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Progress toward APEC goals

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APEC
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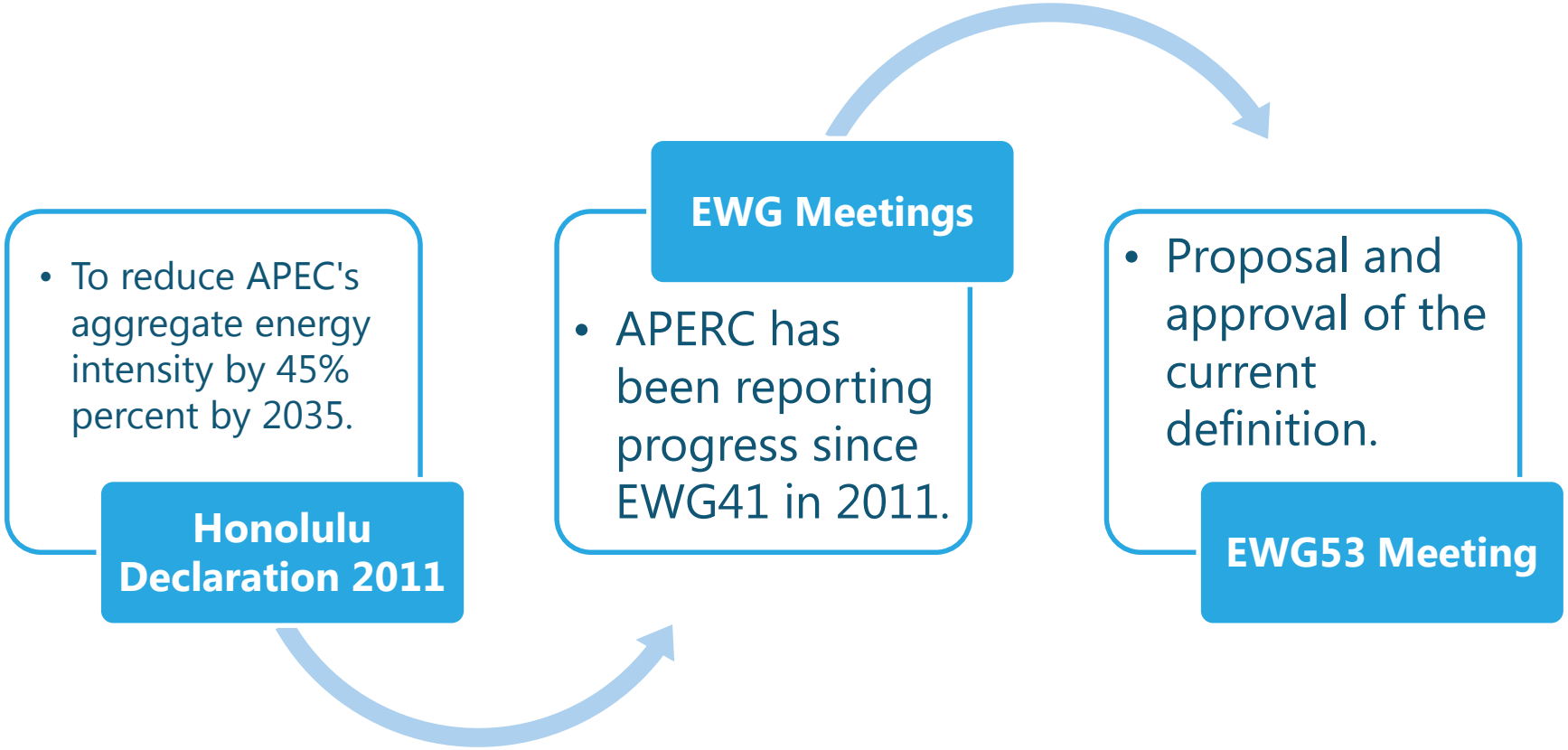
Intensity, but not renewables, goal is on track

Measure	Period	Data	Result
Intensity	2005-2035	Demand	Extrapolation
			Projection
Renewable Share Doubling	2010-2030	Supply	Extrapolation
			Projection
		Demand	Extrapolation
			Projection

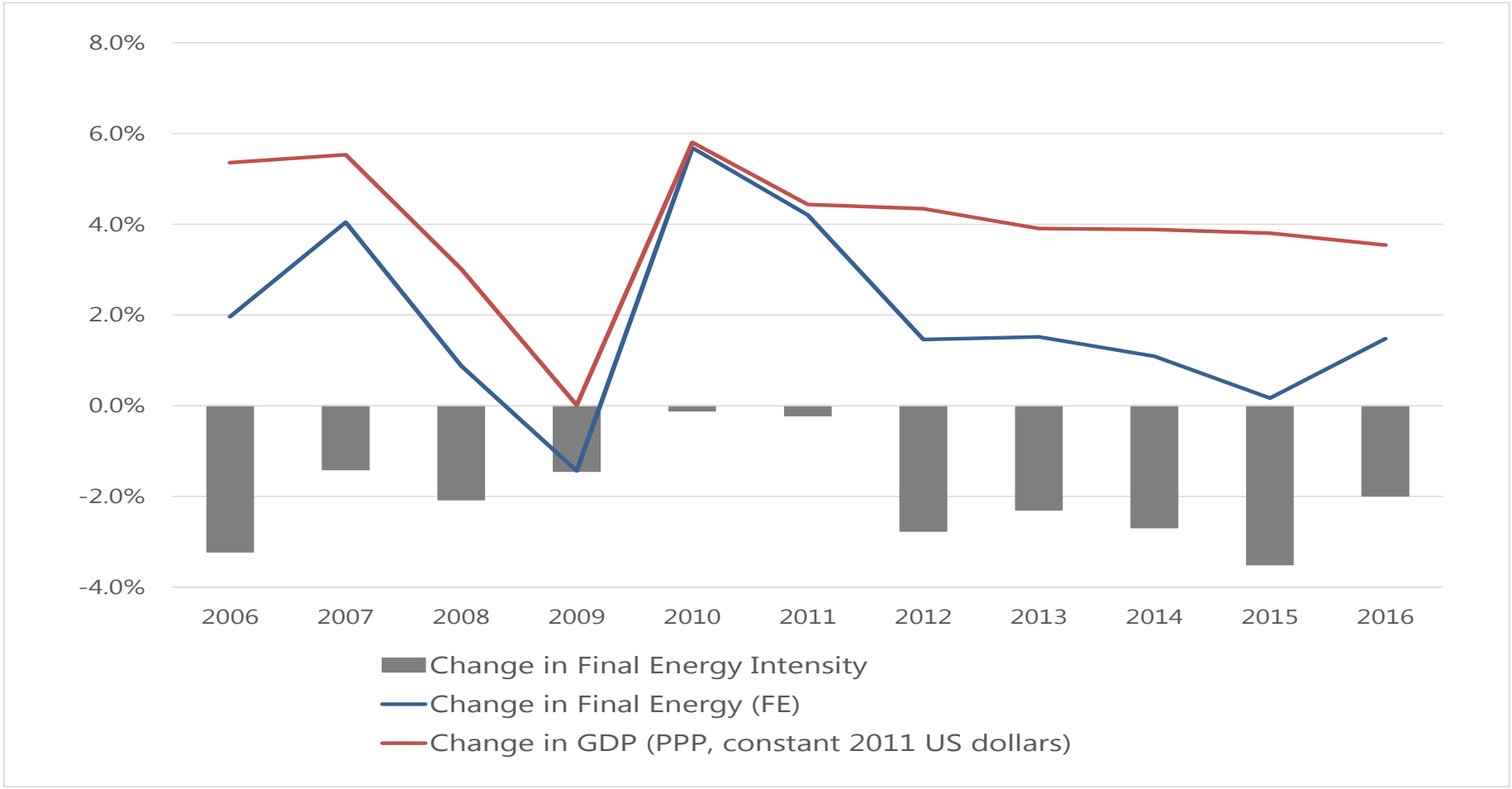
APEC energy intensity indicator milestones



Agreement was reached at EWG53 to analyse final energy consumption intensity (excluding non-energy), using APEC data.

Data extrapolation shows intensity goal met in 2035

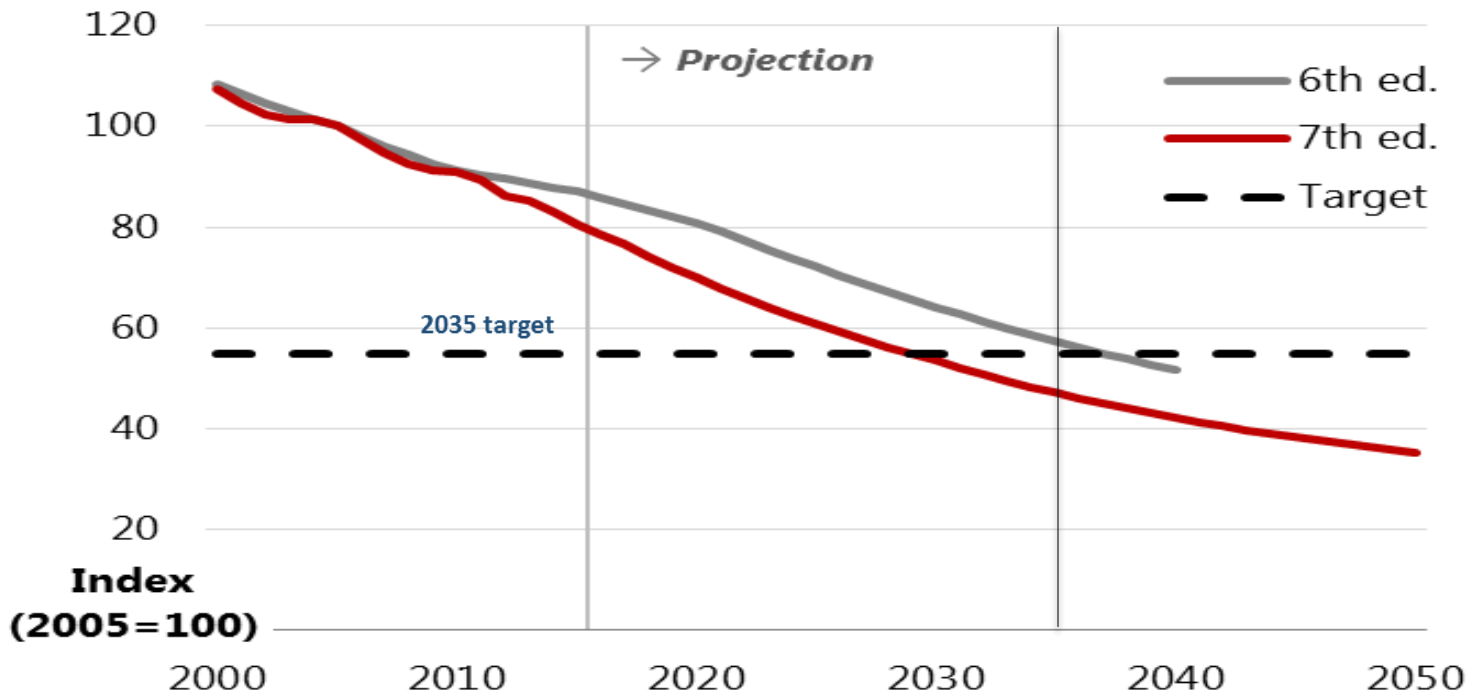
Annual changes to intensity, energy demand and GDP, 2006-2016



Source: APEC statistics and APERC analysis.

Intensity goal is met in 2029 in Outlook 7th edition

APEC energy intensity by edition, 2000-2050



Goal was met in 2037 in the 6th edition Business as Usual Scenario.

Source: IEA statistics 2017 and APERC analysis.

Decomposition will illuminate intensity measure

Data collection

Energy data - APEC data through ESTO

GDP (PPP)–World Bank Indicators. As oftentimes disaggregated GDP or gross value added (GVA) are not available in World Bank database, GVA may need to be sourced from each economy.

Other data–activity data; physical production output; sectoral end use from each economy; and other international sources such as IEA, WB, IMF, UN, ADB and OECD.

Activity, structure, and intensity effects are key

Methodology

Change in energy use

$$E = A \Sigma_j S_j * I_j$$

In this decomposition:

E represents total energy use in a sector;

A represents overall sectoral activity (e.g. value added in manufacturing);

S_j represents sectoral structure or mix of activities within a sub-sector j (e.g. shares of output by manufacturing sub- sector j); and

I_j represents the energy intensity of each sub- sector or end-use j (e.g. energy use/real US dollar value added)

j denotes sub-sectors or end use within sector

Activity effect

$$A_t/A_0 = A_t \Sigma_j S_{j,o} * I_{j,0} / E_0$$

Structure effect

$$S_t/S_0 = A_0 \Sigma_j Sj_{,t} * I_{j,0} / E_0$$

Intensity effect

$$I_t/I_0 = A_0 \Sigma_j S_{j,o} * I_{j,t} / E_0$$

Where:

t represents current year

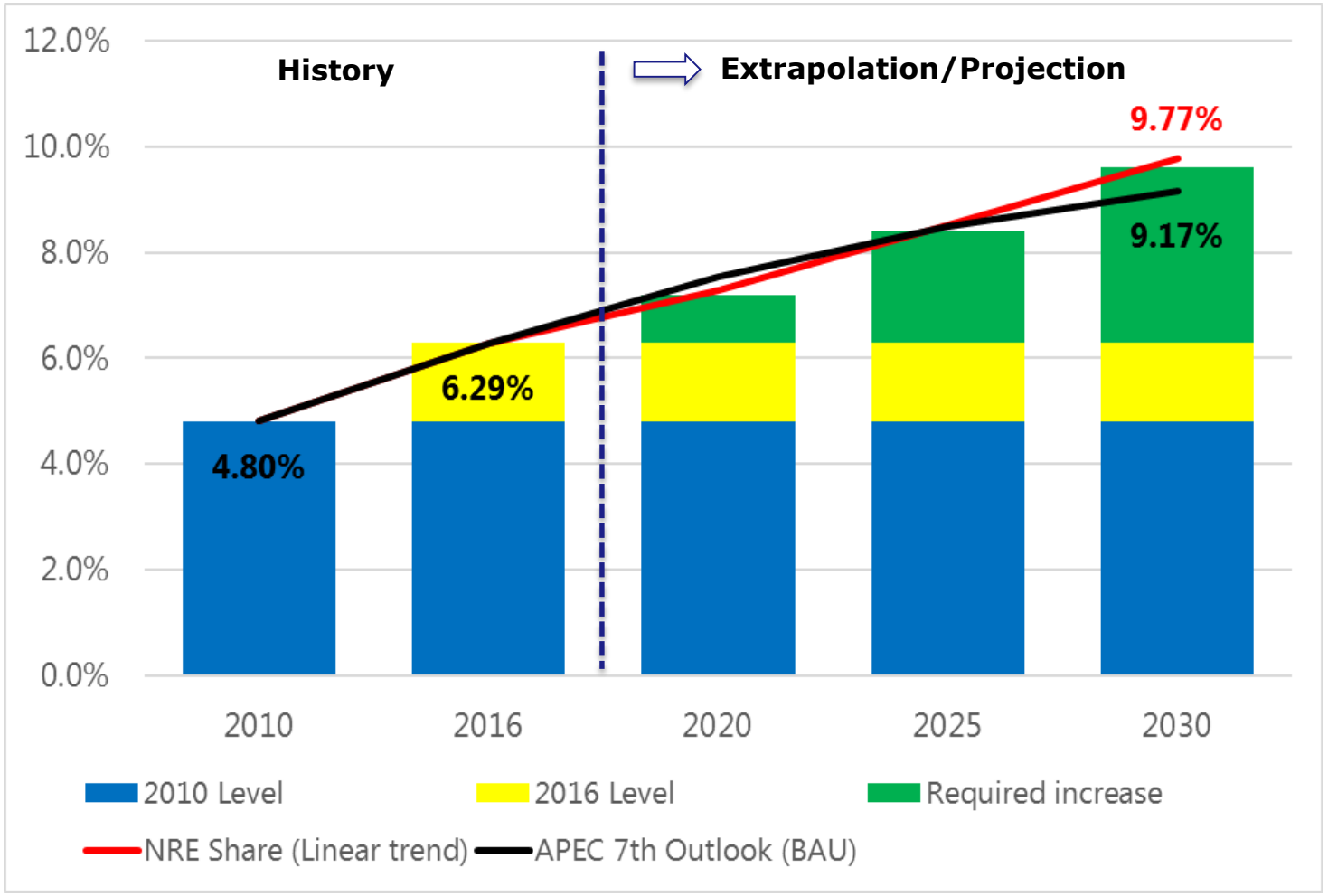
0 base year

Renewable doubling share goal milestones

EWG 47 (May 2014)	US proposed the APEC aspirational goal of doubling the share of renewable energy by 2030 and noted that it interacted with APEC's aspirational energy intensity goal.
EMM 11 2014 (Sept 2014)	"Doubling the **share** of renewables in the APEC energy mix, including in power generation, from 2010 levels by 2030."
EWG 54 (Nov 2017)	EWG decided that traditional biomass will not be counted; IRENA's definition of renewable energy is recommended; APEC data should be used for monitoring progress; and the goal should be monitored on both the supply and demand side.

Supply intensity projection falls short of goal

Renewable energy share in total primary energy supply, 2010-2030

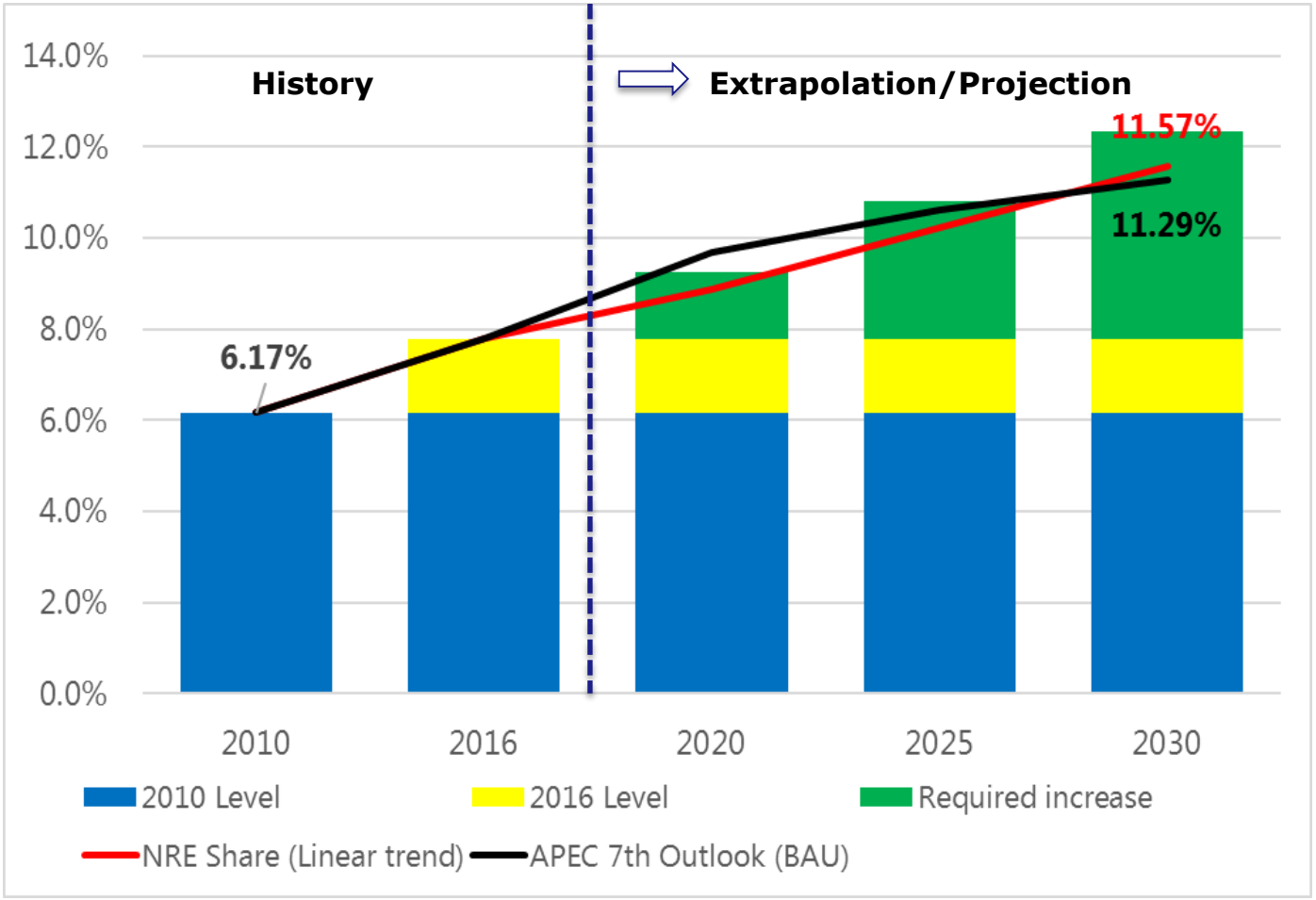


Level of RE share needed to achieve the doubling goal

Source: APEC data and APERC analysis.

Demand intensity growth falls short of the goal

Renewable energy share in total final energy consumption, 2010-2030



Level of RE share needed to achieve the doubling goal

Source: APEC data and APERC analysis.

Closing thoughts

- APERC would appreciate your support in studying decomposition of energy demand, and recommending efficiency measures.
- However, it will be up to EGEEC to recommend any change in the APEC intensity goal.
- Additional efforts are needed by EGNRET to address the barriers to the renewable share doubling goal, such as:
  - Effect of intermittency on grid stability,
  - Cost of electricity storage, and
  - Policies favouring fossil and nuclear energy.
- More needs to be done by EGNRET to identify technology-by-technology and economy-by-economy barriers and then to formulate policy responses as part of a comprehensive renewable share doubling road map.

Thank you for your kind attention

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

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