System Analysis Advisory Committee
Meeting Minutes
August 23, 2013

Meeting Facilitators: Michael Schilmoeller and Charlie Black. **Participants** list attached.

Michael Schilmoeller called the meeting to order at 9:00 a.m. and asked for introductions. Dick Adams made a motion to adopt the minutes from the January 25, 2013 meeting. Kevin Nordt seconded the motion, which passed unanimously. Schilmoeller announced he is leaving the Council staff and this would be his last SAAC meeting.

Schilmoeller said the agenda for the morning would be to go through tools under development to evaluate conservation and the conservation premium. One tool has been in production for a year but is not yet generally available; the other is at the research and development stage, he said. Schilmoeller added that the agenda for the afternoon will be a presentation by Charlie Black on redevelopment of the Regional Portfolio Model (RPM).

Simulation Tool to Test Conservation Targets

Based on discussions about the five-year conservation targets during the midterm assessment of the Sixth Power Plan, we began developing a simulation tool that people can use to test the model, Schilmoeller explained. He said the simulator allows the user to modify factors that go into the model, such as peak use, seasonal variations, recent electricity prices, to see the results for conservation.

Schilmoeller provided an orientation to the worksheet for the simulation tool and the categories of information for input. The committee asked a number of questions and requested that Schilmoeller clarify aspects of the model and results.

Dick Adams asked for clarification about the criteria in the model for spending on conservation. “In the example you used, how did the model come to the conclusion to acquire 47,000 MWh in that period?” Adams asked.

Schilmoeller explained that a premium is added to the apparent long-term wholesale market price. In the example, we have a lost opportunity supply curve to look at in the first period, he said. We add the premium to the apparent market price, and the optimizer selects purchases from the curve over the period up to the sum of those prices, Schilmoeller explained.

The example is the outcome of a much larger process, he clarified. In the larger process, we test a number of different premiums to see if we can improve the results and get to the least-risk outcome, one that falls on the efficient frontier, Schilmoeller said. The efficient frontier represents “the unbeatable plans,” he added.

In explaining the net costs produced by the model, Schilmoeller said there is confusion about the marginal versus the average costs. Even if the model is selecting purchases at $80 per MWh at the higher-cost end of the supply curve, it doesn’t mean that is the average cost, Schilmoeller said. The average cost could be much lower, he said, adding that marginal costs could be very steep, but average costs will be a lot less.

Tomás Morrissey explained that he had been testing the model and dropped the input prices for energy on and off peak and the model still produced results to build 5,300 MWa of conservation. So what is driving the final amount the model says to build, the market prices or the premium? he asked. Schilmoeller said it is more the market price and beyond that, the price of the available conservation. The purpose of the simulation tool is to allow you to modify that premium and to see the results, he added.

Charlie Black said the idea is that market price is uncertain and will vary. The model is dealing with risk and uncertainty, and the user is exploring how much the premium should be to manage cost and risk across the range of 750 futures, he said.

Schilmoeller said people can modify inputs to the simulation and examine the logic. People thought the five-year conservation targets were driven by the premium, he said. But discretionary conservation is driven by the fact it is "so darned cheap" and there are ramp rates associated with it, Schilmoeller said. The lost-opportunity is affected a little bit more by the premium, but there is still a lot of inexpensive conservation, he stated. With the simulation tool, the user can modify the cost curves used in the model, Schilmoeller said.

Jim Litchfield asked how the premium was calculated in the last power plan. The analysis to get to the premium was way beyond this simple spreadsheet, he said. Give us some perspective on how the optimizer works and what you did for the power plan, Litchfield requested. I'm struggling with the idea that discretionary conservation came out with a higher premium than lost opportunity, he said. Intuitively, I would have thought the reverse, Litchfield said. I would have put a higher premium on lost opportunity since it can't be done at any time, but discretionary can, Litchfield commented. Help us understand that, he asked.

Schilmoeller said the RPM arrived at the result because the premium for dispatchable conservation is only in effect for the last three or four years of the 20-year study. In those later years, there is a great deal of uncertainty and variation in electricity prices, he explained. Schilmoeller said that is not really the way we would expect discretionary conservation to work; it is an artifact of how we represent discretionary conservation. So after the RTF and CRAC weighed in on the premiums, the Sixth Plan discretionary premium was reduced for use in the Sixth plan. We used $50 for lost opportunity conservation and $35 for non-lost opportunity conservation in the Sixth plan, he stated.[1] What we had hoped for in the Seventh plan is to implement an inventory model that would be a better representation of lost opportunity and discretionary conservation, Schilmoeller said.

When you calculated the premiums, how did you think utilities would use them for implementation? How would they be applied in the real world? Litchfield asked. The premiums are informative for the region as a whole, but different utilities have different circumstances, Schilmoeller responded. In the case of Washington's I-937, utilities are required to be consistent with the Council's conservation methodology, he explained. So we presume individual utilities can look at the same considerations we did and come up with their own assessment about the premiums, he said.

Grist explained how the Regional Technical Forum estimates cost-effectiveness for conservation measures and applies the premiums. The RTF changes the cost-effectiveness as things change and uses a rolling average of market prices, which is a less volatile number, he

[1] Appendix E to the Sixth Power Plan, page E-6. These are both in 2006 constant dollars.

said. Grist added that the model tries to mimic what we think utilities' behavior is in the real world.

If you are hiding the volatility, isn't that diminishing the risks utilities take on because they can't ramp up and down that quickly with conservation acquisition? Sibyl Geiselman asked. People who have been through this exercise in operations know that market price changes every day and when they consider what long-term prices will be, they take that volatility into account, Schilmoeller responded. We think a two-year average is pretty representative of how utilities look at this, he said. People tend to have short memories and their frame of reference is set by recent history; it seemed like a reasonable proxy for how people make decisions, Schilmoeller said.

There is a lot of documentation in the workbook and also stand-alone instructions for the use of this simulation tool, he said. Both are posted on the CRAC and SAAC website, and we can answer questions about them for you, Schilmoeller said.

He went on with describing the model worksheet and the input information. There were additional questions from the committee about the math in the model and the meaning of the results. Schilmoeller said the most useful thing from the model is not the cost numbers for conservation, but the rates of acquisition. While the gross cost for conservation should be about right, the net cost merely reflects the value of the conservation in the market. There are other benefits captured by the RPM that are not reflected in this simulation model. He said the simulation tool allows the user to see the effect of the input information on the acquisition rates.

There were more questions about the premium. Schilmoeller said the tool doesn't answer the question of whether the premium being input is correct, it only demonstrates the effect of the premium on the rate of acquisition. Doug Brawley asked if a user could do the same thing by changing the supply curves and testing the effect on the acquisition rates. That's right, Schilmoeller said.

There were additional questions about the relationship of the inputs to the results. Schilmoeller noted that a lot of details behind the calculations are in Appendix L of the Fifth Power Plan.

He continued to explain the simulation tool and illustrated how a calculation would be done over 750 futures and an output report generated.

Quantifying Values of Conservation

Schilmoeller said the model that is under development addresses the question of how the premium value is derived. Conservation offers value in a number of ways, he said, including capacity deferrals, carbon risk, and displacing RPS resources. We want people to think about these other values, Schilmoeller stated. He said he is working on a calculator to help quantify those values.

A user could input into the calculator estimates for electricity requirements, wholesale electricity price forecast, natural gas prices, expected carbon proxy, as well as a schedule of planned energy, flexibility, RPS, and risk mitigation resources and their costs, Schilmoeller said. The calculator is an attempt to capture and quantify the total value of deferring other resources if there is conservation available, he explained.

Schilmoeller listed inputs that go into the calculator and said one of the more speculative areas of input is risk. To get at risk, we could look at what one might be willing to spend on a least-risk plan for resources and weight that with the likelihood of a large excursion in cost occurring, Schilmoeller explained. In other words, we'd determine what one is willing to pay to mitigate the risk, he said. Schilmoeller said the risk consideration is the effect extreme circumstances would have on a utility's revenue requirement, and the premium the utility would be willing to pay to offset the risk, he explained. We'd translate that into some amount of out-of-market conservation a utility might be willing to acquire, depending on what its supply curve looks like, Schilmoeller said.

This tool could be applied specifically to a utility's circumstances to derive something similar to the premium value that is used in the regional plan, Grist said. Individual utilities will be in different places depending on their resources and risk, he said. Grist asked for thoughtful inputs on what would be a useful tool for utilities.

Dave LeVee said the premium is applied just to conservation and isn't being "even-handedly" applied to other resources as well. If there is going to be a premium or "a true-up," it may need to be applied in such a way that it isn't biasing conservation versus the supply side, he stated.

This is an energy efficiency view of the world, Schilmoeller responded. As you pursue more energy efficiency, the economics of the rest of the system change, he added. It is a first attempt and a way to give planning people a way to think about this, Schilmoeller said.

Levee also commented on the stochastic nature of the model. In cyclical things, like changing hydro conditions, we are dealing with average mean values not the full volatility of something like prices we would see in the marketplace, he said. We should be clear that we are talking about traditional conservation, like putting insulation in the walls, and not about demand response and other things that over time may address the volatility, Levee said. We need to be aware that we are talking about traditional conservation not how customers may change their behavior, he added.

Can this be translated into a renewable context, Wendy Gerlitz asked. Schilmoeller said he didn't see why not. It will never be more than simplistic, but that would be possible, he said.

There was additional discussion about optimizing conservation before running the model with the future scenarios and what the base case would be.

"Even with a single future, wouldn't there still be a premium for conservation?" Steve Weiss asked. Schilmoeller said yes and that a substantial portion of the premium is not associated with risk. Vijay Singh asked if the base case would include conservation or not. Schilmoeller said it would, but there would be conservation only acquired up to wholesale market prices, he said. I think of the base case as "no premium," Schilmoeller stated.

I wonder why we do all of this as compared to the "old school," which was to look at avoided costs, Litchfield said. Doesn't this all get us back to the marginal resource costs of $80 to $100 per MWh? he asked. If the main message from the Council is guidance to utilities, regulators, BPA, and the RTF about the appropriate range for the cost-effectiveness of conservation, the old approach was avoided costs, he said. What additional value do we get from all of these mathematics and spreadsheets if we get back to the same place? Litchfield asked.

You are generally right, Grist said. This is pushing the cost-effectiveness of conservation up to the avoided costs of future resources, he said. But we don't know when we need those resources and what their price will be, so rather than pretend we know, we test the consequence of being wrong across a range of circumstances, Grist said. You are trying to find out how many futures "you are in the money" and how many futures "you are out of the money" in terms of the decisions you make, he said. We got to the same point with conservation cost-effectiveness adders as with a long-run market purchase, but we don't know if that was just coincidence or a necessary conclusion, Grist said.

I don't think that's a coincidence, Litchfield say. The analysis gets you there because it is looking at the deferral of marginal resources and that is part of the risk premium that is calculated in the RPM, he said.

That is true, but it is only part of the story, Schilmoeller said. Avoided cost is a notion that assumes a particular future and even perfect foreknowledge of the future. The turbines that are added in the Council's least-risk plan are present in no more than 33 percent of futures and are part of a risk reduction strategy. Without evaluating futures, how do we even identify the resource we are avoiding? In a sense, the RPS wind resources can be avoided and that can be counted as a benefit of EE, but that value would be closer to $20/MWh, not $80/MWh.

The real problem is that before the Fifth Power Plan, the only concrete value the region could point to was the price of wholesale firm energy. Wholesale firm energy price, however, gives us the wrong answer when prices are depressed. Today's price signals are inappropriate for building future resources. With conservation, we are building a future resource because of conservation's unique characteristic that it cannot be acquired quickly in large amounts. The small amount of conservation we acquire this year has little benefit this year. The value of a robust acquisition policy is fully recognized only when large supply-side resources are deferred or displaced.
The role of stress-testing any resource strategy against alternative futures is also critical in the selection of supply-side resources. In the least-risk resource strategy, in fact, we pick plans and policy that perform well in bad futures, rather than those that are least cost in one particular future. We tested that and you can see the difference it makes in the choices, Schilmoeller responded. He said a big factor in the sizing of CCCTs in the later periods in the regional plan is the cost of building a plant that isn't needed or not building a plant that is needed.

The algorithm you just discussed seems so much cleaner and easier than all of the description of what is going on here with the model, Michael McCoy said. Schilmoeller said there are a lot of different questions being asked of the model and a lot of information the Council needs. This is more than just developing the resource plan, he added.

There was a planning process used before the RPM and that process also had uncertainty and the unfolding of futures, McCoy said. Have you gone back to compare what that process would have done compared to the RPM? he asked.

Schilmoeller said that was done. (See for example, the treatment of cost of lead-time in Chapter 14 of the Third Power Plan – 1991.) There were sources of uncertainty, however, that weren't identified in the previous process, including the volatility in the price of electricity, he said. Part of what the RPM does is to introduce other sources of uncertainty, Schilmoeller said. The Council is identifying and quantifying things that weren't addressed in the past, he explained.

The issue of valuing premiums will be critical to the next power plan, Adams stated. People are going to want to know about that, he said, adding that he still has a lot of questions about how the valuing is done. You have a big challenge to assure the broader community understands how the premiums are developed and what they mean; that will be critically important to the Seventh Power Plan, Adams said.

Black said the Council needs to get to the point that people walk away from discussions of the resource strategy with confidence they understand and can explain what is being done. It will be a priority for us, he said. The challenge is to do sophisticated analysis and accomplish that other goal, Black added.

Plans for a Flexibility Assessment

Ben Kujala said the Council intends to conduct a system flexibility assessment and would like a working group of the SAAC to assist. He said staff would gather up and run the methodologies used to evaluate flexibility and when the results are available have a broad discussion about the way planners look at power system flexibility. We want to come up with a comprehensive survey of what is out there and use that as the basis for incorporating flexibility into the Seventh Power Plan, Kujala said. He invited SAAC members to join the flexibility working group.

Phillip Popoff asked if the Resource Adequacy Advisory Committee would also address flexibility issues? Kujala said the flexibility work could feed many efforts at the Council, including resource adequacy. He also said the plan for the assessment has not been finalized and he is open to suggestions. This is about getting a broad sense of the field of options and identifying the issues on which to base an informed discussion, Kujala said. The discussion can take place at the SAAC or the Council, he added.

Regional Portfolio Model Redevelopment

Black began his presentation by acknowledging the “heroic” efforts Michael Schilmoeller has undertaken to develop and run the RPM. Michael has been “a one-man band” with regard to the RPM in the Fifth and Sixth plans, he said.

Black presented ideas and tentative plans to redevelop the RPM. He started with a summary of what the Council staff has in mind, including plans to continue to use the overall RPM strategic risk analysis and complete a working prototype in time to use for the Seventh Power Plan. Among other points, Black said the software development will be outsourced to a resource planning model vendor, and the initial development will focus on the core analytic engine.

The RPM has been used to analyze resource strategies and support the selection of resources in the Fifth and Sixth plans, he said in presenting the situation analysis. Black said the RPM methodology has been called “scenario analysis on steroids” and it is fundamentally different from other resource planning models. It is unique, sophisticated, and highly complex, he stated. The sophistication is great but the complexity is daunting both in terms of the internal logic and the need to communicate about it, Black explained.

Michael developed the RPM methodology and has also been the primary modeling analyst, carrying out a comprehensive set of functions, he continued. Black listed the platforms and programs used in the model and he said the analytic methodology, software platform, and

technology have not changed significantly since 2003. He also noted that it has not been feasible for Council staff to bring the RPM software up to commercial capability.

When I got here, I heard a lot of concerns about the RPM, and questions about whether it is the right tool and the right methodology, Black said. He described the independent review conducted of the RPM in 2012 and listed the conclusions of the reviewers. They found the RPM approach to resource planning under uncertainty was superior compared to other models and confirmed the need to get other staff involved in the analysis and to undertake enhancements to the model, Black said. He said the reviewers highlighted the need for communication about the model and its results. They also said the RPM could not feasibly be used by others in its current state, Black reported.

He pointed out there is not a pool of users prepared to run the RPM. The model requires significant user intervention, and there is a lengthy series of steps needed to run it, Black said. It takes "a near genius" to run the RPM, and it is rare to find someone who is a good analyst and can do the modeling, he added. The Council is unlikely to find another staff person like Michael, Black said. Depending on one person to bear such total responsibility is burdensome and risky, he added.

Black asked for reactions to the situation analysis. Is this news to you? he asked.

One questioner asked if the Council still intends to run the model or whether a consultant will do that. Black said the Council staff will not outsource the analytics.

Adams said Black's situation analysis was excellent and comports with his memory of things.

Black asked if people were aware of the intensity of effort required of Schilmoeller during development of the Sixth Power Plan. Litchfield said he recalls that in getting from the draft to the final plan, the Council wanted a lot of additional studies, and with Michael alone running the model, staff estimated it would take six weeks for the new analyses. It was a daunting task to get additional studies run, he said.

Fred Heutte commented that the situation is typical, with an analyst developing a tool and adding to it and embellishing it. We owe Michael a lot of thanks, he said. Heutte said it was the right course of action not to lose the RPM's capability. Going forward it is important to make the goals clear and it is important to make the RPM available to the region, he said. It is important so people can have a look at what you are doing and so the model can be used by others, Heutte said. We support the direction you are going, he added.

Marty Howard cautioned against assuming the RPM review panel "got" everything about the model. They may have gotten a lot of key points, but they missed important things, he said. When you think about the redevelopment process, don't rely only on what the review panel said for how to go about it, Howard said.

Black said he would follow up on how to identify what the review panel might not have gotten. He continued with describing the purpose and goals for redeveloping the RPM. We want to modernize the model and move to a more consolidated, integrated platform and improve the robustness so others on the staff can use it, Black said. He said the Council needs a working prototype of the model by the end of 2014 to support development of the Seventh Power Plan.

Black explained the proposed redevelopment approach. He said there is a real concern about time and meeting the deadline. Black said he has gotten feedback advising him to focus on the core algorithms of the model and realize that the initial work will not have the friendly user interface for inputs or fancy outputs.

Heutte said he would argue for starting the redevelopment with identifying the outputs needed from the model. Start with the necessities and evaluate what outputs you need, he said.

Black listed several other considerations for the redevelopment approach, including the focus on core algorithms to determine if they produce what is needed. He also touched on providing for new analytics to address issues like the variability of wind and the effect of interregional transmission conditions.

Weiss said the redevelopment is an opportunity to simplify the RPM. You should consider not just what to add, but what to take out; focus on simplicity, usability, and understandability, he advised. Black responded that with the lower priority items in the methodology, some might be dropped entirely.

While the plan is to outsource the software development, the developer must understand resource planning, he continued. It wouldn't be satisfactory to have a generic software developer for the job, Black said. He described possible approaches to funding the software development that could allow the vendor to have rights to market the new model to third parties.

Black added that he has talked to vendors and some expressed interest in such an arrangement and others did not. He noted that the RPM review panel said that if the model were to be distributed for third-party use, a significant amount of technical support would be required. We don't have the staff for that, Black pointed out. Additional Council staff will, however, be assigned to in-house RPM activities, he said.

The Council will issue a narrowly focused Request for Proposal to solicit a software vendor, Black stated.

Heutte said it is important to retain an open source model and to find the balance between Council involvement and front-line support for the model. He said there are lessons to be learned from what has happened with the Aurora model. Heutte said it would be helpful to have better documentation, validation, and a test suite of calculations for the RPM.

The advisory committee discussed the ramifications of maintaining a public domain model and granting distribution rights to a private vendor. Black said the Council wants to retain the openness with the model. He asked if it would be useful to have a SAAC subcommittee review work done on the validation and testing. Heutte said the reviewers should include day-to-day model operators.

Black laid out a draft schedule for the redevelopment and said Michael would document the methodology and logical implementation of RPM by the time he leaves. Doug Logan, a member of the RPM review panel, has been engaged to evaluate the technical implementation of the RPM, he reported. There are 28 steps to go through to get ready to run the model, Black said. Logan is writing up his review on what it takes to run the RPM and to give input to the redevelopment work, he added.

Black said the schedule calls for the Council to issue the RFP in November, select a vendor by January 2014, and have a new version of the core model by January 2015. The new version would be used to develop the draft Seventh Power Plan by mid 2015, with adoption of a final plan in late 2015, he said.

Sibyl Geiselman said she is concerned about transparency and access to the model, citing recent issues in the BPA rate case over use of the Aurora model. She said small utilities have been frustrated by a lack of access to Aurora. I see a lot of pros to the approach with the vendor, but there are concerns from the small-utility perspective to consider, Geiselman said.

Black said the Council would share its draft RFP for software development, and those issues could be part of the negotiations with the vendor. We've thought about these issues, he said, adding that it could be possible to require that certain qualified individuals have access to the model at a discount or for free for specified purposes.

This is a well thought-out approach, Adams said. He asked about the strategy for addressing the concerns about communication and assuring policymakers have actionable intelligence from the model. Black said part of the answer involves the prioritization of those parts of the model that are most significant and relevant for the Council going forward.

He segued into a series of slides presented earlier in the week to the Conservation Resource Advisory Committee, which show the output of the RPM with regard to the least-risk portfolios of resources that are on the efficient frontier. Black said the outcome of the RPM analysis for the Sixth Power Plan indicated that the least cost and least risk resource portfolios have a similar pace for energy efficiency development. The actionable intelligence from these results is that energy efficiency makes sense if you are trying to minimize costs and it makes sense if you are trying to minimize risks, he stated.

Other results indicate the build-out for energy efficiency does not vary much across the different futures in the RPM, Black said. This raises the question of how much of the current RPM analysis is crucial for that sort of actionable intelligence, he wrapped up.

Litchfield reiterated a point he said Heutte raised earlier. We should focus on the questions the Council needs to answer and a model that delivers the answers in a way staff can present to the Council so they understand them and get to the right power plan, he said. Rather than assume we need an RPM, we need to ask more generally what problems do we want this model to solve, Litchfield said.

The Council has a suite of tools and some of the answers can come from Aurora and some from Genesis and some from a new RPM, he continued. We may be falling into the old adage, "we have a hammer so every problem looks like a nail," Litchfield added. Maybe we need to back up and consider this differently, he commented.

Black said there is a constituency for the RPM that doesn't want it changed. He said the RPM is the model the Council uses to look at strategic risk that deals with the fact "our forecasts are wrong" and it helps answer what types of resource strategies make sense over a range of futures. Testing resource strategies under those futures will be a key driver in the redevelopment, Black said.

Litchfield said the Council has other tools that will shed light on those issues. The SAAC should address these system analysis questions more broadly, he added. All of these tools can be brought to bear on different problems and get you to a better set of answers, Litchfield said.

When we do the prioritizing of what we will carry forward from the RPM, we should look at which answers and actionable intelligence each model provides, Black said. He said the prioritizing would be an open process and that the SAAC could provide input, Black said.

Heutte offered more perspective on the approach to allow for the model to be licensed to a vendor for distribution and to get the intellectual property rights sorted out. There are arrangements that can be made so everyone has access, he said. Black said the licensing discussions would depend on responses to the RFP and he noted that the SAAC could provide help with addressing the questions.

Phillip Popoff asked whether the schedule includes enough time to sort out the issues being raised. That could take a long time, he said. Black said he did not allow months to work over issues of intellectual property. He suggested the possibility of providing a menu of options related to access and open source for the vendors to respond to as part of the RFP.

Geiselman said the Council has the opportunity to be transparent in redeveloping the model to develop trust. Have a good communication strategy up front and you may avoid many issues, she said. Black said he intended to keep the process open and interactive.

Black said the SAAC would likely meet again in October. He said a couple of agenda items are evident, including the SAAC review of the work Schilmoeller is doing on the logical documentation for the RPM and Doug Logan's review of the model operations and his recommendations on redeveloping the RPM. Another topic would be is to talk about the RFP as we are drafting it, Black said. Adams suggested the committee might also want to discuss points raised about the suite of tools the Council could use in addition to the RPM for its analyses.

Is there SAAC support for this redevelopment effort? Black asked. The committee members gave head nods in the affirmative. Black asked members to provide additional feedback if they would like after they have had time to consider the material presented.

The meeting adjourned at 12:20 p.m.

Work Plan/Future Agenda Items:

- Charlie Black to follow-up with Marty Howard and Fred Heutte on what the RPM Review Panel might not have gotten in its review.
- SAAC review of the work Michael Schilmoeller is doing on the logical documentation for the RPM.
- SAAC review of Doug Logan's assessment regarding the model operation and his recommendations on redeveloping the RPM.
- SAAC discussion of the RFP for a software developer as it is drafted.

- SAAC discussion of the suite of modeling tools the Council has to use, along with the redeveloped RPM, in its analyses for the Seventh Power Plan, i.e., which tools could be used to yield which answers.

System Analysis Advisory Committee Meeting

Attendance: August 23, 2013

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SAAC MEETING
9:00 AM – 3:30 PM COUNCIL CENTRAL OFFICE

AGENDA

1. An electric utility tool to value cost-effectiveness premiums for energy efficiency – MS (2 hours)
2. Flexibility Assessment Methods Workgroup – BK (30 min)
3. Redevelopment of the Regional Portfolio Model (RPM) – CB (early afternoon)