

# Typical Energy Saving Opportunities for Retro-commissioning

## 重新校驗常見的節能機會

Energy Saving Opportunity 節能機會	Description 描述
Automatically Control Indoor Air Temperature Setting 自動控制室內溫度設定	Automatically control indoor air temperature setting according to occupancy level can reduce air-conditioning energy consumption (e.g. increase indoor temperature during low occupancy level). 根據室內佔用人數自動調節室內溫度設定，從而減少空調所需的能源（例如在室內佔用人數少的時候可自動調高室內溫度設定）。
Install Variable Speed Drive to Control Water Pump/Fan Speed 安裝可變速驅動器控制水泵/風扇的速度	In the case that water pump/fan is oversized or daily cooling demand fluctuates significantly, installing Variable Speed Drive can regulate the speed of pump/fan according to actual cooling demand therefore save energy. 如果水泵/風扇的功率大於實際所需或日常供冷需求變動較大，可安裝可變速驅動器根據實際供冷需求調節水泵/風扇的速度，從而減少其能耗。
Reduce Water Pump Impeller Size 減少水泵葉輪尺寸	In case that the water pump is oversized, pumping energy consumption can be reduced by trimming down the size of pump impeller or replace it with a smaller one. 如果水泵的功率大於實際所需，可裁減其葉輪的尺寸或者更換一個較細的葉輪，從而減少其能耗。
Automatically Control Chilled Water Supply Temperature 自動控制冷水供水的溫度設定	Automatically adjust chilled water supply temperature according to outdoor temperature (e.g. increase chilled water supply temperature during night time or cool season) can reduce energy consumption of chillers. 根據室外溫度自動調節冷水供水溫度設定（例如在晚間或天氣較涼時調高冷水供水的溫度設定），從而減少冷水機的能耗。

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Operate more number of Cooling Tower 運行較多冷卻塔	<p>Operating more number of cooling tower when outdoor temperature is not high (e.g. during mild or cool season) can increase heat transfer effectiveness, reduce condensing water entering temperature and ultimately improve the energy efficiency of chillers.</p> <p>在室外溫度低的時候（例如在較暖和或清涼的季節），增加冷卻塔的運行數量可以增加熱傳導效率，減低冷凝器入水溫度，從而提高冷水機的效率。</p>
Install Automatic Tube Cleaning Device to Clean Condenser Tube 安裝自動管壁清理系統定期清理冷凝器管壁	<p>Install Automatic Tube Cleaning Device to regularly clean the fouling inside the condenser tubes so as to maintain heat transfer effectiveness and thus improve the energy efficiency of chillers.</p> <p>安裝自動管壁清理系統定期清理冷凝器管內壁的水垢可維持熱傳導效率，從而提高冷水機的效率。</p>
Share Cooling Demand with more Variable Speed Driven Chillers or Oil-free Chillers 運行較多變頻式冷水機或無油磁浮式冷水機分擔冷凍負載	<p>The optimum cooling efficiency of Variable Speed Driven chillers or Oil-free chillers is usually at their partial load condition (i.e. 30% to 80% loading). Therefore operating more of these chillers to share cooling demand under their partial load condition can improve cooling efficiency.</p> <p>變頻式冷水機或無油磁浮式冷水機通常在部分負載（例如三成至八成負載）的運行情況下可達到最佳製冷效能。因此運行較多這類冷水機分擔冷凍負載，以令到冷水機處於部份負載的運行狀態，可提高製冷效能。</p>

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Share Cooling Demand with lesser Constant Speed Driven Chillers  運行較少定頻式冷水機集中冷凍負載	<p>The optimum cooling efficiency of Constant Speed Driven chillers is usually at their full load condition (i.e. 70% to 90% loading). Therefore operating less of these chillers to share cooling demand under their full load condition can improve cooling efficiency.</p> <p>定頻式冷水機通常在接近全負載（例如七成至九成負載）的運行情況下可達到最佳製冷效能。因此運行較少這類冷水機可幫助集中冷凍負載，以令到冷水機處於接近全負載的運行狀態，可提高製冷效能。</p>
Automatically Control Fresh Air Intake  自動控制鮮風的入風量	<p>Automatically control fresh air intake for ventilation based on occupancy level by installing Variable Speed Drive control to Primary Air Handling Unit (PAU) supply air fan or controlling the degree of opening of fresh air damper can reduce cooling energy (e.g. reduce fresh air intake during low occupancy level in hot season can save significant amount of cooling energy).</p> <p>安裝可變速驅動器自動根據室內佔用人數控制鮮風機的入風量或自動調節鮮風閘的開關幅度，從而減少冷凍鮮風所需的能源（例如在炎熱的季節及室內佔用人數少的時候，減少鮮風入風量能有效減少冷凍鮮風所需的能源）。</p>
Free Cooling  鮮風供冷	<p>Automatically maximize fresh air intake by installing Variable Speed Drive control to Primary Air Handling Unit (PAU) supply air fan or controlling the degree of opening of fresh air damper during mild or cool season for free cooling can save cooling energy.</p> <p>在較暖和或清涼的季節，利用可變速驅動器自動把鮮風機的入風量調至最大或自動控制鮮風閘開至最大，引進鮮風的同時可作供冷，從而減少供冷所需的能源。</p>

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<p data-bbox="92 291 452 434">Reduce Differential Pressure Setting of Variable Speed Driven Chilled Water Pump</p> <p data-bbox="92 476 452 548">調低由可變速驅動器驅動的冷水泵壓差設定</p>	<p data-bbox="490 291 1802 391">During low cooling demand condition, the chilled water demand will decrease. The differential pressure setting of Chilled Water Pumps can be reduced so as to reduce the pump speed by Variable Speed Drive. Hence pumping power saving can be achieved.</p> <p data-bbox="490 434 1802 505">當供冷需求低的時候，冷水的需求亦會相對減少，在這情況下可以調低冷水泵的壓差設定，從而透過可變速驅動器減低水泵的運行速度，可減少其能耗。</p>
<p data-bbox="92 616 452 759">Reduce Air Duct Static Pressure Setting of Variable Speed Driven Air-Handling Unit (AHU)</p> <p data-bbox="92 802 452 873">調低由可變速驅動器驅動的送風機靜壓設定</p>	<p data-bbox="490 616 1802 716">During low cooling demand condition, the supply air demand will decrease. The air duct static pressure setting of Air Handling Unit (AHU) supply air fan can be reduced so as to reduce the fan speed by Variable Speed Drive. Hence supply air fan power saving can be achieved.</p> <p data-bbox="490 759 1802 831">當供冷需求低的時候，供風量的需求亦會相對減少，在這情況下可以調低送風機的靜壓設定，從而透過可變速驅動器減低風扇的運行速度，可減少其能耗。</p>