

The following Motions and Documents were considered by the Board Finance and Property Committee during the Open Session of its May 30, 2023 meeting.

Agenda Title: **Investment Management Agreement (2023-24 and 2024-25)**

APPROVED MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors approve the 2023-24 and 2024-25 Investment Management Agreement targets, thresholds, and weightings as presented in Attachment 1.

Final Recommended Item: 2.

Agenda Title: **Strategic Initiatives Fund Allocations**

APPROVED MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors approve the following allocations from the Strategic Initiatives Fund:

- \$2 million to an internally restricted Universities Academic Pension Plan (UAPP) risk management reserve;
- \$21 million for capital renewal initiatives;
- \$1.2 million for a research information management system;
- \$500,000 for the Innovation Fund; and
- 100,000 for on-campus transportation alternatives.

Final Recommended Item: 7d.

Agenda Title: **Land Review Protocol**

APPROVED MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors approve a Land Review Protocol as outlined in Attachment 1.

Final Recommended Item: 7e.

Agenda Title: **Envision Energy Management Program - Phase Five Borrowing Resolution**

APPROVED MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors execute a Borrowing Resolution requesting approval of financing the fifth and final phase of the *Envision* energy management program in an amount not to exceed eight million dollars (\$8,000,000.00) in Canadian funds for a term not to exceed fifteen (15) years at an interest rate of not more than seven percent (7%); and make an application to the Minister of Advanced Education for the required approval.:

Final Recommended Item: 7f.

ITEM NO. 2Decision Discussion Information

ITEM OBJECTIVE: Obtain Board of Governors approval of the Fiscal Year 2023-24 and 2024-25 Investment Management Agreement targets, thresholds, and weightings.

DATE	May 30, 2023
TO	Board Finance and Property Committee
RESPONSIBLE PORTFOLIO	Provost and Vice-President (Academic) Vice-President (University Services and Finance)

MOTION: That the Board Finance and Property Committee recommend that the Board of Governors approve the 2023-24 and 2024-25 Investment Management Agreement targets, thresholds, and weightings as presented in Attachment 1.

Note: The Board Learning, Research and Student Experience Committee is also recommending the IMA as related to its mandate.

EXECUTIVE SUMMARY: The Government of Alberta (the Government) requested the Fiscal Year (FY) 2023-24 and 2024-25 Investment Management Agreement (IMA) targets be submitted informally before April 30, 2023. In preparation for formal submission, the IMA targets require approval by the Board of Governors.

The FY 2023-24 and 2024-25 IMA metrics have 25% and 40%, respectively, of the Operating and Program Support Grant (OSG) at risk. In addition to the metrics included in the original 2022-25 IMA, the Government has added two new funding metrics: Research Commercialization and Administrative Expense Ratio.

Table 1 summarizes the FY 2023-24 and 2024-25 targets¹. Further details on targets, metric weighting, and tolerance bands are in Attachment 1. Domestic Enrolment increases recognize funded enrolment growth, namely Targeted Enrolment Expansion (TEE) funding. Targets for the Job Relatedness and Grad Employment rate are only required for FY 2024-25, given that they are based on a biennial survey, with the next survey and results release set to be in late 2024.

¹ The Government has indicated verbally that 2024-25 targets can be revisited next year. Targets have been set conservatively to minimize funding risk.

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Table 1. Funding Metrics, 2023-24 and 2024-25 IMA Targets

Year / Target	Work Integrated Learning	Domestic Full Load Equivalent	Job Relatedness	Research Commercialization	Administrative Expense Ratio
FY 2023-24	95%	31,324	N/A	\$105.4M	6%
FY 2024-25	95%	31,919	95%	\$110.7M	6%

Additionally, targets have been set for four transparency metrics (see Table 2), which do not have any at-risk funding. Note that the Government only requires one transparency metric (international enrolment) to be submitted, but targets have been set for three of the metrics in case this requirement changes.

Targets have not been set for the revenue dependency metric as the way this metric is calculated makes it relatively unpredictable, and counter-intuitive. Specifically, this metric includes all Government revenue so items such as large capital grants can make it fluctuate significantly.

It is recommended that the U of A continue to report only International Full-Load Equivalent (FLE) enrolment as its one transparency metric.

Table 2. Transparency Metrics, 2023-24 and 2024-25 IMA Targets

Year / Target	International FLE Enrolment ²	Indigenous FLE Enrolment ³	Domestic Graduate Employment Rate	Revenue Dependency
FY 2023-24	7,894	1,466	N/A	N/A
FY 2024-25	7,894	1,466	92%	N/A

Background

In the spring of 2020, the Government of Alberta introduced performance-based funding for post-secondary institutions in the form of an Investment Management Agreement (IMA). Implementation of the IMAs was to begin in fiscal 2020-21, however, this was delayed due to the COVID pandemic.

² Future targets are set conservatively at steady state from the 2022-23 target, due to the following reasons:

- Downward pressure on international applications in the current admission cycle.
- The global environment is currently unstable, with potential geopolitical tensions that may affect international student mobility.
- Possible additional VISA processing delays due to the recent federal labour disruption.

³ The target for 2023-24 has been set conservatively, based on the following reasons:

- 2022-23 total Indigenous enrolment has seen an annual decrease, driven by a drop in the number of graduate students as well as the exit of a large undergraduate graduating class, resulting in lowered FLE.
- Significant decrease in Indigenous undergraduate and graduate applications for the current admission cycle.
- The target has been set based on these observed trends plus a safety margin of 3%.

ITEM NO. 2

The IMAs were implemented in 2021-22 with one measure: proportion of programs with work-integrated learning (WIL). The U of A met its 2021-22 target of 78% of programs with WIL for which 5% of our funding is at risk with a 2021-22 actual of 99% of programs with work-integrated learning.

The 2022-23 IMA involved 3 mandatory funding measures with 15% of operating funding at risk across:

- proportion of programs with work-integrated learning,
- domestic enrolment, and
- proportion of employed graduates in jobs related to their programs.

Based on preliminary data, the U of A has met each of its targets for the mandatory funding measures and the one transparency metric, international enrolment.

Table 3. 2022-2023 IMA Metric Target and Actual

Metric	Target	Actual⁴
Work-integrated Learning	89%	99%
Domestic Full-Load Equivalent	30,704	33,350
Job Relatedness	95%	95%
International Full-Load Equivalent ⁵	7,894	8,357

Consultation

The FY 2023-24 and 2024-25 targets were endorsed by the President’s Executive Committee - Strategic at their April 20, 2023, meeting. The targets set in consultation with subject matter experts from the following areas:

- Deputy Provost, Student and Enrollment
- Deputy Provost, Academic
- Research Services Office
- Office of the Registrar
- Provost Office staff, including Work Integrated Learning Lead
- Finance, Procurement and Planning
- Performance, Analytics and Institutional Research

Risk Discussion / Mitigation of the Risk

With up to 25% of the OSG at risk in fiscal year 2023-24 and 40% of grant at risk in fiscal year 2024-25, it is imperative that the funding metric targets set are reasonably achievable. To mitigate this risk, targets have been set taking into account historical achievement and current trends.

⁴ Preliminary data as of April 25, 2023

⁵ Transparency Metric

ITEM NO. 2Next Steps

Our Government colleagues have indicated that next steps are dependent on the appointment of a new minister for Advanced Education. One potential path is that the IMAs will continue as conceived, in which case board approval and sign-off for submission to the Advanced Education minister is required.

Supporting Materials:

1. Investment Management Agreements (IMAs) Government of Alberta template (7 pages)

Investment Management Agreements (IMAs)

Funding and Transparency Metrics

Notes

- 1 Please provide values for all highlighted cells coloured yellow for the funding metrics (green tabs).
- 2 All four transparency metrics have been provided for information (blue tabs). Select at least one to be included in the IMA, and provide values for the highlighted cells for your selected transparency metric(s).
- 3 Please submit completed Excel file to Emma Kamanja at emma.kamanja@gov.ab.ca.
- 4 The 2024-25 targets are submitted with the proviso that Advanced Education has indicated institutions can revisit these in the spring of 2024.

Funding Metric Worksheet

FUNDING PERFORMANCE METRIC

Proportion of In-Scope Approved Programs with a Work Integrated Learning (WIL) Opportunity by School Year1

Source: 2021-22 and 2022-25 Signed IMA.

The University of Alberta supports the GOA goal to have 100% of programs with WIL and are proud of our accomplishments in support of that goal.

We have increased our target from 89% to 95% in recognition of the fact that we are currently working with AE to make adjustments to our PAPRS data, which may impact the WIL calculation.

Once PAPRS is adjusted we can revisit this target.

Provider	2020-21 Actual	2021-22 Target	2021-22 Actual	2022-23 Target2	2023-24 Target3	2024-25 Target4
University of Alberta	62%	78%	99%	89%	95%	95%
		Tolerance Threshold	4%	5%	7%	7%
		Metric Weighting5	5%	4%	9%	9%

Notes:

- 1 In-scope programs exclude: open studies, second language learning, academic upgrading, adult basic education.
- 2 Actuals to be validated against PAPRS data as of July 1, 2023.
- 3 2023-24 target should be equal to or greater than the 2022-23 target plus the 2023-24 tolerance threshold, but not required.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, but not required.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 15% for 2022-23. Minimum: 2%, Maximum: 8% for any one metric.
- 7 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 8 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

Funding Metric Worksheet

FUNDING PERFORMANCE METRIC

FLE Enrolment for "Domestic" learners, excluding apprenticeship, by School Year1

Source: LERS Cubes (filtered on select Legal Status - see notes and excluding "Journeyman" Program Type)

We have set our targets to reflect TEE growth over and above our most recent target.
As context, across Alberta, our colleagues have seen the domestic market softening.

Provider	2018-19 Actual	2019-20 Actual	2020-21 Actual	2021-22 Estimate	2021-22 Actual	2022-23 Target2	2023-24 Target3	2024-25 Target4		
University of Alberta	28,769	29,112	31,029	31,970	32,886	30,704	31,324	31,919		
Tolerance Threshold					921		2%	2%		
Metric Weighting5					8%	6	10%	7	16%	8

Notes:

- 1 International Learners are Non-Canadian learners attending an approved program within Alberta, and therefore require a visa to attend.
- 2 Actuals to be validated against data in LERS in summer 2023.
- 3 2023-24 target should be equal to or greater than the 2022-23 target plus the 2023-24 tolerance threshold, but not required.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, but not required.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
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- 8 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

FUNDING PERFORMANCE METRIC

Proportion of Employed Graduates in Jobs Related to their Programs¹

Source: Graduate Outcome Survey

U of A graduates continue to excel in the labour market.

Given the unpredictability of the employment market, and our lack of direct control over it, we are suggesting a steady state target.

Provider	2018 Actual	2020 Actual	2022 Target	2022 Actual ²	2024 Target ³
University of Alberta	95%	97%	95%	95%	95%
		Tolerance Threshold	8%	8%	10%
		Metric Weighting⁴	3%	3%	5% ⁶

Notes:

- 1 Proportion of domestic graduates from approved programs who state their current job is very or somewhat related to the general skills and abilities acquired by program two years after graduating.
- 2 Actuals were provided to PSIs in January 2023.
- 3 2024 target should be equal to or greater than the 2022 target plus the 2024 tolerance threshold, but not required.
- 4 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 5% in 2021-22, 15% in 2022-23, 25% in 2023-24, 40% in 2024-25.
- 5 All metric weightings add up to 15% for 2022-23. Minimum: 2%, Maximum: 8% for any one metric.
- 6 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

FUNDING PERFORMANCE METRIC

Administration Expense Ratio¹

Source: FIR reporting from Data Collection and Reporting System

The U of A runs an administratively lean organization and is targeting to maintain its administrative expense ratio.

Provider	2020-21 Actual	2021-22 Actual	2022-23 Estimate ²	2023-24 Target ³	2024-25 Target ⁴
University of Alberta	6%	6%	TBD	6%	6%
			Tolerance Threshold	2%	2%
			Metric Weighting⁵	3% ⁶	5% ⁷

Notes:

- 1 Expressed as administration expense divided by (total expense - extraordinary expense)
- 2 Please provide an estimate for 2022-23.
- 3 2023-24 target can be similar to previous years.
- 4 2024-25 target can be similar to previous years.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 7 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

FUNDING PERFORMANCE METRIC

Research Commercialization¹

Source: Technology and Innovation annual survey of CARUs

The U of A has been successful in its research commercialization, however, this metric can fluctuate quite substantially. In setting our target we first removed the last two years, as these include amounts related to COVID research, which are anticipated to decrease. Given that this metric is subject to fluctuation, we set our 2023-24 target to the lowest year during the 2016-17 to current period. As this is a key area for the U of A, we have set a growth target for 2024-25.

Provider	2020-21 Actual (Mil)	2021-22 Actual (Mil)	2022-23 Estimate ²	2023-24 Target ³	2024-25 Target ⁴
University of Alberta	139.76	167.15	118.7M	105.4M	110.7M
			Tolerance Threshold	5%	5%
			Metric Weighting⁵	3% ⁶	5% ⁷

Notes:

- 1 Expressed as sponsored research revenue from industry and non-profit sectors
- 2 Please provide an estimate for 2022-23.
- 3 2023-24 target should be equal to or greater than the 2022-23 estimate plus the 2023-24 tolerance threshold, but not required.
- 4 2024-25 target should be equal to or greater than the 2023-24 target plus the 2024-25 tolerance threshold, but not required.
- 5 Metric weighting is the percent of at-risk funding tied to this metric. Total at-risk funding is 25% in 2023-24, 40% in 2024-25.
- 6 All metric weightings add up to 25% for 2023-24. Minimum: 3%, Maximum: 13% for any one metric.
- 7 All metric weightings add up to 40% for 2024-25. Minimum: 5%, Maximum: 22% for any one metric.

TRANSPARENCY METRIC

FLE Enrolment for International Learners by School Year1

Source: LERS Cubes (filtered on select Legal Status of "Visa" or "Other Visa")

The U of A has targeted a steady state for international enrolment.

The global environment is currently unstable, with potential geopolitical tensions that may affect international student mobility and there will be VISA processing delays due to the federal labour disruption. Given this situaion, it will be particularly important to revisit the 2024-25 metric for this target.

Provider	2020-21 Actual	2021-22 Estimate	2021-22 Actual	2022-23 Target 2	2023-24 Target	2024-25 Target
University of Alberta	7,609	7,894	7,894	7,894	7,894	7,894

REVISE

Notes:

- 1 International Learners are Non-Canadian learners attending an approved program within Alberta, and therefore require a visa to attend.
- 2 Actuals to be validated against data in LERS in summer 2023.
- 3 U of A figures do not include "off-shore" students, who had previously been included.



Decision **Discussion** **Information**

ITEM OBJECTIVE: To obtain Board of Governor’s approval to allocate funds from the Strategic Initiatives Fund to fund university initiatives as outlined below.

DATE	May 30, 2023
TO	Board Finance and Property Committee
RESPONSIBLE PORTFOLIO	Vice-President (University Services and Finance)

MOTION 1: THAT the Board Finance and Property Committee recommend that the Board of Governors approve the following allocations from the Strategic Initiatives Fund:

- \$2 million to an internally restricted Universities Academic Pension Plan (UAPP) risk management reserve;
- \$21 million for capital renewal initiatives;
- \$1.2 million for a research information management system;
- \$500,000 for the Innovation Fund; and
- \$100,000 for on-campus transportation alternatives.

EXECUTIVE SUMMARY:

In accordance with the Board-approved University Funds Investment Policy, all realized investment income not required for current budget purposes will be reinvested in an investment income reserve.

For the year ending March 31, \$37 million was transferred to the investment income reserve bringing its balance to \$108 million. As at March 31, the value of the Non-Endowed Investment Pool’s investments exceeded their underlying obligations by 25.5% or \$243 million. The \$108 million is included in the \$243 million and remains fully invested and at risk.

The University Funds Investment Policy permits appropriations from the investment income reserve to the Strategic Initiatives Fund (SIF) when the value of the investments exceeds the underlying obligations by more than 17%, currently \$162 million.

As such, it is now possible to make appropriations from the reserve to a strategic initiatives fund because the total market value of the investments exceeds the cost by greater than 17% (a defined threshold in the UAPPOL policy). The amount that could be appropriated for this fiscal year ranges from \$0 to \$81 million (\$243 million - \$162 million).

Pending Board of Governors approval on May 29, the FY 2023 year end financial statements note an appropriation of \$30.064 million to the SIF from the investment income reserve bringing the total in the SIF to \$40.064 million.

Administration now requests that BFPC recommend to the Board of Governors at their June 16 meeting the approval of a total of \$24.8 million of allocations from the SIF as follows:

- \$2 million for the UAPP pre-1992 unfunded liability risk management reserve,



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- \$21 million for capital renewal,
- \$1.2 million for research information management,
- \$500,000 for the Innovation Fund, and
- \$100,000 for on-campus transportation alternatives.

Following the above detailed BFPC recommendations and BG approvals, \$15.264 million would remain as an appropriation in the SIF for future allocation.

Background

The following provides further detail on the initiatives listed above.

UAPP pre-1992 unfunded liability

Willis Towers Watson (WTW) provided the university with an independent assessment of the risk associated with the UAPP pre-1992 unfunded liability that could impact future contribution rates. It was estimated that an annual \$2 million contribution to an internally restricted UAPP risk management reserve earning 4% would be sufficient to fund potential incremental employer contributions required to offset the combined impact of contributions being 1% lower, benefit payments 0.5% higher, and investment returns 1% lower, thus mitigating this risk to an acceptable level.

Capital renewal

An investment of \$21 million into capital renewal would meaningfully improve the conditions within which our students, faculty, and staff work.

Seed funding for a STEM centre major renovation (\$10 million)

The university intends to transform the Biological Sciences Building into a centre of STEM excellence. This is the number one priority in our 2023 capital plan submission to the Government of Alberta, approved by the Board of Governors on March 24. Seeding this \$500 million project with an initial contribution of \$10 million will demonstrate the university's commitment to attracting the brightest academic minds, undergoing world-leading research activities, and educating the next generation of change-makers. Immediate and tangible benefits include: redeveloping (maximizing space utilization) an existing building rather than constructing new; addressing a significant deferred maintenance liability; reducing operating and maintenance costs by integrating smart building systems; and reducing emissions with a much lower carbon footprint.

Two related changes have been made to the 2023 capital plan. The project scope has been redefined resulting in a reduction in total project cost from \$750 to \$500 million, and the \$10 million in seed funding from the university has been reflected.

Replace the electrical vault in the Heritage Medical Research Centre (HMRC) (\$8 million)



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The HMRC contains a significant number of high service research labs as well as animal research laboratory space. This project will replace all electrical switchgear and central equipment as well as renewing the vault interior to ensure modern, code-required clearances, and maintenance needs are accommodated. This project will reduce the university's deferred maintenance liabilities in the building by \$2.9 million.

Elevator replacements in the South Academic Building and Education North (\$3 million)

Elevators are crucial; not only as a means of conveyance, but, more importantly, as a means of ensuring universal access. Between the two buildings, six elevators are beyond their useful life and the frequent downtime is significantly impacting building operations. This project will reduce the university's deferred maintenance liability by \$1.4 million.

Research and academic information management tool

The implementation of a research and academic information management tool would require a two-year window and a number of term-limited staff positions (project manager, data integration specialist, and profile editors) along with support from staff from various units, specifically PAIR, IST, Provost's Office, VPRI, the Library, and potentially others. A reasonable cost estimate (including initial software costs) would be \$600,000 to \$800,000 annually for this two-year implementation window. Ongoing costs would largely consist of dedicated staff support – three positions, minimum, to handle technical, data integrity, and support issues and, and potentially annual software licensing fees, estimated at \$250,000. In summary, a fixed one-time investment of \$1.2 to 1.6 million for the two-year implementation with ongoing costs of \$600,000 per year thereafter.

Innovation Fund

An additional \$500,000 of investment by the university into the innovation fund will total a \$1 million commitment (loan) and provide the following benefits:

- A larger initial injection from the university would allow FundCo to be more proactive in obtaining funding for investment.
- By providing a larger initial injection of funds, FundCo would have more resources at its disposal to pursue investment opportunities actively. With a larger capital base, FundCo can potentially attract more investors and demonstrate a stronger financial position, which could make it easier to secure additional funding for future investments.
- By increasing the funds under management in the first year, the overall size of the investment portfolio would be larger thereby not relying on donors' money to go to operations of the FundCo.
- Additional funds would lead to a faster launch of the fund and a more self-sustaining model sooner. This goes hand-in-hand with the fund being able to show donors that



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the university really supports this venture as a priority which would attract further confidence from donors and even a quicker self sustaining model.

- Year one all donations go to investments, this would be a significant benefit to early donors and is an incentive to donate sooner than later.
- An injection provides more resources to compensate the team and retaining a loyal employee base including attracting some paid students (whose salaries would be matched by MITACS).

On-campus Transportation Alternatives

Following recent changes to the Alberta Traffic Safety Act, the university is pursuing alternative on-campus transportation. On-campus transportation is utilized by several groups across campus to facilitate mobility around campus (typically for special events). The cost to purchase and to implement training for alternative on-campus transportation is approximately \$100,000.

Risk Discussion / Mitigation of the Risk The appropriation of funds provides the university the opportunity to fund key initiatives that otherwise would remain unfunded. The remaining available balance can be used to address unanticipated in year initiatives. The Investment Income Reserve Fund will maintain a balance above the required 17% over obligation ensuring a cushion in case of reduced returns.

Where applicable, list the legislation that is being relied upon

1. BFPC Terms of Reference Section 2c
2. [University Funds Investment Policy](#)



ITEM NO. 7e

Decision **Discussion** **Information**

ITEM OBJECTIVE: A refined Land Review Protocol is presented to members for approval. The protocol outlines a process whereby surplus university lands could be identified, evaluated, and prioritized for potential transfer to the University of Alberta Properties Trust for the purposes of generating a stream of long-term revenue for the institution.

DATE	May 30, 2023
TO	Board Finance and Property Committee
RESPONSIBLE PORTFOLIO	Andrew Sharman, Vice-President (Facilities and Operations)

MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors approve a Land Review Protocol as outlined in Attachment 1.

Background

The University of Alberta Properties Trust (UAPT) was formed by the University of Alberta to develop or re-develop lands deemed as surplus to the university with a view of distributing net revenues back to the university (its sole shareholder). The Board of Governors directed the establishment of clear protocols for land decision-making to ensure a fulsome assessment of potential lands was regularly conducted and that appropriate oversight mechanisms were in place.

The Land and Asset Review Protocol White Paper completed in November 2022 outlined the vastness of the university’s land holdings and that new opportunities for land development will emerge for consideration as an alternate source of revenue to the institution. The paper also proposed a governance framework to ensure clear lines of accountability and transparency while leveraging the expertise of the UAPT in seeking revenue opportunities for the U of A. The Board Finance and Property Committee reviewed, and provided feedback on, a draft Land and Asset Review Protocol in November 2022 and March 2023. In this final iteration, reference to “Asset” has been removed to reflect the UAPT’s role as exclusively that of land development.

Analysis/Discussion

The University of Alberta and the UAPT proposes to implement an annual process, or protocol, consisting of three distinct phases:

- *Classification* - Looks holistically and objectively at the university’s land inventory with a view to broadly classifying land parcels as either destined to remain within the university’s direct control versus those that will be considered for development. This phase explicitly does not endorse or approve land for disposition; it only identifies where further exploration of opportunities may be warranted.
- *Assessment and Prioritization* - Transparently conducts feasibility assessments of individual land parcels, which may lead to a plan with specific recommendations related to lands that are mutually seen as potential candidates for transfer to the UAPT.
- *Execution* - For land parcels having received the approval of both governing bodies, the university and the UAPT can undertake the steps necessary to transfer the land, pursue development opportunities, and generate acceptable economic returns to the institution.

GOVERNANCE OUTLINE



ITEM NO. 7e

The Asset Management Master Plan (AMMP), which is under development, will present a single master plan for asset utilization (including undeveloped lands), space optimization, and investment prioritization that brings the Integrated Asset Management Strategy (IAMS) to life. The overall objective of the AMMP is to ensure long-term infrastructure asset sustainability. It will be imperative that the annual outcomes borne from the Land Review Protocol are directly aligned with the plans articulated in the AMMP. Specific recommendations related to lands that are mutually seen as potential candidates for transfer to the UAPT will come in the form of an annual appendix to the AMMP.

Engagement/Consultation

The protocol was developed jointly between Facilities and Operations and the UAPT and includes contributions from the two members who sit on both governing bodies.

Risk Discussion/Mitigation

The following risks are mitigated by implementation of a Land Review Protocol:

- Transparency/reputation - The absence of a protocol with clearly defined principles and objectives that allow both the Governors of the University of Alberta and the UAPT appropriate oversight on all decisions regarding land and asset decision-making will hamper transparency on land development decisions and negatively impact the institution's credibility.
- Relationship with stakeholders - Revealing early thinking with respect to some land assets' potential for monetization may incite negative reactions from people (internal and external to the university) who disagree with even consideration of a particular land asset. Careful consideration will need to be given to how the products from the joint sessions are received.
- Resource management - Not pursuing potential land development opportunities as an alternate source of revenue unnecessarily deprives the institution of a sustainable alternate revenue source.

Relevant Legislation/Policy

- Board Finance and Property Committee Terms of Reference Section 2t

Next Steps

It is anticipated that the first joint working session will take place in June 2024 after the AMMP is finalized at the end of 2023.

Supporting Materials:

1. Land Review Protocol, May 2023 (1 page) – for approval

LAND REVIEW PROTOCOL

To identify, evaluate, and prioritize surplus university lands for potential transfer to the University of Alberta Properties Trust (UAPT) to generate a stream of long-term revenue for the institution.

CLASSIFICATION

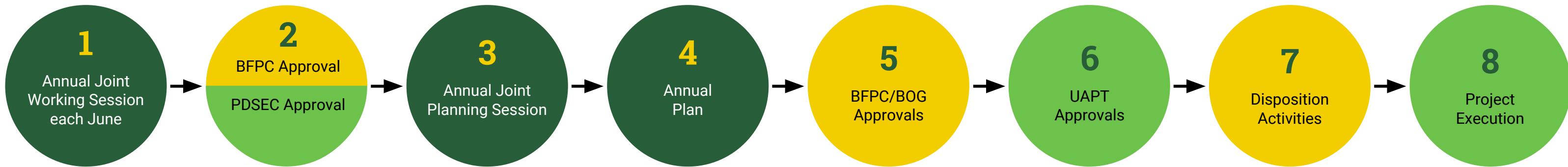
- Objective evaluation of university land inventory
- Identify land parcels to consider for transfer

ASSESSMENT AND PRIORITIZATION

- Transparently conduct feasibility assessments for land that may have potential for transfer
- Develop plan with specific recommendations (subject to amendment), if needed

EXECUTION

- Transfer the land and undertake development
- Generate economic returns to the institution


1

- Potential lands for transfer are identified
- Feasibility of potential land development opportunities will inform discussion

3

- Planning session to collaborate, and agree, on annual land development plan priorities

5

- Land development plan approved by BFPC and the BOG as an annual appendix to the Asset Management Master Plan (under development)

7

- Where necessary, approved lands are submitted to the Government of Alberta for Ministerial approval of disposition
- Lands approved for disposition as part of the land development plan are transferred to UAPT

2

- Respective committee approvals of initial land classification each September
- Does not endorse or approve land for disposition, only for further exploration of opportunities

4

- Plan provides details on lands assessed for development, including timelines, and includes a recommendation to transfer land parcel(s)
- If land will be transferred within the fiscal year, a land development plan will be presented to BFPC and the BOG in March

6

- Land development plan receives final approval from UAPT Board of Directors, considering development performance and methodologies, and current market conditions

8

- Land development activities commence

Initiatives contained within any year's annual plan may have spent considerable time (potentially years) under consideration as part of the Classification phase.



Decision **Discussion** **Information**

ITEM OBJECTIVE: To secure financing to fund the implementation of the fifth phase and final phase of the *Envision* energy management program.

DATE	May 30, 2023
TO	Board Finance and Property Committee
RESPONSIBLE PORTFOLIO	Andrew Sharman, Vice-President (Facilities and Operations)

MOTION: THAT the Board Finance and Property Committee recommend that the Board of Governors execute a Borrowing Resolution requesting approval of financing the fifth and final phase of the *Envision* energy management program in an amount not to exceed eight million dollars (\$8,000,000.00) in Canadian funds for a term not to exceed fifteen (15) years at an interest rate of not more than seven percent (7%); and make an application to the Minister of Advanced Education for the required approval.

Background

A series of energy management programs have been in place at the University of Alberta since the mid-1970s which have generated an accumulated cost avoidance exceeding \$463 million. Despite a campus that has grown considerably in that time, overall energy intensity, considering electricity, steam, and chilled water consumption per unit area, has decreased and the program has also resulted in substantial cumulative emissions reductions.

In the simplest terms, energy management programs allow the university to invest in initiatives that will reduce energy consumption to offset future energy costs. Investments are made into infrastructure initiatives (often built into larger maintenance or renewal projects) with a view to reducing future energy costs. Monies made available by avoided utility costs are reinvested into subsequent energy and climate initiatives for the life of the loan. Once the debt is satisfied, savings are retained by the university for use in any other priority area.

Envision was developed in 2011 and identified \$35 million in energy management initiatives over five phases. The Board of Governors approved the program based on borrowing a set amount of money from Treasury Board and Finance for each phase. Prior to the pandemic, the university implemented phase four and is now ready to launch phase five.

Analysis/Discussion

Continued implementation of the *Envision* program is necessary to keep the university's energy use as low as is cost effectively feasible. Major initiatives within phase five include demand-based laboratory ventilation; enterprise energy analytics; and LED lighting retrofits and controls. These projects build on previously implemented energy projects and, as audited, have demonstrated substantial financial performance. Other benefits of continued implementation of *Envision* are reduced operating and maintenance costs; improved facilities conditions; infrastructure renewal



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to address deferred maintenance; reduction of greenhouse gas emissions; and support of, and commitment to, sustainable development.

The successes of prior phases have demonstrated how financial gains can accrue to the university even when using leveraged funds. To establish an upper limit for borrowing purposes, an analysis and cash flow projection was performed to determine the effect of inflationary pressures. The 15-year amortization financial model can support interest rate increases up to 7% with a 1.5% escalation in utility rates beyond 2022-23.

Engagement/Consultation

Officials within Advanced Education have reviewed the *Envision* energy management program phase five business case and have confirmed it meets the ministry's requirements for long-term borrowing. Further, the university's Investments and Treasury unit is aware of this borrowing request and have included it in their annual planning.

Risk Discussion/Mitigation

The following risks will be mitigated by approving financing to fund *Envision* phase five:

- Reputation/relationship with stakeholders - With its significant infrastructure and utility operations, the University of Alberta has both an obligation and opportunity to show leadership in the area of energy management. Lack of a clear and ongoing commitment to emissions reductions and environmental sustainability will negatively impact the university's overall reputation, and its relationship with stakeholders and members of the community.
- Funding and resource management - The program objective and financing approach will result in cost savings for the university.
- Physical infrastructure - Contributions under the *Envision* umbrella are frequently leveraged in a way that increases the financial viability of a particular building renewal.

Relevant Legislation/Policy

- Post-secondary Learning Act (PSLA)
- Board Finance and Property Committee Terms of Reference Section 2g

Next Steps

A formal request for borrowing will be submitted to the Minister of Treasury Board and Finance.

Supporting Materials:

1. Energy and Climate Action: Envision Phase 5 Energy Management Program Business Plan, January 2023 (23 pages)
2. Board Resolution for Borrowing (2 pages)

uab.ca/eca

Energy & Climate Action



ENVISION PHASE 5

Energy Management Program

Business Plan

January 2023

ENVISION
INTELLIGENT ENERGY REDUCTION

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Appendices

Section 1 Introduction and Background

A very successful Energy Management Program has been in place at the University of Alberta since the mid-1970s. The University's program resulted in an annual cost avoidance of \$25,360,000 in 2021/2022, with an accumulated cost avoidance in excess of \$ 463,190,000 achieved since its inception in 1975/1976. While building area has increased 74% since 1975/76, utility consumption per square metre has decreased. Utility consumption per square metre for electricity and steam would be 29% and 46% higher respectively had energy conservation measures not been implemented. Overall energy intensity, considering electricity, steam and chilled water consumption per unit area has reduced by 31% overall.

As well the program has resulted in substantial cumulative emissions reductions:

Year	Gas		
	CO2 (MT)	SO2 (MT)	NO2 (MT)
Up to 2021/22	3,310,709	4,040	3,603
Total	3,310,709	4,040	3,603

The University is currently implementing an Energy Management Program that was developed in the spring of 2011, and subsequently rebranded under the name *Envision*, which identified the potential for \$35,000,000 of energy management implementations. Annual savings at the completion of the five phase program are estimated to be in the order of \$8,100,000, based on 2022/2023 budgetted utility rates, and CO₂ emission reductions are anticipated to be in the order of 35,000 tonnes.

Board of Governors have approved the current five phase \$35,000,000 program based on an approach of borrowing over five years. Currently we are in the implementation of the fourth phase of the program borrowing of \$8,000,000 from the Treasury Board and Finance. Preliminary audits and feasibility studies for phase five have identified new opportunities that have the potential to provide significant energy savings savings for the institution. These are: demand based laboratory ventilation; Enterprise Energy analytics; and LED Lighting retrofits & controls.

To quickly realize the benefits of these new opportunities and the low cost of borrowing it is recommended that borrowing of \$8,000,000 take place to implement the fifth phase of the *Envision* program.

Continued implementation of the *Envision* program is warranted to keep our energy use as low as cost effectively feasible. Other benefits are reduced operating and maintenance costs, improved space conditions, infrastructure renewal to address deferred maintenance, reduced demand on the District Energy System (DES), tighter integration with the overall utility as we look to implement the Master Energy Plan (MEP) to green the supply and distribution infrastructure, and all the significant environmental benefits in the form of reduced air pollution and GHG emissions.

Implementation of the *Envision* program also further demonstrates the University's solid and on-going actions and commitment to sustainability. Many programs such as Campus as a Living Lab, Green Spaces, Green Buildings Certifications and Rating systems, applied research, partner funding on major capital and renovations to enhance performance in all of the built environments are supported out of the energy management program.

Actions taken by the University of Alberta to improve energy efficiency through programs such as *Envision* align with the strategic direction of the University, support of the current *Envision* Energy Reduction Plan, DES Master Energy Plan, GHG Reduction Plan and Climate Action Strategy (CAS). Beyond the University's boundary, the efforts also contribute to city-wide, regional, provincial and national efforts to reduce the impact of greenhouse gas emissions on the global climate.

This program strongly support the University's commitment in reporting and enhancing our Sustainability Development Goals (SDG's) under the Times Higher Education Impact Rankings framework, and the Sustainability Tracking, Assessment & Rating System (STARS) which is a self-reporting framework for colleges and universities to measure sustainability performance under The Association for the Advancement of Sustainability in Higher Education (AASHE).

Section 2 Pursuit of Further Energy Reductions

In spite of the significant energy reductions that have been made in the past and a strong commitment to energy management by the University, concerns about energy usage, environmental impacts, and increasing utility costs remain.

As well:

- Heavier energy demands are being placed on existing facilities with respect to occupancy and usage, and facilities are continually becoming more equipment intensive.
- Upgrading funds are not keeping pace with the decay of facilities. Facilities and systems are continually aging and decaying with subsequent loss of efficiency and increased energy consumption. With an on-going deterioration of facilities, there is also a continual erosion of energy efficient operation strategies.
- Systems are required to run for longer hours including increased usage after normal hours to meet the increased demands being placed on facilities.
- The ongoing growth of the University and addition of new, energy intense laboratory and research facilities over time increases the University's consumption of energy and increases utility costs.

These factors all result in increasing energy consumption, and the off-setting of previous gains. The presence of these factors are compounded by rising utility rates over time, resulting in increased utility costs to the University overall.

We are not immune to utility rate increases and have no control over the world or local market forces that influence them. However, through vigilance in our energy conservation efforts we can exercise control over our energy consumption, and consequently the cost of our utility bill and our impact on the environment.

In this regard, significant cost-effective energy reductions remain to be made at the University of Alberta to address these issues and concerns. A continued energy reduction program is necessary to keep our energy bill as low as cost-effectively feasible, to reduce our consumption of non-renewable resources, and minimize our environmental impact in the best long-term interests of the University.

Section 3 Technologies and Opportunities

As indicated above, a number of technologies and opportunities have presented themselves that will lead to further operational efficiencies, utility cost avoidance and GHG reductions. These are:

- Demand based laboratory ventilation
- Enterprise Energy analytics
- LED Lighting Retrofits & controls

Each of these initiatives, outlined briefly below, is expected to significantly reduce the University's energy consumption, energy intensity, greenhouse gas emissions, and utility costs.

Demand Based Laboratory Ventilation Control

Laboratory environments consume significant amounts of energy typically exchanging air at 8-10 times an hour with 100% outside air, often 24 hours a day, 7 days a week, and typically consume twice the amount of energy as an office/classroom space. In addition to the energy required to supply and exhaust large quantities of air, significant amounts of energy are expended to heat or cool, and condition this air.

Demand based laboratory ventilation control technology is an integrated sensing, control, and optimization solution that cost-effectively reduces building energy and operating expenses while simultaneously maintaining indoor environmental quality and enhanced occupant safety.

The proper amount of ventilation needed is based on continuous monitoring and analysis of the air within the facility for airborne contaminants. Sensed parameters include total volatile organic compounds (TVOCs), particulates, carbon dioxide, carbon monoxide, temperature, and dew point temperature.

Through real time sensing and continuous analysis of indoor environments the system dynamically reduces air change rates when the air is clean which is typically the majority of time, saving vast amounts of energy, but dynamically raises the rates as required to maintain indoor environmental quality when pollutants are sensed.

The continuous monitoring and analysis process inherent in the technology also facilitates real time commissioning that allows system degradation to be easily observed and corrected, maintaining long term energy savings. Actionable system information that helps to quickly address issues when they arise results in better management of the facility, tracking of airside energy use, and improvement in lab management and safety.

Enterprise Energy Analytics

The objective of energy analytics is to develop a long term strategy for energy cost reduction as a result of improvements in energy and operational efficiency of heating, ventilating, and air-conditioning (HVAC) systems, and improvements in facility management through the implementation of an Enterprise Energy Information Management System (EEIMS) solution.

The EEIMS directly or indirectly interfaces with and consolidates various real-time and historical energy related data sources (e.g. energy consumption, costs, building automation system information, control and monitoring points) into a data warehouse, analyzes and normalizes the data for subsequent processing, develops a common database and provides a platform for analytics tools to easily access the data and obtain actionable information.

This information is categorized, stored and analyzed to provide a series of functions that include energy usage history, benchmarking, recognition of anomalies, display on dashboards, fault diagnostics and detection.

The EEIMS makes data-driven information, analytics, tools and resources available so that facility engineering, maintenance, and operations staff are able to perform in-depth diagnostics, engineering analysis, and monitoring to develop actionable strategies in a small fraction of the time it took with earlier methods.

The goal is to gain a better understanding of the real-time and historical trending through use of rule-based engines and analytics tools that can define key areas of improvement. Improvements will fall into multiple categories including:

- Scheduling improvements
- System optimizations
- Energy load shedding, and/or shifting strategies
- Maintenance process improvements including deferred maintenance, predictive maintenance versus scheduled maintenance
- Predicting energy cost deviations versus usage
- Identifying usage patterns, anomalies, and identifying system process adjustments for greater optimization

Analytics, continuous commissioning, fault detection and diagnostic software-based tools will monitor the operation of building HVAC systems and identify potential performance problems for corrective action.

The EEIMS will help to identify areas to improve energy and operational efficiency, enhance operational and management effectiveness, improve building performance, save energy, reduce environmental footprint, systematically improve comfort, lower maintenance costs, measure & verify results, and allow deployment of internal and external maintenance and operations resources in a proactive and efficient manner.

LED Lighting Retrofits

The Benefits of a campus wide, LED lighting retrofit program are :

1. **Greater overall energy efficiency.** Roughly 90% of a building's total lifetime cost (including the initial cost of the building itself) is made up in operating expenses, the largest portion of which is energy costs from lighting. LEDs emit very little heat in comparison to fluorescent lights, which can release up to 90% of their energy as heat. Most of the energy used in LED lighting goes directly to lighting output.
2. **Wider range of lighting color.** The primary measure of the quality of a light is its Color Rendering Index (CRI). The CRI scale runs from 0 (grayscale) to 100 (natural light) – the higher this number the better the quality of light. Any light with a CRI of 90 or above is considered excellent, which LED lighting achieves. LED bulbs are versatile and come in a variety of color and lighting options that can be tailored for specific applications. This creates safe and productive workspaces.
3. **Low Maintenance.** LED bulbs are very dependable and require minimal maintenance. LEDs can last over 40,000 operating hours. This means reduced lamp replacements, which not only saves you time, but also better utilizes precious labour resource.
4. **More Flexible lighting design option.** LED lighting is directional, meaning you can better focus the light where it is needed. This helps reduce number of fixtures required, reduced energy consumption for a similar fluorescent design.
5. **Enhanced safety.** LED lights operate much cooler than incandescent or fluorescent lights, reducing the risk of combustion and accidental fires. Switching to LED fixtures increases the safety of facilities due to the improved visibility.

Section 4

Leveraged Opportunities

In addition to the preceding list, the *Envision* program will also focus on several additional program areas if and when the opportunities present themselves, including water conservation, infrastructure renewal and energy reduction synergies, renewable energy, and education and awareness. Each of these initiatives are outlined briefly as follows.

Water Conservation

Envision will focus on water conservation as opportunities become available through other focused initiatives. Under BOMA BEST, water audits and feasibility studies were performed on several facilities. The findings of these studies will assist in the assessment, and identification of the scale and scope of water reduction initiatives.

Infrastructure Renewal & Energy Reduction Synergies

In the implementation of the current *Envision* program, opportunities were sought and taken where feasible, to implement energy management initiatives in conjunction with maintenance, infrastructure renewal, or facility alteration projects where energy savings, operational, maintenance, space environmental benefits, and infrastructure upgrades will collectively occur, but cannot be achieved totally on energy savings or capital or operational dollars alone. This allows the optimization of available funding and an efficient use of resources to mutual benefit.

Renewable Energy

A focus on the implementation of renewable energy technologies will continue. Although solar photovoltaic (PV) offers good potential for generating renewable electricity on site, at this time its implementation cannot be supported on energy savings alone (payback is beyond fifteen years).

Notwithstanding the current economics of renewable technologies, increased demand for renewables, acceleration of the technological development curve and increasing competitiveness, the costs for renewables continues to decline. Moreover, carbon-based energy costs are anticipated to rise over time, meaning that grid parity for solar energy is possible in the foreseeable future. On the basis of these predictions we anticipate an increased focus on the implementation of renewable energy technologies. These implementations would also create opportunities for teaching and experiential learning, course work, education and awareness, and the engagement of students, faculty, and staff.

Education and Awareness

In conjunction with the Sustainability Council, campus-wide education, awareness, engagement, and behavioural change programs are also planned.

Section 5 ***Envision Phase One***

The following projects comprise Phase One of the *Envision* program:

Augustana Residence Lighting Retrofit
Camrose Performing Arts Centre (CPAC) Energy Efficiencies and Renewable Energy
PAW Centre Energy Efficiencies and Renewable Energy
Katz Demand Based Laboratory Ventilation
South Academic Building Window Replacement
Car Park Lighting Retrofits (Educ, ECERF, Timms/Telus, Southfield, Stadium, Windsor)

The above projects were on the \$5,000,000 budget for Phase one and within 15 year payback period.

Section 6 ***Envision Phase Two***

The following projects comprise Phase Two of the *Envision* program:

CCIS Demand Based Laboratory Ventilation
Li-Ka Shing Demand Based Laboratory Ventilation
NREF Demand Based Laboratory Ventilation
ECV Infill Residences Energy Efficiency Measures
Peter Lougheed Leadership College Energy Efficiency Measures
RTF Lighting Retrofit
Human Ecology LED Lighting Retrofit

The above projects were on the \$5,000,000 budget for Phase two and within 15 year payback period.

Section 7 *Envision Phase Three*

The following projects comprise Phase-3 of the *Envision Program*.

Multiple CHP Installations (4X)
Occupancy Based Space Ventilation Implementations
Waste to Energy High Solids Anaerobic Digester Facility (HSADF)
Campus Saint-Jean – Mechanical / HVAC Upgrades
Pump System VSD's and Controls - Medical Sci, Bio Sci, CSB
Domestic Water Reduction – General Services Building
Chemistry Complex – Demand Based Laboratory Ventilation
Augustana - Mechanical / HVAC Upgrades
Saville – LED Lighting Retrofits / Mechanical & HVAC upgrades
Augustana Campus – PV Installation
South Campus – Lighting retrofits
SUB - Renovations

The above projects were on the \$9,000,000 budget for Phase three and within 15 year payback period.

Section 8 *Envision Phase Four*

The following projects comprise Phase-4 of the *Envision Program*.

North Campus - Service corridor & Pole mounted LED retrofit
Energy Analytics Implementations
North Campus - Multiple building steam trap upgrades
North Campus - Multiple building T8 LED retrofits
Bio-Sciences - Domestic water upgrades
HMRC - Tie-in to Li Ka Shing turbine generator
Swine Research Facility - HVAC / Mechanical system upgrades
CMEB Demand Based Laboratory Ventilation

The above projects were on the \$8,000,000 budget for Phase four and within 15 year payback period.

Section 9 *Envision* Phase Five

The following projects comprise Phase-5 of the *Envision* Program.

NINT – Demand Based Laboratoty Ventilation & LED Retrofit
North Campus – Multiple Building LED Retrofits
Energy Analytics Implementations
MSL – Enhanced Energy Performance Measures
UComms – Enhanced Energy Performance Measures

The estimated cost for implementation of Phase 5 of the *Envision* program is \$8,000,000. Average annual energy savings from this implementation over the fifteen-year period is estimated in the order of \$1,055,299. Based on Utility forecasts to 2022/23 and a 1.5% escalation thereafter, payback of the fifth phase of the program occurs within a fifteen year period. As in the previous energy management programs, it is proposed that these projects be financed through borrowing from the Treasury Board and Finance over a fifteen-year amortization period.

Financial feasibility is checked through each stage of development of a project (preliminary feasibility, detailed audit, preliminary design, detailed design, and tender) with project costs and energy savings refined at each stage of the process to confirm viability. Projects are modified if necessary during the various development stages to maintain feasibility. As well, the annual programs and the program as a whole are reviewed on an on-going basis to confirm viability.

Section 10 Phase Five Financial Analysis

Following is the financial analysis for the fifth phase of the *Envision* program and the cash flow projection and payment schedule that would be required to service a \$8,000,000 loan over a fifteen-year term, modeled at an interest rate of 5.5%. (*The lending rate from the Treasury Board and Finance as of January 15, 2023 is 4.65% per annum for a fifteen-year amortization period.*)

To establish an upper limit for borrowing purposes, an analysis and cash flow projection was also performed to determine the effect if inflationary pressures caused interest rates to rise above the 5.5% used in the model, with concurrent inflation/escalation on the utility rates. The fifteen-year amortization financial model can support interest rate increases up to 7% with 1.5% escalation in utility rates.

The savings are based on the University of Alberta Utilities Department Rates R50 to March-31, 2023 with a 1.5% per year increase in utility rates thereafter.

The internal rate of return (IRR) for the fifth phase of the *Envision* program with an economic life of twenty-five years is 13.57%. The net present value (NPV)¹ with a fifteen year amortization period, 5% opportunity cost of capital, and 7% assumed financing cost is \$7,596,141. The 13.57% IRR² is well above the opportunity cost of capital at 5%, and the NPV is positive, which would indicate good project viability for Phase five of the program.

¹ NPV is the value of the monetary impact of the project in terms of today's dollars, i.e. if all future cash flows are discounted into today's dollars, and the cost of the project is subtracted, this will give a NPV total. If the total is positive the project is deemed as acceptable, if negative it is not. For this analysis, an opportunity cost of capital of 5% was used and financing costs were assumed to be 7.0%.

² IRR is a measure of the interest yield on a project over its useful life. As long as the IRR is greater than the opportunity cost of capital (5.0%), the project is deemed acceptable.

Projected Cash Flow, Loan Payment, and Savings Schedule 15 Year Amortization Period, 5.5% Interest Model

Fiscal Year	Project Expense	Energy Savings	Loan Payment	Principal	Loan Interest 5.5%	Loan Balance	Net Cumulative Cash Flow
Apr-23	\$60,000						-\$60,000
May-23	\$80,000						-\$140,000
Jun-23	\$140,000						-\$280,000
Jul-23	\$200,000						-\$480,000
Aug-23	\$280,000						-\$760,000
Sep-23	\$380,000						-\$1,140,000
Oct-23	\$650,000						-\$1,790,000
Nov-23	\$810,000						-\$2,600,000
Dec-23	\$1,000,000						-\$3,600,000
Jan-24	\$1,100,000						-\$4,700,000
Feb-24	\$1,200,000						-\$5,900,000
Mar-24	\$1,100,000						-\$7,000,000
Apr-24	\$1,000,000		\$8,000,000				\$0
2024/25		\$1,055,299	(\$797,005)	\$357,005	\$440,000	\$7,642,995	\$258,295
2025/26		\$1,059,485	(\$797,005)	\$376,640	\$420,365	\$7,266,355	\$520,775
2026/27		\$1,079,765	(\$797,005)	\$397,355	\$399,650	\$6,869,000	\$803,535
2027/28		\$1,064,850	(\$797,005)	\$419,210	\$377,795	\$6,449,790	\$1,071,380
2028/29		\$1,080,815	(\$797,005)	\$442,266	\$354,738	\$6,007,524	\$1,355,191
2029/30		\$1,097,020	(\$797,005)	\$466,591	\$330,414	\$5,540,933	\$1,655,206
2030/31		\$1,113,468	(\$797,005)	\$492,253	\$304,751	\$5,048,679	\$1,971,670
2031/32		\$1,130,163	(\$797,005)	\$519,327	\$277,677	\$4,529,352	\$2,304,828
2032/33		\$1,147,108	(\$797,005)	\$547,890	\$249,114	\$3,981,462	\$2,654,931
2033/34		\$1,164,307	(\$797,005)	\$578,024	\$218,980	\$3,403,437	\$3,022,233
2034/35		\$1,181,764	(\$797,005)	\$609,816	\$187,189	\$2,793,621	\$3,406,992
2035/36		\$1,199,482	(\$797,005)	\$643,356	\$153,649	\$2,150,266	\$3,809,470
2036/37		\$1,217,466	(\$797,005)	\$678,740	\$118,265	\$1,471,526	\$4,229,932
2037/38		\$1,235,720	(\$797,005)	\$716,071	\$80,934	\$755,455	\$4,668,647
2038/39		\$1,254,248	(\$797,005)	\$755,455	\$41,550	\$0	\$5,125,890
2039/40		\$1,273,053		\$0	\$0	\$0	\$6,398,943
2040/41		\$1,292,141		\$0	\$0	\$0	\$7,691,084
2041/42		\$1,311,514		\$0	\$0	\$0	\$9,002,598
2042/43		\$1,331,178		\$0	\$0	\$0	\$10,333,776
2043/44		\$1,351,137		\$0	\$0	\$0	\$11,684,913
2044/45		\$1,371,395		\$0	\$0	\$0	\$13,056,307
2045/46		\$1,391,957		\$0	\$0	\$0	\$14,448,264
2046/47		\$1,412,827		\$0	\$0	\$0	\$15,861,091
2047/48		\$1,434,010		\$0	\$0	\$0	\$17,295,100
2048/49		\$1,455,510		\$0	\$0	\$0	\$18,750,610
TOTAL		\$30,705,682	(\$11,955,072)	\$8,000,000	\$3,955,072		\$18,750,610

Projected Cash Flow, Loan Payment, and Savings Schedule

(to establish upper limit of borrowing)

15 Year Amortization Period, 7.0% Interest Model

Fiscal Year	Project Expense	Energy Savings	Loan Payment	Principal	Loan Interest 7.0%	Loan Balance	Net Cumulative Cash Flow
Apr-23	\$60,000						-\$60,000
May-23	\$80,000						-\$140,000
Jun-23	\$140,000						-\$280,000
Jul-23	\$200,000						-\$480,000
Aug-23	\$280,000						-\$760,000
Sep-23	\$380,000						-\$1,140,000
Oct-23	\$650,000						-\$1,790,000
Nov-23	\$810,000						-\$2,600,000
Dec-23	\$1,000,000						-\$3,600,000
Jan-24	\$1,100,000						-\$4,700,000
Feb-24	\$1,200,000						-\$5,900,000
Mar-24	\$1,100,000						-\$7,000,000
Apr-24	\$1,000,000		\$8,000,000				\$0
2024/25		\$1,055,299	(\$878,357)	\$318,357	\$560,000	\$7,681,643	\$176,942
2025/26		\$1,059,485	(\$878,357)	\$340,642	\$537,715	\$7,341,001	\$358,070
2026/27		\$1,079,765	(\$878,357)	\$364,487	\$513,870	\$6,976,514	\$559,478
2027/28		\$1,064,850	(\$878,357)	\$390,001	\$488,356	\$6,586,513	\$745,971
2028/29		\$1,080,815	(\$878,357)	\$417,301	\$461,056	\$6,169,212	\$948,430
2029/30		\$1,097,020	(\$878,357)	\$446,512	\$431,845	\$5,722,700	\$1,167,093
2030/31		\$1,113,468	(\$878,357)	\$477,768	\$400,589	\$5,244,932	\$1,402,204
2031/32		\$1,130,163	(\$878,357)	\$511,212	\$367,145	\$4,733,720	\$1,654,010
2032/33		\$1,147,108	(\$878,357)	\$546,997	\$331,360	\$4,186,723	\$1,922,761
2033/34		\$1,164,307	(\$878,357)	\$585,286	\$293,071	\$3,601,437	\$2,208,711
2034/35		\$1,181,764	(\$878,357)	\$626,256	\$252,101	\$2,975,181	\$2,512,118
2035/36		\$1,199,482	(\$878,357)	\$670,094	\$208,263	\$2,305,086	\$2,833,243
2036/37		\$1,217,466	(\$878,357)	\$717,001	\$161,356	\$1,588,085	\$3,172,353
2037/38		\$1,235,720	(\$878,357)	\$767,191	\$111,166	\$820,894	\$3,529,716
2038/39		\$1,254,248	(\$878,357)	\$820,894	\$57,463	\$0	\$3,905,607
2039/40		\$1,273,053		\$0	\$0	\$0	\$5,178,660
2040/41		\$1,292,141		\$0	\$0	\$0	\$6,470,801
2041/42		\$1,311,514		\$0	\$0	\$0	\$7,782,315
2042/43		\$1,331,178		\$0	\$0	\$0	\$9,113,493
2043/44		\$1,351,137		\$0	\$0	\$0	\$10,464,629
2044/45		\$1,371,395		\$0	\$0	\$0	\$11,836,024
2045/46		\$1,391,957		\$0	\$0	\$0	\$13,227,981
2046/47		\$1,412,827		\$0	\$0	\$0	\$14,640,807
2047/48		\$1,434,010		\$0	\$0	\$0	\$16,074,817
2048/49		\$1,455,510		\$0	\$0	\$0	\$17,530,327
TOTAL		\$30,705,682	(\$13,175,355)	\$8,000,000	\$5,175,355		\$17,530,327

Notwithstanding the University's past success, including that of the program currently in progress, significant energy reduction opportunities remain. Continued implementation of the *Envision* program and the new technologies and opportunities is warranted to keep our energy bill as low as cost effectively feasible, reduce our consumption of non-renewable resources, minimize our environmental impact, demonstrate our commitment to sustainability, and realize many other benefits.

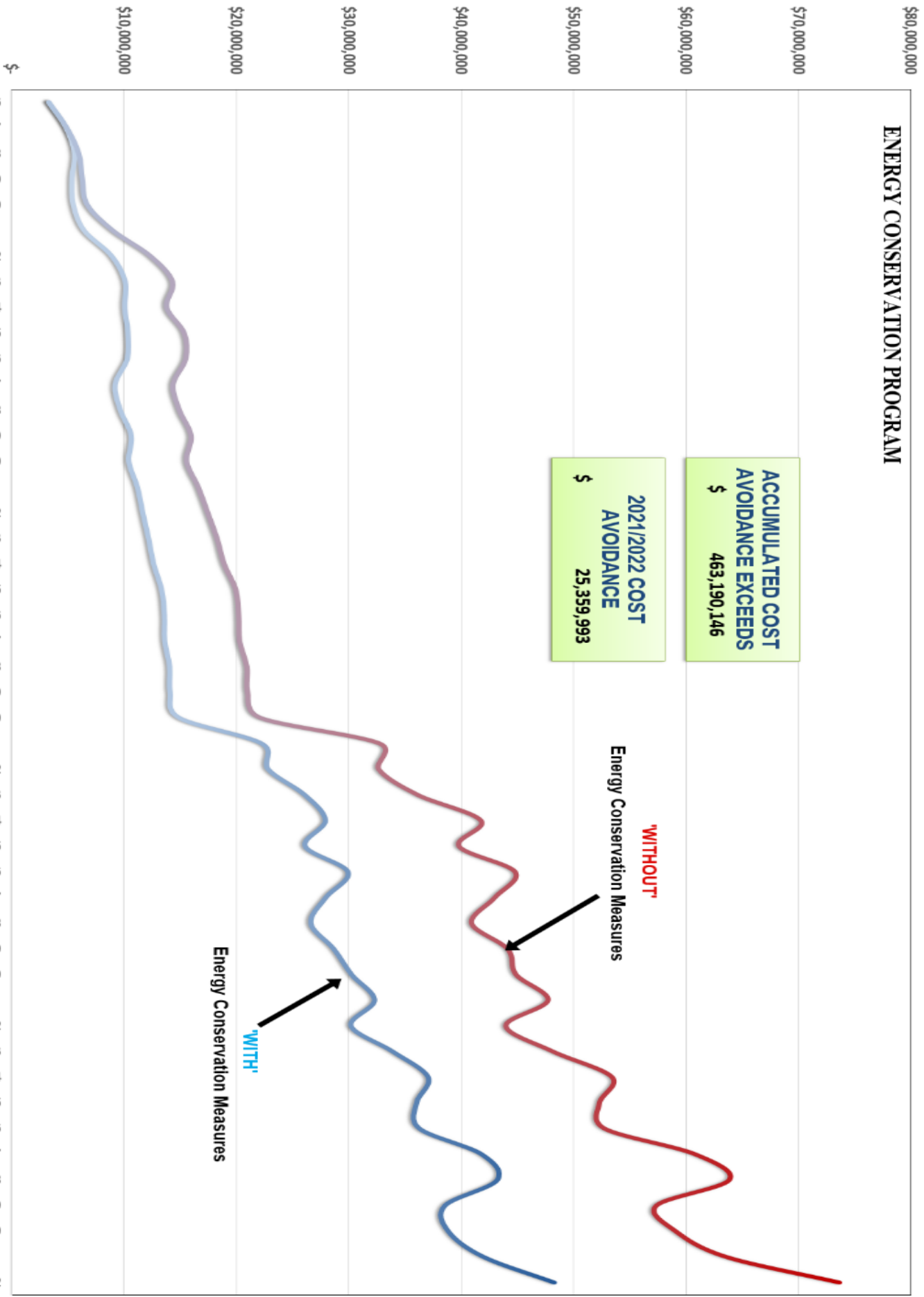
It is recommended that:

- The current *Envision* program be completed to realize the benefits of the new technologies and opportunities, with borrowing of \$8,000,000 to implement the fifth and final phase of the program.
- The University borrow not more than \$8,000,000 from the Treasury Board and Finance for a term not to exceed fifteen years at an interest rate not to exceed 7% for the purpose of funding the Fifth Phase of the *Envision* program.
- The conclusion of this iteration of *Envision* will help realize annual utility cost avoidance of \$8,100,000 and CO₂ emission reductions are anticipated to be in the order of 35,000 tonnes annually.
- With the conclusion of this current \$35M *Envision* program approaching, the groundwork has started to develop the next iteration of *Envision*. With significant opportunities remaining in demand based ventilation, LED lighting retrofits across all campus locations, broadening the implementation of energy analytics opportunities and the continued deployments of distributed, alternative and renewable generation technologies, a very robust *Envision 2.0* program is taking shape and will be presented for approval upon conclusion of this program.

Appendices

1. Utility Costs – With vs. Without Energy Conservation
2. Building Area
3. Electrical Consumption
4. Steam Consumption
5. Water Consumption
6. Total Energy Intensity
7. GHG Profile
8. Envision Phases 1 to 4 Assessment

ENERGY CONSERVATION PROGRAM



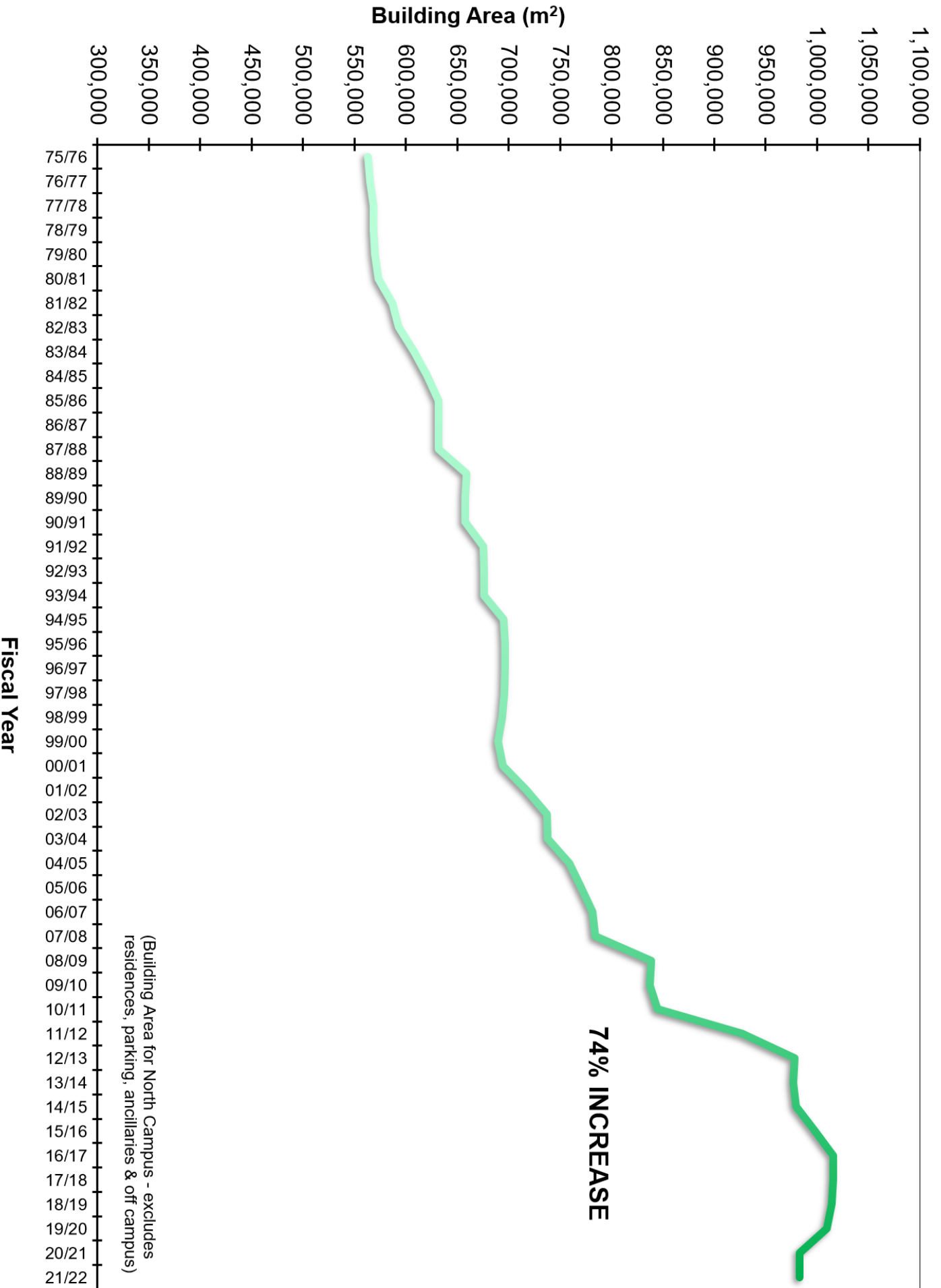
ACCUMULATED COST AVOIDANCE EXCEEDS
\$ 463,190,146

2021/2022 COST AVOIDANCE
\$ 25,359,993

WITHOUT
Energy Conservation Measures

WITH
Energy Conservation Measures

BUILDING AREA

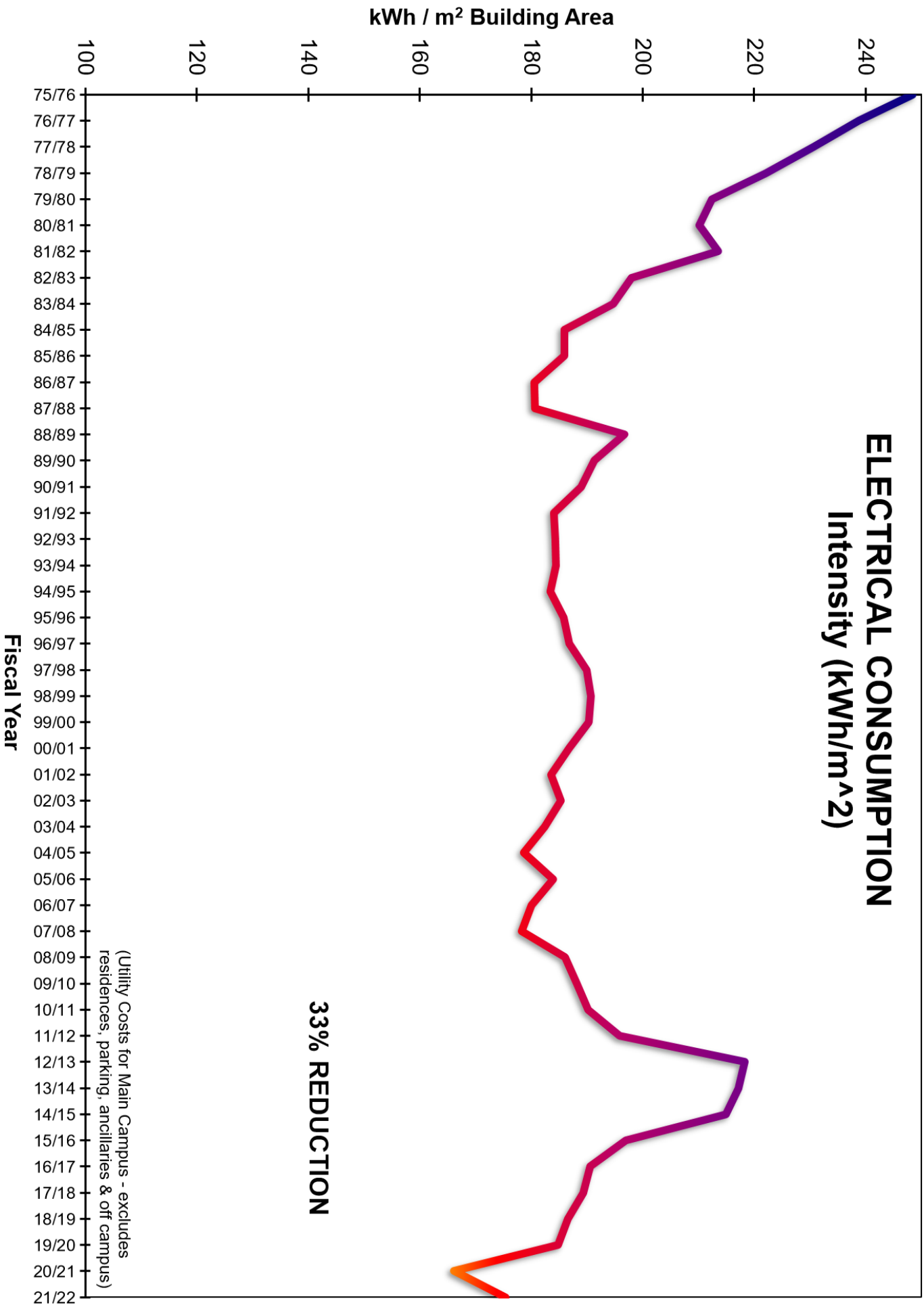


74% INCREASE

(Building Area for North Campus - excludes residences, parking, ancillaries & off campus)

Fiscal Year

ELECTRICAL CONSUMPTION Intensity (kWh/m²)

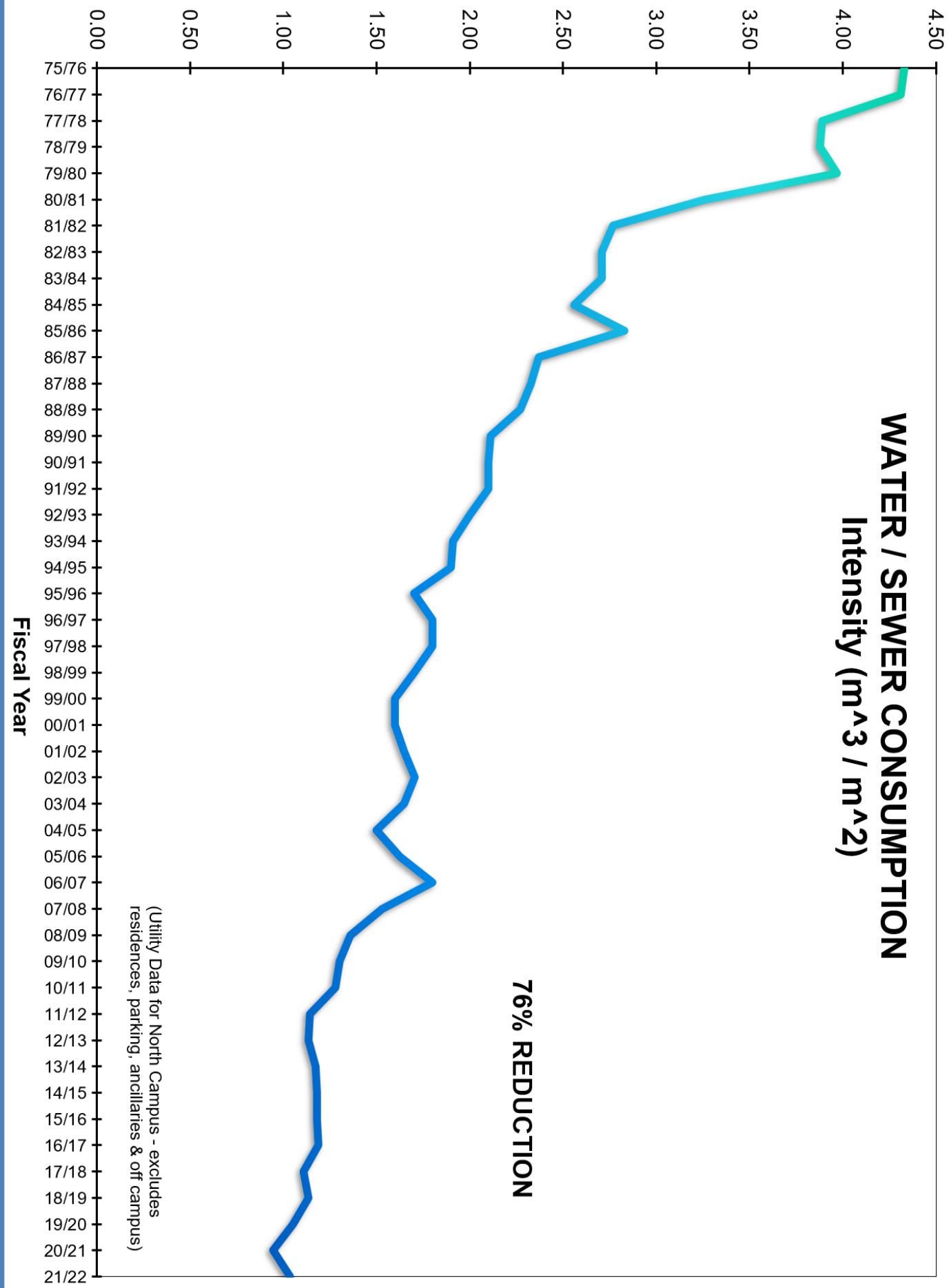


33% REDUCTION

(Utility Costs for Main Campus - excludes residences, parking, ancillaries & off campus)

m³ Water/Sewer / m² Building Area

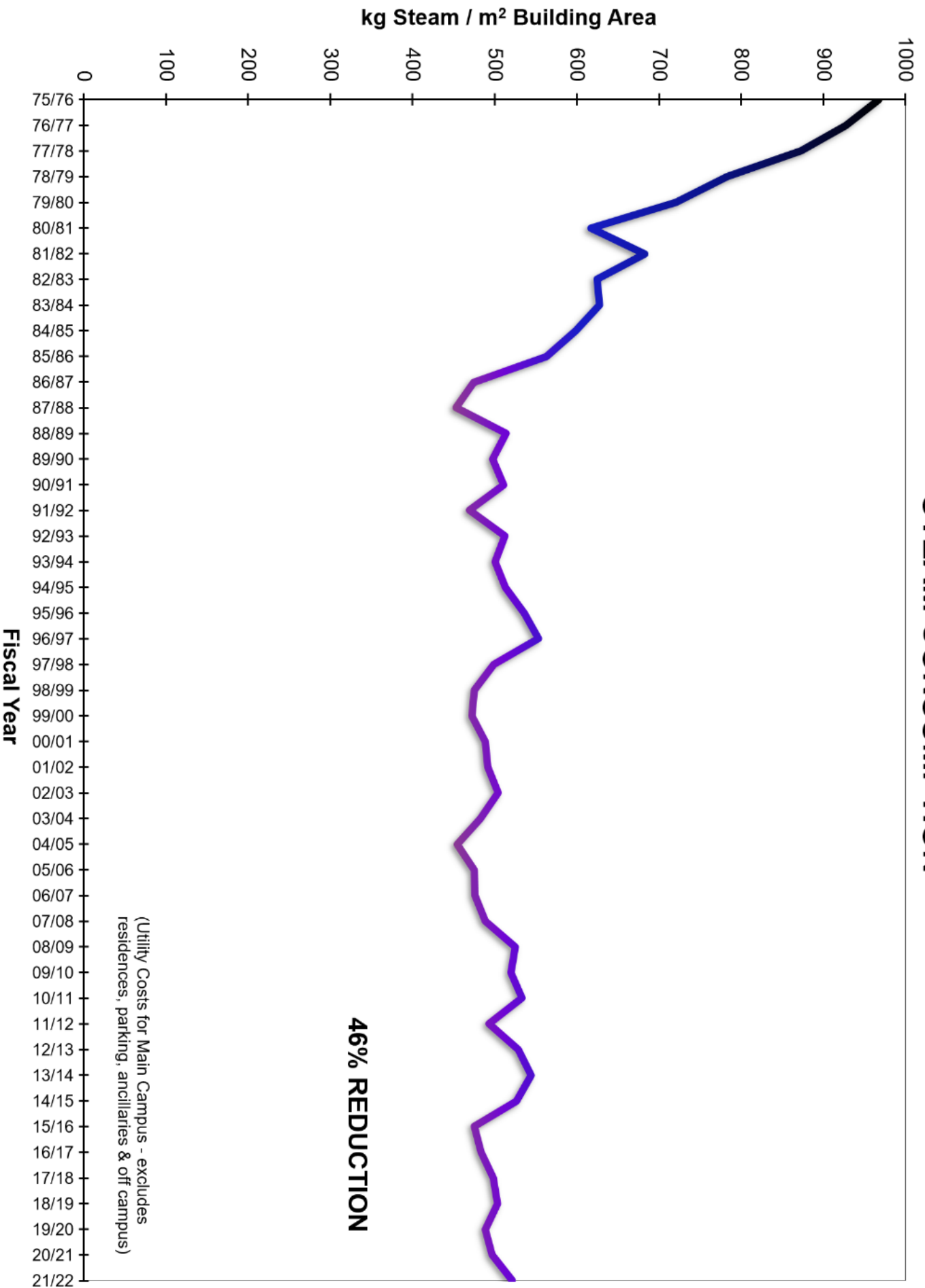
WATER / SEWER CONSUMPTION Intensity (m³ / m²)



76% REDUCTION

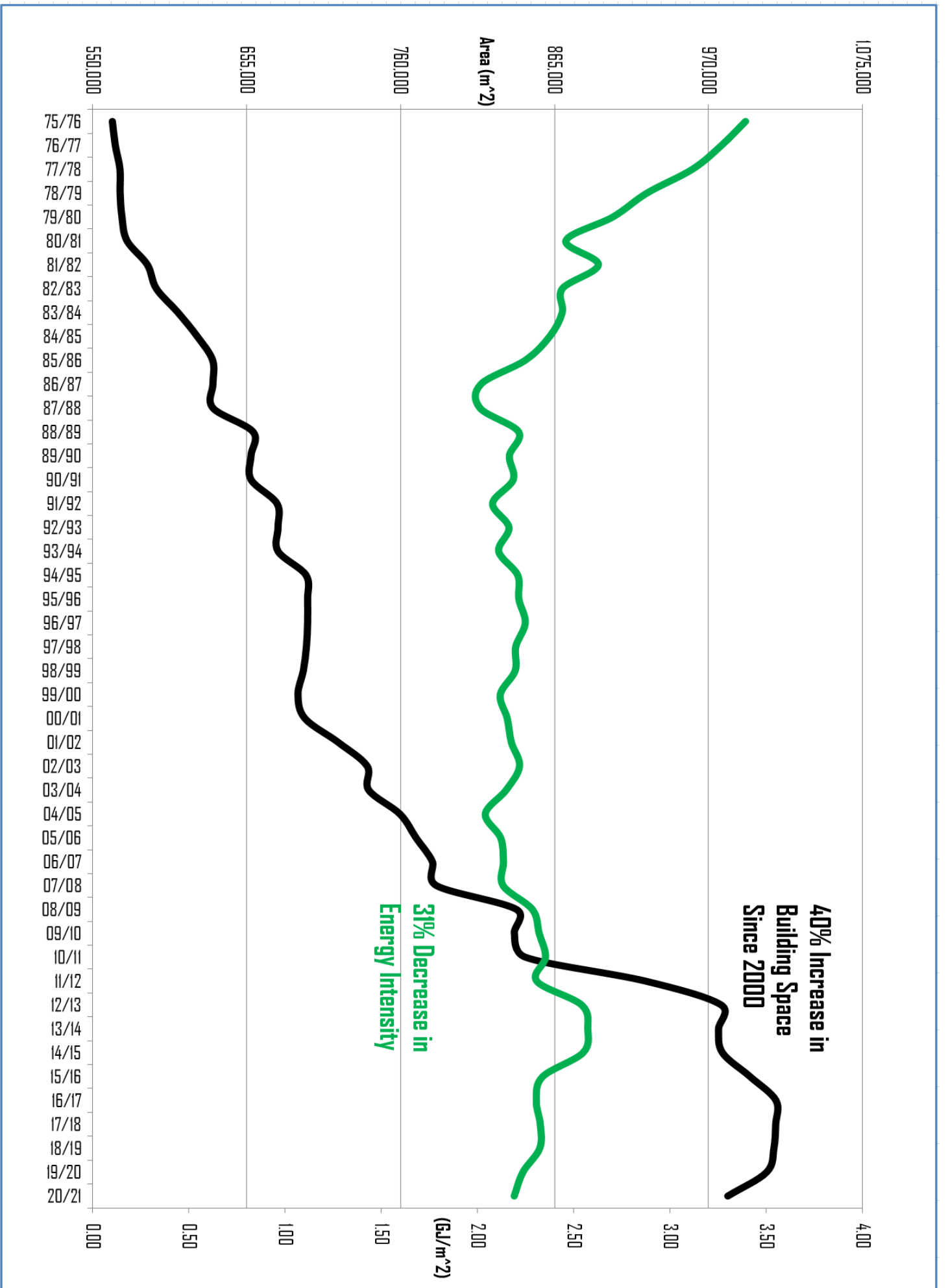
(Utility Data for North Campus - excludes residences, parking, ancillaries & off campus)

STEAM CONSUMPTION

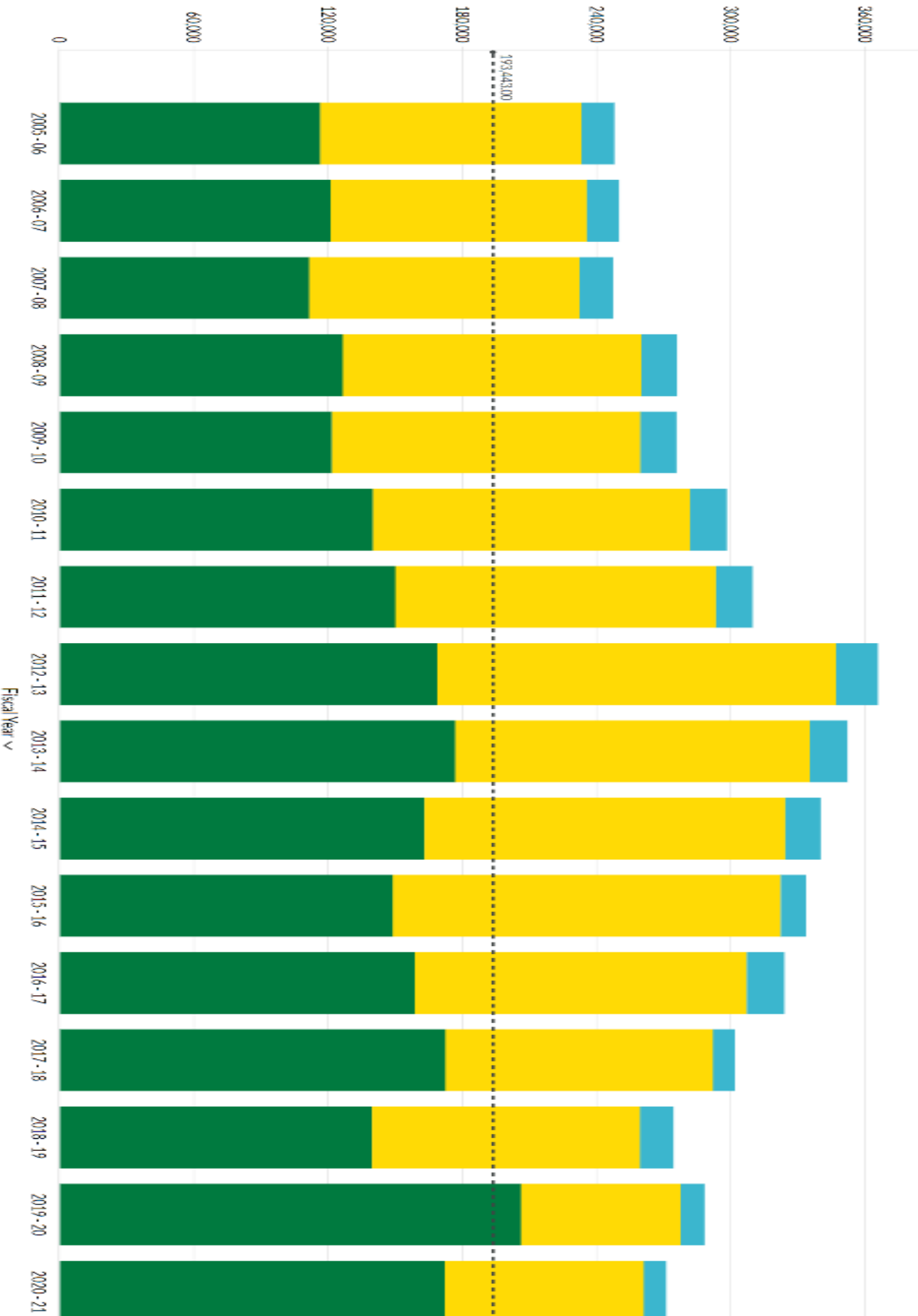


46% REDUCTION

(Utility Costs for Main Campus - excludes residences, parking, ancillaries & off campus)



GHG Emissions (tonnes CO2e)



Threshold: ... GOAL: 17% Below 2005 Level

Scope 1 Scope 2 Scope 3

Fiscal Year

Previous 4 - Phases Energy Management Program Phases One to 4 Assessment

Building Name	Total Project Cost Estimate/Actual	Annual Cost Savings	Financed Payback
Phase 1	Actual	Actual	
CCIS-2, Li Ka Shing, NREF Aircurty Projects		\$1,454,237	
ECV & PLH Residences Enhanced Energy Measures		\$154,979	
Chem-E and Katz Hi-bay LED retrofits		\$7,092	
Miquelon Lake PV / Battery / EV Charging		\$645	
RTF Lighting retrofit		\$8,775	
Van Vliet Pool LED Lighting Retrofit		\$1,844	
Human Ecology LED Retrofit Pilot		\$14,176	
CSB Chilled Water Pump VSD		\$13,474	
Van Vliet Pump VSD		\$10,212	
Med-Sciences Water Fixtures		\$1,785	
Phase 1 Total:	\$ 5,000,000	\$1,667,219	5.12
Phase 2			
Katz Aircurty		\$1,459,733	
Augustana Residences Enhanced Energy Measures		\$26,506	
SAB Window Replacements		\$165,308	
CPAC PV and Enhanced Energy Measures		\$74,549	
PAWc Enhanced Energy Measures		\$104,932	
Chemistry Solvent Efficiency		\$4,500	
Phase 2 Total:	\$ 5,000,000	\$1,835,528	4.82
Phase 3			
Car Park Lighting Retofit (7X)		\$185,801	
SUB Enhanced Energy Measures		\$90,245	
CPAC and Forum PV		\$15,903	
ECERF Aircurty		\$124,327	
Augustana, CSJ, MSB, CSB, Chem-W/E, Bio-Sci SIF		\$864,729	
South Campus LED Lighting Retrofits		\$146,548	
SAB Fan Wall and Heat Recovery		\$267,428	
Clare Drake Real-Ice Technology		\$17,559	
Phase 3 Total:	\$ 9,000,000	\$1,712,540	7.66
Phase 4			
Lister Complex Enhanced Energy Measures and PV		\$438,260	
NREF Aircurty		\$142,615	
Chemistry Complex Energy Measures and Aircurty		\$218,368	
Bio-Sci Entemology Aircurty		\$24,749	
Ag-For, CCIS-2, Bio-Sci Greenhouse / Chambers LED		\$101,608	
Corbett, CAB 6 th , BARB AHU Energy Enhancements		\$147,171	
NPP, Law Library, Clare Drake, CPOC, HP, PEEL LED		\$110,605	
Multiple Steam Station and Piping Insulation		\$30,087	
Swine Research Enhanced Energy Measures		\$9,329	
SAB Chilled Water Optimization		\$1,073	
Augustana Endotherm Hot Water Efficiency		\$22,292	
HMRC Tie-in to Li Ka Shing Turbine		\$99,622	
Bio-Sci Aquatics lab upgrade		\$596	
Dairy, CSJ, Ed-South, Devon, Lister, ECERF PV		\$81,553	
North Campus Pole Mount LED Retrofits		In Construction	
UComms Enhanced Energy Measures + PV		In Construction	
Phase 4 Total:	\$ 8,000,000	\$1,427,928	7.33
PROGRAM TOTAL:	\$ 27,000,000	\$6,643,215	6.48

Notes:

- Energy savings and payback are based on the University of Alberta Utilities department cost forecast for electricity and steam in 2022/23 to 2025/26 with escalation of 1.5% after 2025/26.

RESOLUTION OF
THE BOARD OF GOVERNORS OF THE UNIVERSITY OF ALBERTA

("Board of Governors")

WHEREAS the Board of Governors, to carry out the purposes of the University of Alberta, considers it appropriate and necessary to proceed with the implementation of the fifth phase of the five-phase *Envision* energy management program at a currently budgeted cost of Eight Million Dollars in Canadian funds (\$8,000,000.00) ("Project"); and

WHEREAS the Board of Governors considers it appropriate and necessary to borrow funds from the lender described in this resolution.

IT IS HEREBY RESOLVED THAT:

1. Pursuant to Section 73 of the *Post-secondary Learning Act* and subject to the prior approval of the Minister, the Board of Governors, for the purposes of the University of Alberta, authorizes and approves the borrowing of an amount to fund the Project not to exceed Eight Million Dollars (\$8,000,000.00) in Canadian funds ("Loan").
2. The Loan be:
 - (a) from a lender which is Treasury Board and Finance ("Lender") in an amount not to exceed Eight Million Dollars (\$8,000,000.00) in Canadian funds;
 - (b) for a term not to exceed fifteen (15) years;
 - (c) at an interest rate not to exceed seven percent (7%) per annum;

And that within the parameters set out in this section 2, the establishment of the amount, term and interest rate be made by the Vice-President (University Services and Finance).

3. To secure the repayment of the Loan, the University of Alberta grant to the Lender such security as may be required by the Lender and agreed to by the Vice-President (University Services and Finance).
4. The Vice-President (University Services and Finance) be and is hereby authorized for and on behalf of the University of Alberta to:
 - a) Negotiate, execute and deliver to the Lender such notes, bonds, debentures or other securities in such form, with or without seal, and

containing such terms and conditions related to amount, denomination, time and place of payment, principal and interest and redemption as the Lender requires as a condition of the Loan;

- b) Include in the security the Lender requires as a condition of the Loan all such securities, debentures, charges, pledges, mortgages, conveyances, assignments and transfers to or in favour of the Lender of all or any property, real or personal, moveable or immovable, owned by the University of Alberta or in which it may have an interest as the Lender may require;
- c) Give the Lender any other documents or contracts necessary to give or furnish to the Lender the security or securities required by the Lender including without limiting the generality of the foregoing, all or any receivables, book debts due or growing due, stocks, bonds, insurance policies, promissory notes, bills of exchange and securities of all kinds.

5. All agreements, securities, documents and instruments proposing to be signed, made, drawn, accepted, executed or endorsed as provided in this resolution shall be valid and binding on the University of Alberta.

6. The Lender shall be furnished with a signed copy of this resolution.

I hereby certify that this resolution has full force and effect on the _____ day of _____, 2023.

Chair of The Board of Governors of the
University of Alberta