Penentuan harga gas bumi domestik untuk pasokan gas PLN menggunakan simulasi Monte Carlo = The domestic gas pricing for PLN gas supply using Monte Carlo simulation

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Abstrak

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Harga gas bumi domestik merupakan salah satu masalah utama dalam percepatan pemanfaatan gas bumi untuk keperluan domestik, guna mengurangi beban subsidi negara atas pemanfaatan bahan bakar minyak yang harganya terus melambung tinggi. Harga gas bumi domestik telah ditetapkan oleh pemerintah berdasarkan keekonomian biaya pengembangan lapangan gas, dalam hal ini ada komponen biaya hulu dan ada komponen biaya hilir. Komponen biaya hulu dalam pengembangan lapangan gas meliputi sunk cost, drilling cost, production facility cost, opex, abex, dan margin KKKS. Komponen ini dibagi dengan total cadangannya untuk mendapatkan biaya per unit energi (US$/MMbtu). Sedangkan komponen biaya hilir meliputi biaya pipa transmisi (tol fee), biaya pipa distribusi, dan margin harga hilir (margin transporter dan margin trader). Perangkat lunak dalam simulasi monte carlo ini menggunkan crystall ball, yang digunakan untuk memperoleh model distribusi dan nilai rata-rata dari setiap komponen biaya di hulu dan di hilir. Berdasarkan nilai rata-rata tiap komponen biaya tersebut akan didapatkan harga gas domestik sesuai dengan formula harga gas yang diskenariokan. Skenario dalam penelitian ini meliputi skenario harga gas dimana PLN membeli langsung dari KKKS, skenario harga gas dimana PLN membeli dari trader gas, dan skenario harga gas dimana PLN membeli gas LNG dari FSRU Nusantara Regas. Hasil dari penelitian ini berupa harga gas domestik untuk masing-masing skenario harga gas.
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ABSTRACT
The domestic gas prices is one of the main problems in accelerating the utilization of natural gas for domestic needs, in order to reduce the subsidy burden of the state in using of fuel oil that the prices raise continuously. The domestic gas prices have been set by the government based on the economic cost of development gas field, in this case there is cost component in the upstream and downstream. The cost component in the upstream for development gas field include sunk costs, drilling costs, production facility cost, opex, abex, and KKKS margin. This components are divided by the total reserves to get costs of per unit energy (US$/MMbtu). While the cost components in the downstream include the cost of transmission pipeline (tol fee), the cost of distribution pipeline, and downstream price margin (transporter margins and trader margins). The Monte Carlo simulations in this study use the crystall ball as software, which is used to obtain the distribution model and the average value of each cost component in the upstream and downstream. Based on average value of each cost component will be obtained the domestic gas price refers to the gas price formula scripted. The scenario in this study consist of gas price scenario in which PLN buys direct from PSC, gas price scenario in which PLN buys from traders gas, and gas price scenario in which PLN buys gas from the LNG FSRU Nusantara Regas. The results on this study is the domestic gas price for every gas price scenario.