

FINAL Minutes of February 1, 2024, Ethylene Producers' Environmental and Sustainability Sub-Committee Meeting

Following are the minutes of the February 1, 2024, Ethylene Producers' Environmental and Sustainability Sub-Committee Meeting, held via Zoom.

Present:

Chad Able, NETL (AIChE Environmental Division)
Troy Boley, Spectrum Environmental Solutions, LLC
Ralph Crivello, LyondellBassell
James Kendall, ExxonMobil Engineering and Technology Company
Dan Lutz, Ineos
Isa Mbaraka, Dow
Andrés Muñoz Gandarillas, Neste
Arijit Pakrasi, Edge Engineering and Science
Nicole Roper, Shell Oil Products Company
Robert Sams, Shin-Tech

Absent:

Shelby Browning, Eastman Chemical
Ted Heron, The Catalyst Group
Jacob Hilbrich, Chevron Phillips
Allyson Ledet, NOVA Chemicals
Patti Long, Eastman
Dick Siegel, R&B Consulting Services (AIChE Environmental Division)
Shweta Singh, Purdue University (AIChE Environmental Division)
David Smalley, BASF
Jason Trembly, Ohio University (AIChE Environmental Division)
Mark Ulrich, Linde Inc.

Anti-Trust Statement

The meeting began at 9:02 am with James Kendall reading the Ethylene Producers' Committee (EPC) anti-trust statement:

No activity of the committee shall involve the exchange, collection, or dissemination of information among competitors for the purpose of bringing about or attempting to bring about an understanding or agreement, written or oral, formal or informal, express or implied, among competitors, with regard to costs, prices, pricing methods, terms or conditions of sale, distribution, production quotas or other limitations on either the timing or volume of production or sales, or allocation of territories or customers.

Sub-Committee Membership

No changes have been made to subcommittee membership since our last meeting.

Chad Able joined from the AIChE Programming Committee to facilitate discussion on a joint session in 2025.

Agenda

The meeting agenda was published in advance and is included below:

J. L. Kendall
February 29, 2024

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1. Reading of Anti-Trust Statement [9:02 AM]
2. Sub-committee membership update [9:04 AM]
3. Review of December 7, 2023, meeting action items [9:05 AM]
4. Discussion of 2024 Environmental and Sustainability Session [9:08 AM]
5. Discussion on co-sponsor of 2025 Session with AIChE Environmental Division [9:15 AM]
6. Discussion of Potential Topics for 2025 Environmental and Sustainability Session [9:20 AM]
7. Review of Action Items [9:55 AM]
8. Important Date Reminders
 - Jan, 2024 – Program goes live
 - Mar, 2024 – Paper submission closes
 - Mar 24-28, 2024 – Spring Meeting – New Orleans, LA
9. Adjourn [10:00 AM]

Review of the Dec 7, 2023 meeting action items

Action items from the December 7 meeting were reviewed in detail.

James Kendall: Contact Operations Committee Chair and Co-chair about potential to move the IVOL paper on “Issues during Startup of Steam Cracker Unit” to that session. Contact Technology Circular Economy/Decarbonization Chair and Co-chair about potential to move the Linde paper on “Carbon Tax Impact on Ethylene Plants” to that session, should the IVOL paper not be moved to the Operations session. **DONE**

James Kendall: Schedule followup meeting with sub-committee to address the tabled agenda item “Discussion of Potential Topics for 2025 Environmental and Sustainability Session” - **DONE**

From October Session:

Dan Lutz: Bring to the December meeting brief summaries of litigation in Texas to facilitate identifying areas where the subcommittee could consider soliciting papers. **DONE**

Discussion of 2024 Environmental and Sustainability Session

In line with discussion in December and subsequent email, the final program is as follows:

| Title | | Authors |
|----------|---|--|
| a | Inflation Reduction Act: Navigating Murky Waters of Compliance and Incentives | Adam Greene, Carbon Policy Advisor, Worley |
| b | Combining Electrification, Carbon Capture and Renewable Feedstocks: Large-Scale CO ₂ Reduction for Olefin Production | Torben Hoefel, Linde Engineering, Andres Munoz, Neste Corporation |
| c | Evaluating the Use of Hydrogen as a Cleaner Fuel in a Steam Superheater Application | Jennifer Cunningham, LlyondellBasell Industries; Vivek Sundaram, LlyondellBasell Industries; Mitch Gibb, LlyondellBasell Industries, Rob Fox, LlyondellBasell Industries |
| d | Strategies to Comply with the Earliest New Hon Requirements at Ethylene Production Facilities | Gary Daves, TRICORD Consulting, LLC; Joe Ibenez, TRICORD Consulting, LLC |

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| | | |
|----------|---|---|
| e | Practical Guidance on How to Prepare and Manage GHG Inventories | Everand (Ev) Ashworth, Principal, Ashworth Leininger Group |
| f | Issues during Startup of Steam Cracker Unit | Holt Lacy, IVOL; Michael Lopez, IVOL; Terry Gordy, IVOL; Paul T. Scott, KBR |

Discussion on co-sponsorship of 2025 Session with AIChE Environmental Division

Dick Siegel proposed co-sponsorship of the EPC Environmental and Sustainability Session with the AIChE Environmental Division (ED).

The EPC Main committee discussed and took down the following minutes:

Micheal Smith mentioned the Environmental subcommittee was interested in discussing a possible co-sponsorship with the base AIChE environmental group during future Spring meetings (after 2024). The committee did not have any comments on the issue and if that topic wanted to be explored further, no issue and bring back a summary to the main committee if there is a proposal of further interest.

The subcommittee discussed the potential for a joint session with AIChE ED in 2025. The group agreed we would not run a session dedicated to Environmental Justice only (although 6 papers could be presented in this one topic area), but maintain a broader base.

Chad will followup with AIChE ED on the proposed joint session within the constraints proposed. ESJ provides an area where more academic papers could be presented.

Discussion of Potential Topics for 2025 Environmental and Sustainability Session

In October the group discussed ways to better use our ties to the ED to improve the offering at the Spring Meeting. Nicole Roper asked where in the EPC would Environmental and Social Justice (ESJ) issues would be presented. The team discussed that ESJ considerations multiple areas could be of significant value to the EPC Conference:

- Permitting
- H2 hubs
- License to operate
- Recent litigation

As requested in the October 12 meeting, Dan Lutz assembled slides on current litigation in the Environmental Justice area to facilitate subcommittee discussion and to inform papers to solicit for the 2025 conference. This powerpoint was reviewed.

The committee discussed the litigation and agreed topics in two ESJ areas would be very welcome to the subcommittee:

1. Permitting and ESJ
2. Ongoing litigation in ESJ that could impact ethylene producers

Isa has a contact within Dow that works primarily on ESJ. Isa took an action to followup with that individual to discuss potential papers in either area.

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Troy mentioned ongoing litigation with ExxonMobil that included the definition of harm. Insight into this case might also be very helpful to the EPC. James took an action to followup to check within ExxonMobil, but thought it unlikely ExxonMobil would present a paper on a topic in active litigation.

Nicole Roper suggested a consultant from Baker Botts or Trinity might be interested in presenting a paper in this area and took an action to followup with her contacts in those organizations to test interest.

Dick Siegel noted in a prior email that Mary Ellen Ternes published an article in CEP (page 16) on this topic recently.

Chad took an action to followup within his contacts in the AIChE ED to identify potential authors for papers in these two specific areas of ESJ.

Nicole Roper had previously suggested a paper on "Environmental AI". The tool uses capabilities similar to Chat GPT to search for environmental information. An example was efficient search of the TCEQ's website to rapidly identify information available on a particular stack in a particular plant. Nicole took a followup to reach out to her contacts in that organization again.

The team continued discussion on what specific papers would we like to see in 2025 and begin to have developed.

The importance of life cycle assessment and circularity were highlighted as key areas. The paper presented by Jennifer Port in 2023 was discussed as an example of a helpful presentation in the area. Many operating companies have experts in this area, and there are many in academia working on LCA and circularity. Having all sub-committee members investigate the possibility of presenting a paper in this area was taken as a broad follow-up.

The subcommittee discussed papers on implementations of carbon reduction and circularity projects. The upcoming LyondellBassell paper was highlighted as an example. The group also discussed electrification and efforts to improve the utilities blocks withing operating plants. Having all sub-committee members investigate the possibility of presenting a paper in this area was taken as a broad follow-up.

The potential papers were suggested to divide into three main areas (each of which could bring 1-3 papers to the session):

- Environmental and social justice
- Life cycle assessment and circularity
- Implementation of sustainability improvements and learnings

The next meeting of the subcommittee will focus on followups in these areas driving toward having quality abstract submissions in Jun-Oct 2024.

Review of Action Items

Chad Abel: Followup with AIChE ED on joint session within the constraints proposed.

Isa Mbaraka: Followup with contact at Dow that works primarily on ESJ to discuss potential papers in either area.

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James Kendall: Followup with contacts in ExxonMobil on interest in presenting on active litigation.

Nicole Roper: Investigate if contacts at Baker Botts or Trinity have interest in presenting a paper on ongoing litigation in the EJS area.

Chad Abel: Followup with contacts in the AIChE ED to identify potential authors for papers in two specific areas of ESJ (permitting and ongoing litigation impacting ethylene industry).

Nicole Roper: Followup with contact at Environmental AI to test interest in presenting in 2025.

All sub-committee members: Investigate the possibility of presenting a paper in this area of life cycle assessment and circularity.

All sub-committee members: Investigate the possibility of presenting a paper on implementations of carbon reduction and circularity projects.

Important Date Reminders

- Jan, 2024 – Program goes live
- Mar, 2024 – Paper submission closes
- Mar 24-28, 2024 – Spring Meeting – New Orleans, LA

Adjourn

The meeting was adjourned at 10:00 am.