

## ATTACHMENT I

# COUNTRY REPORT ANNEXES

The annexes listed below provide in-depth information on the six focus countries examined in this report.

They will be published during the month of June 2007. They can be downloaded at <http://usaid.eco-asia.org/programs/cdcp> on the following dates:

<b>COUNTRY REPORTS</b>	<b>Publication Dates</b>
<b>VIETNAM</b>	June 8, 2007
<b>INDIA</b>	June 12, 2007
<b>INDONESIA</b>	June 15, 2007
<b>CHINA</b>	June 22, 2007
<b>PHILIPPINES</b>	June 25, 2007
<b>THAILAND</b>	June 20, 2007

## **COUNTRY DATA SETS**

A compilation of data sets (tables, figures, and charts) for each country will also be published online on the dates shown above.

ATTACHMENT 2

# ANNOTATED LIST OF CLEAN ENERGY PROFILES

- PROFILES OF NATIONAL INSTITUTIONS
- PROFILES OF NATIONAL POLICIES AND LEGISLATION
- PROFILES OF NATIONAL PROGRAMS
- PROFILES OF NATIONAL PROJECTS (ODA FUNDED)
- PROFILES OF REGIONAL ODA, INSTITUTIONS AND PROGRAMS

## ANNOTATED LIST OF CLEAN ENERGY PROFILES: INSTITUTIONS, LEGISLATION, POLICIES, PROGRAMS, AND ODA

As part of the regional analysis, information was collected about institutions, legislation, policies, programs, and official development assistance (ODA) concerned with clean energy. More than 300 profiles were produced, which focus on activities underway in China, India, Indonesia, the Philippines, Thailand, and Vietnam. This attachment describes the general content of the information collected and lists each institution, legislation, policy and program profiled.

**PROFILES OF NATIONAL INSTITUTIONS:** Highlighting efforts of institutions working on clean energy in the focus countries, these profiles describe their scope, objectives and key projects, and list their primary contacts.

**PROFILES OF NATIONAL POLICIES AND LEGISLATION:** Provide information on clean energy policies and laws, including the title, date enacted, and a summary.

**PROFILES OF NATIONAL PROGRAMS:** Describe clean energy programs. Where information was available, profiles contain: (1) program name; (2) implementing institution; (3) date of initiation; (4) budget; (5) program objective; (6) sub-sector(s) (i.e. clean energy, energy efficiency, climate change, and air quality); (7) a brief program description; (8) geographic scope of implementation; and (9) program results (i.e. outcomes and impacts).

**PROFILES OF NATIONAL PROJECTS FUNDED THROUGH OFFICIAL DEVELOPMENT ASSISTANCE (ODA):** This segment profiles projects/programs funded through ODA. It includes: (1) donor name; (2) project name; (3) a brief project description, including any results; (4) implementation timeframe; (5) sub-sector(s); and (6) budget.

**PROFILES OF REGIONAL ODA, INSTITUTIONS, AND PROGRAMS:** Summaries of regional ODA, institutions, and programs concerned with clean energy. The profiles describe mandates, activities, and sub-programs and/or thematic issues.

	NATIONAL PROFILES			
	INSTITUTIONS	POLICY/LEGISLATION	PROGRAMS	ODA
CHINA	20	11	12	20
INDIA	20	15	12	20
INDONESIA	13	14	5	7
PHILIPPINES	12	15	17	35
THAILAND	18	7	15	9
VIETNAM	9	8	8	7
TOTAL	92	70	69	98

## PROFILES OF NATIONAL INSTITUTIONS

### CHINA

1. China Agenda 21 Administration Center
2. China Chemical Energy Conservation Technology Association
3. China Energy Conservation Association
4. China Renewable Energy Industries Association
5. Department of Environmental and Resource Comprehensive Utilization of the National Development and Reform Commission
6. Development Research Center of the State Council of China
7. Energy Foundation-Beijing Office
8. Global Environmental Institute
9. Ministry of Agriculture
10. Ministry of Construction
11. Ministry of Finance
12. Ministry of Science and Technology
13. National Energy Leading Group
14. Provincial Energy Conservation Supervision Centers
15. State Electricity Regulatory Commission
16. State Environmental Protection Administration
17. The Energy Bureau of the National Development and Reform Commission
18. The Energy Management Company Association
19. The Energy Research Institute of the National Development and Reform Commission
20. World Wide Fund for Nature

### INDIA

21. Automotive Research Association of India
22. Bureau of Energy Efficiency
23. Bureau of Indian Standards
24. Central Fuel Research Institute
25. Central Road Research Institute
26. Confederation of Indian Industry
27. Delhi Energy Efficiency and Renewable Energy Management Centre
28. Federation of Indian Chambers of Commerce and Industry
29. Indian Renewable Energy Development Agency Limited
30. Infrastructure Leasing and Financial Services Limited
31. Karnataka Urban Infrastructure Development and Finance
32. Ministry of Environment and Forests
33. Ministry of New and Renewable Energy
34. Ministry of Power
35. Office of the Principle Scientific Adviser to the Government of India
36. Petroleum Conservation Research Association
37. Planning Commission
38. Society of Indian Automobile Manufacturers

39. Technology Information, Forecasting, and Assessment Council
40. The Energy and Resources Institute

### INDONESIA

41. Asosiasi Industri Perlampuan Indonesia
42. Badan Koordinasi Energi Nasional
43. Badan Pengkajian dan Penerapan Teknologi
44. Ministry of Energy and Mineral Resources
45. Executive Agency for Upstream Oil and Gas Activity
46. Forum Biodiesel Indonesia
47. Institut Bisnis dan Ekonomi kerakyatan
48. New Energy and Industrial Technology Development Organization
49. Pertamina
50. PLN (State Electricity Company)
51. The National Standardization Agency of Indonesia
52. Yayasan Bina Usaha Lingkungan
53. Yayasan Pelangi Indonesia

### PHILIPPINES

54. Department of Energy
55. Development Bank of the Philippines
56. Land Bank of the Philippines
57. Philippine National Oil Company
58. Department of Environment and Natural Resources
59. Department of Science and Technology
60. Philippine Council for Industry and Energy Research and Development
61. Inter-Agency Committee on Climate Change
62. Philippine Pollution Prevention Roundtable
63. Philippine Council for Sustainable Development
64. Laguna Lake Development Authority
65. Klima Climate Change Center

### THAILAND

66. Asian Institute of Technology
67. Chiang Mai University
68. Chulalongkorn University
69. Demand Side Management Office
70. Department of Alternative Energy Development and Efficiency
71. Economic and Social Commission for Asia and Pacific
72. Electrical and Electronics Institute
73. Electricity Generating Authority of Thailand
74. Energy for Environment Foundation
75. Energy Policy and Planning Office
76. Energy Research Institute
77. Federation of Thai Industries
78. Industrial Energy Institute

79. Joint Graduate School for Energy and Environment
80. Ministry of Energy
81. Naresuan University, Energy Unit
82. Thailand Industrial Standards Institute
83. United Nations Development Program

#### VIETNAM

84. Electricity of Vietnam
85. Energy Conservation Office

86. Hanoi University of Technology, Renewable Energy Research Center
87. Institute of Energy
88. Ministry of Industry
89. Ministry of Science and Technology
90. Research Center for Energy and Environment
91. Vietnam National Coal-Mineral Industries Group
92. Vietnam Oil and Gas Corporation

## PROFILES OF NATIONAL POLICIES AND LEGISLATION

#### CHINA

1. China's 11th Five Year Plan (2006-2010)
2. China's Medium and Long-term Energy Conservation Plan
3. Coal Law of the People's Republic of China
4. Construction Law of the People's Republic of China
5. Energy Conservation Law of the People's Republic of China
6. Electric Power Law of the People's Republic of China
7. Environmental Protection Law of the People's Republic of China
8. Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution (revised)
9. Law of the People's Republic of China on the Promotion of Cleaner Production
10. Law of the People's Republic of China on Renewable Energy
11. Measures for Operation and Management of Clean Development Mechanism Projects in China

#### INDIA

12. Integrated Energy Policy
13. National Environment Policy 2006
14. Energy Conservation Act 2001
15. Electricity Act 2003
16. National Electricity Policy 2005
17. National Automobile Policy
18. Motor Vehicles Act 1988
19. National Auto Fuel Policy
20. National Urban Transport Policy
21. Integrated Transport Policy
22. National Building Code of India 2005
23. Andhra Pradesh Electricity Regulatory Commission
24. Gujarat Electricity Regulatory Commission order, dated 29.10.2005
25. Rajasthan Electricity Regulatory Commission order, dated 27.09.2005

26. Orissa Electricity Regulatory Commission order, dated April 2005

#### INDONESIA

27. Law No. 15/1985 regarding electricity (since law 20/2002 is annulled by the Constitutional Court, all issue related to electricity is now based on law no. 15/1985)
28. Law No. 6/1994 regarding ratification of UNFCCC
29. Law No. 27/2003 regarding geothermal power
30. Law No. 17/2004 regarding Ratification of Kyoto Protocol
31. Ministerial Decree No. 1122/K/30/MEM/2002, Ministry of Energy and Mineral Resources
32. Ministerial Decree No. 141/MNLH/2003, Ministry of Environment
33. Ministerial Decree No. 2/2006, Ministry of Energy and Mineral Resources
34. Ministerial Decree No. 3/2005, Ministry of Energy and Mineral Resources
35. Presidential Instruction No 10/2005 on energy conservation
36. Presidential Instruction No 1/2006 on the supply and use of biofuel
37. Presidential Instruction No 2/2006 related to supply and use of liquefied coal
38. Presidential Regulation No 5/2006
39. Presidential Regulation No 71/2006 regarding the assignment of PLN to accelerate development of coal power plant
40. Presidential Regulation No 72/2006 regarding the establishment of a team to accelerate development of coal power plant

#### PHILIPPINES

41. Renewable Energy Policy Framework
42. Republic Act 7156: "Mini-Hydroelectric Power Incentives Act"

43. Presidential Decree 1442: “An Act to Promote the Exploration and Development of Geothermal Resources”
44. Renewable Energy Bill (pending in the Philippine Congress)
45. Executive Order 462: “Enabling private sector participation in the exploration, development, and commercialization of ocean, solar, and wind energy resources for power generation and other energy uses”
46. Republic Act 7638: “Department of Energy Act of 1992”
47. Memorandum Circular 55: “Mandatory requirements to use 1 percent CME blend in diesel requirements of government vehicles”
48. Executive Order 290: “Implementing the Natural Gas Vehicle Program for Public Transport”
49. Fuel Ethanol Act of 2004
50. Administrative Order 110: “Directing the Institutionalization of a Government Energy Management Program”
51. Republic Act 8749: “Philippine Clean Air Act”
52. Republic Act 9136: “Electric Power Industry Reform Act”
53. Republic Act 9275: “Philippine Clean Water Act”
54. Republic Act 9003: “Ecological Solid Waste Management Act”
55. DOE Circular No. 2002-08-005: “Interim Rules and Regulations Governing the Transmission, Distribution and Supply of Natural Gas”

## THAILAND

56. Energy Conservation Promotion Act 1992
57. Energy Conservation Promotion Fund 1992
58. Ministerial Order for ENCON Act (revision)
59. Very Small Power Producer Regulation
60. Small Power Producer Regulation
61. Independent Power Producers Regulation
62. Minimum Energy Performance Standards

## VIETNAM

63. Electricity Law
64. National Strategic Program on Energy Saving and Effective Use for the period 2006-2015
65. Retail Electricity Tariff in Vietnam
66. Vietnamese Construction Standards of “Energy Saving and Effective Use in Constructions”
67. Regulation on Investment and Construction Management of Independent Power Projects
68. Summary of Policies of the Petroleum Industry of Vietnam
69. Summary of Policies of the Coal Industry of Vietnam
70. Strategic Orientation for Sustainable Development in Vietnam

# PROFILES OF NATIONAL PROGRAMS

## CHINA

1. 10 Key Energy Conservation Programs
2. 1,000 Enterprise Initiatives
3. US DOE/China Ministry of Science and Technology, ACCORD21 Demonstration Building Project
4. Amendment to Policy Outline of Energy Efficiency Technologies
5. China Green Lighting Program
6. SEPA-DOW Cleaner Production Program
7. China Rural Energy Enterprise Development
8. China Sustainable Energy Program
9. Energy Conservation Law Amendment Program
10. Energy Law Drafting Program
11. China Renewable Energy Development Project
12. Renewable Energy Development Planning Program

## INDIA

13. Integrated Rural Energy Program
14. National Bio-gas and Manure Management Program

15. Rajiv Gandhi Grameen Vidhyutikaran Yojana
16. Rural Electricity Supply Technology Mission
17. Ultra Mega Power Projects
18. Indian Nuclear Energy Program
19. Scheme for Energy Efficiency Labeling
20. Technology Upgrading Fund Scheme for Textile Industries
21. Research and Development in Automotive Industry
22. Jawaharlal Nehru National Urban Renewal Mission
23. National Mission on Bio-diesel
24. Asia-Pacific Partnership on Clean Development and Climate

## INDONESIA

25. Blue Print of Energy Policy (implementation program), 2005-2025
26. Energy Conservation Master Plan program
27. Energy Subsidy Removal Program
28. Green Energy Policy (Green Energy Program)

29. Plan to adopt Economic Commission for European regulations on exhaust emissions as a national standard

#### PHILIPPINES

30. National Energy Efficiency and Conservation Program
31. Government Energy Management Program
32. Information, Education and Communication Campaign under the National Energy Efficiency and Conservation Program
33. Energy Labeling and Efficiency Standards
34. Voluntary Agreements Program
35. Energy Management Program
36. Alternative Fuels and Technology Program
37. Bioethanol Program
38. Biodiesel Program
39. Natural Gas Vehicle Program for Public Transport
40. Autogas Program
41. Clean Alternative Transport Fuel Financing Program
42. Solar Home System Distribution Project
43. Solar Power Technology Support Project
44. Rural Power Project
45. Integrated Program on Cleaner Production Technologies
46. Sustainable Solid Waste Management Program

#### THAILAND

47. Incentive Program for Rural Energy under SPP

48. Time-of-Use electric tariff
49. Time-of-Day electric tariff
50. Electricity Generating Authority of Thailand Demand Side Management Programs
51. Demand Side Management Labeling Program
52. Peak Cut Program
53. Green Learning Room Program
54. 30 Percent Subsidy Programs
55. Energy Efficiency Revolving Fund
56. Tax incentive schemes
57. Import Duty Tax Reduction
58. Collaborative Energy Conservation Program
59. Compulsory Energy Conservation Program for Designated Facilities
60. Voluntary Energy Conservation Programs for Small and Medium Size Enterprises
61. Photovoltaic Panel Program for Rural Households

#### VIETNAM

62. Promoting Energy Conservation in Small and Medium Enterprises
63. Electricity of Vietnam Demand-Side Management and Energy Efficiency, Phase 2
64. Pilot Commercial Energy Efficiency Program
65. National Strategic Program on Energy Saving and Effective Use
66. Vietnam Energy-Efficient Public Lighting
67. Second Rural Energy
68. Enable Access to Sustainable Energy
69. Small and Medium Enterprise Energy Efficiency Program

## PROFILES OF NATIONAL PROJECTS FUNDED THROUGH OFFICIAL DEVELOPMENT ASSISTANCE (ODA)

#### CHINA

1. ADB: Energy Efficiency Initiative (EEI) Program, Phase II
2. ADB: Gansu Clean Energy Development Project
3. ADB: Inner Mongolia Environmental Improvement
4. ADB: Liaoning Environment Improvement Project
5. Asian Development Bank (ADB): Energy Conservation and Resource Management
6. EU-China Energy and Environment Program (EEP)
7. EU-China Environmental Management Program
8. Global Environment Facility (GEF): China Renewable Energy Scale-Up Program
9. GEF: China Utility-based Energy Efficiency Finance Program
10. GEF: Demonstration of Fuel Cell Bus Commercialization in China, Phase 2
11. GEF: Heat Reform and Building Energy Efficiency
12. GEF: Phase II, WB/GEF China Energy Conservation Promotion Program
13. Gesellschaft für Technische Zusammenarbeit (GTZ): Environmental Protection in the Energy Industry
14. GTZ: Renewable energies in rural areas
15. Japan Bank for International Cooperation (JBIC): Baotou Atmospheric Environmental Improvement Project
16. UNDP/GEF End Use Energy Efficiency Program
17. World Bank (WB)/GEF: China Energy Conservation Promotion (CECP) Phase II

18. WB: China HFC-23 Emissions Reduction and Sustainable Development Benefits Project
19. WB: China Renewable Energy Scale-up Program (CRESP), Follow-Up, Phase I
20. WB: CN-PCF Xiaogushan Hydropower Project (XHP)

## INDIA

21. ADB/Department for International Development (DFID): Madhya Pradesh Power Sector Development Program
22. ADB: Calcutta Environmental Improvement Project
23. ADB: Kerala Sustainable Urban Development
24. DFID: Organizing Strengthening and Re-positioning of Environmental Planning and Co-ordination Organization
25. DFID: Strengthening Rural De-centralization Program
26. GEF: Creating Alternate Fuel System through Bio-gas Plants in Poor Remote Areas and dissemination of Organic Farming Practices for Sustainable Agriculture and for Better
27. GEF: Integrated Energy Efficiency Programme in Rural Sector in North Gujarat
28. GEF: Sustainable Local Environment and Resource Management Through Industry & Community Cooperation
29. GEF: Small Grant Program: Community Promoted Electrification of Thalingi Tribal Hamlet through Bio-gas
30. IBRD: The Indian Renewable Energy Development Agency, Second Renewable Energy Project
31. International Bank for Reconstruction and Development (IBRD): Third Tamil Nadu Urban Development Project
32. IBRD: Power Sector Reform Program
33. Japan Bank for International Cooperation (JBIC): 100-MW Karbi Langpi Hydro-power Project of Assam State Electricity
34. JBIC: Bakreshwar Thermal Power Project (Units 1 and 2) aggregating 420MW (Commissioning in September 2007)
35. JBIC: Board250- MW Ghatghar Pumped Storage Scheme of the Maharashtra State Government Department of Irrigation (commissioning by March 2007)
36. JBIC: Delhi Mass Rapid Transport System Project, Phase 2
37. JBIC: North Karanpura Super Thermal Power Project in Bihar
38. UNDP/GEF: Removal of Barriers to Energy Efficiency Improvement in the Steel Re-rolling Mill Sector in India

39. United States Agency for International Development (USAID): Greenhouse Gas Pollution Prevention Project
40. USAID: Energy Conservation and Commercialization

## INDONESIA

41. Royal Danish Embassy (Denmark): Danish CDM Project Development Facility
42. European Union: COGEN 3
43. UNDP/GEF/SGP: Community-Based RET Projects
44. European Commission Asia Pro Eco Programme: CURB-AIR project
45. GTZ: German-Indonesian Mini Hydro Power Project
46. UNDP/GEF: Integrated Micro-hydro Program
47. GEF/World Bank: Solar Home System

## PHILIPPINES

48. ADB: Institutional Strengthening for the Development of the Natural Gas Industry
49. ADB: Mindanao Basic Urban Services Sector Project
50. ADB: Rehabilitation of Renewable Energy Projects for Rural Electrification and Livelihood Development
51. Asian Development Bank (ADB): Renewable Energy and Livelihood Development Project in Negros Occidental
52. Danish International Development Assistance (DANIDA): 25-MW Bangui Bay Wind Power Plant
53. EAEF: Capacity Building for Calaca, Batangas Local Government Units (LGUs), Public Market Vendors and Households to Operate a Biogas Facility: Learning from European and ASEAN/Thai Best Practices
54. EAEF: Capacity Building for Wind Project Developers, Providers of Engineering Consulting Services and Government Planners on the Conduct of Project Preparatory Activities for the Development of Wind Power Projects in the Philippines and Vietnam and Adopting European and International Standards
55. EAEF: Increasing access to local sources of financing for renewable energy investments and design of innovative financing instruments: case study in the Philippines, exchanging experiences with Thailand, and applicability of European approaches
56. EAEF: Innovative Financial Scheme for Sustainable Development of Renewable Energy Projects in Rural Areas in Vietnam, the Philippines, and Indonesia
57. EC/GEF: Electric Cooperative System Loss Reduction Project
58. European Commission's EU-ASEAN Energy Facility (EAEF): Feasibility study for distributed generation

- and renewable energy portfolio of a distribution utility: case study in the Philippines
59. European Commission's EU-Asia Pro Eco Program: Biowaste Reuse in Southeast Asian Cities
  60. European Commission's EU-Asia Pro Eco Program: Greening the Philippine Industries with the ECOPROFIT Approach: Regional partnership, capacity building and training program approach for the industries within the Region Central Luzon in the Philippines
  61. Japan Bank for International Cooperation (JBIC): Environmental Infrastructure Support Credit Program
  62. Japanese International Cooperation Agency (JICA): Sustainability Improvement of Renewable Energy Development in Village Electrification
  63. JBIC: Local Government Unit Support Credit Program
  64. JBIC: North Luzon Wind Power Project
  65. JBIC: Tiwi Geothermal Power Plant Complex Rehabilitation
  66. JBIC: Tongonan Geothermal Power Plant Construction
  67. JICA: Electrification of Upland Dwellers in Northern Luzon
  68. JICA: Japan Grass Roots Grand Aid Program
  69. JICA: Mahagnao Micro-Hydro Demonstration Project
  70. Metro Manila Air Quality Improvement Sector Development Program
  71. UNDP: Philippine Efficient Lighting Market Transformation Project
  72. UNDP: PV-Wind Diesel Hybrid System
  73. UNDP: Renewable Energy-based Village Power System
  74. United Nations Development Programme (UNDP): Capacity Building to Remove the Barriers for the Development of Renewable Energy Projects
  75. United States Agency for International Development (USAID): Alliance for Mindanao Off-Grid Renewable Energy
  76. USAID: Energy and Clean Air Project
  77. USAID: Philippine Environmental Governance
  78. USAID: Solar Energy for Rural Electrification and Development
  79. USAID: Sustainable Energy Development Project
  80. World Bank (WB): Laguna de Bay Community Carbon Finance Project
  81. WB: Rural Power Project
  82. WB: Support for Strategic Local Development and Investment
- ### THAILAND
83. DANIDA: Adjustment to Building Energy Code
  84. DANIDA: Energy Efficiency Promotion Strategy for Factories and Buildings
  85. DANIDA: Decentralized Energy Planning
  86. DANIDA: Promotion of RE Technologies
  87. GTZ: Biomass Energy Program
  88. GTZ: Industrial Liaison Program
  89. Germany: Integrated Biomass Planning
  90. EU: Sol-Therm project for solar water heaters
  91. EU: Cogen 3 (AIT, multi-country)
- ### VIETNAM
92. WB: Second Rural Energy Project
  93. WB and GEF: Electricity Vietnam- Demand-Side Management and Energy Efficiency Project
  94. IDA: Second Transmission and Distribution Project
  95. Sweden: Vietnam Sweden Rural Electrification Program
  96. GEF/UNDP: Vietnam Energy-Efficient Public Lighting
  97. Netherlands: Bio-gas and Renewable Energy
  98. European Economic Community (EEC): EC-ASEAN Cogen Program Phase III

## PROFILES OF REGIONAL ODA, INSTITUTIONS, AND PROGRAMS

### REGIONAL ODA

1. Asian Development Bank (ADB) – Clean Energy and the Environment
2. Asia-Pacific Economic Cooperation (APEC) – Secretariat
3. Canadian International Development Agency (CIDA)
4. Danish International Development Assistance (DANIDA)
5. Department for International Development (DFID)
6. EuropeAid
7. Gesellschaft für Technische Zusammenarbeit (GTZ)
8. Global Environment Facility (GEF)
9. International Finance Corporation (IFC)
10. Japan Bank For International Cooperation (JBIC)
11. Japan International Cooperation Agency (JICA)
12. Multilateral Investment Guarantee Agency (MIGA)
13. Ministry of Economy, Trade and Industry (METI)

14. New Energy and Industrial Technology Development Organization (NEDO)
15. New Zealand's International Aid & Development Agency (NZAID)
16. Swedish International Development Cooperation Agency (SIDA)
17. United Nations Development Programme (UNDP)
18. United States Agency for International Development, Regional Development Mission/Asia (USAID/ RDM/A)
19. World Bank Asia Alternative Energy Unit (ASTAE)
20. World Bank Carbon Finance Unit (WB CFU)
21. World Bank Group (WBG)

#### **REGIONAL INSTITUTIONS**

22. APEC- Energy Working Group
23. APEC- Experts Group
24. ASEAN- Center for Energy (ACE)
25. ASEAN- Secretariat
26. Asia Pacific Energy Research Center (APEREC)
27. Asian Institute of Technology (AIT)
28. Health Effects Institute (HEI )
29. International Institute for Energy Conservation (IIEC)
30. International Institute for Environment and Development (IIED)
31. Stockholm Environment Institute (SEI)
32. The Joint Graduate School of Energy and Environment (JGSEE)
33. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
34. United Nations Environment Programme (UNEP)
35. United Nations Industrial Development Organization (UNIDO)

#### **REGIONAL PROGRAMS/PROJECTS**

36. Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS)
37. Asian Regional Research Programme in Energy, Environment and Climate (ARRPEEC)
38. Asia-Pacific Network on Climate Change (AP Net)
39. Asia-Pacific Partnership for Clean Development and Climate (AP6)
40. Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling Project (BRESL)
41. Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)
42. Clean Air Initiative (CAI)
43. Clean Technology to Power ASEAN
44. Collaborative Labeling and Appliance Standards Program (CLASP)
45. Energy Sector Management Assistance Program (ESMAP)
46. Environmental Cooperation Asia (ECO-Asia)
47. Environmental Law Institute (ELI)
48. European Association for the Promotion of Cogeneration.(Cogen)
49. Greenhouse Gas Emission Reduction from Industry in Asia (GERIAP)
50. Policy and Human Resources Development Fund (PHRD) Programs
51. Promotion of Energy Efficiency and Conservation Project (PROMECC)
52. Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement (PREGA)
53. Renewable Energy and Energy Efficiency Partnership (REEEP)
54. South East-Asia Urban Environmental Management Applications Project (SEA-UEMA)

## ATTACHMENT 3

# METHODS AND ASSUMPTIONS FOR CLIMATE CHANGE MITIGATION OPTIONS

**Option 1: Energy in buildings reduced by 30 percent:** Data on current electricity use in the commercial and residential sectors was converted to CO<sub>2</sub> emissions using data on the energy mix and country-specific fossil-fuel emissions factors. The projected energy mix in 2030 was then used to calculate related CO<sub>2</sub> emissions. The emissions were reduced by 30 percent to account for the assumed energy efficiency gains.

**Option 2: Improve the average coal-fired power plant fleet efficiency from 33 percent to 48 percent:** Current average coal-fired power plant fleet efficiency ranges from 29-33 percent in most developing Asian economies, at least for large plants (> 200 MW). It is assumed that over the next 25 years, the efficiency levels can be increased to 48 percent. The related CO<sub>2</sub> emissions (both current and projected) were calculated using the emissions factor for coal published by the IPCC, after taking into account T&D losses specific to each country.

**Option 3: Expand renewables-based power generation by 10-fold:<sup>1</sup>** It was assumed that all Asian developing countries would be able to achieve China's target to increase renewable energy generation by ten-fold by 2030. It was also assumed that this new power will displace fossil-generated grid power. The displaced power was then multiplied with a country-specific fossil-electricity emissions factor (that accounted for the country's expected fuel mix in the future) to calculate total emissions reduced.

**Option 4: Reduce oil demand in the transport sector by 30 percent:<sup>2</sup>** Data on current oil use in the transportation sector was converted to CO<sub>2</sub> emissions using emissions factor published by the IPCC. The projected oil demand in 2030 was then reduced by 30 percent across the board to account for fuel efficiency gains resulting from improvements in both technology and transport planning. The reduced oil demand estimate was then used to calculate related CO<sub>2</sub> emissions.

**Option 5: Replace 25 percent of oil demand in the transport sector with biofuels:** It was assumed that the increased investment in biofuels would lead to 25 percent of the reduced oil demand being met with biofuels by 2030. Studies show that in most cases, when biodiesel or ethanol is produced through sustainable means the resulting fuel is carbon-neutral (i.e., the carbon released during combustion is the carbon that was absorbed during the growth process through photosynthesis). Assuming that the biofuels that substitute for 25 percent of oil demand are produced sustainably, the reduction in emissions was calculated as the product of the "saved" oil and the emissions factor for oil published by the IPCC.

The emissions reduction scenario was assembled with data from APERC and TERI (India) for each of the six focus countries. The above measures were applied to each country, and the country-specific reductions were then aggregated to arrive at a roughly 3.5 billion metric tons of reductions over the next 25 years.

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1. Each country will achieve the renewable energy target using their most cost-effective technologies and available resources.
  2. Transportation calculations for India were arrived at by using total projected oil demand for 2030 (TERI, 2006) and assuming that 50 percent was used in transportation (TERI).

## ATTACHMENT 4

# LIST OF INDIVIDUALS CONSULTED

### CHINA

Zhongying Wang  
Director  
Center for Renewable Energy  
Development, China

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China Agenda 21 Administration  
Center, China

Qiantong Zhang  
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Conservation Technology  
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Min Zhao  
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Company Association (EMCA)  
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Program Officer  
China Sustainable Energy Program  
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Chinese Renewable Energy  
Industries Association, China

Junsheng Zhu  
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Chinese Renewable Energy  
Industries Association, China

Xiangjun Yao  
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Agriculture, China

Xinmin Li  
Deputy Director-General of  
Pollution Control Department,  
State Environment Protection  
Administration (SEPA), China

Wenke Han  
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Energy Research Institute (ERI)  
NDRC, China

Xuedu Lv  
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Gang Wen  
Senior Program Officer  
Global Environment Facility, China

Jiaman Jin  
Director  
Global Environmental Institute  
China

Cong Yu  
Director  
NDRC/UNDP/GEF End User  
Energy Efficiency Program, China

Rumei Chen  
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### INDIA

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## ATTACHMENT 5

# OVERVIEW OF REGIONAL ORGANIZATIONS

This attachment provides a more thorough review of the status and activities of regional organizations working in the area of clean energy. It also assesses how ECO-Asia can engage with organizations and networks in Asia to carry out transformative policy and market interventions.<sup>1</sup> While the review is not comprehensive, it identifies the main regional actors and assesses their strategies and resources.

**Table I** provides an overview of the primary clean energy organizations that we identified as part of our review. In this section, we highlight the role of four of the main regional organizations working in clean energy, and draw some conclusions on the potential for cooperation:

- Asian Development Bank (ADB)
- Asia Pacific Economic Cooperation (APEC)
- Asia-Pacific Partnership for Clean Development and Climate (APP)
- Association of Southeast Asian Nations (ASEAN)

**TABLE I. CLEAN ENERGY ORGANIZATIONS WORKING REGIONALLY IN ASIA**

Institution	Mandate
<b>Asian Development Bank (ADB)</b>	The ADB's mission is to improve the welfare of the people in Asia and the Pacific, particularly the 1.9 billion who live on less than US\$2 a day. ADB has launched several ambitious initiatives in clean energy, including its Energy Efficiency Initiative and Carbon Markets Initiative.
<b>Asian Institute of Technology (AIT)</b>	AIT's goal is to develop highly qualified and committed professionals who play leading roles in the region's sustainable development and its integration into the global economy. Through its Energy Technology Division, AIT has been involved in a number of regional research and implementation programs on clean energy.

1. Regional consultations in November and December 2006 included meetings with the following regional organizations: the Asian Development Bank (ADB); the Asia-Pacific Partnership on Climate Change and Development (APP); the APEC Expert Group on Energy Efficiency and Conservation (APEC EGEE&C); ASEAN Center for Energy; the ASEAN Secretariat; the Clean Air Initiative (CAI); the Health Effects Institute; Collaborative Labeling and Appliance Standards Program (CLASP); the International Institute for Energy Conservation (IIEC); the Joint Graduate School for Energy and Environment (JGSEE); and the United Nations Environmental and Social Commission for Asia and the Pacific (UNESCAP). To produce this review, these meetings were supplemented with a review of reports, literature, and websites to assemble a broad overview of regionally focused activity in the area of clean energy.

**TABLE I. CLEAN ENERGY ORGANIZATIONS WORKING REGIONALLY IN ASIA**

Institution	Mandate
<b>Asia-Pacific Energy Research Center (APERC)</b>	APERC is a Tokyo based, independently operated energy research centre for the APEC region. Its research activities are guided by the priorities of the APEC Energy Working Group and overseen by APEC's Expert Group on Energy Data and Analysis (EGEDA). APERC seeks to foster an understanding among APEC Economies of global, regional and domestic energy demand and supply trends, energy infrastructure development, energy regulatory reform and related policy issues. Its publications include the biennial APEC Energy Demand and Supply Outlook and the annual APEC Energy Overview.
<b>APEC-Energy Working Group</b>	APEC EWG is tasked with maximizing the energy sector's contribution to the region's economic and social well-being, while mitigating the environmental effects of energy supply and use. There are several expert groups under the EWG that are active in clean energy, including the Expert Group on Clean Fossil Energy, the Expert Group on Energy Efficiency and Conservation (EGEE&C), the Expert Group on New and Renewable Energy Technology (EGNRET), and the Expert Group on Energy Data and Analysis (EGEDA).
<b>Asia-Pacific Partnership on Clean Development and Climate (APP)</b>	APP is a partnership between six Asia-Pacific countries – Australia, China, India, Japan, South Korea, and the United States – to promote technology transfer and help each country meet nationally designed strategies for improving energy security, reducing pollution, and addressing the long-term challenge of climate change.
<b>ASEAN Center for Energy (ACE)</b>	ACE acts as a catalyst for the economic growth and development of the ASEAN region by initiating, coordinating, and facilitating regional as well as joint and collective activities on energy. It also serves as a secretariat and support function for ASEAN meetings related to energy, including the Senior Officials Meeting on Energy (SOME) and the ASEAN Meeting of Energy Ministers (AMEM).
<b>ASEAN Secretariat</b>	The ASEAN Secretariat works to coordinate cooperation between ASEAN countries in order to accelerate economic growth, social progress, and cultural development in the region. It also promotes regional peace and stability. Its mandate includes coordination of regional and international initiatives related to energy.
<b>Clean Air Initiative – Asia (CAI-Asia)</b>	CAI-Asia promotes and demonstrates innovative ways to improve the air quality of Asian cities through partnerships and sharing experiences.
<b>Collaborative Labeling and Standards Program (CLASP)</b>	CLASP serves as the world's primary international voice and resource for energy-efficiency standards and labeling worldwide. It operates a web-based clearinghouse on energy standards and labeling that covers 54 countries worldwide in collaboration with the APEC Energy Standards Information System (APEC-ESIS).

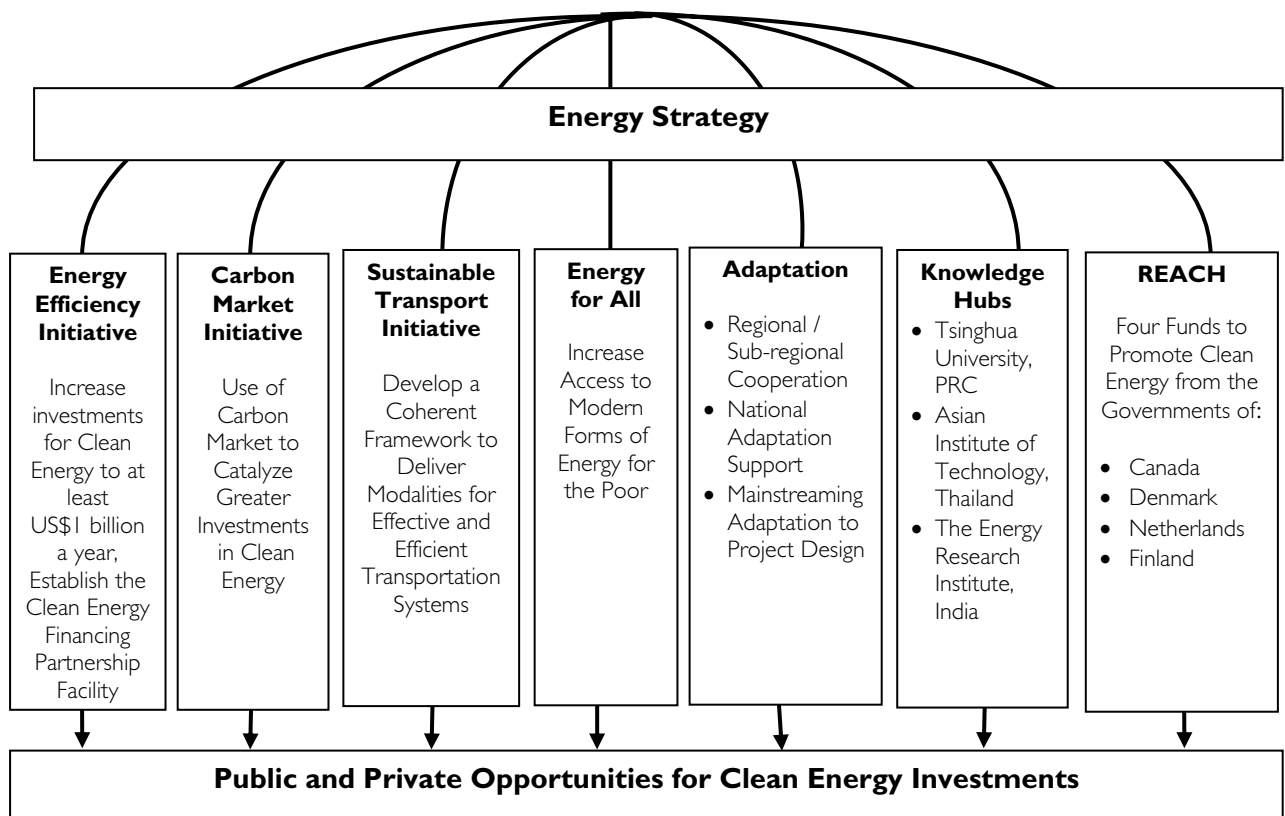
**TABLE I. CLEAN ENERGY ORGANIZATIONS WORKING REGIONALLY IN ASIA**

Institution	Mandate
<b>East Asia and Pacific Infrastructure Regulatory Forum (EAPIRF)</b>	The Forum enhances regulatory decision-making in the East Asia and Pacific region through the exchange of information and experience in infrastructure regulation, and through the promotion of training programs focused on regulatory issues common among countries.
<b>Global Environmental Facility (GEF)</b>	GEF helps developing countries fund projects and programs that protect the global environment, including investments in energy efficiency and renewable energy. It recently initiated a number of regional projects on clean energy.
<b>International Institute for Energy Conservation (IIEC)</b>	IIEC is a mission-based, non-profit organization that works through its local offices to design, implement, monitor, and evaluate clean energy programs and projects, in cooperation with government agencies and the private sector. IIEC has regional offices in Bangkok and India that cover Asia.
<b>Joint Graduate School on Energy and Environment (JGSEE)</b>	JGSEE has a regional English-language graduate program, conducts high-quality technical and policy research, and provides technical services, with a view to meeting societal needs for the development and deployment of efficient, economical, and sustainable energy services while protecting the environment. JGSEE is leading a major initiative called the Thailand Energy Policy Research Project.
<b>REEEP</b>	REEEP is a global public-private partnership that structures policy and regulatory initiatives for clean energy, and facilitates financing for energy projects.
<b>United Nations Development Programme (UNDP)</b>	UNDP is the UN's global development network. UNDP has offices in 166 countries and implements and funds programs in the area of clean energy. UNDP is also one of the major implementers of GEF projects.
<b>United Nations Environment Programme (UNEP)</b>	UNEP recently completed in 2006 an Energy Efficiency Guide for Industry in Asia. This was targeted at Asian companies who want to improve their energy efficiency through cleaner production and stakeholders who want to help them ( <a href="http://www.energyefficiencyasia.org">www.energyefficiencyasia.org</a> ).
<b>United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)</b>	UNESCAP promotes economic and social development, with special emphasis on increasing access to opportunities for individuals, communities and economies in the Asian and Pacific region. UNESCAP's Energy Resources Section focus on common regional issues, carries out research on clean energy topics related to technology, institutions, and policy, hosts regional meetings, and supports the UN Commission on Sustainable Development.
<b>United Nations Industrial Development Organization (UNIDO)</b>	UNIDO is a specialized agency that promotes industrial development and international industrial cooperation. UNIDO has funded a number of technical promotion programs in Asia covering issues such as motor system efficiency, the Clean Development Mechanism, and other clean energy issues.

## ASIAN DEVELOPMENT BANK (ADB)

The Asian Development Bank (ADB) is a multilateral development financial institution owned by 66 members worldwide, 47 from the region and 19 from other parts of the globe. ADB's vision to free the region of poverty guides its mission is to help its developing member countries reduce poverty and improve the quality of life of their citizens. ADB's main instruments for providing help to its developing member countries are policy dialogue; loans; technical assistance; grants; guarantees; and equity investments. ADB's annual lending volume is typically about US\$6 billion, with technical assistance usually totaling about US\$180 million a year (www.adb.org).

**FIGURE 31. OVERVIEW OF THE ASIAN DEVELOPMENT BANK'S CLEAN ENERGY PROGRAMS**



Source: ADB, 2007; PRC = People's Republic of China.

ADB is systematically studying the barriers to clean energy development and is focusing its interventions primarily on developing an enabling environment – policy, regulatory, tariff, and institutional – and on facilitating the preparation and implementation of a higher volume of clean energy projects. ADB is also working toward enhancing awareness of renewable energy and energy efficiency opportunities through country-based capacity-building initiatives, as well as promoting opportunities with the growing carbon market. ADB has recently launched a comprehensive Clean Energy and Environment Program, depicted in Figure 31.<sup>2</sup>

### ENERGY EFFICIENCY INITIATIVE

ADB launched its Energy Efficiency Initiative (EEI) in July 2005. The core objective of EEI is to expand ADB's investments in energy efficiency projects to US\$1 billion per year. To this end, ADB will work

2. Much of the section describing the ADB initiatives in the figure is extracted from ADB (2006).

closely with its developing member countries to identify specific market segments that have a high priority for intervention, are suitable to ADB's role and strengths, and have replication and scale-up potential. The pipeline of energy-efficiency loans for the past five years was approximately US\$1.2 billion, and the prospective pipeline for the next two years is already US\$2 billion (Tumiwa, 2006). EEI is being implemented in three phases:

- **Phase I** was completed in March 2006, firmly establishing the rationale for expanded and sustained ADB action and EE investment and provides priorities and a framework for the next steps.
- **Phase II** (ongoing from March 2006 through December 2007) will prepare the country-level investment and action plans on EE, develop the project pipeline for 2008-2010, design and establish the Asia-Pacific Fund for Energy Efficiency, and pursue immediate EE investment opportunities.
- **Phase III** (2007-2010) will implement the EE investment and action plans, process projects in the pipeline, and commit APFEE funds.

### **CARBON MARKET INITIATIVE**

There are currently numerous public and private carbon procurement programs in the market. Most of these existing schemes, however, provide payment only upon project completion and when the carbon credits are delivered. As a result, many clean energy projects, especially in developing countries, face a critical upfront financing gap that prevents them from being undertaken in the first place.

The Carbon Market Initiative (CMI) was established to support sustainable development goals of developing member countries (DMCs), address global climate change concerns, and assist developed countries in meeting their emissions reduction commitments. CMI will provide a project co-financing facility, carbon credit marketing program, and technical support for project preparation and implementation of CDM-eligible projects and their developers. An important feature of the CMI is that it will provide complete up-front purchase of the carbon credits.

Other elements of the Clean Energy and Environment Program include:

- **REACH.** A set of four funds to support investment in clean energy, sponsored by Canada, Denmark, Finland, and the Netherlands.
- **Knowledge Hubs.** Initially a hub on renewable energy is being established at The Energy and Resources Institute (TERI) in India, with plans for additional hubs in China and Thailand.
- **Transport Energy Efficiency.** ADB is developing a sustainable transport initiative, which will act as an internal focal point for managing transport-related issues and their energy and environmental impacts.
- **Energy for All.** This initiative will focus on increasing access to modern forms of energy for the poor.

### **OTHER ADB TECHNICAL ASSISTANCE INITIATIVES**

**Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS).** ALGAS provided technical assistance to 12 Asian nations to meet their commitments under the United Nations Framework Convention on Climate Change, to raise their awareness, and to build their capacity to benefit from the financial mechanisms under the Kyoto Protocol for developing countries, such as the Clean Development Mechanism. ADB executed the ALGAS project through funding support from the Global Environment Facility of the UNDP, the Government of Norway, governments of participating countries, and ADB itself. More than 175 experts participated over the period of 1995-2000.

**Capacity Building for Kyoto Protocol and CDM.** Between 1999 and 2000, ADB supported capacity-building activities that enhanced the abilities of policymakers in participating DMCs to understand the implications of the Kyoto Protocol and to prepare a technical manual for the design of greenhouse gas abatement projects under the Clean Development Mechanism.

**PREGA (Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement).** In this project, ADB worked to strengthen institutional capacity and technical capability of governments, consultants, academia, and other stakeholders in participating DMCs to develop and implement clean energy projects as a way to mitigate climate change. Consultants worked to develop pre-feasibility and feasibility studies, assess technical, financial, and economic viability, and do initial development of potential CDM Projects. The program also sponsored a number of national training programs and international conferences/meetings.

## ASIA PACIFIC ECONOMIC COOPERATION (APEC)

APEC was established in 1989 to further enhance economic growth and prosperity for the region and to strengthen the Asia-Pacific community. Since its inception, APEC has worked to reduce tariffs and other trade barriers across the Asia-Pacific region, creating efficient domestic economies and dramatically increasing exports.

Key to achieving APEC's vision are what are referred to as the "Bogor Goals" of free and open trade and investment in the Asia-Pacific by 2010, for industrialized economies, and 2020, for developing economies. APEC also works to create an environment for the safe and efficient movement of goods, services and people across borders in the region through policy alignment and economic and technical cooperation.

### APEC ENERGY WORKING GROUP (EWG)

The EWG was launched in 1990 and seeks to maximize the energy sector's contribution to the region's economic and social well-being, while mitigating the environmental effects of energy supply and use. The EWG is one of 11 Working Groups operating under the APEC umbrella. The EWG is assisted in its work by five Expert Groups and two task forces, which concentrate on particular strategic aspects of the EWG's agenda, set forth by the APEC Energy Ministers. The five Expert Groups under the EWG are:

- Expert Group on Clean Fossil Energy,
- Expert Group on Energy Efficiency and Conservation (EGEE&C),
- Expert Group on New and Renewable Energy Technology (EGNRET),
- Expert Group on Energy Data and Analysis (EGEDA), and
- Expert Group on Minerals and Energy Exploration and Development (GEMEED).

APEC has an EWG Business Network (EBN), which was established in 1999. In recent years, the EBN holds its meetings back to back with the EWG working group meetings. This meeting arrangement enables the EBN to advise the EWG on energy policy issues and work program in a timely manner. It also facilitates regular dialogues between energy policy-makers and the business sector representatives.

APEC funds a number of projects each year from a central fund and also from specialized funds, such as a Japan-funded Trade and Investment Liberalization Fund (TILF). The value of APEC-funded projects in the energy sector is that they encourage regional cooperation, sharing of best practices, and harmonization of technical standards that can reduce barriers to trade in clean energy products.

Typically, APEC funding will be used to leverage funding from the host economy, or from another international funder, as part of a larger, longer-term initiative. Table 2 lists projects that have been funded through the APEC Energy Working Group for 2007.

<b>No.</b>	<b>Project Title</b>	<b>EWG No.</b>	<b>Funding (US\$)<sup>a</sup></b>
1.	Operation of APEC Energy Data and Analysis	EWG 01/2007	20,000
2.	APEC 21st Century Renewable Energy Development Initiative (Collaborative VIII): Workshop on Recent Advances in Utility Based Financial Mechanisms that Support Renewable Energy and Energy Efficiency	EWG 02/2007	50,000
3.	Application of Energy Indicator Analysis in APEC Economies	EWG 03/2007	50,000
4.	Workshop on Best Practices in Energy Efficiency and Renewable Energy in Buildings	EWG 04/2007	50,000
5.	Lessons Learned in Upgrading and Refurbishing Older Coal Fired Power Plants: A Best Practice Guide for APEC Developing Economies	EWG 05/2007	80,000
6.	Environmental Monitoring for Coal-Fired Power Plants in Developing Asian APEC Economies	EWG 06/2007	50,000
7.	Survey of Biomass Resource Assessments and Assessment Capabilities in APEC Economies.	EWG 01/2007A	50,000
8.	Establishment of the Guidelines for the Development of Biodiesel Standards in the APEC Region.	EWG 02/2007A	50,000
9.	Survey of Transport Efficiency Policies in APEC Economies	EWG 03/2007A	50,000
10.	Alternative Transport Fuels – Implementation Guidelines	EWG 04/2007A	50,000
11.	Technology Status and Project Development Risks of Advanced Coal Power Generation Technologies in APEC Developing Economies	EWG 06/2007A	80,000
12.	Development of Solar Thermal Market in the APEC Economies	EWG 04/2007T	119,454
13.	Electric Motors – Alignment of Standards and Best Practice Programmes within APEC	EWG 06/2007T	75,000
TOTAL			774,454

### **APEC ENERGY STANDARDS INFORMATION SYSTEM (APEC ESIS) AND THE EXPERT GROUP ON ENERGY EFFICIENCY AND CONSERVATION (EGEE&C)**

One of the main focal points of the work of the EGEE&C has been on harmonization of technical standards for the testing and energy performance of appliances and equipment. This focus reflects the importance of APEC's Standards Notification Procedure, which was called for in the APEC Energy Minister's Okinawa Declaration of 1998 and reiterated in the Manila Declaration of 2004.

Accordingly, APEC in 2001, established the APEC ESIS, which is a web-based database of technical energy standards for the APEC region. In 2004, APEC developed a unique sponsorship agreement with a US-based non-profit organization, the Collaborative Labeling and Appliance Standards Program (CLASP), which led to the joint development of an expanded Global Standards and Labeling Database, which now has updated information on energy standards for products in more than 54 countries. More

recently, the EGEE&C released a report on a global vision for cooperation in energy standards and labeling, in which the ESIS-CLASP system would play a central role as a data repository, clearinghouse, and community of practice (AGO, 2006).

Under the framework of APEC ESIS, the Australian government has also funded the development and initiation of two product-based "communities of practice" – one for compact fluorescent lamps and one for set top boxes<sup>3</sup>. The communities of practice serve as a venue for transparent international dialogue between experts and governments during the process of designing and developing proposals for harmonizing international test procedures, standards, and programs.

## APEC'S ENERGY SECURITY INITIATIVE

The Energy Security Initiative includes a number of important policy statements and long-term measures to increase energy security. The measures related to clean energy include:

**Finance.** A task force on investment in energy infrastructure and new and renewable energy has been established under the EWG. Several APEC-funded projects on energy-efficiency and renewable energy finance are in progress.

**Energy Efficiency.** An invigorated Pledge and Review Program can help implement energy-efficiency, including exploring ways to monitor the implementation of policies and programs. Participation in the Energy Standards and Labeling Cooperation Initiative and the web-based APEC Standards Notification Procedure (APEC ESIS) is aimed at facilitating trade in efficient energy-consuming equipment used within the region. APEC wants to encourage broadening the scope of work on energy efficiency to include other energy intensive sectors, as well as to monitor the development of new technologies that could have significant impacts on, and synergy with, energy efficiency and conservation.

**Renewable Energy.** The 21st Century Renewable Energy Development Initiative (REDI) comprises eight "collaboratives", each focusing on an aspect of renewable energy and led by one member economy. REDI projects have included building a web-based tool to facilitate renewable energy project development, developing a renewable energy financial roadmap and a strategy for a climate-neutral APEC city, and assessing renewable energy training and accreditation needs for the APEC region.

**Clean Fossil Energy.** APEC will continue to work through the Expert Group on Clean Fossil Energy in the areas of clean fossil energy and carbon dioxide capture and geological sequestration, working closely with the EWG Business Network and the APEC business and research communities. Past activities have included projects on clean transportation fuels, reducing carbon dioxide emissions from electricity generation and the upgrading and refurbishment of older coal-fired power stations.

## ASIA-PACIFIC PARTNERSHIP ON CLIMATE CHANGE AND DEVELOPMENT (APP)

The Asia-Pacific Partnership on Clean Development and Climate (APP) is a recently formed partnership that seeks to mitigate the impacts of climate change through the transfer of technology and know-how in clean energy and greenhouse gas reduction strategies. The Partnership was established by Ministers from Australia, China, India, Japan, Republic of Korea and the United States at the Inaugural Ministerial

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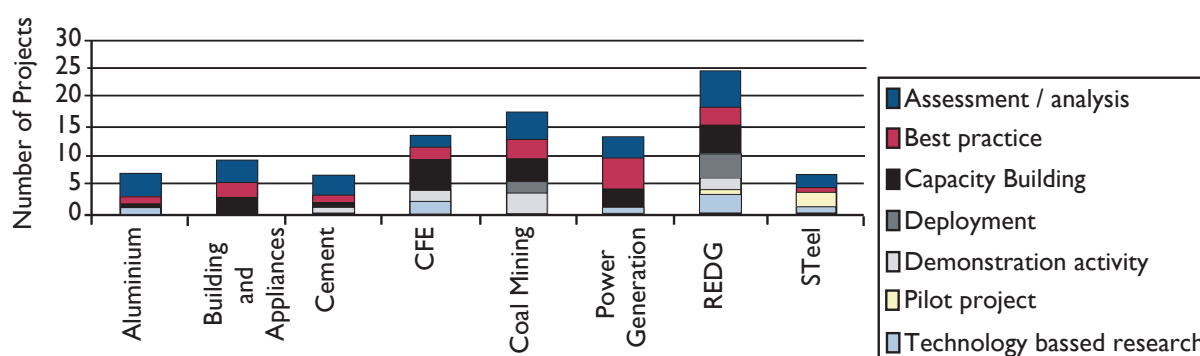
3. The sites are [www.apec-esis.org/cfl](http://www.apec-esis.org/cfl) and [www.apec-esis.org/settopbox](http://www.apec-esis.org/settopbox).

Meeting in Sydney in January 2006. Ministers agreed to a Charter, Communiqué, Work Plan and the establishment of eight public-private Task Forces to implement the APP agenda.

The eight Task Forces cover the aluminum, building and appliances, cement, cleaner fossil energy, coal mining, power generation and transmission, renewable energy and distributed generation, and steel sectors. Task Forces have developed Action Plans that include more than 90 project proposals, reflecting the APP's vision of delivering greenhouse gas emission management, national pollution reduction and energy security benefits through efforts that also support economic development.

The initial portfolio of Partnership projects is weighted towards activities such as sectoral assessments, capacity building, identifying best practices and technology research and demonstration. Figure 32 provides an approximate estimate of project types grouped by Task Force (APP-BATF, 2006).

**FIGURE 32: SUMMARY OF PROJECT TYPE BY TASK FORCE<sup>4</sup>**



Source: Adapted from reports on the APP website ([www.asiapacificpartnership.org](http://www.asiapacificpartnership.org)).

Funding for APP activities is on a project basis and depends on contributions from the four more-developed economies: Australia, Japan, Korea, and the US. Australia has committed AUS\$100 million, and in November 2006 allocated AUS\$66 million of this amount. The US contribution for APP projects is still not determined, although the US Department of State may receive as much as US\$26 million for "catalytic" activities that may help move technologies into the market place (APP-BATF, 2006).

**BUILDINGS AND APPLIANCE TASK FORCE (BATF)**

The BATF has 11 project areas, and these were recently discussed at its meeting in Canberra during November 2006. The projects are self-funded, and countries can choose to participate as a lead or partner in any particular project. There are two main project areas: Appliances (harmonization of test procedures, standby power, and market transformation) and Buildings (building certification, existing buildings, building energy codes, high performance buildings, and financing). During the meeting, the importance of finance was highlighted, and finance is now included in several projects – utility regulation and incentives, smart meters, green leases, and commercial financing (APP- BATF, 2006).

The APP Project Implementation Committee (PIC) has encouraged the nomination of "flagship projects" that would be used to promote and exemplify the work of the task forces. At the Canberra meeting, five projects were proposed as potential flagships: harmonization of test procedures, standby power,

4. The numbers of projects assigned to each category in Figure 1 are approximate. Projects were allocated to one category only, although in a number of cases they contain components of more than one category.

retrofit of chillers in Indian buildings, high-performance buildings in India, and Agenda 21 Centers of Excellence in Beijing (APP-BATF, 2006).

### **CLEANER FOSSIL ENERGY TASK FORCE**

The Cleaner Fossil Energy Task Force is promoting technology transfer across a range of advanced coal and gas technologies with the potential to significantly reduce greenhouse gas emissions. Broadly speaking, the Task Force has five main thematic areas: CO<sub>2</sub> storage, post-combustion capture, oxy-firing and other advanced technologies, coal gasification, energy market access for gas, and gas handling improvements (APP-CFE 2006). The Task Force is focused on technology transfer and recently sponsored a study tour for Asian officials to a state-of-the-art IGCC coal-fired power plant in the US. During discussions with a task force member, it was suggested that the APP activities were technology focused and that there was a need for additional work to assess and develop policy and market conditions to enable broad implementation and scale-up of the clean technologies in the partner countries (Daniels, 2006).

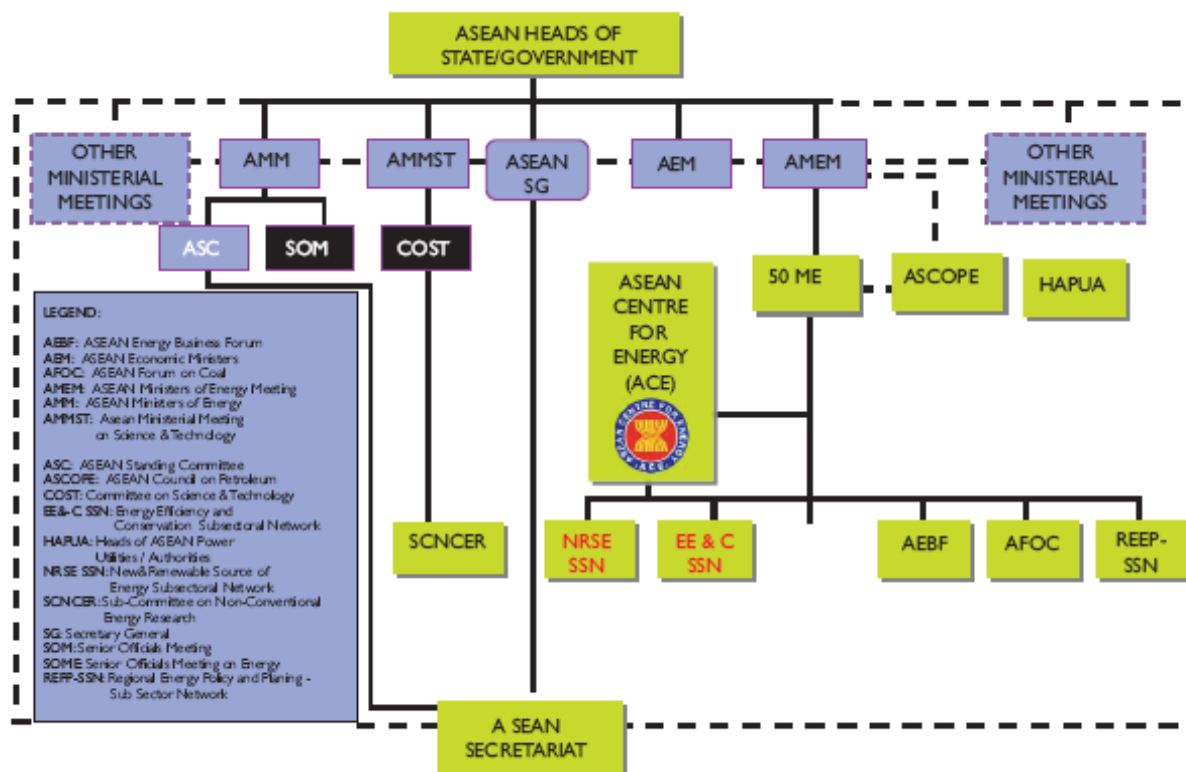
Projects endorsed to date by the Task Force include: CO<sub>2</sub> geologic storage assessment; ultra-supercritical pulverized coal with carbon capture and storage; ultra-clean coal; oxy-fired combustion; Callide-A oxy-fuel demonstration; clean-coal day in Japan; Integrated Gasification Combined Cycle workshop; APP gas market growth; emissions reduction through improved gas processing and transportation; information exchange on LNG public education campaigns; Asia-Pacific gas hydrate cooperation; evaluating and reducing emissions in processing, processing, and transporting natural gas; CO<sub>2</sub> enhanced coal-bed methane (APP-CFE 2006, pp. 4-5).

### **ASEAN**

The ASEAN grouping is important from an energy perspective because of its size, its large population, and its critical function as a regional economic and trading bloc. ASEAN has a population of about 500 million, a total area of 4.5 million square kilometers, a combined GDP of almost US\$700 billion, and a total trade of about US\$850 billion. **Figure 3** shows the main functional units within ASEAN.

With respect to energy, the main elements are the ASEAN Meeting of Energy Ministers (AMEM), the Senior Officials Meeting on Energy (SOME), the ASEAN Centre for Energy, which acts as a secretariat to the SOME and AMEM and an overall coordinating unit for energy. In addition, there are several specialized energy-sector groups, including HAPUA (Heads of ASEAN Power Utilities/Authorities), ASCOPE (ASEAN Council in Petroleum), AFOC (ASEAN Forum on Coal). There are also three sub-sector networks – on New and Renewable Sources of Energy (NRSE), Energy Efficiency and Conservation (EE&C), and Regional Energy Policy and Planning (REPP).

**FIGURE 3: SCHEMATIC OF ASEAN STRUCTURE, WITH FOCUS ON ENERGY-RELATED UNITS**



### ASEAN SECRETARIAT

The ASEAN Secretariat works to coordinate cooperation between ASEAN countries in order to accelerate economic growth, social progress and cultural development in the region, and to also promote regional peace and stability. Its mandate includes coordination of regional and international initiatives related to energy. Within the ASEAN structure, energy is one of 13 clusters of sectors through which ASEAN cooperation activities are channeled. The sectors are organized into two broad areas:

- Economic Cooperation: Trade (AFTA), Investment, Transport, Telecommunication, Energy, Tourism, and Finance;
- Functional Cooperation: Social Development, Environment, Science and Technology; Food, Agriculture and Forestry, Culture and Information, and Special Projects.

### VIENTIANE PLAN OF ACTION

The Vientiane Plan of Action is a foundational political document that lays out the long-term vision of ASEAN integration and the steps to be taken toward that vision (ASEAN Vision 2020) during the period 2004-2010. The plan is founded on two primary objectives: to work toward the broader integration of ASEAN Member Countries into one cohesive ASEAN Community, and to identify and narrow the development gap and quicken the pace of integration. The plan supports trade integration, reduction of non-tariff barriers and harmonization of standards. In the area of energy, the plan calls for implementation of the ASEAN Plan of Action for Energy Cooperation (2004-2009). It also calls for activities "to enhance the integration of regional energy infrastructures, promote energy security, and create responsive policies to progressively enhance market reforms and liberalization, as well as preserve the sustainability of the environment."

### ASEAN CENTER FOR ENERGY (ACE)

ACE is an intergovernmental organization established by Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, and Vietnam. It is guided by a Governing Council composed of the ASEAN Senior Officials on Energy and a representative from the ASEAN Secretariat. Core funding is provided by an Energy Endowment Fund established from equal contributions of the ten member countries and managed by a private fund manager.

The Center initiates, coordinates and facilitates regional as well as joint and collective activities on energy. ACE was instrumental in preparing the ASEAN Plan of Action for Energy Cooperation 1999-2004. ACE also facilitates and coordinates the work of ASEAN's specialist organizations in energy, including the Forum of Heads of ASEAN Power Utilities/Authorities (HAPUA), the ASEAN Council on Petroleum (ASCOPE), the ASEAN Forum on Coal (AFOC), the Energy Efficiency and Conservation Sub-sector Network (EE&C-SSN) and the New and Renewable Sources of Energy Sub-sector Network (NRSE-SSN).

### ASEAN PLAN OF ACTION FOR ENERGY COOPERATION

The key document guiding ASEAN's energy cooperation is known as the Plan of Action. The ASEAN Centre for Energy was established in 1999 and during the same year, the first Plan of Action for Energy Cooperation was developed for 1999-2004. The ASEAN Plan of Action for 2004-2009 is deemed as an "Energy Security Instrument for ASEAN", and it has six main program areas:

1. ASEAN Power Grid
2. Trans-ASEAN Gas Pipeline
3. Coal and Coal Trade
4. Energy Efficiency and Conservation
5. Renewable Energy
6. Regional Energy Policy and Planning

Table 3 highlights the strategies and programs in the ASEAN Plan of Action related to clean energy.

**TABLE 3. ASEAN CLEAN ENERGY STRATEGIES IN THE ASEAN ENERGY PLAN OF ACTION FOR 2004-2009**

STRATEGY	ACTIVITIES
<b>Clean Energy Area: Clean Coal</b>	
<b>1. Strengthen Institutional and Policy Framework</b>	<ul style="list-style-type: none"> <li>• Provide assistance in Policy Reviews</li> </ul>
<b>2. Promote Clean Coal Technology (CCT)</b>	<ul style="list-style-type: none"> <li>• Organize seminars and technical visits on CCT</li> <li>• Facilitate feasibility studies on CCT for rural electrification</li> <li>• Facilitate/organize technical training on CCT including Coal Bed Methane (CBM)</li> </ul>
<b>3. Promote Environmental Assessment of Coal Projects</b>	<ul style="list-style-type: none"> <li>• Provide assistance on Environmental Impact Assessments (EIAs)</li> <li>• Organize seminars on environmental impacts</li> </ul>
<b>Clean Energy Area: Energy Efficiency and Conservation</b>	

**TABLE 3. ASEAN CLEAN ENERGY STRATEGIES IN THE ASEAN ENERGY PLAN OF ACTION FOR 2004-2009**

STRATEGY	ACTIVITIES
<b>1. Continuation of Information Sharing and Networking</b>	<ul style="list-style-type: none"> <li>• Develop a compendium for circulation to member countries and the general public</li> <li>• Compendium will cover strategies, policies, and programs; products and technologies; pool of experts and institutions; and best practices and research</li> </ul>
<b>4. Continuation of ASEAN Energy Standards and Labeling</b>	<ul style="list-style-type: none"> <li>• Review country S&amp;L programs and testing capacity and study international experiences through study tours and workshops</li> <li>• Develop common technical bases for energy standards and labeling, as well as implementation and enforcement mechanisms.</li> <li>• Dialogues with stakeholders and promotion of a program</li> </ul>
<b>5. Expansion of Private Sector Involvement</b>	<ul style="list-style-type: none"> <li>• Enhance dialogue and seminars/workshops with private sector, other countries and organizations outside ASEAN</li> <li>• Expand Energy Awards/Competitions for the industrial sector as well as for individual achievements</li> </ul>
<b>6. Capacity Building (PROMECC)</b>	<ul style="list-style-type: none"> <li>• Establish energy audit procedures and energy audit training</li> <li>• Develop system for energy database, benchmarking, and guidelines</li> <li>• Develop ASEAN Energy Management System/Network and certification system for ASEAN energy managers including energy auditors</li> </ul>
<b>7. Promotion of ESCO Business</b>	<ul style="list-style-type: none"> <li>• Development of tools and guidelines for ESCOs including measurement and verification (M&amp;V) protocol and practices related to energy performance contracting (EPC)</li> </ul>
<b>8. Promotion of Energy Efficiency in the Transport Sector</b>	<ul style="list-style-type: none"> <li>• Information sharing on EE policy and measures for transportation sector</li> <li>• Explore possible cooperation activities with ASEAN transport sector</li> </ul>
<b>Clean Energy Area: Renewable Energy</b>	
<b>9. Policy and Institutional Framework</b>	<ul style="list-style-type: none"> <li>• Recommend a Regional Policy on RE including setting a Renewable Energy Target in the Region</li> <li>• Conduct institutional capacity building</li> <li>• Continue to conduct dialogues and consultation workshops among stakeholders</li> </ul>
<b>10. Increase share of renewable energy in energy supply mix</b>	<ul style="list-style-type: none"> <li>• Increase the share of RE in ASEAN to at least 10 percent of power generation</li> </ul>
<b>11. Promote utilization of biomass-based cogeneration technology</b>	<ul style="list-style-type: none"> <li>• To develop promotional activities such as workshops and seminars to encourage uptake of cogeneration projects</li> <li>• Disseminate information relating to cogeneration and market developments</li> </ul>
<b>12. Strengthen information networking</b>	<ul style="list-style-type: none"> <li>• Continue implementation of PRESSEA (Promotion of Renewable Energy Sources in Southeast Asia) and participation in the Asia-Europe meetings (ASEM)</li> </ul>

**TABLE 3. ASEAN CLEAN ENERGY STRATEGIES IN THE ASEAN ENERGY PLAN OF ACTION FOR 2004-2009**

STRATEGY	ACTIVITIES
	<ul style="list-style-type: none"> <li>Promote the GRIPP (Green IPP) Network</li> </ul>
<b>13. Intra-ASEAN cooperation on ASEAN-made products and services</b>	<ul style="list-style-type: none"> <li>Update compilation of existing specification and standards of member countries in the RE-SSN Infonet of ACE</li> <li>Strengthen local manufacturing capabilities for RE products</li> <li>Design and apply innovative financing instruments in support of RE projects</li> </ul>
<b>14. Promote utilization of biofuels</b>	<ul style="list-style-type: none"> <li>Develop promotional activities such as workshops and seminars to encourage utilization of biofuels</li> <li>Disseminate information relating to biofuel technology and market developments</li> <li>Establish links to automotive and related industries to pursue cooperation in R&amp;D activities</li> </ul>
<b>Clean Energy Area: Regional Energy Policy and Planning</b>	
<b>15. Energy policy and supply security information sharing network</b>	<ul style="list-style-type: none"> <li>Update member countries energy policy and plans</li> <li>Update ASEAN energy database system of ACE</li> </ul>
<b>16. Capacity building in energy policy planning and supply security</b>	<ul style="list-style-type: none"> <li>Capacity building activities of member countries in energy policy analysis, database maintenance, supply security assessment through training, joint studies, and technical exchanges between member countries</li> </ul>
<b>17. Incorporate environmental and sustainable development concerns in regional policy formulation</b>	<ul style="list-style-type: none"> <li>Information networking on environmental data related to energy development</li> <li>Conduct studies on environmental and energy policies for sustainable development</li> </ul>
<b>18. Prepare Regional Energy Policy and Outlook</b>	<ul style="list-style-type: none"> <li>Analysis on regional energy policy and outlook using common methodologies and framework</li> <li>Prepare regional energy policy and outlook</li> </ul>
<b>19. Strengthen cooperation among national and regional institutions</b>	<ul style="list-style-type: none"> <li>Expand energy nodal network for the region</li> <li>Seminars, workshops and regional training in energy policy planning and supply security assessment</li> </ul>
<b>20. Address energy issues pertaining to ASEAN dialogue with international partners</b>	<ul style="list-style-type: none"> <li>Continue and or pursue dialogues with ASEAN-Japan and ASEAN-China; ASEAN+3; ASEAN-EU; ASEAN-Australia; ASEAN-Germany; and ASEAN-Multilateral Agencies</li> </ul>
<b>21. Studies on evolving regional energy policy reform issues</b>	<ul style="list-style-type: none"> <li>Identify priority areas for regional studies</li> </ul>
<b>22. Monitoring and evaluation of progress of the ASEAN Plan of Action for Energy Cooperation</b>	<ul style="list-style-type: none"> <li>Periodic monitoring and evaluation of APAEC 2004-2009</li> <li>Formulate evaluation and monitoring (E&amp;M) system for the APAEC 2004-2009</li> </ul>

**CLEAN COAL**

Work on clean coal has focused on three areas: the policy framework, technical assistance and training, and environmental standards. The key coal organization under ASEAN is the ASEAN Forum on Coal, which is led by the Philippines. Philippine AFOC National Committee has created working groups to coordinate and oversee the implementation of strategies of the Coal program under the ASEAN Plan of Action.

### **ENERGY EFFICIENCY AND CONSERVATION**

The main areas of cooperation are information sharing and capacity building, and strengthening of the private sector, including energy service companies (ESCOs). The focal point for work on energy efficiency is the Sub-Sector Network for Energy Efficiency and Conservation (SSN-EEC), which is led by Thailand. One of the main strategies for the SSN-EEC is the development of a regional energy-efficiency standards and labeling network and program for ASEAN, although progress in this area has been stalled. There have been some initial activities to build capacity in the area of transport energy efficiency.

One of the main ASEAN programs in energy efficiency has been PROMEEC (Promotion of Energy Efficiency and Conservation Project), a technical assistance program funded by the Japanese government through the ASEAN Sub-Sector Network on Energy Efficiency and Conservation since 2000. Activities have focused on energy management in buildings and industry and have included technology transfer and training, establishment of energy audit procedures and audit training, development of a system for energy database and benchmarking, and most recently development of an ASEAN Energy Management System and training of energy managers.

### **RENEWABLE ENERGY**

The main areas of cooperation in renewable energy are networking to share information and improve the policy framework for renewable energy. The main regional initiatives are the development of biomass cogeneration, an increase in the share of renewable energy in the energy mix in ASEAN, and development of a strategy for regional cooperation in biofuels.

With regard to biofuels, ASEAN leaders have announced the Bogor Initiative. At a workshop in Bogor, Indonesia in March 2006, ten ASEAN countries agreed to put biofuels at the top of their agenda for energy security. Participants in Bogor presented governmental policies, plans and programs on bio-fuel utilization and development in ASEAN countries; identified policy gaps, issues and measures to promote bio-fuels development and utilization in the ASEAN countries; and proposed regional activities for bio-fuels promotion and development that could be jointly undertaken by ACE, NEDO, ASEAN countries, and other interested organizations.

### **REGIONAL ENERGY POLICY AND PLANNING**

Work in this area is focused on building capacity by incorporating environmental and energy security concerns into energy planning, improving regional coordination and development of a regional energy outlook, and managing ASEAN's energy dialogue with partners throughout ASEAN's different fora.

### **ENERGY SECURITY**

Clean Energy is seen as an important element in improving energy security in ASEAN. In particular, the elements of ASEAN's clean energy strategy include:

- energy efficiency programs at the national and regional levels,
- expansion of renewable energy in energy mix through a mini-hydro power program, local manufacturing of small-scale renewable energy systems, promotion of alternative energy such as biofuels in ASEAN, and
- a clean coal technology program.

## CONCLUSIONS

Energy security is now a driving force for much of the regional action to increase the share of clean energy in the overall energy mix. There is an enormous and rapidly growing amount of activity on clean energy in the Asia region. In fact, one of the problems is that there may be too much going on, and often in an uncoordinated fashion. The core institutions we assessed in this section all have a mandate to act regionally, although the ADB is slightly different in that many of its activities (e.g. loans, technical assistance, etc.) are bilateral in nature.<sup>5</sup>

One of the conclusions is that, while there are many international meetings and exchanges, there is only a limited amount of systematic input focused on solving common problems in the area of clean energy.<sup>6</sup> There are many declarations for regional action on clean energy, yet, many of these targets are forgotten, or not met, as time passes and political will fades. There is a need for a more systematic approach to developing implementation plans, targets, and routine monitoring and reporting of progress. From the perspective of USAID's ECO-Asia Clean Development and Climate Program, the regional platforms assessed here offer the following opportunities for collaboration:

**ADB.** ECO-Asia plans to collaborate with ADB in the area of clean energy finance. Specifically, the Asian Development Bank (ADB) and US Agency for International Development (USAID) will work with APEC to sponsor an Asian Clean Energy Financing Forum in Manila during June 2007. The Forum will provide a unique opportunity for project developers, the financial community and government representatives, to share information, identify and pursue financing opportunities, and to devise strategies to scale-up clean energy investments. Key partners include the US Department of State, Asia-Pacific Partnership for Clean Development and Climate (APP), and the Association of Southeast Asian Nations (ASEAN).

**APEC.** ECO-Asia can work through the APEC Expert Groups to sponsor meetings linked to clean energy topics that would leverage the attendance of Expert Group participants. Possible topics of collaboration between ECO-Asia and APEC could include environmental regulations for coal-fired power plants; efficiency regulations and standards for thermal power plants in general, and coal plants in particular; harmonization of test procedures for regionally traded equipment such as lighting equipment; and implementation and enforcement of energy standards and labeling programs. The program could also have a significant impact by leveraging the existing web-based clearinghouse for energy efficiency, the Global Standards and Labeling Database, which is operated by APEC ESIS Service and CLASP. For example, it could be possible to expand APEC ESIS to include other areas of energy efficiency (e.g. supply-side or transport efficiency) and also enhance its capacity for online collaboration between regulators, experts, and private sector firms in the region.

**APP.** Since the APP process is currently evolving, and the timing for project implementation is under discussion, it is hard to specify exactly how the ECO-Asia CDCP can work with the APP task forces. Nonetheless, with regard to the Buildings and Appliance Task Force (BATF), there is clearly a good opportunity for the program to coordinate with the BATF in the area of harmonization of test procedures. A specific product area is for compact fluorescent lamps, mentioned in the minutes of the November 2006 BATF meeting. Through the Task Force on Cleaner Fossil Energy, there is an opportunity to collaborate in the area of environmental pollutants and efficiency standards considering the new wave of coal power plants expected to be built in Asia during the coming decade.

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5. ADB does support regional initiatives, such as the Clean Air Initiative and the Asia Environmental Compliance and Enforcement Network.

6. By contrast, there is much trans-boundary work on fossil fuel and power sector issues such as fuel pipelines, interconnection agreements, and regional power-grid development.

**ASEAN.** ECO-Asia can work through the ASEAN specialists groups to identify common regional problems and then offer technical assistance working in coordination with the groups (i.e. Sub-Sector Network on Energy Efficiency and Conservation) to address these regional problems, including those already identified in the ASEAN Plan of Energy for Energy Cooperation for 2004-2009. Such regional initiatives could include environmental regulations for coal-fired power plants, energy-efficiency standards and labeling, and technical and sustainability standards for biofuels. Through ASEAN, the program can initiate a dialogue with high-level energy policymakers in the region.

**GEF Projects.** While the Global Environment Facility is not described in this section, it should be pointed out that there is potential for regional collaboration through development of a regional GEF project linked to ECO-Asia. Recently, GEF has been developing a number of regional project proposals, particularly in the area of energy-efficiency standards and labeling.

## REFERENCES

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**ATTACHMENT 6**

# **CLEAN ENERGY POLICIES OF THE SIX FOCUS COUNTRIES**

**ATTACHMENT 6. CLEAN ENERGY POLICIES OF THE SIX FOCUS COUNTRIES**

	China	India	Indonesia	Philippines	Thailand	Vietnam
<b>Renewable Energy</b>						
<b>National RE targets</b>	Installed capacity targets: <u>Hydro</u> -180 GW by 2010, 300 GW by 2020; <u>Wind</u> - 5 GW, 30 GW by 2020; <u>Solar Hot Water</u> - 300 mil m <sup>2</sup> in 2020; <u>Biomass</u> (pellets)- 1 mil tons by 2010, 50 mil tons by 2020; <u>Biomass power</u> - 5GW by 2010, 20 GW by 2020; <u>Biogas/Biomass Gasification</u> -11 bcm/yr by 2010, 24 bcm/yr in 2020; <u>Bio-ethanol</u> - substituting 10 mil tons of oil in 2020	By 2012: <u>Wind</u> - 3500 MW; <u>Small Hydro</u> - 1400 MW; <u>Biomass Power</u> - 1725 MW; <u>PV</u> - 25 MW; <u>Solar Thermal</u> - 110 MW; <u>Solid-waste power</u> - 140 MW	By 2025: <u>Geothermal</u> - 9500 MW; <u>Wind</u> - 255 MW; <u>PV</u> - 80 MW ; <u>Micro Hydro</u> - 700 MW ; >2% liquefied coal; >5% biofuel	Increase renewable energy capacity by 100%by 2013	8% renewable energy by 2011; <u>Hydro</u> - 460 MW; <u>Wind</u> - 48 MW; <u>MSW</u> - 100 MW; <u>Biomass</u> - 1,500 MW; <u>Solar</u> - 27 MW; <u>Biogas</u> - 10 MW	20-25 MW renewable energy capacity in Phase I target of Renewable Energy Action Plan
<b>Feed-in Tariff</b>	✓	✓	✓		✓	
<b>Renewable portfolio standard</b>		✓			✓	
<b>Capital subsidies, grants, rebates</b>	✓	✓			✓	
<b>Investment excise or other tax credits</b>	✓	✓		✓		
<b>Sales tax, energy tax, or VAT reduction</b>	✓	✓		✓		
<b>Tradable renewable energy certificates</b>						
<b>Energy production payments or tax credits</b>						
<b>Net metering</b>					✓	
<b>Public investment, loans, or financing</b>	✓	✓		✓		

**ATTACHMENT 6. CLEAN ENERGY POLICIES OF THE SIX FOCUS COUNTRIES**

	China	India	Indonesia	Philippines	Thailand	Vietnam
<b>Public competitive bidding</b>	✓	✓				
<b>Supply-side efficiency</b>						
<b>Advanced fossil generation technologies encouraged</b>	✓					
<b>Transmission/distribution grid improvements</b>		✓				
<b>Retiring old, inefficient plants</b>	✓			✓		
<b>Demand-side efficiency</b>						
<b>DSM</b>	✓	✓				✓
<b>Efficiency labels</b>	✓	✓				
<b>Transport</b>						
<b>Vehicle fuel efficiency standards</b>	8.2- 6.7 L/ km					
<b>Clean fuel standard</b>	Sulphur content in diesel reduced from 800 ppm to 150 ppm		Biofuels Production targets by 2015: <u>Biodiesel</u> - 1500 kl <u>Gasohol</u> - 850 kl <u>Bio-oil</u> - 700 kl	<ul style="list-style-type: none"> <li>• 100% of Manila buses using CNG by 2010;</li> <li>• 5% CME diesel blend for vehicles by 2010</li> <li>• 5% ethanol blend by 2007, 10% by 2010</li> </ul>	<ul style="list-style-type: none"> <li>• 10% Biodiesel</li> <li>• ( 8.5 mil L/day production) by 2012</li> <li>• Gasohol 91 by 2011</li> </ul>	
<b>Mass transit goals</b>		National Urban Transport policy to encourage integrated transport planning				