What is it?
Spectrum Power™ MGMS is advanced control and optimization SCADA software used to maximize the value of your onsite cogeneration in coordination with local utility rates. Spectrum Power™ has the ability to forecast site electrical and thermal loads, and while taking into account the current electric and fuel/gas utility tariffs, will execute a comprehensive plant operation routine in order to find the economic optimal unit schedules for the next 24 hours or seven days. These schedules are then dispatched in real time, turning units on and off, and sending the economic optimal operating set points. This results in significantly decreased operating expenses from electricity and fuel/gas purchases.

Who can benefit?

**End Users**
with existing CHP onsite, looking to generate further savings

**Project Developers**
looking to expand project ROI

**CHP Vendors**
looking to license Spectrum Power™ to enhance their offering

**Design Engineers**
looking to improve competitive edge through solution design

How does it work?
Typically, CHP projects are designed and financed on the basis that onsite cogeneration of thermal and electrical energy is less expensive than the alternate: importing grid power and using an onsite boiler for thermal needs. Due to this, CHP units are operated at full capacity and rarely turned off except for maintenance. In most cases, Spectrum Power™ can further reduce energy expenses by intelligently scheduling and dispatching the CHP units so they are offline when grid power is inexpensive with low thermal demands and online with optimal output when grid power is expensive with high thermal demand.

Spectrum Power™ MGMS is based on a field-proven utility SCADA system. The SCADA system gives Spectrum Power™ the foundational ability to monitor and control different power system equipment such as generating units.

On top of the SCADA system is a layer of advanced applications (Figure 2 on the next page) that allow Spectrum Power™ to forecast thermal and electrical load, model the operating economics and constraints of generating units, and import the local gas and electric utility tariff structure. With knowledge of these inputs, the optimization module continually...
executes the routine to solve for the most economic operating state of all units for the coming 24-hour (or pre-determined) dispatch horizon with given constraints. A simplified example of this process is shown in Figure 3.

**Flexible deployment mechanisms**

Spectrum Power™ MGMS can be deployed on site, or remotely hosted within the Siemens secure datacenter.

For onsite deployment, Spectrum Power™ runs on a small physical or virtual server located on the site’s Local Area Network (LAN) to communicate with devices such as the CHP genset controller, intelligent process components (e.g. valves), building automation system, etc. For onsite deployment, the end customer would acquire the rights to the software.

In a remotely-hosted system, Spectrum Power™ MGMS runs on a virtual server in Siemens’ secure datacenter, where it connects to the end site via a secure VPN connection. This allows for minimal IT infrastructure and knowledge at the end site. The software can be paid for on a subscription basis with a monthly fee.

**Additional benefits**

- Increases CHP project ROI
- Provides energy conservation measure as part of an Energy Savings Contract (ESCO)
- Site emissions reduction as an alternative objective
- Scalable system, from 1 CHP unit to 10+ units
- Able to optimize chillers and thermal storage
- Easily integrates and optimally manages all on-site generation resources including diesel, solar and battery
- Demand charge management (reduce peak import)
- Graphical user interface for operations monitoring or public overview displays
- Reporting of site economics and emission production
- Forecast of commodity purchases for planning
- Genset maintenance alarming and outage scheduling
- Flexible system – can integrate additional resources including renewable generation and energy storage

**Simulate savings for your CHP project**

Whether your CHP project is greenfield, or has been in operation for years, Siemens Spectrum Power™ MGMS can add continued value. The next step is to contact Siemens, where we can model the savings your project can expect.