

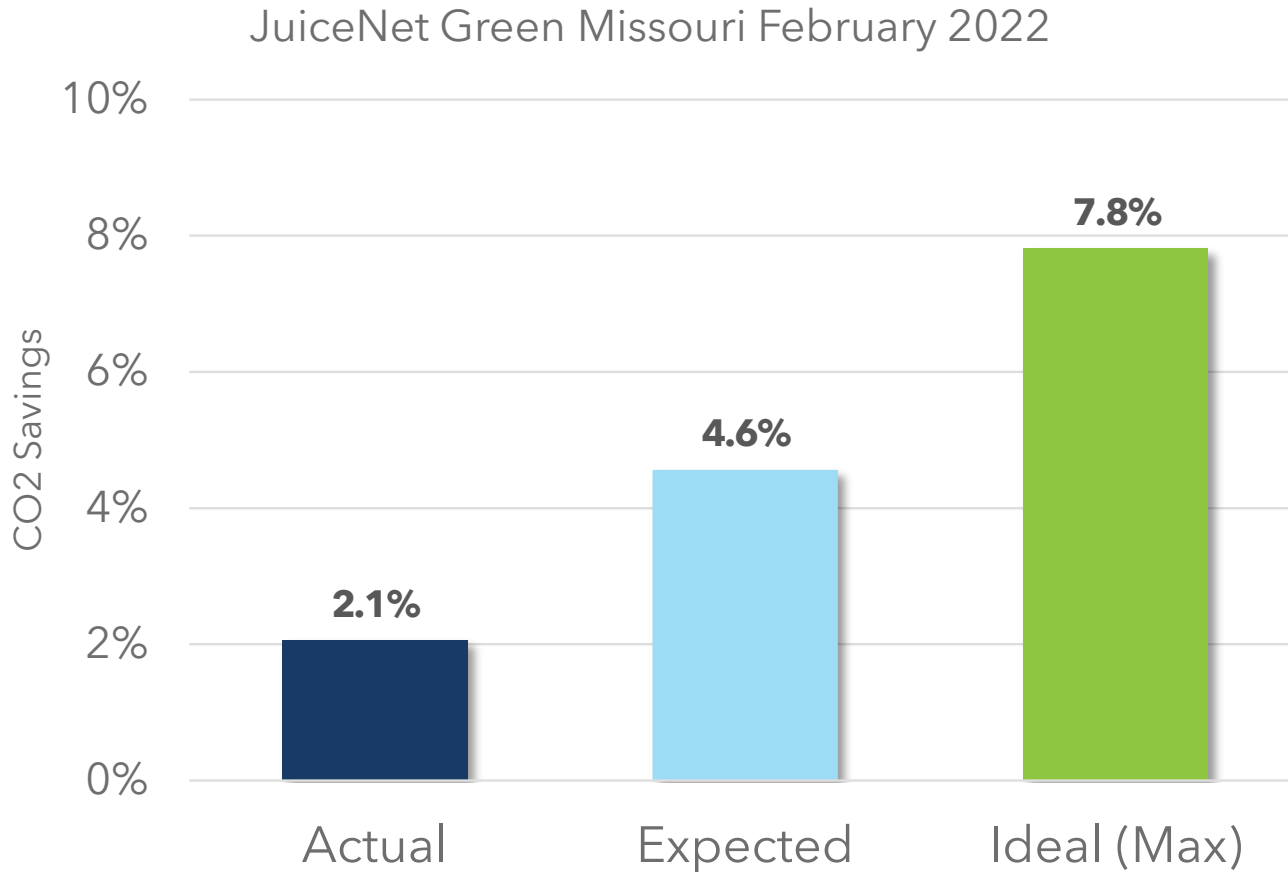
Ameren Pilot for EV Charging with Automated Emissions Reduction

2022-Q1 Update



Pilot Update: Results (Feb only)

Monthly Savings Summary



Key Results Last Month

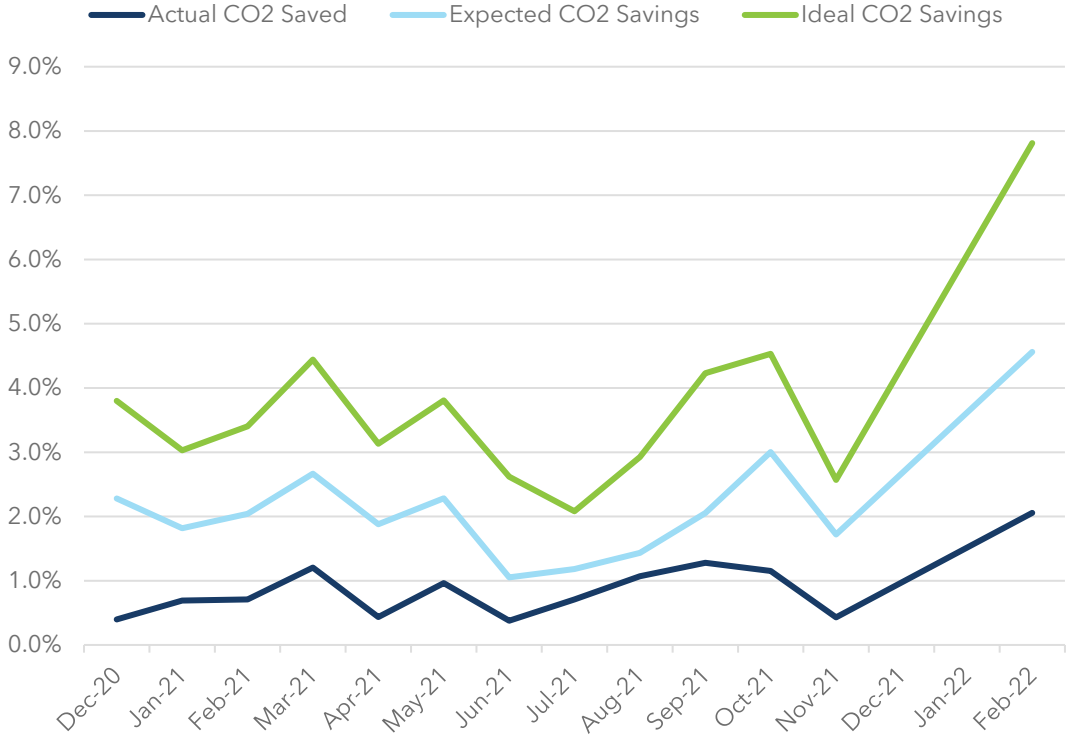
Metric	Value
# of Active Users	37
# of Sessions	607
Highest Actual Savings in a Session	99.6%
CO2 saved in month	218 lbs

JuiceNet Green was deactivated for December and January, so performance was not evaluated

"Expected" means the performance that could be achieved under the circumstances and constraints. This accounts for the WattTime emissions forecast performance and JuiceNet Green algorithm/options. In this case "Expected" is set to the best performing user during this period corrected for average session flexibility of all users.

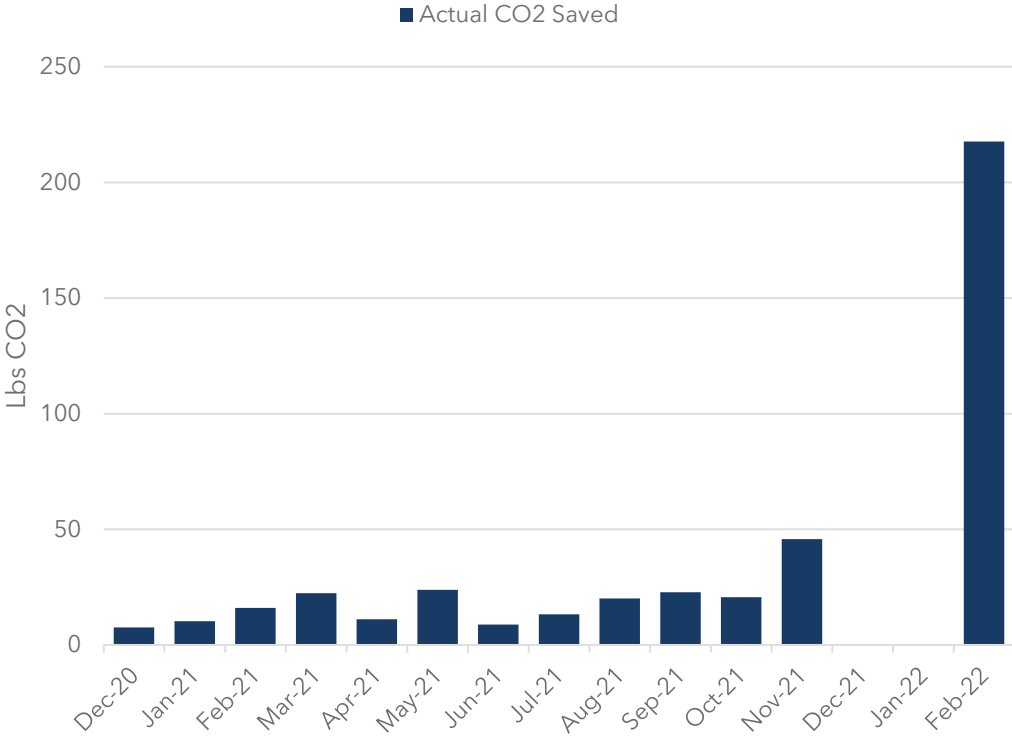
Performance Trends

Ameren JuiceNet Green Pilot Performance



Performance greatly improved in Feb 2022

Ameren JuiceNet Green Pilot Performance



Actual CO2 saved was higher in Feb 2022

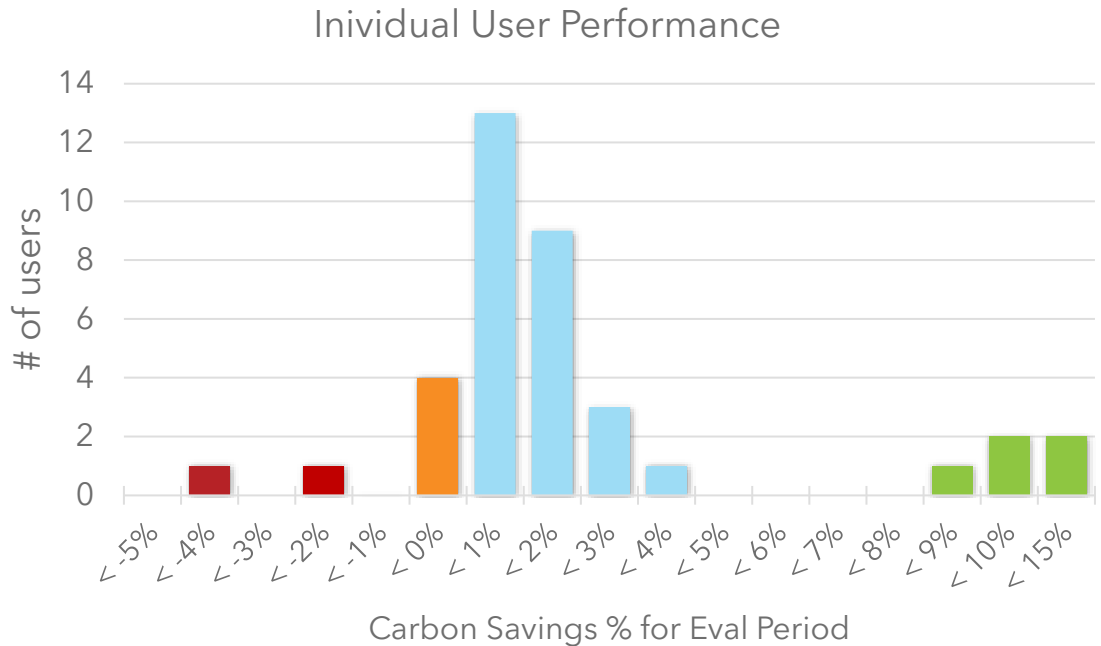
"Ideal CO2 Savings" represents the best-case savings opportunity, i.e. perfect forecast.



Pilot Expansion / User Engagement

Missouri-wide Pilot Expansion

- Enrollment
 - 270 JuiceBox Owners targeted
 - 43 total enrollees (16%)
 - Opt-outs: 2
- Engagement
 - **Outliers & underperformers** might not be inputting their charging needs into the app, or are overriding by choosing "charge now"



A 2nd introductory email was sent to enrolled users with more in-depth instructions for using the JuiceNet app on March 10.

Performance by Grid Region

Higher performance in SPP

- This pilot now includes users in a variety of grid regions; it now has 7 users in SPP.
- The SPP grid has much higher variability in marginal emissions rates (more wind curtailment)
- Unsurprisingly, the CO2 savings performance is much higher in the SPP regions

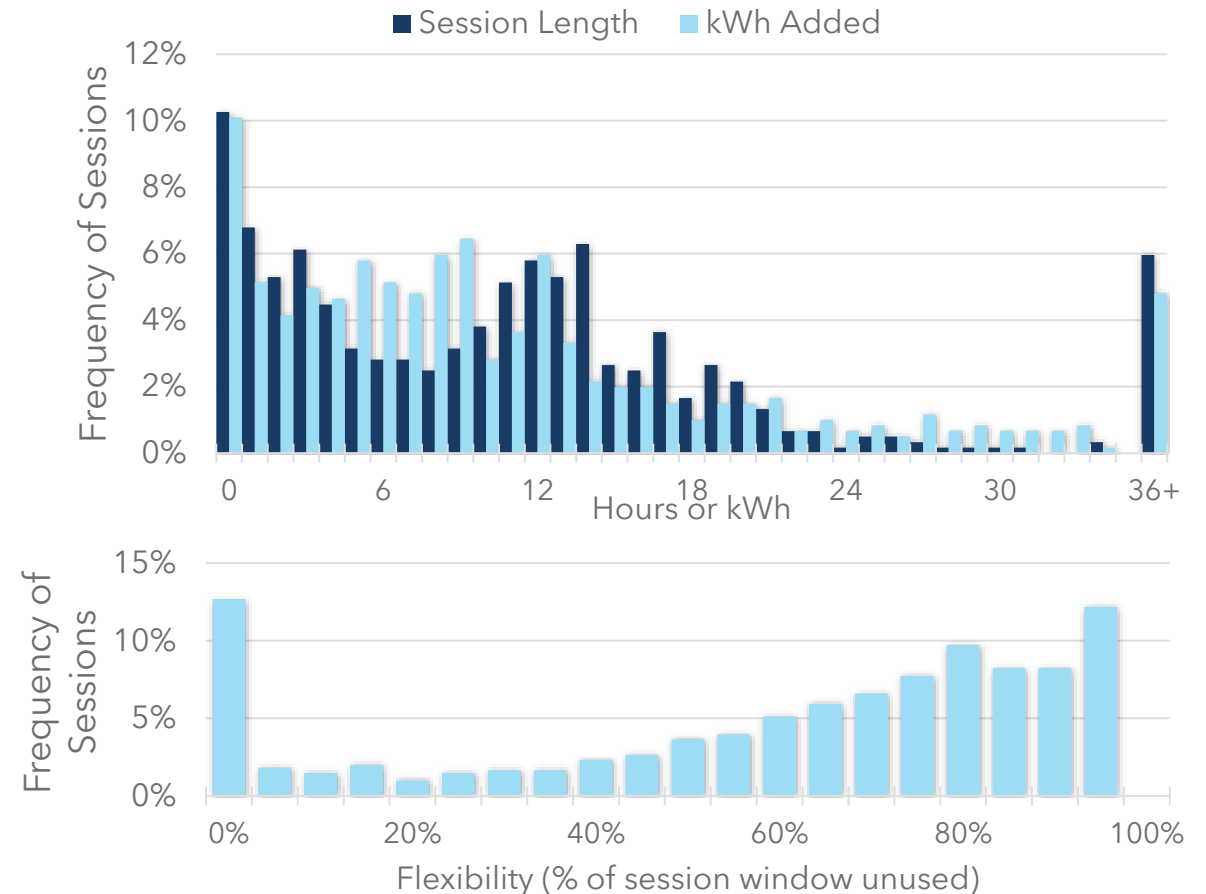
Grid Region	Count	Avg Actual Savings	Avg Ideal Savings	Total CO2 Saved	CO2 Saved per driver
MISO_SAINTE LOUIS	29	0.8%	4.1%	76	2.6
SPP_KC	5	5.2%	30.2%	106	21.3
SPP_SPRINGFIELD	2	4.5%	18.5%	23	11.5
PNM	1	13.3%	20.3%	12	12.0

PNM (New Mexico) was assigned to 1 user during enrollment, and their charger was controlled according to emissions rates in that grid region, so we evaluated performance also using that grid region.

Charging Activity Summary: February 2022

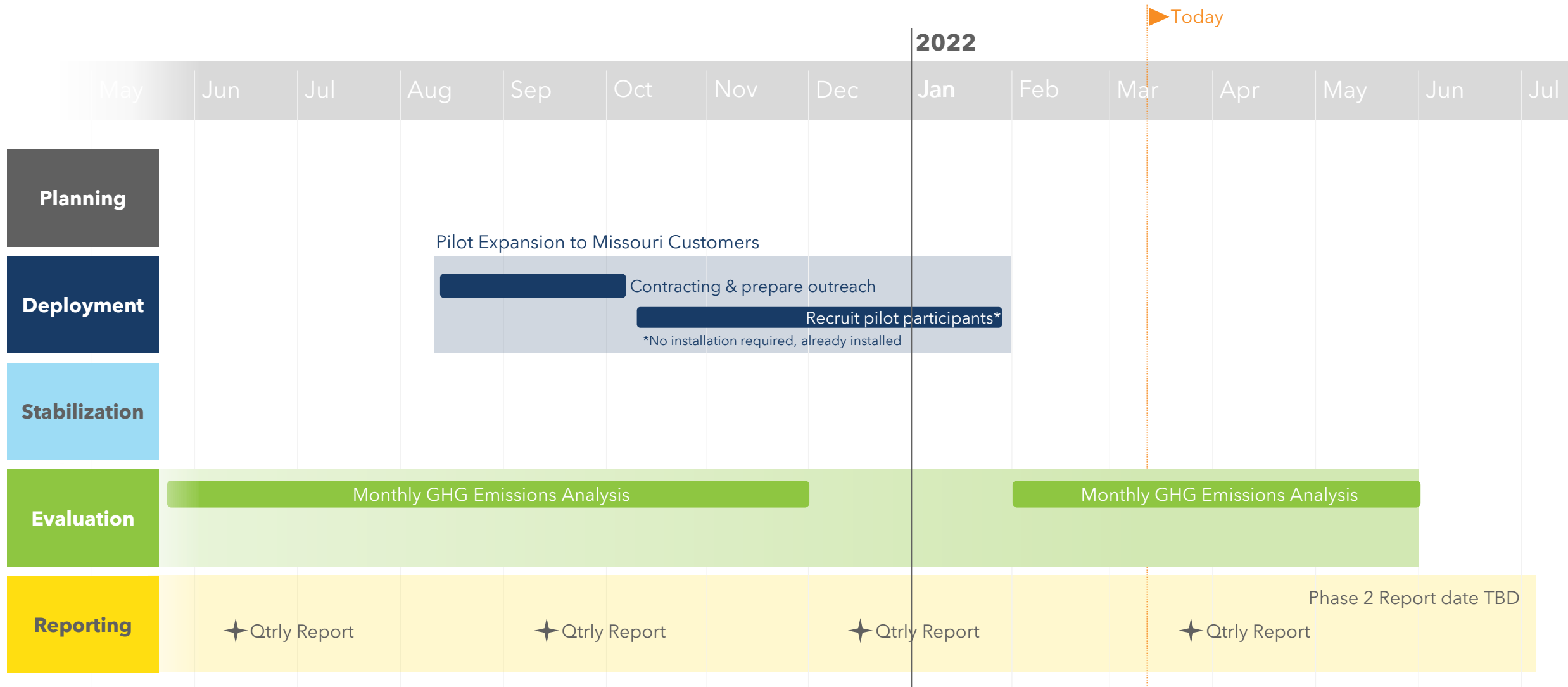
Charging Activity Summary

Population (Active in period)	37
# of Sessions	607
Plug-IN Time (most frequent)	5:00 PM to 6:00 PM
Plug-OUT Time (most frequent)	7:00 AM to 8:00 AM
Avg Session Length	12.6 Hours
Avg Charge Duration	2.8 Hours
Avg Flexibility	78%
Avg Charge Rate	4.2 kW
Avg Energy Added	11.8 kWh
Avg Miles Added	40 Miles



Note: Overall activity for this wider population looks very similar to the Q4 activity for Ameren employees. Active users includes 4 Ameren employees, and 33 new expansion users.

Pilot Timeline (Draft/Proposed)



Discussion of Results and Next Steps

Results Discussion

- Factors for low performance:
 - User overrides JuiceNet Green
 - User doesn't use the app
 - MISO grid has relatively low emissions rate variability
- Factors for high performance
 - SPP grid regions have high emissions rate variability

Next Steps

1. After receiving further instructions, hopefully users engage better with the app
2. WattTime will get assigned grid regions from Enel X and re-validate Feb analysis
3. WattTime can prepare a Q1 2022 briefing if needed.
4. Continue with monthly analysis through the end of May
5. WattTime and Enel X will consider sending a monthly performance report to participants to motivate them to engage
6. A user survey is planned towards the end of phase 2.

Thank You

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