

POLICY RECOMMENDATIONS IN CLEANER FOSSIL FUELS

The recommendations reproduced here were published coinciding with the G8 summit in Hokkaido in July 2008, and are available at:

http://www.iea.org/G8/2008/G8_Towards_Sustainable_Future.pdf.

To improve the operating efficiency of the global fleet of coal-fired power plants – and thereby significantly reduce CO₂ emissions, it is recommended that governments focus on the following policy approaches.

1. For New-built Units

Ensure that all newly built coal-fired units are state-of-the-art supercritical or ultra-supercritical units with efficiency of no less than 40%, depending on coal quality, site conditions and grid capacity. Consideration should also be given to Integrated Gasification Combined Cycle (IGCC) plants as these become more commercially available. Developers should consider what might be required for retrofit with CCS, avoiding steps that might make this unnecessarily difficult.

2. Replacement of Older Units

Ensure that all coal-fired units of below 300 MW capacity using sub-critical technology and aged 25 years be gradually replaced by larger units, preferably using supercritical or ultra-supercritical technology. When applying these criteria, the performance records of the units and the country-specific power supply/demand situation should be taken into account. In choosing technologies, both pulverised-fuel (pf) fired and circulating fluidised bed (CFB) units should be considered, depending on coal quality, site conditions and grid capacity. Consideration should also be given to IGCC plants as these become more commercially available. Governments should consider urgent action to ensure substantial progress by 2015, and complete replacement by 2020.

3. Upgrading of Older Units

Consider assessing for upgrading or replacement – preferably to 40%-efficiency – all sub-critical units even less than 25 years old which have efficiencies of under 30%, subject to appropriate country-specific techno-economic assessment, including CCS readiness.

4. Diffusion of Advanced Technologies

Foster international co-operation to diffuse advanced technologies in developing countries to replace or upgrade older units, as recommended in the two preceding recommendations. This co-operation should also be extended to the adoption of best practice in power plant operation and should involve international financial institutions.

5. Incentives for Upgrading and Replacement

Together with utility owners in national jurisdictions, address the financial gaps and incentives needed for the replacement or upgrading of older units, as identified above. Full use should be made of existing methodologies for high-efficiency coal-fired plants under the Clean Development Mechanism (CDM) and support should be given to the development of new CDM methodologies for the retrofit of existing plants and for CCS.

6. Plant Maintenance and Coal Quality Control

Encourage regular scheduled maintenance and coal quality control in all fossil fuel-fired plants within their jurisdiction and foster international co-operation for doing likewise in other countries.

7. Best Practices in Plant Operation

Consider establishing a dedicated funding mechanism to facilitate pre-financing of expenditure for capacity building and introduction of best practices, based on plant performance improvement programmes, including benchmarking, and operation and maintenance practices. These programmes could be implemented by IEA in collaboration with the private sector and financial institutions. The pre-financed expenditure could be repaid by the benefiting utilities from the savings made as a result of performance improvements.

8. Development of Advanced Technologies

Together with the private sector, address how to accelerate development and demonstration efforts targeting higher efficiency, notably through programmes such as the European Union's COMTES700, the United States Department of Energy/Electric Power Research Institute advanced materials programme, and programmes on efficient lignite drying technologies and advanced CFB development. From a CCS perspective, such efforts should also be directed towards accelerating development and demonstration of oxy-fuel, pre- and post-combustion technologies.

9. Need for Quality Statistics

Promote international co-operation with developing countries on high-quality systems for gathering statistics on emissions and efficiency. Such systems should allow for improved access to data for quality-control efforts, for studying emissions trends and for determining compliance.

10 Electricity Grid Renovation

Foster international co-operation with developing countries to promote renovation of electricity grids with advanced technologies and high-voltage transmission lines to minimise transmission and distribution losses. This effort should involve international financial institutions.

11 Coal Beneficiation and Cogeneration for Efficiency Improvement

Advance co-operation between governments and utilities in countries with large reserves of high-ash or high-moisture coals to improve the quality of coal power station fuel through improved coal beneficiation technology. Where feasible, governments should also promote cogeneration when new units are planned.

12 Training of Personnel and Manufacturers

Encourage innovation amongst plant personnel in site-specific operational matters and promote international efforts to enhance power plant education by training operators, equipment manufacturers and plant administrators in developing countries where needed.