Ameren Illinois Utilities Potential Study

Saturation, Penetration, & Market Share Highlights

Prepared for Ameren Illinois
By The Cadmus Group
October 21, 2009

Agenda

- Overview of Potential Study
- Methodology for primary data collection
- Residential findings
- Nonresidential findings

Potential Study Overview

- Market Assessment
  - Customer surveys and site visits
  - Trade Ally interviews
- Program Potential Assessment
  - Development of measure database
  - Technical, economic, and achievable efficiency potential
  - Electric and gas

Potential Study Overview

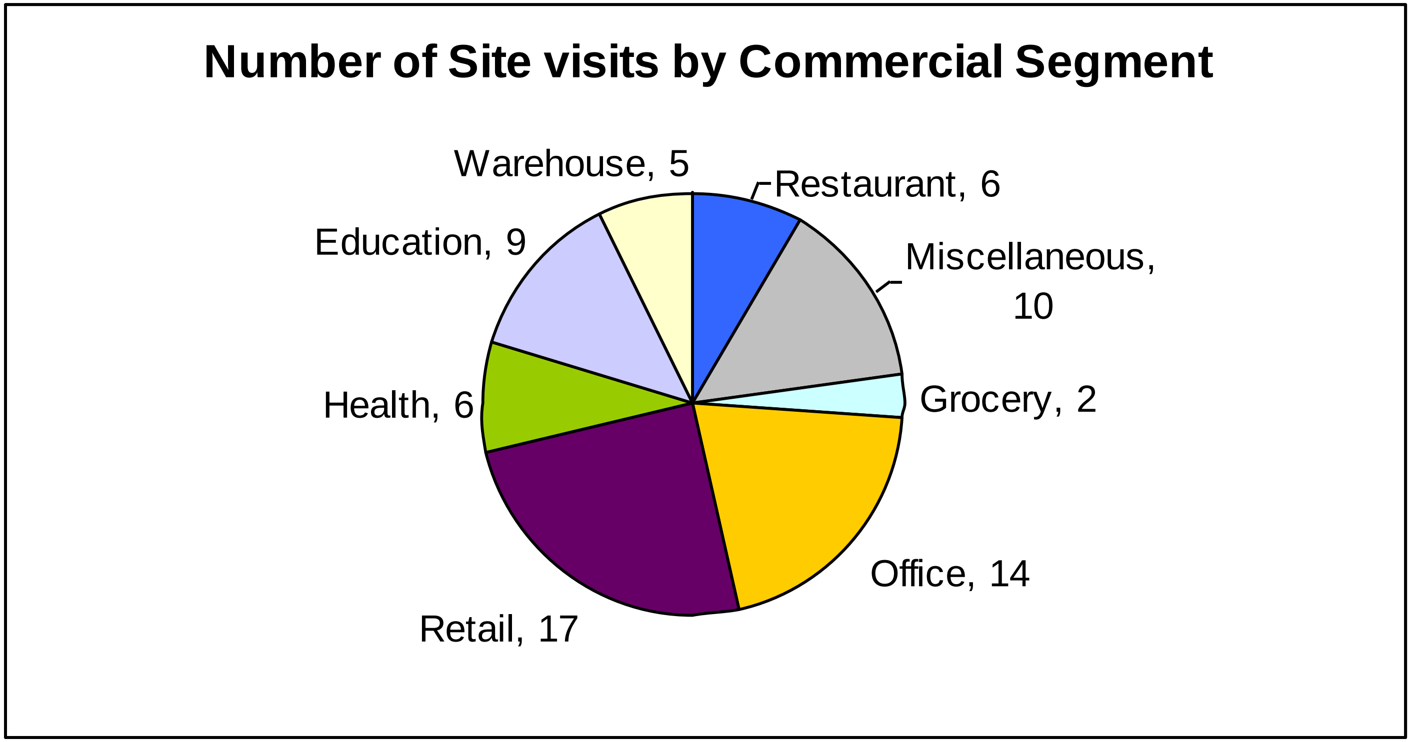
- Goals: The market data collection effort will focus on three broad metrics critical to estimating efficiency potential
  - ***Equipment saturation***. The percent of customers who own specific equipment
  - ***Efficiency penetration***. The percent of the installed equipment stock considered efficient
  - ***Market share***. Current sales percentages for efficient equipment

Methodology-Residential

- Telephone surveys (n=400)
  - Residential appliance saturation survey (RASS)
- In-home Audits (n=50)

Commercial Methodology

- On-site visits with 69 Commercial customers



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Trade Allies Methodology

- Telephone surveys (n=52)
- Participants and nonparticipants
  - Ameren lists plus yellow page searches

Respondent Type	Completes
Retailers	5
Builders (Res & Nonres)	12
A&E firms	6
HVAC dealers	5
Plumbers	3
Mechanical contractors/wholesalers	5
Lighting vendors	6
Motor/ASD vendors	5
Industrial refrigeration vendors	2
Compressed air vendors	3
Total	52

Residential Findings

Key Measures & Segments

- Key Measures Covered
  - Lighting
  - Space Heating
  - Water Heating
  - Cooling
  - Insulation
  - Appliances
- Residential Segments
  - Existing Single-Family
  - Existing Multi-Family
  - New Construction

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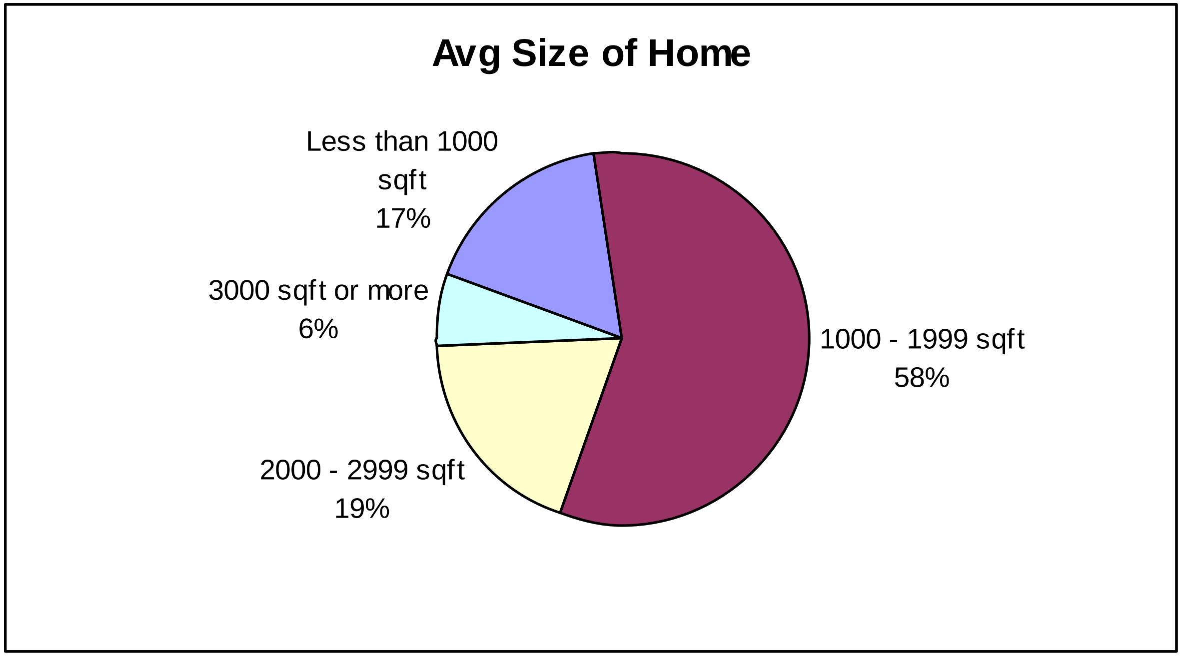
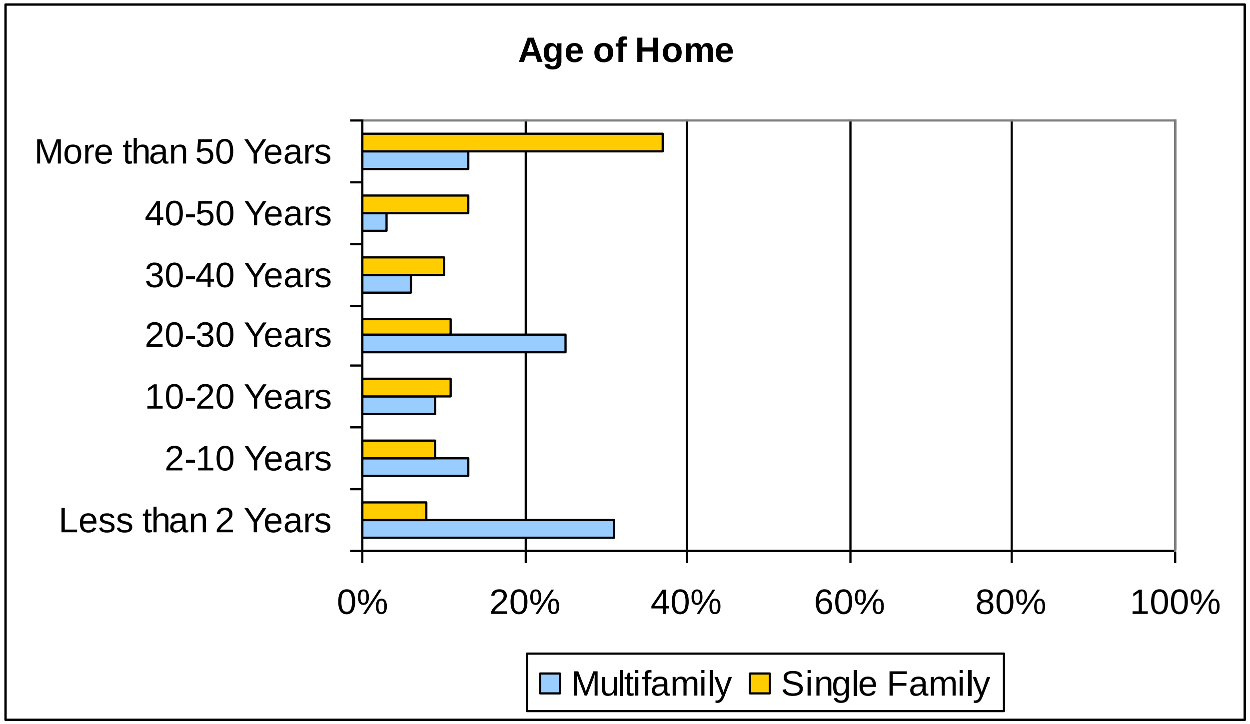
Saturation of Equipment: Average Size of Residence



- A majority of AIU respondents live in single family homes that are 1000 to 2000 square feet (58%).

Saturation of Equipment: Age Of Homes



- Single family homes tend to be older
- A concentration of multifamily homes are less than 2 years old.

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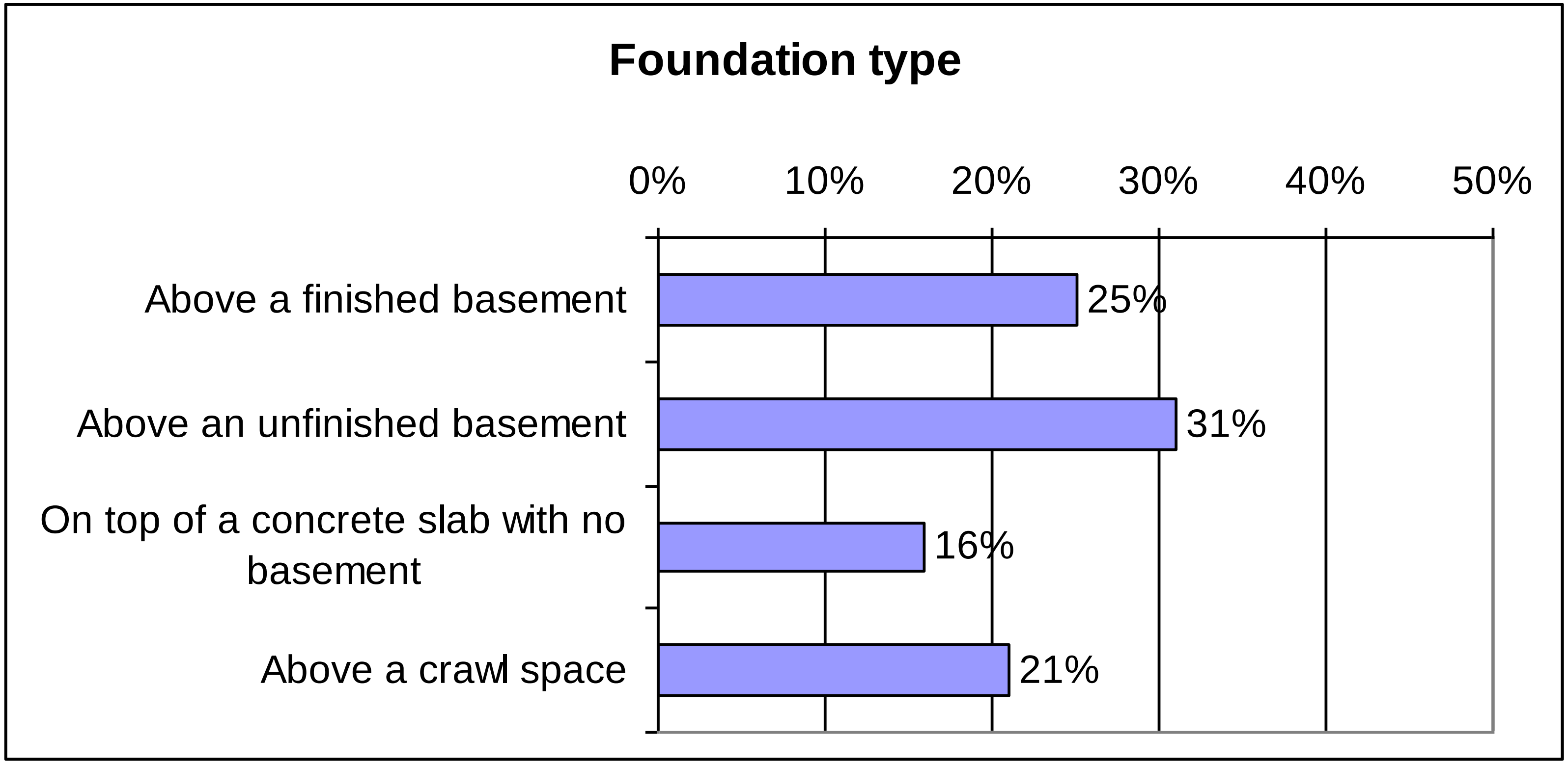
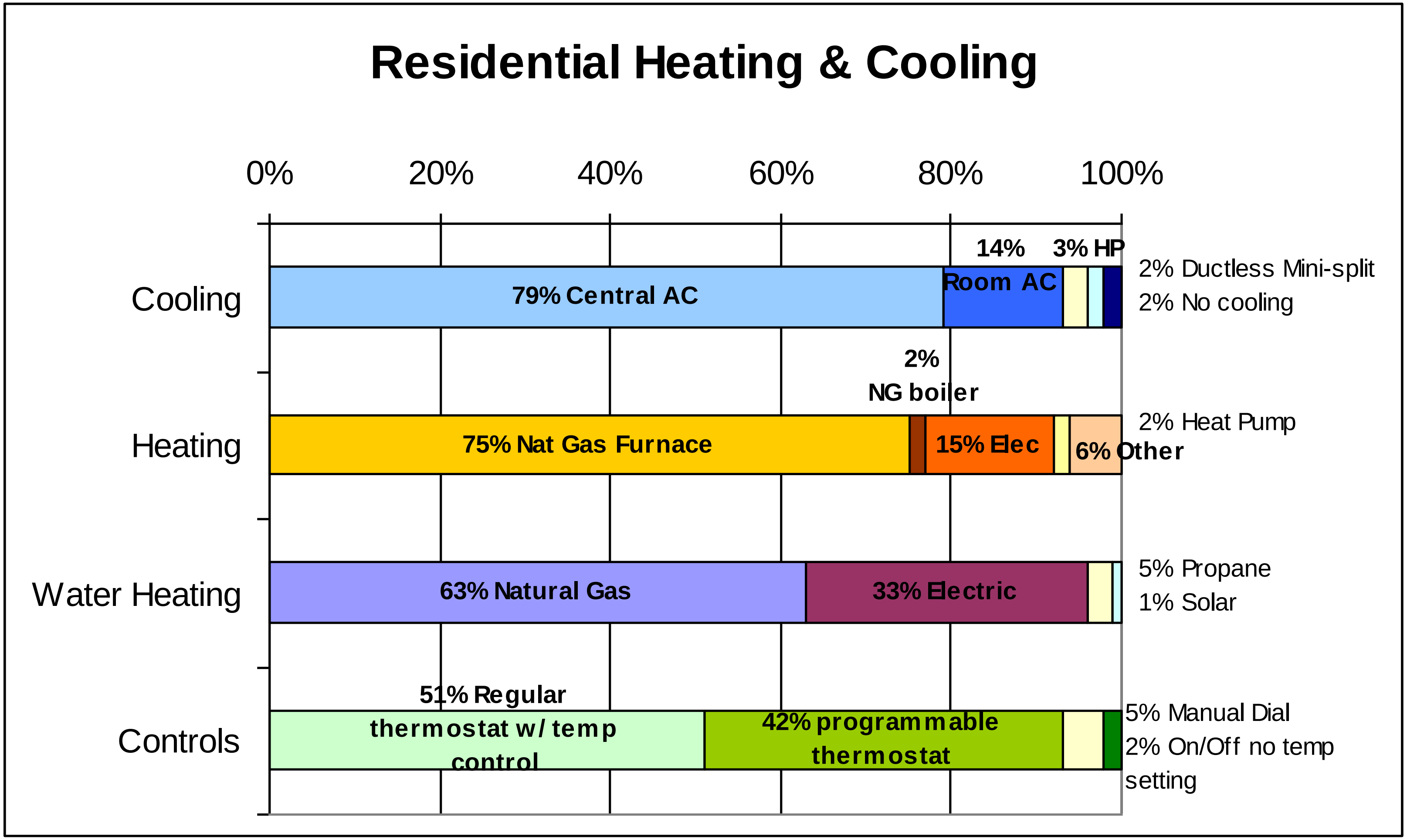
Saturation of Equipment: Foundation Types

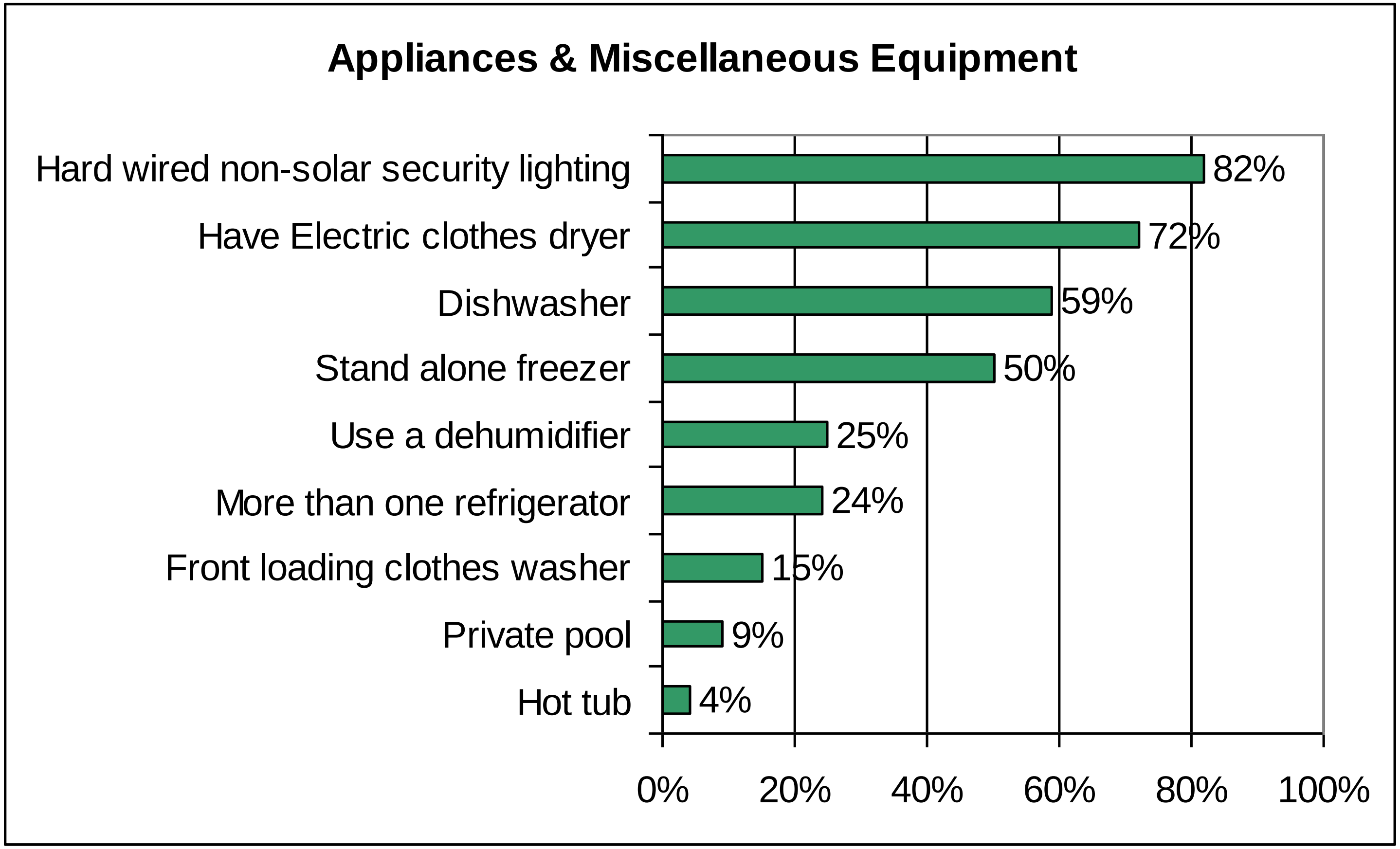


- One quarter of respondents have finished basements

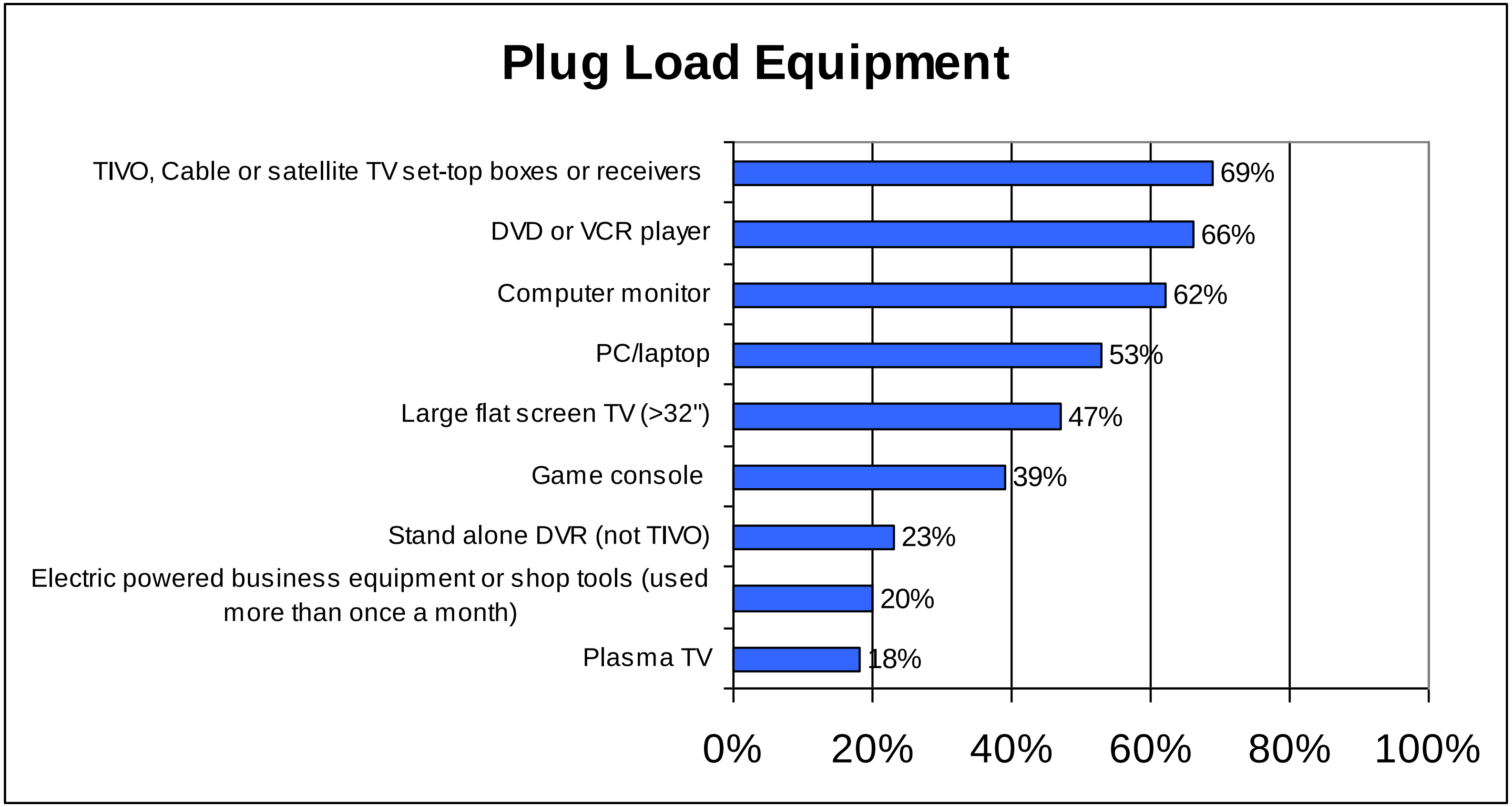
Saturation of Equipment: Cooling, Heating & Hot Water



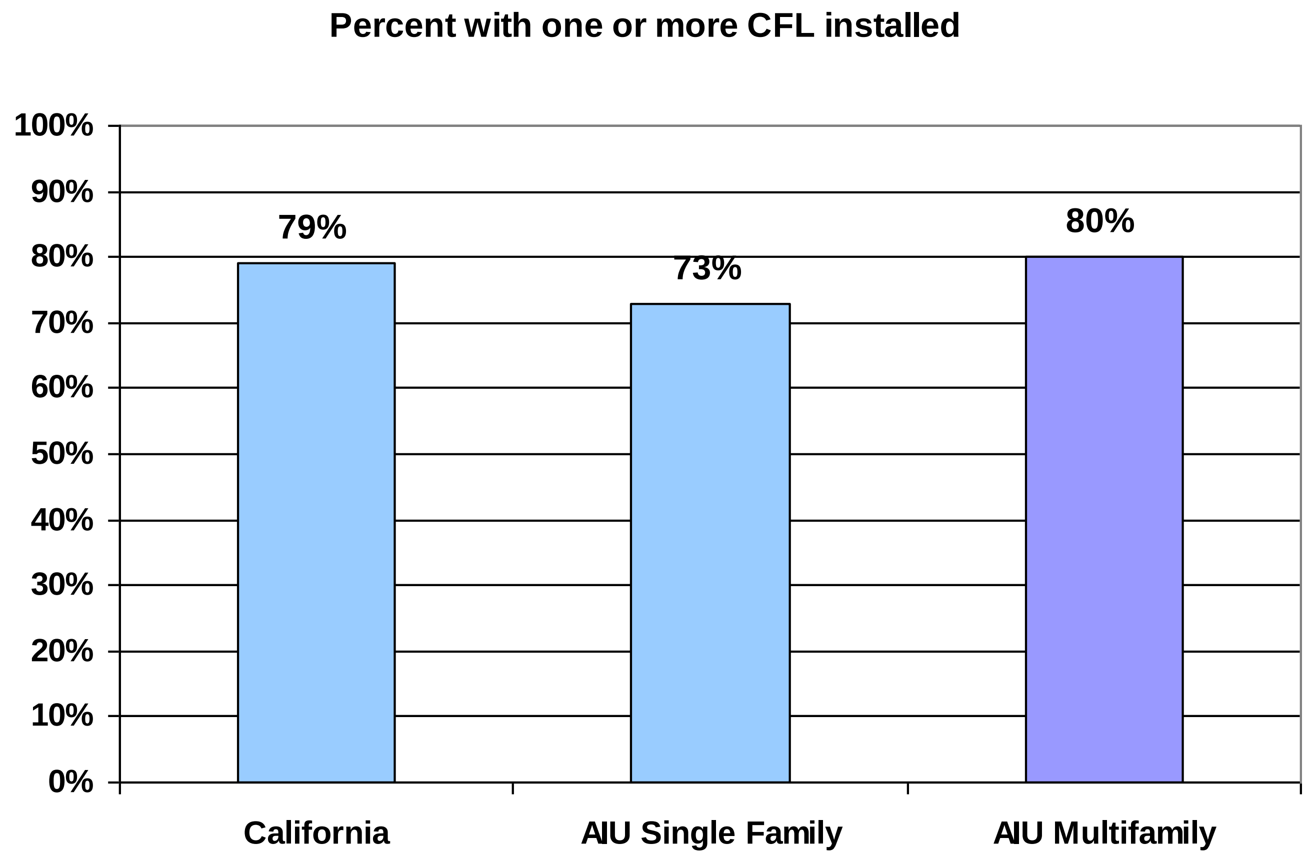
Saturation of Equipment: Miscellaneous Equipment



Saturation of Equipment: Plug Load



CFL Usage—
Homes with One or More CFL Installed



AIU Site visit data (n=49)

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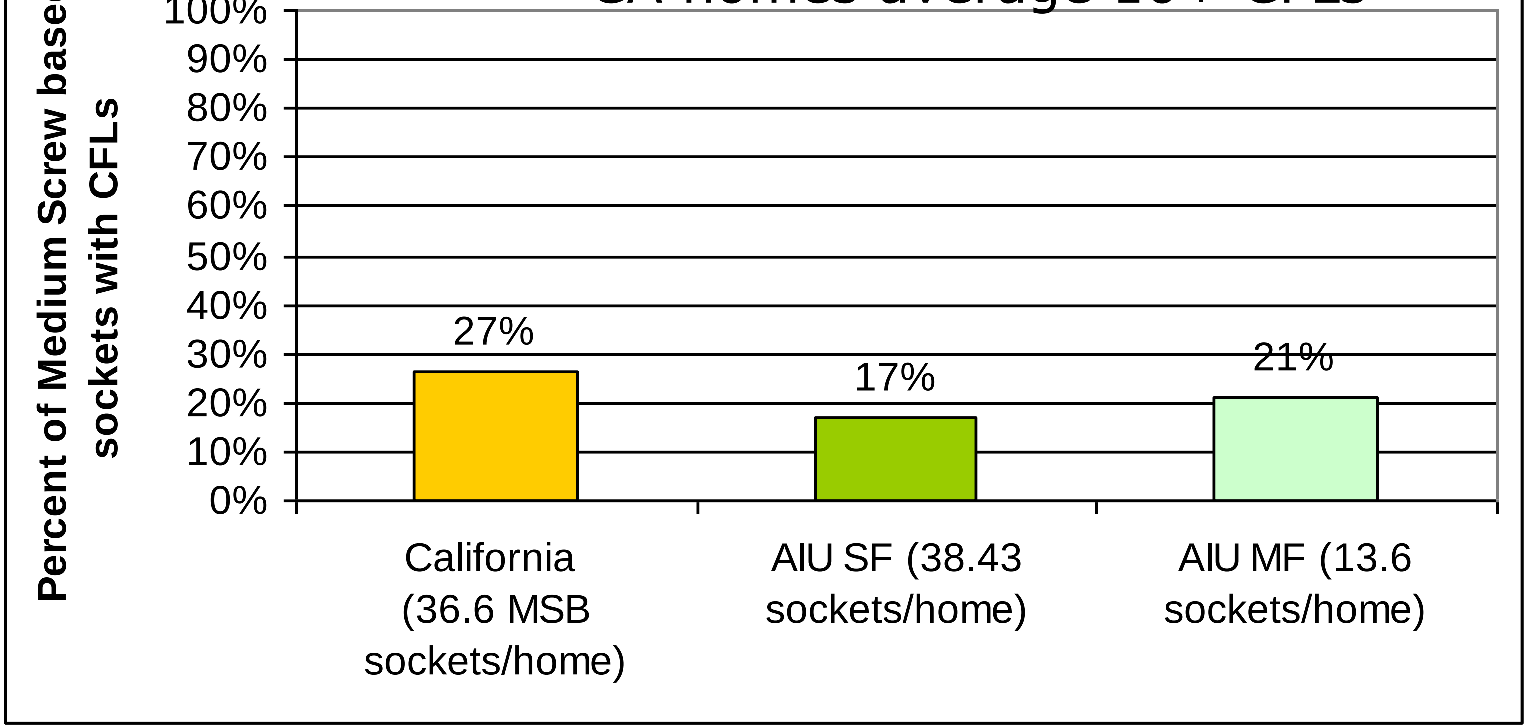
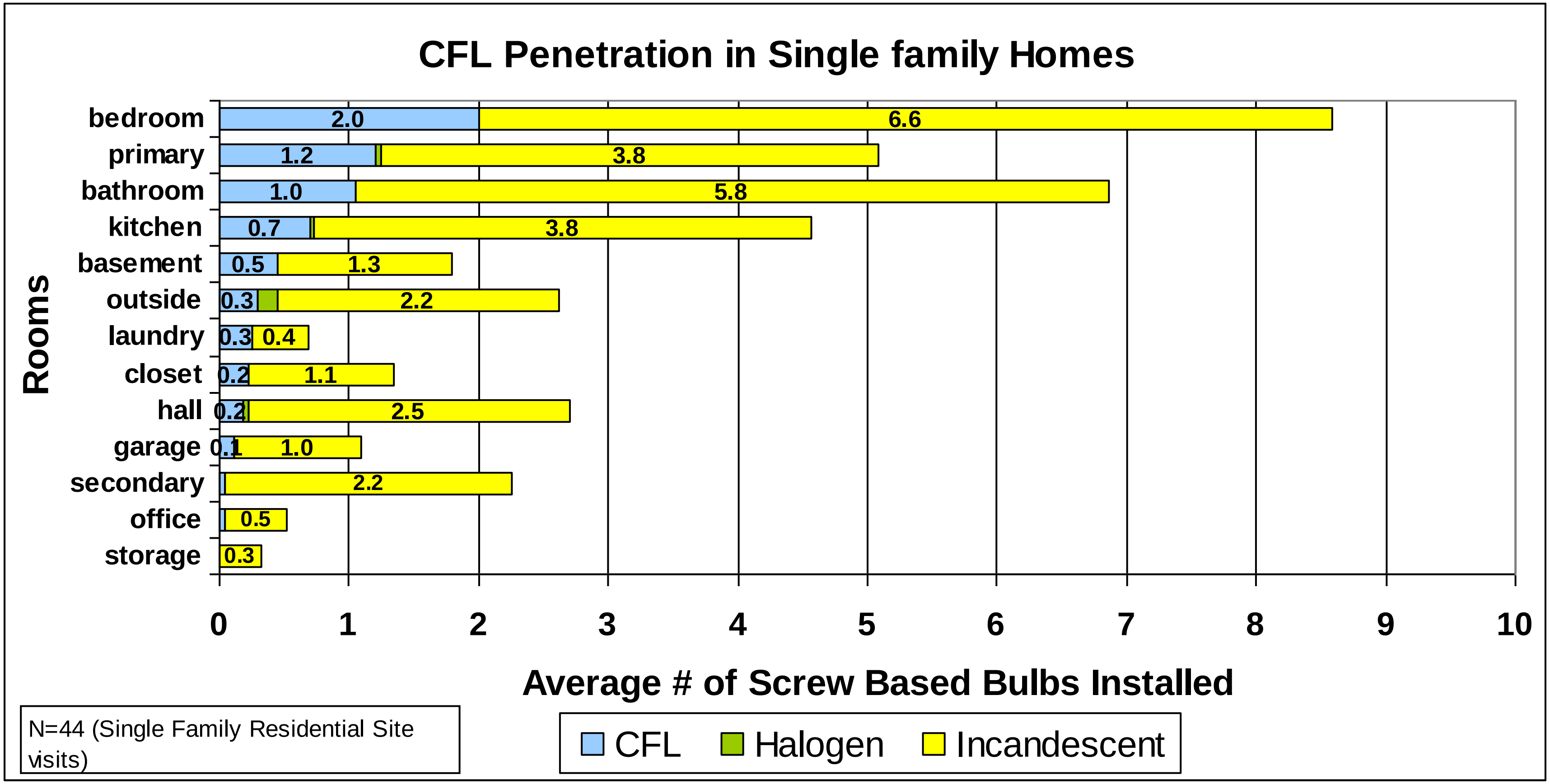
Comparison of CFL Penetration Rates

- AIU homes average
  - 6.6 CFLs/home for SF
  - 2.8 CFLs/home for MF
- CA homes average 10+ CFLs



Penetration Levels for Energy-Efficient Equipment: Single Family – Lighting & CFLs



Penetration: Energy Efficient Cooling

SEER	n	%
Below SEER 10	0	0%
SEER 10	9	43%
SEER 11-12	8	38%
SEER 13	3	14%
14+ SEER	1	5%
Total	21	100%

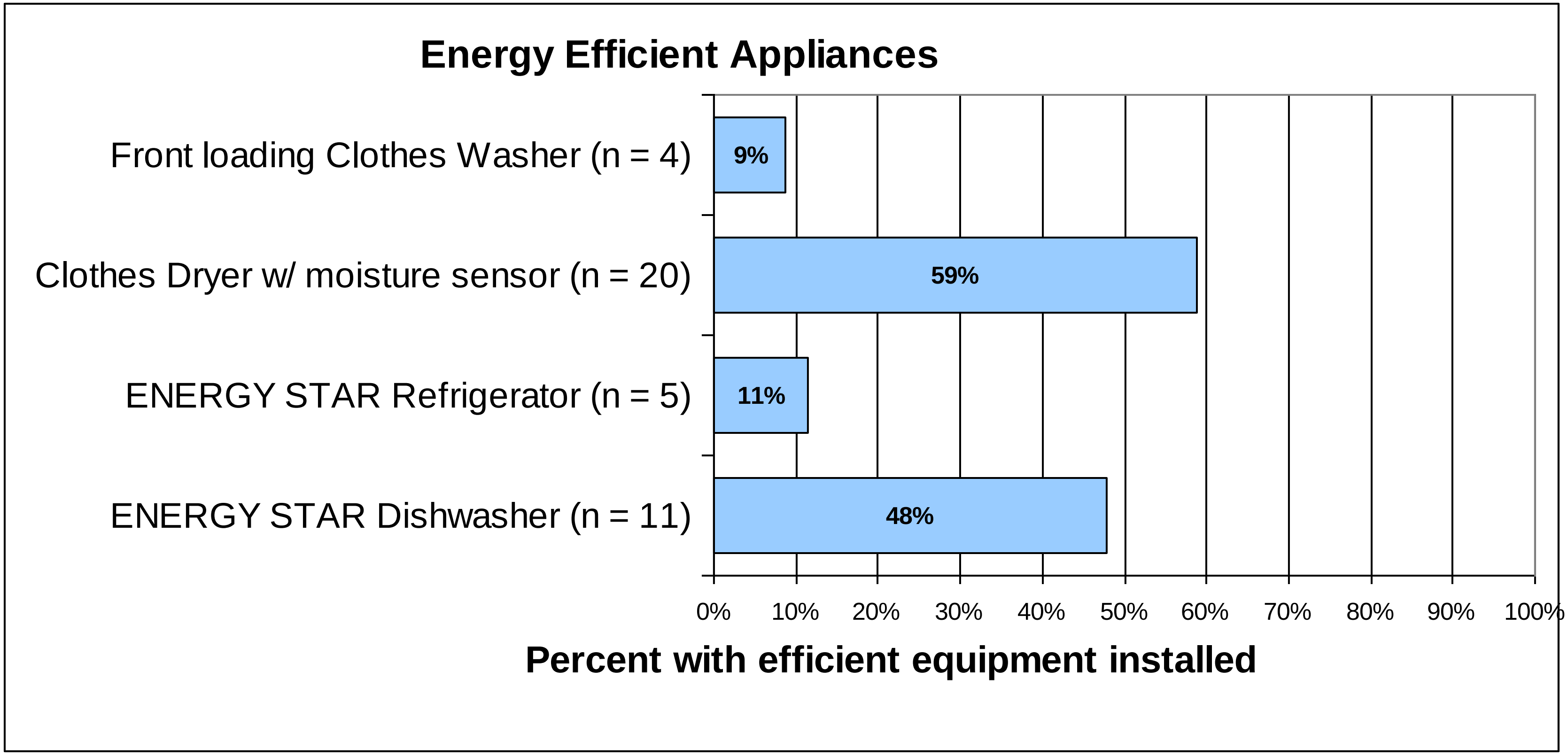
- Note: small sample size. Average SEER rating = 11.4

Penetration: Insulation levels

R Value	Attic	
	n	%
0	1	10%
<19	4	40%
19	2	20%
>19	3	30%
	10	

Note: small sample size

Penetration of Energy Efficient Equipment

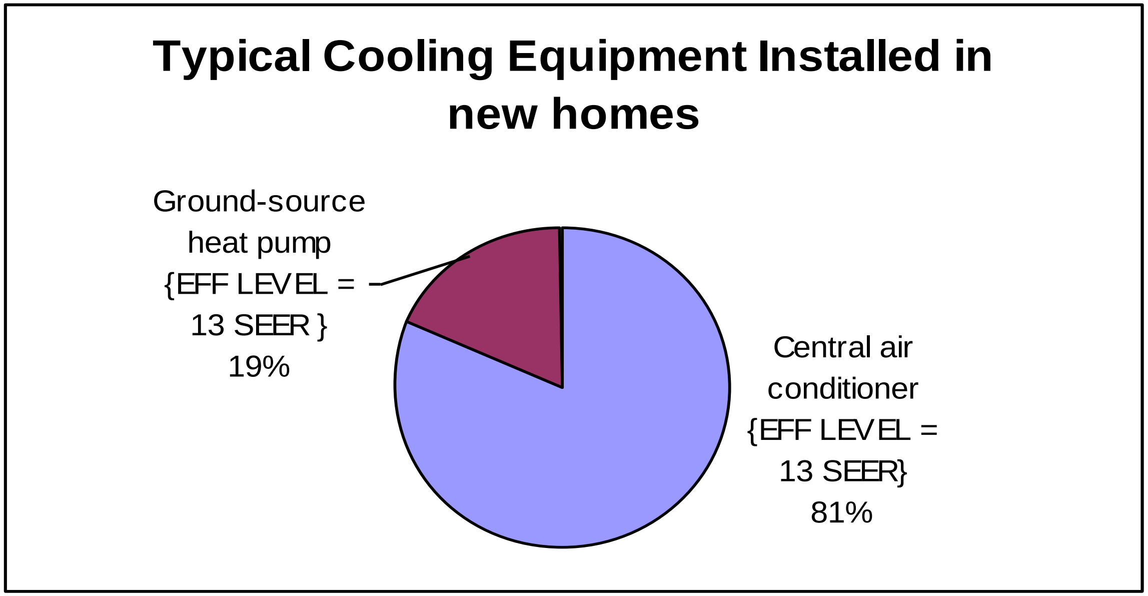


Market Share: Residential New Construction

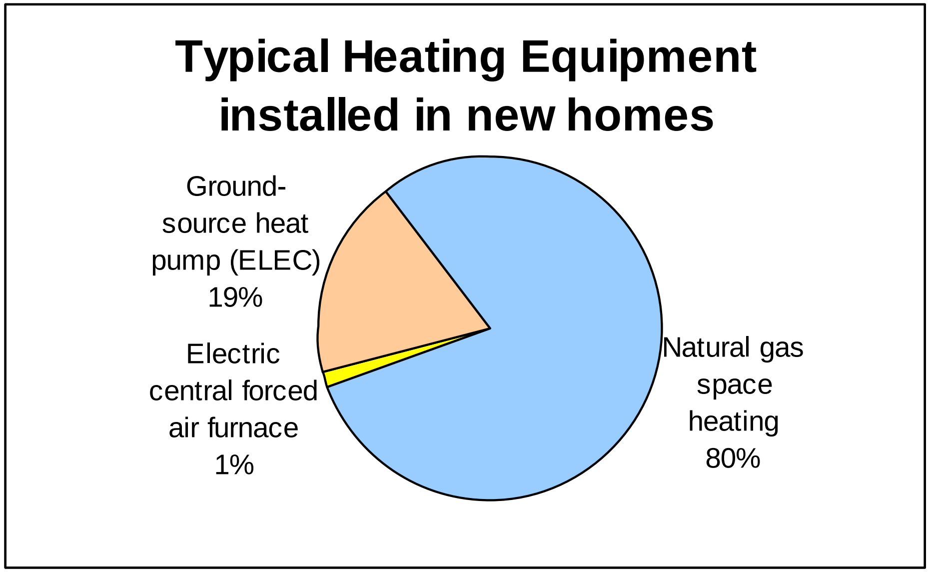
•9 Builders (Ameren territory only)

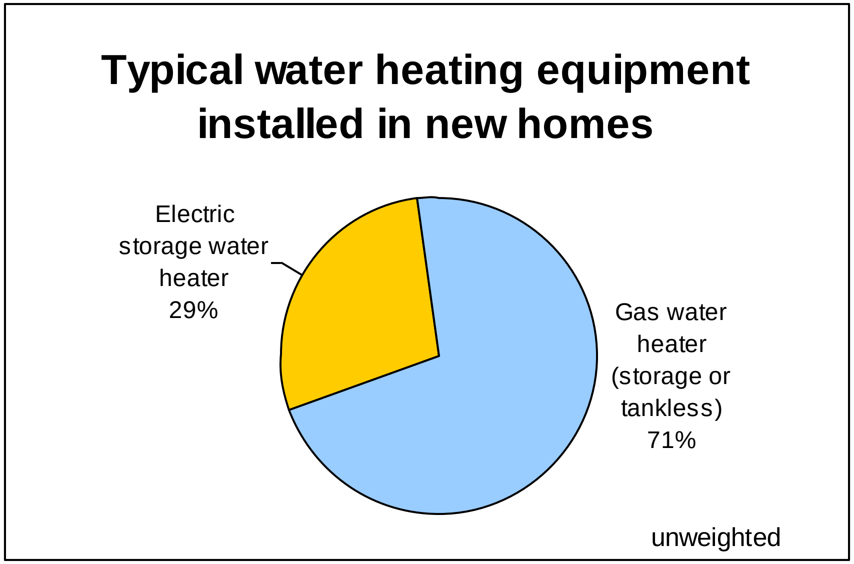
•Average number of homes built/year: 12 (Responses weighted by number of homes built)

•Average size of homes built: 2029 sqft



Market Share: Residential New Construction Continued





Additional Measures

- **Install ENERGY STAR windows: 81%**
- **Conditioned basements: 73%**
- **Install ENERGY STAR kitchen appliances: 85%**

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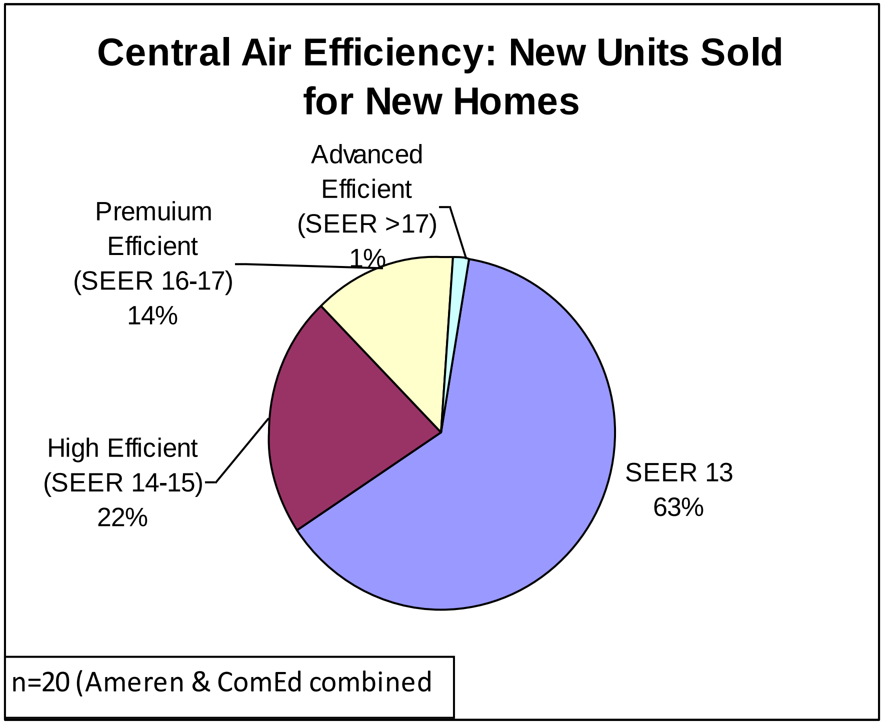
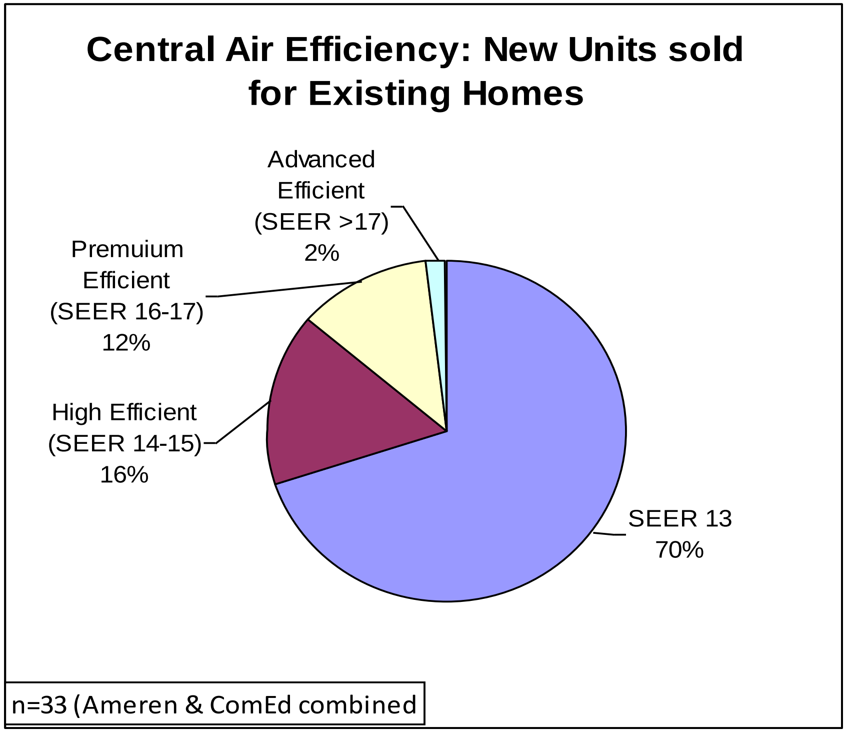
Market Share: HVAC for Residential Homes





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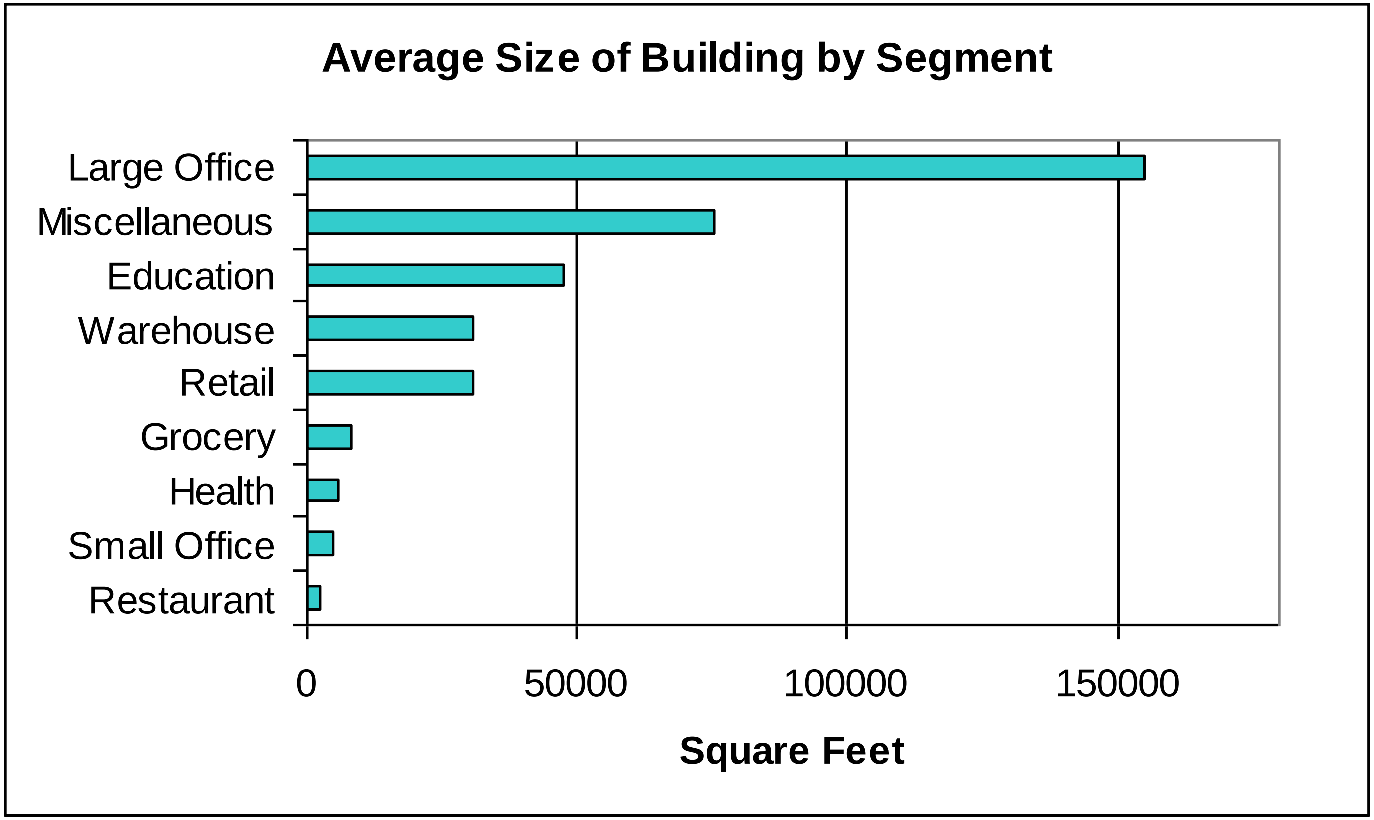
Market Share: Retail for Residential Market

Percent of Sales that are Energy Efficient

Product	Efficiency Standard	Ameren & ComEd Retailers	2007 National ES Partners (Reporting for IL)
Room AC	ENERGY STAR	66%	51%
Clothes Washers	ENERGY STAR	38%	40%
Dishwashers	ENERGY STAR	67%	80%
Refrigerators	ENERGY STAR	43%	31%

Commercial Findings

Saturation—Commercial Building Square Footage



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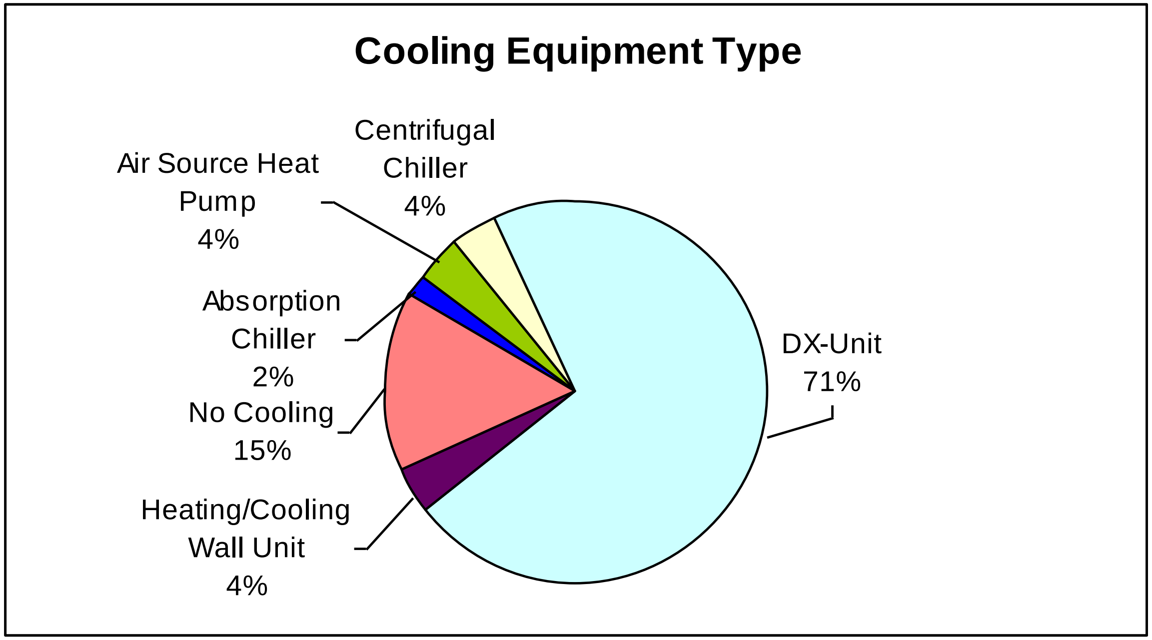
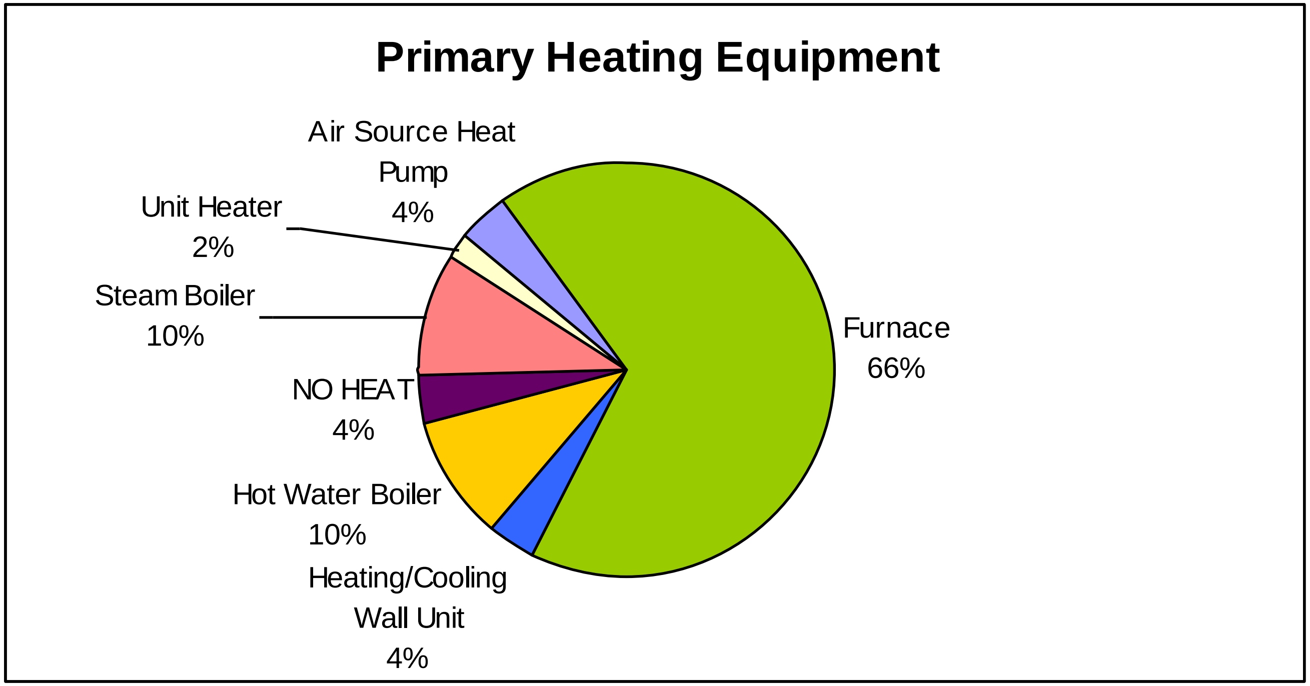
Saturation of Equipment—Cooling



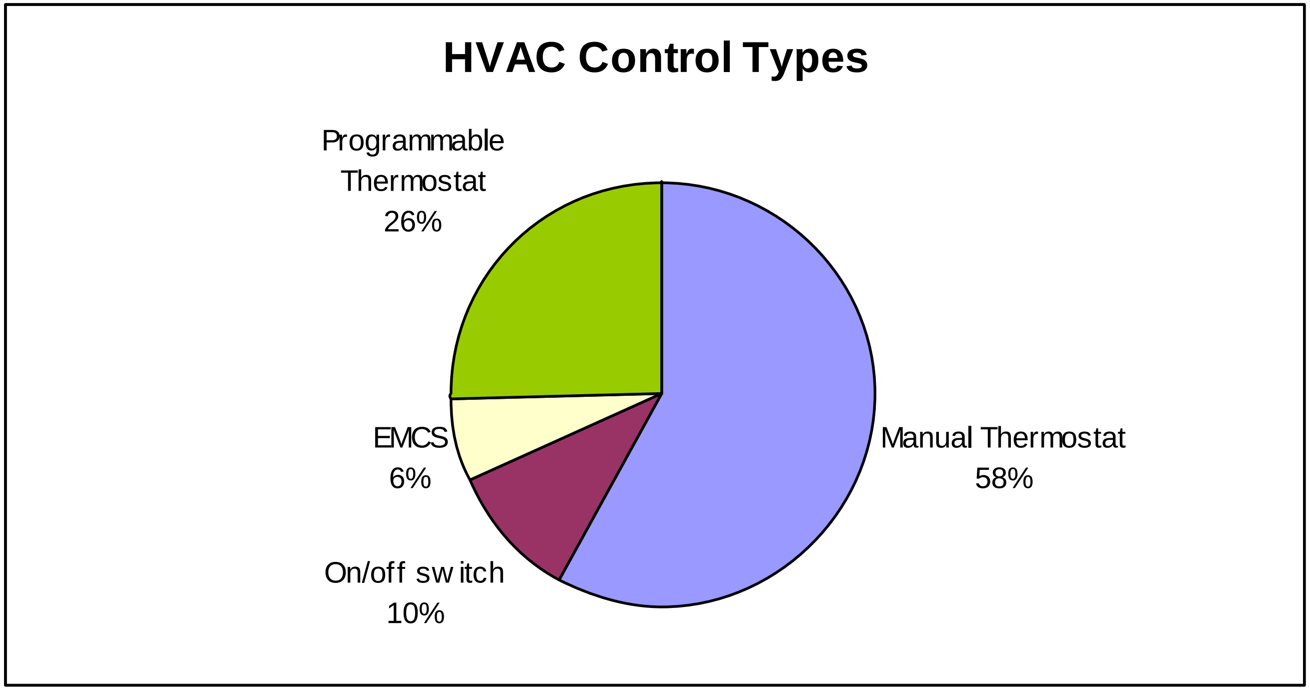
- 85% of buildings have cooling systems
- Direct Expansion Units make up the majority of cooling system equipment

Saturation—Heating

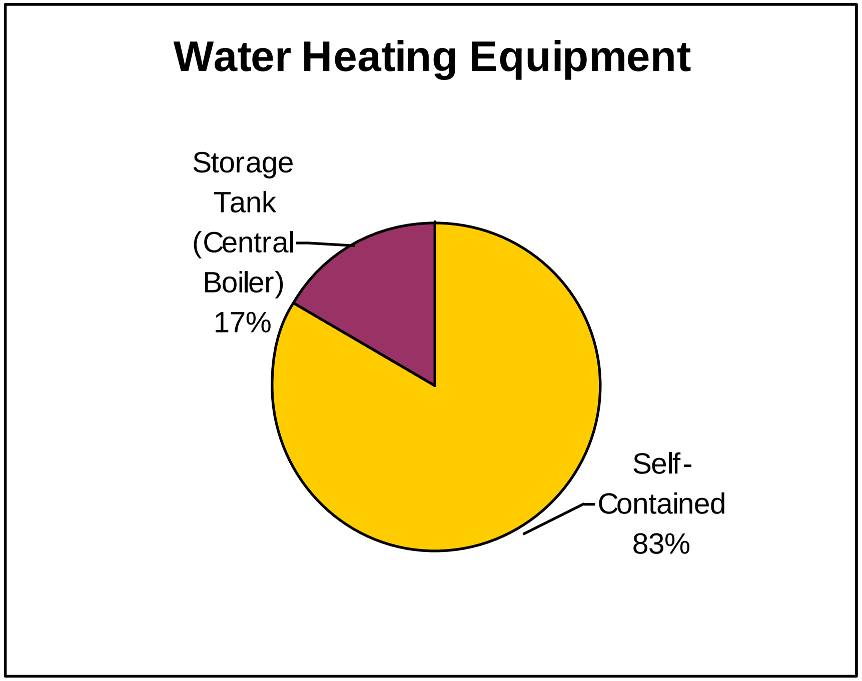


- 28% of respondents’ heating systems are fueled by electricity

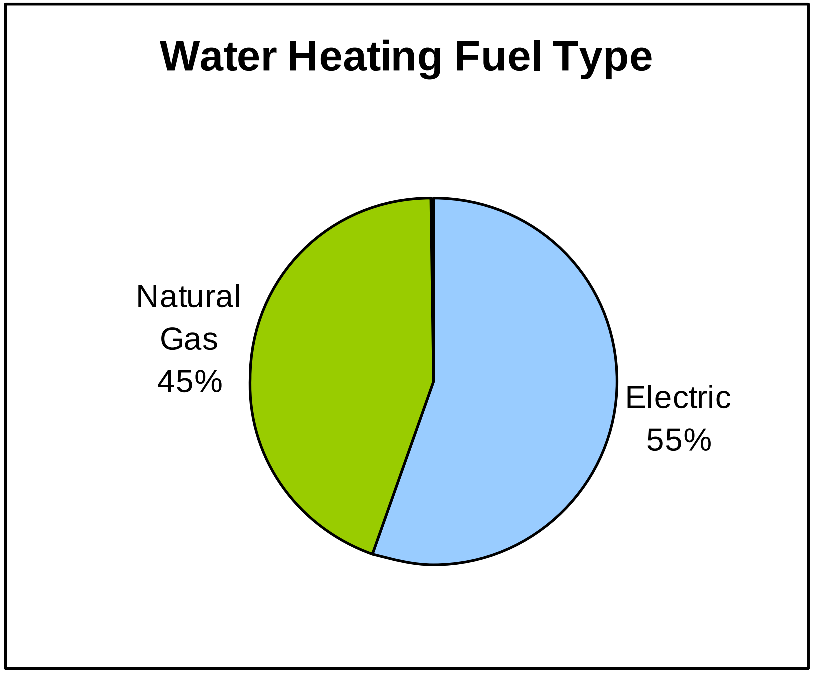
Saturation—Temperature Control Technologies



Saturation—Water Heating

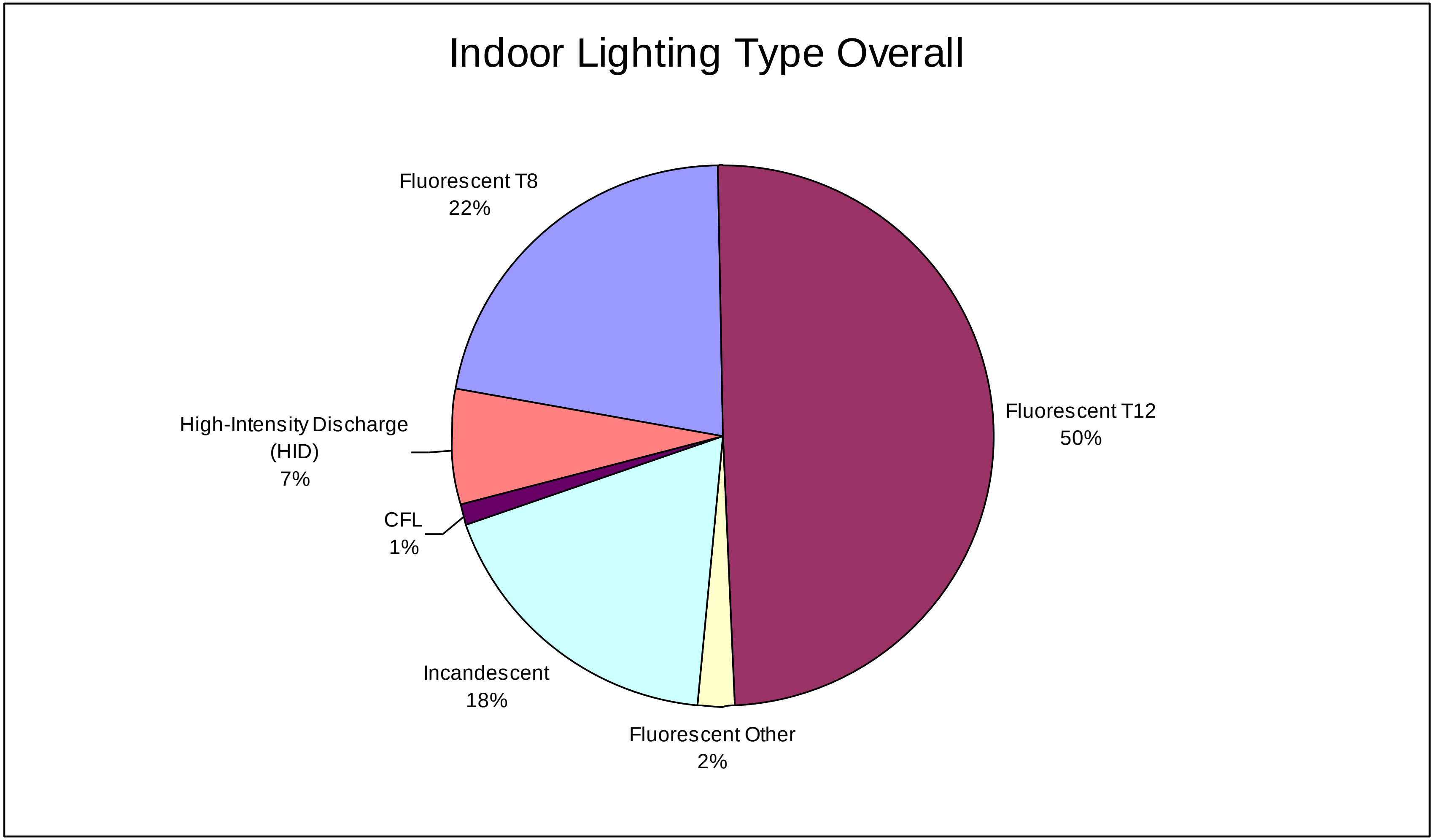


• 3% had tank insulation



The average tank capacity is 50 gallons.

Saturation—Indoor Lighting Technologies



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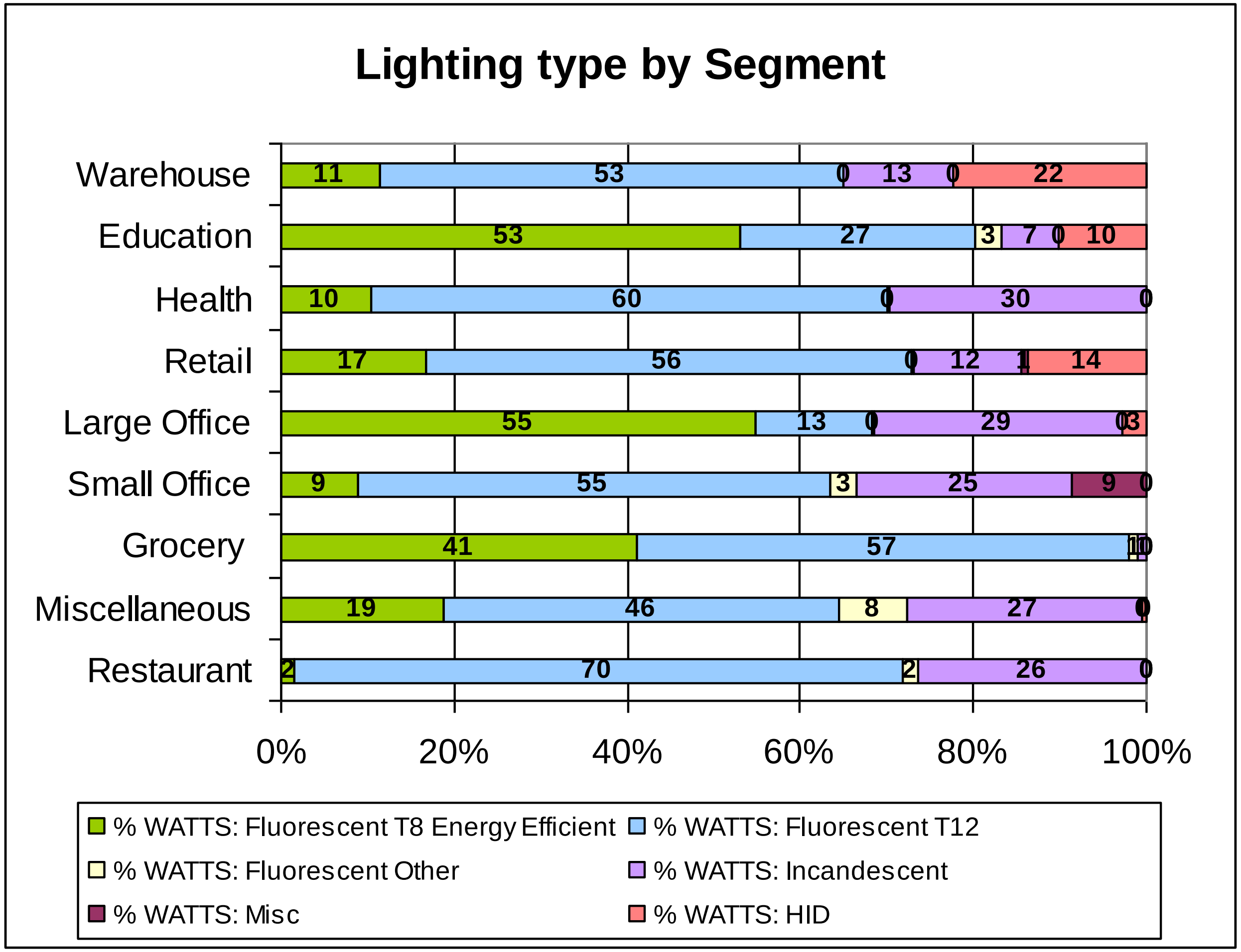
Saturation of Lighting by Segment



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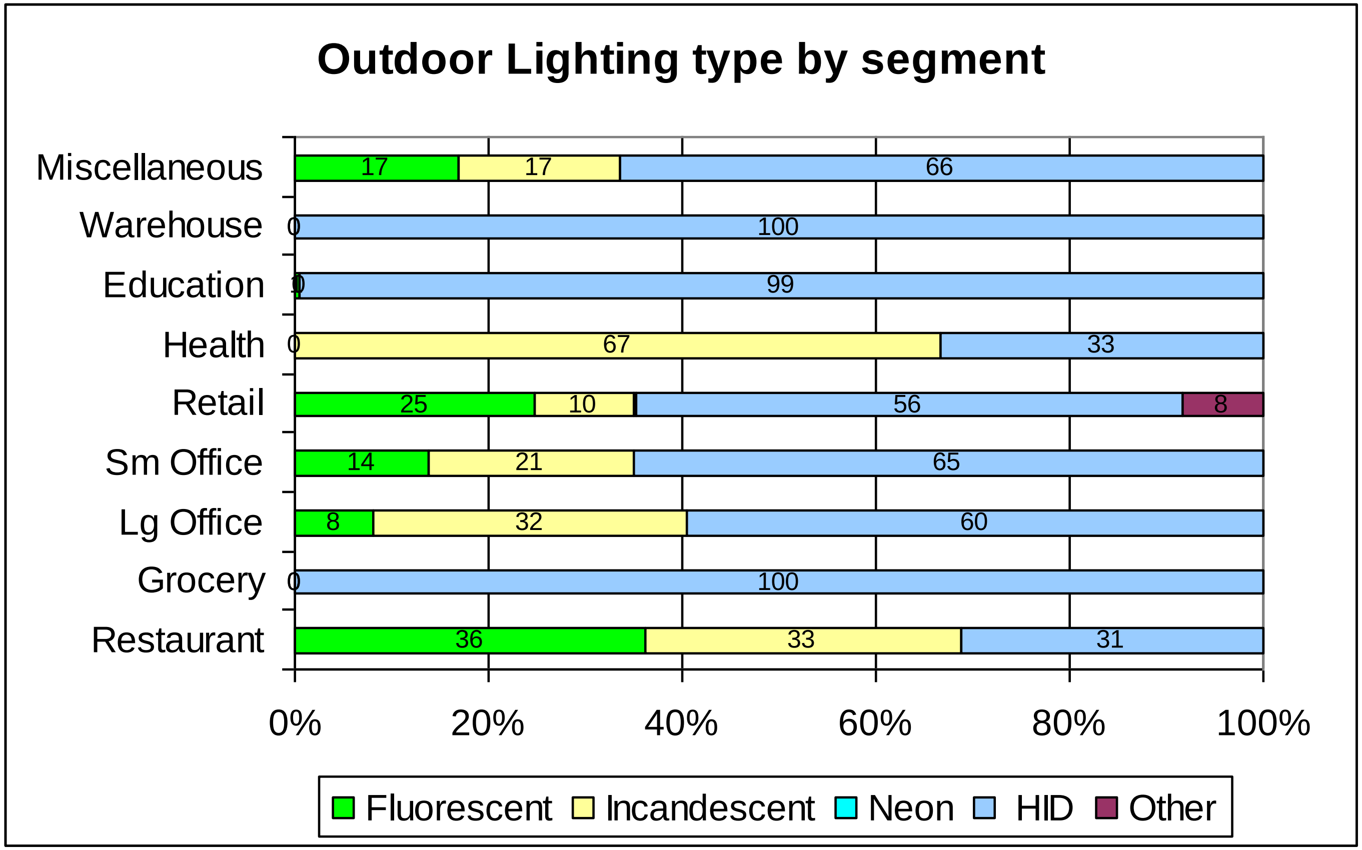
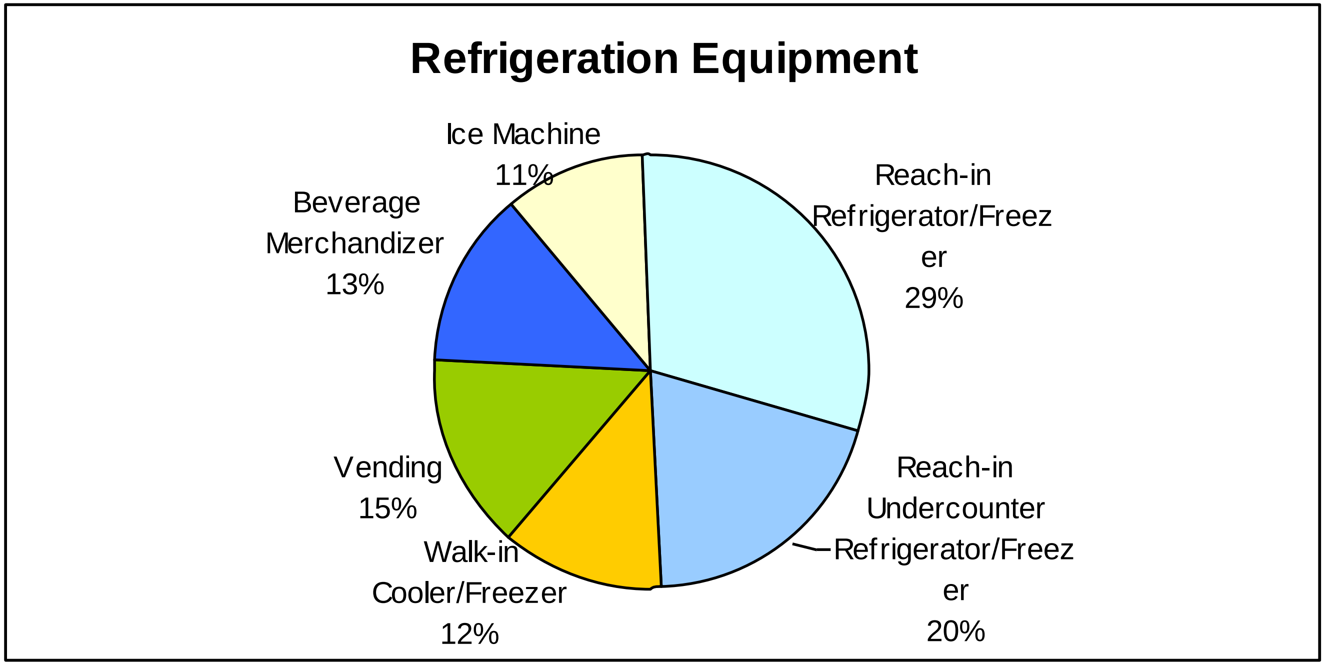
Saturation: Outdoor Lighting



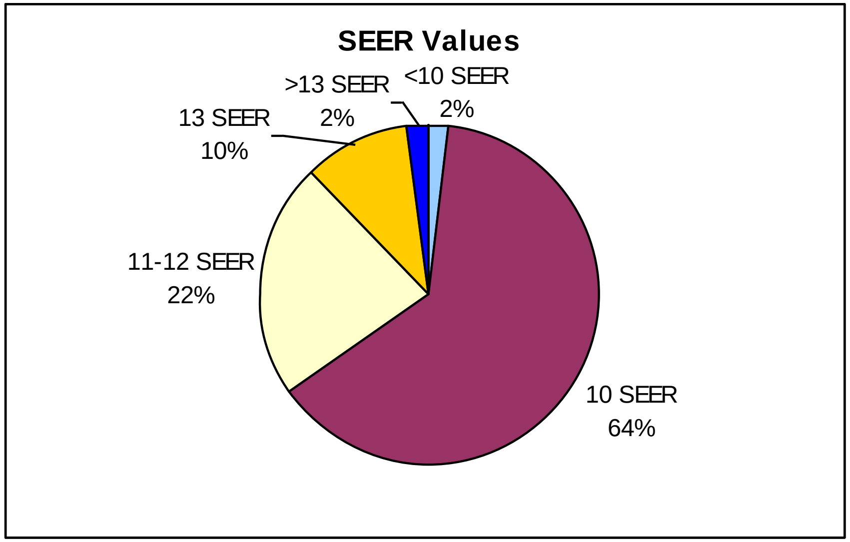
Photocells are the most common control types across all segments.

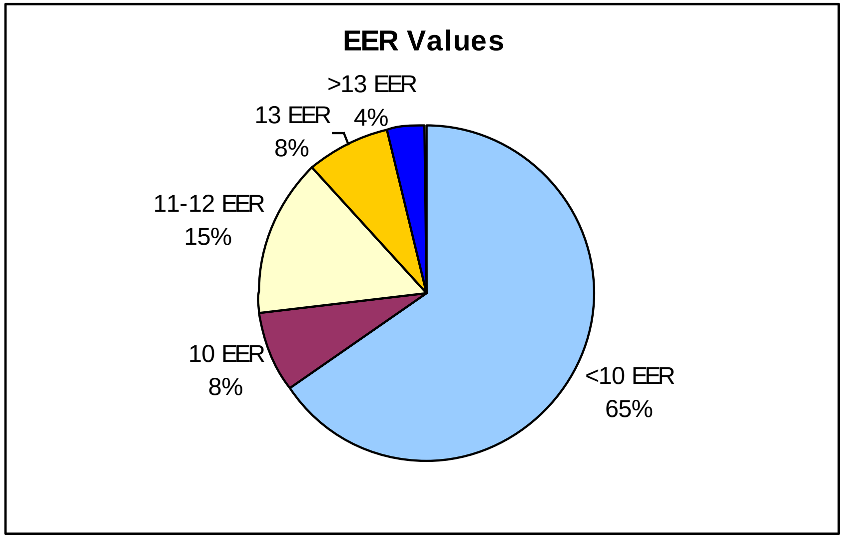
Saturation--Refrigeration



- Half of Refrigeration equipment is Reach-in Coolers or Freezers

Penetration of Energy Efficient Equipment—Cooling





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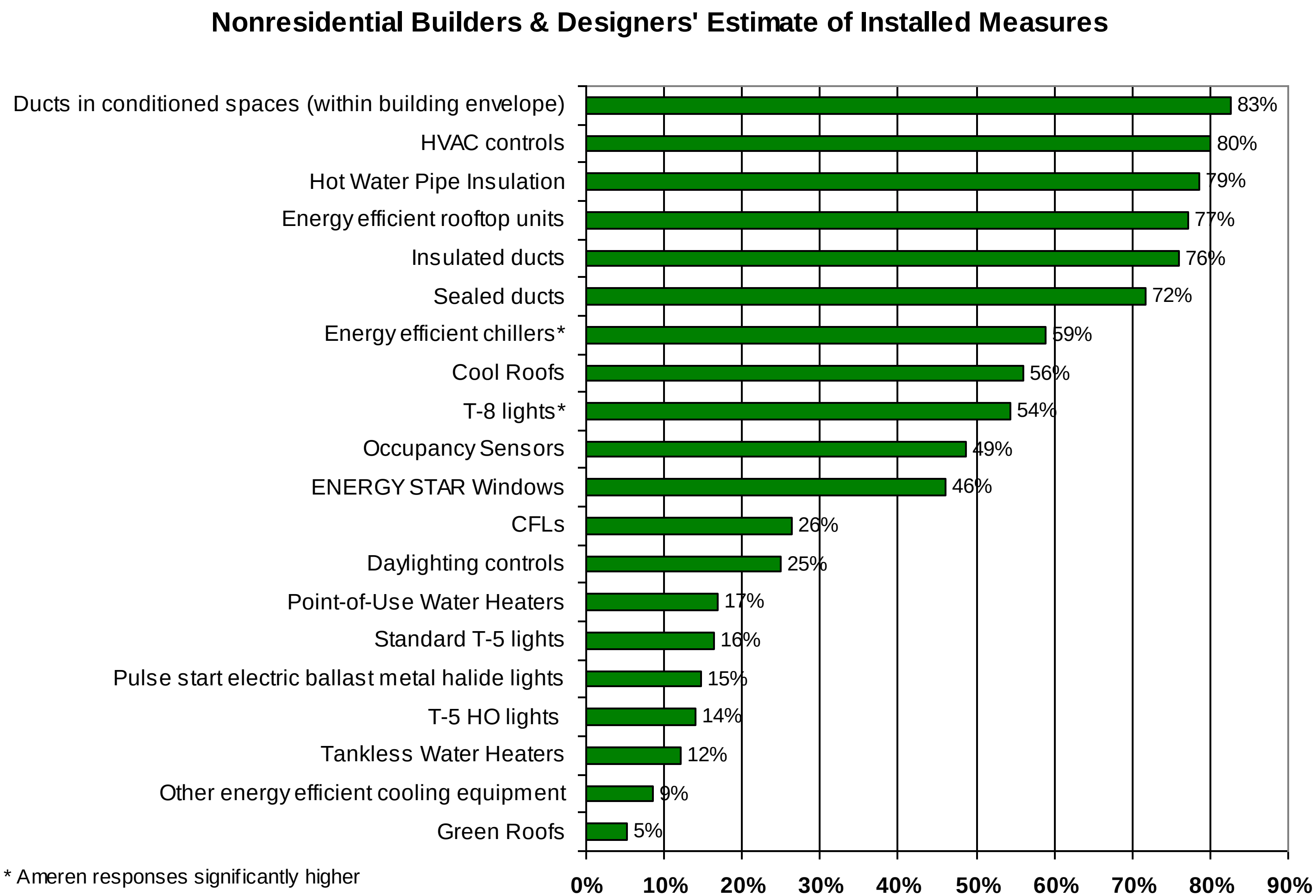
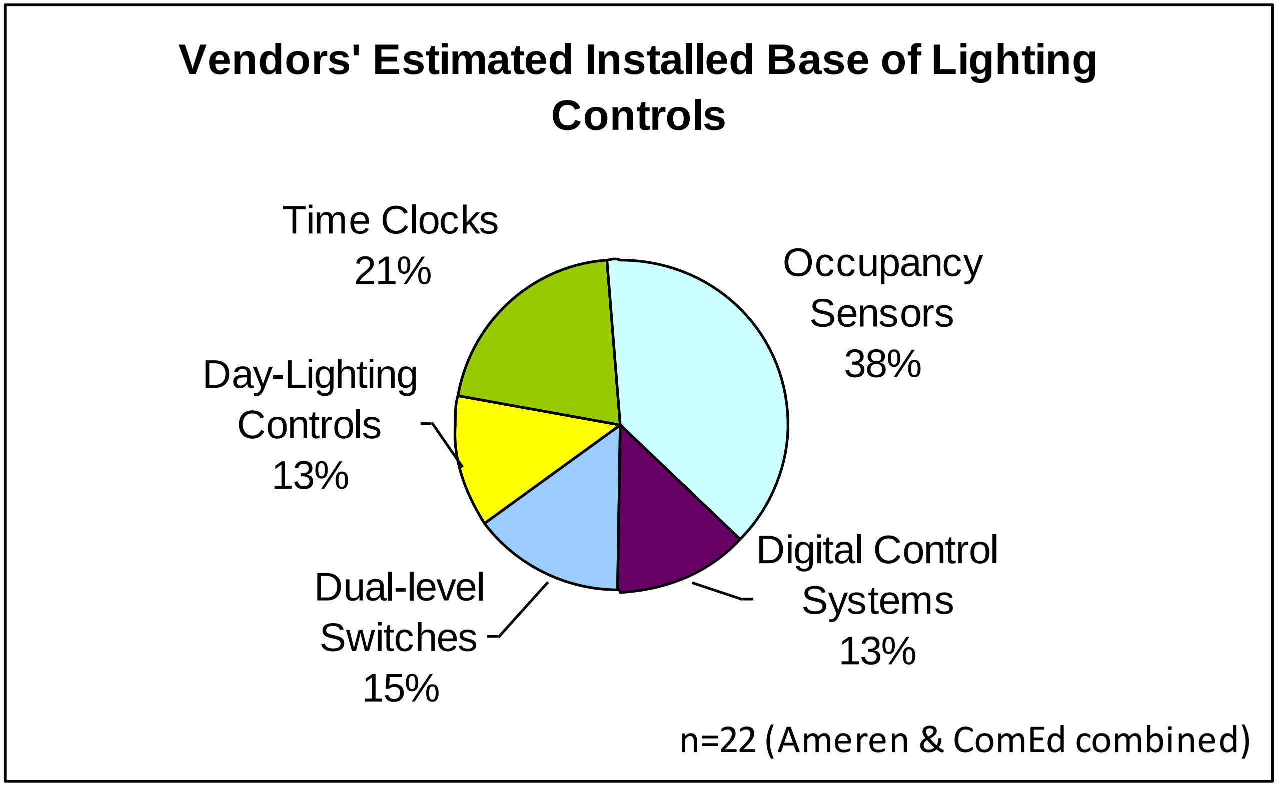
Market Share: Nonresidential New Construction & Design

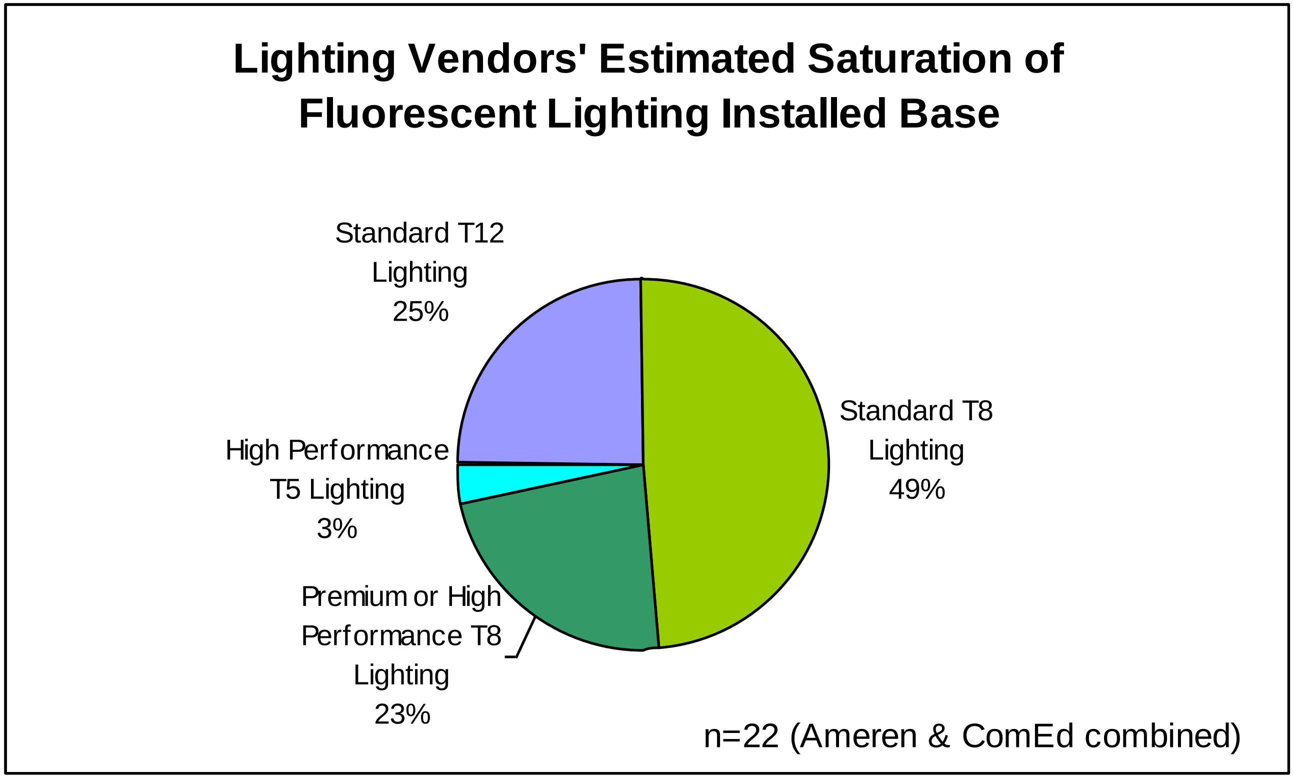


* Ameren responses significantly higher
Ameren & ComEd combined (n=55)

Market Share: Lighting Vendors

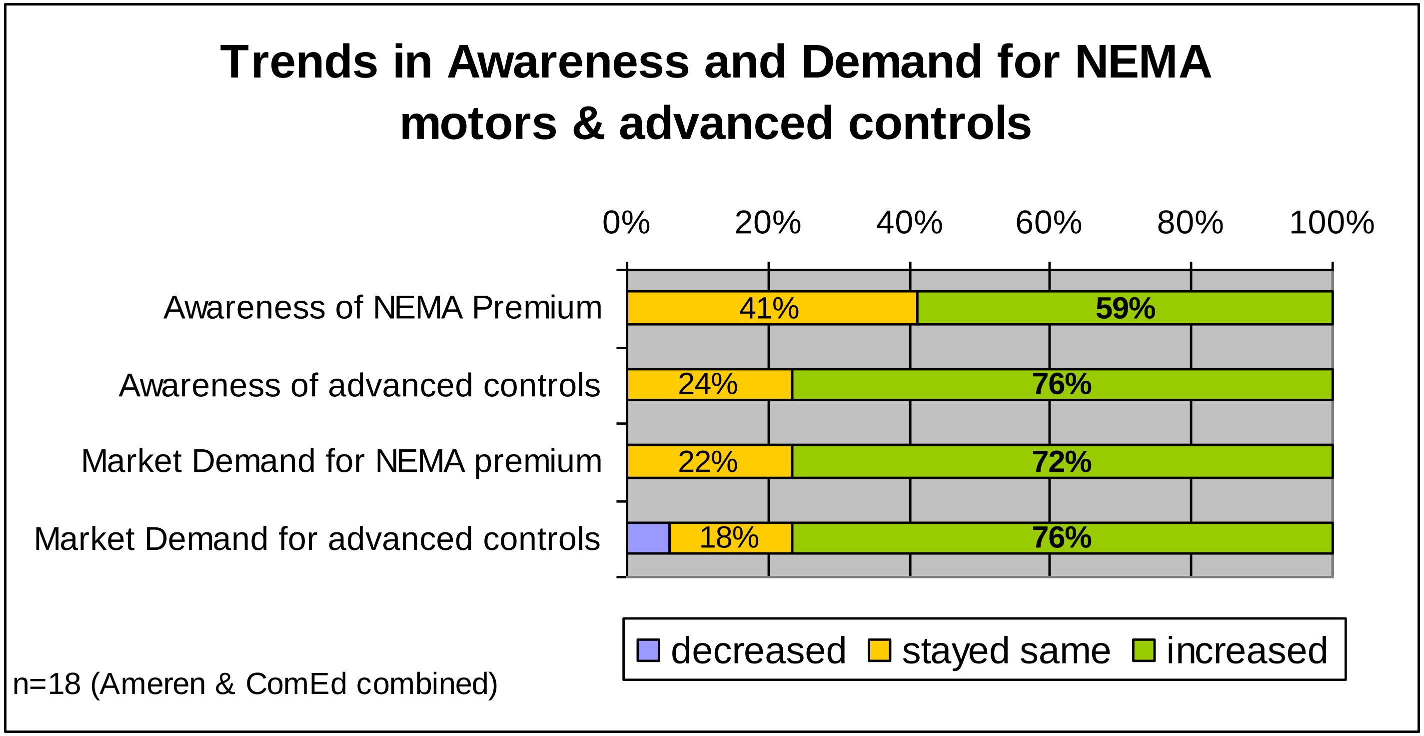


Market Share: Lighting Vendors-- Efficient Lighting



High performance T8s were defined as 28 watts or less

Market Share: Motors



Market Share: Motors continued

Application (n=17)	% of sales NPEM	% Eligible to be NPEMs	% NPEM w/o Utility Program	% of Sales Include Controls	% Eligible to Incorporate Controls	Replacement motor sales with controls Decrease/Increase 1-5
Motors for any use	37%	73%	52%	20%	65%	3.92
use in HVAC equipment	27%	72%		26%	62%	3.67
use in compressors	26%	70%		21%	55%	3.55
use in horizontal pumps	25%	72%		16%	58%	3.67

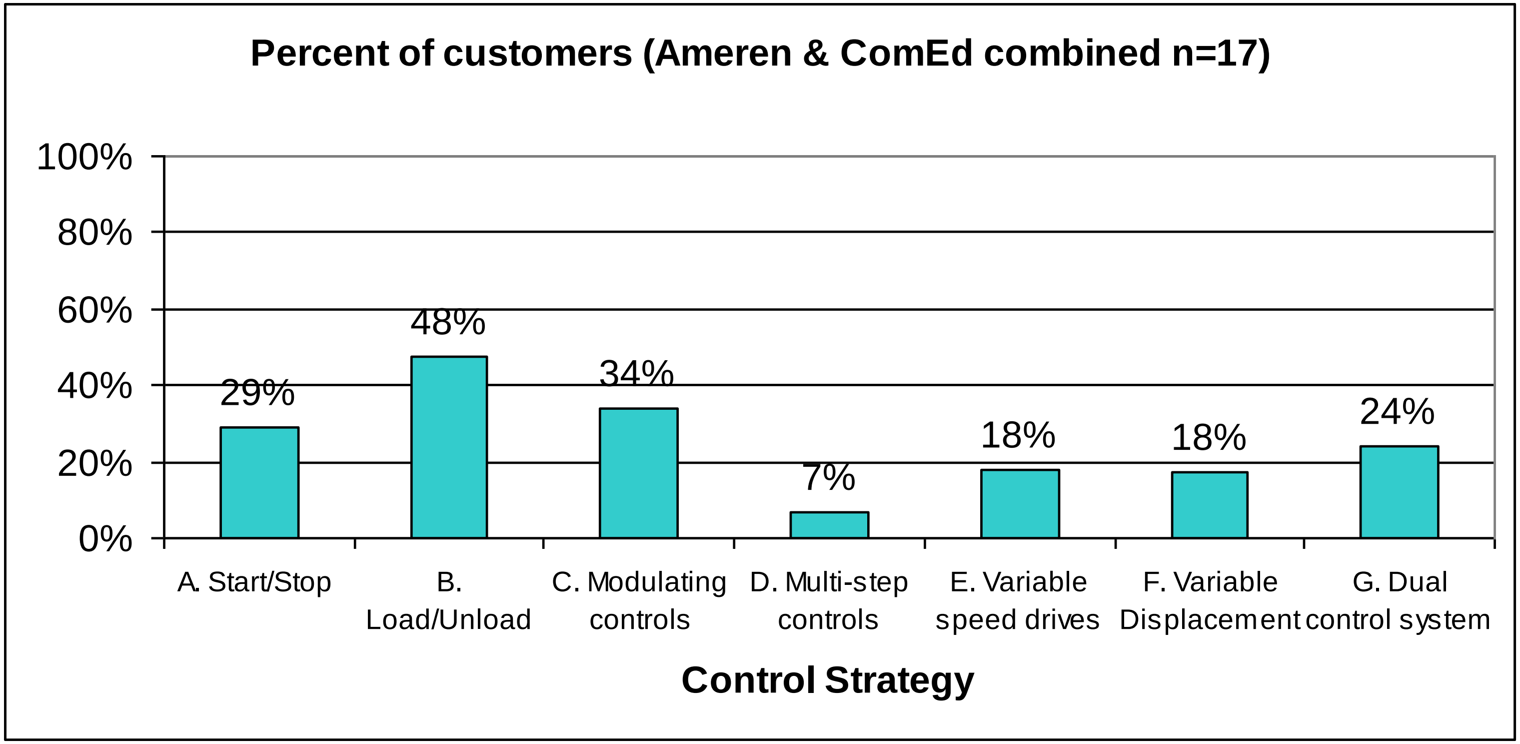
Market Share: Refrigeration

Refrigeration Vendors' Estimate of Customers with Installed Measures

Energy Efficiency Measure	Ameren & ComEd combined (n=15)
A. Floating Head Pressure Control (set/reset minimum head pressure)	23%
B. VSD on Compressor	22%
C. VSD on Evaporator Fans	20%
D. VSD on Condenser Fans	24%
E. Refrigeration System Optimization (compressor sequencing/controls, suction pressure opt, cond selection, etc.)	44%
F. Digital Controls	43%
G. Advanced/ improved defrost controls	33%
H. Heat Recovery for Water Heating or other end-use	26%
I. Strip Curtains for Walk-ins	29%
J. Pulse Modulating Anti-Sweat Controller	25%
K. Night Covers for Display Cases	5%
L. Load Management / Reduction	25%
M. Sub-cooling (ambient or mechanical)	19%
N. Premium efficiency motors	54%
O. New high-efficiency refrigerated case installation	17%
P. High-efficiency lighting for display cases or reach-ins	34%

- New standards in effect for walk-in freezers/coolers effective Jan 1, 2009.

Market Share: Compressed Air



Next Steps

- Complete data analysis
- Potential model
- Reporting