

DSM Potential Study Advisory Committee Meeting

February 27th 2018

Introduction by Carl Nelson

- Went through an overview of the potential study and the remaining schedule
- Full measure characteristics will be sent out after the meeting – please send this around to the appropriate people in your organization and send feedback back to the project team
- Avoided costs data – and other inputs for the economic potential will be discussed in an additional advisory groups
- 'Working group form' is being handed out. Voluntary workgroup to provide feedback the measures, programs and economic inputs. Does not need to be advisory group members – so forward along to other people in your organizations to help advise some of the inputs of the potential study

Primary Data Collection, Preliminary Results – Chris Plum (CEE)

- Printed out slides in the packet with the data rich components – will email out presentation after the meeting
 - o Let us know if you have any problems or suggestions with the data
- MN Homes /building different than around the country – so primary data collection will enhance the potential study's results
- Seventhwave looked at homes, and large commercial buildings — completed small commercial studies
- Trade ally survey
 - o Question - New Construction and Builders looks like over sampled?
 - CEE wanted to get at least 10 of each - group and results are fairly consistent
 - CEE may add a few more HVAC contractors to the study
- Phone and site visits for residential are sampled across the state of Minnesota
 - o Blower door test in every home – only 20% of homes surveyed were at code -
 - National average is lower in Minnesota
 - o Only 36% of homes use and set the programmable thermostat
 - o Auditors gave recommendations for energy savings
- Commercial buildings – site visits across the state – phone survives too
 - o **Schools -**
 - Maintenance in schools is good – due to dedicated staff
 - Lighting opportunities are still out there
 - Window to wall ration in schools is around 15%
 - Plug loads are rising
 - o **Office Buildings –**
 - Over 50,000 sqft buildings

- Not many LEDs – about 50% T-8
 - Want to do projects – and are encouraged by utility rebates
 - Less maintained buildings – out of all the building stock
 - Oldest equipment – least maintained equipment
- **Health Care Buildings –**
 - Hospitals and clinics – hospitals are older and clinics are newer
 - Lots of automation in the hospitals – but site visits indicated that there are opportunities to expand automation
 - Patient facing rooms have LEDs – back rooms older lighting
 - Constant projects – always aware of utility projects and rebates
 - Most hospitals have two big kitchens – plug loads are not huge
 - Thermostat Settings – no setbacks in the clinics – but overall for commercial buildings setbacks are there
- **Trade Allies Interviews –** Talked with contractors across the state working with many utility territories
 - HVAC replace on fail is more common than early replacement
 - LEEDS, building automations are important opportunities
 - This primary data collection – will help adjust the inputs for the potential study model – any technologies where you feel have good data would be helpful for input on the models – to help with the applicability of the measures etc.
 - The trade ally data will be reported in detail once the analysis and surveys are complete
- Question – total energy costs as a percentage of revenue – and also opportunities for utility intervention would be helpful .
 - Yes, programs part of the study will help identify best points of intervention
 - Non-energy benefits are very important - reducing maintenance costs are important

Sales Data Disaggregation – Scott Pigg (Seventhwave)

- Important for the potential study – you need this to estimate the amount of efficiency potential in the state
- Disaggregation based on 30-year weather normalization using 2016 EIA data
 - 5 – levels of disaggregation –
 - Utility, Sector, Segment, End-Use, Sub-end use
 - GIS Mapping Approach to add census data and business data to utility areas
 - Primary data collection used to distribute end-uses to split out electricity to the utility levels
 - As part of the data QA, Seventhwave compared the total energy usage in the disag. to EIA sales – at the state level and found about 10-15% margin – but the adjustments are bigger for the smaller utilities

- 142 weather stations were analyzed – many other data was also analyzed for the disag. – CARD, EIA, utility sales, etc.
- Gas side is a little more fuzzy because service territories are unknown – and not everyone in the city uses natural gas etc. Electric utilities have known utility territory shapefiles
- Sankey diagrams go through the energy uses by utility – minus CIP opt-out customers
 - Energy centric results – so not total light bulbs but the percentage of electricity that is consumed by the type of bulb
 - Farms are split out in the disagg to get a better sense of where that energy is going

Technical Potential, Preliminary Results – Matt Socks (Optimal Energy)

- Have developed a functioning Model – but the results are preliminary – and several streams of data to refine the model are still being added in
- Overall – technical potential – is everything you could do to improve the efficiency in the built environment – no concerns of economics and other barriers
 - Technical potential is higher than achievable and economic potentials
 - Technical potential is generally conservative
 - Technical potential is a stepping stone to get to the achievable potential
- Winner take all approach for technologies that overlap each other and competing for baseline energy – so the one with the highest savings is the one that is kept into the model – going forward the model will handle interactions – considering economic concerns and implementations – and influences with other measures
- Cumulative savings are over a 10 year analysis period – no double counting between early replacement and replace on failure
 - A little more potential with the cumulative potential rather than a non-cumulative
- Single statewide analysis – after QA/QC we will run 7 model runs for all the utilities
- Residential electric potential – ranges from about 50-27% cumulative for 2029
 - Fairly typical to national trends - and results will be improved by refining inputs and adding measures
- Lighting is smaller percentage of total savings
- C&I percent savings
 - Numbers will probably be bigger due to improving the measures – and refining results
 - Lightings is a large percentage of total savings – ~46% - due to lack of controls and upgrades
- This is the beginning of an iterative process – and the models will be improved going forward - economic and achievable potentials will be populated going forward
- Question – Assumptions or adjustments for emerging technology?
 - Market Transformation assumption? Adding Net-to-gross going forward – not making an explicit adjustment for net-to-gross – trying to account for freeridership.

- MN is a gross state – so the study is trying to match state potential – market transformation may still be accounted for and will be noted in the study
- Breaking things out by year and three years cycles will be forthcoming when looking at economic and achievable potentials
- Non- EISA scenario also sales prohibition – versus lag in them coming off the shelves is an issue that will need to be addressed in the model assumptions
- Conference Call for the Gas Side of technical potential on March 15th

Policy Comments – Mike Bull (CEE)

- This potential study has two goals –
 - 1) Refresh our understanding so we are on the same page of where the remaining savings are and how we get it
 - 2) a parallel conversation on policy framework of DSM and CIP in Minnesota
- Started with telephone surveys with stakeholders and had other conversations with stakeholders too
 - Initial Request for Written Comments on a variety of topics including behavioral and operational programs, carbon reductions, electrification, etc.
 - We will talk about these comments and next steps going forward
 - Not a lot of agreement across stakeholders on the 7 issues – however all the comments will be noted in the policy section of the Final Report and there will be another round of comments requested to clarify some issues.
 - Question about how to define behavioral and operational programs
 - Behavioral is both residential and commercial and operational is more commercial
 - Question if CO2 reductions are a core goal of CIP or a benefit of CIP – important questions
 - Whether or not CIP is only focused on kWh or BTUs or incorporating Demand Response and electrification/fuel switching
 - Comments on tracking progress and CIP savings compliance – variety of differing opinions – e.g. lifetime savings and first-year kWh
 - Codes and Standards – most acknowledged this will affect utilities ability to meet energy efficiency goals
- Next Steps – New Round of questions will be emailed out to the Advisory Committee. Send answers back to CEE by the end of April – so we can talk about them at the May Advisory Committee meeting.
 - **Draft** question ideas:
 - Operation Savings – what would we need to make sure they are identified and captured - may already be captured?

- Demand Response, CO2 Reductions and Electrification - why cannot these be addressed with different regulatory processes – so what is missing if we do not include them in CIP?
- Lifetime Benefits of EE – what policy changes would be useful?
 - This change happened in IL – a webinar to discuss the IL case would be helpful
- Potential Studies for CIP Targets – Statute allows DOC to adjust goals on potential studies – what you think of offering 3 year potential studies to help adjust goals – cost implications?
- Codes and Standards – the pros and cons of doing codes programs in California?
 - One-pager on California programs on codes and standards would be helpful
- Bonus Questions – How can DSM potential study inform Integrated Resource Plan proceedings –
 - This gets to the Question of how CIP is a resource –
 - Baked in question by what do we mean by efficiency – what do we mean as resource – could be a lot of things
- (Jessica) **Extra Bonus Questions** – two definitions of energy conservation and energy efficiency in statute – do we think these are accurate and reflect what the situation is today

What are the priorities for the group AC members should rank their priorities in their comments – it is hard to tackle them all – what mechanism is needed to carry out the change, rulemaking, policy guidance, or legislative changes

- Important to learn from other states to learn best practices so we are not reinventing the wheel
- There may be a problem with written comments – because we have to go up the chain of the organization- so maybe another meeting to discuss freely so we can talk as a group and get on the same page – to eventually get to written comments
- Other policy considerations, e.g. privacy can be considered as a priority