America’s electric companies are working closely with their large customers to develop creative solutions to meet growing demand for electricity while prioritizing affordability for all customers. On October 14, the Edison Foundation hosted a Thought Leaders Dialogue during which participants discussed how electric companies are utilizing artificial intelligence (AI) solutions that deliver the carbon accounting details customers need to track their renewable energy goals.

The webinar highlighted a groundbreaking partnership between Southern Company and Singularity Energy to deploy a first-of-its-kind hourly grid carbon tracking platform for large electric company customers such as Google. Participants included Sy Allen, renewable and resiliency manager for Georgia Power, a subsidiary of Southern Company; Wenbo Shi, CEO of Singularity Energy; and Soazig Kaam, technical program manager for Google, with David Hutchens, president and CEO of Fortis, Inc., moderating the discussion.

It’s important for us to manage and measure what our carbon emissions are—and if you can’t measure it, it’s really hard to manage,” said Hutchens during the event.

Southern Company’s Journey From Customer Need to Innovative Solutions

“Customers are at the forefront of what we do—helping them achieve their goals is paramount for our success as a utility,” said Allen.

He went on to highlight how having Google and other large customers participate in Southern Company’s inaugural renewable energy subscription program was instrumental in identifying the need for more granular data.

The challenge extended beyond merely fulfilling customers’ data requests. Southern Company recognized multiple objectives: supporting customers' net-zero targets for 2025, 2030, and beyond; tracking the company’s corporate net-zero transition; and managing expanding subscription programs.

Allen outlined Southern Company's methodical approach to addressing these needs. The team considered several options: building an internal dashboard, leveraging existing internal technology, engaging third-party consultants, or selecting a marketplace solution. Critical factors included data quality, capabilities to incorporate customer feedback, flexibility to meet future needs, and budget constraints.

Ultimately, a collaboration with Singularity Energy was facilitated through Southern Company’s new ventures team. The pilot program focused on a subset of existing renewable energy program customers who were most likely to value hourly carbon intensity data. This subset included not just Big Tech customers, but also commercial and industrial, large retail, and other national accounts.

Accounting for the Right Solution—The Devil Is in the Details

For Singularity Energy, getting the methodology right to deliver credible accounting requires painstaking attention to detail. In this pilot, that meant spending hundreds of hours working closely with multiple teams at Southern Company—digging into everything from emissions estimation based on heat-rate curves to how imports and unspecified purchases should be treated, among other critical details.

“The seemingly simple question—where does your power come from, and what emissions are associated with it—is more technically challenging than many might think,” said Shi. “Existing solutions often rely on assumptions for emissions estimates, without accounting for utility-specific procurement decisions or customer-specific power purchase agreements.”

Singularity Energy’s platform operates on three fundamental pillars:

1. **Tracking:** A comprehensive hourly generation inventory that tracks not only owned generation, but also purchased power, imports and exports, and unbundled Energy Attribute Certificates (EACs). To do this, Singularity Energy integrated with multiple internal systems and external data sources.
2. **Matching:** Matching generation to customer consumption based on contractual relationships and allocation rules in a manner that allows for the transition to an hourly accounting framework.
3. **Reporting:** Providing customers with transparent, hourly datasets including consumption, supply mix matched to consumption, and associated EACs and emissions.

Specifically, the transition to an hourly accounting framework adds nuances that increase complexity beyond just delivering a pro-rata share of subscribed resources. Getting the nuance right is critical, particularly if the goal is to share settlement-quality data which may impact a customer’s operational or procurement decisions or compliance with regulations.

A Customer’s Perspective

Google’s goal of 24/7 carbon-free energy by 2030 aims to match all of its hourly electricity consumption with renewable energy. This goes far beyond typical sustainability goals and requires granular electricity and carbon data to both measure progress and inform action.

“The pilot’s high-quality data enabled Google to shift from a carbon-accounting mindset to carbon action,” said Kaam

Applications for granular data Include:

- **Data Center Siting:** Informing decisions on new data center locations to ensure that additional renewable energy procurement is targeted, impactful, and coordinated with the rest of Google’s data center footprint.
- **Carbon-Aware Computing:** Leveraging granular data for modeling and expanding Google’s existing use of day-ahead carbon intensity forecasts from partners to shift non-

urgent computing tasks to times when the grid is utilizing the most renewable energy, potentially across additional regions through the Southern Company pilot.

- **Third-Party Verification and Reporting:** Enabling the creation of verifiable instruments, such as granular certificates, to support 24/7 carbon matching claims through a transparent data pipeline.

From One-Off Requests to a Consistent and Transparent Data Product

According to Google, whose extensive reach means significant experience working with many energy companies, the difference between typical electric company data provision and the results of the pilot were striking. Provided data typically are not granular; they arrive in manual processes; they often include only demand or generation data without carbon context; and they vary wildly in format, protocol, and access across companies. This inconsistency can create enormous operational challenges for a company with a global footprint like Google.

“We were very pleasantly surprised when we were first presented with the platform, because we recognized that it was really a level of transparency that we hadn't seen before,” said Kaam. “Google has been advocating for data access and transparency across the industry, and so it was very refreshing to see that product come into play.”

“The ultimate goal for us is to come up with an industry-wide standard of how to allocate generation and emissions to customers in a consistent way,” said Singularity Energy’s Shi. “It doesn’t have to be perfect, but it does have to be consistent.”

For Southern Company, this project represented a monumental lift in aggregating data to be able to disseminate it to both their customers and internal stakeholders. Previously, the company provided only annual or monthly carbon intensity values and responded to hourly data requests with one-off FTP files and minimal ongoing support.

Moving the Customer Relationship to a Partnership Model

Google also highlighted how the Southern Company and Singularity Energy team took a fundamentally different approach to typical key account–energy company relationships, forming more of a partnership between an electric company and a large customer by listening to their needs and involving the customer upfront in testing a potential solution.

“This collaboration was a really good example of how we want to work with utilities and technology partners as true collaboration to accelerate the energy transition, said Kaam.

“If we’re really going to be supportive of our customers in this space, then we’ve got to be proactive… Singularity has been the keystone to bring all of that together so we can disseminate that information,” said Georgia Power’s Allen.

The panelists went on to discuss how electric companies should view data as a core service offering rather than just an input or byproduct of the billing process. They also discussed how important it is to consider large customers with ambitious sustainability goals as innovation partners for co-creating solutions.

“It’s a tidal wave that’s building, and we’re continuing to push it forward,” said Allen.

Additional use cases discussed by participants included:

- **Near-Real-Time Operational Insights:** Leveraging near-real-time data to optimize operations—ranging from carbon-aware computing for technology companies to adjusting manufacturing processes—and generating financial savings by reducing the carbon intensity of products subject to the E.U. Carbon Border Adjustment Mechanism.
- **Long-Term Forecasting:** Using long-term forecasts to help customers assess their projected carbon profiles under standard supply service to inform procurement decisions.
- **Granular GHG Protocol Scope 2 Reporting**: Energy companies have a role to play in supporting large customers as reporting standards evolve to more granular accounting.

These use cases require additional analysis and a careful evaluation of data availability and quality.

Lessons Learned for Other Electric Companies

As more electric companies adopt similar approaches and leading practices for meeting customer needs emerge, transparent hourly data sharing and carbon accounting could lead to a new era of energy company-customer partnerships. Southern Company, Google, and Singularity Energy shared tips for other energy companies considering a similar program:

- **Engage Stakeholders Early:** Stakeholder engagement (both internal and external) is crucial to align the program with company strategy and to get buy-in on the importance of this data to large customers.
- **Prioritize Data Quality and Methodologies**: Getting data quality and methodologies right is foundational for any use cases. The importance of these behind-the-scenes efforts is often underestimated.
- **Start Simple:** Keep things simple by starting with historical data for reporting purposes before turning to more sophisticated use cases leveraging near-real-time and forecasted data.
- **Co-Develop With Customers:** Consider large customers as innovation partners in developing products that best suits their needs and expand an electric company’s service offerings.
- **Promote Standardization:** As more energy companies consider such data services, standardization on methodologies and access methods across energy companies become more important, particularly for large customers like Google with a footprint across multiple energy company territories.