

November 2024 Quarterly Call

November 6, 2024



Momentum Savings & Market Research





Roll Call & Ice Breaker

**List your org &
the best thing about
Fall in one word**

AGENDA

- Team Updates
- Interim Market Model Insights & FY25 Activities:
 - Commercial HVAC
 - Non-residential Lighting
 - Adjustable Speed Drives
 - Residential HVAC

Team Updates

- Joan is back from maternity leave!

Market Research Team



Team Updates

- Joan is back from maternity leave!
- And accepted the Market Research Team Lead role as of early October.

Market Research Team



NEW ROLE
Joan Wang
Market Research
Team Lead



Team Updates

- Joan is back from maternity leave!
- And accepted the Market Research Team Lead role as of early October.
- Juan Carlos is leaving the team this week 😞

Market Research Team



NEW ROLE
Joan Wang
Market Research
Team Lead



LEAVING
Juan Carlos Blacker
Market Research
Project Manager

Team Updates

- Looking to fill **TWO** Market Research Project Managers
- Apply TODAY through **Nov 17**
<https://www.usajobs.gov/job/817646800>
- Contact Joan with questions
jjwang@bpa.gov

Market Research Team



NEW ROLE
Joan Wang
Market Research
Team Lead



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Juan Carlos Blacker
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Interim Model Insights

Forecasted results for 2022-2027

Commercial HVAC:

New Construction and Major Retrofits



Commercial HVAC 2022-2027 Model Insights

Permitted construction encompasses only 1.3% of existing buildings

ERVs are big energy savers

- Mix of gas and electric

Market savings are relatively small but potential is great

Findings from Analysis of Permits

- Many boilers
- VRF & ERVs are prevalent
- Not many HP RTUs

Design choices have larger impact than efficiency choice

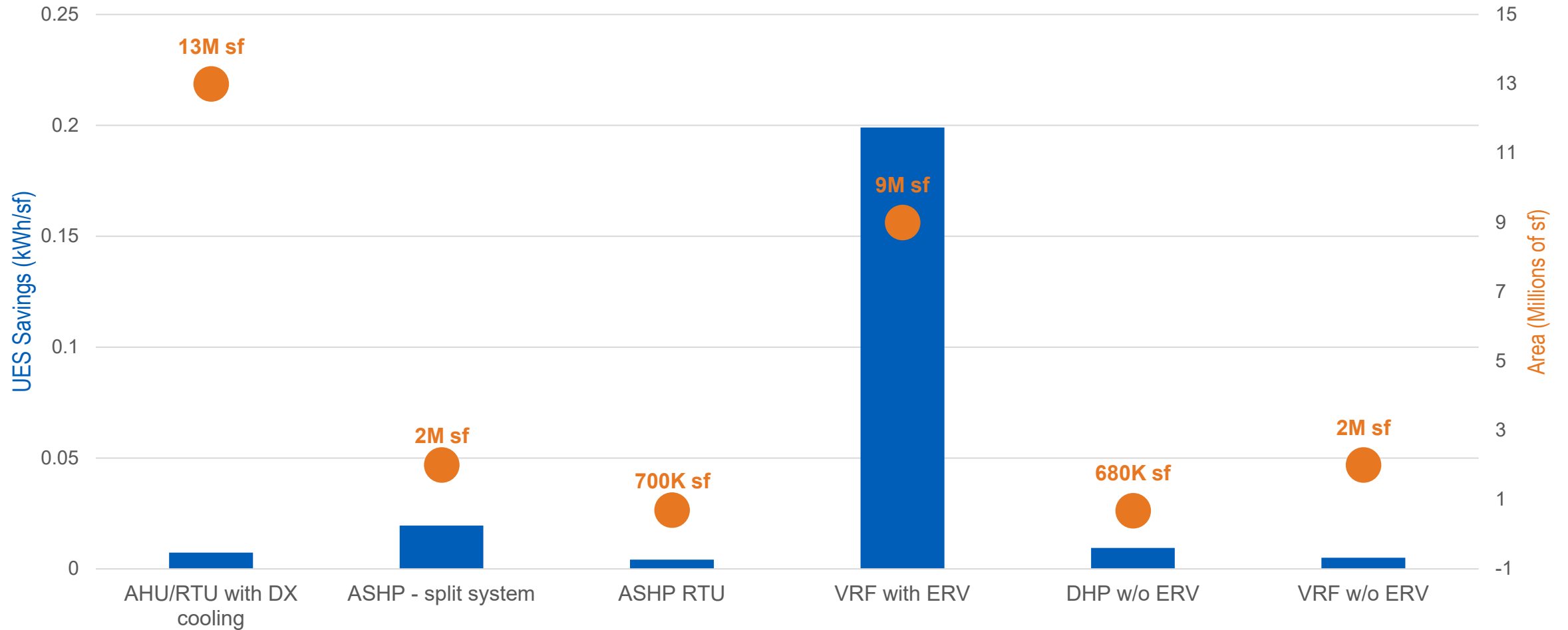
Provided opportunity to create a building simulation tool

80% of Market Savings come from VRF+ERVs

HVAC Type	% of Market Savings	% Permitted Floorspace Cooled by HVAC Type
DHP w/o ERV	1%	1%
→ DHP w/ required ERV	5%	1%
DHP w/ non-required ERV	1%	0%
VRF w/o ERV	2%	5%
VRF w/ required ERV	51%	9%
VRF w/ non-required ERV	29%	11%
ASHP - split system	2%	4%
ASHP RTU	0%	2%
→ AHU/RTU with DX cooling	9%	28%

VRF + ERVs are dominant

UES SAVINGS SUMMARY (KWH/SF) AND AREA



Building savings align w/ sq ft & HVAC type

Building Type	% savings	% Sq ft	Main HVAC Types
Office	57%	26%	VRF w/ ERV (53%)
Retail	5%	18%	Gas RTU w/ DX cooling (87%) + 1% VRF
School (K-12)	0%	12%	Boilers & Other. 30% DX Cooling
Assembly	4%	11%	Boiler, Chiller & ASHP-split (23%)
Residential Care	12%	10%	VRF (half w/ no ERV) and Gas RTU w/ DX Cooling
Restaurant	7%	8%	Gas RTU w/ DX cooling (53%) + 3% VRF
Lodging	3%	4%	PTHP
MF Residential	5%	4%	Wide variety (nothing over 25%)
School (University)	0%	2%	Other
Grocery	6%	2%	VRF (sample size = 2)
Other	0%	1%	Other & No cooling
Hospital	0%	1%	Other, Boiler, Chiller

Nonresidential Lighting: *Commercial, Industrial, & Outdoor*

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This market is nearing the finish line of market transformation

- Most of the lighting stock is now efficient
- There are remaining opportunities for improving lighting efficiency, but the landscape is different now

NEEA MARKET TRANSFORMATION CURVE

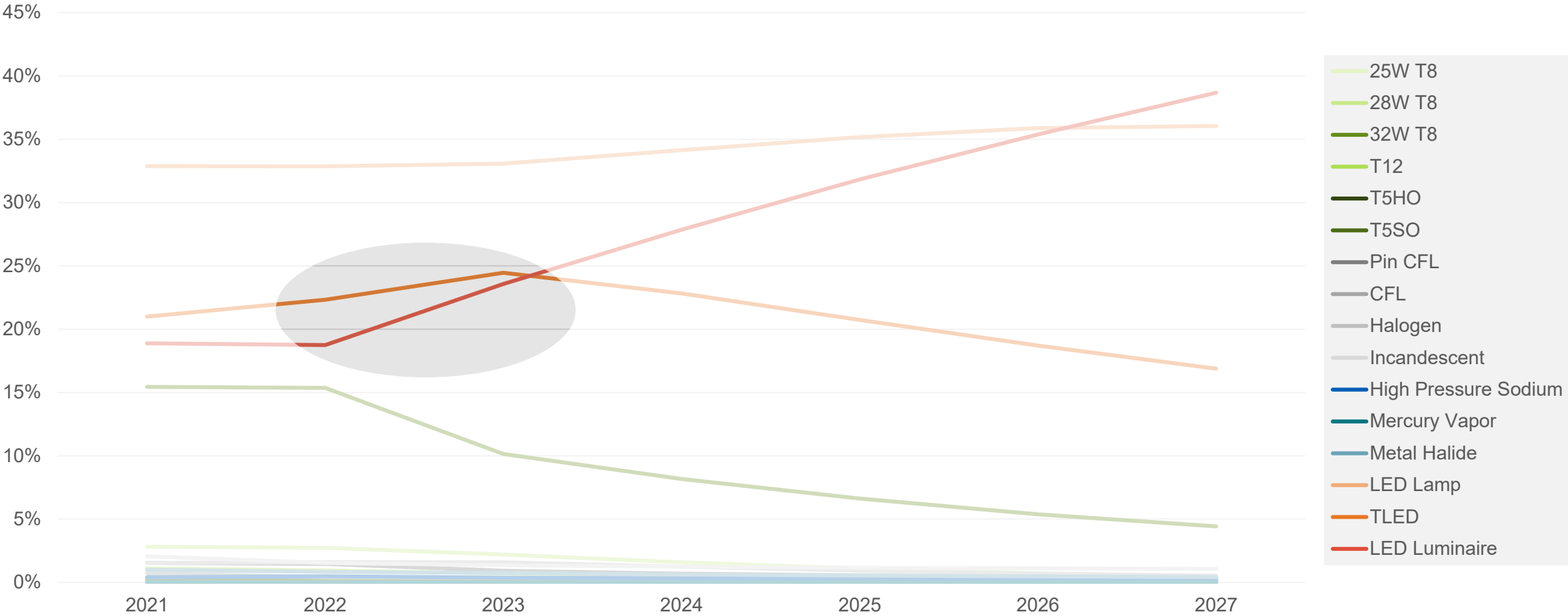


Figure 2. Market Transformation Over Time

Source: <https://neea.org/img/documents/NEEA-Fundamentals-of-Market-Transformation.pdf>

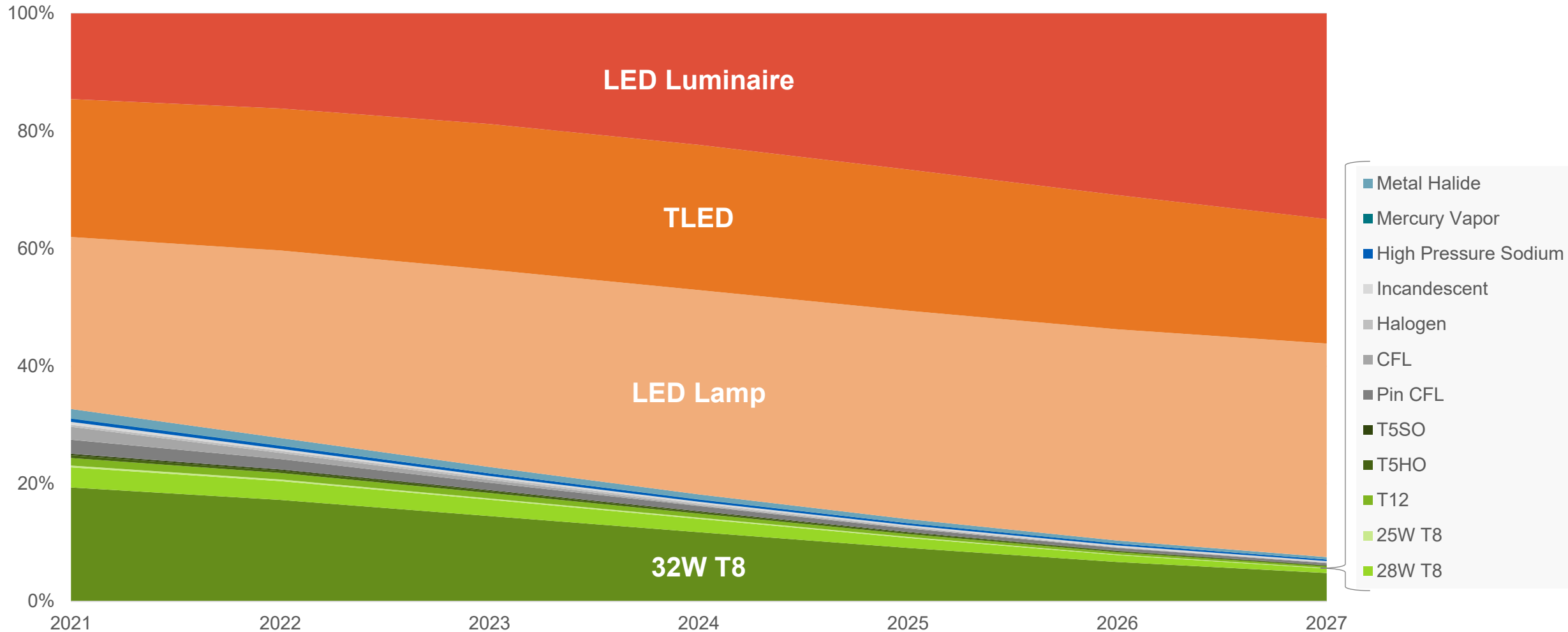
LED luminaire sales are forecasted to grow aggressively

SALES MIX BY TECHNOLOGY – MARKET SCENARIO (% FIXTURES)



LEDs (lamps and luminaires) are predicted to increase market share by 39% over the analysis period

STOCK MIX BY TECHNOLOGY – MARKET SCENARIO (% FIXTURES)



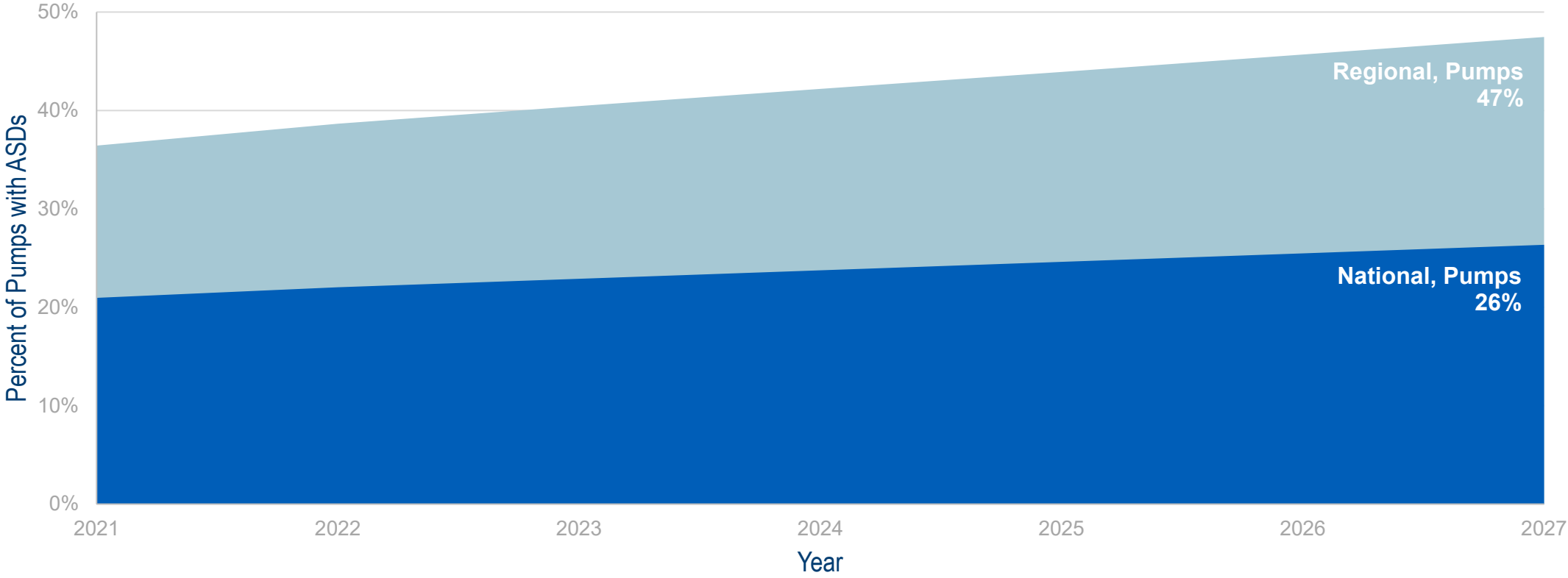
Adjustable Speed Drives:

Industrial and commercial pumps and fans



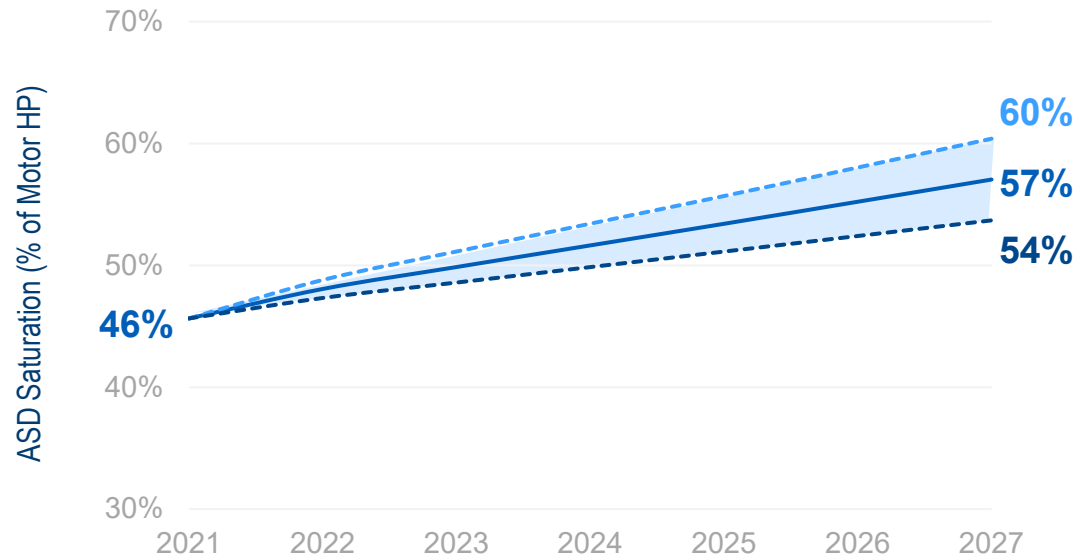
ASD saturation in the region is, and historically has been, larger than national ASD saturation.

INDUSTRIAL ASD SATURATION, REGIONAL VS NATIONAL



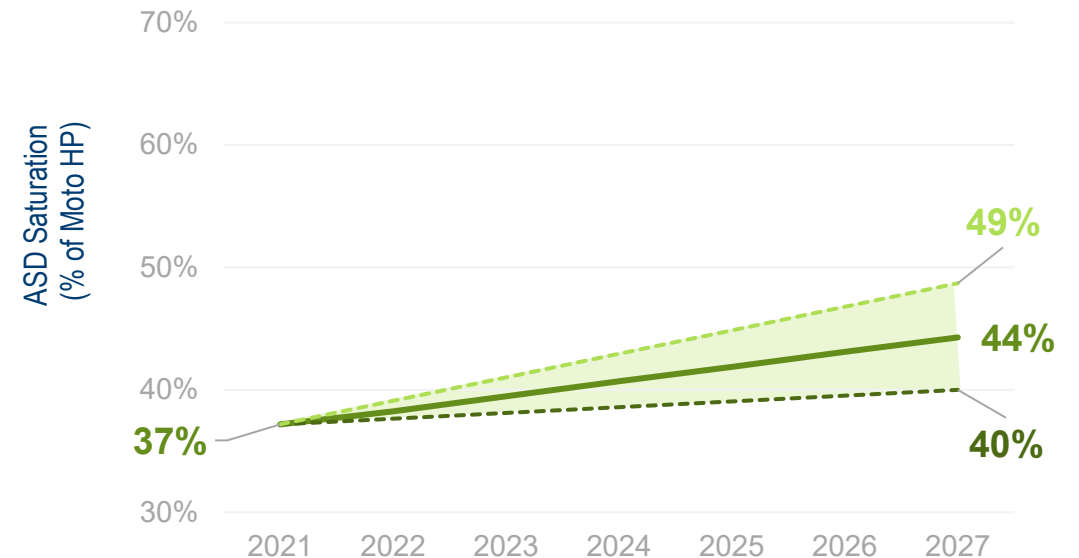
ASD saturation in industrial pumps is higher and growing faster than in fans, but fans keeping pace

INDUSTRIAL PUMPS



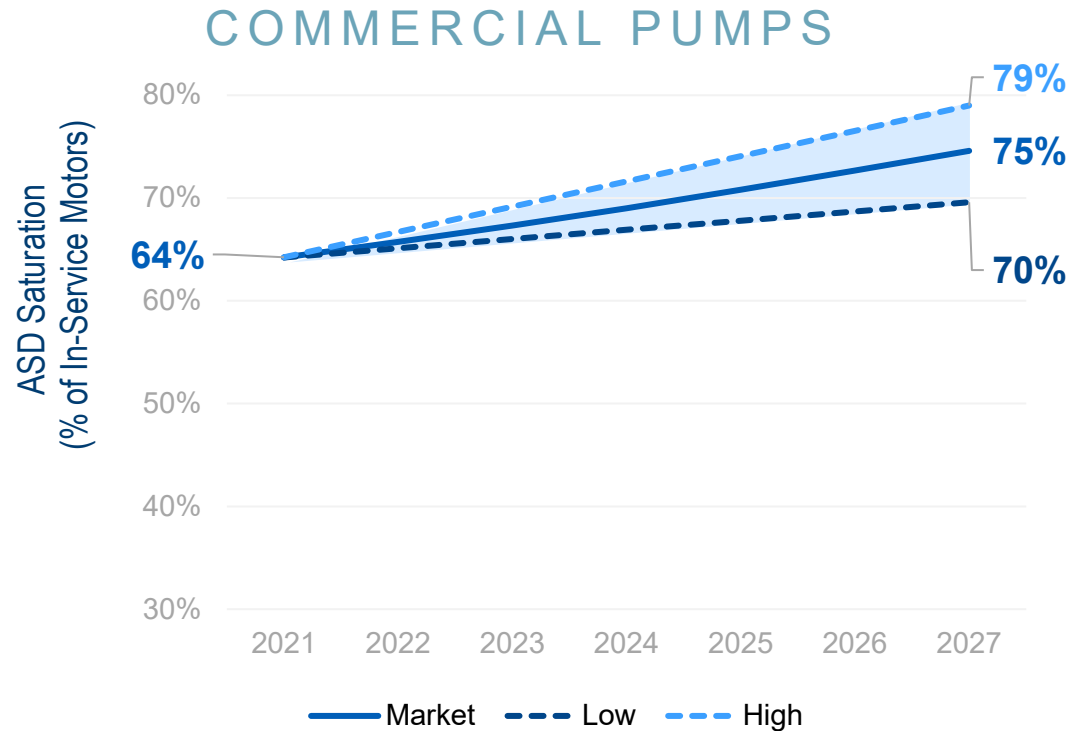
24% Change in 6 Years

INDUSTRIAL FANS

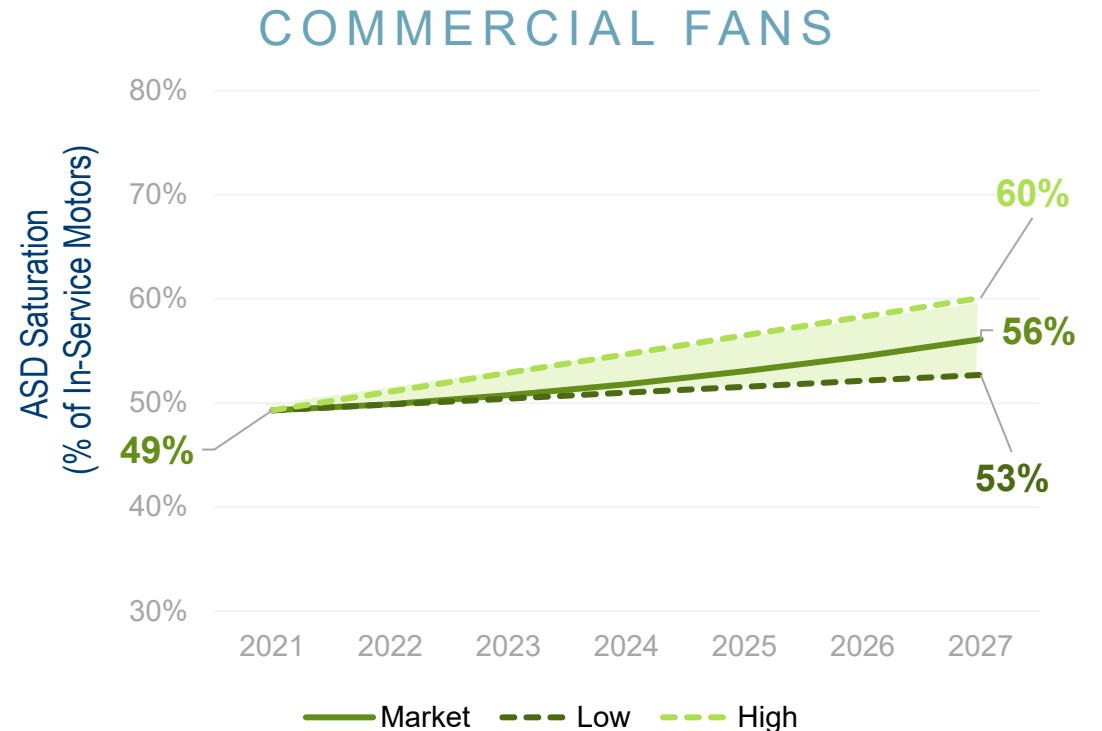


19% Change in in 6 Years

We see a similar trend in commercial ASD adoption

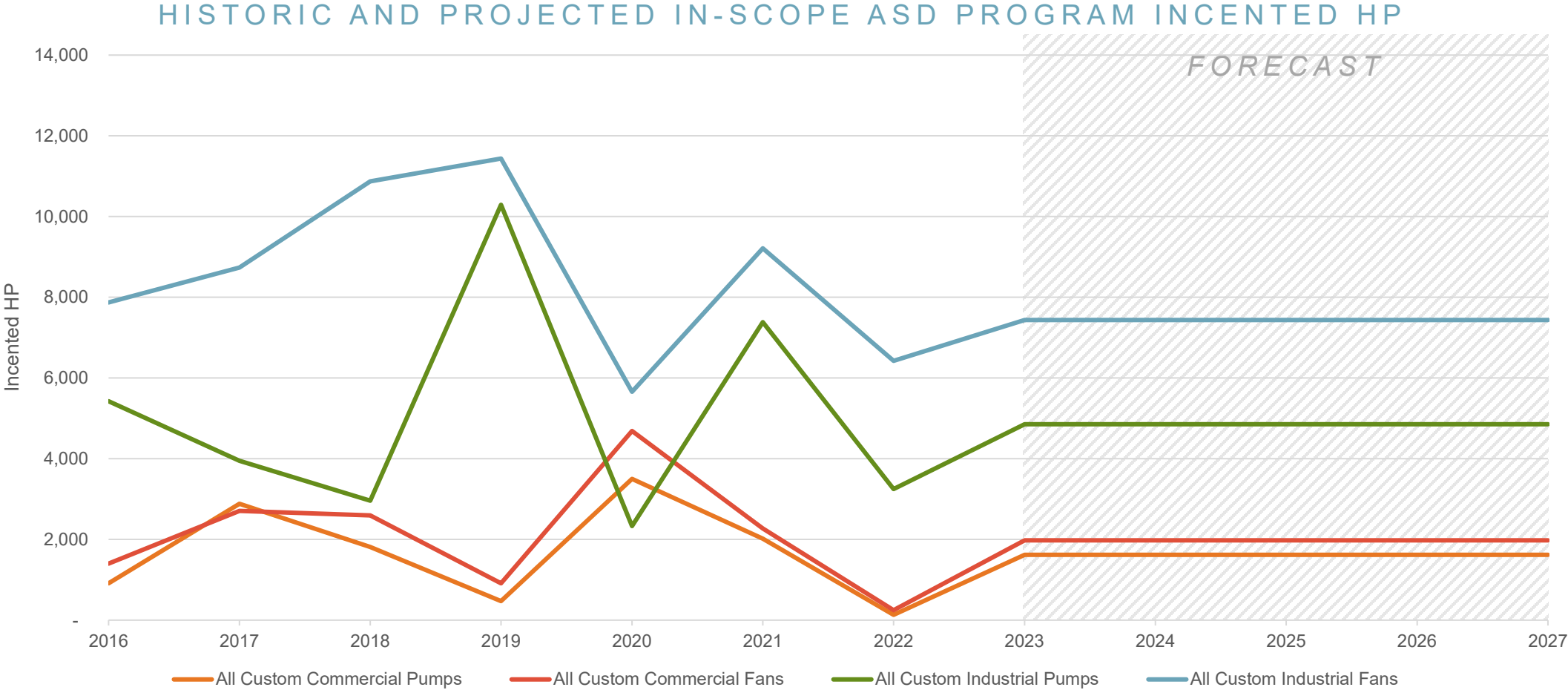


17% Change in 6 Years



14% Change in 6 Years

Program activity is variable year to year, with the pandemic being a major disrupter



Future Research

- Inaugural ASD Shipments Data Collection
 - Prioritize large regional distributors covering multiple segments
 - Goal is 5 data submissions in each segment

Number of Distributors in the Northwest		
Sector and Equipment	Pumps	Fans
Commercial	20	12
Industrial	27	13

- Do you have drive distributor contacts to share?

Other exciting news

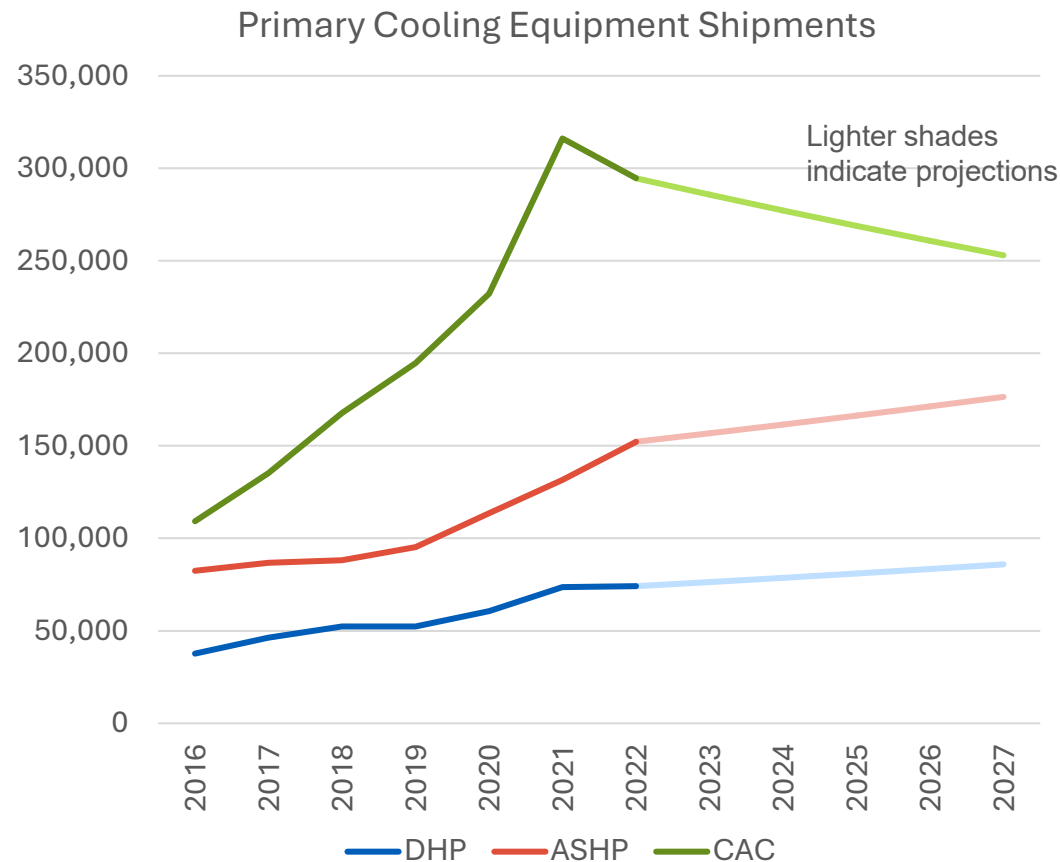
- NEEA is starting to plan for the Motor System Stock Assessment!
- We will be engaging closely with NEEA on this study.

Residential HVAC

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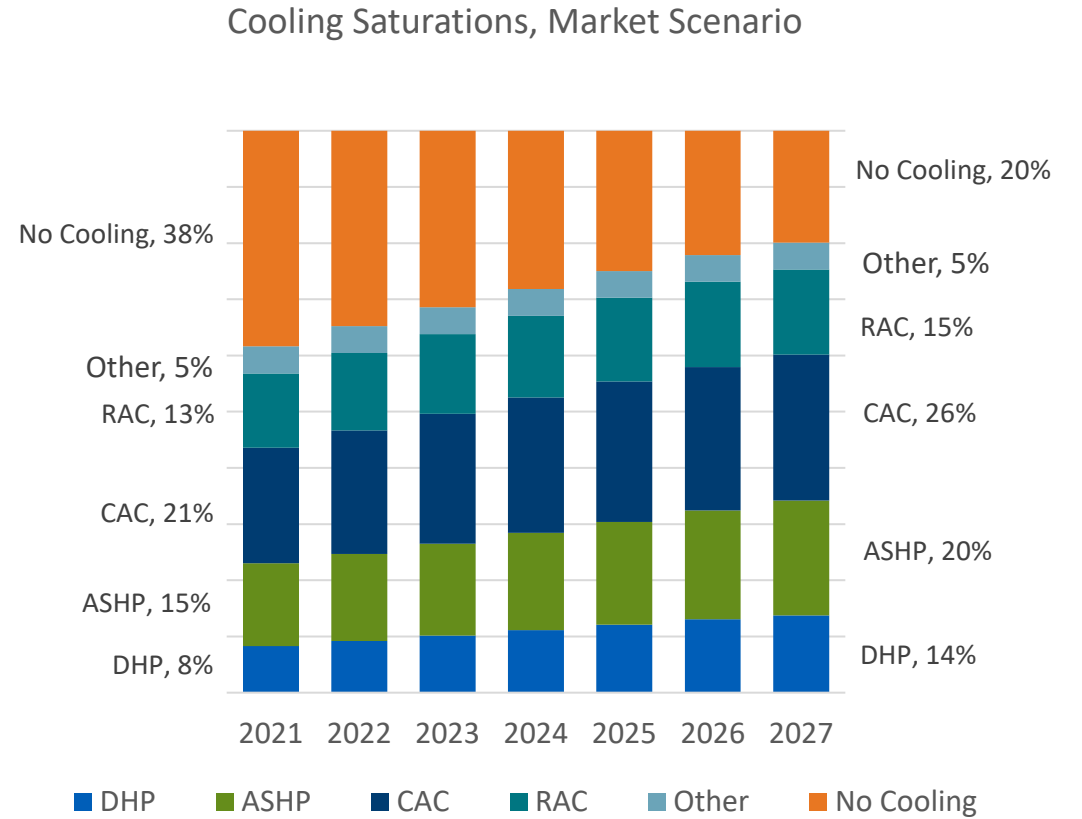
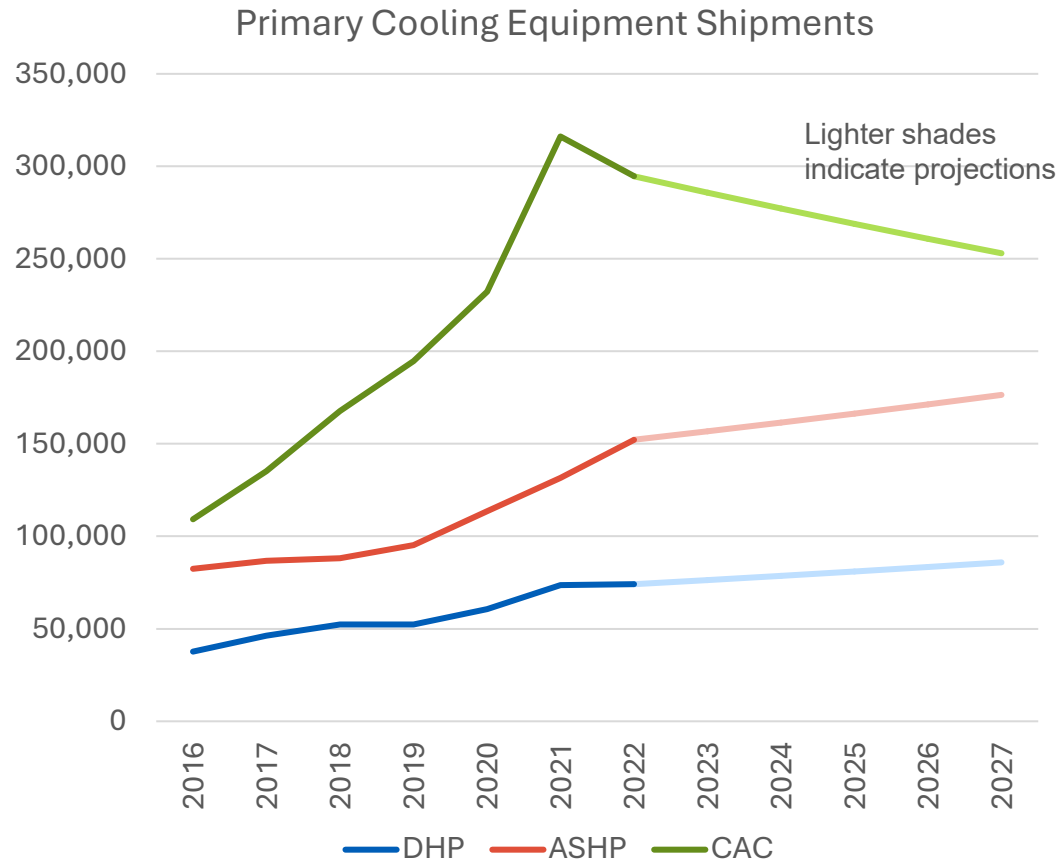


Where is the region at with cooling?



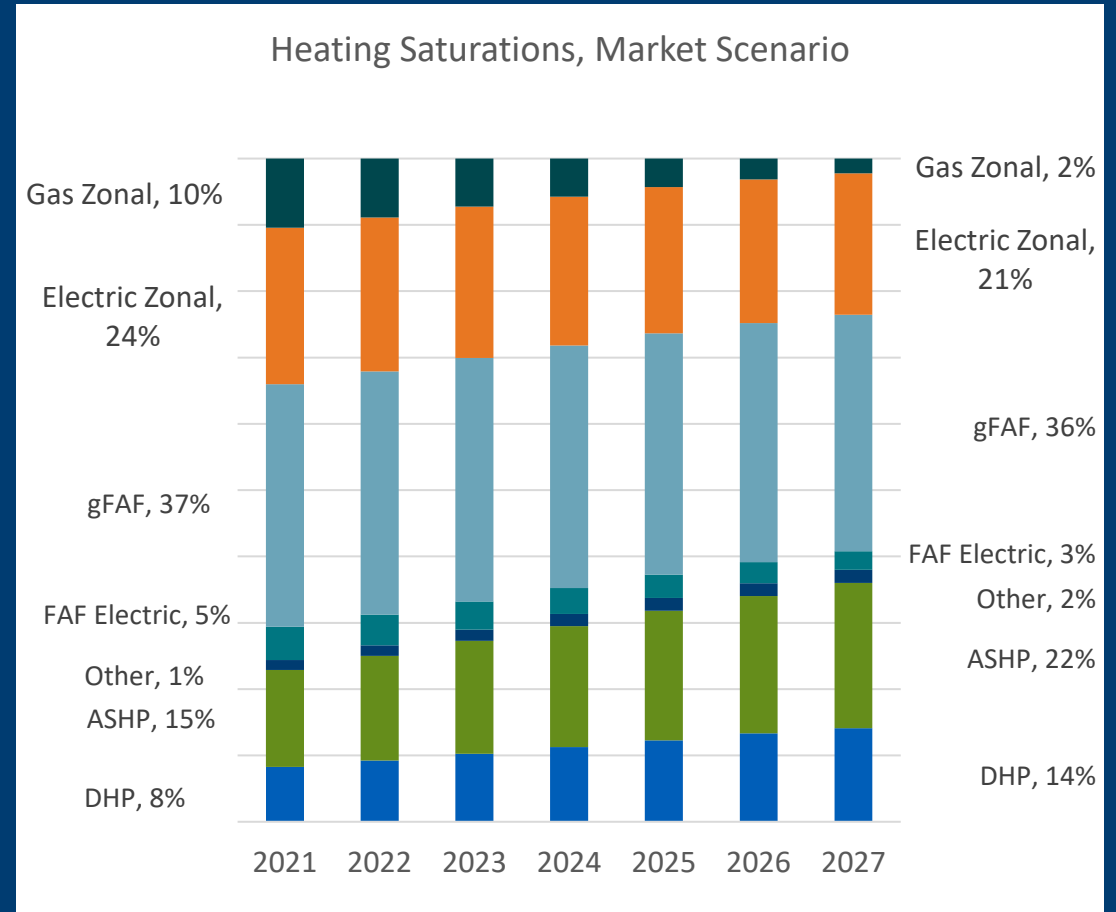
- NEEA data shows cooling equipment sales peaked in 2021
 - Draft 2023 sales data shows further decrease
- Model reveals “early replacements” are common
- Influx of cooling equipment means **80% of homes have some cooling by 2027**

Where is the region at with cooling?



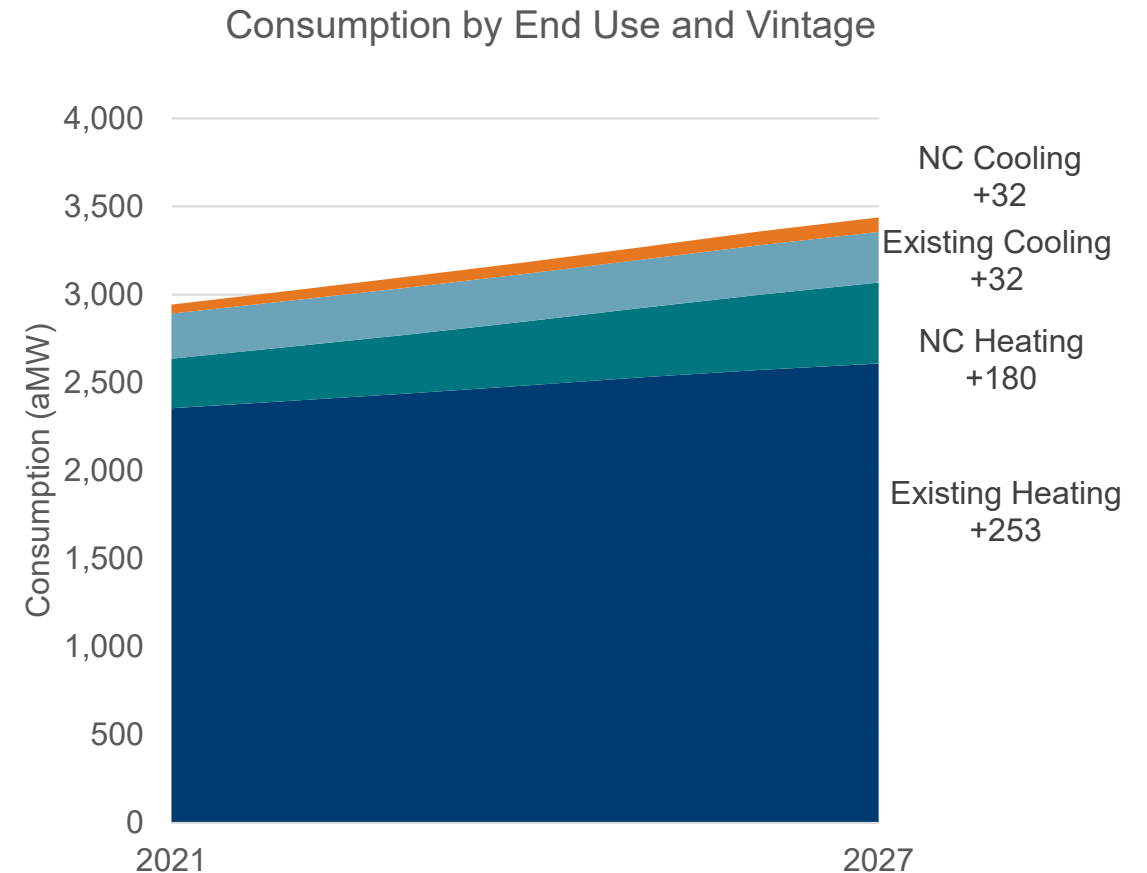
For heating, steady shifts towards heat pumps

- More than a third of homes will have heat pumps in 2027
- Gas furnace sales continues to decrease
 - But remains prominent in the stock
- Non-electric zonal as primary heating is disappearing
 - But electric zonal still here



Res HVAC electric consumption increases 497 aMW (17%) from 2021 to 2027

- **New construction** adds significant load due to higher prevalence of electric heat
- **Electrification** as people convert to heat pumps
- **Demand for cooling** adds load as people now need cooling



Thank You for Attending

Spread the word on job posting open until Nov 17

<https://www.usajobs.gov/job/817646800>

Contact

Joan Wang | Juan Carlos Blacker

Market Research Team, Energy Efficiency, BPA

ijwang@bpa.gov | jcblacker@bpa.gov

<https://www.bpa.gov/energy-and-services/efficiency/market-research-and-momentum-savings>

