IEA Wind TCP Task 28
Social Acceptance of Wind Energy Projects

Operating Agent: Garry Keegan, IPC Ireland
IEA Wind TCP ExCo 83, Bilbao, Spain.
March 26th-29th, 2019
**Task Objectives & Expected Results**

**Project Objectives and Outcomes:**

T28 efforts focusing on four work packages which emerged from the 2016 survey results, which are being advanced using the identified three key themes.
Task Objectives & Expected Results

- **Target audience:**
  - Project Developers
  - Community Engagement Practitioners
  - Governments, Legislators & Policy Makers
  - Public Stakeholders
  - Industry & Academic Researchers
  - Communities

- **Current Term:** Jan ’17 - Dec ’19 (Phase III)
- **Task 28 membership has increased from 5 to 9 since PIII commenced.**
Milestones

Task 28 Meetings

- Roskilde, Denmark, March 26\(^{th}\) – 28\(^{th}\) 2018: In-person meeting (28\(^{th}\) joint session with Task 11/TEM)

- Hamburg, September 25\(^{th}\) – 28\(^{th}\), 2018 (incl T28 presentation at Wind Europe Conference)

- Lisbon, March 25\(^{th}\) – 26\(^{th}\), 2019 (followed by Mistral meeting ongoing)

- Next mini-Meeting: Belfast, September 12\(^{th}\) – 13\(^{th}\), 2019

- T28 PIII meeting (Oct/Nov 2019 – depending on date of 84\(^{th}\) Exco)
Lisbon meeting placed an emphasis on:

1. Suite of deliverables to be completed by Dec 2019.

2. Commence conversation on next phase
Deliverables

• **WP1**
  – German visualization innovations & research in consultation – virtual simulations / dome.
  – **USA (Germany)** Joe and Gundula’s research represents a large piece of this Task. The publication of their research will be a success for Task 28 WP1. To add results from similar research in other countries (short write-ups) – perhaps in a paper, an online slideshow (showing first the Rand, Huebner et al results, and then other countries’ work).

• **U.S. National Survey of Wind Project Neighbors: Summary of Research & Discussion of Protocols**
  Analysis Areas:
  • Overall Analysis of Attitudes
  • Planning Process Fairness
  • Predicting Audibility and Annoyance Using Modeled Sound
  • Strongly Annoyed with Symptoms; US-Europe Comparison
  – Relative Preferences: Wind, Coal, Natural Gas, Solar
Offshore, application, IWEA offshore committee steering committee & time commitment. Challenges and Opportunities, community/social acceptance and stakeholder identification/engagement.

Produce a brief version of the excellent ideas presented by Japanese member on offshore wind. Create a slide deck for viewing as a PDF or online at the reader’s convenience. The purpose of this would be for countries in the infant stages of offshore wind to learn from this co-benefits research and leapfrog some of the social acceptance issues in the EU.
Artificial fishery reef

http://www.rioe.or.jp/2015teigen.pdf
WP3: Set-back Distances - Approach

• Positive framing of Setback distances, not concerned-driven but: who is in, who can benefit, who can have an impact on planning?

• two paradigms of setback – scientific (looking at facts) and political (looking for community acceptance)

• Reflect the justification and function of a setback distance - noise and visual impact research
WP4 (T28 sub-group)
The overall aim of MISTRAL is to nurture a new generation of researchers who can effectively evaluate the complexity of social acceptance issues facing the deployment of renewable energy infrastructure and propose innovative solutions in a variety of research, government and business contexts. *(140/15/4.2/35-40k-3yrs-ongoing Lisbon)*

Lead Prof. Geraint Ellis of Queens University Belfast (in concert with Celine Bout of DTU) has secured funding for an EU-Funded Innovative Training Network, PhD Researchers, Common Training Programmes in Social Acceptance. Programme emphasis on inter-disciplinary engagement with non-academic partners and innovative ways of delivering researcher training.
**Switzerland**

Financial participation as an opportunity to increase the overall acceptance of wind energy projects?

**Denmark**

What is the role of Facebook groups in the formation and distribution of concerns towards specific wind farm sites in Denmark?

Short & Long Term Exposure to Wind Turbine Noise (WTN): A Nation Wide Cohort Study

**Finland**

Social acceptance workshop series (attended by T28 OA)
• We believe an extension of this important Task is necessary

• Task 28 could keep going on WP2 – offshore wind – many avenues. As this is becoming more common throughout the world and is, in some countries, the only wind deployment option, it makes sense to have social scientists in this group continue to look at the social acceptance (including local supply chain and economic impacts/benefits) as it relates offshore wind.

• There is a lot of interest from this group in continuing WP4 and that the knowledge exchange re: methods, etc is already well underway. This is more of an academic WP, but is very necessary for comparing research internationally so, if Geraint agrees, we could continue this WP.

• We are interested in exploring the addition of non-OECD countries into our research and will look into this (perhaps starting with South Africa).

• T28 would like to explore collaboration among technologies so will find a volunteer from T28 to contact other IEA technology task members about social acceptance challenges.
  • Longitudinal national level (n=2500) survey research in 3 waves
  • Social media analysis (twitter and FB)
Take it Global?

Given that the greatest energy use will be in non-OECD countries, should we try to expand membership or at least research locations?
Asia is projected to have the largest increase in energy use of non-OECD regions.

### IEO2018 Reference Case

**Non-OECD energy consumption by region**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td>356</td>
<td>410</td>
<td>523</td>
<td>575</td>
<td>610</td>
<td>661</td>
<td>739</td>
</tr>
<tr>
<td><strong>Projection</strong></td>
<td>50</td>
<td>78</td>
<td>157</td>
<td>200</td>
<td>224</td>
<td>257</td>
<td>303</td>
</tr>
</tbody>
</table>

- **Asia**
- **Middle East**
- **Africa**
- **Americas**
- **Europe and Eurasia**

**Source:** EIA, International Energy Outlook 2018
World energy consumption increases for fuels other than coal

IEO2018 Reference case
world energy consumption by energy source
quadrillion Btu

Source: EIA, International Energy Outlook 2018
Society’s Acceptance of Clean Energy

Can we get China, India or African nations (and others) to join? Would we need to help find funding?

Can we collaborate with researchers performing existing research on social acceptance of wind and other technologies (e.g., Brazil)?

Can we work to find funding and partners in non-OECD countries on Task 28-related subjects?
Collaborate with other IEA Tasks

- Community/Distributed Wind
- Bioenergy
- Solar PV and Concentrating (PACES)
- Hydrogen
- Hydropower
- Geothermal
- Ocean thermal, marine hydrokinetic
- Others

- Who will look into the social acceptance tasks for other technologies?

- Are these similar enough that we can gain something from each other?
GERMANY:

CROWDTHERMAL: Acceptance analysis of geothermal projects

CROWDTHERMAL aims to empower the European public to directly participate in the development of geothermal projects with the help of alternative financing schemes (crowdfunding) and social engagement tools.

Horizon 2020 funding – just confirmed

Partners involved from Germany, Iceland, Hungary & Spain (Belgian coordinator)
Product: Joint Online Webinar or Podcast?

• Webinar by 3 countries on similar topics (e.g., military issues offshore) or social acceptance or annoyance). Q&A sessions live in one time zone but recorded and downloadable for anyone.

• Podcast – IEA Task 28 podcast 6x/year – every other month. One member interviews another on their research results. Post it online on Task 28 and other websites.

• Other?
Enhanced Information Dissemination

What are better ways we can get our excellent results to more people?

• Task 28 website and IEA dissemination
• Our own websites
• Conferences
• Meetings with interested parties (e.g., communities, decision-makers)
• Talk with other tasks – volunteer to speak for 5-10 minutes at other tasks’ meetings about what Task 28 does.
Greater Collaboration

- Offshore wind developers
- Onshore developers – industry associations, contacts
- Local decision-makers? What do they need?
- Communities of focus (e.g., fishing, military)

- MISTRAL – international mentorship
• Why is the social acceptance task important?
• It is important (as is technology innovation)
• The most important issue blocking deployment of new wind development today is the local resistance to a project.
• Task 28 comprises a leading group of social scientists, many of whom are leaders in social acceptance of renewables.

• Speed of implementation / deployment is important
• Social acceptance enables this, it helps de-risk projects.
• For example mega projects in Africa, working with indigenous communities.
• Enable Acceptability in non-OECD countries where access and affordability is important
• e.g. mega-projects in Africa (global south), new / next generation of power sources hydro, solar, and scale.

• Which WPs will we finish by Dec 2019?
• Which WPs will we continue?
• New plan for ExCo? Exco direction & advice please on PIV, here is our thoughts on next phase:
  • Develop offshore?
  • More international?
  • Enhanced coordination?
  • Better dissemination? (podcats, webinars, greater reach)
• MISTRAL
Industry Participation

- Industry involvement in all four Task 28 work plans
<table>
<thead>
<tr>
<th>Country</th>
<th>Members</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Kristian Borch, Tom Cronin, Kaushik Das, Laura Tolnov Clausen, David Philipp Rudolph</td>
<td>Denmark Technical University</td>
</tr>
<tr>
<td>Finland</td>
<td>Lasse Peltonen</td>
<td>Akordi / Business Finland</td>
</tr>
<tr>
<td>Germany</td>
<td>Gundula Huebner</td>
<td>Martin Luther University Halle-Wittenberg &amp; Medical University Hamburg, University des Saarlandes</td>
</tr>
<tr>
<td>Ireland</td>
<td>Geraint Ellis</td>
<td>Queen's University Belfast</td>
</tr>
<tr>
<td>Japan</td>
<td>Yasushi Maruyama</td>
<td>Nagoya University</td>
</tr>
<tr>
<td>Portugal</td>
<td>Susana Batel</td>
<td>University Institute of Lisbon</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Pascal Vuichard</td>
<td>Institute for Economy and the Environment, University of St.Gallen</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>Joe Rand, Ben Hoen, Eric Lantz, Suzanne Tegen</td>
<td>National Renewable Energy Laboratory</td>
</tr>
<tr>
<td>Canada</td>
<td>Jamie Baxter</td>
<td>Western University</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Marielle de Sain</td>
<td>Pondera Consult</td>
</tr>
<tr>
<td>Norway</td>
<td>Mikaela Vasstrom</td>
<td>University of Agder</td>
</tr>
<tr>
<td>U.K.</td>
<td>Patrick Devine-Wright</td>
<td>University of Exeter</td>
</tr>
</tbody>
</table>
Statement of Accounts

<table>
<thead>
<tr>
<th>Costs (euro)</th>
<th>Budget yearly 2018</th>
<th>Actual (year) 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour</td>
<td>28,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Travel</td>
<td>8,500</td>
<td>8,500</td>
</tr>
<tr>
<td>Other</td>
<td>3,500</td>
<td>3,500</td>
</tr>
<tr>
<td>Total</td>
<td>40,000</td>
<td>40,000</td>
</tr>
</tbody>
</table>
Administrative Updates

Participation
- Current Participants: *Portugal, Germany, USA, *Denmark, Switzerland, Japan, *Finland, *Canada & Ireland. *new
- Participation Changes: Expanded from 5 to 9
- Hopeful countries such as Netherlands, UK, Norway & Belgium will consider joining.

Budget
- Task Annual Budget: €40,000
- Participation Fee (2018): €5,000
- Overall Budget Status: ☑️ 2019 1 paid due to early invoice request, due to invoice all April 2019

Work Plan Status (indicate the progress of each work package in work plan)
- WP1: ☐
- WP2: ☐
- WP3: ☐
- WP4: ☐

NOTES:
This page is required for all tasks. Expand to 2 pages if needed, but please keep if brief.

Status Symbols:
- On target
- ☐ Some delay/ problem (mention in oral presentation)
- ☐ Major Delays or obstacles (address on an additional slide in main presentation)

Written Annual Reports should include more detail on milestones, deliverables, country activities contributing toward work plan, budget status and in-kind labor estimates.
MISTRAL Host Universities ("beneficiaries")

Geraint Ellis (Co-ordinator, WP1)
Tom Cronin (WP2)
Patrick Devine-Wright (WP3)
Susana Batel (WP4)
Rolf Wüstenhagen (WP5)
Jan Hildebrand (WP6)
Celine McInerney (WP7)
Nick Johnston (Project Manager)

Queen's University Belfast
Technical Uni of Denmark
Uni of Exeter
Uni Institute of Lisbon
Uni of St. Gallen
IEDES, Saarbrücken
Uni College Cork
Queen's University Belfast
Thank You!!

WP1: Gundula Huebner gundula.huebner@psych.uni-halle.de

OA/WP2: Garry Keegan gmk@ipc10.com & garry.keegan@irishrail.ie

WP3: Kristian Borch krbo@dtu.dk

WP4: Geraint Ellis g.ellis@qub.ac.uk

The IEA Wind TCP agreement, also known as the Implementing Agreement for Co-operation in the Research, Development, and Deployment of Wind Energy Systems, functions within a framework created by the International Energy Agency (IEA). Views, findings, and publications of IEA Wind do not necessarily represent the views or policies of the IEA Secretariat or of all its individual member countries.
OFFSHORE: LITERATURE REVIEW:

**WP1-01:** Offshore v On-shore community acceptance and stakeholder engagement differences?

**WP1-02:** Legal and tax framework differences between floating and fixed? *(Explore, not in-depth)*

**WP1-03:** In some jurisdictions, local and national government tax treatments are applicable; if not fixed to seabed, local and/or national taxes may not apply. *(Explore, not in-depth)*

**WP1-04:** Coastal Communities

**WP1-05:** Port Communities

**WP1-06:** How do local governments influence this local debate among communities?
OFFSHORE: COASTAL IMPACTS OVERVIEW:

WP2-O1: Social
WP2-O2: Recreation
WP2-O3: Visual
WP2-O4: Tourism
WP2-O5: Economic
WP2-O6: Health
WP2-O7: Floating v Fixed offshore community acceptance differences?
WP2-O8: Near-shore v Far-shore community acceptance differences?
WP2-O9: What are the local social and economic benefits to off-shore wind farms?
WP2-10: Offshore Community Benefit Schemes
OFFSHORE: STAKEHOLDER ENGAGEMENT OVERVIEW:

WP3-O1: Stakeholder Mapping (Fishing, Shipping, Aviation, Military, Marine, Birdlife)

WP3-O2: Political and Community Assessments

WP3-O3: Stakeholder Strategies

WP3-O4: Public Perceptions and Attitudes

WP3-O5: Best Practice Case Studies

WP3-O6: Regulatory Challenges (*Explore, not in-depth*)

WP3-O7: What stakeholders are involved in offshore zoning and what are the site selection considerations?

WP3-O8: Innovation in stakeholder engagement (e.g. offshore visualisation project, Germany)

WP3-O9: Considerations re:
   i. Political (local, regional, municipal, national)
   ii. Ports Infrastructure, Harbour Regeneration
   iii. Socio-economic constraints
Co-benefit for fishery

- **Creation of Fishing Ground**: Protection and Culture of Fishery Resources, aquaculture, fishing reef…
- **Data Collection, Information Service**: Oceanographic condition, Hydrographic condition…
- **Sightseeing, Recreation**: Recreational fishery, Fishing Park, Wind Farm Cruise, diving spot…
- **Electricity supply**: Ice plant, marine products factory, aeration for aqua farm, E-Fishing Boat…
- **Education**: Eco-tourism, training school…
- **Participation**: Maintenance, Construction, Finance, Equity, …
- **Disaster Prevention**: Emergency supplies storehouse, Refuge shelter…
Community Benefit

Planning and Construction

Fishery

Operation

Local community in general

Aquaculture facility

Artificial fishery reef

Nature and environment conservation

Ocean condition Data

Energy supply

Blanding of local products

Leisure fishing

education

construction

New Industrial structure

Operation and Maintenance

New Industrial structure

Local power supply

Financial participation

Scholarship

Study tour

Mitigation of climate change
Artificial fishery reef

http://www.rioe.or.jp/2015teigen.pdf
Research Project Results:

Financial participation as an opportunity to increase the overall acceptance of wind energy projects?

Pascal Vuichard
Research Associate and PhD Candidate
University of St. Gallen

Lisbon, March 25, 2019

pascal.vuichard@unisg.ch / http://goodenergies.iwoe.unisg.ch
### Wind share

Becoming a co-owner of the wind farm:

At the price of CHF 500 per share you benefit from full profit sharing and must also bear the project risks. You will receive an average dividend of 5% per share.

The shares are issued by the local utility and can be sold back to the utility at any time for the amount of CHF 500. You can purchase a maximum of 20 shares. The project duration is 20 years.

### Wind bond

Participating financially without direct ownership:

At the price of CHF 500 you can purchase wind park bonds. As a lender you bear only low project risks and benefit from an annual fixed and guaranteed interest rate of 2%.

The wind farm bond is callable at the end of each year. After the end of the project term (20 years) your bonds will be reimbursed to you at the initial purchase price of CHF 500.

### Wind resource tax

Financial participation as a community:

Participants are presented with the information that their municipality is introducing a wind resource tax. The income is transferred into an earmarked fund designated for climate change / leisure projects.

Specifically, the project owners would pay a wind resource tax in the amount of CHF 10,000 per turbine and year. The project duration is 20 years.
Communication strategies - IEA Task 28

What is the role of Facebook groups in the formation and distribution of concerns towards specific wind farm sites in Denmark?

Dr Kristian Borch
Technical University of Denmark, DTU

Co-workers:
Anders Kristian Munk, Aalborg University
Vibeke Dahlgaard, Silkeborg Municipality
What we did

Mapping a Facebook corpus that contains 11,278 posts and 5,772 comments from 73 Danish wind protest pages/groups dating from the creation of the page/group to the point of data collection in January 2016.

<table>
<thead>
<tr>
<th>All (1084 quotations coded)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Noise and low-frequency noise:</td>
<td>404</td>
</tr>
<tr>
<td>2. Fairness of process:</td>
<td>386</td>
</tr>
<tr>
<td>3. Landscape identity:</td>
<td>272</td>
</tr>
<tr>
<td>4. Health concerns:</td>
<td>254</td>
</tr>
<tr>
<td>5. Common sense arguments:</td>
<td>204</td>
</tr>
<tr>
<td>7. Economic compensation:</td>
<td>164</td>
</tr>
<tr>
<td>8. Trust:</td>
<td>160</td>
</tr>
<tr>
<td>9. Moral, ethics and empathy:</td>
<td>158</td>
</tr>
<tr>
<td>10. Place attachments:</td>
<td>135</td>
</tr>
<tr>
<td>11. Macro-economic impact:</td>
<td>131</td>
</tr>
<tr>
<td>13. Benefits:</td>
<td>89</td>
</tr>
<tr>
<td>14. Shadowing and light flashes:</td>
<td>73</td>
</tr>
<tr>
<td>15. Welfare of domestic/farm animals:</td>
<td>38</td>
</tr>
<tr>
<td>16. Safety:</td>
<td>30</td>
</tr>
<tr>
<td>17. Micro-economic impact:</td>
<td>21</td>
</tr>
<tr>
<td>18. Other:</td>
<td>17</td>
</tr>
<tr>
<td>19. Support of the project:</td>
<td>16</td>
</tr>
</tbody>
</table>

The distribution of concerns (coded quotations) as count of the codes of all 1084 quotations coded.
How powerful is social media as a space for strategic communication?

- Social media is a powerful communication tool through its universality and ease of access in terms of strategically voicing arguments against e.g. wind turbine siteing.
- Local wind turbine opponents have been very effective in using social media to not only postpone developments but also prevent the implementation of targeted siting in local communities.
- Local wind turbine opponents are not necessarily against wind power as such; their focus is on relevant and legitimate concerns of the community.
Implications

• Facebook is a ‘resonance space’ that strategic actors can mobilise to voice their arguments.
• Silence from the authorities towards procedural concerns is seen as a confirmation that something is wrong.
• It is crucial that local planning authorities embrace social media in order to avoid groupthink about conspiracies.
• Social media is a strong tool to engage citizens in dialogue from the very beginning of the planning process.
• Do not fear an open debate on social media, it should be welcomed as an opportunity for negotiated agreement to:
  • elicit public spiritedness
  • engaged citizenship
  • dig up innovative renewable energy solutions
Akordi IEA activity: "Social acceptance garage"

- Series of 3 full day workshops for wind power companies organized by Akordi in Fall / Winter 2017-18
- Funded by the Energy Industries Association, FWPA + participant fees
- Interactive workshop setting; facilitation & small group discussions
- Participation; representatives from 4 companies, 10-12 participants per session + the wind & energy industries associations
- Final event Nov 2018
Social Acceptance Garage working model

Improving CSR and social acceptance at wind industry and company level
Garage workshops content

- Elements of social acceptance: incentives & interaction
- Understanding NIMBYism
- DAD vs. EDD
- Stakeholder analysis
- Interest-based negotiation
- Organising stakeholder events
- Micro-level interaction
- Role of the media – ’mediation journalism’
- Lots of interaction, Q&A, interactive sessions
1,705 Responses Collected Near 250 Wind Power Projects Across 24 States, From The Full Pop. Of 743 Projects (and 1.3 Million Homes)

Random sample of residences within 5 miles of a modern wind turbine

- >= 364 feet (111 meters) tall
- >= 1.5 MW

Oversampled

- close to (<1 mile) turbines
- large projects (>10 turbines)
- where sound was modeled
Preliminary Overall Analysis Of Attitudes Conclusions

• Distance alone is not correlated to attitudes
  – But respondents who hear wind turbines are less likely to have positive attitudes (especially those who can hear in home with windows closed)

• Seeing turbine(s) from home does not influence attitudes
  – But aesthetic concerns still matter: Whether one “likes the look” of the turbines and/or believes they “fit within the landscape” are important correlates with attitude.

• Perceptions of the planning process strongly correlated

• Residents with higher levels of place attachment were more positive.
  – Contrasts to literature. Maybe attitudes are driven by “place consistency”?

• Attitudes improve over time (due to Tiebout sorting)

• The effect of financial compensation on attitude is small, not a panacea
Conclusions: Planning Process Fairness And Attitudes

• Perception of Process Fairness is a key component in attitude formation
  – Developer open and transparent;
  – Community able to influence outcome;
  – Individual having a say in the planning process

• States and communities might consider:
  – Developing procedures that ensure citizens are consulted and heard
  – Establishing benchmarks or best practices for developer interaction with communities and citizens
Preliminary Conclusions: Audibility and Annoyance

• Modeled turbine sound level and local background sound level explained ~ 80% of audibility, but <48% of annoyance
• Adding objective and subjective variables still explained ~ 80% of audibility, but also 63% of annoyance
• Rotor tip speed is correlated with audibility; rotor diameter is correlated with annoyance
• Recommendation: Explore turbine technical characteristics more detailed weather information to better explain audibility and annoyance
Mistral

MULTI-SECTORAL APPROACHES TO INNOVATIVE SKILLS TRAINING FOR RENEWABLE ENERGY AND SOCIAL ACCEPTANCE
<table>
<thead>
<tr>
<th>MISTRAL Host Universities (‘beneficiaries’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geraint Ellis (Co-ordinator, WP1)</td>
</tr>
<tr>
<td>Tom Cronin (WP2)</td>
</tr>
<tr>
<td>Patrick Devine-Wright (WP3)</td>
</tr>
<tr>
<td>Susana Batel (WP4)</td>
</tr>
<tr>
<td>Rolf Wüstenhagen (WP5)</td>
</tr>
<tr>
<td>Jan Hildebrand (WP6)</td>
</tr>
<tr>
<td>Celine McInerney (WP7)</td>
</tr>
<tr>
<td>Nick Johnston (Project Manager)</td>
</tr>
<tr>
<td>Queen’s University Belfast</td>
</tr>
<tr>
<td>Technical Uni of Denmark</td>
</tr>
<tr>
<td>Uni of Exeter</td>
</tr>
<tr>
<td>Uni Institute of Lisbon</td>
</tr>
<tr>
<td>Uni of St. Gallen</td>
</tr>
<tr>
<td>IZES, Saarbrucken</td>
</tr>
<tr>
<td>Uni College Cork</td>
</tr>
<tr>
<td>Queen’s University Belfast</td>
</tr>
</tbody>
</table>
MISTRAL External Expert Board

Jamie Baxter (University of Western Ontario)
Maarten Wolsink (University of Amsterdam)
Ana Isabel Afonso (Universidade Nova de Lisboa)
Bonnie Ram (Ram Power Consultancy, USA)
Mihaela Dragan (Wind Europe)
Ben Hoen (Lawrence Berkley National Laboratory, USA)
Garry Keegan (IEA Task 28 operating agent)
Claudia Juech (The Cloudera Foundation)
Alice Wemaere (EPA Ireland)
MISTRAL Partners (secondments)

AXPO Power
Coillte
EDF R&D
Fachagentur Windenergie an Land (FAW)
Empreendimentos Eólicos do Vale do Minho, S.A (EEVM)
Green Fox Community Energy
Irish Wind Energy Association
Laboratorio Nacional de Energia e Geologia I.P. (LNEG)
Nalbach Municipality
National Economic and Social Council (NESC)
NTR Plc
Project Zero
REScoop
Sustainable Energy Authority of Ireland(SEAI)
RGI
Energy4All
Aim and Objectives

The **overall aim** of MISTRAL is to nurture a new generation of researchers who can effectively evaluate the complexity of social acceptance issues facing the deployment of renewable energy infrastructure and propose innovative solutions in a variety of research, government and business contexts. This will be addressed by the following objectives:

**Obj.1:** Pursue creative, inter-disciplinary research on the conceptual framing, drivers, contexts and responses to declining social acceptance of renewable energy infrastructure;

**Obj.2:** Establish the links and feedback processes between socio-political, market and community dimensions of social acceptance, at a range of spatial scales;

**Obj.3:** Engage academic researchers with other key stakeholders in the field of social acceptance, including infrastructure developers, policy-makers, regulators, trade bodies, politicians and community interests to maximise the impact of network activities;

**Obj.4:** Provide an innovative training environment where young researchers can develop advanced skills in research and transferable skills, benefit form a range of diverse secondment experiences and debate current issues with some of the world leading researchers in the field, in order to develop advanced capacities for progressing Europe’s energy transition.
Overview of network activities

WP 1
Project Management (QUB)

WP 2
Innovative Training (DTU)

WP 3
Community (Exeter)

WP 4
Socio-political (ISCTE-IUL)

WP 5
Market (St.Gallen)

WP 6
Ethics, Data and Equality (IZES)

WP 7
Synthesis and Knowledge Exchange (UCC)
Research Projects

Project descriptions previously circulated

Each project has a different interdisciplinary perspective
## Training

<table>
<thead>
<tr>
<th>Month</th>
<th>Local Training</th>
<th>WP specific events</th>
<th>Network-wide events</th>
<th>Secondment</th>
<th>Other training options</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Research training &amp; supervision at host institution</td>
<td>WP Methods Workshop</td>
<td>Summer School 1: Leadership &amp; Innovation</td>
<td></td>
<td>Online modules</td>
</tr>
<tr>
<td>6</td>
<td>Research training at academic institution No2</td>
<td>Problem-based workshop 1</td>
<td>Summer School 2: #Reforum+</td>
<td></td>
<td>Modules from academic instn No3</td>
</tr>
<tr>
<td>12</td>
<td>Research training at academic institution No2</td>
<td>Problem-based workshop 2</td>
<td>Summer School 3: Socio-technological systems</td>
<td>Secondment at non-academic partner</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Research training &amp; supervision at host institution</td>
<td></td>
<td>Network conference</td>
<td></td>
<td>Training offered by non-academic partner</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Conference attendance</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Overview of network activities (3)

<table>
<thead>
<tr>
<th>ESR</th>
<th>Title</th>
<th>Inst.</th>
<th>1st supervisors</th>
<th>2nd Supervisor</th>
<th>Secndmnt 1</th>
<th>Secndmnt 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR1</td>
<td>Justice Perceptions in intercultural comparisons</td>
<td>IZES</td>
<td>Hildebrand Schweizer-Reis</td>
<td>Ellis (QUB)</td>
<td>FAW</td>
<td>Municipality of Nailbach</td>
</tr>
<tr>
<td>ESR2</td>
<td>Dynamics of community acceptance</td>
<td>St.Gallen</td>
<td>Wüstenhagen Loock</td>
<td>Devine- Wright (Exeter)</td>
<td>Axpo</td>
<td>Coillte</td>
</tr>
<tr>
<td>ESR3</td>
<td>Cumulative impacts on People-place relations</td>
<td>IZES</td>
<td>Hildebrand Schweizer-Reis</td>
<td>Le Renard (EDF) Devine- Wright (Exeter)</td>
<td>EDF</td>
<td>FAW</td>
</tr>
<tr>
<td>ESR4</td>
<td>Socio-technical imaginaries of future energy landscapes: How, when and where are renewable energy infrastructures acceptable?</td>
<td>ISCTE-IUL</td>
<td>Batel Bento</td>
<td>O’Gallachoir (UCC)</td>
<td>LNEG</td>
<td>EEVM</td>
</tr>
<tr>
<td>ESR5</td>
<td>Social equity and distributive justice in renewable energy deployment</td>
<td>Exeter</td>
<td>Devine-Wright Butler</td>
<td>Murtagh (QUB)</td>
<td>Green Fox</td>
<td>FAW</td>
</tr>
<tr>
<td>ESR6</td>
<td>Public policy, procedural justice &amp; participation in the low carbon transition</td>
<td>Exeter</td>
<td>Devine-Wright Wills</td>
<td>Ellis (QUB)</td>
<td>Coillte</td>
<td>Municipality of Nailbach</td>
</tr>
<tr>
<td>ESR7</td>
<td>People’s responses to large-scale renewable energy generation and associated infrastructures: A socio-historical approach</td>
<td>ISCTE-IUL</td>
<td>Batel Madureira</td>
<td>Fontes (LNEG) Ellis (QUB)</td>
<td>LNEG</td>
<td>EEVM</td>
</tr>
<tr>
<td>ESR8</td>
<td>Social acceptance, path dependency and the low carbon transition</td>
<td>QUB</td>
<td>Ellis Murtagh</td>
<td>Borch (DTU)</td>
<td>NESC</td>
<td>N/A</td>
</tr>
</tbody>
</table>
## Overview of network activities (4)

<table>
<thead>
<tr>
<th>ESR</th>
<th>Title</th>
<th>Inst.</th>
<th>1st supervisors</th>
<th>2nd Supervisor</th>
<th>Secndmnt 1</th>
<th>Secndmnt 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 9</td>
<td>National-EU Regimes</td>
<td>DTU</td>
<td>Clausen, Cronin</td>
<td>Ellis (QUB)</td>
<td>Project Zero</td>
<td>SEAI</td>
</tr>
<tr>
<td>ESR 10</td>
<td>Governmentality of public participation in renewable energy</td>
<td>QUB</td>
<td>Ellis, Murtagh</td>
<td>Rudolph (DTU)</td>
<td>REScoop</td>
<td>NESC</td>
</tr>
<tr>
<td>ESR 11</td>
<td>Collaborative approaches</td>
<td>DTU</td>
<td>Borch, Cronin</td>
<td>Murtagh (QUB)</td>
<td>LNEG</td>
<td>Project Zero</td>
</tr>
<tr>
<td>ESR 12</td>
<td>Motivations, incentives and commitments for co-investment</td>
<td>UCC</td>
<td>McInerney, Mullally</td>
<td>Connolly (IWEA) Devine-Wright (Exeter)</td>
<td>REScoop</td>
<td>Irish Wind Energy Association (Ireland)</td>
</tr>
<tr>
<td>ESR 13</td>
<td>Community investment – a segmentation approach</td>
<td>St.Gallen</td>
<td>Wüstehagen, Loock</td>
<td>Devine-Wright (Exeter)</td>
<td>Axpo</td>
<td>EDF</td>
</tr>
<tr>
<td>ESR 14</td>
<td>Financial models and incentives for Co-investment</td>
<td>St.Gallen</td>
<td>Wüstehagen, Loock</td>
<td>McInerney (UCC)</td>
<td>REScoop</td>
<td>EDF</td>
</tr>
<tr>
<td>ESR 15</td>
<td>The Political Economy of Opposition to Wind Energy Projects</td>
<td>QUB</td>
<td>Ellis, Barry</td>
<td>Mullally (UCC)</td>
<td>SSE</td>
<td>SEAI</td>
</tr>
</tbody>
</table>
Deliverables and milestones

• 48 Deliverables that support objectives, including:
  o Research protocols (common variables etc)
  o Conference presentations
  o 36 academic papers
  o Workshops and summer schools
  o Lay guides and briefing papers
  o Quality assurance and management deliverables (Career development plans, final reports etc)
  o Training events and secondments
• CROWD THERMAL

In order to reach this goal, the project will first increase the transparency of geothermal projects and technologies by creating one to one links between geothermal actors and the public so that a Social Licence to Operate (SLO) could be obtained. This will be done by assessing the nature of public concerns for the different types of geothermal technologies, considering deep and shallow geothermal installations separately, as well as various hybrid and emerging technology solutions.

CROWD THERMAL will create a social acceptance model for geothermal energy that will be used as baseline in subsequent actions for inspiring public support for geothermal energy. Parallel and synergetic with this CROWD THERMAL will work out details of alternative financing and risk mitigation options covering the different types of geothermal resources and various socio-geographical settings. The models will be developed and validated with the help of three Case Studies in Iceland, Hungary and Spain and with the help of a Trans-European survey conducted by EFG Third Parties. Based on these feedbacks, a developers’ toolbox will be created with the aim of promoting new geothermal projects in Europe supported by new forms of financing and investment risk mitigation schemes that will be designed to work hand in hand with current engineering and microeconomic best practices and conventional financial instruments.