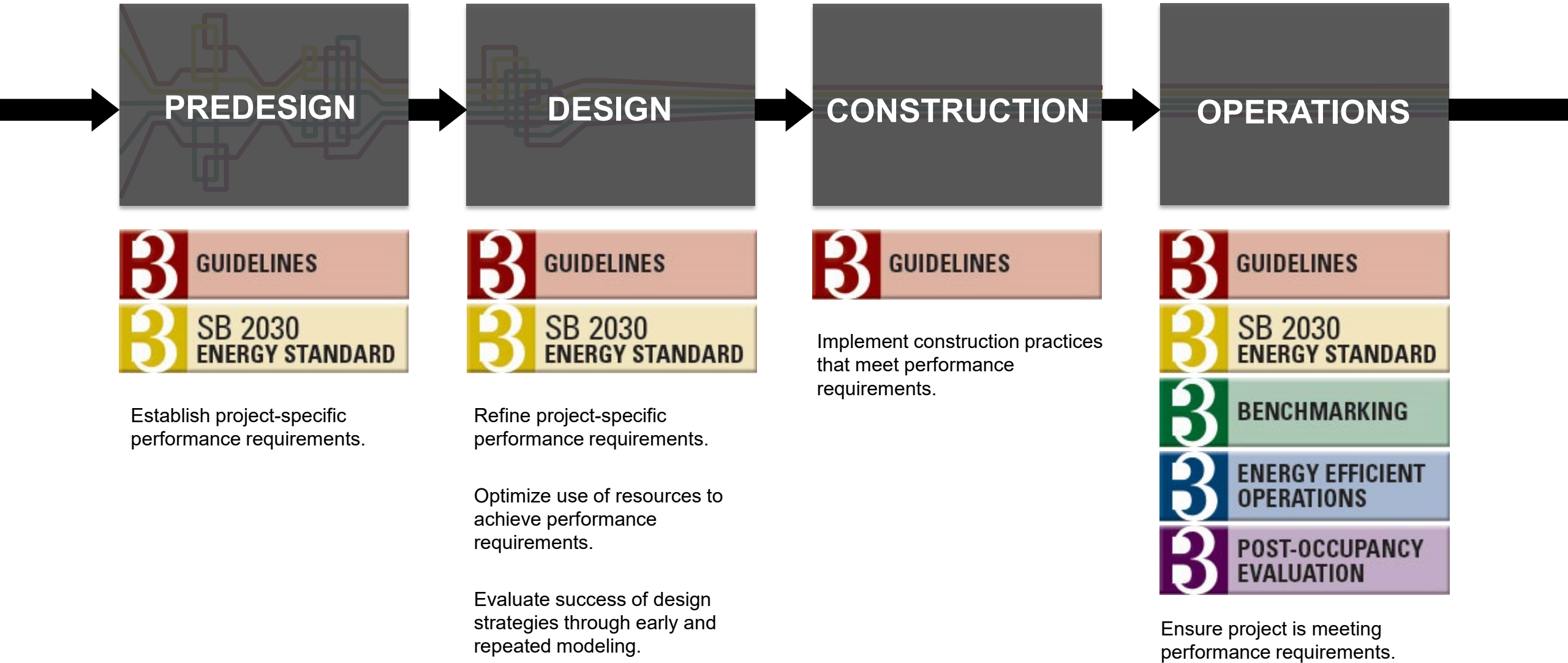




SB 2030 OVERVIEW

Pat Smith – Senior Research Fellow

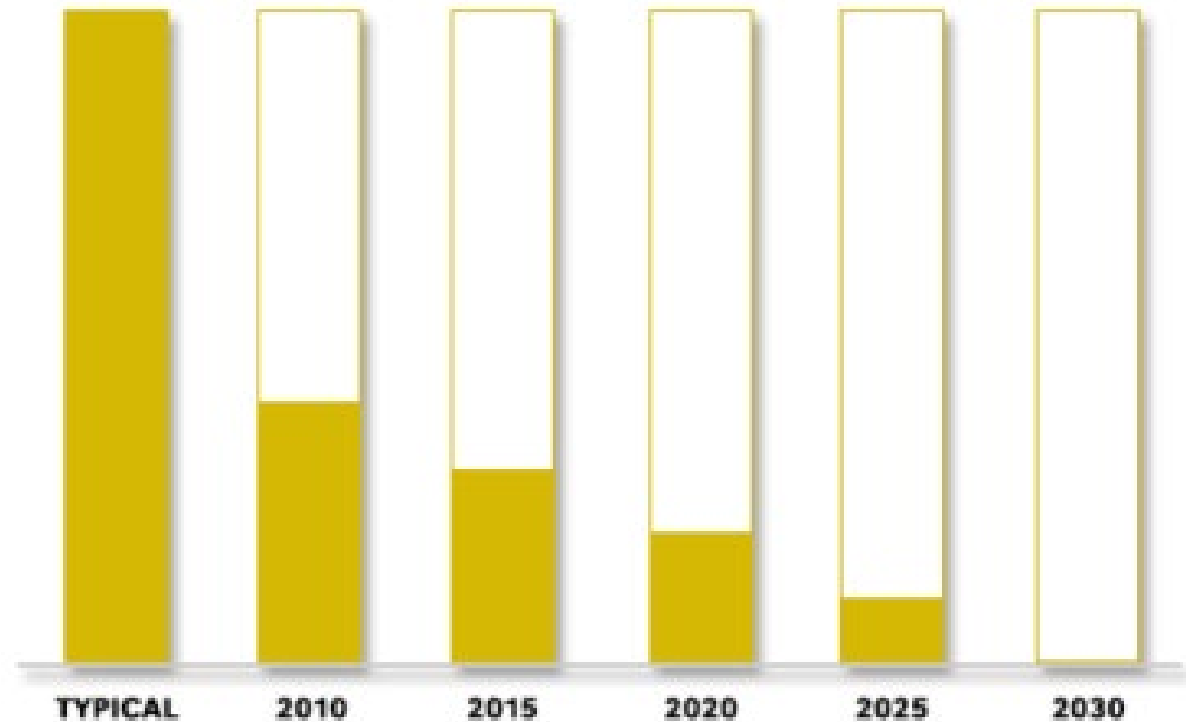
Center for Sustainable Building Research, Univ. of Minnesota



SB 2030

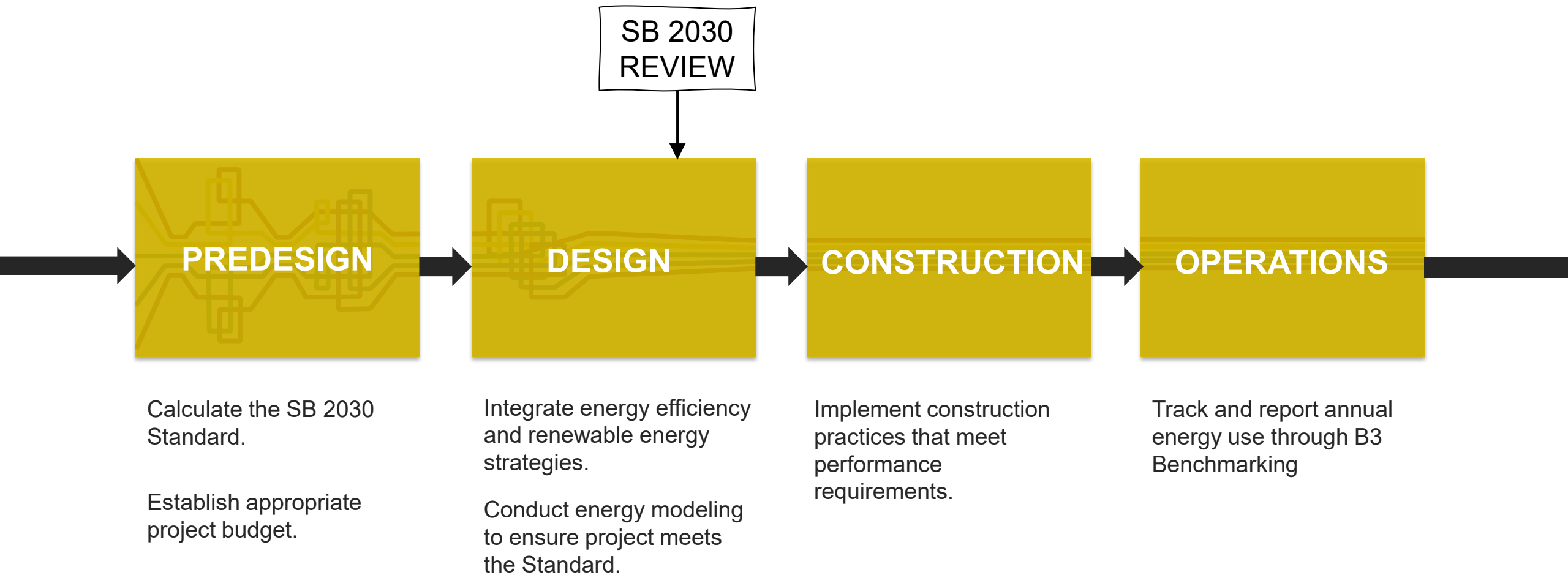
SB 2030 is a progressive energy and carbon reduction program

- modeled on the Architecture 2030 program
- customized to better fit Minnesota's buildings, climate, and policies
- expanded to allow the inclusion of more building types.



SB 2030 Energy Standard

Building Energy Consumption from Carbon Producing Fuel



GUIDELINES TRACKING TOOL

Welcome **Becky Alexander**
[My Account](#) | [Sign Out](#)

[Home](#)
[Projects](#)
[Reports](#)
[About](#)
[Administrator](#)

OCCUPANCY

This project is not defined for occupancy. [Click here to set an occupancy date](#)

FILTER

Expand the grid to display:

My Action Items

LEGEND

Action Item

Completed

Variance

Not applicable

Current Phase

Required

Actual Phase

B3 Guidelines Sample Project

123 Fake Street, Minneapolis, MN 55406

General

Team

Roles

Actions

Schedule

Notes

Admin

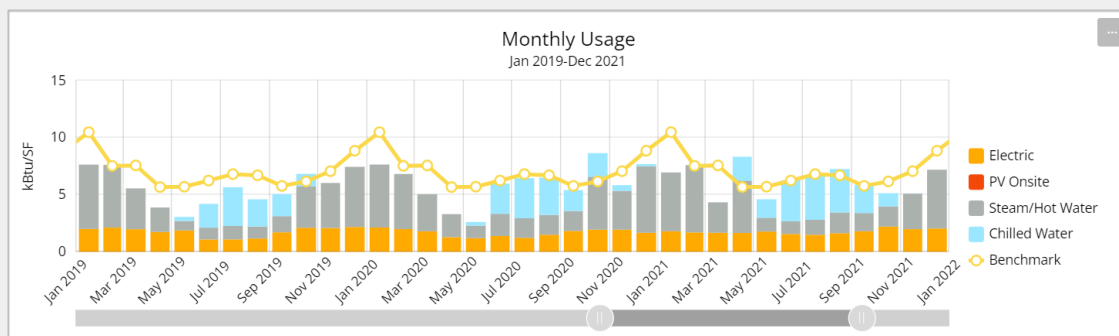
You have 1 open action item(s)

Guideline	Responsible Role	Person	Action	PD	D	FD	CO
Phase Summary Reports:							
PERFORMANCE MANAGEMENT				PD	D	FD	CO
SITE AND WATER				PD	D	FD	CO
ENERGY AND ATMOSPHERE				PD	D	FD	CO
E.0. Energy and Atmosphere Strategies			Read the Guideline				
E.1. Energy Use			Read the Guideline				
E.2. Renewable Energy			Read the Guideline				
E.3. Efficient Equipment and Appliances			Read the Guideline				
E.4. Atmospheric Protection			Read the Guideline				
E.5. EV-Ready			Read the Guideline				
INDOOR ENVIRONMENTAL QUALITY				PD	D	FD	CO
MATERIALS AND WASTE				PD	D	FD	CO

Predesign Phase

Ready For Guideline Leader

B3 Guidelines Tracking Tool



B3 Benchmarking

NEO Analysis - Google Chrome

app.netenergyoptimizer.com/v390/analysis?id=2c13b55f-2e93-444f-870b-4f3da95868ef&licenseId=ca8090d3-632d-4e18-a89b-e6554b5e...

SB 2030

Phase PD - B3 Guideli...

Building HVAC Rating

MENU

First, define your new building.

Building Definition

Unlock

Building Type

Library

Total Area

15,000

ft²

Modify Details

Space Asset Areas

+ Add Area

Scale All to Fit

Summary

Stacks and Reading

Type: **Stacks and Reading**

Area: **11,250 ft² (75%)**

Floors: **1**

Arrangement: **Adjacent**

Edit

Computer Center

Type: **Computer Center**

Area: **3,750 ft² (25%)**

Floors: **1**

Arrangement: **Adjacent**

Edit

Help

HVAC >

SB 2030 Energy Standard Tool



COST-EFFECTIVENESS

SB 2030 cannot require performance standards that are not cost-effective.

Cost effectiveness limits are based on:

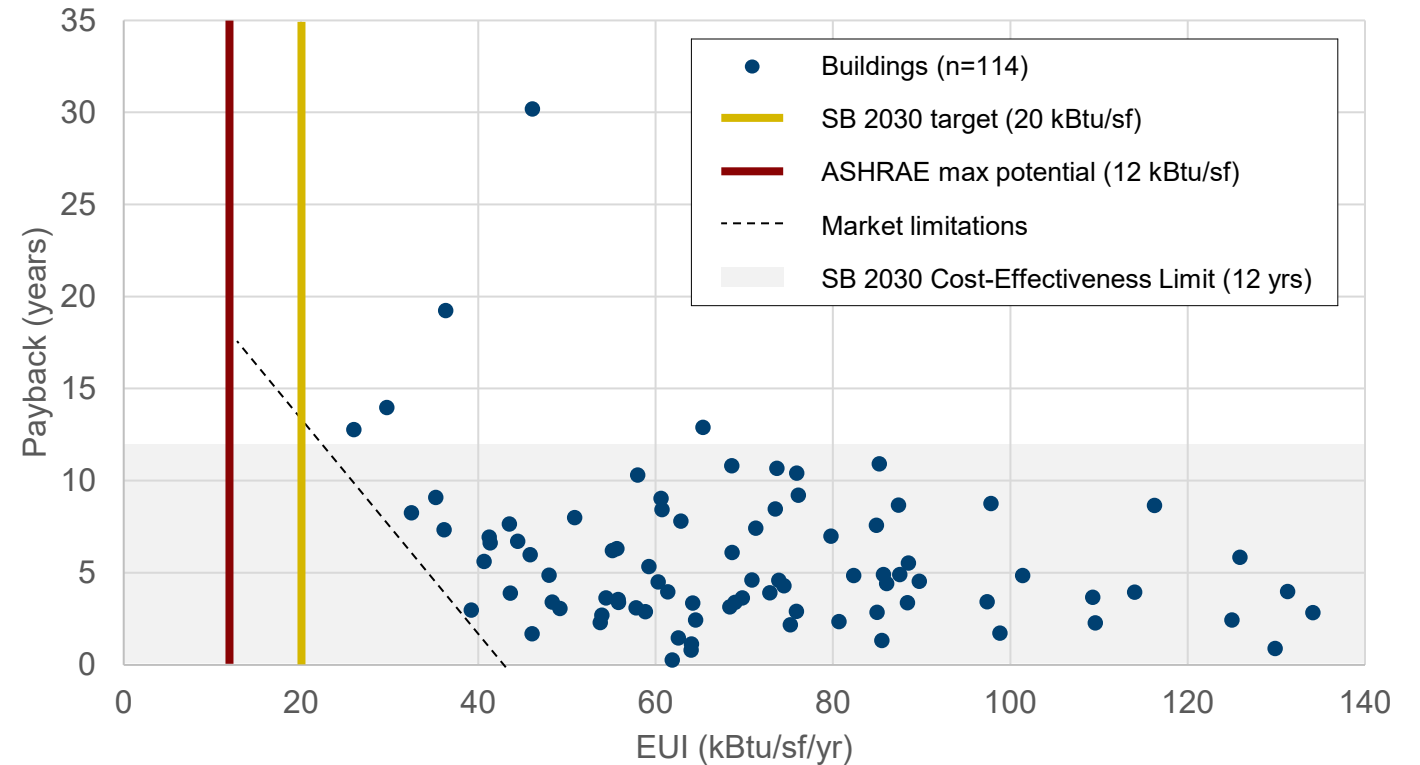
- Societal test
- Participant test
- Utility test

The current cost-effectiveness threshold is a simple payback period of **12 years** or less.

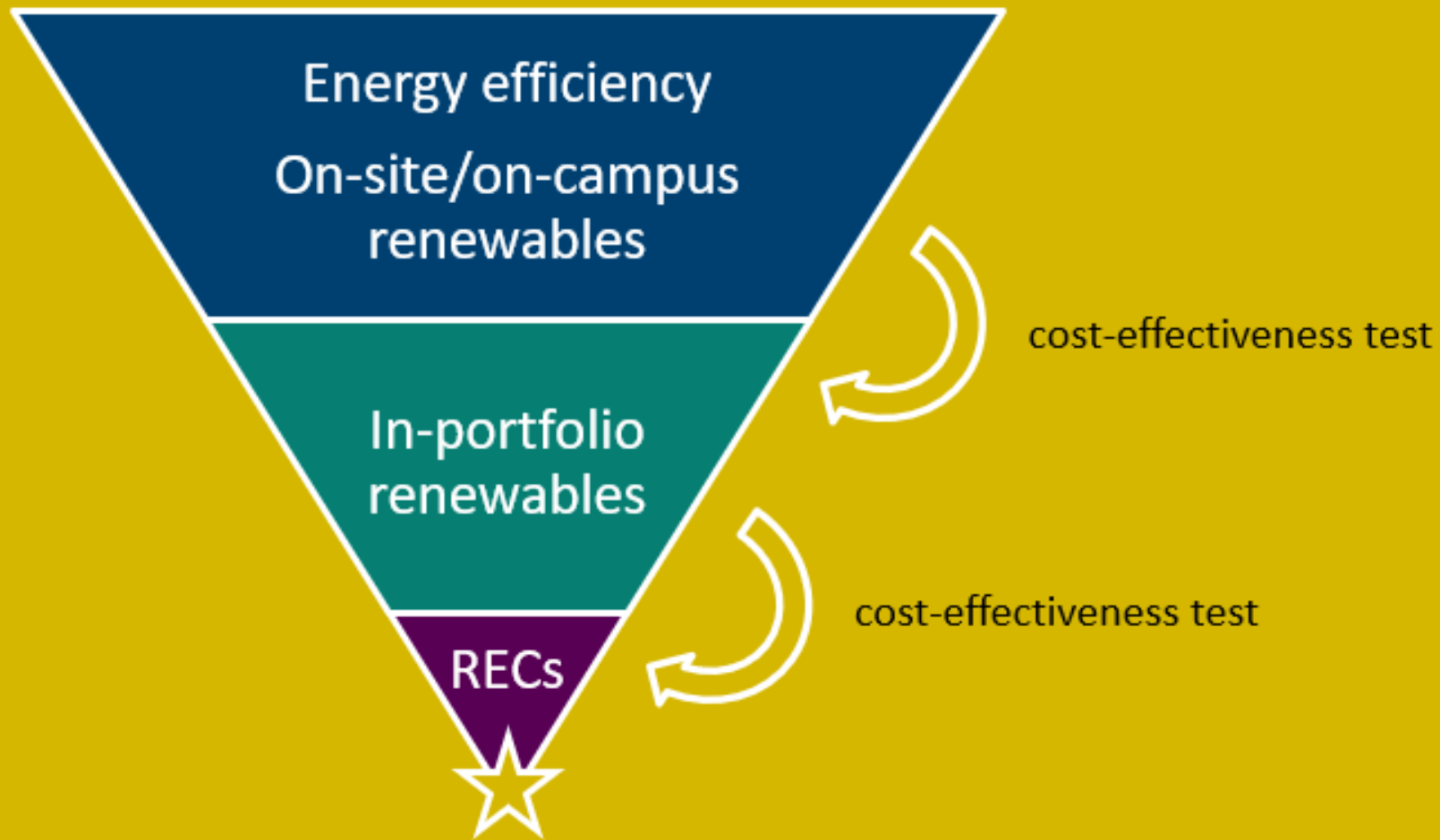
MOVING BEYOND EFFICIENCY

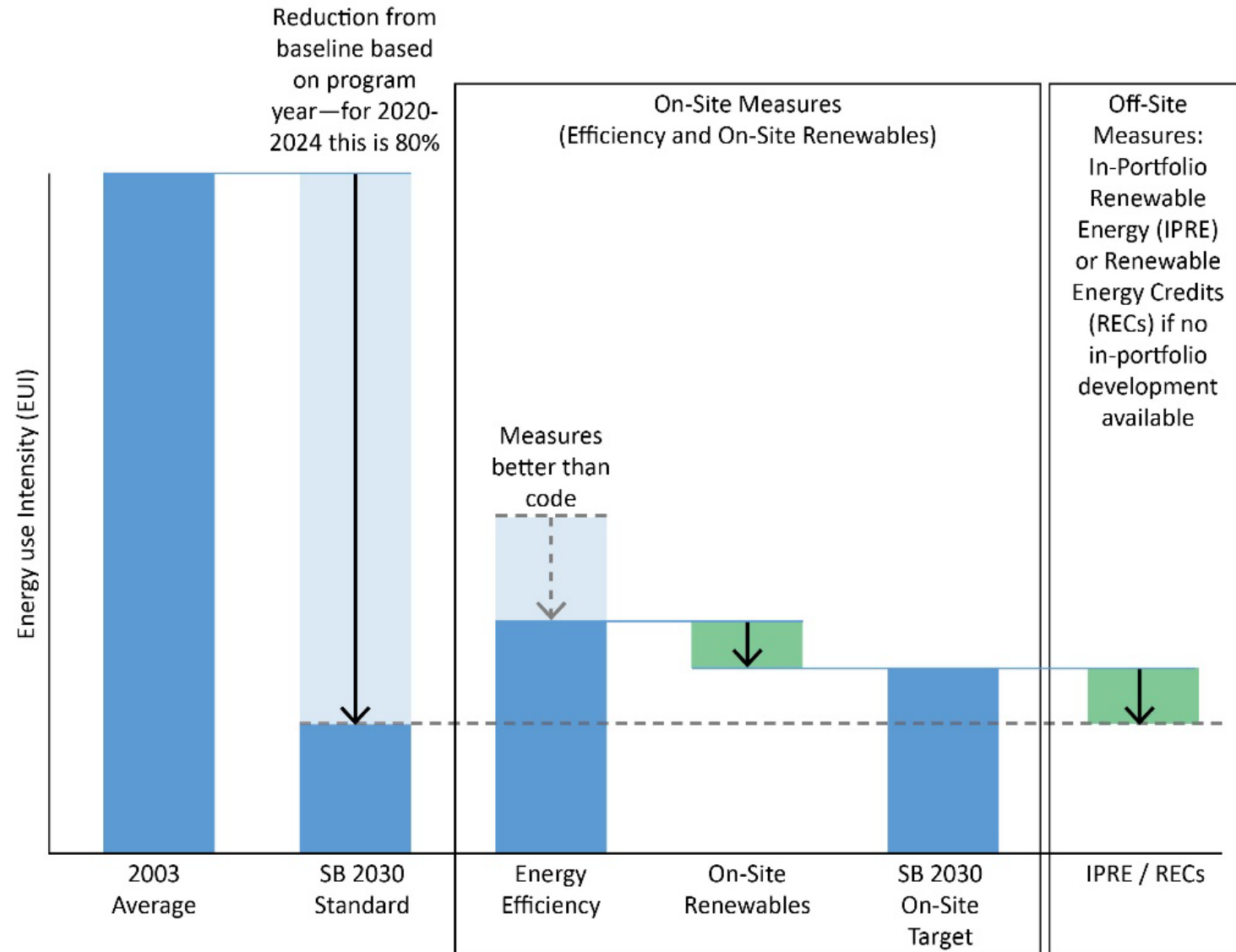
- Efficiency alone is not enough to achieve 80% for some building types due to technical and payback limitations
- Renewable energy will often be needed to meet SB 2030 cost-effectively

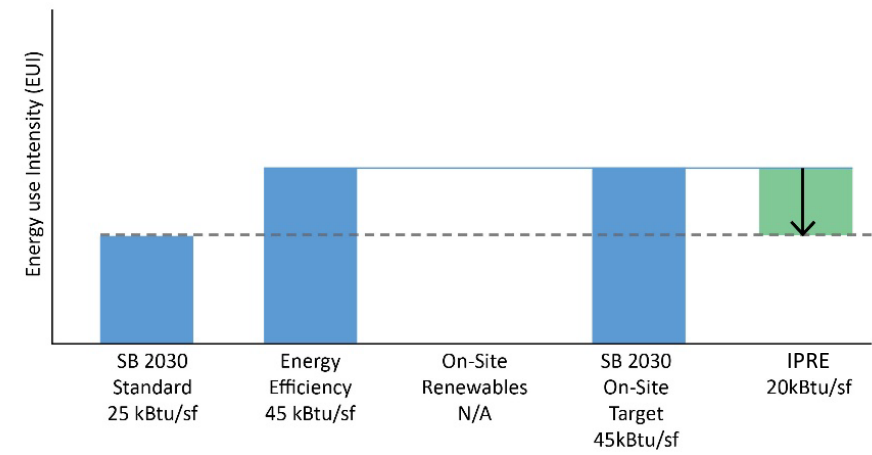
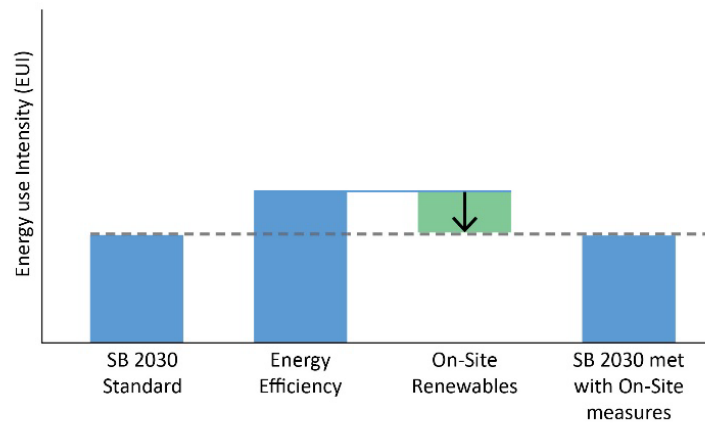
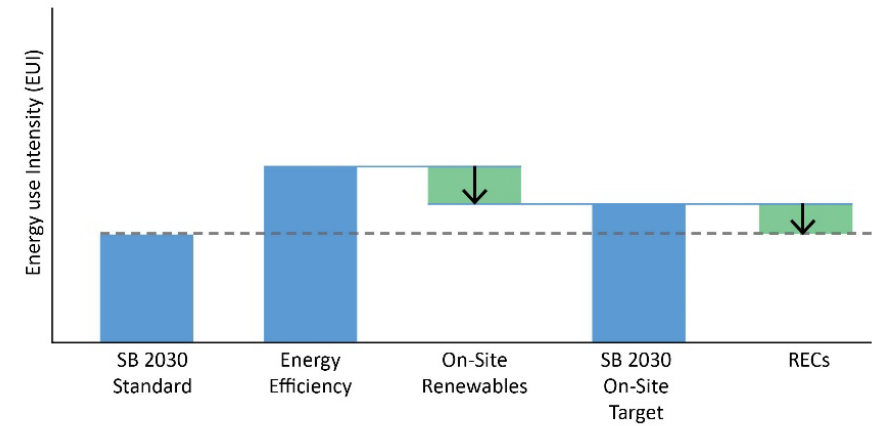
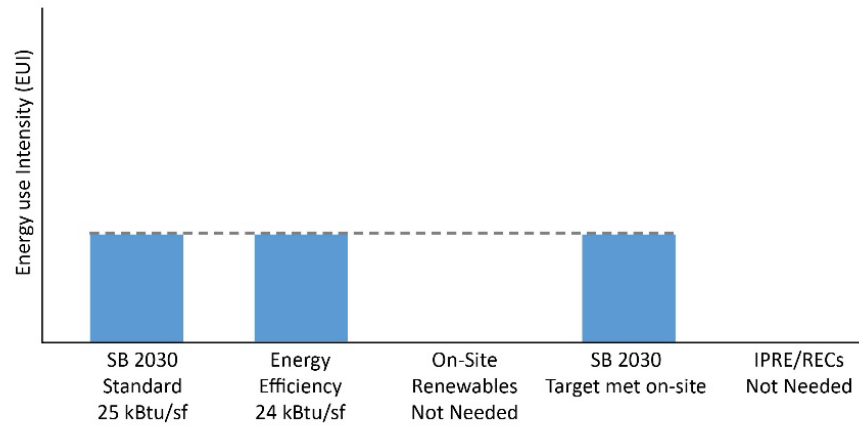
OFFICES



Data from Willdan Midwest Energy Design Assistance (EDA) programs







PROGRAM GUIDE: THE PARTS

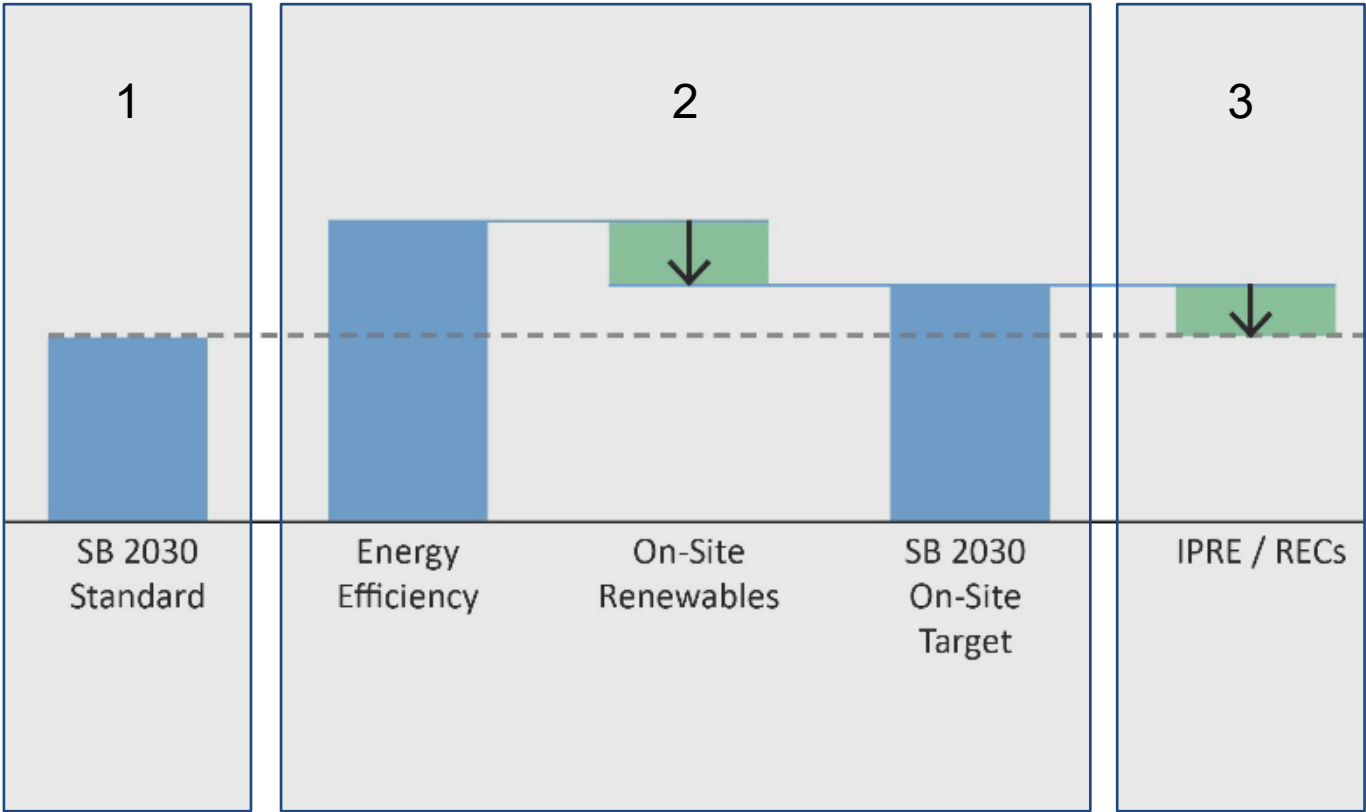
PART 1: ESTABLISH AN SB 2030 ENERGY STANDARD

PART 2: ON-SITE MEASURES

- Energy Efficiency
- On-Site Renewable Energy
- On-Site Target*

PART 3: OFF-SITE RENEWABLE ENERGY*

*if needed



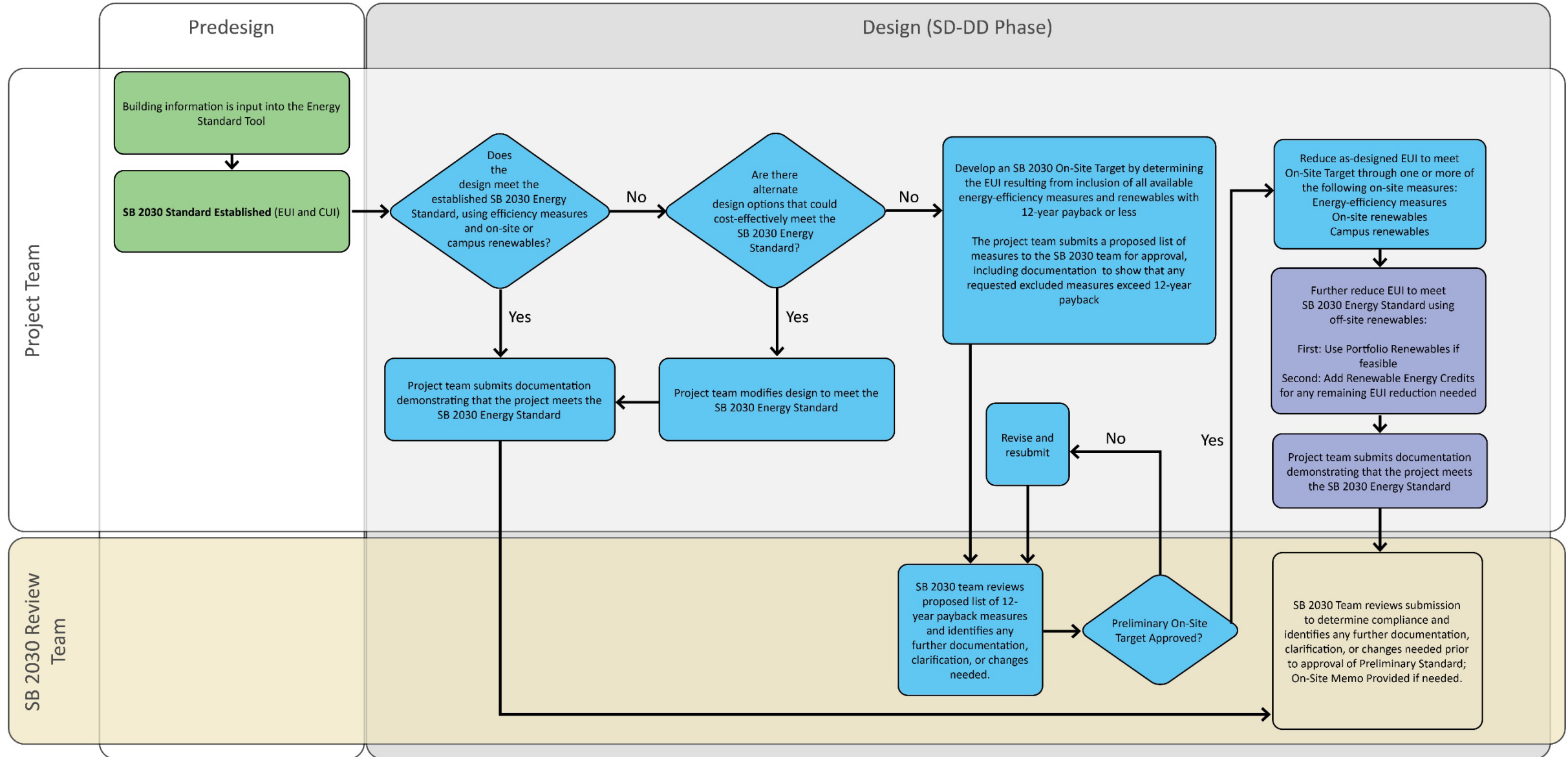
Part 1: Establish a SB 2030 Standard

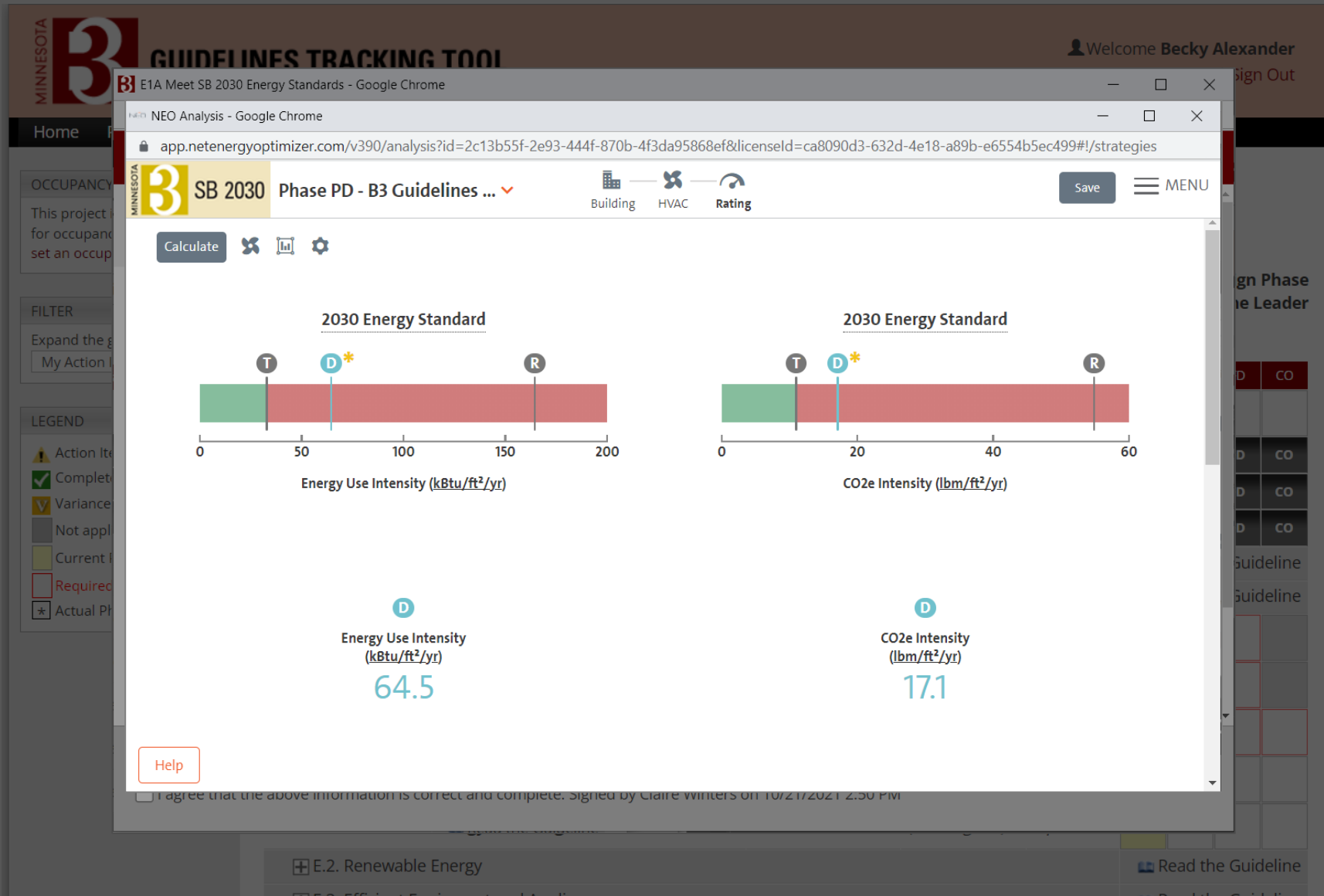


Part 2: Estimate Design Efficiency, On-Site Renewable Energy, and Establish On-Site Target if needed



Part 3: Off-Site Renewable Energy and Renewable Energy Credits





NEO Analysis - Google Chrome

app.netenergyoptimizer.com/v390/analysis?id=2c13b55f-2e93-444f-870b-4f3da95868ef&licenseId=ca8090d3-632d-4e18-a89b-e6554b5ec499#!/buildingDefiniti...

MINNESOTA 3 SB 2030 Phase PD - B3 Guidelines ...

Building HVAC Rating

Save MENU

First, define your new building.

Building Definition

Unlock

Building Type: Warehouse - Active

Total Area: 50,000 ft²

Modify Details

Space Asset Areas

+ Add Area Scale All to Fit Summary

Office

Type: Office Area: 15,000 ft² (30%) Floors: 1 Arrangement: Adjacent

Edit

Warehouse - Active

Type: Warehouse - Active Area: 35,000 ft² (70%) Floors: 1 Arrangement: Adjacent

Edit

Help

NEO Analysis - Google Chrome

app.netenergyoptimizer.com/v390/analysis?id=2c13b55f-2e93-444f-870b-4f3da95868ef&licenseId=ca8090d3-632d-4e18-a89b-e6554b5ec499#!/buildingDefiniti...

MINNESOTA 3 SB 2030 Phase PD - B3 Guidelines ...

Building HVAC Rating Save MENU

Details for *Office*

Operations **Mechanical** Architectural SHW & Other Loads

HVAC Controls

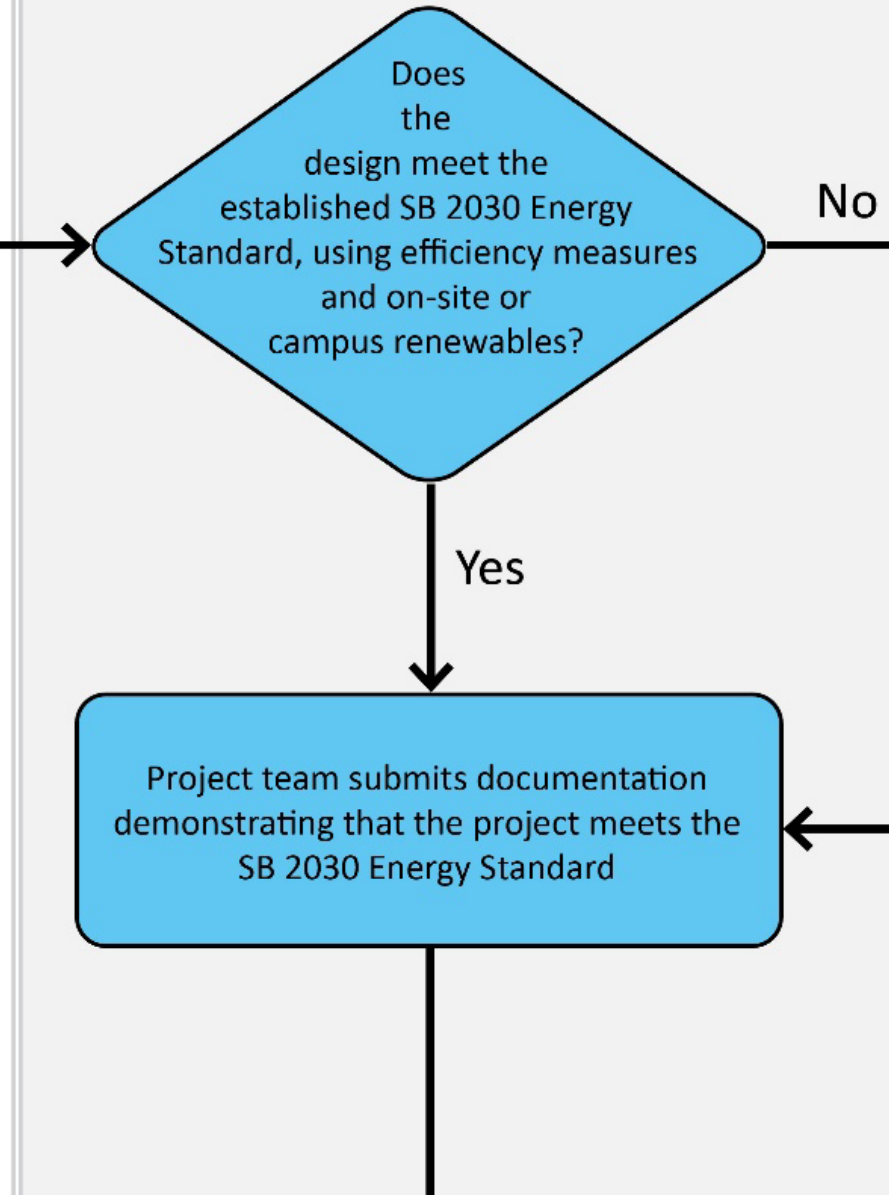
Cooling Set Point, Occupied	Cooling Set Point, Unoccupied
<input type="text" value="75"/> °F	<input type="text" value="75"/> °F
Heating Set Point, Occupied	Heating Set Point, Unoccupied
<input type="text" value="70"/> °F	<input type="text" value="70"/> °F

Ventilation Requirements

Specify Requirements By

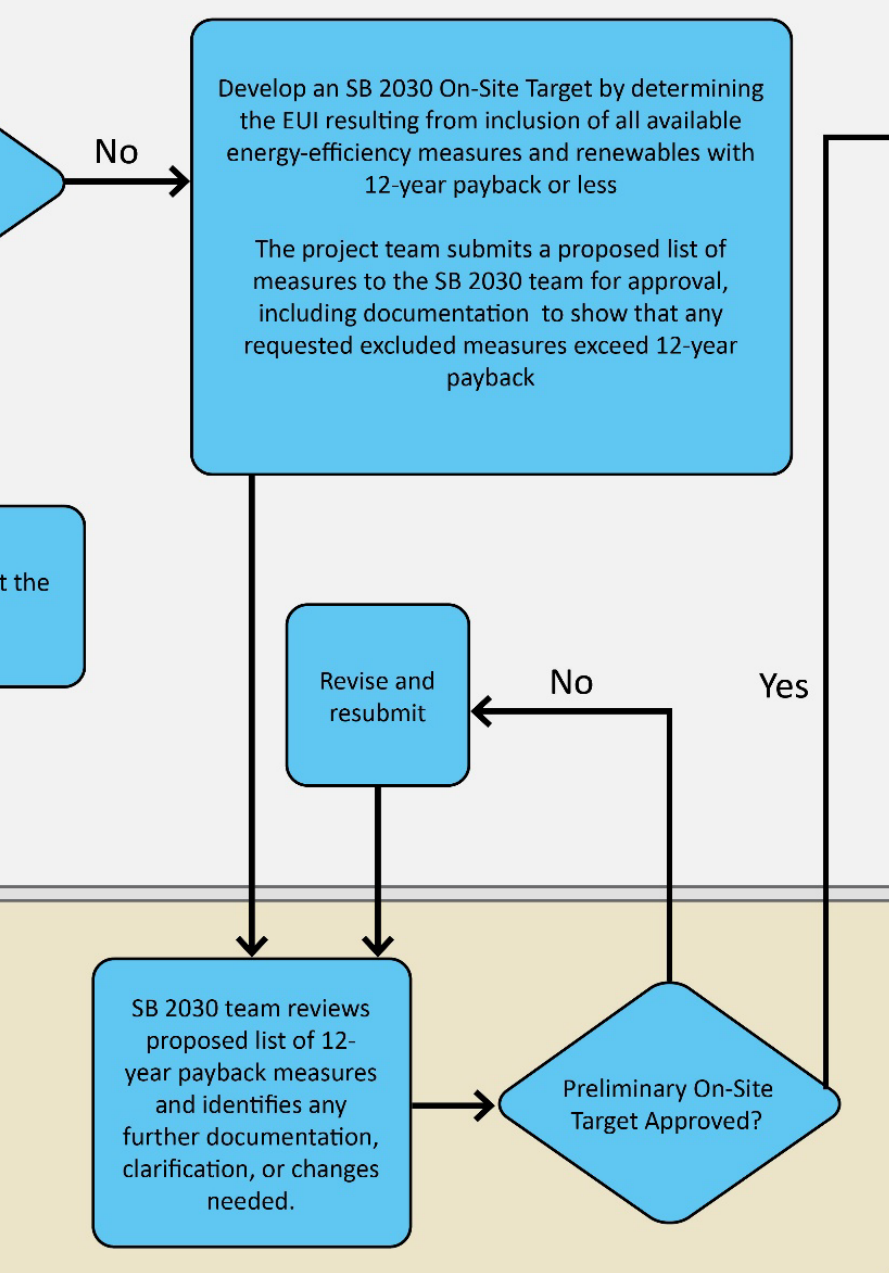
Air Changes Flow

Minimum Air Changes, Unoccupied	Minimum Air Changes, Occupied	Outside Air Fraction
<input type="text" value="0.0"/> ACH	<input type="text" value="25.0"/> ACH	<input type="text" value="0.20"/>



PART 2: ON-SITE MEASURES

- Predicted energy use can be modeled in SB 2030 Energy Standard Tool or another approved tool
- If SB 2030 Standard can be met through on-site measures, a separate On-Site Target is not needed.
- Projects may choose to use measures outside of the 12-year payback to meet the SB 2030 Energy Standard.
- RECs for on-site renewable energy used to meet SB 2030 must be retained or replaced.



PART 2: ON-SITE TARGET

- The On-Site Target is the energy use intensity resulting from all energy efficiency measures and renewables with a 12-year payback or less.
- All reasonable efficiency and renewable energy strategies must be included in this calculation.
- Work with the SB 2030 Review Team early in design to establish the On-Site Target.

To: [energy leader], [guideline leader], [agency contact].

From: Pat Smith, Center for Sustainable Building Research; SB 2030 Review Team

Date: 8/27/2021

Project code: AAA###

SB 2030 On-Site Standard Approval (Preliminary)—[PROJECT NAME]

After a follow up review and discussion of the modeling performed—[Description of referenced modeling]—the SB 2030 Review Team approves the proposed preliminary values for the key SB 2030 metrics for this project noted below.

Note that these simulations may need to be updated to better reflect the final design if actual design measures or other items vary notably from the measure list used and assumptions. For example, if the design outdoor air flows or HVAC unit fan powers are significantly different than what was assumed in the modeling referenced here, the 12 year payback bundle and as-designed simulation may need to be updated. Updates are generally expected to lead to very little relative change in how the two EULs compare, as both will shift with adjustments in building characterizations unless the actual design for energy efficiency measures differs significantly from the measure definitions used in this analysis. These updated simulations may be critical when comparing the actual energy use to the design stage simulations.

The project team has not yet provided the extent of on-site renewable energy development achievable for this project, and as such several key metrics are yet to be determined.

Listed below are the current key SB 2030 Standard Metrics for this project:

SB 2030 Targets:

SB 2030 Energy Standard: 25.0 kBtu/sf/yr

SB 2030 Carbon Standard: 7.0 lbs CO₂/sf/yr

Efficiency Measures:

Cost-effective efficiency measures: 45.0 kBtu/sf/yr, 12.0 lbs CO₂/sf/yr

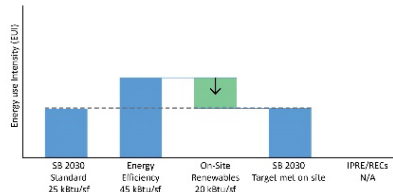
Design simulation: 41.0 kBtu/sf/yr, 10 lbs CO₂/sf/yr

On-Site Renewables:

Solar PV (on campus): 20kBtu/sf

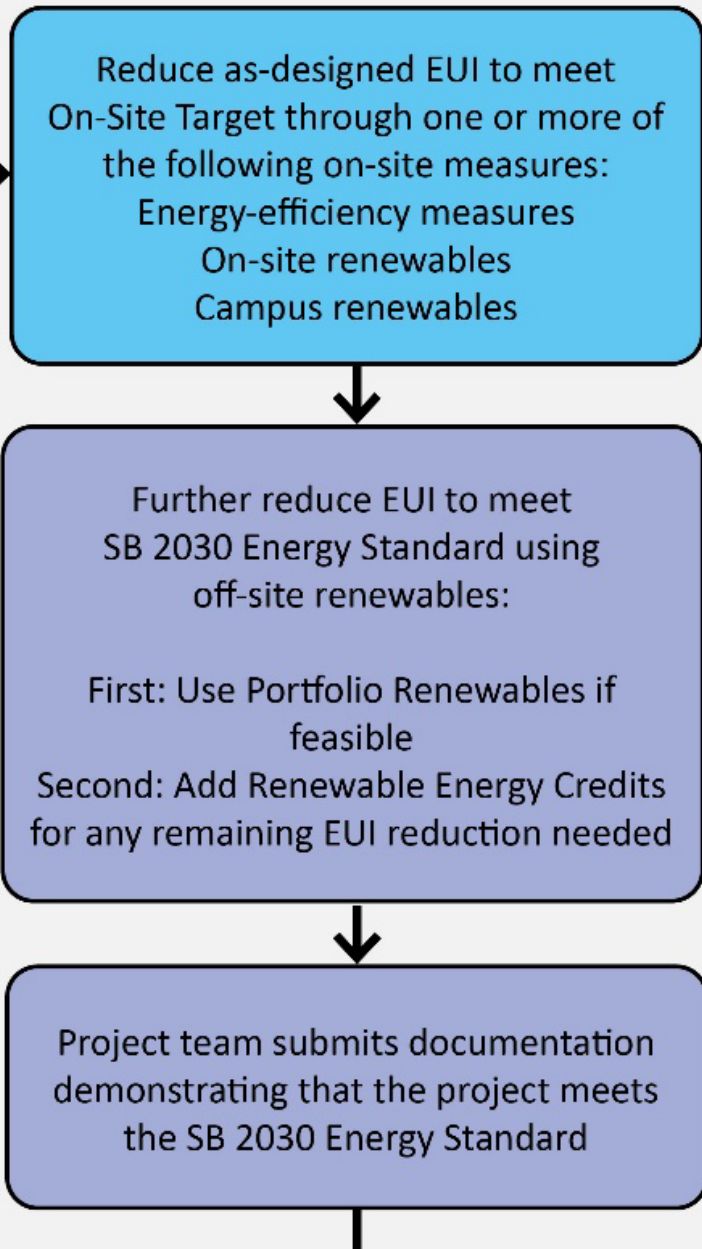
Off-Site measures pursued:

Not applicable



PART 2: ON-SITE TARGET

- The On-Site Target memo documents key metrics.
- The project team can decide how best to meet the on-site target.



PART 3: OFF-SITE RENEWABLES

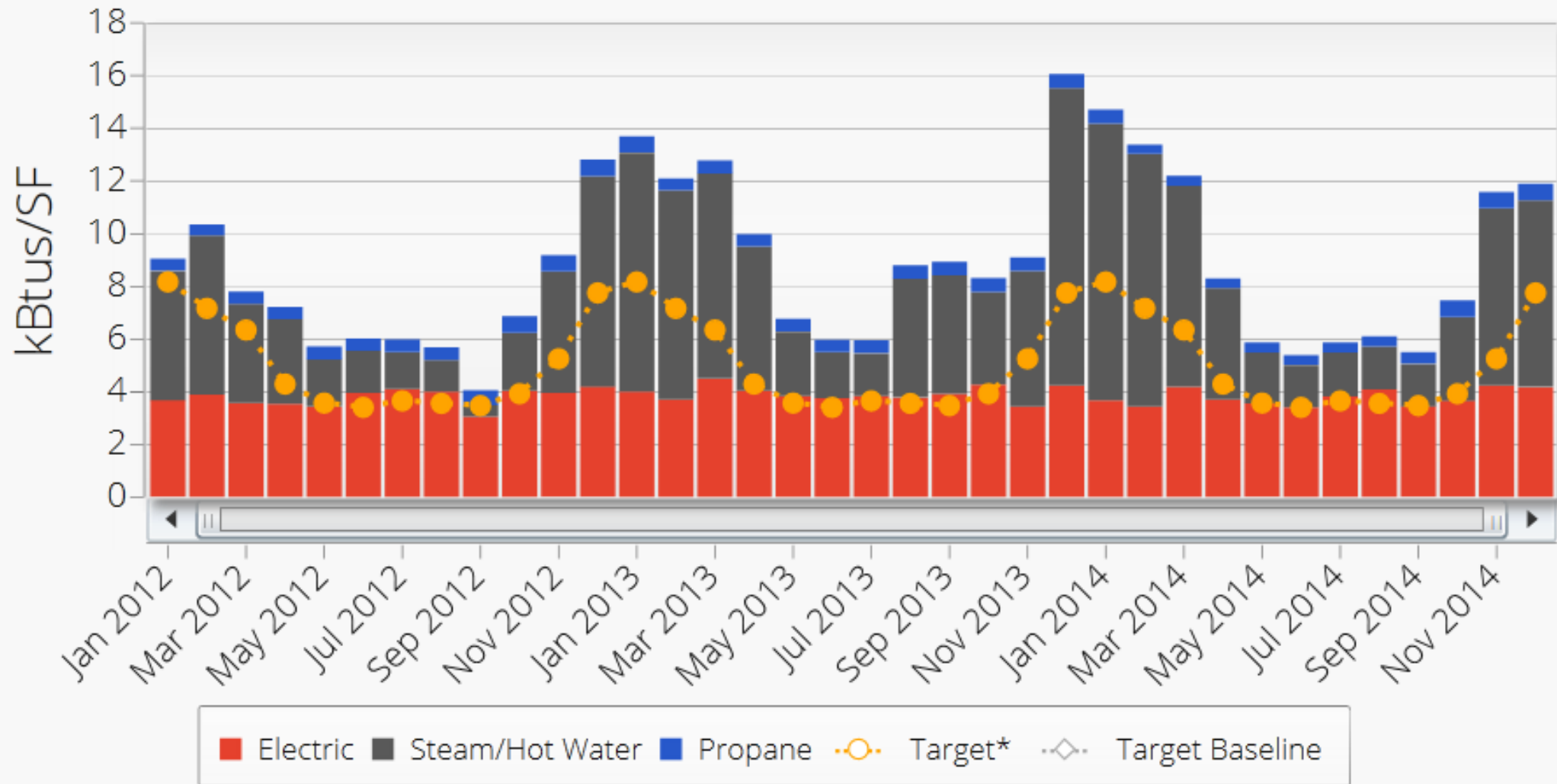
- RECs should be assigned to the building project for the duration of a 10-year period.
 - This can be done with a 10-year term or an upfront purchase based on estimated need.
 - The offsite renewable energy producer must maintain transparent accounting that clearly assigns production to the building.
- Eligible technologies: solar, wind, hydroelectric (<100MW), biomass (with limitations), or hydrogen derived from these sources (M.S. 216B.1691)

PART 3: OFF-SITE RENEWABLES

POTENTIAL APPROACHES:

1. Investing in a new off-site renewable energy system in exchange for the RECs generated
 - Community solar subscriptions typically do not include RECs.
2. Purchasing RECs
 - Green-e program
3. Subscribing to Green Power/Green Tariff programs
 - Examples: Renewable Connect (Xcel), Wellspring (GRE), Renewable Source (MN Power), Tailwinds (Otter Tail)







OTHER SB 2030 PATHS

- **Small Buildings Method:** a prescriptive approach available for projects under 20,000sf; maintains hierarchy of renewables with a more streamlined On-Site Target
- **Wastewater Treatment Facilities:** a process that includes benchmarking existing facility, documenting potential energy conservation measures, and providing anticipated performance metrics

QUESTIONS?

guidelines@b3mn.org