

CALIFORNIA
STATE OIL AND GAS SUPERVISOR
ANNUAL REPORT
2020

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EXECUTIVE SUMMARY

Commencing in January 2020, the Division of Oil, Gas, and Geothermal Resources (DOGGR) became the California Geologic Energy Management (CalGEM) Division and commenced work to implement major policy and programmatic changes. That work included a renewed mission that prioritizes protecting public health, safety, and the environment in its oversight of the oil, natural gas, and geothermal industries, while working to help California achieve its climate change and clean energy goals.

This report is developed pursuant to Public Resources Code (PRC) section 3108 which requires a report to be produced each year covering key oil and gas statistics, CalGEM's financial information, and other data the State Oil and Gas Supervisor (Supervisor) deems advisable to include. This report provides the following required data per PRC section 3108:

1. The total amounts of oil and gas produced in each county in the state during the previous calendar year.
2. The total cost of the division for the previous fiscal year.
3. The total amount delinquent and uncollected from any assessments or charges levied pursuant to this chapter.

This report covers calendar year 2020 and fiscal year 2019-2020.

Oil Production

Oil production saw a notable drop in 2020, totaling 148.2 Million Crude Oil Barrel Units (MMbbl) (about 406,227 barrels per day), a decrease of 7 percent from the 2019 total of 159.5 MMbbl (about 436,866 barrels per day). The decrease in oil production was due in large part to two key factors: (1) the drop in oil price, likely as a result of decreased demand for oil during the COVID-19 pandemic, and (2) an ongoing natural decline in production. Statewide oil production has declined to levels not seen for the past 80 years. California oil production peaked in 1985 and continued its decline at an average of 2.2 percent per year.

In 2020, California ranked seventh among the oil producing states, behind Texas, North Dakota, New Mexico, Oklahoma, Colorado, and Alaska, according to the U.S. Energy Information Administration.

Natural Gas Production

Net natural gas production decreased in 2020, dropping about 10 percent from 2019 levels. Associated gas production decreased from 149 billion cubic feet in 2019 to 136.6

billion cubic feet in 2020. Non-associated gas production decreased significantly from 16.6 billion cubic feet in 2019 to 12.6 billion cubic feet in 2020 – a 24 percent decrease in production. The Elk Hills oil field continued as the largest field producing associated gas in California, while the Rio Vista gas field remained the largest field producing non-associated gas (the term “non-associated gas,” used throughout this report, refers to natural gas produced from a gas-targeted or natural gas well rather than an oil well).

Geothermal Production

California is a worldwide leader in geothermal energy generation and the largest producer of geothermal energy in the United States. According to the California Energy Commission, there are 2,712 megawatts (MW) of electricity coming from 40 geothermal power plants; enough electricity for about 2.7 million residents. In 2020, geothermal energy sources produced 11,345 gigawatt-hours net (GWh), 5.94 percent of the state's power mix. That is a slight increase in production from 2019, which saw geothermal energy sources produce 10,943 GWh, 5.46 percent of the state's power mix.

CalGEM supervises the drilling, operation, maintenance, and plugging and abandonment of high and low-temperature geothermal wells, including injection wells for the discovery and production of geothermal resources in such manner as to safeguard life, health, property, and the public welfare, and to encourage maximum economic recovery (Pub. Resources Code, §§ 3700, 3714). CalGEM supports the expansion of geothermal energy production and is currently undertaking an active rulemaking process to update the geothermal regulations and to maximize safety while enabling responsible development of the resource.

Enforcement

The CalGEM Office of Enforcement was created in July 2019 to facilitate the statewide Enforcement program. The Enforcement Program, which has jurisdiction over all of CalGEM's regulated entities to include oil, gas, and geothermal operators, works to enforce California's oil and gas laws and regulations and takes action to prevent damage and issue civil penalties as restitution for actual or potential damages to life, health, property, or natural resources.

In 2020, CalGEM's Office of Enforcement issued 16 enforcement orders, including civil penalty fines of \$191,669. The orders issued generally required operators to remediate field violations or otherwise unsafe conditions at their facilities, plug and abandon wells, and/or pay civil penalties. The Supervisor may also issue emergency orders to address a life, health, safety, property, or natural resources concern.

Additionally, in 2020, CalGEM completed 48,488 inspections and issued 1,183 notices of violation (NOVs).

Budget

Program funding for CalGEM is derived, in part, from the oil and gas assessment paid annually by all oil and gas operators pursuant to PRC division 3, chapter 1, article 7.

As provided for in PRC section 3724.5, CalGEM is also partly funded by an annual well fee levied on operators of high-temperature geothermal resource wells and by drilling fees charged to geothermal operators for drilling new wells or re-drilling abandoned wells.

Additionally, as provided for in PRC section 3403.5, CalGEM is partly funded by an annual charge levied upon operators of underground natural gas storage facilities.

CalGEM's total resources for Fiscal Year (FY) 2019/2020 is \$122,984,000 which includes \$102,178,000 in assessment fee revenue.

CalGEM's 2020 Financial Statement can be found at Appendix C.

ORGANIZATIONAL BACKGROUND

CalGEM staff are organized into two major groupings: districts and programs. Districts are geographically based, and the state is divided into the following districts: Southern (Long Beach), Coastal (Orcutt & Ventura), Inland (Bakersfield), and Northern (Sacramento).¹ Districts perform most of the permitting, all the field inspections/activities, and most of the interaction with regulated operators. Programs are based upon program area and their purpose is to set standards for regulatory areas, like Underground Injection Control permitting, coordinate enforcement actions initiated by districts, and provide support to districts to ensure consistency of regulatory application across the various districts.

On October 12, 2019, Governor Gavin Newsom signed Assembly Bill (AB) 1057 (Limon, Chapter 771, Statutes of 2019) into law. The new legislation renamed the California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR), a division founded in 1915 with a focus on the development of petroleum resources, to the California Geologic Energy Management Division (CalGEM). Furthermore, AB 1057 elevated CalGEM's focus on public health, safety, environmental protection, and advancing the state's clean energy goals.

In addition, AB 1057 charged CalGEM with the following directives:

- Reduce and mitigate greenhouse gas emissions associated with the development of hydrocarbon and geothermal resources in a manner that meets the energy needs of the state;
- Require increased financial assurances from onshore operators if existing assurances are inadequate; and
- Mandate additional documentation from operators when ownership of wells or facilities changes, such as proof of sale and lease agreements.

The name change became effective on January 1, 2020, and CalGEM became the steward of California's geologic energy resources and the repository of more than 170,000 well records, production and injection statistics, well logs, and field maps. CalGEM will continue ensuring compliance with California's laws and regulations, while increasing California's health, safety, and environmental efforts.

¹ In mid-2021, CalGEM reorganized its districts from four to three – Coastal and Northern Districts merged to form a new Northern District. The change brings the new Northern District into parity with the other two Districts, Southern and Inland, in terms of staff size and leadership structure.

2020 CALIFORNIA OIL AND GAS PRODUCTION

OIL PRODUCTION

State Oil Production (MMbbl per year)*

Without Federal OCS (Outer Continental Shelf) Production

Year	2020	2019	2018	2017	2016
State Onshore	139.3	152.6	156.4	163.2	174.1
State Offshore	9.0	6.9	7.7	11.3	12.3
Total	148.3	159.5	164.1	174.5	186.4

*Million Crude Oil Barrel Units (MMbbl)

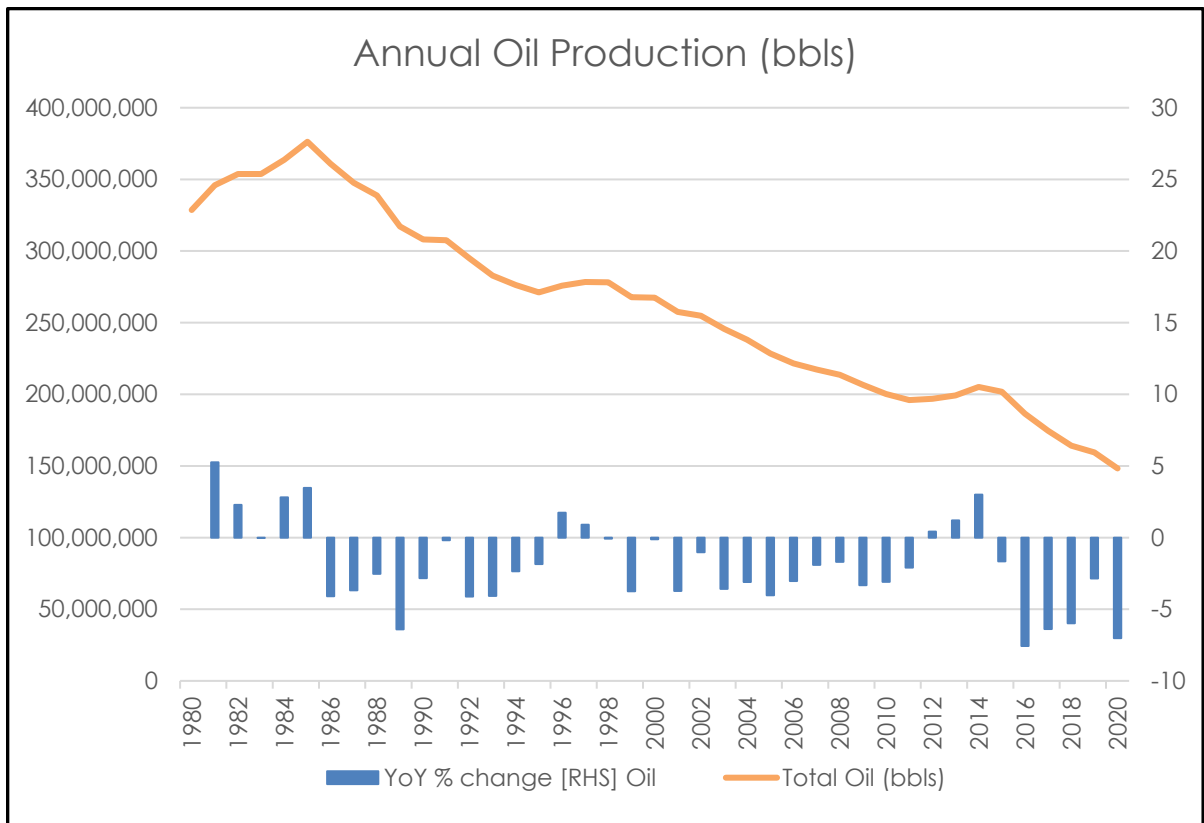


Figure 1: California oil production in barrels per year in annual frequency. Yearly oil production peaked in 1985 at 376,255,669 bbl/year, representing a little over 1 million bbl/day. The blue bars represent the year-over-year percentage change in production, with the axis on the right-hand side [RHS]. Since peaking in 1985, year-over-year oil production has increased only during 5 years: 1996, 1997, 2012, 2013 and 2014. The average decline rate since the peak in 1985 is 2 percent with an acceleration in the decline since 2015.

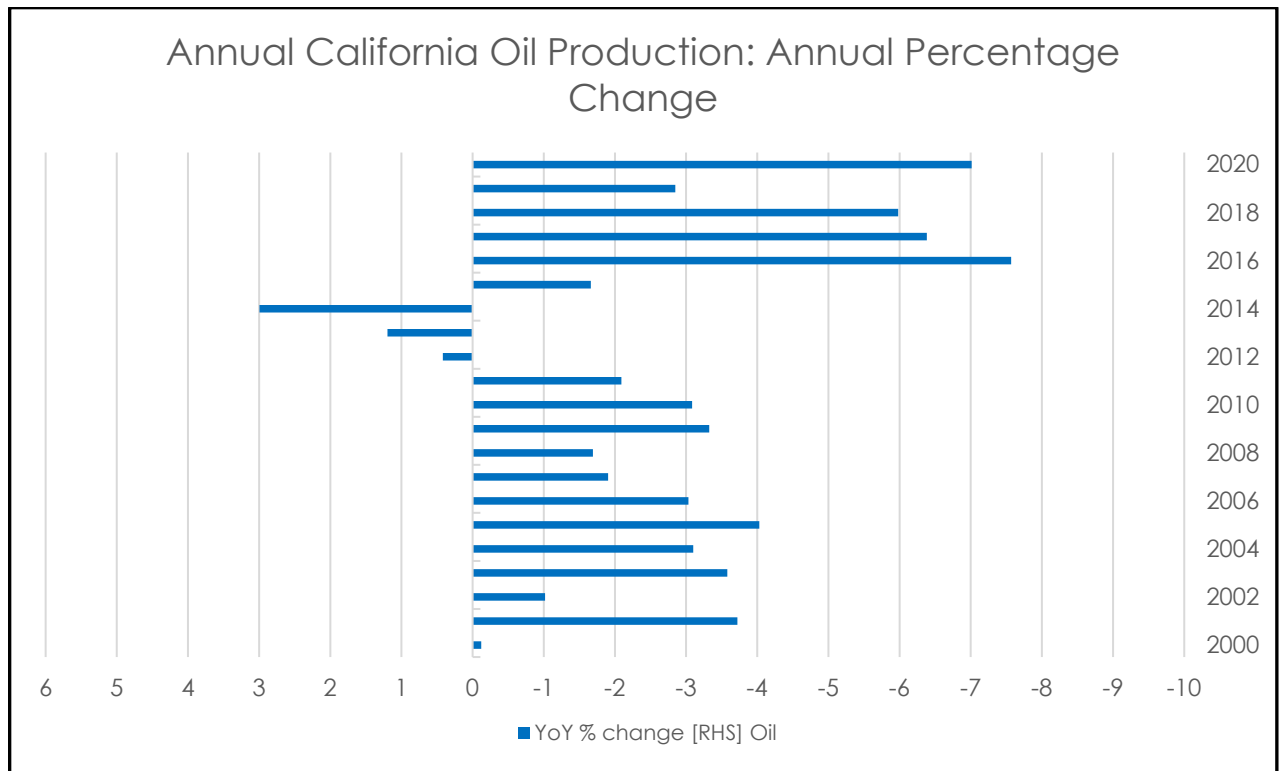


Figure 2: Impact of the COVID-19 Pandemic on California oil production with annual change in oil production.

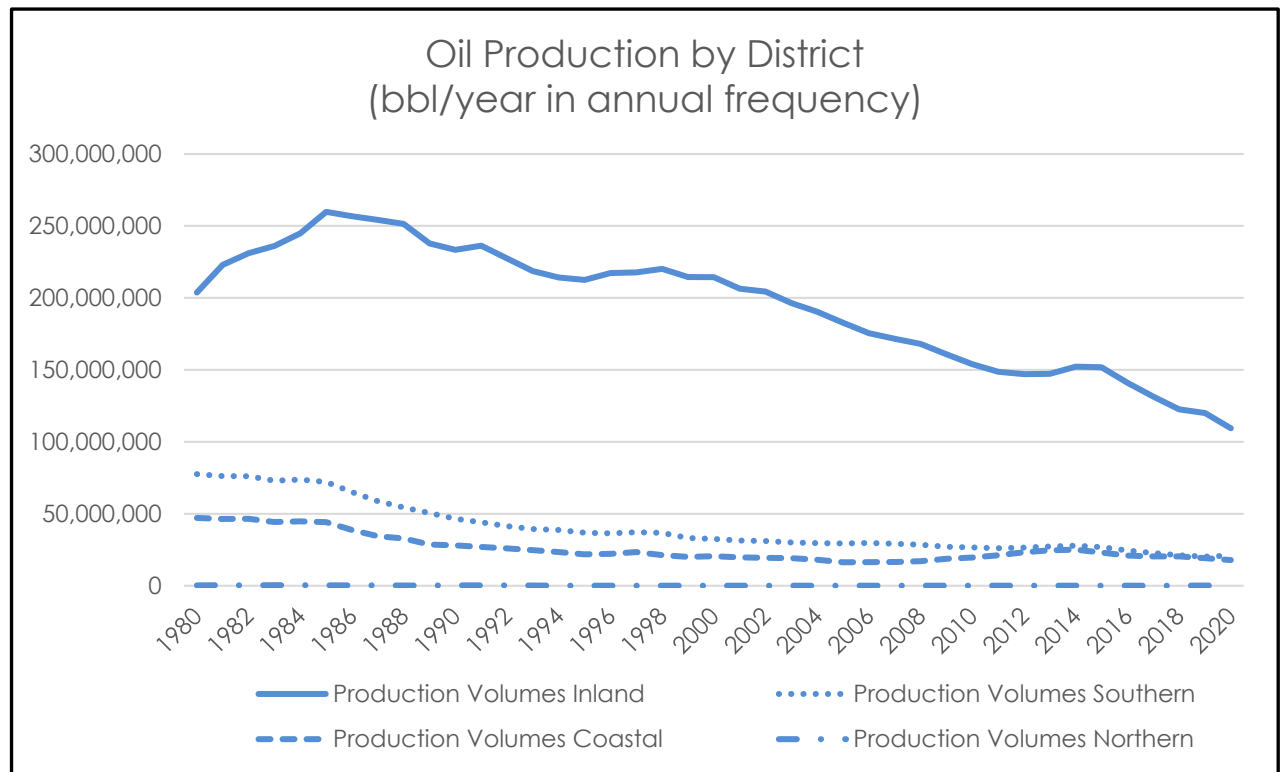


Figure 3: Oil production by district in barrels per year in annual frequency. Notice Inland district annual oil production peaked in 1985 at 259,761,869 bbl/month. Oil production in Northern district is minimal and represented an average of 74,079 bbl/year in 2020.

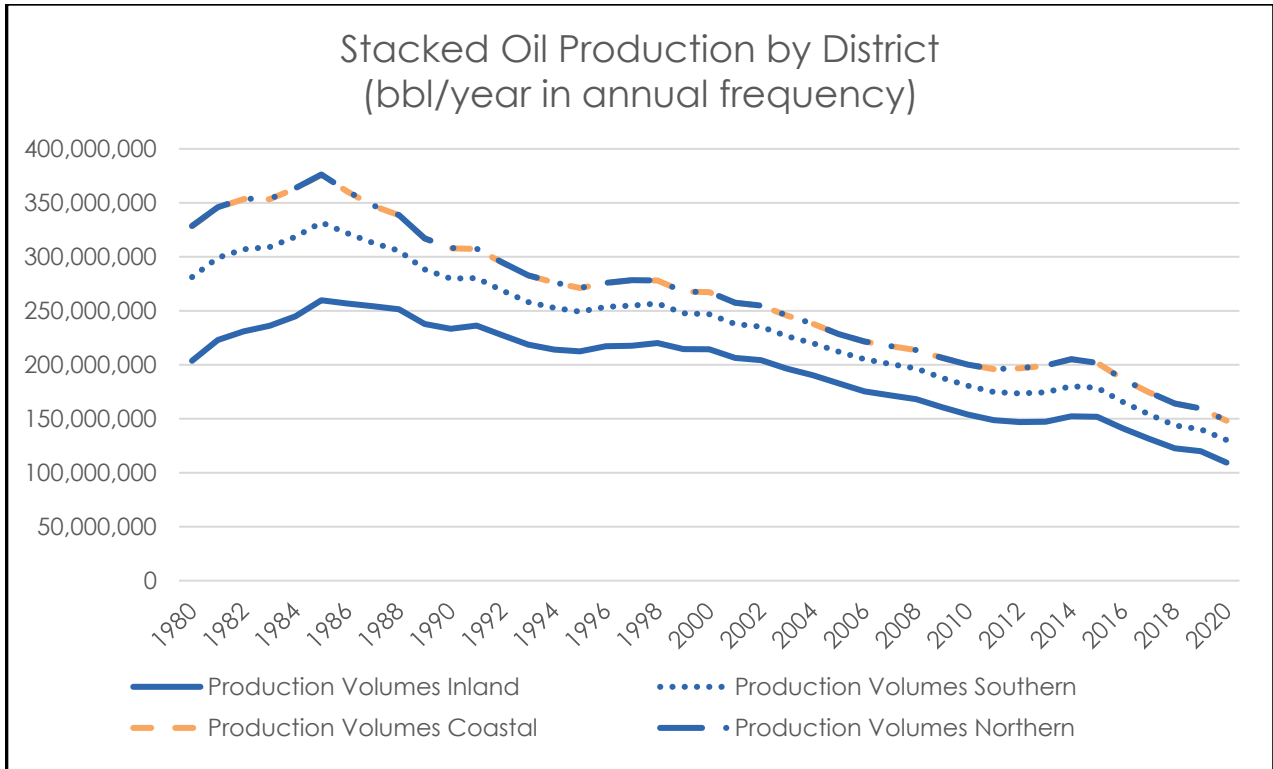


Figure 4: Stacked oil production by district in barrels per year in annual frequency. Notice the peak in annual production in 1985 at 376,255,669 bbl/year.

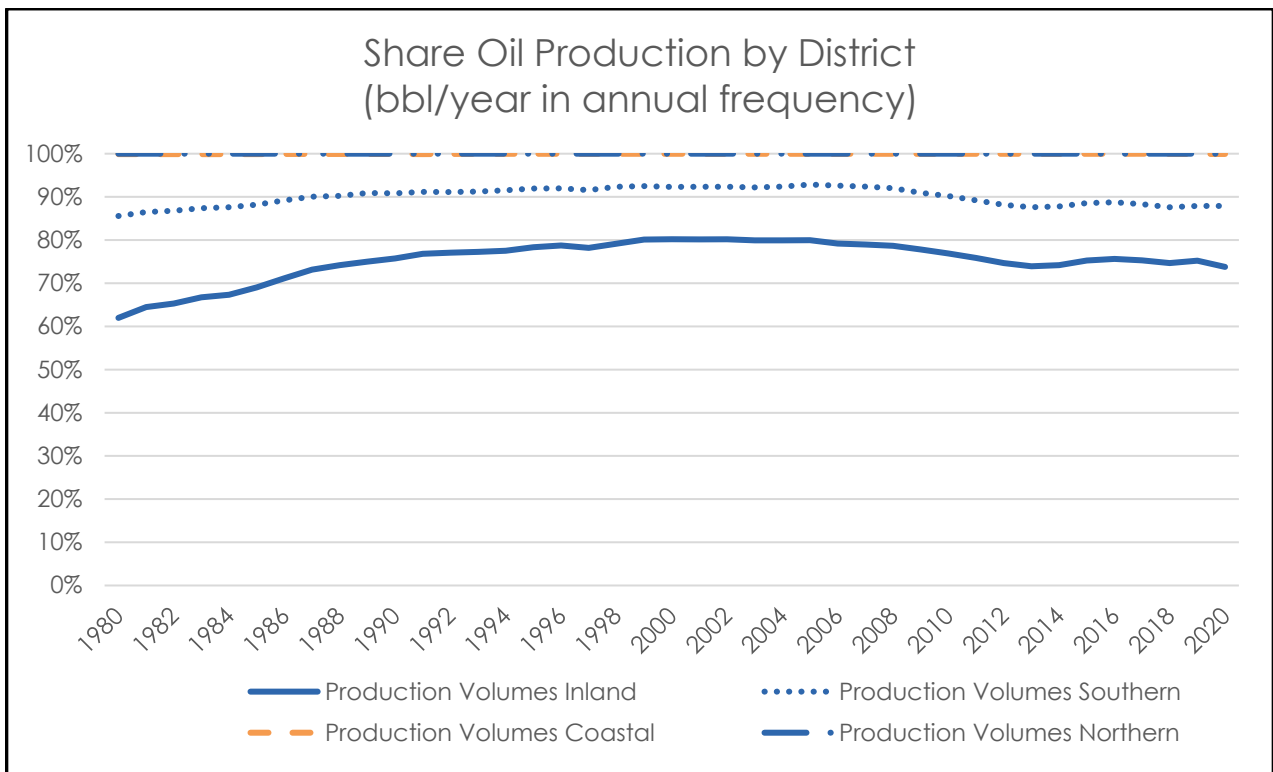


Figure 5: Share of oil production by district in barrels per year in annual frequency. Notice Inland district monthly production increased from about 60 percent in 1980 to about 80 percent by 2000. The share of oil production from Southern district decreased the most between 1980 and 2020.

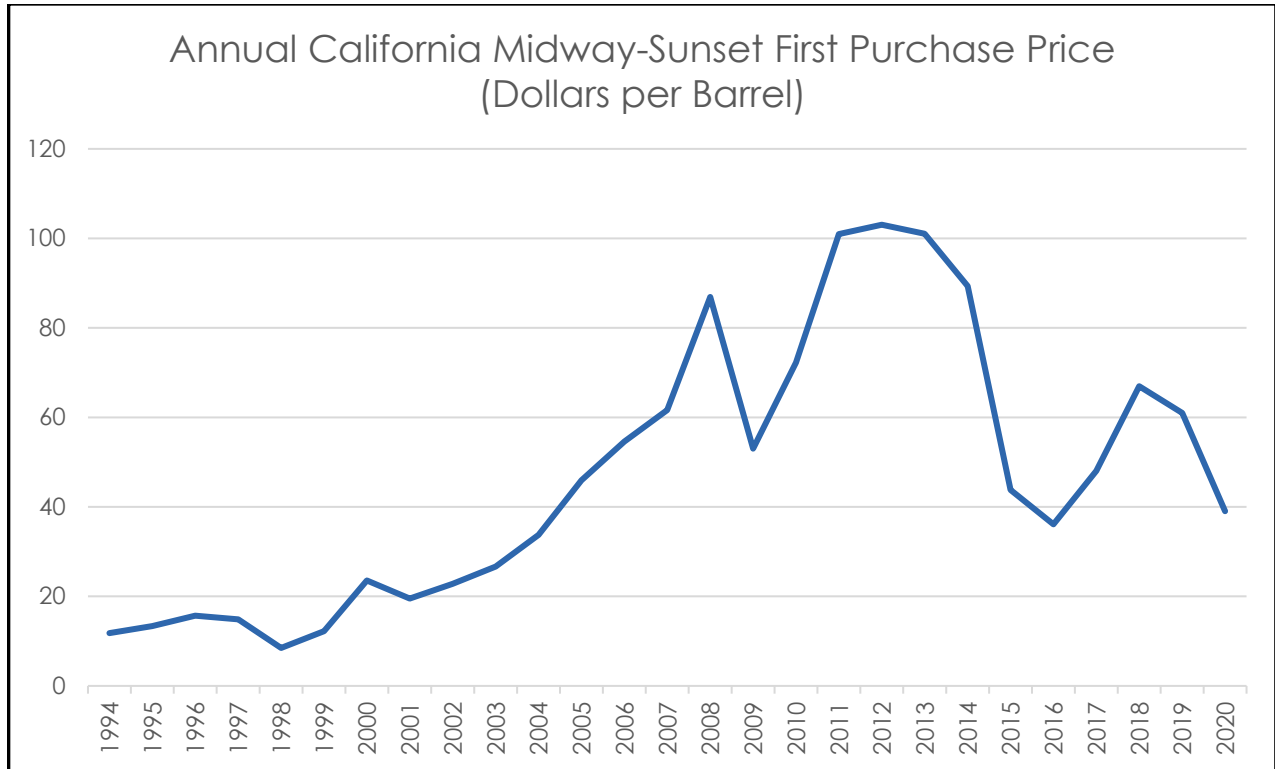


Figure 6: Annual Midway-Sunset Oil Price (note that the “Midway-Sunset” price, or oil price, is used throughout this document to refer to the average price of oil in California). Source: U.S. Energy Information Administration (EIA)

<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F005006143&f=A>

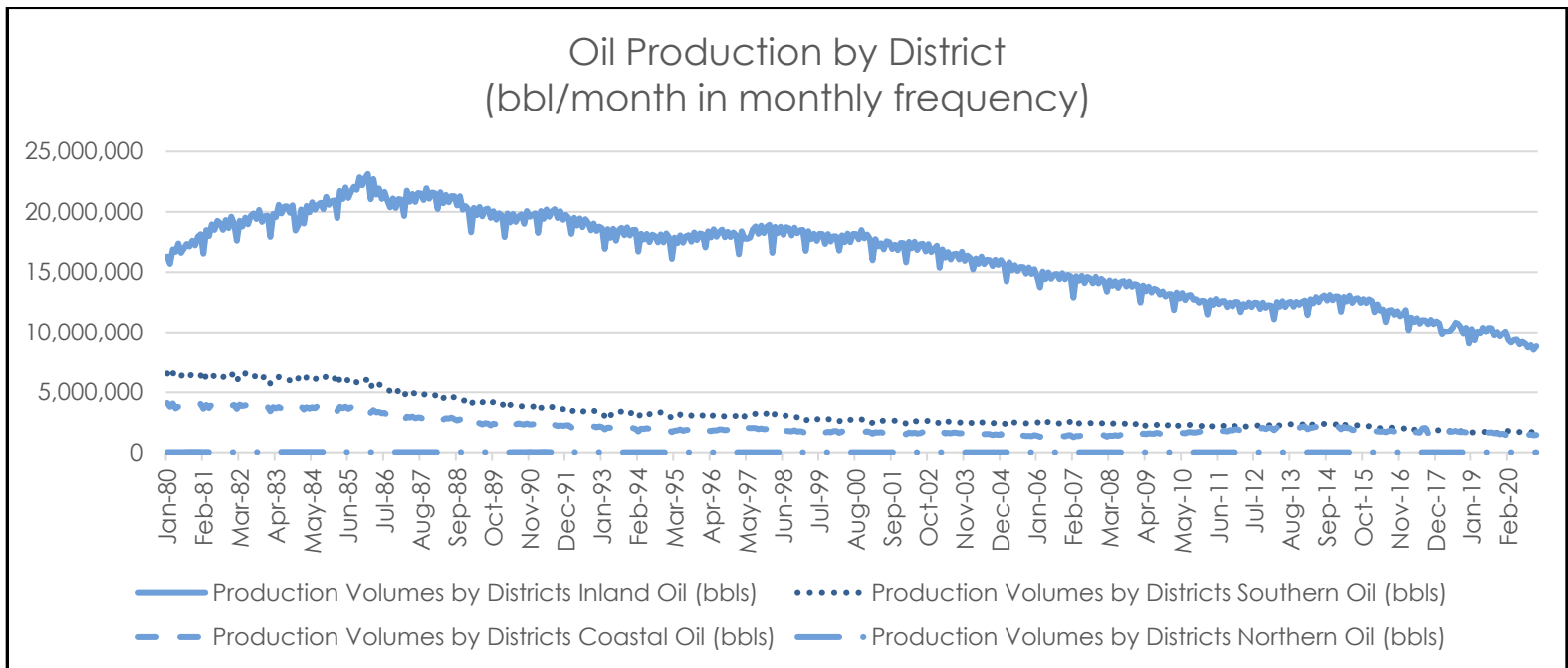


Figure 7: Oil production by district in barrels per month in monthly frequency. Notice Inland district monthly production peaked in January 1986 at 23,187,838 bbl/month. Oil production in Northern district is minimal and represented an average of 6,173 bbl/month in 2020.

Stacked Oil Production by District (bbl/month in monthly frequency)

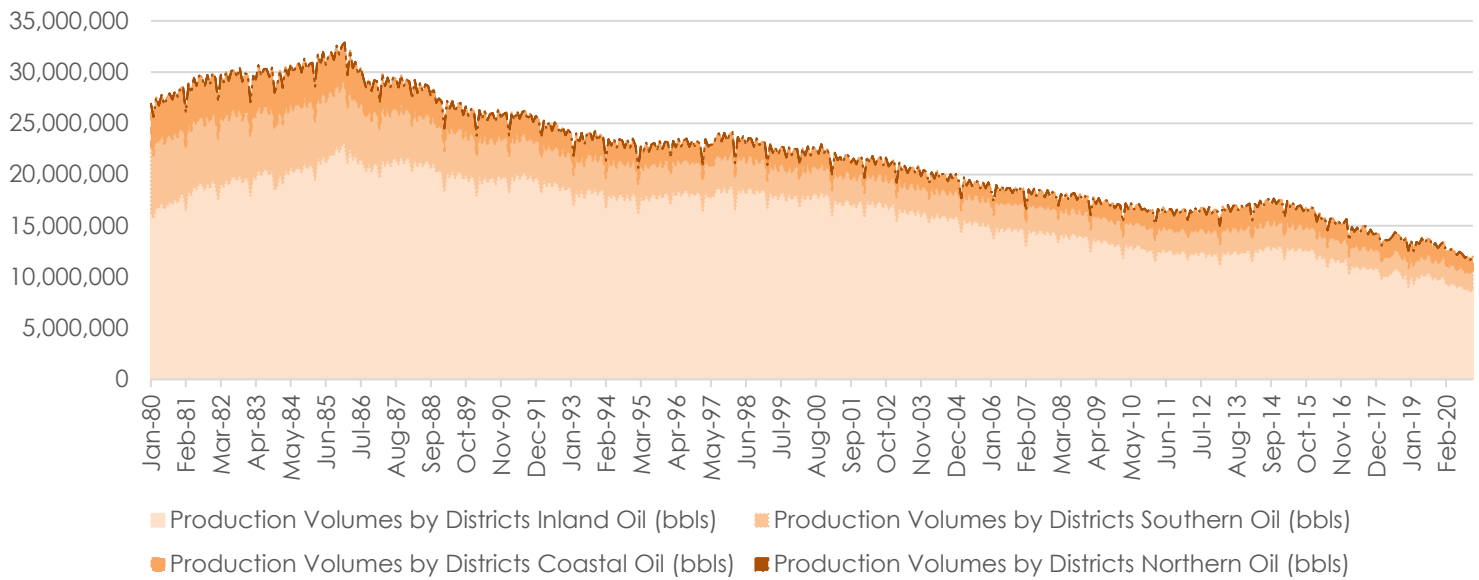


Figure 8: Stacked oil production by district in barrels per month in monthly frequency. Notice the peak in monthly production in January 1986 at 32,895,831 bbl/month.

Share of Oil Production by District (bbl/month in monthly frequency)

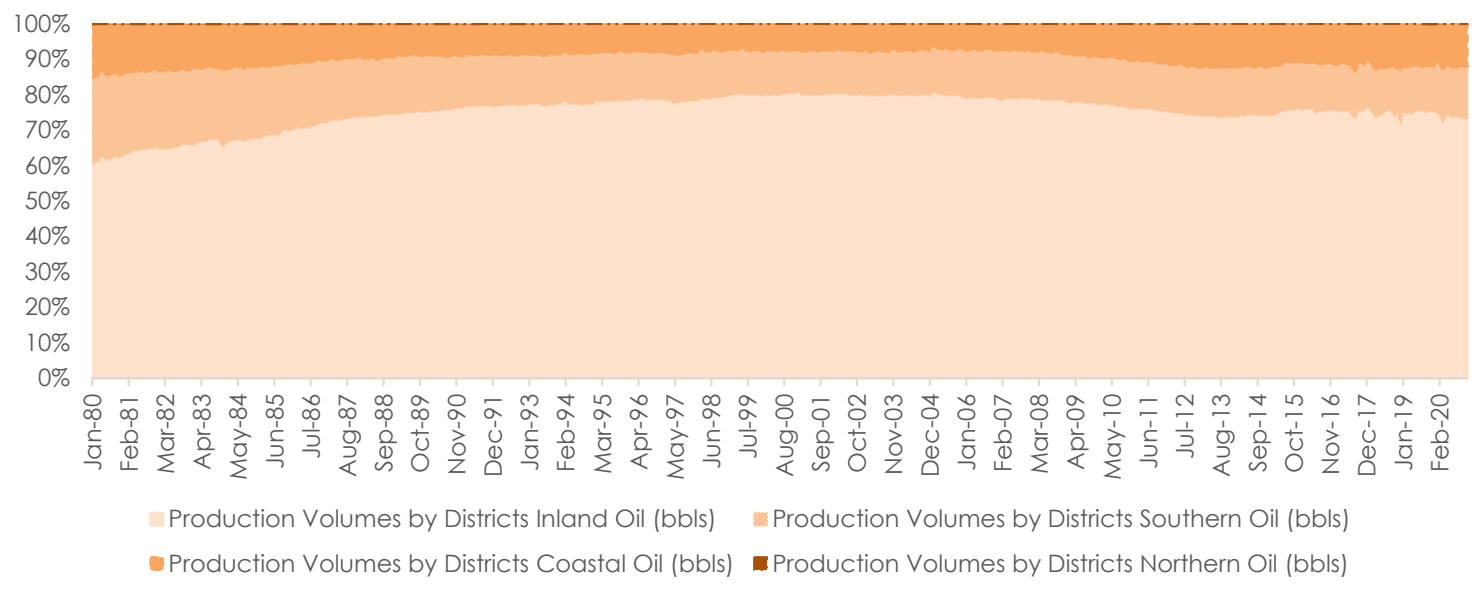


Figure 9: Share of oil production by district in barrels per month in monthly frequency. Notice Inland District oil production increased from about 60 percent in 1980 to about 80 percent by 2000. The share of oil production from Southern district decreased the most between 1980 and 2020.

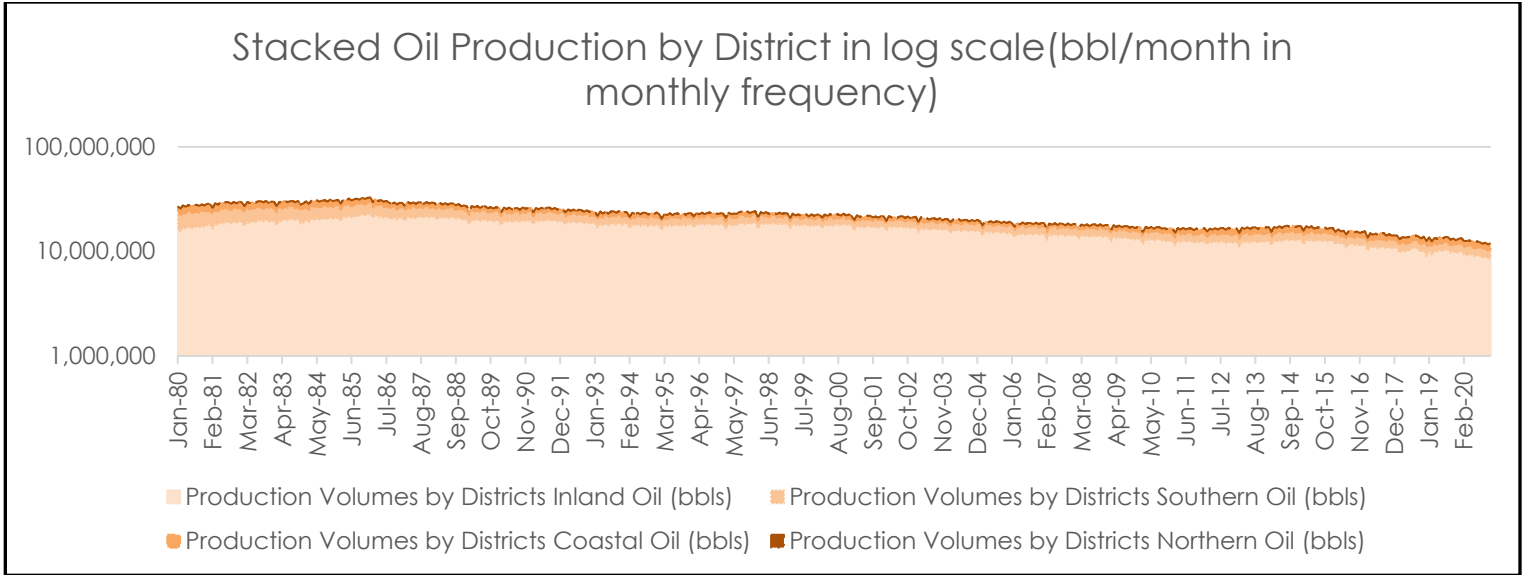


Figure 10: Stacked oil production by district in barrels per month in monthly frequency in logarithmic scale.

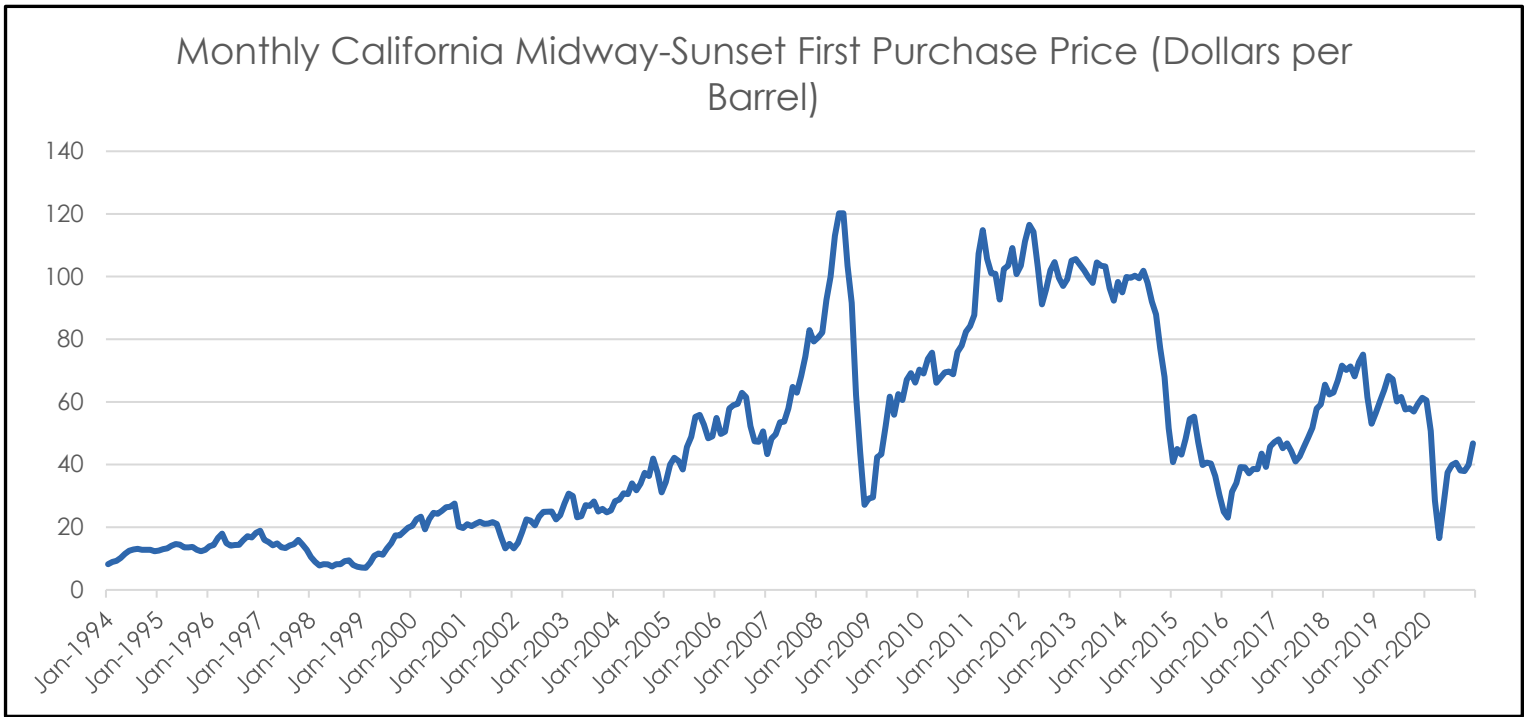


Figure 11: Monthly Midway-Sunset Oil Price. Source: EIA

<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F005006143&f=M>

Oil Production from the Ten Largest Fields (MMbbl per year)
Without Federal OCS Production

Field Name	2020	2019	2018	2017	2016
Belridge, South	18.4	20.0	20.8	21.2	22.5
Midway-Sunset	20.0	21.2	21.0	22.2	24.7
Kern River	16.3	17.7	16.3	21.9	24.2
Cymric	11.6	13.1	15.3	16.4	16.9
Wilmington	10.2	10.3	10.8	11.6	12.6
Lost Hills	8.7	9.3	9.7	9.5	10.2
San Ardo	7.3	8.3	8.4	7.2	7.9
Elk Hills	6.3	7.7	8.5	9.1	10.0
Coalinga	5.4	5.8	6.3	6.6	6.4
Poso Creek	4.8	5.4	5.1	4.4	4.2

Top 10 Oil Producing Fields in 2020 (bbl)

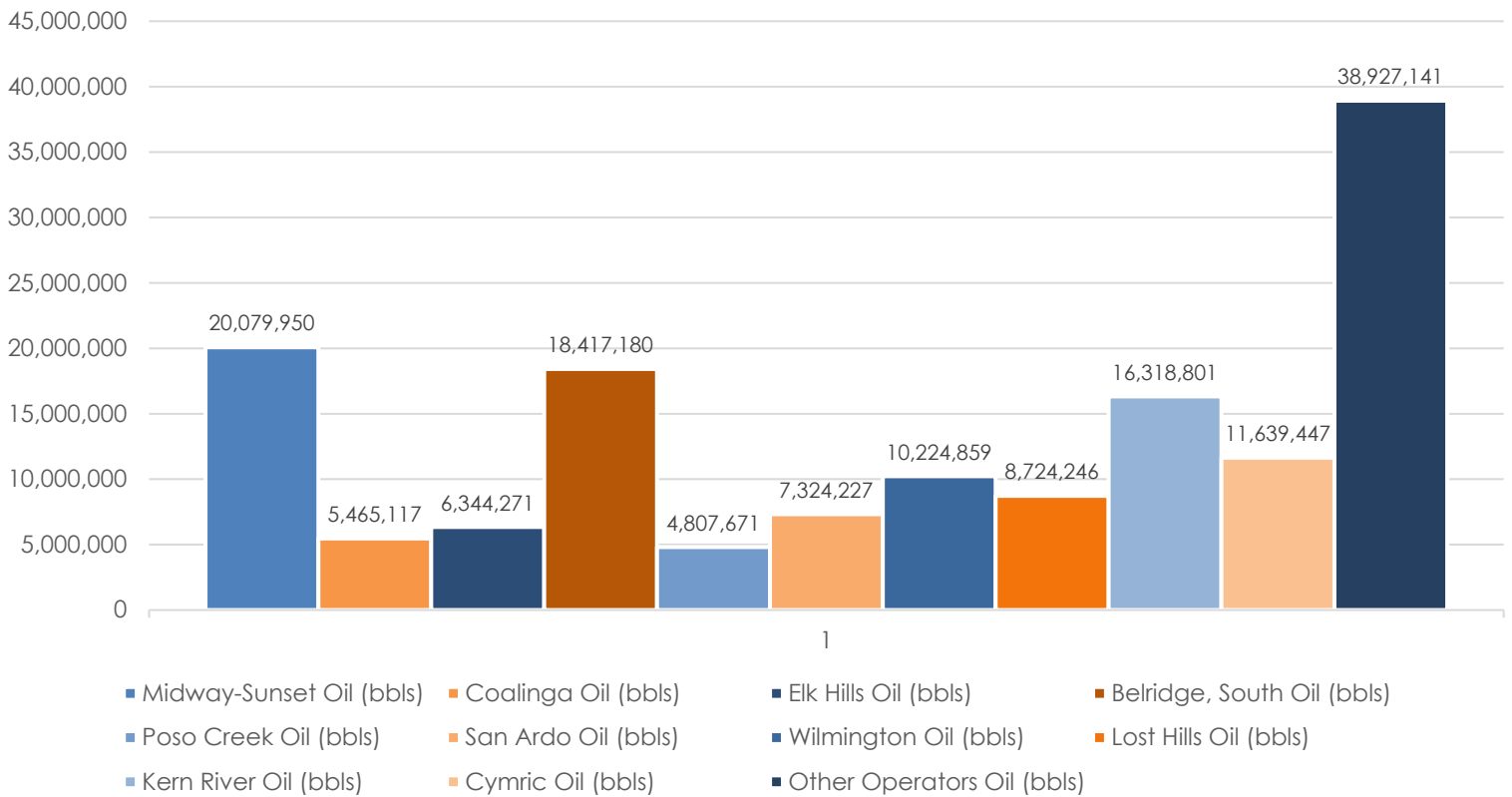


Figure 12. Ten largest producing oil fields in California in 2020.

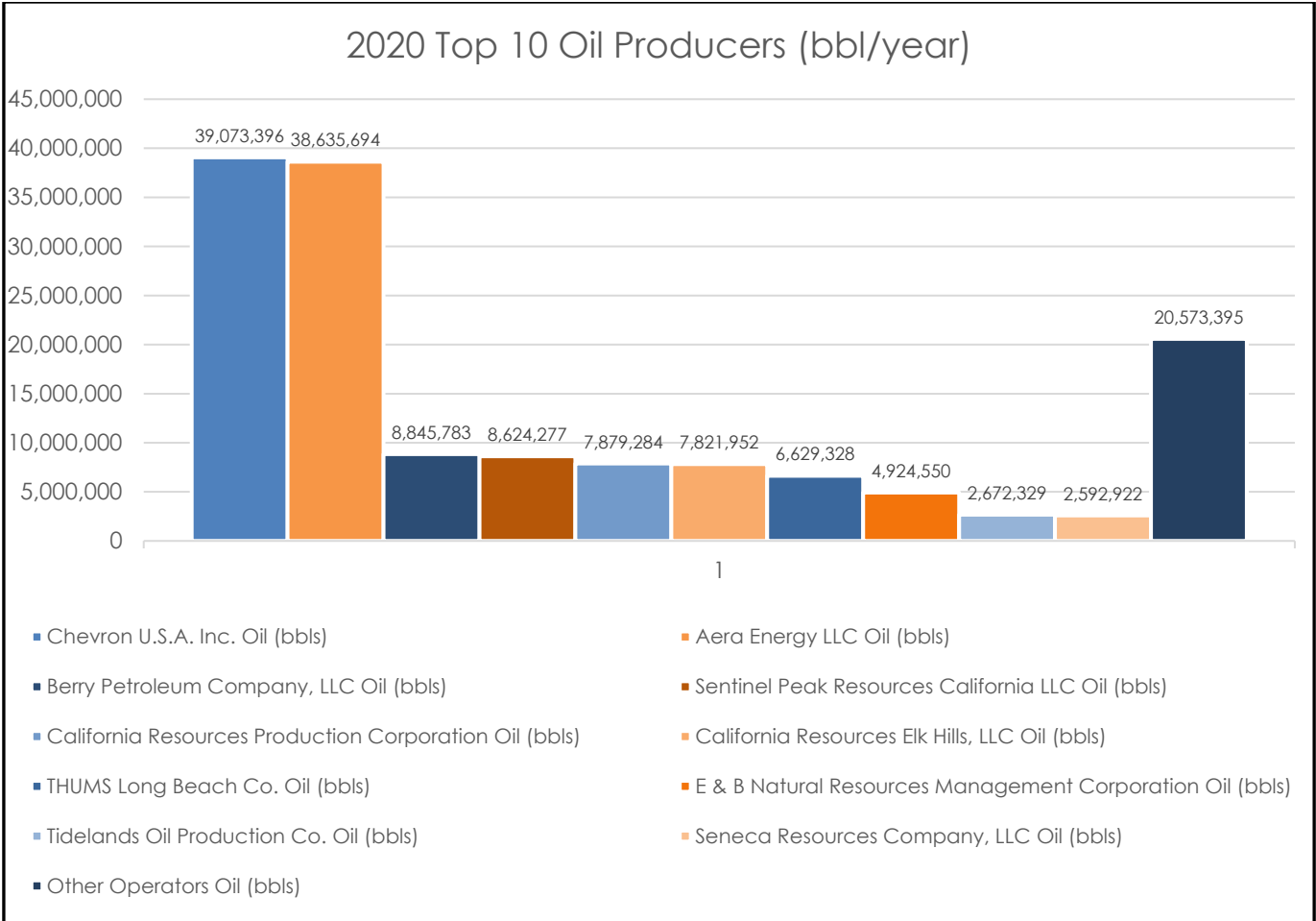


Figure 13: Ten largest oil producers in California in 2020. Eighty-six percent of the oil production came from the top 10 operators in 2020, with Chevron and Aera representing more than half of the total oil production.

GAS PRODUCTION

State Associated & Non-Associated Gross Gas Production (2016-2020) (Bcf)

Without Federal OCS Production

Year	2020	2019	2018	2017	2016
Total Associated	136.6	149	159.8	171.2	174.9
Total Non-Associated	12.6	16.6	18.5	20.3	22.4
Total	149.2	165.6	178.3	191.5	197.3

*Does not equal sum due to rounding.

State Associated & Non-Associated Gross Gas Production (2016-2020) (Bcf)

Without Federal OCS Production

Year	2020	2019	2018	2017	2016
Total Onshore	145.4	162.8	175.4	187.3	192.7
Total Offshore	3.8	2.8	2.9	4.2	4.6
Total	149.2	165.6	178.3	191.5	197.3

*Does not equal sum due to rounding.

2020 Gross Associated Gas Production from the Ten Largest Fields (Bcf/year)
Without Federal OCS Production

Field Name	Gross Gas Production
Elk Hills	71.1
Buena Vista	13.8
Belridge, South	7.3
Midway-Sunset	4.6
Lost Hills	4.6
Wilmington	4.4
Asphalto	3.7
Ventura	2.9
Cymric	1.8
Belridge, North	1.8

Gross Non-Associated Gas Production from the Largest Fields (Bcf/year)
Without Federal OCS Production

Field Name	Gross Gas Production
Rio Vista Gas	2.6
Grimes Gas	2.0
Willows-Beehive Bend Gas	1.8
Sutter Buttes Gas	1.3
Sycamore Gas	0.49
Elk Hills	0.48
Malton-Black Butte Gas	0.33
Tompkins Hill Gas	0.33
Union Island Gas	0.30
Grimes, West, Gas	0.28

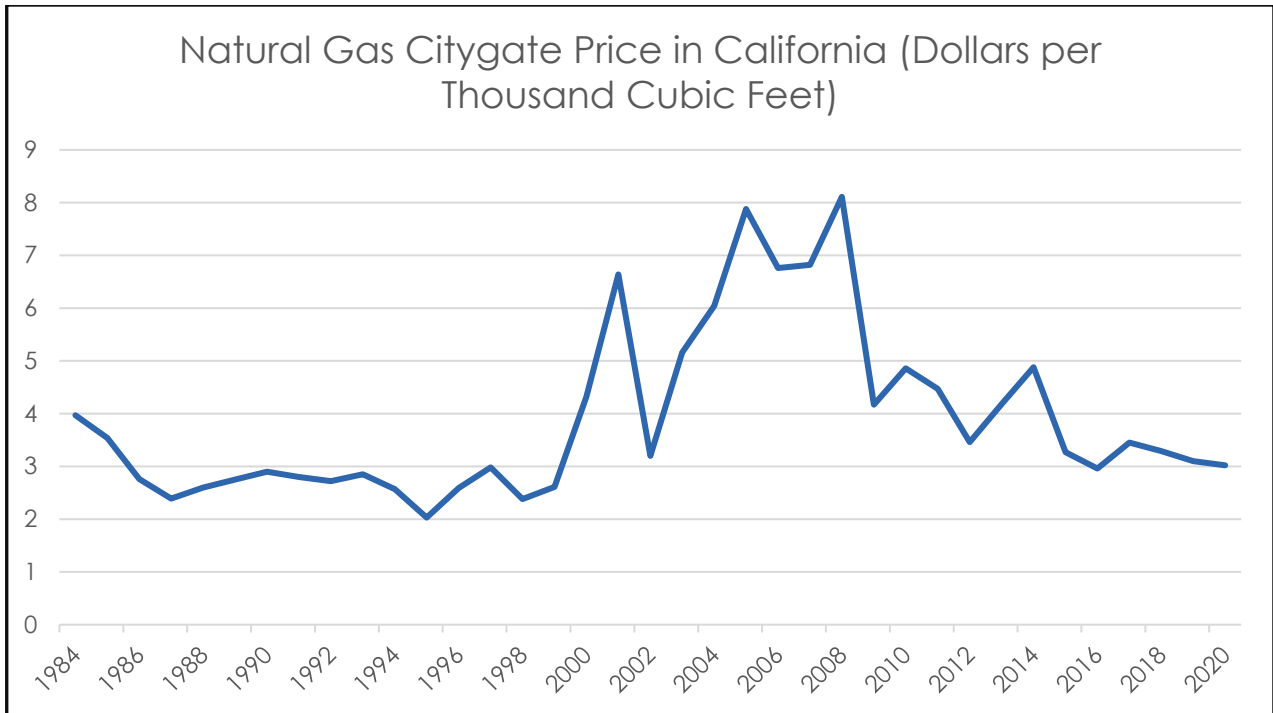


Figure 14: Natural gas Citygate price in California on an annual frequency. Source: U.S. Energy Information Administration (EIA) <http://www.eia.gov/dnav/ng/hist/n3050ca3a.htm>

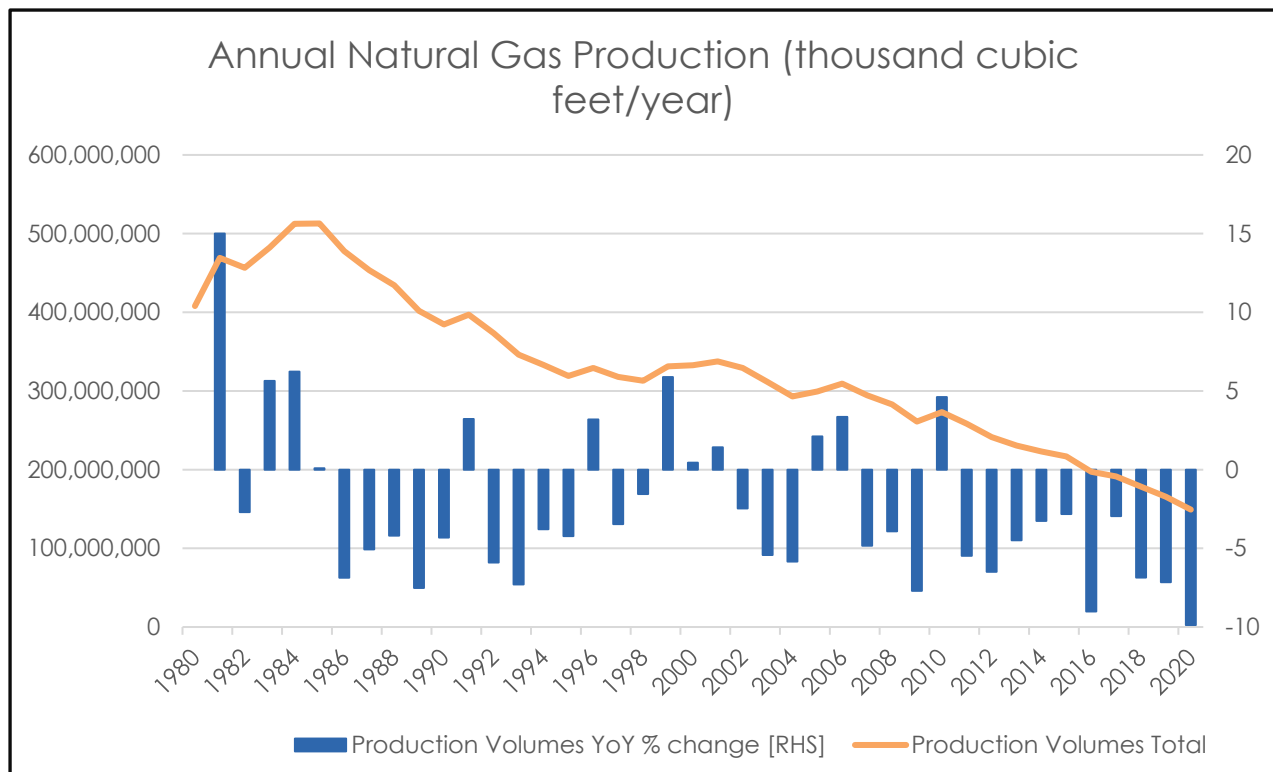


Figure 15: California natural gas production in thousand cubic feet (mcf) per year in annual frequency. Notice yearly natural gas production peaked in 1985 at 512,876,086 mcf/year, equivalent to 1.4 bcf/day. The blue bars represent the year-over-year percentage change in production. Since the peak in 1985, year-over-year natural gas production has increased only during eight years: 1991, 1996, 1999, 2000, 2001, 2005, 2006 and 2010. The average decline rate since the peak in 1985 is 3 percent with an acceleration in the decline since 2011, with the steepest decline in history in 2020 with a 10 percent decline. The cumulative natural gas production drop since 2015 is 31 percent, 5 percent higher than the oil production drop.

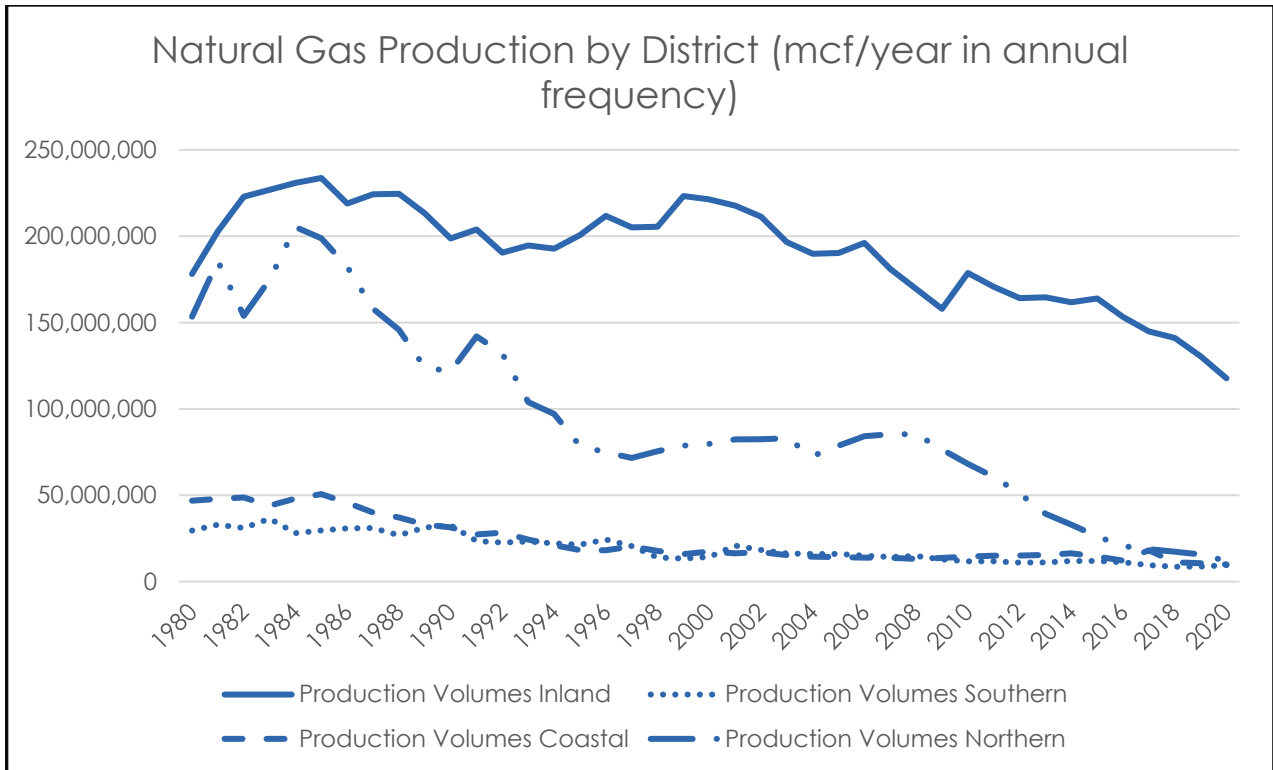


Figure 16: Natural gas production by district in thousand cubic feet per year in annual frequency. Notice Inland district annual natural gas production peaked in 1985 at 233,735,338 mcf/year. Natural gas production in Northern district dropped drastically since 2008.

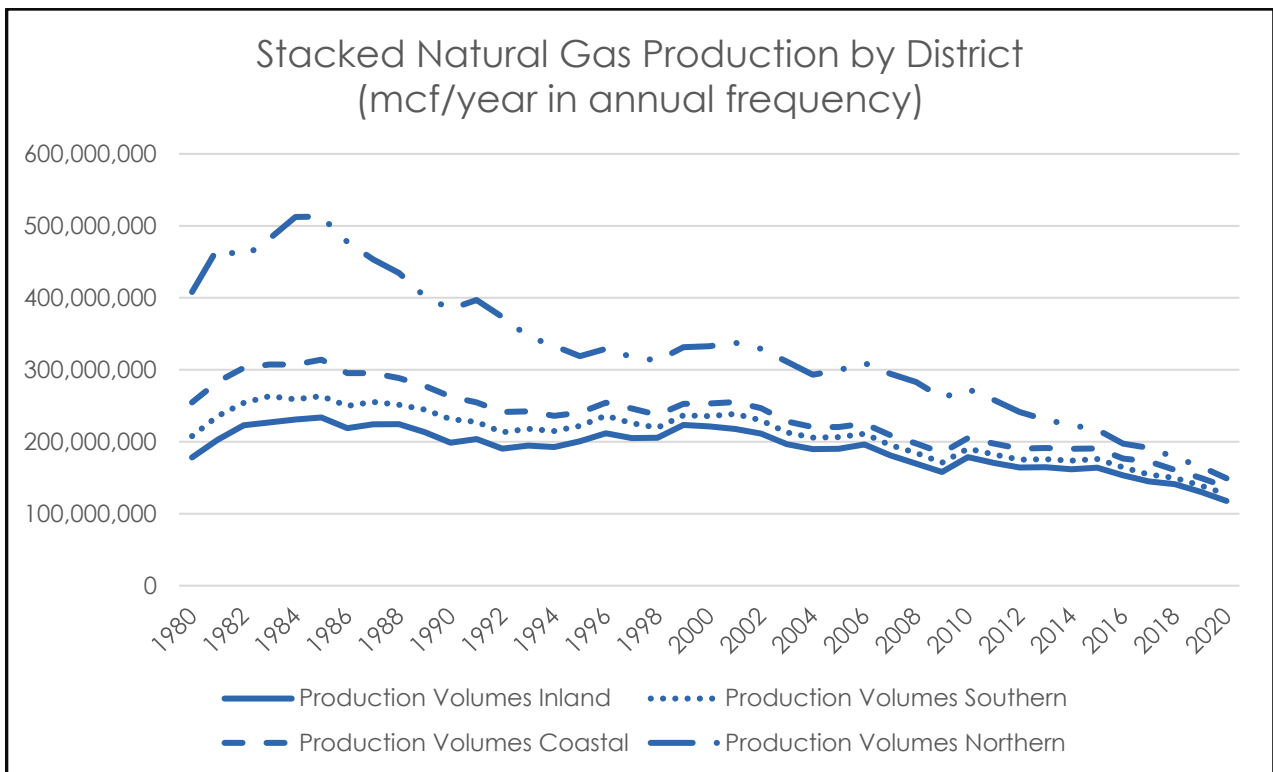


Figure 17: Stacked natural gas production by district in thousand cubic feet per year in annual frequency. Notice the peak in monthly production in January 1985 at 512,876,086 mcf/year.

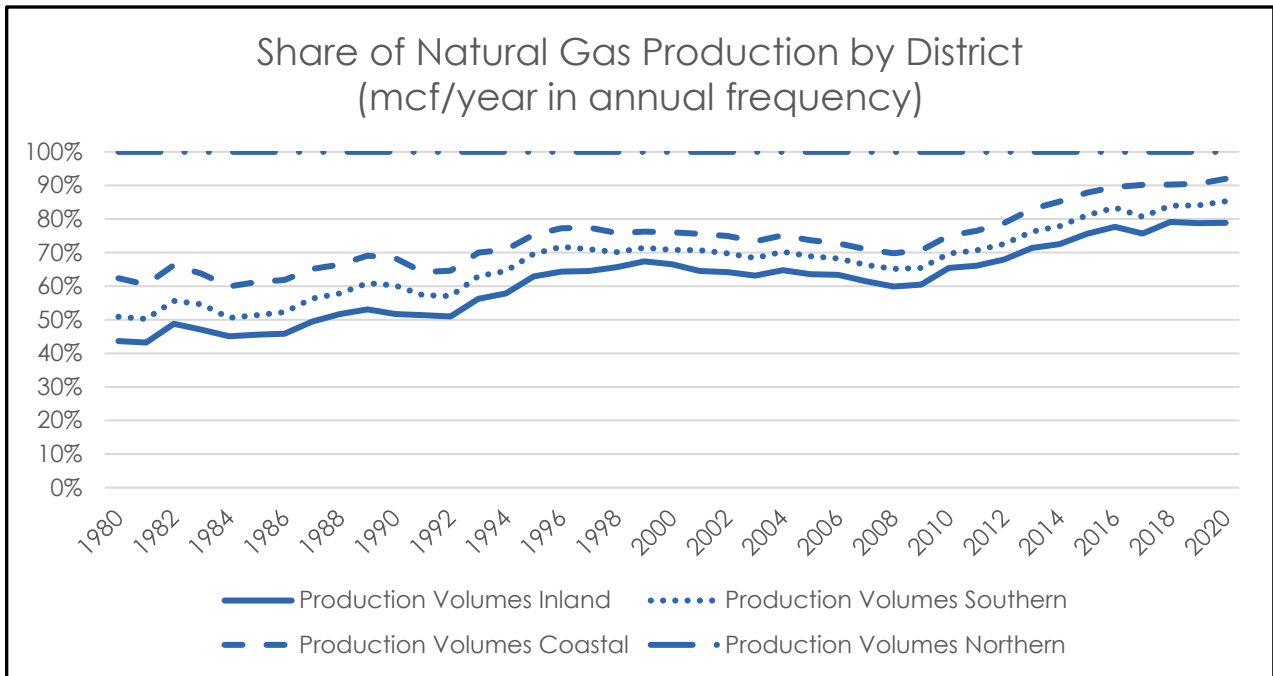


Figure 18: Share of natural gas production by district in thousand cubic feet per year in annual frequency. Notice Inland district monthly production increased from around 45 percent in 1980 to about 80 percent by 2018, taking the majority of the share from Northern district. The share of natural gas production from Northern district decreased the most between 1980 and 2020.

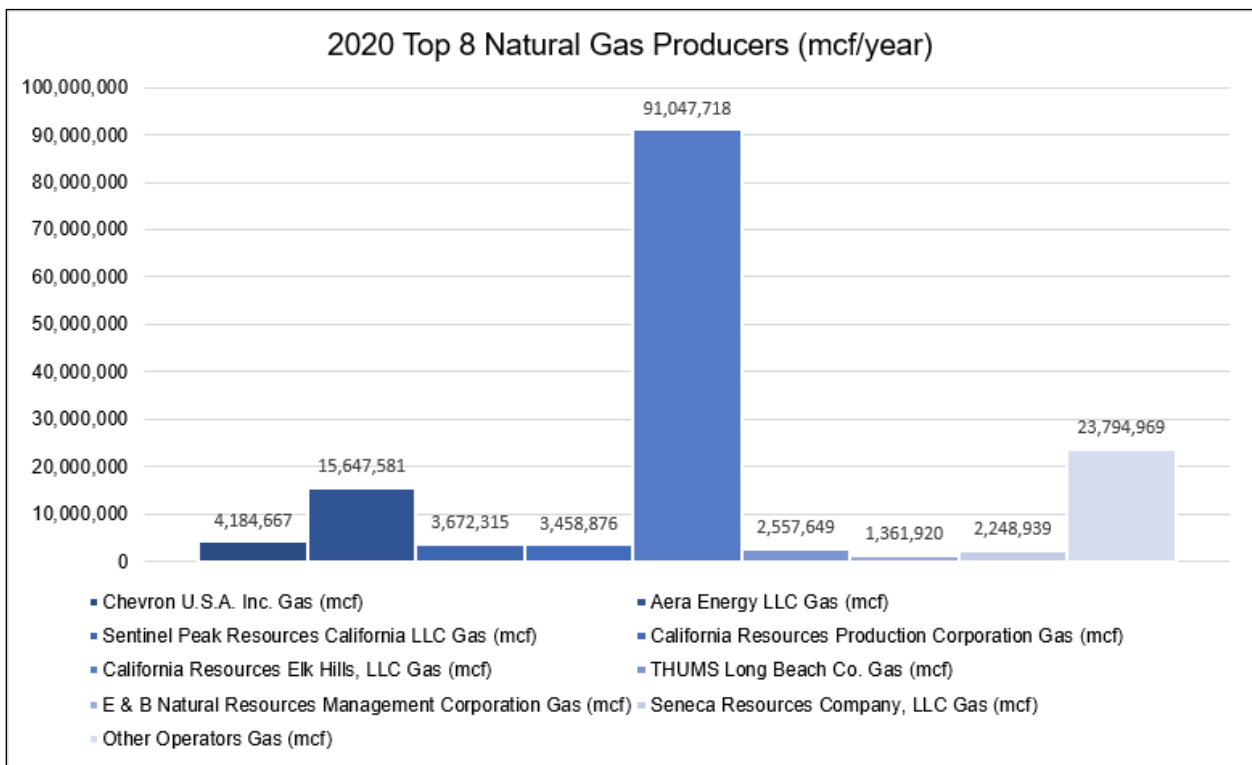


Figure 19: Ten largest natural gas producers in California in 2020. 84 percent of the natural gas production came from the top 10 operators in 2020, with California Resources Elk Hills representing 61 percent of the total natural gas production in California in 2020.

Natural Gas Production by District (mcf/month in monthly frequency)

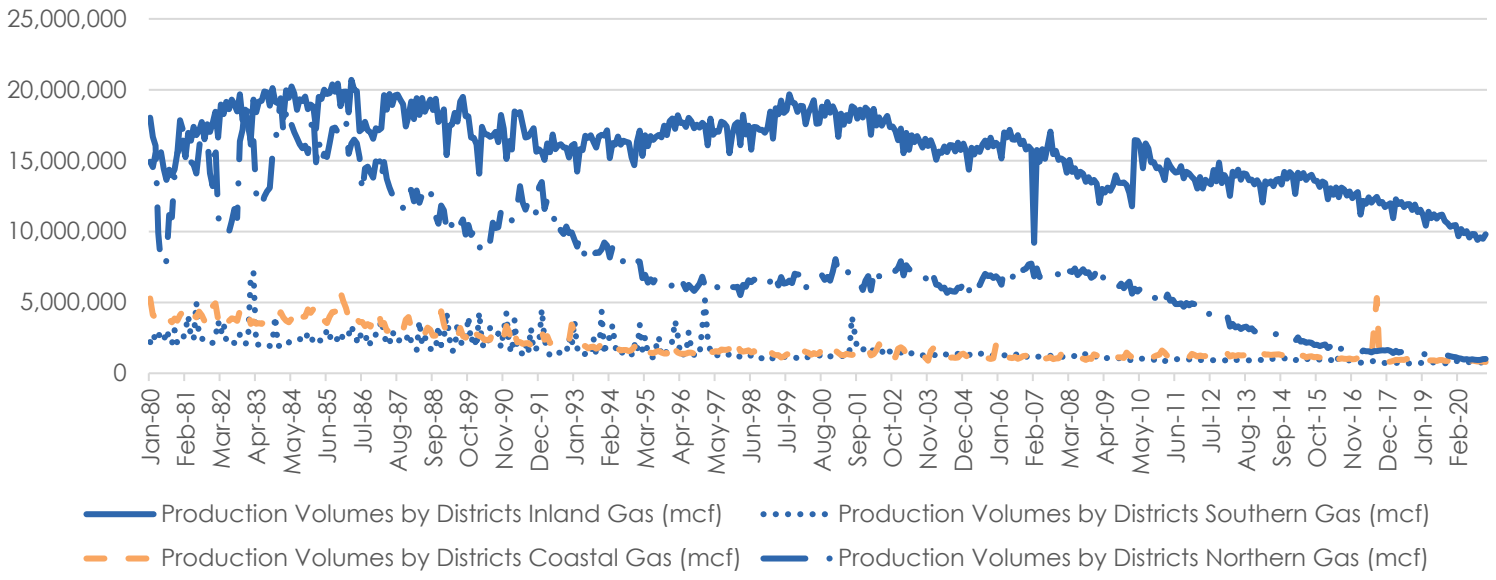


Figure 20: Natural production by district in thousand cubic feet per month in monthly frequency. Notice Inland district monthly production peaked in March 1986 at 20,698,833 mcf/month. Natural Gas production in Southern and Coastal districts are minimal and represented an average of respectively 793,857 mcf/month and 833,384 mcf/month in 2020.

Stacked Natural Gas Production by District (mcf/month in monthly frequency)

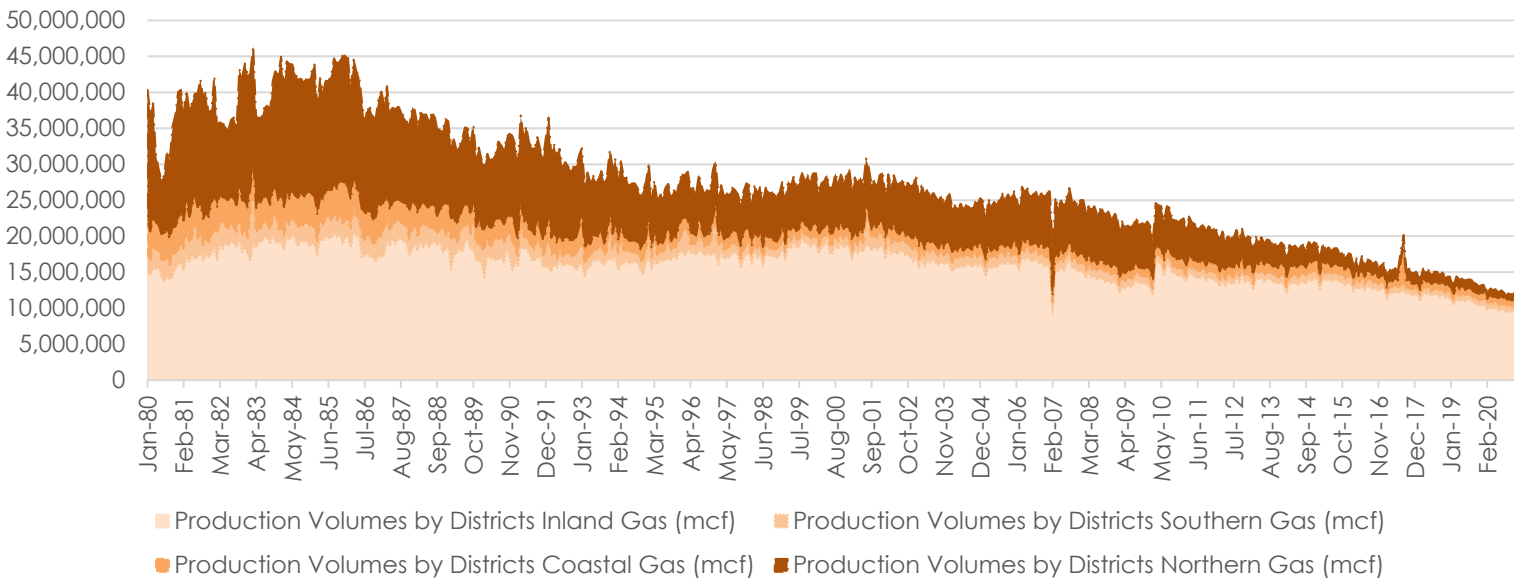


Figure 21: Stacked natural gas production by district in thousand cubic feet per month in monthly frequency. Notice the peak in monthly production in March 1983 at 46,469,126 mcf/month.

Share of Natural Gas Production by District (mcf/month in monthly frequency)

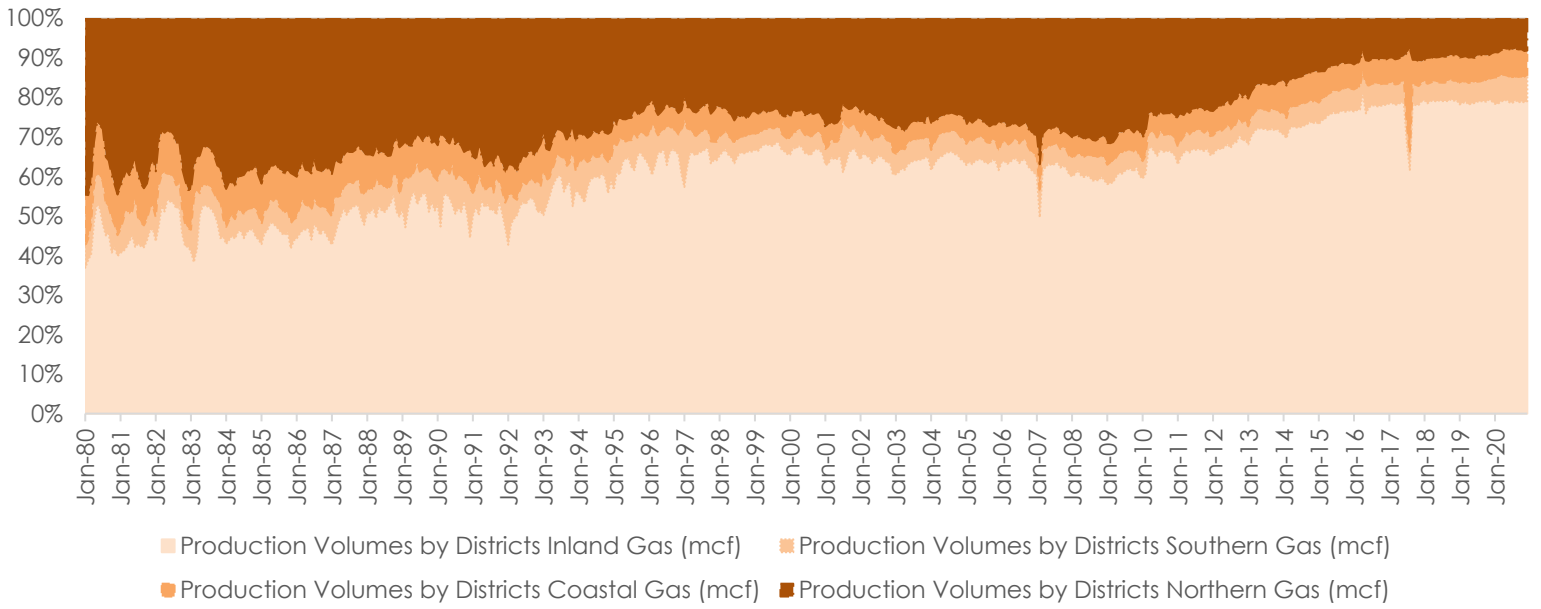


Figure 22: Share of natural gas production by district in thousand cubic feet per month in monthly frequency. Notice Inland district monthly oil production increased from about 35 percent in 1980 to about 70 percent in 2020. The shares of natural gas production from Northern district decreased in two stages in 1993-1996 and in 2010-2015.

Stacked Natural Gas Production by District in log scale (mcf/month in monthly frequency)

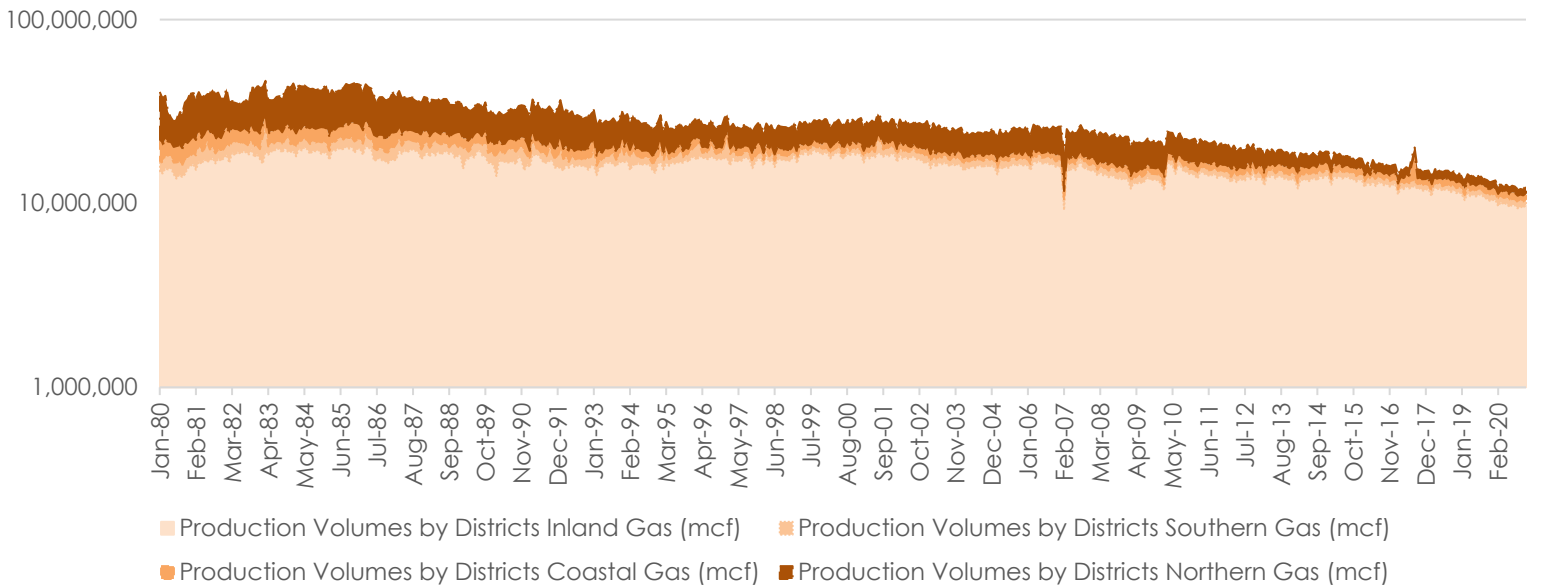


Figure 23: Stacked natural gas production by district in thousand cubic feet per month in monthly frequency in logarithmic scale.

Natural Gas Citygate Price in California (Dollars per Thousand Cubic Feet)

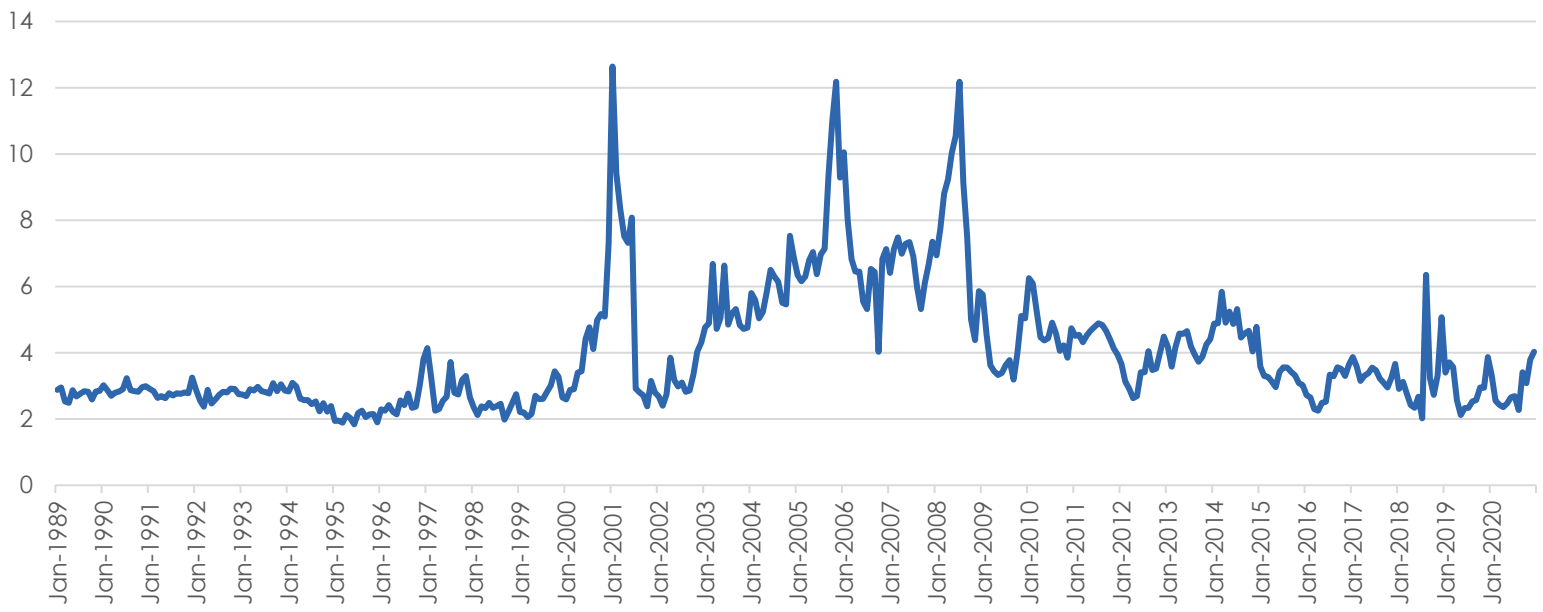


Figure 24: Natural gas Citygate price in California. Source: U.S. Energy Information Administration (EIA) <http://www.eia.gov/dnav/ng/hist/n3050ca3m.htm>

UNDERGROUND GAS STORAGE

2020 State Gas Storage by District

	Gas Injected (Bcf)	Gas Withdrawn (Bcf)	Net (Bcf)
Coastal	51.2	44.8	6.4
Northern	122.1	91.3	30.8
Southern	3.7	3.3	0.4
Grand Total	177	139.4	37.6

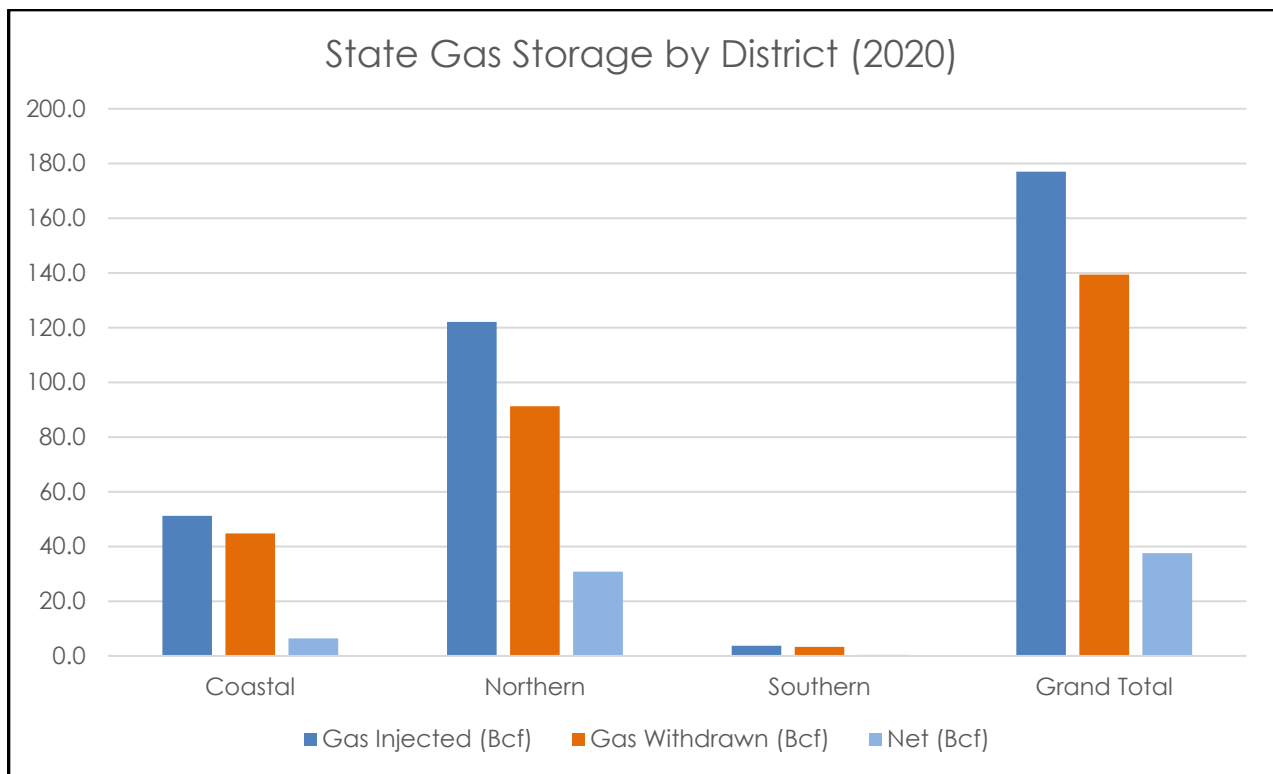


Figure 26: Underground gas storage volume by district in 2020.

2020 CALIFORNIA INJECTION

The table below lists the injection volumes for 2016-2020. Water flood and cyclic steam operations increased from 2019 to 2020, while water disposal, steam flood, and gas injection decreased from 2019 to 2020. There has been no recorded air injection over the past five years.

Injection Volumes (MMbbl or Bcf*) *Without Federal OCS Production*

	2020	2019	2018	2017	2016
Water Flood	1,582.9	1,511.9	1,575.9	1,619.6	1,636.2
Water Disposal	733.2	741.2	718.8	694.3	734.7
Steam Flood	345.9	376.1	398.7	395.9	414.1
Cyclic-Steam	243.8	231.3	286.6	133.2	149.4
Gas Injection*	177.1	211.0	129.8	152.9	112.4
Air Injection*	0.0	0.0	0.0	0.0	0.0

* Gas and air volumes in Bcf.

2020 CALIFORNIA NEW WELL OPERATIONS

	2020	2019	2018	2017	2016	2015
Wells Drilled+	693**	852	1,976	996	759	1,016
Wells Completed+	783***	1,071	1,564	1,108	1,111	1,346
Footage Drilled (ft)+	1,630,526***	2,278,447	4,821,253	2,085,937	1,587,498	2,022,697
Drilling Notices Filed+	2,374	3,184	2,530	1,258*	3,917	4,976
Rework Notices Filed	1,691	2,112	2,416	2,547	1,715	3,082
Abandonment Notices Filed++	3,935	3,324	2,786	2,153	1,798	2,120

*2017 Drilling Notices Filed has been amended.

** Based on spud dates in pending and approved well summaries. Previous dates reflected information from approved summaries only.

*** Completion dates extracted from pending and approved summaries. Previous dates reflected information from approved summaries only.

+ Includes new drill, sidetrack and deepen.

++ Includes abandonment and re-abandonment.

¹ Spudding is the process of beginning to drill a well in the oil and gas industry. A larger drill bit is initially used to clear a surface hole, which is then lined with casing and cement to protect groundwater.

2020 CALIFORNIA OIL, ASSOCIATED GAS, AND WATER PRODUCTION BY DISTRICT AND FIELD

	Oil & Condensate Produced (bbl)	Gross Gas Produced (Mcf)	Water Produced (bbl)
Coastal			
Offshore			
Elwood	0	0	0
Elwood, South, Offshore	0	0	0
Rincon	1,067	584	312
Onshore			
Aliso Canyon	85,322	125,305	448,393
Any Field	17,203	40,676	1,036,594
Arroyo Grande	533,196	494,311	8,694,860
Bardsdale	101,348	146,212	32,029
Barham Ranch	69,047	145,360	107,351
Big Mountain	1,382	12,304	4,322
Bitterwater	2,169	0	0
Cabrillo	14,333	36,744	33,821
Canada Larga	0	0	0
Careaga Canyon	2,091	12,809	136,502
Cascade	70,855	119,613	122,927
Casmalia	83,052	16,305	3,390,166
Castaic Hills	4,179	1,216	4,546
Cat Canyon	1,207,972	892,563	8,902,176
Chaffee Canyon	564	8,372	640
Cuyama, South	142,483	90,256	12,436,866
Del Valle	26,206	12,705	97,788
Eureka Canyon	0	0	0
Fillmore	185	35	970
Four Deer (ABD)	5,870	15,234	108,833
Goleta	0	0	0
Hasley Canyon	16,213	13,842	34,609
Hollister	0	0	0
Holser	13,561	8,884	11,794
Honor Rancho	18,719	5,718	104,946
Hopper Canyon	0	0	0
Jesus Maria	0	0	0
La Goleta Gas	224	0	2,636
Lompoc	200,552	138,412	17,076,404
Los Alamos	8,716	5,050	0
Lynch Canyon	50,513	0	2,072,298
McCool Ranch	0	0	0

Monroe Swell	10,812	0	23,228
Montalvo, West	133,583	70,656	6,817,267
Moody Gulch (ABD)	0	0	0
Moorpark West	4,812	1,977	4,417
Morales Canyon	0	0	0
Newhall	0	0	0
Newhall-Potrero	1,606	439	763
Oak Canyon	12,819	2,973	138,131
Oak Park	389	401	1,294
Oakridge	76,259	41,057	600,477
Oat Mountain	74,796	64,544	63,459
Ojai	260,991	722,637	365,875
Orcutt	741,278	694,513	30,342,885
Oxnard	94,214	4,250	82,043
Paris Valley	0	0	0
Piru Creek (ABD)	0	0	0
Placerita	442,610	0	22,295,274
Ramona	26,494	42,700	20,511
Ramona, North	0	0	0
Rincon	175,703	180,868	1,609,292
Russell Ranch	42,139	62,478	1,166,552
San Ardo	7,324,227	1,028,070	148,683,004
San Miguelito	235,053	185,201	2,393,046
Santa Clara Avenue	5,506	2,253	6,477
Santa Maria Valley	37,084	64,007	280,776
Santa Paula (ABD)	0	0	0
Santa Susana	1,041	1,955	3,632
Sargent	14,483	13,798	14,371
Saticoy	16,005	25,696	48,304
Sespe	319,499	764,340	286,193
Shiells Canyon	34,101	118,832	430,119
Simi	0	0	0
South Mountain	267,211	455,987	252,786
Tapia	8,524	430	193,911
Tapo Canyon, South	2,173	433	349
Tapo Ridge	0	0	0
Tapo, North	0	0	0
Temescal	38,898	12,237	98,275
Timber Canyon	33,207	104,992	11,581
Torrey Canyon	50,903	93,360	46,975
Vallecitos	8,498	14,607	1,083
Ventura	4,613,499	2,867,374	52,114,463
Wayside Canyon	9,658	7,864	50,089
West Mountain	3,280	4,643	3,988
Zaca	85,606	2,530	3,303,042

Inland			
Onshore			
Ant Hill	11,914	0	998,381
Antelope Hills	78,501	8,400	667,474
Antelope Hills, North	141,553	9,651	2,505,131
Any Field	441,313	891,111	1,118,144
Asphalto	173,688	3,725,108	8,719,494
Beer Nose	9,769	3,761	282
Belgian Anticline	31,306	76,112	93,963
Bellevue	21,519	4,873	224,543
Bellevue, West	25,859	21,798	52,842
Belridge, North	1,532,150	1,756,260	28,593,951
Belridge, South	18,417,180	7,336,669	302,180,367
Blackwells Corner	8,922	0	44,225
Bowerbank	0	0	0
Buena Vista	903,128	13,824,809	34,300,836
Burrel	18,339	18,113	741,965
Burrel, Southeast	0	0	0
Cal Canal Gas	18,669	60,895	119,211
Calders Corner	0	0	0
Camden	0	0	0
Canal	4,927	2,047	31,409
Canfield Ranch	76,147	61,033	512,825
Carneros Creek	3,687	0	12,557
Chico-Martinez	46,475	0	701,563
Cienaga Canyon	9,192	37,645	180,178
Coalinga	5,465,117	486,716	63,340,646
Coalinga, East, Extension	0	0	0
Coles Levee, North	93,370	91,496	259,620
Coles Levee, South	46,579	289,102	40,206
Comanche Point	11,026	0	532,857
Cymric	11,674,490	1,839,168	119,201,691
Deer Creek	25,287	0	2,213,169
Deer Creek, North	671	0	5,102
Devils Den	8,369	0	30,851
Dyer Creek	5,560	0	481,032
Edison	555,913	132,951	8,899,247
Edison, Northeast	0	0	0
Elk Hills	6,344,271	71,541,816	95,992,415
Fruitvale	429,455	153,476	6,462,647
Greeley	110,760	166,262	2,445,933
Gujarral Hills	5,080	3,808	53,180
Helm	23,219	2,002	136,491
Jacalitos	81,194	41,924	270,223
Jasmin	114,113	0	20,730,055
Jerry Slough (ABD)	0	0	0

Kern Bluff	9,633	0	830,167
Kern Front	2,900,660	63,957	147,031,674
Kern River	16,318,801	776,765	244,566,982
Kettleman City (ABD)	0	0	0
Kettleman MiddleDome	11,796	14,800	13,600
Kettleman North Dome	109,334	222,200	1,874,895
Kreyenhagen (ABD)	0	0	0
Landslide	10,665	6,611	223,731
Los Lobos	305	0	0
Lost Hills	8,724,584	4,566,721	118,506,113
Lost Hills, Northwest	11,767	10,683	301,156
McDonald Anticline	31,856	502	206,879
McKittrick	3,701,977	643,536	41,161,244
Midway-Sunset	20,079,950	4,636,087	178,055,228
Monument Junction	33,107	52,059	261,462
Mount Poso	1,141,152	35,838	52,693,513
Mountain View	58,376	30,339	318,559
Paloma	14,298	100,128	15,476
Pioneer	2,761	3,620	640
Pleasant Valley	0	0	0
Pleito	380,072	226,422	640,544
Poso Creek	4,807,671	515,239	184,254,958
Pyramid Hills	47,336	7,920	229,745
Railroad Gap	73,300	1,741,165	1,456,367
Raisin City	65,317	15,080	2,649,955
Rio Bravo	174,444	322,816	5,825,846
Rio Viejo	89,282	34,654	152,776
Riverdale	19,229	0	86,910
Rose	166,585	74,595	702,908
Rosedale	11,304	0	3,453
Rosedale Ranch	85,629	63,861	3,806,782
Round Mountain	2,462,349	248,195	163,807,368
San Emidio Nose	14,158	8,466	72,547
San Joaquin	0	0	0
Semitropic	22,572	10,199	28,045
Shafter, North	357,170	267,333	1,360,601
Stockdale	90,958	32,633	35,170
Strand	1,937	1,610	1,506
Tejon	78,920	41,992	6,026,488
Tejon Hills	5,400	960	162,869
Tejon, North	17,425	154,914	16,870
Temblor East (ABD)	0	0	0
Temblor Ranch	0	0	0
Ten Section	50,523	24,601	1,442,816

Trico Gas	0	0	0
Tulare Lake	0	0	0
Union Avenue	17,479	8,225	48,592
Valpredo	0	0	0
Van Ness Slough	0	0	0
Wasco	0	0	0
Welcome Valley	0	0	0
Wheeler Ridge	44,948	37,861	145,188
White Wolf	9,055	4,076	2,257
Yowlumne	174,558	135,425	2,819,600
Northern			
Onshore			
Afton Gas	0	0	0
Any Field	0	61,803	1,716
Any Field - Coastal District	0	2,375	43
Any Field - Inland Dis- trict	0	2,375	43
Any Field - Northern District	0	2,375	43
Any Field - Southern District	0	2,375	43
Arbuckle Gas	0	3,774	5
Bounde Creek Gas	0	82,119	1,253
Brentwood	66,925	33,302	38,703
Brentwood, East, Gas	0	0	0
Buckeye Gas	0	167,458	234
Bunker Gas	0	0	0
Butte Sink Gas	0	0	0
Butte Slough Gas	0	135,452	223
Cache Creek Gas	0	0	0
Chowchilla Gas	0	0	0
Clarksburg Gas	0	0	0
Collegeville, East, Gas	0	0	0
Compton Landing Gas	0	17,564	32
Conway Ranch Gas	0	0	0
Denverton Creek Gas	3	20,285	1,301
Dunnigan Hills Gas	0	0	0
Durham Gas	0	0	0
Dutch Slough Gas	0	0	0
East Islands Gas	0	0	0
Everglade Gas	0	0	0
French Camp Gas	0	162,725	2,338
Gill Ranch Gas	0	33,288	10,351
Grimes Gas	0	1,966,296	38,066
Grimes, West, Gas	0	283,556	1,843
Grizzly Bluff Gas	0	25,245	12

Half Moon Bay	46	0	0
Hood-Franklin Gas	0	0	0
Howells Point Gas	0	0	0
King Island Gas	0	31,013	0
Kirby Hill Gas	0	0	5,786
Kirk Gas	0	99,712	2,018
Kirkwood Gas	0	0	0
Knights Landing Gas	0	0	0
La Honda	0	0	0
Larkin, West, Gas	0	0	0
Lathrop Gas	0	186,448	10,709
Lindsey Slough Gas	70	149,851	2,359
Little Butte Creek Gas	0	0	0
Livermore	3,388	452	23,981
Lodi Gas	0	0	8,510
Lone Star Gas	0	71,789	833
Lone Tree Creek Gas	0	0	0
Los Medanos Gas	0	18,820	60
Maine Prairie Gas	0	0	0
Malton-Black Butte Gas	0	329,000	20,747
McDonald Island Gas	0	0	4,098
McMullin Ranch Gas	0	0	0
Medora Lake Gas	0	0	0
Merrill Avenue Gas	0	0	0
Merrill Avenue, Southeast, Gas	0	6,843	0
Millar Gas	0	0	0
Moffat Ranch Gas	0	80,824	372
Moon Bend Gas	0	132,022	3,788
Nicolaus Gas	0	0	0
Oakdale Gas	0	0	0
Oil Creek	0	0	0
Orland Gas	0	0	0
Pierce Road Gas	0	0	0
Pleasant Creek Gas	0	0	0
Princeton Gas	0	0	44
Putah Sink Gas	0	0	0
Rancho Capay Gas	0	78,066	6
Rice Creek Gas	0	192,578	2,720
Rice Creek, East, Gas	0	135,216	228
Rindge Tract Gas	0	0	0
Rio Vista Gas	3,523	2,558,154	74,010
River Island Gas	0	34,155	165
Robbins Gas	0	0	0
Roberts Island Gas	0	0	0
Ryer Island Gas	0	55,620	0
Sacramento Airport Gas	0	0	0

Stegeman Gas	0	0	0
Sugarfield Gas	0	0	0
Suisun Bay Gas	0	52,530	2,959
Sutter Buttes Gas	0	1,328,104	26,016
Sutter City Gas	0	145,408	2,341
Sycamore Gas	0	485,770	12,104
Sycamore Slough Gas	0	2,398	0
Thornton, W.-Walnut Grove Gas	0	0	0
Tisdale Gas	0	144,177	3,256
Todhunters Lake Gas	0	12,932	0
Tompkins Hill Gas	0	325,190	5,342
Union Island Gas	0	295,896	8,341
Van Sickle Island Gas	124	83,287	953
Vernalis Gas	0	17,168	46
West Butte Gas	0	62,073	1,252
Wild Goose Gas	0	0	116
Williams Gas	0	42,619	194
Willow Slough Gas	0	0	0
Willows-Beehive Bend Gas	0	1,813,962	43,851
Winchester Lake Gas	0	0	0
Winters Gas	0	0	0
Southern			
Offshore			
Belmont Offshore	576,825	242,865	14,717,409
Huntington Beach	769,923	356,760	32,942,149
Wilmington	7,610,177	3,205,722	442,141,806
Onshore			
Any Field	0	0	0
Bandini	8,627	0	32,865
Beverly Hills	321,015	443,695	4,183,553
Brea-Olinda	972,227	520,512	7,183,555
Cheviot Hills	35,456	33,555	116,302
Chino-Soquel	570	0	0
Coyote, East	80,373	11,886	865,856
Dominguez	5,404	7,319	13,498
El Segundo	16,602	4,918	242,215
Esperanza	2,019	627	1,626
Howard Townsite	9,042	20,250	1,757
Huntington Beach	816,477	235,585	29,479,606
Hyperion	3,423	0	415
Inglewood	1,530,112	791,995	104,634,100
Las Cienegas	101,270	88,922	1,701,750
Long Beach	1,145,938	842,854	23,434,250
Long Beach Airport	7,282	1,089	76,649
Los Angeles City	8,309	9,520	21,919
Los Angeles Downtown	21,714	23,548	448,415

Los Angeles, East	60	77	0
Mahala	6,587	34,740	797
Montebello	229,654	103,828	16,700,969
Newport	0	26,636	0
Newport, West	52,258	27,609	1,244,922
Old Wilmington (ABD)	5,431	303	4,503
Olive	45,177	7,235	129,969
Playa Del Rey	48,698	0	1,092,833
Potrero (ABD)	0	0	0
Prado-Corona	0	0	0
Richfield	155,929	23,758	2,504,815
Rosecrans	99,940	41,630	2,545,136
Rosecrans, South	9,394	12,854	67,916
Salt Lake	37,149	55,505	198,393
Salt Lake, South	8,034	14,864	368,041
San Vicente	164,308	209,424	454,755
Sansinena	216,082	362,927	174,561
Santa Fe Springs	347,177	38,228	16,447,701
Sawtelle	65,456	33,946	85,079
Seal Beach	355,064	254,674	6,267,678
Torrance	256,963	60,261	5,193,633
Walnut	7,210	0	31,950
Whittier	94,579	184,210	178,292
Wilmington	4,669,470	1,191,953	232,717,201
Grand Total	148,272,818	149,230,435	3,140,364,199

2020 SUMMARY OF CALIFORNIA OIL, ASSOCIATED GAS, AND WATER PRODUCTION

	Oil & Condensate Produced (bbl)	Gross Gas Produced (MCF)	Water Produced (bbl)
Coastal			
Offshore	1,067	584	312
Onshore	17,882,915	10,000,030	326,615,405
Inland			
Onshore	109,397,353	117,729,094	1,864,736,189
Northern			
Onshore	74,079	11,974,443	363,454
Southern			
Offshore	8,956,925	3,805,347	489,801,364
Onshore	11,960,479	5,720,938	458,847,475
Grand Total	148,272,818	149,230,435	3,140,364,199

2020 CALIFORNIA CONDENSATE, NON-ASSOCIATED GAS, AND WATER PRODUCTION BY DISTRICT AND FIELD

	Condensate Produced (bbl)	Gross Gas Produced (Mcf)	Water Produced (bbl)
Coastal			
Onshore			
Aliso Canyon	0	0	0
Cuyama, South	90	76	9,465
Del Valle	617	0	14,013
Hollister	0	0	0
La Goleta Gas	0	0	0
Montalvo, West	0	0	0
Tapia	0	0	0
Inland			
Onshore			
Antelope Hills	0	0	0
Belgian Anticline	0	17,631	0
Bowerbank	0	0	0
Buena Vista	0	67,321	0
Cal Canal Gas	18,669	60,895	119,211
Canal	0	0	0
Coles Levee, North	6,669	429	2,529
Elk Hills	0	476,847	0
Kettleman North Dome	0	0	0
Lost Hills	338	262	1,940
Monument Junction	0	0	0
Mountain View	0	0	0
Paloma	0	0	0
Railroad Gap	0	0	0
Rio Bravo	0	33,525	387,173
Semitropic	0	0	0
Strand	0	0	0
Ten Section	0	0	0
Trico Gas	0	0	0
Northern			
Onshore			
Afton Gas	0	0	0
Any Field	0	61,803	1,716

Any Field - Coastal District	0	2,375	43
Any Field - Inland District	0	2,375	43
Any Field - Northern District	0	2,375	43
Any Field - Southern District	0	2,375	43
Arbuckle Gas	0	3,774	5
Bounde Creek Gas	0	82,119	1,253
Brentwood, East, Gas	0	0	0
Buckeye Gas	0	167,458	234
Bunker Gas	0	0	0
Butte Sink Gas	0	0	0
Butte Slough Gas	0	135,452	223
Cache Creek Gas	0	0	0
Chowchilla Gas	0	0	0
Clarksburg Gas	0	0	0
Collegeville, East, Gas	0	0	0
Compton Landing Gas	0	17,564	32
Conway Ranch Gas	0	0	0
Denverton Creek Gas	3	20,285	1,301
Dunnigan Hills Gas	0	0	0
Durham Gas	0	0	0
Dutch Slough Gas	0	0	0
East Islands Gas	0	0	0
Everglade Gas	0	0	0
French Camp Gas	0	162,725	2,338
Gill Ranch Gas	0	33,288	14
Grimes Gas	0	1,966,296	38,066
Grimes, West, Gas	0	283,556	1,843
Grizzly Bluff Gas	0	25,245	12
Hood-Franklin Gas	0	0	0
Howells Point Gas	0	0	0
King Island Gas	0	31,013	0
Kirby Hill Gas	0	0	0
Kirk Gas	0	99,712	2,018
Kirkwood Gas	0	0	0
Knights Landing Gas	0	0	0
Larkin, West, Gas	0	0	0
Lathrop Gas	0	186,448	10,709
Lindsey Slough Gas	70	149,851	2,359
Little Butte Creek Gas	0	0	0
Lone Star Gas	0	71,789	833
Lone Tree Creek Gas	0	0	0
Los Medanos Gas	0	18,820	60
Maine Prairie Gas	0	0	0
Malton-Black Butte Gas	0	329,000	20,747

McMullin Ranch Gas	0	0	0
Medora Lake Gas	0	0	0
Merrill Avenue Gas	0	0	0
Merrill Avenue, Southeast, Gas	0	6,843	0
Millar Gas	0	0	0
Moffat Ranch Gas	0	80,824	372
Moon Bend Gas	0	132,022	3,788
Nicolaus Gas	0	0	0
Oakdale Gas	0	0	0
Orland Gas	0	0	0
Pierce Road Gas	0	0	0
Princeton Gas	0	0	0
Putah Sink Gas	0	0	0
Rancho Capay Gas	0	78,066	6
Rice Creek Gas	0	192,578	2,720
Rice Creek, East, Gas	0	135,216	228
Rindge Tract Gas	0	0	0
Rio Vista Gas	3,523	2,558,154	74,010
River Island Gas	0	34,155	165
Robbins Gas	0	0	0
Roberts Island Gas	0	0	0
Ryer Island Gas	0	55,620	0
Sacramento Airport Gas	0	0	0
Stegeman Gas	0	0	0
Sugarfield Gas	0	0	0
Suisun Bay Gas	0	52,530	2,959
Sutter Buttes Gas	0	1,328,104	26,016
Sutter City Gas	0	145,408	2,341
Sycamore Gas	0	485,770	12,104
Sycamore Slough Gas	0	2,398	0
Thornton, W.-Walnut Grove Gas	0	0	0
Tisdale Gas	0	144,177	3,256
Todhunters Lake Gas	0	12,932	0
Tompkins Hill Gas	0	325,190	5,342
Union Island Gas	0	295,896	8,341
Van Sickle Island Gas	124	83,287	953
Vernalis Gas	0	17,168	46
West Butte Gas	0	62,073	1,252
Williams Gas	0	42,619	194
Willow Slough Gas	0	0	0
Willows-Beehive Bend Gas	0	1,813,962	43,851
Winchester Lake Gas	0	0	0
Winters Gas	0	0	0

Southern			
Offshore			
Wilmington	0	0	0
Onshore			
Los Angeles Downtown	0	931	0
Prado-Corona	0	0	0
Seal Beach	0	8,687	0
Wilmington	0	0	0
Grand Total	30,103	12,607,293	806,210

2020 SUMMARY OF CALIFORNIA CONDENSATE, NON-ASSOCIATED GAS, AND WATER PRODUCTION

	Condensate Produced (bbl)	Gross Gas Produced (MCF)	Water Produced (bbl)
Coastal			
Onshore	707	76	23,478
Inland			
Onshore	25,676	656,910	510,853
Northern			
Onshore	3,720	11,940,689	271,879
Southern			
Offshore	0	0	0
Onshore	0	9,618	0
Grand Total	30,103	12,607,293	806,210

2020 CALIFORNIA GAS STORAGE BY DISTRICT AND FIELD

	Gas Injected (Mcf)	Gas Withdrawn (Mcf)	Net Gas (Mcf)
Coastal			
Onshore			
Aliso Canyon	23,528,073	18,696,167	4,831,906
Honor Rancho	18,057,674	18,652,038	-594,364
La Goleta Gas	9,656,064	7,421,560	2,234,504
Northern			
Onshore			
Gill Ranch Gas	11,194,296	8,150,290	3,044,006
Kirby Hill Gas	11,199,903	8,651,645	2,548,258
Lodi Gas	11,863,373	9,937,520	1,925,853
Los Medanos Gas	2,495,919	2,437,590	58,329
McDonald Island Gas	28,467,927	18,573,031	9,894,896
Pleasant Creek Gas	0	1,247,659	-1,247,659
Princeton Gas	10,387,231	6,960,561	3,426,670
Wild Goose Gas	46,532,653	35,364,515	11,168,138
Southern			
Onshore			
Playa Del Rey	3,742,987	3,326,246	416,741
Grand Total	177,126,100	139,418,822	37,707,278

2020 CALIFORNIA STEAM AND WATER INJECTION BY DISTRICT AND FIELD

	Cyclic Steam (bbl)	Steamflood (bbl)	Water Disposal (bbl)	Waterflood (bbl)	Total Water Injected (bbl)
Coastal					
Offshore					
Elwood, South, Offshore	0	0	23,619	0	23,619
Onshore					
Aliso Canyon	0	0	338,526	154,262	492,788
Any Field	0	0	16,036,713	0	16,036,713
Arroyo Grande	0	3,069,523	1,246,753	0	4,316,276
Bardsdale	0	0	16,807	5,760	22,567
Barham Ranch	0	0	124,495	0	124,495
Cabrillo	0	0	35,121	0	35,121
Careaga Canyon	0	0	136,502	0	136,502
Cascade	0	0	0	116,933	116,933
Casmalia	0	0	3,377,791	0	3,377,791
Cat Canyon	5,448,166	0	8,548,252	373,927	14,370,345
Cuyama, South	0	0	0	11,673,636	11,673,636
Del Valle	0	0	66,543	0	66,543
Four Deer (ABD)	0	0	75,938	0	75,938
Gaviota Offshore Gas (ABD)	0	0	36,427	0	36,427
Hasley Canyon	0	0	0	36,756	36,756
Holser	0	0	9,367	0	9,367
Honor Rancho	0	0	155,467	0	155,467
Lompoc	0	0	18,606,622	0	18,606,622
Lynch Canyon	121,608	211,577	1,418,338	0	1,751,523
McCool Ranch	0	0	1,929,290	0	1,929,290
Montalvo, West	0	0	346,471	246,906	593,377
Newhall-Potrero	0	0	6,605	0	6,605
Oak Canyon	0	0	80,874	0	80,874
Oak Park	0	0	5,451	0	5,451
Oakridge	0	0	0	667,836	667,836
Ojai	0	0	345,376	0	345,376
Orcutt	1,507,578	0	3,659,730	25,260,431	30,427,739
Oxnard	98,832	0	81,575	0	180,407
Placerita	6,142,085	2,293,436	11,394,347	0	19,829,868
Ramona	0	0	52,033	0	52,033

Rincon	0	0	15,971	1,476,716	1,492,687
Russell Ranch	0	0	0	1,166,675	1,166,675
San Ardo	7,867,192	27,409,479	49,105,015	18,071,986	102,453,672
San Miguelito	0	0	0	2,969,281	2,969,281
Santa Maria Valley	0	0	739,281	237,700	976,981
Sargent	0	0	31,176	0	31,176
Saticoy	0	0	0	50,078	50,078
Sespe	0	0	277,860	0	277,860
Shiells Canyon	0	0	514,119	0	514,119
South Mountain	0	0	0	143,910	143,910
Tapia	0	0	192,496	0	192,496
Temescal	0	0	98,804	0	98,804
Vallecitos	0	0	84,168	0	84,168
Ventura	0	0	0	55,784,197	55,784,197
Zaca	0	0	4,071,447	0	4,071,447
Inland					
Onshore					
Ant Hill	0	0	1,148,641	0	1,148,641
Antelope Hills, North	0	0	375,251	0	375,251
Any Field	0	0	139,870	107,531	247,401
Asphalto	191,063	65,728	811,615	0	1,068,406
Belgian Anticline	0	0	0	25,915	25,915
Bellevue	0	0	224,252	0	224,252
Bellevue, West	0	0	11,664	0	11,664
Belridge, North	20,346	0	238,865	35,085,542	35,344,753
Belridge, South	14,686,958	65,477,012	140,571,844	104,966,905	325,702,719
Blackwells Corner	0	0	41,195	0	41,195
Buena Vista	0	0	9,325,946	30,601,559	39,927,505
Burrel	0	0	922,251	0	922,251
Cal Canal Gas	0	0	91,901	0	91,901
Canal	0	0	1,542	0	1,542
Canfield Ranch	0	0	430,943	0	430,943
Chico-Martinez	7,527	323,827	15,819	0	347,173
Coalinga	15,426,940	26,435,725	3,028,030	10,214,301	55,104,996
Coalinga, East, Extension	0	0	15,334,253	0	15,334,253
Coles Levee, North	0	0	0	17,574	17,574
Coles Levee, South	0	0	53,113	0	53,113
Comanche Point	0	0	532,857	0	532,857
Cymric	44,663,502	21,063,363	858,180	0	66,585,045
Deer Creek	0	0	1,457,740	0	1,457,740
Devils Den	0	0	1,320	0	1,320
Edison	16,839,247	1,002,573	7,413,624	0	25,255,444
Elk Hills	0	0	32,688,616	70,065,993	102,754,609
Fruitvale	84,347	0	8,264,809	109,345	8,458,501

Greeley	0	0	2,447,072	0	2,447,072
Helm	0	0	11,666	0	11,666
Jacalitos	0	0	0	502,268	502,268
Jasmin	0	0	18,150	0	18,150
Kern Bluff	0	0	830,167	0	830,167
Kern Front	349,856	17,664,741	825,102	0	18,839,699
Kern River	7,185,324	48,044,733	11,654,646	0	66,884,703
Kettleman North Dome	0	0	0	1,846,899	1,846,899
Landslide	0	0	0	297,001	297,001
Lost Hills	1,103,656	22,438,261	17,939,405	59,696,330	101,177,652
Lost Hills, Northwest	18,492	0	275,391	0	293,883
McDonald Anticline	0	0	286,667	0	286,667
McKittrick	5,794,151	12,334,894	34,955,689	0	53,084,734
Midway-Sunset	95,009,517	67,129,755	67,607,526	0	229,746,798
Mount Poso	0	0	45,365,419	4,378,366	49,743,785
Mountain View	0	0	241,167	3,885	245,052
Paloma	0	0	18,448	0	18,448
Pleito	0	0	751,599	0	751,599
Poso Creek	5,679,425	26,693,899	130,844,051	276,010	163,493,385
Pyramid Hills	73,359	0	0	150,879	224,238
Raisin City	0	0	905,986	0	905,986
Rio Bravo	119,124	0	0	5,706,722	5,825,846
Rio Viejo	0	0	163,000	0	163,000
Riverdale	0	0	1,100	0	1,100
Rose	0	0	775,081	0	775,081
Rosedale	0	0	4,237	0	4,237
Rosedale Ranch	0	0	3,832,649	0	3,832,649
Round Mountain	132,576	4,229,900	60,733,077	149,385,254	214,480,807
Shafter, North	0	0	1,657,440	0	1,657,440
Tejon	0	0	285,430	5,776,496	6,061,926
Tejon Hills	0	0	133,467	29,604	163,071
Tejon, North	0	0	0	24,539	24,539
Ten Section	0	0	1,569,255	0	1,569,255
Union Avenue	0	0	89,040	0	89,040
Wheeler Ridge	0	0	245,562	11,124	256,686
Yowlumne	0	0	236,166	2,088,714	2,324,880
Northern					
Onshore					
Any Field	0	0	126	0	126
Gill Ranch Gas	0	0	20,298	0	20,298
Grimes Gas	0	0	103,053	0	103,053
Livermore	0	0	23,990	0	23,990
Lodi Gas	0	0	7,824	0	7,824
Rice Creek Gas	0	0	2,040	0	2,040

Rio Vista Gas	0	0	113,866	0	113,866
Sutter City Gas	0	0	56,928	0	56,928
Southern					
Offshore					
Belmont Offshore	0	0	0	11,134,161	11,134,161
Huntington Beach	0	0	0	13,684,087	13,684,087
Wilmington	13,189,033	0	415,995	477,371,104	490,976,132
Onshore					
Beverly Hills	0	0	160,948	2,588,968	2,749,916
Brea-Olinda	0	0	17,802	6,249,157	6,266,959
Cheviot Hills	0	0	10,709	0	10,709
Coyote, East	0	0	0	350,968	350,968
El Segundo	0	0	36,400	0	36,400
Huntington Beach	0	0	0	48,785,745	48,785,745
Inglewood	0	0	0	106,369,607	106,369,607
Las Cienegas	0	0	0	1,822,995	1,822,995
Long Beach	0	0	0	19,224,244	19,224,244
Long Beach Airport	0	0	44,599	0	44,599
Los Angeles Downtown	0	0	0	451,334	451,334
Montebello	0	0	0	17,044,181	17,044,181
Newport, West	0	24,216	0	93,163	117,379
Playa Del Rey	0	0	154,686	0	154,686
Richfield	0	0	0	2,353,548	2,353,548
Rosecrans	0	0	0	595,846	595,846
San Vicente	0	0	0	774,003	774,003
Sansinena	0	0	0	190,966	190,966
Santa Fe Springs	0	0	0	11,810,417	11,810,417
Sawtelle	0	0	0	93,220	93,220
Seal Beach	0	0	0	1,694,863	1,694,863
Torrance	0	0	9,069	4,770,958	4,780,027
Wilmington	2,060,717	0	2,999	255,601,230	257,664,946
Grand Total	243,820,621	345,912,642	733,154,498	1,582,860,511	2,905,748,272

2020 SUMMARY OF CALIFORNIA STEAM AND WATER INJECTION

	Cyclic Steam (bbl)	Steamflood (bbl)	Water Disposal (bbl)	Waterflood (bbl)	Total Water Injected (bbl)
Coastal	21,185,461	32,984,015	123,285,370	118,436,990	295,891,836
Inland	207,385,410	312,904,411	608,687,796	481,368,756	1,610,346,373
Northern	0	0	328,125	0	328,125
Southern	15,249,750	24,216	853,207	983,054,765	999,181,938
Grand Total	243,820,621	345,912,642	733,154,498	1,582,860,511	2,905,748,272

2020 OIL, GAS, AND WATER PRODUCTION AND WELL COUNT BY COUNTY

County	Well Count		Oil Production	Gas Production			Water Production
	Active	Inactive*	Oil & Condensate Produced (Bbl)	Associated Gross Gas Produced (Mcf)	Non-Associated Gross Gas Produced (Mcf)	Total Gross Gas (Mcf)	Water Produced (Bbl)
Alameda	6	2	3,388	452		452	23,981
Butte	17	5					116
Colusa	156	190			2,232,976	2,232,976	39,365
Contra Costa	21	27	66,944	33,302	83,068	116,370	39,816
Fresno	1,836	1,652	5,754,714	1,145,634		1,145,634	68,907,504
Glenn	185	116			2,065,901	2,065,901	47,093
Humboldt	27	25			350,435	350,435	5,354
Kern	38,202	19,395	103,497,495	115,713,698	656,910	116,370,608	1,792,749,921
Kings	134	213	110,514	193,645		193,645	588,414
Lassen		1					
Los Angeles	2,473	1,839	10,492,774	5,144,131	9,618	5,153,749	439,674,562

Los Angeles Offshore	747	276	8,051,073	3,361,155		3,361,155	454,633,629
Madera	16	13			120,955	120,955	10,723
Merced		2					
Monterey	723	338	7,385,709	1,028,070		1,028,070	150,778,646
Orange	784	486	2,235,856	888,062		888,062	42,690,729
Orange Offshore	63	35	905,852	444,192		444,192	35,167,735
Riverside		3					
Sacramento	73	125	3,504		2,206,285	2,206,285	65,920
San Benito	15	26	10,667	14,607		14,607	1,083
San Bernardino	25	13	7,157	34,740		34,740	797
San Joaquin	127	95			727,405	727,405	34,207
San Luis Obispo	205	135	570,359	539,608		539,608	9,570,677
Santa Barbara	909	1,250	2,625,918	2,157,601	76	2,157,677	77,920,200
Santa Barbara Offshore		26					
Santa Clara	11	14	14,483	13,798		13,798	14,371
Solano	77	133	197		649,194	649,194	20,395
Stanislaus		2					
Sutter	213	192			2,923,932	2,923,932	54,772
Tehama	87	62			565,040	565,040	21,712
Tulare	67	19	25,958				2,218,272
Ventura	1,374	1,580	6,519,070	5,913,061		5,913,061	65,280,360
Ventura Offshore		36	1,067	584		584	312
Yolo	18	52			15,330	15,330	
Yuba	1				168	168	
Total	48,592	28,400	148,282,745	136,626,341	12,607,293	149,233,633	3,140,560,664

GEOTHERMAL ENERGY

California is a worldwide leader in geothermal energy generation and the largest producer of geothermal energy in the United States.

Geothermal wells are used to bring hot fluids to the surface where they are used for power generation or for direct use in heating systems, greenhouses, spas, fish farms and other low-temperature applications. High-temperature geothermal wells that produce hot water called geothermal brine or steam usually generate electricity.

California Geothermal Production: Snapshot

There are 2,712 megawatts (MW) of electricity coming from 40 geothermal power plants, enough electricity for about 2.7 million residents according to the California Energy Commission. In 2020, geothermal sources produced 11,345 gigawatt-hours net (GWh), 5.94 percent of the state's power mix. An additional 700 GWh of geothermal power was imported from Nevada.

According to the U.S. Energy Information Administration, geothermal from California is 70 percent of the country's net geothermal power generation that is produced across seven western states including Hawaii.

Number of Wells and Their Locations

There are 563 high-temperature geothermal wells located on state and private lands of which 349 are in The Geysers in Lake and Sonoma Counties and operated primarily by Calpine Corporation. Imperial County is home to 194 wells owned by Cal Energy Operating Corporation, Ormat Technologies Inc., and Energy Source. The remaining 20 wells are scattered in Lassen, Modoc, and Mono counties.

CalGEM's Geothermal Regulatory Role

CalGEM supervises the drilling, operation, maintenance, and plugging and abandonment of high and low-temperature geothermal wells, including injection wells for the discovery and production of geothermal resources in such manner as to safeguard life, health, property, and the public welfare, and to encourage maximum economic recovery (Pub. Resources Code, §§ 3700, 3714.)

Geothermal projects require injection wells so that geothermal fluid, called brine, can be returned to the reservoir after the heat energy has been removed. They are one of approximately 30 types of wells in the Class V program in the Underground Injection Control program of the US EPA. CalGEM does not have primacy, but a memorandum of understanding with Region IX of the US EPA to oversee these injection projects.

Reinjection of geothermal fluids ensures the sustainability of a geothermal reservoir. In some areas, treated effluent from nearby population centers is also injected back into the reservoir for disposal and sustainability of the resource.

The Geysers and Imperial County have kept Kenai Drilling active during the last year. In 2020, CalGEM issued 26 permits for The Geysers and 19 permits in Imperial County. There were 3 low-temperature well permits issued in Riverside County.

Geothermal Assessments

CalGEM's geothermal program is supported by an annual well assessment. The last three years' assessments are as follows:

Fiscal Year	Assessment Amount	Total Wells	\$/well
2019/20	\$915,726	551	\$1662
2020/21	\$1,256,002	557	\$2255
2021/22	\$1,668,169	563	\$2963

Geothermal High-Temperature Resources Production and Injection

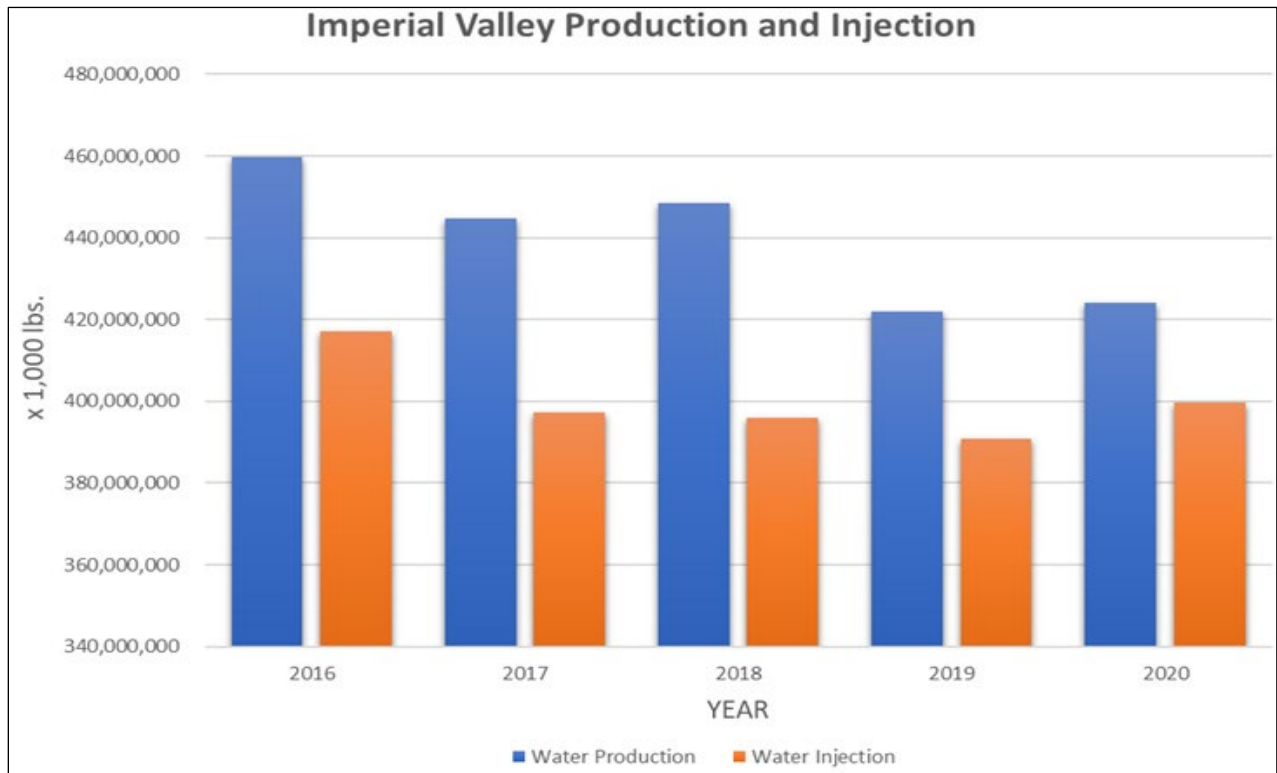


Figure 27: Production and injection in thousands of pounds from high-temperature geothermal wells in Imperial County including the Salton Sea, Brawley, and Heber Fields.

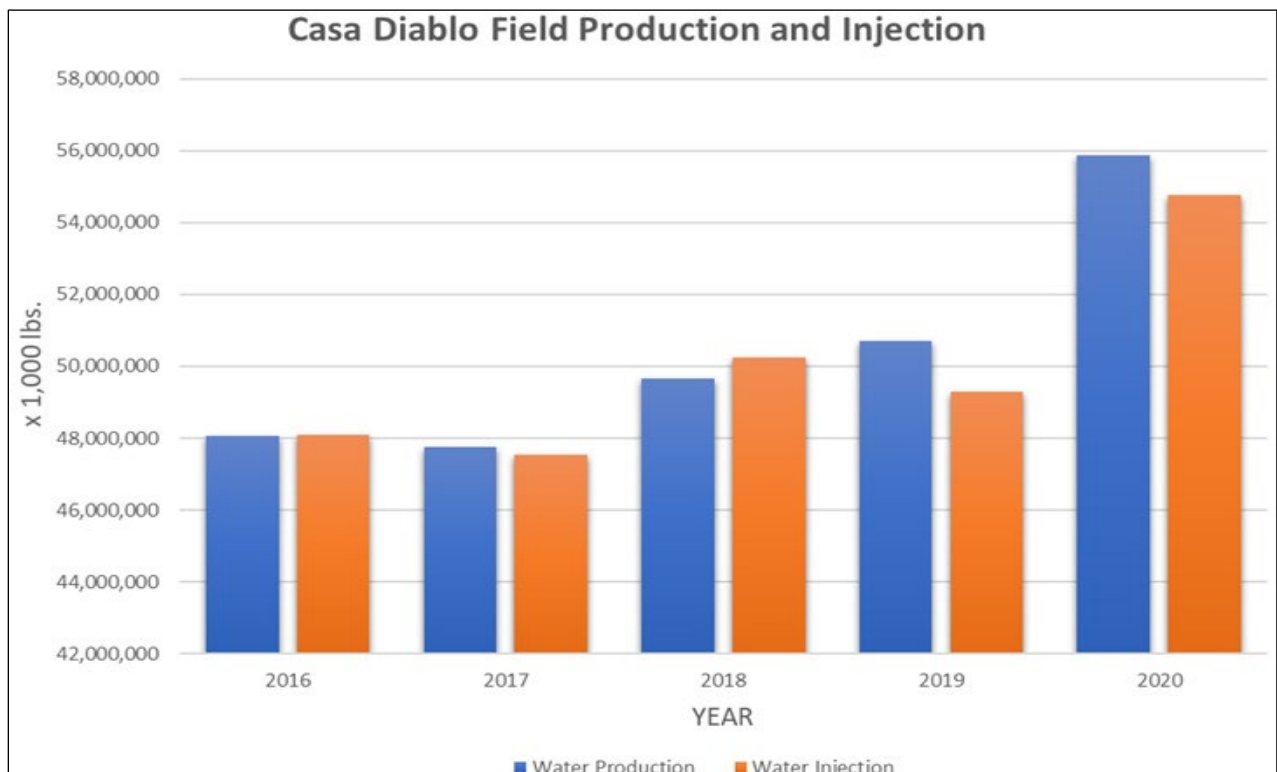


Figure 28: Production and injection in thousands of pounds from high-temperature geothermal wells in Mono County in the Casa Diablo Field near the Town of Mammoth Lakes.

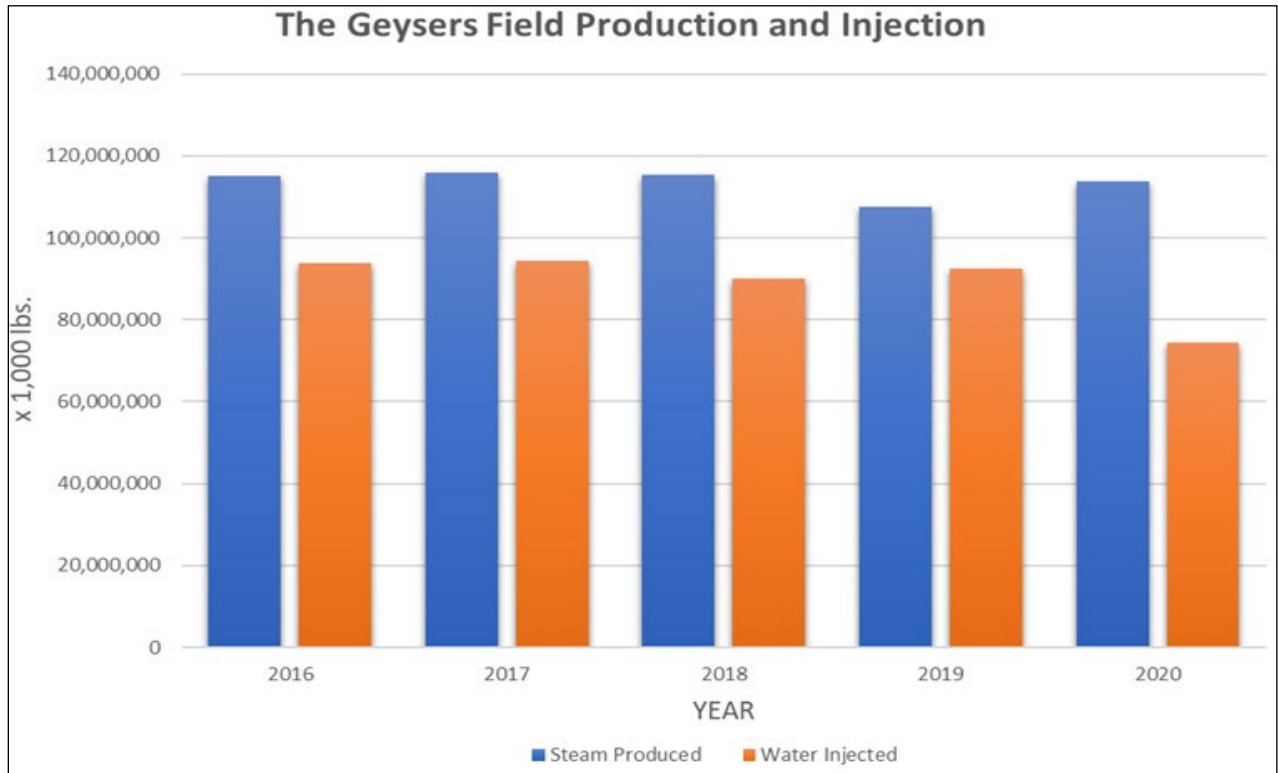


Figure 29: Production and injection in thousands of pounds from The Geysers steam field located in Sonoma and Lake counties. This is the largest producing geothermal field in the world.

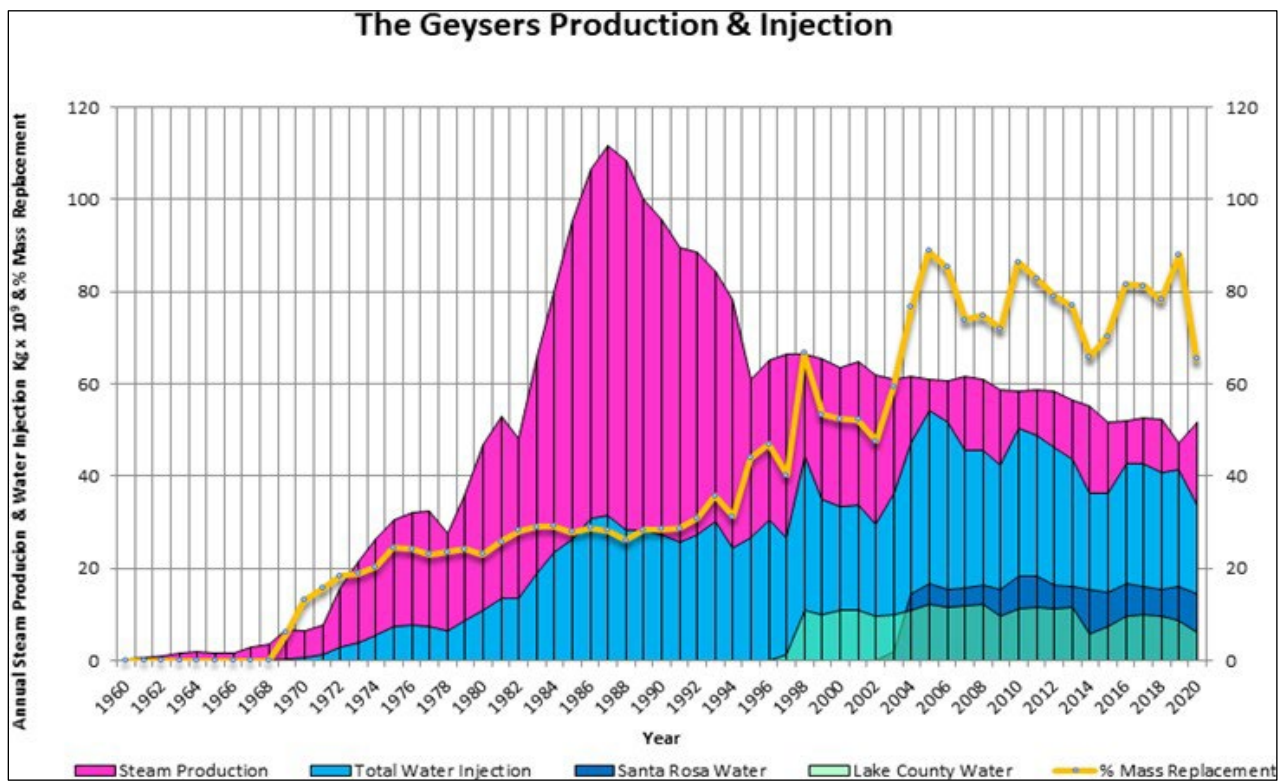


Figure 30: History of production and injection at The Geysers in thousands of kilograms. The field started producing electricity in September 1960.

2020 Production and Injection by Field

Field	Production lbs x 1000	Injection lbs x 1000
Brawley field	19,425,661	21,788,004
Heber field	138,929,512	153,523,403
Salton Sea field (2 operators)	267,378,679	226,069,103
Imperial County Total	425,733,851	401,380,509
Casa Diablo Field (Mono County)	55,876,399	54,759,366
The Geysers (Lake and Sonoma)	113,802,678 (steam)	74,388,298
Geothermal Total (lbs. x 1,000)	595,412,929	530,528,174

Permits by District (Notice of Intention)

	Northern District: The Geysers	Southern District: Imperial & Riverside
Drilling Permits Issued	8	5
Supplemental Permits	5	3
Rework Permits Issued	11	1
Plugging & Abandonment	2	2

Work Completed

	Northern District: The Geysers	Southern District: Imperial & Riverside
Wells Drilled		5*
Wells Reworked	4	11
Plugging & Abandonment	2	1

*3 low temperature wells

ENFORCEMENT

Background on the Office of Enforcement

The Office of Enforcement was created in July 2019 to facilitate the statewide enforcement of California's oil and gas laws and regulations. The newly formed statewide Enforcement Program takes enforcement actions to prevent damage to life, health, property, and natural resources.

California's PRC provides authority for the Supervisor to order remedial work necessary for the protection of public health and safety and/or the environment, plugging and abandonment orders and civil penalty orders, among others. CalGEM seeks to deter violations and ensure that violators do not receive an unfair business advantage compared to operators who comply with their regulatory obligations. Appropriate penalties for violations attempt to offer assurance of equity between those who comply with regulatory requirements and those who violate them. PRC sections 3236 and 3359 make it a misdemeanor to fail to comply with an order issued by the Supervisor or the oil and gas laws and regulations.

Starting in 2019, CalGEM has been referring such violations to prosecuting agencies. Upon conviction of a misdemeanor, PRC authorizes a fine of not less than one hundred (\$100) and not more than one thousand (\$1,000), or by imprisonment not exceeding six months, or by both fine and imprisonment for each offense.

Enforcement staff works closely with other CalGEM staff to identify and verify possible violations and take actions to bring violators into conformity with the law and prevent harm. Violations can range from minor issues such as missing records to more significant issues such as failing to perform safety equipment tests, spills, or falsifying records. Enforcement and CalGEM staff assess evidence and the severity of the impacts, and, as appropriate, take corrective measures that can include administrative orders and civil penalties. Depending on the severity of the violation, an operator can be assessed a penalty up to \$25,000 per day per incident (geothermal violations are limited to \$5,000 per day).

Administrative civil penalties collected from operators are deposited in an Oil and Gas Environmental Remediation (OGER) account. Funds in the OGER account are available for appropriation by the state legislature for plugging and abandoning (permanently sealing) oil and gas wells, decommissioning facilities, or remediating sites that otherwise might pose a danger. The Supervisor has the discretion to permit operators to offset up to 50 percent of assessed penalties on supplemental environmental projects (known as SEPs).

Overview of CalGEM Enforcement Activities 2020	
Inspections	48,488
NOVs	1183
Total Orders Issued	16
P&A	2
Civil Penalties	8
Civil Penalty Fines Issued	\$191,669.00
Civil Penalty Received	-
Orders Appealed	2

Field Inspections and Witnessing Operations

Field inspections and witnessing operations are critical oversight functions for CalGEM. In 2020, CalGEM completed 48,488 inspections and witnessed 45,138 shall and may-witness operations across the state.

Shall-witness operations are any that CalGEM is required to witness by law. May-witness operations are any that CalGEM is authorized to witness.

Enforcement Orders

In 2020, CalGEM's Office of Enforcement issued 16 enforcement orders listed below, including \$191,669 in civil penalties. The orders issued generally required operators to remediate field violations or otherwise unsafe conditions at their facilities, plug and abandon wells, and/or pay civil penalties. The Supervisor may also issue emergency orders to address a life, health, safety, property, or natural resources concern.

ORDER NO.	ORDER TYPE	OPERATOR	CALGEM DISTRICT	DOCUMENT TITLE	DATE MAILED	CIVIL PENALTY AMOUNT
1160	Plug & Abandonment	Lena Pauline Savage	Southern	Order to Plug and Abandon Wells, Decommission Attendant Facilities, and Restore Well Site	3/11/2020	--
1170	Civil Penalty/Plug& Abandonment	Citadel Exploration, Inc.	Inland	Order to Plug and Abandon Wells, Pay Idle Well Fees, and Pay Civil Penalties	4/10/2020	\$12,450
1174	Plug & Abandonment	AllenCo Energy, Inc.	Southern	Order to Plug and Abandon Wells, Decommission Attendant Facilities, And Restore Well Site	3/5/2020	--
1175	Remedial	Pioneer Exploration, LLC	Northern	Order to Perform Remedial Work	4/10/2020	--
1176	Civil Penalty	G.H. Preuitt	Inland	Order to Pay Idle Well Fee and Pay Civil Penalty	5/29/2020	\$625
1177	Civil Penalty/Plug& Abandonment	H2O-CH4	Northern	Order to Plug and Abandon Well, Pay Idle Well Fees, and Pay Civil Penalties	5/29/2020	\$938
1178	Civil Penalty/ Plug & Abandonment	Valid Energy Group, Inc.	Inland	Order to Plug and Abandon Wells, Pay Idle Well Fees, and Pay Civil Penalties	6/5/2020	\$6,005
1179	Remedial	Century Oil Company	Coastal	Order to Restore Well Site	5/14/2020	--
1180	Civil Penalty/Plug& Abandonment	Caltico Oil Corporation	Coastal	Order to Plug and Abandon Wells, Decommission Attendant Facilities, Restore Well Sites, Pay Idle Well Fees, and Pay Civil Penalties	6/26/2020	\$117,032
1181	Civil Penalty	Pioneer Exploration, LLC	Northern	Order to Pay Civil Penalties	10/20/2020	\$49,375
1182	Civil Penalty	Dennis C. Franks	Inland	Order to Pay Civil Penalty (Pipeline Management Plan)	10/20/2020	\$500

1184	Civil Penalty	C.E. Allen Co	Southern	Order to Pay Civil Penalty (Pipeline Management Plan)	10/30/2020	\$500
1185	Civil Penalty	Ballard Oil	Inland	Order to Pay Civil Penalty (Pipeline Management Plan)	12/14/2020	\$2,400
1186	Civil Penalty	S&S Oil Company, LLC	Inland	Order to Pay Civil Penalty (Pipeline Management Plan)	12/14/2020	\$1,250
1187	Civil Penalty	UndergroundEnergy, Inc.	Northern	Order to Pay Civil Penalty (Pipeline Management Plan)	12/14/2020	\$500
1210	Civil Penalty	Hunt Enterprises	Southern	Order to Pay Civil Penalty (Pipeline Management Plan)	7/23/2020	\$500

APPENDIX A: CalGEM Boundaries and Offices



Sacramento Office
715 P Street
Sacramento, CA 95814-3530
Phone: (916) 322-1110

Bakersfield Office
11000 River Run Blvd.
Bakersfield, CA 93311
Phone: (661) 322-4031

Orcutt Office
195 S. Broadway, Suite 101
Orcutt, CA 93455-4655
Phone: (805) 937-7246

Ventura Office
1000 S. Hill Rd, Suite 116
Ventura, CA 93003-4458
Phone: (805) 937-7246

Long Beach Office
3780 Kilroy Airport Way, Suite 400
Long Beach, CA 90806
Phone: (562) 637-4400

www.conservation.ca.gov

APPENDIX B: Public Resources Code section 3108

On or before the first day of October of each year the supervisor shall make public, for the benefit of all interested persons, a report in writing showing:

- (a) The total amounts of oil and gas produced in each county in the state during the previous calendar year.
- (b) The total cost of the division for the previous fiscal year.
- (c) The total amount delinquent and uncollected from any assessments or charges levied pursuant to this chapter.

The report shall also include such other information as the supervisor deems advisable.

APPENDIX C: Financial Statement for Fiscal Year 2019/2020

(Numbers in Thousands)

3046 OIL, GAS, AND GEOTHERMAL ADMINISTRATIVE FUND	
BEGINNING BALANCE	
Prior Year Adjustments	5,541
Adjusted Beginning Balance	-2451
	3,090
REVENUES	
Assessment fee revenue	102,178
Investment Income	415
Miscellaneous Revenue	
Escheat - Unclaimed checks	2
Total Revenues	102,595
Total Resources	122,984
EXPENDITURES	
0540 Secretary of the Natural Resources Agency	36
3046 Department of Conservation	78,444
3900 Air Resources Board	2,536
3940 State Water Resources Control Board	15,316
3980 Office of Environmental Health Hazard Assessment	739
8880 Financial Information System for California	0
9892 Supplemental Pension Payment	1,853
9900 Statewide General Administrative Expenditure (Pro Rata)	5,822
Total Expenditures	104,745
FUND BALANCE	940
0275 HAZARDOUS AND IDLE-DESERTED WELL ABATEMENT FUND	
BEGINNING BALANCE	
Prior Year Adjustments	10,412
Adjusted Beginning Balance	-4
	10,408
REVENUES	
Idle well fees	4,094
Investment Income	190
Total Revenues	4,284
Total Resources	14,692

EXPENDITURES	
(3046) Department of Conservation	1,588
(9900) Statewide General Administrative Expenditure (Pro Rata)	16
Total Expenditures	1,604
FUND BALANCE	13,088
0890 FEDERAL TRUST FUND	
UNDERGROUND INJECTION CONTROL	
Total Federal Dollar Expenditures	338
2019 PIPELINES AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION	
Total Federal Dollar Expenditures	1,245
0890 Total	1,583

APPENDIX D: Historical List of State Oil & Gas Supervisors

Supervisor	Start Date	End Date
Gabe Tiffany	Jan 2023	current
Uduak-Joe Ntuk	Oct 2019	Jan 2023
Ken Harris	Dec 2015	July 2019
Steve Bohlen	June 2014	Nov 2015
Tim Kustic	Jan 2012	Feb 2014
Elena Miller	Sep 2009	Nov 2011
Hal Bopp	Oct 2003	July 2009
William Guerard Jr.	Jan 1993	Sep 2003
K.P. Hendersen (acting)	Jan 1992	Dec.1992
M. G. Mefferd	1984	Dec 1991
Simon Cordova (acting)	1983	1984
M. G. Mefferd	1977	1983
Harold Bertholf	1976	1976
J.F. Matthews	1971	1975
F.H. Kasline	1968	1970
E.R. Murray-Aaron	1962	1967
E.H. Musser	1954	1961
R.D. Bush	1924	1953
R.E. Collom	1921	1923
R.P. McLaughlin	1915	1920

APPENDIX E: List of Operators Delinquent on First Half Assessments for Calendar Year 2020

	Operator Name	Current Balance
1	Campo Verde Oil, Inc.	\$ 213.91
2	Modus, Inc.	\$ 892.53
3	Central Pacific Resources	\$ 1,121.05
4	El Segundo Oil, LLC	\$ 1,478.46
5	Old Field Associates	\$ 1,485.77
6	25 Hill Properties, Inc.	\$ 342.79
7	Angus Petroleum Corporation	\$ 4,394.81
8	Bellaire Oil Company	\$ 5,930.44
9	Bruce A. Holmes	\$ 1,693.04
10	C & J Oil	\$ 223.21
11	C & M Oil Co. & Investments	\$ 4,786.80
12	California Hydrocarbons Corporation	\$ 444.67
13	California Petroleum Group Inc.	\$ 3,854.42
14	Central California Oil Co.	\$ 1,538.52
15	Citadel Exploration Inc.	\$ 487.94
16	City of Huntington Beach (Fire Dept.)	\$ 488.28
17	Coffee Petroleum	\$ 909.14
18	Concordia Resources, Inc.	\$ 3,261.58
19	D D Natural Resources, LLC	\$ 3,834.49
20	DAH Oil LLC	\$ 3,143.09
21	Dole Enterprises, Inc.	\$ 4,517.75
22	Drilling & Production Co.	\$ 6,166.61
23	Elliott Underground LLC	\$ 711.83
24	Foothill Energy, LLC	\$ 610.00
25	Four Teams Oil Production & Exploration Inc.	\$ 1,681.74
26	Fourstar Resources LLC	\$ 961.61
27	Gordon Dole	\$ 2,570.95
28	Griffin Resources, LLC	\$ 9,490.36
29	H.T. Olsen Oil & Gas Operations	\$ 1,698.68
30	Havens Oil Company	\$ 25.91
31	HVI Cat Canyon, Inc.	\$ 66,833.06
32	J & K Operating Company, Inc.	\$ 763.98
33	J.P. Oil Company, LLC	\$ 35,455.40
34	Jean Martinez	\$ 142.16

35	Kelpetro Operating, Inc.	\$	1,150.94
36	Kern River Holdings II, LLC	\$	164,406.30
37	Morrison Oil Co., LLC	\$	736.42
38	New Opportunity Exploration, Inc.	\$	499.25
39	O'Donnell Oil, LLC	\$	13,011.48
40	Optima Conservation Resources Exploration, LLC	\$	1,121.39
41	P. C. Oil Company	\$	384.64
42	Padre Oil Co.	\$	378.66
43	Petroprize	\$	960.95
44	Pioneer Exploration, LLC	\$	8,531.18
45	PowerDrive Energy Services Company, LLC	\$	8,738.45
46	PRE Resources, LLC	\$	4,931.59
47	R&R Resources, LLC	\$	832.07
48	Rountree/Wright Enterprises, LLC	\$	797.19
49	S & C Oil Co., Inc.	\$	14,930.92
50	Salt Creek Oil LLC	\$	3,429.75
51	Sherman Havens	\$	355.09
52	Source Energy Corp.	\$	1,134.50
53	Summit Energy, LLC	\$	2,678.23
54	Sun Mountain Oil & Gas	\$	1,215.05
55	Thompson Energy Resources, LLC	\$	1,528.95
56	TJ Scott Family Investments, LLC	\$	1,439.60
57	Towne Exploration Company, LP	\$	471.67
58	Wilco-Placentia Oil Operator LLC	\$	25,962.88
59	William H. Fisk	\$	75.33
60	Hoyt Energy, L.L.C.	\$	470.45
61	Bennett Petroleum, Inc.	\$	753.85
62	Berry Petroleum Company, LLC	\$	36,311.31
63	Black Gold Oil Company	\$	127.32
64	Brindle/Thomas	\$	1,159.96
65	Caleco, LLC	\$	4,076.94
66	Case's Used Equipment	\$	111.19
67	CMO, Inc.	\$	3,989.33
68	Duncan's Pumping Service	\$	295.50
69	John A. Thomas	\$	11,258.86
70	Matrix Oil Corporation	\$	1,813.78
71	Naftex Operating Company	\$	39,267.13
72	Reef Ridge Energy Company LLC	\$	202.16
73	Renaissance Petroleum, LLC	\$	1,349.59
74	Thomas Oilers	\$	377.78
75	West Coast Operators Inc.	\$	248.48
	TOTAL	\$	538,546.27

CALIFORNIA GEOLOGIC ENERGY MANAGEMENT DIVISION

Headquarters

715 P Street, MS 1803, Sacramento, CA 95814
(916) 445-9686 | Fax: (916) 323-0424
CalGEMwebmaster@conservation.ca.gov

Inland District

11000 River Run Blvd., Bakersfield, CA 93311
(661) 322-4031 | Fax: (661) 861-0279

Northern District

Orcutt Office

195 S. Broadway, Suite 101, Orcutt, CA 93455
(805) 937-7246 | Fax: (805) 937-0673

Ventura Office

1000 S. Hill Road, Suite 116, Ventura, CA 93003
(805) 937-7246 | Fax: (805) 654-4765

Sacramento Office

715 P Street, MS 1803, Sacramento, CA 95814
(916) 322-1110 | Fax: (916) 445-3319

Southern District

3780 Kilroy Airport Way, Suite 400, Long Beach, CA 90806
(714) 816-6847 | Fax: (714) 816-6853