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CALIFORNIA ENERGY COMMISSION

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STAFF INSTRUCTIONS

Market Informed Demand Automation Server (MIDAS) Documentation

Connecting to and Interacting with the MIDAS Database

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California Energy Commission

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- Daniel Roesler, UtilityAPI

For more information and questions about MIDAS, please contact the MIDAS team for assistance at midas@energy.ca.gov between the hours of 8 a.m. and 5 p.m. on weekdays. Emails will be reviewed during this timeframe.

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TABLE OF CONTENTS

Acknowledgements i
Table of Contents iii
List of Figures iv
List of Tables iv
1. Introduction 1
2. Database Structure 2
2.1. Holiday Table 3
2.2. RateInfo Table 3
2.3. Value Table 5
3. Using the MIDAS 8
3.1. Register 8
3.2. Get a Token 9
3.3. Get Values 9
3.4. Post Values 9
3.5. Get XML Schema 9
3.6. Get Lookup Table 10
3.7. Get RIN List 10
4. Example Code 11
4.1. Python 11
4.2. R 11
4.3. CURL 11
4.4. C-Sharp (C#) 11
5. XML Schema 12
6. Example XML Input 18
7. Acronyms 21
8. Glossary 22
9. Appendix 23

LIST OF FIGURES

Page

Figure 1: Rate Identification Number 2
Figure 2: MIDAS API Service Architecture 23

LIST OF TABLES

Page

Table 1: Holiday Table contains the holiday schedules for LSEs. 3
Table 2: The MIDAS RateInfo Table 5
Table 3: Value Table data fields 7

1. Introduction

The Market Informed Demand Automation Server (MIDAS) is a database of current and future time-varying rates, greenhouse gas (GHG) emissions associated with electrical generation, and California FlexAlert Signals hosted by the California Energy Commission (CEC). The database is populated by electric Load Serving Entities (LSEs) and other entities that are registered with the MIDAS system.

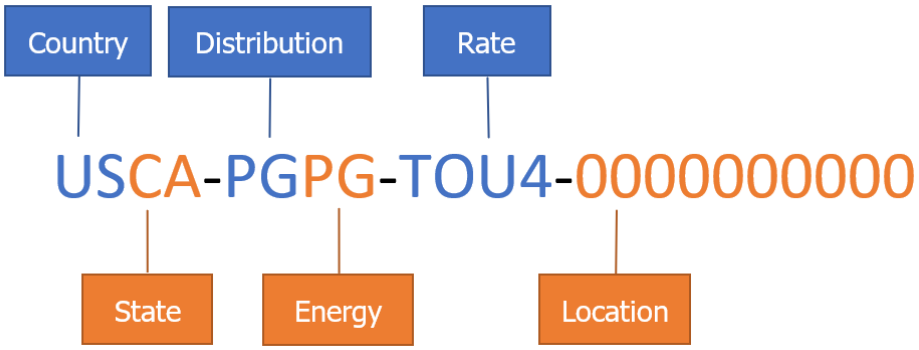
The database is publicly accessible at https://midasapi.energy.ca.gov in a standard machine-readable format through an application programming interface (API) that supports both extensible markup language (XML) and JavaScript Object Notation (JSON) responses to queries. For instructions on accessing the MIDAS database, see section 3.1. Although the MIDAS system is publicly accessible and querying access is available to all users, LSE users must have advanced programming skills and in-house software to effectively populate and maintain rate information stored within the database.

2. Database Structure

The MIDAS database supports retrieval of electric utility price schedules, California FlexAlert signals, and marginal GHG emissions. Static schedules like time-of-use (TOU) rates are archived when they are no longer current. Hourly and sub-hourly data streams like FlexAlerts and five-minute GHG emissions are passed directly through the MIDAS and are not archived.

The primary lookup identification (ID) for the MIDAS database is a compound key derived of six individual fields that make up a standardized rate identification number (RIN) as shown in Figure 1. For more information on the architecture of the MIDAS system and security, see Figure 2.

Figure 1: Rate Identification Number



Source: California Energy Commission

Figure 1 illustrates the six identifiers that comprise a rate identification number: Country, State, Distribution, Energy, Rate, and Location. The location portion of the RIN may consist of 1 to 10 characters depending on the specified location's requirements.

Utilities and LSEs are responsible for uploading data to populate electricity rate information in the three main tables in the MIDAS database: 1) the **Holiday** table, 2) the **RateInfo** table, and 3) the **Value** table. GHG and FlexAlert data are retrieved from WattTime and the California Independent System Operator, respectively, and passed through the MIDAS system untouched. Greenhouse gas emissions are passed through the system via the California Self-Generation Incentive Program (SGIP) while FlexAlert signals are passed through via the California Independent System Operator. Bold text signifies a table or field within a table being referenced.

For more information on the XML schema and uploads, see section 5 and 6.

2.1. Holiday Table

The **Holiday Table** (Table 1) stores utility-supplied inputs for three fields. All reference tables, excluding the **Holiday**, **RateInfo**, and **Value** Tables, are in the appendix. Constraints must be followed exactly for a successful upload of each field:

- The **ID** field is a Global Unique Identifier (GUID) generated by the system.
- The **EnergyID** field references the LSE code from the Energy table.
- The **HolidayDate** field contains the International Organization for Standardization (ISO) 8601[1] standard Coordinated Universal Time (UTC) for each holiday linked to day type 8 in the Value table.
- **HolidayDescription** is a text field naming or describing the holiday, for example, "Thanksgiving."

Table 1: Holiday Table contains the holiday schedules for LSEs.

Field	Format	Size	Null	Primary	Constraints
ID	GUID	36	No	Yes	System generated string
EnergyID	uniqueidentifier	2	No	No	From Energy table
HolidayDate	datetime	[date]	Yes	No	Valid ISO 8601 date in UTC.
HolidayDescription	varchar	60	No	No	None

Source: California Energy Commission

2.2. RateInfo Table

In addition to the system generated GUID, the **RateInfo** Table stores utility-supplied inputs that are specific to each rate (Table 2). All reference tables, excluding the **Holiday**, **RateInfo**, and **Value** Tables, are in the appendix. Constraints must be followed exactly for a successful upload of each field.

1. The **CountryID** field contains the two-character ISO 3166-1[2] country code from the Country table.
2. The **StateProvinceID** field contains the two-character ISO 3166-2 subdivision code for the applicable state or province from the StateProvince table.
3. The **DistributionID field** is the CEC's 2-character code for the distribution provider from the Distribution table.

[1] The International Organization for Standardization (ISO) standard for date and time data.
[2] The ISO standard for countries, dependent territories, and areas of interest.

4. The **EnergyID** is the CEC's two-character code for the LSE (or other data source) from the Energy table.
5. The **RateCode** is the LSE's four-character code for the rate.
6. The **LocationID** is the LSE's 1-10 character code indicating the specific location referenced in the Location Table.
7. The **RateName** field is the LSE's name for each rate plan, consistent with the CEC's Interval Meter Database required by California Code of Regulations, Title 20, section 1344.
8. The **RateTypeID** field refers to the applicable rate type from the RateType Table.
9. The **SectorID** field contains the relevant sector type from the Sector Table.
10. The **TimeZoneID** field is a (maximum) five-character code from the TimeZone Table.
11. The **API** field must be a valid uniform resource locator (URL) that specifies the API that delivers the values.
12. The **RatePlanURL** field must be a valid URL that directs to the utility webpage describing the rate plan.
13. The **AltRateName1** field provides an alternative name for the rate plan, if any.
14. The **AltRateName2** field provide a second alternative name for the rate plan, if any.
15. **SignupCloseDate** indicates the last date (in UTC) a customer may sign up for the rate.
16. The **EndUseID** field refers to the target electrical end use (appliance, device, machinery, etc.) from the EndUse Table.
17. **CreatedDate** is a system generated field that automatically populates when a record is created.
18. **CreatedBy** is a system generated field that is populated when a record is created. It contains the name and organization of the person who uploaded the data.
19. **ModifiedDate** is a system generated field that automatically populates when the record is modified.
20. **ModifiedBy** is a system generated field that is populated with the Name and Organization of the person who modified the record.
21. **IsArchived** is a system generated field that is set to false when the record is new or newly updated, and true when a newer version of the data has been uploaded.

Table 2: The MIDAS RateInfo Table

Field	Format	Size	Null	Primary	Constraints
ID	GUID	36	No	Yes	System generated string
CountryID	uniqueidentifier	2	No	No	two-digit ISO 3166-2 country code
StateProvinceID	uniqueidentifier	2	No	No	two-digit ISO 3166-2 subdivision code
DistributionID	uniqueidentifier	2	No	No	From Distribution table
EnergyID	uniqueidentifier	2	No	No	From Energy table
RateCode	varchar	4	No	No	Exactly 4 letters and/or numerals
LocationID	uniqueidentifier	1-10	No	No	1 to 10 letters
RateName	varchar	100	No	No	None
RateTypeID	uniqueidentifier	10	No	No	From RateType table
SectorID	uniqueidentifier	10	Yes	No	From Sector table
TimeZoneID	uniqueidentifier	5	No	No	From TimeZone Table
API	varchar	500	Yes	No	Valid URL
RatePlanURL	varchar	500	Yes	No	Valid URL
AltRateName1	varchar	100	Yes	No	None
AltRateName2	varchar	100	Yes	No	None
SignupCloseDate	varchar	Date	Yes	No	Valid date in UTC
EndUseID	uniqueidentifier	10	Yes	No	From EndUse table
CreatedDate	datetime	Date	Yes	No	Valid date (populated by database)
CreatedBy	varchar	50	Yes	No	None
ModifiedBy	varchar	50	Yes	No	None
IsArchived	varchar	1	No	No	True=1, False=0

Source: California Energy Commission

2.3. Value Table

The **Value** table (Table 3) defines the schedule information associated with the values in the **RateInfo** table (Table 2) referring to price, GHGs, or FlexAlert values. The ID field is a unique identifier generated by the system. The **RateInfoID** is a reference to the **RateInfo** Table primary key. All reference tables, excluding the **Holiday**, **RateInfo**, and **Value** Tables, are listed in the appendix. Constraints must be followed exactly for a successful upload of each field.

1. **RateLookupID** is the standard 13- to 22-character RIN derived from the concatenation of the CountryCode, RegionCode, DistributionCode, EnergyCode, RateCode, and LocationCode.

2. The **DateStart** field contains the datetime value indicating the first UTC date that the value applies. It must be a valid date less than or equal to DateEnd.
3. The **DateEnd** field contains the datetime value of the last UTC date that this value applies and must be a valid date greater than or equal to DateStart.
4. The **DayTypeStart** field contains a value stored in the DayType table that signifies the first DayType that the value applies, where 1=Monday through 8=Holiday, and must be less than or equal to the DayTypeEnd.
5. The **DayTypeEnd** field signifies the last DayType the value applies and must be greater than or equal to the DayTypeStart.
6. The **TimeStart** field is the starting UTC time at which the value becomes applicable. This must be a valid time less than TimeEnd.
7. The **TimeEnd** field is the ending UTC time at which that value becomes invalid and must be a valid time after the TimeStart.
8. The **Numeric_Value** field refers to the retail price of electricity, GHGs or FlexAlert information. The value must be a valid number with a maximum of three digits to the left and 15 digits to the right of the decimal.
9. The **UnitID** field refers to the unit which applies to the Numeric_Value field. Unit values are found in the Unit Table.
10. The **ValueName** is a description of the value.
11. The **CreatedDate** is an automatically system generated field populated with the date of when the record was created.
12. **CreatedBy** refers to a system generated field populated when a record is created. It contains the username of the person who uploaded the information.
13. **ModifiedDate** refers to a system generated field automatically populated when the record is modified.
14. **ModifiedBy** refers to a system generated field automatically populates when the record is populated. It contains the username of the person who modified the record.
15. The **IsArchived** field is an automatically system generated field populated to be true or false depending on whether the data has been replaced with newer data. The value is false if the data is new and true when the data has been replaced with newer data.

Table 3: Value Table data fields

Field	Format	Size	Null	Primary	Constraints
ID	GUID	36	No	Yes	System generated
RateInfoID	GUID	36	No	No	System generated
RateLookupID	uniqueidentifier	16	No	No	System generated
DateStart	datetime	Date	No	No	Valid UTC date less
DateEnd	datetime	Date	Yes	No	Valid UTC date greater than or equal to
DayTypeStartID	smallint	1	Yes	No	From DayType table; positive integer
DayTypeEndID	smallint	1	Yes	No	Limited to options in DayType table; must be
TimeStart	time	7	Yes	No	Valid time less than TimeEnd in UTC time
TimeEnd	time	7	Yes	No	Valid time greater than TimeStart in UTC time
Numeric_Value	decimal	10.7	No	No	Valid number with max 3 places left of decimal
UnitID	uniqueidentifier	50	No	No	From Unit table
ValueName	varchar	50	Yes	No	None
CreatedDate	datetime	Date	Yes	No	Valid date
CreatedBy	varchar	50	Yes	No	None
ModifiedDate	datetime	Date	Yes	No	Valid Date
ModifiedBy	varchar	50	Yes	No	No
IsArchived	bit	1	No	No	True=1, False=0

Source: California Energy Commission

3. Using the MIDAS

The MIDAS Representational State Transfer Application Programming Interface (RESTful API) is accessible using any programming language able to create instances of a Hypertext Transfer Protocol (HTTP) Client, HTTP Request and HTTP Response classes. Users may develop their own in-house software to connect with the MIDAS RESTful API. The requests (calls) and responses should be executed asynchronously.

The MIDAS API is comprised of four endpoints:

- Registration. Uses a POST request, a method used to send data to create or update a resource, to create a new account.
- Token. Uses a GET request, a method used to request data from a specific resource, to retrieve a temporary token for interacting with the MIDAS. Tokens must be passed to every API call except Registration and Token.
- Holiday. Uses POST to populate the *Holiday* table (LSE accounts only).
- ValueData. Uses GET to retrieve *RateInfo* and *Value* data, the XML schema, lookup tables, and RIN lists. Uses POST to upload data to the *RateInfo* and *Value* tables (LSE accounts only).

PUT and DELETE operations are not used in the MIDAS API.

The RESTful API and MIDAS Database are protected by the CEC firewall and data throttling to prevent distributed denial of service (DDoS) attacks (see Appendix A). If an error occurs after an API call, the program will send a notification for the account programmer to fix the issue.

The following are instructions for registering a MIDAS account and a description of the basic functions that can be used to upload and download MIDAS data. Code examples for these functions can be found in section 4.

3.1. Register

There are two types of accounts that can be used to interface with the MIDAS: LSE accounts and User accounts. For security of the system, only CEC-verified LSE accounts can upload (POST) data. User accounts can only query (GET) data from the MIDAS.

a. **User Accounts**. Registration is done through the API by making a one-time call to the MIDAS registration endpoint with the required parameters. If no errors occur, this process will send an email to the email address specified as a parameter to the call. The user must then respond to the email before they can request a token. General users cannot post data to the Holiday, RateInfo, or Value tables.

b. **LSE Accounts.** New accounts for distributor and energy companies must be verified by a CEC staff member on the MIDAS support team.

A successful registration will return: "User account for [your username] was successfully created. A verification email has been sent to [your email]. Please click the link in the email to start using the API."

For forgotten passwords or usernames please follow the links below:

Password:

https://midasweb.energy.ca.gov/Pages/AccountMaint/ForgotPassword

Username:

https://midasweb.energy.ca.gov/Pages/AccountMaint/ForgotUsername

3.2. Get a Token

After registering, make a call to the token[3] endpoint with username and password credentials to receive a token string. This token will expire after 10 minutes. During those 10 minutes, the token can be used to call the Value endpoint's GET verbs as many times as desired.

3.3. Get Values

Pass a RIN with parameter *RealTime* to return the current value, or *AllData* to return the full schedule in either XML or JSON, as indicated in the header.

3.4. Post Values

Populating the RateInfo and Value tables requires a call to the ValueData endpoint using the XML schemas (see section 5). This function is available to energy and distributor accounts only. Acceptable data entries are catalogued in supporting MIDAS Lookup tables listed in the Appendix.

3.5. Get XML Schema

This call is part of the ValueData endpoint and uses the GET verb with no parameters. It returns a string with the XML Schema Definition that the system uses to validate incoming XML Upload data.

[3] In this case, a token is passed to allow access to the MIDAS system.

3.6. Get Lookup Table

This call is part of the ValueData endpoint with a parameter that identifies the relevant lookup table. Possible lookup tables include Country, Daytype, Distribution, Enduse, Energy, Location, Ratetype, Sector, State, and TimeZone. The returned data will have the upload code and description for the specified lookup table.

3.7. Get RIN List

This call is part of the ValueData endpoint with a parameter that identifies the signal type of the RINs being returned. The signal type parameter will return all the RINs of the requested type:

0. All
1. Electricity rates
2. Greenhouse gas emissions
3. California Independent System Operator FlexAlert

4. Example Code

This section contains code examples in Python, R, Curl, and C# to accomplish the seven steps above.

4.1. Python

See the most current Python Repository online at

https://github.com/morganmshep/MIDAS-Python-Repository

4.2. R

See the most current R Repository online at

https://github.com/morganmshep/MIDAS-Python-Repository

4.3. CURL

See the most current Curl Repository online at

https://github.com/morganmshep/MIDAS-Curl-Repository

4.4. C-Sharp (C#)

See the most current C# Repository online at

https://github.com/morganmshep/MIDAS-CSharp-Repository

5.XML Schema

This XML Schema was sourced directly from the MIDAS database.

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="DemandData">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="RateInformation" minOccurs="1" maxOccurs="5000">
          <xsd:complexType>
            <xsd:all>
              <xsd:element name="RateID" minOccurs="1" nillable="false"
maxOccurs="1" />
              <xsd:element name="AltRateName1" minOccurs="0" nillable="true"
maxOccurs="1" />
              <xsd:element name="AltRateName2" minOccurs="0" nillable="true"
maxOccurs="1" />
              <xsd:element name="SignupCloseDate" minOccurs="0" nillable="true"
maxOccurs="1" />
              <xsd:element name="RateName" minOccurs="1" nillable="false"
maxOccurs="1" />
              <xsd:element name="RatePlan_Url" minOccurs="0" nillable="true"
maxOccurs="1" />
              <xsd:element name="RateType" minOccurs="1" nillable="true"
maxOccurs="1">
                <xsd:simpleType>
                  <xsd:restriction base="xsd:string">
                    <xsd:enumeration value="R-D" />
                    <xsd:enumeration value="C-D" />
                    <xsd:enumeration value="V-D" />
                    <xsd:enumeration value="CPP" />
                    <xsd:enumeration value="VPP" />
                    <xsd:enumeration value="RTP" />
```

```
                <xsd:enumeration value="DSR" />
                <xsd:enumeration value="TOU" />
                <xsd:enumeration value="T-D" />
                <xsd:enumeration value="GHG" />
              </xsd:restriction>
            </xsd:simpleType>
          </xsd:element>
          <xsd:element name="Sector" minOccurs="0" nillable="true"
maxOccurs="1">
            <xsd:simpleType>
              <xsd:restriction base="xsd:string">
                <xsd:enumeration value="CEV" />
                <xsd:enumeration value="Ind" />
                <xsd:enumeration value="Res" />
                <xsd:enumeration value="Agr" />
                <xsd:enumeration value="All" />
                <xsd:enumeration value="REV" />
                <xsd:enumeration value="Com" />
                <xsd:enumeration value="CIA" />
              </xsd:restriction>
            </xsd:simpleType>
          </xsd:element>
          <xsd:element name="API_Url" minOccurs="0" nillable="true"
maxOccurs="1" />
          <xsd:element name="EndUse" minOccurs="0" nillable="true"
maxOccurs="1">
            <xsd:simpleType>
              <xsd:restriction base="xsd:string">
                <xsd:enumeration value="All" />
                <xsd:enumeration value="EV" />
```

```
                <xsd:enumeration value="Other" />
                <xsd:enumeration value="Solar" />
                <xsd:enumeration value="Battery" />
              </xsd:restriction>
            </xsd:simpleType>
          </xsd:element>
          <xsd:element name="TimeZone" minOccurs="1" nillable="false"
maxOccurs="1">
            <xsd:simpleType>
              <xsd:restriction base="xsd:string">
                <xsd:enumeration value="MST" />
                <xsd:enumeration value="EST" />
                <xsd:enumeration value="HST" />
                <xsd:enumeration value="CST" />
                <xsd:enumeration value="PST" />
                <xsd:enumeration value="AKST" />
              </xsd:restriction>
            </xsd:simpleType>
          </xsd:element>
          <xsd:element name="ValueInformation">
            <xsd:complexType>
              <xsd:sequence>
                <xsd:element name="ValueData">
                  <xsd:complexType>
                    <xsd:all>
                      <xsd:element name="DateStart" minOccurs="1" nillable="false"
maxOccurs="1" />
                      <xsd:element name="DateEnd" minOccurs="1" nillable="false"
maxOccurs="1" />
                      <xsd:element name="DayStart" minOccurs="1" nillable="false"
maxOccurs="1">
```

```
                    <xsd:simpleType>
                      <xsd:restriction base="xsd:string">
                        <xsd:enumeration value="1" />
                        <xsd:enumeration value="2" />
                        <xsd:enumeration value="3" />
                        <xsd:enumeration value="4" />
                        <xsd:enumeration value="5" />
                        <xsd:enumeration value="6" />
                        <xsd:enumeration value="7" />
                        <xsd:enumeration value="8" />
                      </xsd:restriction>
                    </xsd:simpleType>
                  </xsd:element>
                  <xsd:element name="DayEnd" minOccurs="1" nillable="false"
maxOccurs="1">
                    <xsd:simpleType>
                      <xsd:restriction base="xsd:string">
                        <xsd:enumeration value="1" />
                        <xsd:enumeration value="2" />
                        <xsd:enumeration value="3" />
                        <xsd:enumeration value="4" />
                        <xsd:enumeration value="5" />
                        <xsd:enumeration value="6" />
                        <xsd:enumeration value="7" />
                        <xsd:enumeration value="8" />
                      </xsd:restriction>
                    </xsd:simpleType>
                  </xsd:element>
                  <xsd:element name="Value" minOccurs="1" nillable="false"
```

```
maxOccurs="1" />
                    <xsd:element name="ValueName" minOccurs="1" nillable="false"
maxOccurs="1" />
                    <xsd:element name="TimeStart" minOccurs="1" nillable="false"
maxOccurs="1" />
                    <xsd:element name="TimeEnd" minOccurs="1" nillable="false"
maxOccurs="1" />
                    <xsd:element name="Unit" minOccurs="1" nillable="false"
maxOccurs="1">
                     <xsd:simpleType>
                      <xsd:restriction base="xsd:string">
                       <xsd:enumeration value="$/kWh" />
                       <xsd:enumeration value="kg/kWh CO2" />
                       <xsd:enumeration value="Event" />
                       <xsd:enumeration value="Level" />
                       <xsd:enumeration value="$/kW" />
                      </xsd:restriction>
                     </xsd:simpleType>
                    </xsd:element>
                   </xsd:all>
                  </xsd:complexType>
                 </xsd:element>
                </xsd:sequence>
               </xsd:complexType>
              </xsd:element>
             </xsd:all>
            </xsd:complexType>
           </xsd:element>
          </xsd:sequence>
         </xsd:complexType>
```

```
  </xsd:element>
</xsd:schema>
```

Source: California Energy Commission

6. Example XML Input

XML Input Formats for specific tags

Tags	Format
<DateStart>,<DateEnd>	YYYY-MM-DD
<TimeStart>,<TimeEnd>	24 hour time, HH:MM or HH:MM:ss

Where: HH = 24 Hour, 00-23
MM = Minutes, 00-59
ss = Seconds, 00-59

NOTE: All times must be submitted in UTC time zone.

```
<?xml version='1.0' encoding='UTF-8'?>
<DemandData>
  <RateInformation>
    <API_Url />
    <EndUse>EV</EndUse>
    <TimeZone>PST</TimeZone>
    <ValueInformation>
      <ValueData>
        <DateEnd>2021-12-31</DateEnd>
        <DateStart>2021-02-28</DateStart>
        <DayEnd>8</DayEnd>
        <DayStart>1</DayStart>
        <Value>0.1408900</Value>
        <ValueName>Off-Peak</ValueName>
        <TimeEnd>23:59</TimeEnd>
        <TimeStart>21:00</TimeStart>
        <Unit>$/kWh</Unit>
      </ValueData>
```

```
  </ValueInformation>
  <RateID>USCA-SDSD-EVT2-0000</RateID>
  <RateName>BEV-1</RateName>
  <RatePlan_Url>https://www.utility.com/rateplan.html</RatePlan_Url>
  <RateType>CPP</RateType>
  <Sector>CIA</Sector>
</RateInformation>
<RateInformation>
  <API_Url />
  <EndUse>Battery</EndUse>
  <TimeZone>PST</TimeZone>
  <ValueInformation>
    <ValueData>
      <DateEnd>2022-01-31</DateEnd>
      <DateStart>2021-06-01</DateStart>
      <DayEnd>8</DayEnd>
      <DayStart>1</DayStart>
      <Value>0.2976600</Value>
      <ValueName>Off-Peak</ValueName>
      <TimeEnd>23:59</TimeEnd>
      <TimeStart>21:00</TimeStart>
      <Unit>$/kWh</Unit>
    </ValueData>
  </ValueInformation>
  <RateID>USCA-SDSD-EVT5-0000</RateID>
  <RateName>BEV-1</RateName>
  <RatePlan_Url>https://www.utility.com/rateplan.pdf</RatePlan_Url>
  <RateType>CPP</RateType>
  <Sector>CIA</Sector>
```

```
  </RateInformation>
  <RateInformation>
    <API_Url />
    <EndUse>Solar</EndUse>
    <TimeZone>PST</TimeZone>
    <ValueInformation>
      <ValueData>
        <DateEnd>2021-12-31</DateEnd>
        <DateStart>2021-01-31</DateStart>
        <DayEnd>8</DayEnd>
        <DayStart>1</DayStart>
        <Value>0.1408900</Value>
        <ValueName>Off-Peak</ValueName>
        <TimeStart>09:59</TimeStart>
        <TimeEnd>23:00</TimeEnd>
        <Unit>$/kWh</Unit>
      </ValueData>
    </ValueInformation>
    <RateID>USCA-SDSD-TDR1-0000</RateID>
    <RateName>BEV-1</RateName>
    <RatePlan_Url>https://www.utility.com/rateplan.html</RatePlan_Url>
    <RateType>CPP</RateType>
    <Sector>CIA</Sector>
  </RateInformation>
</DemandData>
```

Source: California Energy Commission

7. Acronyms

API: Application Programming Interface

CEC: California Energy Commission

DDoS: Distributed Denial of Service

GHG: Greenhouse Gas Emissions

GUID: Global Unique Identifier

ISO: Independent System Operator

LSE: A Load Serving Entity

MIDAS: Market Informed Demand Automation Server

RESTful API: Representational State Transfer

RIN: Rate Identification Number

TOU: Time-of-Use

UTC: Coordinated Universal Time

8. Glossary

Application Programming Interface (API): is an intermediary that allows two software programs to communicate with each other.

California Energy Commission (CEC): is the state of California's primary energy policy and planning agency.

Distributed Denial of Service (DDoS): is a classification of cyber attacks aimed at making a website unavailable to actual users of the product.

Greenhouse Gas Emissions (GHG): is a gas that absorbs and emits radiative energy, contributing the climate change.

Global Unique Identifier (GUID): is a unique set of characters used to identify records in the MIDAS database.

Independent System Operator (ISO): oversees the operation of California's electric power system, transmission lines, and electricity market generated and transmitted by its member utilities.

A Load Serving Entity (LSE): provides load to customers directly through purchases of electric energy.

Market Informed Demand Automation Server (MIDAS): is the CEC's centralized, publicly accessible, rate, greenhouse gas emissions, and FlexAlert database.

Representational State Transfer (RESTful): API is an API that follows the guidelines of REST architectural style to interact with other RESTful services.

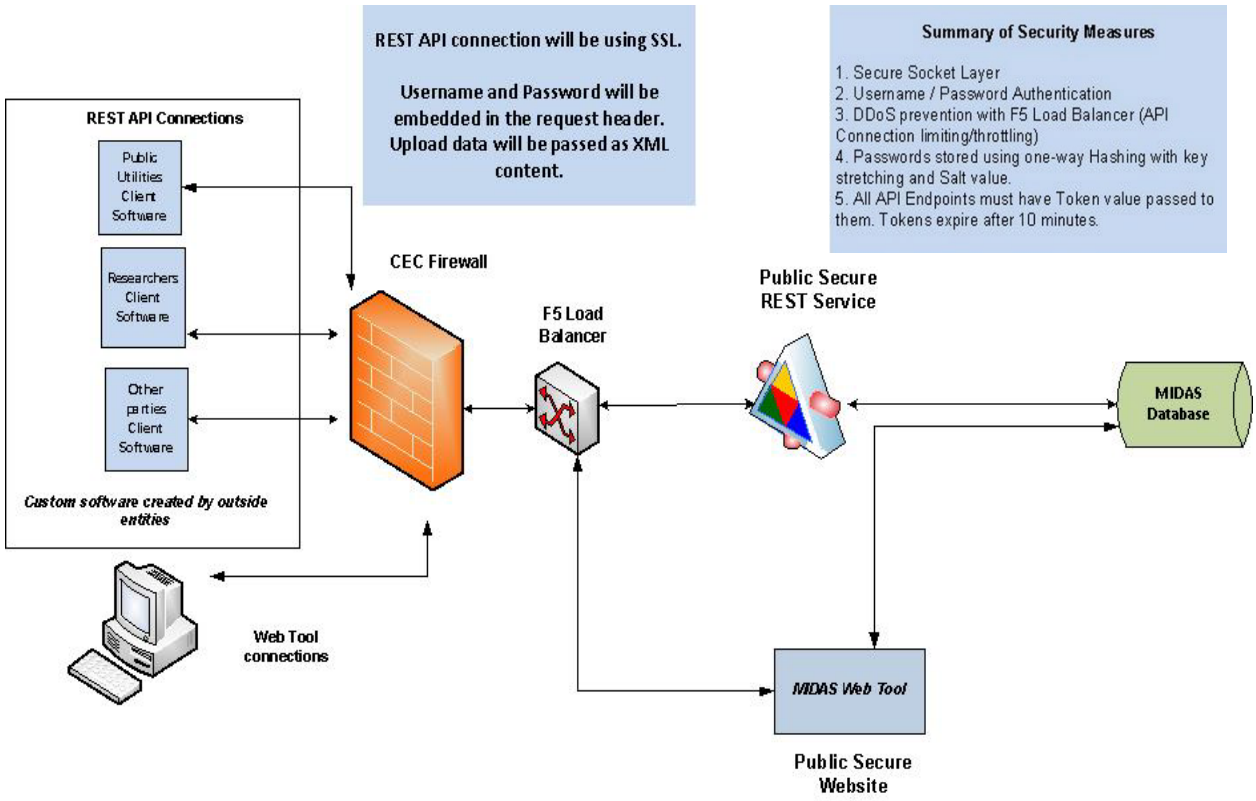
Rate Identification Number (RIN): is the primary lookup ID for the MIDAS system.

Time-of-Use (TOU): rates refer to electricity prices that are based on the times at which they are demanded and consumed.

Coordinated Universal Time (UTC) is the primary universal standard for regulating time.

9. Appendix

Figure 2: MIDAS API Service Architecture



Source: California Energy Commission

MIDAS Reference Tables

Country Table: Contains the two-letter code for each country with the name of each country describing each code.

Day Type Table: Contains a single number Day Type Code choice with the name of each day corresponding to a number 1 through 8, where 1=Monday through 8=Holiday.

Distribution Table: Contains the two-letter code for each distribution company in California with the name of each distribution company describing each code.

Energy Table: Contains the two-letter code for each energy company in California with the name of each energy company describing each code.

Location Table: Contains the 1- to 10-character code relevant to each location with a description of each accompanying each code.

Rate Type Table: Contains the Rate Type Code, up to 10 characters, options applicable to each company's rates with a description of each rate.

Sector Table: Contains the three-letter code for the sector type relevant to each value with a description for each sector.

State/Province Table: Contains the two-letter code for each US state with the name of each included in the description.

Time Zone Table: Contains the three- to four-letter code relevant to each time zone with an accompanying description.

End Use Table: Contains the code relevant to each end use, up to 10 letters with a description describing each end use.

Unit Table: Contains the unit code relevant to each rate, emissions, or event value, up to 50 characters with a description describing each.