

International District Energy Association Campus Energy Conference

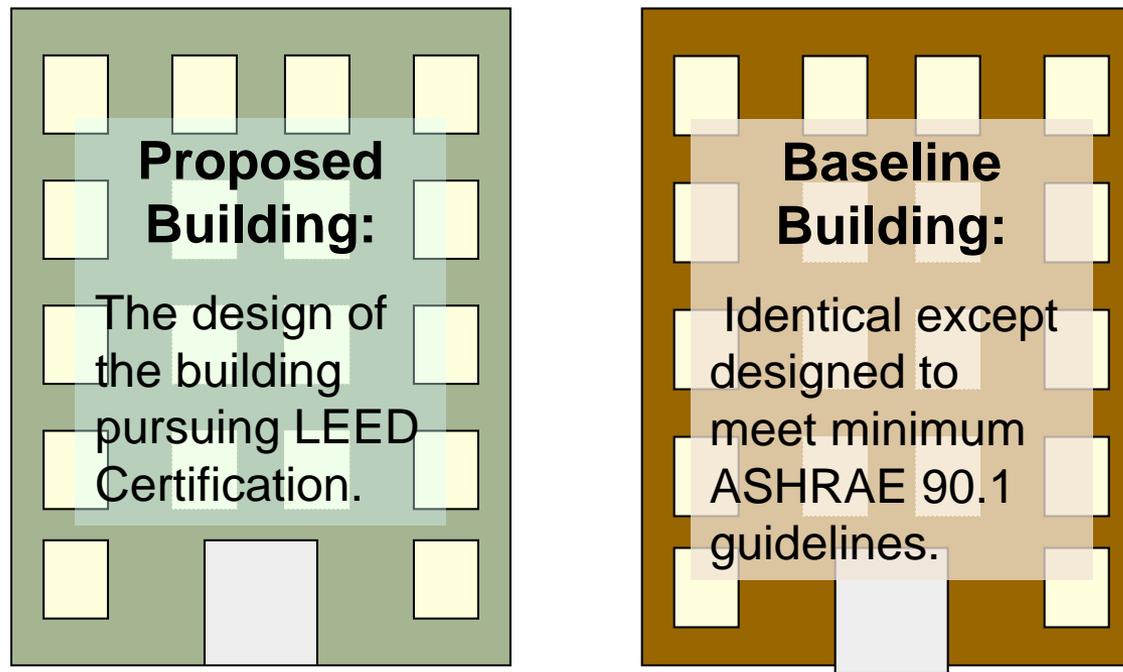
District Energy
Alternate Pathways for LEED Credits
Leveraging PEER

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LEED & District Energy

Leveraging DES to Achieve LEED Energy Credits (EA)

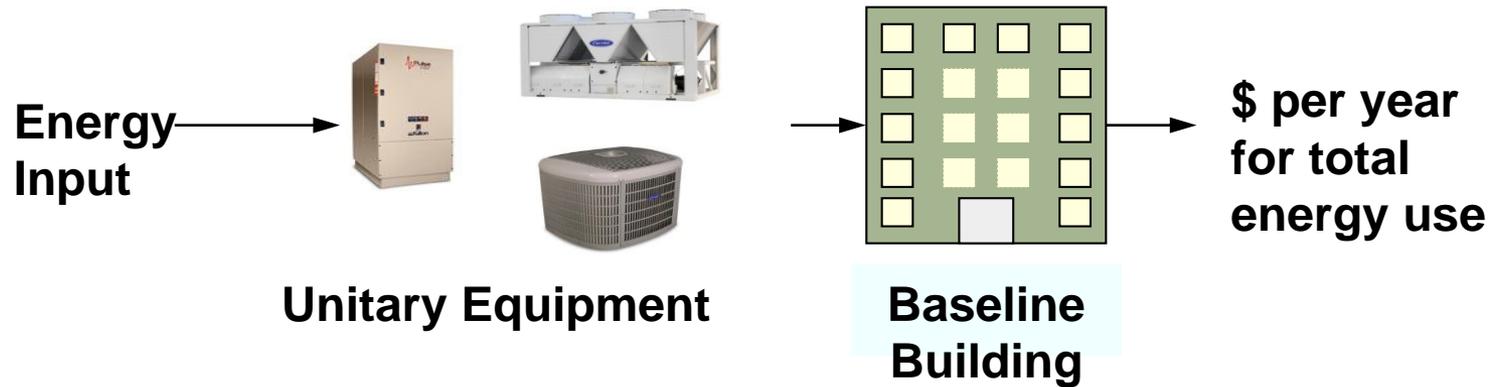
- LEED Energy Credits ~ 19 out of a possible 110 total points
- DES guidance provides methods for leveraging DES to achieve these points



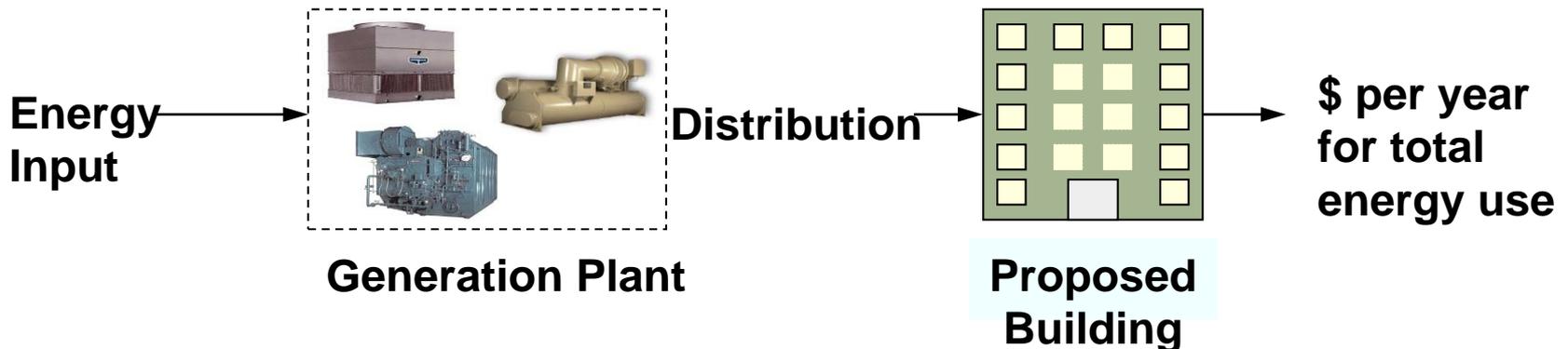
ENERGY USE IN DOLLARS

LEED DES CREDIT APPROACH

STEP 1: Model baseline conditions using ASHRAE 90.1 to determine energy use and costs



STEP 2: Model proposed building conditions with district energy to determine energy use and costs



Weaknesses of Current DES Approach

- Points awarded based on modeled cost improvements above baseline, so disconnect between proposed and actual performance
- Modeling is very complex and time consuming for both the applicant and GBCI reviewer
- In some cases application of DES credit approach is a disincentive
- The current methodology is based solely on cost thereby avoiding other performance measures
 - Reliability & resiliency
 - Water use
 - Emissions
- Lack of confidence in the data
- Building Engineers have an incentive to fight it

USGBC DES Task Group

Purpose & Goals

- Outline and integrated approach to addressing DES in LEED and PEER
- Develop new DES guidance and credits for PEER
- Propose revision to DES credit pathways in LEED

Stakeholders

- Campuses
- Utilities
- Canadian USGBC

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PEER & District Energy



OVERVIEW

- PEER and CHP

PEER is...

- A rating system for energy generation, transmission, and distribution
- Modeled after LEED
- Developed by the U.S. Green Building Council (USGBC) and Green Business Certification, Inc. (GBCI)



RELIABILITY & RESILIENCY (RR)

- Interruption metrics and benchmarking
- Damage and exposure prevention
- Islanding and long/short term backup

ENERGY EFFICIENCY & ENVIRONMENT (EE)

- Air emission intensity
- Water use and solid waste recycled
- Renewables

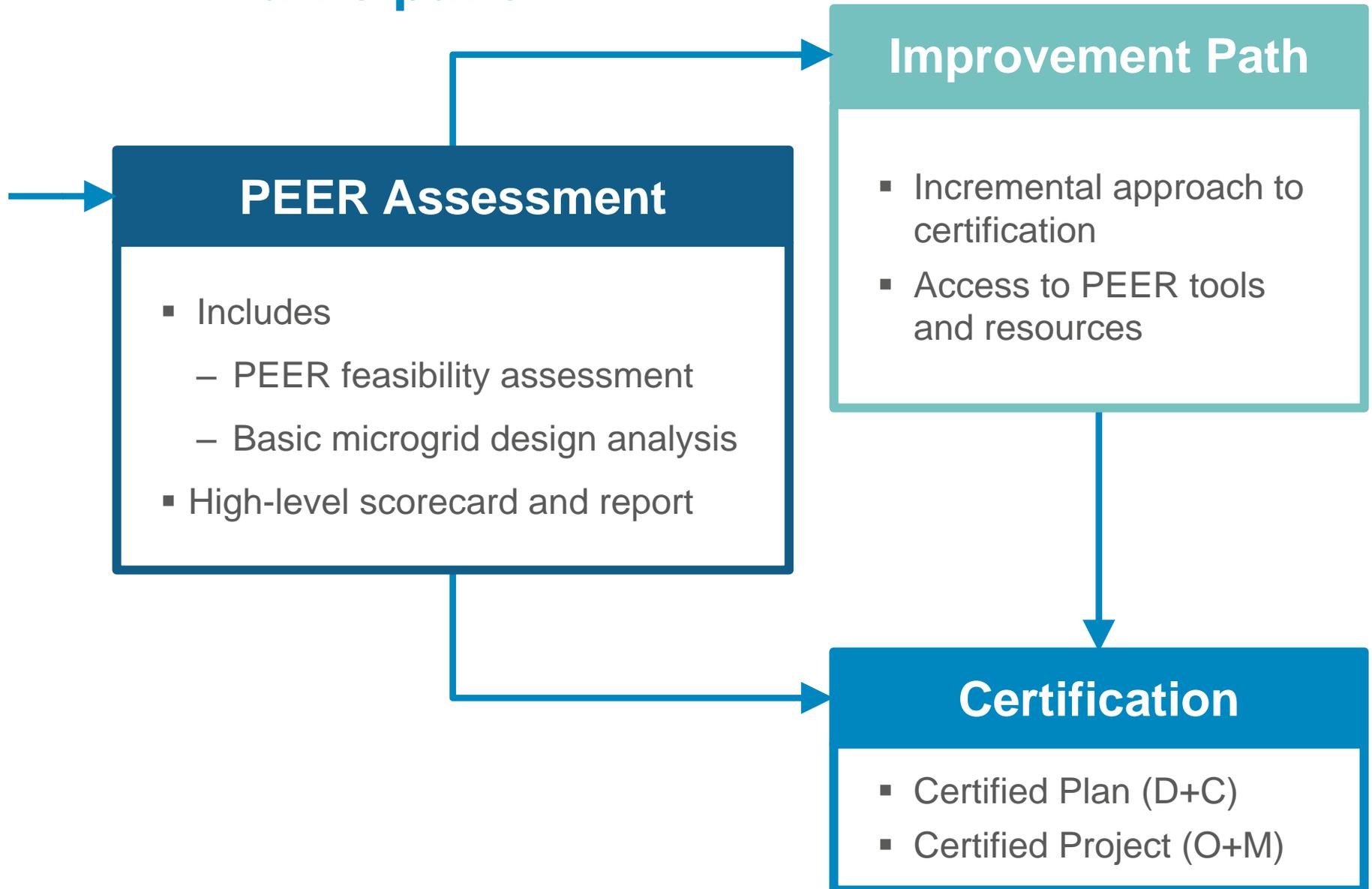
GRID SUPPORT & SERVICES (GS)

- Load optimization
- Dynamic pricing
- Net metering, interconnection policies

OPERATIONS, MAINTENANCE & SAFETY (OP)

- Opportunity cost and value analysis
- Emergency response planning
- Meters, energy management systems and controls

PEER Participation



An aerial night photograph of a city, showing a dense grid of streets and buildings illuminated by warm yellow and orange lights. The lights create a complex pattern of bright spots and lines against the dark background of the city. The perspective is from a high angle, looking down on the urban landscape.

COMING UP

- PEER v2 with refined thermal pathways
- LEED ACP for PEER District Energy

PEER Project Types

Version 1

| | Electricity Only |
|--|------------------|
| Utility Microgrids & Municipal Utilities | X |
| Campuses & Buildings | X |
| Suppliers | X |

- DES+CHP eligible (electricity performance only)

PEER Project Types

Version 2 (Under Development)

| | Electricity Only | Electricity + Thermal |
|--|------------------|-----------------------|
| Utility Microgrids & Municipal Utilities | X | X |
| Campuses & Buildings | X | X |
| Suppliers | X | X |

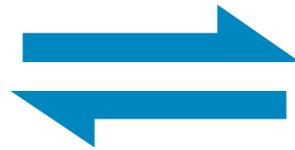
- DES+CHP eligible (electricity + thermal performance)
- v2 available Q2 2017

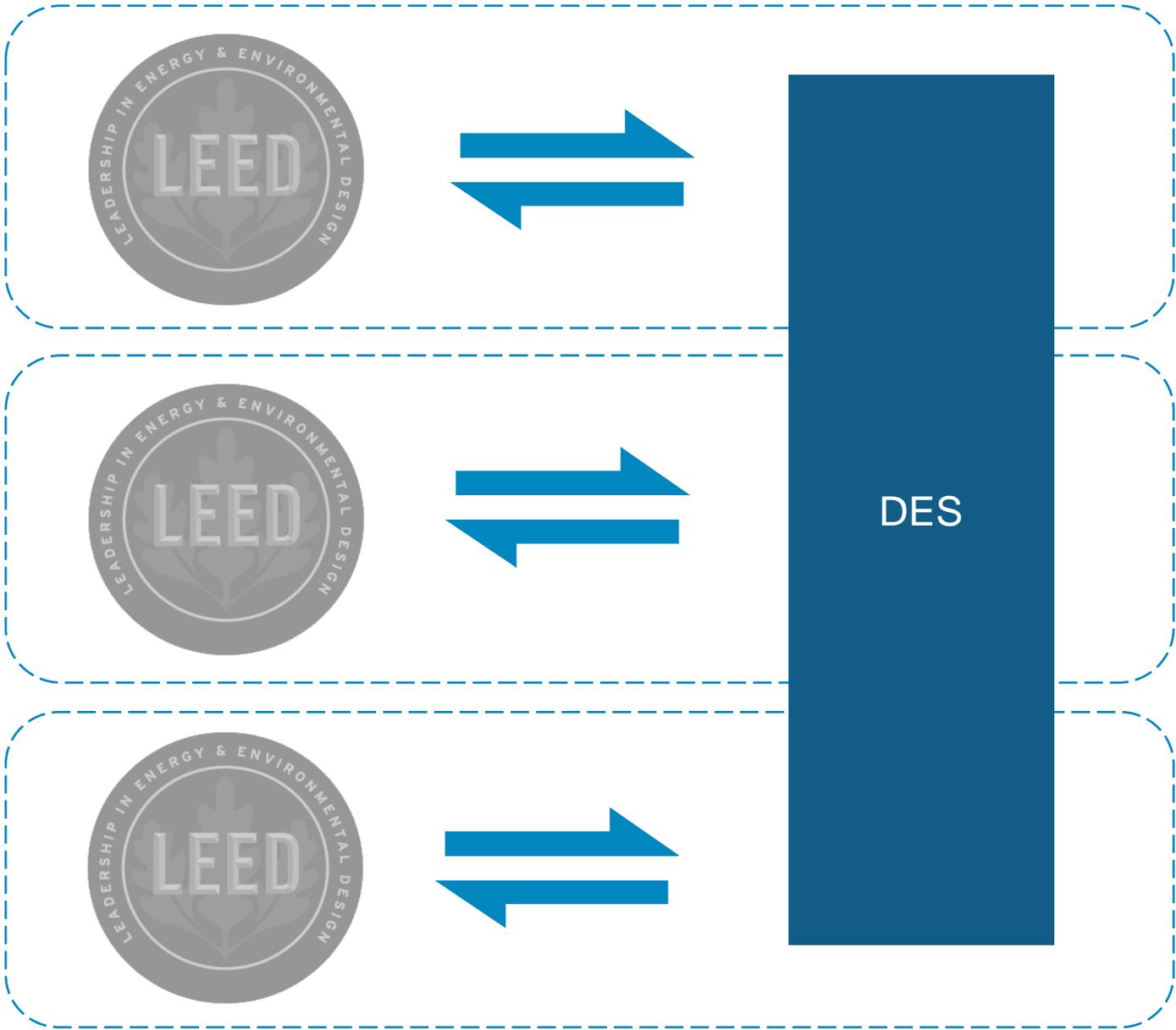
PEER Project Types

Version X

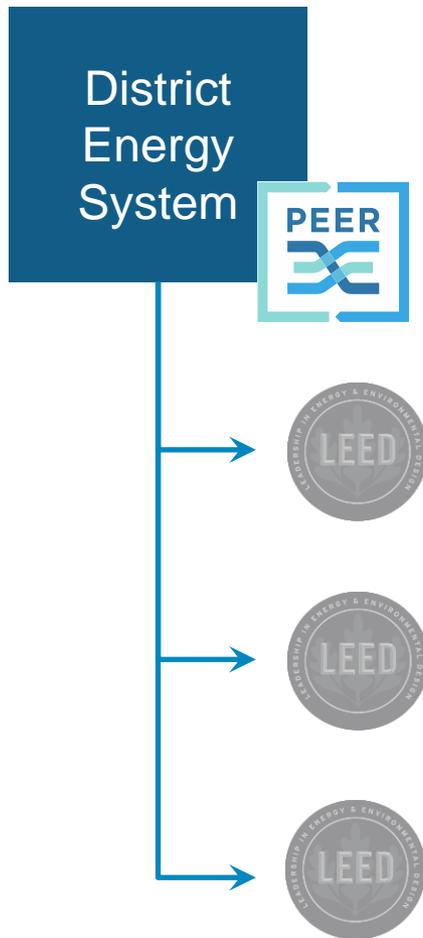
| | Electricity Only | Electricity + Thermal | Thermal Only |
|--|------------------|-----------------------|--------------|
| Utility Microgrids & Municipal Utilities | X | X | X |
| Campuses & Buildings | X | X | X |
| Suppliers | X | X | X |

PEER District Energy for LEED points





PEER District Energy for LEED points



1. DES receives PEER score:
 - Air emissions intensity
 - System energy efficiency
 - Source energy intensity
2. LEED building earns additional points based on:
 - % of building load served by DES
 - PEER score

PEER District Energy for LEED points

- In addition to points for building efficiency
 - Up to max points available for EA Credit Optimized Energy Performance (EA-C1)
 - Cannot be used to achieve EA Prerequisite Minimum Energy Performance (EA-P2)
- DES with *and* without CHP eligible for PEER Score
- Developed by the LEED and PEER District Energy System Task Group
- Currently under review by LEED EA Technical Advisory Group

GET INVOLVED

- **Learn more** at PEER.GBCI.org
- **Join** as a PEER Participant for certification
- **Comment** on the PEER v2 draft (available Q1 2017)
- **Volunteer** for the LEED and PEER DES Task Group

CASE STUDIES

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Summary