# Appendix C

## Project List of Energy and Power Engineering Program

## List of scientific research projects

| number | project name | project leader | project source | Time | project amount （¥10000） |
|---|---|---|---|---|---|
| 1 | Research and demonstration application of smart energy building energy saving, full electrification and smart home design standards in beautiful countryside | Li Qifen | Shanghai Science and Technology Commission | 2019-2022 | 30.0 |
| 2 | Research on key technology of building equipment regulation and Optimization Based on energy saving control and environmental improvement | Ren Hongbo | Shanghai Science and Technology Commission(Shanghai CSCEC Dongfu Investment Development Co., Ltd.) | 2019-2022 | 20.0 |
| 3 | Optimization strategy of source network load storage interactive operation considering security and economy | Ren Hongbo | Shanghai Science and Technology Commission(Shanghai Branch of China Huadian Group Co., Ltd.) | 2019-2022 | 60.0 |
| 4 | Study on rapid response of atmospheric fine particle concentration with pollution emission | Wang Daolei | NSFC (Shanghai Jiaotong University) | 2020-2023 | 13.0 |
| 5 | System structure and planning design method of multi space and multi type all | Ren Hongbo | Ministry of science and Technology (Huazhong | 2019-2023 | 58.19 |

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| | renewable energy coupled utilization system | | University of science and Technology) | | |
| 6 | Research on water land oil control scheme and policy of transportation integration in Yangtze River Delta | Li Qifen | Natural Resources Conservation Association (NRDC) | 2019-2020 | 70.0 |
| 7 | Heat transfer mechanism and hysteresis of Transcritical CO2 two phase flow in ejector of unsteady system | Liu Fang | Shanghai Science and Technology Commission | 2019-2022 | 20.0 |
| 8 | Creep fatigue oxidation damage analysis and life evaluation of ultra supercritical steam turbine rotor | Ji Dongmei | Shanghai Science and Technology Commission | 2019-2022 | 20.0 |
| 9 | Research and application of key technologies for new high efficiency micro gas turbine system | Pan Weiguo | Shanghai Science and Technology Commission | 2019-2022 | 80.0 |
| 10 | Study on uncertainty quantification method of reactor thermal hydraulic program | Li Dong | Shanghai Science and Technology Commission | 2019-2022 | 20.0 |
| 11 | On the Countermeasures of strengthening the discourse power of Ideological and political education in Colleges and universities in the image age | Shi Fengfeng | Shanghai Education and health system ideological and Political Work Research Association | 2019-2019 | 2.0 |
| 12 | Teaching and ideological and political research of modern power engineering testing technology course | Li Qingwei | Shanghai Education Commission | 2018-2019 | 4.0 |

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| 13 | Study on dynamic behavior of emulsion droplet collision in complex flow field | Wang Chengyao | Shanghai Education Commission | 2018-2019 | 4.0 |
| 14 | Study on thermal storage mechanism of thermochemical adsorption and thermal characteristics | Yan Ting | Shanghai Education Commission | 2018-2019 | 4.0 |
| 15 | Research on the integration of nuclear power professional courses and ideological and Political Education | Li Dong | Shanghai Education Commission | 2018-2019 | 4.0 |
| 16 | Application of craftsmanship spirit in Ideological and political education of gas turbine and combined cycle | Ying Yulong | Shanghai Education Commission | 2018-2019 | 5.0 |
| 17 | Development of WESP heavy metal deep removal technology | Wu Jiang | Ministry of science and Technology (Huazhong University of science and Technology) | 2018-2021 | 55.0 |
| 18 | Study on Combustion Technology of semi coke with low sulfur and low nitrogen and incineration characteristics of pyrolysis wastewater | Guo Ruitang | Ministry of science and Technology (Institute of Engineering Thermophysics, Chinese Academy of Sciences) | 2018-2021 | 50.0 |
| 19 | Study on thermal deviation characteristics in combustion furnace of 700 ℃ Ultra Supercritical Boiler | Qiu Zhongzhu | Ministry of science and Technology (Shanghai Boiler Works Co., Ltd.) | 2018-2021 | 60.0 |
| 20 | Ultra low NOx pulverized coal | Ding Honglei | Ministry of science and | 2018-2020 | 30.0 |

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| | combustion technology | | Technology (Yantai Longyuan Electric Power Technology Co., Ltd.) | | |
| 21 | NOx prediction based on artificial intelligence algorithm | Zeng Zhuoxiong | Ministry of science and Technology (Yantai Longyuan Electric Power Technology Co., Ltd.) | 2018-2020 | 35.0 |
| 22 | Development of megawatt gas turbine distributed energy system | Jiang Weiting | Shanghai Science and Technology Commission(ENN energy power technology (Shanghai) Co., Ltd.) | 2018-2021 | 30.0 |
| 23 | Research on energy supply and consumption characteristics of multiple comprehensive energy sources based on flexible resource development and utilization | Li Qifen | Shanghai Science and Technology Commission(Shanghai Electric Power Co., Ltd.) | 2018-2021 | 48.0 |
| 24 | Study on fluid structure coupling stability of deep sea floating fan based on CFD | Hu Danmei | Shanghai Science and Technology Commission(Shanghai survey, design and Research Institute Co., Ltd.) | 2018-2021 | 30.0 |
| 25 | Research on adaptive gas path fault | Ying Yulong | National Natural | 2019-2021 | 32.34 |

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| | prediction and diagnosis method for gas turbine under transient off design conditions | | Science Foundation of China | | |
| 26 | Research on hierarchical modeling and game optimization of multi energy microgrid group under market mechanism | Wu Qiong | National Natural Science Foundation of China | 2019-2021 | 21.0 |
| 27 | Economic operation efficiency management index of industrial oven | Li Yan | Shanghai Municipal Bureau of quality and technical supervision | 2018-2019 | 5.0 |
| 28 | Study on wind resource assessment system of far-reaching sea area based on artificial intelligence model | Zhang Jianping | Shanghai Science and Technology Commission(Shanghai Green Energy Co., Ltd.) | 2018-2021 | 30.0 |
| 29 | Study on ultra-low emission wet desulfurization and denitrification technology of coal-fired flue gas | Pan Weiguo | Shanghai Science and Technology Commission(Shanghai Minghua Electric Power Technology Engineering Co., Ltd.) | 2018-2021 | 100.0 |
| 30 | Preparation and mechanism of high toughness diamond composite coating prepared by nano particles dispersion strengthening | Chen Naichao | Shanghai Science and Technology Commission | 2018-2021 | 20.0 |
| 31 | Preparation of graphene supported sulfur doped bismuth | Wu Jiang | Shanghai Science and Technology | 2018-2021 | 20.0 |

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| | based photocatalyst and its mercury removal mechanism | | Commission | | |
| 32 | Research and design of new energy storage equipment | Qiu Zhongzhu | Shanghai Science and Technology Commission( Hongqiao Business District Energy Service Co., Ltd.) | 2017-2020 | 30.0 |
| 33 | Research on comprehensive benefit evaluation method and benefit sharing mechanism of regional energy system | Wu Qiong | Shanghai Municipal Education Commission and Shanghai Education Development Foundation | 2018-2020 | 6.0 |
| 34 | Research on Key Technologies of high efficiency distributed solar cogeneration system | Zhu Qunzhi | Shanghai Science and Technology Commission | 2018-2021 | 80.0 |
| 35 | Operation control optimization of photovoltaic solar loop heat pipe / heat pump hybrid system | Zhang Tao | Shanghai Science and Technology Commission | 2018-2021 | 20.0 |
| 36 | Improvement of particle swarm optimization for low NOx combustion optimization | Li Qingwei | Shanghai Science and Technology Commission | 2018-2021 | 20.0 |
| 37 | Construction of engineering practice education system and practice platform for new engineering | Wu Maoliang | Shanghai Education Commission | 2018-2020 | 3.0 |
| 38 | Large scale flow structure of log layer in elastic inertial | Fu Zaiguo | Shanghai Education Commission | 2017-2017 | 4.0 |

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| | turbulence | | | | |
| 39 | Constructing the linkage mechanism of undergraduate academic guidance based on research | Shi Fengfeng | Shanghai Education Commission | 2016-2018 | 4.5 |
| 40 | Damping mechanism of magnesium alloy with lpso structure based on internal friction peak | Qin Dezhao | Shanghai Electric Power University | 2018-2020 | 3.0 |
| 41 | Research on the normalization mechanism and practice strategy of College Youth League member education based on E-class platform | Wang Liping | Shanghai Municipal Committee of the Communist Youth League of China | 2017-2017 | 0.1 |
| 42 | Shanghai heat exchange system energy saving engineering technology research center | Weng Peifen | Shanghai Science and Technology Commission | 2017-2020 | 100.0 |
| 43 | Study on Preparation and properties of nano composite microcapsule phase change materials | Qiu Zhongzhu | Shanghai Science and Technology Commission | 2017-2020 | 20.0 |
| 44 | Study on coupling mechanism and collaborative optimization of cchp-orc system | Wu Qiong | Shanghai Science and Technology Commission | 2017-2020 | 20.0 |
| 45 | Low cost and ultra-low emission control technology and scale equipment of coal-fired power station | Pan Weiguo | Ministry of science and Technology (Zhejiang Feida Environmental Protection Technology Co., Ltd.) | 2016-2020 | 27.0 |
| 46 | Numerical simulation | Liu Jianquan | Shanghai | 2016-2018 | 5.0 |

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| | and experimental study on high efficiency primary loop of advanced reactor system | | Education Commission | | |
| 47 | Research on prediction of milling chatter of thin walled parts | Dong Xinfeng | Shanghai Education Commission | 2016-2018 | 5.0 |
| 48 | Application of new electrocatalyst in fuel cell | Liu Jianfeng | Shanghai Education Commission | 2016-2018 | 4.0 |
| 49 | Research on Key Technologies of multi field coupling of complex flow and combustion process in heavy duty gas turbine combustor | Weng Peifen | Shanghai Science and Technology Commission | 2016-2019 | 100.0 |
| 50 | Removal mechanism of zero valent mercury in flue gas by magnetic induction fly ash from coal fired power plant | He Ping | National Natural Science Foundation of China | 2017-2019 | 25.0 |
| 51 | Coupling mechanism of Hairpin Vortex and turbulent diffusion in near wall region of viscoelastic drag reduction flow | Fu Zaiguo | National Natural Science Foundation of China | 2017-2019 | 23.762 |
| 52 | Study on detection technology of low concentration pollutants in coal fired power plant | Pan Weiguo | Shanghai Environmental Protection Bureau | 2016-2018 | 44.6 |
| 53 | Removal mechanism of zero valent mercury in flue gas by fly ash from coal-fired power plant in magnetic field | He Ping | Shanghai Science and Technology Commission | 2016-2019 | 20.0 |
| 54 | Influence of surfactant and polymer solution on turbulent flow in channel | Fu Zaiguo | Shanghai Electric Power University | 2016-2017 | 3.0 |
| 55 | Research on the | Dong | Shanghai | 2016-2018 | 3.0 |

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| | transition law of milling chatter of thin walled parts | Xinfeng | Electric Power University | | |
| 56 | Study on new cathode electrocatalyst for PEMFC | Liu Jianfeng | Shanghai Electric Power University | 2016-2017 | 3.0 |
| 57 | Research on Key Technologies of high efficiency and safe operation of large capacity generating units | Ren Jianxing | Shanghai Science and Technology Commission | 2015-2018 | 60.0 |
| 58 | Research and development sub project of 600-1000mw supercritical boiler burning Xinjiang Zhundong coal | Cheng Zhihai | Ministry of science and Technology (TBEA Co., Ltd.) | 2015-2017 | 16.0 |
| 59 | Analysis and technical research on utilization of industrial waste heat resources | Zhu Qunzhi | Shanghai Science and Technology Commission(Shanghai Baosteel energy saving and Environmental Protection Technology Co., Ltd.) | 2015-2017 | 50.0 |
| 60 | Controllable synthesis of multi shape and multi size optoelectronic materials | Yuan binxia | Shanghai Education Commission | 2016-2017 | 5.0 |
| 61 | Research on multi view stereo vision matching method | Wang daolei | Shanghai Education Commission | 2016-2017 | 6.0 |
| 62 | Mechanism of strengthening titanium based coating with original nano particles produced by laser | Li Min | Shanghai Education Commission | 2016-2017 | 5.0 |

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| | cladding | | | | |
| 63 | Synergistic removal mechanism of no and Hg in wet flue gas desulfurization based on NaClO2 / (NH4) 2CO3 | Pan Weiguo | National Natural Science Foundation of China | 2016-2016 | 12.0 |
| 64 | Study on dust removal, mercury removal and material anti-corrosion technology of coal-fired flue gas | Ding Honglei | Shanghai Science and Technology Commission(Shanghai Minghua Electric Power Technology Engineering Co., Ltd.) | 2015-2017 | 30.0 |
| 65 | Mechanism of thermal radiation characteristics of Mie resonant dielectric granular metamaterials | Zhu Qunzhi | National Natural Science Foundation of China | 2016-2019 | 76.8 |
| 66 | Nonlinear vibration analysis of heavy duty gas turbine rotor system under thermal fluid solid coupling | Zhu Rui | National Natural Science Foundation of China | 2016-2018 | 23.76 |
| 67 | Research on 3D reconstruction of multi view depth information fusion based on voxel partition model | Wang daolei | National Natural Science Foundation of China | 2016-2018 | 23.5 |
| 68 | Research on fretting corrosion damage mechanism of ACSR under electric field | Ma Xingchi | National Natural Science Foundation of China | 2016-2018 | 23.8 |
| 69 | Multi field coupling mechanism and PIV Experimental Study of PM2.5 capture in electrostatic precipitator under magnetic field | Zhang Jianping | National Natural Science Foundation of China | 2016-2019 | 78.2 |

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| 70 | Research on key issues of performance optimization of new CO2 heat pump thermal battery | Liu Fang | Shanghai Science and Technology Commission | 2015-2017 | 10.0 |
| 71 | Research on key technology of new heat pump thermal battery energy storage | Liu Fang | Shanghai Education Commission and Shanghai Education Development Foundation | 2015-2017 | 15.0 |
| 72 | Study on performance of photovoltaic solar loop heat pipe / heat pump hybrid system under different operation modes | Zhang Tao | Shanghai Electric Power University | 2015-2017 | 3.0 |
| 73 | Research on crack identification of aero launch pipeline system based on nonlinear output frequency response function | Han Qingpeng | Shanghai Electric Power University | 2015-2017 | 4.0 |
| 74 | Study on transient enthalpy increase and heat transfer characteristics of advanced nuclear fission reactor | Liu Jianquan | Shanghai Electric Power University | 2015-2018 | 4.0 |
| 75 | Study on combustion flow and heat transfer performance of dual bluff body trapped vortex combustor | Zeng Zhuoxiong | Shanghai Electric Power University | 2015-2018 | 5.0 |

## List of teaching and research projects

| 序号 | 项目名称 | 所获奖励或支持名称 | 时间 | 等级 | 授予部门 |
|---|---|---|---|---|---|
| 1 | Research and practice of one belt, one road, energy and power engineering education internationalization | Ministry of education new engineering research and practice project | 2018 | national level | ministry of education |
| 2 | Teaching reform of "centralized control operation of unit unit" based on 3D virtual simulation platform of power station | Industry university research collaborative education project | 2019 | national level | ministry of education |
| 3 | Innovation and practice of one belt, one road, energy and electricity shortage talent training mode | Key undergraduate teaching reform projects in Shanghai Universities | 2018 | provincial and ministerial level | Shanghai Education Commission |
| 4 | Teaching case study on the integration of learning, research and innovation to promote the development of College Students' innovation ability | Teaching reform project of Shanghai Higher Education Association | 2018 | provincial and ministerial level | Shanghai Higher Education Association |
| 5 | Research on the demand of engineering professionals in Colleges and universities in the new energy power generation industry | New engineering research and practice projects of energy and power in Colleges and universities (general) | 2018 | provincial and ministerial level | Energy and Power Education Committee of the Ministry of Education |
| 6 | Construction of engineering practice education system and practice platform for new engineering | Educational research and technological innovation program | 2017 | provincial and ministerial level | Shanghai Education Commission |
| 7 | Research on talent training mode and scheme of | Education and teaching reform project of | 2018 | provincial and | Energy and Power |

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| | energy and power specialty based on power generation industry | energy and power specialty in Colleges and universities (key points) | | ministerial level | Education Committee of the Ministry of Education |
| 8 | Course construction of turbine principle for energy and power engineering specialty of application oriented Undergraduate | Education and teaching reform project of energy and power specialty in Colleges and universities (general) | 2018 | provincial and ministerial level | Energy and Power Education Committee of the Ministry of Education |
| 9 | The design and application of micro class in the basic course of dynamic specialty | Education and teaching reform project of energy and power specialty in Colleges and universities (general) | 2018 | provincial and ministerial level | Energy and Power Education Committee of the Ministry of Education |
| 10 | Based on the front line of electric power production, build a multi-dimensional collaborative training system for applied talents of energy and power engineering | Key undergraduate teaching reform projects in Shanghai Universities | 2018 | provincial and ministerial level | Shanghai Education Commission |