

Cheshire Energy Hub – Strategic Development Proposal

Introduction

The Cheshire Energy Hub (CEH) was founded in May 2014 and has since developed highly successful programmes for graduate recruitment and higher apprenticeships. The members of the CEH largely comprise industrial, commercial and technology organisations operating in Cheshire who are seeking areas where active co-operation will result in mutual benefit. Following discussions, a meeting was held to identify the preferred approach towards developing a programme of activities to reduce the cost of energy to the members. This document describes the recommendations arising from that meeting and will be put to the senior team of the CEH to approve.

The primary driver, reflected in the mission statement, is to reduce energy costs. For many of the large businesses in the target area, the cost of energy is a commercial significant proportion of their cost base and one which is increasingly a competitive disadvantage. This has to be addressed.

The premise of this proposal is that aggregating energy consumption across the target area can provide sufficient scale to incentivise a range of technologies to be deployed towards reducing energy costs. Creating this market place will raise the brand of the area, attract new investment and funding, allow the area to lead in this critical technology area and reduce operating costs for its major energy users. It will be a further step towards the government aspiration to 'democratize energy'.

Mission Statement – 50 by '25.

The strategic objective of this programme was developed and agreed as follows:

The Cheshire Energy Hub is an industry-led partnership which aims to create a Low Cost Energy Zone, reducing long term energy costs by 50% on 2025 prices by 2025 and to reduce short term energy prices by 10% on 2015 prices by 2018 for its members. It will achieve this through:

- Adopting a 'cross energy vector' view to encompass gas, electricity, heat and transport
- Developing off grid supply and demand capability within the area and potentially virtually
- Creating a platform for the deployment of innovative technologies, e.g. at Thornton, Capenhurst and Ince Park.
- Creating a market for new commercial models for the supply and management of energy
- Reducing carbon footprint of its members
- Creating an energy skills cluster to create, develop and maintain high skill jobs
- Stimulating inward investment from energy intensive industries to create economies of scale
- Enhancing the long term resilience of the energy networks

Proposed Participants

The geography of the LCEZ potentially spans the whole of North Cheshire , with existing and new target members to include the following:

Existing Members	Proposed Members
Atkins	Air Products
Boulting Group	Argent Energy
C-Tech Innovation	Encirc Glass
EA Technology	Euroresins UK Limited
Electricity North West	Greif UK Ltd
Essar	Growhow UK Limited
Peel	Innospec Limited
SP Energy Networks	Intertek
Storengy	Jaguar Land Rover
Urenco	Johnson Controls Automotive (UK) Ltd
Chester University	MacArthur Glen
Cheshire West and Chester Council	Regatta
	SGS
	Vauxhall
	William Sinclair

Energy Dynamics Mapping Exercise

It was discussed and agreed that we need to have a clear understanding of the energy usage in the target geography to direct the deployment of energy cost-reduction solutions. This means that understanding the profile of energy consumption across a daily / weekly / annual period as well as the scale of energy consumption across the Low Cost Energy Zone is a key to moving any collective project forward. The mapping exercise should include the heat data already gathered (a mapping study has been conducted by Greenfield Consultants for Cheshire West and Chester Council) but also include electricity and gas production, distribution and consumption.

Identification of Prioritised Interventions

Once the Energy Dynamics Exercise is completed, a project should be commissioned to determine the potential interventions that might be deployed in order to reduce costs. The themes for this include the following:

1. Energy efficiency measures – Are all participants meeting state of the art energy efficiency standards? Are there new technologies which have arisen that can improve performance? What is the best practice both inside the group and beyond the LCEZ boundaries which might facilitate better performance?

2. Energy storage – Is the profile of energy consumption compared to energy supply conducive to offering storage solutions? Particularly relevant is to consider whether there are solutions deployable that can cross traditional energy vector lines, eg using waste heat to improve electricity storage efficiency; using heating storage for peak lopping electricity and gas supply; storing gas (potentially methane, but also hydrogen) to improve energy security and manage peak load requirements; using gas powered CHP to generate electricity and heat. There are many more.
3. Demand side management – Have the cross vector opportunities for demand side management been explored? Reducing demand during peak load periods has huge potential to reduce costs and to avoid infrastructure re-enforcement. Is there potential across a combined and aggregated load, cross vector, across the LCEZ?
4. Integration of intermittent supply – Is there an opportunity to reduce costs through local storage of electricity generated by intermittent renewable sources (solar, wind)?
5. New local generation – Is there sufficient demand within the LCEZ to justify investment in a new, local source of generation? This would potentially have the benefit of improving security of supply as well as reducing costs. Is there sufficient demand and does the business case stack up for a major project, eg the Mersey Tidal Fence, or a Dee Tidal Barrage?
6. New commercial arrangements – Is there potential for forming an energy purchasing consortium to bulk buy across the LCEZ, cross vector?
7. Is there the potential to establish a LCEZ Independent Energy Supply Company to manage the above dynamics?

Definition of Intervention Selection Process and Resources

It is proposed that two Project Boards of the CEH are established to define and implement the two distinct categories of interventions described above:

1. A Commercial Interventions Board – exploring in detail the opportunities for developing and deploying the interventions described in 6 and 7 above, or other alternatives.
2. A Technology Intervention Board – exploring in detail the opportunities for developing and deploying the interventions described in 1 to 5 above, or other alternatives.

Engagement of Broader Stakeholders

Apart from gaining the active engagement of the current and prospective members described above, other key stakeholders include the following:

1. Chester West and Chester Local Authority – They are already actively supporting activity looking at heat networks and the extension of their interest in a broader portfolio of energy vectors is a natural next step. They could be an important partner in supporting any relevant planning activity, supporting funding applications for defining the energy dynamics in the LCEZ and acting to support the activity within the Cheshire and Warrington Local Enterprise Partnership.
2. Cheshire and Warrington Local Enterprise Partnership – The LEP has already commissioned work which identifies the development of an Energy Smart Grid in the area as of significant economic potential. The opportunity for LEP support in moving this forward covers a range of areas, including funding, and coordination of political support locally, regionally and nationally. The LEP may also be able to assist in providing support for a secretariat to move the operation of the CEH forward.
3. University of Chester – The University is positioning itself as a centre for energy technology and this proposed project has huge resonance with them and their evolving mission. They have potential access to collaborative funding and have already offered resources which might very usefully be deployed towards the energy mapping exercise.

4. Energy Systems Catapult – Whilst in its infancy, the ESC has a broad remit to develop the cross vector energy systems of the future. Future potential funding runs into the tens of millions and the LCEZ is an opportunity to position the area well ref this funding.

Promotion of Collaboration and Deployment Opportunity

Should the CEH determine to support this programme, it is proposed that a budget is made available by CEH members to move the collaboration forward. The importance of promoting the programme within the membership, expanding the membership to the above mentioned potential participants and to the other stakeholders identified is key to the programme's adoption and future success.