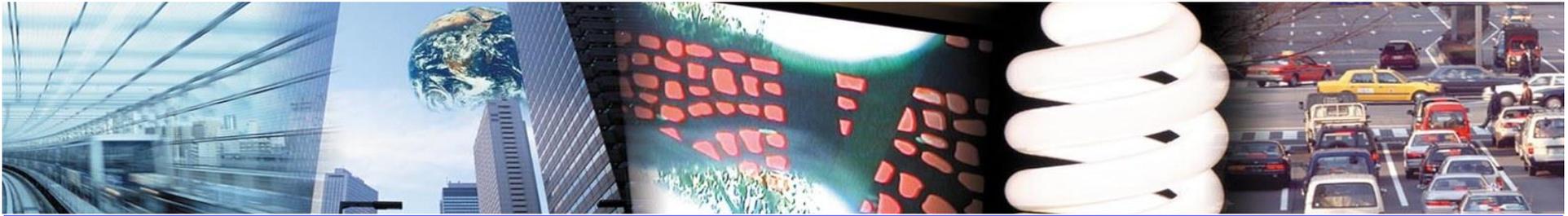


EWG 48, Port Moresby, PNG

19-20 November 2014

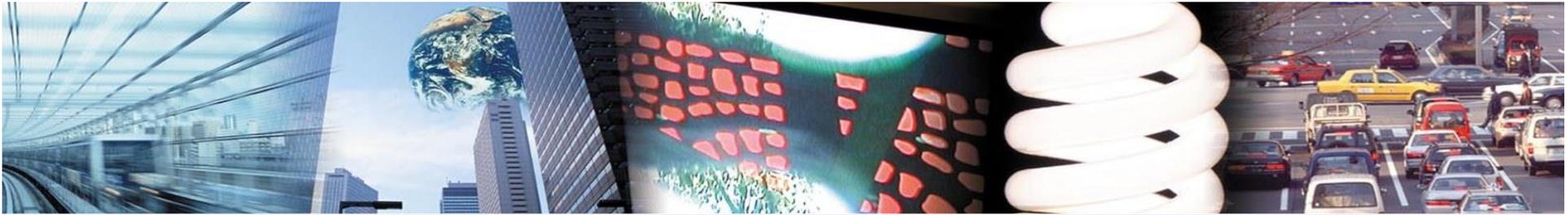
# APEC's Energy Intensity Reduction Goal: Progress Update

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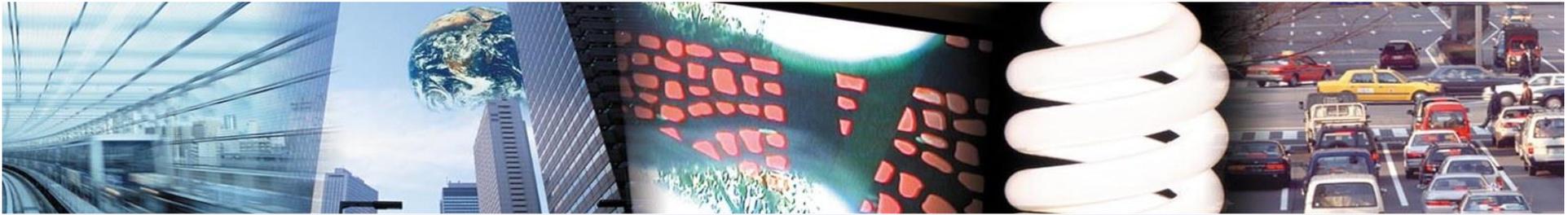
## Why This Presentation?

- 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; most recent update was presented at EWG 46 (November 2013) based on statistics through the year 2011.



## Some Reminders

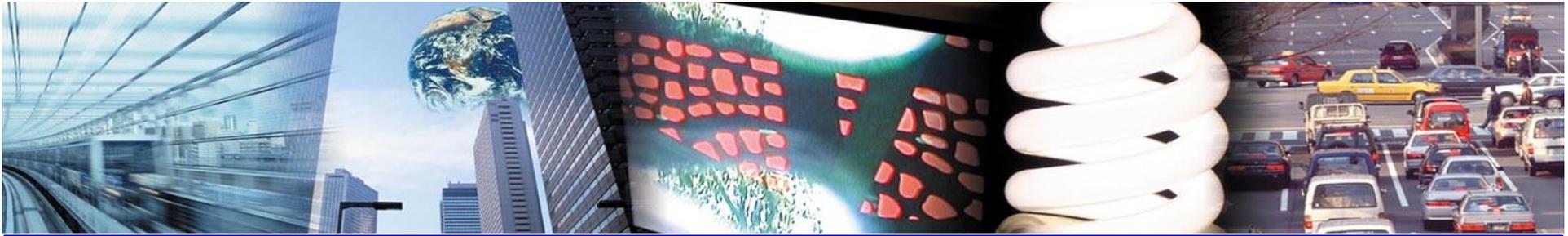
- Energy data comes from the IEA
- GDP data comes from the World Bank and is adjusted for PPP
- Exceptions
  - Papua New Guinea's energy data comes from APEC under coordination of EDMC
  - Chinese Taipei's GDP data is estimated by APERC



## Some Reminders

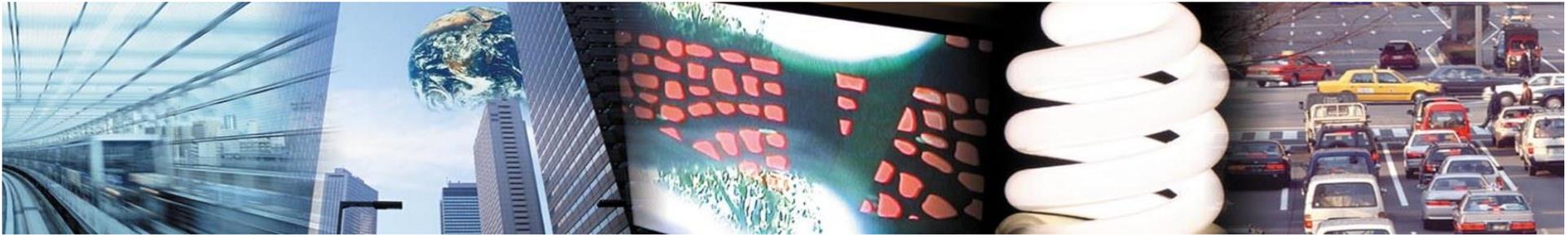
- Three measures of Energy Intensity are considered (only numerator varies)
  - Primary Energy
  - Final Energy
  - Final Energy less non-energy use
  
- Measure is like a weighted average:

$$\frac{\sum_{i=1}^n \frac{E_i}{GDP_i}}{\sum_{i=1}^n \frac{1}{GDP_i}}$$

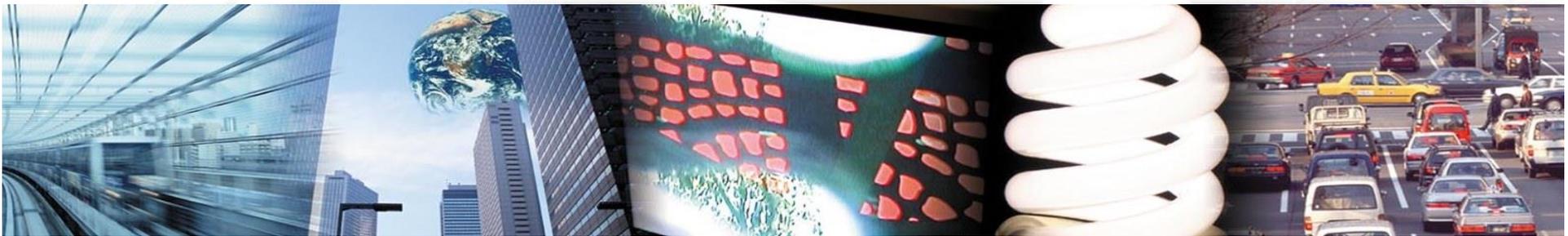


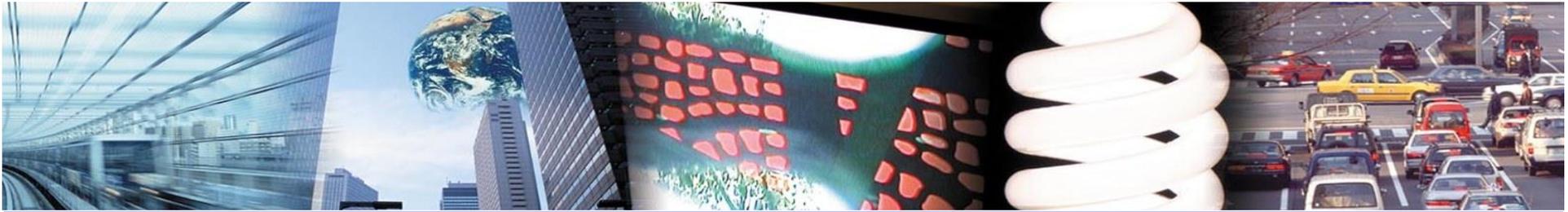
## Some Changes

- IEA recently published its 2014 update, but only primary energy has 2013 statistics; final consumption is only thru 2012
- Hence, this update is based on statistics through 2012
- World Bank changed its base year from 2005 PPP to 2011 PPP for the years 1990 to current (2012)



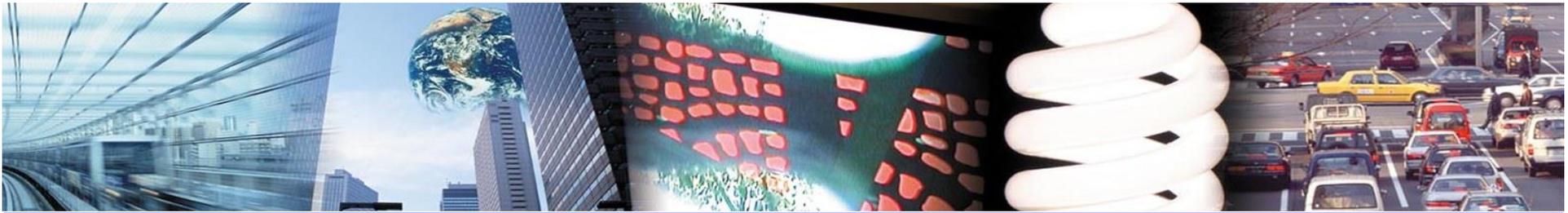
# The Results





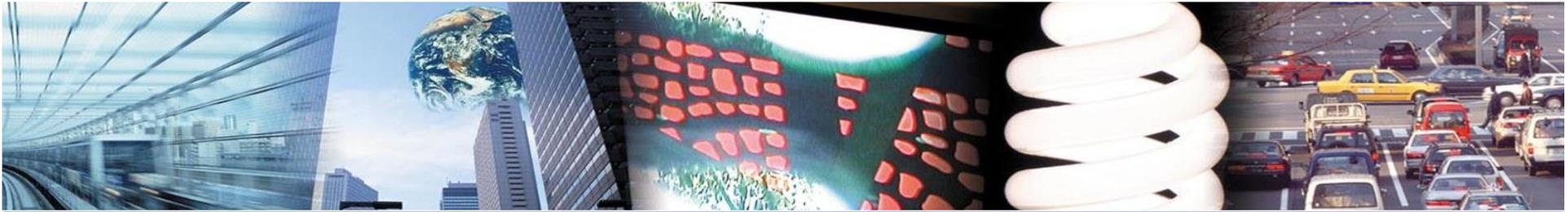
## What happened to the Primary Energy Intensity up to 2012?

	2006	2007	2008	2009	2010	2011	2012	Total 2005-2012	Trend to 2035
Change in Primary Energy	2.7%	2.5%	0.6%	-0.4%	6.3%	3.0%	1.8%	17.7%	
Change in GDP (2011 USPPP)	5.4%	5.6%	3.0%	-0.1%	5.8%	4.3%	4.4%	32.0%	
Change in Primary Energy Intensity	-2.5%	-2.9%	-2.4%	-0.3%	0.5%	-1.3%	-2.5%	<b>-10.8%</b>	<b>-38.8%</b>



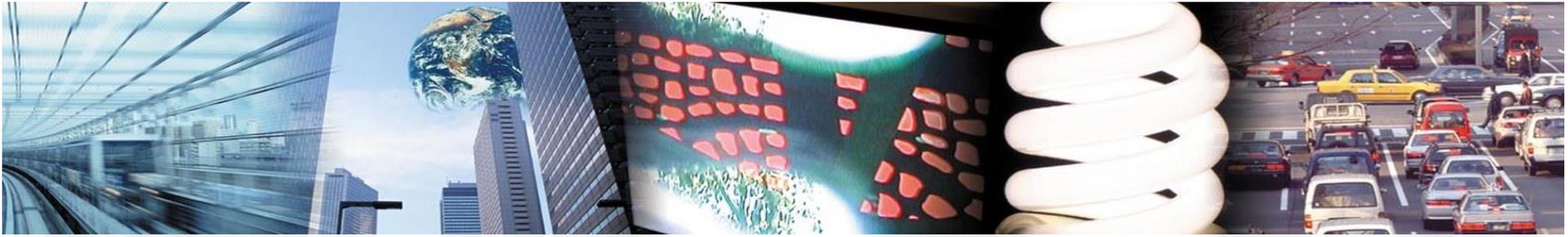
## ... Final Energy Intensity up to 2012?

	2006	2007	2008	2009	2010	2011	2012	Total 2005-2012	Trend to 2035
Change in Final Energy	2.3%	2.9%	-0.4%	-1.2%	5.4%	2.5%	0.8%	12.9%	
Change in GDP (2011 USPPP)	5.4%	5.6%	3.0%	-0.1%	5.8%	4.3%	4.4%	32.0%	
Change in Final Energy Intensity	-2.9%	-2.5%	-3.3%	-1.1%	-0.3%	-1.7%	-3.5%	<b>-14.4%</b>	<b>-48.7%</b>



## ...and Final Energy Intensity excluding Non-energy use up to 2012?

	2006	2007	2008	2009	2010	2011	2012	Total 2005-2012	Trend to 2035
Change in Final Energy	2.4%	2.6%	-0.4%	-1.5%	5.0%	2.5%	0.6%	11.5%	
Change in GDP (2011 USPPP)	5.4%	5.6%	3.0%	-0.1%	5.8%	4.3%	4.4%	32.0%	
Change in Final Energy Intensity	-2.8%	-2.8%	-3.4%	-1.5%	-0.7%	-1.8%	-3.7%	<b>-12.3%</b>	<b>-43.0%</b>



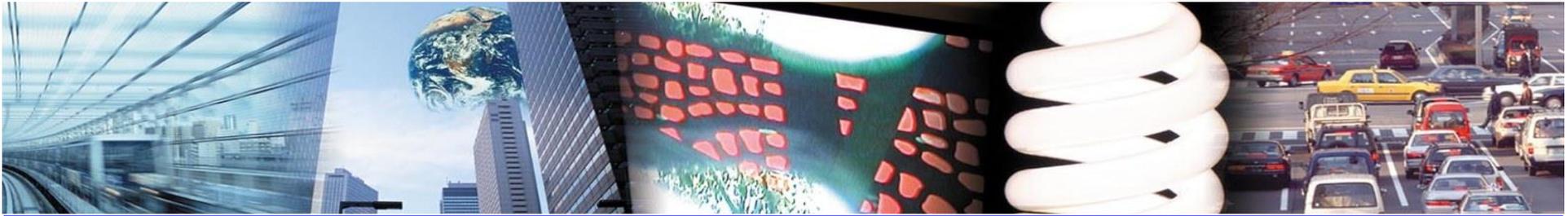
## How Do These Results Compare with Last Year's Progress Report?

2005-2012	Trend to 2035	2005-2011	Trend to 2035
<b>Primary Energy Intensity</b>			
Latest		EWG 46 (Nov 2013)	
-10.8%	-38.8%	-7.1%	-30.6%
<b>Final Energy Intensity</b>			
Latest		EWG 46 (Nov 2013)	
-14.4%	-48.7%	-9.4%	-39.0%



## What Drove the Improvement? Ex: Primary Energy

- World Bank's new GDP is more optimistic
  - 2005-2011: 26.4% increase vs. 24% increase (using previous data)
  - Change in Primary Energy Intensity 2005-2011 would have been -8.5% vs. -7.1%
- 2012 was a good year for GDP growth
  - 2005-2011 p.a. 4.0%, but 2011-2012 was 4.4%
- Smaller increase in energy consumption in 2012
  - 2005-2011 p.a. 2.4%, but 2011-2012 only 1.8%



## Closing Thoughts

- Caution against pessimism/optimism arising from year-to-year changes in progress measurements
- APEC-aggregate aspirational goal
  - Discourage “league tables”/”standings”
- Measured as a weighted average
- Energy intensity is not a measure of energy efficiency



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