TECHNOLOGIES OR APPLICATIONS FOR MITIGATION OR ADAPTATION AGAINST CLIMATE CHANGE

Y02E REDUCTION OF GREENHOUSE GAS [GHG] EMISSIONS, RELATED TO ENERGY GENERATION, TRANSMISSION OR DISTRIBUTION

10/00 Energy generation through renewable energy sources
  10/10 . Geothermal energy
  10/12 . Earth coil heat exchangers
  10/125 . Compact tube assemblies, e.g. geothermal probes
  10/14 . Systems injecting medium directly into ground, e.g. hot dry rock system, underground water
  10/16 . Systems injecting medium into a closed well
  10/18 . Systems exchanging heat with fluids in pipes, e.g. fresh water or waste water
  10/20 . Hydro energy
  10/22 . Conventional, e.g. with dams, turbines and waterwheels
  10/223 . Turbines or waterwheels, e.g. details of the rotor
  10/226 . Other parts or details
  10/28 . Tidal stream or damless hydropower, e.g. sea flood and ebb, river, stream
  10/30 . Energy from the sea (tidal stream Y02E 10/28)
  10/32 . Oscillating water column [OWC]
  10/34 . Ocean thermal energy conversion [OTEC]
  10/36 . Salinity gradient
  10/38 . Wave energy or tidal swell, e.g. Pelamis-type
  10/40 . Solar thermal energy
  10/41 . Tower concentrators
  10/42 . Dish collectors
  10/43 . Fresnel lenses
  10/44 . Heat exchange systems
  10/45 . Trough concentrators
  10/46 . Conversion of thermal power into mechanical power, e.g. Rankine, Stirling solar thermal engines
  10/465 . . Thermal updraft
  10/47 . . Mountings or tracking
  10/50 . Photovoltaic [PV] energy
  10/52 . PV systems with concentrators
  10/54 . Material technologies
  10/541 . . CuInSe2 material PV cells
  10/542 . . Dye sensitized solar cells
  10/543 . . Solar cells from Group II-VI materials
  10/544 . . Solar cells from Group III-V materials
  10/545 . . Microcrystalline silicon PV cells
  10/546 . . Polycrystalline silicon PV cells
  10/547 . . Monocrystalline silicon PV cells
  10/548 . . Amorphous silicon PV cells
  10/549 . . organic PV cells
  10/56 . . Power conversion electric or electronic aspects
  10/563 . . for grid-connected applications
  10/566 . . concerning power management inside the plant, e.g. battery charging/discharging, economical operation, hybridisation with other energy sources
  10/58 . . Maximum power point tracking [MPPT] systems
  10/60 . . Thermal-PV hybrids
  10/70 . . Wind energy
  10/72 . . Wind turbines with rotation axis in wind direction
  10/721 . . Blades or rotors
  10/722 . . Components or gearbox
  10/723 . . Control of turbines
  10/725 . . Generator or configuration
  10/726 . . Nacelles
  10/727 . . Offshore towers
  10/728 . . Onshore towers
  10/74 . . Wind turbines with rotation axis perpendicular to the wind direction
  10/76 . . Power conversion electric or electronic aspects
  10/763 . . for grid-connected applications
  10/766 . . concerning power management inside the plant, e.g. battery charging/discharging, economical operation, hybridisation with other energy sources

20/00 Combustion technologies with mitigation potential
  20/10 . Combined combustion
  20/12 . Heat utilisation in combustion or incineration of waste
  20/14 . . Combined heat and power generation [CHP]
  20/16 . . Combined cycle power plant [CCPP], or combined cycle gas turbine [CCGT]
  20/18 . . Integrated gasification combined cycle [IGCC]
  20/185 . . . combined with carbon capture and storage [CCS]
  20/30 . . Technologies for a more efficient combustion or heat usage
  20/32 . . Direct CO2 mitigation
Energy generation of nuclear origin

30/10 Fusion reactors
30/12 Magnetic plasma confinement [MPC]
30/122 Tokamaks
30/124 Stellarators
30/126 Other reactors with MPC
30/128 First wall, divertor, blanket
30/14 Inertial plasma confinement
30/16 Injection systems and targets
30/18 Low temperature fusion, e.g. "cold fusion"
30/30 Nuclear fission reactors
30/31 Boiling water reactors
30/32 Pressurized water reactors
30/33 Gas cooled reactors
30/34 Fast breeder reactors
30/35 Liquid metal reactors
30/36 Pebble bed reactors
30/37 Accelerator driven reactors
30/38 Fuel
30/39 Control of nuclear reactions
30/40 Other aspects relating to nuclear fission

Technologies for an efficient electrical power generation, transmission or distribution

40/10 Flexible AC transmission systems [FACTS]
40/12 Static VAR compensators [SVC], static VAR generators [SVG] or static VAR systems [SVS], including thyristor-controlled reactors [TCR], thyristor-switched reactors [TSR] or thyristor-switched capacitors [TSC]
40/14 Thyristor-controlled series capacitors [TCSC]
40/16 Static synchronous compensators [STATCOM]
40/18 Unified power flow controllers [UPF] or controlled series voltage compensators
40/20 Active power filtering [APF]
40/22 Non-specified or voltage-fed active power filters
40/24 Current-fed active power filters
40/26 using a multilevel or multilevel converter
40/30 Reactive power compensation (Y02E 40/10 take precedence)
40/32 using synchronous generators
40/34 for voltage regulation
40/40 Arrangements for reducing harmonics (Y02E 40/10 - Y02E 40/30 take precedence)
Enabling technologies or technologies with a potential or indirect contribution to GHG emissions mitigation

60/10 . . . . Energy storage
60/12 . . . . Battery technologies with an indirect contribution to GHG emissions mitigation (battery technologies specific to electromobility Y02T 10/7005)
60/122 . . . . Lithium-ion batteries
60/124 . . . . Alkaline secondary batteries, e.g. NiCd or NiMH
60/126 . . . . Lead-acid batteries
60/128 . . . . Hybrid cells composed of a half-cell of a fuel-cell type and a half-cell of the secondary-cell type
60/13 . . . . Ultracapacitors, supercapacitors, double-layer capacitors
60/14 . . . . Thermal storage
60/142 . . . . Sensible heat storage
60/145 . . . . Latent heat storage
60/147 . . . . Cold storage
60/15 . . . . Pressurised fluid storage
60/16 . . . . Mechanical energy storage, e.g. flywheels
60/17 . . . . Pumped storage
60/30 . . . . Hydrogen technology
60/32 . . . . Hydrogen storage
60/321 . . . . Storage of liquefied, solidified, or compressed hydrogen in containers
60/322 . . . . Storage in caverns
60/324 . . . . Reversible uptake of hydrogen by an appropriate medium
60/325 . . . . the medium being carbon
60/327 . . . . the medium being a metal or rare earth metal, an intermetallic compound or a metal alloy
60/328 . . . . the medium being an organic compound or a solution thereof
60/34 . . . . Hydrogen distribution
60/36 . . . . Hydrogen production from non-carbon containing sources
60/362 . . . . by chemical reaction with metal hydrides, e.g. hydrolysis of metal borohydrides
60/364 . . . . by decomposition of inorganic compounds, e.g. splitting of water other than electrolysis, ammonia borane, ammonia
60/366 . . . . by electrolysis of water
60/368 . . . . by photo-electrolysis
60/50 . . . . Fuel cells
60/52 . . . . characterised by type or design
60/521 . . . . Proton Exchange Membrane Fuel Cells [PEMFC]
60/522 . . . . Direct Alcohol Fuel Cells [DAFC]
60/523 . . . . Direct Methanol Fuel Cells [DMFC]
60/525 . . . . Solid Oxide Fuel Cells [SOFC]
60/526 . . . . Molten Carbonate Fuel Cells [MCFC]
60/527 . . . . Bio Fuel Cells
60/528 . . . . Regenerative or indirect fuel cells, e.g. redox flow type batteries

60/56 . . . . integrally combined with other energy production systems
60/563 . . . . Cogeneration of mechanical energy, e.g. integral combination of fuel cells and electric motors
60/566 . . . . Production of chemical products inside the fuel cell; incomplete combustion
60/60 . . . . Arrangements for transfer of electric power between AC networks via a high-tension DC link, HVDC transmission
60/70 . . . . Systems integrating technologies related to power network operation and communication or information technologies mediating in the improvement of the carbon footprint of electrical power generation, transmission or distribution, i.e. smart grids as enabling technology in the energy generation sector (smart grids relating to the energy generation sector in general, e.g. with no associated climate change mitigation effect Y04S 10/00)
60/72 . . . . Systems characterised by the monitored, controlled or operated power network elements or equipments
60/721 . . . . the elements or equipments being or involving electric vehicles [EV] or hybrid vehicles [HEV], i.e. power aggregation of EV or HEV, vehicle to grid arrangements [V2G] (remote or cooperative charging Y02T 90/168; details associated with the interoperability in the section of transportation, e.g. vehicle recognition, authentication, identification or billing Y02T 90/169)
60/722 . . . . the elements or equipments being or involving energy storage units (for systems comprising uninterruptible power supplies or standby generators Y04S 20/12)
60/723 . . . . the elements or equipments being or involving electric power substations
60/724 . . . . the elements or equipments being or involving switches, relays or circuit breakers, e.g. intelligent electronic devices [IED]
60/725 . . . . the elements or equipments being or involving protection elements, arrangements or systems
60/726 . . . . the elements or equipments being or involving voltage regulating units
60/727 . . . . the elements or equipments being or involving measuring units
60/728 . . . . the measuring units being or involving phasor measuring units [PMU]
60/74 . . . . Systems characterised by state monitoring, e.g. fault, temperature monitoring, insulator monitoring, corona discharge
60/76 . . . . Computer aided design [CAD]; Simulation; Modelling
60/78 . . . . Communication technology specific aspects
60/7807 . . . . characterised by data transport means between the monitoring, controlling or managing units and monitored, controlled or operated electrical equipment
60/7815 . . . . using the power network as support for the transmission
60/7823 . . . . using pulsed signals
60/783 . . . . using modification of a parameter of the network power signal
60/7838 . . . . using a wired telecommunication network or a data transmission bus
using phone lines
using wireless data transmission
By means of mobile telephony
involving the use of Internet protocol
Communication technology specific aspects
using dedicated transmission supports
using the power network as support for the transmission

Other energy conversion or management systems reducing GHG emissions

Hydrogen from electrolysis with energy of non-fossil origin, e.g. PV, wind power, nuclear
Systems combining fuel cells with production of fuel of non-fossil origin
Systems combining energy storage with energy generation of non-fossil origin
Energy efficient batteries, ultracapacitors, supercapacitors or double-layer capacitors charging or discharging systems or methods, e.g. auxiliary power consumption reduction, resonant chargers or dischargers, resistive losses minimisation