

August 10, 2017

# *Residential Advisory Committee*

Q3 2017

SeaTac, WA





***Welcome!***

## DESIRED OUTCOMES:

- Robust discussion, feedback and advice on agenda items
- Impart relevant, pertinent information to each other

## AGENDA

Time	Topic	Lead	Packet Page
10:00 – 10:15	WELCOME AND INTRODUCTIONS	Eugene Rosolie	
10:15 – 10:45	<b>HOUSEKEEPING</b> <ul style="list-style-type: none"> <li>• Follow up on action items from April 20, 2017</li> <li>• RAC 2017 work plan</li> <li>• Residential/Mass Markets Portfolio Updates</li> <li>• Packet/Informational Updates (not agenda topics)                             <ul style="list-style-type: none"> <li>○ Residential Program Updates:                                     <ul style="list-style-type: none"> <li>▪ Dryers</li> <li>▪ Ductless Heat Pumps</li> <li>▪ Next Step Homes</li> </ul> </li> <li>○ Appendices                                     <ul style="list-style-type: none"> <li>▪ MRE Newsletter (Intro page)</li> <li>▪ Milestone Progress</li> </ul> </li> </ul> </li> </ul>	Eugene Rosolie Jeff Mitchell	<b>4-15</b> <b>16</b>  <b>23-28</b>  <b>29-30</b>
10:45 – 11:30	<b>MANUFACTURED HOMES UPDATE</b> <i>Desired Outcome: Update RAC on feedback received from workgroups and other stakeholder on the Manufactured Homes initiative strategy.</i>	Neil Grigsby	<b>17-18</b>
11:30 – 12:00	<b>RETAIL PRODUCT PORTFOLIO UPDATE</b> <i>Desired Outcome: Bring RAC up to date on 2017 RPP activities, preview data analysis capabilities and gather feedback from RAC on program strategy and direction.</i>	Beth Littlehales	<b>19-20</b>
12:00 – 12:30	<i>Lunch (provided)</i>		

12:30 – 2:00	<b>UTILITY SHARE OUTS/ROUND ROBIN</b> <ul style="list-style-type: none"> <li>• Updates since April meeting</li> </ul>	All	
2:00 – 2:15	<i>Break</i>		
2:15 – 3:00	<b>MARKET INTELLIGENCE REPORT</b> <i>Desired Outcome: Demonstrate how NEEA’s MI team can support data-based decision-making to quickly gain customer insights, target outreach efforts, and identify new market segments.</i>	Harvey Matthews	
3:00 – 3:45	<b>HEAT PUMP WATER HEATER UPDATE</b> <i>Desired Outcome: Update Committee with Q2 status, consumer products regional strategy activity, and national trends</i>	Jill Reynolds	<b>21-22</b>
3:45 – 3:50	OPPORTUNITY FOR PUBLIC COMMENT		
3:50 – 4:00	<b>WRAP UP/ADJOURN</b> <ul style="list-style-type: none"> <li>• Meeting feedback</li> <li>• Next meeting/location</li> </ul>	All	

# *Housekeeping*

- Follow-up on action items from Q2 2017 meeting
- RAC Workplan
- 2017 Q4 Meeting Location – Wenatchee, WA
- Packet/Informational Updates

# NEEA Portfolio Overview: 20 Year View

Portfolio Status as of July 2017

Red text: recent advancement

concept development		program development		market deployment		20 year Total Regional Savings Potential (aMW)
SCANNING & CONCEPT IDENTIFICATION	CONCEPT OPPORTUNITY ASSESSMENT	MARKET & PRODUCT ASSESSMENT	STRATEGY TESTING & FINALIZATION	MARKET DEVELOPMENT	LONG-TERM MONITORING	
Consumer Products		Heat Pump Water Heater Split System Residential Window Attachments	Retail Product Portfolio Super Efficient Dryers	Heat Pump Water Heaters Ductless Heat Pumps Codes & Stds	TVs Residential CFLs White Goods	1000-1400
New Construction (Commercial & Residential)		Manufactured Homes	Next Step Home	Codes & Stds Commercial Codes Enhancement Integrated Design Lab infrastructure	Efficient Homes	400-600
Commercial Lighting			Luminaire Level Lighting Control	Reduced Wattage Lamp Repl. Codes & Stds Top Tier Trade Ally infrastructure (opt.)		100-150
Other Markets	Air Nozzle Industrial Motor Product Labeling Dedicated Outdoor Air System	Commercial Window Attachments	RETA CRES Refrigeration Operator Cert.	Codes & Stds Ind. Tech. Training infrastructure (opt.) Comm Real Estate infrastructure (opt.) Comm & Ind. SEM infrastructure	BldgOp Cert Exp Drive Power BldgOp Cert Commissioning 80Plus	100-300

# **Q3 RAC**

## ***Manufactured Homes***

### ***NEEM 2.0***

***8/10/2017***

**Neil Grigsby, NEEA**



# *Desired Outcomes*

1. (Quick) Review NEEM 2.0
2. Review Utility feedback
3. Discussion and feedback on program activities and strategy
4. Agreement on NEEA 2.0 strategy



# *How did I get here?*

- Q2 RAC Meeting
  - Program update and discussion
- May 31<sup>st</sup>
  - Manufactured Homes Work Group (w/RAC)
    - » Background and feedback
- July 27<sup>th</sup>
  - Manufactured Homes Work Group (w/o RAC)
    - » Recommendation and discussion

# ***NEEM 2.0 Project***

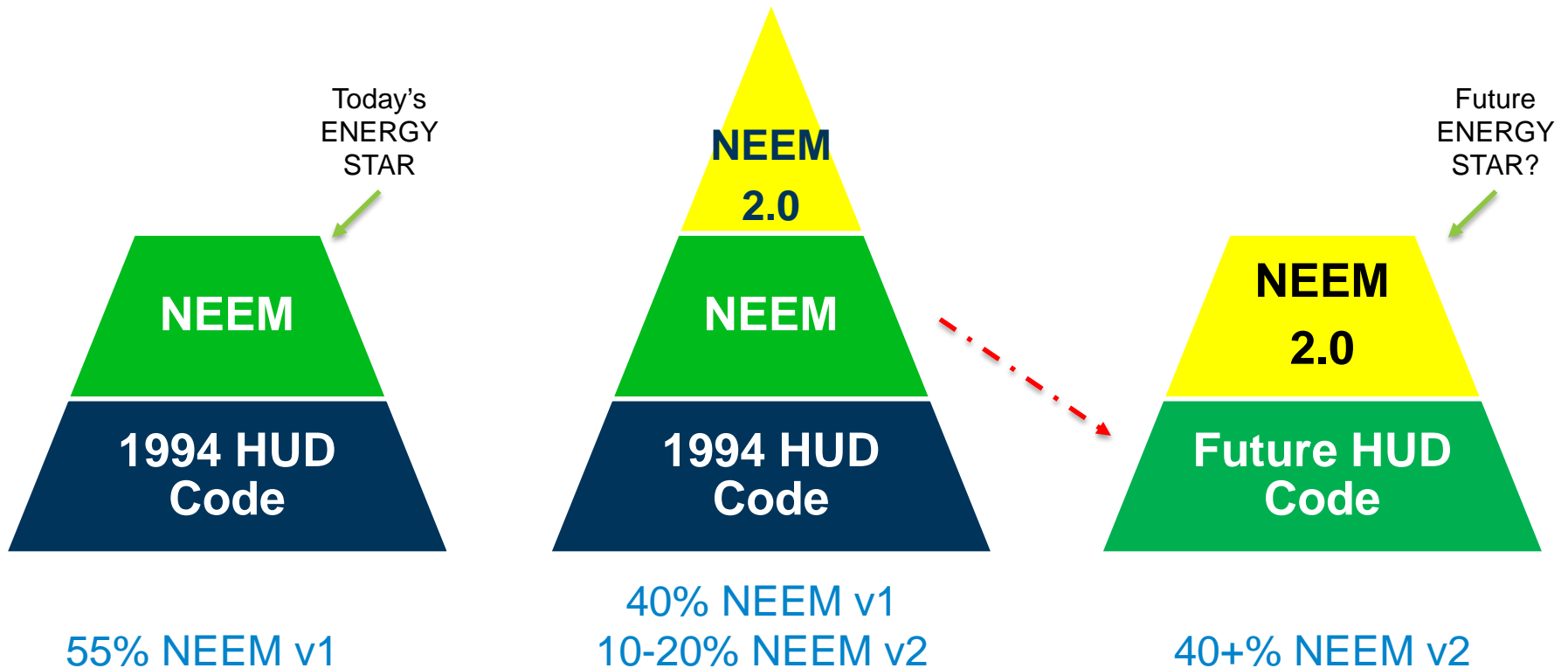
# Project Concept

Upgrade NEEM prior to HUD code change  
Improve demand for efficient manufactured homes  
Influence EPA's "ENERGY STAR" Program requirements

2016



2020





# ***Market Update***

# *Changing Market Conditions*

## 1. HUD code change delayed

- *Reduced motivation for manufactures to change practice*
- *Impacted Market Transformation timeline*

## 2. Manufacturers are busy

- *Difficult to engage on NEEM 2.0 demonstration and pilot projects*

## 3. NEEM 2.0 savings reduced

- *Reduced savings opportunities for the region*

# ***Discussion/Utility Feedback***

# *Utility Feedback*

- *Supportive of NEEA continuing a NEEM 2.0 Pilot*
- *NEEM 1.1 adoption suggests it's time for a higher tier*
- *MH buyers are an important customer base*
- *Encourages ongoing relationships with the market*
- *Future replacement programs can include NEEM 2.0*
- *“Sounds like NEEA wants out because it got hard”*

***2017-2019 Pilot  
Recommendation***



# Proposed Plan Revisions

	Original Plan	New Plan
<b>Adoption Goal (2017 - 2020)</b>	30%+	5-10%
<b>Manufacturer Incentive</b>	\$800/home	\$1,000/home
<b>Incentive Budget (2017 - 2020)</b>	\$2M+	\$640k - \$1.3k
<b>Key Window of Opportunity (2019 - 2020)</b>	HUD code change	All Utilities offer NEEM 2.0 incentives; end NEEM 1.1 incentives

# *Timeline*

## **August**

- Q3 RAC – August 10
- Q3 RPAC – August 31

## **September – December**

- Develop marketing strategy
- Manufacturer engagement
- Finalize manufacturer commitments
- Utility outreach on NEEM 2.0 planning

## **January – Q1**

- Launch upstream incentive pilot with Manufacturers

8/10/2017

# Thank you

## Neil Grigsby



**TOGETHER** We Are Transforming the Northwest



August 10, 2017

# *RPP Program Update*

Beth Littlehailes  
Senior Program Manager



# *Agenda & Desired Outcomes*

1. 2017 Updates
2. Program Evolution
3. Data! Data! Data!

1. RAC members are aware of current status and activities of NEEA RPP team, including ongoing evolution
2. RAC members provide feedback on how to get best value from RPP data







# ***2017 Updates***



# *Winning!*

1. Nationwide Marketing joined ESRPP
  - Lowe's planning to join in Q4
2. Added clothes washers and refrigerators
  - Advanced tiers only
3. ESRPP Program Sponsors represent 17.5% of US
  - Goal is 25%
4. Market Test Assessment complete
  - Clean bill of health!



# *Market Test Assessment*

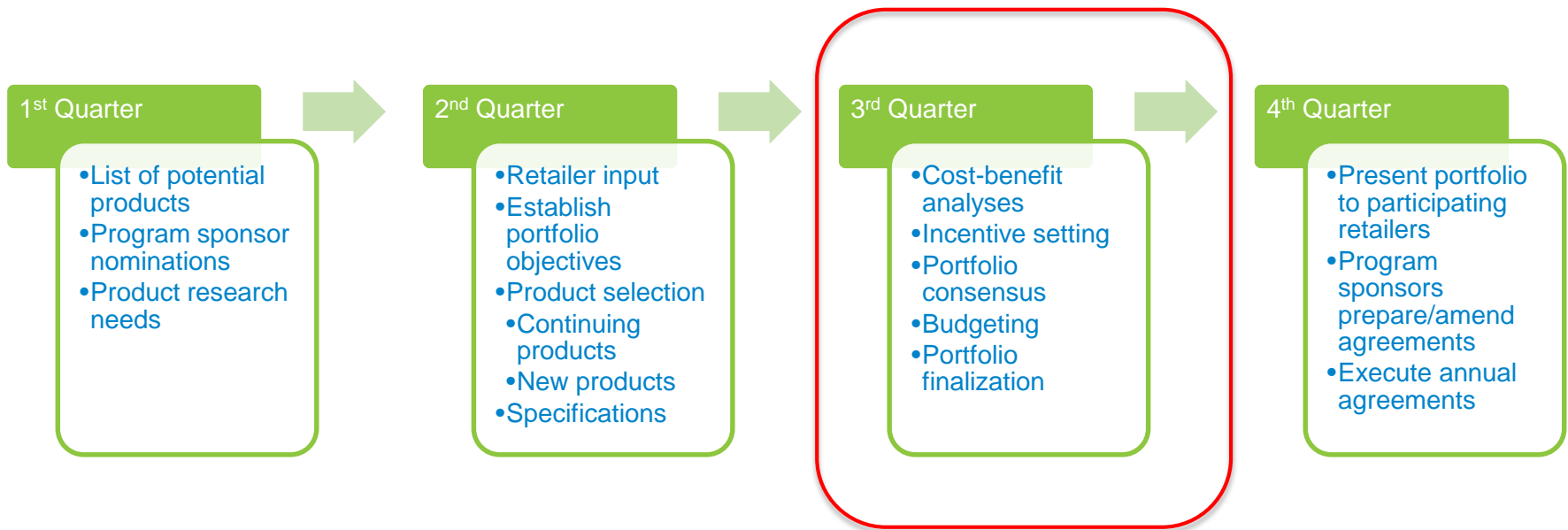
OBJECTIVE	STATUS
1. Improve data administration and access	Complete
2. Build scale through retail and extra-regional engagement	Complete
3. Improve product selection process	Complete
4. Build consensus on evaluation approach	In Progress

# Current retailers & products

Participation in Category						
Category	Best Buy	Home Depot	Sears / Kmart	Nation-wide	Costco	Walmart / Sam's
Soundbar	x		x	x	x	x
Air Cleaner	x	x	x	x	x	
Freezer	x	x	x	x		
Electric Dryer	x	x	x	x		
Room AC	x	x	x	x		
UHD TV	x		x	x	x	x
Refrigerator	x	x	x	x		
Clothes Washer	x	x	x	x		

~~Target~~

# Product selection process



# *Product selection decisions*

- Spoiler alert:
  - No changes for NEEA!
  - National group will be in alignment with NEEA portfolio
- Two key decisions:
  - Add UHD TVs and dehumidifiers
  - Allow Program Sponsors to choose to *not incent* one product



*Questions?*



# *Program Evolution*

# *Program is changing*

- Spoiler alert!
- Two big changes:
  - “Menu” approach to portfolio management
  - Alternatives to data management structure



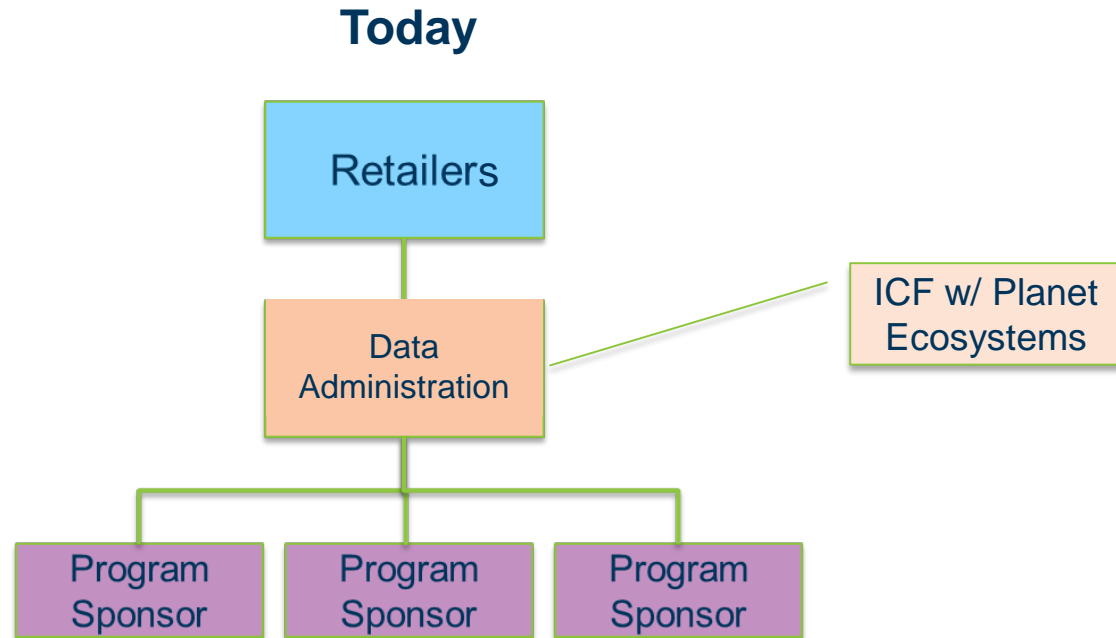
# “Menu” approach

- This is a big deal
- Provides flexibility and regional variation



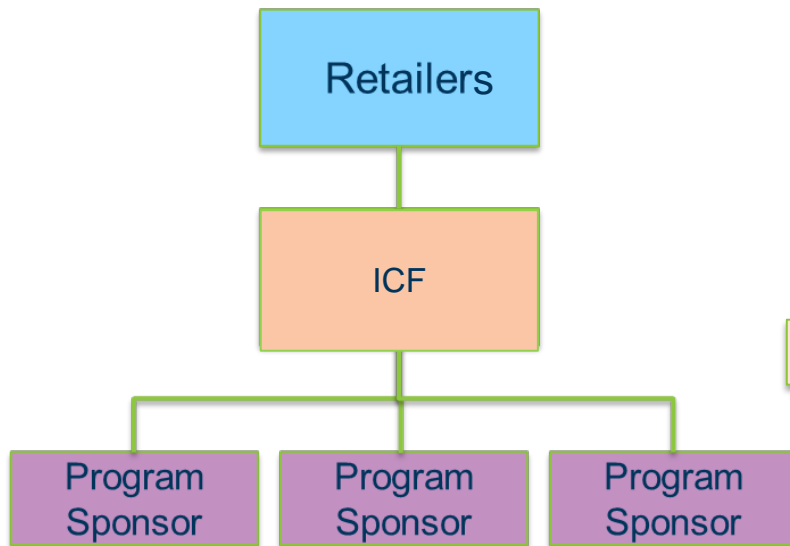


# *Data administration*

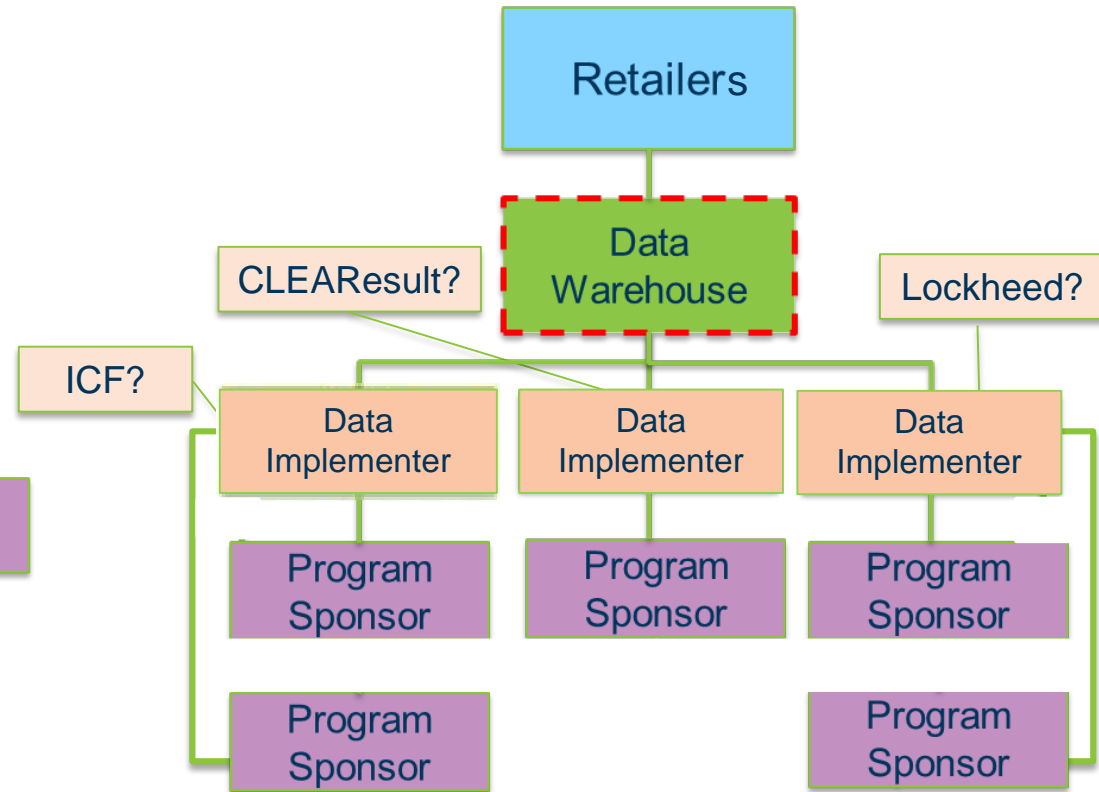


# Data administration

Today



Tomorrow?



# *Data warehouse*

- This is also a big deal
- Allows more flexibility for program sponsors, may reduce cost
- No changes expected for NEEA, but gives us options



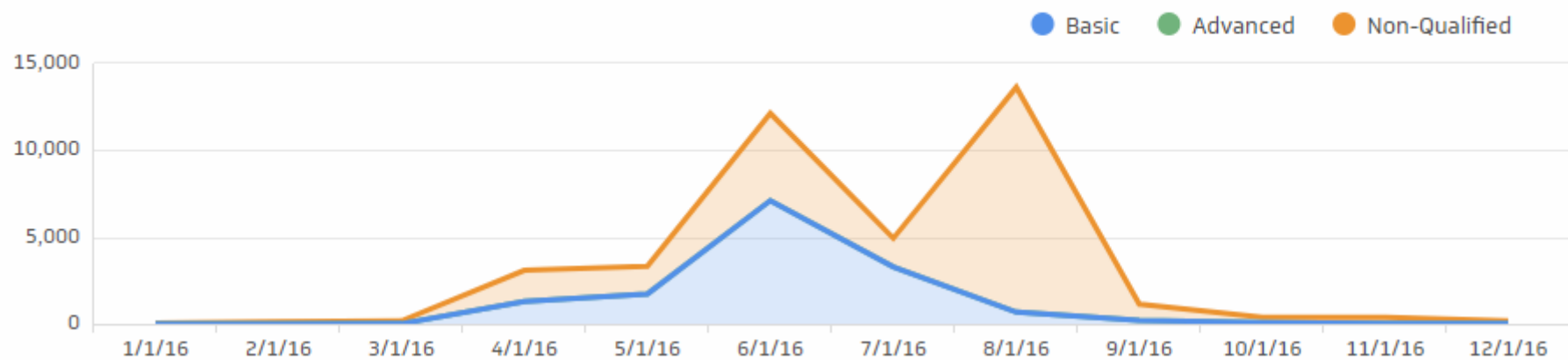
*Questions?*



***Data!***

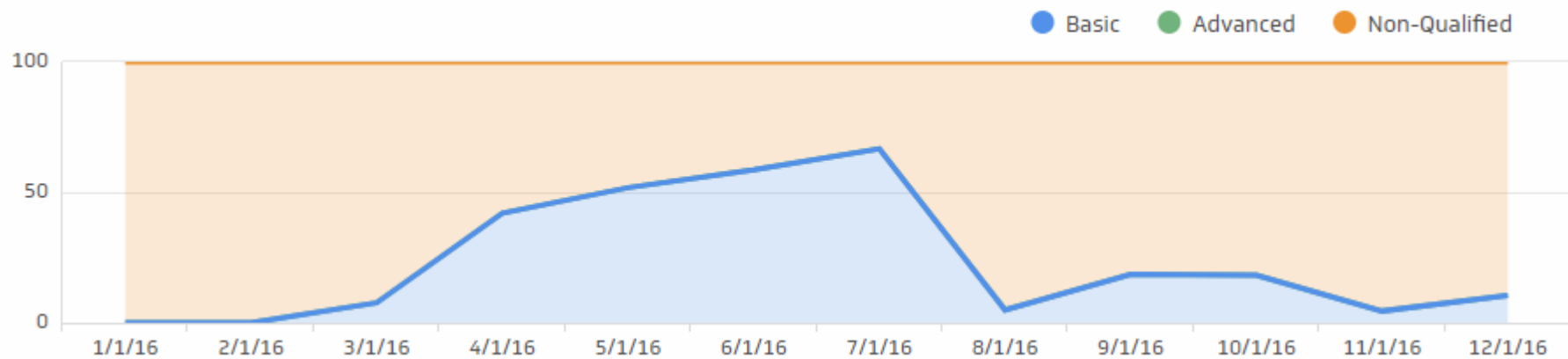
Product: airconditioners

### RPP Sales



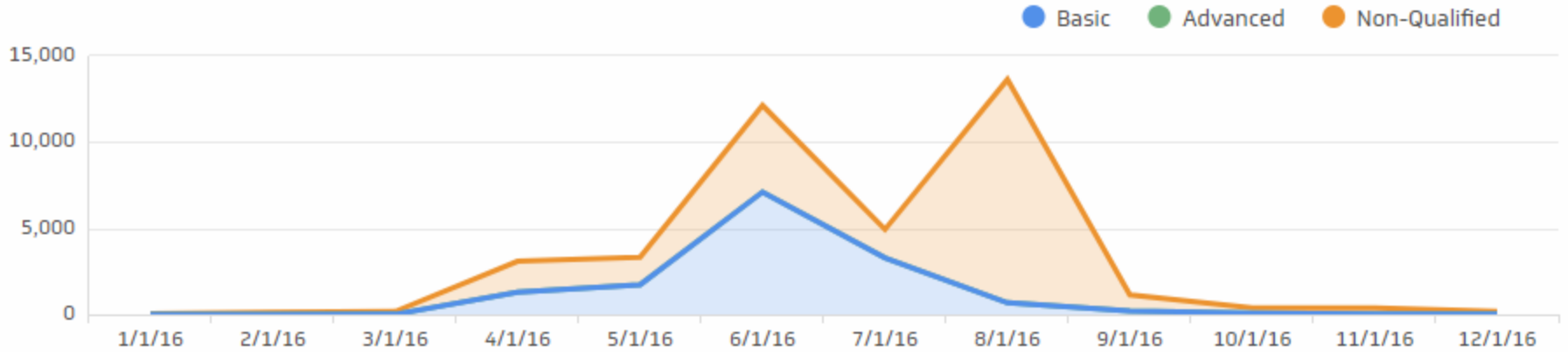
Product:

### RPP Market Share

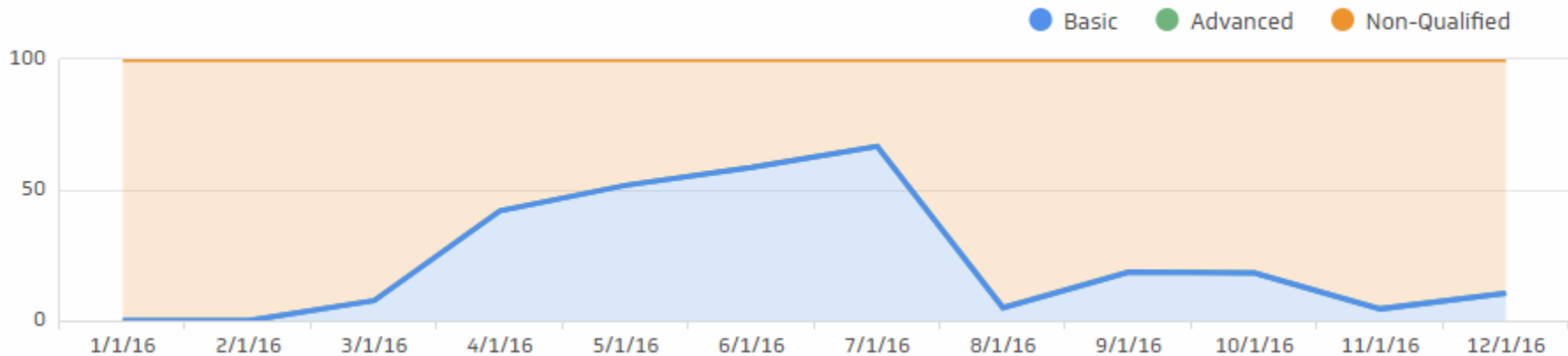


Product:

### RPP Sales



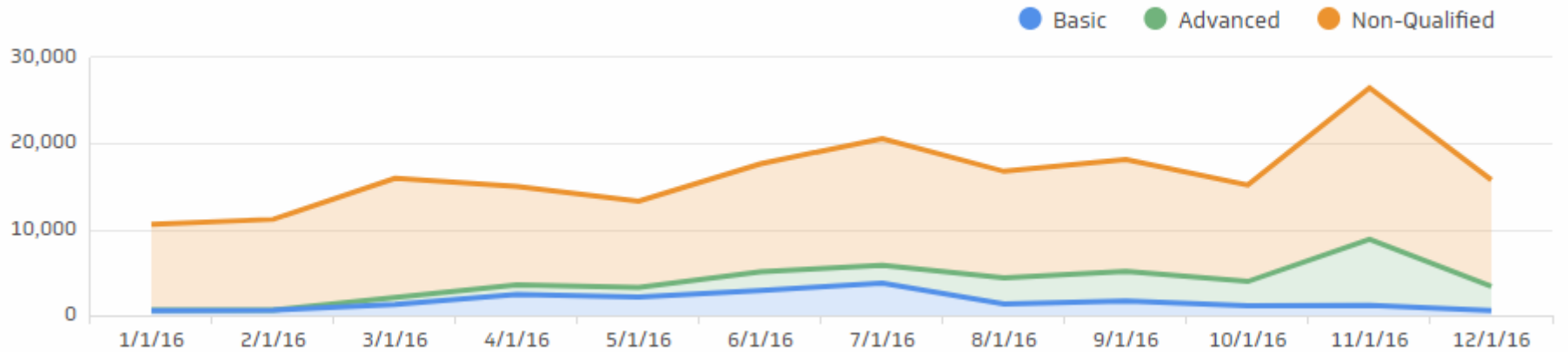
### RPP Market Share





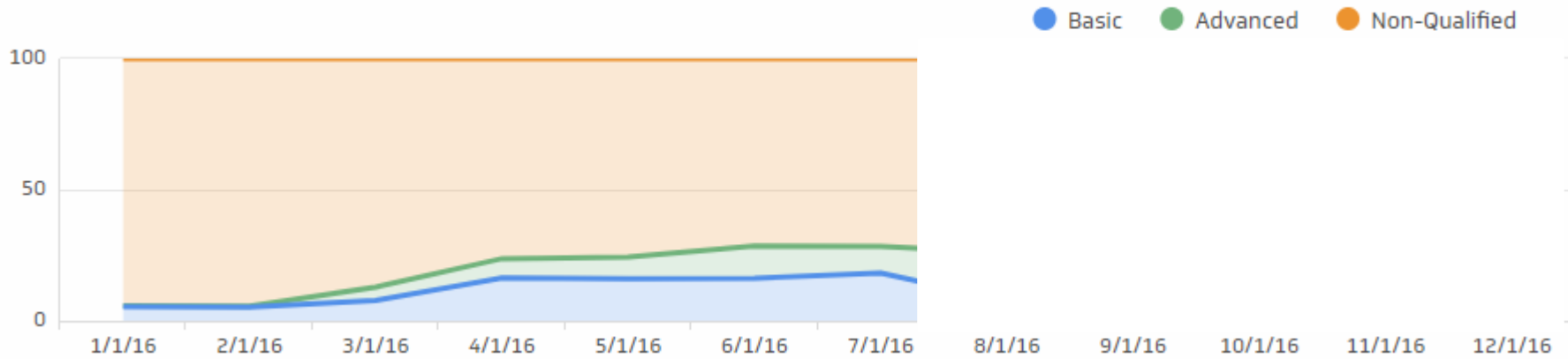
Product: washers

### RPP Sales



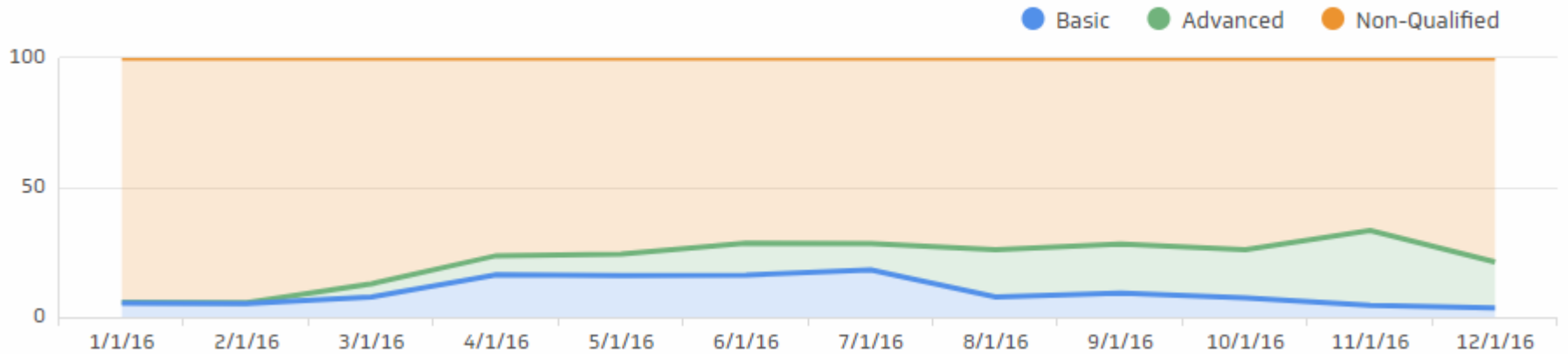
Product: washers

### RPP Market Share



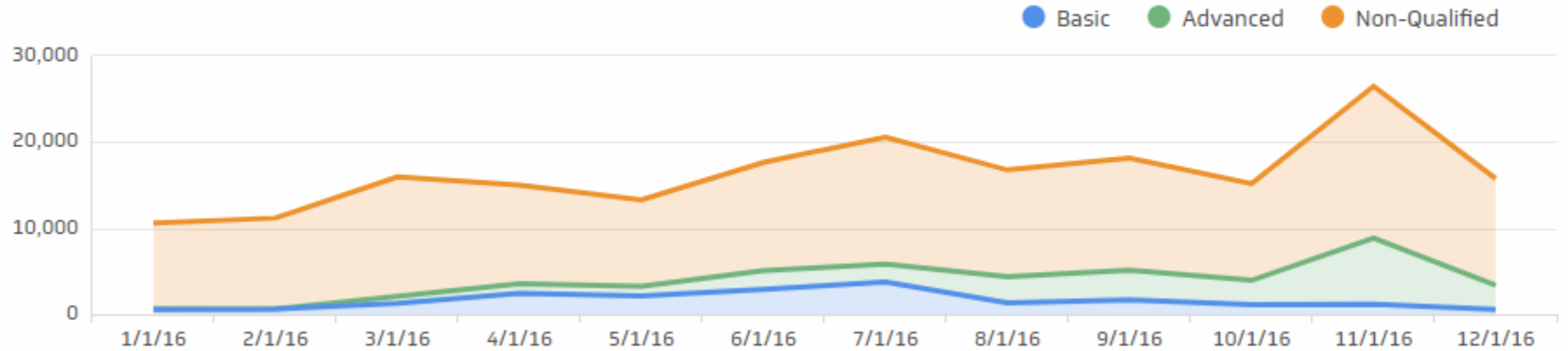
Product: washers

### RPP Market Share

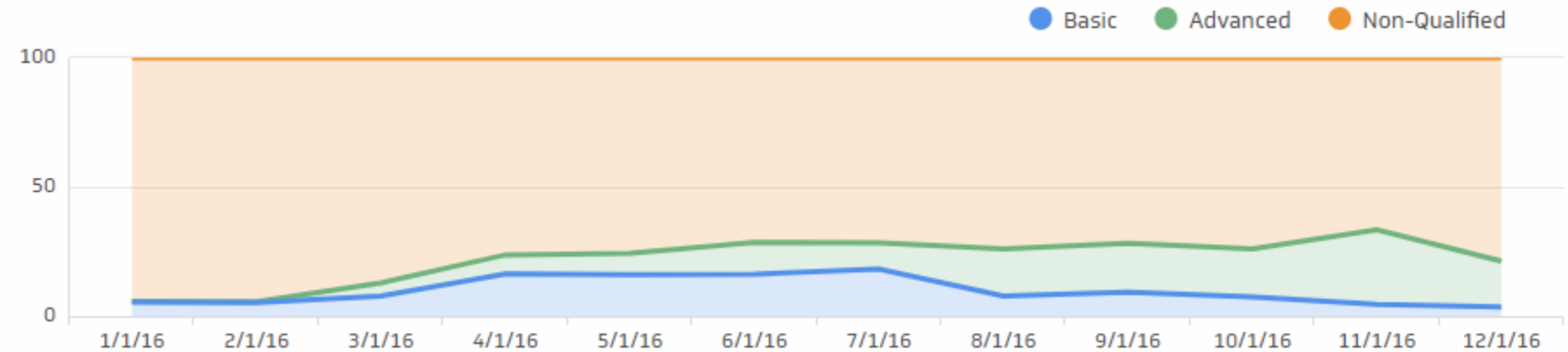


Product: washers

### RPP Sales



### RPP Market Share





A large, ancient tree with a thick, gnarled trunk and sprawling branches stands in the center of a lush, green forest. Sunlight filters through the dense canopy, creating dappled light on the forest floor. The ground is covered in various green plants and ferns. The overall atmosphere is serene and natural.

*Questions?*



*Thank you!*

*TOGETHER We Are Transforming the Northwest*







***Lunch is being served***





# ***Roundtable – Share Out***







# *Informing Residential Energy Efficiency with Data Insights*

Harvey Mathews

[hmathews@neea.org](mailto:hmathews@neea.org)

August 10, 2017



# *The plan*

- Typical & Atypical Applications of Data
- Data Types We Use
- Examples of Data Insights
- Needs for 2018
- Q & A

# ***Data Applications to EE Programs***

# *The last time we chatted...*

- The real estate market
- Finding the ‘Goldilocks Incentive’
- Cost data
- Model information
- Impacts on customers
- Income (mid to low) demographics
- State & regional trends, new construction data (heating equipment, water heating)



# *Data Types*



# EE Market data tends to fall into one of 12 buckets

Structure



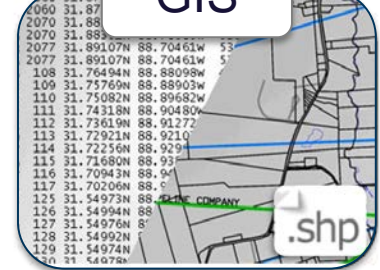
Usage



Demo



GIS



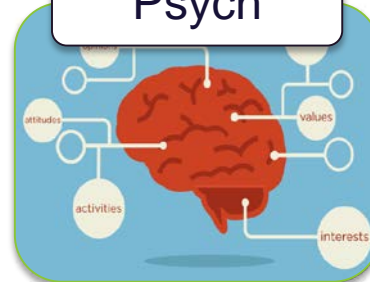
Construction



Sales



Psych



Social



Market



Rebates



GPS



Firmographics



# *Examples of Program Insights from Applied Data*

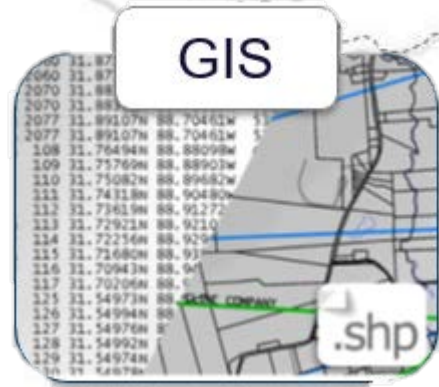
# Diagnosing

## Rural DHP Analysis

- About 14,000 customers
- Avg 1% DHP market penetration across the Northwest
- Why were they seeing only one-tenth of 1% DHP market penetration in their region?

Diagnosing

# Data & Process



Define service territory boundaries



Identify all parcels in the territory meeting target market criteria

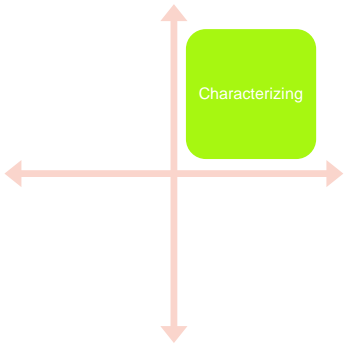


Understand incented unit installations relative to the addressable market



# Findings

- Half of the applicable residential building stock was built post-1990, when codes required more efficient heating (usually ducted)
- The number of homes with electric zonal heat is about 10% of the regional average in their territory



# *Characterizing*

## **Who Are Single Family Renters?**

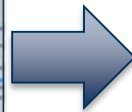
- How do they heat their home?
- How long do they rent?
- What types of physical structures?
- What is their household income?
- Do they have demographic similarities?
- Are there dominant psychographic profiles?

Characterizing

# Data & Process



Define territory boundaries



Identify all renter parcels in the territory



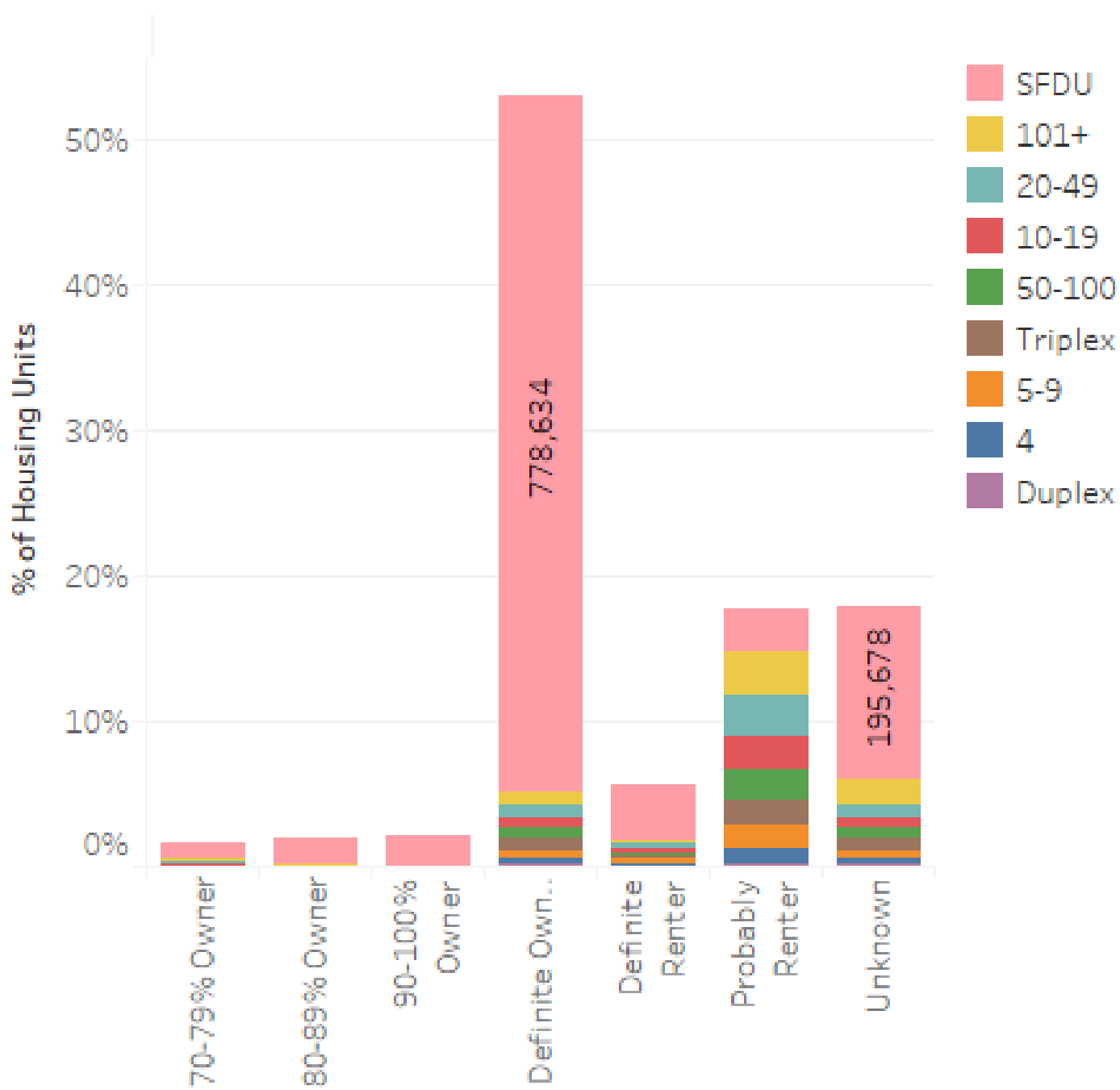
Identify common characteristics

## *Findings*

- Average length of residence is 5 - 8 years
- Oldest units were single family detached, duplexes & triplexes
- Attached single family have a median year built of 2006
- Primarily forced air & baseboard electric heat
- Three dominant mosaic groups identified



# Structure data example



# Demographic Data Example

G • G24 • G25

G

## Young City Solos

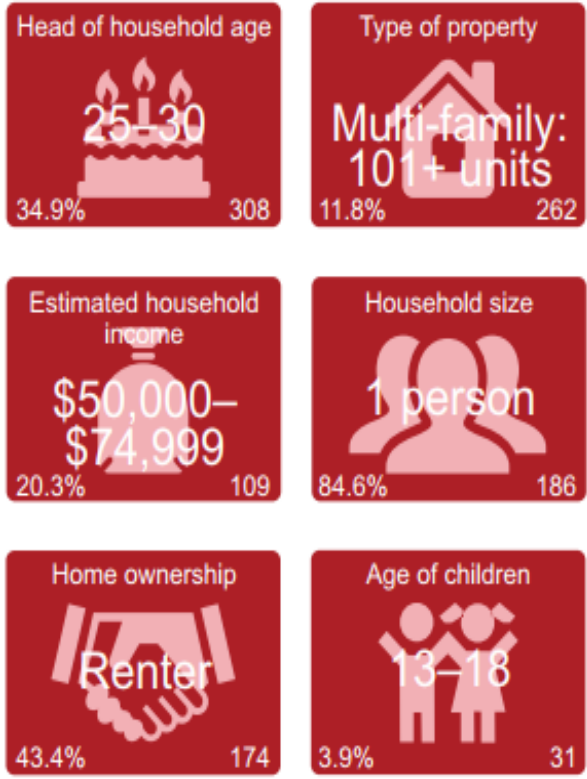
Younger and middle-aged singles living active and energetic lifestyles in metropolitan areas

Matthew & Patricia

🏠 3.12% | 1.72% 👤



### Who We Are



### Channel Preference

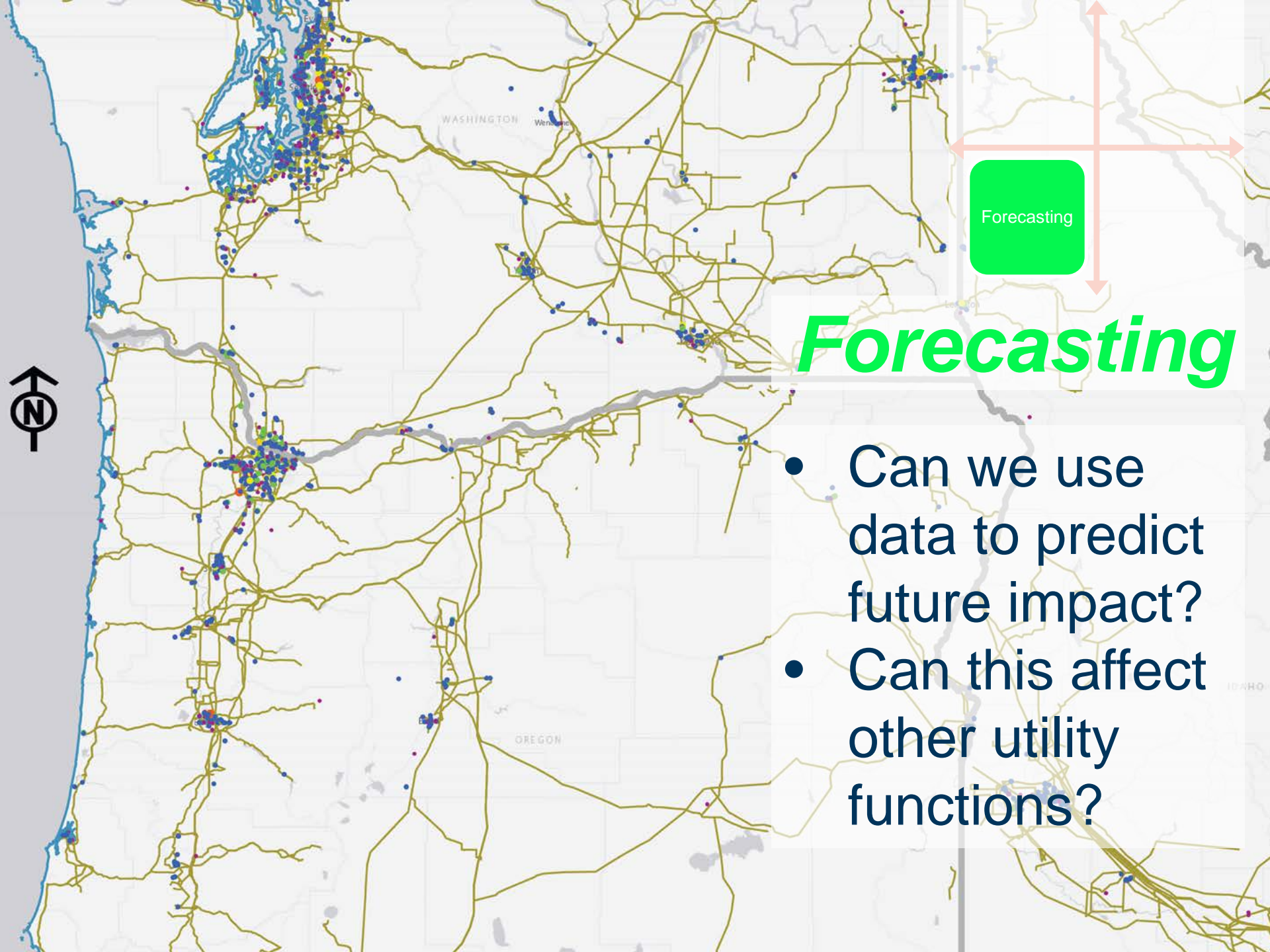


### Key Features

- Singles
- Downtown commuters
- Apartment dwellers
- Active lifestyles
- Environmental philanthropists
- Politically liberal

### Technology Adoption





Forecasting

# Forecasting

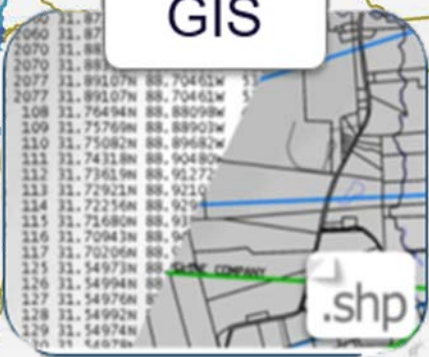
- Can we use data to predict future impact?
- Can this affect other utility functions?



# Data & Process

Forecasting

GIS



Firmographics

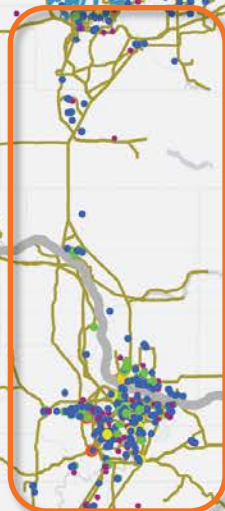
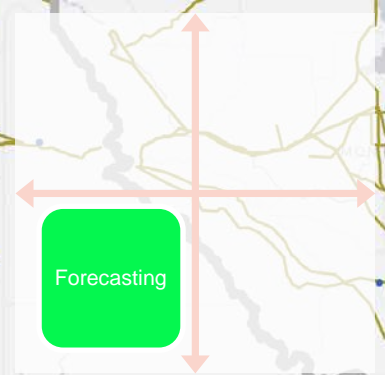


Usage





Is there an EE opportunity with Fast Food Restaurants that could impact transmission line construction?

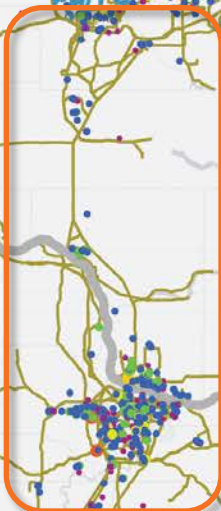
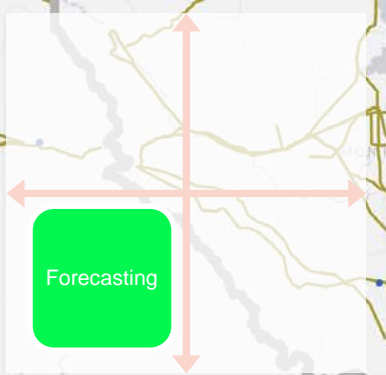


	Estimates	KW
Walk-in Refrigeration and freezers		20
HVAC: Roof Top Units (RTUs)		23
HVAC: Make-up Air Unit MAU & Exhaust Fan		12
Ice Machines		5
Soft Serve Ice Cream Machine		10
Reach-in Refrigeration and freezers		6.5
Garbage Disposals		9
Dishwasher		2
Lighting Load		45
Other Plug Loads		25





# Is there an EE opportunity with Fast Food Restaurants that could impact transmission line construction?



	Fast Food	Sit Down	Bar/Pub	All
Year Built	1983	1983	1974	1984
Square Feet	2,206	5,128	5,998	4,230
Hours Open Week	42	33	49	38
Lighting (W)	298	452	314	368
Annual kWh	6,341	4,988	4,908	5,582
Count in Region	3,805	5,879	1,923	12,538

A map of Washington state showing a network of roads and water bodies. A green box labeled 'Forecasting' is positioned in the upper right quadrant. A red crosshair is centered on the 'Forecasting' box. A north arrow is located on the left side of the map. The word 'WASHINGTON' is visible in the upper central part of the map.

## *Findings*

- A focus on just one industry couldn't provide the impact necessary to delay construction
- If this approach is to be taken, it would have to include multiple programs across many industries

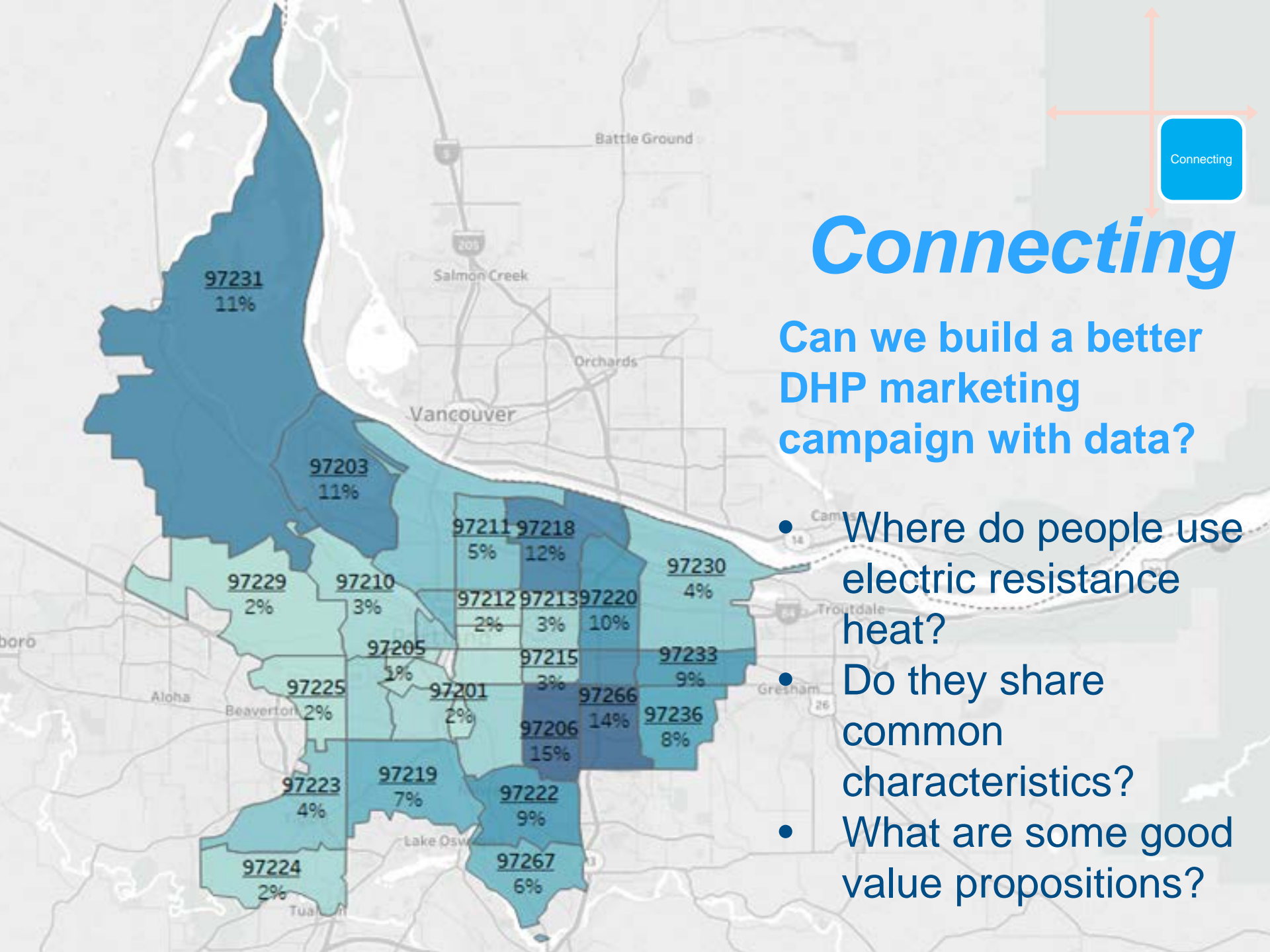




# Connecting

Can we build a better DHP marketing campaign with data?

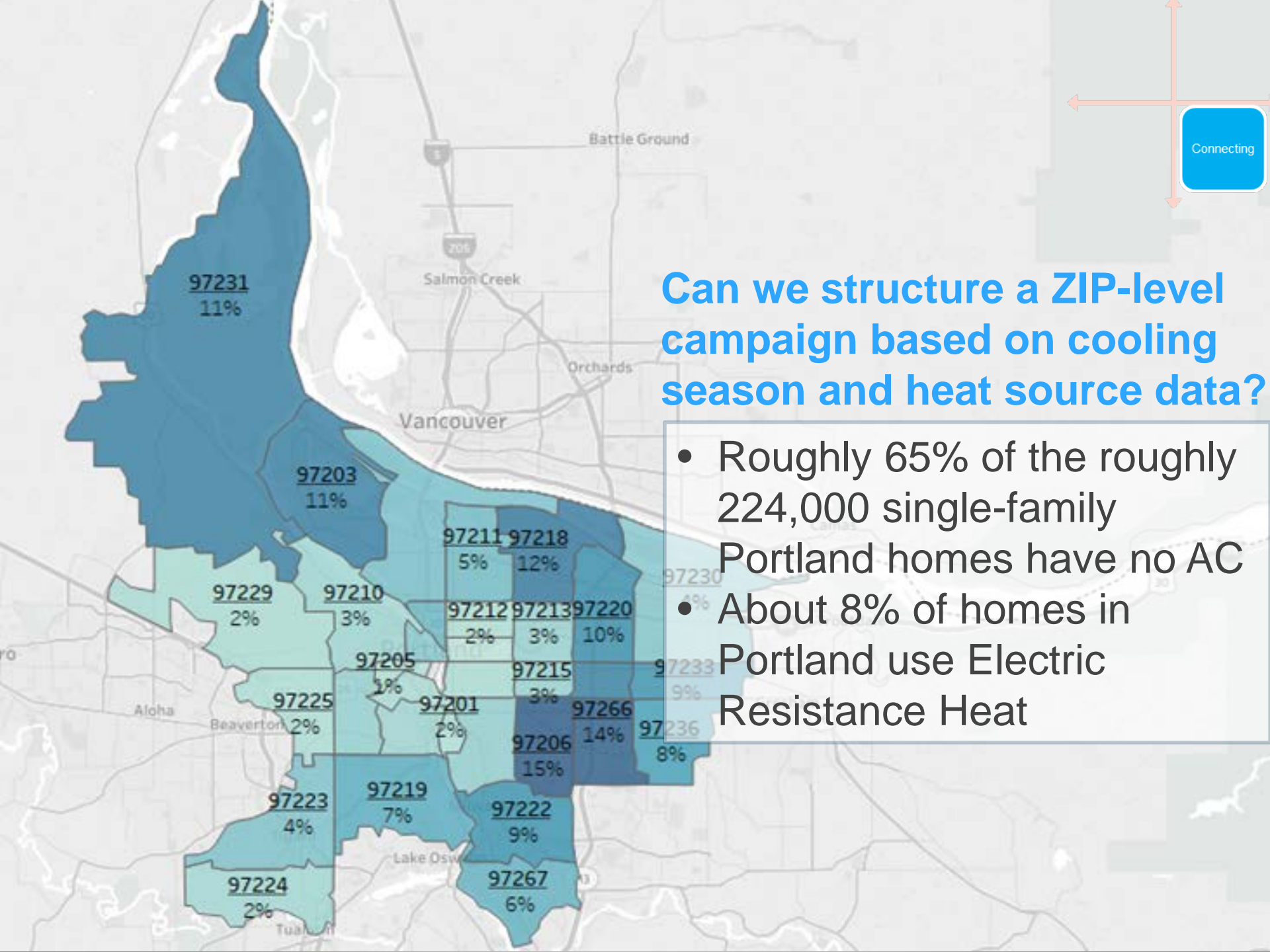
- Where do people use electric resistance heat?
- Do they share common characteristics?
- What are some good value propositions?



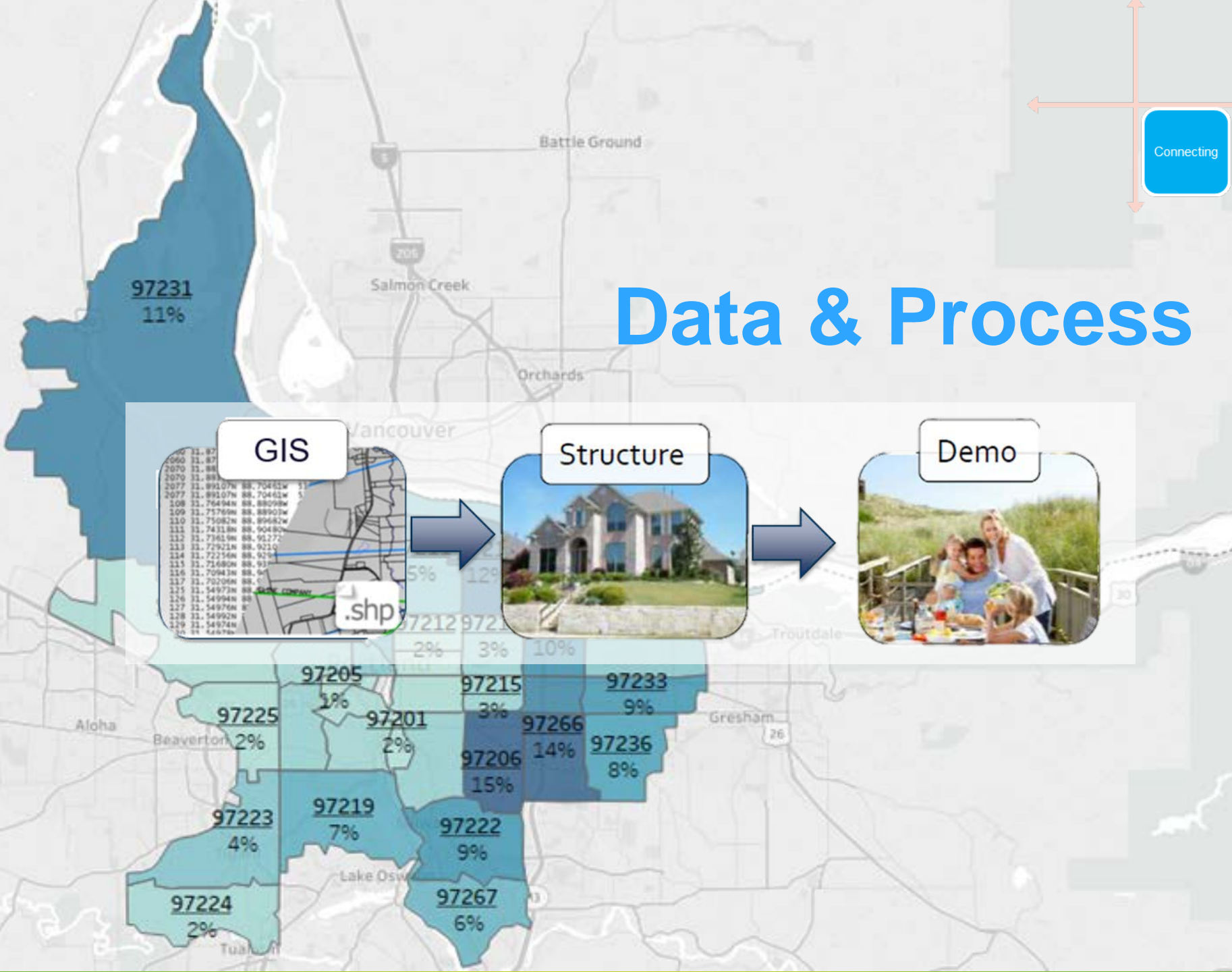


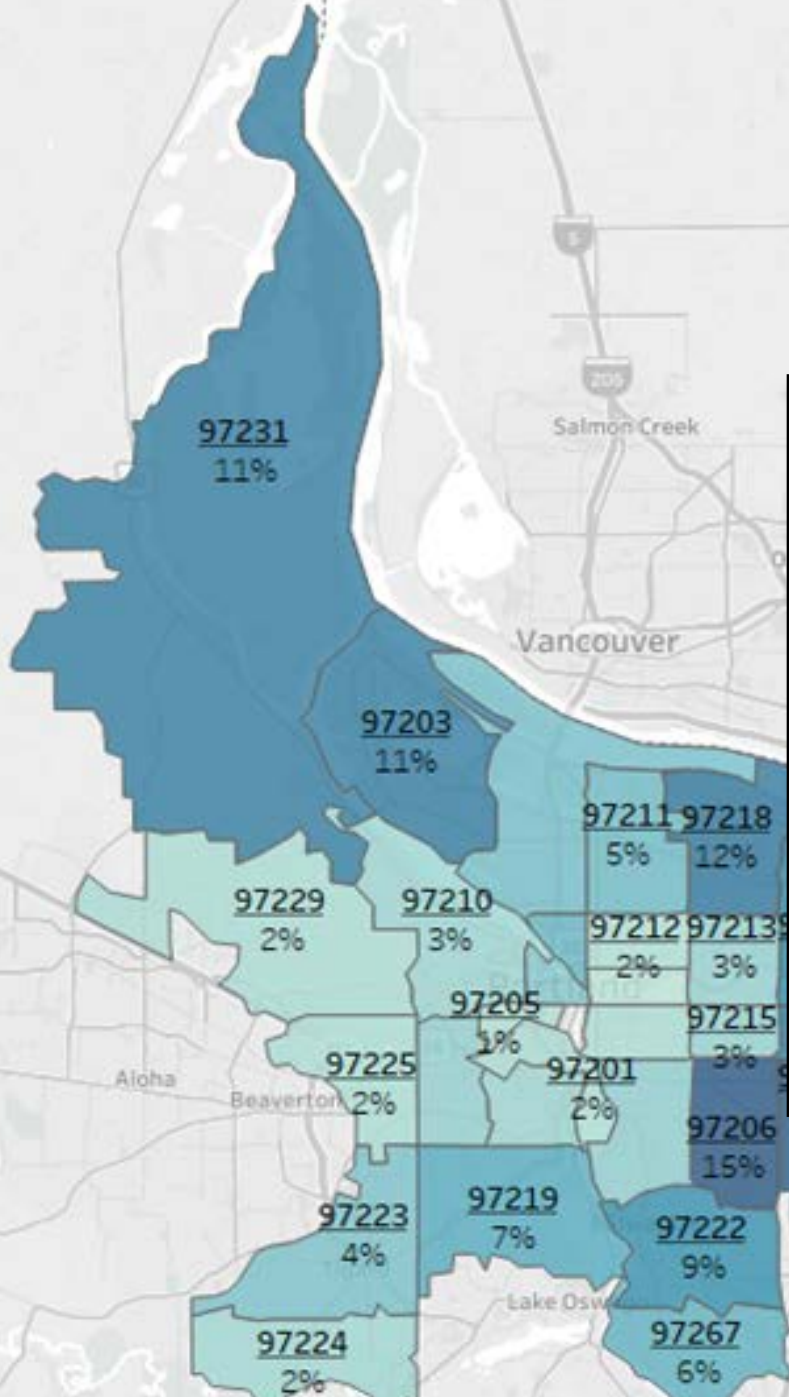
## Can we structure a ZIP-level campaign based on cooling season and heat source data?

- Roughly 65% of the roughly 224,000 single-family Portland homes have no AC
- About 8% of homes in Portland use Electric Resistance Heat



# Data & Process





### Income of Homeowners with Electric Resistance Heating

Household Income Range	Percent of Homes
1000 - 14999	4.3
15000 - 24999	7.3
25000 - 34999	8.1
35000 - 49999	18.5
50000 - 74999	34.0
75000 - 99999	12.9
100000 - 124999	7.3
125000 - 149999	2.7
150000 - 174999	1.2
175000 - 199999	1.2
200000 - 249999	1.2
250000 +	1.3

(Source: Experian)



Connecting

### Average age of Portland homeowner with electric resistance heat

We can't get age directly, but we can get close using Experian's Mosaic Segmentation groups

<i>Mosaic Group</i>	<i>Percent of Homes</i>	<i>Dominant Age Range</i>
<i>Blue Sky Boomers</i>	16	51-65
<i>Middle-class Melting Pot</i>	12	46-50
<i>Thriving Boomers</i>	11	51-65
<i>Young City Solos</i>	10	25-30
<i>Singles and Starters</i>	8	25-30
<i>Cultural Connections</i>	7	36-45
<i>Booming with Confidence</i>	7	51-65

97231  
11%

97203  
11%

97229  
2%

97210  
3%

97205  
1%

97225  
2%

97223  
4%

97224  
2%

97219  
7%

97222  
9%

97267  
6%

97206  
15%

97236  
8%

97206  
14%

# Samples of data-informed campaigns

**DAIKIN**  
COMFORT FOR LIFE

19 SERIES  
DUCTLESS WALL-MOUNTED  
HIGH-EFFICIENCY HEAT PUMP  
AND AIR CONDITIONER

The advertisement shows a man in a suit and a young girl in a pink shirt sitting on a bed. A teddy bear is visible on the left. The DAIKIN logo is prominently displayed in the center, with the tagline 'COMFORT FOR LIFE' below it. At the bottom, the product name and specifications are listed.

**HEAT PUMPS  
DUCTLESS HEAT PUMPS**

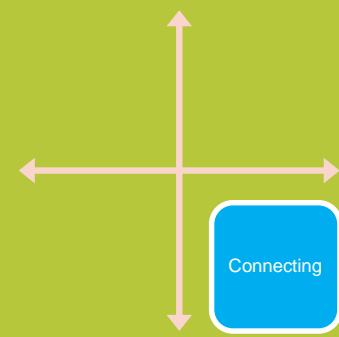
Coastal Energy Ltd  
It's all about comfort.

Fujitsu  
YORK

\$25 of every install is  
donated to the SPCA  
**CHAMPIONS  
FOR ANIMALS**

f @ G+ ✨

The advertisement features a dog lying on a blue blanket. The text 'HEAT PUMPS DUCTLESS HEAT PUMPS' is written in a dark blue banner at the top. The Coastal Energy Ltd logo and tagline 'It's all about comfort.' are in the middle. Below that, the Fujitsu and YORK logos are shown. A small white device is also visible. At the bottom, there are social media icons for Facebook, Instagram, and Google+, along with a small rabbit icon. A text box on the right states '\$25 of every install is donated to the SPCA CHAMPIONS FOR ANIMALS'.



“

A brand is worthless if it doesn't **connect**  
with the right audiences in a relevant way.

”

# ***What's in Store for 2018?***



# *It's Really Up to You...*

- Currently Market Intelligence is 3 people, so we are looking to create repeatable, scalable value
  - Self-service portals for EE results by utility
  - On-demand market potential analysis
  - Geospatially coded, user-generated digital incentive uploading to decrease breakage (& improve sales data)
  - Web-scraped product research for pricing & product maturity indications in reviews
  - EE program impact analysis for distressed asset management
  - Other??
- What data-enabled services/insights would you use most?



*Follow up questions?*

*[mi@neea.org](mailto:mi@neea.org)*

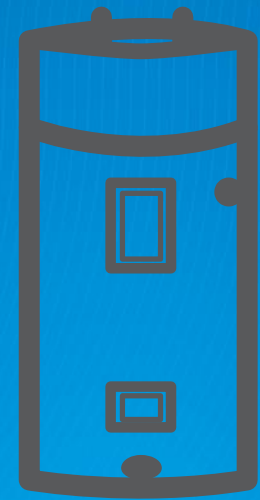
*TOGETHER We Are Transforming the Northwest*



August 10, 2017

# HPWH Q3 RAC Update

Jill Reynolds



# *Agenda & Desired Outcomes*

- Working with the market in real time
- **2017 sales** and takeaways
- Overview of **Consumer Products Regional Strategy** progress
- Understanding of **national HPWH activity**





***Market Partners:  
Challenges and Opportunities***

# Home Depot Pricing Issue

## Issue:

- National Home Depot HPWH price without markdown \$1,199
- NW Home Depot HPWH price \$1399 marked down to \$1199 with a NEEA-funded \$200 discount

Albuquerque →  Compare



**NEW LOWER PRICE**

**Rheem Performance** Platinum 50 Gal. 10-Year Hybrid High Efficiency Electric Tank Water Heater  
Model# XE50T10HD50U0  
★★★★★ (139)  
**\$1,199<sup>00</sup>**

Missoula →  Compare



**NEW LOWER PRICE**

**Rheem Performance** Platinum 50 Gal. 10-Year Hybrid High Efficiency Electric Tank Water Heater  
Model# XE50T10HD50U0  
★★★★★ (136)  
Was ~~\$1,399.00~~  
**\$1,199<sup>00</sup>**  
Save \$200.00 (14%)  
Check Rebate Availability

# *Home Depot Pricing Issue Response*

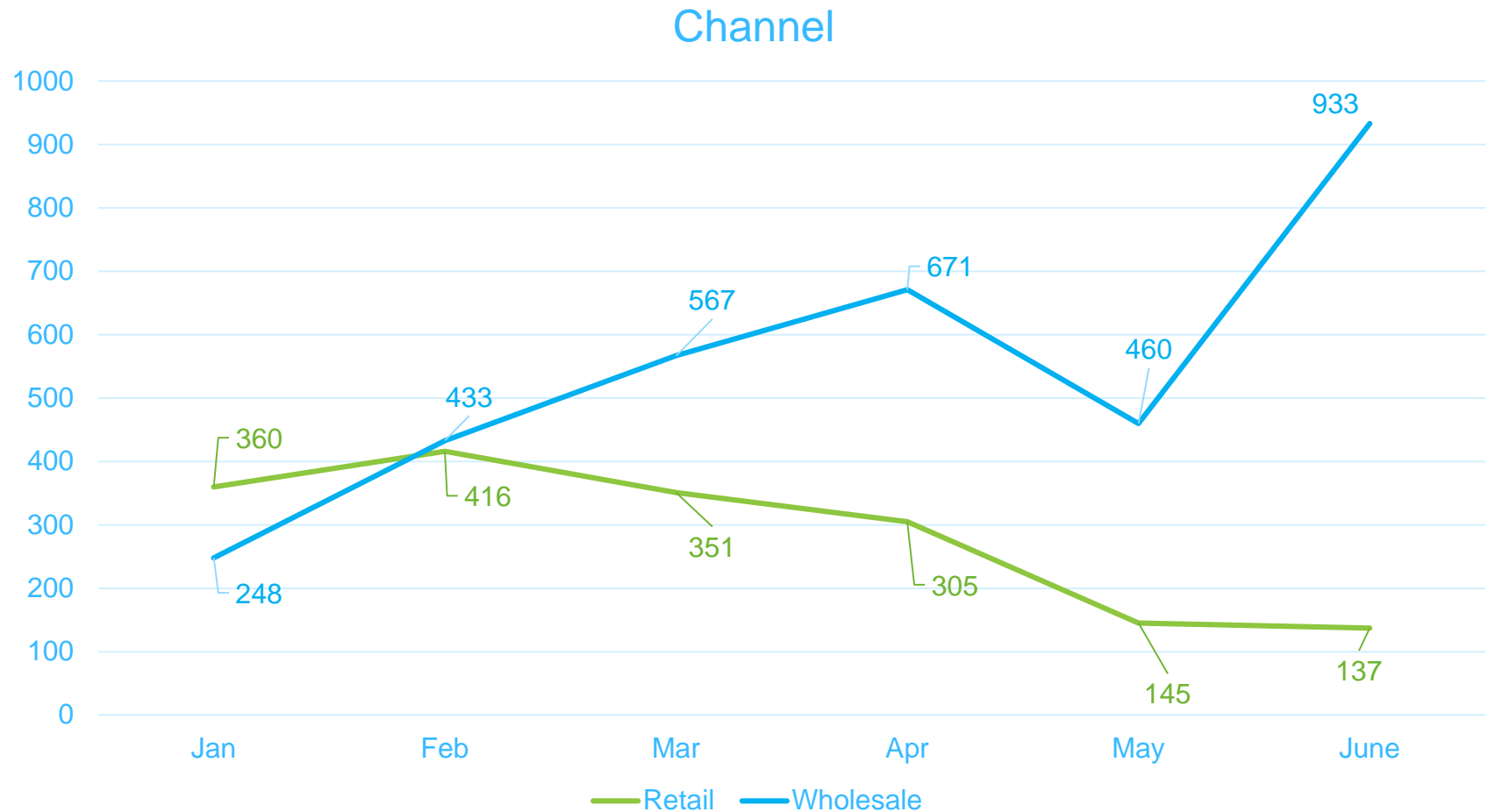
## Opportunity:

- Work more closely with market partners
- Learn more about Home Depot pricing strategy
- Educate market actors about our work





# 2017 Progress to Date: Channel



# Outcome

Compare



**Rheem Performance** Platinum 50 Gal. 10-Year Hybrid High Efficiency Electric Tank Water Heater

Model# XE50T10HD50U0

★★★★★ (139)

Was \$1,399.00

**\$999<sup>00</sup>**

Save \$400.00 (29%)

# Lessons Learned

- Monitor national pricing
- Close communication with partners
- Difficult conversations are OK
- Have a plan B

Compare



**Rheem Performance** Platinum 50 Gal. 10-Year Hybrid High Efficiency Electric Tank Water Heater

Model# XE50T10HD50U0

★★★★☆ (139)

Was \$1,399.00

**\$999<sup>00</sup>**

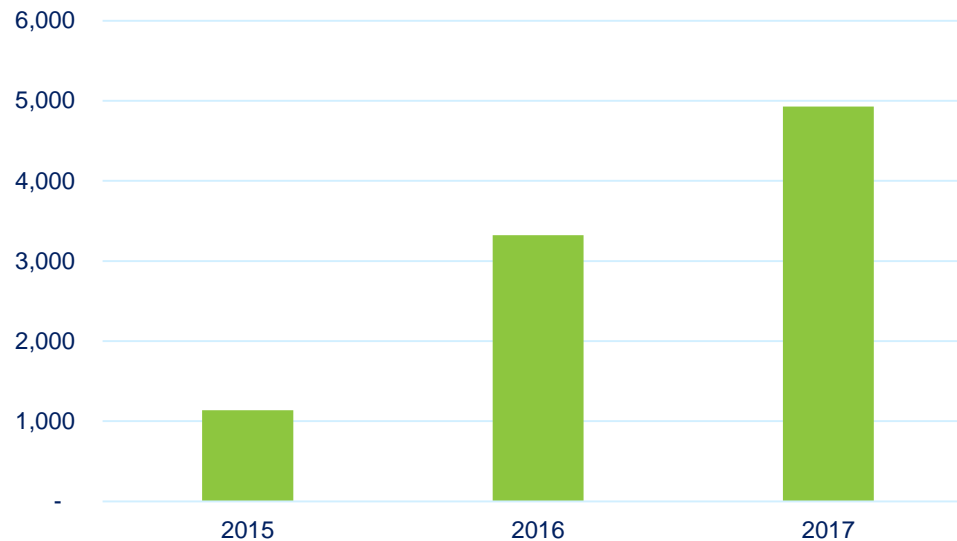
Save \$400.00 (29%)

# ***2017 HPWH Sales Update***

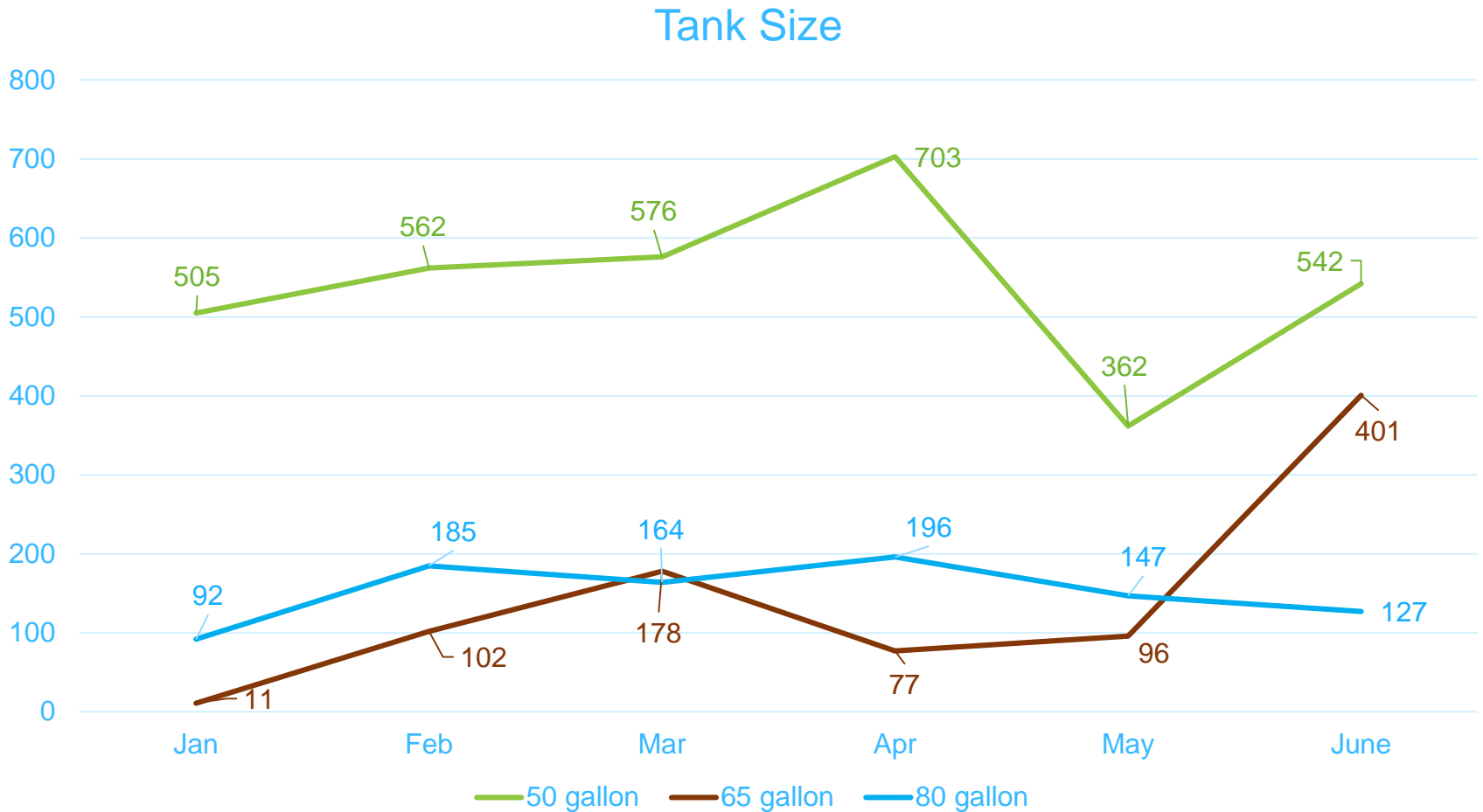
# 2017 Progress to Date: NEEA Incented Units

	Jan	Feb	Mar	Apr	May	Jun	Total
Total	635	842	852	974	605	1021	4929

Midyear HPWH sales



# 2017 Progress to Date: Tank Size



# Key Takeaway

- Sales by Channel
  - Wholesale channel strong



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more competition





# Retail Incentive Update

- Current:

	Large tank	Small tank
Retail	\$300	\$200
Wholesale	\$300	\$200

- September adjustment:

	Large tank	Small tank
Retail	\$100	\$100
Wholesale	No change	No change

# ***Consumer Products Regional Strategy Update***

# *Consumer Products Regional Strategy Update*



By 2023, 30% of all  
electric water heaters  
sold in the region are  
HPWHs

# *Consumer Products Regional Strategy Data Request*

## Data Points Required:

- Date sold
- HPWH make and model number
- Zip code

## Data Points Optional:

- Purchase Price
- Incentive Amount
- Installer
- Installation Cost
- Installation Location

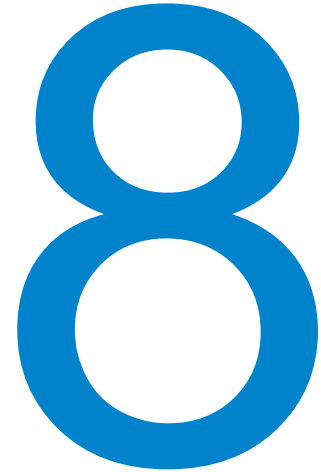
# *Consumer Products Regional Strategy Data Request*

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## Data Points Optional:

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# *Consumer Products Regional Strategy Data Request*

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7



# Regional Data Snapshot

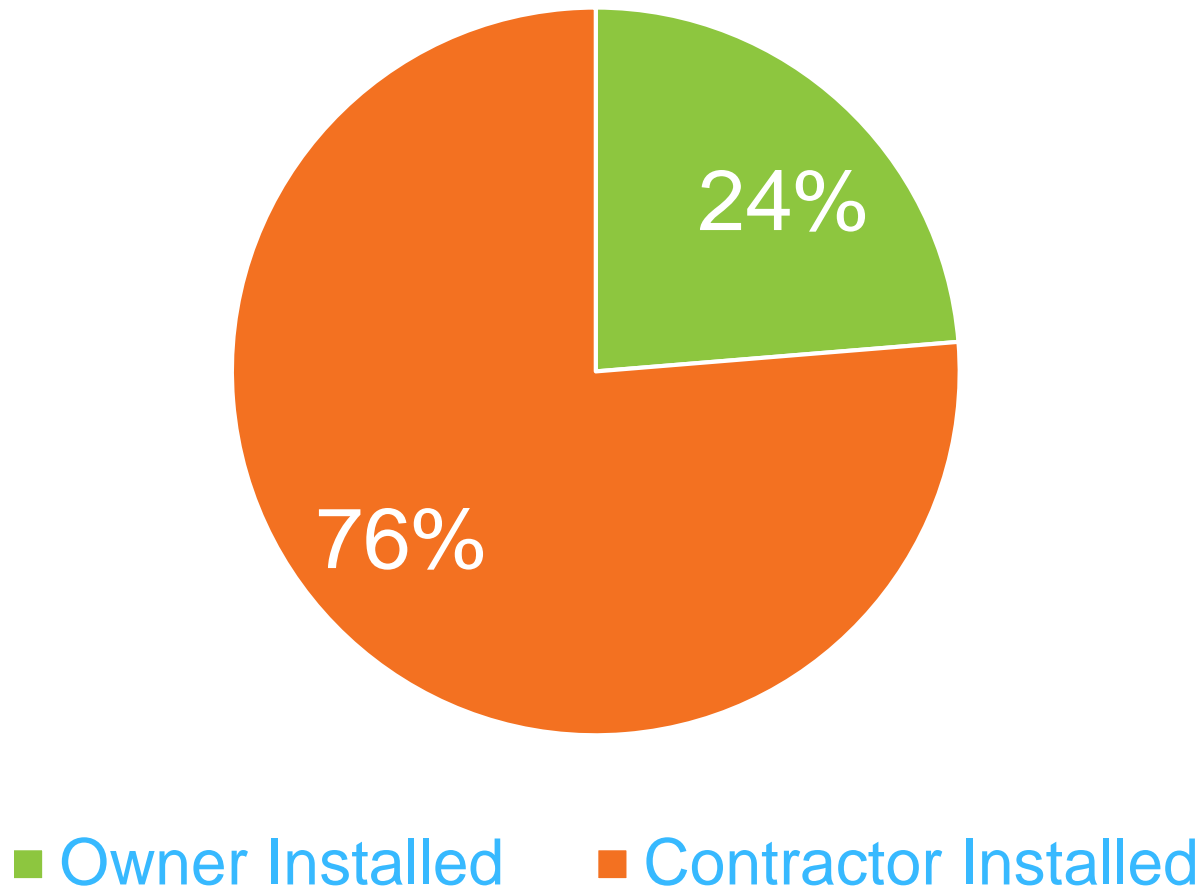
Rebates	% Regional Sales
1,260	26%

Average Purchase Price	Average Installation Cost
\$1,079	\$932

Install Location	
Garage	Basement
61%	18%

Brand			
AO Smith	GE	RHEEM	Other
29%	47%	22%	2%

# *Owner vs Contractor Installations*



# ***National Trends***

# *National Activities*

## Overview:

- Supporting utilities, DOE, national labs, manufacturers, distributors and sustainable communities on market collaboration

## Goals:

- Increase market adoption to ensure manufacturers stay dedicated to product
- Highlight HPWH opportunity to market actors
- Share information and connect market actors



# *National Trends*

- Midstream incentives
- Sustainable communities
- Requests to share best practices & resources
- Adoption of Advanced Water Heater Specification





Carbon Neutral Cities Alliance



***Questions  
&  
Thank you***

# *Public Comment*



# Wrapping it up





**TOGETHER** *We Are Transforming the Northwest*

