Plasma turbulence is thought to be associated with various physical processes involved in solar flares, including magnetic reconnection, particle acceleration, and transport. However, there is no or very limited observational knowledge of turbulence in flares. Using RHESSI observations and the X-ray visibility analysis, I will present the recent results on the spatial and spectral distributions of energetic electrons in a flaring loop. Energy-dependent transport of tens of keV electrons will be discussed both along and across the guiding magnetic field of the loop. We show that the cross-field transport is consistent with the presence of magnetic turbulence in the loop, where electrons are accelerated, and estimate the magnitude of the field line diffusion coefficient for different phases of the flare. These findings will be discussed in connection with non-thermal line broadening observed in the flares.