11.a. Report on Progress toward Energy Intensity Reduction Goal, Renewable Energy Doubling Goal, and Renewable Energy Capacity Tripling Goal

The 71st Meeting of APEC Energy Working Group (EWG71)

18-19 March 2026 – Nanchang, China

Mr Robert TROMOP, EGEDA Chair, APERC Senior Vice President

Outline

- Progress toward APEC's **energy intensity goal.**
- Progress toward APEC's **renewable energy doubling goal.**
- Pursuing and encouraging efforts to **triple <u>global</u> renewable energy capacity by 2030.**

Progress toward APEC's energy intensity and renewable doubling goals

APEC's final energy intensity improved from previous year

Annual change in APEC final energy intensity, 2006-23

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2005-23
Δ in Final Energy Consumption (FEC)	2.4%	3.6%	0.8%	-1.2%	5.8%	4.2%	2.0%	1.4%	0.4%	0.6%	0.4%	1.5%	3.3%	0.6%	-3.9%	4.8%	3.0%	1.2%	35.3%
Δ in GDP (PPP, constant 2021 US dollars)	5.4%	5.5%	3.1%	-0.3%	5.7%	4.3%	4.3%	3.9%	3.9%	3.7%	3.5%	4.1%	4.2%	3.5%	-1.1%	6.4%	2.9%	3.8%	92.0%
Δ in final energy intensity	-2.9%	-1.8%	-2.2%	-0.9%	0.0%	0.0%	-2.2%	-2.4%	-3.3%	-2.9%	-2.9%	-2.4%	-0.8%	-2.9%	-2.8%	-1.6%	0.0%	-2.5%	**-29.5%**

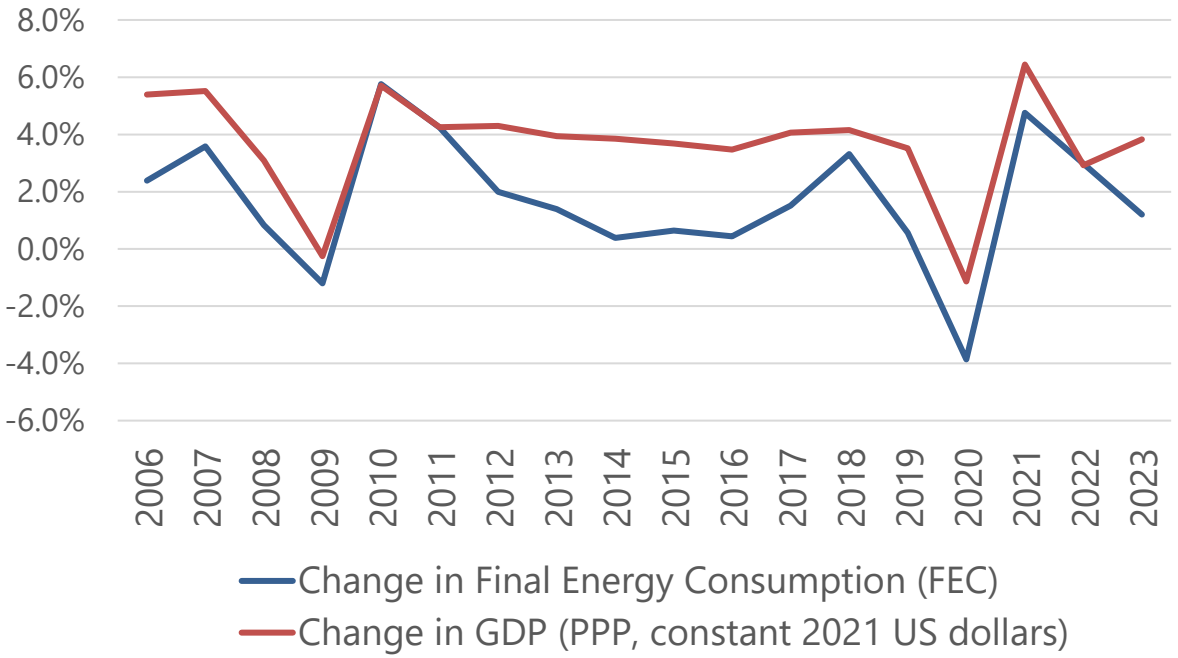
Sources: APEC statistics (EGEDA), WB (GDP PPP), CT (WEO), APERC analysis

APEC Goal: Decrease energy intensity of TFEC by 45% relative to 2005 by 2035.

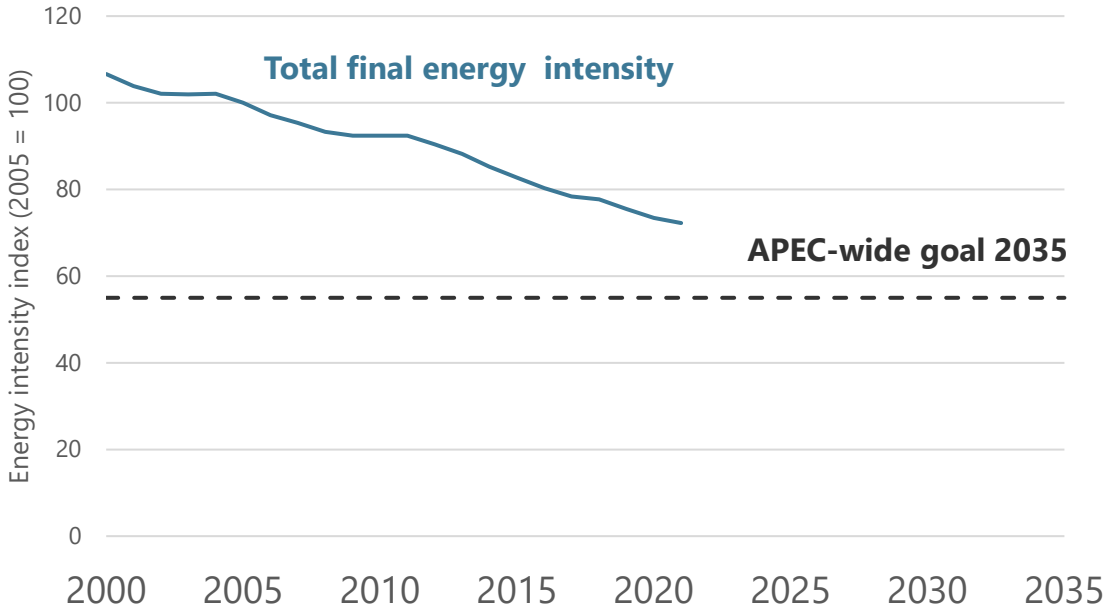
- Final energy intensity has reduced by 29.5% compared to 2005.
- The final energy intensity improvement in 2023 was more than two percentage points from 2022, bringing the average improvement between 2006 and 2023 to almost 2%.
- GDP increased to 3.8% in 2023, almost one percentage point increase from 2022 and the average growth between 2011 and 2019 (just after the financial crisis and before COVID-19).

Decoupling continues

Change in FEC vs change in GDP (2006-2023)



APEC final energy intensity reduction goal



- GDP continues to decouple from the final energy consumption from 2005 to 2023, even during and after COVID-19;
- Current final energy intensity improvement (-29.5%) is just 34% away from the goal.

Renewable energy continues to gain share in both primary and final consumption

Primary energy supply, PJ

	2010	2023	% change
Non-renewables	**288,229**	**341,991**	**18.7%**
Coal	116,944	129,528	10.8%
Oil	89,684	103,991	16.0%
Gas	62,313	87,346	40.2%
Other non-renewables	19,287	21,126	9.5%
Traditional biomass	**3,209**	**2,558**	**-20.3%**
Modern renewable energy	**14,645**	**30,821**	**110.5%**
Modern biomass	4,186	6,959	66.2%
Hydro	6,357	8,615	35.5%
Geothermal	1,471	1,863	26.6%
Solar	157	4,112	2521.9%
Wind	586	5,261	798.3%
Other renewables	1,889	4,012	112.4%
Total	**306,083**	**375,371**	**22.6%**
Modern RE share	**4.78%**	**8.21%**	**71.6%**

Final energy consumption, PJ

	2010	2023	% change
Non-renewables	**165,110**	**191,505**	**16.0%**
Coal	32,126	25,573	-20.4%
Oil	64,214	71,018	10.6%
Gas	26,155	36,928	41.2%
Electricity	34,515	44,691	29.5%
Heat	7,884	12,921	63.9%
Other non-renewables	217	375	73.1%
Traditional biomass	**3,209**	**2,558**	**-20.3%**
Modern renewable energy	**10,757**	**22,790**	**111.9%**
Electricity	6,290	16,235	158.1%
Heat	62	68	9.6%
Modern biomass	2,816	2,940	4.4%
Other renewables	1,589	3,547	123.2%
Total	**179,076**	**216,853**	**21.1%**
Modern RE share	**6.01%**	**10.51%**	**75.0%**

Note: Consumption of electricity and heat from renewables is calculated from the share of total electricity and heat production.Sources: APEC statistics (EGEDA), APERC analysis

- **RE share of the primary energy supply is just 1.4 percentage points away from the goal, while the share in final energy consumption is 1.5 percentage points away from the goal.**

Likely that share of modern renewables in power generation has already doubled

Electricity generation, TWh

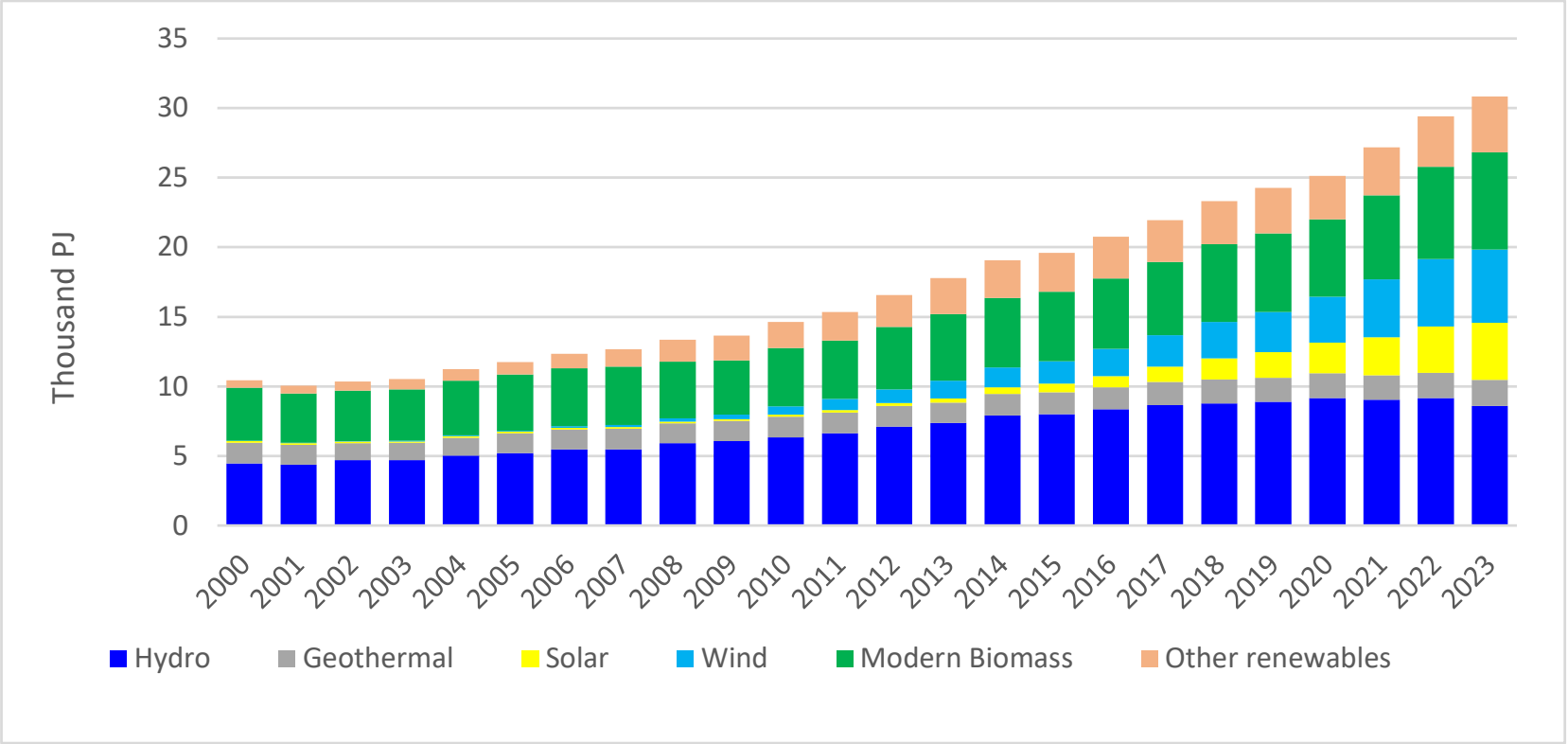
	2010	2023	% change
Non-renewables	**11,334**	**14,305**	**26.2%**
Coal	6,577	8,183	24.4%
Oil	325	150	-54.0%
Gas	2,687	4,053	50.9%
Nuclear	1,658	1,844	11.2%
Other non-renewables	87	75	-14.0%
Modern renewable energy	**2,108**	**5,329**	**152.8%**
Modern biomass	67	269	300.9%
Hydro	1,780	2,450	37.6%
Geothermal	46	60	29.1%
Solar	9	1,056	11642.6%
Wind	163	1,461	798.3%
Other renewables	43	34	-21.6%
Total	**13,442**	**19,634**	**46.1%**
Modern RE share	**15.68%**	**27.14%**	**73.1%**

Sources: APEC statistics (EGEDA), APERC analysis

- **Renewable share of electricity generation also constantly shows good progress and is 4.8 percentage points away from the goal.**

Wind and solar drove the increase in total RE

Total supply by energy source (PJ) 2000 - 2023



Sources: APEC statistics (EGEDA), APERC analysis

- Solar grew almost 45% (CAGR) and wind grew almost 18% (CAGR) since 2010.

Pursuing and encouraging efforts to triple global renewable energy capacity by 2030

Support for tripling global renewable energy capacity

COP28 Declaration (excerpt)

To accelerate the energy transition, the COP 28 Presidency took a leading role in launching the Global Renewables and Energy Efficiency Pledge. With the endorsement of 130 national governments (as of 11 December, including the European Union (EU)), the Pledge stipulates that signatories commit to work together ***to triple the world's installed renewable energy generation capacity to at least 11,000 GW by 2030…..***

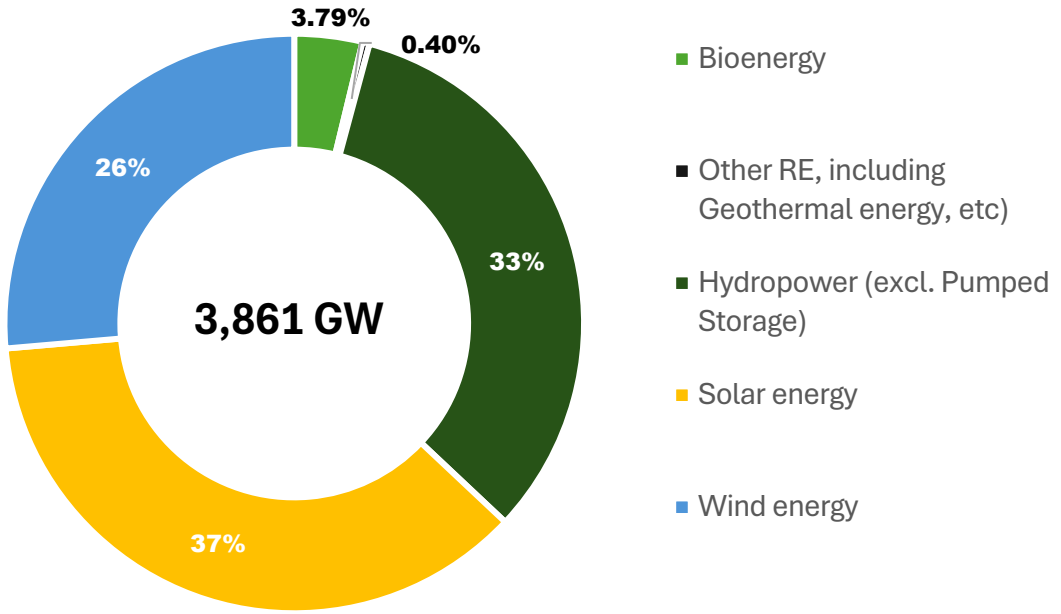
(COP28 UAE, 2023)

2023 APEC Leaders' Golden Gate Declaration (excerpt)

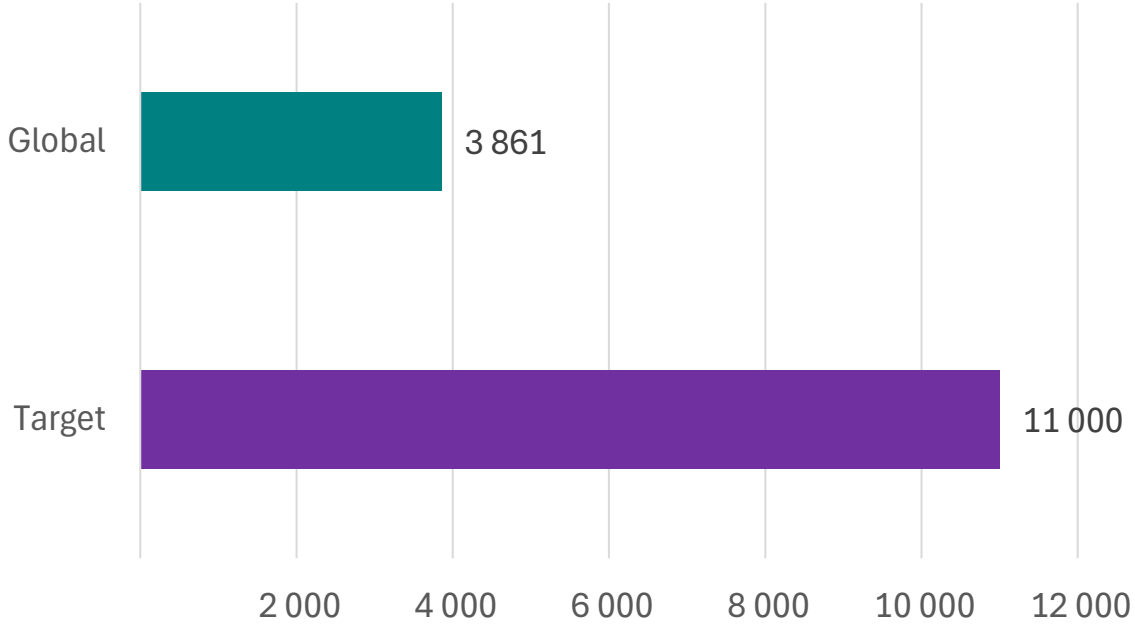
We will pursue and encourage efforts to triple renewable energy capacity globally through existing targets and policies as well as demonstrate similar ambition with respect to other zero and low emissions technologies including abatement and removal technologies in line with domestic circumstances by 2030.

Global installed renewable energy capacity in 2023

Estimated global RE capacity (GW)



Current and target global RE generation capacity (GW)

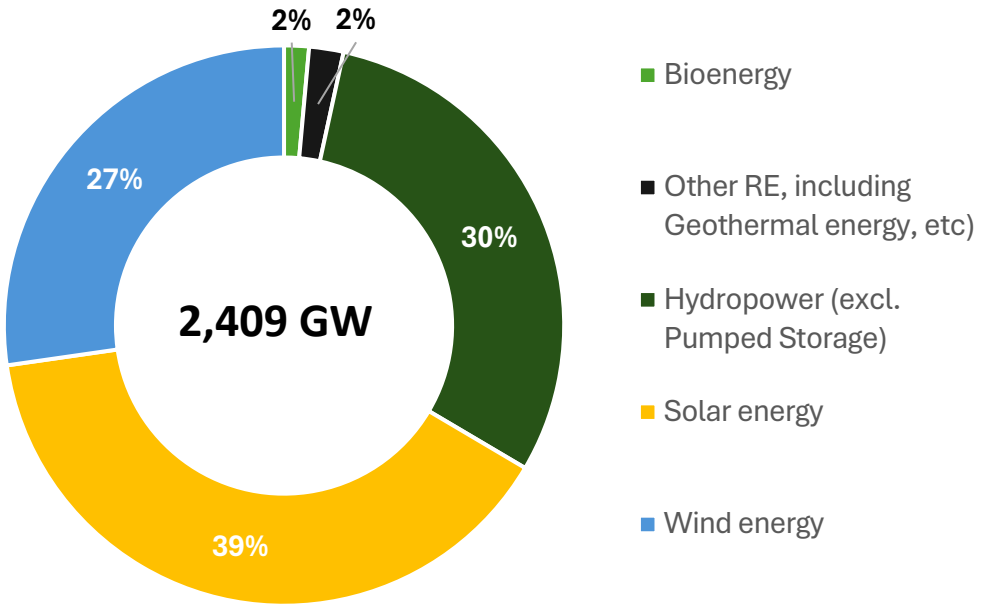


Source for both figures: IRENA

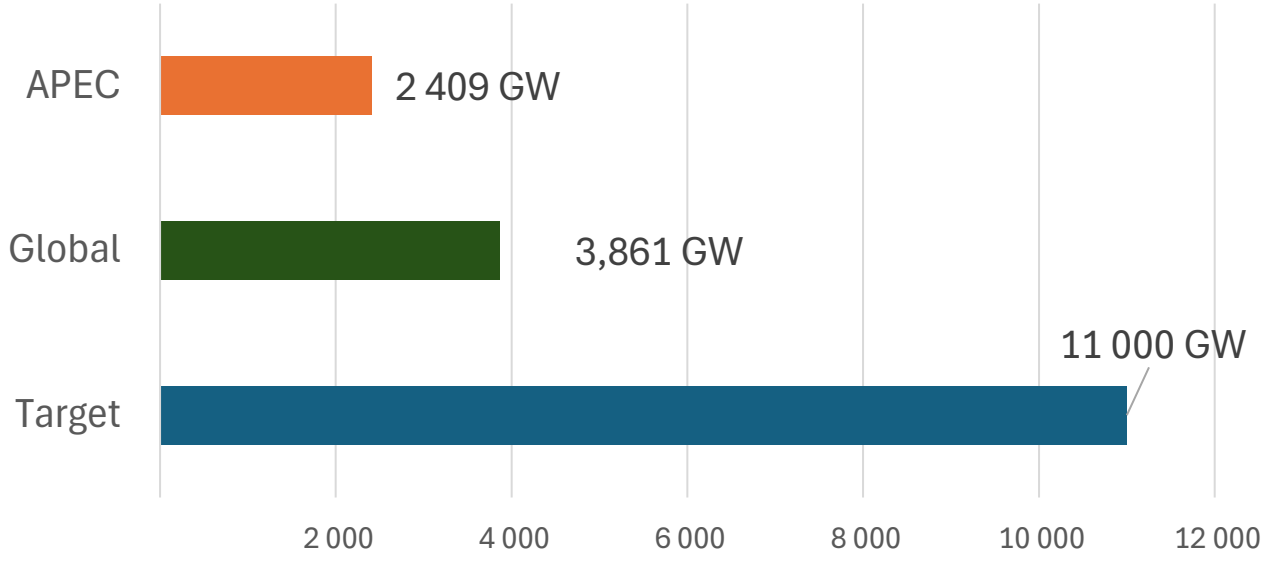
The COP28 target for 2030 is 11 000 GW of installed renewable generation capacity.

APEC's share of global RE capacity in 2023

Estimated APEC RE capacity (GW)



APEC and global level relative to 2030 target (GW)



Sources: EGEDA, IEA

- In 2023, APEC accounted for 62% of global RE capacity.

A few thoughts about energy goals

Summary

- Following the pandemic, **APEC GDP and energy consumption both rebounded and continued to decouple**.
- Improvement in **energy intensity** has picked up again in 2023 after **slowing down in 2021 and 2022**.
- Renewable energy, specifically **solar and wind**, was the **fastest-growing energy source** in APEC in 2023.
- In 2023, APEC accounted for over 60% of global renewable generation capacity.

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Thank you.

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