Docket Number:	09-AFC-07C
Project Title:	Palen Solar Power Project - Compliance
TN #:	202506
Document Title:	Ex.1157 - Anthropogenic Sources of Avian Mortality
Description:	N/A
Filer:	Marie Fleming
Organization:	Galati Blek LLP
Submitter Role:	Applicant Representative
Submission Date:	6/23/2014 4:36:55 PM
Docketed Date:	6/23/2014

Exhibit 1157. Anthropogenic sources of avian mortality and associated estimates of the number of birds killed per year.

Causes of Mortality	Number of avian fatalities (birds/year) a, b
Cats	1.4 – 3.7 billion
Buildings and Windows	98 - 980 million
Power lines	tens of thousands - 174 million
Vehicles/roads	89 - 340 million
Communication Towers	6.8 million
Oil Field Wastewater Disposal Facilities	500,000 - 1 million
Wind Turbines	209,059 - 330,010 ^c
Other (Lead poisoning, power plant	
discharge ponds, fences, fishing nets,	Not quantified, but likely very high
oil spills, parking lots, aircraft)	

^a Small passerine-specific estimates were not available for non-turbine collision sources.

^b Sources include Loss et al. (2013; cats), Klem (2009); buildings and windows), Loss et al. 2014, Longcore et al. (2012; communication towers), USFWS (2009; oil field wastewater disposal facilities, Erickson et al. (2014 *in review;* wind turbines); and Dolbeer et al. (2009; aircraft).

^c Based on the least and most conservative bias-adjusted estimate of annual fatalities of small passerine (130,662 and 206,256) and the proportion of all fatalities that small passerines made up in analyzed studies (62.5%) (Erickson et al. (2014 *in review*).