December 12th

Momentum Savings Monthly Call


hello
MY NAME IS

JESSICA

AIONA

Quarterly Call Schedule

Q1: Wednesday, February 6th

Q2: Wednesday, May 1st

Q3: Wednesday, August 7th

Q4: Wednesday, November 6th

New WebEx and schedule at:
https://www.bpa.gov/goto/MomentumSavings

2018 Non-Residential Lighting Market Update: Market Actor Interviews

METHODOLOGY AND FINDINGS

Bonneville
POWER ADMINISTRATION

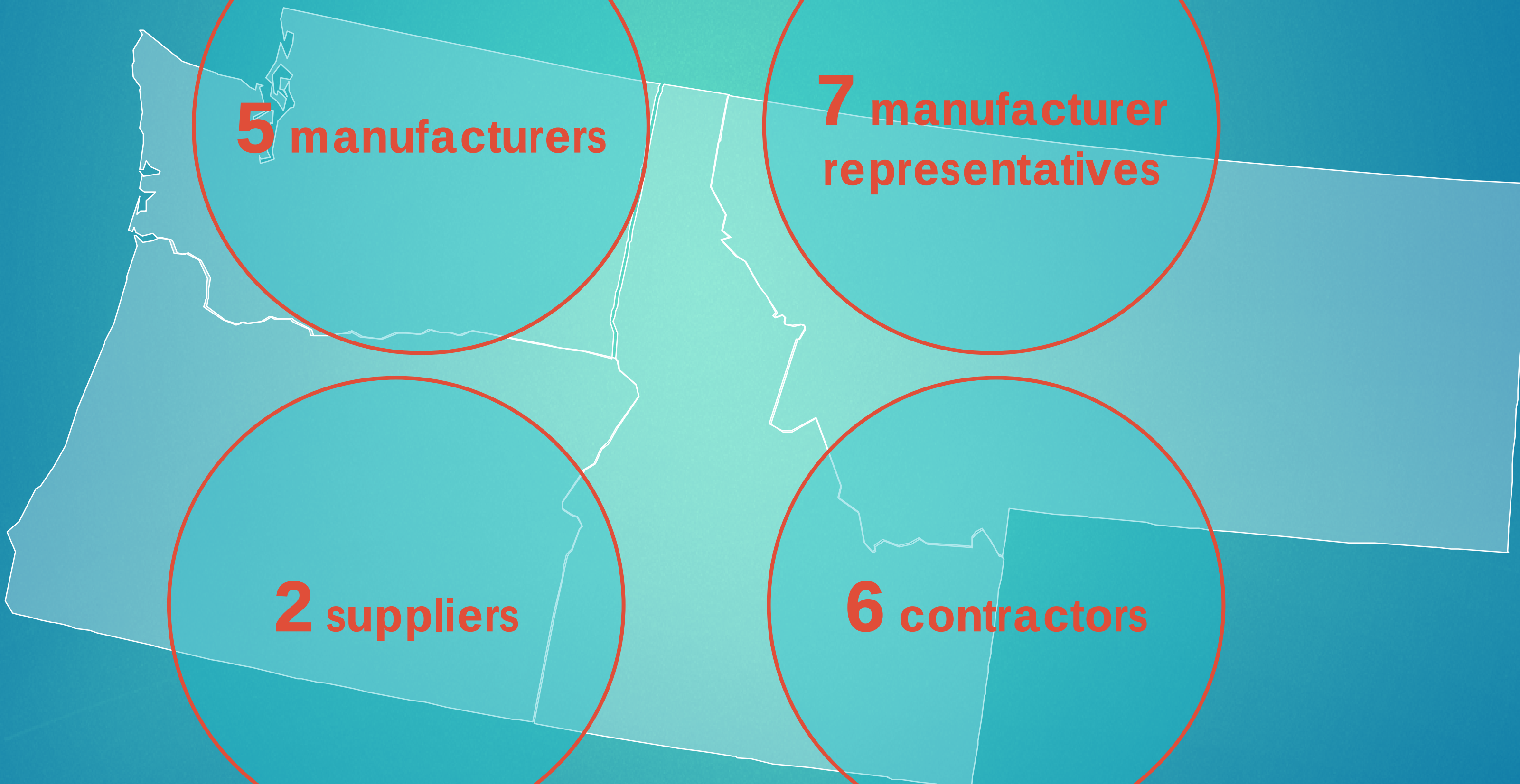
Why We Conducted the Interviews

Inform BPA's non-residential lighting model

Investigate open questions from previous non-residential lighting research

Stay abreast of emerging trends in the Northwest

Who We Talked To



5 manufacturers

7 manufacturer representatives

2 suppliers

6 contractors

Topics We Covered

- Market evolution: actors and services
- Market evolution: products
- Retrofit rates
- Lighting design for retrofits
- Regional variation

Market Evolution: Manufacturers

New Manufacturers

- Many newcomers continue to enter the LED market
- Many from China
- Pressuring reps and distributors to carry their products
- Also sell direct to contractors and end users
- Often offer lower-cost, lower-quality products, with higher fail rates

Legacy Manufacturers

- Traditional actors are concerned about quality and warranties on lower-cost products from new overseas manufacturers
- Preserving the traditional market model (wholesale distributors/ manufacturer reps, to contractors)
- Perceive controls as "the next big thing"
  - Adding controls to their portfolios by acquiring smaller controls companies

Market Evolution: Supply Chain

Wholesale Electrical Distributors	Still the largest supply channel
Online Resellers	Major emerging presence, may threaten traditional suppliers

Market Evolution: Products

LED technology is the norm for new installations due to:

- Lower Prices
- Energy Savings
- Health Benefits
- Higher Quality
- Data Capabilities
- Greater Options

Market Evolution: Products

Which products/applications are shifting most quickly to LED?

"EVERYTHING"

- Outdoor lighting
- Wall packs
- Linear fluorescents
- Offices
- Downlights

Advanced controls have gained significant market share in past 2 years

Market Evolution: Products

Popular Office Troffer Products

- Flat panels
- Luminaire-level lighting controls (LLLCs)
- Other advanced controls
- Center basket LEDs

Popular High Bay Products

- UFO ("old school-looking") round LED fixtures
- Controls
- New LED fixtures (chains, cables)
- Linear LEDs
- LEDs (in general)

Market Evolution: Products

"Up and Coming" Products

- Controls
- LEDs (in general)
- Outdoor LEDs
- Decorative
- Power over ethernet
- Daylight harvesting
- Smart lighting

Products with Declining Market Share

- Fluorescents
- HIDs
- CFLs
- Incandescents
- Troffers with legacy lamp types
- Switches / analog controls
- Downlights
- Lamps (in general)

Market Evolution: Products

Where are we headed?

- Lamps give way to fixtures
- Commercial lighting will be about custom-designed, integrated LEDs
- Advanced controls will become commonplace

Retrofit Rates

Non-residential lighting retrofits occur every 7 to 10 years, on average, though rates vary by application

manufacturing facilities, schools

retail, car dealerships, restaurants, warehouses, and outdoor applications

Retrofit Rates

Energy Efficiency is the #1 reason for retrofits

- Other common reasons for retrofits
  - Tenant turnover
  - Maintenance cost reductions
  - Aesthetics/light quality

Retrofit Rates

The pace of retrofits has quickened due to increased interest in LEDs

- Everyone wants LEDs, and many are installing LEDs for the first time
  - Energy and maintenance-labor savings
  - Modern look
  - LEDs are considered better technology
  - Prices have come down considerably (rebates have helped)

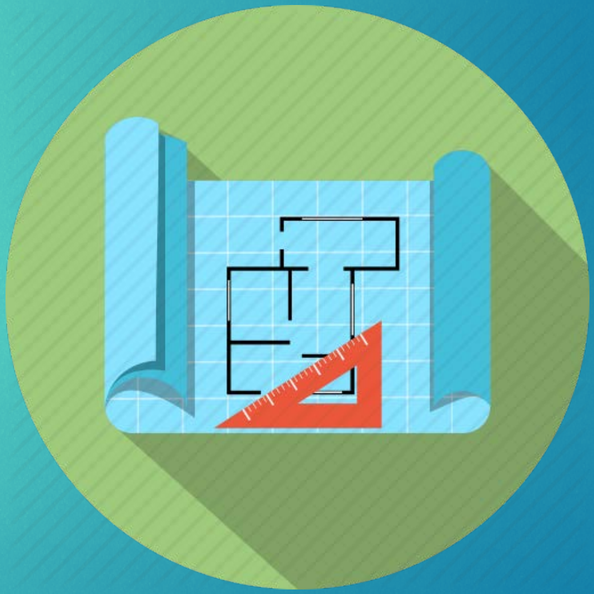
Retrofit Rates

The pace of LED retrofits is expected to eventually slow

- Few LED-to-LED retrofits
  - LED saturation is increasing
  - Long measure life will extend the period between retrofits

Market Evolution: Lighting Design Services

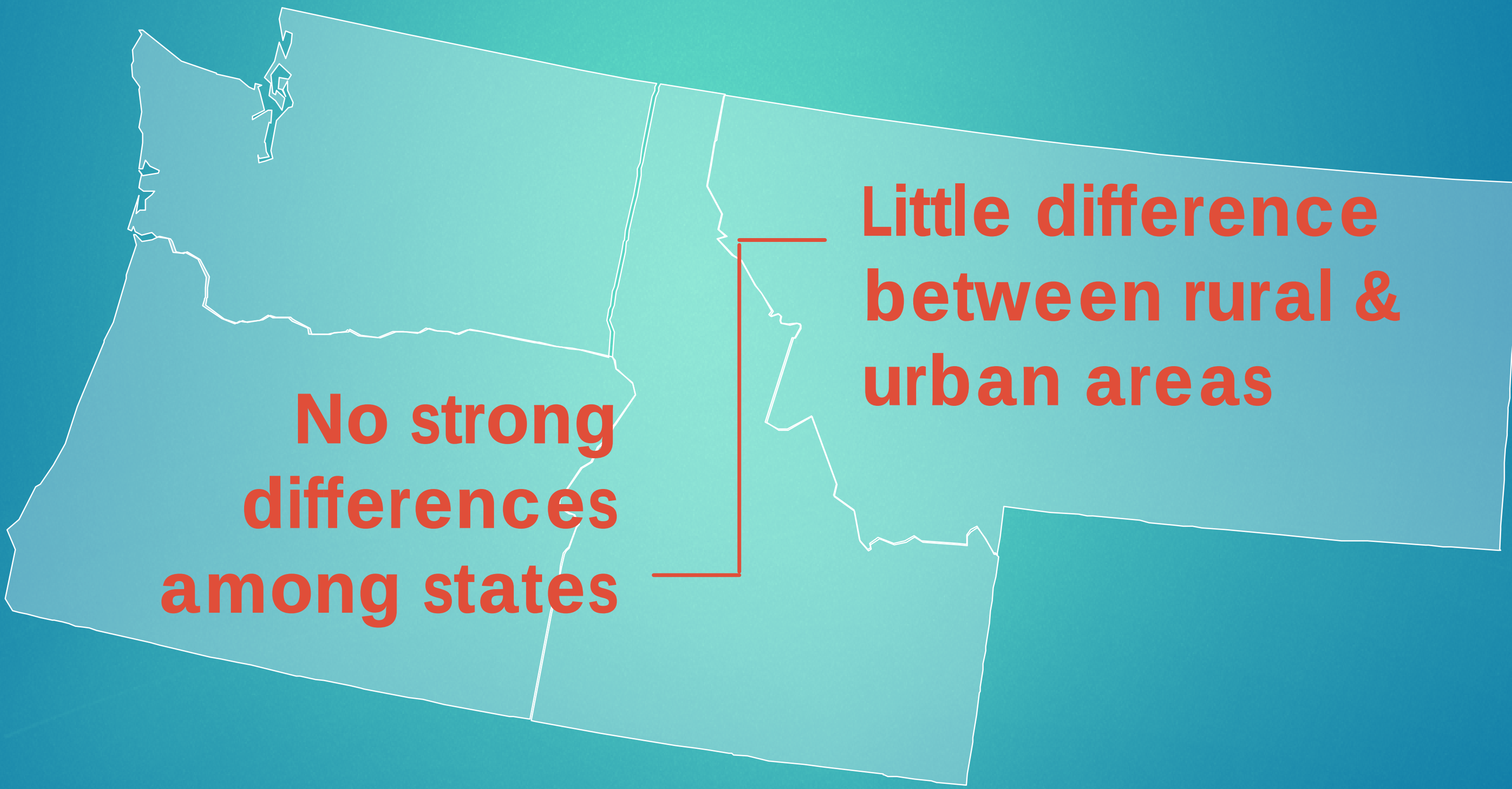
- Retrofit and New Construction:
  - Steady or increasing over past two years
  - Help users meet code, satisfy aesthetic and functional needs
  - May be somewhat more common in urban than rural areas



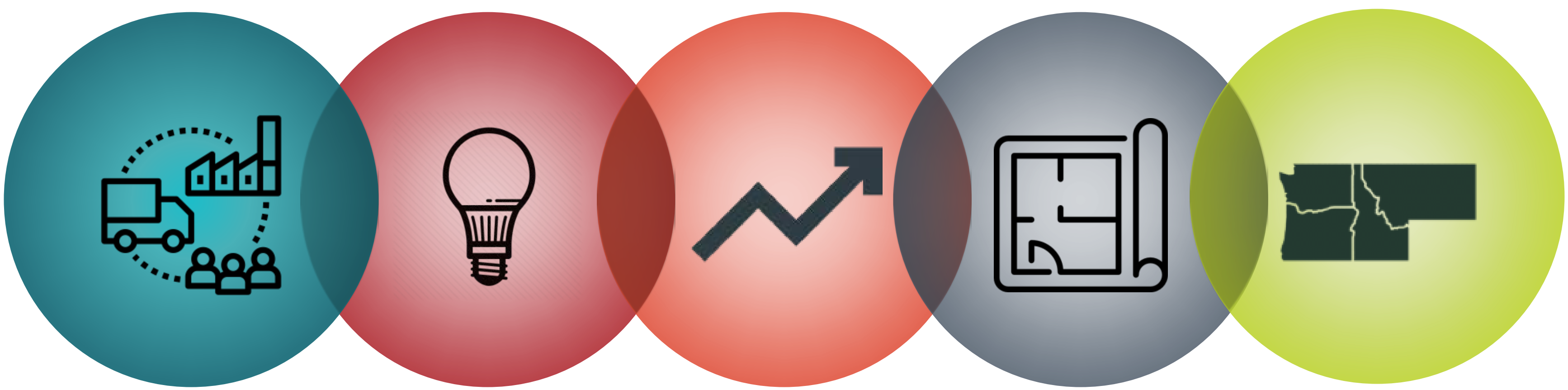
Effect of LED Dominance on Lumen Levels

- Contractors/designers not necessarily focused on matching lumen levels
  - "Directional efficiency" gains may result in fewer installed lumens
  - But some retrofits are reducing energy use while *increasing* lumen output
- Market actors make decisions based on wattage and foot-candles (rather than lumens)
- Significant de-lamping, fixture density reductions occurring
- No significant variation by building type

Market Trends Consistent Across the Region



What Did We Learn?



Traditional supply chain—for legacy companies

LEDs are the new standard

Retrofit rates are increasing, for now

Lighting design is increasingly important

Regional consistency

Contact

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