



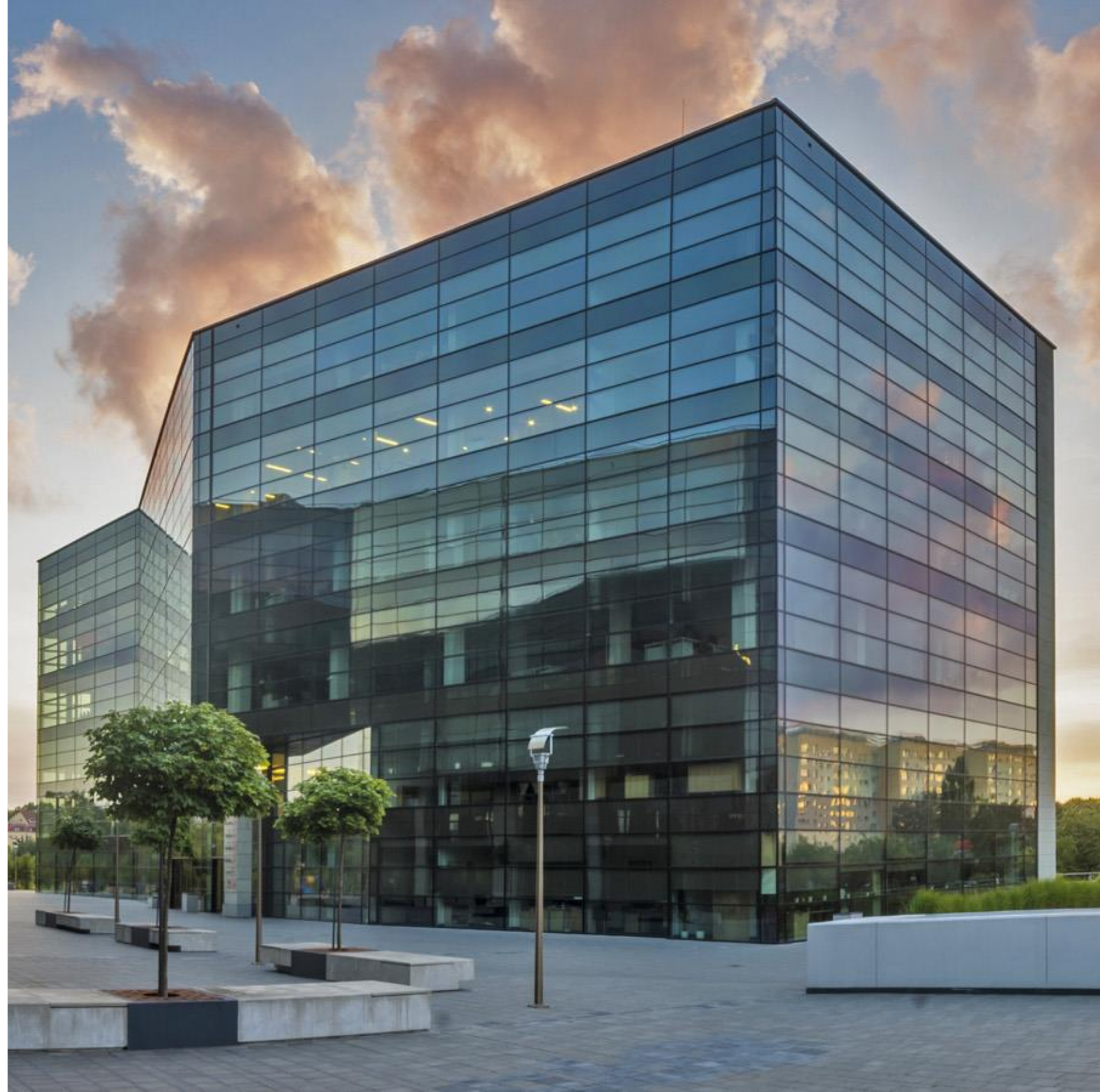
# Diversity, Equity and Inclusion

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# Impact of LMI Home Purchases: Current to Older Code Level Construction

- Analyze energy and non-energy life cycle impacts of home built to latest published IECC compared to older homes
- Adjust cash flow analysis to reflect LMI characteristics and financial offerings in both scenarios
- Estimate impacts to energy burden and under worst-case energy price escalation

## PNNL Methodologies and Analysis

- Residential Cost effectiveness using a 30 year LCCA
- Updated Energy Cost Burden assumptions to better represent LMI cash flows



## Example of Typical Residential Cash Flow Inputs

Standard cost effectiveness parameters will be adjusted per table below as part of future LMI studies.

| Parameter                      | Standard Value      | LMI Value |
|--------------------------------|---------------------|-----------|
| Mortgage Interest Rate (fixed) | 3.0%                | ↑         |
| Loan Fees                      | 1.0% of Mortgage    | ↑         |
| Loan Term                      | 30 Years            | -         |
| Down Payment                   | 12.0% of Home Value | ↑         |
| Nominal Discount Rate          | 3.0%                | ↓         |
| Inflation Rate                 | 1.4%                | -         |
| Marginal Federal Income Tax    | 12.0%               | ↓         |
| Marginal State Income Tax      | 4.25%               | ↓         |
| Property Tax                   | 1.62%               | -         |

# Potential Analysis Topics



- Apply cost-effectiveness methodology with revised parameters to more directly represent the LMI perspective
- Impact of new advanced codes on renters and landlords addressing issues of split incentives
- Review of compliance studies to analyze if homes built in LMI neighborhoods receive the same level of compliance as in wealthier neighborhoods

**What other topics might DOE/PNNL consider?**

# Discussion Topic and Questions

**Building energy codes need to support increased diversity, equity, inclusion and social justice in housing and the built environment.**

- How can building energy codes help ensure more positive outcomes in disadvantaged communities, such as increased health, comfort, affordability and resilience?
- Do typical economic and analysis perspectives adequately represent low and moderate income (LMI) households?
- How can we realize increased diversity in activities supporting building energy codes (e.g., via workforce education and training )?
- Are there specific areas of research or analysis that can help better characterize these issues, and that can enable more positive outcomes?
  - Example 1: Studies investigating energy efficiency outcomes in rural or disadvantaged communities
  - Example 2 : Modified cost-effectiveness analysis focusing on the low-income perspective
  - Other ideas?