

Financial Working Group
Meeting Summary

Dec. 11, 2012
11 a.m. to 1 p.m.
Atrium Conference Room
1300 Canyon

Present: Steve Pomerance, Sam Weaver, Nils Tellier, Joshua Putterman, Puneet Pasrich, Dave Becker, Alison Burchell, Dan Powers, Bob Greenlee and Nick Rancis

Staff: Yael Gichon, Cheryl Pattelli, Kathy Haddock, Kelly Crandall, Sarah Huntley and Heather Bailey

Consultant (on phone): Greg Hamm

Objectives:

- Discussion and group feedback on decision analysis
- Discussion and agreement on resource modeling scenarios
- Provide update on the financial model and work plan for the assumptions

Introductions and recap from last meeting:

Quick discussion about Basecamp and best browsers for accessing documents

Yael indicated she has been talking with Dennis Eastman and will be able to update the group more soon; also hopes to be able to release the list of assumptions next week, the group will want to identify and hit the high sensitivity areas first.

Yael reported that Steve conducted some research about how city analysts evaluate population growth and the intersection of population growth and load growth will need to be considered by the group.

Discussion of resource scenarios/intersection with financial group:

Kelly explained that the goal is to have a formalized system for decision-making and evaluating trade-offs between different energy future goals (she listed the goals). This process will help inform the modeling. Working groups will be asked to prioritize assumptions and areas with most impact.

The goal for today is to go through two tasks (and maybe a third).

Kelly explained Greg Hamm's background and experience in this area.

The tasks are: identifying uncertainties (issues that city has no or little influence over) and identifying decisions the city can make to control its ability to meet the community goals.

Steve said he has a host of questions about the decision-making process because there are differences between this decision and decisions in the private sector. Kelly agreed that there are multiple variables and multiple decisions and there is a need to package and then prioritize them.

Greg came on the phone. He explained that he hopes to obtain better estimates of data and a clearer understanding of the risks. Greg walked the group through handouts. The first described the three elements: what you want (metrics or objectives), what you can do (decisions or strategies), what you know (uncertainties, facts and assumptions). Second slide is a simple example about how you could use the model to decide whether to produce a new product for profit. Third slide is a method of calculating profit (which equals (sales x margin) – fixed costs), using probability distribution related to sales and

profit margins. Fourth slide shows how individuals factor in trade-offs for lots of decisions they make in life, specifically, choosing an airline seat.

Kelly raised Steve's previous question about decision-making in a political process as opposed to decision-making in a private industry or corporate process. Greg said a key difference is that in a political process, there is more emphasis necessary on the pedigree of the data you use. In the corporate world, if a decision maker believes data, the process can continue. In the public arena, there is a greater value on credibility of the data because it needs to be believed/accepted by a wider group of people. Data and models sometimes need to be simpler in the public arena so that there is transparency and a better understanding of the data. Another difference is that in political arena, there needs to be more work that shows alternative results, which represent a variety of points of view.

Alison said the community has already been through an intense political process and is very sensitive to the nuances and variances of this process. She asked if Greg has an example he can share with the group that better fits a political, intuitive scenario.

Greg said there are published examples of using this approach within political processes. He said he could look those up and send them.

Alison said that would be good but she is looking for a specific example that takes into account his specific framework.

Kelly said Greg's model is under development this week. Greg is coming to town and will be working with staff Thursday and Friday and giving a short presentation to working group tomorrow afternoon. The group agreed that could be a good time to understand the model's applicability to a political process.

Joshua said the political process will generate expectations that will give you data points. He asked if this is essentially a format on how to proceed?

Greg said it is both a format and a philosophy that goes beyond a basic spreadsheet model. The benefit is that it recognizes that there is some uncertainty about the future as well as the importance of probability distributions or ranges of values. The model requires transparency about what the risks are and assumptions that are being made about these.

Steve asked how the analysis takes into account multiple paths for municipalization as well as multiple paths related to charting a partnership with Xcel (or staying with the status quo). There are also multiple values (objectives) that don't mesh into a single number, and decision makers will weight those differently.

Sam said the thorniest area might be local control. How would you come up with a merit function for each of the five scenarios that weights local control? That seems difficult to do quantitatively.

Greg addresses the concept that different people have different values. The difference between his example and ours is that we value GHG reductions, rates, reliability, etc. You can list the values and attempt to apply weights to these. A critical work item is to show what the results are with different weights placed on each of the values. He and the city are in the midst of discussion about whether to go through weight quantification and evaluating the appropriate weights with stakeholder groups or not. The value is to make the process transparent and perhaps smoother at the end, but the labor required upfront would be significant.

Kelly said Greg has shared some different options that the city is evaluating.

The discussion turned to identifying the uncertainties and decisions.

Greg focused on decisions first and encouraged the group to try to ignore some of the complexities to start. A decision is something that Boulder controls, such as how independent we are from Xcel, how much is invested in efficiency, etc.

The group reviewed the resource modeling group's brainstorming work (see attached) and then added the following:

- Muni vs. stick with Xcel vs. a hybrid (which could include some sort of arrangement with Xcel as the service provider)
- How do you get the financing with the costs and the payback?
- Timing of bonding

Uncertainties include:

- Stranded costs
- Acquisition costs
- Interest rates
- Load growth (critical impact on every scenario, and Paneet made the point that we need to determine if we can meet our goals if we create a business model with a negative load growth)
- Load profile
- Carbon tax
- Future capital investments
- Price of natural gas
- Specifics about power purchase agreements – what is the reality given that we are in Colorado? (Heather says it is actually really good based on what she learned at a meeting earlier this week)
- Likelihood of the city having to reimburse Xcel for its legal costs

Steve pointed out that you have to make strategic decisions in different dimensions, such as legal, financial, etc. Kelly agreed and said it is more like influence diagrams.

Joshua says he has come to understand this is a political, qualitative choice, not necessarily a quantitative one. Sam said that while this is true, you can use models to make solid predictions about the finances and cost implications and that is essential to do. Cost needs to be weighted heavily. Joshua said that qualitatively if we can put a bandwidth on expectations, such as 10 to 20 percent on each deliverable, then fine. But it will be difficult, if not impossible, to assign static values.

Alison said if we can functionally limit those things that must be in a decision analysis and then have an idea of where you are going in terms of the will of the people. You need to know if you go down a path, as well as what it would take to get away from that path.

Joshua said there is a high and low bandwidth point in the model itself. Kelly stepped in and said there are two elements that are important, both the list of uncertainties (which allow us to pick out black swan events and uncertainties of climate) and then identifying a ruler for the different strategies and a method for choosing the trade-offs. Kelly said she and Greg have had extensive conversations about different ways of exposing what people's values are so that when we make assumptions, people understand the grounds those are built upon.

Heather said different segments of our community value certain aspects of our goals differently. We need to determine how we take these different values and come up with optimum strategies. She said she thinks we will come up with two or three strategies, but these will depend on the objectives this community values the most.

Kelly said she and Greg have looked at processes used in other political, governmental scenarios, like DOE's work and the impact it has on tribal lands.

Sam said you need to look at how the values drive certain strategies.

Bob said he agrees that this will be a political decision at the end of the day, but it is important to take into account the voters' appreciation for their values. There could be a big difference between the primary value and others that might be lesser than others. Identifying a priority of these values is essential.

Same said the energy future goals are a pretty good capturing point for the various values. Bob said that may be true, but the question is: Are they equal?

The group seemed to understand that this may not be a rational decision by the community but it is very important to provide as much information as possible to go into the decision-making process.

Steve pointed out that the scenarios need to be evaluated against Charter requirements and then lots of different values that people have related to whether we should move forward.

Discussion of resource scenarios/intersection with financial group

Yael explained that the resource group has come up with a subteam that has developed a list of scenarios to discuss today.

Sam said there has been one meeting of this group and the output has been the document. The resource group has ratified the document. They are looking for finance group ratification. Another meeting will be on Friday from 3 to 5 p.m. to vet assumptions. Finance working group members are encouraged to attend. The meeting is at the Atrium Conference Room.

Sam said the idea with each of the scenarios is to produce resource models for each five years to get to a 20-year plan.

The five strategies the subteam has come up with are:

- Xcel baseline (the utility has projected out its resource plan for 20 years)
- Muni purchasing power from Xcel for at least five to 10 years (some discussion on indicative pricing)
- Xcel emissions parity (same emissions, DSM, efficiency) and ability to reduce customer power costs
- Xcel rate parity (same rates, maximum efficiency, DSM, renewables) and what emissions reductions can be achieved within this framework
- High emissions reductions, even with higher rates (hyper-localized, max local renewables)

Sam said he wanted to hear from the group about whether this is a reasonable strategy and to figure out what's missing.

Bob asked a question about how HOMER works. Sam said it tests each of the variables and will run every combination to find the one that forces reliability and achieves the lowest cost. Bob said what about load neutrality or negative load growth? Can HOMER adjust for that? Sam said yes, it can.

Joshua asked about how HOMER compares to PROSYM and ProScreen (two other modeling systems)? Who devised HOMER? Sam said it came out of NREL and its point is different from predecessors because its goal is to determine cost effectiveness of resources options. You input portfolio choices and say build me the cheapest one. Puneet added that HOMER is a capacity primer – what else can I add to my system to take into account future load growth. The previous modeling systems say once you have a portfolio, what is the best way to utilize them to serve the load. One limitation of HOMER is that it assumes any

generation will come on and come off at a certain hour. Joshua asked if it is possible to have a PROSYM-type economic and financial efficiency resource portfolio model that presents the existing fuel model of Xcel currently being utilized within the City of Boulder and compares it to a select number of the most economically viable, energy efficient portfolio alternatives (with various mixes of low carbon or carbon neutral fuel resources) based on Boulder City Council's criteria? Sam said that would be the next step after HOMER has been used to "narrow the funnel." HOMER has a self-check that flags scenarios that might not be stable so you can do additional modeling.

Bob asked how confident the group is at identifying the primary uncertainties? Sam said his big three unknowns are stranded costs, acquisition costs and fuel costs. Heather said while fuel cost is uncertain, it is important to realize that impacts all the scenarios equally.

The group agreed that these are logical next steps.

Status of model, strategy for list of assumptions and work tasks for the next month:

Kathy explained that there are legal concerns about releasing the financial model. The city is trying to avoid having witnesses called for deposition or trial because they have been working on a city document or in a city program when they have not been retained as witnesses for the city.

The city cannot have the model out there for others to tweak because it puts the city in the position of having to specify the differences between the runs on the city model. It creates confusion in discovery and before the judge/jury when a city's program is used and the output, even if it has been changed, can be construed as a city document. For litigation purposes, the city has to retain control over city documents and programs.

The Working Group can run its options through its model (Frank Selto has created a model) and choose a few for Nils to run through the city's model. That will be valuable to the city to be able to test its work. The city consultant can review the Replicate Model and describe any obvious components that would create different results than the city's model. That kind of issue-spotting going both ways will improve the ultimate product from the city. The city will also share its assumptions with the group for its help vetting them.

Wrap up and next steps:

Reminder about Friday's subteam meeting

Heather invited individuals to come to working group sessions with engineers and Greg Hamm tomorrow