LIVE WEBINAR

ENERGY STAR for medical office buildings

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OUR SPEAKERS

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ENERGY STAR Medical Office Building Model Update

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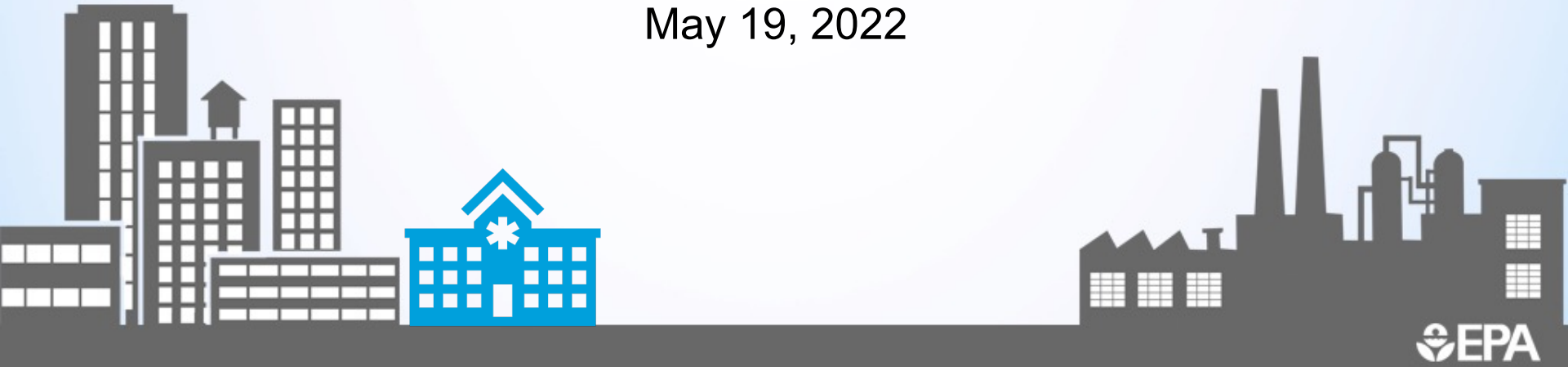
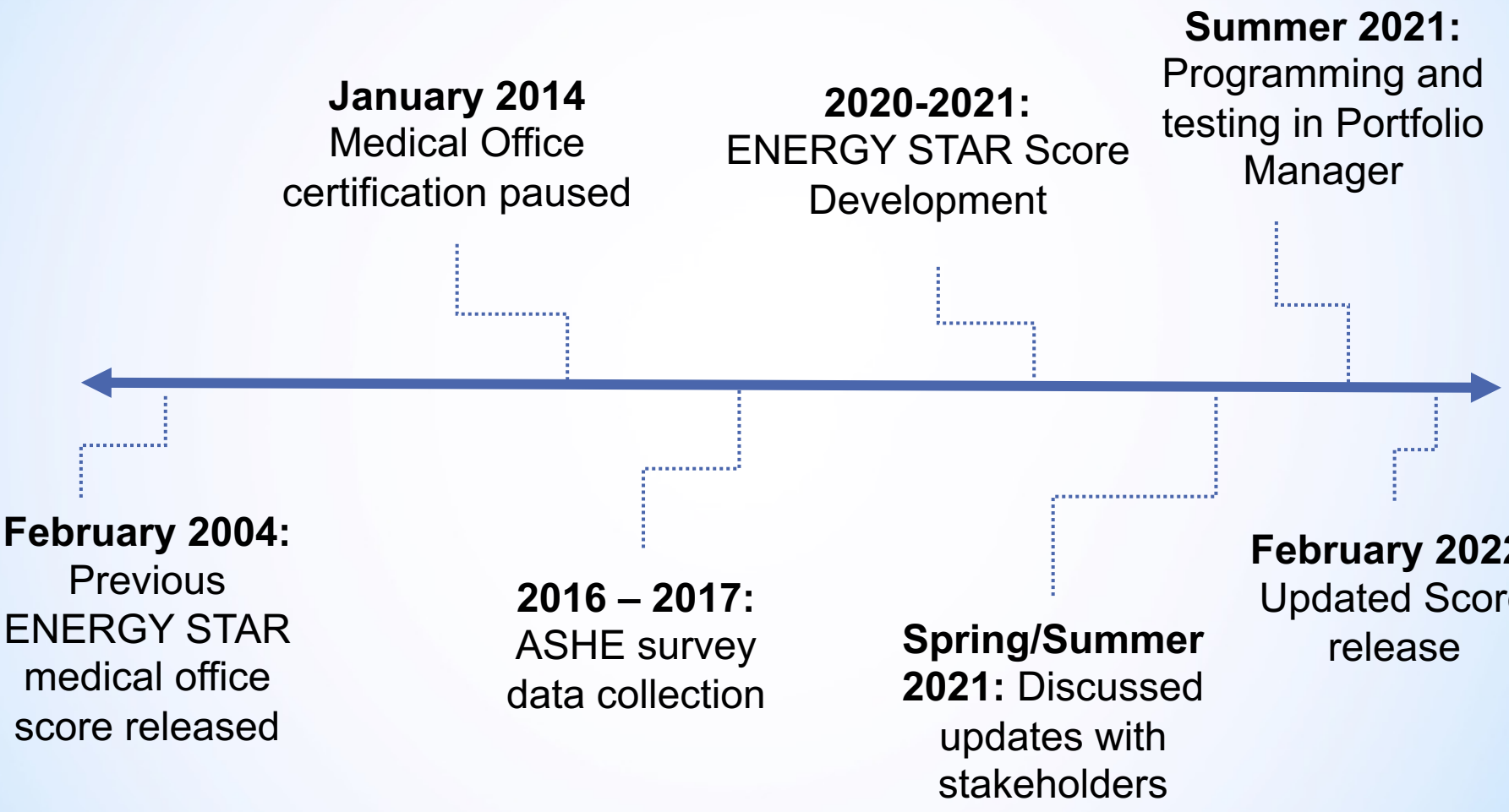
USA EPA ENERGY STAR
May 19, 2022



Goals of Medical Office Model Update

- Resume ENERGY STAR certification for Medical Office Buildings
- Previous version based on CBECS 1999 data
  - Do Medical Offices use more/less energy?
  - Has the relationship between energy use and business activities, weather, or climate changed?
  - Improve on any issues identified with the older model.

MOB Score Update Timeline



Data Source

- The updated score was developed using data from the national *ASHE 2016 Energy and Water Survey*
  - Detailed information on building characteristics, use details, energy use, and water use
  - The same survey data was used to update the Hospital Score
- 153 medical offices provided complete responses to all fields considered necessary for the analysis (building size, key use details, energy usage, etc.)

MOB Data Source Summary

	ASHE 2016 Survey	Portfolio Manager (Used for testing and impact analysis)
Observation Count After Filters	138	1,790*
Average Source EUI	239	227
Source EUI 10th Percentile	143	113
Source EUI 90th Percentile	379	362
Average GFA	80,393	63,628
Average MRI Density	0.013**	0.018** (70% left blank)
Average Surgical Operating Bed Density	0.048**	0.073** (75% left blank)
Average Weekly Operating Hours	63	67
Average Worker Density	2.26	2.11
Average HDD	3,154	3,783
Average CDD	2,039	1,513

**Subset of 2,031 total Portfolio Manager Medical Office properties after applying standard program and analytical filters*
***Average of those that had at least one OR or MRI present*

Survey Variables Tested

Numerous models were tested to find the combination of statistically significant operating characteristics that best explain variance in energy use

The following MOB fields were reviewed and considered for inclusion in the model:

- Gross Floor Area
- Hours of Operation per Week
- Number of Workers per 1,000 Square Feet
- Number of MRI Machines per 1,000 Square Feet
- Heating Degree Days
- Cooling Degree Days
- Percent of the Building that is Heated times Heating Degree Days
- Percent of the Building that is Cooled times Cooling Degree Days
- Number of MRI Machines
- Number of Operating Rooms
- Number of Operating Rooms per 1,000 Square Feet
- Number of X-ray Machines
- Number of X-ray Machines per 1,000 Square Feet
- Number of CT Machines
- Number of CT Machines per 1,000 Square Feet
- Natural log of Heating Degree Days
- Natural log of Cooling Degree Days
- Percent of the Building that is Heated
- Percent of the Building that is Cooled
- Percent of the Building that is Heated times natural log of Heating Degree Days
- Percent of the Building that is Cooled times natural log of Cooling Degree Days
- Whether or not the Property has a Commercial Kitchen
- Whether or not the Property includes Laboratory Space
- Number of Linear Accelerators
- Number of Linear Accelerators per 1,000 Square Feet
- Whether or not the Property includes an Ambulatory Surgical Center
- Whether or not the Property offers Catheterization and Surgical X-ray services

Updated MOB Model

Model Term	Current MOB Model (Based on 1999 CBECS)	New MOB Model (Based on 2016 ASHE)
Workers per 1,000 ft²	✓ *(Natural log of # of Workers)*	✓
Gross Floor Area	✓ *(Natural log of floor area)*	✓ *(Floor area with 100k ft² cap)*
Weekly Operating Hours	✓ *(Natural log of # of Weekly Hours)*	✓
MRI Machines per 1,000 ft²	✗	✓ *(capped at 0.04)*
Surgical Operating Beds per 1,000 ft²	✗	✓ *(capped at 0.1)*
Cooling Degree Days (CDD)	✓ *(CDD x Percent Cooled)*	✓
Heating Degree Days (HDD)	✓ *(HDD x Percent Heated)*	✓

Updated Model Terms

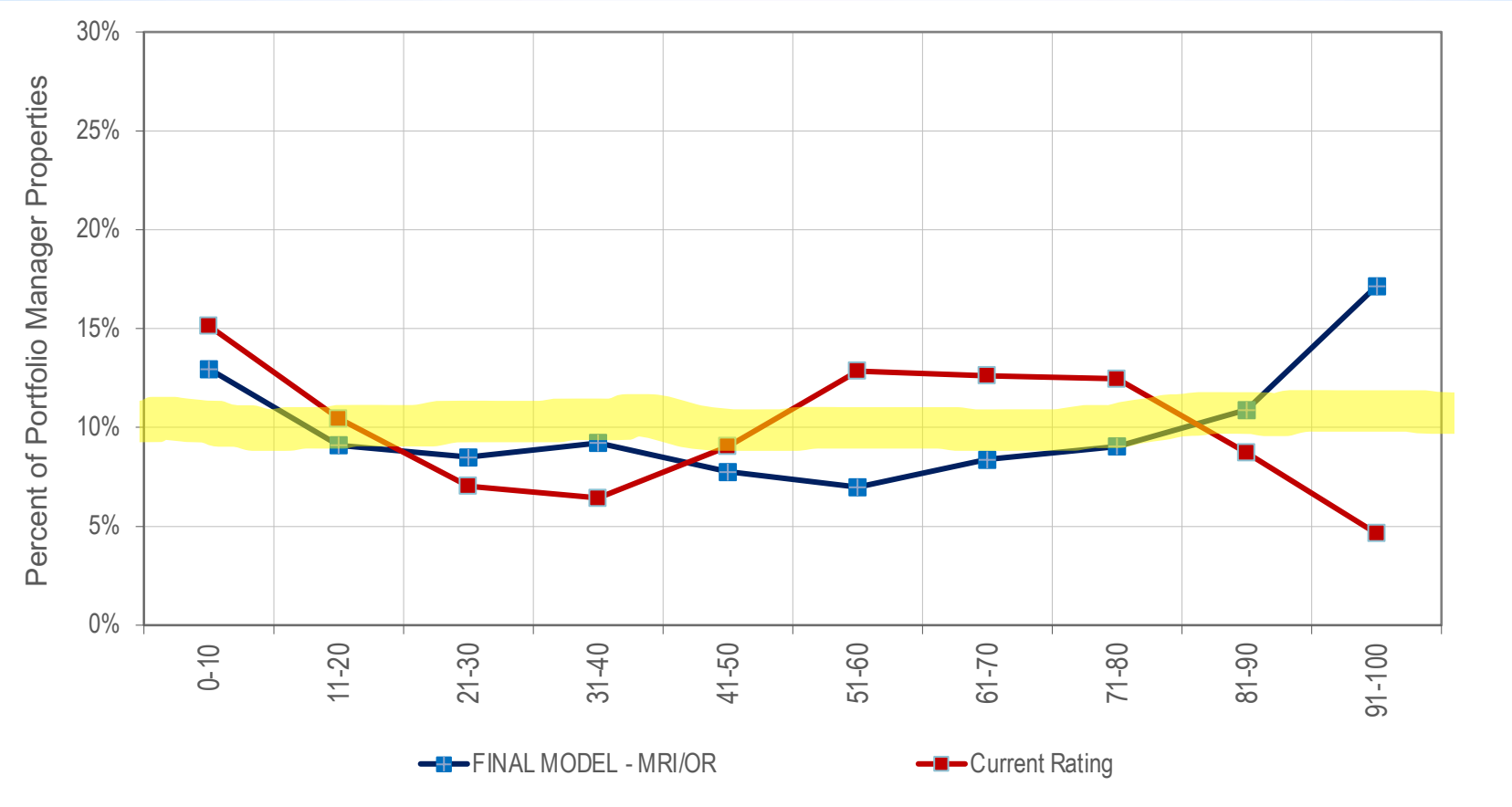
- **Medical Office** refers to buildings used to provide diagnosis and treatment for medical, dental, or psychiatric outpatient care. Gross Floor area should include all space within the building including offices, exam rooms, operating rooms for outpatient surgical procedures, laboratories, lobbies, atriums, conference rooms and auditoriums, employee break rooms and kitchens, restrooms, elevator shafts, stairways, mechanical rooms, and storage areas.

  If you have restaurants, retail (pharmacy), or services (dry cleaners) within the Medical Office, you should most likely include this square footage and energy in the Medical Office Property Use.

- The **Number of Surgical Operating Beds** is a count of beds where outpatient surgical procedures not requiring an overnight hospital stay are performed. Many knee, shoulder, eye, and spine surgeries, and colonoscopy services, fall within this scope.

  If your property is in the design phase, use your best estimate for the intended conditions when the property is fully operational.

Score Distribution



- With a percentile model, we expect to see ~10% of properties in each of the above score bins.
- The updated model has a more even score distribution than the current model.

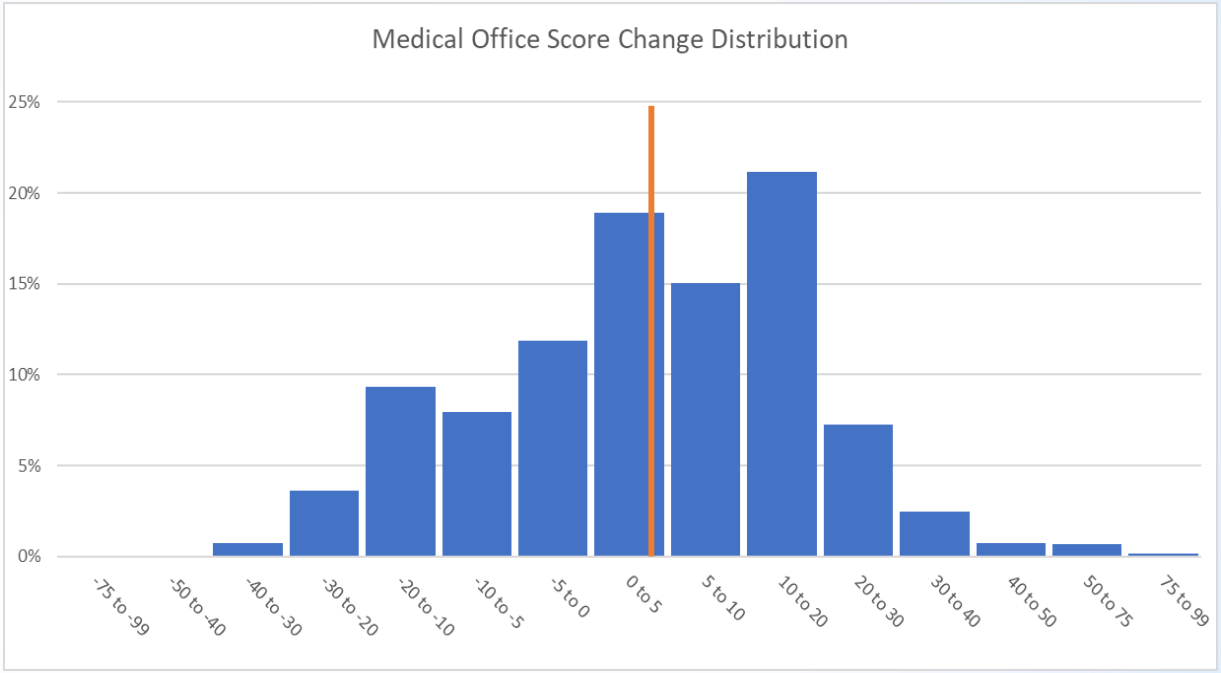
Expected Score Changes

Average change of **+4**

54% within 10 points

84% within 20 points

95% within 30 points



Considerations:

- Existing model uses a different dependent variable (natural log of source energy)
- Existing model uses energy data from 1999
- New model adjusts for MRIs and Operating Rooms which leads to score increases for properties that have these features

Score Change Variability

- Overall average score change **+4**

	Average Score Change
Properties without MRI Machines and Surgical Operating Beds	**+2**
Properties with MRI Machines	**+24**
Properties with Surgical Operating Beds	**+17**

QUESTIONS?

GET IN TOUCH!

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