

NATIONAL PLANNING FRAMEWORK

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COMMENTS

122. *What are 'biomass energy plants?'*
123. Tackling climate change and reducing dependence on finite fossil fuels are two of the major global challenges of our time. More than two thirds of the world's CO2 emissions *originating in human activity* are the product of current patterns of energy production and consumption. *This problem is now being aggravated by growing demand in the rapidly expanding Asian economies and is raising concerns about the implications for energy prices and long-term security of supply. While an energy policy for Scotland cannot solve the global problem, there is a moral obligation to set an example which is environmetally sound.* Addressing these challenges will demand profound changes in the ways we produce, distribute and use energy over the next 25 years.
124. Stet
125. The harnessing of renewable sources such as wind, waves, tides, water and the sun is effecting a radicle change in Scotland's energy economy and the location of these resources means that rural areas are well placed to contribute to, and benefit from, the development of that economy. As wave, tidal, *biomass*, hydrogen and deep water, offshore wind technologies continue to develop, these sources will become more competitive and commercially attractive, allowing them to make large contributions to Scotland's energy mix over the next 25 years. Hydro-power and onshore wind are the renewable technologies likely to make the largest contributions initially. *Biomass* could be making a significant contribution by 2010, and marine technologies have the potential to make a major contribution in the longer term.
126. Scotland has one of the best environments not just in Europe, but in the world, for wave and tidal generation, and while the technology is not yet market-ready, the opportunities are enormous, *provided energy demands remain commensurate with a stable population.* Energy must be seen as a key economic resource. As the potential output of Scotland's renewable energy resources is *much* greater than current Scottish consumption, the potential for export is substantial, and Scotland can also export energy technology.
127. Stet

128. The aim is to develop this extensive renewable energy potential, while safeguarding the environment and communities *from irresponsible population expansion*. The Government is committed to developing and sustaining our energy industries, establishing Scotland as a leading location for the development of renewable energy technology and as an energy exporter over the long term. It is encouraging a mix of renewable energy technologies, with growing contributions from offshore wind, wave and tidal energy and greater use of *biomass*. The potential of some of these technologies has a strong spatial dimension. For example, the north and west coasts offer opportunities for harnessing the energy of tidal streams at locations which are well sheltered from ocean swells and prevailing winds, while the east coast presents opportunities for offshore wind. Information on environmental sensitivities will be important in selecting appropriate locations for development. The Scottish Government is therefore committed to following up its strategic Environmental Assessment for marine energy with more detailed work.
129. There is probably very limited scope for new large hydro-electric projects in Scotland given their environmental impacts, but there is likely to be significant potential for more small scale schemes *including some with pumped storage potential*. A sub-group of FREDS will report on this shortly.
130. Given the variability of wind as a source of power, baseload generating capacity and pump storage hydro schemes will continue to have a role to play in maintaining the stability of electricity supply. A Government study is examining how much variable energy capacity can be accommodated by the existing grid. For the future, hydrogen, fuel cell technology offers significant potential as a means of storing power from renewable sources, and could be used to *compensate variability*. *The development of this technology is now an urgent necessity as a means of providing an alternative source of energy from combustion, to replace the combustion of carbon-containing fuels for heating, transport and electrical power production*.
131. Stet
132. Stet

Fossil Fuels

133. Clean coal technologies offer a *short-term* future for coal-based electricity generation and Scottish companies are world leaders in the field. The Scottish Government regards carbon sequestration as a potentially cost-effective method of reducing CO₂ emissions from thermal power stations. The regulatory regime will give signals which prompt proposals to create new thermal capacity as plans are made to retire existing plant. The Government considers that new plant should be sited at existing thermal generation locations, where it can make use of existing supporting infrastructure. *It has to be borne in mind that moving excess CO₂ from one part of the environment to another cannot be a satisfactory long-term solution to the global imbalance caused by excessive CO₂ production from human activity.*
134. The methane held in coal beds deep beneath Central Scotland is estimated to be equivalent to at least 10% of Scotland's gas demand for the next 25 years. Most of these coal beds are well-located, in relation to existing gas pipelines and, given their proximity to our main coal-fired power stations, there is potential for combining the extraction process with carbon capture. *However, the use of such methane for energy production by combustion would certainly add to the volume of CO₂ added to the atmosphere in Scotland.* Planning authorities in Central Scotland *should take this into account* in considering the potential for onshore gas extraction when preparing their development plans. As the pipe network required to facilitate gas extraction would extend across local authority boundaries, authorities may need to work together to develop a consistent planning policy framework.

135. Stet

136. Stet

WASTE MANAGEMENT

137. The Government believes we must aspire to a zero waste Scotland., *although this would evidently not be compatible with a continuously expanding population.* It considers that in order to achieve zero waste, we need to put a strong emphasis on waste prevention, reduce the amount of waste landfilled as far as is reasonably practicable, achieve high levels of recycling and composting and seek to ensure that any energy from waste plants that are built have high levels of efficiency through, for example, combined heat and power.
138. Stet *Note that although reducing the scale of landfill helps to reduce methane emission and helps to reduce climate change, the alternative is to incinerate, or pyrolysis both of which produce extra CO₂.*

NEW TECHNOLOGIES

139. *This could include a mention of pyrolysis in which the end products can be used as fuel, but avoids the disadvantages of direct incineration.*
140. Increasing the use of carbon-neutral and low, or no-emission, fuels can make a significant contribution to reducing the the environmental impacts of moving people and goods. While there is considerable scope for expanding the production of biofuels, there are concerns about potential effects on biodiversity, food production, sustainable rural development and landscape character. *Furthermore, biofuel production is a temporary expedient in dealing with climate change, since biofuels are also carbon based and involve the use of land which could be used for food production.* Hydrogen fuel cell technology, although still at the early stages of development, offers Scotland many opportunities, most notably, through its ability to capture and store energy from renewable sources. *The development of technology to employ energy from intermittent renewable sources to produce hydrogen to replace carbon-containing fossil fuels, is now urgently necessary.*

How about pyrolysis as a possible alternative to incineration?

How about the promotion of municipal compost as a fertiliser?

Sewage sludge disposal on agricultural land or at sea, is presumably the concern of SEPA, but it seems advisable to mention its content of a range of potentially toxic metals such as cadmium and mercury, before application is made to land used for food production.