

# **EWG-02-2015A Progress Report**

## **APEC Nearly (Net) Zero Energy Building Program**

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# APEC Program-- Nearly (Net) Zero Energy Building

## Project Background

The APEC Nearly (Net) Zero Energy Building Program responds to the 25th APEC Ministers Meeting and 21st APEC Economic Leaders' Declaration, to reduce APEC's aggregate energy intensity by 45 % by 2035, using 2005 as a base year, and promote clean, renewable and sustainable use of energy within APEC region.



# APEC Program-- Nearly (Net) Zero Energy Building

## Project Background

Some APEC economies set the goal to achieve Nearly (Net) Zero Energy Building (NZEB) and already launched some research programs and accomplished successful demonstration projects.



# APEC Program-- Nearly (Net) Zero Energy Building

APEC- EWG – EGEEEC - 41 XC



China proposed this idea of sharing latest progress on NZEB across the APEC region and get the support from APEC.

11-12 April 2013

North Star Continental Grand Hotel

Beijing, China

# APEC Program-- Nearly (Net) Zero Energy Building

## Objective

- Exchanging each economy's latest policy and national goals on NZEB
- Comparing different but similar definition of NZEB
- Promoting key findings and outcomes of the national research programs in each economy
- Pushing the future revision plan of building energy code towards NZEB
- Setting up related associations and alliances with NZEB
- Sharing valuable experiences from the demonstration projects



# APEC Program-- Nearly (Net) Zero Energy Building

APEC-NZEB workshop 1 (30-31 Oct., 2013 Beijing, China)



- ◆60 participants from 13 economies attended the workshop
- ◆focus on policies and definitions, research programs and latest technology progress and influence to NZEB from building codes upgrading

# APEC Program-- Nearly (Net) Zero Energy Building

APEC-NZEB workshop 2 (22-23 Oct 2014 Beijing, China)



- ◆ 80 participants from 15 economies attended the second workshop
- ◆ focus on monitoring results of pilot project and community and how to promote NZEB in the future in APEC region.

	Speaker Participants	Economy Delegates & Experts	Invited NGO	Total
2013 workshop	 USA  China  Japan  Korea  Indonesia  Canada <p>6 Economies:13 Experts</p>	 HK-China  Mexico  Peru  Indonesia  Chile  Thailand  Malaysia <p>7 Economies: 9 Experts</p>	 IFC  UNDP  World Bank  WWF  ENERGY FOUNDATION 能源基金会	<p>13 Economies</p> <p>60 Experts</p>
2014 workshop	 USA  China  Japan  Korea  Canada <p>5 Economies:15 Experts</p>	 HK-China  Thailand  Indonesia  Russia  USA  New Zealand  Australia  The Philippines  Brunei Darussalam  Taiwan-China <p>11 Economies: 20 Experts</p>	 IFC  UNDP  World Bank  WWF  ENERGY FOUNDATION 能源基金会 APERC ICA 7 Organizations	<p>15 Economies</p> <p>80 Experts</p>



# APEC Program-- Nearly (Net) Zero Energy Building

## Nearly (Net) Zero Energy Building



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YEAR	2014
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## Phase One --- Report

Stage I program report was submit to APEC website in 2014.

- 15 research institutions、25 experts join in

Here's the URL: [http://publications.apec.org/publication-detail.php?pub\\_id=1595](http://publications.apec.org/publication-detail.php?pub_id=1595)

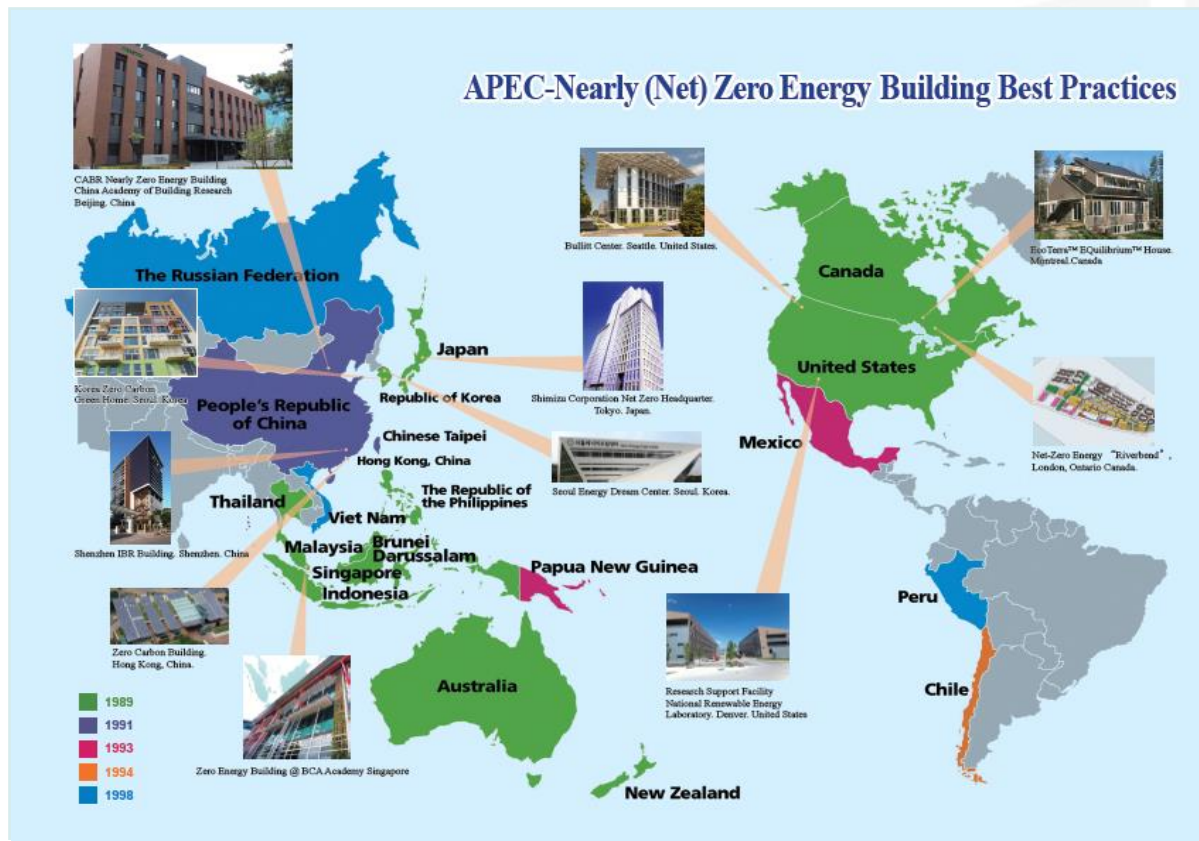
# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study EWG-02-2015A

- ◆ carry out professional in-depth comparative research with the detail information collected of best practices of NZEB pilot buildings among APEC economies
- ◆ to showcase how tremendous energy savings could be achieved by integrated design, advanced technology utilization and NZE oriented management & commissioning in buildings.

# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study



Pilot projects was collected and analyzed within this program.

# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study

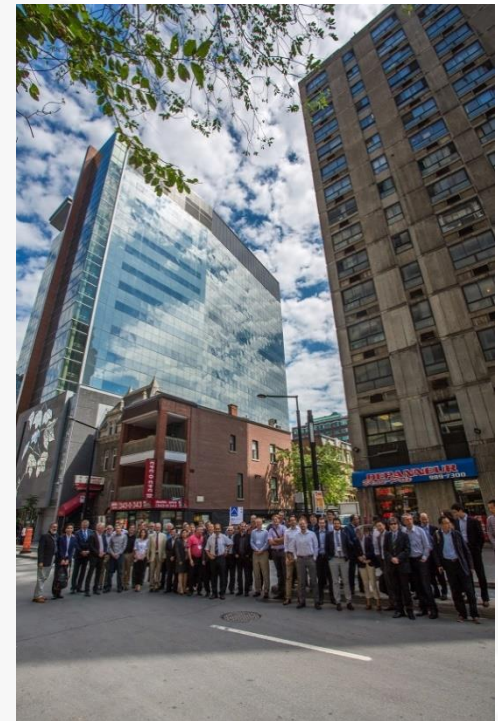
### Workshop 1: NZEB Case Studies, Best Practices, Policies and Education Issues & Communities and Enabling Technologies

- Aug 20-21 Montreal, Canada.
- Local organizer: Concordia University. Centre for Zero Energy Building Studies.
- 95 Participants, 4 keynote speeches and 35 presentations
- 11 APEC invited speakers and 5 economy delegates (Chile, Thailand, China, Mexico, Indonesia)



# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study



# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study

### Workshop 2: From Best Practices to Mass Market



With 47<sup>th</sup> EGEEC meeting

11, Apr, 2016  
Chinese Taipei

# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study

APEC-Nearly (Net)-Zero-Energy-Building Best-Practices-Information-Collection-Template			
<b>Basic Information</b>			
Building Name	Location (City)		
Building Type	<input type="checkbox"/> Residential · <input type="checkbox"/> Office · <input type="checkbox"/> School · <input type="checkbox"/> Others (Please Specify) _____		
Heating Degree Day	Cooling Degree Day		
Net Floor Area (m <sup>2</sup> )	Treated floor area (m <sup>2</sup> )		
Number of stories	F/ · · · · BF	Completion Date	
Cost USD/m <sup>2</sup> (Net Floor area)	Cost USD/m <sup>2</sup> (of typical similar building)		
Incremental Cost Allocation (%)	<input type="checkbox"/> Passive approaches ( · · · %) · · · <input type="checkbox"/> Active approaches ( · · · %) · <input type="checkbox"/> Renewable energy system ( · · · %) · · · <input type="checkbox"/> Control system ( · · · %)		
Source of Incremental Cost	<input type="checkbox"/> Government Subsidy ( · · · %) · · · <input type="checkbox"/> Project Incentive ( · · · %) · <input type="checkbox"/> Self-fund ( · · · %) · · · <input type="checkbox"/> Donation Industry in-kind support ( · · · %) ·		
Contact Person	Name	E-mail	
	Institute/Company		
<b>Key Technical Indexes</b>			
Energy consumption	<b>Energy Consumption Targets</b>	<b>Design Value</b>	<b>Average value for typical similar building</b>
	Heating load (W/m <sup>2</sup> )		
	Cooling load (W/m <sup>2</sup> )		
	Annual Heating Demand		
	Annual Cooling Demand		
	Primary Energy Consumption kWh/(m <sup>2</sup> )		
	Source to Site Conversion Factor (Electricity)		
Primary Energy Consumption including: <input type="checkbox"/> Heating/Cooling · <input type="checkbox"/> Lighting · <input type="checkbox"/> Plug			
<b>Building energy codes or standards</b>			
Construction Elements	<b>Technical Indicator</b>	<b>Design Value</b>	<b>Standard Value</b>
	Roof U-value (W/m <sup>2</sup> K)		
	Wall U-value (W/m <sup>2</sup> K)		

Nearly/Net Zero Energy Building Best Practices information collection template was send to all contacts, till now

- China 20
- Korea 10
- Japan 20
- USA 10
- Canada 6
- Hong Kong 1
- Singapore 1

Were collected.

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## Phase II- Best Practices Study

Program Overseer participated the UNFCCC COP 21 Buildings Day.

December 3<sup>rd</sup> 2015. Paris





# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study

first ever UNFCCC Buildings Day - an entire day devoted to the building sector in recognition of the important role it must play in ensuring that countries meet their emissions reduction obligations.

**More than 30 per cent of global greenhouse gas emissions are buildings-related, and emissions could double by 2050 if we carry on business as usual.**

- Helping to put the buildings and construction sector on the “below 2 ° C path”
- Aligning existing initiatives, partnerships, commitments and programmes to achieve greater scale and increase the pace of efficiency actions
- Catalysing stronger collaboration and targeting sectoral and cross sectoral climate action and solutions for all

THE BUILDINGS SECTOR IS ACTING  
NOW IT IS TIME TO SCALE UP

# APEC Program-- Nearly (Net) Zero Energy Building

## Phase II- Best Practices Study

### Next Step

- Best Practices analysis and final program report will be finalized before end of 2016.
- 1 joint high quality scientific paper are under preparation.
- New APEC proposal: APEC Nearly (Net) Zero Energy Building Roadmap responding to COP21, concept Note was approval and full proposal is under preparation.



Dear all:

If everything goes well,

2017's Program meeting will be held in Hawaii.

Looking forward for your support and hope to meet you there.

Best Regards

PO. ZHANG SHICONG  
China Academy of Building  
Research

# Thank you

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