



**Deep Energy Retrofit Project (DER)
Case Studies from IEA Annex 61**
15 September 2016

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Purpose of Case Study Documentation

- The typical energy efficiency project results in 15% - 20% reduction in energy use intensity. This will not be sufficient for U.S. federal sector projects to reach energy, water and GHG reduction goals.
- DER projects – 50% or more energy reduction – require innovative approaches
 - Project design- Use of least cost path ECM bundles instead of single measures, combination of high and less efficient measures
 - Project financing: combined funding private/public to leverage scarce appropriated funding, but DER projects must meet ESPC/UESC financial requirements and must take a total project – not staged refurbishments - approach
 - Project management: Managing combined construction and ESCO contractors
- DER case studies show that it is feasible to reduce energy by more than 50% cost-effectively
- Documentation of case studies in the IEA Annex 61 Guide to:
 - Provide design guidance for the DER ECM bundles
 - Suggest financing models especially the usage of advanced DER EPC
 - Help formalize and provide bankability of the DER value propositions
 - an efficient, healthy, comfortable, reliable, well-maintained, sustainable and secure building is worth more
 - Lessons learned: assistance with project management and making sure buildings perform as designed

Case Study Presentation Session

Kirsten Engelund Thomsen (Aalborg University, Denmark) provides an overview of 26 case studies and some specific project examples that show DER is feasible and profitable.

Kinga Porst Hydras (GSA), Jay Tulley (POM AG), Dusty Wheeler (Honeywell) summarize some individual projects, showing how to do it:

- Present and discuss DER approaches, success stories, and lessons learned
- Emphasis on:
 - Technical solutions to reduce energy consumption by at least 50%
 - Cost effectiveness of the approach(es)
 - Business and financial models used