INTERNATIONAL LAW AND RENEWABLE ENERGY: 
FACILITATING SUSTAINABLE ENERGY FOR ALL?

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Eradicating energy poverty and averting dangerous climate change will require a global 'energy 
revolution' in favour of low-carbon energy sources. To assist in this transition, the United 
Nations has established the Sustainable Energy for All ('SE4ALL') initiative. This article 
critiques the role, character and capacity of international law — 'soft' law instruments, binding 
obligations and international legal actors — to facilitate the initiative's goal of doubling the 
renewable energy share in the global energy mix by 2030. It argues that permanent sovereignty 
over natural resources and energy security policy are false barriers to action. In recent history 
international renewable energy policy has proliferated, becoming an important normative force 
to guide energy law, policy and project development. Conspicuously absent from the 
international plane are meaningful binding instruments and obligations, such as generation 
targets in the United Nations Framework Convention on Climate Change ('UNFCCC'), the 
Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Energy 
Charter Treaty ('ECT'). The impact of the new International Renewable Energy Agency, which is 
mandated to facilitate renewable energy knowledge and technology transfer, remains to be seen. 
Ultimately, the progress of SE4ALL will depend on unprecedented international cooperation and 
coordination. This article proposes four legal options to significantly reduce greenhouse gas 
emissions and advance meaningful implementation of SE4ALL: (1) an international energy 
convention; (2) an energy protocol to the UNFCCC; (3) reform of and a new protocol to the 
ECT; and (4) an international declaration on renewable energy principles. It is contended that 
whatever legal format might be politically feasible, the age of sustainable energy has arrived. 
The dynamism and influence of international energy law is crucial to a global energy transition.

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I INTRODUCTION

Energy use is indispensable to human life. Yet ‘warming of the climate system is unequivocal’. Most of the increase in global average temperatures over the past 50 years is ‘very likely’ due to increases in anthropogenic greenhouse gas (‘GHG’) concentrations. The primary driver is fossil fuel consumption, which accounts for 80 per cent of global energy consumption. Conservative scientific consensus indicates that in order to maintain a 50 per cent chance of averting catastrophic climate change, the global temperature must not

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1 Secretary-General of the United Nations, ‘Sustainable Energy for All: A Framework for Action — Secretary-General’s High-Level Group on Sustainable Energy for All’ (Framework Report, United Nations, January 2012) 4 (‘SE4ALL Framework’).
4 Ibid 38–9, 72.
increase by more than 2°C by 2050. To achieve this in the most cost-effective manner, GHG emissions must peak between 2017–20 and then rapidly decline. But currently the world is ‘nowhere near’ a ‘realistic path’ to globally decarbonise all energy generation by 2050. So significant are these challenges that an urgent ‘energy revolution’ is required, ‘before the door to 2°C is closed’.

In an attempt to mobilise international cooperation on clean energy reform and uptake, the United Nations General Assembly (‘UNGA’) declared 2012 as the International Year of Sustainable Energy for All. Empowered by this resolution, United Nations Secretary-General (‘UNSG’) Ban Ki-moon set out the global Sustainable Energy for All (‘SE4ALL’) challenge for 2030:

(i) universal access to energy services;
(ii) doubling the rate of energy efficiency improvement; and
(iii) doubling renewable energy in the global energy mix from 15 to 30 per cent.12

This article focuses on the international legal means available to assist in the achievement of the third limb of this challenge.

Although not a panacea, renewable energy is poised to become a dominant ‘soft energy path’.13 It will provide increasingly decentralised and de-carbonised electricity to the 1.3 billion people currently without electricity and will become a viable substitute for the pollutive biomass energy relied upon by 2.7 billion people.14 The Intergovernmental Panel on Climate Change endorses the expansion of renewable energy generation, which by 2035 is forecast to reduce GHG emissions by 21 per cent and supply up to 45 per cent of global electricity,15 and by 2050 to supply up to 77 per cent of global electricity.16 Renewable energy will therefore be a fundamental component of the low-carbon future we need, not merely The Future We Want.17

Against this backdrop, the purpose of this article is to provide a conceptual critique of the role and character of international energy law and its capacity to assist the transition of energy generation towards the SE4ALL outcome. It argues that current international law is underdeveloped and that new international renewable energy obligations of result, such as generation targets, would be a useful co-ordinating mechanism as part of the solution to pressing issues of energy security, sustainable development and climate change.18 An uphill battle

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17 See The Future We Want, GA Res 66/288, UN GAOR, 66th sess, 123rd plen mtg, Agenda Item 19, Supp No 49, UN Doc A/RES/66/288 (11 September 2012) 47 (‘The Future We Want’). It contains approximately 300 hortatory paragraphs, some reaffirming the need to increase global renewable energy share: at 24–5 paras 125–129.

18 Unless specified, energy relates to supply-side stationary primary energy, including all ‘types’ of renewable energy, with emphasis on under-exploited high-potential ‘new’ renewable energy technologies including wind and especially solar power. The technical potential of the latter substantially exceeds total current global electricity demand: see Ottmar Edenhofer et al, ‘Summaries for Policymakers’ in Ottmar Edenhofer et al (eds), Renewable Energy Sources and Climate Change Mitigation: Special Report of the Intergovernmental Panel on Climate Change (Cambridge University Press, 2012) 3, 10, 12; Moomaw et al, above n 6, 206–7.
to garner political will remains, but regulation is a natural step in the evolutionary process of international law in the domain of renewable energy, which is currently in ‘flux’, if not infancy.

Part II examines the putative challenges for international renewable energy regulation, particularly those posed by permanent sovereignty over natural resources and energy security. Understood in a contemporary context, these challenges may actually promote global cooperation to increase renewable energy uptake. Part III critiques the abundant renewable energy policies and ‘soft’ law at the international level, highlighting the absence of any meaningful binding international instruments that regulate renewable energy. It endorses the increasing, if sub-optimal, role of international legal actors in shaping the renewable energy landscape. Part IV suggests four possible legal vehicles for advancing international renewable energy law. Rather than threatening state sovereignty, international regulation offers a pragmatic approach to both human betterment and the avoidance of a collective action tragedy.

II CHALLENGES FOR INTERNATIONAL ENERGY LAW

International law confronts several challenges if it is to facilitate SE4ALL through international regulation of renewable energy at the international level. In particular, states’ anxieties about sovereignty over natural resources and energy security policies inhibit the political will required to agree and implement international regulation. States largely remain wedded to maintaining the supply of traditional sources of energy. For example, in 2010 domestic fossil fuel subsidies reached a staggering US$400 billion globally. In contrast, renewable energy subsidies totalled US$66 billion. The following discussion argues two

25 International Energy Agency, World Energy Outlook 2011, above n 2, 39. The point made here is less about the merits of the relative quantum to industry size ratio, but that staggering subsidies are misplaced: the world is consciously subsidising environmentally unsustainable and perhaps increasingly uneconomic pollution.
points. First, that permanent sovereignty and energy security need not be obstacles to realising SE4ALL; and secondly, that international renewable energy generation targets could help improve energy security for import-dependent states without threatening state sovereignty.26

A Permanent Sovereignty: A Sustainable Challenge to Energy Cooperation?

State sovereignty is a foundational tenet of international law.27 States have jurisdiction to regulate the conduct and consequences of activities within their territory, including energy activities, unless prohibited by international law.28 This contributes to tension between three matters:

(i) the internationalisation of essentially domestic matters;
(ii) permanent sovereignty over natural resources; and
(iii) principles of international environmental law, such as the ‘no harm’ rule.

This section examines the conceptual interrelationship between these matters, to reveal that sovereignty and jurisdiction are not absolutes. It argues that sovereignty over natural resources is not entirely unfettered, but is gradually becoming infused with environmental obligations that directly or indirectly impact energy generation.29 It is therefore a natural evolution for international law to regulate the energy supply mix, especially if SE4ALL is to be achieved.

States regularly enter into binding international arrangements regarding matters that normally reside within domestic jurisdiction. In practice, such voluntary actions fetter state conduct without diminishing actual legal sovereignty.30 Today, very few matters remain ‘essentially’ domestic concerns.31 If renewable energy obligations were to be established on the international plane, states would be obliged under substantive international law to achieve them — or else risk being held internationally responsible — but would nonetheless retain jurisdiction over domestic energy activities, including related policy and technology choices.

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28 Jurisdiction is a ‘relative question’: see Nationality Decrees Issued in Tunis and Morocco (French Zone) (Advisory Opinion) [1923] PCIJ (ser B) No 4, 24; SS Lotus (France v Turkey) (Judgment) [1927] PCIJ (ser A) No 10, 19. See also F A Mann, ‘The Doctrine of Jurisdiction in International Law’ (1964) 111 Recueil des Cours 1.
30 See, eg, SS Wimbledon (Britain v Germany) (Judgment) [1923] PCIJ (ser A) No 1, 25; L F H Neer and Pauline Neer (United States of America v United Mexican States) (Concurring Opinion) (1926) 4 RIAA 60, 64; Barcelona Traction, Light and Power Company, Limited (Belgium v Spain) (Judgment) [1970] ICJ Rep 3, 32 [33]–[34]; Charter of the United Nations art 2(1); Schrijver, above n 29, 377–90.
31 Charter of the United Nations art 2(7).
In the context of energy, international law has had a growing impact on domestic activities, either directly or indirectly.\textsuperscript{32} For example, states have voluntarily entered into over 500 multilateral environmental agreements,\textsuperscript{33} partly due to the need for collective efforts to resolve the trans-boundary impacts of domestic activities — the ‘cornerstone of international environmental law’.\textsuperscript{34} These agreements effectively pierce the sovereign veil, mandating compliance with consensual obligations.\textsuperscript{35} States have also accepted economic and trade agreements that affect domestic choice,\textsuperscript{36} including international regulation of activities related to fossil fuel and nuclear power.\textsuperscript{37} This represents a gradual but significant advance towards responsible natural resource management.

One counter-argument against developing international regulation is the principle of a state’s permanent sovereignty over its natural resources. This is a customary rule\textsuperscript{38} established during decolonisation that recognises states’ ‘inalienable right to dispose of their natural wealth and resources in accordance with their national … interests’.\textsuperscript{39} This principle brought international law into the domain of domestic energy activities and challenged the legal relationship between international conservation efforts, resources ownership and domestic exploitation for economic gain.\textsuperscript{40}

Sovereignty over natural resources — permanent or otherwise — is balanced by, among other things, principles of international environmental law, specifically the customary international law obligation not to cause significant

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\textsuperscript{34} Günther Handl, ‘Transboundary Impacts’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds), The Oxford Handbook of International Environmental Law (Oxford University Press, 2007) 531, 548. See also Baste et al, above n 33, 461; below n 38 and all references therein.

\textsuperscript{35} Regarding ‘external sovereignty’, see Customs Regime between Germany and Austria (Germany v Austria) (Advisory Opinion) [1931] PCIJ (ser A/B) No 41, 57 (Judge Anzilotti). On the analogy of states to corporations see Hans Kelsen, Principles of International Law (Rinehart & Company, 1952) 100.

\textsuperscript{36} See, eg, General Agreement on Tariffs and Trade, opened for signature 30 October 1947, 55 UNTS 194 (entered into force 29 July 1948); North American Free Trade Agreement, opened for signature 17 December 1992, 32 ILM 289, 605 (entered into force 1 January 1994) (‘NAFTA’). This treaty restricts sovereign enactment of energy laws inconsistent with freedom of trade in energy: at art 102.


\textsuperscript{38} See, eg, Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda) (Judgment) [2005] ICJ Rep 168, 251 [244]. See also Texaco Overseas Petroleum Company and California Asiatic Oil Company v Government of the Libyan Arab Republic (Award on the Merits) [19 January 1977] 53 ILR 389, 491–2 [87]–[88] (‘Texaco Libya’).

\textsuperscript{39} Permanent Sovereignty over Natural Resources, GA Res 1803 (XVII), UN GAOR, 17th sess, 1194th plen mtg, Agenda Item 39, UN Doc A/5217 (14 December 1962). See also Schrijver, above n 29, 82–119.

trans-boundary harm to other states.\textsuperscript{41} Whether the consequences of fossil fuel energy generation activities — high levels of GHG emissions and depletion of finite natural resources — fall within the scope of environmental harm sufficient to trigger international responsibility remains an open question. If so, it could provide an incentive to adopt low-carbon alternatives, but in terms of \textit{lex lata} the principle is insufficiently developed to benefit renewable energy.\textsuperscript{42} In contrast, it is uncontentious that contemporary international law requires permanent sovereignty over natural resources to be exercised responsibly.\textsuperscript{43} Just as sovereignty may require cooperation for the global good,\textsuperscript{44} its use as an argument to delay international energy regulation that can advance SE4ALL is unsustainable. Rather, as Nico Schrijver contends, permanent sovereignty over natural resources could be a ‘cornerstone’ of modern sustainable development.\textsuperscript{45}

B Energy Security: Supplying Future Demand

There is no unanimous definition of energy security: rather, it is a broad policy consideration that entails a myriad of energy matters, regulated by sector under international law.\textsuperscript{46} Energy security first became a global issue during the 1973 oil shock,\textsuperscript{47} which catalysed the formation of the International Energy Agency, which established oil-based energy supply security obligations for its members.\textsuperscript{48} This section examines ways in which energy supply security may be


\textsuperscript{44} Günther Handl, ‘Environmental Security and Global Change: The Challenge of International Law’ (1990) 1 Yearbook of International Environmental Law 3, 32.

\textsuperscript{45} Schrijver, above n 29, 3925.


advanced by international renewable energy obligations, thereby facilitating SE4ALL.

Adrian Bradbrook contends that energy supply security entails three issues: first, reducing reliance on imported oil; secondly, price stability; and thirdly, supply reliability. All three elements will be negatively affected as import dependency (especially for non-Organisation for Economic Co-Operation and Development (‘OECD’) countries), natural disasters and political instability in oil-exporting states increase over time. The potential impact of these risks, among others, has already precipitated requests from private enterprise to divest fossil fuel investments. In contrast, renewable energy is a technology that can mitigate energy supply security risks and is gaining favour. For example, in 2011 almost half of the global power capacity added was from renewable energy, constituting US$257 billion in investments and a 74 per cent increase in global photovoltaic capacity. Similarly, in 2012 United States dependence on foreign oil was 15 per cent less than in 2006, a consequence of a deliberate government strategy that included the expansion of renewable energy among its measures.

The multifarious benefits of renewable energy were recognised at the international political level in 2005. At its 31st summit, the Group of Eight (‘G8’) invited the International Energy Agency to broaden its mandate to include ‘alternative energy scenarios and strategies’. Since then, the G8 has repeatedly emphasised the need for global energy security cooperation, diversification of the energy mix, substitution of fossil fuels and reduction of GHG emissions.

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52 See Leaton, above n 8. See also Nick Robins et al, ‘Sizing the Climate Economy’ (Research Report, HSBC, September 2010) 4 (estimating that the solar and wind renewable energy generation market will be worth US$400 billion by 2020).
54 Janet L Sawin et al, ‘Renewables 2012: Global Status Report’ (Report, Renewable Energy Policy Network for the 21st Century, 2012) 13, 15–16, 23, 47, 63. This remarkable increase is from a historically very low baseline for photovoltaic capacity, but indicates the potential of renewable energy as a clean technology.
noting that all are assisted by renewable energy.57 The World Bank, another international actor, invested US$4.9 billion in 2010–11 — and US$3.6 billion in 2012 — to advance renewable energy.58 Large-scale renewable energy investment has also been recommended by the International Energy Agency.59 The policies and activities of these actors, though perhaps not enforceable under international law, demonstrate growing encouragement for states to address energy supply security challenges through renewable energy.

As succinctly opined by Susan Noé and George Pring, ‘[i]n the long-term, we cannot drill, dam and dynamite our way to energy security’.60 Improving global energy supply security through clean technology will require unprecedented international cooperation and considerable financial investment. International law can facilitate this process. However, as argued in the following Part, the current international legal architecture is insufficient to achieve these goals.

III CURRENT INTERNATIONAL LAW AND RENEWABLE ENERGY

If the road to global environmental cooperation is long, the road to global energy cooperation is even longer. Encouragingly, the intensity of international energy collaboration has increased in recent decades, especially since the World Summit on Sustainable Development (‘WSSD’) in 2002,61 raising possible challenges to traditionally accepted modes of international norm creation. This Part examines the architecture of international law related to renewable energy as it currently stands and questions the extent to which it can facilitate the

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achievement of SE4ALL. This question will be addressed with respect to four different aspects of international law:

(a) ‘soft’ international law and policy;
(b) relevant ‘hard’ international law;
(c) regional regulation; and
(d) activities of international actors and institutions.

It is argued that while soft energy law abounds and has arguably shaped the parameters of a ‘sustainable energy law framework’,\(^6\) including the possibility of renewable energy targets,\(^6\) the absence of hard regulation for energy generation, especially in the climate change regime, is both striking and unsustainable. It is further argued that regional frameworks, while progressive, also fail to establish meaningful renewable energy commitments, let alone targets. Notably, the treaty congestion within international environmental law is not mirrored in the regulation of energy.\(^6\) The increasingly prominent activities of non-state institutional actors such as the International Renewable Energy Agency (‘IRENA’) illuminate, albeit in a fragmentary fashion, possible pathways toward achieving renewable energy cooperation and ultimately, it is hoped, SE4ALL.


The international community increasingly relies upon ‘soft’ international law to address global issues that are not easily attended to by the traditional international legal order, such as through legally binding instruments.\(^6\) Soft international law generally refers to non-legally binding obligations or norms and includes principles, policies and conference resolutions adopted by non-state

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\(^6\) United Nations Secretary-General’s High-Level Panel on Global Sustainability, ‘Resilient People, Resilient Planet: A Future Worth Choosing’ (Report, 2012) 62 [196].


actors. Soft law norms, the content of which may be contested, play an important role of integration and influence at the intersection of international environmental and energy law, not least because of their flexibility and evolutionary capacity. The growth in the quantity, scope and importance of soft law has challenged the ‘neat typology’ of traditional ‘formal’ sources of law as articulated in arts 38(1)(a)–(c) of the Statute of the International Court of Justice, which soft law ostensibly sits beyond. Soft law is not without its critics. Of particular relevance to SE4ALL is that many soft law instruments — and the extensive soft law commentary — ‘engender [a] normative response’ by state and non-state actors: that is, they assume ‘a regulatory role for soft law’ and ‘provide [a] powerful [justification] for action’.

The following section examines the evolution of international policy and soft law related to renewable energy across four broad epochs:

(i) general principles (1972–91);
(ii) sustainable development (1992–2001);
(iii) energy for sustainable development (2002–10); and
(iv) sustainable energy for all (2011–30).

Cumulatively, the rules, principles and policies that have emerged from each epoch have, despite their generality, had considerable influence on natural resource management and the level of energy transformation achieved to date. Arguably, more specific international soft law will be required to assist in the attainment of SE4ALL.

1 General Principles: Indirectly Influential

A well-established undercurrent of international environmental law principles, while often indeterminate and not directly applicable to energy generation, has nonetheless indirectly influenced energy policy. Through widespread state
practice, accompanied by opinio juris sive necessitatis over many decades.\textsuperscript{73} Certain principles such as the ‘no harm rule’ have crystallised into customary international law.\textsuperscript{74} However, the legal status of most principles relevant to energy activities, including precaution and polluter pays, remains contested.\textsuperscript{75}

In 1981, renewable energy was directly addressed, for the first time, through intergovernmental policy by the UN, who was then newly ‘convinced’ of its social and economic importance.\textsuperscript{76} While of modest initial impact, this policy planted the seed for the eventual establishment of the Committee on the Development and Utilization of New and Renewable Sources of Energy.\textsuperscript{77} Of greater guidance to alternative energy policy was the period of sustainable development that followed the World Commission on Environment and Development. Known as the Brundtland Commission Report, it emphasised the necessity of ‘[d]evelopment which meets the needs of present generations without compromising the ability of future generations to meet their needs’.\textsuperscript{78}

2 Sustainable Development: Reclaiming the Environment

The Stockholm Declaration and Rio Declaration collectively form the contours of sustainable development. Neither declaration defines sustainable development or expressly references energy.\textsuperscript{79} Rather, energy policy is informed through, among other things, the notion of ‘unsustainable patterns of production and consumption’.\textsuperscript{80} The non-binding Agenda 21, a product of the same conference, made an early energy policy request of governments: to

\textsuperscript{73} North Sea Continental Shelf (Federal Republic of Germany v Denmark (Judgment)) [1969] ICJ Rep 3, 41–2 [71]–[73] (‘North Sea Continental Shelf’).

\textsuperscript{74} See above Part II(A).

\textsuperscript{75} Rio Declaration, UN Doc A/CONF.151/26/Rev.1(Vol. I), annex I [15]–[16]. See also Sands et al, above n 43, 217–33.


\textsuperscript{77} This committee was eventually subsumed into the Commission on Sustainable Development (‘CSD’), which was tasked with progressing intergovernmental policy negotiation in this area. The CSD was established by: Institutional Arrangements to Follow Up the United Nations Conference on Environment and Development, GA Res 47/191, UN GAOR, 47th sess, 93rd plen mtg, Agenda Item 79, Supp No 49, UN Doc A/RES/47/191 (29 January 1993) 2 para 2. The CSD’s mandate broadened over time to include energy: see Report of the World Summit on Sustainable Development, UN Doc A/CONF.199/20 (2002) ch 1 pt 2 annex (‘Johannesburg Declaration on Sustainable Development’) (‘Johannesburg Plan’). Note that the CSD will be subsumed into a new political body once the outcomes of the 2012 United Nations Conference on Sustainable Development are implemented.

\textsuperscript{78} Report of the World Commission on Environment and Development: Note by the Secretary-General, UN GAOR, 42nd sess, Agenda Item 85(e), UN Doc A/42/427 (4 August 1987) annex (‘Report of the World Commission on Environment and Development: Our Common Future’) 54 [1].

\textsuperscript{79} The Stockholm Declaration contains more specific provisions about natural resource management than the Rio Declaration: see Schrijver, above n 29, 139–40.

\textsuperscript{80} Rio Declaration, UN Doc A/CONF.151/26/Rev.1(Vol. I), annex I [8].

Due to a lack of international consensus, debate continues over the content, legal status, threshold, process and role of sustainable development.\footnote{Alan Boyle and David Freestone, ‘Introduction’ in Alan Boyle and David Freestone (eds), International Law and Sustainable Development: Past Achievements and Future Challenges (Oxford University Press, 1999) 1, 3; Vaughan Lowe, ‘Sustainable Development and Unsustainable Arguments’ in Alan Boyle and David Freestone (eds), International Law and Sustainable Development: Past Achievements and Future Challenges (Oxford University Press, 1999) 19, 25, 31; French, above n 62, 35; Beyerlin, above n 66, 444–5.} Nonetheless, however it is characterised, sustainable development as a concept\footnote{Gabčíkovo [1997] ICJ Rep 7, 78 [140]. Cf at 88 (Separate Opinion of Vice-President Weeramantry). See also Michael Jacobs, ‘Sustainable Development as a Contested Concept’ in Andrew Dobson (ed), Fairness and Futurity: Essays on Environmental Sustainability and Social Justice (Oxford University Press, 1999) 21.} has influenced the evolution of energy policy. Philippe Sands deconstructs sustainable development as encompassing at least four elements of law: intergenerational equity, intra-generational equity, sustainable use and integration.\footnote{Philippe Sands, ‘International Law in the Field of Sustainable Development’ (1994) 65 British Yearbook of International Law 303, 338–41.}


Though sustainable development was originally framed in relation to environmental concerns, energy policy is ‘central’ to achieving its goals.\footnote{Economic and Social Council, Commission on Sustainable Development Report on the Ninth Session, UN ESCOR, 9th sess, 13th mtg, Supp No 9, UN Doc E/2001/29 and E/CN.17/2001/19 (27 April 2001) ch I div B(A) [1] (‘Decision 9/1 Energy for Sustainable Development’) (‘CSD 9th Decision 9/1’). See also Pulp Mills on the River Uruguay (Argentina v Uruguay) (Judgment) [2010] ICJ Rep 4, 74–5 [177].} Since 1994, non-binding decisions of intergovernmental bodies have promulgated policy recommendations at the international level to change energy production patterns through renewable energy.\footnote{See Economic and Social Council, Report of the Commission on Sustainable Development on Its Second Session, UN ESCOR, 2nd sess, Supp No 15, UN Doc E/1994/33 and E/CN.17/1994/20 (12 July 1994) 13–14 [45]–[57]; CSD 9th Decision 9/1, UN Doc E/2001/29 and E/CN.17/2001/19, ch I div C(3) [17(a)]. Further references to renewable energy are made at ch I div B(C.6) [23(f)], [23(i)], ch I div B(D.1) [26], ch I div B(E) [34(a)(ii)]–[34(a)(iii)], [34(b)], [34(b)], ch I div B(F) [36(3)].} In 1997, the UN galvanised the international community’s legitimate expectations for increased global
renewable energy power generation, leading to a call for national targets to advance energy for sustainable development.88

3 Energy for Sustainable Development: Catalysing Change

In 2002, energy was linked, for the first time, to energy security, climate change and sustainable development by intergovernmental policy,89 driving international action on renewable energy. Spurred by an express renewable energy political agenda,90 over 118 countries went on to implement domestic renewable energy laws and policies to varying degrees.91 Of lasting impact to international renewable energy law and policy is the first major non-binding international instrument to emerge from this movement, the *Johannesburg Plan of Implementation* (*Johannesburg Plan*).92 While arguably lacking specificity, it provides clear goals for states to

(c) Develop and disseminate alternative energy technologies with the aim of giving a greater share of the energy mix to renewable energies …

(e) … With a sense of urgency, substantially increase the global share of renewable energy sources with the objective of increasing its contribution to total energy supply.93

With renewable energy mentioned 12 times, the *Johannesburg Plan* remains the most extensive soft law instrument supporting renewable energy development, implementation, technology transfer and commercialisation.94 Despite its lack of specific targets or binding principles, as discussed by Adrian

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89 See, eg, *Johannesburg Plan*, UN Doc A/CONF.199/20, ch I pt 2 annex [9(a)], [9(g)], [38(f)]. Such a connection has been scientifically confirmed: see Arvizu et al., above n 6, 118–25.


93 Ibid [20(c)], [20(e)]. Of significance is that not all states were hostile to renewable energy targets. An initial draft of para 20(c) (then 19(e)) contained a bracketed provision for a time-bound target to increase the global share of renewable energy: see World Summit on Sustainable Development, *Draft Plan of Implementation of the World Summit of Sustainable Development*, UN Doc A/CONF.199/L.1 (26 June 2002) 2 [2]. The European Union, Iceland, New Zealand, Norway, Poland (speaking on behalf of Eastern Europe), Switzerland and Tuvalu supported this draft provision: see International Institute for Sustainable Development, ‘Summary of the World Summit on Sustainable Development: 26 August – 4 September 2002’ (2002) 22(51) *Earth Negotiations Bulletin* 1, 7.

94 *Johannesburg Plan*, UN Doc A/CONF.199/20, ch I pt 2 annex [9(a)], [9(c)], [20(c)], [20(d)], [20(e)], [20(g)], [20(h)], [20(i)], [20(o)], [59(b)], [62(i)].
Bradbrook and Ralph Wahnshafft,\(^95\) the *Johannesburg Plan* embedded in the international consciousness the need to "[delink] economic growth and environmental degradation".\(^96\) Arguably, the *Johannesburg Plan* sought to elevate some aspects of domestic energy activity to a level of international concern.

During its 14\(^{th}\) and 15\(^{th}\) sessions, the Commission on Sustainable Development increased its influence over international energy law, particularly through encouraging the use of renewable energy to combat climate change.\(^97\) Of particular significance was its call for 'time-bound targets for renewable energy',\(^98\) which was ultimately unsuccessful due to disagreements over the proposed text. David Hodas condemns that outcome as demonstrating an absence of global commitment to an energy-based response to climate change.\(^99\) Whether this is the case or not, the global attitude towards renewable energy has improved since the influential World Solar Programme of 1996–2005,\(^100\) and the UNSG, UNGA, and UN Economic and Social Council continue to stress the urgent need to increase the share of renewable energy in the global energy supply mix,\(^101\) most notably through SE4ALL.

4 Sustainable Energy for All: The Modern Imperative

Although in form the UNGA can only make recommendations,\(^102\) by virtue of its role and state membership it can provide significant normative weight to an issue. Its most significant contribution in the recent history of renewable energy policy was to declare 2012 the Year of International Sustainable Energy for All.\(^103\) By UNGA request, the UNSG followed up with the global challenge of SE4ALL, calling for a global energy ‘transformation’, a global energy strategy and ‘specific but meaningful targets’ for renewable primary energy


\(^{96}\) *Johannesburg Plan*, UN Doc A/CONF.199/20, ch I pt 2 annex [15]; affirmed in *The Future We Want*, UN Doc A/66/L.56, 3 [16].


\(^{101}\) *Promotion of New and Renewable Sources of Energy: Report of the Secretary General*, UN GAOR, 64\(^{th}\) sess, Agenda Item 55(i), UN Doc A/64/277 (11 August 2009) 1, 19 [37] ("UNSG Report 2009").

\(^{102}\) Charter of the United Nations art 10.

\(^{103}\) *International Year of Sustainable Energy for All*, UN Doc A/RES/65/151, 2 para 1.
This challenge, which envisages bottom-up domestic action to achieve top-down overarching international goals, is not legally binding on states but is poised to advance international dialogue and inspire action. Depending on the outcome of the intergovernmental panel’s consideration of possible global sustainable development goals, SE4ALL could yet find itself cloaked in some form of binding international law.

The above section has emphasised the increasingly prevalent role of international soft law and policy, supplemented by UN activity, in guiding the normative development of renewable energy policies. While most instruments and decisions are not legally binding, their influence has propelled renewable energy onto the international political agenda and has achieved considerable international backing for SE4ALL. The following section will examine the degree to which binding international law furthers the renewable energy transformation.

B Climate Change Regime: Hard Law, Missed Opportunity

The international climate change regime is an example of multilateral standard-setting developed in response to international collective action issues. It establishes legally binding international obligations through treaties — ‘hard’ international law — that relate to domestic activities, namely the use and consequences of energy generation, which have an impact on the earth’s atmosphere and natural processes. This section evaluates the extent to which the regime imposes legal obligations upon states’ domestic primary energy production, specifically regarding renewable energy, as a mechanism to address climate change. It argues that the constitutive convention, regulatory protocol and subsequent international negotiations give insufficient attention to the direct regulation of renewable energy. Rather, the present regime presents...
a missed opportunity for real and effective climate action and could even be an obstacle to achieving SE4ALL.

1 Framework Convention on Climate Change: Lacking Energy

In 1988, the UNGA acknowledged that climate change is a ‘common concern of mankind’,\(^\text{110}\) precipitating the 1992 United Nations Framework Convention on Climate Change (‘UNFCCC’).\(^\text{111}\) This moment marked an international acknowledgement that fossil fuel-based energy production and consumption, among other things, is both a source of climate change and part of its ‘solution[s] for adaptation and mitigation’.\(^\text{112}\) Yet the UNFCCC’s direct regulatory role in minimising damage to the atmosphere and natural processes is limited. To date there is no overarching legal framework on the ‘law of the atmosphere’ akin to the law of the sea,\(^\text{113}\) despite the International Court of Justice holding that the atmosphere is not an ‘abstraction’\(^\text{114}\) and the UN Security Council considering the link between climate change and international peace and security.\(^\text{115}\)

As a framework convention, the UNFCCC mandates few detailed obligations for states parties, and even fewer specifically related to energy.\(^\text{116}\) The primary obligation under the UNFCCC is to establish an inventory of GHG emissions and to develop national or regional measures to mitigate climate change.\(^\text{117}\) In doing so, states parties are ‘guided’ by principles of international environmental law including intergenerational equity, precaution and sustainable development, according to their common but differentiated responsibilities.\(^\text{118}\) While such


111 United Nations Framework Convention on Climate Change, opened for signature 9 May 1992, 1771 UNTS 107 (entered into force 21 March 1994) arts 2, 4 (‘UNFCCC’). Note that the UNFCCC and Intergovernmental Panel on Climate Change definitions of climate change differ.


115 See also Statement by the President of the Security Council, UN SCOR, 66th sess, 6587th mtg, UN Doc S/PRST/2011/15 (20 July 2011).

116 The UNFCCC Preamble recognises energy as being important to the economic growth of developing countries and art 8(h) requires special consideration for states with specific needs, including fossil fuel exporting countries: see generally Farhana Yamin and Joanna Depledge, The International Climate Change Regime: A Guide to Rules, Institutions and Procedures (Cambridge University Press, 2004). The UNFCCC Executive Secretary is increasingly adamant that ‘sustainable development without sustainable, renewable energy is impossible’: Christiana Figueres, ‘Statement by Christiana Figueres, Executive Secretary: United Nations Framework Convention on Climate Change’ (Speech delivered at the World Future Energy Summit, Abu Dhabi, 19 January 2012).

117 UNFCCC arts 4(1)(a)–(b).

118 Birnie, Boyle and Redgwell, International Law and the Environment, above n 42, 358; UNFCCC arts 3(1), (3)–(4), 4(1).
principles may encourage domestic renewable energy uptake, they are not legally binding per se. Rather, such principles are relevant to the interpretation and good faith implementation of the UNFCCC treaty.119

In fact, the purpose of the UNFCCC is to allow states parties the freedom to choose domestic measures that advance the ‘ultimate objective’ of reducing and stabilising atmospheric GHG emission levels so as to prevent dangerous anthropogenic climate change.120 Renewable energy is not expressly mentioned in the UNFCCC.121 The closest approximation is a vaguely worded obligation to ‘promote and cooperate in the development, application and diffusion’ of technologies that ‘control, prevent or reduce’ emissions in sectors including the energy sector.122 This text was agreed on during UNFCCC negotiations because “[o]il-producing states such as Saudi Arabia and Kuwait objected to the regulation of sources’ of emission123 and the US strongly resisted emissions timetables and targets that could potentially impact domestic fossil fuel use.124

2 Kyoto Protocol and Beyond: Hot Air on Energy Generation

While the UNFCCC provides structure and guidance for domestic action, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (‘Kyoto Protocol’) prescribes legally binding quantified emission limitation or reduction commitments for states parties listed in annex B.125 States parties were required to individually or jointly reduce GHG emissions by at least five per cent below 1990 levels during the first commitment period of 2008–12.126 To achieve this target, annex B states parties are legally obliged (‘shall’) to implement domestic policies, but have discretion (‘such as’) over policy choice. For example, the Kyoto Protocol’s sole reference to renewable energy is in art 2(1)(a) — a non-exhaustive list of eight non-binding policy options — which suggests that states parties research, develop, promote and increase the use of new and renewable forms of energy.127 Despite the lack of

119 Birnie, Boyle and Redgwell, International Law and the Environment, above n 42, 359; UNFCCC art 3.
120 UNFCCC art 2.
121 Similarly, energy efficiency is mentioned once in the Preamble, but not in the operative provisions of the UNFCCC: UNFCCC art 4(1)(c).
125 Kyoto Protocol art 3(1). A second commitment period from 2013–20, which will have fewer states parties than the first commitment period, was agreed at the 2012 UNFCCC Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol held in Doha, Qatar. See also Doha Amendment to the Kyoto Protocol, opened for signature 8 December 2012 (not yet in force) <http://unfccc.int/files/kyoto_protocol/application/pdf/kp_doha_amendment_english.pdf>.
126 Kyoto Protocol art 2(1)(a)(iv).
binding obligations to use renewable energy (and energy efficiency), in practice, 45 million tonnes of carbon dioxide (‘CO₂’) equivalent have been abated using these clean technologies, by projects established through the Kyoto Protocol’s flexibility mechanisms, in particular the clean development mechanism. In addition, funds have been established to increase the number and value of public–private partnerships on renewable energy.

The global climate change regime has evolved considerably since the UNFCCC and Kyoto Protocol were established. It has spawned, among other things, the Copenhagen Accord, which pledged to keep global temperature increases below 2°C and established tracks to negotiate long-term cooperative action for ‘deep cuts’ in GHG emissions. Regrettably, despite creating nationally appropriate mitigation actions and pledged targets, binding renewable energy obligations in more recent formal documents are sparse. This position persists notwithstanding the ‘emission gap’, or more accurately the chasm, of 9–12 gigatonnes of CO₂ between the GHG emission reduction pledges made since Copenhagen and Cancun and those scientifically required to stay below 2°C. This gap was noted with ‘grave concern’ in 2011, when states agreed to establish a new global platform with ‘legal force’ to enhance ambition and action on GHG emissions reductions: the Ad Hoc Working Group on the Durban Platform for Enhanced Action (‘ADP’).

The present international legal architecture on climate change addresses the consequences of energy activities. In effect, the international community is seeking a cure for climate change while allowing states to choose their own

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129 One example is the Global Energy Efficiency and Renewable Energy Fund.


remedy. This approach willingly and knowingly allows the global situation to worsen. A doctor who treats his or her patient in this way would likely be negligent and culpable for malpractice.134 The new imperative is to take preventative action to avert catastrophic climate change and attain SE4ALL. This could include establishing international renewable energy obligations and generation targets that, hopefully, facilitate a global approach to solving these problems.

As Steven Ferrey argues, renewable energy has largely been ignored in climate change law, to the disadvantage of developing states.135 Both the UNFCCC and Kyoto Protocol promote sustainable development goals, but neither mandate renewable energy obligations.136 A general commitment to the development of renewable energy sources was proposed at the beginning of negotiations for the UNFCCC, but was eventually ruled out.137 In light of modern climate science and the above discussion (especially Part IIIA) and the burgeoning renewable energy soft law since 2002 (including SE4ALL), it is perhaps increasingly possible to argue for employing art 31(3)(c) of the Vienna Convention on the Law of Treaties138 to interpret climate change obligations. Informed by an evolutionary (rather than isolationist) perspective that takes into account the wider context and developments in international law,139 such an approach might imply a positive obligation under UNFCCC arts 4(1)(b)–(c) and

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134 There is a growing literature on domestic and international climate change liability and litigation: see, eg, Richard Lord et al (eds), Climate Change Liability: Transnational Law and Practice (Cambridge University Press, 2012).


137 Bodansky, ‘The United Nations Framework Convention on Climate Change’, above n 123, 508–9, 541–2. See also Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, Preparation of a Framework Convention on Climate Change: Set of Informal Papers Provided by Delegations, Related to the Preparation of A Framework Convention on Climate Change, UN Doc A/AC.237/Misc.1/Add.1 (22 May 1991); Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, Matters Relating to Commitments: Review of the Adequacy of Commitments in Article 4, Para 2(A) and (B) — Note by the Interim Secretariat, 10th sess, Agenda Item 3(b), UN Doc A/AC.237/65 (25 July 1994) annex [20], [28]. UNFCCC states parties have previously endorsed international financial support for renewable energy activities within the regime: see Global Environment Facility, ‘Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs’ (Operational Program No 6, 2003) <http://www.thegef.org/gef/sites/thegef.org/files/documents/document/OP_6_English.pdf>.


139 See generally Crawford, Brownlie’s Principles of Public International Law, above n 27, 382–3; Birnie, Boyle and Redgwell, International Law and the Environment, above n 42, 19–22. Birnie, Boyle and Redgwell discuss challenges to this approach, one challenge being that in the cases cited, interpretation related to ‘particular phrases or provisions’ of a treaty rather than general revision or reinterpretation: at 20–1.
to develop and adopt national laws and policies that increase the share of renewable energy in the domestic and international energy supply mix. This approach could equally apply to other forms of clean technology.

Such an approach to interpretation — which is in principle supported by international jurisprudence, though not without challenge — would significantly advance the object and purpose of the climate change regime, and facilitate systemic integration and coherence between different but related areas of international law. Unless the climate change regime is ‘self-contained’, at a minimum the sustainable development discourse may lend some normative weight to the increased use of renewable energy. Without modification, the existing regime’s superficial engagement with the issue of energy generation is likely to prove inadequate to effectively mitigate climate change. The following section examines whether renewable energy law holds more promise in the regional context of Europe.

C Regional Renewable Energy Law: Charter Exhortations

Regional energy supply and energy intensity reduction goals have gained traction in recent history, precipitating various arrangements. This section analyses the Energy Charter Treaty (‘ECT’), an international law instrument applied in a regional context, as a comparator to the general international law analysis above. The ECT is the first and only multilateral treaty directly related

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140 UNFCCC arts (4)(1)(b)–(c), 4(2)(a).
141 Kyoto Protocol art 2(1)(a)(iv).
144 See generally International Law Commission, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, UN GAOR, 58th sess, UN Doc A/CN.4/L.682 (13 April 2006).
to energy matters, yet is essentially devoid of any meaningful renewable energy obligations. ¹⁴⁷

It is noted briefly that another regional body, the European Union, has imposed concrete binding obligations on member states, requiring that 20 per cent of its total energy share be derived from ‘renewable sources’ by 2020. ¹⁴⁸ This law seeks to balance sovereignty with renewable energy targets by largely allowing choice in the implementation of technology — further strengthening the European Union’s position as a climate change and a clean technology political innovator. ¹⁴⁹ Such innovation is lacking in international law, which is not constituted by a supranational legal and political framework that enables similar progressive action.

The ECT is founded on the post-Cold War non-binding European Energy Charter (‘EC’). Its purpose is to provide a legal and institutional framework to integrate and improve the efficient operation of energy markets in Europe. ¹⁵⁰ In this regard, it may be characterised as a watershed sectoral energy — and energy security — instrument. ¹⁵¹ The ECT establishes a broad range of legal rights and obligations. ¹⁵² This section focuses on its environmental impact obligations.

While it has been claimed that the ECT and its Protocol on Energy Efficiency and Related Environmental Aspects (‘PEEREA’)¹⁵³ mark the origins of international law regarding energy efficiency, ¹⁵⁴ the same cannot be said for renewable energy. The ECT does not have a separate protocol for any specific energy type. In one of its few publications on renewable energy, the Energy Charter Secretariat (‘EC Secretariat’) expressly acknowledges that renewable energy is not textually incorporated into the PEEREA, but asserts that the link is ‘obvious’. ¹⁵⁵ The same report provides helpful analysis of climate and energy science, barriers to renewable energy uptake and domestic policy options for


¹⁵⁰ ECT Preamble para 5, art 2. The ECT has 53 Eurasian members in addition to observer states from around the world: Fatouros, above n 21, 412.

¹⁵¹ Final Act of the European Energy Charter Conference [1998] OJ L 69/5, pt IV [1(a)] (‘Final Act of the EECC’). Reservations to the ECT are not permitted: ECT art 46. Accordingly, ‘understandings’ may be used for interpretative purposes that support the ECT’s object and purpose: VCLT arts 19, 31, 32.

¹⁵² See especially ECT pts II–IV art 7.


contracting parties to promote renewable energy and energy efficiency. However, the report does not indicate whether or how the ECT or PEEREA may be used to advance such matters, thus returning attention to their limited legal roles.

That the ECT incorporates renewable energy obligations can only be extrapolated from two treaty sections. First, the ECT relates to ‘Economic Activity in the Energy Sector’ that includes ‘production’ among other aspects of the energy cycle. Activities ‘illustrative’ of production include the construction and operation of power generation facilities, particularly those powered by renewable energy sources. Consequently, renewable energy is considered a type of energy investment touched by the ECT in general. Secondly, while the ECT ostensibly imposes renewable energy obligations on contracting parties, they are situated within the section on ‘Environmental Aspects’. The subordinated role of this section is highlighted by its structural location — under ‘Part IV: Miscellaneous Provisions’. Interestingly, Part IV reaffirms the parties’ sovereign and sovereign rights over energy resources, while concurrently requiring those parties to ‘undertake’ to facilitate access to energy resources. Fatouros also highlights the range of specific-to-vague obligations in the ECT.

As to the content of the environmental requirements, contracting parties are to follow various international environmental law-like principles when implementing obligations — namely sustainable development, precautionary measures and the concept that ‘in principle’ the polluter should pay. Thomas Wälde commented that on environmental matters the ECT ‘tries to be as “politically correct” as possible’ but ‘very carefully avoids any legally binding environmental obligation’. The only express reference to renewable energy is found ECT art 19(1)(d) which requires parties to ‘have particular regard … to developing and using renewable energy sources’ and to promote cleaner fuels. This is phrased as a particularly weak form of obligation of conduct and does not indicate a mandatory obligation to develop, use, promote or implement renewable energy law or policy domestically. Further indirectly related

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157 ECT art 1(5).
158 Final Act of the EECC, pt IV [2(b)(ii)].
159 ECT art 19(d).
160 Ibid arts 18(1), (4).
161 Fatouros, above n 21, 413.
162 ECT art 19(1).
requirements include promoting ‘awareness of the Environmental Impacts of energy systems’ on human welfare and the climate, as well as the research, development and application of technologies that will ‘minimize’ harmful impacts of the energy cycle. The significance of any residual legal status that may exist is eviscerated by the requirement that parties ‘strive’ to achieve these obligations in an ‘economically efficient’ manner.

The net picture is that while the ECT exhorts broad legal obligations relating to renewable energy and environmental protection, it is devoid of meaningful legal content and contains weak policy recommendations at best. It is a pro-investment treaty that favours traditional production and consumption of non-renewable energies. Accordingly, the ECT’s energy obligations appear to be of minimal relevance in facilitating the SE4ALL renewable energy goals.

Nevertheless, in 2001 the EC Secretariat established the Legal Advisory Task Force to assist in drafting balanced and legally coherent model agreements, commencing with cross-border pipelines. In 2011, a detailed and comprehensive model agreement was drafted for cross-border electricity projects, including an intergovernmental agreement and a heads of government agreement, for states and investors to voluntarily use in negotiations. Its aim is to facilitate the efficient realisation of prospective cross-border electricity systems by addressing complex technical and regulatory aspects of energy transmission. These models could potentially help to reduce knowledge barriers and investment risk, increase transparency and facilitate swifter action on certain (primarily on-grid) electricity infrastructure projects contemplated in light of SE4ALL.

The following section moves from regional regulation to examine the increasingly normative influence of non-state actors on international renewable energy law and policy development.

D Actors and Institutions: Facilitating Global Cooperation

Making SE4ALL a reality will require engagement and governance by multiple stakeholders. The number of non-state actors with broad or narrow mandates related to energy and renewable energy — which may also vary in terms of their formality, openness and international or regional scope — has increased dramatically since the WSSD. There remains, however, no single international organisation with a mandate to regulate all energy matters. This

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165 ECT arts 19(1)(f), (1)(g), (3)(b).
169 Ibid 7 [29], 9 [40].
170 Klugman et al, above n 85, 71.
section first considers particular actors that have influenced the development of international law related to energy, focusing in particular on the role of UN-Energy. It then examines in detail the mandate and potential of one international organisation pertinent to renewable energy governance: IRENA. These two entities are the newest and most immediately relevant to international renewable energy cooperation.

1 Advocates, Agencies, Banks and Think Tanks: Shaping Energy Policy

The number of non-state actors that influence the development of international law related to energy, in addition to contributing to its fragmentation, has increased significantly in recent history.171 The array includes non-governmental organisations (Renewable Energy and Energy Efficiency Partnership, Renewable Energy Policy Network for the 21st Century), political conferences (International Energy Forum, World Future Energy Summit, Group of Twenty Finance Ministers and Central Bank Governors, G8), international organisations (IRENA, OECD, International Energy Agency)172 and UN agencies and programmes (UN-Energy, UN Environment Programme, UN Development Programme, World Bank). International financial institutions in particular now play a crucial role in transitioning to a low-carbon economy.173

The intergovernmental International Conference for Renewable Energy series, established in 2004 in Bonn,174 is of particular significance. The Conference advocates for and contributes to the progression of domestic renewable energy policy by raising awareness and facilitating the global exchange of policy and technology experience.175 It has expressly declared the centrality of renewable energy to the contemporary international community:

Ministers and Government Representatives from 154 countries … acknowledge that renewable energies combined with enhanced energy efficiency, can significantly contribute to sustainable development, to providing access to energy, especially for the poor, to mitigating greenhouse gas emissions, reducing harmful air pollutants, thereby creating new economic opportunities, and enhancing energy security through cooperation and collaboration.

... [A]gree to build upon the results and agreements reached at the Earth Summit … the Millennium Declaration and the Millennium Development Goals … and the

172 Since 2005 when the International Energy Agency’s mandate expanded: see Group of Eight, above n 56, 3 [11(o)].
175 For a circumspect assessment of the conference outcomes, see Hirschl, above n 136, 4411–12.
World Summit for Sustainable Development … reaffirm their commitment to substantially increase with a sense of urgency the global share of renewable energy in the total energy supply.\textsuperscript{176}

Similar intentions are encapsulated in declarations made at the 2005 (Beijing), 2008 (Washington) and 2010 (Delhi) Conferences — although attendance at some of the conferences was affected by the global financial crisis — and these intentions have resulted in hundreds of voluntary pledges for action on renewable energy.\textsuperscript{177} At the Abu Dhabi Conference in January 2013, 160 ministers welcomed the SE4ALL initiative and declared that they 'will continue to pursue its combined goals of providing access to modern energy services for all, doubling the share of renewable energy, and doubling energy efficiency by 2030'.\textsuperscript{178} They also ‘support the unanimous declaration’ of the Decade of Sustainable Energy for All, underscoring ‘the need for increased use of renewable sources of energy’.\textsuperscript{179}

These sustained ministerial statements, spanning multiple years, are examples of state practice that appear to evince a consistent intention to increase renewable energy use. It is less apparent whether they also evince a belief that such practice is ‘rendered obligatory by the existence of a rule requiring it’:\textsuperscript{180} that is, whether there is sufficient \textit{opinio iuris sive necessitatis} to recognise an existing, or support the formation of a new, customary obligation. Nonetheless, their normative influence is considerable and demonstrative of the direction of international renewable energy discourse and policy.

The UN’s constitutive document, the \textit{UN Charter}, does not expressly articulate a mandate or purpose for the organisation in relation to energy and the environment.\textsuperscript{181} However, energy is said to fall within the UN’s broad and general competence.\textsuperscript{182} The UN has established over 40 disparate programmes related to energy, providing US$16 billion in funding, with US$4 billion dedicated to renewable energy projects.\textsuperscript{183} In 2004, UN-Energy was established

\begin{footnotesize}
\begin{enumerate}
\item[179] Ibid [7].
\item[180] North Sea Continental Shelf[1969] ICJ Rep 3, 44 [77].
\item[181] See Charter of the United Nations art 1(1), (3).
\item[182] See ibid arts 1, 55, 66.
\end{enumerate}
\end{footnotesize}
as a mechanism for inter-agency collaboration across those programmes. Its specific aim is to promote ‘system-wide’ coherence in the field of energy, including renewable energy, especially in relation to activities in response to the WSSD. UN-Energy’s mandate stops short of facilitating intergovernmental renewable energy cooperation: that role is fulfilled by IRENA.

2 IRENA: Power to Influence

Historically, there has been no international or intergovernmental process to promote, ‘host or facilitate dialogue’ on energy issues. With the opening of IRENA on 4 April 2011, this gap has been partially filled. As at 27 January 2013 it had 106 members, including the EU, and 54 signatories. As an international organisation regulated by public international law, IRENA’s competence and powers are determined as follows: first, by express language in its constitutive treaty; secondly, implied as necessary to ‘effectively’ fulfil its function; and thirdly, by subsequent practice.

The scope of IRENA’s express mandate includes promoting widespread, increased adoption and ‘sustainable use of all forms of renewable energy’. The potential force of these activities is diluted by the requirement that they ‘take into account’ states’ national and domestic priorities. Substantively, IRENA has no express competence or implied power to negotiate or establish international legal obligations with respect to renewable energy targets. This may limit the organisation’s potential as an avenue for the facilitation of SE4ALL, where such a power could assist in improving the coordination and effectiveness of the 118 domestic renewable energy targets currently enacted.

However, as contended by Meyer, this narrow mandate could be perceived as a strength by removing ‘governance risk’ — substantive rules and processes that undermine market or behavioural risks — and ‘epistemic issues’ from powers to

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185 Lafontaine et al, above n 183, 4.
186 WEHAB Working Group, above n 90, 16.
190 IRENA Statute art II.
191 Ibid art II(a).
192 The IRENA Assembly, Council and Secretariat have weak powers to ‘recommend’: ibid arts IV(A)(1), IX(A)(5)(a)-(b), IX(G), X(F), XI.
bind;\textsuperscript{193} it could potentially equip IRENA to become a streamlined institutional facilitator and global centre of excellence for renewable energy. On this reading, in theory IRENA could propel global innovation and diffusion of renewable energy technology, which is likely to bring about the indirect benefit of reducing climate change compliance costs.\textsuperscript{194} 

IRENA marks a significant advancement in intergovernmental discussion and cooperation on renewable energy finance, technology and knowledge. Importantly, its programmatic activities engage countries, international organisations and, crucially, the private sector, all of which must cooperate to deliver scalable renewable energy systems. Early signs of IRENA’s positive tangible impact are evident. It has, among other things: released a Nationally Appropriate Mitigation Actions handbook to assist in the transition to sustainable energy production and consumption; engaged representatives from Gulf states to discuss increasing regional renewable energy; agreed on a memorandum with the Dubai Electricity and Water Authority to accelerate Dubai’s renewable energy uptake; and created the Global Atlas for Renewable Energy Resources.\textsuperscript{195}

In light of the newly declared Decade of Sustainable Energy for All, IRENA is well positioned to become the ‘renewables hub’ for multilateral action and to facilitate global renewable energy cooperation.\textsuperscript{196} The recently-launched IRENA renewable energy Roadmap to 2030 will energise this process,\textsuperscript{197} and in doing so will also advance universal access to energy. Although IRENA faces challenges in driving renewable energy uptake, it has received the endorsements necessary to harness the ongoing global awakening of renewable energy consciousness that will advance SE4ALL.\textsuperscript{198} 

Despite IRENA’s current activities and future potential, its limited competence could be problematic. It has the power to influence, but no binding mandate. There presently remains no international institutional entity capable of negotiating and monitoring international principles, rules and standards on


\textsuperscript{194} Ibid 335–6.


\textsuperscript{198} ‘Declaration of the Abu Dhabi International Renewable Energy Conference’, above n 178, [8]–[9].
renewable energy.\textsuperscript{199} Such a forum — while no doubt a challenge to establish — would considerably advance SE4ALL and assist in mitigating climate change. The question remains, as World Trade Organization Director-General Pascal Lamy asks, does the world need new, more comprehensive global governance in energy?\textsuperscript{200} Whether subsequent practice will expand IRENA’s competence to include binding renewable energy governance remains to be seen, but for the moment it provides a promising channel to unlock political will and effectively address climate change outside of, or in addition to, the UNFCCC process.

The foregoing discussion examined the proliferation of non-binding instruments and deficiencies in international legal architecture relating to renewable energy. While the prevalence, content and legal status of the various instruments may be contentious, their collective influence is large, particularly when combined with that of non-state actors. Arguably, the increased momentum since 1992 for renewable energy may be building toward a crystallisation of rules, principles or policies of customary international law. But despite decades of policies, programmes and funding,\textsuperscript{201} ‘very little to no progress’ has been made towards achieving the 450 parts per million target.\textsuperscript{202} Yet energy production can be ‘relatively easily’ de-carbonised through renewable energy.\textsuperscript{203} These goals, however, cannot be fully achieved without unprecedented global cooperation. This justifies international law’s time to shine on renewable energy regulation. The following Part explores four possible mechanisms for the regulation of renewable energy through which the international legal system may advance the goals of SE4ALL.

IV  THE FUTURE OF INTERNATIONAL LAW AND RENEWABLE ENERGY

‘Because energy issues transcend boundaries, global goals’ and specific measurable targets can assist in harmonising national law and policy development.\textsuperscript{204} This Part asks how international energy law might facilitate increasing global renewable energy generation and diversification of the supply mix. It then provides a conceptual overview of select possible legal


\textsuperscript{200} Pascal Lamy, ‘Energy, Trade and Global Governance’ in Joost Pauwelyn (ed), Global Challenges at the Intersection of Trade, Energy and the Environment (The Graduate Institute/Centre for Trade and Economic Integration, 2010) 15, 18. There is an extensive commentary on energy and the environment within the World Trade Organization.

\textsuperscript{201} UNSG Report 2011, UN Doc A/66/287, 5 [15].


\textsuperscript{203} Arvizu et al, above n 6, 127. For example, it is suggested that Australia could economically de-carbonise within 10 years: see generally Matthew Wright et al, ‘Australian Sustainable Energy: Zero Carbon Australia Stationary Energy Plan’ (Research Report, The University of Melbourne Energy Research Institute/Beyond Zero Emissions, 2010).

\textsuperscript{204} WEHAB Working Group, above n 90, 15; Baste et al, above n 33, 470–1.
mechanisms,\textsuperscript{205} cognisant that political will remains an obstacle to the implementation of any suggestion. The options canvassed include:

(i) an international energy convention;
(ii) an energy protocol to the \textit{UNFCCC};
(iii) reform and a new protocol to the \textit{ECT}; and
(iv) an international declaration on renewable energy principles.\textsuperscript{206}

As an aside, IRENA could have an increased role in this space, should states empower it with a mandate to set global renewable energy standards and generation targets.

\textbf{A International Energy Convention: Targeting Generation}

International conventions are the predominant form of international regulation. To date there is no binding global treaty governing sustainable energy, let alone the energy sector as a whole. Negotiating treaties is complex and challenging. However, given the urgent need for global cooperation on energy and the environment and the gravity of predicted climatic consequences, a binding agreement may be ‘justified’.\textsuperscript{207} It has been suggested that a centralised, legally-binding climate governance framework with strict ‘targets and timetables’ is the most effective means to pursue globally coordinated emissions reductions sufficient to stay below the 2°C (or 1.5°C) climate change threshold.\textsuperscript{208} Perhaps regulating energy in a similar fashion would assist in achieving this goal and the SE4ALL target of doubling renewable energy. For any international energy convention with binding targets to be credible, it must address the endemic issues stalling climate negotiations — equity, contribution, capacity, finance and technology transfer — in a constructive and progressive manner. Templates exist to inform the content of an energy convention, including the previously unsuccessful \textit{Global Energy Charter}\textsuperscript{209} and Directive

\textsuperscript{205} A full feasibility analysis of any option would have to exhaustively consider: legal form (eg, whether and to what extent the instrument is binding); character of commitments (eg, mandatory or discretionary); and accountability and enforcement mechanisms: Remi Moncel et al, ‘Building the Climate Change Regime: Survey and Analysis of Approaches’ (Working Paper, United Nations Environment Programme/World Resources Institute, 2011) 6–7.

\textsuperscript{206} For excellent analysis on possible legal mechanisms to address climate change: see generally Joseph E Aldy and Robert N Stavins (eds), \textit{Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World} (Cambridge University Press, 2007). See also Joseph E Aldy and Robert N Stavins (eds), \textit{Post-Kyoto International Climate Policy: Implementing Architectures for Agreement} (Cambridge University Press, 2010).


\textsuperscript{208} Hare et al, above n 105, 603–4, 608.

\textsuperscript{209} World Sustainable Energy Coalition, \textit{Global Energy Charter for Sustainable Development}, Cercle Mondiale du Consensus <http://www.cmdc.net/echarter.html>. \textit{VCLT} art 2(1)(a) defines ‘treaty’, which is synonymous with ‘convention’, as: an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation …
The latter has been accepted by states despite concerns around issues of sovereignty and autonomy over national policy.

B Energy Protocol to the UNFCCC: Durban Platform Possibility?

If an independent energy convention is untenable, an energy protocol to the UNFCCC may garner stronger political support.211 Due to the enormous GHG mitigation potential of renewable energy, an energy protocol is a reasonable conceptual evolution of the climate change regime. As previously discussed, renewable energy is referenced in both the UNFCCC and Kyoto Protocol in non-binding terms. One advantage of an energy protocol is that UNFCCC states parties are not compelled to join. However, this also risks a repeat of the Kyoto Protocol entry into force experience. Thoughtful academic models already exist for a complete energy protocol,212 which could conceivably form a vital part of a package of measures adopted as part of the ADP negotiations.

The express purpose of the ADP is ‘to develop a protocol, another legal instrument or an agreed outcome with legal force under the [UNFCCC] applicable to all Parties’.213 An energy protocol could provide a meaningful and environmentally effective mechanism to advance the ADP goal of raising the ‘ambition levels’ of states parties — their collective political will to propose and implement domestic activities that will reduce GHG emissions enough to avoid exceeding the 2°C threshold.214 Time is of the essence, as the preparatory process, including negotiations for a text, must lead to the adoption of the future outcome by no later than 2015, so that it may come into effect and be implemented from 2020 onwards.215

Renewable energy has been contemplated in early-stage discussions among states parties as an option to increase the ambition of existing pledges and ‘supplementary’ measures to reduce emissions before 2020 (known as

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The generation and use of renewable energy must now be injected into discussions on the ‘scope, structure and design’ of the ADP agreement (known as ‘Workstream 1’), which will lock in the trajectory of future climate negotiations and action post-2020. Even if an energy protocol is not possible, perhaps due to political or constitutional constraints on participation (such as the current US position), action on renewable energy — and energy efficiency — must form a meaningful part of the ADP package. Otherwise, the negotiations may prove yet another irreversible missed opportunity to benefit current and future generations.

C Protocol to the ECT: Globalising Energy

If renewable energy regulation or promotion will be excluded indefinitely from the climate regime, the aforementioned energy protocol could be adopted by the ECT, with necessary modifications particular to the regime’s context. The EC Secretariat is presently undertaking a process of review and modernisation. As membership is open to all states, regardless of geography, one goal of modernisation is the broadening of the ECT’s geographic scope to become a truly global energy cooperation instrument. Additionally, the EC Secretariat has committed to investigate its investment regime in the context of renewable energy technology transfer. Undoubtedly, reform of the ECT’s general provisions is also required. With the PEEREA and a modified energy protocol, the ECT could be elevated to become the first global instrument dedicated to all energy activities.


218 Hare et al, above n 105, 600.

219 In 1997 the United States Senate passed the Byrd-Hagel resolution prohibiting the US from accepting binding obligations ‘to limit or reduce greenhouse gas emissions’ under any UNFCCC progeny unless developing country parties accepted mandatory commitments: see Expressing the Sense of the Senate regarding the Conditions for the United States becoming a Signatory to any International Agreement on Greenhouse Gas Emissions under the United Nations Framework Convention on Climate Change, S Res 98, 105th Congress (1997). This is likely to pose an obstacle for ADP negotiations and outcome options.


222 Ibid 6–7.
Declaration on Renewable Energy Principles: Soft at First

The final possibility suggested here is a non-binding international declaration on renewable energy principles. Since 2005, renewable and alternative sources of energy have gained considerable attention within the informal political forums of the G8 and Group of Twenty (‘G20’). While this development is undoubtedly positive, the espoused commitments are general, open-textured, hortatory and vague. There are no concrete and specific international principles to marshal global cooperation for the domestic promotion of renewable energy. A declaration could quickly provide an enabling framework for actors and de facto rules and standards for renewable energy policy and development. It could also send a clear policy signal to the market — an important force in driving the clean energy transition — and become the ‘core’ of soft international law related to energy, organising and amplifying the existing impact of international policy instruments and non-state actors discussed above.

The types of entities that become party to a declaration (for example, states, intergovernmental organisations and non-natural legal persons) and, in particular, the way in which the declaration comes into being, will influence its legal and normative strength. If a declaration is adopted through a UNGA resolution, or an annex thereto, by consensus or unanimous vote with normative and prescriptive textual language, it could provide a basis for the progressive development of international law or for the consolidation of existing customary rules. Under these circumstances, it could be elevated to a ‘law-making’ resolution akin to the Rio Declaration. As a soft law instrument, a declaration could be a ‘probationary’ precursor to the development of hard law on renewable energy.

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228 Crawford, Brownlie’s Principles of Public International Law, above n 27, 42.
just as soft law instruments preceded the UNFCCC negotiations. By contrast, adoption through processes beyond the UN, be they political (such as the G8, G20 or World Energy Council) or private (as with the genesis of the Equator Principles), would be likely to lessen a declaration’s legal significance and perhaps also, but not definitively, its normative influence. Again, templates exist for such a declaration: the Global Energy Charter, the Mining, Minerals and Sustainable Development Project or the Statement of Principles are all viable models.

The International Energy Agency Framework for International Energy Technology Cooperation and Renewable Energy Framework could be utilised to assist and develop any of the above suggestions. Whichever of the suggested legal formats might be politically possible, the age of sustainable energy has arrived. Although currently inchoate, the future of international law on renewable energy must take a far more active, dynamic and influential role in facilitating SE4ALL.

V CONCLUSION

This article questioned whether regulating of renewable energy through international law is sufficient to facilitate the achievement of SE4ALL and mitigate climate change. Renewable energy provides an enormous opportunity to drastically reduce GHG emissions, pursue economic growth and enhance energy security. While rhetorical pleas have sought to keep renewable energy regulation within the realm of domestic concern, it has been argued that state sovereignty

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232 Cf the mixed criticisms of the Global Compact, a UN private enterprise partnership aiming to encourage good corporate governance that advances, among other things, the Millennium Development Goals (which themselves do not expressly mention energy): see Redgwell, ‘International Soft Law and Globalization’, above n 65, 104–6.

233 See World Sustainable Energy Coalition, above n 209.


no longer presents a sustainable challenge to international energy cooperation. Rather, modern common concerns demand responsible sovereignty. Decarbonising energy generation is one way to conform to normative expectations, if not legal obligations. This can be achieved in an increasingly cost-effective manner, while simultaneously improving domestic energy supply security in the context of rising future demand.

It was argued that global energy policy development related to the clean energy transition is primarily facilitated through soft law normativity. Principles and concepts of international environmental law such as sustainable development have proven useful analytical tools to frame energy use in terms of environmental policy consequences. The proliferation of soft international law and continued ministerial support at international conferences has profoundly advanced global renewable energy generation, particularly since the WSSD. One hundred and eighteen states now have domestic renewable energy law. However, meaningful and binding international renewable energy obligations remain conspicuously absent from the UNFCCC regime and ECT. Instead, international actors and institutions have come to occupy a prominent role in promoting renewable energy adoption and technology transfer, especially through the formation of IRENA.

Against this backdrop, an enquiry is to be made regarding whether reasonably uniform state practice and accompanying opinio iuris is sufficiently evident to confirm a customary international law obligation relating to renewable energy.\(^{238}\) If so, is the UN’s SE4ALL charge to double renewable energy by 2030 a restatement of that obligation (if not as custom, then under general international law)? This article has canvassed a broad range of converging state practices, of various forms, all of which support an increase in the use of renewable energy. Whether a critical threshold has been reached in terms of the specific type of practice necessary to satisfy the physical element in custom creation is less clear. Similarly, whether such state practice occurs pursuant to a belief in legal obligation — the mental element in custom creation — is not readily discernable. Even if these issues are resolved, views may differ as to the content (if any) of a possible customary obligation. For example, would it be one of conduct, such as to promote or use best endeavours to increase renewable energy share? Or one of result, to actually double from 15 to 30 per cent the share of renewable energy in the global energy mix? Overall, it is perhaps too early to suggest that a customary obligation relating to renewable energy has crystallised. But if the current intensity and breadth of international activity continues, and if signs of a belief in legal obligation appear, it may not be beyond the realms of possibility.

In light of the urgent global imperatives, further avoidance of stronger international cooperation and regulation of renewable energy is no longer a viable option. Politics, of course, may obstruct the attainment of SE4ALL. States around the world must now demonstrate leadership and foresight to effectively coordinate a global energy transformation. The regulation of renewable energy under international law can play a key role in this process. Billions of lives, today and in the future, depend on it.