California ISO

Base Schedule Aggregated Portal (BSAP)

Users Guide

Feb 23, 2023

Revision History

Date	Version	By	Description
2/23/2023	1.4	DC	Reference to Edge and Chrome support instead of IE.
6/11/2020	1.3	WT	Updated document to reflect new WebSDK3.5 design and updated functionality copy submit.
9/28/2015	1.2	WT	Updated document to reflect new WebSDK design and functionality. Added IE 11 compatibility note.
6/8/2015	1.1	WT	Created BSAP User Guide from the version 5.0 SIBR BSAP User Guide.
11/4/14	1.0	WT	Fall 2014 Release Functionality added. (Wheeling, Transaction base schedules) EIM Base Schedule. To the BSAP Scheduling Coordinator User Guide Version 5.0.

Contents

1   Introduction

The purpose of this document is to provide a customer an introduction of how the Energy Imbalance Market (EIM) will allow balancing authorities (BA) throughout the West to participate in a real-time imbalance energy market operated by the ISO. The EIM will dispatch economic base schedules to efficiently balance supply and load within its footprint, providing substantial benefits. Broad participation in an imbalance market will bring important efficiency, reliability benefits and provide a valuable and important role in renewable integration, helping to balance variable resources.

One part of the CAISO system is the Base Schedule Aggregation Portal (BSAP) component. From the viewpoint of an EIM participant either as the Base Schedule Coordinator (BSC) or the EIM Entity BSC who interacts with the system, this component:

- Accepts base schedules for energy and energy-related commodities (Ancillary Services) from the BSC or Entity BSC that are certified to interact with CAISO,

- Ensures that those base schedules are valid and that the Balancing Area Authority (BAA) is reporting the balance aggregated base schedules within the BAA for the demand forecast related to the BAA zone for a given time period.

- BSC or Entity BSC enters base schedules into BSAP for processing by other components of CAISO's management systems, using the data from the database and

- Provides required feedback to BSCs concerning base schedules that have been submitted.

This manual will instruct a Base Schedule Coordinator (BSC) in the usage of the California ISO Base Schedule Aggregation Portal (BSAP) web user interface (UI) for entering and submitting base schedule data.

This manual is intended to be used by persons who wish to use the UI supplied by the CAISO system to submit base schedules for energy and energy-related commodities and services.

The organization of this manual is as follows:

- Chapter 1 is introductory material. Notably, it contains an overview of the process that the California ISO (and the software system that has been put into place by CAISO) follows in accepting and evaluating base schedules. This material is useful in understanding how base schedules are processed including base schedule statuses, the order in which processing steps occur, etc. The chapter also explains how to access the system.

   All users of the system should read this chapter.

- Chapter 2 describes basics of the user interface used to enter base schedules. All user interface screens are constructed of certain basic elements; they are described here.

   All users who will interact with the BSAP User Interface should read this chapter.

- Chapter 3 discusses the components of base schedules and how to enter them. It also describes how to submit base schedules, how to view base schedule status as a base schedule progresses through the system, how to cancel a base schedule, how to create a new base schedule to replace one that is already in the system, etc.

Personnel, who enter, submit, or need to view the status of base schedules should read this chapter.

▪ Appendix A is a link to the SIBR Rules which has a tab for Terms, these terms are used within the rules engine when checking the content and validation of Base Schedules and bids.

1.1 Overview

The following chapter will discuss how the base scheduling process works at the California ISO, using the software system that has been jointly designed by CAISO and Siemens and built by Siemens. Not only will we discuss how the process works, but we will also establish a common vocabulary for that discussion.

Note that the overview in this chapter is not intended to explain every detail of the process. It will, however describe the major steps in base schedule processing. The overview is in three sections:

▪ Theory: where we explain how the main flows in the process work.

▪ Practice: where we discuss in general terms how a BSC interacts with the system via the user interface.

▪ FAQ: where we answer questions – some which have come from customers and some that we've made up ourselves on behalf of customers.

1.1.1 Theory

1.1.1.1   Base Schedule

A Base Schedule is a forward energy schedule, with hourly granularity, that is the baseline to measure deviations for settlement through the EIM. Base schedules include the hourly forecasts of load, hourly generation schedules and hourly interchange schedules.

Base Schedules submitted in the Day-Ahead (DAM) are in support of Reliability Coordinator analysis and are the forward energy schedules for the 24 hour market period broken down in hourly granularity (24 hours for 1 DAM base schedule). There is no balancing of DAM base schedules.

Although this process seems simple, there are important subtleties. Specifically, there is an important difference between "created base schedule" and "submitted base schedule". A BSC uses the GUI to create a base schedule by entering values for all the base schedule components. During this process, beyond some very simple validation (e.g., no alpha characters in numeric fields) and saving the base schedule in the database, the system takes little interest in the actual contents of the base schedule.

After the BSC has created the base schedule, it is submitted by clicking a button on the base schedule creation page. At this point, the system queues the base schedule for validation by the "rules engine" and informs the SC that the base schedule has been submitted.

After a base schedule is submitted, the system maintains a complete history of the base schedule and actions performed. The BSC can view the base schedules; it may also be used as the basis for creating another base schedule.

Once a BSC submits a base schedule, it is available for the system to validate. The BSAP Rules Engine performs validation. The BSAP Rules Engine is programmed with several rules that are used to validate the base schedule.

The process of validating a base schedule actually takes place in multiple steps; however, these multiple steps are automatic and are seamless to the user.

- Content Validation determines that the base schedule adheres to the structural rules required of all base schedules. This includes such things as validating that all required components are present, the units or services contained in the base schedule actually exist, etc.

- If the Content check fails, the base schedule becomes a "Rejected Base schedule".

- If using the UI to upload an xml file, if the format is not correct or missing elements there will be a statement for an invalid xml at the bottom of the screen.

- After Content succeeds, Base schedule Validation verifies that the various components of the base schedule adhere to the applicable market rules. If this validation passes, the base schedule becomes eligible to be used in a market.

At this point, the BSC has the option to view the base schedule and edit, cancel or delete if needed:

- You do not have to cancel or delete a base schedule before you re-submit.

- Base Schedule **creation** is used to edit a base schedule that is already available for a resource and market period. The newly created base schedule will obsolete the previous base schedule for that resource an market period.

- Obsolete base schedules will not be further processed.

- If there is no need to submit a base schedule for a resource then you can cancel the base schedule, in which case the base schedule is retained in the system database as a Cancelled Base schedule and not visible on the UI. Cancelled base schedules will not be further processed.

  - Note: Cancel is used for Valid or Modified base schedules; those are base schedules that are used when the data passes to the market system.

    Do not use 'Delete' for Valid or Modified base schedules, Delete is for base schedules that are in a 'Create', 'Invalid' or 'Rejected' status.

Master File changes are introduced into the system once per day and are cached. Since Master File changes may affect base schedule acceptance for new or changing resources close attention is needed when submitting for future dates. Here is an example:

- Base schedules for the Day-Ahead and Real-Time market type may be submitted up to 7 days in advance.

- A base schedule that is submitted on Monday afternoon for Thursday's Day Ahead Market for 50MW has a status of Valid.

- There is a Master File change, a new maximum generation value of 40 will be effective on Thursday.

- Master File changes are read into the system on Wednesday morning new value of 40 exists, base schedule still has 50 from Monday's submission.

- Base schedules currently go through a re-validation process daily after Master File changes are applied. Only for those base schedules submitted for the next trade date (Thursday in this case).

- Base schedule for resource of 50MW becomes "Invalid" and will show on UI displaying the rule that fired to invalidate the base schedule that exceeded the maximum generation for the resource.

  - o Note: If a new resource is added in Master File but the effective date is Thursday, the earliest a base schedule could be submitted would be after the Master File changes are read into the system on Wednesday morning.

  - o Master File updates are typically completed by 2am the day before the effective date.

  - o Base Schedule re-validation is scheduled for 8:25am daily for next trade date.

1.1.2 Practice

In the last several pages, we have discussed how base schedules are validated by BSAP. In the following chapter, we'll cover in general terms, the practical aspects of accessing the system, entering, submitting, and managing base schedules. The goal here is to understand the basic principles and processes – later chapters will address particulars such as which buttons to push and when.

1.1.2.1   Accessing BSAP

A valid digital certificate with the correctly provisioned roles must be used to login to BSAP. There are four roles associated with BSAP and are provisioned by each organization using the Casio's Access and Identity Management (AIM) system based on need.

- ▪ Base Scheduling Coordinator (BSC) for either read or read/write (not both).

  - o Read only allows viewing

  - o Read/Write will allow create/submit/update/cancel/delete.

  - o Can submit Generation base schedules for all future hours.

  - o Will not be allowed to submit Generation base schedules after the 2nd cutoff time of T-55 (this is xx:05 after the hour for the active hour. (example: 7:05am is the 2nd cutoff for HE9 which is the active hour.)

- ▪ Entity Base Scheduling Coordinator (BSC that is the Entity) either read or read/write (not both).

  - o Read only allows viewing

  - o Read/Write will allow create/submit/update/cancel/delete.

  - o Can submit Inter Tie and Transaction base schedules for all future hours.

  - o Can submit Generation base schedule for future hours IF there are no existing Generation base schedules.

  - o Can submit Generation base schedules for the active hour after the 2nd cutoff time of T-55 referenced above.

For the BSC or Entity BSC there must be an associated resource that belongs to the BSC in order to be able to submit a base schedule.

1.1.2.2   Basic Display Layout

As stated previously, this document is concerned with entry, submission, and management of base schedules. In this case, the Application-Specific menu will contain the following items:

- Base Schedule: Screen accessible through this menu item is used to create, submit, and manage base schedules for a day-ahead and real-time market.

- BAA Balance Viewer – Screen is a view of the aggregated base schedules for the BAA compared to the Demand Forecast for that BAA to show the delta MW between the two and the percentage, this is used to manage the balancing. (Note – other data on this view will show aggregated outage information for the BAA and if there is any base schedule deviation to account for when balancing).

- Resource BAL Viewer – shows the resource specific data with respect to the base schedule, operating limits, bid limits, outage related information and impact to base schedule deviation.

- Flex Requirement – Entity only access – shows the uncertainty per 15 minute interval for Flex Ramp per BAA with Time Interval and Direction.

2   Common UI Features & Navigation

There are a number of elements that appear on all (or many) GUI pages. We've already talked about some of them:

- Portal Menu

- Application Menu

- Logout and Help links.

- Application Content Area.

In this chapter, we'll talk about other common display elements and concepts.

Base schedules are submitted for a market. There are two market types:

- A Day-Ahead Market is basically one 24-hour[1] period. Base schedules for a Day-Ahead market may be submitted up to 7 days in advance of the target market date. Base schedules may be submitted until the "market close" event for the target market date (currently 10:00 A.M.) on the previous day.

- A Real-Time Market consists of one hour. Real-Time Market base schedules (for a particular trade day) are accepted up to 7 days in advance of the target market date until the real-time market for the designate hour closes.

- (T-75 xx:45, T-55 xx:05, T-40 xx:20)

2.1 Application – Specific Menu

The BSAP application menu shown in   contains the following items: (Figures 1 and 2 show these items)

- Navigation Tool Bar

- Base Schedule

- BAA Balance Viewer

- Resource Bal Viewer

- Flex Requirement

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[1] There is one 23-hour (no HE3) and one 25-hour (has HE2* for second HE2) Day Ahead Market per year due to daylight savings time.

Figure 1: BSAP Application Menu
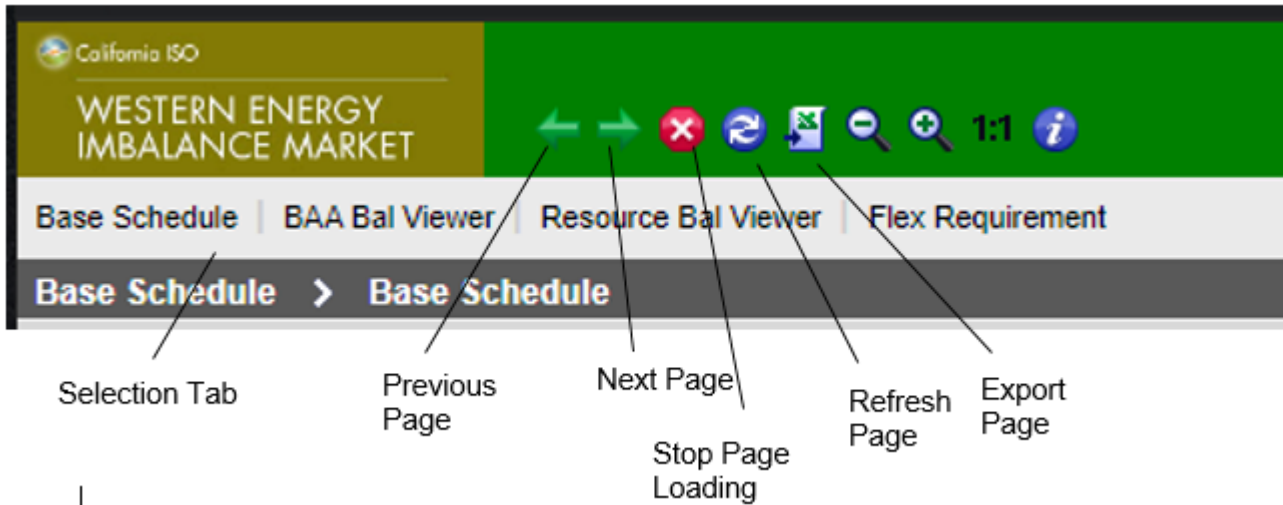
2.2 Application Content Area

For most Base schedule Management displays, there are three basic components in the Application Content Area, as illustrated in 3. These are:

- **Filter Pane**: The filter pane is present on most BSAP displays. It contains filters that allow the user to control the information displayed on the data grid portion of the display. The filter pane is always at the upper edge of the Application Content Area.

- **Data Grid**(s): Below the filter pane is at least one data grid. Base schedule data are entered, edited, and viewed in the data grid. Some displays may have additional data grids.

- **Message Bar**: This is at the very bottom of the Application Content Area. It is used to advise the user of various events, errors, etc. This area grows and shrinks vertically to accommodate the message(s) that need to be shown.

A number of icons may be included at the upper left corner of the **data grid**.

Table 1 describes the buttons that are available on tabular grids.

Table 1: Buttons on Tabular Grids
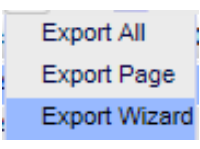
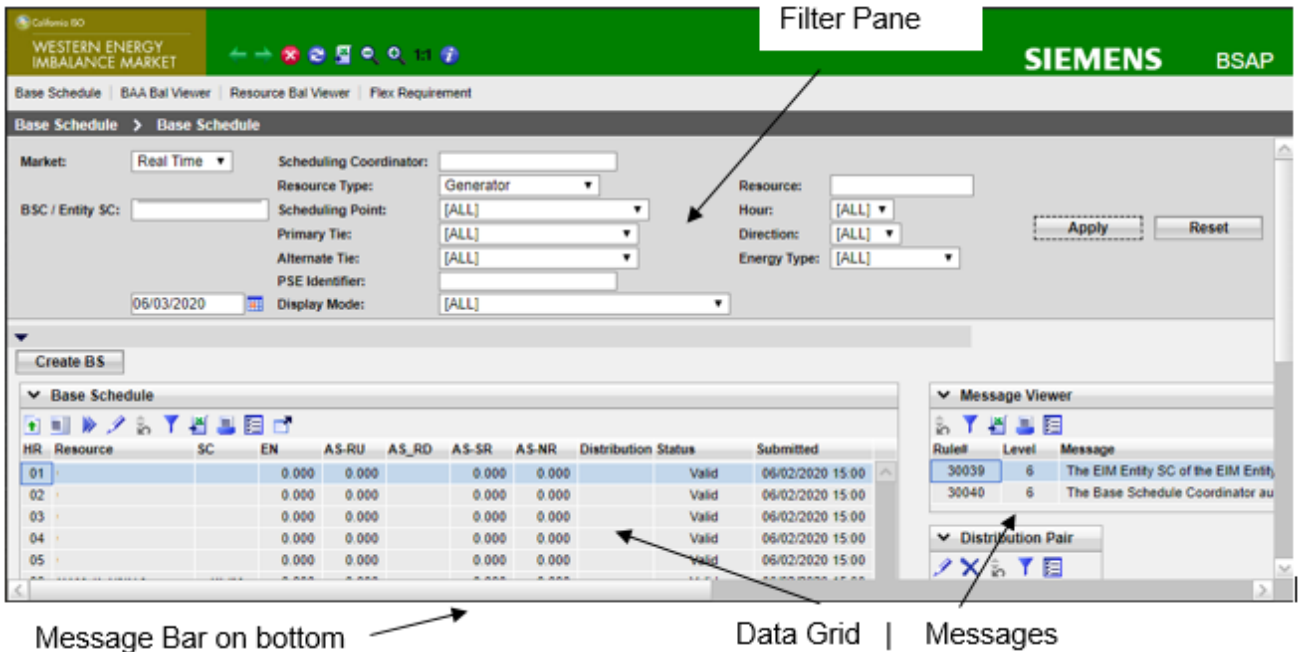|		
		Upload icon for using an xml file to submit to BSAP from the UI.
		Copy selected base schedule(s), current sheet (day/hour) or Single day or Multi-Day.
		Submit selected base schedule(s).
		This is the 'Edit' icon used to edit a selected set of rows. This can only be used when in created status.
		Restore Default Sort. It is possible to change the sort order of the contents of a tabular display by clicking on the title row. Clicking on the Restore Default Sort button restores the sort order to the default, that is, it removes any sorting that has been established by clicking on title rows.
		This is an inline filter icon, allowing to only display data that matches the inline filter criteria.
		This is used to export the contents of the data grid in
	Export All Export Page Export Wizard	Export All – all data grid items. Export Page – data on page. Export Wizard – will allow selection for Excel, csv or Word. And by column header.
		Print. This button prints the contents of the grid.
		Display selected columns on the UI.
		Grid pop-out for current screen.

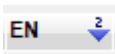**Figure 2: Content Area**

A sort order can be applied to any tabular grid, the User may change the sort order by clicking on the title row for a column.

For example, in the grid illustrated in Figure 5 below, the user has clicked once on the HR (Hour) header and twice on the EN header (resources are masked). This changes the sort order of the grid by making the HR column the primary sort key and EN the secondary sort key. A small triangle appears in the header row to indicate:

- Sort order. The orientation of the triangle (pointing up means ascending, pointing down means descending).

- Key: The small number in the triangle indicates which column is the first, second, etc. sort key. Up to 9 sort keys may be established in this way.

As implied above, sorting may be ascending, descending, or none:

- Clicking once sorts in ascending order.

- Clicking a second time on the same column changes the order to descending.

- Clicking on the same column for a third time removes sorting.

By clicking on the grid's Restore Default Sort button, all sort keys can be removed and the sort order returned to default.

Figure 3: Basic Grid Display Components

There is also an in-line filter available to all for sorting by a provided sequence of alpha or numeric. This can be used with an exact match and also with Case Sensitive.

Figure 4: In-Line Display Components

Often the data grid of a tabular display is not large enough to display all the data in the corresponding columns. In such a case, the grid may be configured to be "scrolled".

Some tabular grids may be configured for scrolling. In such a case, a scroll bar will be present on the right edge of the grid. This scroll bar is used to move forward and back in the data. Note that column headers and totals (if present) remain stationary as data are scrolled.

The area immediately below the grid is used for messages. This area expands and shrinks as necessary to accommodate any messages that the application believes are of interest to the user. A separate display is provided to view messages that have occurred over a longer term, such as messages issued by the Rules Engine during base schedule processing.

▪ **Right-Click Menu**: This menu gives you a list of commands associated with actions to perform on the entered data while the sheet is in edit mode. Each of the functions is described in detail below.

Figure 5: Right-Click Menu options

➢ Set all values in column to this value: While in edit mode and having the selected row with the value, will copy that value for the entire column.

➢ Copy: will copy values from selected cell

➢ Paste: Pastes the copied row into the currently selected row or rows.

  o Use the

➢ Update: Updates the grid and exits the edit mode.

➢ Cancel: Cancels the last action and exits the edit mode.

2.3 BSAP Screens

There are four screens currently on BSAP to manage base schedules for balancing.

- Base Schedule
    - o View/Create/Update/Cancel/Delete base schedules per BSC.
- Base Balance Viewer
    - o Shows at an aggregate level for the BAA (base schedules to Demand Forecast)
- Resource Bal Viewer
    - o Shows at a resource level per hour base schedule and deviations submitted by the selected BSC.
- Flex Requirement (accessible by users that are provisioned with the Entity role).
    - o Shows the uncertainty per 15 minute interval by direction per BAA.

Depending on which environment to login to please see the Application Access page posted on CAISO web site for proper URL depending on which environment is needed.

This is updated when information changes periodically.

http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx

Select the 'System Access Information for Market Participants.

2.3.1 BSAP Base Schedule sub tab

1. After logging in to the BSAP system the **default** page will be the Base Schedule Screen.
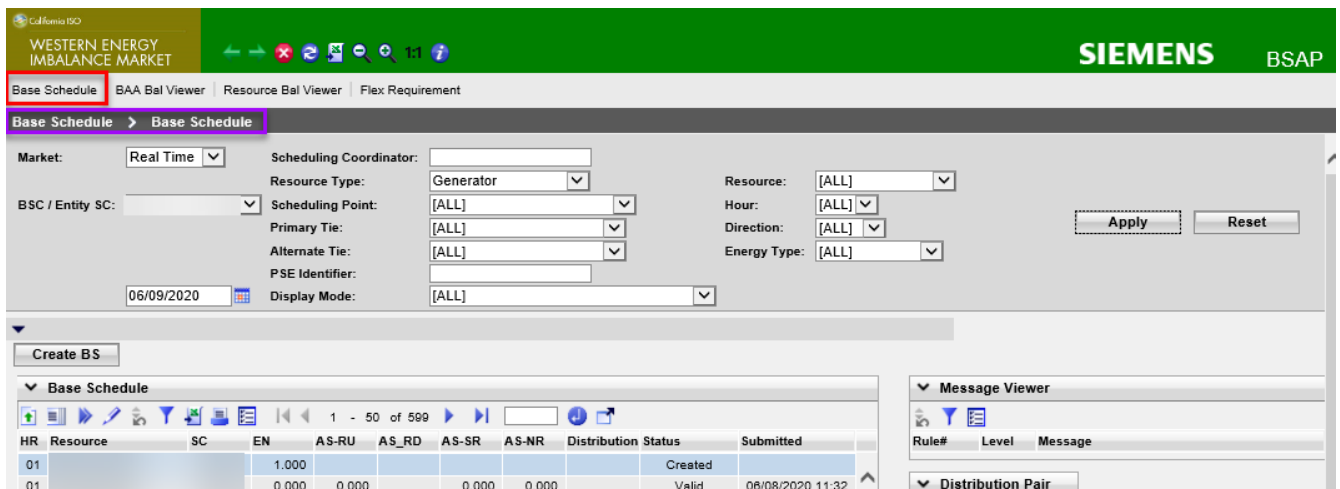

Figure 6: Header Filter options

The Base Schedule page will display results based on the filter selection applied.

- **Market**: (can be either Real Time or Day Ahead) Day Ahead is in support of Reliability Coordinator analysis.

- **BSC / Entity SC** (If more than 1 BSC is associated with the certificate) it will show the first name that is associated with the specified role on the certificate that is used to authenticate. These is arranged alphabetically by name. *If the role is associated with the Entity BSC, then the drop down will allow both the Entity BSC and all BSC that belong to the BAA under that Entity to be selected.*

- **Scheduling Coordinator** (SC of Participatin or Non-Participating resource) (**free form text**)
- **Resource Type** (based on resources registered in Master File for the BSC)
  - Generator, Inter Tie, Inter Tie Transaction, MSG, Non- Generator (NGR)
- **Resource** (based on resources registered in Master File for the BSC)
- **Scheduling Point** (for Transaction base schedules, select a valid Scheduling Point)
- **Hour** (can select all or specific hour)
- **Primary Tie** (for Transaction base schedules, select a valid to for the Scheduling Point)
- **Direction** (Import or Export for Transaction)
- **Alternate Tie** (not used)
- **Energy Type** (for Transactions with respect to tagging for Ties, Firm, Non-Firm, Unit-Contingent, Dynamic, Wheeling)
- **PSE Identifier** (for Transactions, must be a registered Purchasing Service Entity)
- **Display Mode** (ALL (default) shows all status, Show edited will display those in 'Created' status, View latest submitted will display all but the 'Created' status.
- **Apply** (click applies the filter changes selected)
- **Reset** (sets display back to current date (Real Time) and removes filters).

Figure 7: Base Schedule select criteria

2.3.1.1   Create and Submitting Base schedules

The base schedule submission process is largely identical for both Day-Ahead and Real-Time base schedules. As we have discussed before, the only major difference is that Day-Ahead base schedules are for a 24 hour period with 24 intervals and Real-Time base schedules are for a one-hour period with a single interval.

Note:For base schedules submitted in the Day Ahead, if one of the interval hours within the 24 hour period is not valid, it will cause the entire base schedule for that resource to be invalid for the Day Ahead (all 24 hours).

For both Day-Ahead and Real-Time base schedules, a Base schedule Summary menu item is provided; this display is used to review, create, submit, or cancel base schedules.

Creating a Base Schedule requires the below fields to be populated.

1. **Market type** must be selected and **trading day**.
2. The **BSC / Entity BSC** drop down is populated the associated role on the issued certificate to access BSAP.
3. Base Schedules require that the **Scheduling Coordinator** (this is the Financially Responsible SC) be entered in order to create a Base Schedule. This is a **free form** field to be typed.
4. Choose a Resource Type.
5. For all Resource Types **except** Inter-Tie Transactions, once the resource is selected click on the **Apply** button (upper right) and then the '**Create'** button (top left of the Base Schedule grid).
6. The 'Create' will open the view in edit mode, Enter a MW value for the Base Schedule(s) to be used for hours that are needed. (0) zero is a valid entry for base schedules regardless of the Pmin of the resource.
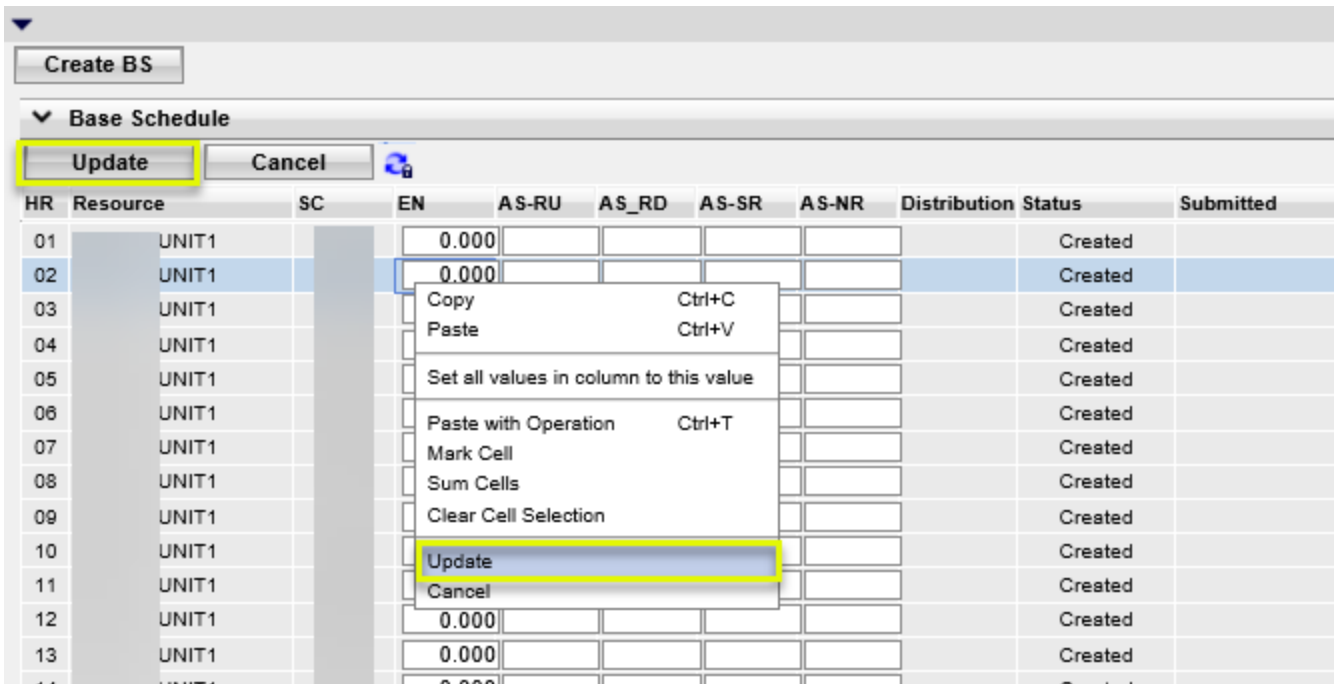7. Then select Update button or you can right-click for the drop down and select Update.

Figure 8: Update

8. After Update is selected it will exit the edit mode and still be in the created status. If you are reviewing the schedules and find that you need to edit one of them you can select the row(s) and then click the pencil icon to edit.
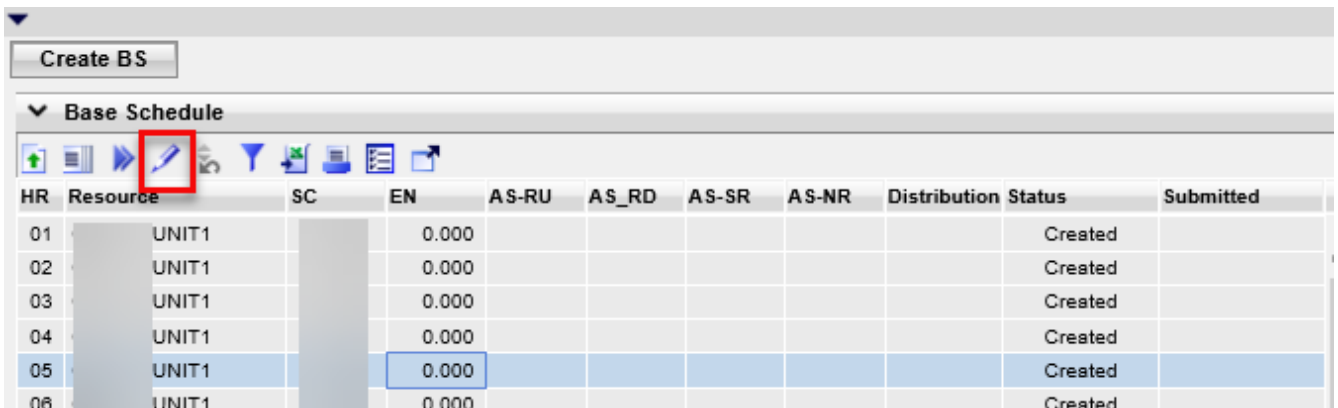   Note: The edit icon only applies to base schedules in 'Created' status.

Figure 9: Edit of Created status base schedule

To submit the Base Schedule(s) select the row or multiple rows and then 'right' click to bring up the 'options menu. Select 'Submit BS', this will submit the Base Schedules. (below has row 1 highlighted and would submit only that.)
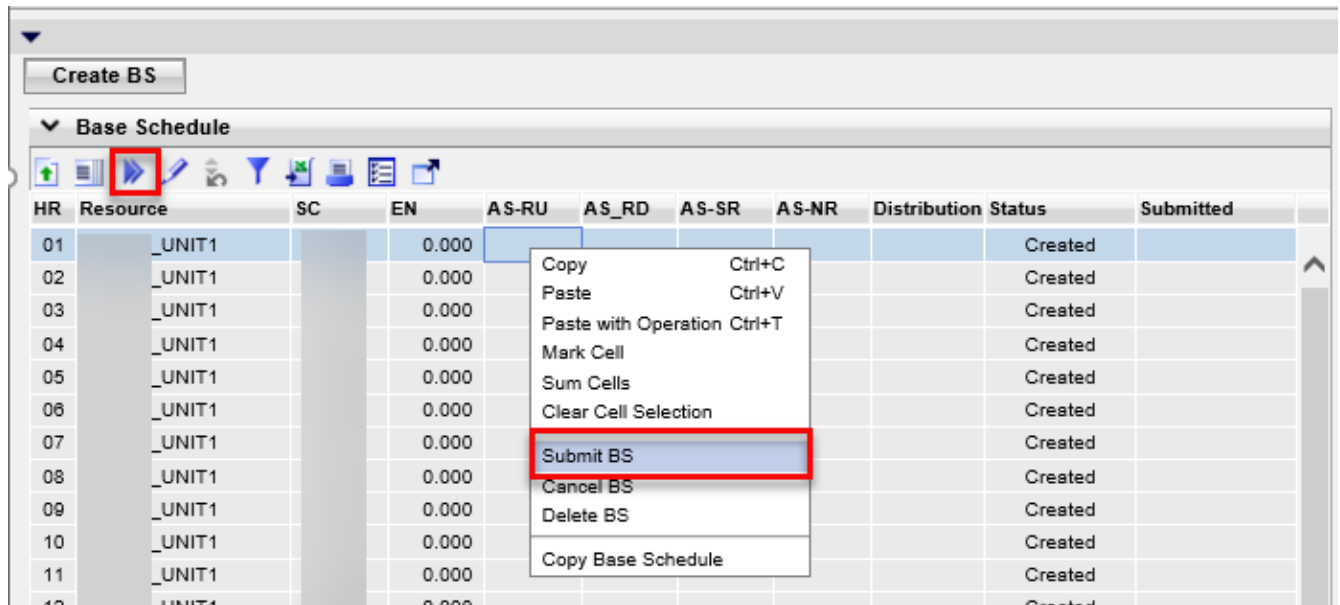
Figure 10: Base Schedule submit

You may also select the double arrow icon to submit the selected base schedule(s).
Note: You may have to change the Display Mode to 'View Latest Submitted Base Schedules' or ALL to see the 'Valid' status instead of the 'Created' status along with the updated Submitted timestamp (shown in figure 8 below).

Editing/Modifying of base schedule information for a base schedule that is not in 'Created' status is performed by **re-creating** the base Schedule described in the submission **or** by Copying the Base Schedule to the current sheet described below.

From the UI the base schedules that are viewable will have a status of one of the following:

- o **Created**; this is for a **UI** created base schedule that has not yet been submitted.
- o **Valid**; passed validation rules and will be used for that hour.
- o **Modified**; passed validation for aggregate resources (there is a GDF present on the base schedule)
- o **MF Inserted**; This is shown for the merchant side (BSC that is not the Entity BSC) who submitted a Generating base schedule, but was overwritten by the Entity BSC after the T55 cutoff. The MF Inserted will not be present on the UI until the close of the T40 cutoff time for that hour.
- o **Invalid**; Base schedule did not pass validation rules and will not be considered for balancing or be sent to the market.
- o **Rejected**; Base schedule did no pass content rules and will not be considered for balancing or be sent to the market.

2.3.1.2   Copying Base schedules

To copy a base schedule or selected base schedules you can select the base schedules to copy and then click on the copy icon or use the right-click menu to Copy Base Schedule.
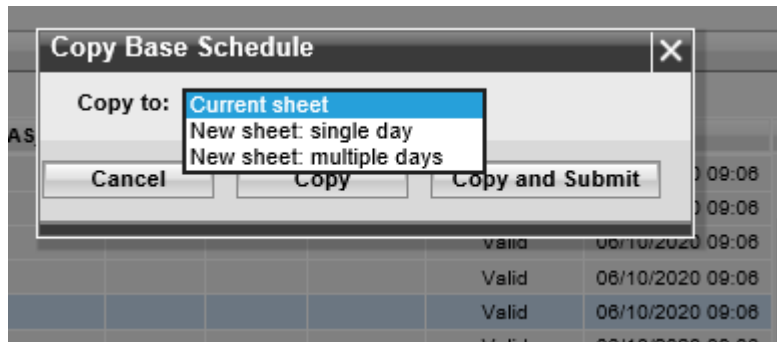

Figure 11: Copy Base Schedule options
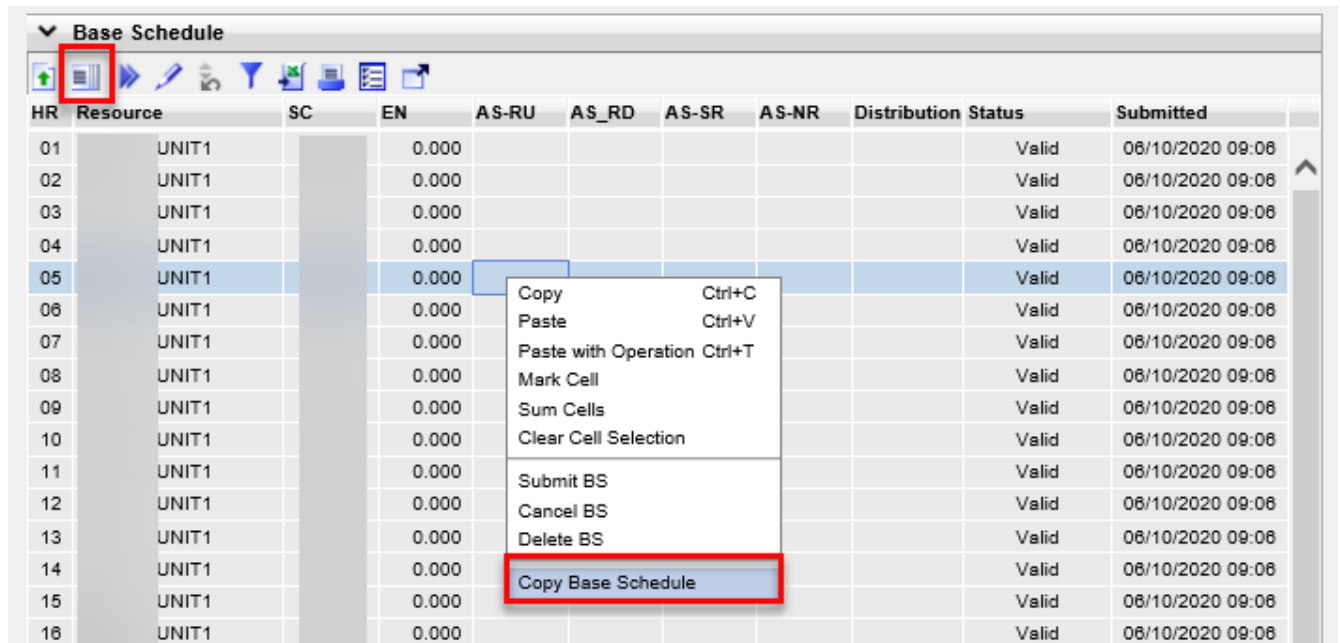
This will open a pop-up menu to give you 3 options to copy:

- o   Current Sheet – same day and hour as selected (essentially this is modifying the existing base schedule).

- o   Single day – Used to submit the selected to a specific date and hour.

- o   Multi-day – Used to submit for a date range for the selected base schedules.

Once the Copy to option is selected you can then select:

o   Cancel if this was not what you intended.

o   Copy which moves the base schedule to the date/time in a 'Created' status.

o   Copy and Submit moves the base schedules to the date/time and submits them.

2.3.1.3   Canceling Deleting Base schedules

To cancel a base schedule highlight each row of a base schedule to be canceled. Then right click and select the "Cancel BS" menu item. This will remove the base schedule(s) from consideration by the system

Note: **Cancel** Base schedules are for **Valid** Base Schedules only.

To remove created base schedules or **Invalid/Rejected** base schedules, right click each row and select the "**Delete BS**" menu item.

Note: A base schedule may not be cancelled for a market that has closed. Base schedules may only be canceled for markets that are still open and for base schedules that are not invalid, rejected or in submit status.

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2.3.1.4   Base Schedule Messages from Rules

ALL base schedules submitted will show messages in the Message Viewer. When base schedules are found to have errors they will come back either in an invalid or rejected state. Select the row for the base schedule to see the Messages that fired on a Base Schedule. The Message viewer will show the rule number, level and Message for each rule that fired on the Base Schedule.

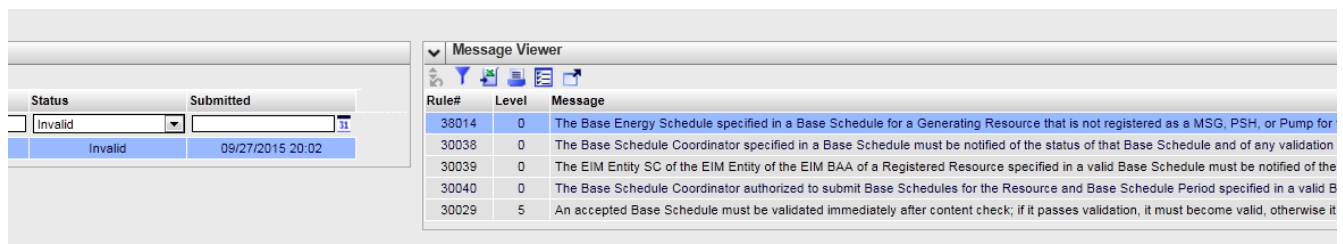 Refer to Figure 9 for an example of a base schedule containing errors.

Figure 12: Base Schedule messages

2.3.2 BSAP Base Balance Viewer

To view the BAA Balance Viewer, navigate to the Base Schedule Screen page and select the Base Balancer Viewer Sub-Menu (Figure 10)
>   This view identifies the EIM Aggregate compared to the Demand Forecast to identify the delta between the aggregated valid submitted Base Schedules and the Demand Forecast for that hour. The Demand Forecast is updated in the view 3 times per hour.

Figure 12: Example Balance displayed (sample only)

The BAA Balance Viewer, display has many columns to provide information to the EIM Entity to assist in balancing activities for the BAA. The primary columns are the Aggregate BS, Demand Forecast (DF) and the Base-DF % which are highlighted above in Figure 10.

The goal is to be balanced for a given hour at the T-40 base schedule close.
Table 2 below defines the BAA Balance Viewer columns (note: that these are all aggregated per BAA).

Column Name	Data Definition
HR	Market period hour that is used.
BAA	The name of the Balancing Area Authority.

Aggregate BS	Total valid Base Schedules using the sum of (Gen + TG + Import) minus (Export).
Aggregate BS Deviation	Any deviation from a submitted Base Schedule with regard to any outage on resources for that market period per BAA. Example: Base Schedule = 60 for a resource and there is a Max Derate to 50 the BS Deviation would be (-10).
Available 60' Flexibility Up	Ramping Up capability in 60 minutes from the Base Schedule using resource ramp rate.
Available 60' Flexibility Down	Ramping Down capability in 60 minutes from the Base Schedule using resource ramp rate
Demand Forecast (DF)	Load Forecast for a BAA (zone) from ALFS (this is updated 3 times per hour, for the T-40 the top of the hour update is used).
Base – DF MW	The difference in MW per hour (Demand Forecast minus Aggregated BS)
Base – DF %	The percentage of the difference (Delta MW / Aggregate BS)
Total Gen	Total Gen resource Base Schedules that are Valid.
Total TG	Total TG resource Base Schedules that are Valid.
Total Import	Total Import Tie and Transaction (I) resource Base Schedules that are Valid.
Total Non-Gen	Total Non-Gen resource Base Schedules that are Valid. (this can be positive or negative depending on how NGR resources are modeled.
Total Export	Total Export Tie and Transaction (E) resource Base Schedules that are Valid.
Operating Limits Max	EIM Resource Pmax
Operating Limits Min	EIM Resource Pmin
Bid Limits Max	Participating EIM Resource Upper Economic Limit on valid bid.
Bid Limits Min	Participating EIM Resource Lower Economic Limit on valid bid.
Min Rerate	Pmin re-rate logged in Outage for that period.
Max Derate	Pmax de-rate (can be 0 for full outage) in Outage for that period.

Table 2: BAA Bal Viewer columns defined

2.3.3 BSAP Resource Bal Viewer

To view the Resource Bal Viewer, navigate to the Base Schedule Screen page and select the Resource Bal Viewer Sub-Menu (Figure 13)
> This view identifies the resource specific information based on filtering criteria. This information is useful to the EIM Entity and BSC that work together to balance the BAA. The view is an hourly view which defaults to the latest hour, for previous hours or future hours to be seen you may select them using the Hour drop down. There is also a SUM row at the bottom of the display for each column.

For future hours, there will be no bid data available until after that market has closed.
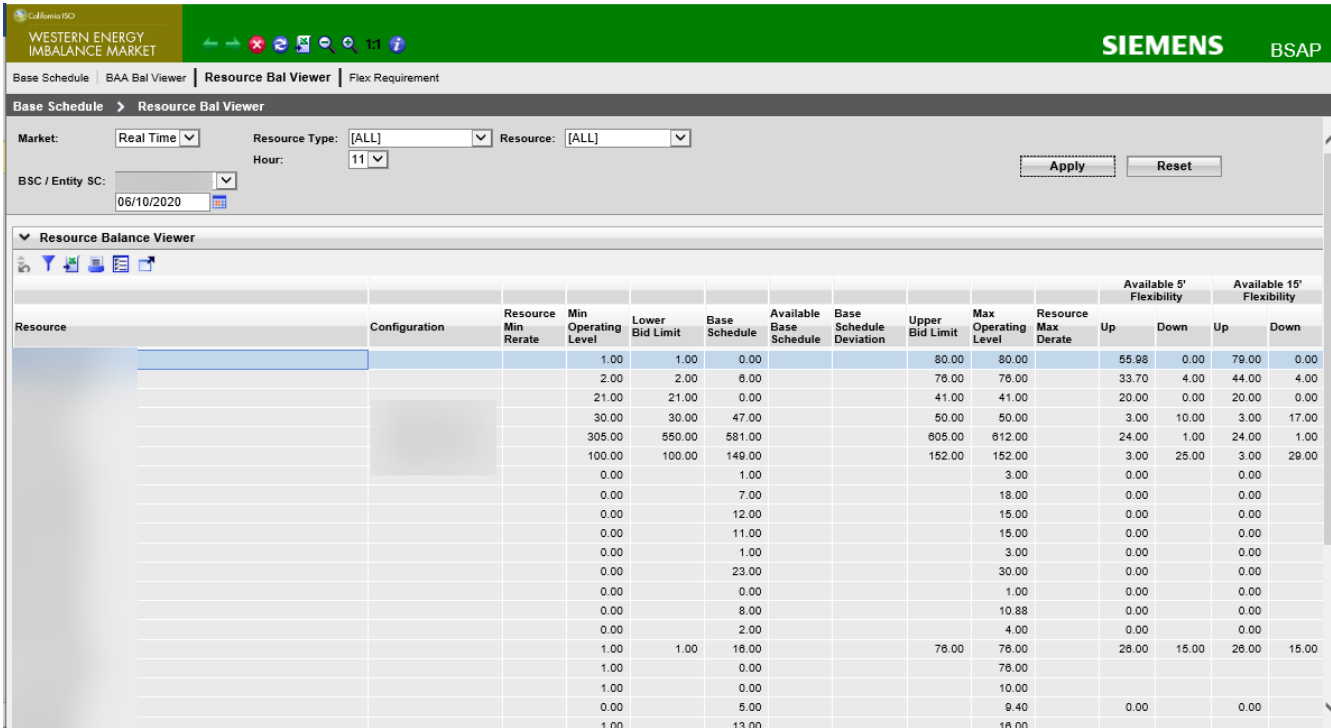

Figure 13: Example Resource Balance displayed (sample only)

Resource and configuration are masked in the above view.
This view may be filtered by BSC / Entity BSC, Hour, Resource Type or specific Resource depending on what is selected.
The display can also be sorted using the same sort functions defined earlier on the Base Schedule sub tab.

Table 3 below defines the Resource Bal Viewer columns

Column Name	Data Definition
Resource	Name of the resource with market accepted base schedule
Configuration	For MSG this would show configuration of market accepted base schedule
Resource Min Rerate	Minimum PMin rerate of the Resource/State applicable to the hour in case of more than one inside the hour (will always us the most restrictive).
Min Operating Level	Master File defined Resource/State Minimum Load.
Lower Bid Limit	Minimum MW quantity of the price curve of resources from the Clean Bid, if one exists. Available after bid market close time.
Base Schedule	EN MW of the market accepted base schedule.
Available Base Schedule	Shows derated base schedule MW only if the Pmax derate is less then submitted base schedule.

Base Schedule Deviation	Shows the amount of base schedule affected by Pmax derate or Pmin rerate.
Upper Bid Limit	Maximum MW quantity of the price curve of resources from the Clean Bid, if one exists. Available after bid market close time.
Max Operating Level	Master File defined Resource/State Maximum Capacity.
Resource Max Derate	Minimum Pmax derate of the Resource/State applicable to the hour in case of more than one inside the hour (will always use the most restrictive).

Available 5' Flexibility Up	1) Uses registered resource ramp rate in order to calculate the upward ramping range of the resource as the minimum of
	    a. Ramping Range Up given the MF registered ramp rate augmented with 0->Pmin segment for FSUs and time horizon from EN MW of the market accepted base schedule.
	    b. Maximum of:
	        i. 0,
	        ii. Difference of min (PMax Derate, Upper Bid Limit) and EN MW of the market accepted base schedule.
	2) Only available after bid market close time. VER resources always showing 0MW.

Available 5' Flexibility Down	1) Uses registered resource ramp rate in order to calculate the downward ramping range of the resource as the minimum of
	    a. Ramping Range Down given the MF registered ramp rate augmented with 0->Pmin segment for FSUs and time horizon from EN MW of the market accepted base schedule
	    b. Maximum of:
	        i. 0,
	        ii. Difference of min (PMax Derate, EN MW of the market accepted base schedule) and Lower Bid Limit, if available.
	2) Only available after bid market close time. VER resources always showing 0MW.

Available 15' Flexibility Up	Same as 5 minute but will take into account additional time.
Available 15' Flexibility Down	Same as 5 minute but will take into account additional time.
Available 60' Flexibility Up	Same as 5 minute but will take into account additional time.
Available 60' Flexibility Down	Same as 5 minute but will take into account additional time.

Table 3: Resource Bal Viewer definitions

3   FAQ

This chapter attempts to answer some general questions asked for BSAP. We have attempted to categorize the questions under chapter headings.

3.1.1 General Questions

What is a rules engine?

There are rules (actually several hundred of them) about what the content of a base schedule must be in order for that base schedule to be considered by the system. The Rules Engine is the system component that validates base schedules to ensure that they contain all the correct components, that the values in those components are correct, etc.

When does the rules engine run?

When you submit a base schedule, the system responds immediately to acknowledge that the base schedule has been submitted. The base schedule is stored in the database and queued for consideration by the Rules Engine.

1.   In the "Base schedule Content" step, the Rules Engine validates that all required contents of the base schedule are present.

2.   In the "Base schedule Validation" step, the Rules Engine validates the base schedule for consideration in the target market period. Depending upon when the base schedule is submitted relative to the target market period, this step may be performed multiple times depending on modifications or re-submissions from the BSC or Entity BSC.

3.   After market close for the target market period, the Base schedules are sent to the downstream applications for use in the Market for the target period.

What's a Master File?

There are a lot of so-called "static data" associated with resources. These include such things as maximum generator outputs, ramp rates, fuel type, location, and a lot of other things that either don't change or change only infrequently. Rather than require the time-consuming and error-prone entry of these for every base schedule, they are stored by the system and updated daily for the next Trade date.

Data in the Master File are required for base schedule validation, and although Master File data are referred to as "static date", they *may* change – even if only rarely. That is why every base schedule should be validated after the Master File update for the target date.

What notifications do I receive?

When a base schedule is submitted, the system provides feedback as soon as base schedule information has been written to the system database (almost immediately).

Additional feedback is provided each time the Rules Engine considers a base schedule.

If Base Schedules are re-validated how do I find out about my base schedule?

The Rules Engine produces output that identifies any problem with a base schedule that will prevent that base schedule from being considered by the system. That output is stored in the system database until the next time you log in. At that time, the system will be able to inform you of the status of your base schedule(s) and display any error messages and / or notifications about whether and how a base schedule has been modified by the system.

Note that the final Rules Engine run is after market close. At this point, you receive the final status of your base schedule.

Can I change a base schedule? When? How?

Yes. You can change a base schedule at any time up to the market for the target period closes. To modify a base schedule, you use the same user interface screens that were used to create the base schedule. Bring up the transaction page; specify a resource and a base schedule period and the base schedule data will appear. Modify it and click the submit button again to replace the original base schedule with the modified base schedule.

For Base Schedules that are submitted between the xx:05 and xx:20 for the next Hour, these must be submitted by the **Entity** BSC.

This is enforced by the Rules Engine.

What happens to the original base schedule when I resubmit?

Basically, the system remembers every base schedule that has ever been submitted. When a modified base schedule is re-submitted, the original base schedule is marked so that it will not be considered for use with an obsolete status ('O'). However, the BSC who submitted it may view the newest base schedule.

What about canceling a base schedule?

Canceling a base schedule is similar in many ways to re-submitting a base schedule. The canceled base schedule is marked so that it is not considered for use.

Do I have to cancel a base schedule before I resubmit?

No. When you resubmit a base schedule for the same resource and market period, it replaces the existing base schedule (if there is one). There is no need to cancel the existing base schedule first.

3.1.2 Questions about Base schedules

Can a base schedule contain more than one resource?

A base schedule is strictly defined by the rules engine as being for one resource and for one base schedule period (in the case of a day-ahead base schedule, for example, this would be one 24 hour period). However, the user interface is designed to allow you to enter data for multiple resources on the same screen. However, these become multiple base schedules when they are submitted.

Can I submit a partial base schedule?

You can, and it may even be accepted. Base schedules undergo two basic validation steps – the first verifies that all required content is included in the base schedule; the second validates those contents. The absence of required components can cause the base schedule to be rejected outright.

You can also create a partial base schedule, save it (without submitting), complete it at some later time, and then submit it.

If my base schedule is rejected, can I see what is wrong?

Yes. The "Base schedule Overview" page provides a listing of all base schedules that are known to the system, along with their current status. From this page, it is possible to recall base schedule information from any step in the process for viewing. You can view your original base schedule and any modified (either by you or by the system) version(s). In the case of rejected base schedules, you can view all messages generated by the Rules Engine?

What about Day Light Savings time formats?

When using the BSAP UI to enter a base schedule for a "short" or 23-hour day, the base schedule entry screen will contain only 23 hours, numbered 1 through 24 without HE3. The "long" (25-hour) day will have 25 hours, numbered hour 1, 2, 2*, 3, 4 etc. The 2* is the second HE2.

What happens if I submit the same base schedule more than once?

The system allows only one base schedule to be active for a resource for each target trading day or trading hour in the case of the Real-Time Market. If you submit multiple base schedules for the same resource and date, the newer base schedule will replace the older. The older base schedule is effectively canceled and will no longer be considered by the system. However, all base schedules that have been submitted are stored by the system.

A template is a base schedule without a market date that can be saved for future use as a pattern for a base schedule to be submitted. Templates are accessed through a user interface feature called "favorites". By saving one or more templates, an SC can quickly create base schedules.

No, the system does not validate templates. However, any base schedule that has been submitted can be used to create a template. Keep in mind that what is valid today may not be valid tomorrow due to Master File changes.

3.1.3 Questions about Users and Permissions

What is the difference between a user and an associated role?

These terms do tend to get a bit mixed up and sometimes used interchangeably. Strictly defined, a user is a person who has a valid login to the system.

There are a number of BSC's, each of whom has responsibility for providing base schedules for a collection of resources. As defined in the BSAP system, a BSC is actually a "role" that is assigned to a user.

What is a role then?

In simple terms, a "role" is something a user is permitted to do. For example, in a typical operating system, there may be an "administrator" role. If a user is assigned the administrator role, that user has the privileges and is able to perform the tasks required to administer the system; such tasks may include installing software, creating users, changing system operating priorities, etc. Someone who has been assigned a "user" role has the privileges and can perform the tasks of a system user (e.g., create and edit files, print, run a web browser, etc.).

Can a user have more than one BSC role?

Yes. This will occur when an organization uses multiple BSC IDs. A user given access to more than one BSC role per BSC ID will have access to submit and review base schedules for multiple BSC IDs. This eliminates the current issue where each BSC ID must have a separate login.

4   Appendix A

You can find the most recent Terms in the latest posted SIBR Business Rules for Bidding document found at the below location:

http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx

Navigate to the:

And then under the Scheduling Infrastructure Business Rules (SIBR) – Bidding

Select the excel spread sheet, once opened go to the "Terms" tab.