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Condensed Reports of the Industry Task Forces

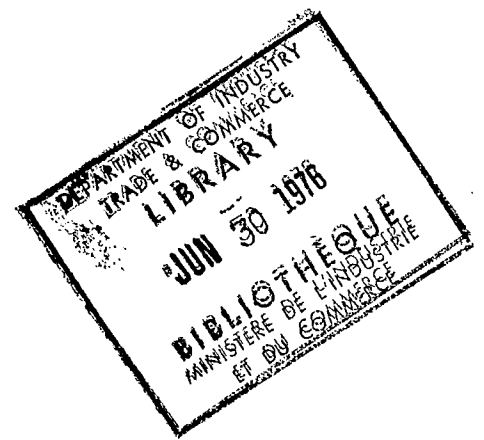
**SECOND CONFERENCE ON
INDUSTRIAL ENERGY CONSERVATION]
IN OTTAWA**

March 24, 1976



**Industry, Trade
and Commerce**

**Industrie
et Commerce**



CONDENSED REPORTS
OF THE
INDUSTRY TASK FORCES

SECOND CONFERENCE ON
INDUSTRIAL ENERGY CONSERVATION

OTTAWA
MARCH 24, 1976

Conference Chairmen

The Honourable Don Jamieson, Minister of Industry, Trade
and Commerce

The Honourable Alastair Gillespie, Minister of Energy,
Mines and Resources

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CONDENSED REPORTS OF THE INDUSTRY

TASK FORCES

BACKGROUND

The Second Conference on Industrial Energy Conservation is a direct outgrowth of a preliminary conference held on May 23, 1975 at which the Minister of Energy, Mines and Resources and the Minister of Industry, Trade and Commerce explored with a small group of industry executives the feasibility of mobilizing industry into an organized program of energy conservation. The conclusions of that preliminary conference were that a joint industry-government initiative was desirable, that it should be organized on an industry sector basis, working through existing industry associations, and that a follow-up conference should be held later to hear reports by the industry sectors on the programs that had been established.

The two government Departments subsequently contacted key associations in each sector to secure their participation. The associations in turn obtained representatives from member firms to serve on ad hoc "Task Forces" whose responsibilities were to develop detailed sector conservation programs and to prepare the reports for presentation to the Government. Within this approach, it is recognized that many firms have had

substantial involvement in formal energy conservation for several years. In other instances, conservation has been handled informally, with limited process energy measurement or data collecting. Accordingly, it is appropriate to view the Second Conference as a progress report session.

In the next few months, virtually all the Task Forces will be refining their energy measuring and reporting techniques, and expanding their programs to embrace additional associations and companies within each sector not included in this initial phase.

It must be emphasized that the overall program is envisaged to be a joint industry-government undertaking, on a voluntary basis, which will provide a continuing mechanism of communication and consultation. In this context, the industry Task Force condensed reports to the Government published herein not only summarize the conservation programs being undertaken by industry, but also identify and outline further opportunities for energy conservation that could be enhanced or obtained through Government action or support.

Finally, it should be noted that the ten industry sector Task Forces reporting in this first phase cover primarily the sectors associated with the most energy intensive processes or products. It is the Government's hope that the remaining sectors not yet involved will be agreeable to undertake similar initiatives so that energy conservation by industry will become a truly national endeavour.

ELECTRICAL AND ELECTRONICS TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

I-THE ELECTRICAL AND ELECTRONICS SECTOR

This Task Force reports on behalf of the Canadian Electrical Manufacturers' Association (CEMA) and the Electronics Industries Association of Canada (EIAC). The 242 member companies manufacture electrical and electronic equipment for the generation, transmission, distribution and utilization of electrical energy and for transmission, distribution, processing and utilization of information, encompassing a wide range of products from capital goods through consumer durables to expendable items. In 1975, the industry shipped a total of \$5.1 billion, approximately 6% of all Canadian manufactured goods. Exports were \$970 million. Direct employment exceeds 140,000.

II - SECTOR CONSERVATION GOALS

The Canadian electrical and electronics industries are energy and labour intensive but are small overall users of energy. It is estimated that the sector accounts for no more than 3.5% of total Canadian industry usage.

Based on a cross-sectional survey of the CEMA and the EIAC member companies, large, medium-sized and small, we are able to report that the industry has already voluntarily

moved to reduce energy consumption, in some cases by as much as 10%.

During the next five years, member companies will accelerate programs for energy auditing and conservation. We anticipate that this will result in a reduction across the whole industry whereby the total energy usage by 1980 should be approximately 10% lower than it was in 1972. The nature of the industry is such that a uniform and consistent basis for the reporting of energy conservation per unit of output is not feasible.

III - CONSERVATION OPPORTUNITIES, AND PROBLEMS

The Electrical & Electronics industry feels that a number of areas offer opportunities for energy conservation. Some of these relate to the increased use of electricity, because this form of energy is the most efficient and economic to use. Other opportunities exist in improving the efficient utilization of electric energy. A third area of improvement is where the introduction of modern electrical and electronic systems result in the saving of electricity or other forms of energy. In other words, the three areas of opportunities are in supply, utilization and control. On the supply side the future opportunities must be based on a National Energy Policy.

SUPPLY - National Energy Policy

For at least a year there have been sporadic bursts of activity concerning the need for a National Energy Policy.

It appears to the electrical and electronic manufacturing industry that the Federal Government is reluctant to voice an opinion on the subject, and is delaying the necessary decisions.

The electrical and electronic manufacturers are unanimous in their opinion that this is one issue where Government must try to lead public opinion by the presentation of hard facts. A national grid, hooking up all provincial electrical systems for the benefit of the country as a whole is partly in place. This should be accomplished as swiftly as possible.

In recent weeks Mr. Zwicker, a division chief in the energy policy sector of the Federal Department of Energy, Mines and Resources, speaking to a recent meeting of the Canadian Electrical Association noted that many electrical utilities had become quite defensive about their role. Mr. Zwicker found this attitude out of keeping with the factual situation where there would be an increasing demand for electricity. He, therefore, suggested that utilities should cease being defensive about supplying more electrical energy and should instead endeavour to maximize the electrical share of total energy supply because this would be in the nation's best interest.

An opposite viewpoint is to be found behind announcements by many provincial electrical utilities of massive deferments and cancellations of their power station construction programs. Our industry is of the opinion that these deferments and cancellations have been made in response to the call for massive retrenchment by many provincial governments in practically all fields of capital expenditure, and can only result in reduced capacity in the Canadian manufacturing industry, and reduced employment.

Within a few years the Canadian electrical manufacturers will undoubtedly be asked to get their factories back in full production in order that the provincial utilities can obtain the additional supplies of electricity which by then will be desperately required.

It is against this background that we implore our governments to consult with producers, consumers, physicists, and all other constructive thinking people, and to collect all the facts that are necessary to put together a National Energy Policy for this country.....NOW!

UTILIZATION of electrical energy

The shift in energy sourcing will bring accelerated use of electricity. Electricity, with its greater availability and greater efficiency, will become the most important form of energy.

As society switches from fossil fuels to electricity, the increased use of electrical devices can actually provide a saving in the net amount of energy consumed. In the year 2000, the residential and commercial sectors will call upon electricity to satisfy 36% of total energy requirements, compared to 14% in 1966. In the industrial sector of Canada, by the year 2000, electricity will be called upon to meet 31% of total energy requirement compared to 23% in 1966.

The Canadian electrical and electronics industries believe these forecasts for the increased use of electricity in the medium and long terms are sound, and that they collectively possess the technology and financial resources to satisfy the projected energy requirements. A few examples follow:

Home heating

Home heating is one segment of Canadian energy consumption which is ideal for rationalization. Studies have shown that electric heating is the most efficient form of heating.

Electricity for home heating was introduced rather late in the sixties. By 1969 electricity accounted for less than 1% of the total estimated home heating consumption. In 1975, 10.5% of the total number of dwellings in the country were electrically heated.

Electric heating offers the country a unique way of optimizing its energy resources, current and future.

What is needed to increase public awareness is a well planned, national policy of promoting electric heating in the public interest.

Light equipment

Lighting manufacturers continue their research efforts to develop light sources that provide improved quality of illumination with reduced energy losses. Replacement of lighting systems more than 15 years old can achieve substantial energy savings in industrial and commercial buildings. The advantages:

1. Increased efficiency in light output and lower operating costs
2. Increased productivity of workers, and
3. Lower operating temperatures of light sources to reduce air conditioning loads during warm weather.

Microwave cooking

Microwave ovens permit time and energy savings for the homemaker. Meals can be cooked and served in one-quarter of the time of conventional cooking with big energy savings.

To inform the public about the advantages of microwave cooking and energy savings, the manufacturers are conducting a series of educational workshops with nutritionists, home economists, electric utilities and other interested parties in the major centres across Canada.

Appliances and Home Entertainment

Less than 20% of the total energy offered in Canada is consumed in the residential sectors. Only 17% is used to operate appliances and home entertainment equipment. These products, all relatively small consumers of energy, have already through evolution incorporated technical advances that have assured significant energy savings.

Appliances available today are designed for optimum use of energy to meet acceptable performance standards and consumer needs.

Electrical machinery and apparatus

Advancing conventional design know-how, while at the same time utilizing advances in such basic materials as steel, plastics and insulation as well as in components, i.e. bearings and lubricants, can improve the efficiency of a broad range of electrical apparatus. The results achieved are continuous, incremental gains.

It is possible to improve the efficiency of motors required in process industry applications by reducing no-load losses by 15 to 20%. Energy standards are recommended.

Updating of power sources

A programme of rejuvenating old hydro stations is under way in cooperation with major utilities. Modern designs of

hydro turbines and associated generators are being applied to obtain more kilowatt output from the available, and of course renewable, water resources.

Future power generation

Among the alternatives are thermo-nuclear fusion, geothermal, solar, wind and ocean (tides), magnetohydrodynamics (MHD) and compressed air. All of these have substantial potential but considerable further research will be needed to develop these to the stage of commercial viability.

CONTROLS

By incorporating current technology, electronic controls on all manufacturing processes can be made more sophisticated than those now in general use. Significant energy savings can result from such controls in both large and small processes. A good example is the increased efficiency of battery-driven fork-lifts with new electronic controllers. On a larger scale, movement of gas and oil through pipelines is more efficient with the application of computer control.

Heating, lighting and air conditioning of commercial and residential buildings

Modern commercial buildings are large users of energy, and are generally crudely controlled by manual or semi-automatic systems. Although automatic light dimming systems have been in use in Europe, they are only now becoming

available in Canada. Sophisticated heating and air conditioning controls are also available for effective use where called for by the owner/builder/architect decision process. A modern electronic system can promise energy savings in almost any existing building today.

Residential use of energy is less subject to simple influence to reduce consumption. The proliferation of designers, builders, and owners complicates the process of motivation and education. Encouragement of the development of an effective heat pump would make electricity the most efficient energy source for home heating, and trade-offs of capital cost v.s. energy usage would be clearer. Also, by making electronic indicators available to show rate-of-use of energy in heating, air conditioning and cooking, more economical operation of the home would be encouraged.

INDUSTRY HOPES AND OUTLOOK

The electrical/electronic industry is continually developing new products which encourage conversion to the use of electricity, or which reduce the amount of energy consumed by other sectors of the economy. Wider application of existing products, and accelerated development of currently feasible products can maximize energy savings.

Over half the energy consumed by Canadian industry is used in the manufacture of paper, cement and primary metals.

Process controls in these industries are being improved by application of modern electronic technology, thus assisting the efforts within those industries to reduce energy consumption. Savings are achieved by precise control of the process, with less dependence on empirical or manual techniques.

Another example of potential energy saving by electrification is in the operation of railways. Recent studies show that the efficiency of energy use for diesels is 22%, compared with 24% for thermal central power sources, and 51% for hydro-electric power sources.

The conventional automotive industry is moving slowly in the direction of the use of electronics, as evidenced by the trend to install electronic ignition systems with their attendant gas savings. Further savings would undoubtedly result from mandatory inclusion of an accurate electronic gas-mileage indicator in every vehicle.

The communications industry is significantly reducing the energy consumed in travel. Point to point communications using advanced telephones, conference systems, video transmission, etc., are continuously being developed by the telephone industry, and development of procedures for their use and popularization of their application will be needed as much more such systems become available.

INDUSTRY CONCLUSIONS AND RECOMMENDATIONS

The importance of Energy Conservation cannot be over-emphasized. It is everyone's problem...it should be everyone's pre-occupation. Thus, the Federal Government must prepare and implement a National Energy Policy now before it is too late!

The industry urges the Federal Government to provide incentives that would assist companies to achieve their energy conservation goals on a voluntary basis. The industry would agree to appropriate trade-offs that would provide some return in investment in plant modernization and new equipment, as required, to conserve energy. However, a minimum of government regulation is recommended.

Architects and consulting engineers must be invited to participate actively in subsequent energy conservation conferences and to make their own recommendations as to how energy can be conserved. Specifically, building codes must be rewritten to include minimum energy losses that will be allowed.

Finally, two considerations must be borne in mind:

- (a) the small size of the Canadian domestic market, coupled with the difficulties of competing in world markets on the basis of price, does not justify building or operating energy efficient world-scale plants;

(b) The very high costs of funds for capital projects, and the continuing inflation in the costs of equipment are serving to restrain the ability of firms to undertake investment in energy conserving projects.

MACHINERY SECTOR TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

Sector Identification

The Machinery Sector includes manufacturers of all types of machinery used in both primary and secondary industries, except manufacturers of electrical and transportation machinery. The Department of Industry, Trade and Commerce has estimated that the sector includes over 2000 individual firms.

This report was developed by the energy conservation committees of the Canadian Farm and Industrial Equipment Institute (CFIEI) and the Machinery and Equipment Manufacturers Association of Canada (MEMAC) who were chosen to represent the Machinery Sector.

CFIEI is a trade association of 22 manufacturers of farm and industrial equipment marketed in Canada and accounts for about 75% of the Canadian manufacturing volume in this industry. The CFIEI Energy and Environment Committee is composed of representatives from John Deere Ltd., International Harvester Canada, Massey-Ferguson Industries Ltd., and White Farm Equipment.

MEMAC is a trade association of 84 companies engaged in machinery and equipment manufacturing in Canada and accounts for approximately 66% of the total manufacturing volume in

their industry. The MEMAC Energy Conservation Committee is composed of representatives from Dominion Engineering Works Ltd., Allis Chalmers Canada Ltd., Babcock and Wilcox Canada Ltd., and John T. Hepburn Ltd.

The combined membership of CFIEI and MEMAC constitutes about 5% of the whole Machinery Sector but since they include the larger firms, it is estimated that they represent about 50% of the total energy used in the sector.

What Percentage of Industrial Energy Does the Machinery Sector Use?

The Klimoff Engineering study, prepared for the office of Energy Conservation in February, 1975, gives some insight into that answer. That report indicated that the Machinery Sector accounted for about 1.5% of the 1972 hydrocarbon purchases and this should translate loosely into about 1.5% of the industrial energy usage.

What is the Energy Savings Potential of the Machinery Sector?

With the information that is available, that potential can be estimated.

If industry is using 40% of the energy in Canada and the Machinery Sector is using 1.5% of the industrial energy, then the Machinery Sector is using .6% of the Canadian energy pie.

If our energy conservation potential is 15% on some base period usage, such as 1972, then our savings potential is .09% of the total energy consumed in Canada.

These calculations are not intended to belittle the importance of the Machinery Sector nor to downplay its commitment to energy conservation, but rather to help establish and maintain a proper perspective on this report. It should be remembered that the bulk of our energy in Canada is used by numerous small entities and that a successful national conservation program will require the support of all Canadians.

Sector Conservation Goal

Business today is firmly committed to goal setting as a means of accomplishing objectives and this principle will also apply to energy conservation. However, since CFIEI and MEMAC do not truly represent the entire Machinery Sector, nor even the whole of the trades covered by our associations, our committees believe that some latitude is required for this practice in this situation.

With these thoughts in mind, the Machinery Sector program has been established as follows:

1. The goal is a 15% reduction in energy usage by 1980 from what usage would have been without a formalized conservation program.
2. The base period used for computing savings will be whatever each individual company establishes as its base period.

3. The method of saving computation will also be a matter of individual company preference.
4. Each participating company will report a simple accumulative percentage of energy savings over base period to their trade association annually beginning December 31, 1976.
5. Each trade association will accumulate these reports for its respective members and the Department of Industry, Trade and Commerce.
6. The goal will apply to participating association members only and will be considered a recommendation to the rest of that broad area of industry referred to as the "Machinery Sector".

With this program, our associations will be able in the future to identify with considerable precision the progress of the participating companies in our sector.

How Can Energy be Saved in Manufacturing Operations?

In part by continuing what has always been done, but especially by continuing what has been done since the price of the #6 fuel oil tripled in 1973 and 1974. Some of the firms in our associations already have well developed formalized energy conservation programs, but those who don't, have not been oblivious to the effects of higher energy costs on their income statements.

Our association committees agree that a 15% saving goal over base period can be achieved by:

1. Maintaining all facilities in such a manner as to minimize energy loss and wastage.
2. Engineering and constructing all new facilities with optimum energy efficient characteristics.
3. Re-engineering and improving, where feasible, existing facilities to minimize energy loss and wastage.
4. Re-examining all manufacturing processes on a scheduled priority basis to improve energy consumption characteristics where economically feasible.
5. Investigations of potential product design changes to minimize manufacturing energy requirements.

It is expected that the trade association programs outlined here today will heighten our commitment and allocation of resources to energy conservation.

Further Conservation Opportunities

The opportunities for energy conservation in the future are good. Savings of 25-30% over a pre-1972 type of operation are possible. The major constraints to achieving this kind of saving are mostly economic.

Smaller firms often lack the staff, expertise, and even the economic justification for exploring the energy conserva-

tion problem to the fullest for their firms.

The larger companies with more sophisticated operating techniques will most certainly be concerned about the relative return on investment they can achieve from energy conservation investments.

A primary goal of business is to obtain an adequate return on investment and this basic fundamental will apply to energy conservation as well. Higher energy savings will, in general, require more capital investment, and with limited capital availability, energy conservation capital will have to compete with other capital programs.

Government is in a unique position to influence this capital sorting process by providing incentives for energy conservation. Some of the more obvious measures include:

- (a) investment tax credits.
- (b) accelerated depreciation.
- (c) rebates on all taxes on energy conserving installations.
- (d) subsidies for energy conservation research similar to IRDIA grants for product research.

In summary, both the Canadian Farm and Industrial Equipment Institute and the Machinery and Equipment Manufacturers Association of Canada strongly endorse the voluntary approach to energy conservation by industry in Canada as suggested by the federal government. Working in concert but without benefit of any opportunity to solicit true industry consensus, CFIEI

and MEMAC have established a goal of 15% savings by 1980 and are prepared to actively promote a program to achieve this objective to their respective memberships.

Given government support by way of active promotion to the unorganized elements of the Machinery Sector and for those measures which will ease the economic burdens that will otherwise be encountered, we are confident our stated goal can be achieved.



TRANSPORTATION (MANUFACTURING) TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

The Transportation Sector (Manufacturing) supports this voluntary energy conservation program and will strive to make it effective. This Sector is made up of non-homogenous industries covering many types of manufacturing processes and distributed widely across Canada. Some of the smallest and some of the largest manufacturing companies in Canada are included in this Sector. This report deals only with the manufacture of the product. The wide diversity of use and need of the various products precludes us from any discussion of the product energy use.

Initially the industry associations in the Sector are taking the lead and are providing the communication to their member companies. These associations are:

Air Industries Association - Canada

100 members - 28,000 employees

Automotive Parts Manufacturing Association

220 members - 50,000 employees

Canadian Shipbuilding and Ship Repairing Association

20 members - 14,000 employees

Canadian Truck Trailer Manufacturing Association

8 members - 3,500 employees

Motor Vehicle Manufacturers Association

8 members - 63,000 employees

Based on 1972 information, the Transportation Sector (Manufacturing) accounts for about 3% of the energy used by industries in Canada, or 1.1% of Canada's total energy use.

The diversity of the industries represented range from the manufacture of large and small ships to oil rigs; light aircraft repair to large aircraft manufacture, including engines; off road vehicles to automobiles, trucks and trailers. Not only are the industries that assemble these units part of the Sector, but also the wide range of component part manufacturers are included. Most manufacturers are involved, such as fabricators, metal stampers, forgers, heat treaters, plastic moulders, casters, textile processors, petro-chemical base product manufacturers, just to name a few. The task of the Transportation Sector (Manufacturing) is to develop a program that comprehends these differences and accomplishes energy conservation in all these varying enterprises. The task is made more difficult by the non-uniformity of the Sector.

Some of the companies in the Sector have had strong energy conservation programs for several years, and others are just beginning. This organized program for the Transportation Sector (Manufacturing) had its beginning in December, 1975.

II - SECTOR CONSERVATION GOAL

The major goal of the Transportation Sector (Manufacturing) is to have active energy conservation programs in all the companies represented by the Associations. The first step in this program is to get pledges from the presidents of the companies represented by associations for formal energy conservation programs at their respective plants. Additionally, we will attempt to elicit pledges from the more than 600 companies not represented by associations. If we are successful in this endeavor, we are confident that the following numerical goal for this sector can be reached.

Because of the diverse nature of the products and processes, a measuring method was developed that is applicable to all industries represented. This measuring method, called Energy Intensity (EI), reflects unit energy consumption. Energy Intensity is the total sectoral BTU consumption divided by sectoral value added, including energy costs and corrected for inflation. The detail of this data is currently supplied to Statistics Canada on a yearly basis.

The objective of the Transportation Sector (Manufacturing) is to reduce energy intensity by 15% by 1980, using 1972 as the base year. We have set this target so as to be difficult to attain, but possible to achieve. It should be stressed that because of the diversity of the sector many firms within

the sector will fall on either side of this numerical objective. Progress will be reviewed and reported annually.

In order to achieve this goal, the sector will communicate energy saving ideas developed at one firm to all other firms. The Idea Exchange Manual Program has been initiated.

An inherent problem in any program of this type is information distribution and education. The sector will encourage and participate in seminars to meet this problem, in addition to the formal idea exchange program outlined above.

The sector recognizes that energy conservation is an individual effort and that the only effective program will be the motivation and education of all employees and management of the needs, ways and means of saving energy. At the same time, these employees will carry over these attitudes to their personal use of energy off the job.

III - FUTURE ENERGY CONSERVATION OPPORTUNITIES

Canadian industries must remain competitive in world markets if we are to ensure high employment levels and maintain our standard of living. Our climate causes greater energy use per unit of production than that of many of our international competitors. Hence energy bills are definitely related to economics, and this fact, alone, must provide the

best possible incentive to industry to become extremely efficient in energy use in order to reduce energy costs.

The associations represented in the Transportation Sector (Manufacturing) agree that the setting and attaining of a difficult goal by industries will not, by itself, represent a sufficient effort in energy conservation by Canadians. We submit that this must be a total activity and commitment designed to reach all groups, sectors, provinces and people in Canada.

No one must knowingly waste precious energy. We must make Canadians knowledgeable of these facts, or suffer the consequences which will be higher unemployment levels and a much lower standard of living. A well managed national energy program will have favourable effects on our future -- a poorly managed program will leave us with a disastrous future.

As a start on a National Energy Program, we would suggest the following:

The rate of increase of energy use in Canada must become just as important to Canadians as the rate of inflation. Our bank balance of fuel or energy inventory must be developed, kept current and published at least every six months so all Canadians can see our National Energy Problem. Providing this kind of factual information for the Canadian public will bring

this serious problem into focus and will provide a tremendous boost to all energy conservation activities.

The Transportation Sector (Manufacturing) experience shows that current government constraints for environmental controls do not significantly increase energy consumption. Future government constraints should be considered for their effect on energy use before implementation. Some provinces have legal minimum plant and office temperatures. This can be a major unnecessary energy consumer and should be reviewed.

While the members of the Transportation Sector (Manufacturing) recognize that cost reduction is an incentive toward energy conservation, we believe that consideration should be given to the following primary incentives for stimulating the energy conservation effort in industry.

- (1) A substantial investment tax credit covering the cost of purchasing and installing energy saving equipment.
- (2) Sales tax exemptions for material or equipment associated with energy conservation (i.e. insulation, storm windows, as well as capital equipment).

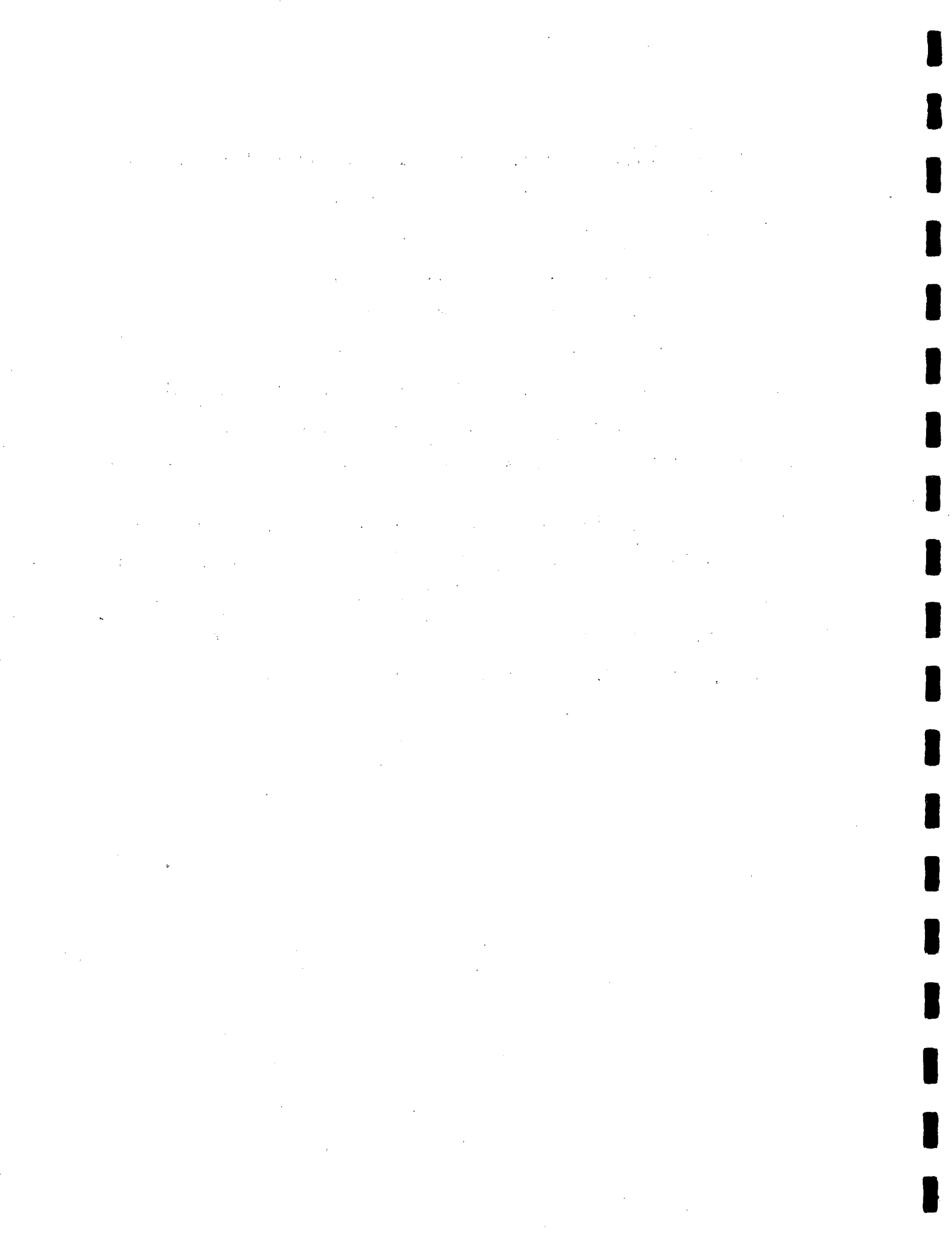
Additional energy conservation opportunities may be found on a longer term basis by increased research activity.

The Transportation Sector recommends that increased Canadian research be encouraged and directed towards:

- (a) Alternate forms of energy.
- (b) Improved methods of combustion, especially for steam producing equipment and thermal-electric systems with improved efficiency.

It also recommended that Canadian manufacturing facilities producing energy conservation devices or material be given every possible encouragement for development and/or expansion.

The Transportation Sector (Manufacturing), through the organization that has been set up with the various manufacturing associations, plans to continue these energy conservation activities by holding regular meetings to review progress towards goals and programs that have been established.



CANADIAN PULP & PAPER INDUSTRY TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

SECTOR IDENTIFICATION/DESCRIPTION

1. This report is submitted on behalf of the 67 member and associate member companies of the Canadian Pulp and Paper Association, and has been endorsed by the CPPA Executive Board.
2. These companies account for approximately 97% of all the pulp and paper manufactured in Canada. These operate a total of 127 mills in 9 provinces of Canada.
3. The report pertains to energy related matters associated with the pulp and paper manufacturing processes, including the harvesting and transport of trees through to the loading of primary products, i.e., pulp, paper and paperboard on truck, rail or ship.
4. The report excludes energy related considerations of the paper and paperboard converting operations.

SECTOR CONSERVATION GOAL

5. Energy conservation goals for the pulp and paper industry are considered under two broad categories; 1) energy conservation, and 2) energy self-sufficiency.

6. The latter category provides for those opportunities, unique to the pulp and paper industry, to utilize waste fuels generated within the manufacturing process which, if optimally utilized, will result in the industry becoming less dependent on external resources.
7. In broad detail the energy conservation opportunities for the industry are:
 - A. Energy Conservation
 - i) Minimization of losses
 - ii) Heat recovery
 - iii) Alternative or modified processes
 - iv) Closed up processes
 - v) Optimization of energy load factors
 - vi) Others not specified
 - B. Energy Self-Sufficiency
 - i) Internal alternatives - use of energy resources not now being utilized
 - ii) External alternatives - through actions involving other agencies, e.g., use of off-peak hydro power for steam or by-product power generation and co-operation between industry and utilities in joint use of thermal plant waste energy.
8. The following assumptions underlie the energy conservation goal established:

- i) 1980 is the target year; 1972 is the base year
- ii) The Canadian pulp and paper industry will operate at about 90% of installed capacity for the period 1976 through 1980
- iii) Regulations of the Anti-inflation Board will be amended so as not to act as deterrents to industry becoming more efficient and/or more profitable through energy conservation programs. There is concern at this time that this assumption is not valid
- iv) The effect of present environmental regulations and controls will not change by 1980
- v) Product quality requirements do not change significantly so as to necessitate use of higher energy consuming processes
- vi) The impact of emerging regulations covering improved lighting, ventilation, air conditioning and other working environment conditions do not offset gains in process energy conservation programs.
- vii) The availability of major forms of energy will be:
 - Oil - adequate to meet demand, assuming that imports can be maintained
 - Natural Gas - constraints on new uses and possible restricted regional availability in the period 1977 through 1983

Electric Power - adequate to meet demand

Coal - present demand may be sustained.

9. Underlying the industry's energy conservation goal is the position that management decisions regarding allocation of capital for energy conservation programs will be made on the basis of an acceptable return on investment.
10. This, coupled with the short time frame within which the realization of the goal is visualized, directed the pulp and paper industry to focus on short range opportunities for energy conservation.
11. However, long term opportunities are identified and discussed in section entitled "Further Conservation Opportunities".
12. A sampling of the industry was carried out to solicit individual company views on the conservation goal that might be realized by 1980. Nine companies operating a total of 45 plants ranging in size from very small to the largest were surveyed.
13. Analysis of the responses led to the conclusion that purchased energy consumption, per ton of product, could be reduced by 12% by 1980, based on 1972 as the base year. This reduction is equivalent to the energy content of about 7 million barrels of oil per year.
14. Examples of energy conservation projects reported are shown in Appendix I.

15. The implementation of capital intensive energy conservation projects comes at an inopportune time with respect to availability of capital.
16. An energy consumption monitoring program, to be carried out by CPPA, has been set up. Companies that are not members of CPPA will be invited to participate in the monitoring program.
17. Energy consumption, to be expressed as btu's per ton of product, will be reported by product category groupings. These groupings are listed in Appendix II.
18. The monitoring program will report, every six months, an aggregated twelve month record of energy consumption by product category in comparison to the 1972 base year data.

FURTHER CONSERVATION OPPORTUNITIES

19. Energy conservation opportunities exist in the pulp and paper industry which are either of a longer term nature, in that they involve commitments of significant capital funds, or involve major alterations to existing plants. They may also involve other agencies in addition to the pulp and paper industry in their implementation.
20. Examples in this category are development and implementation of alternative or modified manufacturing processes which are less energy consumptive; optimization of energy load

factors, which will involve utilities and the pulp and paper industry; development of transportation systems for movement of wood to pulp mills; and, to a lesser extent, movement of end product from the mills to the market place.

21. Optimization of the utilization of waste materials which have fuel value, essentially bark and waste pulping liquors, will enhance the industry's and Canada's position with regard to becoming less dependent on non-renewable energy resources and in achieving a higher degree of self-sufficiency with regard to energy supply. Opportunities in these areas are characterized by being site specific in nature.
22. The decision to install equipment to use wastes is dependent on the competition for limited capital funds by other necessary capital requirements. Capital costs for a large waste fuelled power generation unit may be as high as \$20 million.
23. Competition for capital funds for increased production capacity, plant rehabilitation and modernization, environmental control and product quality is severe. Thus, if the return on capital is relatively attractive for energy conservation projects or utilization of waste energy resources, such investments will be made. However, where the return is relatively unattractive,

or where capital funds are limited, implementation of such projects will either be delayed or indeed perhaps not realized at all. Estimation of the potential energy conservation from virtually all such opportunities is not projected in this report.

24. Opportunities exist in the pulp and paper industry for efficient utilization of off-peak hydro-electric power for steam generation provided utility rates are structured rationally. Such rates would be particularly valid where hydro-electric systems have limited water storage capacity and must release uncontrolled water flows.
25. Utilization of wastes for fuel (both solid and liquid) may result in an apparent increase in total energy consumption. This is due to the fact that energy conservation efficiency of fuels is a function of moisture and inert contents, i.e., non-fuel values, which must be handled in a power boiler. Thus utilization of wastes as fuels may have an anomalous effect on the reported total energy use per ton of product, which is really a reflection of poorer thermal conversion efficiency.
26. Waste fuel utilization to reduce the reliance of the pulp and paper industry on non-renewable energy resources is also made less attractive, in part, by the

more restrictive or expensive environmental considerations related to burning wastes as opposed to "clean" fuels (distillates, low sulphur residual fuel oils or natural gas). The cost of providing additional environmental control systems must be recognized. This is an area where governments should re-examine their priorities or perhaps provide incentives to minimize the impediments to waste fuel utilization.

27. Not all waste materials should be destined to become fuel. Some present fibrous wastes will, in the near future, be valuable resources for pulp, paper or paper-board manufacture. This sounder resource utilization will be realized as raw material values change, or as quantities available become viable or as improved process technology evolves.
28. A number of environmental controls to be implemented by the pulp and paper industry in the coming years are energy consumptive. It is not clear at this time to what extent increased energy needs for such controls can be offset by other inplant efficiency measures installed to assist pollution abatement programs.
29. The pulp and paper industry in Canada has an unique position with regard to identifying and implementing energy conservation programs. Among the broad range of activities embraced by the Canadian Pulp and Paper

Association, there are two professional societies, the Technical Section and the Woodlands Section. Members of both are professionals and highly qualified technical people, organized to promote efficient operation of the industry through exchange of professional and technical expertise. In fact, the activities of these two societies go beyond merely an exchange of ideas; they embrace co-operative studies involving industry personnel from separate companies working jointly on common problems.

30. This, coupled with the fact that the pulp and paper industry, not only in Canada but internationally, is an "open" industry which freely exchanges technical and manufacturing knowledge, provides an environment in which the transfer of technology and ideas is a continuous, ongoing process.
31. A continuing review of the research carried out at the Pulp and Paper Research Institute of Canada ensures that the impact of energy utilization is given high priority. Supplementing this regular review, identification of specific research projects aimed at optimizing the pulp and paper industry's energy utilization is underway. Recommendations to governments may be made in the near future if such action is indicated by this study.

32. The Canadian pulp and paper industry has identified what is believed to be the most fruitful areas for energy conservation programs in establishing the 1980 goal of a 12% reduction in purchased energy consumption per ton of product. However, it is recognized that there are other opportunities where the return in terms of energy conservation will be much more modest. These involve such items as optimization of manufacturing schedules and utilization of equipment, and a whole range of topics exemplified by the expressions "turn out the lights as you leave the room" and "turn down the thermostat at night".
33. In summary, the pulp and paper industry in Canada has identified energy conservation opportunities which can have an immediate and significant impact in terms of its contribution to the national goal and has chosen to order its priorities accordingly.
34. If it is in the national interest to promote energy conservation beyond those initiatives which are taken in a free market system, then clearly government policy should be structured accordingly. What is needed are clearly enunciated policies expressing government's intention to promote and indeed permit the exploration and development of energy resources and to provide opportunities for the developers to have access to market.

35. Changes in capital cost allowance schedules to remove disincentives for thermal power generation, including those units which are waste fueled, were recommended by CPPA in 1975. The issue is still valid and needs careful consideration by the federal government.
36. Where shortfalls in certain energy resources can be identified, then national programs to promote development of alternate energy sources must be formulated and implemented. If, however, a real shortage of energy is foreseen within Canada and there is a national need to retard that rate of growth of energy consumption, then incentives must be provided to promote energy conservation programs.



CHEMICAL INDUSTRY TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY
CONSERVATION, MARCH 24, 1976.

BACKGROUND

As an outcome of the Ministers' Energy Conservation Conference held on May 23, 1975 industry and government agreed to work together to develop conservation programs on an industry sector basis. The purpose of this report is to describe the voluntary energy conservation program which has been developed by the chemical sector to cover the period to 1980 and to provide some suggestions for the period beyond.

The chemical industry recognizes the need for a coordinated national program of energy conservation and management in Canada and, in this regard, will lend energetic support to responsible energy conservation efforts to assist in achieving Canada's goals as expeditiously and economically as possible.

Historically, the conservation of energy within the chemical industry has been a high priority item because of the energy intensive nature of industrial chemical production and the relative importance of energy expenditures in the industry's total cost structure. Chemical manufacturing operations depend heavily on the use of energy as a fuel as well as a feedstock or raw material which is consumed directly in the process. The main sources of energy utilized

by the industry are natural gas, oil and electric power. Individual companies within the industry have been involved for many years in internal energy conservation programs and energy related process improvement systems. Effective conservation measures have been and will continue to be necessary in order to achieve the level of costs required for survival and growth in the competitive business system. As the key factors of cost and availability become increasingly critical, the incentives to do a better job become even more persuasive.

TASK FORCE ORGANIZATION

At the May conference, it was agreed that the industry programs could best operate through the established industry associations. By June of 1975, a sector task force identified as the "Chemical Industry Task Force for Energy Conservation" had been established to develop a detailed industry program. The Task Force organization consists of a steering committee and a technical working group composed of 32 representatives from member companies of the three major industry associations (Canadian Chemical Producers' Association, Canadian Fertilizer Institute, and The Rubber Association of Canada) and liaison members from the Departments of Energy, Mines and Resources and Industry, Trade & Commerce.

INDUSTRY PARTICIPATION

The high degree of participation and commitment on the manufacturing part of the chemical industry sector is evidenced by the following:

Number of companies in chemical industry sector 75

Number of companies participating in voluntary program 71

Participation in the program represents 95 per cent of the chemical industry sector membership and, more significantly, involves manufacturing activities which account for close to 100 per cent of the total fuel energy consumed by the companies within the sector. This in turn accounts for some 15 per cent of all industrial energy used in Canada.

PROGRAM TO 1980

1. To commit to a voluntary program requiring a substantial reduction in the quantity of energy consumption per unit of production.
2. To establish and implement a regular system of reporting accomplishments against the identified goal.
3. To promote the broadest possible adoption of best available conservation practices by communicating and disseminating appropriate conservation data and information among all sector companies.
4. To encourage participation and involvement by those chemical companies who are not members of the three industry associations.

5. To aid in the stimulation of energy awareness and thus further broaden the participation in the national energy conservation effort by informing the general public of the industry's commitment and achievement.

Beyond the date of the Second Conference, the Task Force will examine its role in relation to liaison with the government, seminar activities, joint studies and public relations activities.

SECTOR GOAL

A sector goal has been established to reflect the conservation of energy used by the industry as a fuel. The initial overall target of the chemical sector is to reduce the consumption of energy per unit of production by 17 per cent by 1980 using 1972 as the base year for comparison purposes. Achieving this goal in 1980 will result in annual savings of some 66×10^{12} BTU, equivalent to the energy content of 11×10^6 barrels of crude oil per year. By way of example, this is approximately equivalent to the saving of enough energy to heat all of the homes in Metropolitan Toronto for one year.

This goal is based on a weighted average of the estimates of the reductions considered achievable by each of the 71 companies participating in the sector program. To establish the goal, each participant determined the volume of production

and the quantity of energy consumed in the base year 1972. In addition, individual companies forecast the corresponding quantities of production and related energy to be consumed in the year 1980. From this data, the percentage reduction in energy consumption per unit of production was calculated for 1980 as compared to 1972. The individual inputs were collated by the industry associations, weighted on the basis of the amount of energy used in 1972 and finally consolidated into a sector goal.

Approximately one-third of the forecast energy savings are expected to result from energy waste elimination. The remainder of the savings is divided equally between the increased efficiency of energy usage inherent in the industry's continuing program of process improvements and the savings accruing from capital projects to provide new or modernized facilities.

The goal is also based on certain assumptions relative to the economic scenario expected to apply during the time period indicated.

The goal will be attained by each company making a concentrated effort to further improve energy conservation in all aspects of its operations. These efforts will require:

- . full commitment and endorsement by senior company officials to make all employees aware of the need

for energy conservation coupled with a determination to ensure that its practice becomes an everyday way of life with each of them.

- . installation of additional energy measuring devices in their operations for control purposes and for the identification of areas requiring special and priority attention.
- . increased and continuing emphasis on improved operating and process control systems.
- . that, where they can be economically justified, improved facilities leading to more efficient usage of energy will be installed.
- . innovations in the technology of both existing industrial processes and processes to be used for new installations.

REPORTING METHODOLOGY

A measuring and reporting system has been established to provide participating companies with a uniform procedure for the calculation of energy usage statistics and for the reporting through their respective associations of their individual progress towards the industry goal. This system is based on that pioneered and developed by the Manufacturing Chemists Association in the U.S. Highlights of the procedure

which exclude energy used as a feedstock or raw material are as follows:

- . Energy consumption expressed as BTU per pound of product
- . Establishment of 1972 as base year.
- . Production and energy input definitions.
- . Reporting period 1972 - 1980.
- . Proposed reporting forms.

The procedure requires submission by the industry of a consolidated semi-annual report which will show the progress over the previous twelve months as compared to 1972. The first report will cover the period of July 1, 1975 to June 30, 1976 inclusive, and will be submitted to the Office of Energy Conservation, Department of Energy, Mines and Resources on September 1, 1976.

SEMINAR ACTIVITIES

Major undertakings of the Task Force so far have included arrangements for two separate energy conservation seminars.

The objective of the first seminar, which was held in Toronto on October 28, 1975 was to familiarize as many chemical sector companies as possible with the work the Task Force was doing in the development of an industry program and obtain increased participation from sector companies. The seminar was attended by 63 delegates representing 49 companies.

A second seminar, which has been expanded to a three day program, will emphasize the technical aspects of energy conservation and is scheduled to be held in Toronto on May 18, 19 and 20, 1976. The purpose of this seminar is to provide a forum for the exchange of information between members of individual companies in order to improve the overall effectiveness of the industry's conservation efforts. The format will devote one day to the organization and management of an in-plant energy conservation program and two days to specific areas of concern such as efficiency of steam generation; selection and operation of steam traps; heating, ventilation and air conditioning systems; energy distribution and conservation opportunities in plant and process design activities.

A third similar seminar is also planned to be held in the fall of 1976 in western Canada. The program will be technical in nature and oriented to the needs of the type of chemical operations carried out in that part of the country.

CONSTRAINTS AND OPPORTUNITIES

In the process of establishing the energy conservation objectives appropriate for individual companies within the chemical industry sector, the potential improvements in the efficiency of energy consumption have been referenced to an

economic scenario. This is a projection which assumes no substantial changes in the ways in which business operates and no substantial changes in the extent and form of government intervention in business. The goal will be achievable if economic and operational conditions, which are beyond the control of the industry, materialize as forecast:

- . national and international economic conditions provide the necessary demand for operating the industry at forecast rates of capacity;
- . feedstock costs retain their present relationship to the energy costs;
- . environmental protection standards require no greater usage of energy;
- . savings from energy conservation related investment will accrue to the investor and will constitute an adequate return;
- . feedstocks, feed materials are available as forecast;
- . feedstock costs and energy costs retain their present relationships to costs of construction; and last,
- . production requirements reflect the forecast patterns of product mix.

Although some of the major energy savings will eventually come from changes in the ways the chemical industry operates

its facilities and the technologies it uses, it would be misleading to suggest that many such major changes could be effected in the relatively short time span between now and 1980. Significant expenditures for equipment and the effects on costs of changes in operating procedures to conserve energy will have to be economically justified.

It is considered essential and vital that any increased operating costs associated with energy savings devices be passed through as allowable costs under the Anti-Inflation Act regulations without undue argument or delay and beyond this that any financial savings resulting from such installations accrue to the investor to provide economic justification for the project. Appropriate incentives, such as fast write-offs and tax credits, could result in increased energy conservation in the forecast period and could lead to additional savings over and above the stated industry goal of 17% by ensuring the allocation and supply of sufficient capital resources to energy conservation projects. Similar incentives have made an important contribution to the environmental protection program over the past few years. Further achievement by use of these kinds of incentives could readily improve the target by one or two per cent and could save additional energy equivalent to that necessary to heat all of the homes in the City of Kingston for one year.

PROGRAM BEYOND 1980

The program and organization to achieve energy conservation through 1980 is a response to the world energy crisis. The chemical sector is confident that the energy conservation program it has established and the competitive market place in which it operates will result in the achievement of its 1980 energy conservation goal.

The need for efficient energy use in line with overall objectives of Canada will continue for the foreseeable future. However, the more fundamental changes aimed at improving energy utilization require major capital commitments, many new facilities, the development of new technology, and cannot be in place before the eighties. In the continuing need to conserve energy and control its consumption, the chemical sector is prepared to play its part, both individually and collectively, in these ongoing programs aimed at the longer term.

Several major additional factors will become increasingly important:

- . Increasing energy costs are an incentive for the industry to provide new chemical processes and operations, including electric power generation facilities which can be economically justified. These facilities will have greatly reduced energy

requirements per unit of output and the reduced costs resulting from these energy conservation measures will be a competitive force in the market place.

The use of more plentiful energy sources such as coal, nuclear or hydroelectric power must play an important part of our total effort to conserve the more scarce oil and gas energy sources for more critical end uses. The building of new facilities and conversion of older facilities to use the alternates will continue into 1980 and beyond. The relative costs and availability of these alternate energy sources versus rapidly escalating costs of energy from oil and gas should provide adequate financial incentive for the massive investment involved.

In addition to energy consumed in fuel applications, the chemical sector also uses substantial quantities of oil and gas as direct feedstocks to manufacture petrochemicals. The processing of these energy feedstocks to finished chemicals represents a high degree of upgrading of Canada's natural resources. It is possible in a chemical sense to build chemicals from other feedstocks such as coal or limestone but, in the great majority

of cases, the technology either does not exist or has not been developed far enough to be economically attractive at this time. Over the longer term, enough research effort must be devoted in Canada to permit the use of these alternative sources of feedstock.

The development of these three general areas is of great importance to Canada's future energy balance. However, the complexities of the market place, technological development, location, and the different products involved, do not lend themselves to an overall industry wide program. It is our belief that the response of individual companies to these challenges will be very positive but will inevitably vary greatly dependent upon the nature of each company's business.

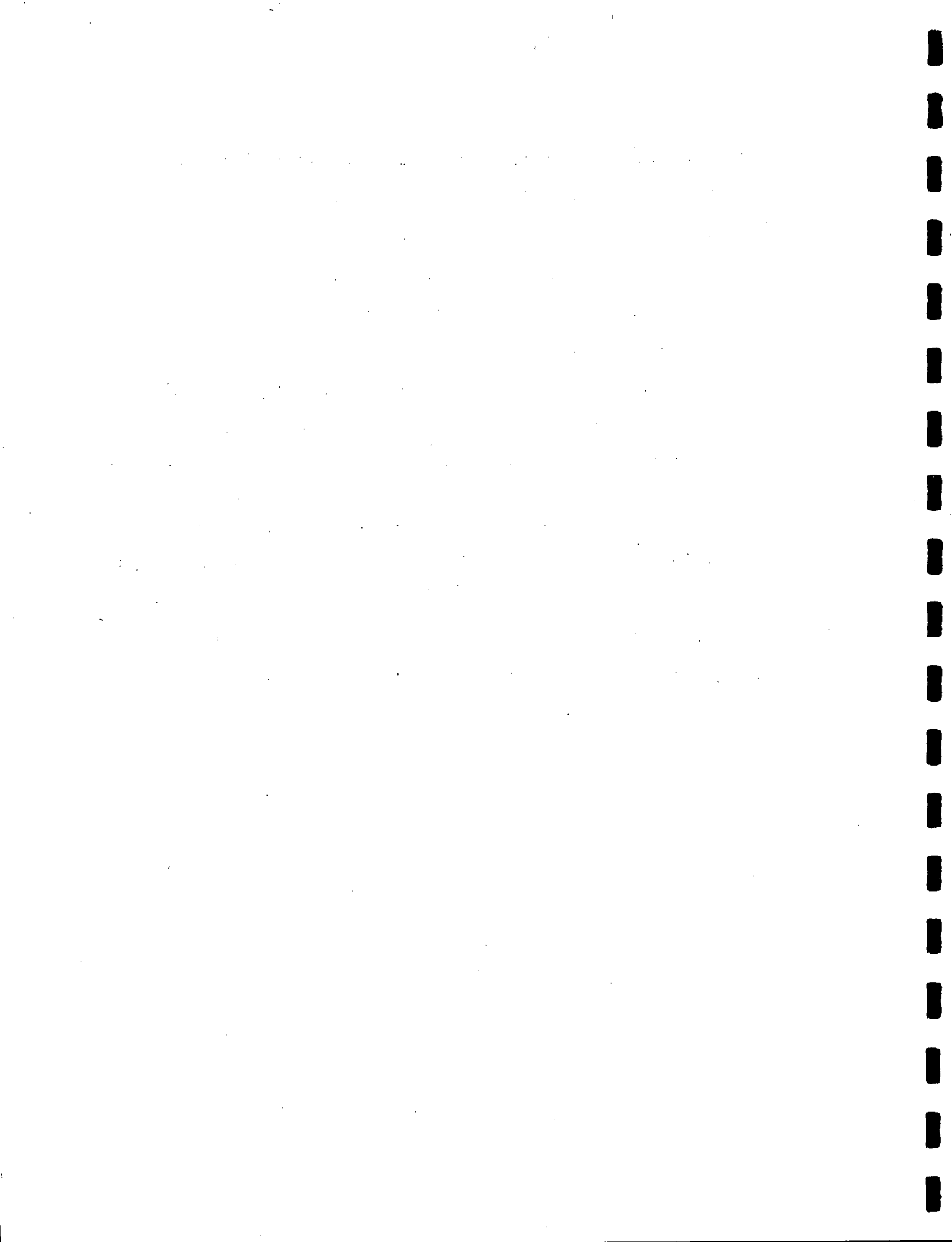
It may be that government assistance will be necessary for success in these areas of basic research and that tax or grant incentives will have to be designed to encourage such developments.

It is also likely that some parts of these challenges may be larger than any individual company might undertake on the basis of its own resources. In this case, groups of involved companies, perhaps working together with government, can organize to attack these and other areas which can be identified.

The opportunities to achieve substantial reductions in energy consumption in the longer run should not necessarily be limited to those technological areas which are exclusively under the control of the chemical industry. It is important to make reference to other general but external conditions which should not be overlooked because of their possible effect on the industry's conservation capability. For instance, the single most wasteful use of fossil fuel and nuclear energy in Canada is in the generation of electric power which is thermally inefficient because of the relatively large amount of heat lost in the cooling water effluent. The formation of a national grid could ensure that we use all of the hydroelectric power available before we use the non-replaceable fossil fuels. Further integration of power and steam generating facilities in areas of high chemical and other processing concentration could ensure the recovery and use of the large quantities of low quality heat presently available but not used in the generation of electric power. Another area of major concern is the continuing encouragement in the use of natural gas for domestic and commercial fuel applications. This is unquestionably another large natural gas consumer sector area which deserves examination and evaluation.

Finally, a clearly defined and consistent national energy policy, providing for the coordination of a country-

wide program of energy conservation, is required for effective planning in the chemical industry. While maintaining the competitiveness of Canadian industry, it is essential that such a policy be based on careful consideration of the many facets involved such as conservation of natural resources, environmental protection and availability of manpower and risk capital.



FERROUS METALS SECTOR TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL
ENERGY CONSERVATION, MARCH 24, 1976.

Editors Note:

The Ferrous Metals sector Task Force embraces two sections of the industry:

- 1) The primary iron and steel producers
- 2) The steel castings producers

As of press time the report by FERA (Ferrous Industry Energy Research Association) representing the majority of the primary iron and steel producers had not been completed and was thus not available for publication.

A summary report from the Steel Casting Institute representing the other section of the Task Force follows:

STEEL CASTINGS INSTITUTE OF CANADA

The Steel Castings Institute of Canada, an integral part of the Ferrous Metals Sector, is comprised of the following organizations.

Abex Industries Ltd.

Canada Alloy Castings Ltd.

Hawker Siddeley Canada Ltd.
Canadian Steel Foundries Division

Dominion Foundries & Steel Ltd.

Esco Ltd.

Fahramet Ltd.

Lynn MacLeod Metallurgy Ltd.

Maritime Steel & Foundries Ltd.

Midland Ross of Canada Ltd.
Unicast Division

Sorel Steel Foundries Ltd.

Welmet Industries Ltd.

These foundries have a combined annual capacity of 130,000 tons and constitute 75% of the available industry output.

During the month of October 1975, the Department of Industry, Trade and Commerce addressed the Steel Castings Institute of Canada outlining the National Energy Conservation Program. S.C.I.C. recognizing the importance of such a program and concurring that there exist less wasteful ways of using energy, agreed to participate in this voluntary National effort.

At this particular time we are not sufficiently advanced in our program to offer a numerical conservation goal. However, we are of the opinion that in an energy intensive industry such as ours, definite reductions are attainable.

The principal areas of energy usage in the steel castings industry are the following.

1. Heat treating
2. Melting

3. Ladle drying
4. Plant heating

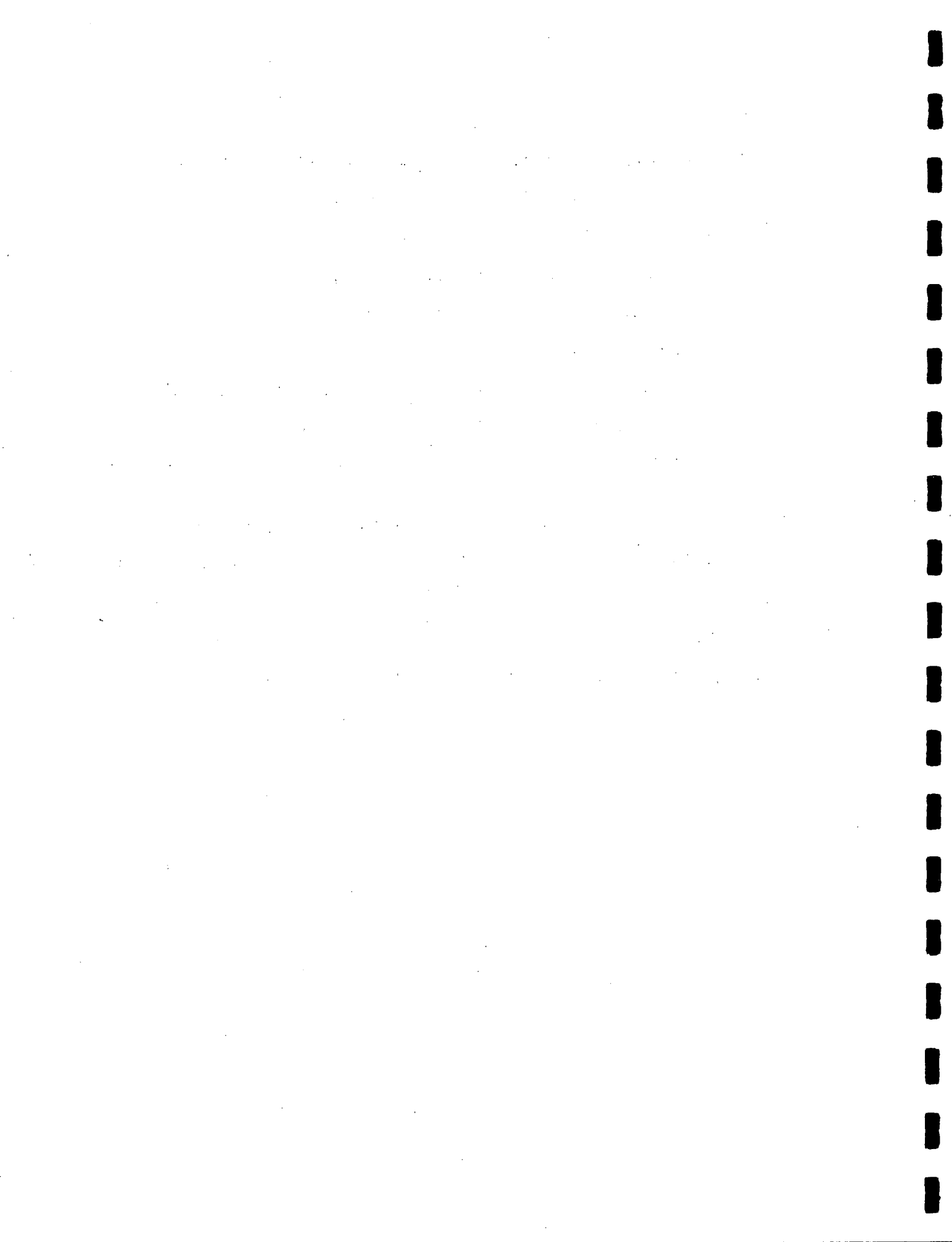
The primary techniques that will be utilized to realize energy savings are as follows:

1. Short term heat treatment cycles.
2. Material substitution and shorter processing cycles to minimize the quantity of heat treatment cycles.
3. Improved waste heat recovery.
4. Shorter ladle drying cycles.

The S.C.I.C. is approaching all non-member steel foundries across Canada for the purpose of increasing its membership, and hence, expand the number of companies participating in the energy conservation program.

As far as long term planning is concerned, it is essential that reliable energy inventory data be made available to industry.

The form of energy input utilized in future capital investment programs will have to be related to this inventory.



NON-FERROUS METALS TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY
CONSERVATION, MARCH 24, 1976.

Background

The non-ferrous metals industry sector consists principally of producers and fabricators of copper, lead, zinc, nickel and aluminum. Significant amounts of other important metals such as cadmium, bismuth, molybdenum, gold and silver are also included. Total industry shipments in 1973 are estimated at \$13 billion, of which approximately 65% is exported. The sector directly employs some 300,000 persons. According to Statistics Canada data, the sector utilized approximately 9% of total industry energy in all forms.

The Task Force for energy conservation established within the non-ferrous metals sector is operating under the general sponsorship of the Mining Association of Canada. Three subdivisions have been established within the Task Force:

Mining and Milling

Smelting and Refining

Fabrication and Secondary Industries

As of the date of this progress report the participating companies account for approximately 80% of the Mining and Milling output, 70% of the Smelting and Refining output, while the Fabrication and Secondary Industries subdivision includes a small but representative sample of firms engaged

in the highly diverse secondary recovery, mill products and metal working industries.

The non-ferrous metals sector is characterized not only as being heavily oriented towards natural resource development, but is a sector which is distinctly capital intensive. Because of this, the financing of major process changes for energy efficiency improvements, environmental enhancement or improved productivity is heavily dependent on adequate and sustained levels of operating income. The vagaries of world prices of many non-ferrous metals, together with the impacts of various governmental regulations are now projected to restrain overall growth of the sector in 1975-1980 to levels well below those experienced in the last 15 years. In the mining and milling subdivision, there is the additional problem of progressively lower grade ore bodies, which results in a tendency towards higher energy requirements per ton of ultimate metal recovered.

Goal Setting

The participating firms will use a measuring and reporting system based on BTU of total energy per unit of product processed.

The goals are expressed as a percentage reduction in BTU per ton or per pound of product.

Goal Setting (continued)

Under this system each participating firm will establish the number of BTU's consumed per ton or per pound in each product line in the base year, 1973. The conservation achievement in the 1976 through 1980 reporting period will be derived by comparing the energy that would have been used if the base year rate of consumption did not change, with the actual total energy used, during each 12 month reporting interval.

Adjustments will be made by each firm to account for inventory fluctuations, where applicable, in both energy inputs and production outputs.

A uniform set of BTU equivalents of the various energy forms has been adopted, using standard handbook conversion factors. The theoretical energy equivalent of 3412 BTU per kwh was adopted on the basis that the higher actual values of approximately 10,000 BTU per kwh typical of fossil fuelled generating plants would not, on balance, be the appropriate factor for this industry.

Data for each participating firm will be aggregated into a weighted subdivision total, and results from the three subdivisions will be weighted into a single total for the overall sector.

Goals

For the Mining and Milling and the Smelting and Refining subdivisions, base year data and conservation projections are incomplete, so a reliable goal figure cannot yet be derived. However a preliminary estimate based on partial reporting shows that a conservation goal between 5 and 7 percent may be realized.

The Fabrication and Secondary Industries subdivision has set a goal of 12% reduction in their average BTU/lb. by 1980, compared to the 1973 base. These savings will result from generally low capital intensive projects. With Government incentives and resultant use of more energy efficient capital equipment, energy savings could be increased to approximately 28% by 1980.

A survey of the energy conservation potential in the Mining and Milling subdivision indicates that improved scheduling and utilization of equipment along with some further scale economies in process machinery will yield the major savings. On the other hand lighting and ventilation in both underground workings and in mill buildings cannot be compromised for health and safety reasons. In the smelting and refining operation major savings will be obtained from process changes and equipment upgrading, both of which depend on new capital investments. Waste process

Goals (continued)

heat is already utilized to a significant degree for the heating of buildings and shops and for preheating or drying of raw materials. The fabrication and secondary companies who utilize energy in melting, reheating and working of metal anticipate major economies in improved instrumentation and control, upgraded process equipment and provision of heat reclamation or utilization devices.

Opportunities and Constraints

Although most process equipment has an economic life typically ranging from 5 to 15 years, replacement or upgrading in the future will move towards designs that are more energy efficient. Such designs, however, will involve much higher initial costs in order to achieve reduced operation (energy) costs. Both the high cost of capital funds and the inflation in project costs between design and completion have become serious concerns and could serve to slow the rate at which upgraded process equipment can be installed.

Because the smelting, refining and melting of non-ferrous metals involve processes which generate air borne emissions, this sector is particularly influenced by environmental regulations. In the short run this is

Opportunities and Constraints (continued)

resulting in a significant diversion of scarce capital into pollution control equipment, and the operation of such equipment typically creates a substantial additional energy demand. Accordingly, in the period through 1980, several participating firms report little or no net energy conservation per unit of output. Co-operation of government at all levels will be required in order that industry can meet both its environmental obligations, and fulfill its desire to make a contribution to the national energy conservation objectives, so necessary for the future.

The non-ferrous metals sector also has a considerable latitude for fuel switching, particularly in the heating and melting operations. Although fuel switching is not strictly conservation, it is desirable from an energy management viewpoint to utilize fuels which are in a stronger supply situation. Coal is an acceptable alternative to oil or natural gas in a number of processes. Several impediments exist to fuel switching: (1) the cost of the outright changeover (or the twinning) of fuel handling, combustion and control equipment; (2) the possible higher costs of alternative fuel, either through less efficient utilization and/or effects on product quality; (3) the uncertainty in the future supply situation, with respect to both fuel reserves and transportation, which adds a serious additional

Opportunities and Constraints (continued)

element of risk into the fuel switching investment decision.

A further concern of this Task Force is the natural gas and electrical rate structures which, by either minimum billing provisions, or reduced rates in periods of temporary excess supply, serve to discourage conservation.

The above points and others will be more fully developed in the complete sector reports which will be made available to the Government within a few weeks. However, the Task Force has reached a consensus on a number of recommendations which it believes should receive prompt Government consideration:

- 1) Provide to industry, at regular intervals, updates on supply and price projections for all common energy forms, based on the best government information and interpretation;
- 2) Ensure that all exports of energy derived for non-renewable resources are strictly limited, and undertaken only after provision is made, if necessary through improved transmission facilities, to meet domestic demand at non discriminatory prices;
- 3) In consultation with industry, to review the timing for implementation of environmental regulations, with a view to achieving an appropriate and sound balance

Opportunities and Constraints (continued)

between environmental, energy and financial objectives and constraints;

4) Consider financial incentives to encourage capital projects for energy conservation, by means of the following:

a) Remove the Federal Sales Tax on equipment purchased for energy conservation projects;

b) Allow 100% write-off, for income tax purposes, of equipment for energy savings projects in one year;

c) Encourage provincial governments to remove Provincial Sales Tax and to provide similar incentives for approved projects;

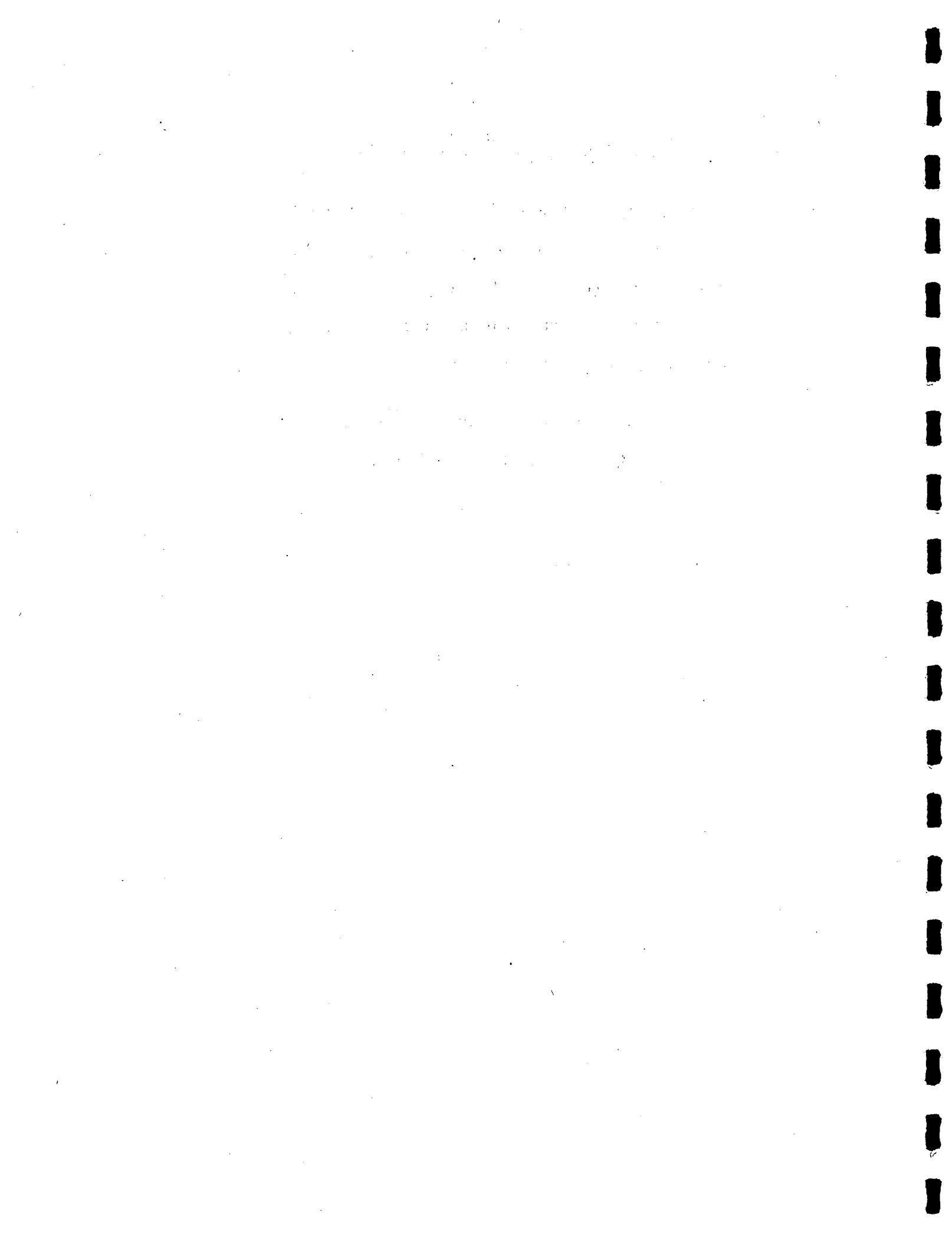
5) Require that contracts for the purchase of energy be rationalized to remove the customary obligation on the purchaser to pay for a certain amount of energy whether it is required or not;

6) Encourage the construction of underground storage facilities to accommodate temporarily excess supplies of natural gas;

7) Set standards which oblige manufacturers of equipment to have their products meet established levels of efficiency in energy consumption or conservation;

Opportunities and Constraints (continued)

- 8) Designate a single Federal agency to have responsibility for co-ordinating all research into energy conservation, and for gathering and disseminating information on domestic and foreign energy conservation projects;
- 9) Permit monies saved through energy conservation measures to be retained by companies.



INDUSTRIAL MINERALS TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

The Industrial Minerals industry in Canada covers over 60 basic non-metallic minerals and related products which, excluding coal, had a production value in 1973 of almost 2.2 billion dollars - - a significant share of the Gross National Product. The following figures from Statistics Canada demonstrate the relative position of each category.

	<u>Millions of Dollars</u>
Non-metallic mineral mining products	895
Structural materials (cement, lime, sand, stone and gravel)	793
Glass	369
Artificial Abrasives	85.5
Refractories	<u>40</u>
	<u>2182.5</u>

It should be noted as well that exports of non-metallic mineral and related products in 1974 approached 1 billion dollars, a major contribution to our Canadian balance of payments.

There are mines and industrial mineral plants in every province. It is estimated that over 1800 plants are operating, employing some 70,000 people directly and, of course, the

usual ripple affect applies in packaging, transportation, and other outside services.

The Industrial Minerals Sector Task Force on energy conservation is herein reporting for the heaviest users of energy, viz. asbestos, abrasives, clay products, cement, glass, lime, and refractories.

The work by the Industrial Minerals Sector Task Force was started by contacting the industry groups that are major energy consumers. This Sector report covers seven major industry groups, all working through existing associations. It was not necessary to set up any additional organizations to coordinate the efforts of these industries. The industries in this Sector are confident they will be able to meet their objectives.

When working with such a diverse field of industry, it is difficult to be precise in saying just what share of the energy consumption in the minerals field is included by the industries reporting to us. However, with the seven major industries named above, we estimate about 70% coverage.

In responding to the question of energy conservation - how much is possible - how can it be done and what are the problems, the seven industries in this Sector each spoke positively and with a voice representing the majority of their group. Since their fields of endeavour were so different, each must be commented upon.

The ABRASIVES industry, consisting of five basic material producers and about twenty involved in manufacturing abrasive material products, has established a goal of 12% energy conservation per ton of product based on 1973 consumption. Plant improvement by redesign and use of larger furnace units, together with continuing attention to operation and energy losses, should accomplish this.

The ASBESTOS industry, third largest consumer of energy of the group, whose recent environment and health problems have been very demanding, assure that by replacement of certain less efficient drying and other energy consuming units, and taking into account the extra consumption of energy required for environment control measures, their goal is to conserve a further 6% of energy per ton of product in the period 1973 to 1980.

The BRICK, TILE and SEWER PIPE industry, which has done much to date to keep their kilns and processes efficient, have projected a goal of from 8% to 12% energy conservation per 1000 brick equivalent from the base year 1972. Improvement of kilns, operational technicalities and reconstruction of plant within the scope of practical financial feasibility are the means they expect to use.

The CEMENT industry which uses by far the greatest amount of energy in this group and whose industry is now more energy

efficient than our U.S.A. neighbors, has established a goal of energy conservation from 1974 to 1980 of from 9% to 12% per ton of cement, which further energy economy is being achieved by reconstruction of plants to more energy efficient processes and by proprietary in-house process improvements.

The GLASS industry, whose six companies contribute to this study, and who are the second largest consumer of energy of this group, project a saving of 9% of energy per ton of product based on 1972 figures. This industry whose furnaces are continuously under heat, will employ best design, waste heat utilization and process improvement to achieve their goal.

The LIME industry, representing those not involved in other industries such as steel and paper, who produce lime for their own processes, are expecting an improvement of 14% in energy use per ton of product from the base year 1973 till 1980. Older, less efficient units, are to be replaced or new plants built where financially feasible, emphasizing waste heat recovery and more efficient processes.

The REFRACTORY industry similarly projects a saving of 6% of energy per ton of product over 1974 by renewal and improvement of plants and better processes. It should be emphasized that product improvement frequently requires more energy but has the downstream effect of better containment

of heat in the plants of their customers. Nonetheless, there is expected a 6% improvement.

The Industrial Minerals Sector, just described, consumes 6.6% of all energy consumed by all industries in Canada. The above goals, when weighted and averaged for these seven industries, forecast an overall saving of from 9% to 11% of energy input per ton or unit of production.

The industry goals are voluntary ones and, by annual reporting through their industry associations, progress toward achieving their objectives will be measured.

There are, however, common problems or circumstances that present serious roadblocks or constraints on this expected performance, however conscientious or ingenious the industry may be.

Most frequent mention was the fact that energy conservation improvements required major capital expenditures which often were not financially justifiable even if energy costs rise well beyond those at present. Not only is the cost of capital high but inflation greatly influences project planning. Plant conversion, or equipment replacement, must be justified in the majority of cases by other economic factors than just energy conservation.

If it is in the national interest to conserve energy in

all forms, and we believe it is, then the government must give close study to this problem and consider ways of assisting industry to make energy conservation projects viable. Active government support could include more comprehensive tax relief, tariff relief on specialized equipment, depreciation provisions, loans or subsidies, whichever is appropriate and applicable.

We hasten to point out that best cooperation on national affairs such as energy, which we are now studying, can only be achieved when industry is fully informed. This is highly important and we respectfully ask that a concise, accurate, and up-to-date report of the energy supply, energy demand and trend projection of energy use be written and issued to every energy consuming industry executive every six months in order that he may plan and implement a course of action on accurate information. Such a report should also contain indication of cost trends for each fuel or energy source for each area, to enable consideration of alternate fuel usage. Only with such information can industrial and economic health be achieved for Canada.

The projection which this Sector makes is based on very limited information about the Government's Anti-inflation Policy. How this will affect the future of each industry, the demand for products, the cash flow and availability of

funds for plant improvement cannot be accurately determined. Industry is ready and willing to strive for the goals stated under these terms and, hopefully, will succeed.

All industries of the Sector, in determining their conservation goals, recognize that the present environment laws will be adhered to. If there is any stiffening of these regulations, it will cut into the savings projected.

Whereas "Industry" is the doer - "Government" must help. For instance, industry needs assistance by all three levels of government in the matter of zoning, to make available raw materials whose use in that industry reduces energy consumption. And again, industry offers to help in the use of recycled and salvaged waste materials having residual energy content, for example, municipal waste or industrial waste materials, but cannot finance research and development of technology and plants for segregation or preparation of this useful material.

The available research resources on a national basis must be mobilized towards this end before industry can be much help. Furthermore, industry, whose in-house research capabilities are considerable welcomes, in fact asks, for increasing government grants to support research not presently undertaken but in their field of pursuit.

Particular mention was also made of the prevalent

contractual practice in the natural gas and electrical energy fields of asking fixed or minimum demand contracts under which there is little incentive to conserve energy which "is paid for anyway". This needs attention. Additionally, it is hoped that coordinated inter-provincial energy sale plans will be devised whereby exported energy is not sold at rates below those charged our own manufacturers, thereby cutting into our energy reserves and causing a shortage for ourselves with the further effect of pushing industry to higher costs, making them non-competitive in export markets.

Honorable Ministers, the Industrial Minerals Sector of the Industry of Canada stands on these objectives and statements and assures you of their fullest cooperation and effort to conserve our energy resources whether native or purchased abroad, for the best possible economic health of Canada.

RESPECTFULLY SUBMITTED:

W.S. Bannister
President, Inland Cement Industries
Spokesman for Industrial Minerals
Sector Task Force

H.B. Howe, Chairman
Sector Task Force for
Portland Cement Association

J.F. Nicks, Vice-Chairman
Sector Task Force
for Clay, Brick and Tile Industry

G.F. Brink
for the Asbestos Industry

J. Shurie
for the Abrasive Industry

Brian Howell
for Canadian Glass Industry

Don Harvey
for Canadian Lime Institute

Lloyd Thomas
for the Refractories Industry

FOOD & BEVERAGE INDUSTRIES TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

The Food & Beverage Industries in Canada recognize that energy shortages are a distinct possibility within a few years time, and that energy costs are certainly of increasing concern as a cost of doing business.

Companies within our sector realize fully that it is in our own best interests, both financially and for long-term operation of our businesses, to practice an energy conservation ethic. In short, we have responded positively to the government's call on May 23rd, 1975 for joint action on energy conservation and we are pleased with our progress towards that objective during the past 10 months.

The Food & Beverage Industry in Canada is multi-sector in nature, having some 4,800 factories across Canada. It employs in excess of 212,000 people and produces literally thousands of products. Our industry is rated as the fifth largest user of energy in Canada.

To date, the energy conservation committee of the Food & Beverage Industries has mobilized 14 trade associations whose job it is to convey the message to the individual companies and to collect data from them on their energy conservation goals. The associations involved include:

Canadian Soft Drink Association
Association of Canadian Distillers
Canadian Wine Institute
Brewers Association of Canada
The Canadian Starch Industry
Canadian Food Processors Association
Meat Packers Council of Canada
National Dairy Council
Canadian National Millers Association
Bakery Council of Canada
Association of Canadian Biscuit Manufacturers
Fisheries Council of Canada
Grocery Products Manufacturers of Canada
Pet Food Manufacturers Association

What have we done in the past 10 months? First of all, we have organized a Steering Committee composed of permanent association staff and technical experts drawn from the industry. We have produced, in bilingual format, a ten minute audio-visual package which outlines the problems and suggested ways energy conservation objectives can be met, both in the short term and the long term. This audi-visual package is available to all associations and companies within our sector.

The back-up documents to this summary report show that

several target conservation goals have already been set and they range from a slight increase in energy usage to a 25% decrease in energy use per unit of output by 1985. While there obviously is need of more information from some sectors of our industry, we are confident that our sector will achieve an overall reduction in energy of at least 20% by 1985.

We can report that:-

1. Senior management within companies are committed to energy conservation programs.
2. Energy coordinators are being appointed at the company level.
3. Specific action programs are being implemented.

It should be stressed however that 1976 will primarily be a year of:-

1. Understanding in greater detail the problems of energy shortages that are approaching.
2. Organizing and educating employees at the factory level who will implement the conservation programs.
3. Measuring energy usage in a more accurate manner than has been customary within our industry.
4. Evaluating the various trade-offs and priorities for future action.

When energy consumption is examined carefully, it will no

doubt lead to investment in capital programs which are justified on a cost and energy conservation basis. Preliminary reports by several firms in our sector reveal that monetary savings are in many cases not sufficient to justify the expenses occurred. In this respect, our industries are similar to all small consumers of energy in that if a lot of us save a little bit, we will save a lot in the long run.

We foresee no problem in achieving an 8-10% reduction across the board by paying stricter attention to the normal "good housekeeping practices" associated with factory and office use of lighting, heating, hot water and air conditioning. Further reductions of 5-10% are possible by adhering to improved maintenance and scheduling of distribution fleets as well as the savings achieved as a result of the lower speed limits on provincial highways. Finally, and perhaps most important, we foresee finer tuning and maintenance of steam generation and distribution within our factories as the area where we can achieve our greatest reduction in energy consumption. This area accounts for by far the largest portion of our energy requirements.

Throughout the remaining months of 1976, association meetings and seminars will be the vehicle for educating our memberships about energy conservation. We will also continue to press for regular reporting of energy audits so that our progress can be observed relative to our 1974 base year.

The larger corporations within our sector accept their leadership roles and are prepared to assist smaller companies who may not have the expertise or resources to carry our energy conservation programs individually. We are glad to see that some federal and provincial government departments are initiating programs of assistance. The short course in computer aided building energy systems analysis by the federal Public Works Department and the mobile field unit of the Ontario Energy Management Program, Ministry of Industry & Tourism, are two good examples. We would strongly recommend that each provincial government set up mobile energy audit teams of engineers capable of assessing the actual versus potential energy performance of companies, both large and small. Monetary incentive should complement industry energy conservation efforts and this should take the form of tax relief, cost sharing programs and research grants. We must however look at the alternatives realistically and understand that the objectives of the Anti-Inflation Board may run counter to objectives desired for energy conservation or for a cleaner environment.

In conclusion, we feel that we have made a good start. We are committed as an industry to energy conservation and to evaluating on a regular basis the combustion efficiency of our operations, the use of energy in our distribution of products and a longer term capability of dual fuel or alternate

fuel use. Still in the long term, but just as critical, we are looking closely at our choices of supplies and packaging materials, plant design, more efficient distribution patterns, and consolidated warehousing to mention a few items. We do have on hand today representatives from most of the product sectors covered by our report and would be happy to answer any questions that might be put forward.

ENERGY CONSERVATION STEERING COMMITTEE

<u>NAME</u>	<u>COMPANY</u>
Mr. W.L.K. Trott	Canada Packers Limited
Mr. Ian H. Langlands	National Sea Products Limited
Mr. Tim C. Woods	Libby, McNeill & Libby of Canada Ltd.
Mr. Kent T. Knecktel	The Canada Starch Company Limited
Mr. John Hale	Christie, Brown & Company Ltd.
Mr. Andre Lamothe	Ogilvie Mills Limited
Mr. Wilson Spencer	General Foods Limited
Mr. Jim Drum	Coca Cola Limited
Mr. R.H. Rosen	H.J. Heinz Co. Ltd.
Mr. Anthony Petricola	Hiram Walker & Sons Ltd.
Mr. D.G. McNicol	Industry, Trade & Commerce
Mr. Charles Scott	Dominion Dairies
Mr. W.N. Nesbitt	Weston Bakeries
Mr. Ken Liley	Standard Brands
Mr. E.T. Banting	Canadian Food Processors Association
Mr. A.C. Hayden	Department of Energy, Mines & Resources
Mr. A. Webster	Interbake Food Ltd.
Mr. J.D. Dent	Associated Biscuits of Canada Ltd.
Mr. Kenneth R. Lavery	Brewers Association of Canada
Mr. K.M. Campbell	Fisheries Council of Canada
Mrs. Shirley Kennedy	Canadian Wine Institute
Mr. Bernie Zgola	Labatt Breweries of Canada Limited

(Energy Conservation Steering Committee)

<u>NAME</u>	<u>COMPANY</u>
Mr. John R. Jackson	National Dairy Council of Canada
Mr. Gerald Beaudoin	Association of Canadian Distillers
Mr. G.G.E. Steele	Grocery Products Manufacturers of Canada
Ms. Susan Watanabe	Association Services - GPMC
Mr. Tibor P. Gregor	Canadian Soft Drink Association
Mr. Kempton L. Matte	National Dairy Council of Canada
Mr. Dave Adams	Meat Packers Council of Canada
Mr. T.A. Goodyear	Grocery Products Manufacturers of Canada
Mr. R. Dupont	Morrison Lamothe Foods Ltd.

CANADIAN TEXTILES INDUSTRY TASK FORCE CONDENSED REPORT

PREPARED FOR THE SECOND CONFERENCE ON INDUSTRIAL ENERGY CONSERVATION, MARCH 24, 1976.

SECTION I - Sector Identification and Description

The Canadian primary textile industry employs close to 100,000 persons and its value of shipments exceeds three billion dollars. While it has a major position in the economy, it is less important as a user of industrial energy. Most of the production processes encompassed in this report consist of the mechanical formation of fibres into products destined to the apparel, household furnishings, industrial and automotive markets, and these fall in the mid-range of industrial energy users. The Office of Energy Conservation assigns to these sectors of our industry intensity values between thirteen and forty five.

The primary textile industry comprises activities from fibre production at one end of the spectrum and to finished fabrics at the other. For purposes of this report, however, those of our member fibre producers which are integrated into petrochemicals and fibre intermediates on the same plant site have chosen to report energy conservation through other trade associations. Other member fibre producers have elected to report to this conference through the Canadian Textiles Institute.

This report has been endorsed by the Board of Directors of the Canadian Textiles Institute; a trade association representing 85% of primary textile production in Canada, including fibres. Our Board is comprised of companies representing 65% of Canadian primary textile production. To carry the point further, the Institute's Energy Conservation Committee consists of representatives of nine firms which account for 45% of Canadian primary textile production.

This is the industry then, which can make perhaps a greater impact than any other consumer semi-durable producer on the energy consumption habits of Canadians. Is it not as easy, and certainly less costly, to wear warm and light modern textiles in our homes or offices, which also feature good-insulating carpets and drapes, than to keep our thermostats turned up high?

This can be one of our contributions. Let us now describe another; what we intend to do for ourselves, and then the roles we believe other parts of the community must play in this common task.

SECTION II - Conservation Goals

A. Goals

The textile industry's goal for energy reduction, expressed as units of energy consumed per unit of product output, between 1976 and the target year 1980, is 11%.

This goal may not appear high relative to some other manufacturing industries, but it must be remembered that the textile industry here has for many years been exceedingly cost-conscious and therefore energy-conscious. We have no margin for cost-complacency in a Canadian market which is brutally competitive and dominated by other countries.

B. Assumptions

This goal is attainable if the following assumptions hold true:

Assumption I

Installed capacity will again be used at the levels for which it was designed. This will be brought about, in part, because Canadian international textile trade policies will be brought into line with those in all other developed countries.

Assumption II

Profits will be adequate to finance new and more energy-efficient equipment, and will be combined with some financial incentives from Government.

Assumption III

The textile "cycles" will not, in the future, be any more drastic and damaging than those experienced in the past.

Assumption IV

Some of the energy saving potential will be reduced by the installation of new energy-intensive processes in response to market demand for new easy-care and flame retarding processes.

C. Methodology of Measuring and Reporting Progress

Industry-wide measurement of progress will be by means of a semi-annual comparison of energy consumption per unit of product output using a simple and easily understood data base, with 1974 as the base year.

In conformity with Canadian adoption of the metric system, energy input will be expressed in joules, and units of product in kilos. The Institute recommends that subscriber member companies internally record and compare their data monthly. It would then be reported to the Institute semi-annually for each preceeding twelve months. An average for the whole industry will be released and publicized semi-annually.

D. Energy Saving Techniques

1. We will ensure that energy is efficiently used in all its forms at all locations and for all primary mill services.

2. Heat or energy recovery systems will be applied where practical, feasible, and economically justifiable.
3. Production processes or process machinery will be modified where possible.
4. More careful attention will be paid to climate control. We will avoid excessive and unnecessary heating or cooling of the workplace.
5. Greater use will be made of automatic control instrumentation for production processes.
6. Government and labour will be invited to help us work out together the elimination of legislative restraints or labour practices which result in unreasonable or unusual consumption of energy in the workplace.
7. We will continue to seek ways to rationalize the size of production runs to achieve optimum cost and energy efficiency.
8. The industry is committed to inducing energy conservation awareness amongst employees and management through extensive publicity efforts.
9. We have established a three man-working group to constantly seek out and publicize to the industry

new developments in energy-saving technology. It will act as a clearing-house for techniques developed by members and will organize technical seminars for the textile industry, both regionally and over time.

E. Expansion of Industry Participation

All Institute member companies will be served by this Energy Conservation Program, but the Institute is willing to accommodate and serve non-members just as it does for many of its other programs and services. We will attempt to do this without any additional funding, by relying on the technical resources and the committed good will of major producers.

SECTION III

The Canadian Textiles Institute holds the view that the eventual decontrol of petroleum prices is the best single means of ensuring cost consciousness and thus energy reduction in Canada. Such an approach to the problem is fundamental, but once done there are many other constraints acting upon the textile industry in particular, which are wasteful of energy.

First and foremost of these is the chronic under-utilization of installed capacity, and the hesitation to

invest aggressively in new machinery. The causes are numerous, but chief among them is a too-tame textile trade policy operated by the Canadian government.

There is no dissatisfaction with capital cost allowances for industrial machinery as presently constituted, but if the government genuinely wishes to encourage the rapid installation of more energy-efficient machinery, and energy control and monitoring devices, we suggest that a capital cost allowance program similar to that applying to pollution control machinery be instituted in this area as well.

There are also restraints and legislative restrictions outside the immediate purview of the textile industry which nonetheless effect its operating efficiencies and thus its ability to conserve energy.

Let us note among them the following:

- trucking laws
- excessive illumination requirements
- stationary engineering legislation
- fuel taxation which discriminates against more efficient diesel fuel
- anti-inflation measures restricting profitability to historically low levels, impeding the ability to purchase energy-efficient machinery

We take these efforts very seriously, and make these proposals with a view to enlisting the co-operation of all elements of the wider Canadian community.

