



ENVIRONMENTAL
HEALTH PROJECT
DEFENDING PUBLIC HEALTH 2012-2022

PENNSYLVANIA'S BAD BET

WHY SHELL DIDN'T SAVE APPALACHIA WITH PLASTICS

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PA gave Shell some pretty generous incentives via state law

2012 expansion of the Keystone Opportunity Zone program to wonderfully fit Shell's eventual ethane cracker site. This program is used to exempt most local taxes.

The feedstock tax credit, which subsidized about 14% of Shell's ethane cost at the time of its enactment (\$0.05 per gallon)

These amount to potentially billions of PA taxpayer dollars

- **Taxpayers should have positive return on investment (ROI)**
- **Lawmakers passed tax incentives because so-called expert analysis predicted they would.**
- **That didn't happen and now, it turns out the economic analysis legislators used was flawed.**

The RMU Economic Analysis Was Flawed

1. Used input-output modeling, which relies on a specific set of unrealistic assumptions (including **no** prices!) In reality, an immense project drives up local labor, land, and supply costs that can deter other types of business activity!
2. Did not consider the generous tax incentives the state provided
3. Did not include externalities – real costs to local property owners and residents, such as lost home value, healthcare costs, environmental damage
4. The study used Shell's own projections as its starting point and the wrong industry codes for the facilities.

Input-Output Models Create Inflated Multipliers - “All gravy”

- A job creates income.
- A fraction of every income dollar spent in the local economy is re-spent on other goods and services.
- The spending on those goods and services creates more jobs (and, thus, more income). A good cycle!
- The **economic multiplier** is how we measure the total effect of an invested dollar or a created job. How many **total** jobs does one job help support?
- Input-output models are extremely popular with industry because they produce very high multipliers – and look extremely good! New jobs create even more new jobs!

Any major economic activity has positive & negative ripples



Ethane Cracker

+



Healthcare expenses



Worker wages (positive for workers but potentially hurts other local businesses if happening suddenly)



Home values & property taxes (for schools etc) near the plant



Land for other economic development that is not subsidized



Monitoring, legal, and cleanup costs for air and water pollution

Here's what the RMU study effectively considered:



Ethane Cracker

When you do anything, you have to compare to the true alternative

- The study compares Shell building the ethane cracker against Shell not building the ethane cracker.
- **But...** because the state provided billions of incentives... a proper comparison would have been to evaluate the ethane cracker against potential alternative uses of forgone public dollars
- Many peer reviewed studies note that the multiplier effect generated by large corporations is drastically smaller than local entrepreneurship. **Why?** Local businesses use local supply chains and workers!

In addition...

- RMU's study used the wrong North American Industry Classification System (NAICS) codes for the plant – The codes they used generate higher impact in the IMPLAN software... a major error.
- The study assumed a 40 year time frame for the facility. Most prior ethane cracker evaluations use 15 years. 40 years likely means that Shell would need to make significant investments to upgrade and repair the facility before the end of the study, which it may choose not to.
- RMU used Shell's own analysis as its starting point, calling into question the independence/unbiasedness of the results

RMU's study used Shell's own projections are a starting point

Economic Impact Study: Beaver County Petrochemical Facility

EXHIBIT A: Key Study Assumptions

1. Shell decides to build the project, begins construction in 2015 and completes construction in 2019.
2. Permanent operations commence in 2020; operational impacts, including jobs, are modeled to start then.
3. There will be a period of overlap in which the construction phase finishes and operations begin. However, for analytical purposes the overlap is disregarded and construction and ongoing operations are modeled as distinct and separate periods.
4. The facility has an assumed operational life of 40 years.
5. Construction employment generates the Pennsylvania jobs that Shell has projected as follows, noting that these are estimates for analysis and subject to potential change:

| Construction | Jobs | | | | | | |
|-----------------------|-------------|---------|-------|-------|------|-------|--|
| Pennsylvania | Annual | Average | | | | | |
| | 2015 | 2016 | 2017 | 2018 | 2019 | Avg | |
| Low | 340 | 1,890 | 5,360 | 3,810 | 620 | 2,404 | |
| Anticipated | 380 | 2,100 | 5,950 | 4,230 | 690 | 2,670 | |
| High | 420 | 2,310 | 6,550 | 4,560 | 760 | 2,920 | |
| 10-County SWPA | | | | | | | |
| Low | 272 | 1,512 | 4,288 | 3,048 | 496 | 1,923 | |
| Anticipated | 304 | 1,680 | 4,760 | 3,384 | 552 | 2,136 | |
| High | 336 | 1,848 | 5,240 | 3,648 | 608 | 2,336 | |
| Beaver County | | | | | | | |
| Low | 68 | 378 | 1,072 | 762 | 124 | 481 | |
| Anticipated | 76 | 420 | 1,190 | 846 | 138 | 534 | |
| High | 84 | 462 | 1,310 | 912 | 152 | 584 | |

State's compete for these projects often using bad analysis as justification

“Governments don’t usually know how to pick winners, but losers always know how to pick governments.”

Shell has a long history in Pennsylvania

In 2010, Shell Western E&P Inc (SWEPI) acquired East Resources for \$4.7 billion, joining the fracking boom in the Marcellus.

It had high hopes for success in the region.

The Marcellus Has an Abundance of

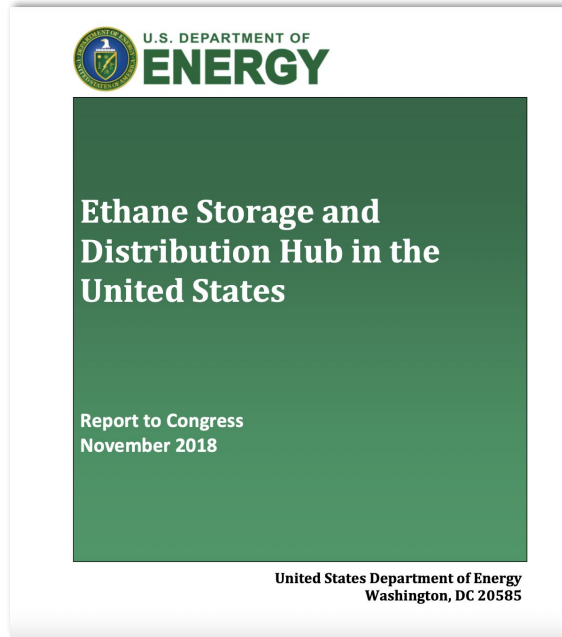
Natural gas and ethane, a natural gas liquid (NGL)

Ethane is a feedstock for petrochemicals, so the race was on to build ethane cracker plants in the region

Industry Groups Promote Ethane Storage Hub in ORV to support expanded ethylene production



Even the DOE Supported It... in 2018



- Only Shell had access to ethane storage elsewhere while the plant was under construction; regional ethane storage would support other facilities that didn't

Ethane Crackers

Many Plans, No Follow Through

Many were announced, but. . .

- PTT Global Chemical America (PTTGCA)
- Odebrecht/Braskem
- Aither Chemical
- Appalachian Resins

...only Shell moved forward, in 2012.



Photo: Mark Dixon, Flickr, June 5, 2022

Cheap, Abundant Ethane = Chemical Production FOR the Region?

“... With this investment (an ethylene cracker), **we would use feedstock from the Marcellus to locally produce chemicals for the region** and create more American jobs. As an integrated oil and gas company, we are best-placed in the area to do this.”

-- *Shell Oil President Marvin Odum in 2011*

Fiscal Incentives Were Key to Shell's Decision

“I can tell you, with hand to my heart, that **without these fiscal incentives, we would not have made this investment decision,**” a Shell executive [said in 2016](#).

Shell's Decision Was 3 CEOs and, in the Corporate World, a Lifetime Ago

- 2011: Peter Voser
- 2014: Ben van Beurden
- 2023: Wael Sawan

Aside: Shell's Fracking Efforts in Pennsylvania Failed...

... and it walked away.

In 2020, Shell sold its PA fracking assets for \$541 million,

in what industry press called a **fire sale**

Fire Sale: Shell Sells All Remaining PA M-U Assets for \$541M

ENERGY COMPANIES | INDUSTRYWIDE ISSUES | M&A | PENNSYLVANIA | SENECA RESOURCES | SHELL | STATEWIDE PA | TIOGA COUNTY (PA)

May 5, 2020



A major announcement yesterday from both Shell and National Fuel Gas Company (NFG) says Shell has cut a deal to sell all of its remaining Appalachian assets, which includes 450,000 acres and some 350 producing M-U shale wells along with pipeline assets, to NFG for \$541 million. The deal is expected to close by the



Is the Beaver County plant the next asset on the block?

- Has the plant in Beaver County, conceived a decade ago, offered the ROI initially expected?
- What are potential returns in an economic outlook that differs greatly from a decade ago.
- Would Shell ever walk away from assets in PA?

The Competition for the Ethylene Cracker was High Stakes Poker

- Pennsylvania, Ohio, and West Virginia all competed for the Shell cracker
- Site selection and preparation and exemption from most property taxes were table stakes
- The local taxing authorities don't seem to have been consulted about options for property tax exemptions under their local economic development programs prior to the proposal to expand the state level Keystone Opportunity Zone Program
- Ultimately these organizations received a "PILOT" (Payment In Lieu of Property Tax) as a substitute for some of the lost tax revenue.

The Resource Manufacturing Credit Won the Plant

- The credit allows Shell to reduced taxes by \$2.10/barrel for the ethane feedstock it uses in the plant
- The ethane isn't required to be produced in Pennsylvania
- If Shell's taxes are less than the credit, they can be "transferred" to other entities
- These include companies in the plastics business that use polyethylene
- This provides an indirect tax subsidy to the industries that were supposed to add to the tax base due to the plant

Did the community understand how much this credit was?

- The credit was passed in mid 2012
- It was represented as only applying to 30,000 barrels a day of ethane.
- The RMU analysis wasn't released until nearly 1 ½ years after the credit legislation was passed.
- The actual credit applies to all the ethane the plant uses - over 90,000 barrels a day. The estimated amount of the credit over its existence is as much as \$1.65 billion.
- No other state has offered this type of incentive
- This cost wasn't included in the RMU analysis