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**Summary Report on the APEC Energy Project -
APEC July Ministerial Level Meeting, 29-31 July 1990**

Submitted by: EWG

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SUMMARY REPORT ON THE APEC ENERGY PROJECT
APEC JULY MINISTERIAL-LEVEL MEETING
29-31 JULY, 1990

Energy is a sector which is of critical importance for the Asia Pacific region. Rapid expansion of supplies of oil, natural gas, coal and nuclear power have been fundamental to the region's rapid growth and development in recent decades. Supplies of energy products from countries rich in energy resources in the region have helped to fuel industrialisation in resource-poor economies. In doing so, they have contributed to strong trade flows in energy products and strengthened regional interdependence.

There are likely to be strong gains from enhanced regional cooperation in the energy sector in future years. This reflects, not only the importance of the energy sector to the region's development, but also the challenges countries face from rising demand for energy; the long lead times and large investments involved in energy supply; requirements for increased energy efficiency; continuing concerns about security of supply; and heightened concerns about the environmental impact of energy production and use.

In noting these challenges facing the region in the energy sector, energy officials meeting in Singapore in May 1990 drew up a program designed to significantly strengthen regional cooperation in this area. A revised version of the program for cooperation, which was subsequently endorsed by APEC Senior Officials, is included at Attachment A. It is structured around five key themes, namely:

- . Energy Supply and Demand;
- . Energy and the Environment;
- . Energy Conservation and Efficiency;
- . Research, Development and Technology Transfer; and
- . Resource Exploration and Development.

Under these five themes, a number of areas have been identified for immediate work. Within the first theme, work is proposed to assess the potential for development of a common data format for energy production and trade statistics, together with consistent forecasting methods for projecting energy supply and demand. Work of this kind would pave the way for more detailed analysis of trends affecting supply and demand and improved energy transparency to the benefit of both energy producers and consumers.

Under the second theme of Energy and The Environment, a project to assess the role of coal in meeting growing energy demand and scope for increased use of clean coal technology in the region, has been included as a high priority, reflecting the concerns of a number of regional countries on this issue. It is envisaged that this project would be complemented by a more general program for the exchange of information and experience on responses to energy production, distribution and use.

The energy group also proposes to develop a specific Human Resources Development (HRD) project for the energy sector, with a view to ensuring the availability of skilled personnel to apply and adapt new technologies and processes. It is expected that the energy group will liaise closely with countries involved in the separate HRD project in developing a proposal in this area.

Discussions are currently continuing with regional participants concerning precise responsibilities for specific components of the energy proposal. The responses received reflect widespread interest in the project. At least one country has volunteered to undertake a lead country role in each of the initial work areas.

Subject to the energy project being endorsed by APEC Ministers, it is expected that responsibilities for the various aspects of the project will be confirmed in consultations with regional countries. Activity on key aspects of the project will commence shortly thereafter, with a view to reporting with substantive issues for discussion by APEC Ministers in Seoul in 1991.

To facilitate achievement of this broad timetable, it is envisaged that another meeting on energy officials will be held towards the end of the year. This meeting is tentatively planned for November; it is envisaged that the precise timing will be determined following further consultations with other participants.

RECOMMENDATION

It is recommended that Ministers endorse the work programme for the energy project, as outlined in this paper and detailed in Attachment A.

ASIA PACIFIC ECONOMIC COOPERATION

**REGIONAL ENERGY COOPERATION :
PROPOSED WORK PROGRAM**

INTRODUCTION

The importance of a secure and cost effective supply of energy in the economic development process, and the significance of the energy trade in the Asia Pacific region, suggest that improved regional cooperation and understanding of a broad range of energy issues will prove beneficial to APEC participants. The increasing importance of the region as a producer and consumer of energy, and the anticipated continued rapid expansion in regional energy demand, will ensure that both energy supply and demand issues will remain key policy determinants during the 1990s.

While the economies of the region are diverse in terms of energy endowments and requirements, they face a number of common energy issues and challenges. Regional cooperation and exchanges in the energy area will assist in minimising the costs and resource requirements associated with meeting these challenges.

The Singapore APEC Energy Officials Meeting held on 17-18 May, discussed and identified several areas in the energy sector where regional cooperation and exchange would be mutually beneficial to APEC participants. These are:

- energy supply and demand
- energy and environment
- energy conservation and efficiency
- research, development and technology transfer
- resource exploration and development

This paper provides a brief overview of the proposed themes and issues to be addressed by the APEC Energy Group and indicates the initial work activities that would be undertaken should the project be endorsed by APEC Ministers. The paper also identifies individual APEC participants that have indicated a desire to take a lead role or active interest in a particular theme.

ENERGY PROJECT : THEMES FOR DISCUSSION

- 6 The proposed themes and issues for initial consideration by the APEC Energy Group are listed below. These focus on the initial activities but, in the future, additional issues are expected to be identified to build on the initial work of the Group.
- (i) Energy Supply and Demand
- 7 The objective of the work on this theme is to develop a consistent framework of energy data and forecasts for the APEC region so as to assist in identifying significant trends in energy supply/demand, the investment implications for the regional economies and the policies and priorities which are affecting the regional energy outlook.
- 8 Improved market transparency will enable a better understanding of the significant trends in energy demand and supply in the region. This information will facilitate energy policy and planning decisions, and planning of long term capital investment programs.
- 9 While energy demand and supply outlook data are available for the APEC region, the potential for effectively using this data to address emerging energy issues in the region is constrained by lack of consistency between data sets and forecasting methodologies. As an initial task under this theme, the potential for developing a common energy database will be assessed. This will include development of a common data format, and a basis for adopting more consistent forecasting techniques and assumptions. This work would draw on other studies being undertaken to identify common approaches to developing energy databases and will not seek to establish a completely new approach. Several specific studies could then be undertaken by the APEC Energy Group on the basis of better regional data availability.
- 10 As analysis of major emerging trends in energy demand and supply in the region could be of considerable value. For example, increasing reliance on oil from outside the region, and changing requirements for particular petroleum products emphasize the need to ensure that refineries storage, and distribution facilities remain in phase with regional needs. Similarly, trends in demand for natural gas will be a major factor in determining the size and adequacy of regional supply infrastructure. The changing energy supply/demand pattern will also be a significant factor in assessing the future demands for finance, technology and an appropriately trained workforce.

ENERGY ISSUES FOR THE REGION IN THE 1990s

- 1 The region is a major producer and consumer of energy and in 1987, accounted for some 44 percent of annual world demand for energy, while producing 28 percent of the world's oil, 34 percent of its gas, and 55 percent of its coal. Patterns of energy supply and demand will continue to change over time within the region.
- 2 Global energy demand could double over the next two decades with much of this growth in consumption likely to occur in the dynamic Asia Pacific region. The region is a net importer of energy, which has major implications for energy security in the region.
- 3 For the 1990s, the economies of the region, while diverse in their energy endowments, will continue to face a number of common energy issues and challenges. These include providing a diverse range of energy supplies to meet increasing domestic demand, developing efficient energy sectors, and formulating appropriate policies to address a range of new and emerging issues, particularly in the energy and environment area. The volume of trade related to energy commodities has increased insignificantly in recent years and future trade growth will create a continuing need to address trade flows and physical and financial infrastructural requirements. All of these issues have the potential to significantly affect energy demand and supply and consequently, economic growth.
- 4 Effective cooperation by APEC participants will underpin efforts to develop and utilise the region's resources in the most efficient way possible. High level discussion of energy matters has the potential to contribute to improve market efficiency and transparency, and more informed decision-making by regional economies. The APEC Energy Group would complement, not supplant, the functions of existing regional and international institutions.

OBJECTIVE OF THE PROPOSED ENERGY PROJECT

- 5 The objective of the proposed APEC project on energy cooperation is to maximise the energy sector's contribution to the region's economic and social well-being. The project would assist in developing an improved understanding of supply/demand trends, potential financial requirements and the key factors driving the region's energy developments, including environmental concerns.

11 Identification and evaluation of major policies and priorities affecting energy supply/demand could also be undertaken. For example, diversification will continue to be a major component of energy policies in the region. A review of diversification efforts and assessment of the key problems encountered in pursuing diversification strategies, could assist in the development of future national strategies.

12 Lead Role

At this stage, the following countries have indicated an interest in taking active roles in the project. Australia has volunteered to take a leading role in this theme. Thailand has provisionally indicated that it would be willing to manage the database study with assistance from other co-managers. The United States has also indicated its readiness to take an active role in the project.

(ii) Energy and Environment

13 Energy and environment issues pose major challenges for the 1990s and beyond. Environmental impacts associated with extraction, transportation, utilisation of energy resources and waste disposal create technical, financial and policy challenges. Many of these impacts extend beyond national boundaries. Development of bilateral and multilateral responses will become increasingly important. While considerable work is being undertaken at the national and international level on these issues, there are a range of energy specific issues of direct interest to APEC participants which do not involve duplication of work underway in other fora.

14 A particular issue of significance in the APEC region is the role of coal in meeting growing energy demand and the potential for enhanced use of clean coal technology. A high priority initial work activity for the APEC energy project is the development of a better understanding of the scope of adoption of clean coal technology and the issues associated with its increased application, particularly access to technology, its costs, and projects on environmental problems arising from coal utilisation.

15 In addition, a program for exchange of information and experiences on responses to environmental problems in the region relating to energy production, distribution and use will be organised under the auspices of the APEC energy project. This activity will involve identification of existing policy instruments used to address specific

environmental problems in the energy sector together with an account of individual country experiences in implementing those measures. Complementary information on technologies available to address environmental problems will also be included to assist in identifying solutions to the differing problems encountered in each country.

16 Lead Role

On the coal project to date, the United States and Australia have volunteered to take leading roles, and could co-manage the development of the project. It has been envisaged that this project be implemented with a view to an initial report being made to Ministers in Seoul in 1991.

iii) Energy Conservation and Efficiency

17 Environmental constraints and economic opportunities highlight energy efficiency and energy management as key policy options in the 1990s. These have the potential to reduce the rate of growth of energy consumption, while contributing to the increased efficiency of domestic economies. However, problems of implementing of energy efficiency measures remain. Low energy prices and problems in technology transfer are acting as barriers to the achievement of rapid efficiency gains and as the rationale for policy actions.

18 While the content of energy efficiency and management programs will vary from country to country, overall policy directions are often similar. The sharing of practical experiences from the implementation of various energy efficiency and management options will assist regional understanding of the available options and identification of areas for further cooperation such as technology transfer and collaboration. A program for exchange of such information would be organised as an initial work activity under the auspices of the proposed energy project.

19 In addition, the importance of training in the application of energy efficient practices and technologies was noted as an area of specific attention. A Human Resources Development (HRD) proposal addressed energy priorities in this area will be developed by the APEC Energy Group, in close consultation with the APEC HRD Group (further details are contained in Part (iv) below).

20 Lead Role

The United States has indicated that it would be willing to take a lead role on this theme. It is envisaged that close cooperation will occur with the Research, Development and Technology Transfer theme in developing an energy sector HRD proposal.

iv) Research, Development and Technology Transfer

21 Improvements in energy technology and their dissemination will play an important role in ensuring efficient development and utilisation of the region's energy resources. Effective technology transfer depends upon the availability of skilled personnel able to absorb and adapt new technology and processes.

22 As an initial work activity, the APEC Energy Group will develop a specific Human Resources Development (HRD) proposal for the energy sector, in close consultation with the APEC Human Resources Development (HRD) Working Group which addresses energy priorities. Some examples of training requirements in the energy sector would include nuclear power, fuel substitution, coal transport and utilisation, and new and renewable sources of energy.

23 Lead Role

To date, Japan has indicated its readiness to take a leading role in the development of work under this theme.

v) Resource Exploration and Development

24 The development of oil and other indigenous reserves such as coal, gas and uranium, will be important elements in achieving the economic development and energy diversification objectives of various regional economies.

25 A strong resource assessment effort in the region, tied to the work on energy supply and demand forecasting, will be important in reducing the risk of significantly increased dependency on energy supplies sourced from outside the region. Exchange of information and ideas on techniques and policies to increase exploration activities would therefore benefit regional economies. Related issues are attracting investment for energy resource development and analysis of infrastructure required for energy resource development, transport to markets and distribution.

26 Following results of initial work activity under the energy supply and demand theme on a common approach to data and analysis of a consistent regional energy supply and demand forecast, energy officials may wish to examine the implications of such a forecast for exploration, development and infrastructure needs and for associated investment requirements. Meetings of energy officials could facilitate exchanges of experiences in attracting investment for energy exploration and development.

27 Lead Role

At this stage, significant activity on this theme is not expected to commence until after the data base study is further developed.