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Connecticut Energy Efficiency Programs Overview and Summary of CT State Building Activity

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Energy Efficiency Program Strategies

- Tailor services based on usage and market segments
- Encourage focus on multiple end uses and fuels
- Promote best practices through:

Education

- Benchmarking
- Case Studies

Incentives

- Installing New Equipment
- Retrofitting Existing Equipment

Financing

- On-bill for some programs
- Low or no interest

Many Savings Opportunities

- New Construction
- Existing Buildings
  - Electric-saving Measures
    - Lighting
    - Non-Lighting
  - Gas-saving Measures

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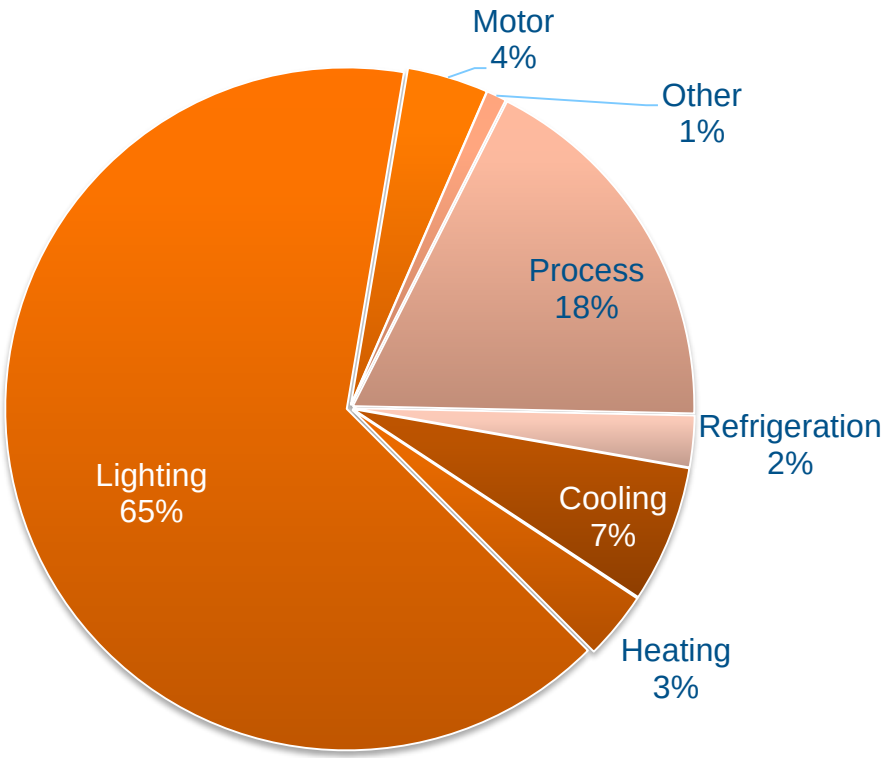
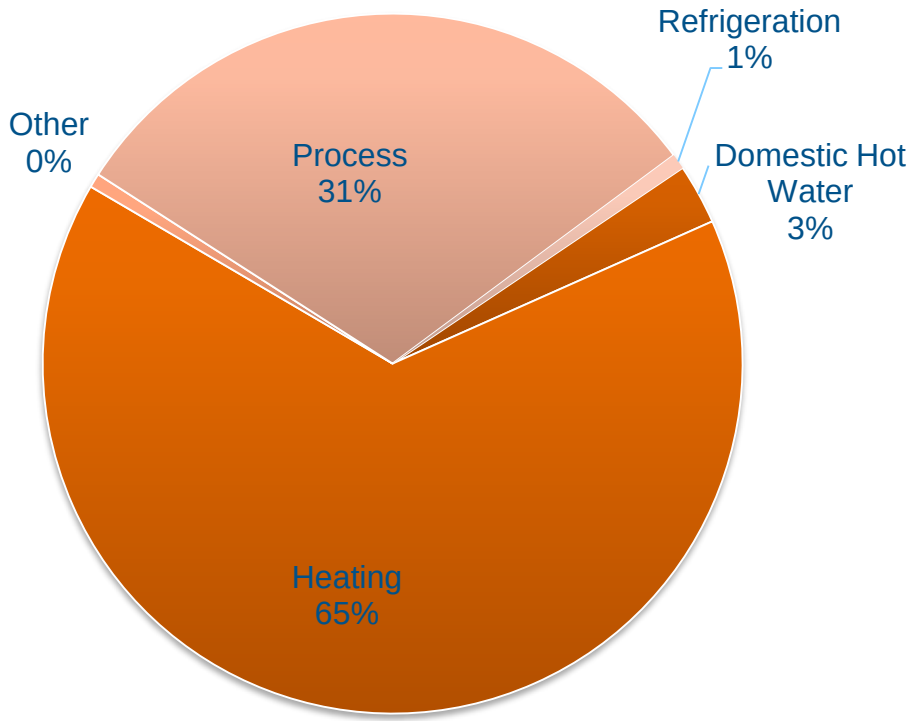
C&I Annual Program Savings by End Use

Annual Electric Savings



Annual Gas Savings



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Opportunities in Existing Buildings

Audit Support

- Support for ASHRAE Audits, if needed
  - Level 1 (“walkthrough”)
  - Level 2 (more detailed) - cost share required

ASHRAE Level 1
Energy Audit Report

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Comprehensive Approach

Comprehensive Approach – The Tiers

Tier	Incentive	Project Must Include
Total Compre-hensive Incentive	(greater of) $0.65 / kWh OR $1,000 / summer peak kW PLUS 65% of project cost up to $6.00 / CCF	Networked Lighting Controls, or At least 3 end uses and lighting must have controls
Multi End Use or EMS	(greater of) $0.45 / kWh OR $1,000 / summer peak kW PLUS 45% of project cost up to $4.50 / CCF	Lighting with controls, or EMS, or At least 2 end uses (lighting at least dimmable)
Single End Use	(greater of) $0.25 / kWh OR $1,000 / summer peak kW PLUS 25% of project cost up to $3.00 / CCF	Lighting or dimmable lighting, or Only 1 end use

Comprehensive Approach

End Uses	
Heating	Process
Cooling	Domestic Hot Water
Lighting	Refrigeration
Motor	

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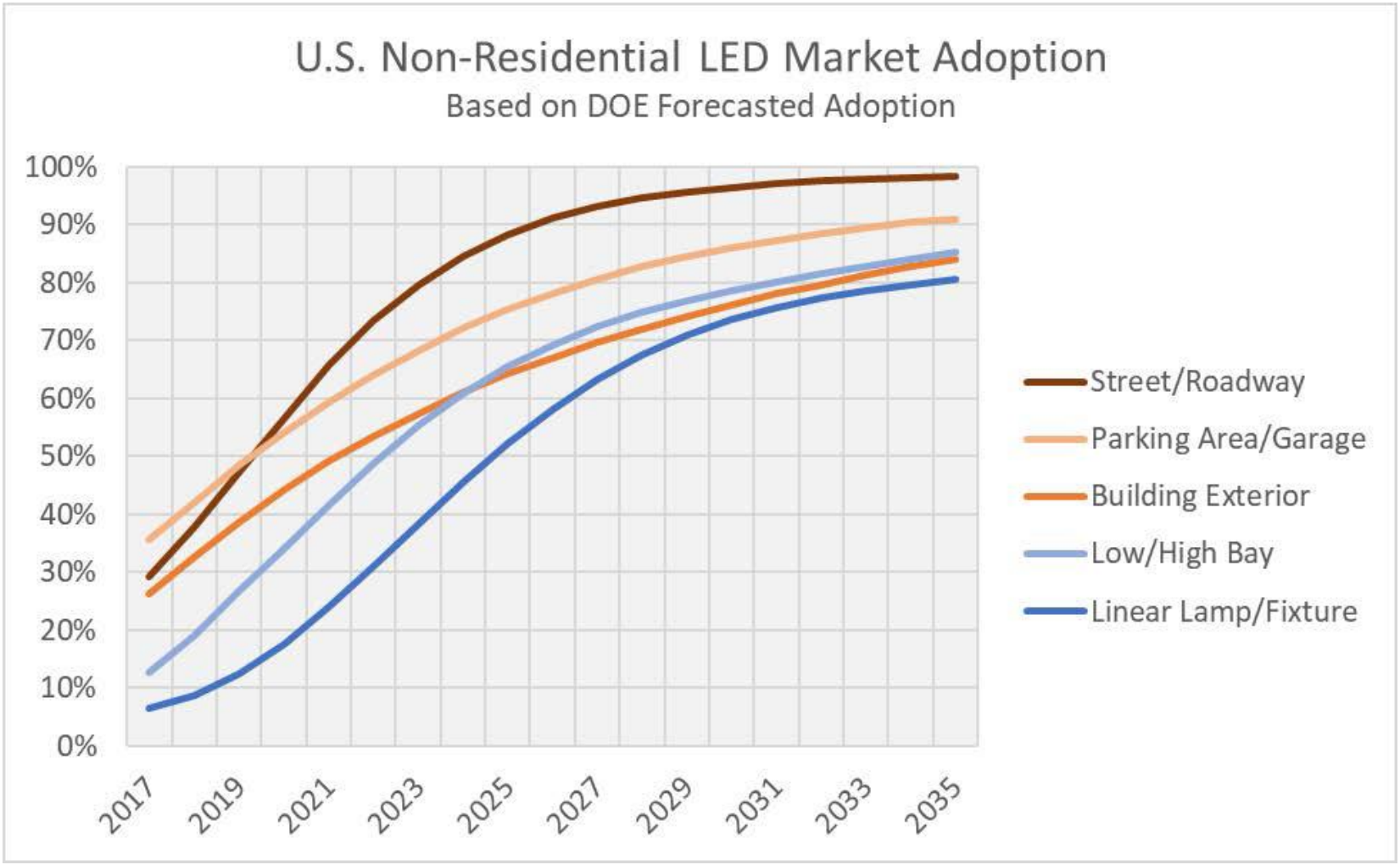
Lighting

LED Adoption Growing Fast



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Source: DesignLights Consortium (DLC); Energy Savings Potential of DLC Commercial Lighting and Networked Lighting Controls ; July 2018

Lighting Measures

	Lighting Tier	Requirements
Best	High Performance Lighting	Networked Lighting Controls
Better	Enhanced Performance Lighting	LED with Sensors
Good	Standard Lighting	LEDs without Controls

Possible Control Strategies:

- Occupancy Sensors
- Daylight Harvesting
- High End Trim

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Non-Lighting Electric Measures

Non-Lighting Electric Measures

- New Equipment
  - Rooftop Units
  - Air Conditioning
- Controls
  - Demand Control Ventilation
  - Refrigeration

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Gas Measures

Gas Measures

- New Equipment
  - Boilers, DHW Heaters, Kitchen Equipment
- Controls
  - Demand Control Ventilation
- Insulation
- Faucet Aerators
- Building Envelope
- Steam Systems

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Upstream and Express Rebate Programs

Opportunity for Every Customer

- Overall Benefit
  - Program incentives are known and published
- Upstream Program Benefit
  - Point of Sale incentive
  - No paperwork to complete
  - Installation can be scheduled after sale
  - Sales tool – can quote customer the reduced product price immediately
- Express Program Benefit
  - Single process for all commercial customers (segment/size of company does not matter)
  - All costs considered when submitting application

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2019 Upstream and Express Rebates Available Technologies

Upstream Offerings

Heating

Hot Water

Lighting

Cooling

Kitchen Equipment

Express Offerings

Heating

Hot Water

Lighting

Cooling

Kitchen Equipment

Clothes Washers

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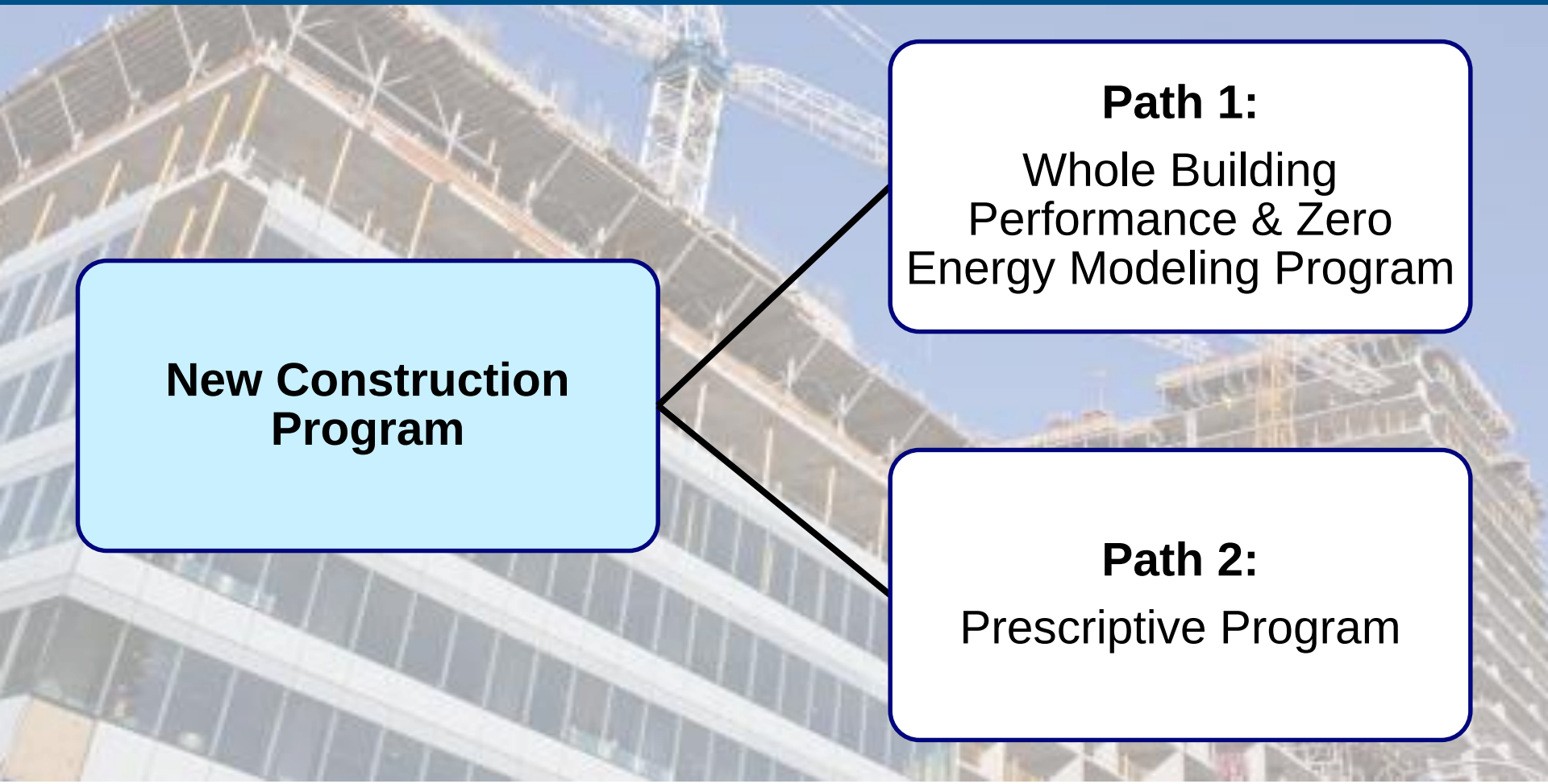
New Construction

Two Program Paths



New Construction Program

Path 1:

Whole Building Performance & Zero Energy Modeling Program

Path 2:

Prescriptive Program

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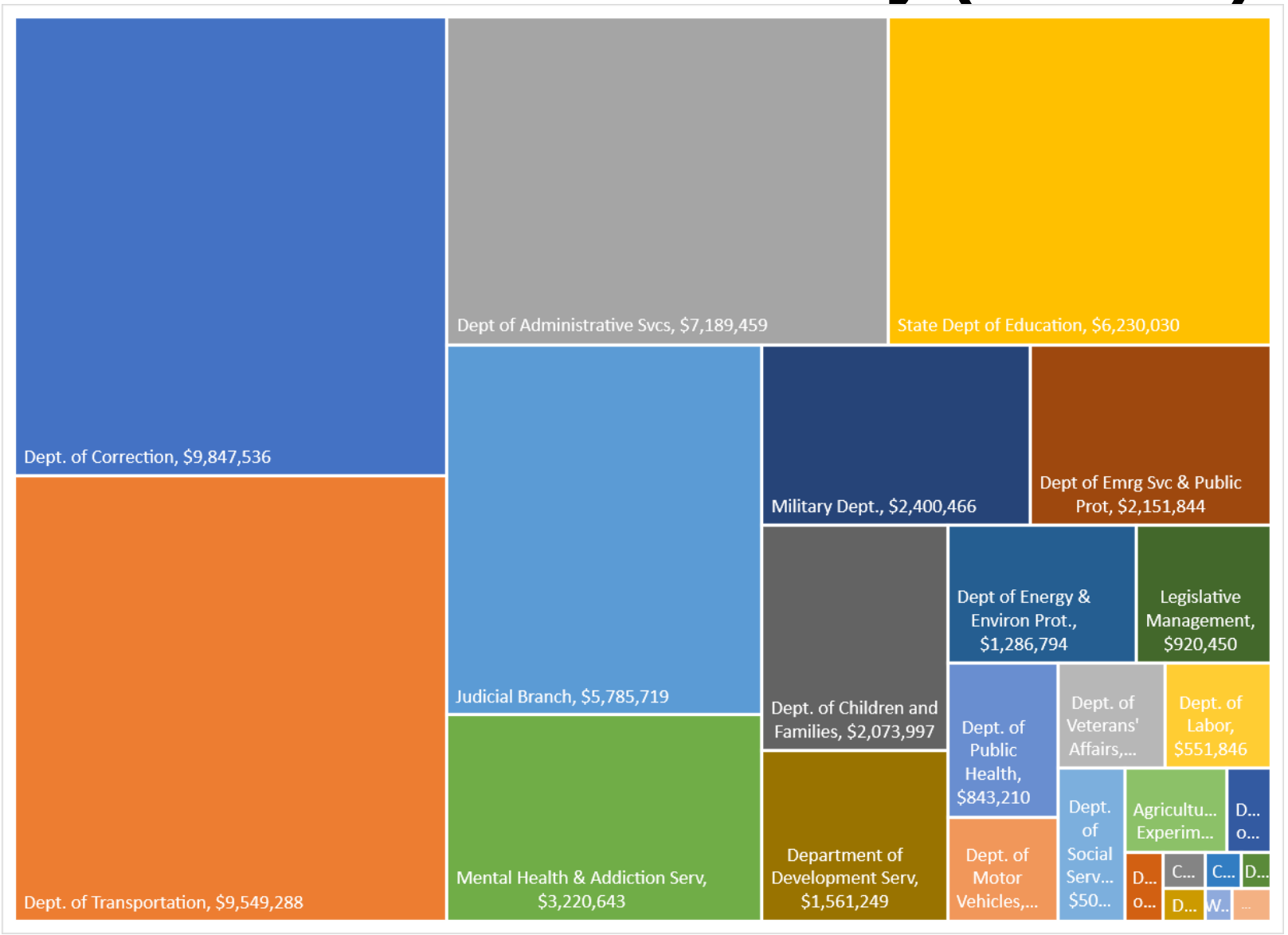
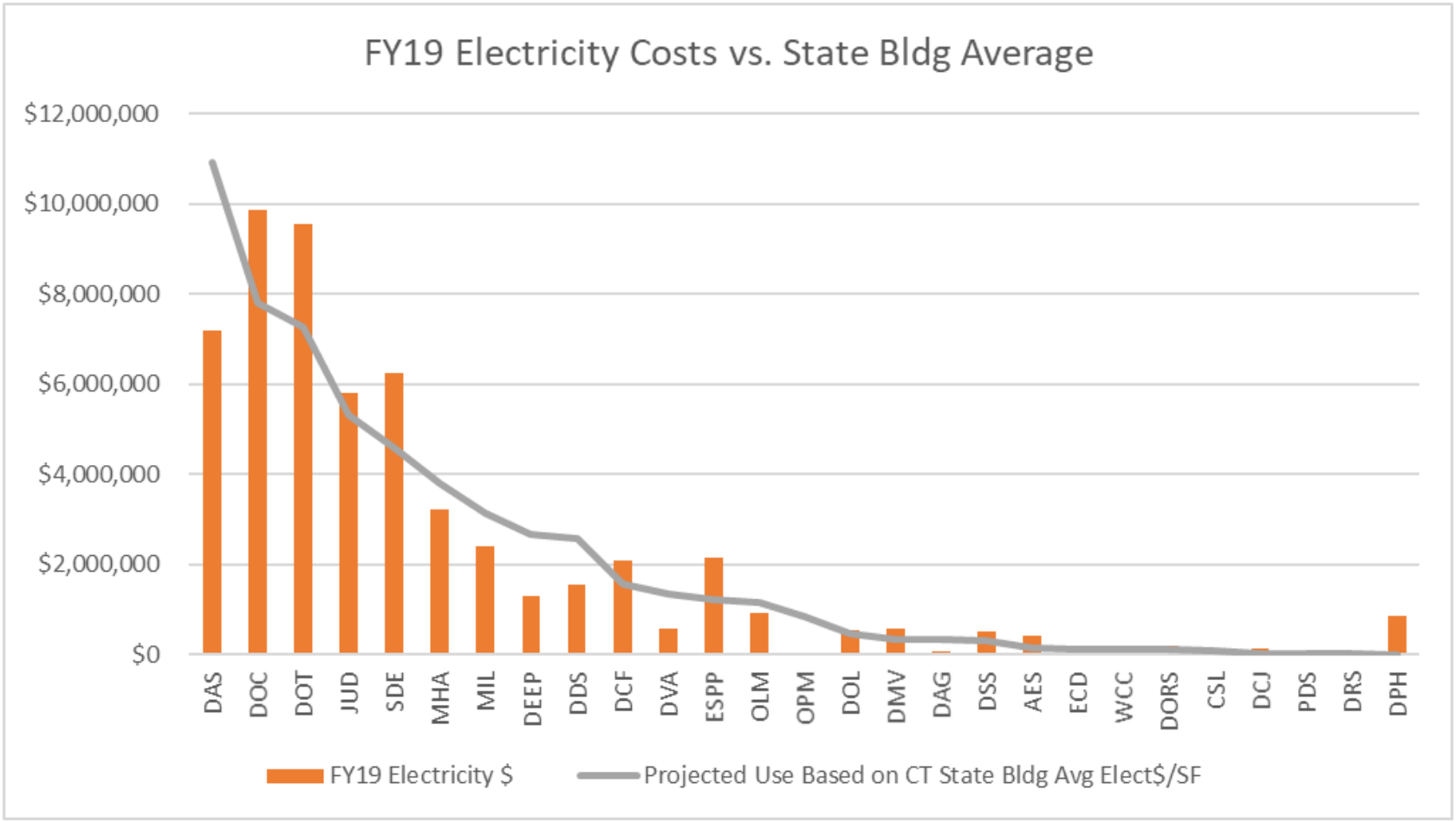
Summary of State Building Activity

CT OSC FY19 Electricity ($56.4M)



*Does not include UConn or CSCU

Electricity Use Intensity by Agency



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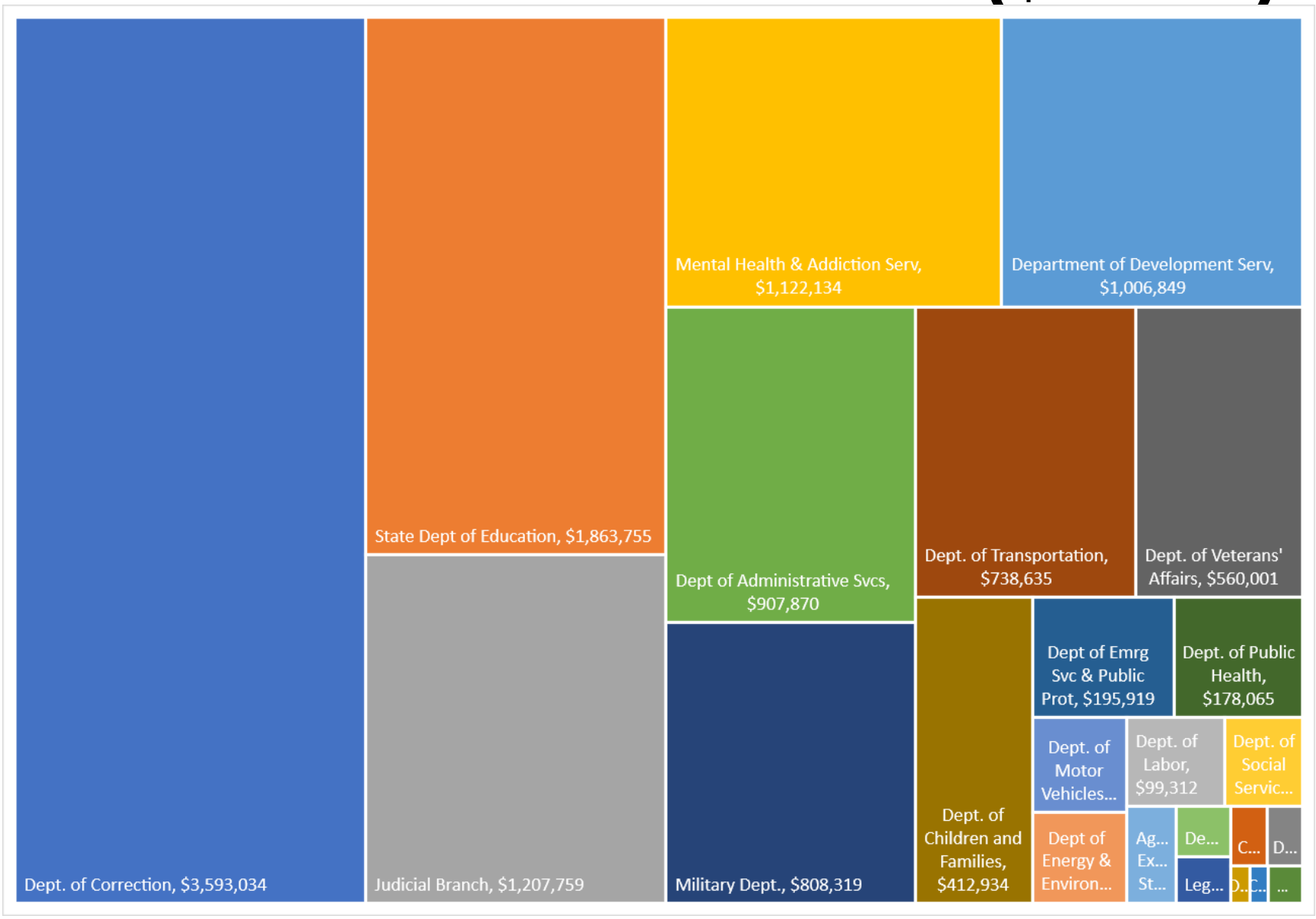
CT OSC FY19 Natural Gas ($13.2M)



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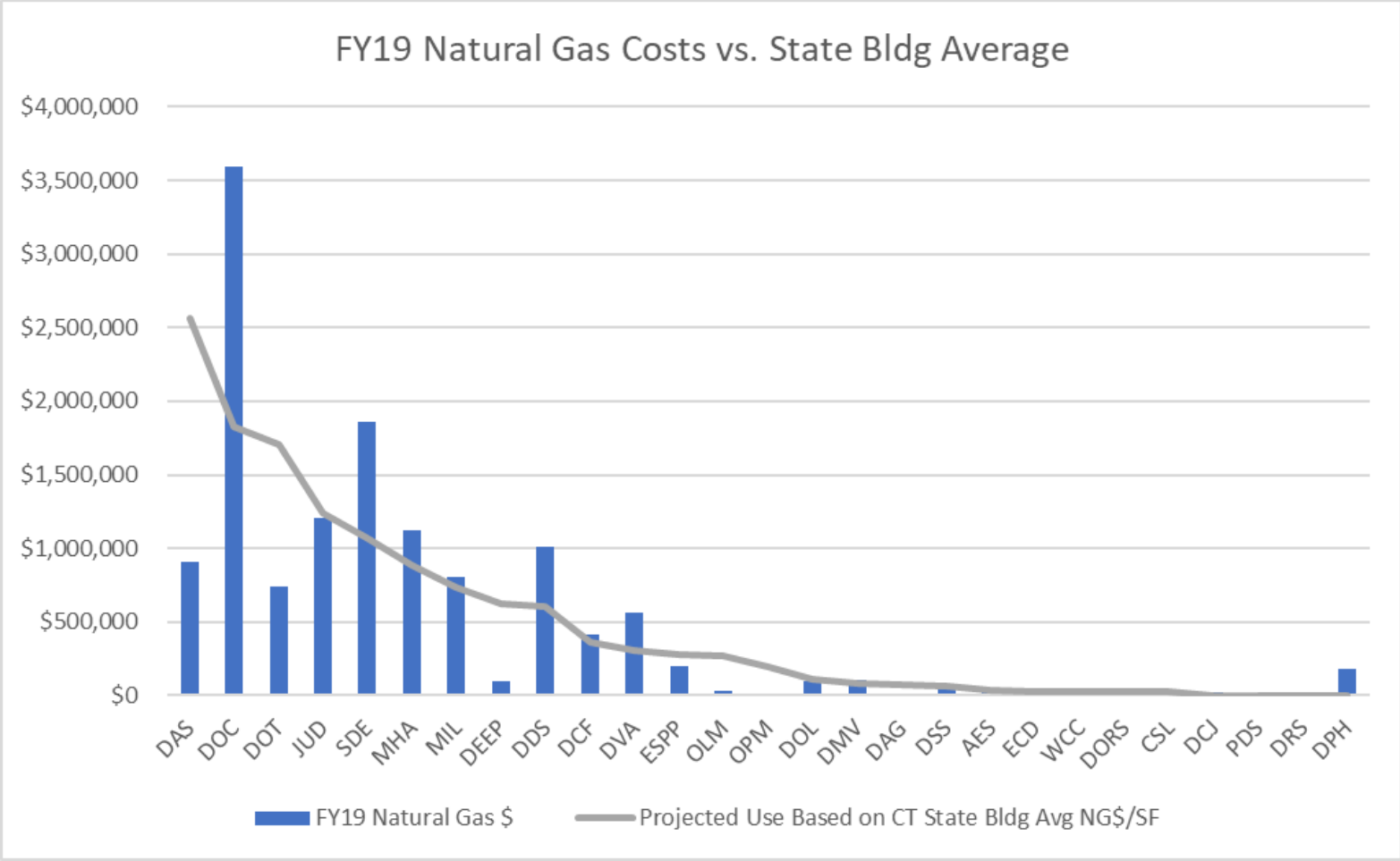
Natural Gas Use Intensity by Agency



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EE Approaches

"Horizontal" Retrofits →

"Deep" Retrofits ↓

	DOT			DOC			DAS			SDE			Other		
Lighting															
Steam Traps															
Refrigeration Controls															
Vent Hoods															
ECM Motors															
Other…															

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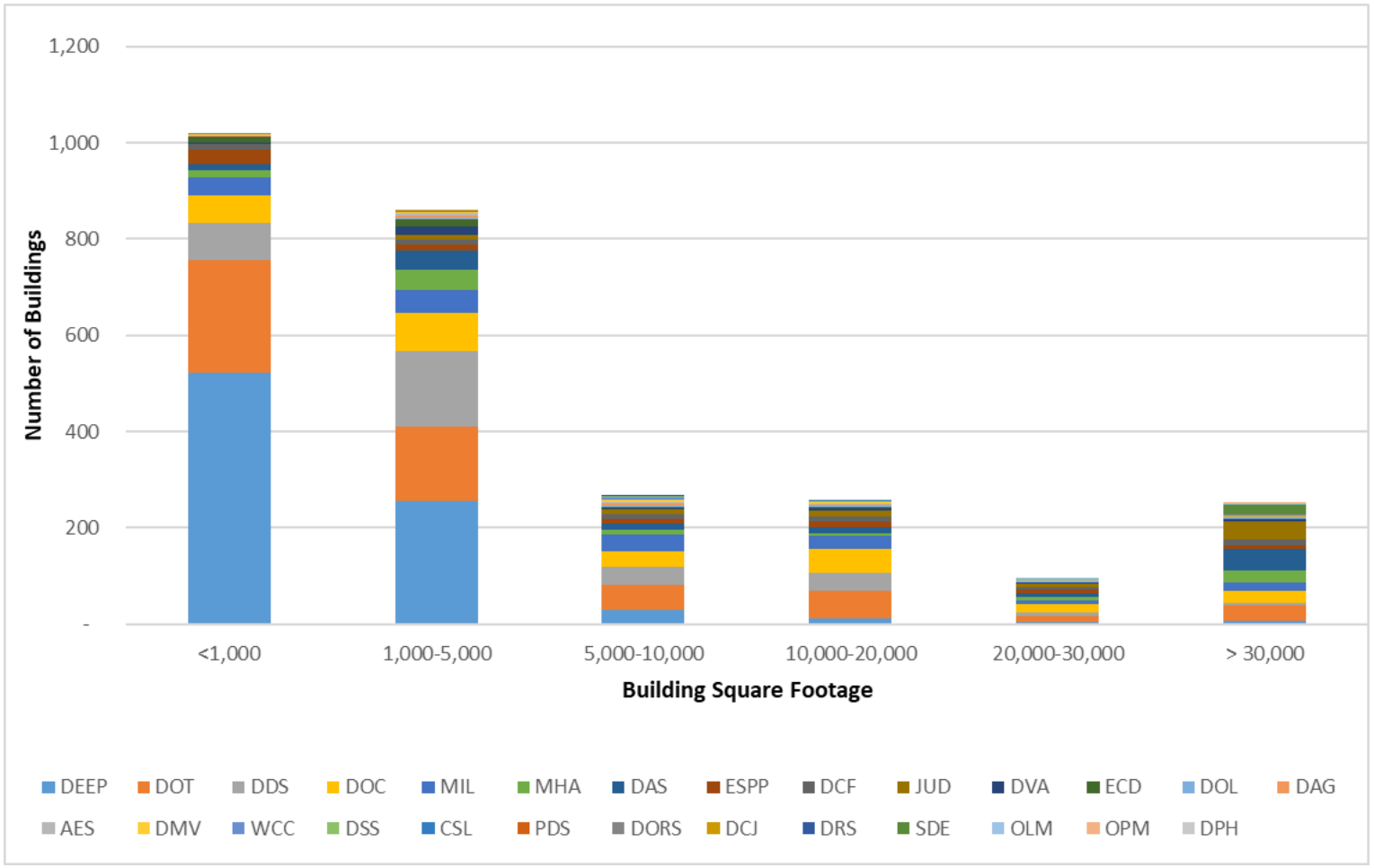
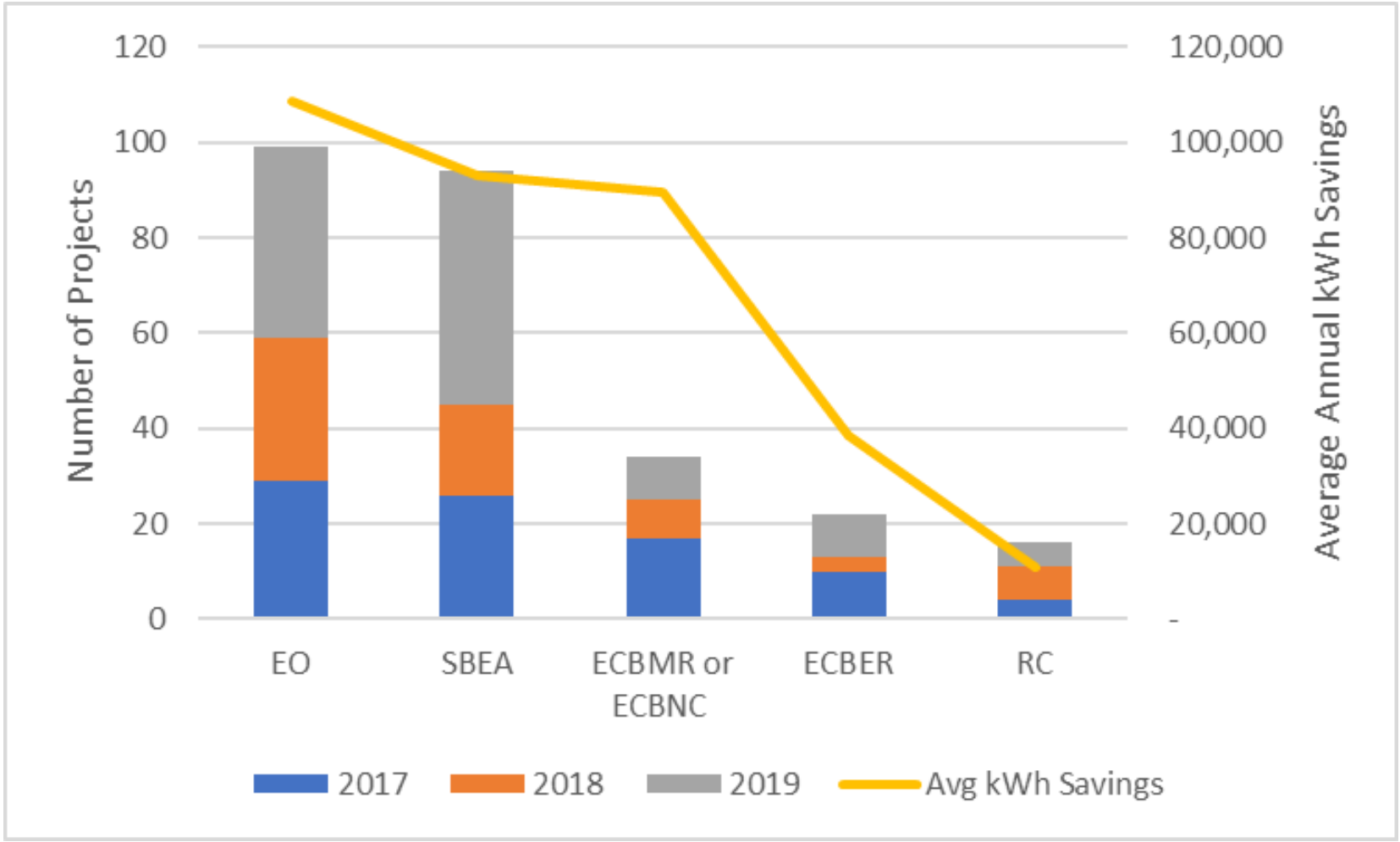
State Buildings by Square Footage



	<1,000	1,000-5,000	5,000-10,000	10,000-20,000	20,000-30,000	> 30,000
% of Total SF	1%	6%	5%	10%	6%	72%
% of Buildings	37%	31%	10%	9%	3%	9%

*Does not include UConn or CSCU

2017-2019 State Building Electricity Saving Projects by Program



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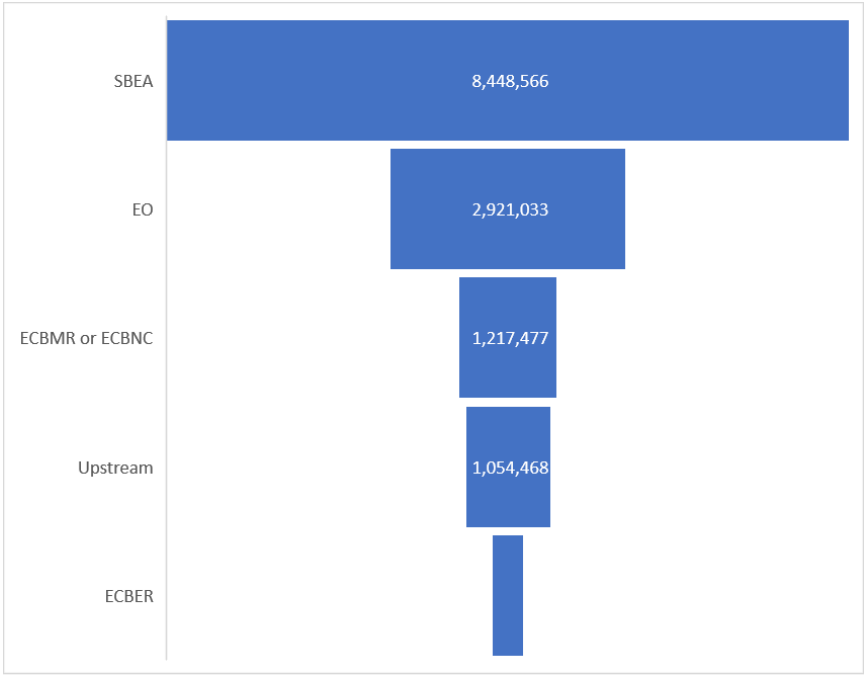
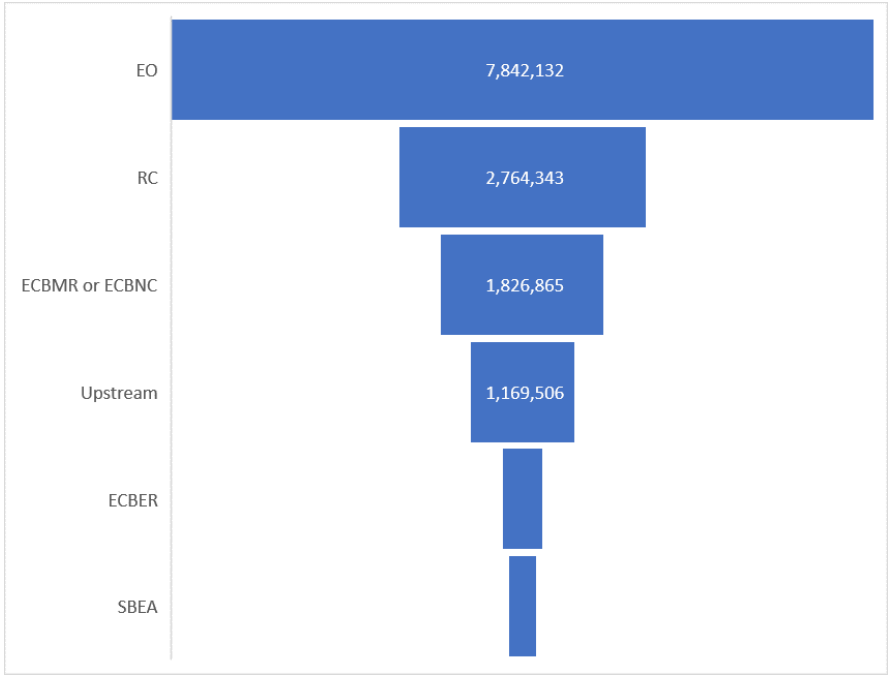
*Includes UConn and CSCU Projects

2017-2019 State Building Electricity (Annual kWh) Savings by Program





Executive, Judicial, Legislative
14M Annual kWh

UConn and CSCU
14.3M Annual kWh

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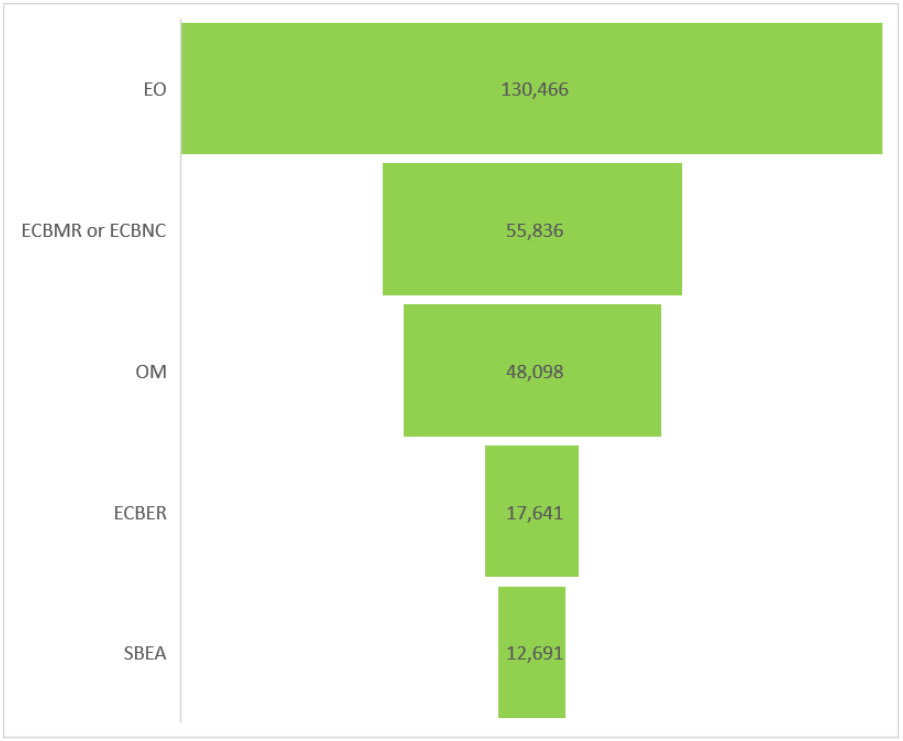
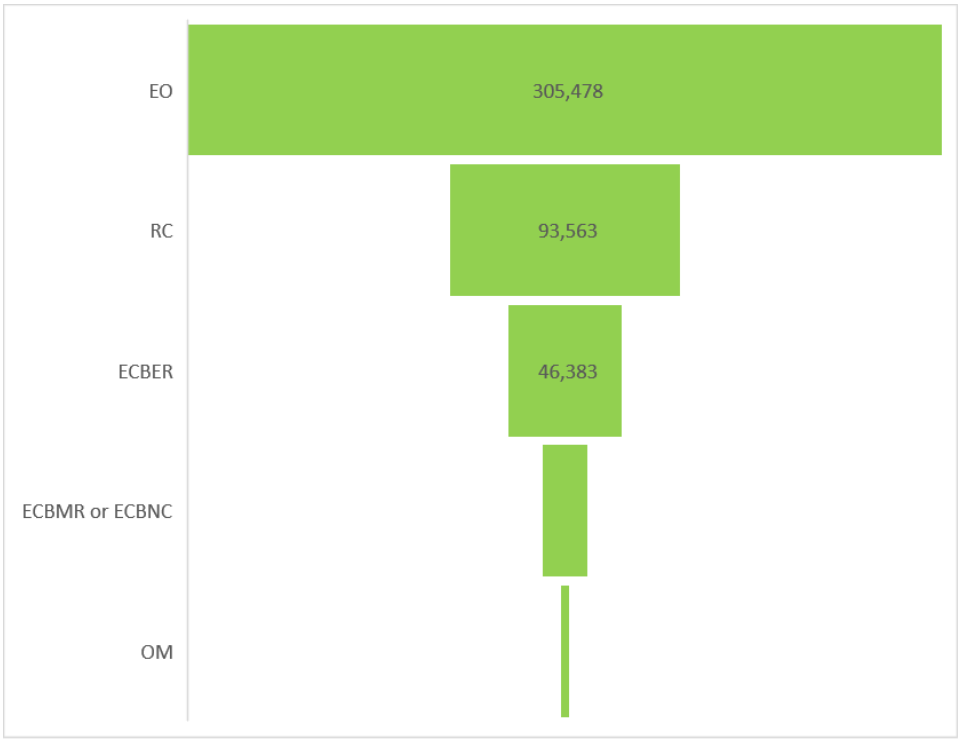
2017-2019 State Building Natural Gas (CCF) Savings by Program





Executive, Judicial, Legislative
265k Annual CCF

UConn and CSCU
468k Annual CCF

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Utility Goals in Support of EO1

- Create/Ensure Agency understanding of utility EE resources
  - Incentives, technical expertise, financing, etc.

- Integrate utility EE process with State's project approval process to streamline delivery
  - Identify potential projects and develop joint strategy for prioritizing work

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