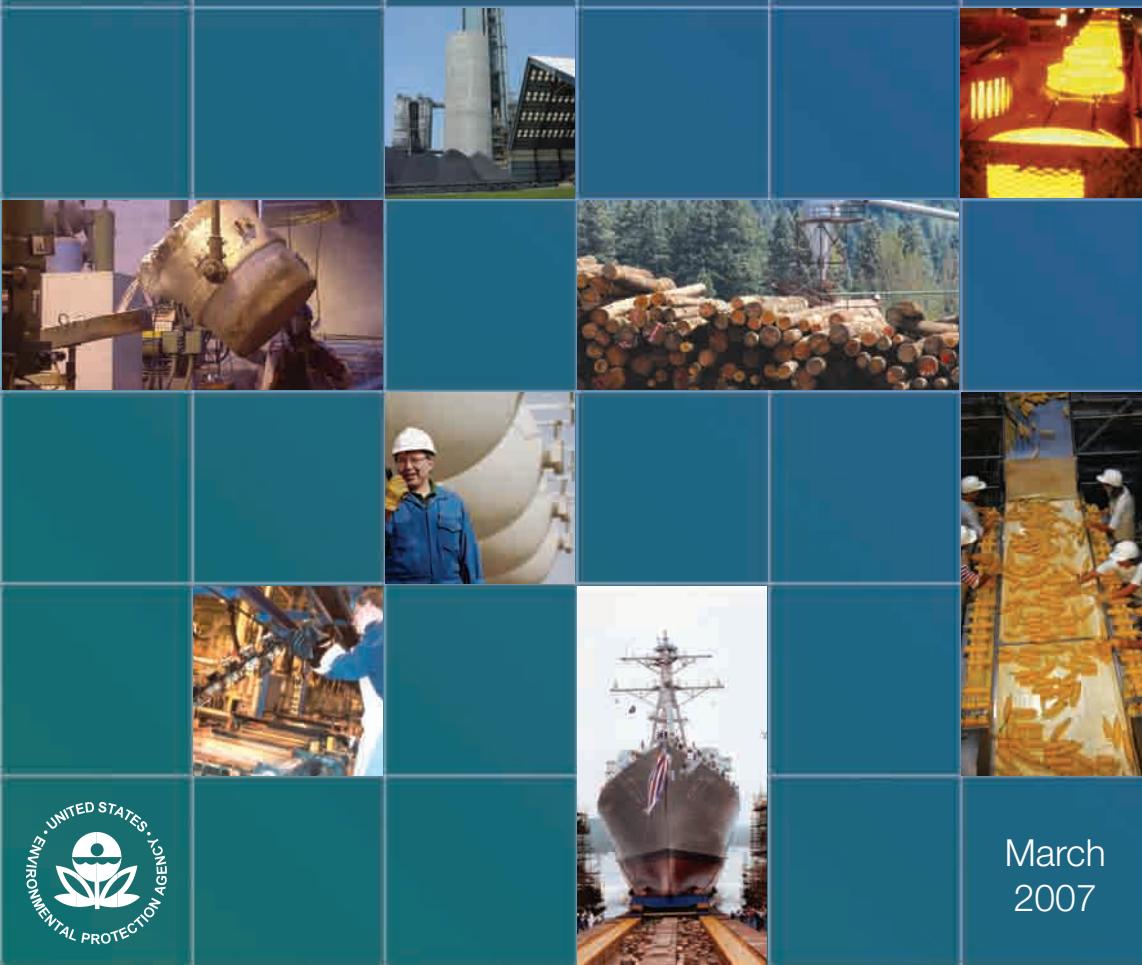


US EPA ARCHIVE DOCUMENT

# Energy Trends in Selected Manufacturing Sectors: Opportunities and Challenges for Environmentally Preferable Energy Outcomes



March  
2007

U.S. Environmental Protection Agency

Energy Trends  
in Selected Manufacturing Sectors:  
Opportunities and Challenges for  
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Energy Outcomes

Final Report

March 2007

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## 5. Policy Options

### Chapter 5. Policy Options

#### 5.1 Internal Actions and Coordination

#### 5.2 External Actions and Coordination

#### 5.3 Conclusion

### Insights

EPA program offices have already undertaken a number of steps to remove regulatory barriers at the federal level. The research conducted for this analysis—including the data sources we reviewed and the perspectives and insights provided to us during interviews with internal and external stakeholders—has indicated that environmentally preferable energy outcomes may also be promoted through the following policy options: (1) developing and promoting broader application of regulations that recognize the emissions reductions resulting from increased energy efficiency; (2) increasing procedural flexibility to promote environmentally preferable energy use; (3) promoting broader consideration of the energy implications of rulemakings; (4) promoting the development of more favorable market conditions for energy efficiency and clean energy technologies; and (5) providing additional incentives and assistance through a sector-based approach.

The analysis of key opportunities for promoting environmentally preferable energy outcomes in each of the 12 sectors discussed in Chapter 3, and the potential regulatory barriers to implementing those opportunities discussed in Chapter 4, indicate that changes in policy may help to promote the use of cleaner fuels as well as energy efficiency improvement through combined heat and power (CHP), equipment retrofit or replacement, process improvement, and research and development (R&D). EPA could remove potential regulatory barriers through changes in policy or reduce potential regulatory barriers through incentives that make the barriers surmountable from an investment standpoint. Certain activities are within EPA's internal jurisdiction and are discussed in Section 5.1; others extend into broader coordination with external agencies and entities and are discussed in Section 5.2.

As with the discussion of regulatory barriers in Chapter 4, the following policy options are not intended to be comprehensive or definitive in terms of actions to be undertaken by EPA. They are simply intended to illustrate possible approaches for removing and/or reducing potential regulatory barriers identified through our research, which consisted of a review of relevant data sources and interviews with internal and external stakeholders.

### 5.1 Internal Actions and Coordination

It is important to note that several EPA program offices are in the process of making significant adjustments to existing regulations that would have a direct impact on promoting environmentally preferable energy use:

- EPA continues to reform the New Source Review program. For example, based on final recommendations from EPA's 2002 *New Source Review: Report to the President*, in September 2006 EPA's Office of Air and Radiation proposed making three improvements to specific areas of the NSR program: (1) "debottlenecking," allowing exemptions for projects that increase the overall efficiency of an operation by modifications to one part of a facility that increase throughput in unmodified parts of the facility; (2) clarifying NSR requirements regarding aggregation, treating multiple related projects as a single project for NSR purposes; and (3) "project netting," eliminating the need for complex source-wide

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emissions analysis if the net effect of a project does not result in a significant emissions increase.<sup>323</sup>

- The Office of Solid Waste (OSW) has proposed a revised definition of solid waste to promote greater recycling primarily through the reuse of hazardous secondary materials.
- The Office of Air Quality Planning and Standards (OAQPS) has a number of initiatives underway to promote energy efficiency, including recently released output-based New Source Performance Standards (NSPS) governing several sizes of boilers and combustion turbines that promote more efficient fuel use and recognize the environmental benefits of CHP. OAQPS also has initiatives underway to assess the climate impacts of proposed rulemakings, as well as a rule that offers increased permitting flexibility for modified wood-fired boilers to encourage the use of non-fossil fuels.

The following policy options suggest additional actions EPA could take to remove the regulatory barriers discussed in Chapter 4 through changes in regulatory policy.

### Develop Regulations That Account for Environmental Benefits of Energy Efficiency

EPA could continue to develop and promote broader application of regulations that recognize the emission reductions that result from increased energy efficiency. Output-based regulations provide a mechanism for incorporating the benefits of increased energy efficiency and produce emissions reductions across multiple pollutants through reduced fuel use—achieving emissions targets for regulated pollutants as well as producing incidental reductions in unregulated emissions such as greenhouse gases (GHGs). Output-based regulations promote energy efficiency as a pollution control strategy by allowing equitable comparison between energy-efficient generating equipment and other emissions reduction technologies such as add-on controls. Such regulations are also applicable to market-based approaches to environmental protection by providing sources with greater compliance flexibility and promoting technology innovation.

#### Policy Option:

Develop and promote broader application of regulations that recognize the emissions reductions resulting from increased energy efficiency, particularly through:

- Output-based emissions standards that account for the thermal and electric energy output of CHP.
- Output-based emissions standards governing other combustion processes such as energy-generating and manufacturing process equipment.

Suggested areas where the use of input-based standards may indicate opportunities for regulatory improvement include the following:

- Clean Air Act permitting of new CHP applications under NSR typically employs an input-based approach that establishes emissions limits based on fuel inputs. By failing to account for the technology's dual outputs of thermal and electric energy, the input-based approach does not recognize and reward the increased fuel use efficiency of CHP.
- Recent combustion-related rulemakings that also employed input-based standards (lb/MBtu) include the National Emission Standards for Hazardous Air Pollutants (NESHAP) for some sizes of industrial boilers and process heaters. NESHAPs for stationary combustion turbines employed a concentration-based (ppm) standard.

In other recent rulemakings, such as the stationary combustion turbine NSPS, EPA has used output-based standards to promote greater fuel use efficiency. EPA could continue to pursue

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additional opportunities for the use of output-based standards, particularly with respect to NSR permitting processes and new rulemakings governing combustion equipment (e.g., CHP, boilers, and process heaters).

### Increase Procedural Flexibility to Promote Environmentally Preferable Energy Use

To address permit-related barriers to investment in energy efficiency or cleaner fuels opportunities, EPA could increase procedural flexibility in the areas of flexible permitting and increased recycling for energy recovery. In some cases, these strategies will require examining emissions tradeoffs at a broader level than the facility level and quantifying energy consumption and emissions tradeoffs. Options for providing technical assistance to industry and permitting authorities to quantify and evaluate such tradeoffs are also discussed below.

#### FLEXIBLE PERMITTING

Flexible permitting aims to promote certain environmentally preferable activities by providing exceptions to permitting requirements for certain types of changes (for example, modifications to methods of operation or equipment), provided that plant-wide emissions remain below enforceable caps. Flexible permitting may also entail an advance approval process for specific changes. Like output-based emissions standards, flexible permitting can also be used to support market-based approaches to environmental protection to provide sources with greater compliance flexibility and promote technology innovation.

##### Policy Option:

Increase procedural flexibility surrounding opportunities to reduce energy-related emissions on a system-wide level through:

- Expanding flexible permitting opportunities that promote reductions in energy-related emissions as part of a pollution prevention strategy, including developing a flexible permitting rule.
- Promoting broader recycling of wastes and process byproducts for energy recovery.
- Providing assistance to the regulated community as well as state and local permitting authorities in support of efforts to increase procedural flexibility in environmental regulations, including technical guidance on evaluating energy-related environmental tradeoffs at a system-wide level.

This policy option might include adding flexibility to the permitting process whereby specific changes to fuel inputs, processes, or equipment that are directly tied to improving environmental performance through energy-related modifications would not automatically trigger the full blown permit review. For example, many industry comments encountered in our research remark that a more flexible definition of "routine maintenance" would help diminish NSR barriers to energy efficiency improvement projects. EPA's September 2006 proposal is a major step in this direction.

EPA has historically offered flexible permitting on a pilot basis for pollution prevention and is considering developing a formal flexible permitting rule. In connection with its existing efforts, EPA could evaluate additional energy efficiency and clean energy opportunities that are good candidates for flexible permitting incentives, either through existing pilot programs such as those offered by Performance Track or ideally through development of a flexible permitting rule.

Suggested areas where flexible permitting may offer opportunities for regulatory improvement include the following examples:

- Replacement of inefficient boilers with high-efficiency boilers or CHP.
- Other changes to fuel inputs, processes, or equipment that are directly tied to improving environmental performance through energy-related modifications.

- Streamlined permitting processes or permitting exemptions to promote adoption of new energy-efficient technologies, such as those developed through DOE's Industrial Technologies Program (e.g., advanced furnace and process heating technologies).
- Expansion of flexible permitting beyond major sources.

## **RECYCLING FOR ENERGY RECOVERY**

EPA's focus on recycling has traditionally been on promoting recycling for materials recovery with relatively less emphasis on promoting recycling for energy recovery. As such, opportunities to encourage increased energy efficiency or alternatives to fossil fuel consumption through recycling for energy recovery may be overlooked. Beyond efforts currently underway at OSW, EPA could work to (1) find additional areas to promote greater emphasis on recycling for energy recovery under existing regulations and (2) ensure that the development of new regulations does not exclude environmentally beneficial uses of waste or byproduct-derived fuels.

Suggested areas where increased recycling for energy recovery may offer opportunities for regulatory improvement include the following examples:

- Employing a sector-based approach to identify areas where increased use of waste fuels (i.e., solvents, waste oil, or paint) could produce environmentally preferable outcomes over alternate methods of disposal (i.e., through avoided landfilling or through recovery of useful energy from waste that would otherwise be incinerated).
- Evaluating environmental tradeoffs to facilitate the development of regulatory mechanisms that promote greater recycling for energy recovery by recognizing the environmental benefits of energy-related reuse and recycling in the permitting process.
- Assessing energy implications and possible environmental benefits of increased energy-related recycling in the development of new regulations, and developing appropriate mechanisms to incent such activities, provided they ensure an appropriate level of environmental protection.

## **ASSISTANCE TO INDUSTRY AND PERMITTING AUTHORITIES**

In cases where EPA has revised or is in the process of revising regulatory requirements, perception barriers may persist that inhibit investment in energy efficiency or clean energy opportunities. For example, despite recent NSR reforms, industry may still be reluctant to undertake energy-related projects that might potentially trigger NSR due to lingering concerns that NSR requirements will be burdensome. Regulations are technically complex, and while they are established at the federal level by EPA, they are implemented at the state level, which may lead to variability and uncertainty on the part of industry regarding regulatory requirements. A sector-based communications and outreach strategy could be designed to identify key areas where NSR reforms have made energy-related improvement opportunities less burdensome than they would have been previously.

Technical assistance may also be needed to support flexible permitting and increased recycling for energy recovery, particularly where there are environmental tradeoffs between facility-level and system-wide emissions. Implementing such policy options would require EPA to recognize, understand, and articulate energy and environmental tradeoffs—for example, an energy savings of "x" Btus would be "worth" an increase in "y" air pollutant. Moving beyond the facility level to a system-wide perspective will likely require complex analysis. For example, the assessment might involve weighing energy savings and increased pollution at a fuel-using facility versus decreased energy use for waste treatment and handling at a different facility where the waste

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originated. However, a better understanding of these implications and tradeoffs is critical, because without this information permit writers at the state and local level may not welcome (or implement) any increase in regulatory flexibility. Traditional approaches to environmental protection have been based on pollution control technology rather than efficiency or pollution prevention. Without clear guidelines and a consistent regulatory approach, industry may remain uncertain about varying approaches and requirements across multiple facilities and states, which could create further disincentives for energy-related improvements.

The following examples are suggested areas where increased assistance may offer opportunities for regulatory improvement:

- Developing an information clearinghouse for the regulated community that provides a single point of contact and up-to-date information on regulatory requirements that have been revised to promote greater investment in energy efficiency and clean energy improvement projects.
- Developing guidance for state and local regulators on the environmental benefits of energy efficiency and clean energy technology, and their appropriate treatment in the permitting and regulatory process.

### Promote Broader Consideration of Energy Implications of Rulemakings

Environmental regulations can have significant energy impacts. To date, consideration of these impacts has been unevenly incorporated in the regulatory process. Moving forward, EPA could develop a systematic approach for incorporating an assessment of energy impacts in all regulatory venues.

The rulemaking process provides at least three opportunities to consider energy impacts:

- Through Executive Order (EO) 13211, which requires agencies to prepare a Statement of Energy Effects on “significant” energy actions.
- Through EO 12866, which requires agencies to prepare economic impact analyses on rulemakings that have \$100 million annual impact, raise novel issues, and/or have “significant” impacts.
- Through the Regulatory Flexibility Act, which requires a regulatory flexibility analysis if a proposed rule would have a “significant” economic impact on a “substantial” number of small entities.

#### Policy Option:

Review methodologies currently used to assess energy impacts during the rulemaking process, assess how program offices are interpreting/implementing these provisions, and work across the Agency to develop a cohesive EPA position on how such impacts should be assessed and weighed against other Agency priorities.

EPA could explore opportunities under its own authority to require that energy impacts are considered across all rulemaking and regulatory processes. EPA could review methodologies currently used to assess energy impacts during the rulemaking process, assess how program offices are interpreting/implementing these provisions, and work across the Agency to develop a cohesive EPA position on how such impacts should be assessed and weighed against other Agency priorities. Having a standardized policy would allow EPA to make more informed decisions about energy resources and environmental benefits, including potential variations for large versus small entities.

## 5.2 External Actions and Coordination

The following policy options suggest actions EPA could take to reduce regulatory barriers (as well as certain nonregulatory barriers discussed in Chapter 4) through direct incentives or policy support that make such barriers surmountable from an investment standpoint. Such policy support would extend into broader jurisdictions beyond those that are in EPA's direct purview.

### Promote Favorable Market Conditions

To promote the development of more favorable market conditions for energy efficiency or clean energy opportunities, EPA could pursue additional avenues of cross-agency coordination, grantmaking, and analysis.

#### CROSS-AGENCY COORDINATION

Across other federal agencies, EPA could implement a consistent approach to promoting policies that increase the market viability of energy efficiency and clean energy opportunities. As noted in Chapter 4, research to date has identified a number of existing or potential environmental regulations and policies that might impact one or more sectors, including the following:

- Changes to the Public Utility Regulatory Policies Act that potentially affect the viability of onsite power generation.
- Changes to the Internal Revenue Service code that reduce incentives for biomass fuel use.

EPA could monitor proposed regulations and perform a cross-agency coordination function to assess energy implications of proposed regulations or policy changes. A successful model EPA already employs in this area is the Combined Heat and Power Partnership, which works to promote more favorable market conditions for CHP and other distributed generation technologies. EPA could explore additional opportunities for similar efforts, including coordination with state regulators as well as with other federal agencies such as DOE and FERC. Cross-agency coordination of these efforts could be designed to assure appropriate coverage of relevant issues, facilitate communication, and avoid duplication of efforts.

#### GRANTMAKING

EPA could consider additional opportunities for offering direct grants to support clean energy applications in industrial manufacturing sectors. Utilities and Clean Energy Program Administrators, such as The Renewable Trust Fund-Massachusetts Technology Collaborative, have set up distributed energy resources in areas where the energy load is overwhelming. EPA could identify and work with such entities in grantmaking to sectors. Such grants would allow facilities to install solar or photovoltaic panels on their roofs—thereby integrating renewables into how industrial load is met as a way to offset purchased energy requirements.

#### Policy Option:

Promote more favorable market conditions for energy efficiency and clean energy technologies through:

- Coordinating across federal agencies to support policies that promote the market viability of energy efficiency and clean energy technologies.
- Offering additional grants to support clean energy applications in manufacturing industries.
- Analyzing the environmental impacts of utility demand response programs and working to promote clean energy technologies as an electricity demand reduction strategy.

## DEMAND RESPONSE ANALYSIS

Energy supply disruption and market volatility are concerns to all energy users but are of particular concern to industrial customers for whom such disruption would negatively impact the process line. In areas of the country such as the Northeast, there is strong interest in the ability of demand response (DR) mechanisms to address system infrastructure constraints. For example, some utilities and transmission system operators offer incentives for customers to curtail their electricity usage at certain times to reduce peak demand. However, environmental regulators are concerned with the potential environmental impacts of some DR technologies, such as generators that produce an emissions-intensive form of backup power. EPA is currently helping the Northeast states assess the environmental impacts of different DR technologies. This effort provides an example of another area where EPA could seek to promote better convergence between energy and environmental goals. Expanding on its existing efforts, EPA could analyze DR programs and work with utilities in particularly volatile or transmission-constrained electricity markets to promote clean DR technologies across one or more sectors.

### Provide Incentives and Assistance Through a Sector-Based Approach

EPA could explore additional sector-based approaches to promoting environmentally preferable energy outcomes in manufacturing industries, including the following:

- Support and promote energy efficiency and clean energy R&D activities that are underway across a variety of other voluntary programs. Possible activities include the following:
  - Providing sector-based information on R&D opportunities on an EPA Web page.
  - Vetting and/or promoting various online emissions reduction/benefits calculators.
  - Promoting energy-saving assessments and other initiatives launched by DOE under its Industrial Technologies Program.
  - Showcasing sector-specific awardees under other programs (e.g., ENERGY STAR).
- Similar to its work on diesel retrofits for the construction and ports sectors, EPA could assess whether any federal, state, or local grant funding could be made available (or whether tax incentives exist) for plant upgrades—particularly for small businesses in high energy intensity markets. EPA could serve as an information clearinghouse regarding such opportunities that may be available to manufacturing sectors.

#### Policy Option:

Employ a sector-based approach to promoting environmentally referable energy outcomes through the following mechanisms:

- Supporting energy efficiency and clean energy R&D opportunities.
- Providing information regarding financial incentives that are available to support energy efficiency and clean energy opportunities, particularly for small businesses.

## 5.3 Conclusion

This analysis has suggested a number of potential strategies EPA could employ to remove or reduce regulatory barriers to improved environmental performance with respect to energy use in the 12 industrial manufacturing sectors. These policy options include actions the Agency could take internally—such as developing regulations that account for the environmental benefits of energy efficiency, increasing procedural flexibility to promote environmentally preferable energy use, and generally increasing consideration of energy impacts in rulemakings—as well as actions

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involving increased coordination with other agencies and entities to promote favorable policy and market conditions for energy efficiency and clean energy technologies.