Session 7: APERC Research Activities

C. Monitoring APEC energy intensity goal

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Asia-Pacific
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Why This Presentation?

- APEC has adopted a goal of reducing APEC-wide energy intensity (that is energy/GDP) by 45% between 2005 and 2035.

- APERC has been monitoring APEC's progress toward this goal; last update was presented at EWG 48 (November 2014) based on statistics through the year 2012.

Some Reminders (1)

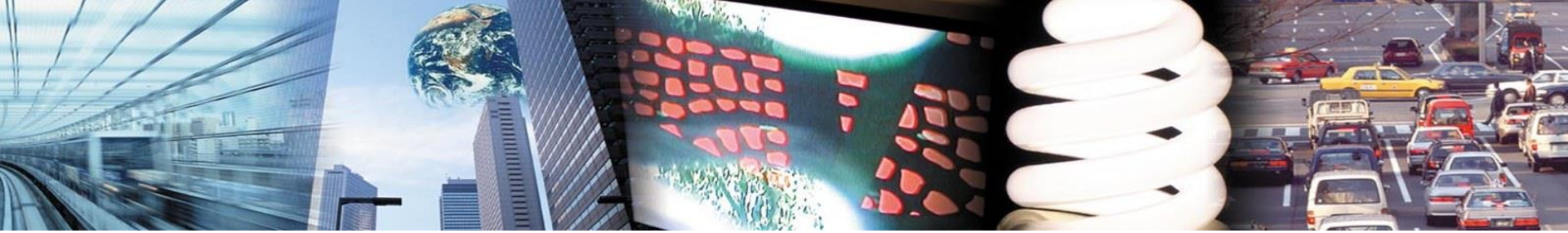
- Energy data comes from the IEA
- GDP data comes from the World Bank and is adjusted for PPP
- Exceptions
  - Papua New Guinea's energy data comes from APEC under coordination of EDMC
  - Chinese Taipei's GDP data is estimated by APERC

Some Reminders (2)

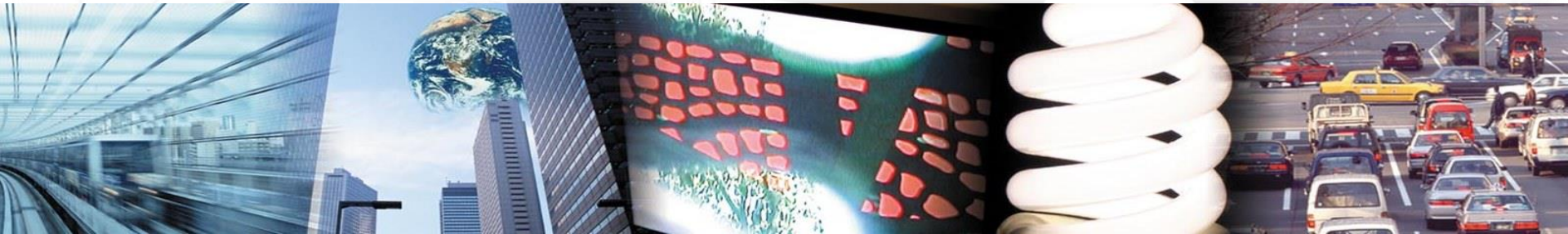
- Three measures of Energy Intensity are considered (only numerator varies)
  - Primary Energy
  - Final Energy
  - Final Energy less non-energy use
- GDP is used as the denominator in all calculations

Some Changes

- IEA recently published its 2015 update, 2013 was the latest while 2014 are estimates and only for primary supply
- This update is based on statistics through 2013;
- WB GDP data has released update up to 2014



The Results



What happened to the Primary Energy Intensity up to 2013?

	2006	2007	2008	2009	2010	2011	2012	2013	2005-2013	Trend to 2035
Change in Primary Energy	2.7%	2.7%	0.1%	-0.3%	5.7%	2.9%	1.4%	3.7%	20.4%	
Change in GDP (2011 US $PPP)	5.4%	5.6%	3.0%	0.0%	5.8%	4.3%	4.4%	4.0%	37.4%	
Change in Primary Energy Intensity	-2.6%	-2.8%	-2.9%	-0.3%	-0.1%	-1.4%	-2.8%	-0.3%	**-12.4%**	**-39.2%**

Note : Data from IEA, energy intensity calculation by APERC

- yearly intensity improvement in Primary energy was on average 1.6% since 2006;

… Final Energy Intensity up to 2013?

	2006	2007	2008	2009	2010	2011	2012	2013	2005-2013	Trend to 2035
Change in Final Energy (FE)	2.3%	2.9%	-0.4%	-1.2%	5.3%	2.5%	0.6%	3.8%	16.7%	
Change in GDP (2011 US $PPP)	5.4%	5.6%	3.0%	0.0%	5.8%	4.3%	4.4%	4.0%	37.4%	
Change in Final Energy Intensity	-2.9%	-2.6%	-3.4%	-1.2%	-0.5%	-1.8%	-3.6%	-0.2%	**-15.1%**	**-45.8%**

Note : Data from IEA, energy intensity calculation by APERC

- Final energy intensity reduction in 2013 slowed compared to 2012, on average 2.0% since 2006;

…and Final Energy Intensity excluding Non-energy use up to 2013?

	2006	2007	2008	2009	2010	2011	2012	2013	2005-2013	Trend to 2035
Change in Final Energy minus Non Energy	2.4%	3.3%	-4.6%	2.6%	7.7%	1.6%	-2.4%	6.0%	16.2%	
Change in GDP (2011 US $PPP)	5.4%	5.6%	3.0%	0.0%	5.8%	4.3%	4.4%	4.0%	37.4%	
Change in Final Energy minus Non Energy Intensity	-3.7%	-2.1%	-7.4%	2.6%	1.7%	-2.6%	-6.5%	1.9%	**-15.5%**	**-46.7%**

Note : Data from IEA, energy intensity calculation by APERC

- Final energy minus non energy intensity reduction shows better cumulative reduction in total final energy intensity, although much higher year on year variations with 2013, 2010 and 2009 showing an increase in final energy intensity

How Do These Results Compare with Last Year's Progress Report

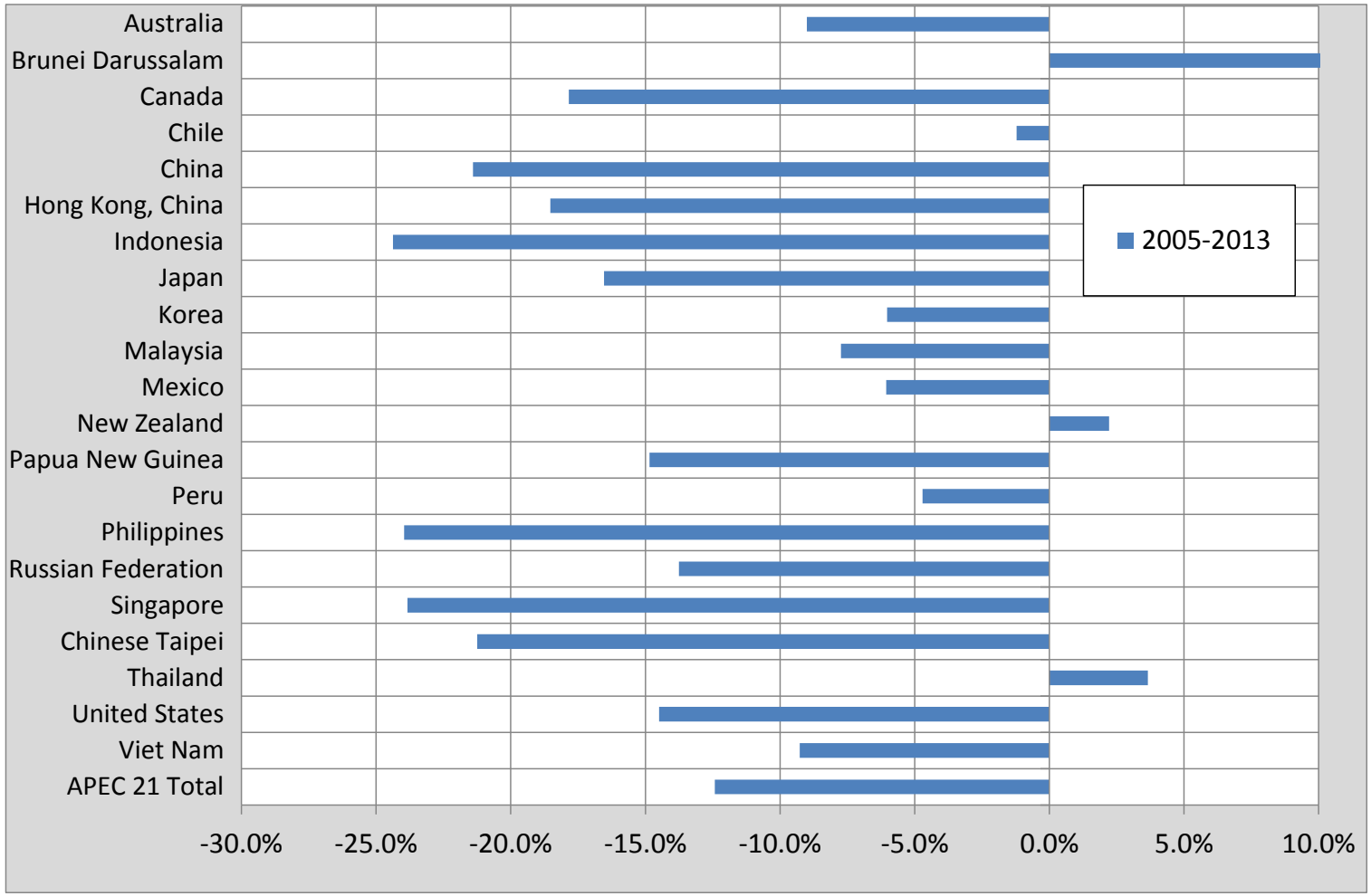
	2005-2013 (Latest)	2005-2012 (EWG 48)
Primary Energy Intensity	-12.4%	-10.8%
Final Energy Intensity	-15.1%	-14.4%
Final Energy Intensity (excluding non-energy)	-15.5%	-12.3%

	Trend to 2035 (Latest)	Trend to 2035 (EWG 48)
Primary Energy Intensity	-39.2%	-38.8%
Final Energy Intensity	-45.8%	-48.7%
Final Energy Intensity (excluding non-energy)	-46.7%	-43.0%

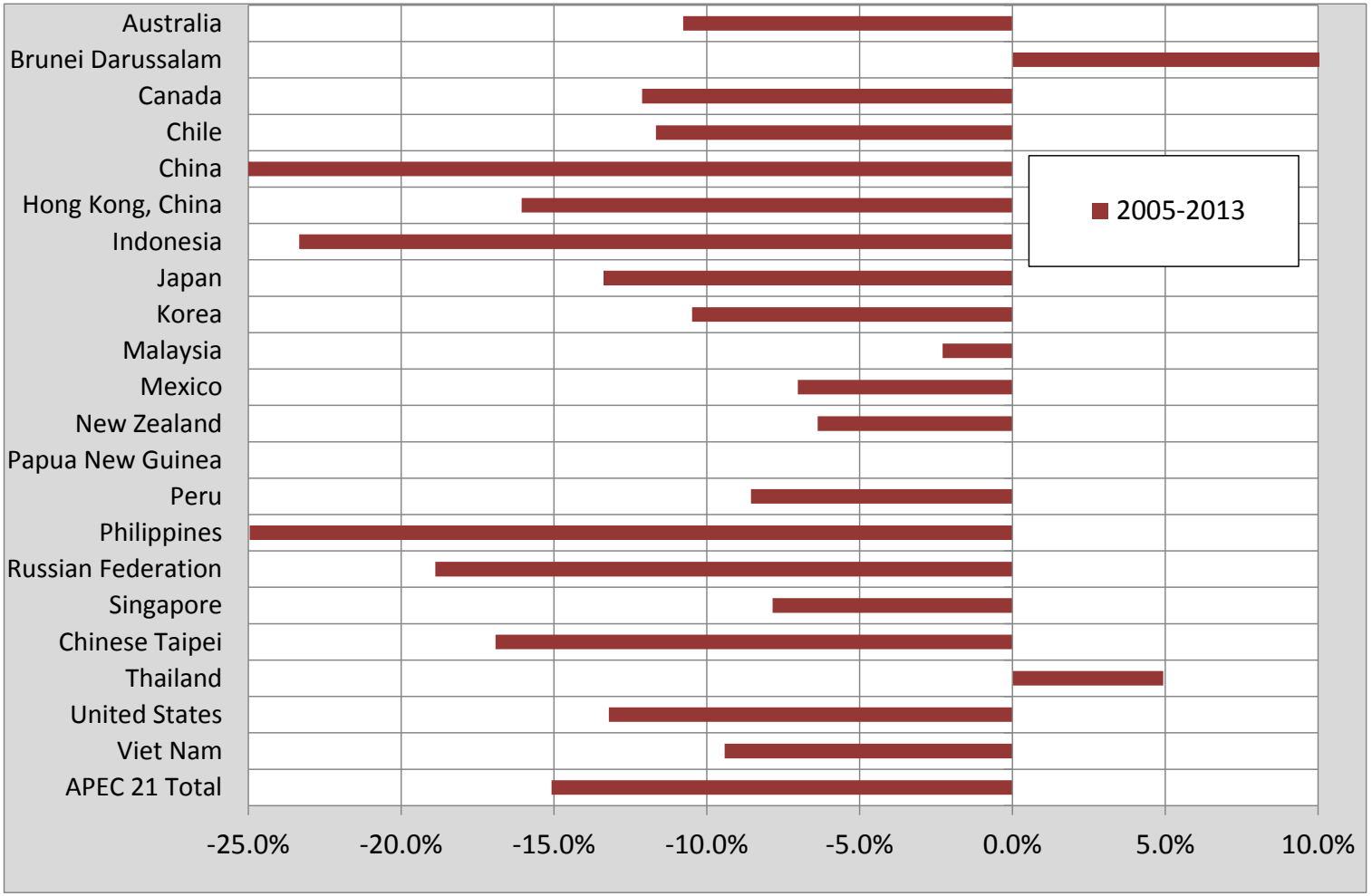
What can we tell from the numbers?

- Energy intensity reduction since 2005 is improving; but 2013 energy intensity reduction is less than 2012's;
- Based on final energy, APEC energy intensity goal appears to be on track, however primary energy intensity looks to fall short of 45% reduction goal;
- Additional end use data needed to better understand year-to-year changes

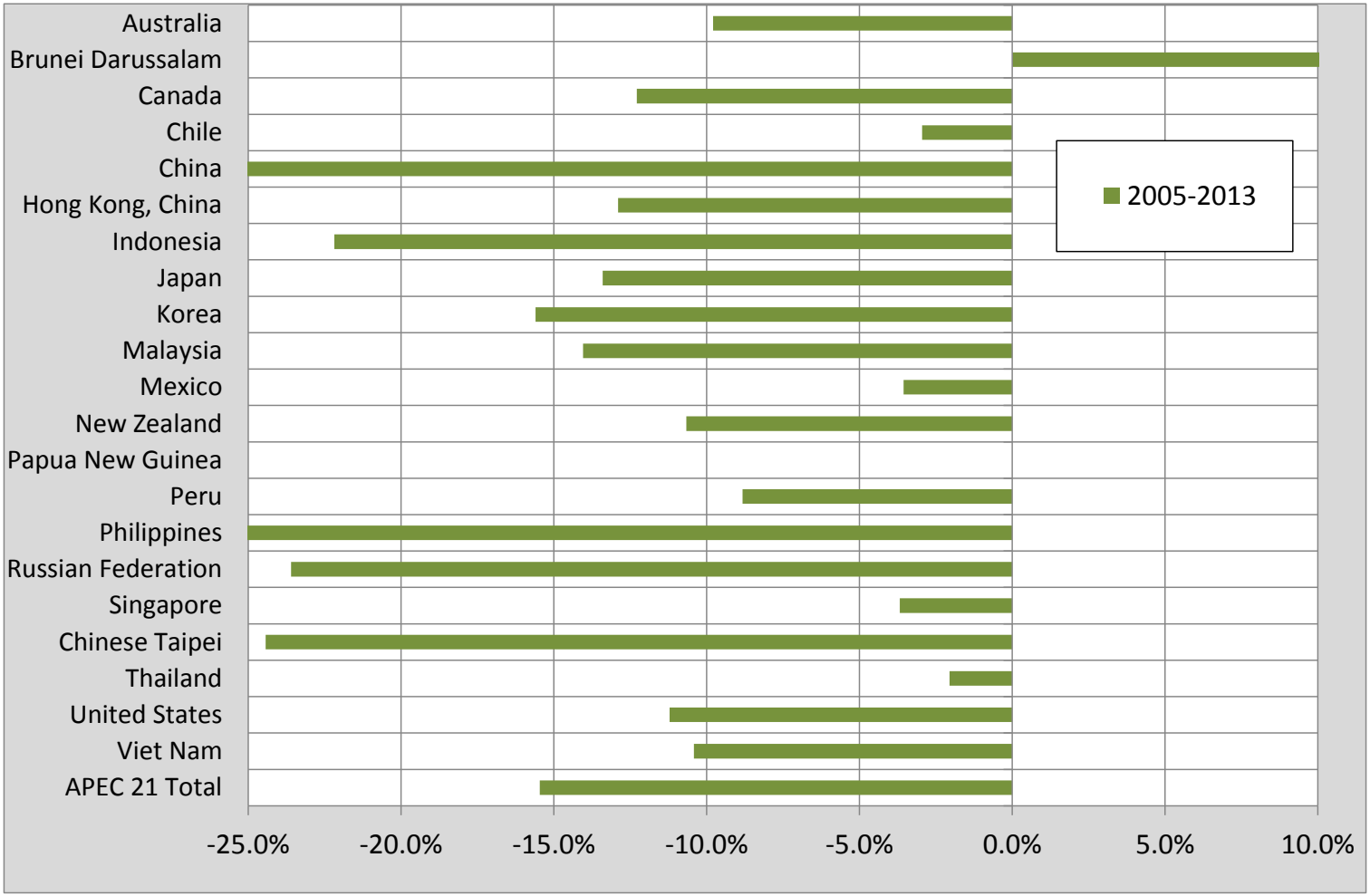
Economy level results show a mix picture, primary energy



...Final Energy Intensity by Economy

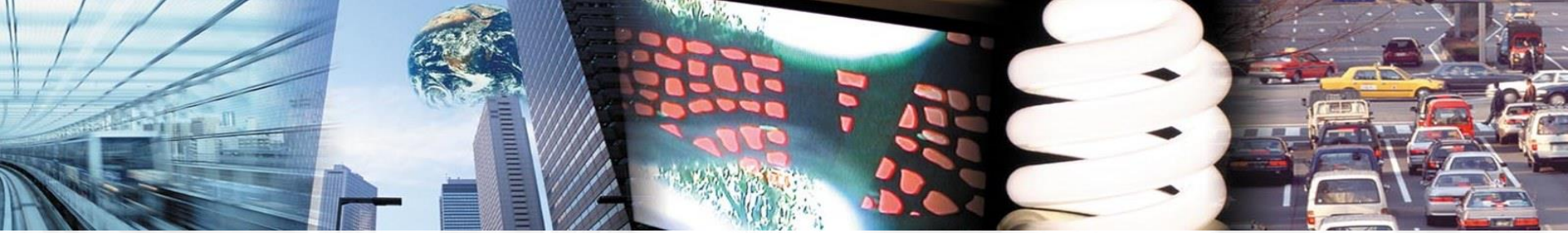


.. and Final Energy Intensity Excluding Non-energy



Closing Thoughts

- Caution against pessimism/optimism arising from year-to-year changes in progress measurements
- Additional data and analysis needed
- Energy intensity is not a measure of energy efficiency
  - Challenge/opportunity for EGEDA
  - Need to develop APEC energy efficiency indicators to better understand trends, year-to-year changes and opportunities for greater efficiency improvements
- APEC-aggregate aspirational goal
  - Discourage “league tables”/”standings”



Thank You

APERC looks forward to cooperating with you in the future

http://aperc.ieej.or.jp/