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# **Proposed APEC Cool Roof Project**

## **APEC Joint Expert Group Meeting on Efficiency and Renewable Energy 7 October 2009**

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## **Roof Energy Impacts on Buildings A/C**

- Highly dependent upon building type and design practices (building use, glazing, insulation, height, etc)
- Typical roof consumption is 20 to 25 percent of electricity for low rise buildings
- Cool roofs save up to around 25 percent of the roofing energy loads or roughly around 5 to 15 percent of total air conditioning loads
- Peak demand reduction on total building performance in India show around 7 to 8 percent through modeling on new construction, much higher on existing buildings
- APEC acknowledges need for cool roofs through recent initiation of assessment project



## Brief Macro Global Overview

- Cool “white” roofs are not new, used for thousands of years (e.g. Greece, Santorini)
- US established Cool Roof Rating Council in 1998, based on the National Fenestration Rating Council model. First products rated in 2003.
- EU established its Cool Roof Rating Council with significant support by DOE’s Lawrence Berkeley National Laboratory in 2009
- Japan working aggressively to put a rating process in place
- Numerous countries are aware of cool roof benefits and some have building code requirements, but general testing and rating infrastructure does not exist
- Aged (weathered) rating performance is critical because performance always degrades, there are also large variations in soiling among different products



- US to provide technical assistance to develop testing and rating processes in partnership economies
- Initiate and co-host manufacturer supplier workshops
- Conduct training for energy simulation, best practices, roofing specifications, code development, etc.
- Assemble case studies of new construction and retrofit opportunities
- Invite research experts to participate in new project to develop accelerated aged protocols, leading to a world ISO test procedure



## International Implementation

- FY10 – Conduct analyses, establish partnerships, and initiate pilot activity if funding allows; possible enhancement of APEC project with additional funding
- FY11 - Expect more comprehensive program with significant funding
- APP – Asia Pacific Partnership on Clean Development and Climate (India, China, Australia, Japan, Korea, Canada, and US)
- APEC – Asia Pacific Economic Cooperation (21 Pacific Rim Economies)
- Middle East, Brazil, Africa
- Southern Europe – EU Cool Roof Rating Council recently established



## Final Remarks

- Cool Roofs are a proven technology, greatest benefit in hottest climates and with the least amount of insulation installed
- US will have a greater focus on international collaboration to promote efficient roofing systems
- Significant lessons learned and support tools exist that are ready for transfer to partner countries
- Advanced products exist probably in all countries, need mechanism to promote them
- Test ratings of aged products are essential to realize predicted savings
- See detailed APP presentation for more information



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