

## Department of Energy

## Pt. 436, App. B

(1) Adequacy of information or plan content required to be included by § 436.102;

(2) Adequacy of goal setting methodology or baseline justification as stated in § 436.103;

(3) Adequacy of a well-justified investment program which considers all measures included in appendix C of this subpart; and

(4) Other factors as appropriate.

(c) After reviewing agency plans or revisions of plans, the Under Secretary of DOE, may submit to the "656" Committee for its recommendation, major problem areas or common deficiencies.

(d) Status of the plan review, the Under Secretary's decisions, and "656" Committee recommendations, will be published as appropriate in the DOE annual report to the President, titled "Energy Management in the Federal Government."

### § 436.108 Waivers.

(a) Any Federal agency may submit a written request to the Under Secretary for a waiver from the procedures and requirements of this subpart. The request for a waiver must identify the specific requirements and procedures of this subpart from which a waiver is sought and provide a detailed explanation, including appropriate information or documentation, as to why a waiver should be granted.

(b) A request for a waiver under this section must be submitted at least 60 days prior to the due date for the required submission.

(c) A written response to a request for a waiver will be issued by the Under Secretary no later than 30 days from receipt of the request. Such a response will either (1) grant the request with any conditions determined to be necessary to further the purposes of this subpart, (2) deny the request based on a determination that the reasons given in the request for a waiver do not establish a need that takes precedence over the furtherance of the purposes of this subpart, or (3) deny the request based on the failure to submit adequate information upon which to grant a waiver.

(d) A requested waiver may be submitted by the Under Secretary to the

"656" Committee for its review and recommendation. The agency official that submitted the request may attend any scheduled meeting of the "656" Committee at which the request is planned to be discussed. The determination to approve or disapprove a request for a waiver shall be made by the Under Secretary.

(e) Status of the requests for a waiver, the Under Secretary's decisions, and "656" Committee recommendations, will be published, as appropriate, in the DOE annual report to the President, entitled "Energy Management in the Federal Government."

### APPENDIX A TO PART 436—ENERGY CONSERVATION STANDARDS FOR GENERAL OPERATIONS [RESERVED]

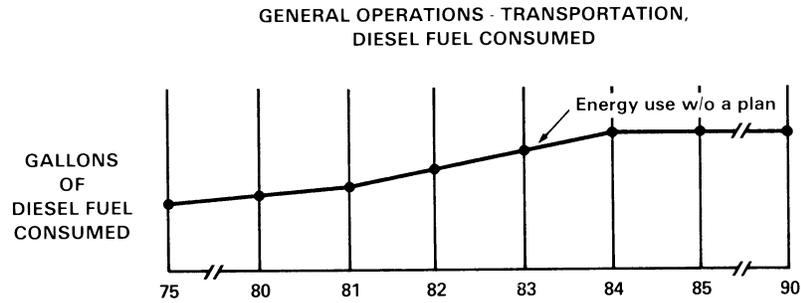
### APPENDIX B TO PART 436—GOAL SETTING METHODOLOGY

In establishing and updating agency goals for energy conservation, the following methodology or an equivalent method should be utilized:

(a) For overall energy consumption—

(1) An analysis shall be made to determine what factors have the most significant impact upon the amount of each fuel type used by the agency in performing functions in support of its overall mission. Consideration is to be given, but not limited to, the following factors: Number of people using energy; number of vehicles using gasoline; amounts of other equipment using energy; tempo of operations (one, two, or three shifts); the type of operations (degree of equipment or labor intensity); equipment fuel limitations; environmental conditions (tropical versus arctic, etc.); budget levels for fuel, operations, maintenance, and equipment acquisition; and phase-out schedule (of older equipment or plants which may be inefficient). After identifying these factors, a further analysis shall be made to identify any projected workload changes in the quality or quantity of these factors on a yearly basis up to 1990.

(2) Based upon the analysis in (a)(1) and an evaluation of available information on past energy usage, a baseline of energy use by fuel type by functional category shall be established beginning with FY 1975. In addition to "General Transportation," other functional categories should be selected to enhance energy management. Total fuel use for a particular activity may be allocated to the functional category for which the preponderance of fuel is used. Figure B-1 is an example of one such baseline.



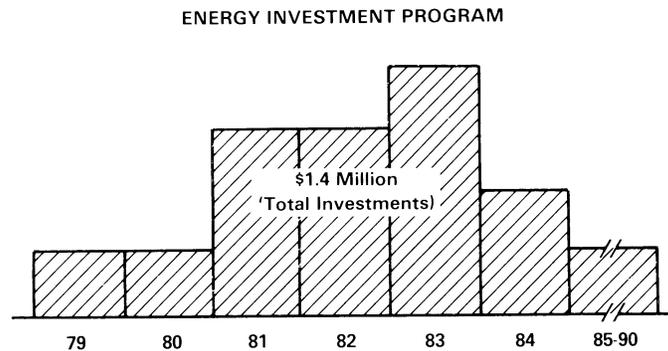
**FIGURE B-1: GENERAL OPERATIONS - TRANSPORTATION,  
DIESEL FUEL CONSUMED**

This example shows an increase in energy use, for a specific fuel type, during the period 1975-1981, with a further increase from 1981 to 1984 and a leveling off and no growth from 1984-1990. A justification, based on factors as discussed above, shall accompany each baseline.

(3) Thereafter, analyses should be made of the measures available for reducing the energy consumption profiles without adverse impact on mission accomplishment. Finding viable opportunities for reducing energy use, increasing energy efficiency and switching energy sources, will require consultation with specialists in the fields of operations, maintenance, engineering, design, and economics, and consideration of the measures identified in Appendix C. The DOE Federal Energy Management Programs Office can, upon request, provide information on where

such resources can be located. Once these measures are identified, they are to be incorporated into a time-phased investment program, (using where appropriate, the life cycle costing factors and methodology in subpart A of this part). If investment and other costs for implementing a measure are insignificant, a Federal agency may presume that a measure is cost-effective without further analysis. An estimate must then be made as to the lead time required to implement the program and realize energy reductions.

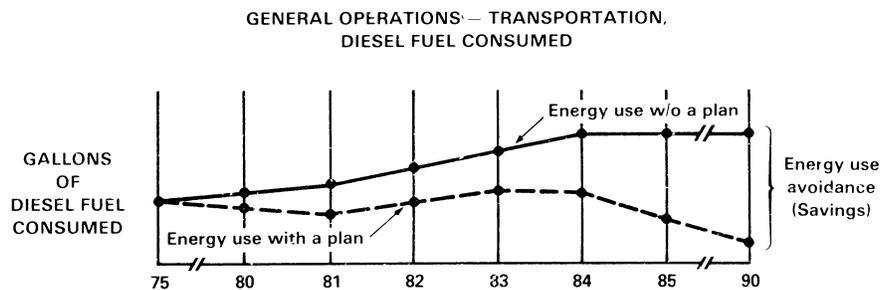
Figure B-2 shows a summarized investment program, which should be accompanied by a detailed description of the measures, projects, and programs making up the total planned investments for each year. This summary need not be by function or fuel type.



**FIGURE B-2: ENERGY INVESTMENT PROGRAM**

These analyses should enable the agency to project an energy consumption goal, with the assumption that funds for executing the planned projects will be approved. Figure B-3 shows a new energy use profile, with planned initiatives and related investments

taken into consideration, and the resulting goal entitled "Energy Use With A Plan" superimposed on Figure B-1. Included are the anticipated effects on consumption cause by improvements in energy efficiency and fuel switching.



**FIGURE B-3: GENERAL OPERATIONS – TRANSPORTATION,  
DIESEL FUEL CONSUMED**

A comparison of these projections will show the energy use avoidance resulting from the investment program as depicted in Figure B-2. Using the prices of fuel contained in Appendix C to Subpart A, the dollars saved can be projected against the dollars invested. Life cycle costing methodology pursuant to subpart A, will be used to determine priorities for submitting individual initiatives into the appropriate budget year.

(b) For energy efficiencies—Energy efficiency baselines and goals for each fuel type shall be calculated using the same consumption factors and similar methodology to that outlined in paragraph (a). Energy consumption by fuel type shall be linked to mission through the functional categories listed in §436.106(a)(2). This will identify a rate which will indicate energy efficiency trends. This linkage may be accomplished through the following algorithm:

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*Step 1:* Determine functional categories from section 436.106(a)(2) which best describe the Agency overall mission.

*Step 2:* Determine types of fuels used to support the functions selected in Step 1.

*Step 3:* Determine quantities of fuel consumed or planned for consumption over a specific period of time.

*Step 4:* Determine quantity of output of function for same period of time used in Step 3. Quantify output in a standard measure which best describes functional category.

*Step 5:* Determine the energy efficiency ratio by dividing quantity from Step 4 by quantity from Step 3.

This ratio of fuel consumed to a unit measure of output will be used to develop a projection of a baseline and goals through 1990, and used in reporting variance. Examples of ratios that should be considered are:

- Production or industrial process type operations

Ton of product

Cu. ft. of natural gas

- Services, such as postal delivery

Customers served or pounds delivered

Gallons of automotive gasoline

- General transportation

Passenger miles

Gallons of automotive gasoline

- Training

Persons trained or in training

Gallons of navy special

Agencies shall select one or more of these ratios, which shall be used throughout the planning period, or use more appropriate energy efficiency ratios, to describe their overall functions. Figure B-4 illustrates the planning baseline and goal resulting from this type of analysis.

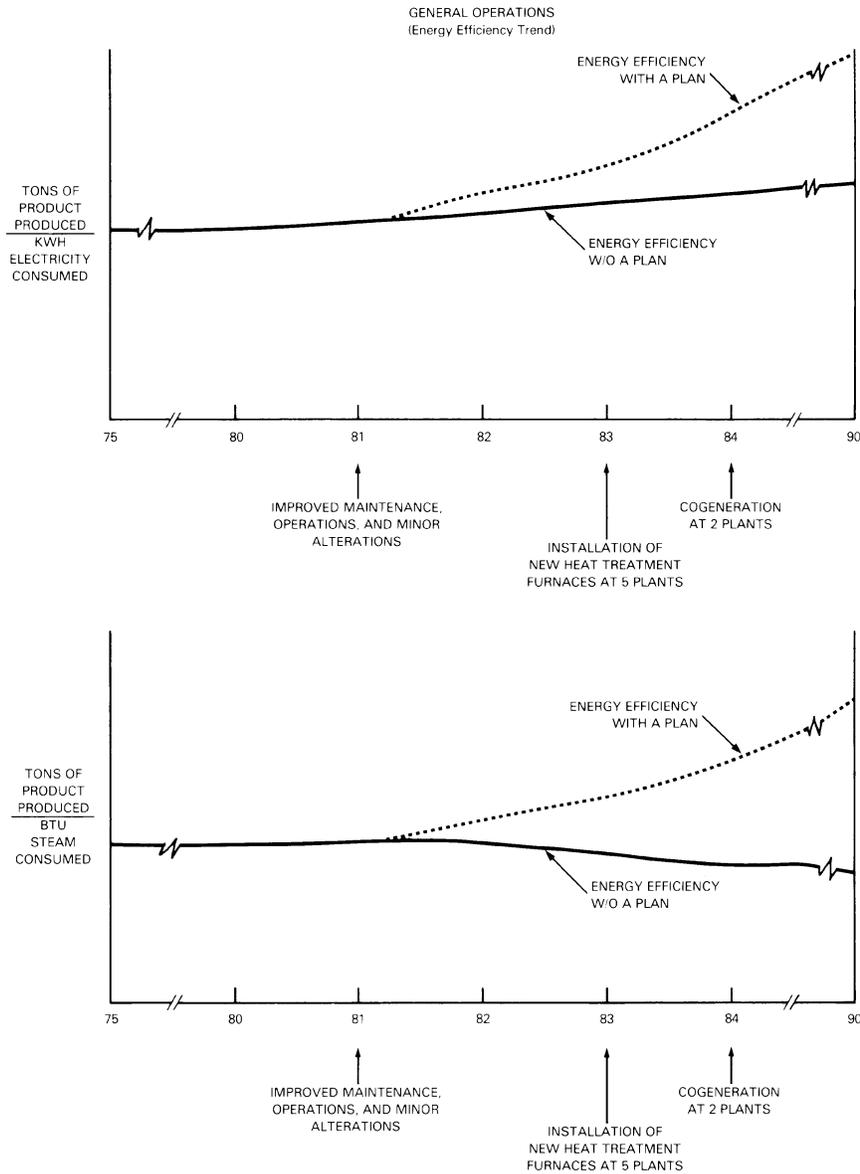


FIGURE B-4: GENERAL OPERATIONS, ELECTRICITY, STEAM CONSUMED.

(c) For fuel switching—Fuel switching goals for gasoline other oil-based fuel and natural gas may be calculated as follows:

*Step 1:* For each fiscal year, identify investments, where appropriate, in fuel switching

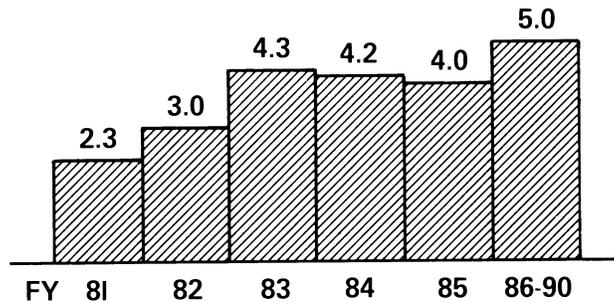
from gasoline, other oil-based fuel and natural gas to alternate renewable or nonrenewable fuel sources.

*Step 2:* Project for each fiscal year, the avoidance in the use of gasoline, other oil-

based fuel and natural gas resulting from previous fuel switching investments.

Completion of these steps will permit the formulation of charts such as that shown in Figure B-5.

**OTHER OIL-BASED FUELS**  
(Thousands of barrels)



**FIGURE B-5**  
**FUEL SWITCHING GOALS**

**APPENDIX C TO PART 436—GENERAL OPERATIONS ENERGY CONSERVATION MEASURES**

(a) The following individual measures or set of measures must be considered for inclusion in each agency 10-year energy management plan:

(1) **Federal Employee Ridesharing Programs**—Includes the use of vanpooling and carpooling and complies with existing orders and regulations governing parking for vanpools and carpools.

(2) **Fleet Profile Change**—Includes energy considerations in equipment selection and assignment.

(3) **Fleet Mileage Efficiency**—Includes agency plans to implement existing orders, goals, and laws related to vehicle fuel economy.

(4) **Driver Training**—Includes development of appropriate programs for training operators of U.S. Government vehicles in energy conservation.

(5) **Maintenance Procedures Improvement**—Includes activities to insure proper vehicle maintenance to optimize energy conservation.

(6) **Operating Procedures Improvement**—Includes use of cooperative passenger shuttle and courier services on an interagency or other basis within each metropolitan area.

(7) **Mass Transit**—Includes employee use of existing services for business-related activities and commuting.

(8) **Public Education to Promote Vanpooling and Carpooling**—Includes activities to support the EPCA requirement to establish “responsible public education programs to promote vanpooling and carpooling arrangements” through their employee awareness programs.

(9) **Elimination of Free or Subsidized Employee Parking**—Includes elimination of free or subsidized employee parking on Federal installations in accordance with OMB Cir. A-118, August 13, 1979.

(10) **Two-Wheeled Vehicle Programs**—Includes activities to encourage the substitution of bicycles, mopeds, etc. for automobiles for commuting and operational purposes. These may include the establishment of weather-protected secure storage facilities, shower and locker facilities, and restricted routes for these vehicles on Federal property. Cooperative programs with local civil authorities may also be included.

(11) Consolidation of Facilities and Process Activities—Includes such measures as physical consolidation of operations to minimize intra-operational travel and may include facility closure or conversion. Alternative work patterns, availability of transportation, energy source availability, and technical and financial feasibility are among the considerations that should be evaluated.

(12) Agency Procurement Programs—Includes activities to ensure that energy conservation opportunities are fully exploited with respect to the agency's procurement programs including procurements relating to operations and maintenance activities; e.g., (a) giving preference to fuel-efficient products whenever practicable, and (b) ensuring that agency's contractors having a preponderance of cost-type contracts pursue a comprehensive energy conservation program.

(13) Energy Conservation Awareness Programs—Includes programs aimed toward gaining and perpetuating employee awareness and participation in energy conservation measures on the job and in their personal activities.

(14) Communication—Includes substitution of communications for physical travel.

(15) Dress Code—Includes measures to allow employees greater freedom in their choice of wearing apparel to promote greater participation in conservation.

(16) Land Use—Includes energy considerations to be employed in new site selection, such as colocation.

(17) Automatic Data Processing (ADP)—Includes all energy aspects of ADP operation and equipment selection.

(18) Aircraft Operations—Includes energy-conserving measures developed for both military and Federal administrative and research and development aircraft operations.

(19) GOCO Facilities and Industrial Plants Operated by Federal Employees—Includes development of energy conservation plans at these facilities and plants which contain measures such as energy efficient periodic maintenance.

(20) Energy Conserving Capital Plant and Equipment Modification—Includes development of energy conservation and life cycle cost parameter measures for replacement of capital plant and equipment.

(21) Process Improvements—Includes measures to improve energy conservation in industrial process operations. These may include consideration of equipment replacement or modification, as well as scheduling and other operational changes.

(22) Improved Steam Maintenance and Management—Includes measures to improve energy efficiency of steam systems. These may include improved maintenance, installation of energy-conserving devices, and the operational use of substitutes for live steam where feasible.

(23) Improvements in Waste Heat Recovery—Includes measures utilizing waste heat for other purposes.

(24) Improvement in Boiler Operations—Includes energy-conserving retrofit measures for boiler operations.

(25) Improved Insulation—Includes measures addressing the addition or replacement of insulation on pipes, storage tanks, and in other appropriate areas.

(26) Scheduling by Major Electric Power Users—Includes measures to shift major electrical power demands to non-peak hours, to the maximum extent possible.

(27) Alternative Fuels—Includes measures to alter equipment such as generators to use lower quality fuels and to fill new requirements with those that use alternative fuels. The use of gasohol in stationary gasoline-powered equipment should be considered, in particular.

(28) Cogeneration—Includes measures to make full use of cogeneration in preference to single-power generation.

(29) Mobility Training and Operational Readiness—Includes measures which can reduce energy demands through the use of simulators, communications, computers for planning, etc.

(30) Energy Conservation Inspection or Instruction Teams—Includes measures which formulate and perpetuate the review of energy conservation through inspections to determine where specific improvements can be made and then followed by an instruction and training program.

(31) Intra-agency and Interagency Information Exchange Program—Includes measures providing a free exchange of energy conservation ideas and experiences between elements of an agency and between other agencies in the same geographic area.

(32) Recycled Waste—Includes measures to recycle waste materials such as paper products, glass, aluminum, concrete and brick, garbage, asphalt road materials or any material which requires a petroleum base.

(33) Fuel Conversion—Includes measures to accomplish conversion from petroleum based fuels and natural gas to coal and other alternative fuels for appropriate equipment.

(34) Operational Lighting—Includes measures to reduce energy consumption for lighting in operational areas and GOCO plants by: switching off by means of automatic controls; maximizing the use of daylight by floor planning; keeping window and light fixtures clean and replacing fixtures when they begin to deteriorate, rather than when they fail altogether; providing automatic dimmer controls to reduce lighting when daylight increases; and cleaning the work area during daylight, if possible, rather than at night.

(35) Lighting Fixtures—Includes measures to increase energy efficiency of lighting. The following reveals the relative efficiencies of common lamp types.

Lamp type	Lumens watt	Improvement over tungsten
Tungsten lamp .....	12	X1
Modern fluorescent lamp .....	85	X7
Mercury halide lamp .....	100	X8
High pressure sodium lamp .....	110	X9
Low pressure sodium lamp .....	180	X15

(36) Industrial Buildings Heating—Includes measures to improve the energy conservation of industrial buildings such as: fixing holes in roofs, walls and windows; fitting flexible doors, fitting controls to heating systems; use of “economizer units” which circulate hot air back down from roof level to ground level; use of controlled ventilation; insulation of walls and roof; use of “optimisers” or optimum start controls in heating systems, so that the heating switch-on is dictated by actual temperature conditions rather than simply by time.

(37) Hull Cleaning and Antifouling Coating—Includes measures to reduce energy consumption through periodic cleaning of hulls and propellers or through the use of antifouling coatings.

(38) [Reserved]

(39) Building Temperature Restrictions on Thermostat Setting for Heating, Cooling and Hot Water—Includes enforcement of suggested restriction levels: 65 degrees for heating, 78 degrees for cooling, and 105 degrees or ban for hot water.

(40) Such other measures as DOE may from time-to-time add to this appendix, or as the Federal agency concerned may find to be energy-saving or efficient.

APPENDIX D TO PART 436—ENERGY PROGRAM CONSERVATION ELEMENTS

(a) In all successful energy conservation programs, certain key elements need to be present. The elements listed below must be incorporated into each agency conservation program and must be reflected in the 10-year plan prescribed in §436.102. Those organizations that have already developed programs should review them to determine whether the present management systems incorporate these elements.

(1) *Top Management Control.* Top management must have a personal and sustained commitment to the program, provide active direction and motivation, and require regular review of overall energy usage at senior staff meetings.

(2) *Line Management Accountability.* Line managers must be accountable for the energy conservation performance of their organizations and should participate in establishing realistic goals and developing strategies and budgets to meet these goals.

(3) *Formal Planning.* An overall 10-year plan for the period 1980-1990 must be developed and formalized which sets forth perform-

ance-oriented conservation goals, including the categorized reduction in rates of energy consumption that the program is expected to realize. The plan will be supplemented by guidelines enumerating specific conservation procedures that will be followed. These procedures and initiatives must be life cycle cost-effective as well as energy efficient.

(4) *Goals.* Goals must be established in a measurable manner to answer questions of “Where are we?” “Where do we want to go?” “Are we getting there?” and “Are our initiatives for getting there life cycle cost-effective?”

(5) *Monitoring.* Progress must be reviewed periodically both at the agency headquarters and at local facility levels to identify program weakness or additional areas for conservation actions. Progress toward achievement of goals should be assessed, and explanations should be required for non-achievement or unusual variations in energy use. Monitoring should include personal inspections and staff visits, management information reporting and audits.

(6) *Using Technical Expertise.* Personnel with adequate technical background and knowledge of programmatic objectives should be used to help management set technical goals and parameters for efficient planning and implementation of energy conservation programs. These technicians should work in conjunction with the line managers who are accountable for both mission accomplishment and energy conservation.

(7) *Employee Awareness.* Employees must gain an awareness of energy conservation through formal training and employee information programs. They should be invited to participate in the process of developing an energy conservation program, and to submit definitive suggestions for conservation of energy.

(8) *Energy Emergency Planning.* Every energy management plan must provide for programs to respond to contingencies that may occur at the local, state or National level. Programs must be developed for potential energy emergency situations calling for reductions of 10 percent, 15 percent and 20 percent for up to 12 months. Emergency plans must be tested to ascertain their effectiveness.

(9) *Budgetary and Fiscal Support.* Resources necessary for the energy conservation program must be planned and provided for, and the fiscal systems adjusted to support energy management investments and information reporting.

(10) *Environmental Considerations.* Each agency shall fulfill its obligations under the National Environmental Policy Act in developing its plan.