

# UPDATE ON 2016-2018 PLAN KEY DRIVERS ANALYSIS

► June 29, 2015

# INTRODUCTION



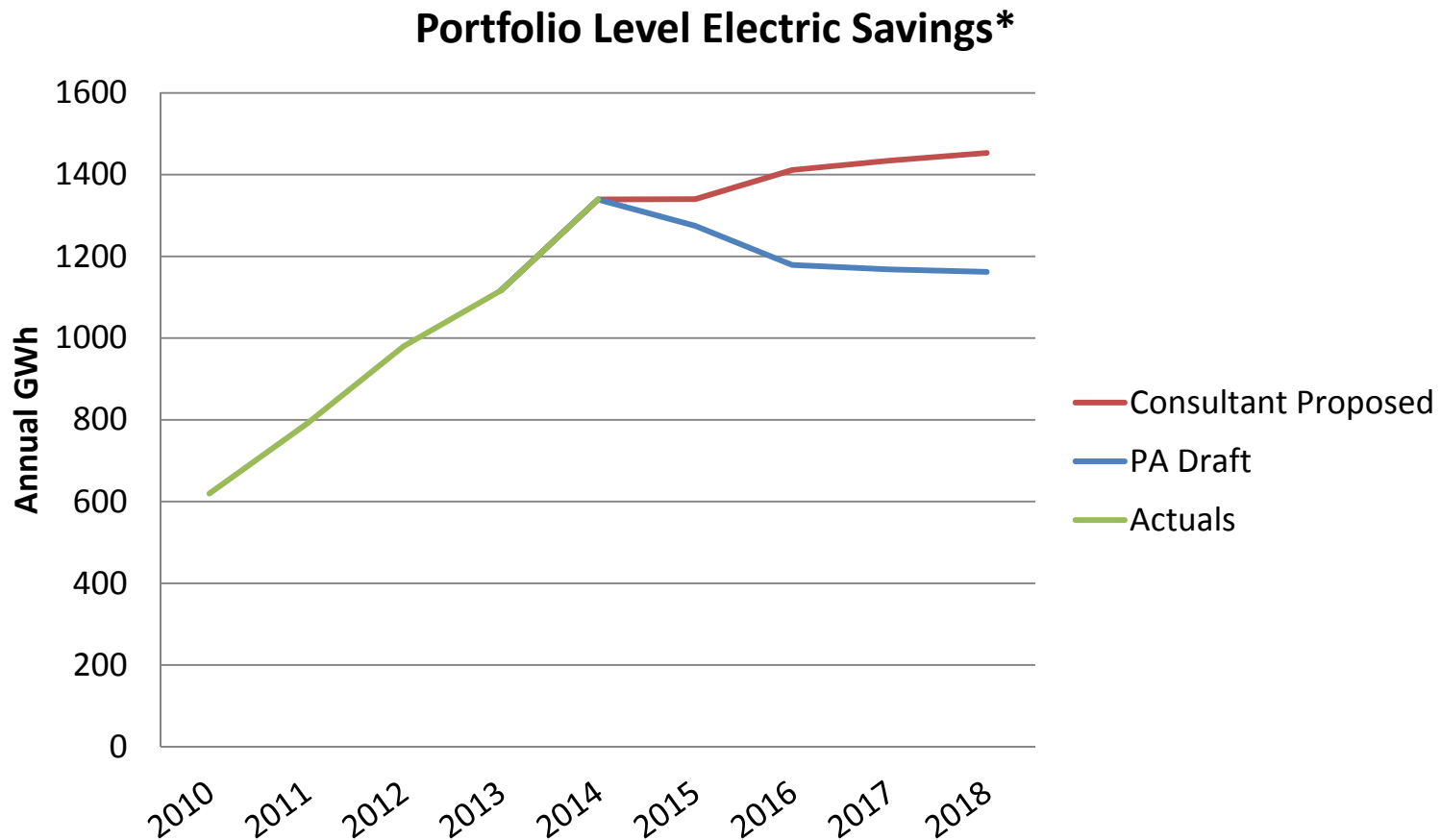
- ▶ **A comparison of the PA Draft Plan and Consultant goal projections identified significant differences**
- ▶ **Consultant Team has been working with the PAs and other stakeholders to explore the main assumptions or inputs that account for and these differences**
- ▶ **Consultant Team has also been updating our analysis to reflect 2014 Plan-Year Report (PYR) evaluated results**
- ▶ **The following slides present an update on the “key drivers” identified by the Consultants and PAs**
- ▶ **Additional analysis and conversations are on-going**

# PORTFOLIO LEVEL 2016-2018 SAVINGS GAP

	PA Plan	Consultants (As of April 30)	Consultants (As of June 29)
Electric (Annual GWh)	3,509	4,259	~4,300
Gas (Annual Million Therms)	75	101	100

- ▶ Updated Consultant goals are based on 2014 PYR data, PA discussions, and additional research
- ▶ Savings were adjusted both upward and downward for individual initiatives and sectors
- ▶ Focus of this presentation is the gap between Consultant updated analysis (as of late June) and the PA Draft Plan

# PA VS. CONSULTANT ELECTRIC SAVINGS TRAJECTORIES



\* Graph represents 2014 PYR data and Consultant 2016-18 savings trajectory as of June 29

# LIST OF KEY DRIVERS



- ▶ Residential lighting
- ▶ Behavior programs
- ▶ Home Energy Services (gas)
- ▶ Residential gas heating and water heating
- ▶ Combined heat and power
- ▶ Commercial lighting
- ▶ Streetlighting
- ▶ C&I Retrofit, including large projects and mid size customers
- ▶ Cost per kWh and cost per therm by sector
- ▶ EM&V results
- ▶ Small PA potential studies
- ▶ National Grid C&I study

# RESIDENTIAL LIGHTING



## ▶ Consultant Assumptions

- Ambitious assumptions for lighting units/housing units and percent of LEDs; other factors are gross savings and NTG

## ▶ PA Assumptions

- High lighting unit numbers in 2013-14 are the result of a participation increase from the phase-out of incandescents and will not continue at similar levels in 2016-2018
- Low cost of (non-ENERGY STAR) LEDs in 2016-18 may undermine program activity and reduce unit numbers

## ▶ Potential Impact on Goals

- Consultants' assumptions vs. PAs' yield an additional 280,039 MWh in annual savings over 2016-18

# RESIDENTIAL BEHAVIOR



## ▶ **Consultant Assumptions**

- Increased participation (both new and expanded existing programs) and increased savings per participant

## ▶ **PA Assumptions**

- No additional participants are available from existing programs and savings per participant will decrease

## ▶ **Potential Impact on Goals**

- Consultants' assumptions vs. PAs' yield an additional 142,143 MWh (38% more) and 6.9 million therms (42% more) in annual savings over 2016-18

# HOME ENERGY SERVICES (GAS)

## ▶ Consultant Assumptions

- Increased participation and increased savings per participant
  - Higher conversion rates, more air sealing and wireless communicating thermostats, addition of duct sealing, more HVAC early replacement

## ▶ PA Assumptions

- Relatively flat participation and savings per participant from 2016-2018
- Not all PAs offering duct sealing

## ▶ Potential Impact on Goals

- Consultants' assumptions vs. PAs' yield an additional 4.4 million therms in annual savings over 2016-18 (32% more)



# RESIDENTIAL GAS HEATING AND WATER HEATING

## ► Consultant Assumptions

- Increased participation/year but reduced savings/participant from 2014 baseline
  - More communicating thermostats; upstream efforts for key products
  - More thermostats (lower savings/unit), lower furnace savings, NTGR reductions for key measures

## ► PA Assumptions

- Both participation and savings decrease from 2014 evaluated levels
  - Many wireless communicating thermostats move to HES
  - Boilers are most significant single measure (assumes no fix for condensing problem identified by evaluation)

## ► Potential Impact on Goals

- Consultants' assumptions yield annual savings of ~1 million therms more than the PAs over 2016-18 (13% more)

# COMBINED HEAT AND POWER

## ► Consultant Assumptions

- The Consultants are looking at a range of 180-270 GWh (10-15 MW/year)
- Using an average of CHP savings over the past 5 years, 2016-2018 would be 214 GWh

## ► PA Assumptions

- The BCR models include 117, GWh savings for the three years
- Using a consistent methodology to calculate savings from installed capacity, the PA weighted pipeline indicates 159 GWh of likely savings

## ► Potential Impact on Goals

- Increased savings from CHP make it easier to meet higher goals, and would help reduce portfolio costs

# C&I LIGHTING



## ► Consultant Assumptions

- The Consultants believe that C&I lighting savings has potential for growth due to the adoption of LED lamps and fixtures
- LEDs will not remain static in either savings or costs

## ► PA Assumptions

- BCR models indicate a reduction in C&I lighting savings by 22% for each year as compared to 2014 PYR
- Linear LED technology is not fully mature, and is expensive

## ► Potential Impact on Goals

- Because lighting is a such a large source of savings (~60% of C&I savings in 2014), a decrease or increase lighting savings has a significant impact on goals

# C&I LIGHTING - STREETLIGHTS

## ► Consultant Assumptions

- There is additional potential for savings for both municipal and utility owned streetlights

## ► PA Assumptions

- The PAs are limited to working with municipalities who want to purchase or already own their streetlights
- Applying for a new rate for utility owned streetlights is out of the control of the efficiency programs

## ► Potential Impact on Goals

- Undetermined at this point
- Process is on-going

# C&I RETROFIT, INCLUDING LARGE PROJECTS AND MID-SIZE CUSTOMERS

## ► **Consultant Assumptions**

- There is additional potential for savings from midsized customers
- There is additional potential from large projects

## ► **PA Assumptions**

- Unknown as the result of limited conversations to date

## ► **Potential Impact on Goals**

- Undetermined at this point
- Process is on-going

# PORTFOLIO COSTS TO ACHIEVE 2016-2018 (AS OF APRIL 30)

	PA Program Budget (\$Millions)	Consultant Program Budget (\$Millions)	PA Cost/Annual kWh or therm	Consultant Cost/Annual kWh or therm	2013 Actual Cost to Achieve	2014 Actual Cost to Achieve
Electric	\$1,818	\$1,586	\$0.452	\$0.372	\$0.379	\$0.376
Gas	\$623	\$633	\$8.307	\$6.248	\$6.148	\$5.973

- ▶ **The PAs assumed higher costs to achieve than the Consultant Team**
- ▶ **To date, the Consultant Team and PAs have largely focused on the savings gap**
- ▶ **Additional analysis will be done to address differences between the PA and Consultant Team's assumed costs to achieve**

# EM&V RELATED ISSUES



- ▶ **Initial reviews suggests PAs have applied EM&V results to planning assumptions appropriately**
- ▶ **Some remaining questions that need clarification**
- ▶ **Overall effects of EM&V results and other impact adjustments in 2014 PYR are higher savings than the 2014 Q4 quarterly report**
  - The Consultants used 2014 Q4 quarterly report as a starting point for our analysis for the 2016-2018 Plan

# SMALL PA GOALS AND POTENTIAL STUDIES



## ► Consultant Assumption

- Cost-effective savings in small service territories should be achievable at similar levels to larger service territories
- In particular, PAs should be able to achieve equivalent proportional savings as a % of energy sales where they have customer load in the sectors or segments

## ► PA Assumption

- Limited customers and limited large customers put small PAs at a disadvantage and increase performance risk

## ► Potential Impact on Goals

- Consultant Team previously reviewed/commented on small PA potential studies, and is discussing them with the PAs
- Process is on-going



# ADDITIONAL CONSIDERATIONS

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- ▶ **National Grid Additional Review of DNVGL Data**
  - Process is on-going

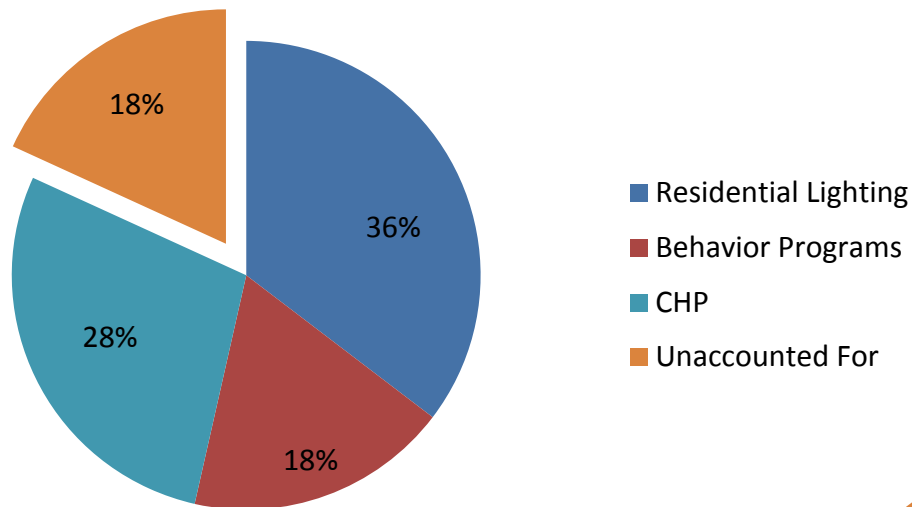
# SAVINGS GAP FROM KEY DRIVERS ANALYSIS TO DATE

Driver	Difference (GWh)	% of Total GWh Difference**	Difference (Million Therms)	% of Total Therm Difference**
<b>Residential Lighting</b>	280	35%		
<b>Behavior Programs</b>	142	18%	7	28%
<b>Home Energy Services (Gas)</b>			4	16%
<b>Res Heating/Water Heating (Gas)</b>			1	4%
<b>CHP</b>	225*	28%		
<b>Commercial Lighting</b>		TBD		
<b>Streetlighting</b>		TBD		
<b>C&amp;I Retrofit, large projects, mid size</b>		TBD	TBD	
<b>Total</b>	647	82%	12	48%

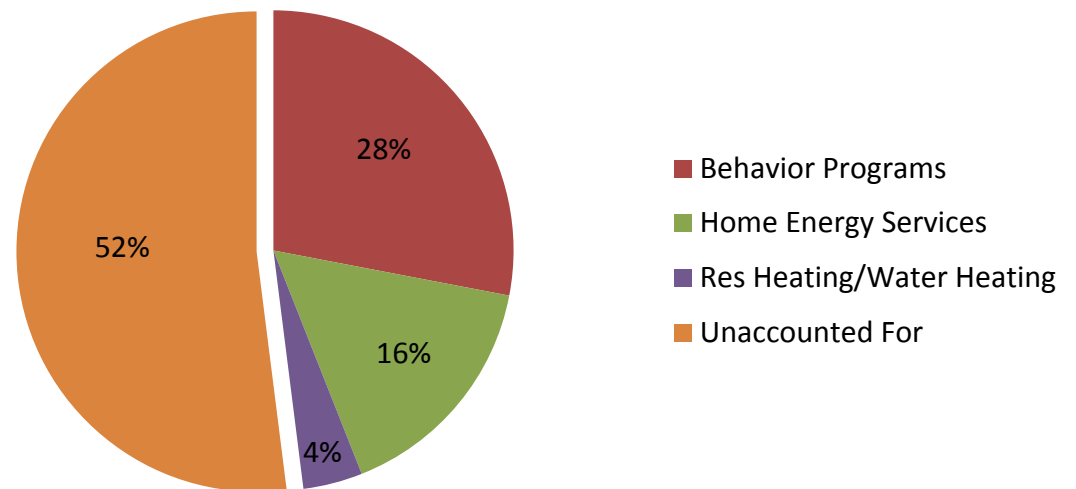
\*Assumes middle of potential range \*\*Percentages based on total remaining differences (790 GWh or 25 million therms as denominator)

# SAVINGS GAP FROM KEY DRIVERS ANALYSIS TO DATE

## Electric Savings Gap



## Gas Savings Gap



# THANK YOU

## Questions?

▶ June 29, 2015

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