

BOOK REVIEW: "HEAT, POWER AND LIGHT; REVOLUTIONS IN ENERGY SERVICES" BY ROGER FOUQUET

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Abstract

Heat, Power and Light. Revolutions in Energy Services is an exploration of the very long trends in the evolution of energy services in the UK. It showcases how heating, stationary power, transport and lighting have been transformed over the past 700 years, the main drivers behind each transitions and the implications for society. It is of great value, as it collates a vast amount of historical data. The analysis has some limitations which are clearly explained by the author and do not detract from the overall significance of the conclusions. The book is an interesting contribution to current energy debates and discusses possible future trends. Furthermore, it helps shape the debate as to how the study of past energy transitions can serve as a guide to the future.

Keywords: energy history, energy economics, energy transitions, energy services, heating, stationary power, transport, light.

Resumen

Heat, Power and Light. Revolutions in Energy Services es el estudio de las tendencias a muy largo plazo en la evolución de los servicios energéticos en el Reino Unido. Analiza cómo la provisión de calor, la potencia estacionaria, el transporte y la iluminación se han transformado en los últimos 700 años, los principales impulsores de las diferentes transiciones y las implicaciones de las mismas para la sociedad. Es de gran valor pues reúne una enorme cantidad de datos históricos. El análisis tiene algunas limitaciones que el autor explica claramente y no disminuyen el valor de las conclusiones. El libro contribuye a debates actuales y discute posibles tendencias futuras. Además, participa en el debate de cómo el estudio de transiciones pasadas en el sector de la energía puede servir de guía en las futuras.

Palabras clave: historia del sector de la energía, economía de la energía, transiciones en el sector de la energía, servicios energéticos, calor, potencia estacionaria, transporte, iluminación.

"Heat, Power and Light; Revolutions in Energy Services" is a remarkable recount of how, for the past seven hundred years, humans have used different fuels and technologies to keep

warm, cook a meal, travel or work beyond sunset. Each of the four energy services considered (heat, stationary power, transport and light) experienced various revolutions that deeply affected the price,

quantity or form in which the service was provided and transformed economies, societies and lifestyles. Fouquet takes a broad perspective and offers an excellent analysis of the interconnection between energy demand, economic development, population growth, fuel prices, technologies and knowledge. Supply and demand are intertwined and resource availability is often a key driver.

The book is an exploration of the very long run trends in energy services in the UK and is of great value because it gathers vast amounts of very high quality historical data and brings it together. Such extensive recollection of data on energy services in the UK doesn't exist anywhere else. In this sense, it is worth highlighting that the UK is possibly one of the best places to carry out such a study because of the richness and variety of data sources and records. The book also makes a novel contribution to our understanding of energy services, because of its very long run perspective (700 years) and because it focuses on the provision of the energy service and not just on energy markets.

Understanding long run trends in energy services is particularly significant for dealing with current challenges such as climate change and sustainable development that require a long term perspective. The book is of high relevance for those interested in energy markets, energy and environmental policy, energy history and energy transitions.

"Heat, Power and Light" is suitably organized in four parts that follow the logic of inductive reasoning, an approach which mirrors the methodology the author chose to employ. Part one is a short introduction to the study; part two presents the historical data collection on the evolution of heating, stationary power, transport and lighting from 1300 to 2000; part three draws

major conclusions on the long run trends in the production, consumption and external costs of energy services; and part four is a reflection on future developments in energy services and markets based on the understanding of the data and its analysis. Finally, a valuable data appendix includes details of sources and explanation of assumptions.

The greatest accomplishment of the book is to have gathered such vast amount of historical data from different primary and secondary sources in order to reconstruct the past 700 years of energy services in the UK. The author has unearthed varied and detailed information such as the amount of power provided by a weak horse in the Middle Ages (p. 101) or the amount of time that a 50-60 cm rushlight would burn with a clear light (p. 192). This historical data has formed the basis to produce estimates of energy prices, energy consumption, energy efficiencies of the different technologies, energy service prices and energy service consumption of each energy service for every decade between 1300 and 1850 and for every year between 1850 and 2000 (p 411). Solely bringing all these long run datasets together, attempting to present them in a way that is comparable and interpreting them is of high value to anyone interested in energy history, energy transitions and energy economics.

The data, however, does have some limitations. In creating these long run data sets, many data "gaps" have had to be filled based on indicators, models, assumptions, interpolations or extrapolations of variable reliability. A great effort has been made to base the assumptions on reliable qualitative or quantitative information and the result is commendable. However, it is difficult to appreciate the degree of confidence around the historical estimations and trends presented which would be particularly desirable as some of

the changes in prices are by orders of magnitude. It would also have been interesting to have a measure of the sensitivity of the outputs to the uncertainties around the models used. Nonetheless, the caveats around the data are clearly explained and they don't detract from the value of the conclusions.

A final point related to the methodology which is worth mentioning is the author's decision to choose a price deflator versus a wage deflator which might not be as suitable for such long term analysis. The author is aware of this limitation (pp.40) but his rationale does not seem to fully justify his ultimate support of a price deflator.

A further important strength of the book is that Fouquet doesn't just present the data and tells a story, he also implicates himself and based on the understanding he has developed, gives his view of how these trends might evolve in the future. Although the final "future" section would require further analysis and not all the conclusions are warranted (for instance, peak-oil is largely regarded as a non-issue), it raises interesting questions of great importance for addressing the current energy challenges. For example he highlights the difficulty, almost impossibility of halting the trend of increasing consumption of all energy services and questions the effectiveness of policies that seek energy efficiency improvements in reducing energy consumption in the long run. So how will current policy goals that require energy conservation be achieved? In this sense crucial, modern developments to reduce energy consumption related to energy infrastructure (urban planning, smart grids) are not discussed in the book.

The broader issue is, however, how can past experiences help anticipate which form future energy transitions might take? The key is to understand which aspects of our current

transition towards a low carbon economy relate to past transitions and which are unique. For example, most of the analysis included in the book refers to a pre-industrial society where energy services were largely covering basic needs. Of the 700 years analyzed, only the last fifty are more comparable to our current "satisfied" society. Furthermore, in our current global economies with a considerable diversity of fuels and technologies, fluctuations in the price of a fuel will have a different impact on the cost of the energy service than that of pre-industrial, local economies where a fluctuation in, for example, the price of tallow (animal fat) would translate directly to the cost of lighting. Another interesting point relates to the structural changes that have taken place in the UK economy over the past 700 years such as the relocation of the manufacturing base which is no longer in the UK but global. This has an important impact for instance in the ability of a country to decarbonise its economy.

Heat, Power and Light: Revolutions in Energy Services, gives us a broad and deep understanding of the complex interactions that drive energy demand and supply. It is an exceptional study on long trends in energy services that does not leave the reader indifferent. Based on his outstanding analysis, the author addresses key issues related to current energy challenges and offers interesting contributions to existing debates, such as resource availability or the transition to a low carbon economy. A further value of the book is that it opens questions that point to areas where further research is required. For example, what are the long run consumption trends and drivers in societies that have their basic needs well covered? How does a country's energy history change when accounting for embedded energy and structural change in an economy? Or,

how does our current transition relate to past experiences, and which drivers are unique to it?

Book Information:

Title: Heat, Power and Light; Revolutions in Energy Services

Author: Roger Fouquet

Publisher: Edward Elgar

Year: 2008

Available at:

[http://www.elgar.co.uk/Bookentry_DESCRIPTION.lasso?id=40](http://www.elgar.co.uk/Bookentry_DESCRIPTION.lasso?id=4061)

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