

BACKGROUND

The 11th IEF (Rome, April 2008) noted that “over two billion people do not yet have access to modern energy services. This perpetuates the poverty cycle and inhibits economic development, availability of clean water and food, while preventing training and acceptable health standards.” Ministers at the Forum called for the solidarity of IEF countries and a step change in the collective efforts of all relevant international organizations to help achieve the Millennium Development Goals by halving poverty rates by 2015.

Following the concern illustrated by Energy Ministers, the IEF convened a symposium on energy poverty in Johannesburg on the 8-9 December 2009, hosted by the Department of Energy of South Africa. Symposium participants discussed the most effective means to alleviate energy poverty through informed dialogue and enhanced cooperation and partnerships, and reviewed the role of different stakeholders.

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INTERNATIONAL ENERGY FORUM



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

IEF SYMPOSIUM ENERGY POVERTY: COLLECTIVE EFFORTS TO HELP ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS

JOHANNESBURG, 8-9 DECEMBER 2009

AN IEF EVENT IN COOPERATION WITH THE GOVERNMENT OF SOUTH AFRICA



The International Energy Forum (IEF) is the world's largest gathering of Energy Ministers. IEF Countries account for more than 90% of global oil and gas supply and demand.

In addition to IEA and OPEC countries, transit states and key energy players, including Brazil, China, India, Mexico, Russia and South Africa, participate in the Forum. The magnitude and diversity of this engagement is a testament to the IEF's position as a neutral facilitator. Through the Forum and its associated events, IEF Ministers, their officials, energy industry executives, and other experts engage in a dialogue of increasing importance to global energy security.

The IEF and the global energy dialogue are promoted by a permanent Secretariat of international staff based in the Diplomatic Quarter of Riyadh, Saudi Arabia.

IEF Symposium on Energy Poverty

Reducing Energy Poverty through Cooperation & Partnership

1 – Context

The 11th International Energy Forum (Rome, 20-22 April 2008) noted that “over two billion people do not yet have access to modern energy services. This perpetuates the poverty cycle and inhibits economic development, availability of clean water and food, while preventing training and acceptable health standards”. The Forum called for the solidarity of IEF countries and a step change in the collective efforts of all relevant international organizations to help achieve the Millennium Development Goals by halving poverty rates by 2015.

At the Jeddah Energy Meeting (22 June 2008), Ministers noted that “oil price rises and the underlying volatility, will have an impact on the economies of the consuming and producing countries alike, especially in the least-developed countries”. The Jeddah Joint Statement recommended that “development assistance from national, regional and international finance and aid institutions be intensified to alleviate the consequences of higher oil prices on the least-developed countries”.

At the London Energy Meeting (19 December 2008) participants noted that “high or volatile prices for oil and other energy sources had a serious impact on low-income countries” and agreed on the importance of multilateral measures to mitigate this effect.

2– Objective

Although a number of laudable initiatives have been undertaken, the question remains whether these will be sufficient to materially reduce energy poverty worldwide. Lack of access to—and affordability of—modern energy services burdens nearly two billion people and continues to impede the achievement of the Millennium Development Goals (MDG). Despite considerable efforts to alleviate this crucial issue, energy poverty has trended upward in recent years.

The objective of this IEF symposium is to investigate the most effective ways and means to reverse this trend and, through informed dialogue and implementation, move toward achieving an MDG-derived target of halving energy poverty by 2015. Participants from developed and developing countries, representatives from governments and industry, finance institutions, NGOs and aid agencies, will make an unprecedented attempt to deliver concrete recommendations and possibly an action-plan on how to eradicate energy poverty to Ministers at the 12th IEF (Mexico, 29-31 March 2010).

Agenda

Tuesday 8 December 2009

08.30 – 09.15 Registration

09.15 – 10.00 – Welcome Address and Opening Statements

- Minister of Energy, South Africa
- Noe van Hulst, Secretary General, IEF

10.00 – 10.30: Coffee & networking break

10.30 – 12.30: Session One: Energy Poverty: Characterization and Consequences

Moderator: Mark Tomlinson, Senior Fellow, World Economic Forum

- Ibidia Lucky Worika, General Legal Counsel, OPEC Secretariat
- Marcel Kohler, Division of Economics, University of KwaZulu Natal, South Africa
- Martyn Davies, CEO, Frontier Advisory
- Renato Ona Polit, Responsible Euro-Solar Programme, Ministry of Electricity and Renewable Energy, Ecuador
- Luis Riva, PDVSA
- What is energy poverty?
- How is energy poverty affecting economic and human development in the least developed countries?
- How have the shifts in global climate-consciousness been felt in regions and nations suffering from energy poverty?
- What are the effects of energy poverty (e.g., pollution associated with biomass...)?
- What has changed in the last few years to alleviate (or worsen) energy poverty?

Roundtable discussion

12.30 – 14.00: Lunch break

14.00 – 16.00: Session Two: Means of Addressing Energy Poverty

Moderator: Said Nacet, Director Energy Division, IEF

- Hasan Faris, Director Corporate Planning and Economic Services, Opec Fund for International Development
- Jan-Inge Gidlund, Senior Advisor, Vattenfall, Sweden
- Daniel Bouille, Vice President, Bariloche Foundation
- Kofi Nketsia-Tabiri, Regional Manager of E+Co Africa
- Vivek Jha, Associate Fellow & Area Convener, TERI
- Paul Eardley-Taylor, Head of Energy, Utilities and Infrastructures, Standard Bank
- What role do international financial institutions, regional banks, national development funds and others currently play in funding access to commercial energy? What role should they play?
- How much investment is needed to halve energy poverty by 2015? How can we mobilize these funds?
- How can we make energy projects attractive to investors and keep energy affordable at the same time?
- How can those communities that lack access to energy best attract capital?
- Can development of renewable and alternative energies be a toll for growth?
- What are the benefits of regional energy integration?
- What kind of technical assistance is needed in least developed countries to achieve reduction of energy poverty?

Roundtable discussion

20.00 Dinner hosted by Department of Energy, South Africa

Wednesday 9 December 2009

09.00 – 11.00 Session Three: Cooperation and Partnership to Help Reduce Energy Poverty

Moderator: Brian Statham, Chairman, South African National Energy Association, WEC

- Machwene Molomo, Electrification PD&M Department of Energy, South Africa
- Jean-Pierre Favennec, President Association for the Development of Energy in Africa
- Nolitha Fakude, Executive Director Sasol, South Africa
- Andrey Gurevich, Lead Energy Specialist, World Bank
- Mohammed AbdelRahman, Advisor to Energy Sector, NEPAD Secretariat
- Teresa Malyshev, Energy Expert, IEA
- What kind of cooperation can neighboring countries implement in developing joint projects to benefit from economies of scale?
- How can producer countries best help the least developed consuming countries to cope with high oil prices?
- How to reduce health impact of relying on biomass?
- How to secure cross-border energy projects and secure demand solvability?
- What role should governments play in supporting sustainable energy poverty solutions?
- How to expand energy access without compromising energy security and the climate?
- How can key stakeholders partner in leveraging large-scale projects to deliver rural energy services?

Roundtable discussion

11.00 – 11.30: Coffee & networking break

11.30 – 12.30: Session Four: Wrap up session: Conclusions and Recommendations
Concluding Statement by Noe van Hulst, Secretary General, IEF

12.30 – 14.00: Lunch

IEF Symposium on Energy Poverty

Reducing Energy Poverty through Cooperation & Partnership

Background Paper

The 11th International Energy Forum (Rome, 20-22 April 2008) noted that “over two billion people do not yet have access to modern energy services. This perpetuates the poverty cycle and inhibits economic development, availability of clean water and food, while preventing training and acceptable health standards.” Ministers at the Forum called for the solidarity of IEF countries and a step change in the collective efforts of all relevant international organizations to help achieve the Millennium Development Goals by halving poverty rates by 2015. The same message was echoed at the Jeddah Energy Meeting (22 June 2008), where Ministers noted that “oil price rises and the underlying volatility, will have an impact on the economies of the consuming and producing countries alike, especially in the least-developed countries.” The Jeddah Joint Statement recommended that “development assistance from national, regional and international finance and aid institutions be intensified to alleviate the consequences of higher oil prices on the least-developed countries.” Further still, participants at the London Energy Meeting (19 December 2008) noted that “high or volatile prices for oil and other energy sources had a serious impact on low-income countries” and agreed on the importance of multilateral measures to mitigate this effect.

Following the concern illustrated by Energy Ministers worldwide, the International Energy Forum will convene a symposium on energy poverty in Johannesburg on the 8th and 9th of December 2009. The symposium will bring experts from finance, development, and energy together to discuss and explore the most effective means to reduce energy poverty worldwide.

Recommendations drawn from the symposium and an action plan on how best to eradicate energy poverty will be presented to Energy Ministers at the 12th International Energy Forum in Cancun, Mexico on March 30-31, 2010.

1. Characterization & Consequences

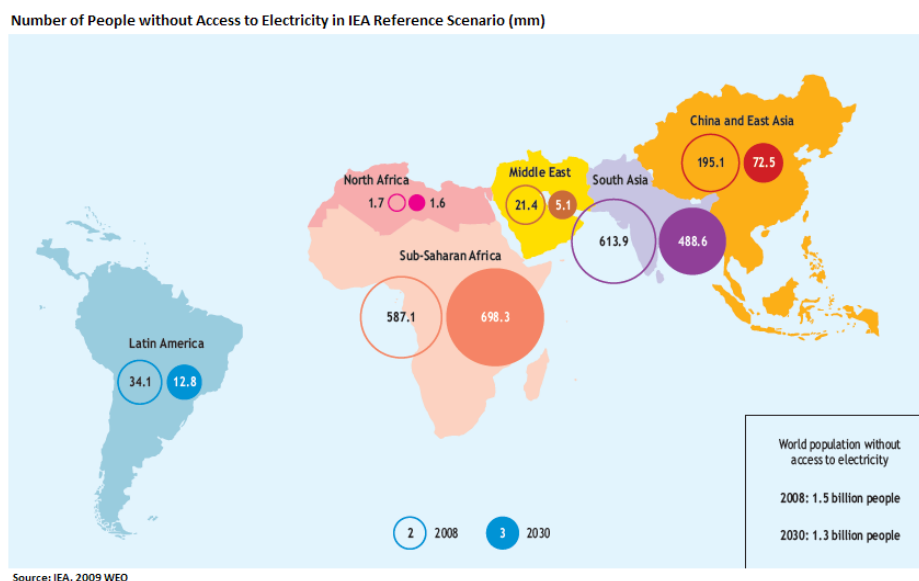
Energy poverty is broadly defined as the lack of access to modern energy services—be they electricity, heating or cooking fuels—necessary for human development. Fuel poverty is a related but distinct concept in which users of energy have access to—but are unable to afford—the energy they require.

In the field, energy poverty is best viewed as a diverse set of symptoms rather than a singularly defined issue. For example, in much of Africa, the high cost of electricity grid extensions are a large factor in the continuation of energy poverty, but this is not the case in the poor urban communities in South America where the grid exists, but utilities are rarely paid for their service. The cause of energy poverty varies by region but the effects of zero electricity are common to all. Unfortunately, electricity is only one part of the problem. Access to efficient and affordable cooking and heating fuels, like liquefied petroleum gas (LPG) or kerosene, are equally if not more vital to alleviating the effects of energy poverty. 2.5 billion people rely on biomass for their daily fuel needs and would greatly benefit from cleaner, affordable and more efficient fuel for cooking and heating their homes.

For the “bottom billion” living on less than \$1 USD a day, basic energy services are prohibitively expensive and onerous to access. As a result, they rely on grossly inefficient fuels, like biomass and charcoal, whose collection or purchase absorb a disproportionate amount of their time and limited finances. These fuels also exact a serious health cost through the heavy carbonates they emit during usage. The cycle of poverty then repeats itself; inefficient use of dirty fuels retards growth and moors communities in continued poverty and poor health. For rural communities that also lack access to electricity, their health problems are compounded by their inability to receive appropriate medical care as modern health facilities usually require power of some measure.

2. Regional Bias and Causes

Energy poverty affects nearly every corner of the globe in some capacity, but the predicament is particularly prevalent in sub-Saharan Africa and South Asia. Energy poverty also occurs in regions that are otherwise rich in energy resources, as demonstrated in Western Africa and parts of Latin America. Energy resources do not guarantee energy infrastructure will be in place, nor do they ward against the larger issues of poverty, in which energy poverty is an integral actor.



In 2009, the International Energy Agency (IEA) found that 1.5 billion people had zero access to electricity.¹ When the IEA first examined the issue in 2002, they estimated that figure to be around 1.6 billion.² Despite seven years of laudable and concerted efforts to bring electricity to those that need it most, the zero-access figure has remained largely static because populations have grown fastest in the regions most afflicted by energy poverty.³ The picture for fuels is even bleaker. In 2009, the IEA found that 2.5 billion people lack access to modern fuels for cooking and heating and that this figure would *increase* to 2.6 billion by 2020 under a business as usual scenario.⁴ Those 2.5 billion people, more than a third of the world's population, depend on biomass (primarily wood), dung and charcoal for their heating and cooking.

Distance from modern energy services is a significant factor in energy poverty. For example, in much of sub-Saharan Africa, the infrastructure required to carry electricity from urban population centres (where power generation is most often focused) to remote villages is vast and unwieldy. The private sector sees little incentive in bringing electricity to small communities that cannot pay for power and local governments are often unable to do the same, be it for political or economic reasons. In South Asia, the remoteness of location is also a factor but the difficulty of the terrain adds to the cost of building electricity distribution. **Of the 1.5 billion people who lack access to electricity, 85% are in rural areas.**⁵

¹ 2009 World Energy Outlook (WEO), International Energy Agency, Chapter 2

² 2002 WEO, IEA, Chapter 13

³ Jamal Saghir, "Energy and Poverty: Myths, Links and Policy Issues, ENERGY Working Notes," The World Bank Group, May 2005

⁴ 2009 WEO, Chapter 2

⁵ 2009 WEO, p. 128

Despite energy poverty's rural bias, the issue is not solely a rural one. Lack of urban electricity access, seen in megacities like Rio de Janeiro and Mumbai, have different causes, solutions and consequences. Intelligent solutions incorporate this distinction. While only a small part of the problem today, urban energy poverty is set to be energy poverty's obstacle of tomorrow as the developing world continues to urbanize.

Governance is another significant factor. For many countries, the government is unable to provide the services its citizens require because they lack the resources to do so. For other countries, finances may be available, but the political incentive to provide access to electricity is either unclear or of limited value. There are also regulatory hurdles and obstacles of excessive patronage that stand before reliable and distributive energy infrastructure in many countries. While better governance will aid in the fight against energy poverty, governments may not always have the tools they need to successfully combat energy poverty. Internationally coordinated efforts can help provide them with those tools.

Beyond location and domestic policy, the causes of energy poverty cannot be easily divorced from the causes of general poverty. The two are intertwined. The poor cannot afford to purchase the energy they need and their governments are often just as unable to purchase the infrastructure necessary to provide them with that energy. **The correlation between energy and general poverty is unmistakable; for countries in which the per capita income is less than \$1 USD a day, 90% of the population use biomass or dung for their cooking.**⁶ The cycle of energy poverty then continues as the health effects of dirty fuels reduce longevity and reduce the productive capacity of entire communities. The same dynamic operates in those populations who lack access to electricity.

3. Energy Poverty and General Poverty

Energy poverty and general poverty relate in the following ways:

Productivity. Energy poverty gravely impairs a community's ability to prosper financially. Lack of electricity significantly reduces a community's ability to start, operate and expand commercial enterprises. Work stops or slows after sundown and productivity dips. While rural communities may not need access to the Internet to develop, even intermittent access to electricity would enable them to embrace leap-frog technologies, like mobile phones for agricultural coordination, that require only limited amounts of power.

On the fuel side, the paucity of modern fuels can reduce agricultural productivity in a number of ways. For example, the dung used for heating or cooking could alternatively be used as fertilizer. A report by The Energy and Resources Institute (TERI) valued the dung used as fuel in India alone at \$800 million.⁷ The opportunity cost is not only financial but operates on a much more personal level.

⁶ Poverty, Energy and Society, The Energy-Poverty Problem, The Baker Institute Energy Forum, <http://www.bakerinstitute.org/programs/energy-forum/research/poverty-energy/index.html>

⁷ 2002 WEO, Chapter 13

In much of the developing world, women can spend more than six hours a day collecting lumber for cooking, a tiresome process which, while essential, leaves women unavailable for other, and perhaps more fruitful tasks. Issues associated with biomass collection, like land degradation, also contribute to the hidden costs of the fuel by leaving soil infertile and of limited value for future use.

Education. Energy poverty makes education more difficult. Without light after sundown, students find studying overly burdensome. **Lack of electricity reduces the education level, limits the opportunities available to rural students, and may even encourage students to attend less school.** A recent study of students in Nicaragua found that 72% of children who lived in homes with electricity regularly attended school, while only 50% of students who did not have electricity attended school.⁸

Health. Energy poverty poses a severe health risk and impedes the administration of modern health care. In 2004, the World Health Organization found that indoor pollution prematurely kills 1.6 million people a year.⁹ Indoor pollution occurs when biomass and charcoal are burned for cooking in confined quarters. When lumber is burned, it releases respirable particulates and carbon monoxide into the air. These pollutants lead to Acute Respiratory Infections and strike women and children most seriously. **Other complications from indoor pollution include chronic obstructive pulmonary disease, lung cancer, cataracts, tuberculosis, asthma attacks, low birth weights and early infant death.**¹⁰ Additionally, without access to electricity, it becomes exceptionally difficult to operate health clinics with modern services; many medications require refrigeration and even simple items, like clocks to time HIV medication, are unavailable without ready power.

Women. Energy poverty disproportionately impacts women. In the regions and communities most affected by energy poverty, cultural and social mores often relegate women to the collection of fuel and the preparation of food. The gathering of wood is both time consuming and energy intensive. In addition to being worn from a day of collecting firewood, young women are then usually asked to prepare grain-based meals, a task which is time consuming in itself. Together these leave many young women unable to attend school. In addition to the educational limits imposed by energy poverty, the preparation of food can be extremely harmful to women's health, as explored above.

While the alleviation of energy poverty is not a panacea to global poverty, no nation has reduced its poverty levels without increasing their energy usage.

⁸ Energy Working Notes, May 2005, p7

⁹ <http://www.who.int/indoorair/info/iabriefing1rev.pdf>,

¹⁰ Indoor air pollution in developing countries: recommendations for research, K.R. Smith, Indoor Air, 2002, http://ehs.sph.berkeley.edu/krsmith/publications/02_smith_1.pdf

4. Energy Poverty & the Millennium Development Goals (MDG)

In 2000, the UN adopted the MDGs with two key metrics, one of which was a reduction of the number of people living on less than \$1 a day by 50% by 2015. As explored above, income and access to modern energy are highly correlated. In order to achieve the MDGs, energy poverty must be reduced, and reduced quickly if the 2015 goals are to be met. Of course, a reduction in energy poverty alone will not accomplish the MDGs but the MDGs are unlikely to be met without addressing energy poverty.

Millennium Development Goals & Energy Poverty

MDG 1. Eradicate extreme poverty and hunger.

Modern energy services and fuels improve productivity and add to agricultural output.

MDG 2. Achieve universal primary education.

Light bulbs allow students to study in the evening and electricity could power educational tools like computers and projectors.

MDG 3. Promote gender equality and empower women.

LPG and kerosene would reduce the physical burden on women and, free from fuel collection duties, allow them to earn an education.

MDG 4. Reduce child mortality.

The health effects of energy poverty affect children disproportionately. Modern fuels extend the lives of children and reduce the likelihood of illness.

MDG 5. Improve maternal health.

Low birth weights are reduced and prenatal care improved when indoor pollution, caused by cheap primary fuels, is improved.

MDG 6. Combat HIV/AIDS, malaria and other diseases.

Electricity powers health clinics and clocks that allow HIV patients to administer ARVs on the schedule they require to be effective. Additionally, many medications require refrigeration.

MDG 7. Ensure environmental sustainability.

Renewable energy can be decentralized and power rural communities that are unable to connect to the larger electricity grid. Modern fuels can reduce land degradation caused by wood for fuel efforts.

MDG 8. Develop a global partnership for development.

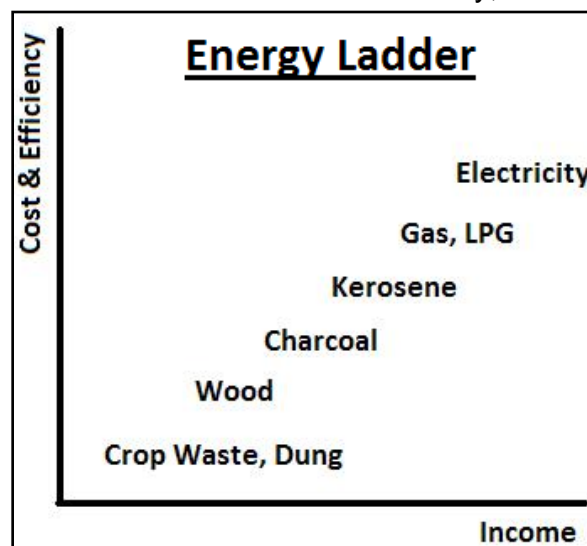
Energy poverty cannot be achieved unilaterally by any nation. Bringing access and modern fuels to communities will be the product of international cooperation and coordination.

5. Energy Poverty & Subsidies

Subsidies are often applied to remedy energy poverty. As a policy tool, subsidies have received their share of press recently, namely for their distortion of energy consumption, but subsidies have an important if not essential role to play in reducing energy poverty. The difficulty in crafting an effective subsidy scheme is in reaching the intended demographic. Blanket subsidies for fuel or electricity do not assist the poor any more than they do the wealthy; to be truly cost-effective and efficient, subsidies must benefit only those who need them most.

Some countries have applied a “cross subsidy” in which the price of energy (electricity, fuel or otherwise) is reduced for a defined fraction of the consumer set. For example, in Yemen, customers who use less than 200 kilowatt-hours per month are charged at a different rate than those who use more. In theory, this distinction favours the poor and can be effective if implemented appropriately. In practice, however, it is very difficult to achieve the perfect definition of who should receive a reduced tariff. Returning to the Yemeni example, nearly all consumers in Yemen use less than 200 kilowatt-hours per month.¹¹ That does not make the subsidy completely ineffective, as it certainly is reaching the poor, but it does make it less cost-effective by allowing too many users to qualify.

Douglas Barnes, an advisor to the World Bank and an expert on energy poverty, advises evaluating subsidy programs for their efficacy, sector efficiency and cost-effectiveness, while bearing the essential who, what, how and how much questions in mind.¹² The “who” question is usually the easiest to answer: the poor and any segment of the population that lacks access to, or cannot afford, modern energy fuels and services. They should be targeted first. The question of what to subsidize is usually more difficult to answer. If electricity, which element of the electricity supply chain? The upfront capital costs are usually the largest obstacle to expanding access and applying subsidies there is often beneficial. Applying subsidies to rate payers individually can work as well, but as demonstrated in Yemen, reaching the intended audience can be tricky. For fuels, the question becomes which fuels? Subsidies should help consumers climb the “energy ladder” toward more efficient fuels, like LPG. Subsidizing the upfront costs to fuel consumers, such as the bottle charge for LPG, could lower the access bar and allow more of the population to use the fuel. Subsidies for fuels like gasoline, a fuel higher on the “energy ladder,” are often ineffective as poverty reduction programs and operate on a different policy plane.



In determining how much to subsidize, governments should prioritize sustainability. Subsidies should be implemented if and when they can reach the poorest consumers, but be designed to assist those consumers away from the effects of energy poverty over the long term. If subsidy programs stop and start, or put undue strain on markets or the government applying them, they will be ineffective. Sustained support for a subsidy sends an important signal to the market and users. That said, finding the appropriate level of subsidy is an admittedly arduous task but only achievable through careful study and analysis of the subsidy's effect once implemented.

¹¹ Douglas F. Barnes and Jonathan Halpern, *Energy Services for the World's Poor*, ESMAP Energy and Development Report, 2000, p. 62

¹² Ibid

In short, subsidies require care. Inefficient programs can bankrupt governments while achieving few results for the poor, but carefully implemented programs can extend access and improve the health, finances and morale of the poor. The transition up the “energy ladder” generally occurs in step with income levels; subsidies should be designed to secure the sustainability of this transition. Effective subsidies are those that are closely tailored to their market and avoid the pitfalls of waste and unwarranted cost.

6. International Cooperation on Energy Poverty

Despite the alarming figures for energy poverty worldwide, significant efforts are underway to reduce the number of people suffering from a lack of access to modern energy services.

Although a decidedly international problem, energy poverty can be improved through domestic energy policy reform. For example, Mexico identified energy poverty as an obstacle to its development in the 1990s and made access to electricity a budget priority. Through the 1990s, Mexico put over \$2 billion toward electrification, drawing heavily on international capital and donor markets. As part of a larger initiative to reform and redraw its energy sector, from oil to power lines, Mexico managed to eradicate much of its energy poverty. As of 2006, over 95% of Mexico's population was enjoying regular access to electricity.¹³ The Mexican example demonstrates that access can be achieved through comprehensive reform and dedicated funding.

Additionally, a number of international efforts are underway to leverage the economics of scale to reach the largest number of energy consumers:

The New Economic Partnership for Africa's Development (NEPAD) has championed Africa's burgeoning network cooperation among electricity providers and distributors throughout Africa. Regional electricity network dialogue improves grid stability, expands access and lowers rates for users by reducing the marginal cost to distributors.¹⁴ Through NEPAD and other cooperatives, like the regional power pools throughout Africa (E.g., SAPP, EAPP, WAPP, CAPP), Africa's national grids that were once fire rung are now beginning to share transmission across borders. Significant obstacles, like political risk, grid maintenance and interconnectivity certainly remain, but the seeds of international and regional cooperation have begun to bud.

International cooperation on energy poverty is not only occurring in Africa. The Venezuelan national oil company, PDVSA, introduced the “Proposal for a Solidarity-Based Energy Cooperation” designed to combat energy poverty in the 49 poorest countries in the world, as determined by the Human Development Index (HDI). The proposal has several options that allow energy producing countries to assist the poorest energy consuming countries and is one example of how intergovernmental cooperation could assist in the reduction of energy poverty.

¹³ “Energy Poverty Issues,” The World Bank, Washington, DC, 2006, p. 23

¹⁴ Gilbert Mbeshherubusa, “Acting Against Energy Poverty in Africa, African Development Bank, Background Paper prepared for the G8 Energy Ministers Meeting, Rome, May 25-25, 2009”

Cooperation is also occurring in and with the private sector. In 2005, at the World Economic Forum's annual meeting, Canada's British Columbia Hydro and Power Authority, South Africa's Eskom and Sweden's Vattenfall joined up with the World Business Council for Sustainable Development, the World Energy Council and the World Economic Forum to form the Energy Poverty Action (EPA) initiative aimed at reducing energy poverty through local, targeted energy projects. The EPA uses donor capital to fund upfront costs and invites local partners and management to run its projects, increasing the sustainability and local interest in each project. EPA began with electrification projects in Lesotho and the Democratic Republic of Congo and has sought to blend international industrial expertise with local management and implementation. In 2007, the EPA joined with the Development Bank of Southern Africa to create the EPA Management Unit whose objective, as described in their literature, "is to build its institutional capacity to act as a matchmaker between leading companies, governments, local entrepreneurs and communities, as well as national and international finance institutions and donors to enable project financing and execution to address the challenges of energy poverty."¹⁵

7. Financial Efforts

As important as it may be, **policy is only one part of the picture; funding the reduction of energy poverty is as essential** and certain to be a difficult task. In 2009, the IEA estimated the cost of universal electricity access to be \$35 billion a year between 2008 and 2030, nearly \$800 billion in total.¹⁶ In 2008, the IEA examined ten oil and gas exporting countries in sub-Saharan Africa and found that, despite their natural resource wealth, 65% of their populations had no access to electricity and 75% rely on wood for cooking. The problem extends well beyond Africa but its focus in the developing world is particularly damaging. According to Jamal Saghir, the World Bank's Director of Energy and Water in 2006, investment in the developing world's power sector fell from \$47 billion in 1997 to \$14 billion in 2006.¹⁷ Fortunately for the world's energy poor, new models to finance an end to energy poverty are in development.

Two examples noted here, REED and SEFI, are among countless efforts underway worldwide.

Rural Energy Enterprise Development (REED)

REED was established by the UNEP to "provide early-stage funding and enterprise development services to entrepreneurs" in rural and semi-rural communities. In addition to the seed money offered to promising enterprises, REED also provides energy project development and general business training to interested entrepreneurs. The program coordinates with NGOs for funding, offers workshops to financial institutions unfamiliar with

¹⁵ <http://www.weforum.org/en/initiatives/EnergyPovertyAction/index.htm>

¹⁶ 2009 WEO, Chapter 2

¹⁷ "Energy Access, Security, Key to Reducing Poverty," The World Bank, May 28, 2006

rural energy projects and identifies rural business opportunities. While the seed capital provided by REED is generally small, ranging from \$50,000 to \$250,000, the local effect can be significant. In Ghana alone, AREED, the African REED program, has 53 projects in development with over \$400,000 invested. REED has demonstrated its capacity to aid in energy project development beyond Africa, with programs in Brazil (BREED) and China (CREED) finding success as well.

Sustainable Energy Finance Initiative (SEFI)

SEFI was established with the coordination of UNEP and the Basel Agency for Sustainable Development (BASE) and exists to inform financiers of the opportunities available in sustainable energy projects. Recognizing the investment does not always flow where it is most needed, SEFI aims to smooth the path between capital and energy projects focused on a social good. The Initiative's project focus is primarily on renewable projects for communities that lack access or the funding for development. The Initiative is joined by the SEF Alliance, which has organized public and private organisations involved in sustainable energy to "exchange best practices, pool resources, launch joint projects, and assist governments in establishing new or similar financing models." SEFI combats energy poverty by breaking down informational barriers and perceived risks to allow capital to flow where it can be most efficiently applied. It has aided in project development throughout Africa and Latin America.

8. Conclusion

Of course, there is no silver bullet for energy poverty. Energy poverty reduction is a constantly moving target and, while we know much about who suffers from energy poverty and how they do so, we know less about how to successfully eradicate the problem. Certain models have been successful in certain areas, but given the issue's global reach, it demands a better understanding of why those models work where they do, as well as a more concerted global effort. What is the appropriate level of intervention from governments? From multilateral organizations? How should each structure and improve their involvement? Which mechanisms work for rural energy poverty but not for urban energy poverty? How much funding is needed and how should it be applied?

Efforts like the Symposium on Energy Poverty can hopefully help answer these questions and the 12th International Energy Forum in Cancun, through direct review and discussion by Energy Ministers, can aid in the implementation of policies that address energy poverty. Energy poverty is not an issue that recognizes national borders and stronger and more concerted international cooperation will be needed to significantly reduce energy poverty in the next decade.

IEF Symposium on Energy Poverty

Concluding Statement by IEF Secretariat and South Africa Ministry of Energy

The International Energy Forum (IEF) and the Department of Energy of South Africa Symposium on Energy Poverty gathered policy and energy specialists from the IEA, NEPAD, OPEC, OFID, TERI, WEC, WEF and the World Bank as well as independent experts and industry representatives in Johannesburg on 8 - 9 December 2009.

This symposium was held following the recommendations of the 11th International Energy Forum (Rome, 20-22 April 2008) that noted that “over two billion people do not yet have access to modern energy services. This perpetuates the poverty cycle and inhibits economic development, availability of clean water and food, while preventing education and training and acceptable health standards.” Ministers at the Forum called for the solidarity of IEF countries and a step change in the collective efforts of all relevant international organizations to help achieve the Millennium Development Goals by halving poverty rates by 2015. The same message was echoed at the ad-hoc Jeddah and London Energy Meetings, where Ministers called for the intensification of efforts from national, regional and international finance and aid institutions to alleviate the consequences of high and volatile oil prices on the least-developed countries and agreed on the importance of multilateral measures to mitigate this effect.

Symposium participants discussed the most effective means to alleviate energy poverty through informed dialogue and enhanced cooperation and partnerships, and reviewed the role of different stakeholders. They made the following statements and recommendations:

1 - Characterization & Consequences

- Energy poverty affects nearly every corner of the globe to some extent, but the predicament is particularly prevalent in sub-Saharan Africa, South Asia and Latin America. 2.5 billion people lack access to modern fuels for cooking and heating and this figure is set to increase to 2.6 billion by 2020, according to IEA projections. 1.5 billion people have no access to electricity (85% are in rural areas) and this figure has remained largely static over the past few years because populations have grown fastest in the regions most afflicted by energy poverty.

- The causes of energy poverty cannot be divorced from the causes of general poverty, the two are intertwined; for countries in which the per capita income is less than \$1 USD a day, 90% of the population use biomass or dung for their cooking. Lighting, cooking, heating and automotive energy are the four essential elements that must be addressed.
- Improving energy access may not be a sufficient condition to accelerate economic and social development but no nation in history has significantly reduced its poverty levels without increasing their energy usage. It is crystal clear that access to modern energy services is one of the cornerstones to reducing poverty, and a key element in achieving the MDGs. As energy poverty stalls progress on achieving the MDGs access to energy should be added as a 9th Millennium Development Goal.
- The use of non-commercial fuels poses a severe health risk, affects longevity, reduces the productive capacity of entire communities and makes education more difficult especially for young females.
- Participants underlined the need to break the vicious circle of energy poverty: low level of per capita national income reduces the ability to pay, constrains demand expansion and hence severely limits an entirely market – based approach.
- Capacity building in statistics is necessary to provide a basis for the development of benchmarks and indicators for energy poverty against which needs can be defined and progress measured.

2 - Means of Addressing Energy Poverty

- Significant efforts are underway to reduce the number of people suffering from a lack of access to modern energy services. The achievements highlighted in some examples are encouraging; however there is no silver bullet and more efforts should be made to reduce energy poverty, and the scale of these efforts should be stepped up.
- Although a decidedly international problem, energy poverty has a local dimension and can be improved through domestic energy policy reform, including the formulation and implementation of energy poverty reduction plans as an integral part of national energy plans. Combating energy poverty demands a managed coordination of financial, social and energy policies.

- On the finance side, the symposium agreed that energy poverty programs are severely underfunded, and the credit crisis has made this even more difficult. Participants noted that the cost of universal electricity access amounts to \$35-40 billion a year between 2008 and 2030, nearly \$800 billion in total, while the investment in the developing world's power sector fell from \$47 billion in 1997 to \$14 billion in 2006. This investment gap needs to be filled.
- Beyond capital, energy poverty also faces problems more specific to individual regions and communities. Site-specific solutions are an essential component of ending energy poverty. To ensure sustainability it is imperative that local communities take an active role in the choice, planning, development and maintenance of programmes in place.
- Models presented in Africa, Latin America and South Asia offered lessons to inform future efforts. Participants reviewed diverse funding mechanisms and observed that more funding (both public and private) is needed to fill the investment gap; public funding for non-commercial aspects and business-oriented approaches for projects that are commercially and environmentally sustainable. They advocated models that are replicable, scalable and based on local autonomy. There was a call to learn the lessons of the history of electrification in the US, Europe and China where a leading government role was a crucial element.
- Participants also noted that especially in the current economic climate it would be wise not to concentrate only on large scale grid-based projects, but to also evaluate the potential of smaller community-based solutions with lower costs, and higher potential for immediate and sustainable results.
- Participants observed that institutional constraints are impeding investments: unpredictable legal framework, lack of good-governance, lack of harmonization between neighbouring countries in legal frameworks to allow trans-border projects. Domestic policy reform and regional cooperation need to address these barriers. In many cases a significant down-sizing of projects is needed to achieve tangible progress. They highlighted the importance of transparency throughout the project life-cycle. Including the engagement of the communities to benefit from these models.
- Participants cited Integrated Energy Centres in South Africa as a successful PPP and an example of Sasol corporate social responsibility investing back to local communities. They underlined the successful implementation of South Africa's electrification programme (increasing from 30 – 70% in the last decade) supported by a cohesive regulatory framework (electricity pricing policy, Pro-poor electricity Policies...) as an example of the potential that can be achieved with co-ordinated and sustained effort.

- Participants underlined the need to improve energy efficiency i.e. through the use of more efficient cook stoves to reduce wood consumption and pollution, as well as the improvement of distribution of oil products including LPG, and the use of renewables where it makes sense.
- Participants observed that realistic, measurable and achievable targets for energy access programmes should be set up with buy-in from private sector.

3 - Cooperation and Partnership

- Energy poverty is not an issue that recognizes national borders and more concerted international cooperation will be needed to significantly reduce energy poverty in the next decade. Participants called for greater cross-sector, intergovernmental and private sector cooperation.
- Price volatility, distance from population centres and the unfortunate realities of endemic poverty are often beyond the reach of national governments. Participants called for greater international awareness of the issue, greater cooperation and more collaborative efforts to resolve the issue of modern energy services access.
- The need for greater dialogue between governments was also noted by the symposium. International efforts can better leverage the economics of scale to reach the largest number of energy consumers and help reduce energy poverty.
- A number of initiatives and activities are underway. The New Economic Partnership for Africa's Development (NEPAD) has championed Africa's burgeoning network cooperation among electricity providers and distributors throughout Africa. Regional electricity network dialogue improves grid stability, expands access and lowers rates

for users by reducing the marginal cost to distributors. Significant obstacles certainly remain, but the seeds of international and regional cooperation have begun to materialize.

- The Venezuelan national oil company, PDVSA, presented a "Proposal for a Solidarity-Based Energy Cooperation" designed to combat energy poverty in the 49 poorest countries in the world and based on its energy cooperation initiative in the Caribbean basin called Petrocaribe. Venezuela demonstrated the potential for intergovernmental cooperation to assist in the reduction of energy poverty and called for the creation of an ad hoc group to discuss the feasibility of the proposal. This proposal was widely discussed by participants.

- Cooperation is also occurring in and with the private sector. In 2005, at the World Economic Forum's annual meeting, Canada's British Columbia Hydro and Power Authority, South Africa's Eskom and Sweden's Vattenfall joined up with the World Business Council for Sustainable Development, the World Energy Council and the World Economic Forum to form the Energy Poverty Action (EPA) initiative aimed at reducing energy poverty through local, targeted energy projects focused on rural off-grid electrification.
- They highlighted the need to develop regional cooperation involving both private and public sectors and develop cross-border transmission and regional grids in a realistic way.

4 - Role of the different stakeholders

- Reducing energy poverty requires the joint and coordinated efforts of all stakeholders, to develop effective policies and measures and to implement policies through international collaboration. Developed and developing countries, international financial bodies and development and aid agencies, national and regional institutions, governments and private corporations should join their effort through cooperation and partnership to help moving towards the alleviation of energy poverty.
- The role of developed countries would be to provide assistance to developing countries both in terms of finance and technology, to alleviate energy poverty and support human resource and institutional capacity building.
- An enhanced political will and government commitment is required, from all countries including developing countries themselves. Clear and sustainable policies and institutional framework should foster both public and private sector investment and encourage win-win public-private partnership. Pro-poor "smart" subsidies should be temporary, transparent and well oriented.
- Participants observed that, in addition to their traditional role of lending to public and private sectors, international financial institutions should scale-up their operations, enhance international coordination and effectiveness, support national or regional programmes and trans-border projects and support human resource and institutional capacity building. Participants suggested that financing from international financing institutions should be refocused on infrastructure, regional integration projects and local projects that have tangible results in alleviation of the poverty situation.

- International agencies and NGOs should help in building the necessary local capacity to manage, operate and maintain projects by providing technical and management support and training. Examples of significant and tangible achievements showed that aid and development agencies assistance is most efficient when they act as an interface between business and development, work directly with business partners, and facilitate business involvement; focusing on designing business models, assessing needs and resources and proposing innovative funding mechanisms.
- Energy specialists, research centres and academia should be more convincing in presenting the case for alleviating energy poverty to governments and decision makers.
- Participants recommended that energy poverty issues be added as the 9th Millennium Development Goal to achieve universal access to modern energy services.
- Participants called for a new impetus and more widespread support for the initiative “Energy for the Poor” launched by King Abdullah at the Jeddah Energy Meeting and supported by the G20 leaders. With global support it has the potential to mobilize the significantly increased funding required to bridge the energy poverty investment gap (tens of billions of US dollars per annum) and encourage multilateral cooperation and the definition of concrete objectives for domestic policy reform necessary to achieve tangible progress. Supported by IEF Ministers in Cancun the IEF Secretariat in co-operation with IEA, OPEC and WEC could take the lead in detailing and enacting the key components of the “Energy for the Poor” initiative. Its success and sustainability will depend on the genuine commitment of all IEF countries and their willingness to co-operate based not only on consideration of the less-well-off, but also on the understanding that like climate-change poverty knows no borders. Solutions developed by this initiative will have potential positive impacts across the globe.