

# LEED v4 Is Here:

## What does it mean for you?

Tim Griffin, PE, LEED AP, IDEA USGBC Liaison

**Editor’s Note:** “LEED + District Energy” is a quarterly column providing information about the U.S. Green Building Council’s LEED rating system and how it applies to buildings served by district energy systems.

When the U.S. Green Building Council (USGBC) released its LEED (Leadership in Energy and Environmental Design) 2009 rating system, it revealed bold plans to issue the next version in three years, to be aptly titled LEED 2012. This was supposed to be the start of the council’s three-year cycle of rating system updates as well. Alas, these plans proved too ambitious. After lengthy comment review periods and several revisions, the latest LEED version was released in November at the Greenbuild International Conference and Expo held in Philadelphia, just beating a 2014 release date. Nice to know I’m not the only one who struggles with deadlines.

This latest version, the fourth, simply titled LEED v4 – who needs those restrictive dates anyway – represents significant changes from LEED 2009. The main categories of rating points, which have been consistent since the early days of LEED, have now been expanded from five to nine. There are new credits and prerequisites, and existing credits have been moved throughout the system. Overall, the goals of the changes in LEED v4 have been twofold: first, to simplify the pro-

gram as much as possible and, second, to continue to drive the construction industry toward the ultimate objective of having zero impact on the environment. This version is gambling on making a big step toward that second goal.

### DISTRICT ENERGY IMPACTS

Relative to the first goal of simplification, the USGBC made a change that should benefit our industry. In the past, the rules for applying LEED to a building receiving energy from a district energy system were always covered in a separate district energy guidance document. In LEED v4, however, that guidance is now included in the *LEED Reference Guide for Building Design and Construction* – the general reference guide encompassing all LEED rating systems for new construction and major renovations. This is the most significant change in LEED v4 pertaining to district energy. It certainly makes it easier for LEED professionals to identify and understand the impact of district energy use on their applications for certification.

The LEED v4 rating system also recognizes the ability of large in-building chilled-water systems to save water through innovative approaches to makeup water for cooling towers. Unfortunately, the USGBC still has not recognized the significant ability of district energy systems to accomplish this environmental goal and thus has not provided a means

for customer buildings to take advantage of the water savings within the system serving them. The opportunities for a project to receive points for connection to district energy have always been limited to the prerequisites and credits found in the Energy and Atmosphere category of the LEED for New Construction and Major Renovations rating system. As such, points from other areas have not been offered for district energy. During the LEED v4 review process, in which I was involved, there was talk of expanding the availability of points for connection to district energy beyond this single category to others, such as Water Efficiency. It did not happen. Perhaps we can get that included in future versions.

|||||  
**IN LEED V4, DISTRICT ENERGY GUIDANCE IS NOW INCLUDED IN THE GENERAL REFERENCE GUIDE ENCOMPASSING ALL LEED RATING SYSTEMS FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS.**  
 |||||

### THE SPECIFICS

Since the release of LEED v4, I have been reviewing it in detail to understand how the changes will impact our industry. Table 1 compares the district energy-related categories in LEED 2009 and LEED v4. Within the confines of this quarter’s column, we do not have time to go into detail on the new version’s potential impact but will do so in future columns. For now, here is a summary of some of the highlights in affected rating categories:

#### Energy Efficiency

There are significant changes in this area that will impact users of district energy. First, the proposed building will now be evaluated in terms of the energy efficiency requirements of the 2010 version (instead of the 2007 version) of the American Society of Heating, Refrigerating and Air-Conditioning (ASHRAE) Standard 90.1. Each new version of Standard 90.1 increases the requirement for overall building energy efficiency. Thus in the pursuit of LEED certification,

the need for energy efficiency help from the district energy system, or the corresponding drag on energy efficiency from that system, will have an even bigger impact moving forward.

Second, the methods for accounting for energy efficiency in a district energy system have also undergone changes. LEED 2009 includes two “options” for accounting for system energy efficiency. Option 1 holds the impact of district energy neutral. This is advantageous when a building customer is tying into a relatively inefficient district energy system. However, this option somewhat limits the LEED points that a proposed building’s designers and owners can achieve through energy efficiency. Option 2 requires full accounting for the actual efficiency of the district energy system as it impacts a proposed building but allows the building to also gain full credit, in terms of points, toward its LEED goals. Each option has associated point ceilings and floors.

This has all changed in version 4. Instead of two “options,” there are now three “paths.” In addition, all of the point floors and ceilings are gone. The options have been labeled Path 1, 2 and 3. Path 1 is mostly identical to LEED 2009’s Option 1, with the exception that there are no point ceilings that cannot be exceeded. Path 2, as well, is almost identical to

LEED 2009’s Option 2, with the exception that there are no point floors that have to be achieved before this path can be utilized. Path 3, however, is new. It is designed for fairly simple district energy systems. With Path 3, the USGBC allows LEED applicants to determine average district energy system efficiency through a spreadsheet called a “DES Allocation Calculator.” (It is provided on the council’s website at [www.usgbc.org/resources/des-allocation-calculator](http://www.usgbc.org/resources/des-allocation-calculator).)

I have reviewed the spreadsheet but have not seen it applied to an actual district energy system as of yet, so I am unsure of its potential impact. Since the old Options 1 and 2 are still available, and improved since the point floors and ceilings have been removed, I cannot see how a third option will have a negative impact for projects connected to district energy systems. Look for future columns in this magazine that will explain its potential upside.

#### Demand Rates

The USGBC has a stringent “fuel neutrality” principle that it inherited from ASHRAE going back to the 1970s. This is a subject that I have explained in great detail in previous columns. This principle prevents a district energy system with a preferential utility rate for

electricity, natural gas, etc., from passing this benefit on to the proposed building for energy modeling. In the development of LEED 2009, we were able to convince the USGBC that this benefit needed to be included when district energy systems utilize thermal storage systems to shift loads to off-peak hours. The USGBC agreed and incorporated this change into LEED 2009. Version 4 still includes this provision but has expanded it further to include other systems within district energy operations that take advantage of load shifting. Perhaps this is intended to open up opportunities for systems that can utilize gas and steam-driven chiller technologies to reduce peak electric demand.

#### No Chlorofluorocarbons

LEED 2009 allows district energy systems with equipment containing CFCs to utilize a lifecycle cost study as one option to extend the phaseout of this refrigerant. This option has been dropped from version 4.

#### Commissioning

LEED 2009 criteria require the commissioning of a district energy system when a proposed building served by that system is pursuing enhanced commissioning points. In LEED v4, however, the system only has to be commissioned if the proposed building is using Path 2 or Path 3 for its energy model.

#### Renewables

All of the requirements for and impact of accounting for renewable energy use within the district energy system are the same as before. However, there is one significant overall change: LEED 2009 allows up to seven points for renewable energy use, while LEED v4 has reduced this total to three.

#### SUMMARY

Much thought still has to be given to the overall impact of the changes mentioned above. However, I have two early takeaways on how these changes will affect our customers’ pursuit of LEED certification:

1. In general, energy efficiency is becoming an increasingly significant factor

**Table 1. LEED v4: Impact of Changes in Energy and Atmosphere Credits for District Energy Users.**

LEED for New Construction – Energy and Atmosphere Credit Areas	LEED v4	LEED 2009	Impact of Changes for District Energy Users
Basic Commissioning	Prerequisite 1	Prerequisite 1	None
Minimum Energy Efficiency	Prerequisite 2	Prerequisite 2	Moderate
Basic Metering	Prerequisite 3 (New)	NA	Minimal
Refrigerants	Prerequisite 4	Prerequisite 3	Minimal
Enhanced Commissioning	Credit 1	Credit 3	None
Enhanced Energy Efficiency	Credit 2	Credit 1	Moderate
Enhanced Metering	Credit 3	Credit 5	Minimal
Demand Response	Credit 4 (New)	NA	None
Renewable Energy	Credit 5	Credit 2	Significant
Enhanced Refrigerants	Credit 6	Credit 4	None
Green Power	Credit 7	Credit 6	None

Source: Compiled by Tim Griffin.

in LEED applications. This trend was expected and will only increase in the future. What this means is that it will be increasingly difficult for buildings receiving thermal utilities from district energy systems to achieve their LEED certification goals unless those systems have a significant component of combined heat and power, utilize renewable energy or have a large thermal energy storage component.

2. The value of utilizing renewables for LEED points has decreased. Unfortunately this means that several of our member facilities that have been passing seven points on to a customer building pursuing LEED now can only pass three using the new rating system version. This negatively impacts the overall value of their customers' proposals.

We do have time to prepare for these changes. The USGBC is allowing LEED applicants the option to continue using the LEED 2009 rating system as long as they register (i.e., begin the process) before summer 2015. It is likely most will take this option as the hurdles

for certification are lower. However, next summer will be here before you know it. As the character Wiress said in the blockbuster *The Hunger Games: Catching Fire*, "Tick, tock, tick, tock." 



**Tim Griffin, PE, LEED AP**, is IDEA's liaison with the U.S. Green Building Council and serves on IDEA's board of directors. He is a principal and branch manager with RMF Engineering Inc., a firm specializing in district energy system planning, design and commissioning. A registered engineer and a LEED Accredited Professional, Griffin has a Bachelor of Science degree in mechanical engineering from North Carolina State University and a Master of Business Administration degree from Colorado State University. He authored the book *Winning With Millennials: How to Attract, Retain, and Empower Today's Generation of Design Professionals*. He may be reached at [tgriffin@rmf.com](mailto:tgriffin@rmf.com).

## USGBC Wins Battle With the Military

Just before the end of 2013, President Obama signed the National Defense Authorization Act (NDAA) for Fiscal Year 2014. The news media trumpeted how this bill addressed sexual assaults in the military and loosened restrictions on transferring Guantanamo Bay detainees. This bill, however, also represented a significant victory for the U.S. Green Building Council's LEED program.

The four branches of the military and other areas of the Department of Defense (DOD) own and operate almost 300,000 buildings, making the DOD the largest owner and operator of buildings in North America. The DOD also owns more LEED-certified buildings than any other federal agency.

Anti-LEED legislators and lobbyists managed to include language in the NDAA for both fiscal years 2012 and 2013 preventing the DOD from expending any funds to achieve LEED certification. Although certification was allowed if it involved no additional cost to the DOD, the intent was to remove LEED from use on all military facilities.

In a major shift for fiscal year 2014, however, the NDAA now permits the military's use of funding on LEED for third-party green building certification. As one of the more visible battles to limit LEED's use in construction, this is a big win for the USGBC.

- CHILLED WATER • HOT WATER •
- STEAM • CONDENSATE •



experience the  
**advantage**



- BEST CHOICE AND VALUE
- THE SUPERIOR EFFICIENT SYSTEM
- LONG-TERM SAVINGS & QUICK ROI
- USE WITH RAW PIPE AND SAVE
- ALTERNATIVE TO PREINSULATED

**GILSULATE 500XR** <sup>®</sup>

800-833-3881 • [www.gilsulate.com](http://www.gilsulate.com)