**Abstract**   With the large number of distributed generation (DG) access to the distribution network, the traditional distribution network with a single-supply radial structure has been transformed into an active distribution system (ADS) with source and bidirectional currents. This transformation makes the calculation of the power supply capacity (PSC) of the ADS face new challenges, and the uncertainty of the DG output increases the difficulty in calculating the PSC. At the same time, the power market transaction check needs to meet the safety constraints of the distribution network operation, and is required to know the PSC information of the ADS more quickly and accurately. Therefore, in order to quickly evaluate the PSC of the ADS, this paper proposes a fast evaluation method of the PSC based on the DG output rolling prediction and the information gap decision theory (IGDT). The method first establishes a rolling prediction model of the DG output, and calculates the PSC of the ADS at the corresponding time. Next, it establishes a risk avoidance model (RAM) and a risk speculation model (RSM) for the PSC of the ADS based on the IGDT. These models further calculate the probability of the range of the PSC at the corresponding time, so as to better evaluate the PSC of the ADS. Finally, the improved IEEE-14 node is used to verify that the model can consider the influence of the DG output uncertainty and quickly calculate the information of PSC.