

STATUS REPORT
FY 20-21

X. 45% REDUCTION OF GREENHOUSE GAS EMISSIONS BY 2030





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Target Actions

- Electrify UW Transportation Services
- Plan to Repower the Seattle Campus
- Implement Campus Solar Plan

Sustainability Plan guiding principle



Decarbonize

AASHE STARS categories



BASELINE METRIC(S):

- Percentage of UW fleet vehicles are electric
- Completion of each listed FY21 step serves as a measure of progress

Q2 ACTIVITY:

We're close to hiring the Energy Program Leader, we've advanced the WCUP pilot project and are finalizing RFP for Readiness Study. We've refined the Revolving Fund proposal and will present it to OPB and the Provost soon. Transportation services continues to analyze capacity to convert the fleet to EVs. They are getting a quote for roof replacement that is PV compatible and quotes for EV chargers that can receive payment from users.

Q1 CHALLENGES ADDRESSED:

Getting a commitment to fund the fleet conversion and to fund the readiness study.

Action Owner:

Mike McCormick

Target Team:

Marilyn Ostergren, Jan Whittington
Norm Menter
George Donegan/Anne Eskridge and Eric Johnson

ACTION STATUS:



Action: Electrify UW Transportation Services



Action: Plan to repower seattle campus



Action: Implement campus solar plan



MITIGATING RISK:

The revolving fund can help mitigate the risk associated with lack of funding. For example, by helping us move forward with EV purchases and parts of the plant conversion.

NEXT QUARTER ACTION:

We plan to bring the Energy Leader on board, get approval for the Revolving Fund, publish an RFP for a consultant.



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AASHE STARS categories



STEPS STATUS:

Action 1: Electrify UW Transportation Services	Step 1:  Convert to electric vehicles	Step 2:  Develop vehicle charging infrastructure	Step 3:  Develop solar canopy infrastructure
Action 2: Plan to repower seattle campus	Step 1:  Hire energy program manager	Step 2:  Bring on an owner's advocate	Step 3:  WCUP pilot project
Action 3: Implement campus solar plan	Step 1:  Complete solar plan	Step 2:  Fund solar plan	



Note: Copy and Paste the appropriate 'status icon' into the upper right hand corner of each **step** above to complete the Steps Status.



ACTION:

Electrify UW Transportation Services



Steps we will take in FY 2021

1. Complete and approve a strategy for transitioning the UW Fleet to electric vehicles by 2030, excepting emergency maintenance vehicles. Anticipated completion: December, 2020.
2. Complete and approve a strategy, including funding mechanisms, to develop electric vehicle charging infrastructure across UW parking facilities by 2030. Anticipated completion: March, 2021.
3. (concurrent with Step 2) Review and approve a strategy and funding methodology for developing solar canopy infrastructure on campus parking assets by 2030. Anticipated completion: March, 2021.

Statuses and linkages

Analysis of the opportunity to electrify the UW Seattle fleet and parking services, and capacity for parking to house solar canopies, has been completed, and a report will be released for review in Fall, 2020. The same analysis can be applied to the Bothell and Tacoma campuses in Fall, 2020. There are linkages between these targets and actions, and the goal of reducing commuting to campus via single occupancy vehicle.

Financing

🔍 Electric vehicles will be gradually added to the UW Fleet as older vehicles are retired. Steps 2 and 3, the development of charging infrastructure and solar canopies respectively, will require capital investment, but can recover cost through surcharges on the electricity delivered to plugged-in EVs. Seed funding will be required for the first two biennia (four years), but thereafter electric sales revenue can be used to continue expanding buildout of chargers and canopies in the form of a revolving fund.

Full buildout of 14 MW of solar is estimated to require a total \$28 - \$30 million in capital expenditures plus an additional \$438,000 for electrical distribution upgrades. Besides the funding stream from electric surcharges, we forecast \$46 - 48 million in cost avoidance from vehicle fuels.

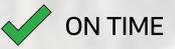
Metrics

Progress toward completion of the Action will be measured by:

- Percentage of UW fleet vehicles that are plug-in electric vehicles. Plug-in hybrid electric vehicles will be included in the count.
- GW of charger-connected solar capacity.
- Percentage of parking spaces having charger access.

This Action can gain points in STARS credits OP-6 *Clean & Renewable Energy* where UW shows a point gap of 3.93.

3.93 AAHSE STARS
POINTS OPPORTUNITY

SOME
PROGRESS

Electrify UW Transportation Services

STEP 1: Convert to electric vehicles

Complete and approve a strategy for transitioning the UW Fleet to electric vehicles by 2030, excepting emergency maintenance vehicles. Anticipated completion: December, 2020.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

Fleet Services assets are given a lifecycle of 10 to 12 years. Fleet Services reviewed the current 694 fleet assets based on vehicle class and determined how many of those could be replaced with an electric/plug-in electric model during their expected replacement cycle.

Fleet Services investigating potential all-electric Kenworth box truck options to support moving and surplus division.

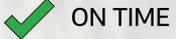
Fleet Services continued to collect data on the current 81 electric (EV/PHEV) assets.

CHALLENGES ENCOUNTERED OCT - DEC:

Due to the COVID-19 pandemic, all fleet vehicle replacements are on-hold. No planned acquisitions/replacements planned for the FY22 budget cycle.

PLAN FOR JANUARY - MARCH 2021:

Fleet Services will continue to assist University clients with their vehicle assets needs and evaluate the ability to leverage existing EV/PHEV assets to meet their business needs.

SOME
PROGRESS

Electrify UW Transportation Services

STEP 2: Develop vehicle charging infrastructure

Complete and approve a strategy, including funding mechanisms, to develop electric vehicle charging infrastructure across UW parking facilities by 2030. Anticipated completion: March, 2021.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

Fleet Services is working with UW Facilities for a quote for a roof replacement at Fleet Services that could support solar panels that in turn would generate power for use in Fleet EV vehicles.

Fleet Services is working with a state vendor to convert the existing public EV chargers in South Campus, Central Plaza Garage, N22, and N5 to smart chargers.

CHALLENGES ENCOUNTERED OCT - DEC 2020:

Fleet Services in partnership with SCL determined that the current electrical distribution point at Fleet Services could not support a Level 3 Fast Charger.

Fleet Services will continue to utilize the existing 3 Level 2 Charging Stations to support EV/PHEV vehicles at Fleet and Shuttle Operations.

PLAN FOR JANUARY - MARCH 2021:

Fleet Services will investigate the potential for bringing mobile charging to EV vehicles throughout campus utilizing the Mobi EV Charger from FreeWire Technologies.



NO
PROGRESS



ON TIME



SOME
PROGRESS

Electrify UW Transportation Services

STEP 3: Develop Solar Canopy Infrastructure

(concurrent with Step 2) Review and approve a strategy and funding methodology for developing solar canopy infrastructure on campus parking assets by 2030. Anticipated completion: March, 2021.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

None

CHALLENGES ENCOUNTERED OCT - DEC 2020:

Put energy into other actions

PLAN FOR JANUARY - MARCH 2021:

This will depend upon the implementation of the Revolving Fund.

METRICS & LINKAGES:

Analysis of the opportunity to electrify the UW Seattle fleet and parking services, and capacity for parking to house solar canopies, has been completed, and a report will be released for review in Fall, 2020. The same analysis can be applied to the Bothell and Tacoma campuses in Fall, 2020. There are linkages between these targets and actions, and the goal of reducing commuting to campus via single occupancy vehicle

METRICS:

Fill in text box

LINKAGES:

Fill in text box

ACTION:

Plan to Repower the Seattle Campus



Steps we will take in FY 2021

1. Hire an Energy Program Manager with the engineering and finance qualifications to oversee the heating plant and district energy renewal from start to finish.
2. Issue an RFP for, and contract, a consultant (owner's advocate) capable of helping UW select the best mix of technologies for the Seattle campus.
3. Develop engineering scope and funding pathway for a pilot project to use waste condenser heat from the West Central Utility Plant to reduce steam heating in nearby buildings.

Statuses and linkages

In March 2020, UW Facilities issued a Request for Information (RFI) to solicit ideas from experts around the country for planning, building, and financing a low-carbon energy system. These responses are currently being reviewed by the Energy Roadmap Team which includes support from the Engineering Services and UW Sustainability departments.

Several other universities have completed or launched similar projects. Stanford University recently completed a new combined heating and cooling plant that is perceived as a particularly successful example. The new Stanford plant, when combined with solar power procurement, reduced Stanford GHG emissions by about 72 percent from its peak levels.

Financing

 A thorough review of the engineering and financial options is needed before assigning a budget estimate to such a large scale project. UW is targeting development to start in 2023, with first phase completion in 2028.

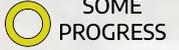
Metrics

- Completion of each listed FY2021 Step shall serve as the measure of progress during FY2021.

Decarbonization (whether partial or total) of the Seattle campus central heating & cooling system will gain points in STARS credits OP-2 *Greenhouse Gas Emissions* where UW shows a point gap of 3.91. Depending on the fuel used for energy generation, the project may also gain points toward OP-6 *Clean & Renewable Energy* where UW shows a point gap of 3.93.

3.91 AAHSE STARS POINTS OPPORTUNITY

3.93 AAHSE STARS POINTS OPPORTUNITY



Plan to Repower the Seattle Campus

STEP 1: Hire Energy Program Manager

Hire an Energy Program Manager with the engineering and finance qualifications to oversee the heating plant and district energy renewal from start to finish.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

Executive Team reviewed ~16 resumes and interviewed 8 of the top candidates. The team looked for experience in change with significant capital investment (could be in any setting). Looked for experience in operating, planning & implementing. The 2 candidates who met all of the criteria are being interviewed by a range of people from Facilities, Treasury and Faculty.

CHALLENGES ENCOUNTERED OCT - DEC 2020:

We will try to ensure the final pick is someone who is committed to diversity, equity and inclusion.

PLAN FOR JANUARY - MARCH 2021:

If we select one of the two top candidates, the final pick will be brought on board and brought up to speed. If we reject both candidates, we'll go back to Opus and cast a wider net.

NO
PROGRESS

ON TIME

SOME
PROGRESS

readiness consultant

STEP 2: Bring on an ~~owner's advocate~~

Issue an RFP for, and contract, a consultant (~~owner's advocate~~) capable of helping UW select the best mix of technologies for the Seattle campus.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

We are finalizing an RFP for a Readiness Study to help us with the preparatory work that will support the Energy Leader:

- Facilitate a consensus building process to produce a Vision/Goals/Priorities Statement
- Analyze the UW Financing History & Capacity
- Conduct a stakeholder analysis

We're working to turn this into an RFP.

CHALLENGES ENCOUNTERED OCT - DEC 2020:

Our major challenge is that no money has been earmarked for this individual.

PLAN FOR JANUARY - MARCH 2021:

Seek funding.
Publish the RFP.
Select a candidate.

NO
PROGRESS

ON TIME

SOME
PROGRESS

Plan to Repower the Seattle Campus

STEP 3: WCUP Pilot Project

Develop engineering scope and funding pathway for a pilot project to use waste condenser heat from the West Central Utility Plant to reduce steam heating in nearby buildings.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

The project is well defined and scoped. The initial engineering work is complete.
We've identified the Revolving Fund as a source of capital for the additional cost of purchasing a chiller that will produce hot water from waste heat.
We are working to apply for an Energy Efficiency Grant from the Department of Commerce

CHALLENGES ENCOUNTERED OCT - DEC 2020:

The capital request for the biennium does not include money for this

PLAN FOR JANUARY - MARCH 2021:

We will continue to seek funding and work on the Energy Efficient Grant application.

METRICS & LINKAGES:

In March 2020, UW Facilities issued a Request for Information (RFI) to solicit ideas from experts around the country for planning, building, and financing a low-carbon energy system. These responses are currently being reviewed by the Energy Roadmap Team which includes support from the Engineering Services and UW Sustainability departments. Several other universities have completed or launched similar projects. Stanford University recently completed a new combined heating and cooling plant that is perceived as a particularly successful example. The new Stanford plant, when combined with solar power procurement, reduced Stanford GHG emissions by about 72 percent from its peak levels.

METRICS:

We are in the planning stages so the work we've done has not yet had an impact on our emissions.

LINKAGES:

Fill in text box

ACTION:

Implement Campus Solar Plan



Steps we will take in FY 2021

1. UW Solar Group will complete a plan and strategy for developing solar assets on the buildings of the three campuses by 2030. Anticipated completion: December 31, 2020.
2. Review and approve the strategy, with funding mechanisms, for developing solar assets on campus buildings by 2030. Anticipated completion: March 31, 2021.

Statuses and linkages

Solar installations on UW campuses also reduce building energy usage intensity, and can be integrated into thermal systems for compounded savings. On the Seattle campus, solar energy reduces the peak load demand for electricity, buying time to make larger scale investments needed to decarbonize the power plant. UW hosts solar photovoltaics developed by the UW Solar Group, part of the UW Clean Energy Institute, on the Mercer A Apartments (35 kW), Alder Hall (50 kW), Elm Hall (25 kW), Maple Hall (25 kW), the Life Sciences Building (105 kW), in rooftop and solar shading fins). In addition, research and student projects have resulted in arrays on the IMA Building, Merrill Hall, Power Plant roof, and the Mechanical Engineering Building. University of Washington's Bothell campus also hosts 122 kW of solar photovoltaic, on the library building and parking garages.

Financing

 The capital cost of systems envisioned for the Campus Solar Plan is estimated to be \$26-28 million, while the cost savings from avoided utility payments are estimated to be \$55 million over the 25 years of the warranted life of these solar assets. Solar, with reduced utility costs as returns on investment, fit the parameters for finance with a revolving fund. There is also potential for investments from local utilities, the U.S. Department of Energy, donors, or other parties.

AASHE STARS Scoring

This Action may impact STARS credit OP-5 *Building Energy Efficiency* where UW shows a points gap of 2.16.

2.16 AASHE STARS
POINTS OPPORTUNITY

NO
PROGRESS

ON TIME

SOME
PROGRESS

Implement Campus Solar Plan

STEP 1: Complete Solar Plan

UW Solar Group will complete a plan and strategy for developing solar assets on the buildings of the three campuses by 2030. Anticipated completion: December 31, 2020.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

UW Solar students have continued to work on the plan. Over the holiday break the faculty advisor (Jan Whittington) will review all of the work the students have been doing, with the aim of completing a first rough draft for distribution by January 15. The students have rough drafts of text and graphics for almost every chapter regarding the Seattle Campus. And they've just started reviewing facilities data to conduct analyses for the other campuses (and other off-campus assets, like for example the feasibility study we are wrapping up now for Manastash Ridge Observatory).

CHALLENGES ENCOUNTERED OCT - DEC 2020:

Extra burdens of COVID-19 for faculty and students.

PLAN FOR JANUARY - MARCH 2021:

Work on the plan for non-Seattle UW facilities. We need to look at what our electrical grid needs. Where are there opportunities to leverage distributed assets and avoid investments in our electrical distribution. This will be part of a larger Utilities Master Plan effort. We have not identified funding for this work.

NO
PROGRESS

ON TIME

SOME
PROGRESS

Implement Campus Solar Plan

STEP 2: Fund Solar Plan

Review and approve the strategy, with funding mechanisms, for developing solar assets on campus buildings by 2030. Anticipated completion: March 31, 2021.

ACTIONS THAT OCCURRED/ONGOING OCT - DEC 2020:

The funding source will be the revolving fund. The Revolving Fund team has continued to refine the underlying model (in the form of an Excel file), and corresponding slide deck in preparation for presentation to the Provost and OPB.

CHALLENGES ENCOUNTERED OCT - DECEMBER 2020:

The Revolving Fund has required significant effort, but it continues to move forward.

PLAN FOR JANUARY - MARCH 2021:

This year we should put a specific plan together so we can turn the solar plan into a requirement. We plan to present the Revolving Fund concept to the Provost OPB, get their approval and agreement to return utility savings to the fund, and launch the fund.

METRICS & LINKAGES:

Solar installations on UW campuses also reduce building energy usage intensity, and can be integrated into thermal systems for compounded savings. On the Seattle campus, solar energy reduces the peak load demand for electricity, buying time to make larger scale investments needed to decarbonize the power plant. UW hosts solar photovoltaics developed by the UW Solar Group, part of the UW Clean Energy Institute, on the Mercer A Apartments (35 kW), Alder Hall (50 kW), Elm Hall (25 kW), Maple Hall (25 kW), the Life Sciences Building (105 kW), in rooftop and solar shading fins). In addition, research and student projects have resulted in arrays on the IMA Building, Merrill Hall, Power Plant roof, and the Mechanical Engineering Building. University of Washington's Bothell campus also hosts 122 kW of solar photovoltaic, on the library building and parking garages.

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