**CLAIMS**

1. A method of determining a type of phase-change material in encapsulated form for use in a latent thermal energy storage system for a district cooling system, the method comprising:

assessing a set of user's requirements and user's constraints; and

determining a set of variables that matches the user's requirements and/or addresses the user's constraints, wherein the set of variables include type of phase-change material and its properties, type of encapsulation of the phase-change material; packing density of the encapsulated phase-change material in the latent thermal energy storage system; and operating flow of the latent thermal energy storage system,

wherein the type of phase-change material is selected from a mixture of n-Tetradecane and n-Hexadecane, wherein the amount of each of n-Tetradecane and n-Hexadecane is selected to provide a phase-change temperature in a range between 2$^{o}$C and 12$^{o}$C; and

wherein the operating flow is determined by obtaining an objective function using the following equation:

$$\text{Objective function: } f_{obj}(L) = \sum_{j=1}^{n} \eta_j \left(l_j\right),$$

wherein the subscript n refers to number of chillers installed in the district cooling system;

$\sum_{j=1}^{n} \eta_j \left(l_j\right)$ stands for efficiency of the j$^{th}$ chiller at its load condition lj; and

L= (l1, l2,… … lj) is to be within a predefined operating domain D, wherein D refers to a set of operating range of the parameter L for which the objective function is to be minimised to obtain the most optimal condition.

2. The method according to claim 1, further comprising identifying a most efficient operating flow for charging and discharging of the latent thermal energy storage by minimising the objective function using the following equation:

$$L^{*} = \left(\min_{L \in D} f_{obj}(L)\right)$$

3. The method according to claim 1 or 2, wherein the phase-change material is encapsulated in a receptacle made of high-density polyethylene.

4. The method according to claim 3, wherein the phase-change material is encapsulated in the form of a connected-ball-column encapsulation type.

5. The method according to claim 4, wherein the connected-ball-column encapsulation type comprises the receptacle and a combined press-fit screw-lock cap extending from the receptacle for filling and sealing of the phase-change material within the receptacle.