

U.S. DEPARTMENT OF  
**ENERGY**

Office of  
**ENERGY EFFICIENCY &  
RENEWABLE ENERGY**

# Energy Codes and Utility Programs: The Peanut Butter & Jelly of Energy Efficiency

National Energy Codes Conference Seminar Series

Building Technologies Office

Summer 2022



# NECC Seminar Series Lineup

Catch the entire lineup of sessions bi-weekly—Thursdays @ 1p ET:

- 8/18: Taking Charge of Climate Change through Stretch Codes
- **9/8: Energy Codes and Utility Programs: The Peanut Butter & Jelly of Energy Efficiency**
- 9/22: Energy Code Implementation: Insights from the Field to the Classroom
- 10/6: Less is more: Building to Zero Energy, Water and Carbon
- 10/20: Cracking the Code: Unlocking the Benefits of Off-site Construction
- 11/17: Outside-the-Box Options to Advance Multifamily Building Efficiency

> Learn more: <https://www.energycodes.gov/2022-summer-seminar-series>

# Today's webinar

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- Energy codes raise the proverbial energy efficiency floor while typical utility investments support programs well above code. However, this dynamic has changed considerably; creative energy code claimed savings programs have emerged as a win, win, win solution, helping utilities achieve their goals, jurisdictions address climate change, and consumers save on their energy bills.
- Three speakers today

# Q&A at the end of the panelists

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- 60 minutes today
- Use chat to submit questions and which panelist(s)

# Today's webinar

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- ❑ Sharon Bonesteel – Salt River Project, Phoenix, AZ
- ❑ Rob Buchanan – Xcel Energy, Minneapolis, MN
- ❑ George Chapman – Energy-Solutions, Boston, MA



[eventpresser.com](http://eventpresser.com)



[Prokos.com](http://Prokos.com)



[trendhunter.com](http://trendhunter.com)

# Utility Programs

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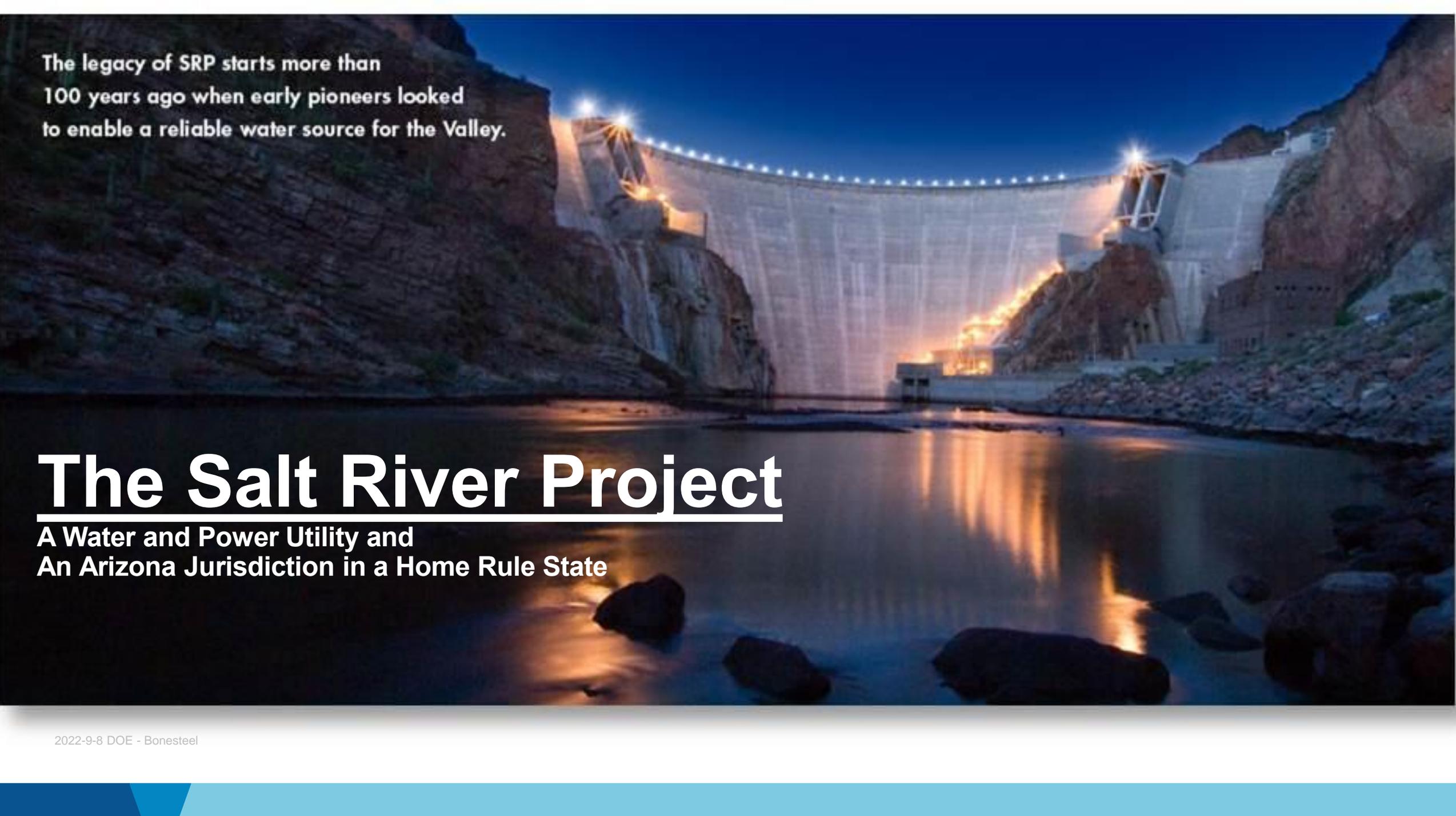
- ❑ Energy Efficiency Resource Standards (EERS)
- ❑ Utility incentive programs
  - Prescriptive measures
  - ENERGY STAR New Homes programs
  - Advanced home programs – DOE ZERH, PHIUS, LEED-H
  - Energy codes & standards programs

# Building Energy Codes

## Building a Successful Utility Program



Delivering water and power™



The legacy of SRP starts more than  
100 years ago when early pioneers looked  
to enable a reliable water source for the Valley.

# The Salt River Project

A Water and Power Utility and  
An Arizona Jurisdiction in a Home Rule State

# The Basic Formula is as simple as making a PB&J



1. Make the Building Officials your new best friends
2. Design your program to be fluid; capable of changing to fit the need
3. Have defensible data for your claims of energy savings
4. Understand the value to your stakeholders of your program
5. Attribution and Cocktails

# Make the Building Official your new best friend...

(You need the best peanut butter that you can buy...)

Hire A Building Official or... (manual j,s,d...)

Provide Training and Code Books... (experts)

Understand the “LIFE SAFETY ISSUES”

(unintended consequences)

- Resilience, Fire Safety from trapped gasses
- Indoor Air Quality – Health Issues
- Structural Degradation from trapped moisture



# Design your program to be fluid; capable of changing to fit the need.



(Some people like grape jelly, some like strawberry preserves, and some even like bananas!)

Be prepared to provide a forum for problem resolution -

Address concerns by creating special events

– What’s a Blower Door Test?

-Bringing HVAC contractors and engineers together to create best practices for outdoor air supply – five solutions ...code min., better, best...

Encourage the perceived “enemy” to participate in discussions – “seek first to understand”

# Have defensible data for your claims of energy savings.

(Every Sandwich needs the foundation of top-quality bread)

*Phase I – Pre-Code Adoption*

*Start with Believers*

*Rebate Programs Coord. w/Code Performance*

*Adjust to not penalize early adopters*

*Adjust to minimize free ridership*

*Education, Education, Education...*

*Local Professional Organizations*

*Participate in National Events...*



Based originally on the CA and MA models and DOE State Evaluations

Modified to address Home Rule.

HOME Rule vs State Code – (took some explaining to CADMUS)

# Have defensible data for your claims of energy savings

## *Phase II – Code Adoption Process*

*Understand the local Political Landscape*

*Understand the players*

*Frame the Value Statements*

*Participate, Participate, Participate*

*Listen, Listen, Listen*

*Educate, Educate, Educate...*

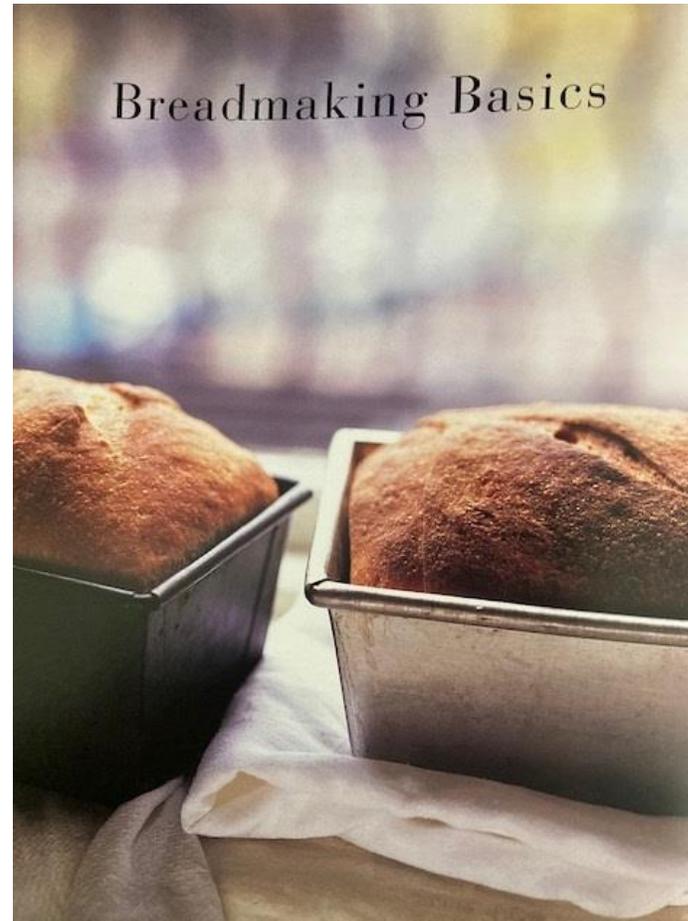
## *Phase IV – Post Adoption Support*

*Education, Community Events,*

*Implementation Issues and Resolutions*

## *Phase V – Attribution Calculation*

*Third Party Verification – Transparency...*



**Worksheet Completed  
for each Jurisdiction**

**Provided Back-up  
Documentation**

**Third Party Evaluation**

# Understand the value of your program to your stakeholders...

How does your Codes Program affect your Energy Star Homes Program?

The “Free Ridership” Issue

“How is this new set of regulations helping us sell homes?”

“Will I save money by energy efficiency reducing turnover  
in my apartments?”

“Why should I care about air leakage between multi-family units?

Isn't this just about air leakage to the outside?”

“These new Air Conditioner Rules make for unhappy customers.”

# As simple as making a Peanut Butter and Jelly Sandwich! Right?

Make the Building Officials your new best friends

**Get Really Good Peanut Butter!**

Design your program to be capable of changing to fit the need

**Have Different types of Jelly and Jams!**



Have defensible data as a foundation for your claims of energy savings  
Use Only The Best Bread!

Understand the value to your stakeholders of your program

**Who's Hungry NOW?**

# And for those allergic to nuts.....

- 1) Use a Talented Bartender...**  
*(The Building Official your new best friend)*
- 2) Modify your recipe to use Fresh, Locally Sourced Ingredients...**  
*(Be Flexible)*
- 3) Don't stray too far from the Original Recipe...**  
*(Defensible Data)*
- 4) Have alcohol and non-alcoholic versions**  
*(Understand Your Stakeholders)*
- 5) Share your creations!**  
*(Share your ideas with others)*



**If you need some help, call on those of us who have been doing this a long time....**

None of us get there alone,  
We all ride on the wave of those who have gone before...



Sharon.Bonesteel@SRPnet.com



Delivering water and power™

2022-9-8 DOE - Bonesteel



# ENERGY CODES PROGRAM GROWING PAINS

Rob Buchanan, Portfolio Product Manager

September 8, 2022

# Colorado energy codes program

- Colorado is a home rule state
- Is not proactive, is reactive
  - Elected officials
  - Enforcement staff
  - Builders
  - Architects, etc.
- Xcel Energy history of codes support
  - Some financial support without claiming savings

# New Mexico energy codes program

- Statewide energy code
- Adopted unamended IECC 2018
- State provided very little adoption & compliance support in Xcel Energy territory

# Codes program growing pains

- Expected
  - Coordination issues with state
  - Skepticism from some local communities
  - Third party intervention
- Unexpected
  - Resistance from community account managers
  - Getting ghosted
  - Genuine enthusiasm from underserved communities



 **Xcel Energy**<sup>®</sup>

# No Pane, No Gain: Midstream Windows Opportunity

A Program-to-Code Approach

9/8/22



George M. Chapman, Esq.



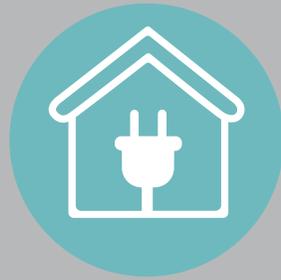
# About Energy Solutions

Our mission: Create large-scale energy and environmental impacts by leveraging market-based solutions.

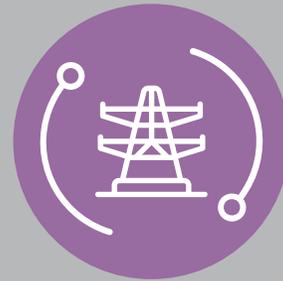
- Founded in 1995
- Employee-owned since 2013
- Over 300 employees and growing
- Nationwide reach with offices in CA, IL, MA, OR & NY
- More than 25 years of experience
- 13 national program awards since 2010



# A Market-Driven Approach



Energy Efficiency



Distributed Energy  
Resources



Policy & Ratings

# Triple Pane Windows Energy Savings Potential

- DOE has indicated approximately **2 Quads** of national energy savings
- Demonstrated impacts on **peak load reduction** as well
- Non-energy benefits include **noise reduction**
- Triple pane are **cost-effective** in many applications, and costs will decline with volume

Table 2. Daily HVAC Energy Savings with Thin Triple-Pane Windows

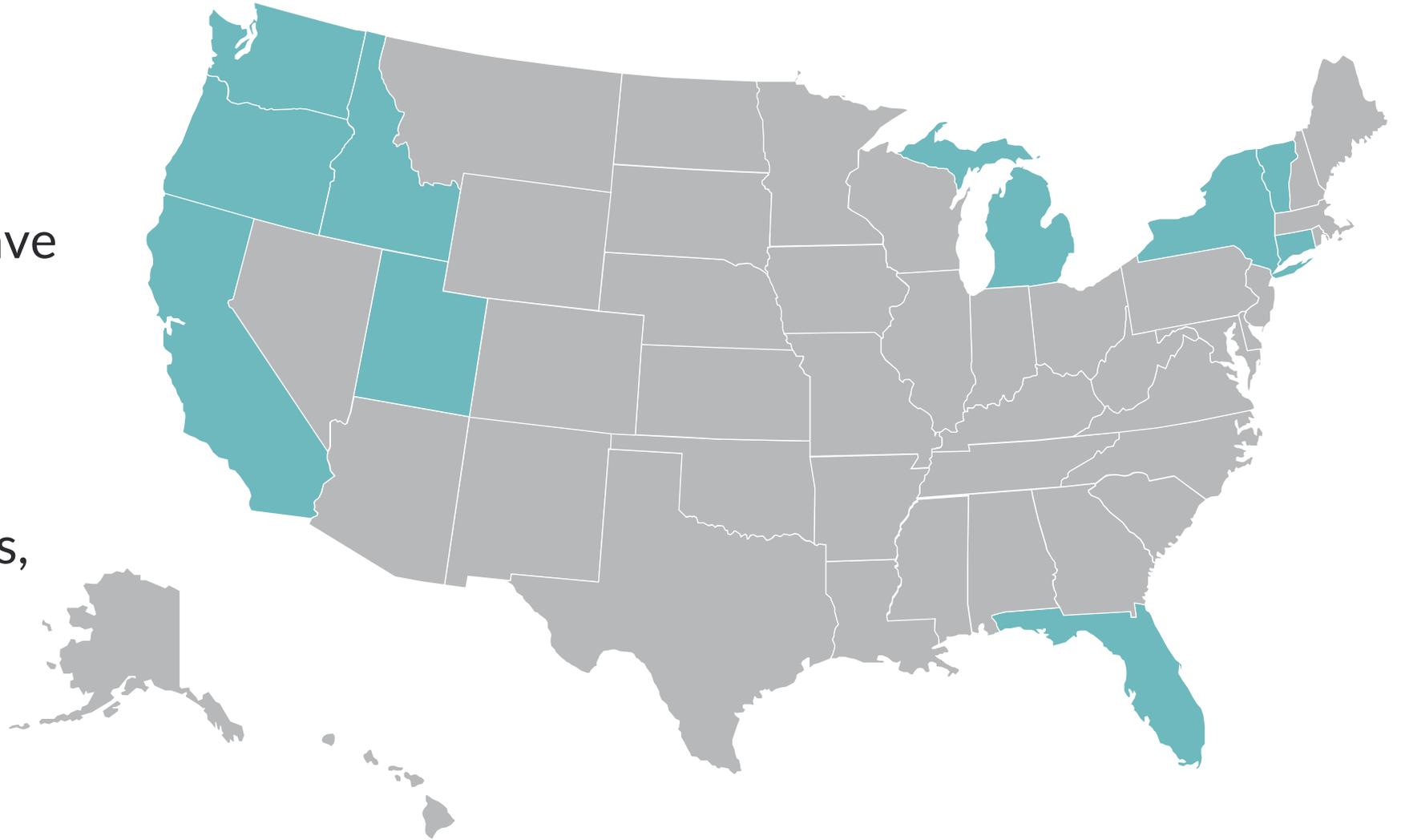
Metrics for the reporting period		Winter Heating Season	Summer Cooling Season
DATES <sup>3</sup>	Start	1/18/2020	6/20 /2020
	End	3/23/3030	7/20/2020
AVG	Outdoor temperature, °F	43 °F	78 °F
	Solar Irradiance, W/m <sup>2</sup>	66.5 W/m <sup>2</sup>	276 W/m <sup>3</sup>
	Daily energy savings, percent	12%	27%
	Daily energy savings, kWh	7.8 kWh	5.3 kWh
RANGE	Average Daily Outdoor temperature, °F	33 - 55 °F	71 - 83 °F
	Solar Irradiance, W/m <sup>2</sup>	5 - 154 W/m <sup>2</sup>	107 - 324 W/m <sup>2</sup>
	Daily energy savings, percent	3% to 18%	23% to 41%
	Daily energy savings, kWh	0.2 to 18.7 kWh	2.5 to 8 kWh

\*Source: Thin Triple Pane Windows - A View From the Field, PNNL, ACEEE Summer Study 2022

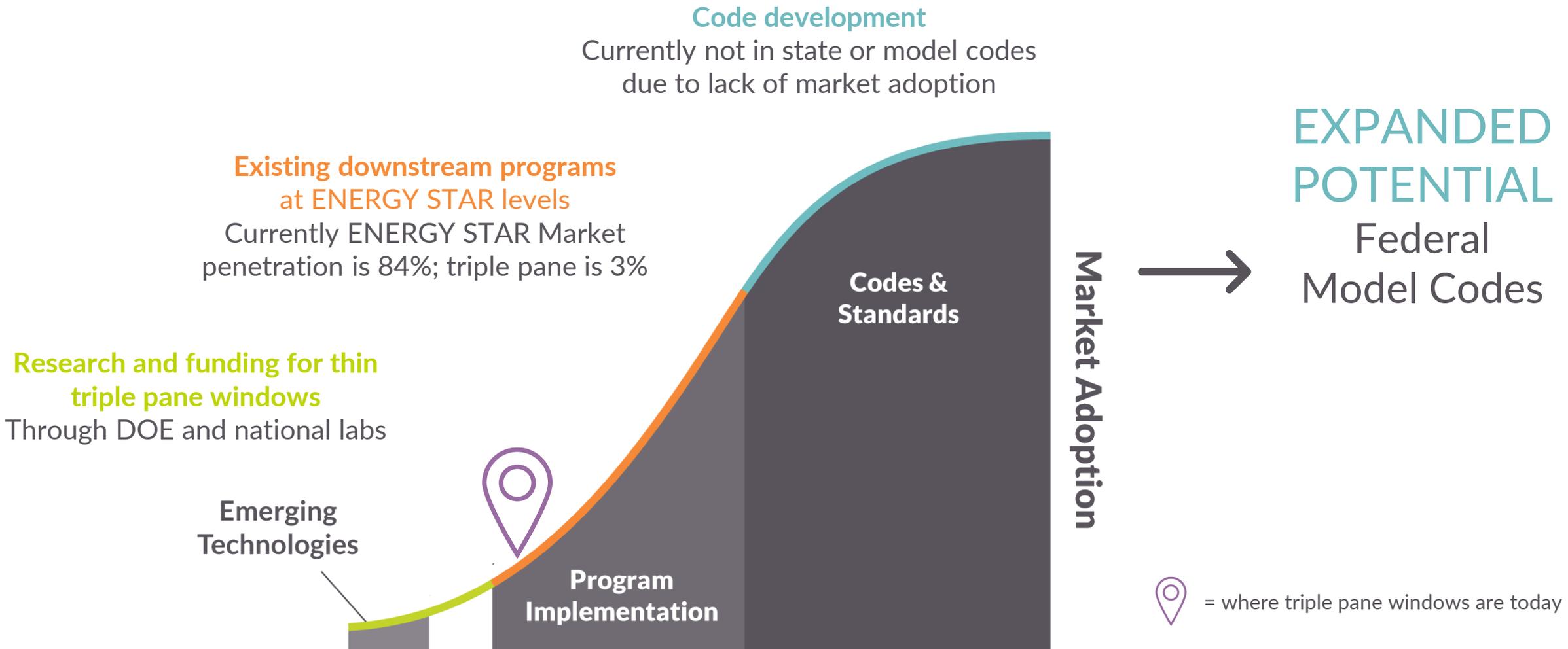


# Current Windows Programs

The states in **blue** have existing standalone windows programs according to CEE. Many utilize current ENERGY STAR levels, not triple pane.



# Market Transformation – Triple Pane Windows



# Midstream Programs to the Rescue

900% better results over downstream programs

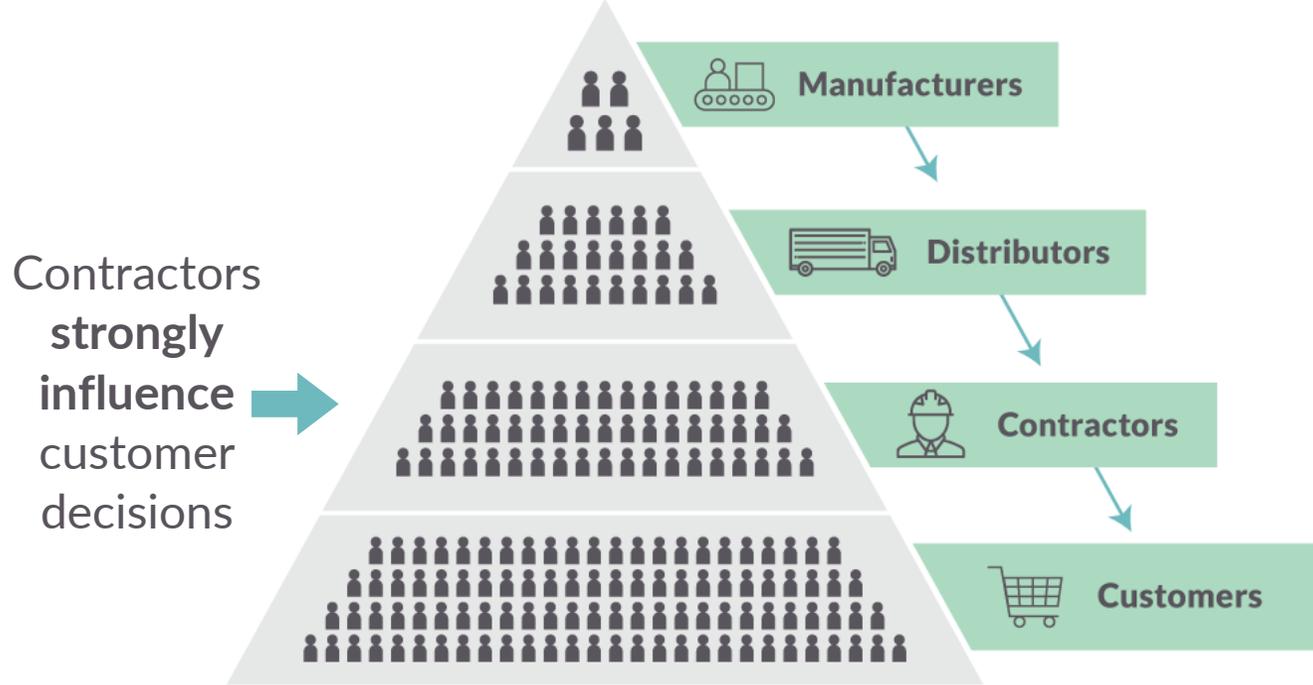
10x the impact

Midstream programs reach more customers and influence more sales than traditional downstream programs.

Midstream strategy – align program goals with market goals:

- Make high-efficiency equipment **affordable for customers** and **profitable for contractors and distributors**

Typical equipment supply chain:



By engaging with market actors higher up in the supply chain, we **accelerate the adoption** of new measures and serve hard-to-reach segments



# Midstream Programs can Improve Codes

- Data transparency is essential to connecting market insights from programs to inform codes
- Programs and codes are often implemented separately with minimal interaction; greater coordination can allow for timely adoption of cost-effective codes





**Thank You!**

**George M. Chapman**

[gchapman@energy-solution.com](mailto:gchapman@energy-solution.com)

617-245-4105



# Thank You!

**Building Energy Codes Program**

[www.energycodes.gov/training](http://www.energycodes.gov/training)

**BCEP help desk**

<https://www.energycodes.gov/technical-assistance/help-desk>

If you want AIA LUs, ICC CEUs and Certificate of Attendance for self-reporting, WRITE DOWN THIS LINK:

<https://www.energycodes.gov/technical-assistance/utility-programs-credit-request>



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