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4.4.2 Public key signature4.4.3 Message digest; 4.5 Cyber security standards; 4.5.1 IEEE 1686: IEEE standard for substation intelligent electronic devices (IEDs) cyber security capabilities; 4.5.2 IEC 62351: Power systems management and associated information exchange - data and communications security; References; Part II SENSING, MEASUREMENT, CONTROL AND AUTOMATION TECHNOLOGIES; 5 Smart metering and demand-side integration; 5.1 Introduction; 5.2 Smart metering; 5.2.1 Evolution of electricity metering; 5.2.2 Key components of smart metering; 5.3 Smart meters: An overview of the hardware used 5.3.1 Signal acquisition5.3.2 Signal conditioning; 5.3.3 Analogue to digital conversion; 5.3.4 Computation; 5.3.5 Input/output; 5.3.6 Communication; 5.4 Communications infrastructure and protocols for smart metering; 5.4.1 Home-area network; 5.4.2 Neighbourhood area network; 5.4.3 Data concentrator; 5.4.4 Meter data management system; 5.4.5 Protocols for communications; 5.5 Demand-side integration; 5.5.1 Services provided by DSI; 5.5.2 Implementations of DSI; 5.5.3 Hardware support to DSI implementations; 5.5.4 Flexibility delivered by prosumers from the demand side
5.5.5 System support from DSI

Sommario/riassunto

Electric power systems worldwide face radical transformation with the need to decarbonise electricity supply, replace ageing assets and harness new information and communication technologies (ICT). The Smart Grid uses advanced ICT to control next generation power systems reliably and efficiently. This authoritative guide demonstrates the importance of the Smart Grid and shows how ICT will extend beyond transmission voltages to distribution networks and customer-level operation through Smart Meters and Smart Homes. Smart Grid Technology and Applications: Clearly unrav