

Energy Policy and Systems Analysis Project

Australian Managing Contractor



Project Overview

- Sponsored by AusAID (Australian government overseas aid organisation)
- Financed under Phase III of the ASEAN-Australian Economic Cooperation Program
- Project concerns capacity building in energy analysis and policy formulation with particularly emphasis on use of the MARKAL model
- Project governance
 - Overall guidance by Project Coordinating Committee (PCC – one member from each participating country) meeting bi-annually
 - Managed by AusAID appointed Australian Managing Contractor
 - Independent Technical Advisory Group monitors quality control

Project Goal

“Enhance the capacity of ASEAN energy policy makers and planners to assess the impacts and cost effectiveness of alternative energy policy options which could assist countries to formulate policies and programs to help meet the demand for energy at least cost”

- Objectives
 - Build National teams into proficient MARKAL users
 - Establish MARKAL databases both Nationally and Regionally
 - Have energy systems analysis accepted as a viable tool to assist policy making
 - Produce policy reports annually
 - Make significant progress on regional issues

Australian Managing Contractor

- AMC is a consortium led by SMEC International in association with Intelligent Energy Systems
- Technical support and policy report reviews by ABARE
- Project team
 - Project Director (Greg Sturgess – SMEC)
 - Project Manager (Hugh Bannister – IES)
 - Model Computing Specialist (Ken Stocks – IES)
 - Energy Policy Advisors (PJ Perera, Ray Butler – SMEC; Jan Slater – IES)
 - Administrative Support Staff

Host Organisations

- Provide focal point for policy studies and training
- Australian Host Organisation
 - IES in Sydney
 - Each country sends two analysts each year for training and preparation for annual policy study
 - Maintain ongoing collaboration after project end
- Regional Host Organisation
 - ASEAN Centre for Energy (ACE) in Jakarta
 - Coordinate regional studies for project
 - Countries send analysts to ACE to carry out regional policy studies (in 2003 two from each country for two weeks then repeated)

Project Participants

- AMC
- Technical Advisory Group (independent quality control)
- Project Co-ordinating Committee
- Indonesia, Malaysia, Philippines, Thailand, Vietnam
- Australian Host Organisation
- ASEAN Host Organisation

Project is now being expanded to include Cambodia, Laos and Myanmar – strictly speaking a new project under the AusAID AADCP Regional Partnership Scheme

Project Timing

- Commenced February 2002 and will run for 3.5 years finishing in August 2005
- Divided into 3 annual cycles
- Ongoing training and database development
- Each year each country produces a policy study on chosen topic following selection guidelines
- Regional policy study produced each year at ACE

National Participation

Each participating country

- Project guidance and control via National Co-ordinating Committee
- Member on PCC exercising overall project control
- National Project Team of analysts to perform policy studies
- Sends analysts to AHO and ACE
- Inter-country exchange of analysts

Meetings

- PCC meeting every six months
- Technical meetings every six months via AAMRUG (ASEAN Australian MARKAL Regional Users Group)
- AMC maintains ongoing presence within countries

Current Status

- Each country provided with hardware and MARKAL software
- Two weeks initial training conducted in each country followed by initiation of MARKAL database
- AMC energy analysts have assisted National teams with ongoing database development
- First set of policy studies completed
- Version 3.5.13 of ANSWER/MARKAL used for first National studies but now migrating to V5
- Regional database established and first policy study conducted using V5

First Policy Study Topics

- Indonesia – Gas Utilization: National Gas Pipelines, Alternative Fuel Mix for Power Plant and Demand Sectors in Indonesia
- Malaysia – Fuel Diversification: Economic and Environmental Impact of Alternative Fuel Mix Targets for Malaysia
- Philippines – Impact of Natural Gas Market Expansion
- Thailand – Removing the Subsidy on LPG and Implementing a Policy to Increase the Use of CNG in Transport
- Vietnam – The Strategy Orientation for Electricity Supply

Regional Aspects

- Regional database established essentially by combining National models
- Ten “real” regions – Indonesia, Malaysia, Philippines, Thailand, Vietnam (EPSAP) + Cambodia, Laos, Myanmar (CLM) + Singapore, Brunei (non-participating countries)
- Plus 12 “dummy” trade regions to contain cross-border gas pipeline and electricity transmission links

Regional Database

- 22 regions
- 20 cross-border gas pipelines
- 14 cross-border electricity links
- Approx. 40,000 variables; 37,000 equations; 270,000 non-zero elements
- Main issue was “synchronising” time divisions to handle electricity trade
 - Indonesia/Vietnam have pronounced late afternoon/evening peak
 - Other countries broad day time peak
 - Used 2 seasons x 3 diurnal steps – wet/dry and off-peak/partial peak/peak (some MARKAL features can not be used if do this)

First Regional Policy Study

“Trans-ASEAN Energy Network”

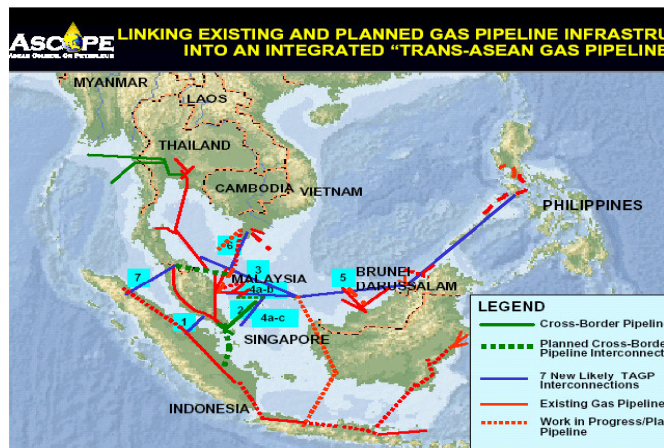
- Analysis of the strategies and benefits associated with increased integration and interconnection of electricity and natural gas transmission networks between ASEAN countries
- Follows on from previous work by TAGP (Trans-ASEAN Gas Pipeline) and AIMS (ASEAN Interconnection Master Plan Study) groups
- But the earlier studies analysed pipeline and transmission link strategies separately
- An integrated approach adds value to the earlier studies

Strategic Issues

Following two slides showing existing and proposed new interconnections from TAGP and AIMS studies indicate complexity of planning issue facing ASEAN

ASEAN Gas Pipelines

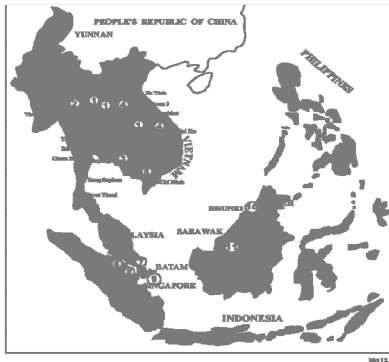
Shows the complex network of gas pipelines either existing or future options in ASEAN



ASEAN Electricity Interconnections

Proposed electricity interconnections from AIMS study

Result of ASEAN Interconnection Master Plan Study



- 1) Thailand-Lao PDR
- 2) Thailand-Myanmar
- 3) Thailand-Cambodia
- 4) Vietnam-Lao PDR
- 5) Cambodia-Vietnam
- 6) P. Malaysia-Sumatra
- 7) Singapore-P. Malaysia
- 8) Singapore- Sumatra
- 9) Singapore- Batam
- 10) Sabah/Sarawak-Brunei
- 11) Sabah/Sarawak- West Kalimantan

Benefits to ETSAP from EPSAP

- Eight countries plus ACE using MARKAL
- Large community of MARKAL analysts
- Focused on policy applications
- Commissioned inclusion of lumpy investment facility in model
- Have assisted programmers with detection and rectification of program bugs
- Hope to liaise more closely with ETSAP (attend meeting such as current Beijing)
- Have developed utilities for results analysis