

FACT SHEET
ENVIRONMENTAL PERMITTING OF COAL-FIRED POWER PLANTS IN MICHIGAN
June 29, 2007

Michigan's 21st Century Energy Plan (Plan) dated January 2007 identifies the need for new coal-fired generating capacity. The Plan acknowledged that coal will remain a large part of Michigan's portfolio for the foreseeable future. As a result, the Michigan Department of Environmental Quality (MDEQ) anticipates several permit applications in the near future. After consideration of the applicable federal and state requirements, the impact on emissions, and the recent permitting activities throughout the country, the MDEQ is proposing to require the consideration of clean coal technologies (i.e. Integrated Gasification Combined Cycle or "IGCC") as part of the air permitting process for electric generating units.

There have been a number of significant activities relative to this issue since Michigan's last coal-fired power plant was permitted in 1984. These activities include:

- The federal Clean Air Act was amended in 1990. One of the changes made was to the definition of Best Available Control Technology (BACT), which was intended to add clean coal technology (Title 40 of the Code of Federal Regulations, Part 52.21(12)). Michigan rules were modified in 2006 and include the same definition.

Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source of modification ***through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques*** for control of such pollutant....

[Emphasis added.]

- IGCC technology has progressed from an experimental technology. There are two existing installations of IGCC technology for power generation in the United States. One is located in Tampa, Florida and the other is in Terre Haute, Indiana. Both of these installations were partially funded by U.S. Department of Energy money. More IGCC facilities are planned. There are at least three IGCC facilities in the Great Lakes Region which have been permitted, or are in the final states of permitting. The MDEQ is aware of approximately 13 new IGCC units in the planning stages throughout the country. The availability and reliability of IGCC facilities has been steadily increasing, and new IGCC facilities have reliabilities comparable to conventional coal-fired power plants.
- The state of Michigan formally recognized the need to control mercury from coal-fired power plants. On June 20, 2005, Michigan's Mercury Electric Utility Workgroup released its report entitled: *Mercury Electric Utility Workgroup Final Report*. The workgroup was formed in response to a request by Governor Jennifer M. Granholm to MDEQ Director Steven E. Chester. The workgroup was charged with evaluating opportunities and developing recommendations for an emission reduction strategy for coal-fired electric generating units and determining the feasibility of timely and measurable reductions in mercury emissions. Mercury control on IGCC plants is significantly more effective than mercury control on conventional coal-fired power plants.

IGCC has superior sulfur dioxide, nitrogen oxides, particulate matter, and mercury control, resulting in significantly lower emissions of these pollutants compared to conventional coal-fired facilities.

With the advent of climate change as a national issue, the ability to capture and sequester carbon emissions has become a concern related to coal-fired power plants. As an outfall to these considerations, it has been noted that Michigan has unique geological formations which could make carbon sequestration in Michigan both economically and technically advantageous. IGCC has a much higher potential for carbon capture than conventional facilities. As climate change strategies are implemented, these considerations will serve to offset IGCC's higher capital and operating costs in Michigan more than in other locations.

The states of Illinois, Kentucky, and New Mexico require IGCC to be considered as a control option in their BACT determinations. Two IGCC power plants, the Taylorville Energy Center in Illinois and the Cash Creek Generation Station in Kentucky, have recently been permitted or are in the final stages of permitting.

In cases where states have not included IGCC technology as a part of their BACT review, legal challenges have been filed. These cases are still pending resolution approximately four to five years after permit issuance. It is likely that permits in Michigan would be challenged if IGCC is not included as a part of a BACT determination.

Based on these considerations, the MDEQ is proposing to require the consideration of IGCC as a control option within a BACT review, since the technology:

- Falls within the scope of the regulatory language;
- Is consistent with policy and guidance provided by the U.S. Environmental Protection Agency;
- Achieves better environmental performance than conventional technologies;
- Offers significant advantages, some unique to Michigan, over other technologies for the reduction or control of secondary pollutants and their impacts (i.e., mercury, greenhouse gases); and,
- Reduces the risk of administrative or legal challenges to any permit issued without its consideration.