# Sistem cerdas PV grid connected satu fasa pada distribusi energi listrik rumah tangga dengan antisipasi gangguan = Single phase PV grid connected in smart household energy system application with anticipation on fault conditions

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Abstrak

Skripsi ini membahas mengenai sistem cerdas PV grid connected satu fasa pada distribusi energi listrik rumah tangga. Sistem ini terdiri dari dua sumber listrik, yaitu sumber listrik utama PLN (Perusahaan Listrik Negara) dan sumber listrik alternatif photovoltaic. Kondisi cerdas diperoleh berdasarkan pengaturan aliran daya ke beban melalui hasil deteksi dan identifikasi kondisi amplitudo, sudut fasa, dan frekuensi sumber listrik yang dibandingkan dengan kondisi referensi sistem. Mekanisme sistem berdasarkan deteksi sumber listrik menggunakan metode sistem static transfer switch (STS) melalui algoritma deteksi tegangan phase locked loop (PLL), kemudian menentukan algoritma decision making logic untuk mengatur kondisi switching. Hasil yang didapat menunjukkan kondisi aliran daya yang cerdas dapat diperoleh berdasarkan pemilihan sumber listrik hasil decision making logic saat terjadi gangguan.

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Abstract<br>

The focus of this thesis is a smart system of single phase PV grid connected in smart household energy system application. The system consists of two voltage sources are PLN (Perusahaan Listrik Negara) as preferred source and photovoltaic as alternative source. The condition of smart system can be described in power flow regulation to the load with detection and identification of amplitud, phase angle and frequency on voltage source compared to the system reference. The system mechanism based on detection of voltage source using static transfer switch (STS) to the voltage detection algorithm PLL and then determines decision making logic algorithm for switching conditions. The results show conditions of smart power flow can be obtained based on voltage source selection in decision making logic when fault conditions occur.