



Department
of Energy &
Climate Change

The Rt Hon Gregory Barker MP
Minister of State

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Dear Andrew,

Thank you for your letter dated 30 January, enclosing correspondence from your constituent, REDACTED, suggesting that a research facility called HAARP and the construction of large wind farms might be altering the world's weather. I apologise for the delay in replying.

Leaving aside the question of a 'recent shift in climate' we can say definitely that HAARP and wind farms have nothing to do with effects on the weather. Below is a comment on HAARP from my Department's scientific experts.

The HAARP installation in Alaska was established to conduct scientific research into the Earth's ionosphere. It cannot affect the weather because transmitted energy in the frequency ranges that is used by HAARP is not absorbed in either the troposphere or the stratosphere - the two levels of the atmosphere that produce the Earth's weather. Electromagnetic interactions only occur in the near-vacuum of the rarefied region above about 70 km, which is the ionosphere.

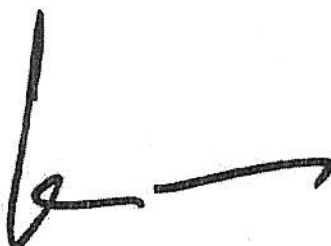
The ionosphere is created and continuously replenished as the sun's radiation interacts with the highest levels of the Earth's atmosphere. The downward coupling from the ionosphere to the stratosphere/troposphere system is extremely weak, and no association between natural variability in the ionosphere and surface weather has ever been found, even at the extraordinarily high levels of ionospheric turbulence that the Sun can produce during a geomagnetic storm. If the ionospheric storms caused by the Sun itself do not affect the surface weather, there is no chance that HAARP, with its relatively miniscule influence on the ionosphere compared to the Sun's influence, can do so either.

Regarding the influence of wind farms on the weather, I understand that so far the only confirmed meteorological effect of these installations is a localized night-time increase in temperature at some of the very large wind farms in Texas, USA. However, climate model simulations¹ suggest that if global wind power use is scaled up several orders of magnitude above today's level of usage the global climate system could be affected, though the impacts would be far less severe than the projected impacts of unrestrained use of fossil fuels.

Shale gas is still at a very early stage here in the UK. However, we need to move forward to enable the necessary exploration and prove the potential, while ensuring that the activity is safe and the environment is properly protected.

The UK has a long history of onshore oil and gas exploitation, and has developed a robust regulatory system to ensure that all such operations will be carried out to high standards of safety and environmental protection. All onshore oil and gas projects, including shale gas, are subject to scrutiny through the planning system, which addresses impacts on local residents such as traffic movements, noise, working hours, etc. They will subsequently be scrutinised by the relevant environmental agency [in England, the Environment Agency, in Wales Natural Resources Wales (NRW) in Scotland (SEPA)] and by the Health and Safety Executive (HSE). Consent from DECC is also required before drilling or production activities can commence. We have also put in place appropriate control measures to address seismic risks.

Yours ever,

A handwritten signature in black ink, consisting of a stylized 'G' followed by a horizontal line that ends in a small arrowhead pointing to the right.

GREGORY BARKER

¹ David Keith, The influence of large scale wind power on global climate, <http://www.windaction.org/posts/12110-the-influence-of-large-scale-wind-power-on-global-climate>

