

CHP-FC Work Group Minutes

Friday, December 20, 2013

1:00 PM – 3:00 PM

1st Floor Merit Board Room

NJ BPU 44 South Clinton Ave.

Agenda:

1. Rutgers CEEEP DER Cost Benefit model including Resiliency
Presented By: Frank Felder and Rasika Athawale
2. Q and A on the model – next steps
3. Follow-up on HMGP Energy Allocation Grant awards
4. Follow-up on CDBG outreach and next steps

Notes:

Introduction

Mike Winka (BPU): We sent around agenda earlier this week but had some issues with internal email. Those who couldn't make it we will have Rutgers do another presentation after the New Year. But the goal of this meeting is to present Rutgers' CEEEP Cost Benefit Analysis (CBA) model for distributed energy and resiliency. We will also go over status of HMGP and second round of CDBG dollars. We're excited about adding and quantifying resiliency in the cost benefit analysis. This is an area we really need to push on.

Rutgers PowerPoint (please see corresponding slides)

Slide 2: Agenda

Slide 3: What are the costs consumers pay for and what are the benefits they get from distributed generation/CHP?

Slide 6:

- Question (Gearoid): ICF is going through significant review of their pricing in the next 3-4 weeks and the numbers are considerably higher.
- Frank: Thank you for that comment and we will look into that. Presently we are using project specific numbers based on NJ CHP applications we have reviewed.

Slide 7: Capacity factor (CF) summarizes output of CHP at % running full capacity.

Slide 8: Strip out certain factors that may be influencing data.

- Question (Mike Winka): the CV of 19%, what does that involve?
- Answer (Frank): if it's over 1 (100%) it would be volatile. But based on the graph on slide 7, you can see it's a very flat distribution around 0.2 (20%).

- Question (Scott): Have you reviewed literature of projected vs actual comparison?
- Answer (Frank): Yes, most applications assume 80% CF or higher but they are much lower in actual practice. Several studies (Mass. and Calif.) showed actual CFs were much lower in practice (as low as 60% vs. assumed 80-90%).
- Question (Walt): Any geographic differences observed?
- Answer (Frank): No, but you'll see some data on NJ on the next slides. Although you would assume differences in different climates, we only looked at NJ.

Slide 9: Translates CF to probability. These are for 1MW+, but we may assume smaller systems have lower CFs.

- Mike Winka: On standby charges they all have to be above 50% CF. NYSEDA has a performance requirement on their CHP program. Because of this issue we do challenge applicants on their CFs. We may see better numbers if we look at smaller and newer installations.
- Alex Stern: Slide 9 is very humbling.
- Walt: May be worth looking at systems that are newer.
- Frank: Row G on Slide 8 would show newer units and you see the slight improvement in CF.
- Question: Did high gas prices come into consideration?
- Answer (Frank): We have not included that in the analysis, but we can and have wanted to do that.

Slide 10: Try and distinguish between true avoided cost vs. shifting of cost

Slide 11: Looked at various studies of avoided T&D costs

- Question (Alex Stern): How do these studies calculate savings?
- Answer (Frank): Not sure but will look into it.
- Mike Winka: Again, Rutgers is using this information to build a CBA model not verify standby charges or any of that other stuff.

Slide 14: Link weather events with power outages. A few hurricanes or tropical storms dominate the customer outages (looking at quantity not actual duration of outage).

Slide 16: Value of Loss Load (VOLL) is made up of a number of factors.

Slide 18: Last slide on the resiliency piece.

Slide 19: Next three slides get into the detail of the CBA Model. These are the key assumptions.

Slide 20: Assumptions are translated to cash flows, reliability benefits, and emissions reduction benefits.

- Mike Winka: Another thing we're trying to do is to determine what is worth spending money. If a public critical facility currently wouldn't pass a cost benefit analysis, you can use this model to work backwards to figure out the VOLL in order to figure out whether society should carry that cost to continue to run a facility. We can see this as a benefit to prioritizing projects/facilities.

But there is no current requirement about what factors you use to run a CBA. Energy efficiency requires cost effectiveness, but the other factors are something we're working towards. We can apply this to prioritizing Clean Energy funds, Federal funds, etc.

- Question: Is avoided electric emissions based on recent PJM data? If so, we would assume these costs would be going down over time.
- Answer (Frank): Yes.

Slide 21: Example of results for a particular calculation

- Question (Alex Stern): So how did you come up with this?
- Answer (Frank): Started with data on Slide 19. Results are on Slide 20 and 21. These results are specific to the assumptions/inputs on Slide 19. They would change for different projects/application.
- Question: If this was just a distributed generation (DG) unit (not CHP, no thermal load), could you still use this model?
- Frank: Yes, you would just zero out your thermal inputs.
- Mike Winka: Potentially label this as a DG model rather than CHP model.

Slide 22-28: Mike Winka: Those who submitted comments, they can read them here and see the documented comments and responses.

Mike Winka: Some projects, such as schools, may show only 20% operation of a CHP unit. What you can do here is look at this model and show why it makes economic sense (including societal benefit) to require that unit to run more hours. Answer the question of "what is the value of having a school run in an emergency?"

Slide 29: Next Steps?

Mike Winka: Two things...We will commit to doing this presentation again after the New Year. Then we will ask you to submit comments so we can finalize the model. We'll put a date for comments to be submitted once we meet again after the New Year. We will then finalize the model and present to the BPU Board for implementation.

HMGP

Mike Winka: \$25 million allocated to various jurisdictions and public entities to apply to resiliency efforts, such as generators, DG, and CHP to operate when power goes out. Grants average \$10k-\$700k per entity, but most were on \$100k range. Spending plans from entities were due December 15th and we have about 85% in with the rest asking for extensions. Most spend plans are for studies or generators. We're asking those who want just standby generators to get maintenance agreements and warranties in event of another storm. Several entities, about 12, are being pulled out to have a sit down with them and talk about what else they can do with their money beyond just generators. The first step is to run the Rutgers' model for them and see where they stand. Then run them through the HOMER model. Then

the second phase is to do a similar outreach to the rest of the municipalities, counties, etc. that didn't necessarily receive a grant to go through a similar process.

CDBG

Second round came out in October in the amount of \$1.2 million, which is less than what was originally expected. Meetings are being held to format an action plan on where to apply the funds. Rules state that they cannot be used for IOUs, only in public sector and small business, including non-profit hospitals, public colleges/state universities, housing authorities, etc.

- Comment: We can provide figures/costs on what we think we would need to provide 86 MW of resilient capacity for actual projects under consideration in NJ.
- Geroid: What is the comment submittal process?
- Mike Winka: We're not taking any public comment now. We need to wait until end of January to see if the state decides to allocate money to the energy sector before we know what the comment period would look like. Discussions like today are serving as public input to determine how and where to spend the money. Governor's office is reaching out to various associations for input as well (not developers). After the state submits the application/action plan then we will have public comments which will be more valuable. Application is due mid to late-January. Then HUD has 120 days to have a public comment period on how and where to spend the money (run by DCA). Then HUD will come back to the state and inform what piece will be allocated to energy sector. During that comment period it may be helpful to provide data on the 86 MW worth of projects with as much information as you can provide.