

# Diversity of Energy in Scotland

Hamish Thompson MA MSc PhD

Emily Goetsch BA MSc

For Arcadia University's The College of Global Studies' Life of the Mind event in Scotland this semester, we had the pleasure of accompanying our students on a 2 day event co-organized with the University of Aberdeen.<sup>1</sup> Linking into our annual theme, 'The Elements of Vita' which examines the four elements of air, water, fire and earth, the topic for this year's Scotland Life of the Mind event was the diversity of energy.

To put the relevance of this theme in context, and in relation to Scotland's importance, the world's largest offshore wind farm is set to be built off the North East coast of Scotland. It is planned to be operational by 2020, providing enough power for more than a million homes. This 7 billion dollar project will create up to 300 turbines in water 200 feet deep utilizing the industrial infrastructure and technology developed by the oil and gas industry in the North Sea off the coast of Aberdeen.<sup>2</sup> As such, Aberdeen seemed like an ideal location to conduct an exploration of this year's energy-based theme.

Dr Gordon Walkden,<sup>3</sup> Emeritus Professor of Geology at the University of Aberdeen, initiated our Life of the Mind event with an extremely informative lecture and excellent workshop at the University of Aberdeen. He spoke on the diversity of energy and the future for different renewable sources of energy such as wind, solar and hydro, also addressing the challenges facing renewable sources of energy on a global scale given the rapidly developing industrialization of countries such as China and their reliance on the traditional hydro-carbon sources of gas, coal and oil. Another problem discussed was Earth's exponential human population growth and the increased demand on energy this creates. After the lecture, Dr Walkden kindly offered to continue the discussion with the students at a delicious and intellectually satisfying dinner co-hosted by the University of Aberdeen and Arcadia University.

The next day we were guided around the Aberdeen Maritime Museum by Meredith Greiling, the curator of the museum. This gave us a broader perspective on both the maritime social history of Aberdeen and the development of the oil and gas industry in the North Sea. Students were encouraged to consider the economic, historical and safety issues associated with the prominent Aberdeen industries while examining artefacts ranging from photographs to the 'newt' suit used for diving to a scaled model of an oil rig that demonstrated the mass and ambition of the technology.

---

<sup>1</sup> Many thanks to the University of Aberdeen for offering to co-host and co-sponsor this event. Aberdeen University is an international centre of excellence in studies relating to the exploration and production of oil and gas offering courses in petroleum engineering and the geosciences including courses in physical and organic chemistry. As a result of this industry, Aberdeen offers a unique location to study the environmental sciences and the impact of the hydrocarbon industry. We partner with Aberdeen for one of our semester and year programs. <http://www.arcadia.edu/abroad/scotland>

<sup>2</sup> [http://www.scotsman.com/news/environment/new\\_scots\\_coast\\_wind\\_farm\\_to\\_be\\_biggest\\_in\\_the\\_world\\_1\\_1977990](http://www.scotsman.com/news/environment/new_scots_coast_wind_farm_to_be_biggest_in_the_world_1_1977990)

<sup>3</sup> Dr Gordon Walkden was formerly Head of Geology and Petroleum Geology at the University of Aberdeen; he is currently Director of Teaching and Learning at the College of Physical Sciences and deputy Head of College, Fellow of the Geological Society of London and the Royal Geographical Society. He created the Global Challenges degree programme at the University of Aberdeen that presents the science of global environmental change in its political, societal and science communication contexts.

After lunch in the city of Aberdeen, we took a coach to the Mackies of Scotland Ice Cream Dairy. Unique in its efforts to preserve resources and minimise its carbon footprint, this farm and factory generates all of its electricity for production from 3 of its own wind turbines. Notably, the facility only requires about 30% of the electricity generated from the wind turbines and so Mackies sells and feeds the surplus electricity production into the national grid. After a delightful taste of their ice-cream that is sold widely both throughout Scotland and internationally<sup>4</sup>, we were given an outstanding tour of their private facility by Dr Maitland Mackie,<sup>5</sup> the chairman of the company. Committed to extolling the virtues of locally produced renewable wind energy through individual businesses and community co-operatives, he offered a lively insight into the everyday functioning of the farm and into the future of energy production and conservation. Not wanting us to go away hungry, Dr Mackie generously sent us on our way with a large box of Mackie's Aberdeen Angus and Haggis flavoured potato chips.<sup>6</sup>

After heading out from the Mackies farm, Pam Wells, our afternoon and evening tour guide, subsequently took us on a breathtaking evening tour of the Aberdeen Harbour to view some of the considerable onshore and shipping infrastructure required to sustain the oil and gas industry of the North Sea. The port annually handles up to 5 million tonnes of cargo and is the center for the offshore oil and gas industry for the entire North West of Europe.<sup>7</sup> We also were given a glimpse into a nearby community, Footdee (pronounced "Fittie" by locals), that was, in previous times, a fishing village for the local community but that now has been revived by fresh interest in the area.

With the harbour lights glowing, we ended our successful weekend in and around Aberdeen. An incredible opportunity to evaluate a full range of perspectives on energy use and production in Scotland, the event presented us all with the chance to converse with interesting people and to evaluate and gain new perspectives on where energy comes from and how we use it. Certainly, it was a weekend of fun and exciting activities but we also had the chance to raise questions about the environment, industry and resources thereby highlighting Scotland's position in the web of energy production and consumption.

#### Student Comments:

"The lecture by Dr. Gordon Walkden concisely put the current energy crisis into perspective, emphasizing the cyclic economic and social nature of the problem. Although the topic of energy is often depressing, our tour of Mackie's farm infused the trip with a good deal of hope. It was incredibly inspirational hearing about the potential of wind power from someone as enthusiastic as Mr. Mackie, and the tour of the farm was undoubtedly the highlight of the weekend."

Kendra Lechtenberg (Kenyon College) studying at the University of Glasgow

"Before the trip I did not know that Aberdeen was the energy capitol of Europe, but now I can understand why the city was so aptly named. Dr. Walkden and Molly Prather gave an excellent introduction to the weekend and the city. The influence that the gas and oil industry has upon the dynamic of the city is immediately apparent, as was illustrated by the tour of the harbor. Countless ships take their leave from Aberdeen everyday to reach oil rigs miles away on the North Sea. Big oil has never been a favorite industry of mine, but seeing the economic prosperity it can bring to areas

---

<sup>4</sup> Mackies currently exports its ice cream to South Korea, Ireland, United Arab Emirates and India.

<sup>5</sup> Dr Maitland Mackie has recently been voted Rector of the University of Aberdeen (where he serves on the court) by the students of Aberdeen for his commitment to wind energy. He was awarded an honorary doctorate of law in 1996 from the University of Aberdeen.

<sup>6</sup> We call them 'crisps' in Scotland!

<sup>7</sup> <http://www.aberdeen-harbour.co.uk/history.html>

like Aberdeen puts things in a different perspective. My favorite part of the weekend was, of course, Dr. Mackie's tour of his farm. I've been interested in sustainable farming systems for years now, but have had little chance to actually experience and witness these practices at work. The opportunity to gain a deeper understanding of these types of farming systems and to actually stand inside a fully operational wind turbine was an invaluable one. Thank you for a wonderful and educational weekend!"

Madalyn Watkins (University of Arkansas Fayetteville) studying at the University of Glasgow



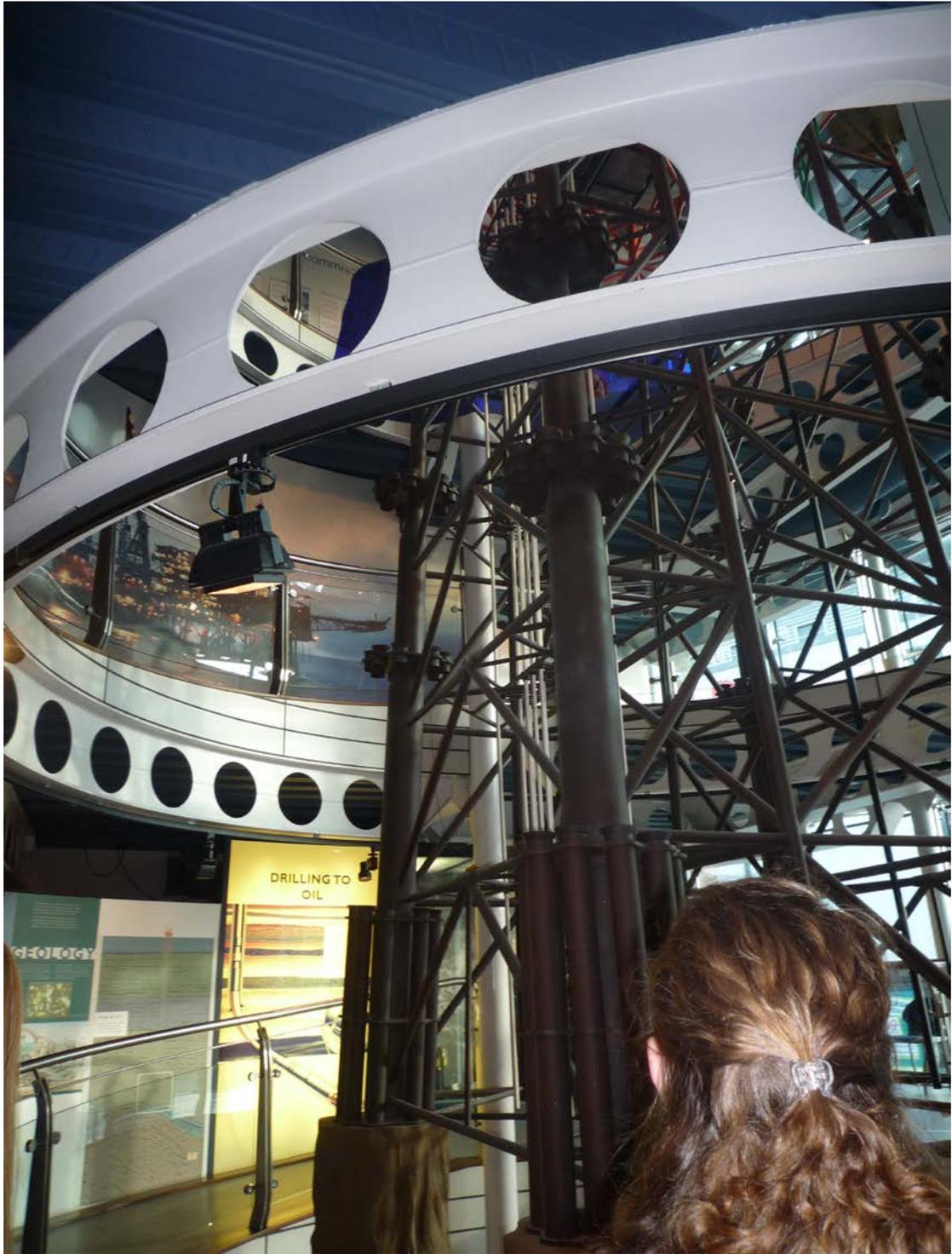
Dr Gordon Walkden



Students in Aberdeen on Life of the Mind Scotland Event Fall 2011



Aberdeen Maritime Museum (Meredith Greiling Curator)



Aberdeen Maritime Museum



Aberdeen Maritime Museum (atmospheric diving 'newt' suit allows diving without requiring decompression)



Aberdeen Maritime Museum (atmospheric diving 'newt' suit allows diving without requiring decompression)



Aberdeen Maritime Museum (Aberdeen's first oil industry: whaling)



Aberdeen Maritime Museum (View of Aberdeen Harbour)



Aberdeen Maritime Museum (Murchison drilling platform model: 10m high and weighs 0.5 tonnes. It was used for planning and building the actual platform)



Aberdeen Maritime Museum (Murchison drilling platform model)



Aberdeen Maritime Museum (Designer's model of Murchison drilling platform)



Mackies of Scotland Dairy Farm (Calves eating out of re-cycled Mackie's ice-cream tubs)



Mackies of Scotland Dairy Farm (Sunset)



Mackies of Scotland Dairy Farm (850KW wind turbine)



Mackies of Scotland Dairy Farm (students going into 850KW wind turbine)



Mackies of Scotland Dairy Farm (students going into 850KW turbine)



Mackies of Scotland Dairy Farm (students leaving 850KW turbine)



Dr Maitland Mackie



Mackies of Scotland Dairy Farm (sunset from hill where turbines are situated)



Evening tour of Aberdeen Harbour (Pam Wells)



Photograph by Kendra Lechtenberg (Kenyon College) studying at the University of Glasgow