

RTP Billing

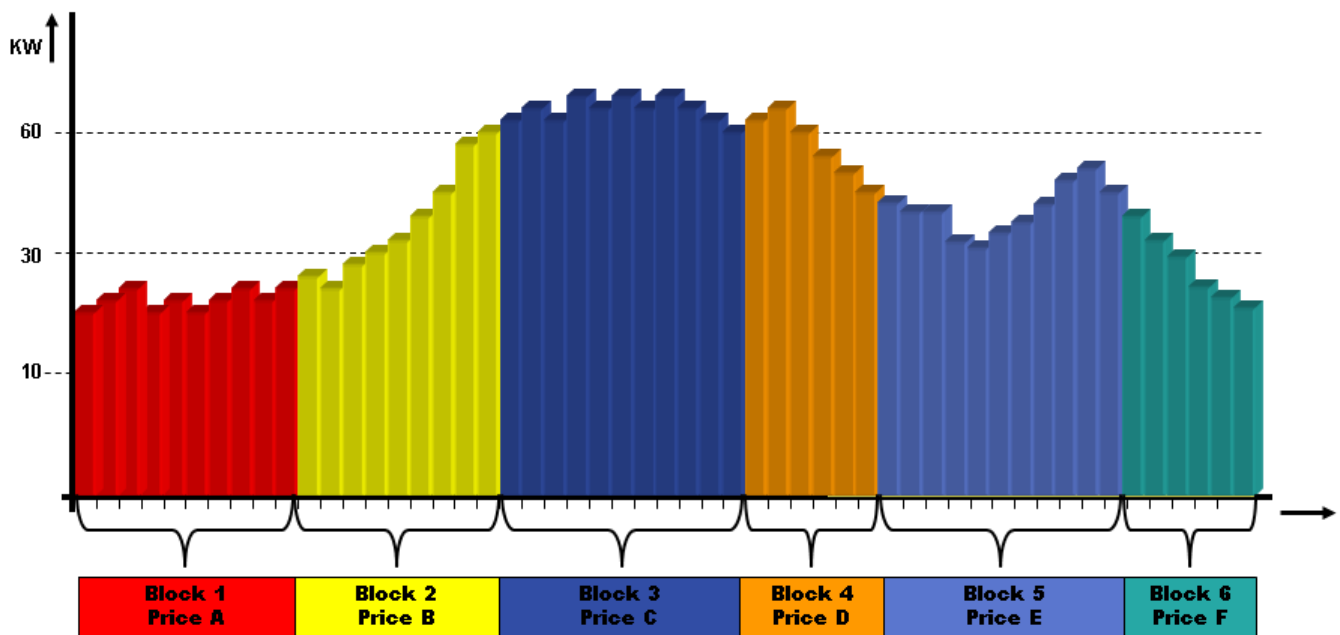
Purpose

The billing of interval-related data (profiles) is called real time pricing billing (RTP billing). RTP billing allows you to define rates and prices freely across intervals and therefore enables you to structure contracts that are required in a deregulated energy market more freely.

RTP billing is based on rate models that evaluate energy requirements over a period of time. Consumption (and demand if necessary) are measured for each interval (for example ¼-hour, ½-hour) or for each rate period (for example peak and off-peak). The price for kWh of consumption, or kW/kVA demand is determined for every interval. This means the price may vary for every interval.

You can use RTP billing to calculate time-of-use pricing models and RTP models. You can define prices in advance or adjust prices to the spot price defined by the energy market.

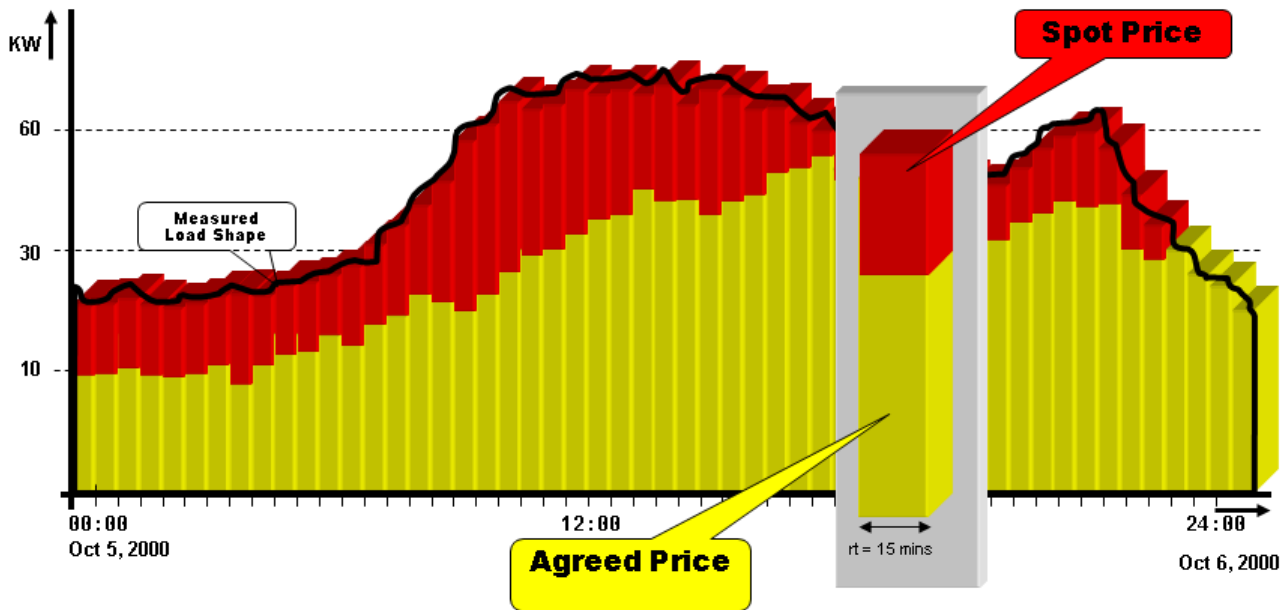
Time-of-use pricing models are time-based. This means that prices are determined based on time groups.



Example for Time-of-Use Pricing

- Different prices depending on time blocks such as time of day, day type (week day, weekend day) or season type (summer, winter)

RTP models are quantity-based. This means that prices are determined based on agreed reference quantities.



Example for Real-Time Pricing

- A new price every 15 minutes
- Consumption within the agreed reference quantity (yellow) = agreed price
- Consumption outside the agreed reference quantity (red) = spot price

Process Flow

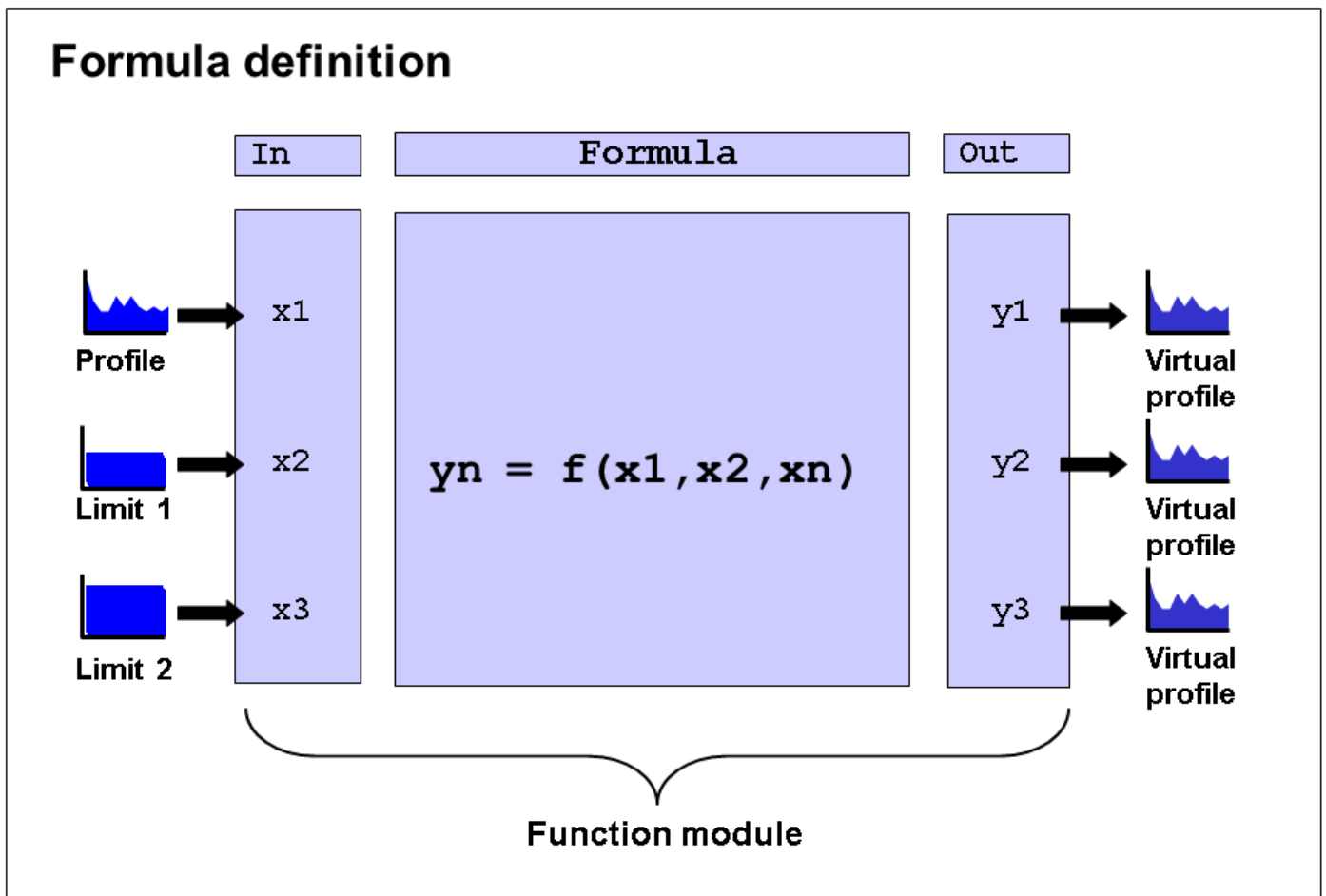
IS-U-EDM allows you to prepare for RTP billing. An internal interface transfers prepared RTP data to the IS-U billing component. Unlike conventional IS-U billing, RTP billing allows you to bill very small units of time (such as data from 15-minute intervals). These units of time correspond to the time units of the interval data measured.

i Note

You can find further information about RTP billing in Customizing under [SAP Utilities > Energy Data Management > Interface to RTP Billing > General Information on the RTP Interface.](#)

Formulas

Formulas define the calculations that take place when an RTP interface is executed. You allocate a formula to an RTP interface. When you choose a formula, you define input parameters to be supplied to the RTP interface as well as the output parameters available.



The formula is only carried out once.

Formulas are used in the RTP interface to model the interval-related portion of the rate. Formulas are also used to calculate one formula profile from any number of individual profiles (see [profile calculation](#)).

Input profiles can be elementary profiles or formula profiles.

See also:

[Define Formulas](#)

Defining Formulas

Use

SAP provides a number of predefined formulas.

You can also define additional formulas.

To define formulas, go to Customizing for SAP Utilities and choose **Tools > System Modifications > User-Defined Enhancements for Energy Data Management > Formulas**.

Prerequisites

Before defining any formulas in addition to those predefined by SAP, you must define a function module for the calculations. The function module must provide the following interface:

Interface

CHANGING	EXCEPTIONS
REFERENCE (XY_CNTR) TYPE EEDMFORMULACTR	GENERAL_FAULT
REFERENCE (XY_INP) TYPE TEEDMFORMPARLIST_I	
REFERENCE (XY_OUT) TYPE TEEDMFORMPARLIST_0	

Activities

You must use the following function modules as templates:

- ISU_EDM_FORMULA_EASY

This template contains the most common calculation macros and is sufficient in most cases.

- ISU_EDM_FORMULA_XXXX

This template contains all existing calculation macros.

Once you have copied the function module, you have to modify it to meet your requirements. You can do this using the functions of the ABAP Workbench.

You can obtain detailed information about the calculation from the source text of function module ISU_EDM_FORMULA_0005.

Process

1. Select [Create Formula](#).
2. Enter an ID and a name for the formula in the [Form. ProfCalc](#) field (Formula for Calculation of Profiles).

Input Parameters group box
3. Enter a parameter name and number.
4. Choose one of the predefined profile value categories in the [PV category](#) field (Profile Value Category).
5. Enter the number of intervals that must be included in the formula in the [No. Intervals](#) field (Number of Influential Intervals).

If there are no dependencies between the intervals to be calculated, enter 0 for the number of intervals.


If you need values from previous intervals, enter a number higher than 0 for the number of intervals.

Refer to the field help for more information.
6. If you want to be able to allocate more than one profile to the input parameter, select the [Repeatable](#) field.
7. If you want to allocate a constant value and not a profile to the input parameter, select the [Constant Value](#) field.
8. If you want to use a determination method to determine the values for the input parameter, enter a predefined formula variable in the [ID Form.Var.](#) field ([ID EDM Formula Variable](#)).

For more information, see [Variables](#).

9. If you want to be able to use default values for the input parameters, select the **Default Value** field (**Default Value Allowed in Formula**).

For more information, see [Default Values](#).

10. Wählen Sie .

Your entries are then transferred to the list.

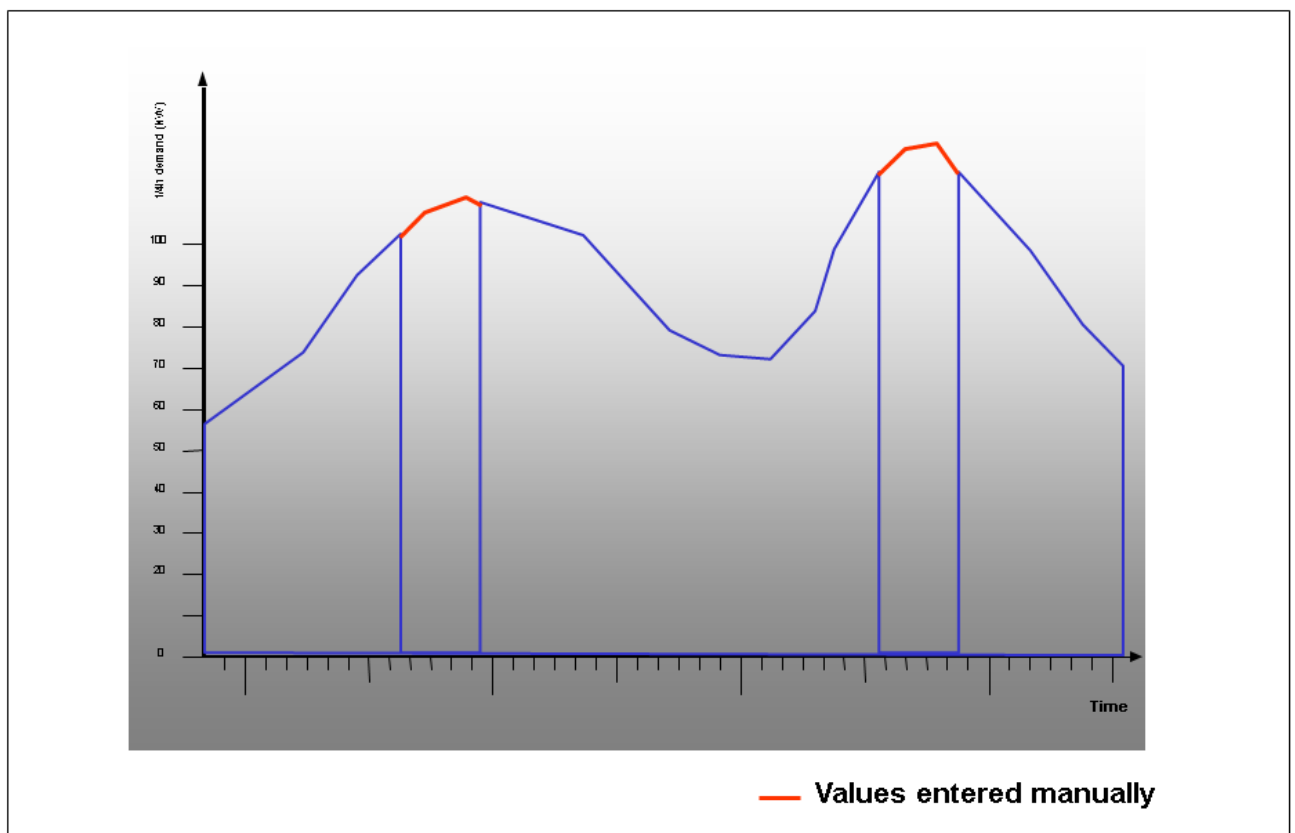
11. Repeat steps 3 to 10 for every additional input parameter required for the formula.

Calculation Mode group box

The calculation mode determines how a value is to be processed when the formula is executed.

Example

Manually entered values cannot be used for billing.



Example

By using the EXIT_SAPLEEDM_FORMUTIL_001 function module from the EEDMF001 enhancement, the calculation mode can, for example, carry out a calculation based on the status of the input profile value.

As a result, values with the status **Manually Entered** are not included in billing. Only the blue curve is included in billing.

i Note

SAP has already predefined a number of calculation modes. You can also define additional calculation modes.


To define calculation modes, go to Customizing for SAP Utilities and choose **Tools > System Modifications > User-Defined Enhancements for Energy Data Management > Formulas**.

See also: [Calculation Mode](#)

12. Select (double click) an input parameter from the list. The parameter number of the selected parameter appears automatically in the **Calculation Mode** group box.
13. Select one of the predefined calculation modes in the **Calc.Mode** (calculation mode) field.
14. If you want the system to use this calculation mode as the default value for the parameter, select the **Default Value** field.

Caution

Only ever select the **Default Value** field for one calculation mode.

15. Wählen Sie .

Your entries are then transferred to the list.


16. Repeat the steps 10 to 13 whenever you want to allocate one or more calculation modes to input parameters.

Output Parameters group box

17. Enter a parameter name and number.
18. Choose one of the predefined profile value categories in the **PV category** field (Profile Value Category).
19. Enter the number of intervals that must be included in the formula in the **No. Intervals** field (Number of Influential Intervals).

If there are no dependencies between the intervals to be calculated, enter 0 for the number of intervals.

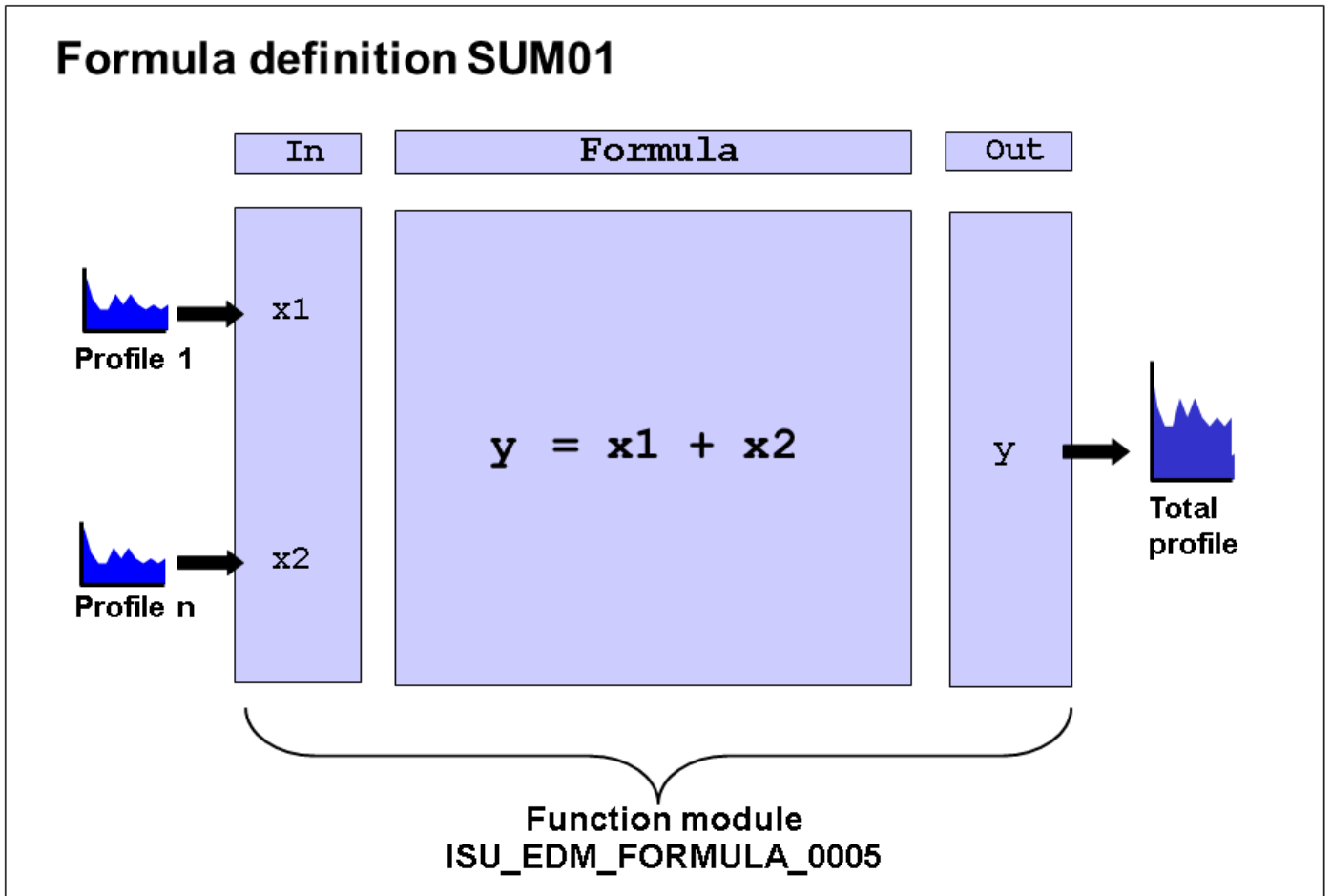
If you need values from previous intervals, enter a number higher than 0 for the number of intervals.

20. Wählen Sie .

Your entries are then transferred to the list.

21. Repeat steps 15 to 18 for every additional output parameter required for the formula.
22. Once you have defined all input and output parameters, choose **Save**.

Example



Formula SUM01: Addition of Profiles (Quantities)

Function module for executing the formula	ISU_EDM_FORMULA_0005
Input parameters	
Parameter number	1
Description of formula parameter	Profiles to be cumulated
Profile value category	Quantity
Repeatable	Yes
Number of intervals	0
Constant value	
Output parameters	
Parameter number	1
Description of formula parameter	Total profile
Profile value category	Quantity
Number of intervals	0

Calculation Mode

This is custom documentation. For more information, please visit the [SAP Help Portal](#)

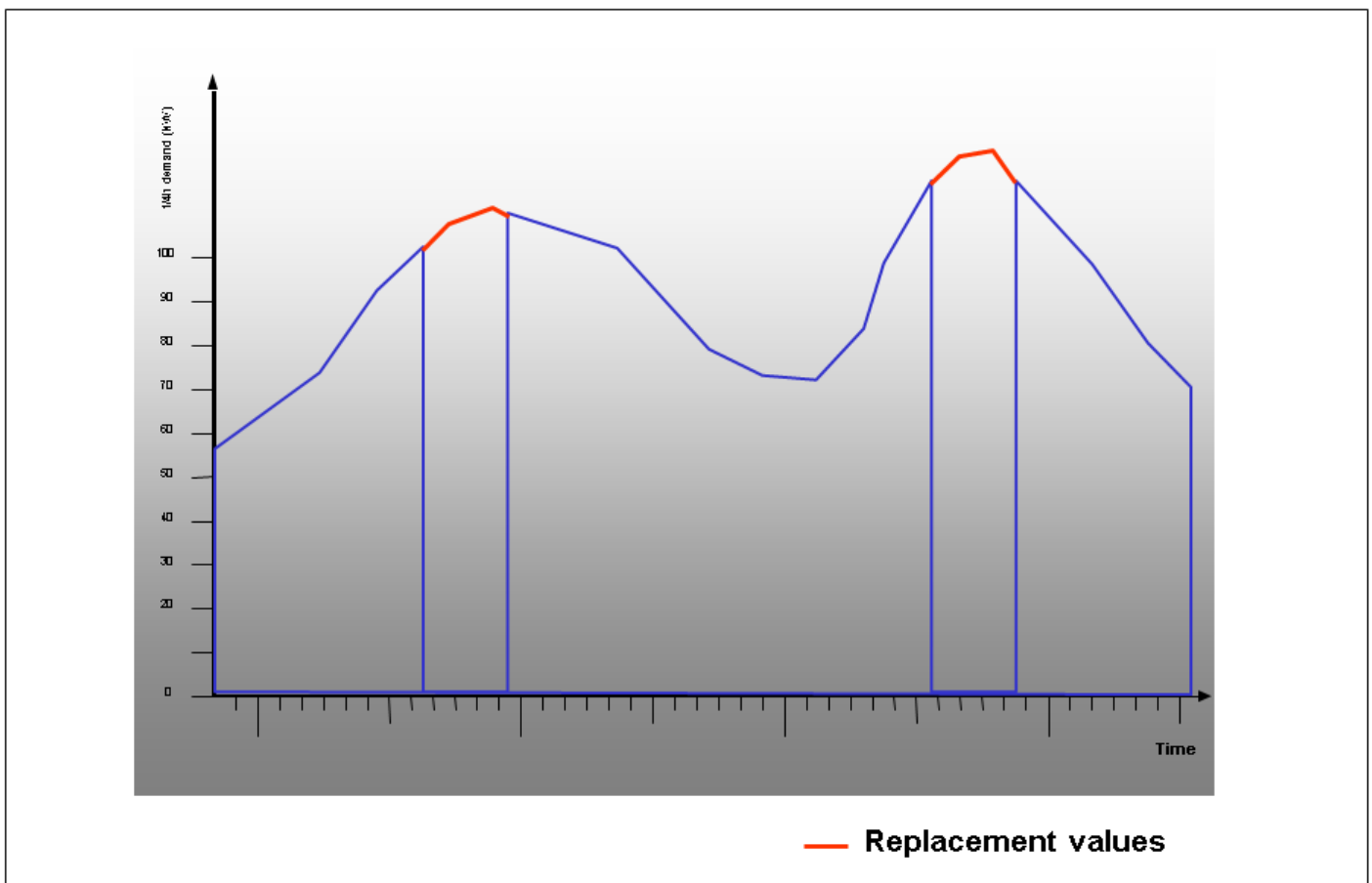
Use

The calculation mode determines how a value is processed when a formula is executed. It could, for example, enable calculation based on the status of the input profile value.

🌿 Example

You have uploaded EDM profile values using BAPI `BAPI_ISUPROFILE_UPLOAD`. During import, it was determined that profile values are missing for several intervals. Replacement values are created for these intervals using the allocated replacement value group.

The profile values are analyzed during billing by means of a formula in order to determine the consumption and the maximum demand within the billing period. Billing is then executed on the basis of these values. However, the replacement values for determining the maximum demand are **not** used. As a result, only the blue curve is included in billing (see graph).



Definition

SAP has already predefined a number of calculation modes:

- 01 – Value included in calculation
- 01 – Value not included in calculation
- 99 – Value results in cancellation of calculation

i Note

As soon as an interval is allocated to calculation mode 99 in enhancement EESMFO01, the calculation is cancelled (for the entire billing period).

When implementing formulas, you can use the constants from include IEEDMFORMULACALCMOD in order to correspond with the calculation mode within the program.

Constants:

co_calcmo_d_use type e_formulamod value '01',

co_calcmo_d_not_use type e_formulamod value '02',

co_calcmo_d_abort type e_formulamod value '99'.

You can also define additional calculation modes.

To define a calculation mode, go to Customizing for [SAP Utilities](#) and choose [Tools](#) > [System Modifications](#) > [User-Defined Enhancements for Energy Data Management](#) > [Formulas](#).

Integration

Formula Definition

You can allocate input parameters to calculation modes in the transaction for defining formulas. You must define one calculation mode as a default value for the parameter.

1. Select (double click) an input parameter from the list. The parameter number of the selected parameter appears automatically in the **Calculation Mode** group box.
2. Select one of the predefined calculation modes in the **Calc.Mode** (calculation mode) field.
3. If you want the system to use this calculation mode as the default value for the parameter, select the **Default Value** field.

Only ever select the **Default Value** field for **one** calculation mode.

4. Choose  **Copy**.

Your entries are then transferred to the list.

5. Repeat the steps whenever you want to allocate one or more calculation modes to input parameters.

Formula Calculation

You use a function module to calculate formulas. Before defining any extra formulas in addition to those predefined by SAP, you must define a function module for the calculations.

To define formulas, go to Customizing for [SAP Utilities](#) and choose [Tools](#) > [System Modifications](#) > [User-Defined Enhancements for Energy Data Management](#) > [Formulas](#).

In the function modules, you can respond to the calculation modes of the individual intervals in order to influence the results of formula calculation.

Example

You can find information on calculation and calculation modes in the source text of function module ISU_EDM_FORMULA_0005.

You can use the formulas described in the source text to copy a quantity profile and convert it into a demand profile.

Input parameter:

- Quantity profile

Output parameters:

- Copy of quantity profile
- Copy of demand profile (demand)

Only those quantity profile values with calculation mode 01 (**Value Included in Calculation**) are copied and converted.

The demand value is set to zero for the remaining calculation modes.

The default value of the input parameter is used for every interval in the billing period.

In enhancement EEDMFO01, you can set any calculation mode for each interval based on the status of the input profile value, for example.

For each input parameter, you can use variable **xmod<n>** to activate the calculation mode in the function module.

Enhancement EEDMFO01

You can use this enhancement to determine the calculation mode of profile values for calculating formulas.

The enhancement contains function module EXIT_SAPLEEDM_FORMUTIL_001. In this function module, you can determine the calculation mode given to the values of a profile for formula calculation.

The dates in the parameters are all given in UTC time. This also applies to the parameters in table format. If you need the dates in the enhancement to be in local time, you have to convert them. You can do this using the macros defined in include IEEDM_TIMCVT.

🔗 Example

This example implementation of enhancement EEDMFO01 determines the periods, in which the status of the profile values was set to **Interpolated** or **Extrapolated** .

The calculation mode of the periods is set to 02 – **Value Not Included in Calculation** .

RTP Components

Real-time pricing components (RTP components) define the structure of parameter allocations in the RTP interface. This structure links input, output and result parameters.

You may require various RTP components because you usually need different periods (such as summer and winter) for parameter allocations. You can allocate various time groups, such as season groups, day groups and time-of-use groups within an RTP component.

The components enable you to model various portions of a profile in the RTP interface for billing, or to prepare the portions for billing. For example, components for on-peak and off-peak rate periods as well as a component that determines the maximum demand in the whole period).

Before you do this, however, you must define season types, day types and time-of-use types in Customizing under [SAP Utilities > Energy Data Management > Basic Settings](#) and then allocate them to the corresponding season groups, day groups and time-of-use groups.

For more information, see the Implementation Guide (IMG).

You must generate codes for RTP components before you can use the components in an RTP interface.

See also:

[Defining RTP components](#)

Define RTP Components

Use

You can define RTP components in Customizing for SAP Utilities under [Energy Data Management > Interface to RTP Billing](#).

Prerequisites

First, you must define season types, day types, and time-of-use types and allocate them to season groups, day groups, and time-of-use groups in Customizing for SAP Utilities under [Energy Data Management > Basic Settings](#).

For more information, see the Implementation Guide (IMG).

Procedure

1. Choose **Create RTP Component**.
2. Enter an ID in the **RTP Component** field.

If you want to use an existing RTP component as a template, you can select it in the **Template** field.
3. Choose **Enter**.
4. Enter a description for the RTP component.
5. Ensure that the **Node Category** field contains the value **Component** and that the **Nodes** field contains your component.
6. In the **Group Category** field, choose a season group, day group, or time-of-use group.
7. Choose one of the predefined options in the **Group** field.

You can only select the groups that match the corresponding group category (for example, if **Season Group** was selected, season groups are offered) and that you previously defined in Customizing for Energy Data Management under **Basic Settings**.

8. Choose **Transfer**.

The selected group is copied to the tree structure on the left of the screen.


9. If you want to arrange further groups under this node, select the defined nodes with a double-click.

10. In the **Node Category** field, the corresponding category is selected. The node ID that you selected with a double-click is in the **Nodes** field.

11. Select a group in the **Group Category** field. This must be situated one level lower in the hierarchy than the group you have already selected.

Example

You selected a season group as the first node under the component. The next node must be either a day group or a time-of-use group. It would make no sense to allocate another season group here.

12. Choose Transfer.
13. Repeat steps 9 to 11 for every additional group that you want to arrange.
14. Once you have defined all nodes for the component, save your entries.
15. You have to generate the components before you can use them in the RTP interface. To do this choose  **Generate Component Code**.

Caution









Once generated, you can no longer change the components.

Example




You have defined the following RTP components:

COMP1 Component 1

SU Summer

-  WD Weekdays
 -  0-6 Off-Peak Rate
 -  6-21 On-Peak Rate
 -  21-0 Off-Peak Rate
-  WED Weekend Days
 -  0-8 Off-Peak Rate
 -  8-23 On-Peak Rate
 -  23-0 Off-Peak Rate

WI Winter

-  0-6 Off-Peak Rate
-  6-22 On-Peak Rate
-  22-0 Off-Peak Rate

Billing according to summer and winter season periods takes place in the RTP component COMP1.

In the summer season periods, billing takes place for weekdays and weekend days using on-peak and off-peak rate times.

In the winter season periods, billing takes place using on-peak and off-peak rate times.

RTP Interface

Use

In the Real Time Pricing (RTP) interface, values from the [Energy Data Management](#) component (IS-U-EDM) are transferred to the [Contract Billing](#) component (IS-U-BI).

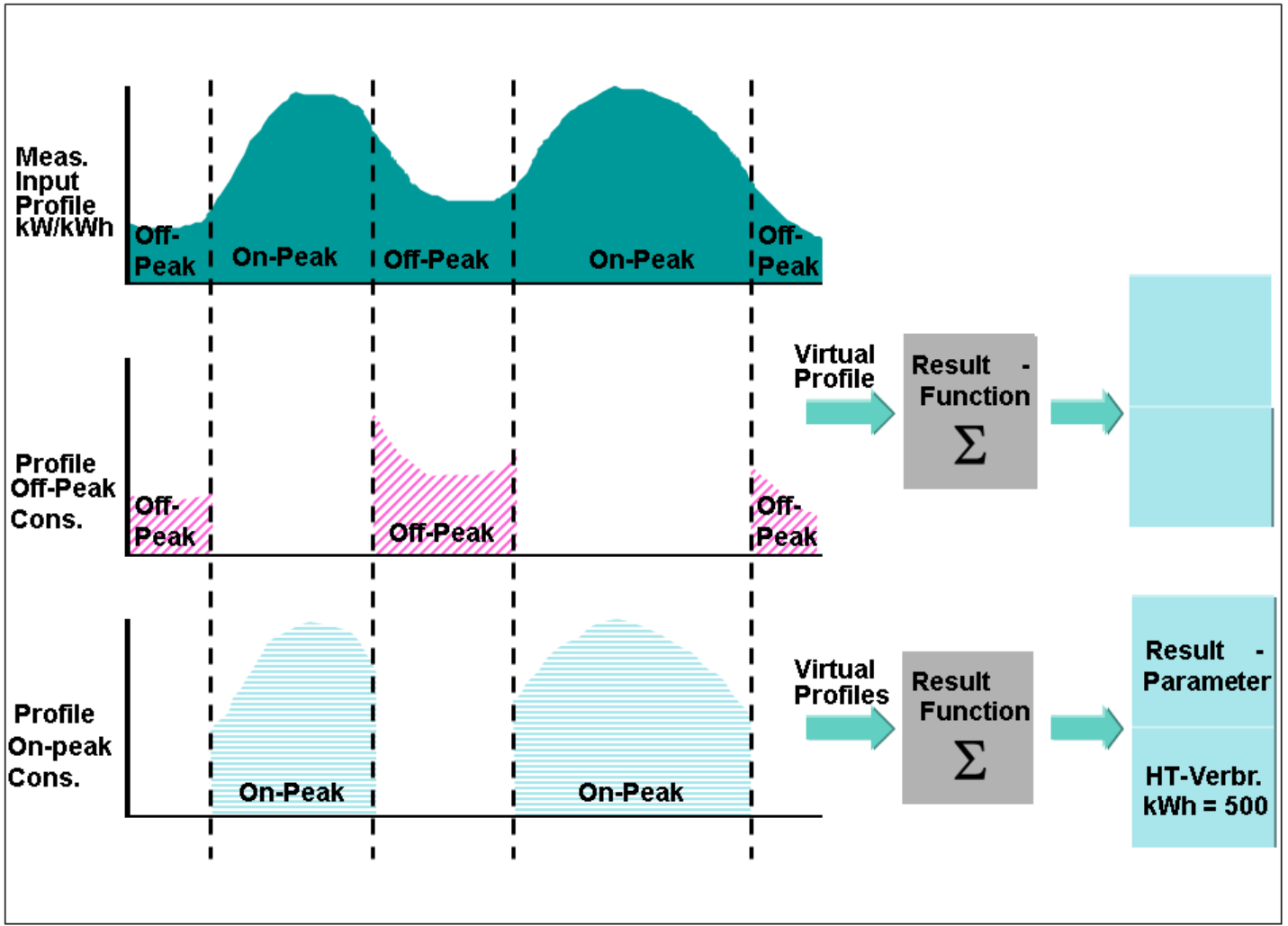
The RTP interface allows you to use the profiles managed in IS-U-EDM directly in IS-U Billing. In order to this, you allocate the RTP interface to the rate used for billing an interval meter.

In the RTP interface you can execute billing-relevant processing steps carried out based on profiles. For example, you can process billing agreements for periods as small as 15 minutes. The results of this processing step are then transferred to the rate step of the rate. The bill lines are then created from the rate steps.

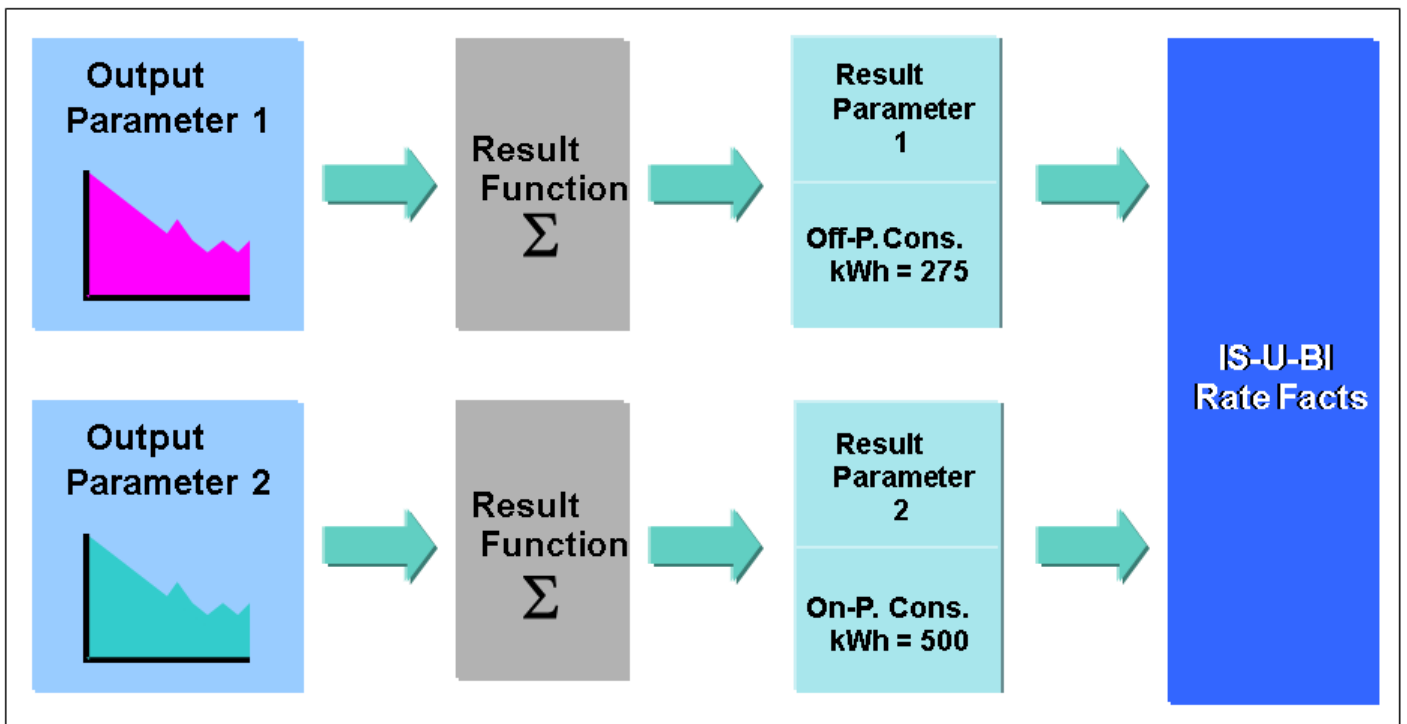
You can allocate the [Formula](#) result parameter to an output parameter. Result parameters describe the results of RTP interface execution. The result parameter values are determined using result functions.

You can allocate result parameters to output parameters based on the structure defined for the RTP component. This means that you can allocate different result parameters to the output parameter for every possible combination of season type, day type, and time-of-use type. During execution of the RTP interface, a profile is created from the profile values of the allocated output parameter for each result parameter. The profile values of an output parameter can be used by multiple result parameters. Alternatively, one result parameter can be supplied with values from more than one output parameter. The result function allocated to the result parameter is executed for the profile values transferred to the result parameter.

You can allocate different result parameters to one output parameter in different RTP components. These result parameters are then processed according to the priority of the RTP component and corresponding activation periods.



Execution of the RTP Interface



Execution of the RTP Interface

An RTP interface consists of the following parts:

This is custom documentation. For more information, please visit the [SAP Help Portal](#)

- Header data

The header data contains the formula for calculating the allocated profiles, the interval lengths, the division, and the day offset.

- Result parameters

Result parameters are allocated to operand categories and references to the output parameters. The result parameters supply the operands with data in the RTP rate in IS-U billing.

- RTP components

An RTP interface can contain several components. The components are sorted by priority. The prioritization is used to determine which components to execute if several components have the same activation period.

The input parameters are the allocated profiles. The output parameters come from calculating the formula.

More Information

[Define RTP Interface](#)

Activation Types

Use

The following activation types exist:

Activation Type	Activation	Definition of Parameter Allocations for Input Parameter
Use and activate generally	At RTP interface level	At RTP interface level
Use and activate individually	At installation level	At installation level Parameter templates at RTP interface level or at installation level
Use individually and activate generally	At RTP interface level and at installation level	At installation level Parameter templates at RTP interface level or at installation level

Activation type "Use and Activate Generally"

The activation type **Use and Activate Generally** (activation and definition for all installations) means that you have to activate the RTP components at RTP interface level and define the parameter allocations for the input parameters at RTP interface level.

Activation type "Use and Activate Individually"

The activation type **Use and Activate Individually** (activation for individual installations) means that you cannot activate the RTP components at RTP interface level, but at installation level.

You have the following options for defining the parameter allocations for the input parameters:

- You can define the parameter allocations at RTP interface level
- You can define parameter templates at RTP interface level and then use these templates to define the parameter allocations for the input parameters at installation level.

Activation type "Use and Activate Generally"

The activation type "Use Individually and Activate Generally" (activation for all installations and for individual installations) means that you have to activate the RTP components at RTP interface level **and** at installation level.

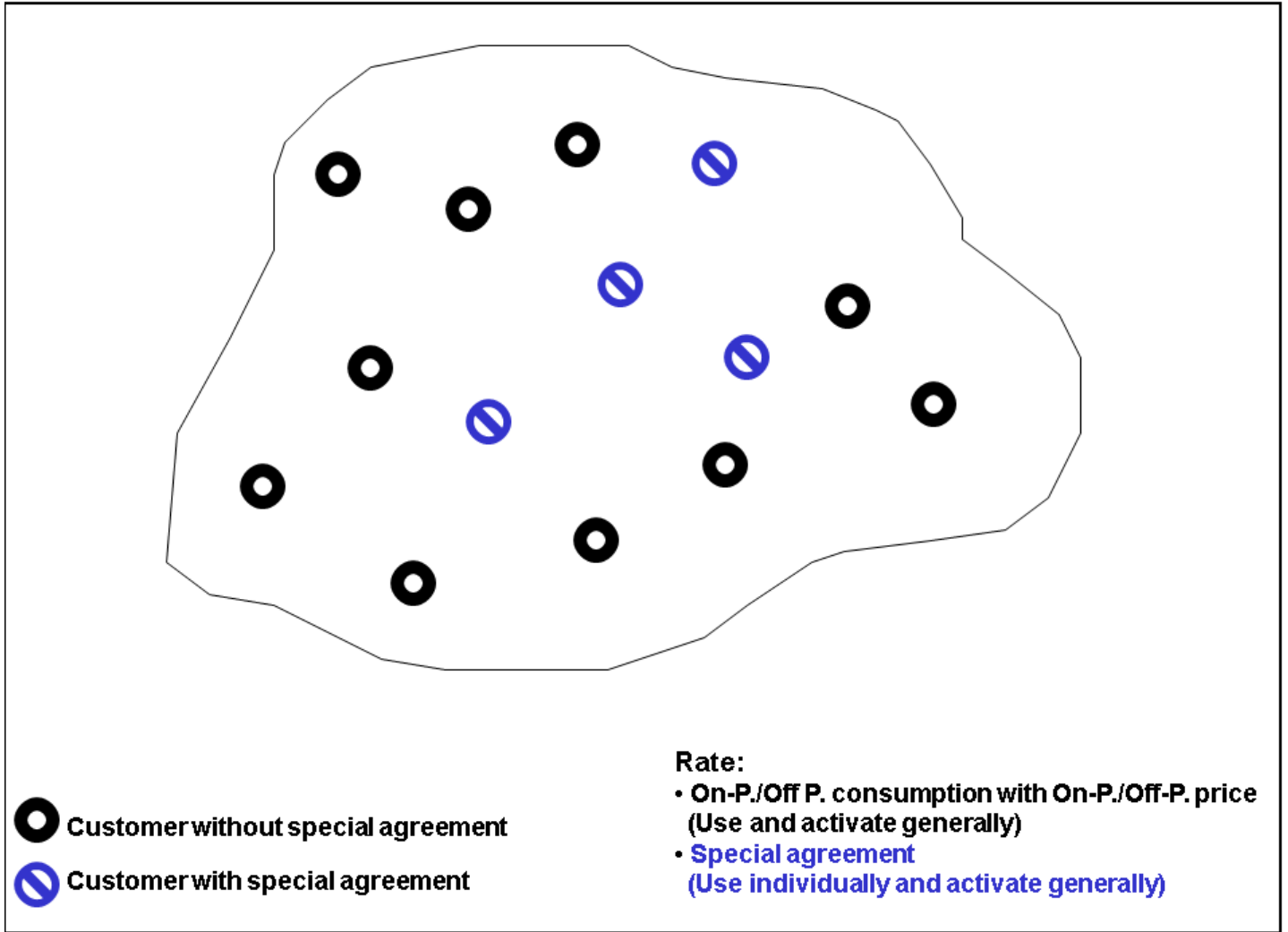
You have the following options for defining the parameter allocations for the input parameters:

- You can define the parameter allocations at RTP interface level
- You can define parameter templates at RTP interface level and then use these templates to define the parameter allocations for the input parameters at installation level.

Example

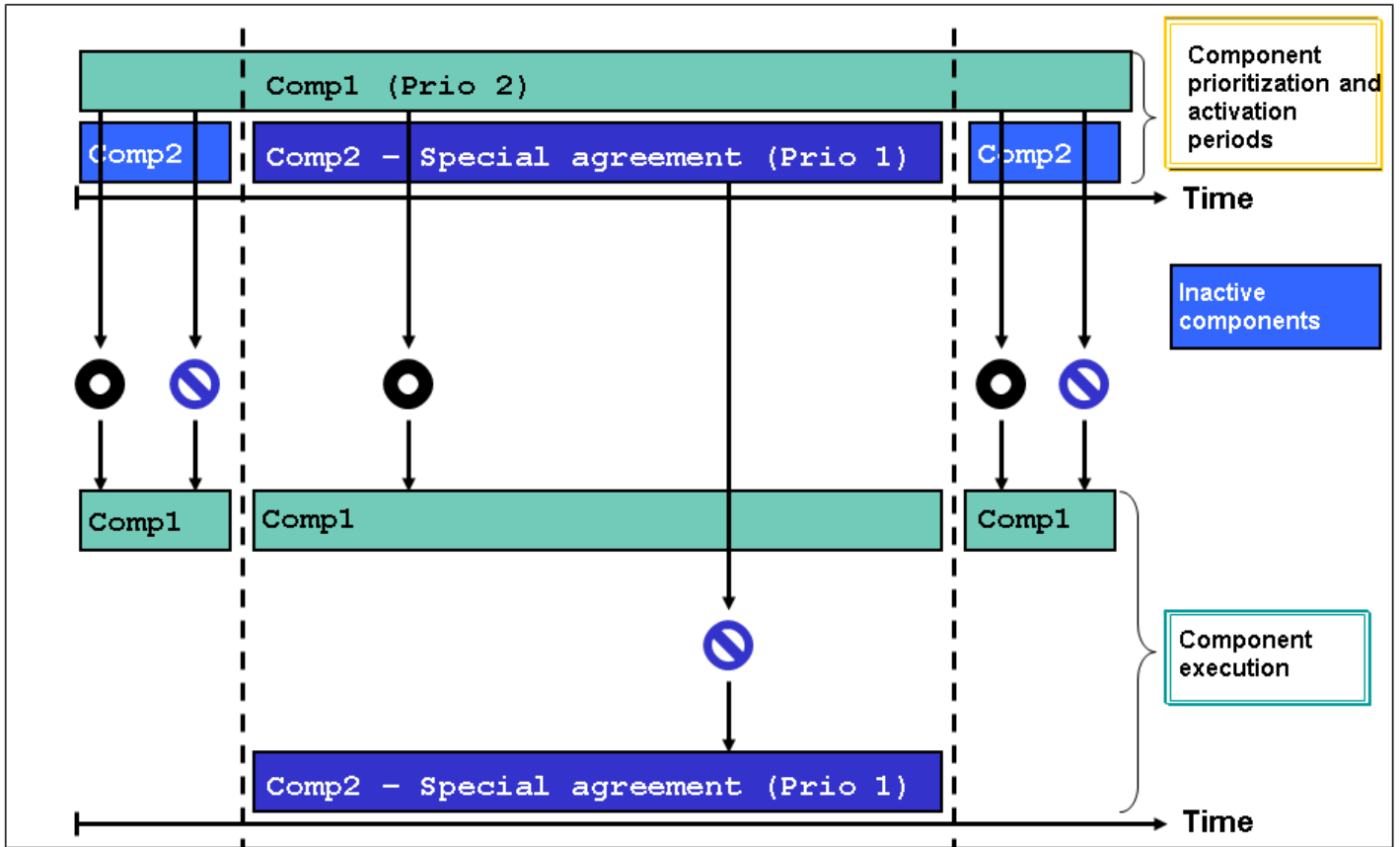
You have activated component 1 at RTP interface level with activation type **Use and Activate Generally** and assigned it priority 2. As a result, component 1 is valid for all installations to which this RTP interface is allocated.

You have made a contractual agreement with a number of customers regarding a special delivery within a certain period of time. You want to map this agreement using component 2. To do this, activate component 2 with priority 1 at RTP interface level for the period in which the special delivery is to take place, and choose activation type **Use Individually and Activate Generally**. Also activate component 2 at installation level of each individual customer for the validity period of the contract.



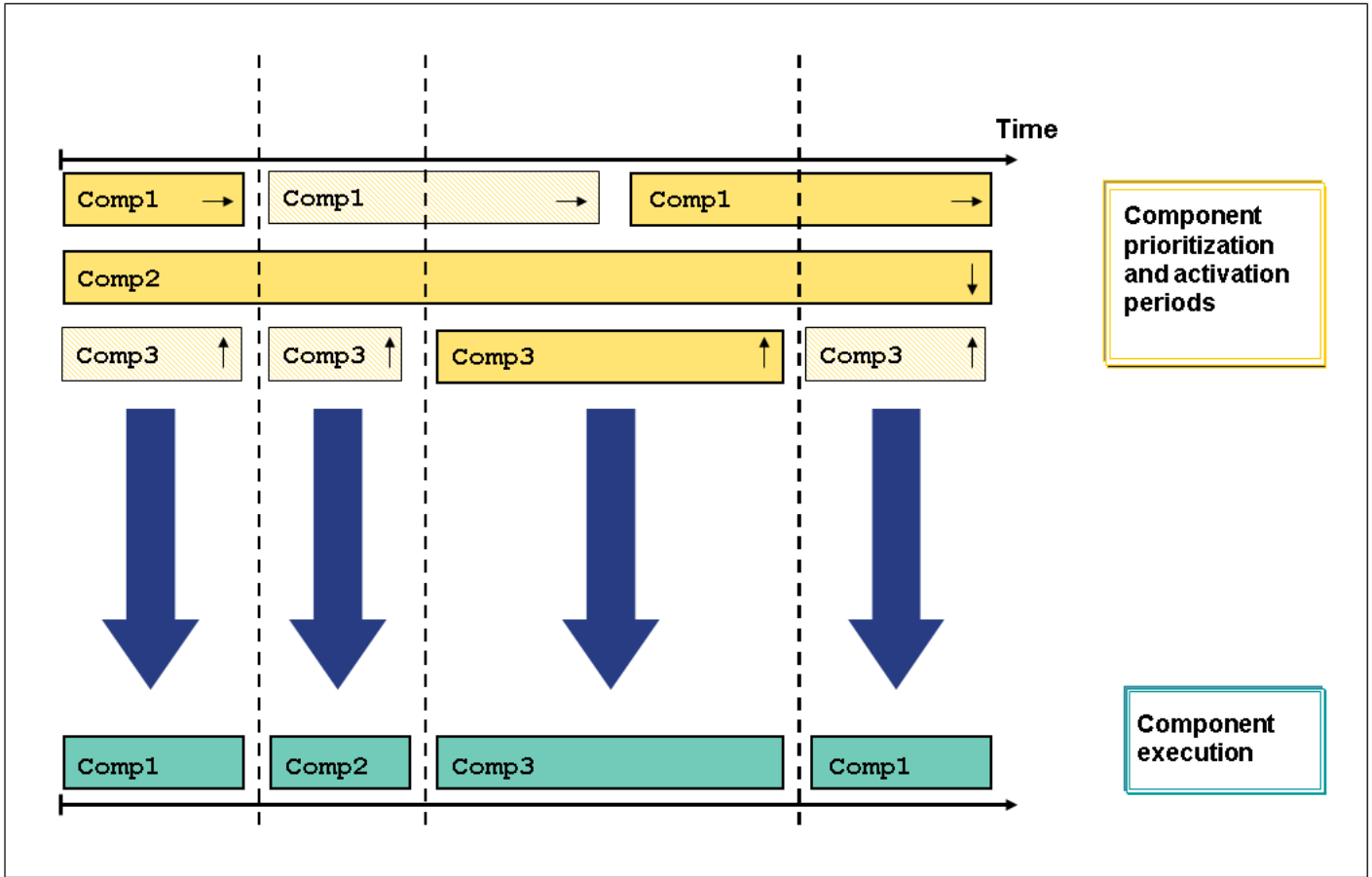
Then respective component is executed for each period and each installation based on the activation, the activation type, and the priority.

Although component 2 is activated at RTP interface level, it is only relevant for customers with installations in which component 2 is also activated.



Execution of Components

The priority in the RTP interface controls which RTP components and other parameter allocations can be used during execution of the RTP interface if multiple RTP components exist in the same activation period. The priority analysis takes place for each parameter.



Legend

Components in activation period

Activated

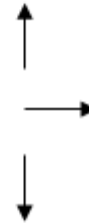
Not activated

Component priority

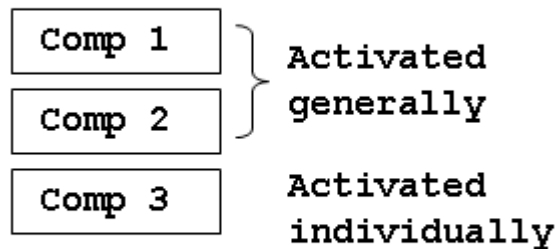
Prio high

Prio medium

Prio low



Component activation type



Define RTP Interface

Prerequisites

RTP components must be defined in Customizing for SAP Utilities under [Energy Data Management](#) [Interface to RTP Billing](#)

(see [RTP components](#)).

Procedure

Create RTP interface

1. In Customizing for SAP Utilities, choose [Energy Data Management](#) [Interface to RTP Billing](#) [Create RTP Interface](#).
2. Enter an ID in the [RTP Interface](#) field.
If you want to use an existing RTP interface as a template you can select it in the [Template](#) field.
3. Enter a description for the RTP interface.

1. In the **Form.ProfCalc.** field (**Formula for Calculation of Profiles**), enter one of the predefined formulas.

You can select the formulas that are defined in Customizing under **Tools > System Modifications > User-Defined Enhancements for Energy Data Management > Formulas**.

See also: [Formulas](#)

2. Choose one of the predefined interval lengths in the **Interval Length** field.

You can select the interval lengths that are defined in Customizing under **Tools > System Modifications > User-Defined Enhancements for Energy Data Management > Interval Lengths**.

3. Enter a division in the **Division** field.

4. If you do not want the day to start at 00:00:00, enter the period of time by which you want the start time to be shifted in the **day offset** field.

Refer to the field help for more information.

Result Parameters

1. In the **Result Number** field (**Number of Result Parameter**), enter the number of the result parameter (starting at 1).

2. Enter a text in the **Result Param. Desc.** field (**Description of Result Parameter**).

3. Choose one of the predefined options in the **Operand Category** field.

Refer to the field help for more information.

4. Choose one of the predefined options in the **Result Function** field.


You can select the result functions that are defined in Customizing under **Tools > System Modifications > User-Defined Enhancements for Energy Data Management > Result Functions**.

5. Enter a unit of measurement in the **Unit of Measurement** field.

6. If you do not want the RTP operand prorations to be included when the RTP interface is executed, select the **No Proration** field.

If you select this field, the result function for the result parameter is only executed once for the total execution period of the RTP interface. We recommend you do this for demand values.

Refer to the field help for more information.

7. Choose  to copy your entries to the list.

8. Repeat steps 9 to 15 for every additional result parameter that you want to define.

RTP Components

1. Choose one of the predefined options in the **RTP Component** field.

You can select the RTP components that have been defined in Customizing for SAP Utilities under **Energy Data Management > Interface to RTP Billing > Define RTP Components**.

2. Choose one of the predefined options in the **Activation Type** field.

See also: [Activation Types](#)

3. Enter a number for the priority of the RTP component in the **Priority** field.

1 is the highest priority.

The priority controls which RTP components and other parameter allocations can be used during execution of the RTP interface if multiple RTP components exist in the same activation payment. The priority analysis takes place for each parameter (see example 2)

Caution

An RTP component with an activation type that is activated individually has a higher priority than an RTP component with an activation type that is activated generally.

If you assign multiple RTP components with different activation types to the RTP interface, make sure that you give the component with the activation type that is individually activated a higher priority than the other components.

4. Choose **Insert Component**.

The component is added to the tree structure on the left of the screen.

The settings on the **Activation**, **Input Parameters**, and **Parameter Templates** tab pages depend on the activation type that you selected.

Selection of the Activation Type

Case 1: Activation type "Use and Activate Generally" selected

Activation

1. In the **Day From** and **Day To** fields, enter the period for which you want the component to be valid.
 - If you want the component to be active in this period, select the **Activate** field.
 - If you do not want the component to be active in this period, leave the **Activate** field empty.

2. Select **Transfer**.

Your entries are then transferred to the list.

You can define multiple periods, whereby the component will be active in one period and inactive in the other. Repeat steps 1 and 2 for each definition of a period.

Input Parameters

1. Double click on an input parameter to select it.
2. Enter the period for which you want the parameter to be valid.
3. Allocate a profile, a role, or a constant value to the parameter.

If you allocate a role, the input parameter is given the profile values of the profile that is allocated to the interval meter to be billed with the specified role when the RTP interface is executed.

4. Select **Transfer**.

Your entries are then transferred to the list.

Repeat the steps for all input parameters.

Case 2: Activation type "Use and Activate Individually" selected

Due to the activation type, you cannot activate this component at RTP interface level. You have to activate it at installation level.

You can make the parameter allocations for the input parameters at RTP interface level or at installation level.

Option 1: Input Parameters at RTP Interface Level

1. Double click on an input parameter to select it.
2. Enter the period for which you want the parameter to be valid.
3. Allocate a profile, a role, or a constant value to the parameter.


If you allocate a role, the input parameter is given the profile values of the profile that is allocated to the interval meter to be billed with the specified role when the RTP interface is executed.

4. Select  **Transfer**.



Your entries are then transferred to the list.

Repeat steps 1 to 4 for all input parameters.

Option 2: Input Parameters at Installation Level

1. Double click on an input parameter to select it.
2. If you want the allocation of a profile, a role, or a constant value to the input parameter at installation level to be obligatory, select the **Template Required (Parameter template is required)** field.
3. Select  **Transfer**.


Your entries are then transferred to the list and the parameter templates are proposed for processing in the installation.

4. Select the installation for which you want to execute this component in the **Utilities Industry** menu under **Technical Master Data > Installation > Change**.
 5. Choose an  **RTP interface**.
 6. Double click on an input parameter to select it.
 7. On the **Parameters** tab page, enter the period for which the parameter is valid.
 8. Allocate a profile, a role, or a constant value to the parameter.
- If you allocate a role, the input parameter is given the profile values of the profile that is allocated to the interval meter to be billed with the specified role when the RTP interface is executed.
9. Choose  **Transfer**.

Your entries are then transferred to the list.

Repeat steps 6 to 9 for all input parameters.

Activation

1. On the **Component** tab page for the installation, enter the component and the activation period then select the **Activate** field.
2. Choose  **Transfer**.

Your entries are then transferred to the list.

You can define multiple periods, whereby the component will be active in one period and inactive in the other. Repeat steps 1 and 2 for each definition of a period.

Case 3: Activation type "Use Individually and Activate Generally" selected

Due to the activation type, you have to activate this component at RTP interface level as well as at installation level.



Activation

1. In the **Day From** and **Day To** fields in the RTP interface, enter the period for which you want the component to be valid.
 - If you want the component to be active in this period, select the **Activate** field.
 - If you do not want the component to be active in this period, leave the **Activate** field empty.

You can define multiple periods, whereby the component will be active in one period and inactive in the other.

2. Choose  **Transfer**.

Your entries are then transferred to the list.

3. Select an installation for which you want to execute this component in the **Utilities Industry** menu under **Technical Master Data > Installation > Change**.
4. Choose an  **RTP interface**.
5. On the **Component** tab page, enter the component and the activation period then select the **Activate** field.
6. Choose  **Transfer**.

Your entries are then transferred to the list.

Repeat steps 3 to 6 for all installations for which you want this component to be executed.

i Note

In this case, you should activate the component at installation level for the duration of the special agreement. You can control when the component is actually executed by activating it at RTP interface level.

This prevents you having to activate or deactivate the component in each individual installation. You only have to make the relevant settings in one place - the RTP interface.

Input Parameters

You have the following options for the allocation of the input parameters:

- You can allocate the input parameters at RTP interface level (see **Option 1** in section **Case 2: Activation type "Use and Activate Individually"**).
- You can allocate the input parameters at installation level (see **Option 2** in section **Case 2: Activation type "Use and Activate Individually"**).

Output Parameters

The entries on the **Output Parameters** tab page are independent of the selected activation type.

1. Double click on an output parameter to select it.
2. In the **Result Number** field (Number of Result Parameter), enter the number of the result parameter that you defined previously on the **Result Parameters** tab page and that you want to allocate to this output parameter.

3. Choose  **Transfer**.

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Your entries are then transferred to the list.

Repeat steps 1 to 3 for all output parameters.

Time Display

You can check the **Time Display** tab page to find out the season type or time-of-use type used for any particular day or time.

















1. Double click on a day in the calendar to select it.
2. The date appears in the **Date** field of the **Information About Selected Data** group box. The season type allocated to this day is entered in the **Season Type** field. The two fields next to this field display the period for which the season type is valid.
3. Double click on a time in the **Time** group box to select it. The time is displayed according to the interval length you previously selected in the **Header Data** tab page.

















































The selected time appears in the **Time** field of the **Information About Selected Data** group box. The time-of-use type allocated to this time is entered in the **Time-of-Use Type** field. The two fields next to this field display the period for which the time-of-use type is valid.

Example: RTP Interface with Formula LIMIT01

RTP Interface RTP1

RTP Component Comp1

-  RTP Component Code **Summer Weekdays**
 -  Input Parameter 1 01 Measured Value
 -  Input Parameter 2 02 First Limit Value as Quantity
 -  Input Parameter 3 03 Second Limit Value as Quantity
 -  Output Parameter 1 01 Portion Below First Limit
 -  Output Parameter 2 02 Portion Above First Limit
 -  Output Parameter 3 03 Portion Above Second Limit
 -  Output Parameter 4 04 Demand Above Limit 1
-  RTP Component Code **Summer Weekend**
 -  Input Parameter 1 01 Measured Value
 -  Input Parameter 2 02 First Limit Value as Quantity
 -  Input Parameter 3 03 Second Limit Value as Quantity
 -  Output Parameter 1 01 Portion Below First Limit
 -  Output Parameter 2 02 Portion Above First Limit
 -  Output Parameter 3 03 Portion Above Second Limit
 -  Output Parameter 4 04 Demand Above Limit 1


-   RTP Component Code **Winter Weekdays**
 -   Input Parameter 1 01 Measured Value
 -   Input Parameter 2 02 First Limit Value as Quantity
 -   Input Parameter 3 03 Second Limit Value as Quantity
 -   Output Parameter 1 01 Portion Below First Limit
 -   Output Parameter 2 02 Portion Above First Limit
 -   Output Parameter 3 03 Portion Above Second Limit
 -   Output Parameter 4 04 Demand Above Limit 1
-   RTP Component Code **Winter Weekend**
 -   Input Parameter 1 01 Measured Value
 -   Input Parameter 2 02 First Limit Value as Quantity
 -   Input Parameter 3 03 Second Limit Value as Quantity
 -   Output Parameter 1 01 Portion Below First Limit
 -   Output Parameter 2 02 Portion Above First Limit
 -   Output Parameter 3 03 Portion Above Second Limit
 -   Output Parameter 4 04 Demand Above Limit 1
-   RTP Component Code **Default**
 -   Input Parameter 1 01 Measured Value
 -   Input Parameter 2 02 First Limit Value as Quantity
 -   Input Parameter 3 03 Second Limit Value as Quantity
 -   Output Parameter 1 01 Portion Below First Limit
 -   Output Parameter 2 02 Portion Above First Limit
 -   Output Parameter 3 03 Portion Above Second Limit
 -   Output Parameter 4 04 Demand Above Limit 1

i Note

The symbols have the following meaning:

 No parameters yet allocated

 Parameters allocated

 Parameter templates defined

The component codes originate from [Defining RTP Components](#).

The component code **Default** is also available. You should always make the parameter allocations for this component code if you want the allocations to be valid across component codes.

The input and output parameters originate from [Defining Formulas](#).

→ Recommendation













If you want to distinguish between Winter weekdays and Winter weekends when you execute the components, but you want Summer weekdays and Summer weekends to be treated equally, define the parameter allocations of the component codes [Winter Weekdays](#), [Winter Weekends](#), and [Default](#). The default parameter allocations are used for Summer weekdays and Summer Weekends.

Example: RTP Interface with Formula COPY01





Component	Description	Priority	Activation Type
ON/OFF	Calculation of On-Peak/Off-Peak Consumption	1	Use and activate generally
MAX	Determine Max. Demand	2	Use and activate generally

RTP Interface RTP1

RTP Component ON/OFF

-  RTP Component Code **On-Peak Consumption**
 -  Input Parameter 1 **Consumption Profile - Quantity**
 -  Output Parameter 1 **Copy of Consumption Profile**
 -  Output Parameter 2 **Copy as Demand Profile**
-  RTP Component Code **Off-Peak Consumption**
 -  Input Parameter 1 **Consumption Profile - Quantity**
 -  Output Parameter 1 **Copy of Consumption Profile**
 -  Output Parameter 2 **Copy as Demand Profile**
-  RTP Component Code **Default**
 -  Input Parameter 1 **Consumption Profile - Quantity**
 -  Output Parameter 1 **Copy as Demand Profile**
 -  Output Parameter 2 **Copy as Demand Profile**

RTP Component MAX

-  RTP Component Code **Default**
 -  Input Parameter 1 **Consumption Profile - Quantity**
 -  Output Parameter 1 **Copy of Consumption Profile**
 -  Output Parameter 2 **Copy as Demand Profile**

i Note

The symbols have the following meaning:

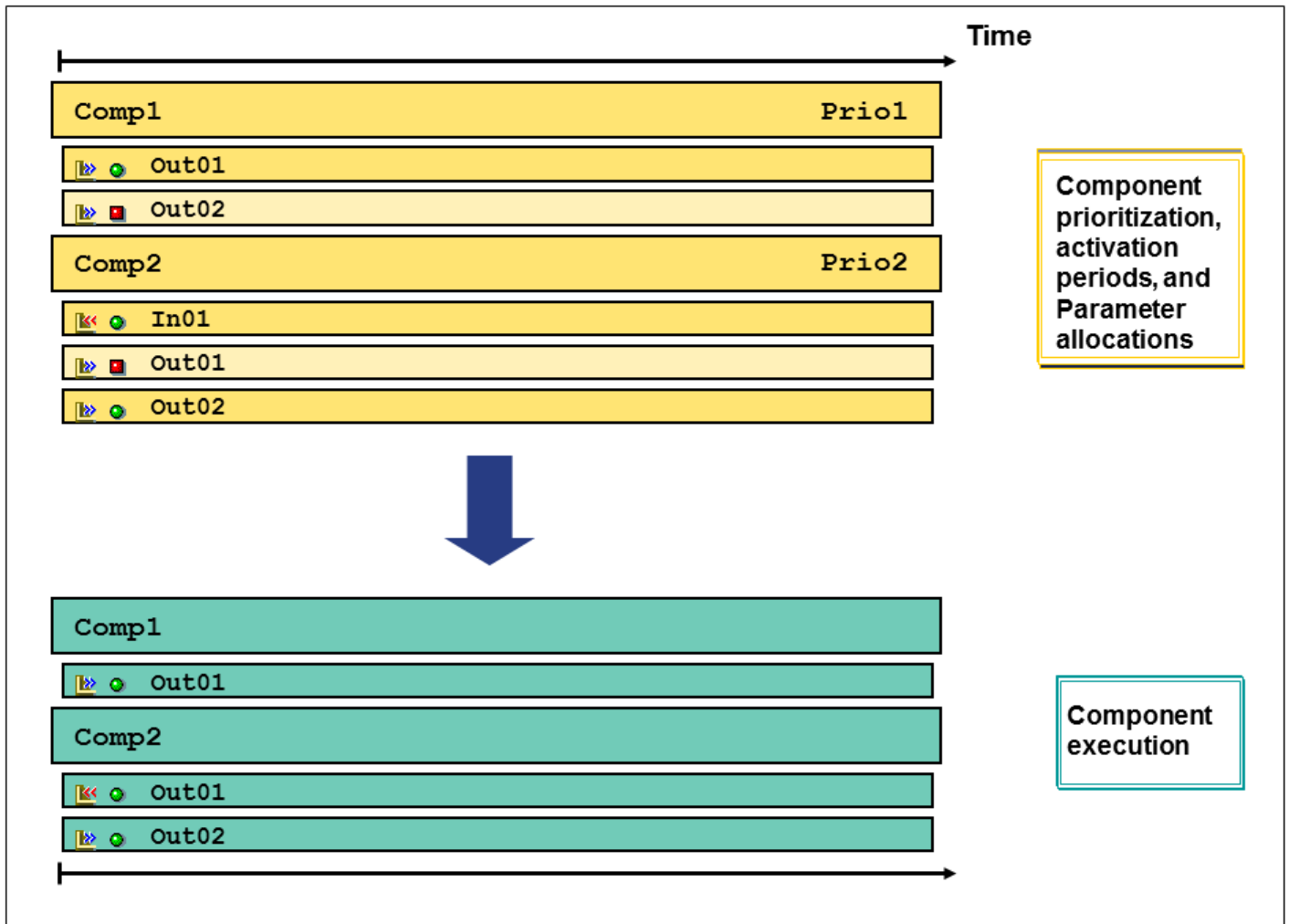
❌ No parameters yet allocated

🟢 Parameters allocated

⚠️ Parameter templates defined

Both components are activated in the same period, whereby component ON/OFF has priority 1 and component MAX has priority 2.

to execute the components, the priority of each parameter is analyzed:



Allocate RTP Interface to Rate

Use

To use the RTP interface for billing, you have to allocate it to a [rate](#). This allocation is only possible for rates for which you have selected the **Permitted for interval meters** field.

You can allocate individual input operands for rate steps to result parameters of the RTP interface in the RTP rate facts. This means that the appropriate operands are provided with result parameter values from the RTP interface during billing. The allocation of result parameters to operands in the rate facts is only possible for operands, for which you have defined the **RTP operand** usage type.

You define the operand category, for which the values in the RTP rate can be further processed, for the result parameters of the RTP interface. This operand category must match that of the allocated RTP operand.

More Information

Example: RTP Interface and Rate

Checklists

RTP Components

- Have you generated the RTP components that are used in the RTP interface?

RTP Interface

- Have you allocated the correct operand categories to the result parameters?
- Have you allocated the correct result function to the result parameters?
- Have you allocated the correct unit of measurement (matching the operand category) to the result parameters?
- Have you allocated the correct activation types to the components?

The following activation types exist:

- Use and activate generally

You use this activation type for components that are to be activated for all installations that are allocated the RTP interface.

- Use and activate individually

You use this activation type for components that are only to be activated for a single installation.

- Use individually and activate generally

You use this activation type for components that are to be activated for particular installations whose activation period, however, is centrally controlled from the RTP interface.

- Are the components correctly prioritized in the interface?

An RTP component with an activation type that is activated individually has a higher priority than an RTP component with an activation type that is activated generally.

If you allocate several RTP components with different activation types to the RTP interface, make sure components with an activation type that is activated individually have a higher priority than the other components.

- Are the components for the period to be billed activated?

Activation Type	Activation
Use and activate generally	At RTP interface level
Use and activate individually	At installation level
Use individually and activate generally	At RTP interface level and at installation level

- Are all parameters supplied with values? 30

You must have allocated a profile, a profile allocation role or a constant value to all parameters.

If you want to define the component code allocations as default, you can carry out the allocation to the parameters of the **Default** component code.

- Are the output parameters allocated to the correct result parameters?
- Have you allocated the parameters to the input parameters at the correct level?

If you define the parameter allocation at the installation level, did you previously define parameter templates at RTP interface level?

Activation Type	Definition of parameter allocations for the input parameters
Use and activate generally	At RTP interface level
Use and activate individually	At installation level and parameter templates at RTP interface level or At RTP interface level
Use individually and activate generally	At installation level and parameter templates at RTP interface level or At RTP interface level

Rate

- Have you selected the **Interval meter** eligibility? Only then can you enter the RTP interface in the rate.
- Have you entered the RTP interface in the rate?
- Are the input operands linked to the result parameters from the RTP interface RTP operands?

Select the RTP operand field in the operand maintenance.

- Have you allocated the corresponding result parameters from the RTP interface to the operands in the facts?