Book review Energy and Power: Our perilous obsessions by Gareth Wyn Jones

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By Aled Singleton

Gareth Wyn Jones's bilingual book on humanity's complex attachments to energy breaks new ground for Nation Cymru. Firstly, it was launched at Nation Cymru's inaugural Lecture and secondly it is a printed physical item with Nation Cymru's name alongside publishers the H'mm Foundation. As this review suggests, the ideas discussed in the book are worthy of it being given so much attention by Nation Cymru.

A collection of essays written over more than a decade

The book is slightly unorthodox as the most recent thinking comes at the start. Chapter 2 *Energy and Power: Essential, Addictive and Toxic* is essentially the talk given by the author at the Senedd in Cardiff on Tuesday 24 September. Having attended that event, my account is largely influenced by seeing and hearing Why Jones explain the finer points of his message.

Why Thomas introduces the book at the Senedd © Aled Singleton, 2024

It is worth explaining that main components are: Chapter 4 *The History of Energy* which appeared on nation.cymru; Chapter 5 *Energy and Powe*r - which he describes as his main scientific essay; and Chapter 6 *Overshooting the Limits* which was originally written and delivered through lectures in 2012. This final part has some elements specific to Wales, such as the commitment to sustainable development. Chapters 3, 7, 8 and 9 are the Welsh versions of previous writing in English.

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As this book is dense, and a collage of overlapping chapters, I concentrate on the main arguments and how these insights can complement our basic understanding of energy.

Thinking about the wider energy system on a planetary level

As a Professor Emeritus of plant biology and bioscience, Wyn Jones offers a big perspective. Whilst most of us know that we need energy for our daily lives - and appreciate the need to diversify away from fossil fuels to reduce carbon emissions - it is not often that we think about the wider context of the whole energy system. He explains entropy as energy that we cannot harness and which, when it builds up, can have unintended consequences. This concept makes sense when we conceptualise climate change as excessive carbon dioxide in the atmosphere: energy which finds itself in places where it did not start out. This book argues that so much energy being out of equilibrium has come from the action of humans.

The staggering energy flow required by each person

How we got to such immense energy use is explained in a way that I have never previously encountered. In Chapter 5 we learn that hunter gatherers would require an ‘energy flow’ of 6,000 to 7,000 calories a day to sustain life. This flow includes what people ate and also included energy required to make weapons, hunt, and make shelter. As animals consume energy to digest raw food, the innovation of cooking (using heat) therefore meant that our bodies required many fewer calories. From this development of cooked food people were able to achieve more with their time. The flow of energy used each day then climbed to 30,000 to 50,000 calories a day as we entered the agricultural revolution. This has continued to increase as we require energy to heat homes, travel, make manufactured goods, use digital devices, and everything else. People in rich countries now require about 240,000 calories per day to sustain their lives and the very richest consumer multiples of this latter figure. This energy has to come from somewhere.

The trajectory of energy usage

The middle of the twentieth century saw the start of a steep increase in energy usage, such that we use more than five times more now than we did in 1950. Though we have increased the supply of renewable energy through means such as solar, hydro, wind and nuclear (a technology for which the author is not a proponent), this only accounts for 20% of current supply. Surprisingly we still burn a lot of polluting biofuels such as wood.

Aside from climate change, Wyn Jones explains that our pursuit of energy is leading to a world which is more complex and which endangers everything else on the planet. For example, he describes agriculture as being dependent on oil. The more we have land for food the less space (and therefore energy) there is for other living things. Biodiversity therefore suffers.

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Questioning our desire for energy

One of the author's main arguments is that we keep wanting more energy without stopping to think about the consequences. He repeats the message across all chapters that we have relied for too long on cheap and fairly available fossil fuel energy. This obsession has become the bedrock of our economic system. To replace oil with renewables will require new technologies to take off very quickly and will result in instability - particularly for the poorest people on the planet. On a political level he wants us to use less energy; and particularly for the wealthy to take a lead.

Wyn Jones writes that wanting more energy - and the corresponding rise in digital communications - means an increasing rate of social change that makes us more unhappy. This is the argument which is least developed in the book. However, he invites social scientists and others to work with some of the ideas that he has put forward. Indeed, this is a reasonable reason for anybody to take a read of this book.

A book of chapters which doesn't have to be read in the intended order

In summary, Wyn Jones has a clear message and gives time and space to explain complicated ideas - such as around complexity and entropy. In some ways the book benefits from the September 2024 lecture leading: the other essays allow the author to show how his thinking has developed. On the other hand, this is a little frustrating as topics and ideas get repeated. A suggested order therefore is to potentially read Chapters 4 and 5 - about history and politics - and then return to Chapter 2.

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