

# A Wind Powered Western

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# Executive Summary

- Western Washington University has goal of carbon neutrality by 2050.
- We propose the creation of a university wind farm to achieve this goal.
- Project targeted at financing research.



# Statement of Need

- With Western's current actions the climate action goal is simply unreachable.
- Western needs an efficient and productive way to offset their carbon based energy demands.



# Project Description

- Objective: Research and review financing strategies and options for such a project.
- Method: Analyze other university wind projects, and financing avenues.
- Goal: Present the viability of a university wind farm in effort to move project further

# Case Study

## Wild Horse Wind Farm (Kittitas County, WA)

- Located near Ellensburg (Central Washington)
- Consists of 149 wind turbines
- 10,000 acres
- Installed and operated by Puget Sound Energy
- 12 year payback period



# Case Study

## Whitman College (WA)

- Project owned and operates under Florida Power and Light Company (FPL)
- There are 70 wind turbines on Whitman property
- Whitman leases the land on wind farm to FPL
- Receives royalty payment about \$100,000 per year
- While Whitman leases the land and receives royalties for the electricity generated, the electricity is owned by FPL and is sold to the BPA.



# Case Study

## Luther College (Iowa)

- Project costed \$3.2 million
- Estimated 13 year payback period
- Funds:
  - \$500,000 grant from US Department of Agriculture
  - \$928,000 guaranteed loan under their Rural Energy for America Program
  - \$971,249 grant from US Treasury Department
  - Receives 476C tax credit for renewable energy, adds about \$50,000 per year to projects bottom line.





# Current Investment

- In 2005, Western implement a student fee to purchase \$50,000 of Renewable Energy Credits (REC)s yearly.
- Flaw in RECs is that they do not actually produce or pay for production of energy.
- Wind power is more productive than other methods.





# WWU generation requirements

- Western's current annual electricity usage is 36,000,000 kWh (kilowatt hours)
- A single turbine produces: 4,380,000 kWh/year
  
- In order to completely offset WWU's electricity usage we would need:
  - 8 (2 MW) wind turbines
  - Purchase and installation roughly costs: \$24 - \$32 million
  
- Land lease lasts 25-50 years
- Payment type:
  - \$5,000-\$8,000 royalty for every turbine
  - 3-5% of gross earnings



# Project Financing

A project such as this has multiple aspects involved in creating the complete final budget, including the following variables.

- Land Requisition
- Partnerships
- Type/Size of Farm
- Project Timeline



# Funding Avenues



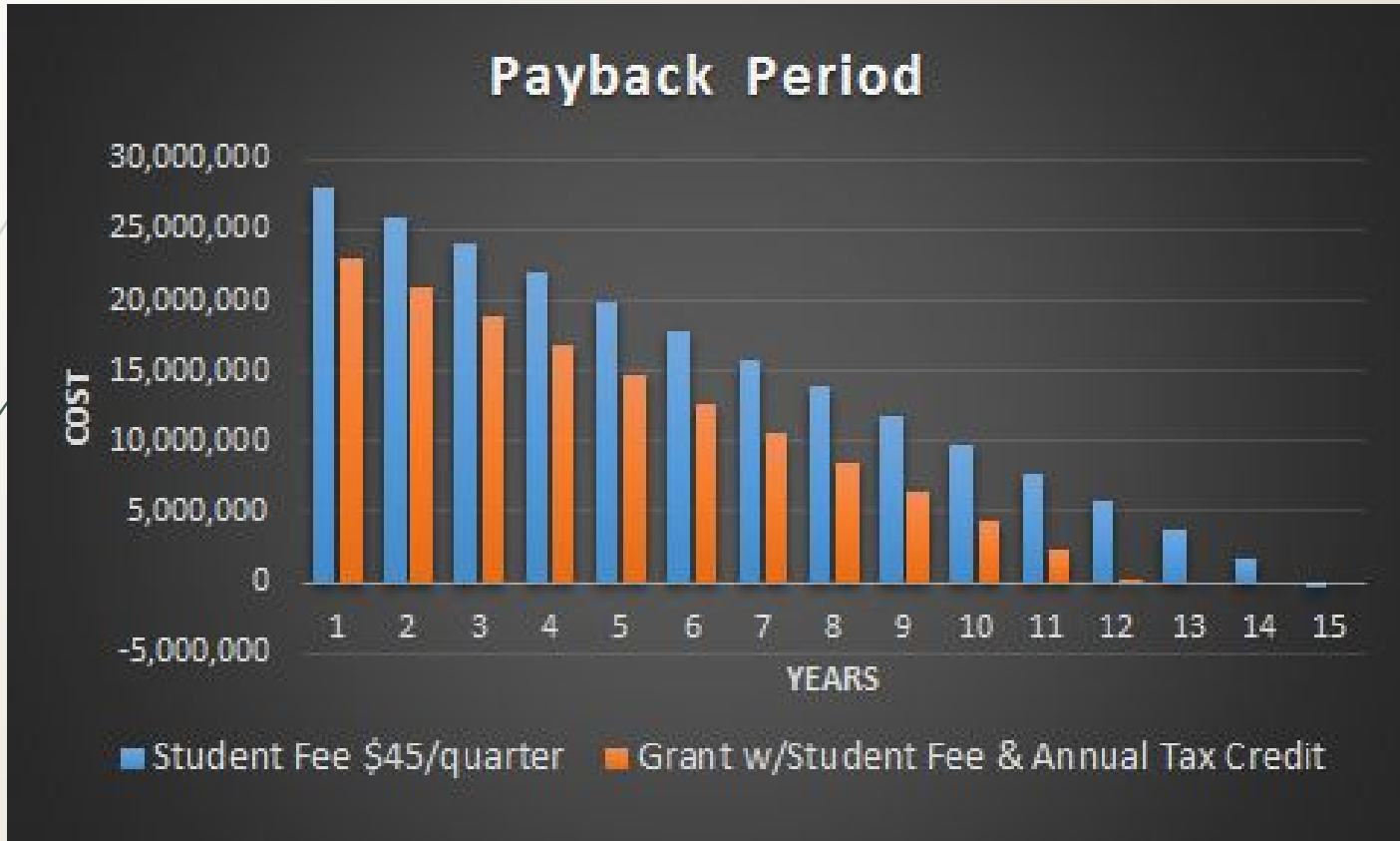
- State Funds:
  - WA Department of Commerce sponsored, Energy Efficiency and Solar Grant.
    - \$25 million to be allocated in years 2016/2017.
  - WSHFC Sustainable Energy Program (Loan):
    - loan options up to \$1 million for renewable projects, rolling acceptance.
- Federal Funds:
  - Renewable Energy Production Tax Credit (PDC):
    - Expected \$828 thousand tax credit for each year, 2016/17.
  - Renewable Energy Sales Tax Exemption:
    - 75% tax exemption for production machinery/turbine purchases in 2016/2017

# Wade King Student Rec Center

- Students pay quarterly \$99 recreation fee to help fund the REC Center.
- Fee mandatory in full-time tuition
  - Mostly goes unnoticed
- Initial cost of \$24,000,000, student participation reduced University investment considerably
- Highlights useful potential strategy for wind power student involvement.



# Payback Period





# University Benefits of Project Success

- Abundant Advertising and Marketing opportunities
  - Utilize completed research and project framework
  - Future sustainability management courses
  - Potential Sustainable agriculture courses
  - Potential Arts/Marketing projects
  - Field trip opportunity for many courses!
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# Measuring Success



- The success of a project of this stature shall be understood two ways:
  - Financially
  - Productivity



# Final Statement.

- As a key university decision maker, you have the opportunity, and the responsibility, to take action, move this project forward, and be a part of Western Washington University's successful sustainability promise.
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Thank you for your time.