# 1 Patent Classification

The Coopoerative Patent Classification (CPC) system has over 200,000 technology classes. Our goal is to identify technologies that address the global climate change issue and have the potential to reducing greenhouse gas emission. More specifically, we classify these technology classes into 3 categories we call "green technologies", "general efficiency technologies", and "brown efficiency technologies" based on four classification sources[1]. The three categories are defined as:

1. Green technologies: Technologies that may substitute carbon dioxide emitting technologies for carbon dioxide-free technologies.

2. General efficiency technologies: Technologies that improve processes efficiencies and therefore reduce carbon dioxide emissions per output.

3. Brown efficiency technologies: Technologies that improve process efficiencies of fossil fuel sources and therefore reduce carbon dioxide emissions per output.

The four sources underlying environment-related technology classification sources are:

1. Environmental technologies classified by the Organization of Economic Co-opeartion and Development (OECD)[2]: The search strategy is described by Hascic & Migotto (2015) and has a broad coverage including technologies related to environmental pollution, water scarcity and climate change mitigation. We are using the 2020 version and call this the OECD classification.

2. International Patent Classification (IPC) Green Inventory[3]: This classification is developped by the IPC Committee of Experts and captures Environmentally Sound Technologies (ESTs) defined as "technologies that have the potential to significantly improved environmental performance relative to other technologies"[4]. We call this the IPC classification.

3. Efficiency improving fossil fuel technology classes: Lanzi *et al.* (2011) search fuel-efficient technologies for electricity generation in fuel preparation technologies, furnaces and burners as well as boilers, turbines and engines. We call this the Fossil Fuel (FF) classification.

4. Corporate Knights Clean 200 patents[5]: Corporate Knights identifies the top 200 companies based on the amount of revenue each company earns from products and services aligned with the Corporate Knights Clean Economy Taxonomy. For the corporate knights 200 firms' who have at least 70% of their patents classified as clean revenue, we gather all of their patents up to 5 years before the listing year. For the stock of patents we identify the CPC technology classes. To identify technology classes related to greenhouse gas reduction, we iteratively go through all classes aggregated at the 5th, 7th and 8th level of CPC classification. Finally we filter the lowest level for key words[6] and assess whether a technology class is related to greenhouse gas reduction. We call this the Corporate Knights (CK) classification.

[1] Note: "Classes" refers to the underlying patent classification system class. "Classification" refers to the classification sources we build our categories on. "Categories" are the final three categories that we study in our paper.
[2] https://www.oecd.org/env/indicators-modelling-outlooks/green-patents.htm
[3] https://www.wipo.int/classifications/ipc/green-inventory/home
[4] https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/environmentally-sound
[5] https://www.corporateknights.com/rankings/clean-200-rankings/
[6] Keywords include: solar, nuclear, water, wind, renewable, hydro, geothermal, fuel cell, greenhouse gas, efficiency, energy, hybrid, batter, fuel injection

Our last step is to classify the four individual technology classification sources into our three defined categories "green technologies", "general efficiency technologies" and "brown efficiency technologies". To classify the OECD and IPC classification, we go through the lowest available classification level. The OECD has up to 4 levels. If available, we classify the fourth level[7]. The final categories assigned are listed in Table 4. IPC has up to 5 levels. Only very few topics go down to level 5, but if available we classify the fifth level[8]. We list the final categories assigned to the IPC classifications in Table 5. All patent classifications from the Fossil Fuel technology are classified as "brown efficiency technologies" (see Table 6). Finally we classify the Corporate Knights classification based on the highest aggregate technology patent classification level suitable. All lower level classifications are assumed to be part of the given assigned classification. In Table 7 we report the CPC codes identified, the level of the CPC code identified and an assigned OECD env-tech category, which we use to sort and report the CPC codes. Several technology classifications are covered by multiple sources (compare Table 1). We assign the final classification if there are multiple sources first based on the category assigned in OECD, then IPC and finally the category assigned in FF.

The CPC classification has up to 19 levels, but not all technology classes go down to 19 levels. Considering all technology classifications from Level 5 onwards, we have a total of 261,993 classification[9] Considering only the lowest level within a given classification path, there are a total of 186,668 classifications. We identified 7,738 (5,217 considering only the lowest level) classifications as "green technologies"; 5,110 (3,552) as "general efficiency technologies" and 6,742 (4,686) as "brown efficiency technologies". Table 1 documents the number of classifications from each of the four sources. Table 2 shows the number of technology classes by category and classification source. We show the percentage of technology classes from the various classification sources in a given category (green, efficiency brown and efficiency general) in Table 3. We derive most technology classes for "green technologies" from IPC and for "brown efficiency technologies" from FF.

**TABLE 1: NO. OF TECHNOLOGY CLASSES BY CLASSIFICATION SOURCE**

| Classification source | All classes level 5 onwards | | Lowest class only | |
|---|---|---|---|---|
| | No. | Perc. | No. | Perc. |
| OECD | 2222 | 0.85 | 1529 | 0.82 |
| OECD & IPC | 1847 | 0.7 | 1334 | 0.72 |
| OECD & IPC & FF | 127 | 0.05 | 89 | 0.05 |
| OECD & FF | 24 | 0.01 | 14 | 0.01 |
| IPC | 9483 | 3.62 | 6417 | 3.44 |
| IPC & FF | 783 | 0.3 | 557 | 0.3 |
| FF | 3499 | 1.34 | 2429 | 1.3 |
| CK | 1874 | 0.72 | 1368 | 0.73 |
| none | 242134 | 92.42 | 172821 | 92.64 |

[7] "2.1.1 Wind Energy" is an example classification where the lowest level is level 3. "9.2.1.1 Indoor water conservation" is an example classification that goes down to level 4.

[8] "Air quality management - treatment of waste gases - Combustion apparatus using recirculation of flue gases" is an example of a classification that goes down to level 5.

[9] This is as of the CPC classification of August 2021.

**TABLE 2: NO. OF TECHNOLOGY CLASSES BY CLASSIFICATION SOURCE AND CATEGORY**

| Category | Classification source | All classes level 5 onwards | | Lowest class only | |
|---|---|---|---|---|---|
| | | No. | Perc. | No. | Perc. |
| Green | OECD | 157 | 0.06 | 123 | 0.07 |
| Green | OECD & IPC | 298 | 0.11 | 209 | 0.11 |
| Green | OECD & IPC & FF | 1 | 0 | 1 | 0 |
| Green | IPC | 6446 | 2.46 | 4367 | 2.34 |
| Green | CK | 836 | 0.32 | 617 | 0.33 |
| Efficiency general | OECD | 199 | 0.08 | 137 | 0.07 |
| Efficiency general | OECD & IPC | 1427 | 0.54 | 1042 | 0.56 |
| Efficiency general | IPC | 2922 | 1.12 | 1970 | 1.06 |
| Efficiency general | CK | 562 | 0.21 | 403 | 0.22 |
| Efficiency brown | OECD | 1606 | 0.61 | 1094 | 0.59 |
| Efficiency brown | OECD & IPC | 113 | 0.04 | 76 | 0.04 |
| Efficiency brown | OECD & IPC & FF | 126 | 0.05 | 88 | 0.05 |
| Efficiency brown | OECD & FF | 24 | 0.01 | 14 | 0.01 |
| Efficiency brown | IPC | 115 | 0.04 | 80 | 0.04 |
| Efficiency brown | IPC & FF | 783 | 0.3 | 557 | 0.3 |
| Efficiency brown | FF | 3499 | 1.34 | 2429 | 1.3 |
| Efficiency brown | CK | 476 | 0.18 | 348 | 0.19 |
| na | OECD | 260 | 0.1 | 175 | 0.09 |
| na | OECD & IPC | 9 | 0 | 7 | 0 |
| n.o.i. | none | 242134 | 92.42 | 172821 | 92.64 |

**TABLE 3: NO. OF TECHNOLOGY CLASSES IN CATEGORY BY CLASSIFICATION SOURCE**

| Classification source | Green | | Efficiency brown | | Efficiency general | |
|---|---|---|---|---|---|---|
| | No. | Perc. | No. | Perc. | No. | Perc. |
| OECD | 123 | 2.31 | 1094 | 23.35 | 137 | 3.86 |
| OECD & IPC | 209 | 3.93 | 76 | 1.62 | 1042 | 29.34 |
| OECD & IPC & FF | 1 | 0.02 | 88 | 1.88 | 0 | 0 |
| OECD & FF | 0 | 0 | 14 | 0.3 | 0 | 0 |
| IPC | 4367 | 82.13 | 80 | 1.71 | 1970 | 55.46 |
| IPC & FF | 0 | 0 | 557 | 11.89 | 0 | 0 |
| FF | 0 | 0 | 2429 | 51.84 | 0 | 0 |
| CK | 617 | 11.6 | 348 | 7.43 | 403 | 11.35 |

# TABLE 4: CATEGORIES ASSIGNED TO OECD CLASSIFICATION

| Level | Topic L1 | Topic L2 | Topic L3 | Topic L4 | CPC codes | Category |
|---|---|---|---|---|---|---|
| 3 | 1. Environmental Management | 1.1. Air pollution abatement | 1.1.1. Emissions abatement from stationary sources (e.g. SOx, NOx, PM emissions from combustion plants) | | B01D53/34-965; F23G7/06; F23J15; F27B1/18 | Efficiency brown |
| 3 | | | | | C21B7/22; C21C5/38; F23B80; F23C9 | Efficiency brown |
| 3 | | | | | F23C10 | Efficiency brown |
| 3 | 1. Environmental Management | 1.1. Air pollution abatement | 1.1.2. Emissions abatement from mobile sources (e.g. NOx, CO, HC, PM emissions from motor vehicles) | | B01D53/92; B01D53/94; B01D53/96; B01J23/38-468 | Efficiency brown |
| 3 | | | | | F01M13; F01M2013; F02B47/08-10; F02D21/06-10 | Efficiency brown |
| 3 | | | | | F02M26; F02M20;26; G01M15/10; F02B47/06 | Efficiency brown |
| 3 | | | | | F02D41; F02D43; F02D45; F02M3/02-055 | Efficiency brown |
| 3 | | | | | F02M23; F02M25; F02M27; F02M31/02-186 | Efficiency brown |
| 3 | | | | | F02M39-71; F02P5 | Efficiency brown |
| 3 | 1. Environmental Management | 1.1. Air pollution abatement | 1.1.3. Air pollution abatement - Not elsewhere classified | | B01D46; B01D47; B01D49; B01D50 | Efficiency general |
| 3 | | | | | B01D51; B03C3; F01N3; F01N5 | Efficiency general |
| 3 | | | | | F01N13; F01N9; F01N11; C10L10/02 | Efficiency general |
| 3 | | | | | C10L10/06 | Efficiency general |
| 3 | 1. Environmental Management | 1.2. Water pollution abatement | 1.2.1. Water and wastewater treatment | | B63J4; C02F; C09K3/32; E03C1/12 | Efficiency general |
| 3 | | | | | E03F | Efficiency general |
| 3 | 1. Environmental Management | 1.2. Water pollution abatement | 1.2.2. Fertilizers from wastewater | | C05F7 | Green |
| 3 | 1. Environmental Management | 1.2. Water pollution abatement | 1.2.3. Oil spill and pollutant clean-up | | E02B15/04-10; E02B2015/005; B63B35/32; C09K 3/32 | Efficiency brown |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.1. Solid waste collection | | E01H15; B65F | Efficiency general |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.2. Material recovery, recycling and re-use | | A23K10/26-28; A23K10/32-33; A23K10/37-38; A43B1/12 | Green |
| 3 | | | | | B03B9/06; B22F8; B29B7/66; B29B17 | Green |
| 3 | | | | | B30B9/32; B62D67; B65H73; B65D65/46 | Green |
| 3 | | | | | C03B1/02; C04B7/24-30; C04B11/26; C04B18/04-305 | Green |
| 3 | | | | | C04B33/132; C08J11; C09K11/01; C10M175 | Green |
| 3 | | | | | C22B7; C22B19/28-30; C22B25/06; D01G11 | Green |
| 3 | | | | | D21B1/08-10; D21B1/32; D21C5/02; D21H17/01 | Green |
| 3 | | | | | H01B 15/00; H011 9/52; H01M 6/52; H01M 10/54 | Green |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.3. Fertilizers from waste | | C05F | Green |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.4. Incineration and energy recovery | | C10L5/46-48; F23G5; F23G7 | Efficiency general |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.5. Landfilling | | n.a. | Efficiency general |
| 3 | 1. Environmental Management | 1.3. Waste management | 1.3.6. Waste management - Not elsewhere classified | | B09B; C10G1/10; A61L11; B02C19/0075 | Efficiency general |
| 2 | 1. Environmental Management | 1.4. Soil remediation | | | B09C | Efficiency general |
| 2 | 1. Environmental Management | 1.5. Environmental monitoring | | | F01N11; G08B21/12-14 | Efficiency general |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.1. Wind energy | | Y02E10/70-76 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.2. Solar thermal energy | | Y02E10/40-47 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.3. Solar photovoltaic (PV) energy | | Y02E10/50-56 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.4. Solar thermal-PV hybrids | | Y02E10/60 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.5. Geothermal energy | | Y02E10/10 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.6. Marine energy, e.g. using wave energy or salinity gradient | | Y02E10/30 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.1. Renewable energy generation | 2.1.7. Hydro energy | | Y02E10/20 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.2. Energy generation from fuels of non-fossil origin | 2.2.1. Biofuels, e.g. bio-diesel | | Y02E50/10 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.2. Energy generation from fuels of non-fossil origin | 2.2.2. Fuel from waste, e.g. synthetic alcohol or diesel | | Y02E50/30 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.2. Energy generation from fuels of non-fossil origin | 2.3.1. Technologies for improved output efficiency (combined heat and power, combined cycles, etc.) | | Y02E20/12-18Â | Efficiency brown |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.2. Energy generation from fuels of non-fossil origin | 2.3.2. Technologies for improved input efficiency (efficient combustion or heat usage) | | Y02E20/30-34 | Efficiency brown |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.4. Nuclear energy | 2.4.1. Nuclear fusion reactors | | Y02E30/10 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.4. Nuclear energy | 2.4.2. Nuclear fission reactors | | Y02E30/30 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.5. Technologies for an efficient electrical power generation, transmission or distribution | 2.5.1. Superconducting electric elements or equipment | | Y02E40/60 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.5. Technologies for an efficient electrical power generation, transmission or distribution | 2.5.2. Smart grids as CCM technology in the energy generation sector | | Y02E40/70 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.5. Technologies for an efficient electrical power generation, transmission or distribution | 2.5.3. Not elsewhere classified | | Y02E40/10-50 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.6. Enabling Technologies (Technologies with potential or indirect contribution to GHG emission mitigation) | 2.6.1. Energy storage | | Y02E60/10-16; Y02E60/10; Y02E60/13; Y02E60/14 | Green |
| 3 | | | | | Y02E60/16 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.6. Enabling Technologies (Technologies with potential or indirect contribution to GHG emission mitigation) | 2.6.2. Hydrogen technology | | Y02E60/30-36 | Efficiency general |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.6. Enabling Technologies (Technologies with potential or indirect contribution to GHG emission mitigation) | 2.6.3. Fuel cells | | Y02E60/50 | Green |
| 3 | 2. CCM technologies related to energy generation, transmission or distribution | 2.6. Enabling Technologies (Technologies with potential or indirect contribution to GHG emission mitigation) | 2.6.4. High-voltage direct current transmission | | Y02E60/60 | Efficiency general |
| 2 | 2. CCM technologies related to energy generation, transmission or distribution | 2.7. Other energy conversion or management systems reducing GHG emissions | | | Y02E70 | Efficiency general |
| 2 | 3. Capture, storage, sequestration or disposal of GHG | 3.1. Capture or disposal of nitrous oxide (N2O) | | | Y02C20/10 | Green |
| 2 | 3. Capture, storage, sequestration or disposal of GHG | 3.2. Capture or disposal of methane (CH4) | | | Y02C20/20 | Green |
| 2 | 3. Capture, storage, sequestration or disposal of GHG | 3.3. Capture or disposal of perfluorocarbons [PFC], hydrofluorocarbons [HFC] or sulfur hexafluoride [SF6] | | | Y02C20/30 | Green |
| 2 | 3. Capture, storage, sequestration or disposal of GHG | 3.4. Capture or disposal of carbon dioxide (CO2) | | | Y02C20/40 | Green |
| 3 | 4. CCM technologies related to transportation | 4.1. Road transport | 4.1.1. Conventional vehicles (based on internal combustion engine) | | Y02T10/10-40 | Efficiency brown |
| 3 | 4. CCM technologies related to transportation | 4.1. Road transport | 4.1.2. Hybrid vehicles | | Y02T10/62Â | Green |
| 3 | 4. CCM technologies related to transportation | 4.1. Road transport | 4.1.3. Electric vehicles | | Y02T10/64-72 | Green |
| 3 | 4. CCM technologies related to transportation | 4.1. Road transport | 4.1.4. Fuel efficiency-improving vehicle design (common to all road vehicles) | | Y02T10/80 | Efficiency general |
| 2 | 4. CCM technologies related to transportation | 4.2. Rail Transport | 4.2. RAIL Transport | | Y02T30/00 | Efficiency general |
| 2 | 4. CCM technologies related to transportation | 4.3. Aeronautics or air transport | | | Y02T50 | Efficiency general |
| 2 | 4. CCM technologies related to transportation | 4.4. Maritime or waterways transport | | | Y02T70 | Efficiency general |
| 3 | 4. CCM technologies related to transportation | 4.5. Enabling Technologies in transport | 4.5.1. Electric vehicle charging | | Y02T90/10-167 | Green |
| 3 | 4. CCM technologies related to transportation | 4.5. Enabling Technologies in transport | 4.5.2. Application of hydrogen technology to transportation, e.g. using fuel cells | | Y02T90/40 | Green |
| 2 | 5. CCM technologies related to buildings | 5.1. Integration of renewable energy sources in buildings | | | Y02B10 | Green |
| 3 | 5. CCM technologies related to buildings | 5.2. energy efficiency in buildings | 5.2.1. Energy efficient lighting | | Y02B20 | Efficiency general |
| 3 | 5. CCM technologies related to buildings | 5.2. energy efficiency in buildings | 5.2.2. Energy efficient heating, ventilation or air conditioning [HVAC] | | Y02B30 | Efficiency general |
| 3 | 5. CCM technologies related to buildings | 5.2. energy efficiency in buildings | 5.2.3. Energy efficiency in home appliances | | Y02B40 | Efficiency general |
| 3 | 5. CCM technologies related to buildings | 5.2. energy efficiency in buildings | 5.2.4. Energy efficient elevators, escalators and moving walkways, e.g. energy saving or recuperation technologies | | Y02B50 | Efficiency general |
| 3 | 5. CCM technologies related to buildings | 5.2. energy efficiency in buildings | 5.2.5. End-user side | | Y02B70 | Efficiency general |
| 2 | 5. CCM technologies related to buildings | 5.3. Architectural or constructional elements improving the thermal performance of buildings | | | Y02B80 | Green |
| 2 | 5. CCM technologies related to buildings | 5.4. Enabling technologies in buildings | | | Y02B90 | Green |
| 2 | 6. CCM technologies related to wastewater treatment or waste management | 6.1. wastewater treatment | | | Y02W10 | Efficiency general |
| 3 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.1. Waste collection, transportation, transfer or storage | | Y02W30/10 | Efficiency general |
| 3 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.2. Waste processing or separation | | Y02W30/20 | Efficiency general |
| 3 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.3. Landfill technologies aiming to mitigate methane emissions | | Y02W30/30 | Efficiency general |
| 3 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.4. Bio-organic fraction processing; Production of fertilisers from the organic fraction of waste or refuse | | Y02W30/40 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.1. Mechanical processing of waste for the recovery of materials | Y02W30/52 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.10. Packaging reuse or recycling, e.g. of multilayer packaging | Y02W30/80 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.11. Recycling of waste of electrical or electronic equipment [WEEE] | Y02W30/82 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.12. Recycling of batteries or fuel cells | Y02W30/84 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.13. Use of waste materials as fillers for mortars or concrete | Y02W30/91 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.2. Waste management of vehicles | Y02W30/56 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.3. Construction or demolition [C&D] waste | Y02W30/58 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.4. Glass recycling | Y02W30/60 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.5. Plastics and rubber recycling | Y02W30/62 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.6. Paper recycling | Y02W30/64 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.7. Disintegrating fibre-containing textile articles to obtain fibres for re-use | Y02W30/66 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.8. Recovery of fats, fatty oils, fatty acids or other fatty substances, e.g. lanolin or waxes | Y02W30/74 | Green |
| 4 | 6. CCM technologies related to wastewater treatment or waste management | 6.2. Solid waste management | 6.2.5. Reuse, recycling or recovery technologies | 6.2.5.9. Recycling of wood or furniture waste | Y02W30/78 | Green |
| 2 | 6. CCM technologies related to wastewater treatment or waste management | 6.3. Enabling technologies or technologies with a potential or indirect contribution to GHG mitigation | | | Y02W90 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.1. Technologies related to metal processing | 7.1.1. Reduction of GHG [GHG] emissions | | Y02P10/10-146 | Efficiency brown |
| 3 | 7. CCM technologies in the production or processing of goods | 7.1. Technologies related to metal processing | 7.1.2. Process efficiency | | Y02P10/20-32 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.2. Technologies relating to the chemical industry | 7.2.1. Process efficiency in chemical industry | | Y02P20/10-133 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.2. Technologies relating to the chemical industry | 7.2.2. Feedstock | | Y02P20/141-145 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.2. Technologies relating to the chemical industry | 7.2.3. Reduction of GHG [GHG] emissions, e.g. CO2 | | Y02P20/151-156 | Efficiency brown |
| 3 | 7. CCM technologies in the production or processing of goods | 7.2. Technologies relating to the chemical industry | 7.2.5. Improvements relating to adipic acid or caprolactam production | | Y02P20/30 | Efficiency general |

| Level | Topic L1 | Topic L2 | Topic L3 | Topic L4 | CPC codes | Category |
|---|---|---|---|---|---|---|
| 3 | 7. CCM technologies in the production or processing of goods | 7.2. Technologies relating to the chemical industry | 7.2.6. Improvements relating to fluorochloro hydrocarbon, e.g. chlorodifluoromethane [HCFC-22] production | | Y02P20/40 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.3. Technologies relating to oil refining and petrochemical industry | 7.3.1. Bio-feedstock | | Y02P30/20 | Efficiency brown |
| 3 | 7. CCM technologies in the production or processing of goods | 7.3. Technologies relating to oil refining and petrochemical industry | 7.3.2. Ethylene production | | Y02P30/40 | Efficiency brown |
| 3 | 7. CCM technologies in the production or processing of goods | 7.4. Technologies relating to the processing of minerals | 7.4.1. Production of cement | | Y02P40/10-18 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.4. Technologies relating to the processing of minerals | 7.4.2. Production or processing of lime | | Y02P40/40-45 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.4. Technologies relating to the processing of minerals | 7.4.3. Glass production | | Y02P40/50-57 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.4. Technologies relating to the processing of minerals | 7.4.4. Production of ceramic materials or ceramic elements | | Y02P40/60 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.1. Using renewable energies, e.g. solar water pumping | | Y02P60/12 | Green |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.2. Measures for saving energy, e.g. in green houses | | Y02P60/14 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.3. Reduction of GHG [GHG] emissions in agriculture | | Y02P60/20-22 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.4. Land use policy measures | | Y02P60/30 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.5. Afforestation or reforestation | | Y02P60/40 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.6. Livestock or poultry management | | Y02P60/50-52 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.7. Fishing; Aquaculture; Aquafarming | | Y02P60/60 | Efficiency general |
| 3 | 7. CCM technologies in the production or processing of goods | 7.5. Technologies relating to agriculture, livestock or agroalimentary industries | 7.5.8. Food processing, e.g. use of renewable energies or variable speed drives in handling, conveying or stacking | | Y02P60/80-87 | Efficiency general |
| 2 | 7. CCM technologies in the production or processing of goods | 7.6. technologies in the production process for final industrial or consumer products | | | Y02P70 | Efficiency general |
| 2 | 7. CCM technologies in the production or processing of goods | 7.7. CCM technologies for sector-wide applications | | | Y02P80 | Efficiency general |
| 2 | 7. CCM technologies in the production or processing of goods | 7.8. Enabling technologies with a potential contribution to GHG emissions mitigation | | | Y02P90 | Efficiency general |
| 2 | 8. CCM in information and communication technologies | 8.1. Energy efficient computing | | | Y02D10 | Efficiency general |
| 2 | 8. CCM in information and communication technologies | 8.2. Energy efficiency in communication networks | | | Y02D30 | Efficiency general |
| 3 | 9. Climate change adaption technologies | 9.1. Adaptation at coastal zones or river basins | 9.1.1. Hard structures, e.g. dams, dykes or breakwaters | | Y02A10/11 | na |
| 3 | 9. Climate change adaption technologies | 9.1. Adaptation at coastal zones or river basins | 9.1.2. Dune restoration or creation; cliff stabilisation | | Y02A10/23 | na |
| 3 | 9. Climate change adaption technologies | 9.1. Adaptation at coastal zones or river basins | 9.1.3. Artificial reefs or seaweed; restoration or protection of coral reefs | | Y02A10/26 | na |
| 3 | 9. Climate change adaption technologies | 9.1. Adaptation at coastal zones or river basins | 9.1.4. Flood prevention; flood or storm water management | | Y02A10/30 | na |
| 3 | 9. Climate change adaption technologies | 9.1. Adaptation at coastal zones or river basins | 9.1.5. Controlling, monitoring or forecasting | | Y02A10/40 | na |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.1. Demand-side technologies (water conservation) | 9.2.1.1. Indoor water conservation | F16K21/06-12; F16K 21/16-20; F16L55/07; E03C1/084 | na |
| 4 | | | | | E03D3/12; E03D1/14; A47K11/12; A47K11/02 | na |
| 4 | | | | | E03D13/007; E03D5/016; E03B1/041; Y02A20/146-148 | na |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.1. Demand-side technologies (water conservation) | 9.2.1.2. Irrigation water conservation | A01G25/02; A01G25/06; A01G 25/16; C12N15/8273 | na |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.1. Demand-side technologies (water conservation) | 9.2.1.3. Water conservation in thermoelectric power production | F01K23/06-108; F01D11; Y02A20/30 | Efficiency brown |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.2. Supply-side technologies (water availability) | 9.2.2.1. Water collection (rain, surface and ground-water) | E03B3/02; E03B3/03; Y02A20/108; E03B9 | na |
| 4 | | | | | E03B3/04; E03B3/30; E03B3/36; E03B5 | na |
| 4 | | | | | E03B3/06-26; E03B3/28; E03B3/32-34; E03B3/38-40 | na |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.2. Supply-side technologies (water availability) | 9.2.2.2. Water desalination | Y02A20/124-144; C02F1/265 | na |
| 4 | 9. Climate change adaption technologies | 9.2. Water resource management | 9.2.2. Supply-side technologies (water availability) | 9.2.2.3. Water storage and distribution | E03B11; Y02A20/15; F17D5/02 and E03B; F17D5/02 and E03C | na |
| 4 | | | | | F17D5/02 and E03D; F16L55/16 and E03B; F16L55/16 and E03C; F16L55/16 and E03D | na |
| 4 | | | | | G01M3/08 and E03B; G01M3/14 and E03B; G01M3/18 and E03B; G01M3/22 and E03B | na |
| 4 | | | | | G01M3/28 and E03B; G01M3/08 and E03C; G01M3/14 and E03C; G01M3/18 and E03C | na |

# TABLE 5: CATEGORIES ASSIGNED TO IPC CLASSIFICATION

| Level | Topic L1 | Topic L2 | Topic L3 | Topic L4 | Topic L5 | IPC codes | Category |
|---|---|---|---|---|---|---|---|
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | SOLID FUELS | | | C10L 5/00, 5/40-5/48 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | SOLID FUELS | TORREFACTION OF BIOMASS | | C10B 53/02 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | SOLID FUELS | TORREFACTION OF BIOMASS | | C10L 5/40, 9/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | | | C10L 1/00, 1/02, 1/14 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | VEGETABLE OILS | | C10L 1/02, 1/19 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIODIESEL | | C07C 67/00, 69/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIODIESEL | | C10G | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIODIESEL | | C10L 1/02, 1/19 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIODIESEL | | C11C 3/10 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIODIESEL | | C12P 7/649 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIOETHANOL | | C10L 1/02, 1/182 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIOETHANOL | | C12N 9/24 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | LIQUID FUELS | BIOETHANOL | | C12P 7/06-7/14 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | BIOGAS | | | C02F 3/28, 11/04 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | BIOGAS | | | C10L 3/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | BIOGAS | | | C12M 1/107 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | BIOGAS | | | C12P 5/02 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | FROM GENETICALLY ENGINEERED ORGANISMS | | | C12N 1/13, 1/15, 1/21, 5/10, 15/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | BIO-FUELS | FROM GENETICALLY ENGINEERED ORGANISMS | | | A01H | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | INTEGRATED GASIFICATION COMBINED CYCLE (IGCC) | | | | C10L 3/00 | Efficiency brown |
| 2 | ALTERNATIVE ENERGY PRODUCTION | INTEGRATED GASIFICATION COMBINED CYCLE (IGCC) | | | | F02C 3/28 | Efficiency brown |
| 2 | ALTERNATIVE ENERGY PRODUCTION | FUEL CELLS | | | | H01M 4/86-4/98, 8/00-8/24, 12/00-12/08 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | FUEL CELLS | ELECTRODES | | | H01M 4/86-4/98 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | FUEL CELLS | ELECTRODES | INERT ELECTRODES WITH CATALYTIC ACTIVITY | | H01M 4/86-4/98 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | FUEL CELLS | NON-ACTIVE PARTS | | | H01M 8/00-8/24, 50/00-50/171 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | FUEL CELLS | WITHIN HYBRID CELLS | | | H01M 12/00-12/08 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | PYROLYSIS OR GASIFICATION OF BIOMASS | | | | C10B 53/00 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | PYROLYSIS OR GASIFICATION OF BIOMASS | | | | C10J | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | AGRICULTURAL WASTE | | | C10L 5/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | AGRICULTURAL WASTE | FUEL FROM ANIMAL WASTE AND CROP RESIDUES | | C10L 5/42, 5/44 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | AGRICULTURAL WASTE | INCINERATORS FOR FIELD, GARDEN OR WOOD WASTE | | F23G 7/00, 7/10 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | GASIFICATION | | | C10J 3/02, 3/46 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | GASIFICATION | | | F23B 90/00 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | GASIFICATION | | | F23G 5/027 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | CHEMICAL WASTE | | | B09B 3/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | CHEMICAL WASTE | | | F23G 7/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | | | C10L 5/48 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | | | F23G 5/00, 7/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | USING TOP GAS IN BLAST FURNACES TO POWER PIG-IRON PRODUCTION | | C21B 5/06 | Efficiency brown |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | PULP LIQUORS | | D21C 11/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | ANAEROBIC DIGESTION OF INDUSTRIAL WASTE | | A62D 3/02 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | ANAEROBIC DIGESTION OF INDUSTRIAL WASTE | | C02F 11/04, 11/14 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | INDUSTRIAL WASTE | INDUSTRIAL WOOD WASTE | | F23G 7/00, 7/10 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | HOSPITAL WASTE | | | B09B 3/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | HOSPITAL WASTE | | | F23G 5/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | LANDFILL GAS | | | B09B | Efficiency brown |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | LANDFILL GAS | SEPARATION OF COMPONENTS | | B01D 53/02, 53/04, 53/047, 53/14, 53/22, 53/24 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | MUNICIPAL WASTE | | | C10L 5/46 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HARNESSING ENERGY FROM MANMADE WASTE | MUNICIPAL WASTE | | | F23G 5/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | WATER-POWER PLANTS | | | E02B 9/00-9/06 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | WATER-POWER PLANTS | TIDE OR WAVE POWER PLANTS | | E02B 9/08 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | MACHINES OR ENGINES FOR LIQUIDS | | | F03B | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | MACHINES OR ENGINES FOR LIQUIDS | | | F03C | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | MACHINES OR ENGINES FOR LIQUIDS | USING WAVE OR TIDE ENERGY | | F03B 13/12-13/26 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | REGULATING, CONTROLLING OR SAFETY MEANS OF MACHINES OR ENGINES | | | F03B 15/00-15/22 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | HYDRO ENERGY | PROPULSION OF MARINE VESSELS USING ENERGY DERIVED FROM WATER MOVEMENT | | | B63H 19/02, 19/04 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | OCEAN THERMAL ENERGY CONVERSION (OTEC) | | | | F03G 7/05 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | | | | F03D | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | STRUCTURAL ASSOCIATION OF ELECTRIC GENERATOR WITH MECHANICAL DRIVING MOTOR | | | H02K 7/18 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | STRUCTURAL ASPECTS OF WIND TURBINES | | | B63B 35/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | STRUCTURAL ASPECTS OF WIND TURBINES | | | E04H 12/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | STRUCTURAL ASPECTS OF WIND TURBINES | | | F03D 13/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | PROPULSION OF VEHICLES USING WIND POWER | | | B60K 16/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | PROPULSION OF VEHICLES USING WIND POWER | ELECTRIC PROPULSION OF VEHICLES USING WIND POWER | | B60L 8/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | WIND ENERGY | PROPULSION OF MARINE VESSELS BY WIND-POWERED MOTORS | | | B63H 13/00 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | | | | F24S | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | | | | H02S | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DEVICES ADAPTED FOR THE CONVERSION OF RADIATION ENERGY INTO ELECTRICAL ENERGY | | H01L 27/142, 31/00-31/078 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DEVICES ADAPTED FOR THE CONVERSION OF RADIATION ENERGY INTO ELECTRICAL ENERGY | | H01G 9/20 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DEVICES ADAPTED FOR THE CONVERSION OF RADIATION ENERGY INTO ELECTRICAL ENERGY | | H02S 10/00 | Green |
| 5 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DEVICES ADAPTED FOR THE CONVERSION OF RADIATION ENERGY INTO ELECTRICAL ENERGY | USING ORGANIC MATERIALS AS THE ACTIVE PART | H01L 27/30, 51/42-51/48 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | ASSEMBLIES OF A PLURALITY OF SOLAR CELLS | | H01L 25/00, 25/03, 25/16, 25/18, 31/042 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | SILICON; SINGLE-CRYSTAL GROWTH | | C01B 33/02 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | SILICON; SINGLE-CRYSTAL GROWTH | | C23C 14/14, 16/24 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | SILICON; SINGLE-CRYSTAL GROWTH | | C30B 29/06 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | REGULATING TO THE MAXIMUM POWER AVAILABLE FROM SOLAR CELLS | | G05F 1/67 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | ELECTRIC LIGHTING DEVICES WITH, OR RECHARGEABLE WITH, SOLAR CELLS | | F21L 4/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | ELECTRIC LIGHTING DEVICES WITH, OR RECHARGEABLE WITH, SOLAR CELLS | | F21S 9/03 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | CHARGING BATTERIES | | H02J 7/35 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DYE-SENSITISED SOLAR CELLS (DSSC) | | H01G 9/20 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PHOTOVOLTAICS (PV) | DYE-SENSITISED SOLAR CELLS (DSSC) | | H01M 14/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | | | F24S | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | FOR DOMESTIC HOT WATER SYSTEMS | | F24D 17/00, 18/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | FOR SPACE HEATING | | F24D 3/00, 5/00, 11/00, 19/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | FOR SWIMMING POOLS | | F24S 90/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | SOLAR UPDRAFT TOWERS | | F03D 1/04, 9/00, 13/20 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | SOLAR UPDRAFT TOWERS | | F03G 6/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | FOR TREATMENT OF WATER, WASTE WATER OR SLUDGE | | C02F 1/14 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR HEAT | GAS TURBINE POWER PLANTS USING SOLAR HEAT SOURCE | | F02C 1/05 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | HYBRID SOLAR THERMAL-PV SYSTEMS | | | H01L 31/0525 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | HYBRID SOLAR THERMAL-PV SYSTEMS | | | H02S 40/44 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PROPULSION OF VEHICLES USING SOLAR POWER | | | B60K 16/00 | Green |
| 4 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PROPULSION OF VEHICLES USING SOLAR POWER | ELECTRIC PROPULSION OF VEHICLES USING SOLAR POWER | | B60L 8/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | PRODUCING MECHANICAL POWER FROM SOLAR ENERGY | | | F03G 6/00-6/06 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | ROOF COVERING ASPECTS OF ENERGY COLLECTING DEVICES | | | E04D 13/00, 13/18 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | STEAM GENERATION USING SOLAR HEAT | | | F22B 1/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | STEAM GENERATION USING SOLAR HEAT | | | F24V 30/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | REFRIGERATION OR HEAT PUMP SYSTEMS USING SOLAR ENERGY | | | F25B 27/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | USE OF SOLAR ENERGY FOR DRYING MATERIALS OR OBJECTS | | | F26B 3/00, 3/28 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | SOLAR CONCENTRATORS | | | F24S 23/00 | Green |

| Level | Topic L1 | Topic L2 | Topic L3 | Topic L4 | Topic L5 | IPC codes | Category |
|---|---|---|---|---|---|---|---|
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | SOLAR CONCENTRATORS | | | G02B 7/183 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | SOLAR ENERGY | SOLAR PONDS | | | F24S 10/10 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | | | | F24T | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | USE OF GEOTHERMAL HEAT | | | F01K | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | USE OF GEOTHERMAL HEAT | | | F24F 5/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | USE OF GEOTHERMAL HEAT | | | F24T 10/00-50/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | USE OF GEOTHERMAL HEAT | | | H02N 10/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | USE OF GEOTHERMAL HEAT | | | F25B 30/06 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | GEOTHERMAL ENERGY | PRODUCTION OF MECHANICAL POWER FROM GEOTHERMAL ENERGY | | | F03G 4/00-4/06, 7/04 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | | | | F24T 10/00-50/00 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | | | | F24V 30/00-50/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | HEAT PUMPS IN CENTRAL HEATING SYSTEMS USING HEAT ACCUMULATED IN STORAGE MASSES | | | F24D 11/02 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | HEAT PUMPS IN OTHER DOMESTIC- OR SPACE-HEATING SYSTEMS | | | F24D 15/04 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | HEAT PUMPS IN DOMESTIC HOT-WATER SUPPLY SYSTEMS | | | F24D 17/02, 18/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | AIR OR WATER HEATERS USING HEAT PUMPS | | | F24H 4/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | OTHER PRODUCTION OR USE OF HEAT, NOT DERIVED FROM COMBUSTION, E.G. NATURAL HEAT | HEAT PUMPS | | | F25B 30/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | TO PRODUCE MECHANICAL ENERGY | | | F01K 27/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF COMBUSTION ENGINES | | | F01K 23/06-23/10 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF COMBUSTION ENGINES | | | F01N 5/00 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF COMBUSTION ENGINES | | | F02G 5/00-5/04 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF COMBUSTION ENGINES | | | F25B 27/02 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF STEAM ENGINE PLANTS | | | F01K 17/00, 23/04 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF GAS-TURBINE PLANTS | | | F02C 6/18 | Efficiency brown |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | AS SOURCE OF ENERGY FOR REFRIGERATION PLANTS | | | F25B 27/02 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | FOR TREATMENT OF WATER, WASTE WATER OR SEWAGE | | | C02F 1/16 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | RECOVERY OF WASTE HEAT IN PAPER PRODUCTION | | | D21F 5/20 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | FOR STEAM GENERATION BY EXPLOITATION OF THE HEAT CONTENT OF HOT HEAT CARRIERS | | | F22B 1/02 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | RECUPERATION OF HEAT ENERGY FROM WASTE INCINERATION | | | F23G 5/46 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | ENERGY RECOVERY IN AIR CONDITIONING | | | F24F 12/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | ARRANGEMENTS FOR USING WASTE HEAT FROM FURNACES, KILNS, OVENS OR RETORTS | | | F27D 17/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | REGENERATIVE HEAT-EXCHANGE APPARATUS | | | F28D 17/00-20/00 | Green |
| 3 | ALTERNATIVE ENERGY PRODUCTION | USING WASTE HEAT | OF GASIFICATION PLANTS | | | C10J 3/86 | Green |
| 2 | ALTERNATIVE ENERGY PRODUCTION | DEVICES FOR PRODUCING MECHANICAL POWER FROM MUSCLE ENERGY | | | | F03G 5/00-5/08 | Green |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | HYBRID VEHICLES, E.G. HYBRID ELECTRIC VEHICLES (HEVS) | | | B60K 6/00, 6/20 | Green |
| 4 | TRANSPORTATION | VEHICLES IN GENERAL | HYBRID VEHICLES, E.G. HYBRID ELECTRIC VEHICLES (HEVS) | CONTROL SYSTEMS | | B60W 20/00 | Green |
| 4 | TRANSPORTATION | VEHICLES IN GENERAL | HYBRID VEHICLES, E.G. HYBRID ELECTRIC VEHICLES (HEVS) | GEARINGS THEREFOR | | F16H 3/00-3/78, 48/00-48/30 | Green |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | BRUSHLESS MOTORS | | | H02K 29/08 | Efficiency general |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | ELECTROMAGNETIC CLUTCHES | | | H02K 49/10 | Efficiency general |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | REGENERATIVE BRAKING SYSTEMS | | | B60L 7/10-7/22 | Efficiency general |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | ELECTRIC PROPULSION WITH POWER SUPPLY FROM FORCE OF NATURE, E.G. SUN, WIND | | | B60L 8/00 | Green |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | ELECTRIC PROPULSION WITH POWER SUPPLY EXTERNAL TO VEHICLE | | | B60L 9/00 | Green |
| 4 | TRANSPORTATION | VEHICLES IN GENERAL | ELECTRIC PROPULSION WITH POWER SUPPLY EXTERNAL TO VEHICLE | WITH POWER SUPPLY FROM FUEL CELLS, E.G. FOR HYDROGEN VEHICLES | | B60L 50/50-58/40 | Green |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | COMBUSTION ENGINES OPERATING ON GASEOUS FUELS, E.G. HYDROGEN | | | F02B 43/00 | Efficiency brown |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | COMBUSTION ENGINES OPERATING ON GASEOUS FUELS, E.G. HYDROGEN | | | F02M 21/02, 27/02 | Efficiency brown |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | POWER SUPPLY FROM FORCE OF NATURE, E.G. SUN, WIND | | | B60K 16/00 | Green |
| 3 | TRANSPORTATION | VEHICLES IN GENERAL | CHARGING STATIONS FOR ELECTRIC VEHICLES | | | H02J 7/00 | Green |
| 3 | TRANSPORTATION | VEHICLES OTHER THAN RAIL VEHICLES | DRAG REDUCTION | | | B62D 35/00, 35/02 | Efficiency general |
| 3 | TRANSPORTATION | VEHICLES OTHER THAN RAIL VEHICLES | DRAG REDUCTION | | | B63B 1/34-1/40 | Efficiency general |
| 3 | TRANSPORTATION | VEHICLES OTHER THAN RAIL VEHICLES | HUMAN-POWERED VEHICLE | | | B62K | Green |
| 3 | TRANSPORTATION | VEHICLES OTHER THAN RAIL VEHICLES | HUMAN-POWERED VEHICLE | | | B62M 1/00, 3/00, 5/00, 6/00 | Green |
| 2 | TRANSPORTATION | RAIL VEHICLES | | | | B61 | Efficiency general |
| 3 | TRANSPORTATION | RAIL VEHICLES | DRAG REDUCTION | | | B61D 17/02 | Efficiency general |
| 3 | TRANSPORTATION | MARINE VESSEL PROPULSION | PROPULSIVE DEVICES DIRECTLY ACTED ON BY WIND | | | B63H 9/00 | Green |
| 3 | TRANSPORTATION | MARINE VESSEL PROPULSION | PROPULSION BY WIND-POWERED MOTORS | | | B63H 13/00 | Green |
| 3 | TRANSPORTATION | MARINE VESSEL PROPULSION | PROPULSION USING ENERGY DERIVED FROM WATER MOVEMENT | | | B63H 19/02, 19/04 | Green |
| 3 | TRANSPORTATION | MARINE VESSEL PROPULSION | PROPULSION BY MUSCLE POWER | | | B63H 16/00 | Green |
| 3 | TRANSPORTATION | MARINE VESSEL PROPULSION | PROPULSION DERIVED FROM NUCLEAR ENERGY | | | B63H 21/18 | Green |
| 2 | TRANSPORTATION | COSMONAUTIC VEHICLES USING SOLAR ENERGY | | | | B64G 1/44 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF ELECTRICAL ENERGY | | | | B60K 6/28 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF ELECTRICAL ENERGY | | | | B60W 10/26 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF ELECTRICAL ENERGY | | | | H01M 10/44-10/46 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF ELECTRICAL ENERGY | | | | H01G 11/00 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF ELECTRICAL ENERGY | | | | H02J 3/28, 7/00, 15/00 | Green |
| 2 | ENERGY CONSERVATION | POWER SUPPLY CIRCUITRY | | | | H02J | Green |
| 3 | ENERGY CONSERVATION | POWER SUPPLY CIRCUITRY | WITH POWER SAVING MODES | | | H02J 9/00 | Green |
| 2 | ENERGY CONSERVATION | MEASUREMENT OF ELECTRICITY CONSUMPTION | | | | B60L 3/00 | Green |
| 2 | ENERGY CONSERVATION | MEASUREMENT OF ELECTRICITY CONSUMPTION | | | | G01R | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF THERMAL ENERGY | | | | C09K 5/00 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF THERMAL ENERGY | | | | F24H 7/00 | Green |
| 2 | ENERGY CONSERVATION | STORAGE OF THERMAL ENERGY | | | | F28D 20/00, 20/02 | Green |
| 3 | ENERGY CONSERVATION | LOW ENERGY LIGHTING | ELECTROLUMINESCENT LIGHT SOURCES (E.G. LEDS, OLEDS, PLEDS) | | | F21K 99/00 | Efficiency general |
| 3 | ENERGY CONSERVATION | LOW ENERGY LIGHTING | ELECTROLUMINESCENT LIGHT SOURCES (E.G. LEDS, OLEDS, PLEDS) | | | F21L 4/02 | Efficiency general |
| 3 | ENERGY CONSERVATION | LOW ENERGY LIGHTING | ELECTROLUMINESCENT LIGHT SOURCES (E.G. LEDS, OLEDS, PLEDS) | | | H01L 33/00-33/64, 51/50 | Efficiency general |
| 3 | ENERGY CONSERVATION | LOW ENERGY LIGHTING | ELECTROLUMINESCENT LIGHT SOURCES (E.G. LEDS, OLEDS, PLEDS) | | | H05B 33/00 | Efficiency general |
| 2 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | | | | E04B 1/62, 1/74-1/80, 1/88, 1/90 | Efficiency general |
| 3 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | | | E04C 1/40, 1/41, 2/284-2/296 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR DOOR OR WINDOW OPENINGS | | E06B 3/263 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR WALLS | | E04B 2/00 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR WALLS | | E04F 13/08 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR FLOORS | | E04B 5/00 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR FLOORS | | E04F 15/18 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR ROOFS | | E04B 7/00 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR ROOFS | | E04D 1/28, 3/35, 13/16 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR CEILINGS | | E04B 9/00 | Efficiency general |
| 4 | ENERGY CONSERVATION | THERMAL BUILDING INSULATION, IN GENERAL | INSULATING BUILDING ELEMENTS | FOR CEILINGS | | E04F 13/08 | Efficiency general |
| 2 | ENERGY CONSERVATION | RECOVERING MECHANICAL ENERGY | | | | F03G 7/08 | Green |
| 3 | ENERGY CONSERVATION | RECOVERING MECHANICAL ENERGY | CHARGEABLE MECHANICAL ACCUMULATORS IN VEHICLES | | | B60K 6/10, 6/30 | Green |
| 3 | ENERGY CONSERVATION | RECOVERING MECHANICAL ENERGY | CHARGEABLE MECHANICAL ACCUMULATORS IN VEHICLES | | | B60L 50/30 | Green |
| 2 | WASTE MANAGEMENT | WASTE DISPOSAL | | | | B09B | Efficiency general |
| 2 | WASTE MANAGEMENT | WASTE DISPOSAL | | | | B65F | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | DISINFECTION OR STERILISATION | | | A61L 11/00 | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | TREATMENT OF HAZARDOUS OR TOXIC WASTE | | | A62D 3/00, 101/00 | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | TREATING RADIOACTIVELY CONTAMINATED MATERIAL; DECONTAMINATION ARRANGEMENTS THEREFOR | | | G21F 9/00 | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | REFUSE SEPARATION | | | B03B 9/06 | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | RECLAMATION OF CONTAMINATED SOIL | | | B09C | Efficiency general |
| 3 | WASTE MANAGEMENT | TREATMENT OF WASTE | MECHANICAL TREATMENT OF WASTE PAPER | | | D21B 1/08, 1/32 | Efficiency general |
| 2 | WASTE MANAGEMENT | CONSUMING WASTE BY COMBUSTION | | | | F23G | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | USE OF RUBBER WASTE IN FOOTWEAR | | | A43B 1/12, 21/14 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | MANUFACTURE OF ARTICLES FROM WASTE METAL PARTICLES | | | B22F 8/00 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | PRODUCTION OF HYDRAULIC CEMENTS FROM WASTE MATERIALS | | | C04B 7/24-7/30 | Efficiency general |

| Level | Topic L1 | Topic L2 | Topic L3 | Topic L4 | Topic L5 | IPC codes | Category |
|---|---|---|---|---|---|---|---|
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | USE OF WASTE MATERIALS AS FILLERS FOR MORTARS, CONCRETE | | | C04B 18/04-18/10 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | PRODUCTION OF FERTILISERS FROM WASTE OR REFUSE | | | C05F | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C09J 11/00-11/28 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C09K 11/01 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C11B 11/00, 13/00-13/04 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C14C 3/32 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C21B 3/04 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | C25C 1/00 | Efficiency general |
| 3 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | | | D01F 13/00-13/04 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | RECOVERY OF PLASTICS MATERIALS FROM WASTE | | B29B 17/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | DISASSEMBLY OF VEHICLES FOR RECOVERY OF SALVAGEABLE PARTS | | B62D 67/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | OF POLYMERS | | C08J 11/04-11/28 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | PRODUCTION OF LIQUID HYDROCARBONS FROM RUBBER WASTE | | C10G 1/10 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | SOLID FUELS DERIVED FROM WASTE | | C10L 5/46, 5/48 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | OBTAINING METALS FROM SCRAP | | C22B 7/00-7/04, 19/30, 25/06 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | DISINTEGRATING FIBROUS MATERIALS FOR REUSE | | D01G 11/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | WORKING-UP WASTE PAPER TO OBTAIN CELLULOSE | | D21C 5/02 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | RECLAIMING SALVAGEABLE COMPONENTS OR MATERIAL FROM ELECTRIC DISCHARGE TUBES OR LAMPS | | H01J 9/50, 9/52 | Efficiency general |
| 4 | WASTE MANAGEMENT | REUSE OF WASTE MATERIALS | RECOVERY OR WORKING-UP OF WASTE MATERIALS | RECLAIMING SERVICEABLE PARTS OF WASTE CELLS, BATTERIES OR ACCUMULATORS | | H01M 6/52, 10/54 | Efficiency general |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | B01D 53/14, 53/22, 53/62 | Gneen |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | B65G 5/00 | Gneen |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | C01B 32/50 | Gneen |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | E21B 41/00, 43/16 | Gneen |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | E21F 17/16 | Gneen |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | CARBON CAPTURE AND STORAGE | | | F25J 3/02 | Gneen |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | | B01D 53/00-53/96 | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | EXHAUST APPARATUS FOR COMBUSTION ENGINES WITH MEANS FOR TREATING EXHAUST | F01N 3/00-3/38 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | RENDERING EXHAUST GASES INNOCUOUS | B01D 53/92 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | RENDERING EXHAUST GASES INNOCUOUS | F02B 75/10 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | REMOVAL OF WASTE GASES OR DUST IN STEEL PRODUCTION | C21C 5/38 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | COMBUSTION APPARATUS USING RECIRCULATION OF FLUE GASES | C10B 21/18 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | COMBUSTION APPARATUS USING RECIRCULATION OF FLUE GASES | F23B 80/02 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | COMBUSTION APPARATUS USING RECIRCULATION OF FLUE GASES | F23C 9/00 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | COMBUSTION OF WASTE GASES OR NOXIOUS GASES | F23G 7/06 | Efficiency brown |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | TREATMENT OF WASTE GASES | ELECTRICAL CONTROL OF EXHAUST GAS TREATING APPARATUS | F01N 9/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | | B01D 45/00-51/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | | B03C 3/00 | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | DUST REMOVAL FROM FURNACES | C21B 7/22 | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | DUST REMOVAL FROM FURNACES | C21C 5/38 | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | DUST REMOVAL FROM FURNACES | F27B 1/18 | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | SEPARATING DISPERSED PARTICLES FROM GASES OR VAPOURS | DUST REMOVAL FROM FURNACES | F27B 15/12 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | USE OF ADDITIVES IN FUELS OR FIRES TO REDUCE SMOKE OR FACILITATE SOOT REMOVAL | | C10L 10/02, 10/06 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | USE OF ADDITIVES IN FUELS OR FIRES TO REDUCE SMOKE OR FACILITATE SOOT REMOVAL | | F23J 7/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | ARRANGEMENTS OF DEVICES FOR TREATING SMOKE OR FUMES FROM COMBUSTION APPARATUS | | F23J 15/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | DUST-LAYING OR DUST-ABSORBING MATERIALS | | C09K 3/22 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | AIR QUALITY MANAGEMENT | POLLUTION ALARMS | | G08B 21/12 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | TREATING WASTE-WATER OR SEWAGE | | B63J 4/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | TREATING WASTE-WATER OR SEWAGE | | C02F | Efficiency general |
| 5 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | TREATING WASTE-WATER OR SEWAGE | TO PRODUCE FERTILISERS | C05F 7/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | MATERIALS FOR TREATING LIQUID POLLUTANTS | | C09K 3/32 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | REMOVING POLLUTANTS FROM OPEN WATER | | B63B 35/32 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | REMOVING POLLUTANTS FROM OPEN WATER | | E02B 15/04 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | PLUMBING INSTALLATIONS FOR WASTE WATER | | E03C 1/12 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | MANAGEMENT OF SEWAGE | | C02F 1/00, 3/00, 9/00 | Efficiency general |
| 4 | WASTE MANAGEMENT | POLLUTION CONTROL | CONTROL OF WATER POLLUTION | MANAGEMENT OF SEWAGE | | E03F | Efficiency general |
| 3 | WASTE MANAGEMENT | POLLUTION CONTROL | MEANS FOR PREVENTING RADIOACTIVE CONTAMINATION IN THE EVENT OF REACTOR LEAKAGE | | | C21C 13/10 | Efficiency general |
| 2 | AGRICULTURE / FORESTRY | FORESTRY TECHNIQUES | | | | A01G 23/00 | Efficiency general |
| 2 | AGRICULTURE / FORESTRY | ALTERNATIVE IRRIGATION TECHNIQUES | | | | A01G 25/00 | Efficiency general |
| 2 | AGRICULTURE / FORESTRY | PESTICIDE ALTERNATIVES | | | | A01N 25/00-65/00 | Efficiency general |
| 2 | AGRICULTURE / FORESTRY | SOIL IMPROVEMENT | | | | C09K 17/00 | Efficiency general |
| 2 | AGRICULTURE / FORESTRY | SOIL IMPROVEMENT | | | | E02D 3/00 | Efficiency general |
| 3 | AGRICULTURE / FORESTRY | SOIL IMPROVEMENT | ORGANIC FERTILISERS DERIVED FROM WASTE | | | C05F | Efficiency general |
| 2 | ADMINISTRATIVE, REGULATORY OR DESIGN ASPECTS | COMMUTING, E.G., HOV, TELEWORKING, ETC. | | | | G06Q | Efficiency general |
| 2 | ADMINISTRATIVE, REGULATORY OR DESIGN ASPECTS | COMMUTING, E.G., HOV, TELEWORKING, ETC | | | | G09G | Efficiency general |
| 2 | ADMINISTRATIVE, REGULATORY OR DESIGN ASPECTS | CARBON/EMISSIONS TRADING, E.G. POLLUTION CREDITS | | | | G06Q | Efficiency general |
| 2 | ADMINISTRATIVE, REGULATORY OR DESIGN ASPECTS | STATIC STRUCTURE DESIGN | | | | E04H 1/00 | Efficiency general |
| 2 | NUCLEAR POWER GENERATION | NUCLEAR ENGINEERING | | | | G21 | Gneen |
| 3 | NUCLEAR POWER GENERATION | NUCLEAR ENGINEERING | FUSION REACTORS | | | G21B | Gneen |
| 3 | NUCLEAR POWER GENERATION | NUCLEAR ENGINEERING | NUCLEAR (FISSION) REACTORS | | | G21C | Gneen |
| 3 | NUCLEAR POWER GENERATION | NUCLEAR ENGINEERING | NUCLEAR POWER PLANT | | | G21D | Gneen |
| 2 | NUCLEAR POWER GENERATION | GAS TURBINE POWER PLANTS USING HEAT SOURCE OF NUCLEAR ORIGIN | | | | F02C 1/05 | Gneen |

## TABLE 6: CATEGORIES ASSIGNED TO FF CLASSIFICATION

| Main Category | Description | IPC codes | Exclusion IPC codes | Category |
|---|---|---|---|---|
| COAL GASIFICATION | Production of combustible gases containing carbon monoxide from solid carbonaceous fuels | C10J3 | | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus specially adapted for combustion of two or more kinds of fuel simultaneously or alternately, at least one kind of fuel being fluent | F23C1 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus characterized by the arrangement or mounting of burners; Disposition of burners to obtain a loop flame. | F23C5/24 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus characterized by the combination of two or more combustion chambers (using fluent fuel) | F23C6 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus characterized by the combination of two or more combustion chambers (using only solid fuel) | F23B10 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus with driven means for agitating the burning fuel; Combustion apparatus with driven means for advancing the burning fuel through the combustion chamber | F23B30 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus characterized by means for returning solid combustion residues to the combustion chamber | F23B70 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Combustion apparatus characterized by means creating a distinct flow path for flue gases or for noncombusted gases given off by the fuel | F23B80 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Burners for combustion of pulverulent fuel | F23D1 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Burners in which drops of liquid fuel impinge on a surface | F23D7 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED BURNERS | Burners for combustion simultaneously or alternatively of gaseous or liquid or pulverulent fuel | F23D17 | B60, B68, F24, F27 | efficiency brown |
| FLUIDIZED BED COMBUSTION | Chemical or physical processes (and apparatus therefor) conducted in the presence of fluidised particles, with liquid as a fluidising medium | B01J8/20-22 | | efficiency brown |
| FLUIDIZED BED COMBUSTION | Chemical or physical processes (and apparatus therefor) conducted in the presence of fluidised particles, according to fluidised-bed technique | B01J8/24-30 | | efficiency brown |
| FLUIDIZED BED COMBUSTION | Fluidised-bed furnaces; Other furnaces using or treating finely-divided materials in dispersion | F27B15 | | efficiency brown |
| FLUIDIZED BED COMBUSTION | Apparatus in which combustion takes place in a fluidised bed of fuel or other particles | F23C10 | | efficiency brown |
| IMPROVED BOILERS FOR STEAM GENERATION | Modifications of boiler construction, or of tube systems, dependent on installation of combustion apparatus; Arrangements or dispositions of combustion apparatus | F22B31 | | efficiency brown |
| IMPROVED BOILERS FOR STEAM GENERATION | Steam generation plants, e.g. comprising steam boilers of different types in mutual association; Combinations of low- and high-pressure boilers | F22B33/14-16 | | efficiency brown |
| IMPROVED STEAM ENGINES | Plants characterised by the use of steam or heat accumulators, or intermediate steam heaters, therein | F01K3 | | efficiency brown |
| IMPROVED STEAM ENGINES | Plants characterised by use of means for storing steam in an alkali to increase steam pressure, e.g. of Honigmann or Koenemann type | F01K5 | | efficiency brown |
| IMPROVED STEAM ENGINES | Plants characterised by more than one engine delivering power external to the plant, the engines being driven by different fluids | F01K23 | | efficiency brown |
| SUPERHEATERS | Superheating of steam | F22G | | efficiency brown |
| IMPROVED GAS TURBINES | Gas turbine plants - Heating air supply before combustion, e.g. by exhaust gases | F02C7/08-105 | | efficiency brown |
| IMPROVED GAS TURBINES | Cooling of gas turbine plants | F02C7/12-143 | | efficiency brown |
| IMPROVED GAS TURBINES | Gas turbine plants - Preventing corrosion in gas-swept spaces | F02C7/30 | | efficiency brown |
| COMBINED CYCLES | Plants characterised by more than one engine delivering power external to the plant, the engines being driven by different fluids | F01K23/02-10 | | efficiency brown |
| COMBINED CYCLES | Gas turbine plants characterised by the use of combustion products as the working fuel | F02C3/20-36 | | efficiency brown |
| COMBINED CYCLES | Combinations of gas-turbine plants with other apparatus; Supplying working fluid to a user, e.g. a chemical process, which returns working fluid to a turbine of the plant | F02C6/10-12 | | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Engines characterised by fuel-air mixture compression ignition | F02B1/12-14 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Engines characterised by air compression and subsequent fuel addition; with compression ignition | F02B3/06-10 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Engines characterised by the fuel-air charge being ignited by compression ignition of an additional fuel | F02B7 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Engines characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition, e.g. in different cylinders | F02B11 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Engines characterised by the introduction of liquid fuel into cylinders by use of auxiliary fluid; Compression ignition engines using air or gas for blowing fuel into compressed air in cylinder | F02B13/02-04 | B60, B68, F24, F27 | efficiency brown |
| IMPROVED COMPRESSED-IGNITION ENGINES | Methods of operating air-compressing compression-ignition engines involving introduction of small quantities of fuel in the form of a fine mist into the air in the engine's intake. | F02B49 | B60, B68, F24, F27 | efficiency brown |
| COGENERATION | Use of steam or condensate extracted or exhausted from steam engine plant; Returning energy of steam, in exchanged form, to process, e.g. use of exhaust steam for drying solid fuel of plant | F01K17/06 | | efficiency brown |
| COGENERATION | Plants for converting heat or fluid energy into mechanical energy | F01K27 | | efficiency brown |
| COGENERATION | Using the waste heat of gas-turbine plants outside the plants themselves, e.g. gas-turbine power heat plants | F02C6/18 | | efficiency brown |
| COGENERATION | Profiting from waste heat of combustion engines | F02G5 | | efficiency brown |
| COGENERATION | Machines, plant, or systems using waste heat, e.g. from internal-combustion engines | F25B27/02 | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Production of fuel gases by carburetting air or other gases without pyrolysis | C10J | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Hydraulic Engineering | E02B | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Steam engine plants; steam accumulators; engine plants not otherwise provided for; engines using special working fluids or cycles | F01K | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Gas-turbine plants; air intakes for jet-propulsion plants; controlling fuel supply in air-breathing jet-propulsion plants | F02C | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Steam generation | F22 | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Combustion apparatus; combustion processes | F23 | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Production or use of heat not otherwise provided for | F24J | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Furnaces; kilns; ovens; retorts | F27 | | efficiency brown |
| TRADITIONAL FOSSIL FUELS | Heat exchange in general | F28 | | efficiency brown |

## TABLE 7: CATEGORIES ASSIGNED TO CK CLASSIFICATION

| OECD-env tech Categories assigned | Classified CPC level | CPC codes | Category |
|---|---|---|---|
| 1. Environmental Management | 8 | C03C2213/02; D06F2105/02; D21F1/66 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 6 | C10L1/00; C10L10/00; E21B37/00; E21B44/00; E21B49/00 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 8 | C09K8/52; C10K1/002; C10K1/02; C10K3/06; C10L2250/06; C10L2270/04; C10L2290/02; C10L2290/04 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | C10L2290/06; C10L2290/10; C10L2290/24; C10L2290/26; C10L2290/28; C10L2290/30; C10L2290/58; C10L2300/20 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | C10L3/003; C10L9/08; C10L9/10; C10M2211/02; C12M21/04; E21B17/003; E21B23/02; E21B36/008 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | E21B36/02; E21B43/16; E21B43/34; E21B47/002; E21B47/008; E21B47/04; E21B7/04; E21C41/16 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | F16H57/04; F22B37/008; F23R2900/03281; F25J2260/60 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 9 | C09K8/592; C09K8/62; C10B49/04; C10K3/023; C10K3/04; C10L2200/029; C10L2290/141; C10L2290/146 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | C10L2290/543; C10L2290/544; C10L2290/545; C10L2290/547; C10L2290/567; C10L3/08; C10L3/10; C10L5/44 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | C10M2207/021; C10M2207/046; C10M2207/283; C10M2207/34; E21B43/26; E21B47/13; E21F17/06; F01C11/008 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | F22B1/18; F22B37/003 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 10 | C09K8/035; C10B49/22; C10K1/101; C10L2200/0213; C10M129/74; C10M129/76; C10M2207/125; C10M2207/129 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | C10M2207/289; C10M2215/042; E21B17/1021; E21B33/04; E21B33/134; E21B43/128; E21B47/0228; F01C1/084 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | F01C1/107 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 11 | C10L5/363; C10L5/366; E21B43/127; F23R3/20 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 12 | E21B33/0385 | Efficiency brown |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 6 | H02K13/00; H02K33/00; H02K55/00; H02K7/00 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 8 | H02K15/04; H02K15/06; H02K15/10; H02K15/12; H02K2203/15; H02K2213/09; H02K3/46; H02N2/18 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 9 | H02K21/04; H02K21/44; H02K3/18; H02K3/28; H02N1/006 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 10 | H02K1/26; H02K17/165; H02K19/24 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 11 | H02K15/0093 | Efficiency general |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 6 | H01M2008/00; H01M2250/00; H01M8/00; H05K9/00; Y04S10/00; Y04S40/00 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 8 | B63B77/10; B63C11/52; F21S8/006; F22B1/006; H01M14/005; H01M16/003; H01M6/42; H02P2101/15 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | Y04S20/12; Y04S50/10; Y10S136/291; Y10S323/906; Y10T436/24 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 9 | B01D2258/0208; B29L2031/3468; B63J2003/043; B66C1/108; B66C23/185; C01B2203/84; F16N2210/025; F17C2270/0763 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | F22B1/023; F28D2021/0054; G05D3/105; H01M10/0422; H01M10/049; H01M10/056; H01M10/66; H01M4/36 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | H01M4/64; H01M50/502; H01M50/531; H01M50/691; Y10S376/904; Y10T137/4757 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 10 | B29L2031/085; B66C23/207; C10L2200/0469; C25D7/126; F16H2057/02078; G05B2219/2619; H01L27/1421; H01L31/0445 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | H01L31/0475; H01L31/068; H01L31/188; H01M10/465; H01M2010/4271; H01M2010/4278; H01M4/131; H01M4/136 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | H01M4/9016; H01M50/1385; H01M50/358; H01M50/529; H01M6/185; H05K2201/10037; Y10S977/948; Y10T29/49108 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | Y10T29/49355; Y10T29/53135 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 11 | H01L25/042; H01L27/3227; H01L31/02008; H01L31/02021; H01L31/02167; H01L31/022425; H01L31/0504; H01L31/0725 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | | H01L31/073; H01L31/074; H01L31/0745; H01L31/0749; H01L31/076; H01M10/6571; H01M4/1391; H01M4/1397 | Green |
| 2. Climate change mitigation technologies related to energy generation, transmission or distribution | 12 | H01M50/555 | Green |
| 4. Climate change mitigation technologies related to transportation | 8 | B01D2258/01; B01D2279/60; B01D35/005; B60W2710/06; B60Y2300/42; B60Y2300/52; G01K2205/04; G01M15/14 | Efficiency brown |
| 4. Climate change mitigation technologies related to transportation | 9 | B60K2015/03236; B60L2260/12; B60L2270/12; B60W2510/0638; B60W2510/0657; B60W2510/0676; B60W2710/021 | Efficiency brown |
| 4. Climate change mitigation technologies related to transportation | 10 | B60L2270/142; B60L2270/145 | Efficiency brown |
| 4. Climate change mitigation technologies related to transportation | 6 | B60W2030/00; B60W2040/00; B60W2552/00; B60W2554/00; B60W2556/00; B60W30/00; B60W40/00 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | 8 | B60L2270/40; B60L9/005; B60L9/32; B60M1/36; B60W2420/42; B60W2420/52; B60W2420/54; B60W2520/06 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | | B60W2520/10; B60W2540/043; B60W2540/10; B60W2540/16; B60W2540/18; B60W2540/215; B60W2540/221; B60W2555/20 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | | B60W2555/60; B60W2710/18; B60W2710/20; B60W2720/10; B60W2756/10; B60W50/0097; B60W50/06; B60W50/08 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | | B60W60/001 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | 9 | B60K17/043; B60K17/16; B60M1/14; B60M1/28; B60M1/307; B60M1/34; B60W2050/0075; B60W2420/403 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | | B60W2510/305; B60W2720/403; B60W2754/30; B60W60/0053 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | 10 | B60K17/08; B60L2270/147; B60W2050/0008; B60W2050/0018 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | 11 | B60W2050/0005 | Efficiency general |
| 4. Climate change mitigation technologies related to transportation | 6 | B60L1/00; B60L13/00; B60L15/00; B60L3/00; B60L5/00; B60L50/00; B60L53/00; B60L55/00 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L58/00; B60L7/00; B60M3/00; B60M7/00; B60W10/00; B60W20/00; B64D2211/00; B64D2221/00 | Green |
| 4. Climate change mitigation technologies related to transportation | 8 | B60K2001/003; B60K2016/003; B60K7/0007; B60L2200/10; B60L2200/12; B60L2200/18; B60L2200/22; B60L2200/26 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2200/30; B60L2200/32; B60L2200/40; B60L2210/10; B60L2210/20; B60L2210/30; B60L2210/40; B60L2240/60 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2240/70; B60L2240/80; B60L2250/10; B60L2250/12; B60L2250/16; B60L2250/20; B60L2250/24; B60L2250/26 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2260/20; B60L2270/20; B60L8/003; B60L8/006; B60L9/16; B60Y2300/91; B60Y2306/01; B63H21/12 | Green |
| 4. Climate change mitigation technologies related to transportation | | B63H21/21; B64C3/32; B64D29/02; H01M2220/20; H02P2101/45; Y10S903/902 | Green |
| 4. Climate change mitigation technologies related to transportation | 9 | B60H1/00385; B60L2220/12; B60L2220/14; B60L2220/16; B60L2220/42; B60L2220/44; B60L2220/46; B60L2220/58 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2240/12; B60L2240/34; B60L2240/36; B60L2260/16; B60L2260/46; B60L2260/50; B60L2270/32; B60L2270/34 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60W2510/081; B60W2510/083; B60Y2200/92; B60Y2400/112; B60Y2400/114; B64C2201/042 | Green |
| 4. Climate change mitigation technologies related to transportation | 10 | B60K6/32; B60L2240/16; B60L2240/18; B60L2240/20; B60L2240/421; B60L2240/423; B60L2240/425; B60L2240/429 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2240/441; B60L2240/443; B60L2240/445; B60L2240/461; B60L2240/463; B60L2240/486; B60L2240/507; B60L2240/525 | Green |
| 4. Climate change mitigation technologies related to transportation | | B60L2240/526; B60L2240/527; B60L2240/529; B60L2240/545; B60L2240/547; B60L2240/549; B60W2510/244; B63H2021/207 | Green |
| 5. Climate change mitigation technologies related to buildings | 8 | F24D2200/04 | Efficiency brown |
| 5. Climate change mitigation technologies related to buildings | 8 | E04B9/001; F24D11/002; F24D12/02; F25D2201/10; F25D23/06 | Efficiency general |
| 5. Climate change mitigation technologies related to buildings | 9 | F24F11/46; F24F12/002; F24F12/006 | Efficiency general |
| 5. Climate change mitigation technologies related to buildings | 10 | E04D13/1643; E04D13/1681; E05Y2400/452; F24H3/0405 | Efficiency general |
| 5. Climate change mitigation technologies related to buildings | 8 | F24D17/0005; F24D2200/12; F24D2200/14; F24F5/0046; F24H1/0018; F24H3/002; F27D17/004; Y10S315/07 | Green |
| 5. Climate change mitigation technologies related to buildings | 9 | E06B2009/2476; F24D17/0063; F24H1/185 | Green |
| 5. Climate change mitigation technologies related to buildings | 11 | E04C2/525 | Green |
| 6. Climate change mitigation technologies related to wastewater treatment or waste management | 8 | Y10S588/90 | Green |
| 7. Climate change mitigation technologies in the production or processing of goods | 8 | B60K15/01 | Efficiency brown |
| 7. Climate change mitigation technologies in the production or processing of goods | 9 | B60K15/04; G01M15/042; G01M15/06; G01M15/08 | Efficiency brown |

| OECD-env tech Categories assigned | Classified CPC level | CPC codes | Category |
|---|---|---|---|
| 7. Climate change mitigation technologies in the production or processing of goods | 6 | B32B2457/00; F28D2015/00 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 8 | B65G15/60; F28D15/02; G05D1/0005; H03K19/0008; H03K2217/0036 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 9 | B22D25/04; B29L2031/7146; F28D2021/0043; H03F2201/3215 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 10 | B29D11/00817; G03F7/70433; G05B2219/25387; G05B2219/2639; G05D23/1923; G09G2330/023; H04B2201/70707 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 11 | H04B1/1615; H04B2001/045 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 12 | G05B23/0294 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 13 | G09G3/2965 | Efficiency general |
| 7. Climate change mitigation technologies in the production or processing of goods | 6 | H02P15/00; H02P21/00; H02P31/00; H02P5/00; H05H1/00; H05H11/00; H05H13/00; H05H15/00 | Green |
| 7. Climate change mitigation technologies in the production or processing of goods | 8 | F26B23/001; H02P2203/03; H02P2203/11; H02P2207/01; H02P2207/05; H02P23/14; H05H2242/20 | Green |
| 7. Climate change mitigation technologies in the production or processing of goods | 9 | C01B2203/066; C04B2111/00853; F26B3/283; F26B3/30; H02P1/029; H02P1/04; H02P1/24; H02P1/46 | Green |
| 7. Climate change mitigation technologies in the production or processing of goods | 10 | B60H1/143; H02P1/28; H02P1/30; H02P1/423 | Green |
| 7. Climate change mitigation technologies in the production or processing of goods | 11 | C01B2203/0822 | Green |
| 8. Climate change mitigation in information and communication technologies | 8 | A61B5/0002; G06F2119/06; G06F2119/08; H04L69/04 | Efficiency general |
| 8. Climate change mitigation in information and communication technologies | 9 | G06F2212/1028; G11C5/141 | Efficiency general |
| 8. Climate change mitigation in information and communication technologies | 10 | G06F2212/1044; G11B2005/0021; H01H2003/3057; H01H2003/3068; H01H2085/025; H01L27/301; H04L27/3405; H04M1/73 | Efficiency general |
| 8. Climate change mitigation in information and communication technologies | | H04Q2209/886 | Efficiency general |
| 8. Climate change mitigation in information and communication technologies | 11 | H01L51/5028; H04L12/1886; H04L41/0833 | Efficiency general |
| 8. Climate change mitigation in information and communication technologies | 12 | H01L21/263 | Efficiency general |

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