



# Net Zero Cloud Enablement



## Spring '24

# Location and Market-Based Electricity Emissions Factor Assignment

### Acronyms used in this document:

EEFS = Electricity Emissions Factor Set (standard Net Zero Cloud object)

LB = Location-based

MB = Market-based

NZC = Net Zero Cloud

SAES = Stationary Asset Environmental Source (standard Net Zero Cloud object)

SAEU = Stationary Asset Energy Use (standard Net Zero Cloud object)

## Summary

Until Net Zero Cloud's Spring '24 release, there had been a significant discrepancy between the way that Electricity Emissions Factor data was obtained, and the way that it was captured and assigned in NZC. Sustainability Managers obtain market and location-based emissions factor data from entirely different sources. Location-based data likely comes from a governmental agency or 3rd party provider, while market-based data may be provided directly by the electricity supplier/utility, procured via a power purchase agreement or an energy attribute certificate, or provided by country as residual mix data (factoring out voluntary purchases and using actual metrics from power production). However, the Net Zero Cloud data model did not provide a way for Sustainability Managers to capture distinct market- or location-based emissions factor data on distinct records.

Imagine that an organization has 100 facilities (represented as 100 different Stationary Asset Environmental Source records) within France. Each of these facilities likely uses the same location-based EEFS data. However, different market-based EEFS conversion rate data may be available for each facility. Before this change, the best option sustainability managers had was to create a distinct EEFS record for each facility, even when the common location-based data was identical for all 100 EEFS records. For all subsequent facilities, the manager would then have to create new EEFS records,

replicate the same location-based emissions factor data, add the distinct market-based data, and then associate the EEFS record with the Stationary Asset Environmental Source record. The inability to reuse the same location-based EEFS data across multiple SAES and SAEU records frustrates today's NZC users, which is why we've improved the experience in the Spring '24 release.

## How do Electricity Emissions Factors represent Market and Location-Based Data in Spring '24 onwards?

To support flexible capture of market and location-based emissions rate data on Electricity Emissions Factor Set records, the following fields have been added. Please note that existing Salesforce orgs with Net Zero Cloud configured will not have new fields automatically added to page layouts; these new fields must be added manually.

### [Electricity Emissions Factor Set](#) object:

- **Emissions Factor Type** [EmissionsFactorType]
  - Immutable Picklist – options:
    - **--None--** [Default value for existing records. Not selectable by users.]
    - **Location-Based** [API Name: LocationBased]
    - **Market-Based** [API Name: MarketBased]
    - **Location and Market-Based** [API Name: LocationAndMarketBased]
  - Associated Behaviors
    - On EEFS records with **Emissions Factor Type** = *--None--* or *Location and Market-Based*, calculations and validations handle them the same way **Electricity Emissions Factors** have been used to date.
      - If a customer does not want to change the way they do electricity emissions calculations, they can mark their EEFS records as either of these options and nothing in their existing accounting records will change.
    - Validations on Location and Market-Based Grid Mix fields (naming convention “Location-Based [source - Biomass, Hydro, etc] Mix Percentage”) are now conditional on this field. If **Emissions Factor Type** = *Location-Based*, the validation that require Market-Based Grid Mix fields sum to 100 will not run
    - When attempting to change the **Emissions Factor Type** field value on an existing EEFS record, validations are in place to check the usage of the EEFS record on existing SAES and SAEU records. For example, if attempting to change the **Emissions Factor Type** field value from *Location-Based* to *Market-Based*, if the

EEFS record is used on an SAEU record in the **Electricity Emissions Factors** lookup field, the change of **Emissions Factor Type** field value will fail.

- **Recommendation:** EEFS page layouts are very cluttered! You can implement [Lightning Dynamic Pages](#) on the page layout to hide non-applicable fields, such as Location-Based Grid Mix Percentages and Location-Based [CO2/CH4/N2O] Emissions Rate fields if **Emissions Factor Type** = *Market-Based*.
- **Market-Based Data Source Type** [MktBsdDataSrcType]
  - Immutable Picklist – options:
    - **Energy Attribute Certificate** (API Name: EnergyAttributeCertificate)
    - **Contracts for Electricity Purchase** (API Name: ContractsForElectricityEmissionRates)
    - **Supplier or Utility Emission Rates** (API Name: SupplierOrUtilityEmissionRates)
    - **Residual Mix Data** (API Name: ResidualMixData)
  - Associated Behaviors
    - This field can only be populated on EEFS records with **Emissions Factor Type** = **Market-Based** or **Location and Market-Based**
- **Market-Based Electricity Supplier** [MktBsdElectrSupplierId]
  - Lookup (Supplier)
  - Used to capture supplier information on EEFS records with:
    - **Emissions Factor Type** = *Market-Based* or *Location and Market-Based*; and
    - **Market-Based Data Source Type** = *Supplier or Utility Emission Rates*
    - Can only be populated if the above two conditions are true. This validation does not impact calculations.
- **Market-Based CH4 Emissions Rate** [MktBsdCh4EmssnRate]
  - Number (User-provided)
- **Market-Based CH4 Emissions Rate (Tonnes/GWh)** [MktBsdCh4EmssnRtInTgwh]
  - Number (System-calculated)
- **Market-Based CH4 Emissions Rate Unit** [MktBsdCh4EmssnRateUnit]
  - Immutable Picklist – Options:
    - **g/kWh** [API Name: GPerKwh]
    - **kg/kWh** [API Name: KgPerKwh]
    - **kg/MWh** [API Name: KgPerMwh]
    - **lbs/GWh** [API Name: LbsPerGwh]
    - **lbs/MWh** [API Name: LbsPerMwh]
    - **tonnes/MWh** [API Name: TonnesPerMwh]
    - **tonnes/kWh** [API Name: TonnesPerKwh]

- **Market-Based CO2 Emissions Rate** [MktBsdCo2EmssnRate]
  - Number (User-provided)
- **Market-Based CO2 Emissions Rate (Tonnes/MWh)** [MktBsdCo2EmssnRtInTmwh]
  - Number (System-calculated)
- **Market-Based CO2 Emissions Rate Unit** [MktBsdCo2EmssnRateUnit]
  - Immutable Picklist - Options:
    - g/kWh [API Name: GPerKwh]
    - kg/kWh [API Name: KgPerKwh]
    - kg/MWh [API Name: KgPerMwh]
    - lbs/GWh [API Name: LbsPerGwh]
    - lbs/MWh [API Name: LbsPerMwh]
    - tonnes/MWh [API Name: TonnesPerMwh]
    - tonnes/kWh [API Name: TonnesPerKwh]
- **Market-Based N2O Emissions Rate** [MktBsdN2oEmssnRate]
  - Number (User-provided)
- **Market-Based N2O Emissions Rate (Tonnes/GWh)** [MktBsdN2oEmssnRtInTgwh]
  - Number (System-calculated)
- **Market-Based N2O Emissions Rate Unit** [MktBsdN2oEmssnRateUnit]
  - Immutable Picklist - Options:
    - g/kWh [API Name: GPerKwh]
    - kg/kWh [API Name: KgPerKwh]
    - kg/MWh [API Name: KgPerMwh]
    - lbs/GWh [API Name: LbsPerGwh]
    - lbs/MWh [API Name: LbsPerMwh]
    - tonnes/MWh [API Name: TonnesPerMwh]
    - tonnes/kWh [API Name: TonnesPerKwh]

## **Stationary Asset Environmental Source** object

- **Market-Based Electricity Emissions Factors** [MktBsdElectriEmssnFctr]
  - Lookup (Electricity Emissions Factor Set)
  - Associated Behaviors
    - Only EEFS records with **Emissions Factor Type** = *Market-Based* or *Location and Market-Based* can be used in the **Market-Based Electricity Emissions Factors** lookup field

- To maintain naming integrity, the existing lookup field Electricity Emissions Factors is not changed. However, a new validation is in place on this field such that only EEFS records with **Emissions Factor Type** = *Location-Based, Location and Market-Based* or *-None-* can be used in the lookup field.

## Stationary Asset Energy Use object

- **Market-Based Electricity Emissions Factors** [MktBsdElectriEmssnFctr]
  - Lookup (Electricity Emissions Factor Set)
  - Associated Behaviors
    - Unless specified manually, the EEFS record called in the **Market-Based Electricity Emissions Factors** lookup field is automatically populated from the same field on the associated SAES. (This matches the existing behavior with the **Electricity Emissions Factors** lookup field.)
    - To maintain naming integrity, existing lookup **Electricity Emissions Factors** has not been changed. However, a new validation is in place on the field such that:
      - Only EEFS records with **Emissions Factor Type** = *Location-Based, Location and Market-Based* or *-None-* can be used in the **Electricity Emissions Factors** lookup field
      - If an existing EEFS record is being called in the **Electricity Emissions Factors** lookup on any SAEU record, and a user attempts to change the **Emissions Factor Type** picklist to *Market-Based*, a validation error is shown.
    - Only EEFS records with **Emissions Factor Type** = *Market-Based* or *Location and Market-Based* can be used in the **Market-Based Electricity Emissions Factors** lookup field
    - When existing lookup **Electricity Emissions Factors** is populated with an EEFS Record with **Emissions Factor Type** = *Location and Market-Based*, and **Market-Based Electricity Emissions Factors** is populated with an EEFS Record with **Emissions Factor Type** = *Market-Based* or *Location and Market-Based*, the market-based emissions rate values from the EEFS Record in **Market-Based Electricity Emissions Factors** are used in all market-based emissions calculations of the SAEU record.
      - In other words, in this case even though the record called in the **Electricity Emissions Factors** lookup has *Location and Market-Based* set, for the MB calculations on the SAEU record the system will use the EEFS record called in the **Market-Based Electricity Emissions Factors** record.

- This EEFS selection logic for calculations is replicated for all of the associated market-based emissions by GHG gas (CH<sub>4</sub>, CO<sub>2</sub> and N<sub>2</sub>O)
- **Market-Based CH<sub>4</sub> Emissions (kg)** [MktBsdCh4EmssnInKg]
  - Number (System-calculated)
- **Market-Based CO<sub>2</sub> Emissions (kg)** [MktBsdCo2EmssnInKg]
  - Number (System-calculated)
- **Market-Based N<sub>2</sub>O Emissions (kg)** [MktBsdN20EmssnInKg]
  - Number (System-calculated)

### **Stationary Asset Carbon Footprint Item** object

- **Total Emissions Using Market-Based Method (tCO<sub>2</sub>e)** [TotEmssnUseMktBsdMthd]
  - Number (System-calculated)
  - Calculated using total of Scope 1, Scope 2 Market-Based, and Scope 3 Emissions for all child SAEUs.
    - If Scope 2 Market-Based Emissions is 0 for all associated child SAEUs (often the case for non-Electricity SACFI records), the calculation still functions the same.

### **Clean Energy Project** object

To help meet GHG Protocol requirements, to account for possible trace emissions associated with procured Energy Attribute Credits for a given project, we've added an optional lookup to EEFS from **Clean Energy Project**.

- **Electricity Emissions Factors** [ElectricityEmissionsFactors]
  - Lookup (Electricity Emissions Factors Set)
  - Associated Behaviors
    - This field can only be populated with EEFS records of **Emissions Factor Type** = *Market-Based* or *Location and Market-Based*
    - This field is checked in the calculations of SAEU.Scope 2 Market-Based Emissions (tCO<sub>2</sub>e). For any Energy Attribute Distribution records associated with the SAEU, the lookup chain from EACD to Clean Energy Project is followed. If the Electricity Emissions Factor Field is populated on Clean Energy Project, the electricity accounted for by the EAC is multiplied by the Clean Energy Project's Market-Based

Emissions Rate and added to the SAEU.Scope 2 Market-Based Emissions (tCO2e) total.

# How do I successfully upgrade from the old way of EEFS management to the new?

If your organization does not want to change anything about the way they are managing emissions factor data in NZC, no changes are required. Existing **Electricity Emissions Factor Set** records will by default have **Emissions Factor Type** = *-None-*, which will trigger emissions calculations to operate assuming LB and MB emissions rate data is populated on the record.

If your organization wants to migrate/upgrade existing accounting to the new way of emissions factor storage, below are the necessary steps:

1. Capture MB and LB emissions factor data in distinct records
  - a. Create EEFS records for each LB data set, with EEFS Type = *Location-Based*
  - b. Create EEFS records for each MB data set, with EEFS Type = *Market-Based*
2. Assign distinct new EEFS records to your assets
  - a. Populate the **Electricity Emissions Factor** lookup on your SAES records with Location-Based Emissions Factor records
  - b. Populate the **Market-Based Electricity Emissions Factor** lookup on your SAES records with Market-Based Emissions Factor records
3. Enter SAEU data the same way you always have
  - a. Enter manually, CSV upload, API/Mulesoft connectors, etc.
  - b. SAEU records will auto-populate both EEFS Lookups from SAES
  - c. SAEU calculations will run as specified above, with the same end result: GHG Protocol compliant Location and Market-Based Emissions totals
  - d. Existing SACF and SACFI rollup calculations will not change