

# Quantifying state subsidies to south-central natural gas production



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# Summary



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(ENSTAR)

Southcentral Alaska consumes about 75 billion cubic feet of Cook Inlet natural gas per year, fueling most of the region's heat and electricity. The Inlet can meet this demand today because the state of Alaska has heavily subsidized gas extraction and infrastructure. We estimate the total subsidy since 2007 has been **\$2.25 billion to \$2.53 billion**, coming from two sources:

1. **Credits used against taxes or refunded for cash from the state**, which include a system of refundable and tradeable credits created to avert looming gas shortages under 2010's Cook Inlet Recovery Act. These totaled approximately **\$1.64 billion** from 2006 until the legislature ended Cook Inlet credits in 2016, including about \$300 million in still-unpaid obligations to credit-holders.
2. **Tax caps on Cook Inlet gas production** have existed since 2006, limiting the production tax Cook Inlet companies pay to no more than about 17 cents per thousand cubic feet of natural gas. In 2015 the state's most recent attempt to quantify this foregone revenue estimated the tax cap gave Cook Inlet producers **\$550 - \$800 million between 2007 and 2013**. The value of the tax cap fluctuates with prices and to our knowledge hasn't been studied since 2015, so this element is likely undercounted here.

Confidentiality measures and the exchangability of credits make it impossible to precisely total credit subsidies, and indirect subsidies via production tax caps are understudied and fluctuating. Elements of our estimate that may have been over- or under-counted are detailed below, but this overall estimate is likely low due to incomplete data on the value of the Cook Inlet production tax cap.



The state began subsidizing gas in response to steadily climbing prices over the 2000s. As major developed fields waned and investment fell off, gas rose from historically low and stable prices toward an unaffordable \$10 per thousand cubic foot (in inflation-adjusted 2020 dollars). By making up for the loss of investment, the state succeeded in bringing prices back to the range of \$5-\$6 per thousand foot by 2013, but over the following decade prices continued to escalate and have recently been just under \$8 per thousand cubic foot. State subsidies succeeded in maintaining a supply of local gas, but have not stopped its long-term upward price trend.



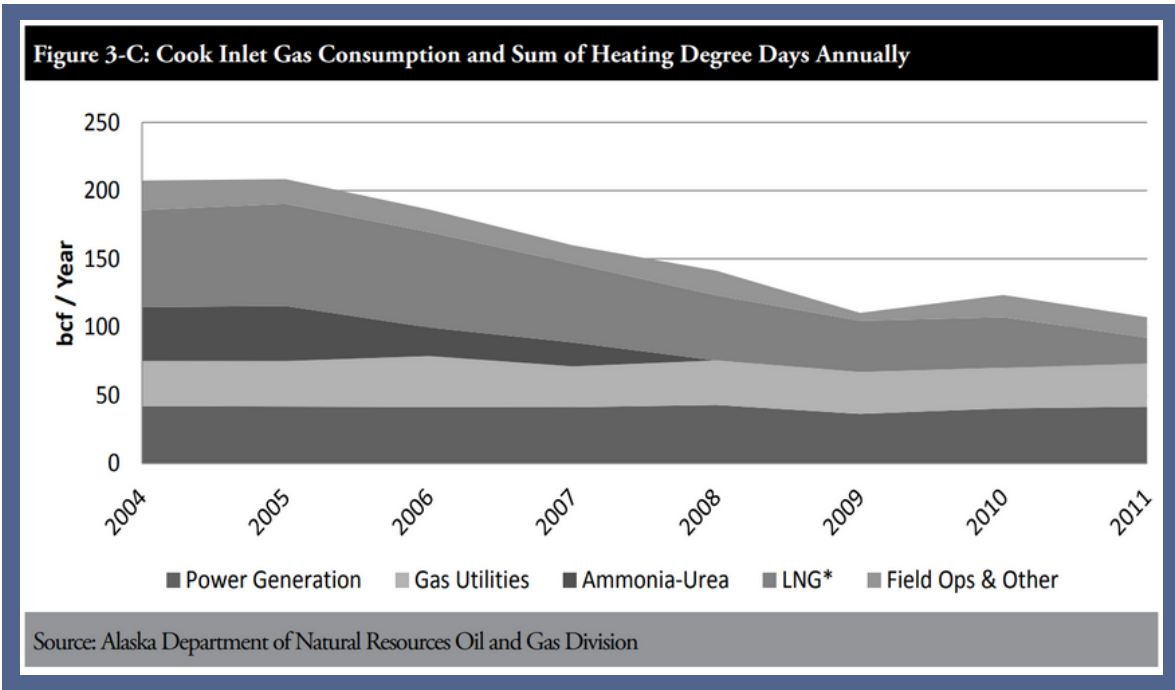
# Background

Since commercial-scale gas extraction began in Cook Inlet in the late 1960s, a few concentrated reservoirs have produced most of the supply. These large gas fields were abundant enough to cheaply supply not only burgeoning heat and electricity markets in Anchorage, the Kenai Peninsula, and the Mat-Su Valley, but also exports in the form of ammonia and urea fertilizer and liquefied natural gas (LNG) from plants in Nikiski.

This era ended when gas production peaked in the mid-1990s. As the most concentrated and accessible gas reservoirs were drawn down, extractors had to spend more on exploration and drilling for new supply. In March 2010 three gas-consuming utilities commissioned the consultancy Petrochemical Resources Alaska (PRA) to estimate the cost of filling southcentral’s gas demand for the upcoming decade. PRA concluded the needed development work could take double or triple the total investment in gas extraction during the 2000s.

“The ‘easy’ gas has been found in the challenging geology of Cook Inlet,” their report states. “The future costs of developing additional reserves will be substantial.”

Prices reflected this need, rising from their previously steady \$1.40 - \$1.70 per thousand cubic feet to around \$5-\$7 per thousand cubic feet by the late 2000s. The first to feel the effects were



Alaska Department of Natural Resources, via the [Department of Revenue Fall 2013 Revenue Sources Book](#)

the LNG terminal and fertilizer plants, which consumed and exported most of the Inlet's gas. The LNG terminal made its last significant export in 2011, and the fertilizer plant closed in 2007, [citing a shortage of gas as the reason](#). As large consumers left the market, the remaining smaller consumers – regional heat and electrical utilities – were left to cover more of the rising cost of extraction.

Feedback between rising costs and a much smaller consumer base to pay for those costs sent prices spiking. The shrinking incentives for extractors to make higher investments threatened domestic gas consumers. The consultancy [Northern Economics estimated in a 2014 report](#) commissioned by the Alaska Chamber of Commerce that switching to imported LNG – the likely alternative to Cook Inlet natural gas – would result in a 67% higher gas bill for the average Anchorage home or business, and a 58% higher monthly electric bill.

Cook Inlet gas had benefited from the oil and gas tax changes of the mid-2000s. Among other measures, 2006's Petroleum Profits Tax legislation ([24th Legislature, House Bill 3001](#)) capped the production tax on Cook Inlet natural gas at \$0.177 per thousand cubic foot through 2022. The ceiling was maintained in the ACES tax reform passed November 2007.

In 2006 the state introduced credits that, in addition to reducing tax liability, could be bought and sold or exchanged for cash from the state. In 2010 the Legislature, recognizing that a dramatic rise in energy costs would be unacceptable for southcentral Alaskans, made up for declining gas investment by dramatically expanding these tradeable and cashable credits in the Cook Inlet Recovery Act ([26th Legislature, HB 280](#)), which passed both houses unanimously.

The act's sponsor, Representative Mike Hawker of Anchorage, [told the House Labor and Commerce Committee](#) that it was meant to “address an increasingly profound regional problem that those of us who reside in southcentral Alaska have with the primary source of all energy we consume.” The new credits returned up to 40 percent of certain exploration costs and gave a 100 percent reimbursement to the first company to use a jack-up rig to drill a new Cook Inlet exploration well – work that hadn't been done there in almost twenty years. The act also subsidized the creation of the Cook Inlet Natural Gas Storage Alaska (CINGSA) facility, now a critical part of the region's gas infrastructure.

Unlike North Slope oil, Cook Inlet gas was not a significant state revenue source. Ken Alper, then Tax Director for the Department of

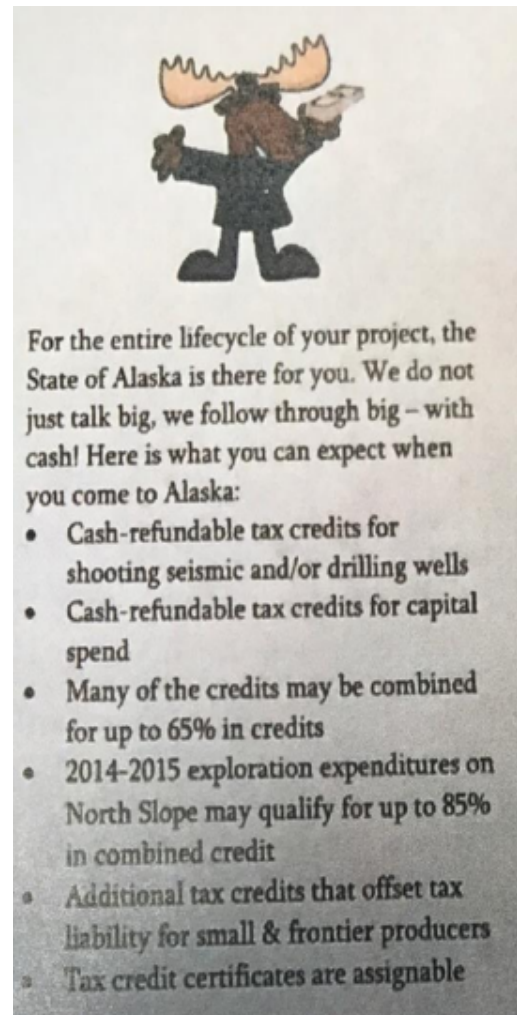
Revenue, described the intent of Cook Inlet tax credits to the Senate Resources Committee in February 2018:

“Because Cook Inlet had already had a very low, minimal tax regime, there was never going to be substantial revenue coming from the oil and gas production in Cook Inlet,” Alper said. “Those credits were never expected to generate new revenue the way North Slope taxes were expected to lead to new production, new royalties, and new revenue for the state. This was truly an economic development, and aimed at preservation of a livable lifestyle in southcentral Alaska.”

The Cook Inlet subsidies were indeed essential. In January 2017 Alper told the House Resources Committee that from FY2007-FY2016, oil and gas producers outside the North Slope (overwhelmingly in Cook Inlet) had cashed in \$1.2 billion in tax credits and used \$100 million against taxes. As of fiscal 2015, he said, eight producing Cook Inlet projects had received an average \$2.10 in credits per thousand cubic foot of gas, and credits had supported 40 percent of the producers’ lease expenditures in this time.

Researcher Erin McKittrick of Ground Truth Trekking calculated that between 2009 and

2018 Cook Inlet credits resulted in an average \$671 yearly subsidy per Railbelt consumer. This subsidy was higher than per-user subsidies under the rural-focused Power Cost Equalization (PCE) program in the years between 2014 and 2016. She found that



In the early 2010s the state advertised tax credit subsidies at oil and gas trade shows with pamphlets featuring a cartoon moose offering a stack of dollar bills. ([Alaska Dept. of Revenue](#))

in 2015, energy subsidies to Railbelt consumers were roughly 25 percent higher than those to PCE beneficiaries. McKittrick's calculation of the Cook Inlet subsidy included only tax credits and didn't consider the value of tax caps.

When oil prices dropped circa 2014 and state revenues followed, the Legislature became increasingly reluctant to appropriate funds for credit purchases, and in 2016 it retired the Cook Inlet credits (HB 247, 29th Legislature). Though the state is no longer issuing credits, various entities still hold \$300 million of credits that can be cashed or used against taxes in the future.

Alper told the Senate Resources Commission in Feb. 2018 that 16 credit-receiving companies were then producing Cook Inlet gas, and that all current Cook Inlet gas extractors had benefited from the program. He estimated that credits had incentivized the extraction of roughly six times southcentral Alaska's annual energy consumption and solved the gas supply crisis by creating a market that was sustainable without them.

It remains to be seen how long the exploration and drilling spurred by over two billion in state subsidies will suffice for a gas system whose expense is still projected to grow. Though the Alaska Department of Natural Resources estimated in 2015 that [Cook Inlet contains 1.54 trillion cubic feet of recoverable gas reserves](#), it [concluded in 2018](#) that about 500 to 800 billion cubic feet – or six to ten years of supply -- are recoverable at prices near those of the present. Beyond that, the investment in exploration needed to bring further gas reserves online would require around a 50% price increase. The eagerness of private investors to play in that market – and the state's willingness and ability to once again make up the difference if they aren't – remain vital questions for the future.



# Counting Up Subsidies

## Part 1: Tax Credits

Cook Inlet hydrocarbon extractors have received at least \$1.4 billion in credits since 2016, and will have received \$1.64 billion once the state pays its remaining obligations. This is the sum of non-North Slope credits that the Alaska Department of Revenue has published in their biannual [Revenue Sources Book](#), minus credits that companies have publicly acknowledged receiving for work outside both the North Slope and Cook Inlet.

Cook Inlet natural gas subsidies				
from tax credits				
year	credits purchased	against tax liability	total	source
Unpaid obligation	\$282,000,000.00	\$19,000,000.00	\$301,000,000.00	
FY 2021	\$0.00	\$1,000,000.00	\$1,000,000.00	
FY 2020	\$1,000,000.00	\$1,000,000.00	\$2,000,000.00	
FY 2019	\$32,000,000.00	\$4,000,000.00	\$36,000,000.00	
FY 2018	\$27,000,000.00	\$1,000,000.00	\$28,000,000.00	
FY 2017	\$30,000,000.00	\$1,000,000.00	\$31,000,000.00	
FY 2016	\$287,000,000.00	\$5,000,000.00	\$292,000,000.00	
FY 2015	\$404,000,000.00	\$10,000,000.00	\$414,000,000.00	
FY 2014	\$312,000,000.00	\$12,000,000.00	\$324,000,000.00	
FY 2013	\$108,000,000.00	\$14,000,000.00	\$122,000,000.00	
FY 2012	\$33,000,000.00	\$16,000,000.00	\$49,000,000.00	
FY 2011	\$39,000,000.00	\$17,000,000.00	\$56,000,000.00	AK Dept. of Revenue: Fall 2019 <i>Revenue Sources Book</i> , pg. 70
FY 2010	\$4,000,000.00	\$10,000,000.00	\$14,000,000.00	
FY 2009	\$7,000,000.00	\$6,000,000.00	\$13,000,000.00	
FY 2008	\$1,000,000.00	\$10,000,000.00	\$11,000,000.00	AK Dept. of Revenue: Fall 2015 <i>Revenue Sources Book</i> , pg. 82.
FY 2007	\$0.00	\$16,000,000.00	\$16,000,000.00	
<b>total</b>	<b>\$1,567,000,000.00</b>	<b>\$143,000,000.00</b>	<b>\$1,710,000,000.00</b>	
Non-Cook Inlet credits		<b>-\$65,000,000.00</b>	<b>\$1,645,000,000.00</b>	Doyon Corporation to Legislature, 11/20/2015





## Caveats

**1. These credits aren't strictly gas subsidies,** since the investments they support are used for oil extraction as well. Cook Inlet oil is also used entirely in-state as transport fuel, so both uses subsidize local energy.

**2. This calculation undercounts energy credits used outside both Cook Inlet and the North Slope.** Because so few companies and projects explore for hydrocarbons between the Slope and the Cook Inlet basin – a region often called “middle earth” in oil tax policy discussions – confidentiality rules won't allow them to be accounted separately. However, [Doyon Corporation](#) told the legislature in 2015 that it had received \$65 million in “middle earth” credits, which are subtracted from the total here. At least two other groups, the Nana and Ahtna Native Corporations, have also earned credits for “middle earth” exploration.

**3. Credits are transferable.** If credits that subsidized extraction from Cook Inlet are sold to a company working on the North Slope, the Department of Revenue counts them as North Slope credits when the holder cashes or uses them against taxes. According to a [2020 Department of Revenue letter to the Senate Finance Committee](#), about \$320 million of the outstanding credit obligation had been transferred from the original recipients, and Alper has said in personal correspondence that about \$100 million in credits have been transferred in the past year or so.

# Counting Up Subsidies

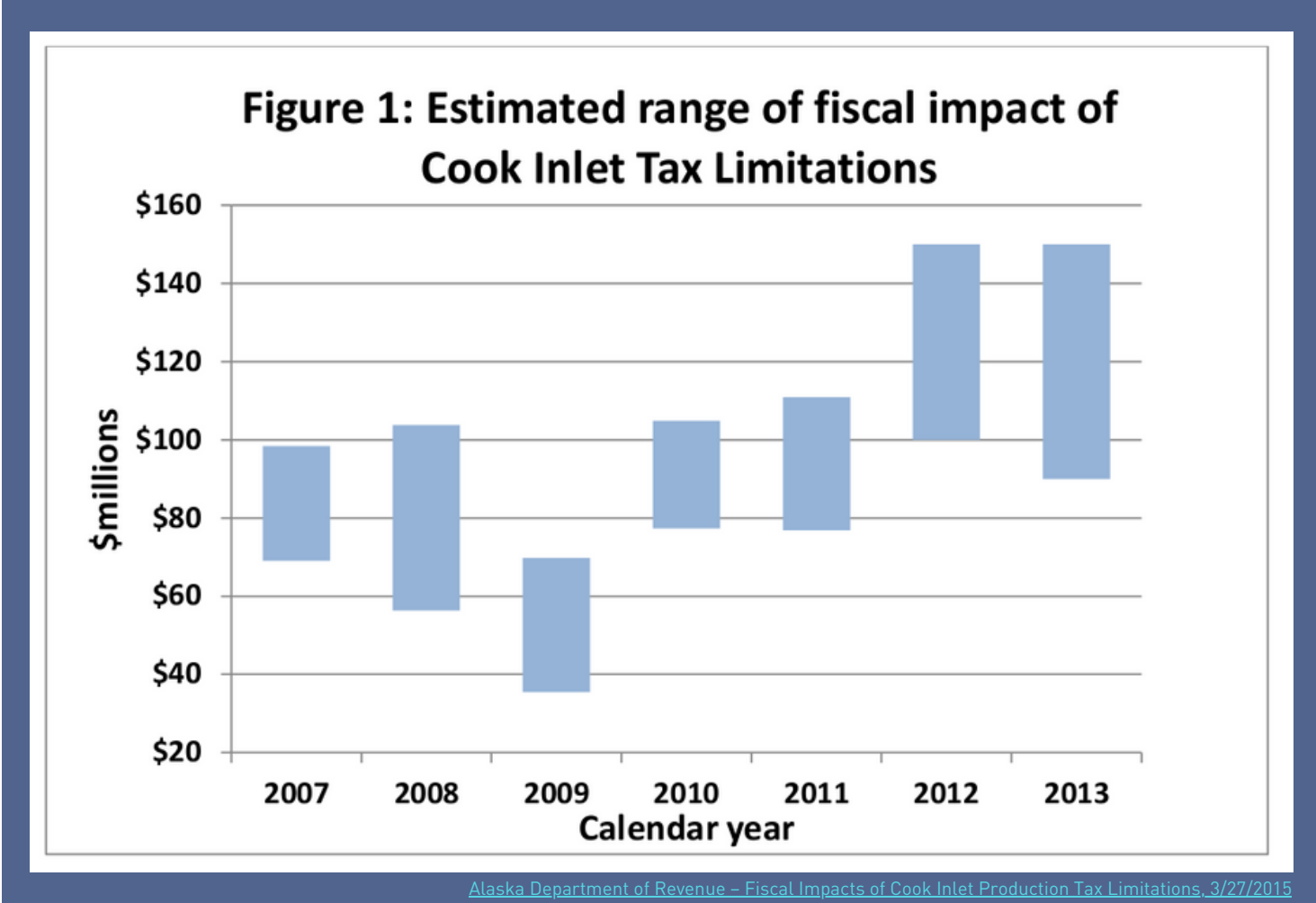
## Part 2: Production Tax Ceiling and Other Indirect Subsidies

Unlike the Department of Revenue's tracking of the credit system, there's been no consistent accounting of the value of indirect subsidies to Cook Inlet gas. Here we compile the state's occasional reports on the subject.

The largest indirect subsidy to Cook Inlet gas is the cap on production tax created in 2006's Petroleum Profits Tax legislation ([24th Legislature, House Bill 3001](#)), which limits the tax to no more than \$0.177 per thousand cubic foot of gas used in state.

In a [2012 Legislative Research Services report](#), Department of Revenue economist Mike Redlinger estimated the cap had given the industry an annual benefit of \$50 million - \$150 million most years between FY2007 and FY2011, and \$100 million - \$150 million during the higher oil price years of FY2008 and FY2011. In total, "the minimum tax benefit for FY2007-FY2011 was \$350 million; however, based on yearly ranges provided by Department of Revenue, the actual amount was likely much larger." The report doesn't specify how much of this benefit derived from the gas tax ceiling versus the tax cap on Cook Inlet oil created by the same legislation.

Our calculation of the indirect subsidy uses a [March 2015 Dept. Of Revenue report](#) that estimates Cook Inlet tax ceilings led to \$550 million to \$800 million of total foregone revenue from 2007 to 2013. Because the value of the tax cap changes with oil and gas prices, and because "data and reporting inconsistencies" made their calculations uncertain, the Dept. of Revenue estimated a range of impact for each year.



Between 7 to 14 companies reported production in Cook Inlet during these years, benefiting from this indirect subsidy.

We also include in our total a May 2013 Legislative Research Services report on indirect expenditures, which found that from FY2008-FY2012, royalty reductions for Cook Inlet platforms enacted in 2003 (AS 38.05.180(f)(6)) and other royalty exemptions dating from 1998 (AS 38.05.180 (f)(5)) had resulted in \$58.56 million of foregone unrestricted general fund revenue.



# Subsidy for Gas Storage

The Cook Inlet Recovery Act subsidized natural gas storage with a refundable tax credit of \$1.50 per thousand cubic feet of storage capacity. The Cook Inlet Natural Gas Storage Alaska (CINGSA) facility in Kenai came online in 2015, earning the maximum credit of \$15 million. As required by the act, CINGSA distributes the benefit of this credit to its gas-storing utility clients by crediting them \$1.5 million annually, according to testimony of CINGSA president John Sims to the RCA. CINGSA has become increasingly essential for southcentral gas consumers. In January 2017 its stored reservoir supplied about 30 percent of the Cook Inlet region’s gas demand. But because it is not directly involved in gas extraction, we don’t include the CINGSA subsidy in our total calculation of non-credit indirect subsidies below.

From tax caps				
year	high estimate	low estimate	source	
CY 2007-2013	\$800,000,000.00	\$550,000,000.00	3/2015, Dept. of Revenue	
plus credits	\$2,445,000,000.00	\$2,195,000,000.00		
plus other indirect	\$2,503,567,401.00	\$2,253,567,401.00		
Other indirect subsidies				
year	AS 38.05.18 (f)(6) Platform royalty relief	AS 38.05.180 (f)(5)	total	source
FY 2008	11,013,757.00	1,971,904.00	12,985,661.00	Legislative Research Services Indirect Expenditures Report May 2013
FY 2009	6,302,276.00	1,535,118.00	7,837,394.00	
FY 2010	7,244,449.00	1,109,080.00	8,353,529.00	
FY 2011	12,482,905.00	844,851.00	13,327,756.00	
FY 2012	14,855,924.00	1,207,137.00	16,063,061.00	
<b>Total</b>	<b>51,899,311.00</b>	<b>6,668,090.00</b>	<b>58,567,401.00</b>	

As highlighted in red, these indirect subsidies plus credits add up to a total subsidy estimate of \$1.75 to \$2.5 billion.

# Conclusion

After studying every Cook Inlet well drilled from 2001 to 2009, Petrochemical Resources Alaska determined in March 2010 that approximately \$1 billion to \$1.2 billion had been invested in developing gas reserves during that period. In the decade since, the state has invested at least that much in maintaining our gas supply, and perhaps twice as much, depending on inflation adjustment and what contributions are counted as subsidies. If PRA was correct in their 2010 prediction that meeting gas demand through the 2010s would need twice or thrice the investment of the 2000s, then state subsidies have been foundational in keeping gas-fueled systems running, and the state has been largely responsible for filling the void of private investment lost since 2010.

There's little use discussing whether this massive subsidy was an unavoidable cost of keeping southcentral Alaska heated and electrified for the past decade, or whether viable alternatives to local gas existed in the 2000s or early 2010s. A more essential point is that alternatives certainly exist now, and they are necessary. Technology improvements and economies of scale have made renewables such as wind and solar feasible in Alaska. The maintenance of these energy sources is overall less costly than the perpetual exploration and drilling needed for reliable gas, and long-term, lasting results are more certain. If we invest our future energy spending in a robust transmission system with adequate storage, and our political effort in cooperation between utilities, these can be a true solution for our ongoing energy problem.

*Thank you for reading. Please email [ben@akpirg.org](mailto:ben@akpirg.org) with questions or comments.*