



Power Purchase Agreements (PPAs) for U-M

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Direct vs. 3rd Party Ownership

- Directly buying solar/wind power involves taking on debt, not being able to monetize the ITC/PTC and depreciation tax benefits, paying O&M costs, and hiring/training expenses
- Private 3rd party ownership of renewable power means monetization of ITC/PTC and depreciation benefits, no debt, no O&M costs, no insurance expenses, and no sustained labor costs

PPAs Offer an Easy Transition

- 3rd party would construct, own, insure, operate, and maintain renewable energy project
- U-M would pay 3rd party predetermined rate for generated electricity; one currently or soon-to-be lower than utility rates (creating savings)
- U-M would maintain and retire renewable energy certificates (RECs) from generated renewable electricity to offset emissions
- PPAs can be onsite (U-M would actually receive and use electricity from nearby plant) or offsite/virtual (plant is built elsewhere and U-M takes credit for generated electricity using settlement transfer as explained on the right)

Other Institutions Are Signing PPAs

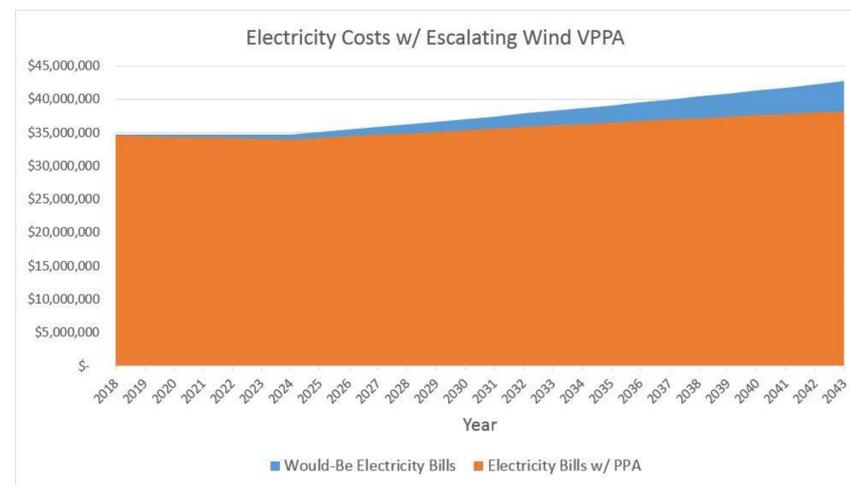
- Harvard, Stanford, OSU, MSU, Amazon, Apple, Bloomberg, Cisco, Dow Chemical, Facebook, Goldman Sachs, Google, Walmart, etc.
- These institutions are signing PPAs in order to **reap savings from renewable energy, meet their sustainability goals, improve their branding, help the environment, and satisfy stakeholders**

Student Survey

- We conducted a survey to assess student attitudes toward U-M using more renewables
- We found that **over 95%** of all students at U-M want to see the university use more renewable energy (n = 203)
- Also found median student would be willing to pay \$200/year extra in tuition and fees for U-M to go 100% renewable, although we informed students that tuition could possibly decrease if PPA was structured and financed properly

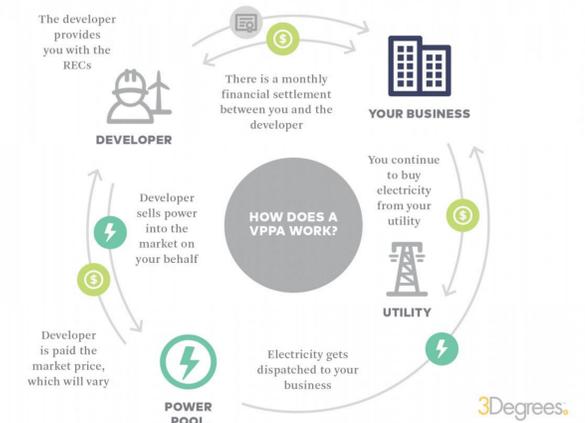
U-M's PPA Options

We created financial models for four different types of PPAs that U-M could sign that would offset the emissions from 100% of our purchased electricity. Projected cash flows of the most likely scenario, the offsite wind VPPA, are shown below. The models serve as tools to assess different rate structures and assumptions about future electricity price movements rather than to project savings with complete certainty.



Net present value = \$11,529,169
(Over 25 years, discounted at 9.7%,
immediate payback with day one
savings.)

Virtual PPAs



Source: 3Degrees Inc.

- Imagine “Your Business” is U-M
- If market price of electricity is above agreed-upon PPA rate, then excess received by developer is paid to buyer in a settlement transfer. If market price is below rate, then the buyer pays the difference to developer
- Could be an easy and profitable structure for U-M

Final Recommendations

- Signing a PPA could help U-M:
 - Potentially reap massive savings on electricity bills going forward
 - Easily meet 2025 emissions goal and even the goals of the Paris Agreement
 - Enhance its positioning and branding as a leader in sustainability
 - Create a culture of innovation
 - Mitigate the university’s contribution to climate change
- Leaders at DTE and the MPSC have already expressed interest in helping U-M sign a favorable PPA. There are multiple experienced PPA consulting/advisory services that could help as well, such as Renewable Choice Energy
- PPAs definitely **merit further investigation** by the university as an option to go 100% renewable or at least meet current emissions goals
- Please see our full PPA report for further explanations about PPAs, case studies, survey results, electricity price projections, others signing PPAs, our financial models for U-M’s options with detailed assumptions, and next steps for U-M to investigate PPAs

Questions? Comments? Want to read our full report? Please email gfaber@umich.edu