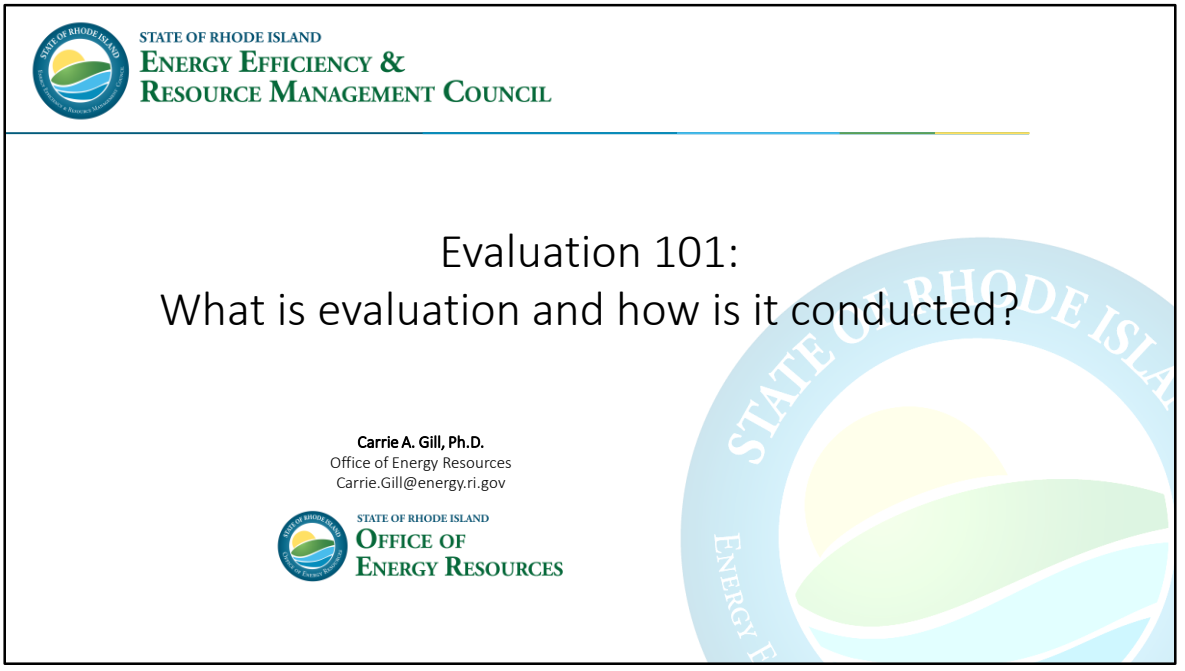


Good afternoon Council members! This presentation might even be more fun than energy efficiency jenga!

At last year's retreat, you drove past the "sausage factory" with Mark's evaluation presentation. This year, we're going for a tour of the inside of the factory. At the end of the tour, you won't be sausage makers, but you will know how the sausage is made.

The goal of this presentation is to help you understand evaluations. I've heard the evaluation process described as a black box. Today I am going to open that box and show you what's inside. I don't expect you to memorize the specifics that I show you – that's what the experts are for. But I am hoping that by seeing what's inside, you get a better, more intuitive understanding for the high-level way we describe evaluation. When we close the box back up at the end of this presentation, my goal is for you to see that the box is no longer a "black box" but a clear box full of well-researched and documented tools, processes, and standards for understanding how the utility's programs impact energy use, and how we use those findings to inform the energy efficiency planning process.

Agenda

Foundations of Evaluation	✓ What is an evaluation? Why do we do them?
Adherence to National and Regional Best Practices	✓ How do we know we're doing a good job?
The Evaluation Process and Team	✓ Who does evaluation and what oversight is there?
2018 Evaluations	✓ What is an example of a current study?
More Resources	✓ Where can I find the most recent evaluation of _____?

This presentation is broken into five main sections. In each section, I will provide some specific examples, but, again, the goal is for those specific examples to help you understand the high-level concepts of evaluation. In each section, we will be addressing one or two primary questions. I'll be sure to come back to these questions at the end of each section AND at the end of the presentation.

You also have a handout with these questions – you may choose to use this to take notes, if you'd like!

Foundations of Evaluation

- ✓ What is an evaluation?
- ✓ Why do we do them?

Let's start from the beginning, with what an evaluation is and why we do them.

Why do we do evaluations?

- ✓ To understand how much energy savings is due to programs – *Impact Evaluations*
  Methods include:
  - Billing analysis
  - Pre- and post-metering
  - Simulations and algorithms using nationally-vetted software and practices
- ✓ To improve program delivery – *Process Evaluations*
  Methods include:
  - Interviews
- ✓ To understand market conditions & inform program planning – *Market Evaluations*
  Methods include:
  - Interviews
  - Primary data collection
  - Simulations and algorithms based on economic/business theory

We do evaluations for three reasons:

First, evaluations help us understand how much energy savings is actually caused by the energy efficiency programs. This helps us weigh the benefits and costs of each program – down to the measure – when we are in the energy efficiency planning process. This type of evaluation is called an impact evaluation, and the results are direct inputs into the Technical Reference Manual (TRM) and the benefit-cost model for each year's annual plan. Impact evaluations are what helps us ensure all programs are cost-effective.

Second, evaluations help us improve program delivery. By talking to program administrators, participants, and even non-participants, we can make the programs easier to implement and easier to use. This type of evaluation is called a process evaluation.

Third, evaluations help us understand market conditions, which then inform both program impact and program design and implementation. This type of evaluation is called a market evaluation.

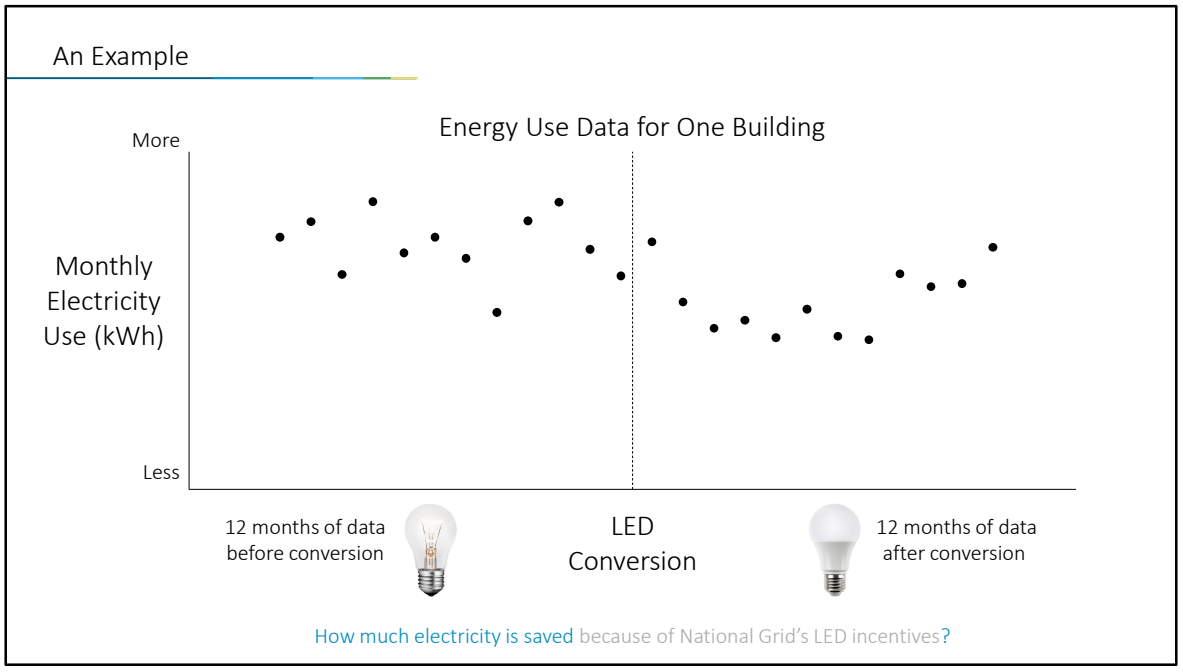
Next, I'll talk about the foundations of statistical inference – how we estimate the impacts due to the programs – and then we'll relate those concepts to the various methods used in each type of evaluation.

An Example

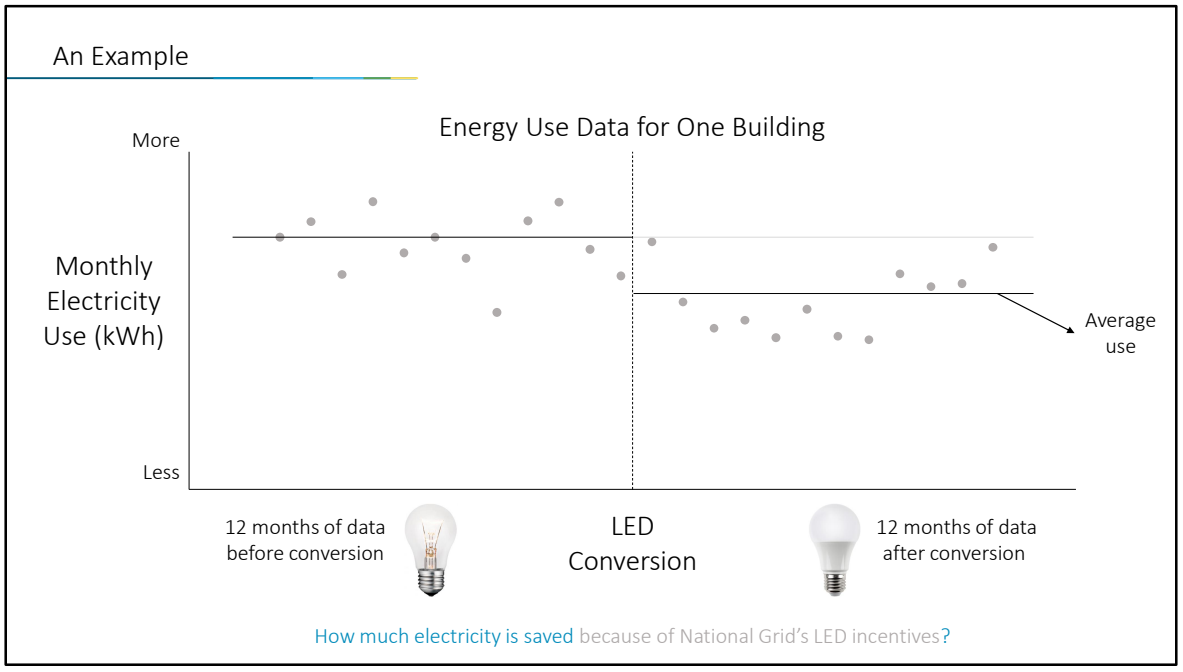
Engineering Question: How much less electricity is used to power an LED bulb?

Evaluation Question: How much electricity is saved *because of National Grid's LED incentives*?

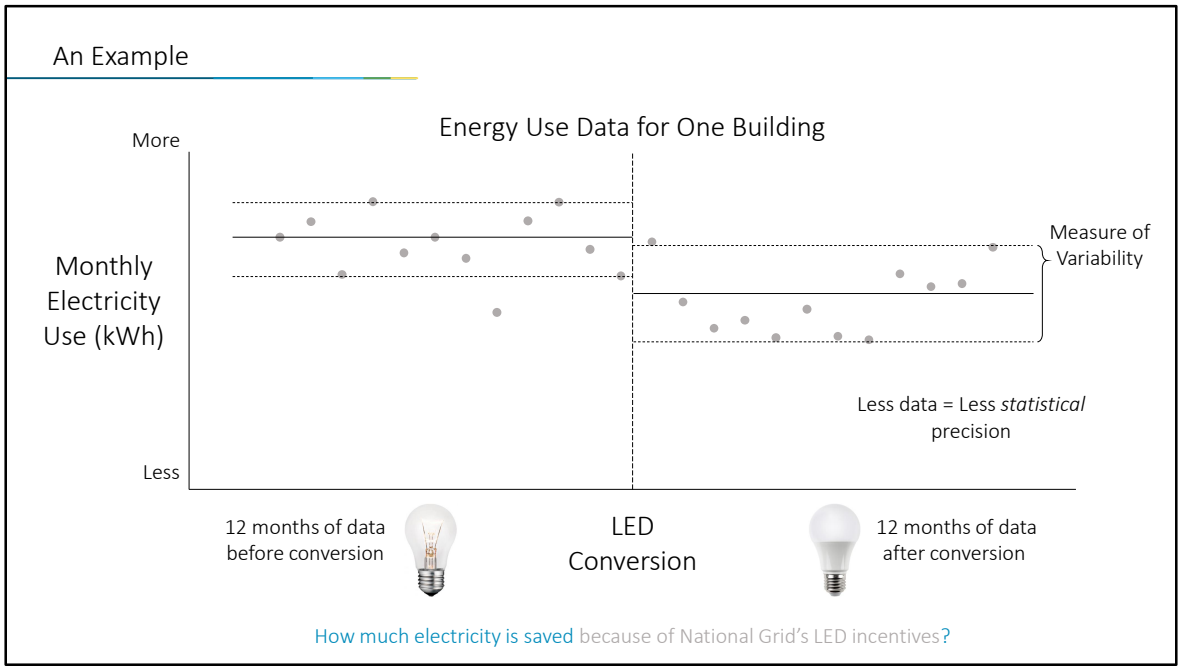
Let's start with a fictionalized example – converting energy-inefficient incandescent bulbs to energy-efficient LED bulbs. The difference in energy used to power the bulbs is an engineering question. We can figure out the answer by plugging in both bulbs for some amount of time and measuring energy use for each one. As evaluators, we are answering a slightly different question – how much energy is saved because of National Grid's LED incentives.



Let's focus on the first part of this evaluation question first – how much electricity is saved. Here we have fictional data for one business. Each data point shows how much electricity the business used each month, with higher points corresponding to higher electricity use. The data points to the left of the dashed line show 12 months of electricity use prior to converting to LED bulbs. The data points to the right of the dashed line show electricity use for the 12 months following the conversion.

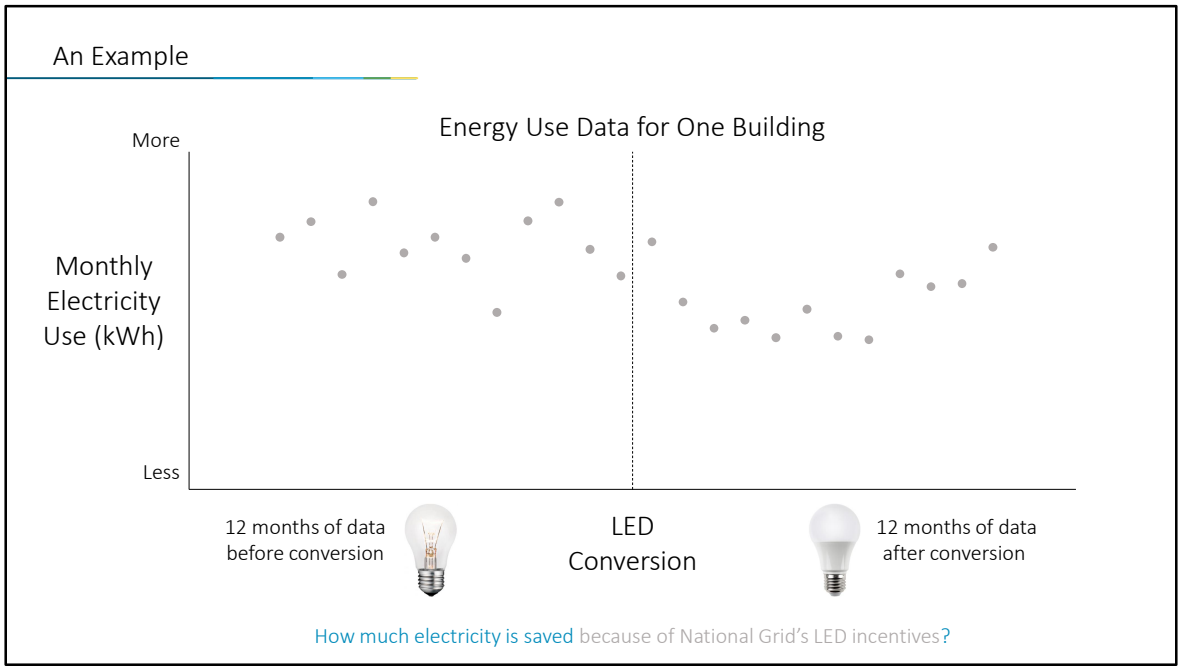


A simple way to estimate the change in electricity use it to compare the average monthly electricity use before the conversion (solid horizontal line to the left of the dashed vertical line) to the average monthly electricity use for the 12 months after the conversion (solid horizontal line to the right of the dashed vertical line). Here, we assume that without the conversion, the business would have used the same amount of electricity on average for each month (the light gray line). The difference between the two averages (the light gray line and the black line to the right of the conversion) represents the amount of electricity saved.

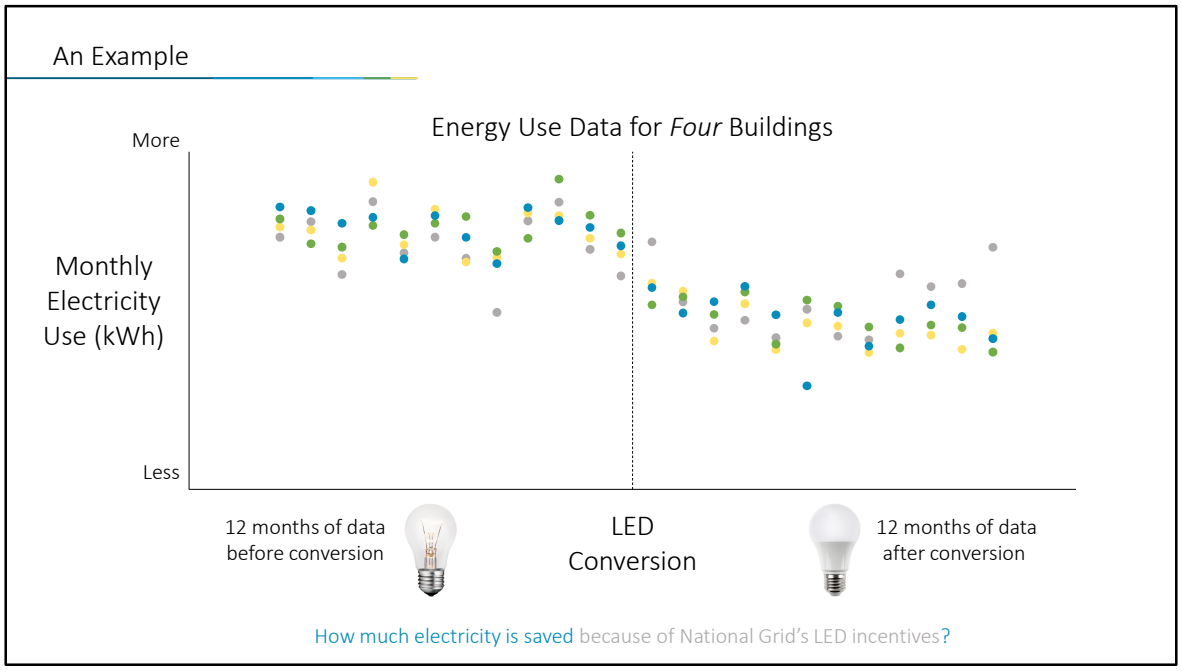


While we could say average electricity use decreased, there is considerable variability in the data – Did electricity use actually decrease or do we just not have enough information? The small dashed lines represent the variability in the data, and the overlap in variability before and after the conversion tells us that, while it looks like electricity use decreased on average, this may be due to chance or to other factors. In other words, we don't have enough statistical precision to confidently claim that electricity use is different from before. In other words, the change in electricity use is statistically indistinguishable from zero.

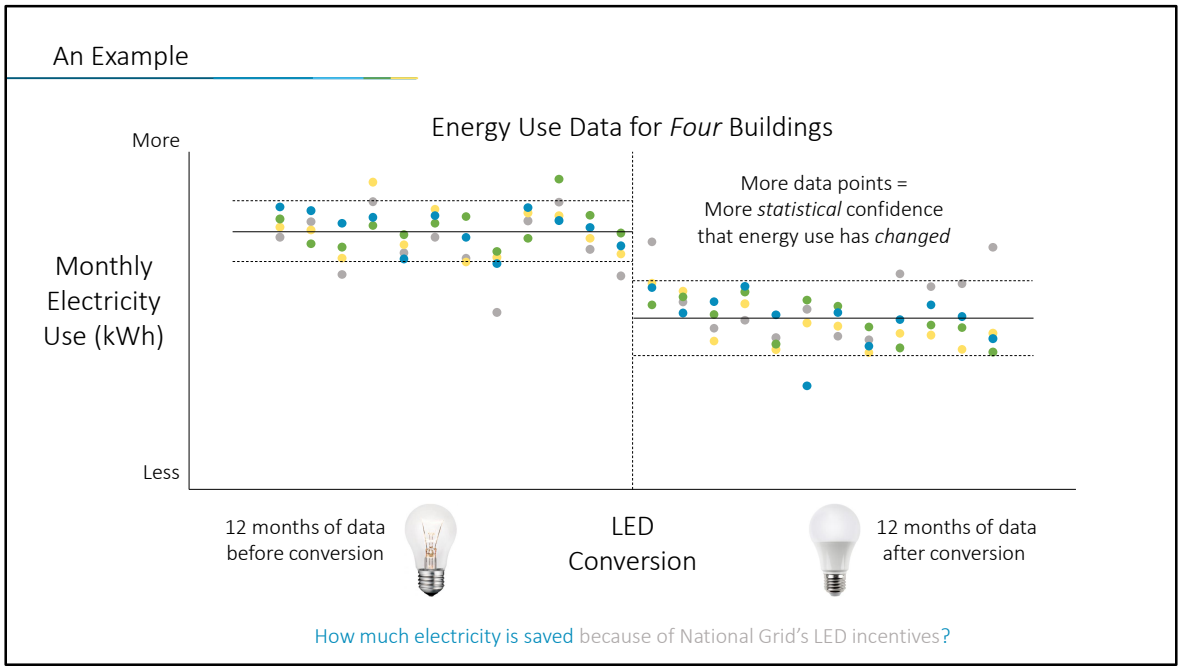
One cause of statistical imprecision is not having enough data points. For example, if I'm trying to figure out the average height of all Americans, but I happen to only measure heights of one basketball team, I'd get a very different – and much taller – estimate of average height. Instead, if I measured the basketball team and 1,000 other randomly chosen people, my estimate of average height would be much closer to the true average height of all Americans.



So let's add some data to our example.



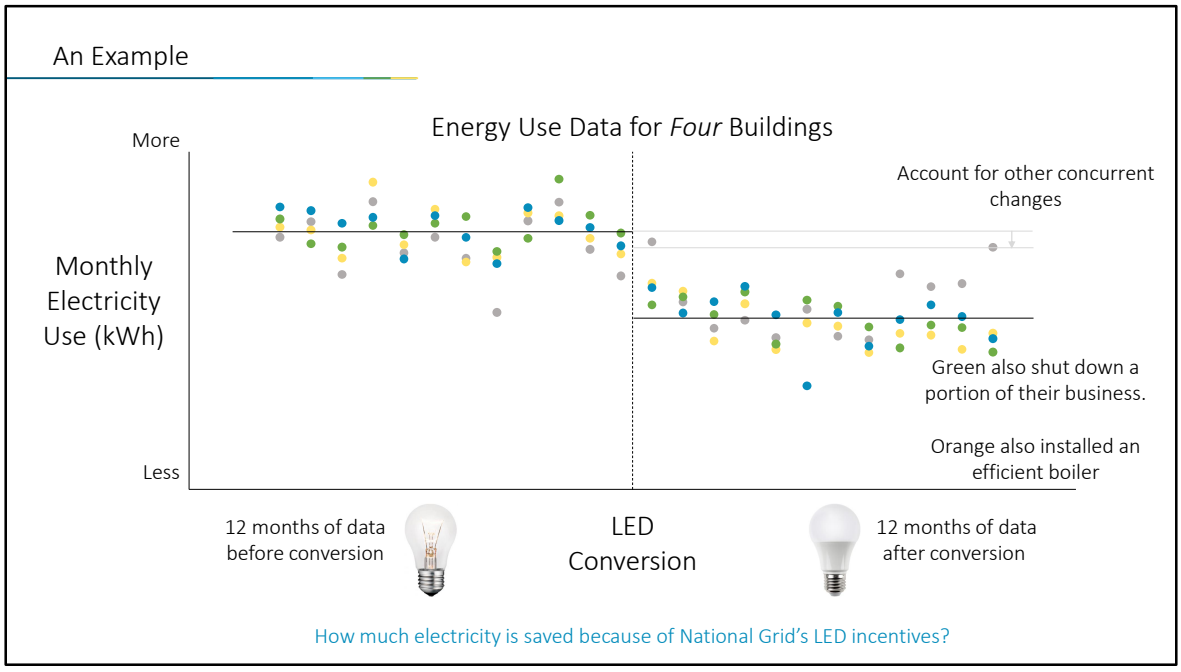
Here is data for an additional three businesses, with each business given by a different color data point.



Now if we take the average electricity use before and after the conversion and account for variability in the data, we get a more precise estimate for the amount of electricity saved – statistically speaking. So more data points means more statistical precision and more confidence in our answer to the question of how much electricity is saved.

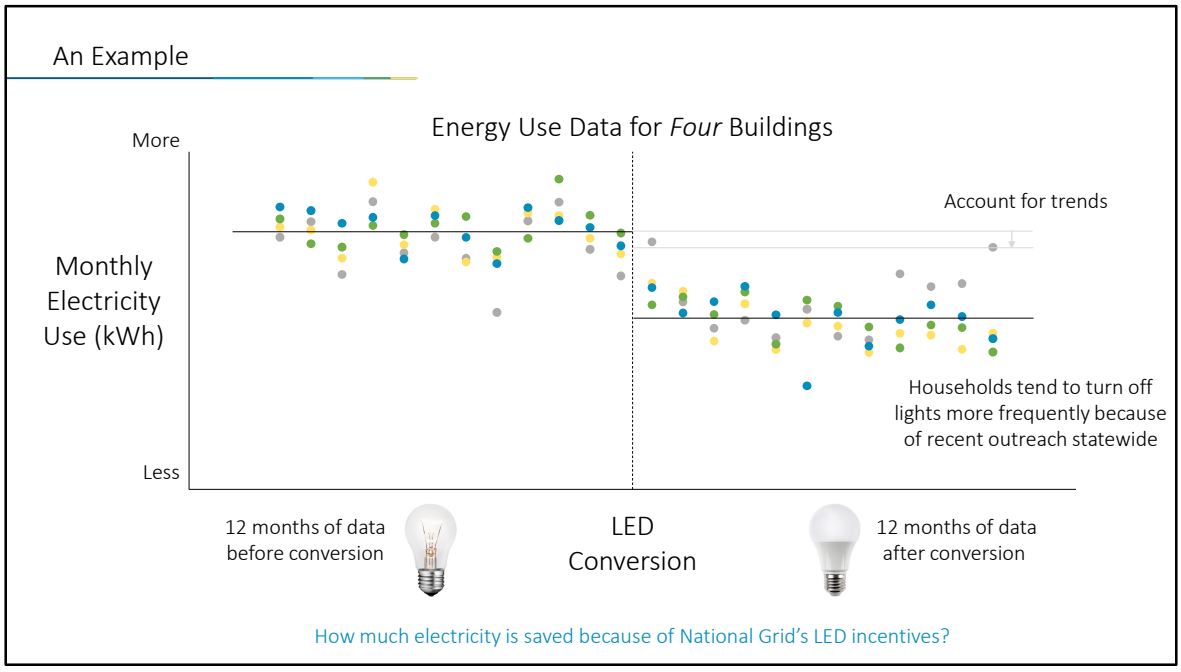
In fact, and I'll go into more detail about this later, there are industry standards for the level of statistical precision needed in evaluations that we must follow.

Now, let's move onto the second part of the question – how much of this change in electricity is due to National Grid's energy efficiency programs? This is a much tougher question to answer because there are lots of factors that can influence electricity use. We'll run through some examples now.



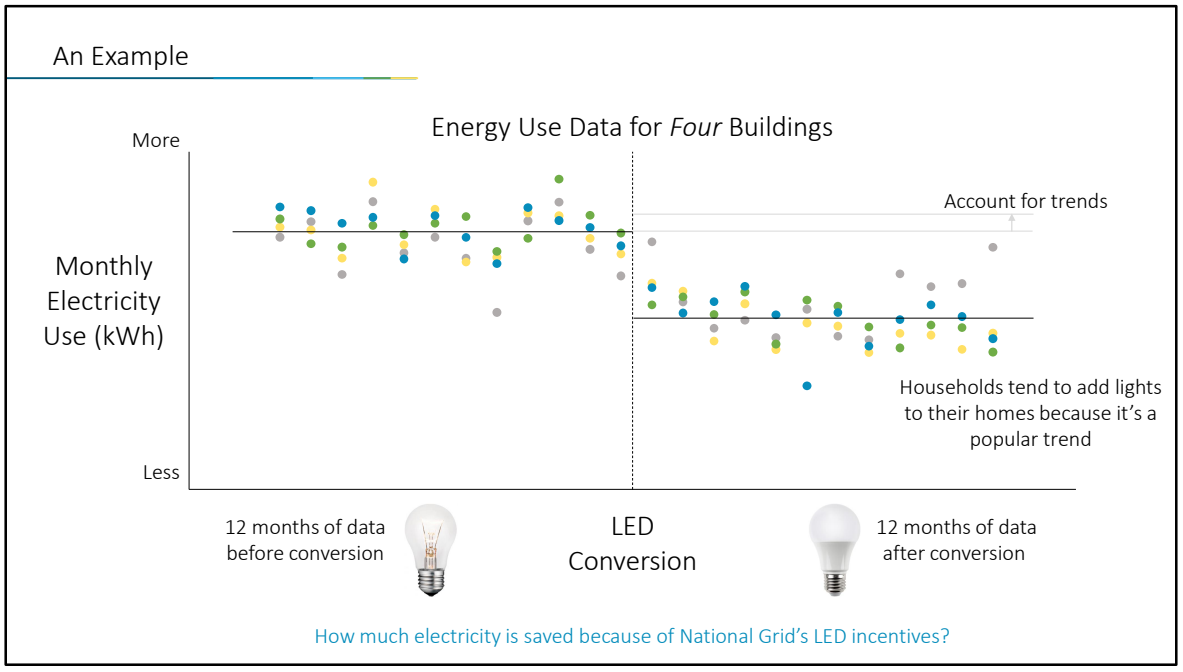
First, we have to think through whether the change in electricity use could be due to other, concurrent changes. Perhaps the business represented by the green data points shut down an entire wing of their building when the LED conversion happened. Or maybe the business represented by the orange data points installed an energy-efficient boiler at the same time as the LED conversion. Both of these changes would cause extra electricity savings, and we cannot claim these savings are due to National Grid's LED incentives. Therefore, we have to adjust the savings estimate to be smaller, and only reflect the savings due to the LED incentives.

(Technically, a concurrent change like this would make our key assumption from Slide 7 that average electricity use would be the same in the absence of the LED conversion incorrect. So in accounting for concurrent changes, we shift the counterfactual average electricity use down (gray lines) to reflect other energy efficiency improvements and subsequent lower electricity use. Electricity savings is represented by the distance between the counterfactual and actual average lines, which gets smaller when we account for concurrent energy efficiency improvements.)



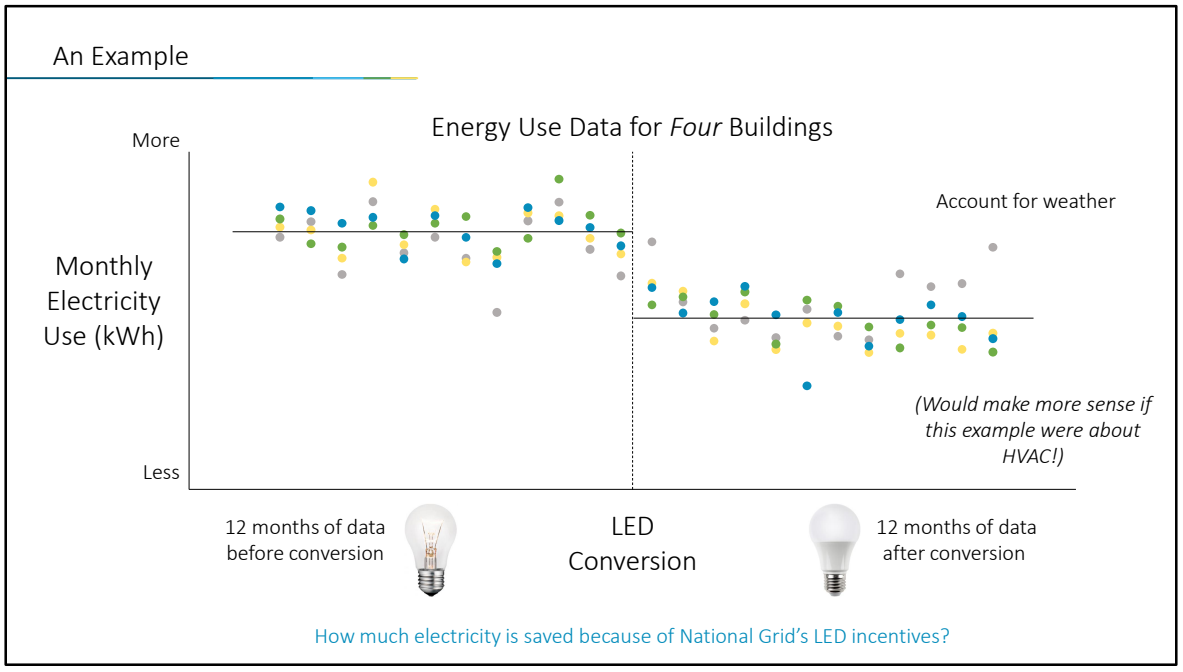
We also have to account for naturally occurring trends. Let's pretend these data points represent homes instead of businesses and let's say that there happened to be a big campaign about turning off lights right around the time of the LED conversion. Some of the electricity savings here might actually be due to folks turning off lights, rather than National Grid's LED incentives.

(Similar to before, accounting for trends technically shifts the counterfactual. In this scenario, the counterfactual average decreases, which leads to a smaller electricity savings estimate.)

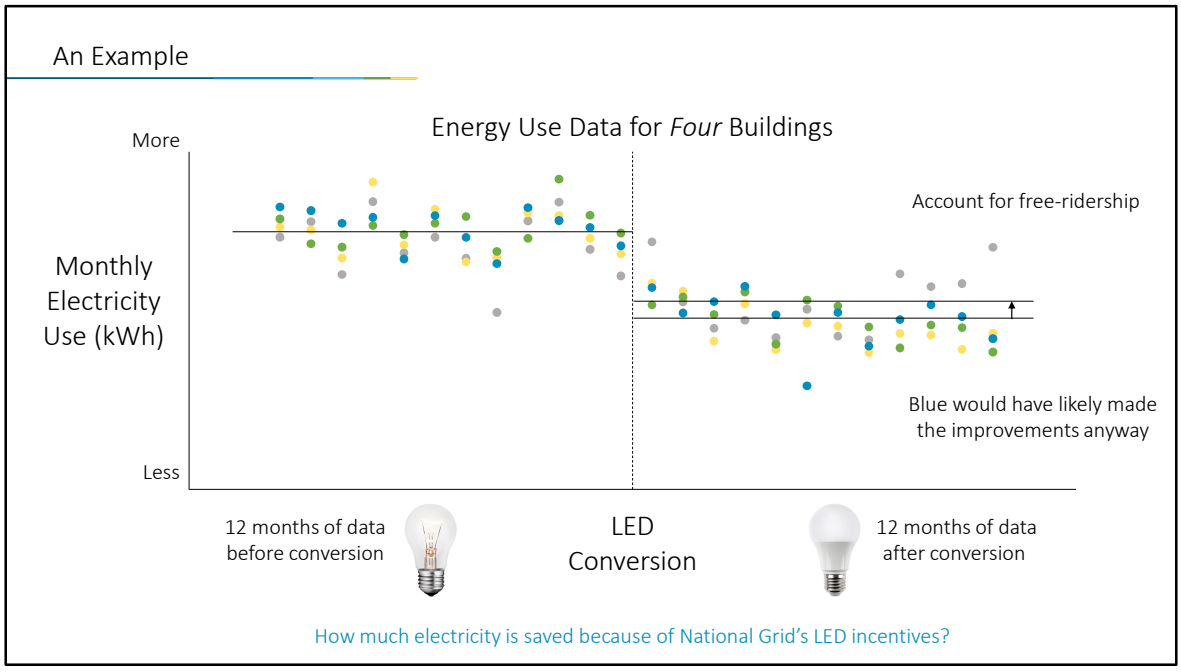


Similarly, homes might see a trend in adding lights, and everyone trying to keep up with the Jones's also adds lights. Then, the counterfactual average to compare is electricity use for homes with incandescent bulbs AND more lights. Under that counterfactual scenario, the electricity savings from the LED conversion would actually be larger.

(In this scenario, the trend of adding lights would cause the counterfactual to shift up, indicating higher electricity use in the absence of the LED conversion. This shift leads to larger electricity savings due to the LED incentives.)

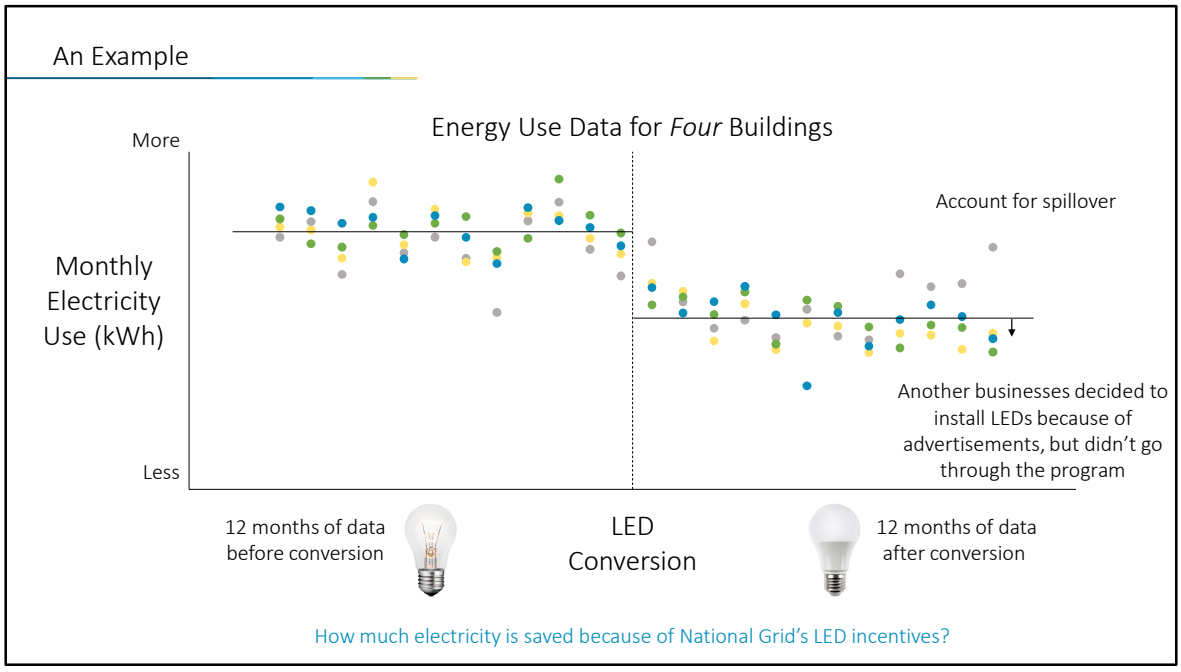


While not as applicable to our LED lightbulb example, we have to also account for trends in weather that can cause folks to use more or less electricity.



Almost done with examples!

Let's say that all of us around this table converted our homes to LEDs, but I would have done it regardless of any incentives. I'm what's called a "free-rider" and National Grid cannot claim savings from electricity saved by folks who would have done it anyway. Remember our evaluation question – how much electricity is saved because of National Grid's LED incentives. If I would have converted to LEDs without an incentive, then my savings should not count toward energy saved because of National Grid's LED incentives. Therefore, evaluators have to figure out what level of free-ridership is out there and discount the electricity savings accordingly.



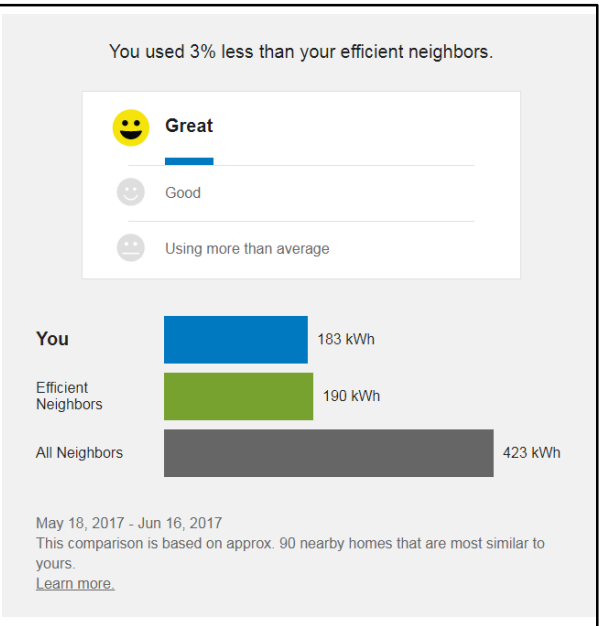
Last example – Let's say we all converted to LEDs but you out there in the audience didn't go though National Grid to get an incentive. Instead, you heard about energy efficiency through a National Grid commercial, thought it was a good idea, and went out and did it on your own at full price. Your electricity savings was caused by National Grid (specifically, their commercial) but you are not reflected here in our data. This is something called "spillover". Evaluators must figure out how much spillover there is and account for it in their estimates of energy savings due to National Grid programs.

Once we've accounted for these and other factors, we can make CAUSAL INFERENCE – Going back to our interpretation of the change in energy use, for an evaluation to be good, we need to be confident that our model provides causal inference. In other words, we need to rule out all other things that could have changed energy use so that we can attribute any change in energy use to the energy efficiency programs.

An Ideal Evaluation – Home Energy Reports

Theory:

- Individuals want to conform to *social norms*
- The comparison offers a *descriptive norm* telling you how similar/different your behavior is
- The smiley face is an *injunctive norm* signifying approval to prevent the most efficient individuals from using more energy to align with social norms

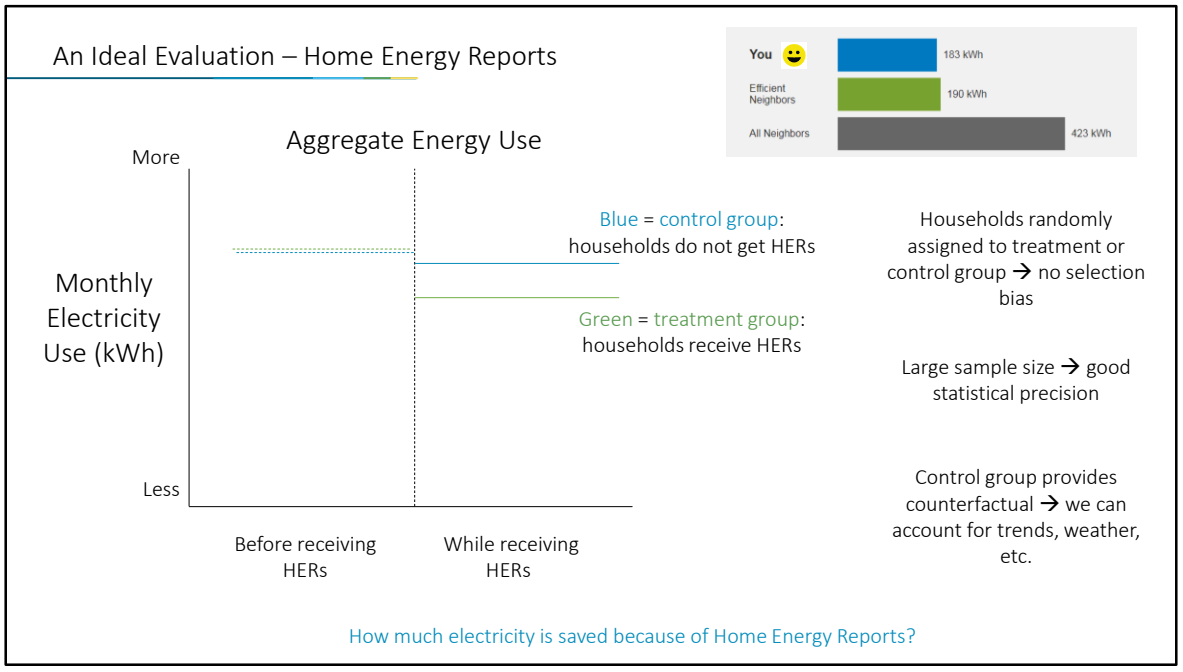


How much electricity is saved because of Home Energy Reports?

Let's switch from our fictional example to a real program evaluation.

Home energy reports that compare your energy use to your neighbors are based on a strong foundation of psychological and behavioral science. Individuals want to conform to social norms – we want to be like everyone else and we feel uncomfortable when we are different. The home energy report provides a descriptive norm that shows you how different you might be from your peers (the bar chart). This will make you feel uncomfortable, which will then influence your behavior. This works both ways – folks who use more energy than their peers will try to use less, while folks who use less energy than their peers will try to use more. To counteract the second effect – folks using more energy – home energy reports also provide an injunctive norm (the smiley face) to signal approval for people using less average than their peers.

As evaluators, we want to know how much electricity is saved because of home energy reports.



Evaluation of home energy reports follows the gold standard of a randomized control trial – this is jargon meaning that each household is randomly chosen to either receive or not receive the reports. The treatment group – homes that get the reports – are then compared to the control group – the homes that don't get the reports. Because of the randomization, all those factors that we talked about earlier are equally likely to happen to homes in both the treatment and control groups. Therefore, we can just compare electricity use between the groups and infer that the cause was the home energy reports.

Another ideal characteristic of home energy reports evaluation is the large sample size. Nearly every single household is either in the treatment or control group, making for lots of data. Even though the effect of the home energy reports is small (about a 2% reduction in electricity use per home), we have high statistical precision because we have so much data.

Home energy reports are actually used in states across the country and there has been a lot of research done to evaluate the impacts of home energy reports. I'd be happy to share any of that with anyone interested!

Why do we do evaluations?

- ✓ To understand how much energy savings is due to programs – *Impact Evaluations*
  Methods include:
  - Billing analysis
  - Pre- and post-metering
  - Simulations and algorithms using nationally-vetted software and practices

- ✓ To improve program delivery – *Process Evaluations*
  Methods include:
  - Interviews

- ✓ To understand market conditions & inform program planning – *Market Evaluations*
  Methods include:
  - Interviews
  - Primary data collection
  - Simulations and algorithms based on economic/business theory

So let's get back to the types of evaluations, which all use different methods. However, the same principles apply to all methods. We have to be careful to account for other factors that could change how we interpret results. For example, a process evaluation involves lots of interviews. If we only interview people who were satisfied with the program, then we are missing some crucial information about how to improve the program. In primary data collection, if we only collect data in grocery stores, we can't understand conditions in multifamily homes. Evaluators have to be smart about their methods and models in order to produce good evaluations.

Let's tie what we've learned back to the main concepts that you should take away from this presentation:

What is an evaluation?

An evaluation is a study to learn about the impact of national grid's programs, to improve program delivery, and to understand current market conditions.

Why do we do evaluation?

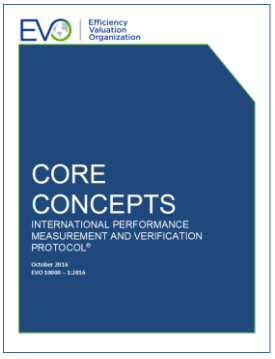
We do evaluation to ensure national grid's programs are effective, and to optimize the portfolio of measures/incentives & delivery within the program. Evaluation results provide input to energy efficiency planning and, importantly, to the benefit-cost model that we use to ensure programs are cost-effective.

Adherence to National and Regional Best Practices

- ✓ How do we know we're doing a good job?

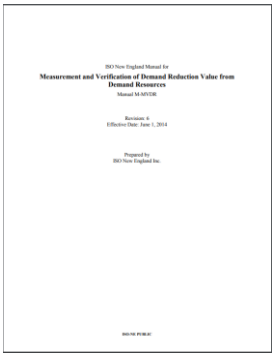
So how do we know we're doing a good job with evaluations?

Compliance with Industry Standards



International Performance Measurement and Verification Protocol

Uniform Methods Project from US Department of Energy



ISO-NE Manual for Measurement and Verification of Demand Reduction Value from Demand Resources

We have to follow industry standards and best practices. There are three standards we need to know – the IPMVP, the UMP (show binder), and ISO-NE's M-MDRV (show binder). Why does ISO-NE have their own standards? Because the Forward Capacity Market, which buys energy efficiency, is a billion dollar market and the transmission system depends on accurate forecasts of energy efficiency and energy savings.

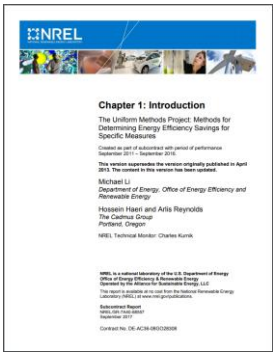
I'll show you how detailed these standards are.

https://evo-world.org/en/products-services-mainmenu-en/protocols/ipmvp

https://www.nrel.gov/docs/fy17osti/68558.pdf

https://www.iso-ne.com/static-assets/documents/2017/02/mmvdr_measurement-and-verification-demand-reduction_rev6_20140601.pdf

Example of Protocol



Uniform Methods Project from US Department of Energy

Chapter 2. C&I Lighting Evaluation Protocol

3.1.1 Energy Savings

3.1.1 Energy Savings

Equations in this section are used to calculate first-year energy savings for lighting measures.

Equation 3. Lighting Electric Energy Savings

$$kWh\ Save_{light} = \left[\sum_{u,i}\left(\frac{fix\ watt_{base,i} \cdot qty_{base,i}}{1000} \cdot HOU_{base}\right)_u - \sum_{u,i}\left(\frac{fix\ watt_{energy\ efficient,i} \cdot qty_{ee,i}}{1000} \cdot HOU_{ee}\right)_u\right] \cdot ISR$$

Where:

kWh Save $_{light}$ = Annual kWh savings resulting from the lighting efficiency project

fix watt $_{base,\ energy\ efficient,\ i}$ = Fixture wattage, baseline or energy-efficient, fixture type i

qty $_{base,\ energy\ efficient,\ i}$ = Fixture quantity, baseline or energy-efficient, fixture type i

u = Usage group, a collection of fixtures sharing the same operating hours and schedules, for example all fixtures in office spaces or hallways

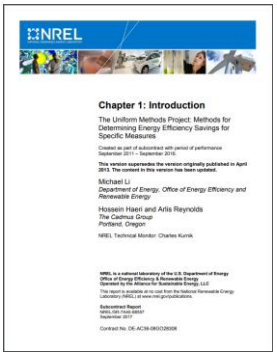
HOU $_{base,\ energy\ efficient}$ = Annual hours of use, baseline or energy-efficient, usually assumed unchanged from baseline unless new controls are installed

ISR = In-service rate, the percentage of incentivized lamps or fixtures that are installed and operating. Applies to upstream buy-down programs, normally not applicable for incentive and rebate programs

Chapter 3. Pages 4-5. https://www.nrel.gov/docs/fy17osti/68558.pdf

This excerpt is from DOE's UMP, and describes how to estimate electricity savings from lighting in commercial and industrial buildings. You don't need to understand the equation, but you can see how specific the standards are.

Example of Protocol



Uniform Methods Project
from
US Department of Energy

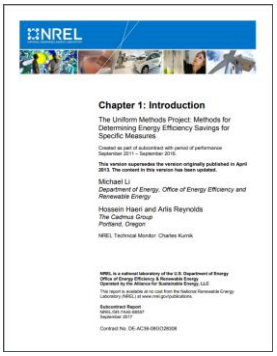
Chapter 2. C&I Lighting Evaluation Protocol
5.2 Evaluator Data Collection Method

Field	Note
Location	From implementer
Usage group	From implementer
Location heating	From implementer, verified by evaluator
Location heating type	From implementer, verified by evaluator
Location heating fuel	From implementer, verified by evaluator
Location cooling	From implementer, verified by evaluator
Location cooling type	From implementer, verified by evaluator
Location cooling fuel	From implementer, verified by evaluator.
Baseline fixture type	From implementer, verified by evaluator
Baseline fixture count	From implementer, verified by evaluator
Baseline fixture watt	From implementer, verified by evaluator
Baseline HOU	From implementer, verified by evaluator
Efficient fixture type	From implementer, verified by evaluator
Efficient fixture count	From implementer, verified by evaluator
Efficient fixture watt	From implementer, verified by evaluator
Efficient lighting HOU	Measured by evaluator
IF_{cool}, or COP_{cool} and HOU_{cool}	Interactive factor for cooling from look-up table, or site-specific COP_{cool} and HOU_{cool} (optional)
IF_{heat}, or COP_{heat} and HOU_{heat}	Interactive factor for heating from look-up table, or site-specific COP_{heat} and HOU_{heat} (optional)
ISR	Measured by evaluator
kWh_{save}	Calculated using savings algorithms
$kW\text{-}Peak_{save}$	Calculated using savings algorithms

Table 2. Page 11. https://www.nrel.gov/docs/fy17osti/68558.pdf

The standards also prescribe data collection methods for the input to the previous equation.

Example of Protocol



Uniform Methods Project
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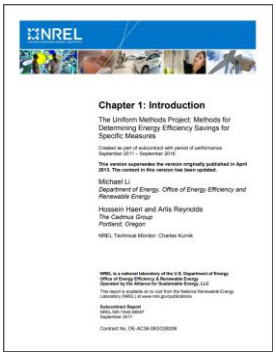
Table 2. Page 11. https://www.nrel.gov/docs/fy17osti/68558.pdf

Even though some of this data comes from the utility, UMP requires all data to be verified by the independent evaluator.

Example of Protocol



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$kW\text{-}Peak_{save}$	Calculated using savings algorithms

Table 2. Page 11. https://www.nrel.gov/docs/fy17osti/68558.pdf

For data that doesn't come from the utility, the UMP requires the evaluator to be the one collecting the data.

So,

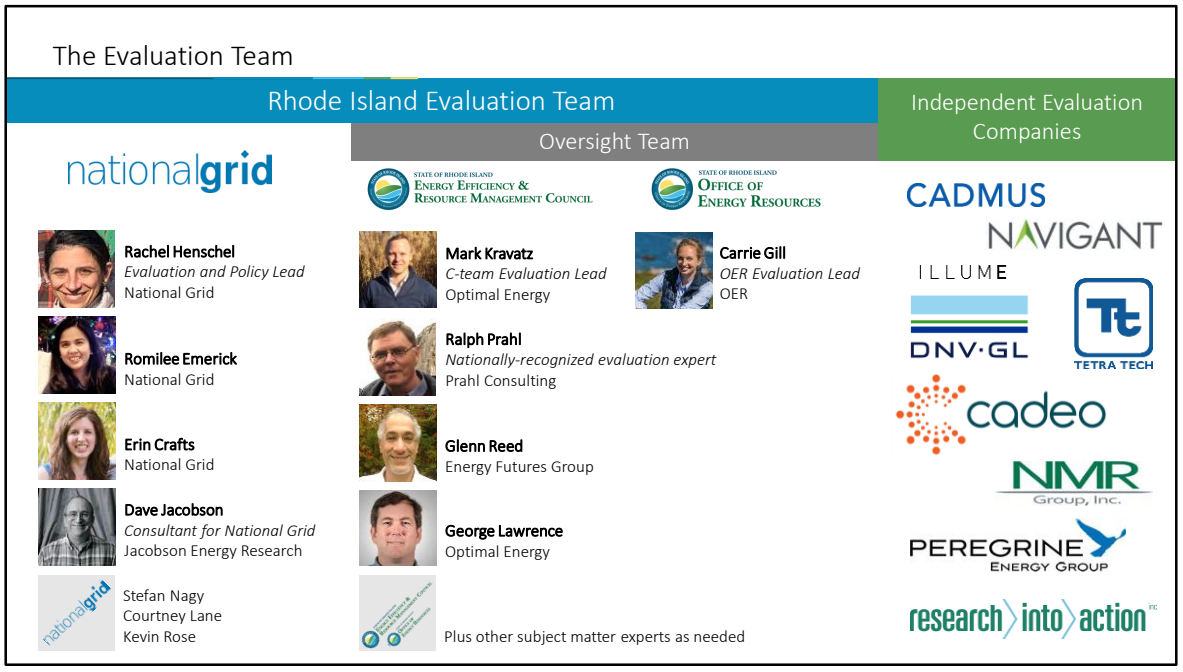
How do we know we're doing a good job?

We know because we comply with national and regional standards. We also know because we have a strong team of experts integrated into the evaluation process, as we'll see in the next section.

The Evaluation Process and Team

- ✓ Who does evaluation?
- ✓ What oversight is there?

Alright, you know what evaluations are, why we do them, and why we know they're good. Now let's meet the team.



The evaluation team is large. On National Grid's end, the team is led by Rachel with key help from Romilee, Erin, and Dave J (a consultant expert for Grid, who actually co-authored some of the UMP chapters). National Grid's team additionally includes Stefan, Courtney, and Kevin from NGrid RI and six folks (listed below) from NGrid MA.

The EERMC provides oversight through their consultant team, lead by Mark and Ralph. Ralph is a nationally-recognized evaluation expert and is an amazing person to have on the team. Glenn and George provide additional key insight on program evaluation. I am our evaluation lead from OER's end. For everyone involved, our only incentive is to produce the more rigorous evaluations. To do so, we will pull in subject matter experts as needed to ensure we think through all the factors we discussed earlier.

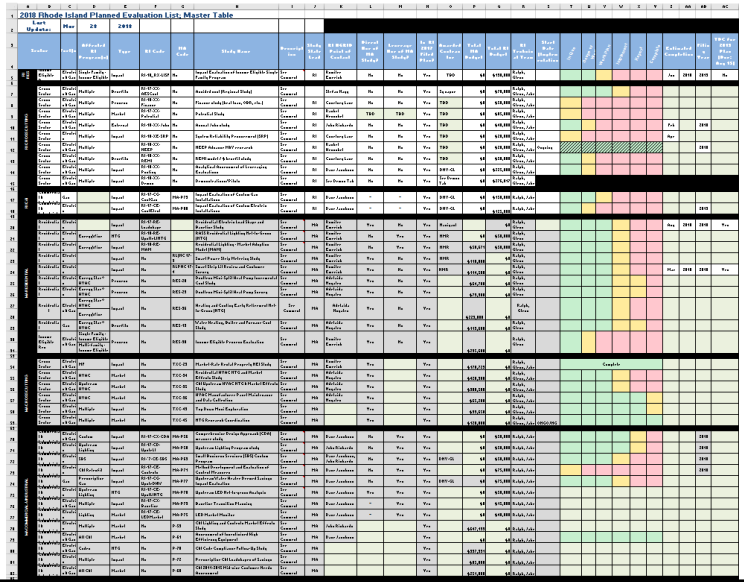
The people actually conducting the evaluations are from independent evaluation companies, some of which are shown here. They are completely independent and their only incentive is to produce a good study to maintain their company's reputation and integrity.

Melanie Coen - MA

Tony Larson - MA
Beth Delahaij - MA
Joe Bocanegra - MA
Whitney Brougher - MA
Kim Crossman - MA

Continuous Oversight

RI Evaluation Team
reviews every single line
of Mark's spreadsheet →
at least
once per month



2018 Rhode Island Planned Evaluation List: Master Table

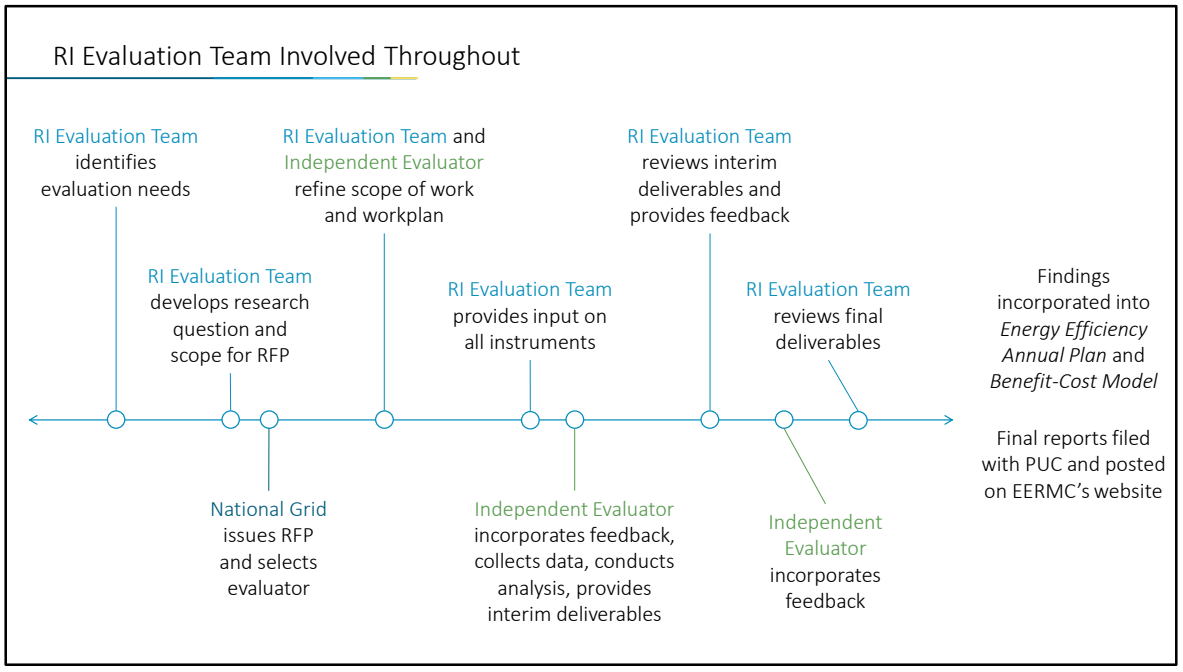
Mark tracks progress on all evaluations that affect Rhode Island in one big workbook.
We review every single row of this workbook with National Grid at least once a month.

Continuous Oversight

2018 Rhode Island Planned Evaluation List; Master Table

Last Update:	Mar	28	2018													
Sector	Fuel(s)	Affected RI Program(s)	Type	RI Code	MA Code	Study Name	Description	Study State Lead	RI NGRID Point of Contact	Direct Use of MA Study?	Leverage Use of MA Study?	In RI 2017 Filed Plan?	Awarded Contractor	Total MA Budget	Total RI Budget	RI Technical Team
RI RES																
Income Eligible Res	Electric & Gas	Single Family - Income Eligible	Impact	RI-18_RX-LISF	No	Impact Evaluation of Income Eligible Single Family Program	See Comment	RI	Romilee Emerick	No	No	Yes	TBD	$0	$130,000	Ralph, Glenn
RI CROSS CUTTING																
Cross Sector	Electric & Gas	Multiple	Benefits	RI-17-XX-AESCost	No	Avoided cost (Regional Study)	See Comment		Stefan Nagy	No	No	Yes	Sy napse	$0	$70,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	Process	RI-18-XX-Finance	No	Finance study (heat loan, OBR, etc.)	See Comment	RI	Courtney Lane	No	No	Yes	TBD	$0	$50,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	Market	RI-17-XX-Potential	No	Potential Study	See Comment	RI	Rachel Henschel	TBD	TBD	Yes	TBD	$0	$85,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	External	RI-18-XX-Jobs	No	Annual Jobs study	See Comment	RI	John Richards	No	No	Yes	TBD	$0	$40,000	Ralph, Glenn, Jake
Cross Sector	Electric	Multiple	Impact	RI-18-XE-SRP	No	System Reliability Procurement (SRP)	See Comment	RI	Courtney Lane	No	No	Yes	TBD	$0	$20,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple		RI-18-XX-NEEP	No	NEEP Advance M&V research	See Comment	RI	Rachel Henschel	No	No	Yes	TBD	$0	$20,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	Benefits	RI-18-XX-REMI	No	REMI model / $ benefit study	See Comment	RI	Courtney Lane	No	No	Yes	TBD	$0	$50,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	Impact	RI-18-XX-Pooling	No	Analytical Assessment of Leveraging Evaluations	See Comment	RI	Dave Jacobson	No	No	Yes	DNV-GL	$0	$225,000	Ralph, Glenn, Jake
Cross Sector	Electric & Gas	Multiple	Impact	RI-18-XX-Demos	No	Demonstrations/Pilots	See Comment	RI	See Demos Tab	No	No	Yes	See Demos Tab	$0	$276,017	Ralph, Glenn, Jake
RI C&I																
Commercial & Industrial	Gas		Impact	RI-17-CG-CustGas	MA-P79	Impact Evaluation of Custom Gas Installations	See Comment	RI	Dave Jacobson	-	-	Yes	DNV-GL	$0	$150,000	Ralph, Jake
Commercial & Industrial	Electric		Impact	RI-17-CE-CustElect	MA-P80	Impact Evaluation of Custom Electric Installations	See Comment	RI	Dave Jacobson	-	-	Yes	DNV-GL	$0	$125,000	Ralph, Jake

This continuous oversight allows us to be integrated and informed throughout the evaluation process.



This timeline reflects how the process generally works.

STEP 1: The RI Evaluation Team – National Grid, EERMC, OER – identify which programs need to be evaluated. We try to evaluate all programs once every three years. Evaluation needs are informed by changing market conditions, technologies, and other factors.

STEP 2: We develop the research questions and scope for the RFP, which National Grid then issues.

STEP 3: National Grid issues the RFP and selects the vendor. This part of the process is in their hands because of data security issues with transferring data to the independent evaluators.

STEP 4: Everyone works together to refine the scope of work and the workplan. I have an example of a draft and revised workplan here, so you can see how our comments and oversight are incorporated into the evaluations.

STEPS 5 and 6: As surveys and other instruments are designed, the RI Evaluation Team

provide input which is then incorporated by the Independent Evaluator. The evaluator then collects data, conducts analysis, and provides interim deliverables.

STEPS 7-9: As analysis is conducted and preliminary reports are available, the RI Evaluation Team reviews and comments on all deliverables in an iterative fashion. I brought an example of the draft home energy report persistence study to show you the level to which we all provide feedback on these evaluations. Once the RI Evaluation Team is satisfied, the final reports/deliverables are incorporated into the TRM and benefit-cost model for energy efficiency planning. All final reports are filed with the PUC and posted on the EERMC's website.

Let's review:

Who does evaluation?

Independent evaluation companies conduct evaluation with oversight from EERMC and OER and input from EERMC, OER, and National Grid.

What oversight is there?

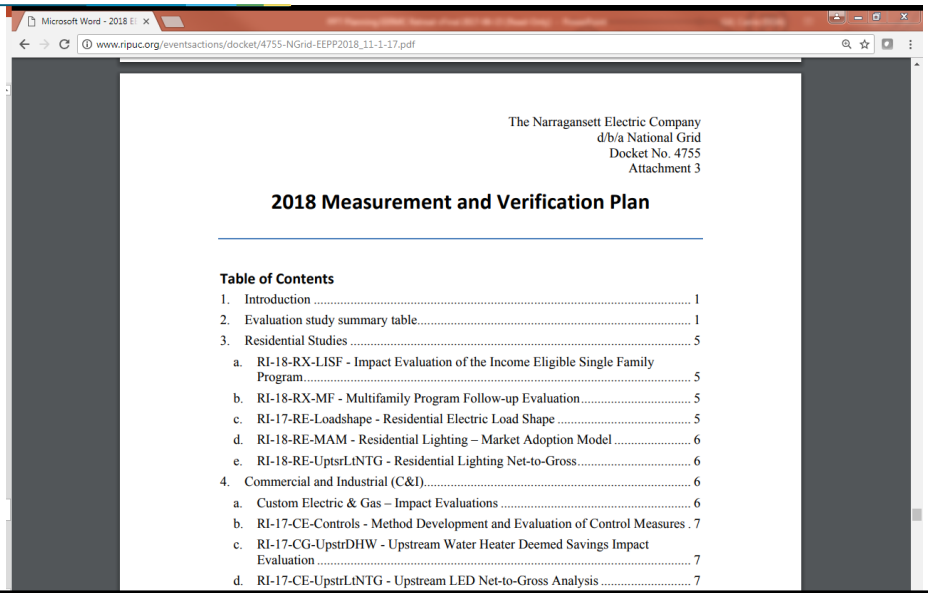
Oversight is provided through the EERMC's consultant team and OER throughout the evaluation process, from idea conception through developing a scope of work and workplan and collecting data, to final reports that inform the planning process and are on file with the PUC.

2018 Evaluations

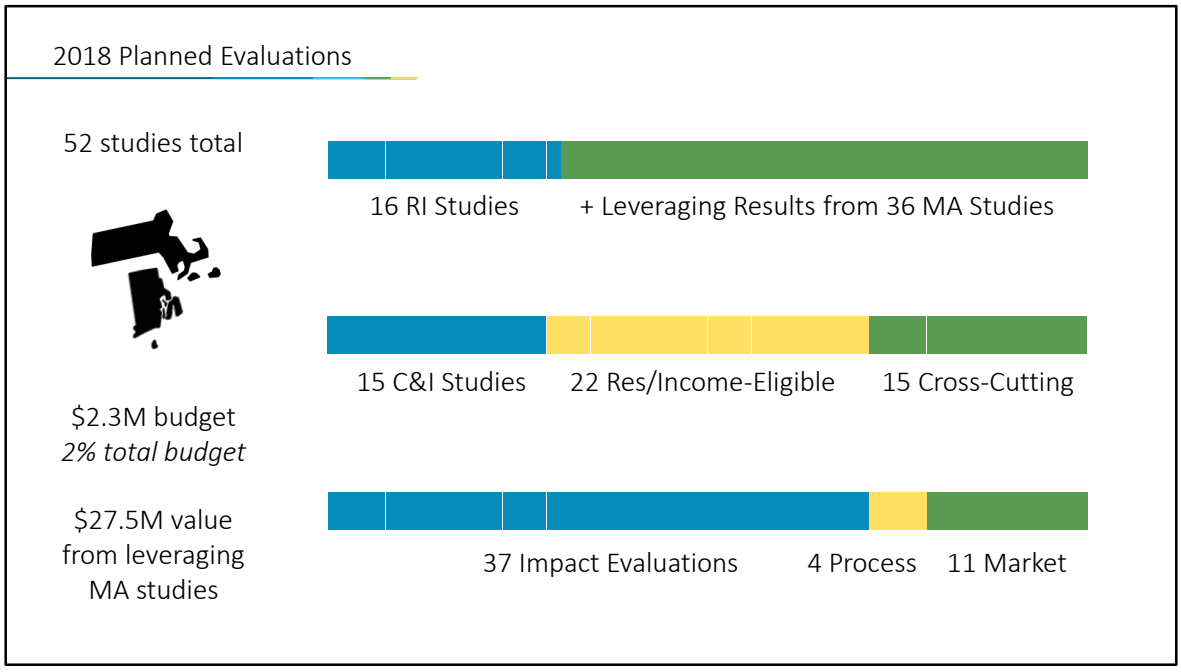
- ✓ What is an example of a current study?

As council members, you should be able to give at least one example of a current evaluation.

2018 Planned Evaluations



You can find all planned evaluations in Attachment 3 of the Annual Plan, available online on the PUC's website and on the EERMC's website.



Currently, we have 52 evaluations happening, 16 of which are in Rhode Island. Since program delivery and other characteristics like market and housing stock are very similar between RI and MA, we also leverage findings from 36 evaluations in MA. For example, we plan to use findings on electricity use over time of household appliances – called the Res Baseline Study – from MA. Their study costs them $5M and costs us $0. While we only spend $2.3M on evaluations, the total value we get is closer to $28M.

Of the 52 studies, these are roughly evenly spread across sectors. Most of the studies are impact evaluations, with the remainder process and market evaluations.

A Couple Notable Studies

Income-Eligible Services Impact Evaluation (2018, Cadeo)

- ✓ How much energy savings is caused by all measures within the Income-Eligible program?
- ✓ Uses billing analysis, building simulation, and engineering algorithms

EnergyWise Single Family Process Evaluation (2016, Research Into Action)

- ✓ How can the customer experience improve? How do vendors and subcontractors perform? What best practices from other states could improve the program?
- ✓ Review of third-party quality control findings, participant surveys, vendor and staff interviews, literature review

RI-MA Evaluation Framework "Piggybacking" Study (2018, DNV GL)

- ✓ What are best practices for leveraging results from Massachusetts?
- ✓ Methods still in discussion: will likely involve primary and secondary data collection; comparison of geographic, market, other attributes; comparison of evaluation results

Here are a couple notable studies. We are currently working through the workplan of an impact evaluation of al measures included in the income-eligible program. This study will use three different methods to evaluate energy savings attributable to this program.

In 2016, we completed a process evaluation of the EnergyWise single family program. This evaluation provided several recommendations to improve program delivery. The full evaluation can be found on the EERMC's website and on the PUC's website.

We are also diving into when and how to best leverage results from MA evaluations. We call this the "piggybacking" study, and it will provide important recommendations for best practices to continue to improve evaluations in RI.

What is an example of a current study?

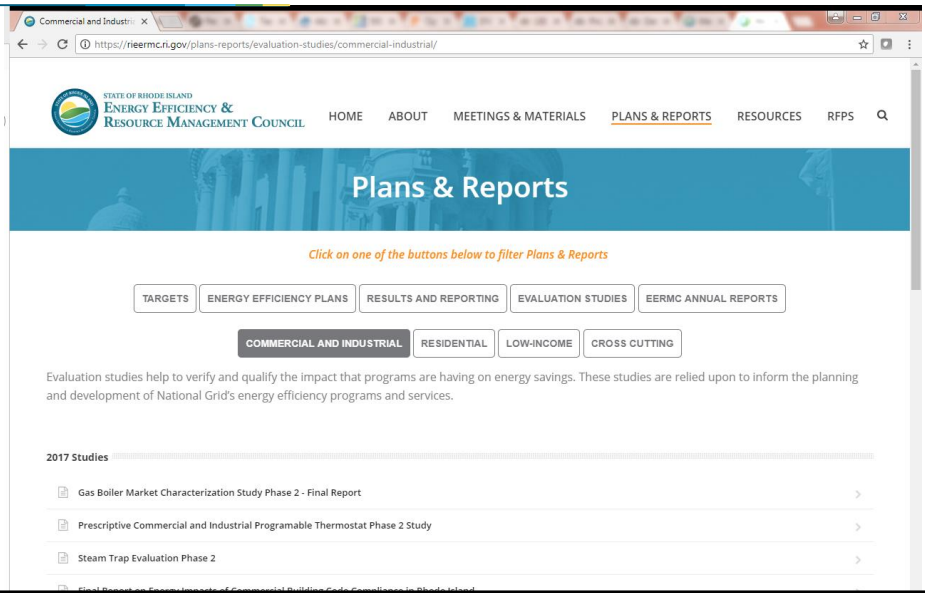
IES Impact Eval! ☺ You can find more on EERMC's website and planned/ongoing studies in the Annual Plan!

More Resources

- ✓ Where can I find the most recent evaluation of _____?

Let's say you don't just want to know an example of a current evaluation, but you want to be able to find ANY evaluation.

EERMC Website



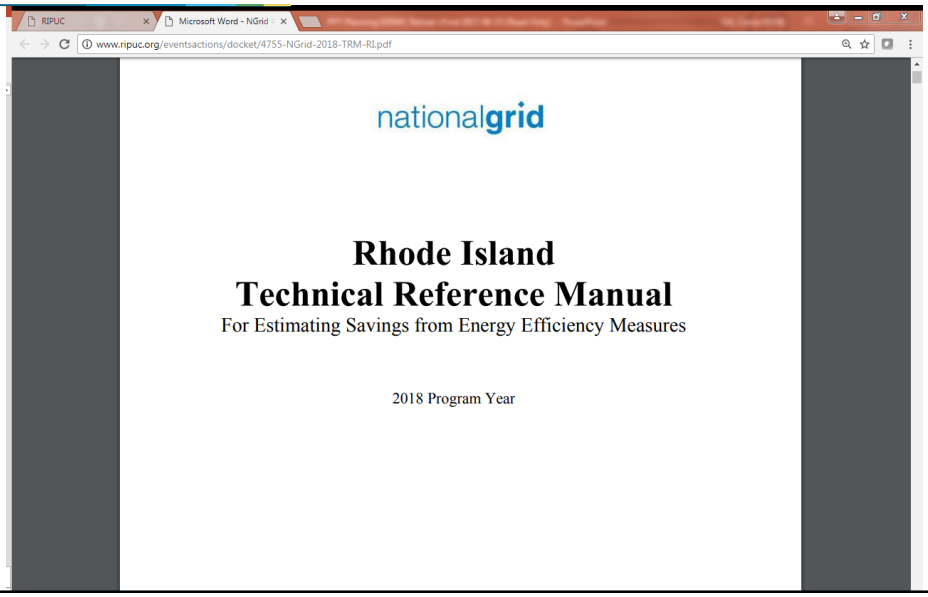
They are all posted on the EERMC's website under PLANS & REPORTS. You can ever filter by sector!

PUC Docket

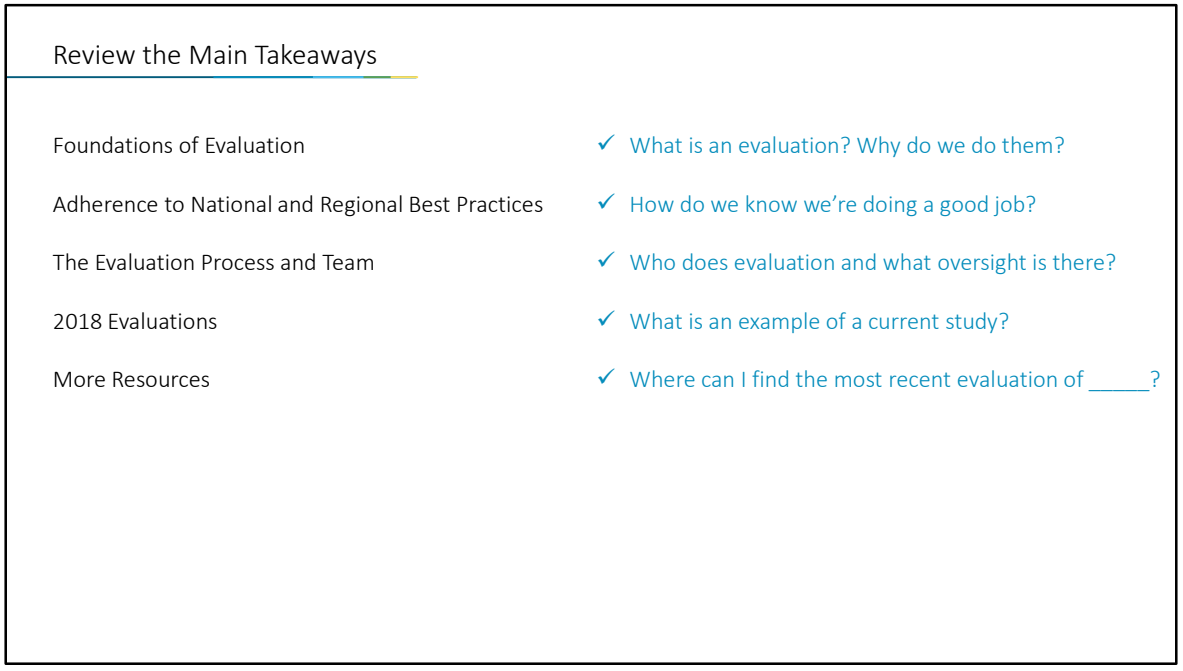
Evaluations are also posted on the PUC's website under the energy efficiency annual plan dockets. This includes the updated TRM based on evaluation findings.

PUC Docket

I'll bring my binder to show!



Lastly, you can find every gritty details in the TRM. This is available on the PUC's website.



Where can I find the most recent evaluation of _____?

EERMC's website or PUC's website under the annual plan docket

Other Questions? Ask Us!

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OFFICE OF ENERGY RESOURCES

STATE OF RHODE ISLAND
ENERGY EFFICIENCY & RESOURCE MANAGEMENT COUNCIL

nationalgrid

If you have any questions at all, you can contact any of the RI Evaluation Team leads at any time ☺