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PS Petroleum Systems of Turkish Basins*

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Abstract

Turkey is structurally in a complex area where two major oceans were closed and some of the structural deformation is superimposed. Part of it is situated geologically on the northernmost edge of the Arabian Plate, as passive margin (Southeast Anatolia), and part of Turkey is on the southern part of the Eurasian Plate, as passive margin (part of the Black Sea Region) during the Paleozoic and the Mesozoic time. These two major plates collided during late Cretaceous to Eocene time and the Anatolian plateau is sandwiched between these continents. The collision has created two important suture zones and different basins were formed in front of and in between suture zones. Stratigraphy of these areas is markedly different from each other. In Southeastern Turkey where most of the petroleum production occurs, both Paleozoic and Mesozoic petroleum system are present. Paleozoic especially Silurian contains organic rich source rocks and some of the oil is linked genetically to these source rocks. Early Cretaceous source rocks are probably responsible for feeding most of the reservoirs in the region. Mostly structural elements are drilled and stratigraphic traps are not fully evaluated. Mostly Cretaceous reservoirs are producers and Paleozoic reservoirs do exist. Petroleum systems in the interior basins are not fully resolved yet, due to insufficient and incomplete studies. Locally Cretaceous and Eocene organic rich source rocks are present. Younger (Oligocene and Neogene bituminous shales) source rocks are present and generate oil. Northern areas (Black Sea) contains both Paleozoic and Mesozoic organic rich source rocks. Live oil shows are present and known historically in different part of the region. Some gas production is present from offshore fields. Trace Basin where oil and gas has been produced for a long time has Oligocene petroleum systems. Eocene reservoirs are mostly productive.