

Energy and the World Summit on Sustainable Development: what next?

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Abstract

Given the importance of energy issues to sustainable development, energy was a priority issue at the World Summit on Sustainable Development in August 2002. The objective of this paper is to examine the outcomes of the Summit on energy, and to assess them against proposals to address the lack of access to modern energy and the need to move toward a cleaner energy system. We find that lack of political leadership from key countries prevented agreement not only on targets for renewable energy, but also on a programme to promote access. The achievements of the Summit were limited to enabling activities such as capacity building and technology transfer, rather than substantive agreements. While WSSD put energy higher on the agenda than before, no institutional home or programme to take the issues forward has emerged. This therefore remains a critical challenge to be addressed. Achieving this broad goal will require building a coalition to promote cleaner energy, and committing resources to programme for energy access. Based on analysis of proposals and the negotiations, we propose several key areas where progress is still possible and necessary, including: shifting more international public and private energy financing toward access investments and cleaner energy investments, advancing regional approaches to access and renewable energy targets, and a range of mechanisms to strengthen institutional capacity for integrating energy and sustainable development.

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1. Introduction

Energy is critical to economic and social development, but depending on the way it is produced, transported and used, it can contribute to both local environmental degradation, such as air pollution, and global environmental problems, principally climate change (Davidson and Sokona, 2001; Farinelli, 1999; Johansson and Goldemberg, 2002). Providing affordable, adequate, and reliable modern energy supplies to the vast majority of the world's population remains a major challenge: these supplies are still beyond the reach of some two billion people (UNDP et al., 2000b). At the same time, current methods of producing and using energy have environmental and health impacts that increasingly endanger the welfare of communities and biodiversity world-wide, while problems of oil supply security are linked to increasing regional political instability (Goldemberg, 1996; Holdren and Smith,

2000; Romm and Lovins, 1993). The environmental impact that has received the most attention in the 10 years since the United Nations Conference on Environment and Development (UNCED) is climate change, and this problem cannot be addressed without major changes in the energy sector (IPCC, 2001c).

The challenge for the global energy sector is twofold: first, to dramatically increase access to affordable, modern energy services in countries that lack them, especially for poor communities; and, secondly, to find the mix of energy sources, technologies, policies, and behavioural changes that will reduce the adverse environmental impacts of providing necessary energy services. Energy was one of the key themes in the World Summit on Sustainable Development, and this was an opportunity to take stock of international accomplishments and identify specific national and international action plans for moving forward. With the Summit now past, it is time to reflect on whether the outcomes match the challenges, and what actions are required to implement the energy aspects of the Johannesburg Plan of Implementation (UN, 2002).

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The objective of this paper is to examine the outcomes of the Summit on energy, framed primarily by a proposal put forward by the Africa group for a comprehensive plan of action to address the lack of access to modern energy and the need to move toward a cleaner energy system. The outcomes of the Summit are examined from their capacity to address the challenges for energy and development. If they fall short, then the international community needs to consider how to take forward the principles agreed in Johannesburg. We acknowledge that while international effort is needed, a significant number of domestic policies and measures can make major contributions to meeting these challenges, which have been explained elsewhere (Farinelli, 1999; Jefferson, 2000; Reddy et al., 1997). Our task, however, is to identify those international actions that will support the implementation of national policies to promote sustainable development.

The next section briefly reviews the key issues related to energy and sustainable development. This is followed by discussion of the proposals on access to energy services and cleaner energy for WSSD. Section 5 then analyses the outcomes of WSSD for energy, and finally Section 6 discusses the way forward.

2. The challenge of energy and sustainable development: access and cleaner energy

The development challenge in the energy sector is to promote access while simultaneously making a transition to a cleaner energy future. There are tensions between these goals, making their joint achievement a challenging task. Yet there are also synergies and opportunities that can be harnessed.

2.1. Access to modern energy

The most critical energy issue for almost all developing countries is the lack of access to affordable, adequate modern energy services. In many of the poorest countries, less than 10% of the population has access to electricity, and in most of sub-Saharan Africa only 10–30% has access (Davidson and Sokona, 2001; IEA, 2002b; NEPAD, 2001; UNDP et al., 2000b; Wamukonya, 2001). A large share of the population in both rural and urban areas in these countries does not have access to safe, affordable fuels to provide cooking, lighting, or heating. Furthermore, wide disparities exist within and among developing countries, which in certain cases contributes to social instability and affects basic human development.

The fact that two billion people live in energy poverty (UNDP et al., 2000b), despite the implementation of a wide range of grant- and loan-based programmes in the developing world, is the most compelling evidence that a

new approach is needed—one that can mobilise significantly more financial resources and direct them in a way that will have the greatest effect on development. Key areas that must be addressed include the impact of energy reform programmes (including private sector investment) on the poor, the excessive focus on upstream investment and large-scale fossil energy supply projects, the lack of appropriate institutional structures to support international energy and development programmes, research and development not being sufficiently relevant to policy, and the lack of funding to support major infrastructure investments (Davidson and Sokona, 2001; Spalding-Fecher et al., 2001). As one example of the research focus, between 1974 and 1998, International Energy Agency (IEA) member countries spent 8% of their research and development budgets on renewable energy, 7% on energy efficiency, 14% on fossil fuels, and 59% on nuclear technologies (IEA, 2002a).

Energy sector reform, particularly in the electricity sector, has become a priority of the multilateral institutions involved in energy and development, and is having a profound impact on access (Dubash, 2002). This shift in donor priorities, from development planning and ‘basic needs’ to structural adjustment and reforming governance, has had a major impact on the sector (Sachs, 1996). Far from increasing funding for infrastructure investment, the multilateral institutions are increasingly leaving this to the private sector, and pushing for ‘cost-reflective’ pricing of all services (Karekezi and Kimani, 2002; e.g. World Bank, 2000). The problem is that, in electricity for example, the private sector simply cannot make a financial return on investment given the current low levels of energy consumption by poor communities (Davidson and Sokona, 2002). Even where electrification has been subsidised, as in South Africa, most poor communities do not use enough power to pay back the initial investment (Borchers et al., 2001). In fact, for the South African off-grid electrification programme using renewable energy, government will need to subsidise the entire capital cost of the solar home systems (SHS) and charge customers 30 times the grid residential electricity tariff for the rural private sector utilities to break even (Qase, 2000; Spalding-Fecher, 2002a). There is a growing concern that further reform programmes in developing countries raise additional obstacles to increasing access (Dubash, 2001, 2002; Johansson and Goldemberg, 2002; Reddy, 2001).

To illustrate the magnitude of resources required, we can use a simple example about the costs of providing one billion people with modern energy service. The World Energy Assessment estimated that basic human energy requirements would be 700 kWh-equivalent per capita each year, with 80% used for cooking and 20% for lighting and other uses (Reddy, 1999; UNDP et al.,

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