

Finalists for UCF Collective Impact Community Challenge (These two pages maximum)

Project Team: UCF/OUC/City of Orlando “Energy Efficient Affordable Housing Team” (Janet McIlvaine, FSEC, Lead)

Project Title: Energy Efficiency for Affordable Housing in the UCF Community

1. Describe the project, significant community challenge it addresses, and the target audience and geographic area you will focus on (specific neighborhood, city, count, etc.) in 100 words or less:

America’s affordable housing crisis is, in part, why we have a homelessness crisis. The affordability equation includes rent/mortgage AND utilities. In Metro Orlando affordable housing energy bills consume 7.5-11.5% of annual income compared to 4% for all households. Root causes include poor house conditions, financial restraints, and technical challenges. The gap will expand as high efficiency market-rate housing and renewable energy become mainstream. Affordable housing, energy efficiency, and renewable energy will be addressed through classroom, community, and research activity by UCF (students, faculty and staff) with affordable housing, utility, renewable energy, home energy, and community action entities in Metro Orlando.

2. We seek comprehensive solutions that address root causes of an issue, how will your team draw upon the unique expertise, strengths, and assets of the university and engage as many different functional and disciplinary areas of the university as possible?

UCF Internal Collaborators/Partners	Role (very brief)	Confirmed Participation
Florida Solar Energy Center (Lead)	Initiative coordination; energy efficiency, solar, storage expertise, research, implementation, and measurement. Affordable housing contacts.	Yes
Sustainability Initiatives (Y. Watson) and Utilities and Energy Services (T. Huynh)	Student, faculty, and community engagement. Energy Measurement UCF buildings, affordable Homes	Yes
Habitat for Humanity Campus Chapter	Student engagement, on-campus events, service learning	Yes
Experiential Learning (C. Chuo)	Student and faculty engagement	Yes
UCF Downtown (T. Seymour)	Advisement, connection to UCF initiatives	Yes
Office of Research (D. Reinhart)	Proposal support	Yes
Dept of Political Science (P. Jacques)	Curriculum development	Yes
Social Justice and LEAD Scholars Living Learning Communities, EXCEL, UCF clubs	Engage relevant student groups for UCF Energy Efficiency Ambassadors Corps	No
External Collaborator/Partners	Role (very brief)	Confirmed Participation
City of Orlando, local government	Integrate with Green Works Orlando, augment Mayor Dyer’s goal for 2030 of 100% municipal electricity from renewable sources to include affordable housing	Yes
Orlando Utilities Commission	Field research	Yes
Habitat for Humanity of Orlando	Engagement, model energy program to propagate	Yes
Nonprofit Housing Roundtable, Central FL	Connection to NGO affordable housing entities	Yes (UCF membership)
Habitat for Humanity of Florida	Scale-up connections to Habitat affiliates in Florida	Yes
15 LightYears Foundation	Provider of sustainability-focused education	Yes
Mike Bernard	Advisor, affordable housing real estate investor	Yes
Elder & veterans assistance programs	Connection to households in need	No

3. We seek projects that integrate or involve all three areas of our mission. Describe how your project has the components of teaching/academic, research/scholarship, and/or service/engagement.

Note: Activities may address affordable housing, renewable energy, and energy burden as individual and combined topics.

Teaching/Academics: To engage and foster growth of *Change Makers*, UCF faculty will work with community partners to develop classroom modules, technical challenges, and “immersion experiences” for students that can be integrated into curriculum across disciplines. Activity will increase awareness of and/or teach skills related to affordable housing, renewable energy, and energy efficiency as individual and combined topics including career options, social and industry dynamics.

Service/Engagement: To support and enhance work of *Decision Makers* within the UCF geographic community(s), the UCF Energy Efficiency Ambassador Corps (new group) will provide energy audits, design reviews, simulation analysis, and technical assistance to affordable housing entities; log 200 hours annually of volunteer sweat equity implementing energy efficiency improvements in real houses and will make presentations to campus and community groups.

Research/Scholarship: To expand and spread knowledge available to *Policy Makers*, UCF faculty will write interdisciplinary proposals, conduct energy efficiency research with utility partner(s), document and scale successful approaches to reducing energy burden, and identify implementation market barriers with Industry Advisory Committee. Publish research findings.

4. Outcomes primarily relate to improvements in knowledge, skills, and attitudes whereas impacts involve improvements in academic, cultural, economic, environmental, health and/or social conditions. State the main three outcomes or impacts that you expect by **the first 5 years** of implementing this project in 50 words or less total.

- 1,000 sweat equity hours and technical support to 50 entities to improve efficiency of Metro Orlando affordable homes.
- Incorporate experiential learning opportunities into existing curriculum across multiple disciplines.
- Produce statistically significant, monitored field studies to reach “renewable energy ready” status in existing homes

5. In 100 words or less total, describe the potential for scaling this project nationally or globally such as salience of the issue nationally or globally and potential national or global partners, etc.

National or global significance/importance: The gross inefficiency and dire condition of America’s affordable housing places a significantly higher energy burden (% of income) on low income citizens, drains money away from local economies, and will hamstring the transition to clean energy.

Potential to scale nationally or globally: Any university could adopt this model (outreach, experiential learning, classroom modules, events, etc.) to bring affordable housing, energy efficiency, and renewable energy entities together locally.

Potential National or Global Partners: This team has a 25 year relationship with Habitat for Humanity International, a nation-wide network of allied building energy efficiency and renewable energy experts, and relationships with governments and municipal utilities in other major cities.

6. The components of a successful Collective Impact project were discussed during the meeting with Dr. Jones. Describe how your team will incorporate each component for collective impact rather than isolated impact. (No more than one sentence each). Refer to handout provided by Dr. Jones.

UCF as backbone organization that provides a centralized infrastructure: UCF students, faculty, and/or staff will direct each activity conducted with external partners through the new *UCF Energy Efficiency Ambassadors Corps*, the new *UCF Energy Efficiency Industry Advisory Committee*, or at least one UCF faculty member committed to the projects common objectives.

Achieve a common agenda: Promote development of workforce, finance, business, policy, and community environment needed to support implementation of energy efficiency, and by 2030 100% renewable energy, in affordable housing.

Shared measurement (annual goal or unit): Each activity will have a primary and a secondary evaluation criteria from the following list: number of activities (15), students engaged (200), faculty and staff engaged (25), volunteer hours (200), houses impacted (25), repair finance secured (\$), projected energy saved (kWh, \$, or %), organizations engaged (20), people reached in industry or community (300), experiential learning opportunities delivered (10), research/project proposals(#) and funding (\$), or research/project publications (#).

Mutually reinforcing activities: An internal UCF working group will ensure that every approved activity includes a secondary focus in support of a different root cause so that, for example, volunteering sweat equity hours to improve efficiency in a real house will include a task to document the workforce training need to replicate the achieved results.

Continuous communication: An online portal available to all parties will be set up to log key evaluation criteria (above), formal and informal documentation for each activity; a Facebook page and Twitter account will be set up to share video and photos; hands-on events on campus and a student-faculty poster session or panel discussion will be held every semester to exchange key lessons learned around each root cause.

7. In 50 words or less, describe specific external sources of potential funding and whether there are RFPs forthcoming from those entities?

NSF Engineering Research Center “Integrated Smart Building Energy Storage,” planning grant due June 2018. OUC/ City of Orlando/ Orlando Habitat for Humanity/US Dept. of Energy – time, materials, facilities and field research funding. Corporate and philanthropic foundations focused on STEM education, sustainability, affordable housing, or energy – revolving RFPs.

8. Review the information on UCF Cluster Initiatives. In 50 words or less, discuss the potential for this project to form an active, productive Cluster. (<https://www.ucf.edu/faculty/faculty-research-clusters/>)

UCF currently has two Energy clusters that are electric utility focused, on generating (energy catalysis) and transmitting electricity (Smart Grid). On the customer side of the meter, a “Zero Energy Housing Faculty-Research Cluster” would be developed from this project as over 53% of electricity is used in our homes.