

Energy Saving Application

Multiple Pump System

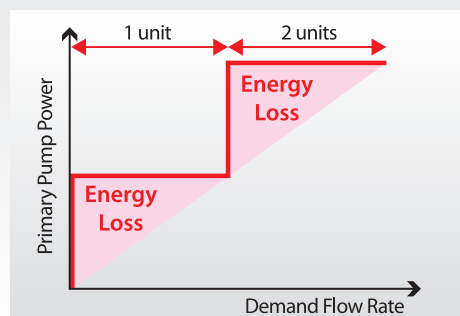
Primary Pump VVW Control

Maximum effects and minimum costs coexist.

Reduce up to 70% of chiller plant primary pump power consumption with minimum initial costs

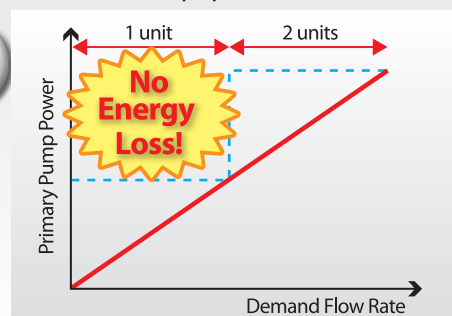
Before...

- ▶ Primary pump is always running interlocked with chillers. Since always supply rated flow rate, primary pump energy consumption becomes high.

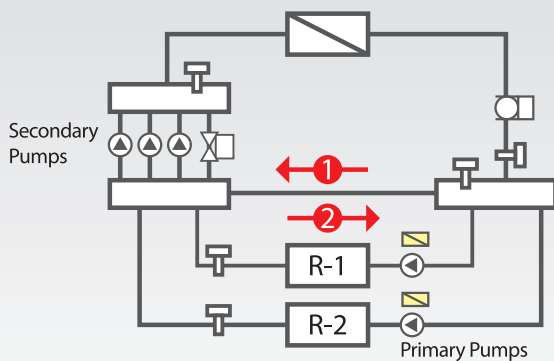


After!

- ▶ Control VSD at primary pump to match the flow rate between demand and supply.
- ▶ When the flow meter is already installed, all the additional equipment is, controller and VSD.



Largely reduce primary pump energy consumption



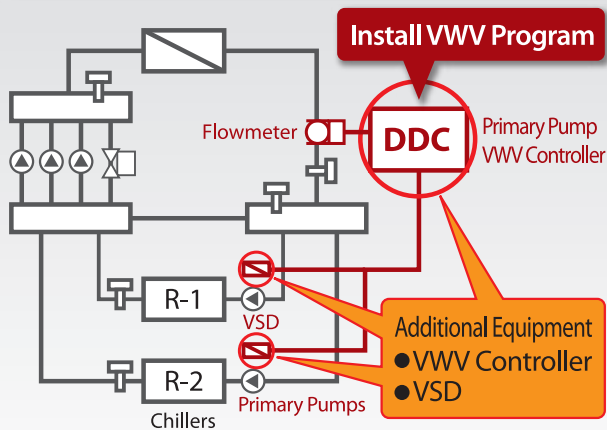
1. Demand > Supply

Water flow from return header to supply.
It fluctuates supply water temperature.

2. Demand < Supply

Water flow from supply header to return.
It wastes distribution power for its water flow.

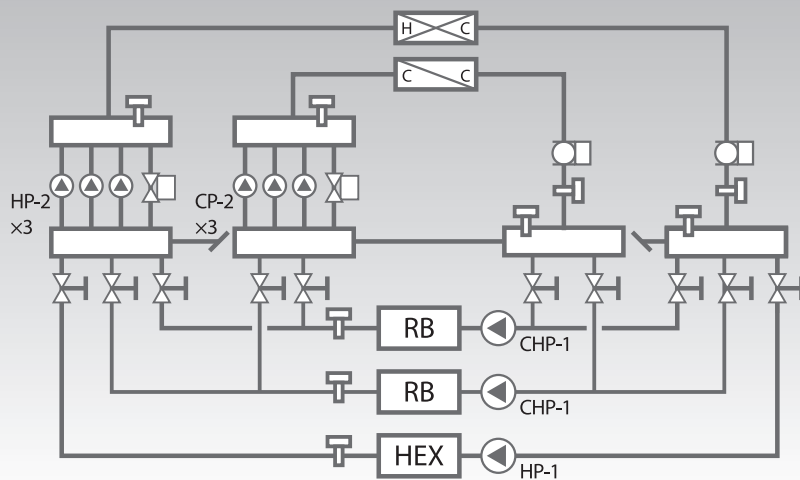
Easy Implementation



- ▶ Simply add Primary Pump VVW Controller.
If our Chiller Plant Controller "PMX-III", is installed, only additional software is needed.

Primary Pump VWV Control

▶ Example



● Hotel Metropolitan Nagano

● Floor Size : 25,433 m²

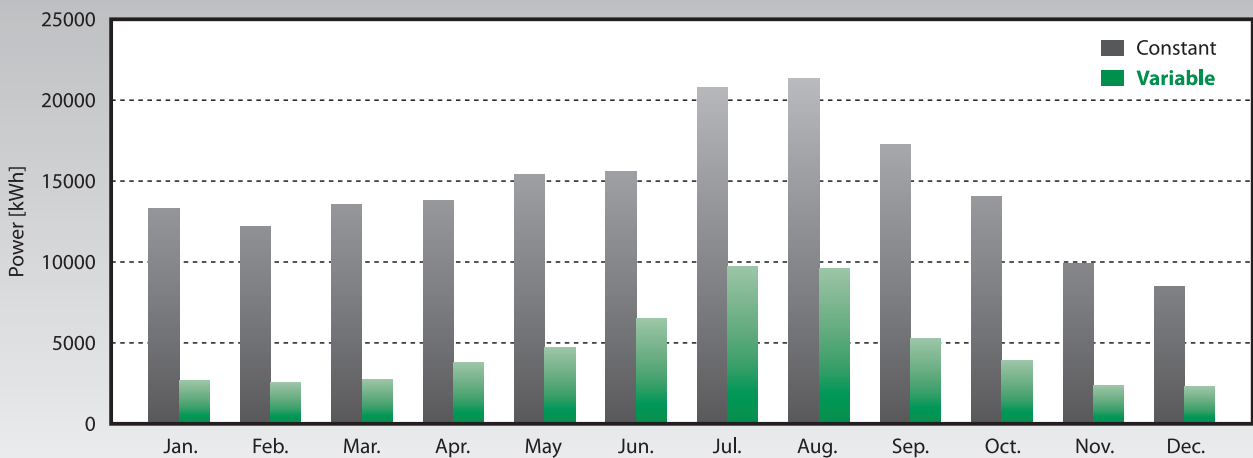
● Chiller Plant

• Refrigerator and Boiler	1,264 kW × 2 unit
• Chilled Water Primary Pump	3,600 l/min, 18.5 kW × 2 unit
• Steam Boiler	4,200 kg/h × 2 unit
• Steam Heat Exchanger	6 GJ/h × 1 unit
• Hot Water Primary Pump	3,600 l/min, 18.5 kW × 1 unit

● Features

- Chiller plant runs 24 hours
- Cooling demand exists in Winter
- Refrigerator is used for cooling only.

▶ Energy Saving Effects



Estimated Power Consumption of Constant Flow	175,688 kWh
Actual Power Consumption of VWV Control	56,234 kWh
Energy Saving Effects	119,454 kWh

Power Reduction : 119,454kWh (68% Reduction)

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Specifications are subject to change without notice.