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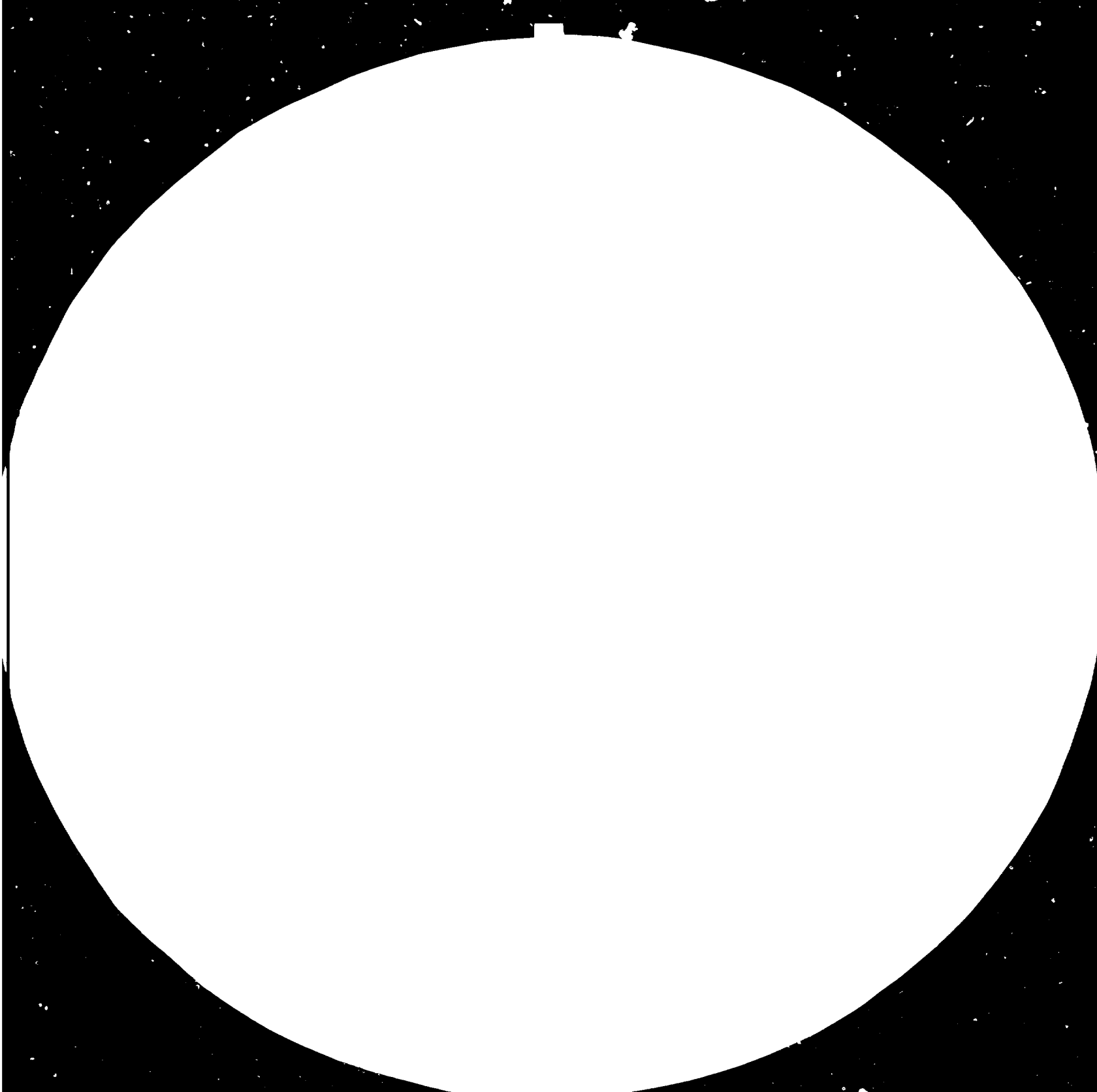

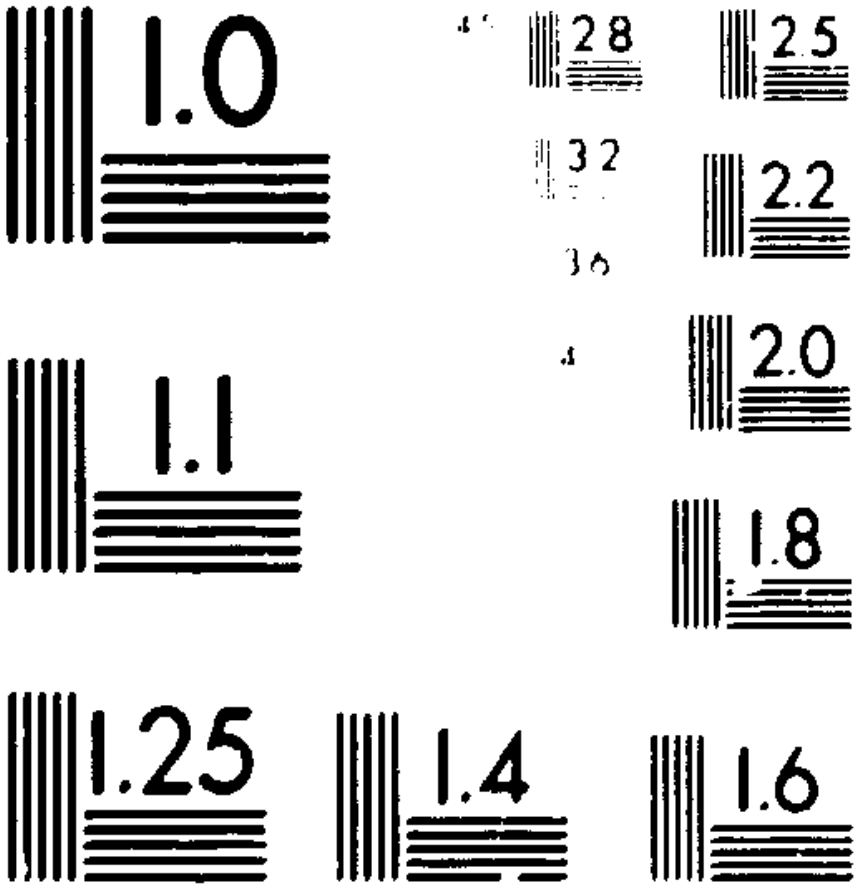

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ENERGY CONSERVATION IN MALAYSIA*

by

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1. Energy Situation In Malaysia

Between the year 1970 and 1982 the energy consumption in Malaysia grew at an annual average rate of about 9 percent, and is about one per cent higher than the average annual growth rate of the Gross Domestic Product. In absolute terms the energy demand in 1970 was 76000 bdoe (barrels per day of oil equivalent) and in 1982 was 198000 bdoe, an increase of 122000 bdoe over a 12 year period.

For this energy demand Malaysia depends more than 90% on oil as the primary source of energy, and the balance is mainly hydro power. The breakdown of energy use by sectors is as follows:

Transport - 37%

Electricity - 20%

Industry - 27%

Household - 7%

In 1982 the industrial sector consumes 20000 kB of petroleum products and 7269 GWh of electricity.

2. General Policy on Energy

In charting an energy policy for the country the Government is fully aware of the changing energy situations and the need to have a policy which is flexible and adaptive to the changing energy supply and demand. For this the Government has adopted 3 key objectives

i) Supply Objective: To provide the nation with adequate and secure energy supplies by reducing our dependence on oil and by developing and utilising alternative sources of energy. A four fuel energy strategy based on oil, hydro, gas and coal has been formulated towards diversifying our energy base as well as guaranteeing assured energy supplies for our continued economic growth.

ii) Utilization Objective: To promote and encourage the efficient utilization of energy and discourage wasteful and non-productive patterns of energy consumption within the given socio-cultural and economic parameters.

iii) Environmental Objective: To ensure that in our guest of achieving the two objectives as mentioned above, factors pertaining to the environment are not neglected.

3. Energy Conservation In Malaysia

For a developing country like Malaysia energy conservation must be viewed from the perspective of elimination of waste and efficient utilization of energy through education, legislation, technological improvement and research. We cannot afford to

reduce our energy consumption as such a move may jeopardise our planned development goals. Also, it would be preposterous to expect developing countries to restrict their energy consumption when their per capita consumption is less than one-tenth than that of industrialised countries.

Some of the energy conservation programmes that have been carried out in Malaysia includes

i) public campaign in distribution of phamplets/technical information and education in mass media.

ii) Fiscal measures.

The public campaign has been carried out to impress upon the people that good housekeeping and simple energy management can help in saving energy. Fiscal measures are used to encourage the use of more energy-efficient equipment.

The energy users can be divided into 3 sectors namely a) inudstrial b) transport and c) household.

a) Industrial sector

This sector also includes the exploration rigs, oil refineries and the electric power stations. For the heavy industries which have high capital investments and energy intensive they have good monitoring of their energy use. Energy conservation in this case would be improving the operating procedures and investment of energy conservation equipment. An oil refinery which had implemented an energy saving programme with a modest investment has managed to

reduce its energy bill by 20%. The cement industry has taken steps to convert their oil-fired plants to coal-fired plants.

The medium and small scale industries would not have good monitoring as the heavy industries and would generally not have energy programme in their plants. The necessity for having energy conservation programme will be for be following reasons

i) some plants are old and losses are high and consequently low efficiency in energy use.

ii) some were built when energy was cheap and less concentration was then given to utilising energy efficiently.

iii) the industrial sector is growing at a fast rate.

Several seminars on energy management, technical presentations and visits to factories are organised by the various industrial associations in the promotion of cost saving and energy conservation. Technical service in the form of energy audits are also provided by the fuel suppliers to their customers on a limited scale. There is no formal energy conservation programme at the moment.

b) Transport sector

The fuel used in the transport sector in Malaysia is oil. With the discovery of natural gas LPG will soon be introduced on a big scale as an alternative fuel to oil for motor vehicles.

In the campaign for road safety and in the plans for improving the mass transport the following measures undertaken have contributed to the energy conservation programme.

1) better driving habits
2) having road improvements such as wider roads and flyovers.
3) having mass transit rail
4) electrifying the railways

The tax structure for motor vehicles encourages the use of small capacity engines.

c) Household sector

Commercial energy used in the urban areas are, electricity for lighting air conditioning and cooking, LPG and kerosene for cooking. In the rural areas electricity and kerosene are used for lighting and for cooking kerosene charcoal and wood on a non-commercial basis are used.

The conservation program in this sector is through campaign to the public to create awareness on energy saving and to use energy wisely.

There is also the need to inform the public on the intelligent use of more efficient energy saving household appliances.

4. General

With the availability of large volumes of unassociated natural gas from the east coast of Peninsular Malaysia from

1984 there would be a need to increase the use of gas in all the 3 sectors. In this respect a combined cycle power station of 900 MW capacity, an iron plant producing hot briquetted iron and a small town ship are being constructed which will use the gas produced. There is also a gas complex being constructed in East Malaysia which will use associated gas to an iron plant, methonol plant and a power station. Other industries are also considering converting their oil fired plants to gas fired when gas is made available to other parts of the country. The availability of this large quantity of gas would have an important part in the energy conservation programme in Malaysia.

5. Conclusion

The energy conservation programmes that have been carried out in Malaysia are mainly of 'public appeal' nature. Formulation of regulations specifically for energy conservation is very limited and more studies would have to be carried out before this stage can be satisfactorily implemented.