

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ

1. Soltani M., Moradi Kashkooli F., Dehghani-Sanij A.R., Nokhosteen A., Ahmadi-Joughi A., Gharali K., Mahbaz S.B. & Dusseault M.B. (2019) A comprehensive review of geothermal energy evolution and development, *International Journal of Green Energy*, 16:13, 971-1009, DOI: 10.1080/15435075.2019.1650047.
2. Шурчкова, Ю. А. (2019). Мировые тенденции в развитии геотермальной энергетики. Ч. 2. Новейшие технологии — основа развития геотермальной энергетики. *Проблемы загальної енергетики*, 1(56), 31–37. Получено из <https://doi.org/10.15407/pge2019.01.031>.
3. John Lund and Aniko Toth (2020) DIRECT UTILIZATION OF GEOTHERMAL ENERGY 2020 WORDWIDE - 27 April, 2020 DOI: 10.13140/RG.2.2.19277.46569, Conference: World Geothermal Congress 2020 - https://www.wgc2020.com/virtual_event_live/.
4. Jialing Zhu et. Al. (2015) A review of geothermal energy resources, development, and applications in China: Current status and prospects. December 2015 *Energy* 93:466-483. DOI: 10.1016/j.energy.2015.08.098
5. The Top 10 Geothermal Countries 2019 – based on installed generation capacity (MWe)". *Think GeoEnergy - Geothermal Energy News*. Retrieved 9 July 2020.
6. Richter A. (2017) Global geothermal development – an overview Global Geothermal Alliance Meeting IRENA, Florence/ Italy SEPTEMBER 2017. thinkgeoenergy.com/newsletter
7. Crown 2017 R.A. Meyers (ed.), *Encyclopedia of Sustainability Science and Technology*, DOI 10.1007/978-1-4939-2493-6_309-3.
8. R. Shortall, A. Uihlein, (2019) *Geothermal Energy Technology Development Report 2018*, EUR 29917 EN, European Commission, Luxembourg, 2019, ISBN 978-92-76-12543-3, doi:10.2760/303626, JRC118299.

9. Armstead, H. C. H. (1983) *Geothermal Energy*, 2nd Edition, E & F. N. Spon, London, pp. 404.
10. Fridleifsson Ingvar B. (1996) *GHC BULLETIN*, AUGUST 1996
11. Cataldi, Raffaele (August 1992), "Review of historiographic aspects of geothermal energy in the Mediterranean and Mesoamerican areas prior to the Modern Age" (PDF), *Geo-Heat Centre Quarterly Bulletin*, Klamath Falls, Oregon: Oregon Institute of Technology, 18 (1), pp. 13–16, retrieved 2009-11-01
12. Sanyal, Subir K.; Morrow, James W.; Butler, Steven J.; Robertson-Tait, Ann (2007) January 22–24, *Cost of Electricity from Enhanced Geothermal Systems* (PDF), *Proc. Thirty-Second Workshop on Geothermal Reservoir Engineering*, Stanford, California
13. Tiwari, G. N.; Ghosal, M. K. (2005) *Renewable Energy Resources: Basic Principles and Applications*. Alpha Science Int'l Ltd., 2005 ISBN 1-84265-125-0
14. Loewe M. (1968) *Everyday Life in Early Imperial China During the Han Period 202 B. C.-A. D. 220*, Batsford, 194.
15. Govorushko S.M. (2014) *Environmental problems of extraction, transportation, and processing of fossil fuels*. Vladivostok: Dalnauka, 208 pp.
16. Craig Jonathan, Gerali Francesco, MacAulay Fiona and Sorkhabi Rasoul (2018) *The history of the European oil and gas industry (1600s–2000s)* Geological Society, London, Special Publications, 465, 1-24, 21 June 2018, <https://doi.org/10.1144/SP465.23>
17. Shurchkova YU.A. (2019) Starting conditions for the development of geothermal energy in Ukraine. *The Problems of General Energy*, 2019, 2(57):35-40. <https://doi.org/10.15407/pge2019.02.035>. Шурчкова, Ю. А. (2019). Стартовые условия для развития геотермальной энергетики в Украине.
18. Memorandum of understanding of cooperation in the field of energy efficiency renewable energy, 2015. <https://orkustofnun.is/media/mou/MOU---Ukrai%CC%81na.pdf>
19. Soldo Elena, Alimonti Claudio and Scrocca Davide (2020) *Geothermal Repurposing of Depleted Oil and Gas Wells in Italy*. *Proceedings 2020*, 58, 9; [doi:10.3390/WEF-06907](https://doi.org/10.3390/WEF-06907)

20. Géczi, Bense, and Korzenszky (2014) Water Tempering of Pools Using Air to Water Heat Pump Environmental Friendly Solution. January 2014. *Rocznik Ochrona Srodowiska* 16(1), ISSN 1506-218X, 115-128.
21. Jacquy, A.B., et al., (2016) Thermo-poroelastic numerical modelling for enhanced geothermal system performance: Case study of the Groß Schönebeck reservoir, *Tectonophysics* (2016), <http://dx.doi.org/10.1016/j.tecto.2015.12.020>.
22. Filimonov, M. Yu., Akimova, E. N., Misilov, V. E., Vaganova, N. A. (2020) Simulation of Water Filtration in a Geothermal Doublet. *Geoinformatics 2020* 11-14 May 2020, Kyiv, Ukraine.
23. Willemsa, C. J. L., Nick, H. M. (2019) Towards optimisation of geothermal heat recovery: An example from the West Netherlands Basin. *Applied Energy* 247, 582–593. <https://doi.org/10.1016/j.apenergy.2019.04.083>.
24. Quoilin Sylvain, Van Den Broek Martijn, Declaye SГ©bastien, Dewallef Pierre, Lemort Vincent (2013) Techno-economic survey of Organic Rankine Cycle (ORC) systems, *Renewable and Sustainable Energy Reviews*, Volume 22, 168-186, ISSN 1364-0321, <https://doi.org/10.1016/j.rser.2013.01.028>.
25. Cui Ping, Man Yi and Fang Zhaohong (2015) Geothermal Heat Pumps. *Clean Energy Systems*. 2015 by John Wiley & Sons, Ltd. DOI: 10.1002/9781118991978.hces041.
26. Шулюпин, А. Н. (2019). Способы обеспечения устойчивой работы пароводяных скважин. *Георесурсы = Georesources*, 21(1), 99–106. Получено из <https://doi.org/10.18599/grs.2019.1.99-106>.
27. Zhang Lei, Chen Shuai, Zhang Cun (2019) Geothermal power generation in China: Status and prospects. *Energy Sci Eng.* 2019;7:1428–1450. DOI: 10.1002/ese3.365.
28. Zhu, Y., Li, K., Liu, C., & Mijimi, M. B. (2019). Geothermal Power Production from Abandoned Oil Reservoirs Using In Situ Combustion Technology. *Energies*, 12. doi: 10.3390/en12234476.
29. Zimmermann, G., Tischner, T., Legarth, B., Huenges, E. (2009): Pressure dependent production efficiency of an Enhanced Geothermal System (EGS): Stimulation results and implications for hydraulic fracture treatments. - *Pure and Applied Geophysics*, 166, 5-7, 1089-1106 DOI: 10.1007/s00024-009-0482-5

30. Kubik, M. (2006) Report Massachusetts Institute of Technology «The Future of Geothermal Energy Impact of Enhanced Geothermal Systems (EGS) on the United States in the 21st Century». Geothermal Program, MS 3830. Renewable Energy and Power Department Idaho National Laboratory http://www1.eere.energy.gov/geothermal/egs_technology.html.

31. Mohan, A. R., Turaga U., Subbaraman V., Shembekar V., Elsworth D., and Pisupati S. V. (2015) Modeling the CO₂-based Enhanced Geothermal System (EGS) paired with Integrated Gasification Combined Cycle (IGCC) for symbiotic integration of carbon dioxide sequestration with geothermal heat utilization. *International Journal of Greenhouse Gas Control* 32:197–212. doi:10.1016/j.ijggc.2014.10.016.

32. Arshad, M., Assad, M., Abid, T., Waqar, A., Waqas, M., & Khan, M. (2019). A Techno–Economic Concept of EGS Power Generation in Pakistan. *Proceedings, 44th Workshop on Geothermal Reservoir Engineering Stanford University, Stanford, California, February 11–13, 2019. California: Stanford University.*

33. Ismail, B. I. (2013). ORC–Based Geothermal Power Generation and CO₂–Based EGS for Combined Green Power Generation and CO₂ Sequestration. In H. Arman (Ed.), *New Developments in Renewable Energy* (pp. 303–328). Retrieved from <http://dx.doi.org/10.5772/52063>.

34. Карпенко, В. М., & Стародуб, Ю. П. (2017). Дослідження факторів геотермальної енергії в глибоких свердловинах. *Геодинаміка*, 1(22), 85–97. Отримано з <https://doi.org/10.23939/jgd2017.01.085>.

35. Карпенко, В. М., Стасенко, В. М., & Карпенко, О. В. (2013). Геотермальні ресурси України. *Геоінформатика*, 2, 39–47. Отримано з <http://dspace.nbuv.gov.ua/handle/123456789/97909>.

36. Sinaga R H M and Darmanto P S (2016) *IOP Conf. Ser.: Earth Environ. Sci.* 42 012017. 5th ITB International Geothermal Workshop (IGW2016) IOP Publishing. doi:10.1088/1755-1315/42/1/012017

37. Asif, M., Yao, J., Fan D., Bongole, K., Liu J., & Zhang, X. (2019). Potential for heat production by retrofitting abandoned gas wells into geothermal

wells. PLoS ONE, 14(8), e0220128. Retrieved from <https://doi.org/10.1371/journal.pone.0220128>.

38. Michaelides, E. E. (2016) Future directions and cycles for electricity production from geothermal resources. *Energy Conversion and Management* 107:3–9. doi:10.1016/j.enconman.2015.07.057.

39. Палійчук, У. Ю. (2011). Енергозабезпечення національного господарства: геотермальна енергетика та перспективи її розвитку нафтогазовидобувним комплексом. Науковий вісник Івано–Франківського національного технічного університету нафти і газу. Серія: Економіка та управління в нафтовій і газовій промисловості, 2. Отримано з <http://elar.nung.edu.ua/handle/123456789/4530>.

40. Редько, А. А. (2010). Методы повышения эффективности систем геотермального теплоснабжения / Донбасская национальная академия строительства и архитектуры. Макеевка: [б. и.].

41. О. М. Суходоля (2013) Стан і перспективи розвитку відновлюваної енергетики в Україні : аналіт. доп. / О. М. Суходоля, А. Ю. Сменковський, А. І. Шевцов, М. Г. Земляний ; за ред. О. М. Суходолі. – К. : НІСД, 2013. – 104 с. – (Сер. «Економіка», вип. 12).

42. Reykjavik Energy (2012) Geothermal power plants. Reykjavik, Iceland. Accessed September 17, 2018. https://rafhladan.is/bitstream/handle/10802/7003/Geothermal_Power_Plants_LAD49301.pdf?sequence=1.

43. Schochet, D. N. (1997) Performance of ORMAT geothermal binary and combined steam/binary cycle power plants with moderate and high temperature resources. *Renewable Energy* 10 (2–3):379–387. doi:10.1016/0960-1481(96)00095-X.

44. Wang, F., Sh D. J., Wang Z. J., Sun T., and Yan J. (2017) Performance and economic assessments of integrating geothermal energy into coal-fired power plant with CO₂ capture. *Energy* 119:278–87. doi:10.1016/j.energy.2016.12.029.

45. Karabarin, D. I., & Mihailenko, S. A. (2018). The Use of Low–Potential Energy Sources Based on Organic Rankine Cycle. *Journal of Siberian Federal University. Engineering & Technologies*, 11(7), 867–876.

46. Yari, M. (2010) Exergetic analysis of various types of geothermal power plants. *Renewable Energy* 35 (1):112–121. doi:10.1016/j.renene.2009.07.023.
47. DiPippo, R. (2008). *Geothermal Power Plants: Principles, Applications, Case Studies and Environmental Impact*(2nd ed.). Butterworth–Heinemann, XXIV.
48. Li, T., Zhu, J.-l., & Zhang, W. (2013). Performance analysis and improvement of geothermal binary cycle power plant in oilfield. *J. Cent. South Univ*, 20, 457–465. doi: 10.1007/s11771-013-1507-x.
49. Michaelides, E. E. (2012). Entropy production and optimization of geothermal power plants. *Journal of Non-Equilibrium Thermodynamics*, 37(3), 233–246. doi: 10.1515/jnetdy-2011-0024.
50. Napitu, A. (2019). A study of brine supply system to binary cycle unit at Namora I Langit Geothermal power plant. *IOP Conf. Series: Earth and Environmental Science*. doi: 10.1088/1755-1315/254/1/012013.
51. Gabbrielli, R. (2012) A novel design approach for small scale low enthalpy binary geothermal power plants. *Energy Conversion and Management* 64:263–72. doi:10.1016/j.enconman.2012.04.017.
52. Fiaschi, D., Lifshitz A., Manfrida G., and Tempesti D. (2014) An innovative ORC power plant layout for heat and power generation from medium- to low-temperature geothermal resources. *Energy Conversion and Management* 88:883–93. doi:10.1016/j.enconman.2014.08.058.
53. Frick, S., Kaltschmitt, M., & Schröder, G. (2010). Life cycle assessment of geothermal binary power plants using enhanced low-temperature reservoirs. *Energy*, 35(5), 2281–2294. doi: 10.1016/j.energy.2010.02.016.
54. Putera, A. D. P., Hidayah, A. N., & Subiantoro, A. (2019). Thermo-Economic Analysis of A Geothermal Binary Power Plant in Indonesia—A Pre-Feasibility Case Study of the Wayang Windu Site. *Energies*, 12. doi: 10.3390/en12224269.
55. Alimonti, C., & Soldo, E. (2016). Study of geothermal power generation from a very deep oil well with a wellbore heat exchanger. *Renewable Energy*, 86, 292–301. Retrieved from <http://dx.doi.org/10.1016/j.renene.2015.08.031>.

56. Lund, H. (2007) Renewable energy strategies for sustainable development. *Energy* 32 (6):912–919. doi:10.1016/j.energy.2006.10.017.
57. Lund, J. W. (1999a). World status of geothermal energy use overview 1995–1999. Proceedings World Geothermal Congress 2000, Kyushu, Tohoku, Japan. Accessed September 17, 2018. <https://www.geothermal-energy.org/pdf/IGAstandard/WGC/2000/R1016>. PDF.
58. Lund, J., Sanner B., Rybach L., Curtis R., and Hellstrom G. (2004) Geothermal (Ground-source) heat pumps-a world overview. *GHC Bulletin* 25 (3):1–10.
59. Lund, J. W. (1999b) Historical impacts of geothermal resources on the people of North America. In *Stories from a heated earth, our geothermal heritage*, ed. R. Cataldi, S. Hodgson, and J. Lund, 451–77. Sacramento, CA, USA: GRC & IGA.
60. Lund, J. W. (2000) Balneological use of thermal waters. *GHC Quarterly Bulletin* 21 (3):31–34.
61. Lund, J. W. (2005) 100 years of geothermal power production. Thirtieth Workshop on Geothermal Reservoir Engineering Stanford University, SGP-TR-176, Stanford, California, USA. <https://pangea.stanford.edu/ERE/pdf/IGAstandard/SGW/2005/lund.pdf>.
62. Lund, J. W., and Freeston D. H. (2001) World-wide direct uses of geothermal energy 2000. *Geothermics* 30 (1):29–68. doi:10.1016/S0375-6505(00)00044-4.
63. Lund, J. W., Freeston D. H., and Boyd T. L. (2005) Direct application of geothermal energy: 2005 worldwide review. *Geothermics* 34 (6):691–727. doi:10.1016/j.geothermics.2005.09.003.
64. Lund, J. W., and Boyd T. L. (2016) Direct utilization of geothermal energy 2015 worldwide review. *Geothermics* 60:66–93. doi:10.1016/j.geothermics.2015.11.004.
65. Sanyal SK, Butler SJ (2010) Geothermal power capacity from petroleum wellsome case histories of assessment. In: Proceedings world geothermal congress.

66. Caulk, R. A., & Tomac, I. (2017). Reuse of abandoned oil and gas wells for geothermal energy Production. *Renewable Energy*, 112, 388–397. Retrieved from <http://dx.doi.org/10.1016/j.renene.2017.05.042>.
67. Sui, D., Wiktorski, E., Røksland, M., & Basmoen, T. A. (2019). Review and investigations on geothermal energy extraction from abandoned petroleum wells. *Journal of Petroleum Exploration and Production Technology*, 9(2), 1135–1147. Retrieved from <https://doi.org/10.1007/s13202-018-0535-3>.
68. Alimonti, C., Berardi, D., Bocchetti, D., & Soldo, E. (2016). Coupling of energy conversion systems and wellbore heat exchanger in a depleted oil well. *Geotherm Energy*, 4(11). doi: 10.1186/s40517-016-0053-9.
69. Alimonti, C., Soldo, E., Bocchetti, D., & Berardi, D. (2018). The wellbore heat exchangers: A technical review. *Renewable Energy*, 123, 353–381. Retrieved from <https://doi.org/10.1016/j.renene.2018.02.055>.
70. Nian, Y.-L., & Cheng, W.-L. (2018). Insights into geothermal utilization of abandoned oil and gas wells. *Renewable and Sustainable Energy Reviews*, 87, 44–60. Retrieved from <https://doi.org/10.1016/j.rser.2018.02.004>.
71. Zhu Yuhao, Li Kewen, Liu Changwei and Mgijimi Mahlalela (2019) Geothermal Power Production from Abandoned Oil Reservoirs Using In Situ Combustion Technology. *Energies* 2019, 12, 4476; doi:10.3390/en12234476.
72. Agioutantis, Z., and Bekas A. (2000) The potential of district heating using geothermal energy. A case study, Greece. *Geothermics* 29 (1):51–64. doi:10.1016/S0375-6505(99)00050-4.
73. Yousefi, H., & Mortazavi, S. M. (2018). A Review on Robustness of Geothermal Energy in Japan. *Proceedings, 43rd Workshop on Geothermal Reservoir Engineering* Stanford University, Stanford, California, February 12–14, 2018. Stanford.
74. Alkhasov, A. B., Alkhasova, D. A., Ramazanov, A. Sh., & Kasparova, M. A. (2017). Technologies for the Exploration of Highly Mineralized Geothermal Resources. *Thermal Engineering*, 64(9), 637–643. doi: 10.1134/S0040601517090014.
75. Alkhasov, A. B., Alkhasova, D. A., & Ramazanov, A. Sh. (2019). Technologies of geothermal resources development in South of Russia.

Geomechanics and Geophysics for Geo–Energy and Geo–Resources, 6. 7. Retrieved from <https://doi.org/10.1007/s40948-019-00129-w>, <https://link.springer.com/article/10.1007%2Fs40948-019-00129-w>.

76. Alkhasov, A. B., & Alkhasova, D. A. (2018). Heat Exchangers for Utilization of the Heat of High–Temperature Geothermal Brines. *Thermal Engineering*, 65(3), 155–159. doi: 10.1134/S0040601518030035.

77. Tomaszewska, B., Sowizdzał, A., Chmielowska, A. (2018). Rozważania nad koncepcją adaptacji otworów ponaftowych do celów geotermalnych — przykłady rozwiązań światowych. *Technika Poszukiwań Geologicznych Geotermia, Zrównoważony Rozwój*, 1, 119–128. Retrieved from https://www.researchgate.net/publication/328249808_Rozwazania_nad_koncepcja_adaptacji_otworow_ponaftowych_do_celow_geotermalnych_-_przyklady_rozwiazan_swiatowych Considerations on the concept of adapting abandoned oil and gas wells for geothermal purp.

78. Watson, S. M., Falcone, G., & Westaway, R. (2020). Repurposing Hydrocarbon Wells for Geothermal Use in the UK: a Preliminary Resource Assessment. *Proceedings World Geothermal Congress 2020*, Reykjavik, Iceland, April 26–May 2. Reykjavik.

79. Toth, A. N., Szucs, P., Pap, J., Nyikos, A., & Fenerty, D. K. (2018). Converting Abandoned Hungarian Oil and Gas wells into Geothermal Sources. *Proceedings, 43rd Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, February 12–14, 2018. Stanford. Retrieved from <https://www.researchgate.net/publication/323869250>.

80. Mehmood, A., Yao, J., Fan, D., Bongole, K., Liu, J., & Zhang, X. (2019). Potential for heat production by retrofitting abandoned gas wells into geothermal wells. *PLoS ONE* 14(8), e0220128. Retrieved from <https://doi.org/10.1371/journal.pone.0220128>.

81. Mehmood, A., Yao, J., Fun, D. Y., & Zafar, A. (2007). Geothermal Energy Potential of Pakistan on the Basis of Abandoned Oil and Gas wells. *Journal of Petroleum & Environmental Biotechnology*, 7, 332. doi: 10.4172/2157-7463.1000332.

82. Mehmood, A., Yao, J., & Fun, D. Y. (2017). Future Electricity Production from Geothermal Resources Using Oil and Gas Wells. *Open Journal of Yangtze Gas and Oil*, 2, 191–200. Retrieved from <http://www.scirp.org/journal/ojogas>.

83. Mehmood, A., Yao, J., Fan, D. Y., Bongole, K., & Ansari, U. (2019) Utilization of Abandoned Oil and Gas Wells for Geothermal Energy Production in Pakistan. In Banerjee S., Barati R., Patil S. (Eds), *Advances in Petroleum Engineering and Petroleum Geochemistry. CAJG 2018 : Proceedings of the 1st Springer Conference of the Arabian Journal of Geosciences (CAJG–1), Tunisia 2018* (pp. 181–183). Cham: Springer, 2019. Retrieved from https://doi.org/10.1007/978-3-030-01578-7_42.

84. Desideri, U., and Bidini G. (1997) Study of possible optimisation criteria for geothermal power plants. *Energy Conversion and Management* 38 (15–17):1681–91. doi:10.1016/S0196-8904(96)00209-9.

85. Морозов, Ю. П. (2017). Добыча геотермальных ресурсов и аккумулярование теплоты в подземных горизонтах. Киев. «Наукова думка». 200 с.

86. Долінський, А. А., & Ободович, О. М. (2016). Світовий досвід використання геотермальної енергії та перспективи її розвитку в Україні. *Вісник НАН України*, 3, 62–69. doi: 10.15407/visn2016.03.062.

87. Локтионов М. В. (2016) А.А. Богданов как основоположник общей теории систем. *Философия науки и техники*. Том 21 № 2. DOI: <https://doi.org/10.21146/2413-9084-2016-21-2-80-96>.

88. Elbashir, O. et. all (2019) *Natural Gas Processing from Midstream to Downstream* / edited by Nimir O. Elbashir, Mahmoud M. El-Halwagi, Ioannis G. Economou, Kenneth R. Hall. Description: First edition. | Hoboken, NJ : John Wiley & Sons, 2019. Identifiers: LCCN 2018027442 (print). LCCN 2018042360 (ebook). ISBN 9781119269632 (Adobe PDF). ISBN 9781119269625 (ePub). ISBN 9781119270256 (hardcover).

89. Мирзаджанзаде, А. Х., Кузнецов, О. Л., Басниев, К. С., Алиев, З. С. (2003). *Основы технологии добычи газа*. Москва: Недра.

90. Шмыглевский Ю.Д. (1999) Аналитические исследования динамики газа и жидкости. Москва. Едиториал УРСС. 232с. ISBN 5-901006-87-9.
91. Ведміцький Ю. Г. (2018) Тектологія динамічних систем і явище гіперсилової взаємодії у структурних рівняннях узагальненого електричного кола. Енергетика та електротехніка. Наукові праці ВНТУ, 2018, № 2. DOI:<https://doi.org/10.31649/2307-5376-2018-2-25-35>.
92. Селезнев, В. Е., Алешин, В. В., & Прялов, С. Н. (2009). Основы численного моделирования магистральных трубопроводов. (2-е изд., перераб. и доп.). Москва: МАКС Пресс.
93. Купцов, С. М. (2012). Температурный режим скважины. Москва: Издательский центр РГУ нефти и газа имени И. М. Губкина.
94. Садыкова, Р. М., & Крапивский, Е. И. (2016). Тепловой расчет трубопровода смеси сжиженных углеводородных газов при его останове. Горный информационно-аналитический бюллетень, 4, 84–95.
95. Султанова, М. В., Гафуров, А. И., & Шарафутдинов, Р. Ф. (2017). Термогидродинамические эффекты в многофазных средах = Thermohydrodynamic effects in multyphase environment. Булатовские чтения, 1, 164–167. Получено из <http://id-yug.com/images/id-yug/Bulatov/2017/1/PDF/2017-V1-164-167.pdf>.
96. Molen J, Peters E, Jedari-Eyvazi F, and van Gessel SF (2019) Dual hydrocarbon-geothermal energy exploitation: potential synergy between the production of natural gas and warm water from the subsurface. Netherlands Journal of Geosciences, Volume 98, e12. <https://doi.org/10.1017/njg.2019.11>.
97. Davis, A. P., and Michaelides E. E. (2009) Geothermal power production from abandoned oil wells. Energy 34 (7):866–872. doi:10.1016/j.energy.2009.03.017.
98. Fridleifsson, I. B. (2001) Geothermal energy for the benefit of the people. Renewable and Sustainable Energy Reviews 5 (3):299–312. doi:10.1016/S1364-0321(01)00002-8.
99. Rybach, L., Eugster W. J., Hopkirk R. J., and Kaelin B. (1992) Borehole heat exchangers: Longterm operational characteristics of a decentral geothermal

heating system. *Geothermics* 21 (5–6):861–867. doi:10.1016/0375-6505(92)90037-A.

100. Stober, I., and Bucher K. (2013) History of Geothermal Energy Use. In book of Geothermal Energy, Berlin Heidelberg: Springer-Verlag. doi:10.1007/978-3-642-13352-7.

101. Śliwa, T., and Kotyza. J. (2003) Application of existing wells as ground heat source for heat pumps in Poland. *Applied Energy* 74 (1–2):3–8. doi:10.1016/S0306-2619(02)00125-3.

102. Lemmon, E. W., McLinden M. O., and Huber M. L. (2008) NIST reference fluid thermodynamic and transport properties— REFPROP. NIST standard reference database 23, version 7.0, U.S. Department of Commerce, National Institute of Standards and Technology, Standard Reference Data Program, Gaithersburg, Maryland. Accessed September 17, 2018. file:///C:/Users/aldeh/Downloads/REFPROP7doc1.pdf

103. Teng, Y., and Koike K. (2007) Three-dimensional imaging of a geothermal system using temperature and geological models derived from a well-log dataset. *Geothermics* 36 (6):518–38. doi:10.1016/j.geothermics.2007.07.006.

104. Bergman, T. L., Incropera, F. P., DeWitt, D. P., & Lavine, A. S. (2011). *Fundamentals of heat and mass transfer*. (7th ed.). Wiley. Retrieved from <https://studylib.net/doc/25241258/fundamentals-of-heat-and-mass-transfer-7th>.

105. Jung, R., Hassanzadegan, A., & Tischner, T. (2019). Determination of Hydraulic Properties of a Large Self-Propped Hydraulic Fracture in the Geothermal Research Borehole Horstberg Z1 in the Northwest German Basin. *Geofluids*. ID 3508906. Retrieved from <https://doi.org/10.1155/2019/3508906>.

106. Norden, B., Förster, A., Förster, H.–J., & Fuchs, S. (2020). Temperature and pressure corrections applied to rock thermal conductivity: impact on subsurface temperature prognosis and heat-flow determination in geothermal exploration. *Geotherm Energy*, 8(1). doi: 10.1186/s40517-020-0157-0. Retrieved from <https://www.researchgate.net/publication/338803231>.

107. Stober, I., Fritzer, T., Obst, K., Agemar, T., & Schulz, R. (2017). *Deep Geothermal Energy. Principles and Application Possibilities in Germany*. Weber J., Moeck I. (Eds.). Hannover.

108. Tissen, C., Menberg, K., Bayer, P., & Blum, P. (2019). Meeting the demand: geothermal heat supply rates for an urban quarter in Germany. *Geotherm Energy*, 7, 9. Retrieved from <https://doi.org/10.1186/s40517-019-0125-8>.

109. Ahmadi, M., Dahi Taleghani, A. (2016) Feasibility study of heat extraction from a closed-loop fractured geothermal reservoir; a multiphysics problem. In: 50th U.S. Rock Mechanics/Geomechanics Symposium, American Rock Mechanics Association, Houston, Texas.

110. Cheng, W.-L., Li, T.-T., Nian, Y.-Le, & Wang, C.-L. (2013). Studies on geothermal power generation using abandoned oil wells. *Energy*, 59, 248–254. Retrieved from <http://dx.doi.org/10.1016/j.energy.2013.07.008>.

111. Bodvarsson, G. S., Pruess K., Stefansson V., Bjornsson S., and Ojiambo S. B. (1985) Summary of modeling studies of the East Olkaria geothermal field, Kenya. International symposium on geothermal energy, Kailua Kona, HI, USA.

112. Steingrímsson, B. (2009) Geothermal exploration and development from a hot spring to utilization. Presented at short course on surface exploration for geothermal resources, organized by UNU-GTP and LaGeo, in Ahuachapan and Santa Tecla, El Salvador. Accessed September 17, 2018. <https://orkustofnun.is/gogn/unu-gtp-sc/UNU-GTP-SC-09-01.pdf>.

113. Pruess, K. (1991) TOUGH2: A general-purpose numerical simulator for multiphase fluid and heat flow. LBL-29400, ON: DE92000755. CA, USA: Lawrence Berkeley Lab. doi:10.2172/5212064.

114. Tiwari, R., Andhare, R. S., Shooshtari, A., & Ohadi, M. (2018). Development of an Additive Manufacturing-Enabled Compact Manifold Microchannel Heat Exchanger. *Applied Thermal Engineering*, 147. doi: 10.1016/j.applthermaleng.2018.10.122. Retrieved from <https://www.researchgate.net/publication/328574986>.

115. Yildirim, N., Parmanto, S., & Akkurt, G. G. (2019). Thermodynamic assessment of downhole heat exchangers for geothermal power generation. *Renewable Energy*, 139. doi: 10.1016/j.renene.2019.04.049.

116. Zhang, L., Deng, Z., Zhang, K., Long, T., Desbordes, J. K., Sun, H., & Yang, Y. (2019). Well-Placement Optimization in an Enhanced Geothermal System

Based on the Fracture Continuum Method and 0–1 Programming. *Energies*, 12, 709. doi: 10.3390/en12040709.

117. Omenda, P. A. (2007) Status of geothermal exploration in Kenya and future plans for its development. Short Course II on Surface Exploration for Geothermal Resources, Organized by UNU-GTP and KenGen, Lake Naivasha, Kenya. Accessed September 17, 2018. <https://orkustofnun.is/gogn/unu-gtp-sc/UNU-GTP-SC-10-0902.pdf>.

118. Андерсон, А. Ю., Кологривов, М. М., & Притула, В. В. (2016). Влияние диссипации энергии на температуру теплоносителя в скважинах геотермальной циркуляционной системы. *Розвідка та розробка нафтових і газових родовищ*, 1(58), 82–89.

119. Валеев, А. Ф., Соловьев, Н. А., & Шуэр, А. Г. (2013). Концепция совершенствования технологических режимов работы системы "пласт–скважина–шлейф" в условиях обводнения газовых скважин и способ её реализации. *Нефтегазовое дело*, 4, 136–149.

120. Li, T., Zhu J., and Zhang W. (2012) Cascade utilization of low temperature geothermal water in oilfield combined power generation, gathering heat tracing and oil recovery. *Applied Thermal Engineering* 40:27–35. doi:10.1016/j.applthermaleng.2012.01.049.

121. Paloso, G., Jr., and Mohanty B. (1993a) Cascading vapour absorption cycle with organic rankine cycle for enhancing geothermal power generation. *Renewable Energy* 3 (6–7):669–81. doi:10.1016/0960-1481(93)90074-Q.

122. Luo, J., Rohn J., Bayer M., and Priess A. (2013) Thermal performance and economic evaluation of double U-tube borehole heat exchanger with three different borehole diameters. *Energy and Buildings* 67:217–24. doi:10.1016/j.enbuild.2013.08.030.

123. Ozgener, L., Hepbasli A., and Dincer I. (2007) A key review on performance improvement aspects of geothermal district heating systems and applications. *Renewable and Sustainable Energy Reviews* 11 (8):1675–1697. doi:10.1016/j.rser.2006.03.006.

124. Petit, P. J., and Meyer J. P. (1998) Economic potential of vertical ground-source heat pumps compared to air source air conditioners in South Africa. *Energy* 23 (2):137–43. doi:10.1016/S0360-5442(97) 00057-1.
125. Ghoreishi-Madiseh SA, Templeton J, Hassani F, Al-Khawaja MJ, Aflaki E (2014) Geothermal energy extraction from decommissioned petroleum wells. *ISRM International Symposium—8th Asian rock mechanics symposium*. International Society for Rock Mechanics and Rock Engineering, Sapporo.
126. Kujawa, T., Nowak, W., & Stachel, A. A. (2005). Analysis of the exploitation of existing deep production wells for acquiring geothermal energy. *Journal of Engineering Physics and Thermophysics*, 78(1), 127–135.
127. Bu, X., Ma, W., & Li, H. (2012). Geothermal energy production utilizing abandoned oil and gas wells. *Renewable Energy*, 41, 80–85. doi: 10.1016/j.renene.2011.10.009. Retrieved from <http://isiarticles.com/bundles/Article/pre/pdf/57984.pdf>.
128. Cheng, W.–L., Li, T.–T., Nian, Y.–L., & Xie, K. (2014). Evaluation of working fluids for geothermal power generation from abandoned oil wells. *Applied Energy*, 118, 238–245. Retrieved from <https://www.scribd.com/document/344012986/Evaluation-of-working-fluids-for-geothermal-power-generation-from-abandoned-oil-wells#>.
129. Лялько, В. И., & Митник, М. М. (1978). Исследование процессов переноса тепла и вещества в земной коре. Киев: Наукова думка.
130. Kim, J., & Nam, Y. (2016). A Numerical Study on System Performance of Groundwater Heat Pumps. *Energies*, 9(1), 4. doi: 10.3390/en9010004. Retrieved from <https://www.mdpi.com/1996-1073/9/1/4/htm>.
131. Cho, J.–H., Nam, Y., & Kim, H.–C. (2016). Performance and Feasibility Study of a Standing Column Well (SCW) System Using a Deep Geothermal Well. *Energies*, 9(2), 108. doi: 10.3390/en9020108.
132. Angelotti, A., Alberti L., Licata I. La, and Antelmi M. (2014) Energy performance and thermal impact of a borehole heat exchanger in a sandy aquifer: Influence of the groundwater velocity. *Energy Conversion and Management* 77:700–08. doi:10.1016/j. enconman.2013.10.018.

133. Fitterman, D. V., and Corwin R. F. (1982) Inversion of self-potential data from the Cerro Prieto geothermal field, Mexico. *Geophysics* 47 (6):938–45. doi:10.1190/1.1441361.
134. Galgaro, A., Farina Z., Emmi G., De Carli M., and Blum P. (2015) Feasibility analysis of a borehole heat exchanger (BHE) array to be installed in high geothermal flux area: The case of the Euganean thermal Basin, Italy. *Renewable Energy* 78:93–104. doi:10.1016/j.renene.2014.11.076.
135. Culver, G., & Lund, J. W. (1999). Downhole heat exchangers. In *Geo-Heat Center Quarterly Bulletin*, 20(3) (pp. 1–12). Retrieved from <https://www.scribd.com/document/41364896/September-1999-Geo-Heat-Center-Quarterly-Bulletin>.
136. Kurevija, T., & Vulin, D. (2011). High enthalpy geothermal potential of the deep gas fields in central Drava basin, Croatia. *Water Resources Management*, 25(12), 3041–3052. doi: 10.1007/s11269-011-9789-y. Retrieved from <https://link.springer.com/article/10.1007%2Fs11269-011-9789-y>.
137. Dehkordi, S. E., & Schincariol, R. A. (2014). Effect of thermal-hydrogeological and borehole heat exchanger properties on performance and impact of vertical closed-loop geothermal heat pump systems. *Hydrogeology Journal*, 22, 189–203. doi: 10.1007/s10040-013-1060-6.
138. Immanuel, L. G., Almas, G. S. F. U., & Dimas, T. M. (2019). Preliminary design study of wellbore heat exchanger in binary optimization for low-medium enthalpy to utilize non-self discharge wells in Indonesia. 7th ITB International Geothermal Workshop (IIGW2018). IOP Conf. Ser.: Earth Environ. Sci. doi:10.1088/1755-1315/254/1/012016.
139. Liu, J., Wang, F., Cai, W., Wang, Z., Wei, Q., & Deng, J. (2019). Numerical study on the effects of design parameters on the heat transfer performance of coaxial deep borehole heat exchanger. *International Journal of Energy Research*, 43(12), 6337–6352. doi: 10.1002/er.4357.
140. Nalla, G., Shook, G. M., Mines, G. L., & Bloomfield, K. K. (2005). Parametric sensitivity study of operating and design variables in wellbore heat exchangers. *Geothermics*, 34(3), 330–346. doi: 10.1016/j.geothermics.2005.02.001.

141. Богуславский, Э. И., Смирнова, Н. Н., & Егоров, С. В. (2010). Теплообмен в приповерхностных геотермальных системах. Записки Горного института, 187, 24–30.

142. Kujawa, T., Nowak, W., & Stachel, A. A. (2006). Utilization of existing deep geological wells for acquisitions of geothermal energy. *Energy*, 31(5), 650–664. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0360544205001027>, <https://doi.org/10.1016/j.energy.2005.05.002>

143. Kabir, C. S., Hasan, A. R., Kouba, G. E., Ameen M. (1996). Determining circulating fluid temperature in drilling, workover, and well control operations. *Society of Petroleum Engineers Journal*, 11(02), 74–79. Retrieved from <https://doi.org/10.2118/24581-PA>.

144. Feng, Y., Chen X., and Xu X. F. (2014) Current status and potentials of enhanced geothermal system in China: A review. *Renewable and Sustainable Energy Reviews* 33:214–23. doi:10.1016/j.rser.2014.01.074.

145. Dehghani-Sanij, A. R. (2016) *Cisterns: Sustainable development, architecture and energy*, ed. A. Sayigh, Denmark: River Publishers.

146. Бойко В.С., Бойко Р.В. Видобування і транспортування гідратоутворювальних природних та нафтових газів. Івано-Франківськ: «Нова зоря», 2010. 747 с.

147. Røksland, M., Basmoen, T. A., & Sui, D. (2017). Geothermal energy extraction from abandoned wells. *Energy Procedia*, 105, 244–249. doi:10.1016/j.egypro.2017.03.309. Retrieved from https://www.researchgate.net/publication/317305746_Geothermal_Energy_Extraction_from_Abandoned_Wells.

148. Dehghani-Sanij, A. R., Soltani M., and Raahemifar K. (2015) A new design of wind tower for passive ventilation in buildings to reduce energy consumption in windy regions. *Renewable and Sustainable Energy Reviews* 42:182–95. doi:10.1016/j.rser.2014.10.018.

149. Wight, N. M., & Bennet, N. S. (2015). Geothermal energy from abandoned oil and gas wells using water in combination with a closed wellbore.

Applied Thermal Engineering, 89, 908–915. doi: 10.1016/j.applthermaleng.2015.06.030.

150. Sowizdzal, A., Papiernik, B., Machowski, G., & Hajto, M. (2013). Characterization of petrophysical parameters of Lower Triassic deposits in a prospective location for Enhanced Geothermal System (central Poland). *Geological Quarterly*, 57(4), 729–744. doi: <http://dx.doi.org/10.7306/gq.1121>.

151. Бойко, В. С., Бойко, Р. В., Кеба, Л. М., & Семінський, О. В. (2007). Створення потоківідхилювальних бар'єрів і технології ізоляції. Обводнення газових і нафтових свердловин (Т. 2). Київ: Міжнародна економічна фундація. Отримано з <http://elar.nung.edu.ua/handle/123456789/4979>.

152. Миколюк, О. А. (2019). Стан та розвиток відновлюваних джерел енергії. *Вісник Хмельницького національного університету*, 1, 174–183.

153. Guzović, Z., Lončar D., and Ferdelji N. (2010) Possibilities of electricity generation in the Republic of Croatia by means of geothermal energy. *Energy* 35 (8):3429–40. doi:10.1016/j.energy.2010.04.036.

154. Liu, J., Cheng, W.–L., & Nian, Y.–Le. (2018). The stratigraphic and operating parameters influence on economic analysis for enhanced geothermal double wells utilization system. *Energy*, 159, 264–276. Retrieved from <https://doi.org/10.1016/j.energy.2018.06.150>.

155. Macenić, M., & Kurevija, T. (2018). Revitalization of abandoned oil and gas wells for a geothermal heat exploitation by means of closed circulation – case study of deep dry well "Pčelić–1". *Interpretation*, 6(1), 1–9.

156. Zhao, P. C., Zhao L., Ding G. L., and Zhang C. L. (2003). Temperature matching method of selecting working fluids for geothermal heat pumps. *Applied Thermal Eng* 23 (2):179–195. doi:10.1016/S1359-4311(02)00171-0.

157. Ebrahimi, M., & Torshizi, S. E. M. (2012). Optimization of power generation from a set of low–temperature abandoned gas wells, using organic Rankine cycle. *Journal of renewable and sustainable energy*, 4, 063133. Retrieved from <https://www.researchgate.net/publication/258071476>.

158. Chuanshan, D. (1997) Thermal analysis of indirect geothermal district heating systems. *Geothermics* 26 (3):351–64. doi:10.1016/S0375-6505(96)00047-8.

159. Bahadori, M. N., and Dehghani-Sanij A. R. (2014) *Wind Towers: Architecture, Climate and Sustainability*. Edited by A. Sayigh, Springer International Publishing, Switzerland. doi:10.1007/978-3-319-05876-4
160. Bidini, G., Desideri U., Di Maria F., Baldacci A., Papale R., and Sabatelli F. (1998) Optimization of an integrated gas turbine–geothermal power plant. *Energy Conversion and Management* 39 (16–18):1945–56. doi:10.1016/S0196-8904(98)00056-9.
161. Boyaghchi, F. A., Chavoshi M., and Sabeti V. (2015) Optimization of a novel combined cooling, heating and power cycle driven by geothermal and solar energies using the water/CuO (Copper oxide) nanofluid. *Energy* 91:685–99. doi:10.1016/j.energy.2015.08.082.
162. Cao, F., Li H., Ma Q., and Zhao L. (2014) Design and simulation of a geothermal–solar combined chimney power plant. *Energy Conversion and Management* 84:186–95. doi:10.1016/j.enconman.2014.04.015.
163. Dehghani-Sanij, A. R., Tharumalingam E., Dusseault M. B., and Fraser R. (2019) Study of energy storage systems and environmental challenges of batteries. *Renewable and Sustainable Energy Reviews* 104:192–208. doi:10.1016/j.rser.2019.01.023.
164. Karagiorgas, M., Mendrinou D., and Karytsas C. (2004) Solar and geothermal heating and cooling of the European centre for public law building in Greece. *Renewable Energy* 29 (4):461–70. doi:10.1016/j.renene.2003.07.007.
165. Axelsson, G. (2012). *The Physics of Geothermal Energy*. In A. Sayigh (Ed.), *Comprehensive Renewable Energy* (Vol. 7, ch. 7.02, pp. 3–50). Elsevier Ltd. Retrieved from <https://doi.org/10.1016/B978-0-08-087872-0.00703-4>.
166. Chasapis, D., Misirlis, D., Papadopoulos, P. A., & Kleidis, K. (2019). Thermodynamic Analysis on the Performance of a Low–Enthalpy Geothermal Field Using a CO₂ Supercritical Binary Cycle. *Chemical Engineering Transactions*, 76, 1009–1014. doi: 10.3303/CET1976169
167. Pan, C., Chavez, O., Romero, C. E., Levy, E. K., Corona, A. A., & Rubio–Maya, C. (2016). Heat mining assessment for geothermal reservoirs in Mexico using supercritical CO₂ injection. *Energy*, 102, 148–160. Retrieved from <http://dx.doi.org/10.1016/j.energy.2016.02.072>.

168. Wu, C. (1991) Specific output power of a dry geothermal plant. *Energy* 16 (4):757–761. doi:10.1016/0360-5442(91)90025-H.
169. WEC (World Energy Council). (2016) World energy resources. London, UK. Accessed September 17, 2018. <https://www.worldenergy.org/wp-content/uploads/2016/10/World-Energy-Resources-Full-report-2016.10.03.pdf>.
170. Chen, M., Tompson A. F. B., Mellors R. J., and Abdalla O. (2015) An efficient optimization of well placement and control for a geothermal prospect under geological uncertainty. *Applied Energy* 137:352–63. doi:10.1016/j.apenergy.2014.10.036.
171. Angrisani, G., Diglio, G., Sasso, M., Calise, F., & Dentice d'Accadia, M. (2016). Design of a novel geothermal heating and cooling system: Energy and economic analysis. *Energy Conversion and Management*,108, 144–159. doi: 10.1016/j.enconman.2015.11.001.
172. Huang, Y., Zhang, Y., Hu, Z., Lei, H., Wang, C., & Ma, J. (2019). Economic analysis of heating for an enhanced geothermal system based on a simplified model in Yitong Basin, China. *Energy Science & Engineering*, 7(3), 1–17. doi: 10.1002/ese3.451.
173. Merhej, L. (2018). Exploitation of the Geothermal Energy in Petroleum Wells to Improve the Economy of Mature Wells and Increase Their Lifetime. (Master's thesis). Politecnico di Torino. Turin.
174. Cataldi, R., Lazzarotto A., Muffler P., Squarci P., and Stefani G. (1978) Assessment of geothermal potential of central and Southern Tuscany. *Geothermics* 7 (2–4):91–131. doi:10.1016/0375-6505(78)90003-2.
175. Cataldi, R., and Chiellini P. (1995) Geothermal energy in the mediterranean area before the middle ages. pp. 313–80. Accessed September 17, 2018. <https://www.geothermal-energy.org/pdf/IGAstandard/WGC/1995/1-cataldi.pdf>.
176. Cataldi, R., and Domenico P. (1999b) From the mystery of atlantis to the first integrated uses of geothermal energy. Vol. of stories from a heated earth: Our geothermal heritage, geothermal resources council, International Geothermal Association, Sacramento, California, USA, pp. 137–45.
177. Cataldi, R., and Burgassi P. D. (1999b) Flowering and decline of thermal bathing and other uses of natural heat in the mediterranean area, from the

birth of rome to the end of the first millennium. Vol. of stories from a heated earth: Our geothermal heritage, geothermal resources council, International Geothermal Association, Sacramento, California, USA, pp. 147–63.

178. Doveri, M., Lelli M., Marini L., and Raco B. (2010). Revision, calibration, and application of the volume method to evaluate the geothermal potential of some recent volcanic areas of Latium, Italy. *Geothermics* 39 (3):260–69. doi:10.1016/j.geothermics.2010.06.002.

179. Kocabas, I. (2005) Geothermal reservoir characterization via thermal injection backflow and interwell tracer testing. *Geothermics* 34 (1):27–46. doi:10.1016/j.geothermics.2004.09.003.

180. Soltani, M., Dehghani-Sanij A. R., Sayadnia A., Kashkooli F. M., Gharali K., Mahbaz S. B., and Dusseault M. B. (2018) Investigation of airflow patterns in a new design of wind tower with a wetted surface. *Energies* 11 (5):1100. doi:10.3390/en11051100.

181. Erin Riley Camp (2017) Repurposing petroleum reservoirs for geothermal energy: a case study of the appalachian basin. A Dissertation Presented to the Faculty of the Graduate School of Cornell University. August 2017.

182. Nadeem, M., and Dusseault M. B. (2007) Geological engineering criteria for deep waste disposal. *Environmental Geosciences* 14 (2):61–77. doi:10.1306/eg.01240605009.

183. Davies, R. J. et al. (2014). Oil and gas wells and their integrity: Implications for shale and unconventional resource exploitation. *Marine and Petroleum Geology*, 56, 239–254. Retrieved from <http://dx.doi.org/10.1016/j.marpetgeo.2014.03.001>.

184. Pechnig, R., & Mottaghy, D. (2010). Geothermal Reservoir Characterization and Modelling. Methods and strategies to derive thermal properties from well data and to improve model input parameter. Freiburg. Retrieved from <https://docplayer.net/9648185-Geothermal-reservoir-characterization-and-modelling.html>.

185. Franco, A., Vaccaro, M. (2017) Recent trends in the development of heat exchangers for geothermal systems. 35th UIT Heat Transfer Conference

(UIT2017). IOP Conf. Series: Journal of Physics: Conf. Series 923 (2017) 012044 doi :10.1088/1742-6596/923/1/012044.

186. Tinti, F., Strpić, K., Kasmae, S., Focaccia, S., Bedeschi, E., Verdecchia, A. ... Macini, P. (2019). Performance comparison between a typical very shallow and an innovative configuration of ground heat exchangers. European Geothermal Congress, Den Haag, The Netherlands, 11–14 June 2019. Den Haag.

187. Motevasel, M., Nazar, A. R. S., & Jamialahmadi, M. (2017). Experimental investigation of turbulent flow convection heat transfer of MgO/water nanofluid at low concentrations – Prediction of aggregation effect of nanoparticles. *International journal of heat and technology*, 35(4), 755–764. doi: 10.18280/ijht.350409.

188. Freeston, D. H. (1996) Direct uses of geothermal energy 1995. *Geothermics* 25 (2):189–214. doi:10.1016/0375-6505(95)00051-8.

189. Gallup, D. L. (2009) Production engineering in geothermal technology: A review. *Geothermics* 38 (3):326–34. doi:10.1016/j.geothermics.2009.03.001. GEA (Geothermal Energy Association). 2015. 2015 annual U.S. & global geothermal power production report. pp. 1–20. Accessed September 17, 2018. <http://geo-energy.org/reports/2015/2015%20Annual%20US%20%20Global%20Geothermal%20Power%20Production%20Report%20Draft%20final.pdf>.

190. Mendrinos D., Karytsas C., Georgilakisa P. S. (2008) Assessment of geothermal resources for power generation. *Journal of optoelectronics and advanced materials*, Vol. 10, No. 5, May 2008, p. 1262 – 1267. https://www.researchgate.net/publication/228840328_Assessment_of_geothermal_resources_for_power_generation?enrichId=rgreq-1eb4436b51ad33617e84c82c99f1a481-XXX&enrichSource=Y292ZXJQYWdlOzIyODg0MDMyODtBUzoxNjcwMzE3NDM3MjE0NzNAMTQxNjgzNDg3OTMyNQ%3D%3D&el=1_x_2&_esc=publicationCoverPdf.

191. Гошовский, С. В., & Зурьян, А. В. (2014). Анализ изменений температуры соляного раствора в процессе извлечения теплоты из верхних слоев земли. *Збірник наукових праць УкрДГРІ*, 3–4, 20–27.

192. Lund, J. W. (2010). Direct Utilization of Geothermal Energy. *Energies*, 3, 1443–1471. doi:10.3390/en3081443. Retrieved from <https://www.mdpi.com/1996-1073/3/8/1443/htm>.
193. Hakki Aydin, Sukru Merey (2020) Potential of geothermal energy production from depleted gas fields: A case study of Dodan Field, Turkey. *Renewable Energy*, Volume 164, Pages 1076-1088, ISSN 0960-1481, <https://doi.org/10.1016/j.renene.2020.10.057>.
194. Anand G. et al. (eds.) (2018) *Nanotechnology for Energy and Water*, Springer Proceedings in Energy, Chapter 7 (Exploitation and Utilization of Oilfield Geothermal Resources in INDIA). https://doi.org/10.1007/978-3-319-63085-4_7.
195. Koike, K., and Matsuda S. (2005) Spatial modeling of discontinuous geologic attributes with geotechnical applications. *Engineering Geology* 78 (1–2):143–61. doi:10.1016/j.enggeo.2004.12.004.
196. Koike, K., Shiraishi Y., Verdeja E., and Fujimura K. (1998) Three-dimensional interpolation and lithofacies analysis of granular composition data for earthquake-engineering characterization of shallow soil. *Mathematical Geology* 30 (6):733–59. doi:10.1023/A:1022473320050.
197. Ниналалов А.И., Акаев А.И. (2010) Определение коэффициентов тепло и температуропроводности, а также теплового потока земли горных пород по результатам температурных исследований скважин на нестационарном тепловом режиме. *Вестник Дагестанского государственного технического университета. Технические науки. № 17. С39-44*.
198. Desideri, U., and Di Maria F. (2000) Simulation code for design and off design performance prediction of geothermal power plants. *Energy Conversion and Management* 41 (1):61–76. doi:10.1016/S0196-8904(99)00073-4.
199. Vereina Olga B. (2005) *Mathematical Models of the Fluid Flowing for Geothermal and Hydrocarbon Wells*. Proceedings World Geothermal Congress 2005, Antalya, Turkey, 24-29 April 2005. <https://www.geothermal-energy.org/pdf/IGAstandard/WGC/2005/1128.pdf>.
200. Hepbasli, A., and Ozgener L. (2004) Development of geothermal energy utilization in Turkey: A review. *Renewable and Sustainable Energy Reviews* 8 (5):433–60. doi:10.1016/j.rser.2003.12.004.

201. Kaya, E., Zarrouk S. J., and O'Sullivan M. J. (2011) Reinjection in geothermal fields: A review of worldwide experience. *Renewable and Sustainable Energy Reviews* 15 (1):47–68. doi:10.1016/j.rser.2010.07.032.

202. Montesinos, B. M., Kaus, B. J. P., & Popov, A. A. (2019). Simulating fluid injection in geological media with complex rheologies. 2nd International Geothermal Conference. IOP Conf. Ser.: Earth Environ. Sci. doi:10.1088/1755-1315/249/1/012005.

203. Vaganova, N. A., & Filimonov, M. Yu. (2019). Optimization of Location of Injection Wells in an Open Geothermal System. Proceedings of the 45th International Conference on Application of Mathematics in Engineering and Economics (AMEE'19). (Vol. 2172, issue 1), (pp. 070018–1–070018–6). Retrieved from <https://doi.org/10.1063/1.5133554>.

204. Li, K., Bian H., Liu C., Zhang D., and Yang Y. (2015) Comparison of geothermal with solar and wind power generation systems. *Renewable and Sustainable Energy Reviews* 42:1464–74. doi:10.1016/j.rser.2014.10.049.

205. Soldo, E., & Alimonti, C. (2015). From an Oilfield to a Geothermal One: Use of a Selection Matrix to Choose Between Two Extraction Technologies. Proceedings World Geothermal Congress, 19–25 April 2015, Melbourne, Australia. Melbourne.

206. Yang, Y., Huo, Y., Xia, W., Wang, X., Zhao, P., & Dai, Y. (2017). Construction and preliminary test of a geothermal ORC system using geothermal resource from abandoned oil wells in the Huabei oilfield of China. *Energy*, 140, 633–645. Retrieved from <http://dx.doi.org/10.1016/j.energy.2017.09.013>.

207. Li, Q., Chen, Lu, Ma, H., & Huang, C.–Ho. (2018). Enhanced Heat Transfer Characteristics of Graphite Concrete and Its Application in Energy Piles. *Advances in Materials Science and Engineering*, 2018, article ID 8142392. Retrieved from <https://doi.org/10.1155/2018/8142392>.

208. Дейк, Л. П. (2008). Практический инжиниринг резервуаров. М. Н. Кравченко (Ред.). Москва–Ижевск: Институт компьютерных исследований.

209. Орлов, О. О., Фик, І. М., Боднарчук, В. С., & Мазур, А. П. (2015). Бітумогазогеологічне районування, нафтові і газові родовища та підземні сховища газу України. Івано-Франківськ: Симфонія форте.

210. Finster, M., Clark C., Schroeder J., and Martino L. (2015) Geothermal produced fluids: Characteristics, treatment technologies, and management options. *Renewable and Sustainable Energy Reviews* 50:952–66. doi:10.1016/j.rser.2015.05.059.

211. Guo, B., Li, J., Song, J., & Li, G. (2016). Mathematical modeling of heat transfer in counter–current multiphase flow found in gas–drilling systems with formation fluid influx. *Pet. Sci.* Febr., 14, 711–719. Retrieved from <https://link.springer.com/content/pdf/10.1007%2Fs12182-017-0164-3.pdf>

212. Babkir, A. (2019). Sustainability Assessment of Power Generation from an Abandoned Oil and Gas Well in Alberta, Canada. *Journal of Energy and Power Technology*, 1(3). doi: 10.21926/jept.1903002. Retrieved from <https://www.researchgate.net/publication/335025401>

213. Caird, S., Roy R., and Potter S. (2012) Domestic heat pumps in the UK: User behaviour, satisfaction and performance. *Energy Efficiency* 5 (3):283–301. doi:10.1007/s12053-012-9146-x.

214. Ruiz-Calvo, F., De Rosa M., Acuña J., Corberán J. M., and Montagud C. (2015) Experimental validation of a short-term borehole-to-ground (B2G) dynamic model. *Applied Energy* 140:210–223. doi:10.1016/j.apenergy.2014.12.002.

215. Сатрутдинова, А. М. (2014). Математическое моделирование движения влажного газа в стволе вертикальной скважины. (Выпускная квалификационная работа). Казанский (Приволжский) федеральный университет, Казань.

216. Коробицына, Ж. Л., & Тычков, С. А. (1997). Численное моделирование процессов тепло– и массопереноса с учетом фазового перехода в геодинамике. *Журнал вычислительной математики и математической физики*, 37(6), 733–741.

217. Zhang, L., Wang, R., Song, H., Xie, H., Fan, H., Sun, P., & Du, L. (2019). Numerical Investigation of Techno–Economic Multiobjective Optimization of Geothermal Water Reservoir Development: A Case Study of China. *Water*, 11, 2323. doi: 10.3390/w11112323.

218. Fesenko, Y. L., Syniuk, B. B., Kryvulia, S. V., & Fyk, M. I. (2014). Applied aspects of maintaining gas production in a gas condensate production field at a late stage of operation. *NAFTA-GAZ*, LXIX(10), 744–753. Retrieved from https://www.researchgate.net/publication/291824329_Applied_aspects_of_maintaining_gas_production_in_a_gas_condensate_production_field_at_a_late_stage_of_operation.

219. Nian, Y.-L., & Cheng, W.-L. (2018). Evaluation of geothermal heating from abandoned oil wells. *Energy*, 142, 592–607. Retrieved from <https://doi.org/10.1016/j.energy.2017.10.062>.

220. Guo, J., Cao, W., Wang, Y., & Jiang, F. (2019). A novel flow-resistor network model for characterizing enhanced geothermal system heat reservoir. *Front. Energy*, 13(1), 99–106. <https://doi.org/10.1007/s11708-018-0555-1>.

221. Kadam, J. V. (2003). Towards integrated dynamic real-time optimization and control of industrial processes. *Proceedings Foundations of Computer-Aided Process Operations (FOCAPO2003)*.

222. Li, J., Ge, Z., Duan, Y., Yang, Z., & Liu, Q. (2018). Parametric optimization and thermodynamic performance comparison of single-pressure and dual-pressure evaporation organic Rankine cycles. *Applied Energy*, 217, 409–421. Retrieved from <https://doi.org/10.1016/j.apenergy.2018.02.096>, <https://www.researchgate.net/publication/323666660>.

223. Мирзаджанзаде, А. Х., & Шахвердиев, А. Х. (1997). Динамические процессы в нефтегазодобыче. Системный анализ, диагноз, прогноз. Москва: Наука.

224. Tomaszewska, B., Sowizdzał, A., & Chmielowska, A. (2018). Selected technical aspects of well construction for geothermal energy utilization in Poland. *Contemp. Trends. Geosci*, 7(2), 188–199. doi: 10.2478/ctg-2018-0013.

225. Li, F., Xu, T., Li, S., Feng, Bo, Jia, X., Feng, G., Zhu, H., & Jiang, Z. (2019). Assessment of Energy Production in the Deep Carbonate Geothermal Reservoir by Wellbore-Reservoir Integrated Fluid and Heat Transport Modeling. *Geofluids*, 2019, article ID 8573182. Retrieved from <https://doi.org/10.1155/2019/8573182>.

226. Manzella, A. (2017). Geothermal energy. EPJ Web of Conferences Proceedings of the 5th course of the MRS–EMRS "Materials for Energy and Sustainability" and 3rd course of the "EPS–SIF International School on Energy", Erice, Italy, July 13–19, 2016. 148, 00012. doi: 10.1051/epjconf/201714800012.

227. Сорокин, А. Д. (2003). Расчет ребристого радиатора как элемента теплообменника с принудительной конвекцией. Получено из <http://www.electrosad.ru/Ohlajd/MetRR.htm>.

228. Mladen Bošnjaković, Ante Čikić, Simon Muhič, Marinko Stojkov (2017) Development of a new type of finned heat exchanger. Technical Gazette 24, 6(2017), 1785-1796. <https://doi.org/10.17559/TV-20171011071711>.

229. Norden, B. (Ed.). (2011). Geothermal Energy Utilization in Low–Enthalpy Sedimentary Environments: Scientific Technical Report STR11/06. Potsdam. doi: 10.2312/GFZ.b103–11066.

230. Noorollahi, Y., Itoi R., Fujii H., and Tanaka T. (2008) GIS integration model for geothermal exploration and well siting. Geothermics 37 (2):107–31. doi:10.1016/j.geothermics.2007.12.001.

231. Шендрик, О., & Фик, М. (2015). Технологічні аспекти удосконалення приладового обліку багатофазних потоків. Облік природного газу та метрологія : збірник доповідей Всеукраїнської семінар–наради, м. Одеса, 21–25 вересня 2015 р. (с. 13–15). Одеса.

232. Koenig, J. B. (1989) Nature of geothermal resources and prospects in developing countries. Vol. of geothermal development opportunities in developing countries, 3–27. Virginia, USA: U.S. Department of Energy, Falls Church.

233. Santoyo-Gutierrez E. (1997) Transient numerical simulation of heat transfer processes during drilling of geothermal wells. Telford Institute of Environmental Systems Water Resources Research Group University of Salford, Salford, UK. Submitted in Partial Fulfilment of the Requirements of the Degree of Doctor of Philosophy, September 1997, 419P. <http://usir.salford.ac.uk/id/eprint/14689/1/245054.pdf>.

234. Antipov Yu.A., Khalife H., Zharikov I.A. (2018) Evaluation of hydraulic and thermal losses in oil pipelines in cold areas. Petroleum engineering, 2 (16). 99-105. DOI: <http://dx.doi.org/10.17122/ngdelo-2018-2-99-105>.

235. Mark A. Kedzierski, Min, Soo Kim (1994) Single-Phase Heat Transfer and Pressure Drop Characteristics of an Integral-Spine Fin Within an Annulus. June 1994, Journal of Enhanced Heat Transfer 3(3). DOI: <http://dx.doi.org/10.1615/JEnhHeatTransf.v3.i3.40>.

236. Fyk, M., Biletskyi, V., Abbood, M., Al-Sultan, M., Abbood, M., Abdullatif, H., Shapchenko, Y. (2020) Modeling of the lifting of a heat transfer agent in a geothermal well of a gas condensate deposit. Mining of Mineral Deposits, 14(2), с. 66-74. <https://doi.org/10.33271/mining14.02.066>.

237. Kang J. Y., Lee B. S. (2017) Optimisation of pipeline route in the presence of obstacles based on a least cost path algorithm and laplacian smoothing // International Journal of Naval Architecture and Ocean Engineering. 9. P. 492–498.

238. Aalto H. (2008) Optimal Control of Natural Gas Pipeline Networks: A Real-Time, Model-Based, Receding Horizon Optimisation Approach. 186 p.

239. Arya A. K., Honwad S. Multiobjective optimization of a gas pipeline network: an ant colony approach // Journal of Petroleum Exploration and Production Technology. 2018. 8. P. 1389–1400.

240. Ehrhardt K., Steinbach M. C. (2005) Nonlinear optimization in gas networks // In: Bock HG, Kostina E, Phu HX, Ranacher R (eds) Modeling, simulation and optimization of complex processes, 1522 pages, Springer, Berlin. P. 139-148.

241. Трапезников С. Ю. Исследование коэффициента гидравлического сопротивления при неизотермическом движении высоковязкой нефти по трубопроводу // Электронный научный журнал «Нефтегазовое дело». 2011. №2. С. 304–310.

242. Barbier, E. (1986) Geothermal energy in the world energy scenario. Geothermics 15 (5):807–19. doi:10.1016/0375-6505(86)90095-7.

243. Paloso, G., Jr., and Mohanty B. (1993b) A flashing binary combined cycle for geothermal power generation. Energy 18 (8):803–814. doi:10.1016/0360-5442(93)90059-M.

244. Mlcak, H. A. (2002) Kalina cycle concepts for low temperature geothermal. *Geothermal Resources Council Transactions* 26:707–13. Accessed September 17, 2018. <http://pubs.geothermal-library.org/lib/grc/1019685.pdf>.

245. Arnórsson, S., Sigurdsson S., and Svavarsson H. (1982) The chemistry of geothermal waters in Iceland. I. Calculation of aqueous speciation from 0 to 370 °C. *Geochimica et cosmochimica acta* 46 (9):1513–32. doi:10.1016/0016-7037(82)90311-8.

246. Richards, J. P., and Larson P. B. (1998) Techniques in hydrothermal ore deposits geology. *Reviews in economic geology*. Society of Economic Geologists 10. doi:10.5382/Rev.10.

247. Fu, W., J. Zhu, T. Li, W. Zhang, and J. Li. (2013) Comparison of a kalina cycle based cascade utilization system with an existing organic rankine cycle \based geothermal power system in an oilfield. *Applied Thermal Engineering* 58 (1–2):224–33. doi:10.1016/j.applthermaleng.2013.04.012.

248. Moradi, A., Smits, K. M., Lu, N., & McCartney, J. S. (2016). Heat Transfer in Unsaturated Soil with Application to Borehole Thermal Energy Storage. *Vadose Zone Journal*, 15(10). doi: 10.2136/vzj2016.03.0027.

249. Veen van A. (2018). Applying Artificial Neural Networks to Predict Effects of Microbial Degradation on Physical Reservoir Parameters in Geothermal and Carbon Capture and Storage Settings. (Master's thesis). Utrecht university.

250. Shaju, J., Thekkiniyath, S., Prince, J., Kapil Dev, E. J., Thilakan, A., & Arunraj, A. (2017). Review on Thermal Energy Storage and Its Applications. *International Journal of Innovative Research in Science, Engineering and Technology*, 6(1), 509–515. doi: 10.15680/IJIRSET.2017.0601092.

251. Sheikholeslami, M., Ellahi, R., & Vafai, K. (2018). Study of Fe₃O₄–water nanofluid with convective heat transfer in the presence of magnetic source. *Alexandria Engineering Journal*, 57, 565–575. Retrieved from <http://dx.doi.org/10.1016/j.aej.2017.01.027>.

252. Templeton, J. D., Hassani, F., & Ghoreishi–Madiseh, S. A. (2016). Study of effective solar energy storage using a double pipe geothermal. *Renewable Energy*, 86, 173–181. doi: 10.1016/j.renene.2015.08.024. Retrieved from

<http://www.sciencedirect.com/science/article/pii/S096014811530224X>,
<https://doi.org/10.1016/j.renene.2015.08.024>.

253. Кравченко, І. П. (2019). Процеси та системи перетворення геотермальної енергії вироблених нафтових і газових родовищ. (Дис. канд. техн. наук). НАН України, Інститут відновлювальної енергетики. Київ: Інститут відновлювальної енергетики.

254. Clauser, C., & Ewert, M. (2018). The renewables cost challenge: Levelized cost of geothermal electric energy compared to other sources of primary energy — Review and case study. *Renewable and Sustainable Energy Reviews*, 82(P3), 3683–3693. doi: 10.1016/j.rser.2017.10.095.

255. Gupta, H., & Roy, S. (2007). *Geothermal Energy: An Alternative Resource for the 21st Century*. Elsevier Science.

256. Hung, T. C. Wang, S. K., Kuo, C. H., Pei, B. S., & Tsai, K. F. (2010). A study of organic working fluids on system efficiency of an ORC using low-grade energy sources. *Energy*, 35(3), 1403–1411. doi: 10.1016/j.energy.2009.11.025. Retrieved from <https://doi.org/10.1016/j.energy.2009.11.025>.

257. Rahbar, K., Mahmoud, S., Al-Dadah, R. K., Moazami, N., & Mirhadizadeh, S. A. (2017). Review of organic Rankine cycle for small-scale applications. *Energy Conversion and Management*, 134, 134–155.

258. Kalogirou, S. A., Florides G. A., Pouloupatis P. D., Panayides I., Joseph-Stylianou J., and Zomeni Z. (2012) Artificial neural networks for the generation of geothermal maps of ground temperature at various depths by considering land configuration. *Energy* 48 (1):233–40. doi:10.1016/j.energy.2012.06.045.

259. Trota, A., Ferreira, P., Gomes, L., Cabral, J., & Kallberg, P. (2019). Power Production Estimates from Geothermal Resources by Means of Small-Size Compact Climeon Heat Power Converters: Case Studies from Portugal (Sete Cidades, Azores and Longroiva Spa, Mainland). *Energies*, 12. doi: 10.3390/en12142838.

260. Wang, L., Bu, X., & Li, H. (2019). Investigation on geothermal binary-flashing cycle employing zeotropic mixtures as working fluids. *Geothermal Energy*.

Science – Society – Technology, 7(36). Retrieved from <https://doi.org/10.1186/s40517-019-0153-4>.

261. Domschkea, P., Duac, A., Jeroen, J., Stolwijkc, Langa, J. Mehrmann, V. (2017) Adaptive Refinement Strategies for the Simulation of Gas Flow in Networks using a Model Hierarchy. Numerical Analysis, February 1, 21 P.

262. Bertani, R. (2015). Geothermal Power Generation in the World – 2010–2014. Update Report. Proceedings World Geothermal Congress, Melbourne, Australia, 19–25 April 2015. Melbourne.

263. Chaczykowski, M. (2010) Transient Flow in Natural Gas Pipeline- The Effect of Pipeline Thermal Model. Applied Mathematical Modelling, Vol. 34, Issue 4 (April 2010), 1051-1067.

264. Oosterkamp, A., Ytrehus, T., Tesdal, S. (2016) Effect of the choice of boundary conditions on modelling ambient to soil heat transfer near a buried pipeline. Applied Thermal Engineering, Vol. 100, 367-377.

265. Ghajar, A. (2005) Non-boiling heat transfer in gas-liquid flow in pipes – a tutorial. Journal of the Brazilian Society of Mechanical Sciences and Engineering, Vol. 27, №1 (Rio de Janeiro, Jan./Mar.), 56-73.

266. Pistun, Y., Matiko, F., Masnyak, O. (2015) Simplified Method for Calculation of the Joule-Thomson Coefficient at Natural Gas Flowrate Measurement. Energy engineering and control systems, Vol. 1, № 2, 127-132.

267. Templeton, J. D., Ghoreishi–Madiseh, S. A., Hassani, F., & Al-Khawaja, M. J. (2014). Abandoned petroleum wells as sustainable sources of geothermal energy. Energy, 70, 366–373. Retrieved from <http://dx.doi.org/10.1016/j.energy.2014.04.006>, <http://www.sciencedirect.com/science/article/pii/S0360544214004198>.

268. Maric I., Iv, I. (2010) Compensation for Joule-Thomson effect in flowrate measurements by GMDH polynomial. Flow Measurement and Instrumentation, Vol. 21, Issue 2, 134-142.

269. Syed A. (2013) Preventing Hydrate Formation in Gas Transporting Pipelines with Synthetic Inhibitors. Internat. Jour. of Chemistry, №1.

270. Shanbi, P., Junying, L., Yongand, J., Liu, Y. (2013) The Simulation of Natural Gas Gathering Pipeline Network. *The Open Fuels & Energy Science Journal*, № 6, 18-22.

271. Ebrahimi, M., Ebrahim, S., Torshizi, M. (2012) Optimization of power generation from a set of low-temperature abandoned gas wells, using organic Rankine cycle. *Journal of Renewable and Sustainable Energy*, 4, 063133.

272. Liu, E., Li, C., Yang, Y. (2014) Optimal Energy Consumption Analysis of Natural Gas Pipeline. Hindawi Publishing Corporation: *Scientific World Journal*, Article ID 506138, 8 P.

273. Domschkea, P., Duac, A., Jeroen, J., Stolwijkc, Langa, J. Mehrmannc, V. (2017) Adaptive Refinement Strategies for the Simulation of Gas Flow in Networks using a Model Hierarchy. *Numerical Analysis*, February 1, 21 P.

274. Liu, S., Dai, S., Ding, Q., Hu, L., Wang, Q. (2017) Calculation Method of Energy Flow for Combined Electro-Thermal System and Its Application. *Energy and Power Engineering*, 9, 376-389.

275. Sarbu, I., Sebarchievici, C. (2014) General review of ground-source heat pump system for heating and cooling of buildings. *Energy Buildings*, 70(2), 441-454.

276. Orga, A., Obibuenyi, J., Nwozuz, M. (2017) An Offshore Natural Gas Transmission Pipeline Model and Analysis for the Prediction and Detection of Condensate. Hydrate Formation Conditions *IOSR Journal of Applied Chemistry*, Vol. 10, Issue 3, Ver. I., 33-39.

277. Pouladi, N., Heitmann, H. (2017) Simulation of steady flow of natural gas in a subsea flexible riser with heat exchange. Elsevier: *Journal of Natural Gas Science and Engineering*, 46, 533-543.

278. Dali Hou, Pingya Luo, Lei Sun, Yong Tang, Yi Pan (2014) Study on Nonequilibrium Effect of Condensate Gas Reservoir with Gaseous Water under HT and HP Condition Hindawi Publishing Corporation, *Journal of Chemistry*, Volume 2014, Article ID 295149, 8 pages, <http://dx.doi.org/10.1155/2014/295149>.

279. Xindi SUN Baojun BAI (2017) Comprehensive review of water shutoff methods for horizontal wells, *PETROLEUM EXPLORATION AND*

DEVELOPMENT, Volume 44, Issue 6, December 2017
[https://doi.org/10.1016/S1876-3804\(17\)30115-5](https://doi.org/10.1016/S1876-3804(17)30115-5).

280. А.В.Гнітко, В.І.Коцаба, Л.В.Воловик, Д.М.Когуч. (2011) Дослідження впливу концентрації ПАР на ефективність видалення рідини зі свердловин Шебелинського ГКР. «Нафтова і газова промисловість», №2, с.32-34.

281. Білецький В. С. (2013) Феноменологічний метод дослідження технологічних процесів у гірництві. Вісті Донецького гірничого інституту, № 2(2), С. 149-152.

282. Di Maria, F. (2000) Design and off design pipe network geothermal power plant analysis with power pipe simulator. *Energy Conversion and Management* 41 (12):1223–35. doi:10.1016/S0196-8904(99)00177-6.

283. El–Emam, R. S., & Dincer, I. (2013). Exergy and exergoeconomic analyses and optimization of geothermal organic Rankine cycle. *Applied Thermal Engineering*, 59(1–2), 435–444. Retrieved from <https://doi.org/10.1016/j.applthermaleng.2013.06.005>.

284. Naraksingh, I., & Koon Koon, R. (2011). A Conceptual model for geothermal energy investigation with emphasis on the Caribbean. *Proceedings, Thirty–Sixth Workshop on Geothermal Reservoir Engineering Stanford University, Stanford, California, January 31–February 2, 2011. Stanford. Retrieved from. <https://www.researchgate.net/publication/228894854>.*

285. Ситдигов Р.М., Филиппов Д.Д., Митрушкин Д.А. (2016) Численное моделирование многофазных течений в сопряжённой системе «Пласт-скважина-УЭЦН» // Препринты ИПМ им. М.В.Келдыша. 2016. № 59. 28 с. doi:10.20948/prepr-2016-59. URL: <http://library.keldysh.ru/preprint.asp?id=2016-59>

286. Kiaghadi, A., Sobel, R. S., & Rifai, H. S. (2017). Modeling geothermal energy efficiency from abandoned oil and gas wells to desalinate produced water. *Desalination*, 414, 51–62. Retrieved from <http://dx.doi.org/10.1016/j.desal.2017.03.024>.

287. Eller, T., Heberle, F., & Brüggemann, D. (2019). Transient modelling and simulation of a double–stage Organic Rankine Cycle. *Proceedings of the 13th*

International Modelica Conference, March 4–6, 2019 (pp. 679–686). Regensburg, Germany. doi: 10.3384/escp19157679.

288. Шадрина, Е. М., & Волкова, Г. В. (Сост.). (2009). Определение теплофизических свойств газов, жидкостей и водных растворов веществ / Ивановский государственный химико–технологический университет. Иваново.

289. Mikolajkova M., Saxon H., Pettersson F. Mixed Integer Linear Programming Optimization of Gas Supply to a Local Market // *Ind. Eng. Chem. Res.* 57. P. 5951-5965.

290. N.A. Garris, A. I. Rusakov, A.A. Lebedeva *Petroleum engineering*. 2018. Balanced heat exchange of oil pipeline in permafrost calculation and thawing halo radius determination. B. 16, (5). P. 73–80.

291. Chaware, P., Sewatkar, C. M. (2018) Effects of tangential and radial velocity on fluid flow and heat transfer for flow through a pipe with twisted tape insert—laminar flow. September 2018 *Sadhana* 43(9). DOI:<http://dx.doi.org/10.1007/s12046-018-0893-z>.

292. Alcaraz, M., Vives L., and Vázquez-Suñé. E.(2017) The T-I-GER method: A graphical alternative to support the design and management of shallow geothermal energy exploitations at the metropolitan scale. *Renewable Energy* 109 (C):213–21. doi:10.1016/j.renene.2017.03.022.

293. Dipippo, R. (1999) Small geothermal power plants: Design, performance and economics. *GHC Bulletin* 2 (2):1–8. Accessed September 17, 2018. <https://geothermalcommunities.eu/assets/elearning/7.10.art1.pdf>.

294. Chen, C., Shao, H., Naumov, D., Kong, Y., Tu, K., & Kolditz, O. (2019). Numerical investigation on the performance, sustainability, and efficiency of the deep borehole heat exchanger system for building heating. *Chen et al. Geotherm Energy*, 7. Retrieved from <https://doi.org/10.1186/s40517-019-0133-8>

295. Dai, Y., Wang, J., & Gao, L. (2009). Parametric optimization and comparative study of Organic Rankine Cycle (ORC) for low grade waste heat recovery. *Energy Conversion and Management*, 50(3), 576–582. doi: 10.1016/j.enconman.2008.10.018.

296. Бойко В.С. (2012) Технологія видобування нафти. Івано-Франківськ: Нова Зоря,. 827 с.
297. Крижанівський Є. та інш. , (2006) Енергетична безпека держави: високоефективні технології видобування, постачання і використання природного газу. Київ: Інтерпрес ЛТД. 281 с.
298. . Hillerac Benjamin, Koched Thorsten, Scheweb Lars, Schwarzc Robert, Schweigerc Jonas (2018) A system to evaluate gas network capacities: Concepts and implementation. *European Journal of Operational Research*. Volume 270, Issue 3, 1 November. P. 797–808.
299. Кондратьев А.С., Ньа Т.Л., Швыдько П.П. Обобщение формулы Колбрука – Уайта на течения жидкости в трубе с произвольной песочной шероховатостью стенки / // *Фундаментальные исследования*. 2017. №1. С. 74–78.
300. Fyk, M., Fyk, I., Biletsky, V., Oliynyk, M., Kovalchuk, Yu., Hnieushev, V., Shapchenko, Yu. (2018) Theoretical and applied aspects of using a thermal pump effect in gas pipeline systems. *Eastern–European Journal of Enterprise Technologies*. 2018. В. 1, № 8(91). 39–48. URL: <https://doi.org/10.15587/1729-4061.2018.121667>.
301. Determination of Pressure Losses in Hydraulic Pipeline Systems by Considering Temperature and Pressure / Vladimir Savić, Darko M Knežević, Darko Lovrec, Darko Lovrec, Velibor Karanovic // *Strojniški vestnik – Journal of Mechanical Engineering*. 2009. 55 (4). P. 237–243.
302. Фик М.І. (2014). Уточнення розрахунку ефективності роботи ДКС в умовах фактичних термоградієнтів та сучасних покриттів НКТ. *Нафтогазова промисловість України*. 2014. 1С. 25–28.
303. Abbas G. Rzaev, S.R. Rasulov, Farkhad G. Pashaev, Mikhail A. Sali (2017). Features of distribution of temperature along the length of oil pipeline. *Perm Journal of Petroleum and Mining Engineering..* Vol. 16 (2). P. 158–163.
304. Azin, R., Sedaghati, H., Fatehi, R., Osfouri, S., & Sakhaei, Z. (2019). Production assessment of low production rate of well in a supergiant gas condensate reservoir: application of an integrated strategy. *Journal of Petroleum Exploration*

and Production Technology, 9, 543–560. Retrieved from <https://doi.org/10.1007/s13202-018-0491-y>.

305. Шарипов, А.М., Шарафутдинов, Р.Ф., Рамазанов, А.Ш., Валиуллин, Р.А. (2017). Исследование восстановления температуры в скважине после прекращения закачки воды в пласт с трещиной ГРП. Вестник Башкирского университета, 22(2), 315–319.

306. Морозова Н.В., Коршак А.А. . (2007). Проблема расчета потерь напора по формуле Лейбензона в зоне смешанного трения турбулентного режима. Записки Горного института Т. 170, Часть 2. С. 124–126.

307. Билюшов В.М. (1984). Математическая модель образования гидратов при течении влажного газа в трубах . ИФЖ. Т. 46, №1, С. 57–63.

308. Weydt, L. M., Heldmann, C.–D. J., Machel, H. G., & Sass, I. (2018). From oil field to geothermal reservoir: assessment for geothermal utilization of two regionally extensive Devonian carbonate aquifers in Alberta, Canada. *Solid Earth*, 9, 953–983. <https://doi.org/10.5194/se-9-953-2018>.

309. Куликова, Т. Н., Марков, П. В., & Солонин, В. И. (2015). Моделирование теплоотдачи к газовому теплоносителю с пониженным значением числа Прандтля. Наука и Образование. МГТУ им. Н. Э. Баумана, 06, 420–437. doi: 10.7463/0615.0780763.

310. Де Гроот С. Р. (1956) Термодинамика необратимых процессов. Москва. ГИТТЛ, 277 с.

311. Коннов, В. А. (2012). Разработка энергоэффективных методов и технологических схем поддержания пластового давления при разработке нефтяных месторождений. (Автореф. дис. канд. техн. наук). Бугульма.

312. Фик М.І., Білецький В.С., Абуд М.Х (2020) Феноменологічна модель геотермальної системи відкритого типу на базі нафтогазової свердловини. Українська школа гірничої інженерії: тези доповідей XIV міжнародної науково-практичної конференції / редкол.:В.І. Бондаренко та ін. – Д:ЛізуновПрес, 98 с.

313. Fyk, M., Biletskyi, V. (2020) Phenomenological model of an open-type geothermal system on the basis of oil-and-gas well. Issue E3S Web Conf. Volume 201, 2020, Ukrainian School of Mining Engineering – 2020, Article

Number 01035 Number of page(s) 11. DOI
<https://doi.org/10.1051/e3sconf/202020101035>, Published online 23 October 2020.

314. Fyk, M. I., Biletskyi, V. S., Al-Sultan, M. B., & Abbood, M. H. (2019). Improved thermogasodynamic model of a geothermal gas condensative deposit with production well. Technium Conference, Constanta, Romania, 2019. Retrieved from https://www.researchgate.net/publication/338689165_Improved_thermogasodynamic_model_of_a_geothermal_gas_condensative_deposit_with_production_well.

315. Аббуд М. Х., Фик М. І. (2020) Побудова геотермальної системи на базі свердловини з боковими стволами та вибійним тепловим насосом. Тези доповідей XXVIII Міжнародна науково-практична конференція «Інформаційні технології: наука, техніка, технологія, освіта, здоров'я. MicroCAD-2020» 21 – 23 жовтня 2020 р, м. Харків.

316. Biletskyi, V., Horobets, L., Fyk, M., Al-Sultan, M. (2018). Theoretical background of rock failure at hydraulic seam fracture and aftereffect analysis. *Mining of Mineral Deposits*, 12(3), 45–55. Retrieved from <https://doi.org/10.15407/mining12.03.045>,
https://www.researchgate.net/publication/327282032_Theoretical_background_of_rock_failure_at_hydraulic_seam_fracture_and_aftereffect_analysis.

317. Фык, М. И. (2016). Интенсификация добычи газа попутной утилизацией потенциальной и геотермальной энергии пластовых вод. Перспективи нарощування ресурсної бази нафтогазової енергетики : тези доп. конф., 25–27 трав. 2016 р. Івано–Франківськ: ІФНТУНГ. doi: 10.13140/RG.2.1.3419.3520. Retrieved from https://www.researchgate.net/publication/303838827_Intensifikacia_dobyci_gaza_poputnoj_utilizaciej_potencialnoj_i_geotermalnoj_energii_plastovyh_vod.

318. Medhi, N., & Das, M. (2018). A study on abandoned oil/gas wells as sustainable sources of geothermal energy. International Conference on Renewable & Alternate Energy (ICRAE–2018), 04–06 December, 2018. Guwahati, Assam, India. Assam.

319. Sircar, A., Yadav, K., & Sahajpal, S. (2016). Overview on Direct Applications of Geothermal Energy. *International Advanced Research Journal in Science, Engineering and Technology*, 3(9). doi: 10.17148/IARJSET.2016.3925.

320. Ziabakhsh–Ganji, Z., Nick, H. M., Donselaar, M. E., & Bruhn, D. F. (2018). Synergy potential for oil and geothermal energy exploitation. *Applied Energy*, 212, 1433–1447. Retrieved from <https://doi.org/10.1016/j.apenergy.2017.12.113>

321. Fyk, M., Biletskyi, V., Fyk, I., Bondarenko, V., Al–Sultan, M. (2019) Improvement of an engineering procedure for calculating the non–isothermal transportation of a gas–liquid mixture. *Eastern–European Journal of Enterprise Technologies*. № 5(99). 51–60. URL: <https://doi.org/10.15587/1729–4061.2019.167198>.

322. Kutia, M., Fyk, M., Kravchenko, O., Palis, S., & Fyk, I. (2016). Improvement of technological–mathematical model for the medium–term prediction of the work of a gas condensate field. *Восточно–Европейский журнал передовых технологий = Східно–Європейський журнал передових технологій = Eastern–European Journal of Enterprise Technologies*, 5, 8(83), 40–48. doi: 10.15587/1729–4061.2016.80073. Retrieved from <http://journals.uran.ua/eejet/article/view/80073/77175>, <https://www.researchgate.net/publication/309493772> Improvement of technological-mathematical model for the medium-term prediction of the work of a gas condensate field.

323. Mykhailo Fyk, Mohammed Al-Sultan, Mohammed Abbood, Fabrice Anzian, Yevgeny Shapchenko, Haval Barzani (2020) Analysis of Dynamical Heat Conductivity of the Reservoir and Fluid Evacuation Zone on the Gas Condensate Well Flow Rate, March 2020 *Journal of multiple-valued logic and soft computing* 3(J,) 124-137, <https://doi.org/10.3390/j3010011>.

324. Ротов, А. А., Истомин, В. А., Митницкий, Р. А., & Колинченко, И. В. (2016). Особенности тепловых режимов работы систем сбора газа на поздней стадии разработки сеноманских залежей Уренгойского месторождения. *Транспорт и хранение нефтепродуктов и углеводородного сырья*, 3, 46–52.

325. Фик, М. І., & Шапченко, Є. О. (2017). Промисловий експеримент альтернативної логістики регіонального видобування залишкових запасів та зберігання природного газу. *Нафтогазова галузь України*, 5, 16–19. Retrieved from https://www.researchgate.net/publication/324278535_Promislovij_eksperiment_alternativnoi_logistiki_regionalnogo_vidobuvanna_zaliskovih_zapasiv_ta_zberiganna_prirodnogo_gazu.

326. Fyk, M., Palis, S., & Kovalchuk, J. (2016). Gas well production enhancement on the application of innovative structural and thermal insulation nano-coatings. *Вісник Харківського національного університету ім. В. Н. Каразіна. Серія: Геологія. Географія. Екологія*, 45, 80–85. Retrieved from <https://periodicals.karazin.ua/geoeco/article/view/8185>, https://www.academia.edu/32448252/Visnyk_45_2016.pdf.

327. Shendrik, O., Fyk, M., Biletskyi, V., Kryvulia, S., Donskyi, D., Alajmeen, A., & Pokhylko, A. (2019) Energy-saving intensification of gas-condensate field production in the east of Ukraine using foaming reagents. *Mining of Mineral Deposits*, 13(2). DOI: <https://doi.org/10.33271/mining13.02.082>, http://mining.in.ua/2019vol13_2_10.html.

328. Fyk, M., Biletskyi, V., & Abbud, M. (2018). Resource evaluation of geothermal power plant under the conditions of carboniferous deposits usage in the Dnipro-Donetsk depression. *E3S Web of Conferences*, 60 : Ukrainian School of Mining Engineering, article 00006. Retrieved from <https://doi.org/10.1051/e3sconf/20186000006>. Retrieved from <http://ir.nmu.org.ua/handle/123456789/153417>.

329. Fyk, M. , I. Fyk, V. Biletsky, M. Oliynyk, Yu. Kovalchuk, V. Gnieshev, Yu. Shapchenko (2018). Theoretical and applied aspects of using a thermal pump effect in gas pipeline systems / // *Eastern-European Journal of Enterprise Technologies*. 1 (8 (91), P. 39-48.

330. Phillips, B. R., Ziagos, J., Thorsteinsson, H., & Hass, E. (2013). A roadmap for strategic development of geothermal exploration technologies. *Proceedings, Thirty-Eighth Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, February 11–13, 2013. Stanford.

331. Reyes, A. (2007) Abandoned oil and gas wells—a reconnaissance study of an unconventional geothermal resource. Avalon: GNS Science Report.

Rachmawati, C., Suryantini, N., & Abdurrahman, M. (2017). Northern Geothermal System Boundary of Patuha Geothermal Field Based On Integrated Study of Volcanostratigraphy, Geological Field Mapping, and Cold Springs Contamination by Thermal Fluids. Proceedings joint convention Malang 2017, HAGI–IAGI–IAFMI–IATMI (JCM 2017) Ijen Suites Hotel, Malang, September 25–28, 2017. Malang. Retrieved from <https://www.researchgate.net/publication/322652080>.

332. Jung, Y.–J., Kim, H.–J., Choi, B.–E., Jo, J.–H., & Cho, Y.–H. (2016). A Study on the Efficiency Improvement of Multi–Geothermal Heat Pump Systems in Korea Using Coefficient of Performance. *Energies*, 9, 356. doi:10.3390/en9050356.

333. Raymond, J. & Therrien, R. (2014). Optimizing the design of a geothermal district heating and cooling system located at a flooded mine in Canada. *Hydrogeology Journal*, 22, 217–231. doi: 10.1007/s10040–013–1063–3.

334. Preene, M., & Younger, P. L. (2014). Can you take the heat? Geothermal energy in mining. *Transactions of the Institution of Mining and Metallurgy, Section A: Mining Technology*, 123(2), 107–118. doi: 10.1179/1743286314Y.0000000058.

335. Фик, М. І. (2014). Уточнення розрахунку ефективності роботи ДКС в умовах фактичних термоградієнтів та сучасних покриттів НКТ. *Нафтогазова галузь України*, 1, 25–29. Retrieved from <http://elar.nung.edu.ua/handle/123456789/3695>.

336. Фик, М. І., & Халилевич, А. М. (2019). Сезонне використання тимчасово–незадіяних нафтогазопровідних ділянок магістральних трубопроводів в геотермальних регіональних системах. *Відновлювана енергетика та енергоефективність у ХХІ столітті : матеріали ХХ ювілейної міжнародної науково–практичної конференції, 15–16 травня 2019 р. Київ: Київський політехнічний інститут імені Ігоря Сікорського.*

337. Аббуд М. Х., Фик М. І. (2019) Вдосконалення математичної моделі притоку тепла до вибою нафтової свердловини. *Актуальні питання хімії та інтегрованих технологій : матеріали міжнар. наук.-практ. конф., присвяченої*

80-річчю кафедри хімії ХНУМГ ім. О. М. Бекетова, Харків, 7–8 листоп. 2019 р. / [редкол.: О. О. Мураєва та ін.] ; Харків. нац. ун-т міськ. госп-ва ім. О. М. Бекетова, Дніпров. держ. техн. ун-т, Algol Chemicals OY (Finland) [та ін.], 172 с.

338. Фик, М.І., Аббуд М.Х., Фик І.М. (2020) Тепло-гідрравлічний розрахунок мережі нафтових трубопроводів на основі двошарового бонд-графу, *Geotechnologies*, 1(3), 1-5.

339. Biletskyi, V., Vitryk, V., Mishchuk, Y., Fyk, M., Dzhus, A., Kovalchuk, Yu., Romanyshyn, T., & Yurych, A. (2018). Examining the current of drilling mud in a power section of the screw down–hole motor. *Eastern–European Journal of Enterprise Technologies*, 2, 5(92), 41–47. Retrieved from <https://doi.org/10.15587/1729–4061.2018.126230>.

340. Аббуд М. Х., Фик М. І. (2019) Increasing the geothermal heat exchangers area of oil-wells bottom by heat-conducting calmatrics. Інформаційні технології: наука, техніка, технологія, освіта, здоров'я: тези доповідей XXVII міжнародної науково-практичної конференції MicroCAD-2019, 15-17 травня 2019 р.: у 4 ч. / за ред. проф. Сокола Є.І. – Харків: НТУ «ХПІ». 425 с.

341. Fyk, M., Biletskyi, V., Ryshchenko, I., & Abbood, M. (2019). Improving the geometric topology of geothermal heat exchangers in oil bore-holes. *E3S Web of Conferences*, 123, article 01023. Retrieved from <https://doi.org/10.1051/e3sconf/201912301023>.

342. Haaland, S.E. Simple and Explicit Formulas for the Friction Factor in Turbulent Pipe Flow // *Fluids Eng.* 1983. March 1983. P.89–90.

343. Lurie M. Modeling of Oil Product and Gas Pipeline Transportation. Weinheim: WILEY-VCH VerlagGmbH&Co. KGaA, 2008. 214 p.

344. Liu, E., Li, C., Yang, Y. (2014) Optimal Energy Consumption Analysis of Natural Gas Pipeline. Hindawi Publishing Corporation: *Scientific World Journal*, Article ID 506138, 8 P.

345. Liu, S., Dai, S., Ding, Q., Hu, L., Wang, Q. (2017) Calculation Method of Energy Flow for Combined Electro-Thermal System and Its Application. *Energy and Power Engineering*, 9, 376-389.

346. Celeznev, V., Aleshyn, V., Prialov S. (2009). Osnovy chyslennoho modelyrovanyia mahystralnykh truboprovodov. Moskva. MAKS Press, 436 P.
347. Rasmuson, A., Andersson, B., Olsson, L., & Andersson, R. (2014). *Mathematical Modeling in Chemical Engineering*. Cambridge: Cambridge University Press. doi: <http://dx.doi.org/10.1017/CBO9781107279124>.
348. Maria, D.F. (2000) Design and off design pipe network geothermal power plant analysis with power pipe simulator. August 2000 *Energy Conversion and Management* 41(12):1223-1235. DOI: 10.1016/S0196-8904(99)00177-6.
349. Grimm, M., Stober I., Kohl T., and Blum P. (2014) Schadensfallanalyse von Erdwärmesondenbohrungen in Baden-Württemberg. *Grundwasser* 19 (4):275–86. doi:10.1007/s00767-014-0269-1.
350. Paulillo, A., Striolo, A., & Lettieri, P. (2019). The environmental impacts and the carbon intensity of geothermal energy: A case study on the Hellisheiði plant. *Environment International*, 133, 105226. Retrieved from <https://doi.org/10.1016/j.envint.2019.105226>.
351. Pistun, Y., Matiko, F., & Masnyak, O. (2015). Simplified Method for Calculation of the Joule–Thomson Coefficient at Natural Gas Flowrate Measurement. *Energy engineering and control systems*, 1(2), 127–132.
352. Ramos, E. P., Breede, K., & Falcone, G. (2015). Geothermal heat recovery from abandoned mines: a systematic review of projects implemented worldwide and a methodology for screening new projects. *Environ Earth Sci*, 73, 6783–6795. doi: 10.1007/s12665-015-4285-y.
353. Raymond, J., Mercier, S., & Nguyen, L. (2015). Designing coaxial ground heat exchangers with a thermally enhanced outer pipe. *Geothermal Energy*, 3, 7. doi: 10.1186/s40517-015-0027-3.
354. Renz, A., Ruhaak, W., Schatzl, P., & Diersch, H.–J. G. (2009). Numerical Modeling of Geothermal Use of Mine Water: Challenges and Examples. *Mine Water Environ*, 28, 2–14. doi: 10.1007/s10230-008-0063-3.
355. Rogner, H.–H., Aguilera, R. F., Archer, C. L., Bertani, R., Bhattacharya, S. C., Dusseault, M. B. ... Yakushev, V. (2012). Energy Resources and Potentials. *Global Energy Assessment – Toward a Sustainable Future* (pp. 425–

512). Cambridge University Press. Retrieved from <https://doi.org/10.1017/CBO9780511793677.013>.

356. Rudakov, D., & Inkin, O. (2019). An assessment of technical and economic feasibility to install geothermal well systems across Ukraine. *Geothermal Energy – Science, Society and Technology*, 7, 17. Retrieved from <https://doi.org/10.1186/s40517-019-0134-7>.

357. Rutz, D., Winterscheid, C., Pauschinger, T., Grimm, S., Roth, T., Doračić, B., Hummelshøj, R. (2019). Upgrading the performance of district heating networks. *Technical and non-technical approaches : A Handbook* (1st ed.). Munich.

358. Safari, A., Das, N., Langhelle, O., Roy, J., & Assadi, M. (2019). Natural gas: A transition fuel for sustainable energy system transformation? *Energy Science & Engineering*, 7, 1075–1094. doi: 10.1002/ese3.380.

359. Salazar-Pereyra, M., Mora-Ortega, A., Bonilla-Blancas, A. E., Lugo-Leyte, R., & Lugo-Méndez, H. D. (2017). Parametric analysis of the geothermal power: Dry-Steam, flash steam and hybrid cycle. *DYNA*, 84(203), 273–282. Retrieved from <http://dx.doi.org/10.15446/dyna.v84n202.66126>, <https://www.researchgate.net/publication/321552560>.

360. Santos, R. G., Loh, W., Bannwart, A. C., & Trevisan, O. V. (2014). An overview of heavy oil properties and its recovery and transportation methods. *Brazilian Journal of Chemical Engineering*, 31(03), 571–590. doi: 10.1590/0104-6632.20140313s00001853.

361. Scafidia, J., & Gilfillana, S. M. V. (2018). The feasibility of the "all-in-one" concept in the UK North Sea: offsetting carbon capture and storage costs with methane and geothermal energy co-production in a depleted hydrocarbon field. 14th International Conference on Greenhouse Gas Control Technologies, GHGT-14, 21–25 October 2018, Melbourne, Australia. Melbourne.

362. Schintgen, T. (2015). Exploration for deep geothermal reservoirs in Luxembourg and the surroundings — perspectives of geothermal energy use. *Geothermal Energy*, 3, 9. doi: 10.1186/s40517-015-0028-2.

363. Daei Niaki, S. O., Pourfallah, M. & Zare Ghadi, A. (2018). Simulation of HVAC System with Geothermal Energy and Solar Collector. *Amirkabir Journal of Mechanical Engineering*. doi: 10.22060/mej.2018.13864.5733.

364. Sieder, E. N., & Tate, G. E. (1936). Heat transfer and pressure drop of liquids in tubes. *Industrial & Engineering Chemistry*, 28(12), 1429–1435. Retrieved from <https://www.scribd.com/document/265405656/Industrial-Engineering-Chemistry-Volume-28-Issue-12-1936-Doi-10-1021-2Fie50324a027-Sieder-E-N-Tate-G-E-Heat-Transfer-and-Pressure-Drop-o>.

365. Slatt, R. M. (2006). Stratigraphic reservoir characterization for petroleum geologists, geophysicists, and engineers / J. Cubitt (Ed.). Amsterdam.

366. Stefanović, V., Drobnjaković, B., & Pavlović, S. (2019). Necessary measures and calculation for dimension of coaxial heat exchanger for deep boreholes. *IOP Conf. Series: Materials Science and Engineering*, 477(1), 012054. doi:10.1088/1757–899X/477/1/012054.

367. Styles, D., Schönberger, H., & Galvez Martos, J. L. (2013). Efficient applications of heat pumps and geothermal heating/cooling. In *Best Environmental Management Practice in the Tourism Sector. Learning from frontrunners* (pp. 406–422). Luxembourg: Publications Office of the European Union. doi: 10.2788/33972.

368. Suárez–Arriaga, M. C. (2019). Thermodynamics of Deep Supercritical Geothermal Systems. 2nd International Geothermal Conference. *IOP Conference Series: Earth and Environmental Science* (Vol. 249). doi: 10.1088/1755–1315/249/1/012019.

369. Tiab, D., & Donaldson, E. C. (2014). *Petrophysics : theory and practice of measuring reservoir rock and fluid transport properties* (2nd ed.). Elsevier.

370. Tiagounov, A. (2004). High–performance model predictive control for process Industry. Eindhoven: Technische Universiteit Eindhoven. doi: 10.6100/IR576761.

371. Ting, B., Jay, M., Green, C. Vitton, S., Zhen, S. L., & Kelsey, B. (2019). Geothermal energy recovery from deep flooded copper mines for heating. *Energy Conversion & Management*, 183, 604–616. Retrieved from <https://doi.org/10.1016/j.enconman.2019.01.007>.

372. Vieira, A., Maranha, J., Christodoulides, P., Alberdi–Pagola, M., Loveridge, F., Nguyen, F., Radioti, G. (2017). Characterisation of Ground Thermal and Thermo–Mechanical Behaviour for Shallow Geothermal Energy Applications. *Energies*, 10, 2044. doi: 10.3390/en10122044.

373. Wei, Y., Wang, F., & Ren, B. (2009). Drainage and production by using geothermal in Huabei oil region. *Oil Drilling & Production Technology*, 31, 93–95.

374. Wigwe, M., Kolawole, O., Watson, M., & Ispas, I. (2019). Influence of Fracture Treatment Parameters on Hydraulic Fracturing Optimization in Unconventional Formations. ARMA–CUPB Geothermal International Conference. At Beijing, China. Beijing.

375. Willems, C. J. L., & Nick, H. M. (2019). Towards optimisation of geothermal heat recovery: An example from the West Netherlands Basin. *Applied Energy*, 247, 582–593. Retrieved from <https://doi.org/10.1016/j.apenergy.2019.04.083>.

376. Zuo, L., & Weijermars, R. (2019). Longevity of Enhanced Geothermal Systems with Brine Circulation in Hydraulically Fractured Hydrocarbon Wells. *Fluids*, 4(2), 63. Retrieved from <https://doi.org/10.3390/fluids4020063>.

377. Беккер, В. В., & Григорьев, С. В. (2017). Оценка эффективности односкважинной системы извлечения тепловой энергии недр при её длительной эксплуатации. *Интерактивная наука*, 1(11), 114–117. doi: 10.21661/r-116850.

378. Гордиенко, В. В., Гордиенко, И. В., Завгородняя, О. В., & Усенко, О. В. (2002). *Тепловое поле территории Украины*. Киев: Знання.

379. Осипенко, М. А., Дударь, О. И., & Дударь, Е. С. (2012). Распространение тепла в бесконечном твердом теле от цилиндрической полости при конвективном теплообмене. *Известия Саратовского университета. Новая серия. Серия: Математика. Механика. Информатика*, 12(1), 89–93.

380. Стародуб, Ю. П., Карпенко, В. М., Стасенко, В. М., & Никорюк, М. С., Карпенко О. В. (2012). Проект енергетичної безпеки України на основі власних геотермальних ресурсів. *Вісник ЛДУ БЖД*, 6, 107–114.

381. Стародуб, Ю. П., Карпенко, В. М., Стасенко, В. М., Никорюк, М. С., Карпенко, О. В., & Рибчак, В. Л. (2012). Аспекти оцінки та освоєння геотермальних ресурсів України. *Геодинаміка*, 2(13), 95–105.

382. Усенко, А. П. (2014). Залежність геотермічного градієнта від розташування покладів вуглеводнів у Дніпровсько–Донецькій западині. *Доповіді Національної академії наук України*, 12, 106–112.

383. ДСТУ EN ISO 10628-2:2018 Схемы для химической и нефтехимической промышленности. Часть 2. Графические условные обозначения (EN ISO 10628-2:2012, IDT; ISO 10628-2:2012, IDT).

384. Fyk, M., Biletskyi, V., Abbud, M., Anzian F. (2021) Geothermal heat use to eliminate hydrate formations in oil deposit injection wells. *E3S Web Conf. Volume 230* (2021). <https://doi.org/10.1051/e3sconf/202123001019>.

385. Фик, І. М., Фик, М. І., & Фик, І. М. (2019). Перспективи довгострокової розробки Шебелинського газоконденсатного родовища в умовах відновлення запасів. *Вісник Харківського національного університету ім. В. Н. Каразіна. Серія: Геологія. Географія. Екологія*, 50, 63–76. Retrieved from <https://doi.org/10.26565/2410-7360-2019-50-05>, https://www.researchgate.net/publication/334459138_Prospects_of_long-term_development_of_Shebelynka_gas-condensate_deposit_in_conditions_of_stocks_recovery.

386. Shendrik, A. M., & Fyk, M. I. (2014). Natural gas container transportation: The alternative way to solve the world's energy transportation problems. *European researcher*, 71(3-2), 571–580. Retrieved from http://www.erjournal.ru/journals_n/1396365375.pdf, https://www.researchgate.net/publication/291824087_Natural_Gas_Container_Transportation_the_Alternative_Way_to_Solve_the_World's_Energy_Transportation_Problems.

387. Фик, М., Курочкін, К., Аббуд, М., Аль–Султан, М., & Варавіна, О. (2017). Адаптивна методика наближеної оцінки техніко-економічних показників розробки об'єкта виснаженого газоконденсатного родовища. *СХІД*, 5(151), 15–21. Retrieved from https://www.researchgate.net/publication/321767144_Adaptive_technique_of_the_approximate_estimation_of_technical_and_economic_indicators_of_the_development_of_the_object_of_the_exhausted_gas_condensate_deposit.

388. Фик, М., Білецький, В., Аббуд, М., Аль–Султан, М., Варавіна, О., Шапченко, Є. ... Фик, І. (2018). Оцінка техніко–економічних показників розробки нафтогазового родовища в інноваційному процесі. СХІД, 2(154), 64–68. doi:10.21847/1728–9343.2018.2(154).132813. Retrieved from https://www.researchgate.net/publication/325914077_Technological_and_economic_indicators_evaluation_in_innovation_process_of_oil_and_gas_fields_development.

389. Фик, І. М., & Фик, М. І. (2018). Шебелинське газоконденсатне родовище. Відновлення запасів чи обводнення? Нафтогазова галузь України, 6. С. 3–9. Retrieved from https://www.researchgate.net/publication/330083468_Shebelinsky_gas_condensate_field_Recovering_gas_reserves_or_flooding.

390. Фык, М., Соловьёв, В., & Фык, И. (2014). Нетрадиционные источники углеводородов: успехи и проблемы их освоения. LAP LAMBERT Academic Publishing. 76 с.

391. Соловьёв, В., & Фык, М. (2015). Базовые аспекты развития земной коры. LAP LAMBERT Academic Publishing. 224 с.

392. Соловьёв, В., & Фык, М. (2015). Подземная гидросфера – ее строение, процессы и охрана. LAP LAMBERT Academic Publishing. 180 с.

393. Фык, М., & Синюк, А. (2014). Особенности концептуально–технологического подхода при открытии второго дыхания нефтегазоконденсатных месторождений. Geopetrol – 2014 : тези доп. конф., Zakopane, 15–18 сентября 2014 г. Zakopane. Retrieved from https://www.researchgate.net/publication/291824632_Osobennosti_konceptualno-tehnologiceskogo_pohoda_pri_otkrytii_vtorogo_dyhania_neftegazokondensatnyh_mestorozdenij.

394. Фик, І. М., & Фик, М. І. (2016). Піднімання пластового тиску в газоконденсатному покладі для підвищення ефективності. Надрокористування в Україні. перспективи інвестування : матеріали Третьої науково-практичної конференції, м. Трускавець, 4–7 жовтня 2016 р. Трускавець. Retrieved from https://www.researchgate.net/publication/308780968_INCREASING_THE_RESE

RVOIR PRESSURE IN THE GAS CONDENSATE DEPOSIT TO INCREASE THE EFFICIENCY OF FIELD DEVELOPMENT.

395. Фык М. И., Аббуд М. Х. (2017). Альтернативное схемно–технологическое решение интенсификации добычи геотермальных ресурсов нефтяных скважин. Інноваційний розвиток гірничодобувної галузі : матеріали II Міжнародної науково–технічної інтернет–конференції, м. Кривий Ріг, 14 грудня 2017 р. (с. 153–155). Кривий Ріг: Криворізький національний університет. Retrieved from <http://www.knu.edu.ua/storage/files/2/%D0%9D%D0%B0%D1%83%D0%BA%D0%B0%D0%9A%D0%BE%D0%BD%D1%84%D0%B5%D1%80%D0%B5%D0%BD%D1%86%D1%96%D1%97%D1%80%D0%BE%D0%B7%D0%B2%D0%B8%D1%82%D0%BE%D0%BA%202017/tezu.pdf>.

396. Шапченко, Є. О., & Фик, М. І. (2018). Аналіз динаміки та кореляції показників видобування, зберігання та споживання газу індустріально–географічної зони. Інформаційні технології: наука, техніка, технологія, освіта, здоров'я (MicroCAD-2018) = Information Technologies: Science, Engineering, Technology, Education, Health (MicroCAD-2018) : тези доповідей XXVI міжнародної науково–практичної конференції MicroCAD–2018, 16–18 травня 2018 р. У 4 ч. Ч. II (с. 329) / за ред. проф. Сокола Є. І. Харків: НТУ «ХПІ».

397. Фик, М., Білецький, В., & Аббуд, М. (2018). Ресурсна оцінка геотермальної енергії на базі нафтогазових свердловин Дніпровсько–Донецької западини. Школа підземної розробки : тези доповідей XII Міжнародної науково–практичної конференції, м. Бердянськ, 4–8 вересня 2018 р. (с. 31–32). Дніпро: ЛізуновПрес. Retrieved from <http://ir.nmu.org.ua/handle/123456789/153235>.

398. Фик, І. М., Синюк, Б. Б., & Фик, М. І. (2015). Залишкові запаси та стабілізація видобутку газу родовищ України в умовах діяльності ТОВ «Карпатигаз». Надрокористування в Україні. Перспективи інвестування : матеріали 2-ї Міжнародної науково–практичної конференції, м. Трускавець, 5–8 жовтня 2015 р. (с. 157–159). Київ: ДКЗ.

399. Фык, М., & Аман, А. (2015). К выбору экологических нанотехнологий при добыче газа из уплотненных и малопроницаемых

коллекторов. Питання пошуків, розвідки та екологічних аспектів видобування вуглеводнів з ущільнених колекторів, газосланцевих товщ та вуглевміщуючих пластів : матеріали науково–практичної конференції. Київ: КНУ ім. Тараса Шевченка, ННІ «Інститут геології».

400. Fyk, M. I. (2015). Aspects of the overall improvement of the private mini–farm energy with solar panels. Проблемы развития высоких технологий : сборник статей международной научно–практической конференции, г. Санкт–Петербург, 20–22 мая 2015 г. (Т. 2), (с. 106–114). Санкт–Петербург: Издательство политехнического университета.

401. Фик, М., Білецький, В., Аббуд, М., & Аль–Султан, М. (2019). Рациональне використання геотермальної енергії нафтогазових свердловин за їх дуальної експлуатації. Українська школа гірничої інженерії : тези доповідей XIII міжнародної науково–практичної конференції, м. Бердянськ, 3–7 вересня 2019 р. (с. 47–48). Дніпро: НТУ «Дніпровська політехніка». Retrieved from <https://doi.org/10.33271/usme13.047>.

402. Білецький, В. С., Сергєєв, П., Фик, М. І., & Козирець С. (2018). Моделирование в нафтогазовій промисловості. Геотехнології = Геотехнологии = Geotechnologies, 1(1), 86–97. Retrieved from https://www.researchgate.net/publication/326507960_MODELING_IN_THE_OIL_AND_GAS_INDUSTRY_MODELUVANNA_V_NAFTOGAZOVIJ_PROMISL_OVOSTI.

403. Білецький, В. С., & Фик, М. І. (2019). Геолого–технологічні, економічні та екологічні аспекти використання технології гідророзриву пласта для розробки родовищ сланцевого газу. Геотехнології = Геотехнологии = Geotechnologies, 2, 28–35. Retrieved from https://www.researchgate.net/publication/337312814_Zurnal_GEOTEHNOLOGII_No2_2019_Vihodit_za_pidtrimki_redakcii_ukrainskoi_Girnicoi_enciklopedii.

404. Шендрик, О. М., Вахрив, А. П., Кривуля, С. В., Фесенко, Ю. Л., Фик, М. І., & Синюк, Б. Б. (2014). Патент України 94980. Київ: Державне патентне відомство України. Retrieved from <http://uapatents.com/5-94980-sposib-kontrolyu-ta-regulyuvannya-rezhimiv-roboti-sverdlovin.html>.

405. Гриценко, А.И., и др. Руководство по исследованию скважин. Москва: Наука, 1995. 523 с.

406. Li Fengyu, Xu Tianfu, Li Shengtao, Feng Bo, Jia Xiaofeng, Guanhong Feng, Zhu Huixing and Jiang Zhenjiao (2019). Assessment of energy production in the deep carbonate geothermal reservoir by wellbore-reservoir integrated fluid and heat transport modeling. *Geofluids*, Volume 2019, Article ID 8573182. Doi: 10.1155/2019/8573182.

407. Mikolajkov, M., Haikarainen, C., Saxen, H., Pettersson, F. (2017). Optimization of a natural gas distribution network with potential future extensions. *Energy*, 125, 848-859.

408. Koningh, H., Walton, W., Millson, J.A. Harthy, M.S. (2007). Data Acquisition and Interpretation Challenges in Deep Gas Exploration Wells. Conference: IPTC 2007: International Petroleum Technology Conference. DOI: <https://doi.org/10.2523/IPTC-11695-ABSTRACT>.

409. Afshin Ghajar, Bhagwat Swanand (2013) Effect of Void Fraction and Two-Phase Dynamic Viscosity Models on Prediction of Hydrostatic and Frictional Pressure Drop in Vertical Upward Gas-Liquid Two-Phase Flow. October 2013. *Heat Transfer Engineering* 34(13):1044-1059. DOI: <http://dx.doi.org/10.1080/01457632.2013.763541>

410. Domschkea, P., Duac, A., Jeroen, J., Stolwijkc, Langa, J. Mehrmann, V. (2017). Adaptive Refinement Strategies for the Simulation of Gas Flow in Networks using a Model Hierarchy. *Numerical Analysis*, February 1, 21 P.