



DRIVING TRANSFORMATION

Behavior, Energy & Climate Change (BECC) / November 12-15, 2023 / Sacramento, CA

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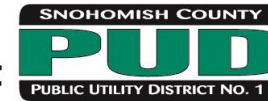
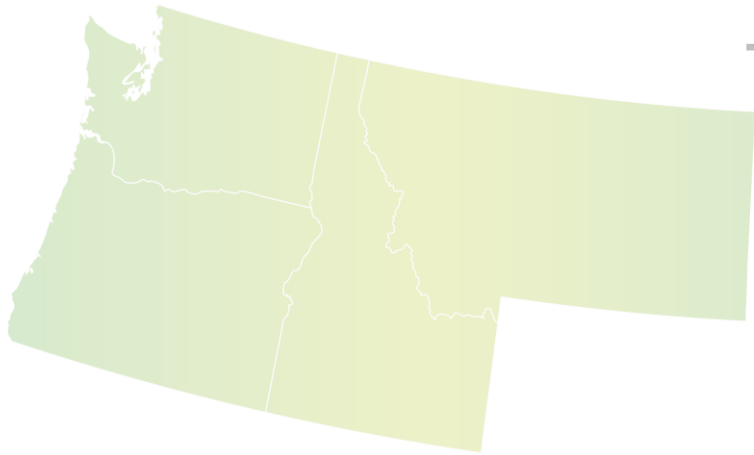
A Market Transformed: How Heat Pumps Took Over the Northwest

November 14, 2023

Lauren Bates | Northwest Energy Efficiency Alliance

Convened by:

Northwest Energy Efficiency Alliance



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Market Transformation

The strategic process of intervening in a market to create lasting change.



Identify barriers and opportunities



Intervene to remove or leverage



Track and evaluate market progress

Important limitation

Market Transformation programs are complex, with many interacting parts.

Our evaluations suggest the program *overall* succeeded in removing market barriers.

We do not have definitive evidence of success for each of the many tactics used by the program.

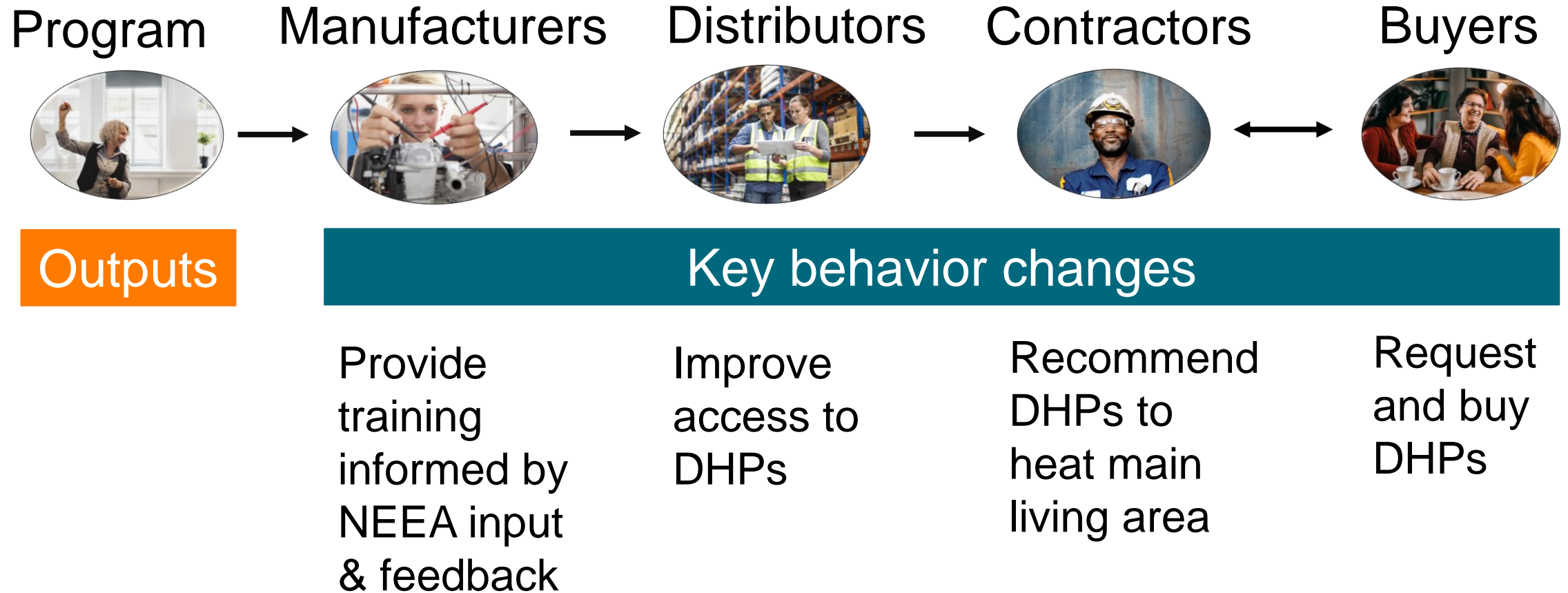


Market barriers to remove

1. Inadequate DHP performance metrics & specifications
2. Inadequate HVAC contractor installation, training, and sales practices
3. Poor or unclear supply chain value propositions
4. Limited DHP availability
5. High first cost
6. Inadequate consumer awareness of DHPs



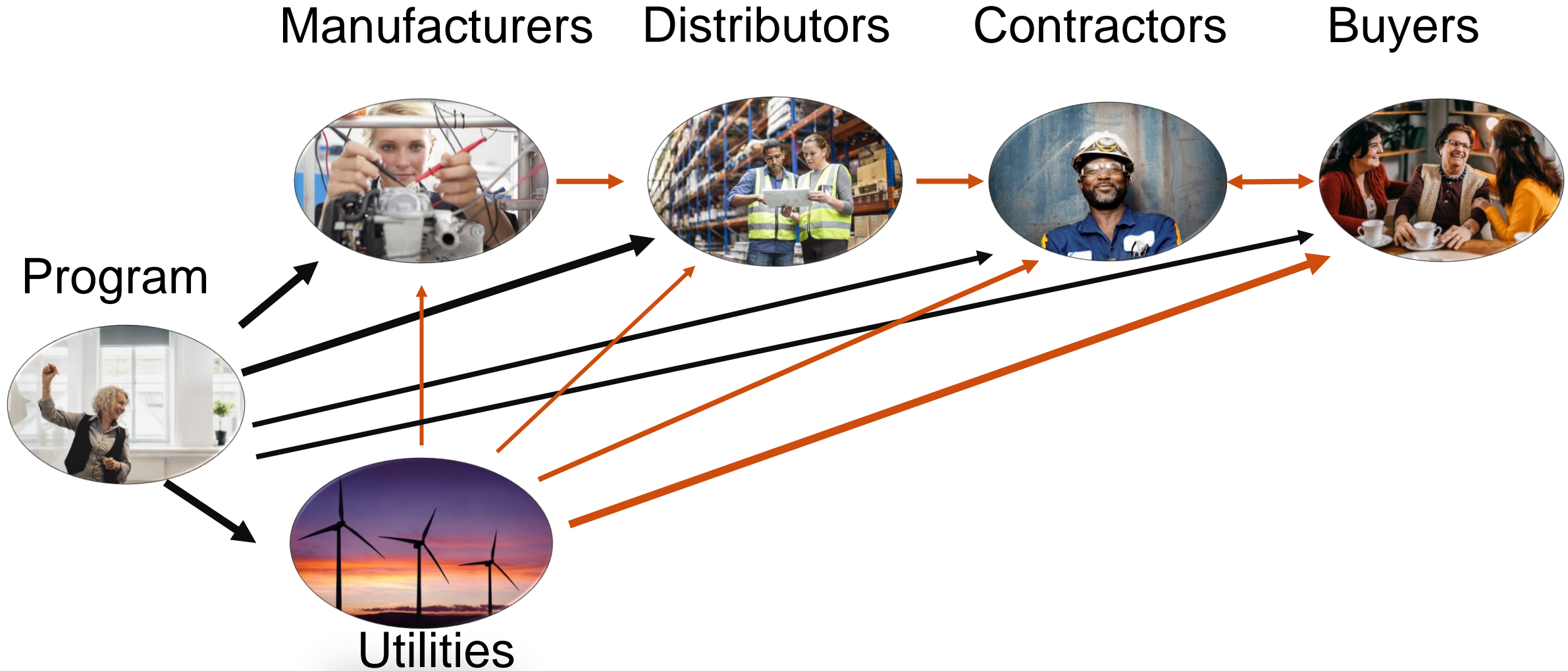
Systemic approach to barrier removal



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Systemic approach to barrier removal



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Milestones

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2006-2007

Pilot

2006-2007

Demo to test technical viability for NW market

2008-2009

Pilot

2010

Program launch

Build supply chain capacity, utility programs, consumer demand

2011-2015

Maximizing mini-splits and cold climate training, program activities end

2015-2019

Reduce supply chain support and consumer-direct communication

Diversity, Equity & Inclusion aspects

HVAC contractors and utilities:

- In all 4 Northwest states (Idaho, Montana, Oregon & Washington)
- Outside the I-5 corridor (smaller cities, rural areas)
- Located in cold climate areas (special equipment needs, rural areas)

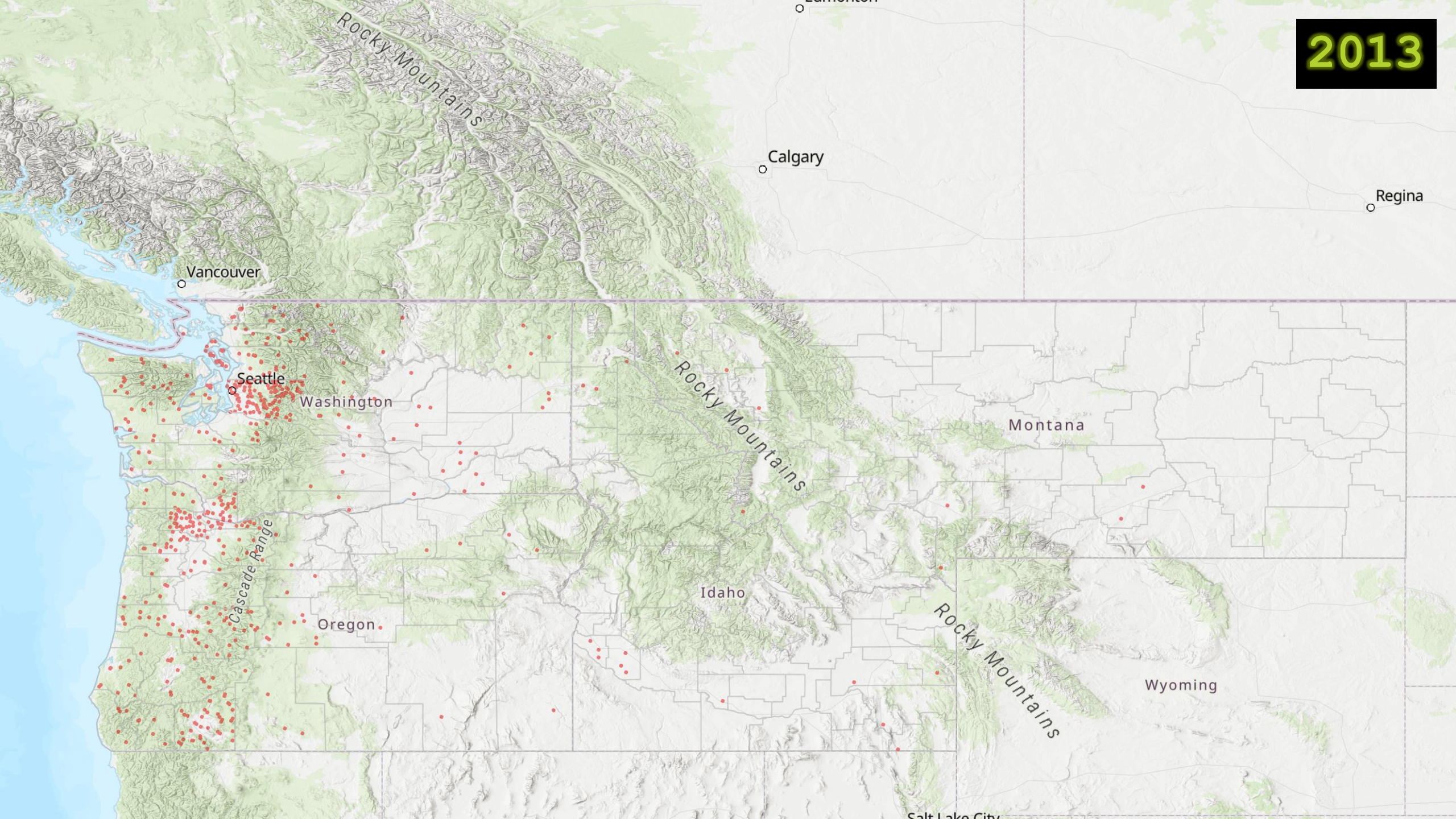
Consumers:

- In all 4 Northwest states
- Outside the I-5 corridor
- Living in manufactured homes (presumed low- to mid-income)

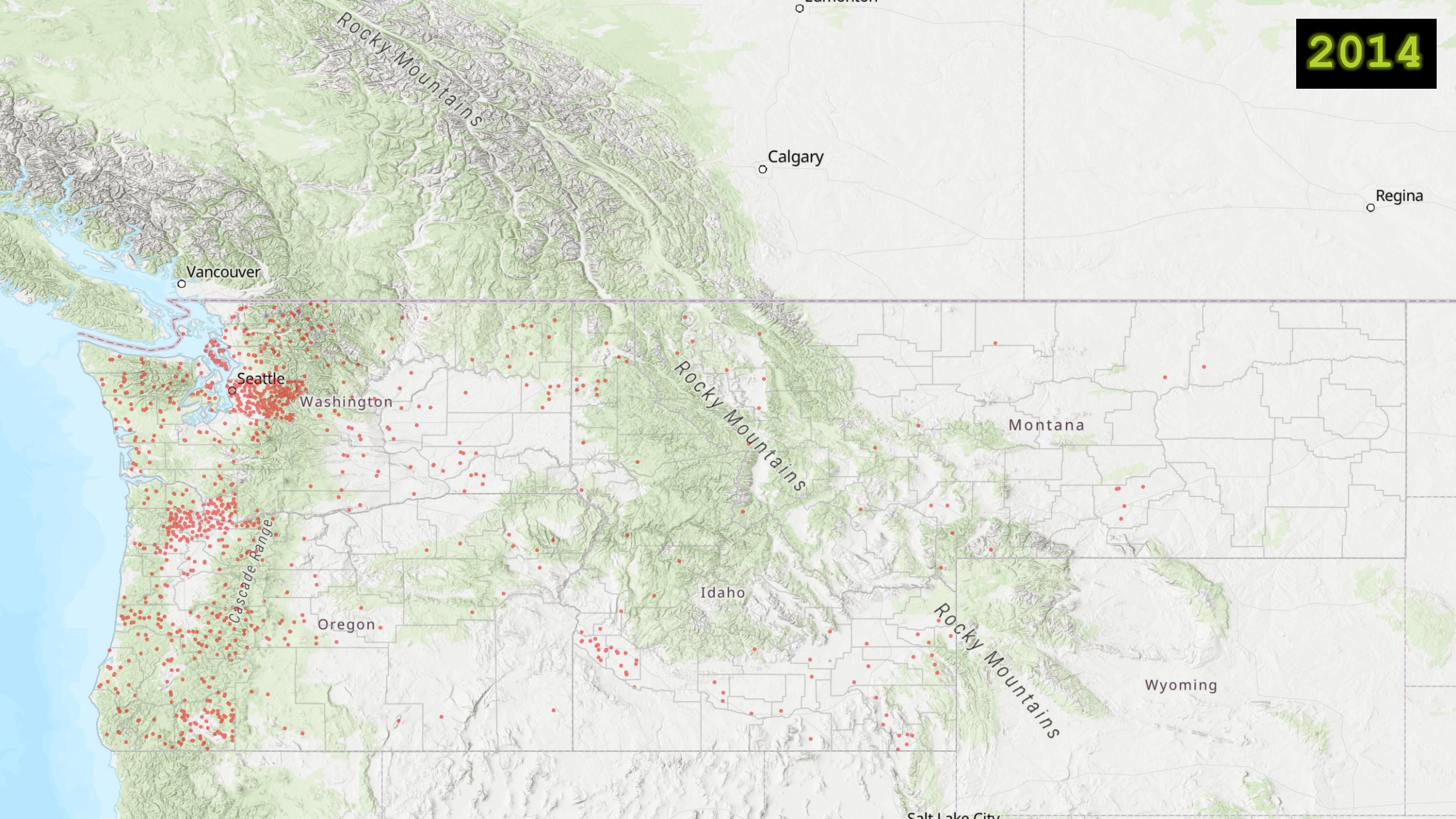
Nonetheless, adoption remains highest in cities along I-5.



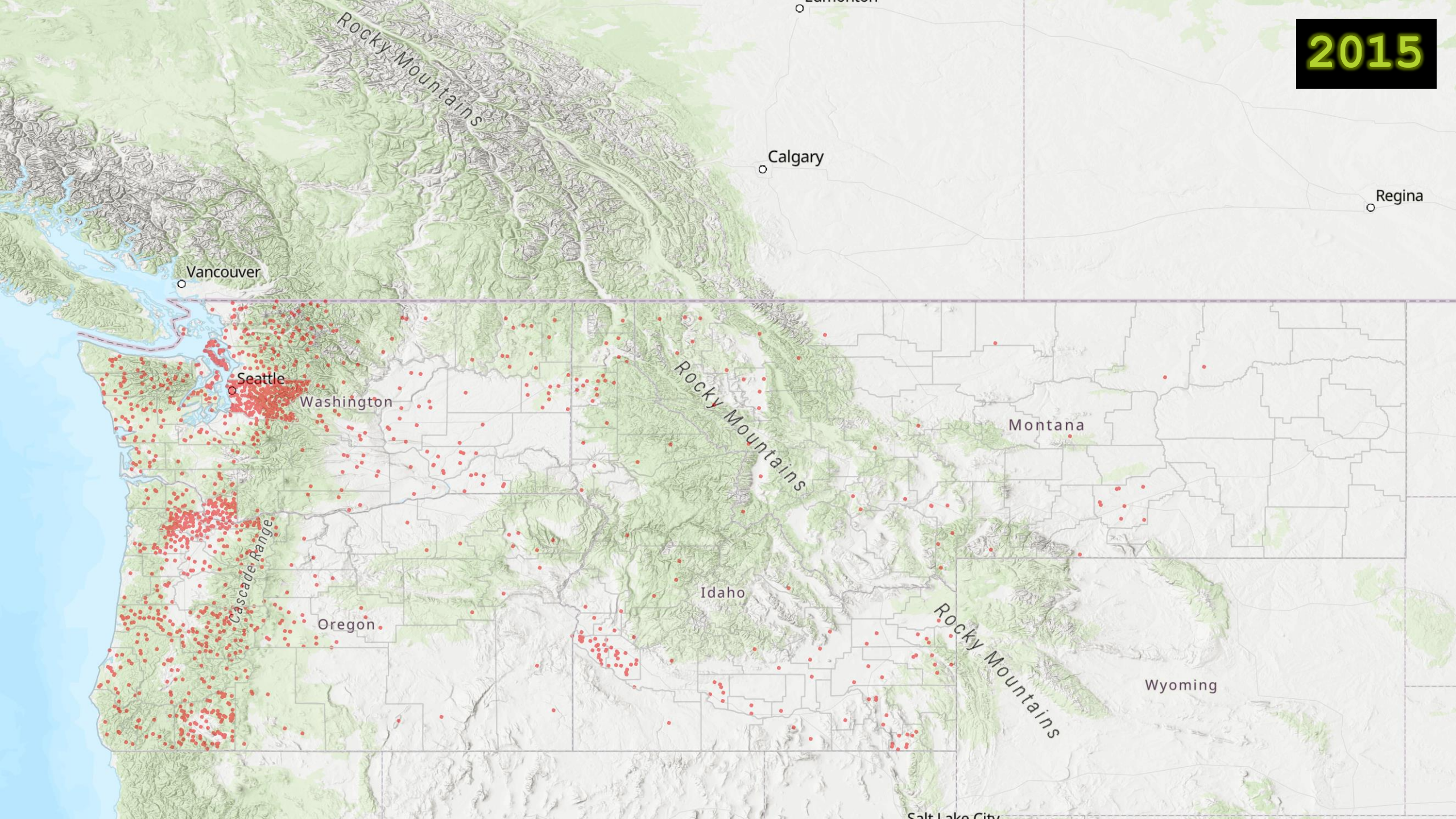
2013



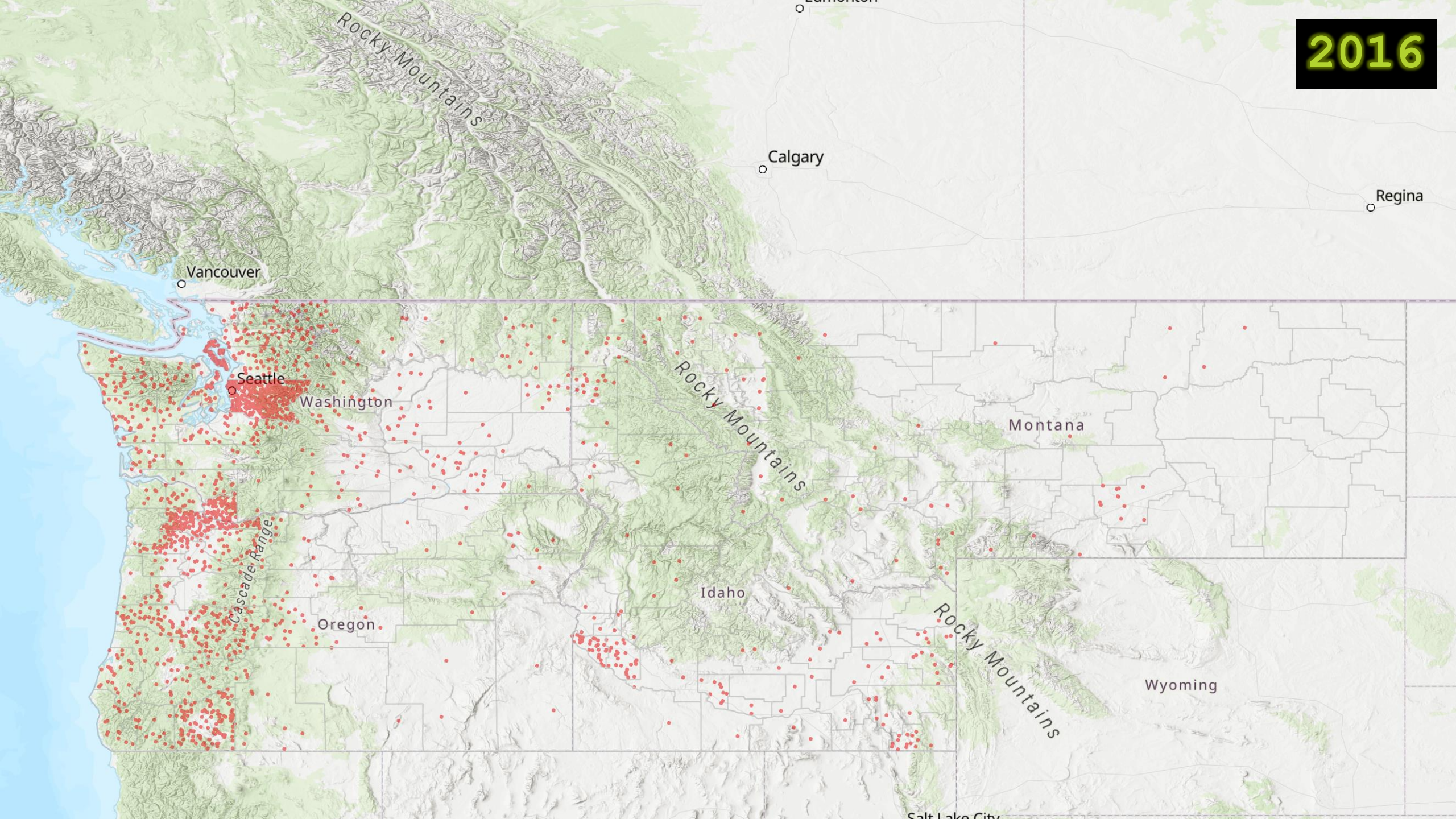
2014



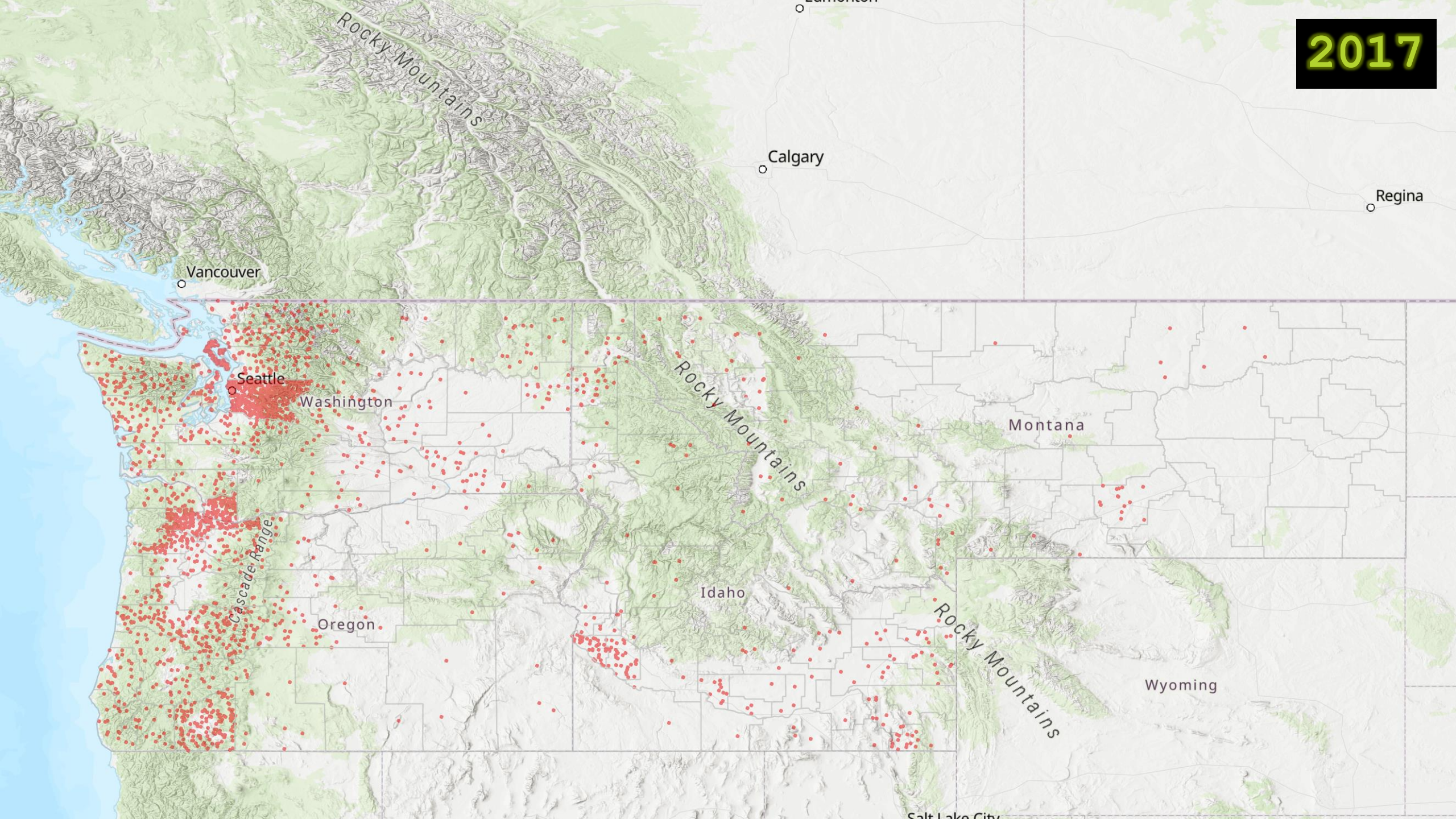
2015



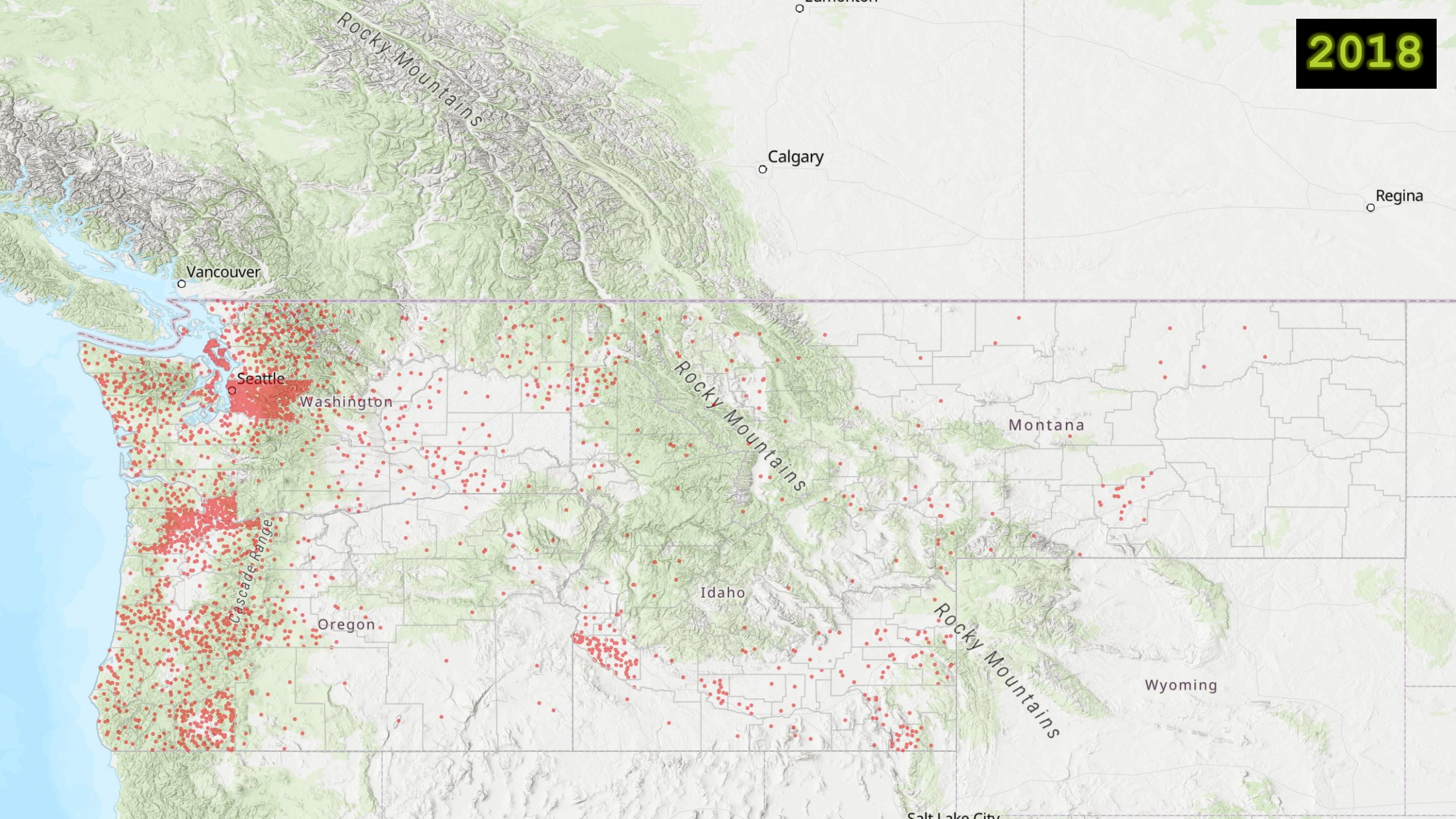
2016



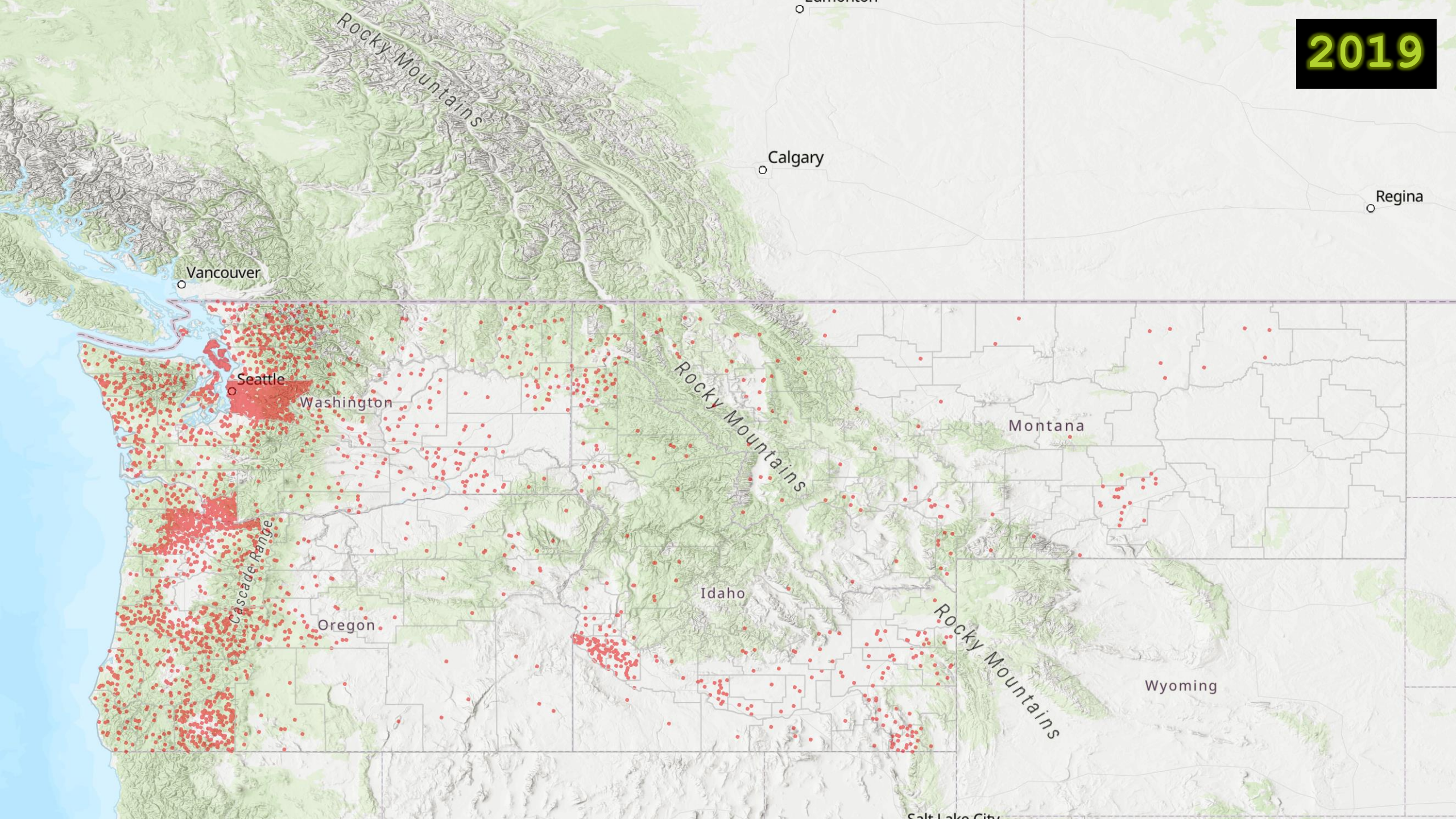
2017



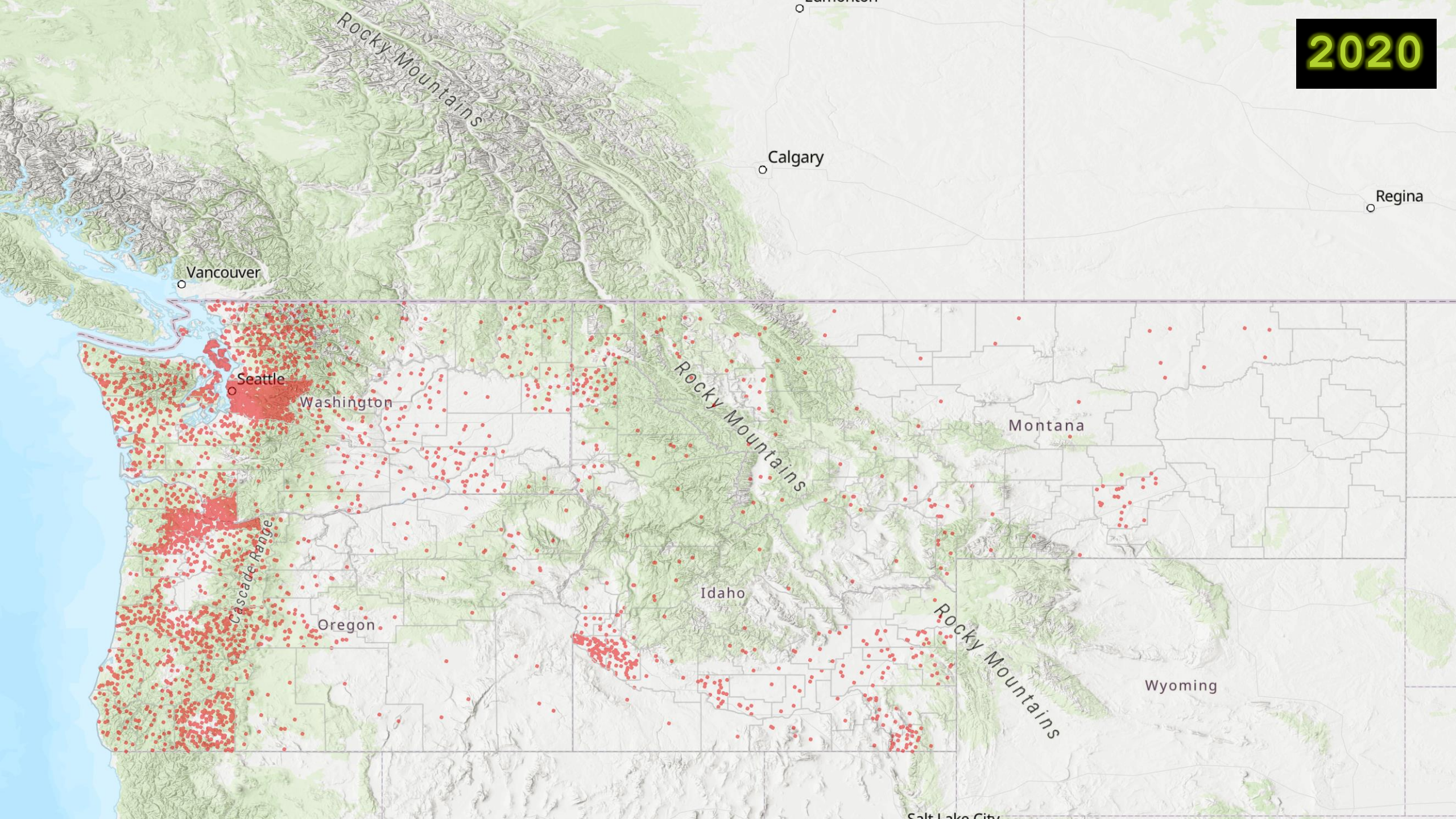
2018



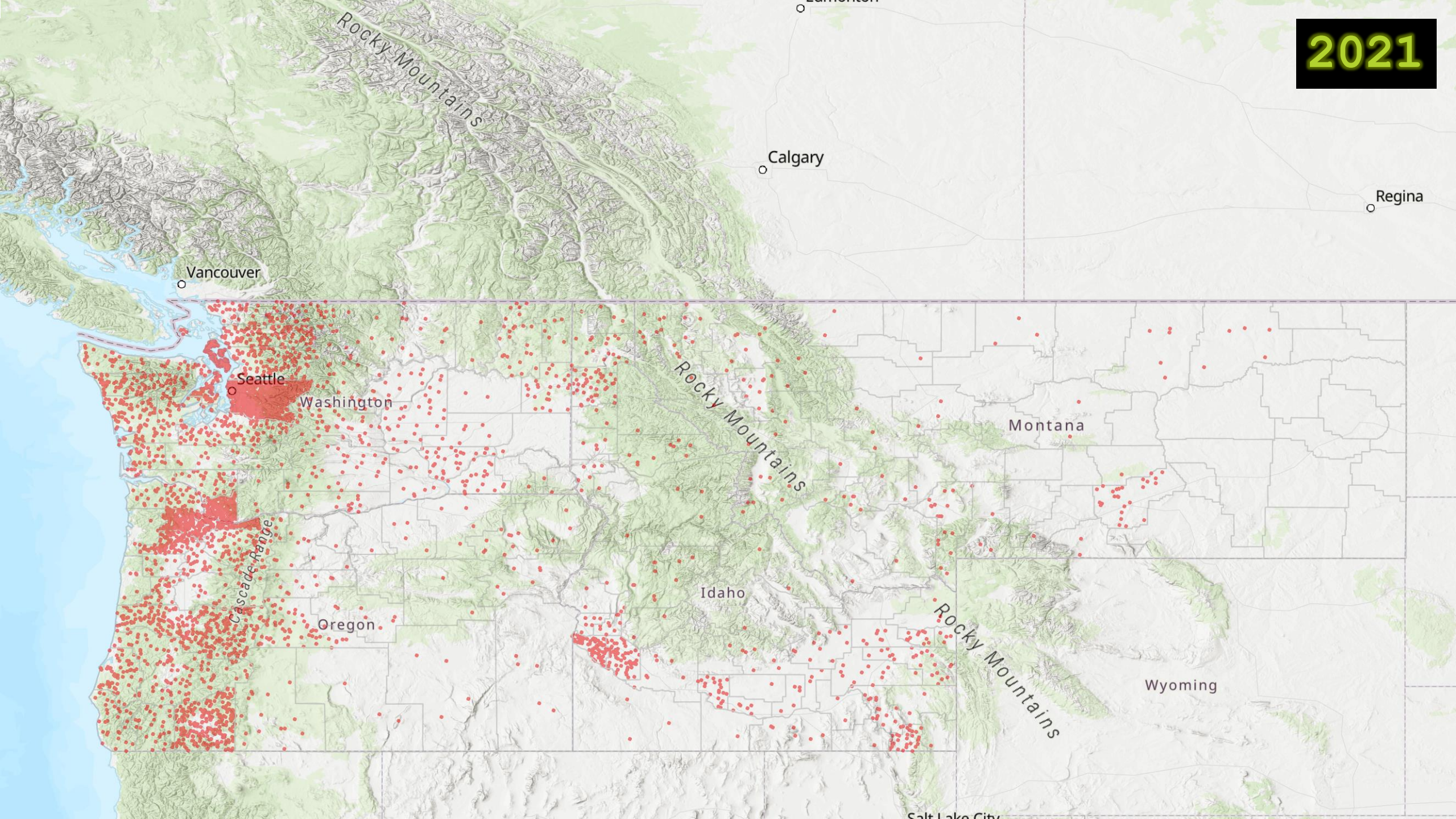
2019



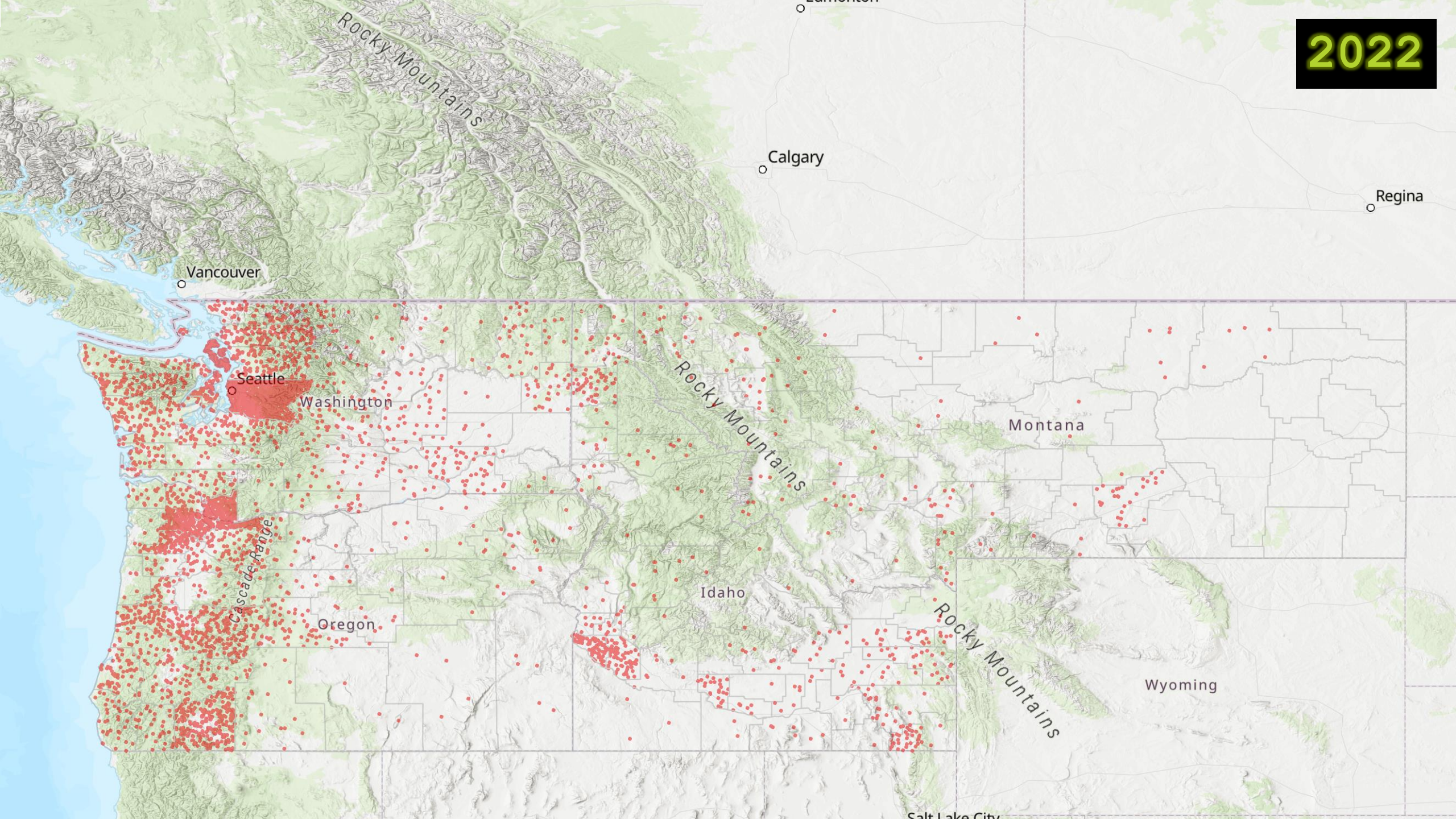
2020



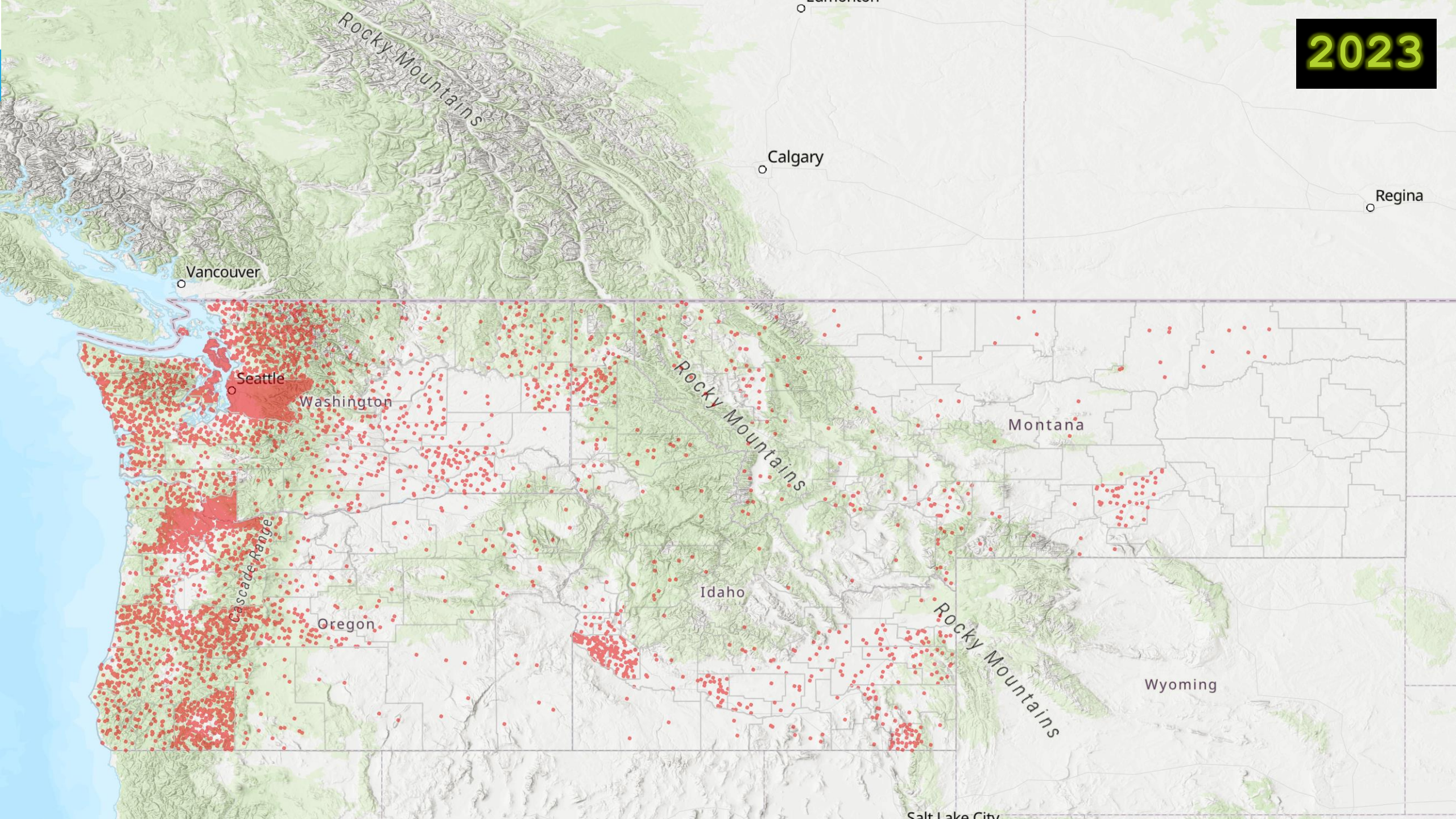
2021



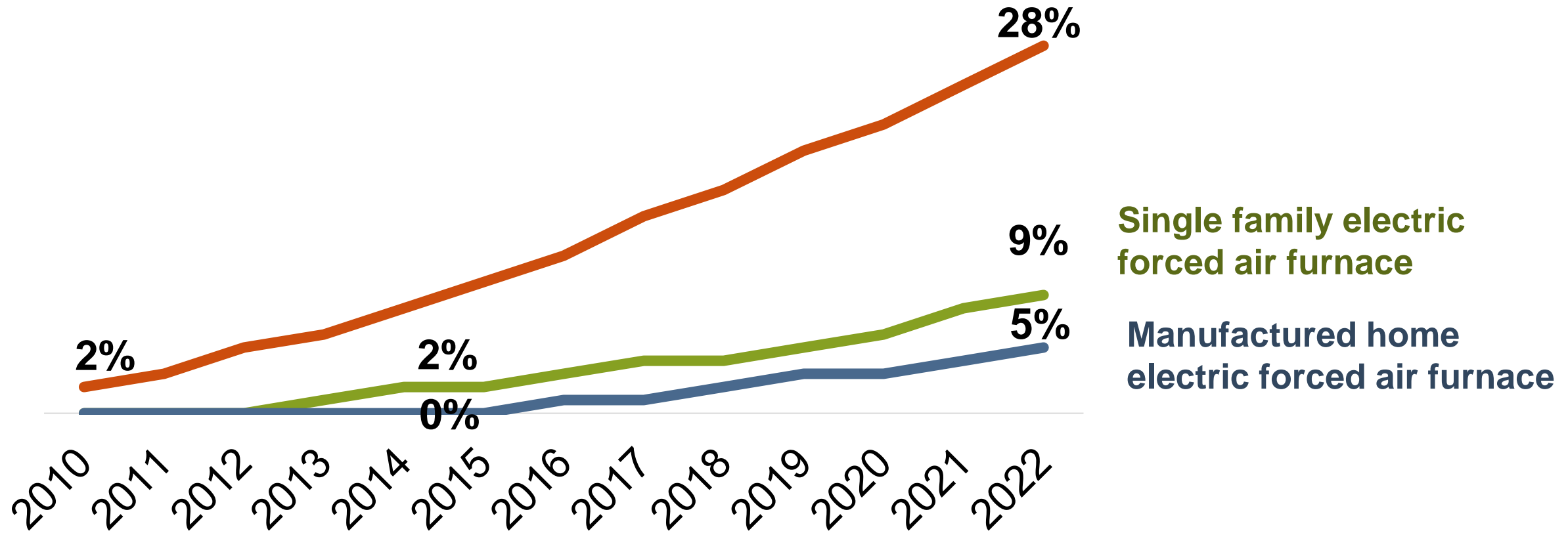
2022



2023



Target market saturation is highest for single family zonal applications



Improving HVAC contractor practice



Working with HVAC contractor motivations



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Program activities for positive reputation

Positive
reputation

Listing on GoingDuctless.com

Program Master Installer status

Listing as an utility trade ally

Referral from manufacturer or utility

Contractor of the Year award



Program activities for sales

Faster &
easier
sale

Program training on sales

Program regional marketing

Program cooperative marketing

Customizable marketing materials

Enable rebates and incentives

Lead generation projects

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Program activities for installs

Faster &
easier
install

Program install training, tools, materials

Manufacturer install training, tools, materials

Making sure distributors have the needed
supplies available



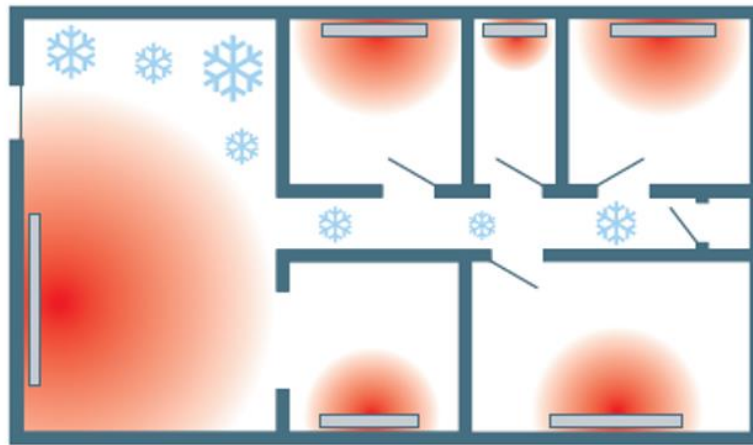
Example install training slide

DISPLACE ELECTRIC RESISTANCE HEAT WITH A DUCTLESS SYSTEM

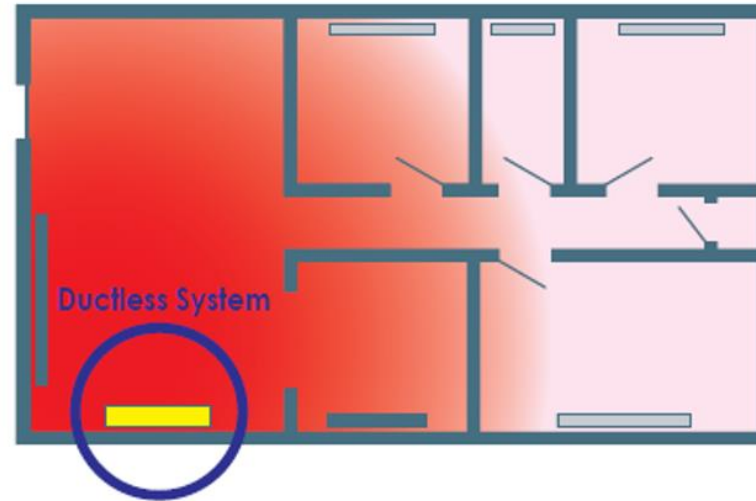
Step 1: Install ductless unit in primary living area

Step 2: Retain electric resistance heat as backup

Results: Maximize energy savings, cost effectiveness and sales opportunities



Existing condition:
Baseboard heating system



Displacement solution:
Single-head ductless system in primary living area; baseboards remain in place as backup



Program activities to reduce call backs

No call
backs

QA feedback

Homeowner guides and info sheets

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Quality Assurance (QA)

Program QA:

- Identified data entry errors in program paperwork
- Pinpointed strengths and weaknesses at install sites
- Unearthed HVAC contractor questions and concerns
- Revealed HVAC contractors did not adequately explain DHP operation to their customers

The program identified QA challenges and:

- Followed up with HVAC contractors directly with feedback
- Modified contractor and utility training materials
- Highlighted the mistakes in newsletters, blogs, etc.
- Alerted manufacturers and utilities of the errors



Tactics that supported DEI

Reaching outside of I-5 corridor:

- When possible, go to where the contractors are to deliver trainings (especially outside the big cities)
 - Manufacturer events
 - Distributor events
 - Utility partnerships
- Offer trainings online so distance isn't a barrier
- Make online training on demand so scheduling isn't a barrier
- Lower barriers to marketing via cooperative marketing & providing free customizable materials



Tactics that supported DEI

Rural/cold climate support:

- Test cold climate equipment
- Develop cold climate training and guidance
- Deliver the training in cold climate regions

Manufactured homes:

- Study manufactured home installations
- Pilot sales and installation approaches
- Deliver training to manufacturers, retailers, and installers



Key lessons learned

- Early on, 5% of the HVAC contractors performed 50% of all program installs. Focusing on these high-volume installers helps move the market.
- Once HVAC contractors like a product, they will install it anywhere they think it's a solution for their customers instead of in a narrow target application. Larger systems make them more money...but aren't as efficient.
- Consumer demand can increase fast, and prices can climb up despite massively increased supply.
- Ducted or ductless isn't as important as offering a variety of HVAC systems contractors can deploy.



Key references

Kirszner et. al., *Study of Influences on Northwest Variable Speed Heat Pump Adoption*, (Portland, OR: NEEA, 2022).

Lee et. al., *Northwest Ductless Heat Pump Initiative: Market Progress Evaluation #8*, (Portland, OR: NEEA, 2019).

Also: Annual program implementation reports 2008-2020, many program documents, Long-Term Monitoring and Tracking reports, and three waves of Residential Building Stock Assessment data.



Thank you!

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