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Data Informing Policy for Equitable BPS Implementation

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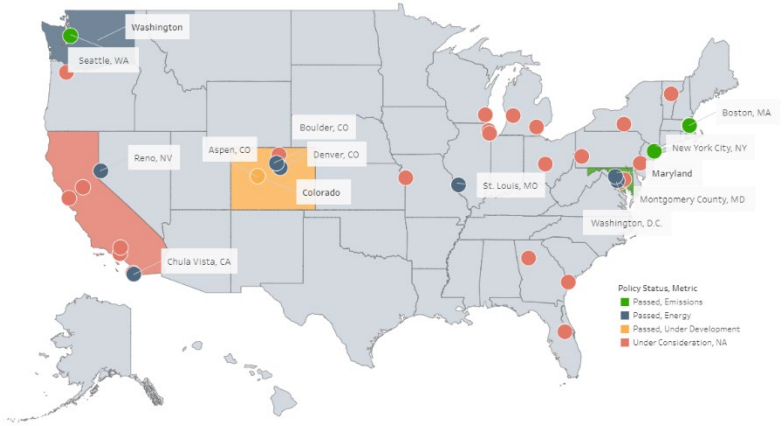
What is the DOE/EPA BPS TA Network?

- The **BPS TA Network** supports **jurisdictions** working on a BPS or interested in implementing a BPS or a similar mandatory building regulation.
- Administered in partnership with LBNL, NREL, + PNNL.
- **DOE Technical Assistance includes:**
  - Building stock analyses, including analysis of energy and emission impacts associated with BPS adoption
  - Performance target scenarios and trajectories
  - Measure and technology prioritization and packaging
  - Cost-effectiveness analyses
  - Implementation and compliance support, including resources and tools
  - Program structure support



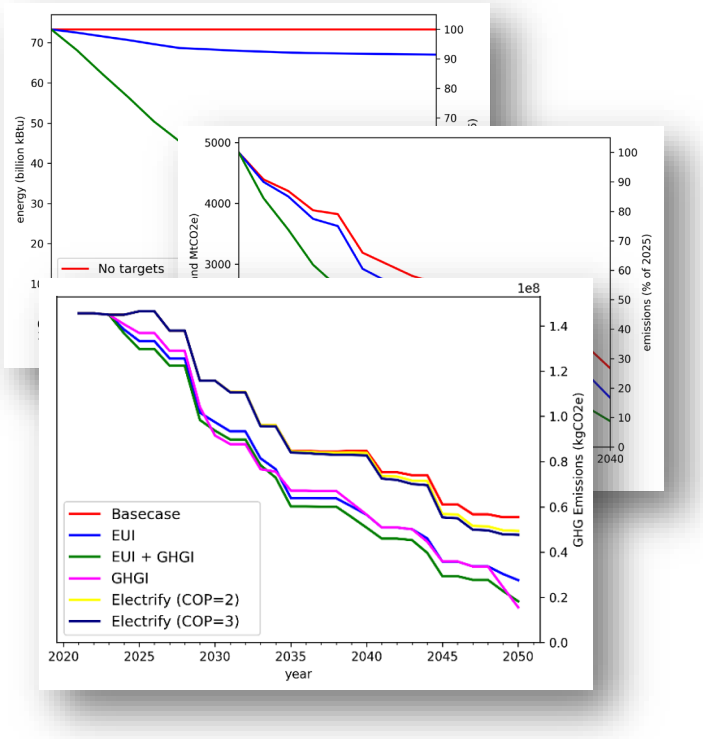
In CA, the network has worked with:

- Sacramento
- San Francisco
- Chula Vista
- City of LA
- West Hollywood
- LA County
- Santa Monica
- San Luis Obispo

BPS Impact Modeling – Data informing Policy

- **Scenario Impact Analysis**
  - **Model policy scenarios** for energy/carbon reductions over the life cycle of your BPS
    - How many and what type/size of bldgs are impacted? What are their EUIs, GHGIs, fuel mixes?
    - How many and what type/size of bldgs already meet targets?
    - How do the required reductions break down between DAC and Non-DAC designated communities?

- **Cost & Benefit Modeling**
  - **Utilizing PNNL retrofit cost models**, quantify high-level, BPS-wide estimates on magnitude of costs to building owners.
    - How much investment is expected in each compliance period?
    - How are costs and savings distributed between DAC and Non-DAC designated communities?



Normalized Energy Performance of Existing Assets is Stratified

- An EPA study of ENERGY STAR scores for buildings showed an energy performance gap between communities
  - Reinforces the notion that buildings in low-income communities and communities of color may face a disproportionate burden towards BPS compliance
- A larger performance gap → additional burden to comply with a BPS policy.
  - Prioritize Support over Exemptions/Allowances
- **Upside:** Fruit hangs lowest on the trees that haven't been picked!
  - Short-term opportunities for EBCx and other low-cost approaches to deliver meaningful savings and success stories
  - Long-term opportunities to 'leap-frog' from a technology perspective

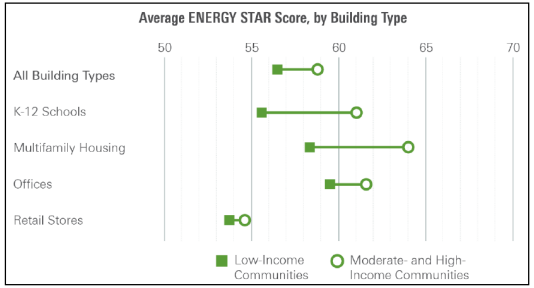


Figure 3. Average ENERGY STAR Score by building type in low-income and moderate- and high-income communities. *Source*: EPA Energy Star Portfolio Manager Benchmarked Buildings Data 2022.

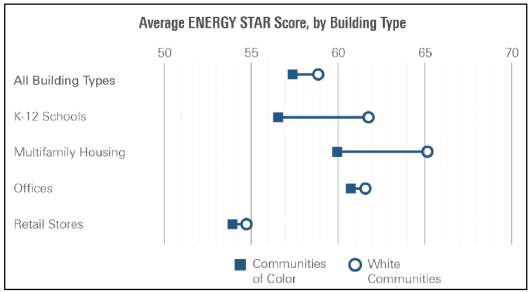
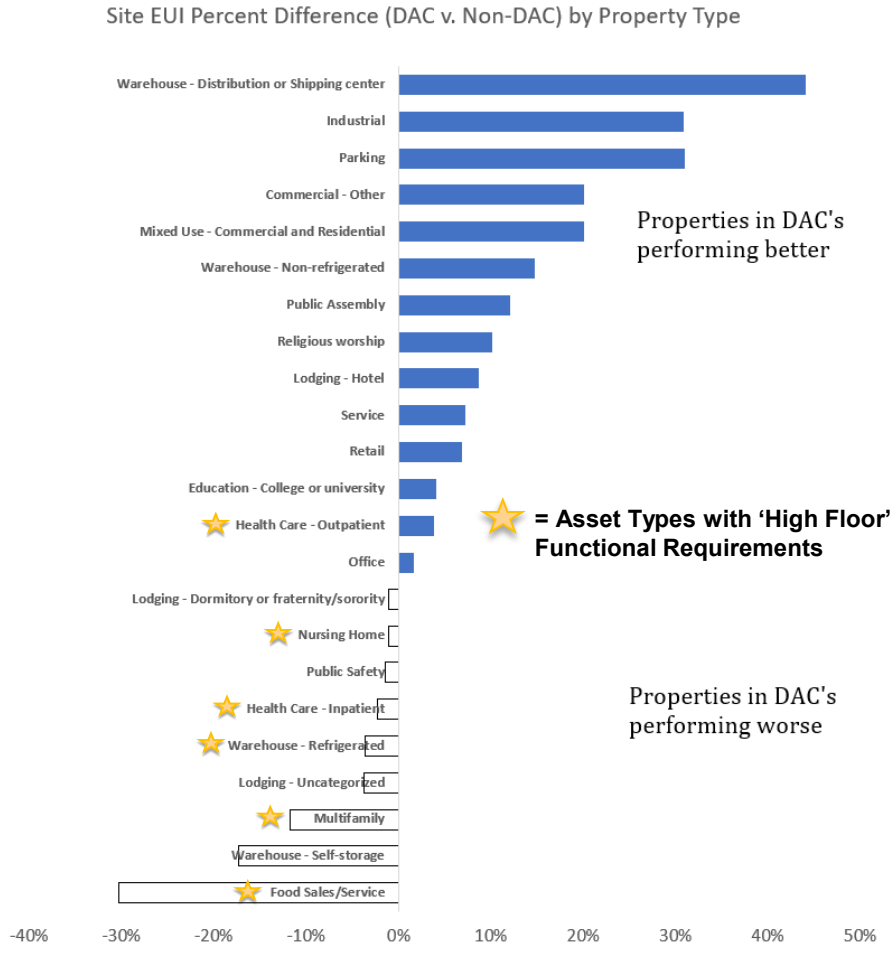


Figure 1. Average ENERGY STAR Score by building type in communities of color and white communities. *Source*: EPA Energy Star Portfolio Manager Benchmarked Buildings Data 2022.

Narel, Applegate 2022

Diving deeper with EUI – A more complex picture…

- LBNL used our Building Performance Database (BPD) to dive deeper across 4 cities (DC, LA, Evanston, NYC)
  - Direct EUI performance varied significantly by property type.
  - Adding a lens to types with ‘high floor’ functional requirements provides a theory:
    - Types that had some level mandatory functional requirements performed worse (higher energy consumption).
    - Building performance =/= Building *energy* performance
    - E.g. – poor ventilation, occupant comfort, etc.
- How do we make sure buildings comply for the right reason?



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Thank you!

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