THE ECONOMIC BENEFITS OF HYDRAULIC FRACTURING TO NEW MEXICO – AND THE CONSEQUENCES OF A POTENTIAL BAN
Executive Summary

New Mexico is one of the great success stories of America’s energy revolution. A state hard hit by the Great Recession, historic levels of oil and natural gas production – made possible by advancements and improvements in hydraulic fracturing technology – have resulted in new job creation, economic growth, and increases in personal income that are leading the nation.

New Mexico Governor Michelle Lujan Grisham (D) neatly summed up the importance of this historic opportunity, stating, “I could spend well longer than 30 minutes telling you about the benefits of what’s going on in the state of New Mexico because of what’s going on in the oil and gas industry — opportunities that we haven’t seen, ever.”¹

At a time when national candidates and elected officials are proposing to ban hydraulic fracturing, it is important to highlight both the benefits of the shale energy revolution and the real-world impacts that a ban would have.

This report is an update to the Chamber’s 2016 “Energy Accountability Series,” which modeled the impacts of proposals made by political candidates on energy policy. For the 2020 election cycle, the study is being updated with new numbers and the addition of several new states and expanded data, including the Land of Enchantment. This analysis models the impacts of banning hydraulic fracturing through the use of IMPLAN, an economic modeling tool that allows for calculating the direct, indirect and induced impacts of hydraulic fracturing on New Mexico’s economy. Using this tool can help quantify the impacts if hydraulic fracturing were banned.

In 2018, New Mexico generated $99.4 billion in GDP², had nearly 900,000 people in the workforce and an unemployment rate of 4.9 percent³, and a median household income of $48,283⁴. This represents significant gains compared to 2013 when the GDP was $88.4 billion⁵, there were 863,000 people in the workforce, unemployment stood at 6.9 percent⁶, and the median income was 43,368⁷.

<table>
<thead>
<tr>
<th>Total GDP</th>
<th>2013</th>
<th>2018</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed Workforce</td>
<td>863,000</td>
<td>894,000</td>
<td>+31,000</td>
</tr>
<tr>
<td>Unemployment</td>
<td>6.9%</td>
<td>4.9%</td>
<td>(2.0%)</td>
</tr>
<tr>
<td>Median income</td>
<td>$43,368</td>
<td>$48,283</td>
<td>+$4,915</td>
</tr>
</tbody>
</table>

The bulk of those gains can be attributed to the recent boom in oil and natural gas production stemming from hydraulic fracturing. This analysis shows that a ban on hydraulic fracturing in New Mexico would result in the loss of 142,000 jobs - representing 15.8 percent of the state workforce - and wipe out $86 billion in cumulative GDP from the state’s economy through 2025. Further, New Mexicans would lose out on $26 billion in household income (an average of $10,723 per household in 2025), the state would forego $8.0 billion in state and local tax revenues while federal government tax receipts will be reduced by $8.3 billion over this same period.
Introduction

Technological advances by the oil and natural gas industry have been a boon for the environment and the economy. Because of hydraulic fracturing our air is cleaner, our economy is stronger, and we have stabilized global energy prices, reducing costs for American consumers and helping allies around the globe. New Mexico is reaping its own benefits of the shale energy revolution, while also playing an increasingly significant role nationally and internationally.

Driven by shale energy production, 2018 was a record-setting year for the United States according to the U.S. Energy Information Administration:

- U.S. petroleum and natural gas production increased by 16% and by 12%, respectively, in 2018, and these totals combined established a new production record. The United States surpassed Russia in 2011 to become the world’s largest producer of natural gas and surpassed Saudi Arabia in 2018 to become the world’s largest producer of petroleum. Last year’s increase in the United States was one of the largest absolute petroleum and natural gas production increases from a single country in history.⁶

As America was becoming the world’s undisputed leader in energy production, a shift to natural gas for electricity production from 2005 to 2018 prevented approximately 2.8 billion metric tons of carbon dioxide from entering the atmosphere.⁷

New Mexico was the ninth-largest state in total energy production in 2017, primarily because of its crude oil, natural gas, and coal production.⁸ It holds more than six percent of the total proved crude oil reserves in the United States.⁹

Because of hydraulic fracturing, New Mexico will likely continue to grow as a prominent contributor to the national and global benefits of energy production.

In 2018, New Mexico became the third-largest oil producing state, with 249 million barrels of crude oil produced, a record production year for New Mexico. As a result, the state accounted for six percent of the nation’s crude oil production.¹⁰

Data from the state’s Oil Conservation Division show that 237 million barrels of oil were produced between January-September, which is 35 percent higher than the same point in the previous year and puts New Mexico’s annual production on pace to reach 300 million barrels for the first time ever.¹¹

New Mexico has more than four percent of the nation’s total proved natural gas reserves¹² and the state produced 1.36 trillion cubic feet of natural gas in 2018, accounting for 4.4 percent of U.S. natural gas production.¹³ This was an increase of 25 percent from 2013 when New Mexico produced 1.08 trillion cubic feet of natural gas.¹¹

Oil and natural gas production in New Mexico is concentrated in the San Juan Basin in northwestern New Mexico and the Permian Basin in southeastern New Mexico.¹⁴ The recent
increase in oil production is largely due to the adaptation of hydraulic fracturing methods to horizontal wells in unconventional reservoirs in southern Eddy and southwestern Lea Counties.¹⁵

New Mexico is also taking an active role in reducing greenhouse gas emissions from oil and natural gas production. In the Permian Basin, which straddles New Mexico and Texas, methane intensity has declined while production skyrocketed:

From 2011 to 2017, Permian Basin methane emissions from oil and natural gas production dropped from 4.8 million metric tons CO₂e to 4.6 million metric tons CO₂e. Over the same period, combined oil and natural gas production across the basin increased from 638.9 million barrels of oil equivalent to 1.4 billion barrels of oil equivalent.¹⁶

New Mexico’s natural gas production from shale wells accounted for 64 percent of state production in 2018.¹⁷ Natural gas production in New Mexico exceeds its consumption, and the state exports more than 2.5 times what it imports through interstate pipelines.¹⁸

Hydraulic fracturing is therefore necessary to ensure oil and natural gas production continues to grow in New Mexico, a trend that has benefitted residents in all corners of the state.

While slow to recover from the Great Recession, energy production has made New Mexico’s economy one of the fastest growing in the nation. The state’s residents are benefiting from thousands of newly created jobs and increased incomes. Billion-dollar budget surpluses from taxes and royalties paid by the oil and natural gas industry are being invested in schools and roads while also rebuilding state budget reserves.¹⁹

Candidates for public office must understand the significance of the benefits shale development has delivered to New Mexicans – and the real-world harm that a proposal to ban hydraulic fracturing would inflict on the state and indeed the rest of the nation. Here are a few notable examples of politicians advocating for a ban on hydraulic fracturing:
On my first day as president, I will sign an executive order that puts a total moratorium on all new fossil fuel leases for drilling offshore and on public lands. And I will ban fracking — everywhere."

Senator Elizabeth Warren, 9.6.2019, Twitter

"When we are in the White House we are going to ban fracking nationwide..."

Senator Bernie Sanders, 3.19.2019, Twitter

"I want you to look in my eyes. I guarantee you, I guarantee you we’re gonna end fossil fuel."

Former Vice President Joe Biden, 9.6.2019, Associated Press

"Accelerate the end of fossil fuels by immediately... phasing out fracking."

Senator Cory Booker, Presidential Campaign Website

"Yes, I support a ban on all hydraulic fracking operations,"


"There’s no question I’m in favor of banning fracking"

Senator Kamala Harris, 9.4.2019, CNN

"I favor a ban on new fracking and a rapid end to existing fracking..."

Mayor Pete Buttigieg, 6.3.2019, Washington Post

"I am wholeheartedly against fracking and drilling on public lands."

The energy industry, especially oil and natural gas, makes a significant contribution to the New Mexico state budget. Revenue from oil and natural gas development comprise more than one-third of New Mexico’s General Fund, the primary source of state funding for government and public expenses. The energy industry generates more than $1 billion annually for New Mexico’s public education system.²⁰

“New Mexico enjoys significant oil and gas production. It’s the source of good jobs and critical revenue for our state government and schools.”²¹

– U.S. Senator Tom Udall

The importance of energy to New Mexico’s budget and government services continues to grow. In August, state economists revised government income projections upward, forecasting a 13 percent surplus in 2020 thanks to surging oil and natural gas production. New Mexico House Speaker Brian Egolf (D) welcomed the forecasts as an opportunity to address pressing state needs, stating “I look at this money and see that we should have the opportunity to make continued substantial investments in education and infrastructure.”²²

Governor Lujan Grisham also welcomed the state’s energy-driven fiscal improvements. Her office released the following statement in response to the revenue forecasts:

“The governor is certainly optimistic about the consistently positive revenue projections and excited by the potential, should the numbers hold, for increased investments in the areas that are priorities for hard-working New Mexicans, like child well-being, early childhood education as well as K-12 public education generally, initiatives combating child hunger and poverty, efforts to diversify our state economy and local businesses and boost workers, and programs to boost our collective public safety, including investing in long-overdue infrastructure projects.”²³

By contrast, state legislative analysts have warned that a curtailment of production activity “could create a fiscal challenge far more severe than a moderate recession.”²² Our economic modeling confirms this warning. As summarized in Table 1a and 1b, New Mexico would generate $8.0 billion less in cumulative state and local tax revenues through 2025 if hydraulic fracturing was banned. Federal tax receipts would decline by $8.3 billion in total over the same period.

Increased production has resulted in record budget surpluses for the state, allowing for additional spending on education, roads, and public safety services. A ban on hydraulic fracturing would cost the state billions and necessitate cuts to schools and other government services and/or tax increases.
“It’s important for me to be an advocate for the work that is happening in southeastern New Mexico in producing energy and making sure that New Mexico continues to be a net energy exporter and making sure that we’re doing it in a responsible way... I know that if we were to shut down oil and gas drilling in New Mexico today, we’d have to shut down our schools tomorrow, statewide.”

– U.S. Representative Xochitl Torres Small

Table 1a: New Mexico State and Local Tax Revenues Lost from Hydraulic Fracturing Ban (2018 $million)

<table>
<thead>
<tr>
<th>Type of Economic Shock</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>Cumulative</th>
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</thead>
<tbody>
<tr>
<td>Due to higher residential energy costs</td>
<td>-110</td>
<td>-185</td>
<td>-274</td>
<td>-333</td>
<td>-402</td>
<td>-1,304</td>
</tr>
<tr>
<td>Due to higher business energy costs</td>
<td>-171</td>
<td>-292</td>
<td>-435</td>
<td>-538</td>
<td>-657</td>
<td>-2,093</td>
</tr>
<tr>
<td>Upstream production losses</td>
<td>-607</td>
<td>-984</td>
<td>-1,238</td>
<td>-1,493</td>
<td>-1,690</td>
<td>-6,012</td>
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<tr>
<td>Windfall profits</td>
<td>207</td>
<td>264</td>
<td>293</td>
<td>312</td>
<td>337</td>
<td>1,413</td>
</tr>
<tr>
<td>Total New Mexico Tax Revenues Impacts</td>
<td>-681</td>
<td>-1,198</td>
<td>-1,654</td>
<td>-2,052</td>
<td>-2,412</td>
<td>-7,997</td>
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</table>

Table 1b: Federal Tax Revenues Lost in New Mexico from Hydraulic Fracturing Ban (2018 $million)

<table>
<thead>
<tr>
<th>Type of Economic Shock</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to higher residential energy costs</td>
<td>-113</td>
<td>-192</td>
<td>-183</td>
<td>-344</td>
<td>-415</td>
<td>-1,347</td>
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<tr>
<td>Due to higher business energy costs</td>
<td>-177</td>
<td>-302</td>
<td>-450</td>
<td>-556</td>
<td>-679</td>
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<tr>
<td>Upstream production losses</td>
<td>-627</td>
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<td>-1,280</td>
<td>-1,543</td>
<td>-1,747</td>
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<tr>
<td>Windfall profits</td>
<td>214</td>
<td>272</td>
<td>303</td>
<td>322</td>
<td>348</td>
<td>1,459</td>
</tr>
<tr>
<td>Total New Mexico Tax Revenues Impacts</td>
<td>-704</td>
<td>-1,239</td>
<td>-1,710</td>
<td>-2,121</td>
<td>-2,494</td>
<td>-8,268</td>
</tr>
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</table>
Impact on Jobs

Oil and natural gas development is critical to New Mexico’s economy, with the industry serving as a strong driver of job growth for the state.

New Mexico added 20,100 jobs between September 2018 and September 2019, with jobs in mining and construction – which includes the oil and natural gas industry – accounting for more than one-third of the new jobs.²⁵

According to the Associated Press, "Analysts estimate it will take $174 billion of new infrastructure to keep pace with expected growth through 2030. That would include investments by the industry in new pipelines, access roads, well pad construction, processing plants and refineries."²⁶

This report, however, shows a ban on hydraulic fracturing would displace tens of thousands of jobs in New Mexico – with impacts that would occur almost immediately. R. Finn Smith, chairman of the Economic Development Corporation of Lea County, said “The economic livelihood of almost all of Lea County’s workforce of 30,000 people is directly or indirectly tied to the oil and gas sector. The proposed moratorium on fracking would not only devastate our economy and the finances of our local governments and school districts, but the economy and finances of the entire State of New Mexico.”²⁷

To put this potential loss in perspective, more jobs supported by the oil and natural gas industry would be lost in the first year of a hydraulic fracturing ban than the total number of jobs that all New Mexico industries created in the last year. Additionally, 16,000 jobs in other industries would be lost due to higher business energy costs in the first year. By 2025, 53,000 jobs would be lost due to higher residential energy costs, 61,000 lost due to higher business energy costs, and 75,000 would be lost to upstream production losses.

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<tr>
<th>Type of Economic Shock</th>
<th>2021</th>
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<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to higher residential energy costs</td>
<td>-15</td>
<td>-25</td>
<td>-37</td>
<td>-45</td>
<td>-53</td>
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<tr>
<td>Due to higher business energy costs</td>
<td>-16</td>
<td>-27</td>
<td>-41</td>
<td>-51</td>
<td>-61</td>
</tr>
<tr>
<td>Upstream production losses</td>
<td>-27</td>
<td>-43</td>
<td>-55</td>
<td>-66</td>
<td>-75</td>
</tr>
<tr>
<td>Windfall profits</td>
<td>30</td>
<td>38</td>
<td>42</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total New Mexico employment impacts</strong></td>
<td><strong>-27</strong></td>
<td><strong>-58</strong></td>
<td><strong>-91</strong></td>
<td><strong>-117</strong></td>
<td><strong>-142</strong></td>
</tr>
</tbody>
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Oil and natural gas development added $10.7 billion to New Mexico’s economy in 2017. Excluding state and federal government contribution, this made it the state’s top industry in terms of economic impact.²⁸ It has also been the leading contributor to real economic growth in the state and made New Mexico a national leader in this area.²⁹

“In New Mexico, thousands of jobs and a sizable portion of the state’s economy are supported by the oil and gas industry, which plays a critical role in meeting our nation’s energy needs.”³⁰

– U.S. Senator Martin Heinrich

If hydraulic fracturing were banned, state GDP would decline considerably. As Table 3 shows, the state would lose $26 billion in state GDP in 2025 as a result of a fracking ban.

A ban would hit New Mexico’s oil and natural gas industry hard, wiping out nearly all current and future economic benefits the state receives from production. It would also take $7 billion out of the New Mexico economy in 2025 because of higher energy costs for businesses.

### Table 3: New Mexico GDP Lost from Hydraulic Fracturing Ban (2018 $billions)

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<thead>
<tr>
<th>Type of Economic Shock</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to higher residential energy costs</td>
<td>-1</td>
<td>-2</td>
<td>-3</td>
<td>-3</td>
<td>-5</td>
<td>-14</td>
</tr>
<tr>
<td>Due to higher business energy costs</td>
<td>-2</td>
<td>-3</td>
<td>-5</td>
<td>-6</td>
<td>-7</td>
<td>-23</td>
</tr>
<tr>
<td>Upstream production losses</td>
<td>-7</td>
<td>-11</td>
<td>-13</td>
<td>-16</td>
<td>-18</td>
<td>-65</td>
</tr>
<tr>
<td>Windfall profits</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total New Mexico GDP impacts</strong></td>
<td><strong>-7</strong></td>
<td><strong>-13</strong></td>
<td><strong>-18</strong></td>
<td><strong>-22</strong></td>
<td><strong>-26</strong></td>
<td><strong>-86</strong></td>
</tr>
</tbody>
</table>
In 2018, household median income in New Mexico was $48,283, an 11 percent increase from 2013. The rate of income growth has accelerated due to increased energy production in the state. In the second quarter of 2019, personal income in New Mexico grew 6.1 percent on an annualized basis. Mining, which includes the oil and natural gas industry, was the leading contributor to the earnings increase.

As shown in Table 4, a ban on hydraulic fracturing would force New Mexico households to lose $8 billion in total income in 2025. The household income loss would come primarily from $5 billion in upstream production losses. Another $5 billion loss would be attributable to the higher energy bills that residential customers and businesses would be forced to pay. Roughly $2 billion in windfall profits to households would offset some of this income loss due to higher prices for oil and natural gas volumes produced.

A ban on hydraulic fracturing would stop the personal income growth that New Mexico is currently enjoying and instead cost $8 billion in lost wages and higher energy prices for businesses and consumers.

On a household basis, the impact is significant. In 2025, the average household in New Mexico would lose $10,723 in labor income because of the ban on hydraulic fracturing (based on U.S. Census data of 770,435 households). This is from a combination of upstream production losses and higher energy costs counterbalanced by the windfall profits.

### Table 4: New Mexico Household Income Lost from Hydraulic Fracturing Ban (2018 $billions)

<table>
<thead>
<tr>
<th>Type of Economic Shock</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to higher residential energy costs</td>
<td>0</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-2</td>
<td>-8</td>
</tr>
<tr>
<td>Due to higher business energy costs</td>
<td>-1</td>
<td>-1</td>
<td>-2</td>
<td>-3</td>
<td>-3</td>
<td>-10</td>
</tr>
<tr>
<td>Upstream production losses</td>
<td>-2</td>
<td>-3</td>
<td>-3</td>
<td>-4</td>
<td>-5</td>
<td>-17</td>
</tr>
<tr>
<td>Windfall profits</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total New Mexico household income impacts</strong></td>
<td>-2</td>
<td>-4</td>
<td>-5</td>
<td>-7</td>
<td>-8</td>
<td>-26</td>
</tr>
</tbody>
</table>
Conclusion

As Governor Lujan Grisham noted, the shale energy revolution is delivering opportunities that New Mexico has never seen before. Hydraulic fracturing technology has unlocked critical energy resources in the Permian and San Juan Basins, driving economic growth in job creation, personal income, and economic activity.

“We have tremendous natural resources. We have a third of the biggest oil discovery in the history of the planet. ... We have incredible people, and we’ve got a lot of amazing talent. ... It’s all here. ... We can do big and great things. ... Everything is lined up for New Mexico to be the next ‘it’ state.”

— Speaker of the New Mexico House of Representatives, Brian Egolf

Billion-dollar state budget surpluses generated by record oil and natural gas production are providing the financial resources to make investments that can improve the quality of life for state residents and help diversify New Mexico’s economy.

Proposals to ban the use of hydraulic fracturing technology by candidates for national elected offices and other public officials would extinguish New Mexico’s newfound opportunity before the state fully realizes its potential economic prosperity. If a hydraulic fracturing ban were enacted, 27,000 jobs would be lost, $7 billion in economic activity would be eliminated, household income would drop by $2 billion, and $681 million in state and local tax revenues would be lost in New Mexico — in the first year alone. The five-year costs are even more staggering: 142,000 jobs lost, $86 billion lost GDP, household income lowered by $26 billion, and $16.3 billion lost government revenue.

The shale energy revolution has brought increased prosperity to New Mexico, providing good jobs, a growing economy, and critical funding for schools and public services. New Mexico will continue to benefit from responsible oil and natural gas development as it contributes to the significant national and global benefits of the shale energy revolution.

“Policies have to lead to industry growth. New Mexico must embrace its strengths, oil and gas being the leading one, and not embrace policies that are hurtful to our state, its businesses, and most importantly, its children.”

— Peggy Muller-Aragón, an Albuquerque Public Schools (APS) board member and retired APS teacher
Methodology

For this analysis, we relied on the U.S. Energy Information Administration (“EIA”) and its Annual Energy Outlook (“AEO”) as well as the IMPLAN model. We used the EIA and AEO data to estimate the change in petroleum and natural gas production because of the hydraulic fracturing ban and the increase in energy prices for consumers, including for petroleum products, natural gas, and electricity. We also included windfall profits for conventional energy producers enjoying higher prices in a world without hydraulic fracturing. We simulated the impacts of these effects in the IMPLAN model, a widely-recognized input-output (“IO”) model of the economy. IMPLAN shows the transactions in the economy between households, different industries, and the government and how the changes to energy production and prices described influence job creation, GDP, other indicators, and the generation of tax revenues.
If hydraulic fracturing were banned, our research and analysis finds that petroleum prices would increase from $65 per barrel in 2018 to $130 per barrel in 2025. Similarly, natural gas prices would rise from $3 per MMBtu in 2018 to $12 per MMBtu in 2025. These considerably higher market prices for oil and gas result from the nation seeking to fill the production void with costly sources of production and imports.

While this hurts consumers, conventional producers would benefit from the higher prices. Imagine a conventional producer who produces 500 MMBtu per day of natural gas in 2025. Under the status quo, the producer would receive $2.90 per MMBtu in 2025, leading to daily revenues of $1,450. Under the hydraulic fracturing ban, however, the producer would receive $12.31/MMBtu, resulting in daily revenues of $6,155.

The producer’s increased revenues of $4,705 per day would not materialize through any individual action but would instead materialize solely from new market conditions under a hydraulic fracturing ban. We define this gain for conventional producers as “windfall profits.” We estimate windfall profits for the entire industry in a similar fashion, for both oil and gas, for each year of the analysis.

Windfall profits are modeled in IMPLAN as additional household income because the increased profits would flow through companies to shareholders, proprietors, and other stakeholders. Households then spend that income in various sectors of the economy, based on the spending patterns in the IMPLAN model.

Windfall Profits Explained

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