
LAUNCHING AN ENERGY REVOLUTION IN A TIME OF ECONOMIC CRISIS

The case for a low-carbon
energy technology
platform



INTERNATIONAL ENERGY AGENCY



Introduction and Executive Summary

Global trends in energy supply and use are unsustainable. Without decisive action, energy-related emissions of CO₂ will more than double by 2050; increased oil demand will heighten concerns over the security of supplies. We can and must change the path we are on now. This will take an energy revolution with low-carbon energy technologies playing a crucial role.

The current financial and economic crisis is having a profound impact on energy investment with potentially grave impacts on supply and efforts to mitigate climate change. We must not allow this to happen. Clean energy stimulus packages are a step in the right direction, but they are not nearly sufficient from the standpoint of investment or the promotion of necessary innovation.

Energy efficiency, many types of renewable energy, carbon capture and storage, nuclear power and new transport technologies all need to be deployed widely to curtail greenhouse gas emissions (GHG) while promoting energy security. Every major country and sector of the economy must be involved. The task is urgent; investment decisions taken now could saddle nations with sub-optimal technologies and rising emissions for decades.

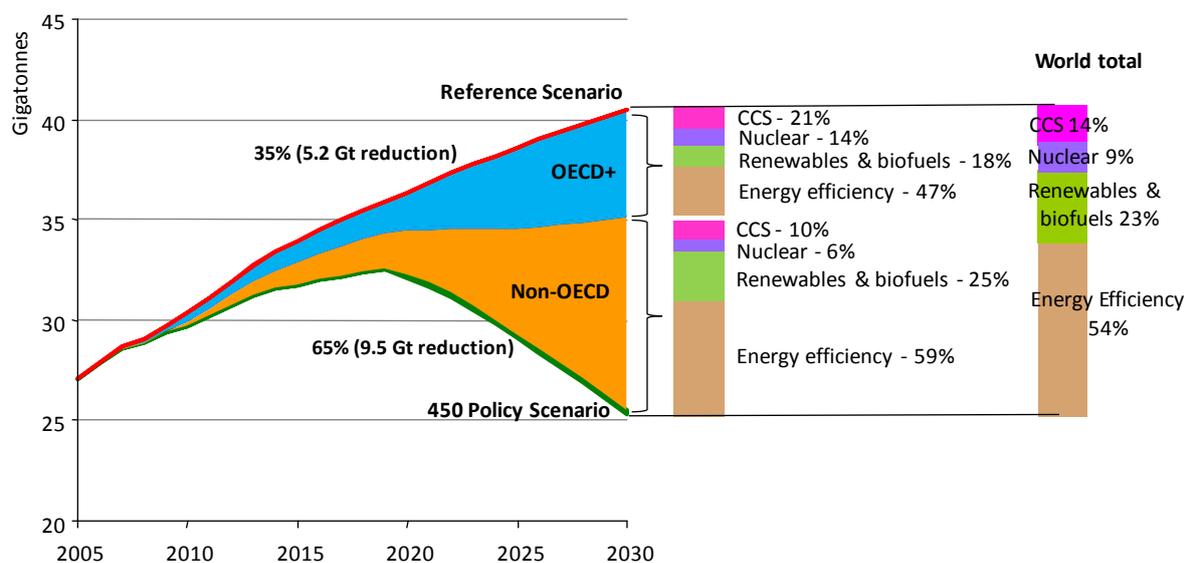
At the G8 Energy Ministers Meeting on May 24-25, the IEA presented ideas for enhancing international collaboration on clean energy technologies, including the creation of a low-carbon energy technology platform to devise an international strategy for enabling all countries, developed and developing to work together and with the private sector to accelerate the development, deployment and transfer of clean energy technologies. (The ideas were also presented at the May 25-26 meeting of the Major Economies Forum.) The G8 Ministers (with the European Energy Commissioner) endorsed the proposal for a low-carbon energy technology platform and called on the IEA to elaborate it further. G8 leaders are now asked to consider this proposal with their counterparts from Major Economies and provide further guidance.

The Need for an Energy Revolution

The energy sector today contributes 80% of CO₂ emissions and 60% of total manmade GHG emissions annually. On today's policies, these emissions are on a trajectory that will lead to an estimated increase in global temperatures by the end of the century of six degrees Celsius or more. Therefore, any effective strategy to mitigate climate change must depend on a rapid shift in patterns of production, transmission and use of energy, in short, an energy revolution. New technology development and deployment is essential in this regard, as is illustrated by IEA projections that describe the contributions that technology can make to steering us away from today's unsustainable energy trend, towards one that would still meet rising energy needs while preserving the world's climate.



Figure 1: Reductions in energy-related CO₂ emissions to stabilise global concentrations at 450 ppm in CO₂-equivalent

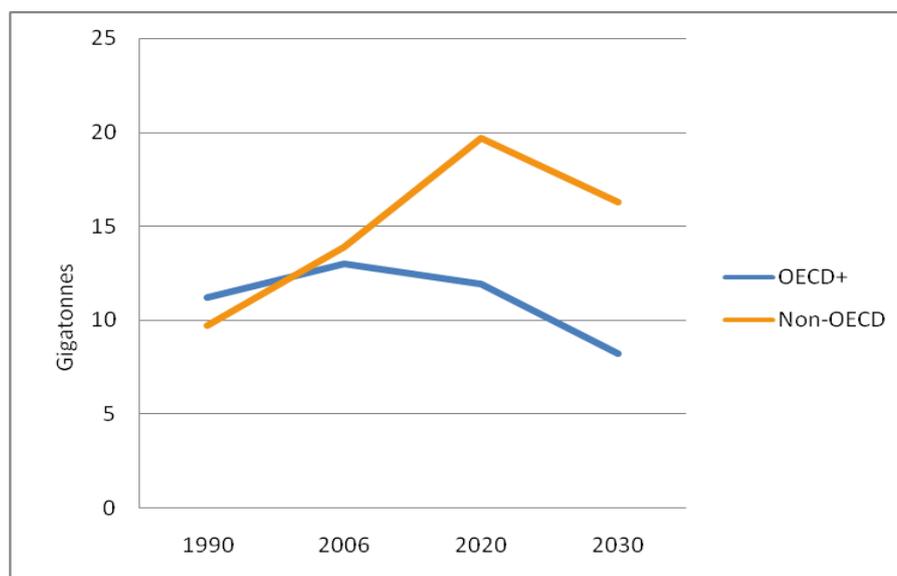


Source: IEA (2008), World Energy Outlook 2008, OECD/IEA.

Key message: OECD and non-OECD countries must act to curb global CO₂ emissions from energy. Energy efficiency and low-carbon electricity are essential to avoid catastrophic climate change.

Figure 1 indicates the main components of an essential transformation of the energy sector to meet the global challenge posed by climate change. These IEA projections show the impossibility of achieving ambitious climate change goals without contributions from the energy sectors in OECD and non-OECD countries alike. Higher expected GDP growth rates in developing countries, 4.8% against 2% per year in OECD countries, currently puts them on a steeper emissions trajectory. This necessitates a relatively larger course correction by them if the world is to remain on track toward an ambitious climate stabilisation goal. By 2030, OECD countries emissions would nonetheless be 37% lower than current levels. Although much lower than they would be otherwise, emissions in other major economies and developing countries would still be some 17% higher than current levels (Figure 2). This scenario sees non-OECD countries continuing to grow, but on a much “greener” development path than they are now on; OECD countries may need to partly support this change of path financially and technologically.

Figure 2: Energy-related CO₂ emissions in OECD+ and non-OECD countries in a 450 ppm policy scenario



Note: OECD+: OECD countries and those EU countries that are not members of the OECD.

Source: IEA (2008), *World Energy Outlook 2008*, OECD/IEA.

Key message: OECD+ countries would undergo significant reductions from today's CO₂ emission levels by 2030 while non-OECD would undertake reductions only after 2020.

How developing-country efforts should be supported by developed countries is in fact a key element of UNFCCC discussions, which are expected to provide a framework for climate action in developing as well as developed countries. The IEA policy scenario depicted here assumes: a carbon price regime for curbing CO₂ emissions from power generation in all major economies; the institution of some international policy coordination (via sectoral agreements) on heavily traded commodities and goods; and the adoption of ambitious domestic policy measures in other areas.

Even though ambitious, IEA climate policy scenarios still allow for the delivery of the energy services necessary to sustain strong economic growth globally – at a higher rate in developing countries than in the OECD.

Three broad areas stand out as requiring much effort:

- Energy efficiency improvements across all end-uses: buildings, transport, heating, electricity uses, to lower the demand for primary, carbon-intensive fuels. (This is the task of the newly formed International Partnership for Energy Efficiency Cooperation (IPEEC), a G8 initiative launched last year.)
- Decarbonisation of the power sector, through growing use of renewable energy sources (including hydro), nuclear power and CO₂ capture and storage (CCS) where fossil-fuels continue in use.
- To make mitigation efforts affordable, innovative technologies must be developed and disseminated widely – particularly in transport, but also in industry, where CCS could contribute significantly.

The Impact of the Financial Crisis on Energy Investment

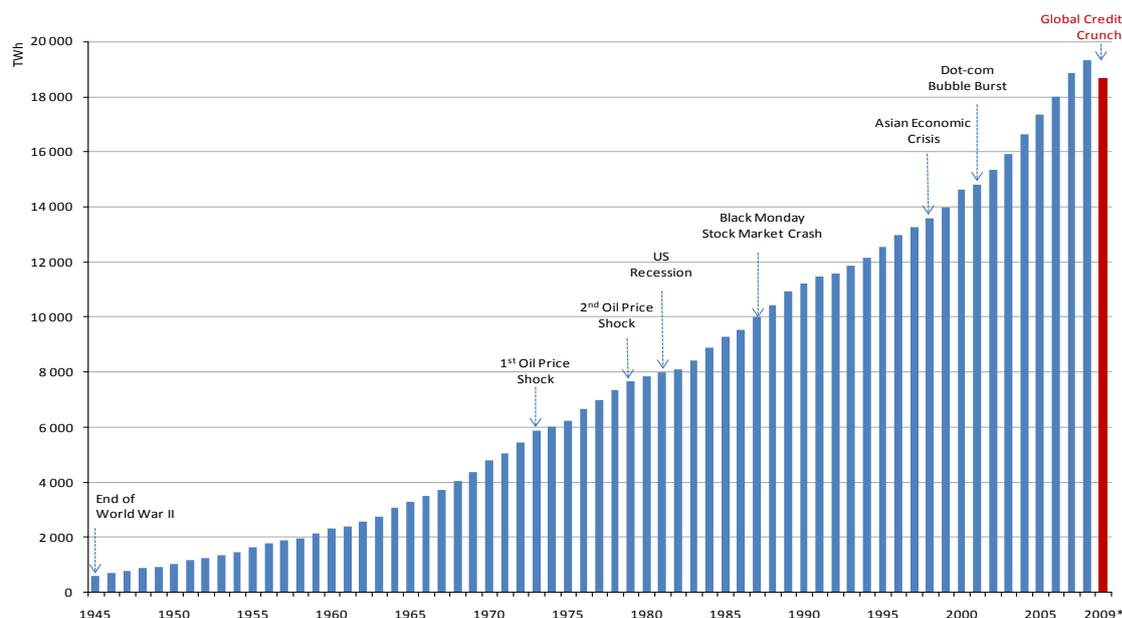
Unfortunately, even as we recognize the need for an energy revolution based on the widespread development and deployment of the best technologies, the investment needed to usher in such a revolution is plunging worldwide. This is the result, primarily, of the global financial crisis, which has pushed the world economy into a severe recession, creating a tougher financing environment, weakening final demand for energy and drying up cash flows in many energy companies. Falling energy investment will have far-reaching and, depending on how governments respond, potentially catastrophic effects, on **climate change** but also on **energy security** and **energy poverty**.

In the **oil and gas sector**, there has been a steady stream of announcements of cutbacks in capital spending and project delays and cancellations. We estimate that global upstream oil and gas investment budgets for 2009 have already been cut by around 21% compared with 2008 – a reduction of almost \$100 billion. The drop in upstream spending is most pronounced in the regions with the highest development costs and where the industry is dominated by small players and small projects. For these reasons, investment in non-OPEC countries is expected to drop the most.

Power-sector investment is being severely affected by financing difficulties, as well as by weak demand. We estimate that global electricity consumption (Figure 3) could drop by as much as 3.5% in 2009 – the first annual contraction since the end of the Second World War. At the same time, borrowing has become difficult and the cost of capital has risen markedly. If a recovery takes longer than expected, and fossil-fuel prices remain at depressed levels, we would expect to see a shift to coal- and gas-fired plants at the expense of more capital-intensive options such as renewables and nuclear. Investment in the **renewables sector** as a whole is being hit disproportionately hard and we estimate it could drop by as much as 38% in 2009.

Demand side investments are also being affected. Businesses and households are spending less on energy-using appliances, equipment and vehicles, with important knock-on effects for efficiency of energy use. Furthermore, equipment manufacturers are expected to reduce investment in research, development and commercialisation of more energy-efficient models, unless they are able to secure financial support from governments.

Figure 3: Historical world electricity consumption



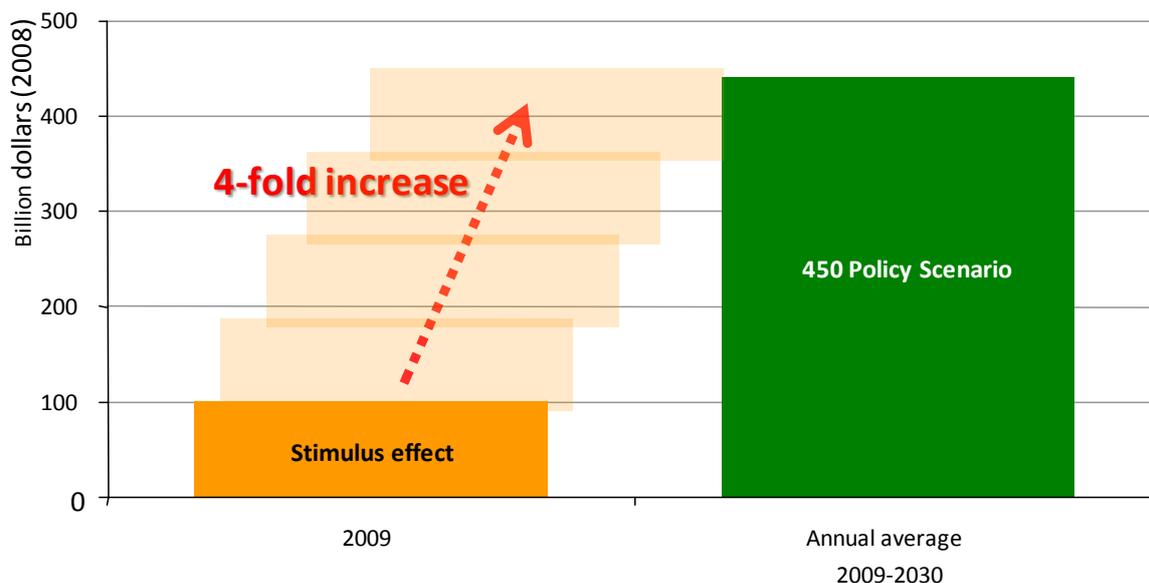
Key message: The estimated decline in electricity consumption in 2009 is unprecedented since World War II and demonstrates the serious impact of the current recession in comparison to previous post-war economic crises.

The role for government: Many countries recognise that these concerns justify government action – a small but significant share of the additional public spending in short-term economic stimulus packages announced to date (about 5% of a total of \$2.6 trillion) has been directed at energy efficiency (improvements in end use can also be part of the solution) and clean energy. These moves are a positive step in the right direction, potentially killing three birds with one stone: tackling climate change, enhancing energy security and combating the recession.

But much more needs to be done. The investment needed to limit the rise in global temperature to around 2°C far exceeds the additional investments that are expected to occur as a result of the stimulus packages. Our analysis suggests that, relative to their recent announcements, governments should be looking to increase the level of new funds they commit to energy efficiency and low-carbon energy policies by a factor of around four (Figure 4). And, at a minimum, this level of investment would have to be sustained each and every year for decades to come.

The IEA, therefore, encourages world leaders attending the 2009 G8 L’Aquila Summit to push for such action on a global scale – a Clean Energy New Deal – to exploit the opportunity the financial and economic crisis presents to improve energy efficiency and effect a permanent shift in investment to low-carbon technologies including carbon capture and storage. This must be seen as a long-term commitment that extends well beyond the limited time horizon of the economic stimulus packages.

Figure 4: Incremental investment in the low-carbon sector



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Key message: Although stimulus packages will significantly increase investment in the low-carbon sector, they pale in comparison to what needs to be done every year to achieve a sufficient reduction in CO₂ emission levels by 2030.

Achieving a Clean Energy Revolution despite the Crisis

Fortunately, government spending as a part of stimulus packages is not the only way to help usher in a clean energy technology revolution. Work to facilitate more rapid diffusion of clean technology is currently under way in various international forums. At the behest of the G8, the IEA has been actively involved in work on the Hokkaido Summit goal of launching 20 industrial scale CCS demonstration projects by 2010. The G8 also asked the IEA to develop a series of technology roadmaps, which seek to identify essential steps for the development and widespread commercialization of 19 key energy technologies. (The list of technologies is divided roughly equally between energy production and end use.)

As roadmap work progresses, it is becoming ever clearer that to be fully beneficial, roadmaps for a given technology often need to be elaborated at a regional or even national level in order to account sufficiently for local economic, environmental and regulatory differences. In addition, the roadmaps will not be self executing. More scope remains, therefore, for turning political statements and analytical work into concrete action through enhanced international collaboration. Unfortunately, we currently lack tools to design and support effective implementing actions, let alone to assess and monitor implementation. There is a pressing need for a strategy to enable all countries, developed and developing, to work together, alongside the private sector as appropriate, to:

- use roadmaps to define clean technology needs at national levels;
- assess each technology's contribution to national energy security, economic development and to efforts to reduce GHG emissions;
- estimate the development and deployment costs of such technologies in power generation and transmission, appliances, buildings, transportation and industry, particularly in developing countries;

- identify barriers to the development, deployment and transfer of these technologies and the most cost-effective measures to overcome them;
- devise concrete steps for implementing such policies, including through international collaboration, and monitoring implementation.

Such a strategy should build on the outcomes of the G8 Summit and Meeting of Major Economies on Energy Security and Climate Change held in July 2008, which emphasised the importance of technology roadmaps as a tool to promote continuous investment and cooperation in clean energy research, development, demonstration, and deployment. A guiding principle would be to maximize the efficient use of available resources by creating synergies among existing activities and avoiding the creation of new bureaucracies. It should also embrace an open philosophy that encourages the participation of all countries and private organizations willing to contribute their fair share to the work.

Of course, reaching accord on a strategy encompassing the development and commercialization of all 19 technologies now being explored for the G8 by the IEA would be a daunting task. Starting with a smaller group of five or six key technologies would have a much better chance of succeeding.

The G8 has already singled out CCS and energy efficiency in buildings for special efforts, which are already gearing up. The next step might be to adopt three criteria for choosing the other three or four starting technologies: the existence of current efforts that could be expanded or built upon to obtain results quickly; the expected importance of the technology for GHG mitigation; the impact of the technology on the success of other valuable technologies.

Once the five or six target technologies have been chosen (perhaps at a meeting of the Major Economies Forum later this year), the IEA could work with interested governments and the various groups active in those areas to organize a conference on clean energy technology development (CCETD, pronounced “seed”) to decide on a division of labour among them. Such a conference could take shortly before the 2010 G8 Summit. This would give some time for governments to prepare their positions (and to digest the results of the Copenhagen negotiations). In addition, the results of IEA’s roadmap work mandated by the Hokkaido Summit should be available by then.

In addition to deciding on strategies for accelerating the development of the target technologies, the CCETD should consider the best platform for monitoring the implementation of strategies for the spread of low-carbon energy technologies. Such a low-carbon energy technology platform could be as simple as a senior-level committee established among the countries and entities taking part in CCETD. Such a committee would include representatives from developed and developing countries as well as key institutions and the private sector, have a flexible structure and could create sub-committees as appropriate. If requested by the low-carbon energy technology platform and approved by the IEA’s Governing Board, the IEA secretariat could provide support for its activities. Or, as is planned for the new IPEEC, a special staff for the platform could be created and hosted by the IEA upon the approval of its Governing Board. A third possibility would be for the participants to hire an independent implementing agent. In any of these cases, the support staff would be recruited in a non-discriminatory manner based on expertise.

The IEA presented the concept of a low-carbon energy technology platform to G8 Energy Ministers in their meeting on May 24-24 (see Annex I). The Ministers, together with the EC representative, responded positively and asked the IEA to continue developing the platform: *“We note that the IEA has the experience to prepare a proposal on how to design and implement this low-carbon energy technology platform during 2009. The forthcoming IEA Ministers’ Meeting in October 2009 might provide a further opportunity to define a work agenda with priorities and timelines. Action could be reported back to the G8 Meetings at an appropriate time.”* (see Annex II)



The Annex I paper on the concept was also circulated at the recent Major Economies Forum meeting in Paris, where it was welcomed by a number of participants.

The IEA Secretariat is now working with Member countries and other interested parties to develop further these ideas, The IEA Ministerial meeting in October is one obvious opportunity to make progress, particularly given the expected participation of China, India and Russia in that meeting. In this regard, additional guidance from G8 leaders and their counterparts from Major Economies at the L'Aquila summit would be appreciated to help define the agenda and priorities for this future work.

Annex I. Toward An International Strategy for Accelerating the Spread of Clean Energy Technology

The context

- There is a growing recognition around the world that the greater diffusion of cleaner, low-carbon technologies, including renewable, nuclear power, carbon capture and storage (CCS) and technologies that enhance end-use energy efficiency, would improve energy security globally, create myriad opportunities for economic growth and promote long-term environmental sustainability through reduced emissions of greenhouse gases. Promoting the development of low-carbon technologies was a major focus of the G8 Environment Ministers Meeting in Siracusa in April.
- Work to facilitate more rapid diffusion of clean technology is currently under way in various international forums. At the behest of the G8, the IEA has been actively involved in work on the Hokkaido Summit goal of launching 20 industrial scale CCS demonstration projects by 2010 and on the creation of an International Partnership for Energy Efficiency Cooperation (IPEEC), as called for by the Aomori Declaration.
- In addition, the G8 has asked the IEA to develop a series of technology roadmaps, which seek to identify essential steps for the development and widespread commercialization of 19 key energy technologies. (The list of technologies is divided roughly equally between energy production and end use.)
- As such work progresses, however, it is becoming ever clearer that to be fully beneficial, roadmaps for a given technology often need to be elaborated at a regional or even national level in order to account sufficiently for local economic, environmental and regulatory differences. In addition, the roadmaps will not be self executing.
- More scope remains, therefore, for turning political statements and analytical work into concrete action through enhanced international collaboration. However, we currently lack tools to design and support effective implementing actions, let alone to assess and monitor implementation.

The Need for an International Strategy

- There is a pressing need for a strategy to enable all countries, developed and developing, to work together, alongside the private sector as appropriate, to:
 - draw on roadmapping and other analytical exercises to assess and identify clean technology needs at the national level;
 - assess the individual contribution of such technologies to each nation's energy security at various levels, to its economic development and to reductions in its GHG emissions;
 - estimate the development and deployment costs of such technologies in major sectors (power generation and transmission, appliances, buildings, transportation and industry), particularly in developing countries;
 - identify existing domestic barriers to the adoption of these technologies in important emitters and the most cost-effective policies and measures to overcome or remove them;
 - devise concrete steps for implementing such policies, including through appropriate international collaboration, and for monitoring progress in implementation.



- Such a strategy should build on the outcomes of the G8 Summit and Meeting of Major Economies on Energy Security and Climate Change held in July 2008, which emphasised the importance of technology roadmaps as a tool to promote continuous investment and cooperation in clean energy research, development, demonstration, and deployment. In effect, we are now calling for a roadmap for accelerating the implementation of roadmaps.
- A guiding principle for a “roadmap-of-roadmaps” strategy would be to maximize the efficient use of available resources by creating synergies among existing activities and avoiding the creation of new bureaucracies. It should also embrace an open philosophy that encourages the participation of all countries and private organizations willing to contribute their fair share to the work.

An Arsenal of Existing Institutions

- As mentioned above, there are a number of existing forums for discussing individual technologies and the strategies for developing and deploying them. The oldest examples are probably the IEA-affiliated technology implementing agreements (IA’s), which date to the agency’s creation 35 years ago. These independent agreements, which are also open to IEA non-members and members of the private sector, enable specialists from all around the world to collaborate on developing new energy technologies of interest to their institutions.
- There are currently 42 IA’s, several of which relate to low-carbon technologies. Each IA provides an annual report of its activities to the IEA’s Committee on Energy Research and Technology, which brings important developments to the attention of energy policymakers in IEA Member-countries. Depending on the topic, other IEA committees and working parties also benefit from IA technology work. In fact, the IEA’s work on technology roadmaps relies heavily on input from IA’s.
- Beside the IA’s, there are a number of forums outside of the IEA framework devoted to promoting various low-carbon technologies. The IEA often participates in such forums, e.g., the Carbon Sequestration Leadership Forum (CSLF), the Global Bio-Energy Partnership (GBEP) and the Global Fuel Economy Initiative (GFEI). Although not dedicated exclusively to low-carbon technologies, there are also several existing forums which allow the private sector to provide input on energy issues, such as the IEA’s Industry Advisory Board, its Coal Industry Advisory Board and its recently established Energy Business Council. Outside the IEA framework, there is the World Business Council for Sustainable Development (WBCSD).
- In addition, 2009 has already witnessed the creation of two new enterprises dedicated to promoting the spread of specific low-carbon technologies and two more initiatives are expected to be launched before the end of the year. The former are the International Renewable Energy Agency (IRENA) and the Global CCS Institute (GCCSI), whereas the latter are IPEEC and the Sustainable Buildings Network (SBN). Even as these initiatives were being planned, another specialized agency, the Nuclear Energy Agency (NEA), celebrated its 50th anniversary.
- This profusion of forums suggests that any delays in the dissemination of new low-carbon technologies will likely not stem from a lack of interest or resources, but more likely from a lack of coordination among independent efforts competing with one another for attention and resources. To prevent this we need a rational division of labour.



Building a Strategy

- Notwithstanding the large number of groups working in this area, there are some grounds for optimism on developing a coherent strategy to create synergies among them while avoiding duplication of effort. There is growing international understanding of the likely consequences of failing to develop new technologies in time. Perhaps even more important, there is a high degree of overlap among the groups' participants. If policy officials from several of the governments involved can reach an accord, they should be able to exert considerable influence on the direction of the groups' work.
- Of course, reaching accord on a strategy encompassing the development and commercialization of all 19 technologies now being explored for the G8 by the IEA would be a daunting task. Starting with a smaller group of five or six key technologies would have a much better chance of succeeding.
- The G8 has already singled out CCS and energy efficiency in buildings for special efforts, which are already gearing up. The next step might be to agree on criteria for choosing the other three or four starting technologies. One such criterion should be the existence of current efforts that could be expanded or built upon to obtain results quickly. Another should be the expected importance of the technology for GHG mitigation. A third could be the impact of the technology on the success of other valuable technologies.
- Once the criteria and the five or six target technologies have been chosen (perhaps at a meeting of the Major Economies Forum later this year), the IEA could work with interested governments and the various groups active in those areas to organize a conference on clean energy technology development (CCETD, pronounced "seed") to decide on a division of labour among them. Such a conference could take place during the latter half of the second quarter of 2010. This would give some time for governments to prepare their positions (and to digest the results of the Copenhagen negotiations). In addition, the results of IEA's roadmap work mandated by the Hokkaido Summit should be available by then.

Goals of a Conference on Clean Energy Technology Development

- In addition to deciding on strategies for accelerating the development of the target technologies, the CCETD should consider how best to monitor the implementation of these strategies. For example, a permanent monitoring committee (PMC) with one or more subcommittees could be established among the countries and entities taking part in CCETD. This committee, which would ideally include representatives from developed and developing countries as well as key institutions and the private sector, could be established using the same flexible structures utilized by for the IEA's various IA's.
- If requested by the committee and approved by the IEA's Governing Board, the IEA secretariat could provide support for PMC activities. Or, as is planned for the new International Partnership on Energy Efficiency Cooperation (IPEEC), a special staff for the committee could be created and hosted by the IEA upon the approval of its Governing Board. A third possibility would be for the participants to hire an independent implementing agent, as is the practice for IEA IA's. In any of these cases, the support staff would be recruited in a non-discriminatory manner based on expertise.

- Whatever structure is chosen must also provide for the active involvement of the private sector, without which no progress can be made in actual technology diffusion. (To ensure that involvement, there would need to be adequate provisions for licensing and protection of intellectual property.) There is a rich history of private sector collaboration with the IEA, including participation in its IA's. The IEA has also collaborated successfully with the WBCSD in the past.

Benefits of a Permanent Monitoring Committee

- Creating a PMC would provide a light-weight structure that would foster essential involvement of the private sector, specialized bodies and major developing countries in efforts to refine and implement clean energy technology roadmaps. Having such a policy body overseeing their work would encourage existing bodies, including IEA IA's, to renew their missions and revitalise their functioning.
- The PMC would serve to coordinate the efforts of specialized bodies (including GCCSI, IRENA, IPEEC, NEA, SBN, GBEP and GFEI) to help developing countries identify and deploy low-carbon technologies. It would also work with international financial institutions to provide them effective assistance for doing so.
- By making the selection and transfer of clean energy technologies to developing countries more efficient, the PMC should increase dramatically their capabilities to meet agreed undertakings on emissions reductions without compromising growth objectives. This could help move the climate/technology debate forward.

The IEA's expertise

- The IEA has considerable expertise that could be drawn on in support of the CCETD and the PMC:
 - The IEA is the only international agency that concentrates on the full range of energy markets and issues. It is also the main international repository of energy data, including policy data. This gives it a unique capability to devise and assess policy strategies.
 - As mentioned above, the IEA is already developing technology roadmaps. The CCETD/PMC could ask the IEA to build on this work to identify key national barriers to technologies (existing as well as new) and their impact on marginal costs.
 - The new IEA database of marginal mitigation cost estimates (now being prepared for the World Energy Outlook 2009) could be used to identify the most promising clean energy technologies and the economic barriers to their diffusion.
 - The IEA already has an extensive database of IEA Member-country climate mitigation policies, which could be used to assist developing countries in preparing objective assessments of policies to address identified barriers.
 - The IEA is experienced at soliciting advice from public and private experts worldwide. Doing this for specific technologies in several important sectors would serve to identify further mitigation actions under the UNFCCC process and help each technology to achieve its full potential for emissions reduction. In this regard, the advice of private-sector energy experts will be essential.
 - IEA also has a good track record of successfully engaging experts from governments and the private sector in the development and promulgation of new sectoral indicators, such as on energy efficiency. The availability of advanced sectoral indicators would help countries to assess the mitigation effect of existing support policies and ultimately to design and implement more effective mitigation strategies at lower cost.



The Choice of Technologies

- As noted above, the G8 has already singled out CCS and energy efficiency in buildings as two key technologies whose diffusion should be accelerated. The new GCCSI and the soon-to-be-launched SBN will serve these objectives.
- Additional technologies that might be worthy of special attention at the CCETD include: electrified vehicles (all electric as well as hybrids and plug-in hybrids), flex-fuel vehicles, nuclear power, smart electrical grids, cogeneration, and concentrated solar power.
- Vehicles constitute a major component of worldwide oil demand. Reducing this demand would have important energy-security, economic and environmental benefits. This is the rationale behind the GFEI whose goal is to increase the efficiency of the world's vehicle fleet by 50% by 2050. To achieve this goal, will require significant amounts of fuel switching – either to electricity or bio-fuels. Both electric and flex-fuel technologies (which could be of particular benefit to some developing countries) therefore seem worthy of international support.
- IEA analysis shows that nuclear power should play a significant role in any successful strategy to reduce emissions to sustainable levels. An increasing number of countries around the world, including in developing countries, are now exploring the nuclear option. However, the industry's global capacity has deteriorated in recent years due to the prolonged slowdown in construction of new plants. Reversing this trend in a cost-effective manner will require the development and promulgation of improved technologies, which could also help overcome safety concerns.
- Smart electrical grids are an important enabling technology that will help reduce the need for increased generation capacity and assist efforts to increase the share of renewable energy sources in electrical generation all over the world. Smart grids could also contribute to the spread of all-electric vehicles and other clean technologies requiring electricity at lower cost and with a reduced need for new generation capacity.
- Cogeneration is an important supply-side energy efficiency technology that captures waste heat from industrial processes and converts it into electricity. Like smart grids, it can reduce demand for increases in traditional generating capacity. In that sense, it is an enabling technology that can help accelerate the world's transition to cleaner technologies powered by electricity.
- Although capital intensive, concentrated solar power promises to be particularly beneficial for poor developing countries with desert climates. In Africa, it could be an important enabling technology for the development of energy corridors and the alleviation of energy poverty. The export of electricity under the Mediterranean to Europe would create a source of foreign exchange for African countries while increasing energy security in Europe.

Annex II. Statements by G8 Energy Ministers with the EC Representative Regarding a Technology Platform May 25, 2009

“We consider it timely and useful to start a process that could lead to the establishment of a low carbon energy technology global platform where international forums and initiatives may converge. IPEEC is a major step forward along this direction.

Building upon existing work the proposed energy technology platform could enable all countries to:

- a) extend and expand energy technology roadmaps and other analytical exercises to assess and identify low-carbon technology needs and priorities at the international and national level;*
- b) assess the individual contribution of such technologies to each nation’s energy security, to its economic development and to reductions in its greenhouse gas emissions;*
- c) estimate the development and deployment costs of such technologies, particularly in developing countries while protecting intellectual property rights;*
- d) identify existing barriers to the adoption of these technologies in important emitting countries and the cost-effective policies to overcome them;*
- e) devise concrete steps for implementing such policies, including through appropriate international collaboration while monitoring progress in implementation;*
- f) create a forum where national and international organisations can exchange information and coordinate;*
- g) promote private-public partnership at national and sectoral level for research, development and deployment of energy technologies by fostering new international collaboration.*

We believe that three guiding principles should be followed while designing the proposed energy technology platform, as follows.

- a) Focus on a limited group of key technologies during the starting phase of the platform such as solar and wind energy, smart electrical grids, low-carbon vehicles, modernisation of coal-fired power stations and CCS and considering the interest of a growing number of countries, nuclear power;*
- b) Maintain the initiative open to all the countries and entities who can contribute on an equal partnership basis and*
- c) Maximise the efficient use of available resources by creating synergies among existing activities, while avoiding the creation of new international entities.*

We note that the IEA has the experience to prepare a proposal on how to design and implement this low-carbon energy technology platform during 2009. The forthcoming IEA Ministers’ Meeting in October 2009 might provide a further opportunity to define a work agenda with priorities and timelines. Action could be reported back to the G8 Meetings at an appropriate time.

