Purpose:
In rotational total skin electron therapy (RTSET), degraded electron beam energy may be required for patient treatment. A method is developed by inserting an acrylic plate in TBIe-tray to deliver a lower energy beam. The change in percentage depth dose (PDD) verses thickness of plate is studied.

Methods:
A Rando phantom is used on a rotational platform at an extended SSD (=332 cm) with a linac gantry angled at 90º. A special mode with a TBIe- insert delivers a 6 MeV electron beam on a Varian 21EX. An acrylic plate is inserted in the TBIe- tray to degrade 6 MeV electron beam energy. Three different thickness of acrylic plates are 4, 6, and 10 mm. For PDD measurements, Kodak EDR films are sandwiched in the Rando phantom slides. The film surface is oriented parallel to the incident electron beam. The films are analyzed using the RIT113 dosimetry software with a Vidar-VXR 16 Pro Scanner.

Results:
Several physical parameters dmax, R50, and Rp are determined in the PDD curves. These parameters vary with the inserted plate thickness. The dmax is around 0.4 cm without acrylic plate (t = 0) and decreases as the plate thickness increases. For 10 mm plate thickness, dmax shifts to the surface of the phantom. The mean energy E0 at the phantom surface can be obtained from R50 for each degraded electron beam using the relationship between Eo and R50. The E0 decreases as the plate thickness increases, indicating 6 MeV electron beam degraded to a lower energy beam.

Conclusions:
The method to degrade electron beam energy in RTSET offers advantages of easy setup and manageable beam energy than spoiler technique. Most of the treatment parameters can be readily obtained from the PDD data for each degraded electron beam.