Action on Climate in Teignbridge

COMMENTS ON
LOCAL PLAN REVIEW – LOW CARBON POLICIES – OCTOBER 2019

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Section 1. **Carbon Emission Targets**

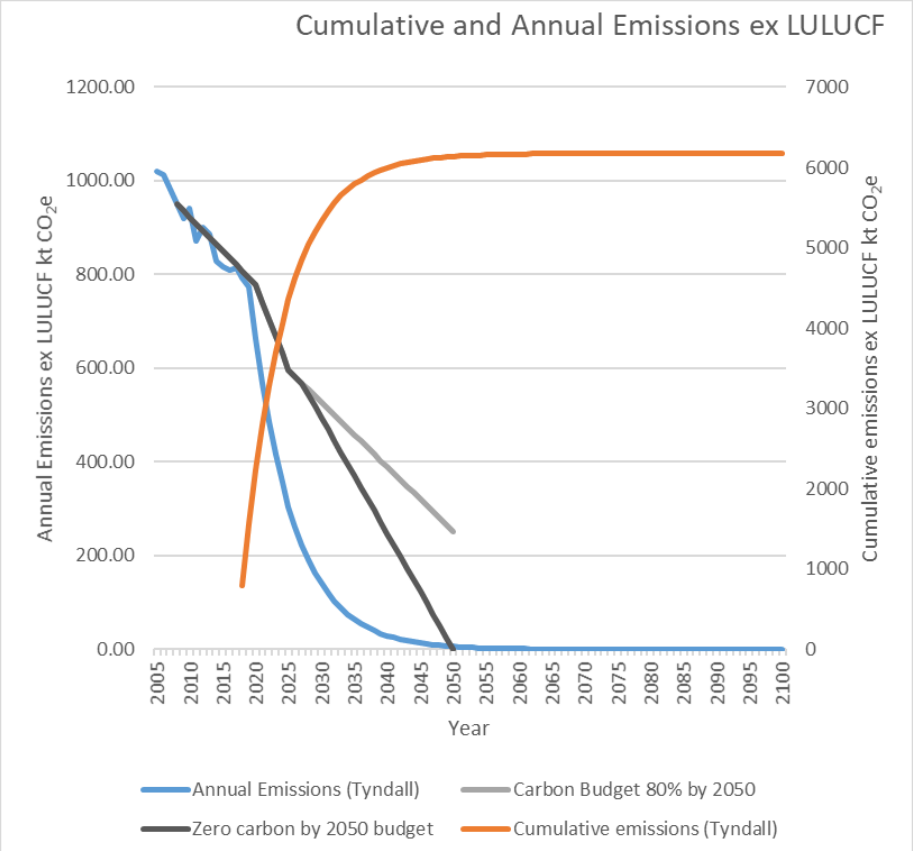
1. The statement that "*Nationally, the Climate Change Act 2008, as amended, contains legally binding targets for the UK to bring all greenhouse gas emissions to net zero by the year 2050*" is correct. However it's interpretation of a linear reduction in annual emission targets is not in line with the government's Carbon Budget targets, also a legal requirement.

   The 2008 Climate Change act also requires that "To meet these targets, the government has set five-yearly carbon budgets which currently run until 2032. They restrict the amount of greenhouse gas the UK can legally emit in a five year period". We are currently in the 3rd five-year budget period which ends in 2022.

   Although there are several ways in which the remaining Carbon Budget for Teignbridge can be allocated between now and 2050, practically the majority of the GHG emission reductions must be front loaded. That is a steeper initial reduction in annual targets as it will become progressively more difficult to reduce emissions completely as we approach Zero Carbon.

   Indeed TDC's Climate Emergency declaration to achieve Zero Carbon by 2025 is slightly more effective in meeting the legally binding Carbon Targets! The optimal annual emission targets for Teignbridge, which meet the legal requirement, are explained in the next point.

2. The Tyndall report, which applies the UK's Carbon budget to Teignbridge, allocates a carbon budget of 4.6 Mt CO_2e from 2020 to 2100 to stay within the legally binding national budget set by the Paris Climate change agreement 2016. Based on 2018 this gives a budget of 6.2 Mt CO_2e to 2100. This means that emissions must be reduced each year by 14.4% on the previous year from 2020 onwards. The effect of this is illustrated below.



The Tyndall report recommends the following budgets:

Period	Recommended Carbon Budget (Mt CO_2 e)
2018-2022	3.3
2023-2027	1.6
2028-2032	0.7
2033-2037	0.3
2038-2042	0.2
2043-2047	0.1
2048-2100	0.1

This is the maximum amount of CO2 that should be emitted in each period, from energy only. Long term offsetting is not appropriate unless an equivalent amount of carbon is sequestered as described in the following point. In addition, per-capita emissions should not be used as a target because this would further reduce Teignbridge's carbon budget and make meeting the legal requirements even more challenging.

3. Using the government's historic carbon emission subset data for Teignbridge excludes Land Use, Land-use change and forestry (LULUCF), which is the only offsetting component. Reaching zero without LULUCF or Carbon Capture and Storage (CCS) is probably impossible. LULUCF is currently -40.5 kt CO_2e, if tree cover in the district were to be increased by 25% then a LULUCF value of -50 might be realistic. This implies a target of 98% reduction on 2017 values. Please refer to our other proposed policies on Forestry.

4. The existing building stock has higher emissions than the legal targets, bringing it within the target would require a massive retro-fit[1] program or replacement. So given that the existing stock will not meet the target in time, even if new builds add no further emissions, overall emissions cannot reduce without a reduction in the emissions rate from the fuel used.

   In practice zero emissions from new builds can only be achieved if the energy used is zero carbon (for example electricity, rather than natural gas). Electricity has the capability to be zero carbon in the future. Any emissions from new builds will make the situation worse.

[1] If the target is near zero carbon for new builds (for arguments sake say equivalent to PassivHaus 15kWh/M^2/year) the best that can realistically be achieved by retro-fit is about 25kWh/M^2/year.

Section 2. **Carbon Reduction Plans**

5. The government has announced an open consultation on the Future Homes Standard, which proposes updates to parts L and F of the building regulations in 2020 and again in 2025. The documentation for this consultation raises some issues:

    - Options for a reduction in carbon emissions in the 2020 building regulations of either:
        - 20% by very high standard for the fabric.
        - 31% by less high fabric standards together with carbon-saving technologies such as PV.
    - The government favours the second option. ACT favours the 20% option as retro-fitting solar panels is relatively easy.
    - An outline of the Future Homes Standard which is to be introduced in 2025, aims to be near zero carbon.
    - Removal of carbon sample testing option for developers, so all individual buildings will be tested, and provision of photographic evidence of as built construction, particularly in relation to thermal bridging.
    - Paragraphs 2.23 to 2.28 review the situation regarding the ability of local authorities to set higher energy efficiency standards than required by part L of the 2013 building regulations. The important point is that the powers given to local authorities by the 2008 Planning and Energy Act have never been amended, though an amendment was proposed in a ministerial statement in 2015. This amendment has not been commenced. This means that local authorities still have the ability to set higher standards. A question asked by the consultation is if and when these local authority powers should be removed.

    It seems that the 2020 building regulations will supersede the proposed 19% improvement on part L that is proposed in the local plan review, so the local plan should set the highest possible standard. This could be the fabric standard of the 20% option, together with requirements that heating be from potentially renewable sources (in practice this means electric heat pumps or district heating), and that cabling is in place to fit rooftop PV and a storage battery (this avoids penetrating the fabric post build).

6. "*c. Use of low carbon solutions where additional energy is required for building services such as heating, ventilation and air conditioning*". This should also rule out the use of natural gas.

7. If rooftop solar is used for a whole estate, the effect on the electricity network needs to be considered. This in practice means that rooftop solar PV needs to be accompanied by behind the meter storage, and that an estate wide scheme would also need its own storage[2].

    - Storage acts as a buffer, which protects the network from rapid fluctuations in supply that occur with solar (when a cloud passes over). WPD will probably make it a condition of supply that widespread application of solar PV is accompanied by storage.

8. "*Where it is not feasible or viable to deliver carbon reduction requirements on-site, methods such as off-site provision will be considered. This will need to be through a specific deliverable proposal or financial contributions to a potential future carbon offsetting fund*." How does a carbon offsetting fund reduce GHG emissions? Why would it not be possible to deliver carbon reduction requirements on site – this sounds like a developer's get out clause.

[2] What is the effect of loads of solar panels ref ???.

Section 3. **Renewable Energy/Low Carbon Policy**

9. The Renewable Energy/Low Carbon Policy describes the use of heat networks, and suggests a distance of 1km. Distribution losses over 1km will be considerable and may well be higher than theoretical values[3]. What evidence is there that 1km is efficient? There is also a concern that connection to a heat network only means that consumers do not have a choice of supplier.

10. "*The scale of resource available for solar energy in the local area is significant and largely untapped. Due to the constrained nature of the on-shore wind resource, large-scale solar photovoltaic (PV) arrays are likely to provide the best value for money in terms of the carbon saved for the investment required and would provide significant local economic advantages. The draft Local Plan Review allocations could include land for solar PV / thermal arrays within and adjoining larger mixed use, housing and employment sites.*"

    Solar on its own isn't enough. The reason on-shore wind resource is constrained is landscape considerations, including a report done some time ago on the landscape impact of wind turbines. Some visualisation of turbines in the landscape should be undertaken, to see if turbines at sites with appropriate wind are acceptable.

    PV should be accompanied with some kind of longer term storage, such as electrolysis to produce hydrogen which is stored in compressed form and then fed through a fuel cell to generate electricity when required.

11. "*Smart Energy Networks (including energy storage and management infrastructure) are key to enabling local/decentralised smart energy networks and the proliferation of electric vehicles (EVs), enabling the grid to flexibly and efficiently function. On this basis, we suggest such developments should be considered as low carbon/renewable energy development for the purposes of draft policy XX. Such infrastructure should be located to maximise co-location opportunities e.g. providing grid balancing to renewable generation or EV charging opportunities*."

    These developments must not include things like diesel generators and gas fired power stations under the guise of providing flexibility services.

    Estates should be connected as electrical microgrids to provide local balancing. Similar in concept to heat distribution networks.

Section 4. **Energy Storage**

12. "*Storage encompasses a wide range of technologies, lithium-ion batteries and pumped hydro-electric are the dominant technology types for storage schemes at present. Favoured locations has tended to be close to a suitable sub-station in order to provide grid services which can be brownfield or greenfield sites. In addition, storage co-located with renewables is an emerging business model that may see more uptake in the near future and is recognised in Policy X of the Local Plan Review*."

    li-ion batteries co-located with renewables can provide a short term buffer. Other emerging technologies are needed to provide longer term storage. Whilst these may be clean in GHG terms there could be other considerations such as noise levels that need to be considered in siting these.

[3] https://www.bre.co.uk/filelibrary/SAP/2016/CONSP-04---Distribution-loss-factors-for-heat-networks---V1_0.pdf

Section 5. **Electric car charging points**

13. "*Where residential development only provides parking on highways, a plan will be required, setting out how sufficient charging infrastructure is to be provided and maintained;*"

    What standards are there about number of vehicles per dwelling. A realistic limit for the number of vehicles needs to be set.

14. "*Non-residential developments with 10 or more off-highway vehicle parking spaces will include at least 30% with electric vehicle charging points or a proportion equal to electric vehicle market share (whichever is higher at time of reserved matters application);*"

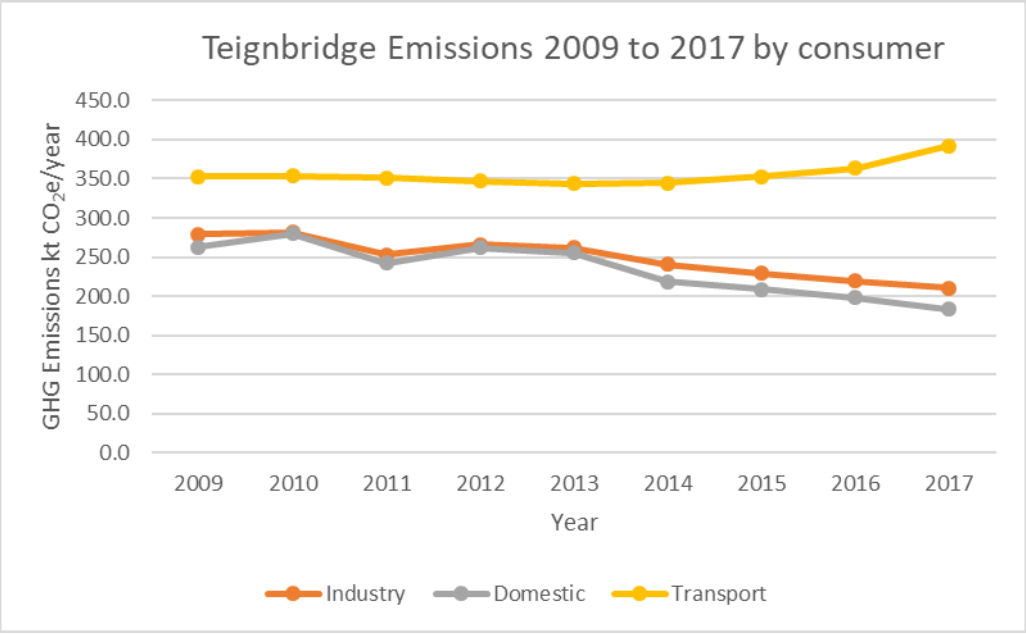
    Charging point provision needs to lead market share, so that the proportion should always be market share + (say)10%. When market share approaches 30% the policy needs to be reviewed.

    Market share needs to be defined is it:

    - % of new vehicle registrations from SMMT
    - % of all vehicles licensed to be on the road from DVLC

Section 6. **Other observations**

The policies do not address issues related to where buildings are built. The local plan 2013-33 covered housing allocation. Transport emissions represent 50% of Teignbridge emissions. Unlike domestic and industrial emissions, transport emissions are still rising.



Though EVs will play a part in reducing transport emissions, 100% EVs and the current level of private car travel is not deliverable because of network constraints. This means that the need for private car travel is addressed. The previous policy aspires to do this, but has not had the desired effect. In reality Exeter is a centre to which many residents commute, so one way of reducing car commuting in the district would be to build more of the required housing allocation near to Exeter, as opposed to in the Heart of Teignbridge.

The ACT transport group has considered transport related policies, which will be submitted in a separate document.