

# Idaho Residential Code Evaluation – Onsite Data Collection in Support of PNNL/DOE's Analysis of Code Compliance and Energy Savings Potential

KICKOFF PRESENTATION + DISCUSSION

11 May 2023

1

## Kickoff Presentation + Discussion

1. Introductions
2. Study Design (Overlap between DOE and NEEA Evals)
3. Evaluation objectives and scope
4. Key stakeholders
5. Known or potential challenges
6. Sample design and alignment between DOE and NEEA
7. Project schedule and next steps

2

## Study/TAG Members

INDUSTRIAL ECONOMICS (IEc)	RESOURCE REFOCUS	FIELD INSPECTORS
Daniel Kaufman Christine Lee Greg Englehart Keeley Bombard Carly Harris Tarun Timalsina	Anna LaRue Carrie Brown Rhys Davis	Momentum LLC RedPoint (Possible limited support)

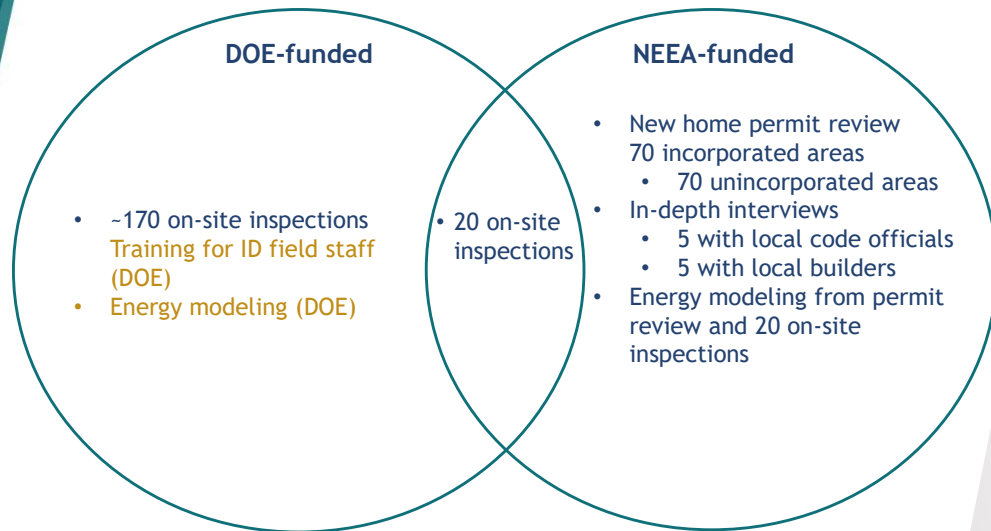
3

## Study Overview

- Momentum Team to conduct inspections of newly constructed, residential single-family homes in the State of Idaho.
- Inspections will be conducted based on DOE's [September 2022 Field Methodology](#)
- Inspections will support NEEA and DOE's efforts to estimate code compliance in Idaho under the 2018 IECC.
- Inspections will cover seven key measures:
  - Envelope tightness
  - Windows
  - Wall insulation
  - Ceiling insulation
  - Lighting
  - Foundation insulation
  - Duct tightness

4

## Scope of DOE and NEEA Work



5

## Sample List

DOE (FIELD INSPECTIONS)	NEEA (PERMIT SAMPLE)
<ul style="list-style-type: none"> <li>Draws from U.S. Census Permit Data</li> <li>63 observations required for each of the seven key code measures</li> </ul>	<ul style="list-style-type: none"> <li>Draws from U.S. Census Permit Data</li> <li>70 permits each from 'urban' and 'rural' jurisdictions</li> <li>'Rural' defined as unincorporated areas</li> </ul>

6

## NEEA Permit Sample

IEc has drawn a preliminary sample of permits that we will review in ID

- Based on DOE place-based sampling methodology, with some exceptions
- We will conduct on-site visits at sites with permit data wherever possible

Place	Rural vs. Urban	Prct of Statewide Permits Issued	Permit Sample Count	Prct of Statewide Sample
Meridian	Urban	14%	14	10%
Canyon County Unincorporated Area	Rural	4%	13	9%
Ada County Unincorporated Area	Rural	4%	12	9%
Nampa	Urban	10%	9	6%
Star	Urban	5%	9	6%
Kootenai County Unincorporated Area	Rural	3%	6	4%
Jefferson County Unincorporated Area	Rural	2%	6	4%
Caldwell	Urban	6%	5	4%
Fremont County Unincorporated Area	Rural	1%	5	4%
Boise City	Urban	5%	4	3%
Eagle	Urban	3%	4	3%
Bonneville County Unincorporated Area	Rural	2%	4	3%
Bannock County Unincorporated Area	Rural	1%	4	3%
Boundary County Unincorporated Area	Rural	1%	4	3%
Kuna	Urban	4%	3	2%
Post Falls	Urban	3%	3	2%
Twin Falls	Urban	3%	3	2%
Ammon	Urban	2%	3	2%
Twin Falls County Unincorporated Area	Rural	1%	3	2%
Madison County Unincorporated Area	Rural	0%	3	2%
Idaho Falls	Urban	3%	2	1%
Middleton	Urban	2%	2	1%
Sandpoint	Urban	0%	2	1%
Cassia County Unincorporated Area	Rural	0%	2	1%

Note: This table excludes 15 localities with a sample count of one

7

## Sample Plan Comparison

DOE County Level Option 1

Option 1		
# of Counties	Location	# of Samples
1	Ada County 5B	23
2	Gem County 5B	10
3	Lemhi County 6B	5
4	Fremont County 6B	4
5	Lewis County 5B	4
6	Kootenai County 5B	1
7	Clearwater County 5B	4
8	Shoshone County 5B	2
9	Adams County 6B	1
10	Nez Perce County 5B	2
11	Teton County 6B	1
12	Latah County 5B	1
13	Minidoka County 6B	3
14	Oneida County 6B	1
15	Bingham County 6B	1
16		
Total		63

IEc Rural/Unincorporated Approach

Place	Permit Sample Count
Canyon County	13
Ada County	12
Kootenai County	6
Jefferson County	6
Fremont County	5
Bonneville County	4
Bannock County	4
Boundary County	4
Twin Falls County	3
Madison County	3
Cassia County	2
Bingham County	1
Latah County	1
Jerome County	1
Owyhee County	1
Lemhi County	1
Minidoka County	1
Payette County	1
Bonner County	1

8

## Sample List

### Discussion Questions:

- How would DOE recommend selecting an option from the six ID County level sampling plans provided?
- Note: DOE's County level sampling plans all have a large number of permits from Gem County (pop. ~16k) but none from Canyon County (pop. ~250k). Both are Boise suburbs.
  - Canyon came up frequently in IEC's sample draws for NEEA's permit reviews.
  - Any concerns with these discrepancies?

9

## Data Collection Protocols

- IEC team will use DOE on-site data collection form
- IEC will develop draft recruitment language
- We anticipate DOE will provide data collection training to field inspectors
- IEC will encourage inspectors to also take pictures
- Provide each site contact with a "Study Notification Flyer" (to be provided by NEEA) prior to conducting inspections

### Discussion Questions:

- Timing and logistics of training for field inspectors?

10

## Data Collection

- Current estimated target of 190 inspections (3x required sample size of 63 observations)
  - 170 are DOE-funded and 20 are NEEA-funded
- IEc will reach out to local jurisdictions to obtain a list of all single-family homes permitted under IECC 2018 that are currently under construction or have been constructed within the past six months but are not yet occupied
  - Once each list is obtained, IEc will randomly rank homes and provide this list to Momentum as a guide for field inspections.
  - IEc may draw on the ID Energy Code Collaborative or Momentum LLC to help engage jurisdictions
- IEc will provide regular updates to NEEA/DOE on inspection progress

### Discussion Questions:

- Any DOE recommendations/tips from other states on builder recruitment?

11

## Quality Assurance (QA) Reviews

- Per DOE field methodology, IEc will conduct QA Reviews after approximately 20 percent, 50 percent, and 75 percent of inspections are completed.

### Discussion Questions:

- Does DOE have an existing template/checklist for the QA reviews?
- DOE role in the QA process?

12

## Data Transfer

- Data collection forms will be prepared for transfer to DOE (including any photos taken)
  - IEC will scrub all PII from the forms: builder name, site address, and jurisdiction name
  - In place of PII, IEC will develop a coded ID number using the format: two-letter state abbreviation + a unique number for each home assigned by the project team.
- DOE will be responsible for all subsequent data analysis
- In the event of questions on inspection data, IEC will retain a copy of the data (with PII included) for **six months** following PNNL's publication of their final report.

13

## Anticipated Challenges

- Uncertainty of the number of inspections needed to arrive at 63 observations for all seven key measures
  - IEC team will provide frequent updates to NEEA/DOE to alert them if we are on track to complete data collection with the anticipated 3x the target number of homes (63) or if we are ahead of/behind that schedule
- Other anticipated challenges based on other, recent code compliance studies by DOE in other states?

14

## ID Code Evaluation Timeline

Task	Calendar
Draft and final sample lists by jurisdiction	Draft: May 15 Final: May 31
Draft and final data collection form	
Draft and final recruitment language for use during inspection outreach and scheduling	
Planning Meeting Agenda	May 22
Draft and final planning meeting summary	Draft: June 1 Final: June 8
Periodic written updates on progress of inspections, including notice on the actual number of inspections to be conducted to meet DOE's sampling requirements	Ongoing during fielding
Written bulleted summary of QA review and copies of data collection forms at approximately 20 percent, 50 percent, and 75 percent of inspections completed	Within one week of completing 20 percent, 50 percent, and 75 percent of planned inspections
Data collection forms with PII removed	Oct 31

15

## Key Stakeholders for Evaluation (+ Planning Meeting)

- Per DOE field methodology, a planning meeting is convened between study leads and key stakeholders in the target state (Idaho).
- Agenda based on questions in Appendix C of DOE field methodology
- To stay on schedule, we recommend scheduling this meeting within two weeks of this call (approximately May 25)
- Possible stakeholders:
  - NEEA
  - DOE
  - ID Energy Code Collaborative
  - ID Association of Building Officials
  - Subset of Code Officials in affected jurisdictions
  - Others?
- Planning Meeting
  - What should be the focus points of this meeting?
  - Does DOE have a list of identified stakeholders in Idaho that should be part of this meeting?
  - Which party will handle meeting logistics?

16



## Project Management

- As the prime contractor, IEc will manage the project.
- IEc will also serve as the primary point of contact with NEEA and DOE.
- IEc will coordinate with our subcontractors to ensure that the IEc team speaks with “one voice.”
- Regular check-in meetings
  - Frequency?
  - DOE representatives?

17

## Budget

Task	Total Price
Task 1: Kick off meeting with DOE	\$5,386.20
Task 2: Sample List, Data Collection Protocols and Instruments	\$19,473.32
Task 3: Data Collection and Data Transfer	\$162,544.58
<b>Total</b>	<b>\$187,404.10</b>

18



19