Discussion: Leveraging Relationships to Encourage Program Buy-In and Improve Code Compliance

2023 National Energy Codes Conference

May 4, 2023

Agenda

- Speaker Introductions
- Brief Presentations
- Facilitated Q&A
- Audience Q&A

Speakers

Jackie Dadakis

Matt Belcher

Mekha Abraham

Tess Studley

Making Buildings More Resilient, So People Don't Have to Be

Jackie Dadakis

CEO, Green Coast Enterprises

Adjunct Lecturer, Tulane MSRED Program

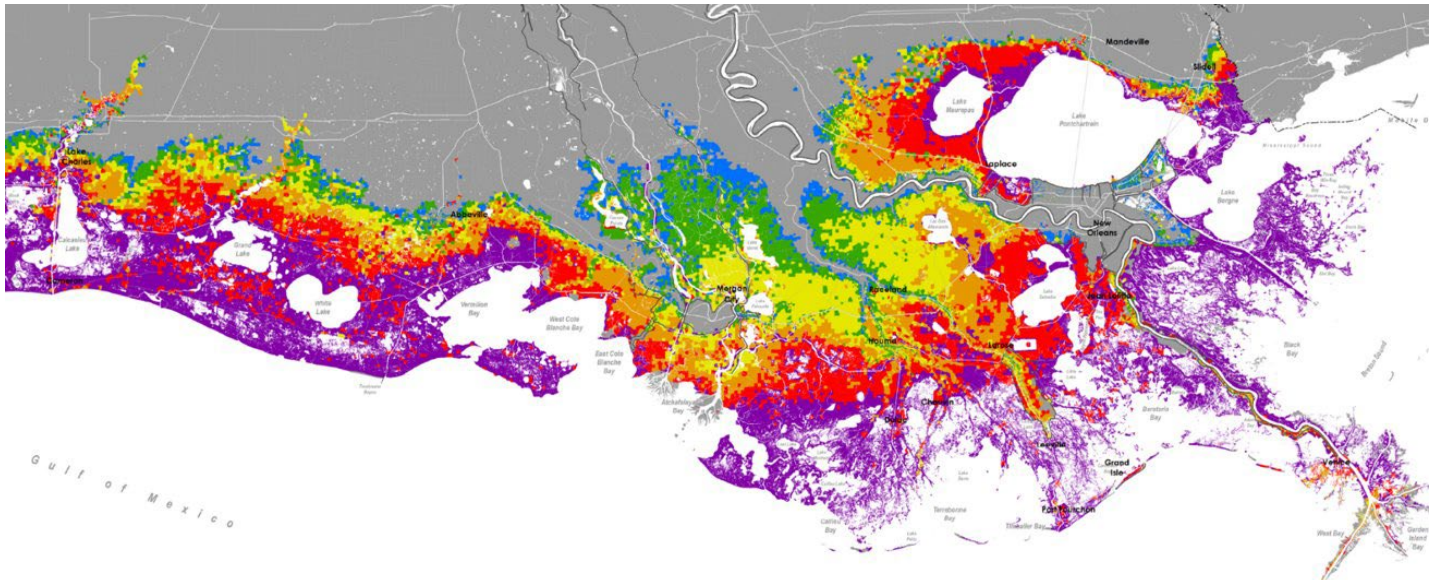
Technical Chair, Louisiana State Unified Code Council

Green Coast Enterprises

- Real Estate Developer
  - Commercial and residential redevelopment using Historic Tax Credits and New Market Tax Credits

- Consulting Services to Improve the Built Environment
  - Energy Management
  - Utility Analysis
  - Green Certifications

How Louisiana Got Excited About Building Codes



HIGH / YEAR 50 / 100-YEAR FLOOD DEPTHS

- 1' - 3'
- 4' - 6'
- 7' - 9'
- 10' - 12'
- 13' - 15'
- Over 15'

green coast enterprises

636 Carrollton Avenue ● New Orleans, LA 70119 ● 504.281.4372

Adapting to a Changing Climate

• Risks of Inaction

- Extreme weather presents challenges across Louisiana that are costly in terms of lives and dollars
  - heat waves, floods, hurricanes, freezes, and droughts
- Responding to disasters forces government, businesses, and families to divert resources and energy away from other priorities

• Benefits of Action

- An immediate need in LA
- Hand-in-hand with mitigation
- Must implement in a timely fashion to avoid the worst
- Must build public trust as we go
- Monitoring and reporting
- Collaboration and partnerships
- Structural recommendations can ensure success

Climate Executive Order on Carbon Reduction

By 2025

26 - 28%

Of 2005 levels

By 2030

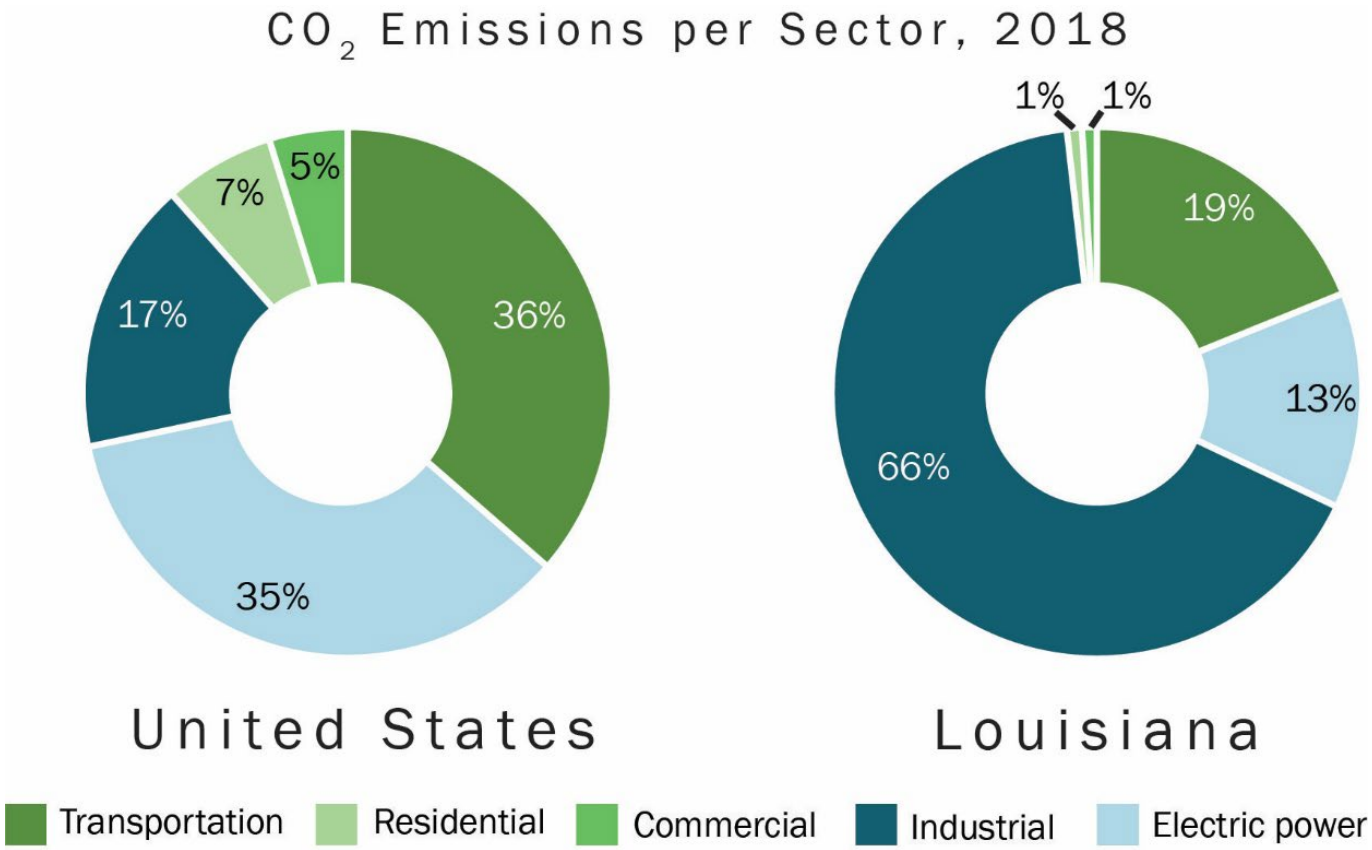
40 - 50%

Of 2005 levels

By 2050

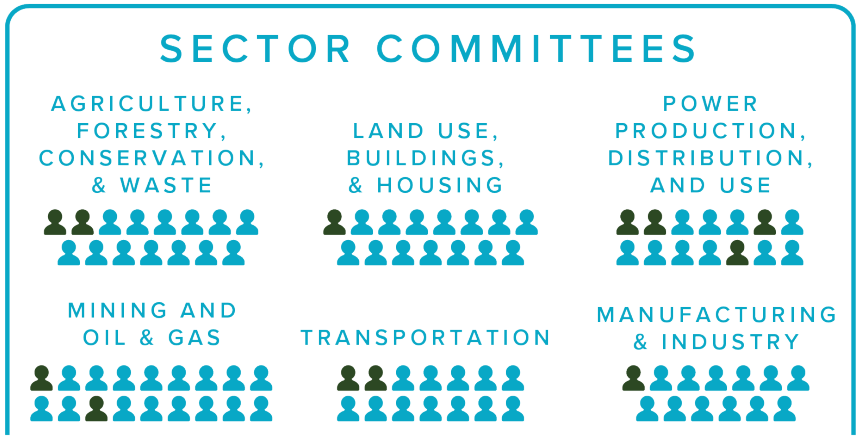
Net Zero

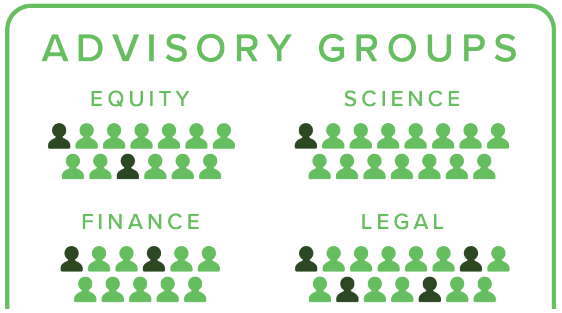
Louisiana's GHG Baseline

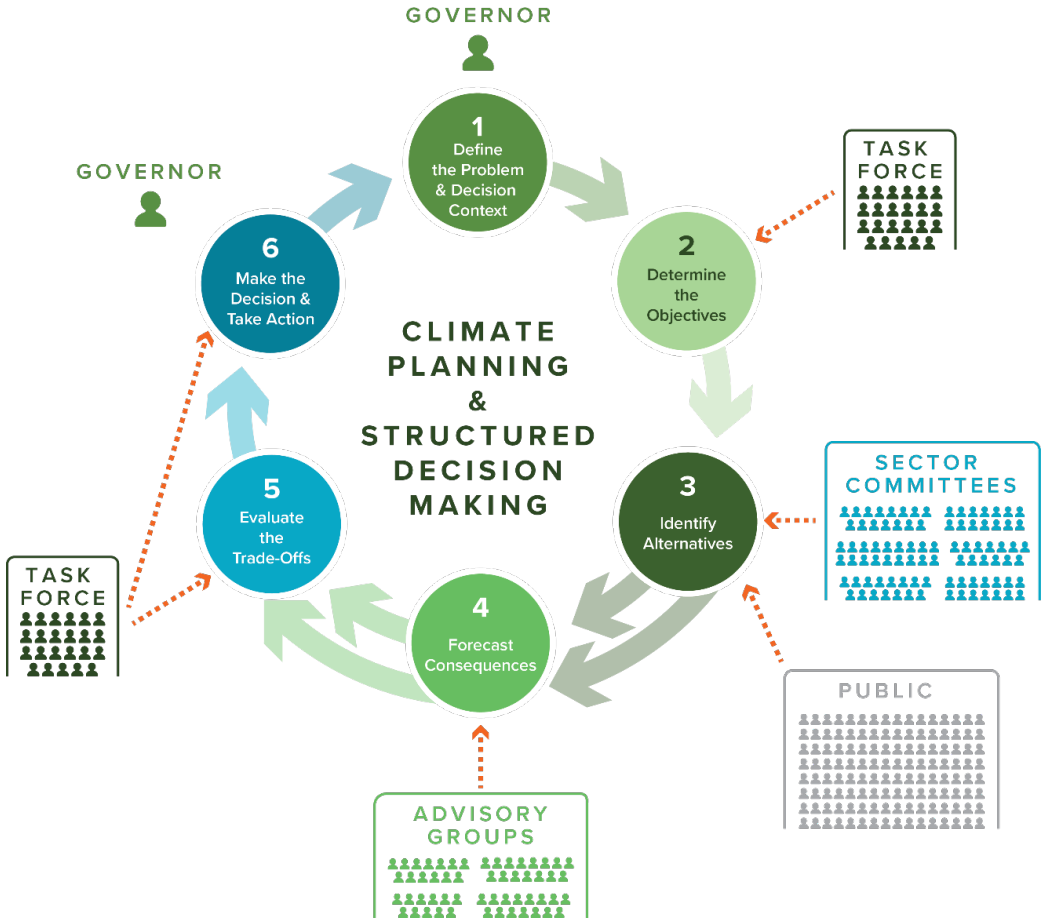


- **2021 Inventory (2018 Data)**
- Total GHG Emissions 216 MMT in 2018 compared to 215 MMT in 2005
- Different sources than the nation as a whole; power generation fuel mix; highest emitting sectors and facilities
- Estimate of potential, cumulative, new industrial GHG emissions of 120 MMT per year for permitted but not yet built

Louisiana Climate Task Force







16-month collaborative process that included ***49 public meetings*** of the Task Force, sector committees, and advisory groups as well as opportunities for the public to share their ideas for climate actions and provide feedback on the draft plan components.

Transportation, Development, and the Built Environment

STRATEGY 9: Accelerate adoption and accessibility of clean vehicles and fuels

STRATEGY 10: Reduce vehicle miles traveled and increase transportation efficiencies

STRATEGY 11: Increase urban, rural, and regional public transit services

STRATEGY 12: Coordinate land use planning to reduce sprawl and support healthy and resilient communities

STRATEGY 13: Improve the efficiency and resilience of homes and non-residential buildings

Louisiana Uniform State Construction Code Council

- Created in 2006 to adopt and amend a statewide code
- Must adopt and amend to most current IRC, IBC and NEC within 6 years of publication

Louisiana Uniform State Construction Code Council

- Enabling legislation permanently set residential Energy Code at IECC 2009
- Commercial Energy Code was under the preview of the State Fire Marshal Office. Remained at ASHRAE 2007

2018 ICode Review Cycle – Covid Interrupted!

We convened in January of 2020 . . . And then we did not meet again until July of 2021

Double Review 2018 & 2021 Code Cycle

2021 ICode Review Cycle

- Legislative change to adopt the 2021 Energy Code on July 1, 2023
  - Reduce lifetime operating costs of a home by 30%
- Adopted the ICC 2021 for residential and commercial structures
  - This includes requirements to build roofs to a standard that withstands up to 149 MPH winds
- Adopted ASCE-24 as a minimum of 1ft+ BFE in flood zones
  - Otherwise known as Freeboard!

Louisiana Energy Code Transition Committee

- Act 635 passed Louisiana House and Senate unanimously in 2022 session
  - Established a 15 member transition commission tasked to adopt and amend 2021 IECC for residential and commercial
  - Moved commercial enforcement to local BCOs
  - Required adoption on July 1, 2023
  - Energy Code now follows future ICode review cycles

Louisiana Energy Code Transition Committee

11 - Voting Members:

- Louisiana Home Builders Association.
- Building Officials Association of Louisiana
- AIA Louisiana
- Louisiana ASHRAE Chapter
- Louisiana Building Owners and Managers Association
- Greater NOLA Housing Alliance
- Associated Builders and Contractors
- LiUNA
- LA Registered RESNET Hers Rater
- HVACR Association of LA
- Associated General Contractors

3 - Nonvoting members:

- Louisiana Department of Natural Resources
- Louisiana Facility Management and Control
- LSUCCC Technical Chairperson

Louisiana Amendments

IECC

- All climate zones in Louisiana set to 2A (***warm-humid)***
- Ceiling insulation R-Value set to R-38 from R-49
- Air leakage set to 7.0 ACH50 for single family dwelling units
- Air leakage set to 0.30 CFM50/sq ft of enclosure area for multifamily dwelling units
- Duct leakage set to 8 CFM25/100 sq ft of conditioned floor area post construction
- Lighting set to 90% high efficacy lighting

IBC Chapter 4

- All climate zones in Louisiana set to 2A (***warm-humid)***

Impact of Louisiana Amendments

Table 1. Individual Consumer Impact of Combined Amendments

Metric	Compared to the Amended 2021 IECC
Life-cycle cost savings of the 2021 IECC	$696
Net annual consumer cash flow in year 1 of the 2021 IECC	$21
Annual (year 0) energy cost savings of the 2021 IECC ($)	$97
Annual energy cost savings of the 2021 IECC (%)	5.5%

Draft Analysis by PNNL of Louisiana 2021 IECC Amendments

What's Next

This 100% solar community endured Hurricane Ian with no loss of power and minimal damage

By Rachel Ramirez, CNN
Updated 11:53 AM EDT, Sun October 2, 2022

Jeff Greenberg/Education Images/Universal Images Group/Getty Images

The Babcock Ranch solar array, which is run by Florida Power and Light.

Thank You!

Jackie Dadakis

CEO, Green Coast Enterprises

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504-264-2394

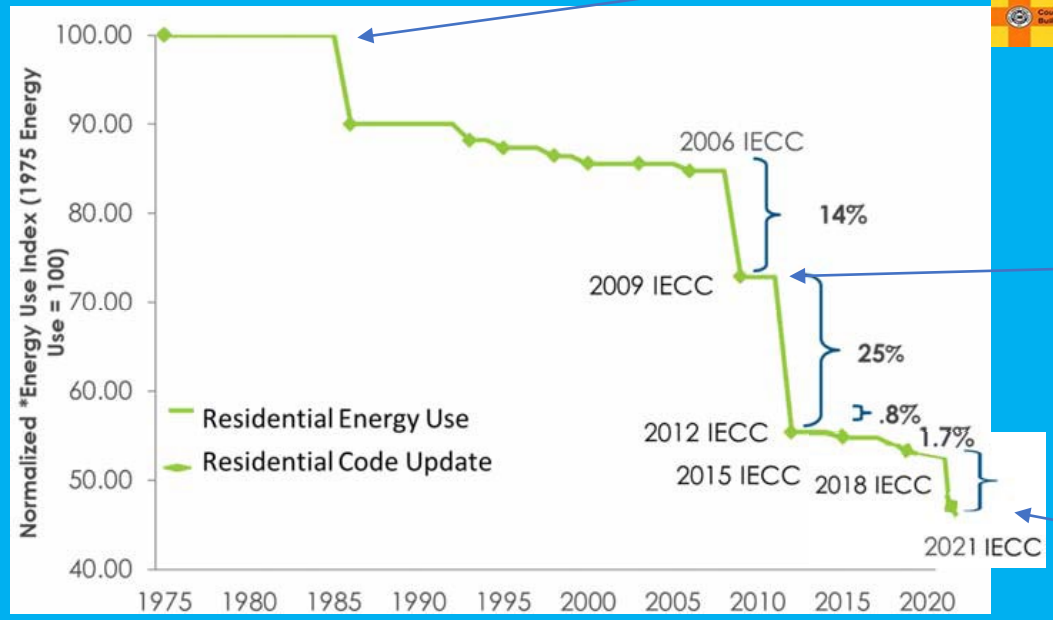
green coast enterprises

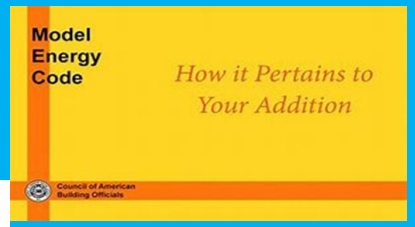
The Circuit Rider –
Preacher who Rides the Circuit

Energy Codes Training Program

- Goal: prepare the Missouri & Nebraska's workforce(s) for upcoming changes in construction best practices
- Commercial Energy Code
- Focused on providing training to builders, code officials, design professionals, public officials and students
- For more information, visit: www.mwalliance.org

Energy Code Background





2009 – 2018 IECC Key Differences

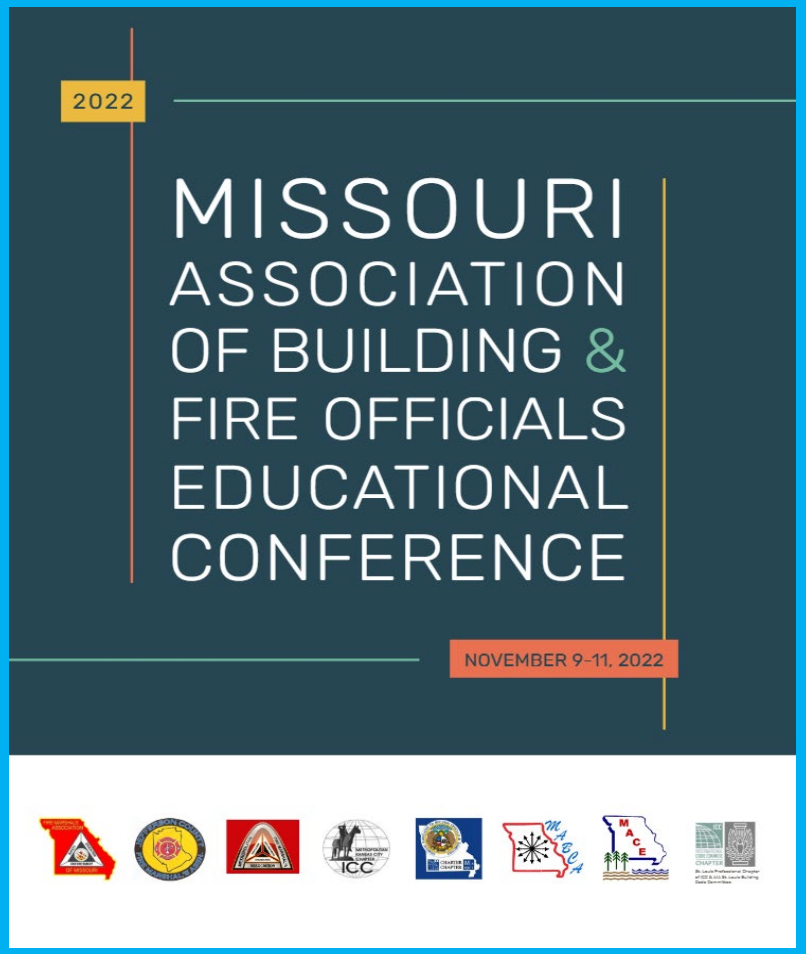
Activities

- Conduct informational sessions with Building industry professionals, including Superintendents On Energy Code and Building Science applications.
- Developed a segmented training for City of St. Louis Inspection Division.
- Develop 1+ hour “information sessions” delivered at Lumber and Building Materials Businesses
- Work with/Advise many Cities on code adoptions of 2015 and 2018 codes
- Jefferson City is reviewing the 2015 codes in anticipation of adoption: Advise on important elements of both Commercial and Residential Energy codes (why you should not delete certain items! Or at least make them optional ilo deletion!)
- Ongoing Discussions of Codes in general and energy code in Southeast Mo with the economic development folks there.

Activities

- Conduct frequent “Brown Bag sessions” with the STL Professional Codes committee ICC/AIA on new and existing buildings since that seems to be gaining momentum.
- *Always* working to get Realtors and, especially Appraisers “Energized” about this too! (30 +/- so far!)
- Sessions at the Missouri AGC meetings and convention about the 2018 Commercial Energy Code (IECC) and updates to it.
- Work with Economic Development Specialist with the City of St. Louis. They do the gap funding for builders/remodelers that want to rehab existing buildings in the City where grant funds, appraised values, etc. leave gaps. They want to make sure Codes are met and understood.
- Homebuilders and Code Officials in St. Louis and St. Charles County, Springfield and Greene County and others on reviewing the 2021 code in advance of it being reviewed and adopted locally..

Codes Associations on Missouri



- St Louis “ProCodes” ICC/AIA Chapter
- Metropolitan Kansas City Chapter of the ICC
- Missouri Assoc. of Building Officials and Inspectors (MABOI)
- Southwest Missouri Code Officials Association (SWMOCO)
- Missouri Association of Code Enforcement (MACE)
- Missouri Association of Building Codes Administrators (MABCA)

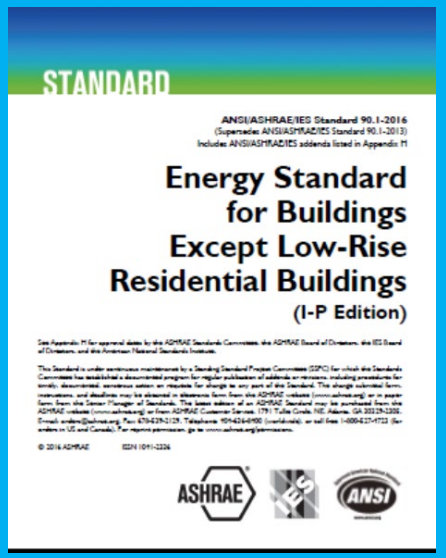
METROPOLITAN Community College

MISSOURI S&T

REScheck™

COMcheck

Thank you!



be building energy exchange Kansas City

ICC MEMBER

MISSOURI DEPARTMENT OF NATURAL RESOURCES

MEEA MIDWEST ENERGY EFFICIENCY ALLIANCE

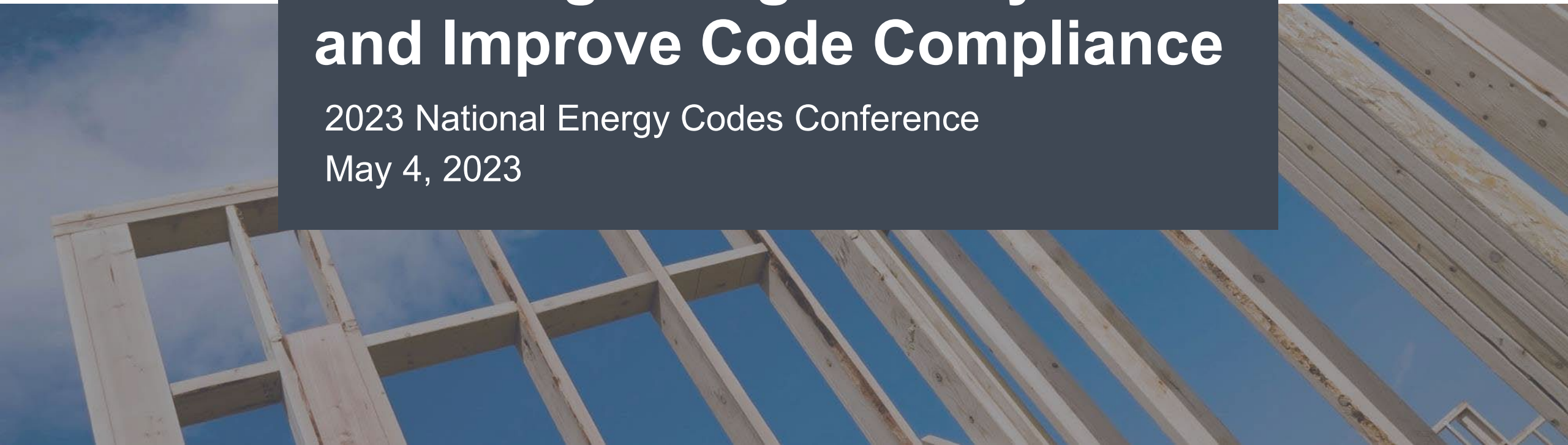
NEBRASKA Good Life. Great Resources.

BetterBuiltNW

Leveraging Relationships to Encourage Program Buy-In and Improve Code Compliance

2023 National Energy Codes Conference

May 4, 2023



Welcome!

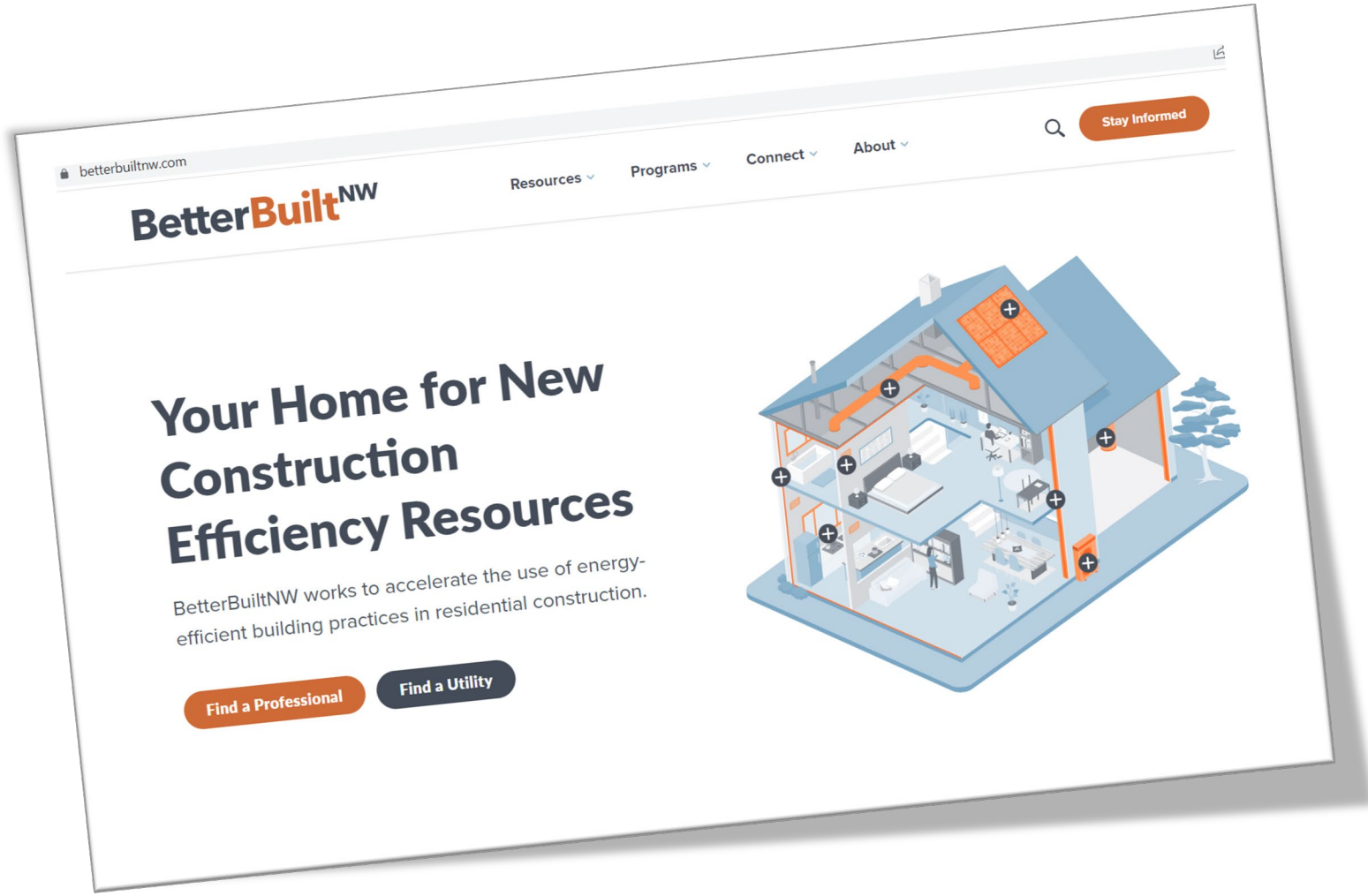
Tess Studley
Program Manager,
Codes & Standards

Mekha Abraham
Project Manager,
BetterBuiltNW

About BetterBuiltNW

BetterBuiltNW provides resources to accelerate the adoption of the most energy-efficient building practices in residential new construction in the region.

BetterBuiltNW is a core component of the Northwest Energy Efficiency Alliance's (NEEA) codes, standards, and new construction program.

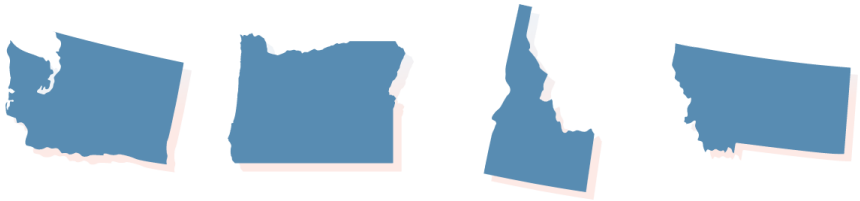


BetterBuiltNW Resources

betterbuiltnw.com

Energy Code

Visit the BetterBuiltNW partner websites linked below to gain valuable info and resources on how to meet and exceed code throughout the region.



Washington
Washington State University (WSU) Energy Program
BetterBuiltNW YouTube
Earth Advantage

Oregon
Oregon Department of Energy (ODOE)
Oregon Home Builders Association (OHBA)
Earth Advantage

Idaho
Idaho Energy Code Collaborative

Montana
Montana Department of Environmental Quality (DEQ)
National Center for Appropriate Technology (NCAT)

Case Studies

Stories of comfort, savings, and successful energy-efficient home builds in the Northwest.

ALL | WASHINGTON | IDAHO | MONTANA | OREGON

Washington • 24 August, 2022

Best Energy Upgrades to Position Builders for Long-Term Success

Market shifts and changing energy codes continue to reshape building practices in the Northwest. This case study features high-impact energy-efficient measures builders can use to differentiate their homes from others on the market and stay ahead of evolving code.

On-Demand Courses

BetterBuiltNW offers online trainings across a wide spectrum of building science topic areas and energy performance levels -- available anytime and at your own pace.

Access the BetterBuiltNW online training portal by logging into your existing account or creating a new account below.

Login

Don't have and account? Sign Up Now

Top 10 Best Practices for Today's Homebuilder

Learn "Good, Better & Best" practices across ten approaches to quality home construction.

Building with Ducts Inside Conditioned Spaces

Analyze and apply six strategies for designing and building with ducts inside.

How to Cost Effectively Build Zero Energy Homes

Eliminate barriers and benefit from the rapid trend towards ZE construction.

Designation available: Zero Energy Professional

Sustainable Homes Professional (SHP)

Develop the technical expertise to design and build high performance homes.

Designation available: Sustainable Homes Professional

Tools & Marketing Resources

Browse a wide variety of helpful resources for building and marketing high performance homes.

TOOLS

23 April, 2021

Advanced Walls: Thermal Break Shear Wall Factsheet

Open Resource | Add to Collection

MARKETING

28 December, 2020

For Utilities: HVAC Sizing Tool Features and Resources Flyer

Open Resource | Add to Collection

TOOLS

13 July, 2020

Heat Pump Water Heater Technical Guide for Single Family

Open Resource | Add to Collection

View All Resources

The Alliance

neea

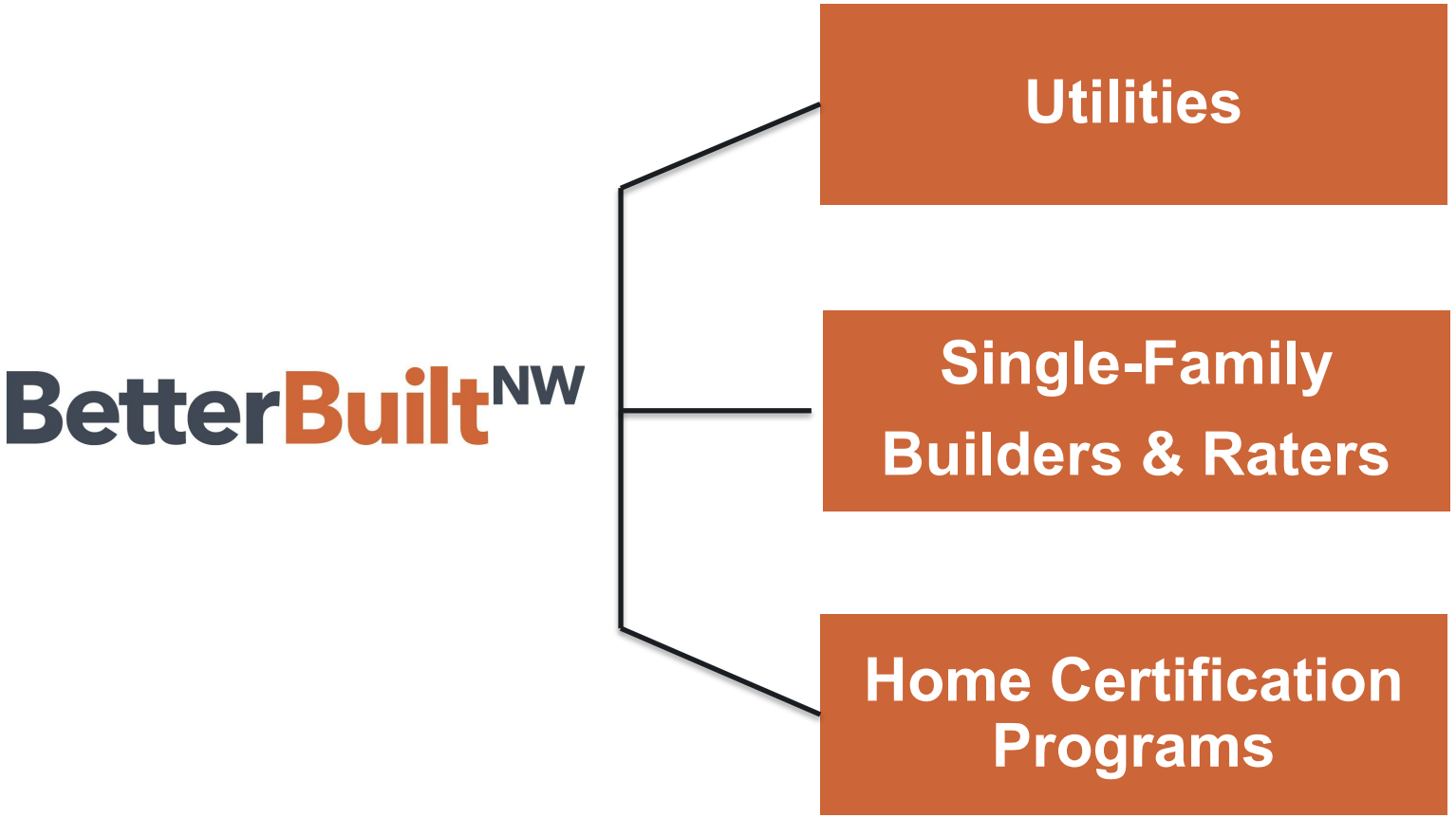
Avista · Bonneville Power Administration · Cascade Natural Gas Corporation (A Subsidiary of MDU Resources Group, Inc.) · P.U.D. Chelan County

Clark Public Utilities · EnergyTrust of Oregon · Idaho Power (An IDACORP Company) · NorthWestern Energy

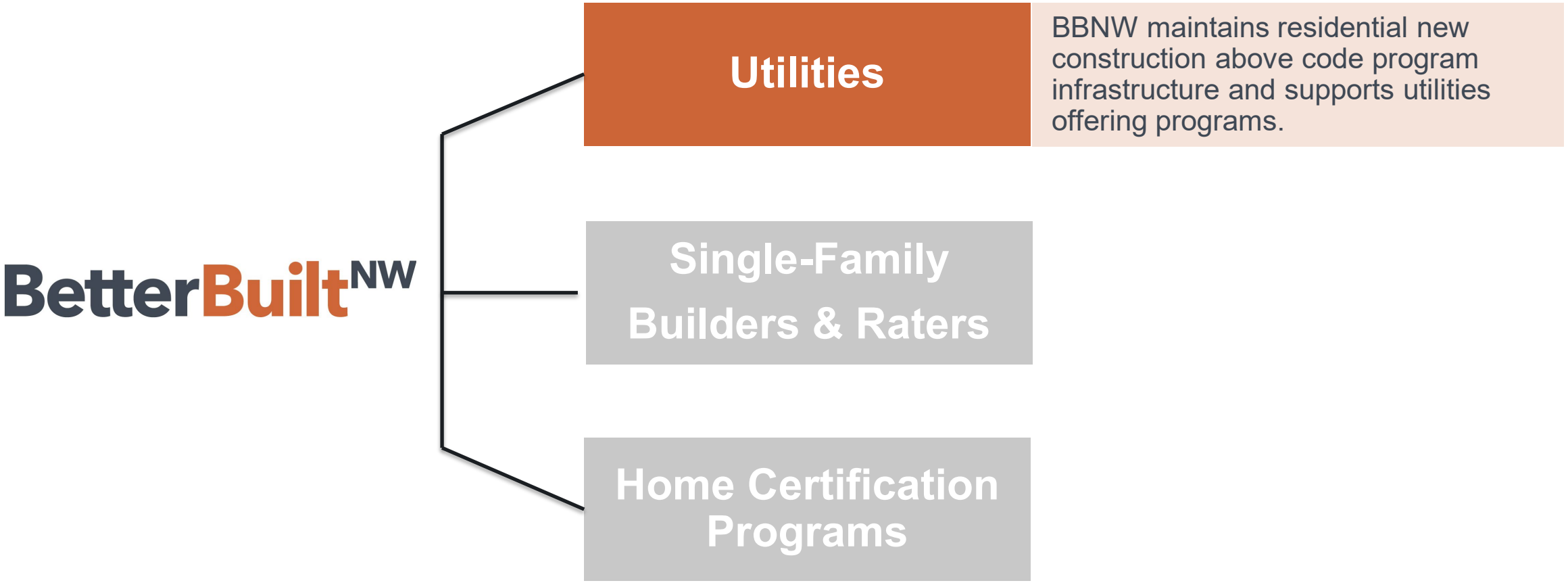
NW Natural · PacifiCorp · Portland General Electric

PSE Puget Sound Energy · Seattle City Light · Snohomish County PUD No. 1 · Tacoma Power (Tacoma Public Utilities)

BetterBuiltNW Relationships



BetterBuiltNW Relationships



BetterBuiltNW Relationships

BetterBuiltNW

Utilities

Puget Sound Energy New Construction Program

Washington

PSE PUGET SOUND ENERGY

Idaho Power Residential New Construction Pilot Program

Idaho

IDAHO POWER. An IDACORP Company

Clark Public Utilities New Construction Program

Washington

Clark Public Utilities

Central Electric Cooperative New Construction Program

Oregon

CENTRAL ELECTRIC COOPERATIVE, INC.

BetterBuiltNW

Photo courtesy of Megan Kramer Consulting

Passive Design Promotes Energy Savings in Washington

Megan Kramer Consulting partnered with WoodRidge Custom Homes to build an energy-efficient property for homeowner Shane Philpot. The project qualified for incentives through Puget Sound Energy's Performance Path program and was built with passive design elements in mind.

The Right Thing To Do

During the design of the home, homeowner Shane Philpot received information from WoodRidge Custom Homes about the benefits of building an energy efficient home. Shane was interested in energy efficiency for the benefits to the environment, the long-term cost savings involved with building an efficient home, and for the ability to maximize on savings without adding a cooling system. To meet the homeowner's needs, the builder constructed a custom-built home with passive design elements. For builders and homeowners interested in exploring passive design, this project serves as an example of how passive design elements can be introduced into a project while not being fully passive house. Shane worked with the builders to include other measures that were not part of the original project plans.

In addition to the benefits of selecting energy efficient options, Shane noted: "We have been pleasantly surprised by other benefits that weren't part of our original decision making. For example, the energy efficient windows, insulation, and radiant heating have had a noticeable effect on the overall comfort of our home, both in terms of temperature, and also sound proofing."

For Shane, adding energy efficiency into the project plan was the right thing to do, and making decisions that benefit the environment was top of mind when constructing his home.

BUILDER
WoodRidge Custom Homes

RATER
Megan Kramer Consulting

UTILITY
Puget Sound Energy

LOCATION
Cle Elum, WA

YEAR BUILT
2020

ENERGY SAVINGS
25% Above Code

TOTAL BUILDER INCENTIVES
$1,500

HOME FEATURES
- ENERGY STAR® Appliances
- LED Lighting
- Smart Thermostat
- Hydronic Radiant Gas Boiler
- R-25 Insulated Walls

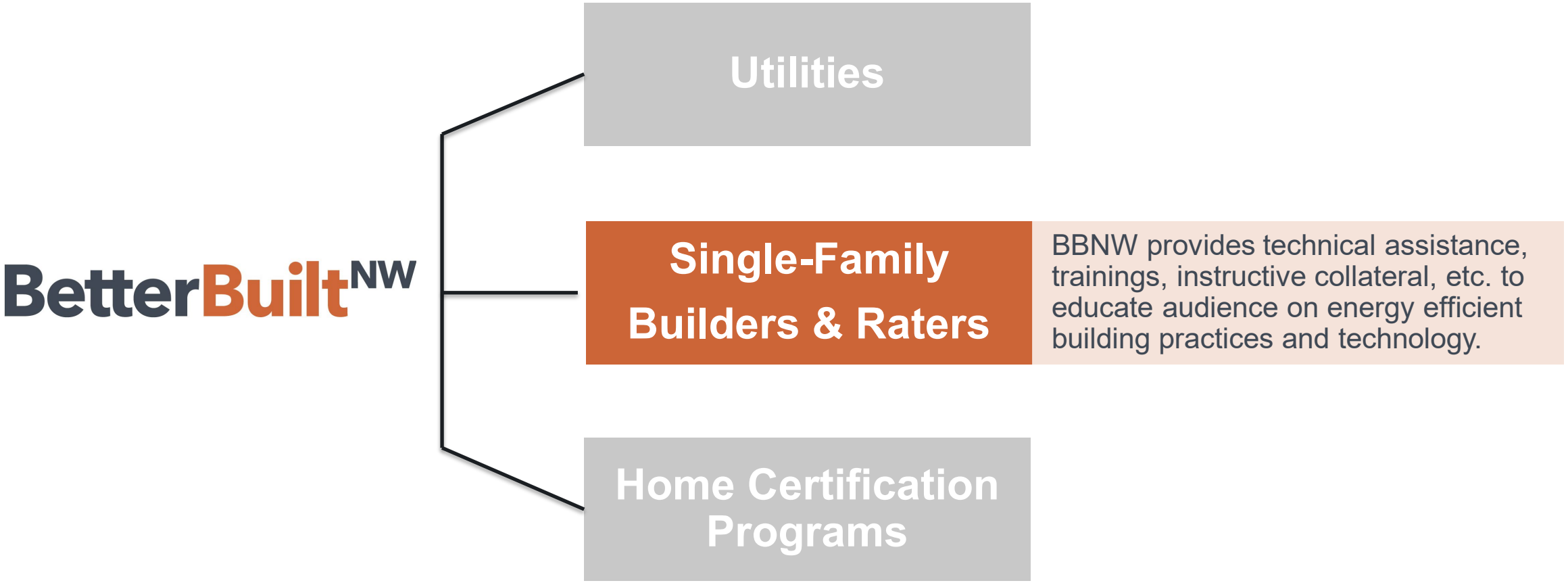
"As a builder, we care deeply about the clients we build for, the community we build in and the environment that surrounds us. Building energy efficient homes is a perfect way for us to take care of all of those things."

CLIFF MELBY, MANAGING PARTNER AT WOODRIDGE CUSTOM HOMES

Learn more

Visit the BetterBuiltNW website for additional case studies and subscribe to the monthly newsletter to stay informed.

BetterBuiltNW Relationships



BetterBuiltNW Relationships

BetterBuiltNW

Single-Family Builders & Raters

Top 10 Best Practices for Today's Homebuilder

Learn "Good, Better & Best" practices across ten approaches to quality home construction.

Building with Ducts Inside Conditioned Spaces

Analyze and apply six strategies for designing and building with ducts inside.

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Eliminate barriers and benefit from the rapid trend towards ZE construction.

Designation available: Zero Energy Professional

Sustainable Homes Professional (SHP)

Develop the technical expertise to design and build high performance homes.

Designation available: Sustainable Homes Professional

Tools

13 January, 2022

Advanced Walls: Continuous Exterior Insulation Factsheet

FOR DEVELOPERS, ARCHITECTS, AND HOME BUILDERS

Gain valuable insights to inform the design of your next project.

Considerations

This section covers key wall considerations, including costs and code compliance.

Handling and Storing Rigid Insulation

On-site storage and protection of rigid insulation is very important. Both expanded and extruded polystyrene (EPS) and unfaced polyisocyanurate (polyiso) should be protected from UV radiation. EPS breaks easily, especially around the edges, and must be handled with care. Foil faced polyiso needs to be protected from moisture exposure as it can warp and cup. Rigid wool board should be protected from dirt and bulk water. All boards should be stored in a protected, covered location, and exposure to the elements should be minimized before the siding is installed.

Typical Northwest Region Costs

Current estimated incremental cost vs. standard 2x6 wall from 2019 research[1]

- Incremental costs vs standard 2x6 wall:
  - $3.00/square foot for 1" insulation
  - $5.40/square foot for 2" insulation

Estimated incremental cost at scale vs standard 2x6 wall

- Total incremental material and labor costs:
  - $1.24/square foot (23%) for 1" insulation
  - $2.81/square foot (41%) for 2" insulation

Code Compliance

Exterior insulation is a routine application in residential new construction across the country with code compliance requirements typically found in both energy and residential codes.

For review guidance of submitted plans, refer to detailed drawings provided in NEEA's *Appendix A2 – Detailed Drawings of 2x6 Intermediate Frame with Continuous Exterior Rigid Insulation of Market Ready High Performance Walls: Phase 2 Report.*

For code language and compliance references, see:

- Foam Sheathing Code References
- 2018 International Residential Code Washington Insert/Amendments
- 2018 Washington State Energy Code
- 2021 Oregon Residential Specialty Code
- 2018 International Energy Conservation Code

2x6 intermediate frame with 1" exterior rigid insulation over weather barrier. *(Image Courtesy of Market Ready Walls Report 1)*

[1] *Note, it is recognized that material costs, in particular for lumber and insulation have increased dramatically since price research was completed. These costs have been adjusted to estimate price increases but should be considered only for comparison purposes.*

BetterBuiltNW BETTERBUILTNW.COM | P: 503.688.5400 | E: INFO@BETTERBUILTNW.COM | 4

BetterBuiltNW Relationships

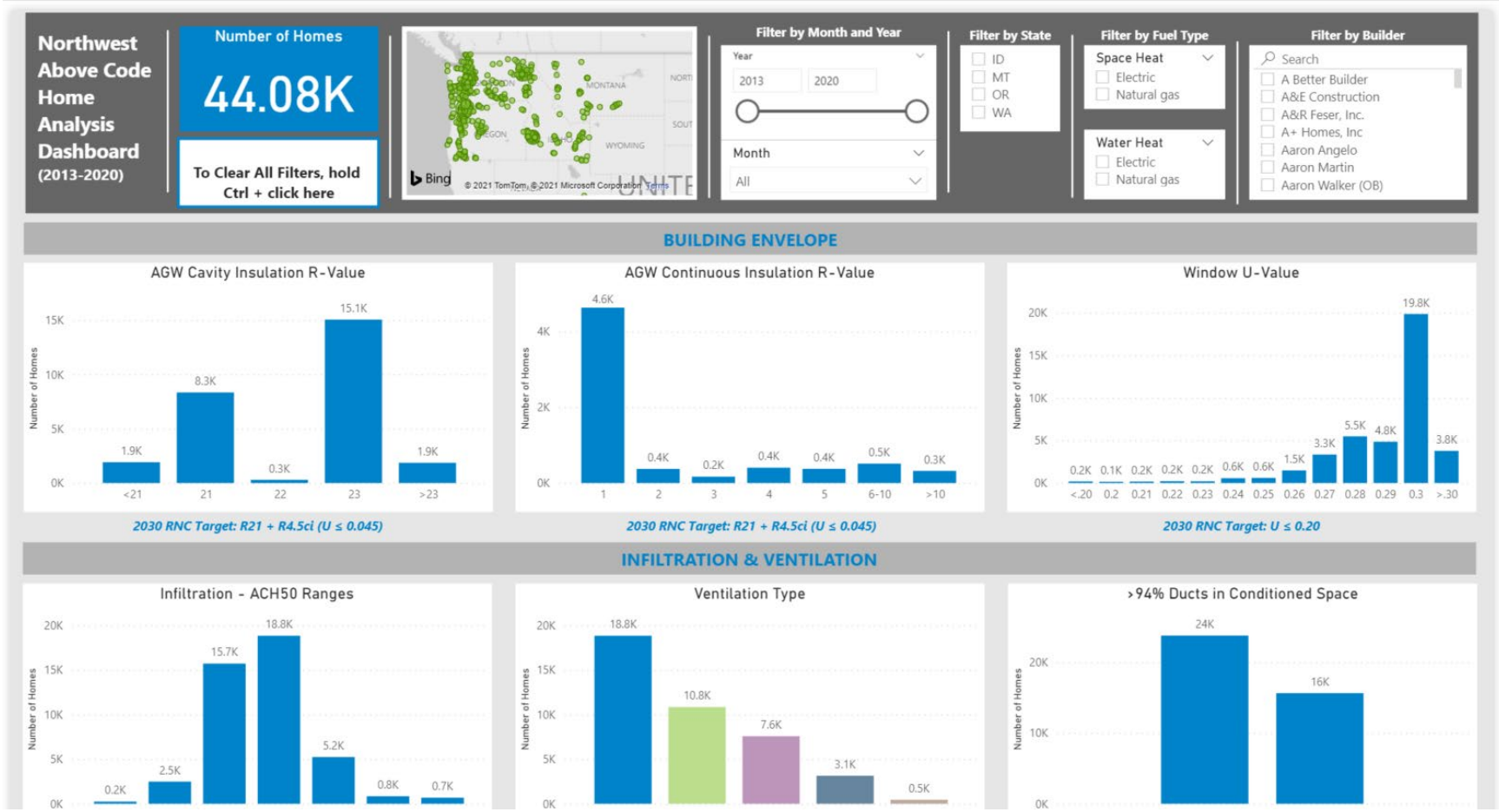
BetterBuiltNW

- Utilities
- Single-Family Builders & Raters
- **Home Certification Programs**

BBNW provides technical support, participates in program conferences, and promotes HCP relevant news in BBNW monthly newsletter.

Relationships Leads to Data & Intel

Supports NEEA's residential code efforts, including collecting market evidence, supporting the development of code proposals, and training following code changes.



Evolving Program

- State Energy Code changes
- Broad Audiences / Target Markets
- Code Compliance Studies
- Evaluations

THANK YOU!

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Mekha Abraham

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Thank you!

Questions?