

UTILITY WORKGROUP MEETING

September 13, 2022



AGENDA

8:30 - 8:40 AM (PST)	<p>Welcome & Agenda</p> <ul style="list-style-type: none">• Introductions• Review PAWS Utility Workgroup Goals• Review Today's Agenda	Elaine Miller, NEEA, Isaac Smith and Grace Diller, MN CEE
8:40 - 8:45 AM (PST)	ENERGY STAR Update	Isaac Smith
8:45 - 9:15 AM (PST)	<p>PAWS Tools for Windows Programs</p> <ul style="list-style-type: none">• Program Playbook• High Performance Windows Incentive Calculator Demo• Discussion on feedback and additional needs	Isaac Smith and Grace Diller, MN CEE
9:15 - 9:45 AM (PST)	<p>Summary Results of NEEA's High Performance Windows Market Characterization Study</p> <ul style="list-style-type: none">• Overall Findings• Program Recommendations• Discussion on Implications and Identify Additional Research Needs	Dulane Moran, Cadeo
9:45 - 10:00 AM (PST)	Discuss Next Steps for Workgroup	Elaine to facilitate

PAWS ORGANIZERS



Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY

BUILDING TECHNOLOGIES OFFICE



CALIFORNIA
ENERGY COMMISSION



Northeast Energy
Efficiency Partnerships



Nicor Gas



Center for Energy and Environment



5 PRIORITY AREAS

Priority Area #1: Utility Program Collaborations

- Working with utilities on Windows programs (Residential and commercial; new and retrofit; attachments and windows)

Priority Area #2: Ratings, Codes, and Certifications

- ENERGY STAR specification support
- Field performance validation
- Building code body coordination

Priority Area #3: Stakeholder Campaigns and Initiatives

- Ongoing support to DOE campaigns
- Coordination with manufacturers/technical support
- Public awareness campaigns/consumer outreach

Priority Area #4: Data & Tools - *Coming*

- Energy savings
- Financial programs to support investment
- Document comfort, resilience
- Training programs

Priority Area #5: Tax Credits - *Coming*

- Policy support • Program design



UTILITY WG STRATEGIC GOALS

- **Work to enhance existing utility programs** targeting primary windows and attachments by connecting with manufacturers, creating program resources and sharing best practices/lessons learned.
- **Accelerate the number of utilities offering programs** targeting primary and attachment window by providing data, shared tools and program resources.
- **Provide a forum for utilities to share experience** and lessons learned from implementing primary and attachment window programs.
- **Develop go-to information resources and templates** for utilities developing primary window and attachment-related programs



UTILITY WG TACTICAL ACTIVITIES

- **Provide market resources** to help existing programs.
- Conduct outreach to utility partners to **aid in developing primary window and attachment programs**
- **Maintain centralized research and data** to aid utilities in developing primary window and attachment programs
- **Provide feedback and coordinate with other Work Groups** that connect with Utility WG
- **Develop additional tools to aid utilities** in developing primary and attachment window programs

ENERGY STAR 7.0 UPDATE

Isaac Smith, MN CEE



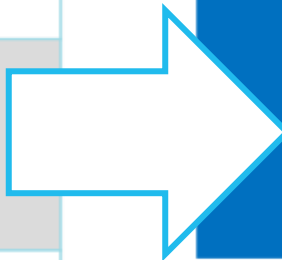
ENERGY STAR VERSION 7

- Final draft specification released
- Expected to take affect fall 2023

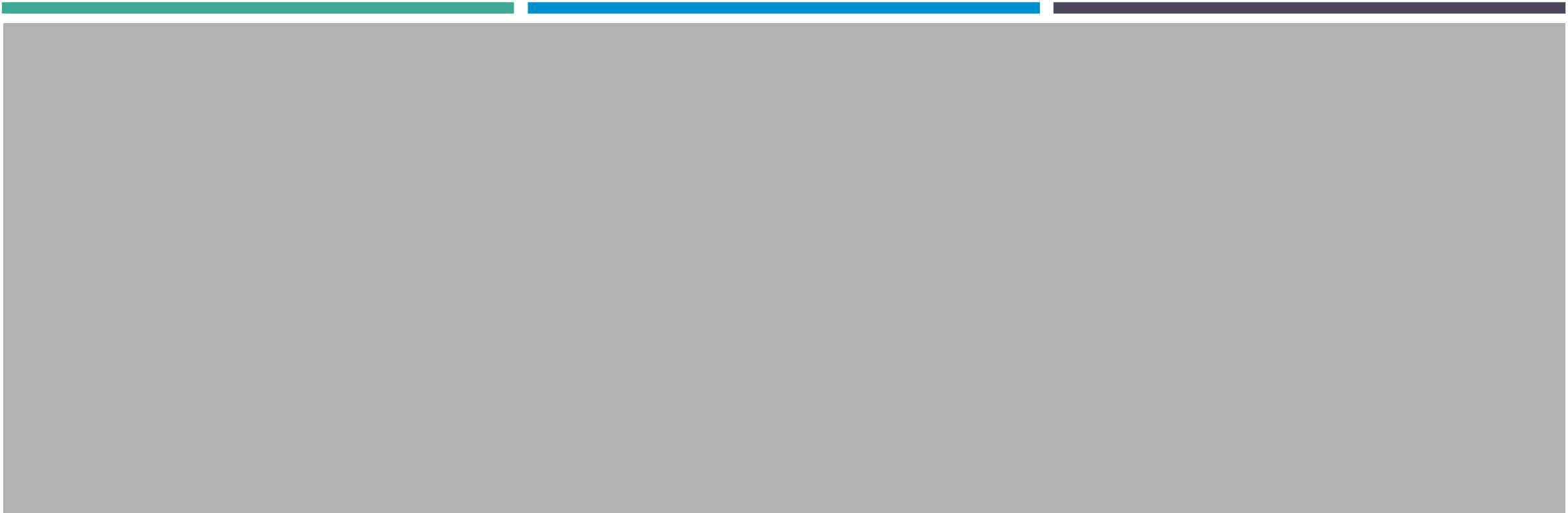
"High Performance"

Version 7

Version 6			
Climate Zone	U-factor	SHGC	
Northern	≤ 0.27	Any	Prescriptive
	$= 0.28$	≥ 0.32	Equivalent Energy Performance
	$= 0.29$	≥ 0.32	
	$= 0.30$	≥ 0.42	
North-Central	≤ 0.30	≤ 0.40	Prescriptive
South Central	≤ 0.30	≤ 0.25	
Southern	≤ 0.40	≤ 0.25	



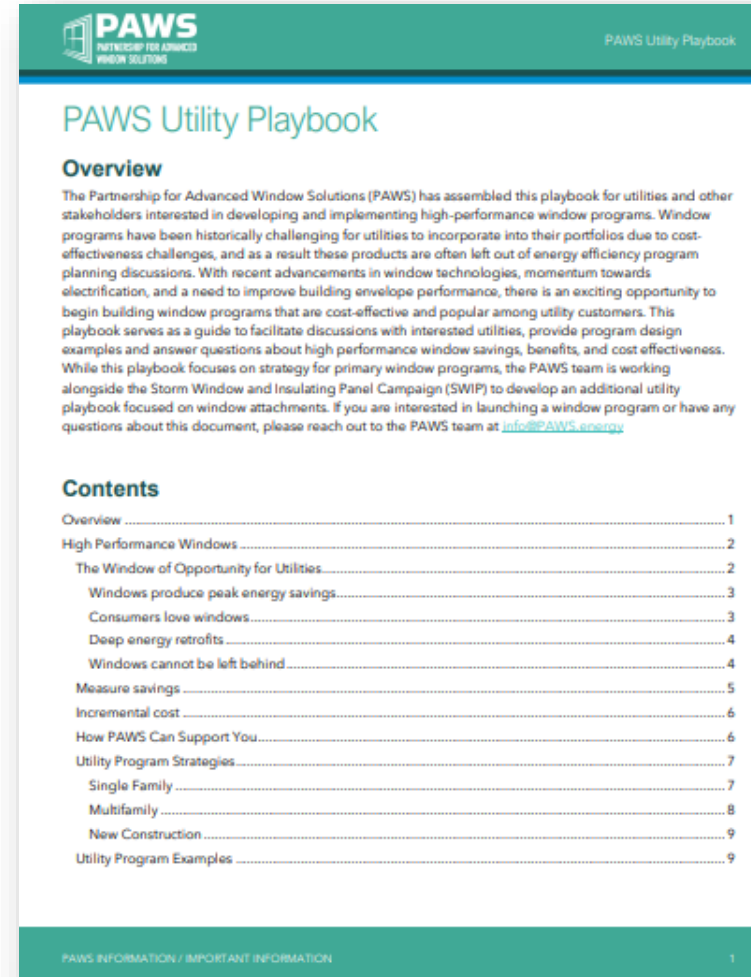
Climate Zone	U-factor	SHGC	
Northern	≤ 0.22	≥ 0.17	Prescriptive
	$= 0.23$	≥ 0.35	Equivalent Energy Performance
	$= 0.24$	≥ 0.35	
	$= 0.25$	≥ 0.40	
	$= 0.26$	≥ 0.40	
North-Central	≤ 0.25	≤ 0.40	Prescriptive
South Central	≤ 0.28	≤ 0.23	
Southern	≤ 0.32	≤ 0.23	



PAWS TOOLS FOR WINDOW PROGRAMS

PAWS UTILITY PLAYBOOK

Found on utility working
group [website](#)



WHY WINDOWS? CONSUMERS LOVE THEM!

- Window programs can serve as a gateway to increase customer participation in utility programs
- Consumers consistently replace their windows for reasons other than energy efficiency



ENERGY SAVINGS

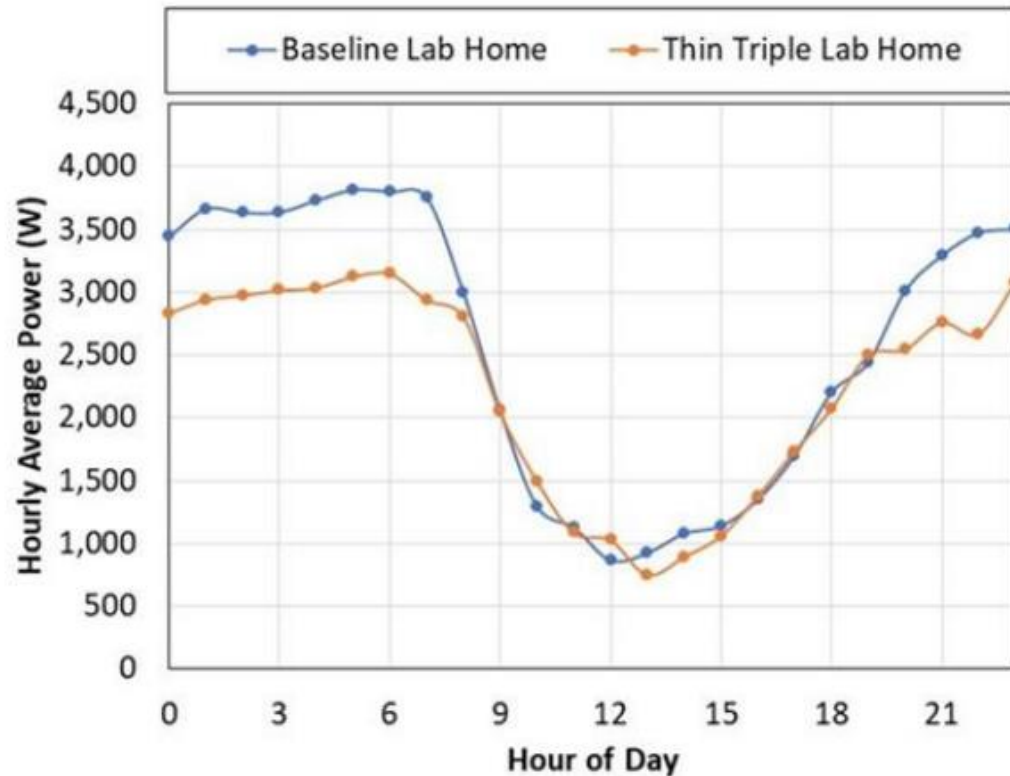
Climate Zone (model city)	Window Assumptions				Electric Savings	Gas Savings
	Baseline		Performance			
	U-value	SHGC	U-value	SHGC	kWh/window	therms/window
1 (Miami, FL)	0.35*	0.25	0.32	0.23	6.25	0.03
2 (Phoenix, AZ)	0.35*	0.25	0.32	0.23	7.96	0.09
3 (Charleston, SC)	0.35*	0.30	0.28	0.23	17.07	0.21
4 (Philadelphia, PA)	0.32	0.40	0.24	0.40	8.94	1.26
5 (Salt Lake City, UT)	0.32	0.30	0.22	0.30	1.45	2.3
6 (Minneapolis, MN)	0.32	0.30	0.22	0.30	2.60	2.98
7 (Anchorage, AK)	0.30	0.30	0.22	0.30	2.09	3.36

*Cities with code minimum U-values for windows above 0.35 were modeled using a default U-value of 0.35 for the baseline.

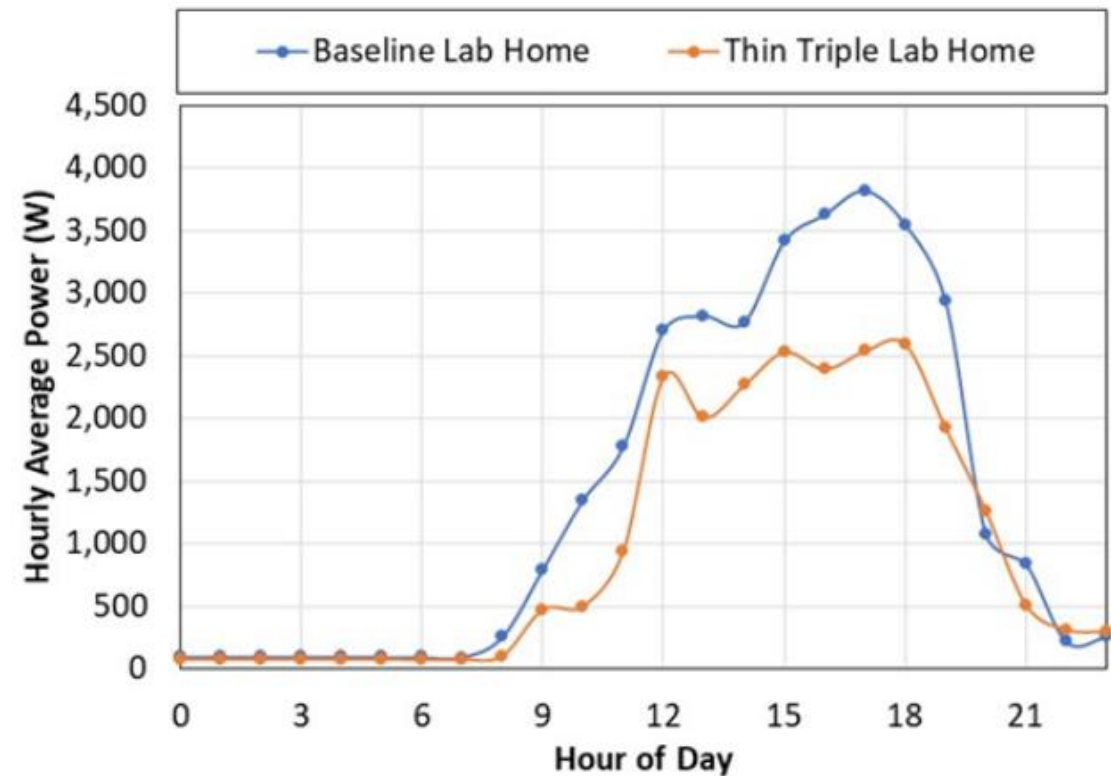
Note: Savings were calculated for 132 cities across 8 climate zones utilizing modeling data compiled for the ENERGY STAR Version 7 Specification for Windows and Skylights. The baseline for each city was determined based on the current adopted energy code, or a default baseline of U-0.35 and 0.30 SHGC. These savings values are for a 3'x5' window.

PEAK SAVINGS

- 17% peak heating savings and 33% peak cooling savings

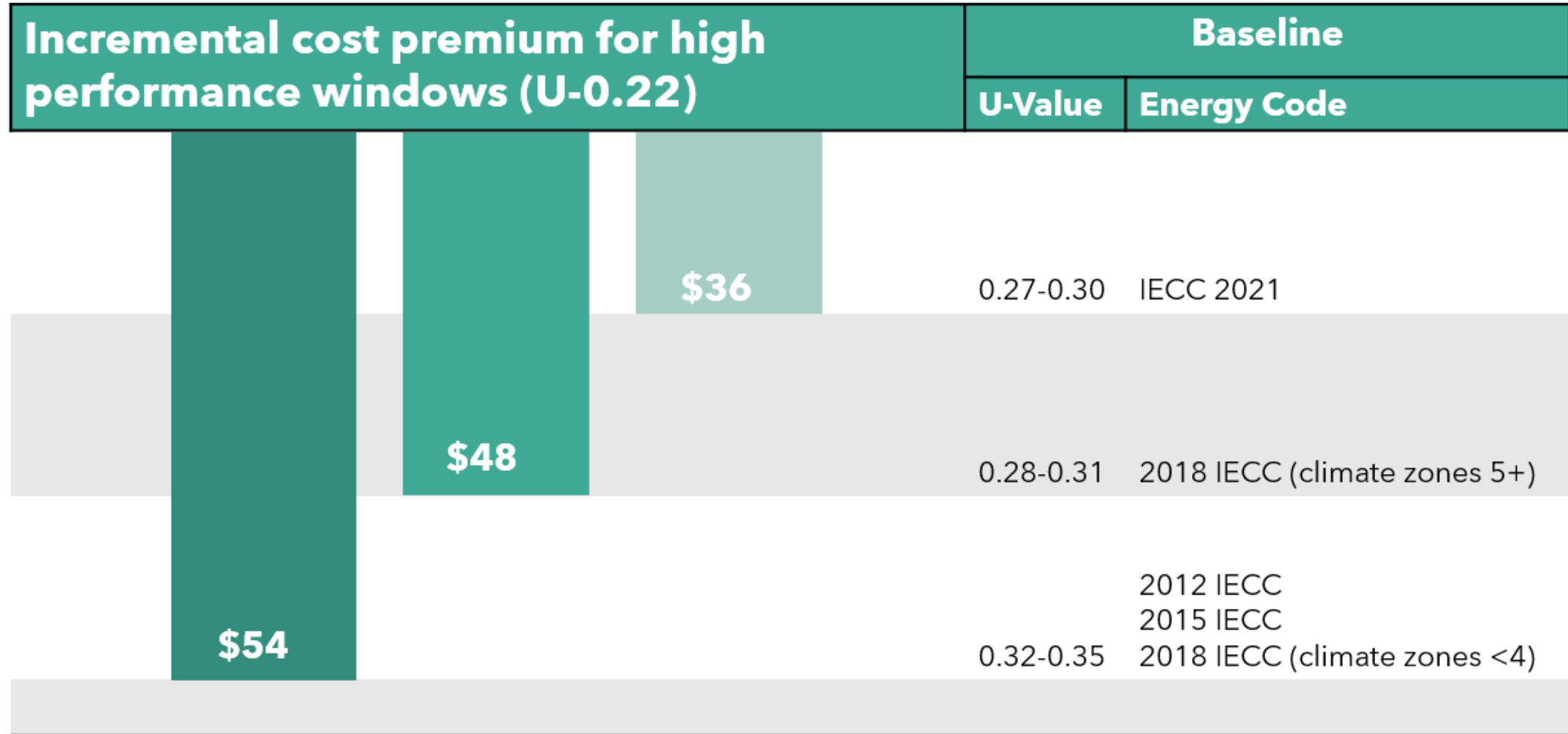


HVAC Load Heating Season



HVAC Load Cooling Season

INCREMENTAL COST



PROGRAM MODELS

Single Family (Downstream) - Prescriptive Tiered Rebate

- Example: Energy Trust of Oregon, Window Incentive Program, \$1 to \$1.60 per sq ft
- Example: Consumers Energy, Window and Insulation Rebate Program, \$15 per window

Single Family (Upstream/Midstream) – contractor or sales team incentives

Multifamily (Downstream or Upstream) – Leverage existing programs, prescriptive rebates

New Construction (Downstream) – Prescriptive Tiered Rebate

HOW PAWS CAN SUPPORT YOU

PAWS can offer 1:1 support for interested utilities



TRM Support



Region Specific Savings Analysis



Program Design



Manufacturer Engagement



Online Resources



Let us know!

ENERGY STAR SAVINGS CALCULATOR DEMO

HIGH PERFORMANCE WINDOW INCENTIVE CALCULATOR

INPUTS - Select location, baseline and performance window specs, and incentive levels for your region.

Location		Baseline Window		Performance Window		Incentive Rebate Level	
State	City	U-Factor	SHGC	U-Factor	SHGC	Gas (\$/therm)	Electric (\$/kWh)
MN	Minneapolis-St.Paul.Intl.AP.726580	0.32	0.3	0.22	0.3	\$4.00	\$0.20

OUTPUTS

Gas Savings (therms)			Proposed Incentive (per window)
percent	per window	per home	
4%	2.98	71	\$11.91

Electric Savings (kWh)			Proposed Incentive (per window)
percent	per window	per home	
1%	2.60	62	\$0.52

Key Assumptions*:

Assumes 23.8 3'x5' windows per home
 Analysis assumes common existing building characteristics for building envelope and air infiltration
 Energy savings are normalized over common heating and cooling types for each region

*see input data summary tab for a detailed explanation of assumptions

To inquire about additional data calculations specific to your region, or provide feedback for this calculator, email adiller@mncee.org



DISCUSSION

Are these resources useful? How can PAWS best support you?

SUMMARY RESULTS OF HIGH PERFORMANCE WINDOWS MARKET CHARACTERIZATION STUDY

Dulane Moran, Cadeo



TOPICS FOR NEXT UTILITY WORKGROUP MEETING

THANK YOU

