

## 7. CHARACTERISTICS OF THE OIL AND GAS FIELDS OF GIPPSLAND BASIN

The major accumulations of oil and gas occur immediately below the eroded surface of the Latrobe Group sediments where they are sealed both vertically and horizontally by the overlying Lakes Entrance shales in a variety of stratigraphic unconformity and structural traps.

The major oil fields are confined to the south central part of the Deep Basin and the traps are partly structurally and partly stratigraphically controlled. Truncation of the rising reservoir beds at the erosional surface of the Latrobe Group provides critical closure. The oil is derived from the non-marine lower part of the Latrobe Group (Upper Cretaceous and Palaeocene).

Several favourable factors account for the presence of large productive pools in this part of the basin:

- (a) A large quantity of land-derived organic matter was deposited and preserved in the Latrobe Group. The geothermal gradient in the Gippsland Basin is higher than normal, allowing maturation of hydrocarbons at relatively shallow depths of burial.
- (b) The pattern of braided stream deposition facilitated lateral updip migration of hydrocarbons over a large drainage area. Fresh water intake of the exposed Latrobe aquifers in the onshore area to the northwest provides an active artesian system for maintaining the water drive below the hydrocarbon column.
- (c) Regional shear zones and normal cross-faults in the Latrobe Group contribute toward migration of hydrocarbons.