

SECTION 5

OPPORTUNITIES FOR REGIONAL COOPERATION

This section reviews the status and activities of regional organizations working in the area of clean energy and offers some suggestions concerning the potential for regional cooperation. It highlights the efforts of four regional organizations working in clean energy:

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

The section also briefly reviews a number of other important regional agencies and initiatives, and discusses the opportunities for developing a more systematic form of collaboration and cooperation among countries in order to scale-up their clean energy investments and initiatives.

5.1 ASIAN DEVELOPMENT BANK

The Asian Development Bank (ADB) is a multilateral development financial institution with 67 member countries worldwide, including 48 from the Asian region. ADB's main instruments for providing assistance 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.

ADB has recently launched a comprehensive Clean Energy and Environment Program with program elements that include: clean energy investment funds,¹ the creation of clean energy knowledge hubs, transport efficiency, increasing energy access to the poor, the Energy Efficiency Initiative, and the Carbon Market Initiative (see **Figure 31**).

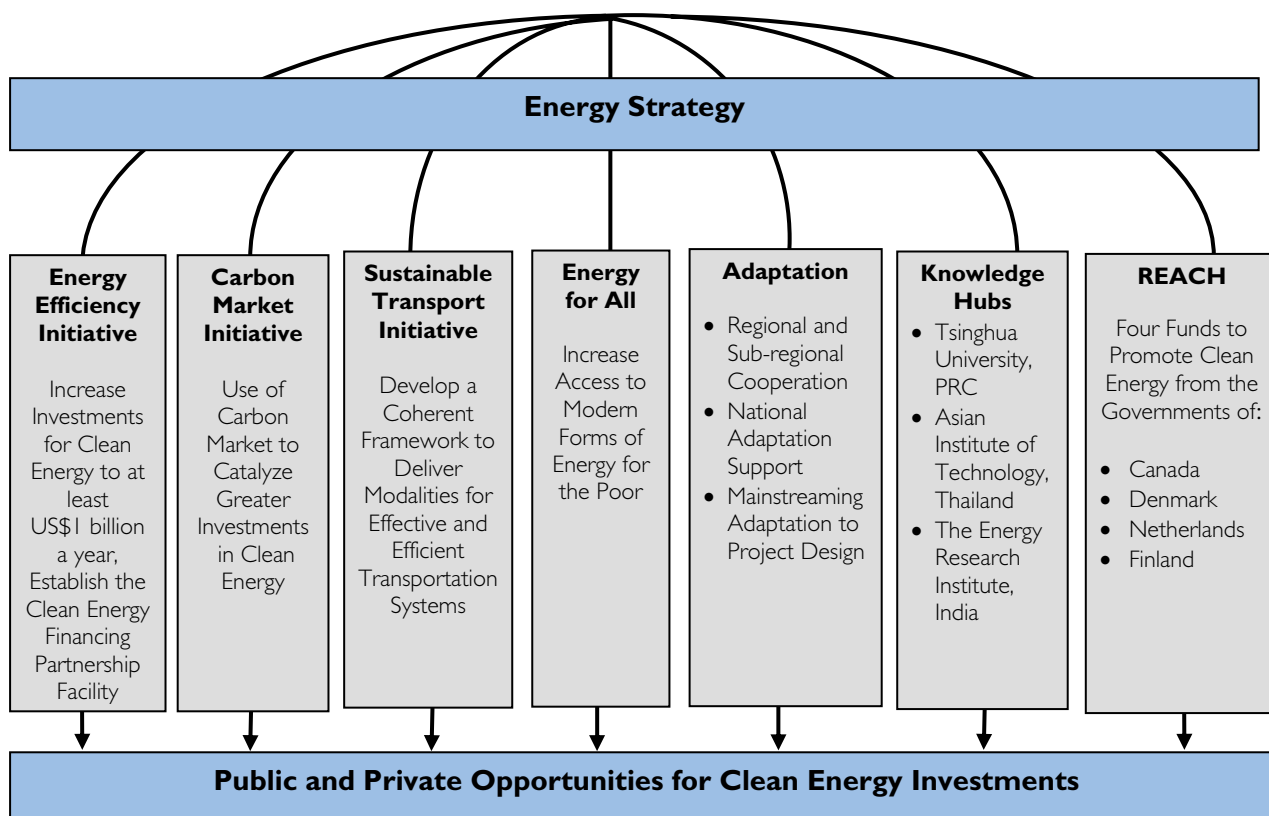
Review of the Energy Strategy. ADB's Energy Policy, approved in 1995, emphasizes the acceleration of the widespread application of RE and EE in its developing member countries (DMCs). This focus was strengthened through ADB's Energy Policy Review of 2000 which states that, among other priorities, ADB will assist its DMCs in formulating and implementing viable RE and EE projects, preferably with private sector involvement for providing electricity in remote areas and improving the quality of life of the rural poor. ADB's Operations Evaluation Department is currently reviewing ADB's Energy Policy, and the findings of the review will be included in the new energy strategy. The new strategy will place greater focus on energy security and climate change through promotion of cleaner, more efficient and less polluting sources and technologies, and greater use of indigenous forms of renewable energy.

Energy Efficiency Initiative. ADB launched its Energy Efficiency Initiative (EEI) in 2005. Through this initiative, ADB will work closely with its DMCs 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

1. This is a set of four funds to support investment in clean energy, sponsored by Canada, Denmark, Finland, and the Netherlands.

potential. Specifically, the EEI sets a target for ADB to increase its annual lending for energy efficiency projects to US\$1 billion. The total 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 about US\$2 billion (Tumiwa, 2006). Under EEI, ADB is establishing the Clean Energy Financing Partnership Facility (CEFPF) for clean energy grants and loans and will launch the facility in mid-2007.

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



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

Carbon Market Initiative. There are numerous public and private carbon procurement programs currently in the market. Most of these existing schemes, however, provide payment only upon project completion and when the carbon credits are delivered. The Carbon Market Initiative (CMI) provides a project co-financing facility, a 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 up-front purchase of carbon credits for qualifying projects.

Other elements of the ADB's Clean Energy Program include:

- Renewable Energy, Energy Efficiency and Climate Change (REACH).** REACH was launched in early 2002, by bringing together several funds provided by the Governments of Canada, Denmark, Finland, and The Netherlands. These funds provide assistance to many of its DMCs to address policy, market, financial and structural barriers facing RE and EE, develop institutional capacity and technical capability of governments and local institutions.
- Sustainable Transport Initiative.** Transport is currently the largest contributor to greenhouse gas emissions in Asia and is the fastest growing sector in terms of contributions.

Action is needed to develop sustainable and energy efficient modes of transportation to move people and goods, not vehicles. The Sustainable Transport Initiative (STI) will develop a coherent investment and development framework to deliver modalities for effective and efficient transportation systems.

- **Energy for All.** ADB is working to specifically look at modalities, financial instruments, and mechanisms needed to catalyze and mobilize financial and private sector entities to increase access to modern forms of energy to the poor.
- **Knowledge Hubs.** ADB is also establishing regional knowledge hubs to act as think tanks for ADB as well as DMCs on clean energy. The knowledge hubs will support and strengthen regional capacity to generate innovative concepts, science, technology, and management development on clean energy. Initially, three knowledge hubs have been established: (1) The Energy Research Institute (TERI) in New Delhi, India for Clean Energy, (2) Tsinghua University in Beijing, People's Republic of China for Climate Change, and (3) the Asian Institute of Technology in Bangkok, Thailand for 3R (reduce, reuse, and recycle).

These energy development and climate change mitigation initiatives have already led to an increase in investments in clean energy. As an example, between 2000 and 2005, ADB's total investments in clean energy projects totaled almost US\$720 million. These include a US\$161 million Renewable Energy Development Project in Indonesia, a US\$35 million Gansu Clean Energy Development Project in PRC, and several private sector equity investments in funds targeting clean energy projects, including US\$10 million in the China Environment Fund and US\$20 million invested in the FE Clean Energy Sub-Fund. In 2006 alone, ADB's clean energy investments totaled about US\$700 million. The pipeline for 2007 is US\$900 million and close to US\$2 billion for the period of 2008-2010.

5.2 ASIA PACIFIC ECONOMIC COOPERATION (APEC)

Established in 1989, APEC is engaged in a wide range of efforts to 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. APEC's work in the area of clean energy is coordinated through the APEC Energy Working Group (EWG), which is one of 11 Working Groups operating under the APEC umbrella. 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 assisted by five Expert Groups² and two task forces that concentrate on particular strategic aspects of the EWG's agenda, set forth by the APEC Energy Ministers.

Expert Group on Energy Efficiency and Conservation (EGEE&C). The EGEE&C is very active in the areas of harmonization and energy efficiency of traded products, including appliances and electrical equipment. The flagship of the EGEE&C is the APEC Energy Standards Information System (APEC ESIS, www.apec-esis.org), which is a web-based database of technical information and standards on energy-using equipment in a total of 55 countries worldwide. EGEE&C currently has several regional projects under way focused on sharing information and improving the energy efficiency of products and effectiveness of policies in the region.

2. The five Expert Groups under the EWG are: the Expert Group on Clean Fossil Energy (EGCFE), the Expert Group on Energy Efficiency and Conservation (EGEE&C), the Expert Group on New and Renewable Energy Technology (EGNRET), the Expert Group on Energy Data and Analysis (EGEDA), and the Expert Group on Minerals and Energy Exploration and Development (EGMEED).

Expert Group on New and Renewable Energy Technologies (EGNRET). The EGNRET is active in a broad range of areas related to new and renewable energy technologies, policies, and finance. Many of the EGNRET projects combine aspects of renewable energy and energy efficiency. EGNRET currently has several regional projects under way focused on sharing information and improving the energy efficiency of products and effectiveness of policies in the region.

Expert Group on Clean Fossil Energy (EGCFE). The EWG's Expert Group on Clean Fossil Energy (EGCFE) has been active over the past five years in conducting projects aimed at improving operating performance, increasing generating efficiency, and reducing emissions of conventional pollutants and carbon dioxide to both existing and new coal-fired power generation in APEC economies. EGCFE currently has four projects related to clean coal technologies and practices that are under way or approved by APEC.

Cross-Cutting Work on Clean Energy Finance. The United States is leading the Renewable Energy and Energy Efficiency Financing Task Force (REEEFTF). Nine APEC economies have joined the Task Force, which responds to the APEC Ministers' directions to "work with industry and finance sectors to facilitate greater investment in clean and more efficient infrastructure and technologies." REEEFTF is implementing four ongoing projects related to clean energy finance.

5.3 ASIA-PACIFIC PARTNERSHIP ON CLEAN DEVELOPMENT AND CLIMATE (APP)

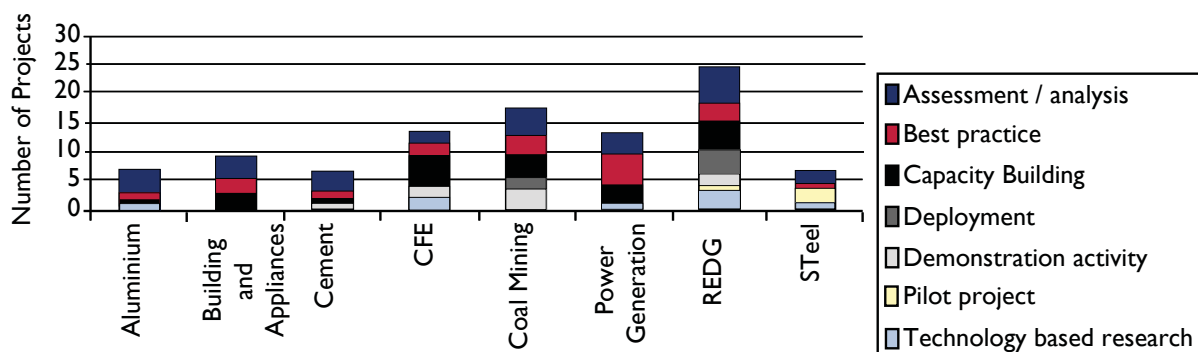
The Asia-Pacific Partnership on Clean Development and Climate (APP) is a new regional partnership launched in January 2006 that includes Australia, China, India, Japan, Korea, and the United States. The APP partners seek to mitigate the impacts of climate change through the transfer of technology and know-how in clean energy and GHG reduction strategies.³ The APP has eight Task Forces that comprise buildings and appliances, cleaner fossil energy, power generation and transmission, renewable energy and distributed generation, and the aluminum, cement, coal mining, and steel sectors, as well as a ninth task force called the Project Implementation Committee (PIC). The partnerships work on a voluntary principle, with self-financing by the participating members,⁴ and include representation by both the private sector and government officials from each country.

The initial portfolio of APP 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 APP project types grouped by Task Force (APP-BATF, 2006).

3. The Partnership was established by Ministers from Australia, China, India, Japan, Republic of Korea, and the United States at the Inaugural Ministerial Meeting in Sydney in January 2006.

4. Projects are self-funded by the participating countries, and countries can choose to participate as a lead or partner country in any particular project. In general, Australia, Japan, Korea, and the U.S. provide funding support for projects, and China and India provide in-kind support for the APP projects.

FIGURE 32. SUMMARY OF PROJECT TYPES BY APP TASK FORCE



Source: Adapted from reports on the APP website (www.asiapacificpartnership.org). Represents approved projects as of November 2006. Note: CFE = Clean Fossil Energy; REDG = Renewable Energy and Distributed Generation.

Buildings and Appliance Task Force (BATF). The BATF has 11 projects to date, which can be grouped into two broad areas: appliances⁵ and buildings⁶ (APP-BATF, 2006). There are strong potential synergies for a regional project in the area of harmonization of testing procedures. In particular, a flagship project has been proposed, entitled the “Harmonization of Testing Procedures Utilizing Communities of Practice Model.” The project would work to eliminate a major barrier to developing successful standards and labeling programs – inconsistent testing protocols – by developing harmonized test procedures for priority products using a “Communities of Practice” model. Products under consideration for this activity include, but are not limited to: home and business digital appliances (televisions, set-top boxes, personal computers, etc.); motors; heating, ventilation, air conditioning, and refrigeration (air conditioning, refrigerators, refrigerated display cabinets, water heaters, etc.); and lighting (CFLs, traffic lighting, etc.) (APP-BATF, 2006).

Renewable Energy and Distributed Generation Task Force (REDG). The REDG Task Force will focus on the most promising technologies and applications, particularly rural, remote and peri-urban applications, where renewable energy and distributed generation applications can be cost competitive. To achieve its objectives, the Task Force will focus its activities in three key areas – deployment, market enabling activities, and research development and demonstration (RD&D) projects that accelerate the uptake of renewable energy, and distributed generation (APP-REDG, 2006).

Cleaner Use of Fossil Energy Task Force. The Cleaner Use of Fossil Energy Task Force is promoting technology transfer across a range of advanced coal and gas technologies with the potential to significantly reduce GHG emissions. Broadly speaking, the Task Force has five main thematic areas: CO₂ storage; post-combustion capture, oxy-firing, and other advance technologies; coal gasification; energy market access for gas; and gas-handling improvements (APP-CFE, 2006).

5.4 ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN)

Member countries of ASEAN have a collective 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. 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.

5. The appliance-related projects announced to date include harmonization of test procedures, standby power, and market transformation.
 6. The building-related projects announced to date include building certification, existing buildings, building energy codes, high performance buildings, and financing.

The ASEAN Secretariat is the overarching body in ASEAN that works to facilitate cooperation between ASEAN countries in order to accelerate economic growth, social progress, and cultural development in the region, and to promote regional peace and stability. Its mandate includes coordination of regional and international initiatives related to energy.

ASEAN Plans. 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 2004-2010.⁷ In the area of energy, the plan calls for implementation of the ASEAN Plan of Action for Energy Cooperation (2004-2009) which focuses on clean coal, energy efficiency standards and labeling, renewable energy, capacity building, and energy policy and planning. 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 Secretariat and ASEAN Centre for Energy. Within the ASEAN structure, the ASEAN Centre for Energy (ACE) is one of 13 sector-based clusters channeling ASEAN cooperation activities. ACE is an intergovernmental organization established by the 10 ASEAN member countries.⁸ It is guided by a Governing Council composed of the Senior Officials on energy of the ASEAN countries 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 also facilitates and coordinates the work of ASEAN's specialist organizations in energy. It therefore presents a promising mechanism for outreach to and cooperation with experts in key energy areas (i.e. clean coal, renewable energy, end-use efficiency) across the ASEAN countries.

ASEAN Program Areas. The following subsections list several key program areas under ASEAN's Plan of Action for Energy Cooperation that present highly promising opportunities for regional collaboration in targeted energy sectors. For a more detailed discussion of these programs see Attachment 5.

- **Clean Coal.** The ASEAN Forum on Coal (AFOC), led by the Philippines, has created working groups to coordinate and oversee the implementation of strategies of the Coal program including: clean coal work focused on policy frameworks, technical assistance and training, and environmental standards.
- **Energy Efficiency and Conservation.** The focal point for work on energy efficiency is the Energy Efficiency and Conservation Sub-Sector Network (EE&C-SSN), led by Thailand. The main areas of cooperation are information-sharing and capacity-building, strengthening of the private sector, including energy service companies (ESCOs), and the development of a regional energy efficiency standards and labeling network and program for ASEAN, although progress in this last area has been stalled.⁹

7. The plan is founded on two primary objectives: to work toward the broader integration of Member Countries into one cohesive ASEAN Community, and to identify and narrow the development gap and quicken the pace of integration.

8. Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

9. Additionally, PROMEEC (Promotion of Energy Efficiency and Conservation Project) has focused on energy management in buildings and industry. This includes technology transfer and training, establishment of energy audit procedures and audit training, development of a system for energy databases 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 efforts to improve the policy framework for renewable energy. The principal regional initiatives are to develop biomass cogeneration, increase the share of renewable energy in the ASEAN energy mix, and develop a strategy for regional cooperation in biofuels.¹⁰
- **Regional Energy Policy and Planning.** Work in this area is focused on building capacity in incorporating environmental and energy security concerns into energy planning, improving regional coordination, and developing a regional energy outlook, and managing ASEAN's dialogue with partners.

ASEAN addresses the major energy-related issues in the region through the above programs, but also recognizes energy security as a key issue. ASEAN addresses this through its clean energy strategy, which includes: energy efficiency programs at the national and regional levels; expansion of renewable energy in the energy mix through a mini-hydro power program; local manufacturing of small-scale renewable energy systems; promotion of alternative energy such as biofuels; and a clean coal technology program.

5.5 OTHER REGIONAL AGENCIES AND GROUPINGS

There are a number of other important regional agencies and groupings. These are discussed in more detail in Attachment 5. A few of the more relevant ones related to clean energy are described briefly below.

East Asia Cooperation. On 15 January 2007, the ASEAN nations – along with the governments of Australia, China, India, Japan, Korea, and New Zealand – convened the Second East Asia Summit in Cebu, Philippines. Leaders signed the Cebu Declaration on East Asian Security, which announced a collective commitment to work to ensure energy security for the region by improving the efficiency and environmental performance of fossil fuel use, reducing dependence on conventional fuels, mitigating GHG emission through effective policies and measures, and encouraging investment on energy resources and infrastructure development through greater private sector involvement (ASEAN, 2007). At the Cebu Summit, Japan announced a substantial cooperation package, including: promotion of energy efficiency and conservation through capacity building, a loan facility, and establishment of an Asia Energy Conservation Collaboration Center; promotion of biomass energy; clean use of coal; and eradication of energy poverty (Noka, 2007).

Asia Cooperation Dialogue (ACD). The ACD is a continent-wide forum, the first of its kind in Asia. ACD currently comprises 30 countries in Asia, including the 10 ASEAN countries, China, Japan, Korea, India, and Pakistan. The eventual aim is to include all Asian countries. On energy cooperation, ACD is preparing to formulate an ACD Energy Action Plan to be led by the Philippines and Indonesia that would highlight collaborative activities to promote energy security.

Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling (BRESL). This is a regional project proposed by the United Nations Development Program for funding by the Global Environment Facility (GEF). The proposed project would focus on building capabilities and interest to pursue energy efficiency standards and labeling. If approved by the GEF, the project would start during last quarter of 2007. China is the lead

10. With regard to biofuels, ASEAN leaders have announced the Bogor Initiative, in which 10 ASEAN countries agreed to put biofuels at the top of their agenda for energy security. Bogor participants 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 joint regional activities for bio-fuels promotion and development.

country, and participating countries are expected to be Bangladesh, China, Indonesia, Malaysia, Thailand, and Vietnam. The focus would be on actually setting and beginning to implement standards and labeling on a menu of targeted products, including: refrigerators, room air conditioners, electric motors, ballasts for fluorescent tubes, electric fans, and compact fluorescent lamps (UNDP, 2006). UNDP and UNEP are also working in parallel by proposing a series of programs to transform markets globally in order to phase out obsolete and inefficient technologies. The program will have three areas of focus: (1) smart lighting and partnerships with the global lighting industry; (2) electric motors; and (3) market transformation (APEC/EGEE&C, 2006).

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

UNESCAP's Energy Resources Section focuses 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. UNESCAP plays a key role in convening regional fora that bring together governments and a range of stakeholders for dialogue and discussion related to clean energy policy, technology, and finance, as well as climate change.

Asian Regional Research Program in Energy, Environment and Climate (ARRPEEC).

This recently completed project was organized as a regional network involving a number of national research institutes from several countries in Asia. ARRPEEC was funded by the Swedish International Development Cooperation Agency (Sida) and coordinated by the Asian Institute of Technology (AIT). ARRPEEC had three phases, which began in 1995, 1999, and 2002, respectively. The third phase involved four regional research projects: (1) biomass energy in Asia: assessment and strategy formulation; (2) small and medium-scale industries in Asia: energy, environment, and climate interrelation; (3) strategies for promotion of energy efficient and cleaner technologies in the urban transport system; and (4) strategies for promoting energy efficient and cleaner technologies in the power sector (AIT, 2007).

5.6 CONCLUSIONS

Energy security is now a driving force for an enormous and rapidly growing amount of activity on clean energy promotion in the Asian region. In fact, one of the problems is that there are so many activities proceeding in parallel, in an uncoordinated fashion. The core institutions 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.

Table 14 presents ideas for how stakeholders can collaborate with some of the key regional agencies and platforms mentioned in this section. Most of these platforms are open for collaboration, and the limiting factors are often policymaker interest in the participating countries, and available budget to support travel and cooperative activities.

TABLE 14. OPPORTUNITIES FOR COLLABORATION BETWEEN REGIONAL PARTNERS

Agency/Program	Opportunities
Asian Development Bank (ADB)	<ul style="list-style-type: none"> • Financing medium large and very large clean energy projects • Capacity building in implementation and enforcement of clean energy policies and programs • Technical support in project identification and development • GHG monitoring and accounting • Monitoring and verification of energy savings

TABLE 14. OPPORTUNITIES FOR COLLABORATION BETWEEN REGIONAL PARTNERS

Agency/Program	Opportunities
Asia Pacific Economic Cooperation (APEC)	<ul style="list-style-type: none"> • Harmonization of testing procedures for regionally traded equipment such as lighting equipment • Harmonization of standards and technical specifications for energy efficiency of end-use equipment as well as renewable energy equipment and installations • Coordination with the APEC Energy Standards Information Service (APEC ESIS) • Environmental regulations for coal-fired power plants, and scale-up of investments in clean coal power systems
Asia-Pacific Partnership on Clean Development and Climate (APP)	<ul style="list-style-type: none"> • Regional harmonization of test procedures for energy-using appliances and equipment • Capacity building in design and implementation of end-use standards and labeling programs for end-use equipment • Dissemination and sharing of best practices in technology transfer, adoption, and implementation for wider adoption in the region.
Association of Southeast Asian Nations (ASEAN)	<ul style="list-style-type: none"> • Environmental regulations for coal-fired power plants, and scale-up of investments in clean coal power systems • Regional information sharing and harmonization related to energy efficiency standards and labeling • Technical and sustainability standards for biofuels • Cooperation on regional information sharing and knowledge management with the ASEAN Centre for Energy (ACE)
Barrier Removal for Energy Efficiency Standards and Labeling (BRESL)	<ul style="list-style-type: none"> • Expand geographic or product focus of the end-use standards and labeling work under the BRESL program. • Other countries could possibly join the BRESL training courses and working meetings to get assistance in design and scale-up of their own energy efficiency programs.

In conclusion, while there are many regional meetings and exchanges in Asia, there is only a limited amount of systematic activity focused on solving common problems in the area of clean energy.¹¹ 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. This can be achieved through regional partnerships that emphasize communication and collaboration on policy, standards, and finance initiatives. Training courses, workshops, and Communities of Practices are useful mechanisms for bringing together various groups working on similar initiatives to share best practices, demonstration projects, and foster coordination on various key energy-related activities. The key to success is a clearly focused agenda that begins with strong political support and emphasizes concrete objectives and targets.

11. 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.