Date: November 13, 2018

To: Eric Bielefeld, Associate Professor, Department of Speech and Hearing Science and

Chair, Council of Academic Affairs (CAA)

Randy Smith, Vice Provost of Academic Affairs, Office of Academic Affairs

From: Elena G. Irwin, Professor, Department of Agricultural, Environmental, and Development

Economics and Faculty Director, Sustainable and Resilient Economy Program (SRE)

Kate Bartter, Director, Office of Energy and Environment (OEE)

Re: Responses to questions posed by Faculty Council

Thank you for the opportunity to clarify several questions regarding our proposal to create the Sustainability Institute (SI) at Ohio State University. We appreciate that you discussed the proposal with Faculty Council on November 8, 2018. Below please find our responses to the questions that you summarized for us that were posed by Faculty Council members during this meeting. We look forward to further discussing these questions with Faculty Council. Please don't hesitate to reach out if we can provide additional details or clarification.

1) The first comment indicated that the proposal budget was primarily built around creation of new administrative positions to bring together current faculty/researchers working in sustainability, rather than new faculty positions. This would serve to exacerbate the general university-wide trend of growth of administration without concomitant growth of faculty size, an issue that the Faculty Compensation and Benefits Committee has been concerned about.

Responses:

We are committed to the philosophy of servant leadership and fully recognize that without engaged faculty and students working on sustainability, no amount of professional staffing can help Ohio State achieve its aspirations. Ohio State is fortunate to have many faculty working in sustainability. However, faculty alone cannot achieve the university's sustainability goals in research, teaching, outreach and engagement and campus stewardship. Professional staff are essential to provide the complementary effort and skills necessary to maximize the effectiveness and impact of faculty and to support the teaching and learning opportunities that students seek.

The majority of positions supported by the proposed budget are not new positions in SRE and OEE. Of the 14.5 FTEs proposed for SI over five years, 3.5 positions are new. In addition, that FTE count does not include the significant role (and support) that 10 faculty research and 2 faculty teaching leads will have in shaping the direction of the institute. Our budget supports a purposeful effort to build the networks and collaborations of faculty working in this area through direct financial support for faculty co-leads (\$15k each annually,) along with a budget

for program activities for focus areas (\$50k each annually), and additional support for graduate students, seed grants and other targeted investments.

As stated in our proposal, we currently have a count of over 470 faculty identified as focusing at least in part on sustainability. Over 60 new faculty members with sustainability expertise have entered Ohio State in the past three years just through the front door of the Discovery Themes initiative. The hiring of these **60 new faculty in sustainability** represents a significant investment through the Discovery Themes initiative that far exceeds SI's personnel budget. SRE has partnered with 18 units across six colleges to jointly hire 27 of these 60 new professors. Total funds allocated to the hiring of these 27 new faculty are as follows:

- Annual salary (OAA + colleges) committed to-date for SRE hires: \$2,595,672
 - o Percent of OAA funds allocated to annual salary: 48%
- Startup (OAA + colleges) committed to-date for SRE hires: \$10,581,112
 - Percent of OAA funds allocated to startup: 46%

By design, the SI professional staff will support research and business development and facilitate internal and external partnerships aimed at interdisciplinary sustainability research. In so doing, the institute will reduce the barriers to interdisciplinary and cross-college collaborations, bolster the productivity of faculty engaged in these kinds of activities, and create opportunities for additional faculty to become engaged in this work. By the same token, professional staff of the institute will facilitate interactions among academic units with respect to interdisciplinary teaching and learning activities in the area of sustainability. These efforts will reduce barriers to coordination and communication and increase collaboration among academic units seeking to engage students interested in curricular and co-curricular interdisciplinary programming in this area. For example, a central web portal to direct current and prospective students interested in sustainability programs would benefit academic units by helping interested students find their way to programs that match their interests in a faster and more efficient manner than what often occurs now.

In addition to supporting faculty and students, SI staff will help connect academic experts to operational sustainability units and goals. By providing more opportunities for academic scholarship and teaching to be integrated with campus operations and management, SI professional staff will not only increase campus living lab opportunities for researchers and students, but also grow and deepen opportunities for faculty and student experts to be engaged in sustainable campus operations.

In short, SI's professional staff is a distinguishing feature of this institute that will provide a variety of support to faculty in numbers that far exceed the 60 new Discovery Themes faculty hired in sustainability. This support will also benefit students, academic units, other centers and institutes, and campus operations. Over 90% of the proposed SI budget is allocated to providing support for services and programs that directly benefit these end users. The following are estimates based on the FY19 budget request that is contained in the proposal:

- Estimated budget allocated to SI staff providing direct support: \$1,395,725
- Estimated budget allocated to other program support: \$1,680,000
- Estimated percentage of SI budget allocated to direct support and programs: 93%

In a report from the Cynthia and George Mitchell Foundation,³ the authors document that the most successful academic sustainability-related institutes across the country actually have substantially higher levels of staffing than we are proposing (see Figure below excerpted from the report). Across all the 18 interdisciplinary sustainability institutes at major research universities that were included in the report, the average number of staff is 22. All include a director and administrative staff, and the vast majority also have communications, social media, research management, and finance staff.

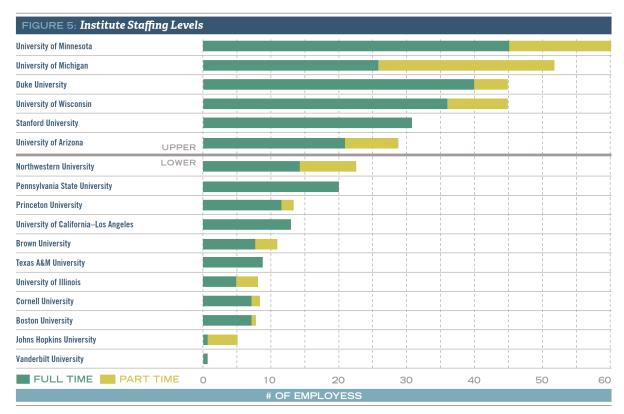
In explaining the rationale for a larger professional staff, the report notes: "Many respondents note the importance of a strong staff to the success of the institute. While faculty are also acknowledged as critical, one respondent notes that 'relying heavily on faculty who have many other responsibilities limits the rate of work...' Another adds that 'a dedicated staff can drive rapid progress and can take time to communicate results outside of academic publications, project reports.'"

¹ These are personnel expenditures for staff that provide direct support for research, teaching, engagement, or campus sustainability programs. The Faculty Director and Executive Director devote a majority of their time to

these support activities, and therefore we include 75% of their time in this calculation. We exclude expenditures for two administrative support positions, 50% of a program assistant position, and one student admin intern, which are staff positions that provide financial, HR, scheduling, and office support to SI.

² Program expenditures on research, teaching, outreach & engagement, marketing/communications, business development, and the Ohio State Sustainability Fund; includes expenditures on research and teaching faculty coleads.

³ Hoffman, A., J. Axton. 2017. "Examining Interdisciplinary Institutes of Sustainability at Major Research Universities." Ann Arbor, MI: University of Michigan. Accessed online 11/12/2018: http://graham.umich.edu/media/pubs/Mitchell%20Report%20Final.pdf



Source: Hoffman, A., J. Axton. 2017. "Examining Interdisciplinary Institutes of Sustainability at Major Research Universities." Ann Arbor, MI: University of Michigan, p. 12

2) Are there examples of current interdisciplinary efforts that have stalled or would benefit from being centralized under the SI? To me, this question really spoke to the central question of whether the SI needs to exist and if the budgetary investment would truly aid the widespread sustainability work across so many colleges/departments on campus. This is addressed broadly in the section 'Goals Not Met with Existing Centers.' However, specific examples of collaborations that would be aided by the SI would help address that question directly.

There are many examples of how past and current efforts at Ohio State have failed or not achieved their full potential or were simply missed opportunities because of a lack of (i) connectivity among faculty to facilitate a collaborative effort, (ii) strategic leadership or willingness of one person to "take on" the effort of leading, or (iii) capacity to respond to the opportunity. These examples exist across research, teaching, engagement, and campus stewardship, and include:

• In 2014 a group of Ohio State faculty working in sustainability gathered to discuss NSF's Sustainability Research Networks (SRN) call for proposals that was focused on urban sustainability. The faculty assembled had national and international reputations in their work in this area and represented a diversity of fields, including industrial and systems engineering, earth systems and environmental sciences, economics and behavioral sciences, planning and policy, and public health. In addition, the faculty had strong

networks of collaborators at other institutions. All these represented the necessary elements for developing a strong SRN proposal. However, the group lacked the proposal development strategy and project management support needed to lead the effort and manage the many networking and writing tasks. After a few meetings, no one was willing to step up to absorb the costs of coordinating and leading and the group gave up. Had there been a centralized entity like SI that could have provided the needed strategy, facilitation and support, the group would have likely developed and submitted a proposal, and in either case, regardless of the outcome of the SRN proposal, would have had a much higher likelihood of continuing to build their network and develop research proposals.

- There have been several "false starts" in increasing our curricular offerings in sustainability. One effort was led by a former interim director of what was then the Institute for Energy and Environment in 2009. In a subsequent effort in 2014, the Faculty Council formed a sustainability ad-hoc committee "to evaluate how best to increase curricular opportunities for students interested in such topics, and whether this should be incorporated into the general education curriculum at Ohio State." While well intended, that committee failed to produce any tangible recommendations. We would posit that these past efforts failed because there wasn't sustained and supported faculty leadership in these efforts. SRE has already made significant progress improvements in its approach to working with OAA in creating the Sustainability Education Learning Committee, which comprises 15 faculty from seven different colleges. SELC is currently supported by a part-time professional staff person who will be employed full time through the Sustainability Institute to support this and other university sustainability teaching initiatives.
- There are abundant examples of professors engaging students in experiential learning opportunities using the campus as a laboratory. Many of these individual projects have been fostered and supported by OEE. However, a lack of holistic programmatic support limits our potential in this area and at times has resulted in misalignment of faculty researchers and operations staff.

In addition to these illustrative examples, we reached out to a handful of faculty who are leaders in the sustainability community at Ohio State, including several who are center or institute directors. We asked whether they could think of a specific example to illustrate potential collaborations that would have been aided or improved by SI. Below are the responses we received:

"The emerging Sustainable Columbus Observatory Project would not have been possible without the collaboration between CURA and SRE. Staff support, GRA funding, co-leadership in project visioning and building partnerships with community stakeholders have all been facilitated via SRE. I do not know where else on campus where CURA would have obtained this comprehensive support for launching the SCO project."

-- **Harvey Miller**, Professor and Reusche Chair in Geographic Information Science, Department of Geography and Director of the Center for Urban and Regional Analysis

"When NRT came up we (IMR) were getting occupied by some other priorities... that you led and invited us along did allow us to participate in the NRT since it's not clear we could have led that and completed some other priorities going on at the same time, such as the NSF Quantum Materials center that we just submitted earlier this week. I think you can (also) say that the sustainability curriculum could not happen without the institute."

-- **Steve Ringel**, Distinguished University Professor and Neal A. Smith Professor, Department of Electrical and Computer Engineering and Executive Director, Institute for Materials Research

"A group of faculty came together to respond to the first NSF solicitation on 'Emerging Frontiers for Research and Innovation' (EFRI) on the topic of resilient infrastructure. The group consisted of David Wood and Joseph Fiksel from ISE, both of whom had a strong reputation in resilience. Having the Center for Resilience also seemed like a plus point, even though this was a center with no support from the College or any other part of the University. I was also involved along with a few other faculty. Despite having individual faculty who were well-known in the field, our proposal was unsuccessful. Centralized support could have provided us with more 'intelligence' about the solicitation, more proposal development help, and other benefits."

--Bhavik Bakshi, Professor, Chemical and Biomolecular Engineering Department

"SI can both create space for faculty to do more, and bridge the gaps that need filled for faculty to do more. Atar Herziger (co-funded postdoctoral researcher in behavioral science) is an example of creating space for faculty to do more. Investing in support staff like this through consistent internal funding is critical to take some of the heavy lifting off of faculty for partnership projects like the ones being developed on campus, and to help create new collaborations across units whether those projects or internal or external. Faculty are typically too maxed out to do the extra work it take to achieve the results that I think ...can (be) achieved...The fact that Kate (Bartter) will be working to help solve the campus collaboration partnerships is an example of bridging the gaps for faculty to do more. Again, we get maxed out and don't have the expertise...to sort out these challenges and build these protocols that may be needed. Having administrative support to do that is critical...Guiding the curriculum conversations is another example of helping faculty to do more — there is great value in having someone taking a bird's eye view of these issues and helping faculty find the synergies, the gaps, etc."

--**Robyn Wilson**, Associate Professor, School of Natural Resources, and Faculty Director, Environmental and Social Sustainability Lab

"There have been attempted efforts/whitepapers/task forces to have an overarching structure to 'environment' for decades. Many researchers see the need to have a structure to help those doing interdisciplinary work to be more efficient and effective and to be recognized and rewarded for this type of work compared to deep disciplinary work. The Environmental Sciences Network was established circa 2010 but only lasted ~2 years. It was never fully funded or supported, thus, it was deemed not-so-useful. If the right leadership and right level of support is not in place, it is unlikely to be effective."

--Linda K. Weavers, John C. Geupel Endowed Professor, Department of Civil, Environmental and Geodetic Engineering, and Co-Director, Ohio Water Resources Center

"The NSF DMUU (decision making under uncertainty) solicitation, 2005-06. Ohio State scrambled around and produced a multidisciplinary proposal from scratch in about 8 weeks. We made the final round, hosted a site visit, but were not funded. A stronger university-level infrastructure to support these kinds of ventures may well (have) pushed us over the bar."

--**Alan Randall**, Professor Emeritus and former Chair, Department of Agricultural, Environmental and Development Economics

"In 2015-2016, the Center for Ethics and Human Values ran a year-long COMPAS program on Sustainability, including two interdisciplinary conferences, a series of keynote lectures and colloquia, associated programming ... In bringing together ethicists, economists, legal scholars, sociologists, political scientists, government officials, environmental policy experts, climate scientists, and more, it attempted to give sustained attention to the practical ethical challenges presented by sustainable development. We simply could not have planned that program without close collaboration by both the Sustainable and Resilient Economy Discovery Theme program and the Office of Energy and Environment. They helped us think through the issues and then connected us to relevant experts, student groups, community partners, and sources of funding. To my mind, this collaboration helped reveal the promise of campus-wide interdisciplinary conversations on these issue.... But it is also true that after our COMPAS program, there was no simple way to keep this effort going.... I think if there had been a single, unified Sustainability Institute it would have been much easier to establish a robust ongoing program between CEHV and the various departments, programs, university offices, and individual researchers across a number of colleges at Ohio State interested in sustainability, to continue to raise the visibility of these absolutely crucial issues that are not going away (and cannot be solved with a one-year series of events). I would very much look forward to opportunity to be able to coordinate with SI to continue programmatic work and research on the ethics-related and interdisciplinary policy challenges presented by sustainability."

> --**Piers Turner**, Associate Professor, Department of Philosophy and core faculty with the Center for Ethics and Human Values

"In participating in the sustainability Project-Based Learning workshop last week, it became clear to me that one of the reasons that some of our larger 'campus as living lab' and interdisciplinary capstone/project hopes haven't come to fruition in the past is because 'we' haven't been able to provide adequate support and infrastructure for them. When you look at what Penn State has done to hire staff who fill this role (of making the links and connections, and giving the needed support to achieve greater cross-disciplinary and university-community collaboration), or Arizona State in their hiring of several people along these lines, it suddenly makes sense to me why I felt like I was waging such an 'uphill' battle in working on similar things at OSU. As Corey Hawkey said when I talked to him on the phone at ASU recently — when he went to ASU, he felt like he could just be one person, instead of the 5 people he felt he was at OSU, trying to do so many things at once. ASU is now seen as a leader in this space because they are providing the necessary staff and infrastructure to catalyze world-leading sustainability programs and curricula.

Specifically, my effort over the past two years to spark interdisciplinary collaboration between EEDS and Engineering, is a good example. I logged significant communication time identifying potential collaborators...I opened up my contacts with Smart Columbus to provide a shared opportunity...I met with engineering capstone professors who have juggled similar challenges over the past two decades... and I helped broker a meeting with Smart Columbus staff and about a dozen OSU EEDS and Engineering capstone instructors...and in the end, we did succeed in getting some collaboration ... as you are well aware, (we) made this video (the majority of the video budget came out of my teaching and start-up funds, by the way), but I realize how much more is needed to continue to build this. I can't realistically continue to log this much time trying to broker these opportunities when doing so is only vaguely part of my position description... In other words, I'm an example of an instructor who has been trying to fill the needed gap in support and infrastructure, and am currently feeling/seeing how these efforts won't 'get there' and I'll need to re-invest my energy back into my core teaching and SENR appointment, without further help...So SI help towards brokering multi- and inter- and trans- disciplinary capstone and other project class opportunities seems pretty necessary if it's going to happen...

As for previous attempts to develop interdisciplinary sustainability curriculum, primarily the Environmental Citizenship minor (and associated programs), I saw that as an example of cross-disciplinary efforts that were mainly thwarted by the budget model. Most of what arose as barriers were straightforward issues of turf defense (and offense). Some of that got expressed in terms of disciplinary expertise ("WE should be the ones teaching this because we're trained best to do so"...). I really do think that much of what we've talked about in SELC has been the best response I've seen to those larger issues — it seems to me that we've been very clearly operating in an effort to overcome those barriers...I think SI and whatever the continuation of SELC is moving forward, are uniquely and in a highly-finely-tuned way the best imaginable fit for structures and leadership and vision that can move OSU forward to enhance sustainability curriculum across units.

If OSU is serious about moving into dynamic and path-breaking multi-disciplinary sustainability program excellence that is available to us, we need to step up and provide the support needed to get there. Otherwise, we can just keep on seeing a patchwork of various programs that are all good in their own way, but don't provide much larger synergy for the university to establish a clear identity as a leader in this space..."

--**Greg Hitzhusen**, Assistant Professor of Professional Practice, School of Environment and Natural Resources

"Academic, discipline-based research is key to the university's mission, with departments and Schools as the primary units for carrying out the university's mission. However, regional, national and global problems continue to plague us that need different organizational structures. Interdisciplinary institutes like SI are key to developing innovative programs that keep the university in the forefront as a research and scholarly institution. SI will represent OSU as a unique national and international leader in the emerging field of sustainability science, by bringing together leading scholars and research clusters across a wide-range of academic disciplines. No other center, institute or School does this at OSU.

Through making these new campus as well as regional connections, SI will tackle the vital issue of sustainability and sustainable living in a fundamentally new way, seeking solutions to the enormous

environmental and social challenges facing humanity. No other center, institute or School at OSU has the capacity and infrastructure to accomplish this. It will push the boundaries of traditional sustainability research... Through innovative scientific approaches, it will place a major emphasis on sustainable living in sustainable places by studying the complex and dynamic interrelations between ecology, technology, society and economy. No other center, institute or School does this at OSU.

By studying these interactions at local, national and international levels, SI is placing itself at the center of global debates, drawing on existing OSU expertise in the scientific fields of planning and applied social and behavioral sciences, economics, business and law, biological and earth sciences, engineering, and health. No other center, institute or School can do this at OSU.

SI will explore the ethical framework required for using the nation's resources efficiently, creating effective infrastructures and relationships, protecting and enhancing the quality of lives, and creating new business channels to strengthen the economy. By providing faculty, students and staff access to a 'living lab' — i.e., the campus community with its entire complex infrastructure, SI will chart new opportunities for research and training. No other center, institute or School does this at OSU. Fundamentally, SI is designed to serve the interests of a diverse faculty by facilitating and producing the highest quality scholarly work, an overriding objective that transcends other considerations."

--**David Cole**, Professor, Ohio Research Scholar, School of Earth Sciences, and Director, Center for Energy Research, Training and Education (formerly the Subsurface Energy Research Center)

"OEE has been a partner of CAR on more occasions than I can count. Years ago, they supported the development of an electric utility/automotive industry consortium, SMART@CAR, which operated between 2009 and 2015 to understand the impact of electric vehicles on the power grid. OEE's role in securing the participation and funding of utility companies AEP, FirstEnergy, PJM Interconnection and Dayton Power and Light was invaluable. More recently, OEE participated in the recruitment of Prof. Stephanie Stockar, an expert in energy efficient building technology, who will join MAE in May 2019. OEE assisted in recruiting Dr. Stockar and in connecting her with Engie.

With regard to the SRE program, we have been engaged in ongoing discussions related to collaborations on the subject of sustainable mobility. CAR is currently providing support for Prof. Andre Carrel, SRE faculty in CEGE, on a project funded by Cummins Inc. (2017-2019) on the subject of urban logistics for commercial vehicles, and has helped Profs. Carrel and Rabi Mishalani obtain funding through the Ford OSU Alliance on the subject of urban mobility (2017-2019). We have also teamed up with Profs. Harvey Miller, Carrel and Mishalani on two (in 2017) proposals to DOE related to multi-modal mobility, which have not been selected for funding. CAR has also provided start-up funding for Prof. Nicole Sintov on the subject of consumer acceptance of future vehicle technologies.

Most important, we look forward to developing major proposals to NSF and other agencies on the subject of 'mobility for mobility,' a program that envisions considering social and technological aspects of mobility in an interdisciplinary setting with the goal of establishing OSU as best-in-class in this field. We look forward to continued and expanded collaboration to the Sustainability Institute — its

goals are complementary to those of our research center and I have no doubts that we will achieve further success once the Institute is launched."

-- **Giorgio Rizzoni,** The Ford Motor Company Chair in Electromechanical Systems; Director and Senior Fellow, Center for Automotive Research; Professor, Department of Mechanical and Aerospace Engineering; Professor, Department of Electrical and Computer Engineering

3) Teaching and Learning is listed in the first bullet point under Mission on Page 3 and as the first point in the university's mission and strategic goals on sustainability that will be served by the SI. However, the budget for teaching and learning is far smaller than the investments to be made for research goals. The suggestion was to either alter the budget to invest more in teaching and learning, or to prioritize research in the SI's mission to bring it into alignment with the budget.

We apologize for any confusion regarding the ordering of the bullet points. The order does not connote importance. Contributing to the research and teaching sustainability goals of the university are equally important goals for SI.

With respect to the relative budget allocation to research versus teaching: Our budget reflects areas in which current resources are *not* deployed at the university, and in which we believe that additional investment can galvanize collaboration and activity. We have tried very hard not to duplicate efforts or resource allocations to activities that already exist.

Our teaching budget is small with respect to research support, but we believe it is unique among most institutes at the university that focus largely if not solely on research. Most of the resources to support the university's sustainability teaching mission are already deployed since teaching and curriculum development belong to the academic units. The role of SI is not to develop curriculum or teach courses, but to facilitate faculty from across colleges and academic units to develop strategies for better coordinating and communicating the existing academic programs related to sustainability, and to further develop curriculum on the basis of identified gaps in the existing curriculum. As we state in the proposal, we are carrying this out largely through the facilitation of the Sustainability Education and Learning Committee (SELC), which comprises 15 faculty from seven colleges. The funding proposed for SI will support the following teaching and learning activities:

- Faculty co-leads: support for SELC faculty leadership
- New course development: We anticipate that one of the recommendations from the SELC report will be the creation of several new courses to complement existing courses and programs and to fill critical gaps and provide the connective glue to create certificates, minors, etc., that are cohesive and holistic
- Student programming

The Council is right to point out that the teaching budget would be inadequate to support some of the programming and initiatives that may be recommended by the faculty on SELC. For

example, we currently do not have funds requested to support the development of a central web portal for sustainability education at Ohio State. Our budget does not reflect these additional needs since these have not yet been fully identified. Once these needs are identified and agreed upon, we hope to identify existing resources and capacity to respond to these needs.

4) Keeping with teaching and learning, there was concern that the administration in the SI would be driving curricular decisions on sustainability. Randy directly stated that that won't happen, and that faculty control curriculum, but some direct language added to the proposal that all curriculum will be dictated by faculty and not administrators in the SI may help allay any of those concerns.

We fully concur with this statement: All curriculum will be dictated by faculty and not SI administrators. Elena Irwin, professor of Agricultural, Environmental and Development Economics and SI faculty director, is facilitating the work of SELC, which as stated earlier is the main vehicle by which SI is helping to foster sustainability teaching and learning. We are working with OAA and fully expect to follow all rules and best practice guidance regarding faculty control of curriculum development and implementation by academic units.

5) Is the OEE reviewed by central administration?

Yes. OEE has had four formal central reviews by some combination of the Office of Academic Affairs, the Office of Research and by the colleges who have invested in its operations. From 2008-2011, OEE operated as the Institute for Energy and the Environment (IEE) and was funded by a memorandum of understanding (MOU) signed by the Senior VP for Research along with five college deans (prior to consolidation of the College of Arts and Sciences). In 2011, Dr. Ron Sega was hired to become the first Vice President for Energy and Environment at Ohio State and the IEE became the Office of Energy and Environment. From FY 2012 -2014, OEE operated in accordance with an MOU signed by three college deans (CFAES, COE, ASC) along with the Office of Research. On January 1, 2015, OEE was transferred from OR to OAA and has operated under a new MOU that included funding from OAA, OR, A&P, CFAES, COE and ASC.

6) Can you clarify what will happen to the 50% funding for SRE positions if those folks leave the university for any reason? Will that funding remain in the proposed Sustainability Institute?

Funding for the position is secure for as long as the person hired into this position remains in the position. If the person leaves, the Discovery Themes funds revert back to OAA. It is possible, perhaps probably, that these funds would be re-invested in the same position, but not guaranteed. SRE hasn't had any experience with this happening yet.