

# **North Sea STAR Spreading Transnational Results**

Targeted Analysis 2013/2/23

## **EXECUTIVE SUMMARY**

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This report presents the final results of a Targeted Analysis Project conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

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## Introduction

The North Sea STAR project is an ESPON Targeted Analysis based on user demands. It is focused on the experience of energy related projects in the North Sea Region 2007-2013 Operational Programme. More specifically the project seeks to:

- Provide a deeper understanding of the most likely future energy scenarios for the North Sea Region;
- Evaluate the effectiveness of European, national and regional energy policies;
- Assess the role of transnational cooperation projects in this process, and ascertain the added value of energy project clusters; and
- Provide recommendations on accelerating the take-up of renewable energy technologies<sup>1</sup> and supporting relevant green economic activities in the North Sea Region.

The research was operationalised through a number of key steps:

- a context setting stage focused on developing an understanding of the European, national and regional policy contexts in relation to the Europe 20-20-20 energy debate;
- identification and mapping of the existing regional energy (supply and demand) situation;
- these baseline mapping perspectives were then used to help develop future energy scenarios for the region;
- evaluating the efficiency and effectiveness of energy related projects (both standalone projects and the two energy clusters) under the current North Sea Region Operational Programme;
- Constant review and reflection through stakeholder sparring where ideas and findings were road tested through dialogue with various stakeholders.

Stakeholder sparring ran alongside all the other work packages. The objective here was to engage in inter-active dialogue with key stakeholders drawn from the North Sea Region Programme Secretariat, project beneficiaries and interested regional partners to provide feedback on the results of the work as they emerged and shape future activities and policy recommendations.

Three stakeholder sparring sessions were held:

- 7<sup>th</sup> May 2013 – North Sea Region Programme Evaluation Steering Group, Edinburgh
- 11<sup>th</sup> June 2013 –North Sea Region Programme's Joint Annual Conference, Halmstad, Sweden
- 16<sup>th</sup> September 2013 – North Sea STAR Stakeholder Workshop, TU Delft, Netherlands

Throughout these workshops a number of key themes kept re-emerging:

- Whilst energy and energy related projects have been an important theme within the current Operational Programme, it was agreed that it should be retained as

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<sup>1</sup> For the purposes of this project, renewable energy is defined as including hydro power, wind energy, solar thermal and photovoltaic energy, geothermal energy and biomass from organic and renewable waste sources.

a cross-cutting theme that could be included in a number of emerging policy priorities. Furthermore projects with strong social innovation and social learning aspects could make a significant contribution to the wider energy agenda within the constraints of the Programme.

- The ongoing legacy of projects at various scales, within partner organisations, learning from within the project partnerships and dissemination more widely within the region and beyond needed further consideration.
- The added value of energy project clusters was widely acknowledged, although more careful consideration needed to be given to purpose, process and outputs of such clusters in the future.

## **The Energy Policy Context**

Energy policy is a multi-dimensional, multi-faceted and extremely complex area of policy. Current European policy which frames national action is still shaped by the immediate goals of *Energy 2020* (20% reduction in carbon emissions compared to 1990 levels, a 20% increase in energy efficiency and a 20% share of renewable energy in consumption) combined with a longer term strategy of decarbonising the economy by between 80-95% by 2050 as set out in the EU's *Energy Roadmap 2050*. National policy, framed within the *Energy 2020* targets remains primarily focused on responding to domestic challenges and opportunities. Whilst recession may have reduced energy demand and consumption, the need to replace old infrastructure, whether based on fossil fuels or increasingly unacceptable nuclear (for example Germany and Belgium), or respond to declining oil and gas reserves, sustaining relative energy self-sufficiency will involve substantial investment in the energy infrastructure. National policy responses to a large extent depend on local production potential and the extent to which energy supply is within the control of the public or the private sector, and governments' ability to incentivise investment. However despite its current dependence on locally produced and imported fossil fuels, the North Sea Region as a whole is relatively well equipped to make the transition towards a low carbon economy.

Innovation is a key driver in the transition to a green, sustainable economy. However, existing energy systems tend to be very difficult to 'dislodge' because they are stabilized by various lock-in processes that lead to path dependent developments and 'entrapment'. Highly institutionalised processes perpetuate existing systems and make it difficult for innovative sustainability alternatives to find space to develop and influence radical structural transformations, and this is certainly the case for many of the countries bordering the North Sea Region. Developing ways to break this path-dependency is a major challenge.

The new North Sea Region Operational Programme offers the potential for small scale transnational experimentation in realising new energy systems based on renewables and a green economy (broadly defined). If successful such systems could gain purchase to help deliver the fundamental socio-technical changes which are implied by a radical transition towards a decarbonised society.

## **Main Findings**

### ***Effectiveness of Energy Projects: Evidence from the Case Studies***

Eight case studies of energy projects funded under the North Sea Region Programme and two energy project clusters, Low Carbon Regions in the North Sea (LOWCAP) and Energy Vision North Sea Region (EVNSR) were examined to analyse their effectiveness in contributing to the 20-20-20 energy goals. In addition, a second aim was to ascertain the added value of a project clustering approach. Clusters have been developed to pool the results of individual projects based around a common theme, providing a stronger voice in policy discussions and increasing the visibility and impacts of projects. Alongside LOWCAP and EVNSR three other clusters of projects have been funded by the North Sea Region Programme – Digital Agenda for the North Sea (DANS), the Maritime Transport Cluster and Water Management in a Changing Climate (WaterCAP). However the findings of this research are focused specifically on the energy topic and do not apply to the cluster approach as a whole.

The case studies were conducted using a mixture of documentary analysis and interviews with project partners. A full analysis of the case studies and clusters can be found in Chapter 7 of the Scientific Report.

With regards to the projects, the 20-20-20 energy goals have been a major driver of project formation, however other European policies such as the Lisbon Agenda and Gothenburg Strategy (which were dominant policy agendas at the beginning of the 2007-2013 Operational Programme) have also been important considerations, alongside more geographically specific concerns, for example about green mobility or exploiting locally based renewable energy potential.

The case study projects represent a broad range of activities and thus have had a number of direct and indirect impacts, for example encouraging modal switch and the use of cleaner propulsion technologies in transport such as electric and hybrid cars, incorporating energy efficient construction techniques into new buildings, facilitating the use of alternative sources of energy (biomass from algae and biochar), development of tools to stimulate the business environment for renewable energy technologies such as foresight planning, innovation in smart grids and demand management, strengthening supply chains, policy integration and building capacity in organisations to support the energy transition.

The following criteria were found to be important in determining the effectiveness of individual projects:

- Diverse (but complementary) interests and expertise of project partners. This can be attractive for transnational learning, but can lead to disagreement and delays in project delivery.
- Similarly, projects with broadly defined ambitions can suffer from lack of focus which weakens potential outputs,
- Lacking particular types of expertise, requiring additional efforts to “fill the gaps”, for example in understanding how energy markets function in different countries,
- Differences in energy and/or planning policies between regions and countries meaning that some actions are more or less feasible or politically acceptable

across the project partnership as a whole, for example in relation to carbon capture and storage technologies,

- Political instability of public authorities can make partnerships vulnerable to drop-outs, for example if authorities change priorities due to the current economic climate (scaling back resources) or following elections,
- Pre-existing social ties (where project partners have worked together before) can be a useful asset for ease of communication between partners, but can be problematic in terms of integrating newer partners.

Within the two energy clusters that were examined a number of key issues emerge. Whilst some of these broadly mirror the experiences of individual projects, for example, trying to find a focus for concrete activities amongst a diverse partnership, and integrating “new” partners with others that had worked together before, some new issues which are unique to cluster development can be observed. In particular:

- awareness of the cluster concept was less widespread amongst organisations or people within projects than expected, which may have impacted on the number of cluster participants,
- the extent to which clusters were viewed as simply further dissemination may also have influenced participation, either negatively (i.e. some projects not being sufficiently developed to promote their results) or positively (providing opportunities to extend an individual project’s activities),
- the scope of clusters, with an emphasis on communication of results, may be less attractive to certain organisations such as research institutes whose input may be more useful at a different stage in project implementation.

Overall the evidence from stakeholder sparring and the case studies demonstrate that the cluster approach was considered to be a useful way to communicate project results, with the broader partnership of cluster partners giving greater political weight to cluster outputs. Nevertheless, a number of issues need to be addressed if energy project clusters are to be used again in the next Operational Programme. The recommendations made by the North Sea STAR project provide some options as to how project clustering can be enhanced in future.

### ***Developing Energy Scenarios for the North Sea Region***

In the third stakeholder sparring workshop, three energy scenarios describing pathways to 2050 were discussed. The development of these scenarios was grounded in the ambitions set out in European energy policy frameworks and a number of criteria that can affect the pace of change, shaping the future energy landscape of the North Sea region.

The three scenarios were:

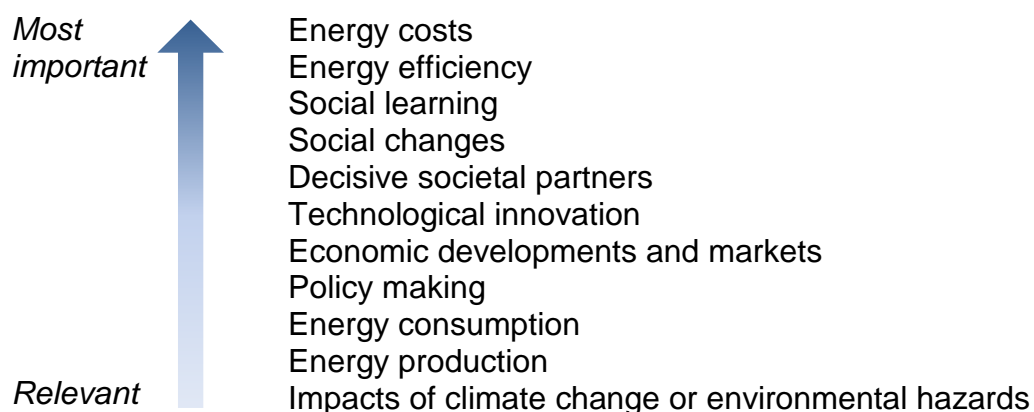
*1 - Implementation of recent policies* - This scenario reflects the successful translation and implementation of recent energy policies from the EU to the local level. Current ambitious energy and climate goals will be achieved and any amendments to recent policies will continue to follow existing visions and goals. Current trajectories will be maintained.

2 - *Zero Carbon society* - For various reasons, the shift from fossil to renewable energy sources proceeds even faster and with more socio-ecological benefits than expected. This self-energising development emerges as a pioneering function of the North Sea Region.

3 - *Obstacles in energy transition* - Difficulties in realising reliable infrastructures for renewable energies, fading societal acceptance, economic market failures and other factors hamper the implementation of intended energy measures and the region's transition to a low carbon economy is slowed down.

A full account of the implications of each scenario is included in Chapter 6 of the Scientific Report.

In stakeholder discussions, the ambitious scenario 2, 'Zero Carbon Society' was favoured as the approach that should be taken by the North Sea Region. This acknowledges the large renewable energy potential of the North Sea Region and existing capacities in relation to knowledge and experience of different energy technologies. In addition, criteria affecting the energy transition were ranked as follows:



Whilst barriers to the energy transition, such as the need for significant investment to replace aging infrastructure and inconsistencies in policy remain, it was noted that local and regional initiatives and actors can play a central role as facilitators of macro-regional collaboration on energy issues, with many regions having strong interests in cooperation to support the energy sector as a driver of economic growth. In addition, further action to increase energy efficiency, particularly in the transport sector, training, education and awareness raising were all identified as necessary. These dimensions could provide future directions for projects under the next Operational Programme.



## Recommendations

The North Sea STAR project has run alongside the development of the new North Sea Region Operational Programme for 2014 – 2020 and the final recommendations focus on matters related to A) future project development and evaluation, B) programme management, and C) the development of tools to support territorial cooperation on energy related issues. As an ESPON Targeted Analysis project, many of the recommendations are primarily aimed at the North Sea Region Programme Secretariat, although wider audiences may be drawn from other Operational Programmes, potential programme beneficiaries and in relation to the final recommendation, the European Union and national governments.

### **A. Project Development and Evaluation**

#### **1. Energy projects in the new Operational Programme should be directed towards delivering a ‘Zero Carbon Society’.**

*Target audience: North Sea Region Programme Secretariat, Programme Beneficiaries.*

Of the three energy scenarios defined by the North Sea STAR project (listed above) and discussed at the stakeholder sparring workshop held at the University of Delft, Scenario 2, “Zero Carbon Society” was unanimously recommended as the target for the North Sea Region in line with the EU’s Energy Roadmap 2050. By adopting this as the goal for the Operational Programme it was felt that the North Sea Region could become an exemplar in the transition to this ambitious energy future. Drawing on this scenario and outputs from other stakeholder sparring events, possible areas for energy project development in relation to the three priority axes of the new North Sea Programme are suggested as follows:

Thinking Growth: local energy storage; building local flexibility into energy systems; encouraging integration across different sources of energy; technology transfer between research institutions and the market; and institutional innovation related to supply and demand.

Renewable North Sea Region: facilitation of a shift away from a fossil fuel based economy; climate change mitigation including measures related to resource/energy efficiency; and climate change adaptation including the development of green infrastructure and ecosystem services.

Green Mobility: Energy efficiency and green energy use within different transport modes (shipping, rail, road, etc.); transport logistics promoting intra and intermodal integration and efficiency; encouraging businesses and individuals to the shift to greener transport modes.

Energy efficiency is identified as a key area for attention as this together with the linked concern of energy costs were ranked by stakeholders as very important issues for the North Sea Region. Direct interventions in energy pricing mechanisms are national matters beyond the scope of the Programme, however it is suggested that the Programme should look beyond conventional solutions and direct its resources to projects supporting innovative new approaches to achieving energy efficiency.

**2. The new North Sea Region Operational Programme should give particular encouragement to energy projects which focus on technology transfer, innovation support capacity and social innovation.**

*Target audience: North Sea Region Programme Secretariat, Programme Beneficiaries.*

In the stakeholder sparring sessions it was agreed that major energy infrastructure interventions and research and development associated with innovative modes of energy generation were beyond the scope of the Programme. Instead technology transfer and innovation support capacity related to the range of ideas identified in Recommendation 1 should be focal points for action. The need for social innovation came up repeatedly as being very important and also as an area suitable for programme intervention in terms of the nature of activities and scale of resourcing available. Stakeholders felt that education, training and awareness raising have major roles to play in the achievement of a zero carbon society and that there was great scope to increase social ownership and engagement with energy issues in the region.

**3. The new North Sea Region Operational Programme should encourage a strong business and growth perspective on energy transitions.**

*Target audience: North Sea Region Programme Secretariat, Programme Beneficiaries.*

Attempting to incorporate an economic perspective on the energy transition has been at the core of some case study projects. Barriers in bringing such interests to the forefront as well as particular organisational challenges to their involvement have been observed. Institutions with economic interests in energy transitions are diverse, with concerns that are often still in a state of formation. In several projects this has led to misunderstanding, disagreement among partners and long lasting searches for a project focus. In approaching future projects such institutions should be encouraged to communicate their interests, capabilities and possible barriers to engagement early in partnership formation to inform a better understanding of their potential role in projects and help to avoid conflict and delay later. This may be particularly important in the new Operational Programme given the focus on the growth agenda. It is also needed if the Programme is to respond to the view emerging from the stakeholder sparring sessions that SME engagement in energy issues should be a particular concern in the new Programme.

**4. The North Sea Region Energy Scenarios should be promoted as a useful project development and evaluation tool.**

*Target audience: North Sea Region Programme Secretariat, Programme Beneficiaries.*

Although there was a clear endorsement of the 'Zero Carbon Society' scenario as the target energy trajectory of the new Programme, stakeholders at the Delft workshop felt that the wider scenario building work was potentially helpful as an aid to developing and evaluating projects under the new Programme, for example,

helping to highlight where projects were simply focussing on ‘business as usual’ activities or insufficiently innovative. Similarly it could draw attention to obstacles in achieving energy transitions and encourage thinking about activities that could address these. The scenarios could help to stimulate imaginative new local level solutions supporting the transition to a decarbonised Europe, as proposed in the EU’s Energy Roadmap 2050.

**5. Projects should be encouraged to develop a sound methodological approach as part of the application process to ensure effective partner engagement and project delivery.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

The case study analysis revealed that projects which developed a clear methodological approach which integrated diverse partner interests at an early stage were generally more successful in achieving their objectives. Barriers to developing common frameworks and methodologies were often rooted in fundamentally different partner perspectives. Pre-existing social ties within partnerships also affected project outputs. Whilst making communication easier and action more effective, these ties can also be problematic, especially in cases where new partners are added to already familiar partnerships to increase involvement from different regions or countries. Such new partners have been vulnerable, had lower commitment and several have dropped out in the course of projects. Giving increased attention toward project methodology in project development and evaluation with clearer descriptions of the role of individual project partners could help to ensure that the profile of the partners matches with the ambitions of the project. In addition, project methodologies should recognise and respond to the additional partnership building support that may be required for working with newer, less familiar partners.

**6. In order to promote on-going impact and a sustained legacy of projects, it is suggested that closer attention to these matters in project design and evaluation should be included in the new Operational Programme.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

The outputs from the stakeholder sparring sessions on the on-going impact of projects suggested that this was an issue of concern because, for example, project ideas were quickly forgotten when key staff left or websites disappeared. Approaches to dissemination varied greatly across projects and it was felt that much could be done to sustain the legacy of projects through careful project design. Project activities should help to embed project ideas and thinking within partner organisations and in the wider community (at a range of different scales), encouraging subsequent uptake in policy and practice. This can be achieved by building stakeholder engagement and dissemination strategies into the project design. Formal publications in terms of books and reports might provide a more permanent record of activity.

## **B. Programme Management**

### **7. The concept of project clustering and cooperation should be maintained and enhanced as part of the next North Sea Region Operational Programme.**

*Target audience: North Sea Programme Secretariat, other Programme Secretariats.*

The outputs of the stakeholder sparring sessions and the case studies reveal broad support for the idea of clustering projects and other forms of project cooperation. Project partners felt that the energy clusters can add value by helping projects talk to each other, learn from others' experience, develop wider synergies and a more holistic perspective; and provide greater collective weight and influence for project results. As a consequence it is suggested that the approach should be retained as a feature in the new Programme.

### **8. Consideration should be given to developing different models of clustering/cooperation in the new Operational Programme, reflecting the different roles that such arrangements might play.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

The outputs of stakeholder sparring activities and the case study analysis indicate that there is scope to develop the idea of project clusters further. For example different models of clustering/cooperation could be encouraged involving clusters on a thematic and geographic basis - national, transnational, and across transnational regions. Some partners under the current programme have chosen to engage in cooperation under broader European frameworks, for example Cost Actions (the BioChar project) or with the Baltic Sea Region (North Sea Supply Connect). Equally, a spectrum of formal and informal arrangements could be envisaged, reflecting different purposes and offering all projects the opportunity of some wider engagement /cooperation. It was felt that any future programme could benefit from the continuation of the cluster approach. This needs to be developed in a bottom-up way, with the clusters being self-organising, perhaps with some additional steering from the JTS.

### **9. Prepare partners for wider cooperation and start clusters early.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

In the case study analysis unfamiliarity between some project partners in clusters has led to the formation of 'partner clusters' within clusters, involving partners that already knew each other and that were perceived by others as dominant. This situation has also led to fast drop-outs by some partners. Such processes were accelerated by the diversity of interests of cluster partners. In this respect, anticipation of new clusters, including their potential scope, could help project partners to decide on participation and what this could entail for their project. If a cluster approach is continued it seems pertinent to start clusters earlier: defining the focus of a cluster can take some time and thus providing greater clarity in

establishing the purpose of project clusters from the outset would give more focus and direction to activities.

**10. Balance expected cluster results with funding and time provided.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

It is evident from the case study analysis that many project partners have perceived the scope of cluster projects as too ambitious compared with the amount of time and budget available. This has created difficulties. Many partners anticipated a restricted added value of cluster projects for their own organisation, and thus either did not participate or participated for other, unforeseen and practical reasons (such as prolonging funding for projects). An improved balance between expected results and available funds and time could stimulate higher levels of engagement.

**11. In order to promote on-going impact and a sustained legacy of projects, consideration should be given to more consistent approaches to dissemination of project results in the new Operational Programme.**

*Target audience: North Sea Programme Secretariat, Programme Beneficiaries, other Programme Secretariats.*

Stakeholder sparring activities have suggested that another way to support the on-going impact of completed projects would be to encourage a more systematic approach to dissemination of project results. Collation of information on the North Sea Region Operational Programme website is variable. This means that wider and on-going learning from project results can be compromised. Consideration should be given to requiring that all projects produce a synthesis report which can be made available on the Programme web portal. Stakeholders described this as the creation of a central infrastructure for dissemination, like an E-library of project results.

**C. Tools to Support Territorial Cooperation on Energy Related Issues**

**12. In order to effectively inform and monitor energy related activity and progress in the North Sea Region greater standardisation and harmonisation of data sets across different territories and better sub-national information is required.**

*Target Audience: The European Union and national governments*

The baseline mapping of the current energy situation in the North Sea Region has confirmed that at a European scale much of the available energy related data is only available at NUTS0, the scale of the nation state. Within countries there is a growing availability of energy related data at different spatial scales, but varying use of terminology and units of assessment reflects different contextual factors in Member States and presents barriers to effective monitoring and evaluation of progress towards energy goals. Well informed proposals for defining the most appropriate indicators and data harmonisation could help to improve this situation.

## **Areas for Further Research**

Reflecting on the findings of the North Sea STAR project, two areas seem to merit particular attention:

Social Perspectives on Energy Policy: Alongside complex policy drivers for the energy transition at national, European and global scales, the importance of social perspectives on energy policy have repeatedly been emphasised as significant in supporting the energy transition. Bottom-up social innovation may play a role in breaking path dependency to less ambitious energy goals. Further research on the societal relationships with energy policy in different geographical contexts seems to be merited.

Promoting Organisational and Social Learning: concerns that the benefits of North Sea Region projects (and projects funded by other transnational programmes) may be short lived were evident in both stakeholder sparring and the case studies. How to sustain the legacy of projects through deep seated organisational and social learning, embedding project lessons into future activities is a key challenge for many funding programmes, and in a time of resource scarcity such issues seem to be particularly worthy of attention.

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