Residential Sector
Business Plan for 2016 and Beyond
Gap Analysis

Agenda

Objective:

*To provide an overview of SDG&E residential sectors **current** status, identify market barriers, evaluate potentials, and gather feedback to incorporate in the 2016 Business Plan.*

19% are
Engaged Greens

8 seconds
Average attention span of an adult

Moving towards an
Interactive
experience

Customer's Journey
Current State

Gap Analysis
How we got here

Our Market
What's special about it

Barriers
and solutions

SWOTT
Strategic Exploration

Vision
2016 and Beyond

SDG&E's Customer Journey

Engaging customers and building stronger relationships

Reactive

- **Dedicated Hotlines for Specific Programs**
- Collecting and Responding to Customer Feedback

Proactive

- **Next Best Offer**
- Personalized Video Bill
- "Energy Diet" Media Campaign

Interactive

- **Energy Marketplace**
- **Energy Insights and Rewards**
- **Home Energy Assessments**
- Social Media Campaigns
- Rate Analysis Tools
- **Alerts and Notifications**
- Community Partners
- Home Area Management Solutions

Roadmap to the Future

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Today

Ready (Test and Learn)
Ideation Process
Emerging Technologies

Tomorrow

Aim (Minimize Confusion)
Program integration
Single-point of entry

Grow Trusted Energy Advisor Role (Personalization)
Targeted Marketing
Personalized Recommendations
Bundled offerings
Multiple forms of messaging for customers

And Beyond

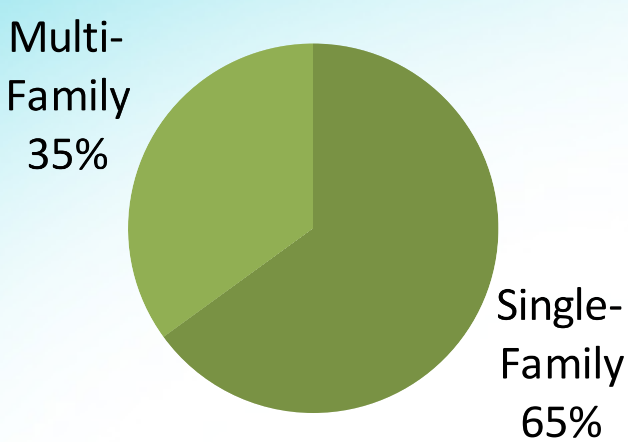
Continue to be a Trendsetter
Ease and Simplicity of participation
Marketplace
Adoption of EV's
Solar Initiative

Gap Analysis
How we got here

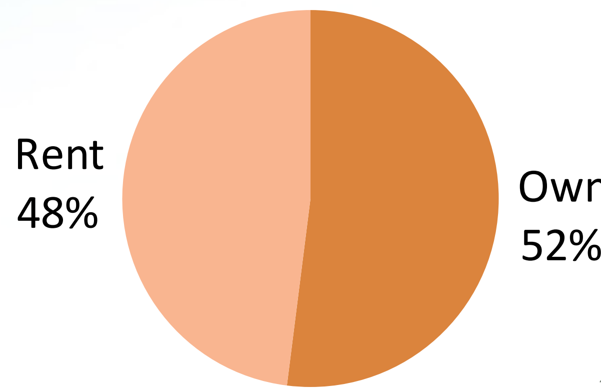
Residential Market Overview

- SDG&E serves ~1.3 million residential accounts and ~1.2 million customers
  - Split between 65% Single-Family (SF) and 35% Multi-Family (MF) segments.

Breakdown of Residential Customers by Dwelling Type



SDG&E Residential Customers Own vs Rent



- Rent vs Own
  - 68% of single-family own their home and 32% rent
  - 24% of multi-family own their home and 76% rent

Source: 2016 SDG&E data

Opportunities by Building Vintage

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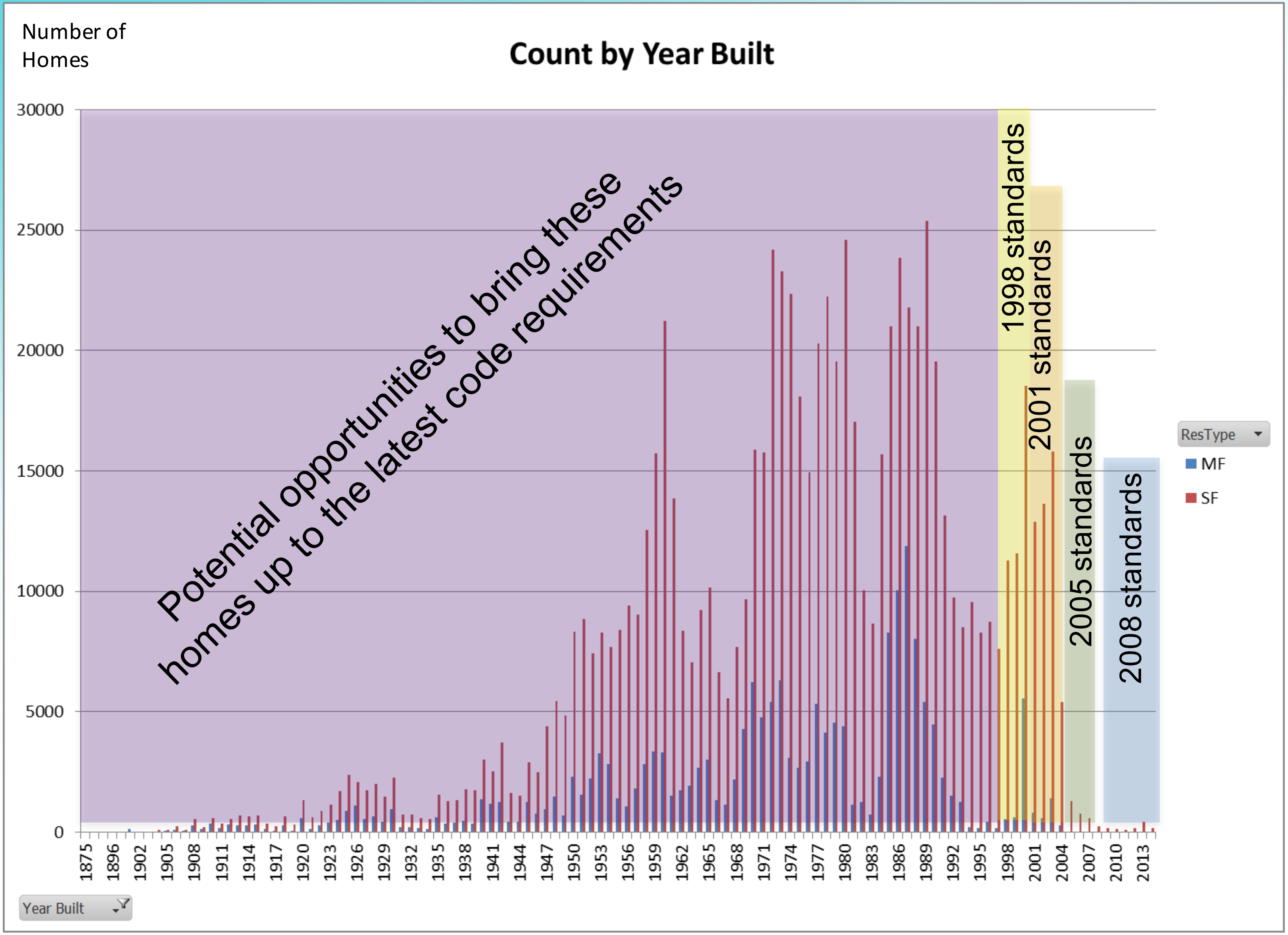

Residential Account Concentration

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Climate Zone Analysis:

Counts	Residential Accounts	Zone 7	Zone 10	Zone 14
Number of Active Accounts	1,192,956	**845,196**	340,449	7,311
Number of Multi Family (# Accts)	419,094	317,274	101,323	497
Number of Multi Family (%)	35%	38%	30%	7%
Number of Single Family (# Accts)	77[illegible]862	527,922	239,126	6,814
Number of Single Family (%)	65%	62%	70%	93%

Majority of our residential customers live in the coastal area

Source: 2016 CEC Climate Zones and SDG&E data

Meet the Zarates Family - Engaged Green

SDGE
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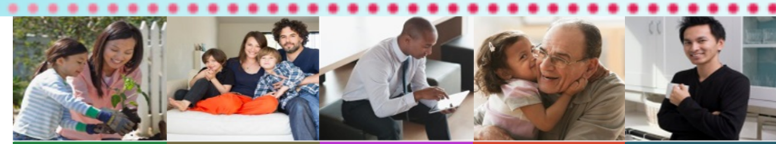
19%
of
population



● Higher than average
◒ Average
○ Lower than average

	Engaged Green	Budget-Constrained Greens	Unconcerned	Disengaged Traditionals	Energy Indifferent Independents
Desired Relationship with SDG&E	●	●	◒	○	○
Interest in TOU rate	●	○	●	◒	○
Importance of Lowering Electricity Costs	●	●	○	●	○
Importance of the Environment	●	●	○	◒	◒
Actions taken / will take to reduce electricity use	●	●	◒	◒	○
Interest in Energy Management Tools	●	◒	◒	○	◒
Communication Preferences	Higher for email, online channels Lower for direct mail	Higher for mail (info w/bill & direct mail) Highest for personal interaction	Generally prefer electronic channels	Prefer mail (info w/bill & direct mail) Lowest for electronic & personal interaction	Higher for email, online channels Lower for direct mail
Median Age	47.5	43.0	46.0	60.0	38.5
Household Income	●	○	●	◒	○
Own / Rent Home	76% OWN	73% RENT	72% OWN	83% OWN	70% RENT
Average Square Footage	1984 sq ft	1086 sq ft	1981 sq ft	1676 sq ft	1125 sq ft

Key Characteristics of Engaged Greens

- ✓ Interested in engagement with SDG&E
- ✓ Higher than average interest in reducing energy use and costs
- ✓ Very concerned about the environment and climate change
- ✓ Higher than average interest in SDG&E EE programs and energy audits
- ✓ Among highest of interest levels for energy management tools
- ✓ Higher for email and online channels, lower for mail

3 Bedroom Home
1,691 SQFT | No pool

Mapping of Program Intervention & Customers

	Target Customers	Program Interventions
Residential New Construction	SF and MF Builders	• California Advanced Home Program (CAHP)
Residential Retrofit	Single-Family Homeowners Renters Property Owners & Managers	• EUC-Home Upgrade & EUC-Multi-Family • Plug-load and Appliance Program (PLA) • Home Energy Advisor Program (HEA) & Behavior Program • Multi-family Energy Efficiency Program, • Mobile Home Program

2013-2015 Savings by Program Delivery

Upstream Midstream

- Lighting accounts for greatest amount of electric savings
- Low cost
- Do it yourself installation

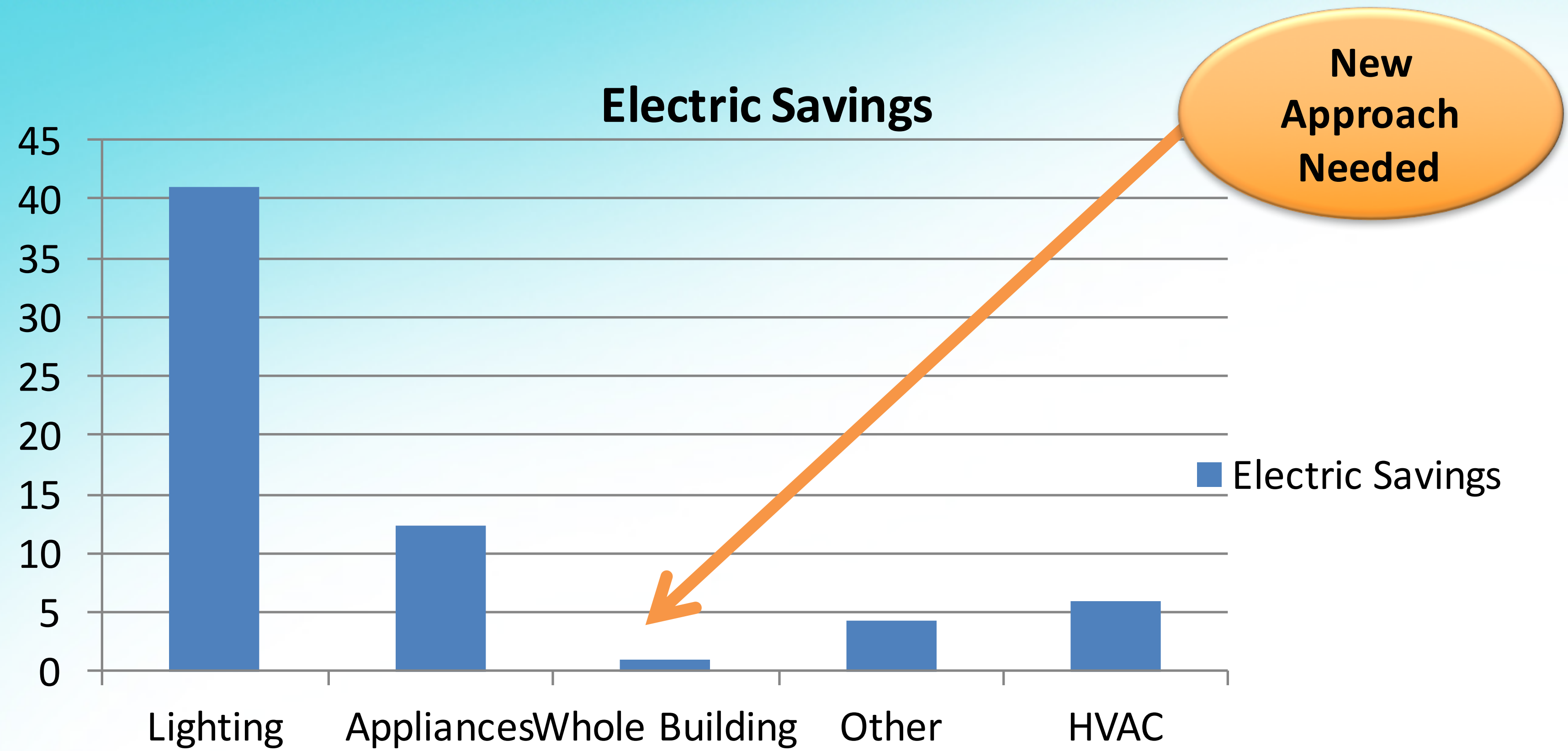
Direct Install

- Mobile Home, Multifamily, and Income Qualified
- No cost/low cost
- Utility provided contractor installation

Downstream/Rebates

- Single-family and Multi-family
- Mid to high cost for measures/products
- Customer installation/contractor installation

2013-2015 Savings By End Use



Spent to Date	GWh Actual	MW Actual	Therm Actual
$56,227,150	56	18	1,620

Source: 2013-2015 EEStats data

CA Market By End Use

Plug-loads are growing and will continue to grow

Figure 1: Plug-in Equipment Responsible for Approximately Two-Thirds of California's Residential Electricity Consumption[1]

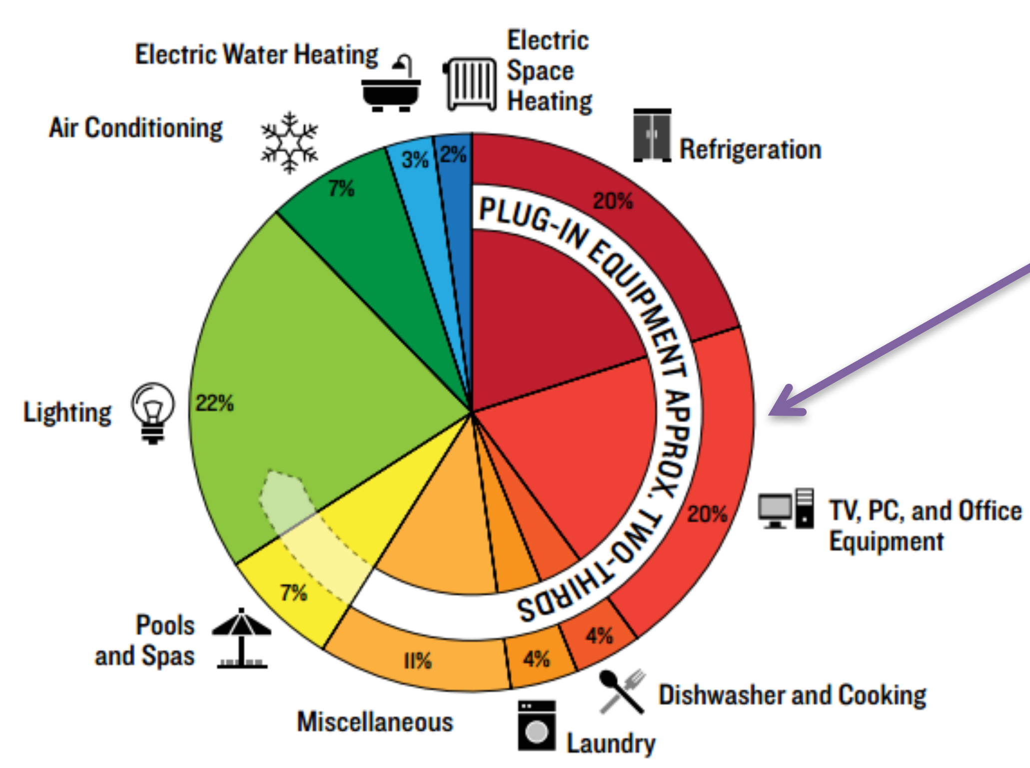
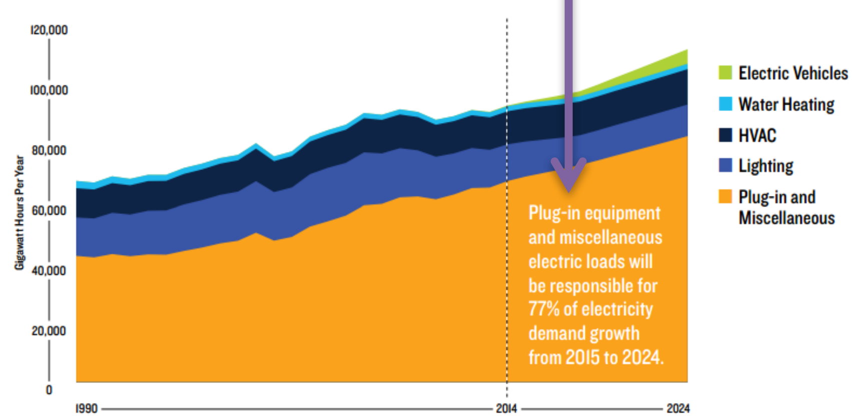
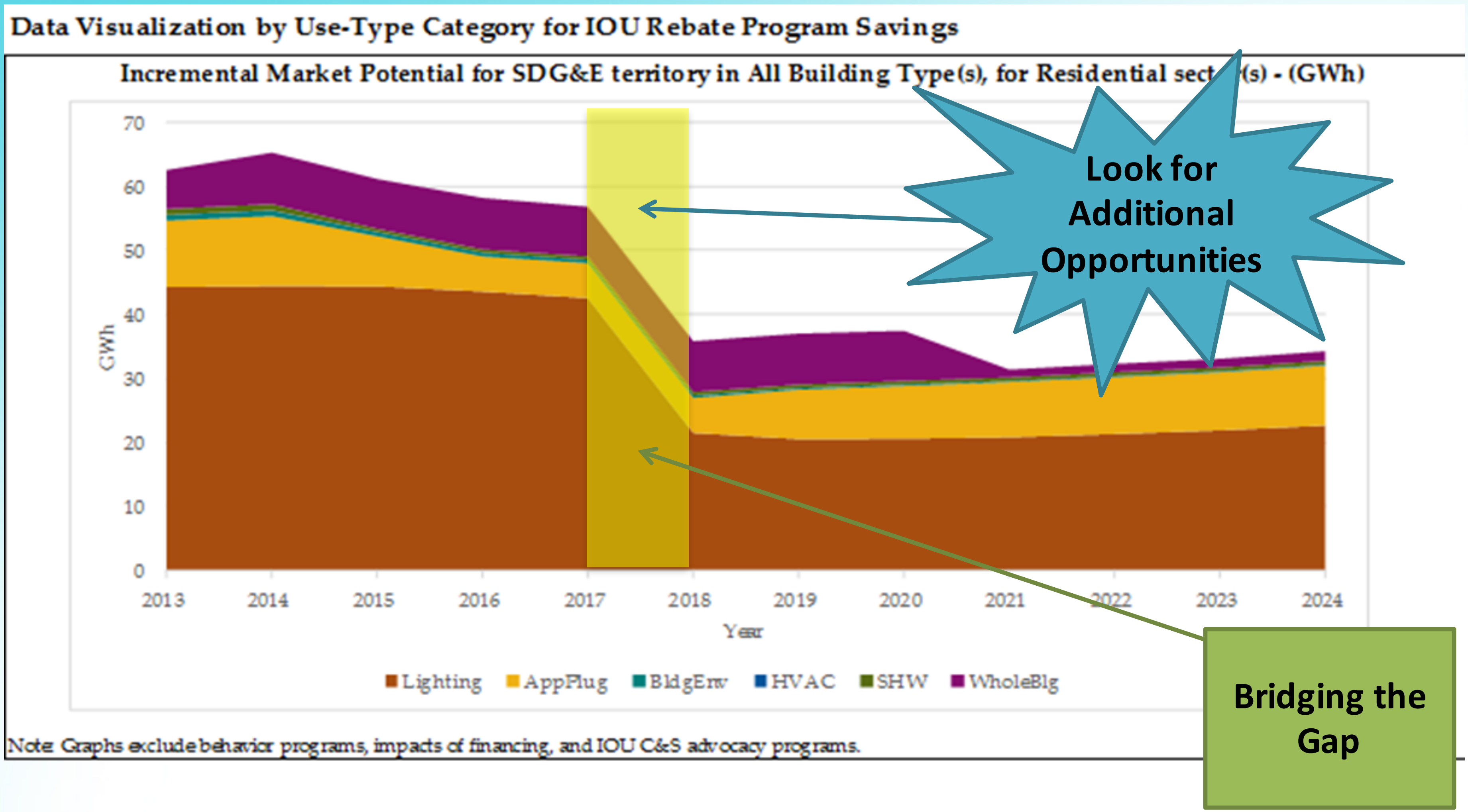


Figure 2: California Residential Electricity Growth Forecast[7]



Ref: Plug-In Equipment Efficiency: A Key Strategy to Help Achieve California's Carbon Reduction and Clean Energy Goals; NRDC Issue Brief

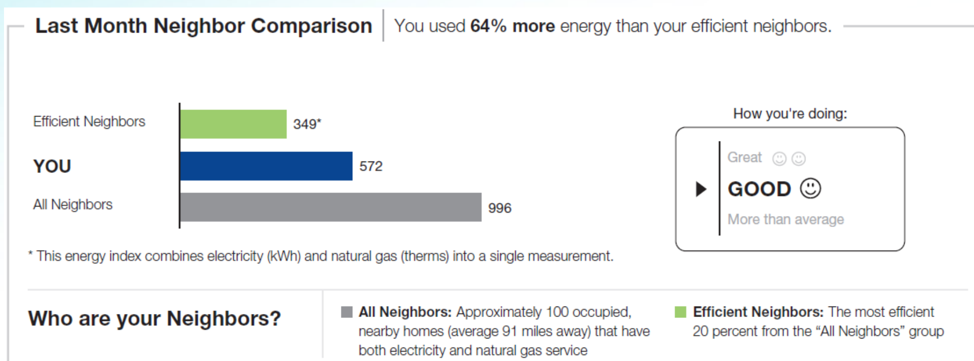
SDG&E Market Potential



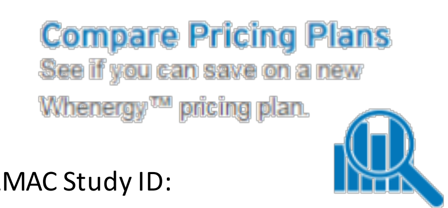
Ref: Potential: 2015, Energy Efficiency Potential and Goals Study for 2015 and Beyond. Prepared for CPUC by Navigant Consulting

Interventions

Typically, downstream/midstream/upstream incentive interventions are most commonly used in many of the residential programs.



- There are a few behavior intervention strategies that are widely used and many that are underused by utilities, such as, framing, rewards, and energy pricing.



Ref: 2013, Paving the Way for a Richer Mix of Residential Behavior Programs. Prepared for the CA IOUs. CALMAC Study ID: SCE0334.01

Sector SWOT Analysis

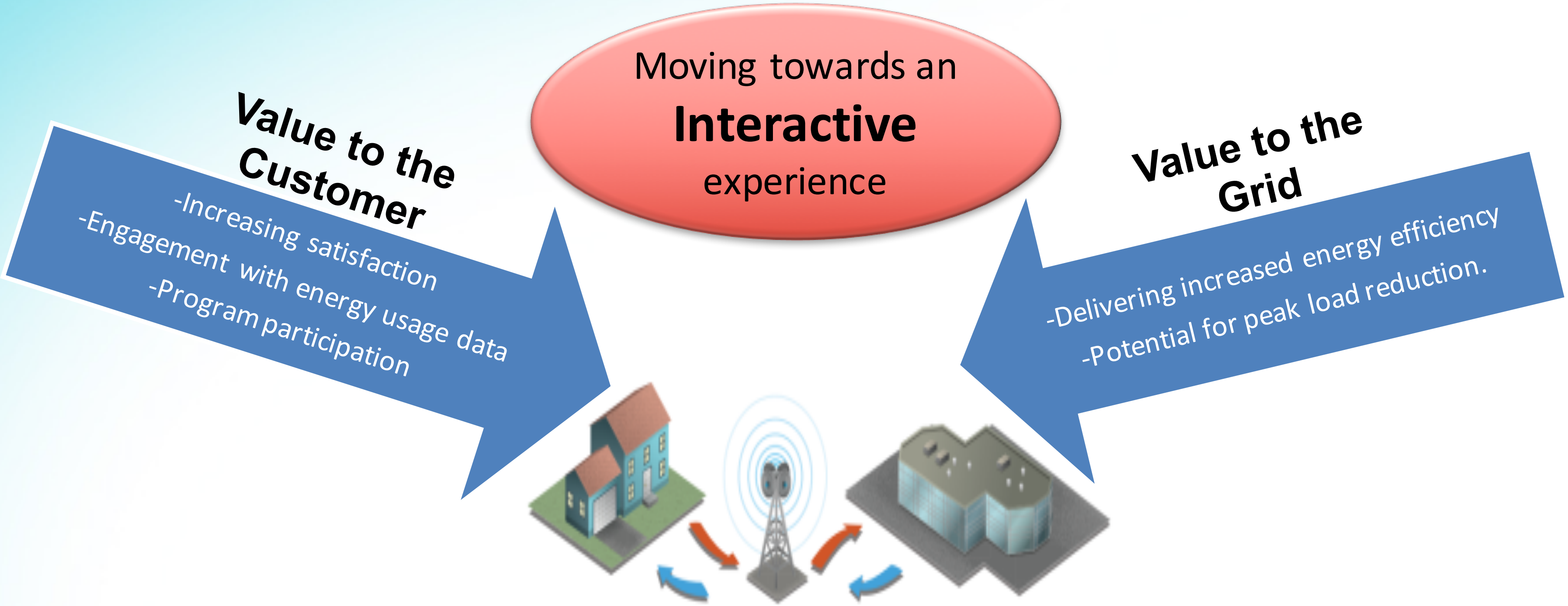
Strengths	Weaknesses
• SDG&E is a trusted energy advisor • SDG&E offers a full portfolio of residential programs using different channels of delivery • SDG&E understand the regulatory environment and context	• Standard programs are increasingly not cost effective and may be cumbersome for residential customers • High customer cost/Low return on investment • Multiple entry points to programs
Opportunities	**Threats**
• Create a single point of entry • Provide a more seamless integration of programs • Work more closely with other entities to collaborate and promote programs/input on program design • Legislative imperative to reduce carbon • New and evolving behavior and technologies offers new program design options • Low prices for gas combined with acquisition	• Growth of plug-loads • Regulations on measures/programs • Limited number of cost effective measures • Re-alignment between program design vs 2020 strategic plan goals • Economic concerns combined with low prices for oil and gas

Sector Trends (T)

Trends	Implications	Ideas
Plug-loads are growing	Increase Energy Usage	Increase Behavioral program participation and innovative technologies
Confusion on multiple programs and entries	Low program participation	Single point of entry and integration of programs
Impacts of Codes & Standards to program cost effectiveness	Limited number of cost effective measures and diminishing returns	Explore other opportunities through ideation process
High cost, low ROI	Low adoption of high efficiency products	Program re-design
Solar and EV growth	Increased diversity of customer base	Better segmentation to leverage personalized recommendations

Objective

- **Continue to enable access to electricity consumption data** by residential customers and their authorized third parties.
- **Further empower residential customers** to better **manage** their electricity use.
- Provide or support the use of third-party tools and software products that utilize the available data to deliver **added value to the residential customer.**



Summary and Conclusion

- There are clear gaps between 2020 strategic plan goals vs program progress
- SDG&E is making progress--the Residential Sector offers and promotes both **specific** and **comprehensive energy solutions** for residential customers.
  - By encouraging adoption of economically viable energy efficiency technologies, practices, and services, the sector has employed **strategies** and **tactics** to **overcome market barriers** while delivering services that support the CPUC's Long Term Energy Efficiency Strategic Plan.
- The ultimate focus of the Residential Sector is to:
  - Facilitate, sustain, and transform the **long-term delivery** and **adoption** of energy-efficient products and services for **single and multi-family dwellings**;
  - Cultivate, promote and sustain **lasting energy-efficient behaviors** by residential customers through a collaborative statewide education and outreach mechanism; and
  - Meet customers' energy efficiency **adoption preferences** through a range of offerings including single-measure incentives and more comprehensive approaches.

Customer Driven

SDG&E's Customer Journey

Engaging customers and building stronger relationships

Reactive

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Q & A

Long Term Strategic Plan Status Updates

Goal 1: New construction will reach "zero net energy" (ZNE) performance (including clean, onsite distributed generation) for all new single and multi-family homes by 2020.

Expected Results: By 2020, all new homes are ZNE.

Strategies Overview	Status Updates
• Drive continual advances in technologies in the building envelope.	All projects that participated in CAHP meet a minimum threshold of 36% better than 2005 code (15% better than 2008 code). This is based off of CEC Impact Study. Continual advancements in building envelope has been a priority of the building code advocacy team leading towards high performing walls and attics being included in the 2016 update.
• Increase Title 24 building standards and Title 20 appliance standards.	On track. The building and appliance code advocacy programs have supported and will continue to support cost effective code enhancements to support ZNE targets and plug-load reduction.
• Coordinate and Support "Reach" Building Standards.	SDG&E continues to support "Reach" building standards through financial and technical assistance. However, compliance with the 2013 code update has limited resources available to pursue "Reach" codes.
• Develop innovative financing programs for the construction of energy efficient homes.	Financing programs are not currently being implemented. The new Residential Energy Efficiency Loan Assistance Program is scheduled to launch in Q2 2016 and is limited to home improvements/retrofits.

Long Term Strategic Plan
Status Updates

Goal 2: Home buyers, owners and renovators will implement a whole house approach to energy consumption that will guide their purchase and use of existing and new homes, home equipment

Expected Result: Energy consumption in existing homes will be reduced through universal demand for highly efficient homes and products.

Strategies Overview	Status Updates
• Deploy full-scale whole house programs.	Currently implementing whole house program (Whole Home Program).
• Promote effective decision making to create widespread demand for energy efficiency measures	Customers have access to their AMI data to better manage their energy usage and receive personalized recommendations (Through HEA and Behavior programs). SDG&E offers multiple classes and series for whole building performance.
• Manage research into new/advanced cost-effective innovations to reduce energy use in existing homes	Customer analytics continues to conduct research to inform decisions on programs. This is an ongoing effort. The emerging technologies program is an ongoing effort to identify, evaluate, and transfer new energy efficient technologies for programs (examples include residential disaggregation, HAN, HVAC, Tier 2 APS, etc.)
• Develop financial programs such as on-bill financing to encourage demand	A new statewide off-bill financing offering for single-family customers called Residential Energy Efficiency Loan Assistance Program is expected to launch in Q2 2016 and run in a pilot phase for two years.
• Increase Title 24 compliance through specific measures	The compliance improvement sub-program has developed several tools and trainings to assist and promote title 24 compliance on both whole house and measure specific approaches.

Long Term Strategic Plan Status Updates

Goal 3: Plug loads will be managed by developing consumer electronics and appliances that use less energy and provide tools to enable customers to understand and manage their energy demand.

Expected Result: Plug loads will grow at a slower rate and then decline through technological innovation spurred by market transformation and customer demand for energy efficient products.

Strategies Overview	Status Updates
• Drive continual advances in residential energy usage, including plug loads, home energy management systems, and appliances	Emerging Technologies is studying home energy management including smart home and plug load management technologies for potential future program implementation. Driving advances is then done through PLA program, IHD, Smart Thermostat, and through title 20 and federal appliance advocacy.
• In coordination with Strategy 2-2 above, develop public awareness of and demand for highly efficient products	Customer analytics continues to conduct research to inform decisions on programs. This is an ongoing effort. Marketplace has also launched which provides customers an avenue to compare high efficient products and then purchase them directly through the site.
• Create demand for such products through market transformation activities	Through the PLA program, rebates are being packaged towards higher-end products.
• Continuously strengthen standards, including the expansion of both Title 24 and 20 to codify advances in plug load management homes.	The codes and standards program has continuously supported code advancement towards plug-load management.