MA ENERGY EFFICIENCY ADVISORY COUNCIL

→ CONSULTANT TEAM

C&I 2014 CUSTOMER PROFILE STUDY

EEAC March Meeting

▶ **March 16, 2016**

www.ma-eeac.org

OVERVIEW OF THE PRESENTATION

Goal: show the Council the status of the C&I efficiency programs as of 2011-2014

- **Profile analysis overview**
  - Programs
  - End uses/measures
  - Participants/Industry Sectors
  - New analyses

- **DNV-GL PA is the contractor who produces report**
  - 2014 C&I Customer Profile in 4th year
    - 434 pages – a LOT of information
    - Where to find it on EEAC website:

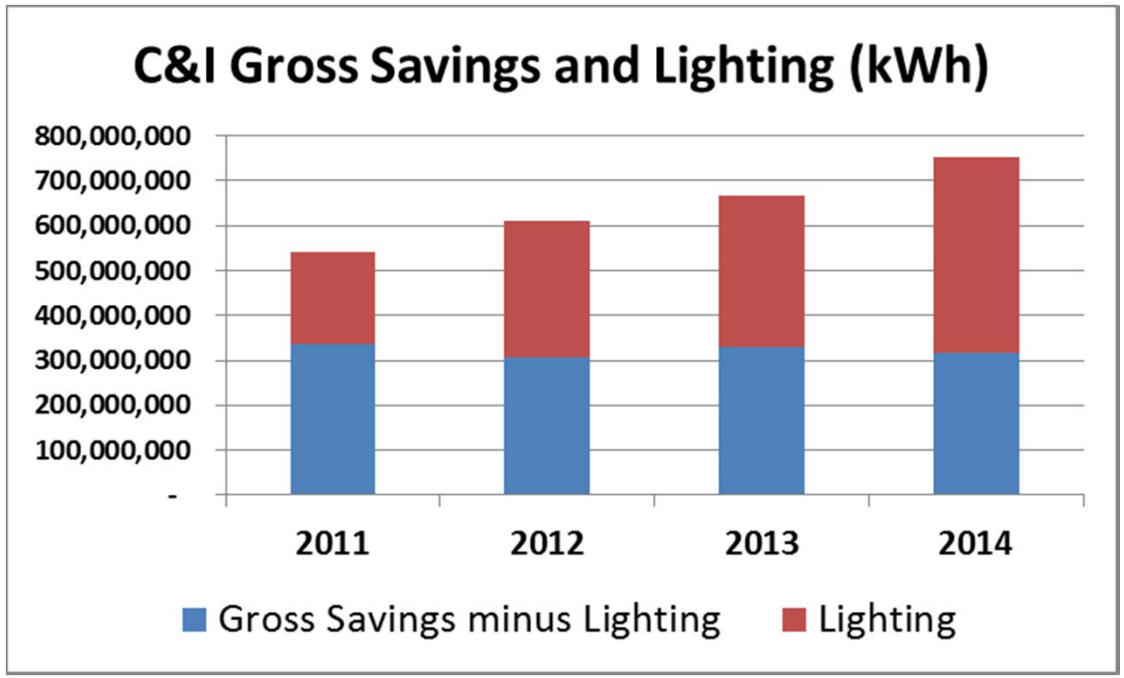
http://ma-eeac.org/studies/commercial-and-industrial-studies/

HEADLINES

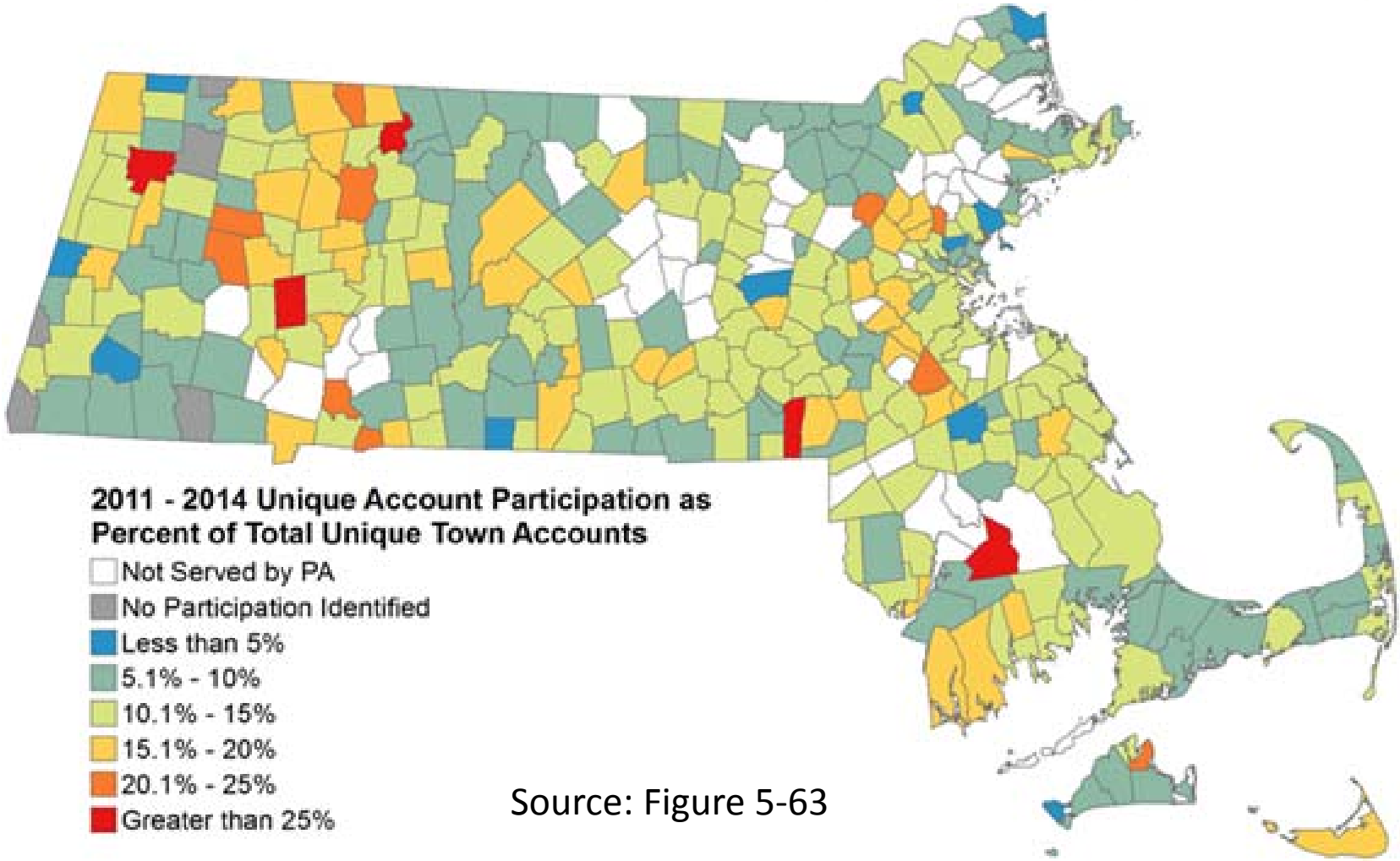
- PAs are serving all identified C&I market segments across the state
- Savings in all customer size classes
- Breadth of savings increasing

- Like the residential sector, lighting is the largest, and growing, part of total savings

Source: Table 4-13

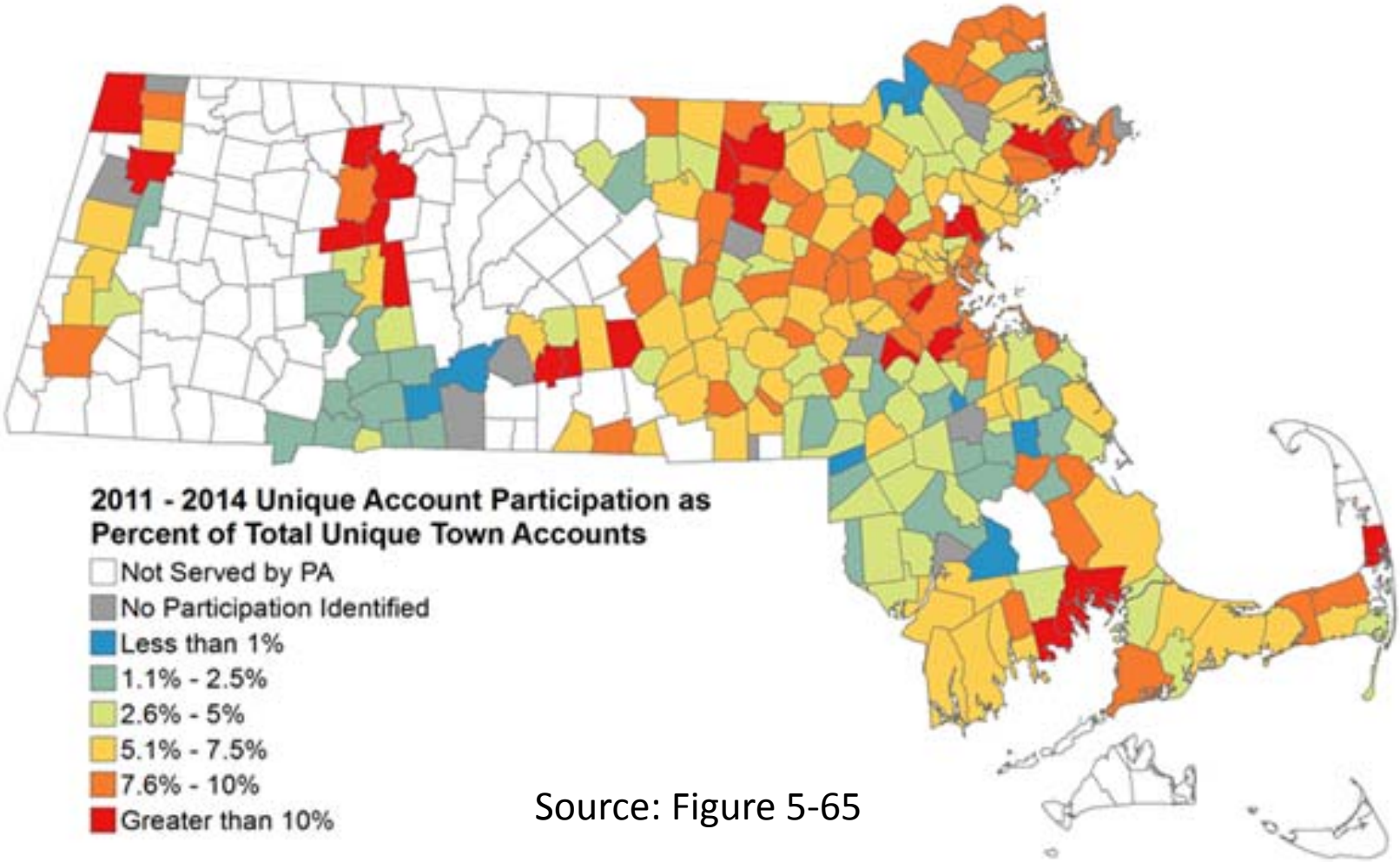


ELECTRIC ACCOUNTS ARE PARTICIPATING ACROSS MA



Source: Figure 5-63

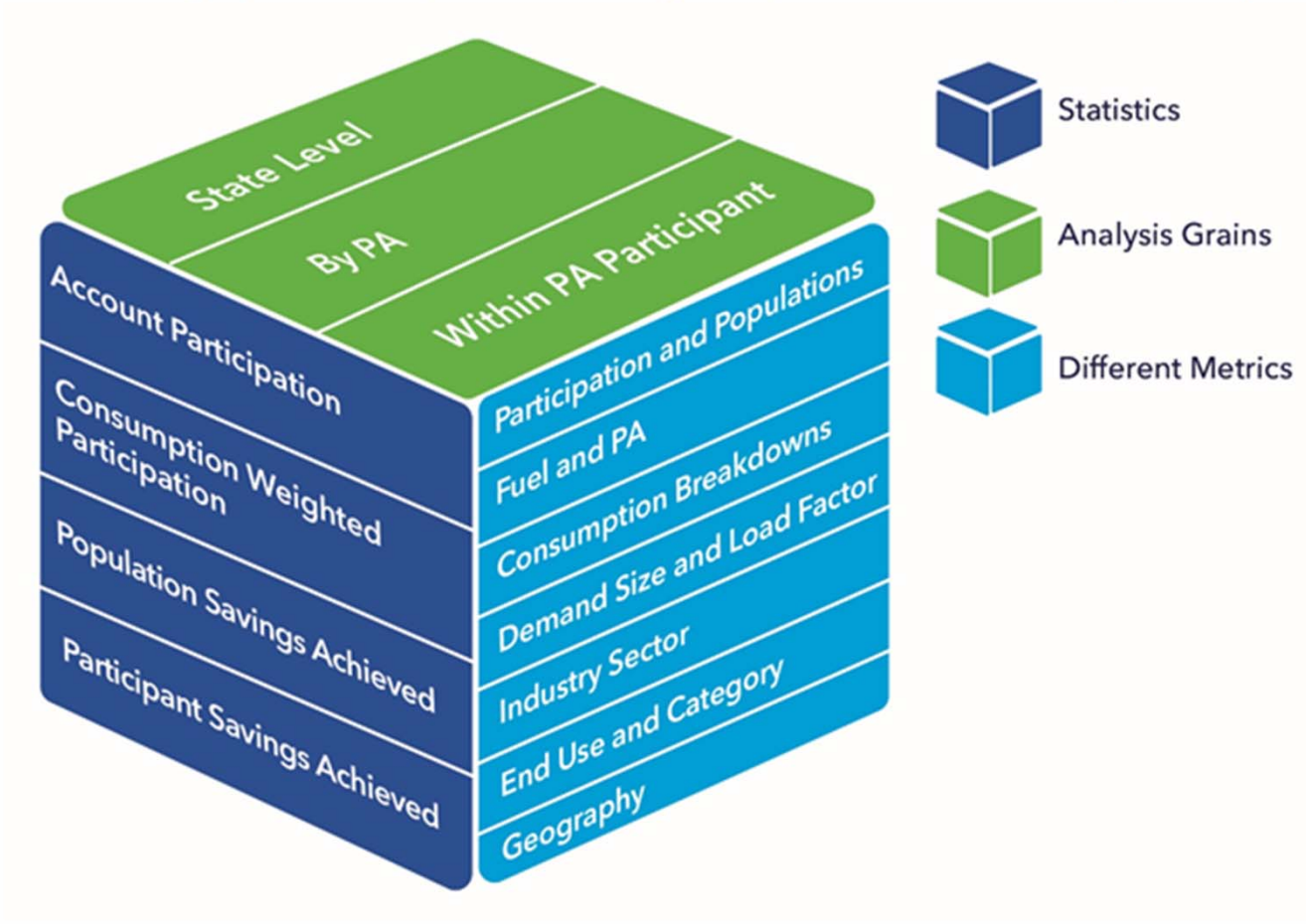
GAS ACCOUNTS ARE PARTICIPATING AS WELL



Source: Figure 5-65

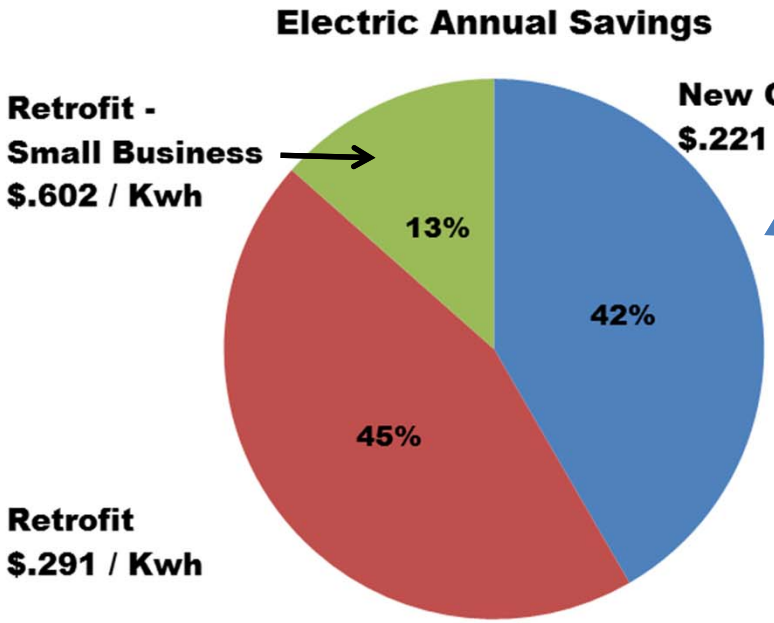
WAYS TO VISUALIZE THE DATA

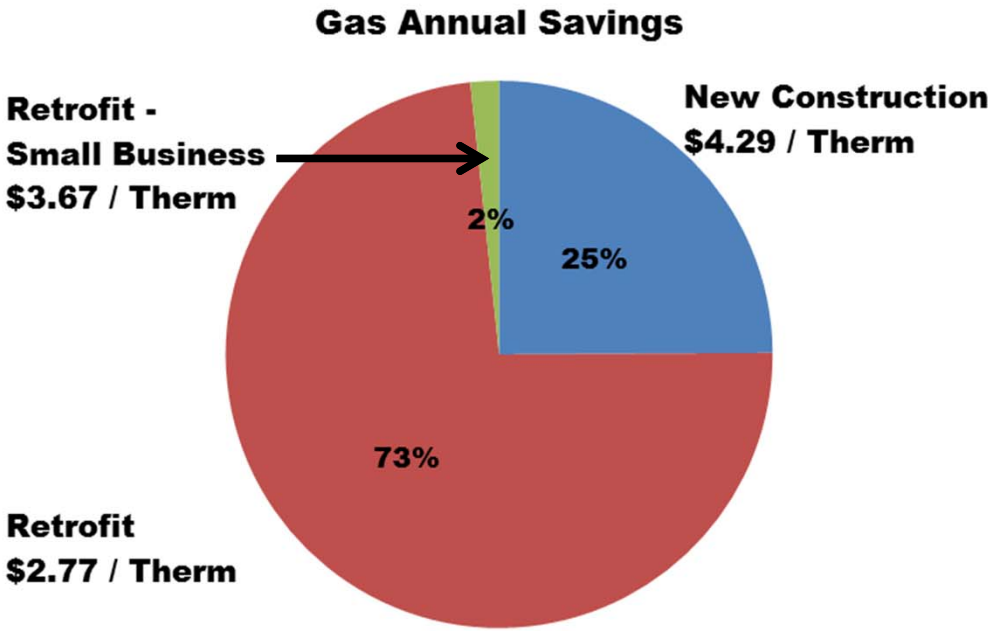
Figure 3-1. Visualization of the analysis cube used for the customer profile report



SOURCE AND COSTS OF SAVINGS

- New Construction includes upstream lighting ~ 23%
- Upstream cost is $0.15 / kWh



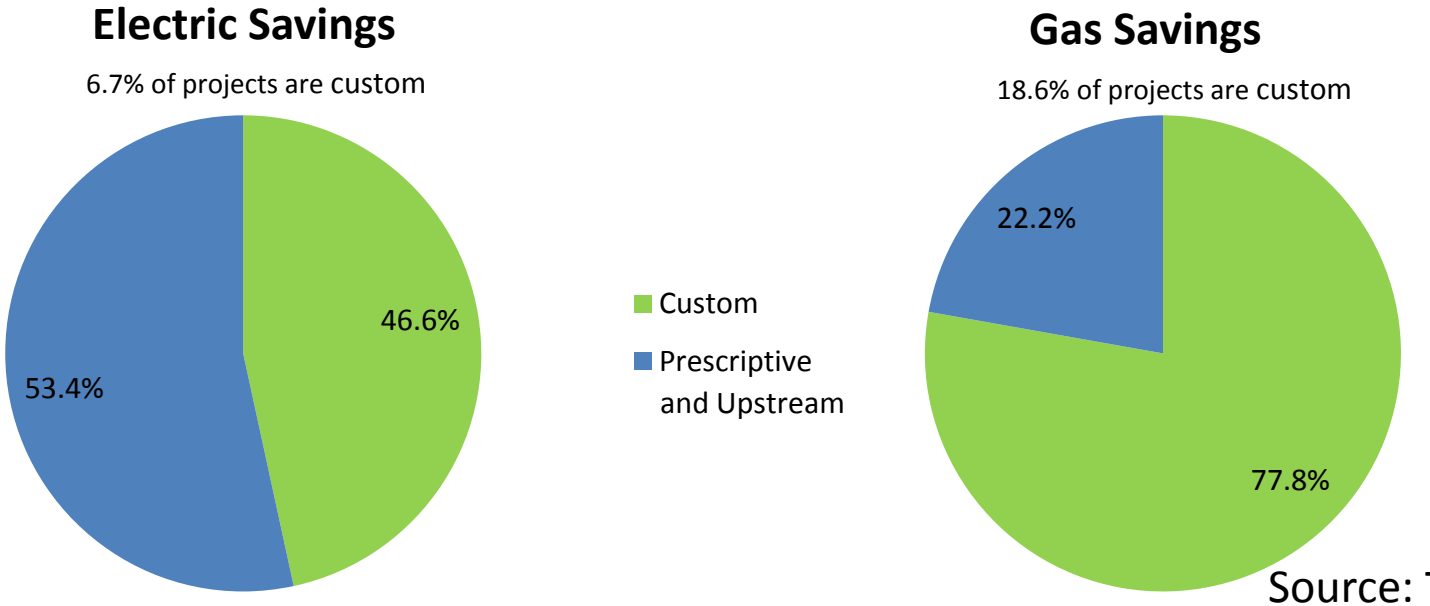


Overall Program Annual Costs
C&I Electric Cost: $.303 / kWh
C&I Gas Cost: $3.17 / therm

Source: MassSaveData

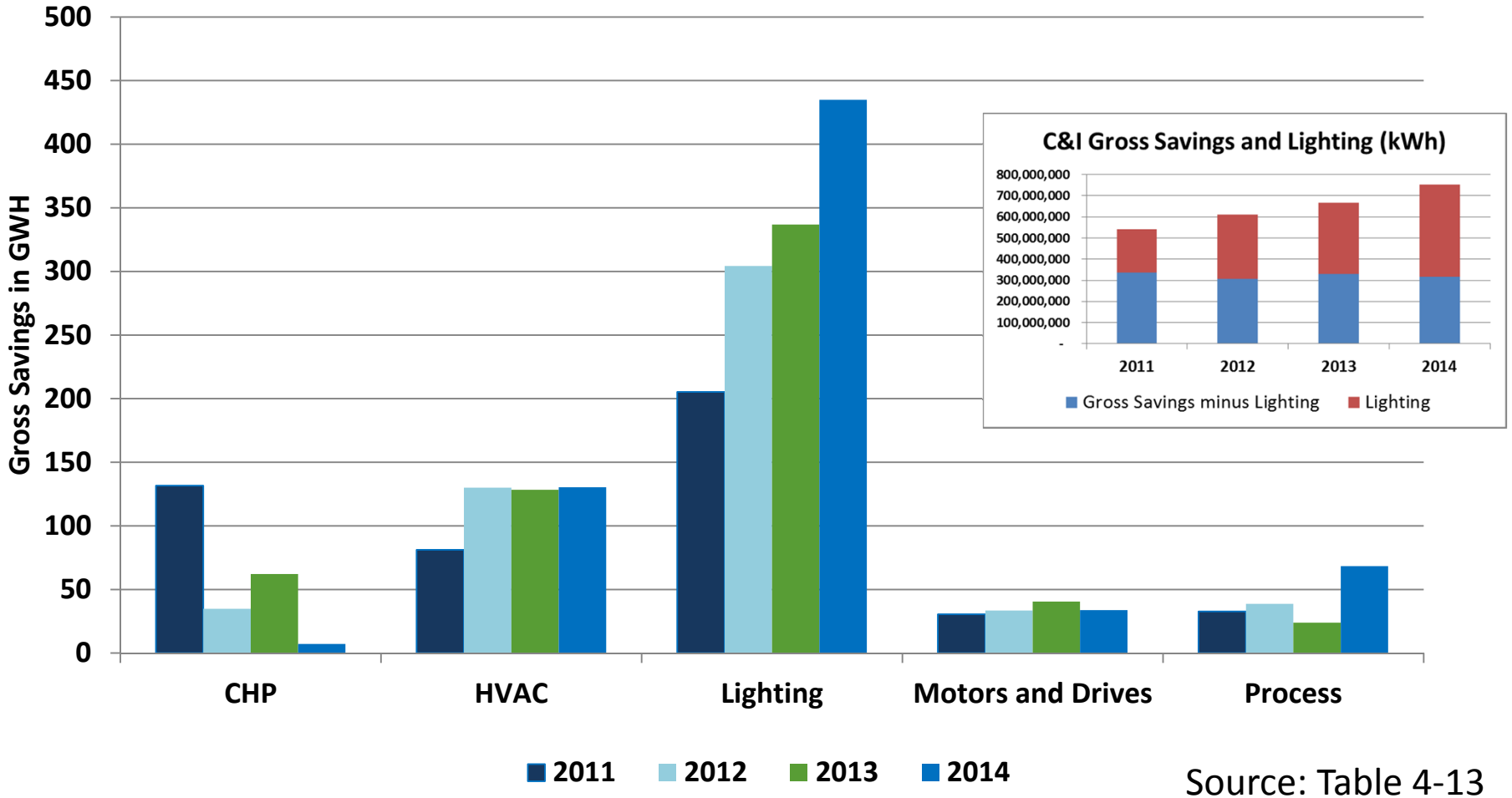
CUSTOM PROJECTS ARE A KEY SOURCE OF ELECTRIC AND GAS SAVINGS

- **Electric custom projects account for 6.7% of statewide projects, and 46.6% of statewide savings**
- **Gas custom projects account for 18.6% of projects, and 77.8% of savings**



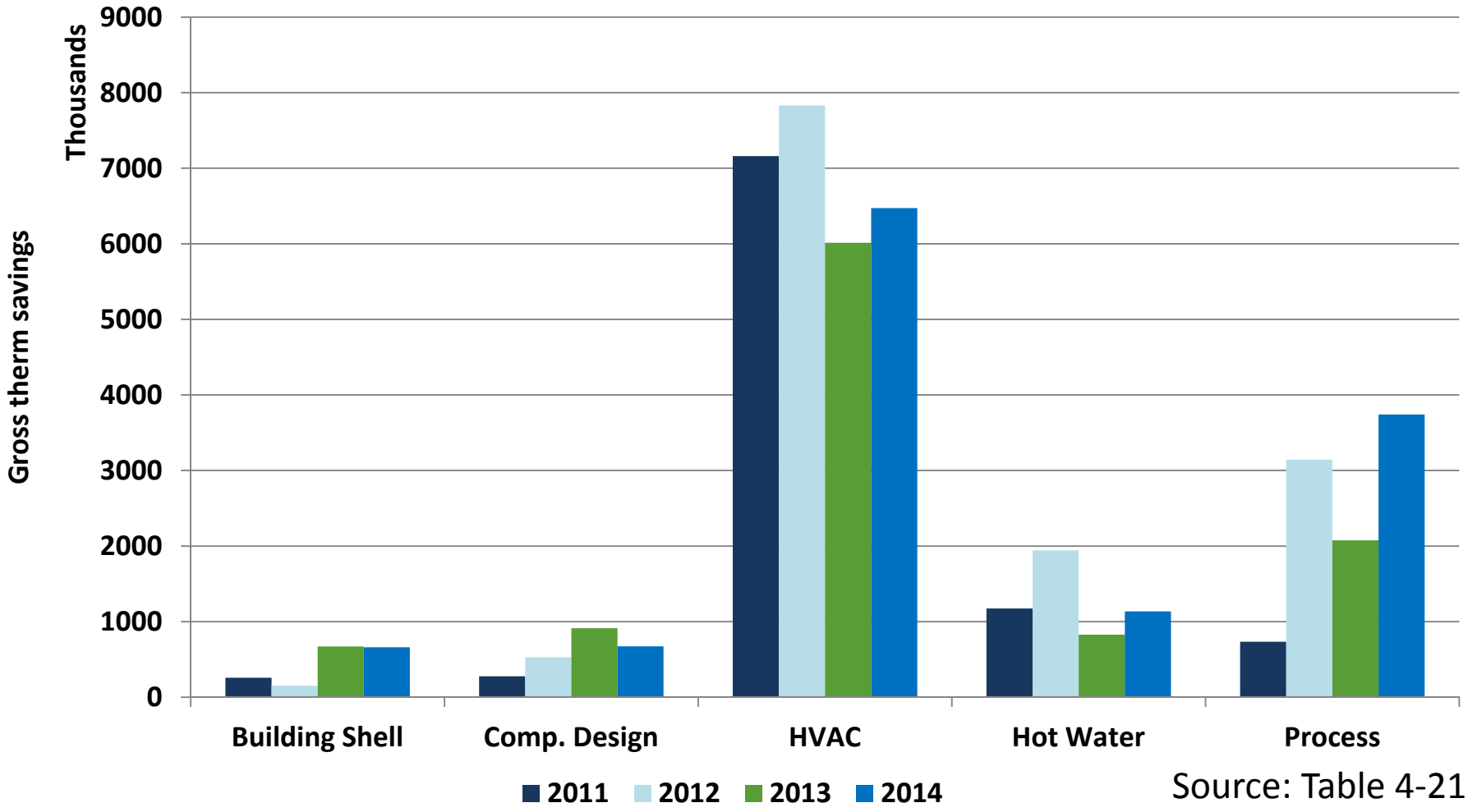
Source: Table 5-10

LIGHTING SAVINGS HAVE MORE THAN DOUBLED SINCE 2011



Source: Table 4-13

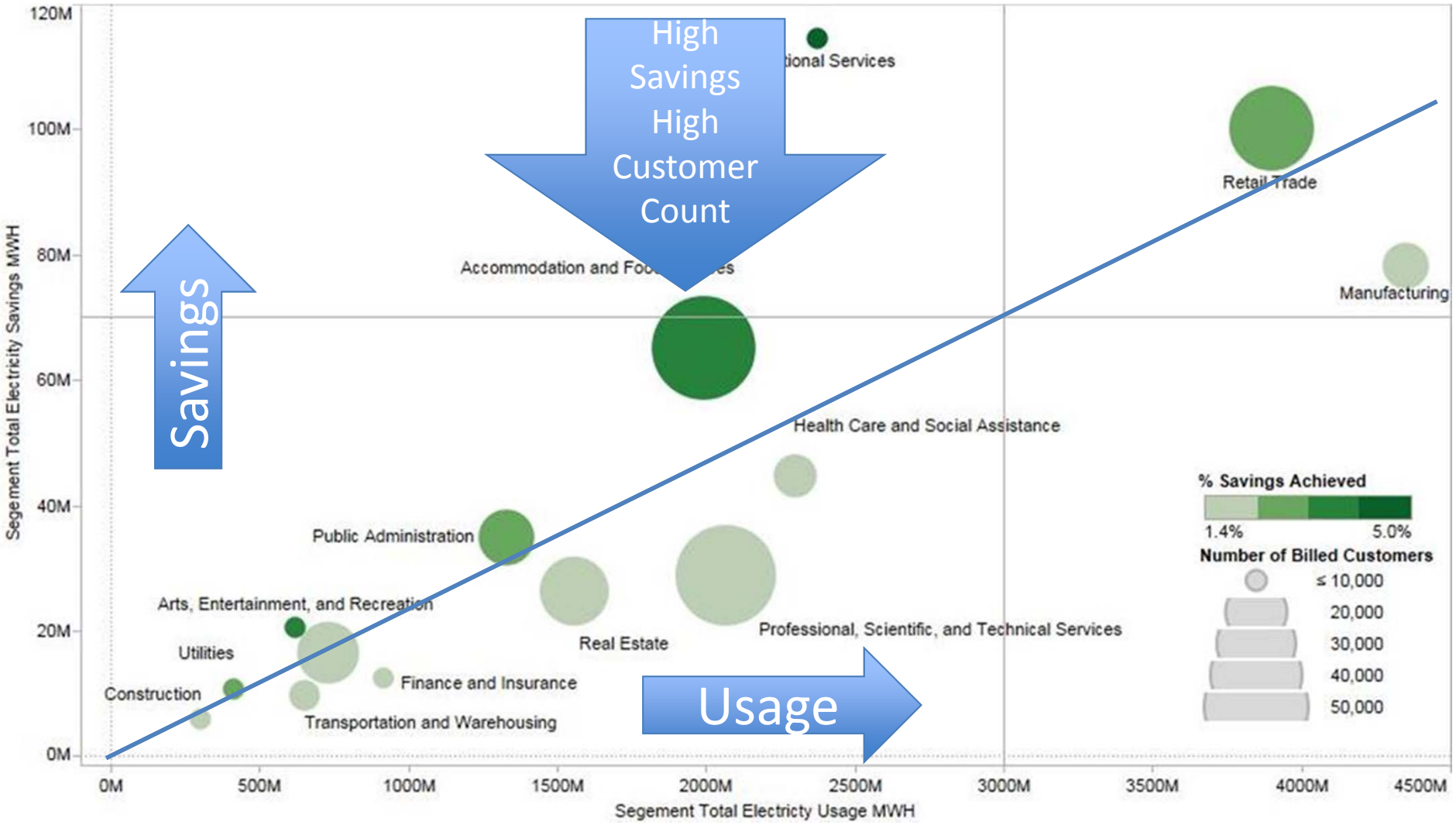
HVAC DOMINATES GAS PROGRAMS



Source: Table 4-21

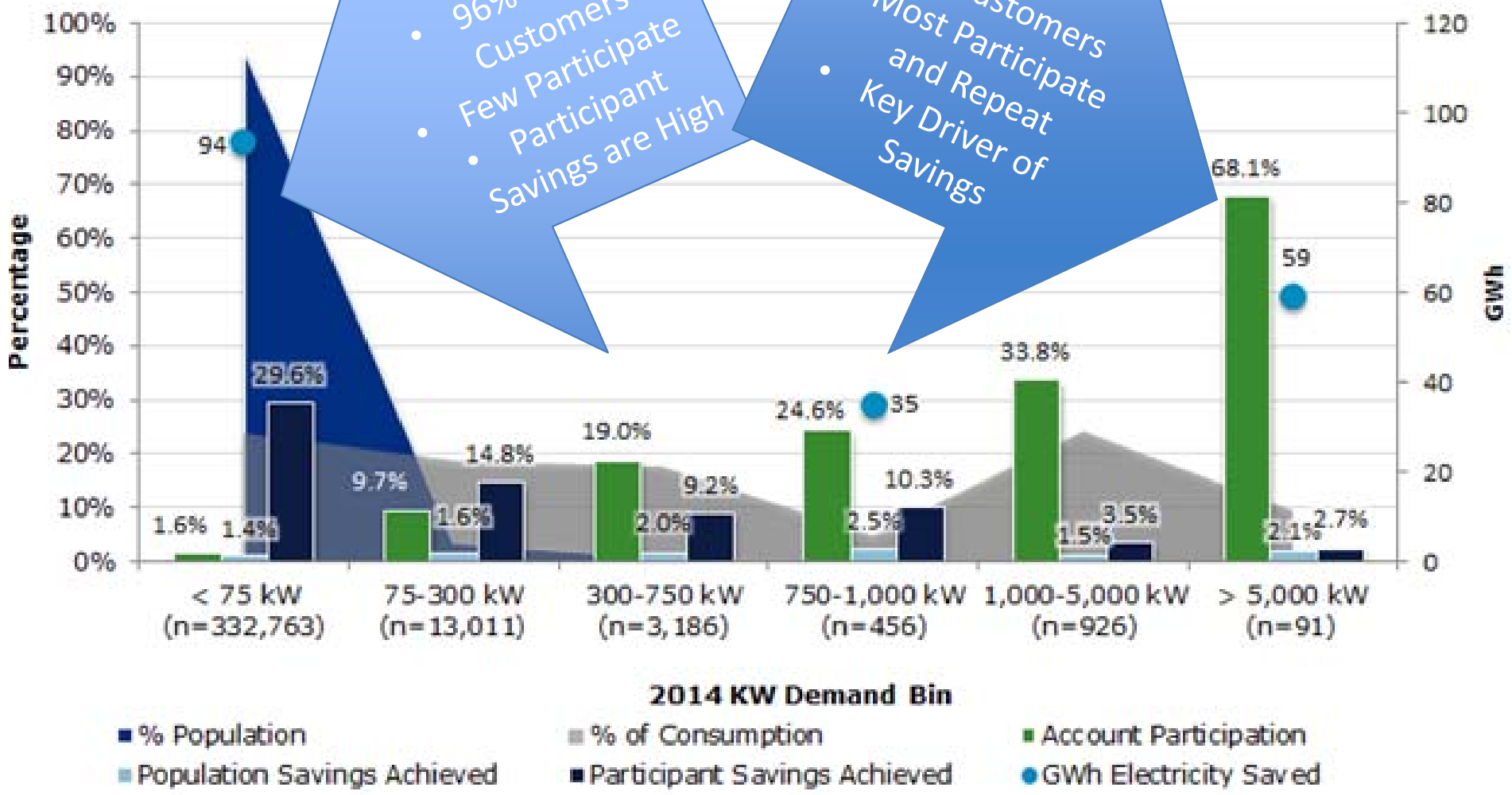
VARIANCE AMONG ELECTRIC INDUSTRY SECTORS

Source: Figure 4-2

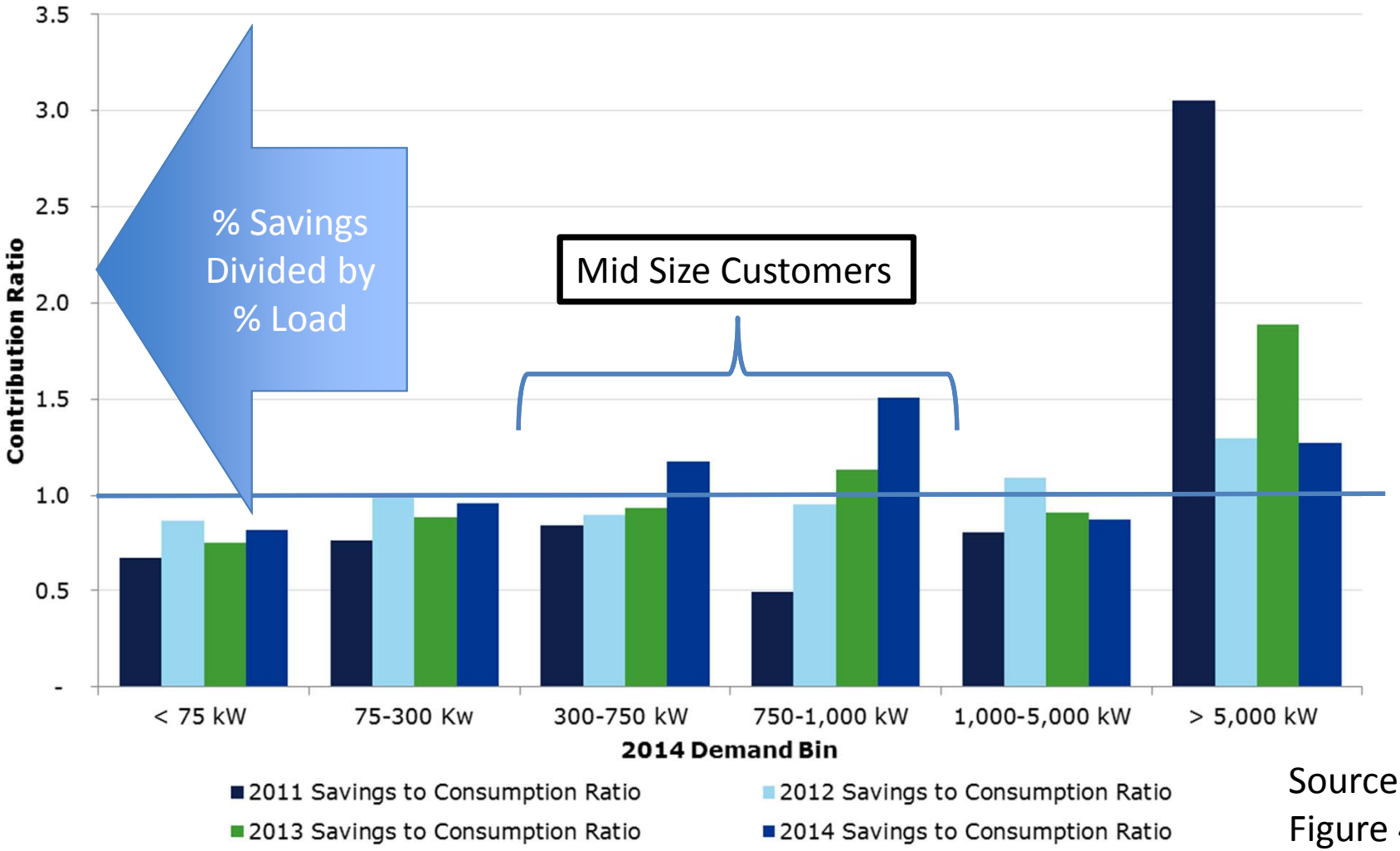


ELECTRIC CUSTOMER PROFILE

Source: Figure 4-33

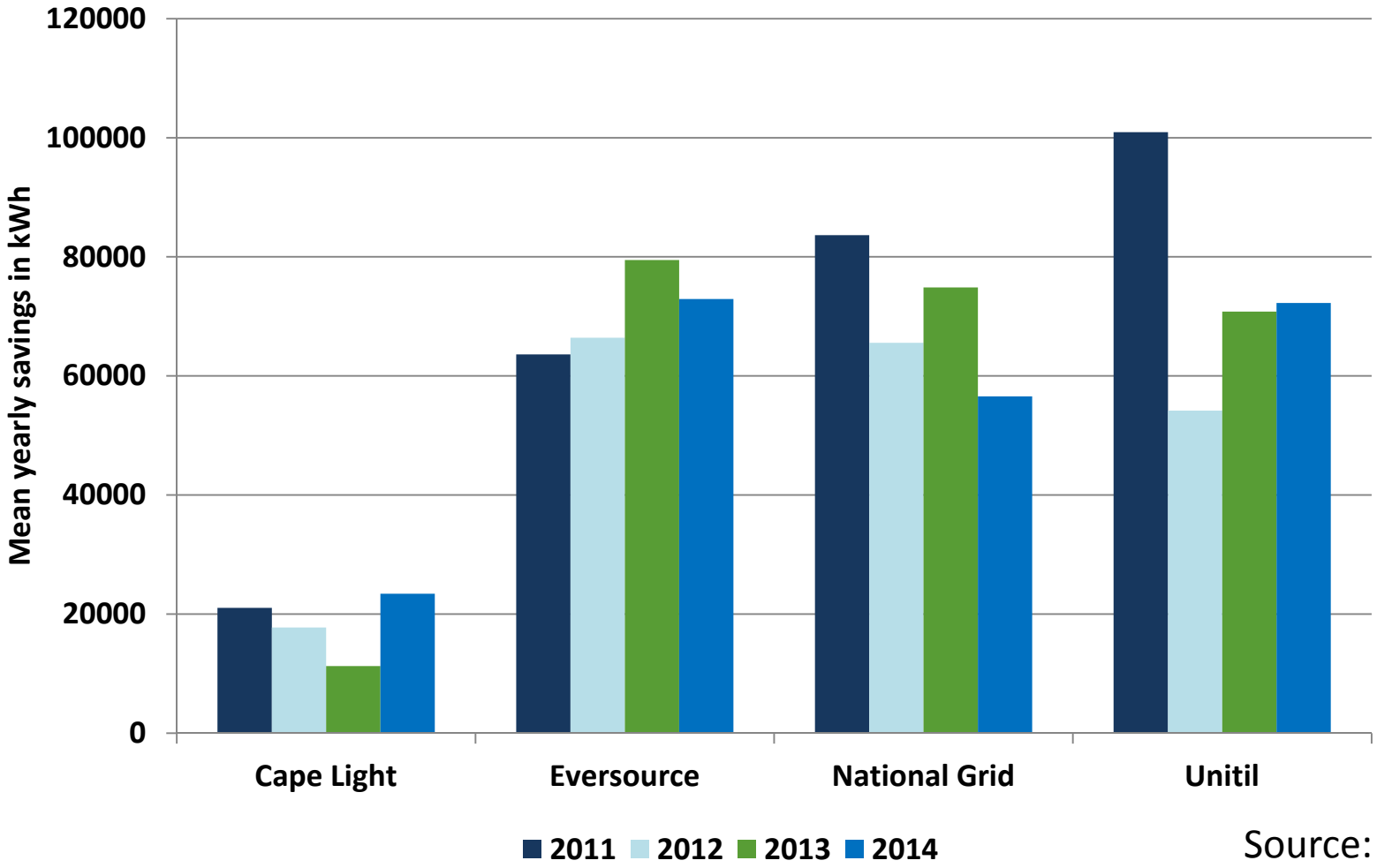


MID SIZE ELECTRIC CUSTOMERS HAVE A GREATER SHARE OF SAVINGS



Source: Figure 4-34

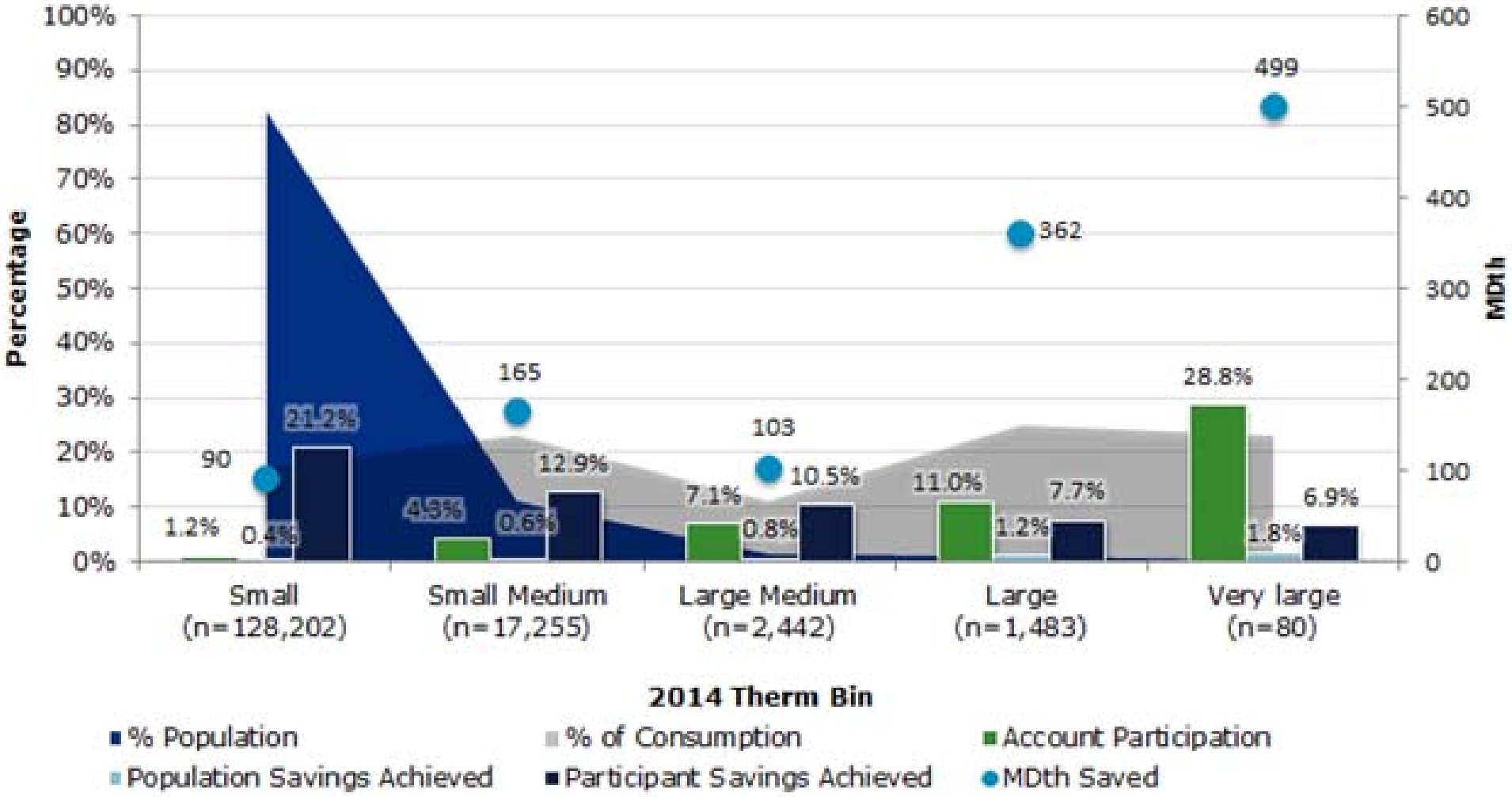
TREND TOWARDS SMALLER PROJECTS BUT MORE OF THEM



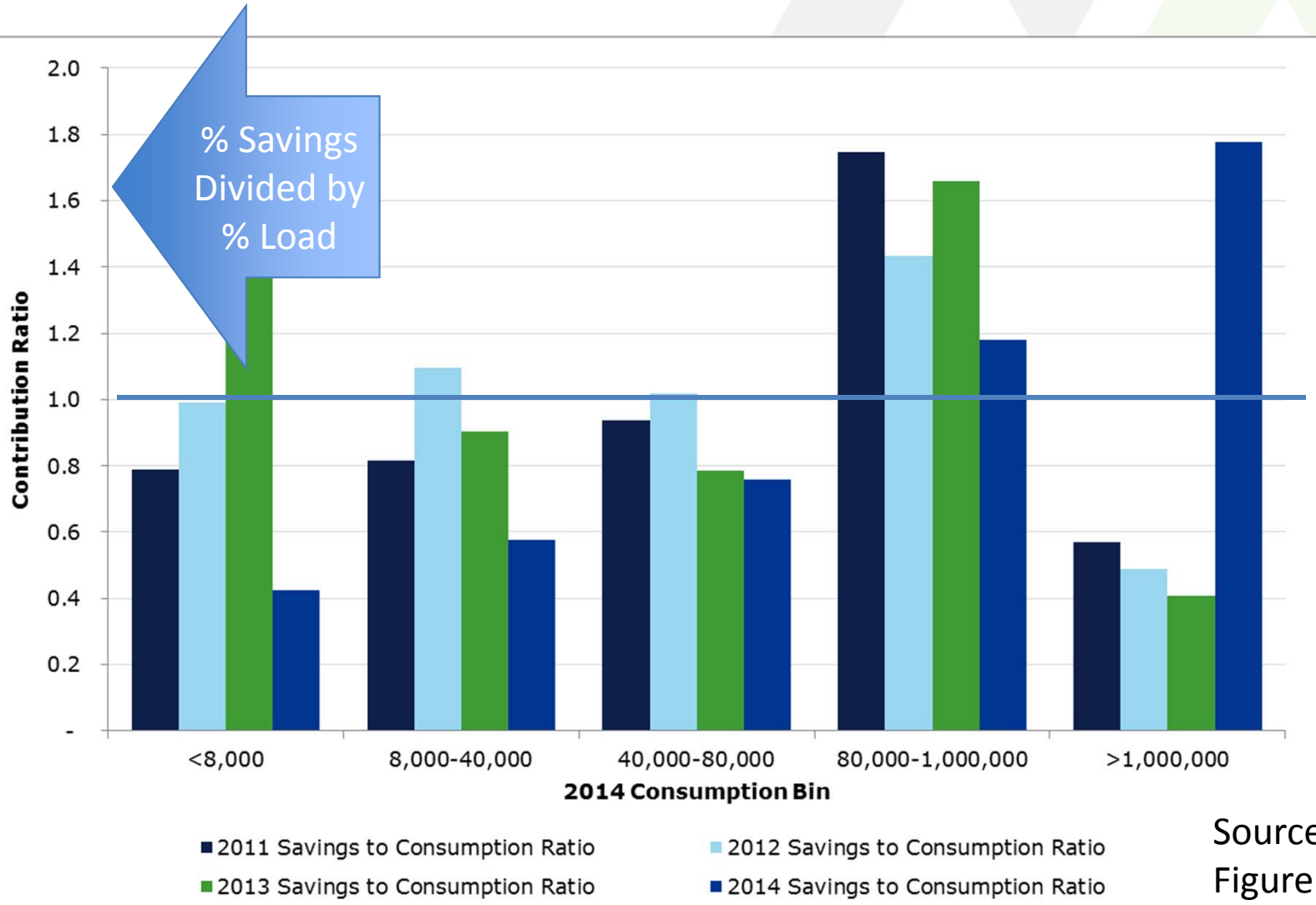
Source: Table 5-4

GAS CUSTOMER PROFILE

Source: Figure 4-27



GAS SAVINGS IN 2014 INFLUENCED BY A LARGE OUTLIER PROJECT



Source: Figure 4-28

NEW WAYS TO PRESENT PA DIFFERENCES

Figure 6-2. Log scaled annual kWh consumption by industry sector, all billing data

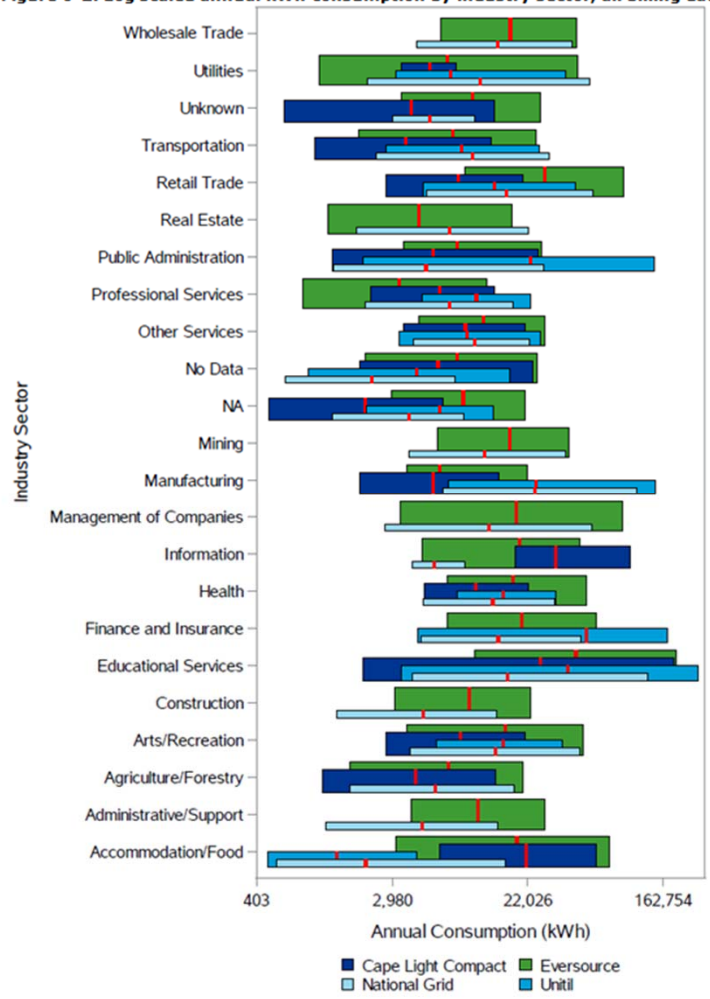
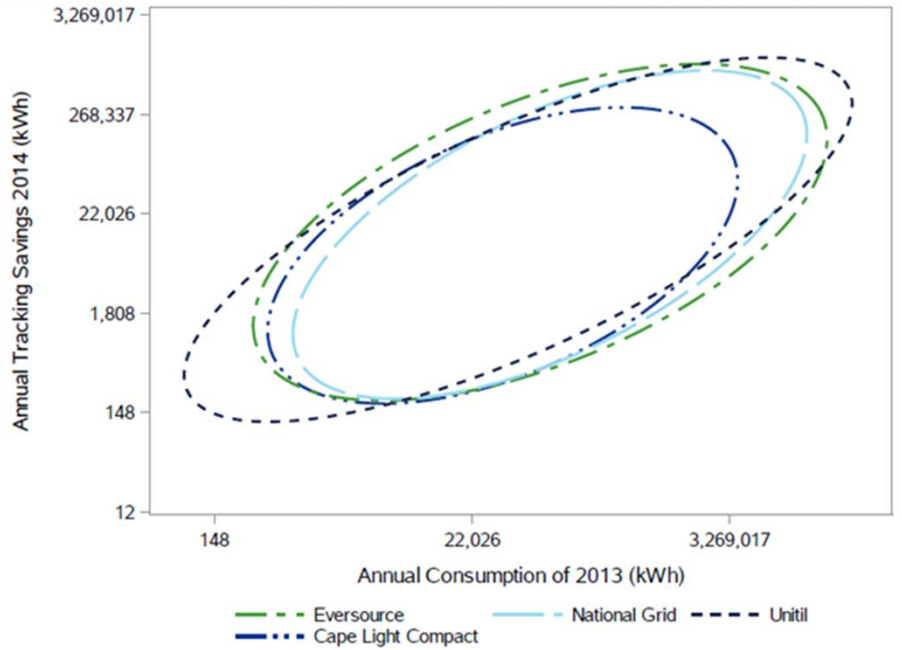


Figure 6-15. Savings to consumption predictive ellipse by PA, excluding unlinked tracking data



DNV-GL FINDINGS

Multi-year Repeating Findings

- Large outlier and strategic accounts can have very substantial single year contributions toward goals
- PAs all have instances where 2014 savings exceeded the matched accounts 2013 full extrapolated consumption
- Multi-year participants are a small population, but a key driver of savings

New Findings

- Approximately half of all accounts from 2011-2014 are new accounts to the C&I dataset
- Larger participation numbers driven by upstream lighting, particularly for smaller customers

DNV GL FINDINGS - GAS

- Since 2011, single PA towns experience higher gas participation that dual PA served towns
- Gas PAs engaged 25% of their collective consumption weighted population in 2014 (up from 20% in 2013)
- Pre-rinse spray valves are a key but declining driver of gas participation
- The correlation between annual savings and annual consumption is higher for gas accounts than it is for electric accounts

DNV-GL RECOMMENDATIONS ON REPORTING

- **Refine, with PA and EEAC guidance, the existing metrics in the Customer Profile and integrate additional account-level analysis that can be reported at the population level**
- **Conduct a deeper assessment into accounts with savings ratios in excess of 100% prior year's full modeled consumption**
- **Capture the account number as a data field in the upstream lighting and HVAC data**
  - Currently upstream merge rate are <50% making data unusable in some analysis
- **Build on the existing town level analysis to identify if statistically significant hot/cold spots and clusters of participation and savings exist across and within PA territories**

DNV-GL RECOMMENDATIONS ON IMPLEMENTATION

- **Assess what has been effective in securing multi-year participants**
  - And how these may translate to accounts outside the larger demand classes
- **Assess what has increased the contribution ratio for mid-size electric customers**
- **Continue to identify ways to increase small and mid-size gas account participation in towns that are served by a different gas and electric PA**
- **Assess if customer fatigue in program participation exists, particularly for large consumption weighted accounts**

THIS IS THE END

Questions?

DNV-GL OBSERVATIONS (NEW TO C&I PROFILE REPORT)

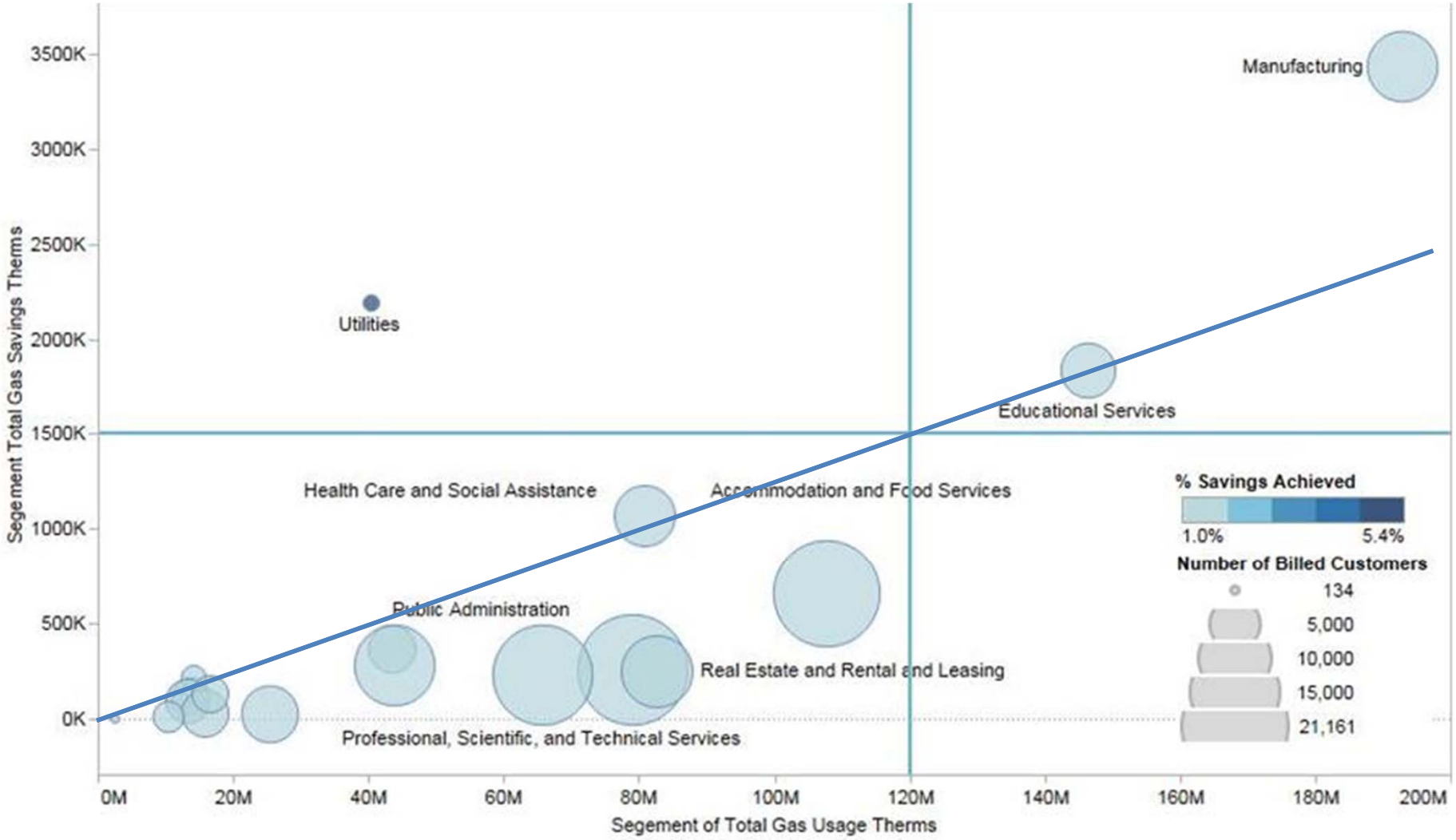
- Leverage PA implementation and policy team knowledge to better contextualize data findings and qualify impacts of changes in program offerings or strategies.
- Engagement of multi-year participants may result in apparently lower savings achieved within individual years for these customers (this is not necessarily a negative).
- Continue to leverage the C&I Evaluation Database as a repository to integrate standardized data categories across all PA data to facilitate true comparisons

DNV-GL OBSERVATIONS

- Future analysis may wish to leverage results from currently underway studies on population equipment inventories to better quantify town level potential remaining
- Locational based analysis may provide a new and increasingly important analysis cut, particularly in the time series data
- Coordination with the residential evaluation database and customer profile could improve insight into the PA landscape
- Create systematic definition of outlier for greater insights into impacts of outlier population

GAS STATS. BY INDUSTRY SECTOR

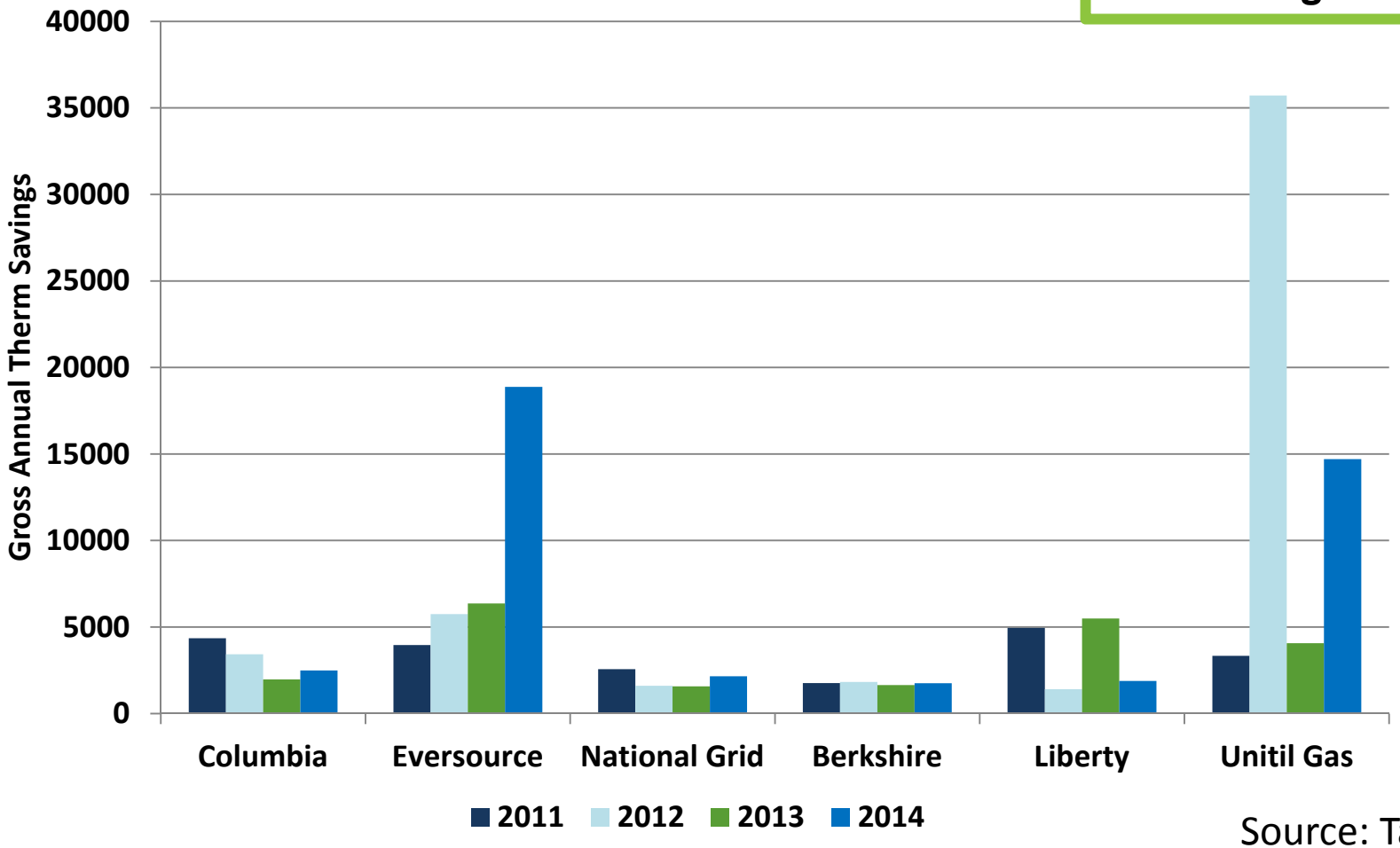
The correlation between annual savings and annual consumption is higher for gas accounts than it is for electric accounts



Source: Figure 4-8

MEAN GROSS ANNUAL THERM SAVINGS

Large outlier and strategic accounts can have very substantial single year contributions to meeting goals



Source: Table 5-8