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Models and tools to plan and manage distributed energy resources (DER)

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A vision shared by many experts is that future communities (residential, commercial and industrial) will be nearly self sufficient in their energy production and will adopt distributed energy resources, energy storage and sustainable demand side management measures. It is also expected that consumers will be able to respond to real time pricing of energy in retail market and intelligently plan for their energy use. In this talk, we will discuss models and tools that support DER planning and control for such energy smart communities and systems. These models integrate engineering features of distributed resources, demand side dynamics and externalities such as weather patterns, price of fuel and energy market dynamics. We also argue that planning for such capital-intensive systems should take into account both short-term and long-tem volatilities. We conclude our talk with some notes on energy networks and hubs of the future.

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Detection system heavy volume and estimates for inventory bunch of fresh fruit bunch (ffb) of palm

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One of thepotentialof agricultural productsto be developedareoil palm(Elais guinenousJack) thathas an important rolein the contribution ofnon-oil commodity exchangeinIndonesia. Palm oilis plantations ofoilin the form ofCPO(CrudePalmOil) andPKO(Palm KernelOil)whichcan be processedtocreatea wide rangeof commercially valuableproductswitha higher profit. Results of processingpalm oilis widelyused asindustrial raw materials. Indonesiahas one of thelargestpalm oil producerinthe world, andcontinue toincrease production, oftencarried outthe expansion ofthe planting area, rehabilitationof existinggardens, as well asintensification. The quality and quantityof products producedfrompalm oilcan not be separatedfrom theactivities ofproductionandprocessingofthecommodity. Thegoalmade SIDEVOBER to develop adetection systemvolumeandheavybunches ofpalmultimately beneficialforcropreportingFFB. The equipment usedinthis activitycan be divided intotwocategories, namelyhardwareandsoftware. Hardwareequipmentincludescameras, laptops, anda proximity sensor, whilethe software usedisVisualC#, andJava. Steps being takenareas follows, asproblem identification, mathematical analysis, manufacture ofdetectionFFByields,makingthe RGB (Red, Green, Blue) valuesof static anddynamiccalibration testweight andvolume, functional testing, performance testing. Image processing techniquesthat includethe dilationprocessbinarizationandmanaged to givea perfectbinary image.

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