Subject: Report on Research at the University of Regina

1. Status report on the response to the Provincial Auditor’s Report on Research at the University of Regina (PARR) (until implementation is complete)

The IP Policy has been revised and is in consultation phase with other departments on campus.

Research Centre reports were received and under review.

2. Report on the status of action plans to actualize the Strategic Research Plan identified in response to PARR Recommendation 4

Strategic Research Plan. The Strategic Research Plan (SRP) working group is presently conducting consultations on the draft SRP 2016-2021. The first round where a review group including the University Executive Team, Deans and Associate Deans, the Council Committee on Research, Directors of University-based and Faculty-based Research Centres, Indigenous Advisory Circle, Advisory Committee on Sustainability, graduate student associations and the VPR’s Strategic Research Team were invited to provide comments has been completed. Currently, the full University community has been invited to comment on the draft SRP. The working group is still on track for a September 2016 completion date.

International Research Plan. The Internationalization Plan (2016-2021) for the University with a strong research component within it was approved at the February meeting of Executive of Council. The Office of Vice-President (Research) will work with the other stakeholders including UR International, Research Office, faculties and researchers in a coordinated and strategic effort to accomplish the international research goals.

Action Plan for Strengthening the Research Environment and Increasing SSHRC Engagement. Research support starts in the faculties and departments where scholarship and creative activities are integrated into graduate and undergraduate teaching. These areas also play a key role in the dissemination of scholarship in traditional and emerging forms.

Research excellence is achievable through the best possible infrastructure and support mechanisms that aid in scholarly pursuits. The latter is particularly critical in seeking out appropriate funding opportunities.

As the competition for external funding becomes more competitive, increasing the number of applications and success rates becomes paramount. In order to do this, all of the relevant stakeholders – departments, faculties, research centres and institutes, Research Office, Office of the Vice-President (Research) – need to be more engaged and focus on collaboration and mentorship.
Ongoing discussions with departments and faculties will help to ensure that programs and supports for research are available and evolve as necessary. Broad-based support opportunities and programs accessible to all researchers should result in an intensified research focus that will foster continued innovation and measurable success.

A schematic of the Action Plan follows (Attachment 1).

**Partnership Development Strategy.** The VPR and the Research Office are committed to developing and nurturing research partnerships with external organizations. In support of this, the VPR is developing a Partnership Development Strategy that aims to expand the number of partners that are engaged with the University and to expand existing partnerships. Specific activities that are being considered for this fiscal year are to attempt to match the expertise found in the U of R research clusters with industry verticals to develop a more focussed outreach strategy, and to develop an internal process to continue or expand existing research partnerships as current projects near completion.

3. **Performance measures with respect to the Strategic Research Plan identified in response to PARR recommendation 5: data for each measure, identification of targets, progress with respect to the targets.**

<table>
<thead>
<tr>
<th>#</th>
<th>Strategic Priority/Strategic Theme</th>
<th>Performance Measure</th>
<th>Performance Measure Definition</th>
<th>2015-16 Target</th>
<th>Year-to-Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Research Impact/Sustainability</td>
<td>Tri-Council Grants</td>
<td>Total number of tri-council grants and Canada council grants held by faculty in the University’s fiscal year</td>
<td>219 grants</td>
<td>183</td>
</tr>
<tr>
<td>11</td>
<td>Research Impact/Sustainability</td>
<td>Research Revenue</td>
<td>Total Research Funding (contracts and grants) earned from all sources in the University’s fiscal year.</td>
<td>$24.7M</td>
<td>$18.6M</td>
</tr>
<tr>
<td>12</td>
<td>Research Impact</td>
<td>Normalised Citation Impact (NCI)</td>
<td>The NCI measures the quotient of an observed citation rate or impact of an institution and an expected citation rate for the institution or country (i.e., it compares the performance of an institution to the average performance of the world). Published by Thompson-Reuters InCites.</td>
<td>1.65</td>
<td>1.55</td>
</tr>
<tr>
<td>13</td>
<td>Research Impact</td>
<td>International Collaboration</td>
<td>This statistic represents the proportion of total publications at each institution during the period of 2008-2012 that were co-authored with researchers outside of Canada and is based on universities on the 2014 Top 50 Research Universities list</td>
<td>55 % of all research publications with an international affiliate</td>
<td>NA</td>
</tr>
</tbody>
</table>
that had a total of 250 or more publications over the 5-year period. Publication data were obtained from Observatoire des sciences et des technologies’ (OST) Canadian bibliometric database which contains data from the SCI-Expanded, SSCI and AHCI databases of Thomson Reuters.

4. Research highlights since the last report: funding, awards, recognition, major publications, partnerships, etc

- The Canada First Research Excellence Fund (CFREF) application mentioned in March’s report was submitted on March 29. A document with answers to frequently asked questions concerning the submission has been attached (Attachment 2). The full submission is available for review upon request.
- An examination of research partnerships within Saskatchewan shows that for 2015-16, we had 66 distinct research partners over 97 projects. Some projects have more than one partner; some partners are involved with more than one project. Partners range from government ministries, crown corporations, local industry, to arts organizations.
- Heather Hadjistavropolous, Psychology, was awarded $400,000 for continuation of her “Internet-Delivered Cognitive Behavioural Therapy” project. The funds are being provided equally by the Canadian Institutes of Health Research and Saskatchewan Health.
- Three research teams received funding from the Saskatchewan Health Research Foundation, for a total of almost $120,000.
- Fanhua Zeng, Engineering & Applied Science, was awarded a Mitacs Elevate grant of $110,000 for research on “Experimental and Mathematical Modeling of Flow Instability in Heavy Oil Recovery Processes.”
- Cindy Hanson, Faculty of Education, is the author of “Weaving Stories Between Generations”; a book resulting from her research focussing on Mapuche women in southern Chile.
- The University of Regina and the George Reed Foundation signed a Memorandum of Agreement that will continue research and initiatives taking place at the George Reed Centre for Accessible Visual Communications in the Faculty of Kinesiology and Health Studies. The Memorandum of Agreement provides $250,000 for the Centre, which was originally established in 2014 through a gift of $150,000 by the George Reed Foundation.
- The University of Regina and the Canadian Light Source signed a Memorandum of Understanding (MOU) which lays out a framework for technical and scientific collaboration in synchrotron science.
- Experts in Indigenous health research from across Canada met in February in Regina for the Indigenous Knowledge and Ways of Knowing Gathering co-hosted by the Indigenous Peoples' Health Research Centre (IPHRC) and the Aboriginal Health Research Network for Aboriginal Knowledge and Ways of Knowing (AHRNet-AKWK).
- The University of Regina signed a significant collaboration with the University of Edinburgh in Scotland paving the way for international research into carbon capture and storage (CCS). The MOU establishes up to three $10,000 scholarships each year with funding support from SaskPower. Successful students for this competitive award will be accepted as visiting graduate students at the University of Regina after completing two semesters at the University of Edinburgh’s MSc in CCS.
• Carrie Bourassa, Indigenous Health Studies at FNUC, was a speaker at the Frontiers of Science conference in March. Bourassa’s topic was water governance: specifically, Two-Eyed Seeing and the Ethics of Indigenous Community-based Research: Building Research Partnerships Focused on Sustainable Water Governance and Indigenous Law at the Frontiers of Science. She also received $205,178 from the Canada Foundation for Innovation, which will cover 40% of the cost of developing a world-class Cultural Safety Evaluation, Training and Research Lab that will define the principles and practices of cultural safety for patients at an organizational, team and individual level.

• Garth Huber, Physics, received $49,980 from the Canada Foundation for Innovation to build a prototype Cherenkov detector – a technology for studying the interactions of subatomic particles. The funds will cover a portion of the costs of the prototype which will eventually be installed at the Jefferson Lab in Virginia, a world-class facility used by over 1,300 scientists from the US and around the world.

• Shanthi Johnson, Kinesiology and Health Studies, is the recipient of the 2016 Award of Innovation. The award is sponsored by Innovation Place and is given each year as part of the Regina Chamber of Commerce’s Paragon Awards, which celebrate the city’s most outstanding businesses. The Innovation award, which includes a $2,500 prize, recognizes original research that has the potential to create substantive societal benefits.
Canada First Research Excellence Fund (CFREF) Proposal: The University of Regina’s Centre of Excellence in Carbon Capture and Utilization

Frequently Asked Questions

**What is CFREF?**
Canada First Research Excellence Fund grants are awarded on the basis of scientific merit, strategic relevance to Canada (including the potential for the research area to create long-term advantages for Canada), and the quality of the implementation plan.

Submissions are reviewed by independent panels of international scientific experts, as well as an arm’s-length selection board comprising leaders from the academic, public and private sectors.

Launched in December 2014, the Fund is investing $1.5 billion over its first ten years to help Canadian postsecondary institutions excel globally in research areas that create long-term economic advantages for Canadians. In 2015, five institutions were successful in the inaugural competition of $350 million.

The Fund is administered by the Social Sciences and Humanities Research Council of Canada (SSHRC) on behalf of the three granting agencies: SSHRC, the Natural Sciences and Engineering Research Council of Canada, and the Canadian Institutes of Health Research.

**Who else has applied? Who is the University’s competition?**
Thirty postsecondary institutions have been invited to submit full proposals in the second competition of the Canada First Research Excellence Fund. These institutions submitted detailed initiative proposals by March 29, 2016, including implementation plans, budgets and full scientific strategies, competing for a share of up to $900 million.

The shortlist follows an adjudication process by independent experts based on Letters of Intent (LOIs) submitted by 51 interested institutions last November. These LOIs were judged on the institution’s existing scientific capacity in the proposed research area, and with the goal of further advancing Canada’s capacities for research excellence.

**What is the University’s proposal about?**
Our strategy aims at wide-scale industry adoption of technologies for sustainable use of fossils fuels as a transition towards a no or low carbon energy economy. The strategy encompasses five themes in areas of critical importance to the technical and economic feasibility of these new technologies and is grounded in operational experience gleaned from facilities such as SaskPower Boundary Dam 3.

One research theme is to develop transformational technologies aimed at breaking both the technical and economic barriers that hamper industry adoption and implementation of carbon capture from large single point emitters of CO2 such as fossil-fuel-fired utilities, fossil-fuel-based energy producing/upgrading/refining industries, the cement manufacturing industry, and the iron and steel industry. The second theme is to expand innovative use of the large amounts of
CO2 captured to produce biochemicals/biofuels and chemicals/fuels. The third theme is aimed at large scale utilization of the CO2 that cannot be used in theme 2. The fourth theme is to integrate environmental and risk assessment throughout the technology development process; in part, by analyzing CO2 lifecycle and footprints of the technologies and their environmental impacts and process by-products. The fifth theme encompasses social science and policy research aimed at understanding the social, economic and political dimensions of CCU policy decisions. We will evaluate existing and potential CCU policies and decision-making frameworks, and communicate issues and policy decisions by building trust between stakeholders and the public through iterative engagement.

After completion of this research, industry will begin deploying the new transformative technologies. Environmental risk and by-product management strategies will be in place. Appropriate strategies for CCU governance, public policy and engagement will be available. As the new CCU technologies are implemented, evaluated, and refined worldwide, carbon emissions will be greatly reduced as a transition is made to a low carbon economy.

**What is the term of the proposed program?**
The proposed program is seven years in duration and would be anticipated to begin in late 2016 or early 2017.

**What does the proposed research program budget look like?**
Within the submitted proposal, the budget tables and detailed justifications occupy over 20 pages. To follow is a very high-level summary.

The overall proposed budget for the full 7-year program is $91,724K broken out as follows:

| Contribution from the fund | $71,152K |
| Contribution from the University | $7,002K |
| Contribution from the partner institutions | $13,570K |
| **TOTAL** | $91,724K |

The budget is allocated as follows:

| Salaries, benefits and professional development | $66,080K |
| Research facilities | $4,724K |
| Equipment and supplies | $9,965K |
| Other\(^1\) | $10,955K |
| **TOTAL** | $91,724K |

\(^1\)Other includes recruitment and relocation, travel and subsistence, sabbatical / research leave, computers, dissemination of research results and patent fees.

*Can the University ‘recover’ its investment? (i.e. through overhead, etc.)*
The application includes funds for two Business Development Officers who will be charged with
increasing participation and funding from government and industry. With an indirect cost rate of 25%, an additional $2M per year of external funding would attract $500K of overhead revenue.

Who is involved?
The proposal reflects a multi-disciplinary program of research involving the UofR as well as academic, industry and other partners nationally and internationally. In total, 28 partners have provided letters of support for the proposal.

From the UofR, researchers from the Faculties of Engineering, Science, Arts and the Johnson Shoyama Graduate School will be involved as well as a number of the University’s research centres and institutes: Clean Energy Technology Research Institute (CETRI), Institute for Energy, Environment and Sustainable Communities (IEESC), Prairie Adaptive Research Collaborative (PARC) and Institute for Environmental Change and Society (IESC). There will be opportunities for other faculties to participate as the project develops over the next seven years.

Other Canadian academic institutions partnering in this proposal include the University of Saskatchewan, the University of Alberta and University of Waterloo. International academic partners include the University of Melbourne, Imperial College London, University of Texas at Austin, Hunan University (China), Prince of Songkla University (Thailand), Thammasat University (Thailand), and others.

Industry partners include SaskPower, Evraz, Petroleum Technology Research Centre (PTRC), PTT Public Company (Thailand), Shaanxi Yanchang Petroleum (China), Prairie BioGas Ltd, New World Orange Biofuels Inc. and Glowink.

Government and NGO partners include Innovation Saskatchewan, Natural Resources Canada (NRCan), City of Regina, UK Science and Innovation Network, Pembina Institute and IEA Greenhouse Gas R&D Programme.

What will be the impact on the University?
Reputation: The University’s reputation will be enhanced as it becomes the hub of an international network in CCU research.

Highly Qualified Personnel (HQP): Over the course of the 7-year program, an estimated total of 545 HQP will be trained including 85 Post-Doctoral Fellows, 100 graduate students at the PhD level, 200 graduate students at the Masters level and 160 undergraduate students.

Employment: The research program will provide employment including 10 research staff and 20 management and administration to support the estimated team of 70+ researchers and 160 trainees in a given year.

Additional Research Revenue: The research program provides the opportunity to attract additional partners and research investment.

What are the risks to the University if the proposal is funded?
Insufficient lab and office space: Space requirements to accommodate research and support staff
involved with the program were considered and calculated within the proposal. However, there is no assurance that the required space will be available given other demands on space arising elsewhere throughout the University.

Unplanned costs: Considerable time and effort were invested in planning and forecasting potential costs associated with the research program and are detailed in over 20 pages of budget tables and justification. With a program of this scale, complexity and duration, there is always the possibility of unanticipated costs arising. One potential example of this is renovation costs that are not eligible for CFREF funding. Part of the final step of the selection process outlined below, should the University’s proposal be successful, is a budget vetting exercise directed by the Selection Board and performed by an external third party. The goal of the vetting exercise is to ensure that the budget is realistic and sufficient to successfully execute the proposed program of research.

Continued costs at end of project: Thirty new staff will be hired for the seven year project. This creates a risk of continued employment costs at the end of the project, as most of those will be members of either the APT or CUPE bargaining units. However, we anticipate that many can be employed in other departments because of regular attrition rates. In addition, the project management team will work with Human Resources in the last two years of the project to specifically address transition issues. Finally, the Business Development Officers should raise continued partner funding that would allow for employment of a smaller version of the research and administration team. The ultimate financial risk to the University would be severance pay for those who are not absorbed into the University or find other employment outside the University.

Government support of fossil fuels: Another risk for the project is that the federal government will make a decision to move away from fossil fuels in the near future, with a resulting decrease in funding for CCU projects. However, Saskatchewan has indicated its commitment to CCU through projects like Boundary Dam. In addition, the solutions to be created through this project could be sold to or adopted by other jurisdiction since we are working with global partners.

Where are we in the selection process?
As mentioned above, the full proposal was submitted on March 29.

Adjudicators will identify proposals to be considered in the final selection round in July. Scheduled for July 8, remaining institutions will be advised directly that they are no longer being considered for a CFREF grant in this competition. As part of the final selection round, institutions that are still in the competition will be invited to an interview with the Selection Board on July 17 or 18.

Following the final selection round and approval of the successful proposals, there will be an additional budget vetting step performed by a third-party firm to support the final approval of award amounts.