



RIOO User Guide – Creating a New Load Resource

Version 1.0
January 10, 2023

ERCOT RIOO Interconnection Services

To create a new Load Resource (LR) and to get it interconnected to the ERCOT Network Model, the Resource Entity (RE) representing the LR must use the Resource Integration and Ongoing Operations – Interconnection Services (RIOO – IS) application. RIOO – IS allows the RE to create an Interconnection Request (INR) online for a new LR. The ERCOT Demand Integration team will review and process the INR and provide status updates to the RE throughout the timeline from the initial review of the request to getting the new LR loaded into the production Network Model.

About this guide

This guide provides information about performing the tasks in RIOO – IS to create and submit the online INR that proposes a new LR to interconnect to the ERCOT Network Model. Any sample data used to demonstrate the application is fictitious and does not represent actual LR registration data or market activity for any Resource Entity or Transmission and/or Distribution Service Provider (TDSP) used in the samples. The samples are test data created to provide visual aids for this user guide.

Customers who can change their load in response to an instruction and can meet certain performance requirements may qualify to become LRs. Qualified LRs may participate in ERCOT's real-time energy market (Security-Constrained Economic Dispatch, or SCED) and/or qualify to provide any of the following Ancillary Services: Non-Spinning Reserve (Non-Spin), Regulation Down Service (Reg-Down), Regulation Up Service (Reg-Up) and Responsive Reserve (RRS).

In the ERCOT markets, the value of a Load Resource's load reduction is equal to that of an increase in generation by a generating plant. LRs in SCED submit bids to buy power "up to" their specified level and are instructed by ERCOT to reduce Load if wholesale market prices equal or exceed that level. LRs that are scheduled or selected in the ERCOT Day-Ahead AS Market are eligible to receive a capacity payment regardless of whether they are actually curtailed.

Table of Contents

Before starting your INR.....	4
Sign up for a RIOO Services User Account for a Resource Entity	4
Coordinate a Production Load Date (PLD) and Dispatch Asset Code (DAC) for each new LR.....	4
Logging into RIOO	5
Creating request for a new LR	8
Load Resource Info	10
Data Agg and Settlement Info.....	12
Mapping Information.....	14
Limits & Op Params.....	16
Esign	22
Check Application Progress.....	24
After submitting INR	26
INR status.....	26
Confirming new LR in production Network Model.....	26
Updating an existing LR.....	26
Reporting issues.....	26

Before starting your INR

Before starting your INR, be sure that you have done the following tasks:

Sign up for a RIOO Services User Account for a Resource Entity

- The user must be associated with a registered Resource Entity (RE).
- The RE's User Security Administrator (USA) must add the RIOORS_M_Operator role to the user's Market Participant Identity Management (MPIM) profile, commonly known as the digital certificate.
- After the role is added, an email request will be sent to complete the process of creating the user account, which involves changing the system-assigned password and associating your login information with a multifactor authentication (MFA) app on your mobile phone that verifies your login attempts.
- The "RE Sign Up Guide" provides more details for signing up for a RIOO Services User Account. This guide is available on the [Resource Integration webpage](#), under "RIOO Documentation".

Coordinate a Production Load Date (PLD) and Dispatch Asset Code (DAC) for each new LR

When creating an INR for a new LR, the RE will need to request a PLD in RIOO during the registration process. The RE should coordinate the PLD via email with the ERCOT Demand Integration team (ERCOTLRandSODG@ercot.com). This coordination is not required, but it can help ensure that the requested PLD is acceptable for modeling the LR.

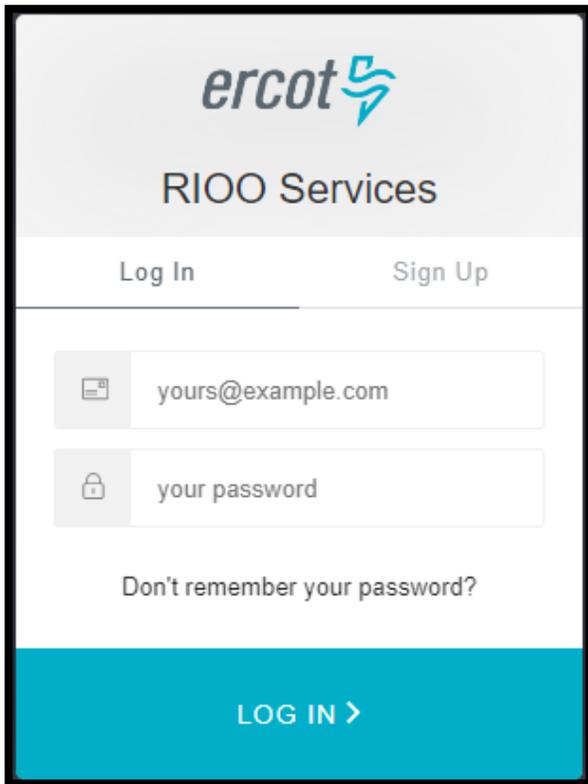
- The PLD must align with a scheduled production model load as listed on the current [Production Load Schedule](#).
- The PLD will be at least 45 days after the RIOO registration submission is accurately completed.
- The RIOO application will indicate that if the requested PLD is fewer than 90 days out, it is classified as an interim update. However, LR submissions meeting the 45-day PLD schedule do not require the RE to submit the "RE_Model_Interim_Update_Request" form.
- The DAC will be a unique identifier provided by ERCOT for each new LR, and it must be included in the RIOO submission.

Logging into RIOO

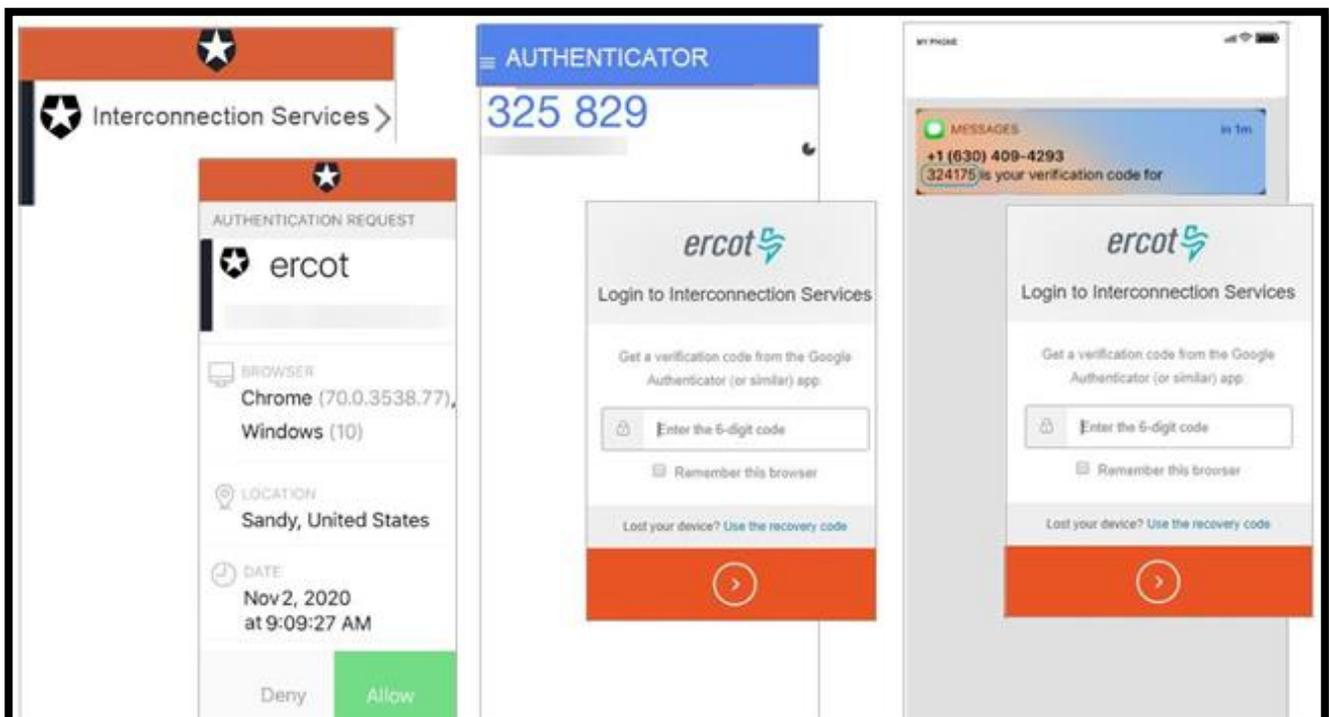
- There are two ways to access the RIOO application login screen:

The screenshot shows the ERCOT website interface. At the top right, there is a 'MIS LOG IN' button and a search bar. The main navigation menu includes 'About ERCOT', 'Services', 'Committees and Groups', 'Market Rules', 'Market Information', 'Grid Information', and 'Market Participants'. The 'Market Participants' menu is highlighted with a red box, and a sub-menu is visible with options: 'EMIL', 'MIS Log In', 'RIOO Log In', and 'Renewable Energy Credit'. A red box highlights the 'RIOO Log In' option. A white text box with red text provides instructions: '1. On the top panel of any webpage on ercot.com, hover over the Market Participants tab to display this list; select RIOO Log In'. Below the navigation menu, there are three dashboard panels: 'Supply and Demand', 'Grid Conditions', and 'Combined Wind and Solar'. The 'Grid Conditions' panel shows 'OPERATING RESERVES: 7,271 MW'. At the bottom of the page, there is a footer with 'About ERCOT', 'Contact Us', 'Quick Links', and 'STAY CONNECTED' sections. A white text box with red text provides instructions: '2. Scroll to the bottom of any page on ercot.com; click Resource Integration & Ongoing Operations – Resource Services'. A red box highlights the 'Resource Integration & Ongoing Operations – Resource Services' link in the footer.

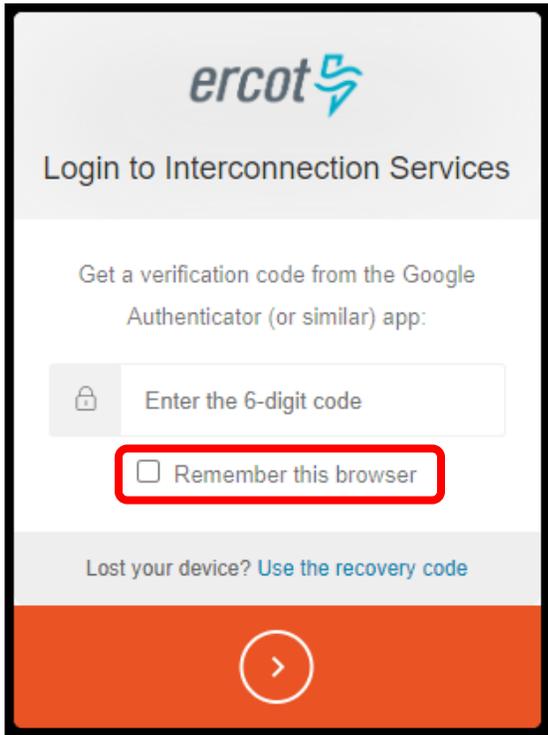
- Log into your RIOO account:



- You'll be prompted to enter a 6-digit code to complete the multi-factor authenticator (MFA). The MFA code will be sent to the app selected when setting up your account (Auth0 Guardian, Google Authenticator, SMS Text Authentication, or another authentication program that you chose to use).



- Select **Remember this browser** to avoid having to login multiple times:



- After successfully logging in, you'll be taken to the RIOO home screen:

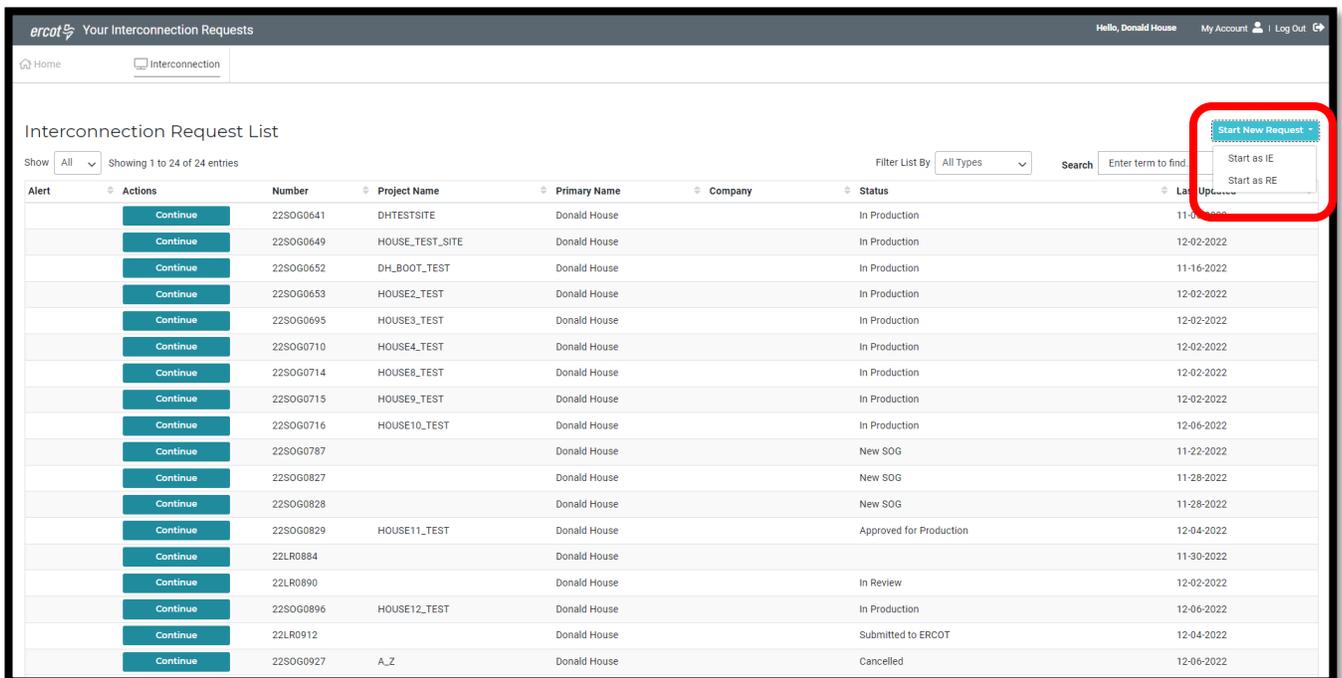


Creating request for a new LR

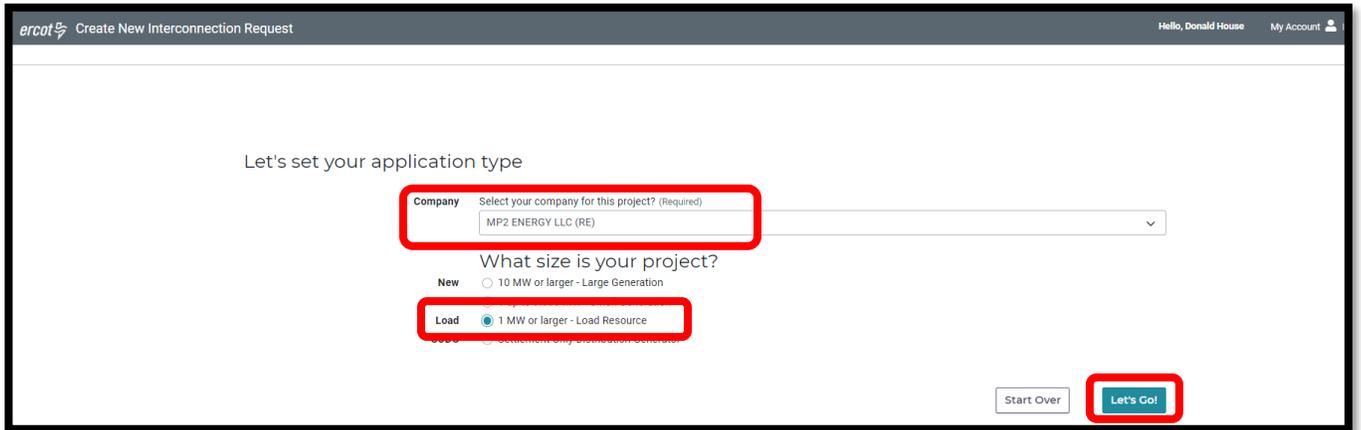
- On the RIOO home screen, open Interconnection Services
 - Interconnection Services is used to create a new LR
 - Resource Services is used to update an existing LR
 - See “RIOO User Guide – Updating an Existing Load Resource” for details



- The Interconnection Request List displays all requests that have been created by the RE along with the status of the request
- To begin, click on **Start New Request** to display the drop-down list
 - Select **Start as RE**



- Select the RE for this project
 - Note that if the user represents multiple REs, they will all be displayed in this drop-down list
- Select **Load** under **What size is your project?**
- Click **Let's Go!** to be taken to the LR list screen

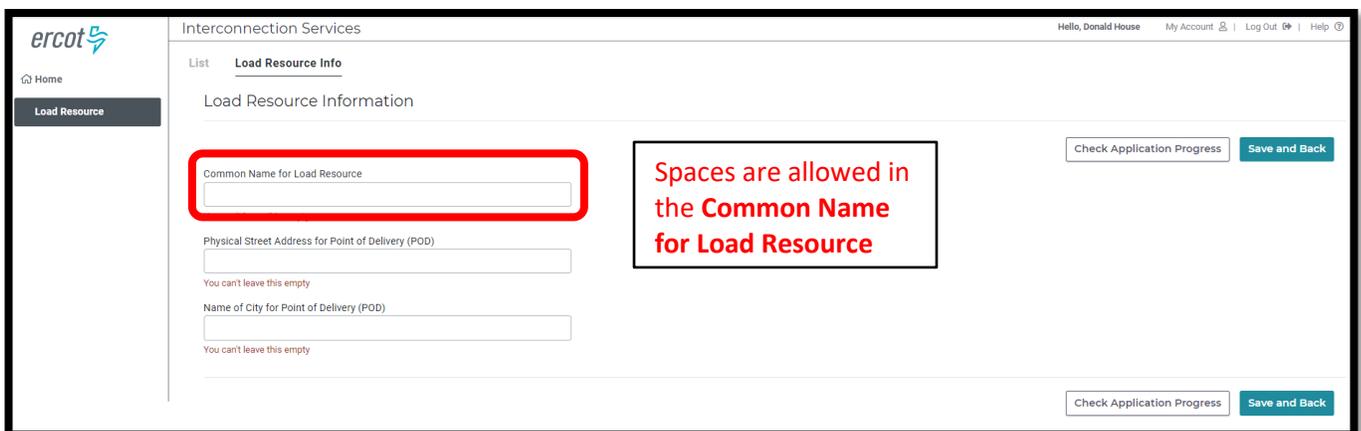
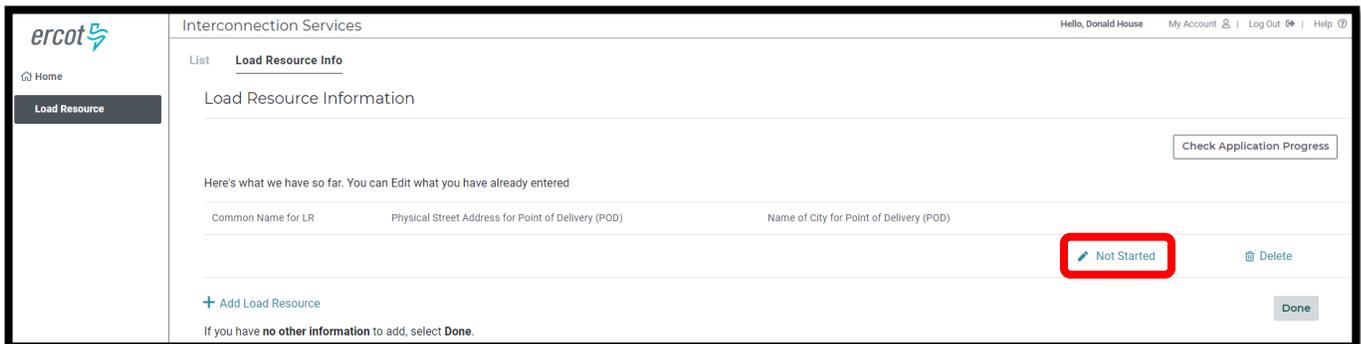
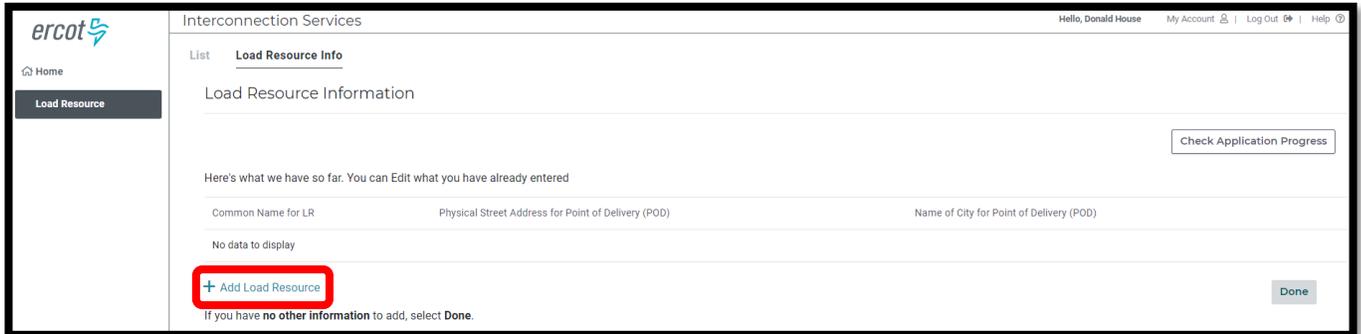


- On the LR List screen, all data submission panels are listed
 - **Start** indicates that nothing has been added to that panel
 - **Edit** in red indicates that the panel is either missing required information or that something needs to be corrected
 - **Edit** in green indicates that the panel has been completed but the user has the option to go back to the panel to make revisions
 - Clicking on **Edit** or **Start** will open that panel for data entry
- The panels can be completed in any order, but the way they are arranged in the application provides an orderly flow through the process
 - Progress can be saved, allowing the user to return to the application later to finish the submission
 - This guide will provide details on each panel

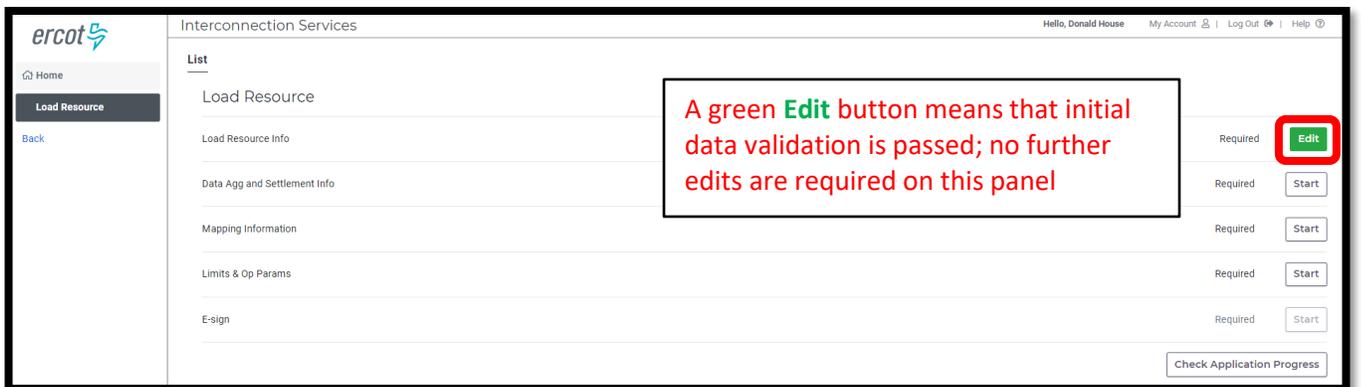
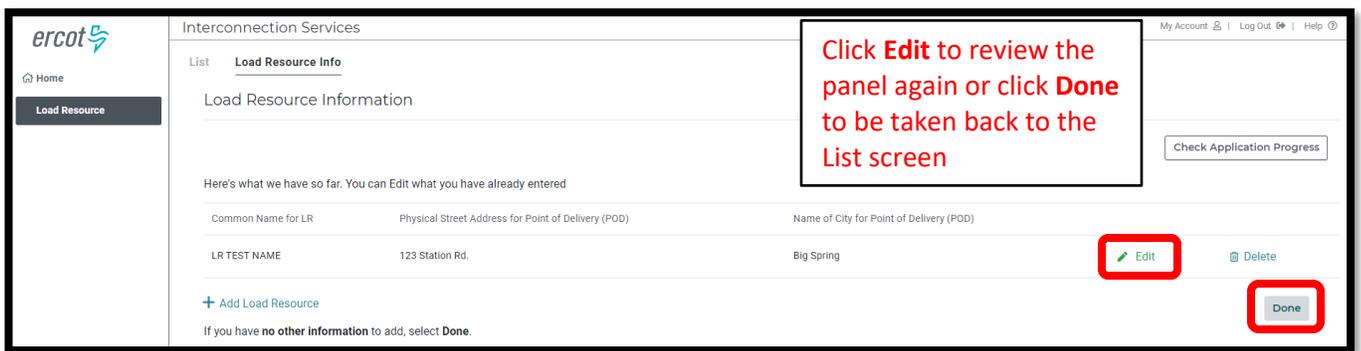


Load Resource Info

- Click on **Start** to open the Load Resource Info summary screen
- Click on **+ Add Load Resource** and then on **Not Started** to open the data entry panel
 - Up to 40 LR's can be created in the same INR by completing the panels for each LR one at a time

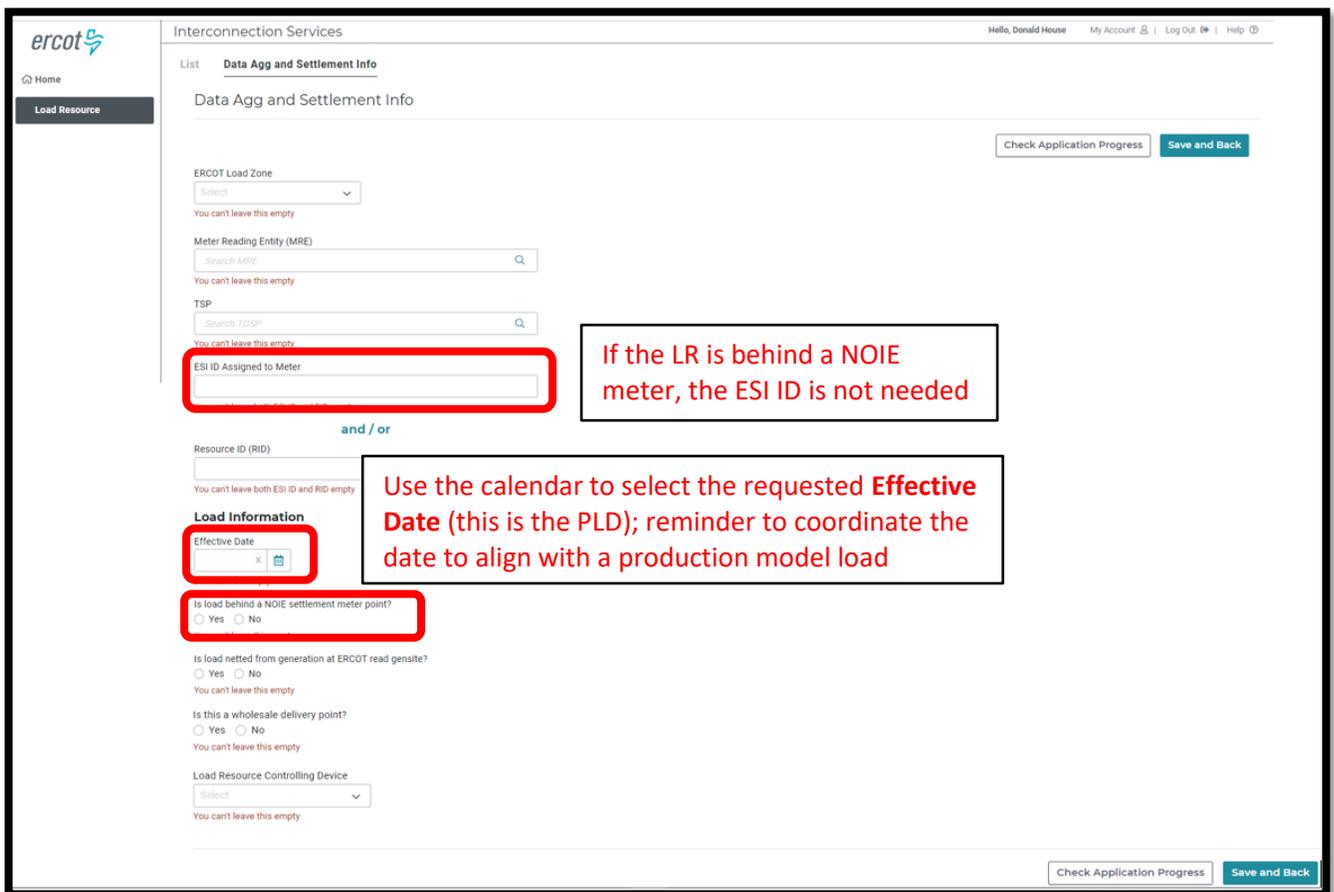
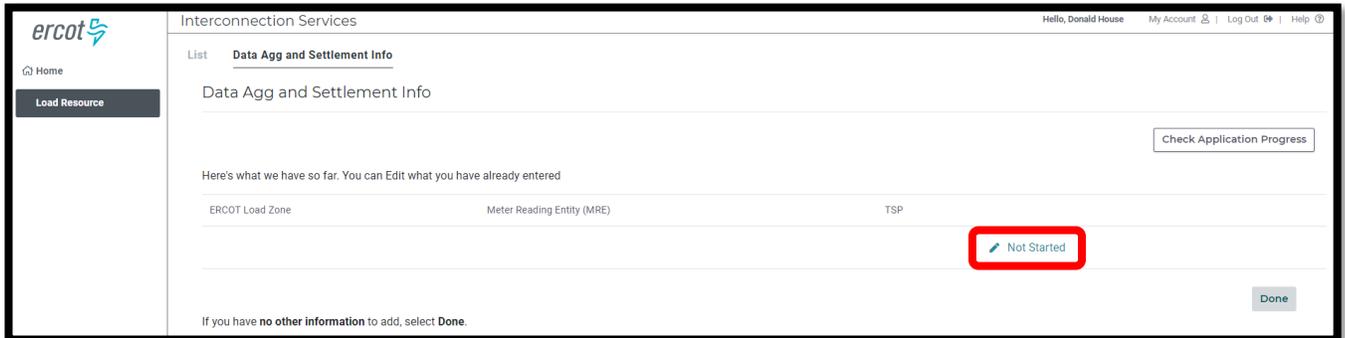


- Sample completed Load Resource Info panel



Data Agg and Settlement Info

- Click on **Start** to open the Data Agg and Settlement Info summary screen
- Click on **Not Started** to open the data entry panel



- Sample completed Data Agg and Settlement Info panel

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Interconnection Services

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Home

Load Resource

List Data Agg and Settlement Info

Data Agg and Settlement Info

Check Application Progress Save and Back

ERCOT Load Zone
West

Meter Reading Entity (MRE)
ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)
MRE DUNS: 1039940674000

TSP
ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)
TSP DUNS: 1039940674000

ESI ID Assigned to Meter
111222333444555

and / or

Resource ID (RID)
1112223334445550001

Load Information

Effective Date
12-16-2022

Is load behind a NOIE settlement meter point?
 Yes No

Is load netted from generation at ERCOT read gensite?
 Yes No

Is this a wholesale delivery point?
 Yes No

Load Resource Controlling Device
Control Technology / Interruptibl

The MRE and TSP DUNS #s are populated to match the user selections

Click Save and Back to return to the Data Agg and Settlement Info summary screen

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Load Resource

List Data Agg and Settlement Info

Data Agg and Settlement Info

Check Application Progress

Here's what we have so far. You can Edit what you have already entered

ERCOT Load Zone	Meter Reading Entity (MRE)	TSP
West	ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)	ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)

If you have no other information to add, select Done.

Edit Done

Click Edit to review the panel again or click Done to be taken back to the List screen

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Home

Load Resource

Back

List

Load Resource

Load Resource Info

Data Agg and Settlement Info

Mapping Information

Limits & Op Params

E-sign

Required Edit

Required Edit

Required Edit

Required Start

Required Start

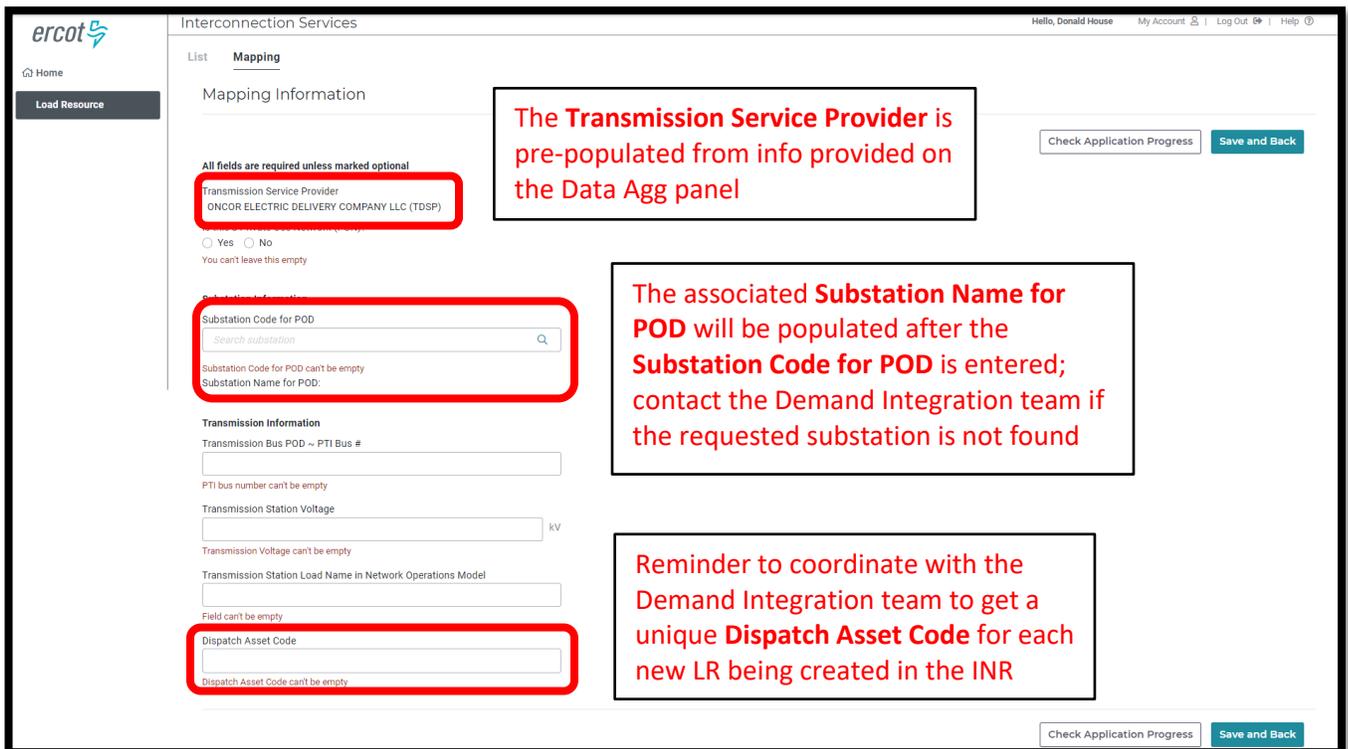
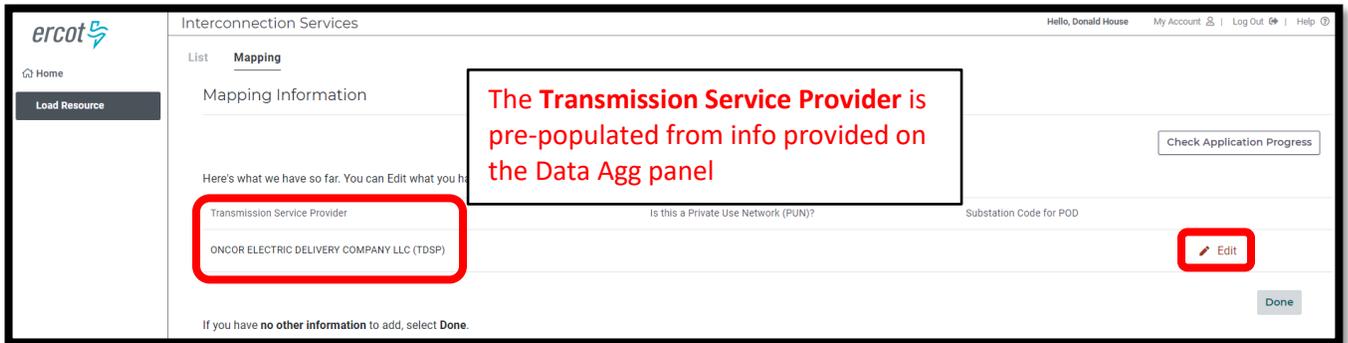
Check Application Progress

A green Edit button means that initial data validation is passed; no further edits are required on this panel

The TSP entered on the Data Agg panel is populated on the Mapping Information panel. A red Edit button is displayed for Mapping Information indicating that further info is needed.

Mapping Information

- Click on **Edit** or **Start** to open the Mapping Information summary screen
- Click on the **pencil Edit icon** to open the data entry panel



- Sample completed Mapping Information panel

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Home | Load Resource

List **Mapping**

Mapping Information

Check Application Progress **Save and Back**

All fields are required unless marked optional

Transmission Service Provider
ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)

Is this a Private Use Network (PUN)?
 Yes No

Substation Information

Substation Code for POD
BCATWIND

Substation Name for POD: BOBCAT BLUFF

Transmission Information

Transmission Bus POD ~ PTI Bus #
140401

Transmission Station Voltage
34.5 kV

Transmission Station Load Name in Network Operations Model
LOAD_1

Dispatch Asset Code
BCATWIND_LDT1

Check Application Progress **Save and Back**

Click **Save and Back** to return to the Mapping Information summary screen

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Home | Load Resource

List **Mapping**

Mapping Information

Check Application Progress

Here's what we have so far. You can Edit what you have already entered

Transmission Service Provider	Is this a Private Use Network (PUN)?	Substation Code for POD
ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP)	No	BCATWIND

If you have **no other information** to add, select **Done**.

Edit **Done**

Click on the **pencil Edit icon** to review the panel again or click **Done** to be taken back to the List screen

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Home | Load Resource

List

Load Resource

Load Resource Info Required **Edit**

Data Agg and Settlement Info Required **Edit**

Mapping Information Required **Edit**

Limits & Op Params Required Start

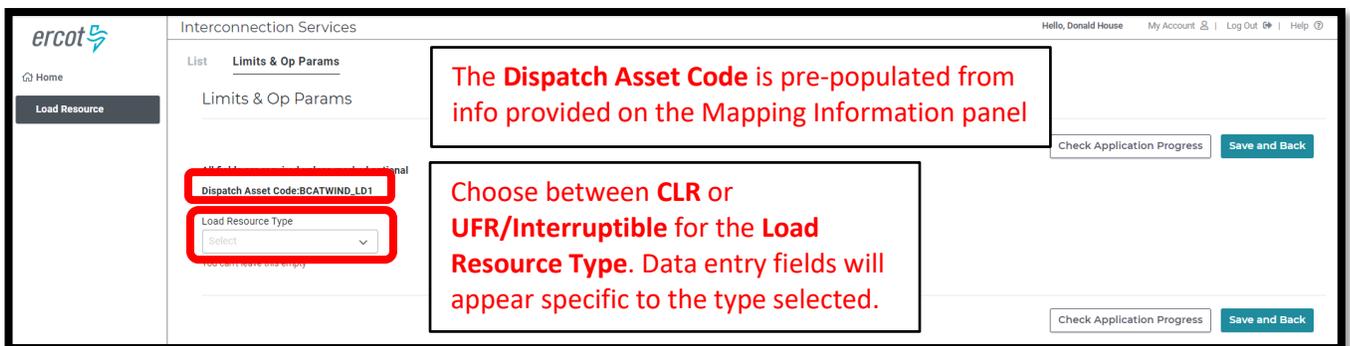
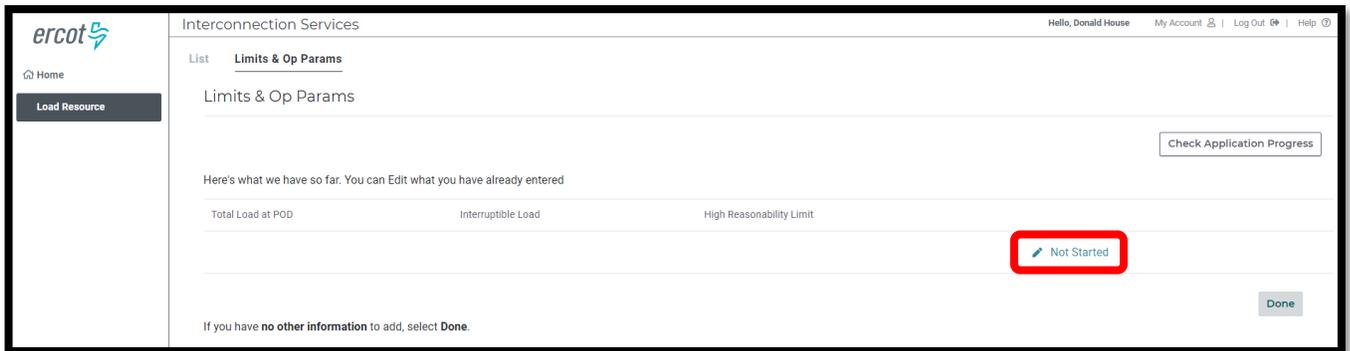
E-sign Required Start

Check Application Progress

A green **Edit** button means that initial data validation is passed; no further edits are required on this panel

Limits & Op Params

- Click on **Start** to open the Limits & Ops Params summary screen
- Click on **Not Started** to open the data entry panel
- User will choose the **Load Resource Type** as either **CLR** (controllable load resource) or **UFR/Interruptible** (under-frequency relay/interruptible)
 - This guide will show the associated data entry fields for each type



Load Resource Type = CLR

Interconnection Services | Limits & Op Params

Dispatch Asset Code: BCATWIND_LD1

Load Resource Type: CLR

Is this Load Resource an aggregated Resource?
 Yes No

Maximum Loads

Load at POD: _____ MW

Interruptible Load: _____ MW

Reasonability Limits

High Reasonability Limit: _____ MW

Low Reasonability Limit: _____ MW

Reasonability Ramp Rate Limits

High Reasonability Ramp Rate Limit: _____ MW/min

Low Reasonability Ramp Rate Limit: _____ MW/min

CLR Resource Parameters

Max Deployment Time: _____ Hours

Max Weekly Energy: _____ MWhrs

Normal Ramp Rate Curves

MW Rating: _____ MW

Upward: _____ MW/min

Downward: _____ MW/min

Emergency Ramp Rate Curves

MW Rating: _____ MW

Upward: _____ MW/min

Downward: _____ MW/min

Constraints:

- Interruptible Load: \leq Load at POD and \leq HRL
- HRL: ≥ 0 , \geq HSL or MPC, and \geq LRL
- LRL: ≥ 0 and \leq LSL or LPC (in most cases LRL=LSL=LPC=0)
- LRRL: ≤ 0 HRRL
- Max Weekly Energy: \leq Interruptible Load (MW) x 168 Hrs
- ERRC Upward: \geq NRRC Upward, \geq LRRL and \leq HRRL
- ERRC Downward: \geq NRRC Downward, \geq LRRL and \leq HRRL

- Sample completed Limits & Op Params panel (CLR)

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Interconnection Services

Home

Load Resource

List Limits & Op Params

Limits & Op Params

Check Application Progress Save and Back

All fields are required unless marked optional

Dispatch Asset Code:BCATWIND_LD1

Load Resource Type
CLR

Is this Load Resource an aggregated Resource?
 Yes No

Maximum Loads

Load at POD
25 MW

Interruptible Load
25 MW

Reasonability Limits

High Reasonability Limit
25 MW

Low Reasonability Limit
0 MW

Reasonability Ramp Rate Limits

High Reasonability Ramp Rate Limit
25 MW/min

Low Reasonability Ramp Rate Limit
5 MW/min

CLR Resource Parameters

Max Deployment Time
8 Hours

Max Weekly Energy
4200 MWhrs

Normal Ramp Rate Curves

MW Rating
25 MW

Upward
25 MW/min

Downward
25 MW/min

Emergency Ramp Rate Curves

MW Rating
25 MW

Upward
25 MW/min

Downward
25 MW/min

Check Application Progress Save and Back

Click **Save and Back** to return to the Limits & Op Params summary screen

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Interconnection Services

Home

Load Resource

List Limits & Op Params

Limits & Op Params

Check Application Progress

Here's what we have so far. You can Edit what you have already entered

Total Load at POD	Interruptible Load	High Reasonability Limit	
25	25	25	

If you have no other information to add, select Done.

Done

Click on the **pencil Edit icon** to review the panel again or click **Done** to be taken back to the List screen

Load Resource Type = UFR/Interruptible

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List **Limits & Op Params**

Limits & Op Params

[Check Application Progress](#) [Save and Back](#)

All fields are required unless marked optional
Dispatch Asset Code: BCATWIND_LD1

Load Resource Type: UFR/Interruptible

Maximum Loads

Total Load at POD: MW

You can't leave this empty

Interruptible Load: MW Interruptible Load: \leq Load at POD and \leq HRL

Reasonability Limits

High Reasonability Limit: MW HRL: \geq 0, \geq HSL or MPC, and \geq LRL

Low Reasonability Limit: MW LRL: \geq 0 and \leq LSL or LPC (in most cases LRL=LSL=LPC=0)

Non-CLR Resource Parameters

Min Interruption Time: Hours

You can't leave this empty

Min Restoration Time: Hours

You can't leave this empty

Max Weekly Deployments:

You can't leave this empty

Max Interruption Time: Hours Max Interruption Time \geq Min Interruption Time

Max Daily Deployments:

You can't leave this empty

Max Weekly Energy: MWh Max Weekly Energy: \leq Interruptible Load (MW) x 168 Hrs

Min Notice Time: Minutes

You can't leave this empty

[Check Application Progress](#) [Save and Back](#)

- Sample completed Limits & Op Params panel (UFR/Interruptible)

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Interconnection Services

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List **Limits & Op Params**

Limits & Op Params

Check Application Progress Save and Back

All fields are required unless marked optional
Dispatch Asset Code:BCATWIND_LD1

Load Resource Type
UFR/Interruptible

Maximum Loads
Total Load at POD
25 MW
Interruptible Load
25 MW

Reasonability Limits
High Reasonability Limit
25 MW
Low Reasonability Limit
0 MW

Non-CLR Resource Parameters
Min Interruption Time
1 Hours
Min Restoration Time
3 Hours
Max Weekly Deployments
7
Max Interruption Time
24 Hours
Max Daily Deployments
1
Max Weekly Energy
4200 MWhrs
Min Notice Time
10 Minutes

Check Application Progress Save and Back

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List **Limits & Op Params**

Limits & Op Params

Check Application Progress

Here's what we have so far. You can Edit what you have already entered

Total Load at POD	Interruptible Load	High Reasonability Limit
25	25	25

If you have no other information to add, select Done.

Click on the pencil Edit icon to review the panel again or click Done to be taken back to the List screen

Edit Done

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Home

Load Resource

Back

List

Load Resource

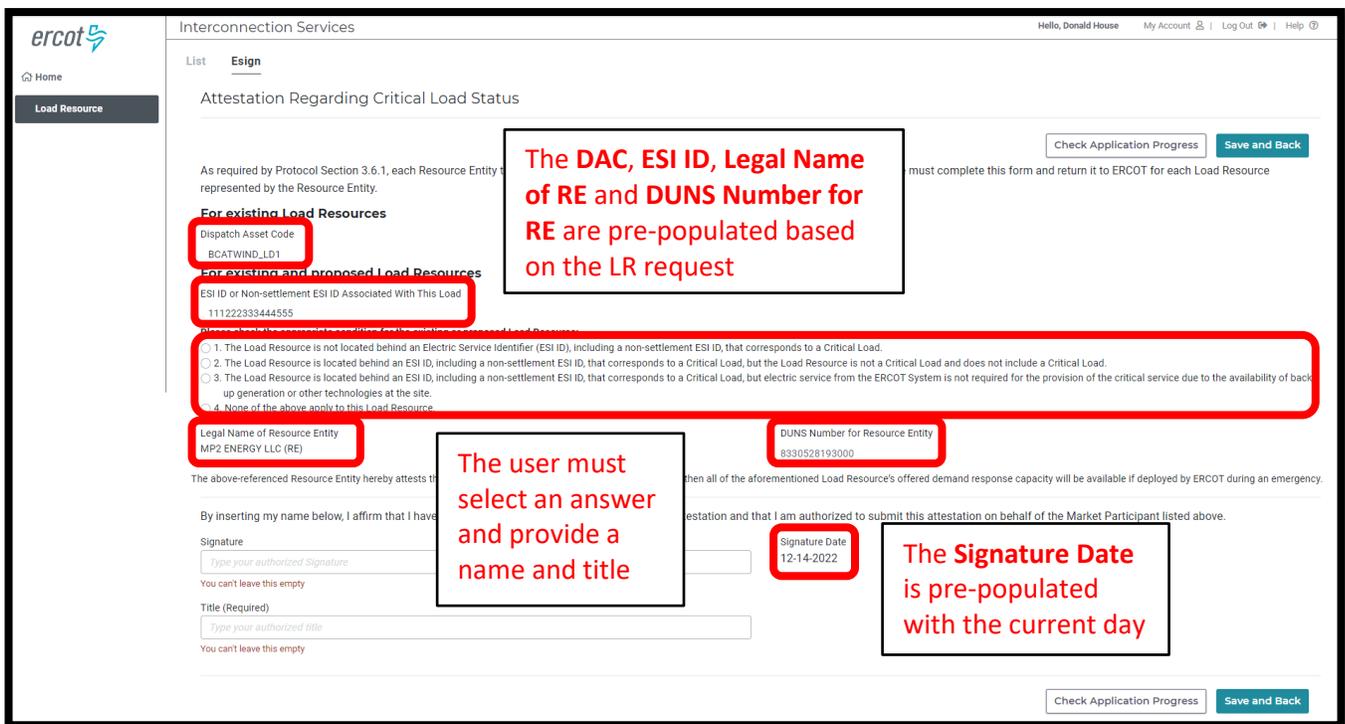
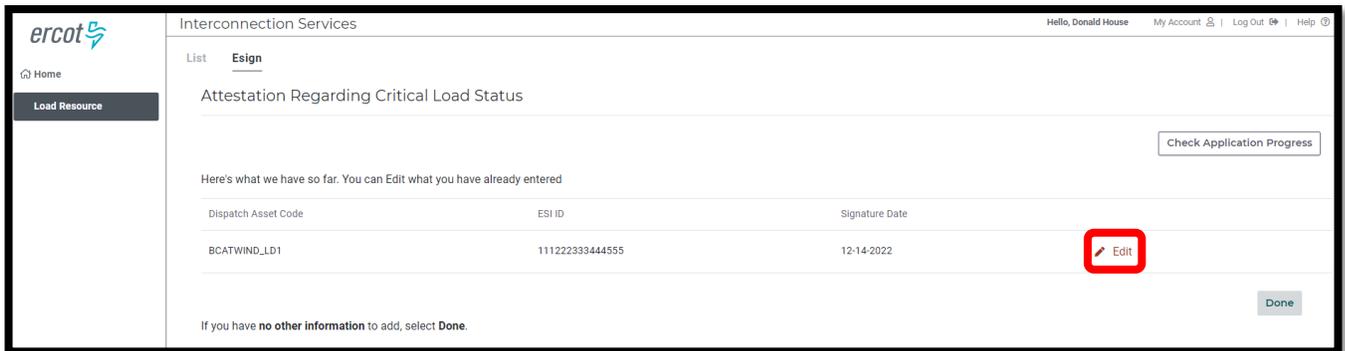
Load Resource Info	Required	Edit
Data Agg and Settlement Info	Required	Edit
Mapping Information	Required	Edit
Limits & Op Params	Required	Edit
E-sign	Required	Edit

Check Application Progress

A green **Edit** button means that initial data validation is passed; no further edits are required on this panel

Esign

- ERCOT Protocol Section 3.6.1 requires each RE that represents a Load as a LR to complete the Attestation Regarding Critical Load Status for each LR represented by the RE; this attestation is built into RIOO and must be completed by the RE as part of the submission
- Click on **Edit** to open the Esign summary screen
- Click on the **pencil Edit icon** to open the Esign data entry panel



- Sample completed Esign form

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Interconnection Services

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List **Esign**

Attestation Regarding Critical Load Status

Check Application Progress Save and Back

As required by Protocol Section 3.6.1, each Resource Entity that represents a Load Resource or that is registering a Load as a Load Resource must complete this form and return it to ERCOT for each Load Resource represented by the Resource Entity.

For existing Load Resources
Dispatch Asset Code
BCATWIND_LD1

For existing and proposed Load Resources
ESI ID or Non-settlement ESI ID Associated With This Load
111222333444555

Please check the appropriate condition for the existing or proposed Load Resource:

- 1. The Load Resource is not located behind an Electric Service Identifier (ESI ID), including a non-settlement ESI ID, that corresponds to a Critical Load.
- 2. The Load Resource is located behind an ESI ID, including a non-settlement ESI ID, that corresponds to a Critical Load, but the Load Resource is not a Critical Load and does not include a Critical Load.
- 3. The Load Resource is located behind an ESI ID, including a non-settlement ESI ID, that corresponds to a Critical Load, but electric service from the ERCOT System is not required for the provision of the critical service due to the availability of back-up generation or other technologies at the site.
- 4. None of the above apply to this Load Resource.

Legal Name of Resource Entity: MP2 ENERGY LLC (RE) DUNS Number for Resource Entity: 8330528193000

The above-referenced Resource Entity hereby attests that, if either condition (2) or (3) identified above applies, then all of the aforementioned Load Resource's offered demand response capacity will be available if deployed by ERCOT during an emergency.

By inserting my name below, I affirm that I have personal knowledge of the facts stated in this attestation and that I am authorized to submit this attestation to ERCOT.

Signature: Donald House Signature Date: 12-14-2022

Title (Required): Authorized Representative

Check Application Progress Save and Back

Click Save and Back to return to the Esign summary screen

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Interconnection Services

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List **Esign**

Attestation Regarding Critical Load Status

Check Application Progress

Here's what we have so far. You can Edit what you have already entered

Dispatch Asset Code	ESI ID	
BCATWIND_LD1	111222333444555	12-14-2022 

If you have no other information to add, select Done.

Done

Click on the pencil Edit icon to review the panel again or click Done to be taken back to the List screen

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Interconnection Services

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List

Load Resource

Back

Load Resource Info	Required	
Data Agg and Settlement Info	Required	
Mapping Information	Required	
Limits & Op Params	Required	
E-sign	Required	

Check Application Progress

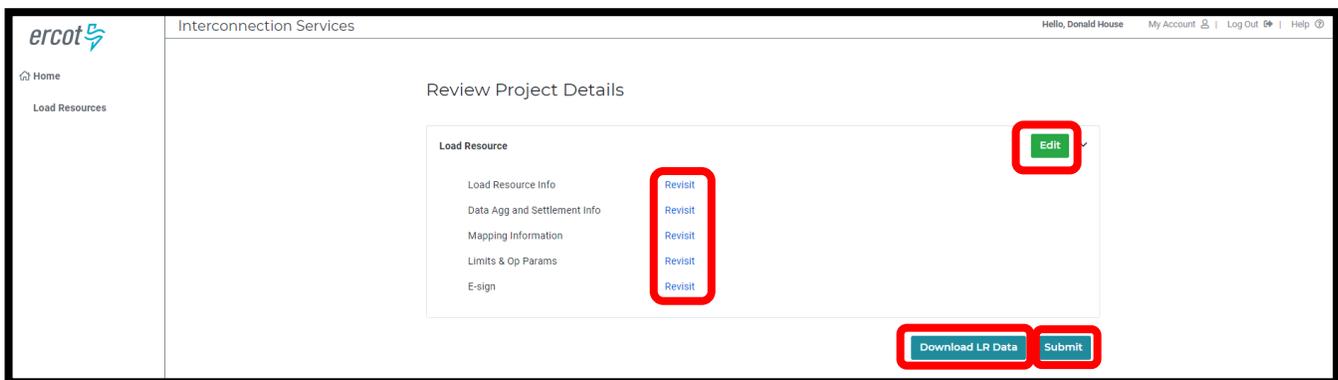
A green Edit button means that no further edits are required on this panel

Check Application Progress

- On the LR List screen, click on **Check Application Progress** to open the Review Project Details summary screen



- On the Review Project Details screen, all data submission panels are listed
 - Click on **Revisit** to return to any of the data entry panels
 - Make Corrections** in red indicates that the panel is either missing required information or that something needs to be corrected
 - Any needed corrections will also cause **Edit** to appear in a red box
 - Edit** in a green box indicates that all panels have been completed but the user has the option to go back to any panel to make revisions
 - Clicking on **Download LR Data** will download an excel file with a separate tab containing the information added to each data entry panel
 - Clicking on **Submit** will send the request to ERCOT and will display a submittal confirmation



Your Request has been successfully sent to ERCOT. You can check your [dashboard](#) and email account for updates.

LOAD RESOURCE REQUEST
22LR0957

The INR can still be canceled by clicking on **Cancel INR**; the user must confirm this selection to continue with the cancellation (can't be canceled after ERCOT changes status to **In Review**)

The INR # is displayed here

LR submissions do not require any attachments

Click on **Back to Dashboard** to return to the Interconnection Request List

Cancel INR

Back to Dashboard

- Back on the Interconnection Request List, the user can view the newly submitted LR request
 - Note the status of **Submitted to ERCOT**

Interconnection Request List

Alert	Actions	Number	Project Name	Primary Name	Company	Status	Last Updated
	Continue	22LR0957	Donald House	Donald House	Donald House	Submitted to ERCOT	12-14-2022
	Continue	22LR0935	Donald House	Donald House	Donald House	In Production	12-06-2022
	Continue	22LR0934	Donald House	Donald House	Donald House	In Production	12-07-2022
	Continue	22LR0912	Donald House	Donald House	Donald House	Submitted to ERCOT	12-04-2022
	Continue	22LR0890	Donald House	Donald House	Donald House	In Review	12-02-2022
	Continue	22LR0884	Donald House	Donald House	Donald House	In Review	11-30-2022

After submitting INR

INR status

The INR submitter will receive automated emails from ERCOT with status updates as the request moves through the modeling process as well as any requests for revisions to the INR. The user can also view status changes on the Interconnection Request List.

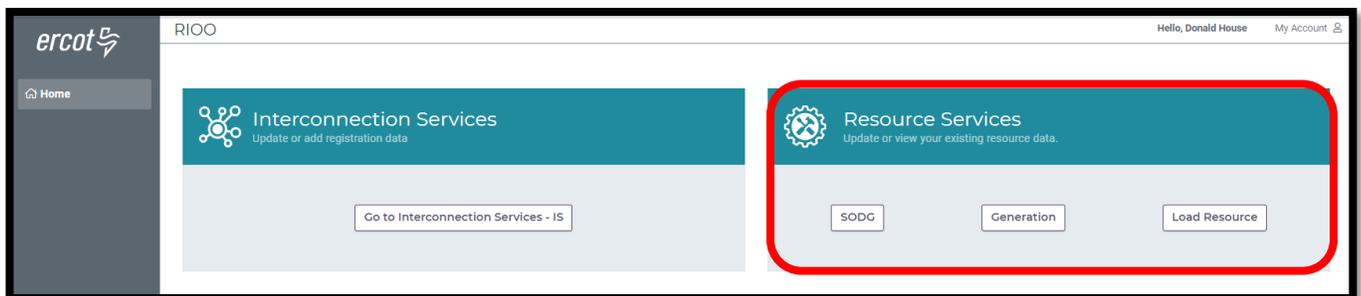
- Status updates for a submitted INR include:
 - Submitted to ERCOT
 - In Review
 - Approved for Production
 - In Production

Confirming new LR in production Network Model

After the PLD for the newly created LR, the INR submitter is encouraged to verify that the LR is visible in the appropriate ERCOT markets (DAM, Real-Time, Ancillary Services). ERCOT will verify that the LR is in the production Network Model, but it is the responsibility of the RE/QSE to notify ERCOT if they notice any issues for the new LR.

Updating an existing LR

To update an existing LR, the RE must use the RIOO Resource Services application (RIOO – RS), which is accessed using the same RIOO user account. Refer to the RIOO User Guide – Updating an Existing Load Resource on the [Load Resource webpage](#) for details.



Reporting issues

As ERCOT continues to develop the RIOO application, any functionality issues or suggestions for improvements can be sent via email to RIOO-Help@ercot.com. Any significant updates to the application will be communicated through market notices.