

PAPER TITLE

ENERGY EXPECTATIONS AND UNCERTAINTY: THE WORLD OF INTERNAL CONTRADICTIONS INTENSIFIES.

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Overview

For over forty years energy expectations have been riddled with internal contradictions and all too often a failure to recognise complexity, the nature and scale of the challenges to be faced, and resultant uncertainty. Key elements of Shell's "World of Internal Contradictions" scenario, issued internally in October, 1974, still hold good. Some other elements have since intruded. The paper opens with a summary of the October, 1974, insights. In particular, three points stand out in that scenario book: "It is thought another major regional conflict in the Middle East, further serious threats to energy supplies or another major currency crisis and recession, could well precipitate the world into this path." "In the energy sector the supply problem is perceived as imposing a constraint on growth." "Within most societies expectations outstrip the achievement potential as the 'takers and dreamers' have a more influential role." The paper then surveys the evolution to the present, and the likely challenges of things to come. The future, like the past, seems likely to be riddled with internal contradictions and failure to find satisfactory resolution of important challenges for the future of the human race.

Methods

Draws on decades of first-hand experience of economics, energy economics, scenario development and application, the oil (including planning, pricing, supply and trading) and some renewables sectors, the Middle East, and climatic change issues, as well as familiarity with a large body of the relevant research and literature. Thus there is consideration of the geopolitical, social, economic, industrial sector, and environmental forces which the author expects to channel future development. This exposes wishful thinking, over-optimism, and the roles and impacts of vested interests in making desirable outcomes even more difficult to achieve than most observers and commentators would wish.

Results

A critique of excessive optimism, unrealistic targets, misleading claims, policies and actions having consequences contrary to expressed intentions, and powerful vested interests. This is illustrated by reference to rising coal use in various parts of the World - not just in China and India, but in parts of Europe also; coal use and heavily subsidised renewable forms of energy squeezing existing and new natural gas plants out in numerous countries because unable to compete despite relative emissions' advantages. Currently, and looking further out into the future, there are numerous examples of lack of realism about targets and the means and timing required to meet them (even if practicable) from sustainable development goals; population projections; urbanisation and its infrastructure and transport challenges; lack of access to modern energy services; and the impacts of ageing populations and fuel poverty more generally. In addition, while recognising the potential benefits of technological advances on both the supply and demand sides of energy, there are warnings about: the constraints imposed by muddled energy policies on the supply side and likely limits on the demand side arising from the "rebound effect"; the consequences of the

intermittency of some 'new' renewables and the resulting pressures placed on other forms of energy; the challenges of the high price of energy services in many countries - including those heavily subsidising renewable energy schemes such as Germany, Denmark and the UK; and examples of industry and other representatives "in denial" of straightforward facts. Also covered are: the seeming lack of urgency in introducing large-scale storage to offset intermittency; the high import dependency and its implied potential supply insecurity for many countries, and the inadequacy of strategic storage (of natural gas, for example) in some; the contradictory policies pursued by some governments in relation to coal and nuclear - and their likely adverse consequences; the potentially adverse environmental implications of some currently fashionable renewable energy options (such as among biomass and biofuels schemes, and tidal barrages); concerns about the efficacy of onshore wind energy developments in relatively low mean wind speed locations, together with concerns about the potential impacts of aerodynamic modulation and visual intrusion; concerns about raw material availability (e.g. for solar panels and wind turbines); the undermining of sound precautionary measures in the face of potential climatic change by too many unsound policies, measures, and investments; and the weaknesses in current standard emissions accounting (the failure to take full account of net emissions embedded in international trade) which permit some industrialised countries to exaggerate greatly their performance in reducing carbon emissions. In the context of the need for sound precautionary measures to confront potential anthropogenic climatic change, brief reference will be made to the complexities and uncertainties underlying this issue which are all too often overlooked.

Conclusions

Accessibility to modern energy services, which are reliable and affordable, should be a standard human expectation. Instead, for a variety of reasons, this goal is far further out - even if ultimately achievable - than most time-frames and targets suggest. Policies, debates, and actions are too often riddled with internal contradictions. So severe are the challenges confronting the world during the 21st Century that they could result in major conflicts, massive destruction and loss of life, and elimination of ecosystems on a huge scale. There has been discussion of the possibility of the end of the Anthropocene Age approaching. This prospect should not be dismissed out of hand.

References

These will appear appended to the paper, but will be kept to a minimum.

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