Studi Rekonfigurasi Jaringan Transmisi Island Operation Makassar dengan Metode Bus Splitting untuk Menurunkan Level Hubung Singkat = Transmission Network Reconfiguration Study of Makassar Island Operation with Bus Splitting Method to Decrease Short Circuit Level

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Abstrak

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Skripsi ini membahas tentang rekonfigurasi jaringan transmisi Island Operation Makassar untuk mendapatkan persentase penurunan level hubung singkat dengan menggunakan metode bus splitting. Selain itu pada jaringan transmisi juga dilakukan pengembangan dengan menambahkan beban pada beberapa gardu induk dengan dua mekanisme pembebanan yaitu pembebanan secara terpisah dan serempak sehingga akan didapatkan kapasitas pembebanan maksimum agar arus hubung singkatnya tidak melebihi breaking capacity dari CB. Jaringan transmisi Island Operation Makassar yang dilakukan penambahan beban dan rekonfigurasi terbatas pada tiga gardu induk yaitu GI Tello, GI Sungguminasa, dan GI Panakukang. Berdasarkan hasil simulasi dan analisa didapatkan persentase pembebanan maksimum secara terpisah pada ketiga GI berturut-turut adalah 78%, 83%, 94 % dari kapasitas beban eksisting Island Operation Makassar sementara total persentase pembebanan maksimum secara serempak pada ketiga GI adalah 345 MVA dengan persentase 91,38 % dari kapasitas beban eksisting Island Operation Makassar. Persentase penurunan arus hubung singkat pada ketiga GI pada pembebanan terpisah berturut-turut adalah 5,75%, 15,5%, dan 17% sementara pada pembebanan serempak adalah 9%, 7,5%, dan 10,3%.
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ABSTRACT
This paper discusses the reconfiguration of the Makassar Island Operation transmission network to get a percentage reduction of the short circuit level by using the method of bus splitting. In addition to the transmission network will also be developed with the added loads on substations with two loading mechanisms are separately and simultaneously loading so that we will get the maximum loading capacity that does not exceed the short-circuit current breaking capacity of the CB. The addition of the load and the reconfiguration of the Makassar Island Operation transmission network is limited to three substations namely GI Tello, GI Sungguminasa and GI Panakukang. Based on simulation results and analysis, percentage of the maximum loading separately on row of three GI is 78%, 83%, 94% of the load capacity of the existing Island Operation Makassar while the total percentage of the maximum loading simultaneously on the three GI is 345 MVA with the percentage of 91, 38% of the load capacity of the existing Island Operation Makassar. The short-circuit current percentage decrease with separate loading on the row of three GI is 5.75%, 15.5%, and 17% while the simultaneous loading is 9%, 7.5%, and 10.3%., This paper discusses the reconfiguration of the Makassar Island Operation transmission network to get a percentage reduction of the short circuit level by using the method of bus splitting. In addition to the transmission network will also be developed with the added loads on substations with two loading mechanisms are separately and simultaneously loading so that we will get the maximum loading capacity that does not exceed the short-circuit current breaking capacity of the CB. The addition of the load and the reconfiguration of the Makassar

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