part of eex group

grexel

G-REX Account Holder User Manual

1.2024

Release 2.2

Table of Contents

Version History

Version	Release date	Updates
1.0	11/2021	Original version prior to G-REX production release
1.1	01/2022	Language and consistency updates
1.2	02/2022	General updates across whole document
1.3	05/2022	Updates to authentication method, Consistency check
1.4	05/2022	First release post-G-REX production.
1.5	11/2022	General updates across whole document
2.0	01/2023	General updates across whole document reflecting upgrades
2.1	04/2023	General updates across whole document reflecting upgrades
2.2	12/2023	General updates across whole document reflecting upgrades

1. Introduction

G-REX is a new generation certificate registry which gives Issuing Bodies and Account Holders an agile and secure way to organize their different types of energy certificates in one easy-to-use, user-friendly place.

G-REX is built to support energy certificates with different standards and to adapt to the different needs of each domain. In addition to a user interface, which is explained in this user manual, G-REX offers well documented APIs which allows you to integrate it directly with your own applications.

For Account Holder users, G-REX features:

- Plant Management, refer to 5 Plant management
- Meter reading management, refer to: 6.1 Meter readings
- Account management, refer to: 3.2 Accounts
- Transactions (imports, exports, cancellations, expiration) including scheduled transfers, refer to: 3.4 Making transactions
- Reports, refer to: 4 Reports
- Activity logs, refer to: 4.1 Activity logs
- Notification center, refer to: 1.7.5 Notifications
- User management, refer to: 7 User management

Note: Through G-REX APIs the application can be integrated into external systems. API documentation is available by request from the Grexel team.

1.1 How to read this user manual

In the below table you can see how the different components are shown in the user manual.

Table 1-1 User manual text formatting

Term used	Description
Action buttons, keywords	**Example**
Links	www.example.fi
Example of Instruction on how to do things	1. Navigate to **Example** → **Example to** …. 2. Next step..
Jump to different section in the document	▶ Jump to start Example
Special notes regarding the section	**Note**: example.

Example of flow chart	

1.2 Terms used

In the below table you can find a short explanation of specific terms used in this document. When a term is written starting with a capital letter, it usually means that a specific description can be found in this table.

Table 1-2 User manual terms

Term	Description
Account	Account belonging to Account Holder. Can be Sender and or Receiver of a Transfer. Can contain Certificates. **Default Account:** Each Account Holder has one Account which is named Default Account. That account cannot be edited and is the "landing" account for imports from other Domains. **Parent Account:** Account which is on the first level in the Accounts hierarchy. Each Parent Account can have several Sub-Accounts. **Sub-Account:** Account which is on the second level in the Accounts hierarchy. Each Sub-Account has one Parent Account.
Account Holder (AH)	Account Holder belongs to a organization or to a private person and is created for handling certificates. Account Holder belongs always to one Domain and might have one or more Users. Account Holder is identifiable using OrganizationID. An organization might have several Account Holders, one in each Domain.
Attribute	Attribute can refer to the information field in Plant or in Certificate. Attributes depend on the Standard; some are compulsory for a Plant and some for both Plant and Certificate. Also, the Standard defines if the Attribute is declarable or not.
Cancellation	Type of transaction which leads to cancellation of Certificates. Certificates are cancelled to prove the use (consumption) of the Certificate.
Cancellation Statement	Official document which shows the details of the Cancelled Certificates. This document is not editable.
Certificate	Official, tradable electronic document or guarantee which has been issued based on the input consumed in the Production. A Certificate can have different attributes depending on the Standard of the Certificate and Domain requirements. For example EECS GO Electricity Certificate attributes are given in the EECS Rules. Each Certificate is identifiable by having a unique serial number given on issuing.

Certificate Bundle	Set of identical Certificates with consecutive serial numbers. All the attributes are exactly the same for each Certificate in a Certificate Bundle.
Correction	Type of transaction which is created to return back Certificates to the original owner e.g. after erroneous Export or after rejected Cancellation.
Declaration	Specification submitted along with Meter Readings to specify additional information needed for issuing. This information is that which changes across periods and hence cannot be given beforehand in the Plant details. The types of declarations include e.g. Fuel declarations for a multifuel Plant.
Domain	Each Issuing Body manages their own domain, typically a country, scheme, geopolitical area or combination of those where the Issuing Body has the mandate to govern a certification scheme(s). An example of a Domain is electricity GO in Lithuania, or pan-European CertifHy.
Earmark	Earmarks are used to define the nature of Support associated with a Plant. Examples include “Production Support” and “Investment Support”.
Energy Carrier	Form of energy, for example electricity or biogas.
Energy Source	Energy source defines the source of energy for which the Certificate was produced based on the input. Plants are associated also to Energy source(s) to record the possible input Energy sources.
Expiration	Type of transaction in which Certificate(s) are withdrawn as a consequence of the passage of a given period of time since its issue. The period depends on Domain and in most cases Expiration happens automatically.
Export	Type of transaction in which an Account Holder transfers certificates to another Account outside the Account Holder’s Domain.
External Account	Account of an Account Holder belonging to a different Domain.
Fuel	See Energy Source
G-REX	Name of the application
Grid	Interactive component in the user interface which allows users to filter, sort and organise the grid as wished. Refer to: 1.7.3 Grids
GS1	Unique identifier number assigned to the organization by the global GS1 organization (usually only for the Issuing Bodies).
GSRN	Unique identifier number assigned to a Plant. The format of GSRN is given by GSI organization (Global Service Relation Number).
Import	Type of transaction in which an Account Holder receives certificates from an External Account.
Issuing	Process where certificates are created into the system. Can be done based on meter readings or plant license.
Issuing Body (IB)	Organization in the system which is responsible for the issuance of Certificates as well as Plant and Account Holder registration.
License	Licenses represents Plant attributes and Ownerships within a specific period.

	Licenses are standard and domain specific. The Standard defines the attributes which are needed for a License. Some Attributes require Declaration and some are specific to a Plant. See also Attribute.
Member code	Member Code of your Organization. With this code, other organizations outside G-REX can identify you when transferring Certificates to your Account (linked to Default Account). Member code equals the **Organization ID** of the organization.
Organization	Body which is associated with this system as an Account Holder , Issuing Body or Registrar. Member code, Business Id and Address are some of the identifying parameters linked to this body.
Operator	Party which operates the physical Plant and is in most cases responsible e.g. for Meter readings delivery. Operators can be either an Account holder in the system or a type of External organization which does not have an Account or Users in the system.
Plant	Separately metered device or group of devices that generates energy. Parameters like Licenses, Energy sources, Owners, etc., are defined for each device. Certificates are issued for energy produced by such plants.
Production Device (PD)	See Plant.
Purpose	Purpose for which the certificate is issued. For GO certificates, it is Disclosure.
Registrant	The party that requests a Plant to be registered for certificate issuing. Often an Account Holder which owns the Plant.
Registrar	Auditing authority to verify registered Plant information.
Registry	Database operated by a Member or by a Registry operator for the purposes of EECS or other types of Certificates. Certificates are held in the Registry, where Account Holders can perform Transactions with them.
Technology	Type of the Plant, i.e. the processes and technology through which the Plant generates electricity.
Trading Schemes	Different schemes that compound a License. E.g.: GO, ICS:EKOENERGY, etc.
User	User having access to the system
User Role	Shows the role of the user based on which access rights are defined.
Withdrawal	Corrective action that an Issuing Body User can take to remove an erroneously issued or transferred certificate.

1.3 G-REX

The G-REX application consists of API interfaces and the user interface. APIs are responsible for handling any operations G-REX allows the users to do. All features of G-REX can be performed directly through the APIs that follow the REST standard or through the user interface. User interface is based on Angular framework.

Note: Through G-REX APIs the application can be integrated into external systems. API documentation is available by request from the Grexel team.

1.3.1 Compliance

G-REX is a **multi-standard** system for managing energy certificates. **Multi-standard** system means that the domains can be of different standards, and there can even be certificates of various standards within one domain.

Note: The view of an authenticated user is customized based on the combination of domain and the standard(s).

1.3.1.1 Domain configuration

Domains on the system might have different requirements from the application, for example regarding certificate expiry, meter reading creation and transactions. Different configurations are maintained via domain parameters. The parameters relevant for the user interface are explained in the Table 1-3 Domain parameters.

Table 1-3 Domain parameters

Parameter	Description
TRANSACTION_BLOCK_EXPORTS	Block exporting certificates to other domains from the current domain
TRANSACTION_BLOCK_IMPORTS	Block importing certificates from other domains into the current domain
PRODUCTION_DEVICE_OPERATOR_REQUIRED	Determines if organization role Operator is mandatory for registering a plant.
PRODUCTION_DEVICE_REGISTRAR_REQUIRED	Determines if organization role Registrar is mandatory for registering a plant.
PRODUCTION_DEVICE_CREATE_IB_ROLE_REQUIRED	Determines if only users of IB organization are allowed to register plants in the domain.
METER_READING_CREATE_IB_ROLE_REQUIRED	Determines if only users of IB organization are allowed to create meter readings in the domain.
PRODUCTION_DEVICE_UPDATE_IB_ROLE_REQUIRED	Determines if only users of IB organization are allowed edit plants in the domain.
ORGANIZATION_BILLING_REFERENCE_UNIQUE	Determines whether *Billing reference* of organizations must be unique. Note: Not validated in the user interface.
ORGANIZATION_BILLING_REFERENCE_REQUIRED	Determines whether *Billing reference* is a mandatory property of organization in organization creation.
ORGANIZATION_PURCHASE_ORDER_NUMBER_REQUIRED	Determines whether *Purchase order number* is a mandatory property of organization in organization creation.

ORGANIZATION_PURCHASE_ORDER_NUMBER_UNIQUE	Determines whether *Purchase order number* of organizations must be unique.
ORGANIZATION_BUSINESS_ID_REQUIRED	Determines whether *Business ID* is a mandatory property of organization in organization creation.
METER_READING_APPROVE_IB_ROLE_REQUIRED	Determines whether only IB users are allowed to approve meter readings
PUBLIC_REPORTS_TRANSACTION_STATISTICS_ENABLED	Determines whether domain has publicly available transaction statistics.
DECLARATION_CREATE_IB_ROLE_REQUIRED	Determines whether only IB users are allowed to create declarations.
DECLARATION_APPROVE_IB_ROLE_REQUIRED	Determines whether only IB users are allowed to approve declarations.
TRANSACTION_EXPORT_CERTIFICATE_BUNDLE_LIMITATION_EECS	Determines maximum size of export (in terms of certificate bundles) for EECS standard certificates.
TRANSACTION_CANCEL_4-EYE-APPROVE_IB_ROLE_REQUIRED	Determines whether cancellation approvals by IB are required in the domain
METER_READING_APPROVE_IB_ROLE_EXPLICITLY_REQUIRED	Determines whether meter readings created by IB user require another IB user approval before approval status. **Note:** If parameter is true, initial MR status is set to **Pending for approval**. If parameter is false, MR is created immediately in **Approved** status.

1.3.2 User interface

The user interface application is built using Angular framework. The Angular user interface is a progressive web application (PWA), which provides users with an app-like feel, smooth use and limited features also with an unstable network. To ensure functionality, the application uses a user's browsers cache to maintain some of the usage data over user sessions.

1.3.2.1 Device and browser support

The user interface supports all latest versions of Chrome, Firefox, Safari and Edge browsers. PWA features to pin the application are also supported with modern versions of iOS and Android mobile devices. This means that the application can be pinned to a device's start screen to use it with a mobile app-like feel.

1.3.3 Responsivity and multidevice support

The user interface is by default responsive for different devices and screen sizes. The application is primarily designed for desktop use, so mobile users might not always have all features available.

1.3.4 Accessibility

The G-REX application follows general Web Content Accessibility Guidelines (WCAG 2.1 AA) to ensure sufficient access to the application for all users.

1.3.4.1 Keyboard navigation

By default, all features of G-REX are accessible with keyboard. It means that the application menus can be navigated with keyboard commands and that all activities can be completed using keyboard. In most use cases **Tab, Arrow keys** and **Enter** are sufficient commands to navigate in the application.

Grids have also many special commands for navigation and the operations. Documentation for the commands can be found here.

1.3.5 Tooltips

Throughout G-REX, small information buttons known as ‘Tooltips’ are shown, which provide further information or guidance on completing forms or making actions.Figure 1-1 shows an example of a tooltip when cancelling certificates. The small information icon above the input field can be clicked, and tips on completing the field will be shown on the screen. To stop displaying the tooltip, the User can click once more on the information icon

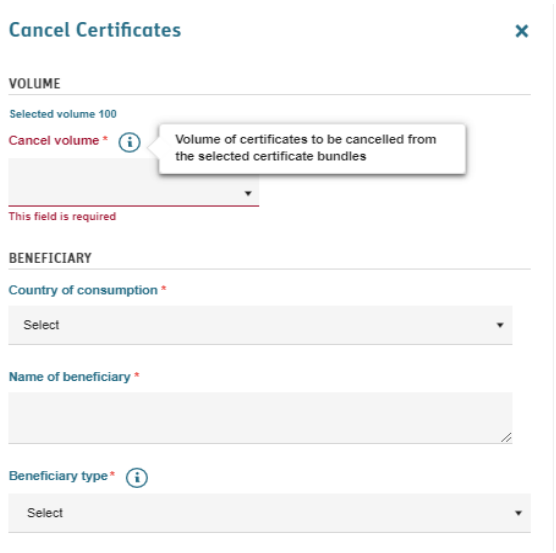


Figure 1-1 Tooltips

1.3.6 Localization

The G-REX application adapts to users’ local differences by converting for example number and date formats into local values. Also, different translation versions of the application are available for the user to select. The localization is based on the default Angular internalization capabilities. The internationalization can be divided into two categories: the **application language** itself and the **localized display of data**. More information on the localization can be found in section 1.7.2 Localized components and inputs.

1.3.7 Security and data protection

The G-REX application provides great level of security. Authentication is based on modern Multi-factor Authentication and data is stored securely in compliance with European GDPR regulation

1.3.8 Authentication

The G-REX built-in authentication and authorization uses Microsoft Entra ID (formerly Azure Active Directory) including Multi-factor Authentication. After authentication, the Entra ID (AAD) issues a token that the user uses to access the services regardless of whether by using an interfacing website, APIs directly, or via an external system. Multi-Factor Authentication is required when logging in and could be required as a confirmation in other cases as well.

1.4 Getting started

Getting started with G-REX requires only a supported web browser and a G-REX user. This section explains the process for logging in to the system for the first time, logging in later as well as the procedure to reset a forgotten password.

▶ See section 1.3.2.1 Device and browser support for supported web browsers.

1.4.1 First login

The steps to set up a new user for G-REX are as follows:

1. Existing user creates a user.
2. An email is sent to the specified email address of the new user.
3. Click **the link** in the email.
4. User is directed to Login portal to set up the password and multifactor authentication.

▶ See section 7.1.3 Create user for instructions to create user

1.4.2 First time login with multi-factor authentication

Note: Once Microsoft Authenticator has been configured for the first time, future log-in attempts can proceed from step 5.

1. User login begins from the home page of the application by clicking **Log in.**

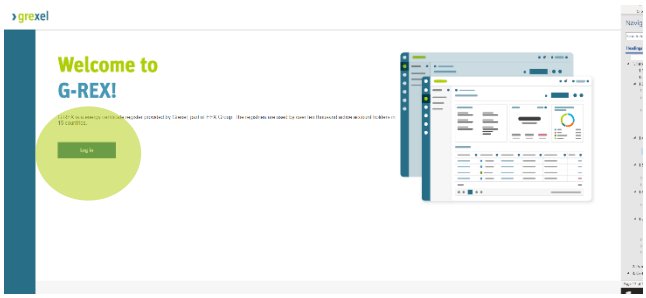


Figure 1-2 Start login

2. User is redirected the Entra ID (Azure) login page and prompted to enter credentials. Enter credentials and click **Sign In**.

Note: Email address for the login remains always the same as the email to which the invitation email was sent.

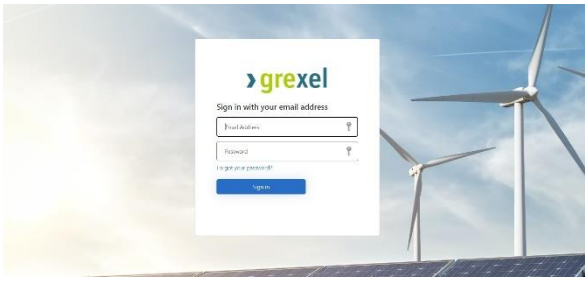


Figure 1-3 Login - Enter user credentials

3. After entering the credentials, the user is prompted for multi-factor authentication (MFA). This requires the **Microsoft Authenticator** application to be downloaded onto a mobile device.

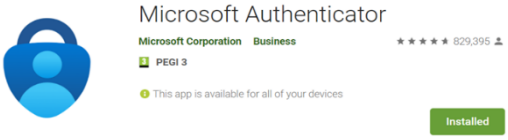


Figure 1-4 Login – Microsoft Authenticator

Note: Multifactor authentication means that the user must verify the login using a mobile phone connected to the application during the first login

4. As part of the first-time MFA set up, the user is prompted by the G-REX login page to scan a QR code. In the Microsoft Authenticator app, select **“Add Account” -> “Work or school account” -> “Scan a QR code”.** Scan the QR code on your screen using your device’s camera.

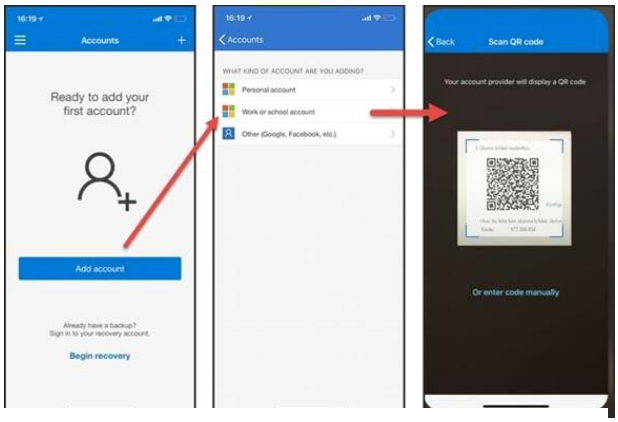


Figure 1-5 Login – Microsoft Authenticator set up

5. **As a measure of precaution,** set the account on your Microsoft Authenticator app to be backed up to the cloud. Backing up your account to the cloud will help you recover your information on a new device, potentially avoiding getting locked out or having to recreate accounts.
   To back up the account credentials, a user must have either:
   A personal Microsoft account to act as your recovery account.
   Or, for iOS only, an iCloud account for the actual storage location.

   Turning on cloud backup for Android devices: On the Authenticator app, navigate to **Settings**, select **Backup**, and then turn on **Cloud backup**.

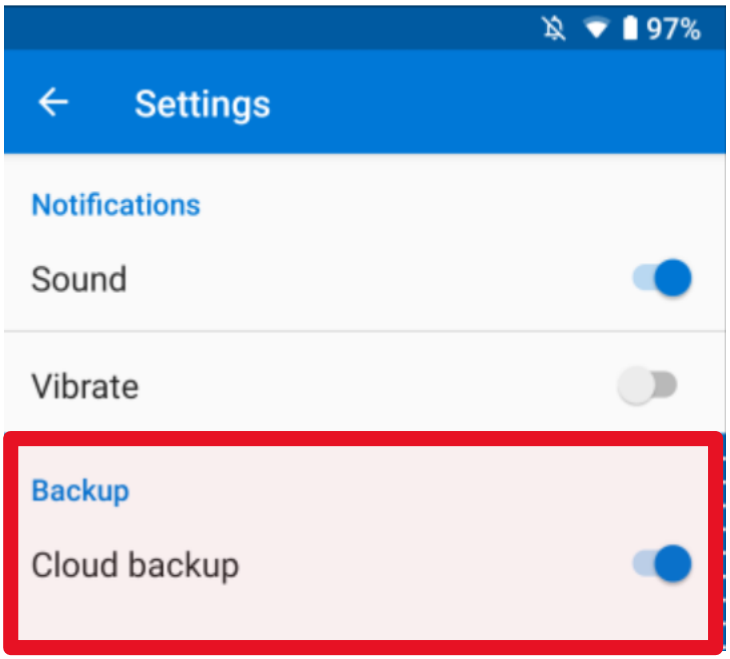


Figure 1-6 turn on Cloud backup (android).

Turning on cloud backup for iOS devices: On the Authenticator app, navigate to **Settings**, select **Backup**, and then turn on **iCloud backup**.

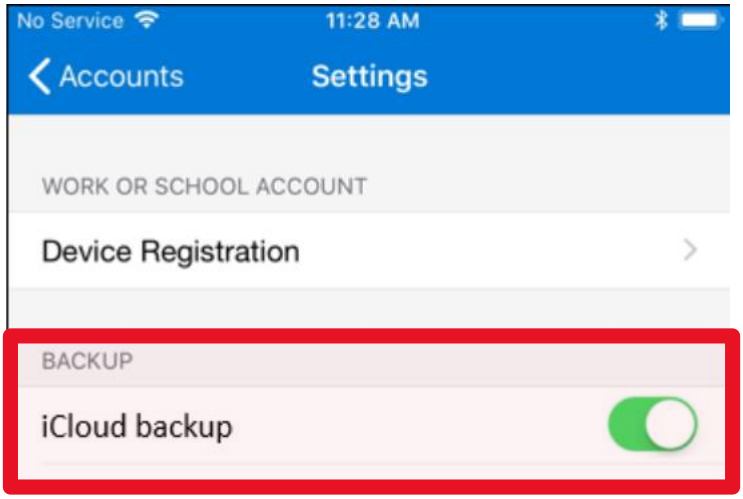


Figure 1-7 turn on iCloud backup.

6. After successfully adding the account (and backing it up to the cloud), it will be visible in the home page of the app. Clicking on the account reveals a **one-time code** to be used during the MFA process. This code refreshes automatically every 30 seconds.

   This code will be requested by G-REX for future log in attempts, after the G-REX username and password are entered.

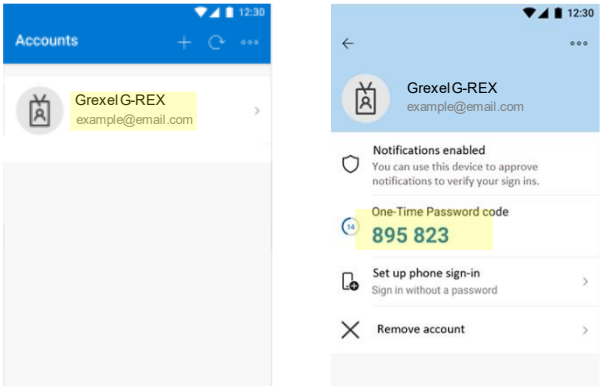


Figure 1-8 Login – Microsoft Authenticator

7. After successfully logging in, the User is redirected to the application home page.

Figure 1-9

► See section 1.5.1 for more information about home page.

1.4.3 Password reset and forgotten password

In G-REX, resetting a password is handled by the user through Entra ID (Azure AD).

In the case of an already logged-in user, the password reset can be initiated by:

1. Navigating to **Header menu** → **Profile settings**
2. Clicking **Reset password**
3. Following the instructions on the screen (Entra ID password reset flow).

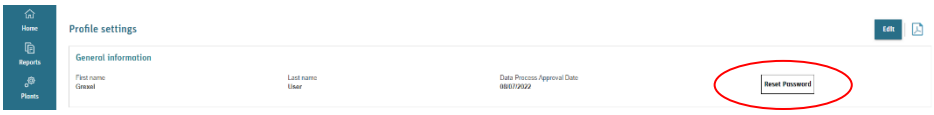


Figure 1-10 Reset password button

In the case of a forgotten password where the user is not logged-in:

1. Click **Login** on public page.
2. Click **Forgot your password**
3. Follow the steps on the screen (the Entra ID password reset flow)

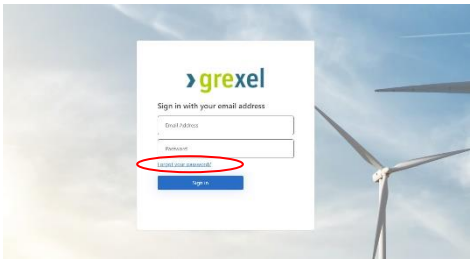


Figure 1-11 Forgot your password link in the login page

1.4.4 Session timeout

A Session timeout will occur in the event when a user does not perform any action on the application during an interval of 15 minutes (900 seconds).

When a user has no activity for 15 minutes or more on the web application, the user will be logged out and redirected back to the login page.

1.5 Menu structure and navigation

The G-REX menu structure is divided into two levels. Main menu items specify the categories of connected features whereas sub menu items present a certain feature in the application. Menu structure is dynamic based on a user's organization type and roles.

1.5.1 Home page

After successfully logging in, the User arrives to the **Home** page.

1. The **Main navigation menu** is visible on the left
2. The **Header menu** is in the top right corner
3. The **Footer** lies at the bottom of the page
4. The **Content area** in the middle includes the notifications list, System notifications and organization-specific certificate statistics.

Note: AH User home page presents the certificate statistics of the organization.

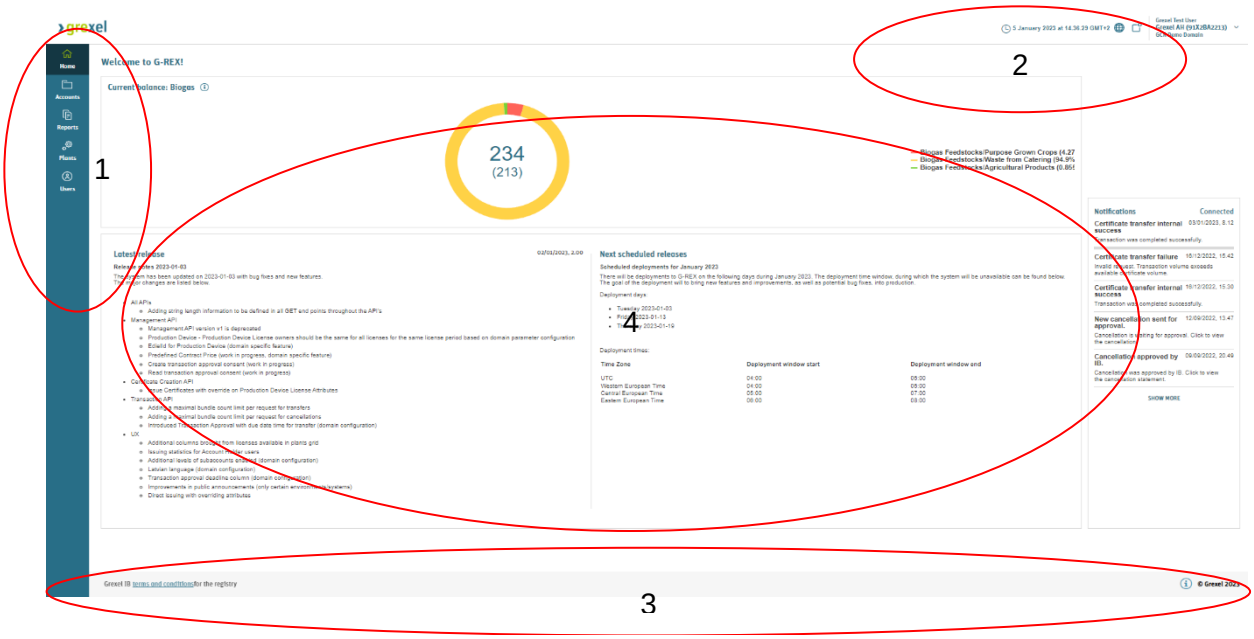


Figure 1-12 Home page areas

1.5.1 System notifications

On the home page under the statistics, the system's notifications are visible (see Figure 1-13 System notifications) and regularly updated.

In the system notifications a user can find information such as new features and bug fixes that were added in the latest release as well as the next scheduled deployments dates for upcoming releases.

The systems notifications can be toggled open and closed by the toggle button on the right (see arrow in the figure below)

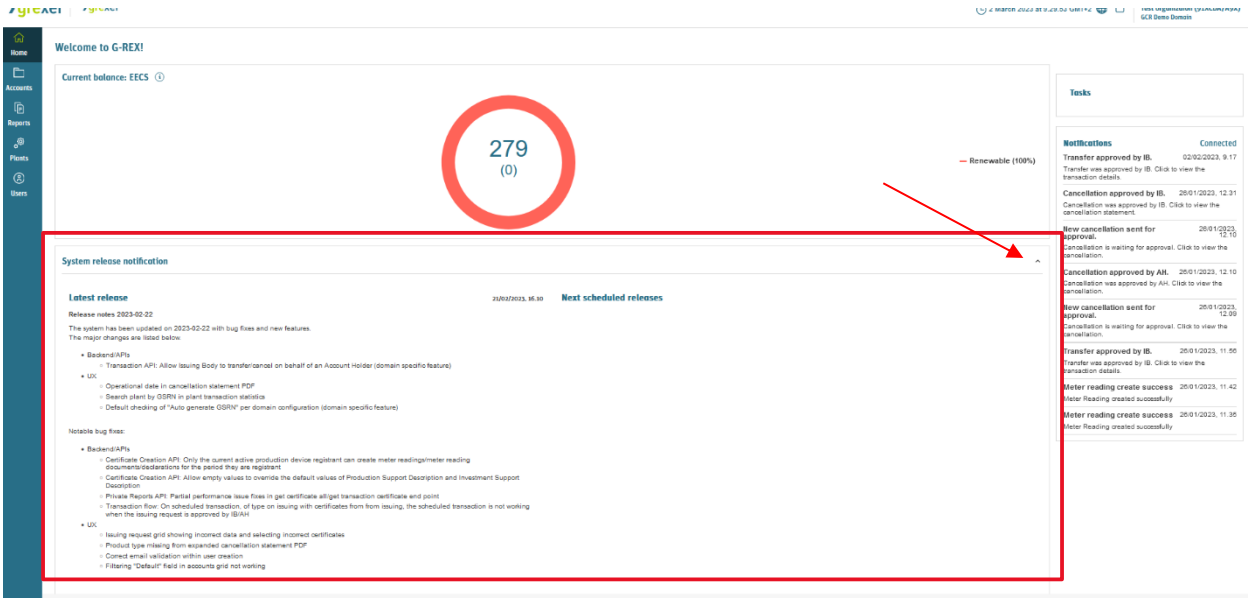


Figure 1-13 System notifications

1.5.2 Main menu

Navigation across the application is done using the main menu on the left side of the application. The menu consists of “Main” menu items and “Sub” menu items.

1.5.2.1 Main menu items

The main menu can be found from the left side of the browser and is a bit different for Account holders and for Issuing body users as shown on the right-hand side. Also, the user role in the selected organization affects the menu items available. See Table 9-1 G-REX menus and access rights for more details.

Note: Placing your mouse on top of a Main menu item shows you the sub menu items.

Note: Clicking any of the main menu items takes the User directly to the first sub-menu item

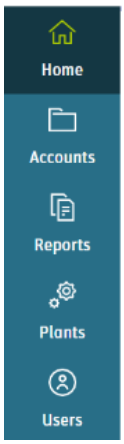


Figure 1-14 AH Main menu

1.5.2.2 Sub items

Hovering over main menu items or focusing on the menu item using a keyboard opens a sub-menu next to the main menu item.

Using keyboard, the sub-menu can be opened by clicking the right arrow key to expand the sub-menu. A list of all sub menu items in the application can be found in Table 9-1 G-REX menus and access rights.

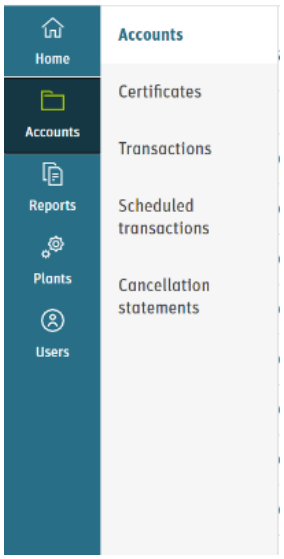


Figure 1-15 Sub-menu layout

1.5.3 Header menu

The header menu contains more user-specific information about application and its activities. Its features include changing application language, displaying notifications, viewing user-specific data and changing Organization.

Figure 1-16 G-REX Header menu

1.5.3.1 Application watch

The application watch presents the user's local time. All date(time) input fields operate in this time in unless stated otherwise. This component helps operate with the dates in the application.

Figure 1-17 Application watch

1.5.3.2 Languages

Application language defaults to English. Multiple language versions can be added through adding translations to the system. The language can be changed by clicking the **globe-icon** and selecting the desired language from the list.

Languages of a Domain are configurable, therefore not all language selections will be visible in every Domain.

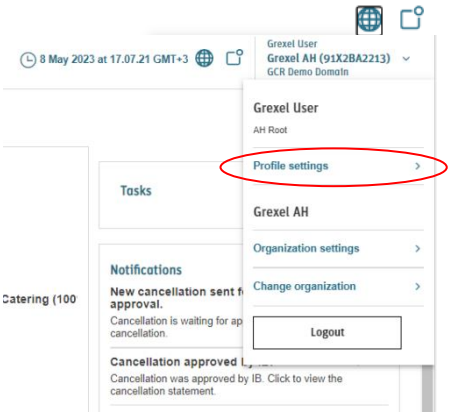


Figure 1-20 Profile settings button

1.5.3.3 Notifications

Notifications received by the User can be found in the icon next to the language selection. Clicking the icon expands the Notification Center view. More information notifications can be found in section 1.7.5 Notifications.

1.5.3.4 User settings

Clicking the right-most element in the header menu expands a menu for data associated to the logged in User. At the top, the User's name and associated user roles are listed, and below that clicking **Profile settings** takes the User into the profile settings (see section 1.6.1 User profile).

In the next section the User can manage the selected Organization by clicking **Organization settings** (see section 1.6.2 User organizations).

By clicking **Change organization**, the User can change the perspective from which they are logged into the application (see section 1.6.2.1 Navigation between organizations).

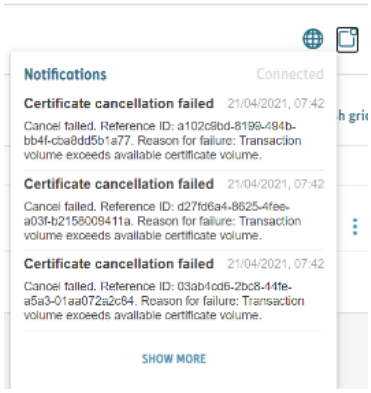


Figure 1-19 Notification center

1.6 User profile and organizations

The available application features are shown based on the user's organization roles and organization type. One user can have multiple organizations within the same domain and perform actions as the selected organization. As a general principle, a User's specified roles in the selected organization define what a user sees in menus, action buttons and data. With some user roles, the standard of the user role also affects the available data.

1.6.1 User profile

To view user's properties,

1. Click **"User name"** in the **Header menu**
2. Click **profile settings**
3. Profile settings view is opened for the current user

The profile settings view shows a user's general information as well as the organizations and the roles associated to the user. Some of the fields can be also edited by the user. A complete list of fields associated to user can be found in Table 7-2 User data properties.

1.6.2 User organizations

One user can be associated to multiple organizations with different user roles and organization types within one or several domains. The views for each organization are tailored for the user based on the user roles in that organization.

1.6.2.1 Navigation between organizations

The current organization can be changed from the header menu in the upper right corner of the application. To initiate the change of the organization,

1. Click "**Users name"** in the **Header menu**
2. Click **Change organization**. You will see a list of organizations the user is associated to
3. Click the **organization name** to change the organization.
4. The landing page of the selected organization is opened.

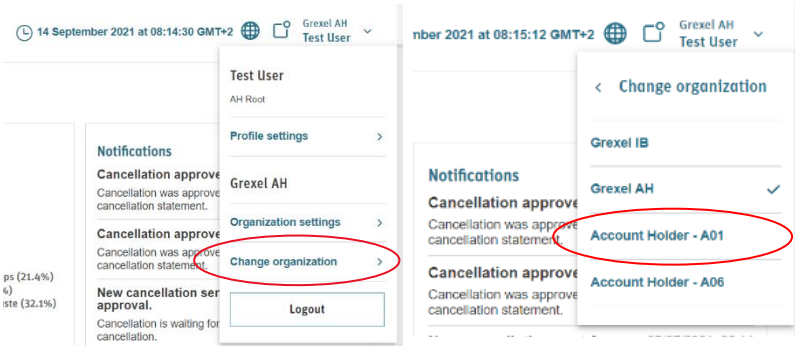


Figure 1-22 Change organization button

1.6.2.2 Selected organization details

The user can view the selected organization's details through the header menu. After opening the header menu click **Organization settings** and an organization details view (Figure 1-24) will open.

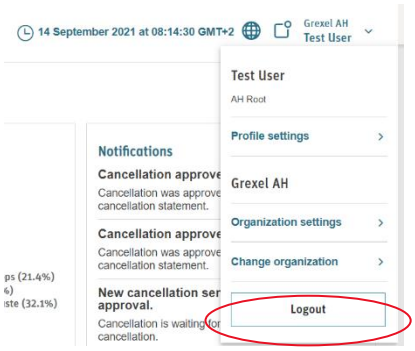


Figure 1-23 Organization settings button

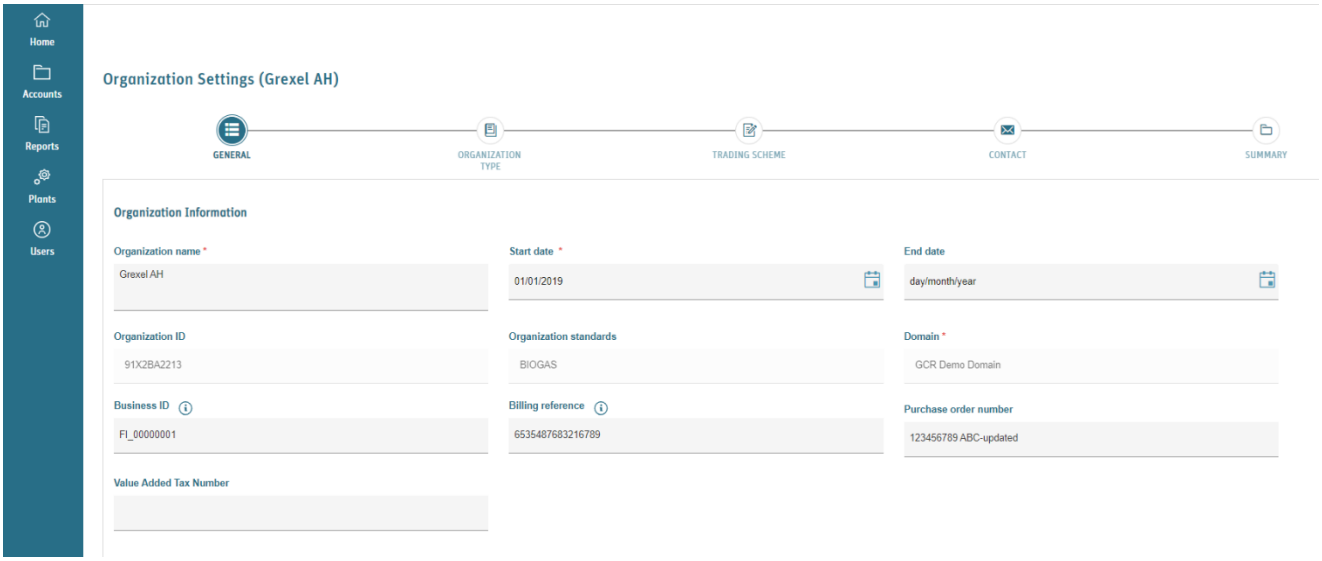


Figure 1-24 Organization settings for AH

1.6.3 User roles

G-REX has in total 7 Account Holder (AH) user roles. The roles and explained in Table 1-4 G-REX User roles.

Table 1-4 G-REX User roles

User role	Standard-specific	Description
AH_ROOT	No	Account holder role that can perform any account holder actions for the organization
AH_PD_ADMINISTRATOR	No	Account holder role to administer and create the plants associated to the organization
AH_PD_EDITOR	No	Account holder role to edit the plants associated to the organization
AH_PD_VIEWER	No	Account holder role to view plants associated to the organization
AH_USER_ADMINISTRATOR	No	Account holder role that can administer the users of the organization
AH_ACCOUNT_ADMINISTRATOR	Yes	Account holder role to create, edit and view the accounts of an organization. The role is always associated to a standard in the domain to perform the actions.

AH_ACCOUNT_VIEWER	**Yes**	Account holder role to view the accounts of an organization. The role is always associated to a standard in the domain to perform the actions.

1.7 General principles

G-REX and its behaviour are based on relatively standardized components and principles. For example, most of the data views are based on the grids, that work in a same way throughout the application, while most of the input fields align with the user's local machine's settings.

1.7.1 Application time and time zone

The application time runs always on user's local machines time zone. It means, that all date times are always converted into user's current time zone instead of showing them for example in UTC time or user domain's time zone. The current time zone can be seen from the application clock in the header menu.

► Application watch is explained in section 1.5.3.1 Application watch.

1.7.2 Localized components and inputs

The application aligns with user's device localization settings. It means that for example numbers and datetimes are viewed with user's local machines locale selection. Additionally, if not specified later differently, all datetime inputs are shown in user's system time. The Table 1-5 G-REX Languages and locales illustrates the languages and locales available in the application.

Note: "Locale" in this context means, what country's / area's logic is being used for the input fields.

Table 1-5 G-REX Languages and locales

Language	Locale	Code
English	Europe	en-150

Figure 1-26 Date input in en-GB locale

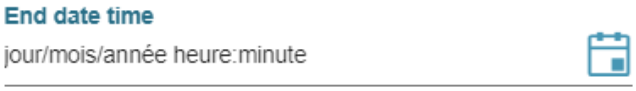


Figure 1-25 Date input in fr-FR locale

Note: In case a user's locale is not supported in the application, a default locale is being used. The default locale of the application is en-GB. In the code first two letters ("en") specify the language, while the other two ("GB") specify the locale.

1.7.3 Grids

The grids are the core of the application in terms of viewing data. In all grid views the user can:

1. Hide and show columns
2. Filter by columns
3. Sort by columns values
4. Reorder and resize columns
5. Saving grid state across user sessions (automatic)
6. Export to Excel and/or PDF file

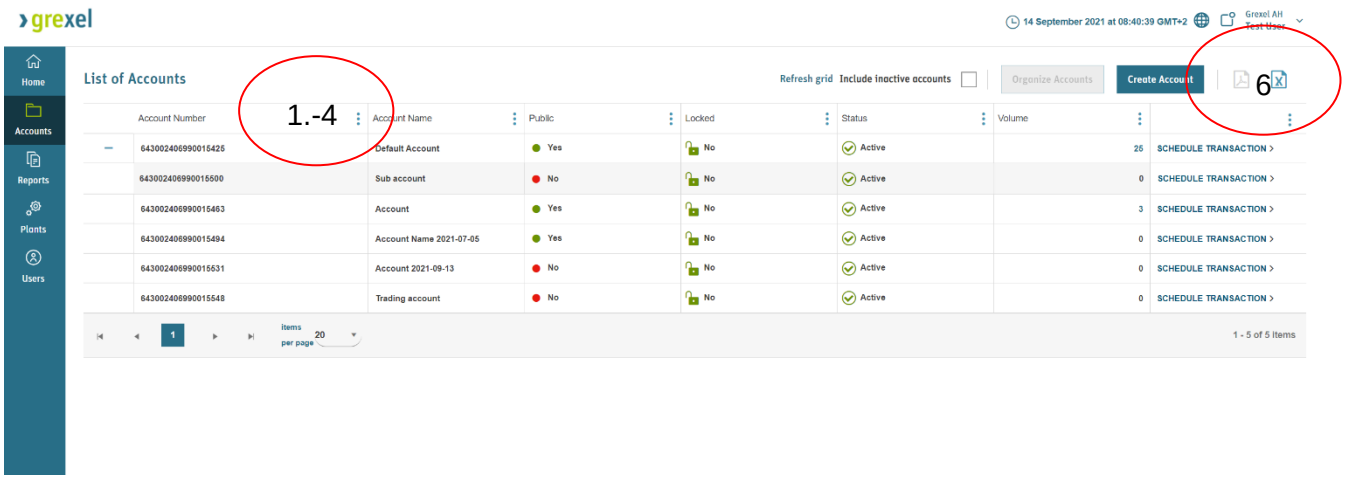


Figure 1-27 General grid

Additionally, the grid data can be controlled from outside the grid controls through the grid toolbar.

Note: In some special cases, these functionalities might have limitations which are described in the specific section of the feature.

Note: Grid states (filters, sorting, column size and order, visible columns) are saved across user sessions. That means that the selection of the made changes to the grid is remembered for the next session and user does not need to do the same changes to the grid next time. That makes it easy for the user to have own preferences for the user interface to make working smoother.

1.7.3.1 Filtering

Note: In case of filter where you can start typing value, a minimum of 3 characters is needed to start the pre-search

The filtering grid allows the user to view data according to some specific common attributes.

The grid data can be filtered from the grid header:

1. Click the **three dots** on the column
2. Open the **Filter** section.
3. Set the desired filter values
4. Click **Filter**.
5. The new data is loaded in the grid. Columns for which filters are applied are then indicated visually on the column.

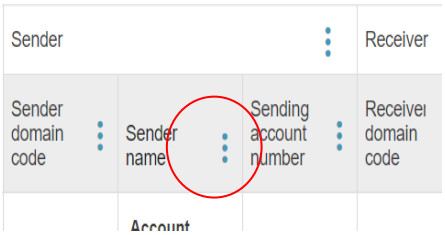


Figure 1-28 Open column menu to filter

Note: Default filtering tools include text filter, number filter, date time filter and boolean ('True'/'False') filter. In addition, some fields have a customized filter to enable filtering enumerable data.

Note: Grid filters can be removed by clicking **Clear** on the column's **Filter** section (see steps 1 and 2)

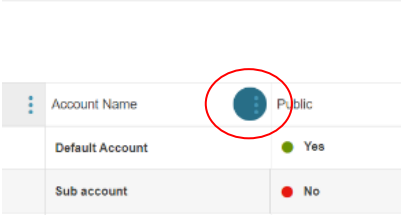


Figure 1-29 Visual indication of filtered column

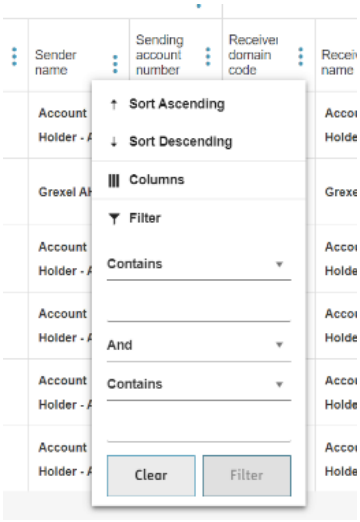


Figure 1-32 Free text filter

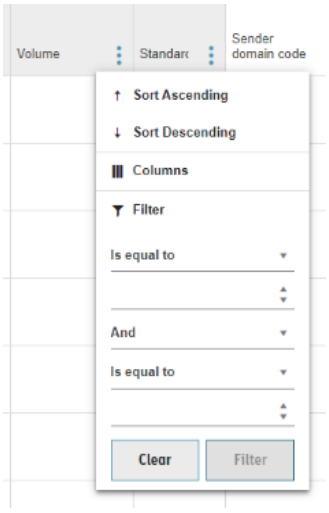


Figure 1-31 Number filter

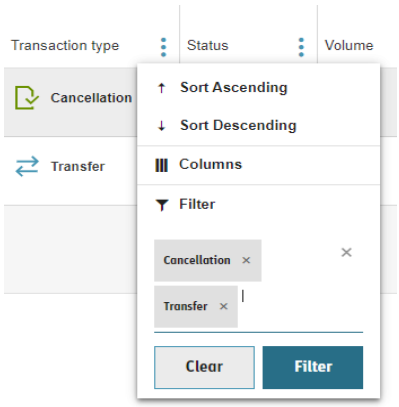


Figure 1-30 Enumerable filter

For some fields such as energy source and Technology the filter can be multiselect by free text filter. Just enter the part of text that the value you are looking for contains and click the free text beneath.

The filter will select all values with the that free text.

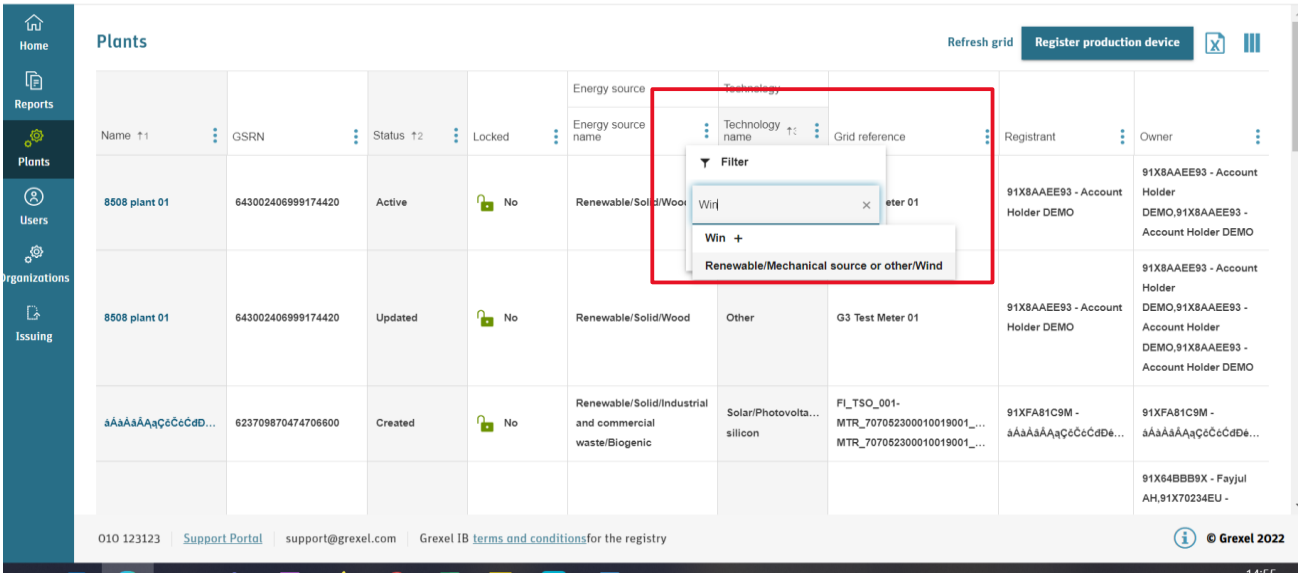


Figure 1-33 free text filter

1.7.3.2 Sorting

The viewed data can be sorted by any specific property. The data can be ordered by a column's value either in ascending or descending order. The ordering can be done in two ways:

From column

The user can click the **Column header** and ***ascending*** sort will be applied. Another click changes the order to ***descending*** and a third click will reset the sorting completely.

From column menu

1. Open the column menu by clicking the **Three dots**.
2. Click ***ascending*** or ***descending*** to sort accordingly**.**
3. The sorting can be easily reset by clicking the ***ascending*** or ***descending*** again.

Note: Sorting by a new column will not automatically override the existing sorting but introduces an additional sorting hierarchy level. To undo an existing sorting, please unselect the sorting first and then sort by a new column.

Note: Ordering cannot be done on columns that have array of values e.g. plant registrants, user's organizations etc.

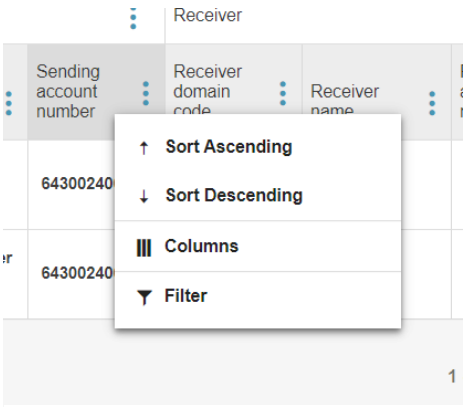


Figure 1-35 Column menu

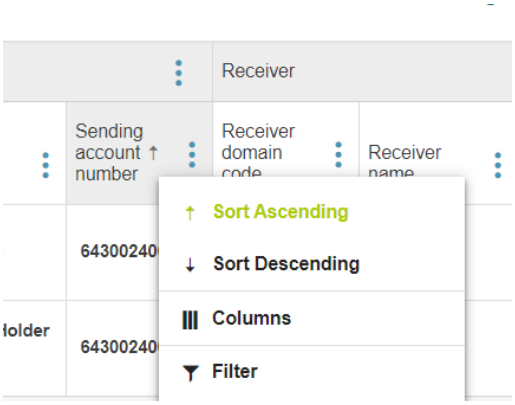


Figure 1-34 Sorted column

1.7.3.3 Column selection

All data fields are not shown in the default view. The viewed data can be selected by the user. This happens by

1. Opening the column menu by clicking the **Three dots** in the grid header row.

2. In the column menu click **Columns** to open a list of all possible columns in the grid.

3. Select desired columns

4. Click **Apply** to reflect the selections on the grid. Clicking **Reset** returns the grid to the default column configuration.

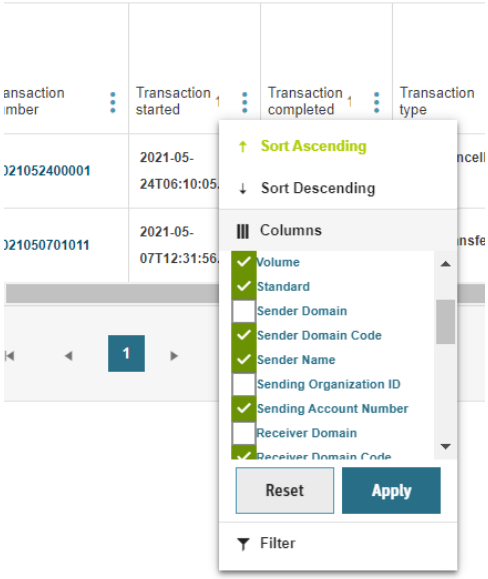


Figure 1-36 Column selection

1.7.3.4 Order and resize columns

In addition to selecting the viewed columns in grid, the user can change the order of the columns. The column order can be changed by **dragging** columns horizontally over each other. Columns can be resized by **dragging** the right border of a column from the grid header.

1.7.3.5 Grid data details

Grid rows usually show only a limited overview of a data item and the attributes. To view all data associated to a special row, by default the left-most column works as a link to the detailed data view. The clickable link is indicated with a **blue** text colour.

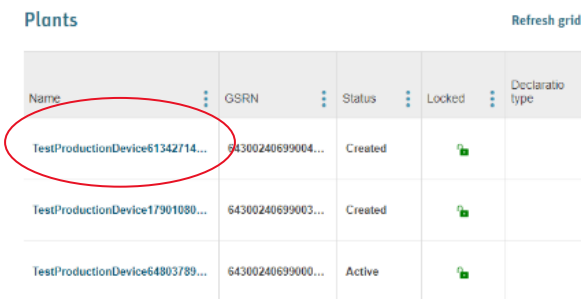


Figure 1-37 Link to grid data details

1.7.3.6 Export data to files

For most of the grids, the data can be exported to PDF and Excel files. The data can be exported by clicking the icons on the top right side of the grid. After the click all the pages of the grid will be loaded from the server and the file is exported. The selected sorting and filtering in the grid are applied to the exported data.

1.7.3.7 Refresh data and clear all filters

Above the grid, next to the **Export to excel** and **Export to PDF** icons, two grid buttons are also viewed. Clicking **Refresh grid** updates the grid page with the latest data from the server, though the latest data for a page is also fetched by changing the page.

When a filter is applied to the data grid button **Clear all filters** is shown. Clicking the button will reset all filters in the grid and disappear until new filters are applied.

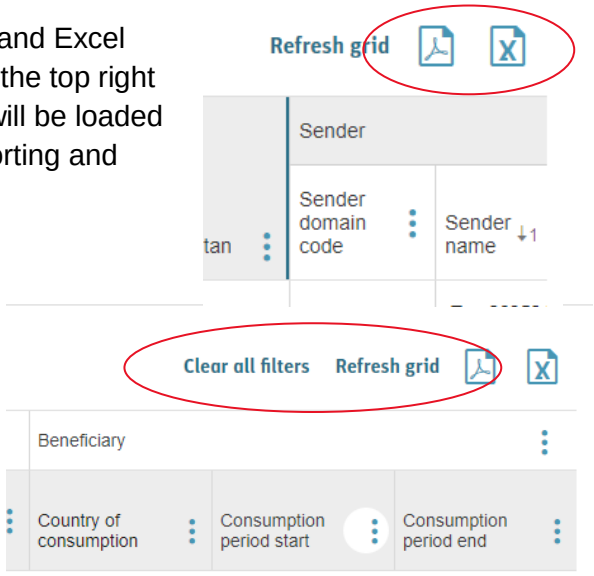


Figure 1-38 Clear filter and refresh grid

► Export to excel and PDF are explained in section 1.7.3.6 Export data to files.

1.7.3.8 Date selectors

Some data grids present historical data for a long period of time. To give the user easy access to determine the scope of the data, such grids have a tool to select the date range of the results. The timeframe can be simply selected by **Clicking** the date or the **Calendar icon** in the date range selector.

Figure 1-39 Grid date selectors

Note: The selected range is also considered when exporting the data to excel or to PDF files.

Note: The selected date range is preserved for the whole of user session.

1.7.3.9 Responsivity

By default, the grids are operational also on smaller screens. The grids can be scrolled horizontally by sliding the grid. The grid toolbar is usually divided into two sections, where action buttons are positioned in the toolbar below the grid and the other functions (refresh grid, export to excel etc.) are positioned at the top of the view.

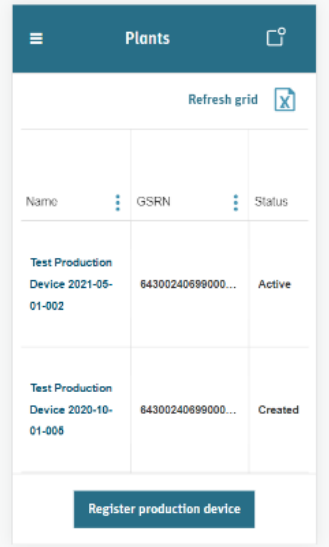


Figure 1-40 Mobile layout for grid view

1.7.4 Forms

Data is entered to the system through forms. The main two types of forms are “Dialog” forms and “Stepper” forms. Dialog forms are used for relatively simple operations whereas Stepper forms are used for more complex scenarios. All forms changing or adding new data into the system require a double confirmation.

In both Dialogs and Steppers, the compulsory fields are marked with *. Furthermore, missing required fields are indicated in the user interface with red colour.

Figure 1-41 Required field error

1.7.4.1 Dialogs

Dialog forms are forms that open in a popup on top of the associated data grid or detail view. The forms align to the screen size. Forms can be submitted or cancelled by clicking **Save** or **Close.** Forms can be also closed by clicking the **X** in the upper right corner of the pop up.

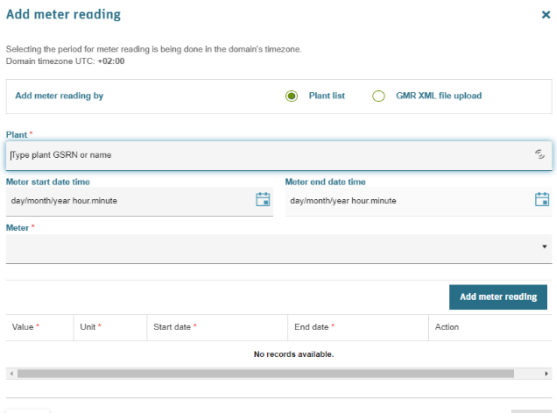


Figure 1-42 Dialog form in desktop view

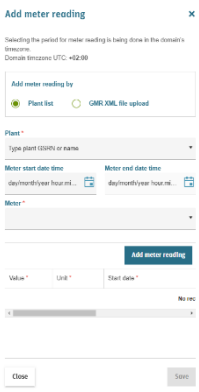


Figure 1-43 Dialog form in mobile view

1.7.4.2 Stepper

Stepper forms are based on logical tabs to enter data for more complex entities. The navigation between the steps is done either through the step **icons** or from the bottom of the form by clicking **Previous (1)** or **Next (2) -** buttons**.** Once the data is entered, **Summary (3)** step shows an overview of the entries (usually content of **General** step) and the **Save (4)** button in the upper right corner is enabled only when all the required fields are entered.

Clicking **Back to (5)** button in the upper left corner of the view, takes the user back to the view, from which the action was initiated in the first place. In that case, the entered data is not saved in the user session and the form.

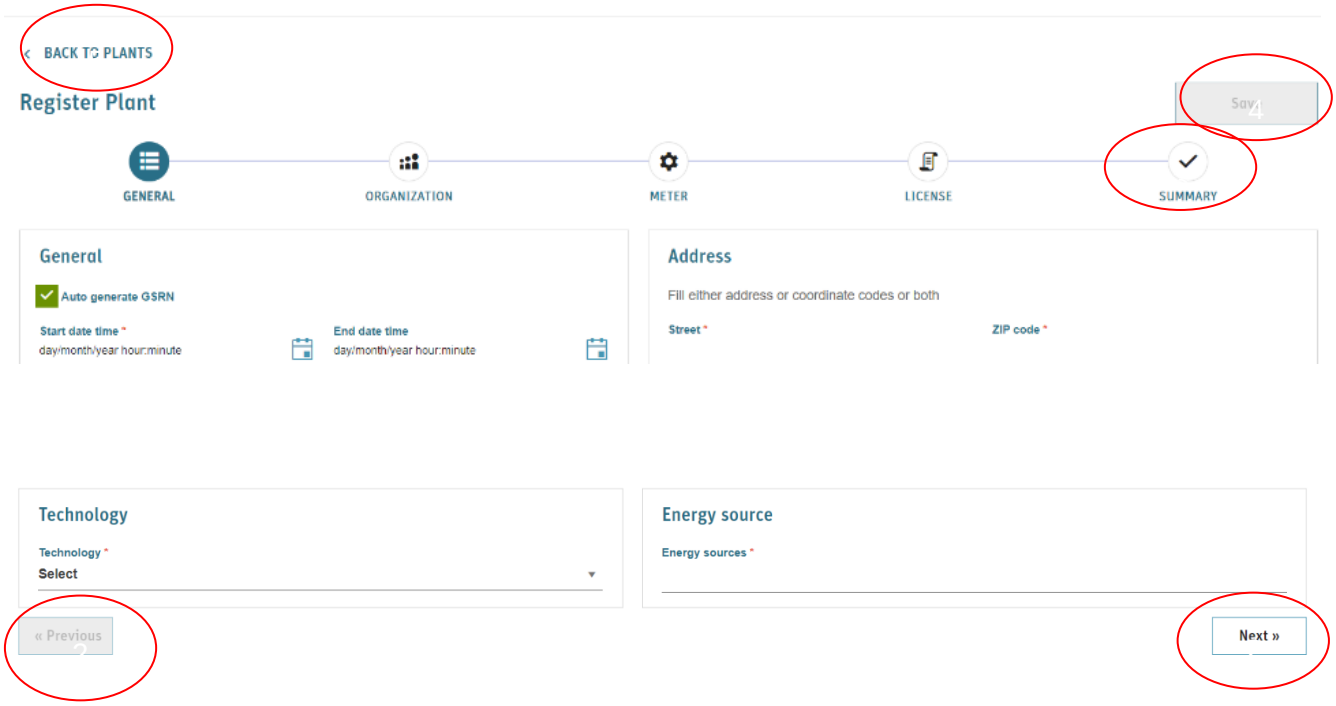


Figure 1-44 Form with tab layout

1.7.4.3 Inputs

The forms of the application are based on various types of input fields, including for example text input, date(time) input, dropdowns and multiselects as well as checkboxes.

Search box

G-REX uses **search boxes** for selecting items with large quantities in the system, for example accounts and plants. By default, the component shows a certain number of items. In case the total amount items exceeds the default quantity, the user should type in to search the desired item.

The user can type either an item name or a unique identifier to find the value. Data is fetched with a short delay after typing at least three characters.

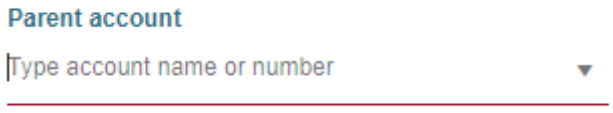


Figure 1-45 Search box

Date(time) selectors

G-REX datetime selectors are components that are customized by user locale. The values can be either selected from the pop up or typed in. Unless stated otherwise, the input fields always expect the input in user's local time zone, which can be seen in the application header menu.

Figure 1-46 Date time input field

▶ See section 1.5.3 Header menu for more information about Header menu**.**

Note: The time zone conversions are always good to be aware of when creating data in the system. G-REX always operates in the Domain time zone.

1.7.5 Notifications

G-REX's notifications are designed to help the users to be up to date on what is happening in the organization and what actions might be required by the user. There are two general categories of notifications

1. Some of the features (**Transactions** and **Create meter readings**, for example) in the application do not happen immediately but the actions are processed in request order in queues.
2. Some of the features (approving **Plants** and **Transactions** for example) require coordination between the initiator and the supervisor.

Figure 1-47 Notification center

1.7.5.1 Viewing notifications

Notifications are viewed in two places of the application for the currently selected organization:

1. The **header menu**
2. The **landing page.**

The notifications are listed in order based on the time of the event. Clicking a **notification item (2)** takes the user to the associated activity log details or a view to complete an action associated to the activity.

By default, the header menu notification center shows the three latest notifications and the landing page notification center views five latest notifications. Clicking **Show more (3)** at the bottom of the list shows more recent activities up to 20 latest entries plus the notifications received during the user session.

1.7.5.2 Notification types

Notifications are shown for the following events:

Table 1-6 Notification types

Notification type	Description	More information
CERTIFICATE_CANCEL_SUCCESS	Notification on successful cancellation of certificates.	3.4.1.1 Cancellations
CERTIFICATE_TRANSFER_SUCCESS	Notification on successful transfer of certificates.	3.4.1.2 Transfers
CERTIFICATE_CANCEL_FAILURE	Notification on failed processing of a cancellation.	3.4.1.1 Cancellations
CERTIFICATE_TRANSFER_FAILURE	Notification on failed processing of a transfer.	3.4.1.2 Transfers
CERTIFICATE_EXPIRY	Notification on expired certificates.	
SCHEDULED_TRANSFER_CREATE_FAILURE	Notification on failed creation of scheduled transfer.	
SCHEDULED_TRANSFER_CREATE_SUCCESS	Notification on successful creation of scheduled transfer.	
SCHEDULED_CANCEL_CREATE_FAILURE	Notification on failed creation of scheduled cancellation.	
SCHEDULED_CANCEL_CREATE_SUCCESS	Notification on successful creation of scheduled cancellation.	
SCHEDULED_TRANSACTION_UPDATE	Notification on successful update of scheduled cancellation.	
CERTIFICATE_TRANSFER_EXPORT_STARTED_FAILURE	Notification on a failed start of a certificate export.	
CERTIFICATE_TRANSFER_EXPORT_STARTED_SUCCESS	Notification on a successful start of a certificate export to external domain.	
CERTIFICATE_TRANSFER_EXPORT_AK_FAILURE		

CERTIFICATE_TRANSFER_EXPORT_COMPLETED_SUCCESS	Notification on successfully completed export of certificates to external domain	
CERTIFICATE_TRANSFER_EXPORT_COMPLETED_FAILURE		
CERTIFICATE_TRANSFER_EXPORT_NAK_FAILURE		
CERTIFICATE_TRANSFER_IMPORT_COMPLETED_SUCCESS	Notification on successful import of certificates from external domain.	1.2 Terms used
CERTIFICATE_TRANSFER_IMPORT_COMPLETED_FAILURE	Notification on failed import of certificates from external domain.	
CERTIFICATE_TRANSFER_APPROVE	Notification on a transfer to have been approved.	
CERTIFICATE_TRANSFER_REJECT	Notification on a transfer to have been rejected.	
CERTIFICATE_CANCEL_APPROVE	Notification on approved (and completed) cancellation	3.4.6 Cancellation approval
CERTIFICATE_CANCEL_REJECT	Notification on rejected cancellation.	3.4.6 Cancellation approval
CERTIFICATE_CANCEL_STARTED_SUCCESS	Notification on successfully processed certificate cancellation that is in pending state waiting for (IB) approval	3.4.6 Cancellation approval

2. Public site

The public site of G-REX, (grexel.com) is where you can login to the registry.

Additionally, on the top left of the page (See Figure 2-2), you will find the public information available from registries.

This information includes reports about:

- Transaction statistics
- Exports and Imports
- Cancellations
- Account holder statistics
- Plant statistics

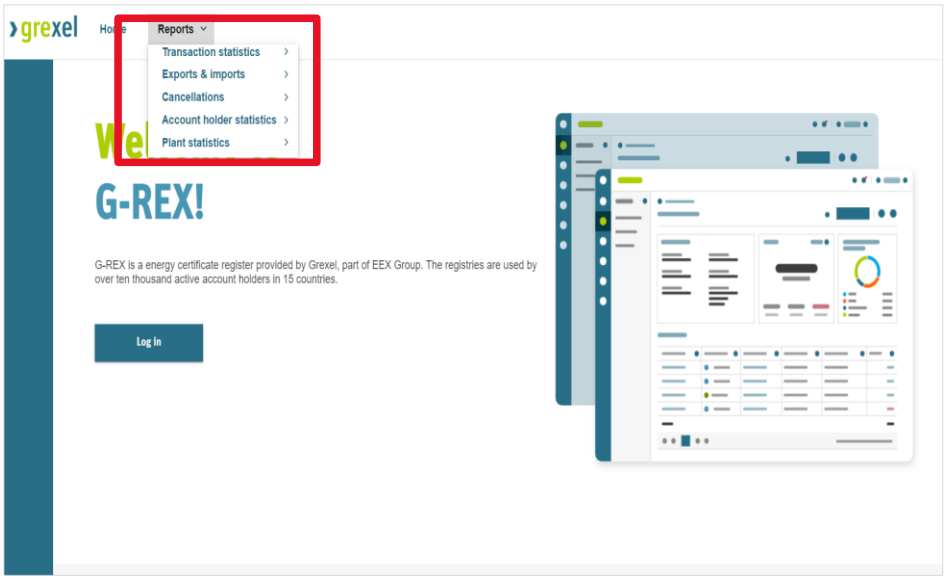


Figure 2-1 Public site

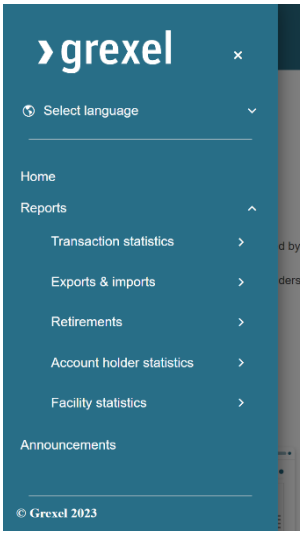


Figure 2-2 Mobile version

2.1 Filtering

The reports are filtered per **Domain**, **Transaction dates** or **Production dates**, **Period** and **Standard** Select the report type you wish to load from the home page (See Figure 2-2) on the top left, and then:

1. Enter the filter criteria for the domain **(**see Figure 2-3**).**
2. Press the button **Load report (**see Figure 2-3**)**.

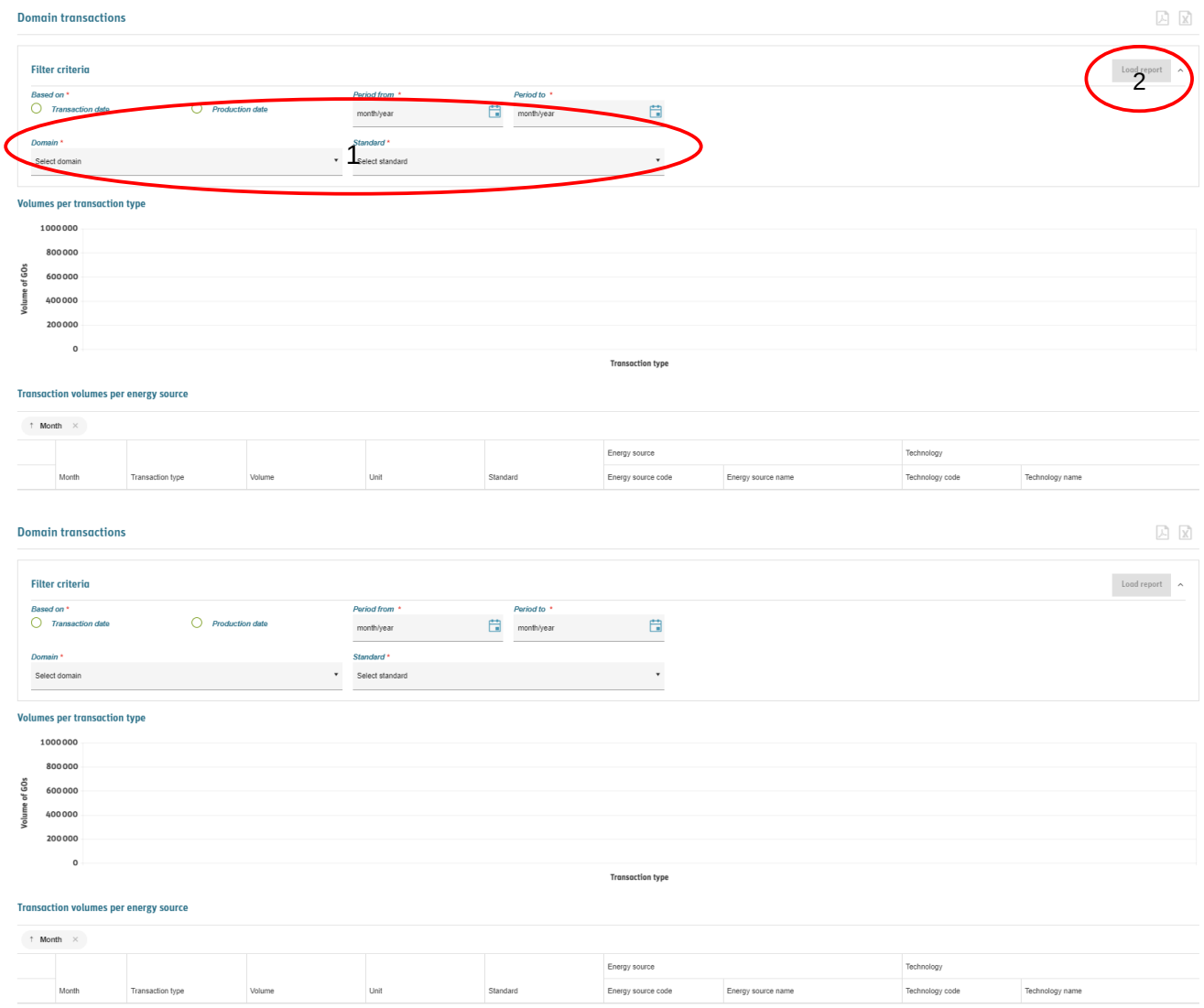


Figure 2-3 Public site filtering

Once filtered, the data will show whether in a graph and/or in a grid (see Figure 2-4). The grid is customizable and filterable. The default grouping per month can be removed and a new grouping can be made with any other column header(s). You can learn more about grids from section 1.7.3.

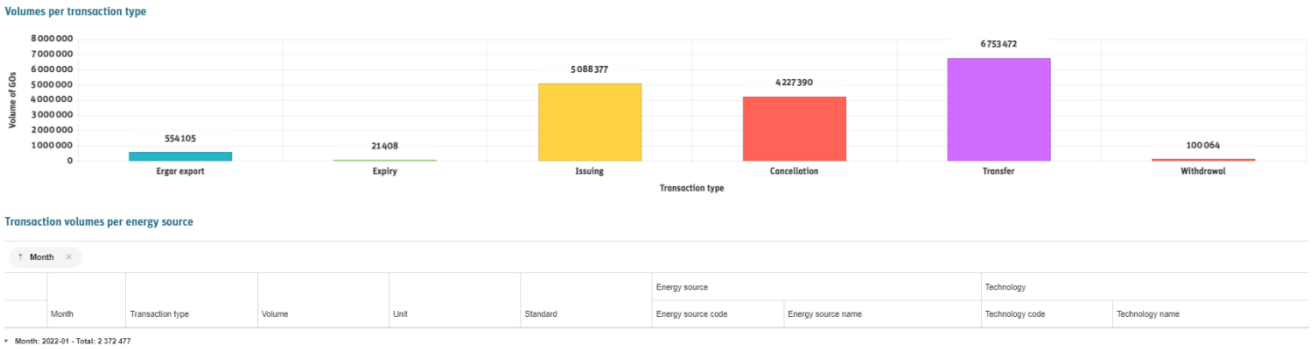


Figure 2-4 Volume per transaction type

2.2 Exporting a report

A user can export the report to an Excel or PDF format by clicking the Excel or PDF icon from the top right corner of the page (See Figure 2-5).

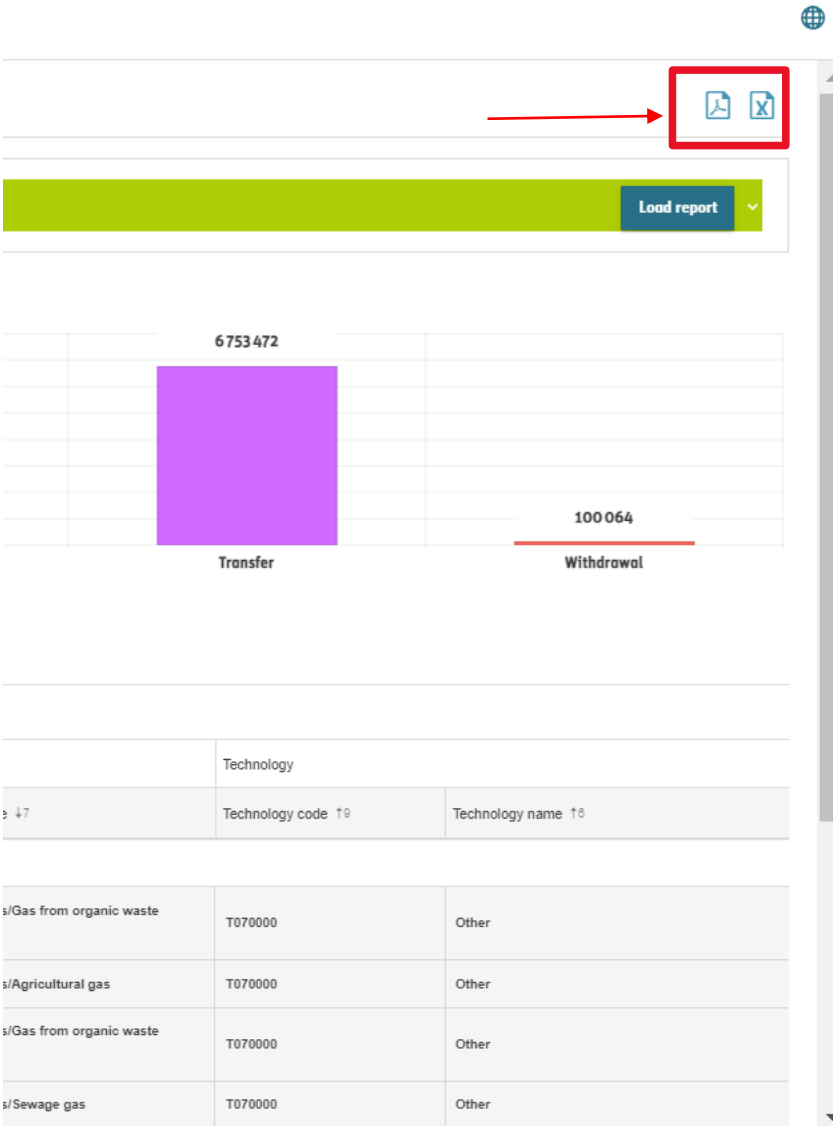


Figure 2-5 export report

3. Account and Certificate management (AH)

The accounts are the core of the certificate management in G-REX. Within the **Accounts** main menu, the account holder users can manage their accounts and certificates, view transaction activity of the organization, view cancellation statements as well as schedule and make transactions.

3.1 Access rights

The Account and Certificate management are majorly AH user functionalities. The Table 3-1 Accounts menu features presents the access rights to view and manage accounts with AH user roles.

Table 3-1 Accounts menu features

Sub menu	Feature	AH Root	AH Account Administrator	AH Account Viewer	AH PD Administrator	AH PD Editor	AH PD Viewer	AH User Administrator
Accounts		x	x	x				
	Make transaction / Select certificates	x	x	x				
	Create account	x	x					
	View account statement	x	x	x				
	Edit account	x	x					
Certificates		x	x	x				
	View certificates (+details)	x	x	x				
	Select certificates for transaction	x	x					
	Create transfer	x	x					
	Create cancellation	x	x					

Transactions		x	x	x				
	View	x	x	x				
	Details	x	x	x				
Cancellation statements		x	x	x				
	View	x	x	x				
	Export to PDF (cancellation statement)	x	x	x				
Scheduled transactions		x	x	x				
	View	x	x	x				
	Details	x	x	x				
	Create (both cancellation and transfer)	x	x					
	Delete	x	x					

3.2 Accounts

The **Accounts** sub-menu item contains the functionalities required for managing accounts of the AH organization. Accounts are instances of an organization that can contain certificates of specified type. One organization can contain accounts of multiple standards based on the domain setup and the organization trading schemes. The information associated to each account can be found in Table 3-2 Account data properties.

- Domain parameters can be found in Table 1-3 Domain parameters.

Table 3-2 Account data properties

Label	Relevant in creation	Description
Account number	No	
Account name	Yes	
Parent account number	Optional	
Organization ID	No	Organization ID of the Organization, which owns the Account

Organization name	No	Name of the Organization, which owns the Account
Standard	Yes	The association Standard of the Account. Can be for example EECS.
Is Public	Yes	Account parameter for if the Account is public or private. Public accounts can be seen in accounts list by other organizations in the domain.
Is Active	No	Account parameter for if the Account is active or inactive. Equivalent to “Deleted” account but in G-REX accounts cannot be deleted completely.
Is Locked	No	Account parameter for if the Account is locked or unlocked. Locked accounts cannot make new transactions but they can receive certificates. Managed by IB users.
Volume	No	Volume of certificates in the account
Expiring certificates	No	Volume of expiring certificates in the account. The expiry rule and the warning threshold is specified in the domain configuration.

3.2.1 Accounts - grid

The accounts- grid contains all accounts of the organization, which by default only shows the active accounts. The view can be expanded to show also inactive accounts by clicking **Include inactive accounts.** The accounts list contains two levels of accounts – parent accounts and sub-accounts. Sub-accounts of an account can be viewed by clicking the **+ icon** in the left-most column of the grid. The grid contains also quick links to associated Account statement (1), Certificates - grid (2) and Scheduled transactions (3).

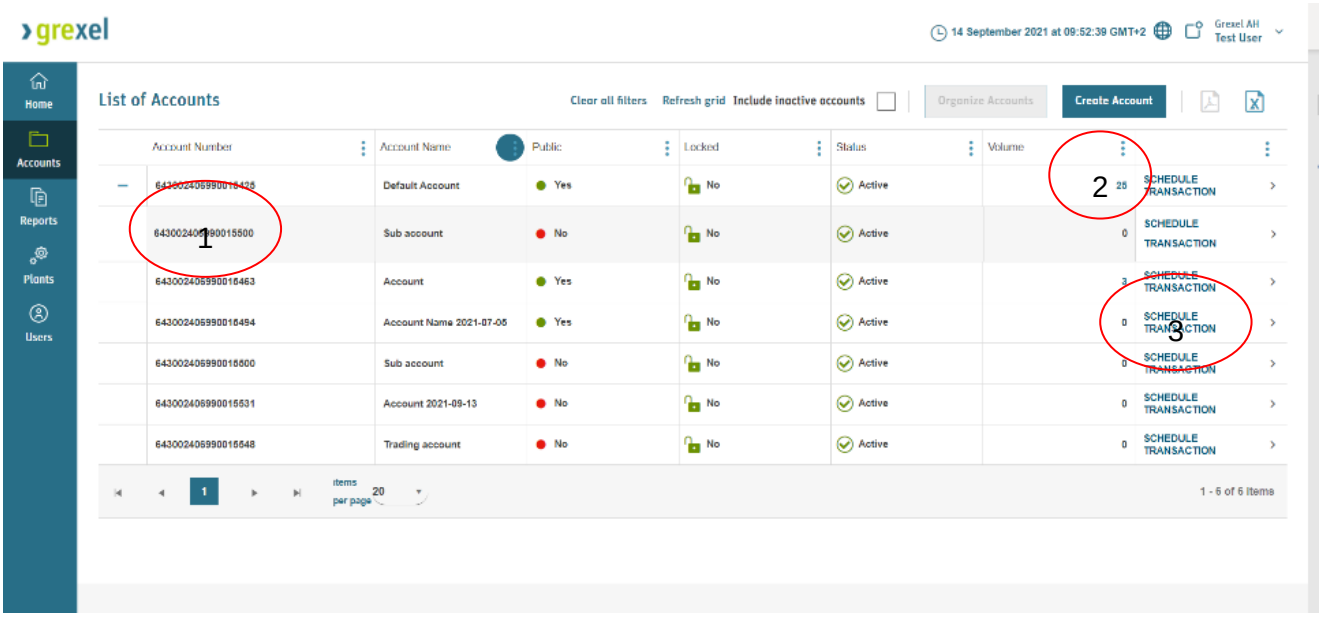


Figure 3-1 Accounts grid

Note: Depending on domain parameters there can be two or three account levels (1 or any number of levels of sub accounts).

Note: Where multiple account levels are used, sorting is first done with level 1, then level 2 (and then 3). For instance, when sorting by volume, accounts will always be sorted by level 1 regardless of how many certificates reside in subaccounts. Subaccounts are then sorted by volume, but under the respective parent account.

3.2.1.1 Search accounts

The accounts can be searched and sorted. By filtering the list, the sub-accounts are included in the list in “flat” format and the parent account number can be then viewed by enabling the column from the column menu.

Note: in principle same account might be available in the grid twice when filtering accounts due to the “flat” structure.

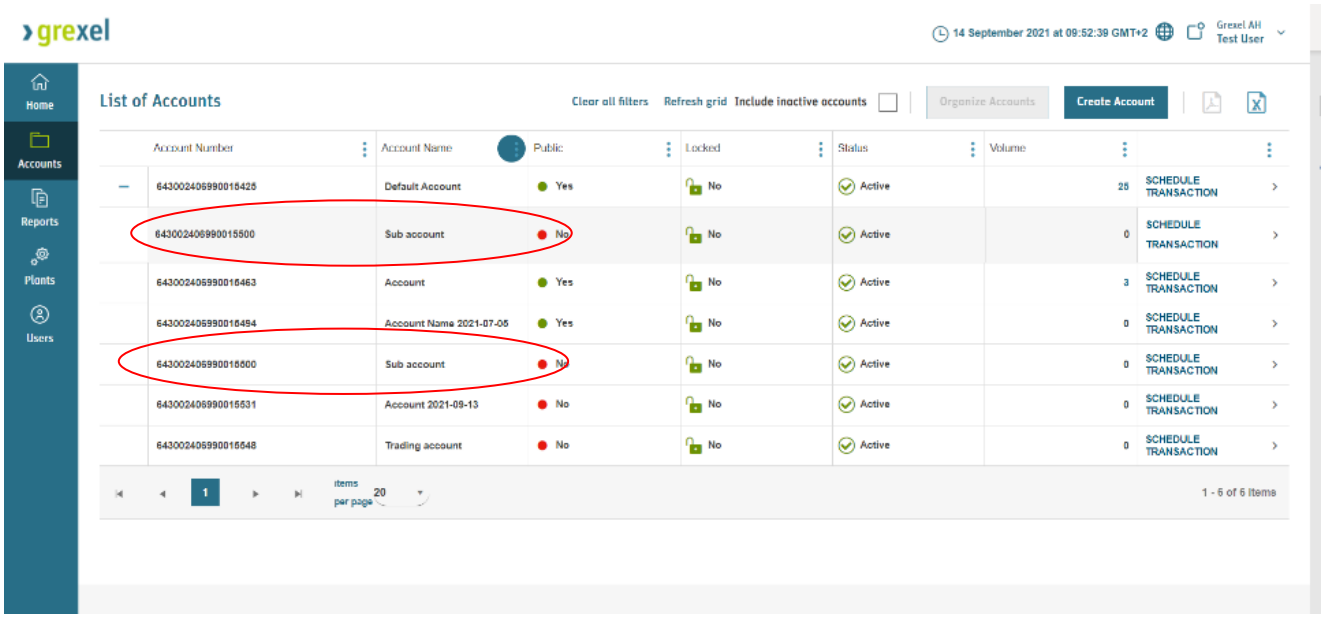


Figure 3-2 Search account result with same account twice

► Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download report.

3.2.2 Create Account

To create an account,

1. Click **Create account** in accounts grid view.
2. A dialog window to specify the account properties (see Table 3-2 Account data properties).
3. Click **Create.**
4. Double-confirm the action
5. The new account is available in the grid immediately.

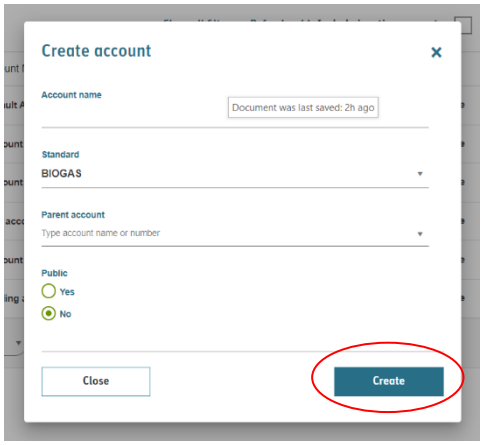


Figure 3-3 Create account dialog

3.2.3 Account statement

The account statement shows detailed information associated to an account, account's transactions as well as allows user to edit the account. It can be accessed by clicking the **Account number** in the accounts list.

In addition to properties of Accounts and **Transactions** grids, account statement contains properties presented in Table 3-3 Account statement properties.

- **Accounts** grid properties can be found in Table 3-2 Account data properties
- **Transactions** grid properties can be found in Table 3-7 Transaction properties

Table 3-3 Account statement properties

Group	Label	Description
Balance	Opening balance	Opening balance of the account within the given time range
	Closing balance	Closing balance of the account within the given time range
	Difference	Difference between opening and closing balance within the given time range
Transaction volume	Incoming	Volume of certificates transferred to the account during the time range
	Outgoing	Volume of certificates transferred from the account during the time range
	Difference	Difference between incoming and outgoing certificate volumes within the time range

3.2.3.1 Account statement view

The account statement view consists of four components: **Account details** (1), **account balance development** (2), **certificate balance** (3) and **account transactions** (4). The data is always shown for a specific time range (5) that can be selected from the toolbar in the upper right corner of the view.

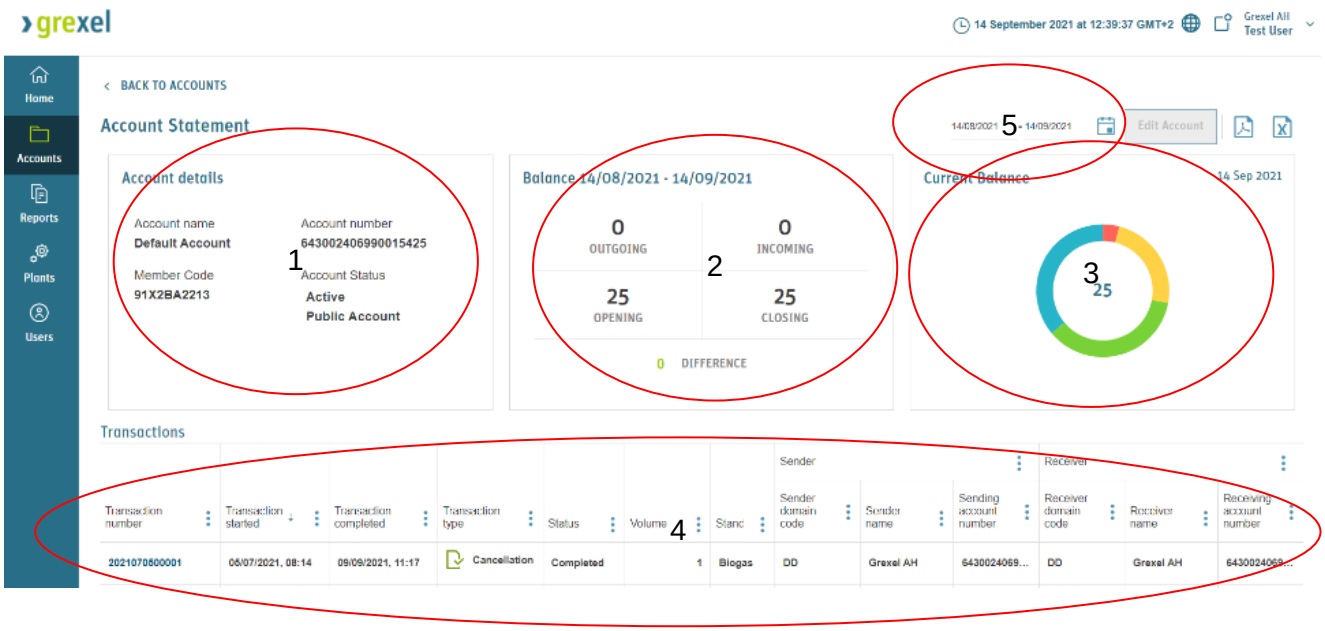


Figure 3-4 Account statement view

Note: See section Public cancellation statement

Note: By default, the Account Statement data is shown for the previous month starting from the current day.

3.2.3.2 Edit account

To edit account,

1. Navigate to **Accounts → Accounts → Account statement**
2. Click **Edit account**. The click opens a dialog window.
3. Edit all fields of the account except the standard
4. Save changes by clicking **Save**.

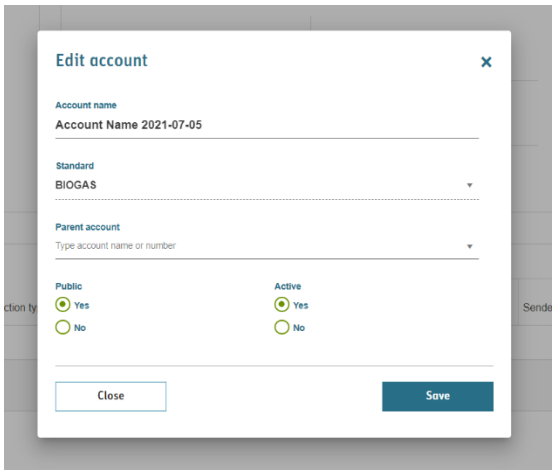


Figure 3-5 Edit account

3.3 Certificates - grid

Account holder users can view an organization's certificate bundles by navigating to **Accounts → Certificates.** By default, all organization certificates are shown in the grid. A complete list of fields associated to all certificates can be found in Table 3-4 Certificate data properties.

Note: When working with the Certificates grid, it is recommended to first press Refresh grid to reflect any new changes such as new Organizations.

To view specific Account's Certificates,

1. Navigate to **Accounts → Accounts**.
2. Click the value in **volume** column.
3. Certificates grid filtered for the account's certificates is opened.

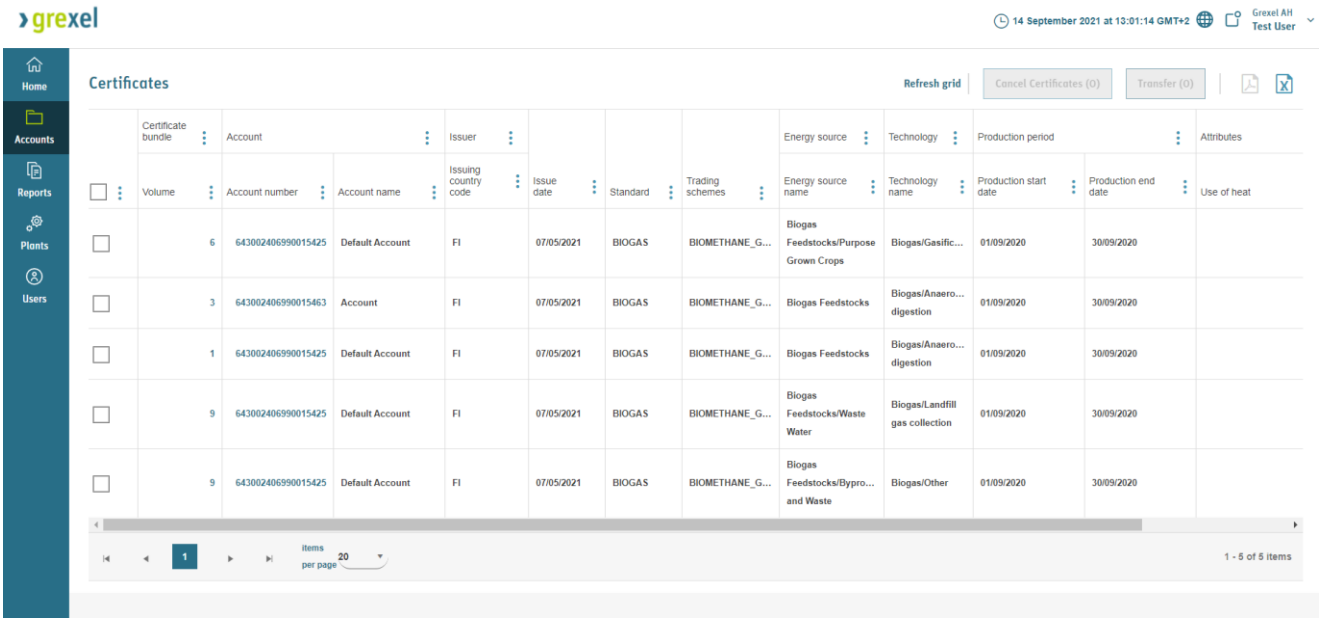


Figure 3-6 Certificates grid

Table 3-4 Certificate data properties

Field	Description
Domain code	Domain code of account possessing the certificate
Domain name	Domain name of account possessing the certificate
Organization ID	Organization ID of the owner of the certificate
Organization name	Organization name of the owner of the certificate
Account number	Account number, in which the certificate bundle is
Account name	Account name, in which the certificate bundle is
Issuing date	Date of issuing of the certificate bundle
Standard	Standard of the certificate bundle
Trading schemes	Trading schemes associated to the certificate bundle
Earmark type code	Code of earmark type. Can have values between 0 and 4.
Earmark type	Text value for the earmark type
Production support description	Description for the production support based on earmark type.

Investment support description	Description for the investment support based on earmark type.
Certificate number start	Starting certificate number of the certificate bundle
Certificate number end	Last certificate number of the certificate bundle
Volume	Total number of certificates in the certificate bundle
Issuing body	Name of the issuing body of the certificate bundle
Issuing body code	Code of the issuing body of the certificate bundle
Issuing country code	Country code of the issuing body of the certificate bundle
Competent authority code	Competent authority code of the issuing body
Energy source code	Code of the certificate's energy source of the certificate bundle
Energy source name	Name description of the energy source of the certificate bundle
Technology code	Code of the certificate's technology of the certificate bundle
Technology name	Name description of the technology of the certificate bundle
Production start date	Date of start of the certificate bundle's production period
Production end date	Date of end of the certificate bundle's production period
Plant name	Name of the plant responsible for the production of the certificate bundle
Plant GSRN	GSRN of the plant responsible for the production of the certificate bundle
Operational date	The date from which the issuing plant has been operational.
Zip code	Zip / postal code of the certificate bundle's plant
City	City of the certificate bundle's plant
Country	Country of the certificate bundle's plant
Country code	Country code of the certificate bundle's plant
Latitude	Coordinate latitude of the certificate bundle's plant location
Longitude	Coordinate longitude of the certificate bundle's plant location
Coordinate code	Code for the coordinate standard for longitude and latitude of the plant

► Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download report.

3.3.1 Certificate Bundle - details

The detailed information of a Certificate Bundle can be accessed by clicking **volume** column value in certificate grid's row**.** The detail view consists of six components specifying the general Certificate information, Plant information, Energy sources and Technologies, Issuer, the Account possessing the Certificate as well as the attributes. All Certificate data fields can be viewed in Table 3-4 Certificate data properties.

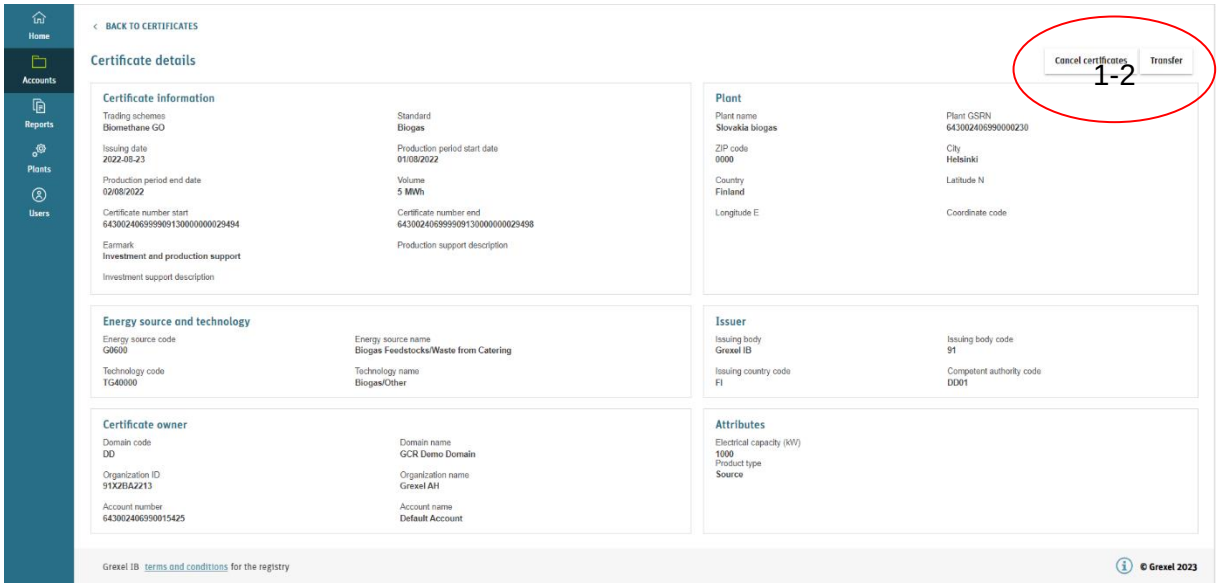


Figure 3-7 Certificate details

Clicking **Cancel certificates** (1) or **Transfer** (2) in the upper-right corner of the view initiates a certificate transaction for the bundle. See section 3.4 Making transactions for more information about the certificate transactions.

3.3.1.1 Certificate attributes

Certificate attributes are standard and plant license -specific data fields associated to a Certificate. It means that the attributes are not the same for all certificates, but their properties are dependent on the issuing context.

- See section: "10 Appendix: License attributes" for description of License dependent attributes

3.4 Making transactions

Cancelling and transferring certificates are the general basic transactions an Account Holder can make in the system. Transactions can be done immediately or scheduled to happen at a specific

moment or triggered by an event. For issuing body users a similar flow is applicable for transaction type withdrawal.

In short, the flow for making both cancellations and transfers is identical. The flow consists of following five steps:

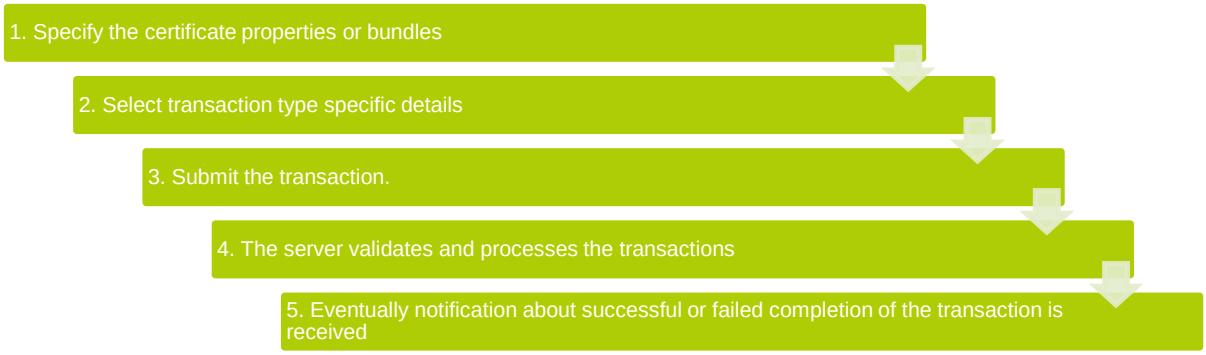


Figure 3-8 Transaction process

Note: When making a transaction and the selected volume in the certificate selection is greater than the requested transaction volume, then the oldest certificates are taken first. Oldest is here defined as ordered in ascending order on production end date, production start date, and certificate start ID number.

3.4.1 Transaction types

The certificate transactions relevant for account holder users can be divided into two categories: *Cancellations*, which mark certificates as “used” and *Transfers*, which change the account in which the certificates are stored. Both transaction types can be scheduled to take place at specific moment or event.

Note: The maximum allowed number of bundles for an export transfer (to an organization holder in another domain) is 5000. Any number of bundles over that will result in a failed transaction!

Note: It is not possible to Import certificates, which are expiring on the day of the import. An import containing such certificates will result in a failed transaction.

3.4.1.1 Cancellations

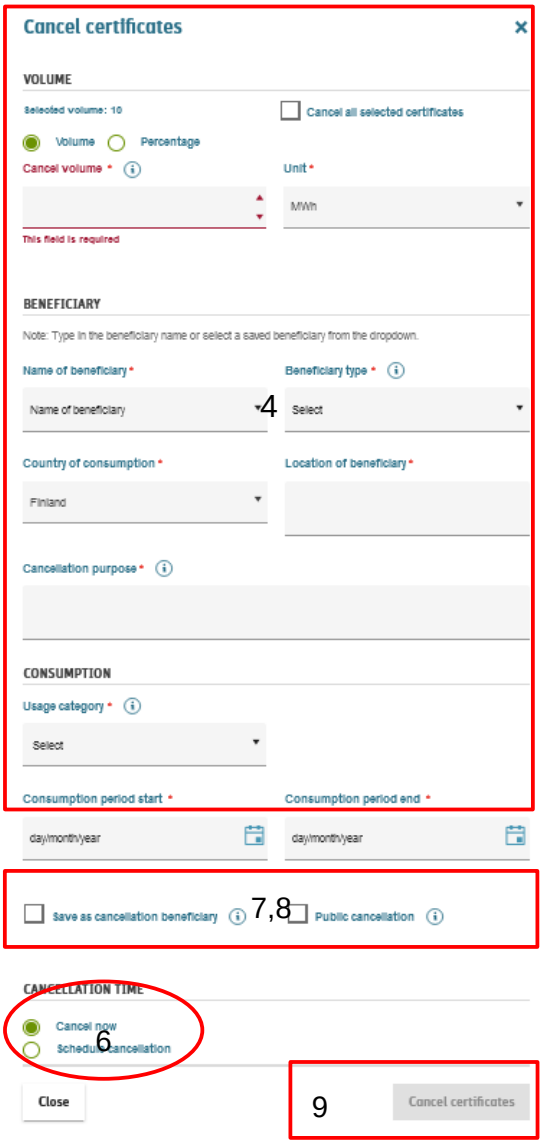
Cancellations are transactions that consume certificates. After a cancellation, the certificates cannot be used anymore for other transactions. In addition to only selecting certificates, cancellations have also other properties that specify cancellation's purpose and other scheme-specific requirements. All properties associated to a cancellation can be found in Table 3-6 Cancellation data properties.

Steps to create a cancellation are:

1. Navigate to **Accounts → Certificates** for all organization certificates or to **Accounts → Accounts** and click certificate **Volume** of an account to view certificates of an account
2. **Select** certificate bundles

Note: Certificates can be selected only from one account at the time

3. Click **Cancel certificates**
4. Fill in the cancellation-specific properties
5. Note that the "Name of beneficiary" field is a free-text field, but if cancellation beneficiaries are stored, it can be used as a dropdown field as well.
6. Optionally click **Schedule cancellation** and select cancellation time
7. Select tick-box "Public Cancellation" if you intend the cancellation to be accessible for non-authenticated users through a link, which you can share.
8. Select tick-box "Save as cancellation beneficiary" if you wish to store the information of the beneficiary also for later use.
9. Click **Cancel certificates**
10. Double-confirm the action
11. Transaction receipt is opened and after a while transaction completion (or failure) is notified in the notification center.



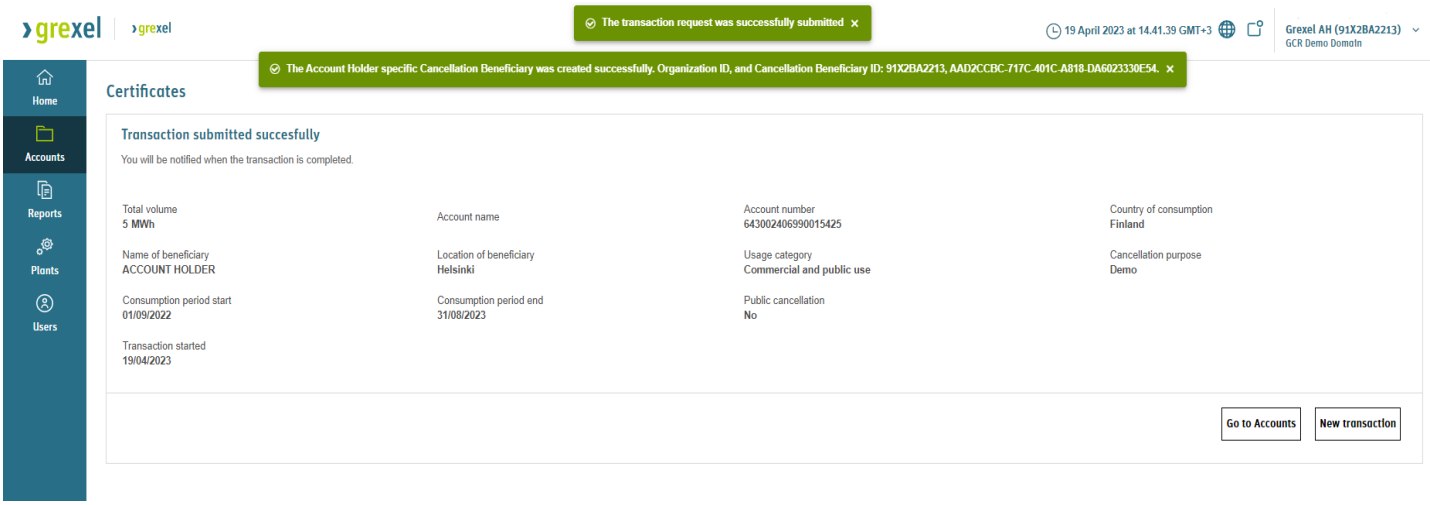


Figure 3-9 Cancellation receipt

3.4.1.2 Transfers

In principle, there are three types of transfers in G-REX: *internal transfer*, *transfer,* and *export*. Despite the naming, the workflow for each transaction type is identical. Transactions require the transferred volume and a receiver as an input, whereas scheduling the transfer for a specific moment is conditional. The properties associated to transfers are explained in Table 3-7 Transaction properties.

The steps to transfer certificates are:

1. Navigate to **Accounts → Certificates** for all organization certificates or to **Accounts → Accounts** and click certificate **Volume** of an account to view certificates of an account.
2. **Select** certificate bundles.

Note: Certificates can be selected only from one account at a time

3. Click **Transfer**
4. Fill in the cancellation-specific properties.

Note: For *exports*, changing **Receiver domain** the domain specifies the AH list for the other domain.

5. Optionally click **Schedule transfer** and select transaction time
6. Click **Transfer certificates**
7. Double-confirm the action

Transaction receipt is opened and a short while after, the transaction completion (or failure) is notified in the notification center.

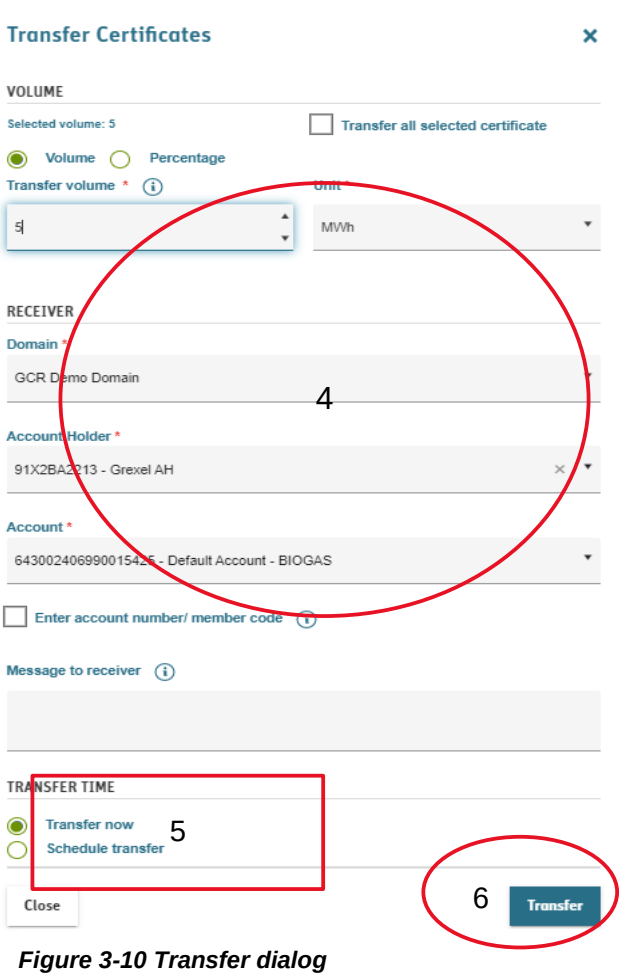


Figure 3-10 Transfer dialog

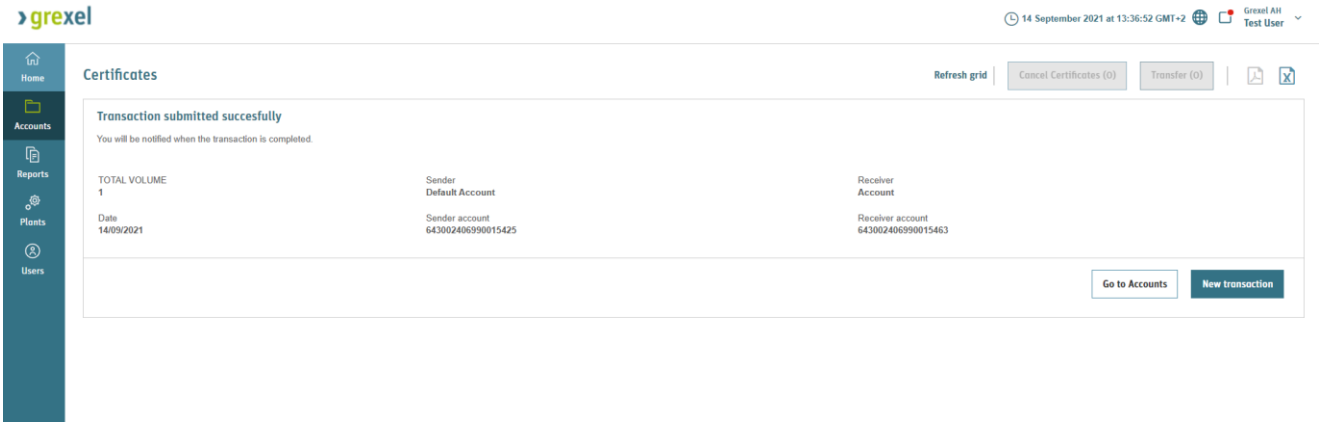


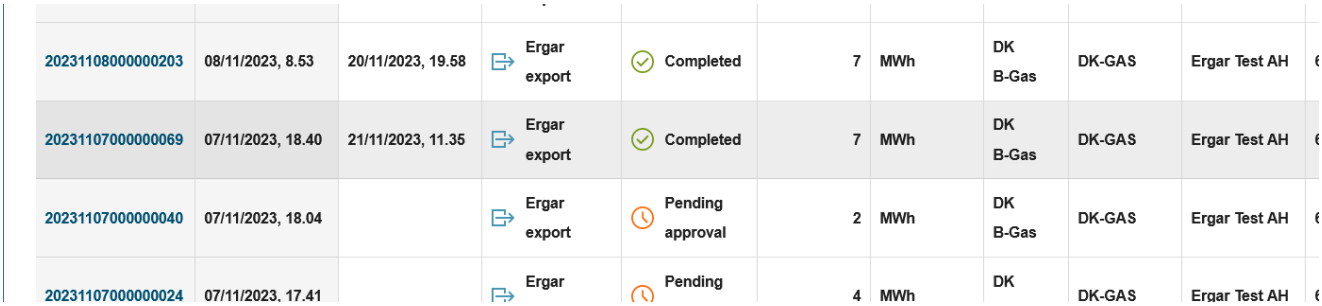
Figure 3-11 Transfer receipt

3.4.1.3 Ergar Export/Import (Domain specific transfer)

An Ergar Export is a transfer that is carried out to another domain via the Ergar hub.
The export is carried out the same as a normal export by:

1. Selecting certificates
2. Pressing transfer
3. Filling in the transfer form and selecting the correct domain
4. Pressing send
5. Once the export has started it will be waiting for Issuing body approval
6. Once approved it will change the status to **completed**.

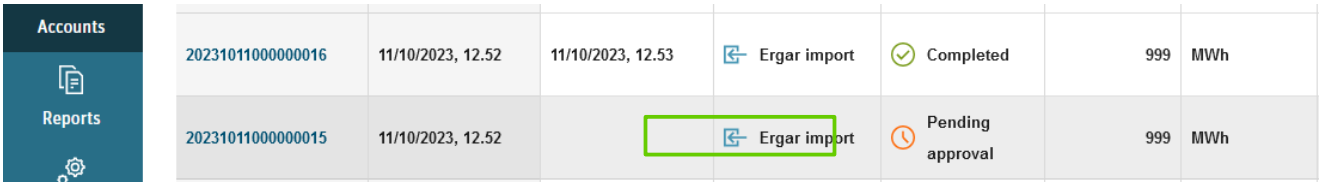
The difference will be in the transaction view. The export will show as an Ergar export (see Figure 3-12 Ergar export)



20231108000000203	08/11/2023, 8.53	20/11/2023, 19.58	Ergar export	Completed	7	MWh	DK B-Gas	DK-GAS	Ergar Test AH	
20231107000000069	07/11/2023, 18.40	21/11/2023, 11.35	Ergar export	Completed	7	MWh	DK B-Gas	DK-GAS	Ergar Test AH	
20231107000000040	07/11/2023, 18.04		Ergar export	Pending approval	2	MWh	DK B-Gas	DK-GAS	Ergar Test AH	
20231107000000024	07/11/2023, 17.41		Ergar	Pending	4	MWh	DK	DK-GAS	Ergar Test AH	

Figure 3-12 Ergar export

Consequently, an import via the Ergar hub will show as an Ergar Import and must first undergo Issuing body approval as well (See Figure 3-13 Ergar Import approved).



20231011000000016	11/10/2023, 12.52	11/10/2023, 12.53	Ergar import	Completed	999	MWh
20231011000000015	11/10/2023, 12.52		Ergar import	Pending approval	999	MWh

Figure 3-13 Ergar Import approved

3.4.1.4 Scheduling transactions

Apart from regular cancellations and transfers, scheduled transactions are initiated from the **scheduled transactions** list view. For more details about scheduled transactions, see section 3.7.2

Note: when scheduling a transaction from regular transfer or cancel view, please note that the bundles for which the schedule is created are not locked. If the same bundles are selected for transaction before the schedule is executed, the schedule will fail, even if enough certificates reside for the original schedule. In other words, any instant transaction on the same bundles annules the schedule.

3.4.2 Selecting Certificates

Making a transaction is initiated by selection of the certificates. For the certificate selection there are two options:

1. Specify the certificates by bundles
2. Specify certificates by their type.

3.4.2.1 Selecting by Certificate Bundles

For transactions expected to happen immediately (or at a specific moment of a day), the primary approach for selecting certificates is to specify the certificate bundles on a certificates grid. It is recommended to press 'Refresh grid' before selecting certificates in order to reflect any changes, for example from newly created Organizations.

To select certificates,

1. Navigate to certificates grid through **Accounts → Certificates** or **Accounts → Accounts → Volume** (column)
2. Filter and sort the grid if necessary.

Note: It is important to bear in mind that the selected certificates are not saved if the grid is filters are changed.

3. Select certificate bundles by ticking the **left-most checkbox** column in the grid

Note: Certificates can be selected only from one account at once.

4. Proceed to next transaction steps

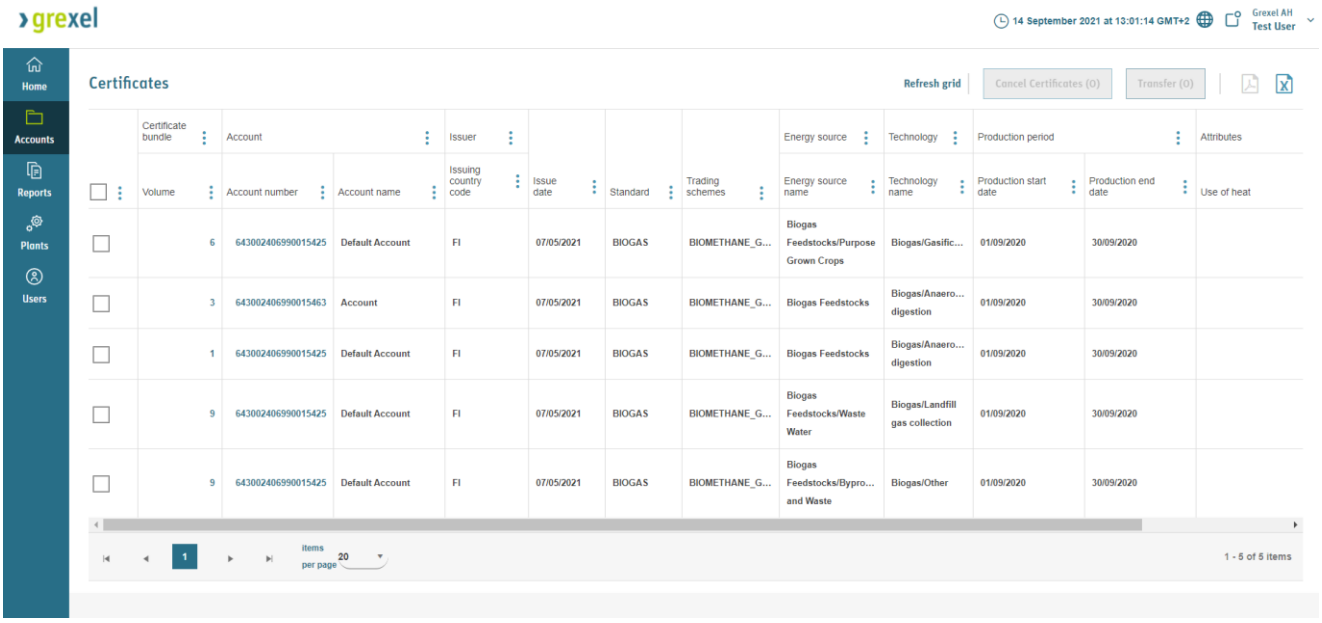


Figure 3-15 Select certificate bundles

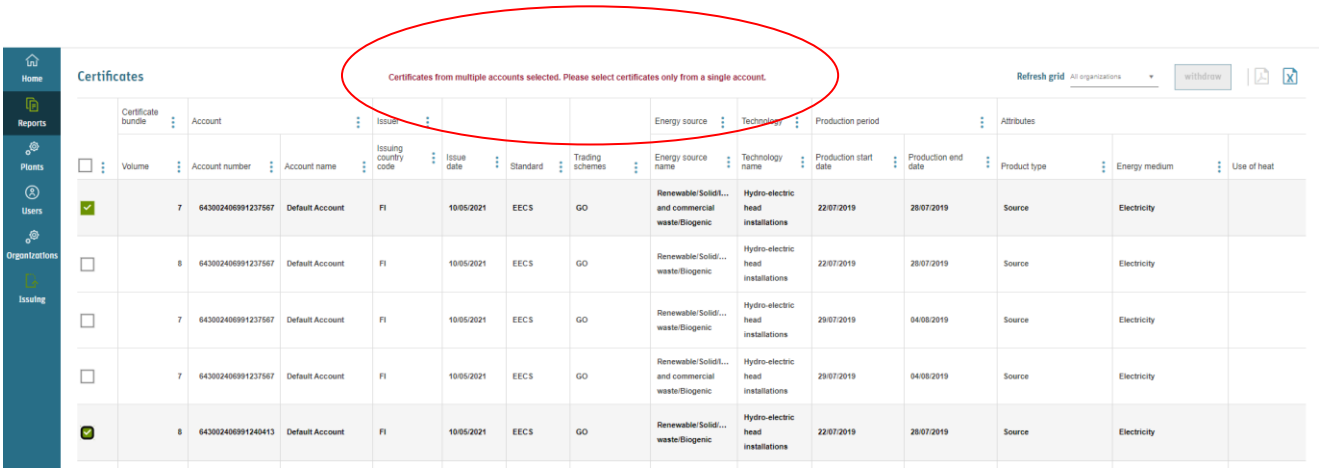


Figure 3-14 Error for selecting certificates from multiple accounts

Note: It is also possible to select all the certificates from all grid's pages, but it is to be kept in mind that the selection might require some time to load.

3.4.2.2 Selecting by Certificate properties

Certificates for a transaction can be also selected based on their properties. This is especially useful when scheduling transactions, when it is not necessarily known, which bundles the user possesses at the time of the transaction. This allows the user to decide which certificates are transferred at the time the transaction takes place. A complete list of possible properties can be found in Table 3-5 Certificate selection properties

Table 3-5 Certificate selection properties

Group	Property	Multiselect	Description
General	Volume	No	Volume of certificates in the transaction
	Trading scheme	Yes	
	Earmark	Yes	
	Energy source	Yes	
	Technology	Yes	
Production period	Production period start from	No	The earliest production period start date of which certificates shall be transferred
	Production period start to	No	The latest production period start date of which certificates shall be transferred
	Production period end from	No	The earliest production period end date of which certificates shall be transferred
	Production period end to	No	The latest production period end date of which certificates shall be transferred
Plant	Plant name	Yes	
	Plant GSRN	Yes	
	Operational date from	No	Earliest operational date of the certificates to be transferred
	Operational date to	No	Latest operational date of the certificates to be transferred
Issuing	Issuing body code	Yes	
	Issuing country code	Yes	
	Competent authority code	Yes	
	Issuing date from		Earliest issuing date of the certificates to be transferred
	Issuing date to		Latest issuing date of the certificates to be transferred

Note: The general logic inside the property selection is that multiple selection within a property is handled with "or" logic (for example energy source) and multiple selected properties are handled with "and" -logic (for example selecting trading scheme and earmark). In other words, if a user selects energy sources F0100000 and F0101000, it is possible that both types of certificates are transferred based on the expiration rules of the domain. On the other hand, if a user selects trading scheme "GO" and earmarks "No support" and "Investment support", the transactions contain certificates for which trading scheme is "GO" and earmark is "No support" or trading scheme is "GO" and earmark is "Investment support".

Note: it is not possible to select bundles from different accounts for single transaction.

3.4.3 Initiate transactions

After selecting the certificates, the user must create the transaction itself. For AH users there are two types of transactions: cancellations and transfers. The transactions are initiated from the upper-right corner of the certificates grid.

1. Clicking **Transfer** opens a dialog to specify a certificate transfer and
2. Clicking **Cancel certificates** initiates a cancellation.

► See Section 3.4.1Transaction types

► See Table 3-7 Transaction properties for data associated to transactions

Note: The buttons are available only when certificates have been selected only from one account.

In contrast to regular transactions, creating more complex scheduled transactions is done through menu **Accounts → Scheduled transactions**.

3.4.4 Making a transaction with percentage volume or selecting all

A user can make a transaction based on the number of certificates or the percentage of the total certificates. To make a transaction with percentage volume, Navigate to **Accounts** > **Certificates** > select the certificate bundle you wish to make a transaction with and select **Cancel certificates** or **Transfer** from the top right of the grid in view.

When the pop-up window opens Figure 3-16 Transaction with Percentage volume tick the **Percentage** button > insert the percentage amount of the bundle(s) you wish to transfer/ cancel and the correct and required information. Press the **Cancel certificates** / **Transfer** button.

It is also possible to make a transaction for all the selected certificates by ticking the checkbox **Transfer/Cancel all certificates**

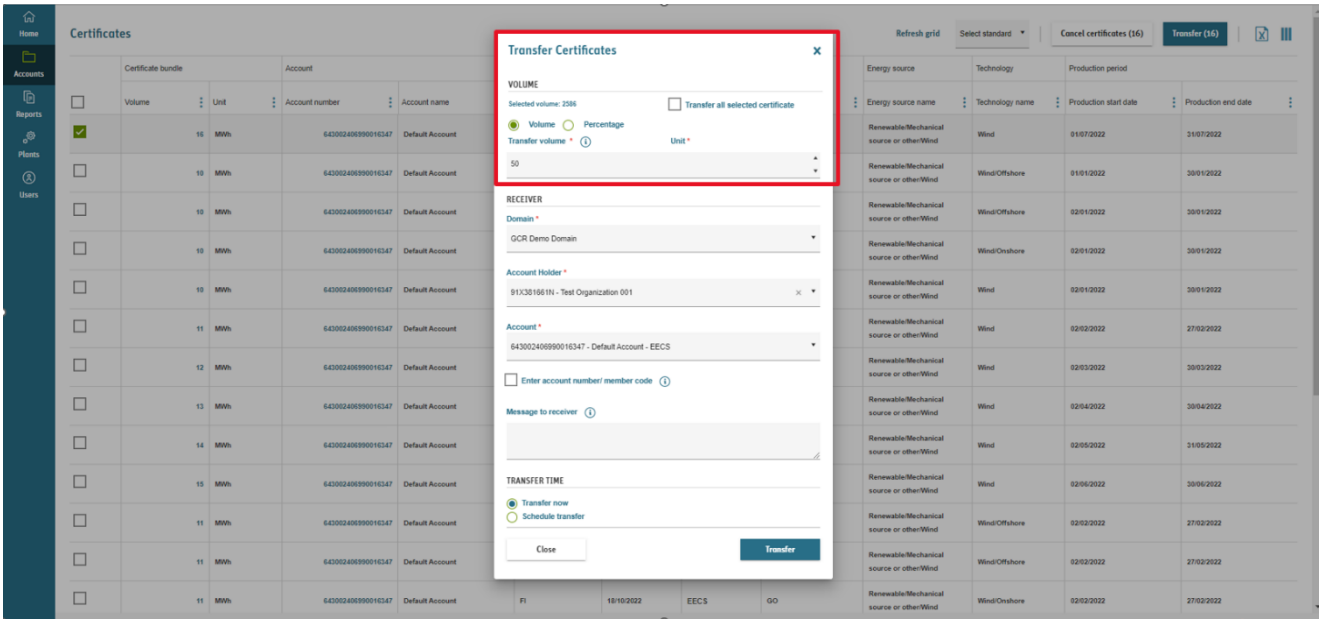


Figure 3-16 Transaction with Percentage volume

3.4.5 After transaction request

After submitting a transaction request

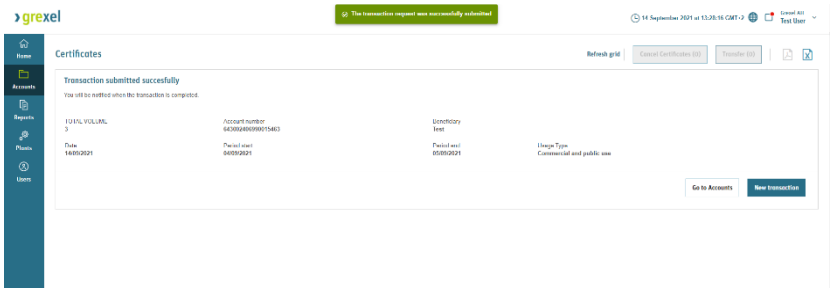


Figure 3-17 Transaction receipt

1. User sees a receipt presenting a summary of the transaction request
2. The request is processed and validated by the backend service. Depending on the size of the transaction, the overall load of the system and transfer type, the completion of a transaction might take some time.
3. The user interface disables the certificates in the started transaction to prevent further erroneous transactions immediately after the first transaction.
4. Once a transaction is completed (or fails validations), the user receives a notification on the Notification Center (see section 1.7.5 Notifications). The user can click **Refresh grid** after the transaction is completed to enable the certificate bundle to be selected for further transactions.
5. Clicking the **Notification** redirects user to view the associated **Activity logs** (see section 4.1 Activity logs), and particularly in case of errors, user can see details about what failed with the transaction. At this point, the transaction can be viewed also in the Transactions - grid or Cancellations - grid.

Note: In case of exports, the completion might take even days, depending on the receiving domain's configuration and regulation.

Note: When certificates are disabled in certificates grid, they can be "released" by **refreshing** the browser. Though, it is possible that certificates of a transaction being processed might be shown again in the certificates list after the refresh. Hence, they can be selected for another transaction, but the second transaction would fail in the transaction validation.

3.4.6 Cancellation approval

Depending on the domain configuration, cancellations might require an approval from issuing body user. Until the approval the cancellations are in *pending for approval* state and the cancellation statement cannot be viewed. Instead, regular transaction details are always available.

More information about the transaction details view can be found in section 3.6.2 Transaction - details

Table 3-8 Transaction statuses

Transaction status	Description
Completed	Transaction status for transaction, that is completed successfully.
Failed	Transaction status for transaction that failed to complete.
Pending approval	Transaction status for transactions that need approval from a second party. For example cancellations in certain domain that require cancellations approval.
Rejected	Transaction status for transactions that have been rejected by second party. For example cancellation which has been rejected by issuing body user.
Started	Transaction status for transactions that are still in progress. Most relevant for exports to other domains.

▶ Transaction - details

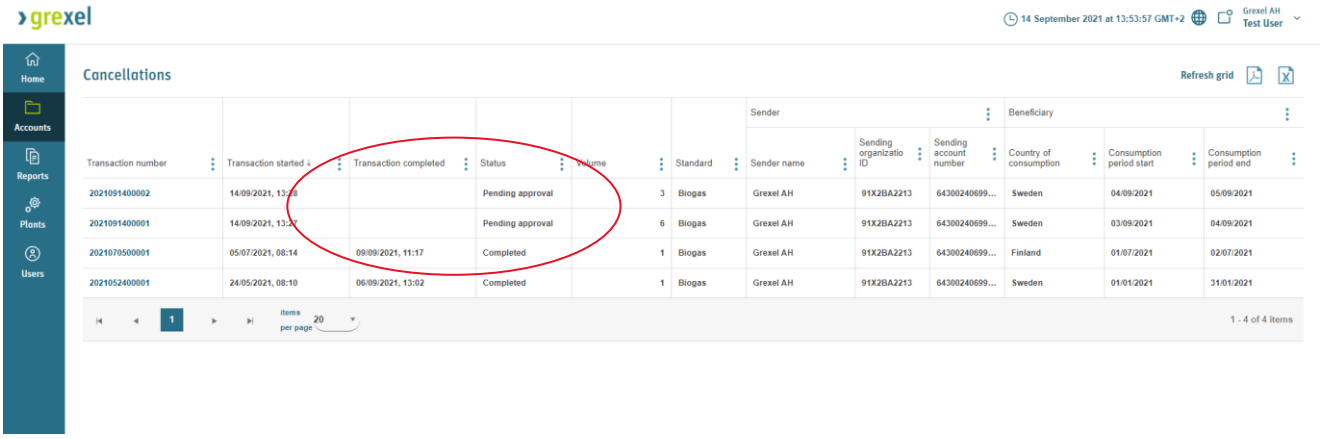


Figure 3-18 Cancellations pending for approval

3.5 Cancellation statements

Cancellation statements present an official document proving the cancelled certificates and properties associated to the operation. The cancellations for AH organization can be viewed by navigating to **Accounts → Cancellations.**

3.5.1 Cancellations - grid

Cancellation Statements - grid shows a list of all the cancellations made in the organization and which are in status *Completed*, *Pending for approval,* or *Rejected*

You can see the default grid view of **Cancellations** in Figure 3-19 Cancellations grid.

▶ Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download reports.

Table 3-6 Cancellation data properties explains all the possible columns which can be shown in the **Cancellation** - grid.

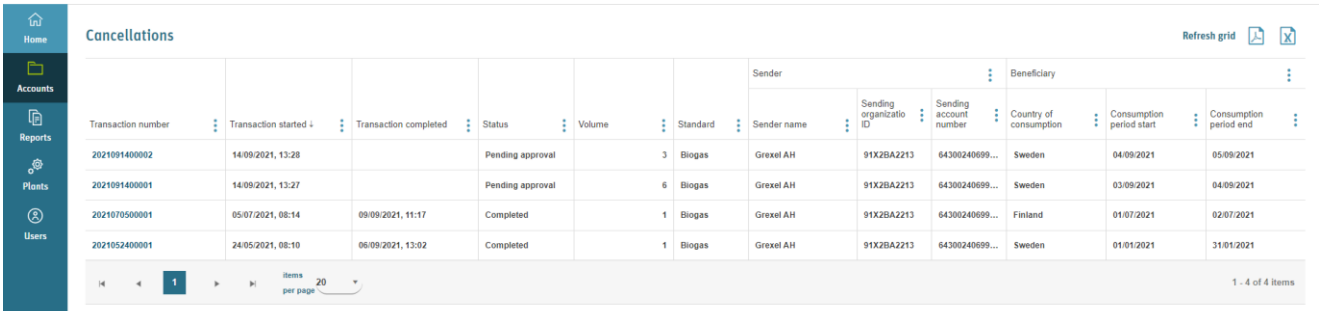


Figure 3-19 Cancellations grid

Table 3-6 Cancellation data properties

Group	Label	Description
General	**Transaction number**	ID of the Transaction in G-REX
	Transaction started	Datetime when a Transaction was started
	Transaction completed	Datetime when a Transaction was completed
	Transaction type	Type of the transaction, usually cancellation or transfer
	Transaction status	Actual status of the transaction
	Message to receiver	Voluntary message associated to a transaction. Mostly relevant for transfers within the same domain.
	Volume	Number of Certificates involved in the transaction
	Standard	Standard of the certificates in the transaction.
Sender	**Domain name**	Domain name of the organization doing the cancellation
	Domain code	Domain code of the organization doing the cancellation
	Organization name	Organization name of the account holder cancelling certificates
	Organization ID	Organization ID of the account holder cancelling certificates
	Account Number	Account number, from which the certificates are cancelled.
Beneficiary	**Beneficiary name**	Name of the party, for which the certificates were cancelled
	Beneficiary location	Location of the party, for which the certificates were cancelled
	Beneficiary type	Type of the beneficiary
	Country of consumption	To which country the cancellation was made to

		Note: There are limitations to which country can be selected in your Domain. E.g. some Domains allows only cancellations to the Domain of the Issuing body. Contact your Issuing Body if having questions about the countries available.
	Consumption period start	Start date of the consumption. **Note:** there might be limitations in Domain level regarding the allowed periods
	Consumption period end	End date of the consumption. **Note:** there might be limitations in Domain level regarding the allowed periods
	Usage type	Usage type of the cancellation
	Cancellation purpose	Free text for purpose of the cancellation

3.5.2 Cancellation - details

The Cancellation details (i.e. Cancellation Statement) can be opened by clicking a **Transaction number** in the Cancellations - grid.

If Cancellation is *Completed* (i.e. not *Pending for approval* nor *Rejected*), the **Cancellation Statement** is shown. It contains standard-specific logos and disclaimers in addition of the standard transaction view including certificate bundles.

If the cancellation is *rejected* or *pending for approval* state, clicking the **Transaction number,** the Cancellation's transaction details view is shown.

More information about the transaction details view can be found in section 3.6.2 Transaction - details.

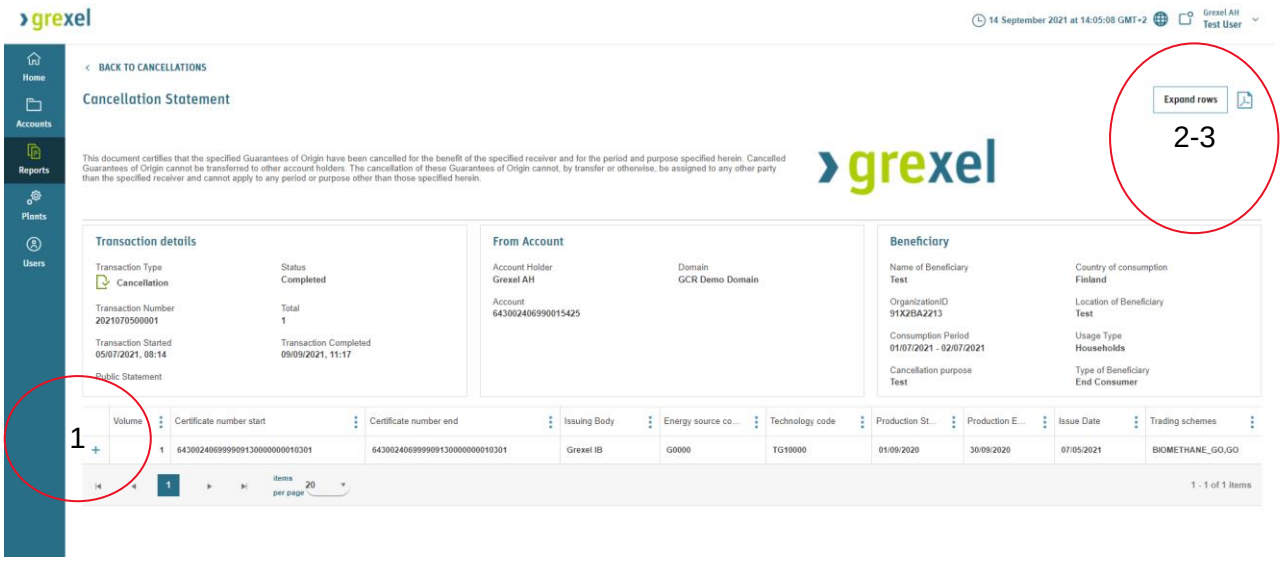


Figure 3-20 Cancellation statement

Table 3-8 Transaction statuses

Transaction status	Description
Completed	Transaction status for transaction, that is completed successfully.
Failed	Transaction status for transaction that failed to complete.
Pending approval	Transaction status for transactions that need approval from a second party. For example cancellations in certain domain that require cancellations approval.
Rejected	Transaction status for transactions that have been rejected by second party. For example cancellation which has been rejected by issuing body user.
Started	Transaction status for transactions that are still in progress. Most relevant for exports to other domains.

► Transaction - details

Note: Cancellation statement can be exported only to PDF.

Note: From **Accounts → Transactions** the cancellation's transaction details can be viewed also in the non-cancellation statement form, including export both to Excel and PDF.

3.5.2.1 Certificates

All the certificate bundles associated to a transaction can be viewed in a grid at the bottom of the cancellation statement view. The view functions as any regular grid in the application but it also shows further details of the certificate bundle in the expandable view. The view can be expanded to show all certificate data by clicking the + icon (1).

Note: All rows of cancellation certificates can be expanded simply by clicking **Expand all rows (2)** in the upper right corner of the view. See section 3.3.1 Certificate Bundle - details for more information about certificate bundles.

3.5.2.2 Cancellation statement PDF

As the cancellation statement is by specification an official document to prove the cancellation, exporting the view to PDF is essential. The statement can be exported to PDF by clicking the

icon (3), which generates the report for all data associated to the transaction. The exported file is constructed exactly in the same way as the **cancellation statement** view itself. The export can take some time depending on the number of certificate bundles in the transaction.

3.5.2.3 Public cancellation statement

The purpose of the “Public cancellation” feature is to create a link in the cancellation statement that can be shared with a stakeholder.

When a cancellation is set as public by an account holder, the system generates a link (see Figure 3-21 Public cancellation statement) to the cancellation statement. The cancellation statement becomes accessible to anyone with that the link of the cancellation statement is shared with regardless of whether they are a registered user of the registry.

For example, follow the link bellow to view the corresponding demonstration cancellation seen in Figure 3-21:

https://demo.grexel.com/en/public/cancellationstatement/8b4420f2-9327-43c2-aac4-8aa7965eb8ae

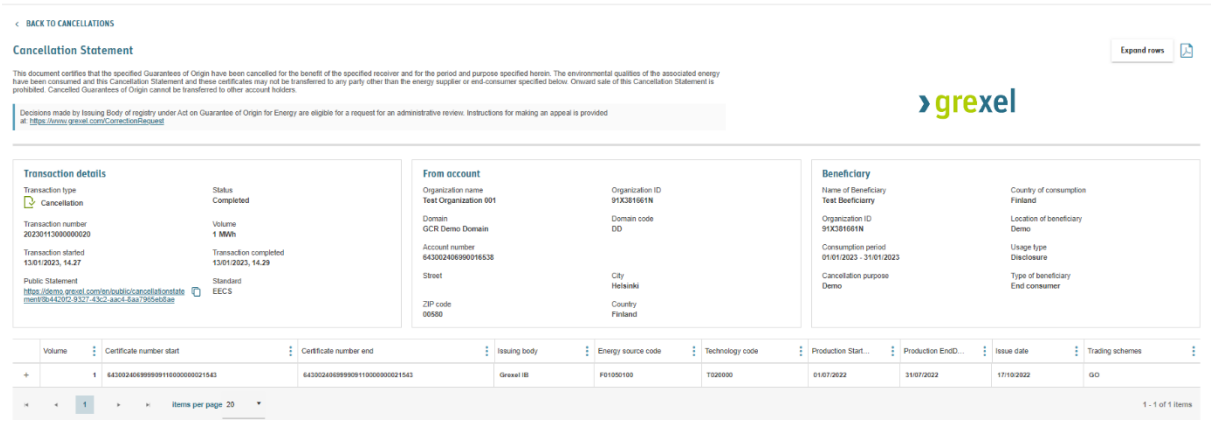


Figure 3-21 Public cancellation statement

Note: The cancellation statement link is generated only after the Issuing Body has approved the cancellation, if issuing body approval for cancellations is enabled (domain specific feature).

3.6 Transactions

The transactions of an Account Holder organization can be viewed by navigating to **Accounts → Transactions**. The list shows all transactions including both certificate cancellations and transfers.

Note: For information about cancellation statements see section 3.5 Cancellation statements

3.6.1 Transactions - grid

The transactions grid shows a list of all the Transactions made in the account holder organization. The grid can be viewed by navigating to **Reports → Transactions**

- Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download reports.

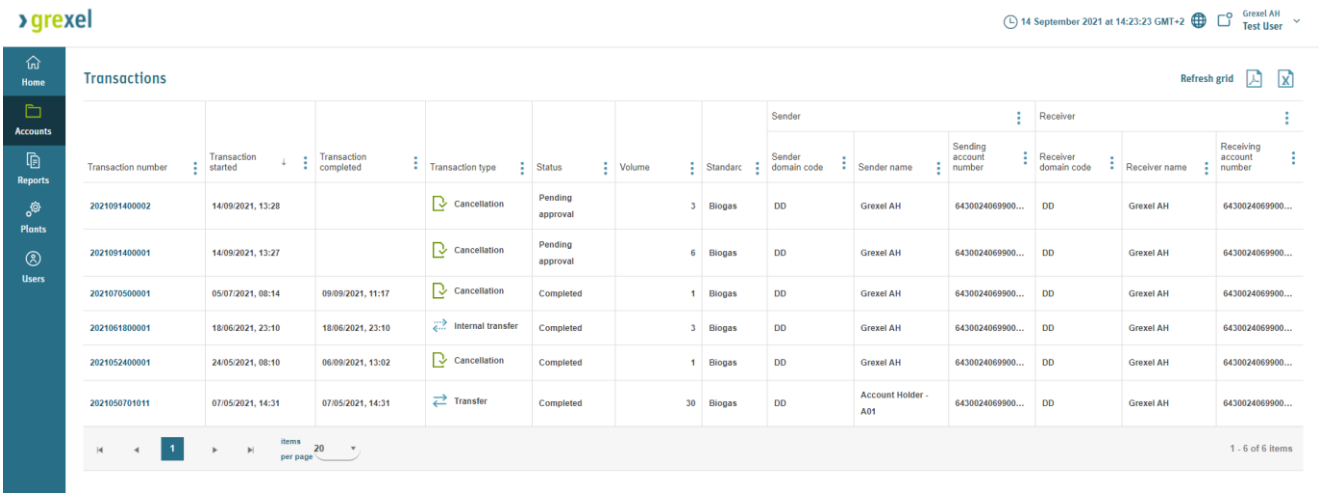


Figure 3-22 Transactions grid

From Figure 3-22 Transactions grid you can see the grid view of Transactions made in the organization, whereas Table 3-7 Transaction properties explains all the possible columns which can be shown in the Transaction - grid.<<<<

Table 3-7 Transaction properties

Name	Description
Transaction number	ID of the Transaction in G-REX
Transaction started	Date when a Transaction was started
Transaction completed	Date when a Transaction was completed
Transaction type	Type of Transfer
Status	Status of Transfer. See possible transaction statuses in Table 3-8 Transaction statuses.
Volume	Number of Certificates involved in the transaction
Standard	Certificate standard used
Sender domain	Domain of the Sender
Sender domain code	Domain code of the Sender
Sender name	Name of the sender organization
Sending organization ID	Member code of the sending organization
Sending account number	Number of the account the certificates were transferred/cancelled from

Receiver domain	Domain of the Received where applicable
Receiver domain code	Domain code of the Receiver where applicable
Receiver name	Name of the Receiver organization
Receiver organization ID	Member code of the Receiver organization
Receiver account number	Account number the certificates were transferred/cancelled to
Withdrawal category	If the Transaction Type is Withdrawal, then a specific category of the reason of Withdrawal.
Beneficiary name	Name of the beneficiary. Mainly applicable for the Cancellation -Transaction type.
Beneficiary location	Location of the Beneficiary. Mainly applicable for the Cancellation - Transaction type.
Beneficiary type	Type of Beneficiary. Mainly applicable for the Cancellation -Transaction type.
Country of consumption	To which country the cancellation was made to. Mainly applicable for the Cancellation -Transaction type.
Consumption period start	Start date of the consumption. Mainly applicable for the Cancellation - Transaction type.
Consumption period end	End date of the consumption. Mainly applicable for the Cancellation - Transaction type.
Cancellation usage type	Type to show where the Cancelled energy was used. Mainly applicable for the Cancellation -Transaction type.
Cancellation purpose	Purpose of the cancellation. Free text. Mainly applicable for the Cancellation - Transaction type.
Public cancellation link	Boolean value whether there is available public link to download the Cancellation. Mainly applicable for the Cancellation -Transaction type.
Error code	Error code to indicate the reason for the failure. The Error codes might vary depending on the link. For AIB Hub connections the error codes are listed in Fact Sheet 18.
Reference ID	Internal ID of the Transactions which can be used to identify the transaction using API.
Message	Message given while creating transaction.

Table 3-8 Transaction statuses

Transaction status	Description

Completed	Transaction status for transaction, that is completed successfully.
Failed	Transaction status for transaction that failed to complete.
Pending approval	Transaction status for transactions that need approval from a second party. For example cancellations in certain domain that require cancellations approval.
Rejected	Transaction status for transactions that have been rejected by second party. For example cancellation which has been rejected by issuing body user.
Started	Transaction status for transactions that are still in progress. Most relevant for exports to other domains.

3.6.2 Transaction - details

Transaction - details shows all the relevant information regarding a transaction including the certificate bundles.

To get to the Transaction details, navigate to **Accounts** → **Transactions** and click **Transaction number**. Transaction details are divided into three blocks specifying generic transaction attributes as well as a grid showing the associated certificate bundles. For transfers the blocks are *General, Sender* and *Receiver,* whereas cancellations have a block for *Beneficiary* instead of the receiver.

See Figure 3-23 Transaction details view.

- See Table 3-7 Transaction properties for transaction properties.
- See table Table 3-4 Certificate data properties for certificate properties

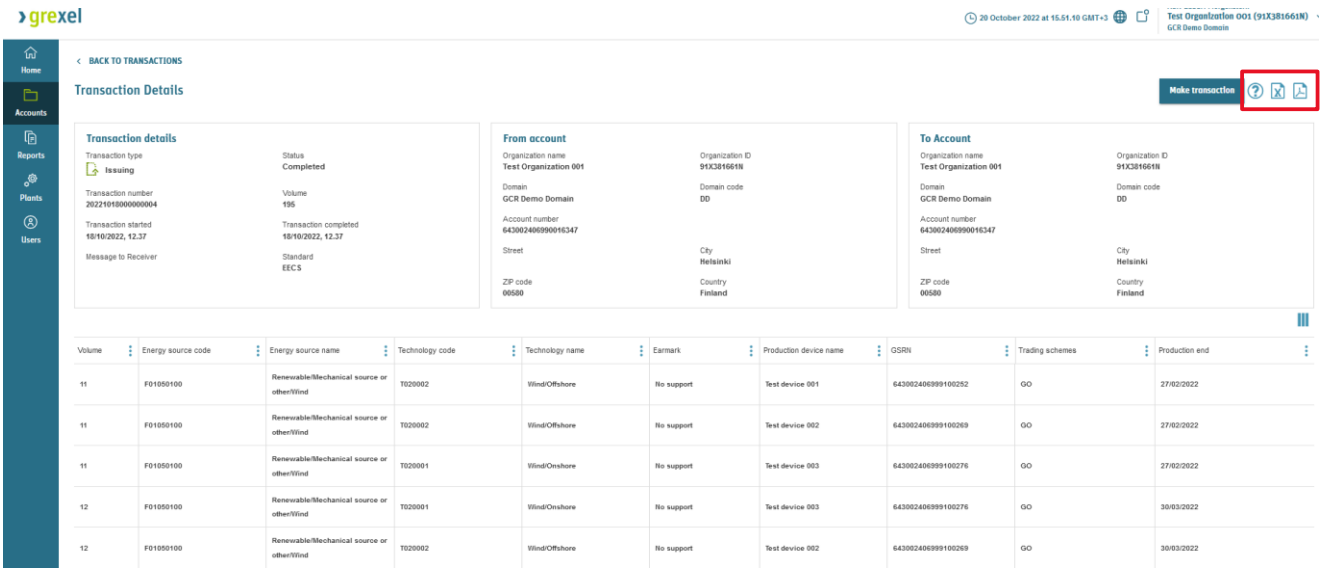


Figure 3-23 Transaction details

3.6.2.1 Export Transaction details to PDF/Excel

A User can export the transaction details to a PDF/XLS, you can Press the PDF/XLS Icon on the top right corner of the **Transaction details** view (Highlighted in red in Figure 3-23 Transaction details) a download will begin immediately for the PDF/XLS file.

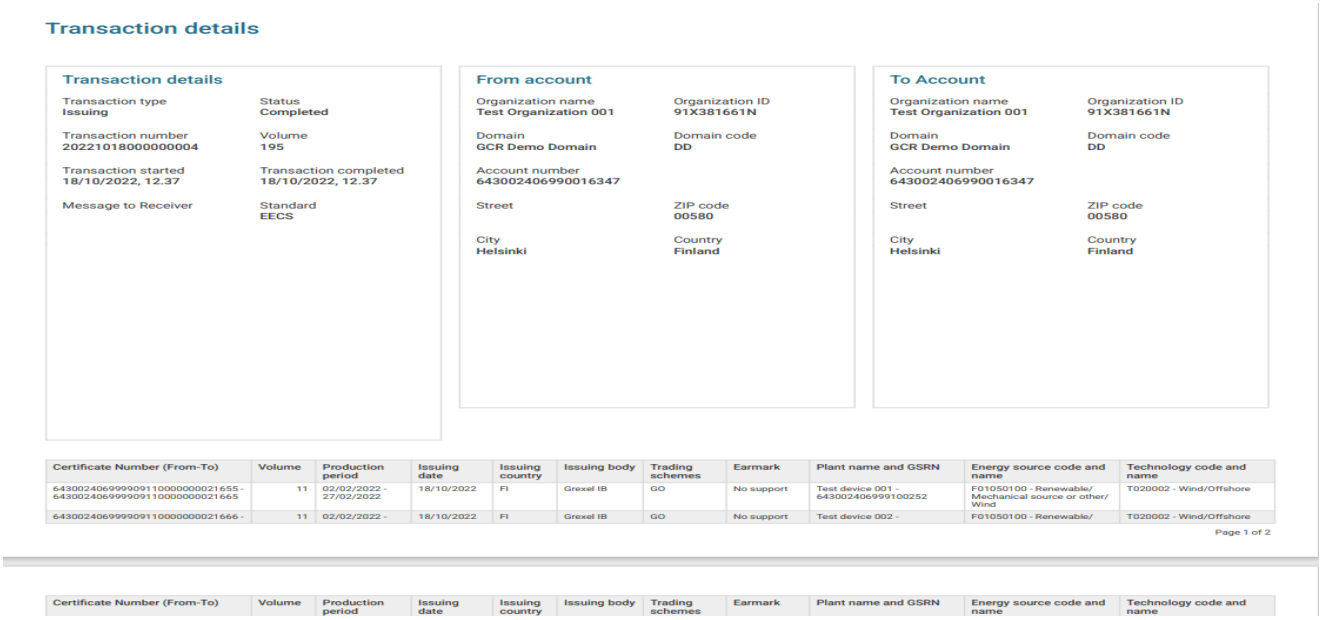


Figure 3-24 Transaction details to PDF

3.6.3 Transaction from transaction

In G-REX it is possible to cancel or transfer active certificates from within the Transaction - details of a previously made transaction.

To make a transaction from a transaction, go to **Accounts > Transactions** and press **Transaction number**. You will now have a view of the transaction that was made and the certificates within that transaction. Press the button **Make Transaction** and you will be redirected to a page with the active certificates within that transaction number.

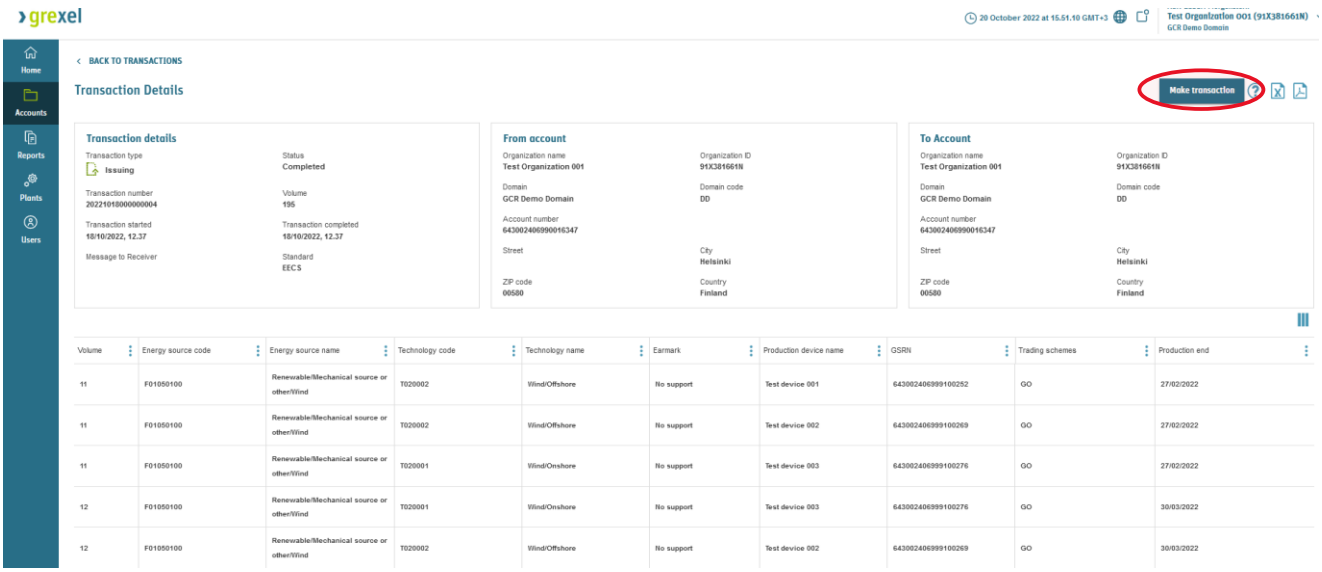


Figure 3-25 Transaction details

From the page with the active certificates within the transaction number and owned by your Organization, tick the box of the certificate you wish to cancel or transfer and press the corresponding button.

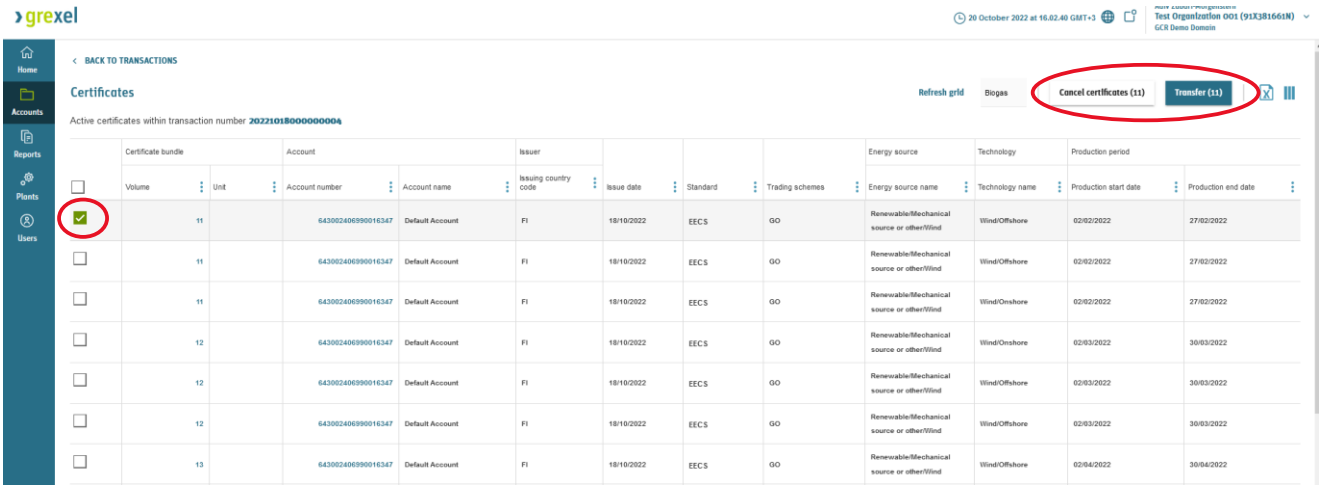


Figure 3-26 Transaction from transaction

3.6.4 4-eye approval for transactions

4-eye approval is a feature in the organization parameters that allows organizations to have an extra step of verification before carrying out cancellations, transfers, or internal transfers.

When an organization has the 4-eye approval set in its parameters another user in the organization (with the right permission) would need to approve a cancellation or a transfer.

To set up 4-eye approval Navigate to **Organization settings** and tick the required boxes in the **Organization parameters** on the general tab of **Organization settings**

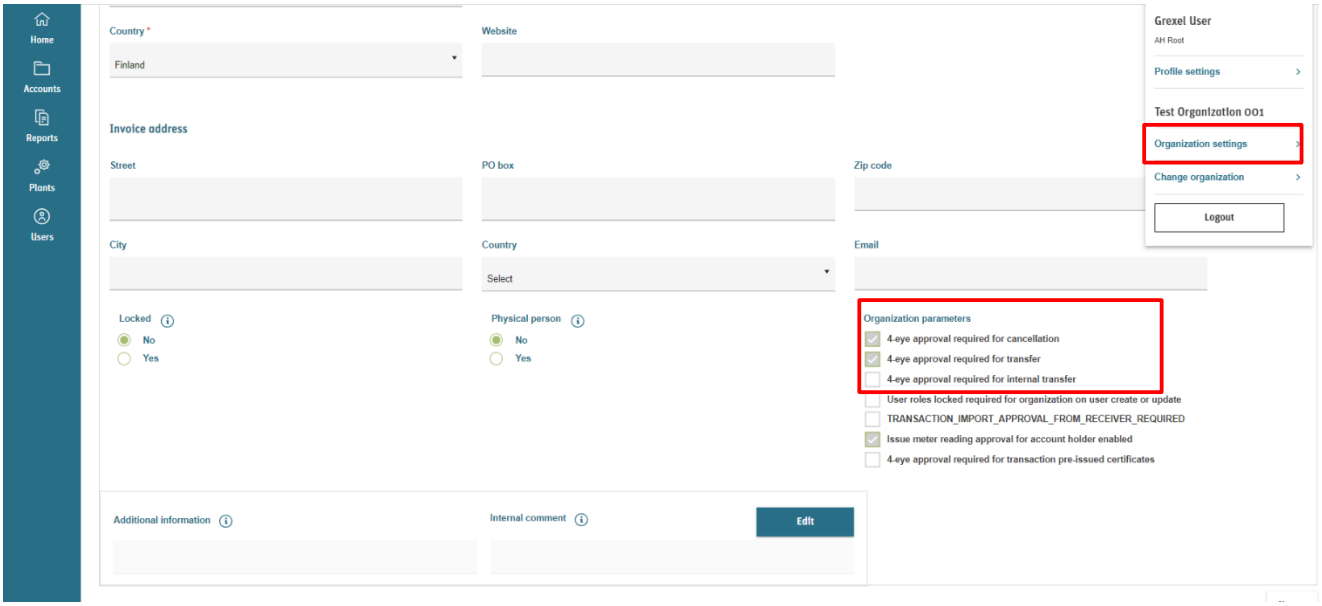


Figure 3-27 4-eye approval

3.7 Scheduled transactions

The previous as well as upcoming scheduled transactions can be viewed, created and managed within Accounts → Scheduled transactions menu. Table 3-9 Scheduled transaction properties presents the properties of scheduled transactions whereas Table 3-10 Scheduled transaction types presents the types of scheduled transaction.

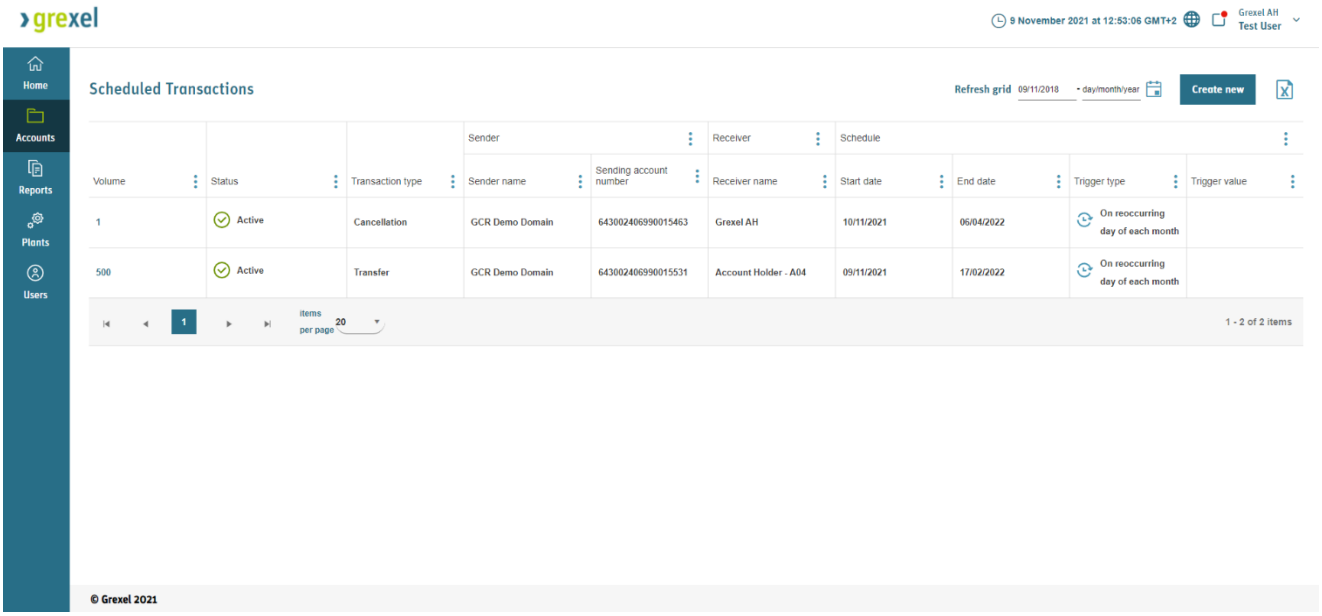


Figure 3-28 Scheduled transactions grid

Table 3-9 Scheduled transaction properties

Group	Label	Description
	Status	Status of the scheduled transaction
	Transaction type	Transaction type of the scheduled transaction
	Latest run datetime	Time of the last completion of the scheduled transaction (relevant for transactions happening multiple times)
Schedule	**Start date**	Start date of the active period of the schedule transaction
	End date	End date of the active period of the schedule transaction
	Trigger type	Type of scheduled transaction (see **Table 3-10 Scheduled transaction types**)
	Trigger value	Value specifying when the scheduled transaction will be done. Can be number or datetime, depending on the selected trigger type.
Transaction specific	**See sections 3.4.1.1 Cancellations and 3.4.1.2 Transfers for tables for more details about transaction types.**	

Table 3-10 Scheduled transaction types

Schedule type	One time	Description
Transactions on specific date and time	Yes	Transaction that happens at a specific date and time based on user input
Transactions on specific day of the month	No	Continuous scheduling of a transaction. The transaction on the selected day of each month within the specified data range.
Transactions based on issuing	No	Scheduling to trigger transactions upon issuing in the domain.
Transactions based on received transfer	No	Schedule to trigger transaction upon received transfers.

3.7.1 Scheduled transaction details

To view details of a scheduled transaction

1. Navigate to **Accounts → Scheduled transactions**
2. Click value in the **Volume** column
3. Detail view is opened

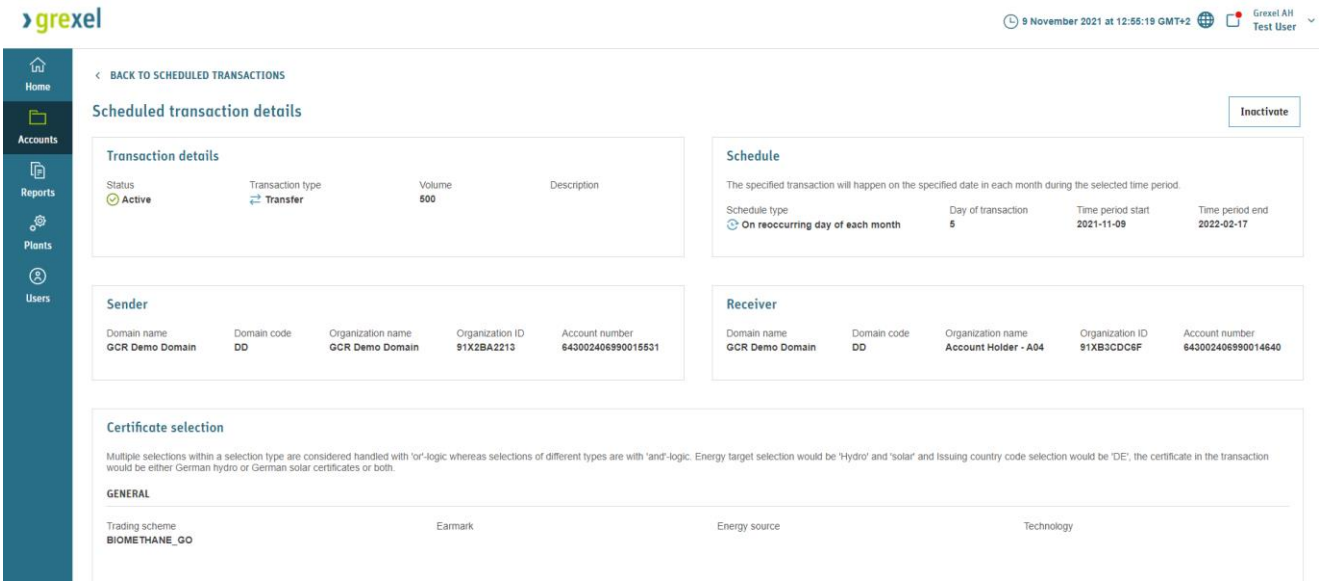


Figure 3-29 Scheduled transaction details

3.7.2 Create scheduled transaction

In principle scheduled transactions are created like regular transactions (as explained in section 3.4 Making transactions). The difference is that the user must specify the schedule type and time range before setting up the rest of the transaction. To create a scheduled transaction

1. Navigate to **Accounts → Scheduled transactions**
2. Click **Create new**
3. Specify **Transaction type and sending account**
4. Specify **Schedule type** and specify **Trigger value** and schedule **time range**

Note: In case of schedule type of "Transaction on specific date and time" the time range doesn't need to be selected since the transaction happens only once. The time zone used should always be the Domain time zone

5. Specify **Certificate selection.** For more details see section 3.4.2.2 Selecting by Certificate properties.

Note: under Certificate selection only the volume is mandatory. If no optional details are inserted, any certificates from the selected account will be selected for transfer.

6. Specify transaction type specific parameters. See section 3.4.1.1 Cancellations for cancellation and section 3.4.1.2 Transfers for transfers.
7. Click **Save**

Note: if there are not enough certificates in the selected account matching the inserted criteria at the selected execution time of the schedule, the whole schedule will fail (i.e. not executed partly for the amount of certificates matching the criteria).The transaction can be found in the **Scheduled transactions** grid after request is processed.

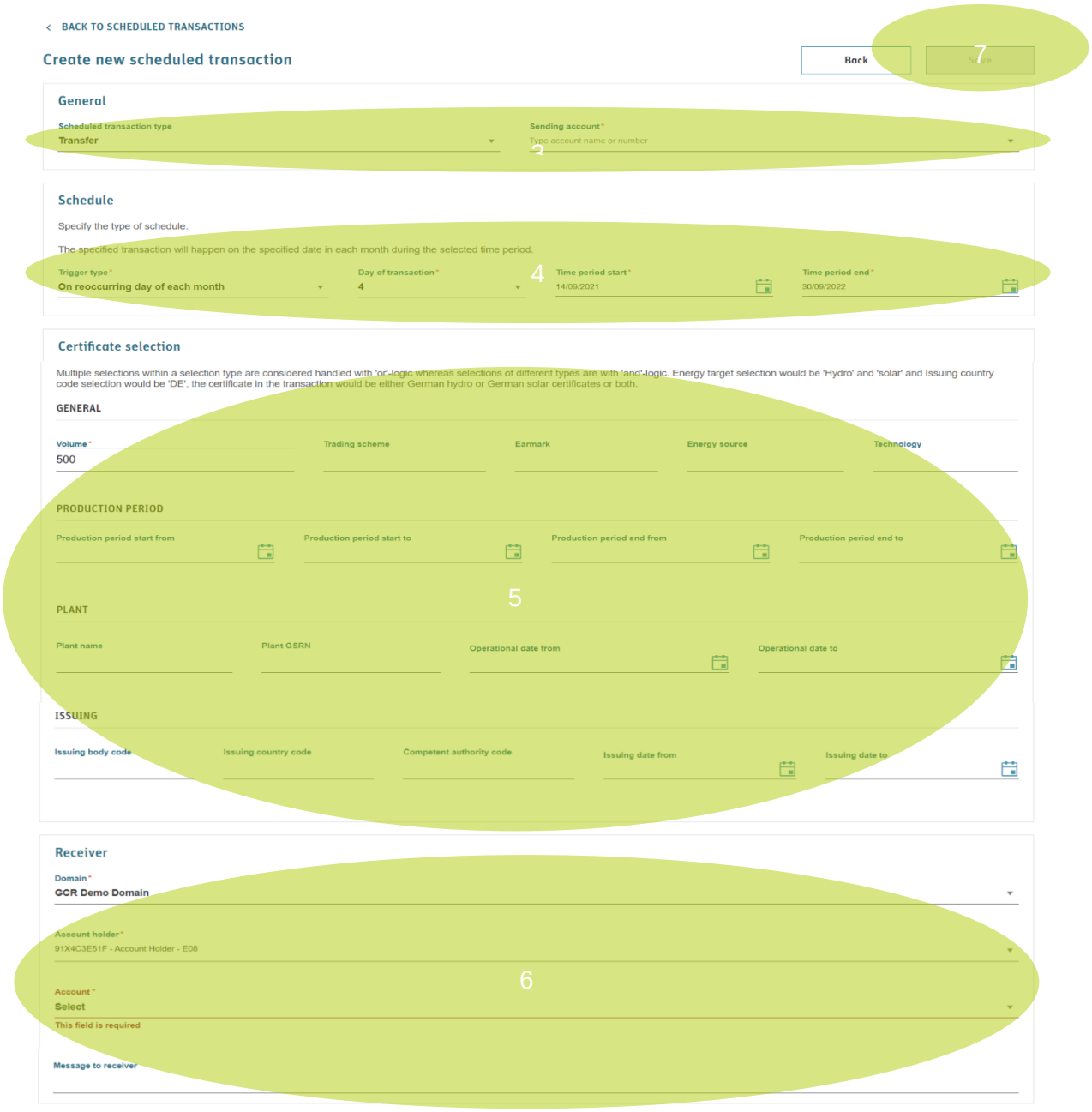


Figure 3-30 Create scheduled transaction

3.7.3 Schedule transaction based on issuing or transfer

A user can set a trigger type for a scheduled transaction based on an issuing or a transfer.

To select the trigger type, follow the steps as in section 3.7.2 Create scheduled transaction and specify the trigger type in step 4 from the **Schedule** section to be either **On issuing from issuing** or **On transfer from transfer** (see Figure 3-26)**.**

When trigger type **On issuing from issuing** is selected, the specified volume or percentage adhering to the given criteria will be transferred or cancelled when the issuing transaction to the account is made.

When trigger type **On transfer from transfer** is selected, the specified volume or percentage adhering to the given criteria will be transferred or cancelled when the incoming transfer to the account is made.

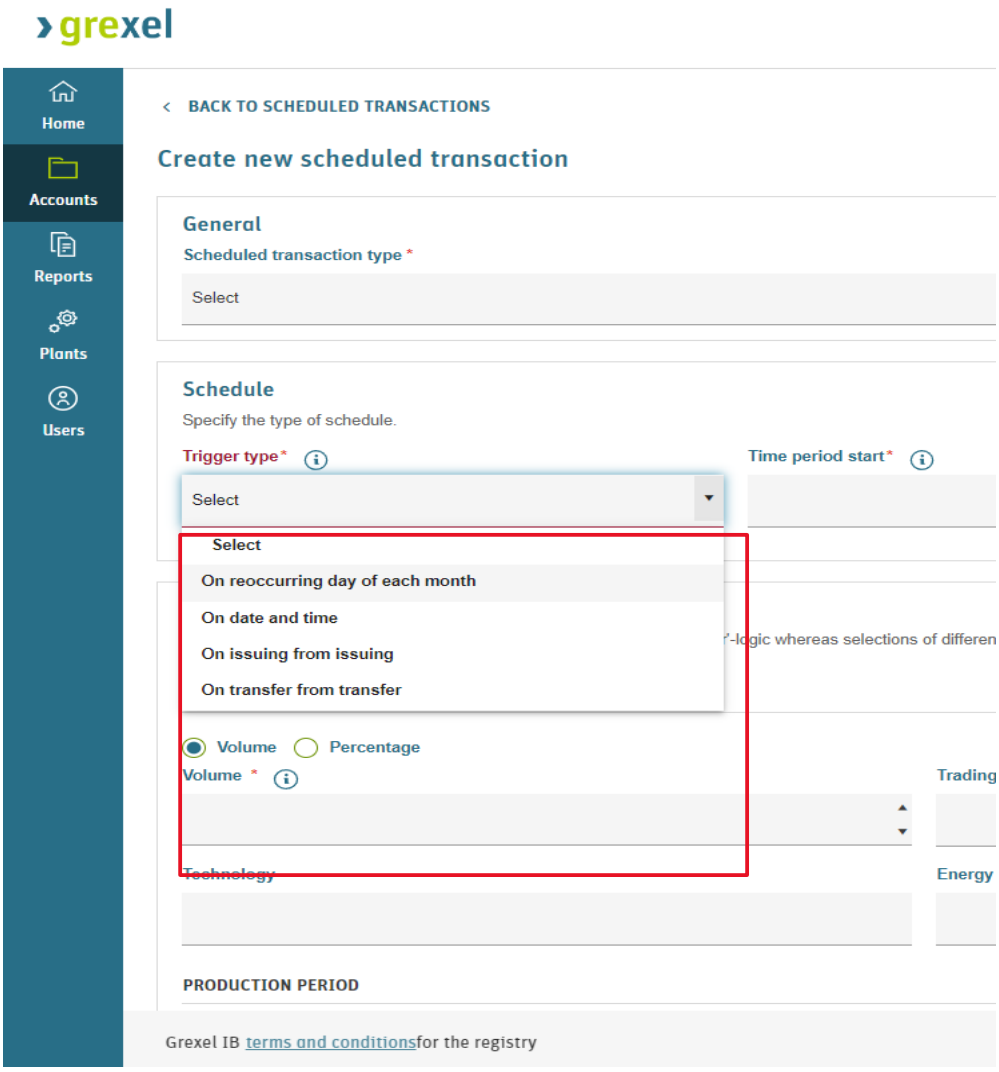


Figure 3-31 scheduled transaction based on issuing or transfer

3.7.4 Edit scheduled transaction

Scheduled transactions cannot be edited. It means that in case of e.g. incorrect input, the created scheduled transaction must be inactivated (see section 3.7.5 Inactivate scheduled transaction) after which a new scheduled transaction can be created.

3.7.5 Inactivate scheduled transaction

To inactivate a scheduled transaction,

1. Navigate to **Accounts → Scheduled transactions.**
2. Click the value of the **Volume** column in the grid to open the scheduled transaction's details
3. Click **Inactivate**
4. Double confirm the action
5. The scheduled transaction is inactivated immediately.

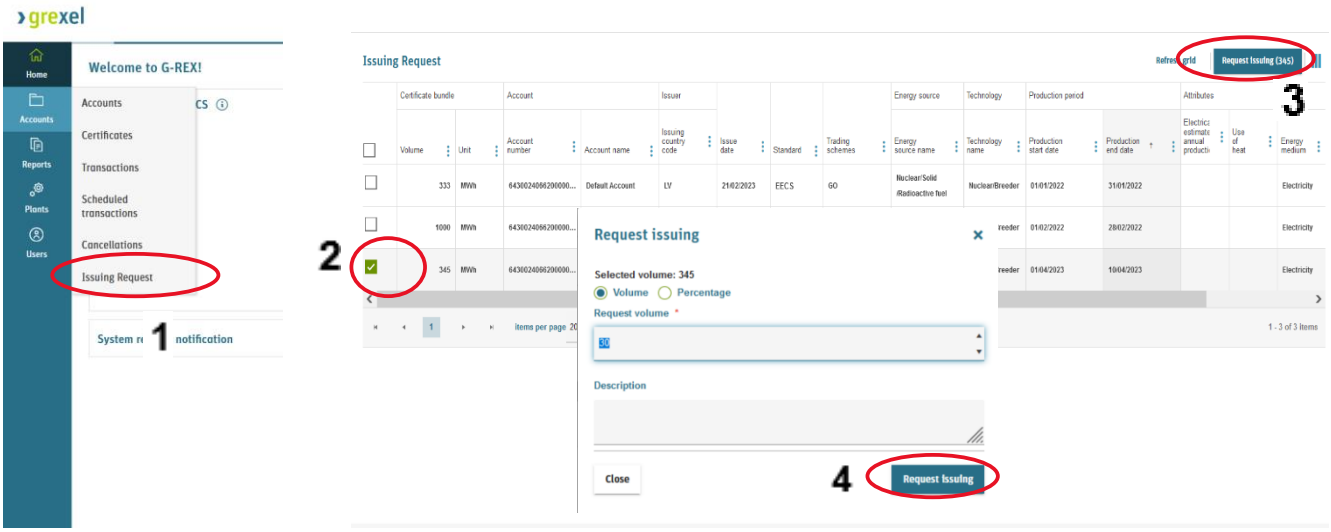
3.8 Issuing requests

Issuing requests is a feature available to certain domains.

If the feature is available in the domain, a user can send an issuing request to their Issuing body for approval after meter readings have been approved.

To submit an issuing request:

1. Navigate to Accounts > Issuing request.
2. Select the Pre-issued bundles you would like to request.
3. Press the **Request Issuing** button.
4. In the dialog box, indicate the number of certificates you need and press **Request Issuing**.
5. Double confirm the action.



3.9 Abandon Issuing request (Domain specific feature)

When a user has an issuing request pending, they can abandon the issuing request

To abandon the issuing request:

1. Select the pre-issued certificates request you wish to abandon and press the Abandon issuing button (See Figure 3-32 Abandon issuing).
2. In the dialog form, specify the volume of percentage of selected certificates you wish to abandon issuing for and press Abandon issuing (See Figure 3-33 Abandon issuing dialog form) .
3. Confirm the action
4. You will be redirected to the transaction confirmation (Figure 3-34)

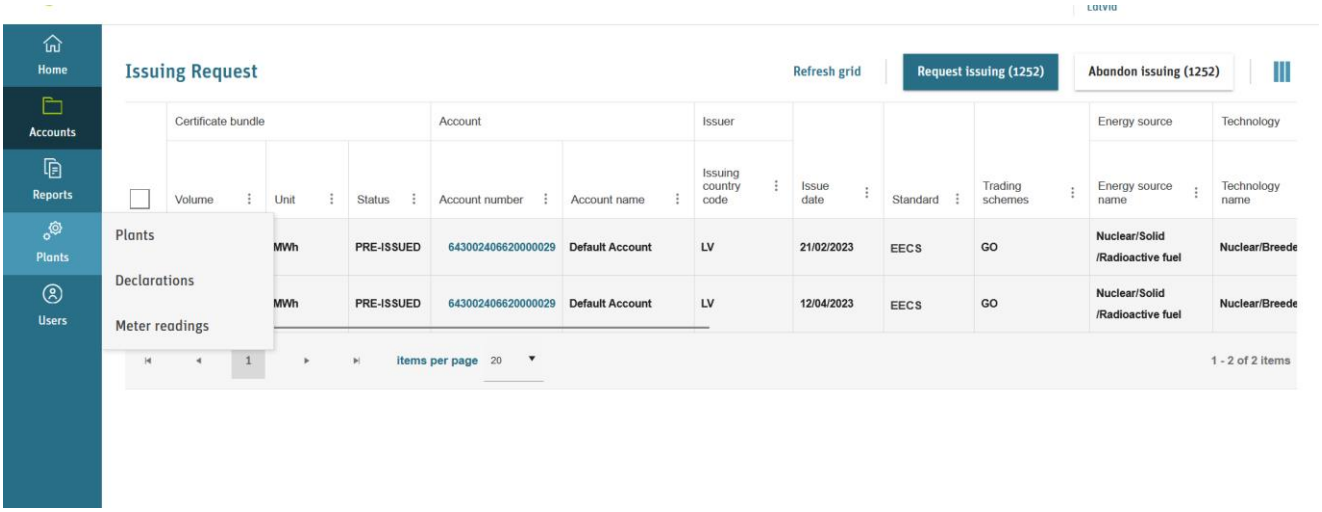


Figure 3-32 Abandon issuing

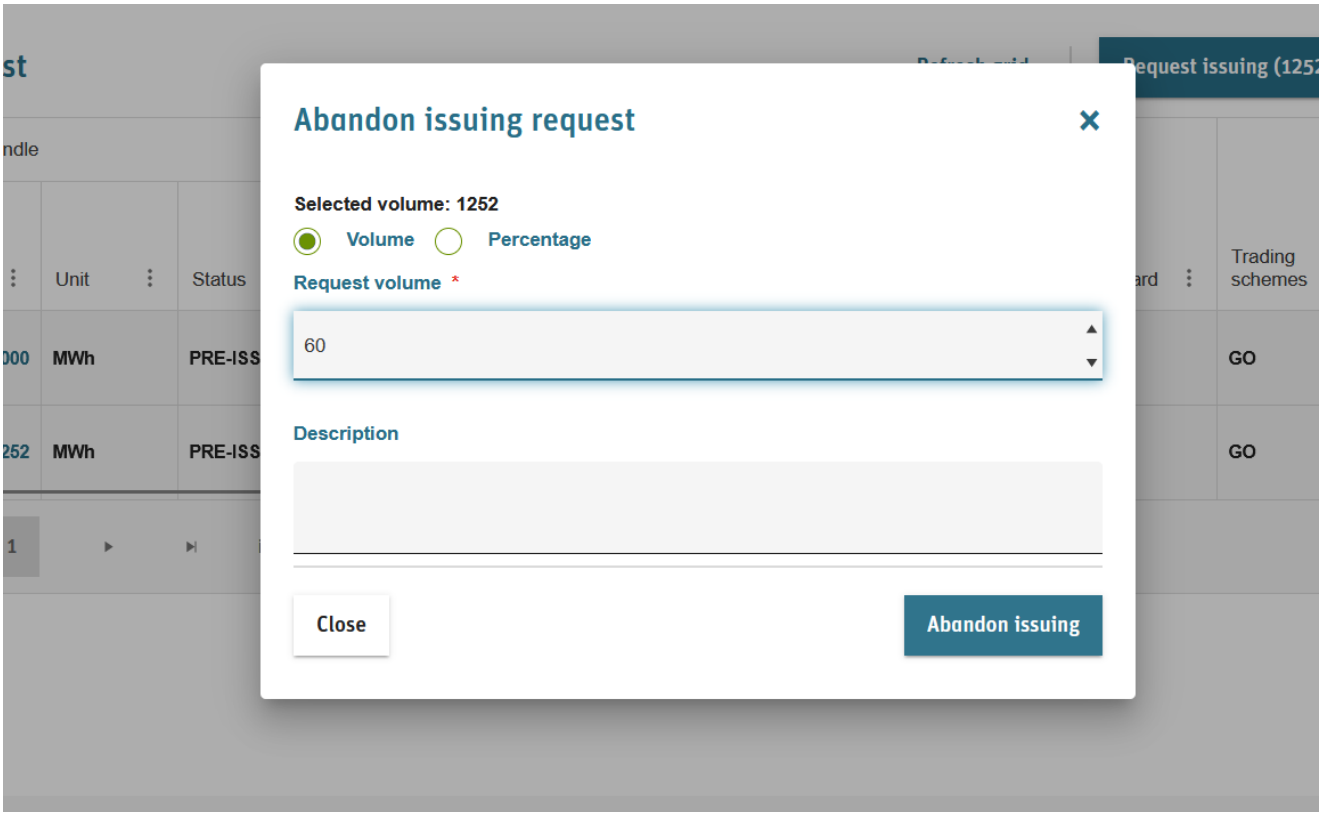


Figure 3-33 Abandon issuing dialog form

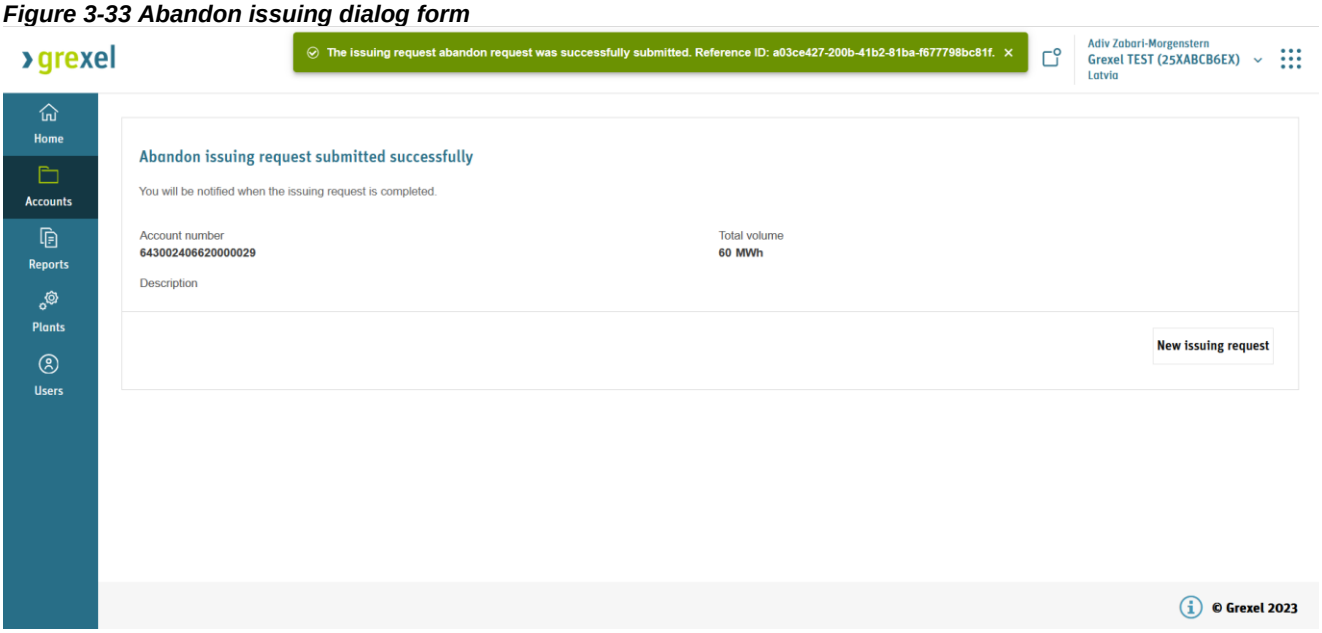


Figure 3-34 transaction confirmation

4. Reports

In this section the general principles of using and navigating in the **Reports** -menu in the G-REX application are explained. Table 4-1 Reports menu access rights presents the user access rights to view the features under the Reports main menu.

- Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download reports.

Table 4-1 Reports menu access rights

	AH Root	AH Account Administrator	AH Account Viewer	AH PD Administrator	AH PD Editor	AH PD Viewer	AH User Administrator
View activity logs (for own organizations)	x	x	x	x	x	x	x
View plant transaction statistics (own organizations is owner or aggregate)	**x**	**x**					

4.1 Activity logs

Activity logs keep track of users' activities in G-REX. The activity logs track any user activities that modify data in the system. The account holder users can see activities only for their own organization and relevant for their user roles.

4.1.1 Activity log - list

To view activity logs, navigate to **Reports →Activity logs.** The list shows all the Activity logs of the selected organization. The Results can be filtered and sorted by all the columns as usual.

From the Figure 4-1 Activity logs grid you can see the view of activities made.

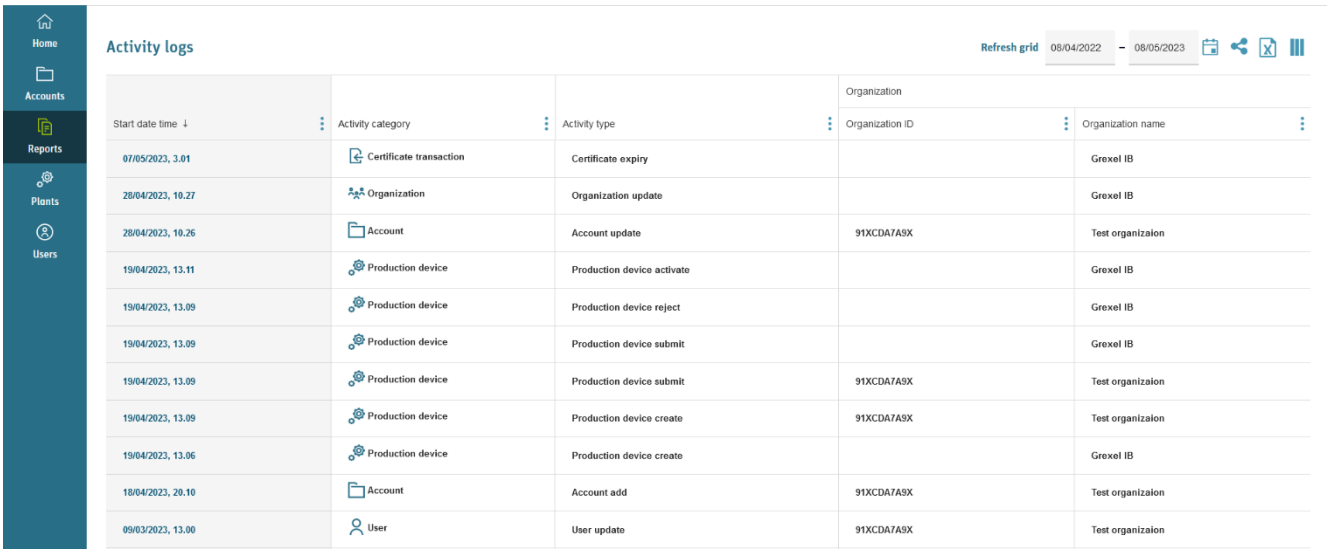


Figure 4-1 Activity logs grid

Table 4-2 Activity log data properties

Group	Name	Description
Activity log	Start date time	**Date and time of The Activity**
	Activity category	**Category of the Activity, User, Certificate transactions etc.**
	Activity type	**Type of activity made in the Activity category**
	Date time	**Time of the activity**
	Entity ID	**ID of the entity having been modified with the activity**
	Entity name	**Name of the entity having been modified with the activity**
User		**User that performed the activity**
	User id	
	Email	**User's email in the organization for which the action was performed**
	First name	
	Last name	
Organization		**Organization of the user that performed the activity**
	Organization ID	
	Organization name	

Domain		**Domain in which the activity was performed**
	Domain code	
	Domain name	
Activity details		Activity type specific details of the activity. For example might specify the fields edited in an object. **Note:** Activity details are not available in the grid columns, only in the activity log details.

4.1.2 Activity log - details

Details of an activity can be viewed by navigating to **Reports → Activity logs** and clicking the **Start date time** column value. It shows all information associated to the activity including the dynamic activity details.

Note: In data modifying operations, Activity Log details also lists information of changed fields These changes can be viewed under the Activity details section. All relevant changes of data are logged to the Activity Log with their previous and new values.

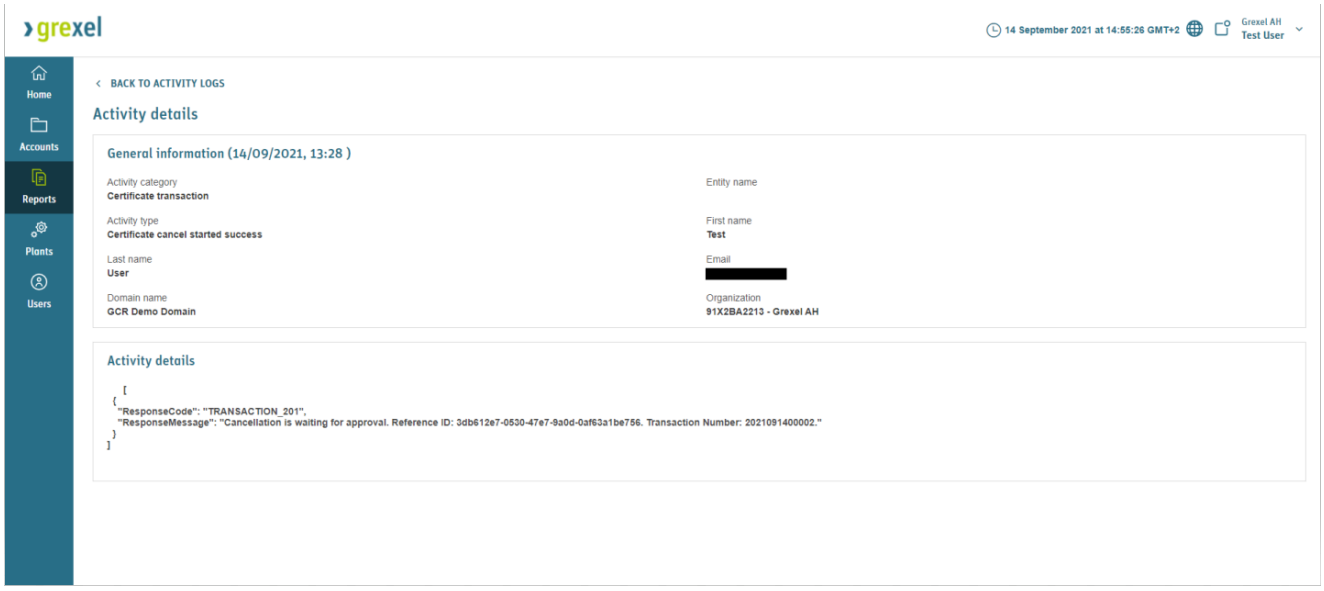


Figure 4-2 Activity log details

Note: If a request is unsuccessful with the error message "The request cannot be processed at the moment", this can often indicate that some element of the request has been blocked due to invalid data input which is triggering firewall blockings in the system. If possible, the request can be reattempted with problematic data removed. Data which triggers these blockings varies widely, but is most often special characters (e.g. "/") or combinations of special characters (e.g. "https://").

4.2 Plant transaction statistics

A user can view statistics of transactions of plants relevant to their organization

To view plant transaction statistics:

1. Navigate to reports > Plant transaction statistics
2. Select whether you wish to see statistics based on transaction date or production date
3. Enter the period you wish to view
4. Select the plants relevant in the transaction
5. Press load report

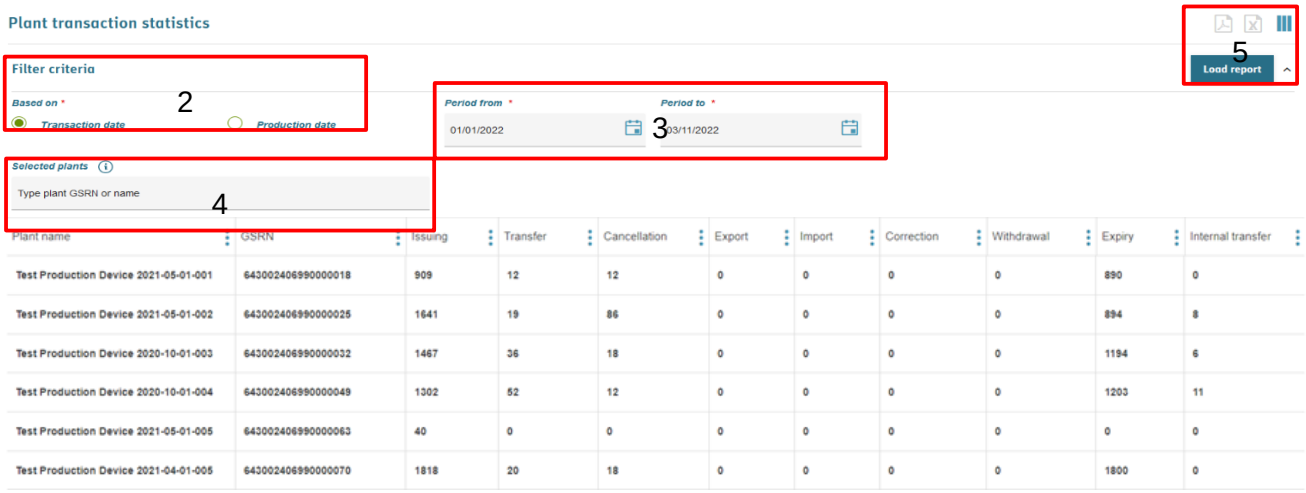


Figure 4-3 plant transaction statistics

4.3 Issuing statistics

To view Issuing statistics, navigate to **Reports → Issuing statistics.** The user should specify the statistics to be loaded by specifying filter criteria. The “Period from” and “Period to” fields are required, as is the selection of “Transaction date” or “Production date” as a basis for the report. The user must specify the “Standard” for which they wish to retrieve Issuing statistics. Additionally, the User can optionally filter based on “Selected plants”. Once the desired filters are inputted, the user can select “Load report” to fetch the desired Issuing statistics.

The filter criteria can be shown or hidden by pressing on the drop-down arrow at the top right of the window, highlighted in Figure 4-4 below.

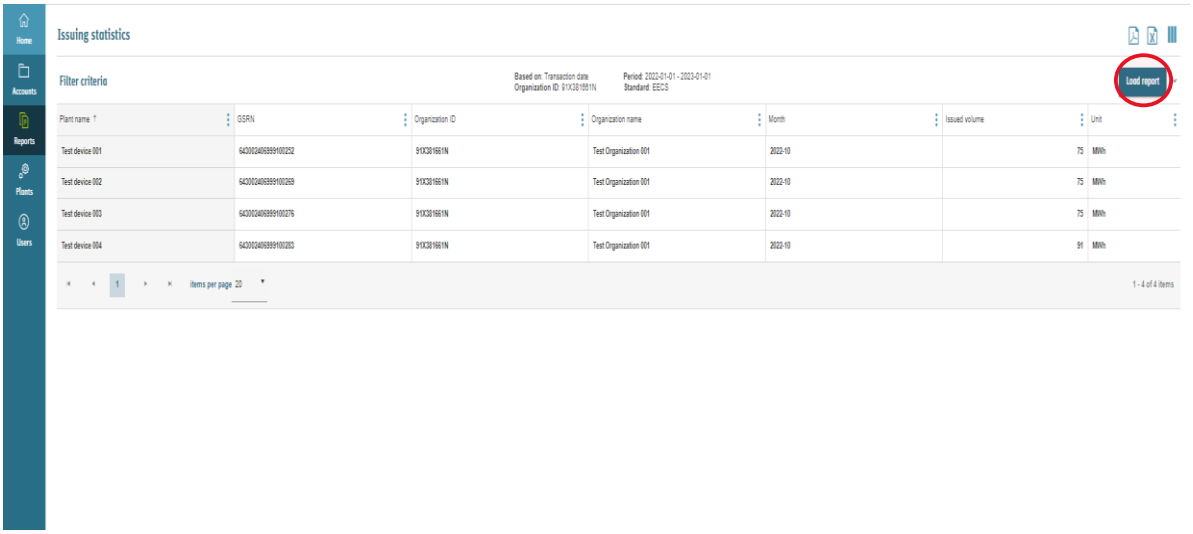


Figure 4-4 Issuing statistics

5. Plant management

Note: It is possible to create Meter readings (6.1 Meter readings) and Declarations (6.2 Declarations) only to the Plants which are in status 'Active'.

A Plant is a separately metered device or group of devices that generates energy (electricity, gas, heating or cooling etc.). Parameters like Licenses, Energy sources, Owners, etc. are defined for each Plant. Plants are the main component for issuing Certificates within the system. Under the Plants menu, a User can create, edit, and view Plants along with their Meter Readings and Declarations.

Plants can be versioned via the periods defined for the Meters, Organization roles, and/or Licenses.

Plants can be administered either by the Registrant Account Holder (AH) user or by the Issuing Body (IB) user with sufficient Access rights.

See section 1.6.3 User roles for more information about the difference between User Roles

The workflow for the registration and management of a Plant is usually as follows: After either the Issuing body or the Account holder user with sufficient user rights has initially saved the Plant details, it must be submitted for the Issuing body to approve. After the Issuing Body has accepted the Approval request, a Plant will be in Active status and ready for issuing. Refer to the following Figure 5-1 Plant statuses and Actionsfor more information about how the Plant status changes and which actions are possible in each status.

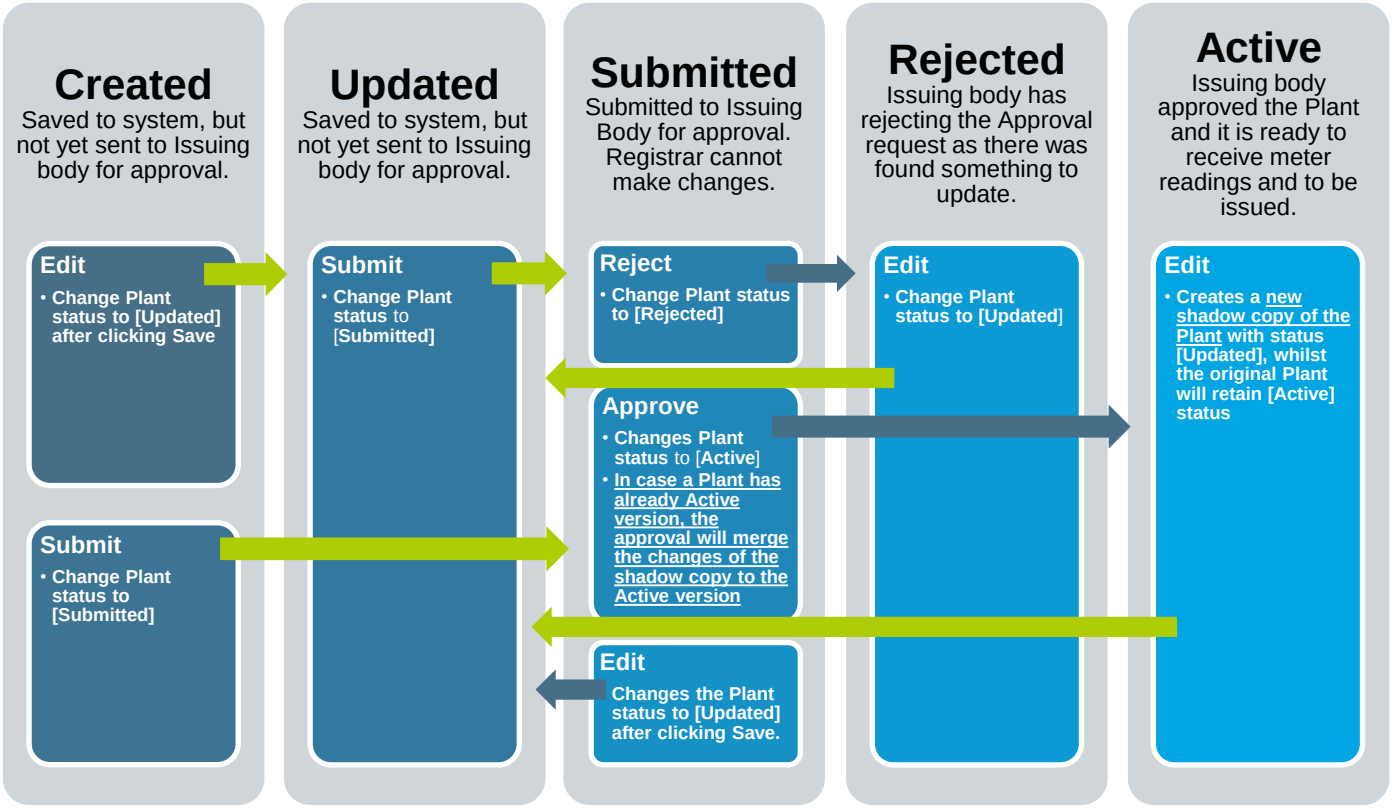


Figure 5-1 Plant statuses and Actions

Action available to both Registrant Account holder user or Issuing body user

Action available only for Issuing body user

The following Table 5-1 Access rights for Plants presents the AH access rights for the features in Plants section.

Table 5-1 Access rights for Plants

Feature	AH Root	AH Account Administrator	AH Account Viewer	AH PD Administrator	AH PD Editor	AH PD Viewer	AH User Administrator	Registrant	Operator	Registrar	Owner	Aggregated owner
	x			x	x	x						
View list	x			x	x	x						
View details	x			x	x	x		All	General, Meters, Roles	General, Meters, Roles	All	General License
Register	x			x	x			x				
Submit	x			x				x				
Approve / Reject												
Edit: Add / update / delete General, meters, licenses, Organizations	x*			x*	x*			x				
Changing issuing account											Edit issuing account number	Edit issuing account number
Lock / Unlock												
Delete Plant												

5.1 Plants - grid

- Refer to Chapter 1.7.3 Grids for instructions how to filter, sort, adjust columns and download reports.

The Plants grid is available on menu **Plants → Plants**. The Grid shows an overview of the Plants to which a User has access. The Name field serves as a link to get to details of a Plant. As the grid is easy to modify by adding new columns and filtering, it can serve different reporting purposes as well.

The Plant grid shows one row for each active Plant, but in the case that there is already an Active version for a Plant and that is being edited, the system will create a shadow copy of the Plant for editing and which is merged to the original Plant during the Approval process.

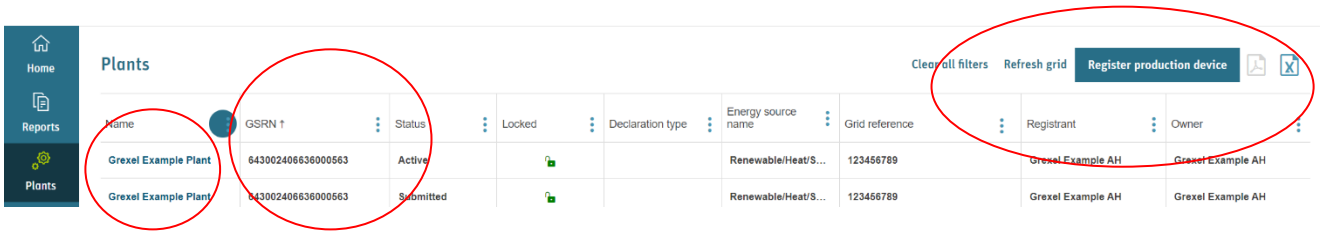


Figure 5-2 Plant - grid

Note: Not all properties of a Plant are available as grid columns. To view all properties, navigate to the **Plant details**.

5.2 Plant - details

Plant - details can be opened from the Plants - grid by Clicking the Plant Name field.

The Plant details are divided into four sections. To navigate between the sections, click the icons in the top of the details or click **Next** or **Previous** buttons which are found below the Plant details.

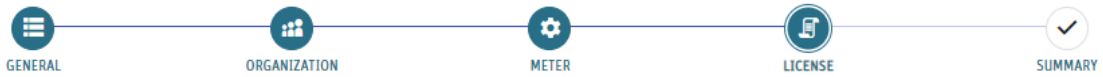


Figure 5-3 icons for Plant

1. **General**: For information which is expected not to change during the lifetime of a plant.
2. **Organization**: Specifying the Plant management responsibilities by allocating Operator, Registrant and Registrar to the Plant with validity period.
3. **Meter**: Specifying Meters and those will be used for importing meter reading values to issue.
4. **License**: Specifying defining ownership shares and such parameters for issuing which might change over time.

Plant details has a filter for Version (refer to Figure 5-4(1)). The dates given will be used to show only the Meters, Organisations and Licenses which are overlapping with the selected period.

It is possible to download the Plant details to PDF or Excel format (refer to Figure 5-4(2)).

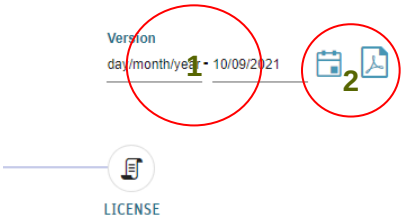


Figure 5-4 Plant Version filter and Download options

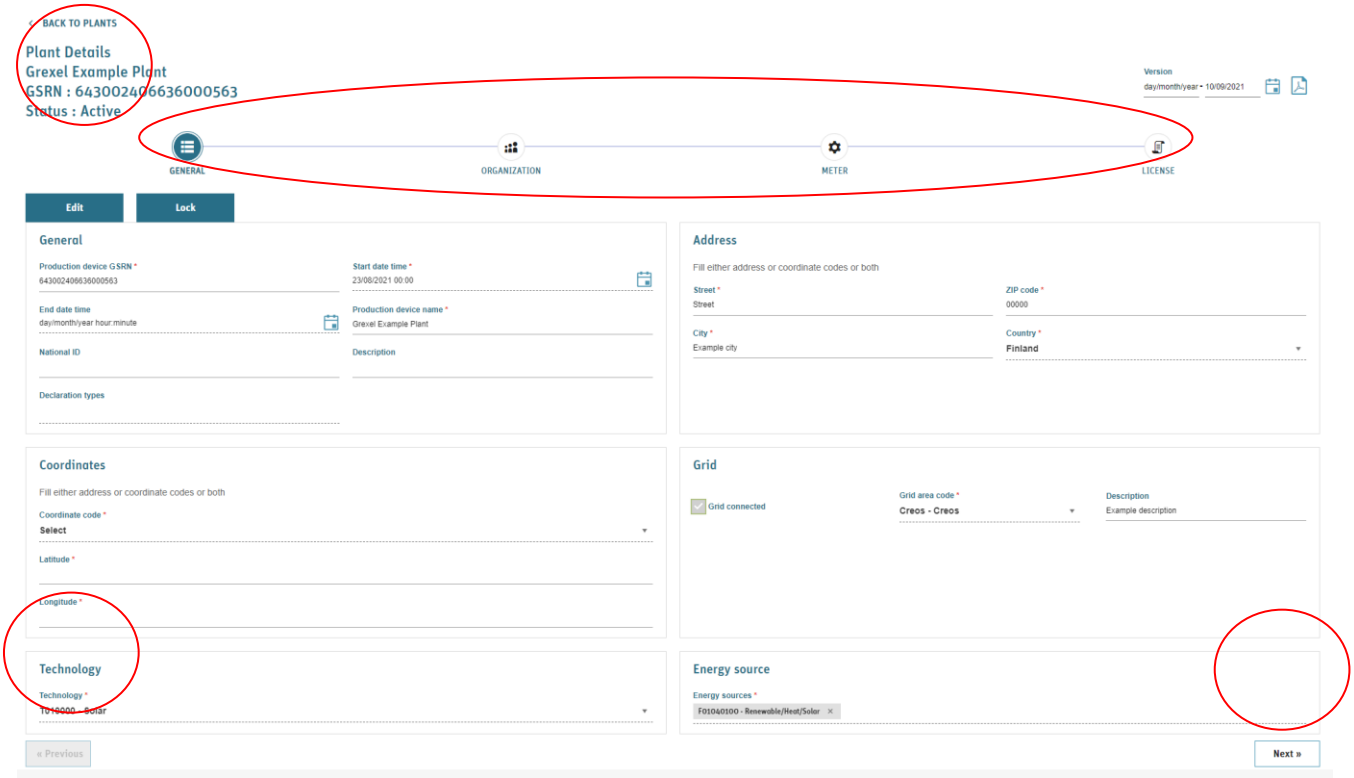


Figure 5-5 Plant details - General

Generic Plant information fields are explained in Table 5-2 Plant details, along with possible restrictions.

► For License type specific attributes refer to 10 Appendix: License attributes.

Table 5-2 Plant details

Name	Description Note: Compulsory fields marked with *	Available in grid

	General - tab		
General	GSRN	Note: GSRN should fulfil the requirements set by GS1 organization for GSRNs (numeric 18 digits long value where the last digit is a check digit). By default GSRN will be auto generated by the system. GSRN is unique identifier for your Plant. It is also possible to fill it by unselecting the check box “Auto generate GSRN”.	Yes
	Start date time*	Note: Time is relevant to be able to match the Meter readings to a correct version. Start date/time of the Plant.	Yes
	End date time	Note: Time is relevant to be able to match the Meter readings to a correct version. End date/time of the Plant. If left empty, the Plant version is valid until further notice.	Yes
	Production Device name*	Name of the Production Device. No uniqueness requirement.	Yes
	National ID	If there is a National ID other than GSRN this field could be used. The National ID must be unique within the domain, if supplied.	Yes
	Description	Additional information regarding the Plant. Not mandatory.	Yes
	Declaration types	In case the Plant requires declaration, there will be shown the type of declarations required. E.g. Energy source declaration. Note: This is auto filled based on the other data provided when saving the Plant.	No
Address	Street	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Address fields will be mandatory Street of the Plant location	Yes
	Zip code	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Address fields will be mandatory Zip code of the Plant location	Yes
	City	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Address fields will be mandatory City or County of the Plant location	Yes
	Country	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Address fields will be mandatory	Yes

		Country of the Plant location. In most cases the country will be the country of the Domain, but there might be e.g. crossborder devices where with a specific agreement has been made within the countries to say which share belongs to each of those countries. Select the Country from the drop-down list.	
Coordinates	Latitude	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Coordinates fields will be mandatory Latitude of the Plant location. The format depends on the Coordinate Code being used.	Yes
	Longitude	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Coordinates fields will be mandatory Longitude of the Plant location. The format depends on the Coordinate Code being used.	Yes
	Coordinate code	Note: Either Address or Coordinates are mandatory but if this field is given, then all the rest of Coordinates fields will be mandatory Coordinate code of the Plant location (Ref: AIB EECS Fact Sheet 16). E.g.: WGS84. Select the code from the drop-down list.	Yes
Grid	Grid connected	Select this check box if your grid is connected to a public grid.	Yes
	Grid area code*	Note: This is a Domain specific field and might not be visible for your domain. Codes are also specific to an area. Also, whether it is mandatory depends on the Domain Code of the Grid where the Plant is connected. Select the code from the drop-down list.	Yes
	Grid description	Description of your grid.	Yes
	Technology*	The type of the Plant, e.g. the processes and technology through which the Plant generates electricity (refer to AIB EECS Fact Sheet 5). Select the Technology from the drop-down list.	Yes
	Energy source*	Note: If more than one Energy source is selected, an Energy source declaration will be required before certificates can be issued. Energy source(s) which the Plant takes as input (refer to AIB EECS Fact Sheet 5). Select from List box.	Yes
	Additional information		
	Comment		
	Organization - tab		

Organization	Role*	Note: Each Organization type should have only one valid entry for a period. Note: Required organization types depends on the domain parameters. **Operator:** The party which operates the physical Plant and is in most cases responsible e.g. for Meter readings delivery. Operator can be either an Account holder in the system or it can be type of External organization which does not have Account or Users in the system. **Registrant:** The party that requests a Plant to be registered for certificate issuing. Is responsible for registration of the Plant towards Issuing body. Registrant is an Account holder Organization and is often also the receiver of Certificates on Issuing but not necessarily. It is often one of the owners of the Plant. **Registrar:** The party which is responsible on auditing or authorizing the Plant details. It is a specific Organization with the Organization type as Registrar.	Yes, with limitation that only Registrant is shown.
	Organization*	You can select the Organization based on its Business ID. Note. Organizations should be created previously to your Domain (under the menu Organizations > Organizations).	See above
	Start date time*	When the organization responsibility of the Plants as **Operator/Registrant/Registrar** starts.	No
	End date time	When the organization responsibility of the Plants as **Operator/Registrant/Registrar** ends.	No
	Action buttons	**Add Organization:** To add new organisation row into the form. **Add:** This button will be enabled when you have given all the compulsory fields and it will create a new Organization to the Plant form (it will not yet save it as the saving requires Save -button in the full form) **Cancel:** This button will remove the newly added, but not saved, Organization from the form **Edit:** This button allows you to edit the previosly added Organization **Delete:** This button allows you to delete previously added or saved Organization.	-
Meter - tab			
Meter	Grid reference*	This is an unique reference for a Meter. The Meter will be identified by that field when Meter readings are created using API or different types of Meter reading files. It is often the same as GSRN of the Plant (if there is only one Meter). The Grid reference must be unique within the domain.	Yes
	Start date time*	Note: Plant should have at least one Meter for its full validity time Note: If there are several Meters for a period, then on issuing it is needed to give Meter Readings for all of those and the Meter formula operator will be used to calculate the value for issuing.	No

		When the Meter validity starts.	
	End date time	When the Meter validity ends. Must be after Meter Start date/time, after Start date/time of Plant and not after the Plant End date/time.	No
	Meter formula operator*	At the moment there are plus or minus operators allowed. The formula operator will be used on the given Meter reading to calculate the value of Energy for issuing. E.g. if Plant has meter1 and meter2 with the same validity period, then using different combinations of Meter formula operators, e.g. below formulas can be given: • meter1 **+** meter2 • **-** meter1 **+** meter2 • meter1 **-** meter2	No
	Meter coefficient*	The multiplying factor to be used to report the volume of electricity calculated from the meter readings. The coefficient is set as 1 by default and in such it is not affecting to the meter readings. This could be used e.g. to deduct a specific percentage from each meter reading to correct the metered value.	No
	Description	Description of the meter.	No
	Action buttons	**Add Meter:** To add new meter row into the form. **Add:** This button will be enabled when you have given all the compulsory fields and it will create new Meter to the Plant form (it will not yet save it as the saving requires Save button) **Cancel:** This button will remove the newly added, but not saved, Meter from the form **Edit:** This button allows you to edit the previosly added or saved Meter **Delete:** This button allows you to delete previously added or saved Meter. NOTE that the deleting will be only possible if the meter does not have any existing Meter readings in the system.	-
License - tab			
	Licenses represent information of a Plant which is subject to changes within a Plant's lifetime. Such information includes e.g. Trading schemes, Attributes and Ownerships. A License has a Start and End date to show for which period those information fields are applicable. **License types are Standard and Domain specific and the selected license type defines which attributes are shown for a License, which of those are mandatory and which attributes require declaration.** **Licenses provide the possibility to differentiate issued certificates e.g. so that only a specific percentage (specified by allocation factor) of the certificates will receive support and rest will remain without support– in such use case there could be several licenses valid at the same time, but the Allocation factor will ensure that only the correct share is issued with the given details.**		
License - General	License type*	Note: License types supported depends on the Domain. Note: For License type specific attributes, refer to 10 Appendix: License attributes	No

		The type of the license specifies which fields are available for the license. E.g. Biogas licenses have different attributes than EECS Electricity licenses. The concept of License type makes it easy for the system to adapt to different types of Certificates and schemes. .	
	Trading scheme*	Note: Trading schemes available depends on the Issuing body and on License type. Note: On Issuing, the certificates will get only the Trading schemes which are common for all the following: Plant license, Receiving Account holder and Issuing body. At least one trading scheme is required. If there are several Trading schemes assigned, those all will be then assigned to the issued certificates. Example: GO together with ICS:Ecoenergy. With those ICS types of Trading schemes the usage of fulfilling additional requirements can be shown.	No
	Allocation factor (%)*	Note: Sum of Allocation factors of Licenses of a Plant should not be over 100% for a period and for a Standard. Percentage that tells how much of the total number of certificates to issue should be allocated for the license.	No
License -Earmark	Earmark*	Note: Earmark is a domain specific field. Each Domain has different earmarks available. Contact Grexel if a new Earmark needs to be added Earmark defines the nature of support associated with a Plant. E.g. Production Support and Investment Support. The description fields will come automatically from the Domain specific description of the selected supports.	No
License - Dates	Start date time*	When the License validity starts.	No
	End date time	Note: Depending on the Domain configuration, the End date time might be required field. When the License validity ends (License Expiry date).	No
	Operational date*	Note: Licenses might have different Operational date e.g. in case the new license represents added capacity for a Plant. Note: Given Operational date must be before or equal to the License Start date time. The date when the Plant became operational.	No
License - Ownerski	**Ownership** Note: Plant must have at least one Owner		

	Ownership percentage (%)*	Note: Issuing takes this percentage into the calculations of the amount which will be issued to the Issuing Account give below Share of the owner from the Plant	No
	Owner organization*	Note. Organizations should be created previously to your Domain (under the menu Organizations > Organizations). Note: If the Owner organization does not have an Account in the system, the share of the certificates will be either lost or those can be aggregated to another organization. See below: Aggregated organization. You can select the Owner Organization based on its Organization ID or by starting to type its name.	Yes
	Aggregated organization	Note. Organizations should be created previously to your Domain (under the menu Organizations > Organizations) The share of the owner can be aggregated to another Account Holder so that on issuing the Certificates will automatically go to that Aggregated organization Account. You can select the Organization based on its Business ID. Aggregated organization should be always an Account holder.	No
	Issuing account*	An Issuing Account gives the possibility to direct the certificates to a specific account of either Owner, or to Aggregated Organization account if used.	No
License - Attributes	**Attributes** Attributes are License type specific data fields specifying the characteristics of energy produced by a Plant in terms of the Input(s) used and/or the details of that Plant and production process. When there is a change in the value of an attribute, a new license is needed with corresponding validity period. Note: The attributes are information fields which depends on the specific License type. E.g. there could be a separate license type for EECS Electricity and another for Gas. Only relevant attributes to the selected License type will be shown. Below are introduced some of the most common ones, but those depends on the license type Note: Whether an attribute is required or not depends on the License type Note: Some of attributes might be declarable. In such cases, in the Plant details those will not be filled, but a declaration is needed to specify the values specific to a metering period. Note: As the fields are different depending on the License type, those are explained separately in 10 Appendix: License attributes		

License - Action buttons	Action buttons	**Add License:** This button will create new License block where the details can be added. The License is not yet saved at this point. **Edit License:** This button allows you to edit the previosly saved License. Note: Only very few fields are editable and those also with some limitations: Start date, End date and for Account holder also Issuing Account. If there is a change in the License details, a new license should be created with new validity period. **Copy License:** This button will pre-fill a new license with the details of an existing license (apart from start and end date of the license). **Save License:** This button will be allowed only after all the required fields for a License have been filled in. • If registrering a new Plant, the saving of the License will happen with the **Save** button on the Plants form. • If updating an existing Plant, there is a **Save License** button to save just the details of the License. **Remove License:** This button will remove from the form an unsaved License. **Delete License:** This button will Delete a previously Saved License. Note that there are limitations when a License can be deleted from an Active Plant. **Cancel**: This button will remove the new, not saved, License from the form **Add Ownership**: This button will add a new Ownership block to the form **Remove Ownership**: This button will remove the previously added Ownership	-

5.3 Register Plant

Plant registration requires several steps. In the first place the Issuing body (or in case allowed for Account holder too, a Registrant Account Holder) will give the details of a Plant by navigating to **Plants → Plants,** and there Click a button **Register Production device** in the upper right corner above the Plants grid.

Registrant or Issuing body needs to go through all the tabs and fill at least all the mandatory elements and then click **Save** button to bring the data to the system.

Note: All the mandatory elements need to be fulfilled before the **Save** button is enabled. All the required fields in a tab needs to be filled before it is possible to move to next tab.

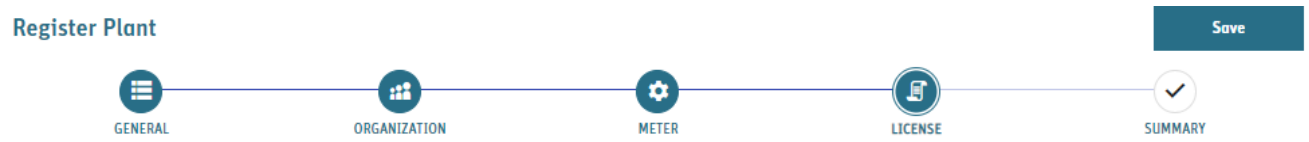


Figure 5-6

► See general instructions of using Forms and especially Tabs in: 1.7.4 Forms

Below sub chapters will explain each tab in detail.

5.3.1 Plant General - tab

Note: if Plant has several Energy sources selected, then it would require an energy source declaration before the issuing can be done. Refer to 6.2 Declarations

General tab of Plant registration or Edit form. In this tab there is mainly information which is expected to stay the same during the lifetime of a Plant.

► See explanation of all the fields in: Table 5-2 Plant details

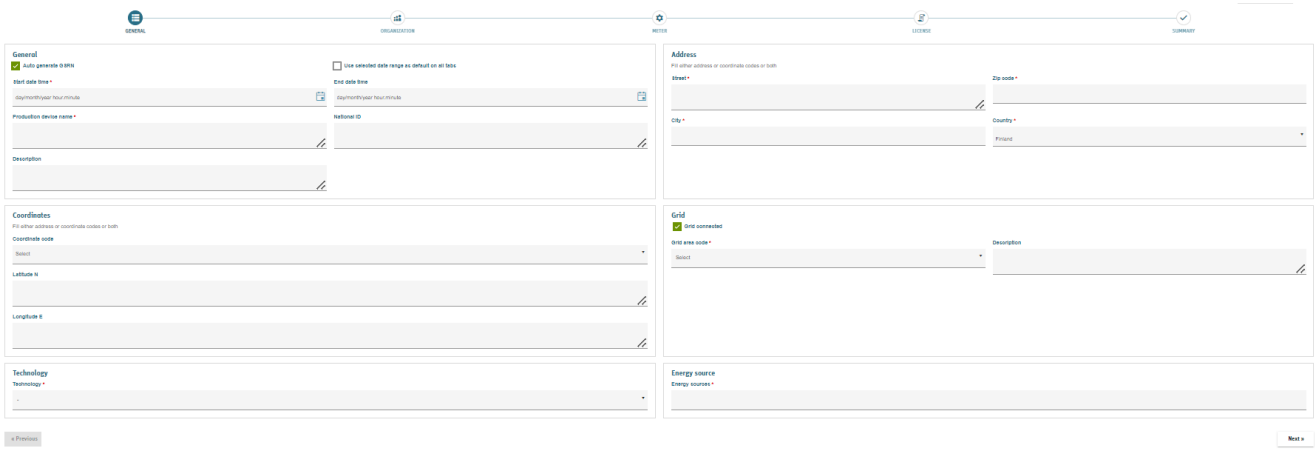


Figure 5-7 General tab of Plant registration or Edit form

5.3.2 Plant Organization - tab

► See explanation of all the fields in: Table 5-2 Plant details

Organization - tab of Plant registration or Edit -form. Plant Organizations are specifying the Plant management responsibilities by allocating Operator, Registrant and Registrar to the Plant with validity period. The Registrant is required always for all time periods, but the Operator and Registrar might not be required in specific Domains.

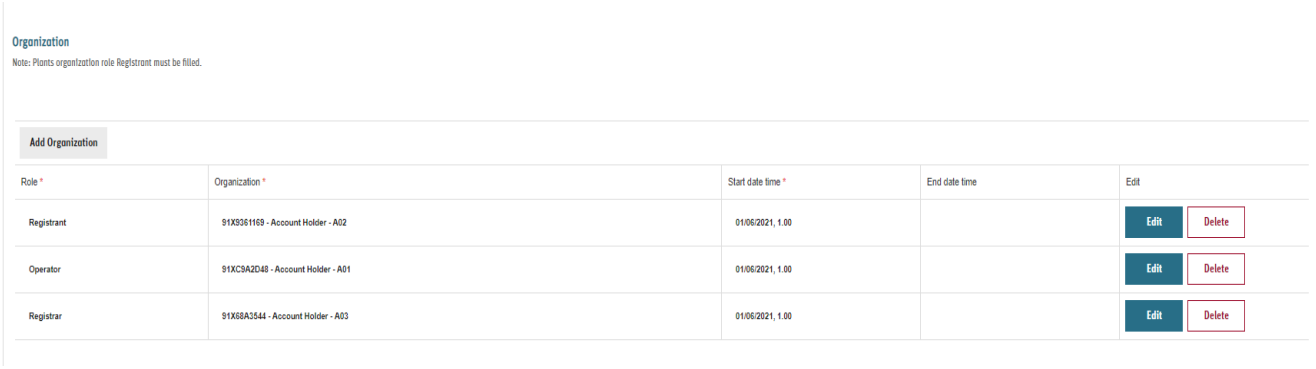


Figure 5-8 Plant Organization - tab

5.3.3 Plant Meter - tab

► See explanation of all the fields in: Table 5-2 Plant details

Meter - tab of Plant registration or Edit -form. Each Plant must have at least one meter. If there are several meters, the Meter formula Operator will be used for calculating the meter reading values. There could be e.g. one meter which is measuring the production and another for losses and that would be in minus operator.

Grid reference is the unique code for a meter while importing meter readings.

If there is a change in the meters, then the validity periods should be updated to specify from which date the meters are valid from (will be matched to the Meter reading periods).

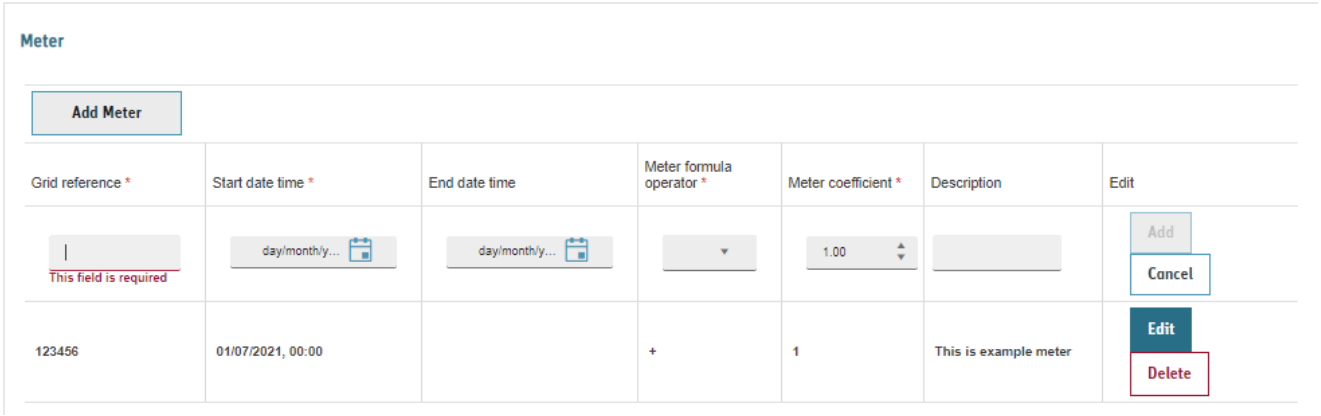


Figure 5-9 Plant Meter - tab

5.3.4 Plant License - tab

Note: Depending on the License type, some of the license attributes might require a declaration before those can be issued. Refer to 6.2 Declarations for more details.

► See explanation of all the fields in: 5.2 Plant - details

Licenses represents such information of a Plant which is subject to changes within a lifetime of a Plant. Such are e.g. Trading schemes, Attributes and Ownerships. License has a Start and End date to show for which period those information fields are applicable. The ownership of a Plant can be divided or aggregated, but total ownership must amount to 100%.

Licenses are standard and domain specific. Standard defines the attributes which are needed for a License. Some Attributes require Declaration and some are specific to a Plant.

Licenses also give possibility to allocate different attributes for a specific share of the issued certificates e.g. only part of the certificates receiving support or representing increased capacity of a Plant – in such use case there could be several licenses valid at the same time, but the Allocation factor will ensure that only the correct share is issued with the given detail.

Note: Attributes are domain-specific and may not appear exactly as in the image above. Mandatory fields are always marked with an asterisk (*).

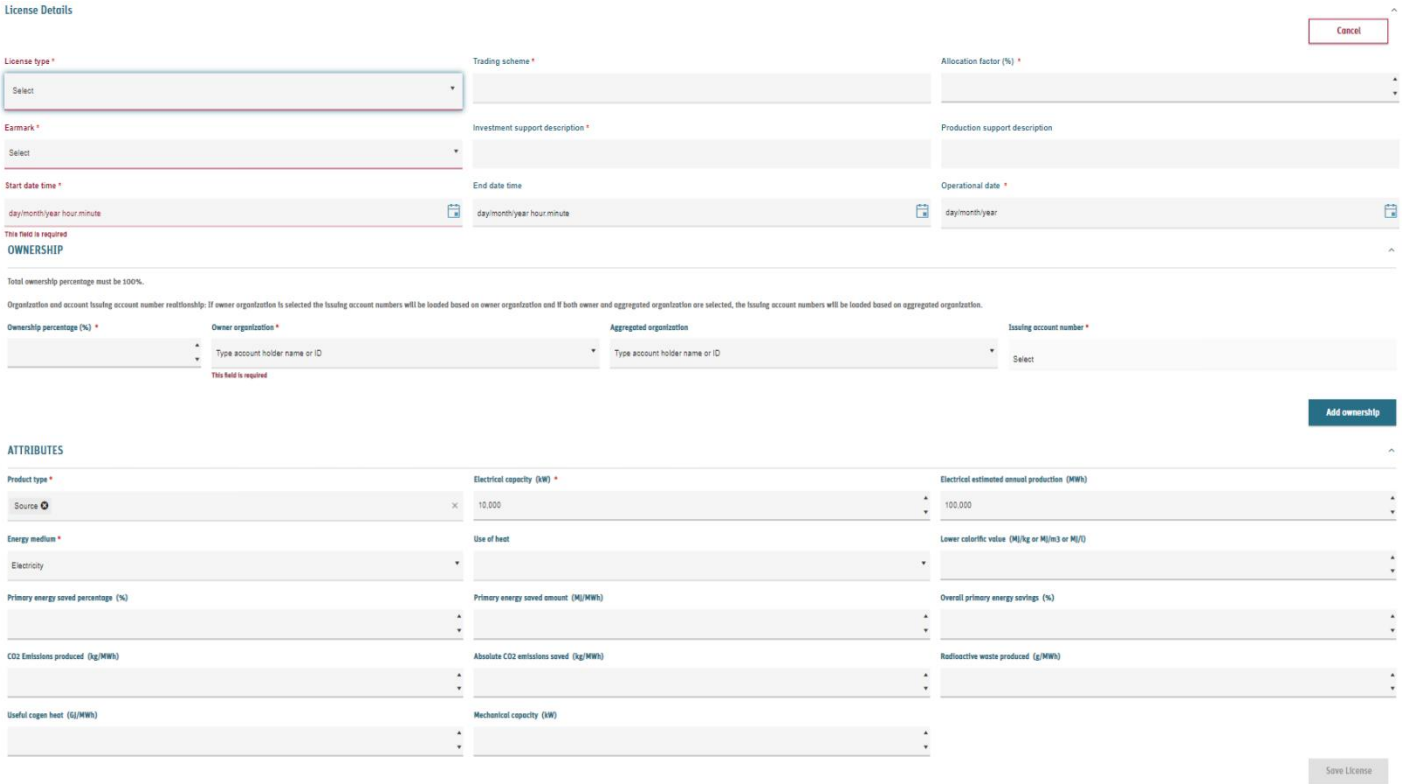


Figure 5-10 Plant License – tab

5.3.5 Plant Summary - tab

Summary - tab of Plant registration or Edit -form is to get a summary of the given values from the General tab. Note that the Save button is enabled after when going to the Summary tab.

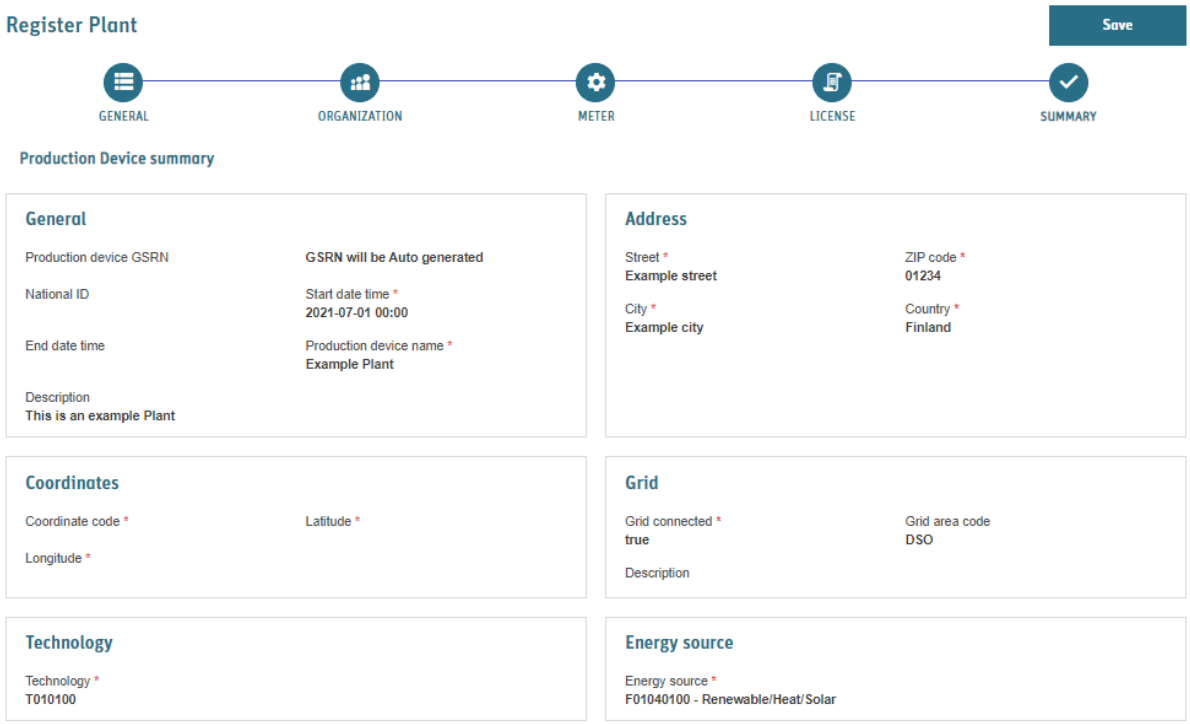


Figure 5-11 Plant Summary - tab

5.4 Plant status management (Submit, Approve and Reject process)

Note: Versioning of the Plants is done mainly by creating new Meters, Organization roles and Licenses with validity periods. On issuing, those validity periods are checked against Production period of the Meter readings.

Note: It is possible to create Meter readings (6.1 Meter readings) and Declarations (6.2 Declarations) only to the Plants which are in status Active.

After Plant has been created as explained in: 5.3 Register , or it has been edited as explained in: 5.5 Editing Plant, it needs to be Submitted for Issuing body to verify the data. On Submit, the data will be validated against certain validation rules to ensure that the validity periods and other provided information are correct, and that all the unique requirements are fulfilled and that there are no existing Meter readings conflicting with the values posted. Refer to Figure 5-1 Plant statuses and Actions for Plant status flow.

1. **Submit a Plant for Issuing body approval**
    a. Navigate to **Plants → Plants** and find the Plant to be submitted (with status Updated or Created) and select it to see the details
    b. Click **Submit** in the upper right corner of the view.
    c. In case validation fails, an error will be shown e.g.:

i. To fix the problem, go to edit the Plant and after details are correct click **Submit**. Refer to 5.5 Editing Plant and Plant versioning for general notes about editing a plant.

d. In case all the validations are passed, below message will be shown:

e. At this point, the Plant will be in status Submitted, and Account Holder user cannot Edit it.

6. After Issuing body has approved the Plan, it is ready to receive Meter readings and Declarations and ready for issuing certificates.

5.5 Editing Plant and Plant versioning

Note: While starting to do editing, always select the Updated version of the Plant if such exists as a base for Editing. That way the edit will go smoothly and will not conflict to the earlier changes done.

Note: In versioning the organization, meter and license information, please note that the end date time of the previous version should be set the same as the start date time of the next (e.g. 0.00 at first day of a month). Please avoid gaps between the end and start date times as this could cause problems for meter readings.

Versioning of the Plants in G-REX is done mainly by creating new Meters, Organization roles and Licenses with validity periods and by updating End date to the previous versions of the same. On issuing, the validity periods of those entities are checked against Production period of the Meter readings. In case Declaration is required, periods are checked also against existing Declaration periods.

Plant editing happens separately for each Tab including saving the changes related to that specific tab. See later in this chapter explanation of each tab and how and what can be edited in each of those:

1) 5.5.1 Editing Plant General - tab
2) 5.5.2 Editing Plant Organization - tab
3) 5.5.3 Editing Plant Meter - tab
4) 5.5.4 Editing Plant License - tab

When saving or updating changes done to an Active Plant, there will be a shadow version created for the Plant with its own Plant Id. Reason for having two items for the Plants being under editing is that the Active version will be kept untouched until the edited values will be Activated by Issuing body on Approving the Plant. If there is a Plant under editing, the Original Plant information will be used on Issuing until the edited values are approved.

When a Plant has already Active version in the System and there is a need to edit some of the details, it is needed to consider several topics:

1) Do the changes concern Meters?
   a. If so, are there already imported Meter readings?
   b. If so – for which period those are?

c. If there are already Meter readings and those are for the time periods you need to make changes, it is needed to delete Meter readings before Editing the Plant.
d. Then after the Plant has been edited and approved, it is needed to import or create Meter readings again. That can be done only for Meter readings which are not yet issued.

2) Are there changes to Licenses?
   a. Are there existing Meter Readings which would overlap planned License periods?
   b. If so, Meter readings should be Deleted. This is because issuing meter readings should be associated with the correct license so that issuing is done for the correct license.
3) Are there changes to Registrant Organization role?
   a. Are there overlapping Meter readings and or Declarations?
   b. If so, those Meter readings should be Deleted or Edited so that it will be clear for which data the new Registrant has access.

5.5.1 Editing Plant General - tab

Note: In Plants General - tab, all the data except GSRN, energy source and technology are editable.

These are information which are expected not to change during the lifetime of a Plant and the change history will be available only in the Activity logs.

1) Go to **Plants > Plants** menu, and there in the Grid, select the Plant to edit
2) In the Plant details, Click **Edit** button: See Figure 5-13 Plant Edit button
3) At that moment nothing is saved yet, but in the screen, there will be buttons: See Figure 5-12 Plant after Edit button).
   a. **Lock**: This is only visible to IB Users
   b. **Save**: Refer later in this chapter
   c. **Cancel**: Makes the screen again not editable and will cancel the not saved changes
4) Edit the information fields which needs editing.
5) Click **Save** -button. Confirmation is asked for confirming the action. **Save** will create a new version of the Plant (also called as “Shadow” copy of the Plant).
6) Now there is new entity created having status Updated (refer to Figure 5-14 Plant after clicking Save). That new entity has different Plant ID and status. Reason for having two entities for the Plant is that the Active version will be kept untouched until the newly created version will be Activated by Issuing body Approving it.

Figure 5-13 Plant Edit button

Figure 5-12 Plant after Edit button

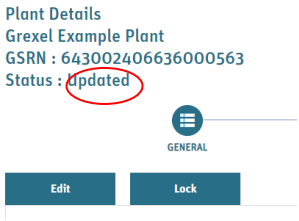


Figure 5-14 Plant after clicking Save

7) Both versions of the Plant can be seen in the Plant Grid menu (Refer to Figure 5-15 Plant with Active and In progress version). Plant items can be found e.g. by filtering with the Name or GSRN (refer to 5.1 Plants - grid).
8) If there are no needed changes to the other tabs, the Plant should be submitted and approved to get it activated again (refer to 5.4 Plant status management (Submit, Approve and Reject process).
9) After the Plant is activated, the later entity of the Plant is merged to the original active Plant entity.

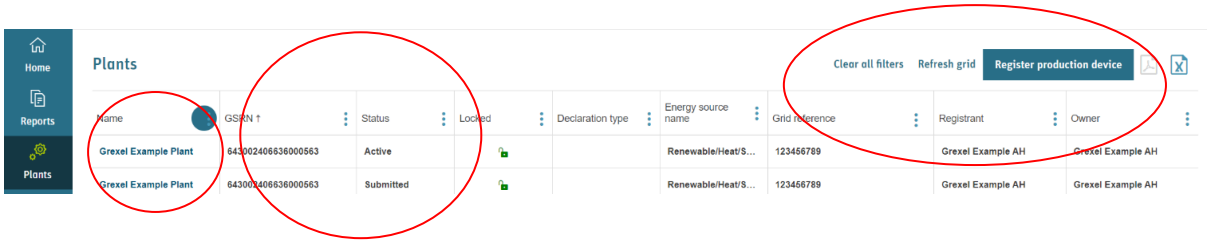


Figure 5-15 Plant with Active and In progress version

5.5.2 Editing Plant Organization - tab

Editing Plant Organizations is done in the Organization tab.

Editing follows quite the same logic than creating those, but what is needed to consider carefully are the validity periods and especially that if the Registrant will change, then there should not be overlapping periods and that there should be always one Registrant assigned.

To edit information of the Plant Organizations information:

1) Go to Plants -> Plants and there select from the Grid the Plant to edit.
2) Go to Organization tab
3) Click **Edit** button (refer to Figure 5-16 Plant Organization tab Edit button)
4) Refer to 5.3.2 Plant Organization - tab for information how to add an Organization.

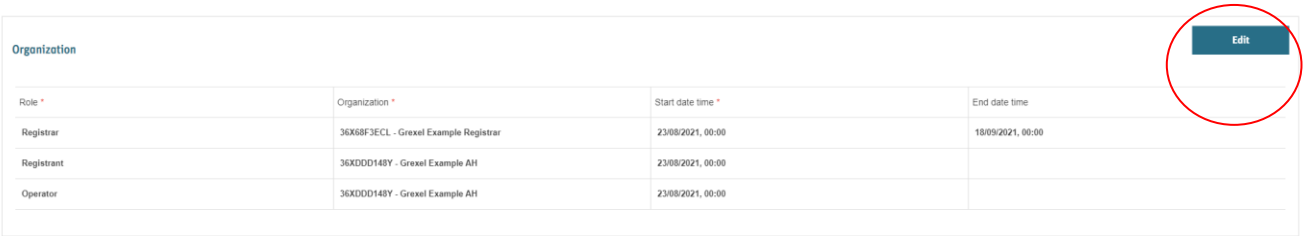


Figure 5-16 Plant Organization tab Edit button

5) If there is a need to change e.g. Registrant of the Plant, change the validity period of the previous Registrant by:
    a. Click **Edit** button for that Organization row, and then change the validity End date and to save the values click **Update** button in that row. Refer to Figure 5-17 Plants Organizations in Edit view
    b. Or delete the existing row by clicking **Delete** button and then add new Organization by clicking Add Organization. NOTE: in this approach the history of the responsibilities will not be kept.

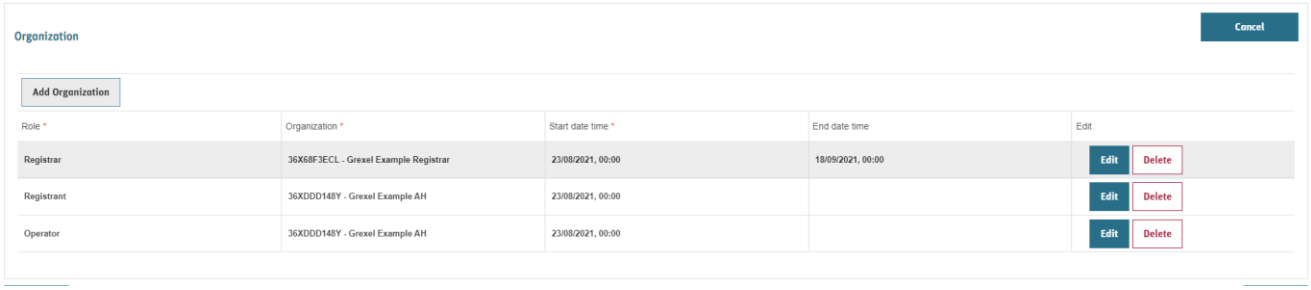


Figure 5-17 Plants Organizations in Edit view

5.5.3 Editing Plant Meter - tab

Note: Meter readings are connected to the Meters and hence deleting a Meter with existing Meter readings is not possible.

Editing Plant Meters is done in the Meter tab.

Editing follows quite the same logic than creating those, but what is needed to consider carefully are the validity periods and especially that, if there are existing meter readings, the periods will be not overlapping with the new Meter periods.

To edit information of the Plant Meters information:

1) Go to Plants -> Plants and there select from the Grid the Plant to edit.
2) Go to Meter tab
3) Click **Edit** button (refer to Figure 5-18 Meter- tab Edit button)
4) Refer to 5.3.3 Plant Meter - tab for information how to add Meters.
5) If there is a need to change e.g. Grid reference of a Plant, change the validity period of the previous Meter by:
    a. Click **Edit** button for that Meter row, and then change the validity End date and to save the values click **Update** button in that row. Refer to Figure 5-19 Meter- tab edit view and Figure 5-20 Meter- tab edit Meter view
    b. Or delete the existing row by clicking **Delete** button and then add new Meter by clicking Add Meter. NOTE: in this approach the history of the Meter information will not be kept.

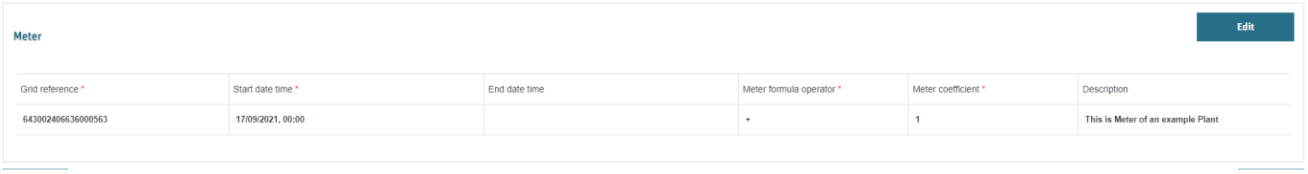


Figure 5-18 Meter- tab Edit button

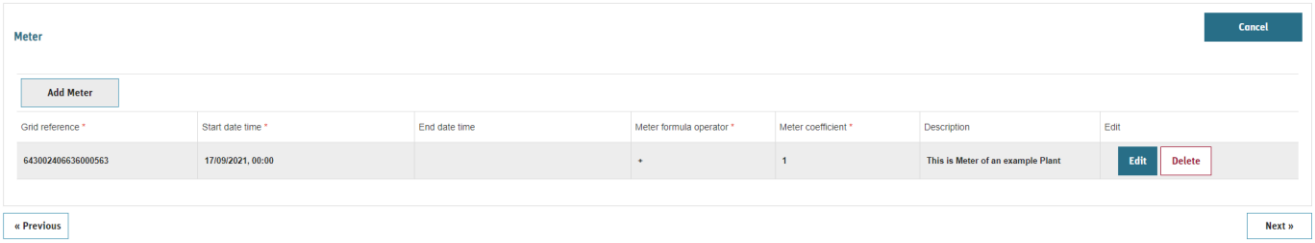


Figure 5-19 Meter- tab edit view

Figure 5-20 Meter- tab edit Meter view

5.5.4 Editing Plant License - tab

Note: Only License start date and End date can be edited and Issuing account number by the owner of the account. Other fields require creation of a new License

Note: While creating a new License, it is needed to update the End date of the previous License to ensure that the license periods are not overlapping.

The License details plays a crucial role on being the source of information for certificates to issue and showing who will receive the certificates. For example, for auditing purposes it is crucial to keep history of the changed values to be able to see what the information field value at specific moment of a time was in past.

To keep the history, the Editing happens mainly by creating a new License with all the information on it and with a specific validity period. Validity periods needs to match with the Meter reading periods to be able to make exact match which License is used as a source of information.

Refer to 5.3.4 Plant License - tab for information how to add License for a Plant.

When Editing a Plant, it is needed to update previous License with End date time which should be before the New License Start date time:

6) Go to Plants -> Plants and there select from the Grid the Plant to edit.
7) Go to License tab
8) Select **Edit License** for the License which is going to expire
9) Give new License End date time

10) Click Save Note: at this point the information is already saved.
11) Click **Add License** and give all the details following the instructions in to 5.3.4 Plant License - tab
12) When all the compulsory fields are given, Click **Save License**.
13) If there would be a conflict with the existing Licenses, especially regarding the License Start date time and License End date time, an error message is shown. In such case, check both Licenses start Dates and End dates to ensure that there is no conflict – if there is update first the old License:
    a. Go to edit the existing License if needed and click **Update License** (for the existing License).
    b. After that, go to the new License and make changes if needed and then click again **Save License** (for New License).

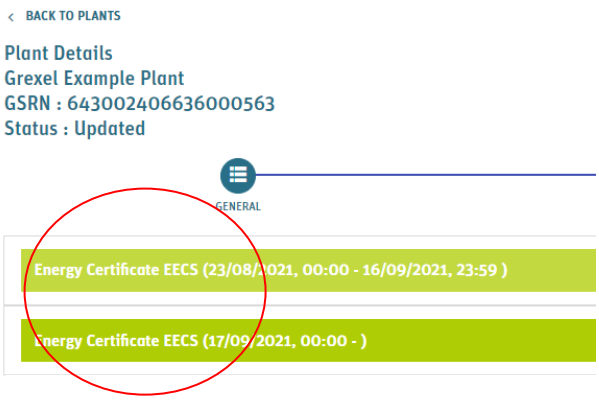


Figure 5-21 License details hidden

By clicking the title of a License, it is possible to hide the details to get easier overview of different licenses and then by clicking the same again, the details will be visible. Refer toFigure 5-16 Plant Organization tab Edit button Figure 5-21 License details hidden.

5.5.4.1 Changing the Issuing account number.

Account holders can change the account to which certificates from a device would be issued to at any time.

To change the Issuing account:

1. Navigate to **Plants** and select the Production device you wish to update and go to the license tab.
2. Select the license you wish to change the issuing account for and press **Change issuing account** from the **Ownership** section (see Figure 5-22 Change issuing account number).
3. Select the account you wish to set as issuing account and press **Update issuing account** (see Figure 5-23)

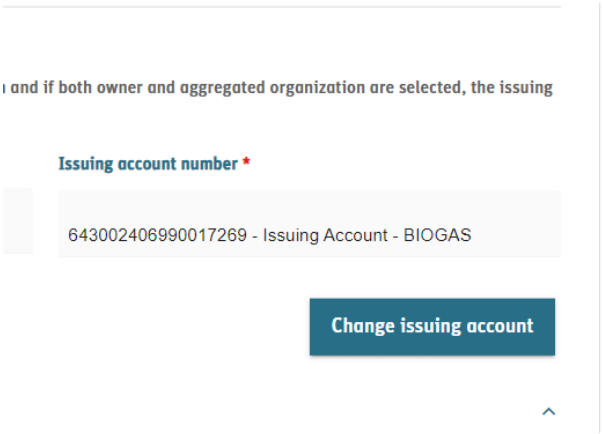


Figure 5-22 Change issuing account number

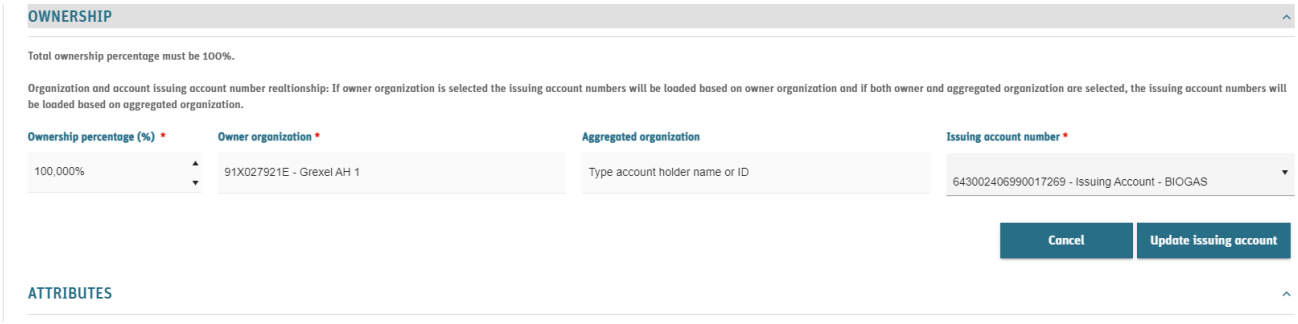


Figure 5-23 update issuing account

5.6 Locking Plant

An active Plant can only be locked by an Issuing Body. When a Plant is locked, it will not be possible to issue certificates for it. Reason for locking a Plant could be for example that there is a need to check correctness of a data or that for some other reason there is a need to ensure that the Meter readings will not be issued. Only Issuing body user can Lock a Plant.

Figure 5-24 Locked Plant in Grid

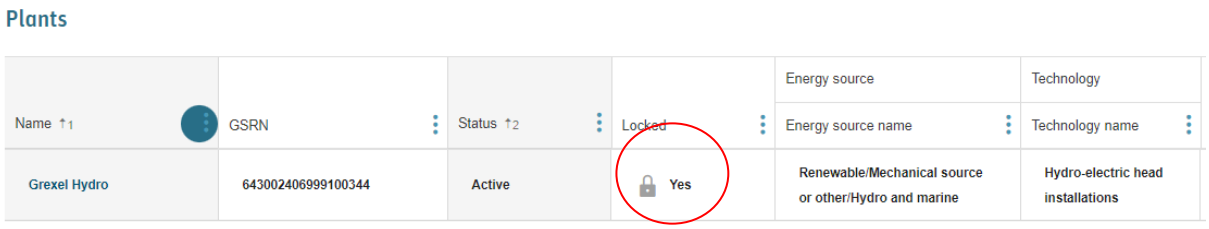


Figure 5-24 Locked Plant in Grid

5.7 Delete plant

A user can delete a plant that is in created, rejected, or updated status.

To delete a plant, navigate to the desired plant from the plants grid and enter the general tab.

Press the **Delete** Button (see Figure 5-25) and confirm the request by pressing Yes.

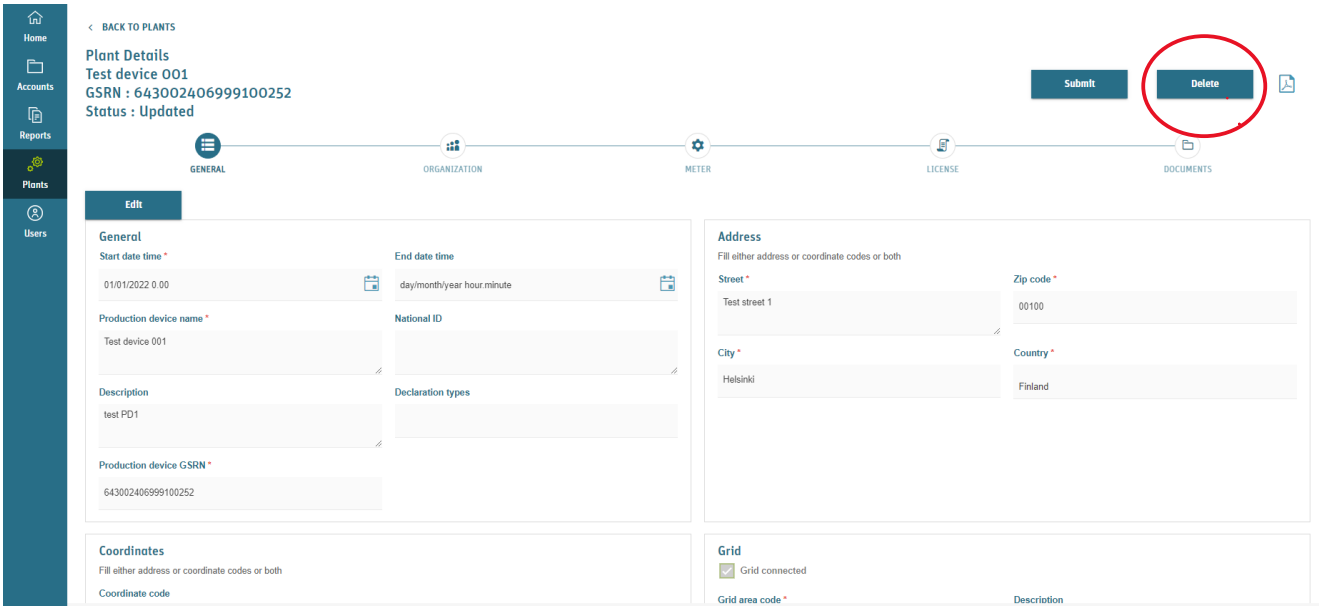


Figure 5-25 Delete plant

Note: If the plant has already been Issued or received meter readings or declarations it is no longer possible to delete it.

6. Meter readings and Declarations

Meter readings and declarations are concepts that are very closely associated to plant management as well as issuance of certificates. In short, meter readings specify the actual energy production of the plant, which is then used to specify, how many certificates are to be issued per the plant and the issuing time range. Furthermore, the declarations specify some specific variating attributes of the actual production, such as shares of different energy sources.

Meter readings and declarations are managed under **Plants → Meter readings** and **Plants → Declarations** menus and the ability to create and approve both depend on user's roles in the organization as well as on the domain configuration. Table 6-1 Menu access for meter readings and declarations presents the AH access rights to manage declarations and meter readings.

▶ See section 1.3.1.1 Domain configuration for details on domain configuration and parameters

Note: The user can manage declarations and meter readings only in case the association is to the registrant organization of the associated plant. See section 5. Plants for more information.

Table 6-1 Menu access for meter readings and declarations

Sub-menu item	Feature	AH Root	AH Account Administrator	AH Account Viewer	AH PD Administrator	AH PD Editor	AH PD Viewer	AH User Administrator	Domain Parameter
Declarations		x			x	x	x		
	View list	x			x	x	x		
	View details	x			x	x	x		
	Create (and Update)	x			x	x			DECLARATION_CREATE_IB_ROLE_REQUIRED
	Delete	x			x	x			
	Approve								DECLARATION_APPROVE_IB_ROLE_REQUIRED
Meter readings		x			x	x	x		
	View list	x			x	x	x		

	View details	x			x	x	x		
	Create (and Update)	x			x	x			METER_READING_CREATE_IB_ROLE_REQUIRED
	Delete	x			x	x			
	Approve								METER_READING_APPROVE_IB_ROLE_REQUIRED

6.1 Meter readings

Meter readings present the actual energy production of a plant. Meter readings can be viewed, created, and managed under **Plants → Meter readings** sub-menu item AH users can see only meter readings for the plants their organization is registrant of.

Meter readings' properties and their explanations can be viewed in Table 6-2 Meter reading data properties As G-REX is a multi-standard system, based the on Standards-configuration of the domain, one meter reading entry can represent multiple standards in one meter reading entity.

Table 6-2 Meter reading data properties

Group	Field	Relevant for creating	Description
Plant	Plant name		Name of the plant for which the meter reading was added
	GSRN		GSRN of the plant for which the meter reading was added
	National ID		National ID of the plant for which the meter reading was added
Meter	Grid reference	x	
	Start date time		
	End date time		
	Meter formula operator		
	Meter coefficient		
	Description		
	Start date time	x	Start time of the meter reading entry
	End date time	x	End time of the meter reading entry

Meter reading	Value	x	Volume of the meter reading
	Unit	x	Unit of the meter reading. Can be kWh and MWh
	Meter reading status		Standard-specific status of meter reading. In case meter reading has multiple standards, there are multiple statuses. Meter reading statuses can be viewed in Table 6-3 Meter reading statuses
Responsible registrant	Organization ID		Organization ID of the registrant associated to the meter reading.
	Organization name		Organization name of the registrant associated to the meter reading.

6.1.1 Meter reading statuses

As we can see from the Table 6-2 Meter reading data properties, meter readings can have multiple statuses. The possible statuses depend on domain configuration and the actions performed to a meter reading entry. Table 6-3 Meter reading statuses illustrates the meter reading statuses.

Table 6-3 Meter reading statuses

Status	Can be edited / deleted	Description
Pending for approval	Yes	Status for meter reading pending for approval. Status is subject to domain configuration, so it is possible that meter readings in some domains are never set to this status.
Approved	Yes	Meter reading status after approval. Approved meter readings will be considered in the next issuing of meter readings in case the plant is selected.
Issued	No	Meter reading status for issued meter readings. **Note:** It is possible that a meter reading has different statuses (Issued and approved) for different standards simultaneously.

6.1.2 Meter readings - grid

Meter readings grid presents all the meter readings the user is allowed to see based on organization type and user roles. By default, the meter readings are viewed for the previous month from the actual date of viewing, but the scope can be changed from the **date range selector** (see Figure 6-1(1)) above the grid.

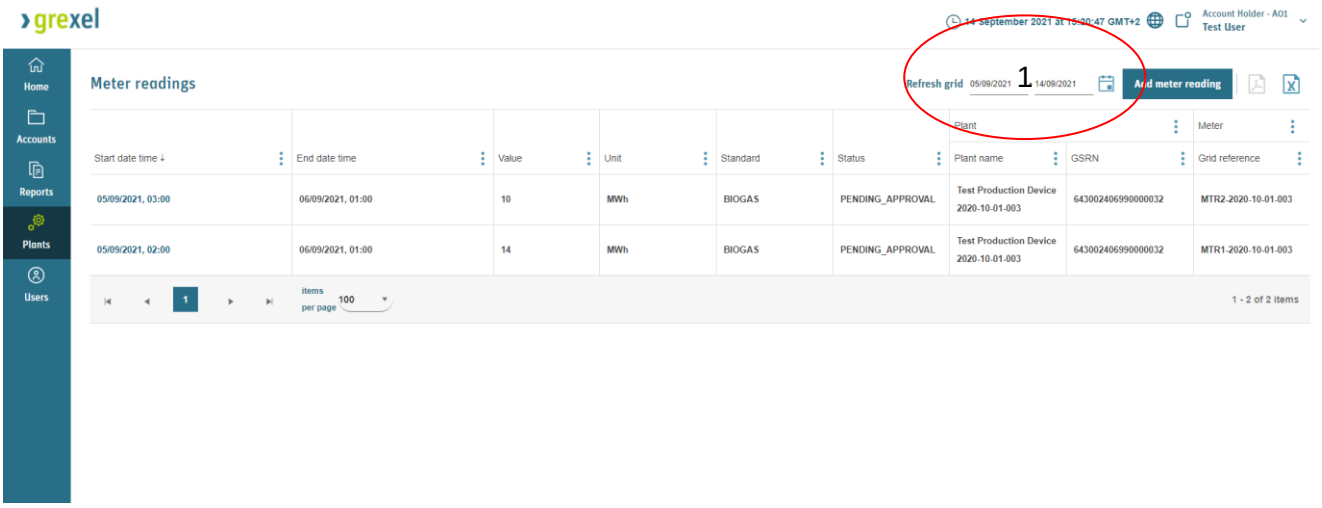


Figure 6-1 Meter readings grid

6.1.3 Meter reading - details

Clicking the link in meter reading **Start date time** column (seeFigure 6-1(2)) opens the meter reading details. The details include basic information on the meter reading as well as associated plant and meter. The Meter reading details view (Figure 6-2) allows the user to **Delete** or **Edit** the meter reading (according to permissions).

See section 6.1.4 Meter reading management for more details.

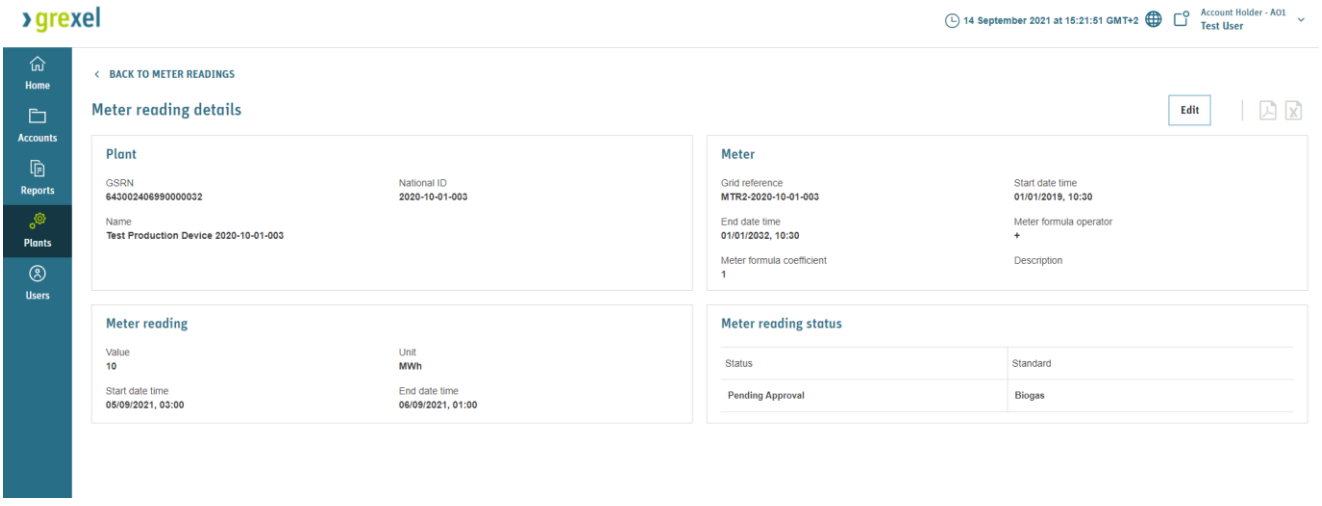


Figure 6-2 Meter reading details

6.1.4 Meter reading management

Meter readings can be managed by **creating, editing, deleting,** and **approving.** All the features are available either in the Meter readings grid view or meter reading details.

6.1.4.1 Create meter readings via plants list

Adding meter readings in user interface via plants list is initiated by clicking **Add meter reading** in the **Plants → Meter readings** grid. Process to add meter readings is explained in detail in Figure 6-4 Create meter reading flow

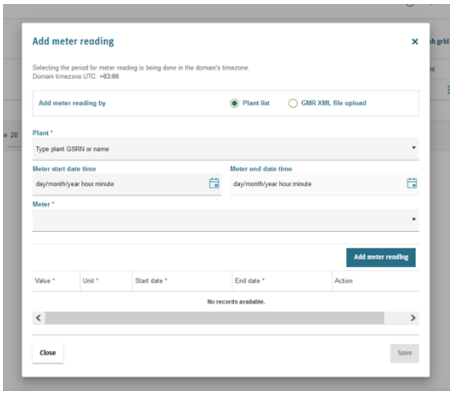


Figure 6-3 Create meter reading via plants list

Select plant. Select the plant for which the meter readings are to be added.

Define time period for meters. A plant can have multiple meters to filter the meters, user can specify time range to find meter for adding the meter readings. The Domain time zone should always be used for inputs in G-REX. Filling the range is not mandatory for viewing meters for the selected plant.

Select meter.

Add meter readings. Clicking **Add meter readings** adds a row into the meter readings table, where user can specify meter reading values (see table 6.1-1 for input details). User can add multiple readings for the same meter at once. The time range for the reading must not overlap any other meter readings for the same meter.

Save. Clicking save submits the meter readings for the backend service to be processed.

Figure 6-4 Create meter reading flow

Note: Meter readings can be added also without the user interface. See API documentation for further details.

Note: After submitting the meter readings, the backend server still must validate the input. Therefore, the added meter readings do not appear in the meter reading grid immediately. The result of the addition can be viewed from the Activity logs. See section 4.1 Activity logs for more details about activity logs.

6.1.4.2 Create meter readings via GMR XML file upload.

To create meter readings via GMR XML file upload:

- Navigate to **Plants → Meter readings**.
- Click the **Add meter reading button** from the top right of the meter readings grid.
- Select Add meter readings by **GMR XML file upload** option.
- Drag and drop or browse and open the GMR XML format file you wish to upload.
- Click save and double confirm the action.

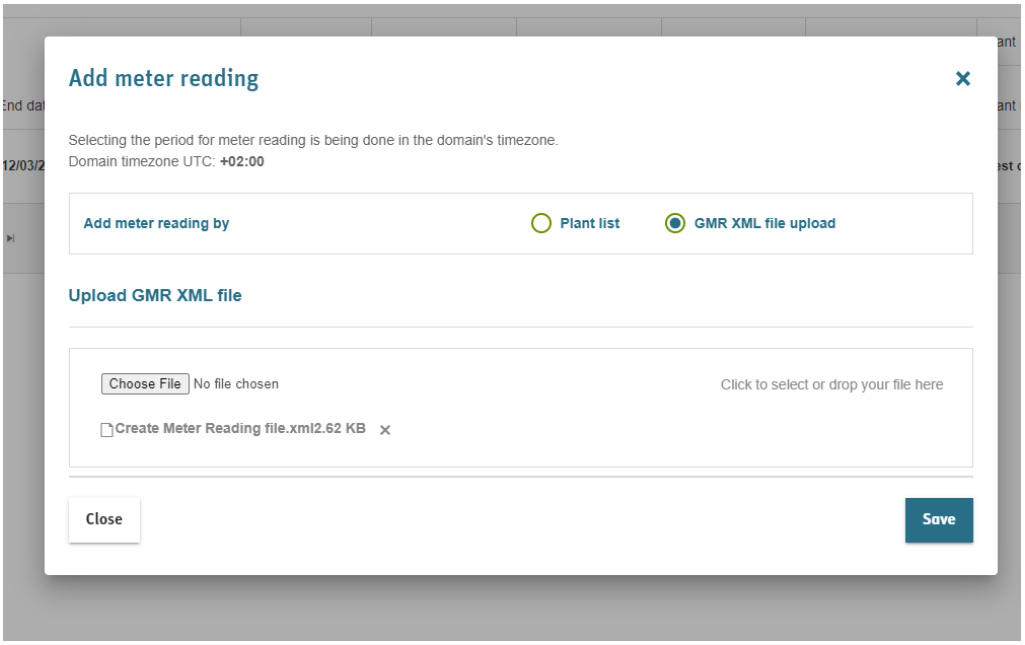


Figure 6-5 Upload meter readings XML file

6.1.4.3 Approve meter readings

Based on the domain configuration the added meter readings might be “approved” automatically or require manual IB approval. If a meter reading requires an approval, the standard-specific statuses of the reading are “Pending for approval”. As shown in Table 6-1 Menu access for meter readings and declarations, AH users cannot approve meter readings themselves.

Note: G-REX doesn’t specifically have functionality to **Reject** Meter readings. Rejecting Meter readings shall be handled by **Delete** Meter readings.

6.1.4.4 Edit and delete meter readings

In case of incorrectly added meter reading(s), the readings can be either deleted or edited **Plants → Meter readings → Meter reading details**

In case of incorrect input for correct time range, steps to edit meter reading are

1. Click **Edit** in meter reading details
2. A dialog window opens. The user can change only the *value* or the *unit* fields.
3. Click **Save**.
4. Meter reading is processed in the server and updated shortly.

In case user input has been incorrect in terms of meter or the time range of the meter reading, the addition can be retreated by **deleting** the meter reading. To **Delete** meter readings

1. Click **Delete**
2. Double confirm the request
3. Server deletes the meter reading from the meter. After that, user can add new meter readings overlapping the previous meter reading's time range.

6.2 Declarations

Declarations present varying attributes of the plant for energy production. Declarations can be viewed, created, and managed under **Plants → Declarations** sub-menu item. AH users are allowed to view the declarations for plants for which they act as registrant.

Declarations' properties and their explanations can be viewed in Table 6.2-1 Declaration properties. G-REX supports two types of declarations – **License declarations** and **Energy source declarations.** License declarations specify certificate attribute -specific information, while energy source declarations determine percentual division between consumed energy sources in the production of energy.

Table 6.2-1 Declaration properties

Group	Field	Description
Plant	Plant ID	ID of the plant for which the meter reading was added
	Plant name	Name of the plant for which the meter reading was added
	GSRN	GSRN of the plant for which the meter reading was added
	National ID	National ID of the plant for which the meter reading was added
Declaration	Declaration ID	Unique identifier of the declaration. Not visible in the user interface.
	Status	Declaration status. Possible statuses of declarations are presented in Table 6.2-2 Declaration statuses
	Start date time	Start date of the declaration's time range
	End date time	End date of the declaration's time range

	Declaration type	Types of declarations in the declaration object.
Energy source declaration	Instance declaration allocation between energy sources. There can be multiple items depending on number of energy source associated to the plant.	
	Percentage	Specifies the share of the energy source in the declaration
	Energy source code	
	Energy source name	
	Description	Description of the declaration item
Responsible registrant	Organization ID	Organization ID of the registrant associated to the meter reading.
	Organization name	Organization name of the registrant associated to the meter reading.
License declaration	Instance of declaration specifying values for plant license attributes.There can be multiple licenses within the declaration period.	
	License ID	Unique identifier for the license associated to the declaration
	Description	Description of the license declaration
	Declaration ID	Unique identifier of the instance of declaration.
	Attributes	

6.2.1 Declaration statuses

Declarations can have multiple statuses. The statuses depend on domain configuration and the actions performed to a declaration entry. Table 6.2-2 Declaration statuses illustrates the declaration lifecycle through the possible actions and statuses triggered by them.

Table 6.2-2 Declaration statuses

Status	Can be edited / Deleted	Description
Pending for approval	Yes	Status for declaration pending for approval. Status is subject to domain configuration, so it is possible that declarations in some domains are never set to this status.

Approved	Yes	Declaration status after approval. Approved declarations will be considered in the next issuance of meter readings in case the plant is selected.
Issued	No	Declaration status for issued declarations.Also partially issued declarations have this status.

6.2.2 Declarations - grid

Declaration grid presents all the declarations the user is allowed to see based on organization type and user roles. By default, the declarations are viewed for the previous month from the actual date of viewing, but the scope can be changed from the **date range selector** above the grid.

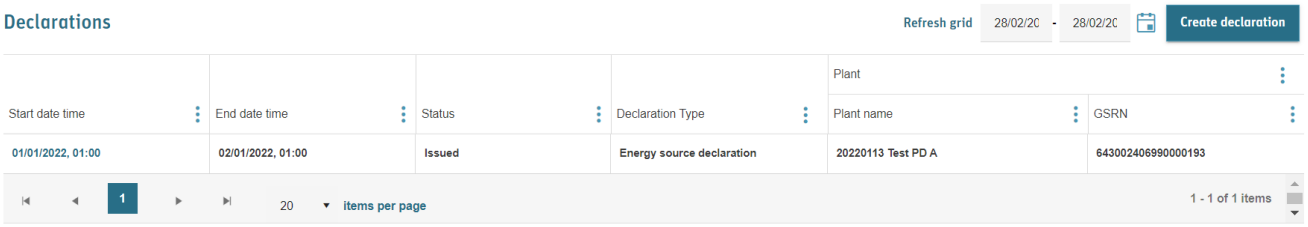


Figure 6-6 Declarations grid

6.2.3 Declaration - details

Clicking the link in declaration **Start date time** column opens the declaration details. The details include basic information on the declaration as well as associated plant. The declaration details view allows the user to **Delete, Edit** or **Approve** the declaration.

See section 6.2.5 Declaration management for more details.

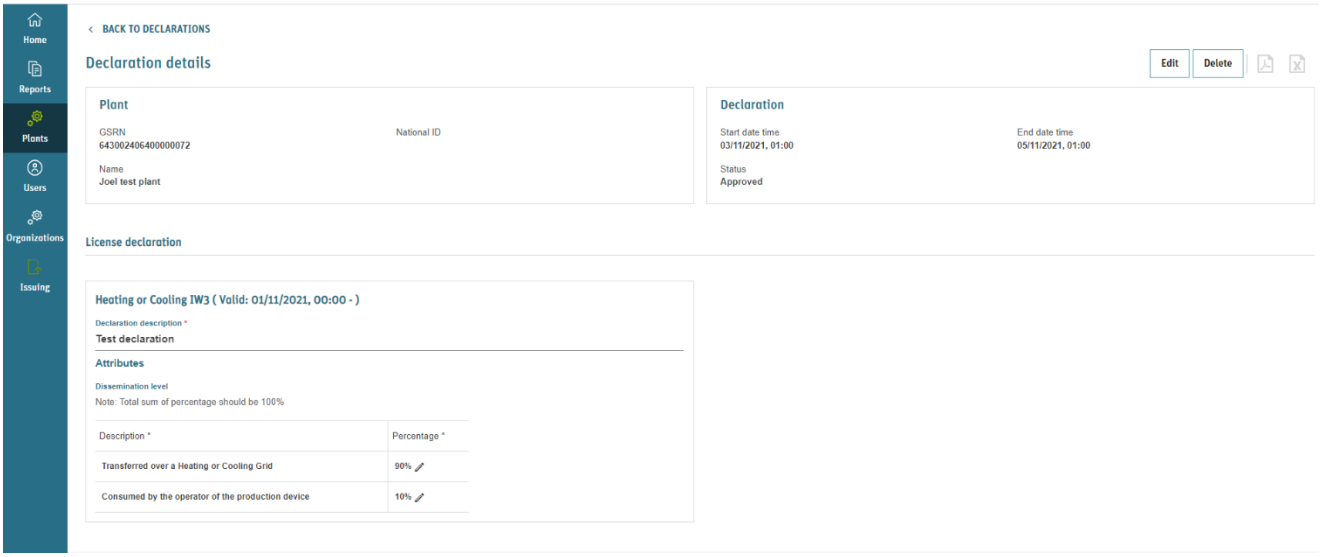


Figure 6-7 Declaration details for license declaration

6.2.4 Declaration types

G-REX has two declaration types, the energy source declarations and license declarations. A plant might require none, one or both the declaration types and it depends on the domain configuration and plant properties and its license type.

6.2.4.1 Energy source declarations

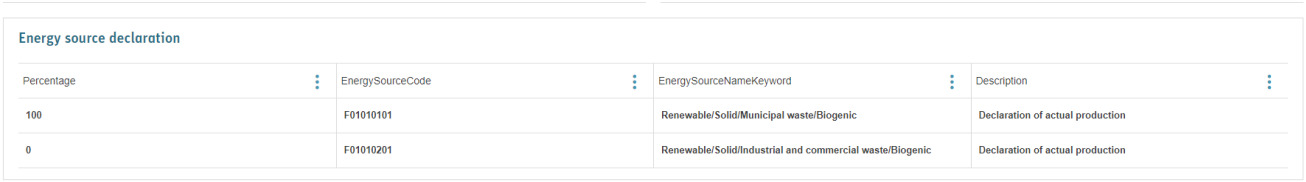


Figure 6-8 Energy source declaration

Energy source declarations specify the percentual division between different energy sources in the production of the plant. That is then reflected in the types of the issued certificates for the period declared for the plant.

6.2.4.2 License declarations

License declarations specify plant attribute values for the declaration period. The declared values are then reflected in the issued certificates' attributes for the declared period. The declarations can specify single values, sets of values and more complicated attributes depending on the license type.

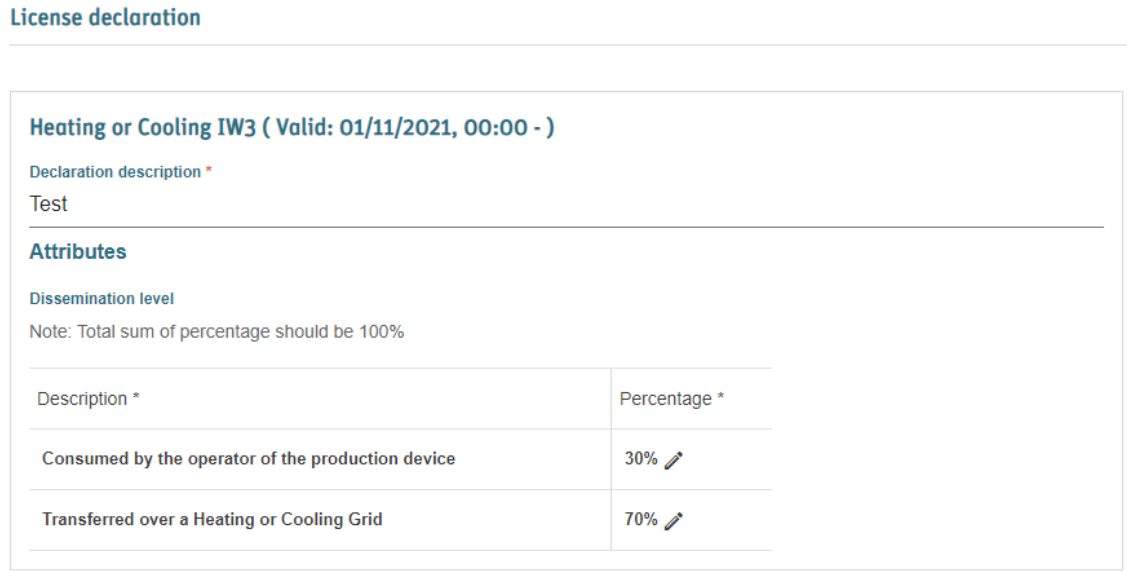


Figure 6-9 License declaration

Note: Declarable attributes depend on plant's license type. More information on Licenses and associated attributes can be found in section 5.3.4 Plant License - tab.

Note: In case two licenses requiring declarations overlap the declarable period, both must be declared at the same time.

6.2.5 Declaration management

Declarations can be managed by **creating, editing, deleting, and approving**. All the features are available either in the declarations grid view or declaration details and their availability requirements depend on the domain configuration and the user type.

6.2.5.1 Create declarations

Creating declarations in user interface is initiated by clicking **Add declaration** in the **Plants → Declarations** grid. Process to add declarations is explained in detail in Figure 6-10 Create declaration flow.

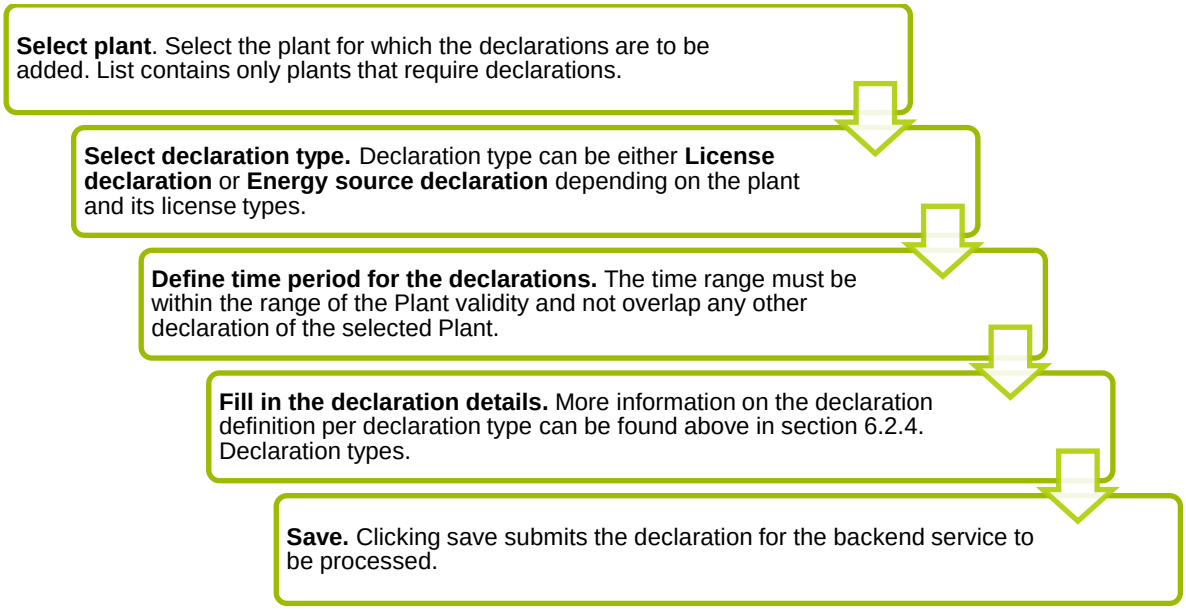


Figure 6-10 Create declaration flow

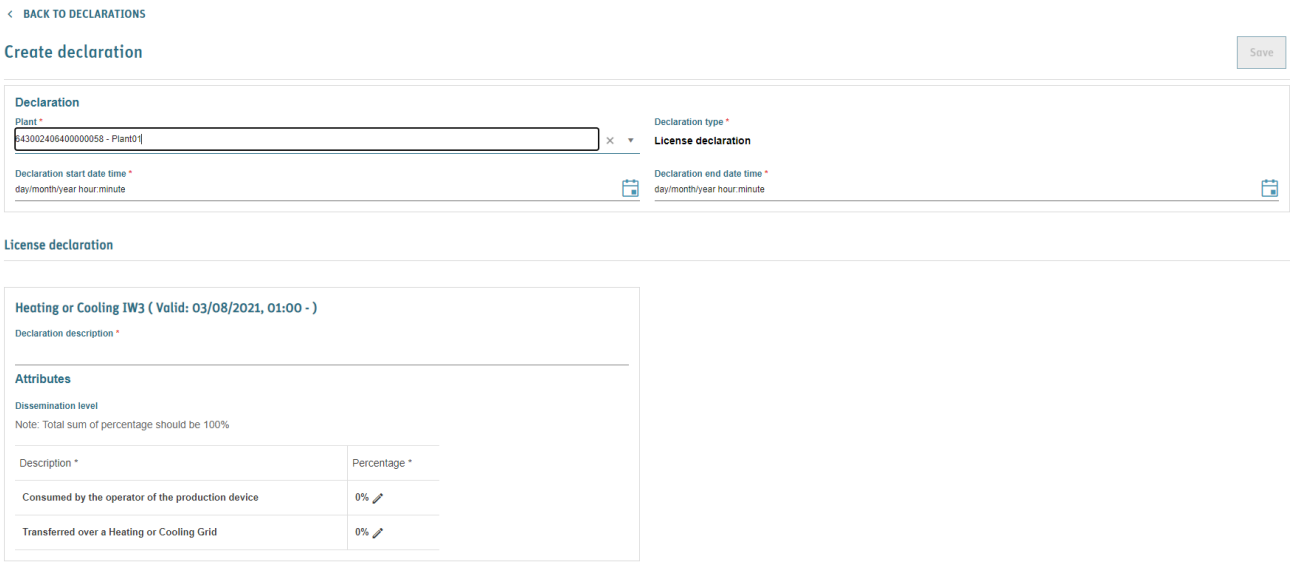


Figure 6-11 Create declaration view

Note: Only one type of declaration can be created at a time.

6.2.5.2 Declaration approval

Based on the domain configuration the added declarations might be **Approved** immediately or might require approval from IB user. In case a meter reading requires an approval, the declaration status is **Pending for approval**.

6.2.5.3 Edit and delete declarations

In case of incorrectly added declaration(s), the declaration can be either **deleted** or **edited** in the **Plants → Declarations → Declaration details.**

In case of incorrect input for correct time range, steps to edit declaration are

1. Click **Edit** in declaration details
2. A dialog window opens. The user can change most of the declaration values expect the selected plant and the declaration time range.
3. Click **Save** and double confirm the action.
4. Declaration is processed in the server and updated shortly.

Note: The declaration screen does not update automatically after the server has processed the change. Refresh the screen to see if the change have been reflected already.

In case user input has been incorrect in terms of the time range of the declaration, the addition can be retreated by deleting the declaration. To **Delete** declaration

1. Click **Delete**
2. Double confirm the request
3. Server deletes the declaration and new declaration overlapping the period can be created.

Note: Declaration cannot be deleted nor edited after being issued (even partially)

7. User management

Note: This section explains only how users are managed in G-REX, more details about user profiles can be found in section 1.6.1. User profile.

G-REX user management enables easy creation and management of users within organizations. The complete listing of user roles and their access to user management is listed in Table 7-1 Users menus access rights.

Table 7-1 Users menus access rights

		AH Root	AH Account Administrator	AH Account Viewer	AH PD Administrator	AH PD Editor	AH PD Viewer	AH User Administrator
Users	My organization	x						x
	View	x						x
	View details	x						x
	Create	x						x
	Edit	x						x
	Lock user	x						x

7.1 My organization

The most common use case to manage users within the organization of the user. The organization user management can be done in **User → My organization** menu.

7.1.1 Users - grid

The Users- list within **Users** → **My Organization** menu shows all the Users in the selected Organization. Figure 7-1 Users grid shows the general layout for the organization users grid, while Table 7-2 User data properties explains the properties of an user.

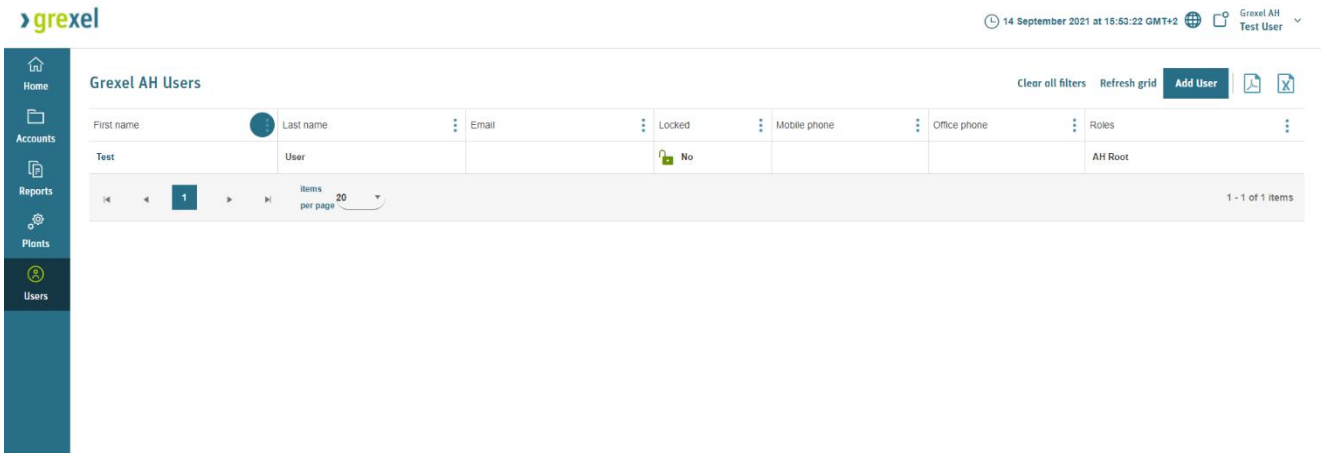


Figure 7-1 Users grid

Table 7-2 User data properties

Term	Description	Term
	User ID	Unique identifier of the user. Not visible in the user interface.
	Email (login)	Email for user login. Field is relevant only on creating users and not visible in the user interface after that.
	First name	
	Last name	
	Data process approval	Consent the user's personal information to be processed in the system.
	Data process approval date	Date of approval of data processing in the system. In practice, the date of user creation.
Organization	Organizations to which the user is associated. There can be multiple organizations.	
	Organization ID	
	Organization name	
	Is Locked	Flag to indicate if user is locked in certain organization.
	Email	Organization specific email for the user. Shall not be mixed with the login email, but the emails can be identical.
	Mobile phone number	Organization specific mobile phone number of the user.
	Office phone number	Organization specific office phone number for the user.

	Roles	User roles of the user in the organization.	
		User role ID	Unique identifier of an instance of user role. Not visible for the user.
		Role	Name of the user role
		Standard	Standard of the role. For some user roles there is no standard.

7.1.2 User - details

The user details can be viewed by clicking **First name** of a user in the users grid (**Users → My organization**). The user details is divided into blocks – the top block for general user information and organization-specific block below.

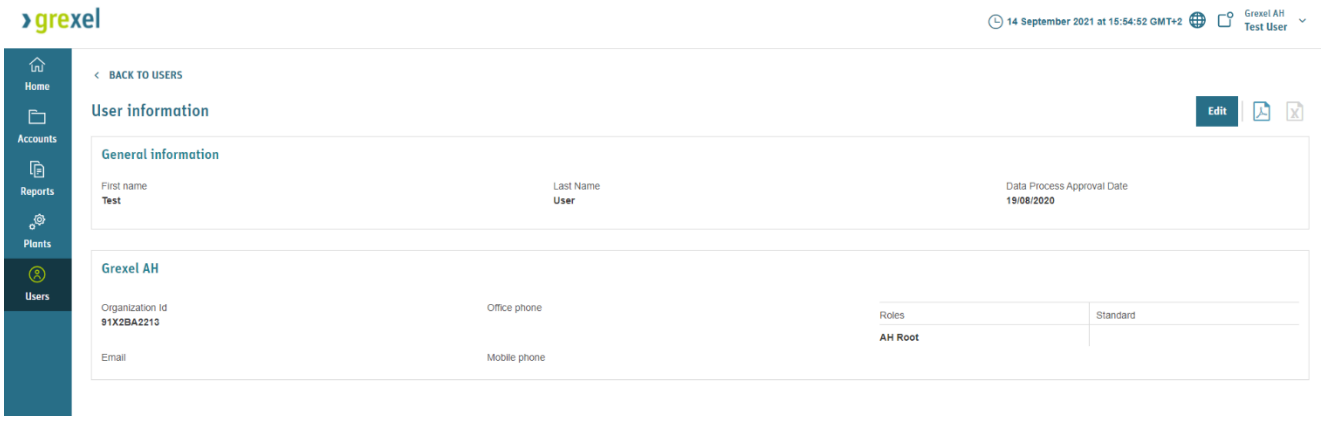


Figure 7-2 User details

7.1.3 Create user

To create a new user in the selected organization

1. Navigate to **Users → My organization**

2. Click **Create user** in the upper right corner of the view.
3. A dialog for user creation opens.
4. Fill in the required information of the user. Fields of user creation are explained in Table 7.2.
5. Click **Save**
6. Double-confirm the action.
7. The user is created immediately and invitation to set up account for G-REX is sent to the specified email.

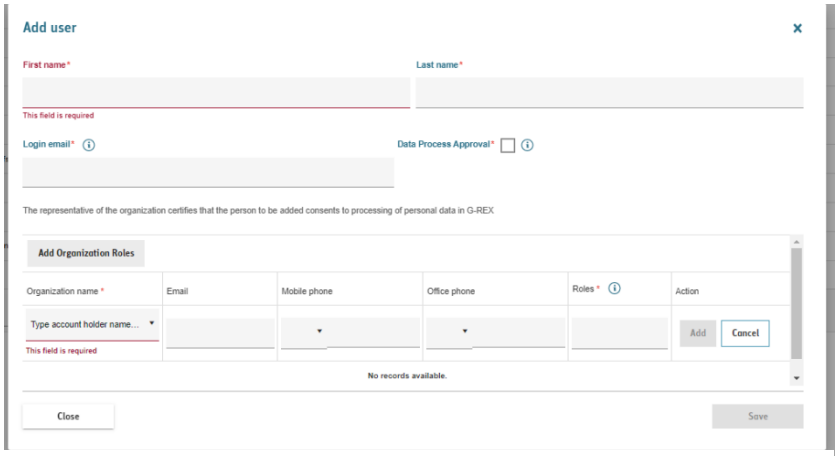


Figure 7-3 Create user

Note: See section 1.3.7 Authentication for more information on user authentication in G-REX

7.1.4 Giving Access rights to your organization

A user can grant access right to an existing user to his organization in G-REX within the same domain or another.

To grant access rights to a G-REX user, follow the steps of creating a new user as in 7.1.3 Create user. Please note that the login email has to be the same as for the existing user. Once the user has been created, the user can select your organization from the organization lists as in 1.6.2.1 Navigation between organizations

7.1.5 Edit user

To edit user in an organization

1. Navigate to **Users** → **My Organization** → **User details**
2. User details appear**,** click **Edit** from the upper right corner
3. Make the needed changes to the User- details

Note: Not all user information is possible to change by all user types (for example login email). Click **Save** when ready

4. Double-confirm the action.
5. After those changes are reflect in the user immediately.

Note: In case editing own user roles the browser needs to be refreshed to reflect the changes for example in user roles and organizations.

7.1.6 Managing cancellation beneficiaries

A user can Add, Edit or Delete Cancellation beneficiaries from the **Organization settings**

To manage cancellation beneficiaries, navigate to the header menu and press the **Organization settings** option and select the Customization tab on the right.

You can add a beneficiary to your list by pressing the **Add beneficiary** button on the top left of the list, enter the details of the new beneficiary, and press **Save**.

To edit an existing beneficiary, press the **Edit** button on the right side of the list entry, add the details and press **Update**

7.2 Locked user

In case certain user's access to an organization needs to be disabled, the **User** can be **Locked.** Locking a user in organization is possible for both AH and IB users as specified in the access right Table 7-1 Users menus access rights. In case user access is locked to an organization, the user cannot load any data nor perform any actions in the organization. The locked view of an organization can be seen in Figure 7-4 Locked user view.

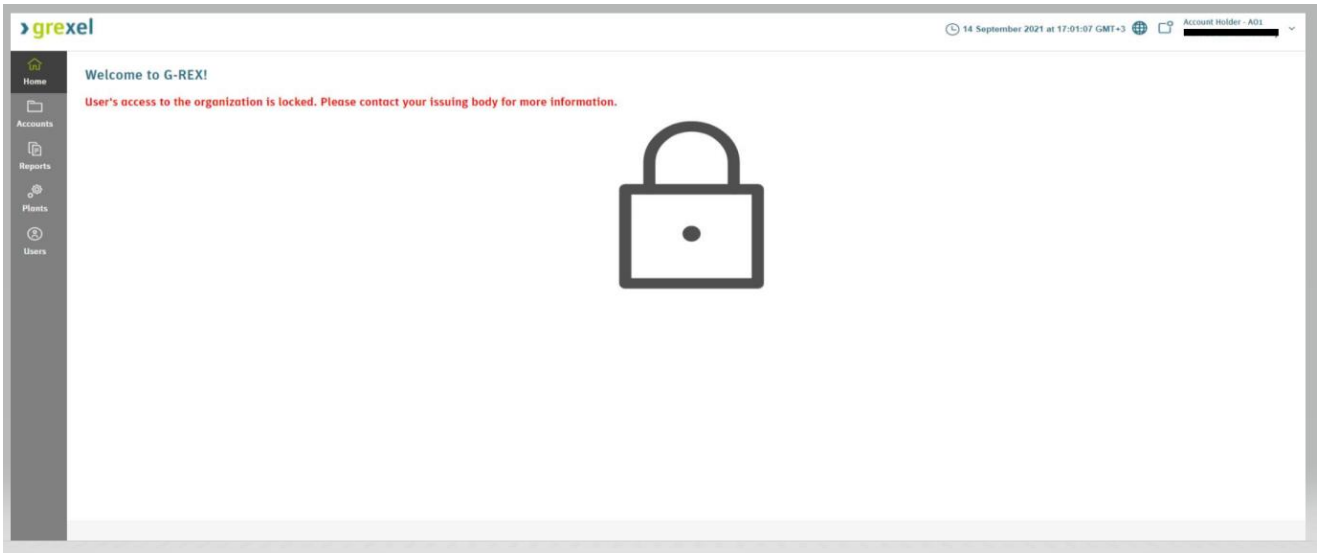


Figure 7-4 Locked user view

7.2.1 Lock and unlock user

To lock a user's actions,

1. Navigate to User details through **Users → My organization**
2. Scroll to the organization in which the user access should be locked
3. Click **Lock user access**
4. Double-confirm the action
5. User is locked and the change is updated on the screen. See figure Figure 7-6 User details for locked access.

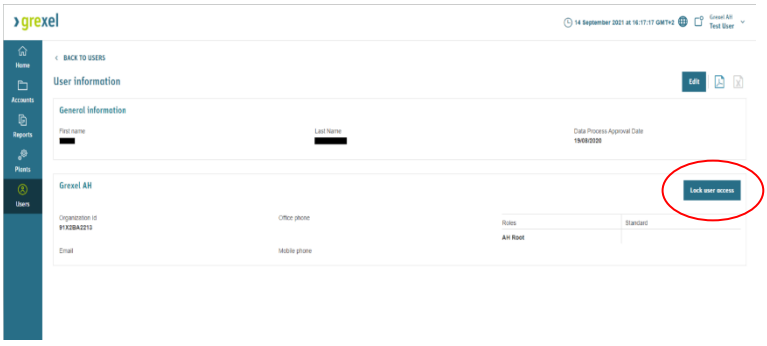


Figure 7-5 Lock user button

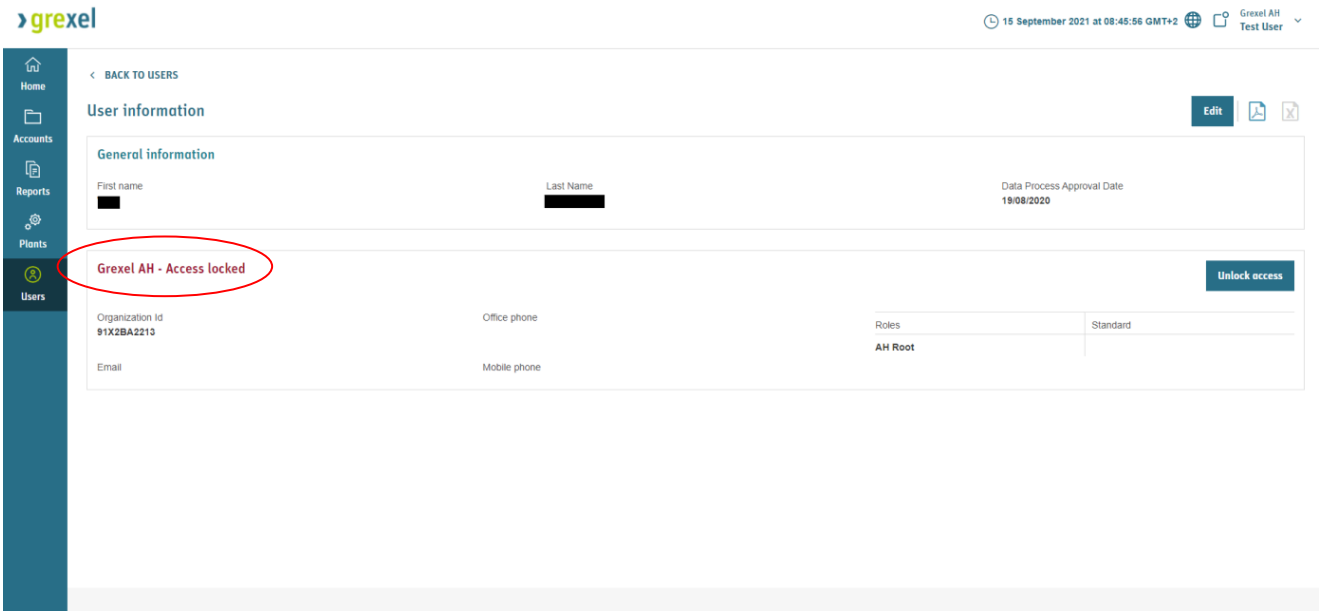


Figure 7-6 User details for locked access

8. Invoicing

When an invoice is created, the user can view the invoices by navigating to **Invoicing -> Invoices.**

Once an invoice has been submitted, Invoice lines will be generated (See section 8.2)

Additionally, to view the invoice lines it is possible to download an invoice batch as XML. An Invoice batch is a collection of all invoices that were created during the same Invoice Period. This means that an XML can be the same for multiple lines if they feature invoices that were created within the same Invoice Period.

8.1 Invoices

To download the invoice batch XML, press the **DOWNLOAD** on the from the invoice row you wish to download (See Figure 8-1)

	For organization				
End date time	Organizatio ID	Currency	Annual fees invoiced	Batch ID	Download invoice batch as XML
30/06/2023, 1.00	91XB782...	EUR	No	A4C51F4B-4A20-4B4D-A043-6A71AD0B7...	DOWNLOAD
					1 - 1 of 1 items

Figure 8-1 Download invoice batch XML

To view the invoice details, Press the **Invoice ID** from the **Invoice ID column** (See Figure 8-2) Here you can see Invoice Information, and Domain, Invoice for Organisation and Invoice Contact details. Below, you can also see the details of the invoice lines associated with the invoice. Refer to Chapter 8.2 for more details on the Invoice Lines.

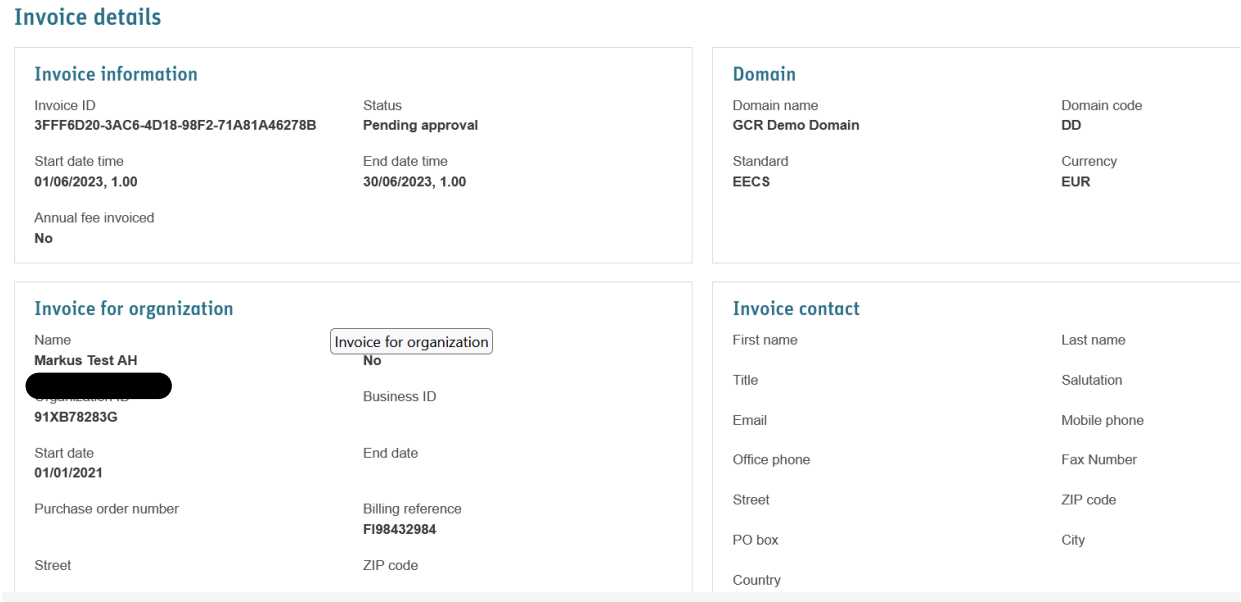


Figure 8-2 Invoice Details

8.2 Invoice lines

Invoice Lines are detailed entries on an invoice that specify a particular product or service, including its quantity, unit price, and total cost. They provide a clear breakdown of the items being billed. Once invoice lines have been generated, they can be viewed by navigating to **Invoicing >Invoice lines** (See Figure 8-3)**.**

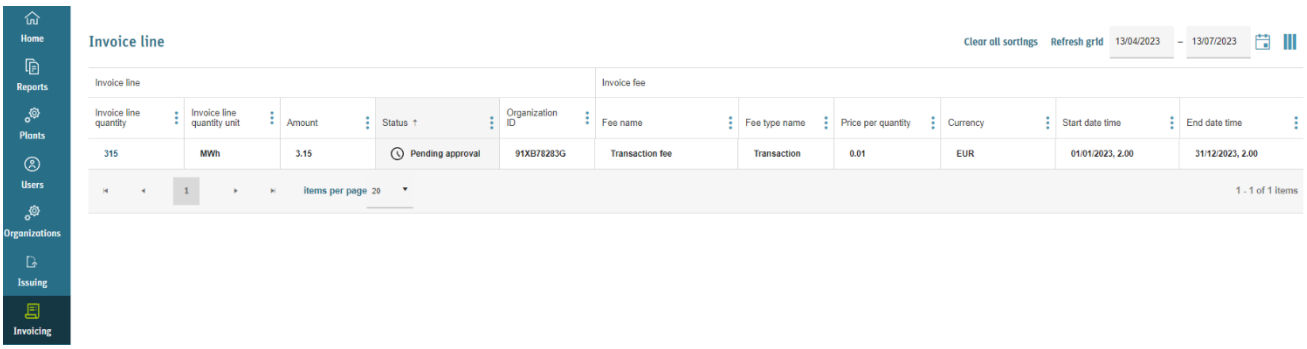


Figure 8-3 Invoice lines

A user can view the Invoice line details by clicking on the **Invoice line quantity** (See) value and the Invoice line details view will open (See Figure 8-4)

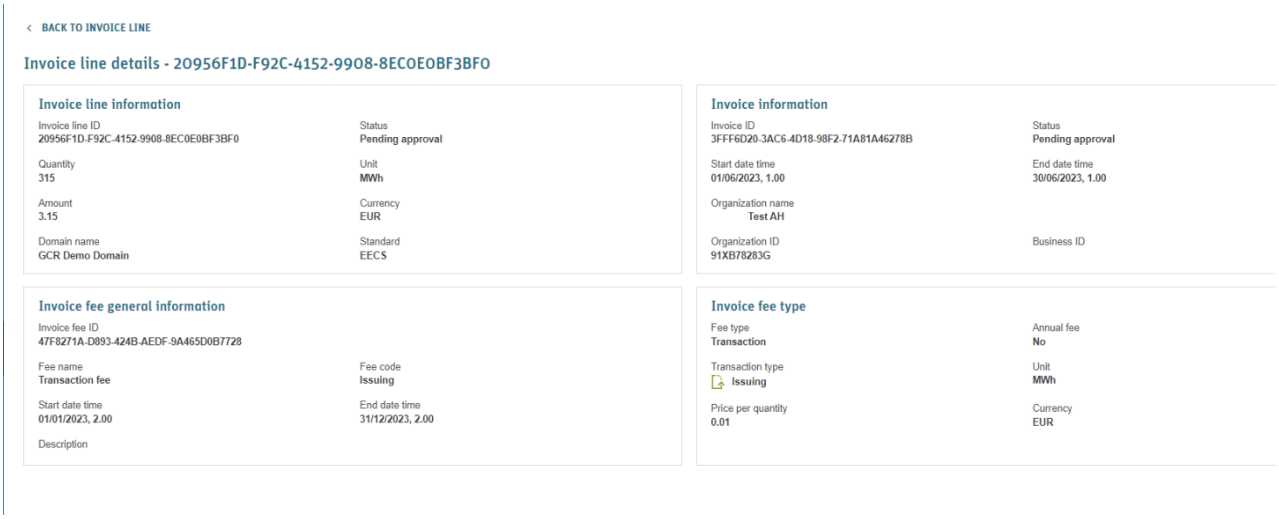


Figure 8-4 Invoice lines details

9. Appendix: Access rights

Table 9-1 G-REX menus and access rights

Category	Sub-Category		Account Holder Users							Other
			AH Root	AH Account Admin	AH Account Viewer	AH PD Admin	AH PD Editor	AH PD Viewer	AH User Admin	
Menu visibility	Home page	*Home page*	x	x	x	x	x	x	x	
	Accounts	*Accounts*	x	x	x					
		Certificates	x	x	x					
		Transactions	x	x	x					
		Scheduled transactions	x	x	x					
		Cancellation statements	x	x	x					
	Reports	*Activity logs*	x	x	x	x	x	x	x	
		Cancellation statements								
		Transactions								
	Plants	*Plants*	x			x	x	x		
		Declarations	x			x	x	x		
		Meter readings	x			x	x	x		
	Users	*My organization*	x						x	
		Domain users								
	Organizations	*Organizations*								
	Issuing	*Issue meter readings*								
		Issue without meter readings								
Reports	Cancellations	*View cancellation statement*								
		Export to PDF								
	Transactions	*View transactions*								
		View transaction details								
	Activity logs	*View (own organizations)*	x	x	x	x	x	x	x	

		View (AH organizations)									
		View details									
	Certificates	*View certificates*									
		View certificate details									
		Withdraw									
Plants	Plants	*View list*	x			x	x	x			
		View details	x			x	x	x			Operator, Registrar, Owner, Aggregated owner
		Register	x			x	x				
		Submit	x			x					
		Approve / Reject									
		Edit (Add / update / delete General, meters, licenses, organizations)	x			x	x				
		Change issuing account									Owner, Aggregated owner
		Lock / Unlock									
	Declarations	*View list*	x			x	x	x			
		View details	x			x	x	x			
		*Create (Update)**	x			x	x				
		Delete	x			x	x				
		*Approve**									
	Meter readings	*View list*	x			x	x	x			
		View details	x			x	x	x			
		*Create (Update)**	x			x	x				
		Delete	x			x	x				
		*Approve**									
Users	My organization	*View*	x						x		
		Details	x						x		
		Create	x						x		
		Edit	x						x		
	Domain users	*View*									
		Details									

		Create								
		Edit								
Organizations	Organizations	*View list*								
		View organization details (except users)								
		View organization details (including users)								
		Edit organization (general, org type, trading schemes, contact)								
		Lock / unlock accounts								
		Create organization								
Issuing	Issue meter readings	*Issue meter readings*								
	Issue without meter readings	*Issue without meter readings*								
Accounts	Accounts	*Make transaction / Select certificates*	x	x	x					
		Create account	x	x						
		View account statement	x	x	x					
		Edit account	x	x						
	Certificates	*View certificates (+details)*	x	x	x					
		Select certificates for transaction	x	x						
		Create transfer	x	x						
		Create cancellation	x	x						
	Transactions	*View*	x	x	x					

		Details	x	x	x					
	Cancellation statements	*View*	x	x	x					
		Export to PDF	x	x	x					
	Scheduled transactions	*View*	x	x	x					
		Details	x	x	x					
		Create (both cancellation and transfer)	x	x						
		Delete	x	x						

10. Appendix: License attributes

Attributes are License type specific data fields specifying the characteristics of energy produced by a Plant in terms of the Input(s) used and/or the details of that Plant and production process. When there is a change in the value of an attribute, a new license is needed with corresponding validity period.

Note: The attributes are information fields which depends on the specific License type. E.g. there could be a separate license type for EECS Electricity and another for Gas so that only relevant attributes to the selected License type will be shown. Below are introduced some of the most common ones, but those depends on the license type

Note: Whether an attribute is required or not depends on the License type

Note: Some of attributes might be declarable. If such, in the Plant details those will not be filled, but a declaration is needed to specify the values specific to a metering period.

As the fields are different depending on the License type, those are explained in separated tables below.

10.1 EECS Electricity -license type attributes

Attribute	Description
Product type*	Note: Available options depend on the selected License type. To define whether the Certificate is issued in relation to the energy source and/or the Technology used in producing such Output. Possible values (also both can be selected) • Source • Technology
Electrical capacity (kW)*	Maximum capacity of the Plant
Electrical estimated annual production (MWh)	Note: Depending on the Domain, there might be validation against this figure on importing meter readings. Expected annual production of the Plant.
Use of heat	Represents the predominant use of the relevant hea. Refer to FS Cogeneration GO Codes
Lower calorific value (MJ/kg or MJ/m3 or MJ/l)	Lower calorific value
Useful cogen heat (GJ/MWh)	Useful heat production from cogeneration which correlates to 1 MWh of high-efficiency cogeneration (HEC) electricity production

	Percentage primary energy saved (%)	Primary energy saved according to Annex II of the Energy Efficiency Directive
	Amount primary energy saved (MJ/MWh)	Actual amount of primary energy.
	Overall primary energy savings (%)	Overall primary energy savings based on the total energy input and output flows of a Cogeneration unit.
	Energy medium*	Energy medium for which the certificates have been issued. Could be e.g. Electricity.
	Electrical efficiency (%)	Electrical efficiency of the Plant in percentage.
	Thermal efficiency (%)	Thermal efficiency of the Plant in percentage
	CO2 emission produced (kg/MWh)	CO2 emissions produced.
	Absolute CO2 emission saved (kg/MWh)	Absolute CO2 emissions saved compared with the best available and economically justifiable technology for separate production of heat and electricity using the same fuels; and which was on the market in the year of construction of the CHP unit, as defined in Annex II(f)(2) of the Energy Efficiency Directive.
	Radioactive waste produced (g/MWh)	Note: This is a License type specific field and might not be visible for your Domain Amount of radioactive waste produce by the Plant in case of any. This is depending on Energy source Nuclear.

10.2 Heating and Cooling -license type attributes

	Attribute	Description
	Aggregation Stage*	With regard to the medium used for conveying Heating or Cooling produced by that Plant: its predominant aggregation state at delivery. Possible values: • Solid • Liquid

	• Gaseous
Dissemination Level*	Dissemination level of the Output for which the Certificate are issued. Possible values: • Consumed by the operator of the production device • Transferred over a Heating or Cooling Grid Note: The dissemination level varies on each measurement period, and hence it is a declarable field. Refer to section 6.2 Declarations for more information about declarations
Element Capacity	Where applicable, the capacity of the relevant production element of the Plant in kW. Decimal number with three decimals allowed.
Element Date Operational	Where applicable, the date when the production element became operational
Element Description	Where applicable, the description of the production element
Energy Carrier*	Energy Carrier for which the certificates have been issued: At the moment only one option: • Heating or cooling
Medium*	Medium used for conveying Heating or Cooling produced by the Plant. Possible values: • Water • Thermal-oil • Air/residual gases • Salt • Refrigerant • Unspecified
Network Identity*	Code for the interlinked grid. Text field with length of 1-20
Network Name*	Original Grid Name Text field with length of 1-255

	Nominal capacity*	The nominal Heating and/or Cooling output capacity of the Production Device, in kW. Decimal number with three decimals allowed.
	Purpose*	The Purpose for which the certificates have been issued. At the moment only one option: • Disclosure
	Thermal Energy Type*	Whether type is Heating or Cooling: Possible values: • Heating • Cooling