



Ensuring Green Growth in a Time of Economic Crisis: The Role of Energy Technology

Executive summary

Introduction

Despite the severity of the current financial and economic crisis, it cannot be allowed to distract us from addressing critical and strategic climate change and energy challenges. The energy sector produces 60% of global greenhouse gas emissions and so it must also be a key part of any strategy to reduce them. This paper describes the most promising low-carbon technologies, their current status and the policy framework that will be necessary to achieve their widespread deployment. It also highlights what immediate steps can be taken as part of a Clean Energy New Deal.

An energy revolution is necessary and possible

Current trends in energy supply and use are patently unsustainable – economically, environmentally and socially. Without decisive action, energy-related emissions of CO₂ will more than double by 2050 and increased oil demand will heighten concerns over the security of supplies. We can and must change the path that we are now on, but this will take an energy revolution and low-carbon energy technologies will be at its heart.

Energy efficiency, many types of renewable energy, carbon capture and storage, nuclear power and new transport technologies will all require widespread deployment if we are to reach our greenhouse gas emission goals. Every major country and sector of the economy must be involved. The task is also urgent if we are to make sure that investment decisions taken now do not saddle us with sub-optimal technologies in the long run.

Energy efficiency is the first step

Improvements in energy efficiency can deliver some of the largest and cheapest CO₂ reductions. Importantly in a time of financial crisis, they can also often be implemented quickly and bring more benefits for employment than any other category of energy technology. Investment in energy efficiency now will also delay the need for new supply capacity, giving more time for other, new low-carbon technologies to mature and so lowering the overall costs of deployment. Unfortunately, stubborn barriers exist to the deployment of many energy efficient technologies and so governments need to help remove or overcome them.

A long-term integrated policy framework is needed

Developing and deploying low-carbon technologies will require an integrated policy framework. Many of the most promising technologies currently have higher costs than those they would replace and it is only through research, development, demonstration and deployment (RDD&D) that these costs can be lowered. An international and stable carbon price will need to form the cornerstone of



any successful policy in the longer term, but will not be sufficient by itself. It will need to be complemented by other policies and measures and by a significant increase in support for RDD&D. To be most effective, technology support policies need to evolve as a technology matures from the R&D stage to full commercialisation. However, financial support alone is not sufficient. Improvements in rules and regulations, especially those that are creating unintended barriers, must be promulgated at all levels of government.

Roadmaps that show what is needed to take technologies from their current status through to full commercialisation are a useful tool to help both government and private sector make the right choices. In response to a request from G8 leaders in Hokkaido, the IEA is leading efforts on roadmaps for the most important low-carbon technologies – on the demand side as well as the supply side, including renewable and fossil-fuel technologies. This will require concerted efforts involving all key stakeholders, including the private sector and developing countries.

Now is the perfect time to start

The economic stimulus packages now being adopted by many governments provide an excellent opportunity to ensure cleaner, more sustainable growth in the energy sector – both through immediate measures with impacts in the near term, and by influencing longer-term investment decisions. One of the most attractive options lies with refurbishing buildings. Renovating them to meet high energy efficiency standards and replacing outdated heating systems would cut energy use dramatically while creating jobs in manufacturing and building trades. Publicly-owned buildings could be the first target. The transportation sector also holds enormous potential for energy savings. Proposed government support for the auto industry could be designed to promote more fuel efficient vehicles, including through scrappage and buy-back schemes. Renewable energy can also play a role, with support through tax changes and targeted investments.

Such a Clean Energy New Deal is not a policy measure that substitutes for other, more long-term approaches. However, it could be the most promising and concrete way to take a determined first step to a sustainable future – from a security, environmental *and* affordability point of view.