Our previous statistical studies showed that energy release occurs in the magnetic reconnection region and its surrounding regions, associated with substorm expansion onsets. Interestingly, the energy release is more significant midway between the magnetic reconnection region (X~16 to -20 Re) and the initial dipolarization region (X~7 to -10 Re), rather than in the magnetic reconnection region. It is also seen more widely than the localized fast earthward flows. On the other hand, the energy increases in the initial dipolarization region. In the present study, using Geotail and THEMIS data, we have examined energy release and transport midway between the magnetic reconnection and initial dipolarization regions in connection with particle energization and wave activities. We find that the energy transported by fast earthward flows from the midway region does not seem to be sufficient for the near-Earth dipolarization. The energy released in the midway region is spent also in waves, and electron and ion energization, regardless of fast flows, although these activities are stronger in case of fast flows. We discuss in more detail the role of the released energy in the substorm onset as well as the balance of magnetic fluxes and particles in the midway and near-Earth regions.