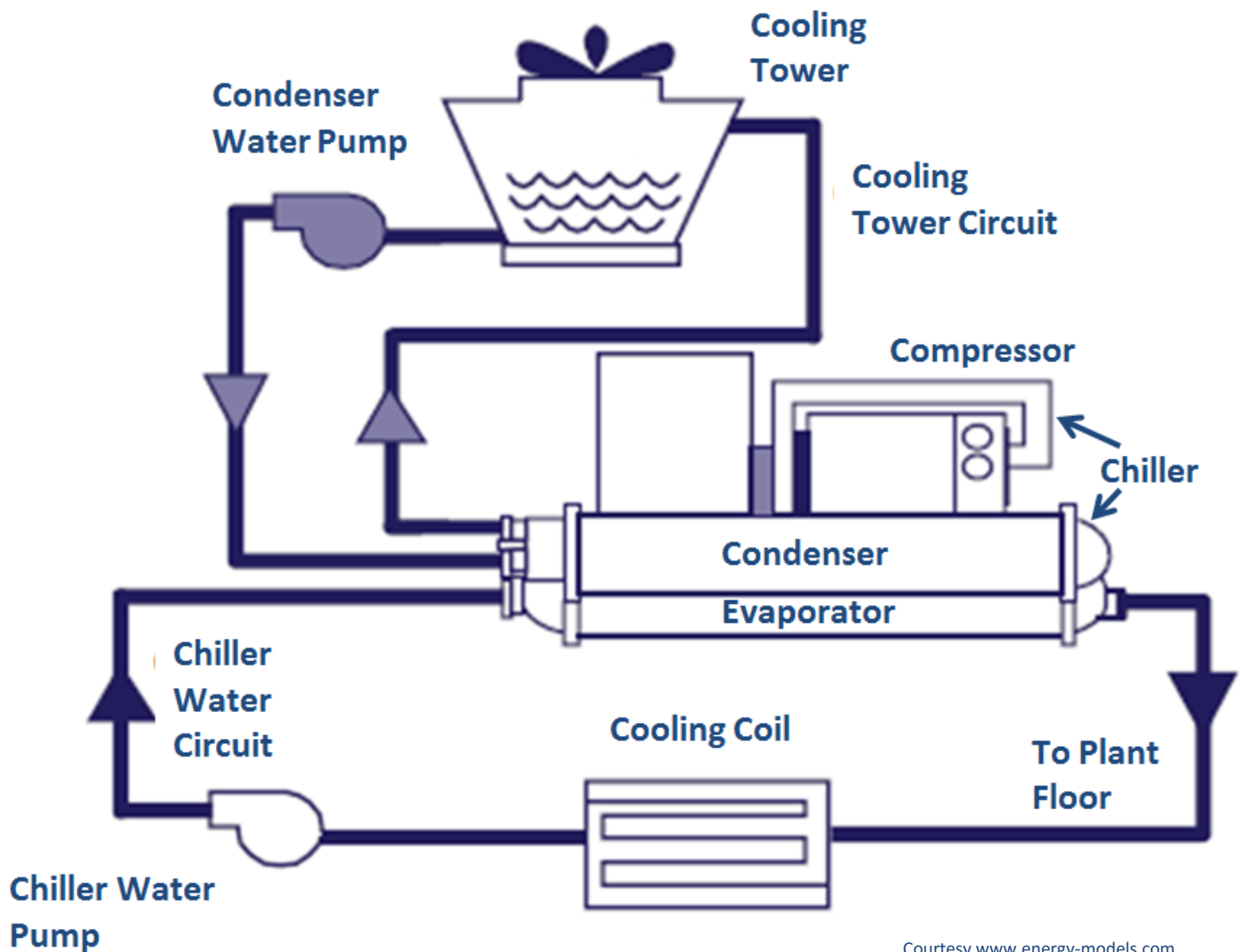


Best Practices

- 1.) Use cooling towers in place of chillers when possible
- 2.) Stage chillers to optimize part-load efficiency
- 3.) Optimize temperature set points for energy savings
- 4.) Reduce end use loads/ Inappropriate uses
- 5.) Add insulation to cold surfaces e.g. chilled water pipe
- 6.) Employ Floating Head Pressure Control
- 7.) Improve heat exchanger effectiveness
- 8.) Stage operation of cooling tower fan
- 9.) Employ variable-speed pumping
- 10.) Install VFDs on Cooling Tower Fans



System	Things to Check	Comments
Chiller	<ul style="list-style-type: none"> • Opportunities with chiller sequencing • Opportunities with set points • Opportunities to bypass chiller with cooling tower/ Opportunities with free cooling 	<ul style="list-style-type: none"> • Load management to optimize chiller efficiency. • Stage chillers to optimize part-load efficiency • Turn off chilled water on weekends. • Can the chilled water set point be increased? • Can the Condenser water set point be decreased? • Economizer to produce chilled water when outside air is cool enough
Cooling Tower	<ul style="list-style-type: none"> • Opportunities with Tower operation • Opportunities with Tower Make-up Water 	<ul style="list-style-type: none"> • Use cooling towers in place of chillers when possible • Install Controls to Stage Cooling Tower Fans On/Off • Install VFDs on Cooling Tower Fans • Make-Up = Evaporation + Blowdown + Drift • Decrease blow down of cooling towers <ul style="list-style-type: none"> • Conductivity controller to automatically control blowdown • Water treatment opportunities • Opportunities with evaporation
Distribution and End use	<ul style="list-style-type: none"> • Opportunities with pumping • Interfacing chilled water use to production • Reduce end use loads • Opportunities with insulation • Inappropriate uses of chilled water 	<ul style="list-style-type: none"> • Sequence pumps using appropriate controls • Turn off when no parts are present • Reduce set points during non-production hours • Add heat exchangers between heated and cooled processes • Add or repair mechanical insulation • Is chilled water recirculated when it could be shut off?