

Webinar #5: Social Cost of Carbon Q&A

7/22/2020

Overview

On July 21, 2020 Puget Sound Energy hosted an online meeting with stakeholders to discuss the social cost of carbon. PSE informed stakeholders of the methodology used to model the social cost of carbon in the 2021 IRP analysis and the methodology used to calculate upstream natural gas emissions. Stakeholders shared their input on possible scenarios or sensitivities regarding the social cost of carbon. Additionally, participants were able to ask questions and make comments using a chat box provided by the Go2Meeting platform.

Below is a report of the questions submitted to the chat box. Answers to the questions were provided verbally by IRP staff during the webinar. Please note that questions were answered in order of relevance to the topic currently being discussed. Questions regarding other topics were answered at the end of the webinar session.

To view a recording of the webinar and to hear responses from staff, please visit the project website at pse-irp.participate.online.

Attendees

A total of 47 stakeholders and PSE staff attended the webinar, plus another seven attendees who called into the meeting and did not identify themselves (54 people total).

Attendees included: Amy Wheeless, Ashton, Bill Pascoe, Brian Grunkemeyer, Brian Robertson, Charlie Black, Cody Duncan, Dan Kirschner, Don Marsh, Doug Howell, Edward Finklea, Elyette Weinstein, Fred Heutte, James Adcock, Jane Lindley, Jennifer Mersing, Jim Loring, Joni Bosh, Kary Buri, Kathi Scanlan, Katie Ware, Kevin Jones, Kyle Frankiewich, Liz Klumpp, Devin McGreal, Michael Laurie, Michael Noreika, Mike Hopkins, Ned Whiting, R. C. Olson, Richard Sawyer, Robert Briggs, Sarah Laycock, Sophia Spencer, Stephanie Chase, Ted Drennan, Virginia Lohr, Vlad Gutman-Britten, and Willard (Bill) Westre.

Questions Received

Questions from attendees are posted in the order in which they were received. The webinar began at 1:30 PM PDT and ended at 4:29 PM PDT.

Name	Time Sent	Comment
Alison Peters	1:35 PM	Hello to everyone joining the webinar today. Just a couple of friendly reminders to stay muted until we stop for questions. You are also welcome to type in your name to let the group know who is here today.
ET69	1:36 PM	To be really safe...don't ride a bike in cities. 😊
Kyle Frankiewicz	1:39 PM	Hello all, Kyle Frankiewicz with WUTC staff here
Jane Findley	1:42 PM	What level of International Association for Public Participation (IAP2) engagement will be used in the meeting today? Inform, Consult, Involve or a combination? Thanks!
Penny Mabie	1:44 PM	Thank you for your question. As mentioned, this webinar will be at Inform and Consult on the IAP2 Spectrum.
Virginia Lohr	1:45 PM	What are the levels of public participation anticipated for the methane portion of the presentation? You only told us about the participation for the SCC portion of the talk. It would be helpful to have this information clearly communicated to us before a meeting.
Joni Bosh	1:46 PM	Question slide 11 and appendix - Why go through the elaborate conversion from metric tons to short tons?
Doug Howell	1:47 PM	I'm hearing an echo from Elizabeth
James Adcock	1:47 PM	Does one of the facilitators still have their mic on? Please *everyone* except of Elisabeth make sure your mic is muted so we can try to get rid of the echo.
Kevin Jones	1:48 PM	Slide 12: Will that SCC value be static over the entire analysis period or will the values "escalate" over the analysis period?
Kevin Jones	1:50 PM	Slide 12: - Will PSE adjust the SCC value to "then year dollars" in their analysis?
Doug Howell	1:50 PM	Slide 12 - applies to EE. Doesn't applying scc to dispatch model affect how it impacts energy efficiency.
James Adcock	1:50 PM	Jim Adcock Raise Hand Slide 14
Doug Howell	1:50 PM	In the real world model, there is no carbon tax. But in the real world, the are very real carbon impacts.
Charlie Black	1:51 PM	Disagre with characterization of including SCC at dispatch as a "tax". It is not a tax, it is an environmental externality.

Kathi Scanlan	1:51 PM	Staff recommends an update and annual adjustment (from 2018 to 2019 dollars per metric ton); the Commission's website table should be updated by the end of July (for its calculation, staff uses BEA GDP Table 1.1.4 Annual Price Indexes Line 1, last revised May 28, 2020)
Fred Huette	1:51 PM	Why is PSE using a 2.5% inflation rate? Most estimates (for example US Bureau of Economic Analysis) tend to be around 2.1%. This won't make much difference in the short run but can have an effect over 10+ years.
Joni Bosh	1:54 PM	Question Slide 14 - This slide says SCC is added to conservation, but where is that demonstrated in these slides? Excluding SCC from dispatch modelint makes it more likely that new thrmal resources will run more; we would urge you to run the SCC as a variable cost.
Charlie Black	1:56 PM	There is nothing in CETA that precludes a utility from using SCC as a cost adder at time of dispatch in its IRP modeling or resource acquisition evaluation. To be clear, PSE is proposing to treat SCC as a tax, which it is not.
Irena Netik	1:56 PM	Response to Virginia Lohr's question: Upstream emissions which will be discussed later in this meeting is inform on the IAP2 spectrum. Thank you.
Charlie Black	1:58 PM	I suggest that PSE review the concept of environmental externmalities and how they are properly used to reflect costs that are not priced in the marketplace.
James Adcock	2:00 PM	Slide 14 -- If the resource decision has already been made, then for what reason are you running a subsequent resource dispatch model?
Michael Laurie	2:01 PM	To follow on Doug's question about slide 13. I see that SCC plays a role in deciding to select conservation at the front end but we all know that how things play out from year to year will always vary from the the expectations in planning and IRP efforts. So when there is a greater demand for energy than planned for and if that demand exceeds what conservation and renewables were assumed to be sufficient it appears that you would be in a situation where you will be making energy resource decisions that no longer include SCC.
Kyle Frankiewich	2:04 PM	Slide 14: To echo Joni's question, I'm not tracking on how the fixed-cost approach to SCC impacts the portfolio optimization. Does the model 'know' that dispatching a gas plant is adding more costs to the total portfolio than are shown in dispatch? Happy to wait til later slides
Kyle Frankiewich	2:06 PM	I understood Elizabeth's use of the word 'tax' as specifying how it would be added to the dispatch model.
Doug Howell	2:07 PM	+++ to Charlie Black's statement

James Adcock	2:09 PM	Re Charlie's concerns -- IRPs are a "public process" and I would like to see Charlie's concerns in this area (as long as everyone else's) discussed, in a discussion, in a public IRP forum.
Kevin Jones	2:10 PM	- Slide 17: Lowest REASONABLE cost
Kevin Jones	2:11 PM	Slide 18: Step 1: How does PSE determine the dispatch plan for thermal plants? What is the dispatch schedule for other PSE assets? What is the capacity factor used for wind and solar during this part of the analysis? Slide 18: Step 4: What is determined when you "re-run the portfolio model"? Slide 18: How is SCC applied to fuel sources, including upstream methane leaks?
Joni Bosh	2:12 PM	+++to kevin's clarification that is lowest REASONABLE cost
Bill Westre	2:15 PM	S-19 What is the source of Tons CO2 - MW? Dispatch %?
Kyle Frankiewich	2:16 PM	I'm understanding the figures in slide 20 as an illustrative example of how SCC out of dispatch lets thermal plants run more, which in turn runs up their total cost relative to alternatives.
Charlie Black	2:16 PM	Does this aproach for treating SCC as a "tax" assume that the SCC is a dollar cost that flows through to PSE ratepayers? If so, that is not a proper way to apply SCC as an environmental externality.
Doug Howell	2:20 PM	Slide 20. How will this affect operations and dispatch of peaker plants?
Katie Ware	2:17 PM	Slide 20: The numbers in the table appear to be round estimates to illustrate the initial principle that SCC-as-adder will result in higher carbon-related costs for a resource, without going into that final round of optimization. Does PSE think the CF difference would be as extreme as 30% v 70%, or did PSE pick a relatively extreme example to help illustrate the idea?
Joni Bosh	2:20 PM	Slide 20 - all else being equal, the SCC as a cost adder increases capacity, which would lead to LCOE going down. Even if LCOE is not the only factor considered, doesn't this lead to dispatch picking the less costly thermal plant more and more frequently in Aurora?
Charlie Black	2:21 PM	In actuality, since the SCC is an environmental externality that is not explicitly priced in the wholesale power market, it is not a dollar cost that would affect PSE's revenue requirements or its retail electric rates under EITHER approach to incorporating SCC. So this calls into question the validity of PSE's analytical approach, including treating SCC as a fixed cost adder OR as a "tax".

James Adcock	2:22 PM	Did Puget ever figure out whether their "80 Year Hydro" include the BPA "fixes" related to the change of BPA dispatch protocols back in the 80s -- i.e. has older Hydro data been corrected to account for current dispatch protocols?
Charlie Black	2:23 PM	However, since the environmental damages caused by GHG emissions are real (albeit unpriced) costs, they should be included in economic dispatching decisions. Another way to say this is that economic dispatch decisions should include all real costs, including both priced and unpriced costs.
Fred Huette	2:26 PM	referring to my previous comment about inflation rate, the NW Council is currently using an average rate of about 2.095% for 2021-40 -- see https://nwcouncil.app.box.com/v/StandardInfoWorkbookv4-2
Kyle Frankiewich	2:27 PM	I'm confused about how this wouldn't change the dispatch. Presumably each iteration will prompt AURORA to select a different proxy resource, which will change the dispatch and cause thermals to run differently from the first iteration of the determinative run.
Kevin Jones	2:28 PM	Regarding inflation rate - is this a PSE decision or is this a UTC decision that is incorporated into the SCC "costs" they publish on their website?
Kyle Frankiewich	2:29 PM	Does the 2nd iteration then take the plant, fully laden with SCC as a fixed cost, and set its dispatch as modeled in the 1st iteration (which would be something other than optimized)?
James Adcock	2:29 PM	I know that PSE doesn't want to include SCC in their modeling of dispatch, but doesn't CETA require in the "must" expression that utilities, including PSE, "must" include SCC in all aspects of modeling for IRP development?
Bill Westre	2:29 PM	S-19 What causes the drop in Tons CO2 in 2025
Vlad Gutman-Britten	2:30 PM	Dispatch is based on marginal cost, not LCOE.
Vlad Gutman-Britten	2:33 PM	How does SCC impact amount of conservation selected? Is EE selected as part of the Aurora portfolio runs?
James Adcock	2:36 PM	How does your modeling model the problem of "once in 20 years extended winter drought" in the decision to (possible) retire existing combined cycle plants?
Charlie Black	2:37 PM	I have a question about the format for these feedback sessions. Is the primary form of "feedback" supposed to just be clarifying questions? Is less opportunity being provided for stakeholders to provide comments and suggestions?

Joni Bosh	2:37 PM	Question slide 21 - In the oval, what is the basis of the "cost adder"? also, the content of the green circle changed a bit since it was presented in december - does that mean some of the data input to the model has changed as well?
James Adcock	2:38 PM	Slide 22 -- for what purposes does PSE use the "Final portfolio dispatch & cost" ?
Michael Laurie	2:41 PM	In comparing conservation to other resources is the loss of revenue from conservation included or ignored?
Joni Bosh	2:41 PM	Where is the SCC value of the DSR added?
Charlie Black	2:47 PM	Thanks for your response. I hope we can put that approach into practice.
Joni Bosh	2:48 PM	To clarify previous question, I understand your explanation of comparing costs of demand and supply side resources, but I am still not clear how the value of SCC is applied to say an individual efficiency measure.
Vlad Gutman-Britten	2:49 PM	But SCC creates a relative benefit for EE as a result.
James Adcock	2:55 PM	How about a Scenario of: West-Coast CO2 tax -- WA, OR, CA ?
Kevin Jones	2:55 PM	Slide 23: What does your statement about upstream emissions mean?
Katie Ware	2:58 PM	Slide 23 suggests upstream emissions will not be included in the base, but (jumping forward) slides 29 et seq suggest PSE will include upstream emissions. Could you please clarify?
Joni Bosh	3:01 PM	We would like to see a scenario that applies the SCC to the variable costs to allow comparisons of the two approaches.
Doug Howell	3:02 PM	+++ on a dispatch scenario
Kevin Jones	3:02 PM	+++ Joni's suggestion for scenarios looking at application of SCC to dispatch
Kyle Frankiewich	3:08 PM	keith's connection is not as good as it could be
Fred Huette	3:10 PM	AR4 is out of date and AR5 should be used, among other things it predates the Paris Agreement. The methane emissions factors were significantly refined in AR5.
Doug Howell	3:10 PM	Slide 30. Have you addressed the complaints raised by the Stockholm Environment Institute about the GREET and GHGenius models?

Robert Briggs	3:12 PM	Slide #30 - Upstream gas emission rate data sources Excuse me if I missed it, but would you please tell us the rates of upstream life-cycle methane leakage that are being assumed as a percentage of methane delivered for both power generation and direct customer use?
Fred Huette	3:13 PM	I will have a comment on the PSCAA and Canadian metrics used in the GHGenius model.
Doug Howell	3:13 PM	Slide 32. How can you focus on gas supply from Canada? This avoids the fundamental climate principle of "leakage"
Don Marsh	3:13 PM	+++ Robert's question. I'm also interested in the methane leakage rate.
Kevin Jones	3:14 PM	Slide 30: Could you provide your rationale for PSE plans to use the 100 vs 20-year GWP for the CO2 equivalent of various GHG's
Doug Howell	3:14 PM	Slide 34. What is the total percentage of leakage from wellhead to end use?
Doug Howell	3:15 PM	Hand raised
Kevin Jones	3:15 PM	Slide 35: Will PSE consider a sensitivity that varies the source of gas (instead of just assuming that all new gas will come from BC)?
Fred Huette	3:16 PM	I will be summarizing a comment NWECC submitted to the NW Council (the doc also includes staff presentation on upstream methane and NWGA letter): https://www.nwcouncil.org/sites/default/files/2020_0616_2.pdf
Robert Briggs	3:19 PM	Keith did not answer my question.
Vlad Gutman-Britten	3:20 PM	Slide 34 I believe is on a CO2 basis, not on a volume basis. Can you please clarify that and provide it on a volume basis?
Robert Briggs	3:22 PM	Slide #34 The GREET model includes data from a robust up-to-date meta-study of methane leakage in the US that found methane leakage rates more than twice as high as those you show on slide #34. Those results were summarized in a 2018 paper by Alvarez et al. in Science. Do you intend to use those data in the 2021 IRP? If not, why not?
Kevin Jones	3:23 PM	Please reply to Fred's comments.

Robert Briggs	3:23 PM	<p>Please explain your justification for using the 100-year GWP value for methane for methane when the IRP study period is limited to 20 years for all other costs and the UN has declared we have just ten years to make major reductions in greenhouse gas emission before causing irreversible damage.</p> <p>AR4 values are out of date. AR5 provides values reflecting current science Please explain you justification using these obviously flawed values in this forward-looking IRP process.</p>
Jane Lindley	3:23 PM	+++ Fred Huette's comment outmoded data - it's critical to have current science/numbers to measure upstream emissions.
Robert Briggs	3:25 PM	<p>Slide #30 - Upstream gas emission rate data sources</p> <p>In the gas section of the 2017 IRP, PSE stated that the percentage of methane leaked by PSE (as distinct from upstream emissions) was 0.5%.</p> <p>a) Is the assumption 0.5% methane leakage on PSE's watch also being assumed for the 2021 IRP?</p> <p>b) Is that leakage included in the values shown for upstream methane emissions?</p> <p>c) What is the basis for the in-house leakage assumptions?</p> <p>d) Is methane leakage by your end-use gas customers included in PSE's greenhouse gas emissions or are they ignored?</p>
Doug Howell	3:27 PM	AR4 is old data. You can go better than that.
Doug Howell	3:28 PM	+++ Yes, do a sensitivity using AR5
Don Marsh	3:29 PM	Ouch. PSE asked for consultation on sensitivities. A reasonable suggestion was just rejected. Disappointed.
ET69	3:30 PM	Agreed!
Kyle Frankiewich	3:31 PM	raised hand
Dan Kirschner	3:34 PM	I will point out that the most recent (2020) EPA emissions rate estimate is 1.0%, not 1.4% as suggested by Mr. Gutman Britten. 1.4% was from the 2018 EPA Inventory.
Fred Huette	3:34 PM	See slide 12 of the NW Council staff presentation for a comparison of estimated upstream methane emission rates. Among them: EDF median 2.84%, EPA median 1.82%.
Dan Kirschner	3:36 PM	The EPA median rate offered by Mr. Huette is from the 2018 inventory and includes both oil and gas systems. The current inventory (2020) estimates 1.0% methane emissions from natural gas systems.

Robert Briggs	3:40 PM	I have attempted to look at the assumptions in GHGenius v4.0a (2016). The documentation is not available. Can you help me gain access to the documentation for this version of the program that has been supplanted? The issue is important because without it we can not tell whether recent research with much higher leakage rates have been included.
Virginia Lohr	3:47 PM	I thought the law said something like "least REASONABLE cost" as what you are to pursue for customers, not just least cost or lowest cost. Is this true? If so, why do you consistently drop the word "reasonable"? This was raised this repeatedly during the last IRP, yet your language didn't seem to change. It's hard to trust you on the important things we can't see, such as what you are actually putting in your models, when we are constantly frustrated by these simple obvious things we can see and have brought up so often, including Kevin Jones' comment earlier in the chat.
Robert Briggs	3:48 PM	Question for Elizabeth, can you explain one more time what questions are answered by the final portfolio dispatch and cost runs?
Don Marsh	3:51 PM	Where does the CETA 2% annual cost premium get factored in? In other words, if a low-emission solution is within 2% of the cost of a higher-emission solution, doesn't CETA mandate the lower emission solution? Or perhaps I don't understand CETA?
Kevin Jones	3:52 PM	One of the objectives of this meeting was to solicit scenario suggestions from the public. Several have been suggested. Could you summarize the suggestions you will consider and pose an open question to others on the call to provide their thoughts?
Robert Briggs	3:52 PM	Another question for Elizabeth: Is SCC not used in the dispatch runs because there is a computational problems in doing so or because you don't believe it belongs there? I'm very sceptical of analyses that treat costs that need to be analyzed at the margin as fixed costs.
Kyle Frankiewicz	3:59 PM	I've heard the company say that they will be running SCC in dispatch as a sensitivity, followed by some participants asking for such an analysis. Can the company clarify that this will be done as a sensitivity, at least, so participants can understand the impacts of this modeling decision? Ah, i think Elizabeth said it again.
Kyle Frankiewicz	4:01 PM	Q about retirements - hand raised
James Adcock	4:02 PM	Raise Hand.
Charlie Black	4:02 PM	PSE has said a number of times that it thinks it is not appropriate to include SCC in dispatch under CETA. Can PSE please provide a written rationale explaining the basis for its position on this, including citing relevant sections of CETA that support its position?
Kyle Frankiewicz	4:07 PM	it would be reflected in a higher overall portfolio cost as well, yes?

Kevin Jones	4:11 PM	raise hand
Joni Bosh	4:12 PM	my connection has gone scratchy - would you write up the explanation that Kyle and Elizabeth just discussed, as I could not hear it. Thanks
Fred Huette	4:12 PM	We will submit the SEI comments in a meeting comment.
Virginia Lohr	4:14 PM	Is it prudent to go with the values of the Agency when so many questions have been raised. Wouldn't the prudent thing to do to be to follow up with what was raised? Pugent Sounng Clean Air Agency
ET69	4:16 PM	What is PSE's biggest concern relative to this process?
Joni Bosh	4:21 PM	Please identify yourself
Joni Bosh	4:22 PM	Thank you
Kyle Frankiewich	4:25 PM	I'd encourage participants to make use of the feedback forms, and would encourage the company to make sure to offer an explanation when the company decides not to adopt a suggestion.