

## INTISARI

Gas metana batubara merupakan salah satu jenis gas alam yang dapat dimanfaatkan dalam pemenuhan kebutuhan energi nasional. Indonesia merupakan negara yang memiliki potensi gas metana batubara yang cukup melimpah yakni mencapai 453 tcf. Potensi tersebut tersebar di berbagai cekungan di Indonesia, salah satunya Cekungan Sumatra Selatan yang memiliki potensi sumber daya gas metana batubara mencapai 183 tcf. Lokasi penelitian terletak pada Cekungan Sumatra Selatan dengan target reservoir pada Formasi Muara Enim. Penelitian ini bertujuan untuk mengetahui karakteristik batubara, litofasies, parasekuens, dan potensi sumber daya gas metana batubara di lokasi penelitian. Data yang digunakan dalam penelitian ini merupakan data bor yang terdiri dari batuan inti, *log* sumur, hasil analisis laboratorium, dan laporan sumur. Metode yang digunakan merupakan analisis sekuens stratigrafi yang meliputi analisis litofasies, analisis parasekuens dan *system tract*, korelasi stratigrafi, korelasi struktur, pemodelan bawah permukaan, dan perhitungan sumber daya secara volumetrik. Batubara yang terdapat di lokasi penelitian memiliki peringkat lignit B – subbituminus B dengan litotipe berupa *carbonaceous mudstone*, *dull coal*, dan *dull banded coal* dan *banded coal*. Litofasies yang berkembang di lokasi penelitian didominasi oleh batulempung, batulanau, batupasir, dan batubara. Pola parasekuens yang berkembang di lokasi penelitian didominasi oleh pola progradasional yang mengindikasikan bagian dari fase *high stand system tract* (HST). Lapisan batubara akan menipis di bagian tenggara dan menebal di bagian barat laut lokasi penelitian. Berdasarkan litofasies dan pola parasekuens pada lokasi penelitian maka diinterpretasikan lingkungan pengendapan di lokasi penelitian merupakan *tide dominated delta* dengan fasies *lower delta plain* dan *lagoon – tidal flat*. Estimasi sumber daya gas metana batubara di lokasi penelitian menghasilkan besaran sumber daya minimum 6,73 bcf – 8,37 bcf, sumber daya rerata 10,93 bcf – 13,59 bcf, dan sumber daya maksimum 15,58 bcf – 19,31 bcf.

**Kata kunci:** gas metana batubara, sekuens stratigrafi, sumber daya, Formasi Muara Enim

## ABSTRACT

*Coalbed methane (CBM) is a type of natural gas that can be utilized to fulfill national energy demands. Indonesia has significant potential for coalbed methane, with reserves reaching 453 trillion cubic feet (TCF). This potential is spread across various basins in Indonesia, one of which is the South Sumatra Basin, which has an estimated coalbed methane resource potential of 183 TCF. The study area is located in the South Sumatra Basin, with the target reservoir being the Muara Enim Formation. The objective of this study is to determine the characteristics of the coal, lithofacies, parasequences, and coalbed methane resource potential in the study area. The data used in this study include borehole data consisting of core samples, well logs, laboratory analysis results, and well reports. The methods applied involve sequence stratigraphy analysis, which includes lithofacies analysis, parasequence and system tract analysis, stratigraphic correlation, structural correlation, subsurface modeling, and resource calculation using volumetric methods. The coal in the study area is classified as lignite B to subbituminous B, with lithotypes consisting of carbonaceous mudstone, dull coal, dull banded coal, and banded coal. The lithofacies developed in the study area are dominated by claystone, siltstone, sandstone, and coal. The parasequences in the study area exhibit a progradational pattern, indicating a part of highstand system tract (HST) phase. The coal seam thins in the southeast and thickens in the northwest of the study area. Based on the lithofacies and parasequence patterns, the depositional environment in the study area is interpreted as a tide-dominated delta with facies of the lower delta plain and lagoon-tidal flat. The estimated coalbed methane resources in the study area are as follows, 6,73 bcf – 8,37 bcf for minimum resource, 10,93 bcf – 13,59 bcf for average resource, and 15,58 bcf – 19,31 bcf. for maximum resource.*

**Keywords:** *coal bed methane, sequence stratigraphy, resource, Muara Enim Formation*