

2. Objectives

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a) Regional Geology

During late Jurassic and early Cretaceous times, southern Victoria was the site of an east-west rift valley extending continuously from South Australia to Gippsland. A monotonous sequence of fluvio-lacustrine mudstones, felspathic and lithic sandstones, and minor coals, known as the Otway Group, accumulated in this trough and was probably derived from the bordering Palaeozoic and early Mesozoic cratonic highs then existent to the north and south. Seismic evidence indicates that these sediments attain thicknesses as great as 15,000 feet in the deeper parts of the basin.

During the early Upper Cretaceous, tectonic activity possibly associated with the separation of the Antarctic from the Australian continental plate caused down-warping, deformation and faulting of the Otway Group sediments and was accompanied by minor volcanism. Eventually, further widening of the two plates allowed ingress of the sea from the west. Marine transgressions moved diachronously across the area from west to east. Foraminiferal evidence (Taylor, 1964, 1972) from offshore and onshore wells in the eastern part of the Otway Basin supports this view.

Four major depositional cycles were developed across the area beginning in the mid-Cretaceous and continuing up to the Pliocene. At least three basin-wide unconformities, which can be reasonably well detected on seismic records, separate the successive sedimentation cycles.