



# RATE DESIGN FOR 24/7 CARBON-FREE ELECTRICITY

## INNOVATION WEBINAR

February 15, 2024  
3:00 - 4:00 p.m. ET

NARUC thanks the U.S. Department of Energy for its support of this event.



**Moderator:**  
**Commissioner**  
**Stacey Paradis,**  
*Illinois Commerce*  
*Commission*



**Carl Linnell,** Principal,  
*The Regulatory*  
*Assistance Project*



**Ted Thomas,** Founder,  
*Energized Strategies*



**Shawn Bennett,**  
Director for Clean  
Energy,  
*Council on*  
*Environmental Quality*



**Katie Soroye,** Vice  
President, Granular  
Procurement  
Solutions,  
*LevelTen Energy*

# About NARUC

- Founded in 1889, the National Association of Regulatory Utility Commissioners (NARUC) is a non-profit organization dedicated to representing the state public service commissions who regulate the utilities that provide essential services such as energy, telecommunications, power, water, and transportation.
- NARUC's members include all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.
- Our mission is to serve the public interest by improving the quality and effectiveness of public utility regulation.

# About CPI

- The NARUC Center for Partnerships & Innovation (CPI) builds relationships, develops resources, and delivers training to assist state commissions contending with complex current and emerging issues.
- CPI is funded by cooperative agreements with the U.S. Department of Energy (DOE) and the U.S. Department of Commerce's National Institute of Standards and Technology (NIST).
- NARUC CPI conducts work across five key energy areas and many topics within each: generation; transmission; distribution; customers; and critical infrastructure preparedness, response, and resilience.
- For more information, visit: <https://www.naruc.org/cpi/cpi-home/>

# Upcoming Events

- **National Council on Electricity Policy Member Update** – Friday, February 16, 2024 | 12:00-1:00pm ET ([Information and Registration](#)). The National Council on Electricity Policy (NCEP) invites you to join a virtual update on recent and future activities and resources of the member organizations, including NASEO, NGA, NCSL, NACAA, NASUCA, and NARUC.
- **NARUC's Winter Policy Summit** – February 25-28, 2024 | Washington, DC ([Information and Registration](#)) Online registration closes tomorrow!
- **NARUC Integrated Distribution System Planning (IDSP): Regional Training on Distribution System Planning and Resilience** – March 20-21, 2024 | Nashville, TN ([Information and Registration](#))
- **NARUC Cybersecurity Training for State Regulatory Commissions** – April 16 –18, 2024 | New Orleans, LA ([Information and Registration](#)) The refreshed training content will focus on cybersecurity topics through the lens of a public utility regulator.





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# RAP<sup>®</sup>

REGULATORY  
ASSISTANCE PROJECT

15 February 2024

# 24/7 Carbon Free Electricity (CFE) Accelerating CFE with transition tariffs.

NARUC Center for Partnerships and Innovation Webinar

Carl Linvill

[clinvill@raponline.org](mailto:clinvill@raponline.org)

Regulatory Assistance  
Project

# RAP initiated a stakeholder process in 2023 to identify principles for designing 24/7 carbon free electricity transition tariffs well

- Convened utilities, a variety of large electricity consumers, technology companies, emissions experts and consumer advocates to consider 24/7 transition tariffs.
- About 60 stakeholders convened at monthly meetings to consider the essential elements of 24/7 transition tariffs.
- We investigated the planning, operations, emissions tracking and ratemaking aspects of designing a tariff well.
- Our summary report will be unveiled at NARUC, this presentation is a preview.

# What challenges do 24/7 transition tariffs address?



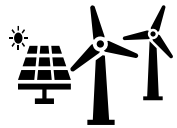
## Customer and Policy Demand for Carbon Free Electricity is Active

- Almost half of US states (23) have a 100% clean energy goal.
- New tools are needed to address high emitting hours, seasons and places.



## Complementary CFE Investments are Needed

- In technologies, locations and times-of-day where CFE is needed most.
- Examples include renewable diversity, storage, transmission & load flexibility that provide reliability services and produce electricity in high emitting times or places.



## 24/7 CFE Availability Builds Local Competitive Advantage

- Growing 24/7 CFE availability can attract business and industry that want a 24/7 CFE portfolio.



# How 24/7 differs from annual matching tariffs?



## Annual Matching

Existing annual matching green tariffs leave many hours served by fossil-fueled resources ...



## Annual Investments

... without any incentive to procure resources that address the fossil-fueled hours.



## Hourly Matching

24/7 transition tariffs incentivize ...



## Hourly Investments

... that address high-emitting places and hours and the need for carbon-free firming resources

# Five fundamentals drive an effective tariff and equitable rate design

Integrate Transition Tariff Investments with Ongoing Utility Planning

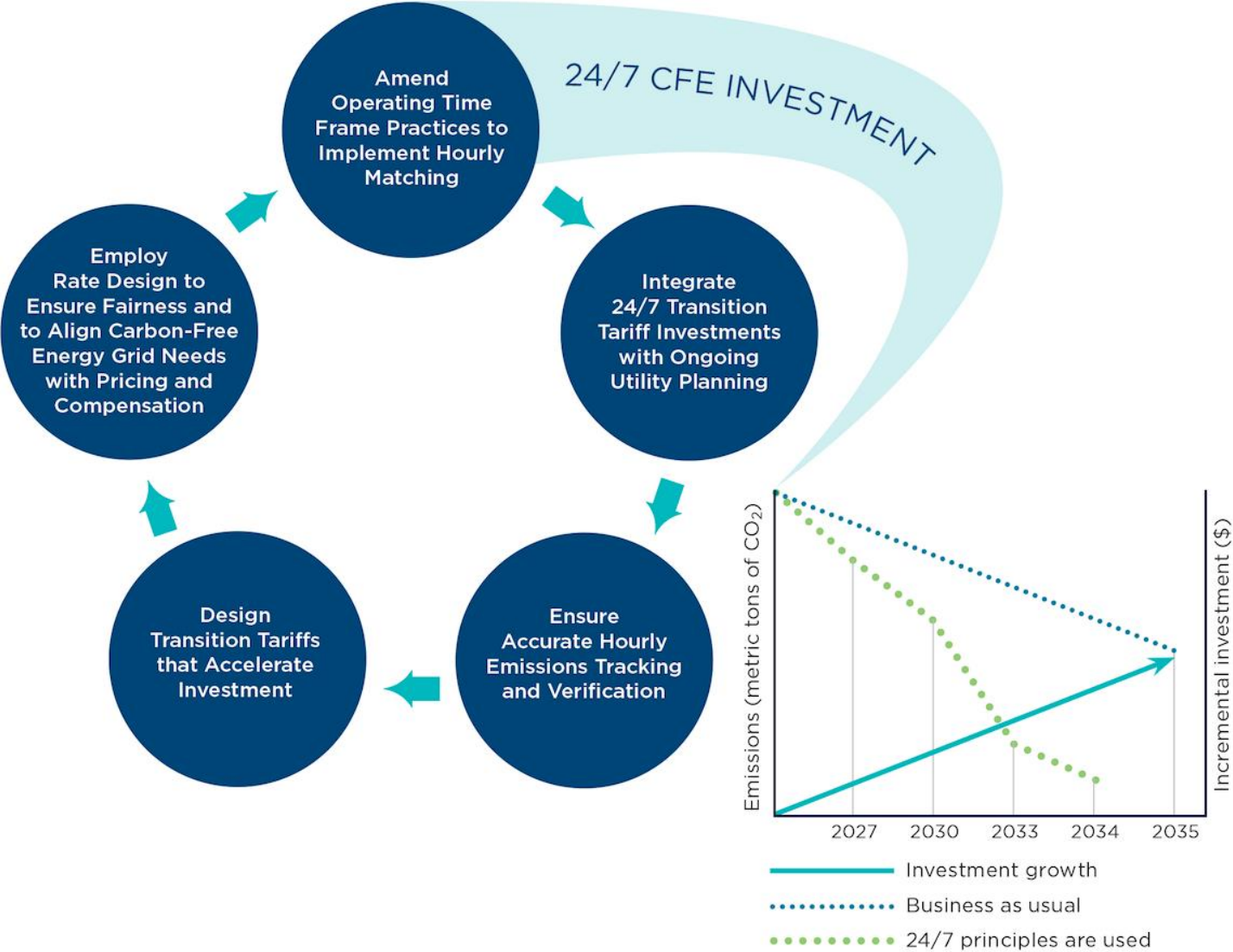
Ensure Accurate Hourly Emissions Tracking and Verification

Design Transition Tariffs to Accelerate Complementary Investments

Employ Rate Design to Ensure Fairness and to Align Carbon-Free Electricity Grid Needs with Pricing and Compensation

Integrate Operating Systems to Implement Hourly Matching

Figure 2. Fundamentals of a 24/7 transition tariff



# Rate Design for 24/7 Carbon Free Electricity-February 15, 2024



National  
Association  
Regulatory  
Utility  
Commissioners

Ted Thomas, Energize Strategies [ted.thomas@energizestrategies.com](mailto:ted.thomas@energizestrategies.com)





This is archived information. It may contain outdated contact names, telephone numbers, Web links, or other information. For up-to-date information visit GSA.gov pages by topic or contact our Office of Public Affairs at [press@gsa.gov](mailto:press@gsa.gov). For a list of public affairs officers by beat, visit the [GSA Newsroom](#).

## Biden-Harris Administration Announces US Government's First Initiative with a Utility to Work Toward 24/7 Carbon Pollution-Free Electricity

November 15, 2022

WASHINGTON - Today at the 2022 United Nations Climate Change Conference, the Biden-Harris Administration announced the federal government's first [Memorandum of Understanding \(MOU\)](#) [\[PDF - 136 KB\]](#) with a utility to work toward achieving 100 percent carbon pollution-free electricity (CFE), at least 50 percent of which would be provided on a 24/7 basis, in line with the requirements of [Executive Order 14057](#) [↗](#).

The MOU between the U.S. General Services Administration (GSA) and Entergy Arkansas, LLC will help federal agencies in Arkansas meet the goals of President Biden's [Executive Order](#) [↗](#), which sets the goal of sourcing 100% of the federal government's electricity from carbon pollution-free sources by 2030, including 50 percent 24/7 CFE, meaning delivered to the same grid region as the consuming facilities.

"This MOU marks a historic step forward and demonstrates how the federal government is partnering in initiatives to spur demand for carbon pollution-free electricity - when and where people need it," said **GSA Administrator Robin Carnahan**. "GSA looks forward to working with our agency partners and utilities across the country to replicate this MOU model - helping to promote local, clean energy sources and catalyze utility-scale energy storage, and create a more resilient grid."



## 70.0. GO ZERO

### 70.1. AVAILABILITY

Available only to customers taking service from Entergy Arkansas, LLC ("EAL" or the "Company") who enter into an Agreement for Go ZERO (Policy Schedule No. 13.26), with the Company and who are served under one of the following rate schedules:

1. Small General Service Rate Schedules SGS, GFS, MP, AP, SMWHR, and CGS
2. Large General Service Rate Schedules LGS, GST, LPS, PST, and LPHLDS
3. Any special rate contract approved by the Arkansas Public Service Commission

This Go ZERO schedule is not available to customer accounts taking service under Small Cogeneration Rider (SCR), and Large Cogeneration Rider (LCR). Go ZERO 1 is not available to customer accounts taking service under Net-Meter Service (N-M) or Solar Energy Purchase Option (SEPO); Go ZERO 1.C. is not available to customer accounts taking service under Green Promise (GP).

### 70.2. DEFINITIONS

**Alternative Energy Certificates (AEC):** the attributes from one megawatt hour (MWh) of electricity generation from a generator that is not directly powered by (i) solar or wind energy and/or (ii) fossil fuels.

**Renewable Energy Credit (REC):** the attributes from one MWh of electricity generation

Entergy's Go Zero tariff unbundles environmental attributes from existing nuclear and new renewable resources and offers hourly time matching for carbon free electricity.

Existing nuclear resources are allocated on an annual basis by customer share of total load.

Fuel savings from new renewable resources benefit all customers.

# KEY POLICY CONCEPTS

1. Additionality.
2. Hourly time match.
3. Deliverability



**Rachel Fakhry**

Policy Director, Emerging  
Technologies, Climate & Energy

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A [new study](#) by Evolved Energy Research casts compelling insight into the heated debate around the IRA 45V clean hydrogen tax credits. **The study finds that the three pillars of 1) new clean supply, 2) hourly matching and 3) deliverability will support substantial deployment of clean hydrogen in this decade.** The study also concludes that all three pillars are the *minimum guardrails* against large carbon emissions increases from hydrogen production and derailing U.S. climate progress. The study, which can be added to the pile of evidence in

# U.S. TREASURY GUIDANCE FOR HYDROGEN PRODUCTION TAX CREDIT

[4830-01-p]



This document is scheduled to be published in the Federal Register on 12/26/2023 and available online at <https://federalregister.gov/d/2023-28359>, and on <https://govinfo.gov>

## DEPARTMENT OF THE TREASURY

### Internal Revenue Service

#### 26 CFR Part 1

[REG-117631-23]

RIN 1545-BQ97

### Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property

**AGENCY:** Internal Revenue Service (IRS), Treasury.

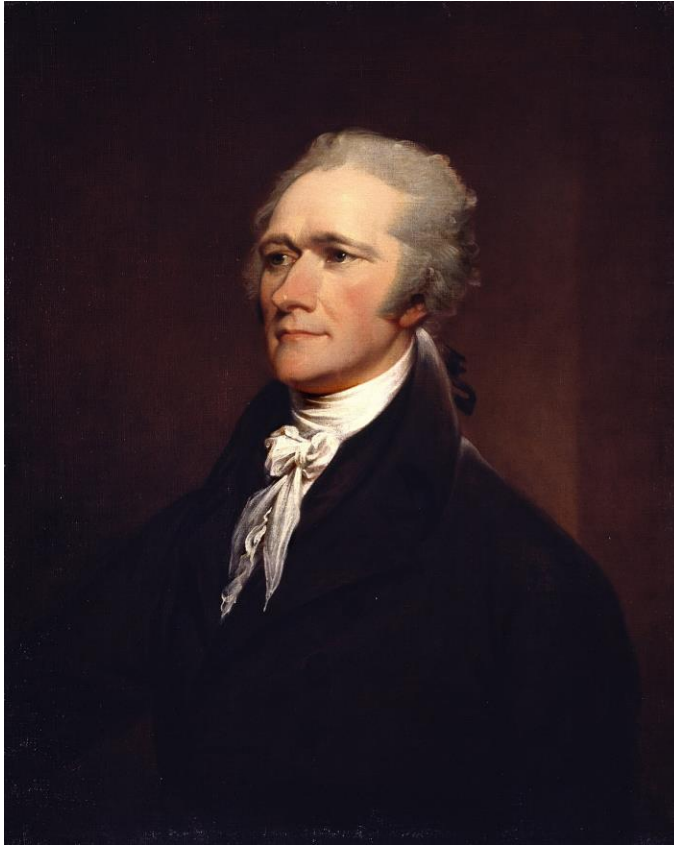
**ACTION:** Notice of proposed rulemaking and notice of public hearing.

**SUMMARY:** This document contains proposed regulations relating to the credit for production of clean hydrogen (clean hydrogen production credit) and the energy credit, as established and amended by the Inflation Reduction Act of 2022, respectively. The proposed regulations would provide rules for: determining lifecycle greenhouse gas emissions rates resulting from hydrogen production processes; petitioning for provisional emissions rates; verifying production and sale or use of clean hydrogen; modifying or retrofitting existing qualified clean hydrogen production facilities; using electricity from certain renewable or zero-emissions sources to produce qualified clean



Hourly tracking systems for EACs are not yet broadly available across the country and will take some time to develop.<sup>23</sup> In a recent survey of nine existing tracking systems,<sup>24</sup> two of the tracking systems indicated that they are already tracking on an hourly basis, although software functionality in these two systems remains limited. Fully developing the functionality of these systems will take time, as will creating and developing the functionality of hourly tracking infrastructure in other regions of the country. Of the other tracking systems, assuming that challenges are overcome, four gave a timeline of less than one year to two years, and one gave a timeline of three to five years; in the latter case, the respondent noted that the timeline could be closer to three years if there is full state agency buy-in, clear instructions are received from federal or state agencies, and funding for stakeholder participation is made available. Two tracking systems declined to give a timeline to develop this functionality. In the same survey, tracking systems identified a number of challenges to hourly tracking that will need to be overcome, including cost, regulatory approval, interactions with state policy, sufficient stakeholder engagement, data availability and management, and user confusion. Moreover, once the tracking software infrastructure is in place nationally, it may take additional time for transactional structures and efficient hourly EAC markets to develop. Among the issues that require resolution as EAC tracking systems move to

Will the time-matched EAC system developed for the 45V hydrogen tax credit become the official currency of the energy transition?



Corporate clean energy contracts and state RPS policies could use the federal standard for time matched EACs. Standardized measurement will create confidence that rules are applied uniformly across the nation.

# QUESTIONS???



[Ted.thomas@energizestrategies.com](mailto:Ted.thomas@energizestrategies.com)



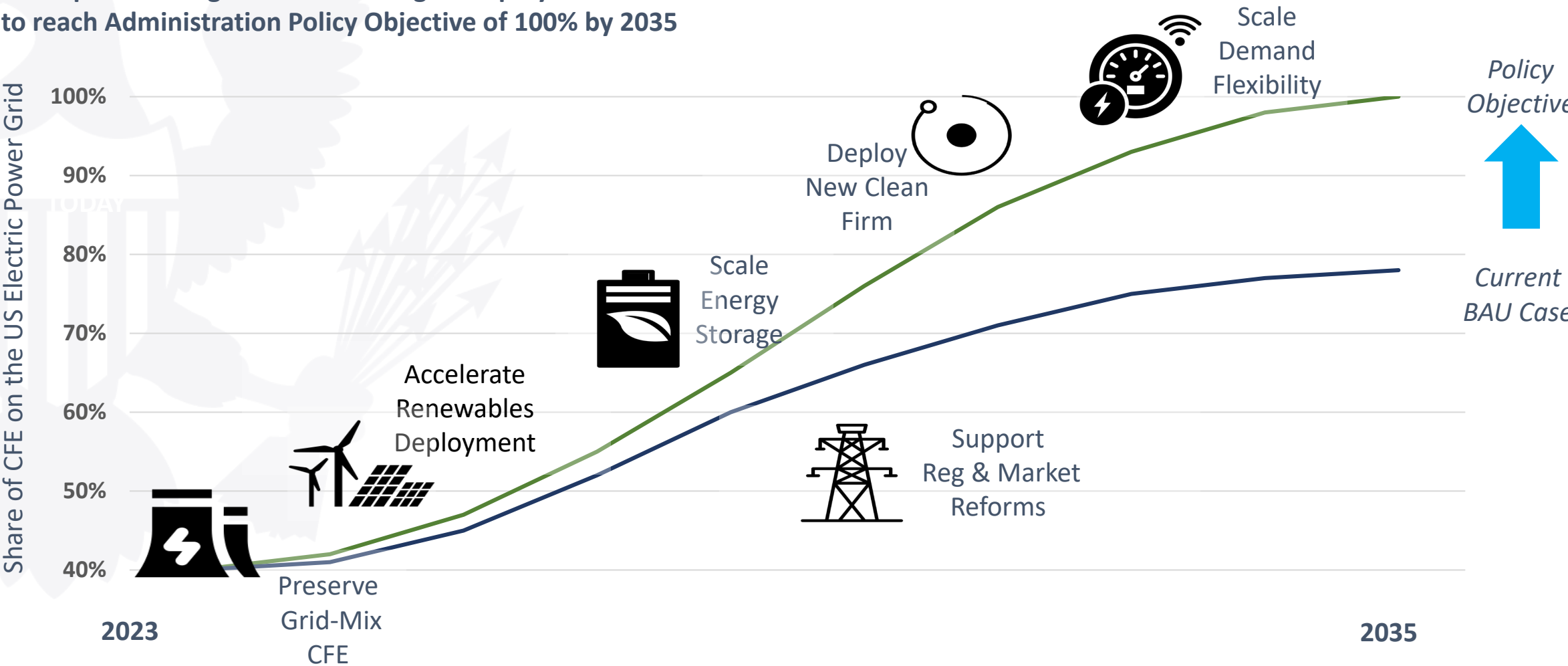
# **Powering the US Government with 100% Carbon Pollution-Free Electricity (CFE)**



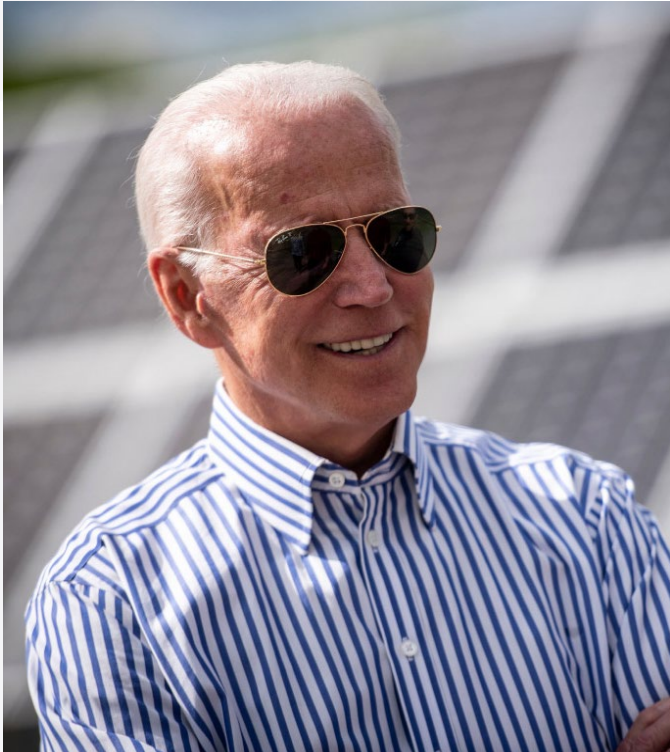


# By using the power of the federal footprint, we will help close the gap between current trends and President Biden’s 2035 clean grid goal

Conceptual Timing of CFE Technologies Deployments  
to reach Administration Policy Objective of 100% by 2035



# Targets in Executive Order 14057 call for powering USG operations with 100% CFE and 50% hourly matching by 2030



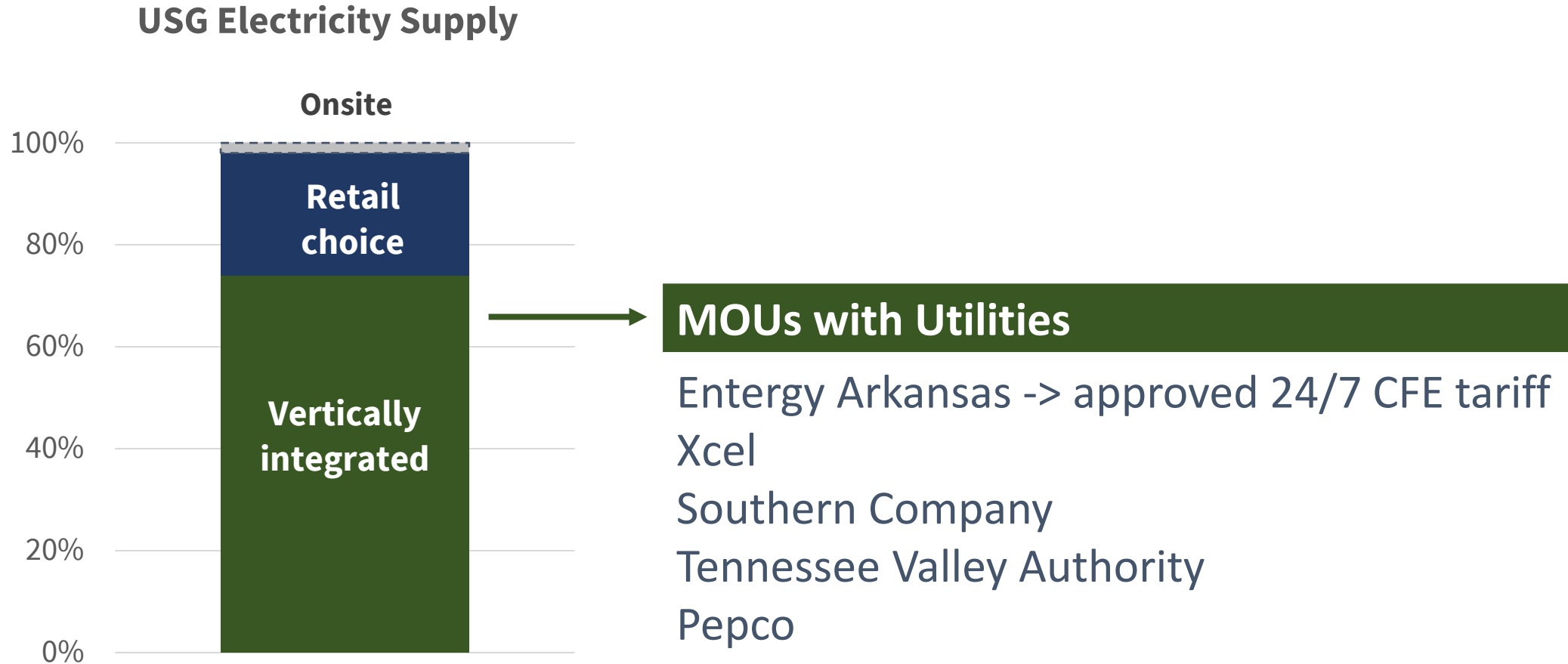
## CFE Targets in Executive Order 14057

**100% annual CFE** use  
by 2030 for the federal government

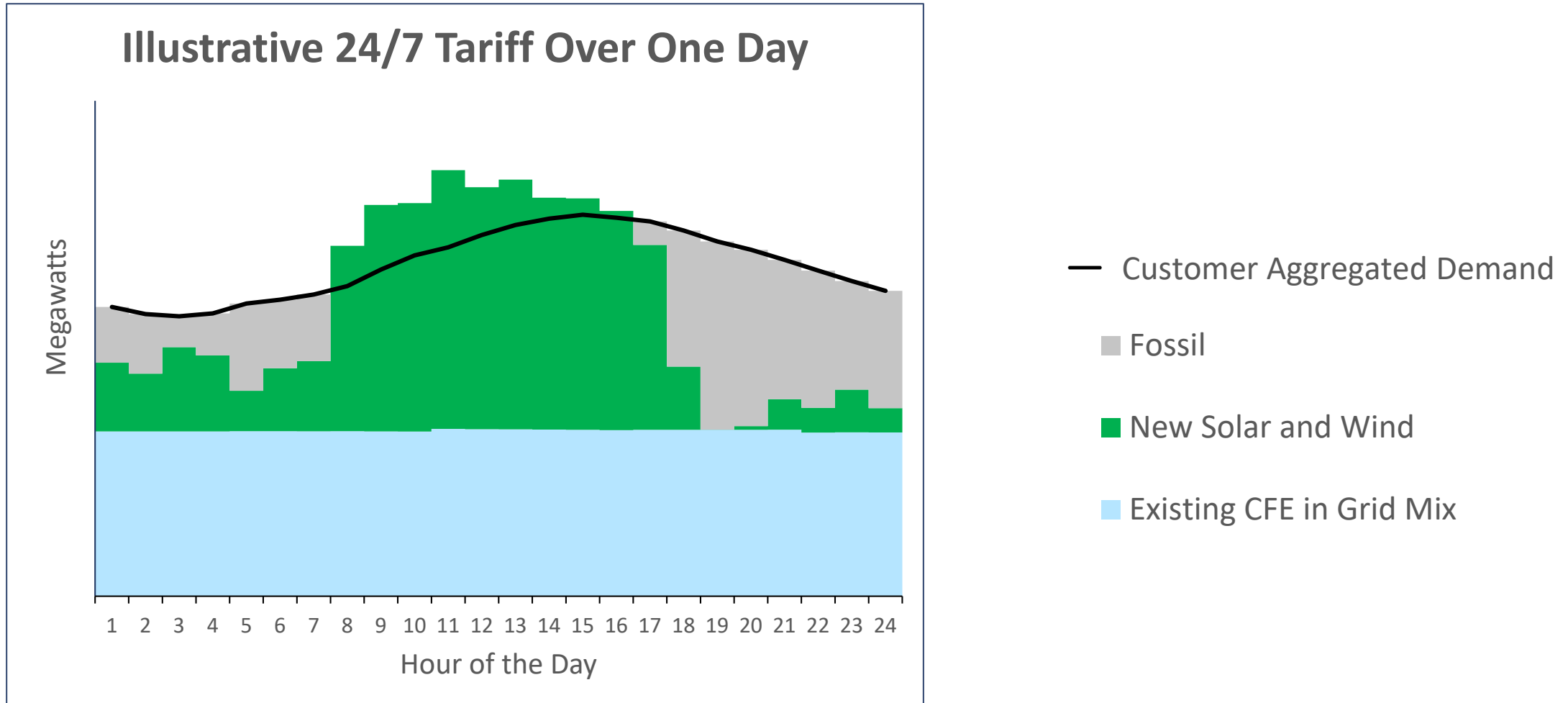
**50% hourly matched CFE** use by 2030  
for the federal government

**Expanded on-site** generation at federal sites

# The US government is the largest electricity consumer in the nation, primarily as a retail customer



**By matching our electricity demand with CFE resources on an hourly basis, a 24/7 tariff can target gaps where additional investments are needed**





# Stay Connected



[www.sustainability.gov](http://www.sustainability.gov)



[@WhiteHouseCSO](https://twitter.com/WhiteHouseCSO)

## Federal Sustainability Plan Catalyzing America's Clean Energy Industries and Jobs December 2021



THE WHITE HOUSE  
WASHINGTON



# The GC Trading Alliance

**Building the market infrastructure for time- and location-based carbon-free energy**

Katie Soroye, VP, Granular Procurement Solutions, LevelTen



# Introducing: The GC Trading Alliance

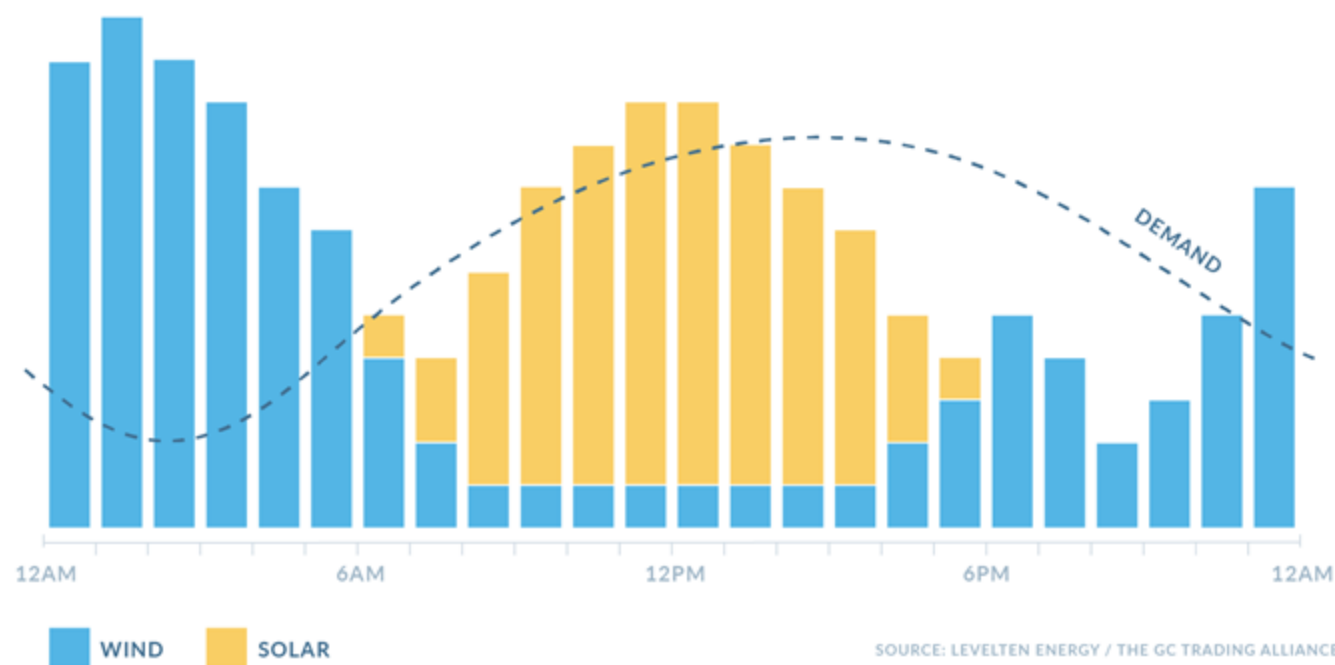
A collaborative effort to address these gaps

Coalescing around **shared principles** to inform and support the design and development of transaction infrastructure to buy, sell, and track hourly CFE via granular certificates (GCs)

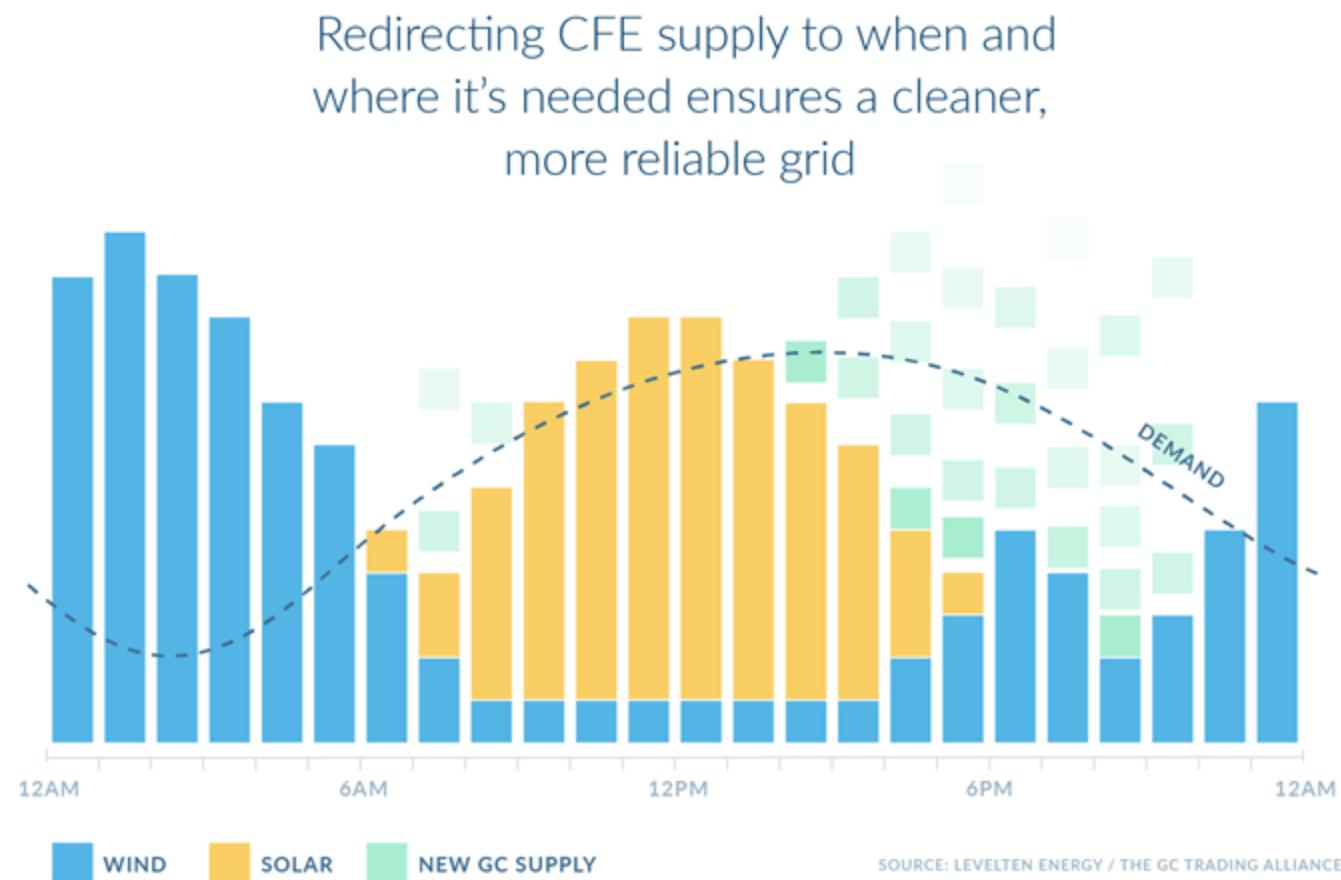


# The problem

Carbon-free energy (CFE) hasn't been able to meet demand at all hours



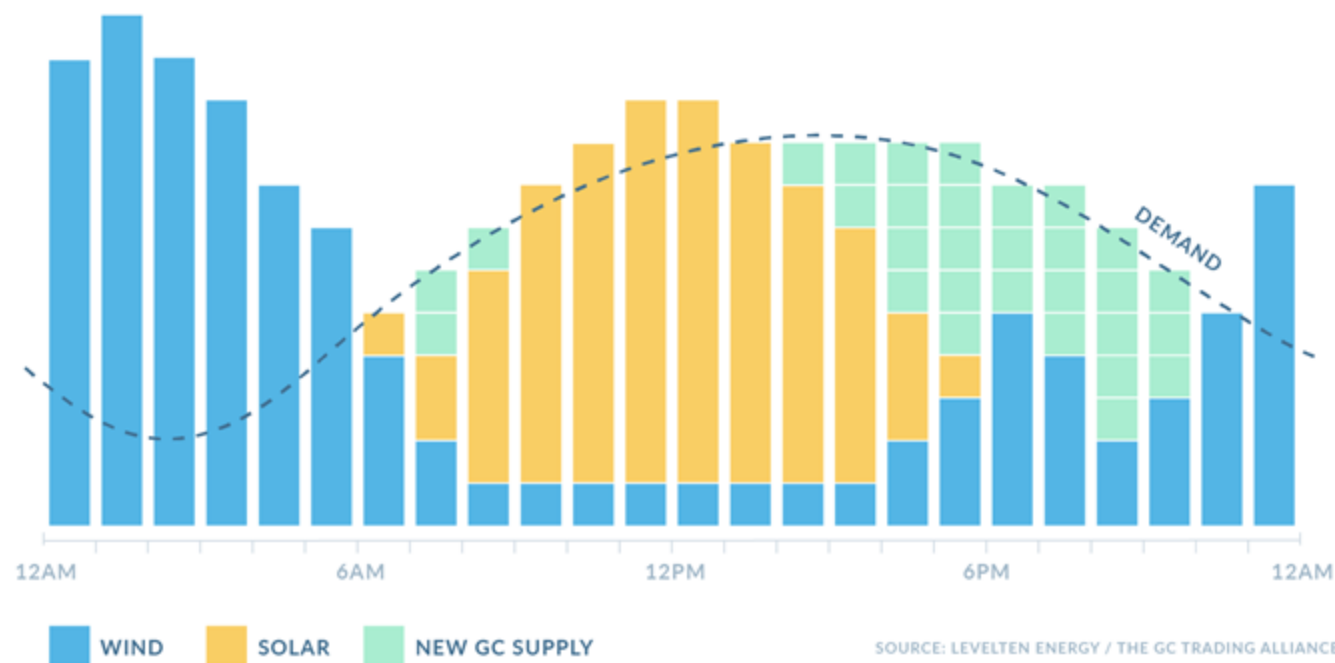
# The opportunity





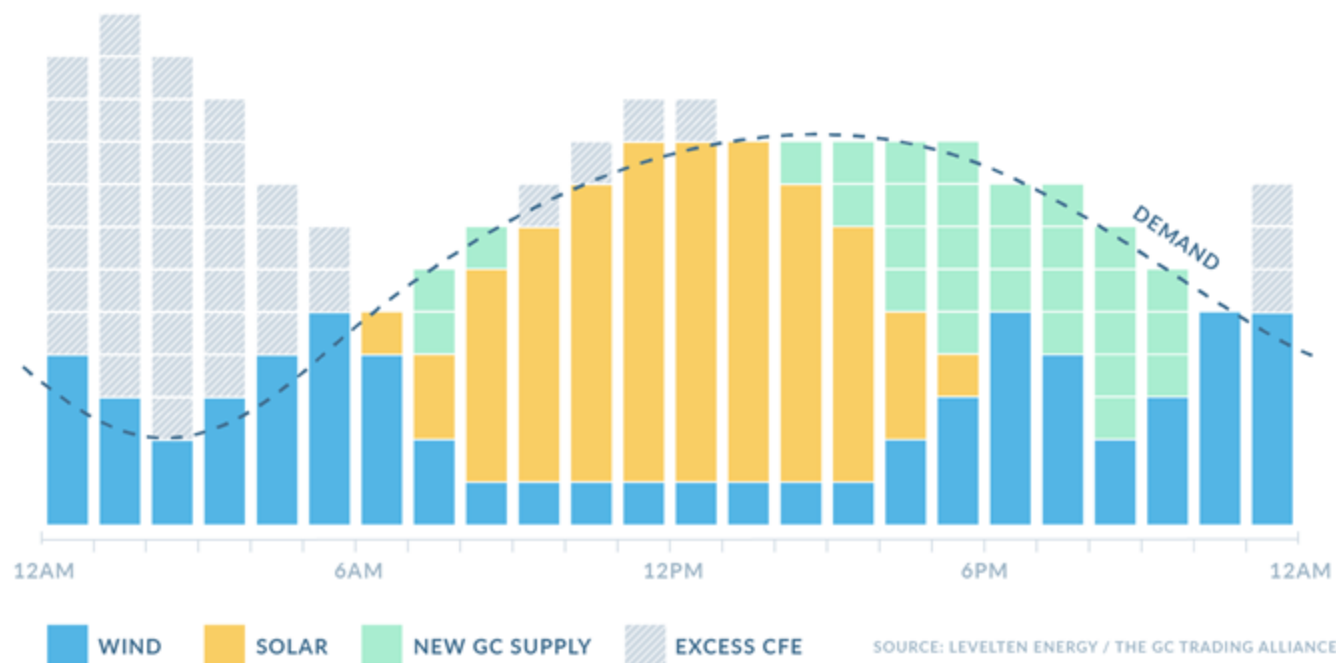
# Harnessing the power of market signals

A market for granular certificates  
incentivizes carbon-free energy  
generators to fill the gap



# A new exchange paradigm

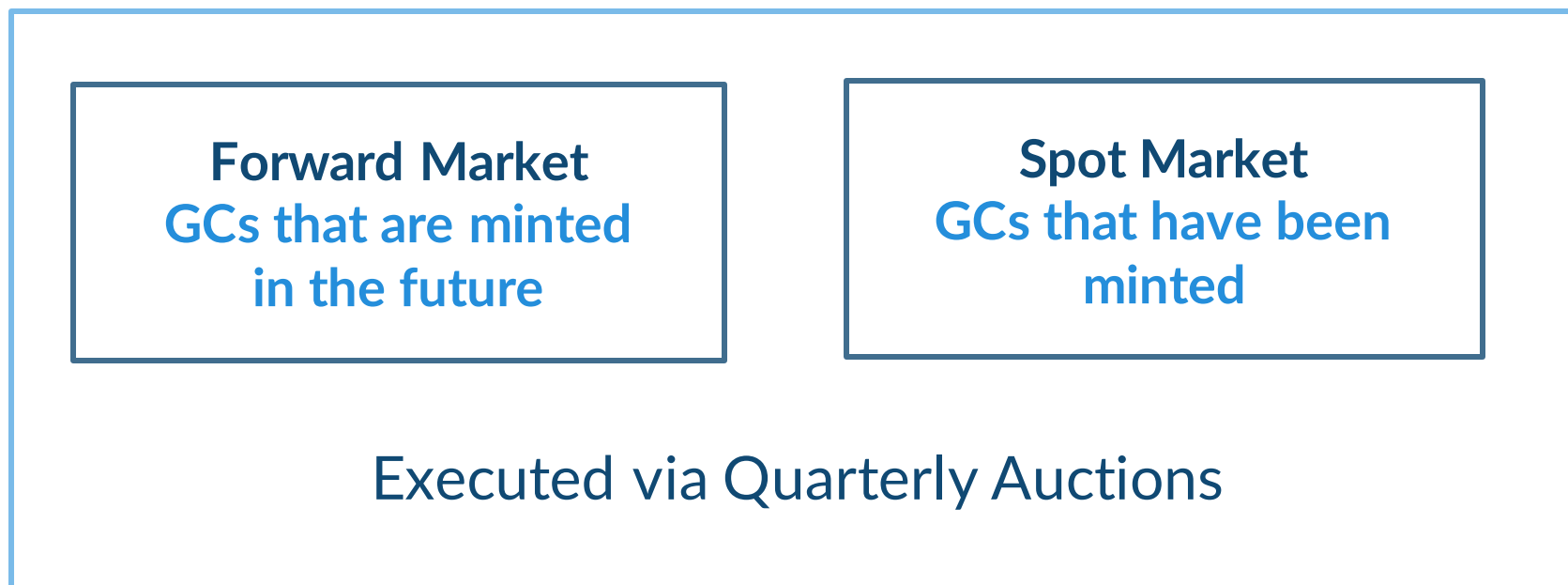
And makes it possible for organizations to buy CFE when they need it, and sell it when they don't



# How will GCs be traded?

Pilot

Buyers and sellers will be able to participate in two markets:



## SUPPORTERS



## A platform built on shared goals

1. Easily connect buyers to a new, flexible granular procurement option, which may lower the cost to achieve ambitious procurement strategies.
2. Enable the trading of GCs in alignment with guidance established by relevant standard-setting bodies (e.g., EnergyTag).
3. **Ensure environmental legitimacy in such trades (e.g., transparency; no double-counting; etc.).**
4. Provide price transparency on where and when clean energy is most needed, to help inform future project development decisions and incentivize clean energy investment in the places and times of day where demand is greatest.
5. Allow existing firm carbon-free resources to access a marketplace to sell CFE, which may help facilities extend their operational life.
6. Provide price transparency into the value of carbon-free resources during scarce hours.
7. Allow energy buyers with granular CFE procurement goals to liquidate "long" positions and fill temporal gaps in their CFE portfolio that are not easily addressed through PPAs or other existing contracting mechanisms.



# Questions?

[katie.soroye@leveltenenergy.com](mailto:katie.soroye@leveltenenergy.com)



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## Questions and Discussion

NARUC CPI Innovation  
Webinar



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