"What effects can we expect from a critical shortage of one or more of the basic fuels – electricity, fuel oil, natural gas, coal, or propane – and when can I expect that my business, office, school, or company would have to be shut down or have its activities curtailed when such a shortage develops?"

These questions are answered in this tentative Plan for the Emergency Allocation and Conservation of Energy.

Drafted by the
MINNESOTA ENERGY AGENCY
Division of Conservation and Planning
124D State Capitol
St. Paul, MN 55155

Minnesota has no sources of natural gas, coal, or crude oil. We are an energy barren "island" and must depend on outside sources for our energy needs. For this reason, the law which established the Minnesota Energy Agency requires that a plan for the emergency conservation and allocation of energy be prepared for use in the event of an extreme energy shortage.

This is the plan. It is drafted in a tentative form for distribution to the public, to energy suppliers, producers, and energy users for their review and comments. After all suggestions are collected the plan will be finalized as rules to be followed in the event of a declared emergency by the Executive Council or the legislature.

It shall be the responsibility of the Minnesota Energy Agency and the Director of Civil Defense to keep the public informed of potential energy shortages and possible crises.

As you read the plan you will notice that when a shortage develops in one fuel, shortages could occur in other fuels because the energy "network" interlocks. We feel that the effective management of this "pebble-in-the-pool" reaction will be the key to keeping an extreme shortage from turning into an energy disaster.

Please read the plan carefully. It is important to you, your family, community and livelihood that we receive your comments and suggestions. Write or call us at:

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St. Paul, MN 55155
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SHORTAGE SITUATION IN ELECTRICITY

PHASE I

Moderate summer or winter shortage of short duration, no declared emergency, possibly handled by voluntary conservation.

(1) Public appeal for general electrical conservation by electric companies and/or public officials.

(2) All interruptible electric customers ordered to shut down.

(3) Voltage reductions initiated in all divisions.

(4) All large commercial-industrial electric customers requested to make voluntary reductions in electric usage, including reductions in lighting levels that will not seriously reduce plant production or building operation (note that these customers have agreed to curtail operations).

(5) If shortage occurs during the winter commercial, industrial & residential thermostats in electric heated buildings set at 68° F.

(6) If shortage occurs during the summer commercial industrial & residential thermostats in electric cooled buildings set at 78° F.

(7) If situation worsens, request large volume customers to reduce electric usage to point sufficient to maintain building or plant in standby status only.

(8) As a last resort in this phase electric producers open feeder circuit breakers on residential and light commercial on one hour rotating basis.

(9) No change for health and welfare institutions.

Reaction In Natural Gas

Almost no reaction. If the shortage occurs during the winter, there may be a slight increase in NG demand for space heating because of reduced heat gains from electric lighting and appliances.

Reaction In Fuel Oil

Almost no reaction unless the electricity shortage is caused by insufficient supplies of FO for power generation. If the shortage is caused by FO, then Phase I of the FO conservation program may be initiated. If the shortage occurs during the winter there may be a slight increase in FO demand for space heating because of reduced heat gains from electric lighting and appliances.

Reaction In Coal

Almost no reaction unless the electricity shortage is caused by insufficient supplies of coal for power generation. If the shortage is caused by coal, then Phase I of coal conservation program may be initiated.

Reaction In Propane

Almost no reaction. If the shortage occurs during winter there may be a slight increase in propane demand for space heating because of reduced heat gains from electric appliances and lighting. May also have increased propane usage for cooking, etc.

PHASE II

Relatively severe shortage, declared emergency situation. 10% to 20% below normal demand.

(1) Strong public appeal for general electrical conservation by electric companies, public officials, business and industry leaders.

(2) All interruptible electric customers ordered to shut down.

(3) Maximum allowable voltage reductions initiated in all divisions.

(4) Recommended minimum use of residential appliances such as electric ovens, electric broilers electric water heaters.

(5) Mandatory discontinuation of all non-essential lighting such as exterior

advertising, decorative, show window and interior display.

(6) If shortage occurs during the winter commercial, industrial, and residential thermostats in electric heated buildings set at 65° F.

(7) If shortage occurs during the summer commercial, industrial, and residential thermostats in electric cooled buildings set at 80° F.

(8) Appeal to selected large users to shift work hours to off-peak periods.

(9) Mandatory 20% reduction in overall electric usage by all commercial-industrial and residential customers. Accomplished by implementation of energy conservation measures applicable to each specific building or manufacturing facility.

Note: All electric heated schools (with National Education Act exception) non-essential offices and governmental buildings can be closed at the discretion of CD Director and advisory groups. **Note:** Health and Welfare institutions at reduced temperature consistent with good health practices.

Reaction In Natural Gas

Possible curtailment of interruptible customers permitting substitution of NG for FO for power generation, if electricity shortage caused by insufficient supplies of FO. Some increase in NG demand for space heating because of reduced heat gains from electric lighting and appliances. Increased use of NG for cooking, etc. May require initiation of Phase I of NG Conservation Program.

Reaction In Fuel Oil

May require the initiation of Phase II of the FO conservation program if electrical shortage caused by insufficient supplies of FO. If the shortage occurs during the winter, there may be a moderate increase in FO demand for space heating because of reduced heat gains from electric lighting and appliances.

Reaction In Coal

May require initiation of Phase II of coal conservation program if electrical shortage is caused by insufficient supplies of coal.

Reaction In Propane

May require the initiation of Phase I of propane conservation program. Propane reserves are normally not held at a high enough level to provide any significant benefit.

PHASE III

Severe shortage declared emergency situation 20% to 50% below normal demand.

(1) Steps 1-5 in Phase II continue in effect.

(2) If shortage occurs during the winter, commercial, industrial, and residential thermostats in electric heated buildings set at 55° F.

(3) If shortage occurs during the summer, commercial, industrial and residential thermostats in electric cooled buildings set at 85° F. All non-essential air conditioning discontinued.

(4) Public and street lighting reduced to absolute minimum consistent with public safety.

(5) Mandatory 50% reduction in overall electricity usage by all commercial, industrial and residential customers. All commercial-industrial buildings including schools may be closed at the discretion of CD Director and/or advisory groups.

(6) Mandatory shift of work hours for selected industries to off-peak periods.

Note: Existing electrical capacity made available first to essential health and welfare services, food and energy supply management, and second to basic shelter and residential heating, essential public works, safety, transportation, and communication services.

Reaction In Natural Gas

May require the initiation of Phase II or Phase III of NG conservation program.

Reaction In Fuel Oil

May require initiation of Phase II or Phase III of FO conservation program.

Reaction In Propane

Because of the lack of great storage capacity for propane and its vital position in rural heating and cooking requirements it would be necessary at this point of an electricity shortage for the Director and/or the governing authorities to allocate propane stocks in such manner as to assure best use to highest priority users.

Reaction In Coal

No appreciable change in coal's position or ability to influence the situation would be apparent as the crisis in Phases III & IV deepened. Full use of coal as a power or heat source would be reached at an early stage of the electricity crisis and would remain fairly static as long as supplies held out. (A danger point here would be an unusually fast burn-off of coal reserves setting up a possible later crisis based on a coal shortage. One reason why judgmental balance is going to be so important to this or any similar plan). Under some circumstances careful evaluation could—and should—indicate the declaration of an energy emergency well in advance of an actual electrical power shortage. The inflexibility of coal in a crisis situation makes inventory control and shortage capacity information mandatory.

PHASE IV

Declared emergency situation 50% to 75% below normal demand potential disaster level.

At this point virtually all commercial-industrial businesses which are dependent on electricity for any important facet of their operation will be closed in "preservation of equipment" status, where possible.

Note: Existing electrical capacity made available first to essential health and welfare services, food production and supply management, critical shelter and energy supply management, and second to essential public works, safety, transportation and communication services.

Reaction In Natural Gas

May require the initiation of Phase III or IV of NG conservation program.

Reaction In Fuel Oil

May require initiation of Phase III or Phase IV of FO conservation program.

Reaction In Propane

Disposition and distribution of propane stocks at this point must be left to the discretion of the Director of CD to assure the flexibility needed for most helpful use for highest priority users.

Reaction In Coal

No appreciable change in coal's position or ability to influence the situation would be apparent as the crisis in Phases III & IV deepened. Full use of coal as a power or heat source would be reached at an early stage of the electricity crisis and would remain fairly static as long as supplies hold out. (A danger point here would be an unsually fast burn-off of coal reserves setting up a possible later crisis based on a coal shortage. One reason why judgmental balance is going to be so important to this or any similar plan). Under some circumstances careful evaluation could—and should—indicate the declaration of an energy emergency well in advance of an actual electrical power shortage. The inflexibility of coal in a crisis situation makes inventory control and shortage capacity information mandatory.

SHORTAGE SITUATION IN FUEL OIL

PHASE I

Moderate winter shortage of short duration, no declared emergency, possibly handled by voluntary conservation.

(1) Public appeal for general FO conservation by oil companies and/or public officials.

(2) Appeal to agric. and agric. processing, manufacturing and transportation for voluntary FO conservation.

(3) Restriction of the use of FO for electrical generation.

(4) Commercial, industrial, and residential thermostats in oil heated buildings set at 68° F.

(5) No change for health and welfare institutions.

Reaction In Natural Gas

Substitution of NG for FO for electrical peak power generation and for commercial-industrial FO interruptible customers where possible may create unexpected pressure on NG supplies requiring initiation of Phase I of NG conservation program.

Reaction In Electricity

No significant impact on electrical demand. May require the initiation of Phase I peak demand electrical conservation measures as a means of reducing FO requirements for electrical generation.

Reaction In Coal

May result in some substitution of coal for FO for power generation and for commercial-industrial space heating, depending on air quality constraints. May require initiation of Phase I of Coal Conservation Program.

Reaction In Propane

Substitution of propane for FO may be possible for some residential, commercial or industrial interruptibles. Situation may require application of Phase I of Propane conservation plan.

PHASE II

Relatively severe shortage, 10% to 20% below normal requirements, declared emergency situation.

(1) Strong public appeal for general FO conservation by oil companies, public officials, business and industry leaders.

(2) Appeal by electric utilities and public officials to reduce electrical consumption during peak periods as a means of reducing FO consumption.

(3) Appeal to selected large users of electricity to shift work hours to off-peak periods as a means of reducing FO consumption.

(4) Supplies of FO used for electrical generation reduced significantly.

(5) Specific large oil consumers (manufacturing firms) requested to curtail oil usage.

(6) Commercial, industrial, and residential thermostats in oil heated buildings set at 65° F.

(7) Warehouse space thermostats in FO heated buildings set at 40° F.

(8) Mandatory 20% reduction in oil usage by all commercial-industrial and residential customers.

Accomplished by implementation of energy conservation measures applicable to each specific building or manufacturing facility.

Note: All oil heated schools (with National Education Act Exception) non-essential offices and governmental buildings may be closed at the discretion of CD Director and advisory groups.

Health and welfare institutions at reduced

temperatures consistent with good health practices.

Reaction In Natural Gas

Pressure on FO likely to result in parallel pressure on NG supplies requiring initiation of Phase I or Phase II of NG conservation program. Substitutions of NG for FO for space heating could increase use of NG on long-term basis. Also substitution of electric for FO space heating could increase use of NG for power generation on long-term basis.

Reaction In Electricity

May result in significant substitution for FO for space heating. May require initiation of Phase I or Phase II of electrical conservation program.

Reaction In Coal

As for Phase I, may require initiation of Phase I of coal conservation program. Coal is somewhat inflexible in a crisis situation. Coal companies will follow contractual agreement, but a minimum of three weeks is required to set up rail delivery of coal in winter. At least 4 to 6 weeks for delivery of new orders; could be more depending on demand at mine.

Reaction In Propane

Possible sharply increased use of propane in commercial (heating) and industrial (processing) to supplant loss of fuel oil capacity. Close inventory controls will be advisable to assure priority users of proper share.

PHASE III

Declared emergency situation, 20% to 50% below normal requirements.

(1) Steps 1-5 in Phase II continue in effect.

(2) Commercial-industrial and residential thermostats in oil heated buildings set at 55° F.

(3) FO used in health and welfare services, food and energy supply management, safety, public works, shelter and communication services, and transportation management reduced to essential requirements.

(4) Mandatory 50% reduction in overall usage by all commercial-industrial and residential customers. All commercial-industrial buildings including schools may be closed at the discretion of CD Director and/or advisory groups.

(5) In the absence of alternative peak fuels mandatory shift of work hours for selected large users of electricity to off-peak hours.

Note: Existing fuel oil supplies made available first to essential health and welfare services where no alternative fuel is available and to food supply management, and second to basic shelter and residential heating, essential public works, safety, energy supply management, transportation, and communication services.

Reaction In Natural Gas

May require initiation of Phase II or Phase III of NG conservation program.

Reaction In Electricity

May require initiation of Phases II or Phase III electrical conservation program.

Reaction In Propane

Application of Phase III Propane Conservation plan should be mandatory at this point. Supplies of all petroleum based energy sources will almost certainly be at a crisis level now.

PHASE IV

Declared emergency situation, 50% to 75% below normal requirements, potential disaster level.

At this point, virtually all commercial-industrial businesses which are dependent on FO for any important facet of their operation will be closed in "preservation of equipment" status where possible.

Note: Existing supplies of FO made available first to essential health and welfare services, food and energy supply management, and critical shelter and second to essential public works, safety, transportation and communication services.

Reaction In Natural Gas

May require initiation of Phase III or Phase IV of NG conservation program.

Reaction In Electricity

May require initiation of Phase III or Phase IV electrical conservation program.

Reaction In Propane

At this point propane supplies will be committed to the high priority users only, with direction of its distribution and use in hands of CD director and/or governing authorities.

Note: Beyond Phase IV, in a declared disaster situation, martial law probably in effect at either state or federal level at this point in crisis. CD may become involved in evacuation and emergency shelter for displaced persons early in Phase IV. Sufficient fuel reserved for evacuation.

SHORTAGE SITUATION IN NATURAL GAS

PHASE I

Moderate winter shortage of short duration, no declared emergency, possibly handled by voluntary conservation.

(1) Public appeal for general NG conservation by gas companies and/or public officials.

(2) Restriction of the use of NG for electrical generation.

(3) Interruptible NG customers off on a rotating basis. All interruptibles off if necessary.

(4) Commercial, industrial, and residential thermostats in gas heated buildings set at 68° F.

(5) No change for health and welfare institutions including hospitals and nursing homes.

Reaction In Fuel Oil

Substitution of FO for NG where possible, for electrical peak power generation and for commercial-industrial NG interruptible customers. May create pressure on FO supplies requiring initiation of Phase I of FO conservation program.

Reaction In Electricity

No significant impact on electrical demand.

Reaction In Coal

No significant impact on coal usage except for some possible substitution of coal for peak demand power generation over the short-term.

Reaction In Propane

Substitution of propane for NG may be possible for residential, commercial and industrial interruptibles. Situation may require initiation of Phase I of propane conservation plan.

PHASE II

Relatively severe shortage 10% to 20% below normal requirements declared emergency situation.

(1) Strong public appeal for general NG conservation by gas companies, public officials, business and industry leaders.

(2) No electrical generation with NG.

(3) All interruptible NG customers off.

(4) Specific large volume firm NG customers (manufacturing firms) required to curtail gas usage.

(5) Warehouse space thermostats in gas heated buildings set at 40° F.

(6) Commercial, industrial and residential thermostats in gas heated buildings set at 65° F.

(7) Mandatory 20% reduction in overall gas usage by all firm gas commercial, industrial and residential customers.

Accomplished by implementation of energy conservation measures applicable to each specific building or manufacturing facility.

Note: All gas heated schools (with National Education Act exception), non-essential offices and governmental buildings can be closed at the discretion of CD Director and/or advisory groups.

Health and welfare institutions at reduced temperatures consistent with good health practices.

Reaction In Fuel Oil

Pressure on FO supplies likely to parallel pressure on NG requiring initiation of Phase I or Phase II of FO conservation program.

Long term substitution of FO for NG for space heating could increase use of FO. Also substitution of electric space heaters or more permanent electric heating over the long-term

for NG space heating could increase use of FO for power generation.

Reaction in Electricity

May result in space heater substitution over the short-term and more permanent substitution of electrical power for natural gas space heating over the long-term creating increased electrical demand. May require initiation of electrical conservation measures in Phase I or Phase II of the electrical conservation program.

Reaction In Coal

Electrical substitution for NG over the long-term could require substantial increases in coal usage. Prolonged NG shortage could also result in direct substitution of coal for space heating, steam generation, and industrial processes depending on air quality constraints.

Reaction In Propane

May result in conversion from NG to propane for residential, commercial and industrial over long term requiring initiation of Phase II propane conservation program.

PHASE III

Declared emergency situation, 20% to 50% below normal requirements.

(1) Steps 1-5 in Phase I continue in effect.

(2) Commercial, industrial and residential thermostats in gas heated buildings set at 55° F.

(3) Mandatory 50% reduction in overall gas usage by all firm gas commercial-industrial and residential customers.

All commercial-industrial buildings including schools may be closed at the discretion of CD Director and/or advisory groups.

Note: Existing supplies of NG made available first to essential health and welfare services and food-energy supply management, second to basic shelter and residential heating, essential public works, safety, transportation, and communication services.

Reaction In Fuel Oil

May require initiation of Phase II or Phase III of FO conservation program.

Reaction In Electricity

May require the initiation of electrical conservation measures in Phase II or Phase III of the electrical conservation program.

Reaction In Propane

May require the initiation of Phase III of propane conservation program.

PHASE IV

Declared emergency situation 50% to 75% below normal requirements, potential disaster level.

At this point virtually all commercial-industrial businesses which are dependent on NG for any important facet of their operation will be closed in "preservation of equipment" status where possible.

Note: Existing supplies of NG made available first to essential health and welfare services, food and energy supply management and critical shelter and second to essential public works, safety, transportation, and communication services.

Reaction In Fuel Oil

May require initiation of Phase III or Phase IV of FO conservation program.

Reaction In Electricity

May require initiation of Phase III or Phase IV of electrical conservation program.

Reaction In Propane

At the discretion of the Director of CD and/or the governing authorities propane supplies shall be allocated as the situation and satisfaction of priorities demand.

Note: Beyond Phase IV, in declared disaster situation, martial law probably in effect at either state or federal level. CD may become involved in evaluation and emergency shelter for displaced persons in Phase IV or Phase V.

SHORTAGE SITUATION IN PROPANE

PHASE I

Moderate winter shortage, of short duration, probably handled by voluntary conservation, no declared emergency.

(1) Public appeal for general propane conservation by propane suppliers and/or public officials.

(2) Appeal to agric. and agric. processing, manufacturing and transportation for voluntary propane conservation.

(3) Commercial, industrial-residential thermostats in propane heated buildings set at 68° F.

(4) No change for health and welfare institutions, including hospitals and nursing homes.

Reaction In Natural Gas

Substitution of NG for propane, if possible, for commercial-industrial space heating and process customers. May require the initiation of Phase I of NG conservation program.

Reaction In Fuel Oil

Substitution of FO for propane, if possible, for commercial-industrial space heating and process. Also substitution, if possible for agric. and agric. processing, manufacturing and transportation may require initiation of Phase I of FO conservation program.

Reaction In Electricity

Substitution of electricity for propane if possible, for residential, including space heating. May require the initiation of Phase I electric conservation program.

Reaction In Coal

Almost no reaction except for slight increase in coal usage due to increased use of electricity as a substitute for propane residential uses.

PHASE II

Relatively severe shortage, declared emergency situation, 10% to 20% below normal requirements.

(1) Strong public appeal for general propane conservation by propane suppliers, public officials, business and industry leaders.

(2) Specific large propane users (manufacturing firms) requested to curtail propane usage.

(3) Warehouse space thermostats in propane heated buildings set at 40° F.

(4) Commercial-industrial, residential thermostats in propane heated buildings set at 65° F.

(5) Mandatory 20% reduction in overall propane usage by all commercial-industrial and residential customers accomplished by implementation of energy conservation measures applicable to each specific building.

Note: All propane heated schools (with National Education Act Exception) non-essential offices and governmental buildings can be closed at the discretion of CD Director and/or advisory groups.

Health and welfare institutions at reduced temperatures consistent with good health practices.

Reaction In Natural Gas

Long-term extension of NG service to residential and small commercial customers. Substitution of NG for propane, if possible, for commercial-industrial space heating and process customers. May require the initiation of Phase I or Phase II of NG conservation program.

Reaction In Electricity

Long-term conversion from propane to electricity for residential including space heating may require the initiation of Phase II electric conservation program.

Reaction In Coal

Increasingly heavy commitment of coal for electrical generation and large facility power and heating.

Reaction In Fuel Oil

Increasingly heavy use of FO in industry and space heating use in rural areas. Close attention will need to be paid to FO supply lines and inventory positions statewide.

PHASE III

Declared emergency situation, 20% to 50% below normal requirements.

(1) Steps 1-3 in Phase II, continue in effect.

(2) Commercial, industrial, residential thermostats in propane heated buildings set at 55° F.

(3) Propane used in health and welfare services, food and energy supply management, safety, public works, shelter, communication services, and transportation management reduced to essential requirements.

(4) Mandatory 50% reduction in overall propane usage by all commercial-industrial and residential customers. All commercial-industrial buildings including schools may be closed at the discretion of CD Director and/or advisory groups.

Note: Existing supplies of propane made available first to essential health and welfare services and food supply and energy management and second to basic shelter and residential heating, essential public works, safety, transportation and communication services.

Reaction In Natural Gas

May require the initiation of Phase III of NG conservation program.

Reaction In Fuel Oil

May require the initiation of Phase III of FO conservation program.

Reaction In Electricity

May require the initiation of Phase III of electric conservation program.

Reaction In Coal

All possible reaction for coal will have taken place by this time in a propane shortage, with all available coal committed fully.

PHASE IV

Declared emergency situation, 50% to 75% below normal requirements, potential disaster level.

At this point virtually all commercial-industrial businesses which are dependent on propane for any important facet of their operation will be closed in "preservation of equipment" status where possible.

Existing supplies of propane made available first to essential health and welfare services and food supply and energy management and second to critical shelter and third to essential public works, safety, transportation, and communication services.

Reaction In Natural Gas

Depending on the continuing nature of the crisis, application of Phases III and IV of NG program.

Reaction In Electricity

Drastic electrical generation crisis could require application of Phase III and IV electrical usage restrictions here. No propane available for electrical generation at this point.

Reaction In Coal

By this point coal will have reacted fully to the extent it can to the various shortages probably now apparent.

Note: Beyond Phase IV propane, which does not have great flexibility, will be committed to the high priority users only, with direction of its use in hands of CD Director and/or governing authorities.

SHORTAGE SITUATION IN GASOLINE

PHASE I

Minor shortage of short duration, requiring no Declared Emergency.

Basic Federal Energy Agency priorities would apply as below:

Agriculture and defense needs, 100% of requirements. 100% reduced by allocation fraction for:

- Emergency services
- Energy production
- Sanitation services
- Telecommunications
- Passenger transportation
- Cargo, freight and mail hauling by truck
- Aviation ground support vehicles and equipment.

100% reduced by allocation fraction for:

- Industrial use
- Commercial use
- Governmental use
- Social service agency use

Purchasers without an allocation or priority level would be serviced in normal manner in non-discriminatory progression.

PHASE II

10% to 20% shortage of medium to long duration in declared emergency status.

Priorities for classifications in Phase I through "Social Service Agency Use" remain unchanged.

Purchasers without allocation (all motor passenger service not grouped in priorities above) would be subject to:

- Sunday closings of service stations;
- Restricted hours of operation such as 6:00 P.M., closings on Friday and Saturday;
- Possible limitation of gallons per sale.

Strong public and suppliers' appeals for conservation of gasoline through curtailment of all unnecessary driving; strict enforcement of speed limits.

PHASE III

20% to 40% deficiency, declared emergency.

All restrictions of Phases I and II: Elimination of all non-essential passenger car usage by institution of "Certificate of necessity" status for passenger car use.

Priorities for essential services remain in effect but with elimination of all but emergency and obviously essential types of usage for vehicles in those categories. Agricultural usage cut to lowest possible level consistent with maintenance of production and distribution of essential foodstuffs.

PHASE IV

40% or more deficiency, declared emergency. At this point passenger car usage except in the performance of essential services, would be eliminated either by lack of fuel or, if necessary, by edict from the Director of Civil Defense and/or the governing authority. At his discretion limitations on the users in the top priorities might have to be instituted to keep all essential services operating at a reduced level. (It must be assumed that by this time a gasoline shortage of this duration and severity would have become a national shortage and national rationing would be in effect).

SHORTAGE SITUATION IN COAL

PHASE I

Minor shortage of short duration, requiring no declared emergency.

Because of the nature of coal shipment and storage, minor shortages most apt to occur in late winter season. Sufficient warning should be available to forecast shortage and duration accurately. Usually coal users, mainly electric generating, large industrial and large commercial, will have time to arrange alternative sources, especially at end of winter season. Close communications between users, suppliers and MEA MUST be maintained when a potential shortage is even remotely anticipated or suspected.

Reaction In Natural Gas

Probably very little reaction in NG until need to use it as coal alternative in electric generation develops. If so needed and if possible to handle within supply limits, there should be no great disruption in NG at this point.

Reaction In Electricity

The companies generating electricity must be able to handle the situation with alternative energy sources, without creating adverse reactions or shortages in those other energy sources. If not, the situation would move quickly into PHASE II.

Reaction In Fuel Oil

There would be added pressure on fuel oil during this "no declared emergency" period for generation of electricity. If available, FO supplies can handle the extra generating load created by coal shortage and a declared emergency probably could be avoided.

PHASE II

Major shortage, possible or probable Declared Emergency situation.
Probable causes: Severe and prolonged bad weather conditions, transportation difficulties, storms, strikes, supply problems, lockout, etc.

Under these and more severe conditions coal leaves little room for maneuvering.

Electric generating companies must ration coal supplies, using alternative fuels where available, in efforts to extend short supply of coal. Long term nature of coal shortage in this situation dictates application of some fuel oil restrictions to allow for probable sharply increased use of FO as substitute for coal in electric generation.

Even at this fairly early point it is probable that NG restrictions as outlined under "Electricity Shortage" would have to be begun, to compensate for the loss of coal-generated electricity. NG restrictions probable here; obviously would apply in any subsequent phases.

At this point the coal shortage very probably has become, as far as effect is concerned, an electricity shortage, and electricity's **reaction** must be identical to the **action** planned for Phases I and II of "Electricity Shortage".

Increased use of FO would be needed in this phase to produce electricity. All conservation measures listed for Phases I and II under "Fuel Oil Shortage" plan would probably be applied at about this point, at discretion of CD.

PHASE III

Major shortage, Declared Emergency, duration of 30 days or more. Probable causes, same as Phase II.

Coal supplies low: Civil Defense should be in position to allocate available coal to priority users:

1. Hospitals, Nursing homes, etc.
2. Residential heating

3. Food processing operations
4. Public facilities required for possible evacuee housing
5. Others as situation dictates

CD should acquire and transfer available stocks of coal to points of need or required use to satisfy priorities. At this point not enough is known about the implications of a coal shortage to outline alternative actions, but research is being done, answers anticipated soon.

In Phase III the coal shortage will have become an electricity shortage. Phases I, II, III of NG restrictions that apply to an electricity shortage would apply in this and subsequent phases of the coal shortage pattern.

Actions listed under "Electricity Shortage" for Phases I, II, and III would almost certainly have to be taken here at the discretion of the governing authority.

Under Phase III, because of the peculiar nature of the coal supply and use system, the coal shortage will have created an electricity shortage, and/or a natural gas shortage, and/or a fuel oil shortage, and rules governing those shortages would have to be applied if necessary. All our research indicates that the inflexibility of the coal supply and use system would require the other more flexible fuels either picking up the slack or being forced into a shortage situation themselves.

TENTATIVE ENERGY EMERGENCY CONSERVATION AND ALLOCATION PLAN
APPLICABILITY AND DEFINITIONS

Definitions

(1) **Health Services.** "Health Services" means maintenance of basic services, facilities, equipment or materials deemed essential for the protection of public health. Such services include: manufacture and distribution of basic materials, drugs, and equipment; operation or maintenance of equipment; transportation of medical personnel and the sick; operation or maintenance of essential facilities, maintenance of drinking water purity, and basic sanitary conditions.

(2) **Welfare Services.** "Welfare Services" means maintenance of basic services, facilities, equipment or materials deemed essential for care of the aged, disabled, and physically or mentally handicapped.

(3) **Food Supply Management.** "Food Supply Management" means production, processing, distribution, and management or storage of basic agricultural products deemed essential to assure an adequate food supply to the public. Such management shall include: manufacture and distribution of essential chemicals, materials, and equipment; operation and maintenance of equipment; operation and maintenance of basic transportation for raw and finished agricultural products.

(4) **Energy Supply Management.** "Energy Supply Management" means maintenance of basic services, facilities, equipment or materials deemed essential for maintaining or increasing basic energy supply.

(5) **Safety.** "Safety" means maintenance of basic services, facilities, equipment, or materials for police, fire utilities, and civil defense, deemed essential to protect the public from unreasonable risk.

(6) **Shelter.** "Shelter" means maintenance of basic services, facilities, equipment or materials deemed essential to provide adequate protection from the elements. Such maintenance shall include: manufacture and distribution of materials and equipment, operation and maintenance of equipment, and construction, operation, and maintenance of basic shelter facilities.

(7) **Public Works.** "Public Works" means maintenance of basic services, facilities, equipment, or materials deemed essential to maintain city services including, but not limited to, operation or maintenance of sewage treatment facilities, water systems, city sanitation, snow plowing and street maintenance.

(8) **Transportation.** "Transportation" means maintenance of basic services, facilities, equipment or materials deemed essential to provide basic transportation of people and goods.

(9) **Communication Services.** "Communication Services" means maintenance of basic services, facilities, equipment, or materials deemed essential in order to transmit and receive vital information for health and welfare services, food supply and energy management, shelter, and transportation management.