

Foreword to the Chinese translation of *Sustainable Energy – without the hot air.*

David MacKay, May 28, 2013

When I wrote *Sustainable Energy – without the hot air*, my goals were to help people to understand energy arithmetic, and to promote constructive conversations about our future energy options. While the book's examples focus on the United Kingdom, the book's fundamental message concerns the laws of physics and the realities of engineering, which are the same in every country. I therefore hoped that the book would be helpful to everyone, not just the people of Britain.

I am delighted that many organizations and volunteers around the world have translated my book into other languages, including French, Polish, German, Hungarian, Slovak, and Japanese. And I am especially thrilled today that my book has been translated into Chinese, thanks to the support of the Chinese Academy of Sciences and President Li Jinhai.

In many ways China is already a global leader of the green revolution. China makes more electric vehicles (especially electric bicycles) than the rest of the world combined; companies in China make more wind turbines than any other country; China manufactures roughly half of the world's solar photovoltaic modules; China has more nuclear power stations under construction than any other country; and China both *makes* and *uses* more solar thermal heating systems than the rest of the world combined. Finally, China is training more engineers per year than any country. China therefore has a crucial role to play in the world's energy transition.

The bar chart compares the breakdown of primary energy consumption in the UK and in China in 2007–2008, when I wrote this book. The laws of physics have not changed since 2008, but the energy consumption of the UK and China have changed, so the table below shows updated numbers for 2011, and compares some of the key metrics discussed in this book.

	UK	China	China:UK ratio
population (2011)	62.6 M	1344 M	21.5
primary energy consumption (2011)	2374 TWh/year	32 000 TWh/year	13.5
per-person energy consumption (2011)	104 kWh/d/p	65.4 kWh/d/p	0.63
population density	257 per km²	140 per km²	0.55
power consumption per unit area	1.1 W/m²	0.38 W/m²	0.34

Table 2. Primary energy consumption and other key metrics, for the UK and China, in 2011.

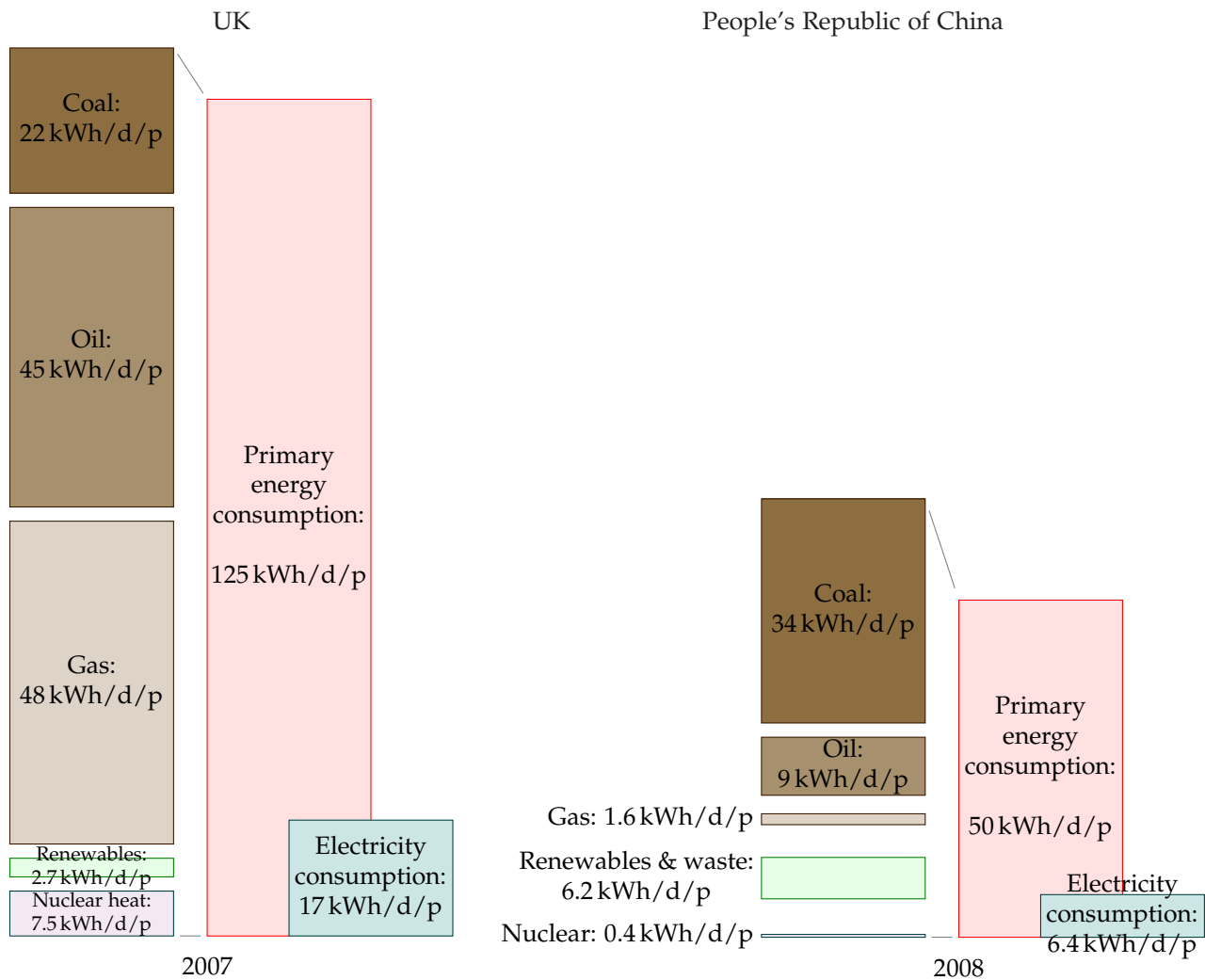


Figure 1. Breakdown of primary energy consumption, per person, for the UK and China.