



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**

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U.S. Department of Energy

R-5 Highly-Insulating Windows and Low-e Storm Windows Volume Purchase Program

Building Technologies Program

Presented at the
Deceuninck-Glassbuild Reception
Atlanta, GA
September 30, 2009

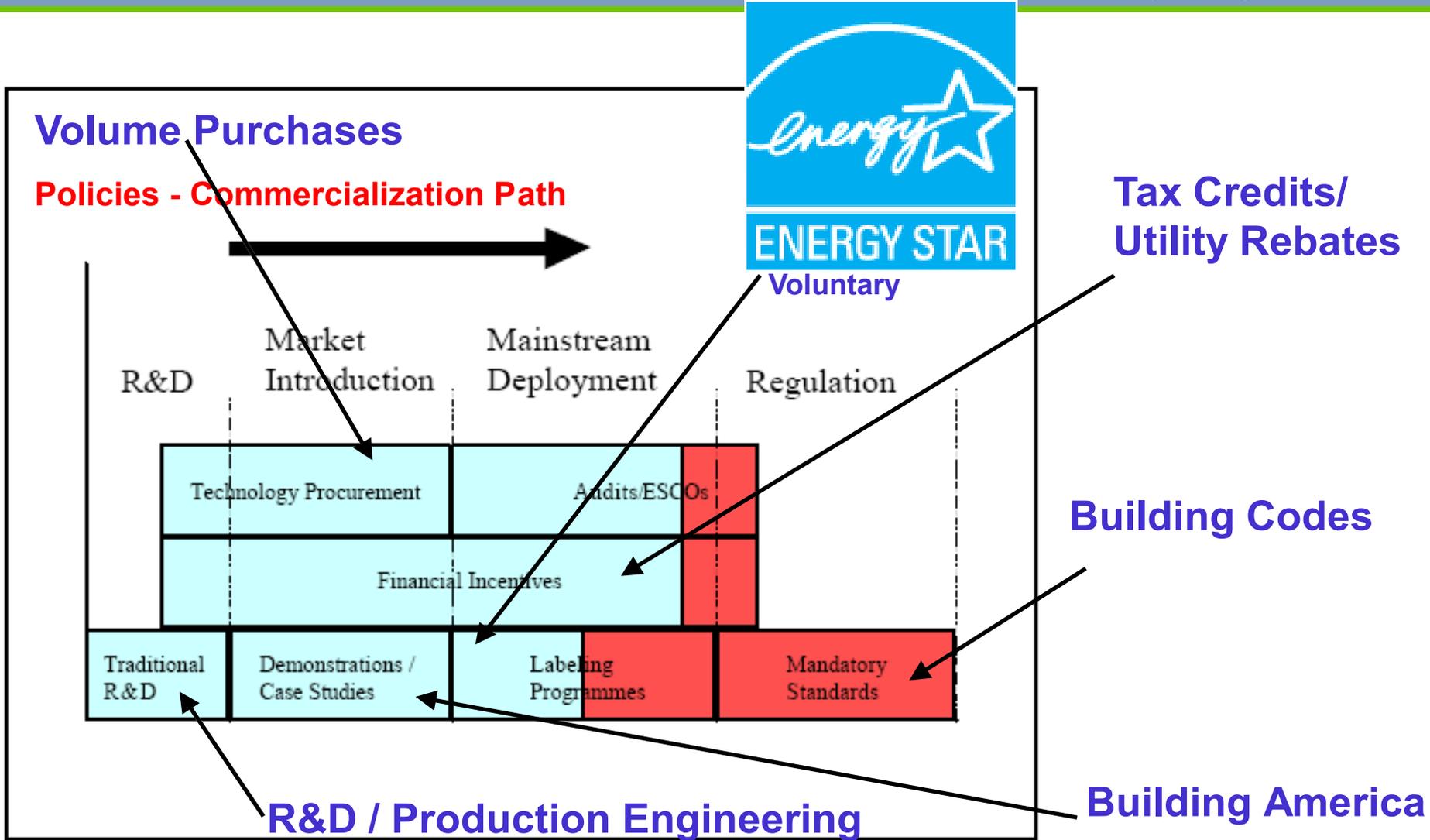
www.R-5WindowsVolumePurchase.com



Presentation Contents

- ❑ Introduce interested parties to the DOE Buildings Technology (BT) fenestration RD&D program.
- ❑ Discuss the Highly Insulating Windows and Low-E Windows Solicitation (Volume Purchase)
- ❑ Describe and discuss the process, procurement/solicitation approach and schedule.







Highly Insulating R-5 Production Engineering Solicitation

- ❑ DOE Selected GED Integrated Solutions in partnership with PPG and other major window and door companies in initial solicitation.
- ❑ Goal – Affordable R-5 (U-factor of 0.22 or less for operable window and 0.20 or less for fixed window) with price premium less than \$4/ft² compared to conventional double-pane low-e windows.
- ❑ Multiple paths to market, window companies and IGU sales.
- ❑ Product availability in 12 to 24 months.
- ❑ Expect second round RFP to be released on our about August 18, 2010.
- ❑ 50% industry cost share requirement.



ENERGY STAR for Windows – Effective January 2010

ENERGY STAR[®] Qualification Criteria for Residential Windows, Doors, and Skylights

Windows				Doors			Skylights		
Climate Zone	U-Factor ¹	SHGC ²		Glazing Level	U-Factor ¹	SHGC ²	Climate Zone	U-Factor ¹	SHGC ²
Northern	≤ 0.30	Any	Prescriptive Equivalent Energy Performance	Opaque	≤ 0.21	No Rating	Northern	≤ 0.55	Any
	≤ 0.31	≥ 0.35		≤ ½-Lite	≤ 0.27	≤ 0.30	North-Central	≤ 0.55	≤ 0.40
	≤ 0.32	≥ 0.40		> ½-Lite	≤ 0.32	≤ 0.30	South-Central	≤ 0.57	≤ 0.30
North-Central	≤ 0.32	≤ 0.40				Southern	≤ 0.70	≤ 0.30	
South-Central	≤ 0.35	≤ 0.30							
Southern	≤ 0.60	≤ 0.27							

¹ Btu/h.ft².°F
² Fraction of incident solar radiation





Building America Demonstrations/Production Housing for Early Markets

High-performance specs in LEED for Homes & NGBS

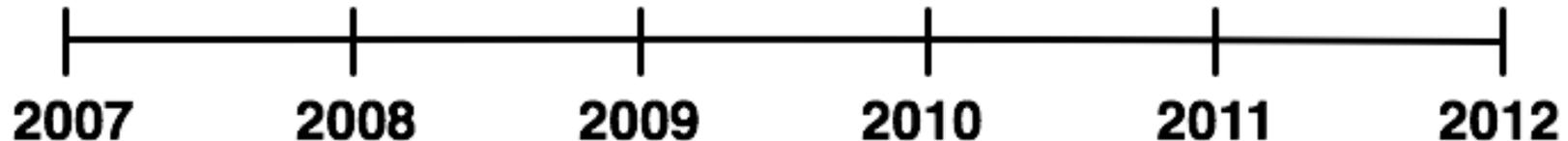
**Production Engineering RFP – 50%
DOE Cost Share**

**Technology Procurement/Volume
Purchases**

**Design and Implement Utility Incentive
Programs for Advanced Windows**

**ENERGY STAR Specs &
Revision**

New ENERGY STAR Specs





R-5 Highly-Insulating Windows

- ❑ Whole-window R-value of 5 (a U-factor of 0.22 or less).
- ❑ Currently triple pane (sometimes includes suspended film), but other future options are conceivable.
- ❑ Current ENERGY STAR qualified windows have an U-factor of around 0.3.
- ❑ Increasing the R-value from 3 to 5 reduces average heat loss through the window by 40% and improves occupant comfort.
- ❑ Depending upon their structure, three pane R-5 windows can moderately to significantly lower noise levels compared to standard two pane windows.



Low-e Storm Windows

- ❑ Storm windows can reduce heat loss through the windows by 25% to 50% compared to single pane windows with a U-factor of 1.1. Low-e storm windows save even more energy.
- ❑ HUD's PATH program (with DOE and industry partners) field evaluation concluded that low-e storm windows reduced whole-house heating load by 20% and achieved less than a 5 year simple payback.
 - Chicago weatherization agency identified 6 older homes with single pane windows (U-factor of 1.1) for evaluation.
- ❑ Retrofitting of low-e storm windows can be a very cost effective solution in select residential and commercial buildings.
- ❑ Currently, low-e storm windows are a vendor specialty order.



DOE's Long-Term Goals

- Save energy
- Reduce the costs to buyers for R-5 windows and low-e storm windows
- Provide business to the manufactures
- Create jobs
- Develop a market for energy efficient products





Summary of the Process

- ❑ Identify and educate buyer groups. Buyer groups provide input on types, sizes and quantities of windows of interest as well as indicate intent to purchase windows when available. **(Ongoing)**
- ❑ Partner with market transformation organizations and engage utilities to support high performance windows. **(Ongoing)**
- ❑ Reach-out to manufacturers and seek input on appropriate technical specifications and solicitation elements. **(Completed)**
- ❑ Release solicitation and receive manufacturer's responses.
- ❑ Evaluate proposals and execute agreements with all proposers meeting specifications.
- ❑ List products, specifications of those products and price ranges on web site.
- ❑ Continue to engage buyers to purchase products directly from the suppliers listed on the web site.



Solicitation Approach

- ❑ Solicitation issued by PNNL on behalf of DOE under Federal Acquisition Requirements. *RFP will be emailed to interested manufacturers/vendors, posted on the web site and listed in the commerce business daily.*

- ❑ Manufacturers/vendors respond to solicitation with products and prices (including shipping and handling) that meet the minimum specifications.
 - Can choose to bid on R-5 windows, or low-e storm windows or both window products.
 - Can choose to bid products/prices with 'additional' (optional) features.

- ❑ PNNL will issue multiple awards to manufacturers/vendors meeting minimum specifications and requirements.
 - PNNL anticipates executing a 'basic ordering agreement' type contract.



Solicitation Approach (cont.)

- ❑ Products and price ranges are listed on the windows VP web site for purchase directly from the manufacturers/vendors. Neither DOE nor PNNL are involved in the transaction.
 - VP program partners will actively seek buyers for products.
 - Window sales data reporting to DOE will be required as part of the terms and conditions.

- ❑ Product prices cannot be increased for a period of time identified in the solicitation (and executed agreements), but can be decreased.
 - Manufacturers/vendors will be allowed to 'delist' products and PNNL will retain the right to "delist" products/manufacturers/vendors if contract terms and conditions are not met.

- ❑ A similar Phase II solicitation will be issued in 9-12 months after awards for those manufacturers not yet ready with products.



Schedule

- Develop specifications for solicitation: August 2009
- Release volume purchase RFP: October 2009
- Proposals due: December 2009
- Awards announced: March 2010
- Agreements completed: April 2010
- Windows available: May-June 2010
- Phase II Volume Purchase RFP: February 2011





Targeted Buyers Groups*

- **Associations**
 - American Hotel and Lodging Association
 - Building Owners and Managers Association
 - **Office Building Association of DC**
- **K-12 Schools**
 - American Association of School Administrators
- **Public Housing**
 - Public Housing Authorities Directors Association
 - Council of Large Public Housing Authorities
- **Local/State Agencies**
 - National Governors Association
 - U.S. Conference of Mayors
 - International City/County Management Association
 - U.S. Chamber of Commerce (Institute for 21st Century Energy)
- **Federal Government**
 - Department of Housing and Urban Development
 - Department of Interior
 - DOD
- **Builders/Contractors**
 - National Association of Home Builders
 - Associated Builders and Contractors
 - Fleetwood Enterprises
 - **Clayton Homes**
- **Non-profits**
 - Community an Economic Development Association of Cook County (CEDA)
 - Habitat for Humanity
 - **Youthbuild USA**
 - **National Community Action Foundation**
- **Universities**
 - National Association of Colleges and University Business Officers

*Red indicates letter of interest received



Graham Parker, Project
Pacific Northwest National Laboratory
graham.parker@pnl.gov / (509) 375-3805

Jason Bogovich, Energetics, Incorporated
jbogovich@energetics.com / (410) 953-6257

Walt Zalis, Energetics, Incorporated
wzalis@energetics.com / (410) 953-6256

Nils Petermann, Alliance to Save Energy
npetermann@ase.org / (202) 530-2254

Marc LaFrance, Technology Development Manager
U.S. Department of Energy
Marc.Lafrance@ee.doe.gov

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