2005 Energy Act: The Impacts of Clean Coal and Gasification Incentives

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As one in a series, this brief issue paper summarizes the key provisions, impacts, and implications that ICF International sees as the result of the provisions that encourage the development of clean coal and gasification projects in the Energy Policy Act of 2005.

Photograph Courtesy of Oak Ridge National Laboratory (ORNL), U.S. Department of Energy (DOE).

Key Provisions

- The Act includes a number of provisions for tax credits, loan guarantees, loans, and direct grants. These incentives are available for existing, under development, and newly-proposed clean coal and gasification projects.
- The Act enables the U.S. Department of Energy to provide US$200 million annually for nine years, from 2006 to 2014, as loan guarantees, loans, and direct grants, to gasification and other clean coal project developers for a total of US$1.8 billion. Of this amount, at least 70 percent must be used for gasification projects.
- There are 'carve-outs' for specific types of projects to receive direct grants. Portions of the funds must be allocated to projects in the Upper Great Plains, Alaska, and the Western United States. A minimum of five of these projects petroleum coke.
- The Act establishes tax credits for up to US$1.3 billion. Of these amounts, up to US$800 million is for IGCC projects, and US$500 million for other advanced coal-based projects. The tax credit for gasification projects for any taxable year is 20 percent of the qualified investment, while the credit for other advanced coal-based projects is 15 percent.
- There is a three-year period from the date of enactment within which to apply for these incentives, after which there is a two-year "proof period" in which the applicants must validate the claims, and within which the government can reduce or remove them.
- The Act provides US$85 million for research and development at three specific universities over the period 2006-2010.
- Provisions under the Clean Air Coal Program are aimed to increase the efficient and economic use of energy to promote national energy security, diversity, and environmental performance. Authorized appropriations under this provision total US$2.5 billion from 2007-2013 for new projects, and US$500 million from 2007-2011 for projects that increase environmental performance at existing plants.
- Through the loan guarantee program and the timing requirements, the Act establishes commitments in meeting project milestones and financial requirements from project developers.

The use of substantial financial incentives for clean coal and gasification projects is intended to 'jump-start' these technologies.

Anticipated Impacts

- The financial incentives will substantially encourage clean coal projects. In particular, the first few projects will benefit greatly, as these incentives are intended to 'jump-start' such technologies.
- These incentives will bring the cost of new projects close to the cost of a super-critical pulverized coal project with best available control technologies included.

- The Act encourages active use of sub-bituminous coal (low heat content coal) in gasification projects. Assuming that project grants are made directly available to sub-bituminous projects, IGCC technology could make advancements in demonstrating capabilities on lower heat-content coals than would be otherwise possible.
- Over the longer term, the Act sets environmental performance targets for gasification projects. By 2020, those projects are projected to produce no more than .05 lbs per MMBTU of NO_X, to remove at least 95 percent of the mercury and at least 99 percent of the SO_2 in the feedstock.

Industry Implications

- The first few clean coal and gasification projects will be in a strong position to come to fruition by virtue of the incentives in the Act. Those pursuing such projects should accelerate their development efforts. Given that funding programs may not continue at the levels in the current bill, early movers (particularly gasification projects) who are able to meet the project criteria and have projects on-line in the near term have a strong advantage.
- Such projects will have significant implications for the electric transmission grid, impacts which must be carefully evaluated to ensure that the anticipated costs fully reflect the likely situation when the plant is built.
- A number of clean coal and gasification projects may produce by-products to sell (e.g., ammonia and sulfur). The economic analysis of these projects should consider both the access to markets for these by-products and the economic value they would add.
- The loan guarantees provide an opportunity for developers to obtain a credit rating that they otherwise would not be able to achieve. This will be particularly attractive to entities that use project finance, which tend to be independent power producers as opposed to utilities. A process will need to be established for determining qualifications for the amount of a project's loan guarantee.
- Independent power producers (IPP) offering clean coal projects in response to utility solicitations could take advantage of these incentives if their project is selected. The Act should result in interest from a broader group of potential developers than currently exists.
- The manufacturers of clean coal and pollution control equipment should do well as a result of the Act's incentives and should update their market assessments in light of the Act's provisions.
- It will be important for project developers to carefully assess the tradeoffs in cost and performance between the technological options to ensure that they utilize the optimum equipment configuration.
- By encouraging reductions in the level of emissions, these incentives (and the target emission reductions in the Act) will provide part of the response the United States can give to critics of its position on global warming. The Act's encouragement of energy efficiency and nuclear energy are other parts of this response.
- As a result of the Act, the technology and performance of carbon control technology should greatly improve positioning the industry for lower long-term costs should any form of carbon tax be imposed.

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