

# GENESIS ENERGY

## Community owned renewable energy for the Tarbert and Skipness area

17<sup>th</sup> May 2012

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## GENESIS ENERGY

Genesis Energy are working to bring the financial benefits of renewable energy to the Tarbert and Skipness community and working in partnership with the Tarbert and Skipness Community Trust.

All welcome at public meeting to discuss our first project, the Whitehouse Burn turbine, and the community benefits of renewable energy.

**Further meetings to be held in the following weeks.**

**Meeting Thursday 17 May from 7.30pm at  
Templar Arts Centre, Harbour Street, Tarbert**

More information and regular updates can be found at  
[www.genesis-energy.co.uk](http://www.genesis-energy.co.uk) or from [jonathan.waxman@genesis-energy.co.uk](mailto:jonathan.waxman@genesis-energy.co.uk)

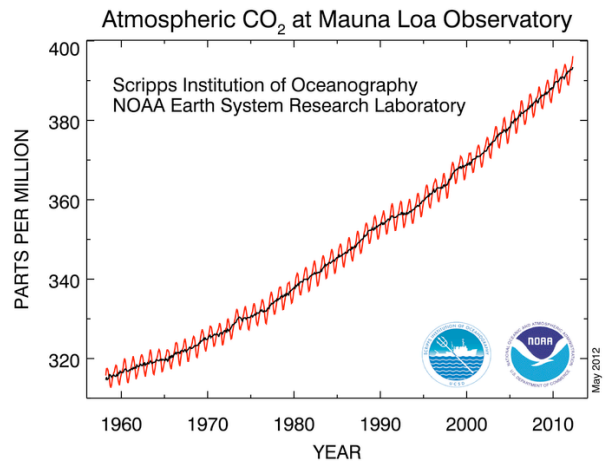
- Wind energy is clean, safe power for Kintyre and Scotland
- Enhances UK energy security
- Whitehouse Burn turbine could generate electricity to meet the needs of 450 households\*
- Community fund which would go direct to local projects
- Possibility of part-community ownership
- Working towards Scotland's renewable energy targets in order to tackle climate change

\* Based on the average Scottish annual electricity consumption of 5300 KWh per household

# Climate change

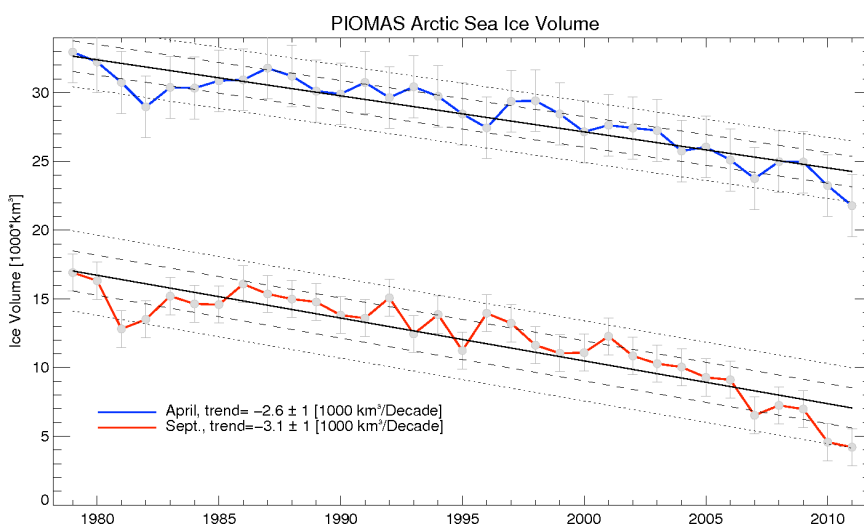
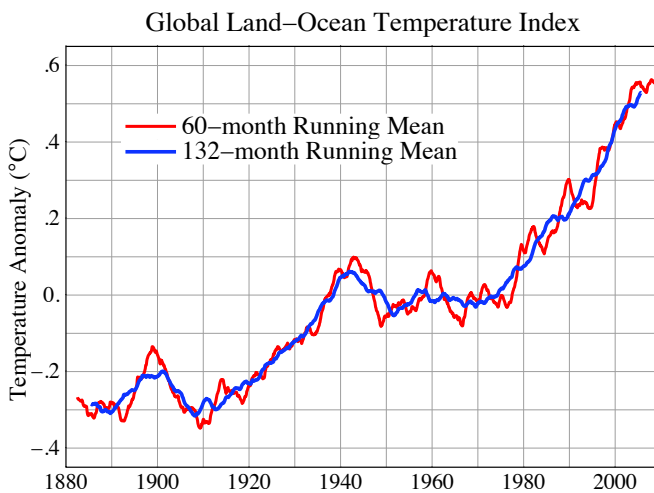
Climate change is widely regarded as one of the most serious challenges to human societies far into the future. It has not 'gone away'. Each of the last 11 years (2001–2011) features as one of the 12 warmest on record.

A vast array of paleoclimatic evidence from ice cores, diatoms, historical records, tree rings and many other sources shows that temperatures are higher now than over the last 2 million years.



Current levels of CO<sub>2</sub> (nearly 400 ppm) are well above the maximum recorded levels, and the highest for at least 2.1 million years.

Human emissions from burning fossil fuels and land clearance are the direct cause of this increase.

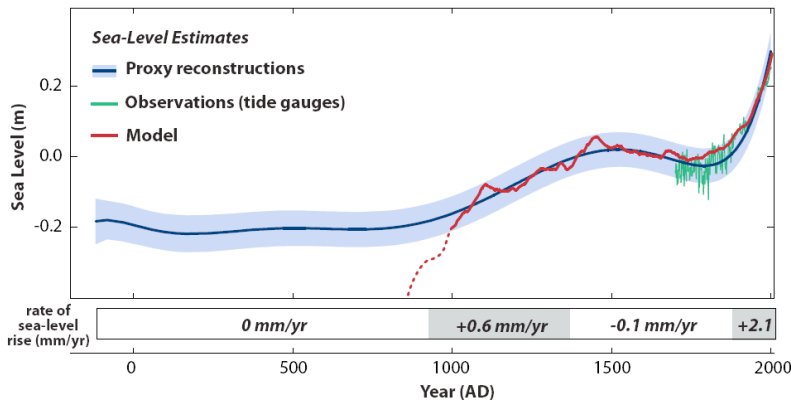


Sea Ice extent is shrinking at a very fast rate – and this will feed back into further warming as ice cover reflects much more heat than open water.

In addition virtually all glaciers around the world are losing mass – this has consequences for regions such as India where the seasonal water supply will change radically as a result

*PIOMAS mean monthly arctic sea ice volume for April and September. Dashed lines parallel to linear fits represent one and two standard deviations from the trend. Error bars are estimated based on comparison with thickness observations and model sensitivity studies*

## Consequences of global warming

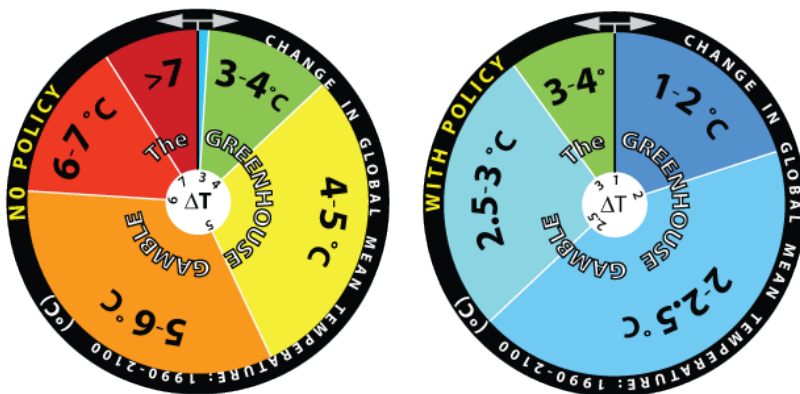


- Polar Melting
- Ocean acidification
- Sea level rise
- Melting glaciers
- Species loss
- Economic
- Changes to areas viable for crop production

Kemp et al (2011) Climate related sea level variations over the last two millennia, PNAS

Rising sea levels lag behind temperature rises which means that we are already committed to a certain amount of rise – however if we do not reduce emissions the rise will be much larger, around 1-2 m by 2100 and approx. 20m over the next few hundred years.

## Mitigating the risk by changing behavior



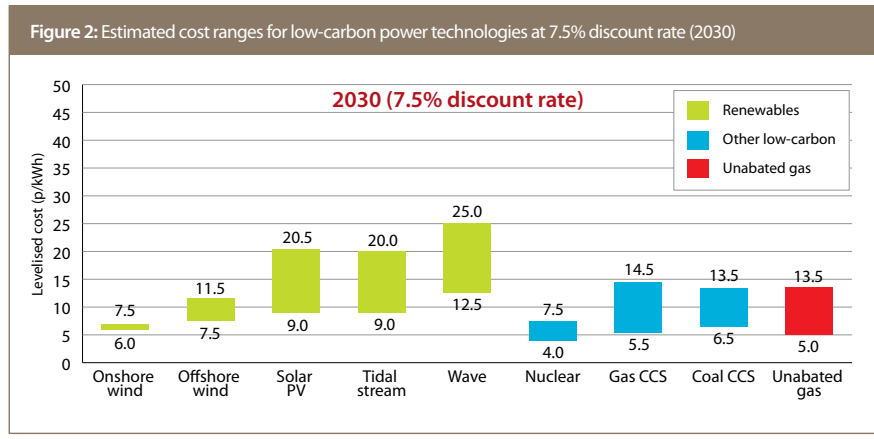
However there is still all to play for – the difference between not doing anything and taking action is large as the temperature scenarios show (Left shows no likely outcomes of no policy to reduce greenhouse gas (GHG) emissions, right shows with policy to reduce GHG emissions)

What we must avoid are the feedback loops in high emission scenarios which make global warming faster and larger.

- Methane Hydrates stored in tundra and deep ocean
- Changing the Earth's Albedo (reflection due to loss of ice cover)
- Species loss
- Desertification
- Forest fires

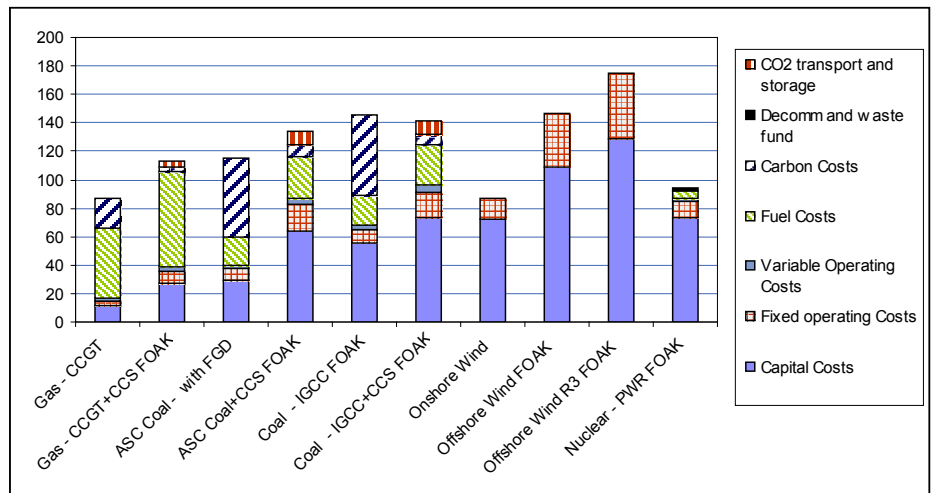
# Why wind energy?

- Clean energy – does not produce CO2
- Locally produced electricity increases energy security
- It works! 11% of total energy in Scotland in 2009 was from wind power
- Forms an effective part of the future energy mix
- Is much cheaper than other forms of renewable energy generation (for example offshore wind is approx. 2x more expensive)
- China is deploying wind energy at the large scale with ambitious targets
- It is a cost effective way of producing clean energy and is comparable with fossil fuel based generation



Source: CCC calculations, based on Mott MacDonald (2011) *Costs of low-carbon generation technologies*.  
 Note(s): As Figure 1, with 7.5% discount rate.

Figure 7.3: Levelised costs of main technologies for projects started in 2013 - mix of FOAK and NOAK: £/MWh



Source: Mott MacDonald

Cost of energy generation, from studies for DECC (2010 and 2011). Onshore wind is both one of the cheapest long term technologies but also with the fewest uncertainties – because you do not have to consider the future price of oil or gas.

## Are there alternatives?

Hydro	Very few suitable new sites
Nuclear	Long lead times to construct new capacity, unpopular, program recently put into doubt by developer drop out
Carbon Capture and Storage	Unproven and high risk, also expensive
Solar	Can only provide small amounts of power, unless Scotland gets closer to the Equator. Solar panel prices continue to fall sharply.
Tidal	Good potential, but still technical difficulties to overcome

An excellent resource and realistic discussion of the potential of renewable energy is Prof David Mackay's "Sustainable Energy without the hot air" – available to download free from <http://www.withouthotair.com/>

## Renewable Energy Policy in Scotland

### UK Target

By 2020 15 % of total UK energy consumption to be derived from renewable sources, this is equivalent to 35% of UK electricity.

### Scotland Targets

By 2020 100% of Scottish electricity demand to be generated from renewable sources – up from 80% target previously.

Up from a current 35% (2011) of electricity production (itself above the target of 31%)

This will provide 30% of total UK renewable requirement (35% of UK electricity – 15% of all UK energy)


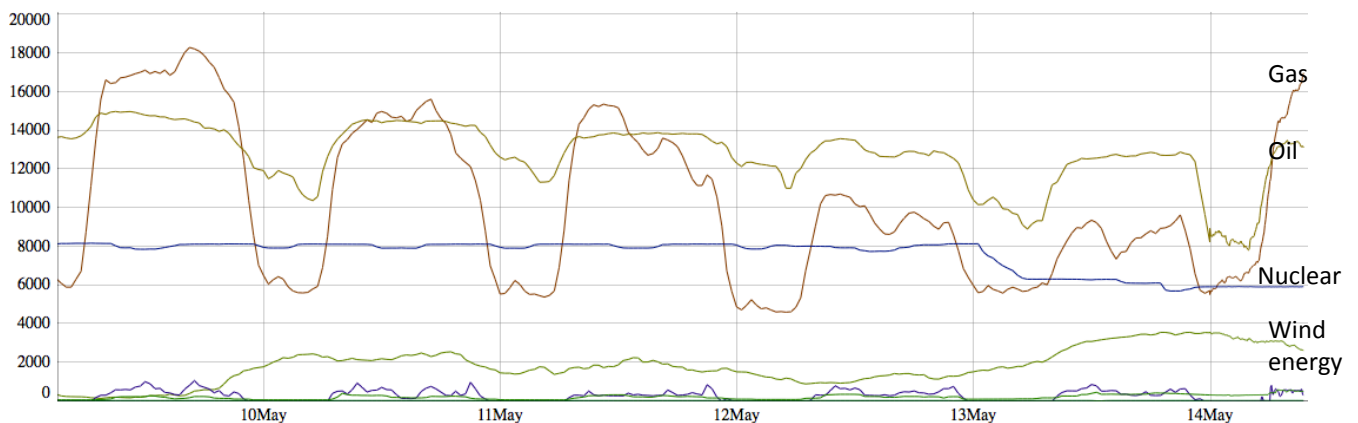
		2020	2050
UK	All energy	15%	
Scotland	Electricity	100% 	100%
Denmark	All Energy	35%	100%
Germany	Electricity	35%	80%

Table shows various countries targets for clean energy or electricity production for the year 2020 and 2050. Scotland leads the way.

**GB Electricity Generation by Fuel Type (MW)**

• Click and drag on the chart to ZOOM in. Double-click anywhere in the chart to zoom back out.



Graph of UK energy generation in the last week. Variability in demand (seen by the upper lines) is much greater than the variability in supply in wind energy (green line) which at its peak is providing half the energy from nuclear sources.

## Visibility of the Whitehouse Burn turbine

On behalf of Genesis Energy Land Use Consultants create the visibility study for the planning application. Two photomontages from approx. 3km and 10 km from this study are included in this booklet

The full study is available to download at [www.genesis-energy.co.uk/planning\\_docs.htm](http://www.genesis-energy.co.uk/planning_docs.htm)

To supplement this study and because Argyll and Bute has above average woodland cover (around 30% compared to the Scottish average of 17%) we expected actual visibility would be significantly reduced from the zone of theoretical visibility.

To study this we recorded vegetation along the roads within 10 km of the turbine to determine where vegetation would obscure view of the turbine.

Road name	Direction of travel	Length of road (within 10km of turbine)	Distance turbine visible for (km)	Time in view at 50 km/h (secs)	Time in view at 70 km/h (secs)
A83	South	20.5	0.20	14	10
A83	North	20.5	1.50	108	77
B 8001	East	7.4	1.60	115	
B 8001	West	7.4	2.57	239	
B 8024	North	15	0.39	28	
B 8024	South	15	0.97	70	

*Table 1 – Visibility of turbine from roads within 10 km. 50km/h is 31 mph and 70 km/h is 43 mph.*

The practical visibility for road users is limited to short, non-contiguous sections (max length 1 km) of the A 83, B 8001 and B 8024.

Most of the visibility of the turbine is from distant views (> 3km). At this distance and above the turbine appears insignificant – this can be seen in the two photomontages on the next couple of pages.



► Viewpoint 4 Kennacraig Pier

View B

Bearing to centre of view:

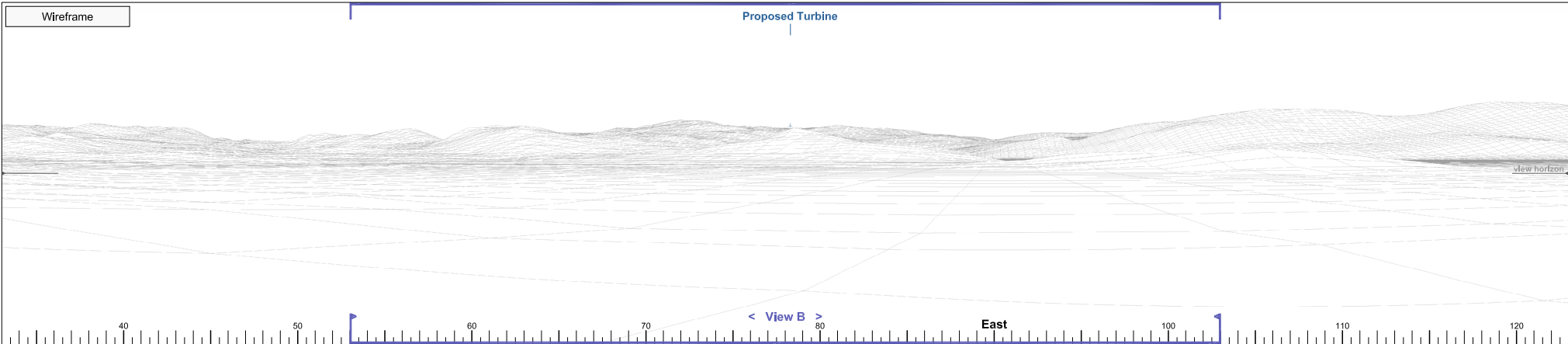
110°

Horizontal field of view:

50°

Recommended viewing distance at A3:

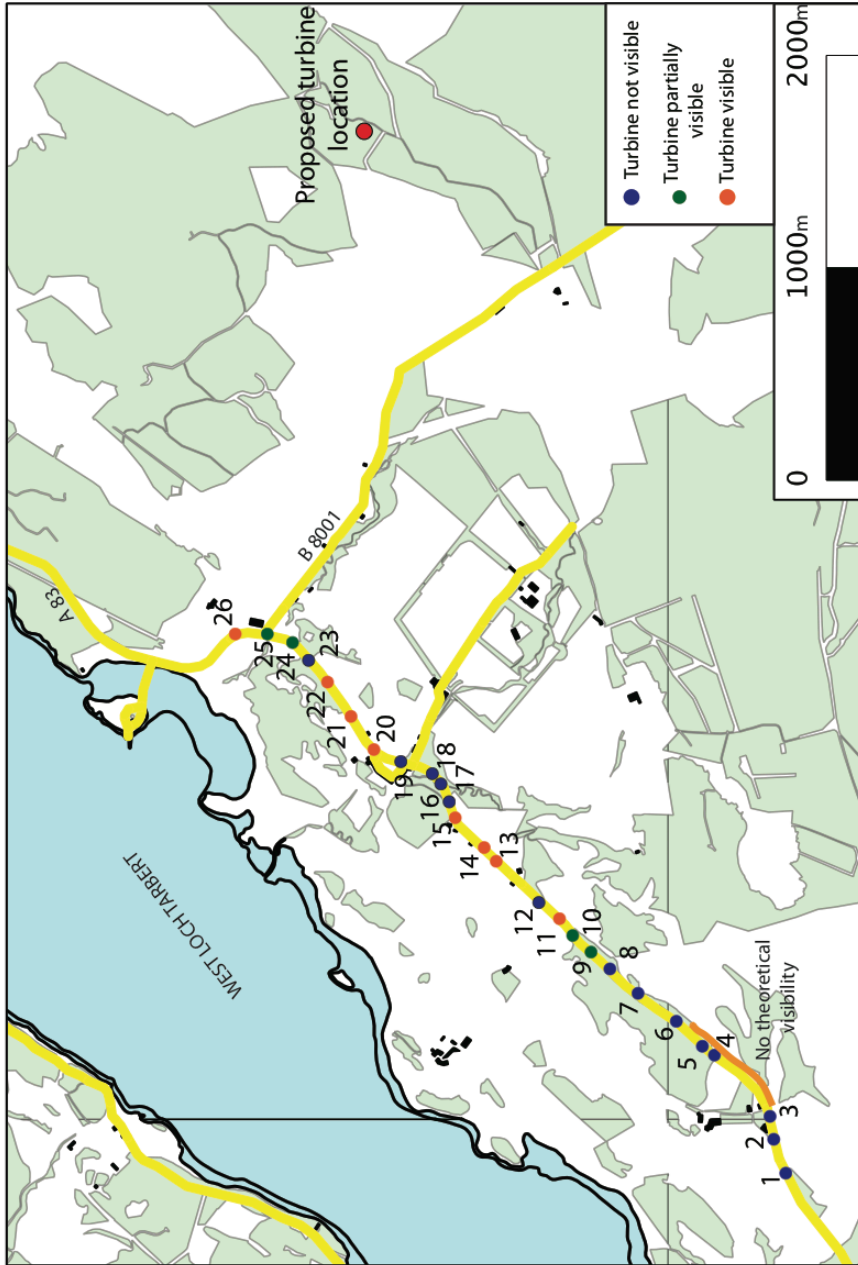
45 cm



► Viewpoint 10 Ardpatrick House

View A	Bearing to centre of view:	78°	Horizontal field of view:	90°	Recommended viewing distance at A3:	25 cm
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Genesis Energy - Whitehouse Burn Turbine  
 Location of photographs travelling north on A83  
 13th April 2012

Map of viewpoints on the A83 driving north. Visibility is limited primarily by topography, but further reduced by vegetation.



Typical semi-natural vegetation cover which is common on roads in the area.

The turbine would not be visible from here (A83, driving north, point 7 on above map).

# Trump v Waxman

The renewable energy debate heats up



## On climate change

*“With the coldest winter ever recorded, with snow setting record levels up and down the coast, the Nobel committee should take the Nobel Prize back from Al Gore“*

Climate change is a real and present threat and producing energy without CO2 is one of the best ways to mitigate against this risk

## On protecting the environment

Happy to build over nationally important Site of Scientific Special Interest (SSSI) despite major objections from the RSPB – and against all planning guidance

No objections to Whitehouse project from RSPB and no SSSI's affected

## On Scotland renewable energy targets

*“With the reckless installation of these monsters, you will single-handedly have done more damage to Scotland than virtually any event in Scottish history“*

Scotland has world leading renewable energy targets which are something to be proud of.

## On golf

Golf courses more important to Scotland than energy supply and security

Jonathan can't play golf. He was however pleased at the premier league football result last week.

## The last word

*“My mother, Mary MacLeod, who was born in Stornoway, would be very proud of what I am doing for Scotland.“*

The answer my friend is blowing in the wind – Jonathan will sing it for you on request.

## Number of bankruptcies

4\*

0

\* Corporate bankruptcy