

Rebecca Wright, Hiroki Shin, Frank Trentmann

Power, Energy and International Cooperation

A History of the
World Energy Council



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Contents

List of Figures	7
Acknowledgments	9
Introduction	11
Founding Ideals	17
Visions of Plenty at a Time of Political Conflict	33
In the Public Eye	41
War Again	49
The Specter of Energy Insecurity	53
The Environment	65
The Emergence of an International Energy Community	71
Energy and Development	79
Past Futures	91
Energy in a Global World	101
Notes	111

The Emergence of an International Energy Community

The World Power Conference was born at a moment of heightened internationalism following the First World War. At the time of its founding, it was the only body to deal with questions of fuel and power. By 1974, however, there were a range of international organizations dealing with energy and natural resources, including the International Energy Agency (IEA), founded in 1974 in response to the first international oil crisis. The establishment of the International Energy Agency signified the rise of international energy policy in the 1970s, as the need for coordinated energy policy on issues such as energy security and the environment became clear. One could assume that the growth of international organizations dealing with energy would have challenged WEC's influence in the international energy order. As the era of international energy policy got under way, however, WEC's constitution continued to give it a unique role in this international policy arena.

Since its foundation, WEC operated alongside an increasing number of international organizations. None of these were focused on fuel. Some did have sections that dealt with energy issues such as the League of Nations Statistical Division, which produced information about natural resources between 1920 and 1940. Others such as the Union Internationale des Producteurs et Distributeurs d'Énergie Électrique (UNIPEDE), created in 1925, focused primarily on individual fuel types, in this case, electricity.¹⁷¹ In the post-1945 period, a new

wave of international organizations were founded to deal with energy challenges, from regulating the market for natural resources to insuring the peaceful application of atomic energy.¹⁷² The growth of international bodies with an interest in energy illustrates the changing status of energy policy within national governments. Prior to the Second World War there was little coordinated energy policy, as each fuel was dealt with separately under different agencies. In the United Kingdom, for example, electricity was dealt with by the Ministry of Transport while coal fell to the Board of Trade until the Ministry of Fuel and Power was created in 1942.¹⁷³ ‘Energy’ was not a dominant concept in policy or in the broader cultural discourse for thinking about fuel and power. Instead, energy remained fragmented in separate policy fields that ranged from national security, to housing and labor, and the focus remained on individual fuels, or power, rather than their dynamics within an interconnected system. After all, the name World Power Conference reflects how it was ‘power’ — understood in terms of individual fuels — rather than energy that was the focus of WEC’s early work.¹⁷⁴ As industrial economies such as Europe and the United States faced energy shortages after the Second World War, the importance of developing national energy policies that integrated separate fuels became clear. An argument for the development of a national energy policy could be found in the influential US report *Resources for Freedom: Foundations for Growth and Security* in 1952. The report was overseen by the President’s Material Resource Commission, established by President Harry S. Truman to provide an overview of the nation’s resource needs. The report argued that the “common base of understanding of the total energy outlook” was essential to understand “the interrelation within the energy field, and of the relations between energy and the rest of the economy.”¹⁷⁵

The increasing awareness that energy challenges required coordinated policy led to a growth of international structures to address particular energy issues. The European Coal and Steel Community (ECSC) was founded in 1951 to create a common market for coal and

steel, eliminating competition for natural resources within European countries. This was an early experiment in creating a European integrated market and led to the European Atomic Energy Commission (otherwise known as *Euratom*) in 1957. That same year, the International Atomic Energy Agency (IAEA) was founded following the 1955 *International Conference on the Peaceful Uses of Atomic Energy* hosted by the United Nations in Geneva. Originating out of the Atoms for Peace program launched by US President Dwight D. Eisenhower, the IAEA was founded as a scientific technical forum to share information about the peaceful application of atomic energy, and to promote nuclear safety in reactors, amongst other things.

Not only did the post-war period see the emergence of international organizations focused on specific energy challenges, but international organizations also dealt increasingly with issues relating to energy and natural resources. In 1949, the United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCURE) was held at Lake Success to discuss the conservation of natural resources from an international perspective. In 1951, UNESCO chose as its annual discussion theme “Energy in the Service of Man”, compiling a bibliography and commissioning papers on the relationship between civilization and energy. Where some international organizations formulated conferences in an *ad hoc* manner, others established specialized committees and departments focused on energy. By 1955, the OECD would have an Energy Committee and was starting to operate a rival center for energy information, publishing reports such as *Basic Statistics of Energy for OEEC Countries* (1950–57).

The rising attention given to energy in the international community did not sideline the work of WEC, however. On the contrary, representatives from WEC remained active within these international conferences and took up prominent roles within these international commissions. The World Power Conference, for example, was credited in the Proceedings of UNSCURE with having provided “valuable assistance during the preparation of the conference”, nominating speak-

ers and cooperating with governments in the preparations of committees.¹⁷⁶ The WPC's delegates were active in these institutions as well as in their own national government fuel divisions. Harold Hartley, for example, the Chairman at WEC from 1950 to 1956, was a Presiding Officer at the Plenary Meeting, and chaired a panel on "Fuels and Energy" at UNSCCUR. Hartley also sat on important energy commissions of the UK Government and international organizations; he was made head of the Commission for Energy at the OEEC in 1956. In this role he contributed to the report *Europe's Growing Needs of Energy: How Can They be Met?*, which later became known as the Hartley Report.¹⁷⁷ This report outlined the future of Europe's energy needs in 1975, pointing toward an impending energy gap if European governments did not invest in indigenous energy resources.

WEC, furthermore, maintained an active voice in international organizations. WEC continued to participate in prominent international events and to appoint a representative at the United Nations office in New York. WEC's representatives also fed into a number of UN Commissions, beyond those dealing strictly with energy issues. In 1981 alone, the organization was represented at the UN Conference on "New and Renewable Sources of Energy", the UN "Conference on the Least Developed Countries", "the UN Department of Public Information Conferences/Round Tables" and the "Task Force on Long Term Development Objectives".¹⁷⁸ WEC also had representatives at the European Commission, as part of the Committee of Electric Power, the Power Committee of the Economic Commission for Europe, and the Committee on Gas of the Economic Commission for Europe. Not only did WEC appoint representatives to different international organizations, but its delegates were also well represented at international conferences arranged by the International Atomic Agency and other bodies. Beyond these core institutions, WEC remained active in the Union of International Technical Associations (UATI), the International Gas Union, and the International Union of Producers and Distributors of Electrical Energy (UNIPED).

International organizations were also well represented in WEC, joining independent Committees and working groups. The Conservation Commission had representatives from the International Bank for Reconstruction and Development (otherwise known as the World Bank), as well as the Organization of Arab Petroleum Exporting Countries (OAPEC). Beyond the Conservation Commission, the World Bank also contributed to a study group on “Long-Term Investment Requirements in the Energy Sector — Needs, Constraints, and Proposals”.¹⁷⁹ UNESCO representatives were also visible on WEC committees during the 1980s. C. M. Gottschalk, Chief of the Energy Information Section of the United Nations, worked as part of the National Energy Data Committee, the Working Group of Energy Terminology, and the Task Force on Energy Information. This points to WEC’s role in developing the international infrastructure needed for energy participation at a global level. The Energy Information Task Force in preparing an Inventory of Energy Information Centres would centralize information about energy, trying to insure it stayed complete and up to date.¹⁸⁰ Not only would UNESCO become involved in this activity but the committee’s findings also fed into both the Statistical Office and the Centre for Natural Resources, Energy and Transport at the United Nations. The World Bank also participated in this endeavor, and a proposal emerged to set up an ‘orientation centre’ for energy information to be used by other international organizations.¹⁸¹

Inevitably this proliferation of bodies raised fears about the replication of work. For instance, at the preliminary meeting of WEC’s “Committee on Pollution” which formed in 1970, there were concerns that work in the field of pollution might replicate work being done by the OECD and other international organizations. However, delegates from the Japanese National Committee, who ran the task force, remained confident that the principles and objectives of the committee remained distinct.¹⁸² By the 1970s, therefore, WEC fitted into an increasingly congested landscape of international energy policy. This would only intensify, as the sudden increase in political power of the

Organization of Petroleum Exporting Countries (OPEC) in 1973–74 revealed the strategic power of having a tightly organized energy policy. OPEC’s ability to coordinate energy policy across national boundaries (which included Saudi Arabia, Venezuela and Iran) foregrounded its importance in the policy sector. The OPEC crisis highlighted the lack of long-term energy policies, including insufficient investment in domestic resources, poor efficiency and conservation measures, inadequate data, and the lack of systems to prevent oil shortages.¹⁸³ This would lead to the formation of the International Energy Agency, which emerged out of the OECD. If OPEC had revealed the power of coordinated energy policy, the IEA would act as an institutional structure for oil consumers in OECD countries, signifying a new international stage for energy policy as it fragmented between OPEC and the IEA.

The IEA, however, had a very different remit to WEC. After all, in the middle of the oil crisis, WEC had managed to represent both OPEC and oil-consuming interests at its 1974 congress in Detroit. WEC’s advantage in international energy policy was, therefore, its non-partisan nature. Moreover, the IEA only represented selected countries’ interests, and in particular those already within the OECD area. As conflict between oil consumers and oil producers heightened, WEC managed to maintain an international focus that could operate across this divide. Moreover, as international organizations formed around individual fuels, or issues of nuclear safety, such as the International Atomic Agency, WEC maintained its broad thematic scope, committed to providing technical information. The value of this can be seen in the foundation of the Conservation Commission in 1974. Although the idea for this had already been approved at the International Executive Council in Wairakei in 1972, it was President Ford’s challenge at the opening of the Ninth World Energy Conference for the organization to “produce a world plan for energy” that led the Chairman of the Programme Committee to invite other representatives from international organizations such as the WMO, OECD, IAEA, ECE and

WMO to a meeting to proceed with the plans for the committee.¹⁸⁴ In light of the potential scarcity of fuel in coming decades, the committee would study “whether the ground rules should be so altered as to encourage more capital expenditure in the interests of the economy in fuel consumption.”¹⁸⁵

This non-partisan nature would help WEC carve out its niche during a period when international energy policy became highly partisan and divided between oil consumers and suppliers. One area WEC did align itself with, however, was the growing international concern over the environment. By the late 1970s, WEC representatives were participating in international activities involved in the protection of the environment. This included long-term representation at the World Meteorological Organization (WMO) and attendance at early international conferences on the environment. WEC sent a delegate to the Conference on the Human Environment in 1972, to the United Nation’s Environment Programme in 1975, and in 1976 WEC was represented by Roger Ginocchio of the French National Committees at the General Assembly of the Scientific Committee on Problems of the Environment (SCOPE), organized by the International Council for Science in Paris.¹⁸⁶

The Brundtland Report published in 1987, which transformed the international discussion on energy and the environment, also became central to WEC’s activities in the early 1990s. In fact, the former Chairman of the UN International Panel of Climate Change (IPCC) Bert Bolin would later admit that the World Energy Council was a “key international organisation that responded early to the potential threat of human-induced climate change.”¹⁸⁷ WEC would remain responsive to the findings of the IPCC, comparing its findings to its own, and digesting its implications for the broader energy community. Bolin even pointed out that WEC’s “work went beyond the IPCC efforts in that a more detailed analysis of the different technical options brought the climate issue better to the forefront amongst the leaders of the energy sector.”¹⁸⁸ For example, in 2013 WEC published *Climate Change:*

Implications for the Energy Sector, which synthesized and translated the implications of AR5 (the first instalment from the IPCC Working Group on the Physical Science of Climate Change) for the business and energy sector.¹⁸⁹ The prognosis did not look good. Not only did the digest highlight how energy demand would be continually rising, but it also pointed to the challenges that climate change would present to energy production and transmission. Any attempts to stabilize emissions at 2°C, the report concluded, would require a fundamental transformation in the governance of the energy sector worldwide. It did present some ways forward, including cutting emissions through efficiency, increasing renewables, cutting carbon emissions and investing in low carbon technologies.

WEC's role as an organization, therefore, has to be understood in terms of the changing nature of both energy policy, between 1924 and 2018, and that of international organizations and interest groups. Prior to the Second World War, the WPC was unique as an organization confronting the technical challenges of fuel and power. After the Second World War, a range of new organizations, both niche and more general, focused on energy issues. By the 1970s, the power of coordinated energy policy had been revealed by the OPEC cartel, a model the IEA would try to replicate. Within this context WEC maintained its strength as a non-partisan organization that could shape a neutral energy policy. Increasingly, WEC began to collaborate with international organizations and agencies dealing with issues relating to energy, including the environment and development.

Energy and Development

In the 1970s, the world's geopolitical divide was deepened by OPEC's oil embargoes. During this decade of political turmoil, the world also witnessed the emergence of a new ethos of international cooperation that aimed to redress uneven energy development. WEC played a leading role in shaping the developmental agenda of the international energy discussion, identifying and problematizing the global disparity of energy resource utilization. Energy experts in the early twentieth century already knew that the use of modern energy was conducive to economic and social development. However, the early discussions on this topic focused predominantly on rural electrification within the context of national energy development based on specific concerns, such as agricultural mechanization and rural depopulation, both of which were closely related to a nation's food security. Bringing energy service to rural areas was generally perceived as a domestic challenge rather than an international or global concern, which was unsurprising considering that 'self-sufficiency' was highly prized in the 1930s, a time of protectionism and trade blocs.¹⁹⁰

Rural electrification was a popular topic in the 1930s. This was especially so in the USA and Canada, since their vast landmass hindered extending electricity grids into rural areas. At the 1936 World Power Conference in Washington D.C., those who spoke about rural electrification treated it as a matter of bringing additional convenience and amenity to a greater number of users rather than as a question of the rural population's right or entitlement to electricity. Hudson

Reed of the United Gas Improvement Company (USA) remarked that rural electrification was “a desirable consideration — but only one of many — in raising the rural standard of living”.¹⁹¹ Speakers from industrialized nations — such as the Netherlands and France, where about 98 percent of the population already had electricity access — generally regarded rural electrification as an issue that would be resolved sooner or later, and they knew little (if they were at all interested) about the energy situation in Asia, Africa or South America.¹⁹² E. H. Étienne from Switzerland (where nearly 100 percent of the nation’s households had been wired) stated that the main challenge in his country was no longer how to extend the power supply to rural areas, but how to educate farm users to take full advantage of electricity.¹⁹³ Speakers from less electrified nations, such as Jan Tománek from Czechoslovakia, were equally sanguine about the prospect of rural energy development. Tománek reported that, due to the implementation of the Czech government’s rural electrification program in 1924, 80 percent of the population now had access to electricity.¹⁹⁴ Antonio Lucchetti from Puerto Rico detailed his country’s hydropower developments in Carite and Toro Negro. Lucchetti explained that, having started as a public irrigation project, these hydropower facilities were expected to serve as the bases for industrial development and to raise the standard of living while protecting the country’s forests from excessive harvesting for fuel purposes.¹⁹⁵ A model electric farm in Virginia — sponsored by the WPC and the US Rural Electrification Administration as an accompanying exhibition to the 1936 conference — echoed the optimism of the day. Fitted with diverse electrical equipment and appliances, the farm showed not just what could be achieved by the ‘scientific marvel’ of electrification, but also what was expected to become the reality for American farmers in the near future. The owner of the model farm, J. W. Hughes, commented: “Everything is electrical... except the hired man. They’ll get around to him next”.¹⁹⁶

After the Second World War, international organizations viewed energy supply and infrastructure as a major tool for post-war recon-

struction and economic development. The United Nation's regional economic commissions, established between 1947 and 1948 in Europe, Asia, Africa and Latin America, promoted energy infrastructure as an essential condition for economic growth, while the World Bank—especially through the International Development Association—provided financial assistance to enable developing countries to increase their energy input with a view to growing their economies. These countries were by no means passive recipients of international assistance. As the number of independent states increased after the Second World War, developing countries began to demand that their voices should be represented in international bodies, including WEC. Some examples of new WEC national committees that were created between 1950 and 1974 were Bangladesh, Malaysia, Nepal, the Philippines and Thailand in Asia; Columbia, Costa Rica, Ecuador, Paraguay and Venezuela in Central and South America; and Ghana, Ivory Coast, Morocco, Nigeria, Tanzania, Tunisia and Uganda in Africa.

By the 1970s, developing countries were vocal about their right to economic and social development. The Lima Declaration and Plan of Action, adopted at the second conference of the United Nations Industrial Development Organization (UNIDO) in 1975, called for actions that would increase the developing regions' share of world industrial production from 7 percent (in 1974) to 25 percent by 2000. The Lima Declaration urged, among other things, the creation of institutional machinery to enable the consultation and coordination that would allow developing countries to "obtain better terms for the acquisition of technology, expertise, licences, equipment, etc.," while at the same time pressing developed nations to open up their markets to manufacturers from developing countries in order to rebalance the international trade flow.¹⁹⁷ The implementation of the ambitious 'Lima target' would require developing nations' collective energy consumption to increase almost four-fold, from 1,700 million tons of oil equivalent/year in 1980 to 6,500 million tons of oil equivalent/year by 2000.¹⁹⁸

At the Ninth World Energy Conference in 1974, Wilson Campbell, chairman of the WEC program committee, responded to US President Gerald Ford's opening address on Project Independence by arguing that energy should now be considered a global issue in an interdependent world. The international oil crisis was a wake-up call for the global community. Mutual interdependence, according to Campbell, "is a principle perceived with unusual clarity by a nation suddenly aware of its unsuspected dependence on others".¹⁹⁹ It was only when the international flow of energy resources was disrupted that countries saw how they had come to rely upon energy from distant lands. Thus, the initial geopolitical divide between the oil-producing and oil-consuming countries became a spur for building a "global strategy for energy".²⁰⁰ Campbell merely outlined some guiding principles as a basis for such a strategy — including the need to foster a cooperative spirit among all nations. This also required that the global community became more attentive to "the situation of the poorest nations which will suffer drastically if the energy problem does not come under control".²⁰¹ In the 1970s, no global energy strategy was yet in sight, but the WEC meetings helped steer the international energy discussion towards a global perspective.

The oil price hike in the early 1970s dealt a severe blow to oil-importing developing countries (OIDCs). Tentatively, the situation was delineated in a well-attended session on energy problems "peculiar to developing nations" during WEC's 1974 conference.²⁰² The trade deficit of the OIDCs in real terms tripled between 1973 and 1975, when between 40 percent and 90 percent of export earnings in Jordan, Pakistan, Panama, Syria and Turkey was spent to defray the soaring cost of imported oil.²⁰³ High oil prices, combined with general inflation and the world economic downturn, halted economic growth in OIDCs and deepened their reliance on foreign aid and loans.²⁰⁴ An equally crucial problem was that the oil crisis resulted in greater energy resource scarcity in developing nations. This came to be known as 'the other energy crisis', a combination of a wood fuel shortage and deforestation.

While developed countries generally sought oil substitution in the form of other commercial fuels, such as coal and natural gas, energy users in developed countries, especially in rural areas, intensified their dependence on wood fuel, thereby increasing environmental pressure on the already strained forest resources.²⁰⁵

‘The other energy crisis’ was, in fact, a recognition that the world’s energy future was changing character. It responded to the rapidly increasing energy demand outside industrialized nations, which was expected to continue for decades to come. The discussion at WEC’s International Executive Council in Abidjan, Ivory Coast (which became a WEC member in 1969), held in October 1976, was a first step towards grasping the sheer scale of the problem. One of the meeting’s main points on the agenda was the Conservation Committee’s world energy prospects for the period up to 2020. In the process of estimating the future energy demand of the world, developing countries were a factor that could no longer be ignored. In terms of per capita GNP and energy consumption, African countries were still far behind European countries. However, as Lord Hinton reported to the committee, the situation was unlikely to stay that way, as African countries were expected to achieve economic growth, and their populations would then demand a higher standard of living. The problem was further complicated by population growth. In 1976, the population of the African continent was about 360 million, which was expected to rise to 1.4 billion by 2020, an estimate that proved fairly accurate; at the time of writing (2018), Africa’s population had reached 1.3 billion. Lord Hinton urged the committee to give serious consideration to the following question: “How can the needs of so large a population, which can rightly expect an improved standard of living, be met?”²⁰⁶ Providing a diagnosis of—let alone solutions to—the African energy problem was an arduous task because “We know far too little about the present use of total energy in Africa.”²⁰⁷

The discussion in Abidjan directly fed into WEC’s Istanbul conference the following year, when the Conservation Committee’s energy

projection was discussed. The developmental perspective was conspicuously featured in the conference held in Turkey, a nation that was suffering from the very problems experienced by developing countries, such as a large trade deficit, frequent electricity cuts and economic depression.²⁰⁸ Kâmrân İnan, the Turkish Minister of Energy and Natural Resources, emphasized that there was “a very close interdependence between the problems of the developing countries and the wellbeing of the developed countries”, which meant that the world’s prosperity “[hung] upon the common responsibility of all countries”.²⁰⁹ Yet, energy deprivation in the South, such as the wood fuel shortage, was only beginning to be felt by those in the affluent North. The speech delivered by Indonesian delegate Sumitro Sjojohadikusumo at the final session of the Istanbul conference compelled the audience to acknowledge the painful reality of the existing energy inequity:

Developments have brought about a relative scarcity in basic materials while falling short of meeting the basic needs of the world population at large. They have aggravated the contrasts and disparities between rich and poor, between nations in the international context as well as within the societies of the respective nation-states.²¹⁰

In this penetrating speech, Sjojohadikusumo anticipated the discussion of equitable energy development, which later became a mainstream idea in global development policy. A tangible result of the Abidjan meeting and the Istanbul conference was the setting up of a WEC Committee for Developing Countries in 1978. The main aim of the committee, which consisted primarily of representatives from developing countries, was to direct the world’s attention to the energy problems of the developing world and to assist low-income countries in their efforts to obtain “a fair share of the world’s resources and to satisfy their just demands for energy growth”.²¹¹ In its early meetings, the committee discussed topics such as development finance, industrial

relocation, personnel training and non-commercial energy sources. The committee faced a major challenge, as WEC's 1978 publication *World Energy: Looking Ahead to 2020* estimated that the population in developing countries would account for 65 percent of the world total by 2020 while these countries' share of world energy demand would grow from the current 15 percent to as much as 25 percent.²¹²

In his opening speech at the 1980 World Energy Conference in Munich, German Chancellor Helmut Schmidt acknowledged the continuing energy-related trade deficit in developing countries. Turkey and Brazil were spending 60 percent and 40 percent, respectively, of their export earnings on oil. Costa Rica now needed to sell 420 kilograms of bananas to buy one barrel of oil, whereas in 1973 it had only needed 28 kilograms.²¹³ A roundtable discussion on developing countries highlighted the fact that, due to the heavy burden of servicing debts, developing countries could hardly expand their energy use or energy infrastructure.²¹⁴ Despite the attention given to the developmental issues during the conference, no concrete plans—such as an increase in financial aid, appealed for by Prof. A El Agip of Sudan—were forthcoming.²¹⁵ Moreover, delegates from developing countries were generally dissatisfied, as they saw that developmental issues were still being under-represented and under-discussed at the conference. B. T. Nagrani of India noted that the meeting's participants devoted their attention “mainly to the problems faced by the rich, industrialised nations”.²¹⁶

At the 1983 World Energy Conference in New Delhi, there was some lingering skepticism among attendees from developed nations about the prominence of developmental issues. For instance, Sir Denis Rooke of the British National Committee expressed his concern that the conference was becoming too much like a “Third World Conference” or “a forum for a North-South dialogue”. However, such voices were becoming the minority as the conference featured energy problems in the developing world as a major topic of discussion.²¹⁷ If developing countries were recovering from the two oil crises, the

Third World problem (in the language of the time) was as pressing as before. The downward trend of oil prices was yet to have a tangible effect on the OIDs' situation. Between 1979 and 1982, the external debt of the OIDs grew by more than 60 percent to reach a hefty sum of 417.7 billion US dollars.²¹⁸ As Ian Fells has noted, the New Delhi meeting was "a Congress of contrasts and one oriented towards the developing world whose problems were constantly brought to participants' attention."²¹⁹ Indeed, throughout the conference, there were contrasts between the North and South, the haves and have-nots, and the nuclear and non-nuclear nations. The paths followed by developed and developing economies, in terms of energy consumption patterns, were diverging. A clear manifestation of this was the fact that, after 1973, the growth in energy demand in industrialized nations slowed down, while that in developing nations steadily increased. Between 1973 and 1980, 24 percent of the increase in world energy consumption was attributed to non-OPEC developing countries, although they still had only a 10 percent share of the world's energy demand.²²⁰

Finding workable solutions to the developing world's energy problem was as difficult as identifying the nature of the problem. The conference saw an emerging consensus on the need to move towards "maximum practical self-reliance as rapidly as possible."²²¹ For developed countries, self-reliance meant greater use of nuclear power and domestic coal resources. For developing nations, a fuller exploitation of their indigenous resources would free up oil and gas—"the most transportable and versatile fuels"—which could be diverted to satisfy basic developmental needs, namely, the improvement of agriculture, transportation and other social infrastructure.²²² Hydropower—especially micro hydro—was a prime example of unharnessed energy potential in developing nations.²²³ Renewable and unconventional energy sources, such as biofuel produced from agricultural waste and forestry residues, had received a fair share of attention in a number of papers presented at the New Delhi conference. For instance, M. Sohail Qureshi reported on Pakistan's national biogas develop-

ment project, which covered 1,500 villages, providing fuel for cooking, lighting and small-scale electricity generation.²²⁴ J. A. Basson and D. I. McLean from South Africa presented the results of an extensive research demonstration project to install solar water heaters in low-income homes for the purposes of energy conservation, the improvement of health and hygiene and the mitigation of air pollution and deforestation.²²⁵

In the early 1980s, the transfer of technological, managerial and engineering skills became a frequent topic of discussion in WEC's meetings, in stark contrast to the early preoccupation with financial assistance for the OIDs.²²⁶ It was a sign of a shift in priority from short-term fixes to long-term solutions. A panel on "Energy and Quality of Life" — the main theme of the New Delhi conference — recommended that WEC should act as a hub of information exchange for international skills transfer. Technology transfer, including that related to energy conservation, gained renewed importance with the 1983 peak in oil prices, as oil consumption started to creep up again, with developing countries increasing their share of world oil demand.²²⁷ Returning to WEC's founding mission of addressing the disparity in the utilization of energy-related knowledge, WEC re-discovered the importance of understanding the needs and challenges of the developing world as a precondition for effective technology transfer. The WEC Committee for Developing Countries collected energy data to produce a comprehensive view of energy use in the developing world; however, the prevalent use of non-commercial energy made this task especially difficult.²²⁸ For instance, non-commercial sources, such as firewood, charcoal and plant and animal residues, were believed to account for approximately 90 percent of energy consumption in Mali, Nepal and Tanzania around 1980, and according to the World Bank estimate, about half of the world's population used non-commercial energy for cooking.²²⁹ Growing demand in developing regions loomed large in WEC's future energy projections. According to WEC's 1984 *World Prospect*, population growth, which would primarily take

place in developing (and less energy intensive) countries, was expected to account for about 60 percent of energy demand increase up to 2020 in a “normative cooperation” scenario. In an “increasing tensions” scenario, the population factor would account for more than 80 percent until 2000 and 75 percent thereafter.²³⁰ Between 1978 and 2020, the developing world’s share of world energy consumption was expected to grow to as much as 40 percent; however, per capita energy consumption in the South would barely reach 13–17 percent of that in the North at the end of the forecast period — at best a marginal improvement from 15 percent in 1960.²³¹

Throughout the 1980s and 1990s, developmental issues remained a major topic on the WEC agenda. WEC cooperated closely with other international organizations, such as the World Bank and various UN agencies.²³² The general approach to the topic of energy development evolved in response to the rapidly changing situation in developing countries. Per capita energy consumption in the Republic of Korea — one of the so-called newly industrializing countries — increased from 0.2 tonnes of oil equivalent to 1.9 tonnes of oil equivalent between 1965 and 1990, while that of Brazil and Malaysia more than tripled.²³³

In 1991, the WEC Committee for Developing Countries set up three working groups on environmental protection, technology transfer and international/regional cooperation.²³⁴ The increasing concern about the environment was changing the approach to energy development in a way that would balance developmental needs and sustainability. Alongside this, there was also a new focus on energy problems in rural areas — in particular, the issue of energy poverty. As had already been pointed out by Sjojohadikusumo in 1977, the increase in developing countries’ energy consumption amplified the disparity in available energy resources between these nations. While newly industrializing nations saw a general improvement in per capita energy consumption, 20 lower-income developing countries (among the 33 examined) experienced a decline in per capita energy availability between the mid-1970s and 1990.²³⁵ The energy gap within these countries’ popu-

lations was also widening. The national-level development planning often privileged urban populations. Worldwide, this ‘urban bias’ disadvantaged around two billion rural residents, who were left without access to adequate, affordable and convenient sources of energy.²³⁶ The Committee for Developing Countries’ research was published as *Rural Energy in Developing Countries* (1995) and in an extended form as *The Challenges of Rural Energy Poverty in Developing Countries* (1999). The latter report, produced in collaboration with the UN Food and Agriculture Organization, remarked that the belief in a technical fix, a rigid policy and financial investment as the solutions for the rural energy problem was falling out of favor, and instead, the emerging approach was to integrate energy issues with other facets of rural development, such as food, health, education, social equality and sustainability. The report also pointed out that rather than concentrating on expanding the modern energy sector (e.g. electricity grids), interventions aimed at the still-prevalent use of traditional fuels would potentially “make a significant difference”, considering, for instance, that wood fuel still provided over 70 percent of total energy demand in Sub-Saharan Africa.²³⁷

The 1999 report contended that the challenge of rural energy poverty was “not so much a question of massive investment as of attaching sufficient priority to this, all too often, statistically invisible problem to take the actions that would make a difference”.²³⁸ Indeed, since the late 1970s, WEC has worked to render the energy development problem visible by mobilizing its global network and partnerships. In the late 2010s, it remains an ongoing problem, as evidenced by the fact that energy equity (the accessibility and affordability of energy) forms a key element of WEC’s definition of the ‘energy trilemma’. WEC envisions a balanced improvement in the three core dimensions of energy development (energy security, environmental sustainability and energy equity) that would ensure a robust and successful energy transition. In Sub-Saharan Africa, however, the imbalance in its trilemma index is acute because of the lack of sufficient energy access, and the imbalance

potentially has a destabilizing effect on the region's energy transition. According to WEC's *World Energy Scenarios: Regional Perspective for Sub-Saharan Africa* (2017), the region's energy sector "remains underdeveloped, resulting in issues of energy inaccessibility and inequity for much of the population".²³⁹ About 750 million people in the region continue to rely on traditional solid biomass, which is highly polluting and hazardous to health. Like other developing regions, it is imperative for Sub-Saharan Africa to meet "significant challenges between now and 2060 if it is to be able to increase productivity, encourage informed policy action and take steps to manage climate change". Contrary to the optimism of energy experts in the early twentieth century, the stakes in this global challenge are getting higher.

Founded in 1924 as the World Power Conference, the World Energy Council (WEC) was the first international organization to confront the global issues raised by fuel and power. From the age of empire through the Cold War to the present climate crisis, WEC has continued to serve as an international forum where the major challenges posed by energy have been debated and defined. WEC has evolved alongside historic changes in global energy demand and the mix of fuels, from coal and oil to nuclear and renewables. This book tells the story of WEC. It charts the growth of an international energy community in the course of these energy transitions and reveals the shifting meanings of energy and expertise. This history of WEC offers a vital insight into the social, cultural and political forces that have shaped energy in the contemporary world.

Rebecca Wright is a Lecturer in American History at Northumbria University, Newcastle. Her research examines cultural histories of energy in the United States. She is currently completing a book entitled *Moral Energy in America: From the Progressive Era to the Atomic Bomb*.

Hiroki Shin is a Research Fellow of Research and Public History at the Science Museum, London. His research interests include the histories of money, transport and energy. He was the co-investigator of the project *Material Cultures of Energy*.

Frank Trentmann is a Professor of History at Birkbeck College, University of London, and also at the Consumer Society Research Centre, University of Helsinki. His book *Empire of Things* was awarded the Austrian Science Book Prize in 2018.