
# Hourly Clean Energy Utility Product Designs: Nine Product Model Examples

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CEAP | CLEAN ENERGY ACCOUNTING PROJECT

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# Acknowledgements


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# 1. Executive Summary

The Clean Energy Accounting Project (CEAP), a program of Center for Resource Solutions (CRS), developed *Hourly Clean Energy Utility Product Designs: Nine Product Model Examples* (hereafter the "Guidance") to assist vertically integrated utilities in the United States in designing credible, customer-focused hourly clean electricity products.[1] This Guidance includes nine of the most practical Product Model options organized by complexity, matching approach, and performance risk for the utility. It equips utilities to offer a range of transparent third-party-verified products best suited to local resources and customer needs. This approach enables utilities to meet corporate and residential demand for granular, verified clean electricity in regulated markets.

This Guidance categorizes Product Model options based on Level of Guarantee and Product Type. A Product Model's Level of Guarantee could be "Transparency Only," "Resource-Specific," or "Guaranteed Percent," where Transparency Only matching provides the least risk of insufficient delivery as it provides hourly data without guaranteeing a certain level of hourly matching. The Product Types are defined as "Customized Products," "Subscription-Based Unbundled Products," and

1 In this report, "products" refers to utility products.

"Subscription-Based Bundled Products." Customized Product options are meant to be the least complex as they typically include a single offtaker or customer. Subscription-Based Bundled products are seen as the most complex, as the utility must match the hourly profile of owned generation to the hourly profile of their subscribed customers without procuring unbundled energy attribute certificates (EACs) from the market.

Based on these distinctions, this Guidance uses the Product Model Matrix to address the Product Models shown below:

This Guidance provides specifications and requirements that utilities should consider for each distinct Product Model in the Product Model Matrix, including those related to generation (supply), customers, term length, load and generation data, EACs, matching method, disclosure, marketing, and utility claims. Additional real-world examples of existing product options can be found in the Hourly Utility Product Design Background Report.[2]

## Table 1: Product Model Matrix

| Level of Guarantee | Matched to Individual Customer Load | Matched to Aggregated Customer Load | |
|---|---|---|---|
| | **Customized Product** | **Subscription-Based Unbundled Product** | **Subscription-Based Bundled Product** |
| **Transparency Only** | Customized Transparency Only | Unbundled Transparency Only | Bundled Transparency Only |
| **Resource Specific** | Customized Resource-Specific | Unbundled Resource-Specific | Bundled Resource-Specific |
| **Guaranteed Percentage** | Customized Guaranteed Percentage | Unbundled Guaranteed Percentage | Bundled Guaranteed Percentage |

Low Delivery Risk ↓ High Delivery Risk

Low Complexity → High Complexity

2 Hourly Utility Product Designs Background Report can be found here: https://resource-solutions.org/wp-content/uploads/2025/08/CEAP-HUPD-Background-Report.pdf

# 2. Introduction

Corporate and residential customers alike are increasingly interested in hourly-matched electricity products, which match the amount and timing of renewable and clean[3] electricity generation to retail customer load on an hourly basis (hereafter "Hourly Products"). For the purpose of this Guidance, an hourly product is a utility contract or offering where generation is matched to customer load on a time period of one hour. Hourly Products should provide reporting information to customers, including the hourly matching score[4]. Vertically integrated utilities,[5] which control all stages of the electricity supply chain from generation to distribution, are well positioned to provide a range of hourly clean electricity products. Such utilities often have all the data needed to perform the hourly matching methodologies discussed in this guidance. However, because each utility has unique circumstances, such as geographic and topographic constraints, resource availability, varying levels of customer interest, and differing data availability, there is no one-size-fits-all approach. This Guidance provides an overview of practical product models and the requirements of each to support vertically integrated utilities in U.S.[6] regulated markets as they design Hourly Products for their customers.

## 2.1 Generation Categories

This guidance establishes three distinct categories of generation to clarify how different types of generation shape hourly carbon-free energy (CFE) products.

3 "Renewable" electricity generally refers to electricity generated using a fuel source that is naturally replenished, e.g., solar, wind, and low impact hydropower. "Clean" electricity generally refers to electricity from sources that produce no greenhouse gas emissions, again including solar, wind, and low impact hydro, but also certain nonrenewable sources like nuclear. These sources and their use by utilities for retail sales are regulated under state renewable portfolio standard (RPS) or clean energy standard (CES) programs. That said, individual state and voluntary programs may differ in terms of definitions for clean and renewable. Unless otherwise specified, this report uses the term "CFE" (carbon-free energy) to refer to electricity generation sources that may be either renewable or clean.

4 "Hourly matching score" means the proportion of a customer's hourly electricity consumption that is matched by clean energy generation, calculated as the average, across all hours in a reporting period, of the percentage of consumption matched in each hour.

5 This Guidance employs simplified categories and terminology to support a general understanding of hourly utility product design and to ensure broad applicability across diverse regional contexts in the United States. For example, while the term "vertically integrated utility" typically refers to an entity that owns generation, transmission, and distribution assets and serves retail load, in practice, many such utilities also participate in wholesale markets—buying or selling power as needed—indicating that vertical integration exists along a spectrum rather than as an absolute condition.

6 For more on regulated and deregulated states, see the DSIRE database from North Carolina State University: https://www.dsireusa.org/

Each category brings different implications for hourly EAC allocation, product design, cost, and disclosure.

**1. Generation used for RPS or CES Compliance**
Renewable Portfolio Standard (RPS) and Clean Energy Standard (CES) generation produces electricity from eligible resources as defined by state RPS/CES. The electricity or, in some states, just the EACs from this generation, is used to meet state-mandated clean electricity targets and goals.[7] The EACs issued from this generation are eligible to be retired for compliance purposes. Utilities may include RPS/CES EACs in their subscription-based hourly Product Models, so long as the certificates are retired on behalf of the customers signed up for the product and disclosed accordingly.

**2. Ratebase Nonbypassable Generation**
Ratebase nonbypassable generation is utility-owned generation whose costs are included in the utility's regulated rate base. The costs associated with this generation are recovered through nonbypassable charges or fees included in the rates customers pay that cannot be avoided. Because all customers help fund these resources through rates, the electricity and environmental attributes from such generation are often not available for exclusive claims by individual customers. However, in cases where products match aggregated generation to aggregated customer load, this type of generation may be included, provided this treatment is transparently disclosed. Customers may not receive more than their pro rata share of this generation category.

**3. Voluntary Eligible CFE Generation**
Voluntary CFE consists of generation that is not allocated for RPS or CES compliance or the costs of which are not recovered through nonbypassable charges, or is not part of a default product. This generation category applies to generation that is also used by other utilities and/or states. Utilities may offer this generation to customers through voluntary programs or products.

Generation categories 1 and 2 are examples of Standard Delivery Clean Energy (SDCE),[8] which refers to clean electricity generation that is delivered to and retired on behalf of a retail customer that did not actively or voluntarily procure it. It is typically delivered as a result of a load serving entity's (LSE's) own renewable electricity or carbon targets, a state government's renewable or clean goals, or circumstances where CFE is a cost-effective resource or is otherwise included in the utility's resource portfolio. It includes generation used for compliance with state RPS or CES programs as well as from certain ratebase nonbypassable generators. SDCE is included in all applicable Product Models discussed in this Guidance. Utility generation pools and the allocation of SDCE to utility customers is important for utilities to understand before designing hourly products.

7 It is common for states to declare long-term clean energy or decarbonization goals; however, these are often not legally enforceable targets and do not include monitoring, reporting, and verification (MRV) or compliance mechanisms that require a percentage of retail load to be met with eligible clean generation. Generation used toward goals with no MRV does not fall within this category.

8 A new term is emerging similar to SDCE, Standard Supply Service (SSS) from the Greenhouse Gas Protocol (GHGP). SSS is largely similar to SDCE, but encompasses all electricity clean or not. The final rules for what constitute as SSS have not been finalized as of the date of this report.

# 3. Explanation of Hourly Products and Matching Methods

As with any retail electricity product offering, EACs—representing the full suite of environmental attributes of a quantity of generation—are critical for tracking, matching, and ultimately verifying delivery of specified power to specific retail customers for voluntary products, and broad utility customer bases for compliance purposes.

In the U.S., most tracking systems issue EACs for monthly generation.[9] It is typical that a consumer's electricity consumption in a given year can be matched with monthly EACs generated any time during that year, or a defined generation eligibility period, e.g., a 21-month window, to verify a specified renewable electricity delivery and/or use claim.

Until there is wide-scale availability of hourly EACs—EACs issued for hourly generation—utilities and other electricity providers may employ different methodologies to match generation to load on an hourly basis. The type of matching method used depends on the granularity of both generation and load data, as well as Product Type. Not all Product Types are suitable for each matching method, as is explained in later sections on individual Product Models.

All hourly products shown in this Guidance assume hourly customer load data is available. Where this data is not available, utilities may use methods to estimate either an individual customer's hourly load or an aggregated customer base's hourly load. In some cases, these methods can be gleaned from resources such as the Greenhouse Gas Protocol (GHGP), EnergyTag,[10] and 24/7 Coalition.[11] Matching methodology descriptions are provided below, listed from most to least accurate.

9 With the exception of ERCOT, which issues EACs on a quarterly basis.

10 EnergyTag Granular Certificate Scheme Standard: https://energytag.org/wp-content/uploads/2024/12/EnergyTag_Granular-Certificate-Scheme-Standard-V2.pdf

11 24/7 Carbon-Free Coalition Technical Criteria: https://www2.theclimategroup.org/247-technical-criteria-May-2025

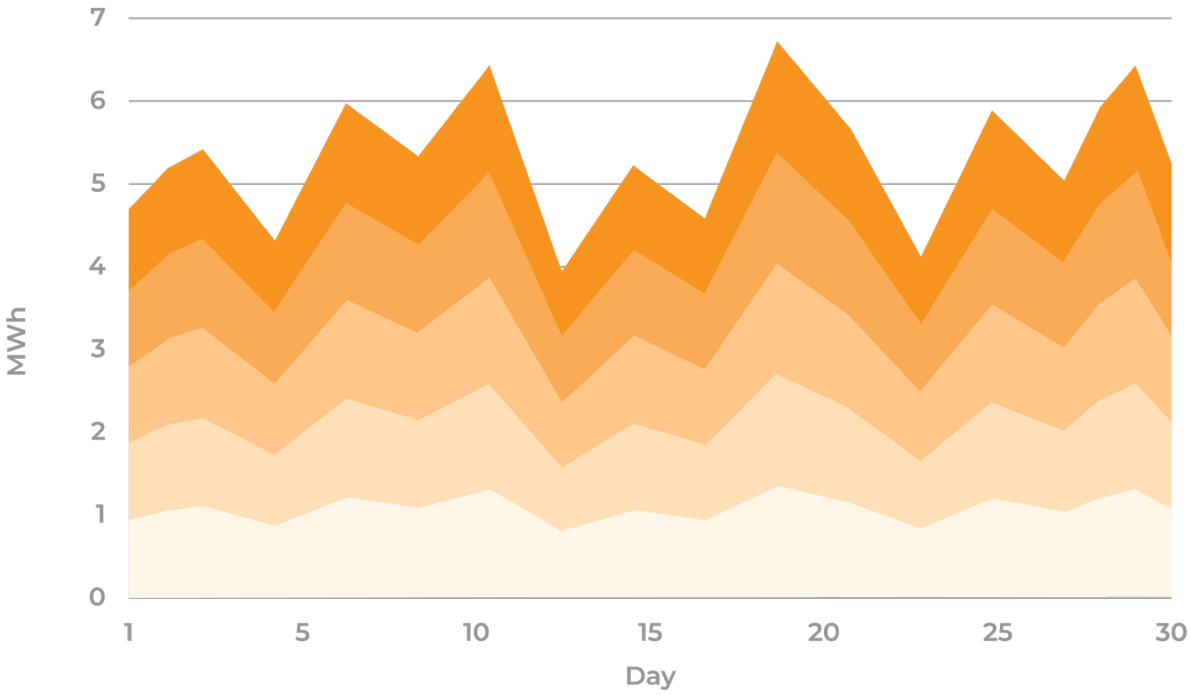
**Matching hourly generation data (EACs) to hourly load data:** This approach requires the use of hourly EACs that are timestamped and tracked in registries with hourly tracking capabilities. This method uses hourly EACs to match to customers' hourly load, either to an individual customer or to the aggregated customer base subscribed to a particular product, depending on the Product Type.

**Matching monthly generation data (EACs) to hourly load data:** This method uses a generation asset's hourly metered load profile tied to its monthly certificates that follow the same shape. The result is a set of individual hourly generation volumes that are proportional to the asset's total metered data for each hour of that month.[12] These volumes are matched to hourly load data.

**Matching annual generation data (EACs) to hourly load data:** This approach uses a generation asset's hourly metering profile and disaggregates the volume of the annual certificates into hourly portions according to the same shape.

Additionally, all approaches listed may utilize Proportional Matching should they wish. Proportional Matching involves matching customer load to a proportional share of a generation asset's output based on each hour. For example, if the utility product offered 10% CFE matched to aggregated customer hourly load, the aggregated customer base (of a subscription-based product) will get 10% of the CFE produced during every hour, with each individual customer getting their pro rata share. Proportional matching is not suitable for customized products. Graph 1 below demonstrates what proportional matching may look like.

Utilities' choice of matching methodology is driven by the quality of data available to them. The chosen matching methodology should be disclosed both in marketing and disclosure information to customers. Additional information regarding which matching methodology may be used with different Product Models is presented in the Product Model sections below.

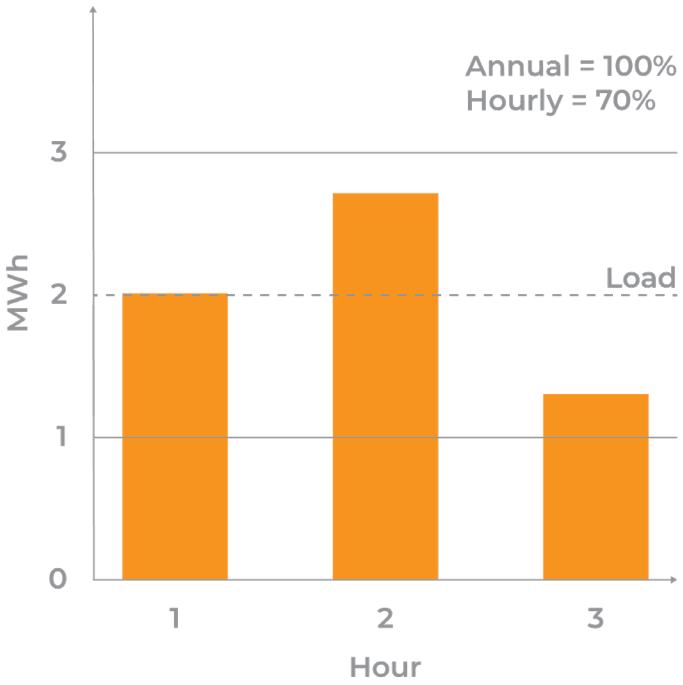



**Graph 1** shows a mockup generation profile of an asset over the course of a month. Each shade represents the pro rata share of generation that each of the five parties is entitled to claim, allowing each party to match their corresponding share to their load.

12 Demystifying The Meaning Of Hourly Matching. Granular Energy. 2025. https://www.granular-energy.com/insights/demystifying-the-meaning-of-hourly-matching

## 3.1 Matching Excess Hourly Generation to Annual Load

Throughout any given time period (day, month, year), a utility may generate more MWh than the customer requires. However, there may be other times when utility generation does not meet customer consumption. In a scenario when utility generation is higher than customer consumption in a given hour, the utility may "bank" the excess generation to use toward that customer's annual clean energy goals. In that case, that excess generation may not be counted toward SDCE for the broader customer base.




**Graph 2** depicts 3 distinct hours where generation is matched to a customer's hourly load at varied amounts. The bars represent generation, and the dotted line represents the company's load. In hour 1, hourly load is matched 100%. In hour 2, hourly load is matched 100%, but there is excess generation delivered to the company. While hour 3 matched only partway (i.e. 70%), the excess generation from hour 2 cannot be utilized in hour 3. Instead, it must be rolled up into the company's annual renewable energy percentage.

# 4. Product Model Matrix

This Guidance provides an overview of nine distinct Product Models. These Product Models represent credible and feasible options for hourly utility CFE products in regulated markets, but are not an exhaustive list of all Product Models that could be created. Product Models are organized into a Product Model Matrix for hourly utility product options: vertically by Level of Guarantee,[13] and horizontally by whether the product matches to individual or aggregated customer hourly load, followed by distinct Product Types (e.g., customized vs subscription-based). Product Types include Customized Products, Subscription-Based Unbundled[14] Products, and Subscription-Based Bundled Products.[15] From top to bottom, the Matrix flows from low to high risk,[16] and from left to right the Matrix flows from low to high complexity.[17] Table 2 reorganizes the information in the Matrix, along with other information, e.g., whether SDCE can be included, by Product Model. Explanations for distinct terms used in the Product Model Matrix are provided below:

## 4.1 Levels of Guarantee

**Transparency Only:** A product that provides hourly data without guaranteeing a certain level of matching but matches generation to load to a non-predetermined level. This matched amount is based on CFE that is available, EAC price, as well as other factors. This product is considered lowest in delivery risk because it does not commit the utility to delivering a specific hourly match percentage or resource type. It is suitable for broad customer bases.

**Resource-Specific:** A product that does not provide a guaranteed hourly matching percentage but commits to matching specific technologies or assets to customer load on an hourly basis. For example, the utility may guarantee a portfolio of 50% solar matched on an hourly basis for the lifetime of the product contract. The utility will not guarantee the percent of hourly matching customers will receive. Product types with this level of guarantee may be best suited for customers or customer groups with a predictable load profile (e.g., one that may mirror solar).

**Guaranteed Percentage:** A product built for customers with firm hourly matching commitments. This product is highest risk because it commits the utility to provide a guaranteed amount of hourly CFE for their customers. Product types with this level of guarantee may or may not be resource-specific.

## 4.2 Reporting Period

It is important to note that the utility may offer an hourly guaranteed percentage over different timeframes—the timeframe over which hourly matching percentage is calculated and disclosed (hereafter, "reporting period" or "reporting timeframe"). For example, a utility may offer an "hourly guarantee," where the utility guarantees that in every single hour, X% of a customer's load is matched with CFE. This approach may be more difficult with just one

13 Guarantee of percent hour-matched.

14 In this report, "bundled" and "unbundled" refer to how utilities acquire electricity and EACs, not how these are sold to customers. All products described involve the delivery of electricity and EACs together. However, the Guidance makes a distinction between bundled sourcing, where electricity and EACs are procured from the same facility, and unbundled sourcing, where the utility acquires EACs and electricity from separate facilities. In some cases, "electrically balanced" sourcing may better describe bundled procurement in which the utility intends to receive both electricity and EACs from the same source, even if system operations result in partial exports or substitutions during certain hours.

15 In reality, utilities may have a need or customer pressure to create products that are not 100% bundled or 100% unbundled, i.e., 50% bundled/50% unbundled. The Product Models in this Guidance only represent an example of products that could be offered to customers, and for that reason may be simplified.

16 Delivery risk to the utility, i.e., how much they have guaranteed to deliver to their customers.

17 Complexity for the utility to procure sufficient attributes of power to selected customers.

generation source and is better suited for Product Types that include aggregated generation sources. Utilities may define the guarantee using a variety of approaches, for example offering a "daily guarantee" where the utility guarantees that over the course of each 24-hour period, X% of the customer's hourly load is matched with CFE. The utility could also offer monthly or annual guarantees, where the utility guarantees that across all hours in a given month or year, X% of the customer's load is matched with CFE. This approach provides flexibility for utilities given uncertainty and variability in generation and load.

## 4.3 Product Types

Products can be formulated with different matching characteristics. Below are some common product types discussed in this Guidance.

**Matched to individual customer load:** Generation is matched to one individual customer's load.

**Matched to aggregated customer load:** Generation is matched to the aggregated load of a subscribed customer base. EACs for the matched load are retired on behalf of the aggregated customer base, and customers are allocated their pro rata share of the generation.

**Customized Product:** A single CFE resource or multiple CFE resources are allocated directly to a single customer or site through an electricity supply agreement. Term lengths vary. Customized Products may match individual load to individual generation or individual load to aggregated generation.

**Subscription-Based Unbundled Product:** Multiple customers subscribe to a portfolio of CFE attributes paired with utility-owned or contracted electricity sources, where EACs and electricity may be from different generation sources both within the utility's portfolio, as well as purchased EACs. Alternatively, multiple customers may subscribe to attributes from an individual CFE project paired with owned or contracted generation. Time matching is based on the procured EACs.

**Subscription-Based Bundled Product:** Multiple customers subscribe to a portfolio of owned aggregated or individual generation bundled with associated EACs. These often include subscription capacity caps.

### Table 1: Product Model Matrix

| Level of Guarantee | Matched to Individual Customer Load | Matched to Aggregated Customer Load | |
|---|---|---|---|
| | **Customized Product** | **Subscription-Based Unbundled Product** | **Subscription-Based Bundled Product** |
| **Transparency Only** | Customized Transparency Only | Unbundled Transparency Only | Bundled Transparency Only |
| **Resource Specific** | Customized Resource-Specific | Unbundled Resource-Specific | Bundled Resource-Specific |
| **Guaranteed Percentage** | Customized Guaranteed Percentage | Unbundled Guaranteed Percentage | Bundled Guaranteed Percentage |

Low Delivery Risk → High Delivery Risk

Low Complexity → High Complexity

Each Product Model is designed for different utility circumstances. Availability of generation or generation data, availability of EACs, EAC price, customer interest, customer type, customer size, etc. all may impact product specifications.[18] For example, a utility seeking more flexibility may opt for a transparency-only product using unbundled EACs (e.g., Unbundled Transparency Only Product). Alternatively, a utility with a single large customer who wants to match their hourly load with wind electricity may select the Customized Resource-Specific Product.

All hourly product models in this Guidance can be offered in conjunction with an annual clean energy percentage or guarantee.

### Table 2: Product Model Specifications

| Product model | Customized or subscription-based | Bundled or unbundled procurement | Matching percentage guaranteed? | Resource type guaranteed? | Can SDCE be included? |
|---|---|---|---|---|---|
| Customized Transparency Only | Customized | Bundled | No | No | No |
| Customized Resource-Specific | Customized | Bundled | No | Yes | No |
| Customized Guaranteed | Customized | Bundled | Yes | Context-dependent | No |
| Unbundled Transparency Only | Subscription-based | Unbundled | No | No | Yes |
| Unbundled Resource-Specific | Subscription-based | Unbundled | No | Yes | Yes |
| Unbundled Guaranteed | Subscription-based | Unbundled | Yes | Yes | Yes |
| Bundled Transparency Only | Subscription-based | Bundled | No | No | Yes |
| Bundled Resource-Specific | Subscription-based | Bundled | No | Yes | Yes |
| Bundled Guaranteed | Subscription-based | Bundled | Yes | Yes | Yes |

18 Potential Product Models involving "estimated" data are not included, as credible products require verifiable data.

# 5. Product Types and Models

This section presents an overview of each product type—Customized, Subscription-Based Unbundled, and Subscription-Based Bundled—and the product models within each category. A table accompanying each product type summarizes core specifications and requirements.

## 5.1 Customized Product Models

### Table 3: General Requirements for Customized Product Models

| | |
|---|---|
| **Generation** | Electricity and associated EACs are sourced from a single or multiple projects owned or contracted by the utility. This generation does not include SDCE. |
| **Customer Base** | Customized Products are for a single customer. This is typically reserved for customers with a larger load to justify the individualized product. |
| **Term Length** | Term lengths may vary depending on the needs of the customer and of the utility. |
| **Load Data Needed** | • Metered hourly load profile<br>• Meter ID |
| **Generation Data Needed** | • Metered hourly generation data—this does not include modeled or estimated data<br>• Generator ID<br>• Asset and technology-specific information<br>• EACs tracked through credible tracking systems (for renewable sources and for non-renewable CFE where tracking is available) and retired on behalf of the customer |
| **Matching Method** | The utility should match the bundled hourly EACs of an individual generation source to the hourly load of an individual customer. Proportional matching is not accepted for this Product Type. Other methods to match generation to load depend on quality and access to data needed. |
| **Disclosure[19]** | Utilities providing this Product Type should disclose:<br>• Hourly CFE percentage<br>• Reporting period<br>• CFE project details (e.g., resource type, location)<br>• Matching method<br>• Quality assurance via third-party certification and verification<br>• Hourly match commitment (applicable only for guaranteed-percentage products) |

19 This Guidance is not equivalent to a certification standard. Utilities should work with verified third-party certification programs for the most up-to-date disclosure rules.

| | |
|---|---|
| **Claims** | Claims may include:<br>• That the customer's individual load was matched to individual or aggregated CFE generation on an hourly basis, and the percentage of hourly matching over the reporting timeframe<br>• Total MWh delivered over the reporting timeframe<br>• Delivery and use of resource type and associated emissions for matched percentage<br>Claims should not include:<br>• Customer impacts on project development or on sustaining project operations, unless independently verified<br>• Avoided grid emissions, unless independently verified |

### 5.1.1 Customized Transparency Only

The Customized Transparency Only Product Model does not commit a specific resource type or guaranteed hourly matching score to its single customer. Instead, it is a way for individual customers to receive hourly-matched information proportional to their load at a non-pre-determined level according to what is available from utility owned or contracted resources.

An example of a claim that a utility may make for this Product Model is: "[Utility Name] provides owned or contracted CFE to [Company Name], matched on an hourly basis. No specific matching percentage or resource type is guaranteed, but all generation data are metered and attributes are verified."

### 5.1.2 Customized Resource-Specific

The Customized Resource-Specific Product Model commits to a specific resource type or mix for a single customer but does not guarantee a percent match.

An example claim that a utility may make for this Product Model is: "[Utility Name] provides hourly clean electricity from [resource type(s), e.g., wind or solar, or individual project name(s)] to match the hourly load of [Customer Name], though the percentage of hourly matching over [reporting period, e.g., each month] will vary."

A utility may include the MW capacity of a specific resource so long as inclusion does not violate customer privacy rights.

### 5.1.3 Customized Guaranteed Percentage

The Customized Guaranteed Percentage Product Model provides a guaranteed amount of hourly-matched CFE that is shared directly to the customer.

Should the utility not be able to meet the guaranteed percentage due to low generation output, the utility should provide a financial settlement to the customer to credit or refund an amount proportional to the shortfall. Alternatively, the utility may be able to make up this shortfall in a subsequent reporting period, though this would weaken the credibility of this Product Type. Another option for the utility would be to bill the customer after generation is confirmed to mitigate any risk of overpayment by the customer. However, because Customized Products have only one customer, the customer should be able to estimate load over the course of the contract so the utility may plan accordingly.

If there is excess generation in certain hours (e.g., generation exceeding the load of participating customers) this generation may contribute to the SDCE of other utility customers provided that the generators used for the product are also included in the portfolio used for the utility's default product. Alternatively, the excess could be allocated to customers receiving annually matched renewable or clean energy products, but the utility cannot allocate excess generation as both SDCE and annually matched clean energy for a particular customer or group.

An example claim that a utility may make for this Product Model is: "Each [reporting period, e.g., month], [Utility Name] provides [Customer Name] with clean electricity that matches at least X% of electricity consumption, calculated on an hourly basis and averaged over the reporting period, from [resource type(s)/project name(s)]."

## 5.2 Subscription-Based Unbundled Product Models

### Table 4: General Requirements for Subscription-Based Unbundled Product Models

| | |
|---|---|
| **Generation** | The utility sources EACs from a combination of owned or contracted facilities and regional CFE generators (i.e., unbundled EACs from a single or portfolio of regional CFE generators). These EACs are paired with owned or contracted generation[20] that has a greenhouse gas emissions rate equal to or lower than the regional grid average.[21] A portion of EACs may consist of SDCE (e.g., the customers' share of RPS RECs), provided that this portion is disclosed and does not exceed the customer's pro rata share. |
| **Customer Base** | Customers eligible for this Product Type are utility customers who subscribe to the offering. Participation may include residential customers, commercial customers, or a subset of either. Enrollment may be capped depending on available supply. |
| **Term Length** | Such deals are suitable for short- or long-term lengths, depending on the needs of the utility and/or availability of resources. |
| **Load Data Needed** | • Metered hourly load profile for aggregated customers<br>• Meter ID(s) |
| **Generation Data Needed** | • Hourly EACs or hourly generation data on EACs in an EAC tracking system<br>• Facility COD from procured EACs |
| **Matching Method** | The utility should match hourly EACs (or hourly generation data associated with procured EACs) to the hourly aggregated load of subscribed customers. Time zone adjustments may be required to ensure alignment. Depending on data availability and quality, proportional matching may be used. |

20 All contracted generation (for all Product Models) must be procured on behalf of the individual customer or aggregated subscribed customer base. The supplier shall be the owner of the contract, and have complete transparency regarding the EACs in the supply so the customer(s) always know exactly from which projects they are purchasing. Adapted from The Climate Group 24/7 CFE Coalition Technical Criteria Section 3.1 "project-specific supply contract with electricity supplier": https://www2.theclimategroup.org/247-technical-criteria-May-2025

21 The attributes of any specified generation to which unbundled EACs are paired are either retained by the utility (and, for example, may be assigned to other product sales/customers) or they are added to the regional residual mix of generation (which is applied to the "null" power at the source of the procured unbundled EACs, as well as the unfulfilled load of any load-serving entities in the region). The stipulation that the owned or contracted generation to which unbundled RECs are paired be as clean or cleaner than the grid average is consistent with voluntary market best practices and intended to help ensure fairness and accountability for ownership and procurement of specified fossil resources.

| | |
|---|---|
| **Disclosure** | Utilities providing this Product Type should disclose:<br>• Hourly CFE percentage<br>• Reporting period<br>• EAC source information (e.g., resource type, location)<br>• Matching method<br>• Quality assurance via third-party certification and verification<br>• Hourly match commitment (applicable only for guaranteed-percentage products) |
| **Claims** | Claims may include:<br>• That CFE was matched to aggregated customer load on an hourly basis and the percentage matched over the reporting timeframe<br>• Whether the load of the aggregated customer base was matched to individual or aggregated generation sources<br>• EAC resource type(s)<br>• Total MWh delivered over the reporting period<br>Claims should not include:<br>• Customer impacts on project development or on sustaining project operations, unless independently verified<br>• Avoided grid emissions, unless independently verified |

### 5.2.1 Unbundled Transparency Only

The Unbundled Transparency Only Product Model does not guarantee any specific hourly percent match or resource type, and prioritizes hourly transparency over fixed delivery commitments. This Model uses regional, unbundled hourly EACs plus owned/contracted electricity. Time zone adjustments may apply.

An example claim that a utility could make when supplying this Product Model is: "[Utility Name] provides subscribed customers with [regionally sourced CFE or CFE sourced from [region name]] and information about the percentage of CFE matched on an hourly basis over [reporting period] to aggregated customer load. No specific matching percentage or resource type is guaranteed, but all generation data are metered and attributes are verified."

### 5.2.2 Unbundled Resource-Specific

The Unbundled Resource-Specific Product Model commits to a chosen resource type for the subscriber pool, but does not guarantee a specific percentage of hourly matching. Because this Model allows for regionally sourced unbundled EACs, there is more flexibility in procurement while still allowing customers to claim a specific resource (i.e., wind, solar, etc.)

An example claim that a utility could make when supplying this Product Model is: "[Utility Name] provides subscribers with CFE sourced regionally from [resource type], matched to aggregated customer load on an hourly basis. The percentage of hourly matching over [reporting period, e.g., each month] will vary."

### 5.2.3 Unbundled Guaranteed Percentage

The Unbundled Guaranteed Percentage Product Model provides a guaranteed percentage of hourly-matched regionally sourced unbundled EACs to subscribing customers' aggregated load.

Because this Product Model allows for the use of regional unbundled EACs, the utility has more flexibility in procurement to meet the guaranteed percentage over the reporting period. If the utility falls short of the guaranteed percentage, it must reconcile the shortfall by procuring additional time-aligned regional EACs, providing financial settlement, or applying agreed-upon true-up mechanisms. Guarantees under this model apply to the aggregated customer base rather than individual customer load, and all results must be independently verified to ensure alignment with product terms.

An example claim that a utility could make when supplying this Product Model is: "[Utility Name] provides at least X% regionally sourced CFE matched on an hourly basis over [reporting period] to aggregated subscriber load."

## 5.3 Subscription-Based Bundled Product Models

### Table 5: General Requirements for Subscription-Based Bundled Products

| | |
|---|---|
| **Generation** | Electricity and EACs are sourced from CFE resources owned or contracted by the utility. Supply may come from a single facility or portfolio of projects, depending on the size of the subscriber base and/or availability of CFE resources. Generation used for this Product Type may include a portion of SDCE, provided that this portion is noted in marketing and disclosure language and does not exceed the customer's pro rata share. |
| **Customer Base** | Customers for this Product Type are utility customers who subscribed to the offering. Participation may include residential customers, commercial customers, or a subset of either. Enrollment may be limited depending on available supply. |
| **Term Length** | These products are generally suited to longer (i.e., multi-year) term lengths due to the structure of the product. |
| **Load Data Needed** | • Metered hourly load profile for aggregated customers<br>• Meter ID(s) |
| **Generation Data Needed** | • Facility commercial operation date (COD) from owned or contracted generation<br>• Metered hourly generation data from all facilities, aggregated generation profile<br>• Generator IDs<br>• Asset and technology specific information, including MWh per technology type<br>• EACs tracked through credible tracking systems (for renewable sources and for non-renewable CFE where tracking is available) and retired on behalf of the customers |

| | |
|---|---|
| **Matching Method** | Utilities should match individual or aggregated owned or contracted hourly CFE generation to aggregated customer hourly load. Proportional matching may be used for this product type. |
| **Disclosure** | Utilities providing this product type should disclose:<br>• Hourly CFE percentage<br>• Reporting period<br>• Project information (e.g., resource type, location)<br>• Matching method<br>• Quality assurance via third-party certification and verification<br>• Hourly match commitment (applicable only for Guaranteed Percentage products) |
| **Claims** | Claims may include:<br>• That CFE was matched to aggregated customer load on an hourly basis and the percentage matched over the reporting timeframe<br>• Whether the load of the aggregated customer base was matched to individual or aggregated generation sources<br>• Total MWh delivered over the reporting period<br>Claims should not include:<br>• Customer impacts on project development or on sustaining project operations, unless independently verified<br>• Avoided grid emissions, unless independently verified |

### 5.3.1 Bundled Transparency Only

The Bundled Transparency Only Product Model does not guarantee a specific percent of hourly-matched generation or a resource type but does allow subscribed customers to have a portion of their load matched with hourly CFE via the utility's owned/contracted generation sources. This is useful where the utility prefers fleet-based transparency without fixed percentage or resource type commitments to the customer base.

An example claim that a utility may use for this Product Model is: "[Utility Name] provides owned or contracted CFE to subscribers, matched on an hourly basis to aggregated customer load. No specific percentage or resource type is guaranteed, but all generation data are metered and attributes are retired on behalf of subscribers."

### 5.3.2 Bundled Resource-Specific

The Bundled Resource-Specific Product Model constrains the bundled CFE generation assets that may be used to specific resource types without a guaranteed percent of hourly-matched generation. This requires sufficient owned/contracted capacity of the specified resource type and clear allocation methods for subscribers.

An example claim that a utility may use for this Product Model is: "[Utility Name] provides owned or contracted clean electricity from [resource types], matched on an hourly basis to aggregated

customer load. The percentage of hourly matching over [reporting period] will vary."

### 5.3.3 Bundled Guaranteed Percentage

The Bundled Guaranteed Percentage Product Model provides the strongest commitment to its subscribers, providing a guaranteed percentage of bundled electricity CFE from owned/contracted sources.

Because this Product Model guarantees the amount of bundled hourly matching, a utility may have less flexibility over the reporting timeframe and may want to rely on a longer reporting period, for example offering monthly or annual guarantees for hourly matching. Sourcing from multiple generation sources may provide more flexibility. The utility should consider the amount of generation available to them and the amount of hourly load from subscribed customers when making the product description. If the guaranteed percentage is not achieved, the utility must reconcile the shortfall through additional procurement, financial settlement, or agreed-upon true-up mechanisms. Guarantees under this model apply to the aggregated subscriber base, with each customer receiving a pro rata share. All guarantees must be subject to independent verification using metered data and credible tracking systems to ensure compliance with product terms.

An example claim that a utility may use for this Product Model is: "[Utility Name] provides at least X% clean electricity matched on an hourly basis over [reporting timeframe] to aggregated subscriber hourly load from owned or contracted generation."

# 6. Disclosure and Verification

Disclosure of hourly CFE product performance is essential to provide customers and regulators with confidence in the accuracy of claims. Utilities should disclose CFE delivery data at a frequency consistent with existing reporting and billing practices. More frequent interim updates such as monthly or quarterly interim disclosures may increase transparency and support customer trust. Final, audited disclosure of hourly CFE performance should be provided on at least an annual basis, reconciling preliminary estimates with verified data. Disclosures should communicate the hourly matching percentage, explain how they were calculated, and identify the chosen methodologies and data sources. Baseline information should be available, but customized disclosure requests may need to be discussed between the utility and customer and may incur additional costs by the participant. Integrating disclosure into established utility reporting systems can help demonstrate compliance, enhance transparency, and reduce reputational or regulatory risk.

Independent verification ensures that hourly CFE claims can be substantiated and withstand regulatory, customer, and auditor scrutiny. All hourly CFE transactions should be subject to third-party verification against recognized data sources (e.g., grid operator settlement data, meter data, or emissions accounting protocols). Independent verification should confirm that:

1. Hourly generation matched customer hourly consumption
2. The renewable attributes were not double-counted or retired elsewhere
3. The reporting aligns with prevailing regulatory and accounting standards

# 7. Marketing

Utilities should ensure that marketing materials accurately represent the type of hourly CFE product being offered and do not misstate the amount or nature of hourly-matched electricity delivered to customers. All claims must align with the applicable Product Model: Transparency-Only, Resource-Specific, or Guaranteed.

For Transparency-Only Products, marketing should emphasize that the offering provides visibility into hourly CFE delivery. It should not explicitly or implicitly suggest that a guaranteed quantity of hourly CFE is delivered or that a specific resource type is assured. For products that match to aggregated customer load, marketing should clearly state that customers receive a pro rata share of aggregated deliveries and avoid implying that hourly matching occurs at the individual customer load level unless it is at 100% matched. Resource-Specific Products may identify the resource type, such as wind or solar, but should not overstate performance by suggesting guaranteed hourly percentages. Guaranteed Products may market both the resource type and the percentage of hourly matching, but only within the limits of the contract, the specified reporting period, and the verified product performance.

Utilities may describe the benefits of their hourly CFE offerings or projects, but claims should be factual and proportionate. Marketing materials should not imply that participation directly results in new clean electricity development or guarantees emissions reductions unless those impacts can be independently substantiated. Communications should, instead, clearly communicate what the product provides, whether it is transparency into hourly delivery, assurance of a particular resource type, or a guaranteed level of hourly matching, so customers understand its value without risk of misinterpretation.

# 8. Conclusion

This Guidance outlines a set of generalized Product Models that vertically integrated U.S. utilities can use to design and deliver credible hourly clean electricity products. Utilities may select from nine distinct models, aligned with varying levels of risk tolerance, data capabilities, and customer needs, using it as a foundation to develop and refine offerings over time. Although the Product Model Matrix and accompanying descriptions are not exhaustive, they provide a clear starting point for tailoring products to different operational contexts.

The framework is designed to be flexible, enabling utilities to begin with lower-risk, broadly accessible products and progress over time toward higher-commitment, guaranteed-match offerings as market readiness, technology, and data quality improve.

As emphasized throughout this Guidance, all hourly products must be marketed using clear, factual marketing language and must transparently disclose EAC ownership and associated electricity use claims. Third-party verification is strongly recommended to reinforce credibility. By adhering to these principles, utilities can maintain customer trust and meet growing demand for granular, verifiable clean electricity.

Ultimately, this Guidance supports not only the practical steps of building, marketing, and disclosing hourly products, but also positions utilities to lead in advancing transparent, high-integrity clean electricity procurement, fostering customer engagement, and supporting policy objectives.

# Appendix 1: Utility Product Examples

## Customized Products

### Customized Transparency Only

A utility offers a special contract tariff to a large manufacturing customer (Customer A). The utility allocates hourly output from a combination of its owned wind and hydro facilities directly to Customer A's metered hourly load and retires all associated EACs on Customer A's behalf. In a representative month where Customer A consumes 10,000 MWh, the utility matched 4,200 MWh (42%) based on available hourly renewable generation data. No percentage of resource type is guaranteed; instead, Customer A receives disclosure of hourly matching performance and methodology. Because this is a Customized Product matched to an individual customer's load, SDCE is not included.

### Customized Resource-Specific

A utility offers a special contract tariff to a data center (Customer B) with an annual load of 200,000 MWh, committing to match Customer B's hourly consumption exclusively with output from a specified 200 MW contracted wind project (Wind Project 1). In a high-wind month when Customer B consumes 16,000 MWh, up to 13,600 MWh (85%) may be matched hourly depending on actual supply from Wind Project 1. In a lower-wind month where Customer B consumes the same amount, up to 9,000 MWh (56%) may be matched hourly depending on actual supply from Wind Project 1. The utility will guarantee the wind resource, but not a steady hourly matching percentage. All generation and associated EACs are bundled and retired on Customer B's behalf. Because this is a Customized Product matched to an individual customer's load, SDCE is not included.

### Customized Guaranteed

A utility offers a special contract tariff to a university (Customer C) consuming 50,000 MWh annually, committing to 80% hourly matching calculated on a monthly reporting basis. If Customer C uses 4,000 MWh in June, the utility will ensure that at least 3,200 MWh is matched hourly from specified owned or contracted clean resources. If available generation supports only 3,000 MWh (75%) for that month, the utility reconciles the shortfall through additional procurement or financial settlement in the following month (or a subsequent month closer to the end of the year) to maintain the guaranteed level. All EACs are bundled and retired on behalf of Customer C. Because this is a Customized Product matched to an individual customer's load, SDCE is not included.

## Subscription-Based Unbundled Products

### Unbundled Transparency Only

A utility offers a voluntary green pricing program and enrolls residential and small commercial customers with a combined annual load of 300,000 MWh (Customer Group D). The utility procures hourly EACs and matches them to the aggregated subscriber load. Over a reporting year, the utility procures, allocates hourly, and retires the EACs from 165,000 MWh (55% of annual load) on behalf of the subscribers in Customer Group D. No hourly percentage or resource type is guaranteed. Utility disclosure may reflect subscribers' pro rata share of SDCE. Matching results are allocated proportionally across the subscriber base.

### Unbundled Resource-Specific

A utility offers a wind-specific green pricing program to corporate customers (Customer Group E) with an aggregated annual load of 400,000 MWh. The utility may procure wind EACs and match them hourly to the aggregated load of Customer Group E. During the reporting year, approximately 260,000 MWh (65%) of subscriber consumption is matched on an hourly basis. The resource type (wind) is guaranteed, but the percentage matched varies by wind output and procurement volumes. SDCE may be included up to each individual customer's pro rata share and is disclosed separately.

### Unbundled Guaranteed

A utility offers a green pricing program to commercial customers (Customer Group F) totaling 500,000 MWh annually, committing to 90% hourly matching on an annual reporting basis using regionally sourced clean EACs. This requires matching at least 450,000 MWh of aggregated subscriber load. Matching applies to Customer Group F and is proportionally allocated. SDCE may be included up to each individual customer's pro rata share and is disclosed separately.

## Subscription-Based Bundled Products

### Bundled Transparency Only

A utility offers a green pricing program backed by its owned wind, solar, and hydro fleet to customers (Customer Group G) with an aggregated annual load of 600,000 MWh. Based on available fleet output, approximately 330,000 MWh (55%) of aggregated Customer Group G load is matched hourly over the reporting year. No specific percentage or resource type is guaranteed. SDCE may be included up to each individual customer's pro rata share and is disclosed separately in subscriber reporting.

### Bundled Resource-Specific

A utility offers a hydro-backed green tariff for customers (Customer Group H) representing 250,000 MWh annually. Using output exclusively from its owned hydro facilities, approximately 180,000 MWh (72%) of aggregated Customer Group H load is matched hourly over the reporting period. The hydro resource type is guaranteed, but no minimum percentage of hourly matching is guaranteed. Proportional allocation is used across subscribers, and any SDCE portion is disclosed and limited to the pro rata share.

### Bundled Guaranteed

A utility offers a multi-year green tariff for customers (Customer Group I) with a combined annual load of 800,000 MWh, guaranteeing 75% hourly matching on an annual reporting basis from its owned and contracted wind and solar portfolio. This requires delivering at least 600,000 MWh of time-aligned bundled generation annually. If owned generation initially provides only 580,000 MWh (72.5%), the utility may reallocate contracted supply or apply agreed-upon true-up mechanisms to achieve the guaranteed threshold. Matching applies to the aggregated subscriber base with proportional allocation, and any SDCE included is disclosed and limited to the pro rata share.

## Table 7: Examples Within the Matrix

| Level of Guarantee | Matched to Individual Customer Load | Matched to Aggregated Customer Load | |
|---|---|---|---|
| | *Customized Product* | *Subscription-Based Unbundled Product* | *Subscription-Based Bundled Product* |
| **Transparency Only** | **Customized Transparency Only:**<br><br>Special contract tariff. No specific facility, resource type, or hourly percentage guaranteed. In a representative month, 42% of load was matched hourly. SDCE not included. | **Unbundled Transparency Only:**<br><br>Green pricing program with no specific resource type or hourly percentage guaranteed. 55% of aggregated annual load matched hourly over the reporting year. SDCE disclosed up to each customer's pro rata share. | **Bundled Transparency Only:**<br><br>Green pricing program with no specific resource type or hourly percentage guaranteed. 55% of aggregated annual load matched hourly over the reporting year. SDCE disclosed up to each customer's pro rata share. |
| **Resource Specific** | **Customized Resource-Specific:**<br><br>Special contract tariff. Specific resource type (wind) guaranteed; no hourly matching percentage guaranteed. Hourly matching ranged from 56% (low-wind month) to 85% (high-wind month). SDCE not included. | **Unbundled Resource-Specific:**<br><br>Green pricing program. Wind resource type guaranteed; no hourly matching percentage guaranteed. 65% of aggregated annual load matched hourly over the reporting year. SDCE disclosed up to each customer's pro rata share. | **Bundled Resource-Specific:**<br><br>Green tariff. Hydro resource type guaranteed; no hourly matching percentage guaranteed. 72% of aggregated annual load matched hourly over the reporting period. SDCE disclosed up to each customer's pro rata share. |
| **Guaranteed Percentage** | **Customized Guaranteed:**<br><br>Special contract tariff. 80% hourly matching guaranteed on a monthly reporting basis. SDCE not included. | **Unbundled Guaranteed:**<br><br>Green pricing program. 90% hourly matching guaranteed on an annual reporting basis using regionally sourced CFE. SDCE disclosed up to each customer's pro rata share. | **Bundled Guaranteed:**<br><br>Green tariff. 75% hourly matching guaranteed on an annual reporting basis from owned and contracted wind and solar. SDCE disclosed up to each customer's pro rata share. |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