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**Quality Kilowatts: A normative-empirical approach to the challenge of defining and providing sustainable electricity in developing countries**

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## ABBREVIATIONS AND TERMINOLOGY

ADB Asian Development Bank	ILO International Labor Organization (UN body)
CEER Council of European Energy Regulators	IPCC Intergovernmental Panel on Climate Change (UN body)
CCGT Combined cycle gas turbine	ISO International Organization for Standardization
CDM Clean Development Mechanism	kV Kilovolts
CR Corporate responsibility	LDCs Less developed countries
CSR Corporate social responsibility	Load shedding A rolling, or planned, blackout
DES Dominant electricity system	MDGs Millennium Development Goals
EC European Commission	MW(h) Megawatt (hour)
EIA Environmental impact assessment	OECD Organization for Economic Cooperation and Development
EMCEF European Mine, Chemical and Energy Workers' Federation	OHS Occupational health and safety
EMS Environmental Management System	RES-E Renewable energy sources for electricity
EPSU European Public Service Unions	SD Sustainable development
EUSS Electric Utilities Sector Supplement (a GRI initiative)	SEA Strategic Environmental Assessment
FDI Foreign direct investment	SIA Social Impact Assessment
GHG(s) Greenhouse gas(es)	SOE State-owned enterprise
Global South Used synonymously with "developing countries" in this report	SRI Socially responsible investment
GRI Global Reporting Initiative	TNC Transnational corporation
GW(h) Gigawatt (hour)	UN United Nations
H&S Health and safety	US United States
IAEA International Atomic Energy Agency (UN body)	UNCTAD United Nations Conference on Trade and Development (UN body)
ICE Costa Rican Institute of Electricity	WBCSD World Business Council for Sustainable Development
IEA International Energy Agency	WCD World Commission on Dams
IFC International Finance Corporation (arm of the World Bank)	WCED World Commission on Environment and Development
IHA International Hydropower Association	WRI World Resources Institute

## FOREWORD

The current report was originally commissioned by the Programme for Research and Documentation for a Sustainable Society (ProSus) in the Fall of 2008. As of 1.1.2009, ProSus was officially transferred to SINTEF Energy Research AS, where it currently functions as a Research Team for “Politics and governance” within the Department for energy systems. From 1995 to 2009 ProSus was financed by the Research Council of Norway, first as a strategic research programme directly under the Research Council (1995-1999), and later as a “strategic university programme” within the Centre for Development and the Environment (SUM), University of Oslo (2000-2008).

The report was commissioned by ProSus from Researcher Joseph Wilde-Ramsing at the Centre for Research on Multinational Corporations in Amsterdam (SOMO). The work is, therefore, a joint effort between ProSus/SINTEF and SOMO, and is also designed to be a part of Wilde-Ramsing’s work towards a doctoral degree at the University of Twente in the Netherlands.

The principal purpose of the report is to carry forward two strands of research from the ProSus programme: (1) the comparative analysis of initiatives to implement “Corporate Social Responsibility” (CSR) in large-scale business firms; (2) the comparative assessment of initiatives to promote “sustainable electricity” in Europe. Results on the former have been consistently published by ProSus since 2002 (available at the original ProSus website: [www.prosus.uio.no](http://www.prosus.uio.no)); and the results of the latter work were recently published in W.M. Lafferty and A. Ruud (eds), *Promoting sustainable electricity in Europe*, Edward Elgar (2008).

The extension of this work here by Wilde-Ramsing represents an initial attempt to develop a more systematic normative model for assessing “quality kilowatts”; that is a model for assessing the provision of “sustainable energy services” by trans-national energy corporations (TNCs). The report thus presents a thorough documentation of existing CSR-standards within this area, and integrates the normative material into a framework for assessing corporate initiatives according to different national-regional “models” for CSR performance. The report also conducts an initial assessment of three TNCs chosen to represent the first three models: ENDESA (the European approach), SN Power (the Nordic approach), and AES Corporation (the American approach). The findings confirm the clear added value of both a more systematic normative approach to CSR for energy producers, and the fruitfulness of differentiating between different national-regional models of TNC application.

Oslo, 15 June 2009

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## **EXECUTIVE SUMMARY**

Increasing access to affordable electricity is vital for eradicating poverty, improving human welfare and raising living standards, and achieving sustainable development in accordance the Millennium Development Goals. However, most current patterns of electricity provision and consumption around the world are unsustainable (UN 2001). While one-third of the world's population, primarily in developing countries, has no access to adequate and affordable electricity, environmental degradation and emissions associated with electricity production and utilisation in other areas inhibits sustainable development (SD). The electricity industry is a major source of air and water pollution and, due to its continued heavy reliance on fossil fuels, one of the world's largest emitters of greenhouse gases that are causing irreversible climate change (IPCC, 2007). In fact, there is hardly another industrial sector that has such potential to contribute to economic development, poverty alleviation, and improved living standards that at the same time can potentially have such negative impacts for people and planet. A rapidly changing climate and steeply rising electricity demand in the developing world underline the urgency of addressing the general absence of normative standards for sustainable electricity provision by identifying the critical issues and criteria that must form the basis for more transparent and effective normative-practical guidelines for providing "quality kilowatts".

After the wave of liberalisation and privatisation in the 1990s, transnational corporations (TNCs) began playing an increasingly important role in the electricity systems of developing countries. While a great deal of optimism abounded about the unlimited positive impact of foreign direct investment (FDI) from TNCs in developing countries and about FDI as "an engine of development" (UNCTAD 1992) in the 1990s, it is now generally recognised that the positive developmental impacts of FDI are not automatic, particularly when it comes to investment in infrastructure, and that some current TNC strategies are actually having a "negative effect on the development of infrastructure in developing countries" (Yamin and Sinkovics 2008). In fact, there is little empirical knowledge as to how the corporate responsibility (CR) policies of electricity TNCs are developed and implemented in developing countries. The issue has recently emerged as increasingly acute as governmental protection for electricity consumers and workers in developing countries remains weak and poorly enforced.

The present report's overall aim is to improve the quality, poverty-reducing capability, and contribution to sustainable development of electricity provision in developing countries. The study is carried out in an applied-science mode, using strategic research to build knowledge that can be used for positive change by promoting sustainable and equitable energy systems. The basic approach is "normative-empirical analysis", whereby the initial phase comprises a clarification of the normative premises and analytic categories by which an empirically-based assessment of the provision of electricity in a manner that is consistent with SD can be carried out. Acknowledging a general absence of normative standards for sustainable electricity provision, the report surveys relevant literature to identify the critical issues and criteria that must form the basis for more transparent and effective normative-practical guidelines. The critical social, environmental and economic issues for sustainable electricity provision in developing countries mentioned throughout the literature are identified and distilled into six cross-cutting issues that represent bottom-line "quality kilowatts": respect for human rights, poverty reduction and the satisfaction of

basic needs, observance of the precautionary principle and focused evaluations of risks and alternatives, transparency and adequate provision of information, stakeholder engagement and participatory decision-making, and assuming product-chain responsibility.

Given current variations in how different TNCs conceptualize and implement CR and normative standards for sustainable development, it is important to investigate how such variation comes into play for the electricity sector. The report proposes the use of models of home-country business culture to identify systematic, problem-relevant (SD-related) differences within the general category of TNCs providing electricity to developing countries. Through qualitative interviews with corporate managers and analysis of corporate CR materials, the research documents and evaluates how “quality kilowatts” are being conceived and implemented in three TNC case studies: Endesa as an example of the European model, SN Power as an example of the Nordic model, and AES as an example of the US model. Although all of the companies claim in one way or another that SD and poverty reduction through electricity provision are among their top priorities, their conceptualisation of and approach to sustainable electricity provision in developing countries vary widely and appear to be a result of regional differences in the regulatory framework and general culture of politics and business in their countries of origin.

## **1 INTRODUCTION**

### **1.1 RELEVANCE AND POINT OF DEPARTURE**

The United Nations (UN) asserts that, “The provision of adequate and reliable energy services at an affordable cost, in a secure and environmentally benign manner and in conformity with social and economic development needs is an essential element of sustainable development” (IAEA 2007:5). As a key component of energy services, electricity is vital for eradicating poverty, improving human welfare, raising living standards, and achieving the Millennium Development Goals (MDGs) (Modi et al. 2005). However, most current patterns of electricity provision and consumption around the world are unsustainable (UN 2001). On the one hand, approximately one-third of the world’s population, the vast majority in developing countries, has no access to adequate and affordable electricity, limiting the possibilities for development. On the other hand, the environmental degradation and emissions associated with electricity production and utilisation in other areas inhibits sustainable development. The electricity industry is a major source of air and water pollution and, due to its continued heavy reliance on fossil fuels, one of the world’s largest emitters of greenhouse gases (GHG) that are causing irreversible climate change (IPCC 2007). In fact, there is hardly another industrial sector that has such potential to contribute to economic development, poverty alleviation, and to improving living standards of people around the world that at the same time can potentially have such negative impacts for people and planet.

Transnational corporations (TNCs) are playing an increasingly important role in electricity systems in countries around the globe. Until the 1980s, the electricity sector of most developing countries was dominated by a large state-owned enterprise (SOE). However, the liberalisation and privatisation of electricity markets during the 1980s and 1990s allowed transnational electricity companies based in Europe and the United States to extend their operations into developing countries through public-private partnerships, by buying out formerly state-owned electricity enterprises, or by developing greenfield projects under the assumption that private actors would provide badly needed capital to improve and expand electricity infrastructure (Haar and Jones 2008). As a result, the early 1990s saw a dramatic explosion of private investment in electricity generation, transmission, distribution and supply in developing countries, reaching US\$50 billion in 1997 (Woodhouse 2006). Although a series of economic crises and the failure of several private electricity projects in the Global South caused private investment in the sector to dip in the late 1990s, by 2007 private investment commitments to electricity projects had again reached nearly US\$50 billion (World Bank 2008). While a great deal of optimism abounded about the unlimited positive impact of foreign direct investment (FDI) from TNCs in developing countries and about FDI as “an engine of development” (UNCTAD 1992) in the 1990s, it is now generally recognised that the positive developmental impacts of FDI are not automatic, particularly when it comes to investment in infrastructure, and that some current TNC strategies are actually having a “negative effect on the development of infrastructure in LDCs” (Yamin and Sinkovics 2008).

The issue of whether privatisation of electricity provision is positive or negative is not discussed in this report, although it should be noted that that debate is ongoing and is very relevant (see, for example, McGuigan 2007, Heller et al. 2003, Thomas 2007, Mun 2003). What is at issue in the

present report is the increasing expectation by governments, unions, civil society and businesses that, as private enterprises have taken on a greater role as producers and suppliers of electricity in developing countries, so too must they assume greater responsibility for ensuring sustainable and high quality electric service. Furthermore, a rapidly changing climate and steeply rising electricity demand in the developing world means that there is a dire and urgent need to define what should be considered as “sustainable” in the provision of electricity. Although no broad normative standards for “high quality” or “sustainable” provision of electricity, there is a wealth of sources in the academic, industry and civil society literature that can help identify critical issues in sustainable development and electricity provision. The development of normative standards for sustainable provision of electricity would provide a benchmark for work toward this point.

Central to liberalisation theory is the notion that electricity should be primarily treated as a private commodity and that markets will efficiently allocate that commodity. In the rush to open markets to private capital, privatisation of electricity production in the developing world often took place without the simultaneous creation of a regulatory body or with only a weak authority to ensure quality standards. Under the liberalisation regime, the quality of the services electricity companies provide may be the subject of consumer-oriented regulations but is often left to voluntary corporate responsibility (CR)<sup>1</sup> initiatives that form part of a company’s business strategy. CR, however, is relatively new in the electricity sector, a situation evidenced by the fact that none of the 65 large electricity companies analysed in a recent study published a CR report before 2003 (ECOTEC 2007). German electricity giant RWE admits that while conservation work has long been a part of the company’s strategy, corporate social responsibility and climate protection are relatively new concepts for the company (RWE 2005:11).

Yet it is clear that interest in CR is rapidly growing in the electricity sector. In 2004, the European electricity sector social partners EPSU, Eurelectric, and EMCEF released a joint statement on CSR; the GRI is currently developing a sectoral supplement for electric utilities to provide companies with sustainability reporting guidelines; and the UN’s International Atomic Energy Agency (IAEA) is conducting pilot studies to establish energy indicators for sustainable development. Furthermore, the above-mentioned ECOTEC (2007) study that found that none of the 65 companies surveyed had produced a CR report prior to 2003 also found that, by 2007, approximately one-third were doing so, with another third producing some CR-related material, and a final third making no reference to CR at all. While CR reporting by only one-third of the electricity sector is quite low compared to other industries, it is nevertheless a significant increase from none in 2001 and reveals a clear trend in the industry.<sup>2</sup>

Despite this recent increase in activity around CR in the electricity industry, there is little empirical knowledge as to how the CR policies of transnational electricity companies are

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<sup>1</sup> The terms “corporate responsibility” (CR) and “corporate social responsibility” (CSR) are often used interchangeably. However, for the purposes of this report “corporate responsibility” is seen as a more analytically correct term than “corporate social responsibility” since the latter predisposes the necessary trade-off between “social”, “economic” and “environmental” concerns, which the author views as the essence of the sustainable development normative perspective in an operational context. As a result, the term “CR” will be used in this report, although it is acknowledged that many organisations and companies continue to use the term “CSR”.

developed and implemented or about their impact on developing countries. While some companies appear to have made CR a part of their long-term strategy, others have simply produced a one-off CR report lacking a clear strategy for systematising and further developing the concept (ECOTEC 2007). However, Palast et al. (2000) note that a number of recent corporate scandals and failed public-private partnerships involving electricity TNCs operating in the newly-privatised electricity markets of developing countries have raised questions about the intentions of private utilities and their ability and willingness to provide high quality services to their clients in the South. The International Hydropower Association (IHA 2004) notes that the implementation of sustainability and CR policies on the ground in developing countries is more effective in those transnational electricity companies that have a corporate ethos of sustainability and that place environmental and social excellence and business excellence as twin goals. Given such variations in how different TNCs approach and apply their responsibility for sustainable development in developing countries, it is important to investigate how such variation comes into play for the electricity sector. Such knowledge is highly relevant for both governments and stakeholders in efforts to improve the quality of electric services in the Global South. The issue has more recently emerged as increasingly acute, given that governmental protection for electricity consumers and workers in developing countries remains weak and poorly enforced.

It is thus important both to identify critical issues and standards for the sector and to analyse companies' motivations for and approach to CR in their activities in the Global South in order to determine the factors conditioning differences in CR approach and execution, as well as differences in impacts on sustainable electricity provision in developing countries. These challenges are taken as the point of departure for the analysis.

## **1.2 AIM AND OBJECTIVES**

The present report's overall aim is to improve the quality, poverty-reducing capability, and contribution to sustainable development of electricity provision in developing countries. In order to achieve this aim, the report has as its objectives:

- ❑ to identify the critical issues involved in the sustainable provision of electricity in developing countries and to contribute to the development of normative standards and a framework for good practice for such;
- ❑ to contribute to an improved understanding of how transnational electricity companies conceive and incorporate sustainable development and quality standards in their operations in the South by exploring the usefulness of models of corporate business culture;
- ❑ to contribute to the development of more effective strategies for stakeholder involvement and influence in the development of innovative approaches to the combined needs for poverty reduction, economic growth and ecological sustainability.

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<sup>2</sup> It should be noted that while no electricity companies produced a CR report prior to 2001 and only one-third did so in the 2007 ECOTEC report, many electricity companies do publish information on CR-related issues such as environmental performance and sustainability and have done so for some time.

### 1.3 RESEARCH QUESTIONS

In order to achieve the abovementioned aim and objectives, the central problematic of the present report involves determining how individual transnational electricity companies conceptualise and operationalise “sustainable development” and “high-quality” electricity provision, i.e. how “quality kilowatts” are being conceived and implemented.

The problem statement can be deconstructed into the following research questions:

- ❑ What standards for electricity provision in developing countries are available in international normative discourses – standards that reflect the values and goals of sustainable development (SD) and that can be used to guide and assess transnational electricity operations?
- ❑ How do selected electricity TNCs, with corporate bases in different national-regional settings, conceptualise and operationalise their corporate responsibility for sustainable development with respect to the nature and overall impact (“quality”) of electricity provision in developing countries?

### 1.4 METHODS AND ANALYTICAL APPROACH

The proposed study will be carried out in an applied-science mode, using strategic research to build knowledge that can be used for positive change by promoting sustainable and equitable energy systems. The basic approach is “normative-empirical analysis”, whereby the initial phase comprises a clarification of the normative premises and analytic categories by which an empirically-based assessment of the provision of electricity in a manner that is consistent with SD can be carried out. Lafferty (2002b) outlines six basic steps for normative-empirical research:

1. Identification of the specific practical discourse where questions of norms and standards are at issue. In this case, the problematic involves questions of sustainable development in electricity provision.
2. Connection of the specific issue in question to one or more academic discourses related to the problematic.
3. “Translation” of the practical discourse problem into a normative-theoretical discourse problem, clarifying the implications of the problem within a normative-theoretical context
4. Formulation of empirical criteria, drawn from the field of the practical discourse, by which the normative problem could be addressed and clarified.
5. Determination of the relevant empirical methodology necessary to an objective analysis of the normative problematic.
6. Execution of the empirical analysis, with conclusions for both the practical discourse and the normative-theoretical discourse.

As a point of departure for identifying and systematising a relevant normative discourse for assessing sustainable electricity provision in developing countries, a broad survey of the literature was conducted. The survey focused on a wide range of sources documenting different aspects of, and different actors in, the corporate-based provision of electricity services in developing countries. The survey aimed to map the critical issues that exist in practice, to clarify the

problematic, and enable the formulation of normative standards for assessing sustainable electricity provision. This approach is explicitly operational. By anchoring the criteria and standards in critical issues identified by governments, business, and civil society, the goal has been to systematise relevant normative standards for TNC performance as a basis for an objective evaluation and ultimate improvement of SD-related electrification initiatives. These internal and external criteria are the source of the moral pressure on electricity TNCs from different corporate backgrounds to align their policies and practices with the principles of sustainable development.

The initial step toward systematizing a normative-analytic framework is the construction of different regional “models” of “home-country business culture”. Note that the term “model” here is used in what Kaplan (1964) refers to as the “academic cognitive style”. The goal is to identify systematic, problem-relevant (SD-related) differences within the general category of TNCs providing electricity to developing countries. As identified by Kaplan, “... the materials dealt with in this style tend to be ideational rather than observational data, and their treatment tends to be highly theoretical”. The systematic aspect is “introduced by way of great ‘principles’, applied over and over to specific cases, which illustrate the generalization rather than serve as proofs for it” (Kaplan 1964: 259-60). In the present case the “great principles” are those of sustainable corporate practice, and the generalisations are formulated in terms of variation within the overall conceptual space (electricity-providing TNCs).

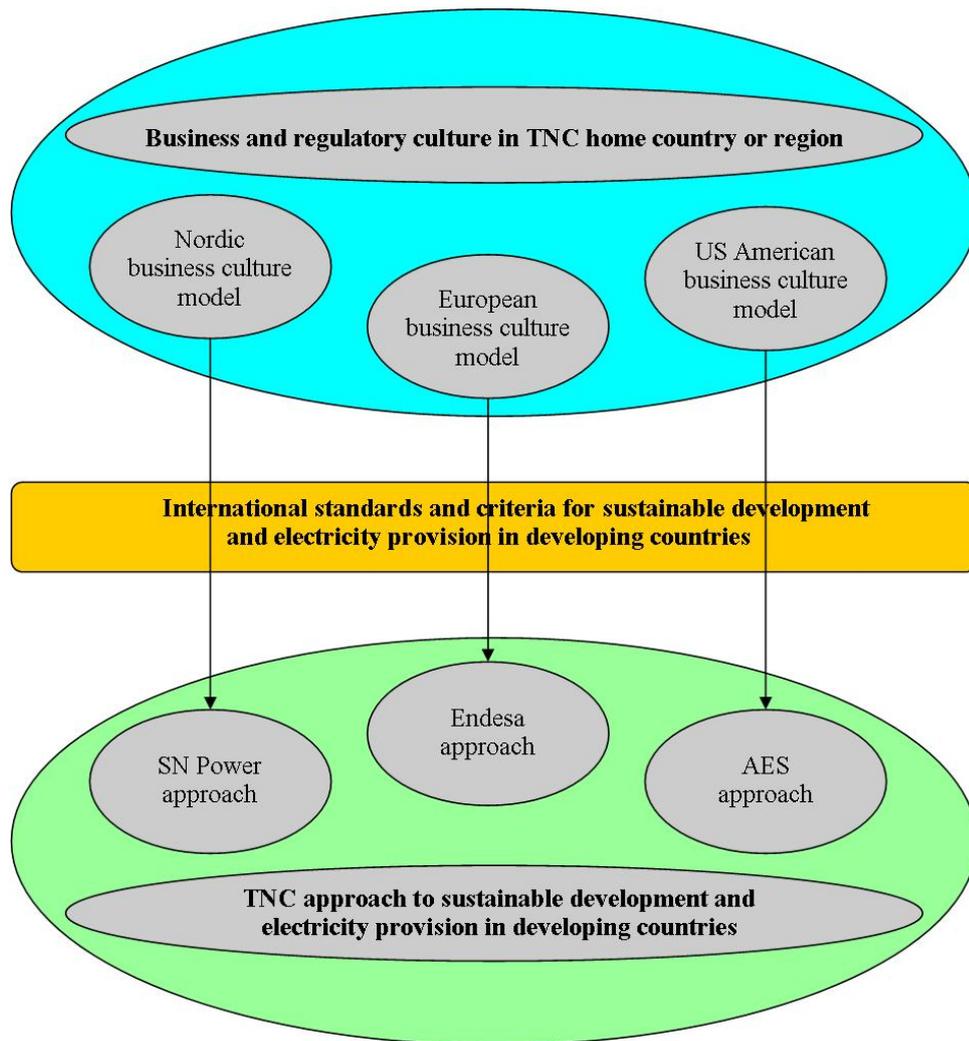
Various sources in the literature (Hofstede et al. 1990; Vogel 1996; Palast et al. 2000; Kirca et al. 2009) suggest that companies will have different approaches toward sustainable development and will incorporate the international standards and norms for SD into their overall business strategy to varying degrees depending on the regulatory framework and culture of the country in which they “grew up”. Hofstede et al. (1990: 313) emphasise, “Organizational cultures are partly pre-determined by nationality”. Although it is assumed that all TNCs are primarily focused on profit maximisation rather than necessarily contributing to sustainable development, Vogel (1996) has identified differences in behaviour of TNCs from distinct groups of countries with varying cultures and traditions for business regulation. Examples of regional variation in regulatory style/culture are the US pattern (shareholder capitalism and privately-owned companies), the European pattern (stakeholder capitalism, clear public-interest focused performance), and the Nordic pattern (European-style stakeholder capitalism further informed by the Nordic social welfare tradition). Graus et al. (2004) revealed strong regional differences among major electricity companies from the European, Nordic, and US regions in terms of transparency, fuel mix and other sustainability indicators.

The empirical methodology employed to analyse the normative problematic is in the form of case studies of electricity TNCs from different backgrounds of business culture. In order to document and evaluate how “quality kilowatts” are being conceived and implemented in the European, Nordic and US regions, three TNC case studies were chosen based on a wide survey of potential companies. The initial scan included over 30 electricity companies and surveyed company websites and databases for information on the companies’ areas and types of operations, headquarters location and CR policies. The primary criterion for choosing the three companies for further analysis was that the company had to be a TNC with significant electricity provision operations (i.e. electricity generation, transmission, and/or distribution) in more than one

continent in the developing world. One company for each of the analysis' three regions of business culture was chosen: Endesa for the European setting, SN Power for the Nordic setting and AES Corporation (hereinafter "AES") for the US American setting. Endesa is headquartered in Madrid, Spain, and is one of the world's largest providers of electricity with significant electricity generation, transmission and distribution activities in a number of developing countries, primarily in Latin America. SN Power is based in Oslo, Norway, and has electricity generation operations in Latin America and Asia. AES has its headquarters in Washington, D.C., USA, and has electricity generation, transmission and distribution activities in 17 developing countries in Asia, Africa, and Latin America.

Analysis of the various company approaches to providing sustainable electricity was conducted using various methods, including analysis of company websites, policy documents, and CR policies. Furthermore, questionnaires were sent to the three selected companies and telephone interviews were conducted with management and CR officials in the companies, both at the headquarters and local management in developing countries. News sources, NGO and union reports and company information databases were used to give additional insight into the companies' approach. Finally, each company mentioned in the report was given the opportunity to review a draft of the company profile incorporated in the report and provide comments and corrections of factual errors. Managers at Endesa and SN Power headquarters and a local AES manager in Argentina used the opportunity to provide feedback.

Figure 1 depicts how the present report's analytical framework links together the three primary focal points: models of home-country business culture, normative standards for sustainable development and electricity provision in developing countries, and TNC approach to sustainable electricity provision in developing countries.



**Figure 1: Analytical Framework**

## 1.5 STRUCTURE OF THE REPORT

The remainder of this report is structured as follows: Chapter 2 proposes the use of models of home-country business culture to analyse how TNCs conceptualise and implement corporate responsibility and normative standards for sustainable development. Chapter 3 defines the report’s evaluative concepts, lays the theoretical and practical foundation for the formation of normative standards for sustainable electricity provision in developing countries, and presents an overview of the critical issues identified in the literature. Section 3.4 distils the critical issues from the literature into six cross-cutting issues that represent bottom-line “quality kilowatts”. Chapter 4 then proceeds to analyse the policies and performance of the selected case companies based on the standards and norms stipulated in Chapter 3. Chapter 5 discusses and elaborates on the analysis of the company approaches and draws some general conclusions about the variation in TNC approach to sustainable electricity provision in developing countries. Chapter 6 summarises the reports findings and identifies some areas for further research.



## **2 MODELS OF HOME-COUNTRY BUSINESS CULTURE**

Although it is assumed that all TNCs are primarily focused on profit maximisation rather than necessarily contributing to sustainable development, the literature suggests that companies will have different approaches toward corporate responsibility and will incorporate the standards and norms for sustainable development into their overall business strategy to varying degrees depending on the regulatory framework and business culture of the country in which they “grew up” (Hofstede et al. 1990; Vogel 1996; Palast et al. 2000; Kirca et al. 2009). Hofstede et al. (1990: 313) emphasise that “organizational cultures are partly pre-determined by nationality”. In particular, national cultures affect how corporations internalise values and norms such as responsibility, equality, innovativeness, flexibility and the need to protect the environment (Kirca et al. 2009).

Vogel (1996) has identified differences in behaviour of TNCs from distinct groups of countries with varying cultures and traditions for business regulation. Examples of regional variation in regulatory style/culture are the European pattern (stakeholder capitalism, clear public-interest focused performance), the Nordic pattern (European-style stakeholder capitalism further informed by the Nordic social welfare tradition), and the US pattern (shareholder capitalism and privately-owned companies).

### **2.1 THE EUROPEAN MODEL**

Vogel (1996) identifies the European “pattern” as one of stakeholder capitalism and clear public-interest focused performance. Europe has perhaps the strongest culture of corporate responsibility of any region in the world, which is reflected in the fact that the European Commission (EC) has recently sought to formalise its interpretation of the concept and promote a common vision of CR through the continent. The EC’s work on CR dates back to 2000 when, during the setting of strategic goals during Lisbon Council, it encouraged businesses to embrace CR (EC 2001). When the EC, with the aim of developing a common European approach to CR, issued the first of three (to date) communications on CR in 2001, it received over 250 responses to the document, half of which were from European companies (EC 2002). Since then, the Commission has issued two more communications on CR, in 2002 and 2006. In its most recent communication, the EC (2006) stressed that the notion of CR and the importance given to it rests on common values found throughout the European region. The 2006 communication goes on to state that CR can contribute to addressing a number of the critical issues for quality electricity mentioned in Section 3, such as more rational use of natural resources, poverty reduction, respect for human rights, skills development, and better innovation performance (EC 2006).

But the European culture of CR extends beyond the government to a wide range of European stakeholder groups who have demanded a more prominent and clearer role for corporate responsibility. The European Coalition for Corporate Justice (ECCJ) is an umbrella group that brings together national platforms of civil society organisations from around Europe including NGOs, trade unions, consumers’ organisations, and academic institutions promoting corporate accountability and CR. The ECCJ represents over 250 civil society organisations from 16 different countries in Europe. One of the ECCJ’s members, the Dutch MVO Platform, has

produced a frame of reference for CR that defines corporate responsibility more sharply than the EC does: “CSR is a process whereby a company assumes responsibility, across its entire supply chain, for the social, ecological and economic consequences of the company’s activities, reports on these consequences, and constructively engages with stakeholders” (MVO Platform 2007).

European businesses have also shown a good deal of interest in CR. As mentioned above, more than 100 European businesses provided input on the EC’s 2001 communications. The European Alliance for CSR and CSR Europe are networks of European businesses that provide a forum for businesses to exchange best practices on CR in a number of issue areas such as fostering innovation and entrepreneurship in sustainable technologies, products, and services; assisting enterprises to integrate social and environmental considerations in their business operations, especially those in the supply chain; improving and developing skills for employability; improving working conditions; and, importantly, operating outside the borders of the European Union in a socially and environmentally responsible way. CSR Europe counts more than 70 corporate members, including Endesa’s parent company Enel. Graus et al. (2004) found that European companies generally scored highest (compared to North American and Asian companies) in their ranking of commitment to renewable energy and that Europe was the region with the highest response rate to the group’s request for collaboration in the research. It should be noted, however, that European businesses have fought and lobbied hard to keep the elements and critical issues raised in the CR debate voluntary and prevent any normative standards for sustainable development from becoming law. For example, the European Federation of Energy Traders (EFET), an industry lobby group that counts among its members Endesa and SN Power parent Statkraft, has fought efforts to improve the EC’s counting scheme for renewable energy (CEO 2008).

## **2.2 THE NORDIC MODEL**

The Nordic countries have much in common with mainland Europe, but nevertheless maintain their own distinct culture. With regard to corporate responsibility, the Nordic model goes beyond the European CR tradition by combining it with the Scandinavian welfare culture that includes aspects such as universal coverage for services including social insurance, an advanced level of gender equality, and a high degree of equality in income distribution. Hohnen (2009) believes that the “Scandinavian appetite for pushing the corporate responsibility agenda to the fore” is based on the “[Nordic] region’s support for high ethical standards”.

There is also a Nordic tradition of transparency and social dialogue with companies that dates back to the beginning of the industrial period (Kuhnle and Ervik 1996). Among European electricity companies, ECOTEC (2007) found that companies based in Nordic countries publish the most information about their CR policies, and the Norwegian electricity company SN Power (2008b) claims that the concepts of corporate responsibility and sustainable development are “deeply ingrained in [its] culture”.

Examples of the Nordic region’s strong culture of sustainable development and corporate responsibility are numerous. In 2007 the Swedish Government made the decision to make sustainability reporting by state-owned companies mandatory. The Danes have gone even further

with their “Social Responsibility for Large Businesses law”, which went into effect on 1 January 2009. In order to encourage Danish businesses to “to work actively on ways they can contribute to solving social challenges”, the new law requires over 1,000 of the country’s largest companies, both listed and state owned, to include information on their corporate responsibility policies and practices in their annual financial reports. In Norway, the government has established ethical guidelines for its “Government Pension Fund – Global” that are among the strictest in the world for pension fund investments. The ethical guidelines were established in 2004 and exclude any company that is deemed to have committed any of the following (Norwegian Finance Ministry 2008):

- ❑ Serious or systematic human rights violations, such as murder, torture, deprivation of liberty, forced labour, the worst forms of child labour, and other forms of child exploitation
- ❑ Serious violations of individuals’ rights in situations of war or conflict
- ❑ Severe environmental damages
- ❑ Gross corruption
- ❑ Other particularly serious violations of fundamental ethical norms.

Norway also has a long history of using renewable sources of energy for electricity, primarily the country’s abundant hydraulic resources. Norway began to develop its hydroelectric potential almost immediately following the invention of electricity in the late 1800s, and today the country continues to rely on hydropower for over 90% of its electricity needs.

### **2.3 THE US AMERICAN MODEL**

According to Vogel (1996), the US pattern of regulatory style and corporate culture is based on a fierce respect for private property and ownership and a culture of shareholder capitalism that leaves little or no room for corporate social responsibility among companies. Instead of a culture of corporate responsibility as exists in Europe and the Nordic region, the US model exhibits a high degree of government regulation in the electricity industry. Palast et al. (2000: 2) note that, “Despite a few new areas of deregulation, the United States holds to the strictest, most elaborate system of regulation anywhere.” It is thus not surprising that US American corporations generally have less well developed CR policies than their European and Scandinavian counterparts. The US culture of shareholder capitalism in which the investor is king and return on investment is paramount may explain why many American companies decisions on sustainable development are based on the fact that a certain decision may be a “strategic business opportunity”, “a growth area”, or “a low-cost” solution rather than the fact that a certain decision may be good for the environment.

Furthermore, Graus et al. (2004) found that North American companies scored the lowest on their scale of commitment to renewable energy (an average of just 0.7 out of 10) and had by far the lowest response rate (3%) to their questionnaire.



### 3 TOWARD NORMATIVE STANDARDS FOR SUSTAINABLE ELECTRICITY PROVISION IN DEVELOPING COUNTRIES

#### 3.1 GROUNDING “SUSTAINABLE DEVELOPMENT”: *OUR COMMON FUTURE* AS A POINT OF DEPARTURE

Before a successful evaluation of performance on sustainable development can take place, it is necessary to establish a common understanding of what it is that is to be evaluated. It is not the author’s intention to prescribe what “sustainable development” or “sustainable electricity provision” should be. Instead, this report’s understanding of “sustainable development” is grounded in the WCED’s (1987) *Our Common Future*, the accords from the 1992 Rio summit, particularly *Agenda 21*, and the Millennium Development Goals (MDGs).<sup>3</sup> These documents all have sustainable development as their overall aim, and they have been agreed upon and committed to by virtually all members of the United Nations, as well as a wide range of other stakeholder groups. While neither *Our Common Future* nor the Rio documents make an effort to explicitly define sustainable development, they make it clear that sustainable development goes beyond simple environmental or developmental concerns. At the heart of sustainable development is the need to simultaneously address environmental, social, and economic issues and concerns and find the balance between these three “pillars”. In other words, it is essential to recognise the interdependency between modes of production, satisfying basic needs, and impacts on natural life support systems (Lafferty 2002a).

As we will see below, the social pillar of sustainable development is focused on satisfying basic human needs as well as addressing protection of human and labour rights. The environmental pillar includes issues like nature conservation, environmental protection, and ecological balance, while the economic component comprises (eco)-efficiency, sustainable consumption and local economic development.

At this point it is important to note that the relative importance given to the different components of sustainable development may differ between industrialised nations and developing countries. In the Global North, the environmental or ecological component of sustainable development, i.e. the link to “sustainability”, is often seen as the most fundamental dimension of sustainable development, as it anchors the concept logically and distinguishes it from other normative concepts and programmes that are more devoted to socio-economic welfare or justice (Lafferty 2002a). In the Global South, however, the social and economic elements of sustainable development, in particular poverty reduction and meeting basic needs, i.e. the “development” aspect”, have a stronger entitlement than in industrialised countries. This perspective has a firm footing in traditional sustainable development discourse, as the prominence given to “needs” in *Our Common Future* reflects Gro Harlem Brundtland’s and the WCED’s belief that the eradication of poverty and meeting basic human needs are keys to sustainable development (WCED 1987). Poverty reduction – specifically, halving poverty in the world’s poorest countries

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<sup>3</sup> For the purposes of this report, the terms “sustainability”, “sustainable”, and “high-quality” should be understood as convenient expressions to describe the essential trade-off logic derived from the WCED understanding of “sustainable development”. This logic implies a best-possible integration of social, economic and environmental concerns in specific electricity projects in given societal settings.

by 2015 – is also the clearly stated aim of the MDGs. Developing economies are thus vitally and avidly interested in the goods, such as sustainable jobs, functioning economic infrastructure, and tax revenues, that can be provided by businesses' basic economic activities. This implies that each of the three pillars must be respected in its own right, as well as being profiled and balanced with reference to the other pillars and overall SD demands.

In applying the sustainable development paradigm to the developing country context there is thus a clear need for reconciling the pursuit of basic-need satisfaction with the “limits of nature” – both locally and globally. With regard to economic development, Lafferty (2002a) notes that: “Where it can be demonstrated that modes of production driven by the under-satisfaction of basic needs are causing harm to sustainable life-support systems, these must be rectified. Likewise, where it can be demonstrated that modes of production [are] driven by excessive satisfaction of basic needs, these too must be rectified”. Similarly, the social dimension, with its focus on fair standards for the satisfaction of basic needs, must be viewed in relationship to economic activity and natural life support systems. The essence of SD is thus to find strategies to promote economic and social development in ways that avoid environmental degradation, over-exploitation or pollution, and to do so in a global context that recognizes “differentiated responsibility” between North and South and a need for global justice to reconcile the crucial trade-offs among the economic, social, and environmental dimensions.

### **3.2 DEFINING “QUALITY KILOWATTS”**

The understanding of sustainable electricity provision, or “quality kilowatts”, is thus grounded in the concept of sustainable development. Sustainable electricity provision implies generating, transmitting, distributing and supplying electricity in a manner that contributes to poverty reduction and the satisfaction of basic needs without damaging the natural environment or compromising the ability of future generations to meet their own needs. This understanding is admittedly vague, and the concepts “poverty reduction”, “satisfaction of basic needs” and “damaging the environment” must be further refined with relation to electricity provision. An overall goal of the study is thus to develop more specific empirical benchmarks as to what constitutes “quality kilowatts”. The World Commission on Dams (WCD 2000) has stressed that “a broad consensus is needed on the norms that guide development choices and the criteria that should define the process of negotiation and decision-making” in order to resolve underlying conflicts about the environmental, social and economic benefits and impacts of electricity projects.

The Millennium Development Goals are a logical place to start for guidance on standards and criteria for sustainable development in electricity provision. Although none of the MDGs refers explicitly to electricity, Modi et al. (2005) argue that expanded access to electric power is crucial for meeting all of the Goals, especially MDG 1 on eradicating extreme poverty and hunger, MDG 2 on achieving universal primary education, MDG 3 on promoting gender equality and empowering women, MDG 6 on reducing child mortality, and MDG 7 on ensuring environmental sustainability.

Beyond the MDGs, there exists a broad array of literature from academic, (inter-)governmental, industry, trade union, and NGO sources related to standards and criteria for sustainable or high-quality electricity provision in developing countries. The literature is, however, fragmented, with many sources focusing solely on one particular area of sustainable development, such as the environment, or on more technical issues, such as milliseconds of supply stoppages. Much of the literature related to quality applies to the provision of electricity anywhere in the world, not just in developing countries. Furthermore, some of the literature focuses more generally on corporate responsibility, while other sources specifically target the electric power industry. Nevertheless, for the purposes of this study, this literature overview and the following section on critical issues attempt to extract the conclusions and implications for sustainable development that are most relevant for the provision of electricity in developing countries. Given the need for detailed further reference, the overview of the literature (and initiatives of the major norm-promoting institutions) is presented in extensive tabular form in Table 1.

**Table 1: Overview of Literature on Standards for Sustainable Development and Electricity Provision**

Author	Type	Context	Main findings and implications
AccountAbility 2008	Multi-stakeholder	AccountAbility's AA1000 Principles Standard aim to give consumers, investors and other stakeholders insight into corporate governance and policies on human rights, environment, etc.	AA1000 offers guidelines for ensuring social and ethical accountability and high-quality auditing and reporting practices. Principles are for improvement processes and process elements, which are underpinned by the principle of accountability to stakeholders. Do not define performance standards.
Council of European Energy Regulators (CEER 2005)	Inter-Governmental	European energy regulators report	Defines quality of electricity supply from a technical perspective. Continuity and reliability of supply is a key issue. Identifies standards and incentives used in quality regulation. Standards are for Europe, not developing countries.
CSR Europe 2008	Industry	CSR Europe and the European Alliance for CSR are business networks for CR. CSR Europe has 70 TNCs as members, including European utilities.	Not electricity focused, but provides a list of best practices on CR issues such as innovation in sustainable technologies, improving working conditions, and operating outside the borders of the EU in a socially and environmentally responsible way.
e8 2008	Industry	Industry association composed of nine leading electricity companies from the G8 countries. E8 promotes sustainable energy development through electricity sector projects and human capacity building activities in the South.	Identifies major global environmental and social issues that affect the electric utility industry, such as sustainable development, climate change, social trust, and internationalisation.

European Commission (EC 2001; EC 2002; EC 2006)	Inter-Governmental	The European Commission has issued three communications on CR	Not electricity-specific but provide guidance to companies on responsible business behaviour.
ECOTEC 2007	Multi-stakeholder	Report on CR in the European electricity industry. Scanned 65 European electricity companies for presence of CR reporting. 6 in-depth cases studies analysing companies' CR policies. Uses GRI indicators to analyse companies' CR reports.	Focused only on European companies' activities in Europe, not developing countries. Finds that only 33% of electricity companies produce a CR report. Social and labour issues are the most thoroughly elaborated, but also analyses environmental and economic aspects. Identifies some key differences and similarities in various companies' approach to CR.
European Public Service Unions (EPSU); European Mine, Chemical and Energy Workers' Federation (EMCEF); and Eurelectric (EPSU et al. 2004)	Multi-stakeholder	Joint statement by European electricity industry social partners on CR and the European electricity sector.	Focussed on Europe, not developing countries, but outlines some important, primarily labour-oriented, issue areas for high quality provision such as <ul style="list-style-type: none"> <li><input type="checkbox"/> Well-being and competence of personnel</li> <li><input type="checkbox"/> Occupational and Customer H&amp;S</li> <li><input type="checkbox"/> Relations with local communities and neighbours</li> <li><input type="checkbox"/> Business partners such as sub-contractors and suppliers</li> <li><input type="checkbox"/> Cooperation with educational establishment</li> <li><input type="checkbox"/> Diversity and Opportunity</li> <li><input type="checkbox"/> Union representation, employee participation, freedom of association and collective bargaining.</li> </ul>
Global Reporting Initiative (GRI 2008)	Multi-stakeholder	Multi-stakeholder group of 21 participants, primarily companies, developed sustainability reporting guidelines for companies engaged in all stages of electricity provision. Electric Utilities Sector Supplement (EUSS) is based on and further specifies existing G3 guidelines. EUSS is currently in pilot phase.	The EUSS is intended to be applicable for all electric utilities in their activities around the globe. The EUSS reporting guidelines identify electricity sector-specific disclosures and performance indicators aimed at improving organisations' reporting and transparency on economic, environmental, and social performance.
Sustainable Energy Watch (SEW 2006)	NGO	SEW has created a set of indicators to measure energy-related sustainability	Indicators include environmental, social, economic and technological aspects. The overall number of indicators is relatively few (two per aspect) because SEW wanted only indicators that are feasible to measure consistently across various countries.
International	Inter-	Part of work to develop	Indicators for sustainable energy

Atomic Energy Agency (IAEA 2007)	Governmental (UN)	indicators for sustainable development	development divided into three dimensions: economic, social and environmental. Half deal with electricity.
International Finance Coproration (IFC 2006)	(Inter-) Governmental (World Bank)	Performance Standards on Social and Environmental Sustainability	Detailed standards used by the IFC to evaluate the sustainability of potential project to fund. Not electricity or developing country specific, but include a range of social and environmental issues
International Hydro-power Association (IHA 2004)	Industry	Sustainability guidelines	Includes a wide range of standards and criteria on social and environmental issues. Electricity specific, primarily focused on issues related to hydropower.
International Labour Organisation (ILO)	Inter-Governmental	The ILO is also the source of a number of other guidelines and information on CSR and responsible business behaviour in general.	Relevant ILO documents include: <ul style="list-style-type: none"> <li><input type="checkbox"/> ILO Declaration on Fundamental Principles and Rights at Work</li> <li><input type="checkbox"/> ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy</li> <li><input type="checkbox"/> ILO Conventions</li> </ul>
International Organization for Standardization (ISO)	Multi-stakeholder	The nearly completed ISO 26000 is a standard providing guidance on social responsibility among companies and other organisations. The ISO 14001 certification covers the environmental management processes of companies	ISO 26000 provides general, not sector-specific, guidance on social responsibility, but it does have a number of elements particularly relevant for electricity provision, such as a identifying consumers' right to essential services and elaborating on standards for stakeholder identification and engagement. ISO 14001 is widely accepted standard for companies in all sectors. One drawback is that it measures companies' environmental management policies and processes rather than the results of their policies and their impact on the ground. Additional ISO standards ISO 14065 and ISO 14064 address measuring GHG emissions.
Lamech and Saeed 2003	(Inter-) Governmental (World Bank)	Large-N study on why investors choose to invest in certain electricity projects in developing countries. Based on surveys of investors.	Focused on what investors want to see rather than what is necessarily good for country/quality of service. Conclusions are rather general (i.e. stability and enforceable contracts are important), but one interesting conclusion is that international investors often use the political influence of local joint venture partners as a substitute for stable contracts.
MVO Platform 2007	NGO and union	MVO Platform is a network of 35 Dutch NGOs and trade unions active in the field of CSR	Not electricity focused, but provides a definition of CSR and standards on a number of areas including social aspects, including human rights, labour rights, consumer rights; environmental aspects; economic aspects, including corruption, competition and taxation; and operational aspects of CSR, such as applying a multi-stakeholder and a supply chain approach.

Norwegian Finance Ministry 2005	Governmental (Norway)	Ethical guidelines used to screen and exclude companies in the Government Pension Fund - Global.	Not electricity specific, but identifies criteria for penalising companies for things like serious or systematic human rights violations, severe environmental damages, corruption, and other serious violations of fundamental ethical norms
Organisation for Economic Cooperation and Development (OECD 2000)	Inter-Governmental	OECD Guidelines are a set of recommendations from OECD and adhering governments to TNCs based in or operating in their country about responsible business conduct in activities around the world.	The OECD Guidelines for Multinational Enterprises are not electricity specific, but cover a wide range of CR issues from environment, labour rights and corruption to human rights and supply chain management.
OECD 1992	Inter-Governmental	OECD Convention on Combating Bribery of Foreign Public Officials	Guidelines for TNCs can prevent and resist bribery when operating in developing countries
Palast et al. 2000	Inter-Governmental (ILO)		Emphasises the need for transparency and open public participation in provision of high-quality electricity. Identifies principles that need to be adhered to, particularly during the process of fixing fair tariffs.
Public Services International (PSI) and the PSI Research Unit (PSIRU)	Union / Academic	PSI and PSIRU (University of Greenwich Business School) have produced a wealth of research on the activities of electricity TNCs	Most of PSI and PSIRU's research focuses on the implications for and effect on workers in both developed and developing countries
Ruggie 2008	Multi-stakeholder	Report of the Special Representative of the Secretary-General on the issue of human rights and TNCs and other business enterprises to the UN Human Rights Council. Based on extensive multi-stakeholder consultations.	Outlines corporations' responsibility to respect human rights in their activities around the globe and calls for corporations to adopt a human rights policy, conduct impact assessments about the "potential implications of their activities before they begin", integrate their human rights policy throughout the company, and track performance. Not electricity-specific.
Social Accountability International (xSAI 2001)	Multi-stakeholder	SAI has developed a certification system for registering companies under its social (SA8000) and environmental (SA1400) standards.	Based on ILO standards and U.N. Human Rights Conventions, the SA8000 standards are the first international standards on human rights and ethical behaviour designed to eliminate unfair and inhumane labour practices, primarily in developing countries. SA1400 are standards for environmental protection.
Teske et al. 2007	Multi-stakeholder	Joint study by the European Renewable	Explores scenarios for sustainable energy provision and presents standards and

		Energy Council and Greenpeace	criteria for including more renewable energy into the electricity generation mix.
Thomas 2007	Academic	Working paper on electricity restructuring	Criteria for judging electricity liberalisation and reorganisation policies
United Nations	Inter-Governmental	The UN is an authoritative source of a number of a range of guidelines, normative standards and information on CR and responsible business behaviour in general. Of perhaps most direct relevance to sustainable electricity provision are the Rio Accords, particularly <i>Agenda 21</i> , and the Millennium Development Goals (MDGs).	Other relevant UN documents include: <ul style="list-style-type: none"> <li>❑ UN Universal Declaration on Human Rights</li> <li>❑ International Convention on civil and political rights</li> <li>❑ International Convention on economic, social and cultural rights</li> <li>❑ The International Bill of Rights</li> <li>❑ UN Global Compact</li> <li>❑ UN Guidelines for Consumer Protection (1999)</li> <li>❑ UNECE Århus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (1998)</li> <li>❑ UNCTAD Model Law on Competition</li> <li>❑ UNCTAD Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices (1980).</li> </ul>
Vigeo 2007	Industry	Vigeo is one of many socially responsible investments (SRI) and rating agencies use a wide range of criteria to rate companies based on sustainability.	Includes a range of social, environmental, and economic criteria that Vigeo uses to rate the sustainability of energy companies. Criteria are specific to energy and gas companies, but not necessarily to operations in developing countries,
Woodhouse 2006	Academic	Mixed quantitative/qualitative approach using 10 countries with 2-3 projects per country as cases (total 20-30 cases) to measure “success” of private power projects	Regulatory environment and investment climate have greatest impact on success, but “success” primarily defined from investor perspective. CR performance of companies is not one of the factors investigated
World Commission on Dams 2000	Multi-stakeholder	WCD report addresses the controversial issues associated with large dams.	Provides a comprehensive list of the sustainability issues associated with using dams for electricity and seeks to find the balance between economic growth, social equity, environmental conservation and political participation. The WCD framework is the leading international benchmark for hydropower projects
World Resources Institute (WRI) and the World Business Council	NGO and industry	In 2005, WRI and WBCSD released the Greenhouse Gas Protocol for Project	Attempts to determine the environmental integrity of companies’ GHG emissions claims by establishing objective targets before and after a company takes action to

for Sustainable Development (WBCSD)		Accounting	cut emissions.
Yamin and Sinkovics 2008	Academic	Examines the implications of TNC strategy on local economic development	Posits that the positive developmental impact of FDI is highly conditional on the existence of strong human capital and “good” infrastructure in developing countries

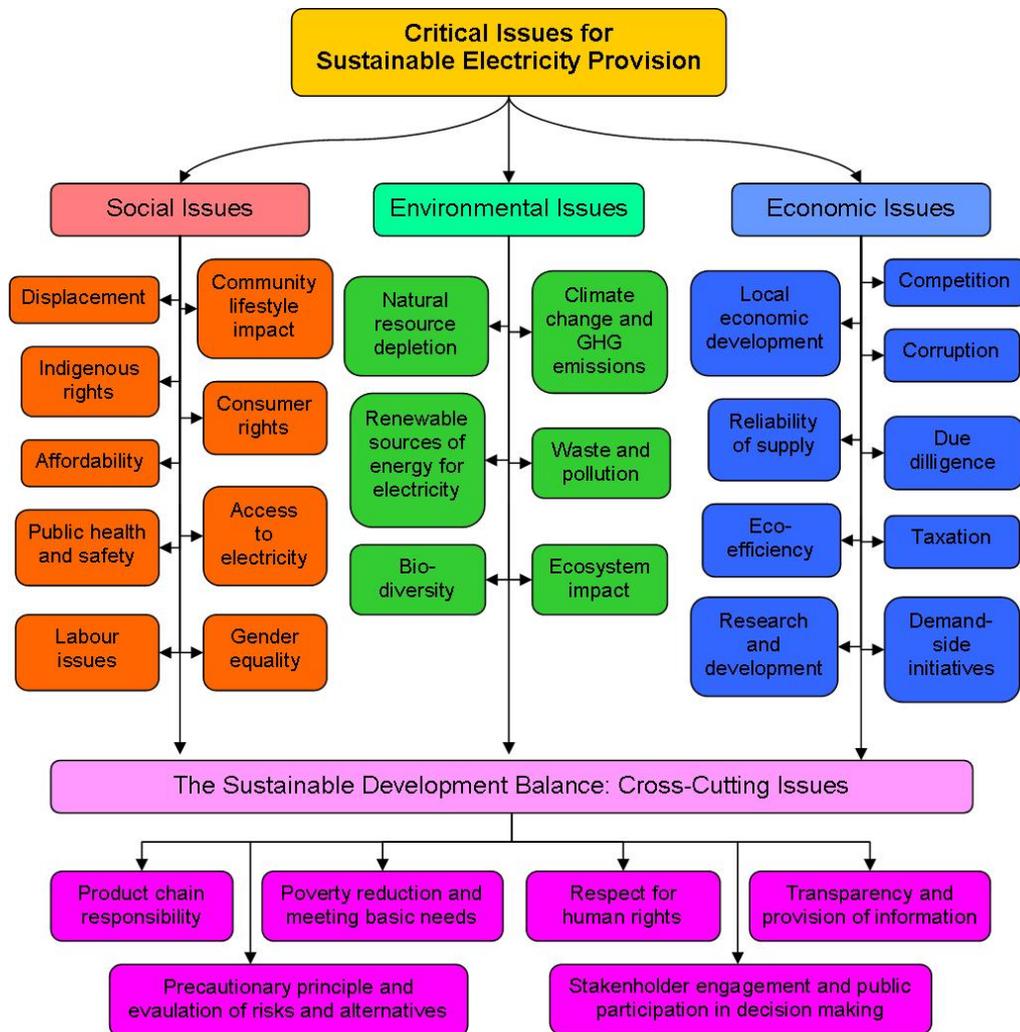
### 3.3 OVERVIEW OF CRITICAL ISSUES

It is clear from the literature that while activities related to sustainable development and CR in the electricity sector are increasing, there are no universally accepted standards for sustainable electricity provision in developing countries. Nor is there a comprehensive overview of the critical sustainable development and quality issues on which such standards should be based. This section seeks to extract such a compilation of critical issues based on the fragmented standards and criteria found in the literature. Again, the purpose of the exercise is not to impose a universal understanding of “sustainable electricity provision”, but rather to provide a means for empirically assessing specific attempts to provide electricity in a manner consistent with the principles of sustainable development.

The critical issues outlined in Figure 2 below represent a comprehensive list of concerns, problems and criteria identified in the literature. These issues provide the basis for developing normative standards for sustainable electricity provision in developing countries and can be roughly categorised according to the three sustainable development “pillars”: social, environmental, and economic. A number of critical issues cut through all three pillars and lie at the heart of making the sustainable development balance. Reconciling these “cross-cutting issues” is essential for achieving electricity provision that corresponds to the notion of “quality kilowatts” in a sustainable development context.

The guidelines and principles expressed under each critical issue are oriented primarily toward electricity provision in developing countries, although it is acknowledged that many of the issues could be applied to provision of electricity in any country. It is also necessary that the normative issues in question be practically assessable within the contexts of individual host countries, including underlying conditions such as the country’s state of economic development, the nature of the economy, its geography, natural (energy) resource availability, and development and state of the electricity system. The recommendations are intentionally general because they will need to be adapted to fit the particular energy system, situation and project to which they apply. Finally, the standards and recommendations are oriented toward corporations active in electricity provision, and it is assumed that international human rights, labour and environmental law apply not only to states, but that other actors, including corporations, are parties to such agreements as well (see, for example, ICRC 2006). The Special Representative of the UN Secretary-General on the issue of business and human rights (Ruggie 2008) has emphasised individual TNCs’ responsibility to respect all human rights. Nevertheless, while corporations’ responsibility to address the sustainability issues is highlighted here, it should also be recognised that other actors,

such as governments, regulators, unions and NGOs have a role to play in improving the quality and sustainability of electricity provision.



**Figure 2: Overview of Critical Issues for Sustainable Development and Electricity Provision**

### 3.3.1 Social Issues

Social sustainability issues refer to the impact that an electricity company’s operations have on the social well-being of a country or community. Despite the fact that social issues are generally of great concern to developing countries, ECOTEC’s (2007) analysis of electricity industry CR reports found that the social pillar of CR is often the most neglected by electricity companies. This may be due to the fact that electricity companies have a longer history of reporting on economic and environmental issues than on the social impacts of their operations. Social issues are also often overshadowed by the dominance of the current debate on global warming, which has focused CR concerns on the environmental aspects of sustainable development.

Despite the lack of focus on social sustainability issues in CR reports and the CR debate in the electricity industry, it is clear that electricity provision has tremendous implications for poverty, human rights and development, and electricity companies must be conscious of issues such as

affordability of and access to the services they provide. In addition, due to the large scale of power plants and electricity infrastructure, electric utilities' assets and operations can have far-reaching impacts on the communities in which they operate as well as neighbouring areas. Furthermore, in order to provide high-quality service, electricity companies rely on a highly skilled workforce that is often exposed to difficult and dangerous working conditions. Electricity companies have a responsibility to provide electricity in a manner that is socially equitable and safe, contributes to poverty alleviation and is respectful of employees and of the communities impacted. A number of these social issues are further elaborated below.

### **Access to electricity**

Access to electricity is a crucial factor for meeting the first Millennium Development Goal of halving the proportion of people living in poverty by 2015, as well as meeting other MDGs such as achieving universal primary education and reducing child mortality. Access to electricity can improve standards of living in numerous ways, for example, by helping spread literacy and education, contributing to improved health through refrigeration of medicines, and increasing communication and awareness (SEW 2006). In areas without access to electricity, up to six hours a day is spent (usually by women) collecting wood, dung, charcoal or whatever other fuel is available for heating and cooking. These fuels are then burned in the home, often without proper equipment or ventilation, creating a serious health hazard. When access to electricity is extended to rural areas, it raises the quality of life there and can have the indirect effect of stemming migration flows from rural regions to overpopulated and marginal urban areas (Legisa and Bohorquez 2007). However, despite the fact that it is generally considered an important social, economic, and political priority to provide electricity to all, there are currently approximately 1.6 billion people, nearly one-third of the Earth's population, who lack access to electric services or whose access is insufficient to provide for basic needs. Lack of access to modern energy services such as electricity is particularly acute in rural areas, but impoverished urban areas such as inner-city slums also often lack access. While developing countries need not adopt Western standards and patterns of electricity consumption, some degree of access to affordable electric power is appropriate.

Yet delivering electricity to rural populations is often a challenging task because it involves remote areas with dispersed customers whose consumption is low. This means it is generally more expensive (costs of connecting new customers increase exponentially with the customer's distance from a power station), while at the same time the customer base is generally poorer and less able to pay the full cost of service (Zerriffi 2007).

While the State is primarily responsible for ensuring that its citizens' right to the satisfaction of basic needs is respected, the nearly completed ISO 26000 standard recognises that companies also have a responsibility to contribute to this right by providing access to essential services such as electricity. In particular, electricity companies should avoid "disconnecting essential services for non-payment without providing the consumers with the opportunity to seek reasonable timeframes to make the payment" and "continuously maintain and upgrade their systems to help prevent disruption of service" (ISO 2009).

One of the primary indicators of access that companies should report on is the percentage of households (or population) in the company's licensed areas of operations (broken down into rural and urban) without electricity (IAEA 2007, GRI 2008). In order to increase access to electricity, companies should undertake initiatives to extend electricity services to unserved and underserved communities, particularly in rural or remote areas, but also to the poor in urban and peri-urban areas (Modi et al. 2005). Such initiatives are often undertaken in partnership with local municipal, state and national governments and should be carried out in collaboration with local community organisations. Companies should also address language, cultural, low literacy and disability related barriers to accessing and using electricity services. Rural electrification schemes often need to utilise and stimulate small-scale and decentralised technologies such as small-scale hydro plants, wind turbines, photovoltaic panels. Companies should invest in these technologies and stimulate their use in rural areas.

### **Affordability**

Even in places where the power grid is accessible, electricity prices are often beyond the financial means of large portions of the population in many, primarily developing, countries. In fact, consumers in developing countries sometimes pay more for electricity than their counterparts in industrialised countries, despite the fact that the costs of labour and other imports are generally cheaper in the developing world. For example, residents of São Paulo, Brazil, and Santiago, Chile, pay twice the average rate in the United States, despite the fact that the US lacks the abundant hydro resources found in the Latin American nations (Palast et al. 2000). Poor customers who cannot pay their electricity bill are then often cut off by electricity companies, depriving them of a life-essential service, and reconnection fees imposed by companies after a temporary disconnection can often be prohibitively expensive.

Indicators that can be used to measure the affordability of electricity include the end-use price of electricity with and without tax/subsidy and the ratio of daily disposable income of the poorest 20% of the population to the price of electricity (IAEA 2007). Companies should also report to stakeholders on the number of debt recovery actions and disconnections for non-payment as well as the duration of disconnection and average reconnection time for customers disconnected for non-payment (GRI 2008).

Companies should aim to provide electricity at prices that are just, reasonable, and payable for local incomes (Palast et al. 2000). This means that efforts to extend access to electricity services to the wider population should be complemented by social tariff schemes to ensure that new users and those of genuinely limited resources have access to enough electric power to satisfy basic needs. In situations where the local government or regulator sets the prices, companies should advocate openness and transparency in the price setting process.

In addition, companies should have in place programmes to enable underprivileged, low-income or vulnerable customers to afford electricity connection and consumption (ISO 2009). Such programmes include lower tariffs for small users, flexible billing arrangements, timely reconnection and other practices to assist customers in managing debt and avoiding electricity disconnection (GRI 2008). These types of programmes are often undertaken in collaboration with local government and generally require the cooperation of the local regulator. Companies should

also acknowledge that the introduction of prepaid metering systems, a practice frequently used by utilities in low-income and hard-to-collect areas, can be prohibitively expensive and cause customers to disconnect themselves.

### **Labour Issues**

Electricity TNCs operating in the South should base their labour policies on international standards and pay special attention to occupational health and safety, dialogue with workers, workers' right to strike, skill training, diversity and opportunity, job security, and outsourcing.

#### **□ International standards**

Any normative guidelines regarding labour issues in the provision of electricity in developing countries should be based on international standards, the most relevant of which are outlined in the following documents:

- The United Nations Universal Declaration of Human Rights and its Protocols;
- The United Nations Convention on International Covenant on Civil and Political Rights;
- The United Nations Convention on International Covenant on Economic, Social, and Cultural Rights;
- The ILO Declaration on Fundamental Principles and Rights at Work of 1998 (particularly the Core Conventions of the ILO);
- The OECD Guidelines for Multinational Enterprises, Chapter IV on Employment and Industrial Relations;
- The ILO Tripartite Declaration Concerning Multinational Enterprises and Social Policy; and
- The Vienna Declaration and Program of Action.

#### **□ Child and forced labour**

Both forced labour and child labour should be strictly banned. ILO Conventions 138 and 182 address the elimination of child labour while ILO Conventions 29 and 105 deal with the prevention of forced and compulsory labour.

#### **□ Occupational health and safety**

Work in the electricity industry can be highly dangerous. Labourers often have to work in confined spaces or at high altitudes, and projects often involve close contact with high voltage wires and a significant risk of electrocution. ILO Convention 155 covers workers' right to occupational health and safety (OHS). In addition to providing adequate healthcare for their employees, electricity TNCs should ensure the presence of a health and safety committee with worker representation to evaluate and recommend occupational health and safety programmes. OHS topics should also be covered in formal agreements with trade unions. Furthermore, companies should report to their stakeholders on rates of injury, occupational diseases, company spending on healthcare, lost days and absenteeism, and number of work-related fatalities by region (GRI 2008).

Contractors in the electricity industry also engage in high risk activities, and thus employees of contractors should also be given health and safety training and information. In addition, companies should monitor the health and safety performance of suppliers and contractors.

❑ **Dialogue with workers**

Companies should actively encourage dialogue between employees and managers and employee participation in high-level decision making within the company. Group-wide meetings enable employees to voice their opinions and concerns (ECOTEC 2007). Workers should have input on things like the quality and type of training they receive and on recreational and leisure activities. Companies should conduct regular, periodic employee satisfaction surveys and have in place a complaint mechanism allowing workers to (anonymously) express grievances.

❑ **Freedom of association, collective bargaining, and right to strike**

ILO Conventions 87 and 98, expanded by Convention 135, assert workers' right to organise and to collective bargaining. The number of employees covered by collective bargaining agreements is important. Furthermore, due to the electricity industry's need to ensure continuous provision of services, electricity workers' right and ability to strike may be at greater risk than in other industries. Electricity companies should have in place management mechanisms to address the right to strike or instances of lock out. Where workers do not have the right to strike, companies should have in place remedial measures, e.g. binding arbitration (GRI 2008).

❑ **Skill training and lifelong learning**

Electricity workers must be highly skilled in order to perform the technical and specialised tasks required of the industry. A highly skilled workforce is essential in order to ensure a high quality electric service as well as the safety of the operations, both for the workers themselves and the community in which they operate. Companies should encourage lifelong learning among employees, including through ongoing higher education and continuous skill training in apprenticeship programs and leadership training. Encouragement and recognition of innovation among employees can stimulate continuous employee development. Companies should also seek to facilitate skill transfer to the local population and address the issue of "brain drain", which affects many developing countries, by offering educated and skilled locals the opportunity to apply their knowledge locally.

❑ **Working hours and wages**

ILO Convention 1 relates to companies' requirement to observe a limit on the maximum number of working hours, and Article 34 of the ILO Tripartite Declaration addresses workers' right to a living wage. Companies should observe these standards based on the local "living wage" calculations of the countries in which they operate.

❑ **Diversity and opportunity**

ILO Conventions 100 and 111 ban discrimination. Electricity TNCs should ensure equal opportunities for all employees regardless of gender, race, age, other minority groups, both in general employment and in management. Companies should also make sure that women and men receive equal pay for equal work.

#### ▣ Job security

Maintaining a highly-skilled workforce is essential for ensuring the quality and safety of the electricity system for the society it serves. Articles 24-28 of the ILO Tripartite Declaration address security of employment. Companies should report to their stakeholders on staff turnover and layoffs and should take into account the impact that exiting or transferring operations has on workers, and to put into place retraining programmes as necessary.

#### ▣ Outsourcing and temporary employees

The use of contractors and contracted labour by electricity companies at various stages of the product chain is extensive in the electricity industry and is only increasing with time. Contractors and contracted labour can be working onsite or offsite on behalf of a company, and the performance of contractors can have a significant impact on the quality of electricity services. Contracted and temporary workers, however, are often not provided the same benefits as full-time employees and are often not covered by collective bargaining agreements. It is thus crucial for power companies to monitor the performance of contractors in order to make sure working conditions (e.g. occupational health and safety, security, pay, unionisation, etc.) meet the same standards as those expected for workers employed directly by an electricity company.

### **Displacement**

Large electricity infrastructure projects frequently require the physical and/or economic displacement of large numbers of people. The GRI (2008) notes, “Physical displacement can be defined as relocation or loss of shelter. Economic displacement means loss of assets or access to assets which results in loss of means of livelihood.” Both types of displacement can affect the quality of life of the displaced.

In any and all cases of displacement, companies should ensure that consultations take place in which affected people have a formal and meaningful role. Those affected should be provided with a draft resettlement plan with budget and timeline. If, in the end, displacement does take place, companies should ensure that any and all displaced have given free, prior informed consent. Compensation, such as land-for-land arrangements, and improved living standards, where such improved living standards are derived through decision making with the displaced, should be offered to the displaced, and grievance mechanisms for complaints about resettlement and compensation should be in place. There should be periodic evaluation of progress, and programs to help displaced indigenous people ensure social and cultural identity (IHA 2004, IFC 2006).

Displacement can also occur in an electricity company’s supply chain as an indirect result of the power company’s operations, for example when a coal mine begins or expands production to feed a power plant. For more on supply chain issues, see section 0 on product chain responsibility.

### **Community lifestyle impact**

Even if people are not displaced, electricity projects can have significant impacts on the lifestyle of communities near electricity infrastructure. For example, construction of a large power plant or transmission line can result in an influx of workers into neighbouring communities that can cause changes to local social structures and culture. Such projects can also change traditional land-use patterns, including access to land, natural resources, and heritage and the loss of global commons.

Electricity projects can impact existing infrastructure such as roads and housing, as well as access to services like education, utilities, and healthcare. Finally, electricity infrastructure often change the aesthetics of a local landscape, which can have physical and psychological impacts on adjacent communities (GRI 2008). Companies need to be aware of and address all such community lifestyle impacts when planning projects and consult with the affected communities before, during and after construction of installations.

Changes in existing electricity projects and infrastructure can also impact communities. For example, the decision to shut down or abandon an electricity project can have a significant impact on local communities if large numbers of jobs are lost. Companies should also be aware of and address such impacts by consulting with communities before making any decisions about altering existing infrastructure.

### **Public health and safety**

One of the top priorities of electricity TNCs in developing countries should be the safety of their electricity infrastructure and assets, including generation plants, transmission lines, distribution stations, and individual hook-ups. This is particularly relevant for nuclear and large hydroelectric plant operators, where reactor or dam failure could have catastrophic consequences for life, property and environment. Low quality power lines can also present a significant threat to public health and safety. Sub-standard distribution lines are frequently used in developing countries, with utility companies often arguing that low cost power lines are necessary to reduce costs so that more households can be connected. Additional community health risks can include issues such as electro-magnetic fields, emissions, noise, and diseases. Furthermore, power outages and other supply disruptions can endanger public health and safety if, for example, hospitals, transportation infrastructure or security systems are left without power, or through paraffin fires or generator accidents during load shedding.

Companies should factor safety into all phases, from planning and design to construction and operation, of an electricity project and appropriately invest in improving the safety of electricity infrastructure. Comprehensive risk assessments should be carried out and safety requirements identified and defined. Companies should develop processes for assessing community health risks including monitoring, prevention measures and, if applicable, long term health-related studies. Safety management programmes should include emergency response plans, mitigation procedures, and training of local emergency response personnel to ensure that nearby communities are not exposed to unacceptable risks from potential disasters and accidents. These plans should be developed in collaboration with relevant local stakeholders and authorities (IHA 2004, OECD 2000). All accidental injuries and fatalities related to electricity infrastructure among the public should be reported.

### **Gender equality**

Millennium Development Goal 3 calls for the promotion of gender equality and the empowerment of women. Companies should ensure that electricity provision activities directly benefit women and should take into account how the availability and provision of electricity impacts men and women economically and socially. Women and women's issues should be incorporated into all phases of electricity projects and specifically addressed in company policy (Modi et al. 2005).

### **Indigenous rights**

Electricity infrastructure can impact land traditionally inhabited by indigenous peoples. For example, large hydroelectric dams can flood indigenous lands, and power lines often cut through swaths of jungle occupied by indigenous people. Companies should respect indigenous people and make sure that indigenous rights, including land rights, are protected. In any case in which indigenous people are affected by an electricity project, free, prior informed consent is a right that must be respected. When indigenous people are displaced by large projects, companies need to meaningfully involve those people in decision making processes and have in place programs to help indigenous groups maintain social and cultural identity.

### **Consumer rights**

Consumers of electricity depend on the service for many aspects of their daily lives, economic activity and their general health and wellbeing. The 1999 UN Guidelines for Consumer Protection outlines eight basic principles companies should observe in their dealing with consumers: consumers' right to access necessary goods and services, to safety, to information, to choice, to be heard, to appeal and lodge a complaint, to consumer education and to sustainability.

### **3.3.2 Environmental Issues**

The production, transmission, distribution and use of electricity create pressure on environments and ecosystems in the household, the workplace, the community, the city, and the natural surroundings at the national, regional and global levels. It is therefore imperative that electricity companies strive to minimise the environmental impact over the full life cycle of their product, from inputs such as fuels, water and materials, to waste products such as emissions and effluents. The electric power industry is among the world's largest consumers of fossil fuels and, as a result, largest emitters of carbon dioxide, making fuel use and mix a critical concern. If not properly addressed by the industry and companies, power generation can result in significant negative environmental impacts such as diminishing soil, water and air quality; climate change; loss of biodiversity, in which developing countries are particularly rich; production of radioactive waste; and acid rain. In developing countries, where large numbers of people live in precarious situations, environmental problems, climate change and pollution affect a greater number of people and have a more direct and more acute impact on people.

Furthermore, electricity infrastructure such as hydroelectric dams and high-voltage transmission lines are often located in ecologically sensitive areas rich in biodiversity. Electricity companies thus have a responsibility to ensure the environmental sustainability of their operations by using renewable fuels, developing alternative technologies, installing pollution control systems, seeking to minimise environmental impacts and reducing demand by promoting efficiency and other demand-side management.

Some of the most relevant international environmental standards that apply to electricity companies providing services in developing countries include the 1992 Rio Declaration on Environment and Development, the 1992 Biodiversity Treaty<sup>4</sup>, the 1997 Kyoto Protocol, and

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<sup>4</sup> Formally, the Convention on Biological Diversity  
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Chapter V on Environment of the OECD Guidelines for Multinational Enterprises (2000). In addition, the role of private companies in sustainable development was emphasised at the 2002 Johannesburg UN World Summit on Sustainable Development. There are also a wide range of conventions and treaties addressing the responsibilities of corporations with regard to their impact on natural ecosystems, air, water, soil, climate, health and biodiversity. In general, companies should minimise the negative environmental impacts of their activities and should at least follow the most important principles for environmental sustainability expressed in the above-mentioned standards, including:

- ❑ The precautionary principle (Principle 15 of the Rio Declaration)
- ❑ The principle of preventative action
- ❑ Addressing environmental damage at its source
- ❑ The polluter pays principle (Principle 16 of the Rio Declaration)
- ❑ Stakeholders' right to information about environmental impacts

One major benchmark for evaluating the environmental sustainability of corporations is the International Organization for Standardization's ISO 14001 certification, which audits the environmental management processes of companies in all sectors. The ISO certification has steadily won adherents over the past decade, and ISO 14001 certification now covers companies employing at least 20 million people. However, one drawback of ISO 14001 is that it measures companies' environmental management policies and processes rather than the results of their policies and their impact on the ground.

As part of a responsible environmental management system, companies should conduct appropriate and thorough environmental impact assessments (EIA)<sup>5</sup> for each electricity project in order to determine the relevant environmental issues that should be addressed, the potential positive and negative impacts of a project, and the mitigation measures necessary. EIAs should be based on factual information, should be appropriate to the size and nature of the project, and should involve consultations with local stakeholders and regulatory authorities as early as possible in the process. The International Hydropower Association (IHA 2004) identifies six crucial steps in an EIA: initial screening, scoping, environmental studies, appraisal, implementation and monitoring.

While some of the specific environmental issues that need to be addressed will vary per project and per country, the literature identifies a number of environmental sustainability issues that are particularly relevant for all companies involved in electricity provision in developing countries around the globe. These issues are discussed in detail below.

### **Climate change and GHG emissions**

According to the United Nations Intergovernmental Panel on Climate Change (IPCC), human-induced emissions of greenhouse gasses (GHGs) such as carbon dioxide, methane, and nitrous oxide are causing the Earth's atmosphere to warm, which is altering climates in irreversible ways. Kovats and Haines (2005) estimate that climate change is already causing approximately 150,000 additional deaths a year and is disrupting ecosystems around the world. As a result, climate

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<sup>5</sup> Environmental impact assessments are also sometimes referred to as environmental assessments (EA) or environmental impact statements (EIS).

change has become the preeminent global environmental concern, and the enormous GHG emissions by the power industry is currently the most frequently cited negative environmental impact of electricity provision. Electricity generation companies are among the world's largest single emitters of GHGs.

Replacing fossil fuels with renewable energy sources for electricity (RES-E) can significantly reduce GHG emissions. Electricity generation companies should therefore develop RES-E and include as high a percentage of these as possible in their fuel mix (see also Section "[Natural resource depletion and renewable sources of energy for electricity](#)"). Electricity companies should have in place initiatives and strategies to reduce GHG emissions in both the short and long term. Current GHG emissions (in tonnes CO<sub>2</sub> equivalent) from electricity production, both in overall amount of GHG emissions and per kWh of electricity generated (i.e. emissions intensity), as well as GHG emissions reduction targets and progress toward the targets should be clearly communicated to stakeholders (IAEA 2007). Although more and more electricity companies are disclosing information about their GHG emissions, a recent study (Procter 2008) found that the type and scale of information provided by differing companies varied so widely that it made it extremely difficult for a layperson to understand what the information means and to compare the companies' performance.

There are currently a number of initiatives attempting to standardise GHG emissions reporting by companies. Going beyond the ISO's 14001 standard, which says nothing about companies' contribution to climate change because it audits policies rather than practice/results, ISO 14064 (2006) and ISO 14065 (2007) aim to standardise the methodologies for measuring GHG emissions. Unlike ISO 14001, ISO 14064 is not a certification standard, but rather a tool/checklist of essential accounting elements in verifying emissions. ISO 14064's companion, ISO 14065, accredits verification organisations. The uptake by companies and thus impact of these new schemes is still very limited (Procter 2007). In addition to the ISO, the World Resources Institute (WRI) and the World Business Council for Sustainable Development's (WBCSD) 2005 Greenhouse Gas Protocol for Project Accounting also attempts to standardise companies' efforts to reduce emissions. Currently, however, although the WRI/WBCSD protocol and ISO 14064 provide indications of essential elements and critical issues, neither can be considered a standard for accurately determining emission reductions.

Emission trading schemes in Europe and some states in the US can have an impact on developing countries as companies can receive carbon offset credits for renewable energy projects in developing countries through the Kyoto Protocol's Clean Development Mechanism (CDM). However, companies often use offset projects in developing countries to balance out increased carbon emissions in industrialised settings. Companies should report on their net carbon reduction (or lack thereof) and include alternate net emissions scenarios where the utility simply reduces emissions as opposed to using an offset project. Opportunity costs associated with a carbon trade entered into by the utility should also be estimated. Offset projects can generate significant additional revenues for companies. For example, SN Power's La Higuera project in Chile, which is CDM certified, is expected to generate approximately US\$9.4 million dollars in revenue per year.

Companies should also take responsibility for the fact that their electricity provision activities create indirect GHG emissions related to the extractive and productive processes throughout their supply chains. There is growing recognition that indirect GHG emissions from the supply chain are the responsibility of the electricity provision companies. Beginning in early 2009, the Carbon Disclosure Project plans to ask all companies listed within London's FTSE 350, New York's Standard & Poor's 500 and other global stock exchanges not only to report on their own emissions, but also to send carbon disclosure questionnaires out to their suppliers (for more on companies' supply chain responsibility, see Section "[Transparency and provision of information](#)").

### **Waste, pollution, and ecosystem impact**

Waste products from electricity provision take the form of emissions or discharges to land, water and air and represent a major sustainable development challenge for companies. This waste, combined with the use of natural resources for electricity provision, creates an ecological footprint on atmospheric, terrestrial and aquatic ecosystems.

#### **□ Atmospheric**

The combustion of fossil fuels to produce electricity can result in the emission of a range of different types of air pollutants such as SO<sub>2</sub>, NO<sub>x</sub>, mercury, particulates such as ash and dust, CO and VOC. The release of these waste products into the air can have a negative impact on health on human, animal and ecosystem health. Companies should minimise air pollutant emissions from their operations, both in overall amounts as well as per kWh of electricity generated (IAEA 2007).

#### **□ Terrestrial**

Electricity provision and the waste it generates can impact terrestrial ecosystems and landscapes in myriad ways. For example, electricity generation produces solid waste which, if improperly disposed of, can decrease the quality of the soil and harm human, animal and plant health. Waste storage in tailings dams can leach harmful chemicals into soil and water and, without permanent treatment solutions, transfers environmental costs and liabilities to future generations. Acid rain caused by air pollution can cause soil acidification to exceed its critical load. Construction of power plants and transmission lines can lead to deforestation and erosion.

Companies should minimise the solid waste produced by their activities, both overall and per kWh of electricity generated. Fossil fuel-based electricity generation has a much higher ratio of waste to electricity generated than generation based on renewable sources of energy. Waste that is produced must be properly disposed of according to well developed environmental management plans that have been developed in consultation with the community.

Electricity generation from nuclear fuel produces various types of solid radioactive waste (high, medium, and low-level radioactivity<sup>6</sup>). Because of the lack of a technological solution for permanently treating nuclear waste to rid it of dangerous radioactivity, generation of electricity from nuclear fuel represents a transfer of costs and environmental liability to future generations and is therefore considered unsustainable. Those electricity companies that do generate power

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<sup>6</sup> For more information on the classification of radioactive waste and definitions of the various levels of radioactivity, see IAEA 1994:15.

from nuclear fuel despite its non-sustainable nature should have a comprehensive management strategy for mitigating the environmental and health and safety risks to surrounding communities, ecosystems, and workers; storing the various types of radioactive waste generated; and should have in place plans for phasing out nuclear power and replacing it with sustainable sources of energy.

In addition to the waste produced, electricity provision can affect land in other ways. Large hydro facilities using dams and reservoirs, for example, have a large terrestrial footprint whereas the impact of wind farms on other land uses is limited (IHA 2004). At the same time, wind farms, as well as other electricity infrastructure such as transmission lines can have an undesirable impact on the visual landscape. Companies should seek to minimise the land area affected by their operations and keep in mind that their production and extractive activities in their supply chain can also have impacts for which they are responsible. For example, coal mining destroys the soil of the land it is mined on, permanently transforms the landscape, and removes ground vegetation. Coal mining also produces pollutants and effluents that can cause deterioration of water, soil and air quality (Fthenakis and Kim 2008). See Section “[Transparency and provision of information](#)” for more on the indirect impacts of electricity provision and product chain responsibility.

#### ▣ Aquatic

Electricity companies use water and impact aquatic ecosystems during various power generation processes. The most obvious is the use of water in hydroelectric power plants that convert the kinetic energy of falling or rushing water into electric energy. Electricity companies also draw water to cool reactors and turbines in thermal and nuclear power plants, as well as for consumption and processing, such as in the treatment of ash generated in thermoelectric plants. Furthermore, electricity transmission and distribution companies frequently use pesticides and herbicides to control pests and vegetation along power line corridors. If not properly managed, these often toxic chemicals can run off into bodies of surface water and leach into groundwater tables.

The International Hydropower Association (IHA 2004) provides a list of water-related sustainability issues that must be taken into consideration for companies planning, constructing and operating hydropower schemes. Some of the water-related sustainability issues listed by the IHA are water quality (temperature changes, reduced oxygenation, increased potential for algal bloom), sediment transport and erosion, changes to river hydrology and downstream flows, passage of fish species, and pest species (flora and fauna) in reservoirs.

A brief additional explanation of sustainability with regard to the distinction between large and small-scale hydroelectric facilities is pertinent here, especially given the fact that many developing countries rely heavily on hydropower for electricity generation. The UNEP sets the upper limit of what can be considered “small scale” hydro at 10 MW, mini-hydro at <1 MW (UNEP no date). Although water is a renewable source of energy, large-scale hydro is generally not considered sustainable because of the significant negative environmental impacts of large dams and reservoirs. The World Commission on Dams (2000) asserts that “Where other options offer better solutions, they should be favoured over large dams.”

The IHA (2004) emphasises that small scale run-of-the-river and mini-hydro projects generally have less impact on aquatic ecosystems and resources than larger projects requiring dams and reservoirs. Small-scale hydro, while also not necessarily free of negative impacts, is generally considered more sustainable. The IHA (2004) emphasises that small scale run-of-the-river and mini-hydro projects generally have less impact on aquatic ecosystems and resources than larger projects requiring dams and reservoirs. However, for small-scale hydro to be considered sustainable, it must be undertaken in combination with a proper needs assessment, stakeholder consultations, and a thorough evaluation of risks and alternatives. In this sense, large-scale hydro can also be part of the solution if it conforms to the other criteria for sustainable electricity provision. However, for the purposes of this report, small hydro will be considered sustainable, and large hydro not, with the recognition that there are exceptions on both sides.

The IHA (2004) also includes recommendations for how companies can address these issues in a sustainable way and mitigate the negative impacts of their activities on aquatic ecosystems. It is essential that companies conduct adequate data collection and an EIA that identifies potential problems early in the planning stage. Since watersheds and reservoirs are resources that provide multiple public goods to society, such as drinking water, biodiversity and ecosystem conservation, and irrigation for cropland, in addition to electricity generation, it is important that electricity companies develop integrated management plans for how to use water resources sustainably and share them with other uses. Companies should have long-term plans for how to preserve aquatic ecosystems, maintain adequate flows of surface water (both maximum and minimum) and ground water volume, and minimise contaminant discharges in liquid effluents and from pest/vegetation management. Furthermore, electricity companies should recycle and reuse as much water as possible in order to reduce their consumption from watersheds.

### **Natural resource depletion and renewable sources of energy for electricity**

Many developing countries are rich in renewable natural resources such as wind, water, sun, geothermal energy, biomass, and ocean power, giving such countries a high exploitable renewable energy potential. Yet this potential is often left unexploited in favour of developing non-renewable electricity projects. Electricity projects based on traditional, non-renewable sources such as fossil fuels consume finite natural resources and thus transfer costs to future generations. In addition to having the potential to significantly reduce GHG emissions, renewable energy options for electricity do not directly consume finite natural resources. Renewable energy technologies vary significantly in their degree of economic and technical maturity, but many are already economically competitive, and their economics will only continue to improve as fossil fuels, and the GHG emissions they entail, become more expensive (Teske et al. 2007).

Companies need to have in place initiatives to stimulate the increase of renewable energy in their fuel mix in developing countries and a long-term strategy for phasing out fossil fuels and completely switching to renewables.

Companies should report to stakeholders on their use of renewable sources by indicating the share of renewable energy in their electricity fuel mix, both in terms of generation capacity (MW) and electricity generated (kWh). They should also give these figures over time to indicate their progress, and provide information on their future targets and investment plans in renewable vs.

non-renewable sources, both in planned new generation capacity (MW) as well as financial investments. Electricity TNCs should also indicate the fraction of technically exploitable renewable energy potential currently not in use in the countries in which they operate (IAEA 2007).

When evaluating potential projects, companies should consider the resource depletion implications of the various options. Preference should be given to projects based on renewable natural resources over projects that imply the consumption of non-renewable resources, particularly in countries that have a high technically exploitable renewable energy potential.

### **Biodiversity**

Electricity infrastructure and assets are often located in or near sensitive ecological areas that are high in biodiversity. This is especially true in developing countries, where the vast majority of the world's biodiversity is located. Hydroelectric dams are frequently located in remote river valleys, and electricity transmission lines can slice through forests of high biodiversity value, reducing crown density and divide contiguous ecosystems. Although bio-diverse areas are sometimes protected by local and national governments in reserves or parks, often such areas are left unprotected.

Large hydroelectric dams present the most acute threat of biodiversity loss given that they often require the flooding of large areas of land. Companies that build large dams often compensate for the loss of biodiversity in the flooded area by purchasing, protecting or creating replacement habitats. However, the replacement habitats may not have the same biodiversity value. Electricity infrastructure that alters natural habitats can alter the migration and breeding habits of animals. Large scale wind farms may impact the migration patterns of flocks of migratory birds. In addition to impacting terrestrial biodiversity, electricity-related activities also have consequences for biodiversity in aquatic ecosystems. Changes in downstream water quality due to increased turbidity, siltation, sedimentation, and temperature change from thermal discharge of cooling effluents may affect breeding habits of fish.

There are also a number of indirect impacts of electricity infrastructure on biodiversity. For example, if a company decides to build a power plant in a pristine area, new roads and infrastructure will also have to be constructed, which increases the chance that other companies and developers will come and further impact the ecosystem and biodiversity. This is the case in Endesa's HidroAysén project in Chilean Patagonia, where a wide range of stakeholder groups claim that, in addition to the project's direct impacts on biodiversity, the dams and accompanying transmission line will open up Chilean Patagonia to further industrialisation as other companies and industries utilise the roads and infrastructure constructed for the project (Witte 2008).

The 1992 Convention on Biological Diversity is the most authoritative source of standards and for identifying companies' responsibilities to protect biodiversity. Companies should have in place immediate plans and long-term strategies for mitigating their negative impacts on biodiversity.

### 3.3.3 Economic Issues

Economic sustainability refers to issues that affect progress in economic development and the sustainability of such economic development. Economic aspects of companies' operations and impacts are being increasingly debated from a CR perspective (MVO Platform 2007). Power companies are expected to contribute to sustainable economic development in their host country by investing in and improving electricity infrastructure, researching and developing sustainable new technologies that can be utilised by the host country in the future, ensuring a reliable supply of electricity for local residences and businesses in the short and long-term, managing demand, and conducting their operations in an efficient and transparent manner.

The subsections below primarily address the normative aspects of the relevant economic critical issues for sustainable electricity provision. However, it should also be noted that developing country societies and governments place high value on the basic "economic engine" activities such as job creation, rapid electrification, and (tax) revenue creation, as well as improving the competitive environment, that are provided by companies and necessary for development. It is unreasonable to expect developing countries to accept standards for development that Northern countries never had to accept. Electricity TNCs operating in developing countries are thus frequently confronted with demands from host country governments and may seem to be at odds with some of the normative standards mentioned above. Nevertheless, the author maintains that electricity TNCs operating in accordance with these normative standards will produce more sustainable economic and developmental good that will be of greater benefit to the host country in the long term.

#### **Local economic development**

Chapter II of the OECD Guidelines for Multinational Enterprises stipulates that companies operating in developing countries should contribute to local economic development. The 1990s saw a wave of optimism about the unlimited positive impact of FDI from TNCs in developing countries and about FDI as "an engine of development" (UNCTAD 1992), but it is now generally recognised that the positive developmental impacts of FDI are not automatic, particularly when it comes to investment in infrastructure, and that some current TNC strategies are actually having a "negative effect on the development of infrastructure in LDCs" (Yamin and Sinkovics 2008: 2). Recent research indicates that the strategies and investment approaches of some TNCs leave little potential for development and may even hinder recipient countries' development by forcing them to pay ever increasing costs (in terms of lowering environmental and labour standards) to attract "increasingly footloose" investment (Dunning and Narula 2004).

TNCs' investment strategies are becoming increasingly linked to incentives, such as tax breaks and reduced administrative burdens, offered by host countries (Easson 2001, Mutti and Grubert 2004). This "incentive elasticity" of TNC investment forces host (developing) countries to compete with each other, and often poorer regions of developed countries, to attract investment. In addition to paying out the tax incentives if they are successful in attracting employment, developing countries must spend limited public resources in the attempt to attract investment, even if they don't actually receive the investment in the end. The establishment of government agencies to attract investment and employment of skilled personnel to assist and guide potential

investors through the administrative processes deprive governments of resources that could be spent directly on improving infrastructure (Yamin and Sinkovics 2008).

In order to maximise contribution to local economic development, electricity companies should first assess the local needs and determine whether new generation capacity is truly necessary or whether the demand could be met through efficiency measures and other demand-side initiatives rather than additional supply. It should be noted that there is a difference between the need for electricity, which is a social aspect related to health care, education, and poverty reduction, and demand for electricity, which is a pure market aspect and includes demand from aluminium smelters and wasteful consumption. Improving local efficiency of demand and supply will contribute to the long-term development of a community and make development more sustainable. If it is determined that new capacity is required, attention should be paid to local needs in determining the appropriateness of various types of capacity and technologies. For example, some developing countries need greater peak load capacity while others are looking for stable base load generation (IHA 2004).

Yamin and Sinkovics (2008: 3-4) observe that “The distinctive contribution of FDI to economic development revolves around its potential to generate positive spillovers”. In general, “the greater the degree of an MNE’s resource commitment to the host economy, through linkages and sourcing of intermediate inputs, the greater the degree of positive spillovers are likely to occur”. It is thus crucial for transnational electricity providers to, at a minimum, comply with the investment agreements they have signed with host country governments and invest in developing the host country’s electricity infrastructure. However, there are numerous cases where, for a variety of reasons, electricity TNCs have failed to live up to their investment agreements (Woodhouse 2006). For example, Nicaragua’s electricity regulator, the INE, recently (23 March 2007) initiated an arbitration process against Spanish electricity TNC Unión Fenosa at the Nicaraguan Chamber of Commerce. INE’s complaint, which was based on an INE audit report, alleged that Unión Fenosa failed to invest in improving the country’s electricity infrastructure as it had agreed in its concession contract with the Nicaraguan government. The lack of investment led to several fatalities among the public due to poorly-maintained infrastructure and to widespread blackouts that caused an economic and humanitarian crisis (McGuigan 2007). Fair tax payments in the host country are another way in which electricity companies can contribute to local economic development (see Section [“Taxation”](#)).

Another way TNCs can create linkages and spillovers is through transferring knowledge and technology to local firms. Chapter VIII of the OECD Guidelines for Multinational Enterprises stipulates that enterprises should “contribute to the long term development prospects of the host country...[through the] transfer and rapid diffusion of technologies and know-how” (OECD 2000). Because electricity systems in many developing countries continue to employ outdated technology, the introduction of technologies already available in industrialised countries can significantly reduce emissions and improve efficiency. Companies should employ such technologies whenever possible in developing countries and develop local expertise to utilize, maintain and spread the technology. In order to facilitate knowledge transfer and to further create backward linkages that contribute to local economic development, local suppliers should be given priority in sourcing and procurement decisions.

In addition, many electricity development projects provide jobs for adjacent communities that can contribute to local economic development, both through direct and indirect employment in construction, operating and maintenance. However, in order to ensure that employment of locals truly contributes to economic development, the jobs must be high-quality jobs (see the critical labour issues discussed above in Section [“Labour issues”](#)). Locals should also be hired into management positions of developing country operations.

### **Reliability of supply**

Electricity blackouts and losses of power are a daily occurrence in many developing countries. Reliability of electricity supply refers to the ability of a electricity system to provide an adequate, secure and uninterrupted supply of electrical energy at any point in time. Continuity of supply is measured by the number and duration of electricity supply interruptions. Power outage frequency is measured by System Average Interruption Frequency Index (SAIFI), which is the average number of interruptions that a customer experiences. SAIFI is commonly used as a reliability of supply indicator by electric power utilities and is generally measured over the course of a year (GRI 2008). Continuous electricity supply is important to both large and small electricity customers for a number of reasons. For large industrial users, even relatively short interruptions can lead to production shutdowns and substantial financial losses, while for smaller domestic users, power losses can leave people in the cold and dark without heating, lighting and cooking facilities. Outages can also endanger public health and safety if, for example, hospitals or security systems are left without electricity (CEER 2005).

In order to avoid shortages, companies should align both short and long-term planned capacity development with predictions for demand over the same time periods. Planning should also include concerns such as cost, maintenance, asset life, regulatory requirements, climate change implications and potential changes in population demographics. Some types of plants are not always available to generate electricity. Companies should undertake and communicate assessments of the percentage of the year during which the plant is available to generate electricity, both in terms of planned generation stoppages and the change of unplanned stoppages (GRI 2008). In case of interruptions, companies need contingency plans for restoring supply in a timely manner as well as for the development and deployment of backup power.

In addition to continuous supply, other aspects that are important to the reliability of a power system are the quickness with which supply interruptions are restored and the timeliness and dependability of information that is provided to the public when an outage occurs (CEER 2005:3).

### **Eco-efficiency**

Eco-efficiency refers to reducing the impact on natural resources for producing goods and services. Although the long-term aim should remain on replacing all fossil fuels with renewable sources of electricity, improving the efficiency of fossil fuel-based electricity generation can reduce electricity companies' overall resource consumption and emissions. Efficiency of energy conversion in electricity generation is measured by comparing the gross energy going into the plant to the net energy leaving the plant. Improving efficiency is largely dependent on the choice of technology for power plants. For example, combined cycle gas turbines (CCGT) that use natural gas as a fuel and combine heat and power (CHP) generation can reach much higher energy

conversion efficiency levels than traditional coal and diesel-fired plants. Electric utility companies should report to their stakeholders on the energy conversion efficiency of their plants and have in place initiatives to stimulate the increase of more efficient technologies in their portfolio and a long-term strategy for increasing the efficiency of their overall generation activities.

Another element of eco-efficiency that is crucial for the sustainability of an electricity generation project is the energy payback ratio. Determining the ratio of energy payback consists of dividing the total energy produced during the normal lifespan of a project by the energy required to build, maintain, and fuel the plant. Whereas projects based on renewable resources generally have most of their energy input up front during the construction phase, fossil fuel-based systems continue to consume energy throughout their entire lifespan since fuel must be continuously extracted, transported, processed and combusted. Electricity generation companies should assess the sustainability of all options in terms of both energy conversion efficiency and energy payback ratio before deciding to build (IHA 2004).

Efficiency is also an issue in the transmission and distribution of electricity, where excessive losses can contribute to electricity system inefficiency. Transmission and distribution losses are generally categorised in two types of losses: technical and non-technical. Technical losses occur as a portion of energy is lost when electricity is transmitted from one place to another through power lines. Even given the best technology available today, some technical losses are unavoidable in the transmission of electricity. However, electricity transmission companies can reduce technical losses by employing state of the art transmission technology, which is often not the case in developing countries, and by shifting generation capacity to smaller, decentralised facilities that are located closer to end users and therefore require the electricity to be transmitted over smaller distances. Non-technical losses generally refer to electricity theft and makeshift grid connections through which unauthorised users pilfer electricity from the system. This often occurs in poor, inner-city urban areas where customers cannot afford to pay their electricity bills and have been cut off by the electricity company. Companies can reduce non-technical losses by implementing programmes that enable low-income customer to pay electricity bills (see Section [“Affordability”](#)) and encourage them to establish a regular connection rather than an informal hook-up. Furthermore, by relying on decentralised energy systems based on local renewable energy sources rather than large central power stations, power companies can avoid wasting energy during conversion and distribution (Teske et al. 2007).

### **Demand-side initiatives**

There is enormous potential for reducing consumption through efficiency measures on the demand side. Energy experts insist that more than a third of current GHG emissions could be saved through conservation and efficiency improvements in homes, businesses and industry (Teske et al. 2007). However, because electricity companies are generally concerned with increasing sales of electricity to raise profits, they often encourage increased, rather than reduced, consumption. Nevertheless, companies have a responsibility to make customers aware of the negative impacts of wasting electricity and the positive consequences of energy conservation and to encourage them to use energy rationally and prudently. When considering constructing a new plant, companies should assess whether the need is genuinely from the supply side, or whether efficiency measures and other demand-side initiatives could cover the demand. In addition to

promoting conservation and a reduction in electricity use, another demand-side mechanism that companies can use is to encourage consumers to shift their consumption to off-peak hours. This will allow the base load supply to cover more of the demand and avoid the use of expensive and often very environmentally unfriendly peak production.

### **Corruption**

Transparency International's Global Corruption Barometer reveals that the risk of corruption is higher in developing countries than in the industrialised world (TI 2007). Within the electricity industry of developing countries, "Influencing the bidding process, the price of the public property to be sold and relaxed regulation are occasions where corruption can occur by both enterprises and government officials. Examples around the globe have shown that opening up the [electricity] sector to competition can lead to corruption and the manipulation of markets" (ILO 2006).

Companies should have in place a policy on corruption that references the 1992 OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and Chapter VI of the OECD Guidelines for Multinational Enterprises, which deals with Combating Bribery. In implementing these standards, electricity companies need to analyse corruption-related risks in various business units and train their employees in the company's anti-corruption policies, especially those responsible for operations in developing countries. Beyond bribery, electricity TNCs should abstain from improper involvement in local political processes, as is stipulated in Chapter II of the OECD Guidelines for Multinational Enterprises.

### **Competition and local market structure**

According to the MVO Platform (2007: 12), "Profits and margins are not divided equitably across market and value chain players if dominant market positions are abused and corporations enter into agreements that undermine free trade and competition." This observation is particularly relevant for the electricity industry since some characteristics of electricity provision, such as the natural monopoly properties of power transmission as well as the high technical expertise and large capital expenditures necessary, can have the effect of limiting competition and increasing market concentration. This can have undesirable economic consequences for local consumers, governments and suppliers by reducing their bargaining power vis-à-vis electricity providers.

International standards related to fair competition include the OECD Guidelines for Multinational Enterprises Chapter IX on Competition, the 2004 UNCTAD Model Law on Competition, UNCTAD's 1980 Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices. International competitive bidding should be required on all electricity provision projects. Electricity companies seeking to increase their market share in developing countries should prevent market consolidation and domination and avoid engaging in business practices that restrict competition or are disadvantageous for local consumers, governments and suppliers.

### **Taxation**

Many developing countries rely on tax payments by TNCs operating on their territory as a crucial source of income. Yet developing countries are often deprived of substantial amounts of revenue due to corporations' internal trading practices and tax exemptions. Many transnational electricity

companies operating in developing countries have followed the Enron model of setting up business units in tax havens to transfer income (and therefore tax payments) out of the jurisdiction of the host country and avoid paying taxes there. The MVO Platform (2007: 13) stresses that TNCs operating in developing countries should observe the following responsibilities:

- ❑ “Tax should be paid in the country where business activities have actually taken place and profits have actually been made
- ❑ No transfer pricing, in other words, no price manipulation at borders with the aim of avoiding taxes or trading tariffs
- ❑ No thin capitalisation, i.e. hiving off profits from subsidiaries by having them pay interest to other subsidiaries elsewhere
- ❑ No tax avoidance by extending payment deadlines or securing exceptional payment concessions
- ❑ No undue use or abuse of tax benefits linked to specific conditions, for example moving a company elsewhere as soon as a concessionary tax regime has lapsed.”

### **Research and development**

Heller et al. (2003) have observed that, even in the industrialised world, market-oriented restructuring has led to a focus on the short-term and a neglect of investment in innovation for the future. Total spending on research and development in the electricity industry has declined sharply over the past two decades. Companies’ research and development (R&D) activities should be aimed at providing sustainable, high-quality electricity. New technologies can improve efficiency, reduce emissions and pollution, facilitate greater use of renewable fuels and make electricity infrastructure safer for workers and the public. Companies should publish information on their expenditure on and investment in renewables exploration and development compared to expenditure/investment in exploration and development of non-renewable technologies (i.e. hydrocarbons and nuclear).

### **Due diligence**

Over the past decade, a number of electricity projects involving foreign investment in developing countries have failed due to the foreign investors’, generally large TNCs, inability to adequately assess the economic feasibility and viability of electricity projects given the risks involved and the long lifespan and slow rate of return on investment (Haar and Jones 2008). Provision of electricity is a service essential for the wellbeing of populations, and citizens and governments in developing countries have rebelled against sharp electricity tariff increases or a reduction in the quality of service by companies seeking to make their investment economically viable. Projects that fail in this way can have disastrous consequences for the quality and sustainability of electricity provision (Woodhouse 2006).

There is an inherent difficulty in balancing the sustainable provision of an essential service such as electricity and the profit-making prerequisite of private companies. It is essential that companies conduct an appropriate and thorough due diligence study in which they assess the options in terms of economic feasibility and viability over facilities’ entire projected life, which, in the case of some hydroelectricity plants, can be up to 40 years or longer.

An appropriate due diligence review also includes consideration of the cost and availability of resources and fuels needed to run and maintain the plant over its lifetime. As supplies are depleted and demand continues to rise, the price of fossil fuels, particularly oil and gas, is likely to increase over the life of an electricity plant. Renewable technologies, which are generally non-consumptive, have a clear advantage over fossil fuels in this regard, but natural events like drought and shifting wind patterns due to climate change can affect the availability of resources.

Electricity companies should also undertake an analysis of the legal risks involved with electricity infrastructure development and ensure that they will be in compliance with all host country laws and regulations including local legislation with regard to the relevant critical issues mentioned here, in particular environment, cultural heritage and indigenous rights, waste management, reporting, and occupational health and safety.

### **3.4 THE SUSTAINABLE DEVELOPMENT BALANCE: CROSS-CUTTING ISSUES AND IMPLICATIONS FOR CORPORATE RESPONSIBILITY**

The previous three sections have identified and elaborated the wide range of social, environmental and economic issues that experts from government, academia, business and civil society find critical for electricity provision to be consistent with sustainable development. These issues lay the foundation for the moral pressure on transnational corporations that provide electricity to do so in a sustainable manner. However, these critical issues represent a wide range of concerns, and there is a need to boil them down into a more concise, more operational set of norms, so as then to be able to specify these norms more concretely in terms of CR for sustainable electricity provision.

As indicated above, the issue of balancing the various sustainable development criteria represents an essential challenge for assessing the performance of electricity companies in developing countries. This is, after all, the normative endpoint of the exercise of defining “quality kilowatts”. A number of critical issues cut through all three pillars of sustainable electricity provision and lie at the heart of a comprehensive approach to integrating the social, environmental, and economic dimensions of sustainable development. These issues include respect for human rights, poverty reduction and the satisfaction of basic needs, observance of the precautionary principle and focused evaluations of risks and alternatives, transparency and adequate provision of information, promoting stakeholder engagement and participatory decision-making, and working towards full product-chain responsibility. These “cross-cutting issues” are values that reflect the broader sustainable development perspective and are thus essential for truly “quality” kilowatts and electricity provision that contributes to the eradication of poverty, changing of unsustainable production and consumption patterns, and the protection of the natural resource base and ecosystems that sustain life. The internationally accepted standards and norms under these cross-cutting issues are consistent with a wide range of UN agreements and declarations, including the UN Declaration of Human Rights, and they are aligned with the World Commission on Dams’ (2000) foci of equity, efficiency, participatory decision-making, sustainability, and accountability. As a result, the standards and norms presented here represent bottom-line quality kilowatts with which electricity companies are expected to comply. Before describing the cross-cutting issues in detail, it is important to note that, as a minimum requirement for sustainable electricity projects,

TNCs must comply with all existing laws and regulations, both locally and internationally, in social, environmental, and economic issue areas.

### 3.4.1 Respect for human rights

There is considerable support for viewing human rights as a fundamental normative reference point in any debate on electricity provision projects (World Commission on Dams 2000). In his 7 April 2008 report to the UN Human Rights Council, Special Representative of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises, John Ruggie, emphasised the responsibility of TNCs to respect all human rights and to develop concrete programs and actions for discharging this responsibility (Ruggie 2008). Human rights include economic, social, cultural, civil and political rights. Workers' rights, community rights and indigenous peoples' rights are also considered human rights, and they have been addressed in separate sections in this compilation of critical issues (sections "[Labour issues](#)", "[Community lifestyle impact](#)", and "[Gender equality](#)", respectively).

Transnational electricity companies should endorse, observe and promote internationally recognised human rights based on the following international standards:

- ❑ The United Nations Universal Declaration of Human Rights and its Protocols;
- ❑ The United Nations Convention: International Covenant on Civil and Political Rights;
- ❑ The United Nations Convention: International Covenant on Economic, Social, and Cultural Rights;
- ❑ UN General Assembly Declaration on the Right to Development;
- ❑ The Vienna Declaration and Programme of Action;
- ❑ The OECD Guidelines for Multinational Enterprises; and
- ❑ The Rio Principles.

Human rights are more vulnerable in developing countries than in the industrialised world due to weak governance or enforcement (OECD 2006). Transnational electricity companies operating in developing countries should thus take extra care in ensuring that international standards for human rights are complied with and see to it that investment agreements include clauses protecting human rights or have agreements screened to make sure there are no risks of human rights violations. The human rights situation in a potential host country should be evaluated before a decision to invest is made in order to ensure that no human rights violations were perpetrated to promote electricity projects in that country. Companies also need to screen suppliers and (sub)contractors for human rights compliance. Employees should be trained in human rights aspects relevant to their work, in particular those employees or contractors responsible for security and protection of the TNC's property and staff.

In addition to rights outlined in these international standards, electricity TNCs operating in developing countries should refrain from activities that obstruct individuals' rights to health, food, education, housing and cultural affairs and ensure that their activities do not directly or indirectly contribute to war or war crimes, particularly when operating in conflict areas.

Given the significance of rights-related issues for all parties concerned in electricity provision projects, TNCs should clarify the rights context as an essential step early in a proposed electricity project. As the first part of the “rights and risks approach” to electricity projects promoted by the World Commission on Dams (2000), such an exercise should identify the legitimate entitlements and claims that the proposed project might affect.

### 3.4.2 Poverty reduction and satisfying basic needs

Eradicating poverty and hunger is the first Millennium Development Goal and is, as mentioned above, the top sustainable development priority for many developing countries. The Johannesburg Plan of Implementation agreed upon at the World Summit on Sustainable Development explicitly identified the link between energy services and poverty reduction, noting that “access to energy facilitates the eradication of poverty” (ESMAP 2005).

Electricity TNCs operating in developing countries should thus ensure that their activities are clearly and concretely leading to poverty reduction. This will require addressing many of the social and economic critical issues for sustainable electricity provision mentioned above. For example, social issues such as [access to electricity](#) and [affordability](#), as well as the labour issues of living wages, job security, and skill training affect the degree to which electricity provision contributes to poverty reduction. Similarly, electricity TNCs must address critical economic issues like taxation, [local economic development](#), and [corruption](#) to ensure that their activities are contributing to poverty reduction. Companies should approach the issue of poverty reduction in a broad and comprehensive manner as the exact relationship between any one of these critical issues and poverty reduction may not be clear cut. For example, while it is generally accepted that there is a link between increased access to electricity and a reduction in poverty (Modi et al. 2005), Kooijman-van Dijk (2008) warns that simply improving access to electricity in a given area does not necessarily lead to increased incomes for local individuals and businesses; complementary inputs such as companies’ payment of fair and appropriate tax revenues and creation of decent jobs, as well as making backward linkages into the local economy, are crucial if increased energy supply is to lead to poverty reduction.

In addition to social and economic issues, for electricity provision to lead to poverty reduction that is sustainable, meeting the basic needs of current generations cannot compromise future generations’ ability to meet their own basic needs by polluting the environment or damaging natural life support systems. The World Commission on Dams (2000) notes that an electricity project can only contribute to sustainable poverty reduction and human development if it is “economically viable, socially equitable and environmentally sustainable”. This implies that in their efforts to reduce poverty through electricity provision, power companies must also take into account critical environmental issues like [GHG emissions and climate change](#); [waste, pollution and ecosystem impact](#); [natural resource depletion and renewable sources of energy](#); and [biodiversity](#). If companies fail to address these environmental concerns in their developing country operations, efforts to reduce poverty now could lead to even greater poverty and greater disparities between rich and poor among future generations.

### 3.4.3 Precautionary principle and evaluation of risks and alternatives

The precautionary principle states that if an action or policy might cause severe or irreversible harm to the public or to the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action (OECD 2000). The precautionary principle is identified by the 1992 Rio Declaration, the UN Global Compact and Chapter V (Environment) of the OECD Guidelines for Multinational Enterprises as one of the key principles for sustainable development. Taking a precautionary approach to scientific uncertainties in both new and existing projects is thus crucial for sustainable electricity provision.

Equally as important as identifying the rights of those who may be affected by an electricity project is the notion of risk. Before a decision is made on whether to undertake an electricity project, a comprehensive and participatory evaluation of all feasible policy, institutional, and technical alternatives and the potential risks of each alternative should be made. Traditional practice is to restrict the definition of risk to the capital invested and expected returns of voluntary risk-takers such as the companies developing and financing an electricity project. However, a much larger group of stakeholders often have risks involuntarily imposed on them. These involuntary risk-takers often have little or no say in how the risks are managed and mitigated, despite the fact that the risks can have a direct impact on their livelihoods, well-being, quality of life and even survival. Transnational electricity companies should therefore identify, articulate and thoroughly and explicitly address the risks of each potential project and alternatives, rather than simply using mathematical formulas or actuarial tables. In evaluating alternatives, avoidance of environmental impacts and displacement should always be given preference, followed by minimisation and mitigation of such impacts (World Commission on Dams 2000).

Companies should also evaluate the human rights situation in a potential host country before a decision to invest is made in order to ensure that no human rights violations were perpetrated to promote electricity projects in that country. The International Hydropower Association (IHA 2004) has formulated a list of key criteria that should be used in evaluating and comparing potential hydroelectric project alternatives. Although some of the criteria are specific to hydro projects, many of them can be directly or indirectly applied to other electricity generation technologies. Primary among the criteria is that social and environmental factors be given the same significance as economic and financial aspects. The IHA's other key criteria include prioritisation of alternatives that:

- ❑ Upgrade existing facilities;
- ❑ Have multiple-use benefits;
- ❑ Are located on already-developed river basins;
- ❑ Minimise the area flooded per unit of energy (GWh) produced
- ❑ Maximise opportunities for, and do not pose significant unsolvable threats to, vulnerable social groups;
- ❑ Enhance public health and/or minimise public health risks;
- ❑ Minimise population displacement;
- ❑ Avoid exceptional natural and human heritage sites;

- ❑ Have lower impacts on rare, vulnerable or threatened species, maximise habitat restoration and protect high quality habitats;
- ❑ Can achieve or complement community-supported objectives in downstream areas; and
- ❑ Have associated catchment management benefits and lower sedimentation and erosion risks.

#### **3.4.4 Transparency and provision of information**

The 1998 UNECE Århus Convention stipulates citizens' rights to access to information, and the OECD Guidelines for Multinational Enterprises Chapter III on Disclosure specifies TNCs' responsibility to provide stakeholders with accurate and timely information on their activities. However, Modi et al. (2005) cite insufficient transparency in the management and operations of electric utilities as one of the primary challenges for sustainable electricity provision in developing countries. Electricity companies should report on their activities and the impact of their operations using the GRI G3 Guidelines and the GRI Electric Utilities Sector Supplement (GRI 2008). Reporting should include all wholly and partly owned subsidiaries and joint ventures, whether in generation, transmission or distribution. Reporting should have year-on-year comparisons from the commencement of reporting.

Principled sustainability reporting should also include an assessment of externalities (i.e. off-the-balance-sheet social and environmental costs) of production processes, supply chain practices, operational measures and approach to electricity generation. Externalised costs are born by the society as a whole and are therefore keys to sustainable reporting and for presenting a balanced view of the real impact of electricity provision. The South Africa Energy Policy, for example, calls for a reflection of quantifiable externalities. Quantifiable externalities are not easy to calculate, and many assumptions need to be made. Attributing a monetary figure to environmental impacts, resource use, human health, etc. must be situation/context specific and allow for margins. Hence, a range approach is suggested, e.g. low, medium and high estimates of externalised costs, with the weighting of and values assigned to the various factors clearly stated. In addition to external costs, externality calculations should also include externalised benefits such as health improvement through electrification and clean air through reduction of fuels burned in the home. The reporting should include discussion of opportunity costs associated with the various choices companies make in their approach to electricity provision.

Critical operational and managerial information that electricity TNCs must provide to customers and other stakeholders cuts across the various social, environmental, and economic critical issues mentioned above. Such information includes:

- ❑ Billing information and pricing policies;
- ❑ Safety and efficiency information;
- ❑ Customer satisfaction - complaints mechanisms and customer surveys;
- ❑ Affordability programmes;
- ❑ Scheduled blackouts/maintenance;
- ❑ Labour costs, including hours of labour lost due to injury;
- ❑ Amount of pollution emitted by pollutant;
- ❑ Salaries and benefits, including executive perks, of high-level executives;
- ❑ Amount invested, by type of infrastructure; and

▣ Profits.

In order to provide accurate information in an adequate and timely fashion, electricity companies operating in developing countries should be aware of language and cultural barriers to communication of information. Furthermore, low literacy rates in developing countries may prove to be an additional barrier to communication that companies must overcome (GRI 2008).

Furthermore, transparency and adequate provision of information are particularly important during the process of fixing electricity tariffs. Palast et al. (2000) note that the key principle that must be adhered to in such processes is “the observance of ‘due process’ rights of participation and transparency where anyone with an interest in utility rates can participate in the process (e.g. those interested in environmental protection, protection of poor people, economic development and employment and labour issues, for example)”.

### **3.4.5 Stakeholder engagement and public participation in decision-making processes**

There is broad agreement throughout the literature (e.g. ISO 2009, World Commission on Dams 2000, IFC 2006, IHA 2004) that meaningful and open dialogue with stakeholders is essential for the sustainability of electricity provision projects. The 1998 UNECE Århus Convention emphasises citizens’ right to participatory decision-making. The WCD (2000) asserts that “Public acceptance of key decisions is essential for equitable and sustainable energy resources development”. Stakeholders’ views and concerns should be reflected in policy and operational decisions so that those decisions are consistent with community goals, values and needs. The identification and recognition of the rights and risks associated with a proposed electricity provision project (see sections 3.4.1 and 3.4.3) should provide the basis for identifying stakeholders that must be included in decision-making. The nearly-completed ISO 26000 standard for Social Responsibility provides excellent guidance on companies’ responsibilities for identifying and engaging stakeholders and wider society and how they can go about doing so (ISO 2009).

Electricity TNCs should enable informed, meaningful participation by surrounding and affected communities in decision making processes throughout the entire cycle of a project including the initial planning phase, the environmental impact assessment, decisions on siting of plants and power lines as well as construction and operation. There should be demonstrable public acceptance of all key decisions. Stakeholders’ roles and rights should be clearly documented and communicated including translating this information into relevant languages. The quality of information provided to stakeholders during these processes is a key determinant of their sustainability, as are the timing of engagement in projects, the levels and nature of stakeholder engagement, and the provision of resources for vulnerable stakeholders.

Sinclair et al. (2008) provide a best practice example of a community-based approach to strategic environmental assessment (SEA) taken by the Costa Rican Institute of Electricity (ICE). ICE’s approach involved organising four highly interactive workshops that used visioning, brainstorming and critical reflection exercises. The communities assessed the environmental, social and economic impacts of a proposed hydroelectric power plant. According to Sinclair et al.

(2008), the process revealed the importance of having community participants understand the process both conceptually and methodologically. The interactive workshops were also effective in reducing the power differentials among program participants (proponent, communities, government agencies) and, crucially, “the logistical importance of notice, timing and location for meaningful participation”.

Electricity TNCs should strive to reach negotiated, legally enforceable agreements with communities affected by proposed electricity provision projects. These agreements should be negotiated in an open and transparent process, and any agreements involving indigenous peoples should be guided by the principle of free, prior, informed consent.

### **3.4.6 Product chain responsibility**

Product chain responsibility implies that a company does all it can to enable, promote and implement responsible business conduct throughout its supply chain. The OECD Guidelines for Multinational Enterprises state that TNCs should ensure that their “business partners, including suppliers and sub-contractors, apply principles of corporate conduct compatible with the Guidelines” (Ch.II, paragraph 10). This also implies that companies have the responsibility to know their own supply chain. For large companies, finding sustainable suppliers that are still able to provide them with necessary products and services can be a major challenge. However, the fact that electricity supply chains can be very complicated as a result of the outsourcing of construction, technical maintenance and resource extraction does not excuse companies from this responsibility.

A life-cycle analysis of the electricity production chain reveals that there are a multitude of potential indirect environmental, social and economic impacts of electricity provision both upstream and downstream in the electricity product chain. In essence, this critical issue thus incorporates the entire range of social, environmental, and economic impacts of electricity provision identified in the respective critical issue sections above. Identifying electricity TNCs’ impacts on the climate, natural environments and biodiversity, and communities, as well as effectively monitoring these impacts and promoting positive change are crucial. Responsible business behaviour implies moving beyond intentions and policy “outputs” and ensuring that there are effective procedures for monitoring and regulating the “outcomes”, i.e. impacts, of their operations. Companies are also expected to identify the links in their supply chain that cause significant environmental, social and economic impacts and ensure that their suppliers are aware of and are managing their own impacts. When problems arise with contractors and suppliers, companies should actively engage them to improve performance.

Upstream supply chain issues primarily involve the sourcing and transport of fuels and other inputs. Negative environmental and social impacts, such as displacement, can also occur in an electricity company’s supply chain as an indirect result of the power company’s operations, for example when a coal or uranium mine begins or expands production to feed a power plant, especially since electric utilities are frequently the sole or a majority consumer of an energy source such as a coal or uranium mine.

It is beyond the scope of this report to fully examine the sustainability criteria for electricity generation fuels and inputs, but it is worthwhile to list a few indicative examples.

- ❑ Oil extraction is associated with human rights and environmental problems around the world. The pollution and armed conflict in the Niger Delta of Nigeria is but one example.
- ❑ Coal mining destroys the soil of the land it is mined on, permanently transforms the landscape, removes ground vegetation, and often displaces people. Coal mining also produces pollutants and effluents that can cause deterioration of water, soil and air quality (Fthenakis and Kim 2008).
- ❑ Mining of uranium is taking place increasingly in African countries such as Niger, Namibia, and Malawi where health and environmental protection is at best weakly-enforced and at worst non-existent (Shinondola-Mote 2008).
- ❑ The planting and harvesting of biomass to be used for electricity generation can often have environmental and social impacts that reduce or nullify the positive CO<sub>2</sub> balance. Some of the factors that determine if biomass for electricity is truly sustainable include the carbon balance for the entire value chain and lifecycle of the biomass (e.g. transport, emissions due to land use change – see, for example, Wicke et al. 2008), loss of biodiversity due to changes in land use, decent labour standards on plantations and in processing chains, indigenous land rights issues, etc. The Dutch Cramer Commission (Cramer Commission 2007) has developed sustainability criteria for biomass, but these are still being hotly debated in Europe and around the globe.
- ❑ Any of the abovementioned fuels for electricity generation will likely have to be transported long distances to reach the power plant in which they will be used. Waste products such as nuclear and other hazardous or chemical waste must also be transported to storage, processing or disposal facilities. This transportation consumes finite natural resources and emits greenhouse gasses and other air and water pollutants. Nuclear and hazardous waste transportation can also impact public health and safety.
- ❑ The construction of power plants and other electricity infrastructure requires a great deal of raw materials such as concrete and metals that can have negative environmental and social impacts throughout their lifecycle. Companies should attempt to increase the use of recycled material for inputs in infrastructure construction in order to reduce their exposure to and responsibility for such impacts.

This list clearly indicates that, according to the norms developed within the relevant field of enterprise, electricity TNCs operating in developing countries are expected to assess their suppliers on performance, environmental and social criteria (not just price) in purchasing and contracting activities and require suppliers to report on these issues. Companies are also expected to implement a pricing system that incorporates the social and environmental costs and quality of supplied goods and services, and suppliers should not be squeezed to supply goods at such low prices that they are forced to compromise on the social and environmental sustainability of their operations. This can happen when market concentration creates an imbalance in bargaining power between various players in the supply chain (see also Section [“Competition and local market structure”](#)). Furthermore, companies should provide suppliers with reasonable supply lead times so that workers are not excessively pressured to meet production targets. Companies should seek continuity in trading relations and try to build long-term relationships with suppliers in order to

contribute to economic security for suppliers and should give small-scale and local suppliers preferential treatment. Suppliers should be encouraged to report on environmental and social criteria and monitored in order to ensure that the quality of electricity is high.

Companies are also expected to take into account downstream impacts on quality. The use of contractors and subcontractors at various stages of the product chain is extensive in the electricity industry, and the performance of contractors can have a significant impact on the quality of electricity service provided. Like suppliers, contractors should be selected and monitored based on a range of environmental, social, labour and economic criteria. Another downstream product chain issue is the sale of electricity to large (industrial) users such as smelters and mines. The high electricity demands of these industrial users can have a direct impact on supply constraints and affordability for the majority of the population. Electricity companies should be transparent about the price and amounts of electricity they provide to such consumers.

In sum, the expectations outlined for electricity TNCs are relatively extensive and, to a large degree, interdependent. They cover both process and substance; that is, company procedures and policy “outputs” on the one hand, and the ultimate economic, social and environmental “outcomes” (impacts) on the other. The next section makes an initial attempt to apply these standards in three concrete case studies by analysing how the selected TNCs approach electricity provision in developing countries and how they perform in a range of critical issue areas.



## **4 ANALYSIS OF SELECTED COMPANY APPROACHES**

The wide range of critical issues, sustainable development standards and quality criteria identified in the previous section are translated into policies and practices in different ways by different companies. These differences in turn lead to discrepancies in the impact that TNCs' approaches to CR have on sustainable development and the quality of electricity provision in developing countries. This section seeks to analyse how three transnational electricity companies, SN Power, Endesa and AES, conceive of and incorporate CR elements and quality standards in their operations in the South. The primary research questions for the analysis include:

- ❑ In which developing countries does the company have operations, and what is the nature of its operations there?
- ❑ What values does the company have for providing high-quality electricity in developing countries?
- ❑ How does the company communicate these values to its stakeholders in developing countries?
- ❑ How does the company understand the balance between the varying values?
- ❑ How and to what degree does the company incorporate the critical issues identified in Section 3 into its CR policies?
- ❑ How does the company translate the policies into practice on the ground in developing countries?
- ❑ What strategies does the company take for engaging civil society in developing countries?
- ❑ What strategies does the company employ for monitoring the supply chain (both upstream and downstream) in developing countries?

Each of the three company profiles begins with a brief presentation of basic information about the company, followed by a mapping of the types and locations of the company's operations, with a focus on activities in the developing world. Finally, each company's approach to electricity provision in developing countries is analysed based on the critical issues presented in Section 3.

### **4.1 ENDESA**

#### **4.1.1 Basic company information**

Endesa, headquartered in Madrid, is Spain's largest electric utility company and has major operations in Latin America. In 2007, Acciona (Spain) and Enel, an Italian transnational electricity company partially (22%) owned by the Italian Ministry of Economics and Finance, purchased 92.06% of the shares in Endesa. In February 2009, Acciona sold all of its Endesa shares to Enel, which now alone owns more than 90% of the company. Despite the takeover, Fraile (2008) confirms that the Endesa headquarters in Madrid is still responsible for CR issues and policies at assets formerly owned and/or operated by Endesa in developing countries. For this reason, this report considers Endesa as an entity separate from Enel, although readers should keep in mind that Enel is now the owner of Endesa and that the two companies' policies and approaches are therefore likely to converge in the near future.

#### 4.1.2 Operations and investments in developing countries

In addition to its European operations in Spain, Portugal and Greece<sup>7</sup>, Endesa is active in electricity provision in a number of developing countries, primarily in Latin America. Endesa currently has 14,707 MW of electricity generation capacity in developing countries, which is nearly one-third of its total worldwide capacity. However, in March 2009 Endesa announced that it was slashing its investments in Latin America for the period 2009-2013. The company will invest US\$5.4 billion over the five-year period, down more than 30% from what it had announced a year ago. The majority of Endesa's total US\$17.3 billion worth of investments in the period will go to Spain and Portugal, with only a third going to its developing country operations (BNA 2009). Table 2 and Figure 3 indicate the geographical distribution of Endesa's electricity provision activities.

**Table 2: Endesa's Global Presence in Developing Countries**

Region	Country	Installed generation capacity	Primary fuel type	Distribution operations?
Latin America	Argentina	1,117.3	Natural gas (CCGT)	Yes
	Brazil	597.8	Hydro	Yes
	Chile	1,766.3	Hydro	Yes
	Colombia	966.9	Hydro	No
	Peru	322.4	Hydro	No
Africa	Morocco	n/a	n/a	n/a

Based on: Endesa 2007a



Based on: Endesa 2007a

**Figure 3: Endesa's Global Presence**

#### 4.1.3 Approach to sustainable electricity provision in developing countries

##### General values and standards

Endesa believes that, through CR, companies make their contribution to sustainable development, which, for Endesa, means responsible growth based on the integration of social and environmental elements into all aspects of its strategy, operational and management spheres. The values that shape Endesa's behaviour are described in its mission statement, its Corporate Values document,

<sup>7</sup> After the selling of assets related to the takeover by Enel and Acciona, Endesa no longer has assets in France or Italy, although it has retained its joint ventures in the Greek and Moroccan markets. New expansion opportunities are also under analysis by the Corporate Development Division of Endesa.

and its vision statement. These core values include people, health and safety, innovation, customer orientation, community and environment (see below for more information on these values and related policies). Furthermore, Endesa has formulated a Sustainability Policy in which it states its aim to “supply customers with quality service responsibly and efficiently, while providing a return to [its] shareholders, fostering [its] employees' professional development, assisting with the development of the social environments where [it] operate[s] and using the natural resources necessary for [its] activities in a sustainable manner” (Endesa 2008b).

According to Endesa (2008a: 17-26), the company understands that its core business is related to an activity that is essential for society, and has therefore made social development a key aim in its Sustainability Strategic Plan. At the same time, the issue of finding solutions to climate change is a core concern for the company. Responding appropriately to these two challenges is at the core of the company's CR commitment to secure society's short and long-term energy need with minimum environmental impact. According to Endesa, CR should not only be a marketing strategy, but a commitment of the whole organisation and all its employees.

Endesa's CR policies are based on a wide range of international standards and norms. Those that it mentions in particular in its CR documents are:

- ❑ UN Global Compact (and supporting implementation documents)
- ❑ UN Human Rights Norms for Business
- ❑ OECD Guidelines for Multinational Enterprises
- ❑ UN Millennium Development Goals
- ❑ ISO 14001 (for environmental certification)
- ❑ OHSAS
- ❑ SA8000 (Social Accountability International)
- ❑ ILO Standards
- ❑ UNICEF Child Labour Resource Guide

While Endesa believes that its overall CR goals are valid throughout its operations worldwide, internal research by the company has shown that applying the CR standards to operations in developing countries requires a different approach (Endesa 2008a: 110). The company undertakes individual country risk analyses based on the Global Compact principles and understands that its own standards become more important in developing countries where the regulatory framework is weak. According to Endesa (2008a: 111) “human rights and bribery issues need to be tackled more carefully in some developing countries where Endesa operates such as Peru and Brazil. Hence, the set of standards that Endesa's subsidiaries in those countries have to adhere to must be more demanding than, for instance, in Europe”. Similarly, Endesa believes that its standards and practices for reducing CO<sub>2</sub> emissions must be more stringent in developing countries where, in contrast to Europe, regulatory structures to control emissions are not yet in place. Endesa believes that this makes business sense because, by working to minimise emissions now, “Endesa will be better positioned when the pressure [to regulate carbon emissions] extends to those markets” (Fraile 2008).

### **Management and implementation of standards in developing countries**

Operational responsibility for quality and sustainability issues is found at the highest level of management at Endesa. The company has a top-level Environment and Sustainable Development Committee, which is composed of members of the Executive Management Committee and chaired by the CEO. This Committee approves plans, programmes, and actions relating to sustainability and is responsible for monitoring implementation of the Strategic Plan.

Furthermore, the General Directors of each business unit are responsible for environment, social and human rights, and labour rights issues from an operational point of view.

Endesa has also established a formal structure to coordinate all sustainability activities and a permanent working group incorporating managers from all of Endesa's operation areas to assure the implantation of CR throughout the company's management. Finally, each employee's evaluation is linked to sustainability performance (Endesa 2008a: 22-24).

In order to implement its CR goals and values, Endesa periodically develops Sustainability Strategic Plans that contain the general programs to be developed through Action Plans during the following five years. The Action Plans are developed by a multi-departmental group, and progress is evaluated at least twice a year. This structure is followed by every Endesa subsidiary, and global results are consolidated in the headquarters.

Furthermore, Endesa has developed an internal tool to ensure the fulfilment of its commitment to the Global Compact principles. This tool sets a group of standards for Endesa and all its subsidiaries that have to be followed on all management areas, based on international standards. The company uses external certifications, such as ISO 14001 and EMAS, and has its sustainability policy evaluated by a third party.

Endesa notes that the implementation of its standards is more difficult and requires more effort in developing countries than in industrialised nations. In order to determine strategies for implementing its policies and ensuring compliance by its subsidiaries in developing countries, the company has conducted an in-depth analysis of the ILO conventions and Global Compact principles, taking into account the general situation in the developing countries in which the company operates and evaluating which standards should be applied and which implementation measures used in each situation (Endesa 2008a: 110-1).

Since all Endesa subsidiaries have the same CR structure as the headquarters, implementation of its standards is generally monitored in the same way in developing countries as it is in developed countries. The structures of a top-executive-level Environment and Sustainable Development Committee and Sustainability Group are replicated in each country, and Endesa requires that all subsidiaries respect the international initiatives, such as the Global Compact, that the headquarters endorses.

One exception to the rule of having subsidiaries in developing countries implement CR values in the same way as in developed countries is that in some critical issue areas more specific or in-depth monitoring tools are used in developing countries. For example, Endesa requires its

Brazilian subsidiary to produce a special report on the progress of the program for fighting corruption and bribery (Fraile 2008).

#### ▣ Stakeholder engagement in developing countries

Endesa claims that constant contact with stakeholders is a priority and offers “a wide variety of communication channels to stakeholders in order to facilitate a bidirectional communication and their participation in a fluid dialogue with the company” (Endesa 2008a: 27). With regard to stakeholder expectations, Endesa’s strategy for engagement consists of three elements: identification of stakeholders, dialogue and management of expectations, and transparency throughout the process (Endesa 2007b:11). The company attempts to integrate stakeholder consultation throughout its activities, beginning with the EIAs carried out when developing new projects. One strategy that Endesa uses to engage stakeholders is to work with local Global Compact offices to organise “Square Tables” in which different stakeholder groups such as NGOs, regulators, competitors, and clients can dialogue openly over relevant issues. Endesa’s policies and strategies for stakeholder dialogue do not differ between developed and developing countries (Fraile 2008).

#### ▣ Precautionary approach

Endesa adheres to the UN Global Compact’s principle of a precautionary approach to the environment and claims to have translated this principle into a number of actions, including measures to minimise environmental impacts of new projects (Endesa 2007b:87).

#### ▣ Product chain responsibility

Endesa embraces what it calls a “trend” in CR for corporations to extend their social responsibilities to suppliers and contractors. In order to do so, Endesa employs different strategies to help suppliers and contractors to incorporate CR issues into their management. For example, Endesa’s CEO has written a letter to all major suppliers and contractors informing them about the Global Compact and encouraging them to sign up to the GC principles. In addition, Endesa includes CR criteria when contracting suppliers and contractors and monitors business partners in countries and on issues where there exists an elevated risk of non-compliance (Endesa 2008a:68). Endesa gives as an example its operations in Chile, where Endesa’s subsidiary Endesa Chile employs “contractor inspectors” to monitor each contractor on site to ascertain their performance on labour rights issues such as compliance with safety rules, compliance with employment rules, and treatment of employees. According to Endesa (2008a: 90), no contract has ever been terminated as a result of this monitoring.

Due to the importance of OHS throughout the electricity supply chain, Endesa has implemented a policy of providing all subsidiaries with country-specific OHS operating guidelines to be distributed to all contractors. The internal rule, named N.020 for Labour Management of Contractors, was approved by the Director’s Executive Committee at the beginning of 2007. Furthermore, Endesa has a number of programmes aimed at guaranteeing the extension of the company’s standards to its contractors such as prizes for best practices and communicating Endesa standards directly to the employees of contractors.

#### ▣ Exit strategy

Endesa claims that it is concerned about critical quality issues when selling or transferring its assets to another company, but notes that it is impossible to require the successive owner to maintain Endesa's standards. Nevertheless, for critical issues such as working conditions, the company takes care to ensure that agreements are reached with representatives of the workers prior to sale so that labour standards are maintained (Fraile 2008).

### **Approach to specific social issues**

With regard to social issues, Endesa's efforts in developed countries are focused on customer satisfaction and maintaining a high technical service quality, while in developing countries issues such as ensuring basic access, rural electrification, cultural activities and the safety of infrastructure are more important.

#### **❑ Human Rights**

The commitment to Human Rights is specified through the Ethic and Behaviour codes and through the contracts that regulate the company's relationship with employees. According to Endesa (2008a: 111), the company's adhesion to the Global Compact reinforces the integration of human rights concerns throughout Endesa, including its subsidiaries, through the fulfilment of the first two Global Compact principles.

#### **❑ Access and affordability**

According to Endesa (2007b:122), extending affordable electricity access is one of the company's main aims, especially considering that nearly half its business is located in Latin America, where access in rural and low-income urban areas is limited and a large portion of the population lives below the poverty threshold. Endesa sees making electricity accessible and affordable as part of its contribution to the development of the societies in which it operates. The company claims that it "develops infrastructure...paying attention to more vulnerable communities or those with greater difficulties gaining access to supply, as in certain rural parts of various Latin American countries." Endesa claims to have set affordability of energy for low-income populations as a critical issue.

#### **❑ Public health and safety**

Endesa (2007b:41-2, 126-8) acknowledges the potential dangers associated with generation and distribution of electricity and provides a wealth of information on its measures to protect public health and safety at its installations and in customers' homes. In developing countries, the company makes a special effort to educate customers on how to safely use electricity and campaigns to minimise the risk of electrocution for children playing with kites (Fraile 2008).

#### **❑ Community impact, displacement and indigenous rights**

According to Fraile (2008), the impact of potential projects on communities and indigenous peoples is addressed in the social impact assessments (SIA) it conducts. Aspects that the company claims to give particular consideration to in SIAs for projects in developing countries include modifications to the local community's way of life, displacement of local people, and the impact that imported site workers with different cultures and values can have on the host community.

▣ Labour issues: Core ILO conventions

As mentioned above, Endesa cites the ILO conventions as one of the bases of its CR policies and approach to providing sustainable electricity. The company notes, however, that the implementation of these core labour policies is more difficult and requires more effort in developing countries than in industrialised nations.

Endesa (2008a) expressly condemns child labour. In addition to implementing mechanisms to ensure that all of its employees are of legal age, part of the company's strategy to combat child labour in developing countries includes participating in projects aimed at improving education and reducing extreme poverty to indirectly eradicate child labour.

Endesa also condemns forced labour and recognises its employees' right to freedom of association. In 2007, 49 collectively bargained agreements were in place, covering 21,616 of the company's 27,019 employees. The most recent agreement was the III Collective Agreement, which was reached in April 2008. Coverage by the collective agreements does reveal some differences between developed and developing countries. In Europe, 92% (13,680 out of 14,824) of the company's employees is covered by such agreements, while in Latin America only 65% (7,936 out of 12,169 employees) is covered (Endesa 2008a: 72-87).

With regard to workers' right to strike, Endesa maintains that since electricity is such a crucial service, the right to strike is heavily regulated by most countries and the conditions are determined by the local regulator.

Regarding discrimination, Endesa has established a Gender Balance Plan (as part of its III Collective Agreement), under which it agreed to undertake an external analysis of potential discrimination within the company. According to Endesa, the analysis has not yet identified any case of discrimination, nor has the company received any complaints regarding different remuneration between women and men (Endesa 2008a: 88-9). Still, only a small portion of Endesa's employees are women; 17.2 % of Endesa's workforce in Spain is female, and only 16.9% of employees in Latin America are women.

▣ Labour issues: Occupational health and safety

Endesa (2007b; 2008a) gives extensive coverage to the topic of OHS in its 2006 and 2007 Sustainability Report, claiming that it is one of the company's primary values. Endesa has endorsed several international voluntary standards for OHS (see above section on General values and standards), and it has integrated these principles into its Strategic Plan for Health and Safety and its Health and Safety Model, which was developed in 2007. Due to increased risks to occupational health and safety in developing countries, Endesa has implemented a policy of providing all subsidiaries with country-specific OHS operating guidelines. The company also has a strategy for seeing that its OHS standards are observed by contractors (see below section on Supply chain).

▣ Labour issues: Use of contract labour

In 2006, Endesa Chile required suppliers of unskilled labour-intensive services (cleaning, security) to pay their employees a higher wage than the legal minimum. But Friends of the Earth

International (2008) has criticised Endesa's use of contract labour at its operations in Colombia, noting, "Energy workers have also been hard hit during the privatization process. Forty percent of [Endesa's] personnel, a total of 1,750 people, left either voluntarily or through forced redundancies following privatization, and [the company] subcontracted out new vacancies under very bad conditions of employment."

### **Approach to specific environmental issues**

Endesa's new Sustainability Strategic Plan 2009-2012 groups the environmental issues to be addressed in three blocks: fighting climate change, implementing advanced environmental management, and deepening preservation of biodiversity.

#### **▣ Climate change**

According to Endesa, a wide-ranging analysis of its stakeholders' expectations in the coming five years revealed climate change to be one of the company's two main challenges in the near future and a top priority in its Sustainability Strategic Plan 2009-2012 (Fraile 2008). Endesa (2007b; 2008a) thus devotes a great deal of the Environment chapter of its sustainability reports to the issue of climate change and GHG emissions reduction. The company claims that it has reduced its specific emissions by 36.5% in the period 1990-2007, beating its target of 35% reduction, and that it aims to halve its greenhouse gas emissions by 2020 (Endesa 2007b:84). The company's strategy on climate change also involves participation in a number of international initiatives focused on research and development of solutions for climate change (Endesa 2008a). Endesa acknowledges that there is less regulatory pressure to reduce GHG emissions in developing countries than in Europe, but sees this as an opportunity for developed countries and companies to invest in renewable energy technologies in order to help reach their own greenhouse gas emissions reduction targets (Fraile 2008).

#### **▣ Renewable sources of energy**

Endesa's strategy on developing renewable sources of energy for electricity is outlined in its Sustainability Strategic Plan, in which the company sets itself a target of installing 6,000 MW of new renewable electricity generation capacity between 2008 and 2012, primarily in Europe. For Endesa, increasing the use of renewable sources of energy is a much more urgent issue in Europe than in developing countries because regulatory and social pressures to increase renewables are greater in Europe (Fraile 2008). While the company aims to develop 50 MW of renewable electricity generation capacity in Latin America by the end of 2009, the amount to be developed in Europe is much higher (Endesa 2007b:93).

#### **▣ Waste and pollution**

Endesa has for many years employed an Environmental Management System (EMS) to minimise the environmental impact of discharges, emissions, and waste. As part of its Advanced Environmental Management programme, Endesa has set itself objectives such as the reduction of water consumption each year over the previous year, 100% processing of waste waters, 100% use of river beds (not leaving any stretch dry), 100% evaluation of facilities with environmental liabilities, and 100% of facilities ISO 14001 certified.

Endesa carries out an internal compulsory regulation related to the management and elimination of wastes in all its facilities. These guidelines establish criteria and specific procedures on the treatments that have to be done, as well as on the contracting of the proper waste operators. The company's approach to waste and pollution differs little between developing countries and industrialised nations. For example, in 2007 89.18% of the electricity Endesa produced in Spain and Portugal was ISO 14001 certified, while in Latin America 94.2% received the certification (Endesa 2008a: 140).

#### ▣ Biodiversity

Endesa's Biodiversity Conservation Program is framed within the company's Strategic Environment and Sustainable Development Plan and addresses the minimisation of the impact of generation and distribution facilities on fish, birds, vegetation, and landscapes (Endesa 2007b:95). With regard to biodiversity in rivers affected by Endesa hydro plants, the company's strategy is focused on minimum environmental flow, the construction of fish steps, and working toward agreements with the local environmental authorities to preserve fish populations, particularly salmonids. The Program is implemented similarly in developed and developing countries.

#### **Approach to specific economic issues**

Many of Endesa's policies in the area of economic sustainability are outlined in its Commitment to Good Governance and Ethical Behaviour, in which it notes that "the company has an Auditing and Compliance Committee which supervises good corporate governance and transparency in the ambits of economics, finance and external auditing" (Endesa 2007b:22).

#### ▣ Competition

Endesa (2007b:22) states it has adopted the OECD Guidelines Chapter IX on Competition, explaining that all of its operations are in deregulated markets. Endesa has been active and influential in lobbying for liberalisation and privatisation of energy markets and companies, particularly in Latin America. Friends of the Earth (FoEI 2008) notes that "[Endesa] enjoys an influential position within the European energy lobby. Rafael Miranda Robredo, CEO of the Endesa Group, is Vice President of the European electricity lobby group, Eurelectric. Eurelectric is the only energy sector group in the influential pro-liberalization lobby, the European Services Forum, which is active in GATS negotiations."

#### ▣ Corruption

Endesa cites the OECD Guidelines chapter on combating bribery (Chapter VI) and the UN Global Compact principle on corruption in its Commitment to Good Governance and Ethical Behaviour. The company has created an Ethics Channel through which workers and other individuals can anonymously make complaints regarding corrupt behaviour (Endesa 2007b:83).

#### ▣ Local economic development

Endesa states that it "develops the infrastructures and actions necessary to cover the evolution of the demand for electricity in the communities where the company is present and reach as many customers as possible". The company further claims that increasing local capacity and human capital is one of the "strategic criteria" applied when selecting from potential business partners (Fraile 2008).

#### □ Reliability of supply

“Service Quality” is one of Endesa’s seven Commitments for Sustainable Development, and the company alleges that “adequate, secure and uninterrupted supply of electrical energy to all its customers, wherever they are, must be its main objective” (Fraile 2008). That said, the company acknowledges that there are differences between its performance on reliability of supply in developed countries and that in developing countries. The main difference is that the electricity infrastructure in developing countries is usually in poorer condition, but Endesa also notes that people’s expectations as to the quality of service are lower in developing countries.

#### □ Efficiency and demand-side initiatives

Endesa (2008a) devotes a whole chapter of its Sustainability Report to efficiency, which it claims is an important issue that is integrated into its mission, vision, and values, and which it seeks to improve across the electricity value chain, from generation to transmission to distribution.

The company has also included demand-side management as part of its 2008-2012 Sustainability Strategic Plan under the programme *Plan de Eficiencia Energética PE3* and undertakes a number of demand-side initiatives for responsible use of electricity and saving of energy (Endesa 2007b:43). The company’s activities include promoting energy efficient products as well as awareness raising campaigns, both in Latin America and Europe.

#### □ Taxation

Endesa’s policy on taxation cites the tax chapter (Chapter X) of the OECD Guidelines for Multinational Enterprises.

## 4.2 SN POWER

### 4.2.1 Basic company information

SN Power, headquartered in Oslo, Norway, was established in 2002 as a 50/50 joint venture between Statkraft and Norfund.<sup>8</sup> The Statkraft Group is a Norwegian public utility company that specialises in hydro and wind power. It operates 164 hydro power plants in Scandinavia, three wind farms, and three natural gas plants in Norway and Germany. Norfund is a Norwegian government-funded “risk capital” investment agency that “facilitates economic growth and poverty reduction by investing risk capital in profitable businesses in developing countries” (Norfund 2008). It invests through means of providing equity, quasi-equities and loans. Its investment in SN power is in the form of equity. Its other investments include direct investments in hotels, phone companies, fish and food processors and other companies. It is also involved in a number of investment funds, fund management operations and loans portfolios.

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<sup>8</sup> As of 1 January 2009, Statkraft will purchase an additional 10% of the shares in SN Power from Norfund, increasing its ownership to 60% and reducing Norfund’s participation to 40%. The increased participation of Statkraft will likely make more funds available for investment in energy projects. As part of the deal, Statkraft and Norfund have agreed to establish a separate company which will focus on hydropower development in Africa and Central America (SN Power 2008a).

As a joint venture between Statkraft and Norfund, SN Power is a 100% public entity, but it operates as a fully commercial enterprise. Although SN Power was created as a profit-making enterprise, the company was also founded with the aim of making a positive contribution to sustainable development. It is for this reason that the company operates exclusively in developing countries and works solely with renewable energy technologies (Kopstad 2008).

It is important to note that SN Power is much smaller, in terms of number, scope, and type of operations as well as financial turnover, than the other two electricity companies analysed in this report.

#### **4.2.2 Operations and investments in developing countries**

SN Power is specialised in hydropower generation activities in developing countries. The company's current generation capacity is exclusively hydro-based, although it is developing one wind power project in Chile. The company currently owns and operates 14 hydropower plants, with nine more in various stages of planning and construction. Regionally, SN Power operates primarily in Asia and Latin America with Peru, where it operates eight hydropower plants with a combined generating capacity of nearly 300 MW, being its main market. Figure 4 illustrates SN Power's current global presence for electricity generation operations.



**Figure 4: SN Power's Global Presence**

In total, the company has a gross installed capacity of 816 MW worldwide. Table 3 shows the company's worldwide installed electricity generation capacity, and Table 4 lists the company's investments and projects in development.

**Table 3: SN Power Global Installed Electricity Generation Capacity, 2008**

Project	Country	Capacity (MW)	Mean annual output (GWh)	Fuel Type
Melana	India	86	350	Hydro
Arcata	Peru	5.4	37	Hydro
Cahua	Peru	43	280	Hydro
Gallito Ciego	Peru	37	150	Hydro
La Oroya	Peru	9	65	Hydro
Malpaso	Peru	54.5	207	Hydro
Pachachaca	Peru	9	45	Hydro
Pariac	Peru	4.9	24	Hydro
Yaupi	Peru	108	789	Hydro
Magat	Philippines	360	1,000	Hydro
Binga	Philippines	100	350	Hydro
Khimti	Nepal	60	350	Hydro
Assupiniella	Sri Lanka	4	17	Hydro
Belihuloya	Sri Lanka	2.1	9	Hydro
<b>Total</b>		<b>816</b>	<b>3,673</b>	<b>Hydro</b>

Based on: SN Power (2008c)

**Table 4: SN Power Electricity Generation Projects in Development, 2008**

Project	Country	Capacity (MW)	Mean annual output (GWh)	Fuel Type	Investment (mln US\$)	Status
Various	Brazil	N/A	N/A	Hydro	1,200	Planning
La Higuera	Chile	155	728	Hydro	N/A	Under construction
La Confluencia	Chile	156	645	Hydro	N/A	Under construction
Trayenko	Chile	600	2,628	Hydro	N/A	Suspended
Total (Coquimbo)	Chile	47	100	Wind	140	Late 2009 in operation
Allain Duhangan	India	192	800	Hydro	N/A	Under construction
Bara Bangahal	India	200	N/A	Hydro	N/A	N/A
Tamakoshi	Nepal	450-650	N/A	Hydro	N/A	N/A
Cheves	Peru	168	825	Hydro	N/A	N/A
Ambuklao	Philipp.	175	N/A	Hydro	N/A	Under rehabilitation

Based on: SN Power (2008c), EBN (2008), Lima (2008).

In March 2009, SN Power announced that it had signed a Memorandum of Understanding with India-based Tata Power Trading Company Limited (TPTCL) in order to develop hydropower projects in Nepal, Bhutan and in the border between India and Nepal. In addition to its Asian and Latin American assets and investments, SN Power intends to start operations in Africa. Two of its initial target markets were Uganda and Mozambique, but plans for both countries have recently been abandoned (Among 2007). Nevertheless, SN Power is making a new push to enter the African market, and as of 1 January 2009, SN Power's owners Statkraft and Norfund have agreed

to establish a separate company that will focus on hydropower development in Africa (SN Power 2008a).

#### **4.2.3 Approach to provision of sustainable electricity in developing countries**

##### **General values and standards**

SN Power (2007a; 2007c; 2008b; 2008d) expresses its values and standards through its *Values and Principles* document, which is also translated into Spanish; its *Business Principles*; a chapter on social and environmental impact in its annual reports; and a section on CR on its website where it publishes the two above-mentioned documents as well as a number of other CR related texts. The company does not publish a separate CR report.

SN Power claims that it is “committed to social and environmental sustainability throughout [its] business” and that sustainability is one of its top priorities (2007c:2). Its CR documents mention the following international standards to which the company strives to adhere:

- ❑ UN Universal Declaration on Human Rights
- ❑ ILO Conventions 138 (on minimum age for employment) and 182 (on the worst forms of child labour)
- ❑ UN Global Compact
- ❑ International Hydropower Association’s Sustainability Guidelines
- ❑ International Finance Corporation’s Policy and Performance Standards on Social and Environmental Sustainability

SN Power believes that CR and individual company standards take on added importance for TNCs operating in developing countries. According to Kopstad (2008), because regulatory frameworks are often weaker in developing countries, companies need to play a greater role in ensuring that standards for the protection of human rights and the environment are met. In these situations, companies must have clear ethical standards in both policy and practice. Companies need to pay particular attention to quality issues like corruption and child labour when operating in developing countries.

##### **Management and implementation of standards in developing countries**

SN Power’s CEO has stated that the standards and principles it adheres to “are embedded into [the company’s] business model as [it] expand[s] in a socially and environmentally responsible manner” (SN Power 2008d). According to Kopstad (2008), the standards are incorporated into the company’s project management system from the idea phase all the way through planning and project operation. She notes that the company seeks to make health, social and environmental considerations an integral part of project planning, operation and reporting by giving importance to these issues throughout the company’s management structure, from the field in developing countries all the way up to top management at the headquarters in Oslo. CR officers in the field communicate with the CR managers at the headquarters through regular dialogue and meetings. These CR managers in turn have regular contact, both formal and informal, with top management, and although the board of SN Power does not include a CR representative, quality issues are incorporated into top management decisions by having the head of the CR department on the

company's management team (Kopstad 2008). In mid-2008 the company created a new position entitled Director of Social and Environmental Programmes to work on CR issues. The new director will spend a significant portion of his/her time in the field following-up on specific projects and issues and will report to the executive vice-president for CR.

In order to monitor and ensure the implementation of its values in its developing country operations, SN Power has CR staff on the ground for every project and carries out an EIA and an SIA on all of its projects prior to investment. The assessment documents give information about the project itself, the social and environmental contexts; the company's plans for compliance with environmental legislation; environmental, social, and aesthetic baseline data; and a citizen participation strategy. The findings of these assessments are used to develop social and environmental management plans, which are to be implemented, audited, and followed-up upon throughout the lifecycle of its projects. SN Power's policy is to publish all of its impact assessments online, but as of September 2008, only one assessment (for La Higuera, Chile) was available.

While SN Power (2008c) claims that it "implement[s] programmes alongside all projects to limit the negative impact on local communities and environments", the company's articulation of its values and standards remains rather general and seems to lack specific indicators and monitoring protocols to measure the degree of implementation of its values in its operations in developing countries. Kopstad (2008) acknowledges that since the company is so young, the implementation of its values and standards may not yet be fully systematic in all of its projects, but that the company is learning and improving with each new project.

### **Approach to social issues**

#### **□ Human rights**

SN Power refers to the UN Universal Declaration on Human Rights and the ten principles of the UN Global Compact as the basis for its policy for protecting human rights. No further specification is given.

#### **□ Labour issues**

SN Power (2007a) refers to ILO norms 138 and 182 on the minimum age for employment and the worst forms of child labour as the basis for its policy on labour issues. The company also has policies on non-discrimination and a commitment to allow employees to continue to develop their skills throughout their employment at SN Power. No mention is made of minimum wage, freedom of association or working hours. OHS is a particular focus of SN Power's labour policies, and the company aims for a zero accident and injury rate in all projects in all phases.

#### **□ Displacement and community lifestyle impact**

SN Power (2007c:5) makes mention of its efforts to minimise the impact of its activities on local communities in a general way, claiming, "We aim to reflect the priorities and concerns of local communities in our decision-making processes and we try to minimize potential negative effects through a combination of careful planning, design adjustments and operational improvements." The company has committed to establishing local community groups to facilitate dialogue and address the concerns of people affected by their activities.

### **Approach to environmental issues**

#### **□ Renewable sources of energy**

SN Power operates solely in renewable sources of energy for generating electricity, placing the company in a different position than most electricity companies when it comes to environmental policies. SN Power's fuel mix is exclusively renewable, and the company's policy is to maintain this situation. As a result of the renewable-only fuel mix, the operations of SN Power do not emit any significant greenhouse gases.

The company has an active policy on carbon credits. It seeks to comply with the Clean Development Mechanism (CDM) criteria in order to be eligible for receiving these carbon credits. According to SN Power (2008d), the company's "role in combating climate change as a significant supplier of renewable energy was reinforced in 2007 when [its] second project got registered under the Kyoto Protocol's CDM." It should be noted that these CDM projects generate significant additional revenues for the company. For example, the La Higuera project in Chile, which is CDM certified, is expected to generate approximately US\$9.4 million dollars in revenue per year. The company also hopes to get its Totoral wind project in Chile CDM certified, and cites the CDM as a significant factor in its decision to invest in renewable energy technologies.

#### **□ Biodiversity**

SN Power's policy is to encourage the protection of biodiversity by applying the precautionary principle in all of its operations and decisions and striving to minimise the environmental footprint of its activities (SN Power 2007b). The company does not publish a policy on large dams, although most of its projects are small-scale, run-of-the-river plants.

### **Approach to economic issues**

#### **□ Local economic development**

SN Power (2007c:5) claims that it does business "in a way that adds value in the local communities and the countries in which [it] operate[s]". In order to do so, the company aims to create long-term value for the countries in which it operates by investing in and operating profitable renewable energy projects. To ensure that the local economic development it fosters is sustainable, the company's policy is to "include appraisal of the risks and rewards as well as sustainable development considerations (economic, social and environmental) as key criteria for investment and divestment decisions" (SN Power 2007a:1). As examples of the economic benefits its operations provide to local communities, SN Power (2007b) lists job-creation, contracts to local suppliers and service providers, tax generation, and active engagement in knowledge and skills transfer to host communities.

SN Power's decision to withdraw its plans to invest in Uganda provides an example of the difficult trade-offs the company has to make when it comes to balancing profitability and commercial viability with its commitment to local economic development and poverty eradication. In December 2004, SN Power announced that it would make Uganda its entry point for Africa in the energy sector. Despite an abundance of the natural resources necessary for power generation, including ten potential hydropower sites along the Nile alone, Uganda cannot meet its domestic energy needs. Currently, only about five percent of Uganda's population has access to electricity, and while power demand is growing at an annual rate of nine per cent, the growth in

supply is zero. The Ugandan government had hoped that SN Power's entry into the country would help improve Uganda's dismal electricity situation by providing power to an additional 15% of the population. However, in 2006 SN Power decided to withdraw from the Ugandan projects because it deemed them financially unviable. According to Kopstad (quoted in Among 2007), the projects "did not fit [SN Power's] corporate strategy and the commercial viability was not strong enough". SN Power sold its rights to Norwegian power company Troenderenergi, which agreed to develop the sites. Nevertheless, the transfer of rights and related delay mean that residents of western Uganda continue to endure irregular or no power supplies beyond the originally-planned 24-month construction period (Among 2007).

Kopstad (2008) responded to the situation saying that SN Power's construction as a for-profit commercial enterprise requires it to make a return on investment for its investors and that the company conducts due diligence studies on all potential projects to ensure that they will meet this requirement before making the decision to invest. She added that although SN Power decided not to invest in the project, it did make considerable efforts to facilitate the transfer of the project to another company so that the project would eventually go ahead.

#### ❑ Corruption

SN Power's policies state that the company will act responsibly and will not offer, promise, pay or take bribes, nor will it involve itself in political favours, "unless they are of nominal value and are normal and customary in the business circumstances". The company also pledges not to influence political processes in an "unfair or un-transparent manner" (SN Power 2007b:1). In 2008, the company developed and began implementing the SN Power Integrity Programme, which includes training for all employees on anti-corruption measures throughout the project development process. The programme also foresees the inclusion of anti-corruption measures in all of the company's contracts and agreements (Kopstad 2008). SN Power is also a member of Transparency International Norway.

#### **Approach to cross-cutting issues**

##### ❑ Stakeholder engagement in developing countries

SN Power (2008d) claims that, "During project assessment and construction [it] work[s] closely with local communities to understand their needs and help ensure that [its] projects deliver social benefits." The company seeks to establish a regular and open dialogue on environmental and social performance with host communities and other stakeholders and aims to reflect the priorities and concerns of local communities in decision-making processes.

As for defining "stakeholder" and determining which stakeholders it needs to engage with, Kopstad (2008) notes that this very much depends on the project. In order to receive feedback from stakeholders, SN Power holds early information meetings to inform stakeholders about its projects and plans. These meetings are held either in collaboration with local public bodies or as stand-alone, open meetings. In Peru, for example, the company has held a series of meetings in small villages that will be affected by proposed projects. Furthermore, the social and environmental impact assessments that SN Power conducts provide a platform for dialogue with local stakeholders and provision of information.

▣ Precautionary principle

SN Power's policy is to apply the precautionary principle in all of its operations and decisions (SN Power 2007b).

▣ Product chain responsibility

Kopstad (2008) asserts that SN Power always includes CR issues in the tenders and evaluations it makes when selecting contractors and suppliers, paying particular attention to the health and safety record of potential business partners. She does acknowledge, however, that price and technical quality remain key criteria for choosing suppliers and contractors. In terms of how the company balances the trade off between social and environmental criteria, on the one hand, and price, which has a more direct effect on profits, on the other, Kopstad (2008) believes that the suppliers and contractors that are most competitive on price and technical quality generally also have a good record on sustainability issues.

Once SN Power decides to do business with a supplier or contractor, the company's policy is to provide copies of its *Values and Principles* to all partners and key contractors and require that they align themselves with the principles set out in the document (SN Power 2007c). The company asserts that it will not enter into partnerships that are not aligned with its *Business Principles*. In order to ensure compliance, SN Power includes sustainability clauses in contracts with its business partners. Examples of the criteria taken up in such clauses include requirements that contractors appoint a community officer, employ a quota of local residents, and contribute to local HIV/AIDS prevention programs. SN Power monitors compliance with its *Values and Principles* by maintaining its own direct relations with communities in order to receive feedback on contractor performance. SN Power does conduct periodic audits of some of its business partners. These audits are generally done internally, without the use of independent third parties or involvement of local civil society and labour groups, but this is something SN Power may consider doing in the future (Kopstad 2008).

## 4.3 AES CORPORATION

### 4.3.1 Basic company information

AES, founded in 1981, is headquartered in Washington, D.C., USA. The company built its first plant in Texas in 1985 and expanded when markets began to open worldwide in the early 1990s. Today, AES is one of the world's largest global power companies with electricity generation and distribution operations in 29 countries on five continents. The company has an installed electricity generation capacity of over 43 GW at 124 power plants and generates more than 78,000 GWh of electricity for its over 100 million customers each year. In 2007, the company employed 28,000 globally and generated revenues of US\$13.6 billion.

Two financial institutions hold relatively large percentages of AES' shares. Legg Mason Funds Management holds 17.89% of the shares, and Fidelity Investments owns 9.98% of the company (AES 2007c). AES Corporation is organised into four regional business units: North America; Latin America; Europe, CIS, and Africa; and Asia and the Middle East.

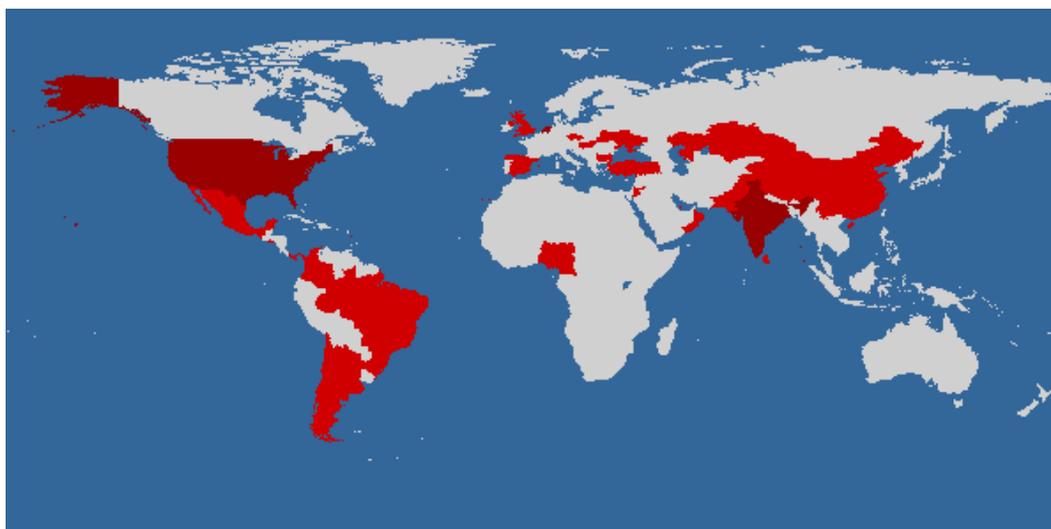
### 4.3.2 Operations and investments in developing countries

AES has electricity provision operations in 29 countries around the world, about half of which are developing countries. The company's Latin American operations are particularly significant for AES financially; in 2007, four of the company's top ten (revenue earning) subsidiaries were Latin American. Table 5 lists the countries where the company is active, and Figure 5 maps the company's global presence.

**Table 5: AES' Global Presence, 2007**

Region	Countries
Latin America	Argentina, Brazil, Chile, Colombia, Dominican Republic, El Salvador, Mexico, Panama
Africa	Cameroon, Nigeria
Asia	China, India, Indonesia, Pakistan, Sri Lanka, Vietnam
North America	United States
Europe	Bulgaria, Czech Republic, France, Hungary, Kazakhstan, Netherlands, Spain, Turkey, Ukraine, United Kingdom
Middle East	Jordan, Oman, Qatar

Based on: AES 2008d



Based on: AES 2008d

**Figure 5: AES' Global Presence, 2007**

Globally, AES has an estimated electricity generation capacity of more than 42,000 MW at 124 power plants around the world. As is revealed in Table 6, most of the company's electricity is generated in North America, but its Latin American operations also contribute significantly to the total.

**Table 6: AES Installed Electricity Generation Capacity by Region, 2006**

Region	Installed Capacity (MW)
North America	14,172
Latin America	11,217
Europe, CIS, and Africa	11,431
Asia and Middle East	5,369
<b>World</b>	<b>42,189</b>

Based on: AES 2007c<sup>9</sup>

AES does not provide an overview of the overall fuel mix it uses for electricity generation. It does provide a comprehensive list of its generation plants, including specifications of fuel type (AES 2007c: 25-31). However, a number of plants make use of more than one fuel type, and there is no information available about the exact use of each type of fuel.

AES Gener S.A. is AES' primary subsidiary in Latin America. Gener is 80% owned by AES and is based in Chile, but also has activities in Colombia, Argentina and the Dominican Republic and employs 630 people.

### 4.3.3 Approach to provision of sustainable electricity in developing countries

#### General values and standards

AES maintains a brief corporate responsibility section on its website, but the company does not publish a CR report or any other periodic document to communicate its CR policies to its stakeholders. The company notes that, at AES, "corporate responsibility is not a program", but is rather about how the company conducts business and "the overall impact [it has] on society and on the lives of the people [it] serves" (AES 2008c). However, most of the examples AES lists on its "Corporate Responsibility" website are philanthropic activities rather than actions targeted at critical issues in sustainable electricity provision.

On its website, the company provides information about its general views, corporate governance, ethics and compliance, environment and safety. The company has published a Corporate Governance Code of Conduct. It also has a publicly available code of conduct in which it describes its five principal AES Values: 1) Put safety first, 2) Act with integrity, 3) Honor commitments, 4) Strive for excellence, and 5) Have fun through work. AES acknowledges that its Code of Conduct provides limited practical guidance to its employees and asserts that, "AES people are expected to rely on their own judgement to translate our Values from words to action" (AES 2007b:12). However, the company stresses that "business results are never more important than conduct consistent with AES Values".

With regard to its values in developing countries, AES (2008c) emphasises, "Providing electricity can radically improve the quality of life, especially in developing countries", where the company aims to provide electricity "reliably, safely and responsibly". The company admits that some of its standards, such as those related to the environment, currently differ at various AES operations in

<sup>9</sup> AES presents its world/regional generation capacity without taking into account its equity interest; the figures in this table thus represent all plants of which AES has some (if even a small percentage) ownership. This means that the actual generation capacity attributable to AES is lower.

developing countries, but the company is developing new, company-wide environmental standards that will, when implemented, apply to all subsidiaries around the globe (AES 2008c).

### **Management and implementation of standards in developing countries**

The AES Corporate Governance Guidelines describe the company's policies and structures for oversight of the board of directors as well as the board's membership criteria, independence, compensation, and tasks. The company provides no information on how management of sustainability and CR issues is structured and provides little other information on management and implementation of its standards except to note that the company has recently initiated an ISO 14001-consistent EMS (AES 2008c).

### **Approach to social issues**

#### **□ Access and affordability**

AES mentions on numerous occasions throughout its CR material and Code of Conduct that one of its primary aims is to bring reliable electric service to underserved customers, and although the company provides few concrete details or examples, it alludes to its "exten[sion of] power lines into a village in El Salvador or Cameroon" (AES 2008c).

#### **□ Labour issues: Occupational health and safety**

According to AES (2008c), the company's number one value and top priority is safety, both among its own employees and contractors as well as the communities in which it operates. The company has set itself a goal of "zero fatalities among AES people and contractors" (AES 2007a:11). AES (2008c) claims that it has developed and is implementing global safety standards based on "internationally recognized safety standards", but the company does not communicate about the content of its standards or on which international standards they are based, nor is there evidence that the principles are translated into concrete policies.

In order to monitor implementation of its safety standards and policies, AES conducts periodic self-assessment safety audits at all of its subsidiaries, but no information is given about independent, third-party audits or the involvement of stakeholders in the audits. AES also holds annual Safety Action Forums at which personnel from various countries and levels of the company, including linemen, team leaders, dispatch operators and contractors, discuss how to improve safety.

#### **□ Labour issues: Skill training**

In order to offer its employees ongoing training and career development opportunities, AES has set up Learning Centers in several countries, including a number of developing countries such as Brazil, Cameroon, Kazakhstan, and Ukraine. The company also has an online AES Learning Center where it offers technical and managerial courses to employees.

#### **□ Public health and safety**

In addition to the occupational health and safety programmes mentioned above, AES has several initiatives designed to ensure electric safety among the public in developing countries. For example, in El Salvador, Ukraine, and Kazakhstan, AES produces magazines aimed at spreading knowledge of electrical safety in schools, community centres, and other local venues.

### **Approach to environmental issues**

In 2007, AES initiated the implementation of a new, ISO 14001-consistent EMS, which it claims will lead all AES businesses worldwide to implement internationally recognised environmental standards and management procedures.

#### **□ Climate change**

AES views GHG emissions as one of today's most significant challenges, but a challenge that also represents "a potential US\$28 billion market" and a business "growth opportunity in projects and technologies to reduce or offset GHG emissions" (AES 2008a; AES 2007a:11). Rather than reducing the GHG emissions of its electricity provision activities, AES climate change strategy is focused on the creation of carbon offset credits. AES has developed a separate business unit, called Climate Solutions, to tackle climate change. The company's strategy for reducing greenhouse emissions is primarily focused on capturing and destroying methane gas from agricultural waste, landfills, and industrial processing plants. AES has also undertaken a number of reforestation projects in Latin America in order to remove CO<sub>2</sub> from the atmosphere.

AES has also recently launched a joint venture with GE called GE AES Greenhouse Gas Services, which will create carbon offsets and sell them to US businesses that cannot or do not want reduce the GHG emissions from their own activities. This, as the company notes twice on its short Alternative Energy webpage, will "creat[e] attractive opportunities for AES while improving the environment in the process" (AES 2008a). Developing countries will figure prominently into AES' climate strategy: the company notes that it is well established in 19 developing countries that are signatories to the Kyoto Protocol and eligible as hosts for CDM and JI offset projects.

AES' numerous operative coal-fired power plants and its plans to build more in the future make it a large emitter of GHG and put it at risk of losing out if climate change combating legislation is enacted. GHG emissions are also an issue in AES' developing country operations: two of the top four CO<sub>2</sub> producing electricity companies in Latin America are AES subsidiaries: AES Argentina and AES Gener SA in Chile (CARMA 2007).

#### **□ Renewable sources of energy**

AES aims to increase its utilisation of renewable sources of energy in the coming years, investing up to US\$10 billion in a newly launched renewables business over the next decade. The company notes that alternative sources of energy are becoming more economically competitive with fossil fuel and views investment in renewables as a strategic business opportunity that, it mentions on the side, "is also good for the environment" (AES 2007a:17).

The company does not provide an overview of fuel source breakdowns of its electricity generation, but according to AES (2007a:34), the company's renewables portfolio comprises nearly 20% of its global generation capacity.

In March 2008, AES announced that it would partner with the private-equity firm Riverstone Holdings to invest up to US\$1 billion in solar energy projects around the world. The joint venture, AES Solar, will begin developing solar projects in the developed world, primarily in Europe and Asia, where local utilities are required to buy renewable electricity at above-market rates.

However, AES' primary focus with regard to development of renewable sources of energy appears to be wind, which it regards as "one of the lowest cost renewables per megawatt today" and a technology with "tremendous growth potential globally" (AES 2008a). AES has developed or purchased a number of wind projects in recent years, but these have been almost exclusively in developed countries, primarily the US. Of the 1,312 MW of wind capacity (in 13 projects) AES developed or acquired between 2005 and 2008, only one project of 50 MW (less than 4%) is located in a developing country – the 50 MW Hulunbeier plant in Inner Mongolia, China. The company does have further wind projects in the planning and construction phases in India, China, and Latin America (AES 2008a).

#### ❑ Waste and pollution

AES claims that it is working to reduce waste and pollution from its power plants. However, most of the examples it gives of such reduction are at its plants in developed countries, primarily the US.

### **Approach to economic issues**

#### ❑ Efficiency

In 2006 AES implemented a pilot project, called APEX, to improve efficiency and performance across its developed and developing country units. According to the company, the pilot project has been a big success, improving economic efficiency and reliability at plants in several developing countries, such as in China where it streamlined the handling of pulverised coal, in the Ukraine where it saved US\$600,000 on maintenance costs, and in Brazil where it hopes to save US\$1.5 million in 2007. Based on these positive experiences, AES is now rolling out the programme company-wide (AES 2007a:23).

#### ❑ Taxation

AES has cited its payment of taxes to developing country governments to defend itself against charges of anti-competitive behaviour, for example in Kazakhstan.

#### ❑ Corruption

AES undertakes to conduct its business in a fair and ethical manner and pledges "not offer anything of value to others to gain an improper advantage in obtaining or retaining business or obtaining other favorable action" (AES 2007b:9). The company does not condone bribery or any improper payments, even if its refusal to do so would result in a lost business opportunity. The company claims that it abides by international anti-corruption laws and standards and gives as an example of such standards the United States Foreign Corrupt Practices Act.

#### ❑ Governance

AES (2008b) claims that "strong corporate governance is essential to running a successful and responsible business" and that the company has therefore developed rigorous governance structures that are outlined in its Corporate Governance Guidelines. The company also encourages its employees to openly communicate their questions, concerns and suggestions about the management and operation of the company and strictly prohibits harassment, intimidation, and retaliation against an employee for raising a question or concern about improper behaviour.

Furthermore, to address questions or concerns AES operates a helpline that is available 24 hours a day, 7 days a week and can be accessed anonymously or confidentially (AES 2007b:3).

▣ **Competition**

AES' approach to competition is to “compete lawfully based on the merits of [its] products and services and in accordance with the letter and spirit of antitrust and other laws designed to preserve free and open competition”. The company further notes that, “AES will not make formal or informal agreements with its competitors regarding prices, production or inventory levels, bids, or allocation of markets, customers, or suppliers” (AES 2007b:7).

**Approach to cross-cutting issues**

▣ **Supply chain management**

In addition to outlining the company's values and expectations of its own employees, AES' Code of Conduct also communicates its expectations for suppliers, consultants, agents, business partners, and others who perform work on behalf of the company (AES 2008a). The company notes that it seeks to do business with contractors and suppliers that follow the highest standards of integrity and business conduct and that these must comply with AES policies. That said, environmental and social concerns seem to take back burner when selecting business partners, as AES explains, “We will make purchasing and procurement decisions that achieve the best value for AES, including price, quality, performance, and suitability.” (AES 2007b:9)

▣ **Transparency and provision of information**

AES pledges that it will “provide full, fair, accurate, timely, and understandable disclosures about financial and operational issues to investors and government agencies” (AES 2007b:9). The company makes no mention of any policy for providing information to the communities and other stakeholders affected by its operations in developing countries. The company further promises not to engage in “manipulation, concealment, abuse of privileged information, misrepresentation of material facts, or any other unfair dealing practices” (AES 2007b:6).



## 5 DISCUSSION OF COMPANY APPROACHES

The analysis of the three companies' CR policies, strategies, practices, and management styles reveals that, although all of the companies claim in one way or another that sustainable development and poverty reduction through electricity provision are among their top priorities, their conceptualisation of corporate responsibility and their approach to sustainable electricity provision in developing countries vary widely. Each of the three companies has a different formula for making the sustainable development balance between the environmental, social and economic pillars and addressing the critical issues identified in Chapter 3. Although the analysis is admittedly limited to a very small sample size, the empirical findings do lend credence to the notion that differences in TNC approach to sustainable development may be a result of regional and national differences in the regulatory framework and general culture of politics and business in their countries of origin. The approaches of Endesa, SN Power and AES generally correspond with the differences in behaviour of TNCs from distinct groups of countries with varying cultures and traditions for business regulation identified by Vogel (1996), Graus et al. (2004), and Palast et al. (2000: 2).

Perhaps the most important conclusion one can draw from the analysis of Endesa's approach to sustainable development and sustainable electricity provision is that the company's approach is characterised by a thoroughly developed CR policy and is highly based on existing international standards and norms. Endesa makes reference in its CR materials to more international standards than either of the other two companies analysed in this study. This approach to sustainable electricity provision appears to correspond with the European "pattern" of stakeholder capitalism and clear public-interest focused performance described in section 4.1 above. Endesa's highly developed CR policies, international standard-heavy approach to sustainable electricity provision, and willingness to engage with civil society organisations on the topic of sustainable development and corporate responsibility seem to accurately reflect the regulatory framework and general culture of politics and business in Europe.

For a company as young and as small (compared to the other TNCs in this report) as it is, SN Power has a remarkably well-developed CR policy. However, although it does make reference to a number of international standards in critical issue areas, SN Power's conceptualisation and implementation of quality kilowatts is less defined by these standards than, for example, Endesa's approach. For example, by its own admission, SN Power has not been able to implement international health and safety standards at all in its projects. Instead of being defined by international standards, SN Power's approach to sustainable electricity provision seems to be based more on an old-fashioned, possibly deeply ingrained conception of (sustainable) development. SN Power's operations are exclusively in developing countries, and the company is committed to developing solely renewable sources of energy for electricity generation. In addition, SN Power frequently cites the fact that the company was created not only as a profit-making enterprise, but was also founded with the aim of making a positive contribution to sustainable development (Kopstad 2008).

As such, SN Power's approach to sustainable electricity provision seems to reflect the Nordic model of corporate business culture described in section 2.2. With the history of egalitarian

development principles and experience with renewable sources of energy in its country of origin, it is perhaps unsurprising that SN Power (2008b) claims that the concepts of corporate responsibility and sustainable development are “deeply ingrained in [its] culture” and that it has the highest percentage of renewables in its fuel mix of the companies in this study. SN Power also seems to conform to the Nordic tradition of placing a high value on transparency by, despite being a relatively young and small company, publishing a large amount of CR material in annual reports and on its website

AES approach to electricity provision in developing countries seems to be less motivated by CR concerns or issues than by the hard business imperative of profit (or at least AES is more up front about this reality than Endesa and SN Power). Many of AES’ decisions on climate change and other environmental issues are based on the fact that a certain decision may be a “strategic business opportunity”, “a growth area”, “a low-cost” solution, or “economically advantageous” rather than the fact that a certain decision may be good for the environment. In fact, the environment generally seems to be a second thought or bonus if a profit-motivated business decision can “also be good for the environment”. This is also the case when the company chooses suppliers, where it notes that first and foremost it will make “procurement decisions that achieve the best value for AES” (AES 2007b:9).

For AES, a highly developed CR policy seems to be less important than for the other two companies in this analysis. Although the company does claim on its website that sustainable development and corporate responsibility are an integral part of its operations, AES does not produce an annual CR report, which is rare for a company of its size, does not have CR department or manager, and did not respond to numerous requests for information on its approach to sustainable electricity provision. Much of the information that AES does publish about CR is more related to the company’s philanthropic activities than any of the critical issues mentioned above. AES does mention on numerous occasions that its CR policies are based on international standards, but it only rarely actually identifies which international standards it is referring to. Furthermore, AES’ fuel mix at its developing country electricity generation plants is far less sustainable than the other companies, perhaps indicating less concern for environmental issues.

According to Vogel (1996), the US pattern of regulatory style and corporate culture is based on a fierce respect for private property and ownership and a culture of shareholder capitalism that leaves little or no room for corporate social responsibility among companies. Instead of a culture of corporate responsibility as exists in Europe and the Nordic region, the US model exhibits a high degree of government regulation in the electricity industry (Palast et al. 2000). It is thus again not surprising that AES has a less well developed CR policy than its European counterparts analysed in this study and that AES’ approach appears to be less motivated by environmental and social elements of sustainable development than by economic factors, particularly hard business imperatives of revenue generation and profits. The US culture of shareholder capitalism in which the investor is king and return on investment is paramount may explain why many of AES’ decisions on climate change and other environmental issues are based on the fact that a certain decision may be “a low-cost” solution rather than concerns about sustainability or the environment *per se*.

## 6 CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

A general overview of the field indicates that the debate around sustainable development in electricity provision is heating up. The past few years have seen a sharp increase in interest in the topic of CR in electricity provision from governments, multi-stakeholder groups, unions and civil society, as well as businesses themselves. Yet despite the increased interest, there remains a lack of clear normative standards for sustainable electricity provision. This study surveyed relevant literature to identify the critical issues and criteria that must form the basis for such normative guidelines. The critical issues identified fall across the social, environmental, and economic pillars of SD, but six “cross-cutting issues” – respect for human rights, poverty reduction and satisfying basic needs, observance of the precautionary principle and evaluation of risks and alternatives, transparency and provision of information, stakeholder engagement and participatory decision-making, and product chain responsibility – provide the core of what should be considered bottom-line quality kilowatts.

The lack of clear criteria for sustainable electricity provision and the inconsistent application of the various social, environmental and economic standards, and thus a widely varying interpretation of the sustainable development “balance”, reveal a clear need for external standard-setting and monitoring at the international level. Several of the most important global initiatives in this regard are listed in Table 1. Perhaps the most promising of these is the UN IAEA’s effort to develop criteria for “sustainable energy development”. These criteria are based on the normative elements of sustainable development identified in the MDGs and the Brundtland report, and the aim is a set of integral standards that can help countries make the sustainable development “balance” with regard to energy. However, the IAEA initiative is primarily focussed at the macro, country/government level and offers little assistance at the more micro TNC level. Binding and internationally-monitored “UN Sustainable Development Norms for Business” would be the ideal venue for the standards aimed at in this report, but as such remains a long way off – although this report is a step in that direction.

Another important initiative is the GRI’s recent development of an “Electric Utilities Sector Supplement” for sustainability reporting by companies in electricity provision. The EUSS covers a wide range of social, environmental, and economic topics and is an excellent tool for identifying the critical issues and encouraging electricity providers to be aware of and report on such issues. However, except for on transparency and the need for companies to report, the GRI EUSS provides little normative guidance on the other issues, not to mention how companies should go about making the sustainable development trade-off. Similarly, the nearly-completed ISO 26000 standard for Social Responsibility, while being an ambitious project to identify normative standards with regard to companies’ responsibility toward society, does not provide guidance on the sustainable development trade-off, nor does it contain specific guidance for the electricity industry. Furthermore, both ISO 26000 and the GRI EUSS remain voluntary instruments that companies can choose to employ as a part of their CR strategy...or not. The ILO and PSI have done extensive work on the labour standards, and a number of environmental/green groups such as Greenpeace and the European Renewable Energy Council have developed environmental indicators, but none of these efforts have sought to integrate and balance the broad sustainable development issues. There is also a plethora of academic research on sustainable development and

corporate responsibility in TNC management styles, but there is little specific to the electricity industry. The academic literature that does address CR in the electricity industry is primarily focused on analysing outcomes based on the interest of the investors (i.e. the TNCs themselves), rather than a holistic analysis of social, environmental and economic interests from a sustainable development perspective. The “cross-cutting” issues formulated in the present report thus represent one of the first, if not the first, attempts to develop normative-practical standards for sustainable electricity provision in developing countries.

The literature survey also revealed that there exists little empirical knowledge as to how the CR policies of transnational electricity companies are developed and implemented in developing countries. Given current variations in how different TNCs approach and apply their responsibility for sustainable development in general, it is important to investigate how such variation comes into play for the electricity sector. Such knowledge is highly relevant for both governments and stakeholders in efforts to improve the quality of electric services in the Global South, especially given that governmental protection for electricity consumers and workers in developing countries remains weak and poorly enforced. Theoretical literature on the subject suggests that companies will have different approaches toward corporate responsibility and will incorporate the standards and norms for sustainable development into their overall business strategy to varying degrees depending on the regulatory framework and business culture of their home country. National cultures affect how corporations form their own organisational culture and internalise values and norms such as responsibility, equality, innovativeness, flexibility and the need to protect the environment. Examples of regional variation in business style/culture are the European model, the Nordic model, and the US model.

With this assumption as a point of departure, an examination of the business culture and regulatory framework in three different regional “patterns” of corporate culture revealed that the European model, and especially the Scandinavian model, seem to be more advanced than the US model in terms of encouraging businesses to integrate standards and issues of sustainable development in their policy and approach to corporate responsibility. This is of course not to say that all businesses from the Nordic region behave sustainably, nor that there are not US businesses that do, but current government regulation and policy as well as historic developments in Europe and Scandinavia place more emphasis on CR and sustainable development than in the United States.

Through qualitative interviews with corporate managers and analysis of corporate CR materials, the present report sought to document and evaluate how “quality kilowatts” are being conceived and implemented in three TNC case studies from three different home country models: Endesa (Spain), SN Power (Norway) and AES (USA). The report examined these major electricity TNCs’ motivations for engaging in CR activities, their differing conceptualisations of “sustainable development” and “high-quality” electricity provision, and whether and how their CR policies are put into practice on the ground in developing countries. The analysis presented in Section 5 confirmed the hypothesis that differing conceptualisations of “sustainable electricity provision” among the three TNCs are likely a result of the business culture in which the TNC is headquartered. The approaches of Endesa, SN Power and AES generally correspond with the differences in behaviour of TNCs from Europe, Scandinavia, and the USA, respectively. The

Spanish TNC Endesa and Norwegian SN Power, have highly-developed CR policies that attempt to include and integrate the three sustainable development pillars, while the American TNC AES appears to place much more importance on the economic pillar than on the social and environmental and has a less integral, and less developed, CR policy. This conclusion has important implications for developing country governments as they decide whether to allow investment and participation by TNCs in their electricity market, and if so, which TNCs can be expected to show the most commitment to sustainable development in their country. The findings also have importance for the academic debate about how companies develop and employ CR as a part of business strategy and how sustainable development standards and norms (at the international, regional and industry levels) are translated into corporate policy and practice.

In future research, the three case studies examined in this report should be subjected to more in-depth analysis, and the number of models and firms should be expanded. The present report focuses solely on TNC policy and management approach to sustainable electricity provision, but good policies are often not translated into good practices on the ground, especially in developing countries where laws and regulations may be weak or non-existent and enforcement ineffective. It is thus desirable that empirical field research in developing countries be carried out to determine whether and how electricity TNCs are putting their policies into practice. Furthermore, although this report's case studies focused on TNCs from industrialized countries, TNCs based in emerging economies are playing an increasingly important role in electricity provision in developing countries. The South African company Eskom, for example, is active in a dozen countries in sub-Saharan Africa, where it is frequently the dominant player in regional markets. Similarly, Chinese power companies have expanded their operations beyond Chinese borders into South-East Asia, particularly the Mekong Delta region, and more recently have ventured into Africa. Given the current global economic crisis, the activities of energy TNCs from emerging economies can play a significant role in future North-South relationships and should thus also be the subject of more in-depth research.



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