

MINNESOTA STATE UNIVERSITY, MANKATO
MINNESOTA STATE COLLEGES AND UNIVERSITIES
CABINET ACTION

STANDBY GENERATOR PROJECT

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2 **BACKGROUND**

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4 The Facilities Department is requesting approval to enter into a 15-year lease-purchase contract
5 for installation of standby electrical generating capacity. The project is estimated at \$3.815M
6 and involves leasing three diesel generator units, each capable of producing 2 megawatts (MW)
7 of power, associated high voltage switchgear, operation, maintenance, and provisions for
8 guaranteed start-on-demand capability. It was procured via a competitive request for proposal
9 process and the winning vendor is Ziegler. The consulting firm of Sebesta Blomberg and
10 Associates was retained to provide technical, financial and cost estimating information. The
11 Attorney General's office reviewed and coordinated on the proposal.

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13 The three leased generators will be housed in a 3,200 square foot facility located adjacent to the
14 utility plant and can provide the entirety of electricity needed for the campus (5.6 MW needed
15 and 6 MW produced). The theoretical maximum power requirement for the campus is 6.4 MW,
16 however, this load has never been required and it is not cost effective to purchase a 4th generator
17 to achieve this load. The option to add a fourth has been designed into the project for future
18 growth of the campus. The lessor operates and maintains the generators and building for the
19 15-year lease term so additional MSU manpower is not required.

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21 Because these generators are capable of supplying most of the power needed for the campus,
22 MSU is able to enter into an agreement with Xcel Energy to remove the campus load from its
23 energy grid during times of high electrical use (e.g., hot summer days.) In this fashion,
24 electricity that might typically be supplied to MSU would now be available to other Xcel
25 customers, thereby reducing the risk of a regional "brown-out". In return for MSU removing
26 itself from the grid, Xcel will reclassify MSU as a Tier 1 user under the peak interruptible
27 electric rate schedule. As a Tier 1 user, MSU could be asked to remove itself from Xcel's
28 electrical grid for no more than 150 hours per year and in return, our demand charges could be
29 reduced at a rate of \$54 per kilowatt. Using FY03 usage of about 5.2 MW, this would have
30 resulted in annual savings of \$282,000. As the campus electrical load grows up to the
31 maximum output of the 6 MW generators, the annual savings likewise grows up to maximum of
32 \$324,000. These annual savings will then be redirected to pay off the generator lease payments.
33 A cash flow analysis indicates that the project is estimated to be cash flow positive at about
34 \$4,711 per year and over a minimum expected 30-year life the generators, it may produce over
35 \$4M in revenues.

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37 Xcel will guarantee this rate reduction for a period of 10 years and must provide a three year
38 notification if they ever intended to eliminate the rate. If MSU is asked by Excel to remove
39 itself from the power grid but is unable to do so because the generators fail to start, then MSU
40 could be fined approximataily \$20,000 per failed generator start.

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This project also positions MSU to take advantage of these generators during an emergency power outage (emergency power is needed for “unscheduled” outages; standby power is needed for a “scheduled” outage). Currently, we have five smaller emergency generators which in the event of an unscheduled outage immediately start up and provide minimal emergency power for all but two facilities. Emergency generators typically power elevators, emergency lighting, fire alarms, or sump pumps. Two of these generators which serve the residence halls are reaching the end of their useful life and require replacement at an estimated cost of \$60,000. Rather than purchase replacement generators, we would opt to install an underground line from the residence hall back to the new leased stand-by generators at a substantially lower price. As we continue to add new facilities that require emergency power (e.g., 70,000 square foot Trafton Science Center addition, future residential hall complex, etc...), we would continue to follow this model and run new electrical lines and eliminate the cost of a new emergency generator. These potential future cost savings, while presently unknown, could be substantial, and if included in the cash flow analysis, would further increase the revenue stream associated with the project.

Xcel Energy has lost power on three separate occurrences totaling 5 hours and 20 minutes over the past 14 months. MSU has been fortunate that the power outages have not been more prolonged as it could result in freeze-up conditions during the winter heating season and the risk for catastrophic loss would increase. MSU’s College of Science, Engineering and Technology has on-going testing programs with chemicals and live animals that require strict environmental control. The College has coolers with a strict window of temperature control for the storing and conducting of these tests and numerous computer labs and contract testing labs that are susceptible to damage in the event of a power loss. Currently, these labs do not have emergency backup power capability and in case of an unscheduled power outage, could be faced with equipment damage and data loss. In addition to these longer outages, MSU has experienced nine momentary outages over the past three years which sometimes results in significant damage to motors and voltage sensitive equipment. By installing the leased generators, MSU would not experience any power outages.