

DAFTAR PUSTAKA

- Abbas, H., Jamaluddin, J., Arif, M. and Amiruddin, A., 2020. Analisa pembangkit tenaga listrik dengan tenaga uap di PLTU. *ILTEK : Jurnal Teknologi*, 15(2), pp.103–106. <https://doi.org/10.47398/iltek.v15i2.528>.
- Adriani, M.O., 2015. *Kondenser system*. [online] Available at: <<https://thermodynamicsproject.blogspot.com/2015/05/prinsip-kerja-kondensor.html>>.
- Afrah, B.D., Imanda, E.R.D., Utami, A.A.A. and Afrah, M., 2023. Pengaruh Nilai Karakteristik Batubara Terhadap Gross Calorific Value Batubara Pt Bukit Asam the Effect of Coal Characteristics Value Toward Gross Calorific Value of Ptba Coal. *Jurnal Pertambangan*, [online] 7(4). Available at: <<http://ejournal.ft.unsri.ac.id/index.php/JP>>.
- Alfiah, M.N., Hartini, S. and Cahyanti, M.N., 2017. Mathematical models and thermodynamic properties of moisture sorption isotherms of fermented cassava flour by red yeast rice. *Jurnal Penelitian Kimia*, 13(1), pp.29–40. <https://doi.org/10.20961/alchemy.v13i1.4326>.
- Amelia, J.R., Iryani, D.A., Hasanuddin, U., Sugiharto, R., Ginting, S.B. and Indraningtyas, L., 2023. *Teknologi pengelolaan spent bleaching earth (SBE)*. AURA, CV Anugrah Utama Raharja, Anggota IKAPI.
- Apriandi, R. and Mursadin, A., 2016. Analisis kinerja turbin uap berdasarkan performance test Pltu PT. Indo cement P-12 Tarjun. *Scientific Journal of Mechanical Engineering Kinematika*, 1(1), pp.37–46. <https://doi.org/10.20527/sjmekinematika.v1i1.26>.
- Aprilia, D. and Hardjono, H., 2023. Penentuan efisiensi boiler dengan menggunakan metode langsung di PT X Lumajang. *DISTILAT: Jurnal Teknologi Separasi*, 7(2), pp.421–426. <https://doi.org/10.33795/distilat.v7i2.237>.
- Ariyanto, A.D. and Mustakim, L., 2023. Analisis Pengujian Co-Firing Biomassa Pada Pltu Batubara Dengan Beberapa Bahan Bakar Alternatif Sebagai Upaya Bauran Energi Baru Terbarukan. *MARTABE : Jurnal Pengabdian Masyarakat*, 6(1), pp.2598–1218.
- Blažević, S., Mrzljak, V., Anđelić, N. and Car, Z., 2019. Comparison of energy flow stream and isentropic method for steam turbine energy analysis. *Acta Polytechnica*, 59(2), pp.109–125. <https://doi.org/10.14311/AP.2019.59.0109>.
- Bono, M.F. and Widyaningsih, W.P., 2014. Analisis kinerja kondensor terhadap perubahan tekanan vakum di PT PLN (PERSERO) sektor pembangkitan PLTGU Cilegon. *Eksperi Jurnal Teknik Energi*., 10(1), pp.29–34.

Budi, R.F.S. and Suparman, 2013. Perhitungan faktor emisi CO₂ PLTU batubara dan PLTN. *Jurnal Pembangunan Energi Nuklir*, 15(1), pp.1–8.

ClimateWatch, 2020. *Data climate watch emisi GRK*. [online] Available at: <https://www.climatewatchdata.org/ghg-emissions?calculation=ABSOLUTE_VALUE&chartType=line&end_year=2020&gases=all-ghg®ions=G20&source=Climate Watch&start_year=2000>.

Dzulqornain, F., 2015. *Komponen PLTU Sederhana*. [online] Insinyoer. Available at: <<https://www.insinyoer.com/prinsip-kerja-siklus-rankine/>> [Accessed 2 January 2024].

ESDM, K., 2022. *Emisi Karbon Gas Rumah Kaca (GRK)*. [online] Indonesia.go.id. Available at: <<https://www.indonesia.go.id/kategori/editorial/3963/serius-memangkas-emisi-karbon>>.

Fahmy, 2011. *Circulating fluidized boiler*. Available at: <<https://fahmy87riset.blogspot.com/2011/04/cfb-boiler-urutan-proses-air-dan.html>>.

Feriyanto, Y.E., 2015. *PF BOILER*. Available at: <<https://www.caesarvary.com/2015/03/macam-macam-boiler.html>>.

Gomez, D.R. and Watterson, J.D., 2006. Stationary Combustion. *Concise Encyclopedia of Self-Propagating High-Temperature Synthesis: History, Theory, Technology, and Products*, [online] 2(2), pp.2.1-2.47. <https://doi.org/10.1016/B978-0-12-804173-4.00145-9>.

Hadi, I., 2021. Analisis efisiensi turbin uap sebagai penggerak generator pada pabrik kelapa sawit. *Jurnal Teknik Mesin*, pp.1–42.

Hariana, Putra, H.P. and Kuswa, F.M., 2020. Pemilihan batubara kalimantan untuk PLTU dengan PC boiler menggunakan tinjauan potensi slagging dan fouling. (December).

Idris, M., Wibisono, A.P., Hermawan, I., Iswandi and Harahap, U.N., 2022. Analisis pengaruh ukuran batubara terhadap performa PLTU dengan jenis boiler tipe chain grate. *Journal of mechanical engineering, manufactures, materials and energy*, 6(01), pp.104–116. <https://doi.org/10.31289/jmemme.v6i1.5985>.

International, A., 2009. Standard practice for ultimate analysis of coal and coke Designation: D3176 - 09. *ASTM INTERNATIONAL*, pp.3–4. <https://doi.org/10.1520/D3176-09>.

International, A., 2013. Standard practice for proximate analysis of coal and coke, D 3172. *Annual Book of ASTM Standards*, 89(Reapproved), pp.1–2.

Irawan, O.W., Pratama, L.S. and Insani, C., 2021. Analisis Termodinamika Siklus Pembangkit Listrik Tenaga Uap Kapasitas 1500 kW. *JTM-ITI (Jurnal Teknik Mesin ITI)*, 5(3), p.109. <https://doi.org/10.31543/jtm.v5i3.579>.

Julianto, E., Fuazen, F., Gunarto, G. and Sarwono, E., 2021. Performance analysis of boiler feed water pump sulzer at PLTU at PT Indonesia Chemical Alumina. *SINTEK JURNAL: Jurnal Ilmiah Teknik Mesin*, 15(2), p.103. <https://doi.org/10.24853/sintek.15.2.103-106>.

Karim, H.I., Utomo, M.S.. T.S. and Yohana, E., 2023. Analisis CFD Co-firing biomassa cangkang sawit pada stoker boiler. *Jurnal Teknik Mesin S-1*, 11(2), pp.69–76.

Kurniasari, B., Handajadi, W. and Hani, S., 2017. Analisa efisiensi turbin generator berdasarkan kualitas daya pada PLTU Pabrik Gula Madukismo. *Institut Sains & Teknologi AKPRIND*, 4(2), pp.20–27.

Kuskarbekova, S.I., Maksimov, N.M. and Osintsev, K.V., 2023. Automation of a Group of Feed Pumps in a Transportable Boiler Plant. *Bulletin of the South Ural State University. Ser. Computer Technologies, Automatic Control & Radioelectronics*, 23(2), pp.82–92. <https://doi.org/10.14529/ctcr230207>.

Lara, P.V. and Park, E.Y., 2004. Potential application of waste activated bleaching earth on the production of fatty acid alkyl esters using *Candida cylindracea* lipase in organic solvent system. *Enzyme and Microbial Technology*, 34(3–4), pp.270–277. <https://doi.org/10.1016/j.enzmotec.2003.10.015>.

Li, W., Li, X., Niu, Q., Huang, T., Zhang, D. and Dong, Y., 2019. Analysis and treatment of Free end vibration of condensate pump motor towards ultra-supercritical 660MW turbine. *IOP Conference Series: Earth and Environmental Science*, 300(4). <https://doi.org/10.1088/1755-1315/300/4/042010>.

Lim, A., Mirasa, A.K., Asrah, H. and Tian, X.P., 2022. Enhancing the Pozzolanic Reactivity of Spent Bleaching Earth Ash (SBEA) in Binary Blended Cement Mortar through Calcination. *ASM Science Journal*, 17(1). <https://doi.org/10.32802/asmcj.2022.1292>.

Loh, S.K., James, S., Ngatiman, M., Cheong, K.Y., Choo, Y.M. and Lim, W.S., 2013. Enchancement of palm oil refinery waste - Spent bleaching earth (SBE) into bio organic fertilizer and their effects on crop biomass growth. *Industrial Crops and Products*, [online] 49, pp.775–781. <https://doi.org/10.1016/j.indcrop.2013.06.016>.

Maghfuri, A., Thamrin, S. and Kuntjoro, Y.D., 2022. Strategi penurunan emisi pembangkit listrik tenaga uap di kabupaten cilacap dalam mendukung nationally determined contribution. 66 | *Jurnal Ketahanan Energi* |, 8, pp.66–80.

- Mana, M., Ouali, M.S., de Menorval, L.C., Zajac, J.J. and Charnay, C., 2011. Regeneration of spent bleaching earth by treatment with cetyltrimethylammonium bromide for application in elimination of acid dye. *Chemical Engineering Journal*, [online] 174(1), pp.275–280. <https://doi.org/10.1016/j.cej.2011.09.026>.
- Maulana, I., Jusafwar and Prasetya, S., 2019. Analisis dampak keandalan sistem pulverizer terhadap daya yang dihasilkan PLTU. *Prosiding Seminar Nasional Teknik Mesin Politeknik Negeri Jakarta*, [online] pp.1224–1233. Available at: <<http://semnas.mesin.pnj.ac.id>>.
- McArthur, S., 2019. *Boiler Feed Water Pump. Boiler Feed Water Pump*, Available at: <https://www.researchgate.net/figure/shows-a-typical-example-of-an-early-main-boiler-feed-pump-As-it-can-be-seen-it-contains_fig1_255649273>.
- Meilani, H. and Wuryandani, D., 2010. Potensi Panas Bumi Sebagai Energi Alternatif Pengganti Bahan Bakar Fosil Untuk Pembangkit Tenaga Listrik Di Indonesia. *Jurnal Ekonomi dan Kebijakan Publik*, 1(1), pp.47–74.
- Monasari, R., Firdaus, A.H. and Qosim, N., 2021. Pengaruh Penambahan Zat Aditif Pada Campuran Bahan Bakar Bensin – Bioethanol Terhadap Specific Fuel Consumption. *Jurnal Pendidikan Teknik Mesin Undiksha*, 9(1), pp.1–10. <https://doi.org/10.23887/jptm.v9i1.31797>.
- Moran, M.J. and Shapiro, H.N., 2004. *Fundamentals of Engineering Thermodynamics*. 4th ed. Erlangga.
- Muslim, M., Alhamid, M.I., Nasruddin and Ismoyo, B., 2020. Analysis of the scroll compressor changing into an expander for small scale power plants using an organic rankine cycle system. *Evergreen*, 7(4), pp.615–620. <https://doi.org/10.5109/4150515>.
- Nasution, M., 2022. Bahan Bakar Merupakan Sumber Energi yang Sangat Diperlukan dalam Kehidupan Sehari Hari. *Journal of Electrical Technology*, 7(1), pp.29–33.
- Nazruddin, dkk, 2014. Analisa Kelayakan Pembangkit Listrik Tenaga Biomassa Sawit (PLTBS) PT. Perkebunan Nusantara I Aceh. *Jurutera*, [online] 1, pp.17–23. Available at: <www.teknik.unsam.ac.id>.
- NisbiIndonesia, 2017. *Jenis-jenis batubara*. Available at: <<https://infotrainingkonsultan.com/pelatihan-pengujian-batubara-terbaru-tahun-2018/>>.
- Nurilatifah, S., 2022. *Zat emisi PLTU batubara sebabkan kematian dini*. [online] Kompasiana. Available at: <<https://www.kompasiana.com/salsanurill/62bc0c3fbb44860a5f652d12/zat-emisi->>

pltu-batu-barabebkan-kematian-dini?page=all#section1>.

Ogara, E.R., Fadhilah, A. and Ilham, A., 2023. Determination of coal rank and the effect of coal characteristic on caloric value. *Jurnal Geofisika Eksplorasi*, [online] 09(02). Available at: <<https://doi.org/10.23960/jge.v9i2.275>>.

Partogi, M.A., Kusuma, W. and Astawa, K., 2018. Analisa unjuk kerja sistem PLTG di PT Indonesia Power unit pembangkitan Bali. *Jurnal METTEK*, 4(1), pp.16–22. <https://doi.org/10.24843/spektrum.2018.v05.i02.p18>.

Peraturan menteri ESDM nomor 16 tahun 2022 tentang tata cara penyelenggara nilai ekonomi karbon subsektor pembangkit tenaga listrik.

Prasojo, A.B., Hakim, L. and Rijanto, A., 2020. Analisa efisiensi boiler hamada dengan direct dan indirect method di PT Dayasa Aria Prima. *Majamecha*, 2(2), pp.103–112. <https://doi.org/10.36815/majamecha.v2i2.907>.

Prastyo, D.E., 2016. Analisa performa generator listrik terhadap perubahan temperatur kamar mesin. *Jurnal Teknik sistem perkapanan*.

Pratiwi, P. and Hadi, Z., 2022. Proses Produksi Pada Pembangkit Listrik Tenaga Uap dan Perhitungan Efisiensi Termal: Studi Kasus PLTU Teluk Sirih. *Jurnal Teknik Mesin*, 12(1), pp.26–31. <https://doi.org/10.21063/jtm.2022.v12.i1.26-31>.

Purnama, S., 2021. *Co-firing biomassa jadi strategi PLN kurangi emisi karbon PLTU*. [online] antaranews. Available at: <<https://www.antaranews.com/berita/2050906/co-firing-biomassa-jadi-strategi-pln-kurangi-emisi-karbon-pltu>>.

Rachman, A., 2023. *Pompa Sentrifugal 1*. Available at: <<https://rakhman.net/ilmu-pengetahuan/bagian-pompa-sentrifugal/>>.

Ratu, B.P., 2021. Studi perubahan beban listrik terhadap efisiensi pembangkit listrik tenaga gas (PLTG) PT. PLN (PERSERO) wilayah Sulawesi Selatan. pp.123–140.

Riadi, M., 2018a. *Klasifikasi Batubara. Idham 'Ds Analis*, Available at: <<https://www.kajianpustaka.com/2018/12/pembentukan-jenis-analisa-kualitas-batubara.html>>.

Riadi, M., 2018b. *Penyajian Analisa Batubara*. Available at: <<https://www.kajianpustaka.com/2018/12/pembentukan-jenis-analisa-kualitas-batubara.html>>.

Riyanto, H., Hardianto, T., Adriansyah, W. and Jeffry, G.Y., 2022. Studi Termodinamika Pembakaran Kombinasi Batu Bara dan Biomassa Limbah. *JMPM (Jurnal Material dan Proses Manufaktur)*, 5(2), pp.82–90. <https://doi.org/10.18196/jmpm.v5i2.13903>.

- Robiansyah, Mustain, Aznury, M. and Safaruddin, 2022. Analisis Penggunaan Limbah B3 Spent Bleaching Earth sebagai Bahan Bakar Alternatif di PT Semen Baturaja (Persero) TBK. *Jurnal Kinetika*, [online] 13(3), pp.49–55. Available at: <<https://jurnal.polsri.ac.id/index.php/kimia/index>>.
- Romyen, P., Pianroj, Y., Punvichai, T., Karrila, S., Chotikhun, A. and Jumrat, S., 2023. *Utilization of Used Bleaching Clay in Pellet Fuel Production with Torrefied Oil Palm Fronds*. *BioResources*, <https://doi.org/10.15376/biores.18.4.6986-7002>.
- Rosyada, A., Anhar, A.R. and Silanegara, I., 2018. Analisis kinerja kondensor kunit IV sebelum dan sesudah overhaul. *Jurnal Poli-Teknologi*, 16(3), pp.233–238. <https://doi.org/10.32722/pt.v16i3.977>.
- Salim, U.A., Mahardika, M. and Taufiq, A., 2017. Simulation of particle flows of circulating fluidized bed. [online] pp.1–8. Available at: <<http://prosiding.bkstm.org/prosiding/2017/KE-01.pdf>>.
- Santoso, 2021. Analisis numerik pembakaran pada circulating fluidized bed boiler. *Prosiding Seminar Nasional Aplikasi Sains & Teknologi (SNAST)*, pp.173–181.
- Saputro, E. and Mursadin, A., 2021. Analisis efisiensi turbin uap unit 1 di PT. PJB UBJOM PLTU pulang pisau kalimantan tengah. *Jtam Rotary*, 3(1), pp.57–56. https://doi.org/10.20527/jtam_rotary.v3i1.3278.
- Setiaji, N., Sumpena and Sugiharto, A., 2022. Analisis Konsumsi Daya Dan Distribusi Tenaga Listrik. *Jurnal Tekonologi Industri*, 11(1), pp.1–8.
- Setiawan, F.G., Melkias, A.A. and Slameto, 2022. Analisis kinerja turbin uap unit 1 di Cirebon power. *Jurnal Teknik Energi*, 11(2), pp.7–11. <https://doi.org/10.35313/energi.v11i2.3517>.
- Sidiq, A.N., 2022. Pengaruh Co-Firing Biomassa terhadap Efisiensi Boiler PLTU Batubara. *Kilat*, 11(1), pp.21–31. <https://doi.org/10.33322/kilat.v11i1.1553>.
- Sidiq, A.N. and Suwardi, 2022. Calculation of Carbon Emissions and Cap and Trade/Tax Schemes At Co-Firing Coal Power Plants. [online] 22(2), pp.273–293. Available at: <<https://dx.doi.org/10.26714/traksi.22.2.2022>>.
- Sipayung, T., 2020. Spent bleaching earth (SBE), the hidden treasure from waste of the palm oil refinery plant. *Palm Oil Agribusiness Strategic Policy Institute*, I(28), pp.1–6.
- Siregar, H., 2013. *Pengoperasian turbin uap [B.1.1.1.03.3]* edisi I tahun 2013. 1st ed. PLN Corporate University.
- Sitanggang, R.B. and Supriyanto, E., 2021. Analisa ukuran dan laju alir batubara pada boiler pulverizer PLTU 660 MW. *Jurnal Technopreneur (JTech)*, 9(2),

- pp.90–97. <https://doi.org/10.30869/jtech.v9i2.769>.
- Soleh, M., Ahmad, A.H., Juangsa, F.B., Darmanto, P.S. and Pasek, A.D., 2023. Impact of different kinds of biomass mixtures on combustion performance, interaction and synergistic effects in cofiring of coal and biomass in steam power plants. *Clean Energy*, [online] 7(5), pp.1136–1147. <https://doi.org/10.1093/ce/zkad049>.
- Suhaemi, T., 2016. Pembangunan pembangkit listrik tenaga nuklir (PLTN) menopang kebutuhan energi listrik nasional. *Seminar Nasional TEKNOKA_FT UHAMKA*, [online] 1, pp.162–170. Available at: <<https://journal.uhamka.ac.id/index.php/teknoka/article/view/809>>.
- Sukma, S.A., Yenie, E. and Andrio, D., 2020. Pemanfaatan limbah Spent Bleaching Earth (Sbe) sebagai bahan baku pembuatan briket. *Jom Fteknik*, 7(2), pp.1–4.
- Susilawati, 1992. Proses pembentukan batubara - Analisa penelitian dan pengembangan geologi.
- Sutina, I.W., Wijaya Kusuma, I.G.B. and Priambadi, I.G.N., 2020. Analisa dan desain compact condensor di pembangkit listrik tenaga gas dan uap (PLTGU) Tanjung Priok. *Jurnal METTEK*, 6(1), p.37. <https://doi.org/10.24843/mettek.2020.v06.i01.p05>.
- Upadana Putra, K.G.T., Wijaya Kusuma, I.G.B. and Sucipta, M., 2018. Analisa pembangkit listrik tenaga diesel gas dengan menggunakan bahan bakar LNG dan minyak solar di PT Indonesia Power Unit pembangkitan Bali. *Jurnal METTEK*, 4(1), p.31. <https://doi.org/10.24843/mettek.2018.v04.i01.p05>.
- Ussiri, D.A.N., Jacinthe, P.-A. and Lal, R., 2014. Methods for determination of coal carbon in reclaimed minesoils: A review. *Geoderma*, [online] 214–215, pp.155–167. <https://doi.org/https://doi.org/10.1016/j.geoderma.2013.09.015>.
- Utomo, M.S.K.T.S., Yohana, E. and Halim, R., 2022. Analisis hidrodinamika di dalam circulating fluidized bed boiler. *Teknik Mesin S-I*, 10(3), pp.301–314.
- Ward, C.B., 2014. *Condensate Pump. United States Patent : US 8,651,824 B2*. Available at: <https://www.researchgate.net/figure/Cross-section-of-the-analyzed-condensate-pump-with-marked-hole-position-in-the-pump_fig2_329823713>.
- Weng, C.H. and Pan, Y.F., 2007. Adsorption of a cationic dye (methylene blue) onto spent activated clay. *Journal of Hazardous Materials*, 144(1–2), pp.355–362. <https://doi.org/10.1016/j.jhazmat.2006.09.097>.
- Wijaya and Khairunisa, S.I., 2023. *Studi Pemanfaatan Spent Bleaching Earth (SBE) dan Biomassa Kulit Singkong Sebagai Refuse Derived-Fuel (RDF)*. [online] Intitu Teknologi Kalimantan. Available at:

<<http://repository.itk.ac.id/id/eprint/19611>>.

Wulandari, P.F., Lutfiananda, D. and Sumada, K., 2023. Unjuk Kerja dan Efisiensi Turbin Uap dan Generator (TG-65) Pada Pembangkit Listrik Unit Sistem Utilitas Departemen Produksi IIIA PT Petrokimia Gresik. *SINERGI POLMED: Jurnal Ilmiah Teknik Mesin*, 4(1), pp.67–74.
<https://doi.org/10.51510/sinergipolmed.v4i1.1036>.

Wulandari, S. and Basri, H., 2022. Analisa energi dan eksperi sistem pembangkit listrik tenaga uap. *Buletin Poltanesa*, 23(1), pp.254–265.
<https://doi.org/10.51967/tanesa.v23i1.953>.

Yuan, Z., Shen, Y., Yuan, H., Sui, A., Zhu, N. and Lou, Z., 2020. A collaborative approach to in-situ oxysulfides and oxynitrides fixation in flue gas and energy recycling: Co-combustion of spent bleaching earth and coal. *Journal of Cleaner Production*, [online] 258, p.120622.
<https://doi.org/10.1016/j.jclepro.2020.120622>.

Yudisaputro, H., 2017. *Stoker boiler*. Available at:
<<https://berbagienergi.com/2017/03/18/jenis-jenis-boiler/#:~:text=Stoker%20Type>>.
Boiler adalah sistem, 50%2C4 kg%2Fs.>.

Zakaria, T. and Suryaman, T., 2020. Analisa kerusakan kondensor unit 1- 4 PLTU - XYZ Banten (an Engineering Report Case Study). *Jurnal Intent: Jurnal Industri dan Teknologi Terpadu*, 3(2), pp.111–121.
<https://doi.org/10.47080/intent.v3i2.957>.

Zhang, H.H., Li, M.J., Feng, Y.Q., Xi, H. and Hung, T.C., 2021. Assessment and working fluid comparison of steam Rankine cycle-Organic Rankine cycle combined system for severe cold territories. *Case Studies in Thermal Engineering*, [online] 28(August), p.101601. <https://doi.org/10.1016/j.csite.2021.101601>.

Zhao, D., Deng, S., Zhao, L., Xu, W., Wang, W., Nie, X. and Chen, M., 2020. Overview on artificial intelligence in design of Organic Rankine Cycle. *Energy and AI*, [online] 1, p.100011. <https://doi.org/10.1016/j.egyai.2020.100011>.