



Buildings and Appliances Task Force

Final Report

July 2011

Contents

1. Introduction.....	3
2. Goals, Objectives, and Metrics	4
2.1 Goals	4
2.2 Objectives and Metrics	4
2.3 Projects Development Process	6
3. BATF Action Plan	8
3.1 Appliances	8
3.2 Buildings	9
3.3 Integration of Project Results	9
4. Activity Review	11
5. Project Overview	15
6. Recommendations for Future APP/BATF	27
7. Conclusions	32
Appendix A Final Project Staus Report Form.....	33
Appendix B Existing Policies and Programs	147

1. Introduction

The initial six countries of the Asia-Pacific Partnership on Clean Development and Climate—Australia, China, India, Japan, the Republic of Korea, and the United States of America, subsequently joined by Canada—cooperated to meet both their increased energy needs and associated challenges, including those related to air pollution, energy security, and greenhouse gas intensities.

The Partnership established public-private Task Forces in eight key sectors: (1) cleaner fossil energy; (2) renewable energy and distributed generation; (3) power generation and transmission; (4) steel; (5) aluminium; (6) cement; (7) coal mining; and (8) buildings and appliances. The Task Forces were designed to meet Partnership goals through international cooperation to facilitate the development, diffusion, deployment, and transfer of existing, emerging and longer term cost-effective, cleaner, more efficient technologies and practices among the Partners through concrete and substantial cooperation so as to achieve practical results.

The Buildings and Appliances Task Force (BATF) of the Asia-Pacific Partnership on Clean Development and Climate was tasked with developing projects that address the main sources of greenhouse emissions in the residential and commercial sectors, with the exception of transport.

By addressing the buildings in which most people work and live, and the key pieces of mass-produced energy-using equipment used in these buildings, BATF activities have the potential to significantly affect energy end-use in these two sectors. Industrial sector activities are addressed in other working groups of the Partnership. The commercial sector's role in Partner economies is expected to increase significantly over this period. Improved energy use in these sectors is important to an overall greenhouse response. Energy efficiency can often be realized at no net cost or even with a net benefit to the economy as a whole. This is achievable where energy efficiency measures address market barriers to efficient energy management, which are common in sectors where energy use is a relatively small part of expenditure. Energy efficiency can therefore save emissions and have financial benefits to better support investment that may be needed in lower-emission supply technologies. Improvements in energy efficiency can also defer the need for new investment in energy supply to a time when low emission sources are more widely available and at lower cost.

Given the difference national and local circumstances that influence the potential for widespread energy efficiency measures in Buildings and Appliances sectors, international discussions on the future potential can be considered a major milestone for reducing global emissions by identifying best practices and the multitude of drivers and barriers to the introduction of energy efficiency technologies.

This is the Final Report of the BATF. It describes the initial goals, objectives and metrics as well as details of each project. It makes final recommendations about carrying forward much of the promising work that was not completed before APP came to an end.

2. Goals, Objectives, and Metrics

2.1 Goals¹

Use cooperative mechanisms to support the further uptake of increasingly more energy-efficient appliances, recognizing that extensive cooperative action is already occurring between Partner countries.

Promote best practice and demonstrate technologies and building design principles to increase energy efficiency in building materials and in new and existing buildings².

Support the integration of appropriate mechanisms to increase the uptake of energy-efficient buildings and appliances into broader national efforts that support sustainable development, increase energy security and reduce environmental impacts.

Systematically identify and respond to the range of barriers that limit the implementation of end-use energy efficiency practices and technologies.

2.2 Objectives and Metrics

The Task Force intends to translate these strategic goals into quantitative terms through ongoing discussion of proposed projects, identification of resources to support these projects, and additional analysis of energy and carbon savings combined with post hoc evaluations of actual savings resulting from Partnership-related activities.

The BATF will be considering whether it is feasible and appropriate to establish “aspirational goals” for energy and carbon savings as of a specified date, expressed either in percentage or absolute terms (GWh saved or avoided tons of CO₂). While in the near term the focus will be on identifying effective program strategies and promising areas for collaboration among the Partners, this has the potential to become an important area for cooperative analysis, discussion, and development of consensus, as suggested by the following BATF objectives:

Identify the cost-effective potential for the energy savings resulting from the BATF projects in each participating Partner, along with associated energy cost savings and reduced carbon emissions.

Metrics:

Each participating Partner in a BATF project has estimated their country’s expected energy savings for that project, to the extent necessary and practical, using a consistent method and assumptions among the participants (regarding baseline, time frame, economic assumptions, etc.).

¹ From the Policy and Implementation Committee, Sydney Work Plan.

² Note that the phrase ‘best practice(s)’ is used in this action plan and in several project descriptions because it is a term in common use in the energy efficiency field. The intent is *not* to imply that there are only one or a few universally acceptable technical solutions or programmatic strategies to save energy, but rather the advantages of clearly documenting and sharing examples of a range of ‘good’ practices that might be considered, with suitable modifications to suit diverse local conditions.

Potential energy savings have been translated into cost savings and reduced greenhouse gas emissions using consistent methods.

Create or strengthen national goals, policies, and programs to promote greater efficiencies in appliances and buildings.

Metric:

Each Partner has identified and put in place at least one policy or program to cost-effectively address each market segment that represents a certain percentage (e.g. 10%, to be determined by host countries) of total buildings sector energy use.

Assess impact of policies and programs and track progress toward greater efficiencies.

Metric:

All programs have provisions in place for collecting, reporting, and analyzing data, to the extent necessary and practical, to assess their net impact on energy savings and cost-effectiveness.

Share results and replicate successful pilot programs, where applicable, in all Partners.

Metrics:

Key findings on program results and lessons learned from successful or unsuccessful strategies are documented and shared among Partners through reports, workshops, and other means. Partners evaluate them for appropriateness for national circumstances.

New programs have been implemented in other Partners or changes implemented because of lessons learned.

Disseminate information across Partners and to non-Partner countries on policy/program successes, energy-efficient technologies, and lessons learned.

Metric:

Program results and lessons learned have been made available to Partners and interested non-Partner countries.

Policies or programs have been replicated in Partners and non-Partner countries.

Creation of new or enhanced international and country based networks focused on the ongoing improvement of environmental performance in the buildings and appliances sector.

Metric:

Number of stakeholders engaged in process.

Workshops and reports produced and disseminated.

The BATF members will estimate, to the extent necessary and practical, the energy savings expected to result from the BATF projects that will be active in their countries. These estimates would be based on a ten-year time horizon (i.e. 2015) and would represent the best judgment of task force members of each project's likely *net* addition to energy savings, taking into account other existing or planned policies and programs outside of the Partnership. The estimates for each project should include an explicit definition of the base case used for estimating these savings, including the effects of projected changes in the stock of buildings and appliances, usage patterns, and technology improvements independent of Partnership projects.³ Project teams may wish to present ranges for the estimated energy, cost, and CO₂ savings for each participating country.

BATF members would develop these estimates of energy savings to help in project planning and priority setting, rather than as a specific target to be achieved by existing or proposed new policies and programs.

APP members may choose to cooperate in sponsoring a data and analysis task to support future analysis needs, including:

identification of energy savings potentials;

project planning and estimates of future energy savings; and

impact assessments for completed projects.

This task, which would call for a shared commitment of staff effort and resources, would build on existing country-specific, regional, or international data and analysis activities such as APERC, IEA, IECC, and others.

2.3 Project Development Process

The BATF recognizes the important role of energy efficiency in the residential and commercial sectors, as well as the diversity of technologies and stakeholders involved.

The BATF members view the identification of policy and program opportunities as an ongoing process, to be informed by each country's unique needs and opportunities, market conditions, characteristics of the current and projected stock of buildings and appliances, prior program experience, and the availability of financial and institutional resources and expertise. For Partners the challenge—and also the opportunity—is to define a suitable common ground for collaboration that benefits all those participating in a project.

A collaborative Partnership project may involve two or more Partners in any number of ways, including but not limited to:

information sharing through exchange of reports, online documents, and interactive websites;

cooperative efforts to compile information on existing policy and program experience
develop and maintain online data bases, etc.;

³ Considering the projected stocks of buildings and appliances in 2015 is especially important in China and India, with expected high growth rates of construction and increased market penetration rates of home appliances, office and consumer electronics, and air conditioning.

joint sponsorship and participation in workshops and training programs;

technical advice and assistance, including site visits, project advisory panels, and working exchanges of technical staff;

collaborative sponsorship of demonstration projects and pilot programs, and the sharing of measured energy performance data and program evaluation findings;

cooperative activities to develop new methods (or harmonize existing ones) for appliance energy testing, and energy savings measurement and verification protocols.

In selecting collaborative projects, members of the BATF took into account a number of considerations, which each Partner must weigh in establishing their own priorities:

How large is the energy savings potential, as well as potential energy cost savings and reductions in greenhouse gas emissions?

What is the savings potential? This depends on factors such as:

How significant are the current energy use, peak demand, costs, and emissions (as a share of the buildings sector total)? What is the expected growth rate in energy use, by building and appliance type, end use, or region within a country?

Are there cost-effective energy saving technologies available that are appropriate for conditions in Partner countries?

Is the market infrastructure in place to design, distribute, install, operate, and maintain the technologies? (Note that further development of this market infrastructure may be one of the major objectives of a project.)

Are there effective and tested program designs to address market or institutional barriers to deploying energy-efficient technologies—within a time frame and level of resources suitable for the Partnership?

Which program strategies can build on prior experience and complement rather than duplicate other ongoing, non-Partnership programs?

Are there approaches that can gain special benefit from the participation of several Partners, either to aggregate market demand for efficient products and services or to combine unique or complementary strengths of participating Partners? (For example, a strong interest by consumers in some countries in more efficient electronic products that are widely manufactured in another Partner.)

Is there a shared interest in a project area by two or more Partners, with at least one Partner prepared to commit resources and effort to lead the project?

Is there a timely opportunity to incorporate energy efficiency within some other, non-energy market trend or major policy initiative? (Examples might include: a cyclical upturn in the new building construction market; classroom additions or renovations to meet a “bulge” in the school-age population; a government electrification campaign for underserved areas; or the planned major renovation of a district heating system.)

At the first BATF meeting in Berkeley, California (April 2006), each of the Partners provided initial recommendations for proposed Partnership project areas or broader program areas, issues, and strategic opportunities. More than 15 specific projects were suggested by BATF members, with many common elements. Through extensive discussions, the Task Force members consolidated these project suggestions into a smaller number of key areas, and then indicated their priorities. The result was selection of eight initial project areas to be further developed.

In each case, one or more of the Partners agreed to serve as project lead or co-lead for purposes of planning, while several others indicated their initial interest in participating in the project. It was agreed that all Partners would have the opportunity to review and comment on project drafts as they evolve, and that participation in a project would be open at any time to all Partners, including but not limited to those who initially expressed interest.

The BATF members view the project development process as an ongoing effort, and expect to continue adding other project areas in the future.

3. BATF Action Plan

3.1 Appliances

Appliances, office and consumer electronics, and lighting represent a significant share of energy use in most countries, and are a rapidly growing source of electricity demand and associated greenhouse gas emissions as rising incomes allow consumers to purchase more energy-using devices for comfort, convenience, and entertainment. As electronic controls, displays, and portability (using rechargeable batteries) are built into an increasing variety of consumer and commercial products, power use in “standby” mode (idle, or seemingly “off”) is becoming another source of growing electricity demand.

At the same time, continuing technology advances are making it possible and increasingly cost-effective to incorporate significant efficiency gains in appliances and other energy-using products. Some of these gains are driven by the economic interest of manufacturers and retailers, while others are in response to market-based policies, incentives, improved rating and labeling information to consumers, and mandatory efficiency standards (see Appendix B).

To complement existing policies and programs among the Partners, members of the BATF have initially selected three project areas for cooperative action:

Harmonization of test procedures for energy-using appliance and equipment—to work toward common methods of testing and gauging energy performance of selected appliances, in order to reduce the burden to manufacturers of multiple tests and to encourage the growth of international markets for more energy-efficient products and new energy-saving technologies.

Standby power—to build on existing national and international initiatives to better understand market trends and cost-effective technical opportunities to reduce standby power levels in a range of devices, and to encourage actions by each individual country to accelerate market acceptance of new technologies that can help reduce unnecessary standby power.

Market transformation—to encourage the sharing of experience among Partners with a range of market-oriented policies and programs, including voluntary labeling and recognition programs for efficient products, utility rebates and tax incentives to both consumers and manufacturers, training and information campaigns, and aggregating buyer demand (e.g. by government agencies) to create a “market-pull” for efficient products.

3.2 Buildings

Increasing the energy efficiency of buildings demands consideration of a range of factors. Regulatory approaches such as effective building codes represent an opportunity to “hard wire” a minimum standard of environmental considerations into new buildings. Project 6, Building Codes, creates an opportunity to exchange experience on the development, implementation and governance technical information and tools of building codes. The aim is to assist all participating Partners in strengthening existing codes, and development of a strategic vision for international cooperation on codes.

While regulatory measures provide minimum standards and a “push” for increased efficiency, consumer information is needed to promote a market “pull” for technologies that go beyond the minimum. Building certification and ratings help to create this pull and Project 4 looks at collecting information on current activities and strengthening and promoting the role that certification can play in helping to overcome barriers to greater uptake of energy efficiency technologies.

Improving the efficiency of existing buildings requires consideration of the financial implications for owners, ongoing operation and maintenance, available services and technology, and the level of upgrade that the building envelope and purpose allows. Upgrading of existing buildings presents significant opportunities to implement low-cost measures with fast payback times, which provide financial as well as energy benefits. Project 5, Existing buildings, aims to address and demonstrate the benefits of upgrade activities and correct operation and maintenance of buildings.

New buildings present an opportunity to showcase the financial, environmental and social benefits that are presented through advanced building design, construction and maintenance. High Performance Buildings, aims to demonstrate these benefits and show a pathway for building design and construction to move “beyond code” toward an ultimate aim of zero emission technology.

3.3 Integration of Project Results

The Buildings and Appliances Task Force can play a valuable role in pulling together results of the individual projects and using them in a consolidated way to inform and develop future on buildings and appliances (see Figure 1).

One of the benefits of the individual projects will be development of information networks within and between participant countries. The BATF can add value by facilitating information exchange and network connection *between projects* to capitalize on the full suite of results on the barriers to and incentives for improved uptake of energy efficiency in the sector.

For example, the projects looking at existing buildings, finance and contracting and building certification, while operating separately to achieve individual goals, will have results that can be integrated. This will help in moving what we know about uptake of technologies and

services available to increase the efficiency of existing buildings to a more integrated and sophisticated level. Opportunities can then be sought which help to integrate the different project findings and develop options for the future. These could include, for example, workshops, conferences, studies or demonstration projects.

Similar mechanisms and links could be explored between related projects on:

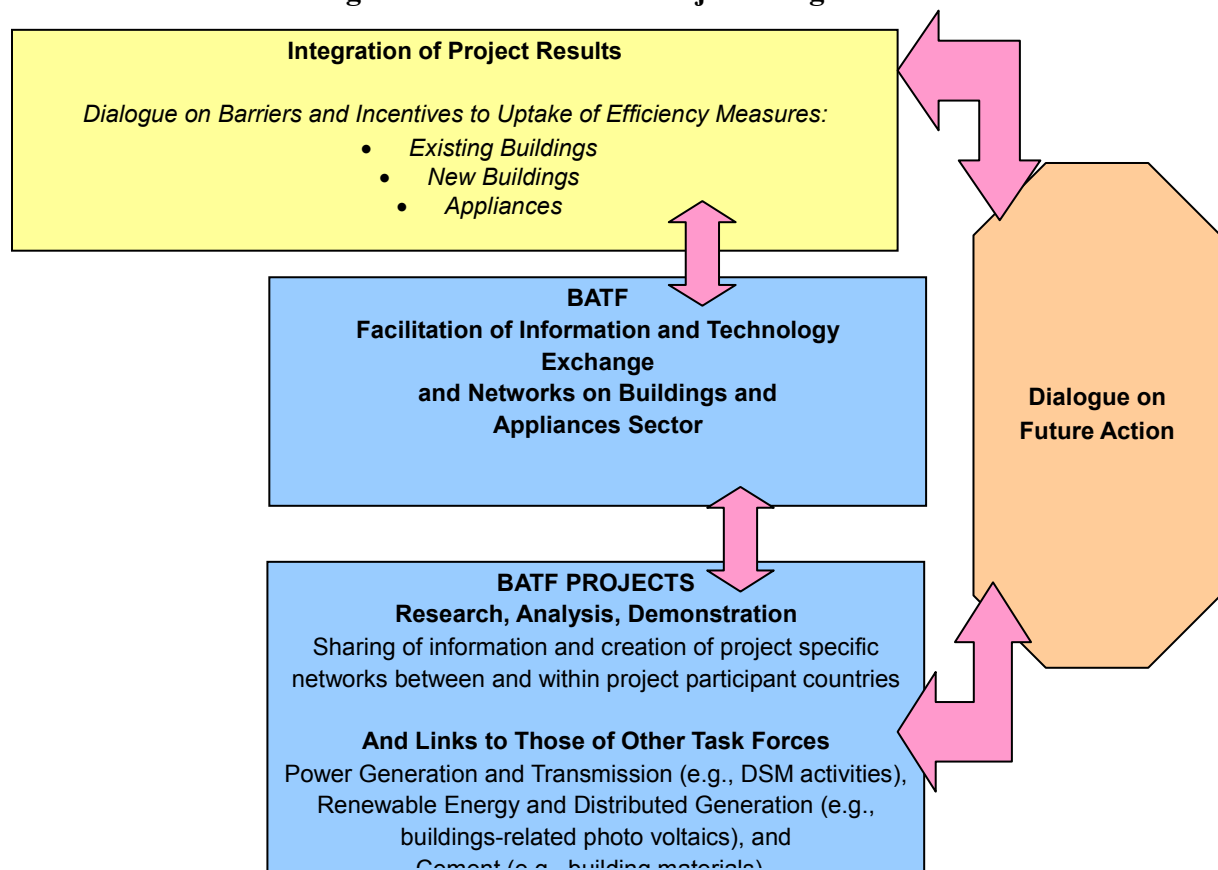
new buildings (finance and contracting, high performance buildings, building codes, and building certification);

appliances (harmonization, standby, market transformation, finance and contracting—metering technologies); and

overall integration of buildings and appliances energy efficiency uptake measures.



The BATF will, with input and support from projects, explore ways in which it can capitalize on this opportunity and encourage dialogue across projects to inform the development of future projects in the sector.

Figure 1. BATF Role in Project Integration






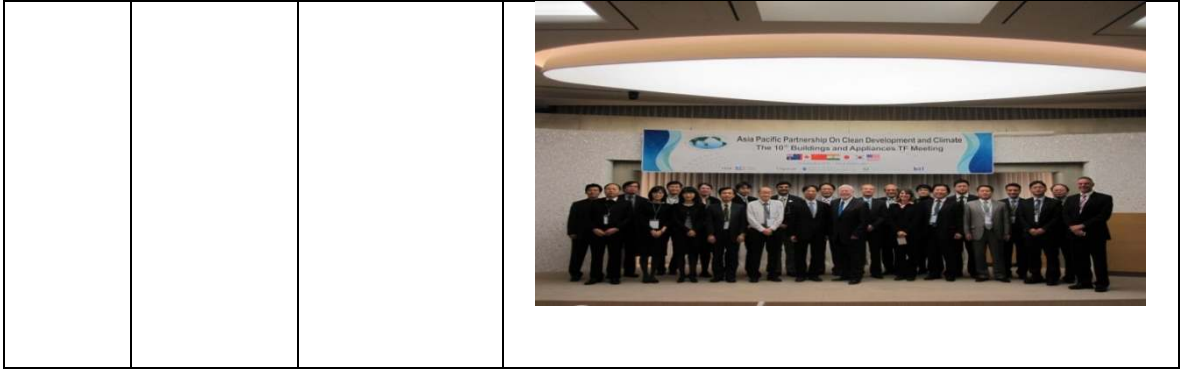
4. Activity Review

10 Taskforce meetings held to date are shown in the following table.

	Date	Host Country and Venue	Activity Summary
BATF-1	April 19-21, 2006	Berkeley, USA	<ul style="list-style-type: none"> - Introduction on current status and policy of Buildings and Appliances sector in member countries - Established project team and subgroups - Exchanged views on future areas of collaboration and implementation schedule
BATF-2	November 8-10, 2006	Canberra, Australia	<ul style="list-style-type: none"> - Agreed on the BATF Action Plan for eight projects - Select Flagship projects - Determined Task forces procedure - Participate in Standby power conference - Common session proposals for common projects with APEC
BATF-3	July 16-17, 2007	Seoul, Korea	<ul style="list-style-type: none"> - Workshop on Harmonization of test procedures : Lightings and Buildings Codes - Progress report of BATF projects ; Agreed on progress to date of BATF activities for reporting to the PIC members 
BATF-4	November 15-16, 2007	Washington DC, USA	<ul style="list-style-type: none"> - Report from the ministerial meeting - Participate in the Alliance to Save Energy's eeGlobal Exposition and Forum - Discussion of Project Numbering and Procedures for New Project Proposals - Flagship Projects: Reports and Discussion - Discussion of Performance Measures - Open session with APEC Expert Group on Energy Efficiency and Conservation 
BATF-5	June 23-24,	Seoul, Korea	- Discussion the project numbering system

	2008		<ul style="list-style-type: none"> - Identified as possible areas for collaboration with other Task Forces - Project activity reporting - Collaboration with REDG Task Force - Site Visit: NURITKUM Square at the Sangam Digital Media Center 
BATF-6	September 21-24, 2008	Melbourne, Australia	<ul style="list-style-type: none"> - Agreed to use a new numbering system for the BATF projects - Performance Measures: Review of Preliminary Estimates of Potential for Energy and Greenhouse Gas Reductions from Selected BATF Projects - Agreed a new flagship project ; GreenSpaces—An IT/ITeS SEZ in India - Discussion of Newly Endorsed Project Activities - Participate in SB08 

BATF-7	April 8-10, 2009	New Delhi, India	<ul style="list-style-type: none"> - Revised BATF reporting Guidelines ; To redefine roles of theme leads and project leads after the BATF agreed to use a new numbering system for the BATF projects - Discussion on Collaboration with the Renewable Energy and Distributed Generation Task Force - Process of getting prior endorsement of BEE for BATF projects related to India 
BATF-8	October 7-8, 2009	Tokyo, Japan	<ul style="list-style-type: none"> - Progress report of BATF projects - Discussion on inactive projects - Special presentation ; Cool Roof, and Japanese Energy Saving Policies and PV industry - Site Visit ; SONY headquarter and ENEOS Energy-Creating House 
BATF-9	March 24-25, 2010	Vancouver, Canada	<ul style="list-style-type: none"> - The Eighth PIC and the third Ministerial Meeting Review - Progress report of BATF projects - Endorsed New projects - Site Visit ; The Olympic Athlete's Village located on Southeast False Creek 
BATF-10	December 13-14, 2011	Seoul, Korea	<ul style="list-style-type: none"> - BATF accomplishment report - Presentations on other international EE initiatives - Discussion of BATF future - Site Visit ; Green Tomorrow, a zero energy house



5. Project Overview

Over the past 5 years, BATF developed and registered the total 56 projects under 11 themes. 9 projects have been completed successfully, 27 projects are still continued, and 11 projects and 9 projects are inactive and cancelled respectively. All projects are summarized as follows. The following Tables summarize the BATF activities. Table 1 lists the eleven project areas or themes. Table 2 lists all the projects in each project area with a numbering system that has BATF-Year 06 – and the Project # (in sequence of adoption). Table 3 shows the Inactive projects and Table 4 shows the projects that were cancelled or inactive. Table 5 lists the completed projects.

Table 1. Project Overview

Theme		Leader				Projects				
No.	Title	Name	Organization	Email	Phone number	Ongoing	Inactive	Cancelled/ Discontinued	Completed	Total
1	Harmonization of Test Procedures	Jun Young Choi	Korea Testing Laboratory	liya67@ktl.re.kr	82-31-500-0460	7	1	-	-	8
2	Alignment of National Standby Power Approaches	Allan Booth	Department of Climate Change and Energy Efficiency	Allan.Booth@climatechange.gov.au	61 2 6159 3314	1	-	-	-	1
3	Market Transformation	Hiroshi Sawano	Ministry of Economy, Trade and Industry	Hiroshi.sawano@meti.go.jp	-	2	3	-	1	6
4	Building Certification	Zhang Fulin	Ministry of Housing and Urban-Rural Development	zhangfl@mail.cin.gov.cn	86-10-58934548	1	1	3	2	7

5	Improvements to Existing Buildings	Carole Cook	Environmental Protection Agency	Cook.Carole@epamail.epa.gov	1-202-343-9334	5	4	2	1	12
6	Building Codes	Seung-Eon Lee	Korea Institute of Construction Technology	Selee2@kict.re.kr	82.31.910.0343	3	-	-	1	4
7	High Performance Buildings and Developments	Amanda Kramer	Environment Canada	Amanda.Kramer@ec.gc.ca	1-819-956-4875	7	-	1	3	11
8	Utilities Regulations and Incentives	Jack Fitzgerald	Environmental Protection Agency	fitzgerald.jack@epa.gov	1-202-343-9336	0	2	-	-	2
9	Smart Meters	Max Martin	Department of Climate Change and Energy Efficiency	Max.Martin@climatechange.gov.au	61 2 6274 1122	1	-	-	-	1
10	Green Leases	Simon Wong	Department of Climate Change and Energy Efficiency	simon.wong@environment.gov.au	61 2 6274 2838	0	0	1-	-	1
11	Commercial Financing	Cynthia Wilson	Department of Energy	Cynthia.Wilson@hq.doe.gov	1.202.586.6708	0	-	2	1	3
Total						27	11	9	9	56

Table 2. Ongoing Projects

Theme	Project Number	Title	Lead Country	Co-lead Country	Participation	Project Leader	Organization	Location	Email	Phone
1. Harmonization of Test Procedures	BATF-06-01	Harmonization of Test Procedures for Electric Motors	Australia	China	Korea	Melanie Slade	Department of Climate Change and Energy Efficiency	All	melanie.slade@climatechange.gov.au	61 2 6274 1586
	BATF-06-02	Harmonization of Test Procedures for Motor Systems	China	Australia	Korea	Melanie Slade	Department of Climate Change and Energy Efficiency	All	melanie.slade@climatechange.gov.au	61 2 6274 1586
	BATF-06-03	Phase-out of Inefficient Lighting	Australia	USA	Korea, China	Melanie Slade	Department of Climate Change and Energy Efficiency	All	melanie.slade@climatechange.gov.au	61 2 6274 1586
	BATF-06-04	Harmonization of Test Procedures for HVAC	Korea	USA, Japan	Australia, China, India	Jun Young Choi	Korea Testing Laboratory	All	liya67@ktl.re.kr	82-31-500-0460
	BATF-06-05	Harmonization of Test Procedures for Household Refrigerators	Japan		Australia/NZ, China, India, Japan, Korea, USA, Canada	Saito Kiyoshi	Japan Electrical Manufacturers' Association	All	kiyoshi_saito@jema-net.or.jp	81.3.3556.5883
	BATF-07-36	Quality Assurance Program and harmonization of CFLs*	Australia, USA	Korea		Norman Barth	Department of State	All	BarthNH@state.gov	1-202-647-3935
	BATF-09-54	Harmonization of Testing Procedures - Energy	Korea		Canada, Japan, US	Jun Young Choi	Korea Testing Laboratory	All	liya67@ktl.re.kr	82-31-500-0460

		Recovery Ventilator								
2. Alignment of National Standby Power Approaches	BATF-06-07	Alignment of National Standby Power Approaches	Australia	Korea	China, India, Japan, USA	Allan Booth	Department of Climate Change and Energy Efficiency	All	Allan.Booth@climatechange.gov.au	61 2 6159 3314
3. Market Transformation	BATF-07-37	Mitigating climate change via implementation of India's energy efficiency standards and labeling program	USA		India	Norman Barth	Department of State	India	BarthNH@state.gov	1-202-647-3935
	BATF-08-47	US-India-China Cities Partnership for Sharing Best Practices on Energy and Environment	USA		India, China	Mark Ginsberg	Department of Energy	India, China, USA	mark.ginsberg@ee.doe.gov	1.202.586.1211
4. Building Certification	BATF-09-50	Building Energy performance Certification	China		USA	Kevin Schwartz	Department of State	China	schwartzkm@state.gov	1 202 647 6895
5. Improvements to Existing Buildings	BATF-07-38	The urban climate project - building clean and efficient cities (joint project with Theme, Market Transformation)	USA		India	Norman Barth	Department of State	India	BarthNH@state.gov	1-202-647-3935

	BATF-07-39	Australian-Indian building tune-ups	Australia		India	Peter Szentel	Energy Conservation System	India	info@szencorp.net	61 3 8807 4666
	BATF-07-40	Energy management program in India	USA		India	Norman Barth	Department of State	India	BarthNH@state.gov	1-202-647-3935
	BATF-08-48	Existing Building Renovation in China	USA		China	Mark Ginsberg	Department of Energy	China	mark.ginsberg@ee.doe.gov	1.202.586.1211
	BATF-09-51	Improving EE in Buildings through improved operations	China		USA	Kevin Schwartz	Department of State	China	schwartzkm@state.gov	1 202 647 6895
6. Building Codes	BATF-06-24	Role Enhancement of Building Energy Code	Korea	USA	Australia, India, China, Japan, Canada	Seung-Eon Lee	Korea Institute of Construction Technology	Korea	Selee2@kict.re.kr	82.31.910.034 3
	BATF-06-25	Develop compatible window rating procedures and/or labels	USA		Australia, China, India, Japan, Korea	Marc LaFrance	Department of Energy	Australia, China, India	jean.boulin@ee.doe.gov	1.202.586.914 2
	BATF-09-55	Role Enhancement of Building Energy Codes Through Development of Building Envelope Component, Energy Performance Labeling and Certification	India		US	R Subramanian	Glazing council of India	India	subramanian.r@saint-gobain.com	240-821-9510

7. High Performance Buildings and Developments	BATF-06-27	Green building flagships in China*	USA		China	Mark Ginsberg	Department of Energy	China	mark.ginsberg@ee.doe.gov	1.202.586.1211
	BATF-07-43	Regional energy efficiency centers in India	USA		India	Norman Barth	Department of State	India	BarthNH@state.gov	1-202-647-3935
	BATF-07-44	Promotional framework for passive design and solar energy technologies in energy-efficient buildings	India		USA	Gauri Singh	Ministry of New and Renewable Energy	India	gauri.ysingh@nic.in	
	BATF-07-45	Indian high tech buildings initiative: Data centers pilot	USA		India	Mark Ginsberg	Department of Energy	India	mark.ginsberg@ee.doe.gov	1.202.586.1211
	BATF-08-49	Green Spaces™- IT / ITeS Special Economic Zone*	India		Australia, Canada, China, Japan, USA	Kamal Meattle	Selecto Systems Private Limited	India	meattle@pbcnet.com	91-11-2620-7748
	BATF-09-53	International NZEH Coalition / Dialogue	Canada		USA, China, Japan, Korea, Australia	Amanda Kramer	Environment Canada	All	amanda.kramer@ec.gc.ca	613-943-2260
	BATF-09-56	Cool Roofs	USA		Australia, India, Japan	Mark LaFrance	Department of Energy	All	Marc.LaFrance@ee.doe.gov	202-586-9142
9. Smart Meters	BATF-06-31	Smart Meters	Australia	USA		Stuart Allinson	Exigency Management	India	stuart.allinson@exigency.com.au	61 3 9699 2200

Table 3. Inactive Projects

Theme	Project Number	Title	Lead Country	Co-lead Country	Participation	Project Leader	Organization	Location	Email	Phone
1. Harmonization of Test Procedures	BATF-06-06	Harmonization of Test Procedures for Electronics	USA	Japan	Australia, China, India, Korea	Christopher Kent	Environmental Protection Agency	All	kent.christopher@epa.gov	202-343-9046
3. Market Transformation	BATF-06-09	Workshop on government procurement best practices	USA		India, China	Susan Wickwire	Environmental Protection Agency	All	wickwire.susan@epa.gov	1-202-343-9155
	BATF-06-10	Support for implementation of an energy efficiency endorsement labeling program for India	USA		India	Susan Wickwire	Environmental Protection Agency	India	wickwire.susan@epa.gov	1-202-343-9155
	BATF-06-11	Pilot US-China energy efficiency endorsement labeling harmonization	USA		China	Christopher Kent	Environmental Protection Agency	China	kent.christopher@epa.gov	202-343-9046
4. Building Certification	BATF-06-16	Share U.S. experiences on building data and benchmarking	USA		China	Carole Cook	Environmental Protection Agency	China	Cook.Carole@epamail.epa.gov	1-202-343-9334
5. Improvements to Existing Buildings	BATF-06-21	Retrofit of Existing Building Chillers in India	USA		Australia, China, India	Carole Cook	Environmental Protection Agency	India	Cook.Carole@epamail.epa.gov	1-202-343-9334
	BATF-06-18	Training workshops on energy management and low-cost EE in existing buildings	USA		Australia, China, India	Carole Cook	Environmental Protection Agency	India	Cook.Carole@epamail.epa.gov	1-202-343-9334
	BATF-06-19	Pilot implementation of no-cost and low-cost EE measures in existing buildings Training workshop on tools, standardization, technical issues	USA		Australia, China, India	Carole Cook	Environmental Protection Agency	China	Cook.Carole@epamail.epa.gov	1-202-343-9334
	BATF-06-22	Develop a guide to retrocommissioning of existing buildings	USA		Australia, China, India	Carole Cook	Environmental Protection Agency	China	Cook.Carole@epamail.epa.gov	1-202-343-9334

8. Utilities Regulations and Incentives	BATF-06-29	Good practices and lessons learned in the APP region to promote financing and the implementation of energy efficiency programs in utilities	USA		Australia, China, India, Japan, Korea	Jack Fitzgerald	Environmental Protection Agency	All	fitzgerald.jack@epa.gov	1-202-343-9336
	BATF-06-30	Technical support for China and India	USA		Australia, China, India, Japan, Korea	Jack Fitzgerald	Environmental Protection Agency	China, India	fitzgerald.jack@epa.gov	1-202-343-9336

Table 4. Cancelled Projected

Theme	Project Number	Title	Lead Country	Co-lead Country	Participation	Project Leader	Organization	Location	Email	Phone
4. Building Certification	BATF-06-14	Establish information exchange network for continuous revision and improvement	China	USA	Australia, India, Japan, Korea	Zhang Fulin	Ministry of Housing and Urban-Rural Development	China	zhangfl@mail.cin.gov.cn	86 10-58934548
	BATF-06-15	Provide green building guides and related training materials to APP countries	USA	China		Zhang Fulin	Ministry of Housing and Urban-Rural Development	China	zhangfl@mail.cin.gov.cn	86 10-58934548
	BATF-06-17	OOBER (Office Operational Building Energy Rating)	Australia	China		Zhang Fulin	Ministry of Housing and Urban-Rural Development	China	zhangfl@mail.cin.gov.cn	86 10-58934548
5. Improvements to Existing Buildings	BATF-06-20	Proposed framework screening tool for evaluating potential for retrofits	Australia			David Oldham	Department of Environment, Water, Heritage and Arts		David.Oldham@Environment.gov.au	61 2 6275 9013
	BATF-07-41	Tianjin green office building retrofit	Australia	China		Max Martin	Department of Environment, Water, Heritage and Arts		max.martin@environment.gov.au	61 2 6274 1122

7. High Performance Buildings and Developments	BATF-07-46	China Building Energy Rating Tool (CBERT)	Australia	China		Michael Green	Department of Innovation, Industry, Science and Research	China	Michael.Green@innovation.gov.au	61-2-6213-6986
10. Green Leases	BATF-06-32	Green Leases	Australia		USA	Lloyd Woodford	Department of Environment, Water, Heritage and Arts	USA	Lloyd.woodford@environment.gov.au	61 2 6274 1734
11. Commercial Financing	BATF-06-33	Commercial Financing: Share Approaches	USA	India		Cynthia Wilson	Department Of Energy	Inida, USA	Cynthia.Wilson@hq.doe.gov	202-586-6708
	BATF-06-35	Commercial Financing: Joint Projects	USA	India		Cynthia Wilson	Department Of Energy	Inida, USA	Cynthia.Wilson@hq.doe.gov	202-586-6708

Table 5. Completed Projects

Theme	Project Number	Title	Lead Country	Co-lead Country	Participation	Project Leader	Organization	Location	Email	Phone
3. Market Transformation	BATF-06-08	Market Transformation Policies in APP Countries: Handbook and Mapping Tool	Japan	China	Australia, Canada, India, Korea, USA	Osawa Hiroshi	Ministry of Economy, Trade and Industry	All	ohsawa-hiroshi@meti.go.jp, kimura@jeita.or.jp	81-3-3501-6944, 81-3-5275-7257
4. Building Certification	BATF-06-12	Comparison of policy and management systems for building certification and encourage adoption where appropriate	China		USA	Zhang Fulin	Ministry of Housing and Urban-Rural Development	China	zhangfl@mail.cin.gov.cn	86-10-58934548
	BATF-06-13	Pilot projects on building energy labeling	China		USA	Zhang Fulin	Ministry of Housing and Urban-Rural Development	China	zhangfl@mail.cin.gov.cn	86-10-58934548
5. Improvements to Existing Buildings	BATF-06-23	Low Energy High Rise(LEHR)	Australia		USA, Indian, China, Japan, Korea, Canada	Jayan Parry	Department of Environment, Water, Heritage and Arts	Australia	jayan.parry@environment.gov.au	61 2 6275 9154
6. Building Codes	BATF-09-52	Implementation of building energy codes in China	USA	China		Garrett Barnicoat	US Department of State	China	BarnicoatGE@state.gov	1 202 647 6895
7. High Performance Buildings and Developments	BATF-06-26	APP web portal for information on high-performance buildings and developments	Japan		Australia, India, Korea, USA, Canada, USA	Tomoko TAKAGI	National Institute for Land and Infrastructure Management	Japan	takagi-t92tb@nilim.go.jp	81-29-864-4295
	BATF-06-28	High Performance Buildings and the 6th World Sustainable Building Conference(SB08)	Australia		China, India	Michael Green	Department of Innovation, Industry, Science and Research	Australia	Michael.Green@innovation.gov.au, Julie.Claydon@innovation.gov.au	61 2 6213 6986

	BATF-07-42	High performance commercial buildings in India	USA		India	Mili Majumdar	The Energy and Resource Institute	India	milim@teri.res.in	91-11-2468-2100
11. Commercial Financing	BATF-06-34	India Public Sector Market Assessment	USA		India	Cynthia Wilson	Department of Energy	India	Cynthia.Wilson@hq.doe.gov	1.202.586.6708

6. Recommendations for Future APP/BATF

The BATF has considered the future of its activities post-APP and provides its recommendations to the PIC below. Although some projects have been completed and cancelled with the agreed work schedule under the APP, many ongoing projects wish to continue the project activities that have arisen as a result of collaborative efforts under other international Partnerships such as IPEEC, IEA, and APEC.

Table 6. Recommendations on future of projects

Theme	Project Number	Title	Lead Country	Project Leader	Recommendation
1. Harmonization of Test Procedures	BATF-06-01	Harmonization of Test Procedures for Electric Motors	Australia, China	Melanie Slade	IPEEC SEAD / IEA 4E
1. Harmonization of Test Procedures	BATF-06-02	Harmonization of Test Procedures for Motor Systems	China, Australia	Melanie Slade	IPEEC SEAD / IEA 4E
1. Harmonization of Test Procedures	BATF-06-03	Phase-out of Inefficient Lighting	Australia, Korea	Melanie Slade	IPEEC SEAD
1. Harmonization of Test Procedures	BATF-06-04	Harmonization of Test Procedures for HVAC	Korea, USA, Japan	Jun Y Choi	IPEEC SEAD
1. Harmonization of Test Procedures	BATF-06-05	Harmonization of Test Procedures for Household Refrigerators	Japan	Saito Kiyoshi	IPEEC SEAD
1. Harmonization of Test Procedures	BATF-06-06	Harmonization of Test Procedures for Electronics	USA, Japan	Christopher Kent	Concluded
2. Alignment of National Standby Power Approaches	BATF-06-07	Alignment of National Standby Power Approaches	Australia, Korea	Allan Booth	IEA 4E
3. Market Transformation	BATF-06-08	Market Transformation Policies in APP Countries: Handbook and Mapping Tool	Japan	Osawa Hiroshi	Completed
3. Market Transformation	BATF-06-09	Workshop on government procurement best practices	USA	Susan Wickwire	Concluded
3. Market Transformation	BATF-06-10	Support for implementation of an energy efficiency endorsement labeling program for India	USA	Susan Wickwire	Concluded

3. Market Transformation	BATF-06-11	Pilot US-China energy efficiency endorsement labeling harmonization	USA	Christopher Kent	Concluded
3. Market Transformation	BATF-06-12	Comparison of policy and management systems for building certification and encourage adoption where appropriate	China	Zhang Fulin	Completed
3. Market Transformation	BATF-06-13	Pilot projects on building energy labeling	China	Zhang Fulin	Completed
4. Building Certification	BATF-06-14	Establish information exchange network for continuous revision and improvement	China	Australia, India, Japan, Korea	Cancelled
4. Building Certification	BATF-06-15	Provide green building guides and related training materials to APP countries			Cancelled
4. Building Certification	BATF-06-16	Share U.S. experiences on building data and benchmarking	USA	Carole Cook	Concluded
4. Building Certification	BATF-06-17	OOBER (Office Operational Building Energy Rating)			Cancelled
5. Improvements to Existing Buildings	BATF-06-18	Training workshops on energy management and low-cost EE in existing buildings	USA	Carole Cook	Concluded
5. Improvements to Existing Buildings	BATF-06-19	Pilot implementation of no-cost and low-cost EE measures in existing buildings Training workshop on tools, standardization, technical issues	USA	Carole Cook	Concluded
5. Improvements to Existing Buildings	BATF-06-20	Proposed framework screening tool for evaluating potential for retrofits	Australia	David Oldham	Cancelled
5. Improvements to Existing Buildings	BATF-06-21	Retrofit of Existing Building Chillers in India	USA	Carole Cook	Concluded
5. Improvements to Existing Buildings	BATF-06-22	Develop a guide to retrocommissioning of existing buildings	USA	Carole Cook	Concluded
5. Improvements to Existing Buildings	BATF-06-23	Low Energy High Rise (LEHR)	Australia	Jayan Parry	Completed

6. Building Codes	BATF-06-24	Role Enhancement of Building Energy Code	Korea, USA	Seung-Eon Lee	IPEEC SBN
6. Building Codes	BATF-06-25	Develop compatible window rating procedures and/or labels	USA	Marc LaFrance	IPEEC SBN
7. High Performance Buildings and Developments	BATF-06-26	APP web portal for information on high-performance buildings and developments	Japan	Tomoko TAKAGI	Completed
7. High Performance Buildings and Developments	BATF-06-27	Green building flagships in China*	USA	Mark Ginsberg	Concluded
7. High Performance Buildings and Developments	BATF-06-28	High Performance Buildings and the 6th World Sustainable Building Conference(SB08)	Australia	Michael Green	Completed
8. Utilities Regulations and Incentives	BATF-06-29	Good practices and lessons learned in the APP region to promote financing and the implementation of energy efficiency programs in utilities	USA	Jack Fitzgerald	Concluded
8. Utilities Regulations and Incentives	BATF-06-30	Technical support for China and India	USA	Jack Fitzgerald	Concluded
9. Smart Meters	BATF-06-31	Smart Meters	Australia, USA	Stuart Allinson	Concluded
10. Green Leases	BATF-06-32	Green Leases	Australia	Lloyd Woodford	Cancelled
11. Commercial Financing	BATF-06-33	Commercial Financing: Share Approaches	USA		Cancelled
11. Commercial Financing	BATF-06-34	India Public Sector Market Assessment	USA	Cynthia Wilson	Completed
11. Commercial Financing	BATF-06-35	Commercial Financing: Joint Projects	USA		Cancelled
1. Harmonization of Test Procedures	BATF-07-36	Quality Assurance Program and harmonization of CFLs*	Australia, USA, Korea	Norman Barth	IPEEC SEAD

3. Market Transformation	BATF-07-37	Mitigating climate change via implementation of India's energy efficiency standards and labeling program	USA	Norman Barth	Concluded
5. Improvements to Existing Buildings	BATF-07-38	The urban climate project - building clean and efficient cities	USA	Norman Barth	Concluded
5. Improvements to Existing Buildings	BATF-07-39	Australian-Indian building tune-ups	Australia	Peter Szentel	Concluded
5. Improvements to Existing Buildings	BATF-07-40	Energy management program in India	USA	Norman Barth	Concluded
5. Improvements to Existing Buildings	BATF-07-41	Tianjin green office building retrofit	Australia	Max Martin	Cancelled
7. High Performance Buildings and Developments	BATF-07-42	High performance commercial buildings in India	USA	Mili Majumdar	Completed
7. High Performance Buildings and Developments	BATF-07-43	Regional energy efficiency centers in India	USA	Norman Barth	Concluded
7. High Performance Buildings and Developments	BATF-07-44	Promotional framework for passive design and solar energy technologies in energy-efficient buildings	India	Gauri Singh	Concluded
7. High Performance Buildings and Developments	BATF-07-45	Indian high tech buildings initiative: Data centers pilot	USA	Mark Ginsberg	Concluded
7. High Performance Buildings and Developments	BATF-07-46	China Building Energy Rating Tool (CBERT)	Australia	Michael Green	Cancelled
3. Market Transformation	BATF-08-47	US-India-China Cities Partnership for Sharing Best Practices on Energy and Environment	USA	Mark Ginsberg	IPEEC SBN
5. Improvements to Existing Buildings	BATF-08-48	Existing Building Renovation in China	USA	Mark Ginsberg	IPEEC SBN
7. High Performance Buildings and Developments	BATF-08-49	Green Spaces™- IT / ITeS Special Economic Zone*	India	Kamal Meattle	Concluded
4. Building Certification	BATF-09-50	Building Energy performance Certification	China	Kevin Schwartz	Concluded

5. Improvements to Existing Buildings	BATF-09-51	Improving EE in Buildings through improved operations	China	Kevin Schwartz	IPEEC SBN
6. Building Codes	BATF-09-52	Implementation of building energy codes in China	USA	Garrett Barnicoat	Completed
7. High Performance Buildings and Developments	BATF-09-53	International NZEH Coalition / Dialogue	Canada	Amanda Kramer	IPEEC SBN
1. Harmonization of Test Procedures	BATF-09-54	Harmonization of Testing Procedures - Energy Recovery Ventilator	Korea	Jun Y Choi	IPEEC SEAD
6. Building Codes	BATF-09-55	Role Enhancement of Building Energy Codes Through Development of Building Envelope Component, Energy Performance Labeling and Certification	India	R Subramanian	IPEEC SBN
7. High Performance Buildings and Developments	BATF-09-56	Cool Roofs	USA	Mark LaFrance	IPEEC SBN

Remark : The concluded projects are those that were discontinued.

7. Conclusions

On 13rd and 14th of December 2010, the 10th and the last Buildings and Appliances Task Force Meeting was held in Seoul, Korea, with the participation of 22 delegates from full seven member countries to the APP.

In the introductory session, the Chair and Co-Chair presented an overview of the “September 2010 PIC Guidance to the Task Force.” Following that, a project by project review was made on a total of 56 projects established under the BATF for the accomplishments made so far with related discussions on post-APP/BATF directions for them.

All participants discussed the transition of the ongoing projects with four criteria – 1) willingness, 2) stability, 3) funding, and 4) technical capability - when they considered other organizations and initiatives as new home. From delegates’ comment, the criteria was expanded to include 5) access to the private sector, 6) organizational capacity, 7) regional coverage, 8) agility, and 9) efficiency.

As a result of the above review and discussions, the BATF came to a conclusion that 16 ongoing projects (see table 6) should be continued and expanded under a new international framework of cooperative activities such as International Partnership for Energy Efficiency Cooperation (IPEEC)/Super-efficient Equipment and Appliance Deployment(SEAD), IEA 4E, and IPEEC/Sustainable Building Network(SBN). In particular, with respect to the projects related appliances should be continued under IPEEC/SEAD, and IEA 4E, and the projects related buildings should be continued under IPEEC/SBN. Other projects should be concluded to the middle of 2011.

Finally we determined the status of all projects registered in the past 5 years

- 9 projects have been completed successfully
- 9 projects have been cancelled
- 11 projects are inactive
- 16 projects of 27 ongoing projects should be continued under other initiatives

The APP/BATF since its inception in 2006 met ten times and deepened the partnership. It also has pursued a cooperative relationship and/or alignment with non-APP organizations such as IEA, and APEC. Further, additional activities such as site visits or workshops have been organized along with the main BATF meetings to promote the partnership.

In conclusion, while the APP/BATF activity will come to an end, it is highly advisable to pursue the possibility of sustainable development utilizing our past experience but under a new international framework. The BATF participants are grateful for the chance to address these important issues. It is the hope of BATF that our work has advanced the goals of APP and the member countries.