



API Reference

AWS Sustainability



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AWS Sustainability: API Reference

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Welcome

The AWS Sustainability service provides programmatic access to estimated carbon emissions data for your AWS usage. Use the AWS Sustainability service to retrieve, analyze, and track the carbon footprint of your cloud infrastructure over time.

With the AWS Sustainability service, you can:

- Retrieve estimated carbon emissions for your AWS usage across different time periods
- Group emissions data by dimensions such as account, region, and service
- Filter emissions data to focus on specific accounts, regions, or services
- Access multiple emissions calculation methodologies including Location-based Method (LBM) and Market-based Method (MBM)
- Aggregate emissions data at various time granularities including monthly, quarterly, and yearly periods

The API supports pagination for efficient data retrieval and provides dimension values to help you understand the available grouping and filtering options for your account.

All emissions values are calculated using methodologies aligned with the Greenhouse Gas (GHG) Protocol and are provided in metric tons of carbon dioxide-equivalent (MTCO₂e).

This document was last published on April 10, 2026.

Actions

The following actions are supported:

- [GetEstimatedCarbonEmissions](#)
- [GetEstimatedCarbonEmissionsDimensionValues](#)

GetEstimatedCarbonEmissions

Returns estimated carbon emission values based on customer grouping and filtering parameters. We recommend using pagination to ensure that the operation returns quickly and successfully.

Request Syntax

```
POST /v1/estimated-carbon-emissions HTTP/1.1
```

```
Content-type: application/json
```

```
{
  "EmissionsTypes": [ "string" ],
  "FilterBy": {
    "Dimensions": {
      "string": [ "string" ]
    }
  },
  "Granularity": "string",
  "GranularityConfiguration": {
    "FiscalYearStartMonth": number
  },
  "GroupBy": [ "string" ],
  "MaxResults": number,
  "NextToken": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

TimePeriod

The date range for fetching estimated carbon emissions.

Type: [TimePeriod](#) object

Required: Yes

[EmissionsTypes](#)

The emission types to include in the results. If absent, returns TOTAL_LBM_CARBON_EMISSIONS and TOTAL_MBM_CARBON_EMISSIONS emissions types.

Type: Array of strings

Valid Values: TOTAL_LBM_CARBON_EMISSIONS | TOTAL_MBM_CARBON_EMISSIONS | TOTAL_SCOPE_1_CARBON_EMISSIONS | TOTAL_SCOPE_2_LBM_CARBON_EMISSIONS | TOTAL_SCOPE_2_MBM_CARBON_EMISSIONS | TOTAL_SCOPE_3_LBM_CARBON_EMISSIONS | TOTAL_SCOPE_3_MBM_CARBON_EMISSIONS

Required: No

[FilterBy](#)

The criteria for filtering estimated carbon emissions.

Type: [FilterExpression](#) object

Required: No

[Granularity](#)

The time granularity for the results. If absent, uses MONTHLY time granularity.

Type: String

Valid Values: YEARLY_CALENDAR | YEARLY_FISCAL | QUARTERLY_CALENDAR | QUARTERLY_FISCAL | MONTHLY

Required: No

[GranularityConfiguration](#)

Configuration for fiscal year calculations when using YEARLY_FISCAL or QUARTERLY_FISCAL granularity.

Type: [GranularityConfiguration](#) object

Required: No

GroupBy

The dimensions available for grouping estimated carbon emissions.

Type: Array of strings

Valid Values: USAGE_ACCOUNT_ID | REGION | SERVICE

Required: No

MaxResults

The maximum number of results to return in a single call. Default is 40.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 5000.

Required: No

NextToken

The pagination token specifying which page of results to return in the response. If no token is provided, the default page is the first page.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
  "NextToken": "string",
  "Results": [
    {
      "DimensionsValues": {
        "string" : "string"
      }
    },
  ],
}
```

```
    "EmissionsValues": {
      "string" : {
        "Unit": "string",
        "Value": number
      }
    },
    "ModelVersion": "string",
    "TimePeriod": {
      "End": "string",
      "Start": "string"
    }
  }
]
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

Results

The result of the requested inputs.

Type: Array of [EstimatedCarbonEmissions](#) objects

NextToken

The pagination token indicating there are additional pages available. You can use the token in a following request to fetch the next set of results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Errors

For information about the errors that are common to all actions, see [Common Error Types](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

The request processing has failed because of an unknown error, exception, or failure.

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The input fails to satisfy the constraints specified by an AWS service.

HTTP Status Code: 400

Examples

GetEstimatedCarbonEmissions

This example illustrates one usage of `GetEstimatedCarbonEmissions`.

Sample Request

```
POST /v1/estimated-carbon-emissions
{
  "TimePeriod": {
    "Start": "2025-01-01T00:00:00Z",
    "End": "2025-12-31T23:59:59.999Z"
  },
  "GroupBy": [
    "SERVICE"
  ],
  "EmissionsTypes": [
    "TOTAL_LBM_CARBON_EMISSIONS",
    "TOTAL_MBM_CARBON_EMISSIONS",
    "TOTAL_SCOPE_1_CARBON_EMISSIONS",
    "TOTAL_SCOPE_2_LBM_CARBON_EMISSIONS",
    "TOTAL_SCOPE_2_MBM_CARBON_EMISSIONS",
    "TOTAL_SCOPE_3_LBM_CARBON_EMISSIONS",
```

```
    "TOTAL_SCOPE_3_MBM_CARBON_EMISSIONS"  
  ],  
  "Granularity": "MONTHLY"  
}
```

Sample Response

```
{  
  "Results": [  
    {  
      "DimensionsValues": {  
        "SERVICE": "AmazonEC2"  
      },  
      "EmissionsValues": {  
        "TOTAL_LBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_MBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_SCOPE_1_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_SCOPE_2_LBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_SCOPE_2_MBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_SCOPE_3_LBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        },  
        "TOTAL_SCOPE_3_MBM_CARBON_EMISSIONS": {  
          "Unit": "MTCO2e",  
          "Value": 1  
        }  
      }  
    }  
  ]  
}
```

```
    },
    "ModelVersion": "v3.0.0",
    "TimePeriod": {
      "Start": "2025-01-01T00:00:00Z",
      "End": "2025-02-01T00:00:00Z"
    }
  }
]
```

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS Command Line Interface V2](#)
- [AWS SDK for .NET V4](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go v2](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for Kotlin](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

GetEstimatedCarbonEmissionsDimensionValues

Returns the possible dimension values available for a customer's account. We recommend using pagination to ensure that the operation returns quickly and successfully.

Request Syntax

```
POST /v1/estimated-carbon-emissions-dimension-values HTTP/1.1
Content-type: application/json
```

```
{
  "Dimensions": [ "string" ],
  "MaxResults": number,
  "NextToken": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

Dimensions

The dimensions available for grouping estimated carbon emissions.

Type: Array of strings

Valid Values: USAGE_ACCOUNT_ID | REGION | SERVICE

Required: Yes

TimePeriod

The date range for fetching the dimension values.

Type: [TimePeriod](#) object

Required: Yes

[MaxResults](#)

The maximum number of results to return in a single call. Default is 40.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 5000.

Required: No

[NextToken](#)

The pagination token specifying which page of results to return in the response. If no token is provided, the default page is the first page.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Required: No

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
  "NextToken": "string",
  "Results": [
    {
      "Dimension": "string",
      "Value": "string"
    }
  ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

NextToken

The pagination token indicating there are additional pages available. You can use the token in a following request to fetch the next set of results.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 2000.

Results

The list of possible dimensions over which the emissions data is aggregated.

Type: Array of [DimensionEntry](#) objects

Errors

For information about the errors that are common to all actions, see [Common Error Types](#).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 403

InternalServerErrorException

The request processing has failed because of an unknown error, exception, or failure.

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 429

ValidationException

The input fails to satisfy the constraints specified by an AWS service.

HTTP Status Code: 400

Examples

GetEstimatedCarbonEmissionsDimensionValues

This example illustrates one usage of GetEstimatedCarbonEmissionsDimensionValues.

Sample Request

```
POST /v1/estimated-carbon-emissions-dimension-values
{
  "TimePeriod": {
    "Start": "2025-01-01T00:00:00Z",
    "End": "2025-12-31T23:59:59.999Z"
  },
  "Dimensions": [
    "SERVICE",
    "REGION",
    "USAGE_ACCOUNT_ID"
  ]
}
```

Sample Response

```
{
  "Results": [
    {
      "Dimension": "SERVICE",
      "Value": "AmazonEC2"
    },
    {
      "Dimension": "SERVICE",
      "Value": "AmazonS3"
    },
    {
      "Dimension": "SERVICE",
      "Value": "AmazonCloudFront"
    },
    {
      "Dimension": "REGION",
      "Value": "global"
    },
    {
```

```
        "Dimension": "REGION",
        "Value": "us-east-1"
    },
    {
        "Dimension": "REGION",
        "Value": "us-west-2"
    },
    {
        "Dimension": "USAGE_ACCOUNT_ID",
        "Value": "111222333444"
    }
]
}
```


See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS Command Line Interface V2](#)
- [AWS SDK for .NET V4](#)
- [AWS SDK for C++](#)
- [AWS SDK for Go v2](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for JavaScript V3](#)
- [AWS SDK for Kotlin](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

Data Types

The AWS Sustainability API contains several data types that various actions use. This section describes each data type in detail.

 **Note**

The order of each element in a data type structure is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

- [DimensionEntry](#)
- [Emissions](#)
- [EstimatedCarbonEmissions](#)
- [FilterExpression](#)
- [GranularityConfiguration](#)
- [TimePeriod](#)

DimensionEntry

Represents a dimension and its corresponding value.

Contents

Note

In the following list, the required parameters are described first.

Dimension

The dimension type that categorizes this entry.

Type: String

Valid Values: USAGE_ACCOUNT_ID | REGION | SERVICE

Required: Yes

Value

The value for the specified dimension. Valid values vary based on the dimension type (e.g., us-east-1 for the REGION dimension, AmazonEC2 for the SERVICE dimension).

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

Emissions

Represents a carbon emissions quantity with its value and unit of measurement.

Contents

Note

In the following list, the required parameters are described first.

Unit

The unit of measurement for the emissions value.

Type: String

Valid Values: MTCO2e

Required: Yes

Value

The numeric value of the emissions quantity.

Type: Double

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

EstimatedCarbonEmissions

Contains estimated carbon emissions data for a specific time period and dimension grouping.

Contents

Note

In the following list, the required parameters are described first.

DimensionsValues

The dimensions used to group emissions values.

Type: String to string map

Valid Keys: USAGE_ACCOUNT_ID | REGION | SERVICE

Required: Yes

EmissionsValues

The emissions values for the requested emissions types.

Type: String to [Emissions](#) object map

Valid Keys: TOTAL_LBM_CARBON_EMISSIONS | TOTAL_MBM_CARBON_EMISSIONS |
TOTAL_SCOPE_1_CARBON_EMISSIONS | TOTAL_SCOPE_2_LBM_CARBON_EMISSIONS |
TOTAL_SCOPE_2_MBM_CARBON_EMISSIONS | TOTAL_SCOPE_3_LBM_CARBON_EMISSIONS
| TOTAL_SCOPE_3_MBM_CARBON_EMISSIONS

Required: Yes

ModelVersion

The semantic version-formatted string that indicates the methodology version used to calculate the emission values.

Note

The AWS Sustainability service reflects the most recent model version for every month. You will not see two entries for the same month with different ModelVersion values.

To track the evolution of the methodology and compare emission values from previous versions, we recommend creating a [Data Export](#).

Type: String

Pattern: v(0|[1-9]\d*)\.(0|[1-9]\d*)\.(0|[1-9]\d*)(?:-((?:0|[1-9]\d*|\d*[a-zA-Z-][0-9a-zA-Z-]*)(?:\.(?:0|[1-9]\d*|\d*[a-zA-Z-][0-9a-zA-Z-]*))*))?(?:\+([0-9a-zA-Z-]+(?:\.[0-9a-zA-Z-]+)*))?

Required: Yes

TimePeriod

The reporting period for emission values.

Type: [TimePeriod](#) object

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

FilterExpression

Filters emission values by specific dimension values.

Contents

Note

In the following list, the required parameters are described first.

Dimensions

Filters emission values by specific dimension values.

Type: String to array of strings map

Valid Keys: USAGE_ACCOUNT_ID | REGION | SERVICE

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

GranularityConfiguration

Contains configuration for the fiscal year granularities (e.g., YEARLY_FISCAL, QUARTERLY_FISCAL).

Contents

Note

In the following list, the required parameters are described first.

FiscalYearStartMonth

The month (1-12) when the fiscal year begins. Used for YEARLY_FISCAL and QUARTERLY_FISCAL granularity. Defaults to 1 (January).

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 12.

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

TimePeriod

Represents a duration of time defined by start and end timestamps.

Contents

Note

In the following list, the required parameters are described first.

End

The end (exclusive) of the time period. ISO-8601 formatted timestamp, for example: YYYY-MM-DDThh:mm:ss.sssZ

Type: Timestamp

Required: Yes

Start

The start (inclusive) of the time period. ISO-8601 formatted timestamp, for example: YYYY-MM-DDThh:mm:ss.sssZ

Type: Timestamp

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- [AWS SDK for C++](#)
- [AWS SDK for Java V2](#)
- [AWS SDK for Ruby V3](#)

Common Error Types

This section lists common error types that this AWS service may return. Not all services return all error types listed here. For errors specific to an API action for this service, see the topic for that API action.

AccessDeniedException

You don't have permission to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 403

ExpiredTokenException

The security token included in the request has expired. Request a new security token and try again.

HTTP Status Code: 403

IncompleteSignature

The request signature doesn't conform to AWS standards. Verify that you're using valid AWS credentials and that your request is properly formatted. If you're using an SDK, ensure it's up to date.

HTTP Status Code: 403

InternalFailure

The request can't be processed right now because of an internal server issue. Try again later. If the problem persists, contact AWS Support.

HTTP Status Code: 500

MalformedHttpRequestException

The request body can't be processed. This typically happens when the request body can't be decompressed using the specified content encoding algorithm. Verify that the content encoding header matches the compression format used.

HTTP Status Code: 400

NotAuthorized

You don't have permissions to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 401

OptInRequired

Your AWS account needs a subscription for this service. Verify that you've enabled the service in your account.

HTTP Status Code: 403

RequestAbortedException

The request was aborted before a response could be returned. This typically happens when the client closes the connection.

HTTP Status Code: 400

RequestEntityTooLargeException

The request entity is too large. Reduce the size of the request body and try again.

HTTP Status Code: 413

RequestTimeoutException

The request timed out. The server didn't receive the complete request within the expected time frame. Try again.

HTTP Status Code: 408

ServiceUnavailable

The service is temporarily unavailable. Try again later.

HTTP Status Code: 503

ThrottlingException

Your request rate is too high. The AWS SDKs automatically retry requests that receive this exception. Reduce the frequency of requests.

HTTP Status Code: 400

UnknownOperationException

The action or operation isn't recognized. Verify that the action name is spelled correctly and that it's supported by the API version you're using.

HTTP Status Code: 404

UnrecognizedClientException

The X.509 certificate or AWS access key ID you provided doesn't exist in our records. Verify that you're using valid credentials and that they haven't expired.

HTTP Status Code: 403

ValidationError

The input doesn't meet the required format or constraints. Check that all required parameters are included and that values are valid.

HTTP Status Code: 400