

A scenic photograph of the Washington Monument in Washington, D.C. The monument is a tall, white, obelisk-shaped structure that rises vertically from a line of trees. The trees in the foreground and middle ground are covered in vibrant pink cherry blossoms, some of which are in sharp focus, framing the top and sides of the monument. The sky is a clear, bright blue with a few wispy white clouds. The entire scene is reflected in the calm water of the Tidal Basin at the bottom of the image. A semi-transparent dark banner is overlaid across the lower portion of the image, containing the title text.

Weatherization Assistant v. 10: Considerations for Managers and Administrators

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Increasing capacity in States to achieve economic security and energy efficiency in low-income communities.

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WAP State Assistance



Develop Tools and
Resources



Facilitate Peer
Learning through
Connection & Sharing
of Promising Practices



Provide Expertise,
Guidance, and
Support



Provide Training and
Technical Assistance



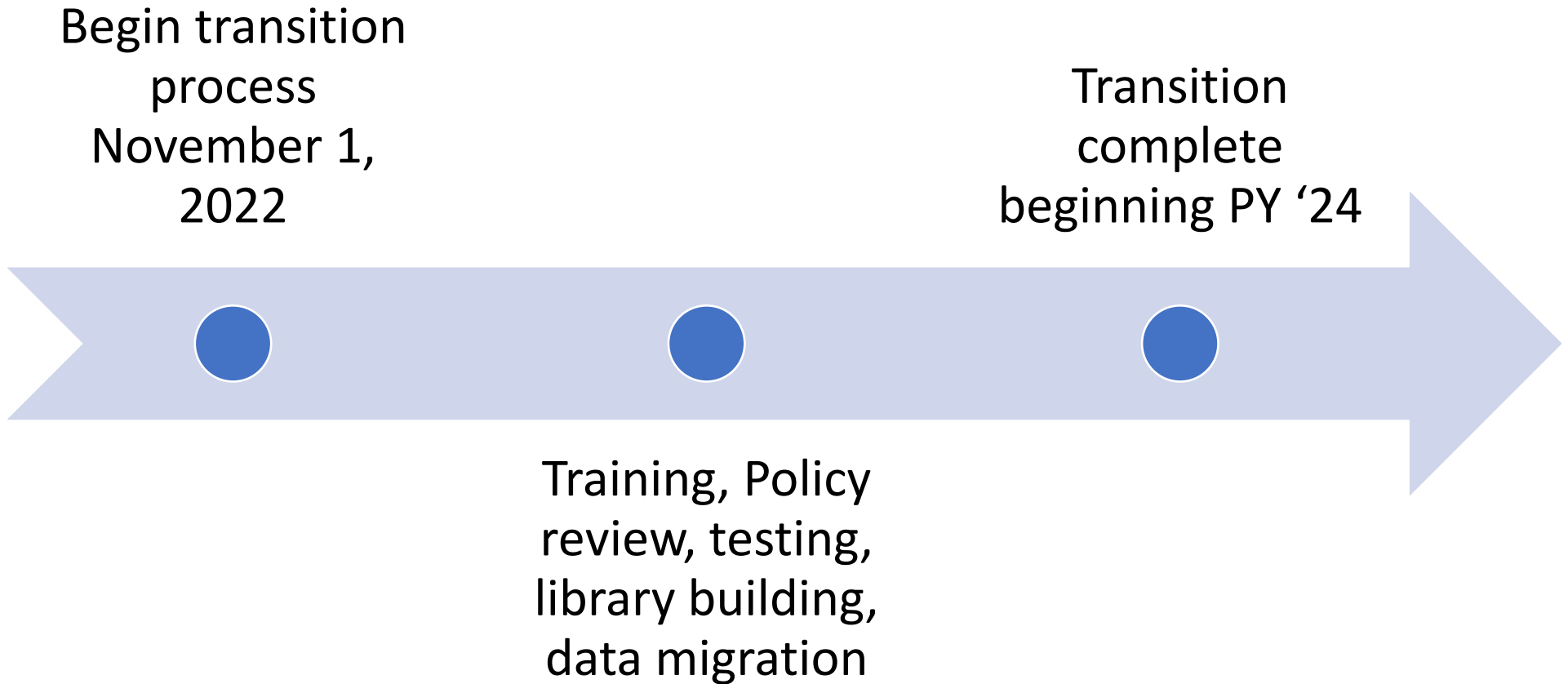
Background

- Weatherization Assistant Suite of Tools (developed by ORNL)
 - National Energy Audit Tool (NEAT)
 - Manufactured Home Energy Audit (MHEA)
 - Multifamily Tool for Energy Audits (MulTEA)
 - Health and Safety Audit (SF, MH, individual MF)
- Relevant guidance
 - [10 CFR 440.21](#)
 - [WPN 23-6](#)
 - [WAP Memo 091](#)
 - [WA v. 10 Training Resources](#)

WAP Memo 091

- Updates/Enhancements of note in V. 10
 - Maximum measure lifetime increase to 30 years
 - ASHRAE 62.2-16 calculator
 - Revised HVAC and Duct system forms
 - Single-step HVAC fuel-switching analysis
 - Corrected evaporative cooler efficiency calculations
 - Updates to equipment databases
 - Updates to weather files
 - Non-Energy Impact calculation framework

WAP Memo 091



WA v. 10 Training

WAP Memo 091

Transition Process

- Notify P.O.
- Documentation submittal
- Import of existing databases
- Data export

ORNL/TM-2023/2833

Web-Based Weatherization Assistant Getting Started Guide



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March 2023

 **OAK RIDGE**
National Laboratory

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Weatherization Assistant Web-based – Considerations for Managers and Administrators

Prepared by: Bill Eckman

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June 28, 2023

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Learning Objectives

- Define a basic conversion plan/timeline
- Create a user hierarchy of WA-web users
- Recall the purpose of each WA-web library
- Identify editable and non-editable libraries
- Define a basic annual library update plan

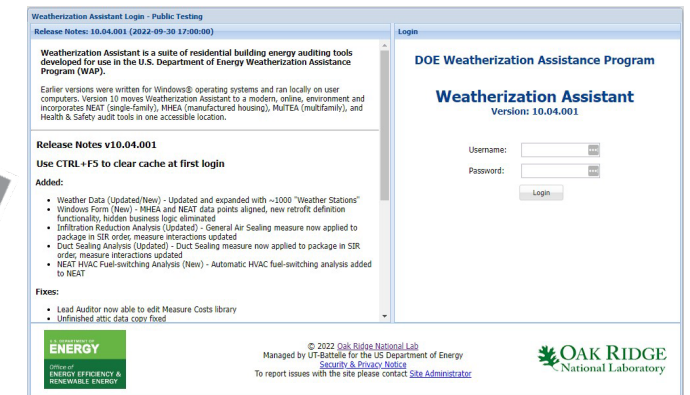


Figure 1: Weatherization Assistant Initial Page – WAv8 and v10

Poll – Weatherization Assistant Conversion

Is your program planning to convert to Weatherization Assistant web-based (Version 10)?

Potential Responses:

Yes, and we have a plan in-place

Yes, but we do not have a plan set

No

Basic Conversion Plan/Timeline

April 1 st Program Year				
Month	Activity	Lead	Support	Completed by
December (previous calendar year)	Notify DOE Project Office and ORNL of intent to use Weatherization Assistant Version 10 (per WAP Memo 091*)	Grantee		Grantee
February	Statewide WA web-based site available for use (wa-xx.ornl.gov)	ORNL	Grantee	ORNL
March	Provide access to DOE Project Officer for Library review (per WPN Memo 091*)	Grantee		Grantee
February-April	Training for WAv10 Users	Training Provider	ORNL	Training Provider
May	WAv8.9 Database aggregation and preparation for conversion	Grantee	ORNL	Grantee
June	WAv8.9 Database conversion to WA web-based (archival)	ORNL	Grantee	ORNL

Figure 2: excerpt from example conversion timeline

See handout



WAweb
Conversion

July 1 st Program Year				
Month	Activity	Lead	Support	Completed by
March	Notify DOE Project Office and ORNL of intent to use Weatherization Assistant Version 10 (per WAP Memo 091*)	Grantee		Grantee
May	Statewide WA web-based site available for use (wa-xx.ornl.gov)	ORNL	Grantee	ORNL
June	Provide access to DOE Project Officer for Library review (per WPN Memo 091*)	Grantee		Grantee
May-July	Training for WAv10 Users	Training Provider	ORNL	Training Provider
August	WAv8.9 Database aggregation and preparation for conversion	Grantee	ORNL	Grantee
September	WAv8.9 Database conversion to WA web-based (archival)	ORNL	Grantee	ORNL

Figure 3: excerpt from example conversion timeline

Poll – Weatherization Assistant Conversion

Are you concerned about theft of participant information?

Potential Responses:

Yes

No

Purpose and Available User Privilege Levels

Purpose

- Control access to data
- Protect personal information*
- Reduce undesired data changes

*personal information inclusion limited in WA-web

Entity	User privilege level	Scope of access	Responsibilities (in bold) and level of access to records						
			User records	Agency records	Library records	Account records	Audit records	Work orders	
ORNL/ developer	Site Administrator	All state-specific databases	- Must create at least one State Administrator per state - Can edit own user record - Can create or edit other user records	- Have no restriction to create and edit records (for troubleshooting)					
Grantee	State Administrator	State database	- Can edit own user record except privilege level - Can create or edit other State Administrators - Must create at least one Agency Administrator per agency - Can view users for all agencies	Must create all agencies in the state	Can view libraries, accounts, audits, and work orders				
Agency personnel and associates	Agency Administrator	Agency records	- Can edit own user record except privilege level and agency information - Must create all other users in their agency	Can edit their agency record	Can create or edit all libraries, accounts, audits, and work orders				
	Lead Auditor		- Can edit own user record except privilege level and agency information - Can view other user records in their agency	Can view their agency record	Can create and edit all libraries	Can create and edit all accounts, audits, and work orders			
	Auditor				Can view libraries				
	Guest				No access				

Figure 4: excerpt from Getting Started Guide

User Privilege Levels

- **Site Administrator** – full access (reserved for ORNL support)
- **State Administrator** – view entire state with limited edit capabilities
- *DOE Read Only* (not shown) – view entire state – no editing allowed
- **Agency Administrator** – full access to agency data and editing (user admin)
- Lead Auditor – full access to agency audits, libraries, work orders
- Auditor – full access to audits and work orders
- Guest – view agency audits and work orders only

Example of Agency Admin vs. DOE Read Only

Agency Admin

- Agency data only
- Can view and **edit**

(1) Agency = ORNL

(240) NEAT Audits + Edit capability

Agency Name	State	City	Type	Is Active	# Audits	Last Edited
ORNL	TN	Oak Ridge	Other	Yes	14	06-05-2020 1:17 PM

Agency	Audit Name	Account Name	Account Number	City	State	Audit Date	Audit #	Auditor	Audit Status	Audit Last Edited
ORNL	Copy of AEO Demon - NEAT-1	AEO Demo	AEO Demo 1	Hot Springs	AR	05-19-2023	2840	Wilhelm Eckmann	Completed	06-27-2023 11:42 AM
ORNL	Copy of 2494	NEAT Testing	NEAT 1		TN	02-02-2023	2703	Wilhelm Eckmann	Completed	06-26-2023 11:32 PM
ORNL	Copy of 2656	NEAT Testing	NEAT 1		TN	04-26-2023	2704	Wilhelm Eckmann	Completed	06-06-2023 10:08 AM
ORNL	test 307	Sample 1 Account	S001	Oak Ridge	TN	11-01-2022	2811	Jyothis Anand	Completed	06-06-2023 2:25 AM
ORNL	test 1419a	Sample 1 Account	S001	Oak Ridge	TN	11-01-2022	2821	Jyothis Anand	Completed	06-06-2023 2:05 AM
ORNL	issue 1498	NEAT Testing	NEAT 1		TN	11-04-2022	2789	Wilhelm Eckmann	Completed	05-25-2023 11:21 AM

Figure 5: W Aweb view with Agency Administrator login

DOE Read Only

- Statewide data (based upon Agency state)
- View ONLY – no editing possible

(6) Agencies – state = TN

(419) NEAT Audits NO edits allowed

Agency Name	State	City	Type	Is Active	# Audits	Last Edited
CSST Software	TN		Other	Yes	8	09-09-2022 1:35 PM
Getting_Started_V2	TN	Oak Ridge	Other	Yes	3	01-30-2023 2:03 PM
Load_Testing	TN		Other	Yes	324	06-27-2022 9:53 AM
Make Homes WX Ready	TN	Cookeville	Other	Yes	14	07-11-2021 2:03 PM
ORNL	TN	Oak Ridge	Other	Yes	434	06-25-2020 1:17 PM
Tennessee WAP Office	TN		State Government	Yes	0	02-19-2020 10:16 AM

Agency	Audit Name	Account Name	Account Number	City	State	Audit Date	Audit #	Auditor	Audit Status	Audit Last Edited
ORNL	Copy of AEO Demon - NEAT-1	AEO Demo	AEO Demo 1	Hot Springs	AR	05-19-2023	2840	Wilhelm Eckmann	Completed	06-27-2023 11:42 AM
ORNL	Copy of 2494	NEAT Testing	NEAT 1		TN	02-02-2023	2703	Wilhelm Eckmann	Completed	06-26-2023 11:32 PM
CSST Software	Copy of NEAT - Example 1 - ...	NEAT Example-1	NEAT Examp...	Nashville	TN	11-12-2021	2837	Paige Teegarden	Completed	06-20-2023 3:24 PM
ORNL	Copy of 2656	NEAT Testing	NEAT 1		TN	04-26-2023	2704	Wilhelm Eckmann	Completed	06-06-2023 10:08 AM
ORNL	test 307	Sample 1 Account	S001	Oak Ridge	TN	11-01-2022	2811	Jyothis Anand	Completed	06-06-2023 2:25 AM
ORNL	test 1419a	Sample 1 Account	S001	Oak Ridge	TN	11-01-2022	2821	Jyothis Anand	Completed	06-06-2023 2:05 AM
ORNL	issue 1498	NEAT Testing	NEAT 1		TN	11-04-2022	2789	Wilhelm Eckmann	Completed	05-25-2023 11:21 AM

Figure 6: W Aweb view with DOE Read Only– TN login

Poll – Weatherization Assistant Conversion

Are you concerned about users forgetting their login details?

Potential Responses:

Yes, and I've been the point-of-contact for login resets

Yes

No

Standard user creation path

Creator User Type	Creates
Site Administrator	State Administrator
State Administrator	State Administrator Agency Administrator DOE Read Only
Agency Administrator	Agency Administrator Lead Auditor Auditor Guest

Figure 7: Which users create others



WAweb Getting
Started Guide

Basic User Hierarchy

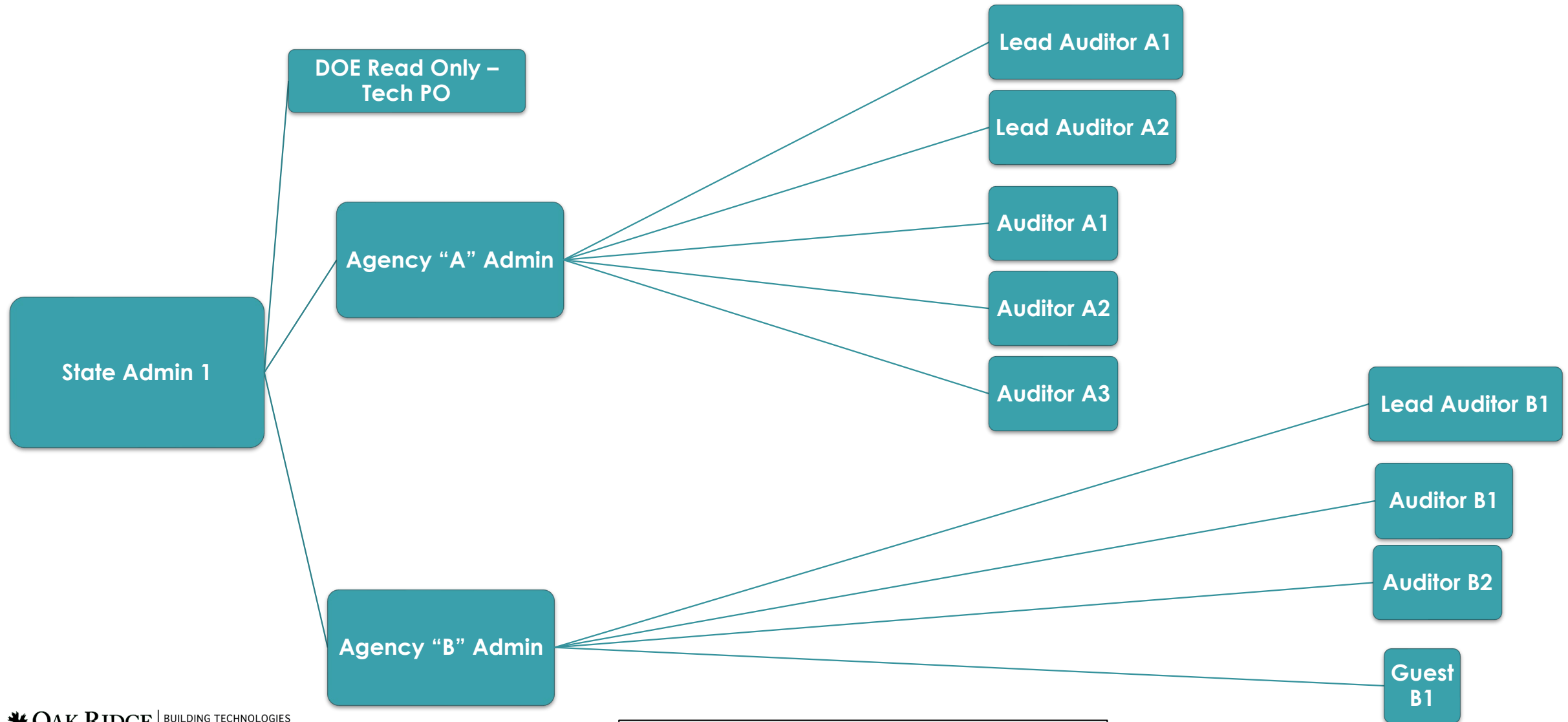


Figure 8: Example User Hierarchy

Purpose of WA Libraries

- Store standard values for audits
- Limit audit inputs and errors
- Compliance with program requirements

The screenshot displays the WAv10 Libraries interface, which is divided into two main sections: the Economic Parameter Set Library and the Fuel Cost Library. A sidebar on the right contains a 'Libraries' dropdown menu with options: Economic Parameters, Fuel Costs, Measure Costs, Key Parameters, Supply, and Defined Measures.

Economic Parameter Set Library

Economic Parameter Set Name: 2020 - Residential US Average Economic Factors
Agency: WAv10 Conversion Training
Active for: NEAT: ☒ MHEA: ☒ MuTEA: ☒

Economic Parameter Set Details
Real Discount Rate (%): 3

Energy Price Escalation Rates

Fuel Type	Year	Fuel Price Index	Modified UPV Factor
Electricity	29	1.01	19.8105
Electricity	30	1.01	20.2266
Natural Gas	0	1	1

Fuel Cost Library

Fuel Cost Name: 2020 - Average US Residential Natural Gas Costs
Agency: WAv10 Conversion Training
Active for: NEAT: ☒ MHEA: ☒ MuTEA: ☒

Fuel Cost Details
Fuel Type: Natural Gas
Units: Mcf
Unit Cost (\$): 9.85
Unit Heat Content (MMBtu): 1.025

Comments

Fuel Cost Library

Fuel Cost Name: PY22 - Subgrantee Specific NG
Agency: WAv10 Conversion Training
Active for: NEAT: ☒ MHEA: ☒ MuTEA: ☒

Fuel Cost Details
Fuel Type: Natural Gas
Units: Therm
Unit Cost (\$): 1.025
Unit Heat Content (MMBtu): 0.1 [Reset to default](#)

Comments
Agency XYZ NG costs - Updated 1/1/2022 by LA

Figure 9: Example WAv10 Libraries – Economic Parameters and Fuel Costs (default and custom)

Accessing Libraries

- Available on WAv10 menu bar
- Many libraries are now separate for easier administration/maintenance
 - Economic Parameters
 - Key Parameters
 - Fuel Costs

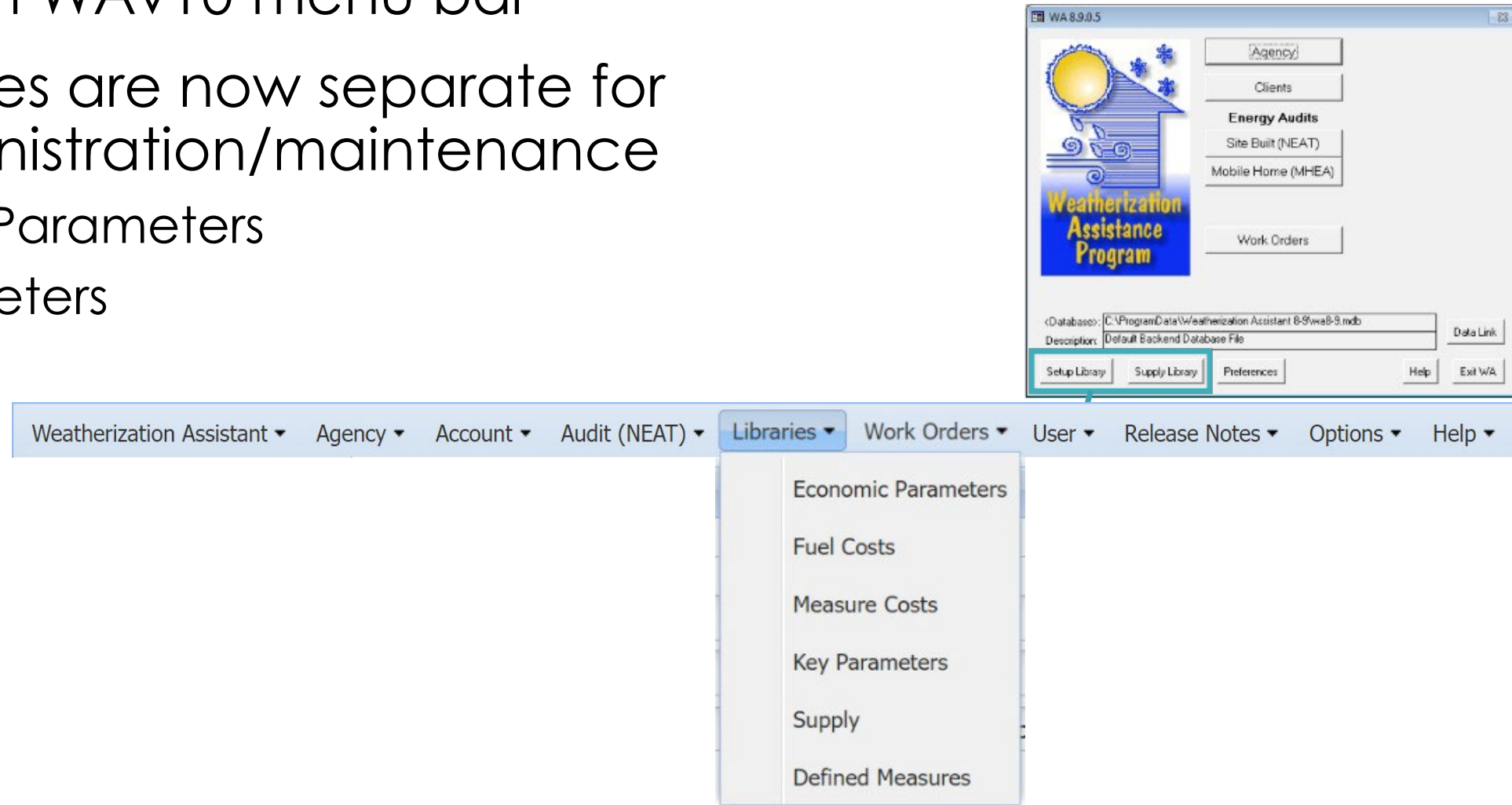


Figure 10: Access to WA Libraries – WAv8 and v10

WAweb Libraries

Name/Type	Sub-types/items	Required/Optional	Audit Types
Economic Parameters	NA	Required	NEAT, MHEA, MuITEA
Fuel Costs	Coal, Electricity, Fuel Oil, Kerosene, Other, Natural Gas, Propane, Wood	Required dependent upon use in the building	NEAT, MHEA, MuITEA
Measure Costs	NA	Required	NEAT, MHEA, MuITEA
Key Parameters	NA	Required	NEAT, MHEA
Supply	NA	OPTIONAL (work orders)	NEAT, MHEA
Defined Measures	Health and Safety, Incidental Repairs, Other ECM	Required	NEAT, MHEA

Figure 11: Table of WAweb Libraries

Accessing Libraries – Is it Editable?

- Not editable if either is true:
 - Shared
 - Used by an audit ($\# \text{ Audits} > 0$)
- Not editable rules protect existing audits/runs from unintentional changes

Is Shared	# Audits
Yes	13
No	0

Not Editable

Editable

All Fuel Costs (6)							
Agency	Fuel Cost Name	Fuel Type	Is Shared	# Audits	Date Created	Last Edited	
WAv10 Conversion Training		Natural Gas					
WAv10 Conversion Training	2020 - Average US Residential Natural Gas Costs	Natural Gas	Yes	13	01-05-2021 2:24 PM	12-21-2022 10:12 AM	
WAv10 Conversion Training	PY22 - Subgrantee Specific NG	Natural Gas	No	0	12-21-2022 10:10 AM	12-21-2022 10:11 AM	
WAv10 Conversion Training	2019 - Average US Residential Natural Gas Costs	Natural Gas	Yes	0	06-29-2020 9:02 PM	03-24-2021 10:46 AM	
WAv10 Conversion Training	2018 - Average US Residential Natural Gas Costs	Natural Gas	Yes	0	05-01-2018 9:00 AM	03-23-2021 9:34 AM	
WAv10 Conversion Training	Average US Residential Natural Gas Costs - 2017	Natural Gas	Yes	0	06-21-2017 12:28 PM	03-23-2021 9:27 AM	
WAv10 Conversion Training	Average US Residential Natural Gas Costs - 2015	Natural Gas	Yes	0	08-01-2014 9:23 AM	03-23-2021 8:44 AM	

Figure 12: Fuel Cost Library List

Active vs. Inactive

- Active – available for selection in an audit
- Inactive – not available for selection in an audit
 - Previous versions
 - Archived/Historic

Fuel Cost Details

Electricity:	2020 - Average US Residential Electricity Costs	Cost:	0.1309	per	kWh
Natural Gas:	2020 - Average US Residential Natural Gas Costs	Cost:	9.85	per	Mcf
Propane/LPG:	None	Cost:	1.926	per	Gallon
Fuel Oil:	2020 - Average US Residential Natural Gas Costs	Cost:	2.607	per	Gallon

Fuel Cost Library

Fuel Cost Name:	PY22 - Subgrantee Specific NG	Fuel Cost Name:	Average US Residential Natural Gas Costs - 2017
Agency:	WAv10 Conversion Training	Agency:	WAv10 Conversion Training
Active for:	NEAT: <input checked="" type="checkbox"/> MHEA: <input checked="" type="checkbox"/> MulTEA: <input checked="" type="checkbox"/> Active	Active for:	NEAT: <input type="checkbox"/> MHEA: <input type="checkbox"/> MulTEA: <input type="checkbox"/> Inactive

All Fuel Costs (6)

Agency	Fuel Cost Name	Fuel Type	Is Shared	# Audits	Date Created	Last Edited
WAv10 Conversion Training	2020 - Average US Residential Natural Gas Costs	Natural Gas	Yes	13	01-05-2021 2:24 PM	12-21-2022 10:12 AM
WAv10 Conversion Training	PY22 - Subgrantee Specific NG	Natural Gas	No	0	12-21-2022 10:10 AM	12-21-2022 10:11 AM
WAv10 Conversion Training	2019 - Average US Residential Natural Gas Costs	Natural Gas	Yes	0	06-29-2020 9:02 PM	03-24-2021 10:46 AM
WAv10 Conversion Training	2018 - Average US Residential Natural Gas Costs	Natural Gas	Yes	0	05-01-2018 9:00 AM	03-23-2021 9:34 AM
WAv10 Conversion Training	Average US Residential Natural Gas Costs - 2017	Natural Gas	Yes	0	06-21-2017 12:28 PM	03-23-2021 9:27 AM
WAv10 Conversion Training	Average US Residential Natural Gas Costs - 2015	Natural Gas	Yes	0	08-01-2014 9:23 AM	03-23-2021 8:44 AM

Figure 13: Fuel Cost Libraries – Active Custom and Inactive Default Libraries

Custom Libraries

- NEW or COPY
- Unique name required
- “Apply” to save changes

The screenshot displays the 'Measure Cost Set Library' interface. At the top, there are fields for 'Measure Cost Set Name' (Default (ORNL) NEAT Measure Cost v10 Library), 'Agency' (WAv10 Conversion Training), 'Audit Type' (NEAT, MHEA, MuTEA), and 'Is Active' (checked). Below these is a 'Retrofit Measure List' table with 9 rows of measures. To the right of the table is a note: 'This is a shared library. You are allowed to change the Is Active checkbox and the Comments on the main form. No other changes to the library are allowed.' Below the table is a 'Comments' field. At the bottom of the form are buttons for 'New', 'Copy', 'Delete', 'OK', 'Apply', and 'Cancel'. The 'New' and 'Copy' buttons are highlighted with blue boxes. Below the main form is a table titled 'All Measure Cost Sets (4)' with columns: Agency, Measure Cost Set Name, Audit Type, Is Active, Is Shared, # Audits, Date Created, and Last Edited.

Index	Measure Type	Measure Name	Lifetime	Is Active
1	Baseloads	Lighting Retrofits	...	Yes
2	Baseloads	Refrigerator Replacement	15	Yes
3	Baseloads	Water Heater Tank Insulation	13	Yes
4	Baseloads	Water Heater Pipe Insulation	13	Yes
5	Baseloads	Low Flow Showerheads	15	Yes
6	Baseloads	Water Heater Replacement	13	Yes
7	Building Insulation	Attic Insulation R11	20	Yes
8	Building Insulation	Attic Insulation R19	20	Yes
9	Building Insulation	Attic Insulation R30	20	Yes

Agency	Measure Cost Set Name	Audit Type	Is Active	Is Shared	# Audits	Date Created	Last Edited
WAv10 Conversion Training	Default (ORNL) NEAT Measure Cost v10 Library	NEAT	Yes	Yes	3	08-04-2022 12:00 AM	08-04-2022 12:00 AM
WAv10 Conversion Training	Default (ORNL) MHEA Measure Cost v10 Library	MHEA	Yes	Yes	2	08-04-2022 12:00 AM	08-04-2022 12:00 AM
WAv10 Conversion Training	2014 Old Sample MuTEA Measure Cost Library	MuTEA	No	No	0	08-01-2014 9:23 AM	07-05-2022 9:19 AM
WAv10 Conversion Training	Default (ORNL) MuTEA Measure Cost Library	MuTEA	Yes	Yes	0	03-23-2020 7:52 PM	05-21-2021 10:58 AM

Figure 13: Measure Cost Libraries – Copy and Edit

Poll – Weatherization Assistant Conversion

Do you provide statewide libraries at the beginning of each Plan Year?

Potential Responses:

Yes

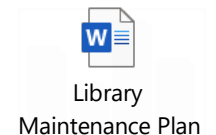
No, but we are considering it

No

General Library Update Plan

Library	Who Manages	Update Frequency	Who Confirms/Reviews
Economic Parameters	National and Regional default by ORNL	Annual	Grantee
Fuel Costs	National default (ORNL) State/Local (_____)	Annual Determined by Plan	NA Grantee
Measure Costs	Grantee OR Subgrantee	Annual Determined by Plan	NA Grantee
Key Parameters	Grantee OR Subgrantee	(_____)	NA Grantee
Supply	Subgrantee	Determined by Plan	NA or Grantee
Defined Measures	Grantee OR Subgrantee	Determined by Plan	NA or Grantee

Image 14: General Library Update Plan



Summary and Questions - General

Public vs. Grantee-specific

- Public
 - No WAP production allowed
 - No personal information allowed
- Grantee-specific
 - Approvable for production
 - Greater data security
 - Full state administration
- Both
 - Latest interface and engine updates

WAv8 Data Conversion

- Recommended Conversion
 - 2-6 months after production switch to WAv10
 - Historic data for reference only

Resetting a User

- Agency Level
 - Agency Administrator (primary)
- State Level
 - State Administrator (primary)
 - ORNL Site Administrator (secondary)
- DOE Read Only Access
 - State Administrator (only)

Summary and Questions – WAweb API & Libraries

3rd-Party Support

- ORNL direct support to 3rd-party – communication link only
- ORNL will not maintain as list of “compatible” companies/software

Statewide Library

- Currently ORNL can manually push an unmodifiable statewide library*

**plans to add this function for State Administrators in future PY*

Results Admin

- Historic record of runs?
 - No other than warning related to input modifications and latest run
- Lock completed units?
 - No current facility (similar to WAv8)
 - Option under consideration for future addition
- Push data from external forms to WAv10 database?
 - No facility available, nor planned

Poll – Weatherization Assistant Conversion

Are you working with a 3rd-party software developer?

Potential Responses:

Yes

Yes, and they've said the term "WAweb-API" recently

No

Summary and Questions – WAwweb, WA Engine, and WAwweb-API

What is WAwweb

- Web-based Weatherization Assistant suite of tools
 - NEAT
 - MHEA
 - MuITEA
 - H&S Audit
- Uses a mix of engines:
 - WAv10 NEAT/MHEA
 - DOE2 (hosted by LBL)
- Receives continuous updates and fixes
- Use may qualify for expedited audit approval

WA Engine

- Open-source (public and free to use) version of NEAT/MHEA engine
- Most recent release: November 2021
- No between release updates nor fixes
- Does not meet minimum requirements of WAP audit tool alone
- Use requires standard audit approval

WAwweb-API

- Web-based pathway to use the current WAv10 NEAT/MHEA engine
- Receives continuous updates equivalent to WAwweb
- ENGINE ONLY - does not include
 - data storage or reports
 - MuITEA or H&S audit tool
- Use requires standard audit approval

Summary/Review

- Define a basic conversion plan/timeline
- Create a user hierarchy of WA-web users
- Recall the purpose of each WA-web library
- Identify editable and non-editable libraries
- Define a basic annual library update plan

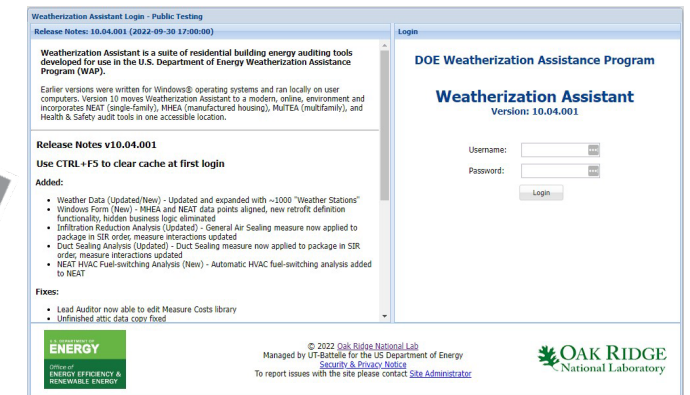


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