SUBMISSION FROM MIKE HASELER

I am making this submission on behalf of the Scottish Climate and Energy Forum -- a loose coalition of those interested to promoting science based policy on energy and the climate.

To make it clear. No money has been received by us from BIG-OIL. Indeed everything we do is entirely voluntary and we therefore apologise that we are not able to spend the time to provide all the backup material to support our submission, but we can say without a shadow of doubt that the following is as honest a contribution as you will receive and as well-researched as we are able, given the total lack of any support from government to support those who wish to balance debate of global warming alarmists with real science.

Unless we are mistaken the aim of the Scottish Government is to prevent action that would affect the sustainability of Scotland. In other words not to be detrimental to the economic, social or environment of Scotland.

It is widely accepted that proven science suggests that global temperatures will increase by around 1C for a doubling of CO2. This figure is then inflated using unproven, highly speculative and very controversial assertions to up to 6C.

**The Evidence of warming**

The evidence from global temperature monitoring shows that recorded temperatures increased by around 0.7C over the twentieth century. However other research shows that local temperature is strongly influenced by the type and extent of vegetative cover so that areas where e.g. woodland/hedges have been removed and fields ploughed or turned to concrete or tarmac would expect to be higher. There is absolutely no doubt that humans as a species have changed the landscape around many urban centres over the last one hundred years, leading to noticeably higher temperatures in cities and urban areas and e.g. earlier spring flowers. It is literally impossible (with our current level of knowledge) to quantify how much of the 20th century temperature rise was due to factors such changes in farming, increased urbanisation and natural factors such as solar activity (sunspots), however the scale and rate of change is not inconsistent with the expected 1C rise for a doubling of CO2 which is the typical change expected by the end of the century.

**How does this compare with historic events?**

In the 1690s, there was a period of extended cold weather which has been estimated at around 2C due to the reports of year round snow cover on the hills. Whilst not all countries suffered, there are accounts of extreme climate during this period in countries as far apart as Norway and Mexico. In Scotland it is widely recorded that there were extensive famines in multiple years. Estimates of the numbers dying range from 10% to 30%+. The 1690s were in a period of low sun activity named the Maunder minimum.
Historically, solar activity and global temperature are linked (however from 1980 we see a discrepancy between estimated global temperature records and between these records and natural temperature proxies such as sunspots and global rainfall). Recent investigations of solar activity suggest we may be about to enter a new Maunder-type minimum. Natural variation always has been, and always will be a threat to us, only ameliorated by our modern technology.

So, even if we ascribe the entire 20th century warming (0.7C) to human warming, the figure is lower than natural variation, particularly regional climatic variation as was seen in the 1690s.

**The Climate has not warmed as predicted showing that human warming is much lower than predicted**

In 2001 the IPCC felt confident enough with its climate modelling to predict the climate would warm between 0.14 and 0.58C per decade over the next century. In contrast, the actual temperature has not warmed at all over this period. Given a medium estimate of 0.3C/decade, if this were a valid prediction, the scale of natural variation present must have been at least -0.3C/decade cooling to offset the predicted +0.3C warming.

The average warming over the 20th century was 0.07C/decade. The maximum warming was around 0.2C/decade. The scale of natural variation is around 0.3C/decade, which as the period of the little ice age that extended over a century shows, can lead to long term warming and cooling.

**IT IS THEREFORE HIGHLY LIKELY THAT THE MAJORITY OF ANY TREND SEEN IN THE LATTER 20TH CENTURY THAT LED TO THE GLOBAL WARMING SCARE WAS NATURAL VARIATION AND NOT HUMAN.** This supports our view that the actual scale of warming is likely to be much closer to 1C that the hypothetical and unproven estimate of many climate modellers who could not e.g. predict the climate one decade ahead, let alone one century.

**There is no indication of problems due to the 20th century warming**

In order to justify action over warming, it is necessary to show clear evidence of harm. Whilst many have highlighted all kinds of weather events: droughts, floods, less snow, more snow, heat and even cooler summers as "yet more evidence the climate is changing". The actual science shows that there is no** increase in extreme weather events worldwide ... only an increase in reporting due to modern 24/7 media. (** hurricanes have increased, but this is linked to El Nino)

The main areas where we do see changes are as follows:

- Arctic ice has decreased. However, much of the reporting of this is highly "economical with the truth" and fails to use the longer ice records from Russia which show that similar shrinkage occurred in the 20th century, although we are
still at an all-time low, but that is what we would expect after a period of (naturally?) increasing temperatures.

- Sea levels are rising. But the rate has not accelerated over the last century which is what we would expect if there were a problem. This seems to indicate that we are in a long term "melt" after the little ice-age rather than any modern phenomena.
- Sahara is shrinking. For reasons which should be obvious, as it does not fit the warming narrative, the long term trend of a shrinking Sahara is not often reported. This could be indicative of changing circulatory patterns either due to natural variation or even a peculiar effect of humans either through CO2 or otherwise.

However, none of the above can be conclusively linked to human activity. At best, they are what we would expect from a rising global temperature and they do not help us at all in answering the question as to how much is natural and how much is man-made. More importantly, even with reducing Arctic Ice, we do not know whether this will be beneficial or harmful. We do know that the Norse inhabited Greenland in the medieval warm period. We do know that polar bears rely on sea ice, but we also know that many populations are increasing. We also know that reduced summer sea ice would open up sea lanes.

**Cold and fuel poverty are the major killers in Scotland**

Even today, cold is a major killer in the UK, with age concern estimating around 23,000 additional deaths each year due to the cold ... largely amongst the old and poor who are least able to afford adequate heating. At that rate, the total UK additional winter death rate would account for 2.3million deaths. In contrast, figures for increased deaths due to summer heat are not routinely available for the UK because death rates are usually lower in the summer due to the warmth. However, in the warmest year on record, there were figures of several thousands deaths due to the cold. In other words, the death rate due to summer heat is around 10x lower than that due to winter cold for the UK in general, and this figure is likely to be much higher in Scotland due to our colder winters and cooler summers.

**Even if the policy were targeting real climate change, Wind energy is the least acceptable means to reduce CO2.**

As the figures on winter deaths show, increasing fuel prices will disadvantage the poor and elderly leading to a literal holocaust of deaths over the next century. According to estimates, wind energy is economic suicide for Scotland, leading to far more jobs being lost than created, largely because it has always been known that the main benefit goes to the manufacturers, of which there are none in Scotland. Socially this policy is highly divisive, taking from the poor & elderly and giving to the rich landowners. It does not create jobs, it does not benefit the economy, and it destroys environmentally sensitive areas which attract tourism.
To be blunt wind is the worst possible way for Scotland to try to reduce fossil fuel use. The best possible ways would be a combination of:

- Better insulation to reduce heating costs.
- Smaller and more dense housing which inherently have lower heating per individual
- Increased activity, through cycling & walking, because activity "heats from the inside" allowing lower living temperatures
- Improved planning, discouraging out-of-town shopping and work places and encouraging closer-to-home units. E.g. in Lenzie where the author lives, for a population of 10,000 there is not a single workplace unit to rent, there are next to no shops or facilities that can be easily reached by walking and therefore car use is endemic.

**Would the target be achievable?**

Absolutely no. The target is ridiculous in the extreme. It is well known that wind energy requires massive storage and back-up generation in order to provide a stable electricity grid and avoid the frequent blackouts seen in some third world countries. The target as envisaged would give us this third world electricity supply, and would require that most home owners make provision through portable generators to ensure that they have basic lighting and e.g. power to prevent frozen goods perishing.

The only viable back-up scheme available to us is either fossil-fuel stations (either in Scotland or abroad) which completely negate the objective and make the targets nothing more than political spin, or some form of pumped storage. Hydrogen is a complete non-starter and appears only to be being considered because of the huge research grants available rather than because of any realistic engineering utility.

In order to achieve a target, the scale of backup required is so large and the number of pump storage sites so immense, that it is impossible to estimate the number from present sites as there are so few goods sites equivalent to the present pump storage. My own estimate (based on present schemes) suggested of the order of 100 pump storage schemes. This is totally impractical as there are nowhere near this number of sites. It is therefore likely that we will have to build entirely new types of pump storage schemes. The scale would be immense ... equivalent to damming Glen Nevis with an 800m high dam several kilometres wide. On the positive side, this would undoubtedly create jobs in construction, but like wind it would harm tourism (even if the site itself was an attraction) and the sheer scale would require immense public cost and huge amounts of energy in its construction.

Realistically a full analysis of the pump-storage potential would be required before answering whether the target is achievable, so it is not possible to say that it could not be done, however it is possible to say that anyone who embarks on this enterprise without securing suitable backup would be criminally negligent as such a reckless policy
would undoubtedly lead to huge economic problems and large scale loss of life through the frequent power cuts.

**Summary**

Real science suggests a scale of warming that is not unprecedented and well within natural variation. So far there have been no indications that the little warming we have had, has had any adverse effects on weather extremes. Winter deaths will cause a holocaust of early deaths over the next century. Summer deaths due to heat are so low that these are not normally reported and even at their worst, much lower than winter deaths. Wind energy is the worst possible way to reduce fossil fuel use in a country with a large scenery based tourist industry, with many sensitive environmental areas, and where wind energy costs jobs rather than creating them.

If we wished to reduce fossil fuel use, it is ridiculous not to tackle the obvious areas such as insulating homes, and better planning to encourage healthier transport methods.

If, however, we wished to pursue this crazy policy, then it would be criminally negligent not to provide sufficient backup to ensure life-critical & economically critical electricity supplies are maintained. The only viable current technology we see is pump storage, back-up fossil fuel (or nuclear). The scale of pump storage is so huge that it is beyond our ability to predict the required scale needed to supply sufficient backup. However to proceed with this policy without provision such as pump-storage would be criminally negligent.

Environmentally, this policy is a disaster destroying many key landscapes when the scale of the 1C rise is so small it is not evident even after a century of supposed warming. Economically this policy is a disaster as no company would wish to live in a country with third-world power and first-world living costs, let alone in a country with much higher living costs in order to pay for foreign companies to destroy our landscape. Socially this policy is a disaster because it will add to the human holocaust of winter deaths which even at present would see 2.3million winter deaths in the UK.

Mike Haseler
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