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A PROPOSED LEAN DECISION-MAKING PROCESS FOR BUILDING ENERGY RETROFITS

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Some Definitions to Begin

- Building Retrofit: Changing or updating some or all of a building to improve its performance
- Building **Energy** Retrofit: Replacing, restoring, or updating one or more building systems in order to reduce the energy consumed by the building, generally on an annual basis
- Leaner: Less wasteful, more inclusive, and more transparent
- Retrofit Decisionmaking Process: A **system** comprising the **people** that decide which building systems to change and **how** those systems will change

Motivation

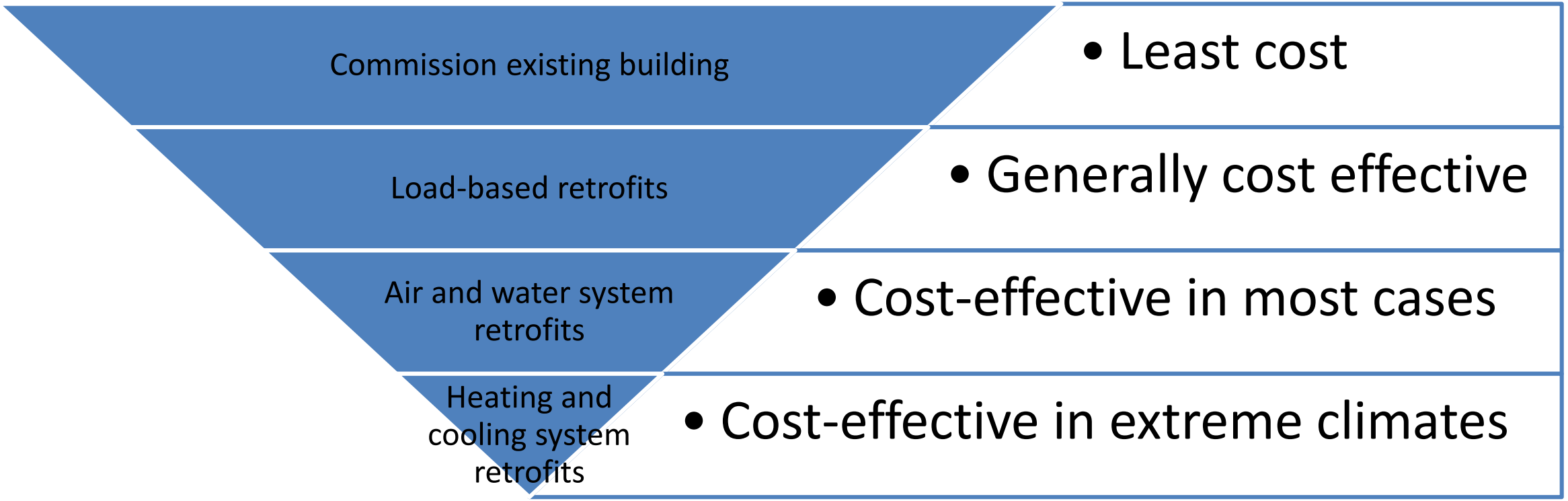
- Buildings consume a lot of energy (~40% of US national primary energy consumption)
- People spend ~90% of their time indoors
- Increasing climate extremes
- My kids (and yours!)

Local Examples

"Traditional" Building Energy Retrofit Decision-making Process

Hendron et al. 2013

Economic Approach to Retrofit Decisionmaking



Something is Missing…?

Let's Leverage CBA to Improve this Process

Charrette member crating	Measures deciding	Design alternatives generating	Decision-making charrette	Retrofit plan delivered
• CBA stage-setting phase: • Identify the ***stakeholders*** • Identify the ***interest*** and ***criteria***	• CBA innovation phase I: • Create the ***possibilities***	• CBA innovation phase II: • Determine the ***attributes*** of alternatives and thus, ***advantages***	• CBA decision-making phase: • Decide the ***importance*** of each advantage • Choose the prefered	• CBA reconsideration phase: • Check and evaluate before the delivery

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THANK YOU & ANY QUESTIONS?

References

Hendron, R.; Leach, M.; Bonnema, E.; Shekhar, D.; Pless, S. (2013). Advanced Energy Retrofit Guide: Practical Ways to Improve Energy Performance; Grocery Stores (Revised)(Book). Retrieved from http://www.osti.gov/scitech/biblio/1045045%5Cnfile:///C:/Users/tsayed/Google Drive/Retrofit/doe_eere_aerg_office_buildings.pdf

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