



West Midlands
Combined Authority

Environment & Energy Board

Date	1 February 2021
Report title	WM2041: Five Year Plan (2021 - 2026)
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Recommendation(s) for action or decision:

The Environment & Energy Board is recommended to:

- (1) Note the independent advice given to the WMCA by WSP on the first Five Year Plan.
- (2) Agree the need to adopt the 'Accelerated' scenario to deliver the first Five Year Plan and set the region on course for net zero carbon by 2041.
- (3) Provide advice for how the report and recommendations should be presented to the WMCA Board in March.

1. Purpose

- 1.1 The development of the Five Year Plan came out of the consultation on WM2041 that took place January – March 2020. This report seeks to summarise the independent advice and outcomes from that plan for the Environment and Energy Board.

2. Background

- 2.1 Following the approval of 'WM2041: A Programme for Implementing an Environmental Recovery' in June 2020, the WMCA and stakeholders committed to producing five-year delivery plans (four in total) with interim carbon budgets and other metrics in support of delivering the net zero carbon target for the West Midlands by 2041.
- 2.2 The aim of the Five Year Plans is to provide clear guidance on the types of measures that will need to be implemented to reach net zero by 2041. As a regional authority, and working with our stakeholders, we want to understand where and how we need to invest in programmes of delivery and develop policy to support the 2041 target. We also want to understand how this should be sequenced and the combination of approaches that will need to be taken to get us to a position of net zero carbon emissions.
- 2.3 The Five Year Plans will indicate how we create the right conditions for accelerating delivery and raising ambition to position the West Midlands as a leader in addressing climate change and futureproofing the region, generating excitement about the potential to invest in our region's future, creating jobs; better social outcomes; and, healthier and happier places to live. The plan presented here will be challenging but presents significant opportunities for people and businesses in the West Midlands and could see 21,000 new jobs created by 2026 across numerous sectors – in the first Five Year Plan, these will particularly be in the domestic retrofit sector and electrification of transport.
- 2.4 In addition, the Five Year Plans enable the WMCA to favourably position itself to respond to, and deliver, ambitions being set out by the UK government in recent (and upcoming) policy initiatives and legislation, all of which carry economic opportunity. These include the Ten Point Plan for a Green Industrial Revolution; the recent Energy White Paper; and in 2021, it is also expected that the Environment Bill will receive Royal Assent. The WMCA is also making preparations to have a high profile as part of the COP26 activities this year.
- 2.5 The Plans need to give confidence in making the right decisions for people, place and economy, following the principles of WM2041 that:
1. We will change our economy without leaving anyone behind
 2. We will invest in the resilience of our places
 3. We will use our industrial past to create a new future
 4. We will create places and connections that help us to meet the climate challenge
 5. We will decouple prosperity from the consumption of energy and resources

2.6 The vision is for the first Five Year Plan (FYP) to:

1. Provide an evidence based spatial plan, linking up WM2041 and local authority delivery plans, projects and investment programmes and grouping them into type /location across the WM region to ensure an efficient, cost-effective and prioritised approach to delivery.
2. Create a common vision for stakeholders across the WM with a strategic plan, policies and outline of practical devolution opportunities to deliver WM2041.
3. Outline different existing and potential new routes to delivery and where this is best led by communities, local authorities, the WMCA, the private sector, or a mixture.
4. Outline the funding sources, financing and investment to deliver the FYP.
5. Represent a step change in the way the region works together to deliver against environmental priorities for an inclusive, prosperous and fair transition to a net zero carbon emissions society and economy.

2.7 A tender was issued for consultancy support for the Five Year Plan in July 2020. This was developed with input from low carbon leads in the constituent local authorities as well as with a WMCA cross-directorate working group. WSP were awarded the contract and work began in September 2020. They have since been and presented updates of their work to the October 2020 and December 2020 Environment and Energy Boards, as well as Strategic Transport Board in November 2020 and Energy Capital Board in December 2020.

2.8 The development of the Five Year Plan has involved a huge stakeholder engagement exercise. WSP, and the WMCA Environment Team, have engaged extensively with constituent local authorities on the plan to ensure that people are aware of the findings and the areas where we are suggesting that coordination at a regional level makes sense for delivery. This has included presenting findings to respective climate change boards at Birmingham, Dudley, Sandwell and Wolverhampton. Engagement has also taken place through 1:1 meetings and working groups with industry, universities, environmental NGOs etc. In total, over 240 individuals across 97 different organisations and institutions have been consulted as part of the plan.

2.9 This Five Year Plan report represents independent advice from WSP to the WMCA from which we will work to deliver the recommended actions (outlined in Paragraph 2.20 below) in collaboration with stakeholders from across the region.

The first carbon budget

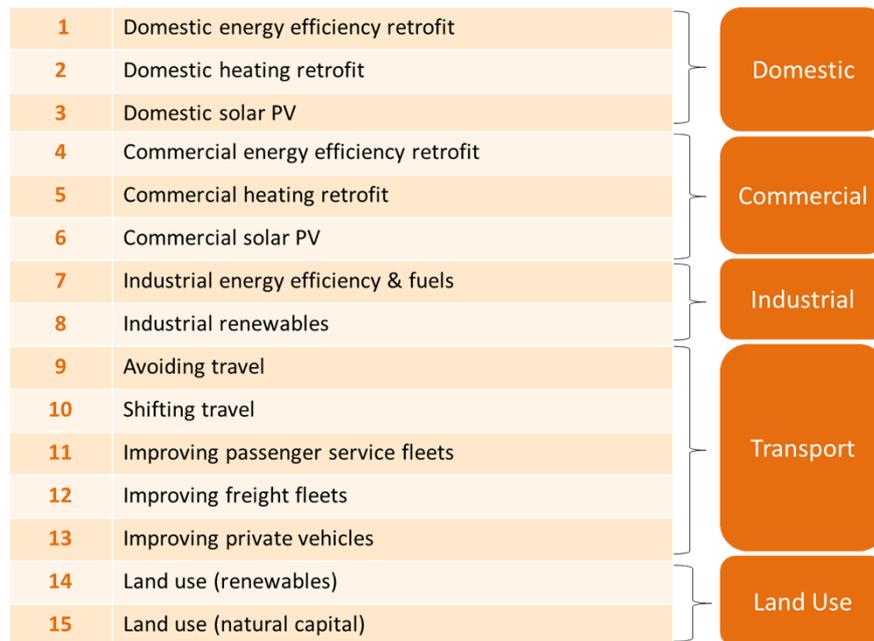
2.10 The original WM2041 plan made a commitment for the WMCA to reach net zero emissions no later than 2041; with the initial modelling by the Tyndall Centre based on a 3 LEP geography. In reality, we expect to reach a 95% carbon reduction with the remainder needing to be addressed through offsets or carbon capture and storage, but WM2041 has been very clear about the need to take a 'mitigation first' approach to reducing emissions. We should also note that there will be changes to delivery options over time, with innovation and technologies becoming cheaper to deploy, meaning that projections will need to be revisited and updated.

- 2.11 In addition to the 2041 target date, the Tyndall Centre calculated that the region should stay within a cumulative carbon dioxide emissions budget of 126 million tonnes (MtCO₂) for the period of 2020 to 2100. To achieve this, the Tyndall Centre set two interim targets, based on a 2018 baseline, of 36% reduction by 2022, and 69% reduction by 2027. The Tyndall Centre work was the starting point for this study, and the work undertaken by WSP has evaluated how achievable the trajectory is in the context of delivery programmes required.
- 2.12 The UK Government has a longer-term target of 2050 for net zero emissions. The difference between this, and the WMCA's target, is down to two main factors:
- The Tyndall Centre (unlike the UK's Committee on Climate Change) applies the equity principles of the Paris Agreement and wider UNFCCC process, which assigns a smaller carbon budget to developed countries. As a result, this speeds up the timescale Tyndall set to achieve net zero.
 - The UK's Climate Change Committee assumes a certain development of carbon capture and storage technologies, which may or may not be operational at scale in the medium-term. The Tyndall target did not make those assumptions and so required us to act more quickly in reducing our emissions.
- 2.13 The work of the Five Year Plan is to understand what the initial carbon budget should be for the WMCA area, as well as the projects and programmes that will be required to achieve that. It should be noted that the report focuses on carbon specifically, but we know that there are other areas in relation to the environment that are also critical to the health and wellbeing of our people and places. The Five Year Plan has also focused on the geography of the seven constituent authorities of the WMCA, whilst appreciating that delivery will require working beyond this.

Modelling and goals for 2021-2026

- 2.14 The modelling that has taken place to produce the first Five Year Plan has identified the measures that will need to be taken to reach net zero. These take into account: the maturity of technology, public acceptance of measures, ensuring a just transition, enabling the creation of jobs, and the transition of the West Midlands economy to a net zero future.
- 2.15 The modelling takes business as usual (BAU) as the starting point, on which the other recommended measures build. BAU includes:
- Decarbonisation of electricity
 - Minimum Energy Efficiency Standards (MEES)
 - Housing growth
 - Commercial growth
 - Electrification / hydrogen use in transport
 - Council decarbonisation targets
 - Organisation decarbonisation (including the net zero commitments from local authorities)
 - Other committed projects across the region (including renewable energy projects etc).

2.16 From the modelling, the additional recommended measures fall broadly into retrofit (domestic and commercial); addressing industrial emissions; transport-related measures and strategic land use (exploring both tree planting and use of land for large-scale renewable generation). An overview of those goals is shown below:



2.17 In the WSP report, each goal is taken in turn, exploring the delivery at low, medium, high and very high levels of implementation. The option is there to combine very high outcomes in some areas that are more progressed with medium/ low outcomes in others. A 'West Midlands Carbon Calculator' has been developed by WSP to sit alongside the Five Year Plan to enable the exploration of future scenarios. This will be made publicly available for everyone to use.

2.18 The big five decarbonisation priorities, which have been identified as having the greatest impact in carbon terms, are:

1. Domestic energy efficiency measures
2. Heating retrofit of domestic buildings
3. Commercial energy efficiency measures
4. Modal shift towards active travel measures
5. Increased uptake of electric vehicles
6. Planting trees and enhancing natural capital

Understanding what needs to be prioritised, dependencies and the sequencing of implementation will also be important. For example, planting trees and enhancing natural capital will not reduce carbon significantly by 2026, but we know we need to do this at significant scale in the context of reaching net zero by 2041. An example of a key dependency would be that effective heating retrofit is dependent on energy efficiency measures also having been undertaken in homes.

2.19 Using a combination of the measures identified, 3 scenarios have been developed to achieve net zero. These are:

- **Moderate:** this is beyond ‘business as usual’ delivery pace, and accelerates activity in selected sectors, but will only achieve a 37% reduction in carbon emissions from 2021 - 2041. This is not the recommended route for delivery.
- **Accelerated** (outlined in more detail in Paragraph 2.20). A much more rapid and aggressive delivery pace across sectors, with most set at a “high” implementation rate.
- **Maximum.** It is at the limit or beyond what it is technically possible, even ignoring legislative competence and finance restrictions. It would require large behaviour change from people and could create unintended consequences for a just transition. For this reason, this has not been recommended, but can be explored by those seeking to understand what is required.

2.20 The independent advice, provided by WSP, recommends the WMCA should adopt the Accelerated scenario in the first Five Year Plan (numbers relate to the different goals identified in the diagram above, i.e. Goal 1 is domestic energy efficiency):

Required level of interventions on different goals to achieve the Accelerated Scenario

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Very High															
High															
Medium															
Low															

In practical terms, this will mean:

- **Energy efficiency retrofit**, to a reasonable standard **289,000 dwellings** in the West Midlands Combined Authority by 2026 at a cost of £1.2bn.
- The installation of **low-carbon heating** in 278,000 dwellings completed by 2026. Due to this goal’s timescales, **heat pumps** (predominantly air-source) are likely to be the dominant technology. At a cost of £2.4bn committed within the first FYP.
- The installation of about **864 MWp of rooftop solar PV** across the region’s domestic, commercial and industrial buildings by 2026 at a cost of £0.5bn. Additionally, **127 MWp** of large-scale solar PV and utility-scale wind farms are deployed in suitable locations identified as part of the GIS analysis.
- More aggressive **energy efficiency measures in the commercial** sector equivalent to 17,500 commercial buildings by 2026 (costing £0.2bn).
- A much more significant role for **hydrogen is needed in industrial high-temperature** processes, covering 33% of their energy demand, as well as 100% of potential for capturing the remaining emissions with CCS. Other secondary and low-temperature processes are made 15% more efficient and electrified.
- Significant **transport demand reductions** are realised, through 9% of people working from home; £50m has been attributed for the cost to 2026 for the cost of broadband infrastructure upgrade.
- A change to the way we travel is also necessary, with a **reduction in car usage** (from 67% of trips to 59%), and a much higher modal share of public transport and cycling: 6.7% and 4.1%, respectively. These are based on targets set out in the Movement for Growth strategy.

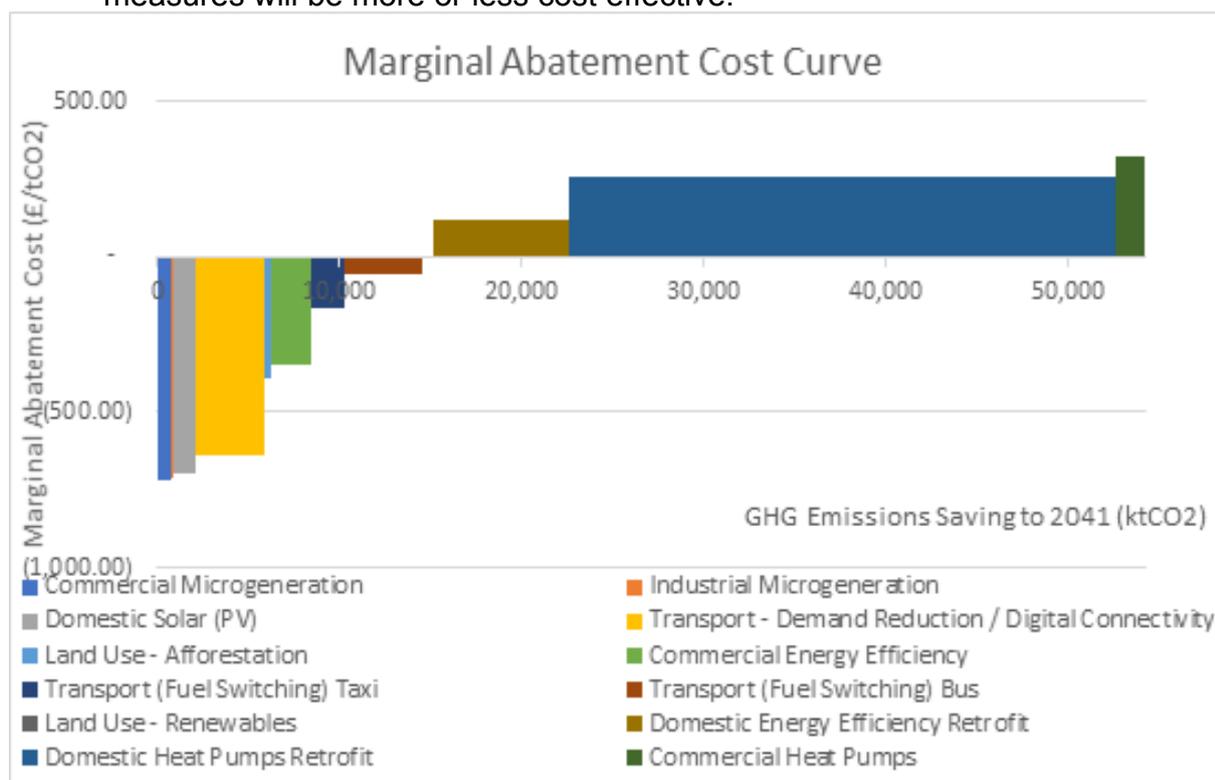
- A very rapid **uptake of electric cars**, light-goods and heavy goods vehicles, as well as the replacement of current buses and taxis with electric or other low-carbon alternatives: 15% of cars are estimated to be electric. If half of all buses and taxis were to electrify by 2026, the cost would be in the region of £200m.
- In addition, **forestry cover should be increased** from approximately 1.5% today to 13%, aligning as much as possible with the long-term aims for England. This includes repurposing 9,000 ha of agricultural land to increase tree cover, as well as creating green spaces and woodland areas in 20% of urban and peri-urban areas, equivalent to 10,000 ha. The costs to 2026 would be in the region of £60m for a quarter of the planting within the first FYP.

2.21 Following this Accelerated path to net zero will mean a 28% emissions reduction by 2026 (against a 2020 baseline). This will result in a highly ambitious, but achievable, route to net zero by 2041, allowing for the commitment to ensure a just transition that does not leave anyone behind (our commitment in *#WM2041: Actions to meet the climate crisis with inclusivity, prosperity and fairness*). The forecast cost of this ambition is £4.7bn by 2026 and delivery could create 21,000 additional new direct jobs in low-carbon sectors.

Investment and financing

2.22 Addressing these goals will require initial investment to get programmes up-and-running. Some of this will come from public sector sources, including devolution of resource from national government as part of the UK’s programme for carbon reduction. However, for many things there may also be a commercial return on investment, which will require us to continue to develop relationships with industry, landowners and the finance sector in order to realise the opportunities that reaching net zero in the West Midlands presents.

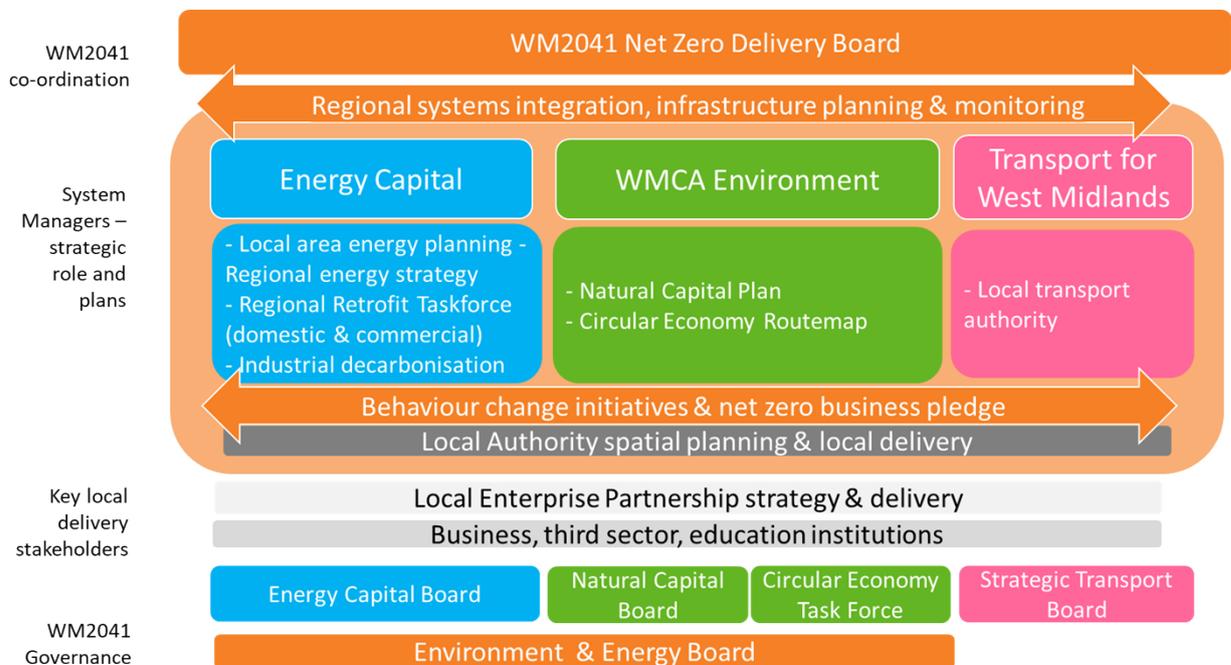
2.23 The Marginal Abatement Cost Curve (MACC) in the report indicates broadly which measures will be more or less cost effective:



2.24 The areas to the left of the graph are those where there is a commercial return on investment. The width of the bar on the chart indicates the potential carbon saving that could be achieved. It is important to note, however, that the costs do not include the start-up and management of the programme itself (e.g. the resource/ staffing requirements, business case development etc) and so should be used as a guide only.

Delivery and governance structures

2.25 The Five Year Plan will require different routes to delivery; these are outlined through delivery plans in the document. The key 'systems managers', from a CA perspective, are: Energy Capital; Transport for West Midlands and the WMCA Environment Team. Importantly, these will need to be coordinated more effectively, recognising that delivering the goals will require a collaborative effort. The structure can be summarised in the following way below (this will be subject to budget approval):



2.26 In addition to the sector specific work, there will also need to be close collaboration with other teams across the WMCA, for example Housing and Land and Productivity and Skills. These different parts of the programme will be brought together in the WM2041 Net Zero Delivery Board. The Environment and Energy Board will remain the main governing body for guiding the programme and approving workplans.

2.27 It is of critical importance to recognise that this is not just a plan for the WMCA, however. Whilst the work has focused on what the role for the WMCA might be in the journey to net zero, action and delivery will be required by individuals, communities, local authorities and business. There is a role for everyone in delivering the net zero ambition and the report also outlines delivery plans for each of the areas in turn. The key message is that we need to act fast, together in order to make net zero by 2041 a reality.

- 2.28 It is also the case that there will need to be cross-cutting measures in place to support delivery. This might include specific policy interventions; behaviour change campaigns; or ways to convene stakeholders to support action, for example through the net zero business pledge that the WMCA is developing to support the journey to 2041. Such initiatives will help us create the necessary conditions for the different projects and programmes to succeed.
- 2.29 The next steps for this document will be as follows:
- Amendments will be made to the approach following the Environment and Energy Board.
 - A further report will be issued with the summary paper and the full Five Year Plan text for the WMCA Board on 19th March 2021.
 - The report will be considered by: WMCA Strategic Leadership Team and WMCA Programme Board before the CA Board in March.

3. Financial Implications

- 3.1 The Five Year Plan document estimates that the cost of transition during the 2021-26 is £4.7bn. The overall cost of the programme to 2041 is being estimated at £15.4bn. This will require investment through a variety of routes, including local, private and UK government investment. Many of the interventions in this document will require a comprehensive business case to be produced in order to produce the detail for the financing and delivery.

4. Legal Implications

- 4.1 None from this Five Year Plan. We will work closely with colleagues in the Legal Team during business case development as this progresses for each of the priority interventions.

5. Equalities Implications

- 5.1 The equalities implications of this paper – and the activities it proposes – should create net positive effects in terms of the impacts on citizens and communities. Underpinning all the work on WM2041 is the need for it to be a ‘just transition’ (deliberately mitigating the cost of changes for those least able to bear it) and it seeks to embed environmental goals as part of an overall approach to economic growth that is more inclusive.

6. Inclusive Growth Implications

- 6.1 WM2041 was established as a programme that had inclusive growth embedded within it. The five principles (outlined in Paragraph 2.5), as well as the alignment with the UN Sustainable Development Goals, underpin our whole approach to addressing climate change. This runs through the Five Year Plan, where we have highlighted co-benefits around addressing climate change. These range from reduction of fuel poverty through an extensive retrofit programme, through to natural capital solutions and widening access to green space for people across the region.

6.2 In addition to the solutions themselves, the Five Year Plan also outlines the numbers and types of jobs that might be created as part of the region's actions to decarbonise. This includes reskilling opportunities for people currently working in 'high carbon' sectors to ensure that opportunities are available for everyone to be part of the transition to net zero.

7. Geographical Area of Report's Implications

7.1 The report concentrates on the seven constituent authorities. Different parts of the Five Year Plan may involve non-constituent authorities as part of delivery. These relationships will be developed on a case-by-case basis.

8. Other Implications

8.1 None.

Schedule of Background Papers

Appendix 1: Five Year Plan Summary