

DAFTAR PUSTAKA

- Absi, S.M. Al *et al.* (2021) ‘An experimental test of the performance enhancement of a Savonius turbine by modifying the inner surface of a blade’, *Materials Today: Proceedings*, 42(5), pp. 2233–2240. Available at: <https://doi.org/10.1016/j.matpr.2020.12.309>.
- Al-kayiem, H.H., Bhayo, B.A. and Assadi, M. (2016) ‘Comparative critique on the design parameters and their effect on the performance of S-rotors’, *Renewable Energy*, 99, pp. 1306–1317. Available at: <https://doi.org/10.1016/j.renene.2016.07.015>.
- Ananda, H. and Nurullah, R. (2024) ‘Analisis Potensi Sumber Energi Matahari dan Angin di Banda Aceh , Aceh Besar dan Sabang’, *Jurnal Inovasi Ramah Lingkungan (JIRL)*, 5(1), pp. 14–19.
- Ariazena, R.J. and Suprayitno, A. (2021) ‘PERANCANGAN TURBIN ANGIN SUMBU VERTIKAL (TASV) SAVONIUS 3 SUDU’, *Jurnal Teknologika*, 11(2), pp. 133–142. Available at: <https://doi.org/10.51132/teknologika.v11i2.141>.
- Aryabathi, W., Erwin, E. and Wiyono, S. (2021) ‘Wind Energy Potential at The Angle Side of High Building Roof’, *Jurnal Asimetrik: Jurnal Ilmiah Rekayasa Dan Inovasi*, 3(2), pp. 205–214.
- Biadgo, A.M. *et al.* (2013) ‘Numerical and Analytical Investigation of Vertical Axis Wind Turbine’, *FME Transactions*, 41(1), pp. 49–58.
- Caraka, R.E. and Ekacitta, P.C. (2016) ‘Simulasi Kalkulator Energi Baru Terbarukan (EBT) Guna Memenuhi Ketahanan Energi di Indonesia’, *Statistika*, 16(2), pp. 77–88.
- Clement, C. *et al.* (2025) ‘Performance enhancement of cross-axis-wind-turbine : Design and CFD analysis of an omni-directional flow concentrator’, *Alexandria Engineering Journal*, 127, pp. 500–521. Available at: <https://doi.org/doi.org/10.1016/j.aej.2025.05.034>.
- Day, H. *et al.* (2021) ‘Journal of Wind Engineering & Industrial Aerodynamics

- Adjoint based optimisation for efficient VAWT blade aerodynamics using CFD', *Journal of Wind Engineering & Industrial Aerodynamics*, 208(October), p. 104431. Available at: <https://doi.org/10.1016/j.jweia.2020.104431>.
- Didane, D.H. *et al.* (2024) 'Recent Progress in Design and Performance Analysis of Vertical-Axis Wind Turbines-A Comprehensive Review', *Processes*, 12(1094), pp. 1–33. Available at: <https://doi.org/10.3390/pr12061094>.
- Ginting, D. (2007) 'Sistem Energi Angin Skala Kecil Untuk Pedesaan', *Jurnal Ilmiah Teknologi Energi*, 1(5), pp. 40–51.
- Hakim, A.R. (2024) 'Pengaruh Kelengkungan Blade Terhadap Kinerja Turbin Savonius', *Jurnal Rekayasa Teknik dan Ilmu Komputer*, 1(1), pp. 29–42.
- Hardiantono, D. and Sumbung, F.H. (2016) 'RANCANG BANGUN UNIT PEMBANGKITAN DAN MODUL PENGUKURANNYA UNTUK PEMBANGKIT LISTRIK TENAGA HYBRID(ANGIN DAN MATAHARI)', *Jurnal Ilmiah Mustek Anim Ha*, 5(3), pp. 231–245.
- Homzah, O.F. *et al.* (2023) 'STUDI PERFORMASI SUDU TURBIN ANGIN TIPE VERTICAL AXIS BERBAHAN KOMPOSIT', *FIRST*, 1, pp. 119–130.
- Hosseini, A. and Goudarzi, N. (2019) 'Design and CFD study of a hybrid vertical-axis wind turbine by employing a combined Bach-type and H-Darrieus rotor systems', *Energy Conversion and Management*, 189, pp. 49–59. Available at: <https://doi.org/10.1016/j.enconman.2019.03.068>.
- Huang, C. *et al.* (2022) 'Analysis of the effect of slope on the power characteristics of wind turbines in hillside terrain', *Energy Reports*, 8(12), pp. 352–361. Available at: <https://doi.org/10.1016/j.egyr.2022.10.074>.
- Ir. K.H Van Der Schaar Delft (2024) *Wind Power Generation in Indonesia; What Are the Challenges & Opportunities__ Indonesia Investments, Indonesia-Investments*.
- Irawan, A.H., Majanasastra, R.B.S. and Rahmanto, R.H. (2016) 'ANALISIS KEKUATAN VELG CAST WHEEL SEPEDA MOTOR DENGAN PERANGKAT LUNAK BERBASIS METODE ELEMEN HINGGA',

Jurnal Imiah Teknik Mesin, 4(2), pp. 57–66.

- Irawan, M.. R.A. and Siregar, I.H. (2020) ‘UJI EKSPERIMEN MODEL TURBIN ANGIN SWIRLING SAVONIUS DENGAN DEFLEKTOR BERGERAK TERHADAP KINERJA DI TEROWONGAN ANGIN’, *Jurnal Teknik Mesin (JTM)*, 8(1), pp. 9–16.
- Irfan, M. and Deddy Supriyatna (2024) ‘KONSEP DASAR MEKANIKA FLUIDA’, *Kohesi: Jurnal Multidisiplin Saintek*, 3(2), pp. 1–10.
- Janna, W.S. (2010) *Introduction to Fluid Mechanics*. 4th edn. Memphis: Taylor & Francis Group.
- Javaid, M.T. and Saddam, S. (2024) ‘Wind Energy and Engineering Research Power performance optimization of twin vertical axis wind turbine for farm applications’, *Wind Energy and Engineering Research*, 2(September), p. 100005. Available at: <https://doi.org/10.1016/j.weer.2024.100005>.
- Kalpikajati, S.Y. and Hermawan, S. (2022) ‘Hambatan Penerapan Kebijakan Energi Terbarukan di Indonesia’, *Batulis Civil Law*, 3(2), pp. 187–207. Available at: <https://doi.org/10.47268/ballrev.v3i2.1012>.
- Kaonang, G. (2024) *Potensi Energi Terbarukan Indonesia_ Di Mana Saja Sebarannya_*, *solum.id*.
- Koca, K. *et al.* (2017) ‘Identification of Flow Phenomena over NACA 4412 Wind Turbine Airfoil at Low Reynolds Numbers and Role of Laminar Separation Bubble on Flow Evolution’, *Energy*, 144, pp. 750–764. Available at: <https://doi.org/10.1016/j.energy.2017.12.045>.
- Lathifah, H., Sudarti and Yushardi (2023) ‘Analisis Potensi Pemanfaatan Energi Angin Sebagai Sumber Energi Listrik Di Indonesia’, *Jurnal Pendidikan, Sains Dan Teknologi (JPST)*, 2(4), pp. 1005–1009.
- Lee, J., Lee, Y. and Lim, H. (2016) ‘Effect of Twist Angle on the Performance of Savonius Wind Turbine’, *Renewable Energy*, 89, pp. 231–244. Available at: <https://doi.org/10.1016/j.renene.2015.12.012>.
- Mahmoud, N.H. (2012) ‘An Experimental Study On Improvement Of Savonius Rotor Performance’, *Alexandria Engineering Journal*, 51(1), pp. 19–25.

Available at: <https://doi.org/10.1016/j.aej.2012.07.003>.

- Mahmuddin, F. *et al.* (2020) ‘STUDI PERFORMA VERTICAL-AXIS WIND TURBINE (VAWT) SEBAGAI PEMBANGKIT ENERGI LISTRIK PADA FLOATING PLATFORM’, *SENSISTEK*, 2(1), pp. 8–16.
- Manavar, V.A. (2021) *Design Optimization of Savonius Wind Turbine using CFD Simulations*.
- Mishbahuddin, M.H., Saputra, T.W. and Wijayanto, D.S. (2024) ‘AIRFLOW PATTERNS IN A HELICAL SAVONIUS WIND TURBINE WITH VARIATIONS BLADE NUMBERS USING CFD METHOD’, *Scientific Journal of Mechanical Engineering*, 9(2), pp. 141–152. Available at: <https://doi.org/10.20527/sjmekinematika.v9i2.313>.
- Muhamad Amsor, R. and Iskandar, R. (2017) ‘Performansi Turbin Angin Poros Vertikal Tipe Savonius 2 Tingkat Untuk Pengisian Baterai Sebagai Penerangan Lampu Perahu Nelayan Kota Padang’, *Jurnal Sistem Mekanik dan Termal (METAL)*, 1(1), pp. 9–19.
- Nakhoda, Y.I. and Saleh, C. (2017) ‘PEMBANGKIT LISTRIK TENAGA ANGIN SUMBU VERTIKAL UNTUK PENERANGAN RUMAH TANGGA DI DAERAH PESISIR PANTAI’, *INDUSTRI INOVATIF*, 7(1), pp. 20–28.
- Nasef, M.H. *et al.* (2013) ‘Journal of Wind Engineering Evaluation of Savonius rotor performance: Static and dynamic studies’, *Journal of Wind Engineering and Industrial Aerodynamics*, 123, pp. 1–11. Available at: <https://doi.org/10.1016/j.jweia.2013.09.009>.
- Novrita, R.R. (2021) ‘Analisis Potensi Energi Angin di Tambak Untuk Menghasilkan Energi Listrik’, *Journal of Research and Education Chemistry*, 3(2), pp. 96–112.
- Pitanova, T. and Alva, S. (2023) ‘Karakteristik Mekanikal Material Polimer PVC dengan Variasi Konsentrasi Vco (Virgin Coconut Oil)’, *Jurnal Pendidikan dan Konseling*, 5(1), pp. 4422–4435.
- Pritchard, P.J., Mitchell, J.W. and Leylegian, J.C. (2015) *INTRODUCTION TO FLUID MECHANICS*. 9th edn. New York: Courier/Kendallville.

- Priyadumkol, J. *et al.* (2025) 'Energy Conversion and Management: X CFD modelling of vertical-axis wind turbines using transient dynamic mesh towards lateral vortices capturing and Strouhal number', *Energy Conversion and Management: X*, 26, p. 101022. Available at: <https://doi.org/10.1016/j.ecmx.2025.101022>.
- Putri, S.S., Sudarti and Yushardi (2023) 'Analisis Cara Kerja Turbin Angin Sumbu Vertikal', *Jurnal Pendidikan, Sains dan Teknologi*, 2(4), pp. 1034–1036. Available at: <https://doi.org/10.30588/jeemm.v7i1.1325>.
- Ridwan and Latief, A. (2019) 'PENGARUH JUMLAH SUDU PADA TURBIN ANGIN SUMBU VERTIKAL TERHADAP DISTRIBUSI KECEPATAN DAN TEKANAN', *Jurnal Ilmiah Teknologi dan Rekayasa*, 24(2), pp. 141–151.
- Rochman, S. and Prijo Sembodo, B. (2018) 'RANCANG BANGUN GENERATOR TURBIN ANGIN PUTARAN RENDAH SEBAGAI PEMBANGKIT ENERGI LISTRIK ALTERNATIF DI DAERAH PESISIR', *WAHANA*, 70(1), pp. 25–34. Available at: <https://doi.org/doi.org/10.36456/wahana.v70i1.1564>.
- Rumagit, T.M., Maluegha, B.L. and Monintja, N.C. V (2018) 'UNJUK KERJA PANEL SURYA 100 Wp MONOCRYSTALLINE DALAM MENGHASILKAN LISTRIK Jurnal Tekno Mesin / Volume 9 Nomor 2 Jurnal Tekno Mesin / Volume 9 Nomor 2', *Jurnal Tekno Mesin*, 9(2), pp. 92–97.
- Sanaye, S. and Farvizi, A. (2024) 'Optimizing a vertical axis wind turbine with helical blades: Application of 3D CFD and Taguchi method', *Energy Reports*, 12, pp. 2527–2547. Available at: <https://doi.org/10.1016/j.egyr.2024.08.059>.
- Sanusi, A. (2017) 'Simulasi Aliran Fluida pada Blade Rotor Turbin Angin Savonius dengan Computation Fluid Dynamics (CFD)', *LONTAR*, 04(01), pp. 11–15. Available at: <https://doi.org/10.35508/ljtmu.v4i1.895>.
- Saputra, H., Purwanto, A. and Muhajir, K. (2019) 'PENGENALAN DAN

- PELATIHAN COMPUTER AIDED DESIGN BAGI GURU DAN TEKNISI SMK MUHAMMADIYAH, BANGUNJIWO, KASIHAN, BANTUL, DAERAH ISTIMEWA YOGYAKARTA', *JURNAL PENGABDIAN VOKASI*, 01(01), pp. 33–37.
- Saputra, M. (2016) 'Kajian Literatur Sudu Turbin Angin Untuk Skala Kecepatan Angin Rendah', *Jurnal Mekanikal, Inovasi, dan Teknologi (MEKANOVA)*, 2(1), pp. 74–83. Available at: <https://doi.org/10.35308/jmkn.v2i2.839>.
- Setyobudi, R. *et al.* (2024) 'ANALISIS OUTPUT GENERATOR TURBIN ANGIN', *Technological & Mechanical Engineering*, pp. 86–92.
- Shuhufam, A. and Yuwono, T.Y. (2020) 'Studi Eksperimen Peningkatan Kinerja Turbin Angin Savonius dengan Penempatan Silinder Sirkular di Depan Returning Blade Turbin pada Jarak S/D = 2,6', *JURNAL TEKNIK ITS*, 9(2), pp. 22–27.
- Siddiqui, M.S. *et al.* (2021) 'A numerical investigation to analyze effect of turbulence and ground clearance on the performance of a roof top vertical e axis wind turbine', *Renewable Energy*, 164, pp. 978–989. Available at: <https://doi.org/10.1016/j.renene.2020.10.022>.
- Siregar, A.M. and Lubis, F. (2019) 'UJI KEANDALAN PROTOTYPE TURBIN ANGIN SAVONIUS TIPE-U SEBAGAI PEMBANGKIT LISTRIK ALTERNATIF', *MEKANIK*, 5(1), pp. 36–40.
- Solikah, A.A. and Bramastia (2024) 'Systematic Indonesia Literature Review Kajian Potensi dan Pemanfaatan Sumber Daya Energi Baru dan Terbarukan Di', *Jurnal Energi Baru & Terbarukan*, 5(1), pp. 27–43. Available at: <https://doi.org/10.14710/jebt.2024.21742>.
- Suprpto, M. and Muttaqin, I. (2022) 'ANALISIS TURBIN ANGIN VERTIKAL HYBRID SAVONIUS BERTINGKAT DAN DARRIEUS TIPE H-ROTOR', *Jurnal Teknik Mesin*, 7(2), pp. 59–64.
- Takwim, R.N.A. and Witono, K. (2019) 'PENGARUH VARIASI POSISI PEMASANGAN DAN ARAH ALIRAN FLUIDA TERHADAP KINERJA VENTURI VAKUM', *INFO TEKNIK*, 20(1), pp. 31–46.

- Tangko, J. and Nara, S. (2023) 'Rancang Bangun Turbin Angin Sumbu Horizontal 3 Blade Menggunakan PVC', *SINERGI*, 21(2), pp. 210–220.
- Thakur, N. *et al.* (2018) 'CFD analysis of performance improvement of the Savonius water turbine by using an impinging jet duct design', *Chinese Journal of Chemical Engineering*, 27(4), pp. 794-801#. Available at: <https://doi.org/10.1016/j.cjche.2018.11.014>.
- Trifiananto, M., Putra, I.S. and Ramadhan, M.E. (2022) 'ANALISIS PERFORMA TURBIN ANGIN VAWT (VERTICAL AXIS WIND TURBINE) TIPE HYBRID SAVONIUS DARRIEUS NACA 4712', *ROTOR*, 15(April). Available at: <https://doi.org/https://doi.org/10.19184/rotor.v15i1.29099>.
- Widyo Gumelar, B., Widiastuti, I. and Susilo Wijayanto, D. (2018) 'PEMBELAJARAN ENERGI TERBARUKAN UNTUK SEKOLAH DASAR STUDI KASUS DI KABUPATEN KLATEN', *Jurnal Ilmiah Pendidikan Teknik Kejuruan (JIPTEK)*, 11(01), pp. 16–21.
- Yandri, E., Ariati, R. and Ibrahim, R.F. (2018) 'Meningkatkan Keamanan Energi Melalui Perincian Indikator Energi Terbarukan dan Efisiensi Guna Membangun Ketahanan Nasional', *Jurnal Ketahanan Nasional*, 24(2), pp. 239–260.
- Yanel, K. and Yanto, A. (2023) 'DESIGN OF LOW SUBSONIC WIND TUNNEL WITH OPEN RETURN SYSTEM FOR TESTING WIND TURBINES AT LOW AIRSPEEDS', *SINTEK JURNAL*, 17(2), pp. 82–96. Available at: <https://doi.org/10.24853/sintek.17.2.82-96>.
- Yulianto, S., Soeleman and Mulyana, A. (2014) 'HIDROLIK PADA REACH STACKER SAAT PROSES', *SINTEK*, 8(1), pp. 6–9.