

SUSTAINABLE INNOVATION

The focus on energy is unyielding. While alternative energy is certainly important, not using energy will insure its future. Neal Phase Change Technology (NPCM) offers a tremendous potential to eliminate the use of energy with energy thermal storage technology that will reduce not only how much energy you use, but the time of day required to use it.

EMERGING TECHNOLOGY

NPCM can be applied to billions of square feet of retail and office space, industry, homes and even livestock farms. The contribution of NPCM, while certain to shift and reduce energy loads based on all past and current studies, have only begun to scratch the market potential for this emerging technology.



Neal Energy Cap / NPCM

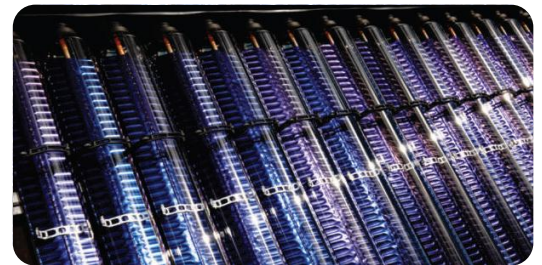
SHIFTING LOAD & INCREASING EFFICIENCY

Because the “cooling load” in almost all buildings peak at or near the hottest time of the day...the air conditioning systems are employed at a temperature when they are the least efficient and operating during a period when the electrical companies are least capable to supply the energy needed. NPCM would “shift” the peak loads by employing stored energy.

Because a typical HVAC system is 20 to 35% less costly to operate in the evening hours vs. peak periods, using “off-peak” cooling strategies can not only save energy, but shift precious load from the nation’s energy grid to “off taxed” periods. NPCM also takes advantage of “economizer” cycles to utilize non-mechanical cooling cycles to shift cooling loads increasing potential energy savings further into as much as 40 to 50%.

**THE LITHIUM BATTERY EQUALIVALENT
THE FUTURE OF SOLAR THERMAL SYSTEMS**

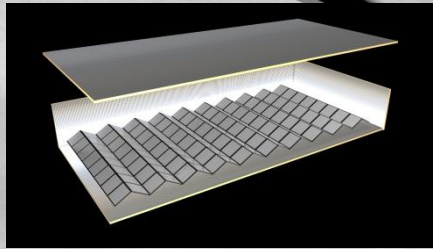
Offset this same strategy for heating with solar thermal systems and you have the equivalent of the lithium battery for heating storage. Solar thermal systems now have a means to store heat collected during the day to offset demands for heat at night. Solar Thermal systems, while actually more efficient than Solar Photovoltaic systems, have not had the means to store so much energy in such a small space with so little weight. Consequently, they have not typically been employed as the primary heating system in a building. NPCM can change this.



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Existing phase change technology is available that has had some interest and attention in the past and present. Existing technologies marketed today include salts, paraffin and bio products. Some of these products employ "oil" and "animal fats" that, while having a capacity to store energy, lack the most desirable transition temperature and energy storage capacity. Technologies employing fats and oils lack application flexibility due to their inherent flammability characteristics.

NPCM has a desirable transition temperature with 50 to 80% more BTU energy storage capacity than its competition AND is resistant to flame and smoke spread giving it more application opportunities in the real market.



TRANSITION TEMPERATURE:

80 degrees Fahrenheit

LATENT BTU CONTENT:

84 BTU/lbs. @ 80 degree F

SOLUTIONS that WORK

The Neal Energy Cap™ and NPCM is an affordable, practical solution to our nation's energy crisis. Our products are consistent with the U.S. government's goal to increase the nation's energy security through the development of innovative energy conservation technologies.

Active System Advantage

A most notable attribute to NPCM is that it is an "active" system in lieu of a "passive" technology. The patented "Active System" gives NPCM a defined and positive energy charge at the most desirable period of day or evening which add up to the greatest energy advantage over existing technologies. These advantages make it the most viable contender in the thermal storage market by offering application flexibility, proven performance and inherent product safety.

SUPPORT:

- Application Support
- Detailed Drawings
- Technical Support
- Installation and Setup
- Maintenance
- Warranty



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