MINNESOTA SB 2030 ENERGY STANDARD®

Off-site Renewable Energy Options for SB 2030: Renewable Energy Credits, Green Power and More.

Ben Gerber, president and CEO of MRETS

Lise Trudeau, Emerging Technology Planning Director, Minnesota Department of Commerce

Amy Fredregill, Director of Sustainability, WSB

Pat Smith, Senior Research Fellow, Center for Sustainable Building Research, UMN

12/6/2021

Agenda

- Logistics: webinar and education credits
- Welcome and Speaker Introductions
- Overview of SB 2030
- Introduction to RECs
- How off-site energy can be used to meet SB 2030
- Goals for RECs
- Common FAQs on the State's role
- Panel Discussion

Questions (collected via the chat during and leaving time at the end)

Webinar Logistics & Education Credits

- Logistics
- A recording of this session will be posted on our training page at b3mn.org
- Those needing AIA credit – **please send your AIA # to the presenters in the chat**
- Attendees will be muted
- Please send questions in the chat. We'll keep an eye out during each topic and leave time at the end to address questions not addressed during the presentation.

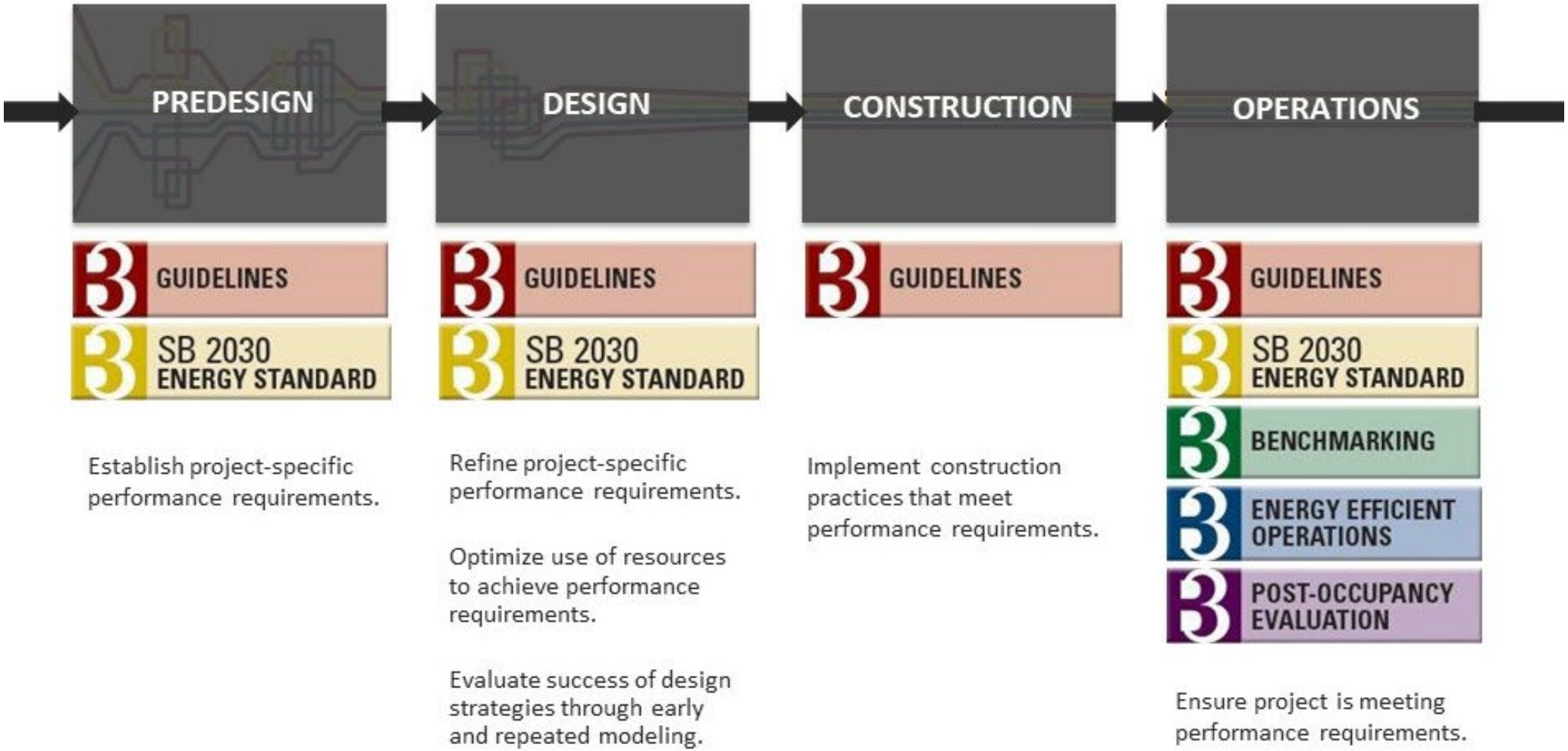
Today's panel

Amy Fredregill,
Director of Sustainability at WSB

Lise Trudeau, Emerging Technology Planning Director at the Minnesota Department of Commerce

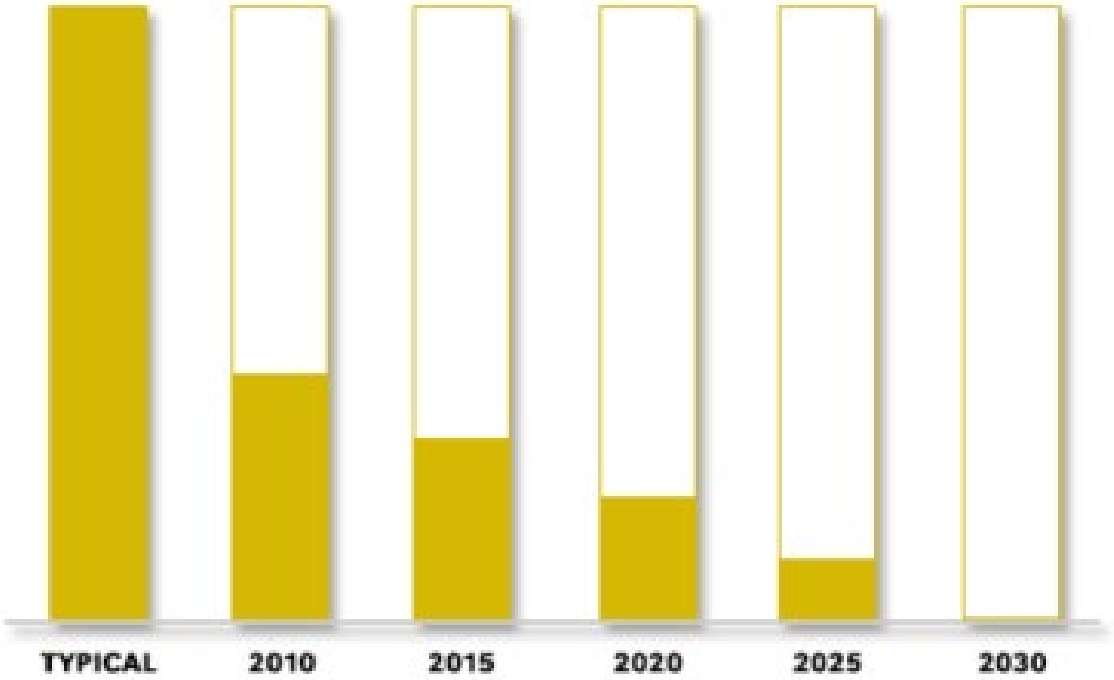
Ben Gerber,
President and CEO of M-RETS

SB 2030 and B3 Programs



SB 2030 Overview

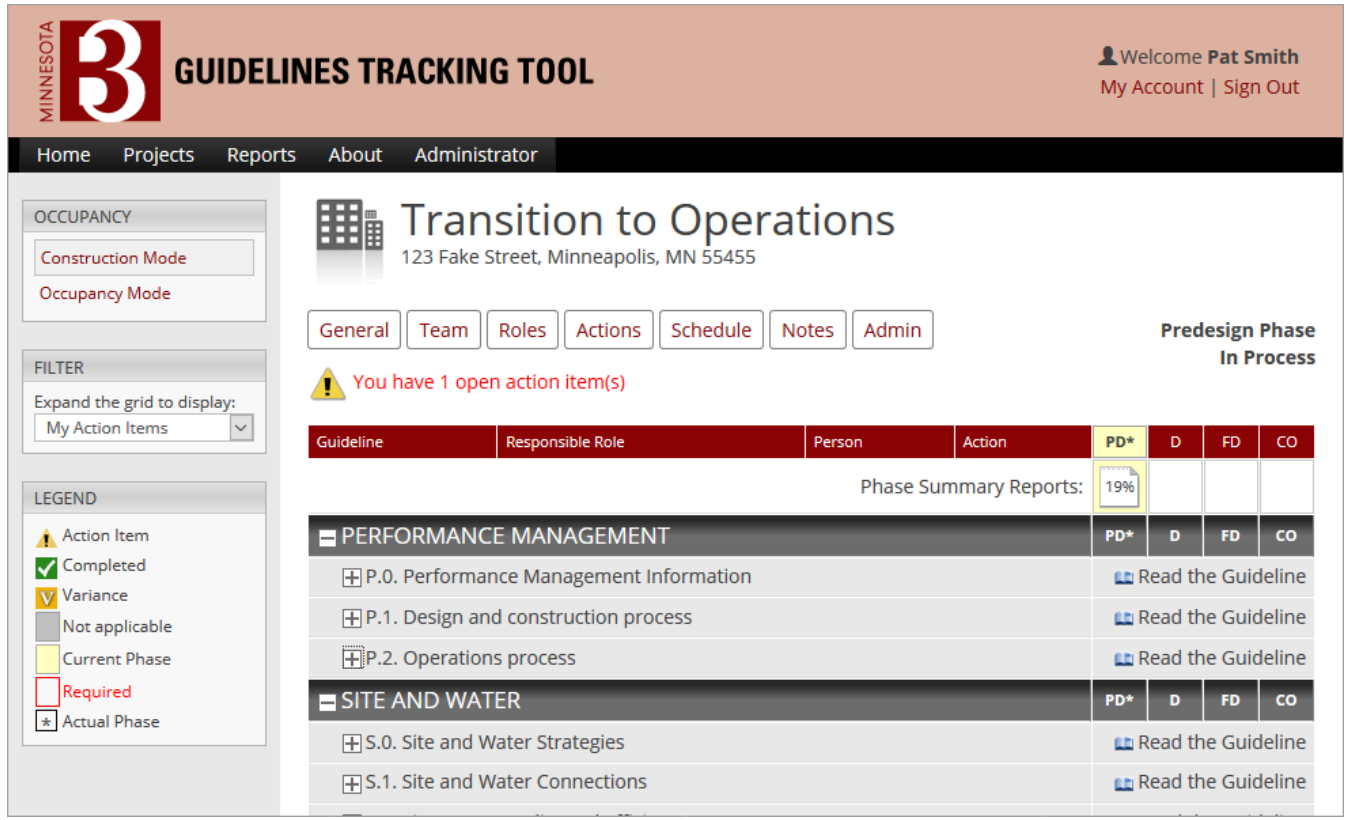
SB 2030 is a progressive energy and carbon reduction program, modeled on the Architecture 2030 program; customized to better fit Minnesota's buildings, climate, and policies, and expanded to allow the inclusion of more building types.

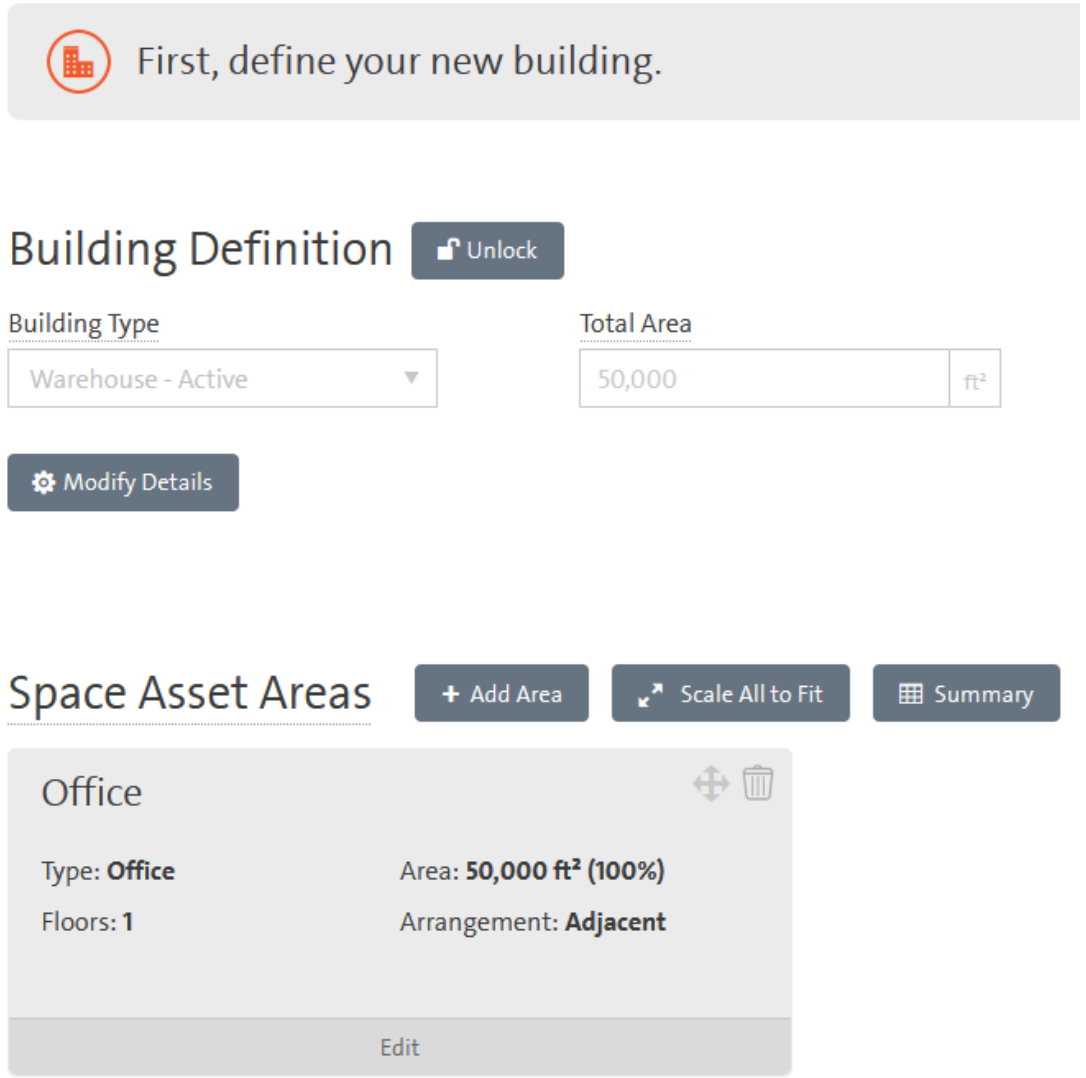


Overview of a project's path in the program

- During Predesign an initial Energy and Carbon Standard is set for the project. Preset defaults for typical building type are included in the tool as often in early design these more detailed values may not be known.
- Through Schematic and Design Development the project performs initial design energy modeling.
- At the construction documents phase (called Final Design in the tracking tool) project teams submit a final energy model for the project and upload construction documents and related documentation, project reviewed by the SB 2030 Review Team.
- During operation – annual submission and as needed updates to the Energy Standard Tool (e.g. updating schedules if changed).

Tools – Tracking Tool and SB 2030 Energy Standard Tool





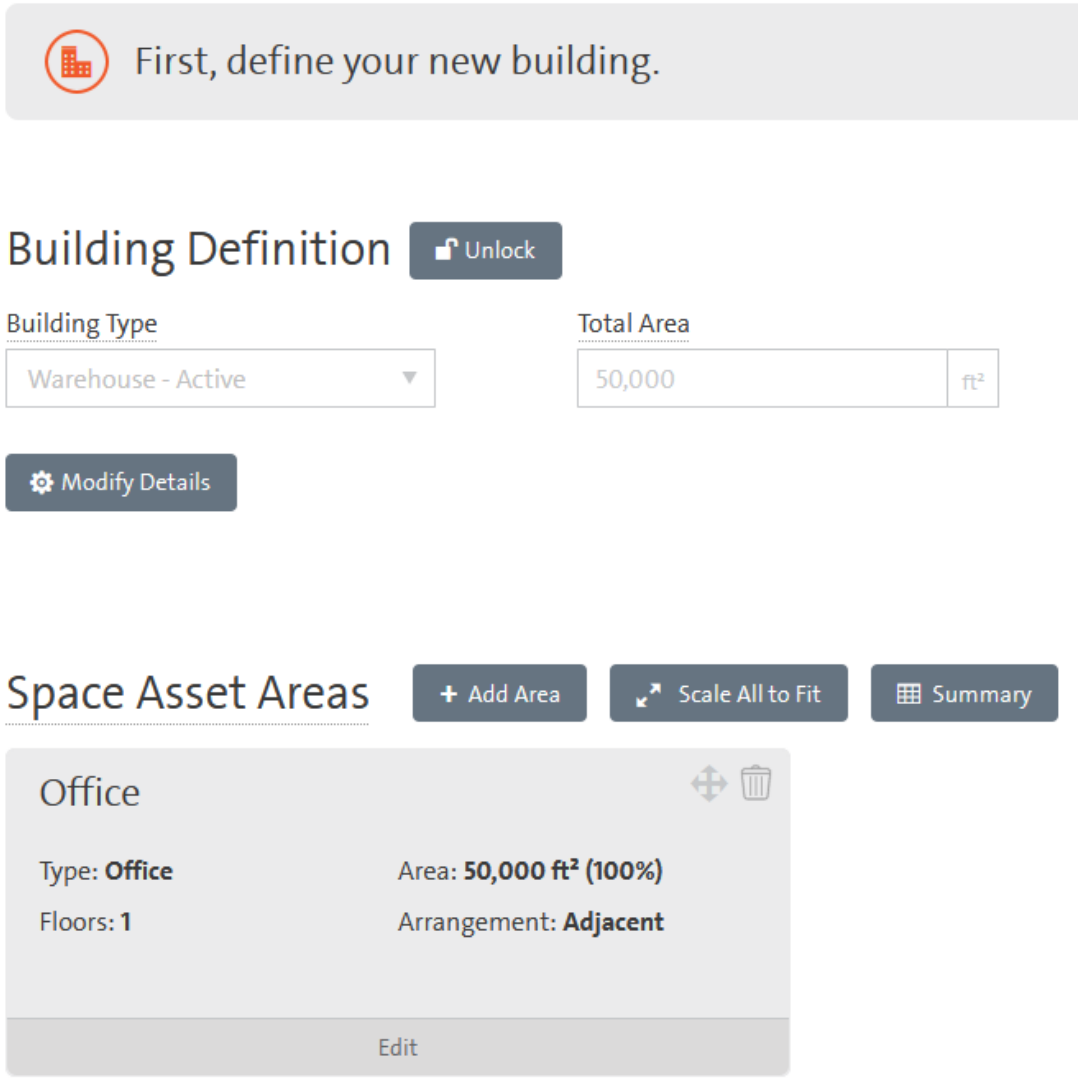
MINNESOTA 3 SB 2030 ENERGY STANDARD®

Energy Standard Tool

This tool produces an energy model that simulates the energy use of a 2003 average building of the same function and operation as the SB 2030 project.

This modeled baseline is aligned with the CBECS 2003 Dataset, permitting a wider array of variables to be considered.

The reduction (60%, 70%, 80%, or 90% depending on the year) is then taken from that baseline to determine the SB 2030 Standard.



Intro to RECs

Ben Gerber

Off-site Renewable Energy Options for SB 2030: Renewable Energy Credits, Green Power and More.

12-6-2021

Online

Benjamin L. Gerber
President & CEO, M-RETS
Ben@mrets.org

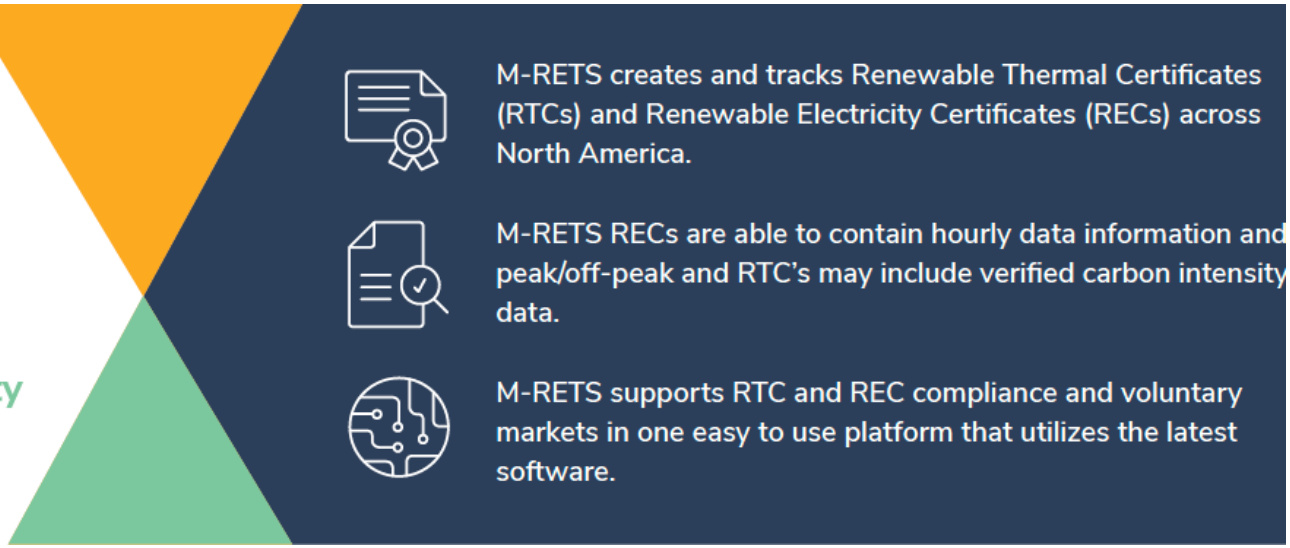
M-RETS
Renewable Electricity

Background

M-RETS
Renewable Thermal

M-RETS
Renewable Electricity

www.mrets.org



- **Mission**: M-RETS validates the environmental attributes of energy to serve as a trusted centralized gateway to environmental markets.
- Independent non-profit 501(c)(4) with a stakeholder board.
- **M-RETS tracks in all states and provinces.**

Registries

GATS/GIS = Generation Attribute/Info

- Track all generation and emissions attributes for generation in order to provide emissions labeling for LSEs

RETS, RECS . . . = REC tracking systems

- While they can accommodate registration of any type of generator, in practice only track renewable generation.

Renewable Energy Certificates

MWh Renewable Energy =
1 Whole Certificate

Certificate No. T999-MN-01-2013-XXXXXXX-1-45,000

- Certificate Type
- Fuel Type
- Location
- Vintage

Renewable Energy Certificate

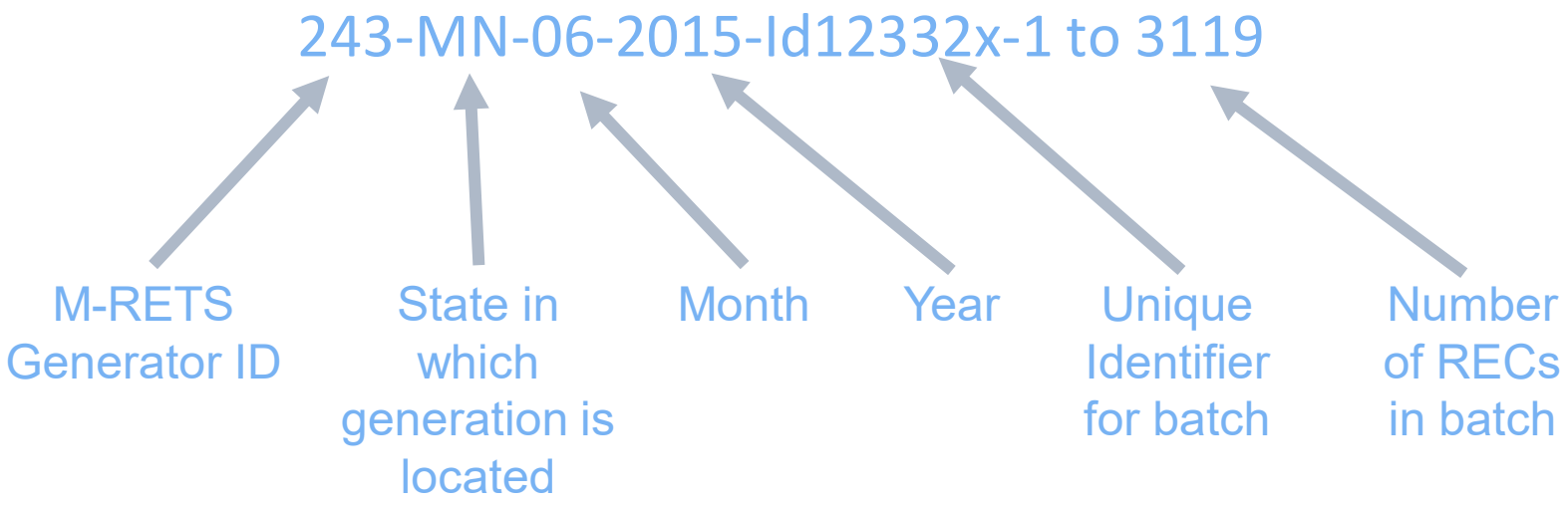
Renewable Portfolio Standard Markets

Voluntary Markets

Energy (Null Power)

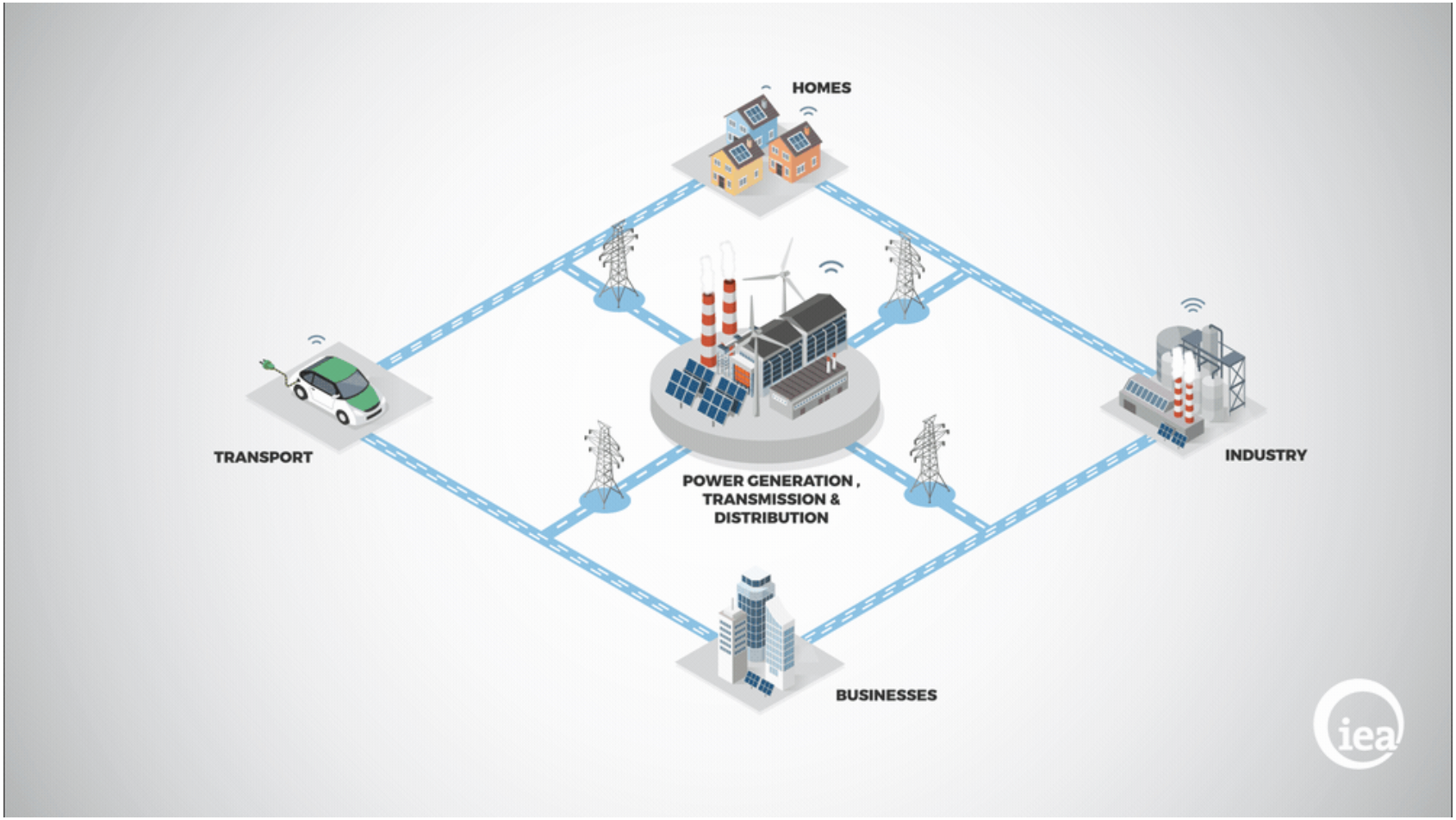
Power Markets (ISOs)

What does a REC look like?



- This serial number refers to 3119 RECs that were all issued at once, batches can be split

Digital transformation & blurred lines



Digitalization is blurring the distinction between generation & consumption

M-RETS

www.iea.org/digital/?utm_content=buffer9ed4c&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

Hourly Data – focus on decarbonization

Data Driven Market Applications

- 24/7 – matching facility load to generation hourly
- More accurate market signals
- Targeted generation development planning focused on maximizing carbon reduction
- Data-driven storage market that provides accurate price signals + decarbonization
- Decarbonization based energy efficiency markets
- Hydrogen Benefits

THANK YOU

Contact: ben@mrets.org

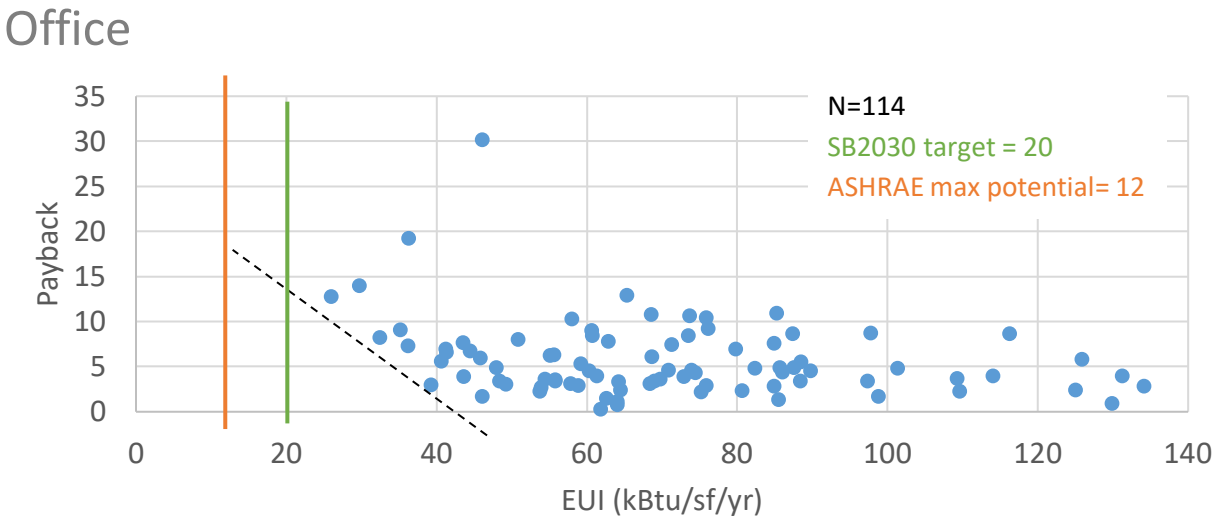
M-RETS
Renewable Electricity

Off site renewables and SB 2030

Efficiency Alone Is Sometimes Not Enough to Get to 80%

Findings:

- Technical and payback limitations for energy efficiency to achieve 80% alone
- Cost reductions in renewable energy
- Renewable energy will often be needed to meet the target
- Hierarchy of renewable energy location
- Cost effectiveness will more often be a factor
- Currently Use a 12-year simple payback as cost-effective test

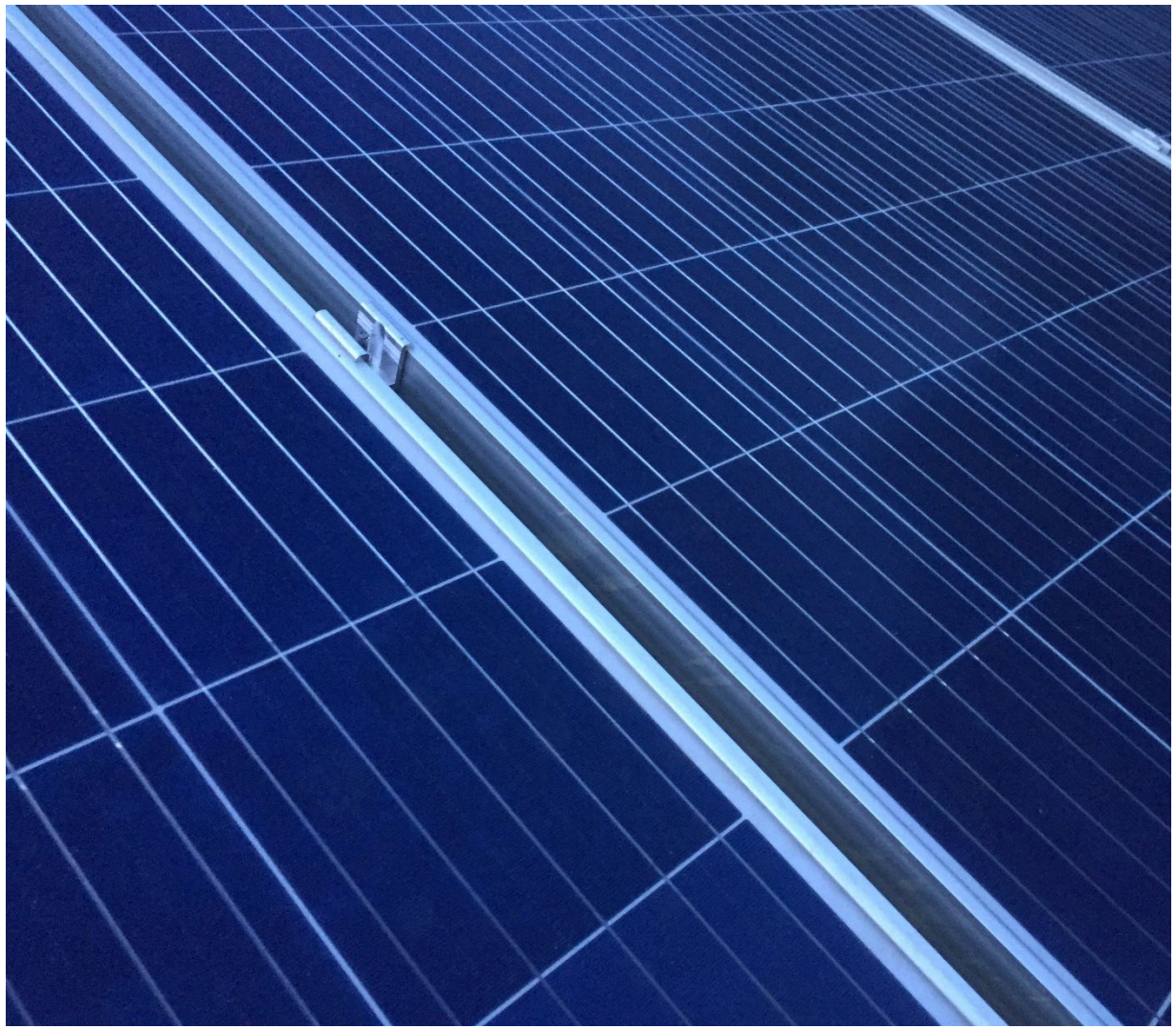


Data from Willdan Midwest EDA programs

Implement efficiency and renewable energy based on hierarchy

Projects not cost-effectively able to achieve the SB 2030 Energy and Carbon Standards with only energy efficiency measures are then required to provide sufficient carbon-neutral renewable energy (RE) to achieve the standards.

SB 2030 aligned their classification system with a scheme that NREL developed—though with some considerations based on the type of buildings and ownership organizations that participate in the SB 2030 Program.



Hierarchy of renewables

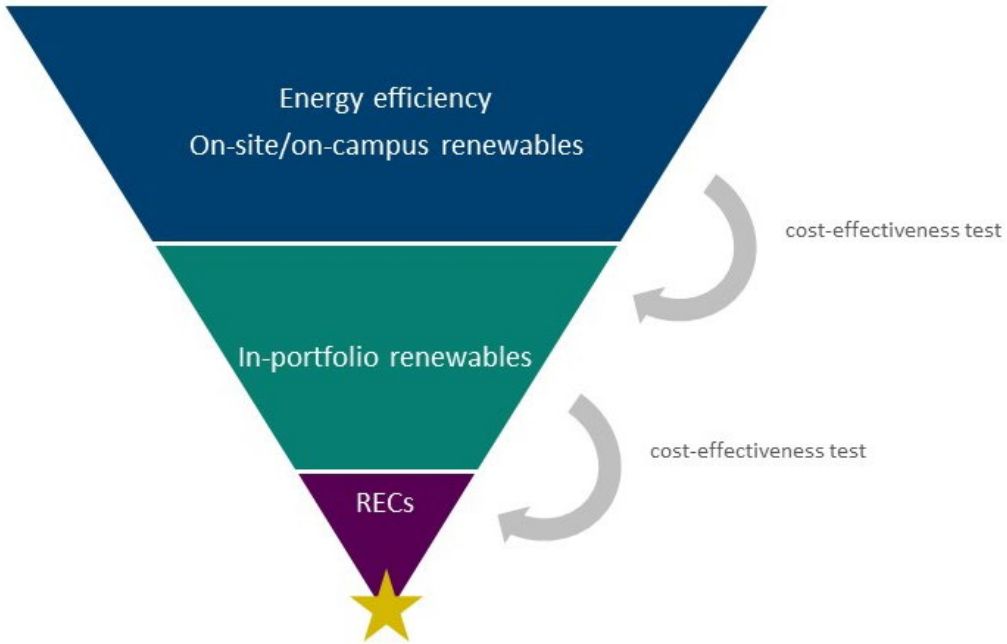
SB 2030 Program Energy Efficiency and Renewable Energy Supply Options Hierarchy

Option Number	NZEB Supply-Side Options	Examples
0	Reduce site energy use through energy efficiency and demand-side renewable building technologies.	Daylighting; insulation; passive solar heating; high-efficiency heating, ventilation, and air-conditioning equipment; natural ventilation, evaporative cooling; ground-source heat pumps; ocean water cooling
On-Site Supply Options		
1	Use RE sources available within the building footprint and connected to its electricity or hot/chilled water distribution system.	PV, solar hot water, and wind located on the building
2	Use RE sources available at the building site and connected to its electricity or hot/chilled water distribution system.	PV, solar hot water, low-impact hydro, and wind located on parking lots or adjacent open space, but not physically mounted on the building
Off-Site Supply Options		
3	Use RE sources available off site to generate energy on site and connected to the building's electricity or hot/chilled water distribution system.	Biomass, wood pellets, ethanol, or biodiesel that can be imported from off site, or collected from waste streams from on-site processes that can be used on site to generate electricity and heat
4	Purchase recently added off-site RE sources, as certified from Green-E (2009) or other equivalent REC programs. Continue to purchase the generation from this new resource to maintain NZEB status.	Utility-based wind, PV, emissions credits, or other "green" purchasing options. All off-site purchases must be certified as recently added RE. A building could also negotiate with its power provider to install dedicated wind turbines or PV panels at a site with good solar or wind resources off site. In this approach, the building might own the hardware and receive credits for the power. The power company or a contractor would maintain the hardware.

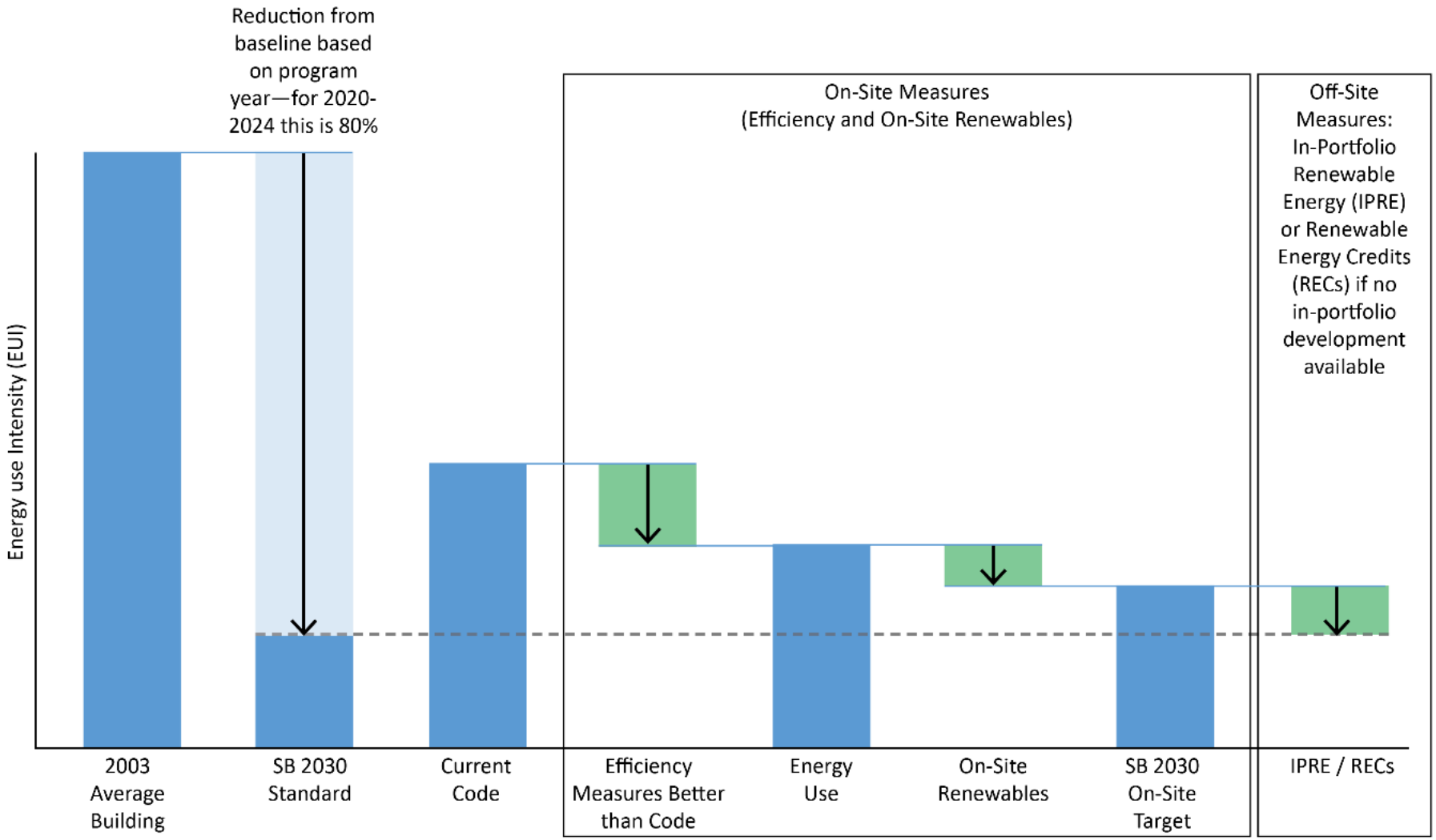
NZEB Supply Options 0, 1, and 2 must be considered first and implemented if cost-effective. On-campus development of Supply Option 2 is included in this evaluation and considered equivelant to on site Supply Option 2.

If the SB 2030 Standard cannot be met cost-effectively using supply options above, additional RE should be developed from within the project owner's portfolio (note that this in-portfolio RE development is not listed as a supply option number here). NZEB Supply Option 3 is also permitted, subject to evaluation by the SB 2030 Project Team.

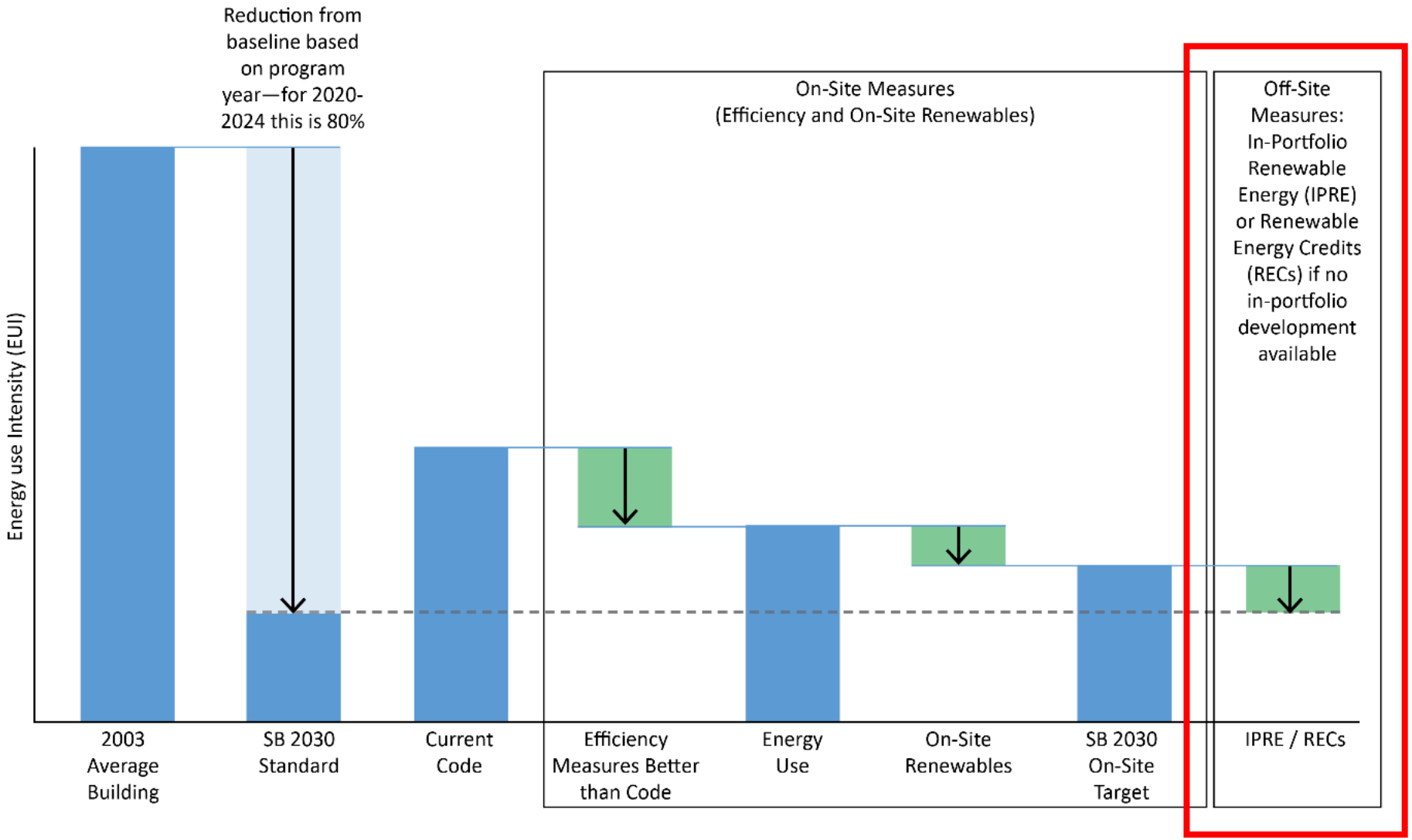
The remainder of RE needed to meet the SB 2030 Standard shall be procured through Renewable Energy Credits (RECs).



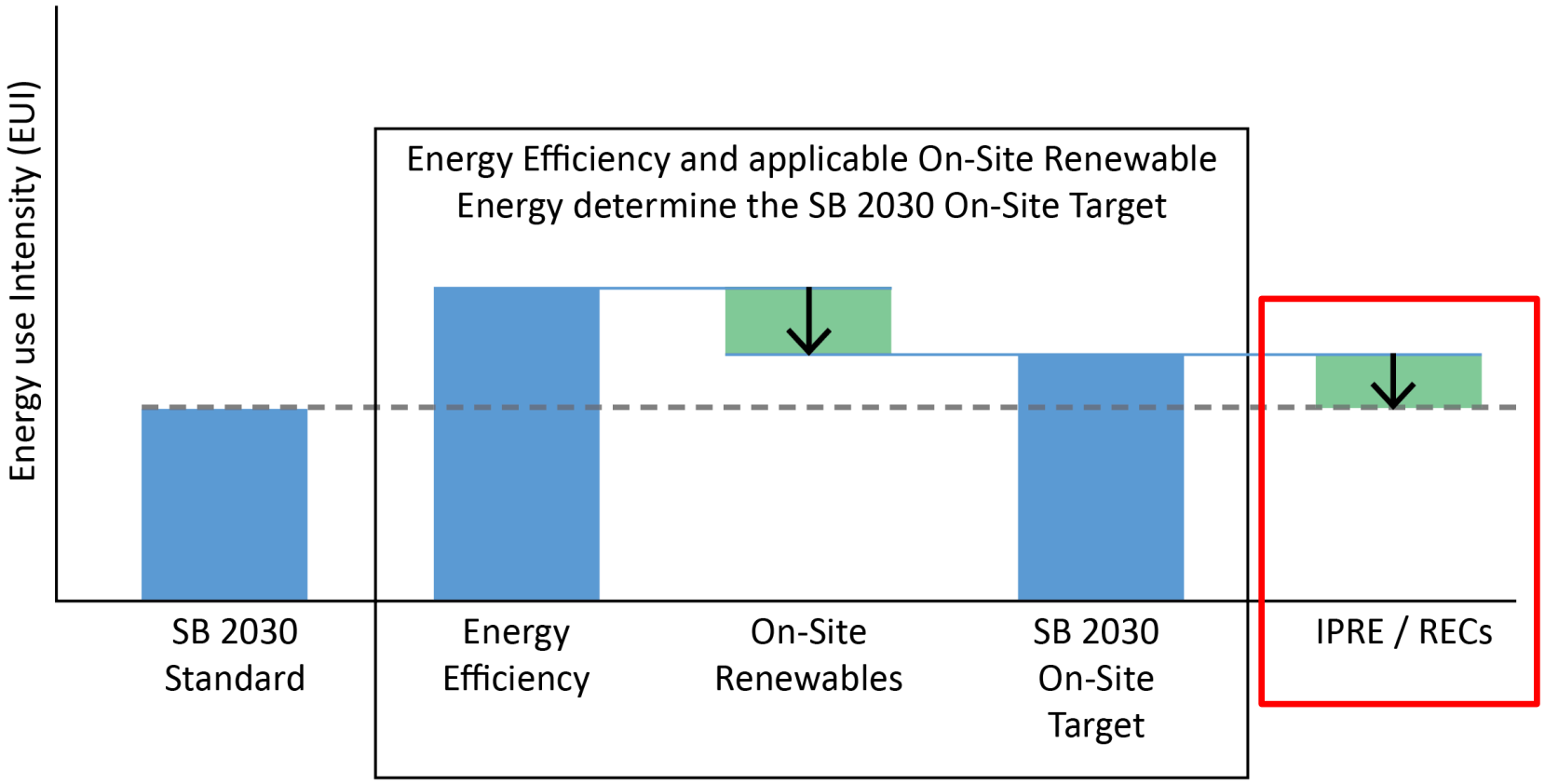
Combining on-site and off-site measures



The Small Building Method helps determine this part of the process



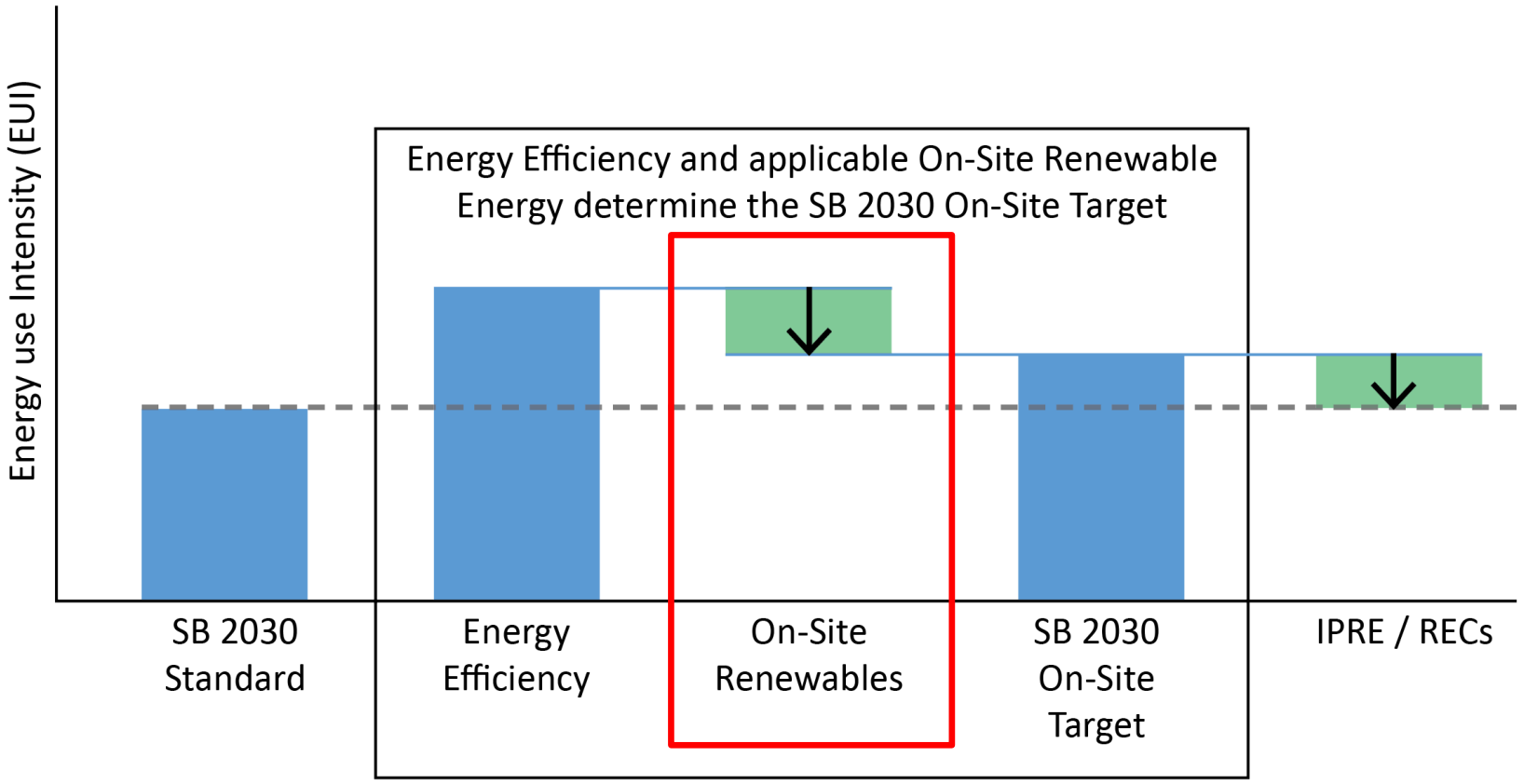
Renewable Energy Implementation



The remaining energy needed to meet the SB 2030 target should be sourced from in-portfolio renewable energy development (IPRE).

For projects without access to in-portfolio development opportunities renewable energy credits (RECs) may be procured to meet the SB 2030 Standard.

Renewable Energy Implementation



Note also that any On-Site renewables need to have their environmental attributes retained (or replaced) to contribute to meeting SB 2030.

RECs and Off-site considerations for SB 2030

General considerations of off-site renewable energy for SB 2030:

- 10-year term or 10-year estimated need up front
- RECs and other environmental attributes associated with the procured offsite renewable energy should be assigned to the building project for the duration of the 10-year period.
- The renewable energy generating source should be either solar, wind, hydroelectric with a capacity of less than 100MW, biomass (with limitations) or hydrogen derived from these sources.
- The offsite renewable energy producer maintains transparent accounting that clearly assigns production to the building.
- May be split or combined energy and environmental attributes

*Note that the SB 2030 program looks to the statutory definition of renewable energy in Minnesota Statute 216B.1691 for the definition of “eligible energy technologies.”

Potential approaches

Approaches satisfying SB 2030 for off-site portion:

- Receiving credit for an off-site RE system or portion of a system
  - note that for RE development the RECs / attributes cannot be sold off as they often are with Solar Gardens
  - Tracking / apportioning needed
- RECs
  - Either ongoing procurement for a period of 10-years or up-front purchase
  - e.g. Green-E or …
- Purchase Green Power / Green Tariff programs
  - Programs that retire RECs on behalf of the customer in addition to what's required for their renewable portfolio standard.
  - e.g. programs such as Renewable Connect (Xcel), Wellspring (GRE), Renewable Source (Minnesota Power), Tailwinds (Otter Tail Power)
- Tracking:
  - B3 Benchmarking has the ability to identify REC-associated energy production and purchased products
  - Future improvement to improve the tracking of split off-site resources, permitting disaggregation of shared resources

State's role in Renewable Energy Tracking

Lise Trudeau

Off-site Renewable Energy Options for SB 2030: Renewable Energy Credits, Green Power and More

Dec 6, 2021

Forge ahead.

WSB is a design and consulting firm specializing in engineering, community planning, environmental, and construction services. Our staff of over 550 improve the way people engage with communities, transportation, infrastructure, energy and our environment. We offer services in over 30 complementary areas that seamlessly integrate planning, design and implementation. Our coast-to-coast client base is served from 15 offices in five states.

We share a vision to connect your dreams for tomorrow to the needs of today – the future is ours for the making.

How we define sustainability

At WSB, sustainability simultaneously advances economic, social, and environmental outcomes, thereby meeting the needs of current and future generations.

Each aspect – economic, social and environmental – is like a leg on a three-legged stool. If one leg is shorter or weaker than another, the stool is not stable. No part of the stool exists in a silo, but instead is connected as a system to serve any number of purposes.

ECONOMIC | SOCIAL | ENVIRONMENTAL

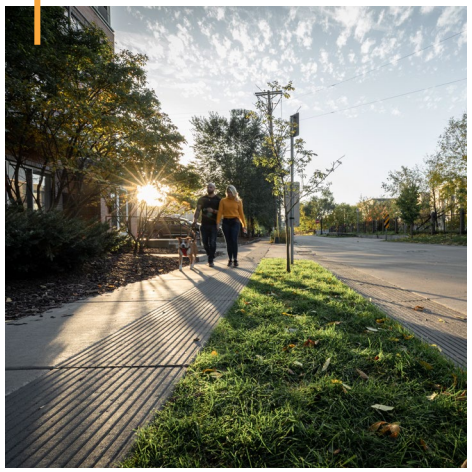
Sustainability Systems Approach

Community Planning

Vegetation & Green Infrastructure

Energy

Water



Multi-modal Travel

Natural Resources

Business Case & Intent of RECs

- Lower costs and stability
- Meet citizen and customer expectations
- PR benefit to claims from investments
- Achieve climate and resiliency goals
- Market differentiation

Market Forces

- Private sector steps forward helping reduce cost curves for public sector
- Supply chain, value chain and procurement drivers
- Data and science-based targets
- Visibility, public education and awareness raising
- Importance of architectural and upstream design in decision options

Portfolio of Renewable Options Considered

Many options exist to meet goals:

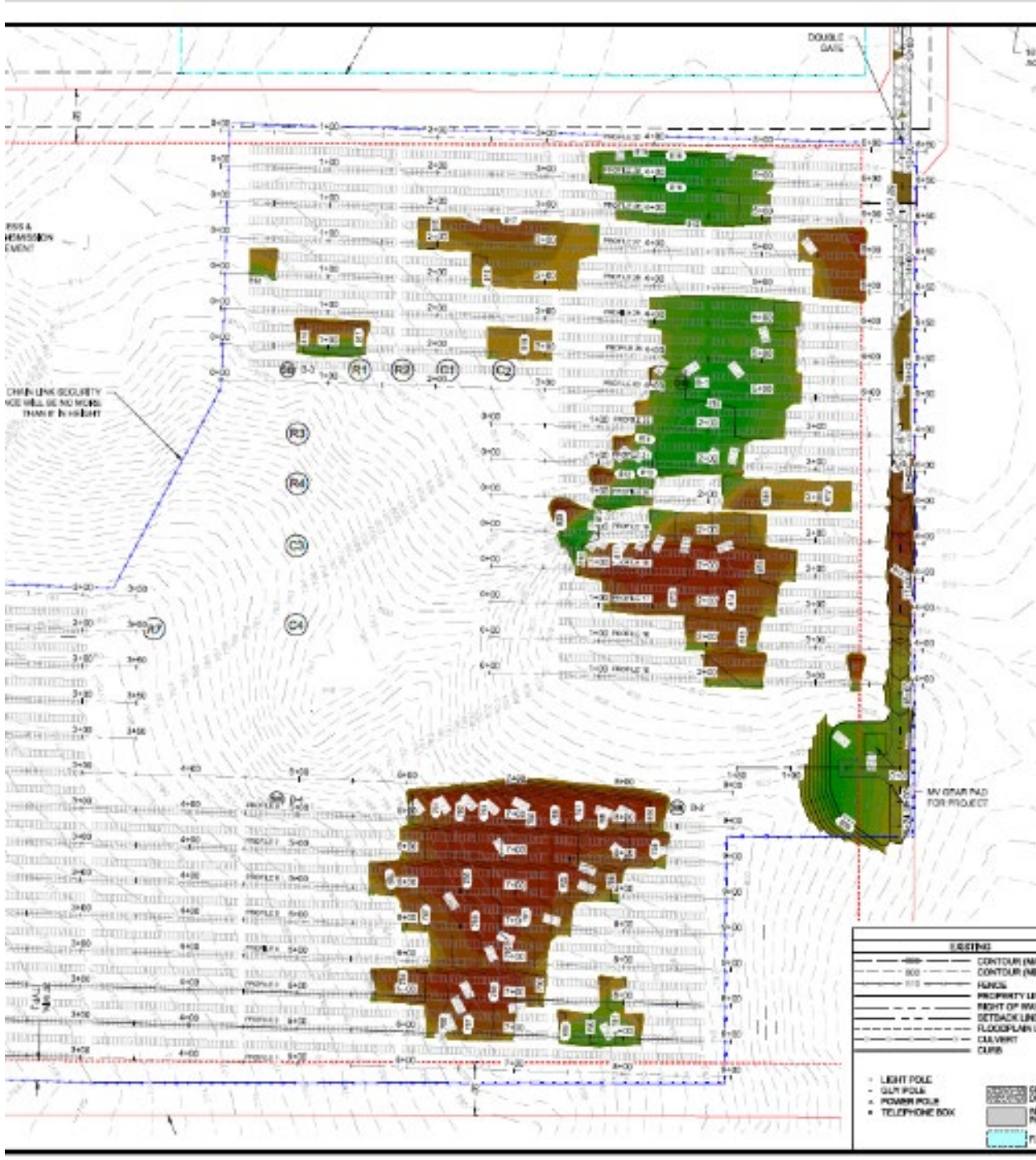
- Solar garden subscriptions
- Utility subscriptions – green tariffs
- On-site solar
- PPA’s, VPPA’s
- Buying RECS

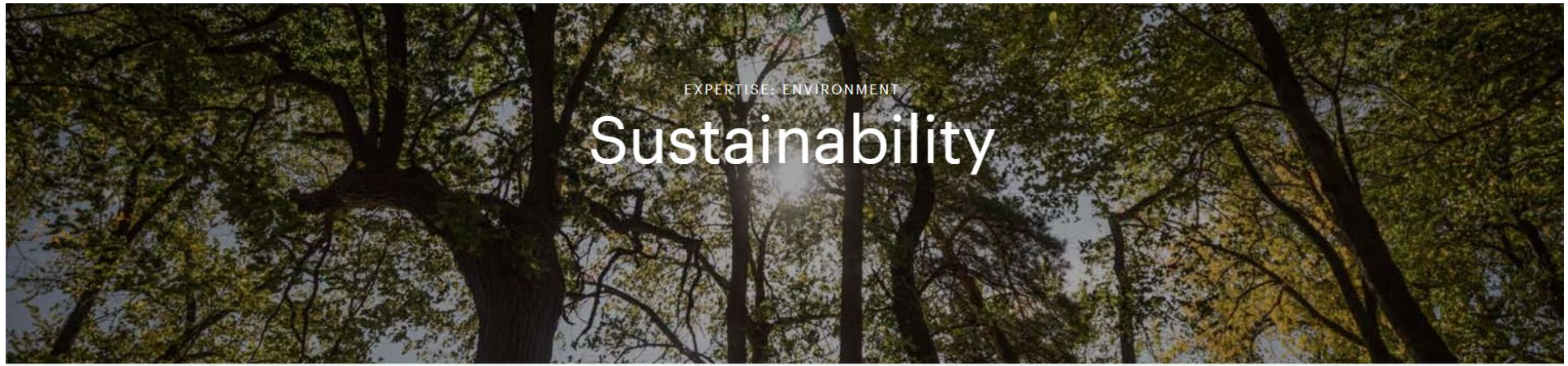
Decision factors:

- Goals of project owner
- B3, net zero, local gov’t goals
- Tax, legal and financial

Illustrative Client – Park District

- Vision in master plan
- Load and other site characteristics
- Funding sources
- Being responsible to stakeholders
- Level of difficulty, cost involved





Planning for the future.

Community and business needs constantly evolve and often involve complex infrastructure challenges. Economic, social and environmental goals are driving communities and business to seek more sustainable solutions.

https://www.wsbeng.com/expertise/environment/sustainability/

ECONOMIC | SOCIAL | ENVIRONMENTAL

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THANK YOU