

# **Lighting as a Service:** *A New Model for Energy Efficiency*

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## Learning Objectives

- Understand the Lighting as a Service (LaaS) concept and how it could help reduce energy expenses without a capital investment
- Discover the elements of a LaaS service model and how it emulates the outsourcing model used for other business functions
- Learn how LaaS can support the Internet of Things revolution

## U.S. Advanced Energy Economy

- Advanced Energy Economy definition:

*Broad range of technologies, products, and services that constitute the best available technologies for meeting energy needs today and tomorrow.*

- Energy supply and energy demand
- \$200Bn market
- 17% annual growth rate since 2011

## U.S. Advanced Energy Economy Segments

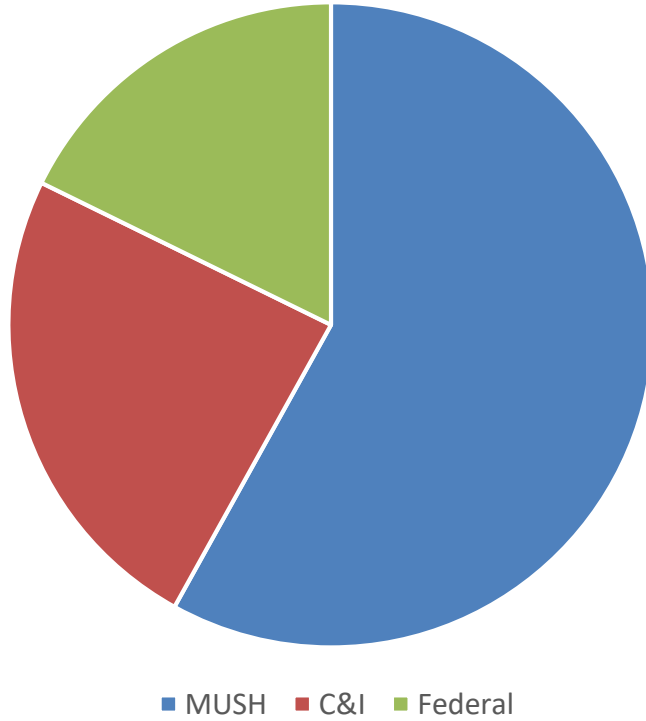
Segment	2015 Revenue (millions)	2011-2015 Growth
Transportation	\$22,546	+93%
Fuel Production	\$35,384	-18%
Fuel Delivery	\$195	-14%
Building Efficiency	\$63,550	+80%
Industry	\$7,703	+83%
Electricity Generation	\$52,343	+35%
Electricity Delivery & Mgmt	\$18,165	+126%
<b>U.S. Total</b>	<b>\$199,886</b>	<b>+41%</b>

## U.S. Building Efficiency Services Segments

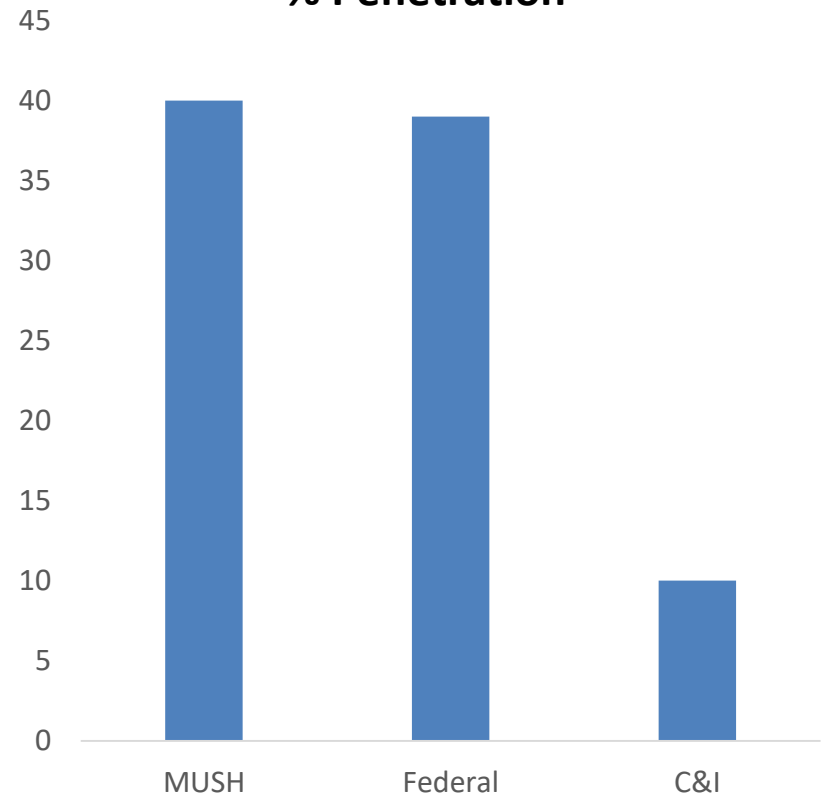
Segment	2015 Revenue (millions)	2011-2015 Growth
Building Design	\$4,336	+54%
Building Envelope	\$14,127	+62%
HVAC / CCHP	\$15,065	+33%
Water Heating	\$1,639	+45%
Lighting	\$24,666	+170%
Appliance/Electronic Equip	\$472	+350%
Demand Response	\$3,245	+61%
<b>U.S. Total</b>	<b>\$63,550</b>	<b>+80%</b>

# U.S. Building Efficiency Services Market

Market Size



% Penetration



## Why Are Energy Efficiency Upgrade Projects Rejected?

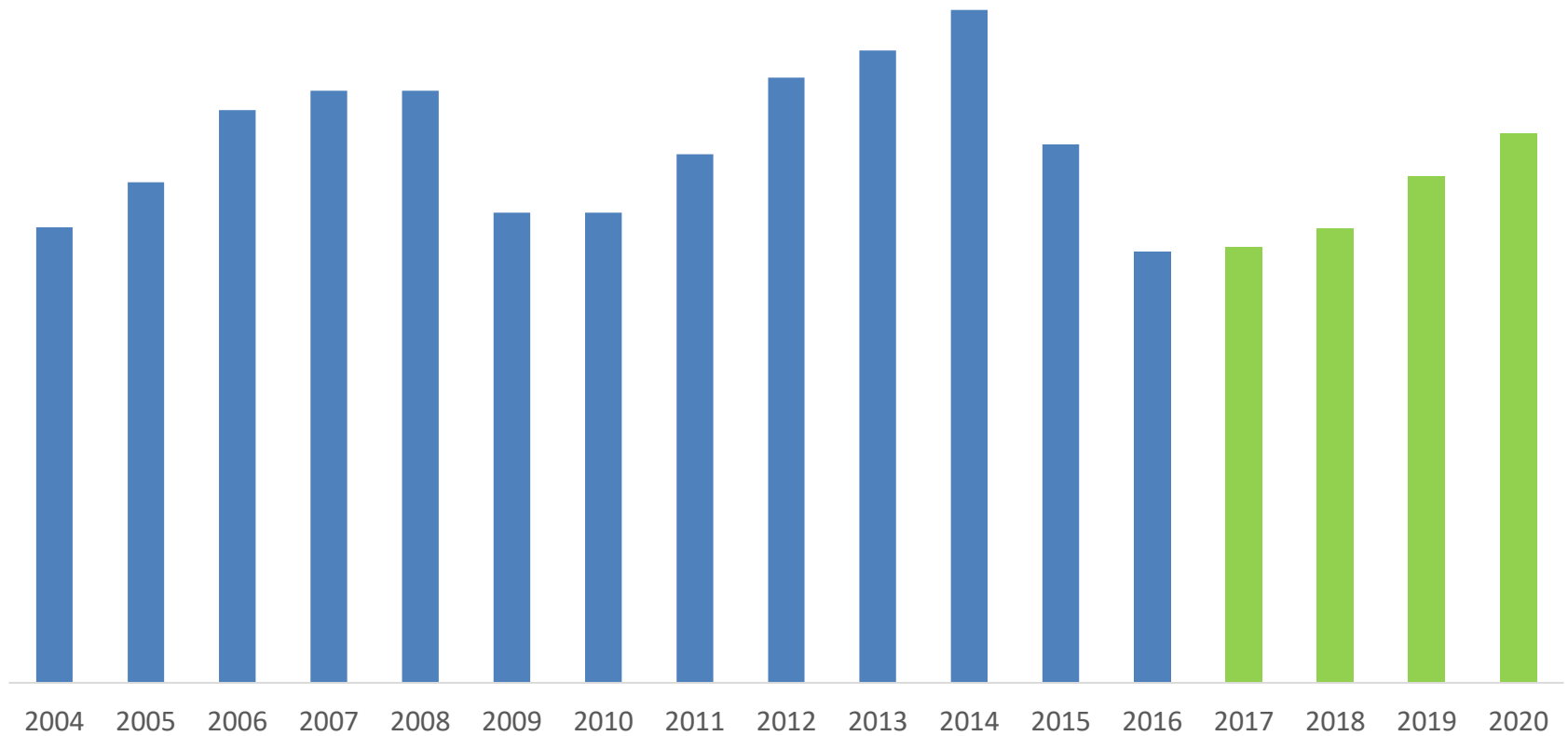
Reason for Rejection	% Total
Awareness	7%
Technical Criteria	7%
Certainty of Savings	15%
Financial Criteria	20%
Unavailable Capital	51%

## Why <10% Penetration in C&I Market?

- Decentralized decision making
- Facility-by-facility project approach
- Individual measure versus bundled project approach
- Typically customer financed model
- Conflicting demands on capital



## U.S. Capital Spending Patterns



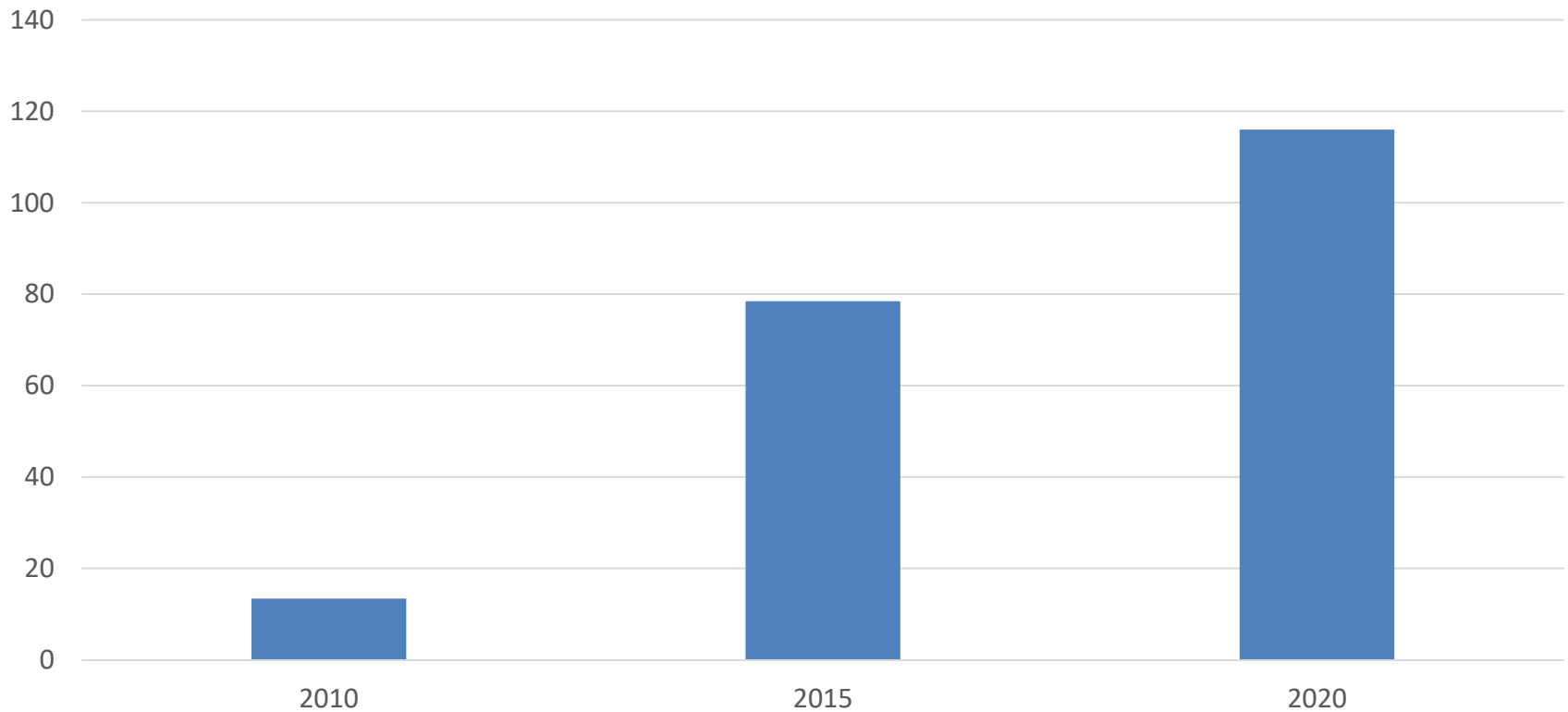
## What is “As a Service?”

### Core components:

- Subscription based
- Centrally owned
- Centrally managed
- Ongoing support
- Analytics

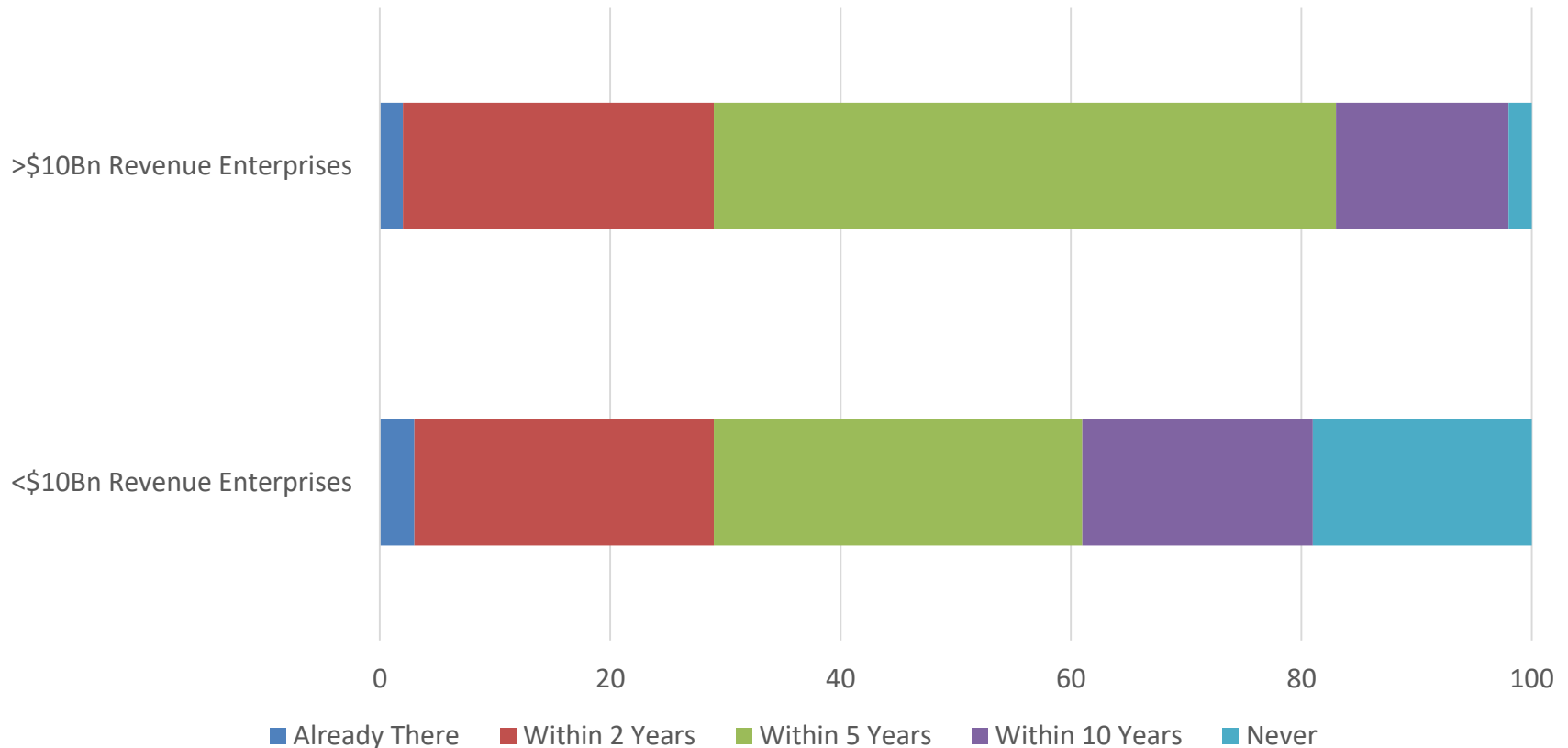
## Leading Example -- Software as a Service

Global Market (\$Bn)



## As a Service Adoption

How Quickly Will Your Core Processes be Delivered “As a Service”?



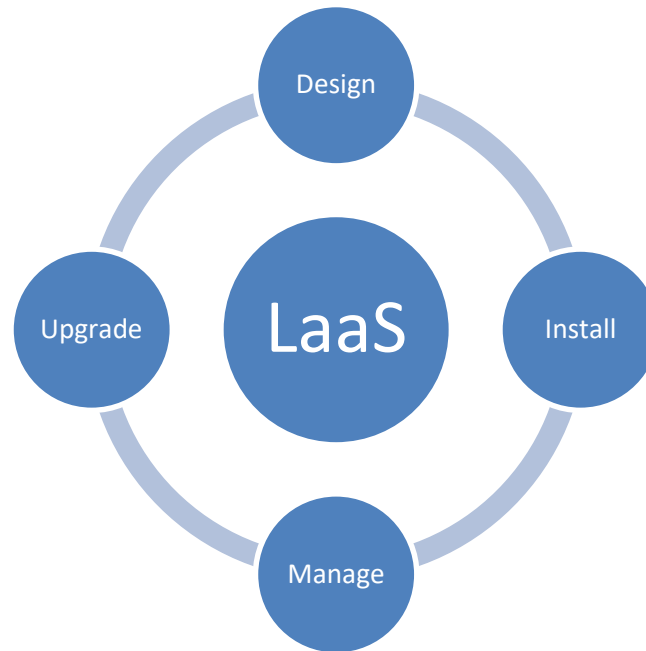
## Emerging As a Service Concepts

- Backup Power as a Service
- Compressed Air as a Service
- Water as a Service
- Lighting as a Service

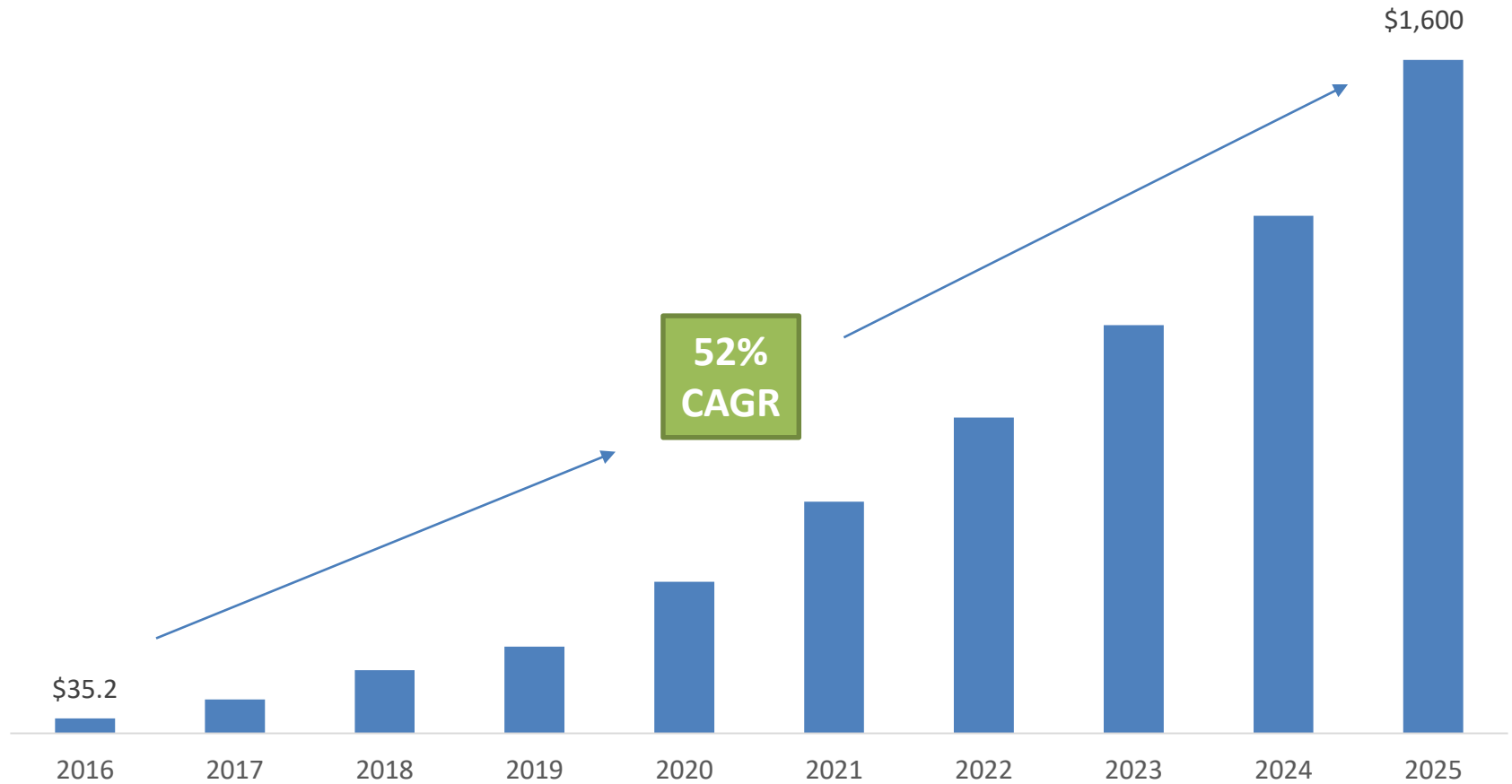
## What is Lighting as a Service (LaaS)?

“Third party management of a lighting system that may include additional technical, maintenance, financial, or other services.”

*Navigant Research*



## LaaS Global Market Forecast (\$M)

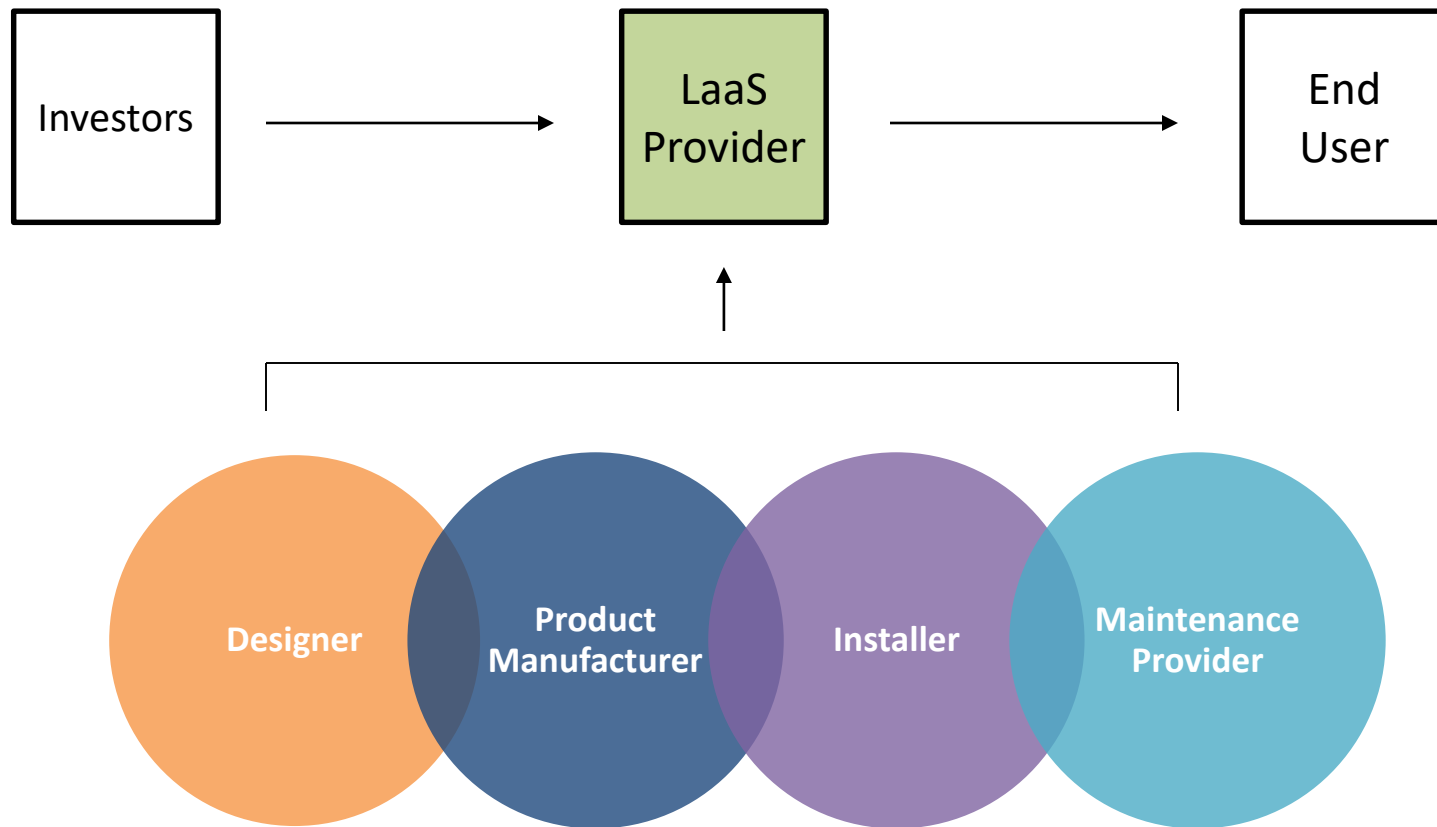


## LaaS Value Proposition

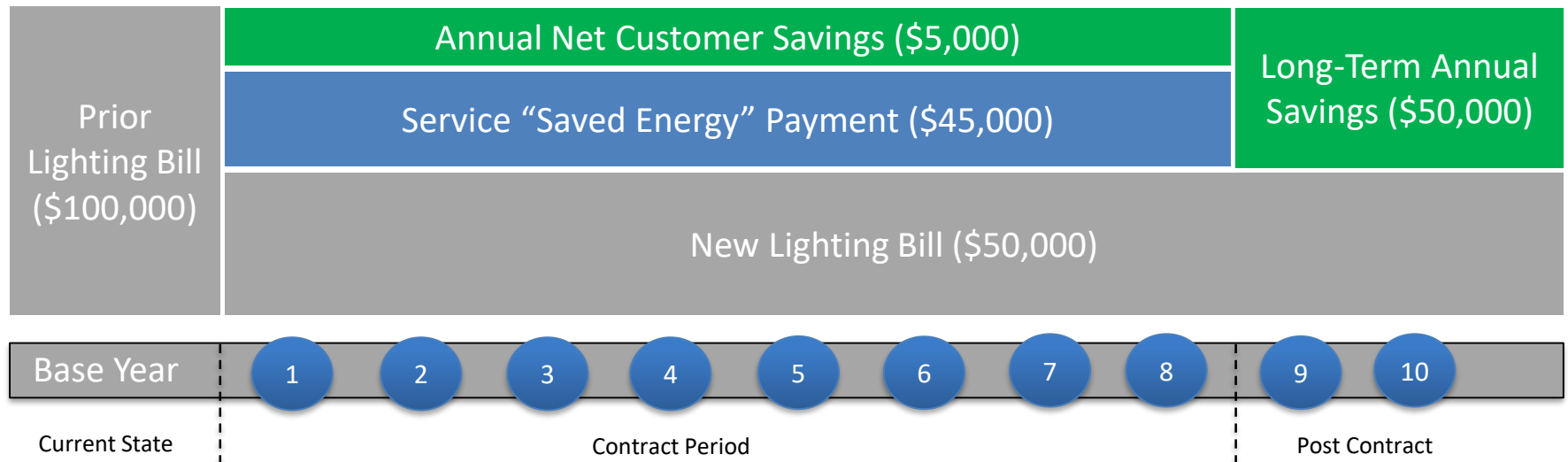
- No upfront capital outlay
- Term payments funded through verified energy savings
- Transition of equipment at end of term
- Provider assumes risk (performance, financial)
- Accelerated energy savings
- Reduced maintenance costs
- Standardized equipment across facility portfolio
- Redeployed internal staffing



## Lighting as a Service Framework



## Example LaaS Project Economics



## How Does LaaS Differ from an Operating Lease?

- Service provider owns and maintains equipment
- Service provider receives portion of economic benefits
- Contract payments are variable and based on actual performance (via M&V process)
- Contract term often aligned with kWh savings goal vs calendar
- No fixed equipment buy-out schedule

## What is Fueling LaaS?

- Technology advancements
- Struggles with supporting complex systems
- Building codes (i.e., CA Title 24)
- Preemptive moves by lighting manufacturers

## Lighting as a Service Providers

- Current
- Enlighted
- Lunera
- Philips
- And more to follow...

## Current by GE / JPMorgan Chase Contract Highlights

### Scope:

Current by GE to plan, install, finance, and manage upgrade of ~1.4mm LED lamps across 5,000 branch offices

### Design highlights:

- LED lamps
- Sensors
- Software
- Cloud view of energy production, storage, and usage

## Implications for the Future?

- Increased pace of lighting upgrades?
- Accelerated energy savings?
- Multi-site programs versus single site projects?
- Comprehensive designs?
- More intelligent buildings via IoT platforms?