

# EUI Potential Study – Advisory Committee Meeting

February 27<sup>th</sup> 2018

## Meeting Kick Off – Travis Hinck

- Point is to get feedback from the AC – to help make the study more valuable for utilities and other stakeholders
- Overall goal is to estimate potential for EUI and build consensus on how to drive efficiency improvements

## Potential Study Status

- Data collection process is going slower than originally hoped – but may pick up now
  - Overhauled data request – to put it more in the distribution system engineers and planning staff’s ‘language’
  - Finalized technical potential model
  - Planned economic potential plan
- TRM inputs was the basis of the data requests – and that was cumbersome for distribution engineers – GDS changed the request to get a better correspondence with them
  - Start with GIS data dump – has a lot of the data GDS needs for the model – but GDS will do the work to sift through the data to get the necessary components
  - Also looking for system loss data
  - Sample of subs/feeders and ask for specific data from utilities to get a representative sample for the state
- Generation Data Requests – FERC 1 form has a lot of the data – missing one piece of data gross capacity - getting generation capacity
- Study Issues
  - Data availability – asking for it in the wrong format – new streamlined request to get the right amount of data
  - Defining baselines/ “Normal Maintenance” – would like more feedback
  - Metrics – System Loss data may be more appropriate than kWh / themes savings
- Circulate new data request to around 100 utilities
  - Produce results – by mid-May
- Question – Any issues with data privacy?
  - Yes – set up NDAs with responders and in the process of NDAs with other potential responders – all the results will be aggregated at the state level – no need to be specific utility – maybe utility type
- Question – Restrictions within utilities for who can see the results?
  - Potentially? There may be some restrictions with some generating assets, with the interface with MISO. Also, the technical potential it is trickier with DSM because some is not possible to achieve.

- Specific organizations can decide how to handle utility specific results
      - We will plan to share utility-specific information only with the individual who shared it with us (point of contact at the utility). How it's shared with more people within the utility will be up to the organization to decide. That is, we will not share data or utility-specific results with anyone besides our point of contact at each utility.
    - Need to determine how and what level the potential study's results could be shared publicly vs trade secret.
  - Generally thinking of the practicality of the results is an important component of the study
    - We will do our best (in conversations with the Department) to format the results in such a way as to be useful for setting goals. (per Jessica, "we want to help create practical, achievable, near-term goals, not just set a high-level target and leave utilities to figure it out.")

## Model Methodology Review

- **Generation Technical Methodology**
  - Compared 'Best in Class' Plants in both MN and the Country
    - What would the energy conservation be when comparing operating at best in class heat rate
    - Each facility in the state has a class – lowest HR in the country is 'best in class' and state best in class
      - This includes plants in MN and 50 Miles from the border – might be missing some other plants that provide for Minnesota
  - Conversion algorithm from the TRM – reduced fuel for the same output – putting into kWh savings
  - Retirement of coal plants – is taken into consideration in the economic potential
  - Gas plants are based on units – operating hours may be a factor in the model
  - No technical potential in wind and solar – because this is based on heat rate
    - Assuming that solar and wind is fairly efficient
    - But, Buffalo Ridge is close to 20 years old – so there may be more potential than previously thought – lots of technical potential
      - Scope of project is sticking to heat rates
      - People across the country are putting in new wind turbine blades
    - May need to address the lack of renewable EUI improvements in the final report
    - We *could* talk about how wind turbine upgrades improve efficiency. Would need to add a measure to the model – likely based on increased output from more efficient wind assets displacing generation at the grid heat rate – not within the original scope of the project, but possible.
  - Economic Potential – specific measures in TRM – Generation side is more tricky because it is based on general Heat Rate improvement and not measure based improvements

- Question – Is part of the output of the study going to suggest other measures in the TRM?
    - Yes – specific generation measures is a lot of effort and there may be only one or two opportunities in the state – so custom is probably the way to go
      - When looking at a suite of measures – it is included in the TRM report
    - EUI measures that are in TRM you do not need to ask the DER to ask about methodology to go ahead with the project – custom projects need Department review of assumptions and information.
    - It would be valuable for stakeholders to get a list of generation measures that are high priorities in terms of delivering energy savings/etc.
      - In the final report, clearly identify the measures that are most cost effective.
    - One can claim aux. load measures at generation facilities as EUI savings
      - Any load you are not charging a customer for (this is one way of looking at it. The actual definition is any component or facility owned by the utility is eligible for efficiency claims under EUI).
  - Best in Class heat rate – may be due to the lack of pollution control equipment – especially for coal plants –which are scheduled to retire soon
    - Need to follow up – would age of the plant or most recent renovation be a good proxy for pollution control equipment installed? FERC form 1 doesn't have direct information about pollution control equipment.
    - Capacity factors are an important input for heat rate
      - Would annual capacity factor work well for this?
        - Peak & intermediate – capacity factors
  - Combined cycle – large MW – looks high technical potential – capacity factor is an important aspect of the heat rate – following wind
    - More of the potential would drop out in the economic – because of the capacity factors difference with the best in class
  - Question – Any point we would recommend energy efficiency improvements that would extend the life of a coal plant?
    - GDS is just calculating the efficiency credit you can get – this is only one part of the decision tree
    - Achievable potential – will be taking a close look at plant retirements
    - At the end Carbon impacts will be analyzed
  - May change from “best in class” to an individual comparison plant for each plant. There are enough variables to control that this may make more sense.
  - Need to figure out a better way of identifying plants serving MN load. Currently just looking at plants within 50 miles of the border, but need to talk to utilities about whether that's accurate (likely Minnkota, Otter Tail, and MRES members good targets to talk to)
- Economic Potential for Generation

- Compare O&M costs and other costs and compare individual plants to the metrics
- New plan is to take a sample at individual sites – and discuss with the individual plant operators – and then calculate the costs – then calculate percentage of projects that are viable
  - The list may exist – they have a list of projects that are planned but not implemented yet – hurdle to get the projects for the savings may not be as high
- Does it make sense to make a ~~plant-by-plant~~ guide – make a screening tool – based on the amount that a plant is willing to invest - maybe a tool for DOC to use because a lot of these will be custom measures
  - Develop screen protocol that facility owners can use to evaluate possible projects including the energy conservation impacts.
- T&D Technical Methodology
  - Adjustments to available data - sample of utilities and then a sample of utilities substations
    - Where do the relevant EUI TRM measures fit into the sample – not looking at ancillary measures at this time
  - Neyman Allocation based on type, sales and meter density of the utilities – sample of substations and extrapolate to the entire state
- System Losses approach – high level data – looking at potential improvements around the state
- Economic T&D Economic Methodology – GDS has some experience looking at EUI improvements through RFPs – so we have a good sense of the costs of the various measures – also there is a standard set of transformers so it would be fairly easy to determine state wide savings opportunities

## Takeaways from EUI Stakeholder Meetings

- Many meetings with a diverse set of speakers in the industry and good turnout
- Action Plan will be result of the DOE project by addressing identified barriers
- Many other related efforts to improve the grid
- Takeaway 1 – action plan will come out of addressing barriers
- Takeaway 2 – Progress is being made – DOC guidance finalized based on DSM 1% goals - also carryforward savings
- Takeaway 3 – EUI Efficiency is being accomplished in other states in other states
- Takeaway 4 – Metrics to measure success – think about how to best measure improvement over time
- Takeaway 5 – Data before policy is key – do not want to overregulate – reasonable estimates of costs and benefits
- Takeaway 6 – Frame our results in terms of the future grid and other grid improvements

## EUI Efficiency and Grid Modernization

- Thinking about ways to orient the efforts to this project in context with other grid modernization effort
- MN PUC – looking at grid modernization at a grid planning effort – and overall is similar to the EUI efficiency projects
  - What are the overlaps – lots of talk about CVR – and the investments that are required for grid modernization
  - In the last couple weeks – bad press out of Duke Energy 13 billion grid plan – not worth that investments
    - Comments in MNPUC – new concern how to define what is a grid modernization expense and what is a normal upkeep expense – CUBs and OAGs
      - Xcel’s Grid Mod Docket 17-776
  - AMI depends on customer use and based but there are decisions that are independent to the utility on the supply side with investments
    - A lot of data – the data is not perfect and there is a lot of getting use to
    - It took California about 10 years to get fully acclimated to it
    - Common for utilities to get DOE AARA money to roll it out quickly

## Definition of Normal Maintenance Activity

- Thorny issues – but we think we can solve it by coming to some consensus –
- Above normal maintenance activity is a part of statute
- The handout has some possible solutions – think about them and give your thoughts to Travis
  - Travis will develop a more complete strawman proposal for Advisory Committee members (and stakeholders in general) to provide feedback on.

## Wrap up and Next Steps

- Collect remaining data and calculate initial technical potential results
- Host one more public stakeholder meeting – and a fifth meeting may be held
- Help with the data collection and let us know your feedback on the methodology (as soon as possible) and other aspects of this study
- Work to better define “Beyond Normal Maintenance Activities”
- Question: Energy Savings achieved through EUI has not been eligible through the financial incentive – could this change?
  - We thought this issue had been closed. We can review notes and reopen the question, but with the understanding that we may not settle it completely.
  - The jurisdiction of the PUC – may require a legislative change.
    - Or may not (per Nick Mark comment). May be a matter of clarifying existing statute.

- CIP Expense recovered through CIP tracker – and then get a financial incentive in addition to the cost of measures
- No current financial incentive for EUI incentives – so you won't earn a return
- Performance based grid efficiency - separate from DSM – and they are accountable for a standard then they get incentivized
- Challenging to figure out the accounting of the current EUI projects – performance based would be superior
- This is probably a 'for further research' question for the report (e.g. what are the existing EUI incentive mechanisms? Are additional incentives needed to drive EUI efficiency implementation?)