

**Report to:** West Yorkshire Transport Committee

**Date:** 9 November 2018

**Subject:** **Energy Strategy and Delivery Plan**

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Is this a key decision?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the decision eligible for call-in by Scrutiny?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does the report contain confidential or exempt information or appendices?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If relevant, state paragraph number of Schedule 12A, Local Government Act 1972, Part 1:	

## 1. Purpose of this report

- 1.1. To provide Transport Committee with a report on the development of the Leeds City Region Energy Strategy and Delivery Plan and to seek feedback from the Committee on its vision, priorities and high level initial actions.
- 1.2. To gain feedback from the Committee on the setting of a science-based carbon dioxide (CO<sub>2</sub>) emissions reduction target for the Leeds City Region.

## 2. Information

### Background

- 2.1. This report presents a summary of the draft version of the Leeds City Region (City Region) Energy Strategy and Delivery Plan (ESDP).
- 2.2. The City Region Strategic Economic Plan (SEP) sets out the ambition 'to become a resilient zero carbon energy economy underpinned by high quality green infrastructure'. To understand how the City Region could achieve the SEP energy ambition the ESDP was commissioned, with support from the Department of Business, Energy and Industrial Strategy (BEIS).

- 2.3. The ESDP is a named delivery plan of the SEP and is aligned with current thinking on the emerging Local Inclusive Industrial Strategy (LIIS) and policy framework for the City Region (**Appendix 1**). In line with the national Industrial Strategy, which acknowledges the need to maximise the advantages for UK industry of the global shift to clean growth, further work will be undertaken to strengthen the LIIS to ensure carbon reduction is an integral part of everything we do in the City Region.
- 2.4. The purpose of the ESDP is to demonstrate how the City Region can begin to meet the objectives of the SEP and gain an economic advantage from the global transition to a clean, low carbon economy.
- 2.5. The ESDP is likely to contribute to a wide range of benefits in the City Region including:
- Reduced CO<sub>2</sub> emissions
  - Improved air quality
  - Lower energy costs for businesses and organisations
  - Increased competitiveness through lower energy costs for businesses
  - Reduction in fuel poverty and increase in associated health benefits
  - Regional approach to delivery of new clean growth economic opportunities i.e. supply chains and jobs and increase productivity
  - Clear articulation of City Region energy strengths and opportunities
  - Increased revenue
  - Retention of businesses
  - Increased inward investment
- 2.6. The ESDP and its actions will also help to address the national energy trilemma which, in addition to the decarbonisation of the energy system, aims to address energy security and affordability.
- 2.7. Furthermore the ESDP will also align and be complementary to a number of transport related strategies e.g. West Yorkshire Transport Strategy 2040, West Yorkshire Low Emissions Strategy, Carbon Zero Pathway, Local Cycling and Walking Infrastructure Plan.
- 2.8. The ESDP is made up of four work packages:
- **Work Package 1:** Energy state of the Leeds City Region
  - **Work Package 2:** Technology Options Appraisal
  - **Work Package 3:** Energy Opportunity Areas
  
  - **Work Package 4:** Delivery Plan
- 2.9. A summary of the headline outputs of the four work packages is set out below:

## WP1: Energy state of the Leeds City Region

- 2.10. The emissions<sup>1</sup> produced in the City Region are a direct result of the energy consumed. This means that emissions from electricity generated within the City Region are excluded from the analysis presented below. The emissions considered are emissions as a direct result of fuel burnt and electricity consumed by end users.
- 2.11. The City Region consumed 64,232 GWh of energy in 2015 a decrease of 22 percent compared to 2005 levels. Consumption was roughly equal across the domestic, industrial and commercial, and transport sectors.
- 2.12. As would be expected given the intrinsic link between energy consumption and emissions, between 2005 and 2015 emissions also decreased, in this case by 38 percent to 16,472 ktCO<sub>2</sub>.
- 2.13. While overall emissions are forecasted to decrease by 2036 the transport sector is expected to reverse this trend with a 28 percent increase in emissions over the period to 2036. This is likely to be caused by minimal changes to the internal combustion engine, the move back to petrol cars from diesel, and to date poor market penetration from electric vehicles.
- 2.14. The scenario modelled for future transport energy demand and emissions is but one scenario of the future and represents a worst case scenario. Further work is underway to explore this trend and to understand whether more local / appropriate datasets could be used to inform the estimate of future emissions from transport.
- 2.15. Please note forecasts are in line with BEIS central projections for the key drivers of energy and emissions, such as fossil fuel prices and take account of the estimated impact of implemented, adopted and agreed (as of July 2017) Government policies. As such there is reasonable confidence in the accuracy of forecasts.
- 2.16. The energy sector in the City Region represents 1.5 percent of the economy (£918 million) and employs approximately 7,900 people. This is forecast to increase under a business as usual scenario by 1.5 percent per year to £1.237 billion and to 10,200 people by 2036.
- 2.17. A more comprehensive overview of the key findings of the work package is contained at **Appendix 2**.

## WP2: Technology options appraisal

- 2.18. A technology options appraisal was commissioned to understand the most significant energy technologies that would allow the City Region to meet the energy ambition set out in the SEP.

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<sup>1</sup> References throughout this report to emissions are in relation to CO<sub>2</sub> emissions unless otherwise stated.

2.19. A total of 18 technologies were identified as having the most likelihood of enabling the ambition to be met. Each technology was scored against a series of criteria and ranked according to its performance against these criteria. The top five scoring technologies were:

- Energy efficiency
- Electric and plug-in hybrid vehicles
- Heat networks
- Hydrogen (not including transport)
  
- Solar PV

2.20. Other technologies identified relevant to transport but not identified above are hydrogen as a fuel for transport and efficiency of the transport network.

#### WP3: Energy opportunity areas

2.21. The technologies identified in WP2 have been mapped to understand the broad spatial opportunities for locating them in the City Region. These included energy storage, carbon capture and storage, and renewable heat.

2.22. The outputs of the work package will feed into the Leeds City Region Infrastructure Map.

2.23. The opportunity maps allow house buildings, local authorities, investors etc. interested in developing specific energy technologies to hone into specific areas of the City Region where they can undertake more specific detailed project feasibility work.

2.24. The opportunity maps also allow a shared strategic approach to infrastructure development in the City Region e.g. EV infrastructure, allowing energy to be built into major strategic infrastructure projects.

2.25. It should be noted that the energy opportunity mapping is intended to provide a strategic spatial oversight for energy technology types in the Leeds City Region. It does not take precedent over existing local evidence or policies contained within local authority Local Plans and any associated development management policy.

#### WP4: Energy Delivery Plan

2.26. The work package brings together the evidence generated as part of the previous three work packages and supplements this evidence with target setting and future scenario modelling to produce a coherent Energy Delivery Plan for the City Region.

2.27. Through stakeholder workshops five priorities were identified which the ESDP should focus on. These were:

- Resource efficient business and industry;
- New energy generation;

- Energy efficiency and empowering consumers;
- Smart grid systems integration; and
- Efficient and integrated transport.

2.28. Underneath these five priorities are 17 action areas which provide more details on the areas which projects will be focussed around. **Appendix 3** provides details on these action areas including the following relating to efficient and integrated transport:

- Promote a better, more integrated transport system, which is clean and efficient, addresses air quality issues, and promotes alternative transportation through cycling, walking and public transport.
- Support the deployment of cleaner transport technologies, including electric vehicles and ultra-low emission vehicles, hydrogen fuel cell EVs and a network of charging infrastructure.

2.29. To date 36 actions have been identified with partners to form the basis of this strategy's delivery plan. These are set out in **Appendix 4**. Further work is now underway with partners to explore these projects in detail. Where possible, emissions savings have also been estimated. The actions which directly relate to transport are:

- **Hydrogen vehicles:** Deployment of hydrogen buses on City Region bus routes, hydrogen refuelling stations, and hydrogen-powered cars into local fleets.
- **Hyperhubs:** These are large refuelling hubs for different alternative fuels, focussed on business-scale vehicles. Project is for a pilot hyperhub to demonstrate proof of concept in the City Region. Initially this would be for public sector fleets but over time expanding to cover HGV businesses.
- **EV charging and infrastructure:** Deployment of dedicated taxi and public EV charging points across the City Region.
- **Smart Park and Ride:** Deployment of solar PV canopies, energy storage, electric buses, charging infrastructure and grid / private wire electricity export links at existing and new Park and Ride sites.
- **Smart Travel Programme:** Further development of existing programmes working across West Yorkshire (West Yorkshire Urban Traffic Management Control programme) and York (Smart Travel Evolution Programme) to improve the efficiency of the transport network.
- **Behaviour change schemes:** Ongoing effort across the City Region to promote cycling and walking through behaviour change schemes.

2.30. In terms of the proposed projects suggested to date, the introduction of hydrogen vehicles and EV charging and infrastructure have the greatest potential to save emissions.

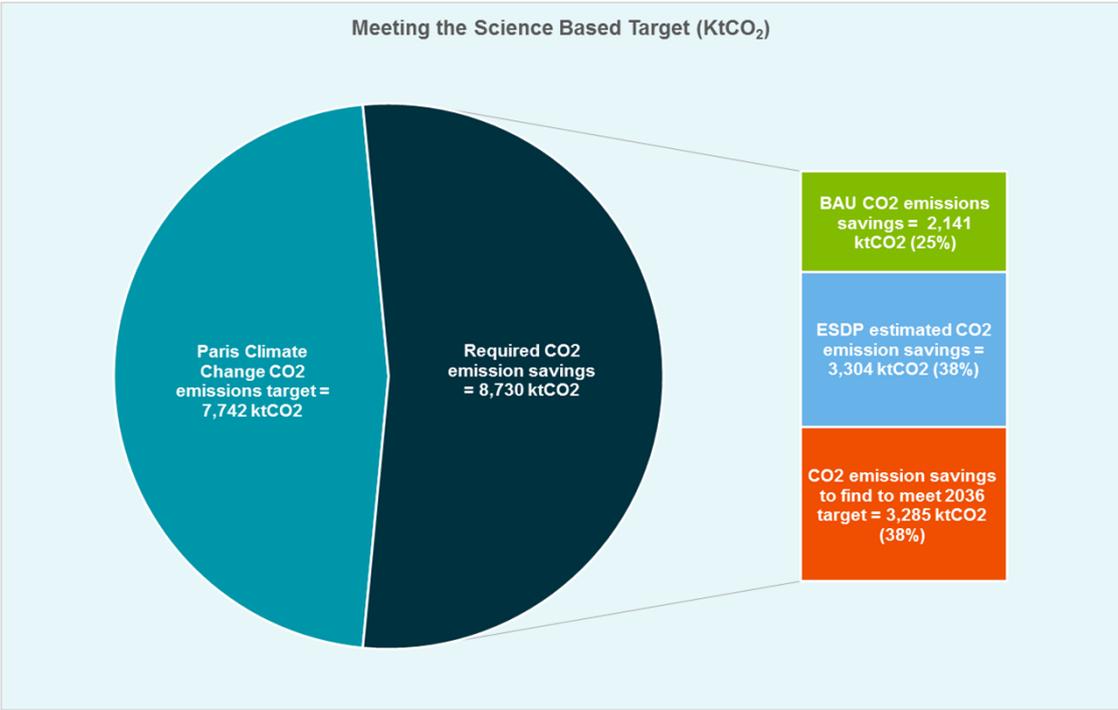
- 2.31. It should be noted that every effort is being made to ensure the work of the ESDP is complementary and not contradictory to other policy positions and delivery plans of the Combined Authority e.g. West Yorkshire Transport Strategy 2040, West Yorkshire Low Emissions Strategy.
- 2.32. Please note there are various levels of confidence associated with the emissions savings of each project. There is typically more confidence where projects are well developed e.g. district heat networks. As further work is undertaken (see 2.37) emissions savings for projects will be refined, however the estimated savings quoted for projects are considered conservative and err on the side of caution at this early stage.

Science-based target

2.33. One way to achieve the SEP ambition could be to adopt the Paris Climate Change Agreement of limiting temperature rise to below 2°C. If adopted the City Region would need to achieve an emissions reduction of 53 percent or 8,730 ktCO<sub>2</sub> by 2036 (against a 2015 baseline of 16,472 ktCO<sub>2</sub>). Hypothetically:

- 3,304 ktCO<sub>2</sub> (38 percent) could be saved by delivering all of the projects outlined to date in the ESDP.
- 2,141 ktCO<sub>2</sub> (25 percent) is estimated to be achieved through business as usual measures such as confirmed government policies.
- 3,285 ktCO<sub>2</sub> (38 percent) to be found before 2036 through more accelerated programmes, new projects and radical policies.

2.34. Figure 1 illustrates the above<sup>2</sup>.



<sup>2</sup> Please note due to rounding figures may not add up to 100 percent.

**Figure 1. Outline of how to meet the 53 percent emission reduction target**

- 2.35. It is worth stating that at this moment in time the above is based on estimates and a range of assumptions. The majority of the projects needed to meet the science based target are also not fully developed with allocated funding to deliver them. While the projects identified to date would not achieve the target, the majority of these interventions are currently led and implemented by the public sector only. There are likely to be significant additional emissions savings available through private sector programmes.
- 2.36. Future CO<sub>2</sub> scenario modelling undertaken to understand the benefits of meeting the 53 percent reduction target has indicated that doing so could generate approximately 100,000 jobs and be worth over £11 billion in GVA<sup>3</sup>. The capital spend to achieve these outcomes is estimated to be between £46 and £50 billion of public and private sector investment. Please note this is a high-level assessment and required further work. See below.
- 2.37. Further work is now needed to understand:
- Emission reduction requirements in detail.
  - Refine scenarios to better reflect regional activity and their estimated benefits.
  - Planned ESDP actions and their emission savings contributions in detail, and with a higher level of confidence.
  - New programmes and new innovation technology that could help meet a regional emission reduction target.
  
  - How realistic it is to meet the science-based target.
- 2.38. As part of the further work to investigate a science-based target the contribution made by the adopted West Yorkshire Transport Strategy 2040 targets will be examined in further detail, alongside any implications for these existing targets.
- 2.39. The Committee are asked for their comments on setting a science-based target for the City Region.
- 2.40. Leaders of the West Yorkshire Combined Authority have been initially briefed on the opportunity to explore setting a regional carbon reduction target in line with global emission reduction targets. A Leeds City Region summit / event is now proposed to explore setting a regional emission reduction target and how to meet it.
- 2.41. More immediately there are also a number of delivery mechanisms that partners across the City Region will be able to access to deliver projects identified in the ESDP. Some of these include the Combined Authority's Energy Accelerator and Resource Efficiency Fund.

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<sup>3</sup> Please note that this is not an indication of the maximum GVA which is retained in the City Region, but instead the maximum GVA expected from the capital spend on converting to new technologies.

- 2.42. Furthermore the new North East, Yorkshire and Humber (NEYH) Energy Hub will also provide project development support to implement some new projects arising from the City Region's ESDP.
- 2.43. The draft summary of the ESDP is contained at **Appendix 5**.
- 2.44. The table below outlines the next steps for the ESDP.

Action	Timescale
1. Approval of the ESDP from the LEP and Combined Authority.	October – December 2018
2. Devise detailed work plans for prioritised actions within the ESDP.	October 2018 – Spring 2019
3. Suitable actions from the ESDP to be immediately fed into the Energy Accelerator and new Energy Hub.	October 2018 onwards
4. Stakeholder engagement and possible City Region event to explore the science based target and how to meet it.	October 2018 – Spring 2019
5. Commission further work to support the exploration of the science based target.	October 2018 – Spring 2019
6. Subject to 1, 4 and 5 above, gain approval for the science based target from the GEP, LEP and Combined Authority.	Summer 2019

### 3. Financial implications

- 3.1. Given the scale of the projects identified in the ESDP there are likely to be financial implications for the Combined Authority. Further work will be undertaken to understand the scale of the financial ask.

### 4. Legal implications

- 4.1. No legal and compliance implications have been identified.

## **5. Staffing implications**

5.1. No staffing implications have been identified.

## **6. External consultees**

6.1. None.

## **7. Recommendations**

7.1. That the contents of the report are noted and feedback provided.

7.2. That feedback is provided on the setting of a science-based CO<sub>2</sub> emissions reduction target for the City Region.

## **8. Background documents**

8.1. None.

## **9. Appendices**

Appendix 1 – Contribution to achieving the key challenges of the LIIS

Appendix 2 – Energy state of the Leeds City Region: Summary of key findings

Appendix 3 – Priority Action Areas

Appendix 4 – Project summaries

Appendix 5 – Summary of the ESDP