A Competition for University Students

University students, can you solve…

The Environmental Challenge

Florida Section A&WMA 54th Annual Conference

October 23-24, 2018

Jupiter, Florida

PURPOSE

The Environmental Challenge gives student teams the opportunity to develop solutions to an environmental problem and present their solution to a panel of environmental professionals. We are very interested in hearing about how you interpreted the challenge, the issues you identified, your approach, how you arrived at the conclusions, and how well you can communicate and defend your thoughts and position. We want you to learn and have fun during the entire process! This exercise provides the professionals of tomorrow an opportunity to address one of Florida's most challenging issues while interacting with the professionals of today.

PROBLEM STATEMENT

Overview

The recycling industry is grappling with a dual threat: The value of recycled material has plummeted over the past five years, and the amount of effort and cost required to process the material has risen. The over 37 million tons of municipal solid waste generated by 20 million Floridians and about 113 million visitors every year provides many opportunities for recycling. Unfortunately, Floridians and our visitors continue to discard valuable commodities when there are better uses for those items. In addition, residents and visitors alike are putting non-recyclables in recycling containers – as much as 25% to 30% -- and decreasing the value of the end product making recycling less environmentally and economically sustainable for some communities.

The Florida Legislature, through the Energy, Climate Change and Economic Security Act of 2008, established a statewide weight-based recycling goal of 75% by 2020. The Act instituted the 75% recycling goal, directed the Florida Department of Environmental Protection (DEP) to establish a reporting protocol and directed counties to report annually. The Legislature also established interim recycling goals: 40% by 2012, 50% by 2014, 60% by 2016 and 70% by 2018. Many actions have been implemented by DEP since the passage of the 75% recycling goal; however, Florida's recycling rate has plateaued and even declined in 2017.

Florida did achieve the interim goals established for 2012 and 2014; however, Florida's 2016 recycling rate was 56%, falling short of the 2016 interim recycling goal of 60% and declined to

52% in 2017. The law directs that if the interim recycling goals are not met, DEP must submit a report to the Legislature identifying additional programs or statutory changes needed to achieve the goals set forth in Section 403.706, Florida Statutes (F.S.).

The legislation also provided that large counties (counties over 100,000 in population) not achieving the recycling goals could be directed to develop a plan to expand recycling programs. Of the 11 counties reaching the 2016 interim goal, only four counties achieved a 60% or more recycling rate by means other than renewable energy.

Anticipating that the 2016 interim goal would not be reached, DEP has hosted or participated in 30 statewide meetings, webinars and conference calls over the last two years. The DEP received input from waste and recycling business stakeholders, local governments and non-governmental organizations. Implementing some or all of the suggested options will require action by the Legislature, DEP and other state agencies, as well as all of the stakeholders involved. It will also demand market solutions, smart economic choices and thoughtful regulations.

Recycling in Florida, the United States, and the world has changed significantly over the last 10 years. Many of the challenges we currently face with recycling have occurred as a result of changes in collection methods, dramatic shifts in the global recycling markets especially in China, and new and lighter weight packaging.

Given these challenges and others, the current practices in Florida are not expected to significantly increase the recycling rate beyond the state's current rate of 52%; causing it to level off. Without significant changes to our current approach, Florida's recycling rate will likely fall short of the 2020 goal of 75%. Some states with mandatory recycling requirements and state subsidies are doing better than Florida with regard to recycling rates.

1. ***Should We Change Our Recycling Goal in Florida and How We Measure Success?***

The current recycling goal is a weight-based goal which values each recyclable the same – a ton of glass is equal to a ton of aluminum although they have very different environmental benefits to recycle. Many in the industry believe that we should shift the weight-based goal to another basis. For example, we could move to a Sustainable Materials Management goal as outlined by the EPA or develop market-based goals (food diversion goal or organics recycling goal).

- ***What are the reasons that would support a shift from the weight-based goal?***
- ***Are there other goals that will lead us to more sustainable waste management?***
- ***Why should we recycle in the first place?***
- ***What is sustainable materials management and how should it influence our recycling goal in Florida?***
- ***If changes need to be made to Florida's recycling goal, how do we make that happen?***

2. ***Changing Waste Stream***

The waste stream is constantly changing. The materials and products we use in our daily lives have evolved over time. We are seeing less paper, an increase in plastic, and no growth in metals recycling. There have been changes from glass to aluminum, glass and aluminum to plastic, a trend from source-separated collection to single stream collection, and an ongoing trend towards domestic market constriction and recent changes in export markets, especially China's near ban on the import of recyclable material – once the largest global market for recyclable material.

- ***What changes in the waste stream do you see coming up in the next 5-10 years?***
- ***How dependent is the recycling market on exports and should we try to increase foreign exports? Explain.***
- ***What can we do to promote domestic market reuse of recyclables, making us less dependent on foreign markets?***
- ***What materials should local governments prioritize with respect to curbside collection programs?***
- ***Should local governments consider going back to dual stream recycling programs? Explain why or why not.***

3. Recycling of Solar Panels

Speaking of a changing waste stream, renewable energy is increasing in Florida and throughout the U.S. Solar panels are being deployed at an increasing rate. Solar panels have a definite lifespan. For example, silicon solar panels are assumed to have a lifespan of 30 years and the inverter lifespan is 15 years. The end-of-life phase of the life cycle in most cases assumes disposal since recycling processes for panels are not currently available.

- ***Can you project what the waste stream of solar panels will be over the next 50 years?***
- ***How can we address this waste stream in a more sustainable manner?***
- ***What are potential recycling issues associated with thin film solar panels?***
- ***Can you evaluate the life-cycle environmental impacts of silicon solar panels from the production phase through end-of-life and provide an argument regarding a continued increase in deployment?***
- ***Do the positive impacts of displacement of other forms of energy outweigh the negative environmental impacts of the production cycle, operation, and ultimate end-of-life phase (disposal or alternative)?***

4. Contamination Increase and Single Stream Recycling

In an effort to increase recycling, many counties and municipalities have instituted single stream recycling programs. Single stream recycling programs allow all accepted recyclables to be placed in a single, curbside recycling cart, comingling materials from paper and plastic bottles to metal cans and glass containers. Single stream recycling programs have been successful in

providing curbside collection efficiency by increasing the amount of recyclables collected and residential participation. While there are many advantages to single stream recycling, it has not consistently yielded positive results for the recycling industry. The unexpected consequence of single stream recycling has been the collection of unwanted materials and poorly sorted recyclables by residents, resulting in increased contamination or "non-recyclable garbage" being placed in the curbside recycling cart. Contamination of recyclables occurs when residents place materials that are not recyclable into curbside recycling bins — mainly plastic bags, packaging materials including styrofoam peanuts, garden hoses, and other nonrecyclable materials.

- ***What are some steps that can be done to decrease contamination of single stream recyclables?***
- ***How can we educate the public to decrease contamination in single stream recycling? Refer to pages 13-14 in the document cited at the end of this Environmental Challenge and come up with new ideas.***
- ***Should local governments consider going back to dual stream recycling programs?***
- ***Some local governments are considering banning certain materials (straws, polystyrene food containers, plastic bags). Is this a positive step toward reducing contamination and increasing recycling?***
- ***What differences are there in allowable recyclable materials for various local governments? Is that confusing to residential customers, visiting tourists, business owners, or others in the recycling community?***
- ***Can you compare single stream recycling programs for various local governments in the state – what makes some of them more successful than others? Is there a difference between more urban areas versus rural areas? If yes, why?***

5. Food Waste

Food waste bans are being enacted from Massachusetts to California, impacting businesses and consumers alike. France became the first country to enact a nationwide food waste ban for supermarkets, and trends suggest they won't be the last. The need for food waste infrastructure and anaerobic digestion facilities is mounting quickly. Reducing organics from the waste stream is vital for the state to reach its 75% recycling goal by 2020. Organics, which includes food waste, yard trash and paper, are one of the largest fractions of waste, by weight, generated in the state. Of the 36 million tons of MSW generated in 2016, organics accounted for 36% of Florida's waste stream.

- ***What are some ideas for the state to increase recycling of food wastes?***
- ***What are the challenges associated with recycling food waste?***
- ***Should local governments place an equal focus on composting and anaerobic digestion, or should one play a larger role?***
- ***Is residential food waste recycling feasible?***
- ***What role does food waste reduction play?***

ASSIGNMENT

Your team has been retained by FDEP to evaluate Florida's recycling program. Select one (1) topic out of the five sections presented above in the PROBLEM STATEMENT section and address all of the questions under that section presented in bold and italics in a clear and concise manner for that topic. You will be presenting in a public forum to the Recycling Technical Assistance Group (TAG), created by the Florida Department of Environmental Protection to make recommendations to FDEP regarding the future of recycling in Florida. The TAG is made up of municipality representatives (both rural and urban), EPA, FEP, industry recyclers, waste management companies, a lawyer, and community activists. The project teams are to provide a proposal of its approach and strategies. The team must then present its proposal at the AWMA conference in a venue simulating a presentation to the Recycling TAG in a public forum. You can use PowerPoint, storyboards, or other means to present your arguments. As noted above, the environmental challenge will simulate the public forum environment and a number of parties (both pro and con) are likely to be present.

EXPECTATIONS

Clarity of vision and logic of presentation are critical. Remember you can come up with assumptions, but they need to be able to pass the straight face test. This is effectively, the real world! We have the following expectations with regard to both your Proposal and Presentation.

PROPOSAL

The proposal is limited to six 8 x 11" pages (not including the cover page) and must be 12 font and 1.5 spacing. Not meeting these requirements will negatively impact your scoring. Teams should be comprised of three to five individuals. Each individual should have a primary role in the research of the issues and proposed solutions. The Proposal should identify all team members by name and project roles (e.g., specialty areas may include public policy, public relations/communications, engineering, financial analyst, attorney, etc.). The proposals should include:

- Problem Statement – Area of Focus (One of the five topics presented in the sections under Problem Statement)
- Methods
- Resources
- Proposed Solutions/Strategies
- Conclusions

Persuasive and concise writing is critical to address the issues within the page limit.

The Proposal **submittal deadline is midnight EST, October 12th, 2018**, and shall be submitted to flawmaeci@gmail.com. Proposal quality will factor into competition judging.

PRESENTATION

Your team will need to demonstrate your understanding of the topic that you addressed in your proposal. Your presentation may be a more advanced development of the ideas presented in your proposal. While faculty guidance may be sought, you **must** present an approach based on your own research and work. Winning will hinge on approach, clarity, and creativity.

Presentations will be held on Tuesday, October 23rd (the exact time to be announced)**.** A final schedule of the team presentation order will be prepared once the total number of teams competing is known. Be present at least 20 minutes prior to meeting. A projector and laptop (with Microsoft Power Point) will be provided. Please bring a flash drive (memory stick) so your presentation can be loaded onto the laptop. You will be allowed 10-15 minutes for your presentation. After your presentation you must be available for 10-15 minutes to answer questions related to your topic and presentation.

The Challenge Event at the AWMA Conference

Your team will make the presentation in a public forum. The range of interests of the expected attendees are varied. Your team should be capable to make persuasive technical arguments to support your positions. Your team can build its arguments using all means available. Given your team is comprised of various specialists, the team should confer and ensure that all of its arguments are sound.

Presentation Guidelines and Tips:

- Remember that the judges are pretending to be members of the recycling TAG and the FDEP and your team has been hired to solve “real world” issues associated with the recycling efforts in Florida.
- Your presentation needs to flow in a logical manner: present the issue, discuss each question in a manner and order you choose, and provide solutions.
- Practice good presentation skills – do not read from the slides. Let them be a summary of what you present.
- Make sure slides are legible, clear and concise.
- Recognize other contributors to your team’s efforts – other team members not present or mentors.
- All team members present should have a speaking part during the presentation.
- Come up with a game plan for answering questions.
- Clearly state the main points, assumptions, and conclusions.
- Provide a little background on the topic – don’t assume the judges know everything about the topic.
- If you had challenges completing the assignment, state what those were and how you addressed the challenges. If you made assumptions, please state those as well.
- Remember practice makes perfect! However, we aren’t looking for perfection – we want each team to have fun and learn as much as you can about the topic you are exploring.

- Practice your timing and dress for success.

Please email questions regarding the assignment to:

flawmaeci@gmail.com

Significant questions and answers will be posted at www.flawma.com

Note: Much of the information provided herein is presented in "Florida and the 2020 75% Recycling Goal", prepared by the FDEP, which can be found at: https://floridadep.gov/waste/waste-reduction/documents/florida-and-2020-75-recycling-goal

2018 FLA&WMA ACE – STUDENT ECI COMPETITION
SCORE SHEET AND JUDGING CRITERIA

Presenting Team: _____

Title of Challenge: _____

Level of Participation (undergraduate, graduate): _____

Participants (names): _____

_____

1. **Please finish judging each team at the end of their presentation and questioning round.**
2. **Judging shall be based on the proposal, presentation and if they passed the straight face test.**

Proposal (30 Points)

1. Does the proposal meet the following criteria: _____**/5**
    a. Six 8 x 11" pages (not including the cover page); 12 font and 1.5 spacing?
    b. Team is comprised of not more than three to five individuals?
    c. Each individual has a primary role in the research of the issues and proposed solutions?
2. How well did the proposal demonstrate persuasive & concise writing skills: _____**/25**
    a. Problem Statement – Area of Focus
    b. Methods
    c. Resources
    d. Proposed Solutions/Strategies
    e. Conclusions

Presentation (50 Points) _____**/50**

1. Did the team demonstrate clarity in understanding the topic addressed in the proposal?
2. Was the research behind the presentation approach, clear and creative?
3. How well did the team put forth their technical arguments to support their positions?
4. Does the approach represent sound science and/or engineering, or if applicable, legal analysis?
5. Did the presentation have a logical flow and how well was it presented?

Content and Graphics of Presentation Display (20 Points) _____**/20**

1. Did the team exceed the 10-15 minute limitation to present their work?
2. Were the slides legible, clear and concise?
3. Did all the team members have a part to play and get to speak during the presentation?
4. Did the team provide a little background on the topic?

Total Score _____**/100** **Judge's Initials:** _____

Additional Comments: