

Analisis dan pengembangan aplikasi kelayakan investasi pembangkit listrik berbasis energi terbarukan dengan pendekatan willingness to pay dan ability to pay sebagai potensi revenue = Study and development of investment feasibility application of renewable energy based power plant under willingness to pay and ability to pay approach for revenue potency / Arief Murnandityo

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Abstrak

Investasi salah satu pembangkit listrik berbasis energi terbarukan, yaitu pembangkit listrik tenaga surya fotovoltaik PLTS PV di Indonesia menjadi salah satu alternatif penyediaan listrik untuk memaksimalkan potensi energi setempat sehingga lokasi tersebut memiliki suplai listrik yang handal. Sebuah pendekatan objektif dari sisi kemampuan dan kemauan masyarakat di lokasi studi menjadi alternatif perhitungan potensi revenue yang objektif. Penilaian kelayakan investasi yang mengikutsertakan perhitungan economic incentive juga menjadi penting bila dirasa perlu ada peran pihak pemberi insentif sehingga investasi tidak hanya memiliki kualitas dan penyediaan energi yang baik tetapi juga layak secara ekonomi sehingga investor tertarik untuk berinvestasi. Data karakteristik masyarakat lokasi studi, diolah menggunakan studi statistik dan simulasi micropower optimization untuk menghasilkan data investasi dan spesifikasi PLTS PV di lokasi penelitian tersebut.

Kemudian penelitian ini mengembangkan "model EFA", sebuah model yang memudahkan penilaian kelayakan investasi dengan mengikutsertakan perhitungan economic incentive, objektif sesuai kemampuan dan kemauan masyarakat serta tidak merugikan pihak pemberi insentif. Hasil pemodelan dengan EFA, dengan berbagai skenario pemberian insentif yang dibangun untuk alternatif investasi, PLTS PV layak secara ekonomi berdasarkan kriteria Net Present Value serta tercapainya expected Internal Rate of Return dan expected Pay Back Period.

Investment of one of renewable energy based electricity generation, solar power plant, in Indonesia becomes one of the alternative electricity supply to maximize local energy potential so that the location is having a reliable power source. An objective approach in terms of ability and willingness to pay of the community on study location becomes an alternative calculation of the objective revenue potency. Assessment of investment feasibility that includes economic incentive calculation also becomes important if involving incentive giver party is necessary so that investment not only has good quality of energy supply but also economically feasible so that investors are interested to invest. Community characteristics data on study location is processed using statistical methods and micropower optimization simulation to generate PV system specification and investment at the study location.

This research develops the EFA model , a model that facilitates the feasibility assessment of investments by incorporating economic incentive calculation, objective according to the ability and willingness to pay of the community, and not inflicting financial loss to the incentive giver. The results of " EFA model " , with various scenarios built for investment alternatives, PV investment is economically feasible based on Net Present Value criteria and achievement of expected Internal Rate of Return and expected Pay Back Period.