What is DCS?

District-Cooling System ("**DCS**") is a single-source cooling system used in multiple buildings which provides flexibility and convenience by allowing each building to consume as much or as little cooling as needed regardless of chiller's size or capacity. This single-source system is typically offered to many buildings for air conditioning or other purposes from a centralised cooling facility. In short, the DCS is a cooling plant that produces and distributes chilled water through a network of subterranean pipes to residential, commercial, and industrial facilities.

Why DCS?

Some of DCS's benefits are as follows:

1. DCS is adaptable, as each building can use as much or as little cooling as needed regardless of the chiller's size or capacity without any noise or vibration.

2. DCS saves space since the chiller plant is located distant from the customer's premises, additional space is available for other applications.

3. DCS enables for the installation of larger, more efficient chillers in places of the many smaller, less efficient chillers required in a conventional system.

4. DCS minimises carbon dioxide emissions; requires minimum space (mainly in the basement); lowers operating costs; improves efficiency (savings of 20% in utility charges); and contributes to the green building index.

5. DCS promotes the sustainability of an urban development. As per United Nations' Report on Sustainable Development 2018, the system can help save up to 50% on cooling energy.

6. DCS merely requires a small amount of chiller capacity in the event of high demand for air conditioning during the day.

How it works?

The chilled water is supplied to commercial, industrial, and residential buildings via an underground insulated conduit to cool the indoor air of the buildings. The water is then used by specially designed devices in each structure to lower the temperature of air travelling through the building's air-conditioning system. One cooling plant's output is sufficient to meet the cooling energy demands of dozens of buildings. DCS can be powered by electricity or natural gas, and it can run on either fresh or salt water. DCS, in addition to electricity and water, is a new form of energy service.

In DCS, we need to understand some of the basic important components.

What are its main components?

1. Central Chiller Plant
   - Generates chilled water via compressor driven chillers, absorption chillers or other sources i.e. free cooling from rivers or oceans.

2. User Station
   - Interfaces between DCS and the building's own air-conditioning circuits.

3. Distribution Network
   - Distributes chilled water from the cooling source(s) to the user stations via supply pipes and returns the same after the extraction of heat from the building's secondary DCS.

How is its application in legal context?

As per Boulevard Plaza Sdn Bhd v Gas District Cooling (Putrajaya) Sdn Bhd [2021] 1 MLJ 391, The Court of Appeal held that the phrase "*supplies including water, electricity, gas and telecommunications*" in Section 392(6) and (7) of the Companies Act 2016 ("**CA**") is inexhaustive which includes chilled water as part of "*supplies*" where it serves as a public utility. The word "*including*" stipulated in the said provision clearly suggested that it is inexhaustive and not limited to water, gas, electricity and telecommunication.

What are salient issues to be considered?

When it comes to DCS contract structure, this is the stage where parties are discussing and negotiating some salient issues as follows:

1. Chilled Water Tariff and Cost Recovery
   - The DCS tariff is measured based on the electricity tariff. Capital recovery, as well as operational and maintenance costs and earnings, are all included in the tariff.
   - There is no standard DCS tariff structure in Malaysia but commonly, the system is developed based on the following structure:
     (i) One-off connection fee;
     (ii) Monthly contractual demand charge; and
     (iii) Consumption energy charge

- Typically, both customer and supplier will need to negotiate on the charges and its revision so as to ensure that both parties in a win-win situation with regards to these commercial terms.

2. Cooling Load Density
- An accurate estimation of the cooling load density of development parcels (BTUh/sq ft or kWh/sq m) is necessary to avoid any increase of capital cost for the service.

3. Infrastructure Specifications
- Higher equipment and material specifications are needed to mitigate any financial risk in the event of disruption of service.

4. Purchase of the new building will always subject to the DCS and the Purchaser is advisable to verify the terms that may be offered by the supplier in order to ensure that this DCS contract will not give any contractually risks to the Purchaser. In a typical outright sale, once the Purchaser has completed the sale, it is required to sign the standard contract for DCS by the supplier and to negate the terms which are not favourable to the Customer, it is advisable for the Purchaser to ensure that they are entitled to negotiate, amend or vary any terms of the DCS contract before executing the same, notwithstanding the completion of the sale.

Conclusion

As a conclusion, DCS which mainly promotes energy costs reduction, has grown in popularity in many commercial complexes and governmental institutions since the mid-1990s in Malaysia. Nevertheless, a comprehensive feasible study with a wide-ranging consultation will have to be undertaken by the parties to avoid any unnecessary risk in applying this system including contract negotiation with the supplier as the DCS is a long term system for the Customer.

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