

**Regional Greenhouse Gas Initiative
Stakeholder Group Meeting Process
April 6, 2005**

Foley, Hoag LLP
Seaport World Trade Center West
155 Seaport Boulevard, 13th Floor
Boston, Massachusetts

Facilitator: Dr. Jonathan Raab, Raab Associates, Ltd.

RGGI Stakeholder Group Meeting #7: T Final Meeting Summary

127 people attended this meeting that began at 9:30am and concluded at about 3:30pm.

I. Materials Distributed and Presented

Prior to Meeting:

- a. Agenda

At the Meeting:

1. RGGI Preliminary Electricity Sector Modeling Results, *Steve Fine and Chris McCracken, ICF Consulting*
2. Future IPM modeling plan—1 page flowchart, *Karl Michael, NYSERDA*
3. *RFF Allocation Study, Dallas Burtraw, RFF*
4. *Response to RFF Allocation Study, Michael J. Bradley, NE GHG Coalition*
5. *Response to RFF Allocation Study, Mark Younger, Consultant to AES*
6. *Response to RFF Allocation Study, Larry DeWitt, PACE Law Center*
7. *RGGI Key Program Components and Model Rule Bricks, Bill Lamkin, MA DEP*
8. *MOU Brick Chart, Franz Litz, NY DEC*

All the documents and presentations can be accessed on the RGGI project website:

http://rggi.org/stakeholder_schedule.htm#summaries

II. Introductions, Updates, and Agenda Review

Facilitator Dr. Jonathan Raab, of Raab Associates, Ltd. welcomed attendees to the meeting and reviewed the agenda for the day. All those present then introduced themselves.

III. Modeling

Updates on Additional IPM Model Runs

Karl Michael of NYSERDA explained that the reference case shown today shows a sensitivity reference case with coal builds allowed in the RGGI region and higher gas prices, and various carbon policy scenario runs. It was noted at the meeting that even when coal builds were allowed in the moderate Reference Case – none were built. Karl said that a 35% policy case has

been added to the other cases. Scenarios including offsets and a federal carbon policy have also been run.

Steve Fine and Chris MacCracken of ICF Consulting then presented the reference case sensitivity results, 35% CO₂ policy case results and offsets cases. This presentation is on the RGGI website at: http://www.rggi.org/stakeholder_schedule.htm#summaries

During the presentation, Steve Fine stressed that the natural gas price essentially drives the cost of electricity.

After presenting the reference case up to page 8, the following clarifying questions and comments from one or more members of the Stakeholder Group, Resource Panel, and observers were asked (*questions posed are in italics* and responses in regular font by Steve Fine and Chris MacCracken unless otherwise specified):

Have there been any changes to the reference case since last time we met?

No.

Can you remind us of the assumed price of natural gas?

\$6.50/MMBTU in 2005, drops to about \$4.20 in 2010 (close to EIA figures), over \$4.50 in 2020 and beyond.

Emissions seem very low in 2004. The acid rain units alone are greater. I don't understand how we're dropping 10-15 million tons in two years. How do non acid rain peaking units impact CO₂ emissions? How are combustion turbines (CTs) handled?

There's a hardwiring of 3 Gigawatts of new gas combined cycle units. In addition there are nuclear uprates, units getting ready for federal 3P program, and state RPS programs. Together, they account for about 10 million tons.

Karl added that a few adjustments have been made to calibrate with the IPM model to account for behind-the-meter generation (inventory emissions were adjusted downward about 5.5 million tons to account for those emissions, which are not included in the model) and how IPM derives emissions based on fuel usage. Also, we recognize that modeling underestimates oil use, as short-term spikes get lost in long-term averaging of model. We are looking at ways to capture some of those things.

You keep mentioning nuclear uprates. Have you assumed they haven't been made yet, as some uprates occurred 5 years ago? Also, some units may do additional uprates.

We are looking at megawatts that are candidates to incremental upgrades, and they are accurate as far as we know.

Have you back-run the model for 2004 to show that it is robust in CO₂ emission predictions?

Haven't run the model for 2004, but when we have taken out most of the policies going forward, we come very close to 2004 emissions after making some offline adjustments to the RGGI emissions inventory to calibrate with IPM.

Your wholesale energy prices, do they include capacity?

No, only wholesale energy. We can also generate capacity numbers or show prices with capacity rolled into it.

Do you convert wholesale prices to (p8) to retail prices?

No, the model produces wholesale prices. Dwayne Breger of MA DOER added that for the REMI modeling, wholesale prices will be converted into retail prices.

Can you document how each of the adjustments you make contribute to overall impact? We are concerned that if you are underestimating emissions in the early years you will overestimate banking that can and will take place.

[See Karl Michael's previous response addressing the near-term emissions disparity between the RGGI inventory and IPM output.]

Franz Litz of NY DEC commented that the Staff Working Group would like to incorporate a lot of things in model, and people shouldn't assume that these runs are exactly how model rule will be specified. Instead, SWG is looking at these runs for directionality, as there are several translators and checks to consider before specifying the ultimate rule. Steve said they didn't show a 5% case as it's deemed to be non-binding.

Steve and Chris went on to present the 25% and 35% cases with and without a national US policy (beginning in 2015) and a Canadian carbon policy, which they claimed effectively increased allowance prices and shut down emissions leakage (not power flows). Franz Litz of NY DEC explained that CO₂ modeling runs were conducted with a carbon policy in Canada and outside the RGGI region in the US in order to bound the potential leakage impact. A U.S. carbon policy is seen as a proxy for incorporating the fact that the electric power industry is incorporating the expectation of a future national carbon policy into current long-term planning exercises.

One or more Stakeholders, Resource Panel members, and observers asked the following clarifying questions (*questions and comments in italics*, responses by Steve Fine and Chris MacCracken unless otherwise noted):

At one of the first stakeholder meetings, it was noted that the northeastern US is one of the more energy efficient areas of the US. The impact of a national cap may mean greater energy efficiency potential in other parts of the country (where fruit is hanging lower), and that may result in higher demand response in other parts of country as result of higher electricity prices.

Karl Michael replied these policy cases are presented as bounding runs, and nothing more.

What are the conditions of Canadian and US outside-RGGI carbon policies?

Canadian policy starts in 2008, and assumes stabilization with a US\$10 backstop price. The rest of the US is assumed to stabilize CO₂ emissions starting in 2015, with no backstop price.

It would be helpful if you showed a change in power prices outside RGGI region.

There is some change due to overall natural gas prices being higher, but there was a carbon adder.

Under the 35% reduction case with a national program, the projected RGGI region electricity price is about 30% higher than reference case in 2024, assuming stabilization happens in the US at 2015 levels. Therefore you are offsetting emissions growth beyond 2015 in the rest of the country while the RGGI region is being held to 35% below 1990 levels. So the RGGI region decrease is greater than the rest of the US. Is that right?

From the modeling, the 25% case is effectively a stabilization policy at 2006 levels in the RGGI region.

Franz Litz of NY DEC added if there is no national policy by 2015, we may need to look at status of RGGI. We will be monitoring this program with respect to federal policy, and there could be adjustments to RGGI policy as we move forward.

Which natural gas prices are used as a forecast? Are any infrastructure upgrades considered to affect the delivered price?

A Henry Hub price forecast was used. There are no additional costs associated with upgrades beyond the fixed transportation and seasonality adders that provide the delivered costs.

In 2009 and 2012, why do the US and Canadian policies have any effect, if policies don't take account until 2015?

First, the Canadian policy is assumed to start in 2008. In addition, because of an increased incentive to bank allowances with a coming national program, the model assumes generators will respond to the coming national program early.

Chris Sherry of NJ DEP added that the implementation of a national policy is also resulting in a shift in the location of new power plant builds prior to 2015.

RGGI will cost more with a US national policy in place, but you are getting more reductions as well because of reduced leakage.

Are you assuming RPS requirements will be met in all of the states? Are you considering doing a run where the states will meet perhaps only 50% of their RPS requirements?

Karl said this concern has been raised and considered, but has not been incorporated it into the "higher" reference case.

Does the Canadian policy assume that all Ontario coal plants will be shut down?

No.

Did you assume leakage under the US and Canadian national carbon policy scenario, as the policy outside and inside the region is different?

No. Emissions are held steady at 2008 levels for Canada and 2015 levels for rest of US. There will be power flows, but no emission leakage, as the increased power flow bumps up against the cap. The model also sees a shift in build decisions due to policies outside RGGI region.

In order to assess the potential environmental impacts of leakage of various policy runs we need the CO₂, SO₂, NO_x and Hg emissions both within the RGGI region and in the region surrounding the RGGI states. This should already be an output of the model, so no additional runs are likely to be needed, just develop tables with the information that should already be available. Emission (not just CO₂) reductions within RGGI could be offset by emissions increases in surrounding states. Need to test the assumption there will be no leakage with SO_x, NO_x and mercury, esp. since the western part of country is not covered.

There are national caps for those pollutants in the modeling assumptions. The western part of the country does not really impact RGGI in the modeling. Chris added that high gas prices resulted in coal builds in the RGGI region, but without higher gas prices, no coal builds were seen in the RGGI region.

Please share detailed spreadsheets of every run so we can better answer some of these questions.

Steve and Chris went on to present the alternative reference cases, and then entertain the following questions and comments.

What is your assumption when wind becomes economic?

Wind becomes economic between 2018 in high emissions Reference case.

In the Canadian and US policy cases, are they power sector only, so there is no inter sector flexibility?

Yes.

In the high gas price without US/Canada policy case, it looked like you were getting more than a 25% reduction in CO₂ emissions on chart on slide 20. Is that right?

No, the green line on slide 20 actually represents the cap. The other lines exceed the cap, but that is because of banked allowances being withdrawn in the last years when the cap is the most stringent. The allowance prices and energy prices are in real 2003 dollars.

Gas prices may be even higher than prices projected here.

Is the coal capacity the model assumes will be built IGCC with no sequestration? So there's no pulverized coal being built?

That's correct.

In the lower reference case, do you consider DSM programmatic costs in modeling?

No, the assumption is that load growth is reduced by 30%. Not including program costs.

Do you assume allowances fungible between the 3 programs?

No. In reality, one could expect fungability among US programs, but for modeling purposes the scenarios were developed to bound the leakage issue, so the model doesn't assume fungible allowance trading programs between the US and Canada.

25% reduction from 1990 case represents 0% reduction from 2006 projected emissions levels in 2024. Is that right?

Yes.

Are electricity prices from EIA forecast or an output of the model?

Electricity prices are an output of the model.

We should model a Reference Case with 0% load growth, which would help frame, the discussion better.

There would be leakage without federal policy in place, but even with federal policy in place wouldn't you still have leakage if RGGI has a more stringent cap than outside region, giving imports a continued advantage? Maybe there would be some interim advantage between 2008 and 2015?

There is continued impetus for power flows into RGGI after 2015, but emissions are effectively capped when a federal policy is assumed. There would likely be increased fuel switching outside the region. The model is making an economic decision that replicates a decision by developers to build for long term economic profits, not short term.

Franz added that not sure when policies will be in place; chose 2015 as a proxy for future implementation of a modest national program to bound the leakage issue.

It would be valuable to have access to the detailed model runs and assumptions and have quality time to fully understand it.

Steve Fine and Chris MacCracken went on to discuss how offsets (SF₆, Afforestation, and Landfill Gas) were modeled within the RGGI region.

One or more Stakeholders, Resource Panel members, and observers asked the following clarifying questions (*questions and comments in italics*, responses by Steve Fine and Chris MacCracken unless otherwise noted):

What was the \$6.50 backstop price based on?

Chris Sherry of NJ DEP said it was based on an average of 2005-2007 market price for CDM emission reductions at \$6.80 /ton and the World Bank *State of the Carbon Market 2004* report at \$6.18/ton for projects where the seller assumes the risk of registering projects with the CDM Executive Board.

What was the source of the offset supply inventory?

Chris Sherry explained that it was prorated from national supply curves to account for the resources available in the nine-state RGGI region. The curves for LFG and SF₆ track EPA curves very closely. The afforestation supply curve was derived from an analysis by the Sampson Group of the afforestation potential in the RGGI region, which projected costs between \$10 and \$20 per ton. Afforestation is a small subset of available tonnage.

Was there any assumption whether the availability of offsets were constrained because of Kyoto implementation in Europe and elsewhere?

Chris Sherry responded that the Staff Working Group did not assume a CDM credit availability constraint, but may do so in the future.

Jonathan Pershing of WRI offered that a recent study by the World Bank and others showed that supply of offsets exceeds demand at least through 2012.

Do you consider how expanding offsets overtime will affect supply curve?

Chris Sherry replied that the supply curve could change as other offsets are added, but for now only included offsets where good information was available.

I'd caution against unlimited use of offsets.

Chris Sherry added that subsequent runs may limit offsets based on input from agency heads, but the initial runs without limits were viewed as the first step in evaluation of the potential impact of offsets on the program.

Future IPM Modeling Plan

Karl Michael of NYSEERDA then said he has received good comments from people and is trying to account for them. For example, adjustments are being made to adjust the dispatch of oil-fired units based on historic capacity factors, which will likely increase emissions in RGGI region by a few million tons in the near term. We've also considered increasing the gas price assumptions.

We're also considering how to capture proposals for plant retirements. I'm happy to listen to your concerns, but we can't continue to do runs with just one thing in and out. We need to keep it simple and are running up against budget and time constraints.

On energy efficiency, we're looking at how to treat energy efficiency as a supply source. ACEEE has worked up a block of prices and quantities so that energy efficiency can be treated in a way that costs and benefits are captured by the model. But this requires a lot of work, so it is taking a lot of time. At this point, we've just reduced demand by a simple fixed percentage.

Technologies that could impact carbon emissions may also be considered to incorporate in the model. It is also still an open question of how allocation and apportionment will impact the effect of carbon reductions.

We've already spent \$300,000 from New York, and have about \$150,000 more. What you've seen is about 75% of what you will likely get.

The following clarifying questions and comments from one or more members of the Stakeholder Group, Resource Panel, and observers were then asked (*questions posed are in italics and responses in regular font by Karl Michael unless otherwise specified*):

Have you considered a high efficiency run as policy run as opposed to a reference case run?

Yes, we would expect to run high efficiency as a policy, perhaps a complementary policy.

Earlier you had mentioned modeling a lower renewables penetration. Have you made any changes?

A good question, but no decision on it yet.

Franz Litz of NY DEC added that the point of modeling is to bound the impacts, and we have accomplished that, even if we are not considering all possible assumptions.

You should present a firm energy price including capacity so that everyone is making policy decisions based on the true, all-in price including capacity price, not just the wholesale price.

Those numbers are in the mix and we can share that.

Stakeholder discussion:

The Stakeholders, Resource Panel members, and observers then shared their thoughts (*in italics below*) on the following two questions:

1. **Given what you know from modeling to date, what would be a reasonable approach to the cap, and why?**
2. **What additional modeling and analysis do you believe are needed to inform a final decision on the cap, and why?**
 - *In selling this to the public, it's important to look at assumptions we're making about infrastructure development so people understand where rate impacts are coming from. I think that DG, DSM, and energy efficiency will help address load growth over time, and that needs to be part of the calculus of doing this. Need to look at scenario of zero load growth and impacts on emissions, capacity costs. Otherwise it will be hard for us to support.*
 - *A few issues are being blurred: Efficiency you get as prices rise, and efficiency deliberately induced. Different phenomena. A national carbon policy may be a lot cheaper than people think because of lots of energy efficiency opportunities in other parts of country. If it can be shown that RGGI becomes cheaper if there's a mechanism to build in efficiency, we need to build in those mechanisms as discrete policy choices.*
 - *It's really important that all these cap numbers be run in relation to both 1990 and today's figures. The public will want to know what we are doing in relation to today. There is a ton of uncertainty with regard to outcomes. Have you considered looking at a circuit breaker that would delay or reduce the cap if it is not working (e.g., allowance*

prices increase to unacceptable levels)? It's important you do the policy runs with scenarios before you present results to your decision makers. Specifically, which offsets will be considered? Innovation in the out-years could cause dramatic changes in price.

- *We thank Karl and his team for their hard work. Will modeling be done before meeting with agency heads at end of month?*
 - Franz Litz of NY DEC said all the modeling won't be done before meeting with agency heads.
- *Presenting modeling output with SO_x, NO_x, and mercury impacts inside and outside the RGGI region would help us evaluate the impact of the model. We also want to bring up an early mover disadvantage. Northeastern states that have leaner, greener fleets have been disadvantaged in the NO_x and SO_x allocations because they were early movers in the CAIR program. We should be careful that early movers are not harmed by future national program.*
 - Franz Litz replied that the CAIR rules might yet be modified.
- *It's critical that you make it clear what you mean for other states coming into process, such as translation of wholesale prices and price increases to retail rates. As 10% wholesale price increase does not equal a 10% retail price increase.*
- *At beginning of process, several people were interested in eventually making this a national program. It's important to think about effects of modeling a national program. If modeling only used to bound leakage, RGGI will fail at one of goals, that is to expand to a national program.*
- *We all have a list of things that we haven't discussed enough. If you are in need of a lot more runs can you ask commissioners for more money to do more runs? We think a lot more runs need to be done.*
 - Franz Litz said yes, we can always ask. The question is if they think additional resources will be needed. We will make it clear what assumptions were used and the limitations of the model. The challenge will be how to package all those take-aways for the commissioners.
- *The most obvious outcome of this process is some confirmation that the best possible outcome is a national carbon policy and energy efficiency. Maybe this should be the message coming from the northeast.*
 - Sonia Hamel of MA OCD replied that our governors have been saying that. But just as in the NO_x program where we started in the northeast and then expanded nationally, there's something to us starting and then expanding nationally later.
- *Utility commissioners may find it helpful to see some of the energy efficiency implementation figures. For example, if a state is increasing SBC funds, it would be helpful to have some analytical back-up early on. If they can see there is an easier path to reach carbon reductions with lower rate increases by using an efficiency component,*

than that would be a big help. ACEEE is willing to do whatever they can to help provide data.

- *The RGGI region power use is about two thirds of the national average. It's possible that RGGI and rest of country can go lower, but never reach same level.*
- *Will RGGI lead to real emissions reductions and set a precedent? They interact. If we think a regional program should include an efficiency component, we should present the two as intertwined, especially if it decreases the cost. One piece of analysis we haven't seen is if you get a different reduction in demand with efficiency market transformation programs.*
- *I would like to see a scenario with zero load growth, choosing efficiency resources. How you pay for it is the question, maybe with allowances and other sources.*
- *The data ACEEE has looked at in existing programs is energy efficiency reduces load growth by 0.5-1% annually, and average load growth is about 1% annually. But what we need is an IPM run to show more quantitative data to say that's true. We are ready to do that with IPM.*
 - *Chris Sherry noted that modeling efficiency as a supply resource in IPM would not tell us what level of funding increase in existing market transformation programs would be necessary to achieve the modeled efficiency resource realized in IPM. An additional analysis outside of IPM would be required to give us a sense of what level of increased load reduction would be achievable given different levels of program funding.*
 - *Joe Fontaine NH DES wanted to clarify the emissions are modeled to flat line from 2006, which is still a reduction from current (2004) levels.*
- *We'd like to see at a minimum some recognition by policy makers of non-emitting generation in the past and future. Specifically we would like to see the benefits of nuclear generators explained.*
- *We've seen runs for first time this morning. I agree we need a cap. But, how much of a cap can we afford? Some of the prices look scary. I see energy efficiency as the key for dealing with this puzzle so we see mitigation of price impacts.*

IV. RFF Recent Allocation Study and Initial Respondents

After lunch, Dallas Burtraw of RFF gave a presentation on a recent RFF allocation study. This presentation is on the RGGI website at:

http://www.rggi.org/stakeholder_schedule.htm#summaries

During his presentation, Dallas pointed out that the scenario they modeled probably translated to more than the 35% below 1990 level that RGGI recently modeled.

The following clarifying questions and comments from one or more members of the Stakeholder Group, Resource Panel, and observers were then asked (*questions posed are in italics* and responses in regular font by Dallas Burtraw unless otherwise specified):

When you were comparing shareholder value inside and outside RGGI, how do the pie charts relate?

Each pie chart on the bottom goes with a set of bar charts on top. The third pie chart and set of bars is the net of “inside and outside” of RGGI.

Can you explain your cost-benefit analysis?

Producer surplus is revenue minus cost. Consumer surplus is how much they pay compared to how much they would be willing to pay. Public finance literature suggests \$1 spent by government is worth more than \$1 spent by private sector, but we assume \$1 spent by program equals \$1 in our analysis.

What does the model assume government does with auction revenues?

No assumption made about how government spends it. Valued at a dollar for a dollar.

Please expand on last point of compensation and equity over time.

Firms make investments based on current expectations, so changing regulation disrupts investment decisions. However, over time an announced change in a regulation gives the industry time to respond. Also, over time previous investments are depreciated, and investment profiles can be adjusted. So the amount of compensation that is justified when there is anticipation of a policy change is less than the amount of compensation when there is a surprise. Hence, in the short run compensation may be a compelling criterion for how allowances are distributed initially. But in long run, given that time provides an opportunity to respond to emissions policy, efficiency goals may be a stronger criterion.

What is your updating rule, and on what basis are your bookend scenarios given?

Carbon emitters are updated on the basis of their share of electricity generation. See table 1 at the back of the presentation.

Does your model update every year?

There is a two-year lag, with updates based on two years prior. In general, the longer the lag, the more updating looks like historic. One can design an updating approach that resembles historic allocation by lengthening the lag.

Did you look at the idea of allocation to consumers or distribution companies?

Allocating to consumers would be similar to auction.

Is there a reason why you chose 1999 as a baseline for historic allocation? Wouldn't a multi year average be better? Was 1999 a representative year of distribution in the region?

We used 1999, as that was the major data overhaul we had. 1999 was not necessarily a representative year of generation in the region. Moreover there are considerable changes in plant ownership and gas plant construction. Choosing another year as a baseline for historic allocation would have an effect on shareholder value of firms.

Is your model an econometric model or an electricity model?

I think of it as a baby cousin to the IPM model, as it's an electricity simulation model with demand response. We don't show transmission constraints within regions, but show it between regions. It includes capacity payments, etc.,

Have your assumptions been vetted?

Our analysis has been used in six to eight peer reviewed articles, but that may not be enough. We'd be happy to have the stakeholder group review the model.

What percent of auction revenues would it take to completely compensate generators, and what's left for consumers?

That's an ill-defined question. You can look at level of firm, or the industry level, etc. The answer depends whether you just compensate the losers, or if you compensate everyone. In that analysis it took about 7% of allowances to compensate the generators when one viewed the cost to the industry as a whole. In that sense, we were taking profits from winners and giving it to losers, and compensating to make up the difference. But if you cannot take profits from winners, then the number was 22%.

How does your model reflect cost of capital in an auction?

We use a constant cost of capital for firms. The question suggests that an auction may pose a financing cost for new projects that might raise the cost of capital. It is noteworthy that the auction in Title IV of the Clean Air Act was intended to correct a cost of capital problem. In that case, 97% of allowances are distributed on historic basis. The auction provided a safeguard that some allowances would be available to new sources and it was intended to help them achieve financing.

What do you do to determine market prices?

We assume everything priced at opportunity cost in competitive regions. If you use allowance to generate electricity, you generate a profit.

Three stakeholders gave prepared responses to start off the discussion of the following allocation discussion question:

What should States take away from this study, and generally how should they approach allowance allocation?

1. Michael J Bradley, Northeast Greenhouse Gas Coalition

This report provides the opportunity for constructive dialogue. Focusing on a distribution process for allocation (“apportionment”) to states should be on the agenda next time, as it is more pressing.

We are assuming states won’t allocate consistently, based on NO_x SIP call. The Northeast Greenhouse Gas coalition would like to see consistent allocation across states.

We’d like to see more data presented consistently across and beyond 2015, besides 2025. We’d also have more confidence in the model if it applied to a national level too. In addition, we originally assumed in model that allocation applied consistently across states.

Auction approach

I don’t think an auction policy will fly on a national scale, so we shouldn’t focus too much on it in RGGI. There may be authority issues about whether states can use an auction. Also, the transaction costs of an auction may lead to a higher allowance price, greater leakage potential, and decreased benefits.

Updating approach

There are discrepancies between an updating approach and an historic one due to output subsidy effect. I question how real and dramatic it will be. It assumes companies in near term will discount bid price in market to position themselves 2 to 5 years down the line for a higher allowance in the end. In the market, there are a lot of other drivers in the bid price. Market realities of load prices. The longer out the updating mechanism is applied, the less they will assume in bid strategy. But, given the uncertainty of the process, the traders call the subsidy effect relatively minor. Emphasis will be on near-term market performance. He stressed the need to consider the reality of this dynamic.

ICF modeling forecasts low allowance prices compared to RFF. Future value of allowance has high degree of uncertainty, so unlikely to build into bid price. Secondly, this has to be taken into account with how other bid players are acting in their bidding and with their assets.

The Northeast GHG coalition encourages the Staff Working Group to think about allocation impacts and the benefits of output updating:

- In theory, output based updating does it efficiently and neatly
- It also encourages newer, cleaner generation to go online easier
- But the Northeast GHG coalition disagrees with updating theory, it’s reality that counts.

This presentation is on the RGGI website at:

http://www.rggi.org/stakeholder_schedule.htm#summaries

Mark Younger, consultant to AES

Mark Younger of Slater Consulting gave a presentation with a response to the RFF study. This presentation is on the RGGI website at:

http://www.rggi.org/stakeholder_schedule.htm#summaries

CO₂ reductions are driven by the cap, not the allocation methodology. However, he emphasized that allocation is the most important issue that will determine whether RGGI will expand to a national policy.

AES disagrees with some of the RFF assumptions, especially that all generators in the deregulated markets sell power at market clearing prices. With green power and others, power is sold via contracts well in advance at set prices.

He argued that an auctioning approach could be perilous, and that a historic allocation approach, potentially with long-term updating is best.

Larry DeWitt, Pace University Law Center

Larry DeWitt of the Pace University Law Center presented his response to the RFF study. This presentation is on the RGGI website at:
http://www.rggi.org/stakeholder_schedule.htm#summaries

Larry agreed with Mark that this is a critical issue, but said that consumers should get the value of the allowances as they are paying for the program in terms of higher electricity prices.

What should States take away from this study, and generally how should they approach allowance allocation?

Other Stakeholders, Resource Panel members, Staff Working Group members, and observers then had the following responses to the above question (*questions in italics*, answers from initial respondents in regular font):

Could Larry DeWitt speak to the issue that Michael Bradley raised that auctions are not a good model for the federal program?

Larry DeWitt said an auction is most effective market-based way to determine the value of allowances.

Michael Bradley said that an auction process is probably most efficient way to address a problem like this, but the political climate is not close to accepting a climate program largely based on an auction process. He would like to see a process put in place in RGGI that enhances the possibility of expanding to a national program. Michael added that the higher the price, the stronger the import incentive. The report says that both historic and auction approaches raises price more than the updating approach.

Larry DeWitt said it didn't have to be an auction, but some sort of pricing mechanism to charge generators should be included. He didn't see why an auction would increase leakage. By maintaining control of allowances, consumers would benefit by controlling leakage issues.

Is there a difference in the market price between historical vs. auctioning?

Dallas replied that there is no difference between historic and auction allocation. In addition, over time, with a longer lag, updating will look more like the historical approach and this serves to erode the price advantage that exists with an updating approach.

When SO₂ and NO_x programs were created before restructuring in the northeast wholesale markets were very different. We are no longer able to look at units and recapture windfall profits through the ratemaking process. The value of allowances is different under deregulation. We may have a limited number of allowances going to generators in near term, and increase the value going to consumers over time. There is little on the table at national level for now, and we have a real opportunity to develop national policy and make program more saleable.

Larry DeWitt was asked why earlier he advocated 50% allocations to consumers, but now advocating 100%. Why has his position changed?

Larry DeWitt responded by saying that Dallas helped us see that the generators as a whole come out neutral, and coal generation has been benefiting from negative externality for a number of years, and third, most generators can shift their fuel mix.

Consumers and generators may have divergent interests. Will RGGI be a model for federal policy? Like asking if ISO NE is a model for FERC standard model rules. We'll be waiting a long time for federal policy. Agencies should focus on regional policy.

If allowances are used in large measure to invest in energy efficiency, it will reduce leakage. We don't advocate auctions specifically, as long as there is a direct allocation to consumers.

If a government auction was a non-starter nationally, the distribution of credits to distribution companies on behalf of consumers allows buyers and sellers to trade and revenues would flow back to distribution companies via consumers, and political implications would be very different than government auctions. Generators facing long-term contracts do have some constraints to increase prices. This can be recognized in allocation and over time this issue will decline.

Some folks are comparing old allocation schemes under cost of service regulation to today under competitive pricing. Under competition, allocations should be to consumers, and we've let them slip away in the past. We need to figure out how generators do not obstruct this too much. Main argument to kill or make this happen will be the program cost. Two ways to make the program cheap: 1. do nothing, 2. mitigate cost to consumers.

Dallas was asked how to translate compensation early in the program and efficiency late in program? Increase the portion of allowances to be auctioned later?

Dallas replied he was thinking phase in one type of allocation scheme over time. Efficiency results through historic and auction the same over time within the northeast power sector. However, there are over-arching efficiency reasons favoring an auction. One has to do with effects outside the electricity sector, which is the so-called general equilibrium or macroeconomic perspective that strongly favors an auction approach. Half of the nation has cost of service regulation in the electricity sector. An auction approach is much more efficient than historic allocation in these regions. If RGGI is to serve as a model for a national program, then the auction precedent is valuable. Finally, an auction approach provides the simplest way to implement an economy-wide policy that reaches beyond the electricity sector, which everyone agrees would be more efficient.

What would be an efficient mechanism to distribute value to consumers? Richard Cowart suggested it going back into ratepayers and customers. What happens if allocation proceeds do

not go back into wholesale power prices, they would in effect raise the cost of the cap. If proceeds go into DSM programs, it could decrease pressure on prices.

Mark Buzel suggested looking at the IPM model and how it has provided stakeholder participation, while there has been no opportunity for stakeholder input or participation in the RFF modeling, nor have stakeholders had an opportunity to see detailed model output, only high level summary reports. Cap will have 5-10% impact on financial result for generators (e.g., the difference between a 15% and 20% reduction). Auctioning allowances could have a significantly greater impact. Need to revisit some assumptions behind model in an open process. We have contracts going into the 2020's, so they won't end soon.

Michael J. Bradley added that we've learned in the past that the northeast is willing to pay more for environmental benefits in the region. In the past, there were environmental benefits in region, and leveraged regionally and nationally. Replicated at federal level later on. If policy program is reasonable, we stand a much better chance to leverage this program on a federal basis.

This boils down to implications of an auction: who benefits, and who gets harmed. I don't see why someone who ends up buying vs. given allowances is necessarily disadvantaged. Maybe there are credit stipulations on buyers. The allowance price is the critical factor as to what units run and which shut down. We need to understand this better.

We would like more time to understand how this model works. You talked about doing modeling runs with allocations. We'd like to see those modeling runs before using results to set policy.

Our coalition needs time to see modeling runs with allocations built in.

Dallas showed that the value of nuclear sources goes down under one of the approaches to updating allocation, and this may also be the case to other non-emitting sources. This seems like the opposite of what you want. Furthermore, the reference case assumes that all nuclear units re-license. A handful may not be re-licensed. 15 units in RGGI states, only 1 re-licensed, 4 pending, and they are on an economic bubble and may not be re-licensed because of other factors. Devaluing the assets further may ensure they are not re-licensed.

From experience, grandfathering can be the simplest way to get a program up and running. More consistent you can be internationally, the better. Europe picked grandfathering.

Results in the updating case seem extreme, and drives odd results such as decreasing value of nuclear. Maybe let's fully vet RFF study before giving credence to these cases. Dallas said allocation doesn't change cost, only distribution. I don't agree, if you take some allocation funds and create a new player in the form of an entity that is supplying conservation, the supply curve can change and change the overall costs of the program to everyone, not just distribution of costs and benefits.

Mark Younger added the majority of recent retirements in New York have been coal units, so coal owners are not rolling in coins, as was claimed by Larry DeWitt, and there are some other costs there that have been ignored. Part of what keeps generators from coming out more negative under auction is the hydro, nuclear, RPS, and NYPPA units.

In response to the issue of long-term contracts, Larry DeWitt said long-term contracts do establish risk on part of buyer and seller, and generally assume a certain degree of regulatory risk, already.

V. Model Rule and MOU Outlines

Model Rule:

Bill Lamkin of MA DEP then gave a brief presentation on the Model Rule “Bricks”. This presentation is on the RGGI website at:

http://www.rggi.org/stakeholder_schedule.htm#summaries

Bill Lamkin suggested the SWG is *leaning* in the following directions for the draft model rule:

- State allowance apportionment will probably be based on average current emissions
- Probably be new source set-aside, with implementation likely state-by-state
- Opt-ins will probably not be considered, for several reasons
- Compliance period of 3 years
- Will allow banking
- Will also be some procedure for early action credits
- A standard approach to offsets with possible geographic and other limitations
- Penalties and Enforcement would be based on some multiple of overage to be paid in future emission reductions, similar to 3:1 in the Acid Rain program.
- Monitoring is likely to be similar to the Acid Rain program.

MOU Outline:

Franz Litz of NY said he doesn't expect MOU to be signed until final meeting of agency heads, late July at earliest. He added that the Staff Working Group is humbly bringing recommendations to the agency heads.

Franz then showed an MOU slide. This slide is on the RGGI website at:

http://www.rggi.org/stakeholder_schedule.htm#summaries. The Staff Working Group will be focusing discussions on bricks shaded in blue at the next meeting.

Franz said the states are leaning toward allocation being done on a state-by-state basis, and a method for adding or dropping states from the program still needs to be developed. Another issue will be whether or not and what to recommend in terms of energy efficiency policies. Finally, the states will need to determine whether there should be a formal body or less formal body to deal with issues that arise post model rule.

He ended by stressing that the thinking and logic behind the recommendations are likely more important than the recommendations themselves.

VI. Remaining Steps in RGGI Process

Sonia Hamel of MA described the process of how the SWG has kept agency heads in the loop with web-based briefings and presentations. There is also a small group of staff doing state-by-

state briefings, looking at issues which have come up for individual states. We are listening to state-by-state issues and compiling initial proposal over the next few weeks.

The Staff Working Group is meeting with agency heads at the end of April, feeding stakeholder input into Agency heads, and presenting updated modeling results. The focus of the meeting will be on key issues, and identifying areas of agreement and where more work needs to be done. Then the SWG will look at issues that need further development. Next meeting with agency heads will be the middle to end of June. At the moment, it is unclear if additional work and meetings are needed. One of our roles is to present the draft model rule itself to stakeholders for review. We envision a 30- to 60-day regional comment period for the draft model rule.

Franz Litz added that the next stakeholder meeting will be May 19th in Boston at Foley Hoag's offices.

The following questions and comments were made by one or more Stakeholders, Resource Panel members, and observers (*questions in italics*, responses from Staff Working Group in regular font):

State-by-State caps—will they be determined by a more formulaic methodology or individual negotiation? It will establish more certainty and clarity if more formulaic.

Franz Litz said there has been significant thought put into this. The Staff Working Group doesn't presume to have much influence. Our leaning is to recommend that apportionment be done by historic emissions.

You may want to consider additional MOU bricks: applicability to other sources beyond the electricity sector. Also something that recognizes possibility to expand to a national program and how RGGI will merge with the national program.

May need to address issue of how reporting requirements affect the model rule.

What is under the umbrella of complementary energy policies?

Franz Litz responded that energy efficiency is a major driving force. Complementary policies may be incorporated in RGGI (e.g., energy efficiency). Leakage may also be addressed in this brick.

It would be ideal if allowances were allocated within states the same way that they are between states.

I want to understand the process. If there is a MOU and a model rule, how specific do you envision the MOU to be?

Franz Litz said the key response is notion of sovereignty. We can't commit ourselves to circumvent sovereign rights of states. We're trying to get in a round of changes during the 60-day period before any one state goes through with their rulemaking.

Try to find ways to hold down costs in implementation. E.g. look for other ways besides requiring hardware additions. Also consider adding in some process for stakeholder group to reconvene to revisit MOU.

I'd like to hear what recommendations in MOU could effect electricity markets.

Is there a consideration to include legislative briefings for individual states and agencies?

Sonia Hamel said legislators are sometimes included in state briefings, but it varies state by state.

Apportionment based on historic emissions may put RGGI in an awful position to develop into a national program.

Franz Litz said if you use any other metric than emissions, some states end up with larger reduction targets than others, and some even end up having growth targets. Sonia Hamel added this method also made it easier for other states to come in as they are.

I didn't hear time built in for this group to respond to MOU during that 60-day period.

Franz Litz said that if that's what principals want, that's what we'll do. The MOU is a political document. Sonia Hamel added that everyone will see all the pieces of it as we move on.

Next meeting: May 19th Boston at Foley Hoag.

VII. Next Steps / To Do's

- Post all presentations on RGGI website (*NJ DEP*)
- Write and circulate meeting summary (*Raab Associates, Ltd.*)

RGGI Stakeholder Meeting #7

April 6, 2005

Attendance List

Affiliation	Name	5/20/04	6/24/04	9/13/04	11/12/04	2/16/05	4/6/05
Staff Working Group							
CT DEP	Chris James		X		X		
CT DEP	Chris Nelson	X		X		X	X
CT DPUC	Michael Chowaniec					X	
DE DNREC	Phillip Cherry		X	X	X	X	X
DE DNREC	Valerie Gray					X	
DE PSC	Bruce Burcat				X		
DE PSC	Robert Howatt				X		
ECP	Bill Breckenridge				X	X	
MA DEP	Bill Lamkin			X		X	X
MA DEP	Nancy Seidman		X		X		X
MA DOER	Dwayne Breger	X	X	X	X	X	X
MA DTE	Meera Bhabtia						X
MA DTE	Amy Barad						X
MA OCD	Sonia Hamel	X	X	X	X	X	X
MD-DOE	Gene Higa	X	X	X	X	X	
MD-Energy Admin	Michael Li						
ME DEP	Kevin Macdonald		X				
ME DEP	James Brooks						
ME PUC	Dennis Bergeron						
NB	Darwin Curtis						
NH DES	Joanne Morin	X		X			
NH DES	Bob Scott						
NH DES	Andy Bodnarik						
NH DES	Joe Fontaine		X	X			X
NH PUC	Maureen Sirois						
NJ BPU	Michael Winka						
NJ DEP	Chris Sherry	X	X	X	X	X	X
NJ DEP	Joe Carpenter						
NJ DEP	Jeanne Herb						
NJ DEP	Sam Wolfe						
NY DEC	Franz Litz	X	X	X	X	X	X
NYC DEC	Jeffrey Mapes					X	X
NY DEC	Michael Sheehan	X		X	X	X	X
NY DEC	Thomas McGuire	X	X	X		X	
NY DEC	Lois New	X	X	X	X	X	X
NY DEC	Mark Lowery	X		X	X	X	

NY DEC	Jason Denham		X			X	
NY PSC	John D'Aloia	X	X	X	X	X	X
NY PSC	Tina Palmero				X	X	X
NYSERDA	Karl Michael	X	X	X	X	X	X
NYSERDA	Dave Coup					X	X
PA DEP	Joe Sherrick	X	X			X	X
PA DEP	Don Brown				X		
RI DEM	Steve Majkut	X					
VT DEC	Dick Valentinetti			X			
VT PSB	David Farnsworth			X			X

Affiliation	Name	5/20/04	6/24/04	9/13/04	11/12/04	2/16/05	4/6/05
Stakeholder Group							
ACEEE	Bill Prindle	X	X	X	X		X
AES	Mark Buzel	X	X	X	X	X	X
AES	Chris Wentlent						
CLF	Seth Kaplan	X		X	X	X	X
Constellation	John Quinn	X	X	X	X	X	X
Dominion	Dan Weekley	X	X	X	X		
Dominion	Lenny Dupuis	X	X	X		X	X
Dom. Energy NE	Paula Hamel			X	X	X	X
EDF	Jessica Holliday	X		X	X	X	X
Entergy	Brent Dorsey	X		X	X	X	
Entergy	Jeff Williams		X				
Entergy	Steve Melancon						X
Environment NE	Dan Sossland						
Environment NE	Derek Murrow	X	X	X	X	X	X
Environment NE	Heather Kaplan				X	X	X
IEP of NJ	Steve Gabel		X	X			
IEP of NJ	Mally Becker	X					
International Paper	Doug Stilwell						
Int'l Paper	Karen B Risse	X	X	X	X	X	X
Keyspan	Bob Teetz	X	X	X	X	X	
Keyspan	Cathy Waxman	X	X	X	X	X	X
Maine Public Adv.	Steve Ward	X	X	X		X	X
NEGT	Susan Flash		X				
NGRID	Joe Kwasnik	X	X	X	X	X	X
NE GHG Coalition	Michael J Bradley	X		X	X	X	X
NE GHG Coalition	Brian Jones	X	X	X	X	X	X
NRDC	Dale Bryk	X	X	X	X		
NRDC	Luis Martinez	X			X	X	X
Northeast Utilities	Jon Russell	X	X	X	X	X	X
NY Coalition	John G.Holsapple	X	X	X	X	X	X
NY Coalition	Sandra Meier	X	X				X
PAConsumerAdv	Sonny Popowsky		X	X		X	X
Office, PA Cons Adv	Griffiths, Dan	X			X		

Pace Law Center	Larry De Witt	X	X	X	X	X	X
PIRG	Rob Sargent	X	X	X			X
PSEG	Ron Drewnowski	X	X	X		X	X
PSEG	Christine Neely	X		X	X		
PSEG	James Hough		X				
The NE Council	Deirdre Savage	X	X	X	X		
The NE Council	Kevin Conroy						X
UCS	Deb Donovan	X		X		X	
UCS	Michelle Manion	X	X	X	X	X	X
UTC	Christopher Powell	X		X	X	X	X

Affiliation	Name	5/20/04	6/24/04	9/13/04	1/12/04	2/16/05	4/06/05
Resource Panel							
ISO-NE	Mark Babula						
ISO-NE	Jim Platts		X	X	X		X
NatSource	Richard Rosenzweig						
NatSource	Ben Feldman		X	X		X	X
NatSource	Michael Intrator				X		
NESCAUM	Ken Colburn			X		X	
NESCAUM	Suzanne Watson	X	X	X	X		
NESCAUM	Kelly Levin					X	X
NYISO	Dave Lawrence			X		X	X
NYISO	Aaron Breidenbaugh	X		X	X	X	
Pew Center	Sally Ericsson	X					
Pew Center	Judi Greenwald	X	X	X	X	X	X
PJM	Susan Covino				X		
PJM	Kenneth A. Schuyler, PE	X					
PJM	Joe Kerecman	X				X	X
RAP	Richard Cowart	X	X	X	X	X	X
RFF	Joe Kruger	X	X	X	X	X	
WRI	Jonathan Pershing	X	X		X		X
WRI	Andrew Aulisi		X			X	X
Facilitators/Consultants							
Raab Assoc., Ltd.	Jonathan Raab	X	X	X	X	X	X
Raab Assoc., Ltd.	Peter Wortsman	X	X	X	X		X
Raab Assoc., Ltd.	Susan Rivo	X	X	X		X	X
ICF Consulting	Steve Fine				X	X	X
ICF Consulting	Chris McCracken				X	X	X

Affiliation	Name	2/16/05	4/6/05
Observers			
Aeschliman, Lea	Pew Charitable Trust	X	X
Alexander, Jack	Entergy, Inc.		X
Angoorly, Caroline	NRG	X	
Ariaza, Joe	Reliant Energy		X
Ashford, Michael S.	The Climate Trust	X	
Asteriadis, Sakis	NEPOOL GIS Program Manager	X	
Austin, Frank	Stone & Webster	X	X
Bailie, Alison	Tellus Institute		X
Baltera, Victor	Sullivan & Worcester LLP		X
Beal, Lisa	Interstate Natural Gas Assoc. of America	X	
Bergey, Joy	Citizens for Pennsylvania's Future		X
Beaudin, Bernie	Cogentrix		X
Blankenship, Julia	Cinergy Services	X	
Bluestein, Joel	EEA		X
Breslow, Marc	Mass Climate Action Network	X	X
Burtraw, Dallas (Dennis)	Resources for the Future		X
Buttazzoni, Marco	Environmental Resources Trust	X	X
Chattopadhyay, Amit	Malcolm Pimie Inc.	X	
Chestone, Alissa	Access Industries	X	
Conway, Caroline	MTC		X
Coyne, Martin	Platts Publishing	X	X
Clark, Sean	The Climate Trust	X	
Crookshank, Steve	American Petroleum Institute		X
Cummings, Paul	Harvard grad student		X
Cunningham, Bill	Unions for Jobs and the Environment	X	
Cunningham, Dan	PSEG	X	X
Cusack, John	Gifford Park Associates	X	
DeCassay, Matt	Levitan & Associates		X
Dollois, Philippe	Global Energy Markets Deloitte & Touche		X
Drucker, Cynthia	Drucker & Associates		X
Eckersley, Olivia	IETA	X	
Fontaine, Peter J.	Cozen O'Connor	X	
Finelly, Anton	CRMC		X
Gage, Laurie	Cantor Fitzgerald Environmental Brokerage	X	
Gorke, Franke	MASSPIRG		X
Greer, Diane	NYC Apollo Alliance	X	
Grace, Bob	FPL Group	X	
Gustin, Carl	Gustin ???		X
Gutrich, John	Dartmouth Enviro. Studies Program		X
Hall, Michael		X	
Hampp, John	Sustainable Energy Advantage	X	
Hamrin, Jan	Center for Resource Solutions	X	
Hoag, Ethan	Sierra Club		X
Holdsworth, Eric	EEI	X	X
Heck, Werner	Heck Associates	X	
Jacobson, Lisa	Business Council for Sustainable Energy	X	
Jain, Regina	LaCapra Associates		X

Johnston, Lucy	Synapse	X	X
Jones, Sue	Natural Resources Council of Maine	X	
Jope, Andrew	U of Vermont	X	
Karlic, Cynthia	NRG Energy, Inc.		X
Kilgore, Kedin	Natsource, LLC	X	
Krotoff, Oleg	Con Edison of NY, Inc.	X	
Koda, Richard	Koda Consulting for UWUA& IBEW	X	
Lane, Courtney	NEEP		X
Langley, Diane	Clean Air & Energy Consulting		X
LeBlanc, Alice	Environmental and Economic Consulting	X	
Linky, Edward	USEPA Region II	X	
Maggiani, Bob	American National Power		X
Maillet, Bruce	Shaw E & I	X	
Marzilli, James	MA House of Representatives	X	
Mason, Ashley	CSG		X
Mernick, Mike	ICF Consulting	X	
Michals, Julie	NEEP		X
Miletich, Radmila	Independent Power Producers of NY	X	X
Milkowski, Stefan	Columbia journalism student	X	
Moore, Robert	EANY	X	
Moore, Michael	Falcon ES	X	
Murdock, Sarah W.	Nature Conservancy		X
Nagle, Kara	Headwaters	X	X
Neal, Don	Calpine	X	X
Parker, Lisa	BP Emissions Markets Group	X	
Paul,, John	CEED	X	X
Proegler, Mark	BP Emissions Markets Group		X
Quillian, Mary	Nuclear Energy Institute	X	X
Rabinowitz, Robert	Chicago Climate Exchange	X	
Rawls, Tom	THR Associates. LLC	X	
Rio, Robert	AIM	X	X
Roberts, Gail	Platts	X	
Ross, Marilyn	MA DTE EPB		X
Rusch, Emily	NJPIRG		X
Sandell, Layla	EPRI	X	
Schneider, Marcus	EF		X
Shakespeare, David			X
Shelley, Michael	Ecology & Environment		X
Short, Bill	Ridgewood Power Management, LLC		X
Siegel, Joe	EPA	X	
Sinclair, Mark	British Consulate		X
Skernolis, Ed	Waste Management, Inc.	X	
Smallridge, Lynn	FPL Group		X
Smith, Arthur	NiSource, Inc.		X
Smith, Maureen	Center for Resource Solutions	X	
South, David	Technology & Market Solutions, LLC		X
Space, William	Brown Univ.	X	X
Spencer, Greg	Blue Source	X	
Spinney, Peter	NEUCo	X	
Thakur, Joy	Suez Energy NA		X
Thorpe, Jed	Clean Water Action		X

Tierney, Susan	Analysis Group	X	
Tranter, Laura		X	
Trisko, Eugene	UMWA	X	X
Tuffey, Thomas	PennFuture	X	
Van Atten, Christopher	MJB & A	X	X
Vanderlan, Christine	Environmental Advocates of NY	X	X
Weiner, Scott	Rutgers	X	X
White, Carol	National Grid		X
Wilby, David	IEP of Maine		X
Willard, Norman	EPA		X
Wintergreen, Jay	First Environment Inc. Corporate HQ	X	
Wood, Susan	AgCert International Ltd.	X	
Yang, Bunli	E4		X
Yost, Peter	PSEG Power	X	X
Younger, Mark	Slater Consulting	X	X
Zimmerman, Julianne	GreenFuel Technologies	X	X