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Illinois Clean Energy Community Foundation
2 N. LaSalle St.
Suite 1140
Chicago, IL 60602

July 20, 2009

LETTER OF INQUIRY REGARDING GRANT FOR ENERGY EFFICIENCY IN EXISTING BUILDINGS

Krannert Center for the Performing Arts, a component of the College of Fine and Applied Arts at the Urbana-Champaign campus of the University of Illinois, respectfully requests the opportunity to submit a proposal to the Illinois Clean Energy Community Foundation regarding retrofitting Krannert Center's lobby with LED (light-emitting diodes) lighting.

Dedicated to the advancement of the education, research, and public engagement mission of the University of Illinois through the pursuit of excellence and innovation in the performing arts, Krannert Center has served since 1969 as one of the nation's premier educational and professional performing arts complexes. Made possible by the generous gift of the late industrialist and University of Illinois alumnus Herman Krannert and his wife, Ellnora, Krannert Center continues their vision of "education through participation in culture."

Encompassing two city blocks, the Center is a stunning architectural achievement designed by University of Illinois alumnus Max Abramovitz. Krannert Center has four main venues opening onto a 25,000-square-foot gleaming teak-floored lobby. The lobby serves as a public square for the University and the extended community, not only before and after over 350 performances each year, but every day and night – for dining, shopping for gifts in the Promenade, studying, meetings, conferences, parties, exhibits, and for performances in the lobby itself. Krannert Center's lobby is physically, ideologically, and purposefully central to its existence.

The Center continues to take a leadership role in energy conservation and sustainability, and is committed to further strengthening this role in order to become a national model for architecture/facilities retrofitting and sustainable practices in the arts. As a first step, a retrocommissioning of the Krannert Center's HVAC systems resulted in a 32.4% decrease in energy consumption. The Center has also completed a feasibility study as a first step to installing a green roof during the next roof replacement. In addition to these building improvements, Krannert Center is once again organizing a series of concerts this summer around a green theme and the musicians booked will converge around local and global environmental concerns. The LED upgrades to our lobby lighting is a vital next step in these efforts.

The existing lighting consists of recessed square downlights, each operating a 150W incandescent lamp, above an architecturally significant ceiling, and using glare-controlling recessed baffles. The current fixtures are original to the lobby. Recent technological advancements in the lighting field have rendered our present lobby lighting system comparatively energy-inefficient, labor intensive, and wastefully expensive, particularly as our lobby is open to the public and lit 17 hours per day, 360 days per year.

Installation of LED lighting in Krannert Center's lobby will result in annual savings of ~$70,000; this includes energy savings plus reduced maintenance costs for re-lamping. The installed LEDs will be

networked and programmable, allowing staff to increase lighting colors and intensities, creating new aesthetic ambient opportunities for events at the Center. Additional benefits include the long lifetime of the bulbs, acclaim for the Center and University for pioneering such an installation, and therefore, greater public awareness of the environmental friendliness of LED lighting. The approximate total cost for this project will be $450,000, including $325,000 for materials, $45,000 for labor, $35,000 for engineering, and $45,000 for contingency.

	INCANDESCENTS	NEW LEDS
ENERGY COST		
Fixture Count	675	675
Input Wattage/Fixture	150	32
Burning Hours/Day	17	17
Burning Days/Year	360	360
Total Annual Burning Hours	6,120	6,120
Total Annual Wattage	619,650,000	132,192,000
Total Annual KWH	619,650	132,192
Energy Cost/KWH	$0.095	$0.095
Total Annual Energy Cost	$58,867	$12,558
RE-LAMPING COST		
Fixture Count	675	675
Number Lamps/Fixture	1	1
Replacement Lamp Cost/Lamp	$3.00	$35.00
Lamp Rated Life/Hours	2,000	50,000
Re-lamp Frequency /Year	3.06	0.1224
Lamp Change Labor/Fixture	$10.00	$10.00
Annual Lamp Change Labor/Fixture	$30.60	$1.22
Total Annual Re-lamping Cost	$26,852	$3,718
LIFE CYCLE		
Total Number Years to Consider	20	20
WATTAGE/HEAT LOAD/EMISSIONS		
Total Annual Wattage	619,650,000	132,192,000
Annual Contributed Heat Load, BTU (Millions)	2114	451
Annual Carbon Emissions/Tons	415	89
Total Life-Cycle Carbon Emissions in Tons	8,303	1,771
ANALYSIS SUMMARY		
New Product Cost/Total	$0	$325,000
Installation Cost/Total	$0	$125,000
Total Annual Energy Cost	$58,867	$12,558
Total Annual Re-lamping Cost	$26,852	$3,718
System First Year Cost	$85,718	$466,276
Total Life-Cycle Cost	$1,714,365	$775,523
Total Life-Cycle Given Heat Load, BTU (millions)	42,285	9,021
Total Life-Cycle Carbon Emissions in Tons	8,303	1,771

	INCANDESCENTS	NEW LEDS
COST SAVINGS FROM NEW LED SYSTEM		
Annual Energy Cost Savings		$46,309
Total Life-Cycle Energy Cost Savings		$926,170
Annual Re-lamping Cost Savings		$23,134
Total Life-Cycle Re-lamping Cost Savings		$462,672
Total Annual Cost Savings		$69,442
Total Life-Cycle Cost Savings		$1,018,362

The lighting staff at the Center worked with the University of Illinois Student Sustainability Committee (SSC) to collect information on best lighting equipment and practices for the Center's needs. The SSC is tasked with exploring options for use of two categories of student environmental fees – the Clean Energy Technology Fee and the Sustainable Campus Environment Fee. The SSC evaluates various U of I projects under consideration, with professional assistance from engineers in U of I's Division of Facilities and Services. Then the SSC recommends projects for funding. They chose to underwrite LED lights for Krannert Center's lobby due to the innovative and timely nature of the undertaking, and its high visibility to students. Our lobby lighting makeover will be one of the first projects of its kind to deploy on such a scale.

Project goals are as follows.

- Increased energy savings / decreased energy usage
- Decreased maintenance / labor costs for repairs
- No inventory of replacement bulbs
- No labor costs for lamp replacement in fixtures
- Increased flexibility of dimming control of specific areas in the lobby
- Flexible color scheme of lobby lights
- Ability to have our new fire/safety system communicate with lobby lights to enhance our 'emergency lighting' scheme

Estimated project results are shown in the table below. The statistics overwhelmingly favor the LED lights over the incandescents regarding energy savings, heat reduction, and bulb replacement.

Krannert Center requests $250,000 from the ICECF to help fund this project. The SSC has offered to underwrite a zero-interest loan for the remaining project expenses. With our LED lights installed, Krannert Center can use the approximately $70,000 annually from reduced re-lamping and energy costs to repay the SCC. We are targeting project completion by January 31, 2010.

The Center's programs serve approximately 400,000 East Central Illinois residents and visitors per year. On their behalf, thank you for your consideration of the importance of this project to those citizens and to our environment. Krannert Center sincerely hopes to be invited to submit a full proposal.

Best regards,

Michael Williams
Lighting Director, Krannert Center for the Performing Arts