

Resource Modeling Working Group

Agenda

Nov. 13, 2012, 8-10 am
City Council Chambers
1777 Broadway

Meeting Objectives:

- Agreement on group purpose and meeting ground rules
 - Present municipalization work plan, resource modeling process and timeline
 - Identify preliminary list of questions for modeling consultants
 - Agree on tasks and assignments for working group
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(10:30 - 10:40 am) 1. Introductions

Attendees:

City –

Jonathan Koehn (JK)

Heather Bailey (HB)

Andrew Barth (AB)

Yael Gichon (YG)

Facilitator – Heather Bergman (HBF)

Consultants -

Nils Tellier – EPSIM Corp.

John Glassmire - HOMER

Work Group -

Sam Weaver

Ted Weaver

Tom Asprey

Dave Corbus

David Cohen

Debbie Sandor

Brad Davids

Josh Kuhn

Puneet Pasrich

Leslie Glustrom

Alison Burchell

(10:40 - 10:45 am) 2. Purpose of the working group – Presented by Heather Bergman and Jonathan Koehn

Jonathan – Intent – Genuine – We need to make sure we get this right – risks vs. benefits – you will inform the process on what we take back to our decision/policy makers on if we should continue this process – you will provide expertise on the outcomes

- This is a robust work program with many different focus areas and the focus areas are interrelated.
- Resource Group
 - Last year’s work on modeling resources – great connection between clean energy and economic resources
 - How can we tap local business and resources to provide innovations and create a learning laboratory?
 - This group will look at scenarios that we need to be modeling and by when.
 - We must look at the critical things we need to be modeling, staying focused on the important work items.
 - What must be done for next decision point and then how can we apply this towards future work

Questions

- What is the specific goal of this process? Is it to become 100% renewable energy powered?
 - We haven’t set that as a goal, but it is something we want to look at. We want to go as far as we can, as clean as we can, but stay within set boundaries like the Charter metrics.
 - Sam Weaver – what can we do at cost parity and then look beyond that. Start with charter requirements and then look forward
 - Alison B. – It would be good to show everyone the two models (Sam and Jonathan) – Don’t we have a separate transmission working group?
 - No – transmission will be set into this group’s charge?
 - Boulder’s total load is around 235 MW
 - Total growth rate information can be sent around, but it is around 1.5%
 - Cost parity as a goal – is that customer by customer?
 - That is a challenge for the city and this group. We don’t have Xcel’s different rate schedules. We will run tests on each area using the information we have, but we know we don’t have it all.

(10:45 – 10:50 am) 3. Ground rules – Presented by Heather Bergman and Jonathan Koehn

See ground rules and protocols handout.

(10:50 – 11:00 am) 4. Work plan, timeline and modeling overview

Heather Bailey

- Short timeline broken into several pieces
- To develop a recommendation that will go to City Council in early 2013
- Evaluate risks and benefits
- By March 2013, council will be in the position to choose to move forward and what that path might look like.
- Will vet group information by early January

Sam Weaver – As far as rate design/classes go, are you going to want a breakdown for the different classes?

Heather – We are not at the point where we are ready to do rate design. We don't have Xcel's rate design information. Keep this high-level. Metrics will drive this.

Josh – How did we come up with 20-year planning window?

Heather – We thought 20-years was reasonable given the life-span of assets

Ted Weaver – Are there base-case models already set up because we're on a tight timeframe?

Nils – There are different ways to model a utility. This year, we want to pass the baton to the HOMER group which has a more streamlined process for looking at scenarios.

John Glassmire – Discussed how HOMER model will work and the simulations it will run. Take the base approach and expand it. Year load modeling. We can do different levels of modeling based on the level of data we have available.

Sam Weaver – HOMER is unique because it's an optimization engine. It will do a comprehensive search of everything to get to lowest costs and lowest emissions using multiple scenarios. We will extend what we did last year, use actual deployment timelines. Use five-year steps. We need to talk about scenario selection – Kyoto/more than Kyoto/Less than Kyoto. HOMER allows for adjusting prices and sensitivities. Pick a 20-year target and then look at short term steps to get there. Tailoring load growth.

What is "our bubble?" How big of an area are we looking at with HOMER? Boulder only? Boulder region?

Ted – Strategies vs. uncertainties. Known vs. Unknown. Strategies we can control. Limit the number of strategies.

(11:00 - 11:30 am) 5. Discussion of scenarios to model
i. base case

- ii. **additional scenarios**
- 6. **Critical inputs for model**
 - i. **Load data/projections**
 - ii. **Process to gather information – documentation, sources**

Anyone who wants to can review the citizen's group modeling runs and the data that was used. The inputs are old. We need to reach consensus on what the prices are.

Sam – When we talk about modeling scenarios, we have to limit the number. What are the emission levels we should target

Heather – I would set 20 year target for zero emissions and see if it is achievable. We need to show that significant reductions can start to appear quickly. Look at Xcel's resource mix as base case. What percentage will be renewable, distributed generation, capacity, etc.

Sam – We start with Xcel's projected emissions per kWh for 2032 and work from there.

Heather – Council will need to know how much better we can do than Xcel and how we can be better and when. There are some key fundamentals you can add to the analysis to give more options that will get us where we need to be. Resources can affect our level of stranded costs. Working with legal teams to determine how.

We can force items into HOMER to see what can happen.

We need to constrain how far we move down paths/scenarios.

We need to talk about variables and their constraints – ex. Refinement of cost of resources.

Do we need to do another round of indicative pricing? Or is last year's data sufficient? Do we even have time to do that? Could that be done down the road?

TED – Rather than having HOMER tell us the best strategy, we force different strategies on HOMER to see the different scenarios and then look at how they compare and play with/against each other. Then we can tailor the loads in HOMER, but let HOMER optimize across the other lines that we're not forcing.

TED - Given the time – we should start with Xcel's assumption and then strategically say where they are wrong on pricing and other inputs. If we start with Xcel, then we can show what's real and either prove or disprove ours and theirs strategies.

NILS – Different perspectives on every model and the inputs used. Xcel owns and controls generation, transmission and retail. Like having the fox watching the chicken coop. Xcel rolls

into the rate, the risk and the debt service the independent power producer incurs. That's double accounting. No one audits Xcel's numbers.

SAM – We started with Xcel's data. And Xcel pretended that we fabricated their data.

TOM – We need to show the group the original modeling. We should start with a well understood baseline and then deviate and document from there.

PAREED – There is a lot of data available if we know where to look. I have access to different resources. We can use them to validate assumptions from previous HOMER modeling runs. We can pick and choose what we look at. This isn't Xcel's assumptions, this is WEC's.

ALISON – We need to take a much more rigorous look at all assumptions. Natural gas is still a pollutant. Still has an impact on the environment. We need to start with ideal and then work backwards. Council wants to know how far we can go. We need to be careful about blanket statements.

HEATHER BAILEY – We need to document everything very carefully, because it will be reviewed by third party. Look at life cycle costs for whatever you come up with. Decisions can change when you factor this in.

You will get to see all inputs for the modeling runs.

- (11:30- 11:45 am) 7. Interface with other models/work teams**
- i. Financial**
 - ii. Decision analysis**
 - iii. Reliability**

SAM – Main concern is how this plugs into financial model. Will help plan for the future if we can look at financial model and how resources tie in.

YAEL – Going to determine how people can have access to financial and legal data, while maintaining confidentiality. There may be a joint meeting or at least a subgroup.

JK – Coordination between financial analysis and HOMER modeling is crucial.

- (11:45 - 12:15 pm) 8. Phasing of modeling brainstorm**

DAVE – Framework on modeling assumptions would be great to have for the group. What this analysis is and what it isn't. Modeling – have a controlled access share-point site where everyone could access data from modeling runs.

LESLIE – Natural gas based system using lots of renewable. Replacing coal with natural gas is not what the original intention was. The citizen’s modeling team shows that we don’t replace coal with natural gas, we replace it with renewables. We shouldn’t talk about replacing coal with natural gas.

TOM – Citizen team based things on cost equity with Xcel and their history predicting rates. We used data that is now long out of date.

NILS – When addressing public – Imbalance market – we won’t be out of electricity

TALKING TO THE PUBLIC? – Our work is exploratory. We don’t have any clear answers. This is a technical group that isn’t setting policy. Nothing leaves the group unless the group agrees upon it.

LESLIE – Everything to this point is public, but information must stay in this room. Jonathan can coordinate requests.

(12:15 - 12:30 am) 9. Assign Tasks

NEXT STEPS/Interface with other groups

- Work group products are deeply interconnected
- Will keep groups informed on other teams’ efforts as much as possible.
- What’s next
 - Develop a framework of modeling assumptions – city staff
 - Figure out a format to look at assumptions and data used – City and Nils
 - Send out notes for review – City
 - Conversation on who would participate in sub-group that would interact with reliability group – Email discussion with group.
 - Clarify what analysis is and what it isn’t – part of framework
 - Share point site to share documents and conversations – JK
 - Next meeting – model projections and vetting. How HOMER is used.
 - Would we have an interim meeting before next regular meeting?
 - Yes. Small group would like to get together to learn about how HOMER works
 - Subgroup creation is encouraged that could meet between other meetings
 - Meeting expectations
 - Four to five 2-hour meetings with work between meetings
 - Now to end of February
 - Poll to see how we interact with Financial working group prior to their next meeting

- Invite will be sent for sub-group to meet and learn about HOMER model – another meeting may be scheduled to talk financial model.
- Assumptions that will be sent out are from the citizen's group – TOM will send assumptions
 - New assumptions will be developed and vetted
- Would like a work plan
 - Tasks
 - Resources
 - Costs
 - Etc
 - JK to work on.
- Sam will put together scenario development subgroup.

Thank you for a great start and good conversation.

Next meeting: Dec. 5th 8-10 am