



EITE Industries Advisory Group

Agenda for Thursday, November 14, 2024 | 9:00 a.m. – 12:00 p.m.

Location: [Zoom](#), copy of [presentation](#).

1. Welcome and meeting overview

- 16 out of 23 advisory members attended the meeting.
- Ecology noted they had not responded yet to the letter sent by advisory group members on October 30 (note: Ecology's response was sent on Monday, November 18, 2024).

2. Background and context: Industrial decarbonization and the CCA

- Ecology provided an overview of why it chose to include industrial decarbonization as an area of inquiry in the report, including sections of the CCA the expressed the legislature intent to position Washington manufacturers to benefit from efforts to reduce greenhouse gases and to encourage EITE industries to be positioned to be global leaders in a low carbon economy.
- Ecology noted that EITE representatives raised concerns about the compliance pathway proposed by Ecology in HB 1682 and that Ecology wanted to better understand potential decarbonization pathways for EITEs in WA to inform analysis on future EITE allocation.
- Ecology noted it had identified a number of existing resources including:
 - Department of Energy: Industrial Decarbonization Roadmap, [Pathways to Commercial Liftoff: Industrial Decarbonization](#), [liftoff reports](#)
 - U.S. Climate Alliance: [Enabling Industrial Decarbonization: A Policy Guidebook for U.S. States](#)
- Ecology noted that DOE's roadmap identified four key decarbonization pathways or pillars for achieving net-zero GHG emissions from the U.S. industrial sector by 2050, and that a suite of complementary policies is likely needed to overcome significant barriers to effective deployment and achieve the associated greenhouse gas emissions reductions.
- A member expressed concern that Ecology's characterization of EITE feedback on HB 1682 during the 2022 legislative session was inaccurate and did not account for efforts by EITE representatives to proactively propose alternative solutions around compliance pathways for EITEs, and this can affect the dialogue with EITEs who want to be better engaged partners and avoid ending up in an adversarial position.
 - Ecology responded that they drew upon the information from the bill summary report for HB 1682 in reflecting the 2022 legislature session, and that they are happy to be corrected on that point and are very open to discussing alternative solutions.
- The member also raised concerns about Ecology's process for developing content being presented to the advisory group, and that Ecology has not responded to member letter regarding the advisory group process.
 - Ecology noted that they are not seeking to push a particular narrative or censor the content being tabled by external presenters, but they are trying to gather and present the available information related to the topics being discussed in each meeting, and are open to having members bring forwards their ideas on content and presenters for meetings.
 - Ecology noted there may be disagreement on the process, but they will continue to offer opportunities for feedback, and that it will be responding to the letter shortly.

3. Presentations by external presenters

Ecology noted that the presenters are speaking on behalf of themselves, not Ecology, and that Ecology has not contracted the work being undertaken by RMI.

Rocky Mountain Institute (RMI): Washington's Industrial Opportunity

- A team of representatives of RMI presented their preliminary analysis of decarbonizing pathways for Washington's EITE industries and opportunities for leveraging federal funding and incentives alongside Cap-and-Invest. The timeline to complete their study and develop their report is from September 2024 to May 2025.
- RMI is seeking to conduct individual interviews with industries, including EITE Advisory Group Members, to ensure the study is feasible and reflects the current industrial decarbonization landscape in Washington and the economic and policy challenges.
- A member shared that sometimes industries have confidential processes and wondered how the information will be protected.
 - RMI noted that the goal is pressure testing the analysis of RMI and seeking industry perspectives, and would not be publicizing private or confidential information from companies.
- RMI shared a graph of Washington's greenhouse gas emissions and reduction goals, and included a line to show the level of free allowances to EITE in 2023, and noted that the EITE proportion of total emissions would increase unless technological improvements are made to reduce their emissions alongside other sectors.
- RMI shared EITEs are clustered in specific regions. The majority of emissions in Western Washington are from large refineries and chemical plants. Central Washington has a concentration of food processing and pulp and paper plants, and Eastern Washington has a concentration of steel and aluminum plants. Overall, there is a high concentration of emissions near ports and could benefit from port infrastructure decarbonization pathways.
- RMI shared a graph of emission concentrations across the sectors, noting that four facilities are responsible for about 67% percent of total EITE emissions, and that the decarb pathways and solutions being considered by RMI are not evenly distributed given this context.
- RMI shared about industrial decarbonization incentives, noting that since the passage of CCA in 2021 there have been major changes to federal policies and financial incentives. Recommended the report [Bring in the Billions](#).
- RMI shared information on federal and state funding programs relevant to EITEs including:
 - 45V Clean Hydrogen Production Tax Credit – brings down the cost of hydrogen
 - 45Q Tax credit for carbon – makes carbon capturing and storing carbon more economical and makes sense in WA where there is also a price on carbon.
 - 45x Advanced manufacturing production - helps with growing clean energy opportunities for the manufacturing sector.
 - Various tax credits for sustainable aviation fuels and alternative fuels
 - Clean electricity production and investment tax credits – don't directly reduce industrial emissions, but could provide onsite clean electricity for electrification
 - 48c advanced energy project credit – tax credit akin to a competitive grant program
 - Industrial demonstration program – very flexible and awards grants on ongoing basis
 - Loans program office
 - Title 17 Clean Energy Financing - provides low-cost loans
 - Energy infrastructure reinvestment – applicable to refineries to assist with financing retrofits that reduce emissions.
 - Washington State Hard to Decarbonize Sector Grants – pursue innovative projects
- RMI asked members which of these incentives has your company pursued or will pursue?

- Members shared the following:
 - Sometimes that information is confidential, and businesses may choose not to share business decisions about which incentives they are pursuing.
 - None of these funding source apply to their members within the food sector because the companies are too small. There are very few large companies in the Pacific Northwest and the small companies cannot do these large projects due to the staff level or facility size. Expressed that there need to be other opportunities. The federal government needs funding to come directly to Washington for the food sector to decarbonize. They support reducing greenhouse gas emissions but there needs to be help for the smaller companies.
 - Did not believe cement facilities in Washington have explored the funding yet but facilities in other states have.
- RMI provided an overview of their initial analysis of sector specific decarbonization pathways for those EITE sectors is had undertaken to date (refineries, pulp and paper, cement, glass and food processing), including potential technologies, estimated timelines and costs, emission reductions, and projects implementing the technologies or secured funding.
- Members commented and asked the following questions:
 - Clarification on what is a naphtha shutdown and example of plants that have shut down individual units. The member had never heard of it.
 - RMI indicated it can follow up offline on questions related to specific case studies being used to inform the analysis, and RMI responded via the chat regarding Naphtha shutdown.
 - RMI listed boiler electrification as "high" for readiness level and member asked for examples of deployment of electric boilers that meet steam demand for refineries and noted that reliability of steam is a process safety issue for refineries.
 - What is the grid impact for electrification, understanding that plants need very stable grid electrical supplies? What pace can that increased electrification be brought online relative to what is recommended in this slide deck and taking into account the overall electrification needed for both the recommended advanced clean vehicle initiatives and the need for AI?
 - RMI responded the challenge that needs to be addressed and will be considering this issue in January when looking at the growth of industries and electrification needs for decarbonization pathways.
 - The graph on slide 14 is not an accurate representation of the Cap and Invest Program and how it will work. For example, graph doesn't account for decline in allowances during 2027-2034 or clarify that 25% of statewide emission aren't covered in program. Presentation does not discuss leakage or rationale for EITE specific compliance pathways, and so how is leakage taken into consideration?
 - RMI shared that the graph is a 'thought experiment' around EITEs not reducing emissions regardless of reduction in no cost allowances in which the proportion of emissions would grow under a shrinking cap. RMI followed up with leakage not studied in this presentation though interested in talking individually with facilities.
 - The member clarified that EITEs are expected to reduce emissions because they are covered in the program and have compliance obligations, and need to be careful to not portray EITEs as exempt from the program.
 - Member offered to talk individually and consider difference between carbon intensity vs greenhouse gas emission reductions in a refinery context.
 - Pulp and paper industry has questions on steam capacity and electricity based on their own analysis, disagrees with RMI's analysis that readiness levels are med/high.

- RMI confirmed it is looking to engage on its analysis through to April 2024.

Renewable Thermal Collaborative (RTC): Buyer's Perspectives on Decarbonization

- Blaine Collison, Executive Director, shared what RTC has learned engaging with RTC members to help industries reach climate objectives and support core business. Several companies they work with have facilities or suppliers in Washington.
- Focused on the three topics: technology, markets, and policies. Shared it is important to have multiple technologies working simultaneously, to identify partners for suppliers/operators, figure out how to pay for the technologies, and have policies that support the effort.
- Noted that the implementation will be multiple years and to date most policies have been at the federal level and there is a need to support industrial decarbonization at the state level.
- Provided an extensive list of publications and resources and Blaine offered to meet outside of the meeting.
- There were no questions or comments from members for Blaine.

Energy Innovation: Policies to support Zero-Carbon Industry

- Jeffery Rissman, Senior Director of the Industry Program, presented on policies to support industrial decarbonization with a focus on carbon pricing and financial policies. The presentation materials were adapted from the book [*Zero-Carbon Industry: Transformative Technologies and Policies to Achieve Sustainable Prosperity*](#)
- The transition to zero-carbon industry will be slow and incomplete without policy support and financial policies change the landscape in which firms operate, facilitating and rewarding low-carbon production while making businesses pay for harms caused by their pollution.
- Carbon pricing can cause leakage and productions shifting out of state that could affect emission abatement and jobs, and leakage estimates change based on time horizon used.
- Options to address leakage in WA could include:
 - Border adjustments such as state sales tax based on carbon intensity.
 - Free allowance allocation
 - Subsidies linked to positive traits the government wants to encourage like high quality jobs and clean technologies
- Presented pros and cons of different financial policies that could supplement carbon pricing:
 - Green banks and lending mechanisms - using public money to generate private investment in qualifying green projects that would otherwise struggle to attract affordable private-sector financing.
 - Subsidies or tax credit for green industrial equipment or clean energy
 - Fees, rebates, feebate (combines a fee and a rebate in a single policy) - good for relatively mature technologies and assumes a range of efficiencies in technology.
 - Energy efficiency and emissions standards, noting that combinations of standards and financial policies work best together, and design principles for standards.
 - Green public procurement – establishes an emissions intensity standard for goods purchased or funded by the government.
- Noted other supporting policies include research and development, disclosure and labeling requirements, and circular economy policies, e.g. products that are recyclable/repairable.
- There were no comments or questions from members for Jeffrey.
- Ecology asked of the policies covered, what is recommend for Washington to consider.
 - Jeffery indicated that all the policies he shared were worth considering and it is important to use a combination of policies. In terms of which policies to pursue, he recommended considerations of political feasibility, which would achieve best results

for emission abatement and other co-benefits, and maintain competitiveness for WA manufacturers. If money is available, subsidies and tax credits are powerful incentives when paired with decarbonization requirements, and carbon intensity-based sales tax is novel and could be highly effective at addressing leakage risk.

6. Discussion: Decarbonization challenges and opportunities for EITEs in WA

- Ecology opened up a discussion to hear more about the unique decarbonization challenges and opportunities for EITEs and how this might inform EITE allocation policies and compliance pathways in 2035-2050. Ecology presented the following questions to open the discussion:
 1. Do the industrial decarbonization pathways outlined in today's presentations align with how EITEs are considering these issues? If not, what is missing?
 2. What are the specific challenges and opportunities for deploying decarbonization pathways for EITEs in WA?
 3. Which additional policies or strategies might enable implementation of these decarbonization pathways?
 4. What other issues or information regarding industrial decarbonization should be considered in our report?
- Member comments and questions included:
 - The costs presented in RMI's presentation are likely to underestimate the costs of implementing the decarbonization pathways and associated process changes, based on previous work by refineries to analyze project costs, such as process safety management rulemaking. Available federal funding represents only a fraction of the true costs to implement required process changes, such as green hydrogen.
 - A big barrier to decarbonization will be permitting in terms of both delivering projects and also securing financing, which is a focus area for refineries in the near future.
 - Unclear if RMI's proposal for shutting down Naphtha units is a realistic concept and question the feasibility of this recommendation.
 - Questions on whether it is suitable for RMI to name specific facilities rather than general characteristic in their documentation.
 - For electrification of processes, stability of the grid and access to volume are a real issue, and are also connected to permitting challenges.
 - There is a need to recognize that some of the short-term project timelines suggested by RMI are not very feasible because there are many pieces that need to get in line before changes can be implemented.
 - The policy concepts presented by Jeffrey Rissman were interesting but felt further afield from Cap-and-trade and EITEs, but appreciate there might be more opportunities to support projects on industrial sites.
 - Ecology noted that timing and sequencing is important aspect that they want to better understand.
 - When thinking about barriers and complementary policies the challenges of electrification and the state of the electricity system in WA needs to be fully understood and considered further. Facilities are not experiencing 1-3 years' timelines suggested in the RMI presentation, and it is at least 5 years for a 10 MW load. Recommend a future presentation on current and future state of the electricity grid and would be happy to propose some SMEs to present.
 - Ecology will look into this and agree access to electricity is a key issue.
 - A member will work offline with the group to propose a subject matter expert on electrification and reliability.

- A food manufacturing company in WA also has a facility in California that had support from California food processing fund to electrify their facility. The company was told they could not electrify the plant because the grid could not support it. Reiterated that access to electricity is a real issue, especially considering the increased electrical needs for data centers and AI. Facilities need to know about the future of the grid, who has priority, and when electricity will be available, and needs stable electricity supplies without interruptions that could ruin products.
- Uncertain about the technical feasibility of the recommendations put forwards by RMI, particularly emerging technologies and feasibility of sequestration in WA, and whether that should be actively considered. But will discuss further with RMI.
- Opinions on cost estimates can vary widely, and echo concerns around permitting for new technologies. Might need to consider off-ramps if these decarbonization pathways don't come to fruition and how to avoid leakage in that context.
- Interested in a presentation with respect to the reality of the actual timelines of electrification, and that EITE's need to be included in identifying those experts.
- In the case of new technologies, the costs may be prohibitive due to the retrofitting that would be required. EITEs also vary in size of operations, and each will have different considerations in deployment of decarbonization strategies and technologies. Depending on size of the facility or company, they may be cost-prohibitive. Developing funding opportunities specific to EITEs is worth further exploration, while understanding it can be challenging with public funding.
- In terms of deployment and capital required, the necessity for a long-term view and long-term investments need certainty around policies. The investments won't happen unless the investments can be quantified.

7. Open discussion: Questions or topics proposed by members

- Ecology opened it up for members to propose agenda topics and subject advisory members wants Ecology to consider, acknowledging there has been a desire for advisory members to propose agenda topics and provide input on materials to be developed.
- A member referred to previous discussion on how to define economic harm from Oct 17 and thinks the legislature intentionally did not define it so it can be interpreted broadly to anything associated with a business's financial wellbeing or competitive standing. Suggested the definition should not be any more precise than what the legislature made it, and that the language was deliberately broad. Member searched WA regulation for economic harm and found only one example related to the Liquor Control Board, but noted there may be federal examples.
 - Ecology noted they were seeking to develop a working definition in order to undertake an assessment of best practices for mitigating leakage and addressing economic harm, and that this was the only time the term occurs in the CCA.
- A member commented in the chat that with respect to leakage, he'd like to see a workforce assessment, current workforce numbers of jobs in EITE and potential impacts of decarbonization (increase or decrease forecast).
 - Ecology responded this is something they are looking to consider and will hopefully have data for consideration by the advisory group next year.
- A member reflected on the RMI concept of curtailing production and said that this is an odd recommendation as it can result in less efficient production and wanted to clarify if Ecology was commissioning to work on RMI. Another member agreed that curtailment as a solution could equate to job loss.
 - Ecology responded up that RMI is doing its work independently and is not under contract with Ecology, and that RMI sourced its own funding. Ecology approached

RMI knowing they do this sort of work. Ecology noted that the work of RMI is one piece of information that will be considered alongside other data and analysis.

- RMI confirmed they are not under contract with Ecology.
- Ecology also noted that it is aware there is other work being undertaken by Commerce on the refinery sector related to decarbonization and economic impacts.

8. Next steps

- Next meeting: December 19th, 2024, 9 a.m. – 12:00 p.m. ([Zoom meeting link](#)). The topic will include greenhouse gas emission baselines and benchmarks for EITE facilities.
 - Member asked who would be presenting given this is a technical topic and each industry varies greatly. If the goal is to be technical and specific to different industries, the group would have recommendations.
 - Ecology shared it was going to be more general discussion rather than sector specific.
 - Ecology also noted that two members indicated in the October 17 meeting that they would send some information related to leakage for consideration, but Ecology have yet to receive anything.

9. Public comment opportunity

There were no public comments. Comments may be submitted via email to CCAITEIndustries@ecy.wa.gov or on the [electronic platform](#).

Note: There will be two short breaks scheduled as well.

Resources and Assistance

- Contact Adrian Young at CCAITEIndustries@ecy.wa.gov
- [EITE Industries Advisory Group webpage](#)
- [EITE Policy Advisory Group webpage](#)
- [Cap-and-Invest EITE webpage](#)

Optional Pre-reading Materials

- Department of Energy, [Industrial Decarbonization Roadmap](#).
- Department of Energy, [Pathways to Commercial Liftoff: Industrial Decarbonization](#) (part of a suite of 'liftoff reports').
- U.S. Climate Alliance - [Enabling Industrial Decarbonization: A Policy Guidebook for U.S. States](#)
- Jeffrey Rissman (Energy Innovation) - [Zero Carbon Industry](#).