



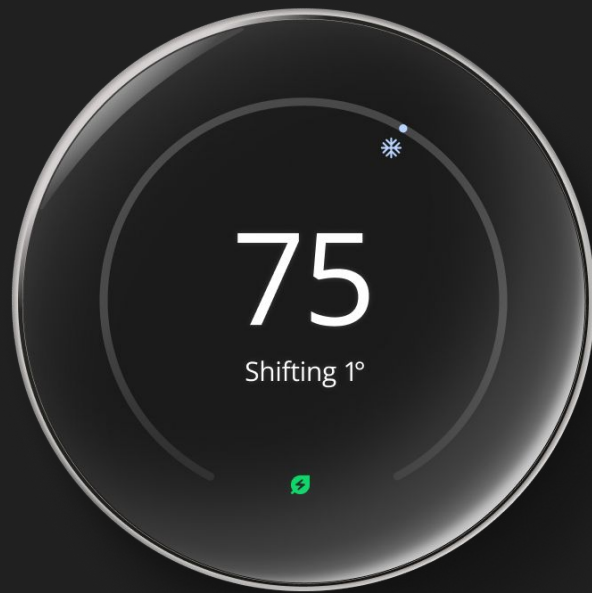
Renew Home

There's Big Power in Small Changes

September 8th, 2025

Virtual Power Plants

A coordinated collection of devices in homes that make small changes in the background to save and shift energy, reducing demand on the grid without sacrificing customer comfort



Virtual Power Plants mitigate rising demand through flexible resource optimization

1 RTO Capacity

- Utilities and aggregators bid resources into capacity markets
- Revenues go to utilities, aggregators and participating customers
- Evolving opportunity under FERC Order 2222

Capacity Market Revenues

2 Grid/Demand Flexibility

- VPPs can smooth out system peaks
- VPPs unlock the flexible resources utilities need for DSM, NWS and distribution planning
- Locational DSM an emerging opportunity

Distribution System Resource

3 Customer-centric

- Personalization
- Streamlined participation
- Comfortable DR
- Lower bills

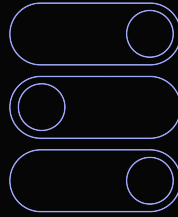
Customer Control

The way to scale VPPs is to prioritize customers

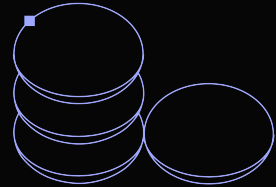
Renew Home focuses on comfort, control and savings to create a home energy management platform that is good for the household and great for the grid.



Comfort

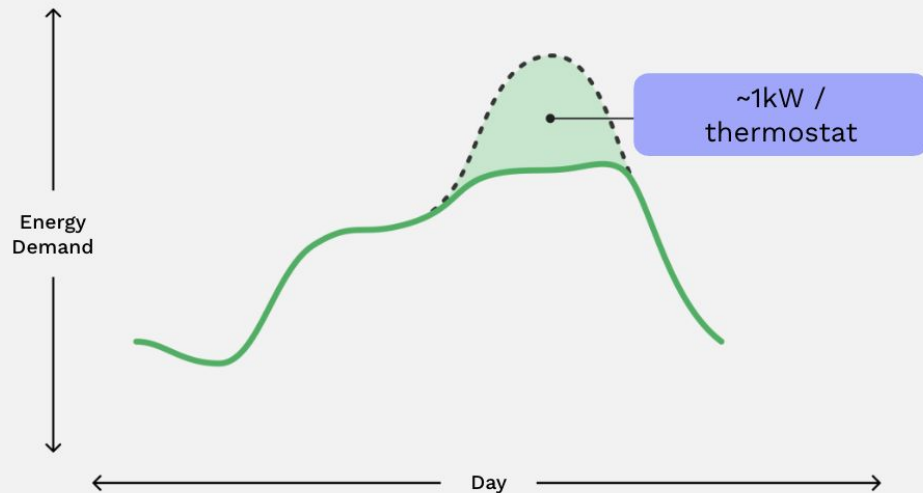


Control



Savings + Rewards

Traditional DR has
served the industry
well for the last decade



Duration 4 hour events

Frequency 15 events/season

Magnitude $\pm 4^{\circ}\text{F}$ setback

Incentive bill credits/rewards

1. *Smart Thermostats and the Future of VPPs*. (Renew Home, August 2024): Average summer peak savings across 10 utility programs evaluated in 2019 & 2020 studies conducted by Cadmus, Navigant, and state PUC filings.

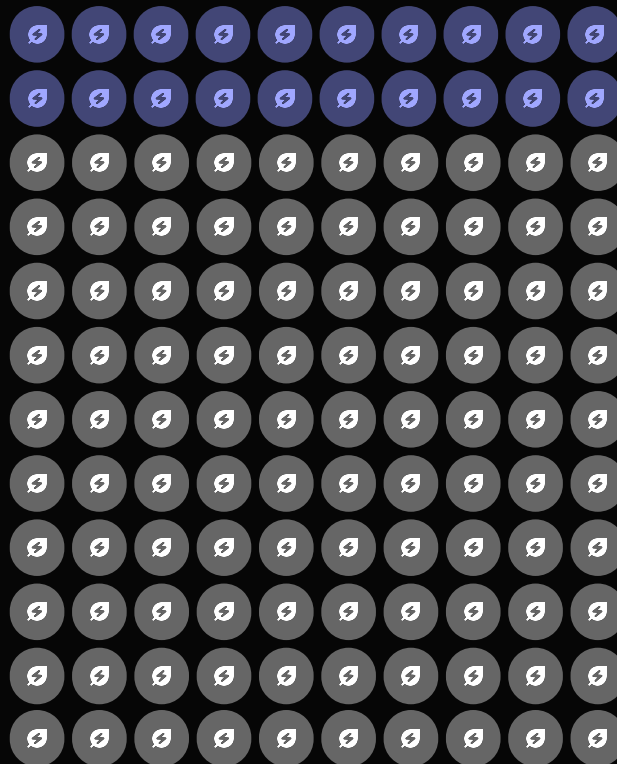
Traditional DR programs
have historically only
reached customers willing to
sacrifice comfort, and
participation tends to decay
in longer events.

1. “2021-06-01 CEC Co Application and Testimony and Exhibits,” Consumers Energy Company filing at the Michigan PSC, 1 June 2021.
<https://mi-psc.my.site.com/s/filing/a00t00000008ypAAAR/u210800001>

Traditional DR

3-4 hrs
3-4°F offsets

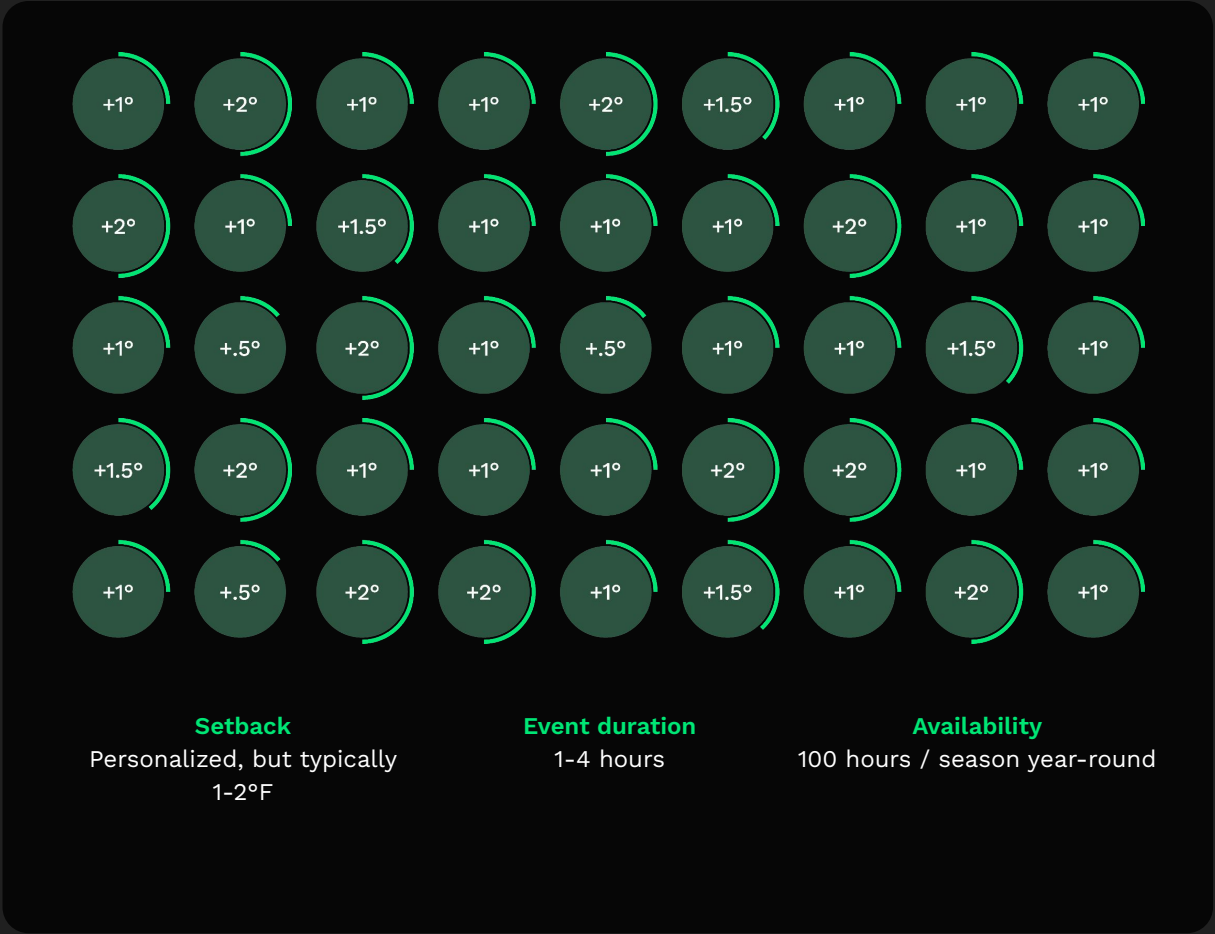
Non participants



~1 kW
per thermostat¹

Personalized energy adjustments

Subtle, personalized energy adjustments create a year-round resource for the grid that helps customers save.



Traditional DR programs
have historically only
reached customers willing to
sacrifice comfort, and
participation tends to decay
in longer events.



Personalized Energy Shifts
can deliver higher
engagement and participation
rates by meeting customers
where they are.

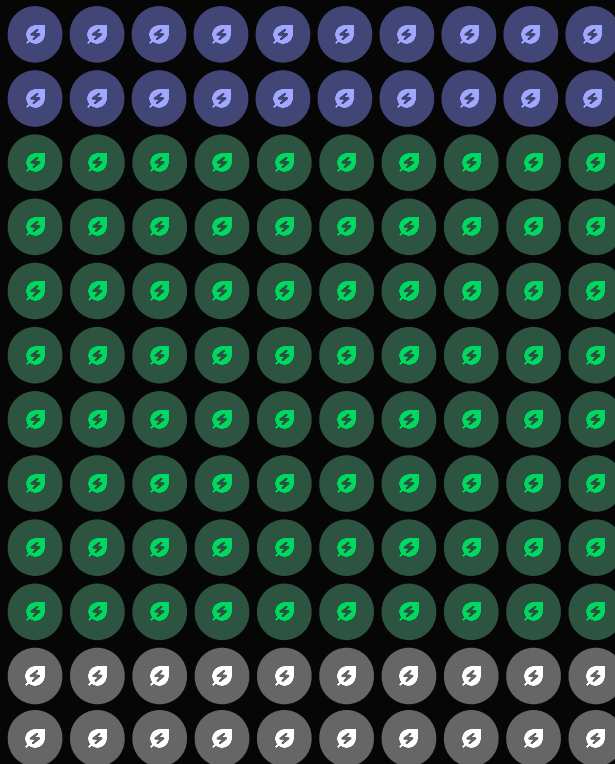
Traditional DR

3-4 hrs
3-4°F offsets

Personalized Energy Shifts

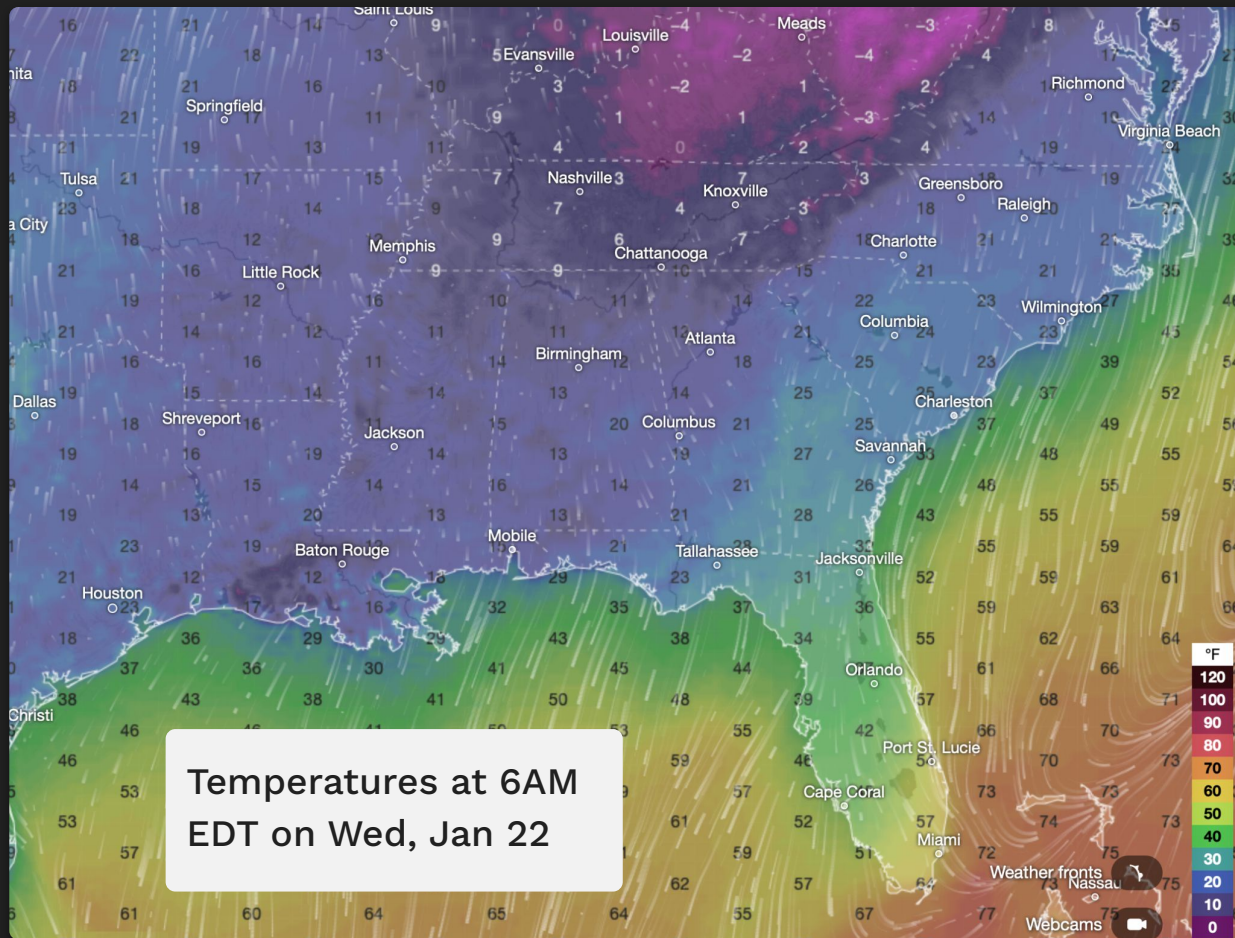
1-2 hrs
0.5-2°F offsets

Non
participants



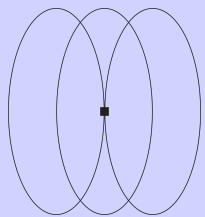
What this looks like in action

January 2025 arctic blast in the southeast



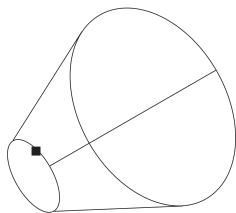
Good for the grid, Great for homes

Households can earn rewards, save energy, and support the grid — all while staying in control.



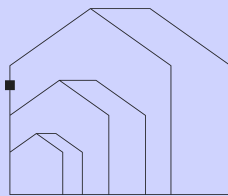
VPP at scale

With 5+ million households on the platform, Renew is building the largest residential VPP platform in the US. That's gigawatts of capacity.



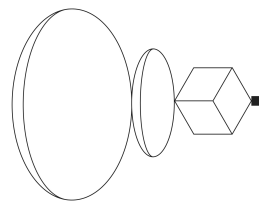
Greater reach via delightful customer experiences

Renew Home reaches and enrolls more homes by integrating within the device experience and smart home platforms.



Real personalization is key

Personalized energy adjustments make it easy for customers to save and shift energy use when it matters most, which means they can also use cleaner, cheaper energy and support a more dynamic grid.



VPP Potential Explorer

Powered by **Renew Home**

BETA

Year

50

45

40

35

30

25

▶

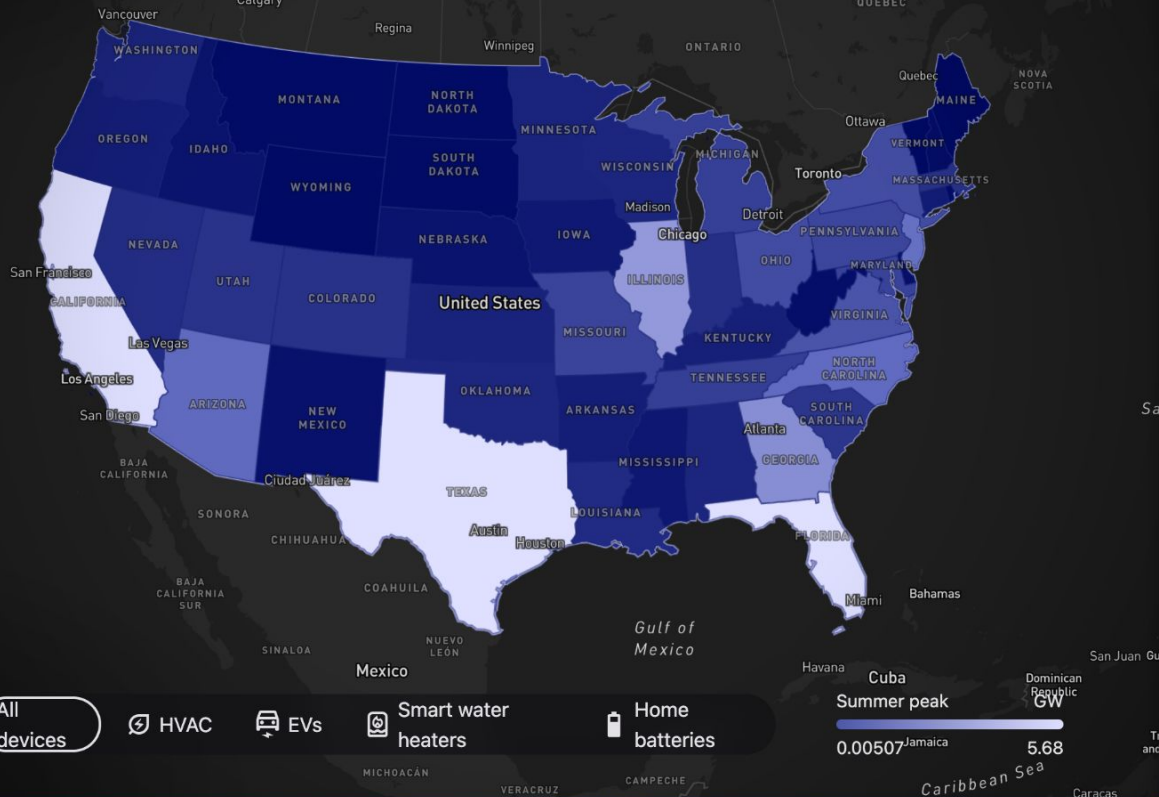
All devices

HVAC

EVs

Smart water heaters

Home batteries



Year

2025 ▾

State

All states ▾

Device

All devices ▾

38.1 GW

VPP Shift Potential

35.3 GW HVAC

5.48 GW EVs

169 MW Smart water heaters

2.26 GW Home batteries

Total devices connected

34 M

Enrollment rate

— 100% +

Summer

Winter

Peak

Average



M&V Approach to Connected Thermostat Optimization for Act 129 Phase V Daily Load Shifting

1 Randomized Control Trials

- The Gold Standard in statistical sampling
- Connected Thermostat impacts are highly weather dependent
- RCTs minimize negative program impacts & noise

Measure the impact

2 Aggregated Anonymized Data

- Verification at scale without the need to ask existing customers to reaffirm enrollment
- Can be verified with a sample of AMI data

Use big numbers

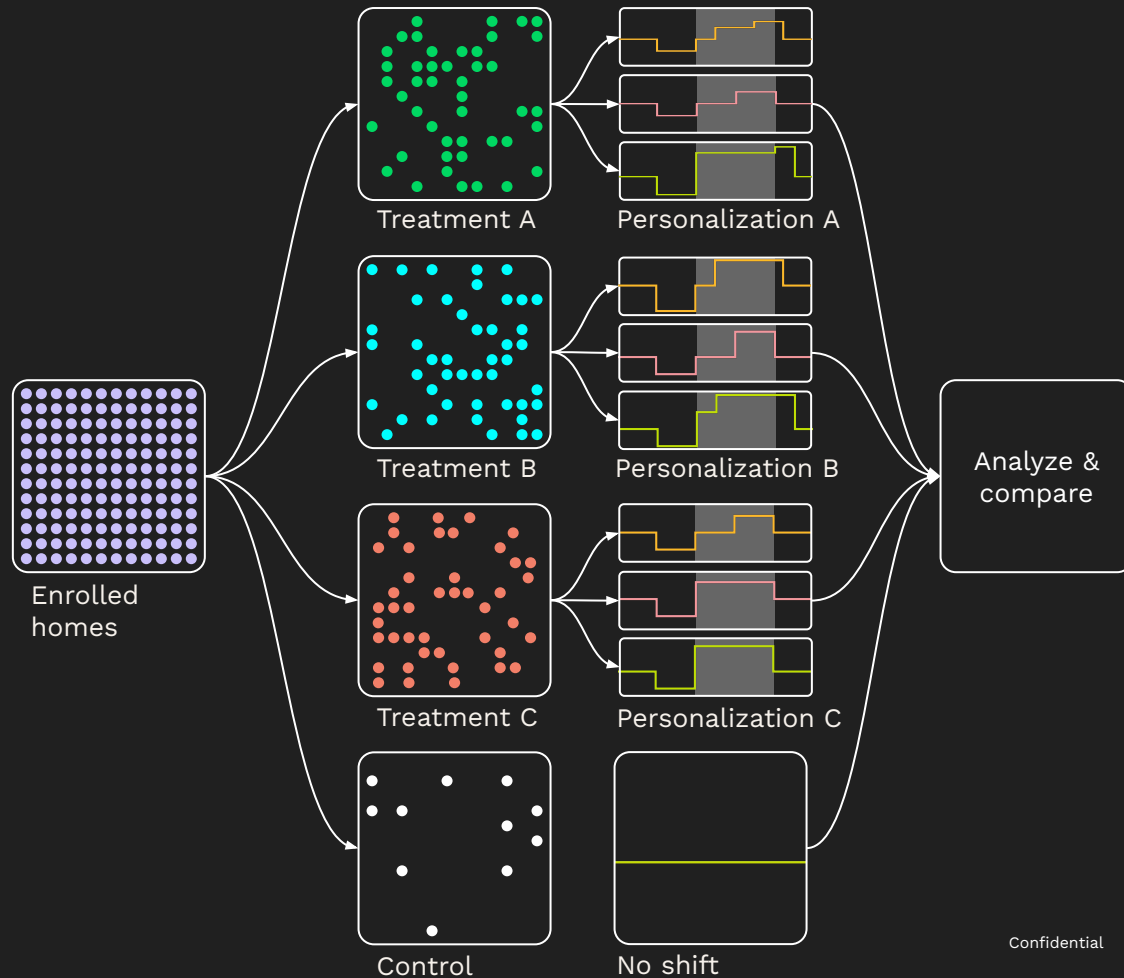
3 Measure the Value of the Resource

- Locational & Temporal value of the load that is shed
- Not all load reduction is equal
- Flexibility; doesn't need to be against a standard 4 hour window.
- Short, targeted dispatches can be more effective

How much is it worth?

Randomized Control Trials

- Built upon millions of homes opted-in to load shifting.
- Rapid learning from hundreds of variants.
- Randomized Control Trials provide causal proof of impact.



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Thank you