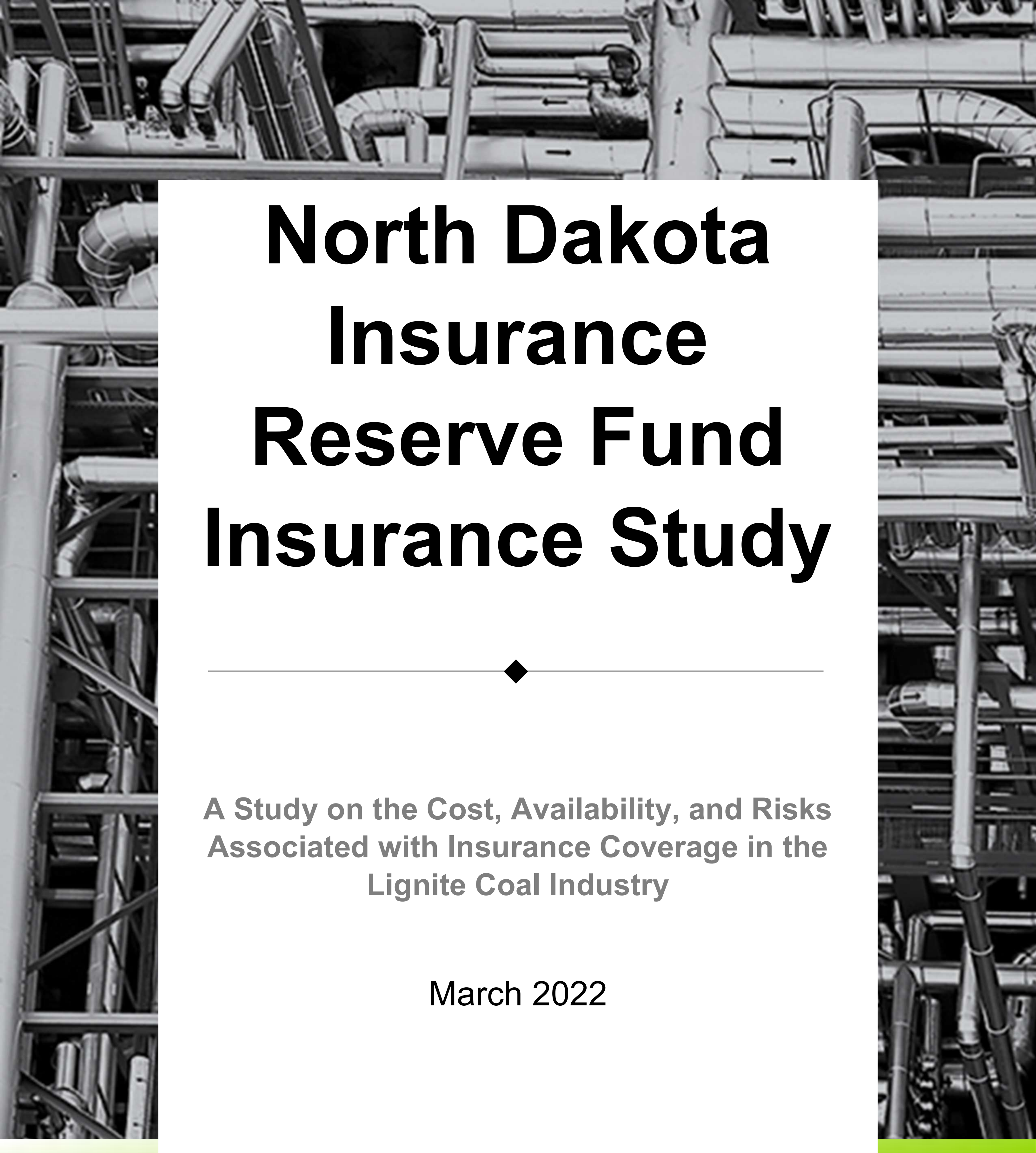

North Dakota Insurance Reserve Fund Insurance Study

A Study on the Cost, Availability, and Risks Associated with Insurance Coverage in the Lignite Coal Industry

March 2022

Guidehouse

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Executive Summary

In late 2020, the Lignite Energy Council ("LEC"), in partnership with North Dakota State Insurance Commissioner Jon Godfread, North Dakota State Senator Jessica Unruh-Bell, and Guidehouse, a global consultancy, performed a study on the forces impacting insurance rates for firms operating in the region's lignite coal industry. More specifically, the LEC endeavored to identify the cause(s) of insurance rate increases that its member firms had reported in the preceding years, which ranged from 10% to 300%. The initial study concluded that insurance rate increases were primarily associated with a return to hard market conditions within the insurance sector,[1] driven by sustained low interest rates and an increase in catastrophic losses within the Property and Casualty ("P&C") sector. The study identified a secondary factor influencing insurance rates attributed to the Environmental, Social, and Governance ("ESG") movement. Specifically, financial services firms have experienced increasing pressure to divest from carbon-intensive assets and, in the case of insurance carriers, to cease or limit insurance coverage for certain industries, including lignite coal.

These findings were presented to the North Dakota State Senate leading to the passage of North Dakota Senate Bill No. 2287, which directs the insurance commissioner, in consultation with the North Dakota Insurance Reserve Fund ("NDIRF"), to "study the availability, cost, and risks associated with insurance coverage in the lignite coal industry."[2] The current study ("Study"), a result of the above legislation, has two major components: to validate the findings of the initial study with respect to drivers of insurance rate increases within the lignite coal sector; and to outline potential solutions to address gaps in coverage caused by these rate increases. This study was undertaken by Guidehouse, in partnership with North Dakota State Insurance Commissioner Jon Godfread and NDIRF CEO Brennan Quintus. The Guidehouse team spoke with eight individuals across seven companies in the lignite industry. The team also interviewed insurance commissioners or their staff from six US states along with three insurance industry subject matter experts across actuarial, underwriting, and claims functions. Finally, the team conducted research to support the findings gleaned from stakeholder interviews.

The Study validated earlier findings that hard market conditions were the primary driver of insurance rate increases in the lignite coal sector. This conclusion is based on an analysis of ten years of LEC member insurance rate changes as compared to the same data across the broader P&C industry, and an assessment of the overall financial health of insurers over the same time period. It should be noted that the rate increases, limit decreases, and deductible increases reported by LEC members were not uniformly experienced. This suggests that the insurance sector tightened underwriting processes (if not guidelines) as market conditions deteriorated, thus disproportionately impacting the companies deemed to be higher risk.

The Study also confirmed that ESG-related pressures are a secondary factor driving insurance rate increases. This is based on interviews with stakeholders as well as an analysis of insurance carrier coal exit policies, which confirm the extent to which climate-focused organizations, in conjunction with internal employee groups and international governance bodies, have

[1] See below for a description of hard and soft market cycles in the insurance sector.
[2] North Dakota State Senate Bill No. 2287.

successfully influenced insurers to commit to exiting the fossil fuel market. These exit plans already have been implemented by several multi-national insurance carriers resulting in decreased underwriting capacity for fossil fuel assets. As carriers implement their commitments to exit the fossil fuel industry, fewer are left to underwrite the same body of risks, creating upward pricing pressure due to the lack of competition in the market.

Hard market conditions may reverse following macroeconomic cycles and aided by prudent capital and risk management of insurance carriers. On the other hand, net zero carbon efforts, now driven by industry, governments, and multi-national self-regulatory organizations, are gaining momentum. Thus, it is likely that the cost of insurance coverage will continue to increase for at least some subset of lignite producers if not the industry as a whole. To address these increases and ensure the business viability of the lignite sector, industry and government stakeholders should consider coverage options outside of the commercial insurance market.

First, state-based insurance reserves / pools may help alleviate some coverage gaps, but the capital and surplus requirements may place an undue burden on taxpayers. Furthermore, a state-based product would need to be appropriately priced to counter the risk of anti-selection, in which poorer risks which have been priced out of the commercial market seek coverage under the "public option." Second, industry members may consider organizing to form captive insurance companies in order to self-insure under more favorable financial conditions. While North Dakota does not have captive insurance laws on the books at present, there are scenarios in which LEC Members could create one or many captive insurance entities, including the enactment of new legislation to allow the operation of captives within the state. Finally, industry participants should continue to pursue loss prevention tactics as well as other activities that strengthen the resiliency of their business models. Taken together, these actions may help lignite producers withstand the vicissitudes of the insurance market as they navigate the complex energy transition landscape over the next several years.

Background

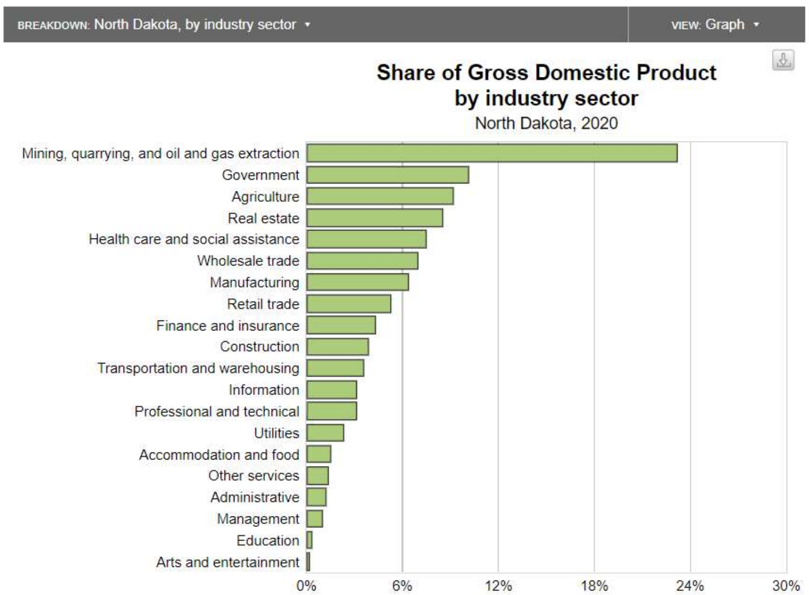
Lignite Coal in North Dakota

North Dakota's lignite industry plays a critical role in the state's economy, generating $3 billion in annual economic activity and over a hundred million in annual tax revenue.[3] In combination with oil and gas extraction, it generates nearly 24% of the Gross Domestic Product in the state (see Figure 1). North Dakota is one of the country's top 10 coal-producing states, mining approximately 30 million tons every year since 1988. In 2018, North Dakota overtook Texas as the leading producer of lignite coal.[4] The state supports 4,000 megawatts of lignite and other coal generation at seven locations and provides affordable, reliable electric power to over 2 million customers in North Dakota, South Dakota, Minnesota, Montana, and Iowa. According to the U.S. Energy Information Administration, North Dakota has some of the lowest-cost electricity

[3] Based on https://www.business.nd.gov/energy/Lignite/. One study estimated the total economic activity generated by the lignite industry in 2017, including related goods and services, at over $5.4 billion (see Bangsund, Dean A., and Nancy M. Hodur, "Economic Contribution of the North Dakota Lignite Industry in 2017," *Agribusiness and Applied Economics Report*, No. 784 (January 2019)). This study was supported financially by the Lignite Energy Council.
[4] See https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/north-dakota-overtakes-texas-as-top-us-lignite-producer-in-2018-49878988

for residential use, ranking 46th out of 51 (50 states plus the District of Columbia).[5] Finally, the lignite coal sector is a major employer in North Dakota and counties with lignite production activity have some of the highest wages in the state.[6] Coal mining supported 3,500 jobs in 2017, and according to one study was responsible for as many as 14,000 jobs due to indirect and induced economic activity.[7]

FIGURE 1: SHARE OF GROSS DOMESTIC PRODUCT BY INDUSTRY SECTOR IN NORTH DAKOTA (2020)[8]



Lignite Coal Industry Experience

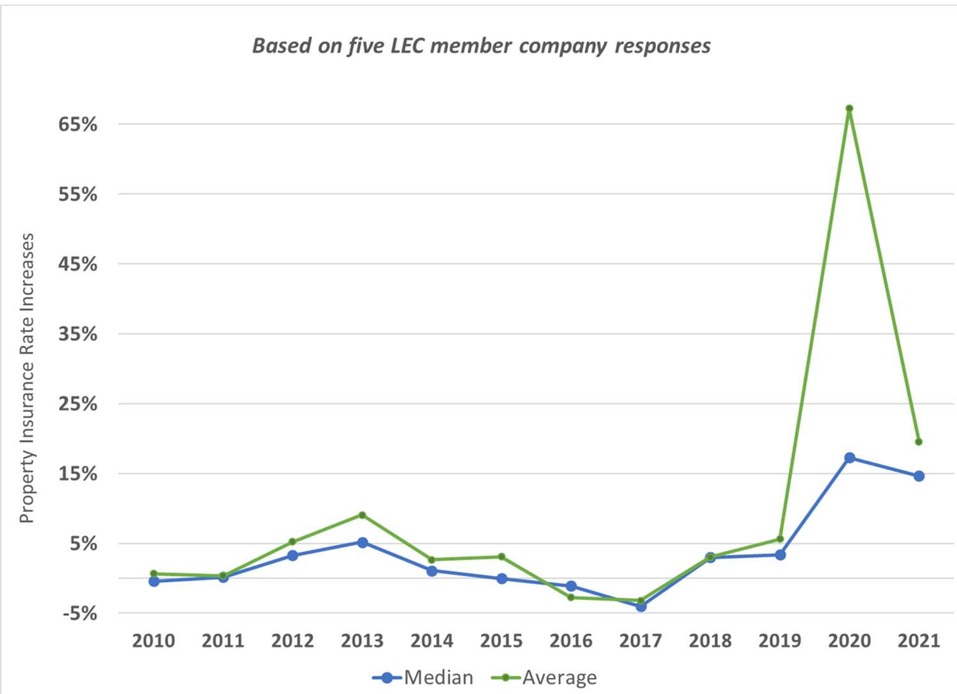
As reported in the initial study, member companies of the Lignite Energy Council provided information as part of a data request which confirmed that the cost of insurance had increased significantly since 2017. The initial survey revealed the following:

- **Premiums:** LEC member companies experienced premium increases ranging from 10% to 300% from 2017 through 2020.
- **Claims:** From 2010 to 2020, the total annual dollar amount of claims filed by all LEC member companies ranged from approximately $1.75 to $19.4 million. The largest dollar value of claims filed by one company in any one year was $16.1 million. The vast majority of claims occurred in 2016 or earlier.
- **Limits:** Of the LEC member companies surveyed, 80% reported decreasing limits in their most recent policies.
- **Deductibles:** Of the LEC member companies surveyed, 80% reported that their deductibles have increased. The magnitude of these increases ranged from 25% to 1000%.

[5] See https://www.ndstudies.gov/energy/level2/module-3-coal/how-coal-production-affects-people-north-dakota
[6] https://lignite.com/table-topics/oliver-county-is-tops-in-highest-average-wages/
[7] Bangsund, Dean A., and Nancy M. Hodur, "Economic Contribution of the North Dakota Lignite Industry in 2017," *Agribusiness and Applied Economics Report*, No. 784 (January 2019), 11.
[8] https://www.statista.com/statistics/1065144/north-dakota-real-gdp-by-industry/

As part of the current study, the Guidehouse team requested additional data from LEC members to understand annual rate increases since 2010. Despite variations in individual member company experience, most respondents reported flat or even decreasing rates from 2014-2017 and *all* respondents reported rate increases after 2017 and continuing through 2021 (Figure 2). One producer reported an increase in property insurance rates of 300% while another producer reported being dropped for coverage by a long-time insurance carrier just 3 months prior to policy renewal. Finally, one member pointed out that their insurance carrier paid out surplus dividends during its profitable years, and those dividends stopped in 2017.

FIGURE 2: PROPERTY INSURANCE RATE INCREASE IN THE LIGNITE SECTOR (2010-2021)



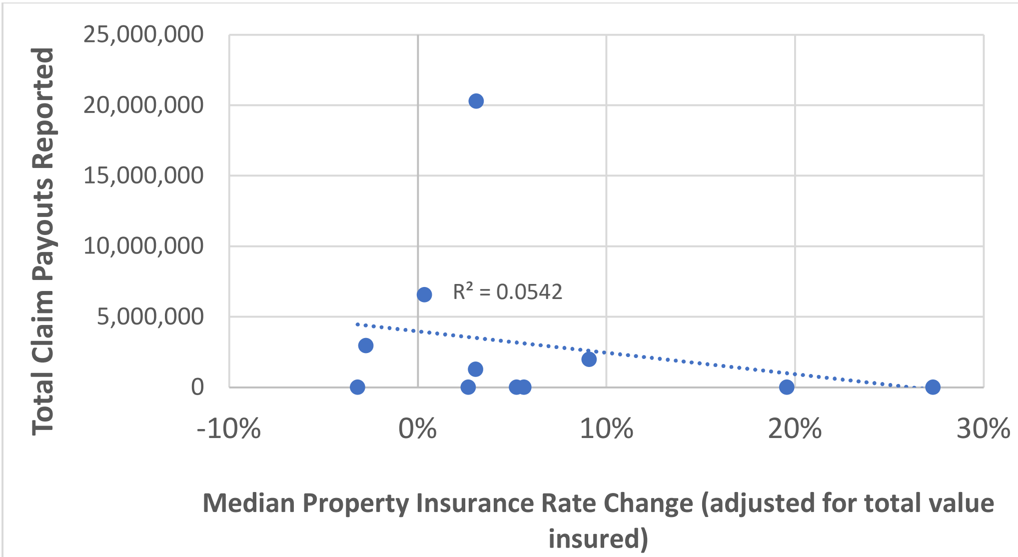
Notes:

1. Rate increases provided by respondents are adjusted for changes in total value insured.
2. Based on survey respondents as part of data request in January 2022 (n = 5).

Data shared by LEC members also supports the finding that rate increases cannot be directly correlated to specific claim loss events of previous years, as shown in Figure 3 below. Claims experience is one of several factors that insurers use as inputs into risk calculations and ratemaking decisions,[9] and these data demonstrate that individual loss events of the lignite producers surveyed do not alone explain the rate increases of 2018-2021.

FIGURE 3: CLAIM LOSSES AND SUBSEQUENT YEAR RATE CHANGES (2011-2021)

[9] "Lignite Energy Council Insurance Study: A Report on the Forces Impacted Recent Insurance Rate Increases on the Lignite Industry and Suggested Paths Forward," (Feb. 2021), 2-4.



Notes:

1. Rate increases provided by respondents are adjusted for changes in total value insured.
2. Based on survey respondents as part of data request in January 2022 (n = 5).
3. X-Y pairs are based on year of claim and year+1 of rate change.

The two findings shown above, when compared to industry-wide experience, strengthen the initial study's conclusion that the hard market was a primary driver of insurance rate increases in the lignite coal sector. As detailed below, the property and casualty insurance sector at large experienced a "soft market" from 2013 to 2017, followed by a period of decreasing profitability starting in 2017 and accelerating until today. This industry-wide hard market corresponds to the rate increases experienced by LEC members, suggesting that the lignite coal sector as a whole was not singled out by insurance carriers.

Drivers of Insurance Rate Increases

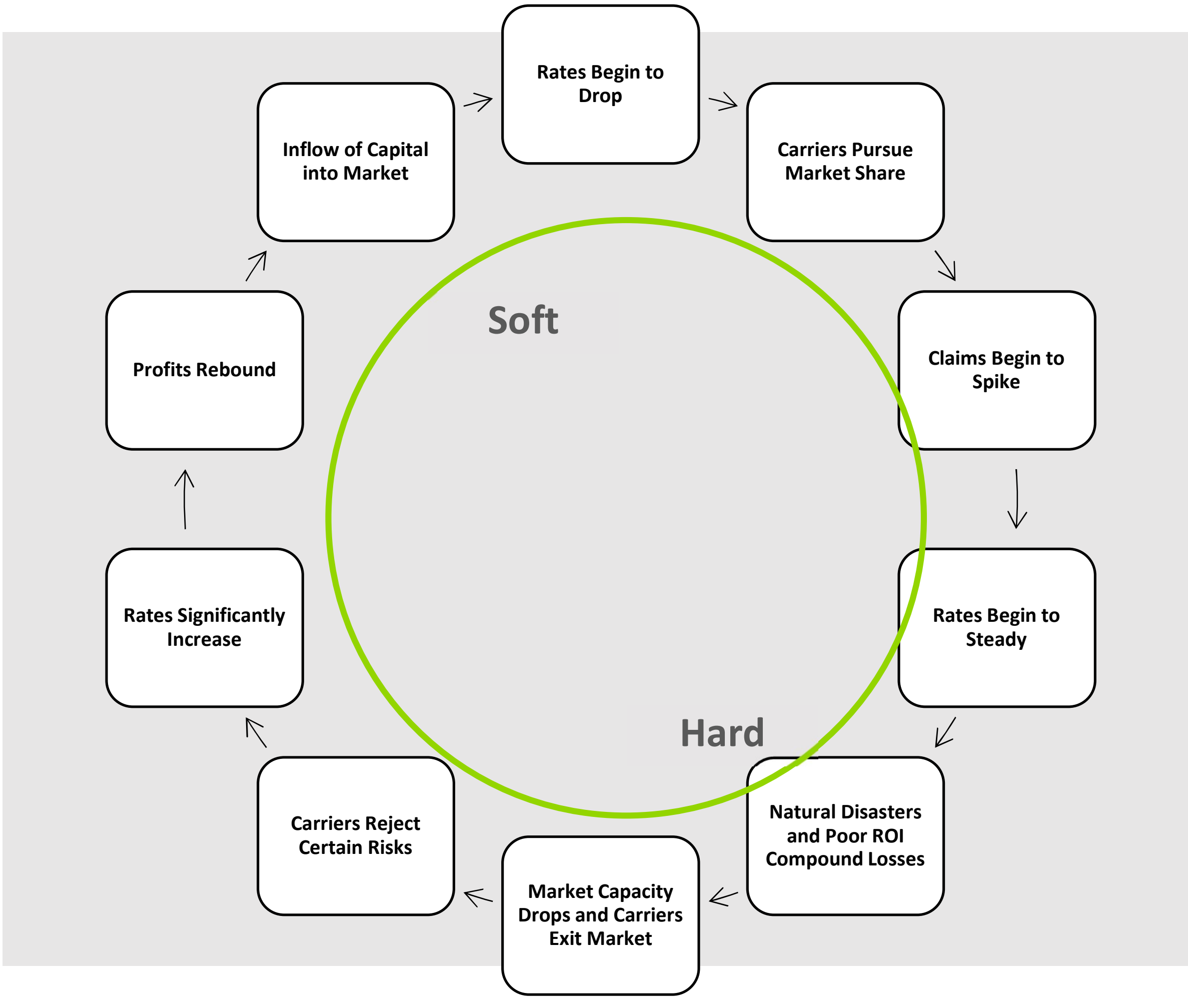
Property and Casualty Insurance Market Cycle – Hard and Soft Markets

The initial study concluded that natural market forces were a major driver of property insurance rate increases experienced by LEC member companies. Beginning in the early 2010s, the property and casualty market had experienced several years of increased competition between insurance carriers, driving down rates. Analysis of publicly available data demonstrates that these trends reversed in the late 2010s, when hard market conditions emerged as a result of macroeconomic headwinds and industry-specific trends.

The diagram below illustrates how this shift occurs naturally within the P&C sector.

FIGURE 4: INSURANCE MARKET CYCLES[10]

[10] Adapted from https://global.lockton.com/gb/en/news-insights/understanding-the-current-insurance-cycle.



In the soft market phase, the profitability of P&C insurance carriers begins to rise and there is an increased flow of capital from current market participants. New entrants join the frothy market seeking a share of the gains being experienced by existing carriers. As the number of insurance carriers begins to rise, competition increases. To maintain existing customers and pursue new opportunities, P&C carriers must aggressively price their insurance products to remain competitive in this newly saturated market. In this manner, insurance carriers not only further decrease insurance rates, but may also relax underwriting standards. Once this stage in the market cycle is achieved, a soft market has been firmly established. Insureds have market power and can attain broad coverage for relatively low premiums.

However, due to falling insurance rates, coupled with lenient underwriting and more inclusive insurance coverage, P&C carriers start to experience margin pressure. It is here that the market cycle takes a turn towards hard market territory. Any number of factors can precipitate the turn to a hard market. Decreasing insurance rates means that insurance carriers have been growing their books of business at the expense of profit. This broadened book of business also means that insurance carriers may have taken on a greater number of high-risk insureds, leading to increased claim frequency or severity. External factors can also play a role. This includes decreasing returns on investments (exacerbated in a low interest rate environment), an uptick in losses from natural disasters, which may result in more frequent and more expensive claims, and unfavorable regulatory rulemaking.

At this stage in the market cycle, the need to increase insurance rates becomes apparent. Rather than increase rates, less capitalized insurance carriers may decide that it is more prudent to exit the market entirely. The P&C carriers left in the market must enforce stringent underwriting standards, draw back coverages, and assess the profitability of their book of business by each line of coverage within each industry segment. After performing this analysis, carriers may either begin to restrict writing certain classes of business within industries or only write these classes of businesses at substantially higher rates.

As P&C insurance carriers make these adjustments, their financial condition slowly improves. Profits begin to bounce back due to tighter underwriting standards and limits in coverage, which culminate in decreased claims. Further, the level of competition in the marketplace has dropped due to other insurance carriers cutting coverage or leaving the market altogether. It is at this stage that the hard market has peaked. Inflow of new capital into the market (both from current insurance carriers and new entrants not wanting to miss out on the profits) is the first sign of softening and a return to the natural market cycle depicted above.

Current State of the Property and Casualty Insurance Market

Having outlined the typical market cycle in the property and casualty insurance market, we can assess the current state of the sector with respect to that cycle. There are a number of data points that point us towards the conclusion that the sector has experienced a hard market from 2017 or 2018 to the present.

Profitability Metrics

In order for property and casualty insurance carriers to continue to serve their clients, it is imperative that they maintain a strong financial position. Underwriting gains and the combined ratio are two of the key indicators of the health of insurance carriers.

> **Underwriting Gain (Loss)**: Net premiums earned less net expenses and losses incurred.
>
> **Combined Ratio**: The sum of incurred losses and expenses divided by premiums earned.

The tables below show these metrics for US P&C carriers going back to 2013. From 2013 through 2016, insurers experienced underwriting gains, leading to healthy combined ratios below 100%. This began to change in 2016, with the P&C industry reporting a loss for the first time in several years. This loss was further compounded in 2017. Not only did this result in two consecutive years of losses, but the loss in 2017 was greater, in absolute terms, than any gain in the preceding years. These losses drove the combined ratio of property and casualty insurance carriers over the 100% threshold, signaling potential financial headwinds. In fact, the industry's combined ratio in 2017 – 103.9% – was the worst combined ratio since 2011 and the second worst since 2002.[11]

Since then, the industry as a whole has begun to recover and once again experienced underwriting gains, albeit somewhat modest ones. In 2020, net underwriting gains increased by 43.6% year-over-year, however, the combined ratio of 98.7% remained relatively flat – indicating losses had still increased. From 2018 to 2020, the property and casualty insurance industry annual net incomes were $57.6B, $62.2B, and $59.1B, respectively, a recovery from 2016 and 2017, when those figures hovered around $40B.[12]

FIGURE 5: US PROPERTY AND CASUALTY INSURANCE METRICS (2013-2021)

Year ended Dec. 31st	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Underwriting Gain (Loss) (billions)	$20.1	$14.7	$11.5	$(1.7)	$(22.5)	$2.9	$8.3	$12.0	$7.4
Combined Ratio	96.0%	97.3%	97.8%	100.5%	103.9%	99.1%	98.7%	98.7%	96.9%

*2021 is through June 30.

Based on National Association of Insurance Commissioners. (2020). Property & Casualty Insurance Industry. U.S. Property and Casualty and Title Insurance Industries.

These numbers are largely consistent with the two insurance carriers that almost exclusively serve the property insurance needs of LEC member companies: FM Global and Aegis. FM Global experienced a steady increase in total gross premiums in-force from $5.4B in 2016 to $7.3B in 2020. However, the insurance carrier's loss ratio spiked from 52.9% in 2016 to 100.8% in 2017; the loss ratio remained at an elevated 100.1% in 2018 before dropping.[13] Aegis similarly experienced a steady increase in net premiums earned from 2016 to 2020. Losses and loss expenses incurred spiked in 2018 and continued their upward trajectory through 2020.[14] It is noteworthy that 2018 is the year most LEC member companies began to experience increases in their insurance rates, corresponding to the adverse profitability metrics reported by FM Global and Aegis. After two years of losses, these insurers assessed their book of business and determined that raising insurance rates, along with other measures, were required to return to profitability. A look at specific drivers of P&C insurer profitability below confirms the sector-wide market cycles described above.

Catastrophic Losses

Losses associated with natural disasters have contributed to rising costs for property and casualty insurance carriers. For instance, 2020 had double the costs associated with catastrophic losses compared to 2019. In the US in 2020, there were 22 catastrophic events (defined as an event exceeding $1 billion in losses) totaling $96.4 billion, while 2019 had 14 such events totaling $46.1 billion in losses. The impact of catastrophic events in 2020 is clearly seen in the upward trend of loss and loss adjustment expense (LAE) reserves for insurance

[11] Sourced from https://www.iii.org/article/2018-commentary-on-year-end-financial-results
[12] National Association of Insurance Commissioners (2020). Property & Casualty Insurance Industry. U.S. Property and Casualty and Title Insurance Industries.
[13] https://fmglobalpublic.hartehanks.com/AssetDisplay?acc=11FM&itemCode=W186258
[14] https://www.aegislink.com/about-aegis/annual-review.html

carriers (e.g., loss and LAE increased 6.1% in 2020).[15] The year 2018 saw 14 such events totaling $94.7 billion in losses and the year 2017, which precipitated the hard market turn, had 16 catastrophic events resulting in a whopping $327.8 billion in losses.[16]

Low Investment Yields

Prolonged low interest rates also contributed to financial pressures on property and casualty insurers. In 2020, investment yields plummeted to the lowest point in the decade at 2.78%, while investment yields in 2017, 2018 and 2019 were 3.08%, 3.24%, and 3.19%, respectively.[17] In the early parts of the decade, interest rates were held at record lows by the Federal Reserve to combat the effects of the 2007-08 financial crisis. While rates experienced minor fluctuations in the years that followed, they remained low compared to prior decades. More recently, the economic fallout from the COVID-19 pandemic has limited the Federal Reserve's ability to normalize rates, as they remain near 0%.[18] Property and casualty insurers historically hold a significant percentage of their investment assets in stable, long-term securities.[19] Therefore, in general, higher interest rates augment the investment income relative to each premium dollar.[20] This has not been the case for the last several years in the P&C sector.

Reinsurance

Reinsurance rates also play a role in determining the rates charged by property and casualty insurance carriers. Largely driven by the increase in catastrophic losses in recent years from hurricanes, floods, wildfires, and severe winter storms, reinsurers have paid billions of dollars in losses. In fact, global insured catastrophe losses surged to $112 billion in 2021, the fourth highest on record, according to estimates by the Swiss Re Institute.[21] As a result, in 2022, global reinsurance rates across all lines of coverage are expected to continue to exhibit single to double digit increases (Figure 6).[22] With losses mounting, some insurers, including reinsurers, are not only raising rates significantly, but also exiting specific geographic areas, industries, and lines of coverage.[23]

This industry-wide experience aligns to the first-hand accounts provided by LEC member companies. One contact alluded to pressure from multi-national insurance carriers, citing an ongoing study being conducted by one reinsurer that may lead to certain exclusions which

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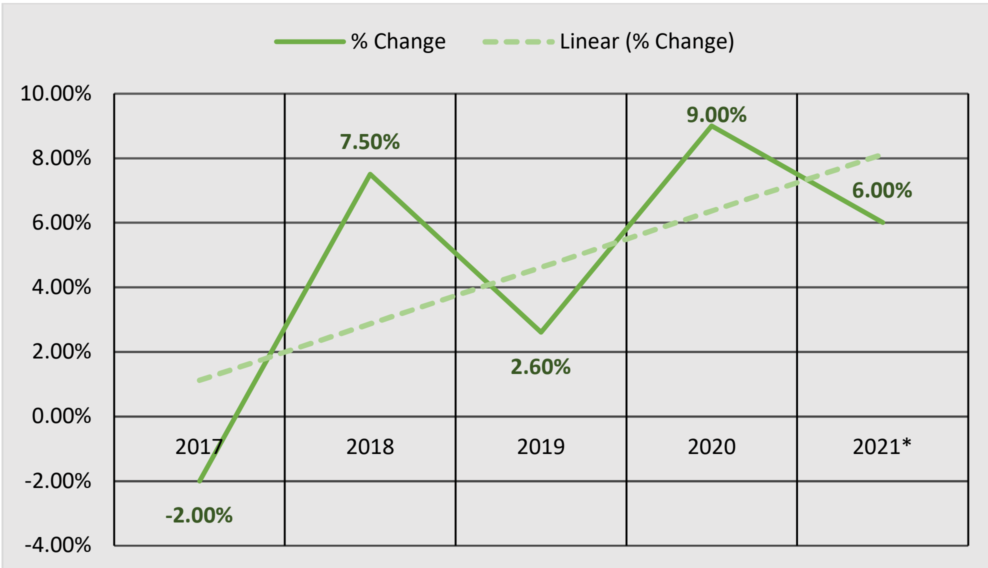
15 National Association of Insurance Commissioners (2020). Property & Casualty Insurance Industry. U.S. Property and Casualty and Title Insurance Industries.
16 The spike in losses associated with catastrophic natural disasters in 2017 was largely driven by Hurricanes Harvey, Irma, and Maria.
17 National Association of Insurance Commissioners (2020). Property & Casualty Insurance Industry. U.S. Property and Casualty and Title Insurance Industries.
18 Since the initial draft of this report was published, the Federal Reserve has begun tapering its purchase of securities and has signaled that it intends to raise the Fed Funds policy rate, possibly as early as March 2022.
19 US property and casualty insurers held 55.28% of their investment assets in bonds in 2020, down 5% from 2018 (60.23%). See https://www.iii.org/table-archive/20524, accessed 2/1/2022.
20 Federal Reserve Bank of New York. (1986). The cycle in property/casualty insurance. Retrieved from https://www.newyorkfed.org/medialibrary/media/research/quarterly_review/1986v11/v11n3article3.pdf
21 https://www.swissre.com/media/news-releases/nr-20211214-sigma-full-year-2021-preliminary-natcat-loss-estimates.html
22 Retrieved from https://www.reuters.com/business/finance/global-reinsurance-rates-keep-rising-next-year-moodys-2021-09-07/
23 Evans, S. (2021, August 2). Guy Carpenter U.S. Property Catastrophe Rate-On-Line Index. Artemis. Retrieved from https://www.artemis.bm/us-property-cat-rate-on-line-index/

would impact their coverage. Another LEC member company explained that one reinsurance carrier explicitly announced that they will not do business with power generation firms who exceed a specific mix of energy production from coal (this company cited a range of 25-30%).

FIGURE 6: YEAR OVER YEAR CHANGES IN US PROPERTY REINSURANCE RATES (2017-2021)



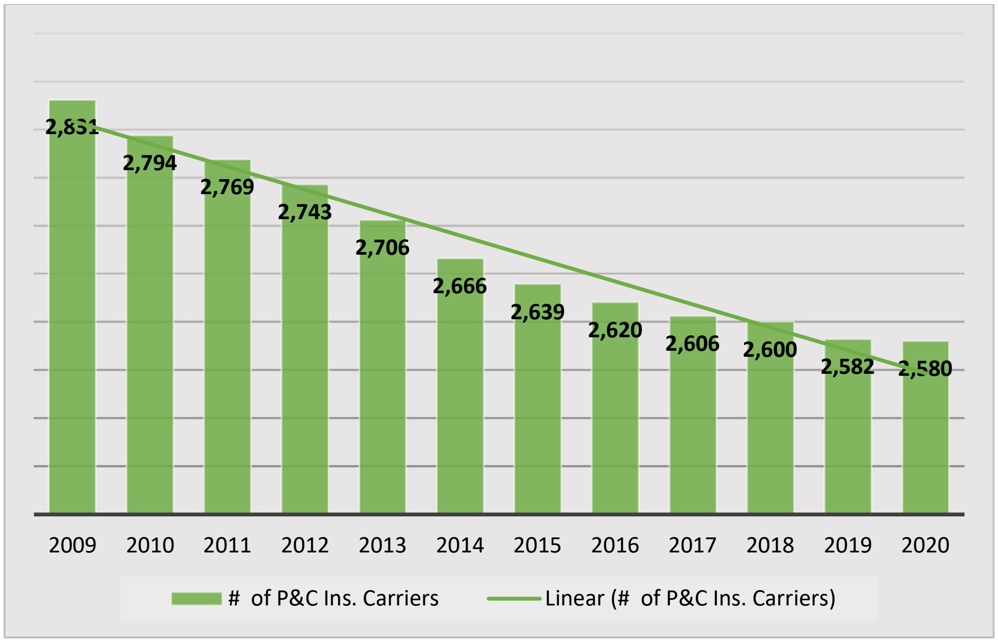
**Expected rate increase*

Industry Consolidation

As shown in the chart below, the number of property and casualty insurance carriers in the marketplace has steadily decreased every year going back to 2009.[24] In this consolidated environment, insurance carriers face less competition from niche players when attempting to win new business and retain their current market share. Due to the lack of competition, there is less downward pressure on price and insurance carriers have more flexibility to model policies that will be more profitable (e.g., by increasing rates or deductibles) without the threat of losing business to newer entrants. This closely mirrors the current situation described by LEC member companies, who confirmed that only two insurance carriers, FM Global and Aegis, were continuing to provide coverage for their primary layer of property and casualty insurance.

FIGURE 7: NUMBER OF PROPERTY AND CASUALTY INSURANCE CARRIERS (2009-2020)

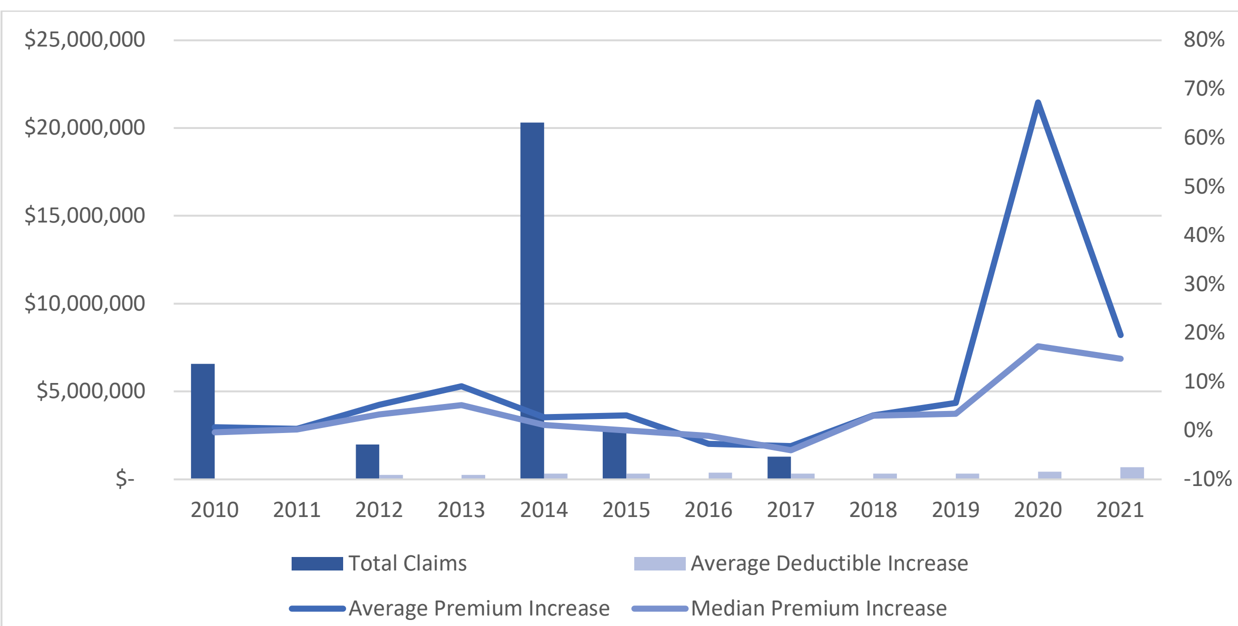
[24] National Association of Insurance Commissioners. (2020). Property & Casualty Insurance Industry. U.S. Property and Casualty and Title Insurance Industries.



Market Conditions: Conclusion

The property and casualty insurance market dynamics summarized above have had a clear impact on insurance rates and coverage for LEC member companies. The experience of the sector at large, as well as that of FM Global and Aegis, is remarkably consistent with the data provided by LEC members to the Guidehouse team. The figure below is an alternate view of the data presented in Figures 2 and 3. It shows claims experience side by side with rate changes in order to emphasize that the three highest claims years all came prior to 2016 – before the insurance rate increases that many member companies saw starting in 2018.

FIGURE 7: LEC MEMBER COMPANY AGGREGATE POLICY DETAILS (2010-2021)



Furthermore, Figure 7 above shows that beginning in 2018, insurance premiums began to rise, even as deductibles rose alongside premiums. To reiterate the conclusion: hard market conditions experienced by the property and casualty sector correspond chronologically to rate increases experienced by LEC companies.

Environmental, Social and Governance (ESG) Movement

Across the globe, power generation companies, governments, and the insurance industry are taking steps to modernize for the transition to a net-zero greenhouse gas emissions future. At the same time, there is an acknowledgment by these same stakeholders that insurers and reinsurers play a critical role in the transition to a net-zero future in order to ensure:

- Grid stability,
- An orderly transition that does not put vulnerable communities at risk of energy price shocks,
- Innovative product design that ensures climate-specific risks are not excluded at the expense of the public sector,
- Appropriate risk management, including avoidance of "bad risks going dark", and
- Financial incentives for transition.

At the moment, however, this acknowledgment has not reversed the trend driving insurers away from fossil fuels, and specifically, coal. Over the past decade and a half, the ESG movement has transformed from activist organizations such as Insure Our Future (formerly "Unfriend Coal"), to multi-national self-regulating organizations ("SROs") that count some of the largest insurance companies in the world as members. As a result, several carriers have established decarbonization commitments and have created exit plans for doing business with coal and other fossil fuels. This has reduced competition in the space, making it more challenging for some companies in the power generation and mining sector to find adequate insurance coverage. Some property and casualty insurers have created "mix of energy" standards and will not provide insurance to power generation companies if total generation from fossil fuels is above a certain threshold.

The following sections describes some of the most significant efforts in this arena. We see these trends gaining momentum and continuing to put upward pricing pressure on products offered to lignite coal companies by the remaining insurers who cover those risks.

Industry Organizations

The UN-convened Net-Zero Insurance Alliance ("NZIA") brings together over twenty of the world's leading insurers and reinsurers to play their part in accelerating the transition to net-zero emissions economies. The group has a stated commitment to transition underwriting portfolios to net-zero greenhouse gas (GHG) emissions by 2050. The eight founding members of NZIA, which include AXA, Allianz, and Zurich, have also committed to setting science-based 2025 decarbonization targets for their respective investment portfolios.

NZIA states that its approach to achieving these targets may include:

- Setting underwriting criteria and guidelines for the most GHG-intensive/GHG-emitting activities in the portfolio;
- Engaging with clients on their decarbonization strategies; and
- Integrating net-zero and decarbonization related risk criteria into risk management frameworks applicable to portfolios.[25]

The United Nations Glasgow Financial Alliance for Net Zero has earned the commitment of financial groups with over $130T in assets to join its program to cut emissions. This commitment is expected to fund $100T of investments through 2050.[26]

Similarly, the Partnership for Carbon Accounting Financials ("PCAF") maintains a focus on standardizing carbon emissions reporting and disclosure. The group's membership is comprised of dozens of asset managers, banks, and insurance carriers. PCAF's stated mission is to push the financial industry to facilitate the transition to net-zero:

> As a first step in this direction, harmonized and transparent greenhouse gas (GHG) accounting becomes an imperative. Measuring and disclosing the GHG emissions associated with the lending and investment activities of financial institutions is the foundation to create transparency and accountability, and to enable financial institutions to align their portfolio with the Paris Climate Agreement.[27]

The commitments of both PCAF and NZIA include the option to use carbon offsets to supplement decarbonization.

Insurance Carrier Movements

Individual insurance carriers have also come out with statements regarding how they will or will not do business with the fossil fuel industry going forward. These statements vary, with a few insurers continuing to support the industry, while others look to exit the market entirely. A more comprehensive summary of insurance carrier coal exit strategies is included in Appendix A, but some highlights are as follows:

- Tokio Marine, a top 20 multinational insurer and the largest property and casualty insurance group in Japan, committed to no new underwriting for coal-fired power generation projects or thermal coal mining projects, whether newly constructed or not. Some exceptions have been granted for projects with innovative approaches such as Carbon Capture Storage (CCS) and mixed combustion.[28]
- AXIS Capital, a reinsurer, committed to stricter climate policies, including:

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[25] https://www.unepfi.org/net-zero-insurance/
[26] https://www.wsj.com/articles/financial-system-makes-big-promises-on-climate-change-at-cop26-summit-11635897675?st=rxbp2iau7ygf58z&reflink=desktopwebshare_permalink
[27] https://carbonaccountingfinancials.com/about
[28] https://www.insurancebusinessmag.com/asia/news/environmental/tokio-marine-announces-coal-policy-climate-group-unimpressed-234953.aspx

- No new insurance or facultative reinsurance for thermal coal plants or their infrastructure, both new and existing; and
- No new insurance for companies which generate 20% or more of their revenues from thermal coal plants, generate 20% or more of their power from thermal coal, and/or developers of thermal coal plants/mines/infrastructure.[29]

- Prudential Financial ("Prudential") committed to zero emissions by 2050; Prudential also plans to commit to restricting new direct investments in companies that derive 25% or more of revenues from thermal coal.[30]
- AXA, which already was a first mover on more restrictive coal underwriting and investment policies, further tightened its policies:
    - Halting investments in and underwriting of new upstream greenfield oil exploration projects unless they were carried out by companies "with the most far-reaching and credible energy transition plans"; and
    - From 2023, AXA would begin to factor the policy into its underwriting business of new insurance coverage on new upstream greenfield oil exploration projects.

Multiple LEC member companies reported receiving notices from multi-nationals (including Chubb Limited and Zurich Insurance Group). One member company noted that they received a non-renewal notice from one of these companies, forcing them to scrambling for alternate coverage in just a matter of months. Another LEC member company relayed that they received a letter stating that if more than 25% of their business revenue was from their coal operations, they would no longer be covered by that carrier.

However, not all insurance carriers are taking the same approach. As noted above, two large insurers, FM Global and Aegis, have committed to the coal industry and take different approaches to underwriting and risk management. This statement, by Monty Hanks, CFO of the Northern California Power Agency (NCPA), matches the sentiment from LEC member companies interviewed by Guidehouse which have relationships with FM Global:

> We engaged FM Global in early 2021 to build a plan, and that started with scheduling loss control visits... We learned very quickly that they were not like other property insurance companies. They were guided by the belief that most losses can be prevented, and they will dig deep to understand your business needs to help you reduce your risk.[31]

In our previous interviews with contacts at FM Global and Aegis, both companies reiterated that they have no intention of exiting the coal / fossil fuel industry. While both insurers expressed concern about being one of the last firms covering the space, they plan to continue to support

[29] https://investor.axiscapital.com/press-releases/news-details/2021/AXIS-Further-Strengthens-Fossil-Fuel-Underwriting-and-Investment-Policy-to-Support-Low-Carbon-Economy-Transition/default.aspx
[30] https://www.investor.prudential.com/news/press-release-details/2021/Prudential-Financial-commits-to-net-zero-emissions-by-2050/default.aspx
[31] https://www.publicpower.org/periodical/article/special-series-how-utilities-are-addressing-rising-risks-and-insurance-premiums

the lignite coal sector, including LEC member companies. FM Global and AEGIS both pointed to their mutual structure, which helps to insulate them from external pressures to exit the sector. At the same time, as described above, these carriers are not immune to market pressures and have enacted tighter underwriting standards based on their own internal risk calculations, which have contributed to rate increases or other policy changes, and in some cases, to non-renewal.

COP 26 United Nations Climate Change Conference

In late 2021, countries from all over the world gathered in Glasgow to attend the United Nations ("UN") Climate Change Conference, COP 26. During the conference, various committees met to discuss the use of fossil fuels, including coal, and how the UN could facilitate the transition to cleaner energy sources. The decisions made by these committees, if followed through by member countries, would have an outsized impact on the coal industry and its financial partners. The Energy Transition Council (ETC) identified the following as priority areas of engagement over the next several years:

- "Coal and fossil fuel transition" (to provide support and exit options to retire coal plants early and cease building new capacity); and
- "Just transition" (to develop strategies to open dialogue and create new jobs for coal-dependent regions).[32]

Furthermore, the conference's Global Coal to Clean Power Transition Statement includes agreements to:

- "Rapidly scale up technologies and policies in this decade to achieve a transition away from unabated coal power generation in the 2030s (or as soon as possible thereafter) for major economies."
- "Cease issuance of new permits for new unabated coal-fired power generation projects, cease new construction of unabated coal-fired power generation projects and to end new direct government support for unabated international coal-fired power generation."[33]

Finally, the conference's Statement on International Public Support for the Clean Energy Transition includes an agreement to:

- "End new direct public support for the international unabated fossil fuel energy sector by the end of 2022."
- Further, it recognizes that global production and use of unabated fossil fuels must decrease substantially by 2030 and that the alignment of public and private sector financial flows is critical to driving the transition away from fossil fuels.[34]

Conclusions

Net-zero efforts continue to gain momentum and have amassed the social, financial, and even regulatory capital required to pressure industry members from excluding the heaviest carbon emitters from coverage. While the hard market described above was certainly a primary driver of increased property insurance rates for LEC members, the impact of these environmental

[32] https://ukcop26.org/focus-of-energy-transition-council-etc/
[33] https://ukcop26.org/global-coal-to-clean-power-transition-statement/
[34] https://ukcop26.org/statement-on-international-public-support-for-the-clean-energy-transition/

movements summarized above should not be understated. That only two major insurance companies still provide coverage for the majority of the lignite coal sector limits competition in the market and creates upward pricing pressure on policies for lignite coal producers.

The lack of insurance carriers, both large and small, that are willing to underwrite risk for these sectors, also limits policymakers' ability to support industries important to their regions. By way of example, the Office of the Insurance Commissioner in South Carolina has invited dozens of insurance carriers and brokers to the state to pitch property coverage policies to retail and business consumers in flood zones. In this case, the state is using its platform as policymaker and influencer to encourage market-based competition that it believes will result in more competitive pricing and innovative product design for niche yet economically important markets. This type of market-driven experiment is not possible in the lignite coal sector due to the external pressures that have caused the majority of carriers to limit coverage or exit the sector entirely.

Potential Solutions

Lignite coal producers face significant economic and sociopolitical headwinds that will continue to limit their ability to find adequate, affordable insurance coverage for their operations and assets. Addressing this issue is an urgent task for certain LEC member companies as well as for North Dakota legislators and policymakers, given the lignite sector's importance to power generation and economic activity in the state. While some LEC member companies are part of larger conglomerates that feature a diverse and evolving mix of energy production, even optimistic energy transition scenarios forecast that it may be decades before renewable grids can fully support industrial and consumer energy needs.[35] To respond to this need, the Study identifies two potential avenues forward which may help address the gap in appropriately priced insurance coverage for certain LEC member companies. Each solution is presented with a list of pros and cons and would require significant analysis to assess cost requirements, tax implications, implementation details, and so forth.

State Reserve Funds

A state-based insurance reserve fund is a potential option that may help alleviate some coverage gaps. North Dakota is the only state with a publicly owned bank, which serves to promote agriculture, commerce, and industry within the state of North Dakota, as well as providing loans for college students, school construction, medical infrastructure, and other state programs. In its 2020 annual report, the bank reported a total loan portfolio of $4.1 billion and total assets of $7.7 billion.[36] The bank supports public-private loan arrangements, serving as a funder for loans primarily originated through local financial institutions. Given the success of the

[35] The "Global Energy Perspective 2021" report by McKinsey & Company forecasts that even in their "Accelerated Transition" scenario, fossil fuels (including coal) will comprise more than half of all global energy demand in 2050. Certain studies that argue for dramatically increased spending to accelerate the energy transition, envision scenarios in which coal-fired plants cease operations by 2030, e.g., https://netzeroamerica.princeton.edu/img/Princeton%20NZA%20FINAL%20REPORT%20SUMMARY%20(29Oct2021).pdf (accessed 21 January 2022).
[36] https://bnd.nd.gov/pdf/2020_bnd_annual_report.pdf

Bank of North Dakota in supporting financing needs important to local and state interests within North Dakota, a state-based insurance fund to support the embattled lignite industry is an avenue worth exploring.

Two LEC members expressed optimism that the state could provide some insurance coverage relief and that this initiative would be supported by citizens given North Dakota's tradition of self-reliance and the importance of the coal and energy sector to the economy and labor market of North Dakota. Two other members were more hesitant about the prospect of a state based insurance fund. One suggested that despite the fact that only two carriers were left in the market, between the two of them "there is still plenty of underwriting capacity for lignite coal" and that increased rates reflected the relative risk of a particular operation / company, not the sector as a whole.

Key Considerations

There are several factors for state legislators and regulators to consider when assessing the viability of this option. First, insurance companies benefit from pooling risks across diverse geographies, lines of business, and industries. A state-based reserve fund established exclusively for the lignite coal sector would lack this diversity of risks. This would create upward pressure on the reserve requirements needed to ensure the solvency of the fund without placing an undue burden on taxpayers and other public programs. Second, companies interviewed as part of this Study (both LEC member companies and other companies with lignite operations) do not unanimously believe that the current insurance rate increases pose an existential threat to their business. In fact, a few of the companies interviewed believe that once the hard market turns, they will return to more favorable rates given their relationship with the carriers that underwrite their risk and the loss mitigation strategies they have put in place. Without near unanimous support from LEC members, the fund would serve only a few companies, rather than an entire sector, and as a result may not gain legislative or public support. Finally, a state-based insurance reserve fund, in addition to lacking diversity of pooled risks from different regions, industries, and lines of business, may also suffer from the risk of anti-selection, in which poorer risks that have been priced out of the commercial market seek coverage under the "public option."

At the moment, the North Dakota Insurance Reserve Fund functions as a quasi-governmental nonprofit which is owned by its members and serves as "a stable source of risk services to North Dakota's political subdivisions by providing cost effective liability, automobile, and public assets coverage."[37] To support the lignite sector, a different insurance fund or pool would have to be established, with a number of implementation details to be studied and considered. First, actuarial analysis would be required to model the risks unique to the lignite sector, including the prospect of very large claims, in order to model reserve requirements and member premiums. Second, funding of the insurance pool would have to be studied and legislated, and certain viable options (e.g., funding the pool through taxes, either income or electricity consumption) may be unpopular. Finally, the fund would require a novel governance structure including

[37] All states (excluding stop gap states such as North Dakota) have assigned risk pools for insureds that cannot obtain insurance in the regular market. Assigned risk policies could be either for worker's compensation or auto liability. Stop gap states require the purchase of workers compensation insurance from their respective state fund.

members of the public sector (e.g., DOI, legislators, newly appointed roles) and member companies.

Self-Insurance / Captive Insurance

Overview

A second option available to members of the lignite industry involves forming a captive insurance company ("captive"). A captive is a licensed insurance company that is wholly owned and managed by a group, association, corporate parent company (including its affiliates), or, depending on its size, a single policyholder. A captive is a special risk retention vehicle that functions as a form of self-insurance with the goal of decreasing the Total Cost of Risk (TCR) or filling out gaps in coverage where certain risks are no longer insured by commercial insurers.

In 1953, the first captive insurance company was created for a steel manufacturing company to provide an affordable insurance solution not available in the commercial insurance market.[38] With only a few commercial insurance companies insuring steel mills, there was no way to mitigate year-over-year premium increases through competition. Due to difficult insurance market conditions (like today's hard insurance market), captives act as a risk financing and retention mechanism to provide policyholders with protection from external insurance market forces. Hard insurance market conditions, including limited commercial coverage for certain industries or classes of risk, have made captives a viable alternative insurance solution for many years. The following is a high-level breakdown of insurance captive types:[39]

Pure/Single Parent Captive: Single parent company that insures and manages its own risks (including affiliated companies). Lines of coverages (e.g., general liability, auto liability, workers compensation, and property) for this type of captive can vary.

Risk Retention Group: Each policyholder is an owner. Typically, these are organized as a mutual/stock company or limited liability/reciprocal company. This type of captive only provides liability coverage.

Group Captive: Group of companies/members of an association (including affiliates) that own and manage the risks of the entire group. In this captive arrangement, those involved can be subject to several and joint liability. Lines of coverages (e.g., general liability, auto liability, workers compensation, and property) for this type of captive can vary.

Rental Captive: An agreement between a captive (i.e., insurer, reinsurer, broker) and policyholders/association in which the captive agrees to "rent out" its facilities (i.e., actuarial expertise, claims management, underwriting, access to reinsurance market, etc.) for a fee. Therefore, the policyholders have the benefits of a captive with less of a financial commitment. Lines of coverages (e.g., general liability, auto liability, workers compensation, and property) for this type of captive can vary.

Protected/Incorporated/Segregated Cell Captive: Similar to Rental Captives, with the exception that the liabilities and assets of each policyholder are legally safeguarded from one another. Lines of coverages (e.g., general liability, auto liability, workers compensation, and property) for this type of captive can vary.

[38] https://naic.org/documents/cipr_events_fall_2015_evolution_of_captives.pdf
[39] Adapted from https://content.naic.org/cipr_topics/topic_captive_insurance_companies.htm

The benefits and drawbacks of group captives depend to some degree on the type of captive. Information and data sourced from the Insurance Information Institute (III) coupled with premier brokerage firms and other outside industry resources will serve as the foundation of discussion of the benefits and drawback of group captives. The areas that need to be considered from a cost benefit analysis perspective span four categories: (1) Regulatory, (2) Financial, (3) Risk Management, and (4) Insurance Coverage.

Regulatory Considerations

At the moment, thirty states have captive laws on the books (North Dakota does not). Vermont, Utah, and Delaware have the most captives, though they trail Bermuda (680) and the Cayman Islands (652) for total number of captive domiciles. Certain states have passed captive-friendly legislation in recent years lowering the bar of entry for companies wishing to form these self-insuring organizations. Captive requirements typically involve a minimum capital requirement, registration and incorporation expenses, premium taxes, investment restrictions, reserve and underwriting requirements, reporting requirements, and brick and mortar requirements.[40] Vermont, which has had captive laws on the books since 1981, requires a $500 fee, a $6,000 actuarial application review, and a $500 annual renewal fee to set up and maintain the captive. Taxes are also relatively low, ranging from 0.07 to 0.38%, depending on the size of the captive, with additional (minimal) taxes levied on assumed insurance premiums.

Captives are a competitive business with states creating favorable laws and inexpensive maintenance requirements in order to attract business. As one insurance commissioner stated in an interview, “it is a billion dollar business for us. We do whatever we can do facilitate and accommodate.” Captives are created for industries as diverse as outpatient clinics, trucking, energy, and utilities.

FIGURE 8: TOP 15 CAPTIVE DOMICILES (2019-2020)

Total Captives by State			
Rank	Domicile	2019	2020
1	Vermont	585	589
2	Utah	432	396
3	Delaware	366	288
4	North Carolina	235	250
5	Hawaii	231	242
6	Tennessee	194	212
7	South Carolina	179	175
8	Nevada	174	166
9	Arizona	128	131
10	Montana	121	114
11	District of Columbia	104	106
12	Texas	45	57
13	Alabama	48	53
13	Georgia	52	56
15	Missouri	52	51

[40] Born, Patricia and William T. Hold, “A Comprehensive Evaluation of the Member-Owned Group Captive Option” (April 2021), The Insurance Information Institute.

For lignite coal producers domiciled in the state of North Dakota to form a captive, the state would have to enact certain captive laws allowing the formation and operation of captives, which may entail a multi-year effort involving education, lobbying, and of course legislative action. Typically, captive formation is entirely driven by industry members or individual companies, but in this case, it is possible that captive formation could occur in conjunction with a state-based insurance scheme, in which the captive members retain a certain layer of risk and the next layer is covered by a state-funded product. For the purposes of simplicity, this report does not explore such a hybrid option.

Alternatively, interested lignite companies may consider a “branch captive” arrangement, in which an “alien” entity obtains commissioner approval to conduct insurance operations in a state with captive laws. States that allow for branch captive insurance companies may have other requirements pertaining to the operations of the insurance entity. It may be possible to define a mutually beneficial arrangement with states outside of North Dakota that have similar industry interests.[41]

The primary concerns of regulators related to captives concern the legitimacy of the organization’s existence, based on it covering “genuine insurance transactions” along with ensuring that the entity is paying appropriate taxes on the premiums it receives. The state of Washington recently identified numerous instances of unauthorized insurance activity by captives formed by some of the state’s largest corporations, which, among other violations, had not paid premium taxes to the state.

Financial Considerations of Captive Groups

Group captives may confer financial benefits on members, including reducing the total cost of risk, under the right conditions. First, captive groups provide the ability to have greater control over cash flow management. With a traditional insurance policy issued by an insurance carrier, insurers maintain profitability by investing underwriting profit (premium paid less incurred losses and associated expenses with those losses) and generating investment income. In a group captive, premiums are paid at inception and held within the captive until claims have matured and are settled. Therefore, any underwriting profits can be used as a vehicle for investment income. Group captives also afford members the ability to save on administration, acquisition, commission, marketing, and overhead expenses charged by typical insurance companies. Further, a captive diminishes volatility of insurance rates that can occur during the cyclical insurance market cycle. Because each captive member pays premiums relative to their own loss experience, the insurance rates paid by captive members are not subject to the volatility of the insurance market.[42]

[41] It is worth noting that of the six insurance commissioners or staff interviewed, including three from coal producing states, none reported any engagement from their respective coal producers with respect to insurance rate increases. This has left the report authors with the impression that, while the conditions of insurance coverage in the lignite sector are not unique to North Dakota, the industry engagement with the legislature and the commissioner’s office is unique to North Dakota.

[42] Artex. (n.d.). *A Guide to Captive Insurance*. Retrieved from https://www.artexrisk.com/media/73968/30090a-captive-guide_lr.pdf

A drawback of group captives is the need for a significant capital outlay to meet the minimum capitalization requirements. In general, captives are a form of a self-insured policy, so appropriate capital must be reserved to pay for claims. Members are required to pay a small portion of premiums towards any losses that exceed a predetermined severity threshold.[43] Furthermore, if a member of a group captive wanted to exit the arrangement, the capital in their loss reserve fund would still be committed for the duration of the initially agreed upon term. In other words, the loss reserve fund would remain to pay for any incurred losses. A final notable drawback is that a captive will incur additional expense associated with functions kept in house, such as administration of the captive, financial reporting, claims handling, and rate setting. Of course, some of these activities may be outsourced to third parties, but this in turn will incur an additional cost.[44]

Risk Management Considerations

From a risk management perspective, group captives afford members the benefit of greater control over the claim management process. Members have a larger influence over claims management strategies, which has a direct effect on expenses associated with claim management.[45] With greater control over the risk management process, members can not only improve upon their claims handling process, but also their claims monitoring capabilities, which will help with forecasting future capital requirements for loss reserves.

In this manner, group captive members can identify loss trends and take action to prevent future loss trends. As an incentive, if a group captive member has lower than expected - or no - incurred losses over a period, the member will have unused loss funds paid back to them in the form of dividends.[46] In general, the risk management benefits of a group captive offer its members a centralized approach oriented towards independence and risk control. Centralizing risk data allows members to promote a culture of continuous improvement of risk management behaviors.[47] Also, group captive members benefit from collaborating with other members on best practices with respect to risk management. In the case of the lignite sector, the captive (or captives) may decide to adhere to similar standards for loss prevention, including alignment on routine maintenance schedules, safety measures (e.g., sprinkler coverage), equipment inspection and upgrade, and employee training. Typically, group captives offer members safety support and/or risk control programs including educational opportunities.[48]

As previously mentioned, additional management is required to meet the risk management needs of a group captive member. Although the incentivization of owning and continually improving one's risk management program will save group captive member money in the long run, investing and promoting an effective risk management program could have substantial

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43 Born, P., & Told, W. H. (2021, April). *A Comprehensive Evaluation of the Member-Owned Group Captive Option*. Insurance Information Institute. Retrieved from

44 Artex. (n.d.). *A Guide to Captive Insurance*. Retrieved from https://www.artexrisk.com/media/73968/30090a-captive-guide_lr.pdf

45 Born, P., & Told, W. H. (2021, April). *A Comprehensive Evaluation of the Member-Owned Group Captive Option*. Insurance Information Institute, https://www.iii.org/sites/default/files/docs/pdf/captives_wp_04062021.pdf

46 Ibid

47 Aon Risk Solutions. (2016). Revisiting the Captive Concept. Retrieved from https://www.aon.com.au/australia/aon-global-risk-consulting/files/aon-captive-ebook.pdf

48 Ibid.

upfront costs. For example, for a group captive member, it could be beneficial to hire loss control personnel to assess, adjust, monitor, and continue to evaluate the risks.

Insurance Coverage

Group captive members have greater control in tailoring their insurance policies to best serve their own needs. Furthermore, group captives offer members more stability regarding the availability of insurance coverages, whereas typical insurance carriers can choose to withdraw from certain industries including classes of business.[49] If needed, group captive members could obtain additional capacity in limits that the traditional insurance market would not be able to offer.

From an insurance coverage viewpoint, a drawback is that group captives can only provide certain lines of coverage. Typically, the primary insurance lines (general liability, auto liability, workers compensation, and property) would be covered under a group captive. For lignite coal producers seeking more affordable coverage, a reasonable option may be to continue to obtain coverage for cyber risk, general liability, and other lines, through commercial insurance partners, while covering their property risk gaps through funds administered by the captive group.

LEC Member Feedback on Captive Insurance

LEC Members interviewed expressed a range of opinions with respect to the possibility of forming a captive as a way of lowering their cost of insurance. These ranged from dismissal of the possibility due to feasibility (e.g., capital requirements) to openness and an interest in exploring. More specifically:

- One member expressed interest in a captive arrangement to cover the first $10 million of coverage.
- One member suggested that there is some potential to add a captive model for retained layers, for example, for the first $5 million of coverage. This would have an added benefit of lower insurance premiums for excess layers with existing carriers. The member noted that this arrangement may be challenging to sell to other affiliated entities.
- One member expressed doubts whether this could be pulled off from a property perspective. “This works for workers compensation, but from a property perspective, replacement values are in the low billions – we could not self-insure this. A captive for the first $100 million, maybe, but we would need reinsurance for the rest.”
- Another member expressed doubts of the feasibility from a governance, customer relationship, and cost perspective, given their unique structure and relationship with utility customers.

[49] Artex. (n.d.). *A Guide to Captive Insurance*. Retrieved from https://www.artexrisk.com/media/73968/30090a-captive-guide_lr.pdf

- Another member expressed doubts that members would be adequately incentivized to join given the direction of the industry. “Committing capital to a syndicate or mutual not knowing if you will be operational in ten years may not be attractive to a coal company.”
- One member noted that for both captive arrangements and potential state-based solutions, companies dropped by commercial carriers will be the first to go towards these solutions.

The strategic decision to either form, or join, a captive, regardless of the type of captive, can be beneficial to some organizations in the long-term. The process of embarking on a captive will necessitate a comprehensive assessment of specific risk exposures, loss history, comfortability of risk retention levels, and financial status, which can be addressed by a feasibility study.[50]

Next Steps

To assess the viability of a captive insurance group for members of the lignite coal industry in North Dakota, Guidehouse recommends LEC members (along with government stakeholders, if appropriate) fund a feasibility study conducted by an actuarial consulting firm. The components of the feasibility study, at a minimum, include:[51]

1. **Risk Management.** In a feasibility case study, one of the primary areas of interest is whether a captive insurance program can enhance internal risk management controls. LEC member companies understand their unique risk factors and the value of their insured assets. Furthermore, insurance carriers in the sector (e.g., FM Global) have established risk management standards and loss prevention best practices, which have been adapted by member companies in many cases. A feasibility study should highlight how risk management controls can be enhanced through implementation, measurement, and monitoring of these best practices.
2. **Cost.** Costs associated with the establishment of a captive are typically modeled to assess feasibility. The captive modeling should include at the very least the following elements:[52]
   - Domicile analysis (where the captive will be based). This will impact operating costs and taxes.
   - Regulatory analysis (for branch captive arrangements).
   - Financial modeling after-tax cash flows, with respect to alternative program structures and different loss scenarios.
3. **Capacity.** Typically, the last step for a captive feasibility study focuses on assessing the recommended structures of the program. The assessments will determine the captive’s retention capability, necessary amount of capital, and projected expenses associated

[50] Artex. (n.d.). *A Guide to Captive Insurance*. Retrieved from https://www.artexrisk.com/media/73968/30090a-captive-guide_lr.pdf
[51] Adapted from “What are the key elements of a captive feasibility study?” Retrieved from https://www.captive.com/captives-101/what-are-the-key-elements-of-a-captive-feasibility-study
[52] Ibid.

with losses. The primary information needed to assess the recommended structures should include:[53]

- Historical premiums for 5-7 years
- Financial statements
- Insurance policies across coverage areas
- Loss history for 7-10 years
- Historical and anticipated exposure values for 5-7 years (e.g., revenue, payrolls, property values).

Please see the appendix for case studies outlining successful formation and operation of captives. The case study in Appendix B summarizes a successful pure/single parent captive implemented by a hospital, whereas the case studies in Appendix C demonstrates the success of group captives.

Conclusion

Since 2018, obtaining adequate, affordable insurance coverage has proven challenging for companies in the lignite coal sector. This situation has been primarily driven by external market forces that have been exacerbated by the reduction of insurance underwriting capacity from the coal sector due to net-zero carbon emissions efforts and related environmental movements. Given the importance of the lignite sector to North Dakota's energy consumers, labor market, and economy at large, LEC members and related stakeholders should consider alternatives to the commercial insurance market. While not every LEC member is optimistic about the feasibility of either a state-based insurance product or a captive insurance group, these represent two viable options for consideration. In particular, the success of captive insurance in many states is worth considering from two perspectives: 1) captive insurance exists precisely to close the gap some LEC member companies face – to cover low frequency / high severity risks that can't obtain coverage in the commercial market; and 2) captive insurance has been "good business" for certain states, encouraging business activity and increasing tax revenue that would otherwise be lost. Furthermore, as certain companies are forced to retain more risk, as premiums continue to skyrocket, they are essentially functioning as self-insuring entities without the tax-efficiency and risk-pooling benefits afforded to captives.

Guidehouse recommends conducting a study to assess the feasibility of forming a captive insurance company (or companies) for members of the lignite coal sector. The feasibility study should include an analysis of the business, regulatory, risk, and financial / tax requirements and implications of such a captive company. To justify such a feasibility study, a quorum of LEC members would need to express interest. Given the amount of property value at risk, it is not clear whether a single LEC member company could on its own create a cost-efficient captive company. As a rule of thumb, the more members participating in the captive, the larger the pool of risks and the more financially efficient the captive may prove to be. Furthermore, regulatory

[53] Ibid.

and/or government stakeholders must signal a willingness to consider undergoing the process of establishing captive laws within the state. If not, the feasibility study must provide for a scenario (e.g., “branch captive”) that operates under the authority of another state’s insurance commission.

The need for reliable, affordable energy production – especially unencumbered by geopolitical risk – has been highlighted starkly in recent months. The journey to a more sustainable future demands investment in buildout of renewable energy sources along with robust transition plans for the sources critical to today’s grid infrastructure. Part of that transition is ensuring affordable insurance coverage for some of today’s largest and most stable energy producers. State-based insurance funds are not a panacea due to the size of risks in question. Furthermore, captive insurance companies are not without their drawbacks, as described above. But Guidehouse believes that LEC member companies should pursue each potential solution seriously, in addition to redoubling loss prevention efforts, in order to secure their future and the future of the region’s energy industry.

Appendix A: Coal Exit Strategies

	Insurer	Financial Size[54]	Coal Exit Policy and Exclusion Criteria[55]
1	AIA[56]	N/A	• In 2021, approximately $10 billion of AIA's coal-related investment holdings were sold. The company has entirely removed its exposure related to coal-fired power plants and mining, with respect to its fixed-income and equity investments • Divesture from companies with at least 30% of their revenue from coal power / mining • The company will not invest in any new businesses involved in either coal power generation, or mining • By the start of 2029, AIA will entirely divest bonds from coal related companies
2	AIG[57]	XV	• In 2020, although coal accounts for less than 0.3% premiums, the company is one of the few insurers willing and able to underwrite new, multi-billion-dollar coal projects. No established commitment to divest from any fossil fuel companies • Currently, no restrictions on underwriting fossil fuels including no restrictions on coal. It remains the largest coal insurer outside of China with no restrictions on coal underwriting • Based on AIG's ESG Report, in total, gross premiums written for AIG's coal portfolio has decreased 14.1% since 2018 (i.e., $100.1 to $85.9 million)

3	Allianz[58]	XV	• The original coal exit policy was issued in 2018
			• As of January 2023, Allianz's policy is to restrict property & casualty insurance and companies in their investment portfolio either directly (through controlled entities), or indirectly (50% minimum stake), that breach the following thresholds:
			    ○ Derive either more than 25% of their revenues from coal service providers/mining companies, or generate electricity from thermal coal (e.g., utilities);
			    ○ Plan to open new coal mines and plants (e.g., coal service providers, utilities, and mining companies);
			    ○ Either mine more than 10 million tons thermal coal annually (e.g., mining companies and utilities), or have more than 5 GW of thermal coal power plant capacity installed

4	Aviva	XV	• The original coal exit policy was introduced in 2019 • In 2021, the company held more than $1.7 billion in assets across 127 coal companies. In 2020, Aviva supported companies operating 492 GW of coal power plants (e.g., equivalent of the total coal power capacities of India, the United States and Indonesia combined) and mining a total of more than 2400 million tons of coal • Starting from 2023 onwards, the company has made a commitment to exclude companies acquiring more than 5% of revenues from coal.

[54] Financial Size defined as on adjusted policyholders' surplus (PHS) in U.S. dollars and may be impacted by foreign currency fluctuations. Based on AM Best rating services. AM Best RSS News. (n.d.). Retrieved from https://www.ambest.com/home/ratings.aspx. The FSC is designed to provide a convenient indicator of the size of a company in terms of its statutory surplus and related accounts: a) XV ($2 Billion or greater); b) XIV ($1.5 Billion to $2 Billion); c) XII ($1 Billion to $1.25 Billion); d) XI ($750 Million to $1 Billion).
[55] Carrier Coal Exit Plans and Exclusion Criteria taken from the websites of Insure Our Future and Reclaim Finance unless otherwise specified.
[56] https://ieefa.org/aia-sells-off-10-billion-in-coal-holdings-says-it-has-totally-exited-sector/
[57] 2020 Environmental, Social and Governance Report. AIG. (2021, June 1). Retrieved from 2020 Environmental, Social and Governance Report
[58] Allianz statement on coal-based business models (2021, July 1). Retrieved from https://www.allianz.com/content/dam/onemarketing/azcom/Allianz_com/responsibility/documents/Allianz-Statement-coal-based-business-models.pdf

			• However, the pledge comes with a large loophole. Aviva can continue to support companies if they have signed up to the Science-Based Targets initiative (SBTi). This issue is a large shortcoming considering the recent approval by the SBTi of German utility RWE's climate target (e.g., its plan to continue to burn coal in Germany until 2038), which is eight years later than the 2030 deadline required by climate science
5	AXA	XII	• The original coal exit policy was introduced in 2017 • In 2021, updates to AXA's coal policy include: o Clear dates for a final coal phase-out for its entire portfolio (e.g., 2030 in the Organization for Co-operation and Development [OECD] and globally); o Halt investment and financial support for large coal plant developers (e.g., previously had a 3000MW threshold, while now it's a 300MW maximum threshold for new power plants including suppliers); o Reinforcement of exclusion criteria for companies involved in coal power generation (e.g., maximum of 10 GW of production); o Extension of exclusion perimeter with scope expanded towards dedicated funds and third-party mandates including joint ventures covered from 50% stakes onwards. For example, this includes Kyobo Axa Investment Management (i.e., a sizeable South Korean coal developer)
6	AXIS[59]	XV	• The original coal exit policy was introduced in 2019 • Based on their Fossil Fuel Policy, the company neither makes new investments nor insures companies that develop new thermal mines or coal power plants, including dedicated infrastructure. AXIS has been phasing out its thermal coal business, with respect to its facultative reinsurance including insurance and investment portfolios. o Consequently, AXIS is committed to reduce the remaining thresholds over time (e.g., thresholds will reach 0% no later than 2030 in OECD countries and the EU and 2040 globally) o As of 2022, AXIS will not offer insurance, including temporary reinsurance, to the following thermal coal companies: ▪ Generate greater than 20% of their revenues from new thermal coal plants and/or mines; ▪ Generate greater than 20% of their power from thermal coal, or are developers of thermal coal plants, mines, or dedicated to related infrastructure
7	Berkshire Hathaway	XV	• The company still has not put formal restrictions on underwriting fossil fuels and they are still underwriting coal without restrictions. Berkshire has not committed to divest from any fossil fuel companies
8	Chubb[60]	XV	• The original coal exit policy was introduced in 2019 • Based on the company's website, Chubb will not insure any new operation and construction of coal-fired plants. By 2022, all exceptions will cease. The exceptions to this policy will be considered in geographic areas with no practically accessible alternative energy sources and for insureds committed to dimmish coal dependence o Additionally, Chubb will not insure any new companies generating greater than 30% of revenues from thermal coal mining. By 2022, they will phase out coverage of existing risks exceeding this threshold, holding viability of alternative energy sources in impacted regions

[59] Axis capital fossil fuel policy. Axis Capital. (n.d.). Retrieved from https://www.axiscapital.com/who-we-are/corporate-citizenship/fossil-fuel-policy

[60] Coal policy. Chubb. (n.d.). Retrieved from https://about.chubb.com/citizenship/environment/coal-policy.html#:~:text=Utilities.-,Chubb%20will%20not%20underwrite%20new%20risks%20for%20companies%20that%20generate,sources%20in%20the%20impacted%20region.

			○ The company has further stated it will not make new equity or debt investments in companies generating greater than 30% of revenues either from thermal coal mining, or energy production from coal
9	CNA Hardy	XV	• The original coal exit policy was introduced in 2020 • No further details could be found related to CNA Hardy's coal exit policy
10	Convex[61]	XV	• The company has not put any formal restrictions on underwriting fossil fuels and underwrites coal without restrictions. Convex has not committed to divest from fossil fuel companies
11	DB Insurance	XV	• The original coal exit policy was issued in 2021 • DB Insurance has committed to withdraw from underwriting current coal plant operations and new coal plant construction. The company's aim is to gradually reduce existing insurance coverage of operating coal plants
12	Everest Re	XV	• The company still has not put restrictions on underwriting fossil fuels and underwrites coal without restrictions. Everest Re has not committed to divest from fossil fuel companies
13	Fidelis[62]	XV	• The original coal exit policy was issued in 2020 • Based on their website, Fidelis avoids companies directly involved with coal and/or the extraction of coal, with respect to the generation of energy
14	Generali	XV	• The original coal exit policy was issued in 2018. Since then, the company stopped coverage for new production of coal entirely and they have also taken steps to divest from coal developers • Generali has updated their coal exit policy to include the following exclusion criteria: ○ All coal power developers (e.g., planning over 0.3 GW of new coal power capacity). Previously, it only excluded the top 120 coal power plant developers from the global coal exit list; ○ Companies deriving greater than 20% of revenues from coal or 20% (before it was 30%) of energy produced derive from coal; ○ Companies either extracting over 10 million tons (previously 20 million) of coal annually, or with over 5 GW of coal power capacity
15	Hana Insurance	N/A	• The original coal exit policy was issued in 2021 • Hana Insurance has committed to stop underwriting new coal plants operations and construction
16	Hannover Re[63]	XV	• The original coal exit policy was introduced in 2019. The company has adopted a strict policy of excluding any new coal projects from coverage • Based on their website, Hannover Re has committed to exit all risks associated with thermal coal and related infrastructure by 2038
17	Hanwha General Insurance	XIV	• The original coal exit policy was introduced in 2021 • Hanwha General Insurance has committed to withdraw from underwriting current coal plant operations and new coal plant construction
18	HDI[64]	XV	• The original coal exit policy was issued in 2019 • HDI does not offer coverage either for the construction of new mines, or thermal coal mining activities. Regarding HDI's policy on coal, they plan on ceasing underwriting of coal mining by 2038

[61] Convex insurance clinch 'coal holdout' award at 2021 Insurance Times Awards. Market Forces UK. (2021, December 9). Retrieved from https://marketforces.org.uk/news/convex-insurance-clinch-coal-holdout-award-at-2021-insurance-times-awards/
[62] Our commitments. Fidelis Corporate. (n.d.). Retrieved from https://www.fidelisinsurance.com/corporate-responsibility/Our-Commitments
[63] Henchoz, J.J. (2021, October 14). Teaming up to create opportunities. Hannover Re. Retrieved from https://www.hannover-re.com/1803399/teaming-up-to-create-opportunities-update-on-group-strategy.pdf
[64] HDI Global ASEAN & Australasia Newsletter. HDI. (2021, June 1). Retrieved from https://www.hdi.global/globalassets/_local/asia-pacific-africa/en-au/downloads/newsletter-pdf/hdi_insight_june_2021.pdf

19	Hiscox[65]	XV	• The original coal exit policy was issued in 2021
			• Based on Hiscox's ESG Exclusion policy, as of January 2022, they intend to:
			  ○ No longer provide new insurance coverage to thermal coal mines and coal-fired power plants;
			  ○ No longer reinsure portfolios where 30% of the premium base derives from thermal coal mines or coal-fired power plants;
			  ○ Not directly invest into securities of companies generating more than 30% of revenues from thermal coal extraction or power generation
			• As noted in their ESG Exclusion policy, by 2030, Hiscox's ambition is to phase out re/insurance of thermal coal-fired power plants and thermal coal mines, which aligns with the 2015 Paris Agreement and UN Sustainable Development Goals

20	Hyundai Marine & Fire Insurance	XV	• The original coal exit policy was introduced in 2021 • Hyundai Marine & Fire Insurance has committed to withdraw from underwriting current coal plant operations and new coal plant construction

21	KB Insurance[66]	N/A	• Based on KB Insurance ESG policy on their website, for new coal fired power plants they will not:
			  ○ Offer policies
			  ○ Issue bonds

22	KBC	N/A	• The original coal exit policy was introduced in 2020
			• Based on KBC's most recent updates to their coal exit policy, the company:
			  ○ Has extended exclusions towards coal power plants and suppliers of coal mines;
			  ○ Committed to a 2030 final phase out for all financing related to coal;
			  ○ Has excluded utilities with greater than 25% of power output relying on coal;
			  ○ Has excluded new insureds with any energy production related to coal.

23	Liberty Mutual[67]	XV	• The original coal exit policy was introduced in 2019
			• In 2019, the company also appointed its first chief sustainability officer to oversee continued development of environmental, social and governance agenda.[68]
			• The company took the following actions in 2020:
			  ○ The investment exposure to issuers exceeding the thresholds in its thermal coal policy declined by $263 million (e.g., from $561 million to $298 million);
			  ○ Liberty has exited their underwriting relationship with Adani Carmichael and entered into an agreement to exit thermal coal investments in Alberta, Canada;
			• The company has also established a referral process for their underwriters to use when they are unsure of the appropriate action on energy-related issues
			• By 2023, Liberty Mutual will phase out coverage and investment in existing risks below these thresholds. Currently, based on a threshold of 25% or more, Liberty:
			  ○ Does not underwrite companies involved in the extraction and/or production of energy from thermal coal;

[65] Hiscox group ESG Exclusions Policy. Hiscox. (n.d.). Retrieved from https://www.hiscoxgroup.com/sites/group/files/documents/2021-03/Hiscox_Group_ESG_exclusions_policy.pdf.
[66] Kor. E (Environment) | ESG Policy | ESG Management - KB Financial Group. (n.d.). Retrieved February 9, 2022, from https://www.kbfg.com/Eng/esg/policy/policy02.htm
[67] 2020 task force on climate-related financial disclosures. Liberty Mutual Insurance. (n.d.). Retrieved from https://www.libertymutualgroup.com/documents/task-force-climate-financial-disclosures.pdf
[68] Retrieved from https://www.libertymutualgroup.com/about-lm/news/articles/liberty-mutual-insurance-appoints-first-chief-sustainability-officer-oversee-continued-development-environmental-social-and-governance-agenda

			○ Does not make new investments in equity or debt securities of companies generating revenues from thermal coal mining ○
24	Lloyds of London[69]	XV	• The original coal exit policy was introduced in 2020 • Lloyds of London has begun to phase out insurance coverage for, and investments in, thermal coal-fired power plants, thermal coal mines. Starting January 2022, managing agents will be asked to no longer provide new investments or insurance coverages in these activities. Further, by January 2030, managing agents will be asked to phase out existing coverages • Currently, based their coal exit policy, there are two gaps: ○ It neither addresses the coverage of coal transportation infrastructure nor excludes coal developers • Based on their ESG Report, by the end of 2025, Lloyds has committed to phasing out their existing investments in thermal coal-fired power plants and thermal coal mine activities
25	Lotte Non-Life Insurance	N/A	• The original coal exit policy was introduced in 2021
26	MAPFRE	XI	• The original coal exit policy was introduced in 2019 • By 2030, MAPFRE has committed to fully exit coal risks in Europe, and, by 2040, they will exit coal risks globally. The most recent updates to MAPFRE's coal exit policy include the following exclusions: ○ New coal companies either, producing greater than 30% of their revenue, extracting more than 20 Mt, from thermal coal annually; ○ Companies using more than 2 GW of coal power; ○ Companies deriving greater than 30% of revenue from coal power production
27	Meritz Fire & Marine[70]	XV	• No records related to the issuance of a coal exit policy
28	MG Non-Life Insurance	N/A	• By 2030, MG Non-Life Insurance will halt investments in thermal coal in developed nations, and, by 2040, they will stop investments in thermal coal in emerging markets • Based on the company's most recent updates to their coal policy, they restrict the following: ○ Mining companies with greater than 30% of revenue from coal or 20 megatons of output per annum ○ Power companies with greater than 30% of revenue from coal or 10 GW of capacity ○ Coal organizations with no commitment to phase out coal by 2030 in Europe & OECD and by 2040 globally.
29	MS & AD Insurance Group	N/A	• The original coal exit policy was issued in 2021. MS&AD Insurance Group has ended underwriting for most new coal related projects. However, the company has not formally committed to the divestiture from fossil fuel companies
30	Munich Re[71]	XV	• The original coal exit policy was introduced in 2018 • Based on their corporate responsibility report, Munich Re has made a commitment to fully exit coal by 2040. In industrialized nations, Munich Re has halted insuring the operation and construction of new coal-fired power plants or new coal mines including many of the emerging markets. However, there are a few exceptions for nations with a substantial portion of the population (e.g., greater than 10%) having no access to electricity.

[69] Environmental, social and governance ... - lloyd's of London. Lloyds. (n.d.). Retrieved from https://assets.lloyds.com/media/915c8df6-4f48-4b5e-976b-7d8864169928/Lloyds_ESG%202020_report.pdf
[70] Olano, G. (2022, January 28). Korean financial firms failing to meet climate goals. Insurance Business Asia. Retrieved February 9, 2022, from https://www.insurancebusinessmag.com/asia/news/breaking-news/korean-financial-firms-failing-to-meet-climate-goals-323654.aspx
[71] Corporate Responsibility Report 2020. Munich Re. (2021, April 1). Retrieved from https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/CR-Report-2020.pdf/_jcr_content/renditions/original./CR-Report-2020.pdf

			Exceptions are reviewed on a case-by-case basis, but no exceptions have been made thus far ◦ Further, Munich Re stated they will not: ▪ Provide insurance for thermal coal (e.g., power plants, new coal mining, related infrastructure) ▪ Invest in companies with greater than 30% revenue from thermal coal
31	NH Property & Casualty Insurance	N/A	• NH Property & Casualty Insurance has committed to halt underwriting new coal plant construction, but has not made any formal commitments related to operations
32	NN[72]	N/A	• Based on the NN Group's website, by 2030, they will incorporate their plan to decrease their investments in thermal coal power and mining near zero (e.g., defined between 0 to 5%). Starting back in 2019, NN ended insurance for companies either, deriving greater than 30% of power production, or yielding greater than 30% of revenues from thermal coal
33	PICC	N/A	• The company has not implemented a coal exit policy. PICC underwrites coal without restrictions and has not committed to divesture from fossil fuel companies. In 2021, per comments from Willis Towers Watson (a global broker), "Considering that some International reinsurers will no longer provide capacity for coal-fired power plants, Chinese insurer capacity could be seen as a replacement"
34	Ping An	N/A	• Ping An's stated policy on coal investments includes the following[73] (note: Ping An has not issued a formal statement of insurance policies covering coal and coal-related assets: ◦ Direct investment: From 2022 onwards, evaluation of all thermal coal mining and coal-fired power generation projects will be required and put down in the evaluation report for record-keeping purpose. In principle, it is expected that Ping An will divest all unlisted projects such as direct equity or debt by the end of 2035 (except for projects that can achieve net-zero emissions). ◦ Capital market securities investments: it is expected that Ping An will exit from holding of shares, and bonds and other capital market securities investment in companies with more than 30% of revenue generated from thermal coal and coal-fired power businesses by the end of 2035. ◦ Proactive engagement and communication: Communicate with key carbon emission customers to make it clear that financial support needs to be linked to their transition path and transition goals. Those companies will be requested to develop transition plans, such as a goal that carbon intensity will decline at a rate of no less than a certain percentage per year (the extent of control at different time stages is determined by the interval reduction rate in the carbon emission roadmap). At the same time, Ping An will support their transition financing through green bonds, green loans as well as green asset securitization, and follow up on implementation over time.
35	QBE[74]	XV	• The original coal exit policy was issued in 2019 • By January 2030, QBE has committed to phase out its entire thermal coal business. Starting in 2019, the company has not provided insurance to any new coal thermal power plants, mines, or transportation networks. They have also stated they will reduce coal company shares from its direct investment portfolio. QBE has identified coal companies as those

[72] Statement on Coal. NN Group. (n.d.). Retrieved from https://api.nnip.com/DocumentsApi/files/DOC_003131?channel=nnipcom
[73] https://group.pingan.com/resource/pingan/ESG/Sustainable-Business-Integration/pingan-group-policy-on-investment-in-coal-and-thermal-power-based-industries-2021.pdf.
[74] QBE dumps thermal coal due to global warming. Market Forces. (2019, April 5). Retrieved from https://www.marketforces.org.au/qbe-dumps-thermal-coal-due-to-global-warming/

			either making over 30% of revenue from coal, or generating over 30% of electricity from coal

36	RSA[75]	N/A	• The original coal exit policy was issued in 2020
			• Based on their position statement, by 2030, they have set a goal to decrease carbon emissions related to their operation by 50%. Further, RSA does not:
			  ○ (Starting from 2015 onwards) Provide insurance related to operation, exploration, or construction of coal mines
			  ○ Provide insurance for power utilities producing greater than 30% of revenue from thermal coal
			  ○ Provide insurance for new thermal coal projects
			  ○ Invest in companies producing greater than 30% of revenue via either power generation, or coal mining from thermal coal

37	Samsung Fire & Marine[76]	XV	• The original coal exit policy was issued in 2020 • Samsung Fire & Marine has committed to no longer underwrite construction of new coal plants, but does not address operation related insurance • The company has also committed to the cessation of any new coal related trade projects and investments
38	SCOR[77]	XV	• The original coal exit policy was issued in 2017 • Based on their sustainable investing policy, the company excludes the top 120 coal plant developers from its investment portfolio • Across the entire value chain, SCOR has committed to no longer invest in any company developing new coal projects. SCOR will also not align with companies deriving more than 10% of its revenues or electricity production from coal • The company has committed to bring its investment portfolio of coal down to zero by 2030 in EU and OECD countries and by 2040 globally
39	Sinosure	N/A	• Sinosure has not put any formal restrictions on underwriting coal including fossil fuels. The company has also not committed to divesture of any fossil fuel companies

40	Société Générale[78,79]	N/A	• The original coal exit policy was issued in 2019
			• Based on their website, Societe Générale will not provide services and products to the following companies:
			  ○ Yielding over 25% of revenues from thermal coal and do not have a formal exit policy from coal;
			  ○ Creating new infrastructure, mining, power plant projects related to thermal coal

41	Sompo International[80]	XV	• Based on Sompo International's website, their original coal exit policy was issued in 2020. Sompo Japan Insurance will not insure and invest in new construction of coal-fired power plant in Japan, except for projects for which financing and/or underwriting, investment has already been expressed • Sompo has not committed to divest from any fossil fuel companies.

[75] Climate change and low carbon policy - RSA insurance group. (n.d.). Retrieved from https://www.rsagroup.com/media/3817/rsa-climate-change-and-low-carbon-policy-jan2020.pdf
[76] Roh, J. (2020, November 12). Samsung's key insurance affiliates pledge to halt Coal Investments. Retrieved from https://www.reuters.com/article/samsung-coal/samsungs-key-insurance-affiliates-pledge-to-halt-coal-investments-idUSKBN27S24Q
[77] Sustainable Investing Policy. SCOR. (2019, July 9). Retrieved from https://www.scor.com/sites/default/files/scors_sustainable_investing_policy.pdf
[78] Exit from coal sector : New measures effective now press ... (n.d.). Retrieved February 9, 2022, from https://www.societegenerale.com/sites/default/files/20040_pr_societe_generale_-_thermal_coal_sector_policy_effective_now.pdf
[79] An accelerated exit from the coal sector. Société Générale. (2020, September 14). Retrieved February 9, 2022, from https://www.societegenerale.com/en/news/newsroom/accelerated-exit-coal-sector
[80] Strengthening Sustainability Initiatives Sompo Holdings, Inc.. Sompo Holdings. (n.d.). Retrieved from https://www.sompo-hd.com/~/media/hd/en/files/news/2020/e_20200923_1.pdf

42	SunCorp[81]	N/A	• The original coal exit policy was introduced in 2019. • Based on their website, by 2025, SunCorp has a goal of phasing out existing thermal coal exposures.
43	Swiss Re[82]	XV	• The original coal exit policy was introduced in 2018 • Based on their website, Swiss Re's new exit strategy in treaty re/insurance is to fully phase out thermal coal by 2030 in the OECD and by 2040 globally. In 2023, the company will tighten coal policy by introducing new thermal coal risk thresholds for treaty reinsurance/insurance across multiple business lines
44	The Hartford[83]	XV	• The original coal exit policy was introduced in 2019. • With respect to the company's coal and tar sands policy, it anticipates ceasing investments in coal by the end of 2023.
45	Tokio Marine[84]	XV	• The original coal exit policy was introduced in 2021. The company has stopped underwriting most new coal projects, but has not committed to divest from any fossil fuel companies. • Based on Tokio Marine's website, although they do not offer insurance to new coal fired power generation projects, the company could allow for exceptions (e.g., national energy policy and other considerations in the relevant country for certain projects). o Tokio will not provide new financing for coal fired power generation projects. However, like its underwriting policy, Tokio may take some circumstances into account when making investment and lending decisions.
46	Travelers	XV	• The company has not put restrictions on underwriting fossil fuels and underwrites coal without restrictions. Travelers has not committed to divest from any fossil fuel companies.
47	Uniqa Group[85]	N/A	• Original coal exit policy was issued in 2019 • Based on Uniqua Group's Statement on Decarbonization, the company: o Since 2019, has made a commitment to divest from coal related businesses. Uniqa is also committed to not underwrite either any new coal construction project, or new companies involved with coal o Excludes any businesses involved with coal o Until 2025, will remain insuring existing insured related to coal. However, these insureds will need to have transition strategies away from coal and adequate sustainability criteria
48	VIG[86,87]	N/A	• Original coal exit policy was issued in 2019 • In a report issued by the Institute for Energy Economics and Financial Analysis (IEEFA), VIG of Austria stated they would cease providing insurance to new coal fired powered plants and mines. The company also

[81] Responsible underwriting, lending and investing. Suncorp Group. (n.d.). Retrieved from https://www.suncorpgroup.com.au/corporate-responsibility/sustainable-growth/responsible-banking-insurance-investing
[82] Swiss Re Group. (2022, January 18). Swiss re announces ambitious climate targets; accelerates race to net zero: Swiss re. [ALT + 2]. Retrieved from https://www.swissre.com/media/news-releases/nr-20210316-swiss-re-announces-ambitious-climate-targets.html
[83] Hallo, S. (2021, November 12). The Hartford earmarks $2.5B to support Green Energy Transition. PropertyCasualty360. Retrieved February 9, 2022, from https://www.propertycasualty360.com/2021/11/12/the-hartford-earmarks-2-5b-to-support-green-energy-transition/?slreturn=20220101091342
[84] Tokio Marine: Our Climate Strategy. Tokio Marine. (n.d.). Retrieved from https://www.tokiomarinehd.com/en/release_topics/release/k82ffv0000008juk-att/20200928_e_v2.pdf
[85] Statement on decarbonisation - uniqagroup-austria.com. (n.d.). Retrieved from http://uniqagroup-austria.com/gruppe/versicherung/media/files/UNIQA_Statement_on_Decarbonisation_3.pdf
[86] Over 100 global financial institutions are exiting coal ... (n.d.). Retrieved from https://ieefa.org/wp-content/uploads/2019/02/IEEFA-Report_100-and-counting_Coal-Exit_Feb-2019.pdf
[87] Climate Change Strategy of Vienna Insurance Group Investing and underwriting in the coal power energy sector Update May 2021. Vienna Insurance Group. (n.d.). Retrieved from https://www.vig.com/fileadmin/web/Corporate_Responsibility/Klimawandel-Strategie/Update_VIG_Climate_Change_Strategy_May_2021_AS_OF_10052021.pdf

			made a commitment to phase out current insurance and prohibit new investments related to coal in their portfolio
			• Based on their issued climate change strategy report, VIG stated they would have no direct investments into businesses:
			  ○ Deriving greater than 30% of sale from thermal coal mining;
			  ○ Generating yield greater than 20M tons of thermal coal;
			  ○ Producing greater than 30% of their total power generation from thermal coal;
			  ○ Annually producing greater than 10 GW of energy related to thermal coal

49	W.R. Berkley[88]	XV	• The company has not put formal any restrictions on underwriting fossil fuels and is underwriting coal without restrictions • Based on their Sustainability Report, in 2017, Berkley Industrial Comp (e.g., workers compensation) fully exited coal mines. In 2019, they refused to invest in coal-dependent utilities despite meeting credit and yield criteria. W.R. Berkley plans to avoid companies generating over 30% of their revenue from thermal coal mining

50	Zurich[89]	XV	• The original exit policy was introduced in 2017
			• Based on Zurich's Sustainability Exclusion Policy, Zurich's goal is to assess and highlight the risk exposure from their business activity with a focus to establish a risk-conscious environment and drive a deeper discussion regarding credible transition plans. The company is engaging with existing clients and investee companies exceeding the limits listed below in a dialogue (e.g., the aim is to not to extend coverage beyond June 2021). Zurich will not underwrite or invest in companies that:
			  ○ Either produce more than 20 million tons of thermal coal per year, or generate more than 30% of their revenue from mining thermal coal;
			  ○ Generate more than 30% of their electricity from coal;
			  ○ Are developing any coal power infrastructure and new coal mining;
			  ○ Are dedicated transportation infrastructure operators for thermal coal including railway transportation and pipelines

[88] Sustainability Report (2020 Data). W.R. Berkley. (n.d.). Retrieved from https://assets-us-01.kc-usercontent.com/952a1532-fefc-0031-65fd-1d718824292c/c498cfa5-8e84-47e6-a5ea-3fee49001063/WR-Berkley-Sustainability-Report-2021-Data-of-2020.pdf

[89] Retrieved from https://www.zurich.com/en/sustainability/governance-and-policies/exclusion-policies

Appendix B: Pure/Single Parent Captive Case Study[90]

A Sample Captive Case Study

A community hospital was considering setting up a captive, despite relatively sophisticated risk management procedures and better than average claims experience. The hospital was weighing a significant reduction in its OB/GYN practice given its inability to secure continuous insurance coverage at stable rates. The impact of this on their community would be devastating, as access to local OB/GYN practitioners would be severely restricted. Sense prevailed when a board member called this the tail wagging the dog: “We’re letting insurers dictate our mission. Show me Plan B.”

That pivotal meeting triggered the hospital’s risk manager and CFO to review the hospital’s history of premiums paid, claims reimbursed and exposures growth. They discovered that over the ten years prior, the hospital had paid in premiums five times the amount of claims reimbursed. The excess carrier experienced only one payout of US$250,000 on an OB/GYN case that they insisted be settled out of court, regardless of what the hospital’s risk manager and legal team considered a very defendable claim. The hospital’s loss experience had improved significantly during the ten-year period, despite significant growth in exposures (i.e., occupied beds, outpatient visits, employed practitioners, etc.).

Presented with the facts and the board’s instruction to take control of risk financing, the hospital’s broker agreed to explore the idea of using a captive with the assistance of an independent consultant.

A feasibility study was completed to further analyze the loss history, develop actuarial estimates of current claims liabilities and future liabilities, explore regulatory and tax parameters, evaluate ownership structures, compare alternative attachment points for commercial coverage, determine capital and solvency requirements and compare domiciles. The outcome was a recommendation to establish a captive prior to the next insurance renewal date.

The captive’s capital requirement was minimized by adding the following program features:

A. Premiums for the limits retained by the captive were actuarially determined using a 75% confidence level

B. Premiums were set sufficiently higher than this to cover the captive’s annual operational costs

C. The primary insurance policy contained a mechanism for retrospectively adjusting premiums to partially counter any significant under/overfunding of a given policy year

D. The excess limits insured by the captive were fully reinsured in the commercial market

90 This case study was taken directly from: Artex, *A Guide to Captive Insurance*. Retrieved from https://www.artexrisk.com/media/73968/30090a-captive-guide_lr.pdf

As shown in the case study, conservative funding at the 75% confidence level meant that the captive had built up surplus of US$7.4 million after 5 years (US$3.5 million difference between insurance liabilities estimated at the expected and 75% confidence level, and US$3.9 million of funding in excess of liabilities estimated at the 75% confidence level). The retrospective rating plan allowed for some but not all of this surplus to be utilized by setting premiums for the 6th policy year at the actuary's estimate of expected losses, without adding a margin for the 75% confidence level. Delaying release of all the surplus recognizes the long tail nature of hospital and physician professional liability insurance, and the possibility of still seeing the loss experience for any prior period deteriorate. This long tail also has its benefits, because premiums can be invested in the meantime, with investment returns supplementing any surplus from the insurance transactions.

Fifteen years after the captive's establishment, it was in a position to negotiate better excess premiums in the market by increasing the excess attachment point and also taking a vertical slice of the excess layer. It also was in a position to release surplus to the hospital to fund ongoing healthcare initiatives and had sufficient capacity to start considering other lines of coverage in the captive.

The captive afforded the hospital control of its destiny, and its mission was intact.

This case study highlights the importance of certain features in ensuring the success of a captive program:

A. Good risk management

B. Favorable loss experience

C. Accurate exposure data

D. Disciplined application of retrospective premium mechanism

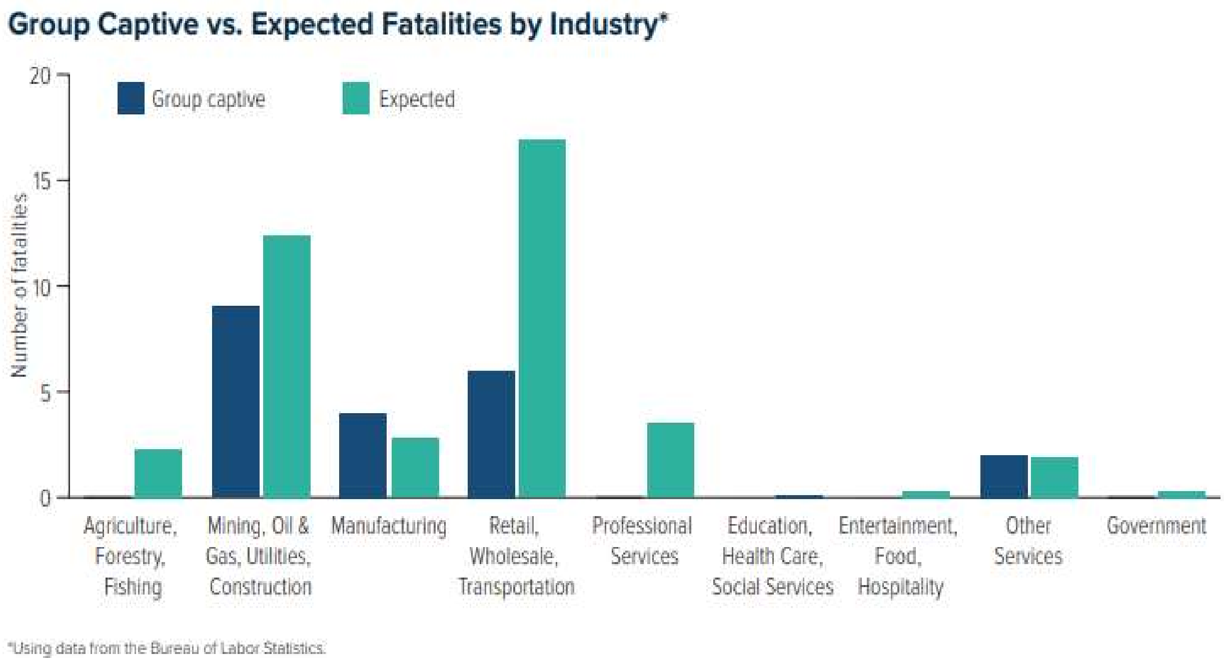
E. Prudent release of surplus reserves

F. Long-term commitment to this strategic initiative on the hospital's part

Appendix C: Group Captive Case Studies[91]

Background on Group Captive Case Studies

In 2015, Pinnacle Actuarial Resources (PAR) conducted a workers compensation comparison study. In the study they found Captive Resources' members exhibited not only a substantial decrease in accidents, but also a 50% decrease in fatalities in comparison to peers in similar industries.



Along with the above illustration, PAR also noted the following below[92]:

A. A commercial trucking company improved its loss ratio by more than 75 percent in three years by using the loss control services supplied by the group captive program

B. A commercial contractor working in road construction maintained a loss ratio of under 10 percent over a four-year period, motivated by the services available to control claims.

C. An electrical contractor achieved a 38 percent reduction in its experience modification index and a 52 percent reduction in its workers compensation premium rate over 10 years.

D. A mechanical company saved nearly $400,000 over three years on the cost of employee benefits provided to 175 employees.

[91] This case study was taken directly from: Born, P., & Told, W. H. (2021, April). *A Comprehensive Evaluation of the Member-Owned Group Captive Option. Insurance Information Institute*. Retrieved from https://www.iii.org/sites/default/files/docs/pdf/captives_wp_04062021.pdf
[92] Ibid.

E. A fresh produce company improved its safety record across the organization; safety seminars provided by the captive helped cultivate a stronger culture of safety awareness.

F. A camper manufacturer reduced its premiums and accumulated more than $1 million in its asset account over four years.

G. A food service/restaurant company notes that captive membership provided more predictable and stable rates, facilitating budgeting and growth.

H. Thirty-one members of a state concrete products association in a newly-formed group captive experienced a rate increase that was half of the increase seen by similar companies for the same types of coverage in the traditional market