DIVESTMENT STRATEGY: THE NUEVA SCHOOL

The case to be made for disinvestment from fossil fuels

M. Gotts*§, D. Taylor*, A. Chu*, C. Kim*†, A. Chen*, C. Phipps*, *et al.**

*Student at the Nueva School, grad. 2020-3
†Head of the Nueva Divestment Society
§Researcher at the Lost Years Institute

EXECUTIVE SUMMARY

Across the globe, there have been strong calls for "divestment"—partial or complete disinvestment from companies that directly (or indirectly) profit from fossil fuels (e.g. companies whose profit is 70% derived from burning or drilling for fossil fuels). This divestment movement aims to hobble such companies who ostensibly favor profits over lives: there is incontrovertible (government-backed and independent) evidence that the burning of fossil fuels overwhelmingly contributes to climate change, and that climate change will annihilate our present ways of life, causing mass starvation, migration, and mortality. Divestment works to a generate pervasive social stigma against investing in, working with, and associating with fossil fuel companies, thereby dropping the valuation of such companies and cutting off or reducing their cash flows.

We argue that there is a strong case to be made for the Nueva School to divest its endowment from fossil fuel companies. We offer specific companies to divest from, potential divested Vanguard ETFs, and non-Vanguard divestment options, along with statistics to support the viability and beneficiality of divesting. We show strong precedent for the divestment of Nueva's endowment, and give compelling cases from five perspectives (moral, environmental, educational, aesthetic, and financial) for why Nueva should divest.

To summarise, fossil fuel divestment is not the first divestment campaign, and certainly not the first that universities and high schools have participated in. Divesting would protect Nueva's students' futures from what has been described as a 'climate apocalypse.' Divesting would align Nueva's values with its actions, and make a strong statement that students can take seriously. Divesting would place Nueva in a place of prestige when it comes to its prospective students considering the environmental costs of their potential high schools and offer important PR opportunities. Finally, divesting will not harm Nueva's endowment, and may help it grow faster.

By remaining invested in fossil fuel companies, Nueva is betting against its students' futures, and is hoping for a world that will be uninhabitable for said students.

INTRODUCTION

Since Joseph Fourier conceived of the idea in 1824, humans have understood the "greenhouse effect," the mechanism by which "greenhouse gases" (GHGs; see Table S1 for a partial list by potency and atmospheric residency) form an insulating atmospheric cover that absorbs and re-emits wavelengths of light to cause global warming and, more generally, climate change.[1]

Indeed, the fossil fuel company Exxon [pre-merger] released an internal report in 1979 that predicted that the greenhouse effect would cause incredible climate change and create an uninhabitable world. Even with this information, Exxon continued to drill and hid the report [2,3].

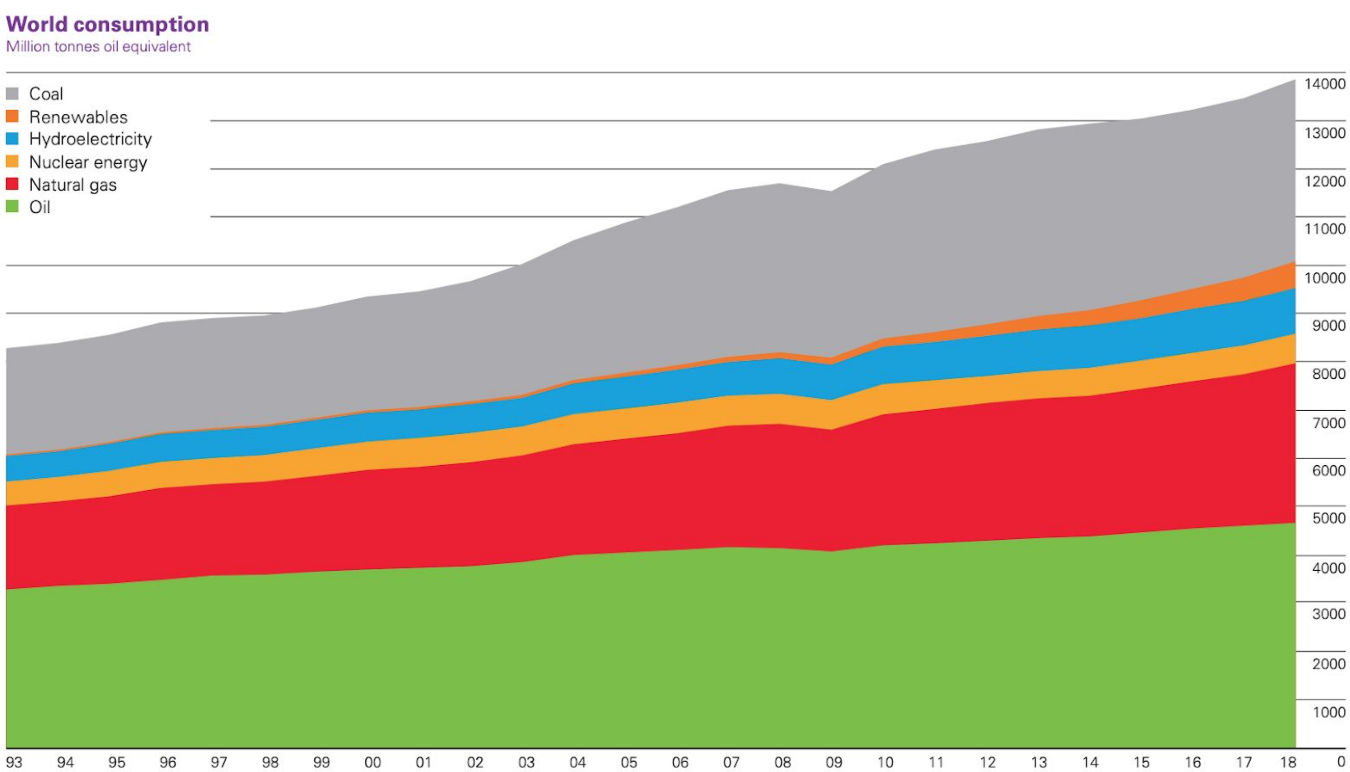
Despite the fact that the world's future is at stake, demand for oil, coal, and gas as energy supplies has continued on its upward trend (see figure below).

We do not waste time and effort quantifying and explaining the dangers of burning and drilling for fossil fuels, as we assume the reader is already familiar with such effects. For more information, see the IPCC Special Report [5].

Divestment

Divestment is pulling money out of stock for moral, ethical, or economic reasons. For the purposes of this report we consider divestment to be pulling money out of stock from companies who are responsible for emitting GHGs. We expand on this with specific, numerical considerations in §PROPOSAL, but for now, we consider 'divestment' to be a blanket statement for removing money from stock directly responsible for climate change, which we measure as what percentage of their profit comes from the burning of fossil fuels. For example, divested portfolios would exclude companies such as Exxon Mobil Corp (XOM), Chevron Corp (CVX), or Southern Co (SO).

The idea of divestment—environmental and otherwise—has been around for a number of years. Divestment was used as a tool to break down aparteid in South Africa, hold tobacco



companies responsible, and vocalise criticism of Israel, to name only a few examples.

There is an accepted progression of divestment movements: the first to divest are religious and industry-related organisations, then schools and governments, then a larger market [6]. In the environmental divestment movement, we are at step two of this process.

As Bill McKibben, founder of 350.org and the first major proponent of divestment, put it, the purpose of divestment is to ‘spark a transformative challenge to fossil fuel…[by] moral outrage.’ [7]

Movements to divest have occurred both internationally and locally. In late 2019, the University of California System announced a landmark decision to divest from fossil fuels entirely. This move, which detached its $13.4 billion endowment and $70 billion pension fund from fossil fuels, was driven by the perceived financial risk of investing in outdated energy sources. On the same day, UC President Janet Napolitano signed a climate emergency declaration letter, triggering a three-part plan towards reaching climate neutrality by 2025. The University of California System joined San Francisco State, Pitzer College, and Stanford University as other notable California universities to have divested. [8]

This momentous decision spurred national conversation, prompting other colleges to seek divestment. Maria B. Zhu of Syracuse, for instance, wrote that “the tides are shifting” on tertiary views of fossil fuel investment. Students at Harvard University began pointing to the University of California as evidence of feasible wide-scale divestment. [9, 10] Some colleges are maintaining steadfast positions against divestment, sparking student and faculty protests: at McGill University, Professor Gregory Mikkelson voluntarily resigned to protest the board’s refusal. A student-organized petition prompted Doane University to divest, becoming the first college in North Dakota to do so. As divestment becomes more economically feasible and socially beneficial, an increasing amount of educational institutions are divesting. Those that are not face increasingly vocal opposition. [11, 12]

ARGUMENT

The most compelling case for Nueva’s divestment is that of expectation. If Nueva expects a return on fossil fuel stocks, then it assumes the world will continue its dependency on fossil fuels, which, as we have already discussed, will inevitably result in the destruction of the Earth [5]. That is all to say that Nueva is betting on an uninhabitable future, and thereby against its students’ futures.

By no means is this the only argument for divestment. This section analyses the various environmental, financial, aesthetic, educational and moral cases to be made for fossil fuel divestment.

Environmental considerations

The primary aim of divestment is not necessarily to defund fossil fuel companies, but rather to create a pervasive social stigma against investment. Even the detractors of divestment agree that the fundamental purpose of divestment is to generate a stigma that drops share valuations and takes a moral stand that, in the long run, hurts fossil fuel cash flows [6, 13].

As of the end of 2017, the upper school’s endowment measured approximately $10.3M (82% permanent) [14]. Estimates for U.S. universities suggest that only 2-3% of this is invested in fossil fuel companies [6]. Assuming a worst-case scenario, Nueva would only divest approximately $310,000 from such companies, hardly a dent in the $2T fossil fuel companies receive in annual subsidies and tax cuts [15]. However, Nueva can help jump-start the divestment movement within the Bay Area and private schools across the nation. (More on this later.)

The environmental argument for divestment is grounded in optics. If the divestment movement keeps gaining traction, the secondary effects (the stigmas) can fundamentally reshape the market. Nueva can play a crucial role among Bay Area schools in this regard [6].

Nueva has received both the Leadership in Energy and Environmental Design (LEED) Gold and Green Ribbon certifications. Both recognitions were awarded on the basis of reducing environmental impact and associated costs, designing with an eye towards ecological sustainability, and improving the wellbeing of faculty and students. Indeed, Nueva has demonstrated—and been recognized for—a deep, enduring, and productive devotion to sustainable practices. Divesting is the next logical step towards attaining a truly sustainable campus.

Educational considerations

Nueva's motto is "learn by doing, learn by caring." Students and faculty at Nueva have demonstrated increasing interest in environmentalism and concern for climate change. This year, the Environmental Citizenship department was established under Dr. Tanja Srebotnjak. Five individual student-led clubs at Nueva are devoted to some aspect of environmentalism. Over 60 students walked out of school in September for the climate strikes. [16]

This growing trend of student-led environmentalism should be honoured by Nueva as an educational institution; if students care, and are actively trying to make Nueva environmentally conscious and clean, it is important that Nueva sends a message that rewards the behaviour Nueva ostensibly encourages.

Divestment of highly regarded institutions combined with the media can stimulate neutral investors to consider divestment. Divestment from fossil fuels in most cases results in more investment in renewable energy companies making the sustainable energy stocks more valuable.

Divesting Nueva would additionally prompt more students to learn more about the ties between economics and environmental studies.

Finally, Nueva needs to act as a role model to mentor and teach students how to enact the changes this world needs that Nueva says it values.

Optics considerations

As discussed previously in this section, the Nueva School is making a significant effort towards becoming conscious and active in reducing its environmental impact and becoming "eco-friendly".

Being the first (or one of the first) Bay Area high school to divest could become a symbol of Nueva's outstanding dedication to protecting the Earth's natural resources; indeed, it could be a key touchpoint that prospective students (and donors) may hold in their minds when comparing Nueva with competing schools, especially when embedded within a strong narrative of Nueva's environmental focus (as discussed in ARGUMENT§*Environmental considerations*, *Aesthetic considerations*). If Nueva is seen as 'leading the pack', that makes a strong statement about Nueva's capacity to stand up for causes it believes are important.

Divesting may also help Nueva when applying for further environmental award recognition. As stated in ARGUMENT§*Environmental considerations*, Nueva has already received LEED Gold and the Green Ribbon. If Nueva could add divestment to their list of actions towards becoming a more sustainable institution, the school would be in a position to be extremely competitive when it comes to applying for certifications in the future (such as those Dr. Srebotnjak is working to attain). Additionally, in the event that Nueva decides to divest, environmental groups would be sure to put the spotlight on Nueva as they sing accolades[1], which would afford the school positive press, bolstering and supplementing the outreach Nueva undertakes.

Pew Research supports the notion that environmental considerations may be on prospective families' minds when deciding on a school: a vast majority of surveyed populations care about sustainable energy sources (60-70% in less educated populations, and 85-90% in more educated populations) [17]. As this movement gains more traction, the state of divestment, among other environmental factors, may play a significant role in where students attend school.

Financial considerations

The economic case for divestment, while often overlooked, parallels the socio-environmental case. The 2014 oil drop exposed a fundamental flaw in the fossil fuel industry's thesis: a company's value is determined by its oil reserves. Because the new investment market is shifting towards cash, though, the industry is caught in a lose-lose situation. Either pursue aggressive drilling to increase oil output—which reduces cash on hand—or scale back and thereby concede lower future returns. Limited growth opportunities, volatile revenues, and (most importantly) a negative social outlook combine to make the fossil fuel sector fundamentally flawed. These issues will not abate but rather intensify. [18]

Prospective investors have realized these risks. Locally, the UC Board of Regents acknowledged that "hanging on to fossil fuel assets is a financial risk." Globally, the UKSIF found that 90% of polled fund managers expect a significant negative revaluation of International Oil Companies within five years. The risks identified are: social and reputational damage, regulation to curtail fossil fuel production, and litigation for damages associated with climate change. The fund sector summarily recognizes the imminent risks associated with fossil fuel investments, and are seeking avenues towards either curtailing the risks or, more commonly, reducing their holdings. [19, 20]

The risks associated with fossil fuel investment have affected, and will continue to affect, participating bodies disadvantageously. BlackRock, the world's largest investment fund, lost an estimated $90 billion over the 2010-20 decade due to multibillion-dollar fossil fuel investments. Holdings in ExxonMobil, Chevron, and Shell constituted the majority of BlackRock's losses. After being stung by investments in General Electric, Peabody, and BP (along with the aforementioned), BlackRock announced a plan to partially divest from fossil fuels, recognizing that "climate risk is investment risk." Because of BlackRock's extensive social influence, other investment bodies are certain to follow suit. Dim industry prospects, increasing social pressure, and emerging green energy technologies will catalyze this movement. [21]

More empirically, Jeffrey Sawin (Goldman-Sachs, Private Wealth Advisor) shared with us an analysis of a divested portfolio benchmarked with S&P 500 (see List S1 for the tickers of companies excluded; see figure on the next page [22]). The results unequivocally show that their divested portfolio consistently yielded higher results (by [redacted]%) than the industry standard, S&P 500. We only have access to their analysis of 2016-2019 inclusive yields, but Trinks *et al.* [23] compare similar portfolios from 1927-2016 and conclude that divested portfolios did equally well as non-divested portfolios, especially on longer time frames. They explain that on a risk-adjusted basis, fossil fuel stocks do not outperform other stocks, and do not grant significant diversification benefits. Ryan and Marsicano [24] look at divested university endowments from (over the period 2011-2018). They too found that divestment either had (a) no impact, or (b) positive impacts,

[1] Indeed, the Nueva Divestment and Environmental Societies would facilitate this.

especially for large endowments and especially when measured short-term.

It is self-evident that, in the worst-case scenario, divested portfolios do not perform any better than non-divested portfolios, and in the best case scenarios, they regularly out-perform them. Financially, there is no risk and potential reward in divesting.

CONTEXT & HISTORY

The first instance of substantial fossil fuel divestment occured with the dissolution of the Global Climate Coalition (hereafter GCC) in 2002. Opposed to the Kyoto Protocol, this coalition dissolved due to a prolonged national divestment campaign orchestrated by environmentalist Phil Radford. Through forcing Ford, General Motors, and Texaco to curb their contributions towards the GCC, Radford's movement defunded an international lobbyist group carrying substantial political leverage – a remarkable success grounded in a grassroots approach. [25]

Divestment has historically stemmed from grassroots activism. [26] In 2011, student protests began occurring at tertiary institutions, starting with campus protests at Swarthmore College. This movement spurred from a local environmental advocacy group – Swarthmore Mountain Justice – witnessing the impact of Appalachian coal mining. Shortly thereafter, Hampshire College became the first academic institution to divest from fossil fuel companies. Hampshire College

Figure redacted. Figure shows basket (S&P 500 without fossil fuel companies) outperforming the full S&P 500 index.

has since been joined by at least 176 universities from twelve countries, including Stanford University, the University of Cambridge, and the University of Copenhagen. [27]

Several major divestment milestones have been reached in immediate years. In January 2017, the Republic of Ireland's parliament passed a law necessitating full public divestment from fossil fuels [28]. On January 4th of 2019, the Ireland Strategic Investment Fund divested from 38 companies associated with fossil fuels, becoming the first country to divest [29,30]. Additional large-scale communities including New York City, the City of Oslo, and London have taken partial or complete steps towards divestment. Financial foundations including both Goldman Sachs and the Rockefeller Brothers Fund have established and enacted pathways towards divestment, the latter citing an irreconcilable moral tension between climate change and investments in fossil fuels [31].

Recently, the investment management company BlackRock, which holds approximately $7.43 trillion in assets under management, announced a move away from thermal coal [32, 33]. The plan outlined by BlackRock aimed to remove investments in thermal coal – which currently constitutes $18.62 billion of their investment portfolio – by the middle of 2020. In justifying the decision, the management firm cited the carbon-intensive and highly regulative nature of thermal coal. Chairman Larry Fink championed this move as the instigation of a fundamental reshaping of finance.

Divestment campaigns have prompted sweeping changes across a diverse array of organizations. Institution types include cultural (e.g California Academy of Sciences); colleges and universities; faith-based (Catholic Network); for-profit (Guardian Media Group); government (City of Oxford); healthcare (APHA); nonprofits (World Wildlife Fund); pensions; and philanthropic (Sierra Club Foundation). And in 2015, campaigning students at the George School in Newtown, PA convinced their administration to divest, adding high schools to the aforementioned list [34].

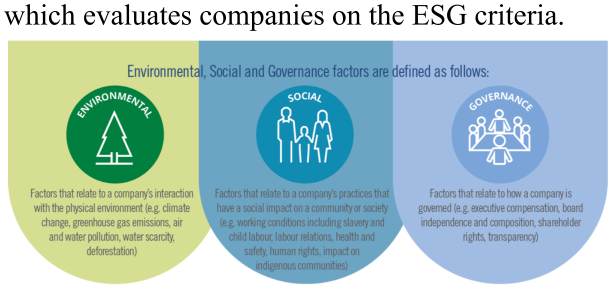
PROPOSAL

In broad strokes, we propose that Nueva divests from the fossil fuel industry.

There are varying degrees of divestment which the school should consider, from narrowly divesting from only the oil and gas industry to holistically divesting from all major producers *and* consumers of fossil fuels. While the Nueva Divestment Society implores the school to seek the latter, it also recognizes the importance of financial pragmatism and the value of incremental change. Thus, this proposal will establish several options for the Endowment Committee to review.

Vanguard, Nueva's current investment management company, offers several fossil fuel-free portfolios. While these would be financially convenient alternatives for the school, it should be noted that these portfolios do not fully divest from fossil fuels.

On September 20, 2018, Vanguard launched two ESG index ETFs (exchange traded funds, i.e. investment portfolios) [35]. The ESG index refers to a widely-adopted financial metric to evaluate the environmental footprint, social impact, and internal corporate governance of the company which is being invested in. These two ESG-conscious funds divest from companies that do not meet certain ESG criteria, many of which are fossil fuel companies. These Vanguard funds invest based on the performance of companies according to the FTSE US All Cap Choice Index, which evaluates companies on the ESG criteria.



To provide more technical background, ESG ETFs have grown in popularity since their creation in 2005, and a study in 2019 by Morgan Stanley found that “85% of US individual investors now express interest in sustainable investing strategies while the percentage goes up to 95% when only millennial investors are considered,” [36].

The Vanguard ESG U.S. Stock ETF (ESGV) is primarily invested in technology, financial, consumer services, and healthcare companies in American markets. As of December 31, 2019, its largest holdings were in technology giants such as Apple, Microsoft, Alphabet, and Amazon. In the past year, it had an average annual return of 33%, and since its inception in 2018, it has had an average annual return of 12% [37]. This ETF is graded as a “B” by Fossil Free Funds, a non-profit focused on assessing the social and environmental footprint of different investment portfolios and personal financial plans. This rating derives from the fact that this ETF still holds an estimated 2.38% of its total assets in fossil fuels, including $10.92 million in oil/gas companies, $8.32 million in fossil fuel-fired utilities, and $1.17 million in the top 30 coal-fired utilities—all of which meet the ESG criteria, despite relying on fossil fuels [38].

Vanguard’s other ESG index ETF which is the ESG International Stock ETF (VSGX), which is created using similar methodology but focuses on international markets. In the past year, it had an average annual return of 23% and since its inception, an average annual return of 7.4% [39].

Outside of Vanguard, there are several superior options which completely divest from fossil fuels [40]. These include:

- Guggenheim Solar ETF (TAN), which has had a 49% return over the past year and 26% over the past 3 years [41]
- PowerShares Cleantech Portfolio (PZD), which has had a 26% return over the past year and 15% over the past 3 years [42]
- NuShares ESG Mid-Cap Growth ETF (NUMG), which has had a return of 27% over the past year and 16% over the past 3 years [43]
- iShares MSCI Global Impact ETF (SDG), which yielded a return of 25% over the past year and 15% over the past 3 years [44]
- Change Finance Diversified Impact US Large Cap Fossil Fuel Free ETF (CHGX), which has had a return of 23% since its inception in 2018 [45]

(See more [46]; the New York Times ran an article [47] in 2017 about the work Fossil Free Funds has done in clarifying the best divested options for ETFs.)

To summarize, there are a variety of potential environmentally-conscious ETFs which Nueva should consider. These portfolios have already established their massive financial returns, which often exceed the estimated 7% return on Nueva’s current investments. Combined with the dire need to transition away from fossil fuels as a collective society, we strongly urge the school board and administration to divest its assets from fossil fuels. We would be happy to answer any further questions about the logistical aspect of the proposal or do further research to supplement what has already been explained.

CONCLUDING STATEMENTS

We are in the midst of a climate crisis of monumental proportions, and the culpable party, it is generally agreed, are the fossil fuel companies. Divestment is one way of fighting back against these corporations.

The Nueva School is an institution that prides itself on its environmentally sustainable campus, yet Nueva is currently invested in the fossil fuel industry. By buying into fossil fuel stock, Nueva is putting their money towards an uninhabitable planet, operating entirely on the assumption that the status quo is always the safest and most efficient option.

We propose that Nueva divests from the fossil fuel industry. There are many reasons for the school to divest, some of which are listed below.

- Research has shown that investing in environmentally friendly portfolios can yield just as much profit as investing in fossil fuels.
- The student population has expressed concern about the growing climate crisis through attending walkouts/strikes and participating in student-led clubs. By divesting, Nueva would show that they listen to their student body and be part of a movement to create a better future for their students.
- Divesting would help Nueva continue to make efforts towards becoming more "eco-friendly".
- If Nueva does decide to divest from fossil fuels, they could be one of the first schools in the Bay Area to do so and help set the precedent for investing in the future.

This change from investing in fossil fuels to environmentally sustainable portfolios could happen in a few different ways. Nueva could choose to divest from just the oil and gas industry or divest from both producers and consumers of fossil fuels. There are a variety of portfolios that the school could choose from if they decided to divest. As the Nueva Student Divestment Society, we strongly encourage the Endowment Committee to put their student's futures first and consider the benefits of divesting from the fossil fuel industry.

SUPPLEMENTAL MATERIALS

Table S1: Common GHGs by potency and atmospheric residency [48, 49]

Name	**Formula**	**Potency**	**Residency (years)**
Water	H_2O	N/A*	<0.03
Carbon dioxide	CO_2	1	5 – 200
Methane	CH_4	28	12
Nitrous oxide	N_2O	265	114
Sulfur Hexafluoride	SF_6	23500	3,000†

*[50] †[51]

List S1: Tickers for companies excluded from Jeffrey Sawin's basket: [22]

XOM, CVX, DUK, COP, AEP, SLB, EOG, EOG, KMI, PSX, XEL, OXY, MPC, VLO, WEC, WEC, OKE, PPL, PPL, DTE, DTE, WMB, PXD, AEE, CMS, CMS, HAL, CXO, HES, LNT, BKR, AES, AES, PNW, APA, NBL, NRG, NRG, MRO, DVN, NOV, FTI, HFC, COG, XEC, HP, SO, FE, WY, NI

REFERENCES

[1] Lewis, D. (2015, August 3). Scientists Have Been Talking About Greenhouse Gases for 191 Years. Retrieved from https://www.smithsonianmag.com/smart-news/scientists-talking-about-greenhouse-gases-191-years-180956146/

[2] Hill, L. E. (1979, October 16). Controlling Atmospheric CO_2. Exxon Engineering Petroleum Department. Retrieved from http://insideclimatenews.org/sites/default/files/documents/CO2%20and%20Fuel%20Use%20Projections.pdf

[3] Hall, S. (2015, October 26). Exxon Knew about Climate Change almost 40 years ago. Retrieved from https://www.scientificamerican.com/article/exxon-knew-about-climate-change-almost-40-years-ago/

[4] Dudley, Bob *et al.* (2019). BP Statistical Review of World Energy, 68th edition. BP. Retrieved from https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf

[5] Allen Myles, Babiker M., Chen Y., de Coninck H. *et al.* (2019). IPCC Special Report: Summary for

Policymakers. Retrieved from https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf

[6] Ansar, A., Caldecott, B. L., & Tilbury, J. (2013). Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets? Smith School of Enterprise and the Environment, University of Oxford.

[7] McKibben, B. (2012, July 19). Global Warming's Terrifying New Math. rollingstone.com. Retrieved July 16, 2013, from http://www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719

[8] Ravani, S. (2019, September 19). University of California divests from fossil fuels, calls new energy sources more attractive. Retrieved from https://www.sfchronicle.com/bayarea/article/University-of-California-divests-from-fossil-14450987.php

[9] University of California Divestment Decision Offers Insights Into Feasibility of Divestment at Harvard: News: The Harvard Crimson. (n.d.). Retrieved from https://www.thecrimson.com/article/2019/10/4/uc-divestment-decision/

[10] Zhu weighs in on fossil fuel divestment in Harvard Crimson. (2019, October 15). Retrieved from https://www.maxwell.syr.edu/news/stories/Zhu_weighs_in_on_fossil_fuel_divestment_in_Harvard_Crimson/

[11] Dunker, C. (2019, December 22). Poor returns on fossil fuel investments helping students convince colleges to divest. Retrieved from https://journalstar.com/news/local/education/poor-returns-on-fossil-fuel-investments-helping-students-convince-colleges/article_2e83a10f-aedf-5677-88a3-8bea0ccc0423.html

[12] McGill professor resigns over university's investment in fossil fuels. (2020, January 20). Retrieved from https://www.insidehighered.com/news/2020/01/20/mcgill-professor-resigns-over-universitys-investment-fossil-fuels

[13] Leber, R. (2015, May 21). Divestment Won't Hurt Big Oil, and That's OK. Retrieved from https://newrepublic.com/article/121848/does-divestment-work

[14] The Nueva School: Tax Returns. (2017) Propublica.org. Retrieved from https://projects.propublica.org/nonprofits/organizations/941633387.

[15] Brown, Zach (2019). The True Nature of the Climate Crisis. The Nueva School, San Mateo.

[16] Students walk out for climate strike. (2019). The Nueva Current, San Mateo.

[17] Americans' opinion on renewables and other energy sources. (2019, December 30). Retrieved from https://www.pewresearch.org/science/2016/10/04/public-opinion-on-renewables-and-other-energy-sources/

[18] Sanzillo, Tom, Hipple, Kathy, Williams-Derry, Clark. (2018, July). The Financial Case for Fossil Fuel Divestment. Retrieved from http://ieefa.org/wp-content/uploads/2018/07/Divestment-from-Fossil-Fuels_The-Financial-Case_July-2018.pdf

[19] University of California system to divest its fossil fuel investments. (2019, September 18). Retrieved from https://ieefa.org/university-of-california-system-to-divest-its-fossil-fuel-investments/

[20] Harrison, Tom. (2018). Not Long Now: Survey of fund managers' responses to climate-related risks facing fossil fuel companies. UKSIF. Retrieved from https://uksif.org/wp-content/uploads/2018/04/UPDATED-UKSIF-Not-Long-Now-Survey-report-2018-ilovepdf-compressed.pdf

[21] Ambrose, J. (2019, July 31). BlackRock lost $90bn investing in fossil fuel companies, report finds. Retrieved from https://www.theguardian.com/environment/2019/jul/31/blackrock-lost-90bn-investing-in-fossil-fuel-companies-report-finds

[22] Goldman Sachs Asset Management. (2020, February 6). Document shared in confidentiality by Jeffrey Sawin.

[23] Trinks, A., Scholtens, B., Mulder, M., & Dam, L. (2018). Fossil Fuel Divestment and Portfolio Performance. *Ecological Economics*, 146, 740–748. doi:10.1016/j.ecolecon.2017.11.036

[24] Ryan, Christopher and Marsicano, Christopher, Examining the Impact of Divestment from Fossil Fuels on University Endowments (January 27, 2020). Roger Williams Univ. Legal Studies Paper No. 195. Available at SSRN: http://dx.doi.org/10.2139/ssrn.3501231

[25] Lash, J. (2017, August 3). Divested from Fossil Fuels Since 2011, Hampshire College Reports Endowment Investment Returns. Retrieved from https://www.huffpost.com/entry/divested-from-fossil-fuels-since-2011-hampshire-college_b_598249c7e4b03d0624b0abdf

[26] Divestment Commitments. (n.d.). Retrieved from https://gofossilfree.org/divestment/commitments/

[27] University news. (n.d.). Retrieved from https://www.gla.ac.uk/news/archiveofnews/2014/october/headline_364008_en.html

[28] Samuel Osborne. (2017, December 14). Ireland is the world's first country to stop investing in fossil fuels. Retrieved from https://www.independent.co.uk/news/world/europe/ireland-votes-divest-fossil-fuels-climate-change-world-first-country-parliament-renewable-energy-a7549121.html

[29] Fossil Fuel Divestment. (2019, October 18). Retrieved from https://www.rbf.org/mission-aligned-investing/divestment

[30] Taylor, C. (2019, January 4). Republic withdraws public money from fossil fuel investments. Retrieved from https://www.irishtimes.com/business/energy-and-resources/republic-withdraws-public-money-from-fossil-fuel-investments-1.3747740

[31] NY State Senate Bill S2126. (2020, February 5). Retrieved from https://www.nysenate.gov/legislation/bills/2019/s2126/amendment/original

[32] New BlackRock coal policy seen as a milestone in divestment movement. (2020, January 25). Retrieved from

https://ieefa.org/new-blackrock-coal-policy-seen-as-a-milestone-in-divestment-movement/
[33] Larry Fink CEO Letter. (n.d.). Retrieved from https://www.blackrock.com/au/individual/larry-fink-ceo-letter
[34] Hirji, Z., McKenna, P., Kusnetz, N., Bob, Bruggers, J., Feldman, S., … Lavelle, M. (2017, January 5). Pennsylvania High School Students Convince School to Divest From Coal. Retrieved from https://insideclimatenews.org/news/15052015/pennsylvania-high-school-students-convince-school-divest-coal
[35] Vanguard launches two new ESG index ETFs. (2018, September 20). Retrieved from https://institutional.vanguard.com/VGApp/iip/site/institutional/researchcommentary/article/NewsInstInfo092018
[36] Bajpai, Prableen (2019, December 17). How to Invest in ESG: Top ETFs to Consider, NASDAQ. Retrieved from https://www.nasdaq.com/articles/how-to-invest-in-esg%3A-top-etfs-to-consider-2019-12-17
[37] Vanguard ETF Profile. (n.d.). Retrieved from https://investor.vanguard.com/etf/profile/overview/esgv
[38] Vanguard ESG U.S. Stock ETF: Fossil fuel investments: Fossil Free Funds. (n.d.). Retrieved from https://fossilfreefunds.org/fund/vanguard-esg-us-stock-etf/ESGV/fossil-fuel-investments/FS0000DVU7/F000010QC6
[39] Vanguard ETF Profile. (n.d.). Retrieved from https://investor.vanguard.com/etf/profile/VSGX
[40] Crigger, Lara. (2018, March 14). Fossil Fuel Free ETFs That Aren't. Retrieved from https://www.etf.com/sections/features-and-news/fossil-fuel-free-funds-arent?nopaging=1
[41] TAN. (2020, February 6). Retrieved from https://www.etf.com/TAN#overview
[42] PZD. (2020, February 6). Retrieved from https://www.etf.com/PZD#overview
[43] NUMG. (2020, February 6). Retrieved from https://www.etf.com/NUMG#overview
[44] SDG. (2020, February 6). Retrieved from https://www.etf.com/MPCT#overview
[45] CHGX. (2020, February 6). Retrieved from https://www.etf.com/CHGX#overview
[46] Search funds: Fossil Free Funds. (n.d.). Retrieved from https://fossilfreefunds.org/funds?cln=c2f5coogutcount&dsc=false&pg=4&srt=c2f5coogutweight
[47] Gray, T. (2017, October 13). Funds That Can Put Your Investments on a Low-Carbon Diet. Retrieved from https://www.nytimes.com/2017/10/13/business/mutfund/mutual-funds-low-carbon.html
[48] Greenhouse Gas Protocol (2016, February). Global Warming Potential Values. Retrieved from https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf
[49] Carbon dioxide (n.d.). Retrieved from https://archive.ipcc.ch/ipccreports/tar/wg1/016.htm
[50] Sherwood, Steven C. *et al.* 2018 *Environ. Res. Lett. 13* 104006
[51] Jerome Blackman (2002). Byproducts of Sulfur Hexafluoride (SF6) Use in the Electric Power Industry. U.S. Environmental Protection Agency. Retrieved from https://www.epa.gov/sites/production/files/2016-02/documents/sf6_byproducts.pdf

AUTHOR CONTRIBUTIONS

Max Gotts Architecture of the document, oversaw project, executive summary, introduction, argument, references, supplemental materials, editing, research

Dylan Taylor Introduction, argument, supplemental materials, editing, research, architecture of the document

Andrew Chu Proposal, research

Chloe Kim Context & history, research, editing

Avery Chen Concluding statements, editing

Caroline Phipps Argument, editing, research

Cate Lee Research, concluding statements

Cevi Bainton Editing

Julia Karp Research

Stephanie Shields Editing

ACKNOWLEDGEMENTS

Celia Malone Inspiration and conception of Nueva's divestment program

Mike Peller & Zach Brown, Ph.D Introduction to the project