

## The Energy White Paper – Notes and Commentary from a West Midlands Regional Perspective

### BACKGROUND AND CONTEXT

The Energy White Paper is one of a slew of connected policy announcements including the *Ten Point Plan for a Green Industrial Revolution*, the *National Infrastructure Strategy* (both published in the last month) and the forthcoming *Net Zero Review* (HMT); *EV Charging Strategy*; *Heat and Buildings Strategy*; *Hydrogen Strategy*; *Industrial Decarbonisation Strategy*; *English Devolution and Local Recovery White Paper* and refreshed *Industrial Strategy* (all promised within 12 months)<sup>1</sup>. There will also be a series of sectoral strategies for achieving net zero, published next year<sup>2</sup>.

The role of the white paper is to set out an overall direction of travel and vision for the UK energy system to 2050. This is coloured by the immediate imperatives to recover from Covid-19 ('Build back Greener') and demonstrate global leadership in carbon reduction, in particular ahead of the UN Climate Conference ('COP26') to be hosted by the UK in November 2021.

The White Paper reproduces and builds on the commitments made in the Prime Minister's Ten Point Plan.

### PURPOSE AND STRUCTURE OF THIS COMMENTARY

The purpose of this summary and briefing is to stimulate debate, help inform the formulation of local industrial strategies and ensure the West Midlands is in a position to ask sensible questions of government. To these ends, much of the analysis is put forward as statements for challenge and with a view to stimulating the provision of evidence and counter-arguments to strengthen the robustness of the region's perspective on these topics.

A two page summary includes commentary on the key issues and implications for the West Midlands. The following pages summarise the contents of the White Paper by theme area.

An appendix is also provided setting out an immediate view of the industrial and economic opportunities arising from the White Paper. This is intended as a point of departure for discussion and challenge from industry groups and representatives with a view to eliciting a shared view of how we might wish to refine relevant aspects of the local industrial strategy to reflect the changing policy context.

Camirus

18 December 2020

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/938539/NIS\\_Report\\_Web\\_Accessible.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf)

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/943807/201214\\_BEIS\\_EWP\\_Command\\_Paper\\_LR.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943807/201214_BEIS_EWP_Command_Paper_LR.pdf), p15.

## SUMMARY OF KEY POINTS

The key themes running through the entire White Paper are:

- An emphasis on consumer energy costs
- A fundamental shift from gas to electricity, particularly for domestic heating
- Investment in offshore wind and nuclear as strategic electricity generation technologies to ensure electricity is zero carbon
- An expectation that smart, digital technologies will increasingly be used to control demand
- The end of petrol and diesel cars and vans (sale banned from 2030)
- Renewed emphasis on energy efficiency in buildings
- Reliance on a combination of carbon capture and storage and transition to new fuels such as hydrogen to power heavy industry
- A recognition that more needs to be done<sup>3</sup>

The established UK model of using private finance to fund energy investment and ensuring strong public sector control of this by using a government-controlled regulator (currently Ofgem) will be strengthened and competition enhanced where possible. ***However, there is a recognition that the current regime for economic regulation and the way energy is currently charged to customers is not appropriate for a low carbon world<sup>4</sup> and the government is committing to consulting and publishing a review of this within the next 12 months<sup>5</sup>.***

## HIGH-LEVEL IMPLICATIONS AND OPPORTUNITIES FOR OUR REGION

The key issues and opportunities for the West Midlands are:

- We're missed out of most direct public investment commitments. Up to £500M for a Gigafactory in the Midlands depends on finding a private investor. It's not clear that the underlying economic logic supports private manufacturing investment in the WM as the costs of medium and long-term energy supplies to this region will clearly be higher than our coastal competitors.
- There are significant demand side measures around future homes, energy efficiency in both housing and industry (UK ETS) which could generate potentially significant markets for WM businesses. The region should champion and support such policies (subject to widely shared concerns about the effectiveness of existing delivery mechanisms) including by piloting and pathfinding approaches, powers and standards when possible.
- However, the design of UK ETS could impose disproportionate burdens on smaller firms (the entire West Midlands economy) so needs to be monitored carefully.
- In addition, the government is vulnerable to criticism on domestic energy efficiency schemes because the track record is very weak and there are no new ideas in this White Paper. The WM has oven-ready teams and proposals in this area.
- Considerable demand-side support is also provided to accelerate a transition to electric vehicles. We need to maximise the benefits of this for the region by securing a Gigafactory, ensuring our EV Infrastructure strategies are implemented efficiently and well, maximising our share of the funding available and aligning our wider supply chain capabilities.

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<sup>3</sup> P15

<sup>4</sup> pp30-31, p35, pp85-6

<sup>5</sup> p31, p86

- There are significant commitments to review and refine cost allocation within the energy system in 2021. This will be a highly political process which will affect the relative competitiveness of UK regions and industry sectors for decades. While esoteric, it will shape the region and country. The WM should actively engage in this or we risk passively suffering from its outcomes.
- The White Paper suggests unresolved conflict between advocates of hydrogen (largely heavy industry) and advocates of faster electrification (largely consumer and light industry/automotive manufacturing). This choice will be political, not market-based, because whichever way it goes it will need to be backed by infrastructure investment and decades of public subsidy. It isn't clear that a national hydrogen infrastructure is a sensible outcome – regional differentiation may be cheaper (i.e., green hydrogen near the northern coasts; more electricity in the midlands and south). We have representatives of both interest groups in our region. While we don't need to choose between them, we need to be aware of the backdrop to their claims and avoid getting caught in an economic no man's land.
- Industrial decarbonisation is addressed almost entirely on the assumption that a small number of large public investments in foundation industries will solve the problem, and the rest of the economy will come later and/or be transformed through a new carbon pricing scheme (UK ETS). The rest of the economy includes the whole of the West Midlands. We need to be proactive in recommending ways of decarbonising smaller industrial sites to avoid significant damage to our remaining industrial base<sup>6</sup>.

Overall, there is an inescapable strategic challenge for the Midlands (already clear in the ten point plan) which this energy white paper helpfully crystallises. The future of the bulk of UK energy generation will shift to coastal regions and hence make energy more expensive in the Midlands<sup>7</sup>. Even if this is compensated for by non-reflective cost allocations or short-term subsidies, it is difficult to see why global manufacturing investors (where energy is an important input to their operations and who may discount short-term political promises) would rationally invest in our region.

There is, however, recognition of the importance of EV manufacturing supply chains to the Midlands, and an implicit allocation of half of £1bn for giga-factories, split between the NE and Midlands. A separate transport decarbonisation plan will be published in the spring<sup>8</sup> - there is potentially a risk the interests of WM mobility industries and their supply chains are lost in the gaps between BEIS and DfT.

While there is a headline £1 billion innovation commitment, more than half of this is nuclear R&D, which offers limited or no short- medium-term supply chain opportunities to the West Midlands (Manchester is the centre of UK nuclear R&D expertise<sup>9</sup>). About half the rest is to support offshore wind, which is channelled through a Sector Deal with nine coastal clusters and excludes this region. The West Midlands is reasonably well-placed to secure more than our share of the balance given our excellent academic and innovation base in the energy sector, but we largely lack the powers to support rapid and competitive commercialisation (and hence support large scale job and wealth creation). The main exception to this is in housing-related technologies, where a co-ordinated local industrial strategy and political commitment to enforce higher standards and support market development could deliver significant economic benefits to the region.

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<sup>6</sup> Repowering the Black Country is making a start on this.

<sup>7</sup> Specifically, high grade industrial energy, such as that which powered the first industrial revolution.

<sup>8</sup> p7

<sup>9</sup> See, for example, <https://www.dalton.manchester.ac.uk/>

## DISCUSSION BY THEME

### **An emphasis on consumer energy costs**

This is in contrast to countries such as China and Germany, where there is some evidence levies on domestic energy bills are used to subsidise industrial energy costs and support economic growth<sup>10</sup>.

However, there is a commitment to a dialogue on cost allocation starting in April 2021 (pp30-1). Strong voices in this dialogue will be consumer associations and heavy industry. WM industry needs to engage with this as it is a once in a generation opportunity to secure a level playing field for the small-and-medium energy intense industry which characterises the WM.

Most of the measures proposed are regulatory (i.e., making it easier to switch suppliers, innovative tariffs) although there are several to encourage energy efficiency. These are relatively weak or subject to consultations at this stage. The significant ones are:

- Establishing a Future Homes Standard. This will change the way new homes are built.
- Regulations to encourage and support energy efficiency improvements in housing, including an extension of the Energy Company Obligation to 2026 and a requirement on rented homes to achieve a decent energy standard (Energy Performance Certificate (EPC) Band B) by 2030. These will broadly continue existing schemes to address fuel poverty and slowly increase the energy performance of existing homes.

Smart tariffs may be helpful in creating markets for new technologies such as electric vehicles, domestic battery storage, smart fridges.

There is further support for heat networks<sup>11</sup> of £122M. These are effective and efficient ways of supplying large numbers of homes and commercial buildings with clean heat and very applicable to the West Midlands. We already have nationally leading schemes in place or under development in Coventry, Birmingham, Solihull and Sandwell and could do many more.

The government intend to legislate to start regulating heat networks this parliament<sup>12</sup>. Local authorities almost certainly offer the most cost-effective route to such regulation (especially policing it) and should be lobbying to take this responsibility and associated funding.

### **A fundamental shift from gas to electricity**

*'Clean electricity will become the predominant form of energy'*<sup>13</sup>. This is a major shift for domestic customers and energy-intensive industry, both of which currently use gas as their dominant form of energy (for heat). For households gas represents 80% of annual energy use<sup>14</sup>.

Electricity is more expensive than gas by a factor of 3-4. For domestic users a shift from gas to electricity can be achieved at more-or-less net zero cost increase provided consumers invest in appropriate technologies (e.g., heat pumps) so a transition over 5-15 years is entirely deliverable,

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<sup>10</sup> <https://www.china-briefing.com/news/china-electricity-prices-industrial-consumers/> (and personal contact with Chinese government representatives).

<sup>11</sup> P114

<sup>12</sup> P114

<sup>13</sup> P10

<sup>14</sup> [https://www.ukpower.co.uk/home\\_energy/average-household-gas-and-electricity-usage](https://www.ukpower.co.uk/home_energy/average-household-gas-and-electricity-usage)

with significant opportunities for manufacturers of heat pumps (=air conditioning technology) and their supply chain.

There is an aspiration to grow the market for electric heat pumps (a clean alternative to domestic gas boilers) twenty-fold by 2028 (from 30,000 a year to 600,000). A consultation on policy measures to achieve this will be launched next year<sup>15</sup>.

The government will also consult on ending gas connections to new homes altogether.<sup>16</sup> This is a slight weakening of a previous suggestion that this would be implemented from 2025.

In contrast to homes, industry requiring high temperature heat (e.g., for melting metal, various curing, baking, sterilisation processes) cannot necessarily economically shift to electricity. It will need to shift to clean hydrogen (or biogas). Green hydrogen is currently expensive and lacks infrastructure to get it from the coast to inland areas (see below). Biomethane, on the other hand is more economic but volumes are limited by available biomass waste streams – the white paper offers some support for this via a Green Gas Support Scheme (to run from 2021-5)<sup>17</sup>

*'We will generate new clean power with offshore wind farms, nuclear plants and by investing in new hydrogen technologies.'*<sup>18</sup> These are only economically-viable on the coast or offshore. Inland clean power generation options are solar, waste-to-energy, inland wind, hydro-electric and other bioenergy technologies which (with the exception of biomethane) are not featured in the white paper. This is probably because their contribution is limited by access to scarce or limited resources such as land, waste streams, rivers and mountains. It is difficult to base national strategy on such locally-variable opportunities. However, ability to access such opportunities may make the difference between the West Midlands having a competitive offer on energy to industrial investors or not. We need a greater degree of local discretion over energy policy and delivery.

Hydrogen is regarded as a research and development stage technology option in this section of the White Paper<sup>19</sup>. Government recognises its potential and intends to invest (unspecified amounts) in further evaluation and testing between now and 2025<sup>20</sup>. The focus of R&D investment in the UK in hydrogen to date has been in the NW and NE (where green hydrogen can be produced most cheaply) and it seems most likely that the planned demonstration Hydrogen Town and Neighbourhood Trials will take place there too.

### **Investment in offshore wind and nuclear as strategic electricity generation technologies to ensure electricity is zero carbon**

There is a £1 billion innovation investment (p52) although *more than half of this is on novel nuclear technologies*. Small opportunities to secure innovation funding in bioenergy, hydrogen, smart homes, energy storage and flexibility etc will be on-going.

The government propose to streamline planning to make deployment easier (p55). They also commit to 60% UK supply to offshore wind projects, but this is through an existing 'Offshore Wind Sector

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<sup>15</sup> P111

<sup>16</sup> P110

<sup>17</sup> p112

<sup>18</sup> P11

<sup>19</sup> P112

<sup>20</sup> P112

Deal'. *This deal is with nine coastal regions only*<sup>21</sup>. The chances of this 60% obligation benefitting the WM are therefore quite slim.

### **An expectation that smart, digital technologies will increasingly be used to control demand**

There is encouragement both for smart home technologies and smart network technologies (which are about streamlining energy system management). All create opportunities for digital innovators, electronics and software companies, and for market disruption (the paper suggests a market worth £4bn p.a. for UK companies) but only if energy market regulations are transformed to allow value to be released – for example, domestic time of day tariffs are needed to make smart home devices meaningful.

The White Paper promises a relatively major review of market regulations which is welcome and critical to enable businesses to successfully commercialise products and services for these markets.

There is an encouraging recognition of the need for data standards, and specifically full implementation of the Energy Data Taskforce's Recommendations<sup>22</sup> via an energy data and digitalisation strategy brought forward in 2021. Funding of £2M is, however, very limited (c.f., £40M just to explore regulatory reforms necessary to support nuclear investments – if smart energy systems potentially deliver £12bn of benefits a year (p70) which is commensurate with nuclear and come at much less cost and risk, why are we not investing a similar amount in regulatory support?)

### **The end of petrol and diesel cars and vans (sale banned from 2030)**

£1.3bn of funding provided to accelerate the rollout of chargepoints for EVs across England. Sale of new petrol and diesel cars and vans banned from 2030; hybrids banned from 2035. A delivery plan will be provided in 2021<sup>23</sup>.

£582M will be provided in grants to buyers of zero or low emission vehicles.

£1bn provided to support development of the EV supply chain, focused on the Midlands and North East.

A transport decarbonisation plan will be published in Spring 2021 (p88). This will explicitly recognise the role of Place (p89).

Hydrogen will be explored for HGVs, rail and buses, but is still seen as a not quite market ready (i.e., limited innovation funding to be allocated)<sup>24</sup>. A similar line is taken towards decarbonisation of aviation and shipping<sup>25</sup>.

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<sup>21</sup> <https://www.gov.uk/government/publications/offshore-wind-sector-deal/offshore-wind-sector-deal-one-year-on>

<sup>22</sup> Laura Sandys, who chaired this, is a strong advocate of collaborative local infrastructure planning and has been supportive of the WM Energy Programme.

<sup>23</sup> p92

<sup>24</sup> p94

<sup>25</sup> p95

### **Renewed emphasis on energy efficiency in buildings**

The Future Homes Standard once again puts new housing on a trajectory towards zero carbon and will potentially drive demand for new building products and services which will create opportunities for WM businesses. There is a commitment to implement the standard ‘as soon as possible’ with an interim uplift in standards as a stepping stone.

This policy should be easily implementable by industry and manufacturers as it was previously planned to be implemented in 2016 and only abandoned in 2015. Non domestic buildings will also be tackled, with a consultation on how in 2021.

New build standards are supported by incentives for retrofit including the Green Homes Grant, with a ring-fenced local authority delivery element of £500M; and by a requirement for rented properties to meet minimum energy performance standards (EPC C or better) by 2035. These are demand-side policies expected to release around £100bn of private capital<sup>26</sup>. There is also a requirement for rented commercial and industrial properties to meet EPC Band B by 2030, ‘where cost-effective’<sup>27</sup>. £1bn of support is specifically committed to help the Public Sector lead on this agenda, via The Public Sector Decarbonisation Scheme.

Funding to address fuel poverty (Energy Company Obligation (ECO) and Warm Homes Discount) will be extended to 2026 at slightly increased levels. An updated fuel poverty strategy will be published in 2021. It’s not clear that structural issues with ECO in particular (it’s inefficiently targeted, excessively bureaucratic and too narrowly focused on technologies) will be addressed.

The government has a very poor track record of success in this area – particularly in linking energy efficiency policy to industrial strategy and wider poverty alleviation work (e.g., ECO) and in motivating private householders to participate in schemes (e.g., the Green Deal). There are some encouraging signs of a willingness to listen and act on criticism, though (e.g., commitment to improve the quality of EPCs)<sup>28</sup>

### **Reliance on a combination of carbon capture and storage and transition to new fuels such as hydrogen to power heavy industry**

There is an intention to publish an Industrial Decarbonisation Strategy in spring 2021. (The Black Country LEP is participating in the consultation and development process for this strategy).

However, although the chapter opens with a statement that manufacturing drives the UK economy, the entire chapter is focused on the heavy (mostly process) industries in the six coastal clusters<sup>29</sup>. The explicit logic<sup>30</sup> that the ‘trickle down’ effect works in industry (i.e., decarbonising the 50 biggest emitters will enable decarbonisation of the other 295,000 manufacturing businesses in the UK) should probably be challenged quite robustly, as indeed should the assumption that industrial strategy starts with these primary producers (rather than end use markets, for example). While they are clearly absolutely fundamental to a manufacturing economy (in the same way that a Gigafactory

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<sup>26</sup> P104

<sup>27</sup> P106

<sup>28</sup> P105

<sup>29</sup> P121

<sup>30</sup> P124

will be fundamental to automotive manufacturing) if you have no manufacturing economy to demand their output they will have limited value.

£1billion is allocated to CCUS (infrastructure) projects which will be invested in areas with suitable geological features<sup>31</sup> such as those bordering the North and Irish Sea. The only relevance to the WM is the small amount of funding we've been able to secure to plan how to decarbonise the Black Country Cluster in this wider context.

A hydrogen strategy will be published in 2021, aiming to get 5GW of clean hydrogen production in place by 2030<sup>32</sup>. £240M of capital co-investment is offered for production projects – these will most likely be in existing coastal clusters. There is a clear disconnect between the industrial energy team in BEIS and the domestic and energy networks teams as the former are bullish about the ability to deliver clean hydrogen economically and there to be end user demand for this and the latter are still in evaluation and R&D mode. At the heart of this debate is the reality that clean hydrogen today is very uneconomic, but it's also the only way to decarbonise heavy industry. The existence of mass markets will clearly help bring costs down. These mass markets, however (domestic and transport) don't actually need to go for hydrogen: they could choose electricity. So one side needs hydrogen to happen and it might well slow progress and add cost in other areas. If we have to choose, the WM should probably side with electrification, because the implementation of a national commitment to hydrogen will probably destroy all that remains of our industrial economy, sadly. Consultation on commercial models and incentives is planned for 2021<sup>33</sup>.

A UK Emissions Trading Scheme (ETS) will be established<sup>34</sup> to replace the existing EU ETS (which only applies to large emitters (=industrial plants). Unlike the existing scheme, which doesn't affect the WM<sup>35</sup>, BEIS plan to extend the UK ETS 'across the economy'. This is a potential issue for smaller businesses as it will impose measurement and compliance costs unless exceptionally well-designed. It's a way of incentivising carbon emission reductions by essentially taxing carbon. This is both an opportunity and threat to WM industry: it will help build markets for industrial carbon reduction technologies and services, but it will also impose costs on energy intense manufacturers. It will be important that the region engages proactively in the design of such a scheme.

There is also a promise of a revenue mechanism to attract private sector investment into carbon capture and hydrogen projects.<sup>36</sup> There is insufficient detail to be certain, but it seems likely that the scale of these technologies and projects means this has little applicability to the WM.

As you'd expect, there is an entire chapter on oil and gas<sup>37</sup> which covers transformation of the oil and gas sectors and their supply chains. The geographical emphasis is the UK Continental shelf and associated supply chain clusters in the North, East and South East coastal regions. Regulatory change will be used to incentivise a switch to clean energy<sup>38</sup> coupled with a North Sea Transition Deal – no funding is mentioned for this but the paper explicitly references hydrogen and CCUS projects as

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<sup>31</sup> P125

<sup>32</sup> P128

<sup>33</sup> P128

<sup>34</sup> P129

<sup>35</sup> There are no qualifying sites in the Black Country and possibly none in the WMCA area: there are ~50-60 nationally and the only one locally is in Rugby (Cemex)).

<sup>36</sup> P130

<sup>37</sup> P133-147

<sup>38</sup> pp140-142

areas into which oil and gas industries can switch. Funding is also promised but not quantified for a 'Global Underwater Hub' in Aberdeen, with satellites in the North East and Southern England.

One possible opportunity for the West Midlands is decommissioning of energy assets<sup>39</sup>, although again the implication is that most of these are offshore and the supply chain will be in ports.

### **A recognition that more needs to be done**

There is a recognition that fundamental change is required in market institutions and governance (pp85-6). Consultation and policy development during 2021 may provide an opportunity to establish a role for regional and/or municipal authorities within the energy system, building on the existing devolution asks.

The skills opportunity is also recognised<sup>40</sup>, and very limited funding (£6.9M) identified to provide support in this area.

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<sup>39</sup> P145

<sup>40</sup> P116

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY***Potential opportunities for this region**

<b>New market created or promoted by the White Paper</b>		<b>Credibility of policy measures proposed</b>	<b>Alignment with existing WM industrial competences</b>	<b>Suggested prioritisation within regional strategies</b>
1.	Offshore wind (40GW) <sup>41</sup> 60% UK sourced <sup>42</sup> , 1GW floating	High for energy outcome, medium for 60% UK source commitment	Supply chain opportunities in principle, but this is a relatively mature market controlled by Siemens and Vestas and China. Much of the 60% may be the wet (offshore) bits (concrete foundations, boats etc) where we have no interests.	Medium-low. Detailed analysis of the market and where the 60% is likely to come from recommended before placing too much hope in this.
2.	Carbon Capture, Usage and Storage (CCUS); delivery of four low carbon clusters by 2040	High/medium – these are essentially big infrastructure projects but there are technical challenges and costs may overrun (£bns)	Limited supply chain opportunities. These are largely bespoke geological interventions offshore – i.e., major civil engineering activities. Likely to be good work for a redeployed oil and gas industry.  Carbon usage in manufactured products is an opportunity, and we've had some success with securing innovation funding to look at how we deliver CCUS in the Black Country (very challenging)	Low, with the exception of usage, and making clear to government the risks and inequities within their proposed policies.

<sup>41</sup> P16, 45<sup>42</sup> P55

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

New market created or promoted by the White Paper		Credibility of policy measures proposed	Alignment with existing WM industrial competences	Suggested prioritisation within regional strategies
3.	Growing heat pump installations (from 30k p.a. to 600 k p.a.) <sup>43</sup>	Medium-high – the government have a poor track record of incentivising change in domestic energy, but once they pick a technology to mandate they can be effective	Modest. Market dominated by companies such as Daikin, Mitsubishi etc but supply chain and installation opportunities.  Also service and financial/business models. There's a big need for these and opportunities to package with health and well-being, data (5g) offers.	Medium-high, particularly looked at as part of wider smart home/smart building market (packaging technologies and data and well-being/health technologies etc). May require regulatory support.
4.	Building world-leading digital infrastructure for our energy system	High-medium – although implementation record is very poor (e.g., smart meters)	Unclear. Opportunities are in manufacturing sensors and data capture technologies for domestic and industrial applications (i.e., electronics) plus software skills. Most of these are not very Place-constrained.	High, if we can answer the question of how we compete with India, for example.
5.	Zero carbon ready homes <sup>44</sup>	Future homes standard – details matter, but we should be well prepared as this trajectory was in place 2006-15	High – manufacturing and installation of building and smart control technologies are competences which exist in the region	High – we have existing powers to drive market growth and support local industrial strategy in this area.

<sup>43</sup> P16<sup>44</sup> P17

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

New market created or promoted by the White Paper		Credibility of policy measures proposed	Alignment with existing WM industrial competences	Suggested prioritisation within regional strategies
6.	Domestic energy efficiency products and services (£6.7bn over 6 years) <sup>45</sup>	Low - Energy Company Obligation; Warm Homes Discount; Green Homes Grant; All rented homes EPC B by 2030	Potentially high – these are construction and domestic energy-related products such as heaters, insulation, windows. However, the policy mechanisms actively disincentivise quality in manufacturing and delivery and the provision of cost-effective fuel poverty alleviation programmes. The funding allocated is lower per year than that provided 10 years ago, so it will not support creation of a new market, simply re-allocations of existing economic activity.	High, <b>provided we can secure local control over delivery</b> so that we can align industrial, fuel poverty and energy policies, as BEIS are not able to do this.
7.	5GW of hydrogen production by 2030 <sup>46</sup>	Medium – the economics remain challenging. Supply side subsidy of £240M offered, but limited demand side support beyond evaluation of possibilities	Medium – we have very strong academic expertise and some development companies, but no scale manufacturing as yet. Scope to progress beyond demonstrators seems limited for some years yet, and the playing field is heavily tilted towards coastal regions and more committed countries (but would be very happy to be persuaded otherwise)	Medium/low – we need to see evidence this will be commercial in the WM or for West Midlands manufacturing competences within 5-10 years; also still questions about infrastructure requirements and public sector support

<sup>45</sup> P21<sup>46</sup> P17

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

New market created or promoted by the White Paper		Credibility of policy measures proposed	Alignment with existing WM industrial competences	Suggested prioritisation within regional strategies
8.	Smart home technologies, batteries and EVs	Medium – smart domestic tariffs <sup>47</sup> . (The detail matters and is not yet available.) However, it's encouraging that a review of the retail regulatory framework is included <sup>48</sup> as this is fundamental to credible market development	Medium – we are growing competence in EVs and batteries but have limited existing domestic appliance manufacturers (?). On the other hand, barriers to entry may be low and local markets can be created using regulation and policy levers.	High, particularly given the EV linkage.  We must prioritise influence over the regulations though - our strategy will be entirely governed by these.
9.	New nuclear <sup>49</sup> (existing technology)	High/medium – commitment is strong but track record is weak.	Medium/low – some opportunities for supply chain contribution, but one plant is a limited and short-term, market.	Low-medium
10.	New nuclear (small modular reactors) <sup>50</sup> – estimated £400bn global market	Medium – they are qualified as subject to future review, and the public appetite is unproven.	Potentially high as supply chain to Rolls Royce in Derby, who are leading on this and not far away. The WP specifically allocates money to supply chain development but this appears to be largely for design (i.e., direct to Rolls Royce) and regulatory changes to support the market	Low – not close to market and funding is for design and OEM only at this stage.

<sup>47</sup> pp22-5<sup>48</sup> pp35-6<sup>49</sup> pp48-9<sup>50</sup> p50

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

New market created or promoted by the White Paper		Credibility of policy measures proposed	Alignment with existing WM industrial competences	Suggested prioritisation within regional strategies
11.	New nuclear (Advanced modular and fusion reactors)	High – but R&D funding only (£570M)	Still a long way from market – opportunity to adapt/develop technologies and supply chain but only if we secure strategic site for STEP programme	Contingent on outcome of STEP siting process. We should participate if we have a site.
12.	Innovative and emerging technologies <sup>51</sup> , £54bn market identified by 2050.	Low – supply side innovation funding which the UK has provided for decades with limited market impact.	We should be able to secure more than our share of this funding (at least the non-nuclear elements) based on our regional R&D and innovation ecosystem in energy and track record. Limited industrial and jobs impact without matched regulatory changes. The funding is very small relative to the market and challenge.	High, but with modest job expectations.
13.	Smart systems equipment and related services <sup>52</sup> (£12bn of value to be released across UK; £4bn market by 2020)	Medium/High– there is a recognition that regulation and governance institutions will need to change and promise of greater competition in networks which may allow LAs to take stronger roles.  Overlaps with smart home markets above.	Medium/High – we are growing competence in EVs and batteries also academic expertise in storage and energy systems plus the Catapult. On the other hand, barriers to entry may be low and local markets can be created using regulation and policy levers.  Need to work closely with (G)DNOs, with whom we have excellent relationships.	High, combining concerted local industrial strategy with lobbying for supportive regulatory reforms

<sup>51</sup> P52<sup>52</sup> P70

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

New market created or promoted by the White Paper		Credibility of policy measures proposed	Alignment with existing WM industrial competences	Suggested prioritisation within regional strategies
14.	Electric and hydrogen fuel cell vehicles	High – sale of fossil fuelled cars and vans will be banned from 2030 and hybrids from 2035	High, but we lack the core battery manufacturing capability which is strategically vital to continued automotive manufacturing in the region.	High – we need a Gigafactory, although it may be difficult to persuade private investors to commit without guaranteed clean energy costs and supplies, which will cost the government less on the coast.
15.	Heat networks	High – continuation of existing schemes	Medium-high: this is project engineering, construction and legal and financial models, but the market is limited. European firms have the advantage of having been delivering these schemes for many years.	Medium – good potential but limited and highly competitive market.
16.	Oil and gas supply chains	Medium – government is conflicted between maintaining supplies and incentivising change. No details provided.	Low – we're too far from the coast and the market is very mature and full of desperate people looking to maintain their businesses in a declining market	Low
17.	Decommissioning of offshore oil and gas assets	Medium – government is conflicted between maintaining supplies and incentivising change. No details provided.	Low/Medium – although there are global opportunities, we're too far from the coast and the market is very mature and full of desperate people looking to maintain their businesses in a declining market	Low

**POTENTIAL INDUSTRIAL AND ECONOMIC OPPORTUNITIES FOR THE WM FROM THE ENERGY WHITE PAPER***DRAFT TO STIMULATE DISCUSSION AND DEBATE ONLY*

<b>New market created or promoted by the White Paper</b>		<b>Credibility of policy measures proposed</b>	<b>Alignment with existing WM industrial competences</b>	<b>Suggested prioritisation within regional strategies</b>
18.	Industrial decarbonisation technologies and services	High – UK ETS will set a carbon price for industry from 2021. While a negative interpretation of this is that it will reduce the competitiveness of traditional manufacturing; a positive reading is that it will create markets for industrial energy efficiency products and services	High – mass manufacturing and customisation of quality engineered products should be a core competence of this region, plus project engineering skills	High – again we can couple a focused local industrial strategy with lobbying for supportive regulatory change, and we could potentially pilot this at scale in the WM.