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1. 要請書



جمهوری اسلامی ایران

شماره: ۱۵۰/۴۱۱-۹۵/۵۳۷۰ وزارت امور خارجه

بیوست: دارد

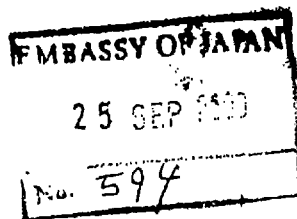
بسمه تعالی

یادداشت

تشریفات کل وزارت امور خارجه جمهوری اسلامی ایران با اظهار تعارفات خود به سفارت ژاپن در تهران احتراماً فرم تکمیل شده توسط وزارت نیرو جمهوری اسلامی ایران درخصوص طرح تاسیس مرکز آموزش صرفه جویی در مصرف انرژی جهت قرار گرفتن در چارچوب همکاریهای جایکا در سال ۲۰۰۱ را ایفاد می دارد.  
موجب امتنان خواهد بود نسبت به اعلام نتیجه اقدام لازم معمول گردد.

موقع را مغتنم شمرده احترامات فائقه را تجدید می نماید.  
به امید پیروزی مستضعفان بر مستکبران

سفارت ژاپن - تهران



تهران - ۲۸ شهریور ۱۳۷۹

Translation

Ministry of Foreign Affairs  
Islamic Republic of Iran

No.: 150/411-95/5370  
18 September 2000

In the Name of God  
"Note Verbale"

The Protocol Department of the Ministry of Foreign Affairs of the Islamic Republic of Iran presents its compliments to the Embassy of Japan in Tehran and has the honour to enclose herewith the forms completed by the Ministry of Energy of the IRI, concerning the establishment of an energy conservation training center to be considered within JICA cooperation projects for 2001.

It would be appreciated if the result would be informed.

Availing itself of this opportunity to renew the assurances of its highest consideration.

Wishing the victory of the oppressed over the oppressors.

Encl.

Embassy of Japan- Tehran

*IN THE NAME OF GOD*

**PROJECT TYPE TECHNICAL  
COOPERATION  
BETWEEN  
JICA AND MINISTRY OF  
ENERGY OF I.R.IRAN**

MINISTRY OF ENERGY  
DEPUTY MINISTER FOR ENERGY AFFAIRES  
ENERGY EFFICIENCY OFFICE ( EEO )

August 2000

Annex: 1-5

**Request Form for Each Project**  
**(Standard Model of Terms of Reference: T/R)**

(Please tick one of them)

(  ) Project Type Technical Cooperation, (  ) After Care, (  ) Mini- Project, (  ) Joint Study

**1. Name of Project:**

Establishing an Energy Conservation Training Center (ECTC)

**2. Name of the implementing organization:**

(Please attach the organization chart of the implementing organization to Annex 1-6)

According to its mission, Energy Efficiency Office (EEO) under the Ministry of Energy will be direct responsible organization in Iran for ECTC

**3- Name of the ministry to which the above named organization is affiliated:**

(Please attach the organization chart of the ministry to Annex 1-7)

Ministry of Energy

✓ **4- Name of the region where the project is to be implemented:**

(Please attach the map of the project area to Annex 1-8)

Tabriz

**How far from the main city:** 10 km

**5. Function of the above named organization, including its annual budget and its relation to the named ministry and other concerned organizations:**

**(a) Please describe fully the function of the above named organization:**

Energy Efficiency Office (EEO) in Ministry of Energy for policy making in energy efficiency promotion in the final energy end-user sectors in the whole country and its factions are as follow:

- To compile set and conduct the necessary polices and guide-line for rational use of energy in the society and supervise their proper performance.
- To compile and set the energy consumption management in long term, medium term and short term and supervise their good performance.
- To prepare, set and conduct the public awareness policies in improving the energy consumption patterns.
- To design, manage and cooperate in conducting educational specialized courses in energy management field.
- To plan, lead and supervise pilot projects for rational use of energy and conduct developing and improving technology researches projects.
- To support the establishment of government and private research Institutes and to obtain technical and financial support for conducting energy efficiency project.
- To compile, prepare and set standards and codes for rational use of energy regarding its economic and environmental impacts.

$$RL 1752.5 = \text{¥ } 12^Z$$

$$RL = 0.069 = \text{¥ } 0.07$$

## (b) Annual budget:

Name of the Organization	Amount of Annual budget From March 1999 to March 2000 (Unit: Million Rial)	Source
National budget	1300000 (91 52.17)	Management and Planning Organization
Implementing organization		
EEO	50000 (3.5 52.17)	
Affiliated organizations and ministry		
IEEO	---	EEO

## (C) Please describe fully the relation between the relevant ministry and other concerned organization:

- Ministry of energy is responsible for energy policy making of country, Min. of Energy
- ✓ EEO is in charge of supervising and monitoring, ↑
- And the training center will be established in one of the training centers of the MOE in Tabriz.

**\* 6. Background of the request and its relation with the relevant national plan of the Third Five-Year Economic, Social and Cultural Development Plan or the relevant project**

In the line of achieving row 9<sup>th</sup> of paragraph "V" of item 19-Law second Five Year Program (FYP), meaning training experts of utilities and factories (having higher than 5 Mw demand or around consumption of 5000 m<sup>3</sup> of oil) for energy management, this task has been transferred to Ministry of Energy (MOE) and Ministry of oil. In this relation Energy Efficiency Office (EEO), Deputy Ministry for energy affairs as focal point is responsible for implementing appropriated policies and planning through educational institutes affiliated to MOE, for promotion of knowledge and performance of human resources to optimize energy efficiency in the country. Under the new regulation, Energy Management Law, all the industries and buildings with high-energy consumption (more than 2 MW demand per year) must have an energy manager in their organizations. Recently a protocol was made between Iranian statistical center and EEO for defining the profile of industry energy consumption and, in order to targeting and monitoring EE programs.

**\* 7. Goals and contents of the Project (Objectives, results, activities, target group and so on, details as much as possible)**

## (a) Goals:

In according to the surveys, the expected effect of setting up the Energy Management System in the plants and training of managers is 10% of reduction of specific energy consumption in industrial production. After establishing the energy management, new investment can bring another 10% recovery of energy saving potential. Based on the information available from the Iranian statistic office, there are over 30,000 factories in the industrial sector. According to the energy balance data provided by the Ministry of Energy for the year 1998, the industry sector consumes, more than 25% of total final energy consumption in Iran (161 mtoe).

**(b) Objectives and results:**

- Commissioning the training center, ✓
- Implementing of training courses, ✓
- Training of domestic staffs, ✓
- Editing of content of courses, and
- Training of 150 persons per year. } ✓

**(c) Activities:**

**- Contents of concrete technique can/can not be implemented by the Iranian side:**

In the scope of the project, training center activities. Will be as follows:

1. Adaptation of existing building and facilities with the E.C.T.C requirement. ✓
2. Preparation of materials and equipment.
3. Start to train the trainers during the project time
4. Installation and commissioning of the facilities.
5. Preparation of pamphlets and documents.

**- Contents of concrete techniques Iran requires Japan to provide:**

- To transfer energy efficient technologies in industry, and adapt policies with successful experiences
- To setup equipment and starting the training courses by cooperation of the Japanese and Iranian experts
- Edition of documents needed
- Training of Iranian trainers
- Transfer of necessary know-how such as preparation of significant titles to be trained

**(d) Target group:**

The energy manager of the plants (who will be trained at this center) will implement the principles of energy management in their own plants. This center can also submit special energy training courses for the energy manager of the Middle and Central Asia Countries.

**8. Duration of cooperation with Japan:**

2001-2007

**9. Number, field and duration of stay of Japanese experts to be dispatched to Iran**

Fields	Number	Duration (Months)
Team Leader	1	24 "
Coordinator	1	24 "
Expert in different technical subjects (e.g. electrical & mechanical engineering )	2	12"
Experts ejection manager	1	36 "
Expert for commissioning and firstly running	2	24"
<b>Total</b>	<b>7</b>	

Proposed Project Schedule Table

	Activities	2001	2002	2003	2004	2005	2006	2007
Project support system in Japan & Iran	Preliminary study team	→						
	Long-term study		→					
	Implementation discussion team			→				
Project support system in Japan	Mutual consultation team			→				
	Technical guidance team				→			
	Technical guidance or Mutual consultation team					→		
	Technical guidance team						→	
	Equipment repair team							→
	Evaluation team							→

← preparation →

10. Number, field and duration of Iranian trainees to be accepted in Japan

Fields	Number	Duration of training
Mechanical Engineering	6	2
Electrical "	6	2
<b>Total</b>	12	4

48



### 11. Kinds and approximate price of equipment and material to be provided by Japan

Name of equipment & material	Specifications	Quantity	Unit price (million Rial)	Total price
Heating and Blast Furnace	Capacity: 3 million Kcal/t High efficiency regenerative burner. Training for meat recuperation. Adjustment of operation. High efficiency combustion.	1	≈100	100
Fire Tube/ Boiler	Capacity: 1.5 t/h Training for boiler efficiency An adjustment of operation.	1	≈200	200
Electrical motor		1	5	5
Transformer	--	1	10	10
Cooling towers	--	1	100	100
Blowing machines	--	1	20	20
Melting furnace	--	1	100	100
Industrial Compressors	--	1	100	100
Diesel generator	--	1	100	100
Pumps		1	5	5
<b>Total</b>				

### 12. Situation regarding arrangements of facilities for the project: (Utilization of existing facilities or newly established ones)

#### Facilities:

- Main building (educational and administrative building)
- 2 Class rooms
- 1 Lecture hall.
- 1 orator room
- 1 audio- visual room
- 1 computer center
- 1 Library
- 5 office room
- 1 water house
- Lobby restaurant and other facilities at the time being this building is now working in Tabriz, one of the main industrial cities in Iran .
- Mini plant house and laboratory.

The above existing facilities will be used for practical training. It can be re-arranged according to the situation and will be a pilot plant such as a real example of a factory. This mini plant house will have equipment regarding to row of 11.

### \*13. The amount of budget and number of staff and counterpart allocated for the implementation of the project by the requesting organization and position of the counterpart

- (a) Name of the requesting organization:  
Energy Efficiency Office (EEO)

(b) The amount of budget which could be allocated to the requested project by the relevant organization:

Estimated approx. 2.2 Billion RLS ( ٢٠٠٠ : ٢٠٠٧ )

- 1) Operation cost: 0.4 Billion RLS
- 2) Cost of existing building and equipments: 1.8 Billion RLS

(c) The number of staff, which could be recruited by the requesting organization:

Fields	Name of full – time staff	Position of staff
Mechanical Engineering	Esmail	Professor
Mechanical Engineering	Ali	Lecturer
Electrical Engineering	Khalil	Lecturer
Mechanical Engineering	Khalil	Lecturer
Electrical Engineering	Ali	Lecturer
Mechanical Engineering	Mohammad	Lecturer

**14. Relation between this project and Japan's ODA and other special issues concerning Japan:**

Comprehensive studies had been done by IEEJ (The Institute of Energy Economics, JAPAN) with support of JICA about " Energy Development Plan in Iran" in March 1994 and " Technical Cooperation On Analysis Of Energy Conservation And Rational Use Of Energy In The Social And Economic Sectors Of The Islamic Republic Of IRAN in September 1997 (Refer to annex B). The following activities have been done According to the conclusions and recommendations of those studies:

- Establishing the Energy Efficiency Office ( EEO ) in Ministry of Energy ( MOE ) for policy making in energy efficiency promotion in the final energy end-user sectors in the whole country.
- Establishing an implementing organization, Iranian Energy Efficiency Organization (IEEO) Which is referred as SABA in Farsi advisory services through a business-free mechanism which will help the energy end-users to make suitable decision for achieving energy efficiency.
- Carrying out energy audits in some industries that consuming more than 5 MW or 5,000 m<sup>3</sup> of oil annually, according to the second five years plan (paragraph " V", Annex D ).
- Training of about 1200 experts of industry sector in the field energy management . ( According to paragraphs " v" - Item No. 9 )
- Public Awareness in energy efficiency by publications of books, brochures, etc.
- Standardization and labeling for refrigerators, freezer, washing- machine, iron cooler, hermetic compressor, pumps, lamp, vacuum cleaner etc, so far refrigerator and

Ministry of energy – energy affairs- Energy Efficiency Office (EEO) (2000)

freezer were labeled and hopefully by the end of Iranian year (March 2000), about four of above mentioned facilities will be labeled in regard to energy consumption.)

- Setting-up “ National Energy Efficiency Laboratory “ for testing and energy labeling for 21 home appliances.
- Preparation and suggestion of Energy Management Law in I.R.IRAN.
- However for continuation the experts training program in a comprehensive and practical way and dissemination of energy efficiency know-how in the field of industry, we need assistance and cooperation with JICA for establishing an energy conservation training center.

**15. Outline of cooperation with the international organizations and other foreign countries, if any:**

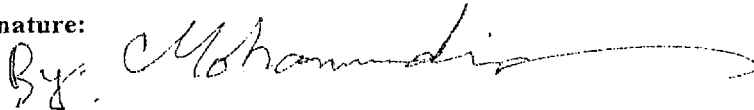
- Cooperation with Ademe (France) including:
  - Strengthening the government’s capacity for the rational use of energy.
- Cooperation with in Escap including:
  - Energy auditing and prefeasibility study in industry.

**16. Priority and position of the project within the government social and economic development plan:**

According the proposed draft to the parliament energy efficiency is one of the main priorities in the 3<sup>rd</sup> Five – Year development plan (Article121).

Date: Nov. 20, 2000

Signature:

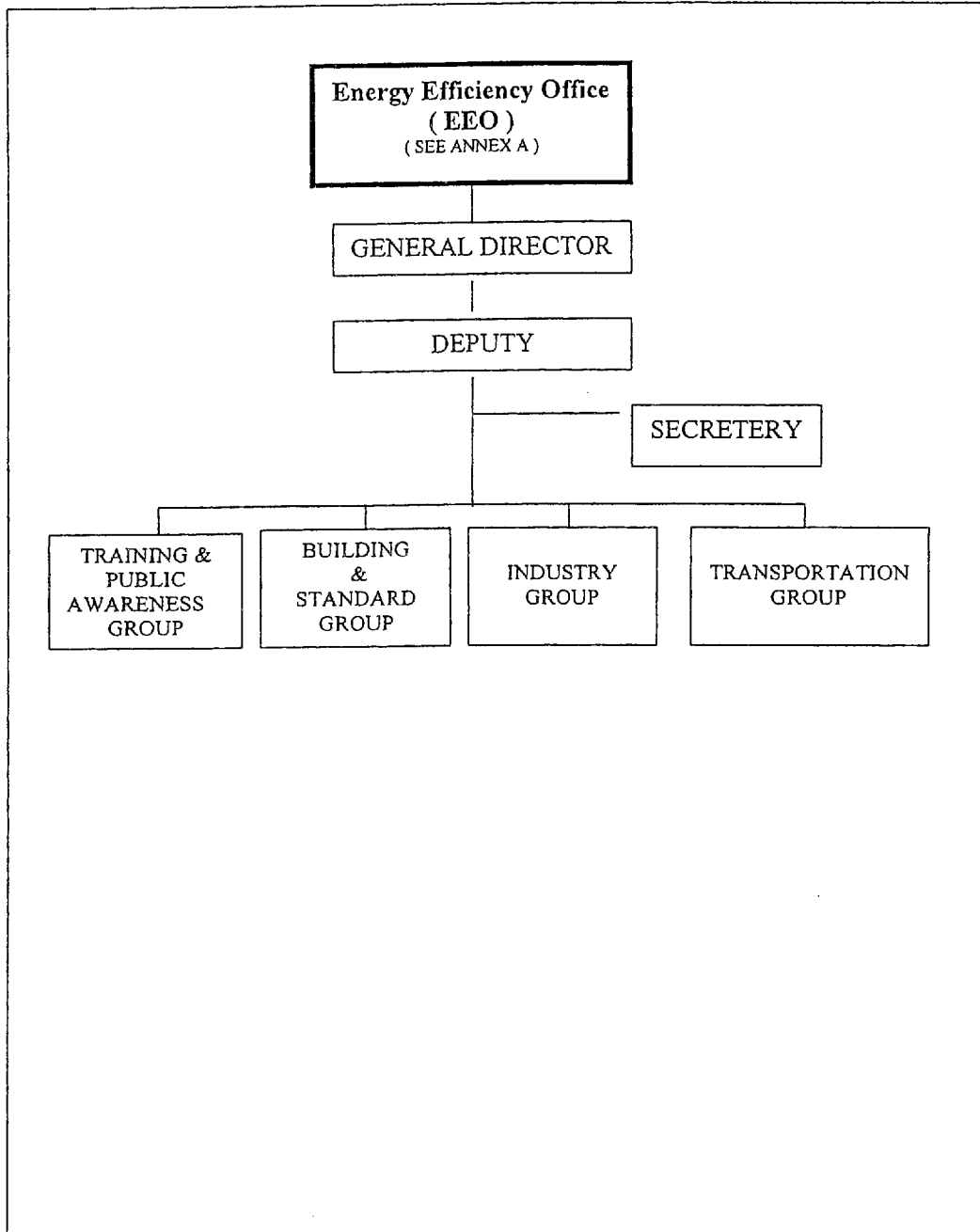
By: 

Remarks:

\* This item is very important, please describe it precisely and comprehensively

Annex 1-6

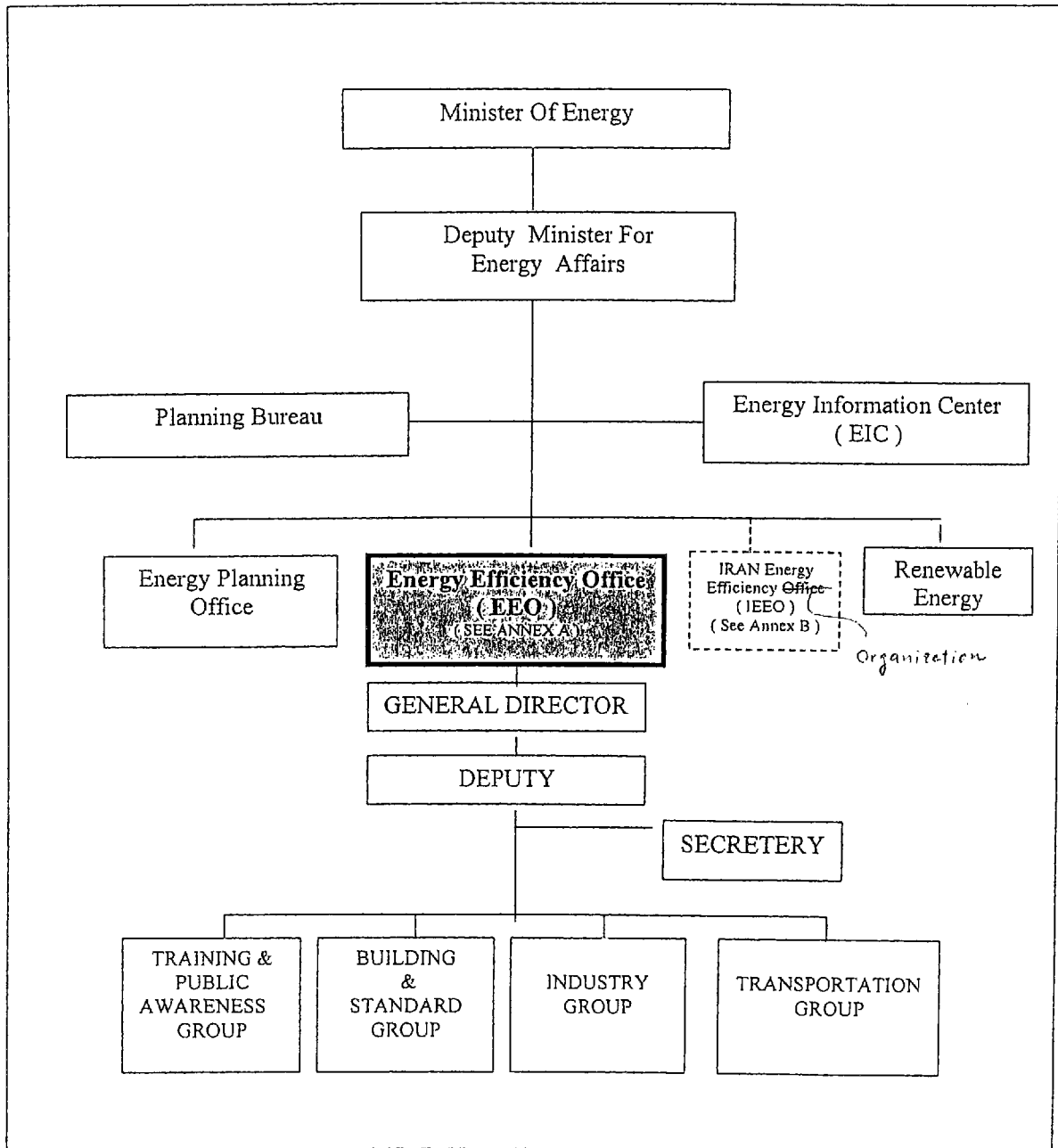
### Organization Chart of the Implementing Organization



Please mark the department responsible for the requested project

Annex 1-7

### Organization Chart of the Relevant Ministry MOE - Energy Affairs & EEO Organization



Please mark the department responsible for the requested project

ANNEX A

**Annex A****Energy in IRAN**

The area of IRAN is 648195 square kilometers . It has about 60 million populations . In 1996 the crude oil consumption of the 12 million households of the country is about 63.9 million tons, which represent 1.9 % of the total worldwide energy consumption. The structure of energy consumption in the country contains 61.48 % oil products, 29.09 % natural gas, 1.58 % solid fuel and 7.48 % electricity. The consumption of home appliances and trade sector, industry, transportation, agriculture and others are 36.73 %, 26.76%, 24.62 %, 5.46 % and 6.48 % respectively.

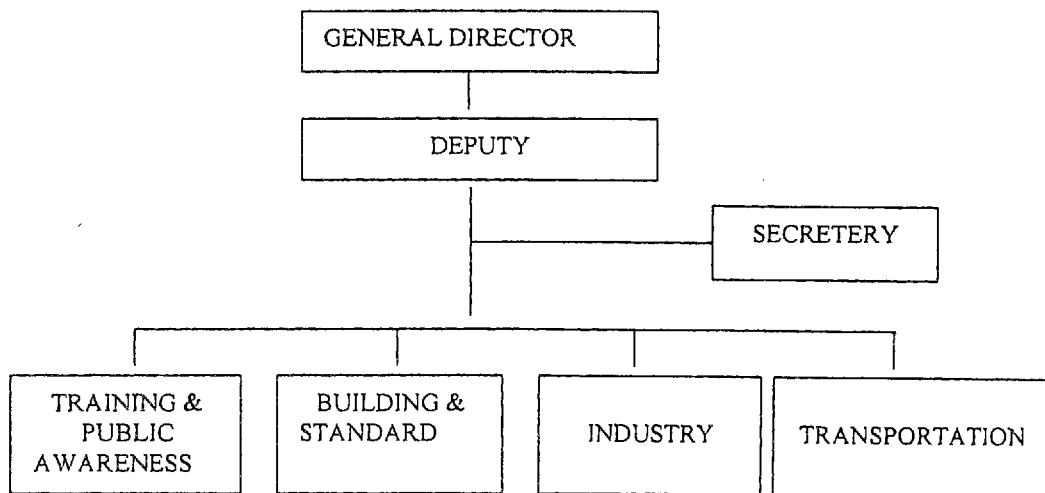
↓  
industry .

Energy Efficiency Office

The Energy Efficiency Office was founded in 1994 and its functions are as follow:

- To compile, set and conduct the necessary policies and guidelines for logical use of energy in the society and supervise their proper performance.
- To compile and set the energy consumption management in long term, medium term and short term and supervise their good performance.
- To prepare, set and conduct the public awareness policies in improving the energy consumption patterns.
- To design, manage and cooperate in conducting educational specialized courses in energy management field.
- To plan, lead and supervise pilot projects for optimization of energy consumption and conduct developing and improving technology research projects.
- To support the establishment of government and private research Institutes, and to obtain technical and financial support for conducting energy efficiency project.
- To compile, prepare and set standards and codes for optimization of energy use regarding its economic and environmental impacts.

The organizational chart of Energy Efficiency Office is as follow:





### *Building & Standard*

#### *standard*

The group of the standard for energy consumption was formed in 1995.

The house and trade sector spent 36.72% of energy consumption in the country, so specifying the energy consumption criteria in the house trade is of special importance. The process of using criteria low consuming lamps, energy consumption tags on appliances has been already finished for local refrigerators and fridges and is under operation in other equipments. The act, item "V" note 19 row "1" ratified in 1996, is legal supports for such operations and based on it, the criteria for energy consumption in energy equipments should be set and prepared.

The aim of conducting the above projects, are implementation of engineering pattern for energy consumption in manufacturing house tools in Iran and is as follow:

1. To specify the energy consuming equipments in house sector and rate of energy consumption and finding their priority.
2. To reduce energy consumption in house sector through replacing existing equipments with high quality output ones.
3. To encourage the industry sector (manufacturers of appliances) and establish healthy competition among manufacturers to upgrade the quality level of the above tools in order to get access to world markets and enrich the country's export.

#### *building*

In order to reduce energy consumption in building sector at energy efficiency office was founded in 1996.

#### *Duties*

- 1- Changing the pattern of energy consumption in house sector and other sectors related to constructions
  - 2- Spreading the use of raw material and technologies of constructing in order to reduce energy consumption in the building of the country.
  - 3- Enhancing quality of designing and constructing buildings in country
-

- 4- Enhancing technical knowledge of involved people in designing and constructing of buildings in country
- 5- Estabilishing ground for producing building materials with high thermal standard in the country.
- 6- Cooperating and activating concerned organs in this field.

*The implemented projects or under implementation*

- 1- Giving assistance in compelling the draft for executive details on thermal isolations of the outward layer of walls in buildings with Ministry of housing, organization of Plan and Budget, some of the country's universities
- 2- Collaboration with Ministry of Housing, Ministry of Oil and ministry of Industries for conducting row 7 of item " V" Note 19, second act .
- 3- Preparing data bank for building's materials with coordination of center for studies of building and housing
- 4- Preparing data bank of energy consumption in the sector of consumption
- 5- Energy auditing in five sample buildings for the first time
- 6- Conducting energy efficiency measures in a building.
- 7- Adjusting a computer software in order to get access to optimal methods to reduce energy consumption in buildings.

### Transportation Sector

Survey of energy consumption (fuel) and rationalizing the use of it in the sector of transportation, as the main sector in consuming fossil energy, are included in the activities of Energy Efficiency Office and in this line, the group of energy efficiency of the office in the sector of transportation has officially begun its activities from second half of 1997, in order to get access to short term, medium term and long term solution for saving in fuel consumption and determining necessary priorities and setting necessary regulations for modifying existing rules from viewpoint of energy consumption in the sector of transportation. Its main objectives are as follow:

1. To gather data and records concerning transportation of the country by using existing sources and with collaboration of concerned organization.
2. To establish databases concerning transportation sector of the country.
3. To study the existing condition of energy consumption in the sector of transportation in the country.
4. To study the feasibility of changes in the structure of management in the sector of transportation.
5. To study the feasibility of changes in the structure of the fleet and technology of manufacturing cars from viewpoint of fuel consumption.
6. To study the feasibility of changes in the structure of roads network.
7. To study the feasibility of changes in modal shift.

It is worth notifying that in line with mentioned goals, so far, two independent projects, namely ( " A study on the condition of fuel in intercities transportation " and " A study on condition of fuel consumption in transportation of Tehran " ), has been defined and submitted to advisors to conduct them. The first project was begun in 1995 and its final report was presented in 1997 and the second project, which was begun in 1996, will be finished by future months.eic3

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***Industry***

Due to high rate of energy consumption, existing the potential of saving, level of awareness of involved people in the section of industry on energy issue and saving, importance and role of energy expenses in manufacturing expenses and presenting services, the sector of industry is of important from viewpoint of energy efficiency.

So, among first necessary steps, there is the issue of recognizing the condition of energy consumption from viewpoint of amount, type, expense, and potential of saving in this section.

***The duties of industries group***

The details of duties of industries group in the energy efficiency office :

- 1- To study on the present condition of energy consumption in increasing the sector of industry, estimate the potential of saving, study the different methods in increasing the energy output in the sector of industries.
  - 2- Comprehensive plan for activities and necessary measures in the sector of industry in order to increase the output , efficiency and rational use of energy by using all national and international facilities.
  - 3- To design, suggest and follow up the implementation structures and necessary rules to conduct comprehensive programmes on energy output in the sector of industries
  - 4- To plan in establishing and enhancing the advisory capacities or contract and management of optimizing projects on energy consumption at industries.
  - 5- To establish links with energy management units in institutions and industries and education, directing, technical guidelines and evaluating their activities.
  - 6- To adopt all necessary measures, establishing coordination, directing and helping the conduct of energy output programmes in the sector of industry
  - 7- To set, compile and adjust educational materials and necessary technical instructions in the sector of industry to optimize energy consumption.
-

- 8- To create coordination and helping to hold educational courses, seminars and publishing necessary books and pamphlets in the sector of industry in connection with optimal energy consumption.
- 9- To supervise, control and evaluate the conducted activities continuously to enhance the level of impact and quality of the activities.
- 10- To establish links with concerned organizations in abroad to exchange experiences and facilities.
- 11- To give assistance to center of energy information to establish data bank concerning logical use of energy in the sector of industry.
- 12- To lead energy auditing programs and load management in industries
- 13- To present standard methods for energy auditing and load management in industries
- 14- To help to establish data bases in the industries of the country on energy consumptions and existing saving potentials.
- 15- To help the awariness unit of the EEO to enhance the quality level of public awariness .
- 16- To set energy consumption standards in industrial process to prevent industries with lack proper output in energy consumption
- 17- To conduct assigned duties policies
- 18- To prepar and adjust necessary budget to conduct the above programmes.

#### ***The activities of industries group***

Regarding to the number of factories, type of manufactures and their servies, the folloing measures have been fullfilled in the industries sector.

- 1- Studying and surveying different industries and their in to 9 main groups from viewpoint of energy consumption and siminaring in process
  - 2- Deciding on priority among sub - sectors of industry on conducting energy efficiency measures and selecting industries with high potential of energy consumption as the first priority
-

- 3- Feasibility of potential and finding modifications methods through energy auditing projects, load management and energy consumption management
  - 4- Conducting 13 project on energy auditing in different industries
  - 5- Conducting 11 project on load management in different industries
  - 6- Conducting 7 project on energy consumption management energy auditing along with load management
  - 7- Connection with advisors and international energy organizations.
  - 8- Cooperating and consulting with above - mentioned organizations in line with holding energy consumption management
  - 9- Holding training course on short audit for short term in industry
  - 10- Conducting energy auditing in short term in the cement factories especially its implementation in the seventh unit of Tehran cement and Khazar Cement
  - 11- Establishing feasibility project in the seventh unit of Tehran cement
  - 12- Project on feasibility studies in order to connect expensive measures in the seventh unit of Tehran cement
  - 13- Starting executive cheap or free activities in factories
  - 14- Studying and surveying other energy consuming industries, including steel, textile, etc
  - 15- Gathering information and establishing data banks in different groups of industry to analyze expert survey and concluding process in future operations.
  - 16- Installment and replacing expansion turbines with pressure - breaker tap in stations of reducing pressure for producing electricity in order to reduce existing pressure in the gas transferring lines for providing necessary pressure for (end) users, the pressure - breaker taps are used and in this method, the existing potential through the gas of inside pipes is wasted. One of the methods of employing mentioned potential is to use expansion turbines. The economic - technical potential of expansion turbines instead of existing pressure breaker taps in Ramin - Bandarabas - Shahid Rajai - Ray - Montazeryhane - Shahid Montazari and gas well
-

of Nar and Kangan were investigated in 1996 and at present four power stations of Rey, Neka, Ramin and Bandarabass are under operation.

- 17- Heat recovery from gas turbines in Kish Island and using recovery boiler to provide necessary energy for water sweet set in the island.

The issue of providing energy and fuel in southern coasts is a main problem for instance Kish Island which has a high rate of fuel consumption and main part of it is related to water sweet and at present, the consumption of water in this island is about 6000 square meter per day and in near future will reach to 7500 square

meter. Regarding the owning of two gas turbines of 37.5 megawatt, the main solution would be using recovery heat boiler.

The studies of this project were conducted in 1997 and the project has been started since 1998.

- 17- Heat recovery from thermal power station of Tabriz to produce central heating of Sahand city.

Using the produced steam in thermal power stations in order to produce central heating in cities and industrial cities have been under careful attention of cold countries in the world. Regarding the novelty of this technique in Iran, a project with a above topic was designed and its studies have been done in 1997.

- 18- Studying project on possibility of installing gas turbines and establishing cogeneration system for central heating of sample city.

This project was defined in 1998 and the primary steps are under operation. The objective of this project is technical and economical investigation of the system of cogeneration of electricity and heating in the country. (Report of the construction group of energy efficiency office).

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### *Awareness and Public Training*

To implement and adjust the education policies and public awareness in rational use of energy in the country Awareness and public training group, along with Energy Efficiency Office was founded and started its activities.

The objectives of awareness and public training group are as follow:

- 1- To create sensitivity and awareness on rationalization of energy consumption in different sectors (industry, building & transport).
- 2- To study the effective methods in changing the pattern of energy consumption in society and prepare policy making
- 3- To spread the culture of saving in society and etc through activating the mass media to advertise this especially with radio and TV.
- 4- To establish the coordination of the activities of made by concerned organizations on raising the awareness of the rational use of energy then to institutionalize them in Ministries and concerned organizations.
- 5- To raise awareness and spread rational views of energy consumption in children, young adults and adolescents to create a continuous and permanent process in energy efficiency in the country.

The activities of awareness and public training group are as follow:

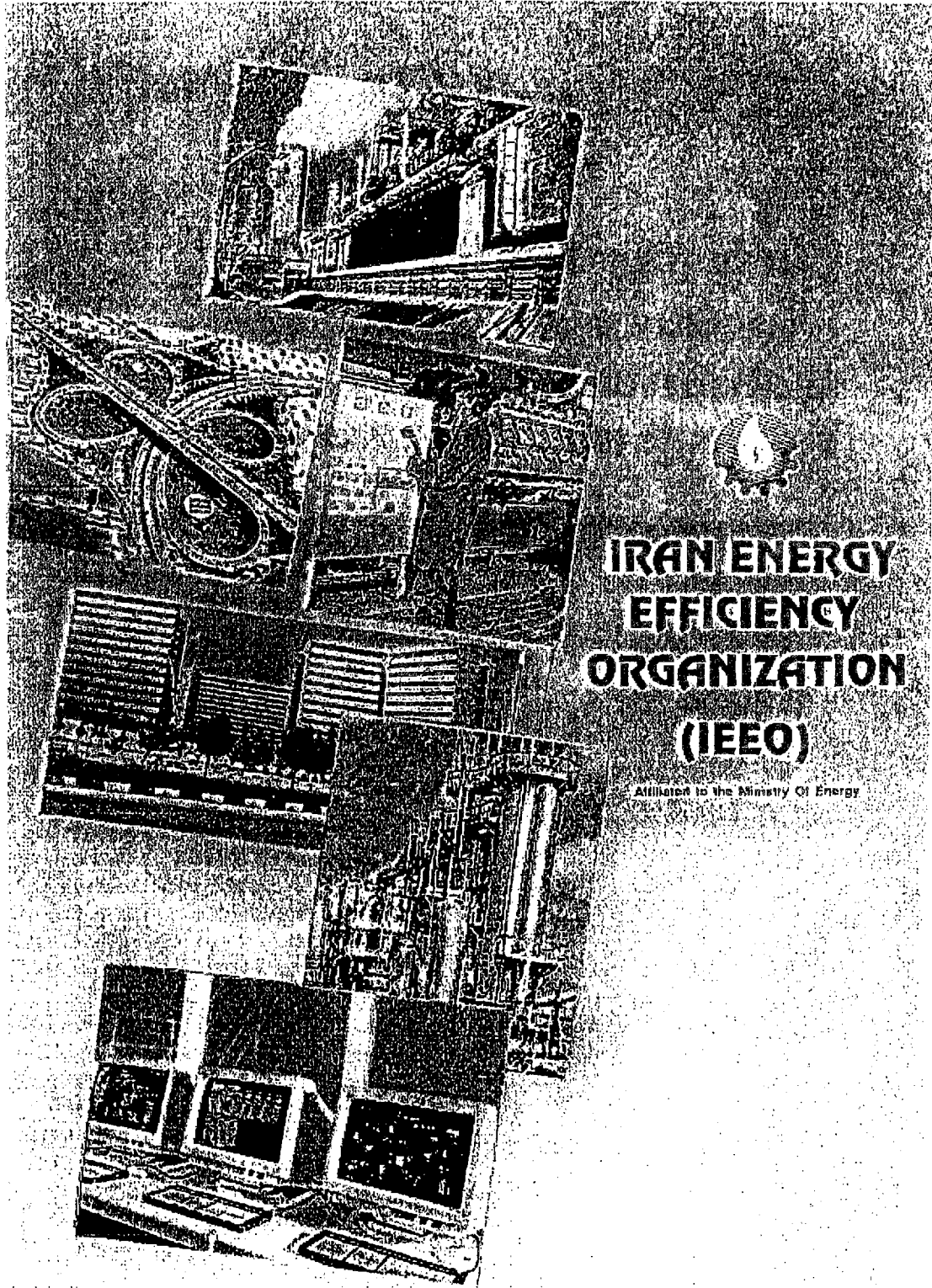
- 1- To hold training courses on energy management for experts and managers of industry and assistance in order to establish units of energy management in factories.
  - 2- To hold seminars and national training workshops for energy efficiency in the sectors of industry, building, transportation, we can then institutionalize the training on energy management in different
-



sectors, under the supervision of concerned Ministries and organizations.

- 3- To cooperate with authorized internets organizations.
- 4- To publish technical books on energy management, brochures, newsletters, posters and etc to promote of the culture of energy consumption in different sectors.
  
- 5- To conduct project on energy consumption management in schools.
- 6- To establish a network of friend to exchange ideas and cooperate in awareness projects and energy efficiency in the country.
- 7- To prepare and broadcast the TV and radio programs on rational use of energy in the country.
- 8- To study on cultural and social characteristics of society in connection with energy is regarding parameters such as sex, education, income, social class and the number of children, etc.
- 9- To study and compile all social and applied techniques which can directory or indirectly be effective in changing social habits.
- 10- To collaborate with the Ministries of Education, public Relation of the Interior Ministry to exchange ideas of information and public awareness as compared with issue energy consumption and rational use of Energ

# ANNEX B



In The Name Of God

**VISIT OF THE PRESIDENT,  
MR HASHEMI RAFSANJANI  
OF IEEO SECTION IN 3RD  
ELECTRICITY INDUSTRY EXPO OF IRAN**



3



Experiences gained in Iran and in the world, over the past decades, show that economic growth and industrial development as prerequisites for political power, national independence and cultural prosperity requires different factors that comprise energy source and desirable and optimum utilization of its resources.

Although Iran enjoys richest energy resources, however, wastage and misuse of these, would impose incomparable damages upon annual budget of the country. This expenditure is equivalent to the total budget for country's development and has been estimated to be about 5 billion US dollars annually.

With awareness of the importance of this matter, the government of Islamic Republic of Iran, with the Second five - year plan of the country's economic, social and cultural development; has turned the move towards optimizing energy utilization and promoting sound use of the country's resources, into a duty for all those in responsible positions. The Deputy Minister for Energy Affairs, too, within the objectives of this same act and aiming to make the energy utilization rational as well as optimum, began a widespread planning campaign. Energy Efficiency office in the Deputy Minister for energy affairs was able to fulfill the necessary planning in all foreseen areas within the act, and to begin their activities. Carrying out some of these activities were given to Iran Energy Efficiency Organization (IEEO) from March 1996, the date of establishment of this organization; which began its functions in the main sectors of: training, awareness, energy and load management, and energy recovery in industries.

IEEO is contemplating to engage all her capabilities, in different energy - using sectors of the country especially industries, alongside managers and specialists involved, to be able to make use of all possible saving resources, in the direction of increasing national income and general social security and country's development.

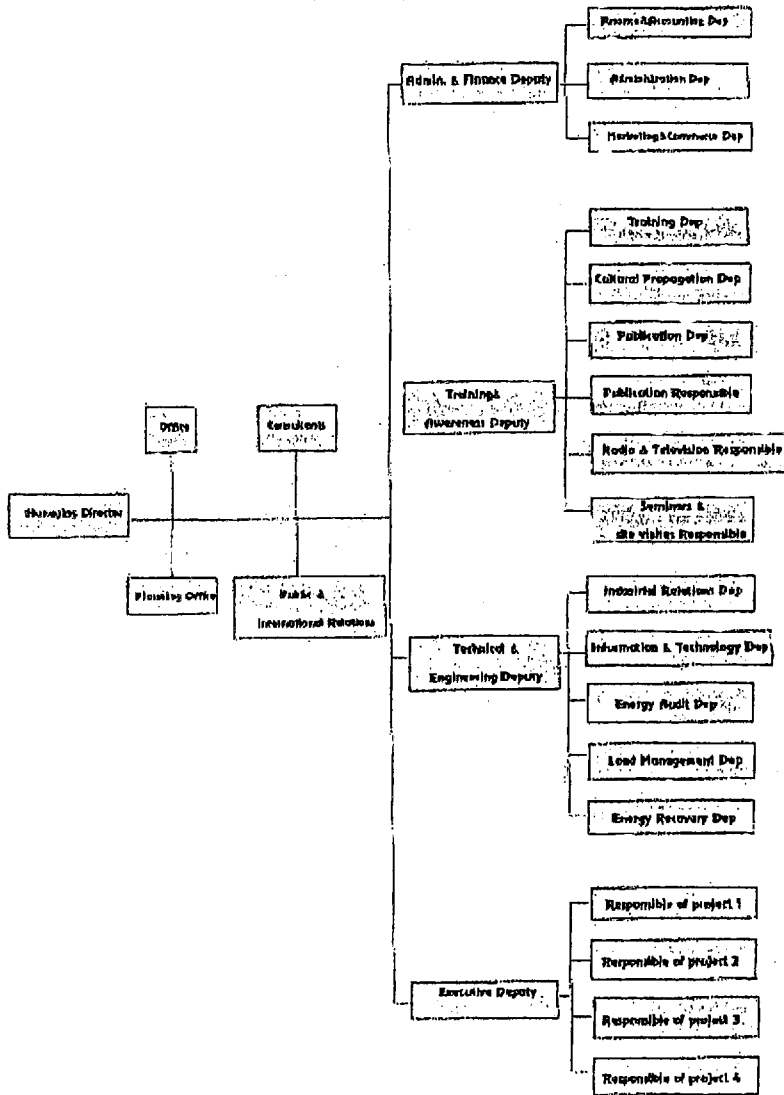


# IRAN ENERGY EFFICIENCY ORGANIZATION (IEEO)

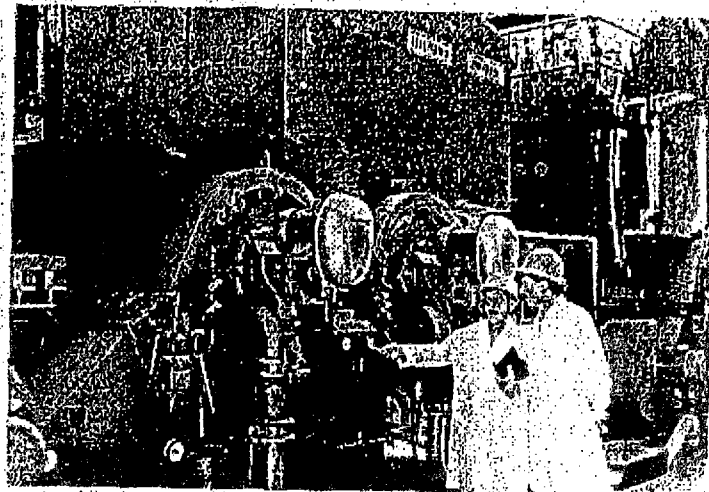
Affiliated to the Ministry Of Energy

Est : March 1996

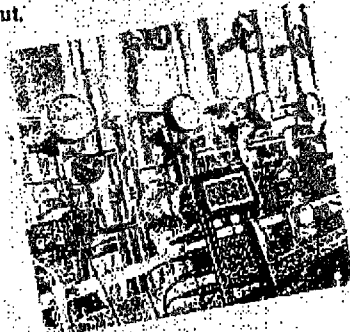
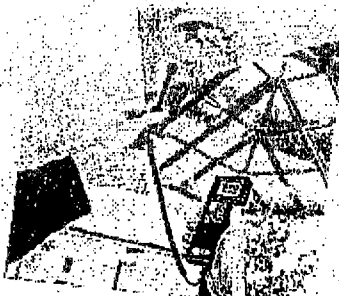
## ORGANIZATIONAL CHART



**\* Energy Audit**



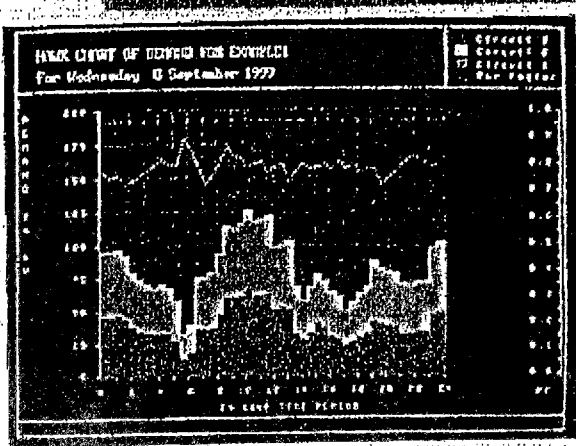
- Iran industries use 28% of total energy in the country. Saving potential in these industries has been estimated between 20 to 30%.
- So far Energy audits run by IEEO in more than 30 factories in different branches like: chemical industries, food, building, metal, glass, textile, rubber manufacturing, ect have been carried out.



\* Energy audit in industries seeks the following objectives:

- Investigate the situation of energy consumption in order to determine techno- economical potentials and energy saving possibilities .
- Recognize energy - using equip - ment in factories production lines.
- Evaluate rate of energy consum - ption in factories .
- Offer policies and practical solutions for energy efficiency (to optimize energy) utilization.

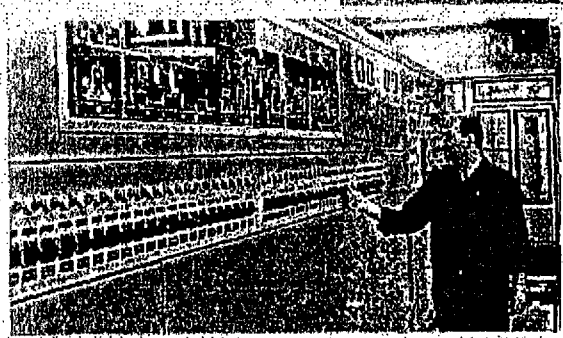
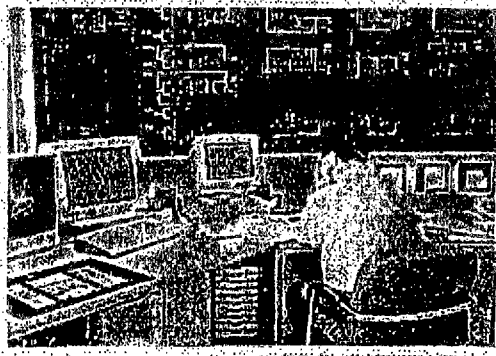
● One of the biggest problems of our country at present time, is that of the peaks in electricity demands that requires a very great expenditure when building power stations. IEEO intends to help various industries bring about possibility of peak - shaving without reducing their production rate.



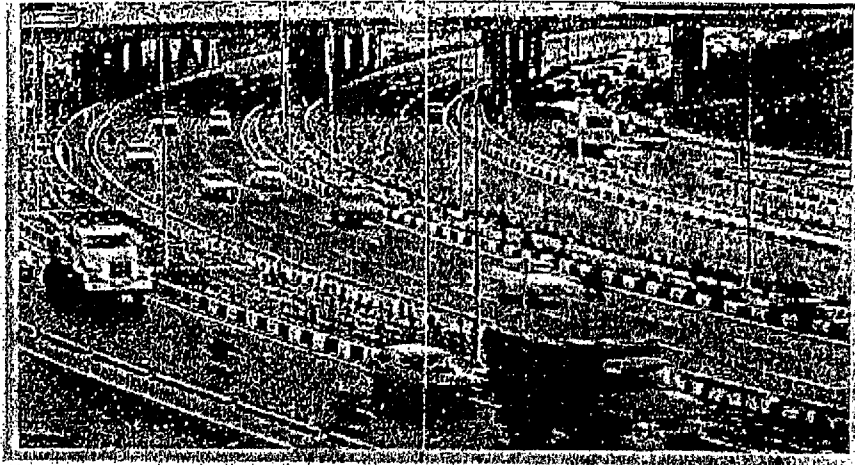
\* Load management in industry is being carried out with the following objectives:

- Measuring of electrical parameters like power used, maximum demand, load factor, power factor, etc. in different periods of generation.
- Plotting relevant graphs and analysis of information.
- Recognizing sources of electrical losses in different factory units.
- Investigating and finding of potentials for electricity consumption by implementing correct methods of utilization management.

\* LOAD MANAGEMENT \*





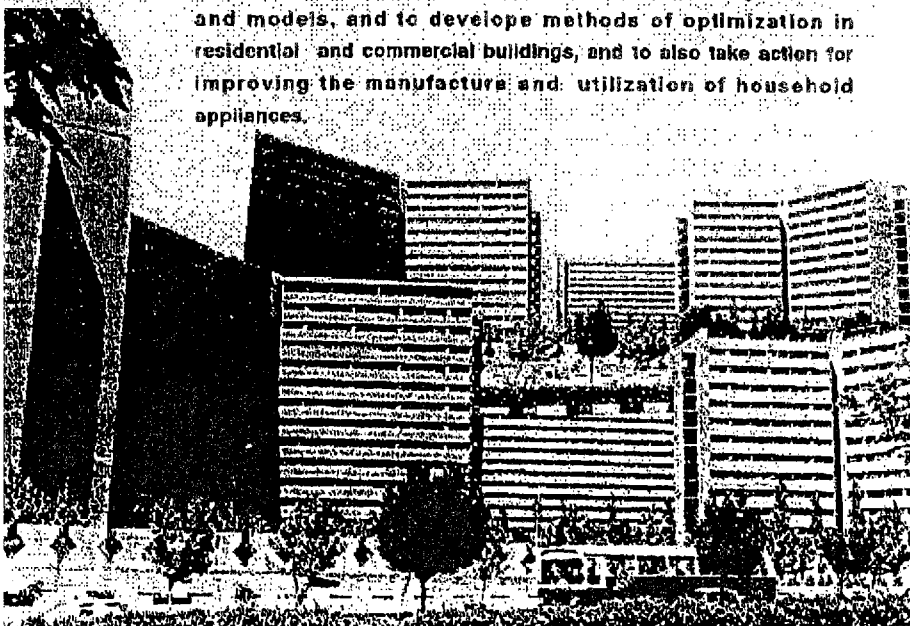


### \* Transportation

● This sector uses 24.5% of the country's ultimate energy and saving potential in it reaches about 30%. IEEO has a project in hand, for the study of condition of inter-city transportation energy consumption. Determining techno-economical potentials for saving and energy consumption efficiency and offering necessary working policies for improving transportation model and for vehicles efficiencies are some of the objectives of this project.

### \* Residential / Commercial

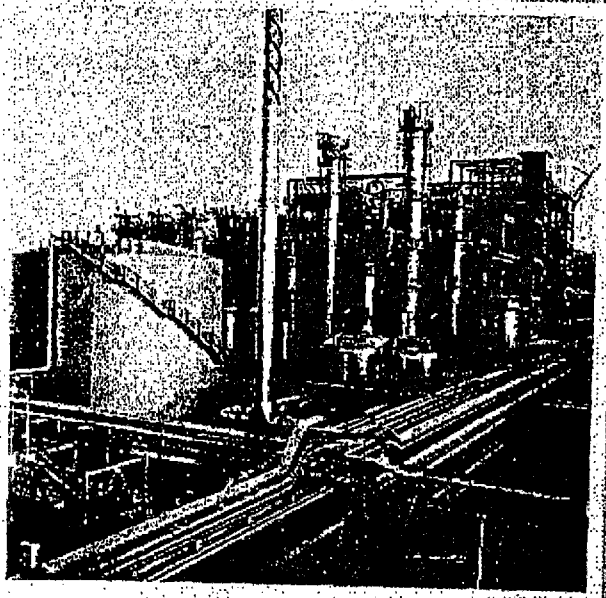
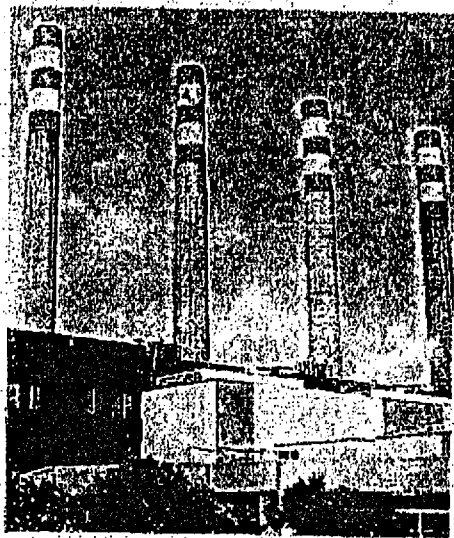
● This sector consumes over 34% of the country's absolute total energy. IEEO, in this sector, is actively trying to determine and compile the necessary regulations to improve building materials and models, and to develop methods of optimization in residential and commercial buildings, and to also take action for improving the manufacture and utilization of household appliances.

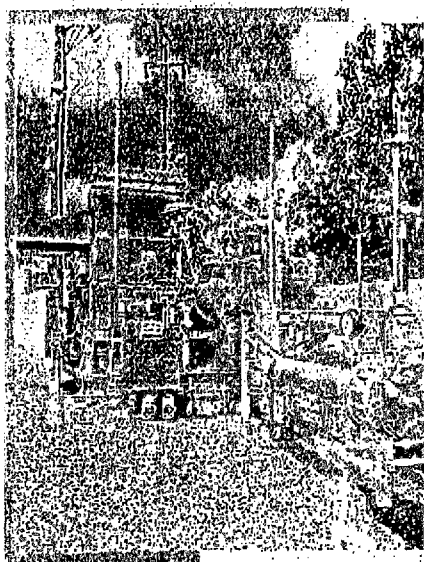


## \* Recovery

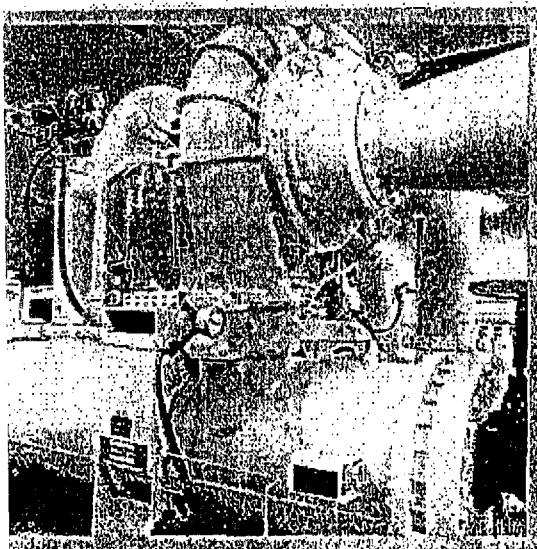
• Recovery in general means making use of thermal energy of exit gases from Boilers, furnaces and stacks of steam generators, from thermal Pumps and other heat energy carriers in which combustion act occurs; for uses of low temperature processes, like producing sweet water and air-cooling with the aid of absorption refrigeration cycles.

• Project of designing the cycle for a thermal power station by using pinch technology is at present time being carried out by IEEO. The aim of this project is to find a method to design the cycle for thermal power station in order to attain minimum heat exchangers' surface areas, minimum usage energy and maximum generated work, noting existing limitations, and to ultimately achieve optimum efficiency for power station cycle. This project is at present being studied at Shahid Rajaie power station.





### \* Expansion Turbines



- This project is designed for making use of the potential of the gases passing through the country's gas transmission network, with the objective of transforming that potential into mechanical energy for various uses including: prime - moving of generators, compressors, pumps, etc. Expansion turbines are machines that can be installed in place of a pressure regulating valve on any pipeline through which a gas is flowing.

- Installation and commissioning of expansion gas turbines to generate electricity is one of the important practical projects that Iran Energy Efficiency Organization, IEEO is carrying out. Its aim is making use of the available potential in natural gas pressure for generating electricity.

- Expansion turbines are machines that do not require fuel for the process.

- These turbines can be installed on natural gas pipelines, and; in parallel to pressure regulating stations, convert gas's potential energy to electrical energy.

- Expansion turbines are relatively simple machines that do not have much auxiliary equipment and so their cost of operation and spare parts needed are not high. Evaluations carried out have shown that considering initial (volume of) investment and current operational expenses, installing them is worthwhile: noting different working environments like various specifications of gas at entry and exit, rate of gas flow, working hours in the year, and going price of electricity and fuel.

- Based on studies and calculations carried out, a notable potential exists for installing expansion turbines in Neka, Loshan, Shahid Rajale, Bandar Abbas, Esfahan and Ray gas generating stations and the recovery period of these installations capital is estimated at 2.2 to 3.5 years.

**\* Awareness Programs**

● Changing the way of energy consumption in all layers of society is the aim of an informing program in energy efficiency organization, which is being done by public media for all energy consuming sectors. This program has diverse parts:

**\* Energy Efficiency Program Bulletin (Behsaman)**

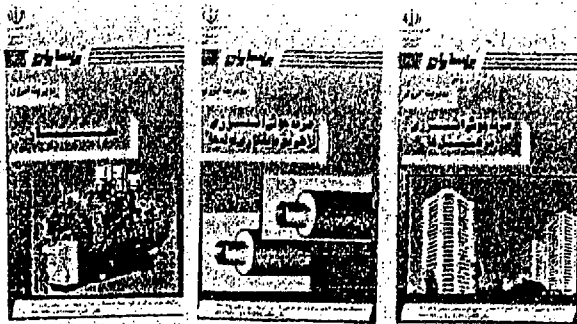
● This monthly publication is published with the aim of informing the industry managers and experts, of the programs and applied techniques of efficient energy consumption in various sectors.

**\* Technical Booklets for Energy Management**

● These booklets offer the latest technological achievements of efficiency in various fields and it is attempted to illustrate fine application points for (those) people involved.

**BEHSAMAN**  
Energy Efficiency Program





**\* Films for Energy management**

- These films have been prepared as videos, and provide the content of technical energy management booklets as illustrated pictures, using diverse backgrounds and experiences.

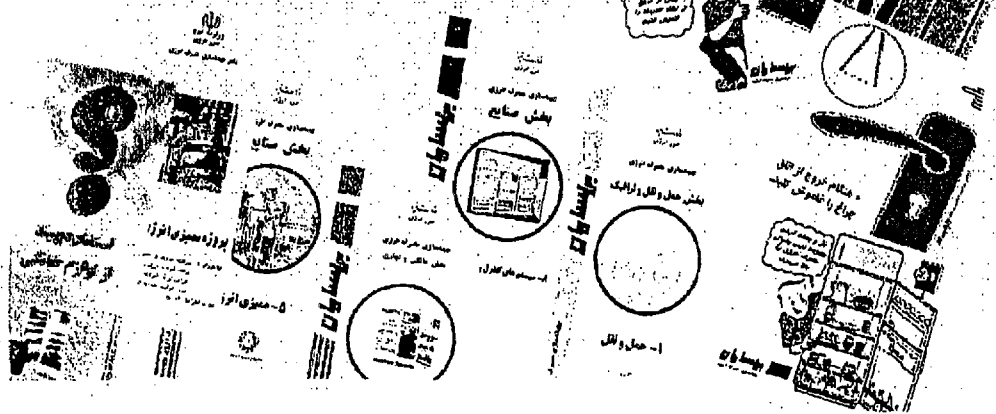
**\* Awareness Program for Youngs**

● Creating contact with children and youth for passing on message of efficient use of energy is part of the information group program. This project is being carried out via printing books and publications. *Sunflower* project. Aftabgardan is a newspaper that is published in great numbers. This project began from April 1995. In this project, every day, with news, text, stories, pictures and various competitions; efficient energy consumption is taught to children and young people.



**\* Leaflets and Energy Efficiency Labels**

● Leaflets and energy efficiency labels are being published in a few parts of industrial, residential, commercial, transportation and environmental. In every one of the leaflets, general points concerning the above cases; the most important advice for efficiency, and a questionnaire for evaluation of rate of efficient utilization are included. Labels have also been designed such that they can be readily displayed at home and at work.



### \* Expositions

● One of the effective measures taken to produce contact with different consumers is participating in expositions. IEEO, being aware of this, is trying to provide the latest information in the optimization field for experts and professionals. Moreover, these expositions are suitable opportunities for creating direct contact with people, recognizing their needs and answering their questions.



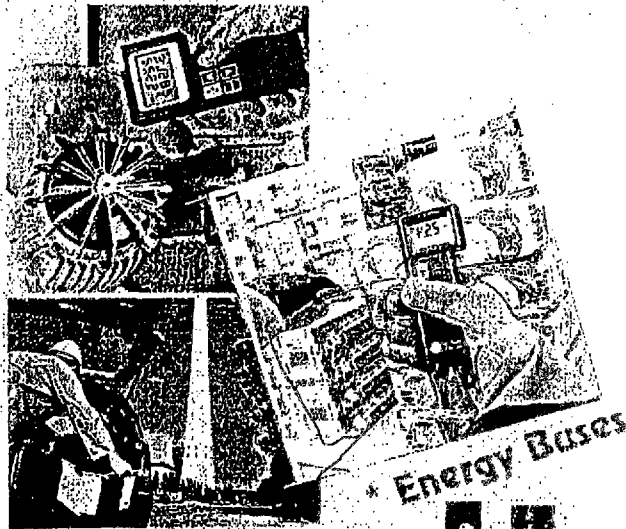
### \* Radio and Television

● Public media, especially radio and television can play an important role in teaching and informing people and transferring concept of optimum energy usage. With this purpose, producing short films and programs of radio and television are part of IEEO's informing scheme. Effective cooperation, and expert help to various channels of radio and television, and also long term planning for incorporating the meaning of rational use of energy in various programs, is another one of IEEO's tasks.

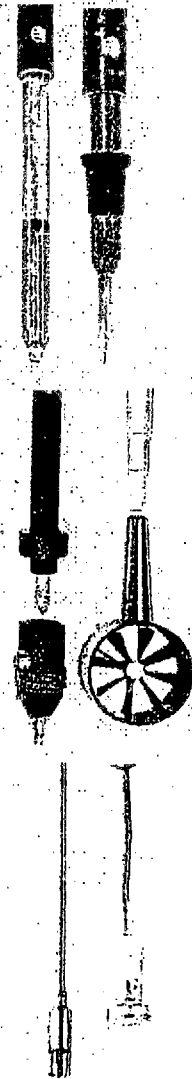
### \* Energy Efficiency Labels

● Today in most industrial advanced countries, products carry energy efficiency labels. This label that is indicative of the product being standard, considering energy consumption aspect, gives user the opportunity to obtain most important information about the energy efficiency of the device. The device being efficient, as regards energy, indicates best make and advanced manufacturing process. Because of this, experience of various countries shows that energy efficiency label is regarded a beneficial factor not only for the users but also for producers.

● Iran Standard and Industrial Research Institute, has commenced making the necessary moves in order to standardize energy consumption in energy - using appliances. IEEO, also, has put to use the result of its experiences in this context for designing the energy efficiency label. First suggestion from IEEO for designing a label, was published in June/ July 1996.



● IEEO considers the carrying out of energy audit programs in industries and across the country, one of its important duties. This task requires widespread organizing, one of prime stages of which is preparation of necessary equipment for auditing. These equipment, nowadays, include very advanced measuring devices of energy consumption, analysis of exit flue gases, load measurement, rate of consumption, etc. Noting the importance of this matter, IEEO has put into effect the purchasing and mobilizing of energy buses. These buses that have had a considerable impact in the energy management implementation in countries like Korea, will be appropriate means for promoting IEEO activities all across the country. Energy buses, with all necessary equipment and together with IEEO's engineers, travel to various factories of the country and by recording necessary measurements in site, transfer all data to the center and offer results in detailed form to the visited firm and similar firms.



### \* Training Courses

● Supporting the strategy to rationalize energy utilization, requires, that programs in all levels of management and engineering staff, be organized. IEEO's training courses are run with the cooperation of: electricity and water industry board university, management teaching and research institute and assembly of renovation and training organizations in cities of Arak, Esfahan, Ahwaz, Bandar Abbas, Booshehr, Tabriz, Saveh, Shiraz, Ghazvin, Kerman, Mashad and Yazd. Ministry of Energy consequently awards certificates to trained apprentices at the completion of each course.



### \* On Job Trainings

● In this program, IEEO group of engineers, on request from various firms, convene in the factory premises, and by offering publications, showing films of energy management and giving speeches about the factory's specific line of work; answer personnels' questions on problems related to energy management; and discuss and exchange views with them. Following each program, a special box is put up in the factory for collecting the personnels' suggestions in the field of optimizing energy utilization. After studying the suggestion, prizes are given to the best entries amongst them.

