How to Assign and Create Utility Costs in Simergy

This document will explain how to define utility cost in a Simergy model: by illustrating the assigned of a utility cost object to a project, by creation of a utility cost object in the library and via an example.

1. Assigning utility cost objects to a project

- Go to the **Site** workspace
- Click on **Site** in the project tree
- Click on the **Edit** button right next to "Select Location"
- In the Locations template check the checkbox for **utility costs**.
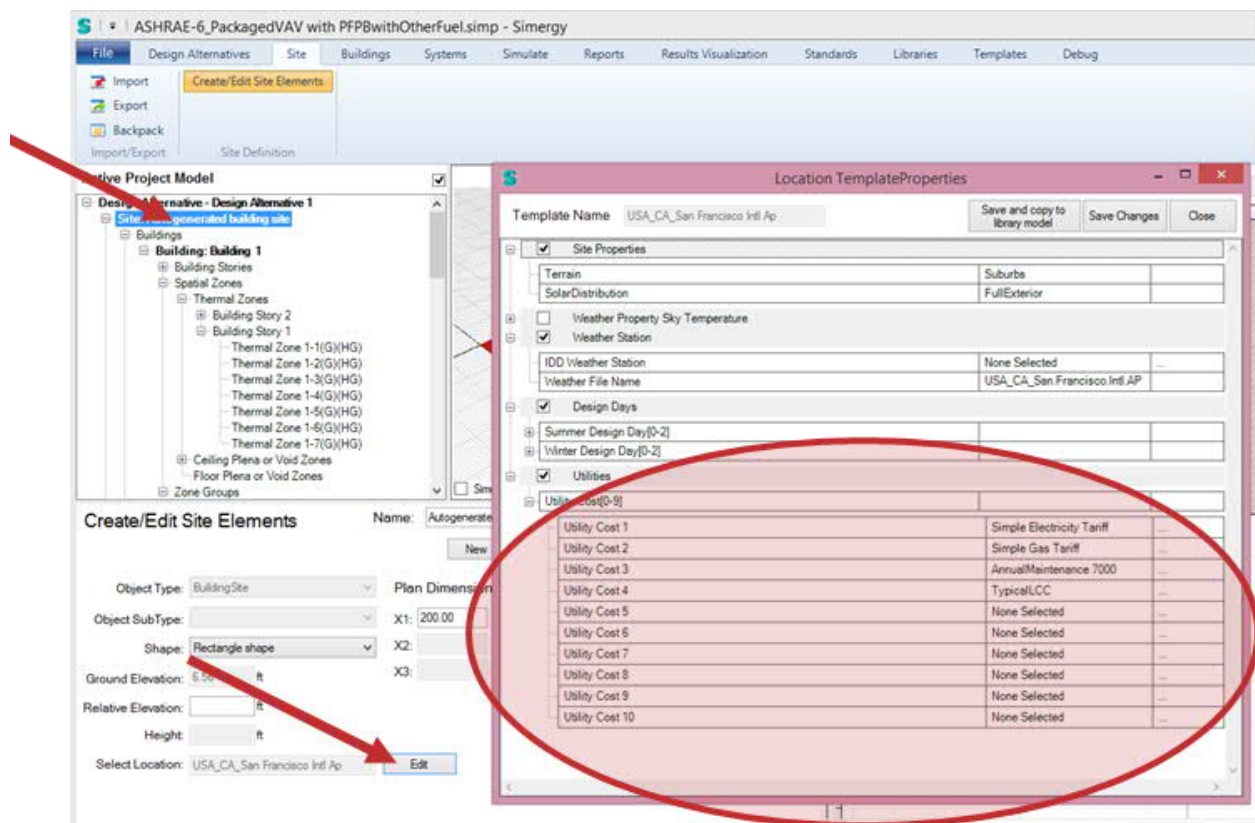- Select all utility tariffs you want to assign to this project.

Figure 1: Steps to assign a utility tariff to a Simergy project

2. Create utility tariff object(s) in the library

For each energy source (e.g. Electricity, Gas, …), you need to define a Utility Tarif object in the library workspace under Location Data and Costs. Each of those Utility Tariff objects is assigned to a Meter that links the cost to the related energy consumption of that meter. You can use any meter from the meter dropdown, but usually one would use a meter at the facility level. Each Utility Tarif object then is referenced by a number of other cost objects that define the cost structure of the tariff. For example, with a cost variable object one can assign a monthly cost value and with a Charge Simple object a simple cost per unit (e.g., 0.5 $ per kWh). Figure 2 illustrates the relationships between these cost objects.
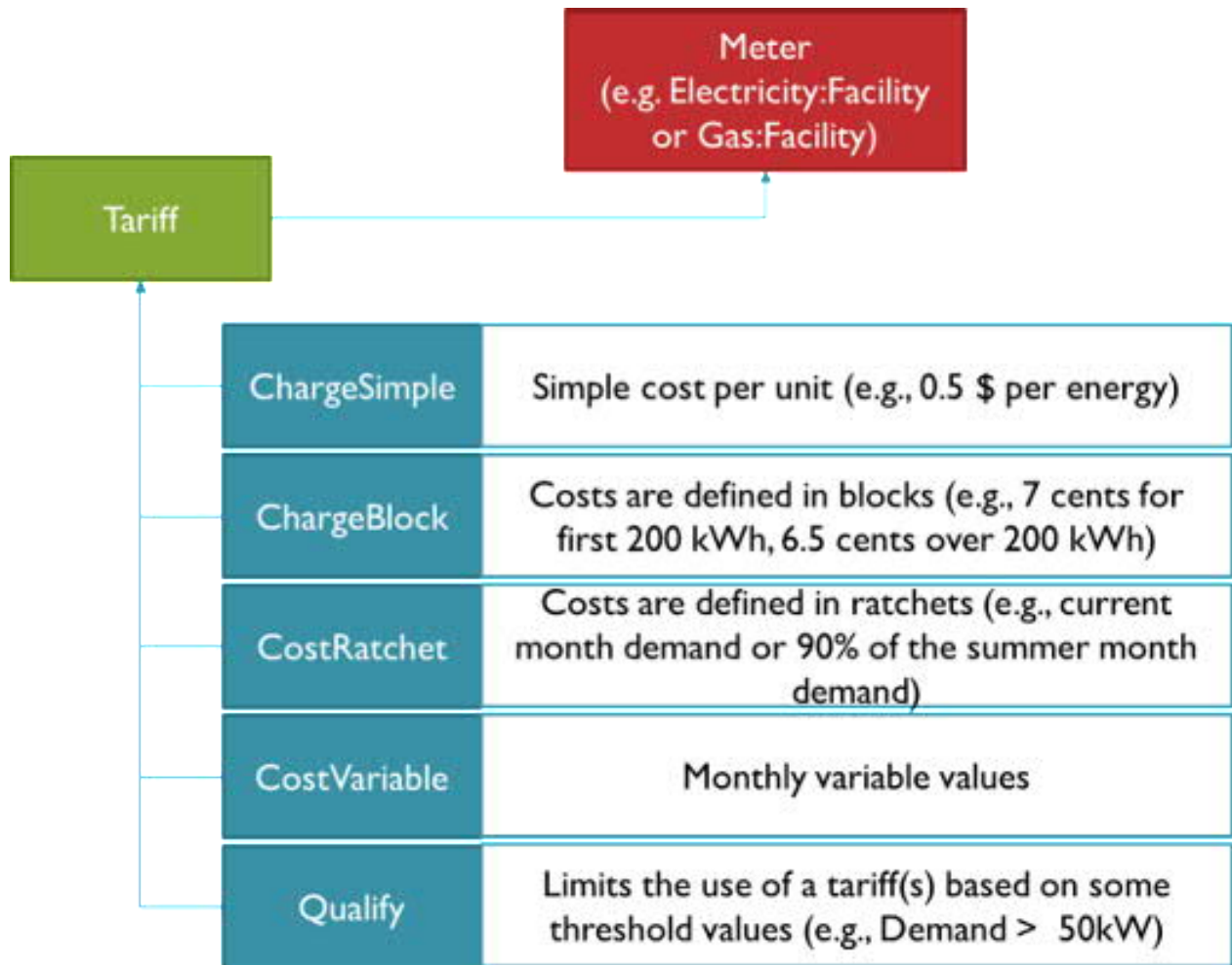
Figure 2: Utility cost objects

3. Example tariff

In the below table is an example tariff defined that has a constant monthly charge as well as a constant demand charge. Furthermore, this tariff is different for summer and winter for the energy consumption and uses on, mid and off peak rates.

Effective Rate – Demand		Demand
	[$/month]	[$/kW]
All hours	206.02	7.79
Effective Rate – Consumption		Consumption
		[$/kWh]
Summer		
On Peak (2p – 8p M..F)		0.07602
Mid Peak (6a-2p * 8p-10p M…F)		0.06032
Off Peak (all other hours)		0.03722
Winter		
All hours		0.05

For the demand side, we define a Tariff object (called Effective Rate – Demand 206.02 monthly – 7.79 per kW) that contains the monthly charge of 206.02.

UtilityCost:Tariff		
Output Meter Name	**Electricity:Facility**	⌄
Conversion Factor Choice	< Select >	⌄
Energy Conversion Factor		
Demand Conversion Factor	0.001	
Time of Use Period Schedule Name	< Select >	⌄
Season Schedule Name	< Select >	⌄
Month Schedule Name	< Select >	⌄
Demand Window Length	< Select >	⌄
Monthly Charge	206.02	
Minimum Monthly Charge		
Real Time Pricing Charge Schedule Name	< Select >	⌄
Customer Baseline Load Schedule Name	< Select >	⌄
Group Name		
Buy Or Sell	BuyFromUtility-Default	⌄

This demand tariff object is defined by the SimpleCharge object, which specifies the Category Variable Name as demand charge, provides a constant cost value and sets the season to annual to make this demand applicable for the full year.

UtilityCost:Charge:Simple			
Tariff Name	Effective Rate - Demand 206.02 monthly - 7	⌄	...
Source Variable	**Demand**		
Season	Annual	⌄	
Category Variable Name	DemandCharges	⌄	
Cost per Unit Value or Variable Name	Const 7.79	⌄	...

For the consumption part we define another tariff object, see below:

UtilityCost:Tariff		
Output Meter Name	**Electricity:Facility**	⌄
Conversion Factor Choice	kWh	⌄
Energy Conversion Factor		
Demand Conversion Factor		
Time of Use Period Schedule Name	PeakSchedule|	⌄
Season Schedule Name	TwoSeasonSchedule	⌄
Month Schedule Name	< Select >	⌄
Demand Window Length	< Select >	⌄
Monthly Charge		
Minimum Monthly Charge		
Real Time Pricing Charge Schedule Name	< Select >	⌄
Customer Baseline Load Schedule Name	< Select >	⌄
Group Name		
Buy Or Sell	BuyFromUtility-Default	⌄

This tariff object references two schedules, a schedule that defined the different peak categories and a schedule that differentiates between summer and winter. See the related peak schedule to the right.

In addition, three Simple Charge objects are linked to the Electricity Rate – Consumption tariff object. They define the cost value, are bound to the season (here summer) and to the peak category.
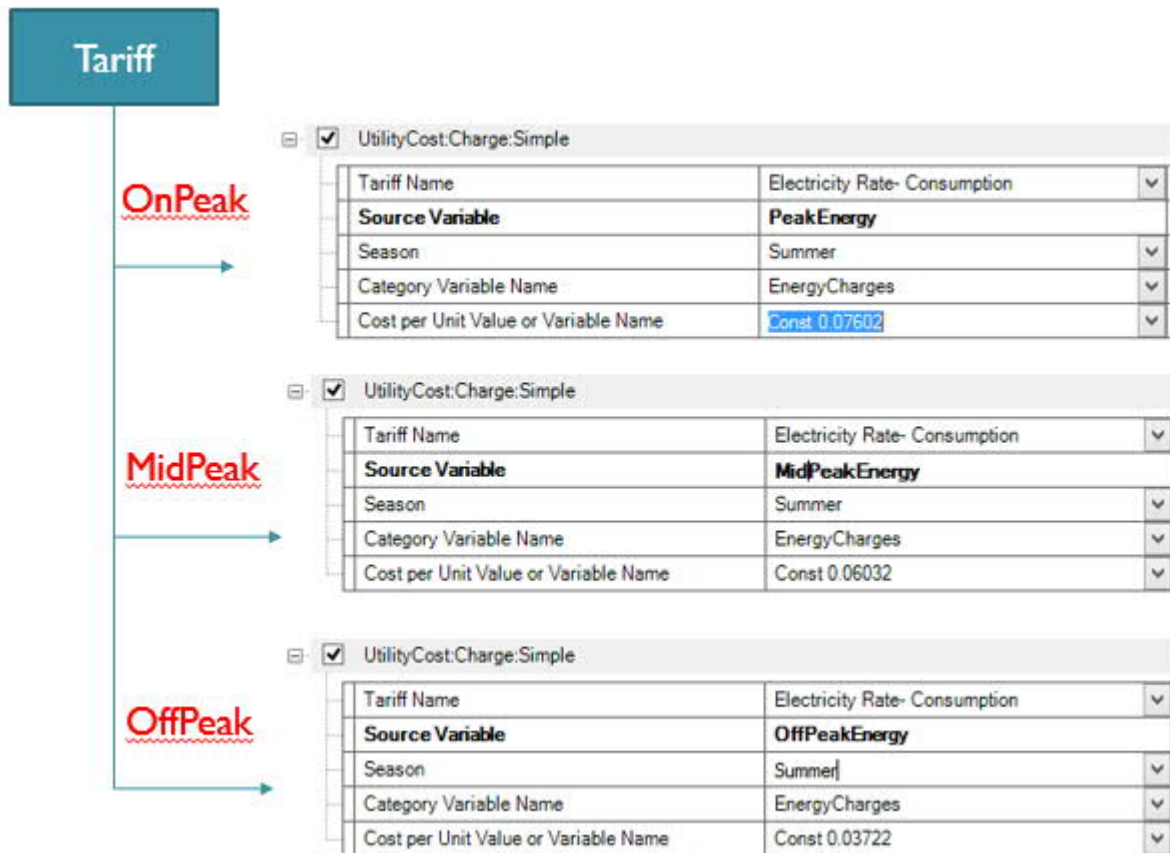
Finally, one SimpleCharge object for the winter season would complete this example.