

CPC COOPERATIVE PATENT CLASSIFICATION

Y GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS

(NOTES omitted)

Y04 INFORMATION OR COMMUNICATION TECHNOLOGIES HAVING AN IMPACT ON OTHER TECHNOLOGY AREAS

Y04S SYSTEMS INTEGRATING TECHNOLOGIES RELATED TO POWER NETWORK OPERATION, COMMUNICATION OR INFORMATION TECHNOLOGIES FOR IMPROVING THE ELECTRICAL POWER GENERATION, TRANSMISSION, DISTRIBUTION, MANAGEMENT OR USAGE, i.e. SMART GRIDS

Systems supporting electrical power generation, transmission or distribution

- 10/00** **Systems supporting electrical power generation, transmission or distribution**
- 10/12 . Monitoring or controlling equipment for energy generation units, e.g. distributed energy generation [DER] or load-side generation
- 10/123 . . the energy generation units being or involving renewable energy sources
- 10/126 . . the energy generation units being or involving electric vehicles [EV] or hybrid vehicles [HEV], i.e. power aggregation of EV or HEV, vehicle to grid arrangements [V2G]
- 10/14 . Energy storage units
- 10/16 . Electric power substations
- 10/18 . using switches, relays or circuit breakers, e.g. intelligent electronic devices [IED]
- 10/20 . using protection elements, arrangements or systems
- 10/22 . Flexible AC transmission systems [FACTS] or power factor or reactive power compensating or correcting units
- 10/30 . State monitoring, e.g. fault, temperature monitoring, insulator monitoring, corona discharge
- 10/40 . Display of information, e.g. of data or controls
- 10/50 . Systems or methods supporting the power network operation or management, involving a certain degree of interaction with the load-side end user applications
- 10/52 . . Outage or fault management, e.g. fault detection or location

Systems supporting the management or operation of end-user stationary applications, including also the last stages of power distribution and the control, monitoring or operating management systems at local level

- 20/00** **Management or operation of end-user stationary applications or the last stages of power distribution; Controlling, monitoring or operating thereof**
- 20/12 . Energy storage units, uninterruptible power supply [UPS] systems or standby or emergency generators, e.g. in the last power distribution stages

- 20/14 . Protecting elements, switches, relays or circuit breakers
- 20/20 . End-user application control systems
- 20/221 . . General power management systems
- 20/222 . . Demand response systems, e.g. load shedding, peak shaving
- 20/242 . . Home appliances
- 20/244 . . . the home appliances being or involving heating ventilating and air conditioning [HVAC] units
- 20/246 . . . the system involving the remote operation of lamps or lighting equipment
- 20/248 . . UPS systems or standby or emergency generators
- 20/30 . Smart metering, e.g. specially adapted for remote reading

Systems supporting specific end-user applications in the sector of transportation

- 30/00** **Systems supporting specific end-user applications in the sector of transportation**
- 30/10 . Systems supporting the interoperability of electric or hybrid vehicles
- 30/12 . . Remote or cooperative charging
- 30/14 . . Details associated with the interoperability, e.g. vehicle recognition, authentication, identification or billing

Communication or information technology specific aspects supporting electrical power generation, transmission, distribution or end-user application management

- 40/00** **Systems for electrical power generation, transmission, distribution or end-user application management characterised by the use of communication or information technologies, or communication or information technology specific aspects supporting them**
- 40/12 . characterised by data transport means between the monitoring, controlling or managing units and monitored, controlled or operated electrical equipment
- 40/121 . . using the power network as support for the transmission

- 40/124 . . using wired telecommunication networks or data transmission busses
- 40/126 . . using wireless data transmission
- 40/128 . . involving the use of Internet protocol
- 40/18 . Network protocols supporting networked applications, e.g. including control of end-device applications over a network
- 40/20 . Information technology specific aspects, e.g. CAD, simulation, modelling, system security

Market activities related to the operation of systems integrating technologies related to power network operation and communication or information technologies

- 50/00 Market activities related to the operation of systems integrating technologies related to power network operation or related to communication or information technologies**
- 50/10 . Energy trading, including energy flowing from end-user application to grid
- 50/12 . Billing, invoicing, buying or selling transactions or other related activities, e.g. cost or usage evaluation
- 50/14 . Marketing, i.e. market research and analysis, surveying, promotions, advertising, buyer profiling, customer management or rewards
- 50/16 . Energy services, e.g. dispersed generation or demand or load or energy savings aggregation