General Description

The Air & Waste Management Association’s (A&WMA’s) Environmental Challenge international (ECi) program is a student team competition to prepare and present an optimal solution to a complex “true-to-life” environmental problem. The problem presented will be of current value, representative of the location of the event, and require multi-disciplinary approaches for success. The Challenge seeks not only technical and scientific analyses, but solutions that are presented in conjunction with the development of appropriate regulatory approaches and resolution of political and community issues.

The goals of the ECi are to:

- Involve students in A&WMA’s Annual Conference and Exhibition (ACE), which for 2020, will be a virtual conference
- Provide experience in solving complex environmental situations in a fun and supportive atmosphere
- Provide students with an opportunity to display their talents
- Be a premier networking event for students to connect with internship and job opportunities
The ECi is designed to promote formation of student teams with the broadest feasible range of environmental disciplines including engineering, planning, policy, economics, and various other sciences. The problem will be relevant to the conference location and current events. Teams must research the problem background, as well as the technical, social, economic, and political aspects of the situation. Teams must stay apprised of ongoing events related to the problem adjusting their solutions appropriately leading up to and during the conference.

Although winning solutions to the proposed problem must have sound engineering and technical bases, the solution does not require a full engineering design presentation. Similarly, all problems pose economic and political issues that must be addressed. Solutions are expected to provide reasonable resolutions applying basic engineering and scientific knowledge to research scenarios and critical questions.

Student teams should start to form following the posting of the problem. Just as corporations and other organizations pull together teams from their staff to most effectively address any given project, so too should each student team begin by identifying and recruiting representatives from appropriate disciplines as needed to address the problem holistically. Schools may wish to consider combining students to make balanced teams and are encouraged to do so.

**Student teams must register for the ECi by emailing Patrick Sullivan (PSullivan@SCSEngineers.com). The email should be sent by one team member and have the subject “A&WMA: ACE 2020 – ECi Registration.”**

In the body of the email, you should include 1.) Your team name, 2.) The academic institution your team represents, and 3.) The name and email of each team member.

**Please note: Each team member must also register for the ACE virtual conference in addition to registering for the ECi. If all of the team members are NOT registered, the team cannot participate.** Register online at: [https://www.awma.org/ace2020registration](https://www.awma.org/ace2020registration)
During the virtual conference, preparation that includes broad background knowledge of the challenge topic will be the key to a successful competition. Role players in the ECi problem will be identified, and we will arrange a virtual session for students to question and consult with role players for opinions. The role players are A&WMA members and professionals in the environmental field. Student teams, who may need additional technical support with defending their project, will be given access to additional experts and professionals virtually with expertise that is germane to the ECi problem, if needed. The role players provide a key interaction for the ECi participants as direct feedback on their solutions, asking questions to prepare the students for the project presentations, and enhancing the student networking experience for the virtual ACE. The role players are also critically involved in the project “tweak” – a last minute added complication to the problem - that further tests the students’ knowledge of the challenge topic and reflects what happens on most real-life projects.

**ECi COMPETITION PREPARATION**

**Eligibility**

Student teams may not contain more than 5 members and are generally comprised of 3 to 5 undergraduate students, graduate students, Ph.D. candidates, or recent graduates, or a combination thereof. Multiple schools may wish to consider combining students to create balanced teams and are encouraged to do so.

A student is defined as an individual who is enrolled in an academic institution or a recent graduate of no more than one year.

**Expectations for Proposed Problem Solutions**

Solid technical analysis, logic train, process, conceptualizations, and creativity are all critically important to the proposal and presentation composition. Clear and concise presentation of your thoughts in a public forum is paramount to success. Your team will need to make reasonable
assumptions as part of the solution. The assumptions must pass the “straight-face” test. This is (almost) the real world! The proposal must identify each team member by name and the role they will have in the presentation (e.g., “Sally Smith” is the lead project engineer and will address waste issues, “Jim Jones” is the city planner; include the disciplines that you think you need).

**Written Proposal**

Each team must submit, via email to Patrick Sullivan (PSullivan@SCSEngineers.com), a written proposal in advance of the virtual ACE 2020 that addresses the problem. The proposal must be received by 5:00 p.m. EDT on Friday, June 12, 2020. The written proposal should provide an outline of the approach that your team is going to take, the issues that you will be discussing, include the names and roles of each team member, and **shall not** exceed 3 pages.

The written proposal will contain a *cover page* with the team name, name of academic institution that the team represents, each team member’s name and email address. The cover page is not counted as part of the proposal’s 3-page limit. Additionally, references and appendices may be included but make sure these are clearly identified as such. If included, these are not counted in the proposal’s 3-page limit and **please keep in mind the judges will only be scoring based on the 3-page proposal.**

The written proposal should be 1.5-spaced, 12 point Times New Roman, with 1” margins.

**The Tweak**

No matter how much you research and preparation you conduct, unexpected events and changing expectations can and do occur in real life. To this end, you should expect (available on or about **June 19, 2020** on the AWMA ACE website) some late breaking information that might alter your approach to the solution. The problem and the tweak will require that you communicate with “experts” and attend technical sessions during the virtual conference to find answers and important information. If you need assistance in finding key experts to seek input, the ECi committee can help
identify and connect you with additional experts for telephone, email, or other virtual communication.

**Role Players**

During the ECi competition, you will be required to participate in a virtual session with role players involved with the problem. These role players will be project proponent(s), regulators, politicians, activists, and other expected or unexpected individuals critical to creating a solution to the problem. Role players will offer insight and clarify any additional questions each team may have in relation to the problem. During the virtual ECi orientation session, role players will be introduced, and the details regarding the virtual role-playing session will be made known. Role players will also be judging your interactions with them.

During the virtual role playing session, as with all ECI sessions, please use professionalism and behave just as you would during an in-person business meeting. However, please make sure to have fun while remembering your environment and the virtual nature of the interactions. Technical difficulties may occur, so please have patience while everyone works through the remote process. While these role players are critical, so are the virtual technical sessions that are related to the problem.

**Poster Presentation and Virtual Role Playing Session**

All events will take place virtually on Wednesday, July 1st. Instructions on how to use the Cadmium and Zoom system will be sent to the teams.

During an in-person ACE, each team would normally prepare and bring a poster presentation of the proposal to ACE. In addition, while presenting the posters, teams would be interviewed by role players about their proposal and poster. However, in light of the virtual conference that is occurring this year, we are changing the Poster Presentation guidelines.

Your virtual poster will be presented via PowerPoint or similar format slide show during a webinar with the ECi judges and role players. The first slide must include a title, university represented, and the full team listing.
Figures, graphs, and tables should be uncluttered and simple and arranged in the sequence in which you want them to be viewed. Please limit the virtual poster to 5 slides, in addition to the title slide, and include the same information you would include in a real poster.

Team members should prepare a brief “elevator speech” to be given during the poster webinar session. You will have up to 5 minutes to go through your slides and explain your virtual poster. The virtual poster presentation should summarize important assumptions and conclusions and clearly articulate proposed solutions to the challenge problem.

Judging and interaction with the role players will take place after the posters are presented in a virtual interview. The virtual poster and role playing sessions will be take place **Tuesday, June 30, 2020 from 2:00 pm to 4:00 pm Eastern Time.** Each team will be given a specific time slot prior to the event, which will be chosen at random. Each team will have 15 minutes to interact with the role players after the poster presentation. The role players may ask questions of the teams, and the teams can ask questions and seek input from the role players.

**Initial Scoring**

The combined scores from the written proposal, poster, and role player interaction will be tallied and the top scoring teams will progress to the Final Presentation. The names of the teams moving forward will be posted on the A&WMA website as soon as possible after the poster/role playing session as well as emailed to all of the teams.

**THE FINAL PRESENTATION**

Depending on the number of teams entered into the ECI, only a limited number of teams may be chosen for the final presentation.

For the final presentation, teams must demonstrate their understanding of the issues in the written proposal and poster presentations and address the tweak. Sustainable approaches for these and other site issues are of great interest to the project owner(s).
*The winning team presentation will be strong in approach, logic, clarity, application, and creativity.*

Each of the teams in the final competition will present their problem solution during virtual sessions on **Wednesday, July 1, 2020 from 3:00 pm - 5:00 pm Eastern Time.** Presentation order will be chosen randomly. Each team will be given a specific time slot prior to the event.

Presentations are required to be prepared using Microsoft PowerPoint or similar slide show format and will be presented in a virtual session, which will allow viewing of the slides as well as video-conferencing with team members and judges. You should plan for **no more than a 15-minute presentation** followed by 5 minutes of questions and answers.

**Final Judging**

The number of teams selected for final presentation will be dependent on the number of teams registered and the allotted time for presentations.

Overall ECi winners will be announced at a virtual Awards Ceremony on **Thursday, July 2, 2020 at a time to be determined (TBD),** which will be part of an overall Student Awards session. They will also be posted on the A&WMA website.

Presentations will be recorded and posted on the A&WMA website, so that the teams will have a chance to have their work viewed by thousands of site visitors. The award winners will be given special recognition on the website.

*ECi Competition Prize denominations are subject to sponsorship level and may change prior the event. ECI Prize amounts will be determined closer to the virtual ACE 2020 conference.*
ECi TIMELINE

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>EVENT</th>
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<tbody>
<tr>
<td>June 12, 2020</td>
<td></td>
<td>ECi Proposal Due to Patrick Sullivan</td>
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<tr>
<td>June 15, 2020</td>
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<td>ECi Proposals Sent to Judges</td>
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<tr>
<td>June 19, 2020</td>
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<td>ECi Tweak posted on ACE website</td>
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<tr>
<td>June 30--July 2, 2020</td>
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<td>A&amp;WMA Virtual Annual Conference &amp; Exhibition Commences</td>
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<tr>
<td>June 30, 2020</td>
<td>2:00 pm--4:00 pm</td>
<td>ECi Poster Presentations and ECi Role Player Interviews</td>
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<tr>
<td>July 1, 2020</td>
<td>3:00 – 5:00 pm</td>
<td>ECi Presentations</td>
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All times Eastern

After the Virtual ACE

We understand that a virtual competition is not ideal and that we will all miss the face-to-face interactions that come with an in-person conference and competition. To ensure that students do not miss out on the chance to interact with the ECi committee and judges, A&WMA is committed to providing one-on-one mentoring and career counseling sessions with each student participant after the competition. Based on your interest, we are confident we can find a compatible mentor who can provide you with excellent career guidance.

Questions should be directed to Patrick Sullivan (PSullivan@SCSEngineers.com).