Futures 58 (2014) 103–114

Contents lists available at ScienceDirect

Futures

journal homepage: www.elsevier.com/locate/futures

Conflict and cooperation over access to energy: Implications for a low-carbon future

Philip Andrews-Speed [a,*], Coby van der Linde [b], Kimon Keramidas [c]

[a] Energy Studies Institute, National University of Singapore, Singapore
[b] Clingendael International Energy Programme, Den Haag, Netherlands
[c] Enerdata, Grenoble, France

ARTICLE INFO

Article history:
Available online 8 January 2014

Keywords:
Scenario
Cooperation
Conflict
Energy
CO_2
Emissions

ABSTRACT

This paper explores how the balance between cooperation and conflict in access to energy resources and in the wider governance of energy may be shaped by wider geopolitical trends and may itself shape global cooperation in managing the transition to a low-carbon world. The analysis draws on both qualitative and quantitative methodologies. Four qualitative Future World Images to the year 2040 are based on varying degrees of cooperation in international governance and of state involvement in markets. These qualitative Images have been converted into quantitative parameters which could be input to the POLES model in order to produce four quantitative scenarios. In all four scenarios, annual CO_2 emissions by the year 2040 are higher than those in 2009 and much higher than the UN target for 2050. Emissions are significantly higher in the collaborative worlds than in the uncollaborative worlds. Notwithstanding this apparent unattractiveness of the collaborative images, they do allow greater technological development and higher energy efficiencies to be achieved than do the uncollaborative images. These advantages of the collaborative worlds are likely to provide a much stronger basis for moving to a low-carbon world after 2040, especially where markets play a strong role in trade and investment.

1. Introduction

Whilst bottom up solutions are playing an increasingly important role in moves to a low-carbon economy [1], particularly because an international agreement beyond the Kyoto Protocol has been lacking [2–4], the degree of cooperation between nations, between public and private sectors, and between private actors at regional and global levels still needs to be enhanced [5–10].

The degree and nature of such cooperation in the low-carbon transition will be shaped, in part, by the behaviours in the wider energy arena, especially those relating to access to primary energy resources such as oil and gas, a field in which tension and conflict often appear to be more prevalent than cooperation. The balance between conflict and cooperation, in turn, will be shaped by and will shape wider global economic and political shifts because having access to these resources through investment trade is of critical importance to many countries and companies. Countries, in particular, derive their level of comfort in energy trade from the idea that they have various options for trading energy and that geopolitical

* Corresponding author at: Energy Studies Institute, National University of Singapore, 29 Heng Mui Keng Terrace, Block A #10-01, Singapore 119620, Singapore. Tel.: +65 65167086; fax: +65 67751831.
E-mail addresses: esicpa@nus.edu.sg, cpandrewsspeed@hotmail.com (P. Andrews-Speed).

0016-3287/$ – see front matter © 2014 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.futures.2013.12.007

differences do not play a role in accessing resources. Of course, both countries and companies have the option of saving energy. The existence of an open trading system in energy and minerals is important for net-importing countries, while producing countries also thrive when they can access various markets [11]. In a world system in which state actors, both companies and governments, are becoming more prevalent, the openness of the world economic system in trade and finance appears to be becoming increasingly uncertain. In the case of energy, there is uncertainty over whether state companies will continue to supply international markets or whether, at some point in time, they will discriminate to supply only their own domestic markets, thus depriving other countries of diversity of sources. The business models of state-owned and privately owned companies differ, a factor which also impacts access to resources if it threatens to undermine a level playing field in terms of access to capital or technology.

The governance of the international economy is an important determinant of the future development of the energy sectors and of the emergence of conflict or collaboration in energy. The governance system also matters to mitigating the externalities of carbon-rich resources. In a less collaborative world, the chance of coming to an international agreement is smaller, while regional or bilateral cooperation might also lose effectiveness when costs and benefits cannot be easily shared.

The aim of this paper is to explore how the balance between cooperation and conflict in access to energy resources and in the wider governance of energy may be shaped by wider geopolitical trends and may itself shape global cooperation in managing the transition to a low-carbon world.

This paper builds on the results of a project 'POLINARES' (Policy for Natural Resources), the aim of which was to examine trends in cooperation and conflict in access to oil, gas and minerals.[1] One component of the project involved combining qualitative and quantitative foresight to the year 2040 in order to explore the possible impacts of different geopolitical and geo-economic futures on the balance between cooperation and conflict in global energy governance and on specific aspects of energy supply, demand and trade. These scenarios included qualitative assessments of the degree of cooperation in addressing climate change as well as quantitative projections of carbon dioxide emissions.

The paper is organised in three parts. The following section identifies three key sources of international tension and conflict in oil and gas markets. This is followed by the qualitative and quantitative scenarios to the year 2040, and a discussion of the implications for a low carbon future.

2. International sources of conflict

In simple terms, a world in which the main actors in international oil and gas markets cooperate in the management of risk should reduce the probability of unfavourable risk events occurring, whereas a world in which tension and conflict are prevalent will raise that probability. In order to identify the main sources for future tension and conflict, we analyse the current and recent practices and strategies of key actors in the energy sector by focusing on three phenomena [12]:

1. Access to energy markets and the role of institutions and governance;
2. Trade and rent distribution in energy value chains;
3. State and private ownership drivers on energy value chains.

The first phenomenon highlights the relationship between global governance issues, national governance and resource markets. The key issue is the seemingly increasing misfit between the institutional arrangements governing energy markets and the current and recent trends in geo-political and geo-economic power distribution. With new entrants rapidly gaining traction in the international energy markets having their own business models which rely less on the open market (for instance vertical integration along the supply and value chain), the dominant principles of international energy markets are being affected.

It was the perspectives and interests of mainly OECD countries that had previously shaped most of the institutional arrangements governing international economic transactions, including energy trade relations. After 1960 and especially since 1973, these relations have also been shaped by the interaction of OECD countries, represented by the International Energy Agency (IEA), and the Organisation of Oil Exporting Countries (OPEC). However, in recent years the emergence of China as a large net exporter of manufactured goods to the rest of the world and the growth of international capital markets have challenged the global institutions governing trade and balance of payments relations, namely the World Trade Organisation (WTO) and the International Monetary Fund (IMF). The integration of China and India, two very large nations, is bound to change the international system itself even though they derive clear benefits from the system [13].

Three asymmetries play an important role in the second phenomenon. First, there is a growing geographical dislocation between the main producing and consuming areas resulting in increased trade flows [14]. Second, supply and demand pressures increasingly allocate more of the economic rents upstream in the energy value chains. It must be noted that power and control over supply does not only reside with governments, but also with companies, which operate globally across political jurisdictions, and have the capacity to influence both supply (production) and demand (price). Third, as a result of the first two trends we also see increasing monetary asymmetries between energy producing and consuming countries.

[1] See www.polinares.eu.