

Climate Impact Advisory Committee

Meeting Minutes

Date: January 7, 2021

Location: Zoom



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|------------------------|---|
| QUORUM | Y |
| Members Present | |
| Kaylee Galloway | X |
| Treva Coe | |
| Phil Thompson | X |
| Ellyn Murphy | X |
| John Yakawich | X |
| Katherine Kissinger | X |
| David Kershner | X |
| Cynthia Mitchell | X |
| Sue Gunn | X |
| Hunter Hassig | X |
| Stevan Harrell | X |
| STAFF Chris Elder | X |

1) Call to Order

2) Review and approval of minutes from November Meeting

Sue Motioned, Dave Seconded, Motion Passed unanimously.

3) Public Comment

Public in attendance

Eddy Ury, ReSources, commented that he submitted an application to join the committee and gave a shout out to the other applicants and their qualifications. Very impressive applicant pool

Kelsie Blanthorn, Citizen of Bellingham, commented that she was curious about climate efforts in the County

Carryn Van de Griend, PSE

Atul Deshmane, PUD

David Hostetler, public and contributor to the Electricity & Buildings working group & chapter

Alec Howard, Transportation Working Group

Julia Spencer

Ellyn Said she appreciated Eddy's help and looked forward to new members joining the committee from the highly qualified pool of applicants.

Stevan asked how to access the applications. **Chris** said the applications were able to be viewed on the County Council's website under legislation information.

Eddy in zoom chat:

<https://whatcom.legistar.com/LegislationDetail.aspx?ID=4744494&GUID=AFD5F67E-6E79-47CD-A070-F9988D661100&Options=&Search=>

4) Industry Goal and Strategies –Presented By: Sue Gunn

(slide 2) 4 point-source emitters in Whatcom County: BP, Phillips 66, Alcoa, and PSE's gas-fired power plants

(slide 3) Pie chart showing combined point source emissions from industry.
~51% of our GHG emissions. (~45% without Alcoa)

Phil (in zoom chat) pointed out that "PSE's Whitehorn plant is the only one in the industry total--PSE's other plants are already included in electricity. Whitehorn is in electricity, too."

Hunter (in zoom chat) "For Phil/Carryn: How was that delineation made I wonder?"

(slide 4) Definition from the EPA

Point-Source Pollution: "Any single identifiable source of pollution from which pollutants are discharged such as from a pipe, ditch, ship, or factory smokestack.

(slide 5) Regulatory authority in WA comes from EPA

-2016 clean air rule established standards for "petroleum producers and importers."

-Jan. 2020, WA supreme court ruled that the state has the authority to regulate point source emissions.

-Point-source emitters are required to reduce GHG emissions by 5% every 3 years. *An annual reduction of 1.7% will hardly address the urgent nature of climate change*

(slide 6) Whatcom 2007 CAP goal of 2.5 million MT of CO₂e emitted. Did not including point source emissions. *This goal was not met.*

(slide 7) BP is the number 1 emitter in the county

(slide 8) WA state energy strategy recently finalized in January, 2021

-Promotes development of clean fuel, carbon capture etc.

-December 2020, Gov. Inslee announced legislative and budgetary goals for climate solutions.

(slide 9) BP is shifting to renewable energy production under new CEO, so the timing is right for the county to work with BP to reduce emissions

-Goal to be net zero by 2050

-Grow green hydrogen production

-Plan to partner with some major cities to fund climate strategies

(slide 10) Natural Gas and Crude oil values are dropping around the country, with 45 oil & gas companies filing for bankruptcy last year. By investing in renewables BP is trying to ensure they don't become obsolete.

(slide 11) Sue recommends a Public-Private R&D partnership to provide leadership in transitioning to clean energy involving Washington state, Whatcom County and BP. Also involving major state universities such as WWU, WSU, and UW, as well as the DOE's National Laboratories.

(slide 12) There is a unique opportunity in the time we are living in to allow a transformational solution for Climate Change.

At the Federal level: President-Elect Biden has singled out the Climate Crisis as one of the major issues his administration will focus on. And has appointed international and national Climate czars.

At the State level: Our Governor is a climate activist and just passed a state energy strategy.

At the Local level: There is a corporation in our community that is committed to moving beyond petroleum.

(slide 13) Alternatives to Petroleum: Hydrogen and Biofuels

Hydrogen: Definitions

-Green: created via electrolysis, expensive

-Grey: produced through steam methane reforming, produces a lot of CO₂ emissions

-Blue: Sequestration of GHGs expensive, dependent on having access to geologic sites for storage

Biofuels:

-Production of methane derived from organic sources. Ex: landfills, sewage treatment, forests, livestock & farming operations.

(slide 14) Hydrogen Production: Created by breaking the bond between Hydrogen and Oxygen atoms in water to create hydrogen gas.

-Can then be compressed for use in fuel cells where it is converted into electricity.

-Only discharge is water vapor

(slide 15) Grey Hydrogen: 95% of hydrogen produced in the US is by steam methane reforming that

emits CO₂ (comprises about 30% of BP Cherry Point emissions). H₂ is used to clean impurities in fuel.

(slide 16) Methane has a greenhouse effect that is roughly 30x more powerful at trapping heat than CO₂, over a 20-year period it traps 84x as much heat in the atmosphere. It is responsible for about 25% of changes to the Earth's climate.

(slide 17) Blue Hydrogen: created when the CO₂ produced as a by-product of steam methane reformation is captured and stored to reduce emissions into the atmosphere. This technology is also known as Carbon Capture, Storage, and Utilization (CCSU)

(slide 18) Green Hydrogen: created via electrolysis, this is the cleanest form of hydrogen production

John Yakawich in zoom chat: “For those interested, sharing a link to a green hydrogen partnership in Germany: <https://www.greentechmedia.com/articles/read/bp-and-rsted-launch-green-hydrogen-partnership>”

(Slide 19) European countries have been investing in green hydrogen for years. Green Hydrogen is limited by the cost of electricity.

(slide 20) California Green Hydrogen

- over 40 hydrogen fuel stations, with 7,500 hydrogen cars on the road
- LA converting coal-fired power plant to H₂
- National Fuel Cell Research Center at UC Irvine works to accelerate the development of fuel cell technology, with the help of the DOE and the California Energy Commission.

(slide 21) WA Green Hydrogen

- PUD's in WA state authorized to produce, distribute, and sell renewable hydrogen
- Douglas county PUD & Toyota to develop the first H₂ fueling station in the state probably along I-5
- The new State Energy Strategy mentions development of a green hydrogen economy

Eddy Ury in zoom chat: “FYI, the finalized 2021 State Energy Strategy was released today: <https://www.commerce.wa.gov/growing-the-economy/energy/2021-state-energy-strategy/>”

(slide 22) Biogas:

- can use existing petroleum infrastructure and is compatible with internal combustion engines.
- methane can leak from pipelines
- concern that this option does not provide a pathway to a decarbonized gas grid.
- this would be ideally only be used in limited availability.

(slide 23) Workforce Transition support

- 700 jobs have been lost in the county already due to the Alcoa curtailment
- petroleum consumption is expected to decline in the coming years, and with it, refinery jobs, which there are roughly 2,620 in the Cherry Point area
- there needs to be a long-term strategy to transition these skilled workers to greener industries, in addition to the Trade Act which is currently available for those who lost their jobs in the Alcoa curtailment.

(Slide 24) Whatcom County should call on BP to support a green hydrogen economy in Whatcom County

(slide 25) Industry Goal and Strategies

Discussion following Sue's Presentation:

Stevan asked a question relating to hydrogen vehicles vs battery electric. Hydrogen seems to be better for larger vehicles. He suggested subsidizing the ag industry so they can transition to greener vehicles.

Sue said that Hydrogen fuel works best for the vehicles that are harder to electrify. She also mentioned Toyota put down a second generation of hydrogen fuel cell cars in Japan and is involved with the hydrogen fuel cell project in Washington. Sue also mentioned a document from the DOE that said Hydrogen vehicles were more efficient because they didn't have the heavy batteries that electric vehicles have to deal with.

Stevan asked about a wind farm in Whatcom county and if there have been any studies done as to where it could be?

Sue said that there was a study done by the Lummi Nation for placing a wind farm near Cherry Point. They determined it was not worth the investment and didn't go forward with it. But said that it hadn't been determined yet if it would be possible to have an offshore windfarm or even pursue geothermal options. Sue mentioned that Atul might be able to weigh in on this matter.

Atul in zoom chat: "I can answer the questions."

Chris said that there were previous wind assessments and that the Stuart and Sumas mountain areas would be the best spot; Cherry Point is not as ideal of a location but it is the only one currently zoned for a wind farm.

Stevan Asked about Phillips 66 and if they would be another resource to look into, since BP had expressed interest in transitioning to renewable energy and funding community climate initiatives.

Sue said that BP is a larger emitter and refinery than Phillips 66, and also that BP has already expressed interest so we should focus on working with them first. Sue mentioned her work with federal appropriations in DC and that we should try pursuing federal or state funds first and then seeking help from BP since they have already expressed interest.

Ellyn said that the Lummi study was limited to windmills of a certain height, and taller windmills that can produce more electricity are now available. GE just introduced an offshore windmill that can produce 13MW of power that could be deployed off the Pacific coast of WA.

Atul talked about wind energy in Whatcom County, as well as BP and Hydrogen vehicles. He said that LIDAR was not used in the Lummi wind survey so there needs to be more data collected. He visited the coastal community wind project in Grays Harbor. PUD putting together the coastal wind farm there. He said it is a good template for something we could do in the Lummi Peninsula. He said that Ferndale could be a good location for a solar farm. And that there is interest from some of the industrial partners to create a collaborative project and there have been some interest in some informal discussions. BP produces 10 million gallons of product a day. He said that it is not likely that we would be able to easily replace that amount with renewable energy right away, but that we should still start chipping away at it. Especially since BP is interested in reducing their climate impacts, specifically their point-source emissions. One thing that has not been considered is emissions from feed stock. The main focus for refineries trying to reduce their emissions is concerned with the carbon that is released from the refinery facilities which only account for around 20% of the lifecycle of the petroleum. The same is true for natural gas power plants

Stevan asked Atul if BP not trying to move away from fossil fuels but are instead only wanting to reduce their impact?

Atul didn't want to speak directly for BP but noted that the full carbon footprint for 10 million gallons a day is a tall order to substitute.

Stevan asked if there is any plan for BP to substitute part of their fossil fuels to renewables?

Atul discussed converting biomass to liquid fuel and that they would need 3 tons of raw material for every 1 ton of fuel. Atul said that BP would be more likely to entertain focus on smaller steps that chip away at reducing the impacts from greenhouse gases.

Phil asked **Atul** about the refinery operations being 10%-20% of the lifecycle emissions from petroleum production. Do the bulk of the emissions come from burning the fuel when it is used in our vehicles? Phil clarified that he was asking about what Atul meant by the term "raw material?"

Atul said that term raw material is associated with the crude product before it is processed into a finished fuel. And that the 10-20% comes from the amount of carbon that is added to the lifecycle when the material is processed into fuel. Atul said that the fuel is converted into atmospheric carbon when it is burned in our vehicles.

Phil asked about where in the lifecycle of petroleum fuel accounts for the most emissions, specifically wondering if it was when the fuel is burned? **Atul** said yes, and the smallest portion comes from the actual refinery processes. *(But it's the almost 2.9 million metric tons of CO₂ emissions from the refinery operations that this Climate Action Plan has to deal with, not the lifecycle emissions of petroleum)*

Phil suggested if we stopped burning fossil fuels in our vehicles that we could further reduce emissions.

Atul said that the main way that is done is through substitution, mainly electrification of vehicles. And the reduction in vehicle miles traveled per capita. The second being mostly driven by social trends.

Phil said that the point he was trying to illustrate is that as long as people are buying the product that refineries will keep making it.

Atul said that older refineries have been shutting down as a result of less demand for petroleum.

Stevan referenced Sue's plan to transition refineries to renewable energy and asked what the cost would be to convert the BP refinery to a green hydrogen facility.

Atul said that the renewable energy project did a study to assess the cost for producing hydrogen for the proposed biodiesel plant at Philips 66 and that the price the electricity needed to sell at in order to be competitive with natural gas for \$ 0.03/kwh. And it was not determined to be a financially viable option for the refinery to pursue.

Stevan asked if there was a tax structure or subsidy that could help to make the price more competitive in the market?

Atul said that the transmission lines we currently have are not sufficient to supply the amount of the electricity required for the fuel production to make enough hydrogen to supply BP's finished product to the market

Eddy in zoom chat: "FYI there's an open (but not yet active and not clearly viable) proposal to build a Green Hydrogen plant in the Cherry Point industrial zone, presented to public agencies last Summer: <https://www.pudwhatcom.org/wp-content/uploads/2020/08/WACE-CP-Hydrogen-Methanation-PP-July-2020-PUD-Meeting-7-21-20-Rev.pdf>

To be clear, the >2 million tons per year GHG emissions of BP refers only to direct source emissions onsite, not upstream nor downstream"

Atul added a comment on vehicles. He referenced his time working with Ford's hydrogen fuel cell vehicle program and that the lifecycle of electric vehicles is superior to hydrogen fuel cell vehicles at this time. He said though that with large vehicles it may become more advantageous to power them with hydrogen fuel cells.

Phil asked about the issues surrounding infrastructure for hydrogen delivery?

Atul said that the pressure hydrogen is stored at is 3x as much as what natural gas is stored at. The pumping infrastructure is very specific, although the costs are coming down as there is innovation in the industry.

Phil asked about hydrogen fuel delivery to the vehicles.

Atul said it is currently done via pipelines, although natural gas pipelines are not suitable for this.

Phil asked about the state energy strategy and pointed out that upon glancing through it there were fuel cell vehicle assessments and that the state wants to be aggressive in that area. He asked if there is any way we can take advantage of incentives that are mentioned in the state energy strategy?

Ellyn agreed that would be a great idea for us to look into ways that state incentives could be implemented in Whatcom County. She also thanked Sue for her work and the presentation.

Eddy discussed the viability of hydrogen and that electrolysis requires a massive amount of electricity which has been a substantial barrier to opening one of these plants. He mentioned the green apple project and that it was hard to make it profitable enough to pursue. He mentioned that the transition to clean energy is going to take decades. And currently many of our issues with options like wind are zoning restrictions. Hydrogen was mentioned as a key component of the state energy strategy. He mentioned that we should look into many different options of existing structures and places within the county to collaborate with to pursue a public-private partnership like Sue mentioned in her presentation. He said there is definitely an opportunity for something like this with the PUD. But that we should also focus on solutions for energy storage, which is key for making renewable energy work. And that the PUD should look into building different solutions for renewable storage. Eddy mentioned that 25 billion for renewable energy just passed legislation in congress at the end of 2020. And that there is a lot to consider there.

David in zoom chat: “Atul, Does the PUD already own land at Cherry Point that could accommodate a wind farm of the scale of the Grays Harbor wind farm?”

Atul in zoom chat: “No. There is suitable land there.”

Eddy in zoom chat: <https://renewableh2.org/>

Atul in zoom chat: “Offshore wind turbines are easier in some ways because everything can be delivered by ship. As an outsider I like this structure too.”

4) Aligning Goals and Strategies – Ellyn Murphy

Ellyn said that the purpose of this presentation is to facilitate a discussion amongst the committee in regards to organizing the Climate Action Plan. The presentation will be a review of the presentations that took place this fall on the goals, strategies, and actions put forth by the different working groups. For some of the presentations, Ellyn constructed strategies from bullet points and may have misinterpreted the presenters' intent. Therefore, consider the goals and strategies as rough examples. They may be quite different from what was intended.

(slide 2) Organization and Terminology for the sections of the report.

Ellyn asked CIAC members if we should keep the categories as Built and Natural Environment – yes was the general consensus. **Sue** and **Cynthia** said that she likes the section titles of built and natural environment as is. **Cynthia** said the term Human Systems was confusing

Ellyn also proposed combining the first two sections into one – no objections.

Phil asked about the value of having sections vs just listing out the individual chapters?

Ellyn suggested that the format could be changed to eliminate the sections if there was enough interest in structuring it that way.

Sue said that she likes how the sections are currently, because it is broken up in a way that is easier to digest. **Katie**, **Cynthia** and **Hunter** agreed that it was beneficial to have the report broken up into sections.

Phil asked if each section was going to have an introduction written to introduce it.

Ellyn said yes, but that will be done after the individual components are written

Ellyn mentioned that much of the implementation measures have been moved to section 4, but **Ellyn** suggested we structure section 4 as a roadmap for the county to implement the climate action plan.

Stevan emphasized that section 4 was going to have to deal with state and municipal coordination for implementation and it will be helpful to review the state energy strategy as well as getting in touch with local stakeholders.

Cynthia said that she liked the idea of re-labeling section 4 to County Roadmap as opposed to community engagement.

Sue said that County Roadmap sounded more like a campaign and would help people get on board with action. She raised a concern about prioritization of what actions the county should be doing first.

Stevan mentioned that one of the first recommendations should be that the county hires a full-time climate coordinator, who's job would include prioritization

Ellyn mentioned the Bellingham Climate task force and that the city prioritized them by what department would handle each measure, similar to our actions. The city prioritized them by which department would be impacted and handle each task.

(slide 3) Overall targets for the Climate Action Plan and Focus on meeting the 2030 targets

Stevan asked about if there are adaptation targets or only mitigation targets?

Ellyn said the targets are mainly focused on mitigation and climate resilience. Climate resilience often requires adaptation strategies in combination with mitigation strategies.

(slide 4) Definitions of Goals, Strategies, and Actions (again, focus on the next 10 years)

Goal: high level statement that often specifies the desired outcome (performance) and the specific end date (time)

Strategy: the approach to achieve a goal, that is further delineated into action items

Action: a documented event, task, or action that needs to take place in order to reach the outcome of the strategy.

(slide 5) Built environment goals: industry, transportation, electricity and buildings and land use. How do we measure resilience in the Built Environment?

Stevan said there is no way to measure resilience before a natural disaster

(slide 6) Industry goals and strategies (See Sue's presentation)

Ellyn said that the goals and strategies for working groups open to refinement

(slide 7, 8) Electricity and Buildings goals and strategies and example actions under these strategies.

(slide 9) Transportation example goals and strategies

Ellyn discussed transportation demand management (TDM) programs and mentioned Smart Trips as an example. But that there are many newer programs that are in place elsewhere that can help reduce single occupancy vehicle commuting. Some examples include daily parking rates, free bus passes provided by employers, and small cash incentive programs.

Hunter agreed that those sounded like some great incentive programs.

Ellyn said that these programs can be especially great for collecting data so that transportation needs can be more accurately met.

(slide 10) Land Use example goal and strategies

Ellyn said that Land use is currently listed under the built environment category.

Phil in zoom chat: “minor rewording suggestion for land use goal--put systems before resilient”

David in zoom chat: “Phil, Agreed.”

(slide 11) Natural Environment example goals

How do we measure natural environment goals?

(slide 12) Water Resources: example strategies focus on Water Availability, Water Quantity/Quality, and Floodplain/Stormwater Management

Author needs to make sure all the key actions line up with these example strategies and/or revise strategies.

Phil in zoom chat: “should add something about fisheries to water resources, that is to the Water Resources goal.”

Ellyn suggested that a database be set up so that all the different parties involved with water through out the county have a place to compile their data to be used by scientists and the public.

Stevan said that a database might be redundant if adjudication happens depending on how accessible to the public it would be.

Ellyn agreed that would be a good thing to coordinate with. She mentioned that Snohomish county has a database for water resources that anyone can access to graph data trends for specific areas of the county (tableau.com). This environmental database is not limited to just measurements on water resources.

Atul in zoom chat: “Adjudication is happening and the PUD is leading Regional Water Resource Planning which provide all the data you are looking for.”

Chris mentioned that as part of the WIRA-1 planning the Watershed committee plans to build a portal to store watershed data.

Atul in zoom chat: “Climate relates to temperature and quantity. Does it make sense to include fecal coliform and nitrogen?” “I mean there are serious teams and resources dedicated to the watershed.”

Stevan said that irrigation should be included in water resources.

Phil mentioned that while one could argue fisheries is already included in water resources the way it is now; it should be explicitly stated in the report. Especially things relating to the Hirst Decision

(slide 13) Ag & food systems area: strategies are focused on working farms and food systems

Stevan asked about the food system committee and possibly hosting a joint meeting with them in order to find similarities between our groups recommendations.

Chris said that their group would review our draft

(slide 14) Forestry: strategies focused on carbon storage and climate adaptation

(slide 15) Ecosystems: strategies focus on measuring ecosystem health and protecting ecosystems.

How do you measure Ecosystem Health?

5) Review/Discussion of CAP Schedule – Ellyn

Writing assignments

- a) Industry – Sue (completed)
- b) Electricity & Buildings - Cynthia, Dave, Hunter (completed)
- c) Transportation – Phil, Alec
- d) Land Use – Kaylee
- e) Natural Environment – Chris, Katie, Stevan
- f) County Implementation & Community Engagement – Stevan

Phil asked what we are sending to the reviewers

Ellyn said we were sending them goals strategies and actions plus a short presentation on the targets and the plan’s organization so that they can get a more complete picture of what we are trying to do. Ellyn said that we will be sending drafts out to several stakeholders as well as people who participated in the community research project.

Phil mentioned that Alec will be helping to write the draft to gain experience for an internship and wanted to know the schedule that their draft needed to be ready for reviewers.

Ellyn asked if their draft could be ready by the end of the month?

Phil said yes

Ellyn asked if transportation had a list of reviewers in mind?

Phil said yes.

Ellyn asked Kaylee if she planned of writing the Land use section and who might be helping her with it.

Kaylee said that she was working with Dave, Chris and Alec and she would be serving as coordinator for the group.

Ellyn asked if a draft would be ready by the end of the month?

Kaylee said she would set that as a goal.

Ellyn said that a list of reviewers should be put together for that draft too.

For natural resources **Ellyn** said that **Sue** might be open to helping on that section

Katie volunteered to help with the natural resources section.

Sue said that sounded great and **Katie** could take over for her in helping to write the natural resources section with **Chris**.

Stevan also volunteered to help write the natural resources section, specifically the agriculture part.

Chris said that it was a broad section and that there is a good set of strategies and actions that have been heavily refined. He said that we need to work on writing the body of our draft and that he will be trying to have **Treva** do some work on the water section before her term ends at the end of the month. He asked **Katie** to help write some of the body of the section.

Ellyn asked about setting a due date for a version of the report to present to the council. Ellyn suggested that we might have something ready by the end of March

Chris mentioned that the original goal was to present this to council by June. Working backwards from that, he is looking to present to climate science summary to council by the end of the month, and the ghg emissions inventory would be presented by the end of February. In March we would do a presentation on vulnerability to council. Chris wanted to suggest this approach of having multiple presentations to council over time so that they have time to digest the material and become familiar with it so they don't become overwhelmed with a large amount of information all at once. He suggested presenting a draft of our plan to council in April.

Ellyn agreed that **Chris'** timeline was good and mentioned the two-week deadline for getting things on the agenda for county council meetings.

Chris asked **Ellyn** to provide an introduction for his presentation to council later this month.

Ellyn discussed opening the draft up for public comment after it is finished and presented to council, likely in April.

Sue asked about how receptive the council might be to such a large document that we are presenting to them.

Ellyn said that we could compile some highlights for the council to give them when they receive their copies to make the reviewing process easier for them.

Ellyn mentioned that the final draft should be done by June.

Phil asked about the revision period in February and March and if that would just be comments from reviewers?

Ellyn said yes, the primary goal is to address reviewer comments. Sometimes that means adding updated material as it becomes available.

Ellyn said that anyone was welcome to contact her with further suggestions. Ellyn also announced that Cascadia had recently responded to our questions on the GHG Inventory and revised that report. She said that she has not reviewed the revised report, but will do so as time permits.

Ellyn sent out the 2021 state energy strategy today and mentioned that the state will be hosting a press release meeting on it.

Katie asked for a link to the state's meeting regarding the state energy strategy. **Ellyn** said she would send one out.

6) Upcoming Meeting

Next Meeting Scheduled for February 4th, 2021

7) Adjourn

Meeting ended at 7:37pm

Recorded By: Katherine Kissinger

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