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Facilitating energy storage to allow high penetration of variable Renewable Energy

Minutes of the Irish National Workshop

2nd of October, 2013, Galway Bay Hotel, Galway, Ireland

A poster for an energy storage workshop. The background is a blue sky with a bright sun, a white wind turbine, and a yellow sunflower in the foreground. The text is white and yellow on a blue background.

Energy Storage IN THE IRISH POWER SYSTEM

On behalf of the EU project stoRE, University College Cork and Malachy Walsh and Partners would like to invite you to partake in this National Workshop organised in the context of the research project stoRE - "Facilitating energy storage to allow high penetration of Intermittent renewable energy" (Intelligent Energy Europe, Contract No: IEE/10/222/S12.591026, www.store-project.eu)

Bulk Energy Storage, such as pumped hydro and compressed air energy storage have in recent years become the subject of renewed interest with the ever increasing penetration of variable energy. However, future development of bulk energy storage will depend on the electricity and market framework as well as appropriate siting considerations and planning constraints. The findings from the ongoing consultation process will be presented at this National Workshop, where the main barriers and strategies to overcome them will be presented and discussed. The issues discussed during the National Workshop will help in drafting an Action List for Ireland with recommendations for changes in the regulatory and market framework.

The National Workshop, which will conclude the National Stakeholder Consultation, will be held on the 2nd of October at the Galway Bay Hotel in the afternoon, the day before the IWEA Autumn Conference 2013. The workshop will be followed by networking and drinks before the pre-conference dinner.

Should you have further queries regarding the National Stakeholder Consultation Process or the project please do not hesitate to contact the Irish stoRE partners at: storeevent2013@mwpl.ie



Co-funded by the Intelligent Energy Europe Programme of the European Union

Acknowledgements

This report has been produced as part of the project “Facilitating energy storage to allow high penetration of intermittent renewable energy”, stoRE. The logos of the partners cooperating in this project are shown below and more information about them and the project is available on www.store-project.eu



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Table of Contents

ACKNOWLEDGEMENTS.....	2
STORE – NATIONAL WORKSHOP MINUTES.....	4
STAKEHOLDER CONSULTATION	5
ACTION LIST (DRAFT).....	7
Actions for countering a lack of investment motivations & incentives	7
Actions for countering a lack of definitive storage needs.....	8
Actions on countering competition with other technologies	8
Actions for countering strong interdependence between energy storage & system development.....	8
Actions for countering double or uncertain grid access fees	8
Actions for siting and planning constraints	8
Other Actions	9

stoRE – National Workshop Minutes

The Irish National Workshop was held in the Galway Bay Hotel, Galway on the 2nd of October 2013. The workshop started at 16:00 and finished at 17:30. There were 27 attendees present mainly from energy organisations, utilities, suppliers and academia excluding the 4 representatives of stoRE from UCC and Malachy Walsh and Partners.

The workshop started with Annicka Wänn introducing the Irish stoRE partners, the stoRE project and promoting the publications available on the stoRE website. This was followed by a summary of the results from the stakeholder consultation. At the time of the workshop 28 responses had been submitted. 2 more responses have been collected since. A summary of the responses is presented in the next section.

After the introduction, the workshop reached its main part, the discussion of the barriers and proposals for actions. The aims of the stoRE Action List were first explained. Paul Leahy moderated the discussions which took about an hour. The results of the discussions are listed in the section “Action List (DRAFT) below. The list also includes the suggestions from the stakeholder consultation.

The general mood of the stakeholders present was that of interest in storage and the stoRE project. There was consensus on the fact that more research is needed, that a discussion among all stakeholders needs to take place and that a cost benefit analysis need to be made where all suitable technologies would be investigated and compared. There was also an interest in following up the progress of the workshop. The Irish stoRE partners have said that they will keep those interested informed of the work in the coming months.

Stakeholder Consultation

Number of respondents on 07.10.2013 was: 30

The questionnaire and structured interviews were the main courses of action gaining valuable insight into what the mindset in Ireland is amongst stakeholders on energy storage. The interest perspective in energy storage of the stakeholders is summarised in Figure 1. The first question asked was whether or not energy storage is needed, to which the majority answered “yes” for several different reasons. The stakeholders were asked to rank the 6 barriers that were deemed by the stoRE partners to be most important for Ireland, a summary of which can be found in Table 1. As can be seen, the majority of stakeholders ranked a lack of investment motivations & incentives as the most important barrier and siting & planning constraints as the least important. This may suggest that the real concern is that the finances do not stack up at the moment. After this, the stakeholders were asked to suggest appropriate actions to overcome these barriers. These are listed in the next section including further actions suggested during the workshop.

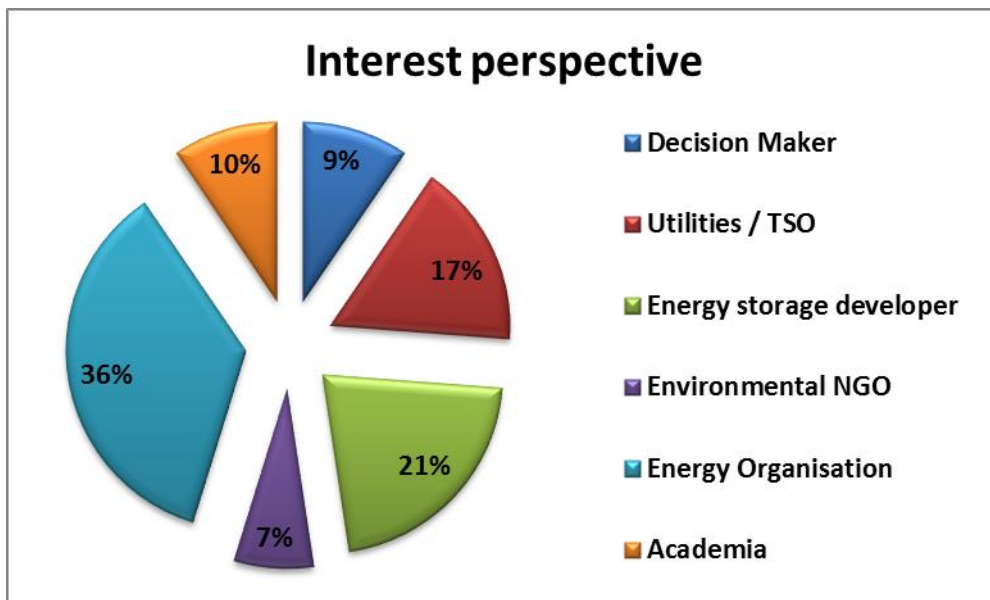


Figure 1: Interest perspective of the respondents to the questionnaire

Table 1: Ranking of barriers by stakeholders

	Most important					Least important	
	1	2	3	4	5	6	N/A
Lack of investment motivations & incentives	12	6	4	3	3	1	1
Lack of definitive storage needs	7	7	5	2	4	4	1
Double or uncertain grid access fees	2	3	5	4	5	8	3
Strong interdependence between energy storage & system development	2	5	4	12	6	0	1
Competition with other technologies for grid flexibility	3	5	5	3	9	4	1
Siting & planning constraints	3	3	6	5	2	10	1

From the above table it can be noted that “lack of investment motivations & incentives” has been ranked as the most important barrier by the majority of stakeholders. In contrast “siting and planning constraints” has been ranked as the least important. This may be an indication that without investment motivations and incentives, a developer will not pursue a site and thus also not encounter siting and planning constraints.

Action List (DRAFT)

The following is a draft list of actions to overcome the 6 barriers identified by the stoRE partners for Ireland. The action list is a compilation of actions suggested during the stakeholder consultation and the actions discussed during the workshop.

Actions for countering a lack of investment motivations & incentives

1. Demonstration model
 - a. Pseudo market to show the benefits of storage in regard to the impact of different levels of wind generation on pumping/generating of storage (“live” without constraining power plants and/or in for example PLEXOS) → show the benefits of storage (with and without) on electricity market.
 - b. Model the impact, using for example Ardnacrusha, of storing water behind dams at different water levels → benchmark
2. Investigate (study) the impact of Turlough hill being out of commission and the level of curtailment
3. Capfit & Refit scheme for storage?

Need to know what question we are trying to answer if we are to go down the route of capfit and refit.

Investors need certainty (25 + years).

Banks have problems with perceived and real construction risks.
4. To look at Ireland as part of a bigger region (with the UK)

Perhaps it is better to see Scotland as the right place for storage and Ireland for wind resources.
5. Need for different entry route into market for new technologies;
 - difficult for new technologies to enter market under same route as conventional technologies;
 - need a strategic view for 2030+ market;
 - new market to be unveiled in 2017;
 - The new market needs to accommodate whatever investments are being made now (which is not the case currently);
 - Ensure framework is in place now for 2017 without constraining investments (Country cannot be in standstill mode until the new market is in place).
6. Create funding and incentives to develop the most efficient storage solutions.
7. Cost comparison : a comprehensive study investigating a holistic view of energy storage in Ireland (cost benefits including economic, environmental, security of supply, flexibility, possible support mechanisms (DCENR/SEAI-short term) – on a 5 year basis?
8. Market and ancillary services should reward/encourage cheap energy storage (by Regulator/TSO).
9. Clarity around investment environment and returns.

Actions for countering a lack of definitive storage needs

1. Investigate all types of storage and its applications and determine the future energy system. The future energy system will determine the type of storage and other technologies needed. Even if the investments are guaranteed the rest of the energy system may change.
2. Identify the need for storage clearly set out for different scenarios (by utilities)
3. National requirements should be assessed and run in parallel with renewable energy targets (by DCENR) – long term.
4. Include target for energy storage for 2020 and associated incentives for developers (by DCNER) – medium term.
5. Demonstration storage project?
6. Further the investigation of initial energy storage needs for Ireland with further detail to establish definitive energy storage need (by EU stoRE project).
7. Predictable future market and penetration of intermittent renewable forecast to enable a solid business case (by Policy makers – EU/National/Regulators).

Actions on countering competition with other technologies

1. Energy Storage needs to be on the EirGrid DS3 agenda (short term)
2. Storage needs to be investigated from a technical perspective as comparison with other options (short term).
3. Question ERC/ESBN policy of GRID strength only.

Actions for countering strong interdependence between energy storage & system development

1. Site selection for storage needs to consider grid constraints and power quality (currently wind is in the west and storage is in the east – if storage is closer to variable renewable energy there will be less transmission constraints).
2. Appropriate framework needs to be set to ensure future development of the wind industry in Ireland (by government)
3. Cooperation required between energy companies, utilities, regulators and the government.
4. Foresight required for the future needs of the country incorporating possibly “vote losing” strategies which will be beneficial in the long term.

Actions for countering double or uncertain grid access fees

1. Investigate best practise in managing access fees.
For example, in Texas storage facilities do not pay any grid access fees because they recognise the services provided to the grid.
2. Study grid access fees issue – investigate best practise and consult in order to come to clear policy (by EirGrid – Long term).
3. Investigate natural gas storage → a new entrant is lobbying for gas storage to be exempt from access fees.

Actions for siting and planning constraints

1. Conduct Strategic Environmental Assessment (SEA) → The size and scale means that storage facilities should be considered strategic.

2. Create national guidelines or guidance in relation to energy storage schemes (by DECLG) – short term.
3. Clear policy stipulating the overriding public importance of bulk EST based on reduction of current dependency on fossil fuels → allow for siting in suitable areas which may support Natura 2000 designations subject to Article VI Stage 3 & 4 assessments.

Other Actions

1. Need for round table discussion, which includes all stakeholders and interest groups in storage (including CER and government).
2. CER needs to become more proactive– currently very conservative.
3. Statistical transfers (of RES credits) → if RES-E that would otherwise be curtailed could be stored then the energy could count towards the RES-E target if it is statistically transferred to the storage facility. The storage unit could even be in another country.
4. Government is focused on 2020, necessity to model 2030 + scenarios.
5. Long term energy system planning is necessary (need to change from current energy system to a RES centred energy system).