



International Chamber of Commerce

The world business organization

Department of Policy and Business Practices

ENERGY FOR SUSTAINABLE DEVELOPMENT

Business Recommendations and Roles

Presented by the ICC Energy Committee

Introduction

Access to Energy is a crucial enabling condition for achieving sustainable development. Prudent energy policies and research can play an important role in steering both industrialised and developing countries onto more sustainable energy development paths. Specifically, they can strengthen the three pillars of sustainable development: the economy, by boosting productivity; social welfare, by improving living standards and enhancing safety and security; and the environment, by reducing indoor and outdoor pollution and remediating environmental degradation.

The U.N. Human Development Index¹ provides insight into this important correlation, showing that the increased use of energy and electricity is a prerequisite for continued economic development and improved quality of life, particularly for developing countries. Our challenge then becomes whether the world's economies can use energy more efficiently with reduced environmental impact, and diversify and expand energy production, while maintaining economic growth and prosperity.

The International Chamber of Commerce is committed to the belief that business and industry, with its managerial, financial and technical expertise, along with governments, which must create stable and predictable investment conditions, can stimulate investment programmes that will achieve the common goal of sustainable access to energy.

Energy in the broader context

In economic terms, energy can represent a fairly small part of a nation's GDP, normally less than 5 percent. It is therefore an often underrated element of national politics and economics. However it must be emphasized that although energy can to some degree be substituted with capital and labour, it is by and large an irreplaceable and vital element of a nation's economy, with links to virtually every other aspect. Therefore, active involvement in energy policy discussions, research and planning is in the long term interest of Business and Industry, as well as of society at large.

The increasing use of secondary forms of energy, such as electricity, refined hydrocarbons and (more recently) clean coal, plays a much more important role for productivity growth than is commonly recognized. Generally speaking, the more refined is an energy input, the higher is the efficiency of its use and the value added in the production process. The biggest and fastest growing energy consumer is the energy sector itself, where energy is used primarily for electricity generation and to produce fuel for transportation.

International Chamber of Commerce

38, Cours Albert 1er, 75008 Paris, France
Telephone +33 1 49 53 28 28 Fax +33 1 49 53 28 59
Internet www.iccwbo.org E-mail icc@iccwbo.org



At present there are many concerns about the security of energy supplies. These concerns refer to geopolitical risks, such as dependence on Middle Eastern oil supplies. In addition there are concerns about political restrictions on the use of fossil fuels for fear of global warming. In a somewhat longer time perspective (after 2020) the decline of global oil production seems inevitable, though stepped up production of unconventional oil resources will move that time further into the future. With respect to natural gas the situation is similar, especially with the increasing use of gas for electricity production.

All OECD countries and most developing countries are exposed. Today, the only realistic alternatives to oil and natural gas for electricity generation are coal and nuclear. Carbon sequestering technologies will have to be developed and applied if carbon dioxide emissions are to decline significantly while continuing to use fossil fuels. The use of nuclear energy has avoided carbon dioxide emissions and has, in many countries, reduced energy import dependence and can continue to do so in the future. However, the current attitude towards nuclear power, prevalent in many OECD countries, may preclude that option from being applied. The general opinion among energy policy organizations, including the ICC, is that all energy options must be kept available for energy planners and policy makers.

Shortage of commercial infrastructure, capital for energy prospecting, development, production, refining and marketing, together with long project development lead times, may seriously limit or delay new production of both conventional and unconventional fuels. Environmental legislation, such as limits on carbon dioxide emissions, could lead to a premature phasing out of fossil fuels before sufficient supplies of alternative energies are available at acceptable prices.

In the coming decades there are several emerging technologies likely to exert a major impact on the energy supply scene. Among these are: clean coal (combined with carbon dioxide sequestering technologies) and advanced and new nuclear reactors with further improved safety features for public acceptance and better economy, synthetic gasoline and diesel oil as well as carbon free alternatives for fuelling the transport sector. New renewables, although not likely to provide a significant contribution to energy supply for many decades to come, are nevertheless of great interest for the future and therefore worthy of support for research and development.

It is a daunting task to provide adequate supplies of energy at stable and affordable prices in a safe and sustainable way for a world with 6 billion inhabitants and where some 20 percent of the population still has no access to electricity -- nor to adequate water supplies, food, shelter and sanitary facilities. This is especially so with the emerging necessity to provide adequate energy supplies to a population likely to increase by another 3 billion people over the next 50 years.

Free competition, partnership and cooperation are necessary conditions for a successful and cost-effective passage towards a future where the human use of energy is based on clean, virtually unlimited or renewable forms of energy.

Energy priorities for developing countries



Achieving development goals in rural areas where poverty conditions are currently the greatest will require greater access and improved energy services as a means to reach education, health, water and other goals. In particular, expanding energy services is a means to generate increased employment and income generating opportunities -- and is therefore a pre-requisite to increased value adding activities in rural areas. For the policy-maker, helping create a sustainable energy pathway will require broad societal consensus around the strategic choices of economic, environmental and social development. Depending on their current state of development and priorities, countries will likely pursue different paths towards a variety of sustainable development options. They will require different policy mixes, likely incorporating fiscal, regulatory and research and development efforts. Transparency, stakeholder involvement and institutional flexibility will be key ingredients of any set of decisions.

ICC recommends that Governments consider the following priority areas for energy policy and planning in developing countries:

- Improving enabling frameworks in developing countries (open markets, rule of law, protection of property rights, energy supply and access);
- Enabling and encouraging technology innovation, dissemination, and co-operation, without technology constraints and trade barriers;
- Encouraging R&D on long-term technologies, such as clean fossil fuels, nuclear and renewable energy options.
- Examining whether an integrated approach to the provision of rural services, including energy in rural development and poverty reduction strategies through public financing that promotes services in a variety of areas (e.g.: water, health, education, energy and others), can improve affordability and sustainability;
- Supporting business models that provide a range of fuels and energy services through attention to both investment and consumer financing mechanisms to expand the role of the private sector in providing access to energy;
- Expanding electricity generation through centralized and decentralized systems using conventional or renewable energy based on the resources available domestically;
- Expanding access to modern and cleaner fuels, including liquefied petroleum gas, in rural areas through public-private collaboration to provide affordable alternatives to traditional fuel use for household and industry applications;
- Attending to the role of energy in peri-urban areas. The lack of energy services in rural areas directly contributes to migration to urban areas where inadequate energy services availability impacts urban and peri-urban poor populations. Energy services delivery programmes, including consumer financing options must be pursued to address this growing problem.

Access and affordability

Access to commercial energy will mean that energy must be available at prices which are both affordable (low enough for access by the poorest people) and sustainable (prices which cover the real costs of energy production, transmission and distribution to support the financial ability of companies to maintain and develop energy services and which internalize the social/environmental costs associated with these activities, if practicable). The best way to ensure that a growing number of people will be able to afford commercial energy is to accelerate economic growth and assist those with the lowest income to become more wealthy.



This requires increasing reliance on the market, while addressing cases of market ‘failure’ with special policies. Examples of such actions include:

- Continued market reforms (liberalization, trade, privatisation) to open up energy service (within effective regulatory frameworks) to undistorted price signals, international trade and investment. Substantial and lasting benefits will result if regulations for national and regional markets are set and overseen by independent non-politically influenced regulators;
- End-user prices are an important determinant of the level of energy supply and quality of service. Unless such prices reflect all costs of supplying the service (e.g., variable, maintenance and extension costs), they will distort individual behaviour to the point that the whole economy in which they occur may be unsustainable. The gradual removal of all hidden subsidies which artificially depress fuel prices and the removal of cross-subsidies should be a priority together with the establishment of a consistent energy taxation system.

Security of supply

Energy security can be promoted through efforts to use energy more efficiently and to conserve energy where economically justified. Energy security can also be enhanced by obtaining more energy from sources that are diverse and geographically dispersed. Diversification means expanding the role of innovative technologies and energies with small market share, such as renewables, where justified. Meanwhile, reliance on existing systems should balance freedom of choice and the need for long-term contracts.

Appropriate regulation is also key to ensuring that market reform and globalisation achieve an inclusive and sustainable result. With regard to security of supply, for example, interconnectivity, trade issues and transmission infrastructure for both gas and electricity are critical issues. As cross-border trade in energy continues to increase, countries should not view their supply-demand balance only in national terms: the modernisation and completeness of regulation will be essential to building and maintaining capacity and sustainability.

Although energy policy-making will continue to be an important element in creating energy supply source diversity, ultimately, market criteria must prevail in the development of all energy resources. All energy options should remain open since technological innovation may overcome current limitations and barriers. A variety of options will be necessary to meet the varying needs of individual countries or marketplaces. It will also be necessary to balance the development of new and renewable energy sources (e.g., biofuel and hydro) and advanced energy technologies (e.g., photovoltaics, fuel cells). Fossil fuels, large hydro, and nuclear energy will remain important providers of baseload energy needs in the near to mid-term and in the longer-term energy mixes.

Investments in infrastructure

Energy accessibility and affordability will be dependent upon investment in and public acceptance of the need for new infrastructure, introduction of new technologies, and maintenance of deteriorated systems. The speed, scale and nature of these developments will



depend in part on enabling frameworks, the wishes and support of social actors, and the deployment of the required technologies and financing.

According to recent estimates from the World Energy Council, a yearly investment of \$30 billion will be required over the next decade for new or rehabilitated electricity generation capacity in developing countries. Although overseas development assistance plays an important catalytic role in development, most funds for development do not come from international aid -- they come from domestic capital, from foreign investment, and especially from trade. Energy programmes in the region should work to remove market barriers that may discourage investment in environmentally superior energy options, which often carry higher up-front costs.

The need for a stable institutional framework

In order to marshal significant private (as well as institutional) investment funds, a basic framework to ensure security and predictability of the investment must be in place:

- Political and economic stability to provide reasonable predictability for making business decisions and mitigate unacceptable levels of risk, especially for those projects with long start-up and payback times;
- Governments which basically facilitate doing business, and eschew harassment and arbitrary intervention;
- Presence of a functioning legal framework and process, security of property and persons, enforceability of contracts, and reliable dispute settlement frameworks;
- Sound economic and financial frameworks, including currency convertibility, freedom to remit dividends and other investment proceeds, rational price, non-distorting tax and subsidy policies, and a competent, impartial regulatory regime;
- Fundamental business ethics, including the avoidance of corrupt practices;
- Capacity to supply technical skills, goods and services, through the movement of goods and people, and a trainable workforce.

Energy and the environment

Environment is one of many factors that societal decision-makers account for when considering energy choices. For example, energy production and consumption can raise environmental challenges, including land use, global climate change, water and urban air quality.

Energy efficiency

Energy efficiency is essentially using less energy to provide the same service. In this sense, energy efficiency can also be thought of as a supply resource – often considered an important, cost effective near- to mid-term supply option. Investments in energy efficiency can provide *additional* economic value by preserving the resource base and (especially combined with pollution prevention technologies) mitigating environmental problems.

Improvements in energy efficiency can produce direct environmental benefits in a number of ways, not only reducing pollution but also delaying the need to develop new fuel resources. In addition, energy efficiency improvements can considerably reduce the cost of pollution



abatement. Industrial, commercial, and consumer equipment today can be as much as 80% more efficient than equipment installed just twenty years ago. For example, improved efficiency in any power plant can produce significant reductions in CO₂ emissions. Typically, a 1% point gain in efficiency reduces CO₂ output by 2%.

Efficiency can also be increased at the point of consumption. For example, compact fluorescent lamps are available which use 75% less electricity than conventional light bulbs, and last much longer, while providing light of a similar quality. Although cost-effective over the lifetime of the bulb, compact lamps are not used everywhere due to the greater initial cost. This is an example of one of the major barriers to greater energy efficiency - capital outlay.

The ability to use the full range of market based energy and energy technology resources, along with cleaner technologies and fuel systems, will help drive the innovation needed to optimize business and societal activities within the framework of sustainable development.

Climate change

The ICC believes that successfully addressing the threat of climate change will depend on a fully engaged business response and that business participation depends on both the international framework and domestic implementation of climate policies. Achieving greenhouse gas (GHG) reductions could be costly and with impacts on competitiveness, employment, trade and investment. For these reasons, the most economically feasible way to meet the long-term challenge of climate change is through the development and global deployment of innovative technologies that reduce or avoid such emissions.

The objective of the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The ICC endorses the underlying UNFCCC principle to achieve least-cost solutions, which are essential to minimise negative impacts on the global economy. The carbon intensity of energy systems can be reduced by using cost-effective choices from a range of low-carbon generation sources, including fuel switching, renewables and nuclear power. However, reducing the carbon intensity of energy systems is only one solution to achieving the goal of stabilising net GHG concentrations. It is not always the most appropriate or least-cost option for all countries, now or in the future, given the dynamic nature of technological change. A cost-efficient approach would allow the widest range of options (including CO₂ capture and sequestration, development of GHG sinks, increased efficiency, new technologies and innovations, etc.) to be considered and assessed in terms of their effectiveness of stabilizing GHG concentrations.

With respect to the Kyoto Protocol, the ICC urges negotiators to implement procedures designed to permit maximum market flexibility. Moreover, the establishment of a comprehensive framework for the Kyoto Mechanisms and a defined compliance regime will enable governments to make decisions concerning the ratification of the Kyoto Protocol, and will enable the business community to integrate the effects into its on-going operations and long-term planning.

Voluntary approaches and international cooperation

There is a broad range of different voluntary initiatives that address particular environmental concerns, including unilateral commitments, codes of conduct, self declarations and commitments, voluntary environmental reporting, technology support programmes, eco-



labelling, generic public voluntary programmes and environmental agreements negotiated between industry, governments and civil society. The type of voluntary initiative chosen and its development reflect the particular situation and context (political, policy, public administration, legal, economic, and cultural) in the country, with different stakeholders taking the initiative in different countries.

The value of voluntary initiatives needs to be seen not only at the level of the initiative itself, but also as part of a broader process towards shared responsibility, self-regulation, a new business paradigm of pro-active environmental responsibility, and a new government paradigm of pro-active environmental stewardship. Furthermore, voluntary initiatives are valuable in their role of starting or continuing a process, which, if monitored and guided appropriately, can lead to further pro-active initiatives by industry and other sectors of the economy.

The potential of technology

ICC believes that the most economically feasible way to address the long-term challenge of sustainable development is through the development, commercialization and wide spread dissemination of both efficient existing technologies and new, currently non-commercial technologies that can deliver modern energy solutions, improve efficiency and reduce emissions. Such technologies and services will be developed primarily by business and industry and are best carried out within a free-market setting. Business has already taken major steps through research, investment and voluntary initiatives to improve efficiency, and has deployed new processes and products with lower emissions. Examples include more efficient power generation, heat and power cogeneration, advanced nuclear, efficient insulation materials for buildings, advances in the development of hybrid and fuel cell powered vehicles, renewable and alternative energy sources, and a variety of advanced, efficient end-use technologies and products.

In order to maximize technology development, which will be needed to achieve the goal of a sustainable future, all technology options may be required and should be kept open. Innovation can substantially improve the future performance of current and proposed technologies, therefore it is not relevant to group technologies as either 'good' or 'bad'. This would only serve to hinder effective long-term utilization of the most appropriate technology for the countries where they are to be used.

In order for the many specific technologies necessary for a sustainable energy future to be commercialized, governments should adopt multi-lateral technology research and development programmes, which:

- Encourage holistic, systems-level processes and technologies that support integrated resource efficiency, pollution prevention, and industrial ecology. These emerging concepts and techniques may require creative public-private partnerships.
- Maintain government investment in technology research for future energy resource options that have not reached the commercial stage but hold the most promise for long-term economic, environmental, and national security gains. For example, continued research into technologies for hydrogen production and use could someday revolutionise the way in which energy is produced, distributed, stored, and used.
- Encourage academic and private sector technological research.



The role of business

Business activities have increased supplies of safer, cleaner, economically viable and more reliable fuels for transport, light, power, and heat. Business has implemented management systems that have significantly improved safety, health and environmental performance and provide an ongoing pathway to continuous improvement. It has innovated and deployed advanced technologies that increase the size of viable recoverable resources, improved product quality and enhanced both environmental and end-use performance. Moreover, Business has contributed to countries' efforts to develop their natural resources and improve their own communications, transport, health and education systems through technology cooperation and capacity building.

Business is part of society

Governments throughout the world have made clear the need to follow a sustainable growth path. The business and industry sector, as a part of society as a whole, plays a leading role in meeting this goal. Over the next century, business and industry will be the source of innovation, commercialisation and global distribution of new technologies that will enable society to aim for the target of sustainable growth whilst continuing to satisfy people's hopes and aspirations for a more prosperous future. Business will also employ and train people with skills necessary to develop and operate advanced technology.

For business, this approach is neither new nor business as usual. More than any other group, business has acted to bring sustainable development into its thinking, operations, markets and interactions with stakeholders. It is ready to keep moving ahead. But it cannot do so alone. A concerted effort by governments and all sectors of society is required. If we can move forward from Johannesburg to embrace multilateral cooperation, national action, democratic governance and open markets, we are on the right track for economic development, societal improvement, environmental stewardship and security. Business is working to enact this vision, and invites others to join this urgent collaborative effort.

Business is part of the solution

The Energy industry has worked to provide secure energy supplies and balance economic and social objectives over the last century, and is currently making investments to satisfy the demands of the next century – with greater diversity, security, options, improved efficiency per unit of energy, and reduced environmental impact. Moreover, industry is working to extend new, renewable sources of energy and to develop advanced energy technologies, which have the potential to complement the portfolio of available energy supplies in both industrialised and developing countries.

Key challenges for business include:

- Developing and investing in advanced technology to meet growing demand for affordable energy products while improving security of supply and reducing environmental impacts.
- Enhancing our contribution to sustainable development through a greater integration of economic, environmental and social dimensions.



- Conducting operations with better understanding (by all) of our roles and responsibilities and finding ways to work efficiently, in consultation with others, to improve decision-making processes that relate to business and industry.
- Ensuring the continuous availability of affordable, secure, environmentally sound and socially acceptable energy products and services for a growing world population.
- Improving the social dimension of business in order to broaden the benefits of wealth creation and thereby contribute to the alleviation of poverty.

¹ United Nations Development Programme (UNDP), *Human Development Report, 1999*, Oxford U. Press, New York (1999).