Keys to US ESCO Growth

UNEP DTU Webinar, 8 June 2021

NAESCO

Overview

- Introduction to NAESCO
- Phases of US ESCO industry growth
- Major market drivers
- Role of technologies
- Risk management is key

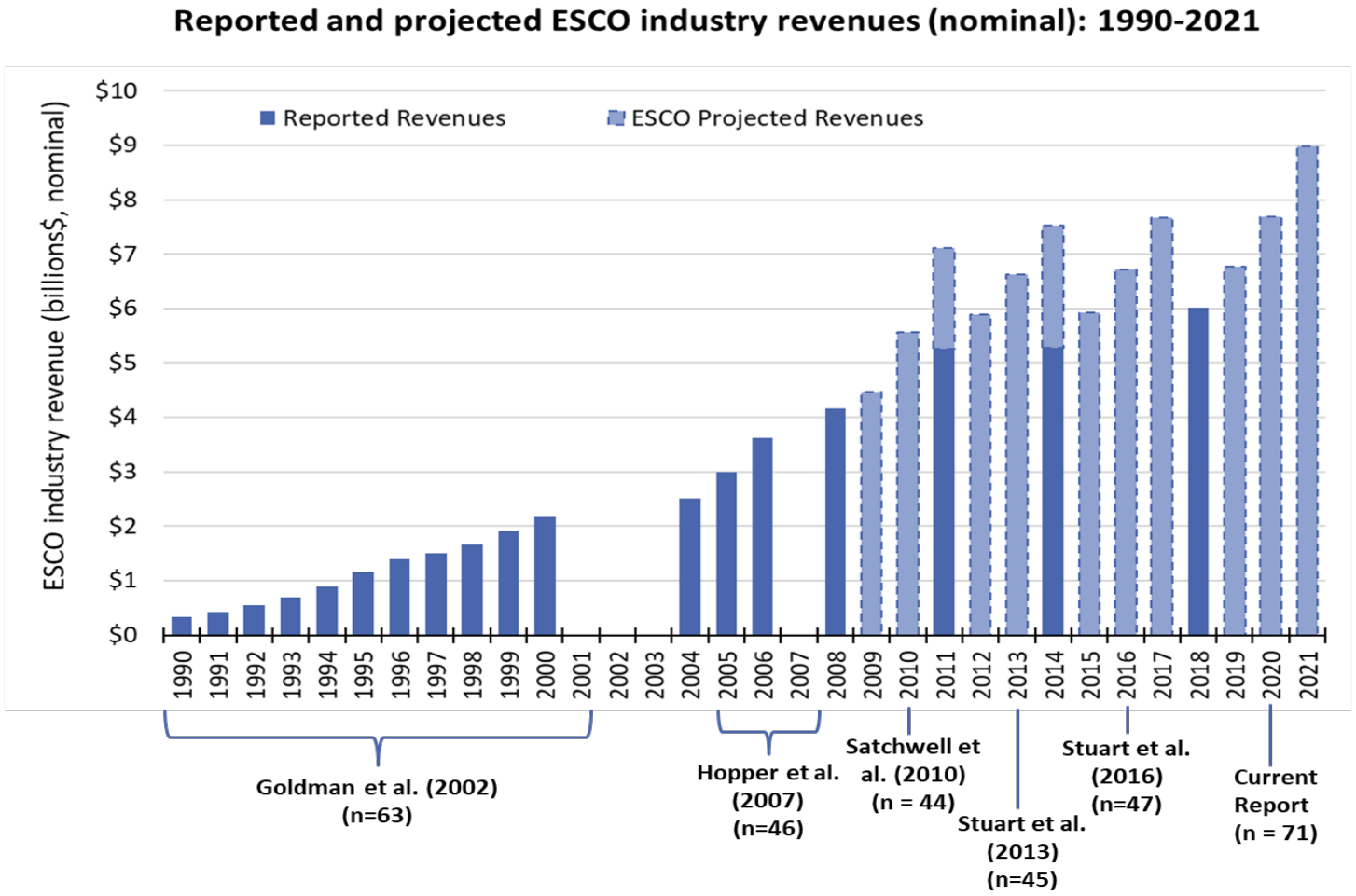
Introduction to NAESCO

- National trade association of Energy Service Companies (ESCOs)
- Founded in 1983
- About 110 members – we're in a growth spurt
  - 42 are ESCOs
  - Affiliates provide equipment and services to ESCOs
- Implement about $7 billion of projects annually
- Historically, ESCOs have delivered:
  - $60 billion in projects paid from savings
  - $65 billion in savings – guaranteed and verified
  - 500,000 person-years of direct employment
  - $45 billion in public infrastructure improvements
  - 480 million tons of CO2 savings at no additional cost
- Projects include EE, RE, sustainability technologies
- Almost all projects are performance contracts in public facilities

Phases of US ESCO Growth

US ESCO Industry Growth – 1990-2018

- Steady growth over 30 years, even through the 2008-2010 financial crisis



Source: Lawrence Berkeley National Laboratory

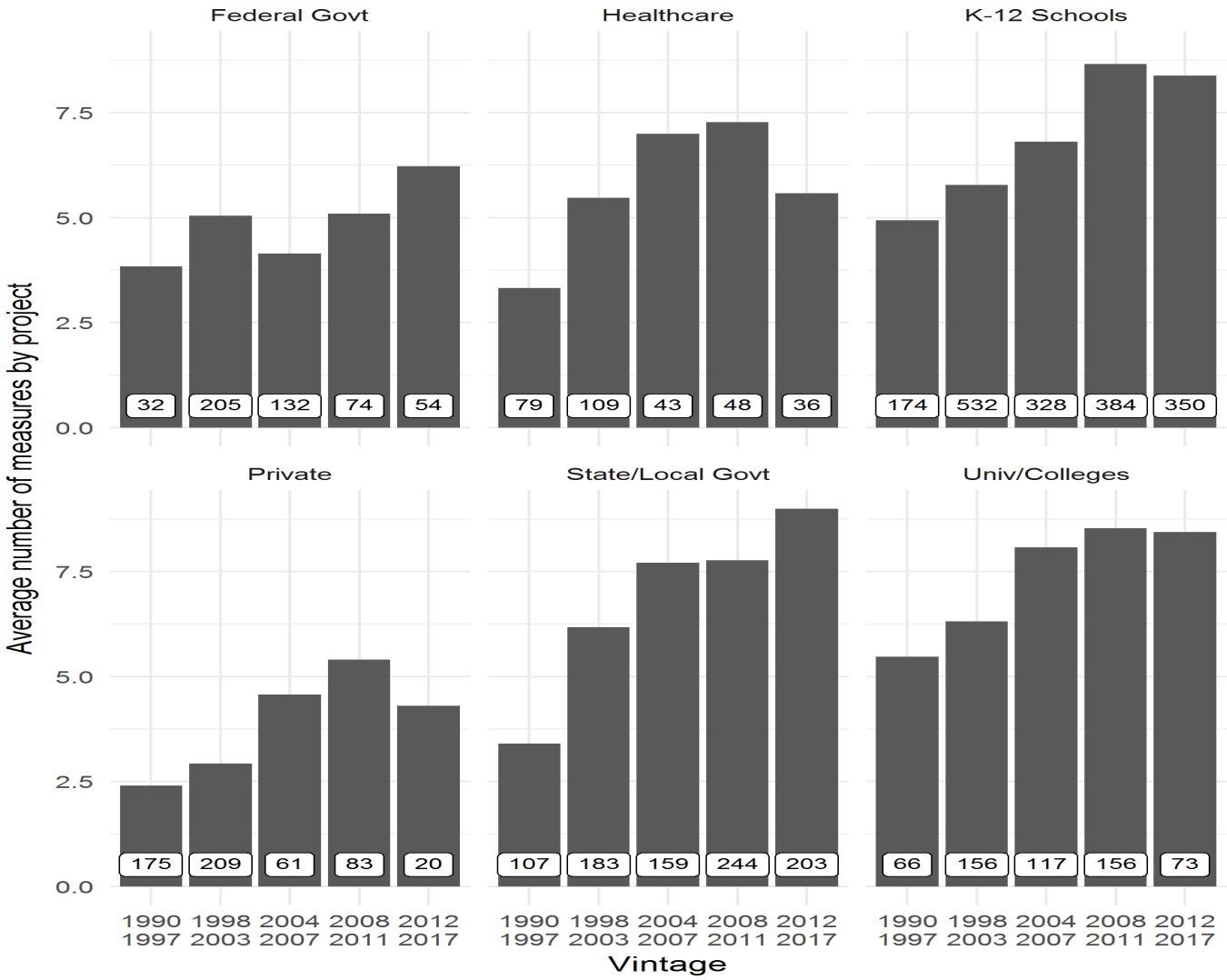
Early ESPC, 1985-1995

- Utilities solicit bids for “energy efficiency power plants”
- Utilities pay for kWh delivered: 80-100% of project costs
- M+V emulates utility metering (≥ 15% of project cost)
- ESCOs assemble turnkey service packages
  - Audits + construction + financing + maintenance + savings guarantees
- Measures are mostly lighting and controls
- ESCOs target high run-hour customers
  - Industrials, hospitals, prisons, some schools, etc.
- Financing on ESCO balance sheets using shared savings contracts
  - ESCO assumes **project performance risk** and **credit risk**

Industry Evolution, mid 1990s into early 2000s

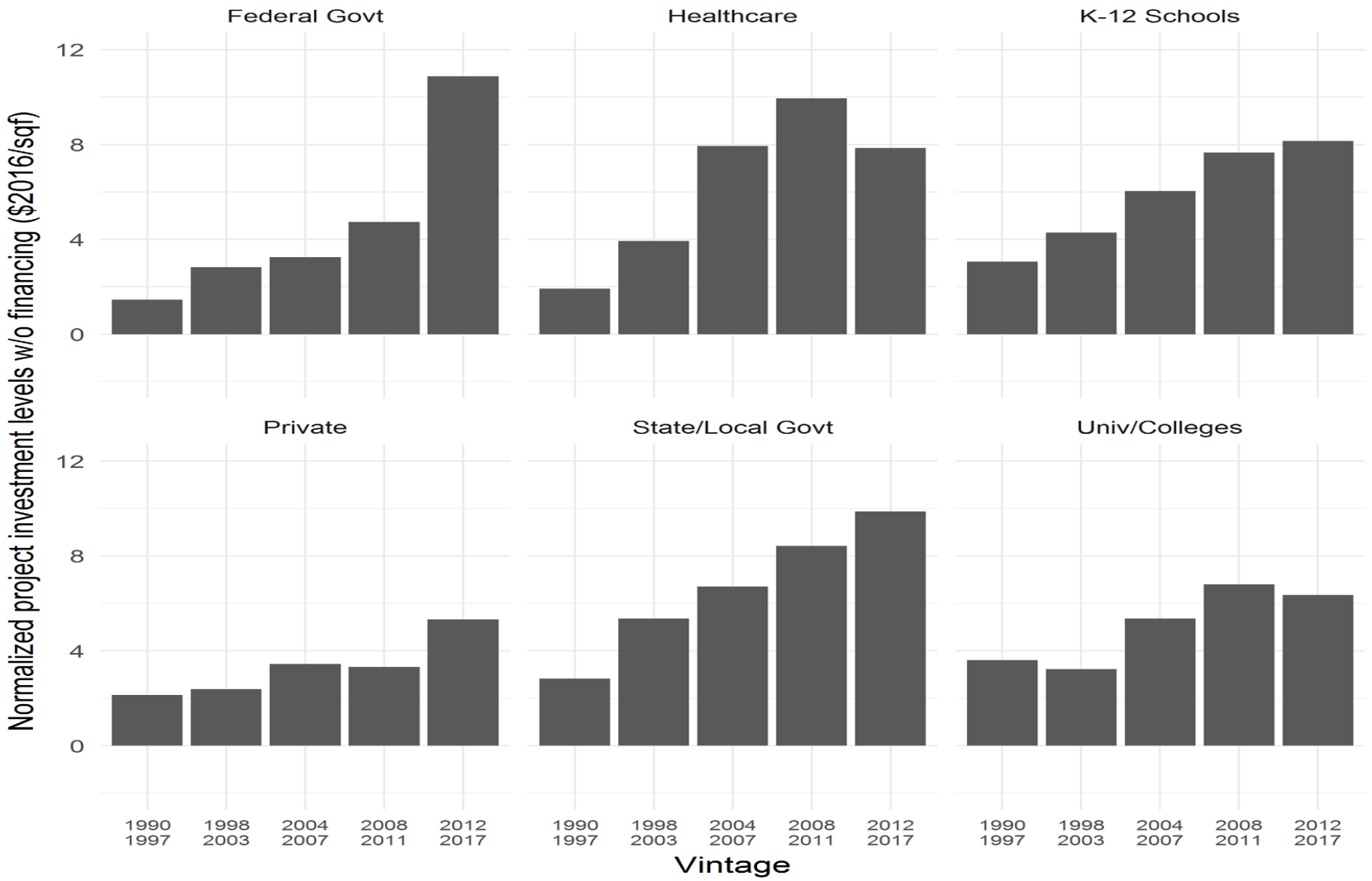
- Customers more comfortable with EE technologies
- Federal and state governments authorize ESPC
  - Impose savings mandates without capital appropriations
- Larger, more complex projects
  - Increased project development costs and risks
- Utilities buy out ESCO entrepreneurs
  - 50+ utility-owned ESCOs for a few years
- New Finance Model
  - Guaranteed savings replaces shared savings
  - Banks and specialized companies provide financing
- New M+V Model
  - NAESCO, ASHRAE, US DOE create IPMVP

Projects are becoming more comprehensive



Source: Lawrence Berkeley National Laboratory

Investment levels per square foot have increased significantly



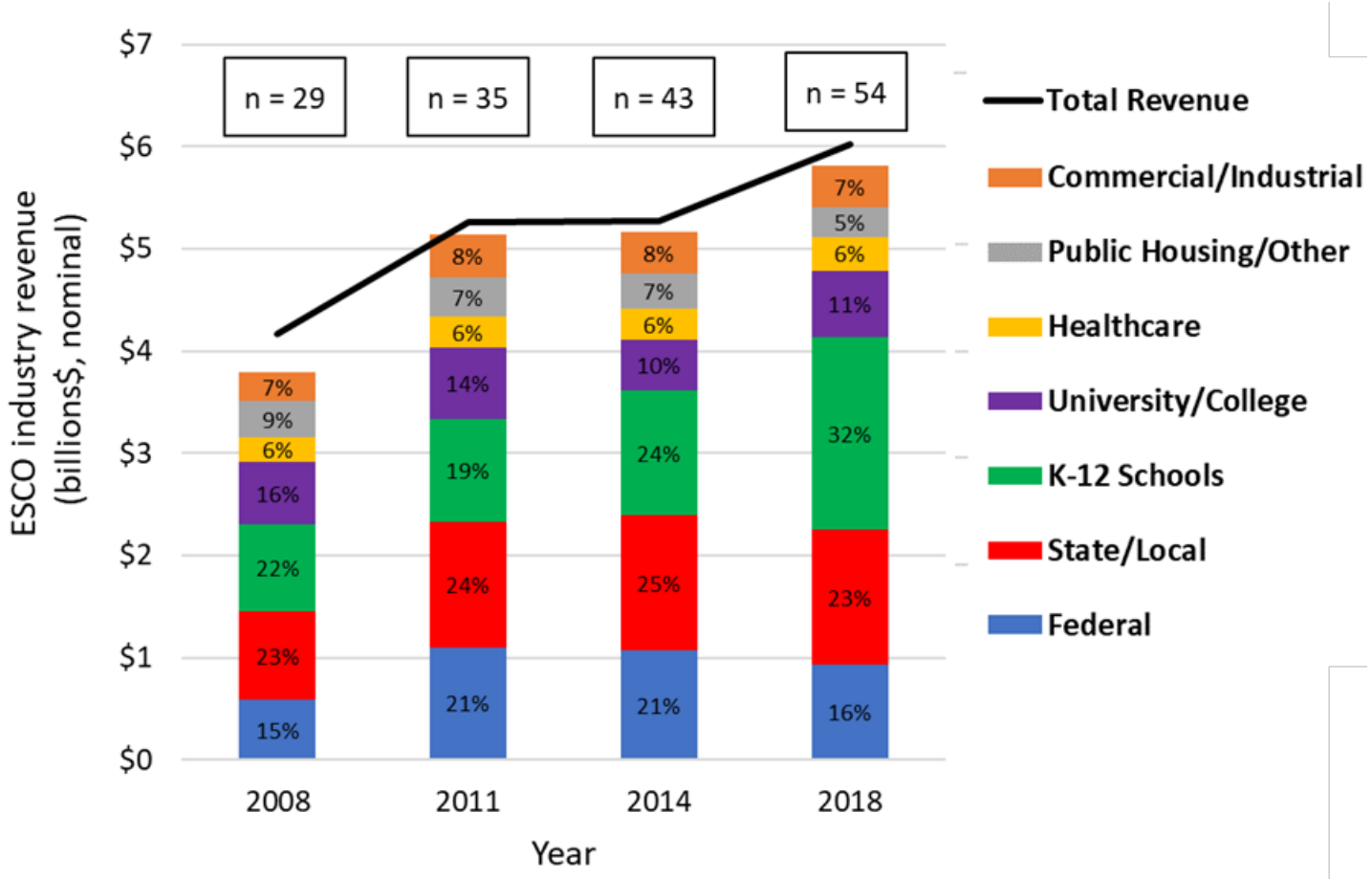
Source: Lawrence Berkeley National Laboratory

Focus on Public Facilities, 2004-present

- Industrial and large commercial customers turned off by Enron debacle and financial crisis
  - No more long-term deals
- ESCOs focus on public buildings
  - Energy savings mandates
  - Deferred maintenance + lack of capital = large projects
  - Pay for improvements with savings – energy and maintenance
  - 10-20-year project paybacks
- ESCOs add technologies to meet customer needs
  - Distributed generation + renewables + storage + street lighting + water infrastructure
- Utility subsidies help project economics

Revenue Trends by Market Segment

- Public and institutional customers have consistently made up over 90% of industry revenue.
- K-12 schools represented a larger portion (32%) of industry revenue in 2018 as compared to 2014 (24%) and 19% in 2011.
- Conversely, federal facilities made up a smaller portion (16%) than in previous years.
- Share of industry revenue for other market segments has changed very little since the previous report.



Source: Lawrence Berkeley National Laboratory

Major Market Drivers

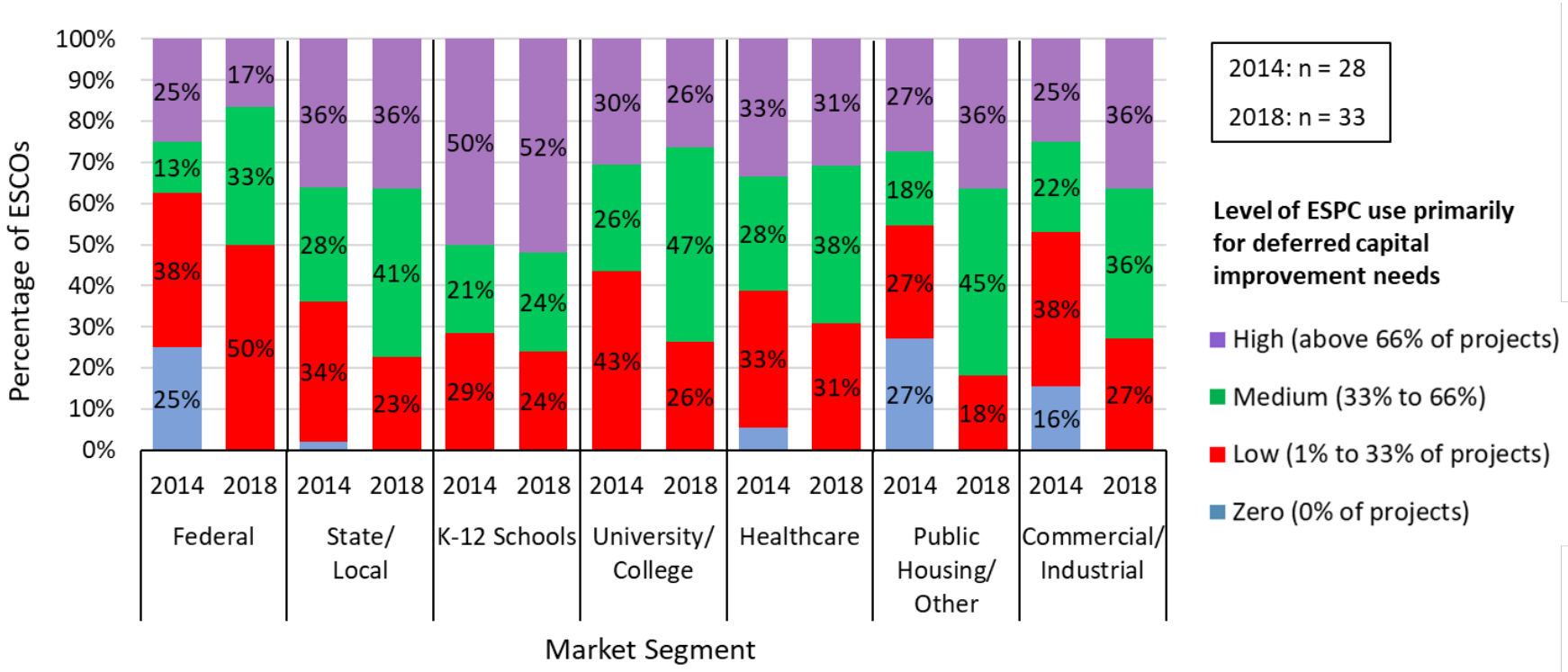
Government Savings Mandates and Building Needs

Government mandates and public facility needs

- Federal and state legislation requiring significant reductions
- US public facilities need more than $1 trillion of capital investment
  - Half of US schools need major HVAC work
  - Illinois public schools have $7.65 billion in deferred maintenance
- Little or no capital funding to meet mandates or building needs
- Government instead drives the market through administrative actions
  - Standardized ESPC project processes and documents
  - Competitive solicitations to create lists of qualified ESCOs
  - Requirements that state agencies implement all cost-effective ESPCs
  - Obama Performance Contracting Challenge - $4 billion on four years

https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit

ESPC for Capital Improvement (2014 vs. 2018)



- The percentage of ESCOs who reported a high or medium level of ESPC use for capital improvement increased between the previous survey (2014) and the current survey (2018) for all market segments.
- The most significant increases occurred for the state/local, university/college, public housing/other and commercial/industrial market segments.
- For 2014, ESCOs answered this question for projects initiated 2012-2014. For 2018, ESCOs answered for projects initiated 2016-2018.

Source: Lawrence Berkeley National Laboratory

Role of Technologies

Not the key to long-term growth

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Technology comes to the ESCO market in waves

ESCOs introduce technologies and are overtaken by other market players

Lighting

- Drove the first phase of growth
- ESCOs dominated the market
  - Knew the technology better than lighting installation firms
  - Warehoused equipment because distributors would not
- Market caught up
  - Lighting firms learned
  - Project specifications were routinized
  - Equipment stocked by distributors and big box stores
- ESCOs learned to partner with lighting firms to shift risk

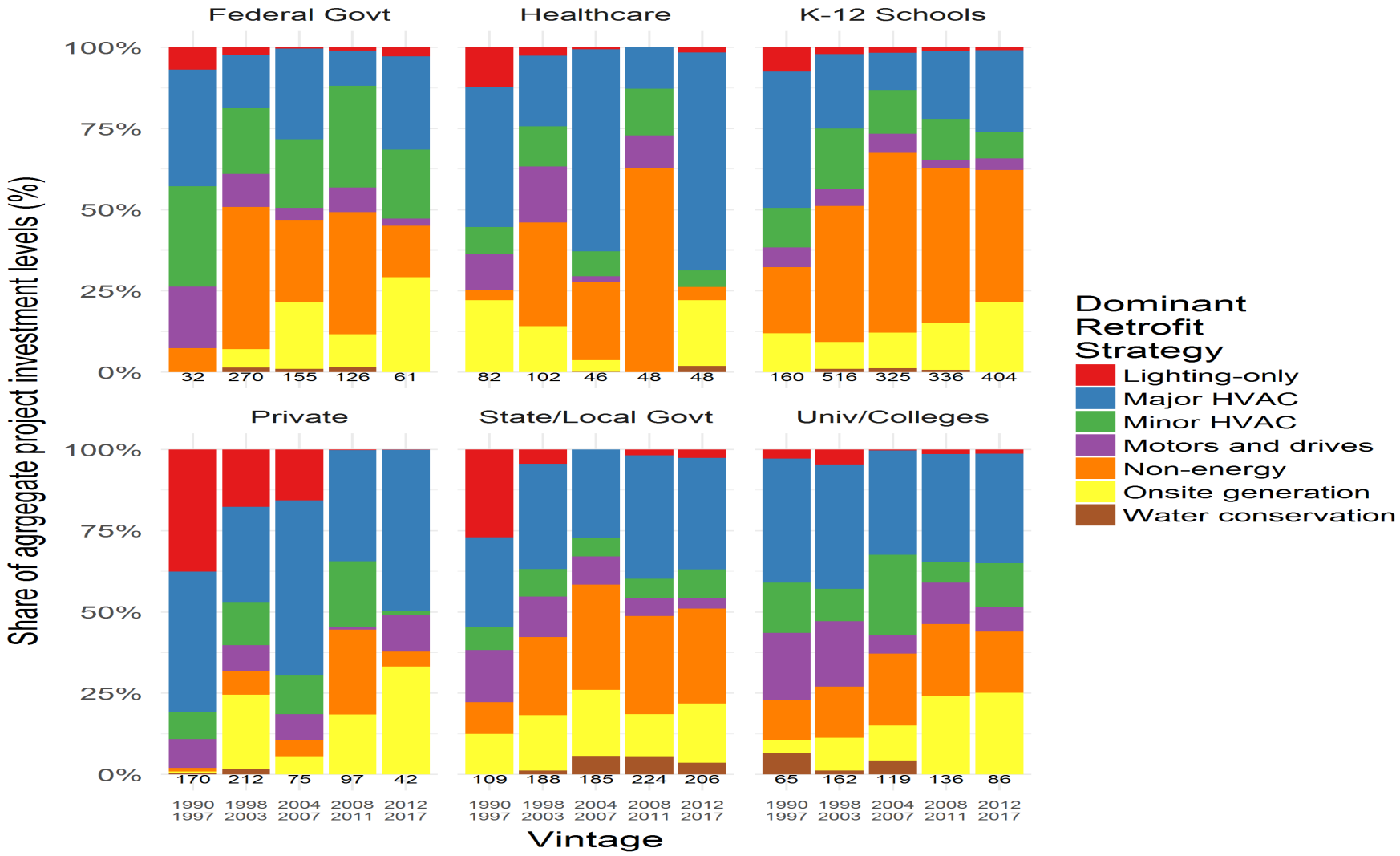
HVAC and Controls

- Large companies sold proprietary control systems
- Large companies could manage and finance boiler, chiller and ventilation retrofits
- Market caught up
  - Proprietary control systems replaced by generic hardware and open-source software
  - Mechanical contractors learned how to manage project development and guarantees
- ESCOs learned to partner with mechanical contractors

Solar PV

- ESCOs bundled PV into a comprehensive project
- Blended long-payback PV with short-payback lighting and controls
- Market caught up
  - Tax incentives (+30% of costs) diluted the benefit of comprehensive projects
  - ESCOs couldn't compete with low-overhead PV vendors
- ESCOs learned to partner with PV vendors and integrate PV with storage, demand response, and microgrids

Increased adoption of capital intensive retrofit strategies



Source: Lawrence Berkeley National Laboratory

Risk Management is Key

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ESCO business risk management

Identify and minimize risks in a complex business

Marketing and Sales

- Understand what you are selling
  - Comprehensive, long-payback projects
  - Understand what segments need what you are selling
  - Market to those segments
- Understand that the long sales cycle is the riskiest part of the ESCO business
  - Identify customers with an urgent need
  - Don’t pursue others
  - The second-best first sales call is a quick goodbye

Contract and Construction

- ESCOs use experts
  - In-house or retained attorneys who specialize in ESPC to write contracts
  - Specialized construction managers, not design engineers, to manage construction

Savings M&V

- US ESCOs use the IPMVP
  - Options A, B, and C
- Define the savings guarantee
  - Units of energy, not dollars
  - O&M savings
  - O&M responsibilities
  - Building operating parameters
  - Baseline adjustments
- Make sure the customer understands the M&V reports
- Store all project documents electronically to assure access for the term of the contract
- Review results with customer

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