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Introduction

Scottish Conservatives have conducted this Energy Policy Review against a backdrop of unacceptable fuel poverty levels and arbitrary targets being pursued at all cost. Our policy document is based on three key principles: security of supply, affordability and decarbonisation. We want to focus on keeping energy bills down through both supply and demand; we want to lower our dependency on imports and invest in a stable energy supply; we want to steadily decarbonise energy generation and transport.

Scotland’s energy policies operate within a framework of targets set on European, UK and Scottish levels. These targets are set with the aim of substantially reducing levels of greenhouse gas (GHG) emissions that have an impact on climate change.

Scottish Conservatives believe it is right to aim for a reduction of GHG levels, but it is crucial policy makers are honest about the implications of specific renewable energy policies. It is not fair that consumers are asked to foot the bill of increasing subsidies; it is not right to change significantly Scottish landscapes that have been our pride for centuries; it is wrong that sensible local opposition is regularly overridden to fall in line with central government priorities.

There is no doubt we have to cut back on our use of fossil fuels and especially our reliance on coal-fired power stations as we move towards a more mixed energy industry. This has to be done in a balanced way to ensure we have enough energy capacity in place, whether through renewables or nuclear, before we move away from traditional energy sources.

We need to be very clear - our energy generation needs to become cleaner and more efficient. However, to argue that thousands of wind farms are the primary - and sometimes only - alternative is misleading. We believe the SNP government’s over-reliance on wind is misguided, costly and can be damaging to the environment and to human and animal health.

Scottish Conservatives will continue to argue for a mixed energy strategy. Fewer onshore wind farms, continued support for alternative renewables, increasing unconventional gas exploration and investment in next generation nuclear power. This has to go hand in hand with legislative changes that shift the focus from central government policy back to local communities.

“We believe the SNP government’s over-reliance on wind is misguided, costly and can be damaging to the environment and to human and animal health.”
Key principles

1. Security of supply
It is crucial that our energy policy provides a framework for a secure and stable supply of energy, more so in light of the projected population increase\(^1\). We need to lower our dependency on imports, which have increased significantly recently\(^2\). Unconventional gas estimates in the UK suggest we could cover decades of our domestic needs.

Wind power is an intermittent energy source that has to be backed up by a proportion of conventional power, be it new nuclear or gas-fired power stations. Ofgem recently reported a significant increase in the probability of blackouts by 2015 due to a decline in conventional generation\(^3\). While models for calculating wind energy intermittency have improved significantly, it is accepted that conventional backup and improved electricity storage will have to be invested in proportionally to the expansion of wind power.

2. Affordability
Scottish Conservatives will argue for an affordable energy policy. The costs associated with renewable energy policies are borne solely by consumers, but these are not limited to monetary terms. If the spread of wind farms across rural Scotland causes a drop in tourism (as now acknowledged by VisitScotland)\(^4\) it could have a significant monetary impact on communities. The visual impact on our landscape, however, is immeasurable.

We need to focus on keeping energy bills down through both supply and demand. Energy efficiency can not be just an afterthought – it has to be focused on actively.

3. Decarbonisation
It is vitally important that we move towards an energy future which is less dependent on conventional coal and gas. It should be our ambition to decrease our use of fossil fuels in the long run – be it for energy generation or transport. Current renewable energy technology has to be a part of this mix, but not at any cost.

We already know that there are modern technologies across the world that have the potential to be ‘game-changing’ – hydrogen, thorium, geothermal technologies. These do need time to be developed further, but we need to give them appropriate support. If we continue with the present renewable strategy, we will have inflicted irreversible damage on our countryside through expensive policies into which we have unnecessarily rushed.

“We need to focus on keeping energy bills down.”
Statistical background

Renewable Energy Targets

Britain’s energy policies operate within targets set by the Climate Change Act (2008) and the EU’s Renewables Directive (2009). Under the Climate Change Act Greenhouse Gas (GHG) emissions are to be cut by 34% by 2020 and by 80% by 2050 compared with the 1990 level. Under the Renewables Directive, Britain is committed to sourcing 15% of the total energy consumed by end users, such as households and businesses, from renewables by 2020.

The Scottish Government aims to have renewable energy meet 100% of Scotland’s electricity needs, as well as 11% of heat, by 2020. These are among the most ambitious renewable energy targets in the world. In October 2012 an interim electricity target of 50% by 2015 was set. The total energy consumption target is set at 20% - above the UK level, with emissions to be cut by 42% as well.

It has to be pointed out that energy for heat accounts for approximately 50% of all of Scotland’s energy needs. In 2011, around 0.484GW of renewable heat capacity was operational in Scotland, producing an estimated 2,263GWh of useful renewable heat. This equates to 3.8% of Scotland’s total forecast non-electrical heat demand in 2020 and the Scottish Government is on track to reach its 11% 2020 target.

Furthermore, heat accounts for approximately 47% of all CO2 emissions in Scotland. This underlines the importance of focusing on energy efficiency measures that lower demand.

The Scottish Government’s energy target is fundamentally underpinned by renewable electricity and especially wind farms, but we need just as much effort to promote renewable heat schemes - especially micro-renewable schemes for households off the gas grid - energy efficiency measures and cleaner transport.

The 100% renewable electricity target is arbitrary and unnecessary, especially in light of statistics that show at present we are already set to source 66.9% of our electricity needs from renewable sources over the coming years – based on projects consented and under construction.

Number of Wind Turbines

Most recent figures suggest there are 4,366 operational wind turbines across the UK, with a total operational capacity of 8,357 MW. The latest Scottish current installed capacity is at 3,811 MW and Renewable UK figures show there are 1,966 operational turbines across Scotland.

If all the wind farms that are under construction (439) or consented (890) are eventually built, we will see another 1,329 wind turbines erected across Scotland. It follows that over the
next few years we will have around 3,295 turbines in Scotland alone.

However, there is also a vast array of wind farm applications in planning stages at the moment. If all the planned projects get planning consent, we could see another 1,873 turbines erected. The combined total could reach 5,168 turbines across Scotland.

**2020 Scottish Government Electricity Target**

Combining wind power figures with other renewable power and using load factor estimates - which account for actual as opposed to maximum output - we can get a clearer picture of the delivery of the 2020 100% electricity target.

2011 figures suggest that Scotland already produced 35% of its electricity needs from renewable sources. However, if we add all developments that are in construction or have been given consent, combined with the latest quarterly electricity output figures, we reach 66.9%, providing our electricity consumption stays roughly the same. This is already a significant proportion, especially in light of the fact that the previous target was 50%, subsequently increased to 80%.

Furthermore, if we add all those that are in planning stages we reach a staggering 134%. Not all of these will be given planning permission, but it does put into perspective the amount of projects applied for. If we take an indicative 70% consent rate (2010/11 Scotland wind power levels), we would still hit 114%.

**Subsidy Levels**

The subsidy regime, primarily driven by the Renewables Obligation (RO) mechanism and the Feed-in Tariff (FiT) scheme, is mostly reserved to Westminster. Holyrood does, however, have the power to set the banding levels of the Renewables Obligation Certificates (ROCs) and influence the monetary support given to specific renewable industries.

The RO requires all licensed UK electricity companies to source a specific proportion of electricity they supply to customers from renewable sources. Ofgem issues ROCs to electricity generators according to the amount of renewable electricity they produce. Generators then sell their ROCs to suppliers as and when their electricity is purchased. This allows the generator to receive a premium in addition to the wholesale electricity price.

Decisions regarding the details of the Obligations, including the setting of RO banding levels, in Scotland are for the Scottish Government. This means that the Scottish Government has the power to determine the number of ROCs different renewable technologies can be awarded. This is calculated based on the costs of producing and transmitting power from those sources.

ROCs currently cost around £2 billion per year across the UK, but that is set to increase with

“We are already set to source 66.9% of our electricity needs from renewable sources over the coming years.”
more planning consent granted. The total projected cumulative cost of renewable energy subsidies is estimated to reach £100 billion by 2030\(^20\).

Using a formula based on wind turbine capacity, load factor and ROC market price, we can calculate that an average small wind farm is getting £1.9 million in subsidy alone every year\(^21\). This is on top of the income from electricity sales.

If we apply the calculation to the wind farms that are already built in Scotland, we get a total £350 million onshore subsidy and £47.6 million offshore subsidy per year. If we add those that have been consented, we get another £385 million onshore and £1.5 million offshore, assuming they sign contracts under the present subsidy regime. This gives us a total of £735 million onshore and £49.1 million offshore subsidies every year.

Adding those that are in planning, we get a potential £419 million onshore and £1,002 million offshore in subsidy, which could mean a total of £2.2 billion in subsidy per year for wind farms only. The Scottish Government has intimated that it intends to lower the ROC level from April 2013, but this would result in only a small decrease in total subsidy.

**Impact on Household Bills and Fuel Poverty**

The proportion of households in fuel poverty (defined as spending more than 10% of household income on fuel) is significantly higher in Scotland compared to the UK average. The latest Scottish House Condition Survey estimated 684,000 households to be in fuel poverty (29%) in 2011, although charity Energy Action Scotland estimated this to be closer to 900,000 (38%)\(^22\). This compares to a UK average of 18.6% in 2010\(^23\). International research put the EU average figure at 8%, with the UK at 15% in 2009\(^24\).

Fuel poverty levels in Scotland are unacceptable and policy makers must focus on bringing these down when devising energy policy. We need to focus on lowering both energy costs and energy demand.

The UK Government is using the Energy Bill to ensure people are moved onto the cheapest tariff their supplier offers that suits their preferences, which could mean a difference of up to £300 per year\(^25\). Installing a range of energy efficiency measures could save households hundreds of pounds, while replacing an old boiler could save up to £225\(^26\).

Growing wholesale gas prices have been the main factor affecting gas bills over the last few years. The shale gas revolution in the USA has had a very clear effect on prices and bills over the last decade and exploitation of shale gas reserves in the UK offers the opportunity to have a beneficial impact on bills here. Wholesale gas prices have dropped by 50%, with some household bills falling by 19% - all alongside carbon emissions falling by 450 million tonnes\(^27\). A recent report by the UK Committee for Climate Change has widely been cited in

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\["In the USA wholesale gas prices have dropped by 50% with some household bills falling by 19% - all alongside carbon emissions falling by 450 million tonnes."\]
support of renewable energy – with headlines claiming bills will rise by £100 with further investment in renewables, but by £600 with a new ‘dash for gas’\textsuperscript{28}. What most reports forgot to acknowledge was that the £100 pound figure referred to 2020 and the £600 figure to 2050. Furthermore these were based on the ‘worst case scenario’ of skyrocketing wholesale gas prices. Using different numbers in the report we find that electricity costs could go up 68\% when relying on gas, but 110\% relying on renewables by 2050\textsuperscript{29}.

“The proportion of households in fuel poverty is significantly higher in Scotland compared to the UK average.”
Policy recommendations

1. **Councils to be free to impose a moratorium on large wind farm developments**

Councils in Moray, Fife and Aberdeenshire have all asked the Scottish Government to legislate to allow a moratorium on wind farm developments. We believe the Scottish Government should amend planning legislation immediately and allow those Councils that are struggling to suspend all new planning applications on wind farm developments above an installed capacity of 5MW for up to one year.

It has to be pointed out that there is a difference between a moratorium on new applications and a moratorium on pending planning application decisions. Scottish Parliament Information Centre (SPICe) informed us that retroactive legislation is extremely rare and would no doubt invite a legal challenge. Extending the determination period for current projects, or suspension of determination altogether, may therefore be deemed illegal.

During the moratorium period we propose several other changes to the planning system, a thorough zoning exercise and a 50% subsidy cut for onshore wind farm developments.

2. **Thorough zoning onshore and offshore**

Renewable energy projects must be appropriately sited. Some Councils produce spatial guidance that is consulted by planning departments, but the Scottish Government itself admitted it was “incomplete, inconsistent, out of date or unadopted.”

Scottish Conservatives believe that given the scale of the renewable energy boom over the last few months and years it is pivotal that a thorough zoning exercise is conducted by the central and local authorities. This exercise would involve local public consultations as well as analyses of tangible (environmental, property value) and intangible (visual) impacts of renewable projects.

It is especially important that independent environmental analysis is undertaken to assess the impact on Scotland’s peat bogs as well as so-called “blue carbon” (coastal vegetation) storage offshore – both of which have been significantly neglected thus far.

Both the National Planning Framework and Scottish Planning Policy are currently being reviewed, with the resulting documents to be published throughout 2013. The Scottish Zoning Plan would be incorporated into this planning framework and complement local and strategic development plans produced by each Local Authority. The Zoning Plan would clearly identify areas where wind farms or other renewable projects can never be considered as well as areas where they may be suitable, subject to planning procedures.

Such an exercise is not unusual. The German federal government conducted a big zoning exercise for its offshore wind developments, incorporating environmental impact studies.

“It is pivotal that a thorough zoning exercise is conducted by the central and local authorities.”
that assessed the effects on the marine environment. The ‘Raumordnungsplan’ makes it clear, however, that each individual application still has to be decided on a case by case basis.

3. Cut onshore wind power subsidy by 50% to 0.5 ROCs

The figures referred to in the Statistical Background section show the extent of the Renewable Obligation subsidy regime. The regime has undergone several changes since its inception, both on a Holyrood and Westminster level, with the latest banding review results announced in 2012.

Both Governments announced that they intend to cut the subsidy levels for onshore wind farms by 10% to 0.9 ROCs from April 2013. A thorough review of onshore wind energy subsidies as well as community benefits was announced and is due to report this year.

Scottish Conservatives believe that the subsidies for onshore wind farms do not accurately reflect their economic viability and will argue for a cut in subsidy by 50% to 0.5 ROCs from April 2013, with a view of phasing them out over following years.

4. Continued support for CCS, wave, tidal and small hydro schemes

Scottish Conservatives have traditionally supported “sunrise” technologies like wave and tidal and believe that, provided these are appropriately sited within the zoning limits, they should play an increasing role in our energy mix. The high level of support (5 ROCs) is therefore appropriate, incentivising private investment into further research and development.

The Scottish Government originally proposed to cut support for hydro schemes by 50%, which we do not support. Scotland has significant hydro power potential that is being overridden by a focus on wind energy. We are pleased to see support for conventional hydro schemes remain at 1 ROCs.

A report to the Scottish Government, published in January 2010, showed a substantial range of viable small hydro schemes which can be developed with a combined potential capacity of 1,204 MW. The majority of these do not qualify for RO support, but are included in the FiT scheme. The highest FiT band (2MW-5MW) is kept low so as not to offer incentives to switch from ROCs to FiTs and lower the scale of a project on purpose. We urge the Scottish Government to work harder, in collaboration with the Forestry Commission, to increase material and non-financial support for these projects to be deployed.

In October 2012 the DECC announced a shortlist for the UK government’s £1bn Carbon Capture Scheme Competition. Two of the four shortlisted projects are based in Scotland – one in Grangemouth and one in Peterhead. It is right that the UK Government has shown its support to CCS technology and short-listing two Scottish projects shows the great potential Scotland has in developing this revolutionary technology.

Scottish Conservatives believe that the subsidies for onshore wind farms do not accurately reflect their economic viability and will argue for a cut in subsidy by 50%.
5. Lowering demand
Carbon reduction on the supply side can only ever be one side of the equation. We need to focus on reducing domestic and commercial energy demand as well. There is a plethora of legislation and projects in place on both UK and Scottish Government level, but we need to go even further.

The first Session 4 report of the Economy, Energy and Tourism Committee on fuel poverty clearly identified customer confusion and lack of information as contributing factors to a lack of uptake of certain energy efficiency schemes. It recommended a one-stop shop approach, with a hotline for consumers and clear guidelines for Local Authorities. The lack of progress by the Scottish Government is evident. Energy Saving Scotland Advice Centres are neither well known nor publicised, with the Winter 2012 advertising campaign being barely noticeable.

Scottish Conservatives believe that we should focus on retrofit, as opposed to even stricter rules on new builds – there is evidence that those are already suffering from excessive regulation. Furthermore, we believe planning restrictions in historic buildings should be reviewed.

Far too many buildings across Scotland still only have single-glazed windows, when double-glazing alone can reduce domestic heating bills by up to £165 a year. Fitting draught-proofing to the doors and windows will save the typical household around £30 a year. Loft insulation could save up to £175 and cavity wall insulation could save up to £135 a year. Insulating solid walls, while more expensive, can save up to £475 a year and floor insulation can save up to £60 a year. Insulating tanks, pipes and radiators can save up to £55 a year. Another up to £225 would be could be saved by replacing a boiler.

We have previously highlighted the lack of take-up of the Green Council Tax discount, which offers council tax rebates to homes that have installed insulation. The scheme, suggested by the Scottish Conservatives as part of the Climate Change Bill, needs to be better promoted to ensure it is delivered on the ground and not just on paper.

We believe we should aim to reduce car use - not through punitive measures (e.g. congestion charges), but rather by incentivising active travel. Funding should be made available for the development of better cycling routes and schemes across Local Authorities.

We also fully support the scheme which will provide a fleet of hydrogen fuel cell buses in Aberdeen City, which includes the setting up of a hydrogen fuelling infrastructure as well. This is only the second scheme of its kind in the UK and we need to make funding available for future expansion.

Hydro fuel cells are widespread in Germany, which launched a hydrogen fuel strategy in 2009, with the aim of developing the largest hydrogen fuel installation network by 2015, with 50 stations nation-wide. They are on target...
for every location in Germany to be accessible by fuel-cell cars by 201542.

6. Unconventional gas exploration and exploitation
Scotland and the United Kingdom have benefitted from the vast oil & gas reserves in the North Sea for decades. Oil & gas supplies around 60% of UK’s energy needs and raised tax revenue reached £8.786 billion in 2010/1143. The Scottish Government’s hypocrisy is evident when they criticise the UK taxation regime whilst basing their economic arguments for separation on the revenue raised by it.

There are significant reserves yet to be extracted from the North Sea. It is, however, far from being a sunrise industry. The volatility of oil & gas prices makes predicting future revenue difficult, but the independent Office of Budget Responsibility slashed its 30-year forecast in June 2012 by 50%44. In stark contrast, the Scottish Government increased its estimated value of remaining oil & gas from £1 trillion to £1.5 trillion, a 50% increase, even though the price of oil fell in the same period45. While North Sea capital investment increased recently, the oil exploration success rate hit at an all-time low46.

North Sea decommissioning will require significant capital investment, estimated at up to £35 billion in the run up to 204047. This process provides ample opportunities to create thousands of jobs in Scotland as well as improve skills through further education and apprenticeship schemes.

We will work with HM Government to keep in place a taxation and regulatory regime that is favourable to Scotland’s North Sea oil & gas industry. At the same time we need to acknowledge that oil & gas reserves are not finite and that unconventional gas reserves, onshore and offshore, should be allowed to flourish as a ‘bridging’ resource.

Even though oil & gas is an industry that is reserved, Scottish Government and Local Authorities have a role to play. Developers need a drilling licence from the UK Government Department for Energy and Climate Change, but also planning permission from the Council and authorisation from the Scottish Environmental Protection Agency. Scottish Conservatives will fully support unconventional gas exploration and expansion in Scotland, but as with all new technologies we must be evidence-led in exploring the best and safest routes of development in this field.

We warmly welcome the Chancellor’s Autumn Statement decision to consult on tax incentives to the shale industry and will pressure the Scottish Government to look into ways of streamlining legislation similarly to the announced Office for Unconventional Gas. The new cross-departmental office will provide a single point of contact for investors and simplify the regulatory process. Clearer legislation for firms wishing to become involved in this industry is essential if we are to realise its true potential.

“Unconventional gas reserves, onshore and offshore, should be allowed to flourish as a ‘bridging’ resource.”
Unconventional gas largely means coal bed methane (CBM) and shale gas. Estimates show that there is great potential of unconventional gas in the UK, although these may be significantly underestimated due to a lack of on site exploration. There is a wide variety of techniques that are used to extract unconventional gas, with the most controversial one being hydraulic fracturing, also called ‘fracking’ – used for shale gas extraction.

Ten years ago the UK was a net exporter of gas, but today it has to import 10 billion cubic metres per year. DECC estimates that there is up to 2,900 billion cubic metres (bcm) of gas in CBM\textsuperscript{48}, which would be enough for 33 years of all UK gas needs\textsuperscript{49}.

Recoverable shale gas reserves have been estimated at between 150 - 560 bcm = equivalent of up to 5.6 years’ worth of consumption or 56 years’ worth of imports\textsuperscript{50}. This could equate to between £9 and £33.6 billion in tax receipts alone and would drive down domestic and industrial gas prices.

The fifth report of the House of Commons Energy and Climate Change Committee also concluded that offshore shale gas can potentially dwarf onshore gas. It is not economically viable at present, but the Committee recommended using tax breaks to incentivise the exploration. The Government argued there is little commercial interest, but we will lobby to explore the offshore tax break option as well.

The United States has seen its shale gas industry boom since 2000, to the extent that it now contributes a quarter of all US natural gas today (up from virtually zero in 2000)\textsuperscript{51}. The boom caused wholesale gas prices to plummet by more than 50%, with this reflected on household bills as well – a study in Ohio calculated a $214 (19%) saving per household and a $85,698 saving per industrial consumer. The total 2010 gas bill savings are estimated at $1.5 billion\textsuperscript{52}.

A gas-fired plant produces half the CO2 of a coal-fired plant. Burning shale gas in the US has also displaced significant amounts of coal burning and resulted in a fall in CO2 emissions by around 450 million tonnes in 5 years, whilst the overall global level of emissions was on the rise\textsuperscript{53}.

The criticism associated with unconventional gas extraction is almost exclusively aimed at fracking. However, not all unconventional gas extraction involves fracking. For example, Airth, near Falkirk, has significant reserves of methane trapped in underground coal seams, which would be extracted using a different technology.

Fracking is criticised on two fronts - it has been claimed that it can cause earth tremors and contaminate the aquifer. However, these claims have, in a number of cases, lacked any scientific evidence. Furthermore, similar risks are associated with conventional coal mining and oil & gas exploration, which is why it is important that these industries are appropriately regulated and controlled.

“A gas-fired plant produces half the CO2 of a coal-fired plant.”
A moratorium on fracking was imposed temporarily in 2011 after claims the process caused two tremors in Lancashire. These were minimal seismic activities that were perceptible by humans, but too weak to cause any structural damage. A comprehensive review has found that fracking was responsible for the tremors, and recommended more stringent procedures and monitoring in place of a blanket ban. Following the review, and the implementation of the recommendations, the DECC announced their decision to lift the fracking moratorium.

Contrary to misconceptions, water and sand comprise around 99% of the hydraulic fracturing fluid, with the remainder being a substance with a makeup similar to soap. Any water contamination risks are minimised by proper well integrity designs as well as stringent SEPA regulations.

7. Deliver replacement nuclear power stations

Just like any other type of technology, nuclear has developed rapidly over the last few years. Third and fourth generation nuclear power stations are more efficient and significantly safer than their predecessors. Scotland has relied on nuclear power for decades and it certainly does not suffer from earthquakes or tsunamis, which occurred near Fukushima, causing the damage to the facility there.

GE Hitachi has submitted proposals to the UK Government for its Prism power plant, which runs on nuclear waste. The waste it produces ceases to be radioactive after a few hundred years as opposed to the conventional tens of thousands for uranium. These are technological developments that make nuclear energy a significantly more attractive option.

The Scottish Government made it perfectly clear that it does not support nuclear power in any shape and form. Scotland’s two nuclear stations (Hunterston B and Torness) are both due to close in 2023, after Hunterston B had its life extended by 7 years in December 2012. New nuclear stations can take up to 10 years to build, with construction time alone around 5 years - the remainder is taken up by the planning and regulatory framework.

Nuclear power is effectively carbon free and can provide significant installed capacity at dramatically higher load factors. A nuclear power station can have an installed capacity of 3.2 GW and a load factor of around 90%. This is a potential output of 25,228 GWh every year. Just for comparison - we would need around 5,217 onshore wind turbines to produce that output. Furthermore, a nuclear station is operational for up to 60 years (extendable to over a 100), as opposed to the estimated 20 year life span for wind turbines.

Capital costs vary, with £7 billion cited in a report in May 2012. Investors need long term investment security, just as the renewable industry does. Scottish Conservatives believe that it is only right and proper that subsidies are offered beyond the renewable sector. We also believe HM Government should consider...
underwriting capital borrowing in light of its credit rating and we will lobby the DECC and HM Treasury on this matter.

8. Other reforms

a) Health impacts and loss of property value
Scottish planning guidance suggests a 2km separation distance for wind farm developments from residential areas, but this is routinely ignored. It is up to local planning departments to enforce the rule properly, but the **Scottish Government must ensure that visual health, as well as property value, impacts of wind farm developments are thoroughly explored and appropriate legislative steps are taken in line with findings.**

The Scottish Government argues it has “yet to receive any credible, peer reviewed evidence that wind turbines adversely impact health” even though clear evidence exists that industrial wind turbine developments “disturbed the sleep and caused daytime sleepiness and impaired mental health in residents living within 1.4 km.” The Scottish Government should commission its own independent study into health impacts in light of the number of industrial wind developments in the Scottish planning system.

Evidence is inconclusive on whether wind turbine developments depreciate property values. However, the Valuation Office Agency in England & Wales reached a landmark decision in July 2012 where they decided to change the council tax band of a property because of wind farm proximity (light flicker and noise being the main factors).  

Denmark operates a system of property value loss compensation for local residents who believe the value of their home has dropped because of wind turbine developments. The drop in value has to be estimated at over 1% and it does not apply to small turbines (under 25m tall) or offshore developments.

Denmark has set up a valuation authority, which will “consist of a chairman who satisfies the conditions to be appointed a judge, and an expert in assessing the value of real property”. These are appointed by the Minister for Climate Change.

The time limits for claims vary. In Denmark a public consultation is required for any developments that require an Environmental Impact Assessment and the deadline is four weeks after this meeting. This, however, can be extended under “special circumstances” to up to six weeks after the turbine was connected to the grid. It is reasonable to set a time limit before planning is submitted to allow developers to accurately assess all costs incurred.

The whole scheme is run by the Danish National Grid, but could easily be set up under Scottish legislation utilising our network of Scottish Assessors.

“The Scottish Government should commission its own independent study into health impacts of industrial wind developments.”
b) Reform non-domestic rate relief for renewable energy developers
Scotland operates a unique renewable energy relief scheme, under which renewable energy projects are entitled to a discount on their non-domestic rates. In 2011/12 the total support amounted to £4 million.65

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We believe that the subsidy regime already offers unprecedented benefits to renewable energy projects and would cap the maximum business rate relief. In very simple terms, and using Scottish Assessors Association guidelines, this would exclude wind farm projects of over approximately 22 turbines from any relief67.

c) Electricity storage
The loss of energy due to a lack of storage capacity has been previously identified as a significant issue by the Scottish Conservatives. Energy storage is especially important for intermittent technology like wind to balance out the grid.

Scottish Conservatives will fully support proposals for appropriately sited hydro electric developments. The most common storage facilities (pumped storage hydro electric) do not qualify for ROCs since they are not conventional hydro power stations. We will work with HM Government to explore how the energy storage industry can be supported further.

Conclusion
This Energy Policy Review document was commissioned by the Scottish Conservatives’ Policy Board and taken forward by Struan Stevenson MEP, Murdo Fraser MSP and Mary Scanlon MSP. It was constructed following rigorous analysis of current external data, coupled with a series of meetings and briefings involving a variety of agencies, interest groups and experts in the field.

The document will now be taken forward by the party and will inform energy policy decisions in the future.

“We believe that the subsidy regime already offers unprecedented benefits to renewable energy projects and would cap the maximum business rate relief.”
Footnotes

1 http://www.scotland.gov.uk/News/Releases/2011/10/26104901
   Electricity%20Capacity%20Assessment%202012.pdf
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16 http://www.scotland.gov.uk/News/Releases/2012/09/energystatistics27912
17 Please see attached Excel Spreadsheet for full figures
21 Applies to a 10-turbine, 20MW wind farm. ROC price assumed at £40 and load factor at 27.6%.
22 http://www.bbc.co.uk/news/uk-scotland-20717443
25 http://www.uswitch.com/gas-electricity/news/2012/10/10/300-difference-between-cheapest-and-most-expensive-energy-
   plans-as-winter-looms/
26 Please see Lowering Demand section for sources.
27 Please see Unconventional Gas section for sources.
28 http://www.guardian.co.uk/environment/2012/dec/13/gas-energy-bills-renewables
29 Figure 5.4 in http://hmccc.s3.amazonaws.com/ENERGYbill12/Energy_Bills_Exhibits_Final%20v2.xlsx
30 This is the same limit used to distinguish between eligibility for Feed-in Tariffs and ROs.
31 http://www.scotsman.com/the-scotsman/environment/scottish-wind-farms-
   snp-accused-of-caving-in-to-wind-moguls-1-2371458
32 http://www.bmvbs.de/SharedDocs/DE/Artikel/SW/raumordnungsplan-fuer-die-ausschliessliche-wirtschaftszone-awz-in-
   der-nordsee-und-in-der-ostsee.html
33 Cutting the yearly subsidy for an average small wind farm (10x2MW) by around £200,000.
34 Cutting the yearly subsidy for an average small wind farm (10x2MW) by around £1,000,000.
35 http://www.scotland.gov.uk/News/Releases/2010/01/21113034