



Overview of APERC Activities

APEC NEW AND RENEWABLE ENERGY TECHNOLOGIES

34th EXPERT GROUP MEETING

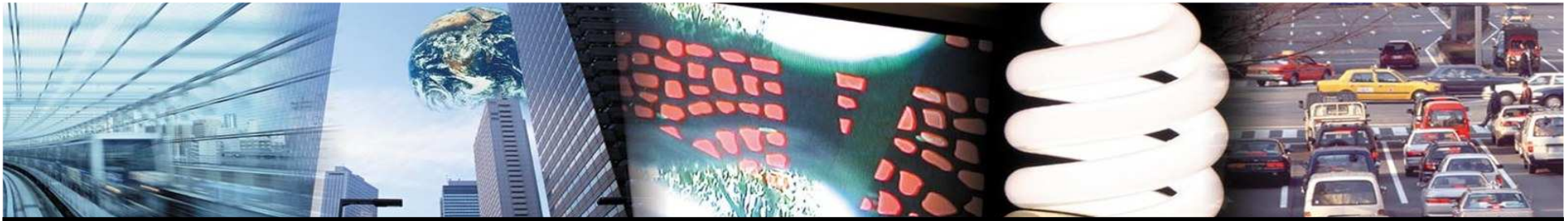
26-28 April, 2010

Kuala Lumpur, Malaysia

Asia-Pacific Energy Research Centre (APERC)

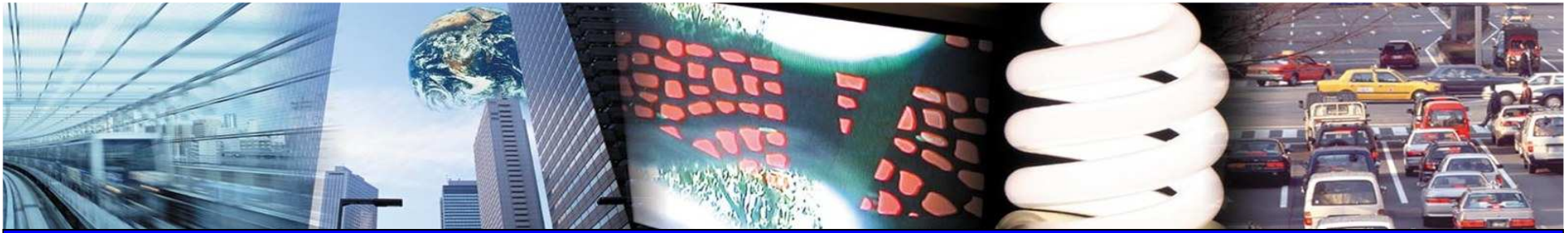


Asia-Pacific
Economic Cooperation



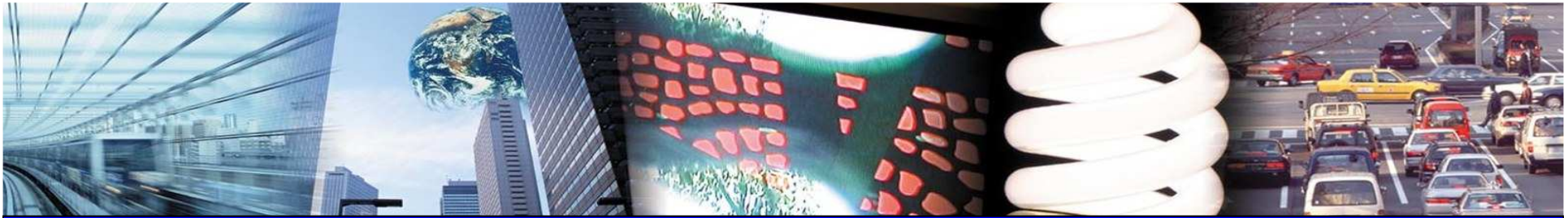
Outline

1. Role of APERC
2. Key Areas of APERC's work in 2010-2011 Activities
3. Activities for Energy Efficiency Improvement in APEC economies
4. APEC Cooperative Pathways to Sustainable Energy Future
5. APEC Energy Demand and Supply Outlook 4th Edition:
Renewable Energy
6. APEC Cooperation to promote Low Carbon Energy



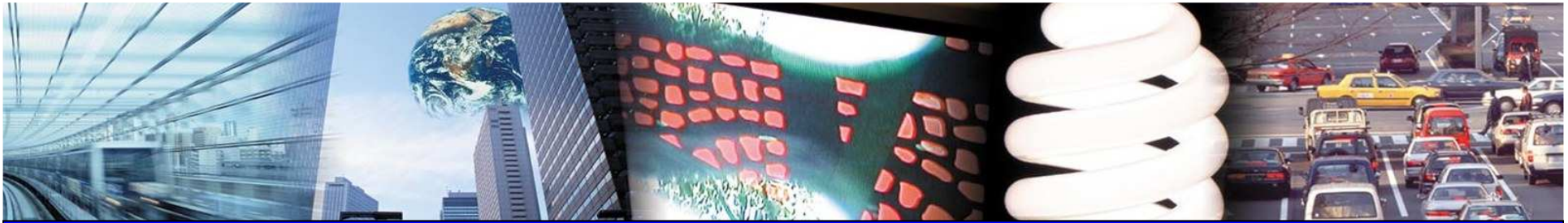
APERC's Role

The primary objective of APERC is to conduct researches to foster understandings among APEC members of regional energy outlook and energy policy issues.



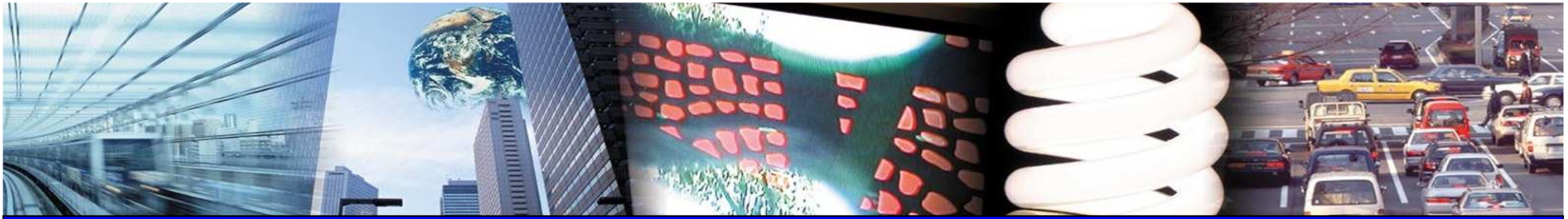
Key Areas of APERC's work in 2010-2011

- Deepen the understanding of how policies and programs can contribute to energy efficiency improvements
- APEC Cooperative Pathways to a Sustainable Energy Future including Effective Policies to promote Low Carbon Energy (e.g. Renewables)



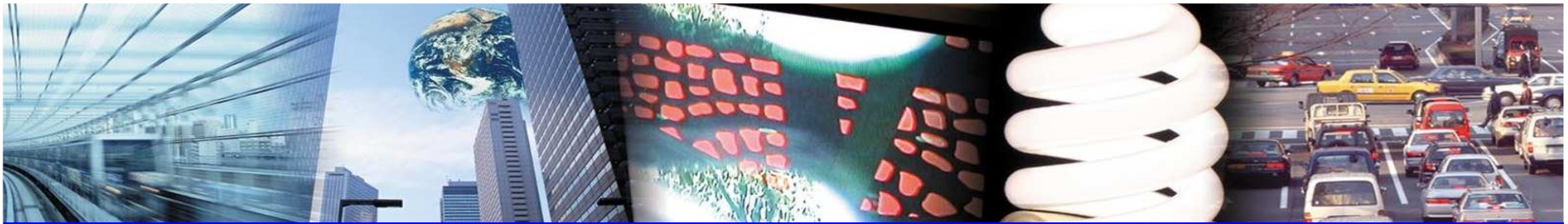
Energy Efficiency Improvement in APEC economies

- Analysis of Best/High Performance Energy Efficiency (EE) Policies in APEC economies using the *Compendium* and *PREE* recommendations
- Study on the energy saving potential in various sectors and analysis on the next steps for APEC economies to realise this potential through the *CEEDS* project



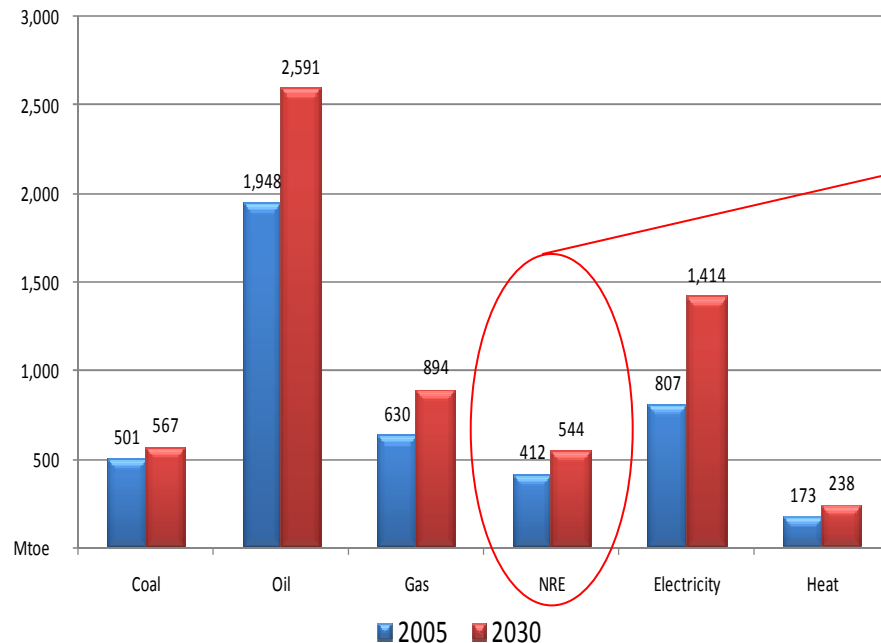
APEC Cooperative Pathways to Sustainable Energy Future

- APERC is planning to assess an alternative scenario focusing on sustainable energy future in the next APEC Energy Demand and Supply Outlook.
- APERC will analyse effective and efficient policies to promote Low- Carbon Energy (e.g. renewable) in the APEC region through a Peer Review Mechanism.

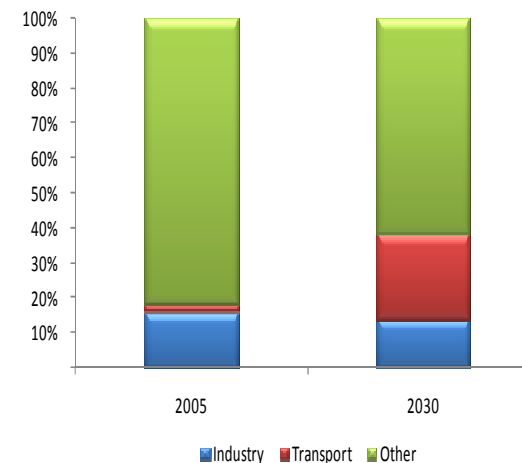


Renewable Energy in APEC Economies Final Energy Demand

Final Energy Demand

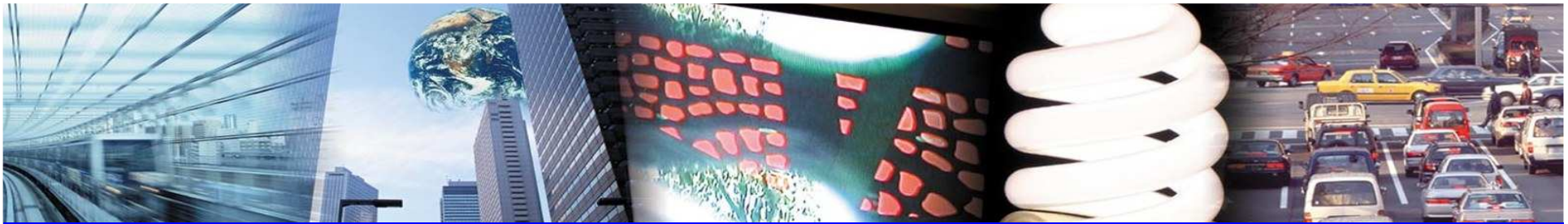


NRE use by sectors

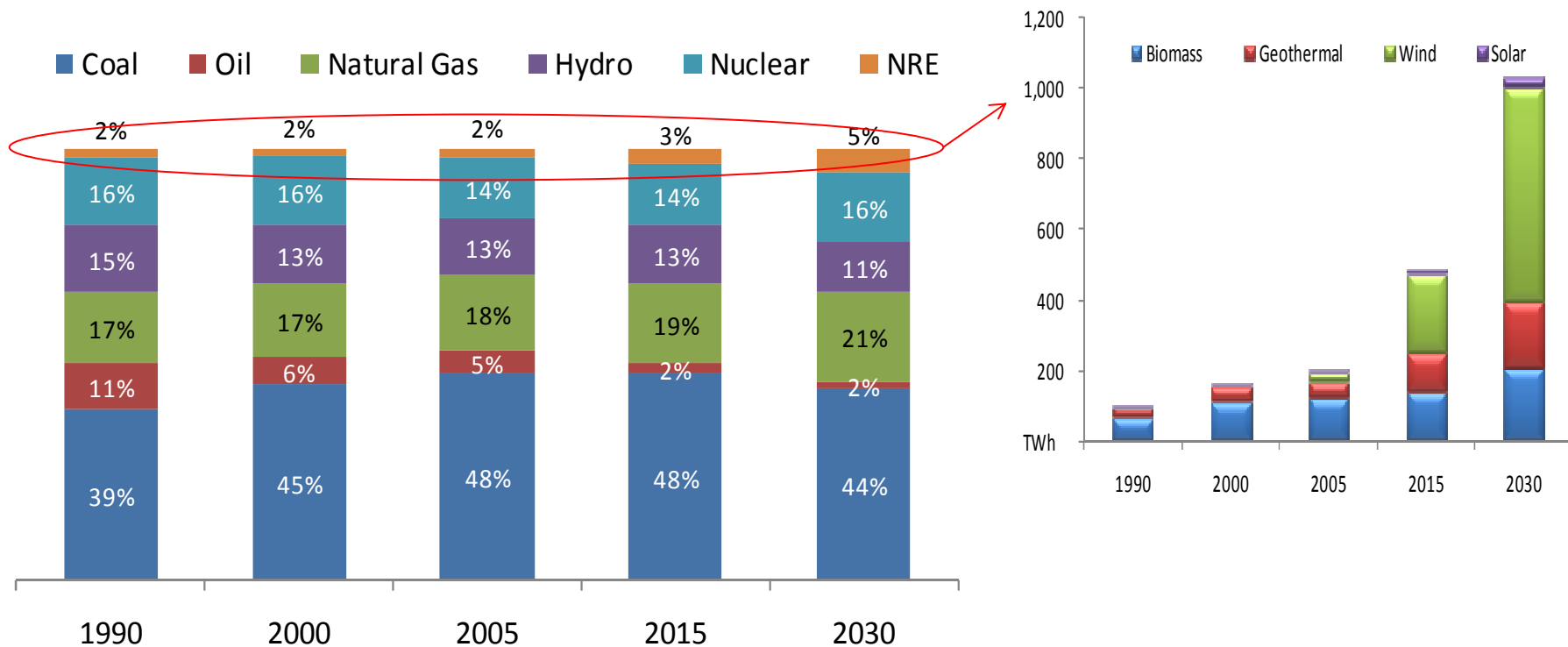


- The Final Energy Demand (FED) is projected to grow at an average rate of 1.1% annually between 2005 and 2030.
- The share of NRE in the total FED by 2030 is projected to reach 6.6%.

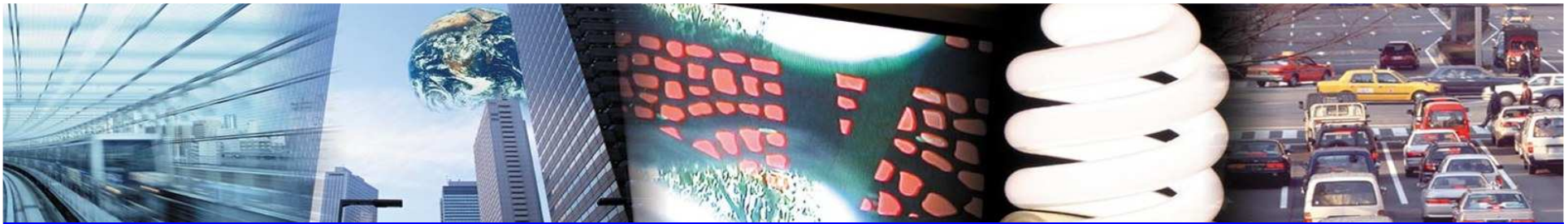
- Industry, Transport and Other (commercial, residential, agriculture, etc) sectors are the users of FED of NRE.
- The increase of NRE use in Transport sector is contributed by bio-fuels.



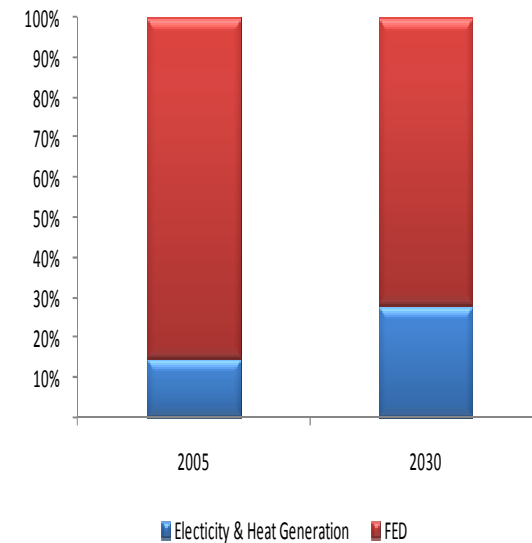
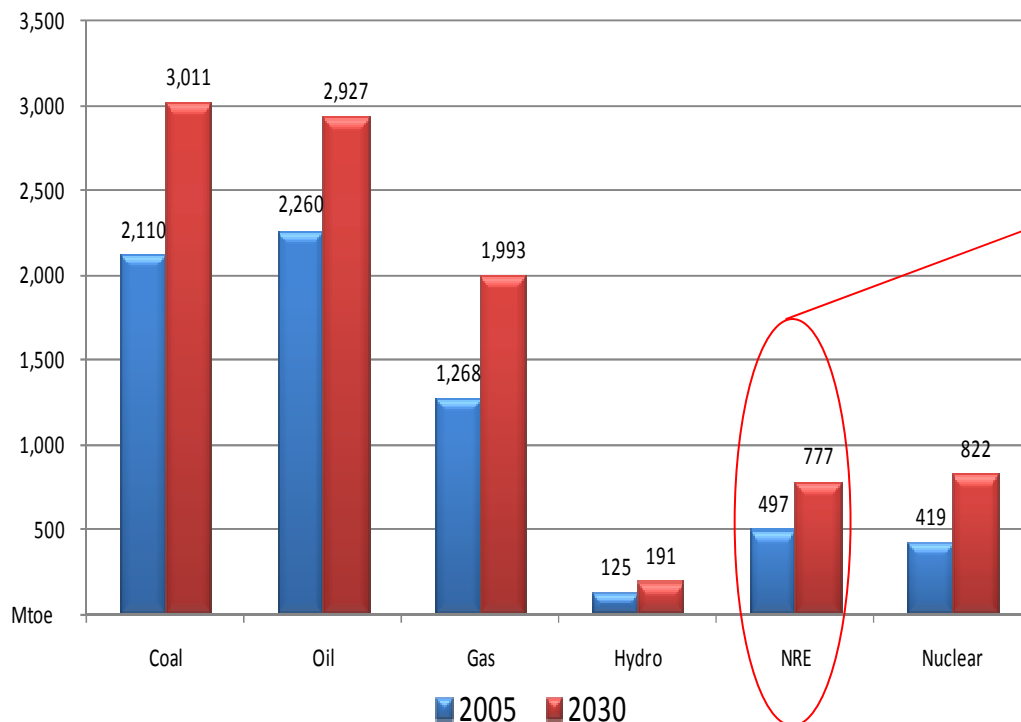
Renewable Energy in APEC Economies Electricity Generation



- The share of NRE in electricity generation fuel mix is projected to increase from 2% in 2005 to reach 5% by 2030.
- Wind and geothermal are the main contributors for the increase of NRE's share in the fuel mix .



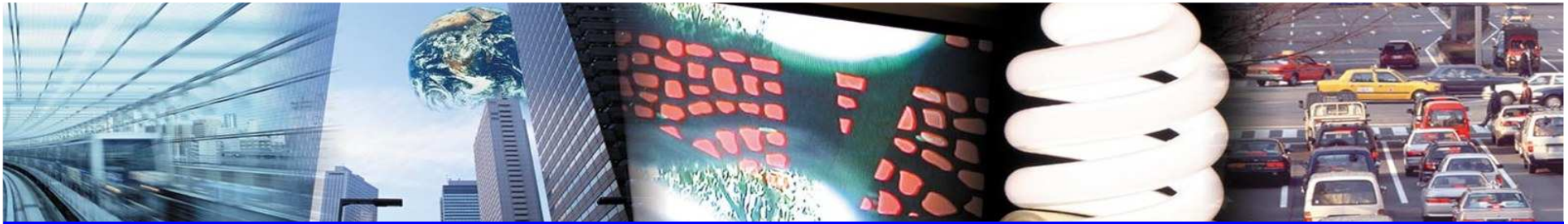
Renewable Energy in APEC Economies Primary Energy Supply



- NRE in the primary energy supply is projected to increase from 497 Mtoe in 2005 to 777 Mtoe by 2030.

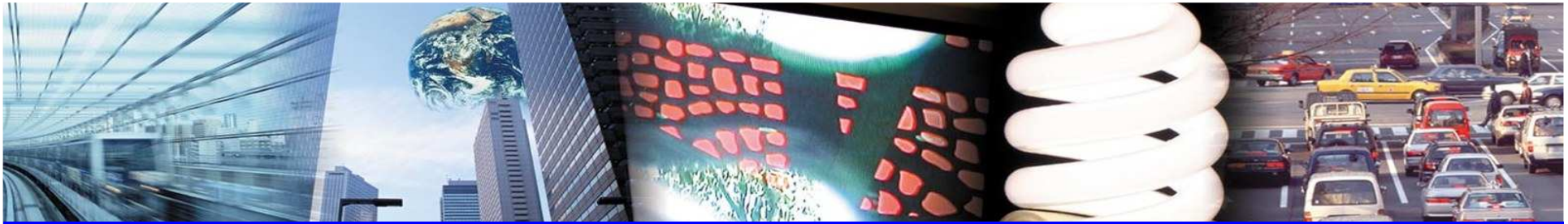
- NRE accounts for 8% of the total share of primary energy supply in 2030.

- The share of primary energy supply of NRE for electricity and heat generation is projected to increase from 15 % in 2005 to 28% by 2030, while that of FED is projected to decline from 85% to 72%.



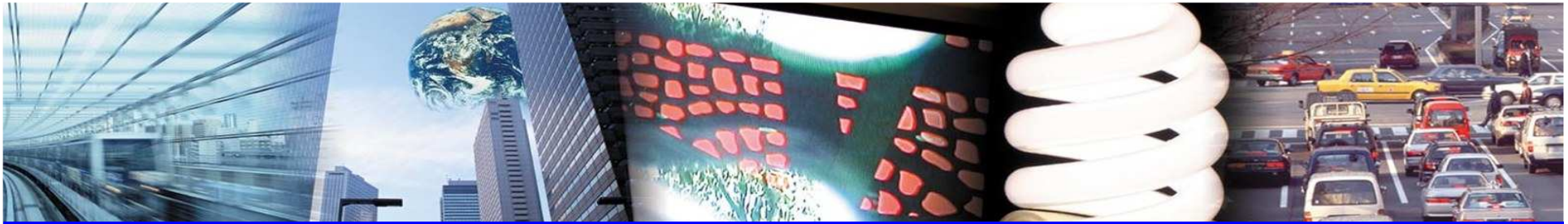
Renewable Energy in APEC Economies Challenges

- Under the “*business-as-usual*” scenario NRE’s share in energy sector is still marginal in the APEC region in 2030.
- The NRE growth in APEC energy sector is still impeded by barriers such as the structure of existing energy market, technical and regulation issues.
- Some common disadvantages faced by NRE in the APEC region are subsidy on fossil energy use, lack of information, lack of human capital, immature technologies, grid access and etc.
- The disadvantages make NRE development is expensive and induce additional costs.



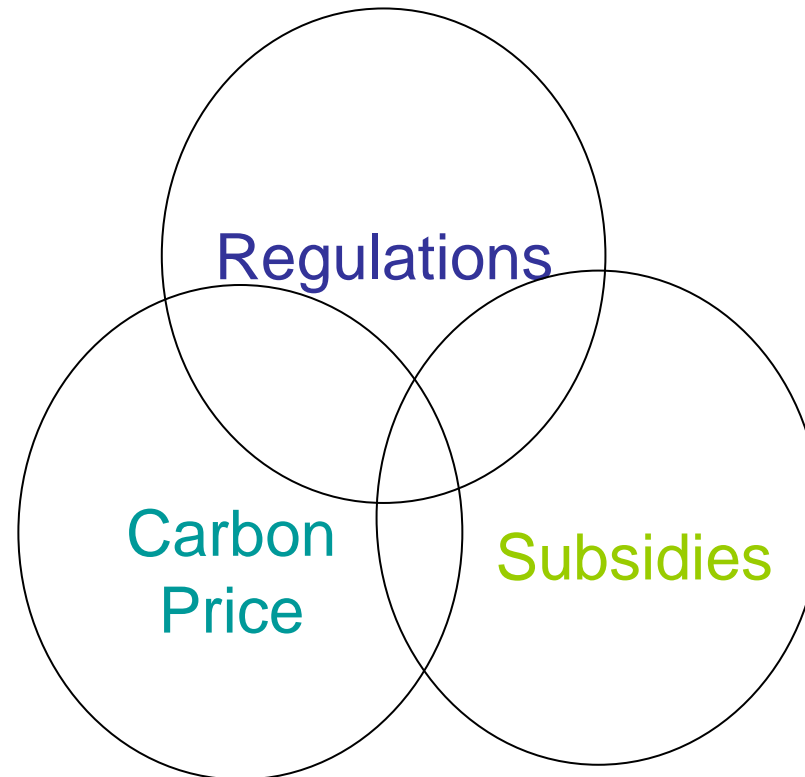
Renewable Energy in APEC Economies Prospect

- Despite the challenges, NRE has strong prospect to emerge as one of the key energy resources in the APEC region.
- The main impetus is the opportunity arise from the global financial crisis where APEC economies are focusing NRE as one of the key economic growth areas.
- The pressing need to reduce greenhouse gases emission from the fossil energy use.
- Issues surrounding the energy sector such as security of supply, price volatility, etc which in favour of NRE development.



Renewable Energy in APEC Economies Option for Policymakers

- Policy instruments to promote more vigorous NRE growth in APEC economies





APEC Peer Review on Low-Carbon Energy

Rationale:

- The messages from *Darwin 2007 EMM8*, through *Sydney 2007 Leaders' Declaration* and *Singapore 2009 Leaders' Declaration* to step up efforts in cooperative works of R&D and Deployment of **low-carbon energies** including RE, nuclear, CCS and cleaner use of fossil energy to address climate change and energy security clearly call for urgent responsive *actions* to develop low-carbon energy solutions
- Building upon progress through Peer Review on Energy Efficiency Policies and NRE technology-focused activities led by EGNRET , it will be valuable for APEC to expand the scope of ***Voluntary APEC Energy Peer Review Mechanism*** to cover the policies to promote Low Carbon Policies. It is high time to start Peer Review on Policies to promote Low-Carbon Energy, with an initial focus on Renewables (i.e. **Peer Review on Renewable Energy - "PRRE"**)
- The design of PRRE is to enable APEC economies to improve the effectiveness of their policies, goals and action plans for promoting low-carbon energy.



APEC Peer Review on Low-Carbon Energy

Challenges

- To explore how **government policies** can accelerate the development and implementation of potential low-carbon energy supplies e.g. *Renewables*
- To **share experience** on RE performance, policies and measures and actions for promoting RE and broadening the network among member economies
- To identify **effective policies and best practices** for RE promotion to encourage technological innovations and promote large-scale commercialization
- To explore ways that **cooperative efforts** through APEC could assist APEC member economies in formulating more effective policies in RE promotion.



APEC Peer Review on Low-Carbon Energy

Key Areas for Cooperation

Appreciating on-going efforts by EGNRET and BTF, the first attention should be focused on the policies to enhance utilization of RE in power generation.

Key Areas for Cooperation in PRRE are as follows:

- 1) Effective and efficient government policies that can encourage entrepreneurial innovation and investment in promoting RE
- 2) Well-designed *regulatory framework* to promote the development and deployment of RE
- 3) Effective and efficient policies to overcome *non-economic barriers* at various stages of RE development and deployment
- 4) *RE financing & fund* (e.g. fiscal incentives such as tax exemptions or investment grants).
- 5) *RE pricing policies* (e.g. price-based market instruments / subsidy mechanism such as feed-in tariffs, RPS)
- 6) Analysis on RE Supply Potential and the effective and efficient RE policies to realize such potential as well as Cost-Benefit Analysis of REs and their competitiveness to conventional energy to develop more effective RE policies
- 7) *RD&D policy* for RE development
- 8) Model of low-carbon communities in urban development plans



APEC Peer Review on Low-Carbon Energy

Approach

- Given broader dependencies of RE, Best /High Performance Policies to promote RE depends on the circumstances of each economy, including regulatory structure, tax system, available energy infrastructure, energy pricing policies, RE resources, and extent of public vs. private ownership of the energy supply system.
- *Approach* of PRRE should focus upon volunteered economies' *specified* policies.
- PRRE will consider the ***specific RE policy topic for several economies at a time***
 - to identify general principles on effective RE promotion policies and the *next steps* for each participating economy to develop tailor-made effective policies which would be appropriate in different circumstances.



APEC Peer Review on Low-Carbon Energy

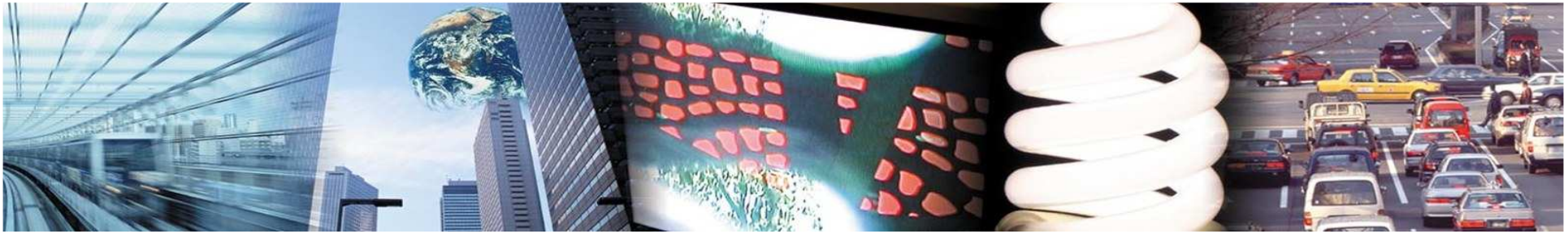
Way Forward...

Building upon progress through Peer Review on Energy Efficiency Policies and with **high appreciation to current efforts led by EGNRET for promoting NRE technologies and on-going efforts led by BTF for promoting Biofuels,**

- *A peer review mechanism to encourage APEC economies to set individual goals and action plans for promoting low-emission power sources should be established as soon as possible, i.e.*

- *Set-up of Peer Review Mechanism on Low-carbon Energy with an initial focus on Renewable (i.e. **Peer Review on Renewable Energy - "PRRE"**).*
- *With first attention on policies to enhance RE utilization in power generation that can make value-added contribution to Sustainable Low-Carbon APEC .*

- *With assistance from APEC specialized bodies e.g. relevant expert groups, task-forces and APERC for a more secure and sustainable energy future in APEC.*



Thank You for your kind attention!

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