

by PSE, however this fuel source represented only 28.0 percent of the CO₂ emissions from electricity generated by PSE. Renewable power accounted for 23.2 percent of the electricity generated by PSE, and produced zero CO₂ emissions.

Compared to 2016, total electricity delivered to customers in 2017 was down by 7.6 percent, and total emissions were up by 0.3 percent. This trend is largely due to PSE dispatching less of its owned generation (coal, gas and renewable) with more purchased energy being delivered into PSE's system under firm contract, but less from the spot market. In addition, emissions from PSE's owned generating sources were down in 2017 for several reasons including: marginally less dispatch of PSE's coal-based Colstrip Generating Station (emissions down 3.4%); more deliveries from firm contracted resources (emission up 29.5%); less PSE gas generation (emissions down 7.6%); and less deliveries of purchased unspecified energy (emissions down 22.7%).

In 2017, PSE purchases of electricity delivered to customers made up for less thermal generation from the company's owned units. Firm deliveries were up by 8.1 percent and unspecified deliveries (i.e. spot market) were down by 39.2 percent. Firm thermal purchases come from four contracted sources: BC Hydro, BPA, BPA WNP#3, and Centralia ("Market & Coal"). Firm deliveries from BC Hydro, BPA, BPA WNP#3, and "Centralia Market" are assigned a system emissions rate due to a market option in the contract structure. Firm deliveries from "Centralia Coal" are assigned a calculated rate pursuant to the methodology described below under *Centralia Coal Transition Power* and in Appendix 2. While unspecified purchased electricity decreased by 39.2 percent, emissions from unspecified purchased electricity only decreased by 22.7 percent because a higher emission factor was used for the NWPP (1,004 lb/MWh in 2017 versus 895 lb/MWh in 2016) and for PSE-Firm PPA deliveries (1,092 lb/MWh in 2017 versus 1,046 lb/MWh in 2016).

Trends Discussion

An interesting trend to note is that the relative amount of GHG emissions from the electricity sources did not align with the amount of power produced from each electricity source. This is due to several factors related to the intensity of emissions from each source. Again, emission intensity is the relationship between CO₂ emissions and power production, i.e., pounds CO₂/kWh.

For example, about 40.8 percent of the electricity generated by PSE came from coal combustion, which has a high CO₂ emission intensity compared to natural gas and oil combustion sources. Of CO₂ emissions from electricity generated by PSE (direct emissions), about 72.0 percent were from coal-combustion generation. It is the high CO₂ emission intensity of coal-combustion generation that made the overall CO₂ emission intensity of PSE's electric operations high.