

Joint Board-Council Committee on Environmental Improvement 19-20 August 2017, Washington, D.C.

Vision: A sustainable world enabled
through the sustainable practice and use of chemistry.

Mission: Advance sustainability thinking and practice
across ACS and society for the benefit of earth and its people.

Website:

<http://www.acs.org/content/acs/en/about/governance/committees/cei.html>

Blog:

<https://communities.acs.org/groups/cei>

Social Media Links:

Twitter: @ACS_CEI

LinkedIn group: ACS CEI

Facebook: <http://www.facebook.com/ACSCFI>

UPCOMING MEETINGS

Date	Location	Meeting Theme (Chair)
Spr. 2018, Mar. 17-18	New Orleans	Food, Energy, and Water Nexus (Jerry Schnoor)
Fall 2018, Aug. 18-19	Boston	Nanotechnology (Paul Weiss)
Spr. 2019, Mar. 30-31	Orlando	Chemistry for New Frontiers (Mike Meador, Luke Roberson)
Fall 2019, Aug. 24-25	San Diego	Chemistry of Water (Elise Fox and Chris Avery, with CEI)
Spr. 2020, Mar. 21-22	Philadelphia	Macromolecular Chemistry: The Second Century (Tim Lodge and Kris Matyjaszewski)
Fall 2020, Aug. 22-23	San Francisco	Chemistry from Bench to Market (Judy Giordan)
Spr. 2021, Mar. 21-25	San Antonio	TBD

The full tentative schedule of ACS National Meetings is available at the following website:

<https://www.acs.org/content/acs/en/meetings/nationalmeetings/meetings.html>

ATTENDANCE (Group photo in Appendix 1)

Members, Associates, Consultants, and Liaisons:

- ***In attendance:*** Tony Noce (Chair), Ray Garant (Staff Liaison), Kate Aubrecht, Jerry Bell, Marie Bourgeois, George Cobb, Jetty Duffy-Matzner (ConC Liaison), Jurgen Exner, Rick Fehir, Elise Fox (Portfolio Manager), Robert Giraud, Emily Grumbling, Carol Henry, Katie Hunt, Keisuke Ikehata, John Jayne, Michael Matthews, Laura McConnell, Cathy Middlecamp, Eileen Nottoli, Sherine Obare (Portfolio Manager), Melissa Pasquinelli (Secretary), Keith Peterman, Robin Rogers, Barclay Satterfield (Portfolio Manager), Susan Shih (SOCED Liaison), Jennifer Tanir, Kate Weber (Portfolio Manager), Jane Wissinger
- ***Excused:*** Chris Avery (Portfolio Manager), Jack Fowle, Faye McNeill

ACS Staff: David Constable (ACS GCI), Jennifer MacKellar (ACS GCI), Carl Maxwell (ACS EAC)

Guests: Ed Brush, Paul Schorr, Tom Gilbert from Membership Affairs Committee

APPROVAL OF THE MINUTES OF THE AUGUST 2016 MEETING

As our first order of business, the Committee voted by voice to *certify the interim actions approving the minutes of the 1-2 April 2017 meeting of the Committee in San Francisco, CA.*

MOTIONS

- The Committee voted by voice to approve *the ACS Policy Statement on Science and Technology in the Budget as given in the agenda book, with the understanding that it will be amended to include an attribution in the second sentence.*
- The Committee voted by voice to approve *the ACS Policy Statement on Scientific Integrity in Public Policy, as given in the agenda book.*
- The Committee voted by voice to approve *the ACS Policy Statement on Sustainability in the Chemical Enterprise, as distributed on 19 August 2017. (One abstention: Kate Weber)*
- The Committee voted by voice to *convene a writing team for the ACS Policy Statement on Energy.*
 - Tony Noce appointed John Jayne to lead the writing team.
- The Committee voted by voice to *convene a writing team for the ACS Policy Statement on Inherently Safer Technologies.*
 - Tony Noce appointed Kate Weber to lead the writing team.
- The Committee voted by voice to *convene a writing team for the ACS Policy Statement on Water Treatment and Conservation.*
 - Tony Noce appointed Robert Giraud to lead the writing team.
- The Committee voted by voice to *impanel a working group and authorize that subcommittee to act on behalf of the Committee in the selection of the 2018 recipients of the ACS-CEI Award for Incorporating Sustainability into Chemical Education.*
 - Tony Noce appointed Sherine Obare to lead the working group.
- The Committee voted by voice to *fund the Local Section Sustainability Activity Grant Proposal from the Portland Local Section. (One abstention: Carol Henry)*
 - Tony Noce appointed Keisuke Ikehata to serve as liaison to the Portland Local Section for this mini-grant.

PROJECT WORK

The committee spent some time on Saturday afternoon and Sunday morning working in project teams according to the following schedule:

Saturday, August 19	Sunday, August 20
2:15 p.m. – 3:15 p.m.	9:15 a.m. – 10:10 a.m.
Local Section Engagement (Mike Matthews)	Supply Chain Sustainability Workshop (Jennifer Tanir)
CPT Supplement (Jennifer MacKellar)	Programming (Cathy Middlecamp)
Regulatory Statement (Carol Henry)	U.N. Sustainable Development Goals (Ed Brush)
Synthetic Biology (Chris Avery/Carol Henry)	“Blue Sky” planning (Tony Noce)

EXECUTIVE SESSION ON GOAL 1 (Sunday 11:00 – 11:30 am)

The current portfolio dashboard and project updates for Goal 1 are given in *Tab 7 of the Agenda Book*. Additional discussions and updates on particular projects are given below, and other project items such as minutes or slides are given in *Appendix 2*.

GOAL 1: Engage key researchers, industry decision makers, and consumers to incorporate sustainability into their practice and use of chemistry.			
Strategy		Lead	Report
1.1.2016	Programming strategic planning	Middlecamp (presented by Obare)	<p>The team wants to develop some standing symposia for CEI, especially in partnership with divisions.</p> <p>ENVR has committed to having a symposium at each National meeting focused around policy. The team requests suggestions for names of people who may be good speakers on such topics and maybe even lead organizing future symposia.</p> <p>The team also discussed fostering products from symposia so the messages are getting out to the appropriate stakeholders: other chemists, instructors, non-chemists. They are soliciting ideas on how to most efficiently do that.</p>
1.2.2016	Supply chain sustainability workshop	Tanir	<p>The team discussed the workshop that will be held at the GC&E in June 2018. Plan to focus on formulated products (coatings, sealants, adhesives, etc.) Format will be a series of panel discussions, and then a broader break-out session. A publication based on the output of the workshop is planned. The team requests suggested names for speakers by September/October time frame.</p>
1.3.2016	Communications	McNeill	<p>The team is always looking for new content. Please continue sending items to them, and also consider writing a blog post.</p>
1.4.2016	PISCES (industrial activities)	Hunt	<p>The purpose is to plan strategically on how can ACS better serve the industry members, which is a partnership with CA, ENVR, and AGRO. Three main suggestions have resulted:</p> <ol style="list-style-type: none">(1) Form strong partnerships; resources have been collated.(2) Industry participation strategies: Ensure that your activities/programming are viewed as valuable to industry scientists. Involve industry scientists in program planning efforts, awards committees, governance committees.(3) What else would make ACS essential to industry with respect to sustainability? ENVR recently surveyed industry members. Connections

			that enable them to shape things like curricula, publications, awards, etc. Next steps are to generate a report that will be shared with CEI prior to the next National Meeting. <i>(Slides are also given in Appendix 2.)</i>
1.5.2016	Film series	McConnell, Obare	The team has some good options for the Spring 2018, so they are on track. An additional film in Fall 2019 around the Water theme is being discussed, but want the film to be distinct on its own so it does not become an expected fall event; Elise suggested it to be part of the 'red carpet' event with National Geographic that they are planning.
1.6.2017 <i>(NEW)</i>	U.N. Sustainable Development Goals	Wissinger (reported by Brush)	The team discussed how to integrate chemistry and the chemical enterprise into the goals. Wissinger and Brush have volunteered to lead the team. The team has a work plan for New Orleans, and in preparation for that, they will prepare a 2-page whitepaper over the next 6 months. <i>A project proposal is forthcoming.</i>

EXECUTIVE SESSION ON GOAL 2 (Saturday 4:00 – 5:00 pm)

The current portfolio dashboard and project updates for Goal 2 are given in **Tab 8 of the Agenda Book**. Additional discussions and updates on particular projects are given below.

GOAL 2: Equip ACS members and advocates to be influential voices about policies in sustainable chemistry via development of appropriate tools for the relevant audiences.			
Strategy		Lead	Update
2.1.2016	Government Relations	Fox	We were unable to organize an effort for the DC meeting. We are refocusing and will have team members from the Energy policy statement fly in and meet with stakeholders this fall.
2.2.2017	Energy Policy Statement	Jayne	CEI will be the lead. It was emphasized that we also need to include the Energy and Fuels Division. Michelle Kidder of ORNL has agreed to support the effort. <i>See motion given above.</i> John Jayne has been selected as the lead for the writing team. Emily Grumbling and Elise Fox have volunteered to be part of the writing team.
2.3.2017	Hydraulic Fracturing Policy Statement	Cobb	ComSci will be the lead. Paul Robinson of ENFL has agreed to support the effort. <i>See motion given above.</i> George Cobb has been selected as the lead for the writing team from CEI.

2.4.2017 (DONE)	Sustainability Policy Statement	Giraud	<i>See motion given above.</i> Project is now considered complete.
2.4.2018 (NEW)	Climate Toolkit	McNeill	A project proposal is forthcoming.
2.5.2016 (DONE)	Climate Policy Statement	Jayne	Project is now considered complete.
2.5.2017 (NEW)	Water Treatment and Conservation Policy Statement	Giraud	<i>See motion given above.</i> Tony Noce appointed Robert Giraud to lead it. Keisuke has volunteered to be part of the team.
2.6.2016 (DONE)	Regulatory Policy Statement	Henry	Project is now considered complete.
2.6.2017 (NEW)	Inherently Safer Technologies Policy Statement	Weber	<i>See motion given above.</i> Tony Noce appointed Kate Weber to lead it. It was suggested to invite Corporation Associates to participate.
2.7.2016	Synthetic Biology Programming and Fact Sheets <i>(renamed from GMO programming)</i>	Henry	<p>They plan to develop programming at a 2018 or 2019 meeting around synthetic biology after the Fact Sheets are developed (see Strategy 2.10.2017). Carol Henry will put together a new project plan using the template. Subsequent to CEI meeting, CEI agreed to work with PRES and ENVR on Fall 2018 programming in Boston.</p> <p>The team is suggesting that the ACS come up with fact sheets on synthetic biology. A draft proposal is given in the Agenda Book on pages 8-7 to 8-8. Carol Henry will put together a new project plan using the template.</p>
2.8.2017 (DONE)	Scientific Integrity Policy Statement	Grumbling	<p>Joint statement of ComSci and CEI writing team co-led with Vera Mainz of ComSci. Also had representation from Corporation Associates; Carol Henry and Chris Avery also participated for CEI. The team decided to revise existing statement rather than to rewrite it. Add emphasis on all levels of government, not just at the federal level. Also improved wording to include both scientific and other technical input.</p> <p>A quote was added from an NAS report on the value of science for informing public policy. Disclaimer: Emily works at NAS but did not originate the idea to include the excerpt.</p> <p>Added importance of preservation and archiving of scientific data that are relevant to policy. Removed specific references to Obama administration policies since these are now archived online, and the policy statement stands well on its own without it.</p>

			<i>See motion given above. Project will now be considered complete.</i>
2.9.2017 (DONE)	Science and Technology in the Budget Policy Statement	Fowle	CCPA is the lead for this statement, and Jack Fowle was the CEI representative on the writing team. Instead of a complete overhaul, the writing team made targeted changes to the current statement. These included: emphasizing safety; emphasizing the importance of the government providing science funding to support efforts that would not be funded by industry; better reflecting consequences of decreased funding for national leadership and the economy; increased emphasis of the government's role in innovation; support for cross-training of scientists; and removal of the statement about administrative burden of academic researchers. The committee had a lengthy discussion of how to better support the assertion in paragraph two of the draft statement that R&D investments are responsible for nearly half of U.S. GDP growth since World War II. <i>See motion given above. Project will now be considered complete.</i>

EXECUTIVE SESSION ON GOAL 3 (Sunday 10:15 – 10:45 am)

The current portfolio dashboard and project updates for Goal 3 are given in **Tab 9 of the Agenda Book**. Additional discussions and updates on particular projects are given below, and other project items such as minutes or slides are given in *Appendix 2*.

GOAL 3: Engage networks of chemists and citizens to advance sustainability education and communication.			
Strategy		Lead	Update
3.1.2017	Fall 2019 ACS National Meeting Theme	Avery, Fox	<i>(Discussed Saturday 5:20 pm to 5:45 pm)</i> They plan to reach out to whomever will be ACS President that year to make it one of his/her focus areas, so there is integration between MPPG and Presidential programming. It will also help to bring in some interesting high-profile speakers. Three potential subthemes: chemistry of water; water of the people, water of the land. They are trying to get every division to do at least one symposium focused around water. They are also talking with the Greener Meetings team to do something similar during meeting registration around water. They also want to do some philanthropic activities as part of the meeting. It was suggested for them to also consider

			<p>partnering with the hosting local section to have the outreach event be focused around the theme.</p> <p>Chris has reached out the National Geographic to come up with a water-based documentary, potentially by recording a series of podcasts, maybe as part of symposium speakers or separately during the meeting (or in advance).</p> <p>Other potential sources for speakers and other programming: look at the Gordon conference held last year on the topic; Water Resources Research Institute (WRRI) of the UNC school system; EPA P3 grant program funds undergraduate projects has supported water-focused projects; U.S. Water Partnership; documentary ‘SlingShot’ by Dean Kamen. Emily Grumbling noted that USAID, through its Global Development Lab, sponsors projects in various regions around the world, including international collaborative projects for water, and can seek out contacts there for ideas of potential speakers.</p> <p>It was also suggested to have the Film Series for Spring 2019 meeting also have a focus around water in advance of this Fall 2019 meeting.</p> <p>Keisuke has signed up to be part of the team.</p>
3.2.2016	CPT guidelines	MacKellar, Aubrecht	<p>Supplement is optional guidance document for educators in ACS approved programs.</p> <p>Supplement on Green Chemistry includes: Making the case for green and sustainable chemistry, and topics such as molecular design, reaction efficiency, toxicology, systems thinking, LCA, alternative feedstocks, green metrics, polymers, etc. Also includes practical examples.</p> <p>Team has been meeting weekly since April, and have done over 15 revisions. They have received positive feedback from CPT project liaison, Bob Howell, as well as leaders and educators in green chemistry.</p> <p>They plan to do a virtual CEI vote to approve the supplement after revisions based on the discussion today, and then present to CPT at their January 2018 meeting. Then, the plan is to find ways to disseminate its existence, such as through the C&EN column, Nexus newsletter, or JChemEd article.</p>

3.3.2016	COP kids	Peterman	9 students will be attending this year; they will be blogging again.
3.4.2016	Curriculum award	Obare	<p>Please encourage people to apply; deadline is September 14. They will request for the symposium to be held on Monday morning, after the CEI Open Meeting, so please block it off on your calendar.</p> <p>They are also working on an ACS Books to archive the work that has come from these awardees.</p> <p><i>(See motion given above.)</i> Sherine Obare will lead the working group.</p>
3.5.2016	Local section outreach	Matthews (presented by Satterfield)	<p>The team discussed how we can increase the publicity of the local section activity grants, including through using social media to put out information about our awardees, and advertising with the Local Section Activities Committee or at the ACS Leadership Institute. Can we also form partnerships to increase the funding for these grants, such as with some divisions like CELL, or committees like CHED and YCC.</p> <p><i>See motion given above.</i> Tony Noce appointed Keisuke Ikehata to be the liaison to the Portland Local Section.</p> <p><i>(Team minutes are also given in Appendix 2.)</i></p>

REPORT FROM EXTERNAL AFFAIRS AND COMMUNICATIONS

Maxwell provided a verbal summary and a written report in **Tab 5 (pages 5-2 to 5-24)**. Specific items that were highlighted include (slides also given in *Appendix 3*):

- What's happening
 - Health care: Not procedurally dead
 - Budget resolution and Tax Reform: Passed House of Representatives on July 21, 2017, expect to see items that boost defense and cuts to non-defense. There are protections set for government spending until 2021 due to sequestration.
 - Appropriations: 2017 funding ends on September 30. The House Appropriations committee indicated that they wanted to not cut science funding. ARPA-E was almost cut but it has been restored.
 - Debt Limit: Expired in March; extraordinary measures expire on 9/29. It is expected to pass with some back-and-forth discussions, although it is a little shaky.
 - Advocacy Top Initiatives
 - Career Technical Education
 - Chemistry Caucus Update: House 52, Senate 12
 - Want to create a Science Laureate through NSF
 - There is also now a Helium Fund for Science
 - Bipartisan energy bill has been introduced, also sustainable chemistry

- What the Office of Public Affairs is currently focusing on:
 - Fostering the energy bill: content includes critical materials and efficiency standards
 - DOE Grid Reliability Study shelved
 - Paris Agreement: Formal withdrawal filed in August, but not binding until 2021
 - Much of science positions within the federal government are unstaffed: NOAA, NIOSH
 - EPA:
 - TSCA implementation is continuing; high priority chemical process has been finalized; 10 initial chemical evaluations in process
 - Public Affairs will now review solicitations for requests for proposals before posted on the federal register
 - Buyouts for career employees are continuing
 - Methane Rule was overturned in court; is this a trend?

REPORT FROM THE ACS GREEN CHEMISTRY INSTITUTE (GCI)

Jennifer MacKellar and David Constable provided a report on the highlights of ACS Green Chemistry Institute® (ACS GCI) activities since their last report to CEI in April 2017. Please see **Tab 5 (pages 5-25 to 5-27)** of the agenda materials for more details. Specific items that were highlighted include:

- 2018 Green Chemistry and Engineering Conference, June 18-20 in Portland, OR:
 - Theme for meeting is on Innovations in Products; call for symposia closes in October
 - Session on Tuesday morning will have an interactive session, such as a Faraday discussion or a workshop, where output will be a whitepaper.
- 2019 Green Chemistry and Engineering Conference will be June 11-13 in Reston VA, with the theme of “Closing the Loop”
- Education Initiatives:
 - Student chapters: How to advance what they are doing in terms of green chemistry
 - Program-in-a-box being sponsored this fall on “Chemistry Rocks”; link: <https://www.acs.org/content/acs/en/acs-webinars/program-in-a-box/pib-on-demand/rocks.html>
 - Still working on Education Roadmap and CPT supplement
 - ACS has added an 11th big idea called “Systems Thinking” based on the advocacy work of the GCI
- Nexus newsletter also is always looking for new content, and has an active Twitter presence
- Roundtables:
 - Pharma: now up to 18, 3 of new companies are from China, and also working to recruit from India and other countries
 - Chemical Manufacturing:
 - AltSep Project – There have been a total of 5 workshops over 2 years and the project team is working to write-up and finalize the technology roadmap.
 - High Performance Computing for Manufacturing – This DOE grant began 5 July 2017 and lasts one year. It is focusing on gaining a fundamental understanding of molecular interactions in confined spaces like pores in membranes or other mass separating agents.
 - BioMass Conversion – Looking to provide industrial perspective on the current trends in bio-based and renewable chemicals production shifting towards “drop-in” replacements.
 - Hydraulic Fracturing: Now 8 companies; working on alternatives to biocides

COMMITTEE ON COMMITTEES (ConC) LIAISON REPORT

Committee preferences were obtained in the spring, and initial assignment recommendations have been assembled. Also, two committee membership related petitions are up for consideration at Council. Please see Jetty if you have any questions.

INPUT REQUESTED FROM THE MEMBERSHIP AFFAIRS COMMITTEE (MAC)

Tom Gilbert presented that MAC is considering proposing bylaw changes to provide MAC authority to adjust membership categories and fees to facilitate experimentation with membership categories and renewal terms. MAC is seeking input on what ideas would be appropriate before proposing the eventual bylaw changes.

NEW BUSINESS

- *(None)*

ADJOURNMENT

The meeting adjourned on Sunday, 20 August 2017 at 12:01 p.m.

This document completes the Minutes of the Executive Session of Joint Board-Council Committee on Environmental Improvement for 19-20 August 2017 in Washington, D.C.

Respectfully submitted,
Melissa A. Pasquinelli
Secretary

Appendix 1—Photos



Appendix 2—Other Project Team Minutes and Presentations

1.1.2016: Programming Coordination

CEI Programming Group

Sunday, August 20

Attended: Keisuke Ikehata, Cathy Middlecamp, Sherine Obare, Robin Rogers, Susan Shih, Kate Weber

Our group offers two questions to our fellow committee members:

1. In what ways can our CEI national meeting programming engage different audiences with our policy statements?

We would hope to reach three audiences: (1) research chemists (2) instructors at all levels and (3) the general public.

The content/messages most likely would be different for each audience.

2. How might we set up a mechanism to better tap the expertise of CEI members?

Ideally this would be easy for folks to use and not overly burden their In Boxes.

For example, when we have symposia in other divisions, we would like to receive suggestions for speakers.

For example, when we have CEI sponsored symposia, we would want CEI members to help get the word out.

As a result of our discussions at the San Francisco meeting, ENVR is working with CEI to have a standing symposium on environmental policies to be held at each national meeting. The symposia will focus on discussing policies related to the meeting theme as well as other policies that CEI wishes to highlight.

To increase the visibility of CEI's policy, we propose having ENVR's CEI symposium be co-programmed with CHED so that we can have: Have a “standing” symposium at each national meetings that feature the educational aspects of one or more of CEI's policy statements will be organized. We will invite speakers who can present ways to engage students in learning chemistry with this policy statement.

A related idea: co-publish a monograph that combines chapters from ENVR speakers on the policy statements with chapters from those who are using it in their classrooms.

Charting the Course to Sustainable Chemistry in the Supply Chain

Join chemists driving sustainability throughout the formulation supply chain for an interactive session where we brainstorm, problem-solve, and plan. This 1.5 day session builds on [conversations](#) at the 2017 GC&E Conference and a [Green Chemistry article](#) by the Formulators Roundtable to create a roadmap to better incorporating sustainable chemistry in the supply chain.

Outline / Format

- Panel discussion, such as 3 speakers each with ~5 min presentation followed by 15 min discussion, with moderator to help keep on track with discussion questions.
- Morning introductory presentation, then a panel discussion and breakout & report back; lunch; afternoon panel, breakout & report back. Next morning entire group decides on steps, each breakout group brainstorms how to achieve their step, then reports back to assemble entire roadmap.

Speakers / participants (brainstorming list):

- Phil Slyva – pretty busy
- Amit Segal – Solvay
 - Personal care products, greener materials that can be sold into personal care business
 - How do we come up with “Green” ethylene oxide, make “green” ethoxylates
- Homer Swei – formaldehyde, reducing preservatives for J&J cosmetics, good speaker
 - GC3 biocide/preservatives project – how that came about, how to move it along
- Phil Jessop or – lead author on formulation report
 - Using “machine learning” on the rational molecular design, academic to small business
 - Is Canadian, Queen’s University
- Richard Blackburn
 - Textile and personal care products – simplifying formulation, reducing the ingredient list; academic working with companies; GC&E 2018 conference co-chair
- Spencer Williams – with ATSDR, regional branch director in Kansas City – supply chain analysis of products, would know people to talk to about speaking – risk categorization
- Bryan Brooks, gifted speaker – Green Chemistry conference in Reston – going through 600 products in
 - MODRN – Rational Molecular Design Consortium that Paul Anastas put together... tool development to inform chemists on how to do better design based on Zebra fish
 - Kristin Connor, was at EPA as a postdoc doing part of the tox21 – good speaker
- Paul DeLeo
 - American Cleaning Institute (ACI), regular at GC meeting
 - (Spencer Williams, Bryan Brooks, Kristin Conner, Paul DeLeo – all were involved in the same project for ACI)
- Annie Weisbrod – P&G supply chain
 - Diaper sorbents, detergents in terms of end-of-life
- Next GC3 meeting is in Kingsport – Unilever, J&J – effort to reduce preservatives (preservatives challenge) – expect they will have something to report by next June. Robert can look into their timeline for selecting a challenge winner.
- Safer Choice in EPA – Bridget Williams, Alie Lorenz (?)
 - Formulators program, the process, why it benefits companies to utilize the list...

- Check back in October (on chopping block)
- 7th Generation – Clement Choy, co-chair of ACS GCI Formulators’ Roundtable
- Target – hosted the GC3 meeting in Minneapolis
- Chemical Footprint Project – where we are now, avoid list
- RSL – restricted substance list → EPA Safer ingredient list → purpose design & use of chemicals – rational molecular design as applied in formulation chemistry
- Formulators aren’t sharing RSL’s with manufacturers
- Ed Benzwinger – Toxicologist, formulator, paint –AkzoNobel has been working through the RSL – activities that Akzo is doing to eliminate certain materials by ___ time. Next step is looking for alternatives
- Bob Israel, Theresa McGrath – Valspar – replacing biocides in their paints
- Lauren Heine - Northwest Green Chemistry, webinars to put together a selection guide – antifoulants – Jen has been in touch with her recently. Also work with American Coatings Association.
- ACS non-metals based antifoulants that’s been looking for year
- George Cobb – has Canadian contacts; we can also ask Phil Jessop for other contacts in British Columbia.
- Doug Mazeffa – LCA, Sherwin Williams, 2011 Green Chemistry winner -- SW water-based acrylic

Note: Each of the bullets below a topic are aspirational. No speaker will likely have time to cover all, but this is where we want to focus.

INTRODUCTORY PRESENTATION(S)/PLENARY:

- Introduce CEI and the workshop, goals, structure of day, etc.
- Short introductions around the room
- Inspirational speaker to kick off the workshop

SESSION 1:

- **How do you drive change?**
 - What are the challenges and barriers you find in driving sustainable innovation?
 - What works, what do you recommend?
 - By what measure do you define successes?
- Thinking about a recent success, what are some universal truths and advice on how to replicate?
 - What were the barriers, and how were they overcome?
 - With 20/20 hindsight, what would you do differently?
 - Fill in the blank: if ___ were true, this would have been easier.
- Are there any government or NGO incentives or policy recommendations you would make as a result of your experience?

Breakout & report back on Session 1 topic

SESSION 2:

- **Discuss goals.** (For example, are you trying to move towards “safer chemicals”, “better processes”, or “green design”?)
 - What are the **goals of your company**, and why are these your goals?
 - What are the biggest challenges to meeting them? What has been easy?
 - **Let’s reach consensus on goals for this supply chain: what does successful adoption of sustainable chemistry look like?**
 - **What should your supply chain’s goals be?**

- What would have to be true (in the economy, in government, in your company, etc.) to adopt that goal? What would have to be true (that's currently true or not) to achieve it?
- Are there any government or NGO incentives or policy recommendations you would make as a result of your experience? Any other recommendations?

Breakout & report back on Session 2 topic

SESSION 3:

Let's chart the course: decide as a group (via a facilitator) the ~4 or 5 big milestones needed to move from current status to goal status.

Breakout groups work by milestone, developing sub-milestones and proposed approaches.

WRAP UP:

- Breakouts report back to whole group by milestone to assemble entire roadmap/strategy.
- Where we go from here; next steps
- Final remarks

Themes to pay attention to:

- Communication within companies, throughout the supply chain
 - Education (of workforce – sales, R&D, executives – and of customers)
 - Risk assessment / risk management for alternative materials
 - Adoption rates (and barriers) for alternative materials.
 - Corporate culture / approach to sustainable chemistry
-

Who to communicate with around getting the right rooms at GC&E 2018 conference

Dawn Holt d_holt@acs.org

Jane Day j_day@acs.org

ACS PISCES

Partnering to Integrate Sustainability into the Chemical Enterprise Strategically

A joint team of
ACS CA, CEI, ENVR and AGRO

Team Members

Anne DeMasi, **Jurgen Exner**, Robert Giraud, Emily Rose Grumbling, **Katie Hunt**, Mark Jones, Laura McConnell, Bevin Parks, Eric Peterson, Barclay Satterfield.

Aug 2017

1

Team PISCES

Partnering to Integrate Sustainability into the Chemical Enterprise Strategically

- **Championed by:**
 - Diane Grob Schmidt, Past President, ACS and Chair, Corporation Associates (CA),
 - Tony Noce, Chair, Committee on Environmental Improvement (CEI);
 - George Cobb, Chair, Division of Environmental Chemistry (ENVR).
- **Supported by ACS Staff:**
 - Susan Ainsworth (CA),
 - David Constable (ACS GCI),
 - Ray Garant (CEI),
 - Nathaniel Janick (Contractor).

2

PISCES Background

- **Who? ACS and Industry Members**
 - **Strategic planning sessions** identified that we (ACS CEI, ENVR, AGRO and others) are under-serving our industry members...
- **What? Our desired state is**
 - **WE** (ACS CEI, ENVR, AGRO and others) are indispensable **resources to** and **partners with** industry across RD&D in the all areas of the S&T of Sustainability.
- **Why? We share** the same goals

3

Start with the end in mind...?

- PISCES Team – Report (Fall 2017) to recommend:
 - Short list (1-3) ideas for incentivizing industry engagement with sustainability

4

1. Shared Goals Make for Strong Partnerships!

Bayer “Science for a Better Life”

Chemours “The New Equation Requires More Sustainable Chemistry”

Eastman “Innovation and Sustainability go hand in hand...”

Company Links to Sustainability Goals on next slides

5

Shared Goals Make for Strong Partnerships!

Afton Chemical Corp. Responsible Care <http://www.aftonchemical.com/Passion/Safety/Pages/ResponsibleCare.aspx>

Bayer: <http://www.bayer.com/en/sustainability.aspx>
Reporting: <http://www.annualreport2015.bayer.com/>

Chemtura Sustainability: <http://www.chemtura.com/Pages/Sustainability.aspx>
Chemtura Report: <http://investor.chemtura.com/releasedetail.cfm?releaseid=972795>

Chemours Sustainability: <https://www.chemours.com/our-company/sustainable-chemistry/>

Eastman Sustainability: <http://www.eastman.com/Company/Sustainability/Pages/Introduction.aspx>
Eastman Report: http://www.eastman.com/Company/Sustainability/Pages/Report_Builder.aspx

P&G Sustainability: <http://us.pg.com/sustainability>
P&G Reports: <http://us.pg.com/sustainability/at-a-glance/sustainability-reports>

Dow Sustainability: <http://www.dow.com/en-us/science-and-sustainability/> and **Dow Report:**

DuPont Sustainability: <http://www.dupont.com/corporate-functions/sustainability.html>
DuPont: <http://www.dupont.com/corporate-functions/sustainability/performance-reporting/sustainability-reports.html>

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Force Multiply – *not duplicate* - S&T Sustainability Efforts by Partnering with NGO's and Nat'l Labs

American Chemistry Council (ACC) [Responsible Care](#)

American Chemical Society (ACS)

ACS Strategic Plan <http://strategy.acs.org/>

[Committee on Environmental Improvement \(CEI\)](#)

Division of Environmental Chemistry (ENVR) <http://acsenvr.com/>

Green Chemistry Institute (GCI) <https://www.acs.org/content/acs/en/greenchemistry.html>

National Academy of Sciences (NAS)

[Sustainability at the Academies](#)

[Round Table for the Science and Technology of Sustainability](#)

American Institute of Chemical Engineers (AIChE)

Institute for Sustainability (IFS) <http://www.aiche.org/ifs>

credential for sustainability professionals...

Idaho National Labs (INL) <https://www.inl.gov/about-inl/inl-safety/sustainability/>



2. Industry Participation Strategies



Recognize that many industry members may not be able to attend ACS meetings



Involve Industry Scientists in your Program Planning Efforts, Awards Committees, Governance Committees



Email Newsletters

Social Media



Ensure that your activities/programming are viewed as valuable to industry scientists.

ENVR (Division of Environmental Chemistry)

Started with a survey...

- **What are the obstacles to:**
 - **attending** national meetings?
 - **presenting** and/or **authoring** technical papers?
 - **organizing** symposia?
- **What are obstacles to involvement in** your Division?
- **What can we offer to:**
 - **attract** you and **convince** you/your management to support the time and cost?
- **Would you be interested in serving on:**
 - an **Industrial Advisory Board (IAB)** that helps us focus our programming to add value to you, our industry members?

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ENVR Respondents said that they...

Small but Thoughtful Sample Size

- **Attend** focused meetings that have a broad interest to them, such as technical value and presence of clients, regulators, and other industrial/consulting participants.
 - **Generally feel** that ACS and Division meetings are tailored to meet the requirements of the academic track
- **Value:**
 - **Networking** with peers and technical experts
 - **Having a seat at the table** with great technical minds,
 - **Listening, Learning and Avoiding** technical surprises

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3. What else would make ACS essential to industry...wrt* integrating Sustainability into the Chemical Enterprise?

- **Connections that enable us to shape where emphasis is focused via...**
 - S&T education – esp., graduate education
 - Publications, Journals...(is it the product/topic? the advertising? the availability beyond ACS....)
 - Awards
 - Other incentives?

*wrt = with respect to...

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What's Next...?

- PISCES Team – Report (Fall 2017) to recommend:
 - Short list (1-3) ideas for incentivizing industry engagement with sustainability

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AGRO is a Division of the American Chemical Society with roots dating back to 1951.

AGRO brings together a worldwide community of scientists and stakeholders to advance knowledge and promote innovative solutions for the protection of agricultural productivity, public health, and the environment.

AGRO has recently expanded the scope of its scientific programming to include emerging areas in agricultural science, such as bioenergy, biofuels, and life cycle assessment.

AGRO represents a dynamic, multi-disciplinary group of scientists and engineers, such as chemists, toxicologists, chemical ecologists, agronomists, soil scientists, engineers, microbiologists and other disciplines related to agricultural science.

AGRO offers its members an interactive and supportive environment for professional growth, based on innovative programming and services that meet member needs.

AGRO is especially active in supporting new scientists and students with

- ✓ opportunities to attend ACS National Meetings and other meetings
- ✓ developing new collaborations, and
- ✓ exploring networks.



Join Us! Here's Why:

- ◆ Network with colleagues and leaders in your field and form new collaborations
- ◆ Stay abreast of the latest advances and technologies
- ◆ Participate in symposia that interest YOU
- ◆ Develop your leadership and professional skills
- ◆ Find camaraderie in ACS and at the AGRO Social

AGRO Communication

PICOGRAM

- Published just prior to the Spring and Fall ACS National Meetings
- Provides information about meetings, programming activities, opportunities for students, and award announcements
- Available in online electronic format and in hard copy to AGRO members

E-Newsletter

- Sent monthly via email to AGRO members and to those who register for email updates
- Subscribers can post job announcements at no charge

Other AGRO Benefits

- Receive 40% discount on AGRO-sponsored books
- Gain access to slides from talks at previous AGRO meetings
- Participate in AGRO-sponsored Lunch and Learn webinars

How to Become a Member

Complete and submit form at www.agrodty.org

- ✓ Non-ACS member \$16
- ✓ National Affiliate ACS member \$16 (add AGRO membership to existing National Affiliate ACS membership)
- ✓ ACS member \$14 (add AGRO membership to existing ACS membership)
- ✓ Student ACS member \$5 (add AGRO membership to existing ACS student membership)

Participate in AGRO

- Network with other professionals with common interests and learn and share information
- Become involved and contribute to agrochemical-related activities nationally and internationally
- Join committees on communications, awards, international activities, social events, governance, and other volunteer activities

AGRO Meetings

AGRO programs at the Fall ACS National Meeting

- In 2014, AGRO will co-sponsor the IUPAC 13th International Congress on Pesticide Chemistry www.iupac2014.org



- In 2015, AGRO will be in Boston, so join us Wednesday, September 11, 2015, in an exciting brainstorming activity to plan symposia for this meeting

AGRO co-sponsors other ACS and Organization Meetings

- 51st North American Chemical Residue Workshop to be held July 20-23, 2014 in St. Pete Beach, Florida



- ACS Pacificchem 2015 to be held in Hawaii, December 15-20, 2015

For more information
www.agrodty.org

1.6.2017: U.N. Sustainable Development Goals

ACS Committee on Environmental Improvement

Saturday, August 19, 2017

CEI “Working Group”: Does Green Chemistry contribute to Social & Environmental Justice?

Elise Fox, Carol Henry, Melissa Pasquinelli and Ed Brush

Discussion Topics:

- (1) Background - Connecting the question of Social & Environmental Justice to ACS, Green Chemistry and the CEI:
- (2) Role and Involvement of the CEI:
- (3) Questions to be considered:
- (4) Potential Obstacles:
- (5) To do list – Ideas for future events, potential speakers and other stakeholders:

Miscellaneous Information - Results of SWOT analysis from the 2017 Green Chemistry & Engineering Conference (Brush & Lasker):

Objective (end state): “To incorporate the principles of social & environmental justice into chemistry and especially green chemistry teaching, research and outreach”.

- **Strengths** – Those characteristics that give us an advantage.
- **Weaknesses** – Characteristics that place the project at a disadvantage.
- **Opportunities** – External elements that the project could exploit to its advantage.
- **Threats** – External elements that could cause trouble for the project.

Approach: Evaluate series of topics/questions that we hope will generate meaningful information for each category (SWOT):

- (1) **Relevance of social & environmental justice (S&EJ) to chemistry/green chemistry (“good fit”?).**
- (2) Incorporating S&EJ into chemistry/green chemistry education.
- (3) **Capacity needed to develop meaningful relationships with community partners.**
- (4) Engaging college students.
- (5) Engaging K-12 teachers & students.
- (6) Can S&EJ connect with the “science” of green chemistry (research & development)?
- (7) Funding for this project

(1) Relevance of S&EJ to chemistry/green chemistry (“good fit”?)	
STRENGTHS	WEAKNESSES
Motivation (inspiration) for students	Match GC principles with EJ principles
GC principles are in alignment	Science has been politicized
Students in STEM want to have an impact and be ambassadors	Not in STEM faculty comfort zone
Collaborate with other non-STEM academic departments	Professional development needed
	Vocabulary/ definitions (different for academic, industry, political, etc.)

	Activism not in comfort zone
	GC has answers but need to be resolved
	Prioritize as a need; money; resources
OPPORTUNITIES	THREATS
Pull in student's own experiences	Need to be mindful of how presented...may polarize
Partner with chemical companies; Beyond Benign curriculum	"Science haters"
Partner with non-STEM groups interested in S&EJ in the community/education; system/disciplines	Mindset that chemicals are bad; want "chemical free"
Bring concrete examples of what chemistry/green chemistry has done and can do for society	Conversation is hazard only w/o consideration exposure/risk
Help students be advocates	Availability of funding; also for multidisciplinary projects
Availability of funding	
Exploit teaching of scientific method as problem solving technique, adapted with techniques used by other disciplines	
Economic benefits of S&EJ	

(3) Capacity to develop meaningful relationships with community partners	
STRENGTHS	WEAKNESSES
We are part of a community and need to be an active part	Who will develop these partnerships?
Service learning and community partnerships in academe	How to make the connection/transition to Community Based Research?
Web of connections in community	How to communicate
Students are willing to do outreach	Not valued in academia for tenure/promotion
	What are the local problems; where to get info
	Weakness of connections in academic community
OPPORTUNITIES	THREATS
ACS, etc. need to attend local community meetings	How to communicate
Community resources, people and time	Know what we have to offer
Contact board of public health for info on issues	What works in developing these relationships
Build relationships with manufacturing & engineers	Time investment
Pipeline work; demonstrate in the community; impacts STEM pipeline	

<p>American Chemical Society ACS Green Chemistry Institute®</p> <h2>Green Chemistry Supplement to ACS Guidelines for Bachelor's Degree Programs</h2> <p>Progress Report to CEI Washington, DC August 20, 2017</p> <p>Working Group: Kate Aubrecht, Marie Bourgeois, Ed Brush, Jane Wissinger</p>	<p>ACS Chemistry for Life® ACS Green Chemistry Institute®</p> <h2>Outline</h2> <ul style="list-style-type: none"> • What are the ACS Guidelines? • Purpose of the project • Past efforts • Progress report on the supplement • Next steps and timeline • Feedback from the Committee <p>American Chemical Society ACS Green Chemistry Institute®</p>										
<p>ACS Chemistry for Life® ACS Green Chemistry Institute®</p> <h2>ACS Guidelines</h2> <ul style="list-style-type: none"> • ACS has charged the Committee on Professional Training (CPT) with the development and administration of guidelines to promote excellence in chemistry education for undergraduate students through approval of baccalaureate chemistry programs. • Offering such a rigorous program requires an energetic and accomplished faculty, a modern and well-maintained infrastructure, and a coherent chemistry curriculum that develops content knowledge and broader skills through the utilization of effective pedagogical approaches. • ACS authorizes the chair of the ACS-approved program to certify graduating students who complete a bachelor's degree meeting the ACS guidelines. • An ACS-certified degree signifies that a student has completed an integrated, rigorous program including introductory and foundational course work in chemistry and in-depth course work in chemistry or chemistry-related fields. <p>American Chemical Society ACS Green Chemistry Institute®</p>	<p>ACS Chemistry for Life® ACS Green Chemistry Institute®</p> <h2>ACS Guidelines</h2> <ul style="list-style-type: none"> • Currently 689 approved programs in the U.S., resulting in nearly 7,000 reported ACS-certified B.S. graduates in 2015. • What do the Guidelines cover? <table border="1"> <tr> <td>Institutional Environment</td> <td>Student Skill Development</td> </tr> <tr> <td>Faculty & Staff</td> <td>Program Evaluation</td> </tr> <tr> <td>Infrastructure</td> <td>Graduate Certification</td> </tr> <tr> <td>Curriculum</td> <td>Student Skill Development</td> </tr> <tr> <td>Undergraduate Research</td> <td>Approval & Review Process</td> </tr> </table> <p>American Chemical Society ACS Green Chemistry Institute®</p>	Institutional Environment	Student Skill Development	Faculty & Staff	Program Evaluation	Infrastructure	Graduate Certification	Curriculum	Student Skill Development	Undergraduate Research	Approval & Review Process
Institutional Environment	Student Skill Development										
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Undergraduate Research	Approval & Review Process										
<p>ACS Chemistry for Life® ACS Green Chemistry Institute®</p> <h2>Supplement on Green Chemistry</h2> <ul style="list-style-type: none"> • Purpose: Develop a green and sustainable chemistry supplement to the ACS Guidelines. • What is a supplement? This supplement is an optional guidance document for educators in ACS approved programs to aid in the integration of green and sustainable chemistry concepts throughout the foundational chemistry courses. • What's in this supplement? <ul style="list-style-type: none"> – Making the case for green and sustainable chemistry. – Green and sustainable chemistry conceptual topics (molecular design, reaction efficiency, toxicology, systems thinking, LCA, alternative feedstocks, green metrics, polymers, etc.) – Practical examples of green and sustainable chemistry for each chemistry subdiscipline. <p>American Chemical Society ACS Green Chemistry Institute®</p>	<p>ACS Chemistry for Life® ACS Green Chemistry Institute®</p> <h2>Developing the GC Supplement</h2> <ul style="list-style-type: none"> • Development Process: <ul style="list-style-type: none"> – Current working group formed in January 2017 – Tasked with combining (different, yet valuable) previous drafts – Since April, weekly meetings, over 15 revisions – Positive feedback from CPT project liaison, Bob Howell • Constructive Feedback from Green Chemistry Leaders & Educators: <ul style="list-style-type: none"> • Amy Cannon • Irv Levy • Jim Hutchison • Cathy Middlecamp • Tom Holme • David Constable • Mary Kirchoff • Dalila Kovacs <p>American Chemical Society ACS Green Chemistry Institute®</p>										

Next Steps

- CEI discussion and feedback
- Additional revisions as needed
- Post-DC virtual CEI vote to approve the supplement
- Present to CPT at their January 2018 meeting
- Communication/promotion of the supplement
 - Publications
 - Communication plan

CEI Feedback

- Thoughts?
- Questions?
- Ideas?

Questions

- Does the draft supplement express the spirit that this is the “future of chemistry education”?
- How can the CEI reach out to the CHEM-Ed community to publicize this supplement once approved by CPT?
- How can we best get ready for the next round of major revisions to the CPT guidelines?

3.5.2016: Local Section Outreach

CEI Local Section Activities Subgroup Report:

(Present: Mike, Keisuke, Barclay, Melissa, Robin, Keith, Susan, Eileen, Catherine Hunt, Paul Schorr/contact info needed for Paul.)

1. Recommend LS Minigrant Award (\$500) to Portland LS for their 2018 Green Chemistry Program
2. Will thank Portland for its report on 2016 Green Chemistry Day activities

LS Outreach discussions:

3. Short-term (in-house) work
 - a) outreach to be done to generate additional funds for Sustainability minigrants (e.g. \$250 from CEI; \$250 from divisions/committees. Goal is to contact CHED, YCC, Cellulose, AACT, and (proposed news) Space Chemistry division. We have a volunteer to do this.
 - b) Subgroup also has a volunteer who will work on a template/format for LS to program sustainability activities
4. Develop ongoing Strategic/structural partnerships & lines of communication
 - a) Need strategic discussions with LSAC to develop sustainable approach to working with/communicating with LS. Recommend we invite LSAC to speak with CEI at New Orleans Meeting?
 - b) What can CEI do on a regular basis at the ACS Leadership Institute each year to promote sustainability, grants, and partnerships?
5. Media/outreach. Work with Emily G and Jenny Mac about appropriate content and outlets to promote CEI sustainability accomplishments (e.g. interesting minigrants; Chemluminary; and programming). Nexus, FB, social media.
6. Brainstorming
 - a) Provide CEI speaker/co-organizer to willing LS meetings. Reach locally for issues, audiences, experts, ... Perhaps a provisional budget commitment (line of credit) from CEI.
 - b) Increase size of minigrants; or develop a tiered minigrant award system (e.g. \$500, \$1,000, \$1,500)
 - c) Very short, general discussion: How to keep "sustainability" concept clear, relevant, fresh, communicable... to our target audiences.
7. Accountability within our subgroup (promoting communications, followup, actions)
 - a) Schedule 3 teleconferences before New Orleans, March 2018 (weeks of Sept 25, Nov 13, and Jan 22 suggested)
 - b) Establish our own shared folder (on the ACS network or some place that is not blocked by organizational firewalls)

Appendix 3—Slides from Staff Reports

 <p>Government Affairs Activities Update Committee on Environmental Improvement</p> <p>American Chemical Society</p>	<p>American Chemical Society</p>  <p>J. Carl Maxwell Office of Public Affairs April 1, 2017 c_maxwell@acs.org</p>
<h3>Areas of Activity</h3>  <ul style="list-style-type: none">• What's, uh, happening• Budget & Tax Reform• Appropriations• Debt Limit• Advocacy Snap Shot• Dates <p>American Chemical Society 3</p>	<h3>Health Care</h3>   <p>American Chemical Society 4</p>
<h3>2018 Budget Resolution & Tax Reform</h3>  <ul style="list-style-type: none">• Passed House of Representatives on July 21, 2017• Contains Tax Reform Instructions• \$200 Billion Entitlement Reforms• Boosts Defense, Cuts Non Defense <p>American Chemical Society 5</p>	<h3>Appropriations</h3>  <ul style="list-style-type: none">• 2017 Funding ends September 30• House has passed all 12 Bills out of Committee• 6 Senate Committee Bills out of Committee• Omnibus or Shutdown <p>American Chemical Society 6</p>

Debt Limit

- Expired in March
- Extraordinary Measures expire on 9/29
- Treasury Secretary calling for immediate vote
- Broad Disagreements
 - Freedom Caucus vs. Moderates
 - GOP vs. Dems

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Issue Areas

- Quick Overview
- EPA
- Climate Change

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EPA

- TSCA Implementation Continuing
 - High Priority Chemical Process finalized
 - 10 Initial Chemical Evaluations in Process
- Appointments
 - Deputy Assistant Administrator for Research and Development: Richard Yamada, Ph.D.
 - Deputy Assistant Administrator for Chemical Safety and Pollution Prevention: Nancy Beck, Ph.D.
- Public Affairs to Review Grant Requests
- Buyouts
- Methane Rule overturned in Court; a Trend?

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Advocacy Top Initiatives

- Career Technical Education
- Chemistry Caucus Update
 - House membership: 52
 - Senate membership: 12
- Science Laureate Bill
- Helium Fund for Science
- Energy Bill
- Sustainable Chemistry Bill Re-introduction



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General Overview

- Energy Bill Introduced
 - Critical Minerals
 - Efficiency Standards
- Science Appropriations
- Sustainable Chemistry Report Language
- DOE Grid Reliability Study Shelved
- Paris Agreement

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Questions?

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