



SUSTAINABLE DESIGN FOR THE BUILT ENVIRONMENT

Net-Zero Emerging Leadership Internship

SERA Architects | Energy Trust of Oregon

Introduction |




Large Firm | 184+



Portland, Or. Office
Oakland, CA. Office


Across 6 Studios |




Education



Workplace



Hospitality



Housing



Sustainability



Urban Design

Established in 1968

100% Employee Owned

Reporting for over 10 years

History of Community & Sustainability |



LEED NC Platinum Certified

Blanchet House of Hospitality incorporates one of the city’s largest rainwater harvesting systems, energy-efficient lighting, extra insulation, thermally-broken low-e windows, and a 2,500 sf eco-roof that, together with the rainwater tank, allows for 100% of the stormwater to be managed on site and used for toilet flushing.



Certified LEED NC Platinum 2013 and Certified LEED EB Platinum 2016

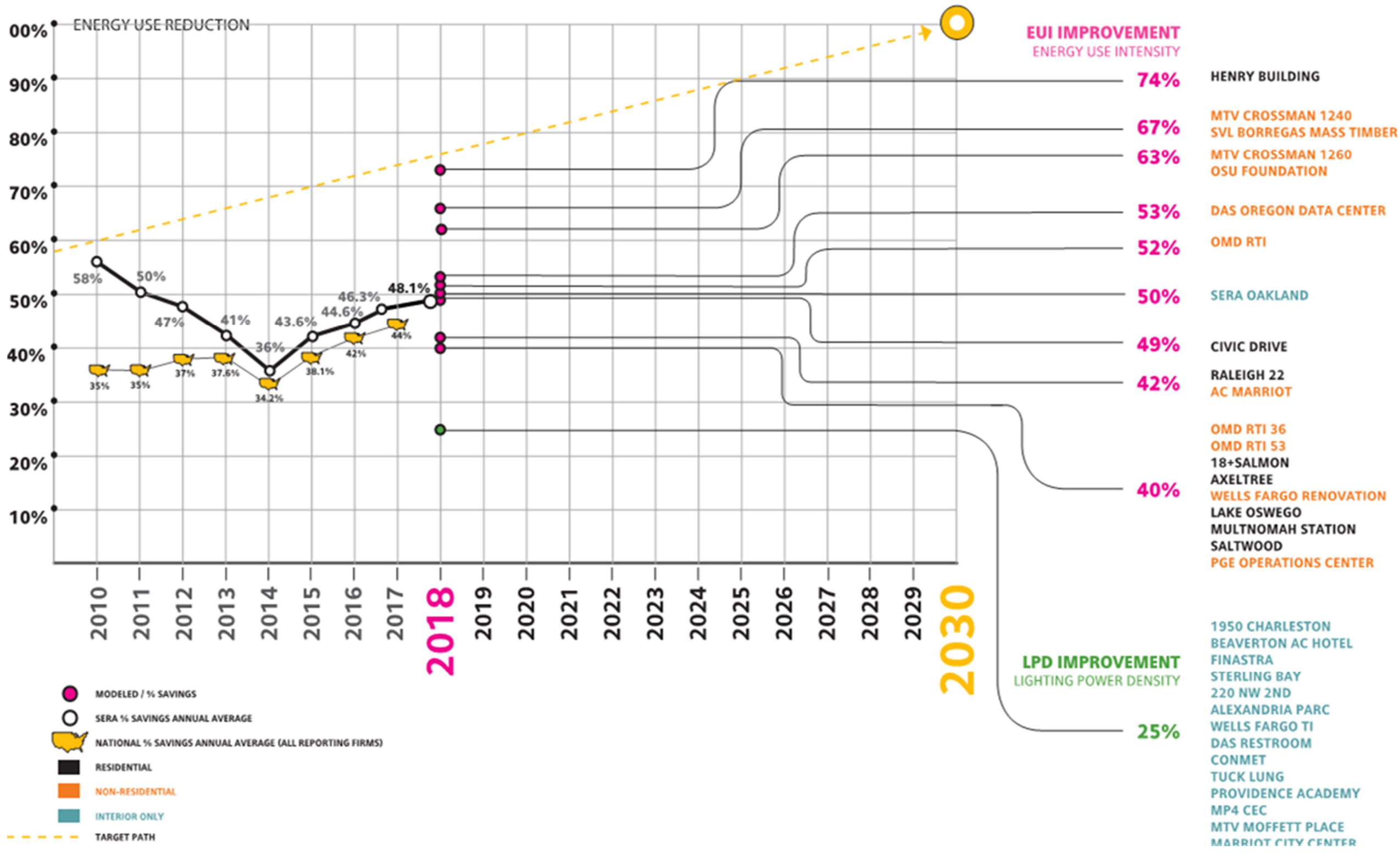
Edith Green Wendell Wyatt is LEED Platinum certified and will use 60-65% less energy than a typical office building. Combined with a unique rain water harvesting system, which is estimated to achieve greater than 65% potable water savings.



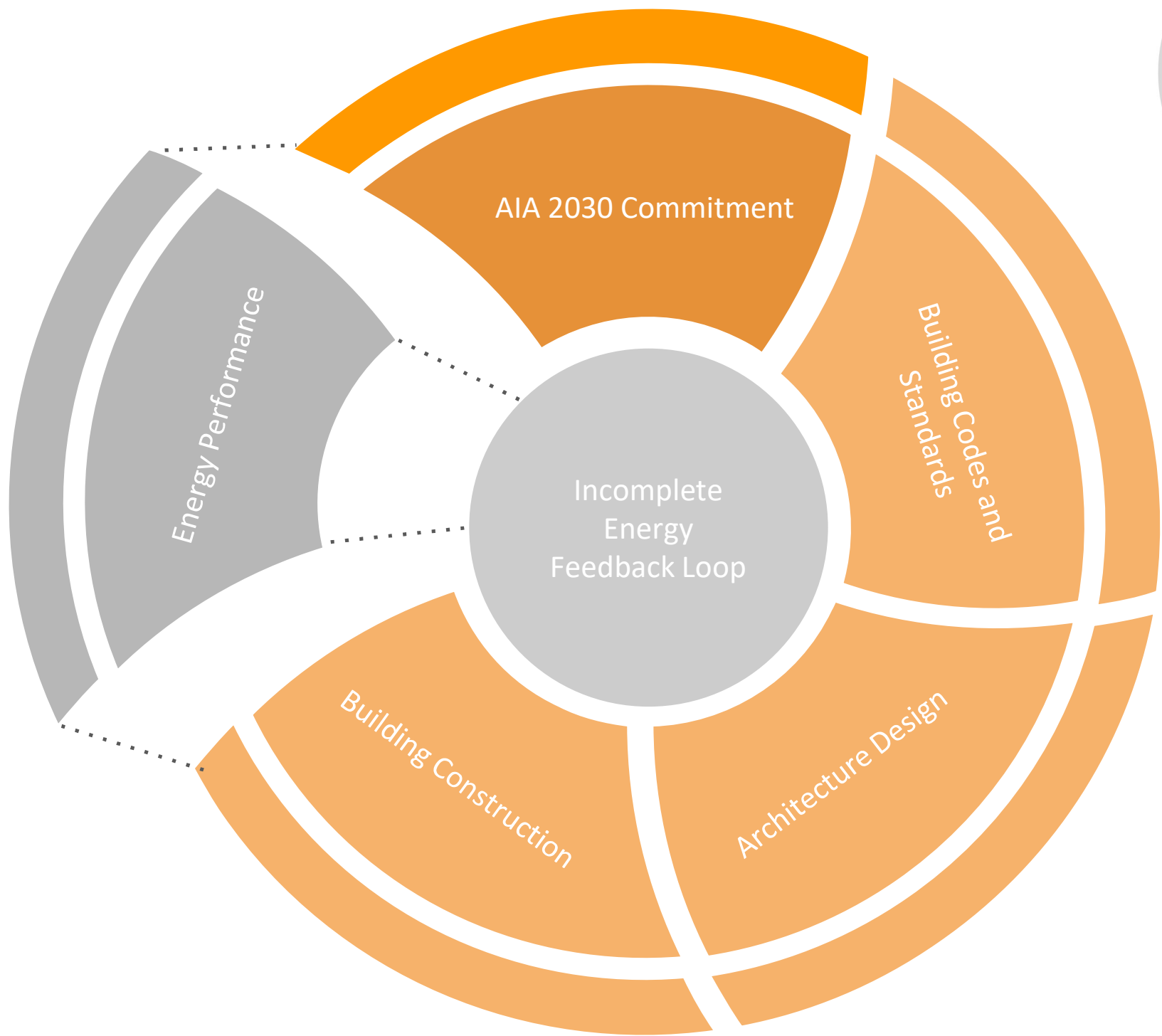
Targeting Earth Advantage Platinum certification

Orchards of 82nd features a mix of 48 one-, two- and three-bedroom units ideal for young families, and supports ROSE’s Baby Booster Initiative aimed at improving quality of life for children in their first 1,000 days. The ground floor is activated by a community lounge and learning space, as well as a multicultural event space owned and managed by APANO.

Where are we? |



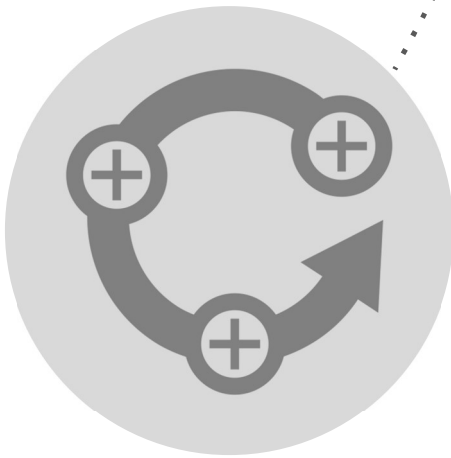
Why? |



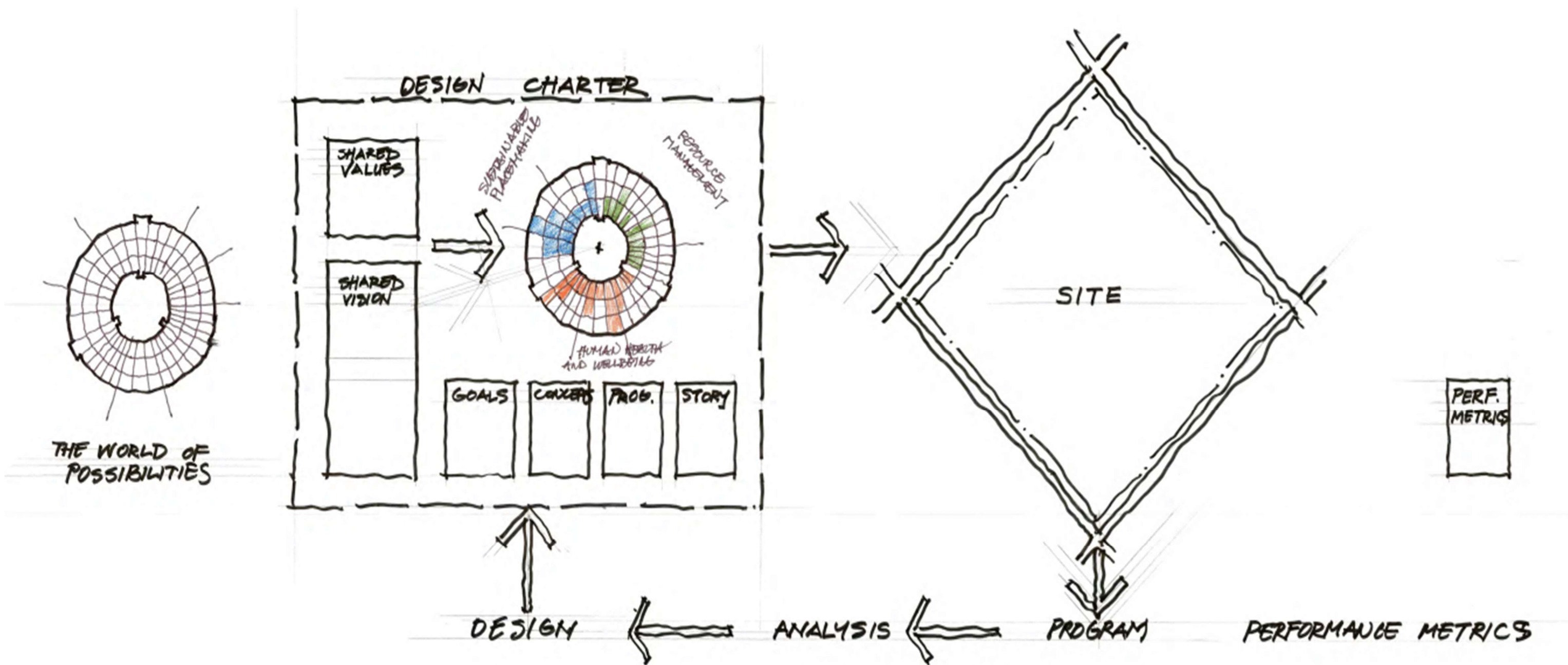
Buildings account for 40% of energy consumption



Data is a powerful communicative language



Firms can use data for Design Processes



Research Goals |

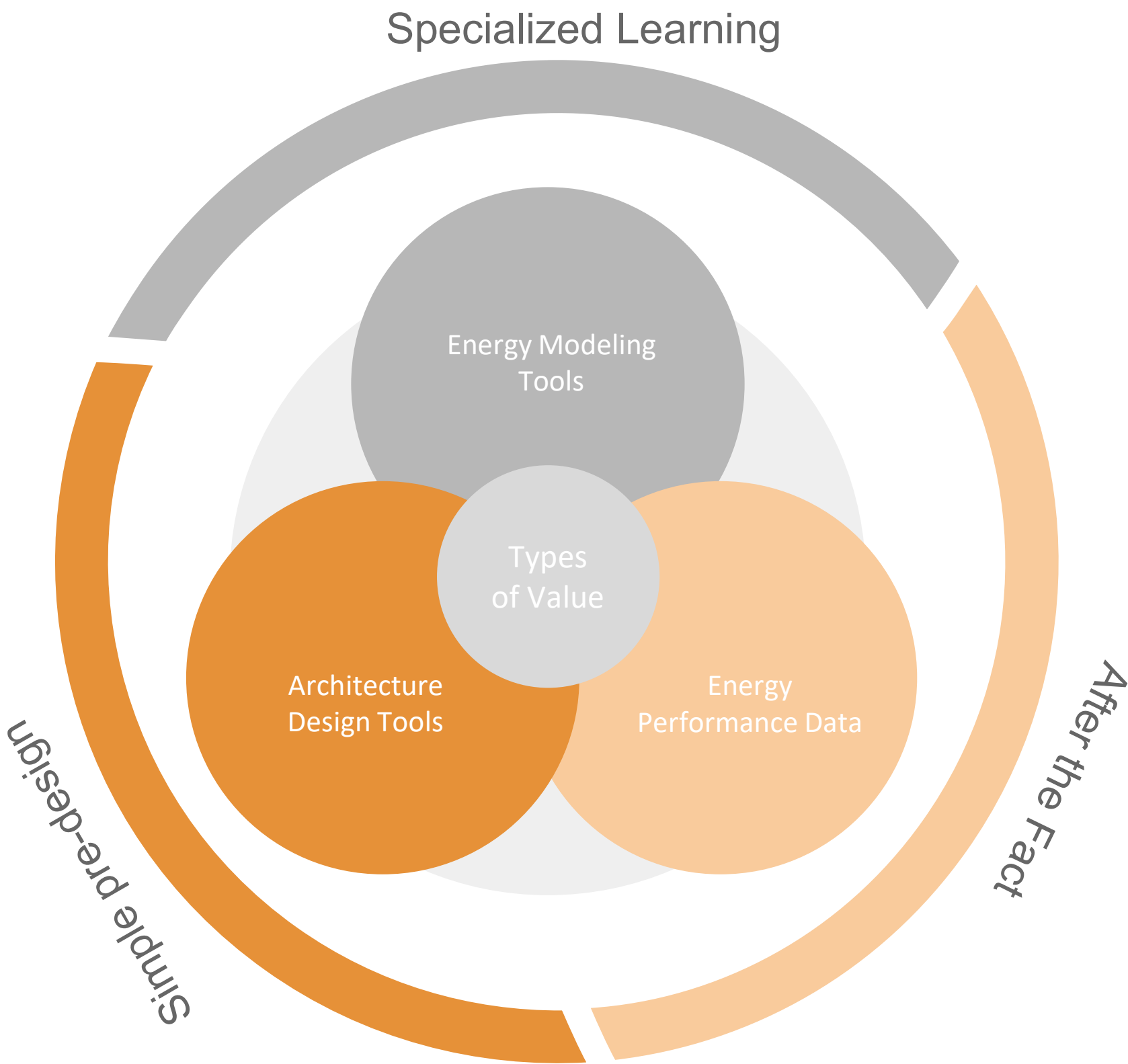
Challenges |

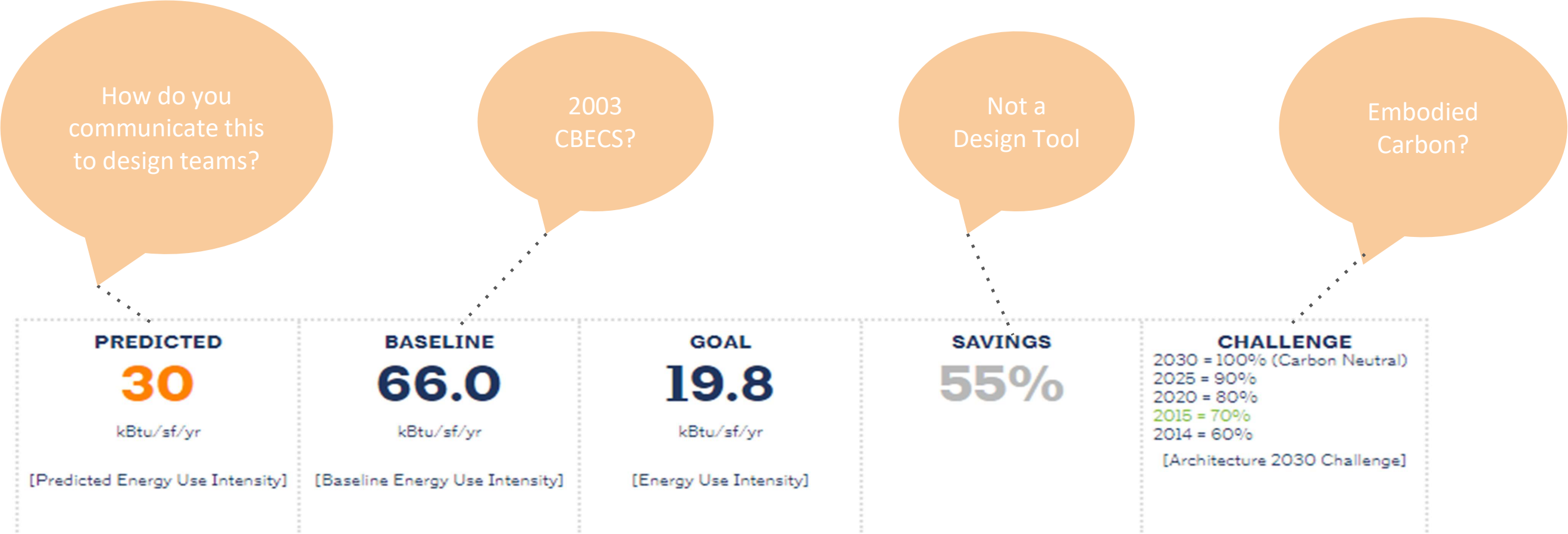
- Communicating and maintaining sustainable efforts within a large firm.
- Energy tools can be dense and require specific training.
- Energy performance is typically after the fact reporting or considerations.

.....

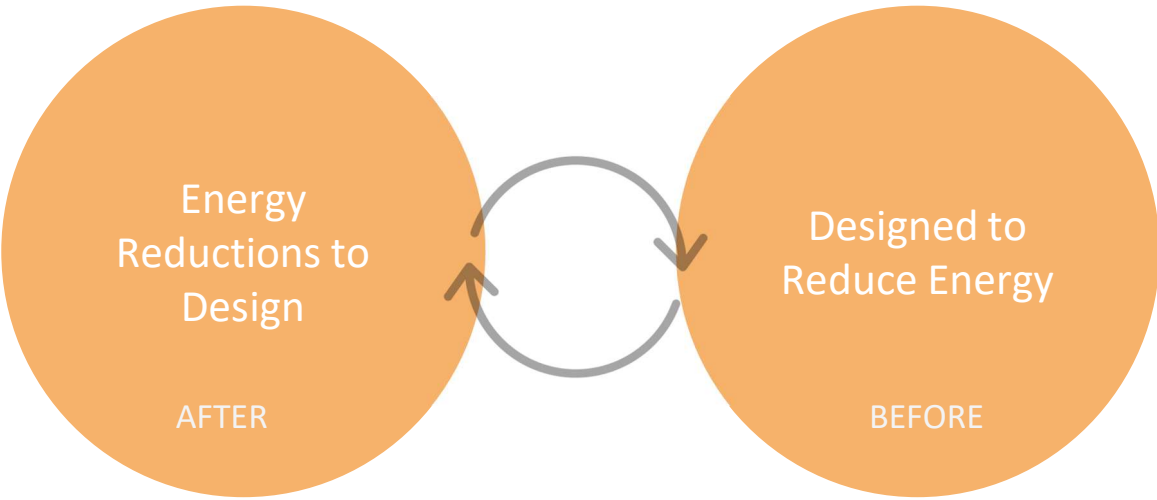
Goals |

- Bolster workflow efforts for DDx reporting firm-wide.
- Create simple architecture design tools to determine early energy metrics.
- Establish ways of thinking about energy metrics in pre-design efforts.





Needed Paradigm Shift |



EUI Benchmark Tool |

STEP #3:	STEP #4:		STEP #5:		
Select the applicable building typology of the Project. *Building Typology must be same for National and Regional for comparisons.	Select the applicable building typology based on the region. *Building Typology must be same for National and Regional for comparisons		Determine your target EUI		
DISCRIPTION: The National EUI is an average EUI that changes with different building typologies. The National EUI is based on the CBECS -2003 building standards and is what the 2030 Commitment Goal EUI numbers are compared to. *Selected building typology should be the same between National and Regional as to get equal comparison. In some cases National EUI might be lower than Zero Tool, use the lower of the two outputs.	DISCRIPTION: The Regional EUI number is a prediction of energy consumption based off of regional climate conditions. This is a more accurate indication of energy consumption. *Selected building typology should be the same between National and Regional as to get equal comparison. In some cases National EUI might be lower than Zero Tool, use the lower of the two outputs.		DISCRIPTION: Identify your project goal based on Project Compass goals for energy consumption (Better, Best, Ememplary). This EUI should provide a metric and goal for the buildings energy use leading toward Net-Zero Energy. If you plan on building to energy code what can be done to lower the projects EUI in an attempt to build better than code?		
BASELINE EUI (kBTU/ft2/yr)			TARGET EUI (kBTU/ft2/yr)		
NATIONAL EUI (2030 GOAL)	REGIONAL EUI (ZERO TOOL)		ENERGY CODE	2030 CHALLENGE	ZERO TOOL
Courthouse	COURTHOUSE (Portland, OR)		IMPROVED	BETTER	EXEMPLARY
118	76		78	35	23
118	76		78	35	23
118	76		78	35	23
118	76		78	35	23
118	76		78	35	23
118	76		78	24	15
118	76		78	24	15
118	76		78	24	15
118	76		78	24	15
118	76		78	24	15

Batch Upload for a Large Firm |

(~40 Questions) x (~40 Projects)
= 1,600 data points

Challenges |

- Engage studio leaders about the energy use of their projects.
- Simplify data entry and human error.
- Develop firm wide approach to 2030 Reporting.

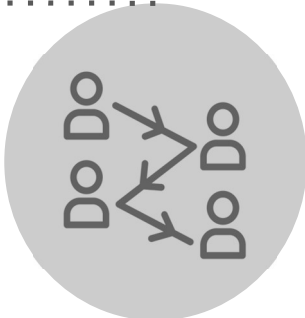
B	C	D	E	F	G	H
Project Name	Project ID	Project Category	Construction Type	Reporting Year	Project Phase	Reporting Status
Project 1	PCGSP1436	Interior Only	New Construction	2014	Construction Document	Submitted
Project 2	PGQKV1436	Non-Residential	New Construction	2014	Construction Administ	Submitted
Project 3	PIKBK1436	Non-Residential	New Construction	2014	Construction Administ	Submitted
Project 4	PJFFL1436	Non-Residential	New Construction	2014	Construction Document	Submitted
Project 5	PKEAX1436	Non-Residential	New Construction	2014	Construction Document	Submitted
Project 6	PIZYW1436	Residential	New Construction	2014	Construction Administ	Submitted
Project 7	PLQXL1436	Residential	New Construction	2014	Construction Administ	Submitted
Project 8	PTHGT1436	Residential	New Construction	2014	Construction Administ	Submitted
Project 9	PQAXZ1436	Interior Only	New Construction	2014	Construction Administ	Submitted

Batch Upload for a Large Firm Continued |



Engage Energy Performance Awareness

Increase Workflow Procedures



Reduce Data Entry Process

Gain additional Internal Data



Section 1 of 26

SERA: 2030 Reporting Questionnaire (2019)

Please input project information for 2030 Challenge Reporting and Embodied Carbon Reporting

TIME | 2030 Reporting Questionnaire: approximately (20 minutes)
TIME | Embodied Carbon Questionnaire: approximately (15 minutes)

2030 Questionnaire = (27 questions)
Embodied Carbon = (24 questions)

REQUIRED | Project Revit Model
REQUIRED | General Calculator

If your project has any unusual conditions or you need to clarify any of your responses each section provides a space for additional comments or explanation. If you have questions please email (justint@seradesign.com) or ask within the provided comments sections.

All questions that are not applicable or unknown should be left BLANK.

There is an option to "Edit your Responses" after the survey has been submitted, if information needs to be input over multiple sessions. You will receive an email confirmation once you have completed the questionnaire. If you want to "edit your responses", select "Edit Response", within the confirmation email.

Email address *

Valid email address

This form is collecting email addresses. [Change settings](#)

Section 1 of 9

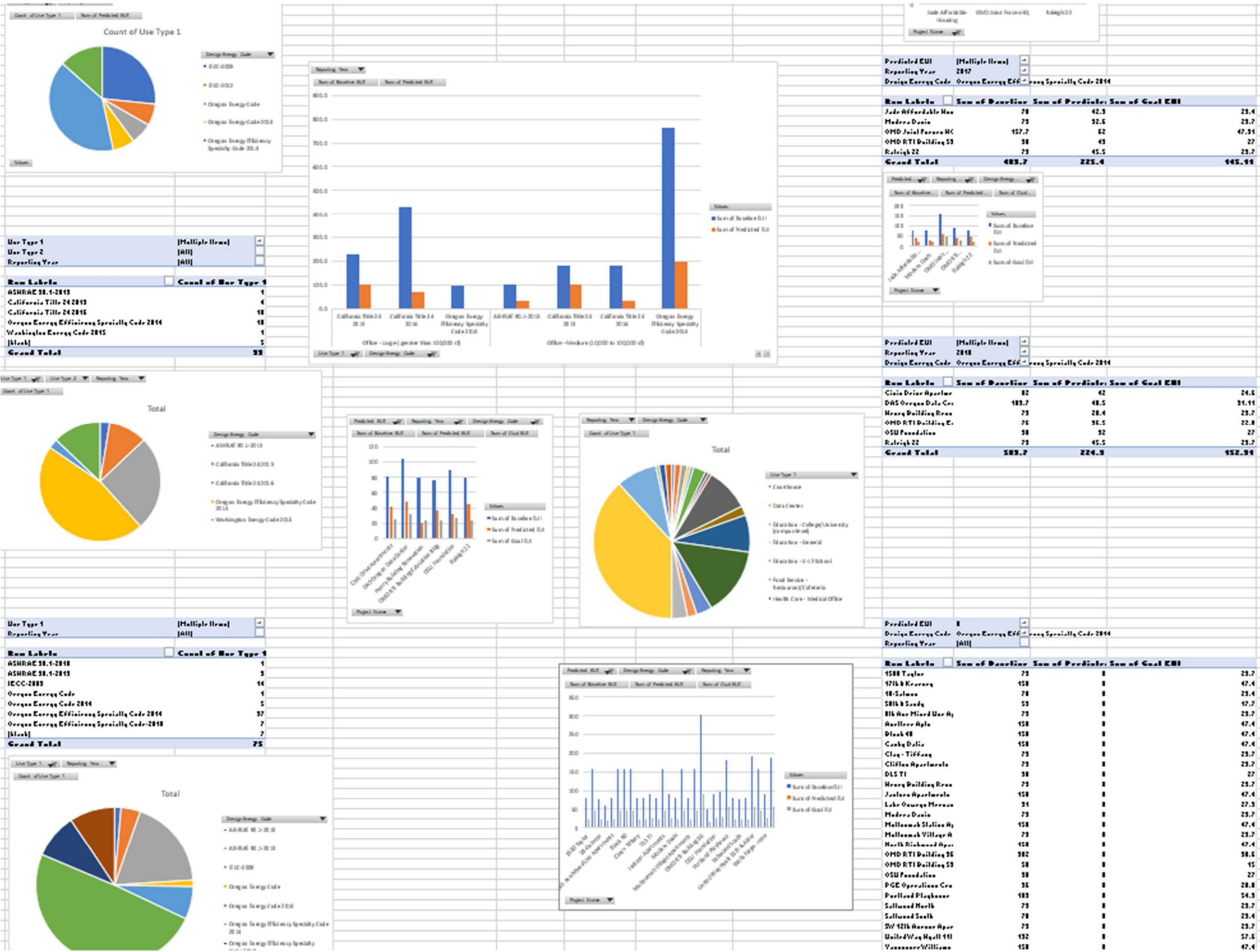
SERA: Embodied Carbon Reporting Questionnaire (2019)

Form description

Learning Outcomes |

Better
Analysis

Better
informed
Design
Process



Steps Forward |



Embodied Carbon Tracking



Integrated Energy Modeling Tools



Internal Firm Reporting



Continued Knowledge Resourcing



SUSTAINABLE DESIGN FOR THE BUILT ENVIRONMENT

Thank you!

SERA Architects | Energy Trust of Oregon

SERA Architects |