

Importing From Energy Modeling Software (API)

Welcome to the American Institute of Architects (AIA) 2030 Design Data Exchange (DDx) API. This guide outlines the steps to get you in motion and the relevant links to additional detail. The ability to import project data from an energy modeling tool is the first feature being exposed in the DDx API. The intent is to expand the data integration capabilities of the DDx through the API over time.

The energy modeling tool import feature allows a project that has been created in an energy modeling tool by the architecture firm and/or project team members to be added or updated to the firm's account in the DDx database.

The **API POST process** typically works in the following manner:

1. Authenticate the initiating process/user
2. Project parameter values to be submitted are verified
3. Send project parameter values to DDx
4. Response sent to the user with a Project ID and Reporting Year
5. Log entry is posted on the Firm Account page in the DDx that is accessible by a firm administrator

API POST process flow:

Methods

Authenticate

Authenticate the user in the DDx and obtain the authentication token (auth token).

Request

Method	URL
POST	api/v1/authenticate/

Method	Request body properties (JSON)	TYPE
POST	firm_key	String
POST	user_key	String

After successful authentication, the auth token must be sent with all client requests.

Response

Status	Response
200	{ "authToken": } authToken (string) all further API calls must have this key in header
400	{"error": "Please provide Firm key."}
400	{"error": "Please provide User key."}
401	{"error": "Invalid Firm key."}
401	{"error": "Incorrect User key."}
500	{"error": "Something went wrong. Please try again later."}

Import project

Creates or updates a project in the DDx using the information passed on through the parameters. Project ID and Reporting Year are mandatory input fields for this call.

Project ID and Reporting Year will be required in order to identify the project. In case the combination of Project ID and Reporting Year does not exist in the DDx a new project will be created.

Note: When an existing project is updated on the DDx all input values for the existing project view are replaced.

Request

Method	URL
POST	api/v1/import_project/

Method	Request body properties (JSON)	TYPE
POST	authToken	String
POST	projectId	String
POST	reportingYear	Number
POST	Complete parameter List given in appendix	List

Note: The authToken was generated in response to /api/v1/authenticate

Response

Status	Response
200	Example responses will be shown below- For new Projects: <pre>{ "projectId": "PDLTH1439157182". "reportingYear": "2015". "message":"Successfully Created" }</pre> For existing Projects: <pre>{ "projectId": "PDLTH1439157182". "reportingYear": "2015". "message":"Successfully Updated" }</pre>
400	<pre>{"error": {message: "Invalid Value or Mandatory values are missing."} }</pre> <i>Note: List of all error messages provided in appendix below</i>
401	<pre>{"message": "Invalid Auth Token."}</pre>
401	<pre>{"message": "Auth Token Expired."}</pre>
500	<pre>{"error": "Something went wrong. Please try again later."}</pre>

The Energy Model Import API feature currently only allows the import of project data for a single project at a time, and it will not allow a project to be deleted or removed from the firm's account.

Intended Audience

The API documentation is primarily written for programmers familiar with Web Services programming standards such as the REST. An initial focus is increasing the number of energy modeling tools linking to the API, but 2030 Commitment firms could also leverage the API as well.

For AIA 2030 Commitment firms that are interested in learning more about the API workflows, see the [API Use Cases](#) section for further information.

Energy Modeling Tools Utilizing The 2030 DDx API

Energy Model Tool Name	vendor	Link
Autodesk Insight 360	Autodesk	https://insight360.autodesk.com/oneenergy
Sefaira Architecture	Trimble (Sefaira)	http://sefaira.com/
Sefaira Systems	Trimble (Sefaira)	http://sefaira.com/
Cove Tool	Cove.tool	https://covetool.com
PlanItImpact	PlanIt Impact	https://www.planitimpact.com/
IESVE Software	IES Ltd.	http://www.iesve.com/aia-2030-ddx
ClimateStudio	Solemma LLC	https://www.solemma.com/ClimateStudio.html
NEO Net Energy Optimizer	Willdan	https://netenergyoptimizer.com/

The API has been developed in an OPEN format, with the intent that an increasing number of vendors and tools to utilize the API.

If you are interested in learning more about how your company or energy modeling tool can utilize the API, please send an e-mail to 2030commitment@aia.org with the subject line of "API Interest" and a description of how you would like to utilize the API.

One thing to note is that as other tools begin to utilize the API, there are the potential for differences between energy model tools for what input fields are transferred to the API. The API contains both mandatory and optional project parameter fields, and it is at the discretion of the energy model tool provider to determine which optional project parameter fields will be included in their implementation

API Use Cases

The DDx API allows project data to be transferred from an energy modeling tool to the DDx directly to either create a new project or update a previous project. The project import will only work on energy modeling tools that have enabled the DDx API. Potential use cases include, but are not limited to:

- Within the member firm: A staff member of a firm with a DDx account can use the Firm Key, obtained from a firm administrator, and their User Key to create or update a single project from an energy modeling tool that has enabled the DDx API.
- Outside of the member firm: A member firm working with an energy modeling consultant, engineer or other party can provide the Firm Key and a User Key, so that they can create or update a single project from an energy modeling tool that has enabled the DDx API.

Project teams may update the energy model results at each project phase or at certain phases during the project.

Architectural Overview

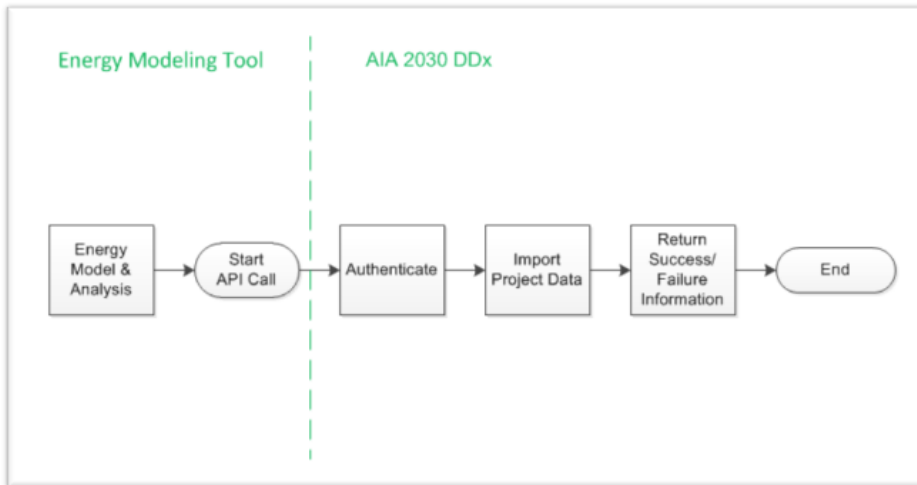
The API provides a one-directional project data import feature via REST based web service (Figure 1 - High-level project data flow). Currently the implementation is for data transfer one project at a time. JSON object(s) will be used as the means of data transfer. Developers can build custom applications, tools, and services that utilize this API to send project information to the DDx.

REST Model

Clients make standard HTTP requests over an SSL channel. Clients make requests either in aggregate or a specific resource. The format of the URL is: endpoint/version/namespace/resource[?query_parameters]

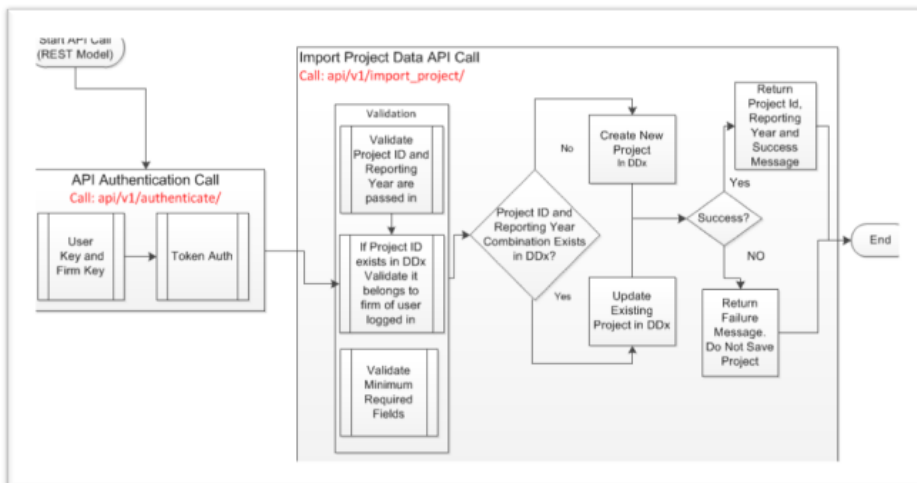
High level flow

Figure 1 - High-level project data flow



Detailed flow

Figure 2 - Detailed project data flow



API Testing & Calls

Sample API Request For User Authentication-

```
curl -v -H "Accept: application/json" -H "Content-type: application/json" -X POST -d '{"user_key":"8TNCKY7VCDA7B4FRP","firm_key":"ABCDEF12346"}
```

Test API URL For Authentication-

<https://stg-2030ddx.aia.org/api/v1/authenticate>

Sample API Request For Project Create Or Update-

```
curl -v -H "Accept: application/json" -H "Content-type: application/json" -X POST -d '{"authToken":"1680182731c08abd596308089fea74c94","projectName":"Test API 11","projectId":"TESTAPI0011","projectCategory":"Non-Residential","projectPhase":"Concept","reportingYear":"2015","country":"India","state":"Maharashtra","zipcode":"400200","city":"Nagpur","climateZone":"3C Warm - Marine","useType1":"Residential - Multi-Family, 5 or more units","useType1Area":"20000","designEnergyCode":"ASHRAE 90.1-2001","responsiblePartyForEnergyModel":"Design Engineer","energyModelingTool":"DOE-2.1E/EnergyPro","baselineEUI":"45","predictedEUI":"45","lightingPowerDensity":"6","windowToWallRatio":"4","renewables":"PV;Wind Turbine","occupancySensorsIncluded":"Yes","daylightingSensorsIncluded":"No","electricityProducedOffSite":"4500","naturalGasCombustedOnSite":"56","districtSteam":"678","districtHotWater":"678","districtChilledWater":"678","chillerType":"Electric Driven","diesel":"6000","electricityFromRenewablesOnSite":"6789"}
```

Test API URL For Project Create Or Update

https://stg-2030ddx.aia.org/api/v1/import_project

Production API URL for Authentication

<https://2030ddx.aia.org/api/v1/authenticate>

Production API URL for Project create or Update

https://2030ddx.aia.org/api/v1/import_project

User Authentication

When firm users are attempting to transfer project data from an energy modeling tool linked to the DDx API, the first step in the process is authentication. For authentication purposes, two types of keys—the User Key and Firm Key—are required to be provided by the user to generate an authentication token and establish the data link.

User key

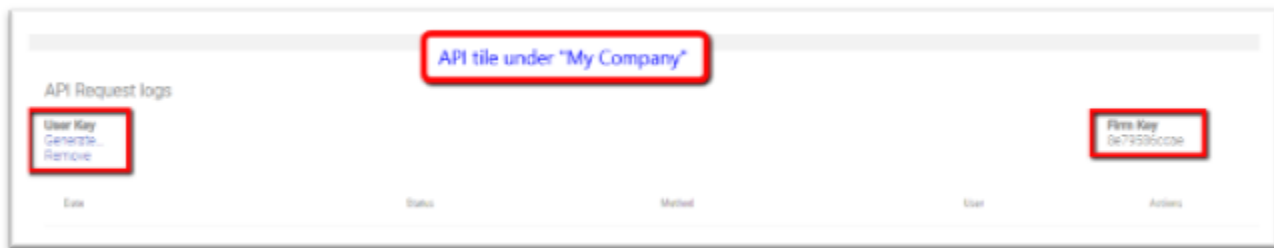
A User Key can be generated by the Firm user. Figure 3 shows where the user can go to generate and access the user key once it has been created. The key will be a 17 characters string encrypted using 160-bit encryption. This should be sent along with the Firm Key (i.e., Firm ID) for authentication. The User Key along with the Firm Key will be used to generate an authentication token.

Firm Key

Each firm that has a DDx account will be provided a Firm Key, which is accessible by a Firm user with administrative status, and is displayed on Section 2 of the My Account screen (Figure 3). The key will be 11 characters string encrypted using 160-bit encryption. The Firm Key along with the User Key will be used to generate an authentication token.

Authentication Token

When a valid User Key along with a valid Firm Key are provided, an authentication token will be generated. The authentication token will be a 16 characters string encrypted using 160-bit encryption and will be valid for 24 hours.



Project Parameter Fields

The table identifies the DDx Parameter fields that are currently incorporated into the API. Each row displays the API Parameter name, the entry type and the units. In addition, the “Field Type” column displays if the parameter is “Mandatory” or “Optional”. Also if “text to match DDx selection option” is provided in the “Entry Type” column, then the DDx selection option list for that parameter can be found in the next section.

DDx Input Field	API Parameter Name	Field Type	Entry Type	Units
Project Name	projectName	Mandatory	Text	
Project ID	projectId	Mandatory	Text	
Project Category	projectCategory	Optional	Text to MATCH	
Construction Type ¹	constructionType	Optional	Text to MATCH	
Project Phase	projectPhase	Mandatory	Text to MATCH	

Reporting Year	reportingYear	Mandatory	Numerical, 4-digits	
Country	country	Mandatory	Text to MATCH	
State/Province	state	Mandatory ²	Text to MATCH	
Zip/Postal Code	zipcode	Mandatory ²	Numerical, at least 5 digits	
City	city	Mandatory	Text	
Climate Zone	climateZone	Optional	Text to MATCH	
Use Type 1	useType1	Mandatory	Text to MATCH	
Use Type 1 Area	useType1Area	Mandatory	Numerical	ft²
Use Type 2	useType2	Optional	Text to MATCH	
Use Type 2 Area	useType2Area	Optional	Numerical	ft ²
Use Type 3	useType3	Optional	Text to MATCH	
Use Type 3 Area	useType3Area	Optional	Numerical	ft ²
Use Type 4	useType4	Optional	Text to MATCH	
Use Type 4 Area	useType4Area	Optional	Numerical	ft ²
Use Type 5	useType5	Optional	Text to MATCH	
Use Type 5 Area	useType5Area	Optional	Numerical	ft ²
Design Energy Code	designEnergyCode	Mandatory	Text to MATCH	
Energy Modeling Tool	energyModelingTool	Mandatory	Text to MATCH	
Baseline EUI ³	baselineEUI	Mandatory	Numerical	kBtu/sf/yr
Predicted EUI	predictedEUI	Mandatory	Numerical	kBtu/sf/yr
Lighting Power Density	lightingPowerDensity	Optional	Numerical	W/sf
Window to Wall Ratio %	windowToWallRatio	Optional	Numerical (5-100)	%
Renewables	renewables	Optional	Text to MATCH	
Occupancy Sensors Included	occupancySensorsIncluded	Optional	Yes/No	
Daylighting Sensors Included	daylightingSensorsIncluded	Optional	Yes/No	
Electricity Produced Off-site	electricityProducedOffSite	Optional	Numerical	kWh/yr
Natural Gas Combusted On-Site	naturalGasCombustedOnSite	Optional	Numerical	Therms/yr
District Steam	districtSteam	Optional	Numerical	MBtu/yr
District Hot Water	districtHotWater	Optional	Numerical	MBtu/yr
District Chilled Water	districtChilledWater	Optional	Numerical	MBtu/yr
Chiller Type	chillerType	Optional	Text to MATCH	
Diesel	diesel	Optional	Numerical	MBtu/yr
Electricity from Renewables on-site	electricityFromRenewablesOnSite	Optional	Numerical	MBtu/yr

¹ Construction Type is a required field, but it is listed as "optional" because by default a project will be assigned to "New Construction". If the project is the construction type "Major Renovation of Existing Building", it would need to be a field that was part of the data transfer.

² State/Province and Zip/Postal Code is mandatory only for country = "United States of America".

³ Baseline EUI is currently a mandatory field that is required for a project to save in the DDx, and become part of the Firm Portfolio. After a project is imported, the Baseline EUI value will be displayed as transferred, and the Define Baseline option will be marked as "Other".

Parameter Selection Option Lists

DDx Input Field	API Parameter Name	DDx MATCH Selection Option
Project Category	projectCategory	Non-Residential Residential Whole building

Project Phase	projectPhase	<p>Concept</p> <p>Schematic Design</p> <p>Design Development</p> <p>Construction Documents</p> <p>Construction Administration</p>
Country	country	See Appendix A
State/Province	state	See Appendix B
Climate Zone	climateZone	<p>1a very hot humid</p> <p>1b very hot dry</p> <p>2a hot humid</p> <p>2b hot dry</p> <p>3a warm humid</p> <p>3b warm dry</p> <p>3c warm marine</p> <p>4a mixed humid</p> <p>4b mixed dry</p> <p>4c mixed marine</p> <p>5a cool humid</p> <p>5b cool dry</p> <p>6a cold humid</p> <p>6b cold dry</p> <p>7 very cold</p> <p>8 subarctic</p>
Use Type 1	useType1	See Appendix C
Design Energy Code	designEnergyCode	<p>ASHRAE 90.1-1999</p> <p>ASHRAE 90.1-2001</p> <p>ASHRAE 90.1-2004</p> <p>ASHRAE 90.1-2007</p> <p>ASHRAE 90.1-2010</p> <p>ASHRAE 90.1-2013</p> <p>ASHRAE 90.1-2016</p> <p>California Title 24 2005 for high rise residential</p> <p>California Title 24 2005 for single family residential</p> <p>California Title 24 2008</p> <p>California Title 24 2010</p> <p>California Title 24 2013</p> <p>California Title 24 2016</p> <p>California Title 24 Non Residential 2008</p> <p>California Title 24 Residential 2005</p> <p>California Title 24 Residential 2008</p> <p>IECC 2003</p> <p>IECC 2006</p> <p>IECC 2009</p> <p>IECC 2012</p> <p>IECC 2015</p> <p>IECC-2018</p> <p>Massachusetts Stretch Code</p> <p>NECB 2011</p> <p>NECB 2015</p> <p>NECB 2017</p> <p>Older than 1999</p> <p>Oregon Energy Code 2010</p> <p>Oregon Energy Code 2014</p> <p>Oregon Energy Efficiency Specialty Code 2010</p> <p>Oregon Energy Efficiency Specialty Code 2010</p> <p>Oregon Energy Efficiency Specialty Code 2014</p> <p>Washington Energy Code</p> <p>Washington Energy Code 2012</p> <p>Washington Energy Code 2015</p>

Energy Modeling Tool	energyModelingTool	30 AEDG AERG 50 AEDG AERG Autodesk Insight 360 Cove.tool DOE-2.1E EnergyPro DOE-2.1E VisualDOE DOE 2.2 DOE-2.2 eQuest DOE-2.2 GreenBuildingStudio DOE-2.2 Other EnergyPlus AECOSim EnergyPlus DesignBuilder EnergyPlus Ladybug Tools EnergyPlus OpenStudio EnergyPlus Simergy EnergyPlus Other HAP HEED Home Energy Saver IES - Virtual Environment REM Rate Sefaira TRACE 700 TRNSYS Other NEO Net Energy Optimizer PlanITImpact ClimateStudio
Renewables	renewables	None PV Solar Thermal Wind Turbine
Chiller Type	chillerType	Electric Driven Natural Gas Absorption Natural Gas Engine Driven

Glossary

Conventions

- **Client** - Client application.
- **Status** - HTTP status code of response.
- All the possible responses are listed under 'Responses' for each method. Only one of them is issued per request server.
- All response are in JSON format.
- All request parameters are mandatory unless explicitly marked as [optional]
- The type of values accepted for a request parameter are shown the the values column like this [**10**<any number>:]. The | symbol means OR. If the parameter is [optional], the default value is shown in blue bold text, as **10** is written in [**10**<any number>].

Status Codes

All status codes are standard HTTP status codes. The below ones are used in this API.

2XX - Success of some kind

4XX - Error occurred in client's part

5XX - Error occurred in server's part

Specific field level errors will be reported.

Status Code	Description
200	OK
201	Created
202	Accepted (Request accepted, and queued for execution)

400	Bad request
401	Authentication failure
403	Forbidden
404	Resource not found
405	Method Not Allowed
409	Conflict Specific field level errors will be reported
412	Precondition Failed
413	Request Entity Too Large By default this is 1 MB but it is configurable on the server
500	Internal Server Error
501	Not Implemented
503	Service Unavailable

Error Codes

API Response code 400 error message list

Parameter	Validation Check	API Error Response
projectId	check projectId presence	Please provide Project ID.
reportingYear	Please provide Reporting Year.	Please provide Reporting Year.
projectId	Project belongs to your firm.	XYZ project belongs to other firm.
projectName	Is Project Name included?	Project Name cannot be blank
projectCategory	Is Project Category included?	Project Category cannot be blank
projectCategory	Project Category= Interior Only	Interior Only Projects cannot be created/updated from API.
projectCategory	Does Project Category match one of the options on the selection list?	Project Category does not match one of the selection options. Please check terminology, spelling and/or format.
projectPhase	Is Project Phase included?	Project Phase cannot be blank
projectPhase	Does Project Phase match one of the options on the selection list?	Project Phase does not match one of the selection options. Please check terminology, spelling and/or format.
country	Is Country included?	Country cannot be blank
country	Does Country match one of the options on the selection list?	Country does not match one of the selection options. Please check terminology, spelling and/or format.
state	If Country = "United States of America", "China (including Hong Kong)", "Canada" or "India"; State/Province cannot be blank	State cannot be blank
state	Does State/Province match one of the options on the selection list?	State does not match one of the selection options. Please check terminology, spelling and/or format.
zipcode	If Country = "United States of America", "China (including Hong Kong)", "Canada" or "India"; Zip/Postal Code cannot be blank	zipcode cannot be blank
useType1	Does Use Type match one of the options on the selection list?	Use Type does not match one of the selection options. Please check terminology, spelling and/or format.
useType1Area	If use type present then Has a Use Type Area been included?	At least one Use Type Area must be associated with a project.
useType1Area	Is Use Type Area a numerical value?	Use Type Area is required to be a numeric value

useType2	Does Use Type match one of the options on the selection list?	Use Type does not match one of the selection options. Please check terminology, spelling and/or format.
useType2Area	If use type present then Has a Use Type Area been included?	At least one Use Type Area must be associated with a project.
useType2Area	Is Use Type Area a numerical value?	Use Type Area is required to be a numeric value
useType3	Does Use Type match one of the options on the selection list?	Use Type does not match one of the selection options. Please check terminology, spelling and/or format.
useType3Area	If use type present then Has a Use Type Area been included?	At least one Use Type Area must be associated with a project.
useType3Area	Is Use Type Area a numerical value?	Use Type Area is required to be a numeric value
useType4	Does Use Type match one of the options on the selection list?	Use Type does not match one of the selection options. Please check terminology, spelling and/or format.
useType4Area	If use type present then Has a Use Type Area been included?	At least one Use Type Area must be associated with a project.
useType4Area	Is Use Type Area a numerical value?	Use Type Area is required to be a numeric value
useType5	Does Use Type match one of the options on the selection list?	Use Type does not match one of the selection options. Please check terminology, spelling and/or format.
useType5Area	If use type present then Has a Use Type Area been included?	At least one Use Type Area must be associated with a project.
useType5Area	Is Use Type Area a numerical value?	Use Type Area is required to be a numeric value
baselineEUI	Is the value a numerical value?	Baseline EUI is required to be a numeric value.
baselineEUI	Check if Baseline EUI < 0 kBtu/sf/yr	Baseline EUI cannot be a negative number.
predictedEUI	Is the value a numerical value?	Predicted EUI is required to be a numeric value.
lightingPowerDensity	Is the value a numerical value?	Lighting Power Density is required to be a numeric value.
lightingPowerDensity	Check if LPD < 0 W/sf	Lighting Power Density cannot be a negative number.
windowToWallRatio	Check that the input value is between 0-100	The Window to Wall Ratio % cannot be greater than 100 or less than 0.
renewables	Does Renewables Type match one of the options on the selection list?	Renewables Type does not match one of the selection options. Please check terminology, spelling and/or format.
occupancySensorsIncluded	Is the entry "Yes" or "No"?	Occupancy Sensors included entry can only be "Yes" or "No".
The Window to Wall Ratio % cannot be greater than 100 or less than 0.	Is the entry "Yes" or "No"?	Daylighting Sensors included entry can only be "Yes" or "No".
electricityProducedOffSite	Is the value a numerical value?	Electricity Produced Offsite is required to be a numeric value.
naturalGasCombustedOnSite	Is the value a numerical value?	Natural Gas Combusted Onsite is required to be a numeric value.
districtSteam	Is the value a numerical value?	District Steam is required to be a numeric value.
districtHotWater	Is the value a numerical value?	District Hot Water is required to be a numeric value.
districtChilledWater	Is the value a numerical value?	District Chilled Water is required to be a numeric value.
chillerType	Does Chiller Type match one of the options on the selection list?	Chiller Type does not match one of the selection options. Please check terminology, spelling and/or format.
diesel	Is the value a numerical value?	Diesel is required to be a numeric value.

electricityFromRenewablesOnSite	Is the value a numerical value?	Electricity from Renewables Onsite is required to be a numeric value.
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FAQs

What Energy Modeling Tools Can Use The 2030 DDx API?

The 2030 DDx API is OPEN and can be used by any interested energy modeling tools. [See the current list of energy modeling tools.](#)

What Happens To The Existing Project When I Update The Project Using The Energy Model Tool Import?

When a project is being updated from an energy modeling tool using the DDx API, the project information being transferred from the energy model tool will override any project data that has been previously been entered for the project for that reporting year.

Additional API Resources

Country Selection List- The current Country selection list, which is based on the [International Organization for Standardization \(ISO\)](#).

1	Afghanistan	84	Ghana	167	Oman
2	Aland Islands	85	Gibraltar	168	Pakistan
3	Albania	86	Greece	169	Palau
4	Algeria	87	Greenland	170	Palestine
5	American Samoa	88	Grenada	171	Panama
6	Andorra	89	Guadeloupe	172	Papua New Guinea
7	Angola	90	Guam	173	Paraguay
8	Anguilla	91	Guatemala	174	Peru
9	Antarctica	92	Guernsey	175	Philippines
10	Antigua and Barbuda	93	Guinea	176	Pitcairn
11	Argentina	94	Guinea-Bissau	177	Poland
12	Armenia	95	Guyana	178	Portugal
13	Aruba	96	Haiti	179	Puerto Rico
14	Australia	97	Heard Island and McDonald Islands	180	Qatar
15	Austria	98	Holy See	181	Reunion
16	Azerbaijan	99	Honduras	182	Romania
17	Bahamas	100	Hong Kong	183	Russian Federation
18	Bahrain	101	Hungary	184	Rwanda
19	Bangladesh	102	Iceland	185	Saint Barthelemy
20	Barbados	103	India	186	Saint Helena, Ascension and Tristan da Cunha
21	Belarus	104	Indonesia	187	Saint Kitts and Nevis
22	Belgium	105	Iran	188	Saint Lucia
23	Belize	106	Iraq	189	Saint Martin (French part)
24	Benin	107	Ireland	190	Saint Pierre and Miquelon
25	Bermuda	108	Isle of Man	191	Saint Vincent and the Grenadines
26	Bhutan	109	Israel	192	Samoa
27	Bolivia	110	Italy	193	San Marino
28	Bonaire, Sint Eustatius and Saba	111	Jamaica	194	Sao Tome and Principe
29	Bosnia and Herzegovina	112	Japan	195	Saudi Arabia
30	Botswana	113	Jersey	196	Senegal

31	Bouvet Island	114	Jordan	197	Serbia
32	Brazil	115	Kazakhstan	198	Seychelles
33	British Indian Ocean Territory	116	Kenya	199	Sierra Leone
34	Brunei Darussalam	117	Kiribati	200	Singapore
35	Bulgaria	118	Korea Democratic People's Republic	201	Sint Maarten (Dutch part)
36	Burkina Faso	119	Korea	202	Slovakia
37	Burundi	120	Kuwait	203	Slovenia
38	Cabo Verde	121	Kyrgyzstan	204	Solomon Islands
39	Cambodia	122	Lao People's Democratic Republic	205	Somalia
40	Cameroon	123	Latvia	206	South Africa
41	Canada	124	Lebanon	207	South Georgia and the South Sandwich Islands
42	Cayman Islands	125	Lesotho	208	South Sudan
43	Central African Republic	126	Liberia	209	Spain
44	Chad	127	Libya	210	Sri Lanka
45	Chile	128	Liechtenstein	211	Sudan
46	China	129	Lithuania	212	Suriname
47	Christmas Island	130	Luxembourg	213	Svalbard and Jan Mayen
48	Cocos Islands	131	Macao	214	Swaziland
49	Colombia	132	Macedonia	215	Sweden
50	Comoros	133	Madagascar	216	Switzerland
51	Congo	134	Malawi	217	Syrian Arab Republic
52	Congo Democratic Republic	135	Malaysia	218	Taiwan
53	Cook Islands	136	Maldives	219	Tajikistan
54	Costa Rica	137	Mali	220	Tanzania
55	Cote d'Ivoire	138	Malta	221	Thailand
56	Croatia	139	Marshall Islands	222	Timor-Leste
57	Cuba	140	Martinique	223	Togo
58	Curacao	141	Mauritania	224	Tokelau
59	Cyprus	142	Mauritius	225	Tonga
60	Czech Republic	143	Mayotte	226	Trinidad and Tobago
61	Denmark	144	Mexico	227	Tunisia
62	Djibouti	145	Micronesia	228	Turkey
63	Dominica	146	Moldova	229	Turkmenistan
64	Dominican Republic	147	Monaco	230	Turks and Caicos Islands
65	Ecuador	148	Mongolia	231	Tuvalu
66	Egypt	149	Montenegro	232	Uganda
67	El Salvador	150	Montserrat	233	Ukraine
68	Equatorial Guinea	151	Morocco	234	United Arab Emirates
69	Eritrea	152	Mozambique	235	United Kingdom
70	Estonia	153	Myanmar	236	United States Minor Outlying Islands
71	Ethiopia	154	Namibia	237	United States of America
72	Faroe Islands	155	Nauru	238	Uruguay
73	Falkland Islands	156	Nepal	239	Uzbekistan
74	Fiji	157	Netherlands	240	Vanuatu
75	Finland	158	New Caledonia	241	Venezuela
76	France	159	New Zealand	242	Vietnam
77	French Guiana	160	Nicaragua	243	Virgin Islands (British)

78	French Polynesia	161	Niger	244	Virgin Islands (U.S.)
79	French Southern Territories	162	Nigeria	245	Wallis and Futuna
80	Gabon	163	Niue	246	Western Sahara
81	Gambia	164	Norfolk Island	247	Yemen
82	Georgia	165	Northern Mariana Islands	248	Zambia
83	Germany	166	Norway	249	Zimbabwe

DDx State/Province List- The DDx currently includes four countries (Canada, China, India, and US) that also contain State/Province selection options.

#	State/Province				
CANADA					
1	Alberta	2	British Columbia	3	Manitoba
4	New Brunswick	5	Newfoundland and Labrador	6	Nova Scotia
7	Northwest Territories	8	Nunavut	9	Ontario
10	Prince Edward Island	11	Quebec	12	Saskatchewan
13	Yukon				
CHINA					
1	Beijing	2	Tianjin	3	Hebei
4	Shanxi	5	Nei Mongol	6	Liaoning
7	Jilin	8	Heilongjiang	9	Shanghai
10	Jiangsu	11	Zhejiang	12	Anhui
13	Fujian	14	Jiangxi	15	Shandong
16	Henan	17	Hubei	18	Hunan
19	Guangdong	20	Guangxi	21	Hainan
22	Chongqing	23	Sichuan	24	Guizhou
25	Yunnan	26	Xizang	27	Shaanxi
28	Gansu	29	Qinghai	30	Ningxia
31	Xinjiang	32	Taiwan	33	Xianggang
34	Macao				
INDIA					
1	Andaman and Nicobar Islands	2	Andhra Pradesh	3	Arunachal Pradesh
4	Assam	5	Bihar	6	Chandigarh
7	Chhattisgarh	8	Daman and Diu	9	Delhi
10	Dadra and Nagar Haveli	11	Goa	12	Gujarat
13	Himachal Pradesh	14	Haryana	15	Jharkhand
16	Jammu and Kashmir	17	Karnataka	18	Kerala
19	Lakshadweep	20	Maharashtra	21	Meghalaya
22	Manipur	23	Madhya Pradesh	24	Mizoram
25	Nagaland	26	Odisha	27	Punjab
28	Puducherry	29	Rajasthan	30	Sikkim
31	Telangana	32	Tamil Nadu	33	Tripura
34	Uttar Pradesh	35	Uttarakhand	36	West Bengal
UNITED STATES OF AMERICA					
1	Alaska	2	Alabama	3	Arkansas
4	American Samoa	5	Arizona	6	California

7	Colorado	8	Connecticut	9	District of Columbia
10	Delaware	11	Florida	12	Georgia
13	Guam	14	Hawaii	15	Iowa
16	Idaho	17	Illinois	18	Indiana
19	Kansas	20	Kentucky	21	Louisiana
22	Massachusetts	23	Maryland	24	Maine
25	Michigan	26	Minnesota	27	Missouri
28	Northern Mariana Islands	29	Mississippi	30	Montana
31	North Carolina	32	North Dakota	33	Nebraska
34	New Hampshire	35	New Jersey	36	New Mexico
37	Nevada	38	New York	39	Ohio
40	Oklahoma	41	Oregon	42	Pennsylvania
43	Puerto Rico	44	Rhode Island	45	South Carolina
46	South Dakota	47	Tennessee	48	Texas
49	Utah	50	Virginia	51	Virgin Islands
52	Vermont	53	Washington	54	Wisconsin
55	West Virginia	56	Wyoming		

DDx Use Type List

	AIA 2030 DDx Use Types	ENERGY STAR Target Finder Use Types
1	Bank/Financial Institution	bankBranch
2	Courthouse	Courthouse
3	Data Center	DataCenter
4	Education - College/University (campus-level)	CollegeUniversity
5	Education - General	AdultEducation
6	Education - K-12 School	K-12School
7	Food Sales - Convenience Store (w/ or w/out gas station)	ConvenienceStoreWithGasStation
8	Food Sales - General	WholesaleClubSupercenter
9	Food Sales - Supermarket/Grocery	SupermarketGroceryStore
10	Food Service - Fast Food	FastFoodRestaurant
11	Food Service - General	Food Service
12	Food Service - Restaurant/Cafeteria	Restaurant
13	Health Care - Clinic	UrgentCareClinicOtherOutpatient
14	Health Care - Hospital Inpatient	Hospital
15	Health Care - Medical Office	MedicalOffice
16	Health Care - Nursing/Assisted Living	SeniorCareCommunity
17	Health Care - Outpatient - General	OutpatientRehabilitationPhysicalTherapy
18	Laboratory - recommend use of Labs21	Laboratory
19	Lodging - General	otherLodgingResidential
20	Lodging - Hotel/Motel	Hotel
21	Lodging - Residence Hall/Dormitory	ResidenceHallDormitory

22	Mixed-Use	Mixed Use
23	Office - Small (< 10,000 sf)	Office
24	Office - Medium (< 100,000 sf)	Office
25	Office - Large	Office
26	Public Assembly - Entertainment/Culture	PerformingArts
27	Public Assembly - General	Other - Entertainment/Public Assembly Use
28	Public Assembly - Library	Library
29	Public Assembly - Recreation	otherRecreation
30	Public Assembly - Social/Meeting	socialMeetingHall
31	Public Safety - Fire/Police Station	fireStation
32	Public Safety - General	otherPublicServices
33	Religious Worship	WorshipFacility
34	Residential - Mid-Rise/High-Rise	No Reasonable Target Finder match
35	Residential - Mobile Homes	SingleFamilyHome
36	Residential - Multi-Family, 2 to 4 units	MultifamilyHousing
37	Residential - Multi-Family, 5 or more units	MultifamilyHousing
38	Residential - Single-Family Attached	SingleFamilyHome
39	Residential - Single-Family Detached	SingleFamilyHome
40	Retail - Mall	enclosedMall
41	Retail - Non-mall, Vehicle Dealerships, misc.	AutomobileDealership
42	Retail Store	RetailStore
43	Service (vehicle repair/service, postal service)	RepairServices(Vehicle,Shoe,Locksmith,etc.)
44	Storage - Distribution/Shipping Center	Distribution Center
45	Storage - General	Distribution Center
46	Storage - Non-refrigerated warehouse	Distribution CenterNonRefrigeratedWarehouse
47	Storage - Refrigerated warehouse	Distribution CenterRefrigeratedWarehouse
48	Warehouse - Self-storage	selfStorageFacility
49	Other	Other
50	Parking	TransportationTerminal

* Parking can only be a second use type for a project, it cannot be the primary use type.