Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

District Cooling System in Thailand

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APEC Workshop on District Cooling and/or Heating Systems
Virtual Workshop on 17 November 2020

About Thailand

Climate

- Tropical climate
- The temperature is around 30 degree Celsius (86 degree Fahrenheit)

Population

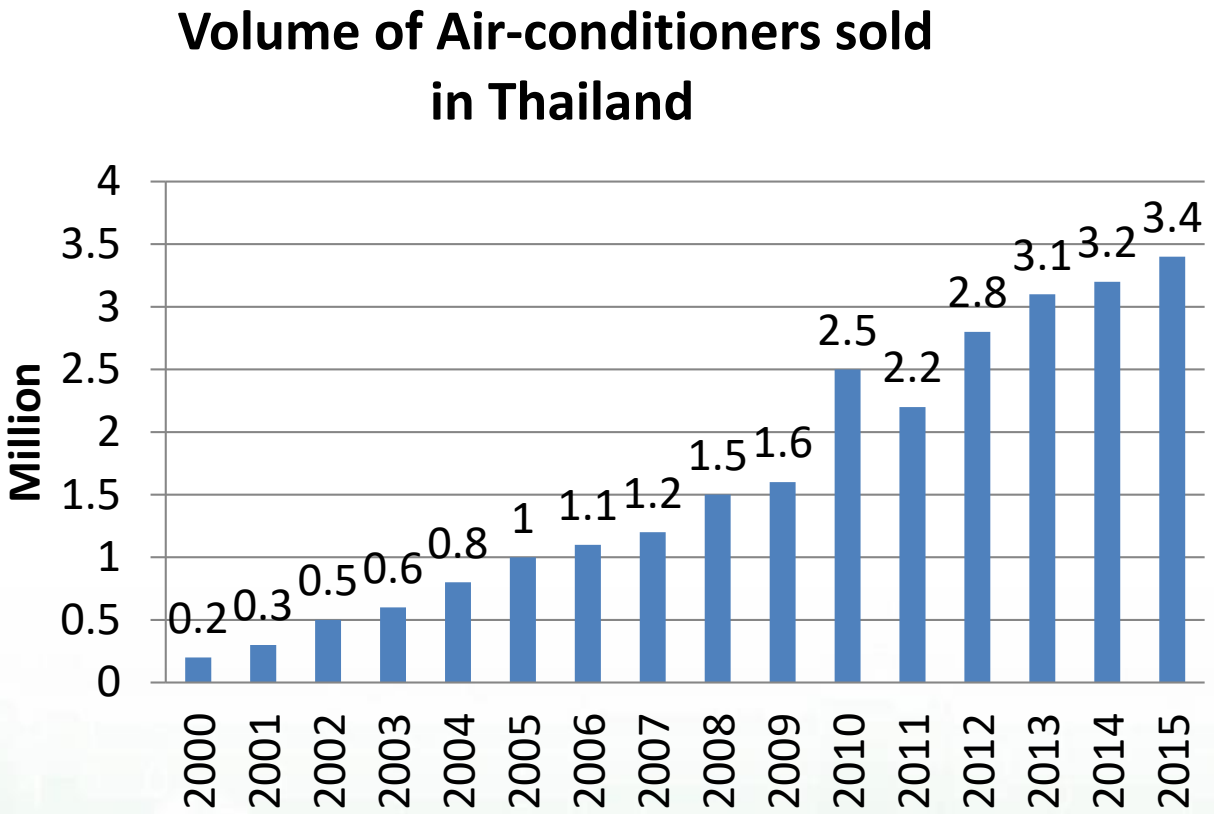
- 69.43 million (in 2018)

Energy (in 2018)

- Energy Production = 73.29 Mtoe (173.37% from 1990)
- Total primary energy supply = 135.81 Mtoe (221.98% from 1990)
- Electricity final consumption = 195.06 TWh (386.07% from 1990)
- Total CO2 emissions = 241.03 Mt (198.01% from 1990)

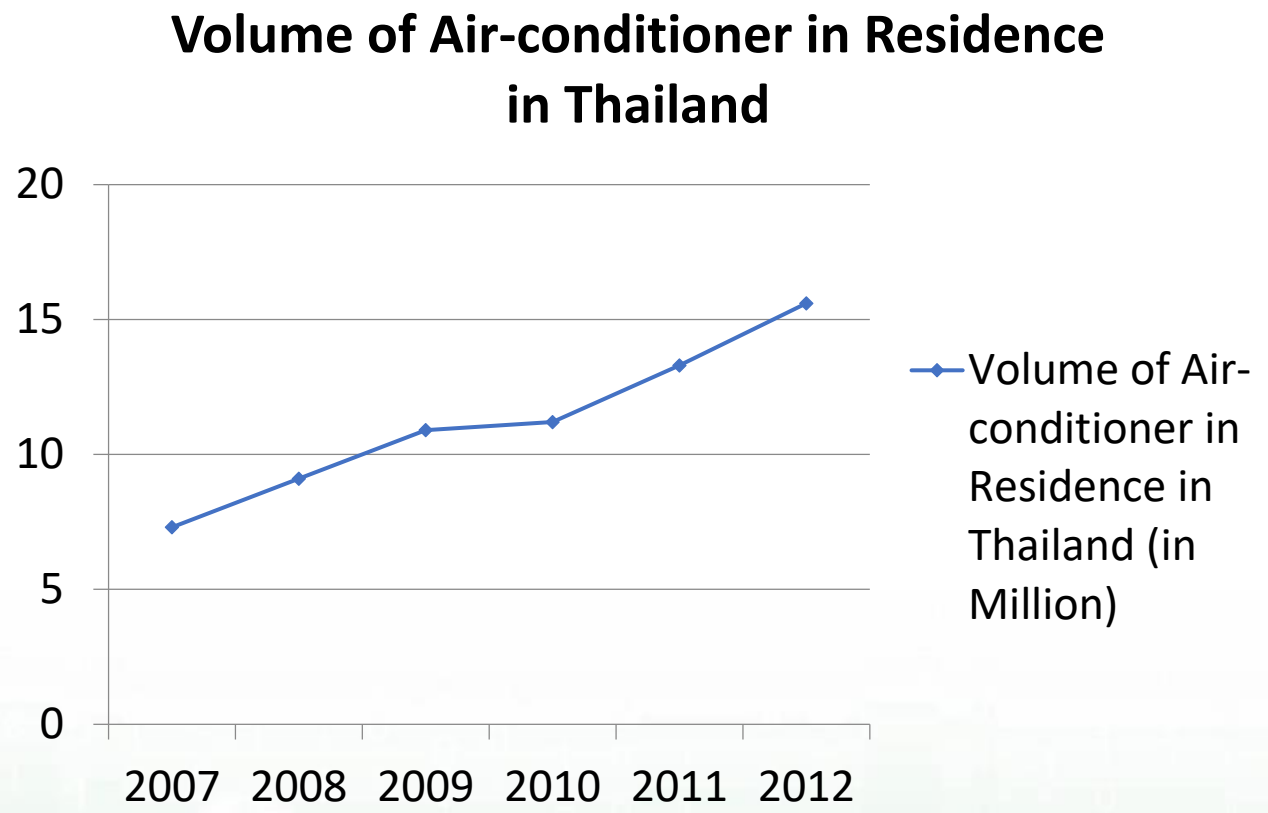
Source: International Energy Agency (IEA)

Status of using air-conditioner in Thailand



Source: National Statistical Office of Thailand

Status of using air-conditioner in Thailand (Cont.)

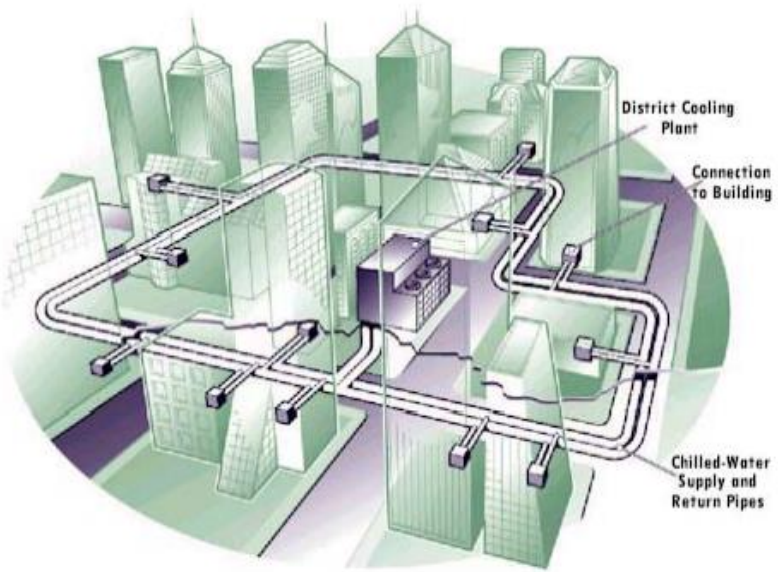


Source: National Statistical Office of Thailand

District Cooling system (DCS)

- DCS distributes cooling capacity from central source to multiple buildings
- Individual users do not need to install their own chiller plants
- A central chiller plant
- a pump house
- a distribution pipeline network

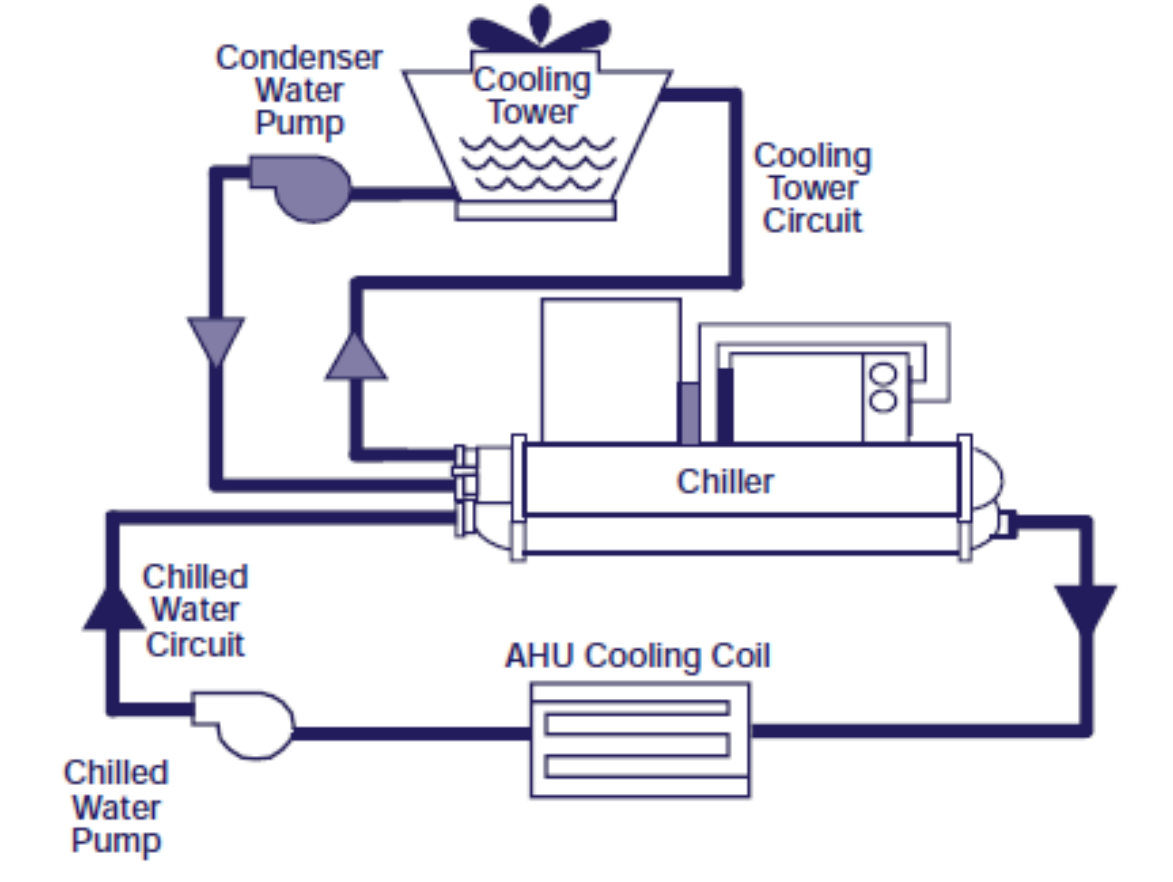
→ are required



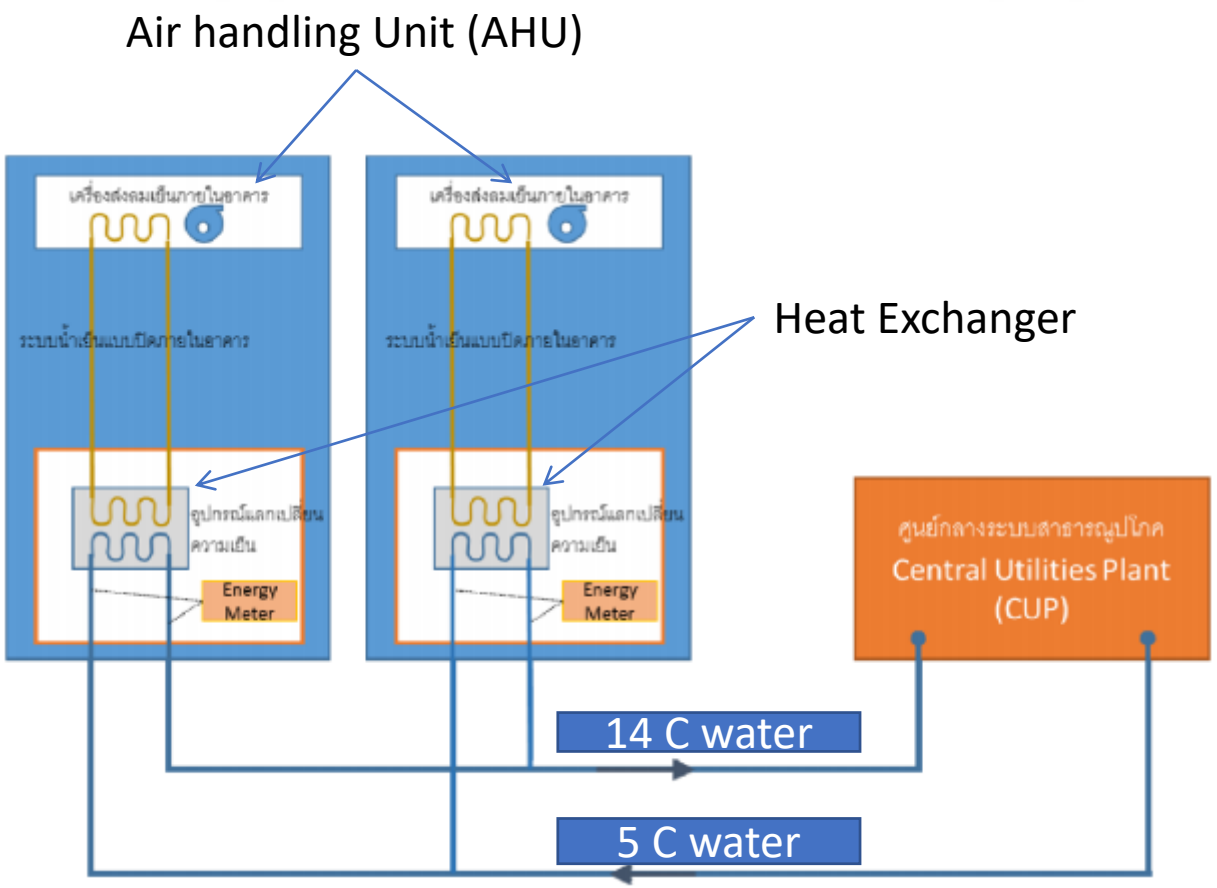
(DCS central chiller plant control room)

Chiller room inside the largest district cooling plan in the world, at The Pearl-Qatar. (Image courtesy Qatar Cool)

District Cooling system (DCS)



District Cooling system (DCS)

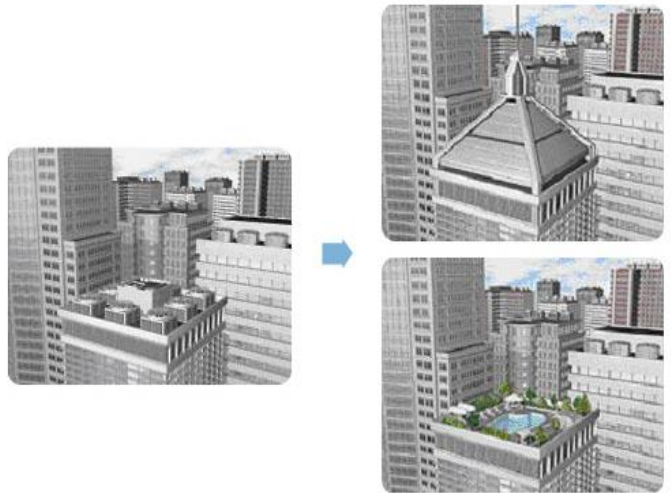


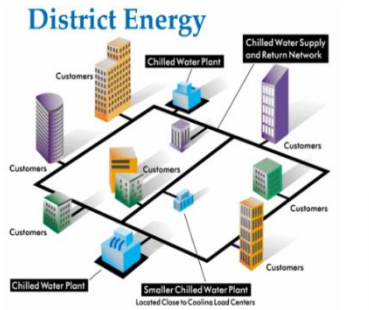
Benefits of District Cooling system

For Campus

- High Efficiency Plant (0.65 – 0.85 kW/Tr)
- 24/7 day High Grade Bld. & hi-eff energy usage
- No Additional Split-type unit in Campus
- Minimize Capital Investment
- Minimize Area of Utility Plant
- Ready to use
- High Stability & Reliability
- Central Maintenance
- Environmentally Friendly

  (Heat - Noise - Pollution – Green House Effect - Refrigerant Usage)
- Minimize the Growth of Power Plant





Benefits of District Cooling system

For Condominium

- No Condensing unit in Condo unit
- Reduce Transformer Capacity
- Reduce EE main feeder & Distribution
- Reduce MDB - DB – PB
- No noise & heat rejection from CDU
- Low Service & Maintenance
- Free waste heat to washing machine & clothes dryer

Highlighted District Cooling Projects in Thailand

Status : Completed, in operation

Project : Government Complex – Chaengwattanna, Bangkok

Function : Multi Office Buildings, Convention Center

Area : GFA 975,200 sqm

Cooling Capacity : 12,000 RT

Status : Completed, in operation

Project : Siriraj to Medical Excellence in South East Asis (SIME)

Function : Multi Buildings Hospital Campus

Area : GFA 238,000 sqm

Cooling Capacity : 6,000 RT

Highlighted District Cooling Projects in Thailand

Status : Design Development / Construction

Project : ONE BANGKOK

Function : Mixed Use Complex
(Hotel,Office,Condo,Hospital,Retail)

Area : GFA 1,830,000 sqm

Cooling Capacity : 38,000 RT

Status : Design Development / Construction

Project : THE FORESTIAS

Function : Mixed Use Complex
(Hotel,Office,Condo,Hospital,Retail,Residential)

Area : GFA 750,000 sqm

Cooling Capacity : 10,000 RT

Highlighted District Cooling Projects in Thailand

Status : Construction

Project : The New Tobacco Factory

Function : Multi Factory Buildings

Area : GFA 276,400 sqm

Cooling Capacity : 6,000 RT

Status : Design Development

Project : The Super Tower

Function : Mixed Use Complex

Area : GFA 320,000 sqm

Cooling Capacity : 10,000 RT

Thank you for Your attention