Water, Energy and Agriculture Initiative

DEADLINES.
1. Intent to Submit (required): August 4, 2008 – midnight CDT
2. Proposal: August 29, 2008 – midnight CDT

BACKGROUND. Rapid expansion of the biofuel industry provides exciting opportunities for economic growth and development in rural Nebraska. Realizing the full benefits of this opportunity and ensuring its long-term viability depends on continued access to adequate supplies of water, electrical energy, and biofuel feedstock crops at reasonable cost. For example, about 70 percent of all corn and 50 percent of soybeans produced in Nebraska comes from irrigated land, and electrical energy for pumping irrigation water represents a major component of peak-load energy demand in the state. Reducing this peak-load electrical demand and consumption is essential for reducing the need for new generating capacity or peak-load energy purchases, thus avoiding increased costs for power. Similarly, increasing water use efficiency of irrigated crops reduces energy demand for irrigation and decreases water withdrawals to produce adequate feedstock supply, which conserves water resources.

To address these issues, the Nebraska Center for Energy Sciences Research (NCESR), the Nebraska Corn Board, the Nebraska Soybean Board, and UNL’s Agricultural Research Division have established the Water, Energy, and Agriculture Initiative as a competitive grant program. A total of $290,000 will be available to fund this program in 2008-09. A similar amount of funding is anticipated for the following year, 2009-10.

GOAL. The goal is to maximize the efficiency with which water and energy resources are used to sustain economic development and water conservation in Nebraska agriculture.

OBJECTIVES. The WEAI research agenda is tightly focused on the following two priorities:

(1) Potential to increase agricultural income per unit of irrigation used for biofuel crops (e.g. corn, soybean, or cellulosic biomass) or per unit of water used in livestock production.

(2) Potential to decrease peak electric demands and overall electric energy consumption for irrigation through development and adoption of technologies and practices that: (a) improve crop and irrigation water use efficiency, (b) improve irrigation system and/or pumping efficiency, or (c) provide renewable energy sources for irrigation pumps.

Project proposals will be required to estimate the impact on both priorities, and this information will be used in the selection process. The most current data on annual ethanol and

\[1\] Released July 21, 2008
irrigation electrical load, peak summer electrical demand, and irrigated crops and crop area in Nebraska is provided for use in estimating potential impacts. Contributions to both objectives are essential to avoid funding projects that save water and energy but do not contribute substantially to profitability, income generation, and economic development.

**ELIGIBILITY.** The Principal Investigator (PI) must be a current UNL faculty member. A faculty member may serve as the PI for only one (1) proposal.

**RESEARCH TEAM.** Interdisciplinary teams are encouraged as well as project teams including researchers from other universities/institutions and partners from the private- and public-sectors.

**AWARDS.** A total of $290,000 is available for awards in this competition. The maximum award size is $80,000 over a one or two-year project period.

**FUNDING LIMITATIONS.** NCESR funds may be used for supplies and technical support, graduate students, hourly help and post doctoral positions (post docs). All standard UNL financial regulations will apply. No facilities and administrative (F&A) costs will be charged to these grants. Funds may not be used for any of the following:

- To replace current funding;
- Tenured/tenure-track faculty salaries;
- Major remodeling, renovation or construction;
- Recruitment start-up packages;
- Supplies for general purposes, such as desk or laptop computers, printers, software and related accessories; and general office supplies not exclusive to the project; and
- Foreign travel.

**PROJECT DURATION AND REPORTING.** Projects may be proposed with a one- or two-year time frame. The project period is scheduled to begin October 1, 2008. Second-year funding of two year projects will be contingent on adequate project and financial performance as documented in the required progress reports. A final report will be required, whether a project is funded for one or two years.

**SEEK ADDITIONAL FUNDING.** It is expected these research grants help build research capacity and improve competitiveness for external funding. Therefore, Principal Investigators selected

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2 Appendix A – Total Annual Ethanol and Irrigation Electrical Load: Past, Current and Future Projects
Appendix B – Peak Summer Electrical Demand: Past, Current and Future Projects
Appendix C – Irrigated Crops and Crop Area in Nebraska
for funding under the WEAI are expected to submit a minimum of one (1) significant grant application to an external funding agency, commodity group, private sector partner or foundation during the course of the research project. Documentation of grant submission will be required in the progress reports.

**SELECTION CRITERIA.** Scientific merit, estimated project impact and probability of success in achieving proposal objectives will be the main selection criteria. Project outputs and estimates of potential impacts relative to the two priority areas will weigh heavily since proposals must provide an estimate of both the (1) Potential to increase agricultural income per unit of crop irrigation, biofuel or livestock water used; and (2) Potential to decrease peak electric demands and overall electric energy consumption for irrigation through development and adoption of technologies and practices that: (a) improve crop and irrigation water use efficiency, (b) improve irrigation system and/or pumping efficiency, or (c) provide renewable energy sources for irrigation pumps. Specific plans for extending results of the research project to end-users must also be provided because the goal of the WEAI is to have impact relative to the objectives.

**REVIEW.** Proposals will be evaluated by external reviewers based on scientific merit, probability of success and relevance to the selection criteria.

**SELECTION.** Final selection of funded projects will be determined by the Research Initiative Advisory Committee, which will be comprised of one representative from each of the contributing organizations and the NCESR Director.

**INTENT TO SUBMIT** (required). To be eligible to compete, the Principal Investigator must register his/her intent to submit a proposal at [http://ncesr.unl.edu/rfps/weai.php](http://ncesr.unl.edu/rfps/weai.php). The deadline to register the intent to submit is midnight CDT on August 4, 2008. Requests for extensions or exceptions will not be accepted. Only those PIs who register online will receive the proposal form to complete and submit a full proposal by the proposal deadline.

**PROPOSAL.** The proposal form must be submitted using the URL provided to PIs who registered their intent to submit online. The deadline to upload the proposal form is midnight CDT on August 29, 2008.

**REVIEW.** Proposals that do not adhere to the instructions will be disqualified.

**INFORMATION.** If you have questions about this request for proposal, contact Ann Selzer, Program Manager at aselzer2@unl.edu or (402) 472-6743.