U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

Weatherization Assistance Program Briefing Book

Prepared by the Weatherization Assistance Program

February 2020

Weatherization Timeline

1970s

1978

DOE published **Project Retro-Tech, a paper-based audit** for identifying weatherization measures that would produce the most energy savings per dollar spent. **Typical measures included air sealing (with caulk) and insulation ("Blow & Go" installed by volunteer labor).** Weatherization begins mainly as an envelope improvement program with no building diagnostics or cost-effectiveness requirements.

1979

Water heater insulation, more substantial air sealing efforts (patching), attic ventilation and others are added to list of approved weatherization materials.

1980s

Allowed low-cost/no-cost general heat waste measures like water flow reducers, limited to 10% of total grant and $50/ home. Grantees are allowed to hire labor if volunteers are unavailable.

1980

1986

Average cost per unit increases to $1,600 and $150 limit on incidental repairs is lifted. Replacement heating systems are allowed and early adopters are using blower doors to diagnose home air leakage.

Added building envelope materials, including **moveable window insulation and constructing vestibules, pipe and boiler insulation materials, heating/cooling equipment and water heater tune ups.** Client education is allowed under the Training and Technical Assistance portion of Weatherization grants.

1984

1990s

A NY State WAP retreat results in a set of principles that will **form the basis of the home performance industry.** From this, Building Performance Institute (BPI) is established as a NY State program.

1993

Savings-to-Investment Ratio (SIR) was introduced. **Advanced home diagnostics** takes root as practitioners measure and use energy requirements and take account of measure interactions to receive an audit waiver. Cooling equipment and ventilation equipment are added to the Program.

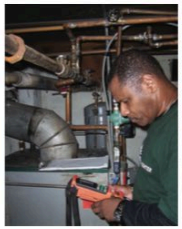
Weatherization training centers Association for Energy Affordability (AEA) in New York and the Indiana Community Action Association (INCAA) become **the first BPI affiliates.** They developed and delivered training leading to BPI certification, improving consistency of training and qualifications of WAP staff.

1998

1996

Original BPI pilot testing of Weatherization staff across multiple states. **First Weatherization auditors and installers receive BPI certifications.**

1999



Process begins to **expand existing BPI standards from weatherization to the emerging home performance industry.** Combustion diagnostic protocols are developed for gas appliances.

2000s

Advanced audits or priority lists are widely used and SIR is guiding Weatherization spending. General heat waste reduction measures, electric baseload measures including hot water heaters and refrigerators are added to the Program.

2001

The Recovery Act invests $5 billion in Weatherization. Weatherization training providers ramp up to meet additional staffing requirements nationwide. Workforce standardization launches with the development of the 4 key weatherization/ home performance Job Task Analyses & training center accreditation programs.

2009

2006

Renewable energy systems are added into Weatherization. Acceptable systems include **solar, biomass and geothermal.**

2010

Standard Work Specifications for Upgrades to Residential Buildings are published, the result of DOE Weatherization bringing together dozens of industry subject matter experts and stakeholders.

Weatherization in Action

Energy efficient services and improvements include:

- Mechanical Measures
- Health & Safety Measures
- Building Shell Measures
- Electric Baseload Measures

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Funding and Production History

DOE funding provides for:

- Training
- Technical Assistance
- Administrative Needs

Leveraged additional funding provides for:

- Additional services on a program-by-program basis

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Funding & Production History by the Numbers

Year	DOE Appropriation (in Millions)	Units Weatherized w/ DOE $	Units Weatherized w/ARRA $	Cumulative DOE Units
1998	$124.8	68,470		2,534,753
1999	$133.0	71,984		2,606,737
2000	$135.0	74,316		2,684,446
2001	$153.0	77,709		2,762,155
2002	$230.0	104,860		2,867,015
2003	$223.5	105,953		2,972,968
2004	$227.2	106,099		3,079,067
2005	$228.2	100,532		3,179,599
2006	$242.6	98,626		3,278,225
2007	$204.6	104,532		3,382,757
2008	$227.2	95,460		3,478,217
2009	$450.0	101,153	7,343	3,586,713
2010	$210.0	49,982	238,317	3,933,170
2011	$174.3	36,878	309,579	4,279,627
2012	$68.0	50,419	226,121	4,556,167
2013	$137.9	49,834	23,103	4,629,104
2014	$179.2	38,099	1,699	4,668,902
2015	$191.8	34,389	527	4,703,818
2016	$213.8	31,633		4,735,451
2017	$226.2	38,626		4,774,077
2018	$250.4	33,823		4,807,900

Leveraged funds account for an additional 2 million+ units served

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Legislative & Regulatory Timeline

10 Legislative Actions and 19 Regulative Actions Since 1976

Timeline

	LEGISLATION	REGULATIONS
1974	Pilot	Pilot
1976	1	
1977		1
1978	2	
1979		2,3,4
1980	3	5
1981		6
1982	4	7
1984	5	8
1985		9
1986		10
1990	6	
1993		11
1995		12
2000	7	
2001		13
2005	8	
2006		14
2007	9	
2008		15
2009	10	16
2010		17, 18
2015		19

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Legislative & Regulatory References

Services & guidance added to Weatherization policies

NOTICE	PURPOSE	REGULATORY AUTHORITY	STATUTORY AUTHORITY
WPN 11-14	Updated Subgrantee Selection Program Notice	Direction for implementing 10 CFR 440.14 & 10 CFR 440.15. Supercedes WPN 96-4. Issued in anticipation of Subgrantee changes due to end of ARRA funding.	Title IV, the Energy Conservation and Production Act of 1976, as amended, requirements in §6861(a)(4) and §6864(b)(4).
WPN 12-7	Disaster Planning and Relief	Outlines requirements in 10 CFR 440.16 and 440.18. Suggests how such requirements may be interpreted to provide for limited WAP participation during disaster relief.	Title IV, the Energy Conservation and Production Act of 1976, as amended, authorizes DOE to administer the WAP (42 U.S.C. 6861-6873).
WPN 15-4	Quality Work Plan Requirement	Details for program oversight required by 10 CFR 440.23. Specifically provides minimum expectations for standards and quality of material installation and quality control.	Title IV, the Energy Conservation and Production Act of 1976, as amended, authorizes DOE to administer the WAP (42 U.S.C. 6861-6873), specifically §6851(a)(4) and §6866.

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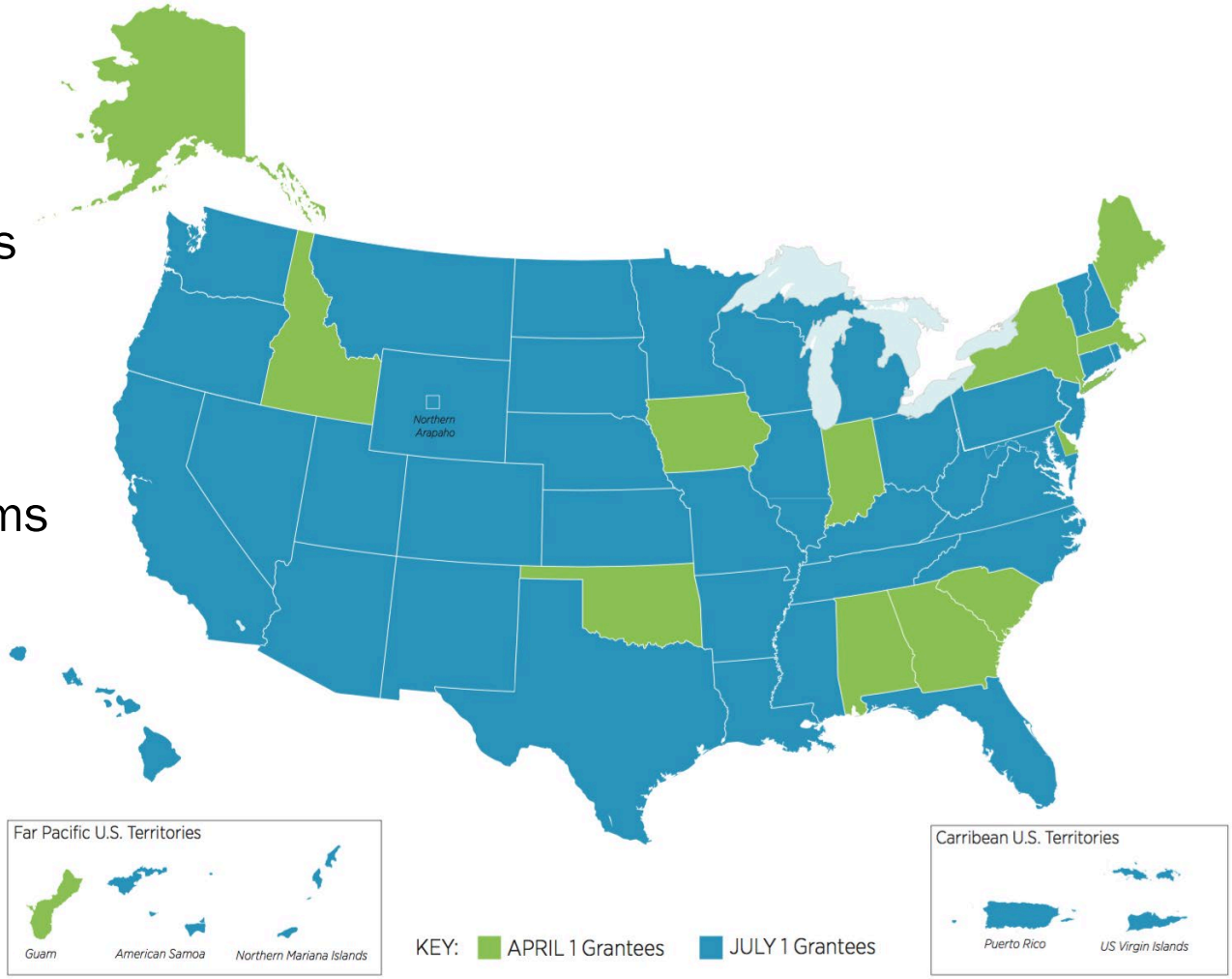
Grant Start Dates

Weatherization provides flexibility to states and territories.

Most start their programs on July 1, while some start on April 1.



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Energy Audits Procedures

- **DOE reviews audit systems and procedures every five years.**
- **The energy audit review process examines:**
  - Energy calculations.
  - Auditing, testing, and installation standards.
  - Health and safety protocols.

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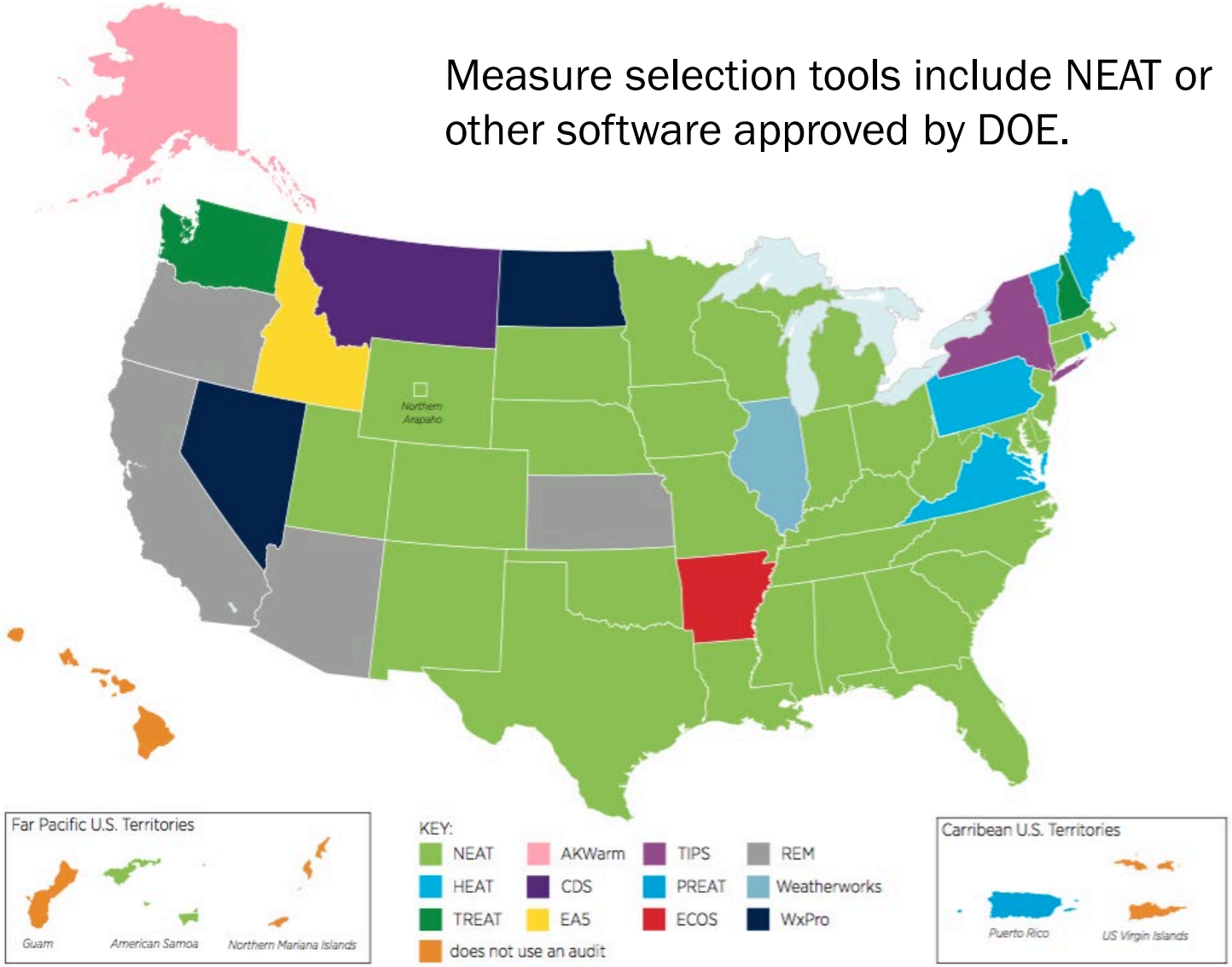
Approved Energy Audit Tools

Measure selection tools include NEAT or other software approved by DOE.



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Thank You