



The project Wind2050 may revolutionize citizen involvement in renewable energy.

The Danish Council for Strategic Research is supporting the Wind2050 project to the tune of DKK 20 million. This is a significant sum which reflects the fact that the links, which the project assures between innovative IT tools, financial models and sociological analyses have the potential to generate a radical change in the way major energy projects are planned and anchored in a democracy.

Wind2050 is an independent research project funded by the Danish Council for Strategic Research  
The project runs from 2014 to 2017.

[Read more](#)

## NEWS All

14 January 2016  
Research School 22-26 August 2016

14 January 2016  
Wind2050 conference on 26 August 2016

14 January 2016  
Wind2050 Seminar 2 February 2016

30 October 2015  
Invitation to join Interec application, BALTECO

## NEWS LETTER (in Danish)

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[december 2015](#)  
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## Progress Report for Wind2050

April 2017

Sagsnr. 1305-00021B.

Kristian Borch, Michael Søgaard Jørgensen, Helle Tegner Anker, Niels-Erik Clausen, Jacob Ladenburg, Michael Minter

## **Status and progress / Status og fremdrift af projektet**

### **Management**

The project is now in its final state with satisfying scientific publications. From a management point of view the focus is now on securing that the results reach the end users i.e. planners, developers and politicians. The project activities have been disseminated as follows:

- IEA Task 28 meeting 29-31/3 in Dublin (Kristian Borch and Tom Cronin).
- Seminar on Danish Experiences with Wind Energy and Community Engagement on 8/6-2016 in Dublin. The seminar was held in joint cooperation with Embassy of Denmark in Dublin, Ireland and Sustainable Energy Authority Ireland (SEAI) (Kristian Borch and Geraint Ellis).
- ProjectZero workshop: Energiparker - solceller og vindmøller i det åbne land, 3/3 2017 Sønderborg (Kristian Borch)

The planned 1 week research school was launched in late August in connection with the half yearly project meeting and Scientific Advisory Panel consultation. 14 students attended the course. The SAP panel was impressed and satisfied by the scientific publication pipeline and advised the project to focus on reaching out to the project's stakeholders i.e. municipalities, developers and politicians on both national and local levels.

### ***Planned Activities***

- Final interne workshop 31/5, Vesta Aarhus
- Conference on Social Acceptance of Wind power, October, Risø, Roskilde

### **WP1: Mapping and analyzing co-shaping of wind power facilities (DTU, AAU, QUB)**

#### **The status and progress of the work package:**

The work package has progressed according to the overall project plan, although a slower data collection process from long-term case studies than planned. Long-term case studies of their wind power planning have continued with City of Aarhus and a project in the Northern part of Jutland. Focus in the long-term case studies is primarily on on-shore wind turbine facilities since the most controversies have been observed in this type of projects. Data collection has been carried out through dialogue meetings, interviews and participant observation. Short term case studies have been conducted in relation to a few other wind turbine projects. Controversy mapping based on Facebook groups' activities, homepages, public hearings and local press coverage of wind turbine developments have been carried out.

A project proposal about "Land use for wind turbines" together with Sustainable Energy Denmark (Vedvarende Energi) has been prepared, but did not obtain funding, but has reinforced the cooperation with the organization as part of WP1. The cooperation has continued with the project "Priorities in future land use in Denmark", which is organised by The Danish Board of Technology and Aalborg University.

The case studies about wind turbine planning will be finalized, including the case studies with focus on City of Aarhus and Northern Jutland.

A policy brief will be written about strategic municipal wind turbine planning with regulatory background in strategic energy planning and municipal planning. Focus is on the development of local energy visions and the development of local socio-economic benefits from wind turbine facilities. The policy brief might be written in cooperation with other work packages. The target groups of the policy brief will be municipal planners within environmental, energy, business and employment, but also NGOs and wind turbine developers will be able to use the processes and perspectives that will be outlined in the policy brief. Theoretically the policy brief will be inspired by Jasanoff (science for policy), Hurlbert & Gupta (split ladder

of participation) and Lipsky (implementation theory and its focus on freedom to action and capacity to action).

Some of the work in WP1 will be delayed due to Sophie Nyborgs maternity leave. This will in part be compensated by hiring Laura Tolnov Clausen as postdoc for 3 month.

### **Publications**

Borch, K., Nyborg, S., Clausen, L.T., Jørgensen, M.S.: Wind2050 – a transdisciplinary research partnership about wind energy in: Holstenkamp, L., Radtke, J. (eds.) Handbook on Energy Transition and Participation, Springer Verlag, Chapter 47 (in press)

Munk, A. K. (2014) Mapping wind energy controversies online introduction to methods and datasets, Working paper, Department of Learning and Philosophy, Aalborg University

Jørgensen, M.S., Borch, K., Nyborg, S., Clausen, L.T.: Political ecology as perspective in analyses of crises in sustainable transition: on-shore wind power in a front runner country. Abstract for 7th International Sustainability Transitions (IST) Conference 2016, Exploring Transition Research as Transformative Science - September 6 – 9 2016, Wuppertal, Germany

Nyborg, S., Clausen, L. T., Kirkegaard, J. K., Rudolph, D. P., Jørgensen, M. S.: Social contention in Denmark over alternative wind power development paths. Abstract for 4S/EASST conference, August 31-September 3, 2016, Barcelona, Spain

### **Policy briefs**

- Borch, K. , Dahlgaard, V. & Munk A.K. Strategisk Kommunikation om Vindmøller via Facebook. Policy brief fra Wind2050, CONCITO 2017.

### **Work in progress**

- Borch, K. Mapping Perceived negative value of wind turbines from an innovation design perspective. Energy Policy (in progress).
- Borch, K & Kirkegaard, J.K. The overflowing nature of Public Matters of Concerns in Wind Farm Development – a critical review of the framing of public hearing answers and local newspaper articles. Energy Policy (in progress).
- Munk, A.K., Dahlgaard, V. & Borch, K. The role of social media in conflict management in wind power planning. Energy Policy (in progress).
- Jørgensen, M.S. Participation in conference about political ecology: Undisciplined Environments., ENTITLE network, KTH, Stockholm, 20-23 March 2016
- The shaping of wind turbines in the Nørrekær Enge area based on Actor-Network-Theory and energy justice
- A political ecology perspective on planning of on-shore wind turbines in Denmark

### **WP2: Local acceptance and public regulation (UCPH, UCL, QUB)**

In WP2 the data collection in the case studies has now been carried out. This includes qualitative data on planning and participation processes (Laura Tolnov Clausen: Hvide Sande, Nørhede-Hjortmose, Nørrekær Enge) and on compensation schemes (Marie Leer Jørgensen: Nørhede-Hjortmose, Trikelshøj, Rødby Fjord). Furthermore, a UK case study has been carried out (Julia Tomei: Big Field, Cornwall). The data is currently being analysed and draft articles being prepared.

In general, the preliminary results indicate that several factors influence the issue of local acceptance. As regards planning and participation processes an overall observation is that citizens do not experience the planning process as democratic and inclusive - an experience expressed through a distrust of the municipality and the developers and an experience of opaque and inadequate involvement. In this respect the distrust is not so much whether municipalities meet the formal requirements for the planning process (they do probably). It is rather the process itself, which is not experienced as sufficient. As regards the compensation schemes the preliminary results indicate that the schemes do not necessarily meet the desired outcome of increasing local acceptance and that there are some concerns as regards distributive as well as procedural fairness. Furthermore, an explorative study on early involvement in landscape analysis at strategic planning level (municipal plans) in Guldborgsund has been carried out (Søren Præstholt/Vibeke Nellemann) with some interesting results. An analysis of strategic municipal planning has also been carried out (Helle T. Anker/Tine Reimer) showing that several municipalities have become more reluctant to adopt strategic plans (designation potential wind turbine areas) and that alternative methods are being developed for the designation of potential sites (top-down v bottom-up). In addition interviews have been made with local politicians and planners (Tove Enggrob Boon/Tine Reimer) identifying different perceptions and types of local democracy: system democracy, business democracy, community democracy and grassroots democracy. On the UK part of the project an article by Chiara Armeni on participation in environmental decision-making based has been published in Journal for Environmental Law. The article suggests that the participatory orientation of mitigation measures within planning law should be acknowledged and strengthened, while the potential for community benefits to constitute alternative fora for community participation should be explored. A comparative article (UK-DK) on the linkages between public participation and administrative appeals is being elaborated by Chiara Armeni and Helle T. Anker.

#### **Publications:**

- Anker, H.T. & Jørgensen, M.L., 2015, Mapping of Legal Framework for siting of wind turbines – Denmark, IFRO Report, [http://curis.ku.dk/ws/files/143884872/IFRO\\_report\\_239.pdf](http://curis.ku.dk/ws/files/143884872/IFRO_report_239.pdf)
- Anker, H.T., 2016, Notat om kommunal planlægning for vindmøller
- Armeni, C., 2016 Public participation in wind energy infrastructure in England and Wales, Journal of Environmental Law 2016 28: 415-441
- Boon, T.E. & Reimer, T. 2015. Blæst om demokratiet. Momentum 4:23-31
- Clausen, L. T. & Nyborg, S., 2016. Notat til Energistyrelsen. Borgeres og kommuners erfaringer med borgerdeltagelse i dansk vindmølleplanlægning
- Clausen, L. T. & Vasstrøm, M., 'Beyond Consensus and Agonism – Wind-turbines and the Public in Denmark and Norway', submitted to Journal of Environmental Policy & Planning
- Nellemann, V. & Præstholt, S., 2015, Landskabskarakteranalyser ved vindmølleplanlægning i Guldborgsund Kommune. Arbejdsnotat for "Det nye herregårdslandskab - med fokus på vindenergi og "Wind2050". IGN, Frederiksberg, 1-31.
- Olsen, B. E. & Anker, H. T., 2015, Local acceptance and the legal framework – the Danish wind energy case, in Squintani, L. & Vedder, H. (eds), Sustainable Energy United in Diversity: Challenges and Approaches in Energy Transition in the European Union. European Environmental Law Forum Book Series, Vol. 1, s. 137-156
- Borch, K., Nyborg, S., Clausen, L.T., Jørgensen, M.S., 2017: Wind2050 – a transdisciplinary research partnership about wind energy, Af: Kapitel 47 i, Lars Holstenkamp & Jörg Radtke (eds.) State of the Handbook on Energy Transition and Participation. Springer (final submission)

#### **Policy Briefs**

Anker, H.T., Kommuneplanlægning for vindmøller, Policy brief fra Wind2050, CONCITO 2017.

### **Work in progress**

- Anker, H.T., Ecosystem perspectives in planning for offshore wind energy projects – does public participation matter? (forthcoming book chapter)
- Armeni, C. & Anker, H.T. Comparative article on participation and the role of third party rights of appeal (England-DK)
- Clausen, L.T. & Vasstrøm, M., Beyond Consensus and Agonism – Wind-turbines and the Public in Denmark and Norway, submitted to Journal of Environmental Policy & Planning
- Clausen, L.T. & Nyborg, S., Public Hearings in Wind power Planning
- Jørgensen, M.L. –articles on the compensation schemes
- Præsthholm, S. Contributions to several chapters in the forthcoming book “Landscape futures” (Primdahl et al.)
- Præsthholm, S. & Nellemann, V., working report on the Guldborgsund case study
- Ram, B., Anker, H.T. & Nielsen, T.R.L., Public engagement in Danish Offshore Wind Projects in Law and Practice (report )
- Reimer, T. and Boon, T.E., Four perspectives on democracy in wind turbine planning – a study of the role of local politicians (article)
- Reimer, T. and Boon, T.E., A social capital framework to study social acceptance of wind turbines (article)
- Tomei, J., Big Field Wind Park, Cornwall (case study report)

### **WP3: Local acceptance and private project development practices (DTU, KORA, RPS, DWIA)**

WP3 participated in Wind2050 meetings in January and August as well as in two joint meetings between WP2 and WP3 that were aimed at discussing findings and coordinating overlapping interests and publications.

WP3 conducted further research interviews with developers and other experts in the first quarter of 2016. In total, this added 13 interviews in Denmark to the data set of WP3 (excluding the ones conducted in collaboration with VidenOmVind).

Due to heavy teaching load at DTU Management Engineering the activity related to large infrastructure projects (lessons learned from other industries) is delayed and was carried out late in 2016. The report is in progress. This task is led by Joana Geraldi.

In February 2016, Tom Cronin, Julia Kirkegaard and David Rudolph provided written input to the Danish Energy Agency about potential implications of an imposed change in the support system for wind energy from feed-in tariffs to a tendering system, with particular consideration of the perspective of wind farm developers, that drew on scientific literature as well as insights from Wind2050 research.

As planned WP3 conducted research in Ireland and the UK in order to comply with project obligations aimed at a cross-country comparison of developer challenges in wind farms planning. This research included 12 interviews with wind farm developers and other stakeholders that were conducted in November and December 2016, and was guided by issues and themes that had emerged from the research in Denmark in order to juxtapose them with insights from Ireland and Scotland and to ultimately draw lessons for Denmark. Due to limited resources and greater relevance the comparative research only focused on Ireland and Scotland instead of the UK as a whole, as initially intended. This comparative study resulted in the third deliverable of WP3. The WP3 deliverable was completed at the end of 2016 as an internal report and reports on preliminary findings. The title is *Cross-country comparison of challenges in developing onshore wind farms: Ireland, Scotland and Denmark*.

In collaboration with WP3 VidenOmVind has carried out a series of interviews with planners in 23 Municipalities of Denmark. The Municipalities were selected as to cover the majority of areas where there has been recent activity related to planning and erection of wind turbines in Denmark. These interviews form the contribution to Wind2050 from Vindmølleindustrien and VidenOmVind . A summary report of this work was compiled by Henrik Vinther in 2016 and presented at the Danish Wind Turbines Owners Association meeting on 25<sup>th</sup> October 2016 in Århus.

Niels-Erik Clausen, David Rudolph, Julia Kirch Kirkegaard and Tom Cronin attended the “Creating legitimacy in wind turbine planning” course held at Copenhagen University, 22-25<sup>th</sup> August 2016.

There was also a substantial contribution of WP3 partners at the Annual Meeting of the Danish Wind Industry which took place in Odense, 26-27 October 2016. Tom Cronin co-chaired a session on ‘Social Acceptability – From Research to Practice’ together with Camilla Holbech, in which Julia Kirkegaard and David Rudolph as well as associate partners Henrik Vinther and Bo Schøler from Eurowind presented preliminary findings from Wind2050. Niels-Erik Clausen chaired another session that focused on noise and health issues.

Tom Cronin, David Rudolph and Niels-Erik Clausen participated in a public meeting 7 April in Kappel forsamlingshus arranged by European Energy regarding the Kappel project (Lolland).

Tom Cronin and Julia Kirkegaard presented a summary of results and findings concerning developer approaches and the paradigm shift in wind power in Denmark at a seminar arranged by Gate 21: “Academy 21 Masterclass: Demokratisering af vindmølleprojekter”.

Interviews regarding the Danish nearshore projects was carried out by Bonnie Ram mid 2016. A publication with a working title *Public Engagement in Danish Offshore Wind Projects in Law and Practice* is in progress in collaboration with WP2.

Niels-Erik Clausen and Tom Cronin attended the Project Dissemination meeting at CONCITO on 13th December 2016, where the main preliminary findings from WP3 were presented (Tom Cronin).

### **Publications**

- Cronin, T., Kirkegaard, J.K. & Borch, K Mapping of wind turbine ownership models in DK. Wind Energy Science Conference - WESP June 2017.
- Kvalitativ analyse af opfattelsen af planprocessen for vindmøller på land hos kommunalpolitikere og kommunalt ansatte, der har ansvar for vindmølleplanlægning. Interviews i 21 kommuner. VidenOmVind, august 2016. by Henrik Vinther.

### **Policy briefs**

Rudolph, D. Wind farm developer challenges: Denmark vs. Ireland and Scotland. Policy brief fra Wind2050, CONCITO 2017.

### **Work in progress**

- Ram, Bonnie, Helle Tegner Anker, Niels-Erik Clausen, and Thomas Raahauge Lund Nielsen: Public Engagement in Danish Offshore Wind Projects in Law and Practice. Project report.
- Landvind i et nyt paradigme: Udvikling af projektudvikleren. Policy Brief
- Issues and controversies in wind farm development – a developer’s viewpoint. Policy Brief

#### **WP4: Acceptance preferences and their consequences for cost-efficient wind deployment (KORA & DTU)**

Status for the WP is that we gathered all relevant data. The data includes; near shore/offshore cost data, acceptance cost for offshore, nearshore and onshore development, data on mitigating acceptances cost such as short/long term job creation in coastal areas, the possibility to buy shares in wind farms. In addition, we have data on how detailed information related to the choice of developing nearshore relatively to offshore influences acceptance costs. That said, one of the main challenges has been getting cost data on offshore/near shore investments and generation. The costs estimates are essential in the WP in order estimate cost curves and the identification of potential optimal offshore/near shore strategies. In general, our results point towards those preferences for wind turbine locations are significantly influenced by the turbine landscape people live in and that offshore location are preferred to onshore. The results also indicate that substantial variation in preferences is evident. On the cost side, we also find variation as a function of choice of location.

To sum up has had the following main activities.

- 1) Planned and carried out the 2016 Wind2050 expert meeting held August 26.
- 2) Helped planning and giving lectures in Wind2050 Ph.D. course "Creating legitimacy in wind turbine planning", University of Copenhagen 22-25<sup>th</sup> of August.
- 3) Continued working on acceptance and preferences for near shore wind farms data. The survey was carried by Ph.D. student Katinka Johanssen (WP2) assisted by WP4 leader Jacob
- 4) Continued parallel work concentrated on the costs of offshore wind generation and LCOE.
- 5) The work continued in the area of preferences relating to onshore, offshore wind farms and methodology. This work is conducted by the PhD student (Pablo H. Koch) in collaboration with the WP leader (Jacob Ladenburg).
- 6) Minor activities:
  - a. Master student Casper Bjerregaard completed his master thesis on spatial preferences for offshore wind power locations, comparing the spatial effects as a function of economics incentive reminders.
  - b. Master student Christoph Wolter worked with offshore cost data and LCOE methodologies. He drafted a report on international comparison of offshore costs and cost drivers, which was input for two conference presentations. Additionally he worked with the cost effect (LCOE) of overplanting with additional turbines in offshore wind farms.

#### **Publications**

- Klinge Jacobsen, H., Hevia Koch, P. A., & Wolter, C. (2016). Nearshore Versus Offshore: Comparative Cost and Competitive Advantages. I A E E Energy Forum, (Bergen Special 2016), 17-19.
- Hevia-Koch, P. and J. Ladenburg, 2016, Estimating Preferences for Wind Turbine Locations - A Critical Review of Visualisation Approaches (submitted to Renewable and Sustainable Energy Review).
- Ladenburg, Jacob (2016): Acceptance of Wind Power. An Introduction to Drivers and Solutions. In: *Alternative Energy and Shale Gas Encyclopedia*, Eds. Jay H. Lehr & Jack Keeley. John Wiley & Sons, Wiley Series on Energy, pp. 3-9.
- Jacob Ladenburg (2015): Does more wind energy influence the choice of development location? Assessing the cumulative effects of wind turbine encounters in Denmark. *Energy Research & Social Science*. 10: 26-30.
- Knapp, Lauren and Jacob Ladenburg (2015): Spatial relationships and economic preferences for wind power – a review, *Energies*, 8(6):6177-6201.

- Ladenburg, Jacob (2014): Dynamic properties of the preferences for renewable energy sources - a wind power experience-based approach. *Energy*, 76:542-551

In addition, more than 10 conference presentations have been given and several master students have been involved in the process of obtaining and analysing data.

### **Policy briefs**

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### **Work in progress**

- Pablo H. Koch, Ladenburg, Jacob and Abhra Abay: Preferences for onshore and offshore wind power development. (50%) *Energies/Ecological Economics*. (In progress)
- Pablo H. Koch and Ladenburg, Jacob Is Willingness to Pay for Visualised Landscape Amenities Sensitive to Screen Size When Using Web Surveys? *Resource & Energy Economics/Journal of Choice Modelling*. (In progress)
- Casper Bjerregaard and Ladenburg, Jacob. Hypothetical bias mitigation tools and spatial preferences in Choice experiments - using visual disamenities from offshore wind farms as the case. *Land Economics/Resource and Environmental Economics*. (In progress)
- Lauren Knapp and Ladenburg Jacob: Preferences for offshore wind power development – exploring the spatial relations to existing and future offshore wind farms. *Land economics*. (In progress)
- Jacob Ladenburg and Pablo Hevia Koch: Preferences for visual disamenity reductions : a pseudo natural experiment. *The Energy Journal/Energy Economics* (In progress)
- Henrik Klinge Jacobsen and Pablo Hevia Koch. LCOE calculation methodologies and cost drivers including critical assessment of the value of the generation in comparison with the costs. (In progress)
- Pablo Hevia Koch, Henrik Klinge Jacobsen and Jacob Ladenburg. Near shore wind turbines and their cost advantages: Does their cost advantage outweigh the preferences for visual disamenities reduction they elicit? (In progress)
- Katinka Johansen, Jacob Ladenburg + others? Monsters or majesties: The different views they see. On ex-ante local perceptions of large-scale engineering systems: The example of near-shore wind-farm planning in Denmark. *Energy policy/wind energy* (In progress)
- Katinka Johansen and Jacob Ladenburg: Preferences for nearshore wind farms - a five site experiment. *Energy economics* (In progress)
- Jacob Ladenburg and Stefan Petrovic: Acceptance of wind farms and the spatial locations of existing wind turbines, their size and numbers, *Energy* (In progress)
- Jacob Ladenburg. Preferences for onshore wind power development – the influence of wind turbine density and turbines visible from the residence. *Energy economics* (In progress).
- Jacob Ladenburg, Pablo Hevia-Koch and Henrik L. Andersen: The effect of prior experience in offshore wind turbine location – a natural experiment. *Energy journal*. (in progress)

### **WP5: Comprehensive recommendations and scenario analysis of wind power by 2050 (DTU, QUB)**

First study shows that the roles of controversy and public concerns linked to renewable energies and wind in particular, is not clearly delimited by the national innovation systems of the three studied countries. Modelling and scenario planning works do mention socio-institutional issues such as public concerns in some limited cases, but do not attempt to incorporate those problematics into the quantitative framework



of the models. Therefore those constraints to the development of renewable energies are not part of the energy planning outline.

Second study builds on the previous and develop on the view that the many scenario studies for Europe (29,7% of overall results) do not elaborate sufficiently on the idea of public participation and energy democracy, despite earlier studies demonstrating their importance for further development of RE. The second main finding resulted from a discussion on the evolution of scales of both energy systems and the modelling that study their evolutions. This finding consists in the outlining of the paradox that has resulted from partly antagonistic scale evolutions.

Third study will constitute a constructive suggestion to the critique raised in the 1. and 2. study, where scenario thinking and discrete event simulation is introduced in order to account for uncertainties derived from community acceptance..

### ***Publications***

- Bout C. Exploring the range of data inclusion by energy scenarios for Denmark, Ireland and UK since the EU 2009 Renewable Energy Directive – focus on the wind energy sector DTU – Abstract for Scenario conference at Warwick University – October 2015
- Bout C. and Kristian Borch IST Conference Wuppertal – September 2016 All things considered? – A review of long term energy planning models applied in Ireland, UK and Denmark. Conference Wuppertal – September 2016
- Bout, C. Review of long-term energy planning in Ireland, UK and Denmark Abstract for EASST Conference – September 2016

### ***Work in progress***

- Bout, C. Ellis, G & Borch, K. All things considered? A systematic review of peer-reviewed energy modelling and scenario studies. Renewable & Sustainable Energy Reviews (in Progress)

### **WP 6: Knowledge sharing and dissemination of results to end users**

Status and progress

The third edition of the newsletter was published in June 2016, covered the latest publications and informed about the upcoming Wind2050-seminar.

A number of policy briefs is being edited and will be published before the end of the project.

A final workshop is under preparation and will be arranged in collaboration with Vestas at their headquarters in Aarhus.

An updated CONCITO-report with recommendations on long term wind power planning will be published in August.



**RESEARCH SCHOOL**  
**22-25 August 2016**  
**University of Copenhagen, Faculty of Science**

### **Creating legitimacy in wind turbine planning**

Wind power is increasingly considered essential in countries' transition towards a fossil independent energy system. However, siting of wind turbines has proven to be a challenging endeavor for planners and developers, not taking into account that national level aims do not always go hand in hand with local level realities. This course focuses on the challenges in siting of wind turbines. Taking different theoretical perspectives, the course provides frameworks to analyze both the processes behind and the results from previous wind turbine projects and policies, so as to make it possible to recommend new planning and development procedures including citizen engagement, non-economic incentives, and regulatory framework. The course draws on the experiences from the research project WIND2050 (chaired by the Technical University, Denmark), and is conducted in a collaboration with the involved partners.

**Time:** 22-25 August 2016

**Place:** University of Copenhagen, Frederiksberg Campus, Room: A2-.70.01 Thorvaldsensvej 40

**Education:** PhD & Post doc

**Learning outcome:** The aim of the course is to present PhD students with selected theories and analytical frameworks with which to analyse wind turbine planning and better understand the controversies behind wind turbine planning and ways to resolve them.

**Literature:** The course will be based on scientific articles and key references related to environmental psychology, behavioural economics, law and environmental justice, democracy theory and controversy mapping, applied to the case of wind turbine planning.

**Teaching and learning methods:** The course consists of lectures, real life cases, exercises, students' colloquia and excursion (Wednesday afternoon). Prior to the course, PhD students prepare and hand in by 15<sup>th</sup> August a short abstract (max. ½ page) related to one or more of the themes of the course (i.e. conflict management, environmental psychology, democratic participation, social learning, environmental economics, legal issues or environmental justice) and linked to their own PhD study. After the course a short reflection paper (max. 3 pages) shall be handed in for assessment by 10<sup>th</sup> September at the latest. Post docs and others wishing to have their project discussed are also invited to submit an abstract by 15<sup>th</sup> August.

**Fee:** A fee of 1500 DKK is charged to cover food expenses, inclusive of dinner Thursday evening. A reduced fee of 1.000 DKK is charged if you do not participate in the dinner – please let us know if you will not participate in the dinner Thursday evening.

**Sign up:** Charlotte Bukdahl Jacobsen: [cja@ifro.ku.dk](mailto:cja@ifro.ku.dk) **no later than 12. August 2016.**

**Credit:** 3 ECTS

#### **Exam:**

*Type of assessment:* Handing in written assignment and active participation in the course

*Aid:* all aids allowed.

Marking scale: Passed/Failed

Censorship form: No external censorship, internal examiners

Criteria for exam assessment: See criteria for Learning outcome

|                   |       |                        |
|-------------------|-------|------------------------|
| <b>Workload:</b>  | hours | (1 ECTS = 27.467 hour) |
| Lectures:         | 16    |                        |
| Colloquia:        | 16    |                        |
| Theory exercises: | 8     |                        |
| Preparation:      | 42.4  |                        |
| Total             | 82.4  | (= 3 ECTS)             |

## Detailed programme

Monday 22/8 2016

8.30-9.00: Registration and coffee/tea

### **Acceptance of wind power – conflict management and an environmental psychology perspective**

Using cases on controversies from wind turbine planning we will discuss the dynamics of controversy and how conflicts may be alleviated through different non-economic incentives and stronger involvement of the public.

*Responsible:* Jens Emborg & Kristian Borch

**9.00-9.45 What is conflict? We take departure in peoples own conflicts and controversy in an attempt to define what conflict is and how it impact our lives, Kristian Borch**

**9.45-10.00 Break**

**10.00-10.45 Conflicts and their escalations: A brief introduction to the dynamics of conflicts and four dimensions, Kristian Borch**

**10.45-11.00 Break**

**11.00-12.00 Applying the theory on own cases and on selected wind turbine cases.**

**12.00-13.00 Lunch**

**13.00-13.45 The progress triangle: A number of issues about managing conflicts can be portrayed as a triangle of three interrelated dimensions; namely substance, procedure, and relationship, Jens Emborg**

**13.45-14.00 Break**

**14.00-15.30 The Unifying Negotiation Framework: The framework is an integrative model of policy negotiation based on the discourse tradition in public policy and political theory, Jens Emborg**

**15.30-15.40 Break**

**15.40-16.15 Discussion on how the introduced tools and frameworks can support a benign development of wind power.**

*References:*

Daniels, S.E., G.B. Walker, and J. Emborg, 2012. The Unifying Negotiation Framework: A model of policy discourse. *Conflict Resolution Quarterly*, 30(1), 1-14.

Hahn, R., 2008. Preventing Conflicts by Application of Psychology in Spiess, W., & Felding, F. *Conflict prevention in project management : strategies, methods, checklists and case studies*, Springer. Pp 41-61.

Jolivet, E., & Heiskanen, E. 2010. Blowing against the wind-An exploratory application of actor network theory to the analysis of local controversies and participation processes in wind energy. *Energy Policy*, 38(11), 6746–6754

*Supplementary references:*

Daniels, S.E. and Walker, G.B., 2001. Working Through Environmental Conflict: The Collaborative Learning Approach. Westport, CT: Praeger. 299 pp (Chapter 3 plus selected sections)  
Vindeløv, V. 2012. Reflexive Mediation, Chapter 4. Conflicts and their escalation, pp. 57-86. DJØF Publishing.

**Tuesday 23/8 2016**

**Democratic participation, social learning and political space in (wind power) planning**

The aim of the day is to discuss different forms of democracy and participatory approaches, including procedural (legitimacy) and substantial (social learning) arguments. Moreover, we will discuss whether it is possible to reach consensus on siting of wind turbines or whether we should embrace antagonism as a social attribute for the potential change.

*Responsible:* Laura Tolnov Clausen & Mikaela Vasstrøm

*Guest speaker:* Geraint Ellis (GE) on Political space: consensus-dissensus and deliberative practice

Dr. Geraint Ellis is a Professor in the School of Planning, Architecture and Civil Engineering (SPACE) and Director of Research for the Institute of Environmental and Spatial Planning (ISEP) at Queen's University, Belfast. His key research interests are in planning and sustainability, renewable energy, planning governance and healthy urban planning. He has published and researched widely on these issues, recently co-editing a book on Learning from Wind Power: Governance, Society and Policy Perspectives on Sustainable Energy.

**9.00-10.15: Forms of democracy. Types of deliberative democratic thinking. Participation in planning, procedural (legitimacy) and substantial (social learning) arguments, Laura Tolnov Clausen & Mikaela Vasstrøm**

**10.15-10.45 Questions and discussion in plenum**

**10.45-11.00 Break**

**11.00-12.00 Political space: consensus, agonisms and republicanism, Geraint Ellis**

**12.00-12.30 Questions and discussion in plenum**

**12.30-13.30 Lunch**

**13.30-15.30 Colloquium. PhD groups: Each PhD-student presents their research (5 min.), reflect how the core issues of the day relate to their research (5 min) and discuss with these reflections in the group (10 min.). The group makes a list of main discussion points to present in plenum**

**15.30-16.00 Plenum. Presentations of colloquium discussions from each group (app. 10 min. each group)**

*References:*

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*Supplementary references:*

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Friedmann, J. (1987) Planning in the Public Domain: From Knowledge to Action. Princeton, NJ: Princeton University Press.

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### Wednesday 24/8 2016

#### **Eliciting preferences for wind power development, guidelines, caveats and central points for policy relevance**

The aim of the day is to give an introduction to environmental economics and then focus on wind turbines effect on house prices and spatial properties of preferences for wind power and acceptance cost .

*Responsible:* Jacob Ladenburg.

**9.00-9.45 Introduction to environmental economics, Pablo Hevia Koch**

**9.45-10.30 Wind turbines effect on house prices, Toke Emil Panduro**

**10.30-10.45 Break**

**10.45-11.30 Spatial properties of preferences for wind power and acceptance costs, Jacob Ladenburg**

**11.30-13.00 Plenary discussion**

**13.00-14.00 Lunch**

**14.00-18.00 Excursion to Middelgrunden offshore turbines**

#### *References:*

Knapp, L. and J. Ladenburg 2015. "Spatial Relationships and Economic Preferences for Wind Power-A Review." *Energies* 8(6): 6177-6201.

Ladenburg, J. and S. Lutzeyer 2012. "The economics of visual disamenity reductions of offshore wind farms—Review and suggestions from an emerging field." *Renewable and Sustainable Energy Reviews* 16(9): 6793-6802.

Menegaki, A. 2008. "Valuation for renewable energy: A comparative review." *Renewable and Sustainable Energy Reviews* 12(9): 2422-2437.

Jensen, C.U., Panduro, T.E. and T.H. Lundhede 2014. "The vindication of Don Quixote: The impact of noise and visual pollution from wind turbines." *Land Economics* 90(4): 668-682.

### Thursday 25/8 2016

#### **Legal issues, compensation schemes and environmental justice**

The aim of the day is to focus on the legal framework for wind energy installations as well as on the use of different types of financial compensation schemes, e.g. co-ownership and community benefit schemes. Furthermore, issues of environmental justice will be presented and discussed.

*Responsible:* Helle Tegner Anker

*Guest speaker:* Gordon Walker.

Professor Gordon Walker is currently focusing predominantly on questions of energy demand in his new role as Co-Director of the RCUK funded DEMAND Centre (Dynamics of Energy, Mobility and Demand). The DEMAND Centre takes a distinctive approach to end use energy demand, recognising that energy is not used for its own sake but as part of accomplishing social practices at home, at work and in moving around. Considering wind power Gordon has strong research interests in the social dimensions of sustainable energy technologies and public engagement with community energy projects.

**9.00-10.15 Introduction to law and legal approaches to address citizen concerns, including planning and EIA procedures as well as compensation schemes, Helle Tegner Anker**

- 10.15-10.30 Questions**
- 10.30-10.45 Break**
- 10.45-11.45 Environmental and energy justice: concepts, concerns and complications in relation to wind energy development, Gordon Walker**
- 11.45-12.30 Questions followed by plenary discussion on linkages between legal approaches and environmental justice**
- 12.30-13.30 Lunch**
- 13.30-15.00 Colloquium. Project presentations and group discussions on the projects and identification of “main points of the day”.**
- 15.00-15.45 Plenum – group presentations (“main points of the day”)**
- 15.45-16.00 Course evaluation**

*References:*

- Olsen BE, Anker HT. 2014. Local acceptance and the legal framework: the Danish wind energy case. In: Squintani L., Vedder H., Reese M., Vanheusden B. (eds.) 2014. Sustainable energy united in diversity: challenges and approaches in energy transition in the European Union. Vol. 1. European Environmental Law Forum. Pp. 137-156. (European Environmental Law Forum Book Series, Vol. 1).
- Gross C. 2007. Community perspectives of wind energy in Australia: The application of a justice and community fairness framework to increase social acceptance. *Energy Policy* 35 pp. 2727-2736
- Cass N, Walker G, Devine-Wright D. 2010. Good neighbours, public relations and bribes: The politics and perceptions of community benefit provision in renewable energy development in the UK. *Journal of Environmental Policy & Planning* 12:3 pp. 255-275
- Simcock, N. 2014. Exploring how stakeholders in two community wind projects use a “those affected” principle to evaluate the fairness of each project’s spatial boundary. *Local Environment* 19:3 pp. 245-258

*Supplementary references:*

- Wolsink, M. 2005. Wind power implementation: The nature of public attitudes: Equity and fairness instead of ‘backyard motives’. *Renewable and Sustainable Energy Reviews* 11 pp. 1188-1207
- Walker, G. 2012. *Environmental Justice. Concepts, evidence and politics.* Routledge, London.

**Thursday Evening 25/8 2016**

**Evening dinner for PhD course participants and WIND 2050 meeting attendants**