STATE OF ARIZONA

Joint Committee on Capital Review

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JOINT COMMITTEE ON CAPITAL REVIEW
Tuesday, July 25, 2017
2:30 P.M.
Senate Appropriations, Room 109

MEETING NOTICE

- Call to Order
- Approval of Minutes of June 20, 2017.
- DIRECTOR'S REPORT (if necessary).

1. ARIZONA STATE UNIVERSITY - Review of Tempe Power Plant Indirect Financing Project.

The Chairman reserves the right to set the order of the agenda.
7/21/17
kp

People with disabilities may request accommodations such as interpreters, alternative formats, or assistance with physical accessibility. Requests for accommodations must be made with 72 hours prior notice. If you require accommodations, please contact the JLBC Office at (602) 926-5491.

STATE OF ARIZONA

Joint Committee on Capital Review

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PHOENIX, ARIZONA 85007

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DATE: July 21, 2017

TO: Senator Debbie Lesko, Chairman
Members, Joint Committee on Capital Review

THRU: Richard Stavneak, Director RS

FROM: Matt Beienburg, Fiscal Analyst
Jack Brown, Assistant Director JB

SUBJECT: Arizona State University - Review of Tempe Power Plant Indirect Financing Project

Request

A.R.S. § 15-1682.02 requires Committee review of any university projects using indirect debt financing (also known as third-party financing). Arizona State University (ASU) requests Committee review of a $21,000,000 project for the construction of a second combustion turbine at ASU's Tempe campus. The debt will be issued by Sun Devil Energy Center, LLC, which is a subsidiary of an ASU component unit, the Arizona Capital Facilities Finance Corporation (ACFFC).

The Committee heard ASU's proposal for the turbine's construction at its June 2017 meeting. The Committee voted to delay review of the project until its next meeting to provide an opportunity to address member concerns. Due to constraints related to the construction timeline, ASU subsequently requested an expedited meeting date.

Recommendation

The Committee has at least the following 2 options:

1. A favorable review of the project.

2. An unfavorable review of the project.

(Continued)

The Committee may consider the following standard university financing provision:

Standard University Financing Provision

- A favorable review by the Committee does not constitute endorsement of General Fund appropriations to offset any revenues that may be required for debt service, or any operations and maintenance costs when the project is complete.

Analysis

Sun Devil Energy Center, LLC financed construction of a power plant at the Tempe campus near Rural Rd. and Apache Blvd. in 2004 to help support the university's energy needs. Specifically, the power plant provides energy to the Biodesign A and B and Interdisciplinary Science and Technology Buildings (ISTB) 1 and 4 among others, comprising up to 22% of the Tempe campus' overall power needs during peak requirements and 19% during off-peak times.

ASU reports that the use of on-site generation improves reliability of power delivery to its campuses and reduces the need to purchase power from the grid during peak-load demand. ASU has stated that the instruments used for research experiments, which can last 6-12 months, are susceptible to damage during power failures if a backup source is not available. In addition, the university has indicated that certain research grant awards require grantees to demonstrate redundancy of power sources. ASU also cites greater control of power voltage and frequency settings, which benefits sensitive research equipment.

ASU reports that the opening of the Biodesign C building in June 2018 and additional planned research facilities will require increasing the power plant's energy production capabilities, as the plant currently does not have excess capacity to support the new buildings without a second turbine. The existing research facilities connected to the plant currently require 8.3 megawatts of the plant's 8.8 megawatt capacity, and Biodesign C and a related chiller will require 2.5 megawatts of additional capacity.

Additional Turbine Construction

Under the current proposal, Sun Devil Energy, LLC would issue $21.0 million of long-term debt via bonds or a lease-purchase agreement to pay for construction of a second combustion turbine at the power plant. ASU estimates that the second turbine will increase the share of the Tempe campus' peak energy requirements generated by the plant from 22% to 36%.

As shown in *Table 1*, ASU estimates that building the additional turbine would save $452,300 per year, or $9.0 million over the next 20 years ($6.4 million in today's dollars) compared to purchasing grid-based power and using stand-alone generators for backup power. The ASU savings estimate assumes growth in the cost of natural gas—which is used to the power the turbine— at 2% per year, and in the price of electricity purchased from the grid at 2.5% per year. ASU has indicated that these estimates are based on historical increases over the past 10 - 15 years. We have requested the source of ASU's historical price data and the basis for these estimates being used as future projections. We are awaiting their response.

(Continued)

Under the existing agreement with Sun Devil Energy, LLC, the university is already required to purchase a minimum of $7.5 million worth of energy per year for 25 years to cover Sun Devil Energy, LLC's management and capital costs. The second turbine is estimated to increase the required annual purchase by approximately $2.5 million through 2038, at which point ownership of the facility will transfer to ASU. As described above, ASU has indicated that this increase is still part of an overall net savings compared to the cost of generating the additional power externally.

Table 1

Annual Costs of Second Turbine vs. Purchasing from Grid + Standalone Back-up Generators [1/] [2/]

Second Turbine [3/]		Purchase from Grid + Generators [4/]		Annual Difference
Natural Gas	$2,963,400			
Turbine Financing	1,548,600	Purchased Electricity	$5,694,000	
Operation & Maint.	1,093,400	Back-up Generators	$363,700	
Total	**$5,605,400**	**Total**	**$6,057,700**	**$452,300 [5/]**
Per Kilowatt Hour	$0.11	Per Kilowatt Hour	$0.12	

1/ Projections were provided by ASU and assume required energy for Biodesign C and future buildings (50 million kilowatt hours per year) produced/purchased under either scenario.
2/ Amounts shown for each expense are the average annual costs over the 20-year period.
3/ Assumes 2% annual increase in natural gas prices and turbine maintenance and operations costs. Total purchase and installation costs of second turbine are to be financed over 20 years.
4/ Assumes 2.5% annual increase in purchase price of electricity from the grid and purchase of 3 standalone generators financed over 20 years.
5/ ASU calculated a 20-year total savings of $9.0 million, or $6.4 million in net present value terms.

Third-Party Background

Sun Devil Energy Center, LLC formed in 2004 as a subsidiary of the Arizona Capital Facilities Finance Corporation (ACFFC), a component unit of ASU. As a component unit, ACFFC is a legally separate entity from ASU, but whose primary purpose is to directly benefit the university. Other component units include the ASU Foundation, ASU Research Park, Inc., and other entities.

As reported in ASU's 2016 Comprehensive Annual Financial Report, ACFFC carries $252.7 million of long-term debt. Overall, ASU's component units carry $499.8 million of long-term debt, compared to $1.6 billion held by the university itself. Component unit debt service payments are not included in the calculations of the university's statutory debt service limit established by A.R.S. § 15-1683.

Through another of its subsidiaries, the Polytechnic Campus Energy Center, LLC, ACFFC also provides power to the ASU Polytechnic (ASU - East) Campus. The management of both the Tempe and Polytechnic plants is provided by the power company NRG Energy.

Timing and Alternatives

Biodesign C was designed to connect to the existing power plant for both its primary power (to be generated by the second turbine) and backup power (to be channeled from the grid through the plant).

ASU has stated that if it does not receive Committee review to proceed with construction of the second turbine before the next quarterly Committee meeting, there will be insufficient lead time to complete its construction by the scheduled date of Biodesign C's opening in June 2018.

(Continued)

ASU has stated that there is a substantial advantage to opening the Biodesign C facility in June 2018 as scheduled, rather than delaying it until the turbine is completed. The opening is intended to align with the academic calendar to allow faculty to move in prior to the fall semester starting, which will also allow other spaces to be vacated and used for other purposes.

To maintain Biodesign C's target opening date if Committee review is delayed, ASU has indicated it would need to pursue other temporary measures for both the primary and backup power needs of the facility, which would add approximately $350,000 in non-recoverable costs.

These temporary measures would involve the university channeling electricity from the grid to serve as Biodesign C's primary power source and connecting standalone generators as its backup source. ASU has stated that this arrangement would require purchasing roughly $300,000 of equipment that is necessary to regulate the voltage of the primary and backup power sources. Analogous equipment already exists at the plant, but because the temporary power sources would bypass the plant, ASU would be required to procure a second set under this scenario.

In addition to the $300,000 equipment purchase, ASU estimates that renting backup generators for 3 months would have a total cost at least $37,000.

Another option is to have the APS grid provide primary power to all existing (Biodesign A and B) and new (Biodesign C) research facilities and use the existing turbine to provide only backup power to the 3 buildings. There is insufficient capacity, however, for the exiting turbine to provide backup power to all three Biodesign Buildings at one time.

APS has stated that the company does not have a position on ASU's proposal.

RS/MB:kp
Attachment

ARIZONA STATE UNIVERSITY

July 10, 2017

Mr. Richard Stavneak
JLBC Director
Joint Legislative Budget Committee
1716 West Adams
Phoenix, AZ 85007

Dear Richard:

As you are aware, at the June 20, 2017 meeting of the Joint Committee on Capital Review, review of the Tempe Power Plant Indirect Financing Project was delayed until September.

The University now has determined that the financial impact of delaying Committee review until September, which would result in earliest completion of the turbine expansion after the opening of Biodesign C, is approximately $350,000 in non-recoverable costs. This includes the cost of leasing stand-alone generators to provide required back-up power and redesign of the electrical connections in Biodesign C to support use of stand-alone generators.

To avoid unnecessary and wasteful spending, I am writing to respectfully request an expedited meeting of the Joint Committee on Capital Review be scheduled prior to July 31, 2017, if at all possible. The window of opportunity to complete review of the Tempe Power Plant Indirect Financing Project and avoid the additional $350,000 in non-recoverable costs is very narrow.

If you have any questions, please contact me at (480) 727-9920. Thank you.

Sincerely,

Morgan R. Olsen
Executive Vice President, Treasurer and CFO

Michael M. Crow, President, ASU
Steve Miller, Deputy Vice President, Public Affairs, ASU
Bruce Nevel, Associate Vice President, Facilities Development and Management, ASU
Joanne Wamsley, Vice President for Finance and Deputy Treasurer, ASU
Matt Beienburg, Fiscal Analyst, JLBC
Lorenzo Martinez, Associate Vice President for Finance and Administration, ABOR

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ARIZONA STATE UNIVERSITY

May 30, 2017

The Honorable Debbie Lesko, Chairman
Joint Committee on Capital Review
Arizona State Senate Capitol Complex
1700 West Washington, Room 200
Phoenix, AZ 85007-2890

Dear Senator Lesko:

In accordance with ARS 15-1683 and 15-1682.02, the Arizona Board of Regents requests that the following Arizona State University bond-financed and third-party-financed items be placed on the next Joint Committee on Capital Review agenda for review:

- Building and Infrastructure Enhancements and Modifications
- Classroom and Academic Renovations
- Research Laboratory/Faculty Startup Renovations
- Sun Devil Energy Center, LLC

Enclosed is pertinent information relating to these items.

If you have any questions or desire any clarification on the enclosed material, please contact me at (480) 727-9920.

Sincerely,

Morgan R. Olsen
Executive Vice President, Treasurer and CFO

Enclosures

c: Richard Stavneak, Director, JLBC
Eileen Klein, President, Arizona Board of Regents, ABOR
John Arnold, Vice President for Business Management and Financial Affairs, ABOR
Lorenzo Martinez, Associate Vice President for Finance & Administration, ABOR
Steve Miller, Deputy Vice President, Public Affairs, ASU
Lisa Frace, Associate Vice President, Planning & Budget, and Chief Budget Officer, ASU
Bruce Nevel, Associate Vice President, Facilities Development and Management, ASU
Joanne Wamsley, Vice President for Finance and Deputy Treasurer, ASU
Matt Beienburg, Fiscal Analyst, JLBC

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Joint Committee on Capital Review
Arizona State University
June 2017 JCCR Meeting

On behalf of the Arizona Board of Regents, Arizona State University (ASU) requests Joint Committee on Capital Review (JCCR) review of the following items as required by ABOR policy and ARS 15-1683 and 15-1682.02.

Issuance of Bonds

Arizona State University plans to undertake bond-financed projects including infrastructure upgrades and classroom, academic and research laboratory renovations at multiple campuses. These projects respond to the need to provide students, faculty and staff with high-quality facilities that will enable their success and support the key elements of ASU's Strategic Enterprise Framework. Additional information regarding these projects is included on the following pages.

Indirect and Third-Party Financing

In 2004 Arizona Capital Facilities Finance Corporation (ACFFC) financed and constructed a combined heat and power plant (CHP) on the Tempe campus through Sun Devil Energy Center, LLC, a wholly-owned subsidiary. Sun Devil Energy Center, LLC, contracts with NRG for management of the facility. To meet increased power requirements on the Tempe campus, a second combustion turbine is needed in the CHP. Sun Devil Energy, LLC, will issue bonds or enter into a lease-purchase agreement to acquire and install the second turbine.

An Arizona Board of Regents executive summary is attached, which outlines the terms and other details relevant to this project.

Item Name: Acknowledgement and Approval for Sun Devil Energy Center, LLC to Issue Revenue and Refunding Bonds (ASU)

☒ Action Item
☒ Committee Recommendation to Full Board

Issue:	Arizona State University (ASU) asks for committee review and recommendation for the full board to acknowledge and approve the issuance by Sun Devil Energy Center, LLC, a wholly-owned subsidiary of Arizona Capital Facilities Finance Corporation (ACFFC) of its revenue bonds: (1) to finance up to $21.0 million of capital improvements, (2) to refund up to $32.41 million of its outstanding 2008 Revenue Refunding Bonds (Arizona State University Project), (3) to pay associated issuance and transaction costs, and (4) authorization to take all actions and enter into all agreements necessary in conjunction with the issuance or refunding of Bonds.

Previous Board Action

- Tempe campus Privatized Sun Devil Energy Center LLC, Refunding Bond Approval — December 2012

Enterprise or University Strategic Plan
(Check the element(s) of the strategic plan that this item supports or advances)

☐ Empower Student Success and Learning
☐ Advance Educational Attainment within Arizona
☐ Create New Knowledge
☐ Impact Arizona
☐ Compliance
☐ Real property purchase/sale/lease
☒ Other:

Statutory/Policy Requirements

- ABOR Policy 3-501 requires matters relating to the issuance and sale of debt be presented for board action as outlined in board policy.
- ABOR Policy 7-102(B) requires Committee review and Board approval of projects shared with outside entities, such as third parties.

Contact Information:
Morgan R. Olsen, Executive Vice President, Treasurer and CFO • (480) 727-9920 • Morgan.R.Olsen@asu.edu

- ABOR Policy 7-207(A) requires Committee review and Board approval for the lease and lease amendments of real property.

Background

- In April 2004, the Board approved the formation of Sun Devil Energy Center, LLC (the Company), the execution and delivery of a ground lease by ASU to the Company for the construction of a combined heat and power (CHP) plant to serve ASU's Tempe campus, and the issuance by the Company of $51.6 million of its tax-exempt revenue bonds (Bonds) to finance construction of the plant. The Bonds were issued by the Company in November 2004 as Variable Rate Demand Revenue Bonds. In July of 2008, the Bonds were refunded with the 2008 Variable Rate Demand Revenue Refunding Bonds; subsequently, in 2013, the Bonds were converted to tax-exempt, fixed-rate bonds, of which $32.41 million remains outstanding.

- The CHP was commissioned in 2004 for the purpose of providing reliable power to the research community and currently provides electrical power to Biodesign A and B and Interdisciplinary Science and Technology Buildings (ISTB) 1 and 4. The plant contains a combustion turbine, a steam turbine, and a heat recovery steam generator. Two independent electrical feeds from APS provide redundancy in the event of a turbine failure.

Discussion

- With Biodesign C currently under construction and future plans for additional facilities, a second combustion turbine is needed to meet expected power requirements. The CHP plant was designed and built with future expansion in mind, and space exists within the building for an additional turbine and related support equipment. Installation of a second turbine would create significant savings over the cost of purchasing power at market rates from an independent utility provider and would provide reliability and redundancy benefits.

- The cost to add a second turbine to the facility is estimated at $21 million. The project will be financed by ACFFC through the Company, which will issue bonds or enter into a lease purchase agreement to acquire and install the second turbine.

- ACFFC also may refund the outstanding $32.41 million of tax-exempt bonds with taxable bonds, in order to extend the existing Operation and Management Agreement and enhance the financial responsibility of NRG as the Facility Manager. If issued, the refunding bonds will have a final maturity that is no longer than the final maturity of the Bonds being refunded.

Committee Review and Recommendation

Arizona State University (ASU) asks that the Committee forward to the full Board for acknowledgement and approval the existence and purposes of Sun Devil Energy Center, LLC, the issuance of Revenue and Refunding Bonds by Sun Devil Energy Center, LLC, and authorization to take all actions and enter into all agreements necessary in conjunction with the issuance or refunding of the Bonds, as described and presented in this Executive Summary.

Requested Action

Arizona State University asks the Board to acknowledge and approve the existence and purposes of Sun Devil Energy Center, LLC, the issuance of Revenue and Refunding Bonds by Sun Devil Energy Center, LLC, and authorization to take all actions and enter into all agreements necessary in conjunction with the issuance or refunding of the Bonds, as presented in this Executive Summary.

Arizona State University
Energy Generation Options
July 17, 2017

- ASU compared the cost of two options for providing an additional 50 million annual kilowatt hours of energy:
    - Option 1: Install and operate the second turbine the CHP facility was designed for.
    - Option 2: Purchase electricity from the grid and install back-up generators.

- Presented below is the average annual cost of both options and the projected savings from installation and operation of the second turbine over the next 20 years. If the second turbine remains operational beyond 20 years as expected, the annual savings will increase since the cost of the second turbine will be fully amortized.

Option 1: Second Turbine	
Natural Gas	$ 2,963,400
Second Turbine	$ 1,548,600
Operation and Maintenance	$ 1,093,400
Total	5,605,400
Per Kilowatt Hour	0.11
Option 2: Purchase from the Grid	
Purchased Electricity	$ 5,694,000
Back-up Generators	$ 363,700
Total	6,057,700
Per Kilowatt Hour	0.12
Projected savings with Option 1	
Average Annual	$ 452,300
Twenty-Year Total	9,046,000
NPV of Twenty-Year Total	6,366,100

- The projected cost of option 1, install and operate the second turbine, is based on the following assumptions:
    - The price of natural gas, used to power the turbine, will increase 2% annually. Based on the decline in natural gas prices over the past ten years, the assumed 2% annual increase is probably on the high side and the savings from installation of the second turbine may very well be greater than projected.
    - The cost to purchase, install, and finance the second turbine, totaling approximately $22 million, will be financed over 20 years by Sun Devil Energy LLC.
    - The cost to operate and maintain the second turbine, including the cost of a long-term service agreement, will increase 2% annually.

- The projected cost of option 2, purchase from the grid, is based on the following assumptions:
    - The price of electricity purchased from the grid, which is based on a blend of ASU's peak and non-peak rates, will increase 2.5% annually. Based on increases in the cost of electricity purchased from the grid over the past ten to 15 years, the assumed 2.5% annual increase may be on the low side.
    - The purchase of three stand-alone generators will be financed over 20 years. The cost to maintain the generators is included in the projections, but no assumptions were made regarding how often the generators would be utilized and the cost to periodically fuel and run the generators is not included in this analysis. Over twenty years purchasing generators is more cost-effective than leasing.