actors in the Nordic energy sector. One crucial challenge is the need for more skilled employees to tackle the challenges of tomorrow's energy system, as well as the need for skilled researchers to design the energy systems of tomorrow. The example of Susanne is that through a Nordic PhD, one can gain the necessary skills and networks to form an important part of the Nordic energy sector. Whether it is the oil industry or the renewable energy sector you wish to participate in, a Nordic PhD degree can be good starting point for a career in the sector.

INDUSTRIAL PERSPECTIVES

Although she would have wanted to, so far Susanne does not have any Nordic PhD students in her department. From her experience, taking a PhD through a Nordic Energy Research project is a journey she gladly recommends to others. To those now embarking on a PhD study, either through the Nordic community, or as an ordinary university grant, she gladly offers her advice.

– I have two pieces of advice to the new generation of PhD students. Firstly, you need to make sure that you have a good and reliable network around you – both socially and professionally. This will ensure that you have someone to share your experience with, and get a broad range of professional input on your work. My second piece of advice is that you should try to link your project to a business or private enterprise. For me, this meant being able to see my work in a greater context, as well as being able to learn a great deal from my business supervisor.

“I really enjoyed the Danish way of life”

PERTTI KAURANEN

Pertti Kauranen started his PhD project in 1993, at the Helsinki University of Technology and the University of Odense. For three years he focused on methanol fuel cells. Today Pertti works as a Senior Researcher and team leader in the Finnish institution VTT, in the department of advanced materials. Fuel cells are still an important part of Pertti's professional life.

After finishing his PhD, Pertti joined the company HydroCell, which is a spin-off company from the Helsinki University of Technology. Hydrocell is a R&D company that focuses on doing battery and metal hybrid research, as well as hydrogen storage. Also after leaving Hydrocell, he focused on fuel cells, spending five years in Germany doing fuel cell research in the private sector.

VTT, the organisation where Pertti works today, describes its purpose as follows “Its objective is to develop new technologies, create new innovations and value added thus increasing customer's competitiveness. With its know-how VTT produces research, development, testing and information services to public sector and companies as well as international organisations.”

THE DANISH WAY OF LIFE

– My time in Denmark was very good. I really fell in love with the Danish way of life; what they call “Hygge” in Denmark. The feeling of Denmark stands out when I look back at these years. One might say that the Danes are somewhat more “easy going” than the Finns.

In the early 1990ies, the professional fuel cell research environment in Finland was small. Pertti, therefore, highlights being given the opportunity to spend years in Denmark, where the professional community was much larger at the time.

– Taking my PhD through a Nordic programme gave me the opportunity to learn from a much larger professional community than I would have been exposed to had I stayed in Finland at the time. Hence, going to Denmark really made all the difference for me.



Pertti Kauranen
Researcher and team leader, VTT
PhD in fuel cells

On another note, Pertti talks about annual skiing trips to Geilo in Norway since the Nordic Energy Research project that Pertti was affiliated with had its winter meetings in the Ski Resort at Geilo.

– Even though the project had several meetings annually, the ones in Geilo stand out. It was always exiting and fun there, Pertti says.

In his current job at VTT, Pertti has several PhD students.

– One of them comes from Denmark, but he is the only one from the other Nordic countries, Pertti says. I would like to see more Nordic PhD students at our institution.

Naturally, taking a PhD through a Nordic Programme increases the network of the student. Pertti agrees with this notion, and says he uses his network from his days as a student all the time.

– Right now we are launching several EU research projects together with people from the other Nordic countries that I got to know during my time as a Nordic PhD student. Some of these contacts I have maintained for over 10 years.

BE A PART OF SOMETHING BIGGER

– Being a part of the Nordic community really added a new dimension to my PhD work, Pertti says. I would recommend to anybody that they should be a part of a bigger research project when writing their thesis.

Pertti points out that having a PhD is increasingly becoming a pre-requisite for jobs in academia in the Nordic region.

– My other advice would be “Just do it”. If you are interested in research work, doing a PhD is probably the best you can do. If you are able to take the PhD as a part of a Nordic context, that is, of course, a huge plus.



– Get out and do it!

RAGNHEIÐUR INGA ÞÓRARINSDÓTTIR

– My advice to a young person considering to begin a PhD education is this – do it! If you go through with your plan, and focus on the PhD, this will change your life. If you take the PhD through a Nordic project, focus on getting a network!

Ragnheiður Inga Þórarinsdóttir took her PhD in corrosion in district heating systems, at DTU in Denmark. From 1997 to 2000 she was a part of the Nordic Energy Research programme “District Heating”. Ragnheiður did her research in district heating systems in Iceland and at the laboratories at DTU in Denmark.

Having finished her PhD on corrosion in district heating pipes, the Icelandic Building Research Institute was a natural place to work. While working, she also took a MBA at the University of Iceland. Ragnheiður worked there for a while, as a department head. She moved to ORKUSTOFNUN, the Icelandic Energy Authority. In 2005 she was three months as the Director of ORKUSTOFNUN, now Ragnheidur is the Deputy Director.

– I am actually director now, says Ragnheiður, since the Director General is retiring I am the functioning head of the organisation.

THE NORDIC EXPERIENCE

Today Ragnheiður has an important position in the Icelandic energy sector. Just the same, her contacts from the time as a Nordic PhD student remain important – both in her day to day professional capacity and in a more social way.

– One of the things I would emphasise, looking back on this time, is the possibility I was given through the Nordic community to get a large international network of people doing the same thing as I do.

Ragnheiður also, in the same context, talks about the international seminars and conferences held by the Nordic Energy Research programme on district heat.

– Being a part of a bigger, Nordic research group gave possibilities one otherwise would not have. As a large group, we could for instance get some crucial measuring equipment from the USA.

According to Ragnheiður, the added value of the Nordic cooperation is not limited to the professional context.

– Taking the PhD as part of a group of other, likeminded and international students meant being part of a something bigger than oneself. To be a PhD student and get to be a part of such a group mentality is a seldom, and welcome change.

As Ragnheiður comes from Iceland, the research stay at DTU in Denmark was one of the best experiences.

– As the professional environment in Iceland at the time was not as big as the Danish, the opportunity to go to Denmark for three months every year was an incredible fruitful experience for me.

Ragnheiður Inga Þórarinsdóttir
Deputy Director, Orkustofnun
PhD in residual heat



NETWORK SOCIETY

Having a good professional network is a crucial attribute whether you work in research or not. Ragnheiður uses and maintains her Nordic network in her current job.

– I recently counselled a Nordic PhD, and through the Nordic cooperation, we held a conference this year (2007).

To organise the conference, Ragnheiður drew on her extensive Nordic network from her study days – but she also meets her old co-workers and friends through other activities.

– Through our membership in, among others, the N-Inner programme I meet a lot of my old Nordic contacts.² Furthermore, I have become a member of the Board of Nordic Energy Research and at our last meeting in Finland, I met professor Carl-Johan Fogelholm at the Helsinki University of Technology.

ADVICE FOR THE FUTURE

– If I were to give any advice to the coming generation of PhD students it would be to focus on the results of your research early, that way you are better prepared when the panic kicks in when the deadline draws near.

To those considering taking a PhD degree, Ragnheiður has only one piece of advice:

– Stop considering.

² For more information on N-Inner, see <http://www.nordicenergy.net/section.cfm?id=3-o&path=19,70> or <http://www.inner-era.net/index.php?index=2>



The entrepreneur

JON AGUST THORSTEINSSON

Jon Agust Thorsteinsson took his PhD in process integration at the Institute of Energy Technology at Aalborg University with support from Nordic Energy Research programme “Process Integration”. His PhD consisted of mathematical models for process integration methods to optimise the operation of ship energy systems.

Today Jon is the founder and director of the Icelandic corporation Marorka. Marorka is a company that produces Energy Management System for ships and provides Energy Management services. On the company website, it says that “Marorka works closely with ship owners, ship designers, universities and machinery manufacturers in order to continuously develop the knowledge, procedures and methodologies used in effective energy management.”

Jon is one of the few people that actually has made a business out of his thesis.

– The whole philosophy of Marorka is based on my PhD, Jon says, adding that if it weren’t for the PhD, the company Marorka would probably not have seen the light of day. “Mar” means the sea and “orka” means energy.

– From the first research projects in the mid 1990ies, the Marorka as we know it today took form in the summer of 2002, says Jon. The Company has had a phenomenal growth in the years since the initial startup. The success has been beyond our dreams.

”Marorka provides Energy System Consultation based on own developed mathematical software called Marorka EDT and Energy Management Systems called Maren for the fishing and ocean transport industries. Marorka uses sophisticated mathematical simulation methods to produce a detailed analysis of energy systems. Our services provide an enhanced insight into the relationships between energy systems, operating conditions and environmental factors.”

On June 6th 2007, Jon and the other 20 employees celebrated Marorka’s 5th anniversary. Marorka’s mission is to deliver high quality products and services that save energy, increase profitability and reduce emission and pollution to our customer satisfaction. “All the employees of Marorka feel we are part of this mission making the world better for future generations” says Jon.

IMPORTANT PRESENTATIONS

After finishing his PhD, Jon proceeded to start the company Marorka. He is now the President and Chief Executive Officer of the company and the main owner.

From his experience as a Nordic PhD student Jon mostly remembers the meetings in the research group – being able to share experiences with the other PhD students.

Jon Agust Thorsteinsson
Director, MARORKA
PhD in process integration



– The opportunity to present my research findings to a qualified audience at several points during this period undoubtedly improved my work, Jon says.

– During my years as a PhD student I really saw how similar the Nordic countries are, and how much we have in common.

The annual research meetings and conferences, as well as the research stays at other Nordic universities meant a lot to Jon. The social events were important too. There we had opportunity to get to know each other. I really miss the events and I feel it would be a good step to invite old and new fellows for one or two days meeting to share ideas, says Jon. We need the Nordic brainpower to focus on the energy and emission problems together.

As the other PhD students we have talked with, Jon deeply appreciates the network he got as a Nordic PhD student – a network he nurtures whenever there is time.

– I meet people from those days all the time, I also email and phone when I have the time.

In addition to being the CEO and director of Marorka, Jon is member of the board of the University of Reykjavik. The University maintains almost 300 programmes spanning most fields of science and scholarship.

NETWORK NORDEN

One of the most important aspects of taking a PhD is the network one gets through the research work. For Jon, this was crucial.

– If I should give some advice to young people thinking about taking a PhD, it would be to try the international approach. The fact that I could take my PhD as a Nordic student actually opened many doors for me, and made many things possible. I truly recommend taking the PhD through a Nordic project.

– No matter whether you take the PhD through a Nordic or international project, another important thing is to remember to focus on creating networks. This is one of the best investments you can make while you take the PhD.



WHERE DID THEY ALL GO?

Nordic Energy Research Doctorates –
Career Patterns and Experiences
Nordic Energy Research

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