



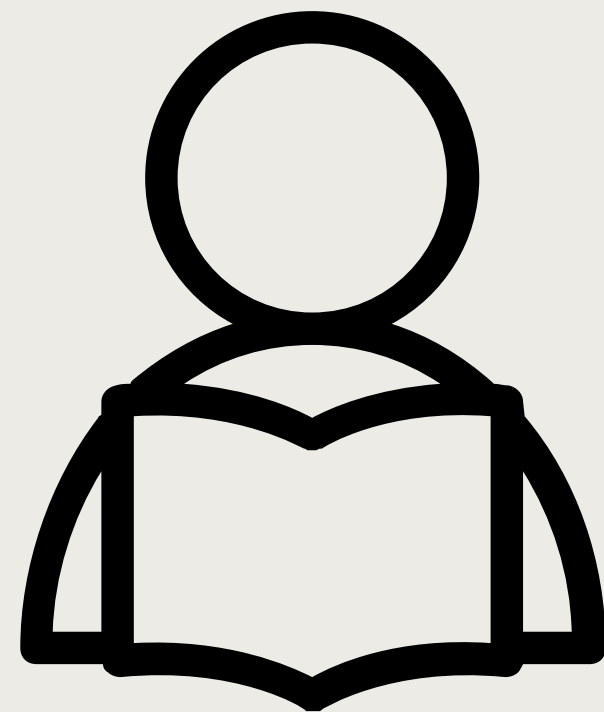
# PLANTING the POWER

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# SITUATION AT HAND

- Increase in enrollment
- Cost-effective option
- Meet demand needs
- Reduce carbon footprint

25%



# UTILITY GRID SUPPLY

**95%** RELIABLE

- Burns 50% coal and 30% gas = 80% nonrenewable emissions
- Steer away from nonrenewable resources
- Reliant on outsourcing - increasing maintenance/malfunction cost
- Increase carbon emissions





# UNIVERSITY OWNED PV SOLAR

**95%** RELIABLE

- Construction harms endangered species
- We have to find an alternative to compensate for the 25.8% energy supply
- Solar energy is mainly used as a supplementary energy source



# EXPANSION OF POWER PLANT

## 5 Gas Boilers



1. Consistent
2. Reliabe
3. Quick

# CONSISTENCY

- Quicker than building other energy options as permits and certifications are already in place
- This streamlines the expansion process and enables faster deployment to meet increased energy demand
- Maintenance staff is already familiar with operations





# RELIABILITY & RESILIENCE

- With all machinery, problems may arise. If we are aware of these issues in advance, prevention is possible.

**20  
YEARS**

The steam turbine has a useful life of 20 years.

**99+%**

Historically, the steam turbine is extremely reliable.



1.

No property costs required

2.

Ready-to-use equipment and installment plans



# FINANCIAL ANALYSIS



- Budget: \$15M
- Initial investment: \$25M
- Operating expense/yr: \$345,589
  - Covered with increased revenue from enrollment growth

## LOAN DETAILS:

- Regional bank loan:
  - \$10M, 7% interest, 10-year



# FINANCIAL ANALYSIS CONTINUED



**Additional revenue from increased enrollment provides for:**

Of total revenues, **38%** is allocated towards energy expenses

Year	Enrollment	Year	Average Tuition
2019	20,478	2019	\$ 15,780.00
2020	20,286	2020	\$ 16,335.00
2021	19,552	2021	\$ 16,335.00
2022	19,189	2022	\$ 16,335.00
2023	18,959	2023	\$ 16,905.00
Avg. Enrollment	19,693	Avg. Tuition	\$ 16,338.00
Avg. x 25%	4923.2		
Total Revenue Increase:			\$ 80,435,241.60

**\$30.8M**

- Carbon credits
- Operating expenses

\*findings from UNL data website and National Grid Association



# UTILITY GRID SUPPLY FINANCIAL ANALYSIS

Energy Cost (per MWh)	40.00		
Incremental Electrical Load (if Electrification)	122,458.00	Cost of Electric	4,898,320.00
Cost of Capacity (per MW)	100,000.00		
MW capacity requirements	22.50	Cost of Capacity	2,250,000.00
		<b>Total Cost Per Year</b>	<b>7,148,320.00</b>

$\$7,148,320.00 \times 3 \text{ years} = \mathbf{\$21,444,960}$



# PV SOLAR FINANCIAL ANALYSIS

Costs with the 30% Investment Tax Credit

Capital Cost = \$25,600,000

Operating Cost = \$1,500,000

Power Generation = \$144,648

Total Cost for 3 years =  
**\$26,751,253.60**

Solar panels only work **25.8%** of the time, so additional financing is needed to purchase more energy from the grid



# CONCLUSION ON FINANCIALS

## Utility Supply Grid

- Initial costs are too similar to take reliability risk of using a single transmission line

## PV Solar Panels

- If excess energy was produced, we would have to pay the utility company for that usage

## Plant Expansion

- If excess energy was produced, we could sell our power to energy companies for additional revenue



# INNOVATION AND FUTURE LONGEVITY

## PLAN

Find a solution.

## BRANCHING OUT

Partner with a  
company to stay  
accountable.

## NET-ZERO

Compensating the  
added 25% carbon  
credits.

**MARKETING CAMPAIGN PLAN**

# COOL EFFECT



- Non-profit platform where consumers can buy carbon offsets.
- Each project is 100% scientifically verified.



As seen in...



## Reducing Carbon Emissions

- Improved cookstoves
- Grassland conservation
- Prevented deforestation
- Renewable energy

*OR*

## Removing Carbon Emissions

- Planting trees
- Putting carbon in concrete, rock, bottom of the ocean, or soil

# COOL EFFECT: COST BREAKDOWN

Cost to plant trees to offset added  
carbon emissions:

Amount of CO2 (Tons)  
with added Expansion



73,632 Tons

Amount of CO2 (Tons)  
for the 25% increase



$73,632 / 5 \text{ boilers} =$   
14,726.4 Tons

Convert Tons to metric  
ton(Tonnes)



$14,726 / 1.02 =$   
13,363.34 Tonnes

Cost per 1,000kg = \$14.62



$13,363.34 \times \$14.62 =$   
\$195,372.03

*\*Cool Effect business pricing*



**A** @UniversityofAksarben



Check your emails for the latest updates on the enrollment expansion solution! We are thrilled for these new additions to the campus! [#PlantThePower](#)



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PLANTING  
the  
POWER



PLANTING  
the  
POWER



@cooleffect\_



KPI



# University of Aksarben

23rd February 2024



Dear University of Aksarben Faculty, Students, and Families,

We are excited to share a significant update regarding our ongoing efforts to enhance sustainability and meet the growing energy demands resulting from a remarkable 25% increase in our student population. We are beyond thrilled about this surge of enrollment. As part of our commitment to building a more sustainable future, we are pleased to announce an expansion to the University of Aksarben power plant in response to the new addition of buildings on campus.

Recognizing the urgent need to address our increased energy requirements, we have carefully evaluated various options for expanding our energy capacity while minimizing our environmental footprint. The university operates on four steam turbines, which needs to be improved for the increasing enrollment. Therefore, we have decided to implement a fifth steam turbine, expanding to the current plant. With a proven track record of reliability exceeding 99%, steam turbines offer a dependable energy source that aligns with our long-term sustainability goals.

We understand the importance of transparency and accountability, especially for incoming students and their families. Detailed updates regarding the progress of construction will be regularly communicated. By investing in sustainable energy solutions, we are not only creating a greener campus environment but also enhancing the overall educational experience for our students.

Thank you for your continued support and dedication to sustainability at the University of Aksarben.

Warm regards,

Emeritus John E. Christensen

A handwritten signature in black ink that reads "John E. Christensen".

Chancellor  
University of Aksarben

# CONCLUSION



- Consistent
- Meets increased demand
- Reliable
- Cost-effective
- No coal usage
- Promotes sustainable energy

**THANK YOU!**  
**QUESTIONS?**

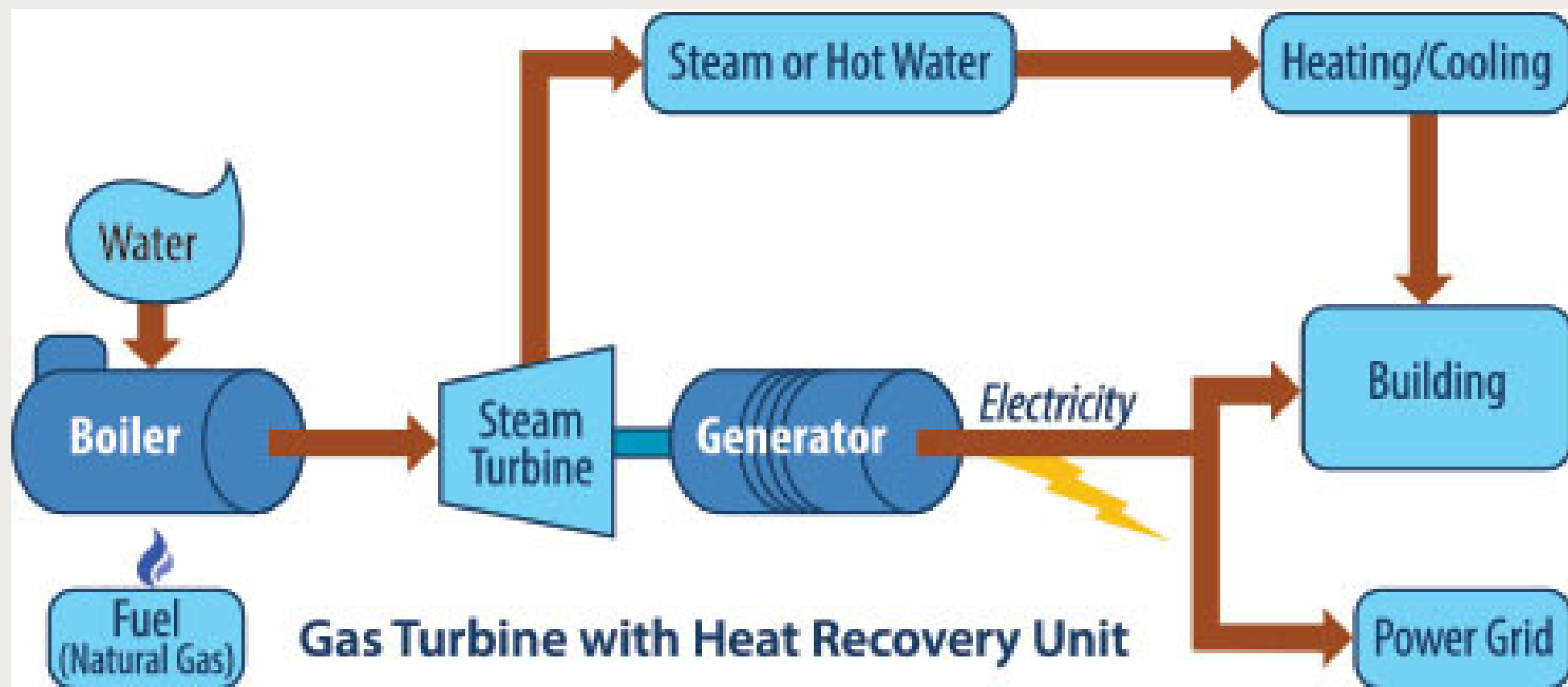


# CURRENT OPERATIONS



Power plant

4 gas boilers → High-pressure steam → Electric power



Grid Ties

# AMORTIZATION SCHEDULE



## Loan amortization schedule

### Enter values

Loan amount	\$10,000,000.00
Annual interest rate	7.00%
Loan period in years	10
Number of payments per year	1
Start date of loan	3/1/24

Optional extra payments \$0.00

### Loan summary

Scheduled payment	\$1,423,775.03
Scheduled number of payments	10
Actual number of payments	1
Total early payments	\$0.00
Total interest	\$4,237,750.27

### Lender name

Regional Bank of Nebraska

Payment number	Payment date	Beginning balance	Scheduled payment	Extra payment	Total payment	Principal	Interest	Ending balance	Cumulative interest
1	3/1/24	\$10,000,000.00	\$1,423,775.03	\$0.00	\$1,423,775.03	\$723,775.03	\$700,000.00	\$9,276,224.97	\$700,000.00
2	4/1/24	\$9,276,224.97	\$1,423,775.03	\$0.00	\$1,423,775.03	\$774,439.28	\$649,335.75	\$8,501,785.69	\$1,349,335.75
3	5/1/24	\$8,501,785.69	\$1,423,775.03	\$0.00	\$1,423,775.03	\$828,650.03	\$595,125.00	\$7,673,135.66	\$1,944,460.75
4	6/1/24	\$7,673,135.66	\$1,423,775.03	\$0.00	\$1,423,775.03	\$886,655.53	\$537,119.50	\$6,786,480.13	\$2,481,580.24
5	7/1/24	\$6,786,480.13	\$1,423,775.03	\$0.00	\$1,423,775.03	\$948,721.42	\$475,053.61	\$5,837,758.72	\$2,956,633.85
6	8/1/24	\$5,837,758.72	\$1,423,775.03	\$0.00	\$1,423,775.03	\$1,015,131.92	\$408,643.11	\$4,822,626.80	\$3,365,276.96
7	9/1/24	\$4,822,626.80	\$1,423,775.03	\$0.00	\$1,423,775.03	\$1,086,191.15	\$337,583.88	\$3,736,435.65	\$3,702,860.84
8	10/1/24	\$3,736,435.65	\$1,423,775.03	\$0.00	\$1,423,775.03	\$1,162,224.53	\$261,550.50	\$2,574,211.12	\$3,964,411.33
9	11/1/24	\$2,574,211.12	\$1,423,775.03	\$0.00	\$1,423,775.03	\$1,243,580.25	\$180,194.78	\$1,330,630.87	\$4,144,606.11
10	12/1/24	\$1,330,630.87	\$1,423,775.03	\$0.00	\$1,330,630.87	\$1,237,486.71	\$93,144.16	\$0.00	\$4,237,750.27



# MARKETING CAMPAIGN

## SOCIAL MEDIA

- Inform students by Instagram and Twitter to follow up on updates
- Building updates and progress photos
- Increase retention, enrollment by marketing new improvements
- Guiding the right audience to care for energy sustainability

## EMAIL/LETTER

- Inform students families
- Inform faculty
- Posted on the University website
- Adds value to the improvements and sustainability efforts