





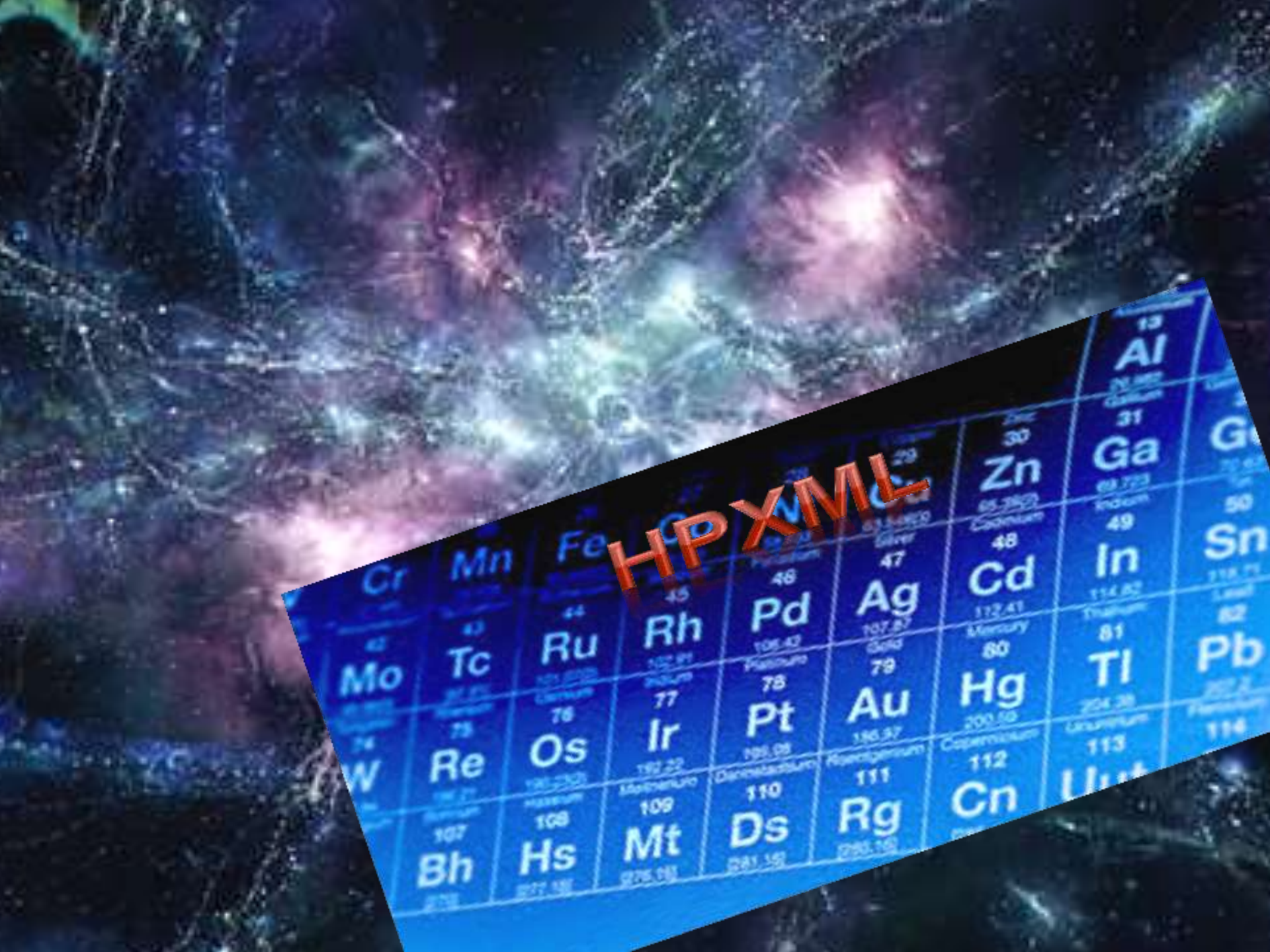
REGULATORS

UTILITIES

LEGACY DATABASES

LEGACY SOFTWARE

INCONSISTENT DATA  
FORMATS



**HP XML**

|                        |                        |                         |                           |                          |                      |
|------------------------|------------------------|-------------------------|---------------------------|--------------------------|----------------------|
| Cr<br>24<br>Chromium   | Mn<br>25<br>Manganese  | Fe<br>26<br>Iron        | Cu<br>29<br>Copper        | Zn<br>30<br>Zinc         | Al<br>13<br>Aluminum |
| Mo<br>42<br>Molybdenum | Tc<br>43<br>Technetium | Ru<br>44<br>Ruthenium   | Rh<br>45<br>Rhodium       | Pd<br>46<br>Palladium    | Ga<br>31<br>Gallium  |
| W<br>74<br>Tungsten    | Re<br>75<br>Rhenium    | Os<br>76<br>Osmium      | Ir<br>77<br>Iridium       | Pt<br>78<br>Platinum     | In<br>49<br>Indium   |
| Bh<br>107<br>Bohrium   | Hs<br>108<br>Hassium   | Mt<br>109<br>Meitnerium | Ds<br>110<br>Darmstadtium | Rg<br>111<br>Roentgenium | Tl<br>81<br>Thallium |
|                        |                        |                         |                           |                          | Pb<br>82<br>Lead     |

# HPXML

## Impacts on Audit Software Usability

2014 Rocky Mountain Utility  
Efficiency Exchange

Andy Bardwell, Ph. D.

Founder, CEO

[andy@optimiserenergy.com](mailto:andy@optimiserenergy.com)



# HPXML Benefits

Automate In-Field QA

Exchange Data

# Automate In-Field QA

# Inefficient QA Review Costly

## The Problem

- Program requirements and “black box” file submission results in rejected files
- Insufficient feedback to auditors to correct rejection
- Poor quality control necessitates costly desk and field reviews



# Automate Onsite QA + HPXML

## The Problem

- Program requirements and “black box” file submission results in rejected files
- Insufficient feedback to auditors to correct rejection
- Poor quality control necessitates costly desk and field reviews

## The Solution

- Automated system aids the auditor/contractor in successfully submitting files the first time



# QA Step 1: Start Check Out

The screenshot shows the Wizard OptiMiser 3.0.5780/4380 software interface. The title bar indicates the version and instance ID. The menu bar includes File, Report, Tools, and Help. A status bar at the top right shows: Status: 1 Error; 4 Tips; Cost: \$0; Audit Time: 0:00. Below the menu bar is a toolbar with buttons for Utility Chart, Note..., Calc..., Loads..., Safety..., Present..., Report..., and APS. The APS button is highlighted with a red arrow. To the right of the APS button, a red text label reads "#1: Submit audit files". Below the toolbar are tabs for Project, Wizard, and Setup. The main window is divided into a left sidebar with a tree view of project components (Welcome, Building, Address, Utility Bills, Dimensions, Multi-Family, Foundations, Windows, Doors, Walls, Attics, Ceilings, Frame Floors, Crawl, Basement, Slab, Photovoltaics) and a main content area. The main content area displays the message "Calibration complete! Choose from the following options" and lists several options: "Customize Improvements" with sub-options for Cost, Custom, and Bid; "Select packages of improvements" with sub-options for Packages and Detailed; and "Requirements for Project Submission" with a dropdown menu set to "1 - Audit" and a red text label "#2: Select work phase (A". A "Create Forms" button is visible, with a red text label "#3: Generate pre-filled f" next to it. A red arrow points from the APS button to the "Requirements for Project Submission" section.

# QA Step 2: Set HPXML Phase

Requirements for Project Submission

1 - Audit #2: Select **#2: Set HPXML work phase: Audit or Retrofit**

Generate HPXML

Create Forms #3: Generate pre-filled forms / collect signatures

Issues requiring attention. Click in any row to go to the required input.

- 8 of 58 issues remaining. Resolve remaining issues to generate HPXML file. Check to refresh.
- Auditor email cannot be blank (required for HPXML).
- Auditor first name cannot be blank (required for HPXML).
- Auditor last name cannot be blank (required for HPXML).
- Homeowner first name cannot be blank (required for HPXML).
- Homeowner last name cannot be blank (required for HPXML).
- Homeowner home phone cannot be blank (required for HPXML).
- Must enter measured duct leakage. Change duct sealing control to "Measured (cfm25)" to enter duct leakage (required for HPXML).
- Must select at least one improvement. Use "Use Imp" controls or checkboxes on any improvement table.

#4: Clear all QC requirements for project submission and valid HPXML generation (each row hyperlinks to the input required)

Press the X in the upper right corner to close this popup. (all entered data will be saved)

# QA Step 3: Pre-filled Forms

Requirements for Project Submission

1 - Audit #2: Select work phase (Audit/Retrofit)

Generate HPXML

Create Forms #3: Generate pre-filled forms and collect signatures

Issues requiring attention. Click in any row to go to the required input.

8 of 58 issues remaining. Resolve remaining issues to generate HPXML file. Check to refresh.

- Auditor email cannot be blank (required for HPXML).
- Auditor first name cannot be blank (required for HPXML).
- Auditor last name cannot be blank (required for HPXML).
- Homeowner first name cannot be blank (required for HPXML).
- Homeowner last name cannot be blank (required for HPXML).
- Homeowner home phone cannot be blank (required for HPXML).
- Must enter measured duct leakage. Change duct sealing control to "Measured (cfm25)" to enter duct leakage (required for HPXML).
- Must select at least one improvement. Use "Use Imp" controls or checkboxes on any improvement table.

#4: Clear all QC requirements for project submission and valid HPXML generation (each row hyperlinks to the input required)

Press the X in the upper right corner to close this popup (all entered data will be saved)

# QA Step 4: Auto Tips + Links

**Requirements for Project Submission**

▼









1 - Audit ▼ #2: Select work phase (Audit/Retrofit)

▼ Generate HPXML

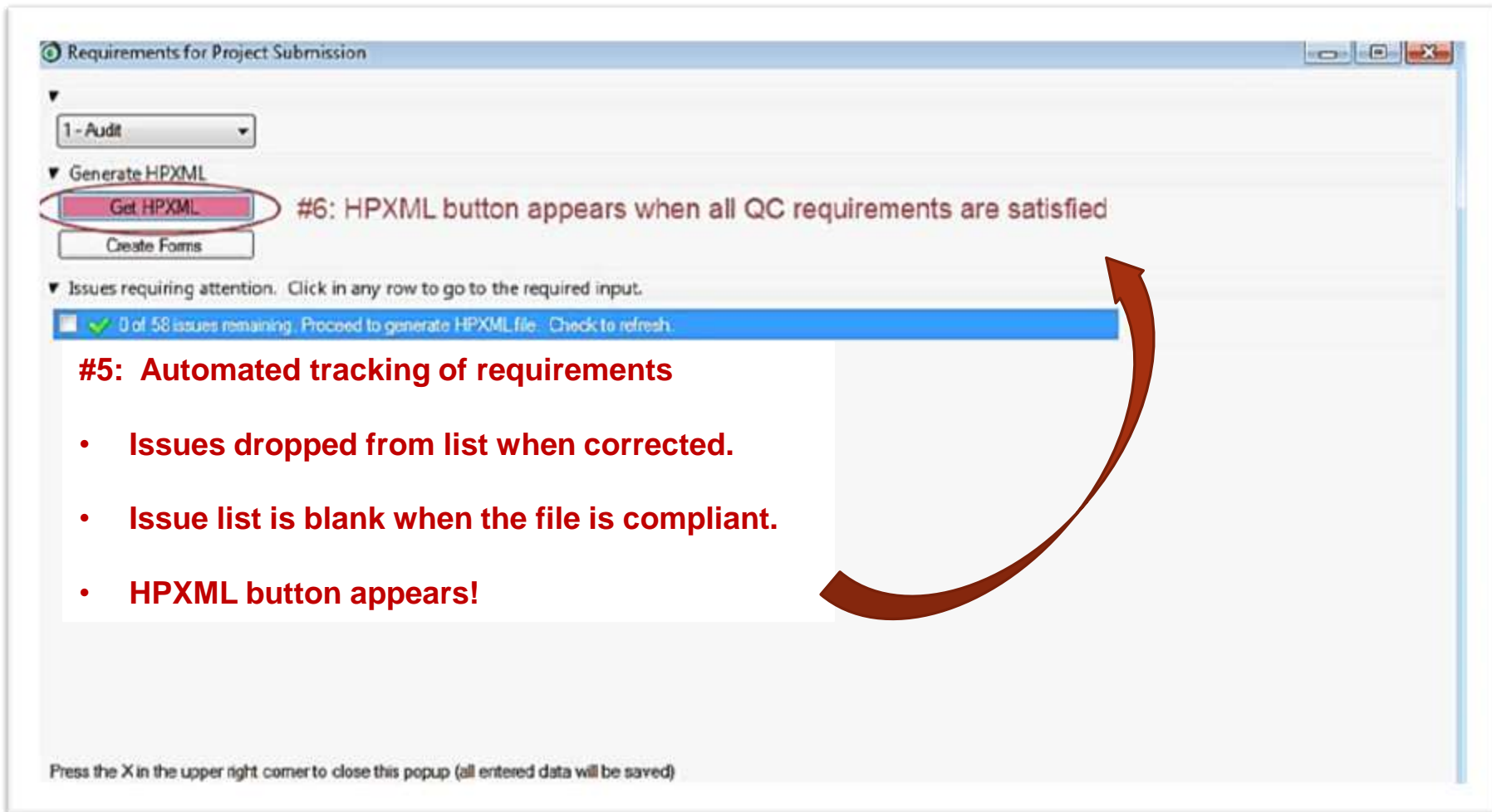
Create Forms #3: Generate pre-filled forms / collect signatures

▼ Issues requiring attention. Click in any row to go to the required input.

8 of 58 issues remaining. Resolve remaining issues to generate HPXML file. #4: Tips + Links help resolve issues

-  Auditor email cannot be blank (required for HPXML).
-  Auditor first name cannot be blank (required for HPXML).
-  Auditor last name cannot be blank (required for HPXML).
-  Homeowner first name cannot be blank (required for HPXML).
-  Homeowner last name cannot be blank (required for HPXML).
-  Homeowner home phone cannot be blank (required for HPXML).
-  Must enter measured duct leakage. Change duct sealing control to "Measured (cfm25)" to enter duct leakage (required for HPXML).
-  Must select at least one improvement. Use "Use Imp" controls or checkboxes on any improvement table.

# QA Step 5: Ready for HPXML



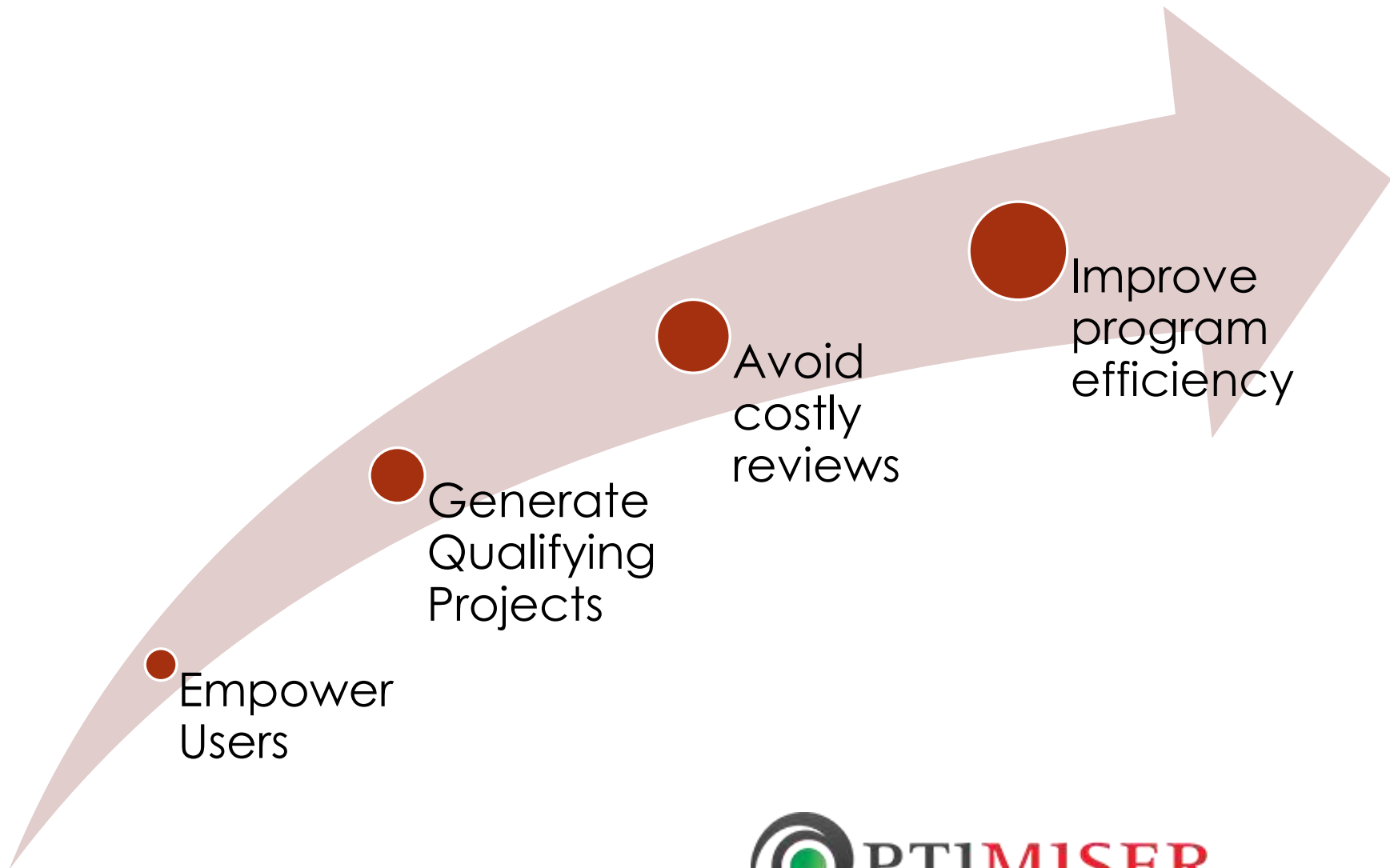
The screenshot shows a software window titled "Requirements for Project Submission". At the top left, there is a dropdown menu set to "1 - Audit". Below it, a section titled "Generate HPXML" contains a button labeled "Get HPXML" which is circled in red. To the right of this button, text reads "#6: HPXML button appears when all QC requirements are satisfied". Below the "Generate HPXML" section is a "Create Forms" button. Further down, a section titled "Issues requiring attention" includes a blue status bar that says "0 of 58 issues remaining. Proceed to generate HPXML file. Check to refresh." A large red curved arrow points from the status bar area towards the "Get HPXML" button.

**#5: Automated tracking of requirements**

- Issues dropped from list when corrected.
- Issue list is blank when the file is compliant.
- HPXML button appears!

Press the X in the upper right corner to close this popup (all entered data will be saved)

# Onsite QA: Successful Projects



# Exchange Data

# Data Transfer Issues: Lost Data

## The Problem

- Absence of an efficient way to get data to CRM to and from audit software

Time Consuming,  
Expensive,  
Technical



Problems with  
Consistency



Repeat for  
CRM and  
audit software



# Database Integrator + HPXML

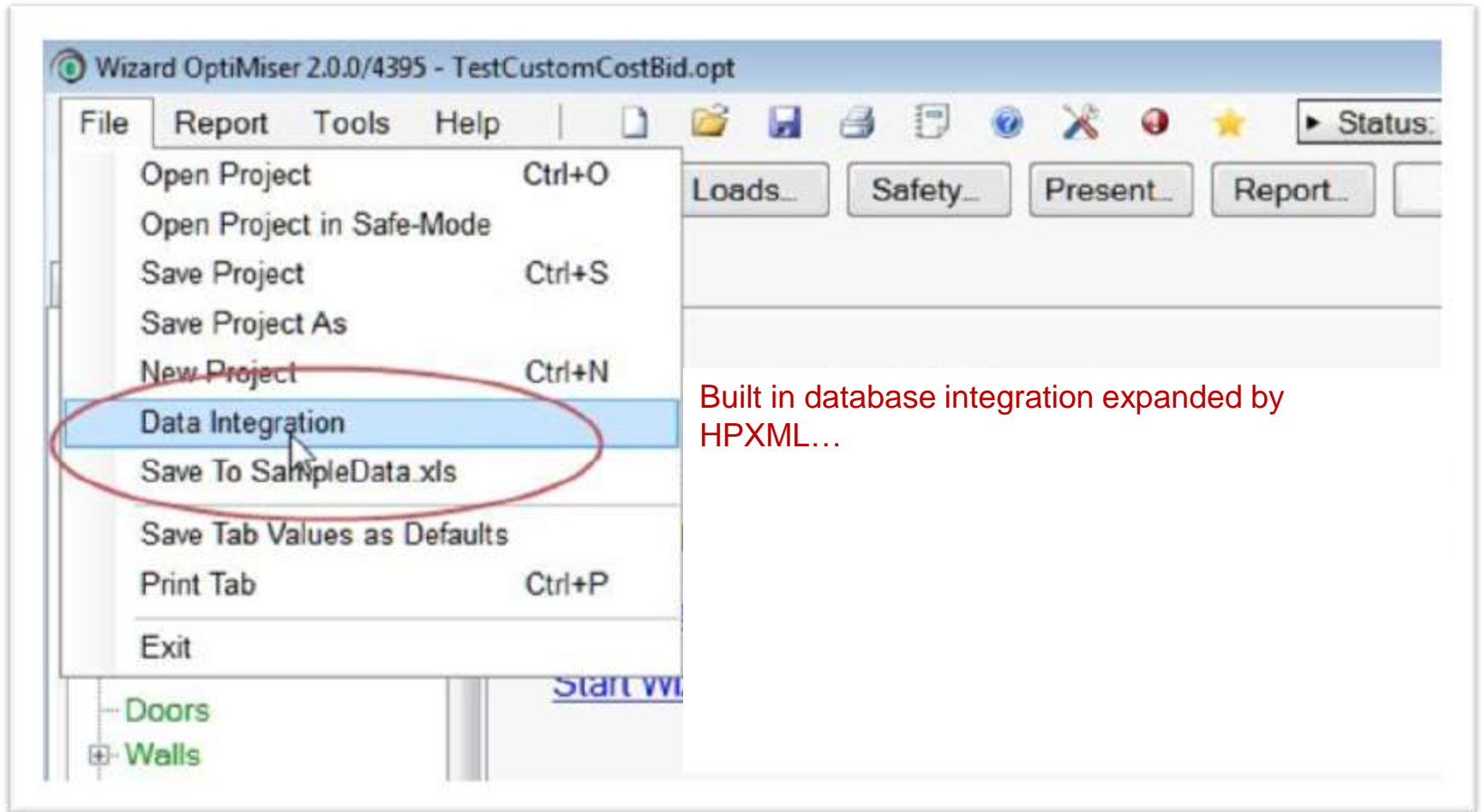
## The Problem

- Absence of an efficient way to get data to and from audit software to CRM or management software

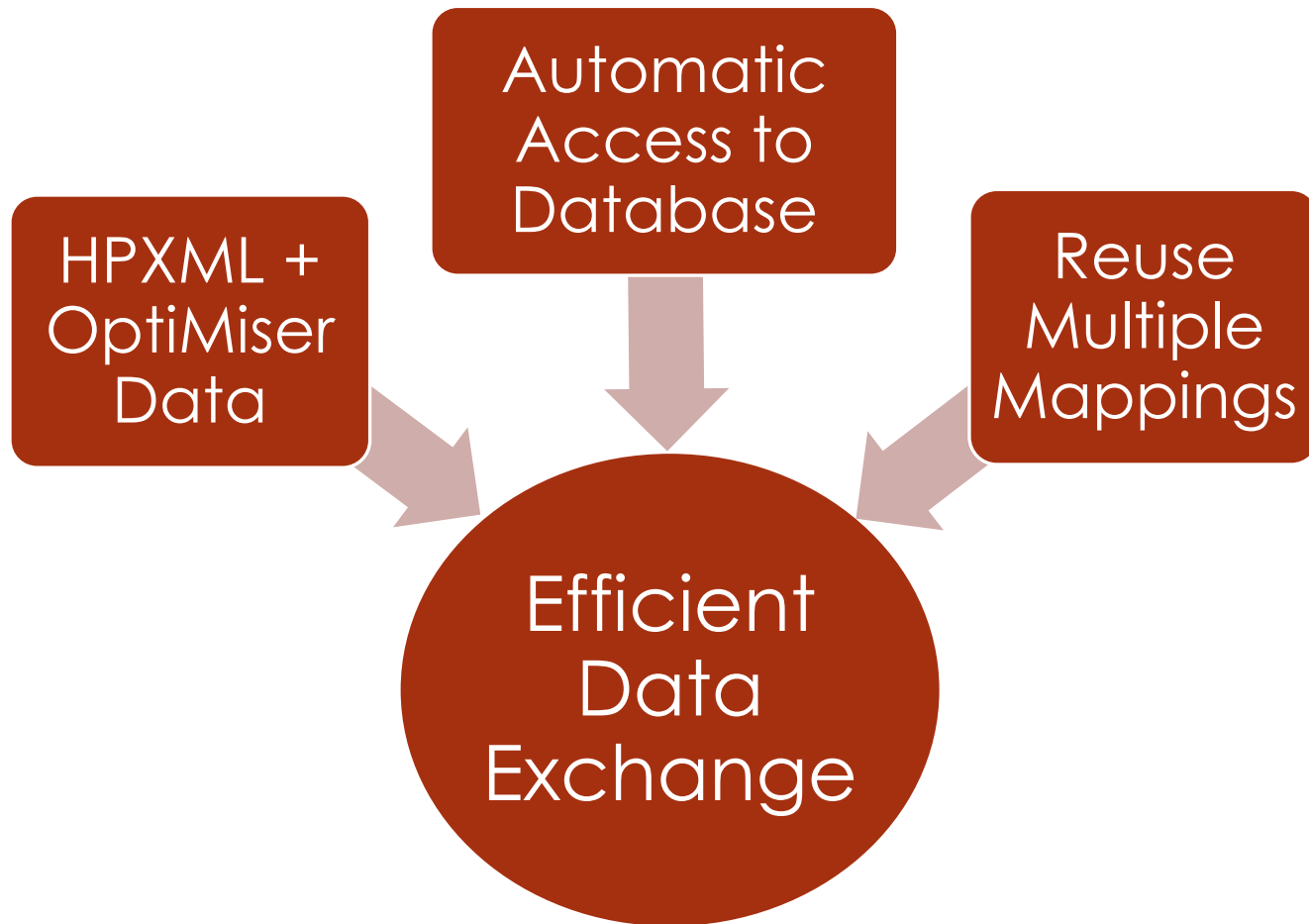
## The Solution

- HPXML standardizes data
- Database Integrator facilitates data exchange

# Database Integrator + HPXML



# Database Integrator + HPXML



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