

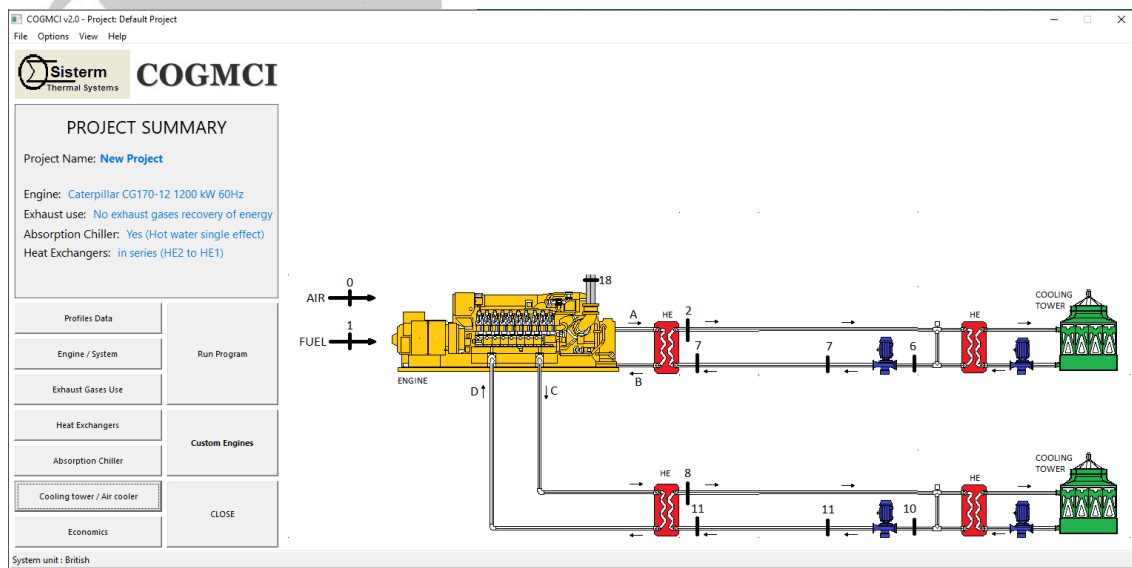
COGMCI CONFIGURATIONS

At the main screen the user can select the configuration of the cogeneration/trigeneration system by adding each of the system components. Some rules apply and when broken an error message will appear showing what need to be changed in order for that configuration to take place.

MINIMAL SETUP:

The software minimal setup assumes **no cogeneration**. Only the combustion engine and primary and secondary circuit energy rejection are displayed. All the configuration from this initial setup cannot be removed, only switched with other possibilities.

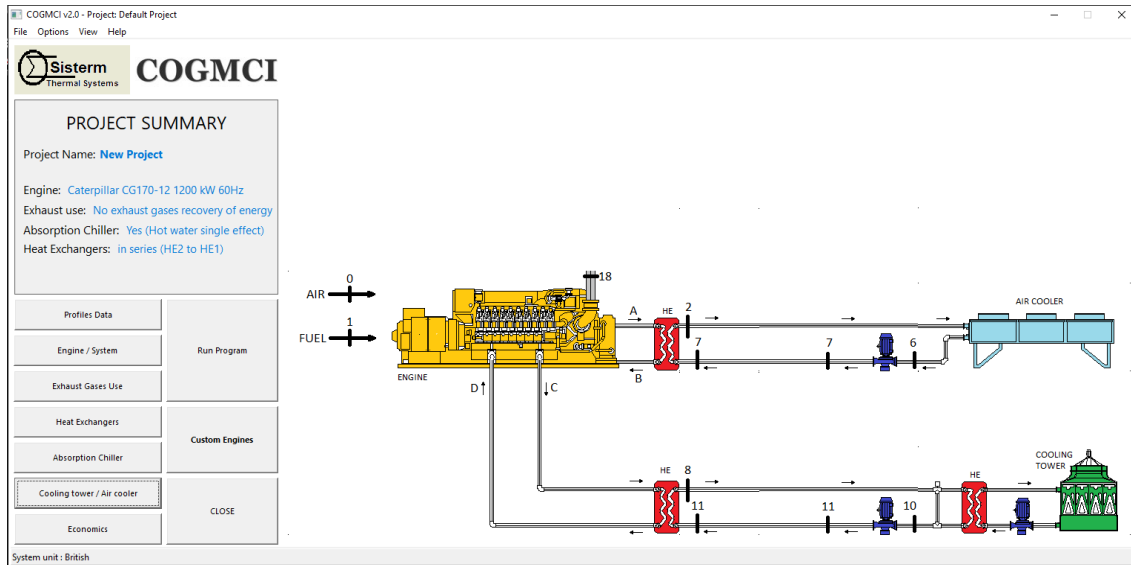
On the ENGINE / SYSTEM SCREEN the user can select the desired engine to be used.



On the EXHAUST GAS USE SCREEN the user can define how to use the exhaust gas energy:

- 1) HRSG
- 2) EGHE
- 3) NO EXHAUST GAS USE.

On the COOLING TOWER/AIR COOLER SCREEN, it's possible to change the type of energy rejection system being used. When changing the type of system the changes will be shown on the MAIN SCREEN:

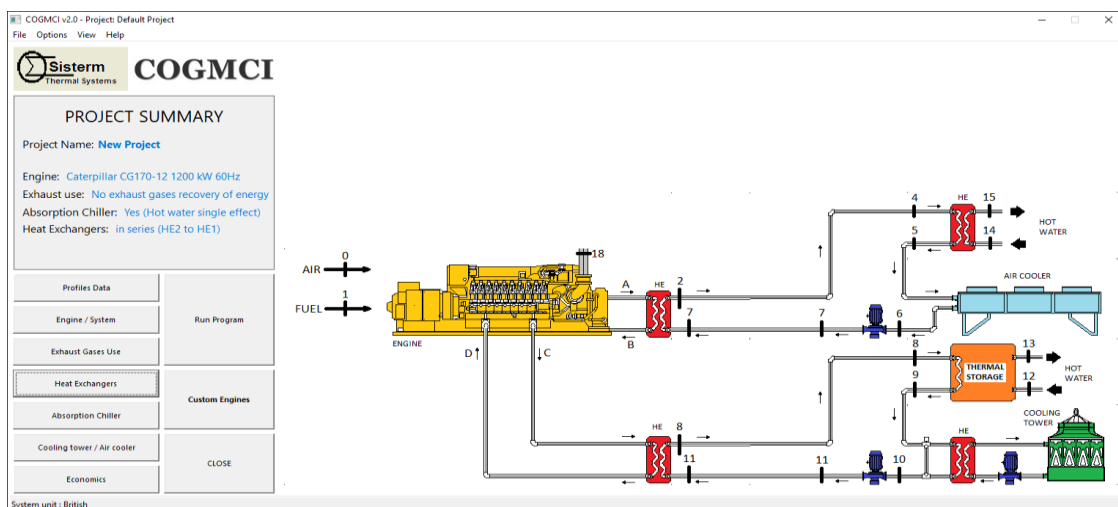


NO EXHAUS GAS ENERGY RECOVERY SETUP.

This setup allows for energy recovery on 3 different areas, HEAT EXCHANGER 1, HEAT EXCHANGER 2 and EXHAUST GAS AND HOT WATER ABSORPTION CHILLER.

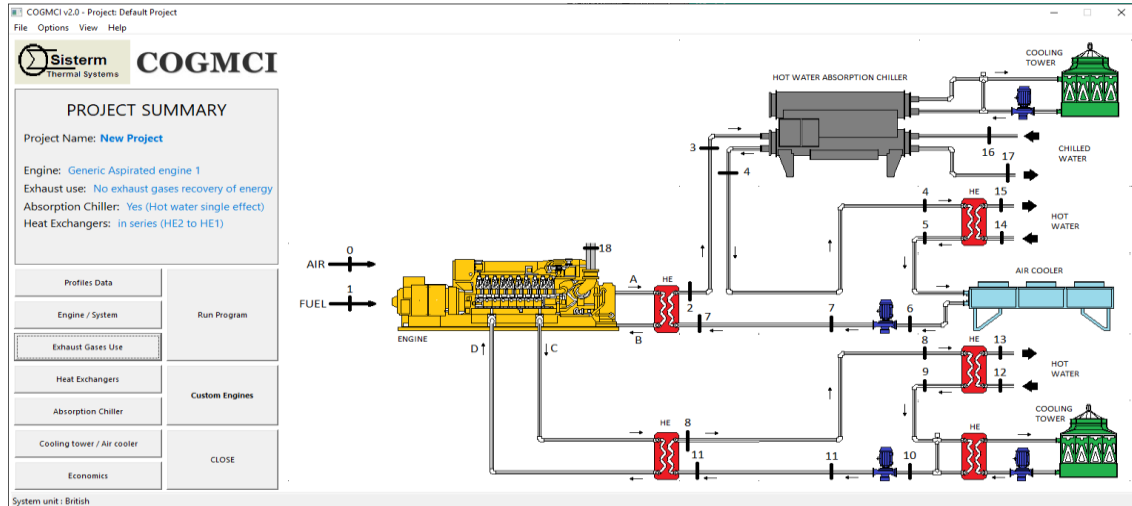
On the HEAT EXCHANGER SCREEN there are 2 possible settings for process hot water recovery, the first one is turning on the HEAT EXCHANGER of the first (HE1) or secondary circuit (HE2) or both at the same time. Also on the same screen the heat exchanger design parameters must be inserted.

Another option for process hot water is the THERMAL STORAGE UNIT, which is going to supply stored hot water allowing peak demands to be attended without the use of surplus energy.

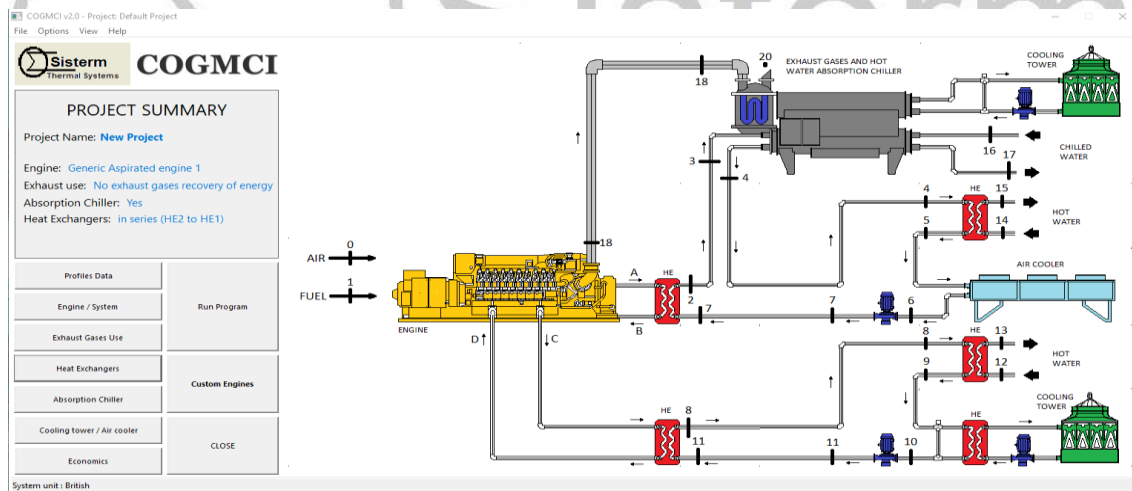


NOTE: All system configurations allow adding HEAT EXCHANGER (HE1 and HE2) and/or THERMAL STORAGE 1 and 2 for process hot water

The no EXHAUST GAS RECOVERY setting enables two options of chiller on the ABSORPTION CHILLER SCREEN; the SINGLE EFFECT that recovers energy from the engine primary circuit:



And the EXHAUST GAS AND HOT WATER ABSORPTION CHILIER (DOUBLE EFFECT) which uses the exhaust gas and the ENGINE primary circuit water directly on the absorption chiller:

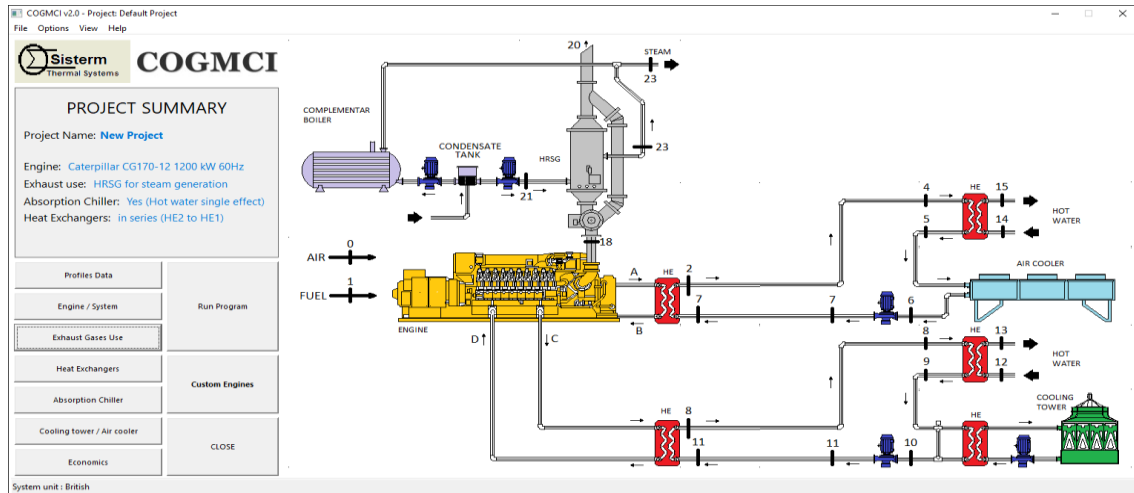


On the COOLING TOWER/AIR COOLER SCREEN it's possible to change ABSORPTION CHILLER energy rejection system.

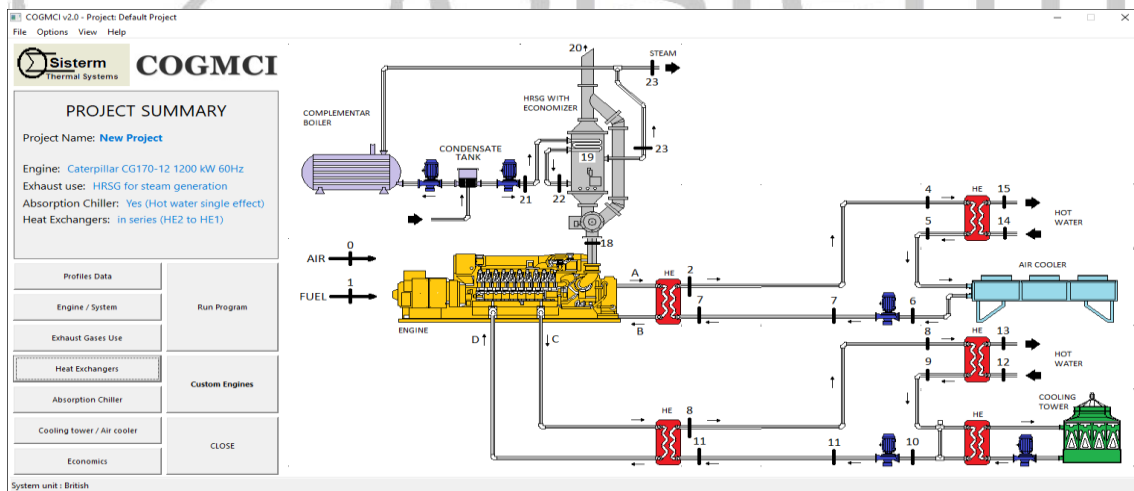
NOTE: For the next configurations, the HEAT EXCHANGERS on the engine primary and secondary circuits will be turned on at all times, thus this is not necessary for the other system configuration and can be turned off at any point.

EXHAUST GAS HEAT RECOVERY STEAM GENERATOR SETUP

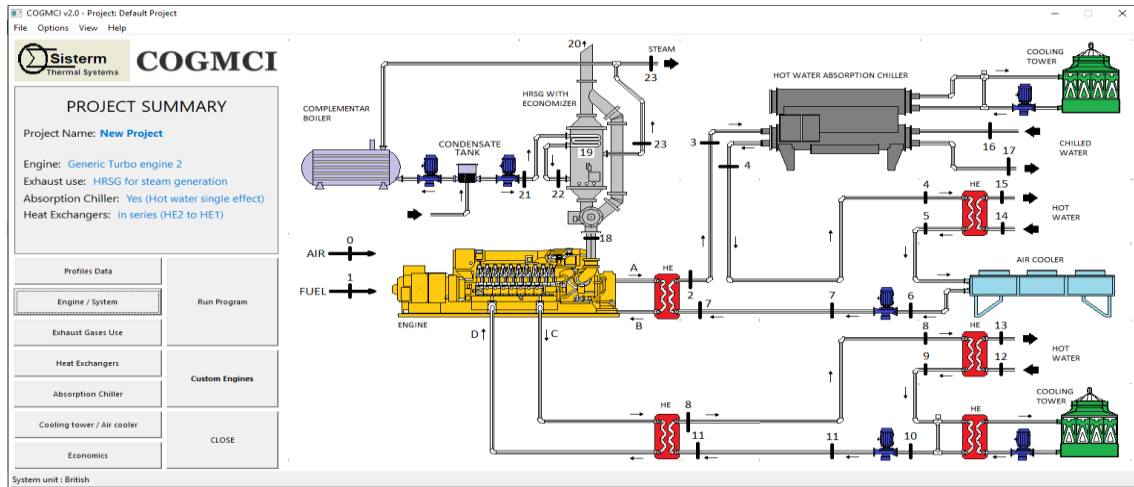
Turning on the HEAT RECOVERY STEAM GENERATOR (HRSG) on the EXHAUST GAS USE SCREEN will show the HRSG, a complementary boiler, the condenser tanks and pumps. In this setup the **steam demand** (DATA PROFILE SCREEN) is attended by the HRSG.



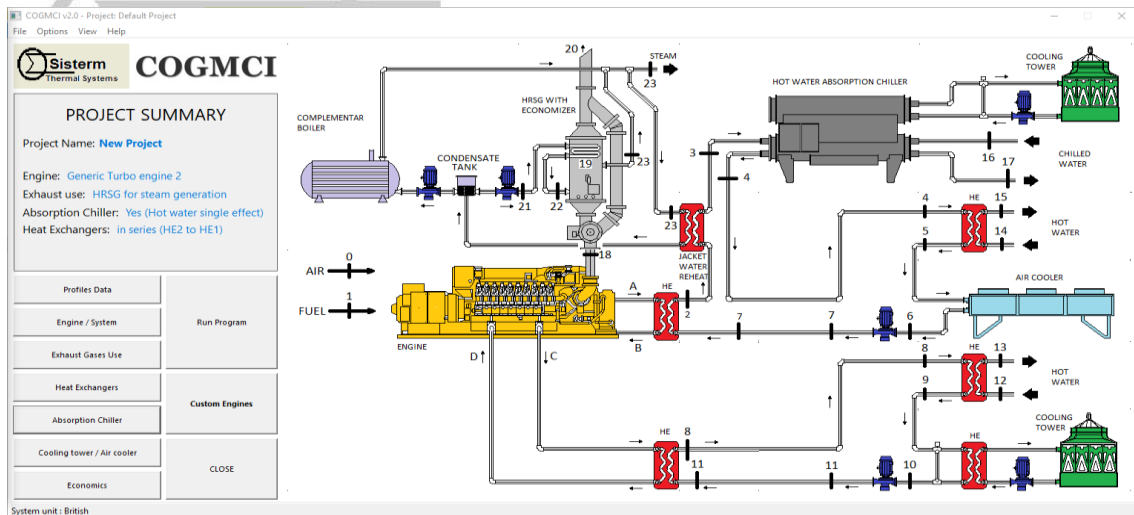
Additionally an economizer can be added to the HRSG.



On the ABSORPTION CHILLER SCREEN the single effect chiller setting can be added to the system using the primary circuit water energy.

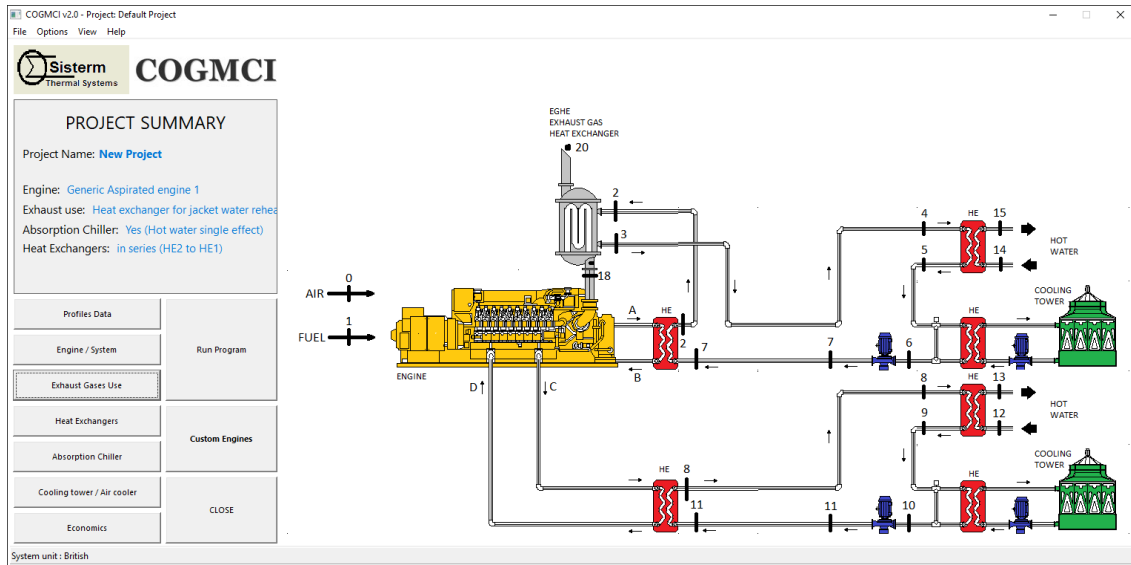


Using the HRSG a part of the steam generated can be used to reheat the primary circuit water to use in the chiller; turn on setting on the ABSORPTION CHILLER SCREEN as **Jacket Water Reheat** and define the design parameters.

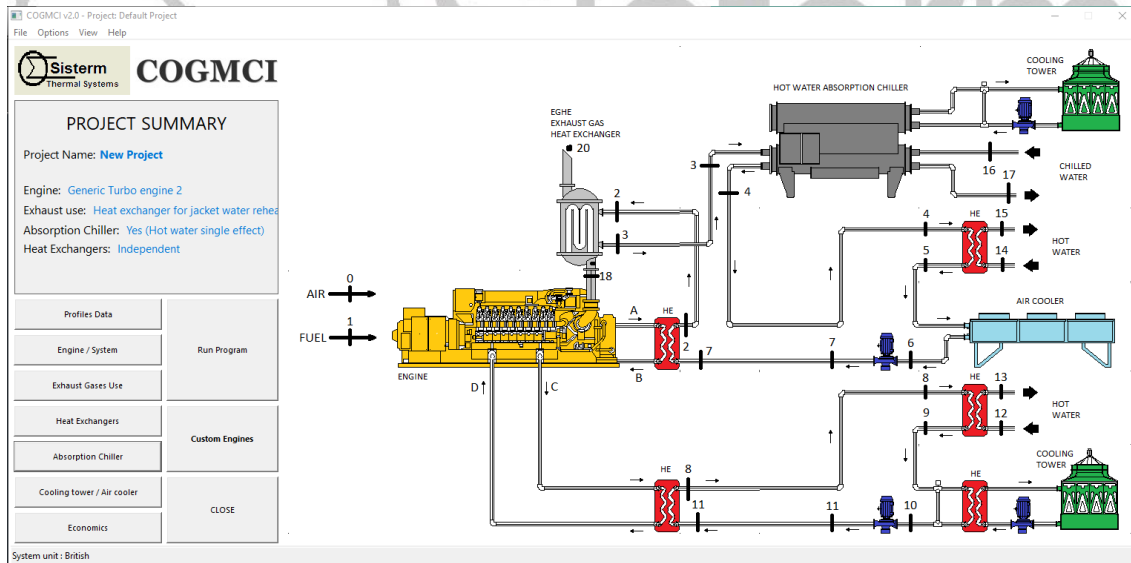


EXHAUST GAS HEAT EXCHANGER (EGHE) SETUP

The EXHAUST GAS HEAT EXCHANGER (EGHE) on the EXHAUST GAS USE SCREEN will show the EGHE. For this setting the HEAT EXCHANGER 1 (HE1) and/or the HOT WATER ABSORPTION CHILLER must be turned on.



This setting uses the exhaust gas to heat the primary circuit water to be use on HEAT EXCHANGER 1, attending process hot water demand (heating load), and also can be used to run the HOT WATER ABSORPTION CHILLER (SINGLE EFFECT):



COGMCI also allow the use of one, two or three engines.

Multiple engine systems are simulated as single systems (one engine systems). In the electrical dispatch mode engines share the electricity demand and are turned on and off following the hourly electricity demand.

September/2018