References

- [1] IEA, "Energy and Climate Change," World Energy Outlook Spec. Rep., pp. 1–200, 2015.
- [2] IEA, "World Energy Outlook 2016," Int. Energy Agency Paris, Fr., p. 28, 2016.
- [3] C. Change, Development and Climate Change. 2010.
- [4] Ministry of New and Renewable Energy, "Report of the export group on 175 GW RE by 2022," NITI Aayog, 2015.
- [5] J. Jana, H. Saha, and K. Das Bhattacharya, "A review of inverter topologies for single-phase grid-connected photovoltaic systems," *Renew. Sustain. Energy Rev.*, no. August, pp. 0–1, 2016.
- [6] A. Bauen, G. Berndes, M. Junginger, F. Vuille, and M. Londo, "Bioenergy a Sustainable," *Structure*, pp. 1–108, 2009.
- [7] D. Parlevliet and N. Moheimani, "Efficient conversion of solar energy to biomass and electricity," *Aquat. Biosyst.*, vol. 10, no. 1, p. 4, 2014.
- [8] D. V. P. McLaughlin and J. M. Pearce, "Progress in Indium Gallium Nitride Materials for Solar Photovoltaic Energy Conversion," *Metall. Mater. Trans. A*, vol. 44, no. 4, pp. 1947–1954, Apr. 2013.
- [9] S. Mekhilef, R. Saidur, and A. Safari, "A review on solar energy use in industries," *Renew. Sustain. Energy Rev.*, vol. 15, no. 4, pp. 1777–1790, 2011.
- [10] N. Bauer *et al.*, "Global fossil energy markets and climate change mitigation -- an analysis with REMIND," *Clim. Change*, vol. 136, no. 1, pp. 69–82, May 2016.
- [11] R. Ciriminna, F. Meneguzzo, M. Pecoraino, and M. Pagliaro, "Rethinking solar energy education on the dawn of the solar economy," *Renew. Sustain. Energy Rev.*, vol. 63, no. Supplement C, pp. 13–18, 2016.
- [12] B. R. K. Bs. M. MRCGP, "The Brundtland report: 'Our common future," *Med. War*, vol. 4, no. 1, pp. 17–25, Jan. 1988.
- [13] G. H. Brundtland, "Our Common Future: Report of the World Commission on Environment and Development," 1987.
- [14] N. Heidari and J. M. Pearce, "A review of greenhouse gas emission liabilities as the value of renewable energy for mitigating lawsuits for climate change related damages," *Renew. Sustain. Energy Rev.*, vol. 55, pp. 899–908, 2016.
- [15] A. A. Romano, G. Scandurra, A. Carfora, and M. Fodor, "Renewable investments: The impact of green policies in developing and developed countries," *Renew. Sustain. Energy Rev.*, vol. 68, no. October 2015, pp. 738–747, 2017.
- [16] S. Manju and N. Sagar, "Progressing towards the development of sustainable energy: A critical review on the current status, applications, developmental barriers and prospects of solar photovoltaic systems in India," *Renew. Sustain. Energy Rev.*, vol. 70, pp. 298–313, Apr. 2017.
- [17] A. W. Dowling, T. Zheng, and V. M. Zavala, "Economic assessment of concentrated solar power technologies: A review," *Renew. Sustain. Energy Rev.*, vol. 72, pp. 1019–1032, May 2017.
- [18] A. K. Pandey, V. V. Tyagi, J. A. Selvaraj, N. A. Rahim, and S. K. Tyagi, "Recent advances in solar photovoltaic systems for emerging trends and advanced applications," *Renew. Sustain. Energy Rev.*, vol. 53, pp. 859–884, Jan. 2016.

- [19] A. Heydari and A. Askarzadeh, "Optimization of a biomass-based photovoltaic power plant for an off-grid application subject to loss of power supply probability concept," *Appl. Energy*, vol. 165, pp. 601–611, Mar. 2016.
- [20] S. Saravanan and N. Ramesh Babu, "Maximum power point tracking algorithms for photovoltaic system A review," *Renew. Sustain. Energy Rev.*, vol. 57, pp. 192–204, May 2016.
- [21] M. A. Hasan and S. K. Parida, "An overview of solar photovoltaic panel modeling based on analytical and experimental viewpoint," *Renew. Sustain. Energy Rev.*, vol. 60, pp. 75–83, Jul. 2016.
- [22] E. A. Moallemi, L. Aye, J. M. Webb, F. J. de Haan, and B. A. George, "India's ongrid solar power development: Historical transitions, present status and future driving forces," *Renew. Sustain. Energy Rev.*, vol. 69, pp. 239–247, Mar. 2017.
- [23] D. Fytili and A. Zabaniotou, "Social acceptance of bioenergy in the context of climate change and sustainability A review," *Curr. Opin. Green Sustain. Chem.*, vol. 8, pp. 5–9, Dec. 2017.
- [24] K. J??rgensen and C. Wagner, "Low Carbon Governance in Multi-level Structures: EU???India relations on energy and climate," *Environ. Policy Gov.*, vol. 27, no. 2, pp. 137–148, 2017.
- [25] A. Aktas, K. Erhan, S. Ozdemir, and E. Ozdemir, "Experimental investigation of a new smart energy management algorithm for a hybrid energy storage system in smart grid applications," *Electr. Power Syst. Res.*, vol. 144, pp. 185–196, Mar. 2017.
- [26] F. Rasool, M. Drieberg, N. Badruddin, and B. S. Mahinder Singh, "PV panel modeling with improved parameter extraction technique," *Sol. Energy*, vol. 153, pp. 519–530, Sep. 2017.
- [27] E. Kandemir, N. S. Cetin, and S. Borekci, "A comprehensive overview of maximum power extraction methods for PV systems," *Renew. Sustain. Energy Rev.*, vol. 78, pp. 93–112, Oct. 2017.
- [28] R. Rawat, S. C. Kaushik, and R. Lamba, "A review on modeling, design methodology and size optimization of photovoltaic based water pumping, standalone and grid connected system," *Renew. Sustain. Energy Rev.*, vol. 57, pp. 1506–1519, May 2016.
- [29] R. Dufo-López, E. Pérez-Cebollada, J. L. Bernal-Agustín, and I. Martínez-Ruiz, "Optimisation of energy supply at off-grid healthcare facilities using Monte Carlo simulation," *Energy Convers. Manag.*, vol. 113, pp. 321–330, Apr. 2016.
- [30] A. S. Al Busaidi, H. A. Kazem, A. H. Al-Badi, and M. Farooq Khan, "A review of optimum sizing of hybrid PV-Wind renewable energy systems in oman," *Renew. Sustain. Energy Rev.*, vol. 53, pp. 185–193, Jan. 2016.
- [31] S. M. Zahraee, M. Khalaji Assadi, and R. Saidur, "Application of Artificial Intelligence Methods for Hybrid Energy System Optimization," *Renew. Sustain. Energy Rev.*, vol. 66, pp. 617–630, Dec. 2016.
- [32] F. A. Rahman *et al.*, "Pollution to solution: Capture and sequestration of carbon dioxide (CO2) and its utilization as a renewable energy source for a sustainable future," *Renew. Sustain. Energy Rev.*, vol. 71, pp. 112–126, May 2017.
- [33] P. Maegaard, "Balancing of Fluctuating Power to Obtain 100 % Supply with Renewable Energy," Springer, Cham, 2017, pp. 137–145.

- [34] D. Sato, N. Yamada, and K. Tanaka, "Thermal Design of Photovoltaic / Microwave Conversion Hybrid Panel for Space Solar Power System," pp. 1–9, 2016.
- [35] "SSPS: Space Solar Power System," pp. 3–9, 2017.
- [36] J. Nelson and M. a Green, "Photovoltaic Effect: An Introduction to Solar Cells Photovoltaic Effect," Susutainable energy Sci. Eng. Cent., p. 4.1.5&4.2.3, 2003.
- [37] E. Cuce, P. M. Cuce, I. H. Karakas, and T. Bali, "An accurate model for photovoltaic (PV) modules to determine electrical characteristics and thermodynamic performance parameters," *Energy Convers. Manag.*, vol. 146, pp. 205–216, Aug. 2017.
- [38] A. Dehghanzadeh, G. Farahani, and M. Maboodi, "A novel approximate explicit double-diode model of solar cells for use in simulation studies," *Renew. Energy*, vol. 103, pp. 468–477, Apr. 2017.
- [39] V. J. Chin, Z. Salam, and K. Ishaque, "An Accurate and Fast Computational Algorithm for the Two-diode Model of PV Module Based on Hybrid Method," *IEEE Trans. Ind. Electron.*, vol. 46, no. c, pp. 1–1, 2017.
- [40] "Solar Cell Efficiency/ PVEducation." [Online]. Available: https://www.digikey.ca/en/articles/techzone/2013/dec/maximizing-the-output-from-solar-modules. [Accessed: 18-Aug-2017].
- [41] B. A. Latham, S. Engineer, S. Milano, S. M. Manager, and A. Microsystems, "Current sensing for renewable energy," pp. 1–4.
- [42] A. Zegaoui, M. Aillerie, P. Petit, J. P. Sawicki, J. P. Charles, and A. W. Belarbi, "Dynamic behaviour of PV generator trackers under irradiation and temperature changes," *Sol. Energy*, vol. 85, no. 11, pp. 2953–2964, 2011.
- [43] V. D. Rumyantsev *et al.*, "Temperature Of Solar Cells With Regard To Photoactive And Non-Photoactive Light Absorption In Concentrator PV Modules," vol. 154, 2014.
- [44] W. Xiao, W. G. Dunford, P. R. Palmer, and A. Capel, "Regulation of photovoltaic voltage," *IEEE Trans. Ind. Electron.*, vol. 54, no. 3, pp. 1365–1374, 2007.
- [45] T. Liang, Y. Huang, J. Lee, and L. P. Ting, "Voltage DC-DC Converter Using Coupled-Inductor and Cascode Techniques," pp. 1900–1906, 2016.
- [46] S. Sivakumar, M. J. Sathik, P. S. Manoj, and G. Sundararajan, "An assessment on performance of DC-DC converters for renewable energy applications," *Renew. Sustain. Energy Rev.*, vol. 58, pp. 1475–1485, 2016.
- [47] H. Wu, "Stability Analysis and Control of DC-DC Converters using Nonlinear Methodologies," 2016.
- [48] G. Dileep and S. N. Singh, "Application of soft computing techniques for maximum power point tracking of SPV system," *Sol. Energy*, vol. 141, pp. 182–202, Jan. 2017.
- [49] H. Liu and C. Lin, "A MPPT Control Strategy of Solar Power Systems for Low Irradiance Conditions," pp. 932–935, 2017.
- [50] K. Gnanasambandam, S. Member, A. K. Rathore, and S. Member, "Transactions on Power Electronics Current-fed Multilevel Converters: An Overview of Circuit Topologies, Modulation Techniques, and Applications," vol. 8993, no. c, pp. 1– 26, 2016.

- [51] P. Choudhary and S. N. Mahendra, "Feedback control and simulation of DC-DC Cuk converter for solar photovoltaic array," in 2016 IEEE Uttar Pradesh Section International Conference on Electrical, Computer and Electronics Engineering (UPCON), 2016, pp. 591–596.
- [52] United Nations Department of Economic and Social Affairs, "The energy transformation challenge," pp. 121–157, 2013.
- [53] M. A. Halabi, A. Al-Qattan, and A. Al-Otaibi, "Application of solar energy in the oil industry—Current status and future prospects," *Renew. Sustain. Energy Rev.*, vol. 43, pp. 296–314, 2015.
- [54] L. Quintero, "An overview of surfactant applications in drilling fluids for the petroleum industry," *J. Dispers. Sci. Technol.*, vol. 23, no. 1–3, pp. 393–404, 2002.
- [55] J. Czarnecki, "Stabilization of Water in Crude Oil Emulsions. Part 2†," Energy & Fuels, vol. 23, no. 3, pp. 1253–1257, 2008.
- [56] B. Wang, Y. Li, N. Wu, and C. Q. Lan, "CO2 bio-mitigation using microalgae," *Applied Microbiology and Biotechnology*, vol. 79, no. 5. pp. 707–718, 2008.
- [57] H. Mousazadeh, A. Keyhani, A. Javadi, H. Mobli, K. Abrinia, and A. Sharifi, "A review of principle and sun-tracking methods for maximizing solar systems output," *Renew. Sustain. Energy Rev.*, vol. 13, no. 8, pp. 1800–1818, Oct. 2009.
- [58] L. P. Naing, "Estimation of Solar Power Generating Capacity," pp. 95-100, 2010.
- [59] "Computing planetary positions." [Online]. Available: http://www.stjarnhimlen.se/comp/ppcomp.html. [Accessed: 11-Feb-2018].
- [60] J. Schombert, *Earth Coordinate System*. University of Oregon Department of Physics.
- [61] R. Mukaro and X. F. Carelse, "A Microcontroller-Based Data Acquisition System for Solar Radiation and Environmental Monitoring," vol. 48, no. 6, pp. 1232–1238, 1999.
- [62] "Power From The Sun :: Chapter 3." [Online]. Available: http://www.powerfromthesun.net/Book/chapter03/chapter03.html. [Accessed: 11-Feb-2018].
- [63] F. Mohd, S. Mekhilef, M. Seyedmahmoudian, and B. Horan, "Dust as an unalterable deteriorative factor affecting PV panel ' s ef fi ciency: Why and how," *Renew. Sustain. Energy Rev.*, vol. 65, pp. 1267–1278, 2016.
- [64] C. E. Asbury, "Weather load model for electric demand and energy forecasting," *IEEE Trans. Power Appar. Syst.*, vol. 94, no. 4, pp. 1111–1116, 1975.
- [65] C. Fan, F. Xiao, and S. Wang, "Development of prediction models for next-day building energy consumption and peak power demand using data mining techniques," *Appl. Energy*, vol. 127, pp. 1–10, Aug. 2014.
- [66] S. Bond, "Dynamic Panel Data Models: A Guide to Micro Data Methods and Practice," *Port. Econ. J.*, vol. 1, no. February, pp. 141–162, 2002.
- [67] A. Mellit and S. A. Kalogirou, "Artificial intelligence techniques for photovoltaic applications: A review," *Prog. Energy Combust. Sci.*, vol. 34, no. 5, pp. 574–632, Oct. 2008.
- [68] W. R. Anis Ibrahim and M. M. Morcos, "Artificial intelligence and advanced

- mathematical tools for power quality applications: a survey," *IEEE Trans. Power Deliv.*, vol. 17, no. 2, pp. 668–673, Apr. 2002.
- [69] M. Lei, L. Shiyan, J. Chuanwen, L. Hongling, and Z. Yan, "A review on the forecasting of wind speed and generated power," *Renew. Sustain. Energy Rev.*, vol. 13, no. 4, pp. 915–920, May 2009.
- [70] P. M. Robinson, "The estimation of a nonlinear moving average model," *Stoch. Process. their Appl.*, vol. 5, no. 1, pp. 81–90, Feb. 1977.
- [71] A. M. Atta, "Electric Desalting and Dewatering of Crude Oil Emulsion Based on Schiff Base Polymers As Demulsifier," *Int. J. Electrochem. Sci*, vol. 8, pp. 9474–9498, 2013.
- [72] "Gas Collection / Group Gathering Stations.".
- [73] C. ZANABONI, "Study of a high temperature thermal energy storage for a hybrid solar gas power plant," 2012.
- [74] "ViENERG -Heater Treater.".
- [75] C.-J. Winter, R. L. Sizmann, and L. L. Vant-Hull, Solar power plants: fundamentals, technology, systems, economics. Springer Science & Business Media, 2012.
- [76] P. Choudhary, R. K. Srivastava, S. N. Mahendra, and S. Motahhir, "Sustainable solution for crude oil and natural gas separation using concentrated solar power technology," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 225, 2017.
- [77] A. Kumar *et al.*, "Enhanced CO2 fixation and biofuel production via microalgae: recent developments and future directions," *Trends Biotechnol.*, vol. 28, no. 7, pp. 371–380, Jul. 2010.
- [78] W.-H. Chen, B.-J. Lin, and M.-Y. Huang, "Thermochemical conversion of microalgal biomass into biofuels: A review," *Bioresour. Technol.*, vol. 184, pp. 314–327, May 2015.
- [79] A. Yadav, P. Choudhary, N. Atri, S. Teir, and S. Mutnuri, "Pilot project at Hazira, India, for capture of carbon dioxide and its biofixation using microalgae," *Environ. Sci. Pollut. Res.*, vol. 23, no. 22, 2016.
- [80] IEAGHG, "Potential for biomethane production with carbon dioxide capture and storage," no. September, 2013.
- [81] Y. V. Vorobiev, J. González-Hernández, and A. Kribus, "Analysis of potential conversion efficiency of a solar hybrid system with high-temperature stage," *J. Sol. energy Eng.*, vol. 128, no. 2, pp. 258–260, 2006.
- [82] H. R. Bull, Emulsion treating method and apparatus. Google Patents, 2001.
- [83] S. L. Kokal, "Crude oil emulsions: A state-of-the-art review," SPE Prod. Facil., vol. 20, no. 1, pp. 5–13, 2005.
- [84] A. Gulagi, D. Bogdanov, and C. Breyer, "The role of storage technologies in energy transition pathways towards achieving a fully sustainable energy system for India," *J. Energy Storage*, Nov. 2017.
- [85] I. Angelidaki and W. Sanders, "Assessment of the anaerobic biodegradability of macropollutants," *Rev. Environ. Sci. Biotechnol.*, vol. 3, no. 2, pp. 117–129, 2004.
- [86] "CCSP Final Report." [Online]. Available: http://ccspfinalreport.fi/. [Accessed: 06-Feb-2018].

- [87] A. V. Bridgwater, "The technical and economic feasibility of biomass gasification for power generation," *Fuel*, vol. 74, no. 5, pp. 631–653, May 1995.
- [88] R. Davis *et al.*, "Process Design and Economics for the Conversion of Algal Biomass to Biofuels: Algal Biomass Fractionation to Lipid- and Carbohydrate-Derived Fuel Products," no. September, p. NREL/TP-5100-62368, 2014.
- [89] P. Olivard, "Feasibility Study of running an Anaerobic Digestion Plant coupled with a Combined Heat and Power Plant near Paris, France, processing 50,000 tons of food," 2017.
- [90] V. Sharma and S. S. Chandel, "Performance analysis of a 190 kWp grid interactive solar photovoltaic power plant in India," *Energy*, vol. 55, pp. 476–485, Jun. 2013.
- [91] G. K. Venayagamoorthy and R. L. Welch, "Energy dispatch controllers for a photovoltaic system," Eng. Appl. Artif. Intell., vol. 23, no. 2, pp. 249–261, Mar. 2010.
- [92] F. S. Gazijahani, "Stochastic-based Optimal Daily Energy Management of Microgrids in Distribution Systems."
- [93] M. Tanaka, "Real-time pricing with ramping costs: A new approach to managing a steep change in electricity demand," *Energy Policy*, vol. 34, no. 18, pp. 3634–3643, Dec. 2006.
- [94] F. F. Mammadov, "Application of solar energy in the initial crude oil treatment process in oil fields," *J. Energy South. Africa*, vol. 17, no. 2, pp. 27–30, 2006.
- [95] M. Stewart and K. Arnold, *Emulsions and oil treating equipment: selection, sizing and troubleshooting*. Gulf Professional Pub, 2009.
- [96] G. S. Sisodia and P. Singh, "The Status of Renewable Energy Research on India," Energy Procedia, vol. 95, pp. 416–423, 2016.
- [97] M. Aresta, A. Dibenedetto, and G. Barberio, "Utilization of macro-algae for enhanced CO2 fixation and biofuels production: Development of a computing software for an LCA study," *Fuel Process. Technol.*, vol. 86, no. 14–15, pp. 1679– 1693, Oct. 2005.
- [98] F. (Faizel) Bux and Y. Chisti, Algae biotechnology: products and processes. .
- [99] R. Kumar and A. Agarwala, "Energy certificates REC and PAT sustenance to energy model for India," *Renew. Sustain. Energy Rev.*, vol. 21, pp. 315–323, May 2013.
- [100] G. R. Timilsina, L. Kurdgelashvili, and P. A. Narbel, "Solar energy: Markets, economics and policies," *Renew. Sustain. Energy Rev.*, vol. 16, no. 1, pp. 449–465, Jan. 2012.
- [101] F. L. Luo and H. Ye, Advanced Dc / Dc Converters. 2004.
- [102] A. Bahadori and K. Zeidani, "Analysis of Crude Oil Electrostatic Desalters Performance," 2005.
- [103] J. Wang and K. Li, "Bio-mitigation of carbon dioxide using microalgal systems: Advances and perspectives," *Renew. Sustain. Energy Rev.*, vol. 76, no. September, pp. 1163–1175, 2017.