

The Contribution of Human Rights to Universal Energy Access

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I. INTRODUCTION

¶1 The normative content of international human rights law emphasizes the principles of non-discrimination, equality, empowerment, participation, and accountability. This paper considers the application of this framework to energy resources generally and electricity service provision in particular. Part II briefly traces the historical evolution of universal service obligations as an important attribute of market-oriented energy sector reform, a characteristic particularly illustrated by contemporary regulatory developments within the European Community (EC), to assess the extent to which the poor actually benefit. Part III tracks the emergence of an individual interest in universal energy access as a prominent element of the sustainable development agenda. The convergence of these regulatory and policy discourses suggests a human rights orientation to electricity access, the merits of which are evaluated in Part IV. The practical implications of applying a human rights orientation are explored in Part V—with an emphasis on ensuring equality between men and women. Part VI argues that the distinctive contribution made by human rights to achieving universal energy access is not unqualified, particularly in view of consequential environmental concerns. The article nonetheless concludes with a proposal for a General Comment as an essential first step toward recognizing a human right to electricity access.

II. UNIVERSAL SERVICE AS AN OBJECTIVE OF ENERGY SECTOR REFORMS

¶2 The traditional approach of governments to monopolistic electricity provision emphasized security of supply and sufficient capacity to cover demand at all times.¹ However, it is also true that governments have historically made little effort to improve electricity access, particularly for the poor.² National energy policies instead focused upon modern economic sectors (industry, transport, and urban infrastructure) to the neglect of rural development. Development institutions such as the World Bank, therefore, sought to provide financial and technical assistance to facilitate electricity access within rural areas and secure the energy sources required for essential social

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¹ INTERNATIONAL ENERGY AGENCY (IEA), SECURITY OF SUPPLY IN ELECTRICITY MARKETS: EVIDENCE AND POLICY ISSUES 9-10 (2002).

² ENERGY ACCESS WORKING GROUP, GLOBAL NETWORK ON ENERGY FOR SUSTAINABLE DEVELOPMENT (GNESD), THEME RESULTS: SUMMARY FOR POLICYMAKERS 6 (2004).

services.³ However, it also underestimated the complexity and time required for these contributions to achieve lasting and equitable outcomes.⁴

¶3 Over time, the decline in public development financing for electricity sector investment from such donor institutions entailed greater national reliance upon private sector investment; indeed, this was made an explicit condition for continued lending.⁵ The objective of improving electricity access for disadvantaged social groups was effectively dropped in favor of improving energy sector efficiency.⁶ It was also anticipated that tendencies to oversupply would be eliminated.⁷ With financial viability as the overriding concern, there was little political commitment at the national level to promoting sustainable development through electricity sector reforms. It quickly became evident that without conscientious governmental effort, market reforms would not support greater access.⁸

¶4 Moreover, national governments believed that foreign direct investment would provide the principal financial capital for constructing the necessary energy infrastructure.⁹ Increasing private sector participation was expected to improve consumer choice in energy service provision, particularly for the poor.¹⁰ However, this liberalization model “may not be the complete answer,” particularly where private companies demonstrate little interest in expanding electricity supplies to rural areas.¹¹ Indeed, electricity expenditure could increase as a proportion of income, especially for the poor, while consumption remains static.¹² Furthermore, falling electricity tariffs typically have not matched productivity improvements, thereby implying that private operators shared with governments some of the gains through rents and higher tax revenue.¹³

¶5 More specifically, the social welfare objectives of electricity sector restructuring included raising service quality, ensuring affordability, and widening access.¹⁴ Protecting

³ WORLD BANK, ENERGY AND DEVELOPMENT REPORT 2000: ENERGY SERVICES FOR THE WORLD’S POOR (2000).

⁴ See generally FERNANDO MANIBOG, ET AL., POWER FOR DEVELOPMENT: A REVIEW OF THE WORLD BANK GROUP’S EXPERIENCE WITH PRIVATE PARTICIPATION IN THE ELECTRICITY SECTOR (2004).

⁵ *Id.* at 8.

⁶ Penelope J. Brook & John Besant-Jones, *Reaching the Poor in an Age of Energy Reform*, in ENERGY AND DEVELOPMENT REPORT 2000: ENERGY SERVICES FOR THE WORLD’S POOR, *supra* note 3, at 2-5.

⁷ Enese Lieb-Doczy et al., *Who Secures the Security of Supply? European Perspectives on Security, Competition and Liability*, 16 THE ELECTRICITY JOURNAL 10, 19 (2003).

⁸ NAVROZ K. DUBASH, POWER POLITICS: EQUITY AND ENVIRONMENT IN ELECTRICITY REFORM 10, 21 (2002).

⁹ MINISTERIAL DECLARATION OF THE EURO-MEDITERRANEAN ENERGY FORUM, ¶ 2.9 (May 21, 2003), <http://www.climnet.org/pubs/athensdeclaration052003.pdf>.

¹⁰ Penelope Brook Cowen & Nicola Tynan, *Reaching the Urban Poor with Private Infrastructure*, World Bank Private Sector Note No. 188, 3 (1999).

¹¹ World Bank, *Improving Energy Supplies for Two Billion People*, Rural Energy and Development Report No. 15912GLB, ¶ 4 (1996).

¹² WORLD BANK, POWER’S PROMISE: ELECTRICITY REFORMS IN EASTERN EUROPE AND CENTRAL ASIA (2004).

¹³ Antonio Estache & Martin Rossi, *Have Consumers Benefited from the Reforms in the Electricity Distribution Sector in Latin America?*, World Bank Policy Research Working Paper No. 3420 (2004).

¹⁴ Catherine Waddams Price, *Better Energy Services, Better Energy Sectors—and Links with the Poor*, in ENERGY AND DEVELOPMENT REPORT 2000: ENERGY SERVICES FOR THE WORLD’S POOR, *supra* note 3, at 26-32.

the poor was ostensibly one additional feature.¹⁵ However, such reforms might not produce the hoped-for benefits or improved living conditions, particularly in rural areas. On the contrary, liberalization may herald reduced electrification rates, increased tariff levels, reduced consumption, and the exclusion of the poor from modern energy services. For example, Bolivia was one State which unbundled its electrical generation, transmission, and distribution functions.¹⁶ Although electricity became more accessible to urban residents, rural households enjoyed no discernable improvement after more than a decade, and coverage for the poor declined.¹⁷ Following the abolition of cross-subsidization policies, residential tariffs increased—with rural prices tending to grow faster and be higher relative to urban areas. Brazil experienced a similar situation, with little attention given to expanding services to low-income and rural areas during restructuring.¹⁸ Isolating macroeconomic policies and other explanatory variables,¹⁹ similar patterns are discernable elsewhere within Latin America.²⁰

¶6 With the exception of South East Asia and sub-Saharan Africa, energy sector liberalization commenced in the 1980s or is currently underway.²¹ A survey of 115 developing States concluded that seventy-three had undertaken minimal steps toward market-oriented reforms in the electricity sector.²² Indeed, events have come full circle in Argentina and the United Kingdom: electricity companies were initially privately established, then nationalized following World War II, and now have been returned to private control. Comparable privatization processes have given rise to several additional concerns, particularly that workers' rights should be protected through negotiation, consultation, and collective bargaining.²³ Irrespective of the ultimate legal status or ownership arrangement, employees generally espouse the view that electric utilities should be publicly accountable under national law and practice.²⁴ In India, for example, the Electricity Employees Federation requested that the government abolish market-oriented reforms and restore the right to electricity for the Indian people.²⁵

¹⁵ Yves Albouy & Nadia Nadifi, *Impact of Power Sector Reform on the Poor: A Review of the Issues and the Literature*, World Bank Energy Sector Management Assistance Programme Technical Paper 002 (1999).

¹⁶ Electricity Law No. 1604 (1994) (Bol.).

¹⁷ Compare Antonio Bojanic & Michael Krakowski, *Regulation of the Electricity Industry in Bolivia: Its Impact on Access to the Poor, Prices and Quality*, Hamburg Institute of International Economics Discussion Paper No. 250 (2003) and WORLD BANK ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME AND UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP), INTRODUCING COMPETITION INTO THE ELECTRICITY SUPPLY INDUSTRY IN DEVELOPING COUNTRIES: LESSONS FROM BOLIVIA (2000).

¹⁸ Jose Goldemberg *et al.*, *Expanding Access to Electricity in Brazil*, 7(4) ENERGY FOR SUSTAINABLE DEVELOPMENT 86 (2004).

¹⁹ Roberto Kozulj & Nicolas di Sbroiavacca, *Assessment of Energy Sector Reforms: Case-Studies from Latin America*, 8(4) ENERGY FOR SUSTAINABLE DEVELOPMENT 74 (2004).

²⁰ Antonio Estache *et al.*, *Utilities Privatisation and the Poor: Lessons and Evidence from Latin America*, 29(7) WORLD DEVELOPMENT 1179 (2001).

²¹ International Labour Organization (ILO), Report for discussion at the Tripartite Meeting on Managing the Privatization and Restructuring of Public Utilities, ¶¶ 1.5.3-1.5.5. (1999), available at <http://www.ilo.org/public/english/dialogue/sector/techmeet/tmpu99/tmpure1.htm>.

²² Robert Bacon, *Global Energy Sector Reform in Developing Countries: A Scorecard*, World Bank Report No. 219/99 (1999).

²³ ILO, Report of the Joint Meeting on Employment and Conditions of Work in Water, Gas and Electricity Supply Services, ¶ 5 (1987).

²⁴ *Id.* ¶ 7.

²⁵ ELECTRICITY EMPLOYEES FEDERATION OF INDIA, RIGHT TO ENERGY – A MUST FOR MANKIND (2003),

¶7 To summarize, a perfect liberalization model is yet to eventuate; governments are undertaking regulatory reform and industry is reorganizing markets largely on a trial-and-error basis. That said, the voluminous literature and empirical evidence available both regionally and internationally offer several insights.²⁶ First, the sequencing of market-oriented reform is critical; large-scale electrification of the poor, particularly in remote rural areas, should accompany—if not precede—privatization.²⁷ Second, the poor should participate in governmental decision-making through co-operatives or governing boards. Institutions may also be entrusted with managing electrification for the poor. For example, the government of the Philippines established an independent regulatory commission to oversee rural electrification, extended lifeline rates to marginalized consumers, and employed cross-subsidization pricing policies.²⁸ Third, funds must be strictly accounted for and protected from misallocation (colloquially known as being “ring-fenced”).

¶8 Most significantly, national regulatory systems must be amended to respond to the basic needs of individuals. Legislative measures should explicitly target issues of accessibility, affordability, and reliability.²⁹ For example, Kenyan and Ugandan legislation failed to explicitly address electrification of the poor, and government agencies did not track the progress of the implementation.³⁰ By contrast, electricity distribution concessionaries in Brazil are obligated to provide comprehensive market services without excluding low-income or rural households.³¹ The poor are specifically defined as low-income individuals whose monthly electricity consumption falls below minimum levels considered essential to satisfying basic needs (80 kilowatt per hour (kWh) per month).³² “Customers under special conditions” are permitted to consume up to 220 kWh per month.³³ Finally, upfront connection costs were abolished, electricity tariffs discounted, and stringent procedures instituted.³⁴ In Thailand, the quantity of electricity supplies corresponds with national poverty standards such that one proxy for the poor includes monthly electricity consumption of up to 150 kWh.

available at <http://www.eefi.org/0304/030405e.htm>.

²⁶ UNEP Global Network on Energy for Sustainable Development Energy Access Working Group, *Updated Draft Annotated Bibliography, Version 4: Energy Access Theme* (Stephen Karakezi et al., eds., 2003).

²⁷ *Introduction*, 8(4) ENERGY FOR SUSTAINABLE DEVELOPMENT 3, 7-8 (2004); UNEP Global Network on Energy for Sustainable Development Energy Access Working Group, *Energy Access Theme Result Synthesis/Compilation Report* 13, 16, 22 & 34-36 (2004); Warrick Smith, *Regulating Infrastructure for the Poor: Perspectives in Regulatory Systems Design*, in INFRASTRUCTURE FOR POOR PEOPLE: PUBLIC POLICY FOR PRIVATE PROVISION (Penelope J. Brook & Timothy C. Irwin, eds. 2003).

²⁸ See generally Electric Power Industry Reform Act (2001) (Phil.).

²⁹ A. R. Sihag et al., *Impact of Power Sector Reform on the Poor: Case Studies of South and South-East Asia*, 8(4) ENERGY FOR SUSTAINABLE DEVELOPMENT 54 (2004).

³⁰ Stephen Karekezi & John Kimani, *Have Power Sector Reforms Increased Access to Electricity Among the Poor in East Africa?*, 8(4) ENERGY FOR SUSTAINABLE DEVELOPMENT 10 (2004).

³¹ Lei No. 9.074, de 7 de julho de 1995, D.O.U. de 8.7.95, Edicao extra e republicada no D.O.U. de 28.9.1998, available at <https://www.planalto.gov.br/>.

³² Lei No. 10.438, de 26 de abril de 2002, D.O.U. de 29.4.2002, Edicao extra, available at <https://www.planalto.gov.br/>.

³³ *Id.*

³⁴ Lei No. 9.427 de 26 de dezembro de 1996, D.O.U. de 27.12.96, republicada em 28.9.98, available at <https://www.planalto.gov.br/>; Lei No. 10.438, de 26 de abril de 2002, D.O.U. de 29.4.2002, Edicao extra, available at <https://www.planalto.gov.br/>.

¶9 Pro-poor electrification strategies include establishing connection or coverage targets in concession or licensing agreements, liberalizing operator entry to unserved areas, providing fiscal incentives to facilitate expanded infrastructure, establishing differential consumer treatment based upon financial capacity, and employing subsidies (on consumption or connection, targeted to specific consumers or using cross-subsidization).³⁵ Universal service obligations (USOs) may also be imposed upon energy service providers irrespective of the cost recovery principle. A USO is the obligation to provide minimum electricity levels to all consumers regardless of their capacity to pay.³⁶ This can be implemented legislatively (for example, in Brazil during 1992) or contractually.³⁷ Additionally, it may entail uniform tariffs that are irrespective of location, below-cost tariffs to particular consumer categories, or requirements for utilities to undertake unprofitable rural electrification programs.³⁸

¶10 The national policy objectives of secure electricity supplies or sufficient capacity noted above have not been altogether displaced. On the contrary, States engage in regional trade on account of the difficulties of storing electricity. It is believed that electricity pools ensure access, reliability, and security at lower cost within larger markets.³⁹ Efforts are currently underway to integrate national electricity grids between the Baltic Sea States (Denmark, Finland, Iceland, Norway, and Sweden)⁴⁰ and the thirty-four States members of the Summit of the Americas.⁴¹ The G-8 (US, Canada, Britain, Germany, France, Italy, Japan, and Russia) has also recognized “the value of flexible oil, gas, and electricity transport networks with multiple links between energy suppliers and consumers, to reduce the vulnerability to disruption of these critical resources.”⁴² Governments have been called upon to strengthen regional arrangements of cooperation which facilitate cross-border energy trade including connecting national electricity grids.⁴³

¶11 The process of integrating national electricity markets at the regional level is usefully illustrated in the EC context. Regulatory objectives included reducing resource exploitation costs, lowering consumer tariffs, diversifying electricity supplies, contributing to energy security and developing competitive internal and international markets.⁴⁴ Integration proceeded in stages. Electricity utilities were first required to

³⁵ WORLD BANK, OPERATIONAL GUIDANCE FOR WORLD BANK GROUP STAFF: PUBLIC AND PRIVATE SECTOR ROLES IN THE SUPPLY OF ELECTRICITY SERVICES, ¶ 41 (2004).

³⁶ Omar Chisari & Antonio Estache, *Universal Service Obligations in Utility Concession Contracts and the Needs of the Poor in Argentina's Privatisations*, World Bank Institute of Governance, Regulation, and Finance Policy Research Working Paper No. 2250, 4 (1999).

³⁷ *Id.* at 14

³⁸ *Id.* at 8, 14-17.

³⁹ U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION, ENERGY IN AFRICA (1999).

⁴⁰ Council of the Baltic Sea States, Declaration “Sustainable Energy Supply around the Baltic Sea” (Bergen Declaration) (June 27, 1997), available at <http://www.cbss.st/basrec/background/other/dbaFile435.html>.

⁴¹ Third Hemispheric Meeting of Energy Ministers, Summit of the Americas, Caracas Declaration (January 15-16, 1998), available at <http://www.summit-americas.org/Energy/Energy-CaracasDEC.htm>

⁴² Group of 8, *Energy Ministerial Statement from the Co-Chairs*, ¶ 4 (May 2-3, 2002), <http://www.g8.utoronto.ca/energy/energy0702.html>.

⁴³ Johannesburg World Summit on Sustainable Development, *Plan of Implementation*, ¶ 20(v), U.N. Doc. A/CONF.199/20 (2002), available at http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm.

⁴⁴ European Commission, *Report on State of Liberalization of the Energy Markets*, COM (1998) 212,

supply the EC Statistical Office with consumer tariff information on the understanding that published aggregate figures would respect confidentiality.⁴⁵ High voltage transmission utilities were subsequently required to exchange electricity with those located in non-neighboring States, provided that transmission reliability remained unaffected.⁴⁶ Ultimately, the EC electricity market will be legally underpinned by a Treaty Establishing the Energy Community (currently under consideration) and intended to ensure access to stable and continuous electricity essential for economic development and social stability.⁴⁷

¶12 The European electricity market is relevant for present purposes because it contemplates individual interests. First, households in this market have the right to choose their supplier through non-discriminatory network access.⁴⁸ “Household customers” are those who purchase electricity for domestic consumption, thereby excluding commercial or professional activities.⁴⁹ Furthermore, Member States “ensure that all household customers . . . enjoy universal service, that is, the right to be supplied with electricity of a specified quality within their territory at reasonable, easily and clearly comparable and transparent prices.”⁵⁰ To ensure that universal service is provided, governments may appoint suppliers of last resort.⁵¹

¶13 Second, the EC regulatory regime affirms governmental responsibility for consumer protection. Member States are to protect vulnerable customers, including those located in remote areas, through adequate safeguards which avoid disconnection.⁵² Consumer contracts with electricity service providers must contain particular information including expected service, maintenance and quality levels, applicable tariffs, simple and inexpensive complaint procedures, adequate notification of intended changes, wide choice of payment methods, and freedom from surcharges when changing suppliers.⁵³ EC Member States are also expected to pursue security of electrical supplies, social and

(July 4, 1998), *available at*

http://europa.eu.int/prelex/detail_dossier_real.cfm?CL=en&DosId=124131..sier_real.cfm?CL=en&DosId=12413.

⁴⁵ European Council Directive 90/377, art. 1, 1990 O.J. (L 185) 16 (EEC), *available at* <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31990L0377:EN:HTML> (last visited Feb. 12, 2006) (concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users).

⁴⁶ European Council Directive 90/547, art. 1, 1990 O.J. (L 313) 30 (EEC), *available at* <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31990L0547:EN:HTML> (last visited Feb. 12, 2006) (on the transit of electricity through the transmission grids).

⁴⁷ See European Community, Treaty establishing the Energy Community (Oct. 26, 2005), *available at* <http://www.seerecon.org/infrastructure/sectors/energy/documents/Treatyenergy.pdf>.

⁴⁸ European Council Directive 2003/54, preamble, ¶¶ 6, 20, 2003 O.J. (L 176) 37 (EC), *available at* http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_176/l_17620030715en00370055.pdf (last visited Feb. 12, 2006) (concerning common rules for the internal market in electricity and repealing Directive 96/92/EC). Several States including Finland, Germany, Sweden and the UK have exceeded the six year schedule contemplated for achieving that objective. European Council Directive 96/92 1996 O.J. (L27) 20 (EC), *available at* <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31996L0092:EN:HTML> (last visited Feb. 12, 2006).

⁴⁹ European Council Directive 2003/54, art. 2(10), 2003 O.J. (L 176) 37 (EC), *available at* http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_176/l_17620030715en00370055.pdf (last visited Feb. 12, 2006).

⁵⁰ *Id.* art. 3(3).

⁵¹ *Id.*

⁵² *Id.* art. 3(5).

⁵³ *Id.* Annex A.

economic cohesion, and environmental protection.⁵⁴ Regulatory authorities must be independent from industry interests and are responsible for ensuring non-discriminatory access, effective competition, and efficiency.⁵⁵

¶14 This is not to say that other actors are free from responsibility. In their general economic interest, governments may impose public service obligations upon electricity undertakings in relation to the security, regularity, quality and price of supplies, environmental protection, and energy efficiency.⁵⁶ Distribution companies are obliged to connect customers to electricity grids under the terms, conditions, and tariffs established by national regulatory authorities. Similarly, transmission system operators must contribute to security of supplies, ensure non-discrimination between users, and satisfy reasonable transmission demands over the long term.⁵⁷

¶15 The EC regime warrants several observations. First, individuals enjoy “universal service,” which entails non-discriminatory network access. The consumer protection measures constitute a useful template for outlining several features of a prospective human rights orientation. Second, this public service obligation distinguishes this regime from other deregulation initiatives. Customers continue to receive electricity supplies when contracts expire or have not been renewed.⁵⁸ Third, this obligation can be imposed upon private sector operators. Service standards and price caps applicable to distribution companies will be identified by national legislation.⁵⁹ Fourth, the public service obligation is subject to the general economic interest. To “refute a common misconception,” the European Commission considers that “the internal energy market does not only seek systematically to reduce prices to consumers, but to set a fair price in compliance with public service obligations.”⁶⁰ Hence, although the interaction between public service obligations and tariff levels is presently unclear, in 2006 the EC is expected to report on the degree to which households have benefited, by which time other policy considerations may have come into play.

III. UNIVERSAL ENERGY ACCESS AS AN ATTRIBUTE OF THE SUSTAINABLE DEVELOPMENT AGENDA

¶16 Since the early 1990s, energy has shifted from the periphery of the sustainable development agenda to enjoy a greater prominence. Moreover, universal access for the benefit of individuals has simultaneously emerged. National energy policies had hitherto been concerned with secure supplies, self-sufficiency, and preserving national

⁵⁴ *Id.* art. 3(7).

⁵⁵ *Id.* art. 23(1).

⁵⁶ *Id.* art. 3(2).

⁵⁷ *Id.* art. 9.

⁵⁸ European Community Directorate-General on Energy and Transport, *Note on Directives 2003/54/EC and 2003/55/EC on the Internal Market in Electricity and Natural Gas: Practical Measures for Distribution resulting from the Opening up to Competition*, 3 (2004), available at http://europa.eu.int/comm/energy/electricity/legislation/doc/notes_for_implementation_2004/distribution_en.pdf.

⁵⁹ *Id.* at 8.

⁶⁰ European Commission, *Communication Concerning the Final Report on the Green Paper ‘Towards a European Strategy for the Security of Energy Supply*, COM (2002) 321, ¶ 11 (June 26, 2002), available at http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2002/com2002_0321en01.pdf.

sovereignty over the use of natural resources.⁶¹ Economic growth was (and continues to be) directly correlated with the rate of energy consumption.⁶²

¶17 Energy was first addressed at the intergovernmental level in the context of climate change at the United Nations (UN) Conference on Environment and Development in Rio during 1992.⁶³ Agenda 21 noted that “energy is essential to economic and social development and improved quality of life” and observed that “all energy sources will need to be used in ways that respect the atmosphere, human health and the environment as a whole.”⁶⁴ At the UN General Assembly’s Special Session in 1997, where delegates gathered to review the progress made in implementing Agenda 21, governments called for “concrete measures to strengthen international cooperation in order to assist developing countries in their domestic efforts to provide adequate modern energy services, especially electricity, to all sections of their population, particularly in rural areas, in an environmentally sound manner.”⁶⁵

¶18 The Millennium Declaration of the Millennium Summit of 2000 seeks to halve the proportion of individuals living on less than US\$1 per day by 2015. Furthermore, governments will “spare no efforts to promote democracy and strengthen the rule of law, as well as respect for all internationally recognised human rights and fundamental freedoms, including the right to development.”⁶⁶

¶19 Although providing essential infrastructure services was omitted as an explicit target, access to energy underpins each of the Millennium Development Goals (MDGs).⁶⁷ First, energy access alleviates poverty through improved productivity, greater income-generating opportunities, and micro-enterprise development. Household energy expenditure and urban transport costs are generally lower. Electricity and liquid fuels power diesel pumps for irrigation purposes or agroprocessing machinery, which grinds cereals, thereby increasing agricultural output and reducing food prices and eradicating hunger. Electricity also ensures food safety and preservation through more effective cooking, chilling, and freezing.

¶20 Second, electricity access lowers the time spent by children, particularly girls, in collecting fuelwood, thereby enabling school attendance, reducing drop-out rates, and facilitating the achievement of universal primary education. Electricity also powers information and communications technology (including overhead projectors, computers, printers, and photocopiers) to enable distance learning. Lighting allows children to study

⁶¹ International Union for the Conservation of Nature Environmental Law Programme, *Energy Law and Sustainable Development: IUCN Environmental Policy and Law Paper No. 47* (Adrian J. Bradbrook & Richard L. Ottinger eds. 2003), available at <http://www.iucn.org/themes/law/pdfdocuments/Energy-Law/ENERGY-PUB-prelims.pdf>.

⁶² United Nations Development Program, *Energy for Sustainable Development: A Policy Action Agenda* (Thomas B. Johansson & Jose Goldemberg eds. 2002), available at <http://www.undp.org/energy/publications/2002/20013108FNRapport.pdf>.

⁶³ Report of the United Nations Conference on Environment and Development, U.N. Doc. A/CONF.151/26/Rev.1, Vol. I, Res. 1, Annex II, Agenda 21, ¶ 9.9 (1992), available at <http://documents-dds-ny.un.org/doc/UNDOC/GEN/N92/836/55/pdf/N9283655.pdf?OpenElement>.

⁶⁴ *Id.*

⁶⁵ Programme for the Further Implementation of Agenda 21, G.A. Res. S/19-2, ¶ 46(b) (Sept. 19, 1997), available at <http://www.un.org/documents/ga/res/spec/ares19-2.htm>.

⁶⁶ U.N. Millennium Declaration, G.A. Res. 55/2, ¶ 24 (Sept. 8, 2000), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N00/559/51/PDF/N0055951.pdf?OpenElement>.

⁶⁷ *Id.* ¶¶ 19, 20.

for longer periods, and mechanized transport to school, such as electric trains, becomes possible. Third, energy access can empower women and achieve gender equality, a topic addressed in Part V. Fourth, improved cooking fuels reduce indoor air pollution, decrease respiratory infections, and prevent child mortality. Moreover, electricity enables households to boil water, thereby eliminating waterborne diseases, and provides warmth or space conditioning. Water supply infrastructure and sanitation treatment systems also require electricity to function. Modern energy services are less flammable and reduce the incidence of burns, housefires, and accidents.

¶21 Fifth, improved maternal health depends upon energy access. Communication and transport are critical to emergency obstetric care, and modern energy services encourage health care workers to serve rural areas. Sixth, electricity addresses the incidence of HIV/AIDS, malaria, and other diseases by supporting the ability of health clinics, hospitals, and operating theatres to refrigerate vaccines, boil water, sterilize equipment, incinerate used syringes, provide light, and transport patients. Seventh, renewable energy sources are environmentally sustainable because they reduce outdoor air pollution, including carbon emissions, a topic considered in Part VI. Modern cooking fuels alleviate the need to extract biomass energy sources, such as fuelwood, from forests and ecosystems. Finally, a global partnership for development depends upon the co-operative provision of energy. For example, electricity increases the productivity of machinery for cottage industries such as apparel production and light manufacturing.

¶22 The importance of energy (and individual access thereto) is more explicitly acknowledged at regional levels. For example, the sixty-two Member States of the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) agreed that the region “will require more energy supplies and services to meet the basic needs and to improve the quality of life of its people,”⁶⁸ acknowledging that commercial mechanisms devoted to the urban poor and rural populations could achieve the “more equitable supply and servicing of energy to these people.”⁶⁹ UNESCAP resolved “to take accelerated action and initiatives to widen the access of energy services to our disadvantaged groups”⁷⁰ through its Sustainable Energy Development Action Programme. This Programme provides that “[a]ccessibility to commercial energy supply is essential for any programme of alleviating poverty through the provision of basic minimum human needs,”⁷¹ and requires governments “to promote energy utilization for poverty alleviation by ensuring energy availability at affordable prices.”⁷² Non-governmental organizations (NGOs) go a step further to argue that energy “should be accessible to all at an affordable price and on an equitable basis.”⁷³

⁶⁸ U.N. Economic and Social Commission for Asia and the Pacific (UNESCAP), *Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development*, ¶ 1, U.N. Doc. ST/ESCAP/2130 (2001), available at <http://www.unescap.org/esd/energy/mandates/Bali/annexIIBaliD.pdf>.

⁶⁹ *Id.* ¶ 2.

⁷⁰ *Id.* sec. A, ¶ 2.

⁷¹ *Id.*; Economic and Social Commission for Asia and the Pacific, *The Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region 2001-2005*, ¶ 1 (2000), available at <http://www.unescap.org/esd/energy/publications/HLR/book.pdf>.

⁷² U.N. Economic and Social Commission for Asia and the Pacific, Res. 57/6, *Part Three: Implementation of the Sustainable Energy Development Action Programme*, para. 8(a) (2001), available at <http://www.unescap.org/esd/publications/energy/hlr/part3.pdf>.

⁷³ Non-Governmental Organisation (NGO) Perspectives on the Sustainable Energy Development Action Programme for the Asia-Pacific Region, Asia-Pacific NGO Symposium on Regional Perspectives and

¶23 At the institutional level, individual access to energy was considered at the ninth session of the UN Commission on Sustainable Development (CSD) during 2001. An intergovernmental expert group observed “increasing recognition of adequate and reliable electric power as important to economic and social development,” and acknowledged that there are “very strong social imperatives and political pressures to expand supply.”⁷⁴ Increasing electricity access for the poor was particularly prominent in the discussion.⁷⁵

¶24 Although all of the “major groups” of civil society subscribed to the common goal of universal access to sustainable energy sources, each advocated different modes of implementation. The scientific and technological community considered that “priority should be given to providing energy in rural areas to meet the population’s basic needs and to create jobs and income-earning opportunities so as to alleviate poverty and enhance the quality of life.”⁷⁶ Business and industry acknowledged that “the energy industry is the key provider of wider accessibility to commercial energy services, of the availability of uninterrupted supply and of more socially and environmentally acceptable energy products.”⁷⁷ The private sector proposed accelerated economic growth as the route to equitable access, while trade unions did not support this free market approach.⁷⁸ NGOs, by contrast, considered that governments, intergovernmental organizations, and civil society were each responsible for ensuring universally available and sustainable energy.⁷⁹ Local authorities called for measures which addressed demand-side factors such as convenience, affordability, and availability.⁸⁰

¶25 Whereas most participants concluded that equitable energy access could be achieved through capacity-building, the session Chairman also proposed to recognize

Initiatives for Achieving a ‘Sustainable Energy Future for All’, Bali, November 21-22, 2000 reproduced in UNESCAP Environment and Sustainable Development Division, *High-level Regional Meeting on Energy for Sustainable Development, 21-24 November 2000, Bali, Indonesia*, UNESCAP Doc. No. ST/ESCAP/2130, Part 4 (2001), available at

<http://www.unescap.org/esd/energy/publications/HLR/book.pdf>.

⁷⁴ U.N. Economic and Social Council, Commission on Sustainable Development, *Report of the Ad Hoc Open-Ended Intergovernmental Group of Experts on Energy and Sustainable Development*, ¶ 17, U.N. Doc. E/CN.17/2000/12 (Mar. 6-10, 2000), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N00/361/00/PDF/N0036100.pdf?OpenElement>.

⁷⁵ U.N. Economic and Social Council, Commission on Sustainable Development, *Report of the Ad Hoc Open-Ended Intergovernmental Group of Experts on Energy and Sustainable Development*, ¶ 8(j), U.N. Doc. E/CN.17/2001/15 (Mar. 20, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/294/55/PDF/N0129455.pdf?OpenElement>.

⁷⁶ *Id.*; U.N. Economic and Social Council, Commission on Sustainable Development, *Discussion Paper Contributed by the Scientific and Technological Communities*, ¶ 18(e), U.N. Doc. E/CN.17/2001/6/Add.2 (Apr. 27, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/214/52/IMG/N0121452.pdf?OpenElement>.

⁷⁷ U.N. Economic and Social Council, Commission on Sustainable Development, *Discussion Paper contributed by Business/Industry*, ¶ 14, U.N. Doc. E/CN.17/2001/6/Add.1 (Apr. 27, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/229/99/IMG/N0122999.pdf?OpenElement>.

⁷⁸ U.N. Economic and Social Council, Commission on Sustainable Development, *Discussion Paper contributed by Workers and Trade Unions*, ¶ 15, U.N. Doc. E/CN.17/2001/6/Add.3 (Apr. 27, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/214/65/IMG/N0121465.pdf?OpenElement>.

⁷⁹ U.N. Economic and Social Council, Commission on Sustainable Development, *Discussion Paper contributed by NGOs*, ¶ 6, U.N. Doc. E/CN.17/2001/6/Add.5 (Apr. 27, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/230/05/IMG/N0123005.pdf?OpenElement>.

⁸⁰ U.N. Economic and Social Council, Commission on Sustainable Development, *Discussion Paper contributed by Local Authorities*, ¶ 20, U.N. Doc. E/CN.17/2001/6/Add.4 (Apr. 27, 2001), available at http://www.un.org/esa/sustdev/documents/docs_csd9.htm

“the important role of the public sector.”⁸¹ Ultimately, the CSD decided that “to implement the goal accepted by the international community to halve the proportion of people living on less than US \$1 per day by 2015, access to affordable energy services is a prerequisite.”⁸² Moreover, the CSD observed that “[e]nergy for sustainable development can be achieved by providing universal access to a cost-effective mix of energy resources compatible with different needs and requirements of various countries and regions.”⁸³

¶26

In a similar vein, the Third UN Conference on the Least Developed Countries (LDCs) also focused upon “people-centred poverty reduction strategies” and “respect for all internationally recognized human rights including the right to development.”⁸⁴ Its predecessor had also recognized that respect for human rights “constitutes a universal obligation” and that their fulfillment was “part of the process of development.”⁸⁵ The Programme of Action arising from the Third Conference committed governments to “improving the scope and effectiveness of service delivery vis-à-vis the poor.”⁸⁶ Rural development, food security, communication technology, and human capacity in the fields of health care, education, and employment all required governments to “facilitat[e] universal access to basic social services.”⁸⁷ Governments also observed that “access to energy, transport and communications systems at affordable prices is important to sustainable development and poverty eradication.”⁸⁸ Electricity was explicitly noted as a particularly important energy source for LDCs.⁸⁹ Thematic discussions concluded that “access to energy and electricity is essential for their economic development as well as social and environmental considerations.”⁹⁰ Industrialized States for their part are willing to support technological transfer and diversified energy sources.⁹¹

⁸¹ U.N. Economic and Social Council, Commission on Sustainable Development, *Chairman’s Summary of the Multi-stakeholders Dialogue Segment on Energy and Transport at CSD-9*, ¶ 14(h) (Apr. 27, 2001), available at <http://www.un.org/esa/sustdev/csd/chsum-msd.htm>.

⁸² U.N. Economic and Social Council, Commission on Sustainable Development, *Decision 9/1 on Energy for Sustainable Development, Report of the Ninth Session*, ¶ 6.22, U.N. Doc. E/CN.17/2001/19 (Apr. 27, 2001), available at <http://daccessdds.un.org/doc/UNDOC/GEN/N01/375/52/PDF/N0137552.pdf?OpenElement>.

⁸³ *Id.* ¶ 4.

⁸⁴ Third U.N. Conference on the Least Developed Countries, *Brussels Declaration*, Brussels, ¶ 2, U.N. Doc. A/CONF.191/12 (2001), available at <http://documents-dds-ny.un.org/doc/UNDOC/GEN/G01/519/07/pdf/G0151907.pdf?OpenElement>.

⁸⁵ Second U.N. Conference on the Least Developed Countries, *Paris Declaration and Programme of Action*, ¶ 64, U.N. Doc. A/CONF.147/18 (1990), available at http://www.cinu.org.mx/temas/desarrollo/dessocial/ldc/ldc2_en.pdf.

⁸⁶ Third U.N. Conference on the Least Developed Countries, *Programme of Action for the Least Developed Countries for the Decade 2001-2010*, § II, ¶ 23, U.N. Doc. A/CONF.191/13 (2001), available at http://www.sdnbd.org/sdi/issues/economy/ldc_dhaka/reports/third_unconf_ldc.pdf.

⁸⁷ *Id.* ¶¶ 31, 32, 37, 39, 43, 43, 50, 62.

⁸⁸ *Id.* ¶ 55.

⁸⁹ U.N. Conference on Trade and Dev., Thirtieth Executive Conference, Geneva, Switz., Dec. 2-4, 2002, *The Least Developed Countries Report 2002: Escaping the Poverty Trap*, Statistical Annex 14, UNCTAD Doc. UNCTAD/LDC/2002, available at <http://www.unctad.org/templates/WebFlyer.asp?intItemID=3075&lang=1>.

⁹⁰ Third U.N. Conference on the Least Developed Countries, *Interactive Thematic Session: Energy*, ¶ 4, U.N. Doc. A/CONF.191/L.13 (May 19, 2001), available at <http://www.unctad.org/Templates/meeting.asp?intItemID=1942&lang=1&m=76&info=doc>.

⁹¹ See, e.g., U.N. Dev. Programme, *Energy as a Tool for Sustainable Dev. for African, Caribbean and Pacific Countries*, ISBN 92-1-12106-6, U.N. Sales No. E.99.III.B.45 (1999).

¶27 The Third UN Conference on LDCs is particularly noteworthy for the submissions of several UN human rights institutions and monitoring bodies. The UN Office of the High Commissioner for Human Rights argued that “a radical rethinking of international development cooperation must be based on a framework of partnership that is rooted in the principles and norms of human rights as the universally accepted standards and guidelines for human development.”⁹² The Committee on Economic, Social and Cultural Rights regretted that “the human rights dimensions of poverty eradication policies rarely receive the attention they deserve.”⁹³ It accordingly espoused a rights-based approach with poverty defined as a human condition characterized by the sustained or chronic deprivation of resources, capabilities, choices, security, and power necessary for enjoying an adequate standard of living and other fundamental civil, cultural, economic, political, and social rights.⁹⁴

¶28 Relevant infrastructure development targets for the LDCs included modernizing railways, enhancing telecommunications, increasing computer literacy, raising telephone density, and encouraging internet use.⁹⁵ However, progress to their achievement currently falls short.⁹⁶ Do these unfulfilled commitments herald the likely fate of the MDGs? As early as 1997 the UN Development Programme (UNDP) warned that “[w]ithout adequate attention to the critical importance of energy to all these issues, the global social goals agreed on at UN conferences in the 1990s cannot be achieved.”⁹⁷ It moreover observed that “energy is central to the satisfaction of basic nutrition and health needs.”⁹⁸ In 2001, the UNDP proposed an additional MDG: halving the proportion of people without access to clean and affordable fuels and electricity by 2015.⁹⁹

¶29 This proposal was regrettably not adopted at the World Summit on Sustainable Development (WSSD) in Johannesburg during 2002.¹⁰⁰ Nonetheless, one working group concluded that “[a]lthough energy itself is not a basic human need, it is critical for the fulfillment of all needs. Lack of access to diverse and affordable energy services means that the basic needs of many people are not being met.”¹⁰¹ The plenary meetings on public-private partnerships commented that “access to affordable energy services is critical for increasing agricultural productivity, encouraging economic activity,

⁹² Third U.N. Conference on the Least Developed Countries, *Human Rights, Poverty and Governance in the Least Developed Countries: Rights-based Approaches towards a New Framework of Cooperation*, ¶ 3, U.N. Doc. A/CONF.191/BP/8 (May 13, 2001).

⁹³ Third U.N. Conference on the Least Developed Countries, *Substantive Issues arising in the Implementation of the Int’l Covenant on Econ., Soc. and Cultural Rights (ICESCR): Poverty and the ICESCR*, ¶ 2, U.N. Doc. A/CONF.191/BP/7 (May 13, 2001).

⁹⁴ *Id.* ¶ 7.

⁹⁵ *Brussels Declaration*, *supra* note 84, ¶ 43.

⁹⁶ *Id.* ¶¶ 14-21.

⁹⁷ U.N. Dev. Programme, *Energy After Rio: Prospects and Challenges*, 12, ISBN 92-1-126070-1, U.N. Sales No. E.97.III.B.11 (1997).

⁹⁸ *Id.*

⁹⁹ U.N. Dev. Programme, *Energy for Sustainable Dev. Overview*, <http://www.undp.org/energy/index.html> (last visited Feb. 12, 2006).

¹⁰⁰ See Johannesburg World Summit on Sustainable Development, *supra* note 43.

¹⁰¹ Johannesburg World Summit on Sustainable Development, Water and Sanitation, Energy, Health, Agriculture and Biodiversity Working Group, *A Framework for Action on Energy, 7*, available at http://www.johannesburgsummit.org/html/documents/summit_docs/wehab_papers/wehab_energy.pdf.

generating employment and income opportunities and improving quality of life, particularly for women and children.”¹⁰² In the event governments undertook

to improve access to reliable and affordable energy services for sustainable development sufficient to facilitate the achievement of the MDGs, including the goal of halving the proportion of people in poverty by 2015, and as a means to generate other important services that mitigate poverty, bearing in mind that access to energy facilitates the eradication of poverty.¹⁰³

The Outcome document of the 2005 World Summit reiterated this sentiment, added greater deference to utilizing clean energy sources and acknowledged the “serious and multiple challenges” confronting governments in satisfying energy needs.¹⁰⁴ Although energy efficiency has improved, clean technological transfer to developing countries where energy needs “are skyrocketing” is not proceeding fast enough and individuals continue to lack sufficient food for meeting daily energy requirements.¹⁰⁵

¶30

The latter point usefully recalls that an individual interest in sustainable development is reflected in the human right to development. This right is defined as the ability to participate in, contribute to and enjoy economic, social, cultural, and political development.¹⁰⁶ Sustainable human development acknowledges the links between energy access, fulfilling basic needs, and eliminating the undesirable living conditions associated with poverty.¹⁰⁷ The rural and urban poor who lack electricity also typically lack access to other infrastructure services such as water or refuse collection for identical reasons: prohibitive initial connection costs and continuing inability to pay.¹⁰⁸ Although the lack of energy correlates closely with many poverty indicators, low energy consumption could be said to be a symptom rather than a cause of poverty. Poverty is manifested by limited or nonexistent access to basic social services,¹⁰⁹ which are further defined to include modern energy supplies.¹¹⁰ Energy poverty is, therefore, the lack of choice in accessing adequate, affordable, reliable, high quality, safe, and environmentally-benign energy services to support economic and human development.¹¹¹ For example, poor individuals

¹⁰² Johannesburg World Summit on Sustainable Development, *Summary of the Partnership Events*, 10, U.N. Doc. A/CONF.199/16/Add.2 (Aug. 31, 2002).

¹⁰³ Johannesburg World Summit on Sustainable Development, *supra* note 43, ¶ 9.

¹⁰⁴ 2005 World Summit Outcome, G. A. Res. 60/1, ¶¶ 50, 55, U.N. Doc. A/60/L.1 (Sept. 15, 2005).

¹⁰⁵ U.N. Dep’t of Public Information, *The Millennium Dev. Goals Report 2005*, 6, 31, ISBN 92-1-100972-3, U.N. Sales No. E.05.II.6 (2005).

¹⁰⁶ Declaration on the Right to Development, G.A. Res. 41/128, art. I, § 1, A/RES/41/128 (December 4, 1986).

¹⁰⁷ ENERGY AS AN INSTRUMENT FOR SOCIO-ECONOMIC DEVELOPMENT (Jose Goldemberg & Thomas B. Johansson eds. 1995).

¹⁰⁸ Kilian Reiche, et al., *Expanding Electricity Access to Remote Areas: Off-Grid Rural Electrification in Developing Countries*, in *WORLDPOWER 2000* 52, 52-60 (Guy Isherwood ed., 2000).

¹⁰⁹ World Summit for Social Dev., Copenhagen, Den., Mar. 6-12, 1995, *The Report of the World Summit for Social Dev., Copenhagen*, Annex I, ¶ 16(b), U.N. Doc. A/CONF.166/9 (April 19, 1995).

¹¹⁰ Asia and Pacific Leadership Forum on Sustainable Development for Cities, Hong Kong SAR, China, Feb. 25-26, 2004, *Hong Kong Declaration on Sustainable Development for Cities*, ¶ 23 (Feb. 26, 2004), http://www.un.org/esa/sustdev/csd/csd12/HK_declaration.pdf.

¹¹¹ U.N. DEVELOPMENT PROGRAMME /WORLD ENERGY CONGRESS, *WORLD ENERGY ASSESSMENT: ENERGY AND THE CHALLENGE OF SUSTAINABILITY* (2000) [hereinafter *WORLD ENERGY ASSESSMENT*].

may be compelled to pay a relatively higher price per unit of energy than the more affluent and for lower-quality substitutes such as candles, paraffin, and batteries.¹¹² Addressing the energy-poverty nexus is therefore believed to increase incomes and the reliability of energy supplies, reduce health or environmental costs, and improve governance.¹¹³

¶31 In conclusion, the inter-relationships among the human rights paradigm, poverty alleviation objectives and sustainable development policies have long been recognized.¹¹⁴ For example, poverty reduction strategies which address issues of empowerment, security, and opportunity are consistent with the framework of human rights.¹¹⁵ However, such considerations have yet to be explicitly applied to energy. It is equally apparent that “a much wider range of rights will be vital in any discourse on poverty.”¹¹⁶ The Report of the UN Millennium Project notably concluded that “to achieve the [Millennium Development] goals, governments need to pursue universal access to electricity.”¹¹⁷ More importantly, the Report observed that a human rights framework offered “tremendous potential and relevance.”¹¹⁸

IV. THE MERITS OF A HUMAN RIGHTS PERSPECTIVE

¶32 An individual entitlement to access energy self-evidently offers the “potential” to further the integration of human rights within the sustainable development agenda. Incorporating the norms, standards and principles of human rights into energy plans, policies, and programs is similarly warranted and justifiable for several reasons.

¶33 First, a human rights orientation formally recognizes and operationalizes basic needs. Energy has become accepted as a basic need akin to water or food which further conditions access to other essential services such as sanitation, healthcare, and education. Governments are expected to satisfy basic human needs irrespective of their financial or technical capacity.¹¹⁹ Indeed, over a decade ago it was technically and commercially feasible to universally satisfy basic needs with only one additional kilowatt of power per capita.¹²⁰ Illustrative of this “basic needs” approach is the Indian standard for the minimum useful quantity of energy of 1039 megajoules per capita per year, a benchmark considered sufficient to provide households with cooking, lighting, and space

¹¹² See generally Smith, *supra* note 27.

¹¹³ See WORLD BANK, POVERTY REDUCTION SOURCEBOOK (2001) (on file with author).

¹¹⁴ See U.N. Dev. Programme, *Human Dev. Report 2000*, 19-28, (2000), available at http://hdr.undp.org/reports/global/2000/en/pdf/hdr_2000_ch1.pdf.

¹¹⁵ See The WORLD BANK, WORLD DEVELOPMENT REPORT 2000-2001: ATTACKING POVERTY (2001).

¹¹⁶ Office of the High Comm’n for Human Rights, *Human Rights and Poverty Reduction: A Conceptual Framework*, 12, U.N. Doc. HR/PUB/04/1 (2004).

¹¹⁷ U.N. MILLENNIUM PROJECT, INVESTING IN DEVELOPMENT: A PRACTICAL PLAN TO ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS 140 (2005).

¹¹⁸ *Id.* at 118. See also *id.* at 118-20 for further discussion of the “potential” and “relevance” of international human rights law and policy.

¹¹⁹ Asbjørn Eide, *Realisation of Social and Economic Rights and the Minimum Threshold Approach*, 10 HUM. RTS. L. J. 35, 43-7 (1989).

¹²⁰ See generally Jose Goldemberg et al., *Basic Needs and Much More with One Kilowatt Per Capita*, AMBIO. 14(4-5) 190-200 (1985).

conditioning.¹²¹ Implementing the human rights objective of fulfilling basic needs is consistent with realizing sustainable development strategies.¹²²

¶34 Second, human rights are universally applicable. All individuals within a government's territorial jurisdiction or subject to its control are entitled to benefit. Practically speaking, however, a human right to access energy will only marginally affect some States or will otherwise be consistent with declared intentions. Western Europe and North America have already attained near universal access to electricity for urban and rural households.¹²³ Several Eastern European States including Slovakia also report universal accessibility. In contrast, expanding electricity grids to rural households is necessary in Northern and Southern Africa since energy supplies remain heavily dependent upon fuelwood. Gambia, Senegal, Sao Tome and Principe, South Africa, Zimbabwe, and Tonga each seek to increase energy access for all users, particularly low-income households in remote and rural areas.¹²⁴

¶35 Also, a human rights orientation seeks to ensure equality between individuals. Approximately 1.7 billion individuals (almost one third of humanity) lack access to a basic electricity supply: eighty percent are located rurally and around ninety-nine percent reside in developing States.¹²⁵ The governments of developing countries are "conscious that a sizeable portion of the world's population in the developing countries does not have access to efficient, reliable and affordable forms of energy."¹²⁶ Regional disparities in household electrification rates are also irrefutable. Significantly, no group of States yet enjoys universal electrification: the OECD is around ninety-nine percent and Africa is the lowest at an average of thirty-four percent.¹²⁷

¶36 Further, the human rights framework raises awareness in favor of individuals currently lacking access. Human rights carry persuasive moral weight as well as authoritative legal stature which compel governments to intervene with special measures of protection. Governments become obligated to undertake initiatives which redirect electricity allocation toward particularly vulnerable social groups such as the poor, minorities, indigenous peoples, the elderly or disabled, prisoners, and others. National electrification programmes, for example, can prioritize expanding electricity access to rural areas, thereby enhancing quality of life and countering rural-to-urban migration.

¶37 Additionally, a human rights orientation empowers individuals by identifying specific claimants and their beneficial entitlements. In particular, individuals are entitled to active, free, and meaningful participation in governmental decision-making. Good governance, a sine qua non for promoting human rights, requires transparent, responsible,

¹²¹ WORLD ENERGY COUNCIL & FOOD AND AGRICULTURAL ORGANIZATION (FAO), THE CHALLENGE OF RURAL ENERGY POVERTY IN DEVELOPING COUNTRIES 21-23 (1999).

¹²² See Frances Stewart, *Basic Needs Strategies, Human Rights and the Right to Development*, 11 HUM. RTS. Q. 347 (1989).

¹²³ The Secretary-General, *Report of the Secretary General on Sustainable Production, Distribution and Use of Energy: Trends in National Implementation*, ¶¶ 10-13, 32, U.N. Doc. E/CN.17/2001/12 (Feb. 9, 2001).

¹²⁴ *Id.* ¶¶ 54-55, 67-68, 126. Information on electricity access within other regions (Latin America and the Caribbean, Western Asia and the Middle East, Eastern Asia, Oceania and the Pacific) varies, although virtually all are committed to universal electricity access. *Id.* ¶¶ 87-98, 99-110, 111-122, 123-134.

¹²⁵ WORLD ENERGY ASSESSMENT, *supra* note 111, at 44.

¹²⁶ Caracas Declaration on Energy and Development, pmbl. G-15, (Feb. 28, 2004), *available at* <http://www.southcentre.org/info/southbulletin/bulletin74/bulletin74-01.htm>.

¹²⁷ INTERNATIONAL ENERGY AGENCY, WORLD ENERGY OUTLOOK, chapters 6 & 10 (2004).

accountable, and participatory governments responsive to popular needs and aspirations.¹²⁸ In this respect, the electricity sector ranks sixth among those most prone to bribery and corruption.¹²⁹ Citizens are entitled to demand acknowledgment of their individual interests through rights enforceable against the State. Individuals must have the opportunity for genuine consultation, reasonable notice and full disclosure concerning proposed measures, and assistance when pursuing legal remedies.¹³⁰

¶38

The human rights paradigm also pursues the accountability of governments and others through the application of the rule of law. Persons or groups denied rights are entitled to access effective judicial and other remedies at national and international levels.¹³¹ Victims of human rights violations are entitled to adequate reparations including restitution, compensation, satisfaction, and guarantees of non-repetition. National ombudsmen, human rights commissions, and similar institutions may be entrusted with addressing violations. To a similar end the private sector can be made more responsive to the needs of low-income urban households by increasing the latter's level of participation.¹³² Although direct corporate accountability to their customers can be enhanced, legislative or policy measures crafted by governments could equally be avoided.¹³³ Nevertheless, the private sector, under the human rights paradigm, is expected to contribute to realizing human rights. However, trends toward direct corporate legal responsibility for violations, while discernable, remain underdeveloped.¹³⁴

¶39

Further, an individual right affirms the obligations incumbent upon government. Governments have undertaken to promote universal respect for and observation of human rights and fundamental freedoms.¹³⁵ They accordingly become subject to positive or negative obligations to protect, promote, and provide each human right and to abstain from violations. Providing access to basic social services, including energy, is considered to be a fundamental responsibility of government.¹³⁶ This responsibility arises even when governments delegate functional roles to third parties. Notwithstanding market-oriented electricity sector reforms, "in all cases the State remains ultimately responsible for the delivery of electricity."¹³⁷ For example, the Electricity Corporation of Guyana is obliged to provide public services which are safe, adequate, efficient,

¹²⁸ United Nations High Comm'r for Human Rights, Res. 2000/64, ¶ 1, (Apr. 26, 2000), available at [http://www.unhchr.ch/huridocda/huridoca.nsf/\(Symbol\)/E.CN.4.RES.2000.64.En?Opendocument](http://www.unhchr.ch/huridocda/huridoca.nsf/(Symbol)/E.CN.4.RES.2000.64.En?Opendocument).

¹²⁹ Transparency International, Bribe Payers Index, tbl.2 (2002), <http://www1.transparency.org/cpi/2002/bpi2002.en.html#bpi>.

¹³⁰ U.N. Comm. on Econ., Soc. and Cultural Rights (CESCR), *General Comment No. 4 on the Right to Adequate Housing Contained in Art XI(1) of the ICESCR*, ¶ 17, U.N. Doc. E/1992/23 (Dec. 13, 1991).

¹³¹ U.N. Comm. on Econ., Soc. and Cultural Rights (CESCR), *General Comment No. 9 on the Domestic Application of the ICESCR*, ¶ 4, U.N. Doc. E/C.12/1998/24 (Dec. 3, 1998).

¹³² World Urban Forum, Barcelona, Spain, Sept. 13-17, 2004, *Dialogue on Urban Services: Making the Private Sector Work for the Urban Poor*, ¶¶ 17-22, U.N. Doc. HSP/WUF/2/9 (July 6, 2004).

¹³³ WORLD BANK, *WORLD DEVELOPMENT REPORT 2004: MAKING SERVICES WORK FOR POOR PEOPLE* 47-57 (2003).

¹³⁴ U.N. Comm'n on Human Rights, Sub-Comm'n on the Promotion & Prot. of Human Rights, *Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights*, ¶ 12, U.N. Doc. E/CN.4/Sub.2/2003/12/Rev.2 (Aug. 26, 2003).

¹³⁵ U.N. Charter arts. 25-26; Universal Declaration of Human Rights, G.A. Res. 217A (III), pmbl. (December 10, 1948).

¹³⁶ See, e.g., *Hong Kong Declaration on Sustainable Development for Cities*, *supra* note 110, ¶ 23.

¹³⁷ Report for discussion at the Tripartite Meeting on Managing the Privatization and Restructuring of Public Utilities, *supra* note 21, ¶ 1.4.

reasonable, and non-discriminatory.¹³⁸ The New Zealand Electricity Commission is similarly expected to produce and deliver electricity to all consumers in an efficient, fair, reliable, and environmentally sustainable manner.¹³⁹ A human rights obligation enforceable against governments would maintain their active participation within deregulated electricity markets and, moreover, circumscribe permissible behavior.

¶40 In addition, governments could be expected to recruit other actors in their efforts to increase energy access. At the very least, every organ of society is expected to promote respect for human rights.¹⁴⁰ All actors have additionally been called upon to ensure universal energy access, particularly for remote rural areas, in an environmentally, socially, and economically sustainable manner.¹⁴¹ Intergovernmental organisations, civil society groups, and the private sector may thus voluntarily assume joint and several commitments to ensure universal electricity access.¹⁴² For example, the World Bank has undertaken to support those Member States which extend energy services to individuals currently lacking access, particularly the poor.¹⁴³

¶41 Public-private partnerships are one prospective solution.¹⁴⁴ A key element for building effective partnerships includes facilitating universal access to modern energy services and prioritizing rural and remote populations.¹⁴⁵ For example, the Global Village Energy Partnership, launched at the WSSD, seeks to increase energy access to unserved or underserved individuals in developing countries. The World Energy Council, composed of private energy producers, government ministries, consumers, research institutes, and environmental organizations, also intends to “contribute to the sustainable production and use of energy for the greatest benefit of all” by promoting the issues of accessibility, availability and acceptability.¹⁴⁶ Interestingly, the private sector is likely to support the application of a human rights framework since it is compatible with commercial concerns for accessibility, affordability and availability.¹⁴⁷ Indeed, the International Chamber of Commerce has called upon governments to encourage a greater private sector role in providing energy access.¹⁴⁸ A right to access electricity empowers

¹³⁸ Pub. Utilities Comm. Act, § 26 (1990) (Guy.).

¹³⁹ NEW ZEALAND, GOVERNMENT POLICY STATEMENT ON ELECTRICITY GOVERNANCE (2004).

¹⁴⁰ Universal Declaration of Human Rights, *supra* note 135, pmbl.

¹⁴¹ U.N. Econ. & Soc. Council [ECOSOC], Ad Hoc Open-ended Intergovernmental Group of Experts on Energy & Sustainable Dev., *Negotiating Text of the Draft Decision Submitted by the Co-Chairpersons of the Group of Experts*, ¶¶ 3, 19, U.N. Doc. E/CN.17/ESD/2001/L.1 (Feb. 7, 2001).

¹⁴² Dep’t of Econ. & Soc. Affairs (DESA), Comm’n on Sustainable Dev., *A Guide for Potential Partnerships on Energy for Sustainable Development*, Background Paper No. 3, 48, U.N. Doc. DESA/DSD/PC4/BP3 (2002).

¹⁴³ World Bank Energy Program, *Poverty Reduction, Sustainability and Selectivity*, (2002) available at <http://siteresources.worldbank.org/INTENERGY/Publications/20269216/energybrochure.pdf>.

¹⁴⁴ U.N. Indus. Dev. Org., *Analysis Report on WSSD Partnerships on Energy* (Mar. 15, 2003) (drafted by Fernando Casado Cañeque).

¹⁴⁵ *A Guide for Potential Partnerships on Energy for Sustainable Development*, *supra* note 142, at 28.

¹⁴⁶ WORLD ENERGY COUNCIL, MILLENNIUM STATEMENT ON ENERGY FOR TOMORROW’S WORLD-ACTING NOW! 24 (2000) available at <http://www.worldenergy.org/wec-geis/publications/reports/etwan/download/download.asp>.

¹⁴⁷ Int’l Chamber of Commerce, World Energy Council & World Bus. Council for Sustainable Dev., *International Conference for Renewable Energies Business and Industry Position Paper on Energy for Sustainable Development*, 2 (2004), available at <http://www.stakeholderforum.org/practice/renewables/Position%20Papers/Business%20&%20Industry.pdf>.

¹⁴⁸ ICC ENERGY COMM., ENERGY FOR SUSTAINABLE DEVELOPMENT: BUSINESS RECOMMENDATIONS AND ROLES 3 (2002).

individuals as consumers and underpins demand for electrical infrastructure, thus driving commercial and investment activity. Creating a “sustainable livelihood business” also encourages innovative commercial practices such as prepayment, franchising, and fragmenting service provision from product sales.¹⁴⁹ Finally, lucrative subsidies and concessions may accrue to private sector operators as governments attempt to discharge legal responsibilities through subcontracting.

¶42 For these reasons, several electrical sector utilities are amenable to providing access to affordable products and services, especially those meeting basic energy needs.¹⁵⁰ Electricite de France, for example, “reaffirms the universal right of access to electricity.”¹⁵¹ The e7, a coalition of nine electricity companies, presented its views before preparatory committees of the WSSD.¹⁵² It urged governments toward universal access to affordable electricity and acknowledged that “providing reliable and secure electricity supplies, reducing environmental impacts and providing access to electricity to people currently without it are key challenges of the electricity sector.”¹⁵³ The World Business Council for Sustainable Development also concluded that developing States “must strive to provide universal access to affordable electricity.”¹⁵⁴ Its sustainable development principles underscore equity, human rights, and access to essential services.¹⁵⁵

¶43 A human rights orientation also adds useful momentum to the pre-existing proliferation of political commitments which are otherwise unlikely to be attained. These aspirational targets include supplying one billion additional individuals with renewable energy before 2010 at a cost of USD \$250 billion (the G8 Renewable Energy Task Force),¹⁵⁶ halving the number of individuals without commercial energy by 2015 (UNDP, noted above) and increasing energy access in Africa from ten percent to thirty-five percent or more in two decades (NEPAD).¹⁵⁷ Comparable NGO initiatives also envisage universal electrification globally by 2050.¹⁵⁸ Extending national electrical grids may be extremely costly and practically difficult to achieve in dispersed or isolated areas. Even if investment levels attain the projected US \$2.1 trillion over the next three decades,

¹⁴⁹ WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT, *DOING BUSINESS WITH THE POOR: A FIELD GUIDE* 35, 43, 62 (2004).

¹⁵⁰ U.N. DEVELOPMENT PROGRAMME & PRINCE OF WALES INT’L BUS. LEADERS FORUM, *BUSINESS AND THE MILLENNIUM DEVELOPMENT GOALS: A FRAMEWORK FOR ACTION 7* (2003).

¹⁵¹ Francois Roussely, *Reaffirming the Right to Electricity*, ELECTRICITY DE FRANCE GROUP ANNUAL REPORT : ENSURING QUALITY ACCESS TO ELECTRICITY (2002), available at <http://www.worldenergy.org/wec-geis/global/downloads/first/wssd/roussely.pdf> (last visited Dec. 13, 2005).

¹⁵² *Universal Access to Electricity: Developing a Partnership Roadmap for Implementation*, ENVTL. NEGOTIATIONS BULL. (Int’l Inst. for Sustainable Dev. (IISD) & UNDP, Bali, Indon.), June 5, 2002, at 2.

¹⁵³ E7, *ELECTRICITY SECTOR REPORT FOR THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT 3*, 31 (2002).

¹⁵⁴ WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT, *SUSTAINABILITY IN THE ELECTRICITY UTILITY SECTOR* 15 (2002).

¹⁵⁵ *Id.* at 57-58.

¹⁵⁶ G8 Renewable Energy Task Force, *Chairmen’s Report* 30, 36 (2001) available at http://www.g8.utoronto.ca/meetings-official/g8renewables_report.pdf.

¹⁵⁷ The New Partnership for Africa’s Development (NEPAD) ¶ 109 (Oct. 23, 2001); WSSD, *Johannesburg World Summit on Sustainable Development*, *supra* note 43, ¶ 62(j)(i).

¹⁵⁸ ELEC. POWER RESEARCH INST., *ELECTRICITY TECHNOLOGY ROADMAP INITIATIVE* 68 (2003). See Int’l Network for Sustainable Energy, available at <http://www.inforse.org/europe/Vision2050.htm> (last visited Dec. 13, 2005).

approximately 1.4 billion people may continue to lack electricity connections.¹⁵⁹ Population growth is currently exceeding electrification rates and if existing trends continue, forty years will be required to electrify South Asia and almost eighty years for sub-Saharan Africa. A contrary opinion posits that the challenge of universal access need not be as costly as envisioned. The cooking requirements of those unserved by modern fuels amount to just one percent of global energy consumption.¹⁶⁰ Thus, living conditions could be improved over the short term with relatively modest energy inputs; just one kilowatt per capita could provide developing States with living standards comparable to those of Western Europe during the 1970s.¹⁶¹

¶44 Additionally relevant is that several States (particularly industrialized ones) have recognized, or are recognizing that electricity access may qualify as a human right. For example, the “people-centred approach” of the United Kingdom enables a “rights-based agenda” such that “equity of access to basic energy services for cooking, space heating and lighting, like access to water, could be considered a human right.”¹⁶² French legislation “contributes to social cohesion by satisfying everyone’s right to electricity.”¹⁶³ South African law imposes duties upon electricity service providers to supply electricity “to every applicant who is in a position to make satisfactory arrangements for payment.”¹⁶⁴ This obligation has been interpreted to the effect that applicants enjoy a prima facie right entitling them to demand electricity once they have satisfied these supply conditions.¹⁶⁵ National electrification strategies also typically envisage stable, reliable, adequate, and affordable supplies which are universally available to all consumers.¹⁶⁶ For example, “[t]he Government of India is committed to provide access to electricity to all the rural households within the next five years.”¹⁶⁷ Brazil’s “Electricity for All” Rural Electrification Program also seeks to achieve universal electricity access by 2008.

¶45 Finally, an individual entitlement to electricity has already been recognized under international human rights law to varying degrees. First, States Parties to the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) are obligated to “take all appropriate measures to eliminate discrimination against women in rural areas . . . and, in particular, shall ensure to such women the right . . . to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications.”¹⁶⁸ The UN Committee on the Elimination

¹⁵⁹ INTERNATIONAL ENERGY AGENCY, *supra* note 127 at 73-74, 380-83, 208-21, 351-78, 382-86.

¹⁶⁰ WORLD ENERGY ASSESSMENT, *supra* note 111, at 369.

¹⁶¹ *Id.* at 46.

¹⁶² UK DEP’T FOR INT’L DEV., ENERGY FOR THE POOR: UNDERPINNING THE MILLENNIUM DEVELOPMENT GOALS 5, 8 (2002).

¹⁶³ Electricity Act, art. 1 (2000) (Fr.).

¹⁶⁴ Electricity Act 41 of 1987 § 10(1) (1987) (S. Afr.).

¹⁶⁵ *Meyer v Moqhaka Local Municipality*, Case No 4008/2003, ¶ 24 (S. Afr. High Ct., Orange Free State Provincial Div.) (unreported per Rampai J.).

¹⁶⁶ Development of Economic and Social Affairs, Comm’n on Sustainable Dev., *Energy and Sustainable Development: Case Studies Background Paper No. 4*, U.N. Doc. DESA/DSD/2001/4 (April 16-21, 2001).

¹⁶⁷ Honourable P.M. Sayeed, Minister of Power, India, *The Path to Sustainability: Accessibility, Availability, Acceptability, Keynote Address at the World Energy Congress, Sydney, Austl.*, 3 (Sept. 5-9, 2004) transcript available at <http://www.worldenergy.org/wec-geis/congress/eventdetail.asp?event=29>.

¹⁶⁸ Convention on the Elimination of All Forms of Discrimination Against Women, art. 14(2)(h), G.A.

of Discrimination against Women, responsible for overseeing implementation of the Convention, “is anxious that States Parties implement this important provision.”¹⁶⁹ Governments are required to submit reports on progress made under CEDAW. For example, Angola reported that much of its population suffered from extreme poverty with limited electricity access.¹⁷⁰ Public expenditure cuts in Guyana had reduced infrastructure services, including access to electricity, whereas Bosnian and Herzegovinan women were preoccupied with maintaining or reconstructing electricity transmission lines.¹⁷¹ To enhance education and alleviate poverty in female-headed households, Trinidad and Tobago had initiated pilot programs which trained women in electrical installation.¹⁷² Nigeria was commended by the Committee “for improving rural women’s access to drinking water and electricity,”¹⁷³ whereas the Peruvian penitentiary system was criticized for lack of electricity access for women.¹⁷⁴

¶46 States Parties to the International Covenant on Economic, Social and Cultural Rights (ICESCR) also “recognize the right of everyone to an adequate standard of living. . .including adequate food, clothing and housing, and to the continuous improvement of living conditions.”¹⁷⁵ An identically-formulated illustrative list also appears within the Universal Declaration of Human Rights.¹⁷⁶ The Committee on Economic, Social and Cultural Rights (CESCR), responsible for overseeing the progressive implementation of the Covenant, expects States Parties to periodically submit information on household amenities such as heating and electricity.¹⁷⁷ Zambia, for example, reported in 1990 that families were formerly entitled to subsidized electricity.¹⁷⁸ That same year, the People’s Republic of China described efforts to extend electricity grids to urban and rural dwellings, and stated that its national poverty alleviation program seeks “to supply electricity to the great majority of poor homes.”¹⁷⁹ In 2003, Italy

Res. 34/180, U.N. GAOR Supp. No. 46, 193, U.N. Doc. A/34/46 (adopted Dec. 18, 1979 and entered into force Sept. 3, 1981).

¹⁶⁹ Fourth World Conference on Women, Beijing, P.R.C., Sept. 4-15, 1995, *Progress Achieved in the Implementation of the Convention on the Elimination of All Forms of Discrimination Against Women: Report by the Committee on the Elimination of Discrimination Against Women*, ¶ 45(1), U.N. Doc. A/CONF.177/7 (June 21, 1995).

¹⁷⁰ Comm. on the Elimination of Discrimination Against Women, *Report of the Committee on the Elimination of Discrimination Against Women*, U.N. GAOR, 59th Sess., Supp. No. 38, 118, ¶ 125, U.N. Doc. A/59/38, (2004).

¹⁷¹ Comm. on the Elimination of Discrimination Against Women, *Concluding Observations for Guyana & Bosnia and Herzegovina*, ¶¶ 92, 743, U.N. Doc. A/49/38 (1994).

¹⁷² Comm. on the Elimination of Discrimination Against Women, *Report of the Committee on the Elimination of Discrimination Against Women*, ¶ 128, U.N. Doc. A/57/38, pt. I, (May, 7 2002).

¹⁷³ *Id.*; *Report of the Eighteenth & Nineteenth Sessions*, U.N. GAOR, 53rd Sess., Supp. No. 38, 62, ¶ 152, U.N. Doc. A/53/38/Rev.1 (1998).

¹⁷⁴ Comm. on the Elimination of Discrimination Against Women, *Summary Record of the 275th Meeting*, 14th Sess., U.N. Doc. CEDAW/C/SR.275, ¶ 17 (Feb. 17, 1995).

¹⁷⁵ Int’l Covenant on Econ., Soc. & Cultural Rights, art. 11(1), 993 UNTS 3 (adopted Dec. 16, 1966 and entered into force Jan. 3, 1976).

¹⁷⁶ Universal Declaration of Human Rights, *supra* note 135, art. 25.

¹⁷⁷ Committee on Economic, Social and Cultural Rights, *Revised General Guidelines Regarding the Form and Contents of Reports to be Submitted by States Parties under Articles 16 and 17 of the ICESCR*, ¶ 3, U.N. Doc. E/C.12/1991/1 (June 17, 1991).

¹⁷⁸ U.N. Econ. & Soc. Council, *Implementation of the International Covenant on Economic, Social and Cultural Rights: Initial reports submitted by States parties under articles 16 and 17 of the Covenant*, Addendum: Zambia, ¶ 156(b), U.N. Doc. E/1990/5/Add.60 (Sept. 1, 2003).

¹⁷⁹ U.N. Econ. & Soc. Council, *Implementation of the International Covenant on Economic, Social and*

reported on “the proportion of Italian households that do not own at least one of the goods and services that are essential for daily life (drinking water, hot water, toilet, electricity supply, fridge and washing machine).”¹⁸⁰

¶47 Interestingly, electricity is principally considered under the right to adequate housing.¹⁸¹ The CESCR considers that whenever dwellings are demolished governments are expected to relocate inhabitants to settings which enjoy electricity access.¹⁸² The Special Rapporteur on adequate housing has construed his mandate broadly such that this right includes access to essential civic services such as electricity.¹⁸³ For example, he expressed concern for the proportion of households (particularly indigenous communities) lacking electricity access during his country mission to Mexico.¹⁸⁴ The UN Housing Program similarly assesses housing adequacy with reference to basic infrastructure services such as electrical supply systems and street lighting.¹⁸⁵ At the national level, for example, the South African Constitutional Court concluded that the right to adequate housing includes “access to services such as water, sewage, electricity and roads.”¹⁸⁶ These perspectives are also supported by NGOs such as the People’s Movement for Human Rights Education who ambitiously assert that this right includes “the human right to access resources, including energy for cooking, heating and lighting” in addition to “the human right of access to basic services.”¹⁸⁷

¶48 However, electricity access is not limited to households or domestic use. Individuals enjoy a right to the highest attainable standard of physical and mental health.¹⁸⁸ This right extends “not only to timely and appropriate health care but also to the underlying determinants of health, such as . . . healthy occupational and environmental conditions.”¹⁸⁹ Traditional energy sources including biomass fuels (animal

Cultural Rights: Initial reports submitted by States parties under articles 16 and 17 of the Covenant, Addendum: People’s Republic of China, ¶¶ 27, 109, 115-16, U.N. Doc. E/1990/5/Add.59 (Mar. 4, 2004).

¹⁸⁰ U.N. Econ. & Soc. Council, *Implementation of the International Covenant on Economic, Social and Cultural Rights: Fourth Periodic Reports Submitted by States Parties under Articles 16 & 17 of the Covenant*, Addendum: Italy, ¶ 209, U.N. Doc. E/C.12/4/Add.13 (May 24, 2003).

¹⁸¹ *General Comment No. 4 on the Right to Adequate Housing Contained in Art XI(1) of the ICESCR*, *supra* note 130, ¶ 8(b).

¹⁸² Committee on Economic, Social and Cultural Rights, *Conclusions and Recommendations of the Committee on Economic, Social and Cultural Rights, Dominican Republic*, ¶ 11, U.N. Doc. E/C.12/1994/15 (Dec. 19, 1994). *See also* General Comment No. 7 (1997) *The right to adequate housing (art. 11, ¶ 1, of the Covenant: forced evictions)*, ¶ 17, Annex IV, U.N. Doc. E/1998/22.

¹⁸³ U.N. Commission on Human Rights, *Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living*, ¶¶ 35, 46(b), U.N. Doc. E/CN.4/2002/59 (Mar. 1, 2002) (prepared by Miloon Kothari).

¹⁸⁴ U.N. Commission on Human Rights, *Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living*, Addendum: Mission to Mexico, ¶¶ 11, 14, 15, U.N. Doc. E/CN.4/2003/5/Add.3 (Mar. 27, 2003).

¹⁸⁵ U.N. Housing Rights Programme, *Monitoring Housing Rights: Developing a Set of Indicators to Monitor the Full and Progressive Realisation of the Human Right to Adequate Housing, Working Paper No. 1*, 13, 18, (2003). The UN World Population and Housing Census Recommendations also include an assessment of the type of lighting and/or electricity employed.

¹⁸⁶ *Gov’t of the Republic of S. Afr. v. Grootboom*, 2001 (1) SA 46 (CC), ¶ 37 (S. Afr.).

¹⁸⁷ The People’s Movement for Human Rights Education, *The Human Right to Adequate Housing* (2004), available at <http://www.pdhre.org/rights/housing.html>.

¹⁸⁸ Int’l Covenant on Econ., Soc. & Cultural Rights, *supra* note 175, art. 12(1).

¹⁸⁹ Committee on Economic, Social and Cultural Rights, General Comment No. 14 (2000), *The Right to the Highest Attainable Standard of Health (art. 12 of the ICESCR)*, ¶ 11, U.N. Doc. E/C.12/2000/4 (Aug. 11, 2000).

dung, fuelwood, crop residue), charcoal, or coal increase the risk of indoor airborne pollution in poorly-ventilated households and cause respiratory disorders, including carbon monoxide poisoning.¹⁹⁰ Biomass fuels are estimated to kill 1.6 million individuals per annum, mainly children and women.¹⁹¹ This last observation suggests that a human rights perspective on energy access has a particular “relevance” for women.

V. ILLUSTRATING THE APPLICATION OF HUMAN RIGHTS: A GENDER PERSPECTIVE ON ENERGY ACCESS

¶49 The merits of a human rights orientation concerning energy, access thereto and more particularly electricity, are usefully illustrated with reference to the right to equality between men and women.¹⁹² As such, CEDAW is “an advocacy tool to advance women’s rights” particularly with respect to adequate housing, access to information and participation in governmental decision-making.¹⁹³ The Commission on the Status of Women has observed that implementing the Platform for Action formulated at the Fourth World Conference on Women in Beijing during 1995 and fulfilling obligations arising under CEDAW are “mutually reinforcing in achieving gender equality and the empowerment of women.”¹⁹⁴ To implement the Beijing Platform for Action, several governments promoted energy alternatives to fuelwood, encouraged women’s participation in energy decision-making, conducted workshops on nuclear energy, and introduced novel energy technologies which reduced women’s workloads.¹⁹⁵ Women environmental ministers from nineteen States and leading women from twenty-eight intergovernmental and non-governmental organizations additionally committed themselves to improving access by women to basic services.¹⁹⁶ That said, gender-sensitive policies can be far-reaching and potentially applicable to decision-making with respect to electrification infrastructure investment, energy imports, and energy tariffs.¹⁹⁷

¶50 A gender perspective on energy access can be illuminating.¹⁹⁸ Women are traditionally responsible for meeting household energy requirements and, as the principal

¹⁹⁰ See generally World Health Org., *Epidemiological, Social and Technical Aspects of Indoor Air Pollution from Biomass Fuels: Report of a WHO Consultation, June 1991*, WHO/PEP/92.3A (1992).

¹⁹¹ World Health Org., *The World Health Report 2002* (2002).

¹⁹² Int’l Covenant on Econ., Soc. & Cultural Rights, *supra* note 175, art. 3; Committee on Economic, Social and Cultural Rights, General Comment No. 16 (2005), *The Equal Right of Men and Women to the Enjoyment of All Economic, Social and Cultural Rights (art. 3 of the ICESCR)*, U.N. Doc. E/C.12/2005/4 (Aug. 11, 2005).

¹⁹³ U.N. Commission on the Status of Women, *Measures Taken by Entities of the United Nations System in Promoting the Implementation of the Twelve Critical Areas of Concern*, ¶¶ 53-55, 58, U.N. Doc. E/CN.6/2005/CRP.6 (Feb. 28, 2005).

¹⁹⁴ U.N. Commission on the Status of Women, *Declaration issued by the Commission on the Status of Women at its forty-ninth session*, ¶ 4, U.N. Doc. E/CN.6/2005/L.1 (Mar. 3, 2005).

¹⁹⁵ U.N. Commission on the Status of Women, *Review of the implementation of the Beijing Platform for Action and the outcome documents of the special session of the General Assembly entitled “Women 2000: gender equality, development and peace for the twenty-first century”*, ¶¶ 437, 439, 449, 779, U.N. Doc. E/CN.6/2005/2, (Dec. 6, 2004).

¹⁹⁶ Council of Women World Leaders/World Conservation Union, *Final Conclusions, Meeting of Women Leaders on the Environment, 7-8 March 2002, Helsinki, Finland*, ¶ 4, available at http://www.iucn.org/info_and_news/press/helsinkideclaration.pdf (last viewed December 13, 2005).

¹⁹⁷ Jyoti K. Parikh, *Gender Issues in Energy Policy*, 23 ENERGY POL’Y 745 (1995).

¹⁹⁸ Ines Havet, *Linking Women and Energy at the Local Level to Global Goals and Targets* 7 ENERGY FOR SUSTAINABLE DEV. 75, 77-78 (2003).

consumers, are likely to be more directly affected by tariff increases or resource scarcity. Energy infrastructure “can significantly reduce” the time women spend collecting fuelwood but requires a gender-appropriate design of service delivery.¹⁹⁹ The disproportionate burdens experienced by rural women when collecting biomass fuels include carrying heavy fuelwood loads over long distances, cuts, falls, animal bites, back injuries, and sexual harassment. An excessive workload may adversely affect the health and well-being of pregnant women.²⁰⁰ Adverse health effects also arise from prolonged exposure to open fires within the home or workplace.²⁰¹ Women thus require access to efficient and labor-saving appliances to meet household energy needs such as cooking, lighting, and warmth. Improved energy access can also free women’s time from satisfying basic survival needs so that they may pursue employment activities, economic independence, and improved social standing.

¶51 Gender perspectives also pertain more specifically to access to electricity.²⁰² Women use electricity differently from men on account of different household and productive activities. For example, when constructing a water and sanitation project in Morocco, men sought a stable electricity supply, whereas women were concerned with its application: ensuring household access to potable water.²⁰³ Electricity use by women tends to be heat intensive (for food processing), labor intensive, and/or light intensive. For example, refrigeration prevents contamination to ensure a food supply free from adverse substances,²⁰⁴ and pumps reduce the labor required to collect water. Electrifying rice mills and other grain, oil, and food processing facilities eliminates exhausting or repetitive manual labor and increases the productivity of agricultural processing. Electricity offers income-generating opportunities for developing micro-enterprises (for example, leather and goods manufacturing, copper welding, utensils manufacturing, and baking).²⁰⁵ Electricity also improves the quality of women’s health services (especially reproductive health).²⁰⁶ Street lighting increases personal security and community safety at night, permits social gatherings, and extends trading hours for vendors. Household lighting offers additional opportunities for education and leisure (reading, television and radio), and telecommunications services improve social interaction.

¶52 An appreciation of the energy-gender nexus as outlined above becomes more complex with the addition of poverty reduction objectives.²⁰⁷ For example, reducing public subsidies for essential utilities such as electricity affects women relatively more

¹⁹⁹ WORLD BANK, ENGENDERING DEVELOPMENT THROUGH GENDER EQUALITY IN RIGHTS, RESOURCES, AND VOICE 149, 241 (2001).

²⁰⁰ *Id.* at 20-25.

²⁰¹ *Id.* at 46.

²⁰² ELIZABETH CECELSKI, ENERGY, POVERTY, AND GENDER: ENABLING EQUITABLE ACCESS TO RURAL ELECTRIFICATION: CURRENT THINKING ON ENERGY, POVERTY, AND GENDER 1 (2003).

²⁰³ THE WORLD BANK GENDER AND DEV. GROUP, GENDER EQUALITY AND THE MILLENNIUM DEVELOPMENT GOALS 20 (2003).

²⁰⁴ Committee on Economic, Social and Cultural Rights, General Comment 12, *The Right to Adequate Food* (Art. 11), ¶ 10, U.N. Doc. E/C.12/1999/5 (May 12, 1999).

²⁰⁵ See generally Lynn Bennet & Mike Goldberg, *Providing Enterprise Development and Financial Services to Women: A Decade of Bank Experience in Asia*, World Bank Asia Technical Department Technical Paper 236 (1993).

²⁰⁶ WORLD BANK, ENGENDERING DEVELOPMENT THROUGH GENDER EQUALITY IN RIGHTS, RESOURCES, AND VOICE, *supra* note 199 at 2, 17-18, 23.

²⁰⁷ Nilufer Cagatay, *Gender and Poverty*, 2, U.N. Dev’t. Program Working Paper 5 (1998).

than men.²⁰⁸ One commentator has observed that the proponents for electrification in developing countries use the same arguments as were previously employed to electrify the United States.²⁰⁹ Assuming that North American women have not significantly benefited from electrification, other women are less likely to do so and may suffer negative consequences more directly and severely.

¶53 Regrettably, the treatment of women's human rights within the sustainable development context is currently unsatisfactory. In theory, a gender perspective on energy for sustainable development is compatible with a human rights orientation: both raise issues of availability (choice of energy source), affordability (reflecting income), and fuel safety.²¹⁰ The importance of a rights-based approach to realizing the MDGs and "investing in infrastructure to reduce women's and girls' time burdens" has been particularly noted by the Commission on the Status of Women.²¹¹ CEDAW becomes the lens through which the MDGs are to be understood and implemented, thus jointly furthering the Beijing Women's Platform for Action and Agenda 21.²¹² Although the CSD also acknowledged linkages between energy, poverty, and gender, largely as a consequence of NGO lobbying and advocacy activity, governments proved less receptive when formulating the Johannesburg Plan of Implementation.²¹³ Observing that the "selective approach to women's rights within the MDGs has meant the exclusion of crucial rights for women's equality," an expert group concluded that a human rights framework "effectively changes the dynamics of women's engagement with the State and the international community, from a position of needs fulfilment to a position of strength premised on rights that are guaranteed and that States have a duty to fulfil."²¹⁴

¶54 Gender mainstreaming requires at least one gender-specific indicator for each MDG. However, national reports only indicate a rights-based approach in relation to the third MDG (equality between men and women) with an instrumentalist approach characterizing all other objectives.²¹⁵ In short, the right to equality as a cross-cutting

²⁰⁸ UNITED NATIONS RESEARCH INST. FOR SOC. DEV'T [UNRISD], *GENDER EQUALITY: STRIVING FOR JUSTICE IN AN UNEQUAL WORLD* 94 (2005).

²⁰⁹ Wendy Hawthorne, *Women and Large-Scale Electricity Development*, World Bank Working Paper 257 (1996).

²¹⁰ UNITED NATIONS DEV'T. PROGRAM, *GENDER & ENERGY FOR SUSTAINABLE DEVELOPMENT: A TOOLKIT AND RESOURCE GUIDE* 32 (2004).

²¹¹ U.N. Commission on the Status of Women, *Report of the Panel Discussion Entitled "Addressing the Linkages Between the Implementation of the Beijing Platform for Action and the Outcome Document of the 23rd Special Session of the General Assembly and the Internationally Agreed Development Goals, Including those Contained in the Millennium Declaration: Progress, Gaps and Challenges"*, ¶¶ 3, 9, U.N. Doc. E/CN.6/2005/CRP.8 (Mar. 9, 2005).

²¹² Elizabeth Cecelski, *From Rio to Beijing: Engendering the Energy Debate*, 23 *ENERGY POL'Y* 561 (1995).

²¹³ *Compare* Commission on Sustainable Development, *Decision 9/1 on Energy for Sustainable Development, Report of the Ninth Session*, *supra* note 82, ¶¶ 10(m), 13(j), 23(d),(k), 32, 35(7) with Johannesburg World Summit on Sustainable Development, *supra* note 43. For a historical account linking intergovernmental negotiations in these two contexts and identifying NGO roles, see Gail Karlsson & Sheila Oparaocha, *The Road to Johannesburg and Beyond: Networking for Gender and Energy*, 7 *ENERGY FOR SUSTAINABLE DEV.* 62 (2003).

²¹⁴ Development of Economic and Social Affairs, Comm'n on Sustainable Dev. Division for the Advancement of Women, *Achievements, Gaps and Challenges in Linking the Implementation of the Beijing Platform for Action and the Millennium Declaration and Millennium Development Goals, Report of the Expert Group Meeting*, ¶¶ 62, 71, U.N. Doc. EGM/BPFA-MD-MDG/2005/Report (Feb. 18, 2005).

²¹⁵ U.N. DEVELOPMENT PROGRAMME, *MILLENNIUM DEVELOPMENT GOALS: NATIONAL REPORTS: A LOOK THROUGH A GENDER LENS* 22 (2003).

theme is inadequately reflected within other targets and indicators.²¹⁶ Indeed, the proportion of women employed within non-agricultural sectors,²¹⁷ including the electricity industry,²¹⁸ is the only link made between women and electricity. In other words, equality of treatment between men and women is limited to employment opportunities within the electricity sector.

¶55 Although emphasizing the right to work is to be commended, it is just one small step towards comprehensively implementing a human rights approach to energy for women. Government measures to promote gender equality require empowering women and increasing energy access. For example, enhancing women's education in developing States through information and communications technology is preconditioned by electricity access.²¹⁹ The Beijing Platform for Action called upon governments to support equality of access to sustainable and affordable energy supplies but limited government commitments to the right of access to information. Thus women, particularly from developing States, "should be empowered by enhancing their skills, knowledge and access to information technology" including access to electronic networks and inclusion in technical decision-making.²²⁰ Governments were also encouraged to recognize media networks and communication systems as a means for women to disseminate information and exchange views.²²¹ In addition, several governments promoted novel energy technologies as alternatives to biomass fuels with a view to reducing women's workloads.²²²

¶56 On one hand, governments have failed to satisfactorily implement even these modest objectives.²²³ The regularity and quality of electricity affects a government's ability to control information and the degree of public awareness.²²⁴ National strategies on information and communications technology typically omit a gender perspective, decision-making processes under-represent women, and training opportunities are insufficient.²²⁵ To prepare for the ten-year review of the implementation of the Beijing

²¹⁶ UN DEVELOPMENT FUND FOR WOMEN, *PATHWAY TO GENDER EQUALITY: CEDAW, BEIJING AND THE MDGs 6* (2004).

²¹⁷ UNITED NATIONS DEV. GROUP, *INDICATORS FOR MONITORING THE MILLENNIUM DEVELOPMENT GOALS 27-29* (2003).

²¹⁸ See *The International Standard Industrial Classification of All Economic Activities*, U.N. Doc. Ser. M No. 4 Rev. 2 (1968).

²¹⁹ U.N. DIVISION FOR THE ADVANCEMENT OF WOMEN/INT'L TELECOMM. UNION/U.N. INFORMATION & COMMUNICATION TECHNOLOGIES TASK FORCE SECRETARIAT, *Information and Communication Technologies and Their Impact On and Use As an Instrument for the Advancement and Empowerment of Women, Report of the Expert Group Meeting*, 15, U.N. Doc. EGM/ICT/2002/Report (Dec. 23, 2002).

²²⁰ Report of the Forth World Conference on Women, Sept. 4-15, 1995, *Beijing Declaration and Platform for Action*, ¶ 237, U.N. Doc A/CONF.177/20 (Oct. 17, 1995).

²²¹ *Id.* ¶ 239(f).

²²² U.N. Econ. & Soc. Council, U.N. Commission on the Status of Women, *Review of the Implementation of the Beijing Platform for Action and the Outcome Documents of the Special Session of the General Assembly Entitled "Women 2000: Gender Equality, Development and Peace for the Twenty-first Century"*, ¶¶ 437, 439, 449, 779, U.N. Doc. E/CN.6/2005/2 (Dec. 6, 2004).

²²³ Women's Environment and Development Organization, *Beijing Betrayed: Women Worldwide Report that Governments Have Failed To Turn the Platform into Action* (2005), available at <http://www.wedo.org/files/beijingbetrayed.doc>.

²²⁴ U.N. RESEARCH INSTITUTE FOR SOCIAL DEVELOPMENT, *PROGRAMME ON TECHNOLOGY, BUSINESS AND SOCIETY, TECHNOLOGIES, POWER AND SOCIETY: AN OVERVIEW 18* (Momar-Coumba Diop ed. 2003).

²²⁵ UN DEVELOPMENT FUND FOR WOMEN & U.N. DEVELOPMENT PROGRAMME, *BRIDGING THE GENDER DIGITAL DIVIDE: A REPORT ON GENDER AND ICT IN CENTRAL AND EASTERN EUROPE AND THE*

Platform for Action, the UN Economic Commission for Europe was the only UN regional commission to identify electricity, and, consistent with the above observations, consideration was limited to ensuring a gender perspective in the course of developing new information and communication technologies.²²⁶

¶57

If the human rights of women to work, to an education and to access information encompass the availability of relevant electronic technologies, what other inter-related elements are expected from governments to faithfully adhere to a gendered perspective on that particular energy source? Empowerment necessarily goes further to require inclusion in project-level design and implementation, as well as related capacity building.²²⁷ Greater education in science and engineering are necessary for effective energy decision-making and productive use of energy technologies.²²⁸ Training modules, accordingly, emphasize greater familiarity with electrical equipment.²²⁹ In this context, African energy ministers, for example, are committed to enabling women to gain access to appropriate energy technology.²³⁰ Providing access to credit facilities and project finance is also desirable.²³¹ In light of these and many other challenges confronting a gendered perspective on energy access, are there any other influential caveats to be made concerning a human rights perspective on electricity access?

VI. THE LIMITS OF APPLYING A HUMAN RIGHTS FRAMEWORK INCLUDING ENVIRONMENTAL CONSIDERATIONS

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Although applying a human rights orientation has clear “relevance” for increasing energy access for individual benefit, the “potential” of that paradigm should not be overstated. Achieving universal electrification, decreasing public expenditure, and promoting greater private sector participation need not be compatible policy objectives, particularly for high risk and unprofitable electrification projects in rural or remote areas. Government interventions must specifically target poor populations since only those possessing sufficient resources to meet initial connection costs and purchase appliances are likely to benefit. Additional and complementary measures include pursuing efficiency objectives, diversifying energy sources, ensuring sustainable consumption, minimizing waste, encouraging participation, and engaging in trade. Regulatory capacity building and the institution of effective dispute resolution procedures are also desirable for deterring anti-competitive practices and ensuring information transparency.

COMMONWEALTH OF INDEPENDENT STATES (2004).

²²⁶ U.N. Commission on the Status of Women, *Regional Processes in Preparation for the Review of the Implementation of the Beijing Platform for Action and the Outcome Documents of the Twenty-third Special Session of the General Assembly During the Forty-ninth Session of the Commission on the Status of Women*, ¶ 6, U.N. Doc. E/CN.6/2005/CRP.7 (Feb. 16, 2005).

²²⁷ U.N. DEVELOPMENT PROGRAMME, *GENERATING OPPORTUNITIES: CASE STUDIES ON ENERGY AND WOMEN* (Salome Misana & Gail V. Karlsson eds. 2001).

²²⁸ Gail Karlsson, *Technical Training for Women Regarding Energy Technologies*, U.N. Development Programme Briefing Paper (2003).

²²⁹ SASKIA EVERTS, *GENDER AND TECHNOLOGY: EMPOWERING WOMEN, ENGENDERING DEVELOPMENT* (1998).

²³⁰ South African Government Information, *Women In Energy Ministerial Meeting, Durban Declaration*, Dec. 11-12, 2000 available at <http://www.info.gov.za/speeches/2000/001215945a1003.htm>

²³¹ Gail Karlsson, *Micro-Credit and Financing Schemes to Expand Access to Energy for Poverty Alleviation and Empowerment of Women*, UNDP Briefing Paper (2003).

¶59 Significantly, a human rights orientation is ultimately directed at enhancing social and economic welfare and not at increasing energy access per se. Such a perspective does not entitle individuals to an immediate or free electricity supply. Nor is a rights-based approach simply intended to bolster property rights or enable market participation. Claims in the economic, social, and cultural field are typically framed as broadly-formulated governmental programs.²³² The principle of progressive realization under the ICESCR only requires governments to take steps to the maximum of their available resources to progressively achieve the rights recognized thereunder.²³³

¶60 Furthermore, apart from primary education, all economic, social and, cultural rights must be affordable but not necessarily free.²³⁴ Energy tariffs must be sustainable (reflecting the true costs of energy production, transmission, and distribution—including internalizing associated social or environmental costs), as well as low enough for access by the poor. On the other hand, subsidies which encourage fossil fuel production and use can be detrimental to the environment.²³⁵ Hence, they are only justified as socially desirable when they are transparent, targeted, and temporary.²³⁶

¶61 Most importantly, a human rights orientation to energy access would be unlikely to prescribe the particular manner of implementation for States or others. Since individuals require multiple energy sources to achieve a variety of tasks, the preferred energy source need not be electricity. Electricity may be useful for lighting, radio, television, and refrigeration but it can be thermodynamically inefficient,²³⁷ and expensive relative to liquid petroleum gas or kerosene.²³⁸ Household energy requirements also consist of direct and indirect (purchased goods and services) energy use.²³⁹ It has been determined that energy use increases at the same rate as household income, but there need not be any switch to less energy-intensive products.²⁴⁰ Notwithstanding deforestation, biomass also remains a long-term energy source for rural populations within developing States.²⁴¹

²³² E.W. Vierdag, *The Legal Nature of the Rights Granted by the International Covenant on Economic, Social and Cultural Rights*, 9 NETH. Y.B. INT'L L. 69, 103 (1978).

²³³ Int'l Covenant on Econ., Soc. & Cultural Rights, *supra* note 175, art. 2(1); see generally Philip Alston & Gerard Quinn, *The Nature and Scope of States Parties' Obligations under the International Covenant on Economic, Social and Cultural Rights*, 9 HUM. RTS. Q. 156 (1987).

²³⁴ Int'l Covenant on Econ., Soc. & Cultural Rights, *supra* note 175, art. 13(2)(a); see, e.g., Committee on Economic, Social and Cultural Rights, General Comment 12, *supra* note 204, ¶ 13.

²³⁵ U.N. ENVIRONMENTAL PROGRAMME, DIVISION OF TECHNOLOGY, INDUSTRY AND ECONOMICS, REFORMING ENERGY SUBSIDIES: AN EXPLANATORY SUMMARY OF THE ISSUES AND CHALLENGES IN REMOVING OR MODIFYING SUBSIDIES ON ENERGY THAT UNDERMINE THE PURSUIT OF SUSTAINABLE DEVELOPMENT (2002).

²³⁶ *Statement on Energy for People, Energy for Peace*, 18th World Energy Congress, Buenos Aires, Arg., Oct. 21-25, 2002, 3, available at <http://www.worldenergy.org/wec-geis/global/downloads/statements/stat2002en.pdf>.

²³⁷ Wendy J. Annecke, *The Benefits of Electrification to Rural Households: Real or Potential?*, 9 J. ENERGY IN S. AFR. 120 (1998).

²³⁸ Barbara C. Farhar, *Gender and Renewable Energy: Policy, Analysis and Market Implications* 15 RENEWABLE ENERGY 230 (1998).

²³⁹ Kees Vringer & Kornelis Blok, *The Direct and Indirect Energy Requirements of Households in the Netherlands*, 23 ENERGY POL'Y 893 (1995).

²⁴⁰ U.N. Centre for Human Settlements (Habitat), *Energy for Low-income Settlements*, HS/245/91E (1991).

²⁴¹ FAO Forestry Department, *Forests, Fuels and the Future: Wood Energy for Sustainable Development*, Forestry Topics Report No. 5 (1995).

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These observations suggest an underlying incompatibility between encouraging individual energy access pursuant to a human rights framework on the one hand, with the environmental protection objectives associated with exploiting natural resources including energy sources on the other. Fossil fuels (coal, oil, natural gas) and related products (diesel, petroleum) are the principal sources of electrical energy and are sufficiently abundant to satisfy basic energy needs well into the 21st century.²⁴² Renewable technologies are expected to require another thirty or forty years to mature to cost-effectiveness. On the other hand, it is also true that regulatory pressures can prompt firms to develop innovative production techniques from which commercial benefits and market leadership positions are derived.²⁴³ This is particularly true for the fossil fuel industry, where carbon emissions are predicted to escalate in response to social demands for economic prosperity and satisfying basic needs.²⁴⁴ Rather tellingly, human rights concerns have been invoked as a shield in the climate change context. Exxon Mobil, for example, supports “access to affordable energy by all and [the] alleviation of poverty in developing countries.”²⁴⁵

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To the extent that individual-centered concerns converge with environmental protection objectives, thereby elevating renewable sources as the preferred means of achieving universal energy supplies, individual access to modern energy sources must be discerned from intergovernmental policy and promoted by human rights advocates. National sustainable energy programs typically emphasize renewable energy sources where locally viable and encourage energy efficient alternatives to end current import dependency.²⁴⁶ Of the most commonly adopted national sustainable energy programs, none employs a human rights orientation to ensure universal electrification.²⁴⁷ Renewable energy projects, for example, can still have the effect of inadvertently discriminating against women.²⁴⁸ Conversely, constructing dams to provide hydroelectricity, for example, can utilize a “rights and risks” based approach amenable to the interests of individuals.²⁴⁹ Nonetheless, universal access for individual benefit is one aspect of renewable energy policy at the international level. At the WSSD, Pacific Island States called upon governments “to set effective targets and timetables within the WSSD Implementation Plan to achieve a significant increase in, and access to, the use of

²⁴² WORLD ENERGY COUNCIL, SURVEY OF ENERGY RESOURCES (2001).

²⁴³ Peter S. Hofman, *Becoming a First Mover in Green Electricity Supply: Corporate Change Driven by Liberalisation and Climate Change*, 39 GREENER MGMT. INT’L 99 (2002).

²⁴⁴ INTERNATIONAL ENERGY AGENCY, ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, SCOPING STUDY: ENERGY AND ENVIRONMENTAL TECHNOLOGIES TO RESPOND TO GLOBAL CLIMATE CHANGE CONCERNS (1994).

²⁴⁵ Exxon Mobil Corporation, *An Industry Perspective on Successful Development and Global Commercialization of Innovative Technologies for GHG Mitigation*, A Contribution to the Intergovernmental Panel on Climate Change Workshop on Carbon Management, 2004 at 12 (paper held on file with author).

²⁴⁶ See, e.g., that of Dominica (2002), available at [http://www.oas.org/reia/GSEII/Sustainable Energy Plan 5.doc](http://www.oas.org/reia/GSEII/Sustainable_Energy_Plan_5.doc).

²⁴⁷ *Report of the Secretary General on Sustainable Production*, supra note 123, ¶¶ 18-26.

²⁴⁸ Joy Clancy, Sheila Oparaocha & Ulrike Roehr, *Gender Equity and Renewable Energies*, Thematic Background Paper for the International Conference for Renewable Energies, Bonn 2004, F.R.G. June 1-4, 2003, available at www.renewables2004.de/pdf/tbp/TBP12-gender.pdf.

²⁴⁹ THE REPORT OF THE WORLD COMMISSION ON DAMS, *Chapter 7: Enhancing Human Development: Rights, Risks and Negotiated Outcomes*, in DAMS AND DEVELOPMENT: A NEW FRAMEWORK FOR DECISION-MAKING 197-211 (2000).

renewable sources of energy and energy efficiency,” particularly for the poor.²⁵⁰ However, this proposal was resisted by the US, Saudi Arabia, and other oil-dependent States. More recently, 154 governments acknowledged that renewable energies “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.”²⁵¹ Coherent regulation is thus essential “to extend modern energy services to populations currently without access.”²⁵²

¶64 Recognizing the “need to provide sufficient energy services at reasonable cost,” several governments have additionally agreed to “use solar energy to enhance the economic and social development of our people.”²⁵³ The World Solar Program (1996-2005), intended to enhance living conditions for rural or remote populations, particularly women in developing States, and conducted under the auspices of the UN Educational, Scientific and Cultural Organization,²⁵⁴ is consistent with the human rights framework outlined above. Furthermore, the conclusion that a human right to access electricity should be realized through resort to renewable energy sources is moreover bolstered in light of the human right to a clean and healthy environment noted above.

¶65 As one final obstacle, increasing the number of energy service providers is assumed to achieve universal access and enhance the security of electricity supplies. However, electricity suppliers from large-scale renewable energy projects confront the challenge of connecting their output to existing national electricity grids. Governments are expected to remove regulatory and market barriers to the commercialization and utilization of renewable energy technologies.²⁵⁵ European governments, for example, consider that “access to the grids and the share of the associated costs should be fair and non-discriminatory.”²⁵⁶ Parliamentarians have similarly requested “fair treatment for renewable energy sources regarding access to the grid and grid pricing, taking into account the benefits which decentralized renewable energy production brings to the grid.”²⁵⁷ In a similar vein, the G8 Renewable Energy Taskforce recommended that

²⁵⁰ Pacific Regional Energy Meeting, Cook Islands, July 15-19, 2002, *The Rarotonga Declaration on Energy for the Sustainable Development of the Pacific Islands*, ¶ 1, available at <http://www.forumsec.org.fj/division/DEPD/infra/Energy/Rarotonga%20Declaration.pdf>.

²⁵¹ International Conference for Renewable Energies, Bonn, June 1-4, 2004, *Political Declaration*, ¶ 1, available at <http://www.renewables2004.de/default.asp>.

²⁵² *Id.* ¶ 4.

²⁵³ World Solar Summit, Harare, Zimb., Sept. 16-17, 1996, *World Solar Summit Harare Declaration on Solar Energy and Development*, ¶¶ 2 & 13 (Aug. 1, 1996), available at <http://www.ncseonline.org/nle/crsreports/energy/eng-44a.cfm>.

²⁵⁴ World Solar Summit, Harare, Zimb., Sept. 16-17, 1996, *The World Renewable Energy Programme* (Aug. 1, 1996), available at <http://www.ncseonline.org/nle/crsreports/energy/eng-44a.cfm>.

²⁵⁵ U.N. Development Programme, Chile: Barrier Removal for Rural Electrification with Renewable Energies, UNDP Project CHI/00/G32, 2, 9 (Ratified Dec. 22, 1994, Commencing July 2001) available at <http://www.gefonline.org/ProjectDocs/Climate%20Change/Chile%20Barrier%20Removal%20for%20Rural%20Electrification%20with%20Renewable%20Energy/Chile%20RE%20ProDoc%2027%20June-01%20revised%20v3.doc>.

²⁵⁶ National Parliaments of the New Member States, of the Candidate Countries, of the EU Member States and of the European Parliament, *Declaration of Athens 2003* (June 21, 2003), available at http://www.fiz-karlsruhe.de/hpn/html/Declaration_of_Athens_2003.pdf.

²⁵⁷ Fourth Inter-Parliamentary Meeting on Renewable Energy Sources in the European Union, *Declaration of Santiago de Compostela* (Apr. 20, 2002), available at <http://www.eufores.org/index.php?id=44>.

industrialized States swiftly develop advanced, cleaner, more efficient and cost-effective energy technologies and facilitate their transfer to developing countries on concessional or preferential terms as mutually agreed.²⁵⁸ It therefore appears that the human right to electricity generated from clean energy sources is once again intimately bound up with questions of electricity sector reform, integrated markets and consumer access.

VII. CONCLUSION

¶66 Purely economic considerations (efficiency, security of supply, employment, natural resource extraction, and agricultural production) have long dominated international energy policy. Notwithstanding its regrettable omission from the MDGs, access to energy sources, particularly electricity, unquestionably contributes to poverty alleviation. Important social dimensions, such as equality of access (particularly between men and women), adequate housing, and human health are currently on the ascendant. It must also be appreciated that environmental concerns for climate change, deforestation, and land degradation encourage greater resort to renewable energy sources, advanced energy technologies, and responsible energy resource management.

¶67 Although not without limitations, a human rights perspective offers tremendous potential and relevance for achieving universal energy access. Its application could build upon existing market-oriented regulatory reform initiatives within the energy sector which contemplate universal service obligations as well as concerns for individual access to energy springing from the sustainable development agenda. However, the human rights paradigm is not a panacea for the flaws of liberalization and could easily be subverted by States' rights over natural resources in the development context. Be that as it may, energy access is a prerequisite for realizing several interrelated human rights. Electricity properly cooks and refrigerates food (thus realizing the right to adequate food), provides sufficient heating, cooling and lighting (realizing the right to housing), and ensures safe environmental conditions within both households and workplaces (realizing the right to health).

¶68 Notwithstanding that electricity is an acknowledged component of other interrelated and pre-existing human rights, it would be both timely and appropriate for governments to formally affirm access thereto as an independent human right. Admittedly, human rights are dependent for their effectiveness upon formal endorsement by States. However, the "greatest push" for developing human rights law comes from treaty processes such as UN human rights monitoring committees and occasional General Comments.²⁵⁹

¶69 I believe that a General Comment would add convincing impetus to an emerging coalition of intellectual forces that is emphasizing the social and gender dimensions associated with energy access. In particular, a General Comment emanating from the CESCR would be the most appropriate vehicle toward crystallizing the human right to electricity access at national and international levels. General Comments are intended to ensure greater procedural compliance with the reporting obligations arising under the Covenant. Hence, they are limited to providing interpretive clarity on the intent and

²⁵⁸ G8 RENEWABLE ENERGY TASKFORCE, FINAL REPORT (2001).

²⁵⁹ ROSALYN HIGGINS, PROBLEMS AND PROCESS: INTERNATIONAL LAW AND HOW WE USE IT 105 (1994).

content of specific provisions.²⁶⁰ Their purpose is therefore to progressively and effectively realize those rights “recognized” under the Covenant.²⁶¹ A convincing legal foundation for the right to access electricity may be found in the right to an adequate standard of living under Article 11 of the ICESCR, which would be consistent with (a) the prior practice of the CESCR, States Parties and several Special Rapporteurs concerning the adequacy of housing and “the continuous improvement of living conditions” and (b) the interpretation and implementation of pre-existing obligations arising under CEDAW (although that instrument does not precondition electricity for rural women with the term “access”). The desirability of good human health should, moreover, be highlighted when drawing upon these materials.

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A proposed program of work involves (i) the CEDAW Committee affirming the obligations of States Parties by (a) identifying violations where they arise involving the human right to electricity enjoyed by rural women and (b) investigating individual complaints where domestic remedies have been exhausted; and (ii) the CESCR (a) scheduling a Day of General Discussion and (b) drafting a General Comment along the lines proposed above; and, finally, (iii) human rights institutions, activists, and the private sector pursuing greater recognition of the right to access electricity under national and international law.

²⁶⁰ See, e.g., Philip Alston, *The Committee on Economic, Social and Cultural Rights*, in *THE UNITED NATIONS AND HUMAN RIGHTS: A CRITICAL APPRAISAL* 472-495 (Philip Alston ed., 1992).

²⁶¹ Committee on Economic, Social and Cultural Rights, *Report to the Economic and Social Council*, U.N. Doc. E/1989/22 (Feb. 24, 1989).