

West Linn City Government Baseline Energy Audit

Introduction and Scope

In 2021, the West Linn City Council adopted the *Amended Sustainable West Linn Strategic Plan* as prepared by the West Linn Sustainability Advisory Board. This plan outlined a series of goals that West Linn should pursue to increase sustainability within the city, with a specific goal to reduce greenhouse gas emissions in existing city facilities and operations by 80% by 2040. Pursuant to this, the West Linn Sustainability Advisory Board has prepared an audit of the City's emissions during the years 2020, 2021, and 2022 to serve as a baseline against which these reductions targets can be measured.

In the following sections, we detail the emissions arising from the City's facilities and operations from three primary sources: those from electricity generation, the burning of natural gas, and the consumption of liquid transportation fuels. All data was obtained through public records requests and is included in the attached appendices. Emissions estimates are rounded to the nearest metric ton.

Electricity Usage

In 2020, 2021, and 2022 the average electricity consumption from West Linn's City-owned facilities was 2,771.7 MWh*. The USEPA's Power Profiler utility allows users to estimate the carbon intensity of electricity production in their region. West Linn lies within the Northwest Power Pool, (NWPP), which has an average per-MWh emissions intensity of 634.6 lbs of carbon dioxide equivalents per MWh of electricity production¹. With this, we estimate a baseline of 1,758,907 pounds (798 metric tons) of carbon emissions equivalents per year from the City's use of electricity.

*Please refer to Appendix A for more detailed information about the City's electricity consumption.

Natural Gas Usage

In 2020, 2021, and 2022 the average natural gas consumption from West Linn's City-owned facilities was 24,235 therms per year (2,423,500 cubic feet)*. The USEPA reports that each therm of natural gas consumption produces 0.0053 metric tons of carbon emissions equivalents. With this, we estimate a baseline of 128 metric tons of carbon emissions per year from the City's natural gas use.

* Please refer to Appendix B for more detailed information about the City's natural gas consumption.

Transportation Fuels

The City of West Linn purchases both unleaded fuel and biodiesel for its operations. In 2020, 2021, and 2022, the City purchased approximately 41,070 gallons of unleaded gasoline per year and 13,400 gallons of biodiesel per year*. The USEPA calculates that each gallon of unleaded gasoline produces 8.887 kg of carbon emissions equivalents, and each gallon of diesel produces 10.18 kg of carbon emissions. For West Linn, this equates to an average annual greenhouse gas contribution of 365 metric tons of carbon emissions equivalents from unleaded gasoline consumption and 137 metric tons of carbon emissions equivalents from biodiesel consumption. Combined, we estimate a baseline of 502 metric tons of carbon emissions equivalents per year from the use of liquid transportation fuels.

*Please refer to Appendix C for more detailed information about the City's transportation fuels consumption.

Conclusion

The comprehensive audit conducted by the West Linn Sustainability Advisory Board provides a clear and detailed overview of the carbon emissions from the City of West Linn's operations over the years 2020, 2021, and 2022. The audit focuses on three primary sources: electricity, natural gas, and liquid transportation fuels. The findings reveal a baseline average annual carbon emission equivalent of 1,428 metric tons, broken down into 798 metric tons from electricity, 128 metric tons from natural gas, and 502 metric tons from liquid transportation fuels.

When considering the overarching goal set by the West Linn City Council to reduce greenhouse gas emissions in existing city facilities and operations by 80% by 2040, these baseline figures provide a crucial starting point. The data compiled not only allows for a quantifiable target but also highlights specific areas where the greatest impact can be made. For instance, the substantial emissions from electricity usage suggest a potential area of focus for implementing more sustainable energy solutions.

Moreover, the findings underscore the significance of continued monitoring and strategic planning in the pursuit of the city's sustainability goals. With a detailed understanding of the current emission levels, West Linn is better equipped to develop effective strategies and policies to achieve the ambitious reduction targets.

In summary, the West Linn City Government Baseline Energy Audit sets a benchmark for future sustainability efforts. By quantifying the current emission levels, it lays the groundwork for informed decision-making and targeted action plans aimed at significantly reducing the city's carbon footprint, aligning with the broader vision of a sustainable and environmentally responsible West Linn.

Total Carbon Emissions Equivalents:

- Electricity: 798 metric tons
- Natural Gas: 128 metric tons
- Liquid Transportation Fuels: 502 metric tons
- Total: 1,428 metric tons

References

¹<https://www.epa.gov/egrid/power-profiler#/NWPP>

²<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>