As of version 3.2, time scheduled alarms are not supported and a work around solution needs to be implemented to offer this functionality. The work around involves the use of formulas within PecConfig to enable the setting of time schedules. The basic theory is as follows:

1. Find the absolute value of the difference between the low hour set point and the current hour,
2. Find the absolute value of the difference between the high hour set point and the current hour,
3. Add the above two numbers,
4. Multiply the above answer by a large negative number (eg:-1000). This is your Time Formula,
5. Add the Time Formula to the data point you wish to alarm from (eg: kW),
6. Multiply the difference between the high and low hour set points by the positive of the large number used in 4 (eg:1000),
7. Add the number in 5 to the number in 6. This is your Data Point Formula.

If you are within the time range required the value of the Data Point Formula should be your data point. If you are outside the time range, the value should be a large negative number, increasing negatively by 2 x your large number selected in 4. It can be seen then, that it is important to select a large number that will move your Data Point Formula far enough away from the alarm set point that even if you had a very large value for the data point (coming directly from your device) that you could never accidentally trigger an alarm.

To implement the above in PecStar, we can follow many different paths. To make the system easy to understand and to be configurable by the end user, the values that the user may want to change should be removed from any complex formula.

When configuring formulas the following arithmetic can be used, + - \* / ^ ( ).

The following steps are to be undertaken to implement time scheduled alarms within PecStar. The following example details an imaginary Early Shift (00:00 – 12:00) and Late Shift(12:00 – 00:00).

1. Add a new formula called Early Shift Start. Enter the start time as a constant of 0 in parameter 1. Enter the equation as 1.
2. Add a new formula called Early Shift End. Enter the end time as a constant of 11 in parameter 1. We use 11 as the end time, even though the shift ends at 12 as the time range will be true right up to 11:59:59. Enter the equation as 1.
3. Do the same for formulas called Late Shift Start and Late Shift End. The start time will be 12 and end time will be 23.
4. Create a new formula called Early Shift Time Formula. Select the formulas Early Shift Start for parameter 1 and Early Shift End as parameter 2. Select a real time data point for the current hour as parameter 3. Enter a constant of -1000 as parameter 4. Enter a constant of 2 for parameter 5 and 0.5 for parameter 6. Parameter 5 will allow you to square a value and parameter 6 will allow you to find the square root. This is important as we want to be able to find the absolute value of some numbers and this can only be achieved in PecStar by first squaring the number, then finding the square root. For the equation enter ((((1-3)^5)^6)+(((2-3)^5)^6))\*4. What we are doing is adding the absolute value of the difference between the Early Shift Start and the current hour with the absolute value of the Early Shift End and the current hour and multiplying that answer by -1000.
5. Do the same for a formula called Late Shift Time Formula.
6. Create a new formula called Early Shift Data Formula. Select the real time data point that you want to alarm against as parameter 1. Select the formula Early Shift Time Formula as parameter 2. Enter a constant of 1000 (the positive of your previously selected large negative number) as parameter 3. Select the formula Early Shift Start as parameter 4 and Early Shift End as parameter 5. For the equation enter 2+1+(5-4)\*3. Here we are adding a large negative number to the data we want to alarm against. We then add an offset (a large positive number) that will cancel out the large negative number only when you are within the appropriate time schedule.
7. Do the same for a formula called Late Shift Data Formula.
8. You can now configure alarms based on the values from formulas 6 and 7.