

## **E2C2 Energy Committee February 13, 2019 Meeting Summary**

Present: John Bloom (Chair), Jonathan Gritz, Scott Sklar, Scott Brideau, Irwin Kim, Rick Keller, Stephanie Burns, Vince Plaxico, Vijetha Huffman, Claire Noakes, Jonathan Morganstein

GMU: Richard Kauzlarich, Joel Hicks, Josh Grizet

County staff: Joan Kelsch, John Morrill, Rich Dooley

### **1. Greetings and introductions - EC members and guests**

### **2. Review/approve agenda and January meeting summary**

- February meeting agenda and January meeting summary – both approved.

### **3. New GMU Certificate Program in Energy**

Attendees from the GMU Center for Energy Science and Policy:

- Co-Director Ambassador (ret) Richard Kauzlarich
- Graduate Research Assistant Joel Hicks
- Student Energy Policy Fellow Joshua Griset
  
- Attachment A of this meeting summary provides the slides presented by the GMU representatives.
- There was an obvious need for some sort of course, certificate, or program given the comments from students who enter GMU graduate school classes. The GMU professors and staff began thinking whatever is created would likely be a Certificate Program, but after the survey results, the plans have possibly changed. See slide deck for information on the process to date and latest survey results.
- For the survey, the link is:  
[https://docs.google.com/forms/d/e/1FAIpQLSdokWuWvgCjX5wwf1c2v\\_QI0\\_4LbYh8RGKMfnGfxuFyZvRqQ/viewform](https://docs.google.com/forms/d/e/1FAIpQLSdokWuWvgCjX5wwf1c2v_QI0_4LbYh8RGKMfnGfxuFyZvRqQ/viewform) could Energy Committee and AIRE staff, others complete it?
  - GMU welcomes more rather than less input.
- Survey was created, conducted without the knowledge of the existing interdisciplinary program
- After developing the survey, it was discovered the College of Humanities and Social Sciences already had an interdisciplinary program, but there was little throughput
  - That College was very supportive of developing a new Energy curriculum in order to get more bodies through the interdisciplinary program. Thus far, the interdisciplinary program cohorts have numbered five or fewer students.
- Survey results thus far told GMU that the greatest interest was in a Masters program with a concentration. Other related thoughts:

- Northern Virginia Community College (NOVA) could help provide more focused Certificates on certain topics, abilities – GMU could team with NOVA
- Should be practitioner focused, research would be nice to have
- Policy and economics greatly valued
- Need to create new courses, not just use existing courses for the Energy program, curriculum
- How important is it for students to come away with a good understanding of net zero energy? Ask DOE, consultants, project owners for input
- This Energy program could also include internships
  - There is a definite interest in teaming with the County, employers, nonprofits, others for possible internships
- **Could we set up a meeting with Schar School of Policy and Government representatives to have employers, developers, others present the need for this to further highlight the need from the marketplace?**
- Where are there gaps, that is, looking close to the DMV region, what are the needs?
  - For instance, in Houston, Exxon Mobil has worked with colleges in that region to create future Exxon Mobil employees with skill sets that meet specific Exxon Mobil needs
- Of interest: Providing classes at night (for students with FT jobs already working full-time and wanting to move their career in a different direction), military personnel (use GI Bill \$)
- Johns Hopkins has a good environmental energy program
  - Would be good to survey the existing, local programs in the region to ID the gaps of 1) what is offered vs. 2) what the market needs
  - **What are the skill sets employers want from students that graduate from the program, and what are the courses needed to provide those skills?**

#### 4. University Project update and discussion

- Joey Schnide is a research intern working as a Project Intern with the Energy Committee. On behalf of the Committee and for his capstone project, Joey is planning to interview up to 30 business and community leaders in Arlington County to help identify opportunities to reduce energy use and greenhouse gas emissions. Overarching questions for each interviewee include:
  - What is the status of efforts to reduce energy use in Arlington?
  - What opportunities exist with your organizations for students to do work or have internships for companies, nonprofits, universities, public sector?
  - Have organizations set formal or informal GHG emissions goals? Goals for energy efficiency?
  - How do organizations identify opportunities to reduce GHG emissions, and how do they implement the opportunities?
  - What roles do they see for undergraduate- and graduate-level students?
- As part of this research, the Committee is exploring opportunities for university

students to work with Arlington County on energy-related issues. The Committee is also seeking to better understand what steps business and community leaders believe they can take to reduce greenhouse gas emissions.

- Report is expected to be done by May 2019.
- An Energy Committee member wondered whether Joey would be able to provide quantitative survey results for one or more of the questions. Joey noted he would think through that option in advance to ensure the interviews get him the information he wants and needs.
- Information gathered from these interviews will be used to improve the Community Energy Plan and the Committee's comprehensive strategy for reducing greenhouse gas emissions in Arlington County.

## **5. CEP Update/AIRE Team update**

- Background was provided on what has been done to update the CEP and where we are on the update process timeline
- AIRE staff provided an update on the possible scenarios based on the public comments received and the technical analysis conducted by County staff and consultants, including ICF on the energy modeling update
- Staff have accounted for a cleaner grid, but we also wanted to keep in mind regarding what Arlington County can control
- We target virtual power purchase agreements (VPPAs) that would bring new renewable energy projects out of the ground, not simply contracts that tap into existing renewable energy systems
- Regarding staff's assumption that the regional grid would decarbonize by 40% by 2050 compared to its 2012 carbon footprint: How do we take into account the State's commitment to reducing overall GHG emissions by more than 80% by 2050 vs. 2005?
  - Note that what is presented in the CEP assumptions are not goals, rather, they are the staffs' and consultants' predictions of what we expect to happen
- RGGI is not about the emission rate (for the grid), rather, it is focused on reducing total GHG emissions
- Energy Committee questions included:
  - How does the 40% efficiency gain in the grid compare to what other forecasts say?
  - What are the life expectancies for the nuclear power plants? If the nuclear power plants have to stop operating, what would replace them?
  - Are the CEP's renewable energy goals still valid?

## **6. Review Draft Letter on CEP Goals (8:35)**

- The Energy Committee reviewed a draft letter commenting on the CEP Update which was slated to be presented to the E2C2 for consideration at the E2C2

February meeting. Questions and comments about the draft letter included:

- #1 - "...fossil fuel use should be curtailed by about 45% by 2030" ?
  - What is the baseline year? (IPCC uses 2010.)
  - Will the letter also address the tons CO<sub>2</sub>e per capita per year metric?
- This letter is a set of principles the County should support
- The E2C2 may want to know what the costs/benefits will be to get to 3 or 1 mt by 2050. Could E2C2 send out to the CB the recommended goals *now*, recognizing there is additional work to be done, e.g., showing the level of effort to get the community to its goals?
  - Combined Heat and Power (CHP) is still in the CEP since we have "Energy Security" as one of our three overarching CEP decision-making considerations
- Entire countries and US cities have already reached the Sierra Club's Ready for 100 goals
- Need to be clear whether the letter is about electricity use, total energy use, or both?
  - The letter now has two asks or requests: 1) 100% Renewable Electricity by 2035, and 2) Carbon Neutrality (all energy use, including natural gas) by 2050.
- What does "ambitious" mean?
  - Instead of looking out to 2050, should we instead push for the more near-term milestones to be more ambitious, e.g., 2025, instead of focusing on 2050?
  - Since the 2050 goal is the "headline," it determines the level of ambition for the plan as a whole and sets the tone for discussion among the County Board and community on where we need to go. The letter could allude to what is needed in the near-term with each commercial project, and from each homeowner to help the community get to the goals.
  - The letter could emphasize that we can't kick the can down the road, rather, we need to act *now* to help us get to our long-term goals. The letter could also include the current CEP chart or reference the wedge chart to note that we need to do short-term actions. For example, we'd want the County Board to add Arlington to the Ready for 100 list.
- Should we add an appendix to the letter with more technical details?
- It's important to keep in mind that today's discussion and five-year update is something that we envision having in another 5 years with another CEP update. So, the letter should take that into account as well.
- The Energy Committee members will finalize the letter and send by Monday to the E2C2 Chair in time for discussion at the E2C2 February meeting.

## **7. Annual planning follow-up**

- The Committee ran out of time. Remaining agenda items (annual planning follow-up and member updates) are to be addressed by e-mail and/or at future meetings.

Meeting adjourned: 9:36 am

**ATTACHMENT A**  
**GMU Center for Energy Science and Policy presentation**



GMU'S INTERDISCIPLINARY GRADUATE PROGRAM IN ENERGY  
DEVELOPMENT UPDATE

FOR

ARLINGTON COUNTY E2C2 ENERGY COMMITTEE

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FEBRUARY 13, 2019



## QUESTION

CAN (AND SHOULD) GEORGE MASON UNIVERSITY (GMU) IMPROVE ITS  
GRADUATE SCHOOL OFFERINGS TO BETTER PROVIDE **ATTRACTIVE,**  
**QUALIFIED** EMPLOYEES IN THE ENERGY SECTOR??



## RATIONALE

- The energy sector is increasingly interdisciplinary and complex
- DC-VA-MD
  - large density of interdisciplinary research institutes
  - large public sector presence in the energy sector (federal and local govt.) → Arlington County
  - Increasing private sector influencers (e.g. Amazon)
- Large student interest in studying energy across multiple disciplines
- Yet.....current interdisciplinary program at GMU is not attracting a large number of students
- First step ..... Go directly to the source ..... EMPLOYERS!!!! – Survey





## Strong support across diverse set of potential employers

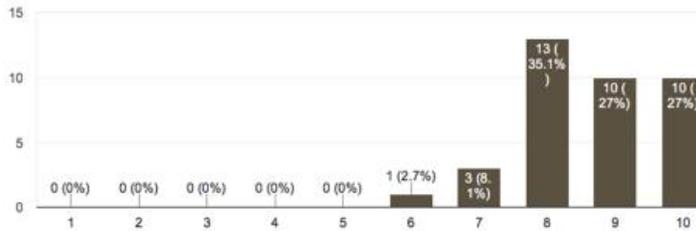
Weighted Average

37

8.68

In general, how would you rate the utility of an energy-related, graduate-level, multidisciplinary program across the energy sector?

37 responses

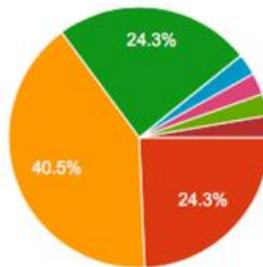


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|---|
| GOEFER  |
| Formerly Dept. of Energy  |
| Silverline Communications   |
| Potential Energy DC   |
| George Mason University   |
| Axis  |
| CSIS  |
| Georgetown Univ.  |
| Chevron   |
| FTI Consulting  |
| CSIS  |
| The Berkley Group   |
| Enegis, LLC   |
| Columbia Univ, Ctr on Global Energy Policy  |
| Appa  |
| Smart Electric Power Alliance   |
| USDA  |
| Silverline Communications   |
| LEAP  |
| Alliance to Save Energy   |
| DOE   |
| Environmental Business International  |
| The Stella Group, Ltd (Adj Prof GWU)  |
| retired public school teacher; previously, Environmental Scientist/planner Montgomery County Government & Loudoun County Gov't.; VPI & SU Water Quality Laboratory Supervisor |
| NARUC   |
| George Mason University   |
| Ryan Homes  |
| Library of Congress   |
| Enegis, LLC - contractor to the U.S. Department of Energy   |
| State of Alaska   |
| George Mason  |
| Department of Defense   |



## What type of academic offering do you think is most appropriate for an energy-related, graduate-level, multidisciplinary program?

37 responses



- A single course
- A certificate program
- A Masters program with a concentration
- A dedicated Masters program
- I do not think any program is needed
- Either a certificate program or a Ma...
- Potential for a dedicated masters pr...
- A climate and energy policy program
- A dedicated masters program is ide...

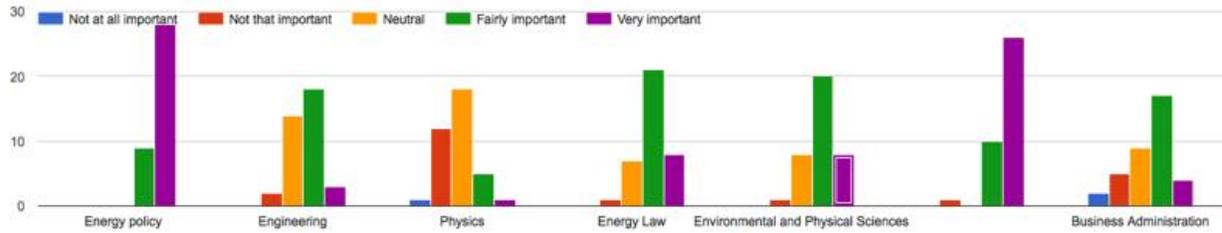
Over **two-thirds** of respondents favored something more comprehensive than a certificate program ...either a dedicated Masters program or a concentration.



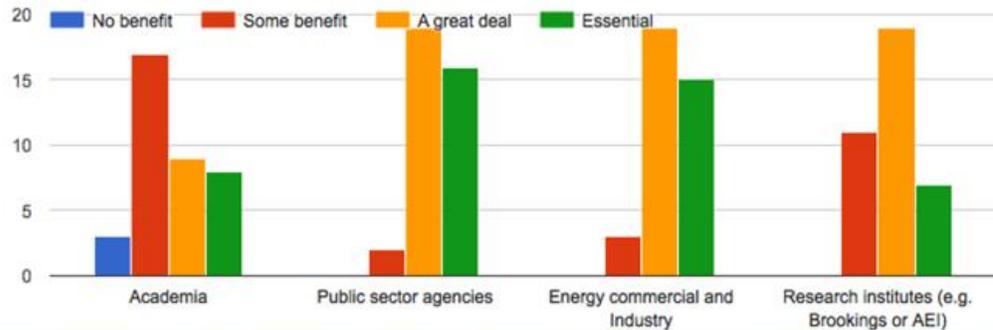


|                                     | Total Responses | Weighted Average |
|-------------------------------------|-----------------|------------------|
| Energy Policy                       | 37              | 3.76             |
| Engineering                         | 37              | 2.59             |
| Physics                             | 37              | 1.81             |
| Energy Law                          | 37              | 2.97             |
| Environmental and Physical Sciences | 37              | 2.95             |
| Economics                           | 37              | 3.65             |
| Business Admin                      | 37              | 2.43             |

How important are the following disciplines in an energy-related, graduate-level, multidisciplinary program?



What occupational areas would benefit from an energy-related, graduate-level, multidisciplinary program?



General Trend is that it should be practitioner focused, research is a "nice to have".



## COMMENTS

|                                     | Total Responses | Weighted Average |
|-------------------------------------|-----------------|------------------|
| Energy Policy                       | 37              | 3.76             |
| Engineering                         | 37              | 2.59             |
| Physics                             | 37              | 1.81             |
| Energy Law                          | 37              | 2.97             |
| Environmental and Physical Sciences | 37              | 2.95             |
| Economics                           | 37              | 3.65             |
| Business Admin                      | 37              | 2.43             |

- Policy and Economics are most highly valued and should be core of any program
  - We have a strong core of existing courses across departments for these disciplines.
- Law and Physical/Environmental Sciences are also highly valued – Next Tier
- (based on comments) Engineering tends to be valued in the context of infrastructure, technical aspects of smart grid, grid architecture and security, IT



## PROCESS

- Continue to survey employers → want feedback from Arlington Co.
- Update current Master of Arts in Interdisciplinary Studies (MAIS) with an “Energy and Sustainability” Concentration within the College of Humanities and Social Sciences (CHSS)
  - Interest in CHSS to increase student enrollment
  - Reflect employer preferences from survey within program requirements
  - Integrate EXISTING courses into program that meet employer preferences
  - Identify GAPS in subject areas and identify host schools/departments to create new courses (e.g. “Energy and Society”; “Energy Law and Regulation”)
- Success determined by placing students in desirable energy-sector jobs.....including internships.
- Multi-year process

