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Lost in transition. The world's energy past, present and future at the 1981 United Nations Conference on New and Renewable Sources of Energy

Abstract

After four years of preparations, in the summer of 1981 Nairobi hosted the United Nations Conference on New and Renewable Sources of Energy. A diplomatic exercise bringing together more than one-hundred governments from North and South and East and West, the conference did not produce either startling or binding decisions. However, the characteristics of the meeting were also such that the conference's final Programme of Action can be seen as a sort of *summa* of official thinking about energy at the beginning of the 1980s. After briefly presenting the making and the outcomes of the Nairobi conference, the article focuses on both the novelty and the limitations of the language of "energy transition" that was adopted on the occasion.

Plan of the article

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INTRODUCTION

1 Scholars have long dealt with the changes in the thinking about energy after the "oil shocks" of the 1970s.[1] This essay contributes to the literature by focusing on the United Nations Conference on New and Renewable Sources of Energy that was held in Nairobi in the summer of 1981. Usually the object of a short reference in the histories of renewable energies, the Nairobi conference is seldom mentioned in more general works on the UN or energy history. Such lack of attention is in many ways understandable: a diplomatic exercise bringing together more than one-hundred governments (not to mention the dozens of international organizations and UN agencies which took part in the works), the conference did not produce either startling or binding decisions. As is shown below, as far as the promotion of "new and renewable" sources of energy was concerned, to many observers the conference outcomes proved even below their already low expectations. Nevertheless, the Nairobi conference has at least two main reasons of interest. On the one hand, it was virtually the only attempt to tackle "energy" at the level of the entire "international community" – North and South, East and West – in the context of the deep changes produced in the international political economy by the hikes in oil prices of 1973 and 1979-1980. While its formal agenda included only the "new and renewable" sources of energy (a quite ambiguous terminology, by the way, as I will discuss below), *de facto* Nairobi was the only truly global forum at which governments debated the energy past, present and future of the planet in the wake of the "oil shocks". The making and outcomes of the conference are discussed in sections one and two below, on the basis of UN official documents, newspaper commentaries, and secondary literature.

On the other hand, it is precisely from its global nature that derives the second reason of interest of the Nairobi conference: the conference's resulting "Programme of Action", adopted by consensus, can be seen as a sort of *summa* of the official energy thinking of the time, a minimum common denominator of what was acceptable to all parties involved. Thus, a critical analysis of its language allows us to grasp how the world's energy situation was conceptualized in global official public discourse at the beginning of the 1980s. The third section of the article highlights how the Programme (and the conference works more broadly) reflected the change in the language about energy that had occurred during the 1970s, one for which the world's condition needed to be understood in terms of an "energy transition".[2] The adoption of such language in Nairobi provided a kind of stamp of global officialdom to the greater awareness of the historical contingencies governing energy which characterized the post-1973 years. But, as I will discuss in sections four and five, this also came with a set of ambiguities and contradictions that made the phrase "energy transition" little more than a buzzword good for any use. The sixth section concludes. 2

THE NAIROBI CONFERENCE AND ITS ORIGINS

Between 10 and 21 August 1981, the Kenyatta International Convention Centre in Nairobi hosted more than 4000 delegates from 125 countries and dozens of international organizations 3

1 A necessarily incomplete list of general references includes Jean-Claude Debeir, Jean-Paul Deléage and Daniel Hémery, *Histoire de l'énergie* (Paris: Flammarion, 2013 [original ed. 1986]), chap. 7; Vaclav Smil, *Energy in World History* (Boulder: Westview, 1994), chap. 6; Fiona Venn, *The Oil Crisis* (London: Routledge, 2002); Giuliano Garavini, *The Rise and Fall of OPEC in the Twentieth Century* (Oxford: Oxford University Press, 2019), chap. 4-6.

2 This aspect of the energy debates of the 1970s has been emphasized in Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene. The Earth, History, and Us* (London: Verso, 2016), chap. 5; Kathleen Araújo, *Low Carbon Energy Transitions. Turning Points in National Policy and Innovation* (Oxford: Oxford University Press, 2018); Duccio Basosi, "A Small Window. The Opportunities for Renewable Energies from Shock to Counter-Shock", *in* Duccio Basosi, Giuliano Garavini and Massimiliano Trentin (eds.), *Counter-Shock. The Oil Counter-Revolution of the 1980s* (London: IB Tauris, 2018). On the notion of "energy transition" in general: Jean-Baptiste Fressoz, "Pour une histoire désorientée de l'énergie", *Entropia*, vol. 15, 2013; Vaclav Smil, *Energy Transitions: History, Requirements, Prospects* (Santa Barbara: Praeger, 2010); Bruce Podobnik, *Global Energy Shifts: Fostering Sustainability in a Turbulent Age* (Philadelphia: Temple University Press, 2006), chapter 6.

for the United Nations Conference on New and Renewable Sources of Energy.[3] This was not the first UN conference entirely dedicated to energy (as sometimes mistakenly reported), but both the number of participants and the level of the delegations put it on a wholly different plane from its predecessor, held in Rome exactly twenty years earlier.[4] The UN Secretary General Kurt Waldheim opened the conference with an inspired speech, followed by a similar performance by Kenya's strongman Daniel arap Moi.[5] Four foreign heads of state and government, including India's Indira Gandhi and Canada's Pierre Trudeau, addressed the delegates, while other heavy-weights of world politics, including US President Ronald Reagan, China's Premier Zhao Ziyang and Mexican President José López Portillo, sent well-wishing messages.[6] Many national delegations were headed by ministers. Outside the conference center, local social movements – such as Wangari Maathai's Green Belt Movement – as well as representatives from international social movements and NGOs staged street demonstrations and held a parallel forum aimed at exerting pressure on the delegates for the adoption of clear objectives and financing schemes concerning both the promotion of "new renewables", such as solar and wind power, and the safeguarding of "old renewables", such as the forests which had come increasingly under threat in the context of the less affordable prices of petroleum products.[7]

"Energy" had quickly climbed up the international agenda in the aftermath of OPEC's 1973 quadrupling of oil prices.[8] With oil then supplying roughly 50% of the world's total commercial energy, OPEC governments presented their organization as the developing countries' spearhead to redress the world's economy in their favor.[9] Their success was on display the following year, when a cohesive common front of Third World governments – oil importers and exporters alike – obtained the adoption by the UN General Assembly of two resolutions promoting the establishment of a New International Economic Order (NIEO).[10] As far as the capitalist "West" was concerned, in the same year 1974 a group of seventeen countries led by the United States founded the International Energy Agency (officially to promote mutual cooperation in the field, and possibly to serve as a counterweight to OPEC's power).[11] Starting in 1975, sections on "energy" of various length also featured regularly in the final communiques of the yearly summits of the seven most industrialized capitalist countries (the so-called G7, itself a product of

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3 The list of the governmental delegations in attendance is in the official conference report: United Nations (UN), *Report of the United Nations Conference on New and Renewable Sources of Energy, Nairobi, 10 to 21 August 1981* (New York: United Nations, 1981), 48. As to the number of delegates, it was "about 5000" according to Nairobi's *Daily Nation*, while both *Le Monde* and the *Frankfurter Allgemeine Zeitung* gave the more conservative estimate of 4000. Respectively: "Sell us cheap oil, says Moi", *Daily Nation*, 11 August 1981; "Les deux crises", *Le Monde*, 11 August 1981; "Energie-Konferenz", *Frankfurter Allgemeine Zeitung*, 10 August 1981.

4 While featuring an address by Pope John XXIII, the Rome conference had had a mainly "technical" and academic character, and had seen the attendance of "447 persons from seventy-four countries and territories": UN, *New Sources of Energy and Energy Development. Report of the United Nations Conference on New Sources of Energy, Rome, 21 to 31 August 1961* (New York, United Nations, 1962).

5 UN, *Report*, 52-55 (cf. note 3).

6 *Ibid.*, 56, 110-114.

7 "More light than heat", *New Scientist*, 20 August 1981, 460; "Les pays en développement s'élèvent contre le prix excessif du pétrole", *Le Monde*, 12 August 1981. Also: Wangari Maathai, *Replenishing the Earth: Spiritual Values for Healing Ourselves and the World* (New York: Doubleday, 2010), 97

8 Recent assessments are in Elisabetta Bini, Giuliano Garavini and Federico Romero (eds.), *Oil Shock: The 1973 Crisis and its Economic Legacy* (London: IB Tauris, 2016).

9 Christopher Dietrich, *Oil Revolution. Anticolonial Elites, Sovereign Rights, and the Economic Culture of Decolonization* (Cambridge, UK: Cambridge University Press, 2017); Giuliano Garavini, "From Boumedienomics to Reaganomics: Algeria, OPEC, and the International Struggle for Economic Equality", *Humanity*, vol. 6, n° 1, 2015.

10 Giuliano Garavini, *After Empires: European Integration, Decolonization and the Challenge from the Global South, 1957 – 1986* (Oxford: Oxford University Press, 2012), chap. 5-6.

11 Henning Türk, "The Oil Crisis of 1973 as a Challenge to Multilateral Energy Cooperation among Western Industrialized Countries", *Historical Social Research*, vo. 39, n° 4, 2014. Two "classic" accounts are in Fiona Venn, *The Oil Crisis* (London: Routledge, 2002); and Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (New York: Touchstone, 1991), chap. 29-33.

the "energy crisis" to an extent).[12] But the hike in oil prices also had reverberations in the "East", where energy-related trade was both a useful instrument in the Soviet "charm offensive" with Western Europe, and a reason of growing mutual bitter recriminations within the Eastern bloc.[13] In the latter half of the 1970s, against the backdrop of growing oil-imports-related indebtedness for many a Third World country, "energy" remained a major topic at the Conference on International Economic Cooperation (CIEC), which ran in Paris from 1975 to 1977 and supposedly incarnated a "North-South dialogue" between the (western) industrialized and the developing countries: to be sure, in the context of what proved to be a "dialogue of the deaf" on the general rules of the international economy, no agreement was found on substantial issues such as the principles on which to base oil pricing, the maintenance of OPEC's purchasing power, and financial assistance to oil-importing developing countries.[14] Nevertheless, CIEC participants were able to agree on the importance of energy availability and of cooperation in the energy field, with particular concern for the diversification of energy resources in the developing countries.[15]

5 Thus, at its 1978 session, the UN's General Assembly passed Resolution 33/148 "to convene an international conference on new and renewable sources of energy under the auspices of the United Nations in 1981".[16] The designation of Nairobi as the conference venue came at the following session of the General Assembly, together with the indication that ECOSOC's Committee on Natural Resources should act as the conference's preparatory committee.[17] In the same year, the Tunisian diplomat Mohamed Habib Gherab was chosen as the conference's secretary-general, a position in which he served until early 1981, when he was replaced by Uruguayan diplomat Enrique Iglesias.[18]

According to several commentators, the emphasis on "new and renewable sources" had been motivated by the desire to relaunch international dialogue and avoid the serious political confrontation that could be expected to occur over oil and oil prices.[19] In fact, it was precisely a new redoubling of oil prices in 1979-80 that lent the conference a greater political character, at a time when Mexico's President Portillo made bold proposals for a "World energy plan", the G7 promised to "break the existing link between economic growth and consumption of oil", and the Carter administration proclaimed that the Persian Gulf was a "vital interest" of the United States of America.[20] Not surprisingly, the conference was thus "welcomed" by the Non-Aligned Movement at its 1979 Havana summit, and looked at with hope in the well publicized report of the semi-official Independent Commission on International Development Issues chaired by the 6

12 Nicholas Bayne, "The foundations of summitry", *in* Emmanuel Mourlon-Druol and Federico Romero (eds.), *International Summitry and Global Governance: the Rise of the G7 and the European Council, 1974-1991* (London: Routledge, 2014).

13 Jeronim Perović, "The Soviet Union's Rise as an International Energy Power: A Short History", *in* Jeronim Perović (ed.), *Cold War Energy. A Transnational History of Soviet Oil and Gas* (London: Palgrave, 2017), 14-19; Andrei Keller, "'Muzhskaja druzhba'? Villi Brandt i Leonid Brezhnev v kontekste jenergeticheskogo dialoga mezhdu FRG i SSSR v 1970–1973 gg." ['Masculine Friendship'? Willy Brandt and Leonid Brezhnev in the Context of the Energy Dialogue between West Germany and the USSR, 1970–1973], *The Soviet and Post-Soviet Review*, vol. 44, n° 2, 2017.

14 Garavini, *After Empires*, chap. 6 (cf. note 10).

15 Jahangir Amuzegar, "A Requiem for the North-South Conference", *Foreign Affairs*, vol. 56, n° 1, 1977.

16 UN, General Assembly, Res. 33/148 of 20 December 1978.

17 UN, *Report*, 45 (cf. note 3).

18 *Id.*

19 "Les pays en développement" (cf. note 7); S. Odingo, "Prospects for New Sources of Energy", *GeoJournal*, vol. 3, supplement 1, 1981; Ursula Wasserman, "UN Energy Conference in Nairobi", *Journal of World Trade*, vol. 16, n° 1, 1982.

20 Portillo's bold energy speech at the 1979 UN General Assembly is briefly discussed in Guia Migani, "The road to Cancun. The life and death of a North–South summit", *in* Mourlon-Druol and Romero (eds.), *International Summitry* (cf. note 12). An intellectual history of "energy decoupling" is in Stephen Gross, "Reimagining Energy and Growth: Decoupling and the Rise of a New Energy Paradigm in West Germany, 1973-1986", *Central European History*, vol. 50, n° 4, 2017. On the "Carter doctrine" in the Persian Gulf, see Luis da Vinha, *Geographic mental maps and foreign policy change: re-mapping the Carter Doctrine* (Berlin: De Gruyter Oldenbourg, 2017).

former German chancellor, Willy Brandt.[21] But by 1981 the wind had also started to blow in a direction averse to gatherings like the one which was to take place in Nairobi: years of little progress over North-South issues had led to generalized weariness toward large UN conferences, US-Soviet relations had turned bitter again, and the coming to power of the new Reagan administration in the US promised to bring an even more radical wave of skepticism on the whole notion that "economic issues" should be settled in diplomatic forums.[22]

RESULTS AND ASSESSMENTS

7 As had occurred with similar conferences convened by the United Nations in the previous decade, the ten days of negotiations ended with the adoption by consensus of a "Programme of Action", which was devoted to "the Development and Utilization of New and Renewable Sources of Energy".[23] Later in the same year, the UN General Assembly adopted the Programme, again by consensus, with a resolution that "not[ed] with satisfaction the agreement reached on some issues", "express[ed] deep concern that no final decisions were taken on some other important questions", and urged in any case all governments "to take effective action" for its implementation.[24]

8 The Nairobi Programme was a 43-page document, divided in three main parts. The first part presented the intellectual and international political framework in which the conference had taken place and attempted – without much success, as I will discuss below – to frame a common language in which disparate national and regional priorities could be understood as part of a shared effort of the whole international community.[25] The second part listed the actual "measures for concerted action": for each of the fourteen sources of energy eligible as "new and renewable", the measures consisted in assessment and planning, research and development, and eventually technological transfer and adaptation, to be undertaken "at the national, subregional, regional and international levels".[26] The third part dealt with the identification of the areas of priority action and with the institutional arrangements for the implementation and monitoring of the program.[27]

9 This last part was the one that attracted most of the commentaries after the conference. As most commentators noted, despite the demands by Third World countries, no new international body was created to promote energy cooperation and financing, nor was there any financial target to meet by the member states in support of "new and renewable" energies. The *New York Times* wrote that the conference had ended "with a billion-dollar plan to end dependence on fossil fuels but no money to carry it out" and reported the comment of a delegate from an unspecified Third World country who allegedly dubbed the Programme "the Nairobi plan of inaction".[28] The Boston-based *Christian Science Monitor* confirmed that

> the agreement was hardly welcome to the third-world countries and their friends [who] had hoped for the setting up of a thoroughgoing UN energy secretariat and a financial energy institution (preferably linked to the World Bank) that would be able to channel large funds to poor nations for the development of suitable renewable energy sources.[29]

21 Respectively: *6th Summit Conference of Heads of State or Government of the Non-Aligned Movement* (Havana, Cuba, 3 – 9 September 1979), 112, available at http://cns.miis.edu/nam (accessed 4 July 2018); and *North/South: A Program for Survival* (Boston: MIT Press, 1980), 169-171.

22 A synthesis of the effects of these processes on the UN is in Mark Mazower, *Governing the World. The History of an Idea* (London: Penguin, 2012), chap. 12, which however does not mention the Nairobi conference. The changes are also discussed in Michael Schechter, *United Nations Global Conferences* (London: Routledge, 2005), 83-86.

23 Schechter, *United Nations*, 83 (cf. note 22). The full text of the Programme is reproduced in UN, *Report*, 1-43 (cf. note 3).

24 UN, General Assembly, Res. 36/193 of 17 December 1981.

25 UN, *Report*, 1-8 (cf. note 3).

26 *Ibid.*, 8-21.

27 *Ibid.*, 21-36.

28 "UN Energy Talk Ends with Plea for Money", *New York Times*, 23 August 1981.

29 "UN Energy conference fell far short of Third World expectations", *Christian Science Monitor*, 24 August 1981.

10 During the conference, some national delegations had made public announcements concerning their will to increase their international energy aid,[30] but the final document only stated that "investments in new and renewable sources of energy will account for a substantial and growing proportion of [energy] investment needs" (the latter were estimated to be "in the order of $54 billion" for the developing countries only).[31] In regard to the "measures for concerted action", the Programme indicated, in what was reportedly a last-minute deal, that "there should be an intergovernmental body in the United Nations specifically concerned with new and renewable sources of energy and entrusted with guiding and monitoring the implementation" of the recommendations included in the Programme itself, but left it to future arrangements to define its nature.[32] The conservative *Times* of London wrote of a "dawn stint" with "compromises" and the left leaning French *Le Monde* reported the comment of an unspecified "European diplomat" according to whom "the result was not glorious, but allowed everybody to save their face".[33] But the Jamaican *Kingston Gleaner*, which had followed the conference works with a keen interest in the performance of Prime minister Edward Seaga, wrote that it was not clear how "this plan of action [...] is to be implemented", and San Paulo's *Folha* was even more direct in writing of the "total collapse" of the UN conference.[34]

11 The press was also quick to recognize in the final outcome the visible hand of the US delegation, particularly averse to international bodies and public programs after the inauguration of the Reagan administration earlier in the year. The Soviet *Pravda* represented the US government as intent in putting "*opjat' palki v kolesa*" of the conference (literally "again the sticks in the wheels").[35] While not particularly surprising, given the bad state of US-Soviet relations at the time, such assessment was also somewhat hypocritical, since the delegations from the Eastern bloc had actually been in basic agreement with the US one, if with a lower profile.[36] But even the conservative Italian *La Stampa* wrote of Reagan's "veto".[37] On its part, the US delegation did little to conceal its satisfaction for the eventual minimalist arrangements: James Stromeyer, the US chief negotiator, was actually the only delegate claiming to be "very, very thrilled" at the outcomes.[38] As a confidential briefing paper for President Reagan spelled out some weeks after the conference:

> the success of UN conferences should not be measured in terms of new funds created. [...] The Principal value of the [Nairobi] Conference was in highlighting awareness of the current and potential use of [new and renewable sources of energy] and demonstrating that certain energy issues can be fruitfully discussed in UN forums. [...] It is particularly significant that the Program of Action [...] gives appropriate emphasis to the role of the private sector.[39]

12 In the following months, specialized magazines confirmed the basic disappointment expressed by the daily press, with the environmentalist UK-based *New Scientist* concluding that the whole effort, which had consumed "over 100

30 "Britain and Canada pledge energy aid", *The Times*, 12 August 1981.

31 UN, *Report*, 35 (cf. note 3).

32 *Ibid.*, 28.

33 "Dawn stint at energy conference", *The Times*, 22 August 1981; "La fin de la conférence de Nairobi", *Le Monde*, 24 August 1981.

34 "Carib. Energy Parley in the Making", *Kingston Gleaner*, 20 August 1981; "Conferência da ONU fracassa", *Folha*, 22 August 1981.

35 "Opjat' palki v kolesa", *Pravda*, 21 August 1981.

36 The position of the Bulgarian delegate, speaking for the entire Eastern block, is reported in UN, *Report*, 102-103 (cf. note 3). When the United Nations General Assembly, in 1982, created the Committee on the Development and Utilization of New and Renewable Energy Sources (Res. 37/250 of 21 December 1982), the Soviet Union and the United States were among the only ten countries to cast a negative vote. Voting record available at http://unbisnet.un.org:8080/ipac20/ipac.jsp?profile=voting&index=.VM&term=ares37250 (accessed 4 July 2018).

37 "Nairobi, tra ricchi e poveri nessun accordo sull'energia", *La Stampa*, 22 August 1981.

38 "UN Energy Talk" (cf. note 28).

39 Briefing paper on "Energy", attached to memorandum from Paul Bremer to Richard Allen, "Cancun Economic Summit Briefing Papers", 6 October 1981, Confidential, Ronald Reagan Presidential Library (RRL), Norman Bailey Files, Box 2, Cancun Summit.

billion sheets of paper", had been "a waste of energy".[40] For some years, invoking the Nairobi Programme remained a respected diplomatic activity: two years after the conclusion of the conference, the New Delhi summit of the Non Aligned Movement still lamented that "little progress" had been made on the subject[41], and the General Assembly of the United Nations passed another resolution (38/169) demanding the "immediate implementation" of the Programme.[42] After the mid-1980s, however, the Nairobi meeting fell into virtual oblivion for all practical purposes.[43]

ENERGY TRANSITION: A NEW PHRASE IN TOWN

13 Whatever its achievements (or lack thereof) in terms of actual cooperation in "new and renewable" sources, the Nairobi conference is an extremely interesting event in order to understand how the question of energy was thought about in the aftermath of the "oil shocks" of the 1970s. The result of an effort that was both more global in scope, and more specific in focus than the contemporary meetings of the "North-South dialogue", the conference stands out for its attempt to frame a new language on energy, in particular by providing the stamp of officialdom to the notion that the world was engaged in an "energy transition".[44]

14 In the 43 pages of the Programme, the term "transition" occurred 25 times (19 times in the phrase "energy transition"). Often – and, as will be discussed below, not without contradictions – the "energy transition" was presented in highly prescriptive terms, as a goal to be "ensured" through appropriate "technological, commercial, financial and monetary modalities".[45] Indeed, "achiev[ing] an orderly and peaceful energy transition" was presented as "the challenge and opportunity" of the time since the very first line of the document.[46] Borrowed from physics and re-signified to designate a change in the patterns of energy production and consumption of a given population, the phrase had showed up only sporadically in English from the 1950s to the early 1970s, mainly in publications intended to promote the civilian use of atomic energy.[47] In adopting it, Nairobi reflected and formalized at the highest international level the widespread change in the ways of thinking about energy that characterized the second part of the 1970s, after the 1973 "oil shock" had acted as an eye-opener into the temporary nature – indeed the frailty – of the previous energy order.[48]

15 The 1970s were not the first time when academics or policy planners reflected on the historically-contingent nature of the human use of specific energy sources: from William Stanley Jevons's *The Coal Question* (1865) to the OEEC's "Robinson report" (1960), such considerations

40 "Waste of Energy", *New Scientist*, 27 August 1981, 506; Odingo, "Prospects" (cf. note 18); Ursula Wasserman, "UN Energy" (cf. note 7); André van Dam, "Renewable energy: renewable hope", *Futures*, February 1982.

41 *7th Summit Conference of Heads of State or Government of the Non-Aligned Movement* (New Delhi, India, 7-12 March 1983), 79, available at http://cns.miis.edu/nam (accessed 4 July 2018).

42 UN, General Assembly, Res. 38/169 of 19 December 1983.

43 The conference is briefly mentioned in Bernd Hirschl, "International renewable energy policy—between marginalization and initial approaches", *Energy Policy*, vol. 37, 2009; Johannes Urpelainen and Thijs Van de Graaf, "The International Renewable Energy Agency: a success story in institutional innovation?", *International Environmental Agreements*, vol. 15, 2015; Peter Dauvergne, *Handbook of Global Environmental Politics* (Cheltenham: Elgar, 2012), 80-81; Sylvia Karlsson-Vinkhuyzen, "The UN, Energy and the Sustainable Development Goals", *in* Thijs Van de Graaf *et al.* (eds.), *The Palgrave Handbook of the International Political Economy of Energy* (London: Palgrave, 2016). All these works cite Nairobi either as an event of no consequence, or as the far antecedent of later gatherings. In this same spirit, IRENA's website traces the agency's origins back to "the proposal for an international agency dedicated to renewable energy" made in Nairobi in 1981: see **http://www.irena.org/about/aboutirena/history** (accessed 1 Macrh 2020). As for (the lack of references in) general histories of energy, see for example: Smil, *Energy in World History* (cf. note 1); Debeir, Deléage and Hémery, *Histoire* (cf. note 1).

44 *Energy Transition* was the title of the Programme's first chapter: UN, *Report*, 3 (cf. note 3).

45 UN, *Report*, 5 and 3 (cf. note 3).

46 *Ibid.*, 3.

47 See, for example, Harrison Brown, *The Challenge to Man's Future* (New York: Viking, 1954).

48 "The eruption of oil prices since 1973 [...] had shattered the settled regime of cheap and reliable energy as an unfailing resource", in the words pronounced by the Jamaican Prime minister Seaga in Nairobi: UN, *Report*, 57 (cf. note 3).

punctuated the history of the modern uses of energy.[49] But rarely did they step into the limelight outside of specialist or government circles, and even more rarely were they conceived as systematic reflections on world energy history.[50] After 1973 instead, the studies of energy in the past began to flood history journals, the field of "energy policy" quickly became a hot topic in ordinary debates, and publications envisioning some "energy future" attracted wide readerships in multiple languages: less radical than "energy revolution" and less technical than "energy substitution" (two expressions with which it often came in association), in such a context "energy transition" became the key phrase to indicate both that energy practices had often changed in the past, and that they could – or should – change again in the present and in the future.[51]

16 The United States, the country where the phrase first gained wide circulation, was also the one where it first became part of the political jargon: on 18 April 1977, the democrat President Jimmy Carter used it in a televised speech to the nation, during which he told the public that "twice in the last several hundred years, there has been a transition in the way people use energy" (from wood to coal in the 19th century and from coal to oil in the 20th), and that "we must prepare quickly for a third change".[52] In the same months, 1970 "Earth Day" promoter Denis Hayes set up to organize a "Sun Day" aimed at ensuring a "transition to a post-petroleum world" based on what, in a successful book, he had called "the rays of hope".[53] By the end of the decade, several countries saw equivalent expressions appear in national political debates.[54]

17 Three documents testify to the spreading of the term in international forums before Nairobi: José Lopéz Portillo's aforementioned 1979 "energy plan", where he proposed "the adoption of a world energy plan that covers all nations [...] and has as its fundamental objective the assurance of an orderly, progressive, and just transition from one age to man's history to the next";[55] the same "Brandt report" cited above, presented to the UN Secretary General in February 1980, which recommended "an orderly transition [...] from high dependence on increasingly scarce nonrenewable energy sources";[56] and finally, the General Assembly's Resolution 35/56 of 5 December 1980, which affirmed that "the international community will have to make substantial and rapid progress in the transition from the present international economy based on hydrocarbons".[57]

18 In view of the Nairobi conference, government officials from all over the world, as well as representatives from international organizations and NGOs were thus explicitly invited to think in terms of the "awareness of the role of new and renewable sources of energy in the energy transition of mankind" during the sessions of the Preparatory Committee.[58] In that connection, the Group of 77 submitted a proposal that the

49 A survey of early 20th century critics of the reliance on fossil fuels is in Hermann Scheer, *Energiautonomie* (München: Verlag Antje Kunstmann, 1999), chap. 2; an analysis of the "scarcity syndrome" in the US is in Roger Stern, "Oil Scarcity Ideology in US National Security Policy, 1909-1980", Oil, Energy & the Middle East Program, Working Paper, Princeton University, 2012; commentary about the 1950s debates in the OEEC up to the "Robinson report" is in George Gonzalez, *Urban Sprawl, Global Warming, and the Empire of Capital* (New York: SUNY Press, 2016), 78-81.

50 As concerns the latter point, a possible exception from the first half of the 20th century is Lewis Mumford, *Technics and Civilization* (London: Harcourt, 1934).

51 A survey is in Basosi, "A Small Window" (cf. note 2).

52 Jimmy Carter, "Address to the Nation on Energy", 18 April 1977, available at **https://www.presidency.ucsb.edu/documents/address-the-nation-energy** (accessed 1 March 2020). Also: "Excerpts From 'Overview' Section of President's National Energy Plan", *New York Times,* 30 April 1977.

53 "'Earthday' backer planning 'Sun Day'", *New York Times*, 16 October 1977. Hayes would soon be called by Carter to direct the Solar Energy Research Institute.

54 See for example "Controle da política energética", *Folha*, 4 November 1978; "Nucléaire: le gouvernement français est moins seul", *Le Monde*, 12 June 1979; "Jansen fordert 'Energiewende'", *Frankfurter Allgemeine Zeitung*, 5 September 1979.

55 Address by Mr. José Lopéz Portillo, *United Nations General Assembly, Official Records, Thirty-Fourth Session, 11th Plenary Meeting,* 27 September 1979, 202.

56 *North/South,* 171 (cf. note 21).

57 UN, General Assembly, Res. 35/56 of 5 December 1980.

58 Such was the invitation by the conference's Secretary-General Enrique Iglesias at the third session of the preparatory committee, which was held in early spring 1981: UN, *Report of Preparatory Committee for the United Nations Conference on New and Renewable Sources of Energy* (New York: United Nations, 1982), 7.

conference promote the "concerted action of the international community in order to contribute to the process of energy transition".[59] The delegation of the Netherlands, speaking on behalf of the European Community, similarly stressed "the importance of energy transition, a concern common to the whole of the international community",[60] and the US delegation submitted a proposal to rephrase the objectives of the conference so as "to increase the quantity of energy that can be derived from new and renewable sources of energy and the pace of transition to those technologies".[61] So widespread had become the circulation of the expression, that in Nairobi virtually all major speeches spoke that language, while the speakers who did not use it – the Soviet delegation and the OPEC representative, for instance – did not object to its use.[62] In a sense, at the beginning of the 1980s, the "international community" formalized nothing less than its acceptance of the historicity of the human use of energy: this was no longer to be thought of as a transcendent phenomenon, but as a fully historical one, evolving along with needs, science, technology, and availability of resources.

DUBIOUS CERTAINTIES

19 On a more critical note, Jean-Baptiste Fressoz has written that the phrase became popular in the mid-1970s to ward off the much more depressive notion that an "energy crisis" had taken hold of the oil-importing countries.[63] Indeed, it is difficult to put in doubt that its success owed much to the oil price shock of 1973, the evident critical consequences of which it contrasted with the positive language of opportunity and change. But the language of "the energy transition" came also embedded with a problematic assumption that was typical of the 1970s: coming on top of a new redoubling of oil prices in 1979-80, the Nairobi conference did not only promote the abstract notion that social arrangements concerning energy were transient, but also the much more specific notion that "the transition" was necessitated by the prevailing high prices of "conventional" resources.[64]

This was a view that compounded in a single 20
conclusion two distinct forecasts about the future that were popular in the 1970s: that oil prices would remain high forever, and that their increase reflected the coming scarcity of the precious hydrocarbon. The Programme spelled out the problem clearly in its first pages:

> In view of the often wasteful and inefficient utilization of hydrocarbon resources by some countries as well as their finite supply and depletable nature it has become clear that the previous assumption of abundant and cheap energy is not valid any longer.[65]

Today, standard textbooks on energy history 21
recognize that many factors contributed to the steep price increases of the 1970s much more than their "finite supply".[66] But one need only to take a rapid look at the official conference report to notice that there was a common thread running through the debate in Nairobi:

> It was underlined that the world had entered a period of transition during which concentrated efforts at all levels, national and international, would be needed to lessen the consequences of the diminishing resources of conventional and traditional energy, especially of hydrocarbons, and to pave the way for effective new sources of energy. [...] The view was widely held that the limited resources of fossil fuels constituted a problem of global dimensions and may produce unforeseen global consequences. [...] It was recognized that, without a similar concentration of

59 *Ibid*., 17.
60 *Ibid*., 19.
61 *Ibid*., 20.
62 Summaries of the speeches given in Nairobi by heads of state or government and delegates are in UN, *Report*, 52-62 and 67-77 (cf. note 3).
63 Fressoz, "Pour une histoire", 173-187 (cf. note 2).
64 By an established convention, "conventional" resources are to be intended here, quite paradoxically, as the hydrocarbons and nuclear energy that had fueled the industrialization of a portion of world since the 19th century.
65 UN, *Report*, 3 (cf. note 3).
66 Francisco Parra, *Oil Politics. A Modern History of Petroleum* (London: IB Tauris, 2004), 175-276.

> efforts at the international level, the shortage of energy resources might have the consequence of accentuating world economic disorder.[67]

22 Several of the major speeches explicitly made the same point. For instance, UN Secretary-General Waldheim opened his inaugural speech by declaring that "until recently, supplies of energy had been taken for granted [...], the underlying assumption being that of a cheap and inexhaustible supply of oil and gas. The reality had disproved the assumption".[68] The host, Daniel arap Moi claimed that "a great deal had changed" since the 1961 Rome conference, when "oil had been cheap and seemingly plentiful".[69] In what the Nairobi *Daily Nation* hailed as "a frontal attack to the rich nations", Indira Gandhi charged that "as a consequence of excessive exploitation the supplies of fossil fuel – a depleting asset – ha[ve] become precarious".[70] In opening the general debate, the Director General of the UN's Committee for Development and International Cooperation claimed that "according to various studies, a continuation of current energy consumption policies would lead to serious scarcity of oil and to mounting uncertainties regarding assured supplies at required levels".[71] In short, the language at the conference – providing the rationale both for "the energy transition" and for the conference itself – was to a large extent that typical of most of the literature of the 1970s, which interpreted the "oil shocks" mainly as a symptom of the coming exhaustion of oil (and other hydrocarbons in perspective).[72]

23 In reality, the 1970s debate was more composite. The notion that the United States had reached its "peak oil" and that the world was about to follow, famously advanced by geologist M. King Hubbert, was severely criticized by other specialists who noted that the regime of low oil prices of the pre-1973 period had dramatically slowed down the pace of exploration, implying that the latter would catch up in a high price context.[73] According to such critics, several reasons, other than exhaustion, justified using the prevailing high prices of the time as a springboard for "the transition": these included considerations of "energy security" (given the uneven distribution of known oil reserves on the world map), the need to shift to "modern renewables" (solar and wind, in particular) to counter the observed "greenhouse effect" and "acid rains" deriving from the burning of (actually overabundant) hydrocarbons, the premium associated with the "democratic" nature of dispersed energy sources, the doubts about the longer term prospects of relying on finite energy sources.[74] In some cases, these same motives appeared next to the "coming exhaustion" argument, but it was nevertheless the latter that caught the spirit of the time.[75]

24 In Nairobi, a note of caution on the subject came by the Soviet delegation, whose technical paper deposited with the conference materials included, quite ironically, a straightforward lesson in market economics: "high world oil prices create economic conditions propitious to developing that part of the resources of 'ordinary'

67 UN, *Report*, 67-68 (cf. note 3).

68 *Ibid.*, 52.

69 *Ibid.*, 53.

70 *Ibid.*, 56. And "Indira calls for energy revolution", *Daily Nation*, 11 August 1981.

71 UN, *Report*, 66 (cf. note 3).

72 A survey of the international literature is in Basosi, "A Small Window", 348-350 (cf. note 2).

73 See in particular: Tyler Priest, "Hubbert's Peak: The Great Debate over the End of Oil", *Historical Studies in the Natural Sciences*, vol. 44, n° 1, 2014.

74 "Energy security" considerations (for the US) were prominent, for example, in the widely read Ford Foundation Energy Policy Project, *A Time to Choose: America's Energy Future* (Cambridge, MA: Ballister, 1974). The "energy democracy" and "global warming" rationales were already prominent in the works of ecologists, such as Barry Commoner, *The Poverty of Power* (New York, 1976), chap. 3, but it took the 1990s for such themes to break into mainstream international politics. See Spenser Weart, *The Discovery of Global Warming* (Cambridge MA: Harvard University Press, 2003), chap. 7.

75 Matthew Connelly, "Future Shock. The end of the world as they knew it", *in* Niall Ferguson, *The Shock of the Global* (Cambridge, MA: Harvard University Press, 2010). One of the most sophisticated and influential works of the 1970s aimed at promoting solar energy, *Rays of Hope* stressed the risks stemming from the accumulation of CO_2 in the atmosphere from the burning of fossil fuels, but with an awkward language also concluded that "regrettably, America's oil is now almost certainly half gone": Denis Hayes, *Rays of Hope. The Transition to a Post-Petroleum World* (New York: Norton, 1977), 35.

oil fields which are not extracted by conventional oil production methods".[76] On that basis, the Soviet paper announced that "in the USSR preparations are being made for the industrial implementation of several methods for improving oil output".[77] Eventually, the Programme avoided making clear statements, such as those that Jimmy Carter had openly made in the US, about when the effects of "scarcity" would actually be felt in terms of exhaustion.[78] In partial contradiction with the urgency communicated by the opening lines, a passage in the Programme even took the more relaxed view that, even if with problematically high prices, "in the foreseeable future, hydrocarbon supplies will continue to play a very important role in meeting the global energy demand".[79] Yet, in hindsight, having chosen a rigid conception of "transition", which posited so strongly one and only one rationale for the effort, the Nairobi Programme also laid the bases for its own demise after 1985, when a true "oil glut" and a price "countershock" on the world market came to last until the beginning of the 21st century.[80]

ONE, NONE, AND ONE-HUNDRED THOUSAND TRANSITIONS

25 The greatest paradox of the language of "the transition" of the 1970s was that the more it was used, the less its content was defined.[81] While most of those who used it agreed that "the energy transition" would imply a lesser role for conventional oil in the future, disagreement reigned on virtually every other aspect of the supposedly shared concept. Environmentalists would usually indicate solar and wind energy as their preferred endpoints, but influential think tanks with widespread global reach campaigned for coal, nuclear, or simply for "non-conventional" oil. Combinations of all the above were often to be found in influential policy prescriptions. Careful government planning was required according to some authors, while the process would proceed almost spontaneously according to others. The time horizons for the process to be completed varied from extremely detailed to completely absent. As also noted by Fressoz, few publications bothered to clear whether by "transition" from one energy source to another they implied an absolute "substitution" or simply a relative one (which could be obtained by an actual "addition" of new sources to the existing mix, without necessarily reducing absolute consumption levels of any one source).[82] From this standpoint, Nairobi only compounded the ambiguities of the intellectual debate, by carefully avoiding to make a clear choice for any of the divergent available conceptions of "the transition". If anything, the globalization of a phrase that had originally been re-signified in "western" industrialized countries led to further inconsistencies when applied to Third World countries, for most of which hydrocarbons covered only a minor portion of national energy consumption. In short, it seems possible to extend to the 1970s the judgment reserved to a later phase by political scientist Joseph Szarka, according to whom "energy transition" is a particularly "problematic example of the vagueness that surrounds much of the energy lexicon".[83]

26 The opening statement of the Programme indicated that the world was up to achieving an "energy transition from the present international economy based primarily on hydrocarbons to

76 *Nacional'nyj doklad, predstavlennyj Sojuzom Sovetskih Socialisticheskih Respublik* [National report, submitted by the USSR], 10 June 1981, available at **https://digitallibrary.un.org/record/22577/files/A_CONF-100_NR_51-RU.pdf** (accessed 1 March 2020), 13.

77 *Id.*

78 In Carter's presidential address: "Each new inventory of world oil reserves has been more disturbing than the last. World oil production can probably keep going up for another 6 or 8 years. But sometime in the 1980's, it can't go up any more. Demand will overtake production. We have no choice about that". See Carter, "Address to the Nation" (cf. note 52).

79 UN, *Report*, 5 (cf. note 3).

80 On the "glut" of the 1980s Garavini, *The Rise*, chap. 7 (cf. note 1).

81 A more detailed analysis of the international literature synthesized in this paragraph is again in Basosi, "A Small Window" (cf. note 2).

82 Fressoz, "Pour une histoire" (cf. note 2).

83 Joseph Szarka, "Towards an evolutionary or a transformational energy transition? Transition concepts and roadmaps in European Union policy discourse", *Innovation*, vol. 29, n° 3, 2016, 223.

one based increasingly on new and renewable sources of energy".[84] But, on the one hand, it was impossible to find in the Programme any clear indication of what "increasingly" meant, or of the deadlines after which the "increase" could be measured. On the other, to the extent that Nairobi did promote "new and renewable" energies as part of a not-better-specified "more balanced energy mix", the list of fourteen energy sources considered at the conference came immediately into conflict with the opening statement: as noted, perhaps ironically, in a paper prepared by the Economic Commission for Western Asia, with fuel-wood, charcoal, peat, energy from draught animals, oil-shale and tar sands all included in the list, "clearly not all sources are new, and equally clearly, not all sources are renewable".[85]

27 Nor did the conference ever confront – at least explicitly – the question whether there would be a true "substitution" of hydrocarbons or a simple "addition" of other energy sources to an expanding mix. Given that "the transition" rested ostensibly on the increasing price and growing scarcity of hydrocarbons, one would expect an emphasis on their actual substitution. In reality, with the lonely exception of the Swedish Prime minister, Thorbjörn Fälldin, who celebrated his country's attempts "to reduce the consumption of oil" (as opposed to vague talk of "efficiency"),[86] the entire conference and preparatory works were geared toward redoubling the "efforts designed to explore and develop conventional energy resources".[87] As far as new and renewable energies were concerned, they could "make a significant contribution, but their role and potential in the short term should not be overstated".[88] If there was to be a "transition", it was *obtorto collo*.

Of course, one could expect that it would be 28
difficult to design a common "energy future" for so many countries, which not only started from very diverse conditions but had often also identified different energy sources as strategic for their own national energy policies. If one looks at the energy policies that were being pursued at the national level by some of the main participants in the Nairobi meeting, it is hard to see how any specific indication could come out of the conference: the Soviet Union aimed at completing its domestic transition from coal to oil and gas[89]; France had invested heavily in nuclear energy, Brazil had made a substantial bet on nuclear and bio-ethanol, the Scandinavian countries pushed for "green" technologies as wind and geo-thermal power[90]; Japan's "Sunshine program" included heavy investments in solar research next to those in nuclear energy[91]; China was about to pass its Sixth Five-Year Plan, keenly focused on energy conservation and mostly aimed at the substitution of coal for oil;[92] the Third World governments, which depended on "old renewables" for most part of their energy needs, showed interest for the technologies of what we would call today the "new renewables", but also consistently used their periodic summits to affirm their right to the peaceful development of civilian nuclear energy.[93]

Echoes of such different situations and choices 29
resounded throughout the conference, and brought to light the obvious political and power-related aspects of any official international discourse on energy: on the one hand there were

84 UN, *Report*, 3 (cf. note 3).

85 Economic Commission for Western Asia, *Regional Preparatory Expert Group Meeting for the United Nations Conference on New and Renewable Sources of Energy*, 20 March 1981, 1, available at **https://digitallibrary.un.org/record/25399?ln=es** (accessed 1 March 2020).

86 UN, *Report*, 58 (cf. note 3).

87 *Ibid.*, 7.

88 *Ibid.*, 5.

89 Perović, "The Soviet Union's Rise" (cf. note 13).

90 A recent work on these cases is in Araújo, *Low Carbon* (cf. note 2).

91 See Daniel Yergin, *The Quest: Energy, Security and the Remaking of the Modern World* (New York: Penguin, 2011) 534-536.

92 In a significant passage the Plan read that "oil consumption in 1985 is to be 10 million tons less than that of 1980. To substitute coal for petroleum in the power stations, the state plans to increase coal supply in the five years and appropriate funds to expand related engineering work": "The Sixth Five-Year Plan (1981-85) for the National Economic and Social Development of the People's Republic of China", *Chinese Economic Studies*, vol. 17, n° 1, 1982, 25.

93 See for example: *6th Summit Conference*, 73-74 (cf. note 21); and *7th Summit Conference*, 166-168 (cf. note 41).

countries that could plan an "energy transition" away from hydrocarbons with relative ease; on the other end of the spectrum, in Indira Gandhi's words, the calls for a more balanced energy mix "should not be an excuse for diverting attention from the immediate task of the equitable sharing of conventional energy".[94] Similarly, in conclusion of a lengthy passage in which he warned that "the destruction of the forests and of the natural vegetative cover [...] would disrupt the cycles and balances of the biosphere", Daniel arap Moi formulated a proposal for "a two-tier price system which would enable the poor countries to import oil at lower prices than those charged to industrialized ones", synthesized by Nairobi's *Daily Nation* under the title "Sell us cheap oil".[95]

30 Finally, a position *sui generis* on "the transition" was the one expressed by the US delegation after the switch from Carter to Reagan. Headed by a republican lobbyist without any experience in the field of energy, Reagan's team in Nairobi was entrusted with one main task, which it pursued relentlessly: to celebrate the contribution that the "private sector" and "the market" could make to a "successful transition".[96] In practice, of course, this meant that the US government was pursuing in Nairobi the international portion of its domestic agenda of cancellation of any form of public support to renewable energies.[97] More generally, it could also be said that Nairobi was a first testing ground for the US administration's "neoliberal" shift over international economic issues, that the President would soon personally promote at the "North-South summit" which took place in Cancún only weeks after the energy conference.[98] But in this connection the Reagan team also operated on a "philosophical" plane: by definition, a "transition" left to private actors could only be intended as an open-ended process, irrespective of what the Programme said about the goal to promote "new and renewable" sources.[99]

CONCLUSIONS

There are three main conclusions from the analysis conducted above. The first is that Nairobi, as a major event organized by the United Nations, reflected and formalized a new language about energy that had begun to spread in the 1970s and which presented the post-1973 world energy condition as one of "transition". To the extent that this implied greater awareness of the "historicity of energy" (in policy-making as well as in individual or corporate decisions), this was by no means a minor fact. The second is that the conference reflected a typical misconception of much of the literature and the political discourse of the 1970s about energy, which affirmed the necessity of "the transition" on the basis of the widespread expectation that oil prices would remain high forever (ostensibly reflecting 31

94 UN, *Report*, 57 (cf. note 3).

95 "Sell us cheap oil, says Moi" (cf. note 3). To be sure, while most likely instrumental, Moi's words expressed the ideas elaborated by several social movements in Third World countries in those years: if promoting "renewables" as an alternative to oil meant to rely on fire-wood, the ecological consequences of renewables could be even more devastating than those of burning hydrocarbons. Also thanks to a large street demonstration in the conference days, these reflections impressed the international press, which dedicated several reports and articles to the topic: "Zwei Milliarden Menschen brauchen täglich Brennholz", *Franfurter Allegemeine Zeitung*, 25 August 1981; "Quest for future energy puts biology in harness", *The Times*, 17 August 1981. Eventually, the conference passed a resolution presented by Kenya and India which called for "the immediate acceleration of programmes of reforestation and afforestation [...] as part of the effort to achieve a fivefold increase in the annual tree-planting rates by the year 2000", possibly the only portion of the Programme with a clear objective-cum-deadline: UN, *Report*, 40 (cf. note 3).

96 *Summary of the National Report Submitted by the United States of America*, 2 July 1981, available at https://digitallibrary.un.org/record/22567?ln=en (accessed 4 July 2018). The speech by the head of the US delegation is reproduced in "Ambassador Stanton Anderson, 13 Aug. 1981", *Department of State Bulletin*, vol. 82, n° 2058, 1982, 63-66.

97 See Victor McFarland, "The United States and the Oil Price Collapse of the 1980s", *in* Basosi, Garavini and Trentin, *Counter-Shock* (cf. note 2).

98 Vanessa Ogle, "State Rights against Private Capital: The ''New International Economic Order'' and the Struggle over Aid, Trade, and Foreign Investment, 1962–1981", *Humanity*, vol. 5, n° 2, 2014; and, again, Migani, "The road to Cancun" (cf. note 20).

99 On neoliberal "rationality": Pierre Dardot, Christian Laval, *La nouvelle raison du monde. Essai sur la société néolibérale* (Paris: La Découverte, 2009). More specifically: Szarka, "Towards an evolutionary" (cf. note 83).

an incipient scarcity of the raw material, even though the Programme was not very clear as to what this meant in practice): four decades later, with concerns for "global warming" quickly on the rise, historians correctly see the 1970s as a period when the awareness of the link between fossil fuels consumption and the "greenhouse effect" became popular among environmentalists, but "official" international politics at the time expressed little interest in this topic and the Nairobi conference was no exception. Finally, while extremely prescriptive in indicating the rationale for "the transition", the conference language was much more indeterminate in pointing out what "transition" actually meant in practice. Ostensibly the world was engaged in a shift from hydrocarbons toward "new and renewable" energies, but the term "transition" came with multiple and potentially contradictory meanings (and the ambiguity of the phrase "new and renewable" did not help). The *koiné* with which the international community tried to speak in Nairobi was largely superficial, and concealed the reality of extremely diversified national conditions and intentions with respect to energy and energy policy.

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