Friends of The Earth Scotland
The Power of Scotland

Juliet Swann
Head of Projects and Campaigns

Friends of the Earth Scotland


© CAVAN PAWSON

The situation in Scotland

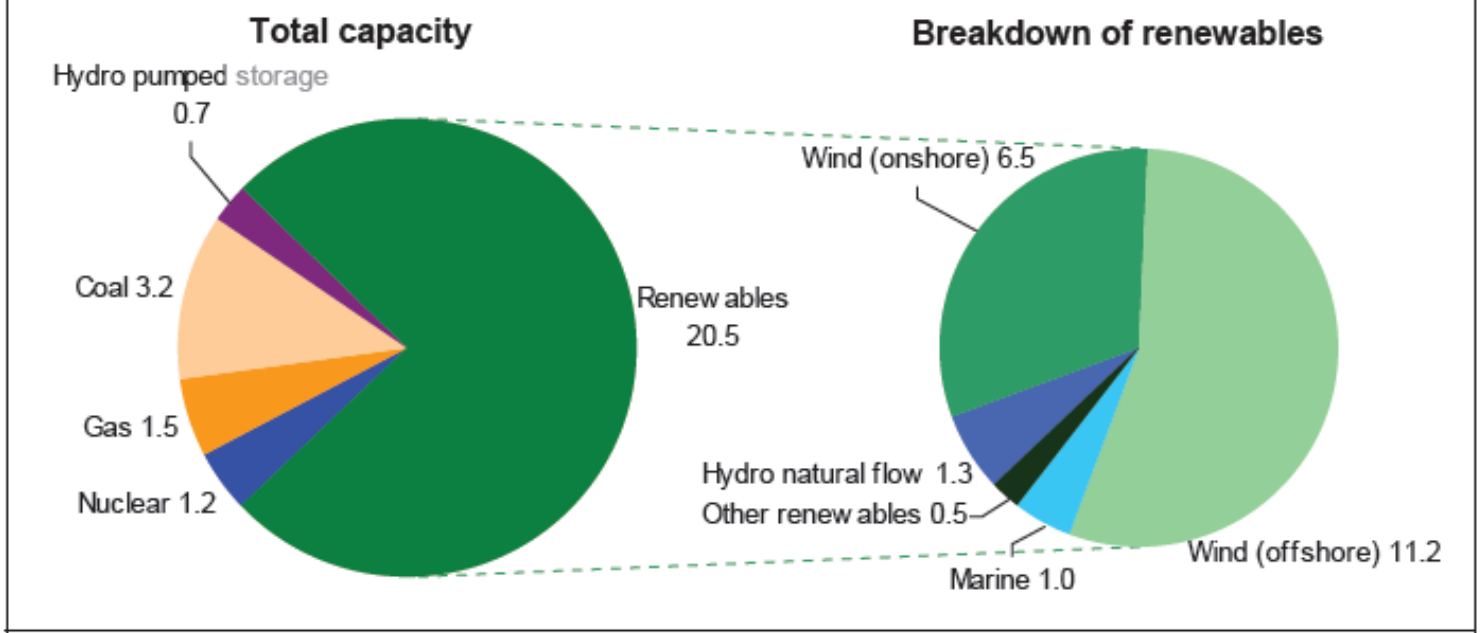
- Potential to generate more than 25% of Europe's electricity needs from renewables
- Sufficient renewable generation capacity already installed to meet over a third of Scotland's annual demand for electricity, putting us on track to surpass the Scottish Government's target of 31% in 2011
- Target of 100% renewable electricity by 2020 (UK target is 30%)
- Target of 500MW of community owned energy by 2020
- Still face the 'keeping the lights on' argument

The Power of Scotland

- Research commissioned to examine Scotland's renewable energy potential… and to test the reliability of supply
- Found that Scotland has the potential to generate 185% of our electricity needs from renewables
- And that with improved deferred demand, storage and interconnection we could also phase out all fossil fuels and nuclear

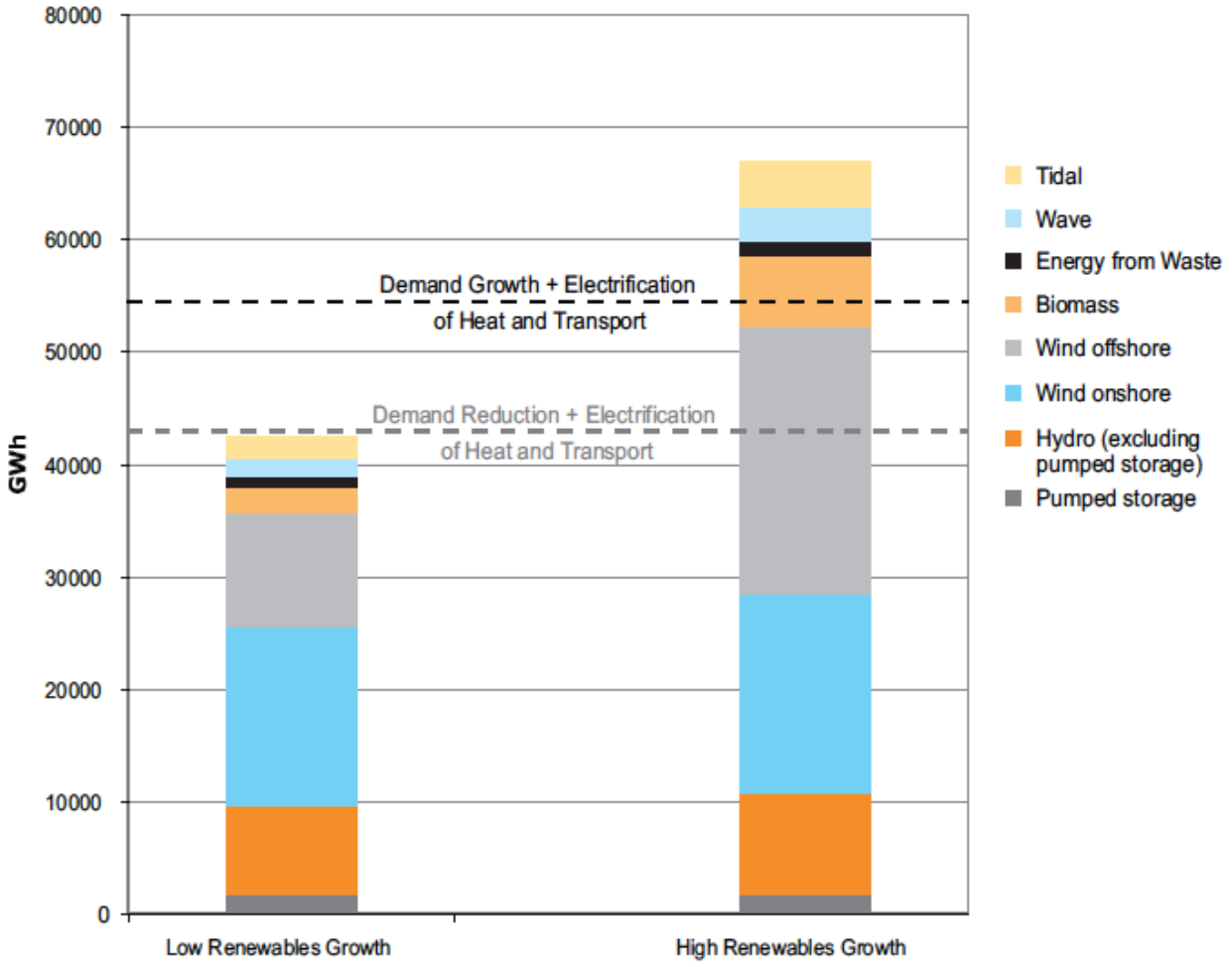
What does that energy mix look like?

Figure 4.2: Illustrative installed capacity beyond 2020 onwards in GW (total 27.1 GW)



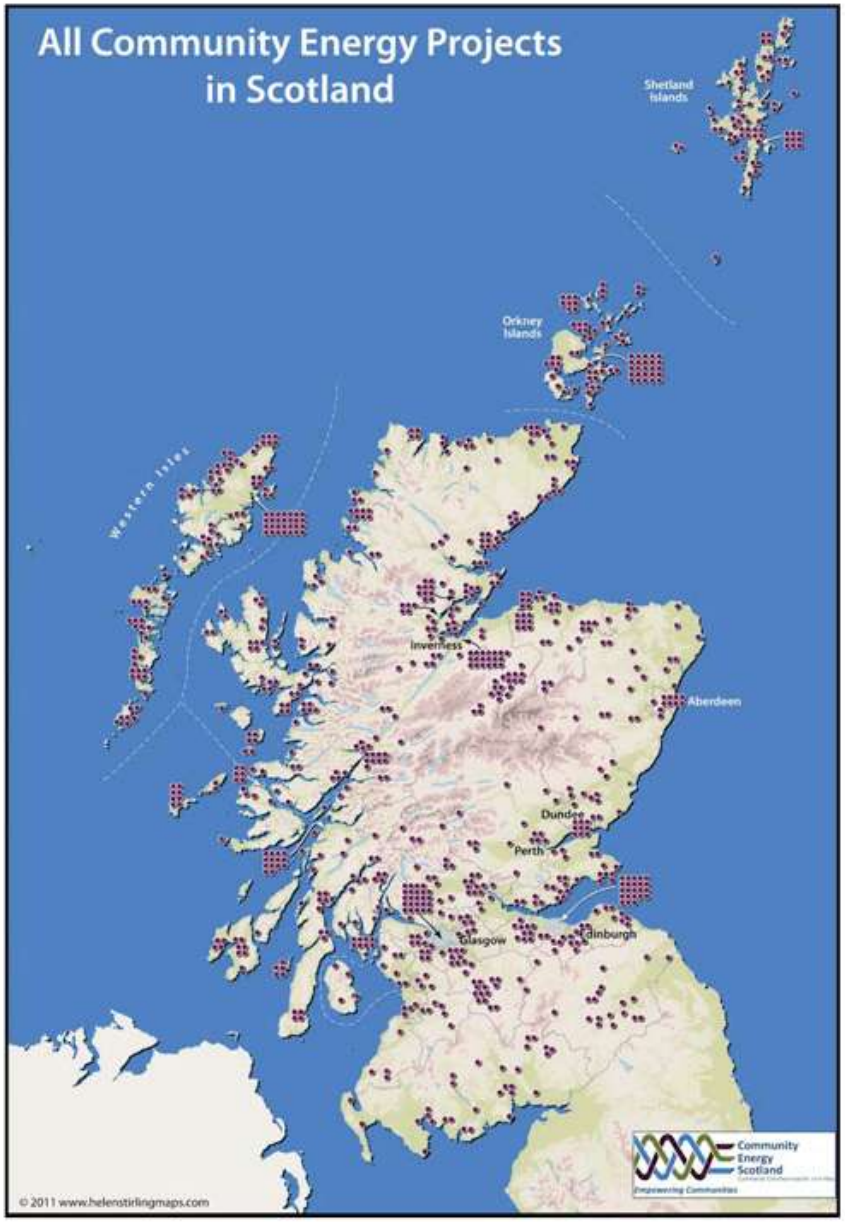
Source: Scottish Government, 2010, Towards a Low Carbon Economy for Scotland: Appendix
http://scottish-schools.gov.uk/Publications/2010/03/22115357/11
Note that the 2020 projections for offshore wind have been revised downwards to 10.1 GW.

Renewables can comfortably meet Scottish electricity demand



Microgeneration

- As a conservative estimate, no electricity supply from microgeneration has been included in this analysis. In practice, with the benefits of feed-in-tariffs (FITs) and the renewable heat incentive, community and household microgeneration projects can be expected to make a significant contribution to both overall supply, and security.
- Based on estimates by the Energy Saving Trust microgeneration in Scotland could supply 7TWh of electricity annually by 2030, equivalent to 15% of total demand in the demand growth scenario. In Germany, FITs have already stimulated more than 500,000 solar photovoltaic installations, generating more than 10Twh of electricity each year.


All Community Energy Projects
in Scotland
Shetland Islands
Orkney Islands
Western Isles
Inverness
Aberdeen
Dundee
Perth
Glasgow
Edinburgh
Community Energy Scotland
© 2011 www.helenstirlingmaps.com

Conclusions

1. With improved interconnection and moderate investments in storage and deferrable demand, it would be possible to phase out all conventional thermal generation capacity in Scotland by 2030 and still deliver a secure and reliable electricity supply

2. The interconnection capacity required for a secure electricity system is two to three times smaller than the interconnection capacity which would be economically justified by the value of electricity exports

3. The overall costs of such a system are comparable to those in business as usual approaches. In fact, with significant electrification of heat and transport, overall household 'triple fuel' bills could be lower than in conventional scenarios

Conclusions

4. Scotland does not need to risk unnecessarily extending the lives of aging nuclear plants. Nor do we need to take the financial and climate risks of new coal plant.

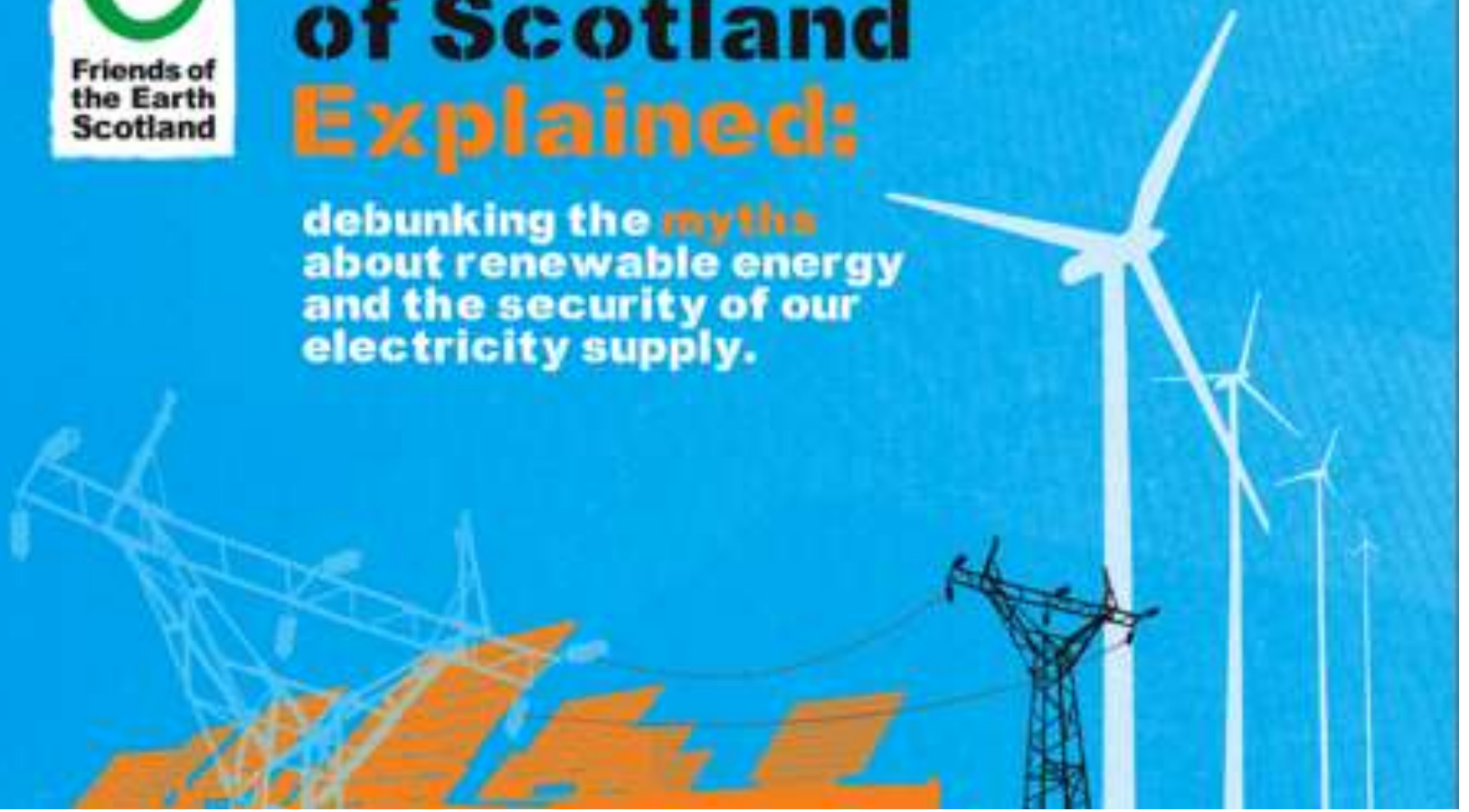
5. These conclusions depend on only moderate efficiency and conservation achievements, below the targets set by the Scottish Government. More ambitious energy demand reductions across all sectors would make system security and emissions reductions far easier and cheaper

6. Increased microgen and decentralised, community owned energy schemes would improve the system still further

Friends of the Earth Scotland

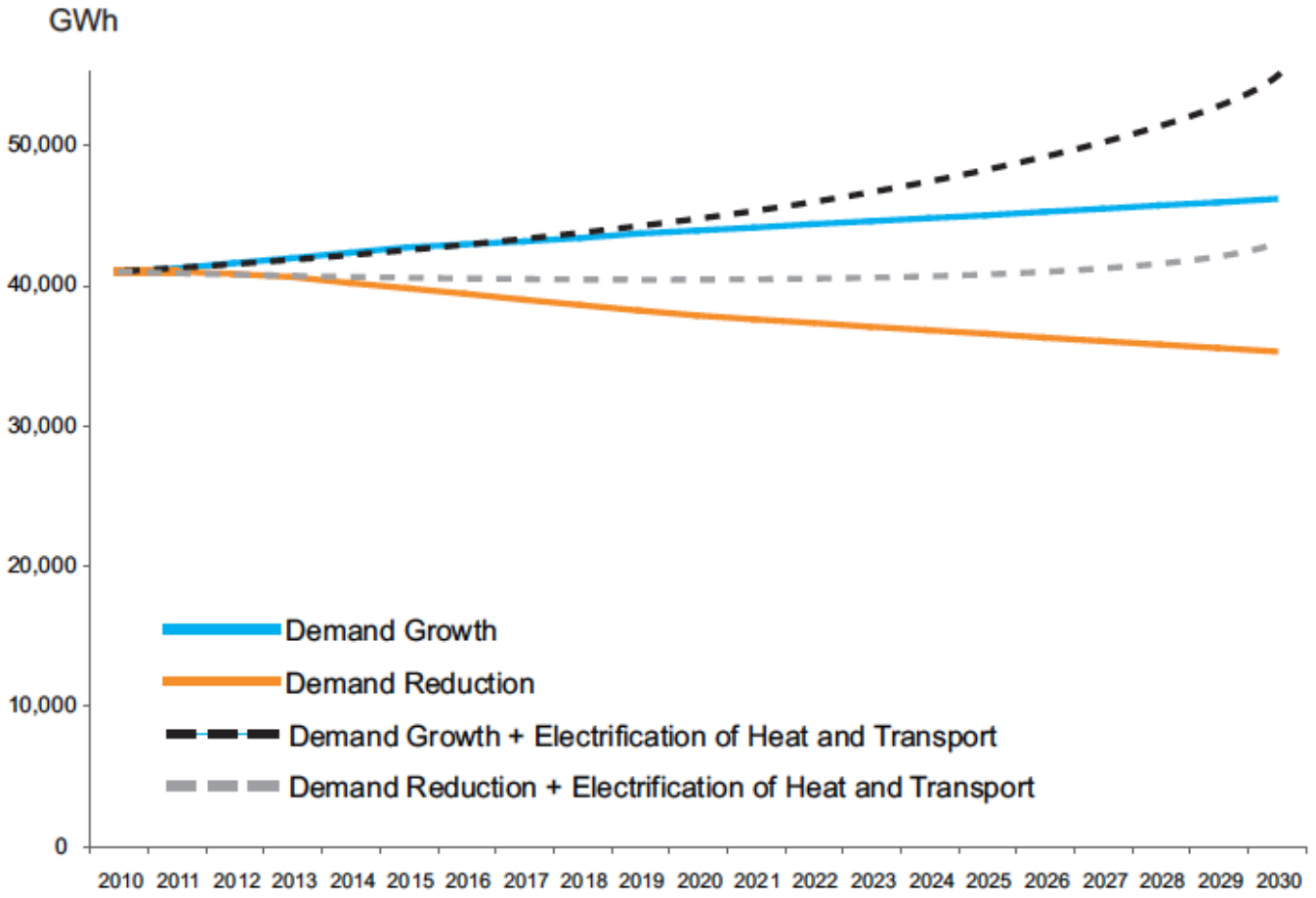
The Power of Scotland Explained:

debunking the myths about renewable energy and the security of our electricity supply.



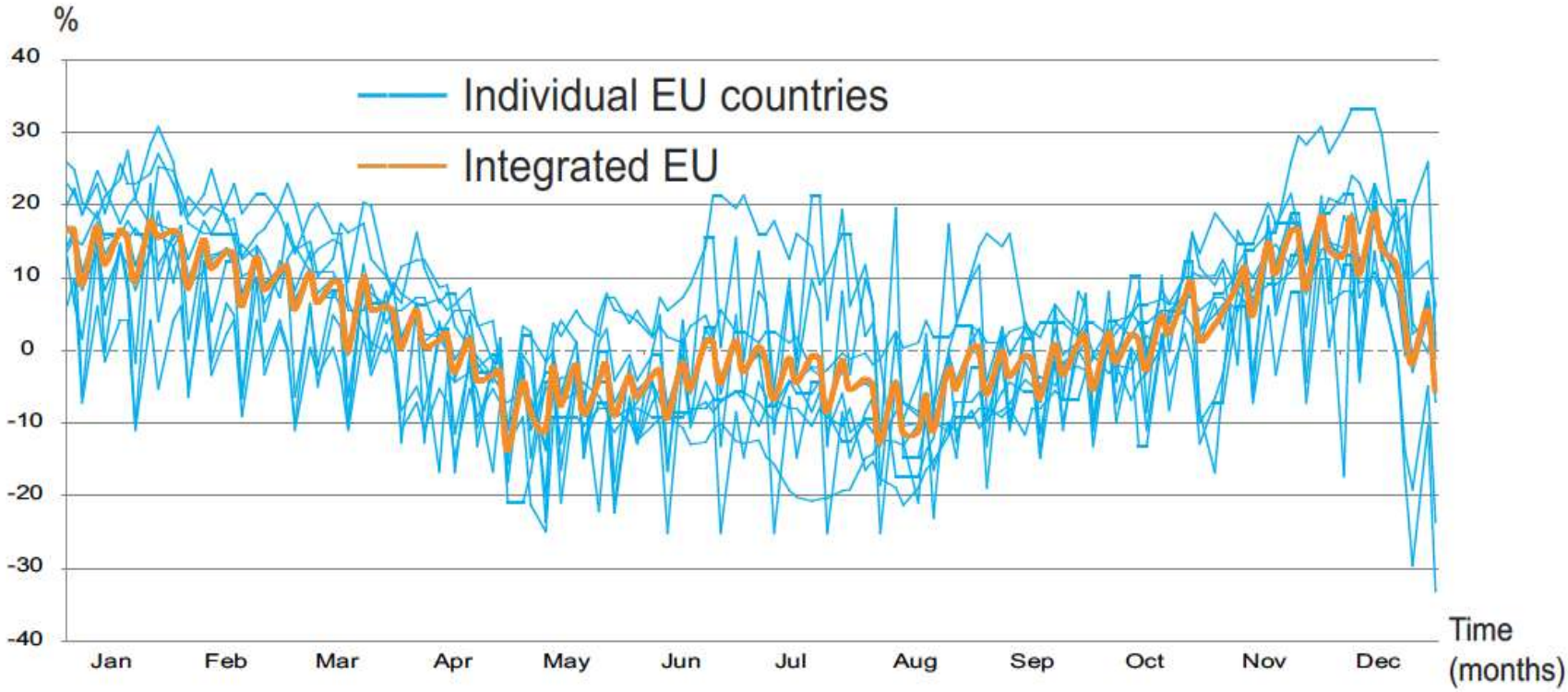

Join Our Band
CLEAN POWER!
GREEN JOBS!
ZERO CARBON
SCOTLAND
Friends of the Earth Scotland
MissBadchild©11

Electrification of heat and transport: How will this affect demand?



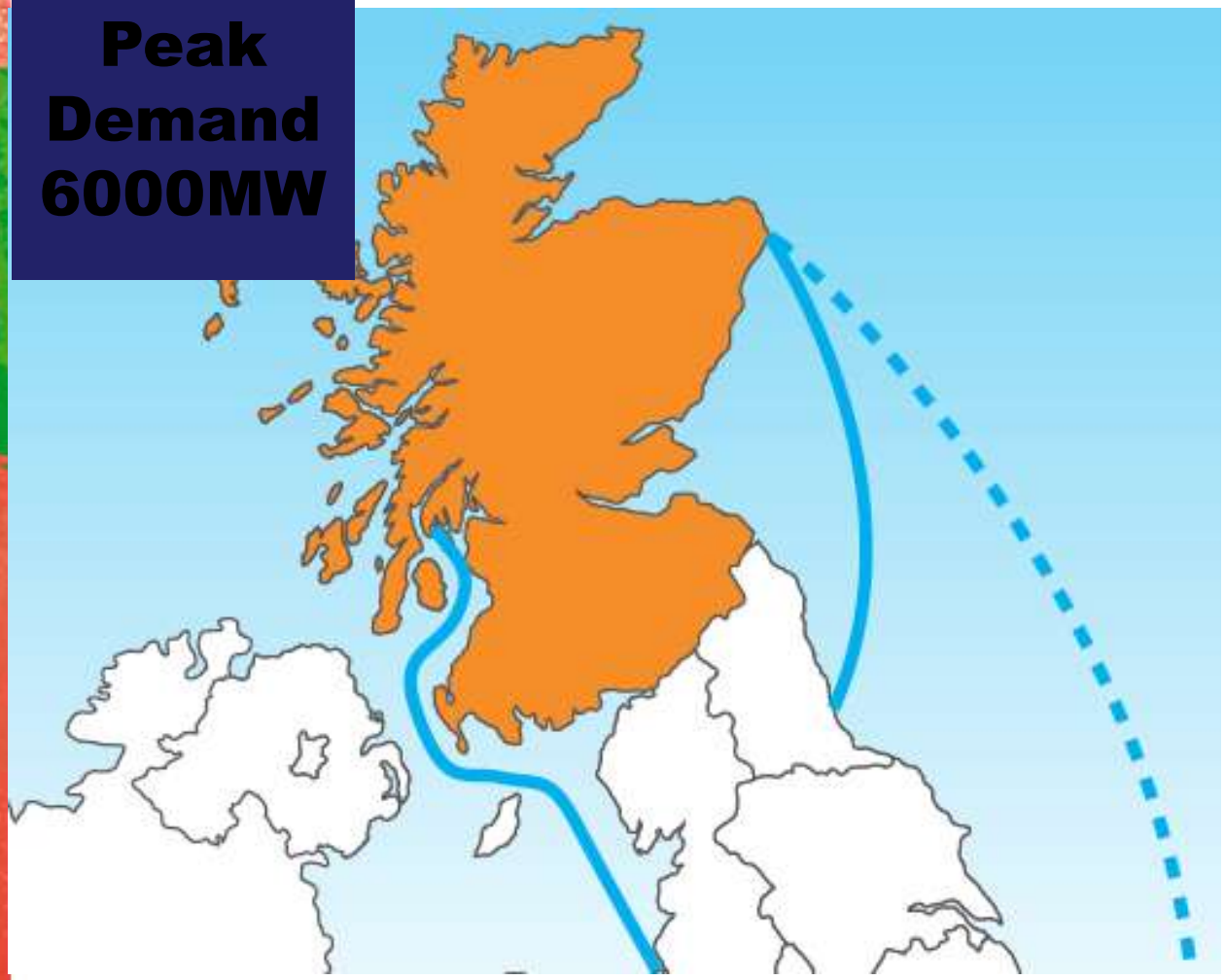
How does interconnection smooth demand?

Figure 6: Demand variation over the year



Interconnection Scenarios

Peak Demand 6000MW



4000MW

+

1800MW

1800MW

1800MW

Interconnection Scenarios

Peak Demand 6000MW

4000MW

+

1800MW

1800MW

Interconnection Scenarios

Peak Demand 6000MW

4000MW

+

1800MW