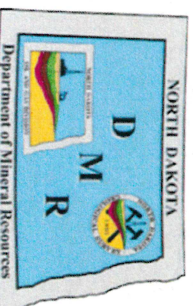


NORTH DAKOTA DEPARTMENT OF MINERAL RESOURCES: OIL & GAS UPDATE

March 4, 2021 | House Appropriations



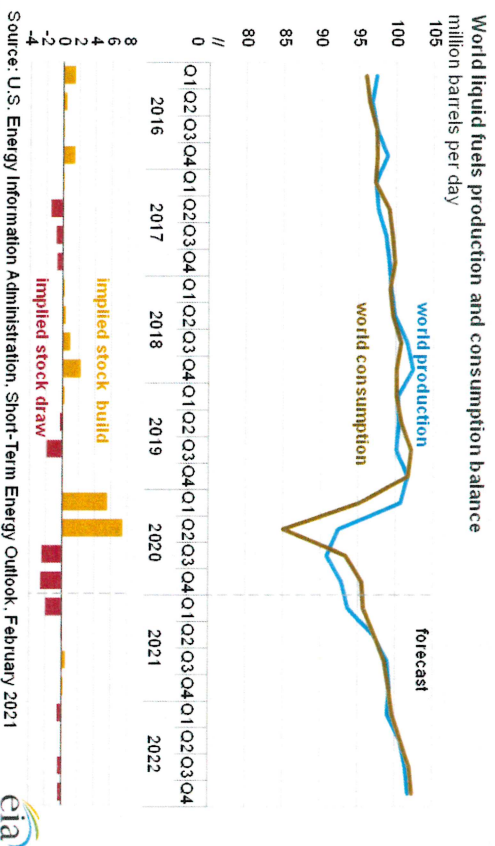
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CURRENT EVENTS & ACTIVITY

NEXT BIENNNIUM 2021-2023

PRICES – RIGS – PRODUCTION – JOBS

Post Pandemic Demand / Supply / Recovery



EIA Short Term energy Outlook expects
Supply/demand balance 2Q 2021
Return to pre-pandemic supply/demand 3Q 2022
Current demand is down 4% from 2019.
Gasoline demand down 12%, distillate up 6%, and jet
fuel down 32%.

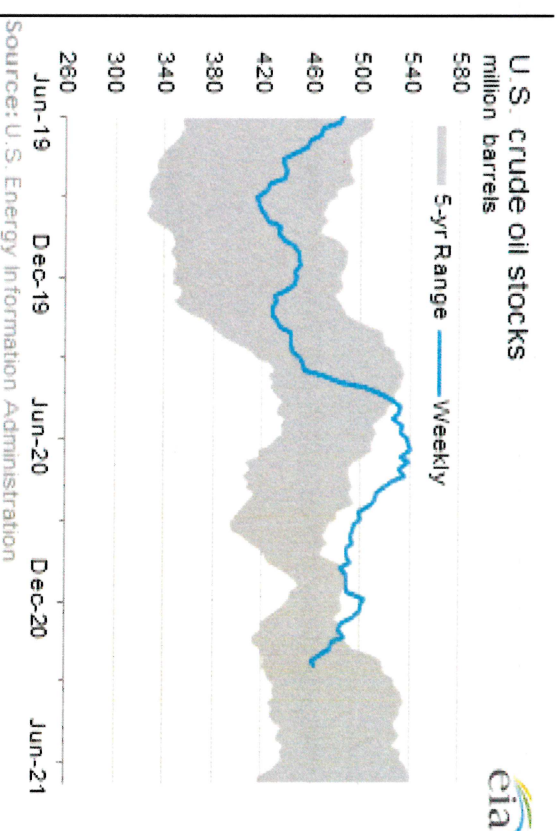
The 13-member Organization of the Petroleum Exporting Countries pumped 24.89 million barrels per day in February, down 870,000 bpd from January.

OPEC+ decided to keep supply mostly steady for February while Saudi Arabia made an extra cut of 1 million bpd for February and March out of concern about a slow recovery in demand and to ensure inventories do not build up.

With oil rising to a 13-month high last week, OPEC+ is set to discuss pumping more at a meeting on 3/4/21.

High prices are expected to prompt OPEC+ to step up production by 500,000 barrels per day and withdraw Saudi Arabia's additional production cut.

Iran, which is exempt from OPEC cuts hopes to raise exports if U.S. sanctions are eased.



Dakota Access Pipeline

DAPL transports 570,000 barrels of North Dakota Bakken crude oil to the US Gulf Coast. DAPL expansion will increase capacity to 1.1 million barrels per day.

Pipeline has operated over 3 years with no incidents.

Oil in the pipeline travels at normal walking speed of 3 miles per hour. It takes 12 days for oil to move from Johnson Corner, ND to Nederland, TX.

Control room in Houston, TX monitors every water crossing and pump station 24/7/365.

Gulf coast oil price (Louisiana light sweet) is \$2.49 per barrel higher than WTI (Cushing, OK)

DAPL is a bullet line to the Gulf Coast so transportation cost is about \$3 per barrel less than using multiple pipelines to transport ND oil to the Gulf Coast via Cushing.

$570,000 \text{ barrels per day} \times (\$2.49 + \$3.00) = \$3.1 \text{ million per day increased revenue at the well site}$

$\$3.1 \text{ million per day revenue change at the well site} \times (5\% \text{ gross production tax} + 5\% \text{ oil extraction tax})$

$= \$310,000 \text{ dollars per day revenue change to the state}$

Alternative transportation (most likely rail) is less environment friendly and approximately \$5 per barrel more expensive.

$570,000 \text{ barrels per day} \times \$5 = \$2.85 \text{ million per day increased revenue at the well site}$

$\$2.85 \text{ million per day revenue change at the well site} \times (5\% \text{ gross production tax} + 5\% \text{ oil extraction tax})$

$= \$285,000 \text{ dollars per day revenue change to the state}$

Judge James E. Boasberg on 2/9/21 granted a request to delay a hearing on the Dakota Access pipeline to give the Biden administration more time to decide how it wants to handle the embattled project after government lawyers said they needed more time to brief new administration officials on the case.

The delay means questions about the fate of the oil pipeline from Energy Transfer LP will remain unanswered for now. American Indian tribes, environmentalists, and many Democrats are pressing President Joe Biden to shutter Dakota Access after an appeals court last month affirmed that a key easement was issued in violation of federal law.

The parties will instead meet April 9.

Biden Administration Executive Orders

Executive Order on Tackling the Climate Crisis at Home and Abroad JANUARY 27, 2021

Sec. 205. Federal Clean Electricity and Vehicle Procurement Strategy. (a) The Chair of the Council on Environmental Quality, the Administrator of General Services, and the Director of the Office and Management and Budget, in coordination with the Secretary of Commerce, the Secretary of Labor, the Secretary of Energy, and the heads of other relevant agencies, shall assist the National Climate Advisor, through the Task Force established in section 203 of this order, in developing a comprehensive plan to create good jobs and stimulate clean energy industries by revitalizing the Federal Government's sustainability efforts.

(b) The plan shall aim to use, as appropriate and consistent with applicable law, all available procurement authorities to achieve or facilitate:

(i) a carbon pollution-free electricity sector no later than 2035; and

(ii) clean and zero-emission vehicles for Federal, State, local, and Tribal government fleets, including vehicles of the United States Postal Service.

(c) If necessary, the plan shall recommend any additional legislation needed to accomplish these objectives.

(d) The plan shall also aim to ensure that the United States retains the union jobs integral to and involved in running and maintaining clean and zero-emission fleets, while spurring the creation of union jobs in the manufacture of those new vehicles. The plan shall be submitted to the Task Force within 90 days of the date of this order (4/27/21).

Sec. 207. Renewable Energy on Public Lands and in Offshore Waters. The Secretary of the Interior shall review siting and permitting processes on public lands and in offshore waters to identify to the Task Force steps that can be taken, consistent with applicable law, to increase renewable energy production on those lands and in those waters, with the goal of doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs. In conducting this review, the Secretary of the Interior shall consult, as appropriate, with the heads of relevant agencies, including the Secretary of Defense, the Secretary of Agriculture, the Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, the Secretary of Energy, the Chair of the Council on Environmental Quality, State and Tribal authorities, project developers, and other interested parties. The Secretary of the Interior shall engage with Tribal authorities regarding the development and management of renewable and conventional energy resources on Tribal lands.

Biden Administration Executive Orders

Executive Order on Tackling the Climate Crisis at Home and Abroad JANUARY 27, 2021

Sec. 208. Oil and Natural Gas Development on Public Lands and in Offshore Waters. To the extent consistent with applicable law, the Secretary of the Interior shall pause new oil and natural gas leases on public lands or in offshore waters pending completion of a comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices in light of the Secretary of the Interior's broad stewardship responsibilities over the public lands and in offshore waters, including potential climate and other impacts associated with oil and gas activities on public lands or in offshore waters. The Secretary of the Interior shall complete that review in consultation with the Secretary of Agriculture, the Secretary of Commerce, through the National Oceanic and Atmospheric Administration, and the Secretary of Energy. In conducting this analysis, and to the extent consistent with applicable law, the Secretary of the Interior shall consider whether to adjust royalties associated with coal, oil, and gas resources extracted from public lands and offshore waters, or take other appropriate action, to account for corresponding climate costs.

Mineral ownership in ND is 85% private, 9% federal (4% Indian lands and 5% federal public lands), and 6% state

66% of ND spacing units contain no federal public or Indian minerals

24% contain federal public minerals

9% contain Indian minerals

1% contain both

A spatial query found 3,443 undrilled wells in spacing units that would penetrate federal minerals.

2,902 undrilled wells in spacing units that would penetrate BIA Trust minerals (700 tribal and 2,202 allotted).

The total number of wells potentially impacted is 6,345.

The minimum number of future Bakken wells is 24,000

3,443 wells on federal public lands = 14% (estimate -150 wells 2021-2023)

2,902 wells on trust lands = 12%

A recent study from University of Wyoming estimated lost royalties of \$570 million as follows:

2021-2025	\$76 million (estimate - \$25 million 2021-2023)
2026-2030	\$113 million
2031-2035	\$160 million
2036-2040	\$221 million

50% of the royalties on federal public lands go to the state and 50% of the state share goes to the county where the oil was produced.

Case 28666 heard 2/17/21 revealed 14 wells delayed due to requirement of permit approval by Washington DC officials.

Western Energy Alliance 1/27/21 and Continental Resources 2/27/21 filed lawsuits – North Dakota may join

Biden Administration Executive Orders

Executive Order on Tackling the Climate Crisis at Home and Abroad JANUARY 27, 2021

Sec. 209. Fossil Fuel Subsidies. The heads of agencies shall identify for the Director of the Office of Management and Budget and the National Climate Advisor any fossil fuel subsidies provided by their respective agencies, and then take steps to ensure that, to the extent consistent with applicable law, Federal funding is not directly subsidizing fossil fuels. The Director of the Office of Management and Budget shall seek, in coordination with the heads of agencies and the National Climate Advisor, to eliminate fossil fuel subsidies from the budget request for Fiscal Year 2022 and thereafter. **(Possible threat to 45Q for CCUS)**

Sec. 210. Clean Energy in Financial Management. The heads of agencies shall identify opportunities for Federal funding to spur innovation, commercialization, and deployment of clean energy technologies and infrastructure for the Director of the Office of Management and Budget and the National Climate Advisor, and then take steps to ensure that, to the extent consistent with applicable law, Federal funding is used to spur innovation, commercialization, and deployment of clean energy technologies and infrastructure. The Director of the Office of Management and Budget, in coordination with agency heads and the National Climate Advisor, shall seek to prioritize such investments in the President's budget request for Fiscal Year 2022 and thereafter. **(Potential for federal CSEA grant opportunities)**

Biden Administration Executive Orders

Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis JANUARY 20, 2021

Sec. 2. Immediate Review of Agency Actions Taken Between January 20, 2017, and January 20, 2021.

- (i) Reducing Methane Emissions in the Oil and Gas Sector: “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration,” 85 Fed. Reg. 57398 (September 15, 2020), by September 2021. **Obama Administration Rule litigated since 6/29/16 and revised rule litigated since 9/15/20. Litigation line item in AG budget (HB1003 page 2 line 18).**
- (iv) Protecting Our Air from Harmful Pollution: “National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review,” 85 Fed. Reg. 31286 (May 22, 2020), by August 2021; “Increasing Consistency and Transparency in Considering Benefits and Costs in the Clean Air Act Rulemaking Process,” 85 Fed. Reg. 84130 (December 23, 2020), as soon as possible; “Strengthening Transparency in Pivotal Science Underlying Significant Regulatory Actions and Influential Scientific Information,” 86 Fed. Reg. 469 (January 6, 2021), as soon as possible.

Sec. 4. Arctic Refuge. (a) In light of the alleged legal deficiencies underlying the program, including the inadequacy of the environmental review required by the National Environmental Policy Act, the Secretary of the Interior shall, as appropriate and consistent with applicable law, place a temporary moratorium on all activities of the Federal Government relating to the implementation of the Coastal Plain Oil and Gas Leasing Program, as established by the Record of Decision signed August 17, 2020, in the Arctic National Wildlife Refuge. The Secretary shall review the program and, as appropriate and consistent with applicable law, conduct a new, comprehensive analysis of the potential environmental impacts of the oil and gas program. **(USGS mean probability potential 750,000 BOPD and 2.6 billion BO)**

Sec. 6. Revoking the March 2019 Permit for the Keystone XL Pipeline. (a) On March 29, 2019, the President granted to TransCanada Keystone Pipeline, L.P. a Presidential permit (the “Permit”) to construct, connect, operate, and maintain pipeline facilities at the international border of the United States and Canada (the “Keystone XL pipeline”), subject to express conditions and potential revocation in the President’s sole discretion. The Permit is hereby revoked in accordance with Article I(1) of the Permit. **(North Dakota 100,000 BOPD on-ramp at Baker, MT)(would enable Canadian production increase of 550,000 barrels per day)**

Biden Administration Executive Orders

Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis JANUARY 20, 2021

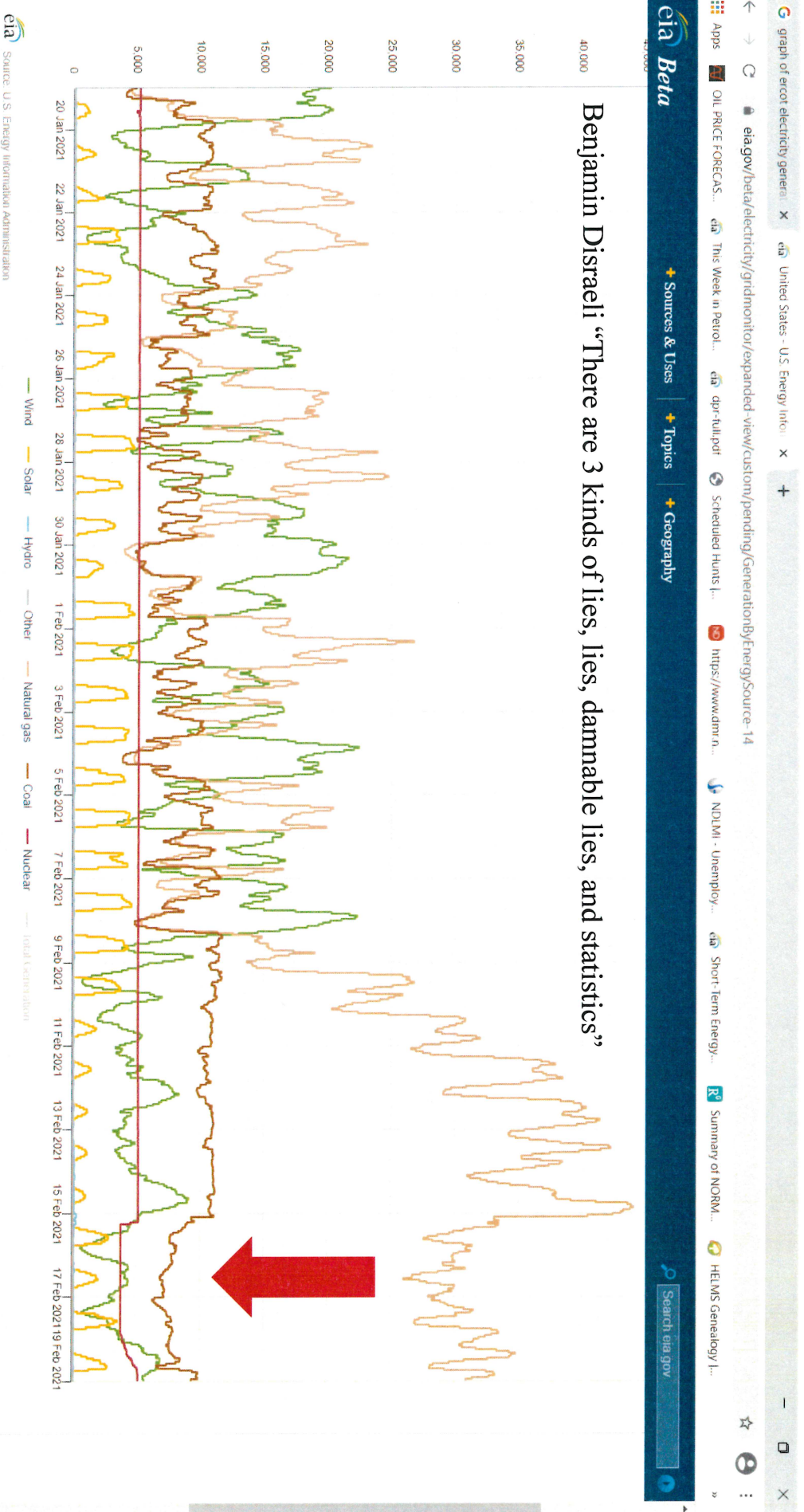
Sec. 7. **Other Revocations.** (a) Executive Order 13766 of January 24, 2017 (Expediting Environmental Reviews and Approvals For High Priority Infrastructure Projects),

Executive Order 13778 of February 28, 2017 (Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the “Waters of the United States” Rule), A 10th Circuit panel ruled 3/2/21 the federal government should not be blocked from implementing in CO a Trump-era regulation defining what waters are protected by the Clean Water Act.

Executive Order 13783 of March 28, 2017 (Promoting Energy Independence and Economic Growth), Executive Order 13792 of April 26, 2017 (Review of Designations Under the Antiquities Act), Executive Order 13795 of April 28, 2017 (Implementing an America-First Offshore Energy Strategy), Executive Order 13868 of April 10, 2019 (Promoting Energy Infrastructure and Economic Growth), and Executive Order 13927 of June 4, 2020 (Accelerating the Nation’s Economic Recovery from the COVID-19 Emergency by Expediting Infrastructure Investments and Other Activities), are hereby revoked. Executive Order 13834 of May 17, 2018 (Efficient Federal Operations), is hereby revoked except for sections 6, 7, and 11.

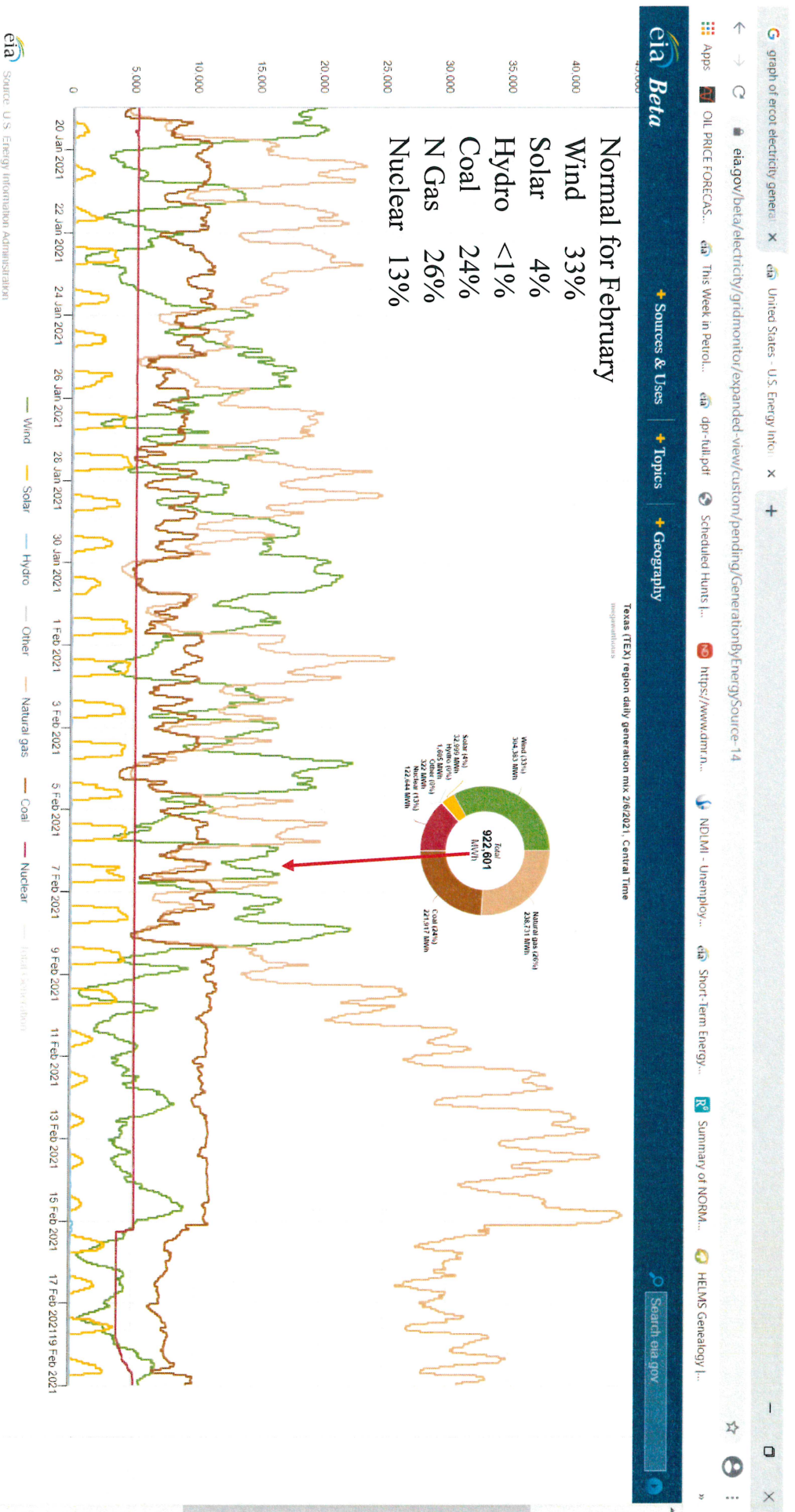
Texas Electrical System Failure

Benjamin Disraeli “There are 3 kinds of lies, lies, damnable lies, and statistics”



<https://www.eia.gov/beta/electricity/gridmonitor/expanded-view/custom/pending/GenerationByEnergySource-14/edit>

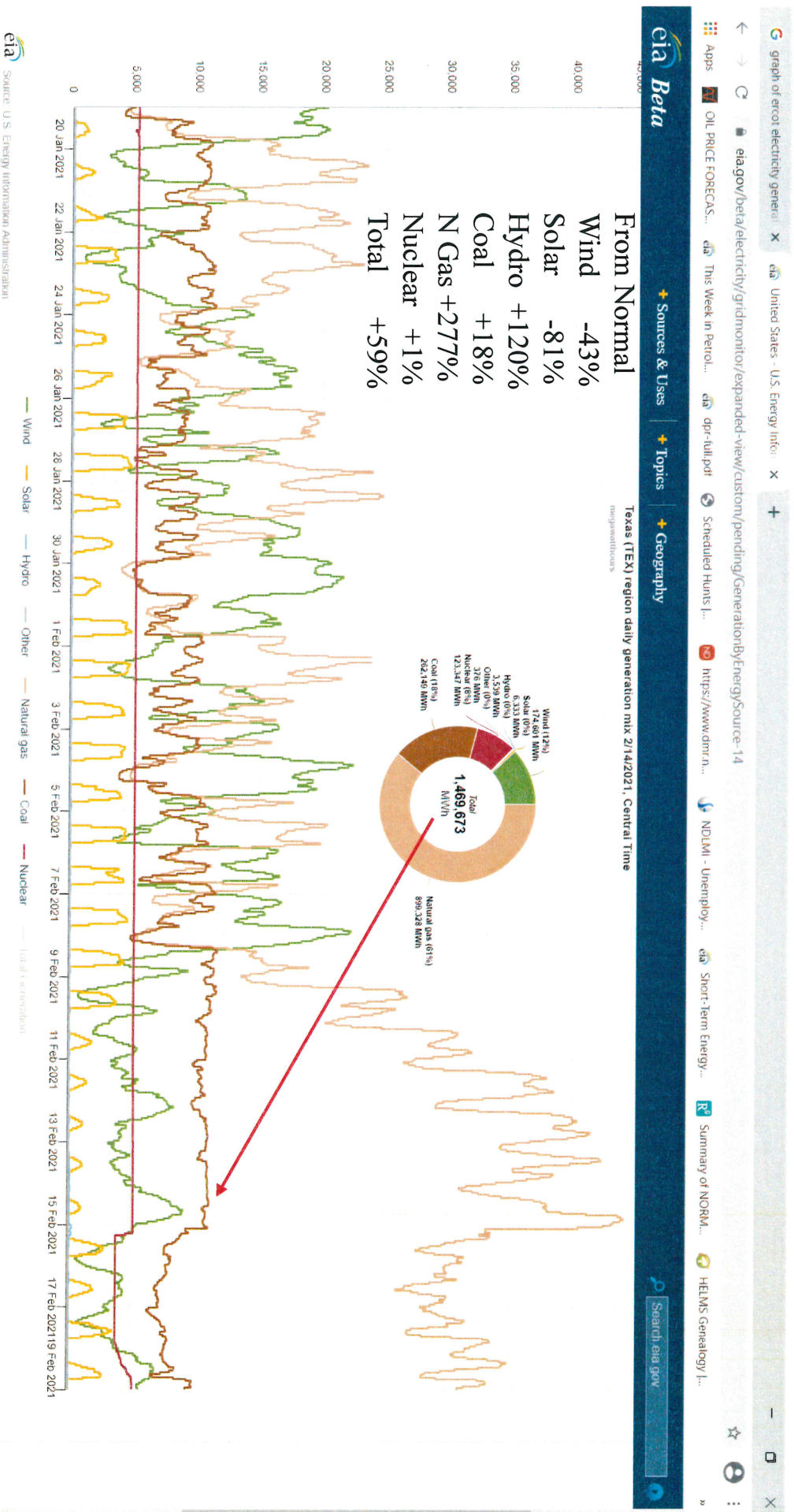
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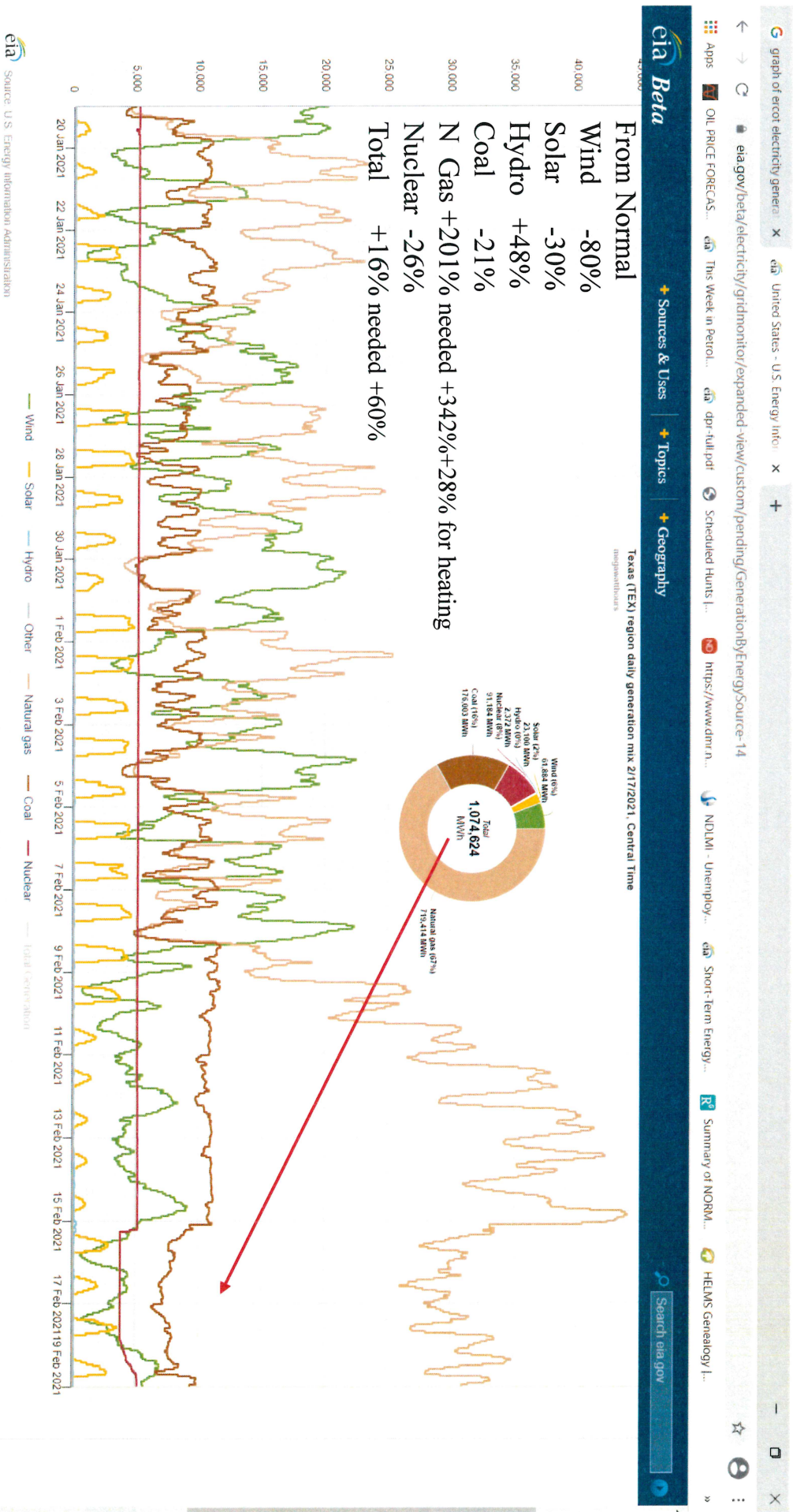


Texas Electrical System Failure



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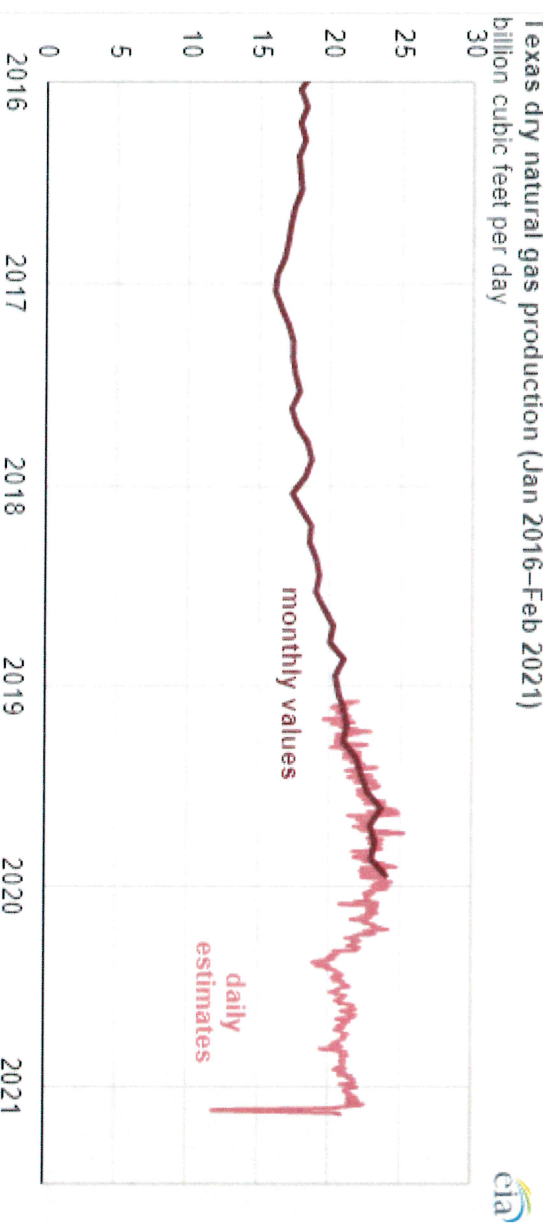
Texas Electrical System Failure



<https://www.eia.gov/beta/electricity/gridmonitor/expanded-view/custom/pending/GenerationByEnergySource-14/edit>

Natural Gas Production

Texas dry natural gas production (Jan 2016–Feb 2021)
billion cubic feet per day



-50%

Natural gas
production &
processing
require a lot
of electricity
and winter
maintenance

North Dakota

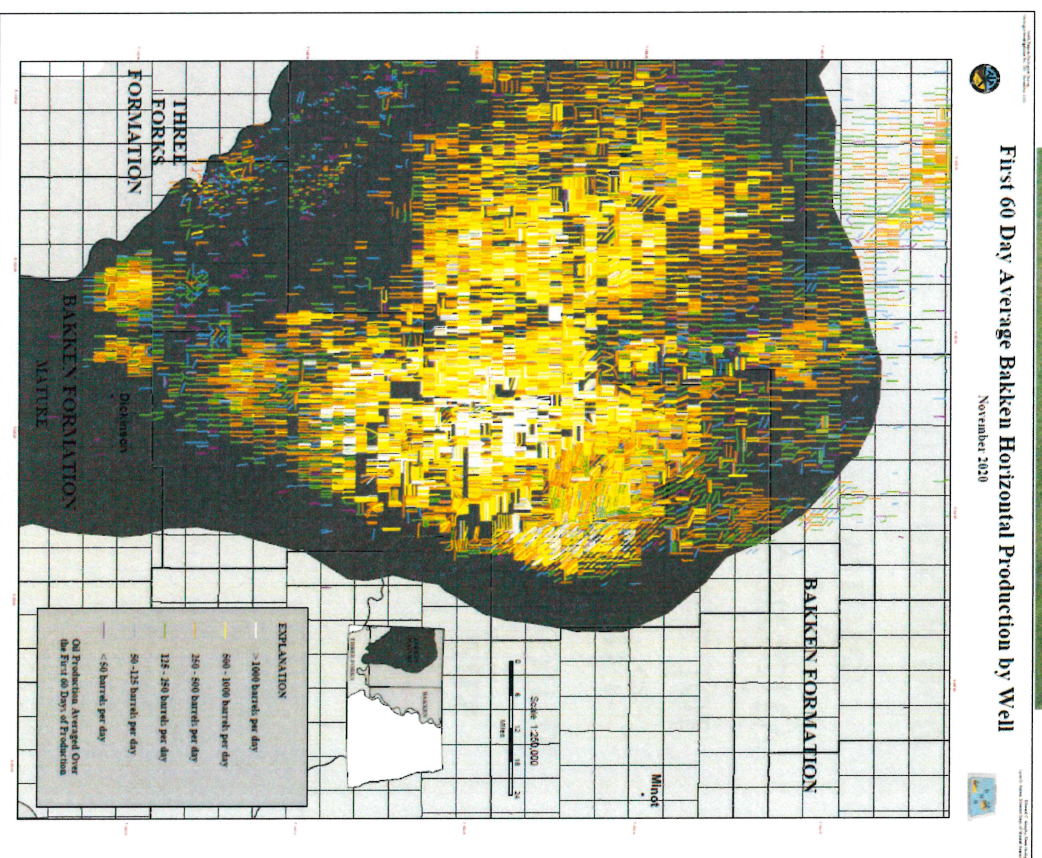


-20%

Wells



Active Dec 2020 Conventional Bakken/Three Forks	15,798 2,112 13,686
Inactive Dec 2020 WTI \$35-\$45 > 90 days = EIA 1/30/2021	2,687
Waiting on Completion Dec 2020 WTI \$45-\$50 > 90 DAYS = EIA 3/4/2021	668
Permitted Dec 2020 WTI \$55-\$60 > 90 days ?? EIA 5/3/2021	1,673
Increase Density Dec 2020 ICO 31152	11,949
Total	34,884
Estimated Final \$60/BO = 55-65 Rigs = 20 Yr \$70/BO = 65-75 Rigs = 45 Yr \$80/BO = 70-80 Rigs = 70 Yr	40,000 65,000 85,000



Oil and Gas Subscription: ArcIMS Viewer

Legend / Layers

Overview Map

Previous View

Clear Selection

Search

Create PDF

Zoom In

Zoom Out

Pan

Identify

Select Object

Buffer

Distance

Find Well

Find Field / Unit

Find Section

Browser Settings

Suppression

Download Shape Files

ND Oil & Gas Layers

Oil and Gas

Permit Status Before Spill

Oil Location

Directional Surveys

Directional Logs

Horizontal Surveys

Horizontal Logs

Cases Drilled

Oil Fields

Unit Boundaries

Tractor Access

Drilling / Seismic

Seismic

Gas Plants

Oil Refineries

Reparations

Corporate Boundaries

Leases and Roads

Land Ownership

Powerline Mineral Tracts

Powerline Surface Tracts

Surface Ownership - ND Leases

Well Leases

US Forest Service

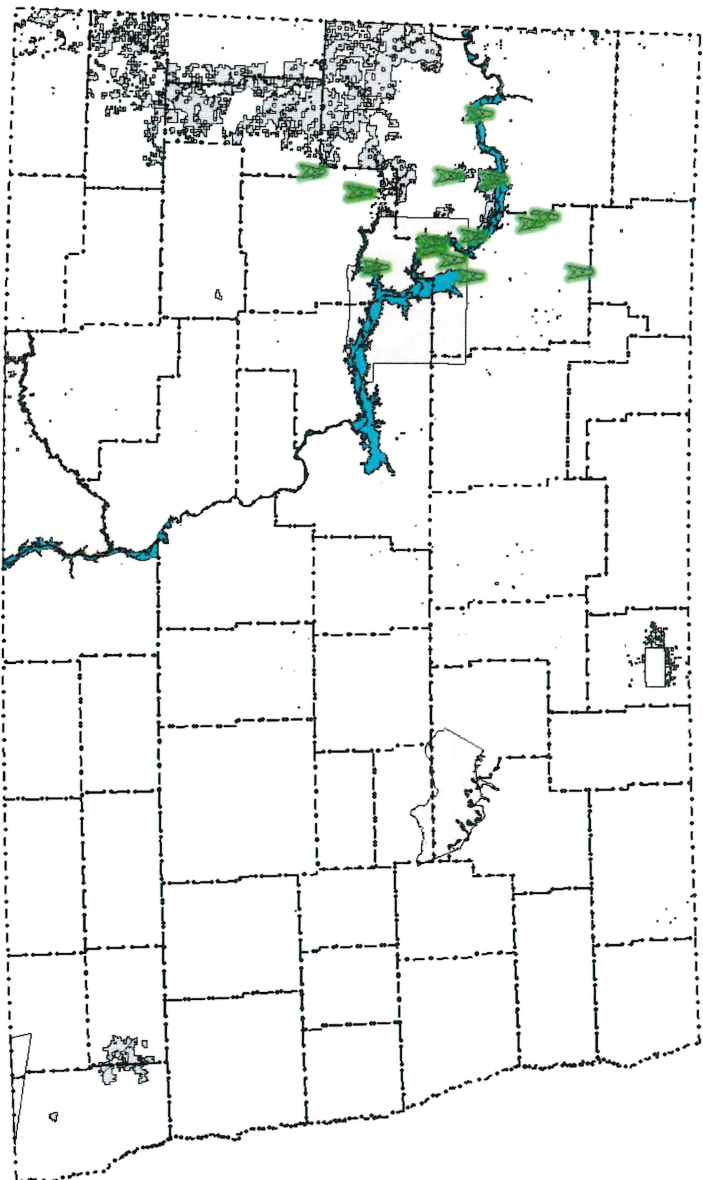
Refresh Map

Map Data

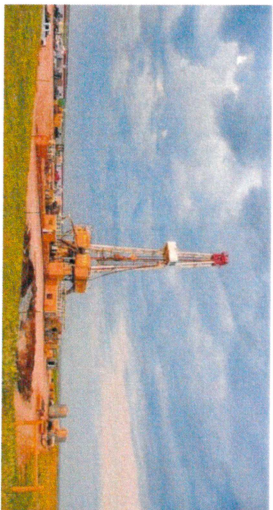
Map Data Last Updated: 3/1/2021

Rig Location is now the Active Layer

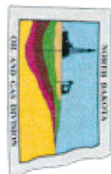
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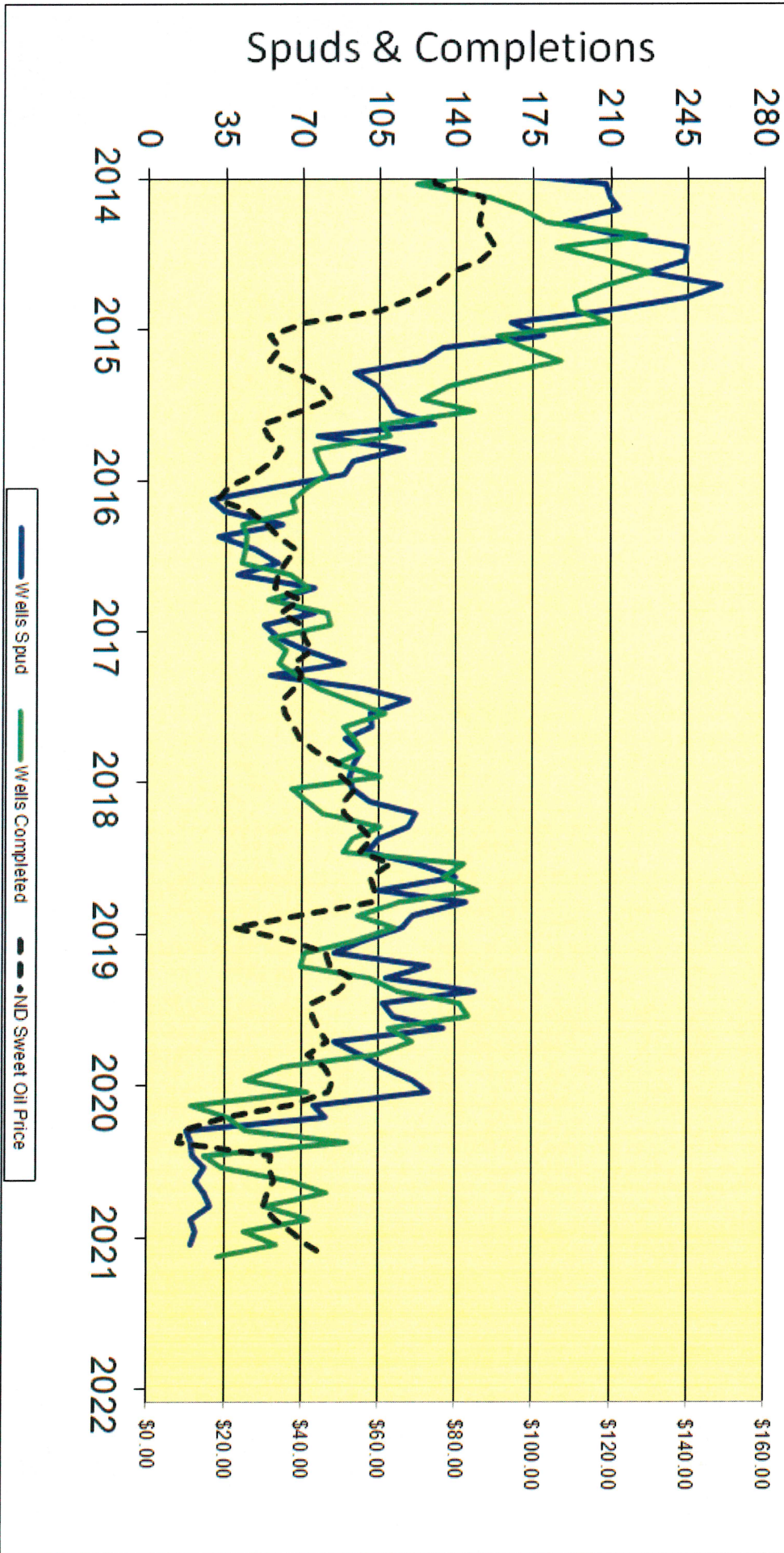
Zoom In

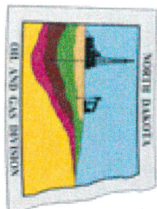


15 rigs

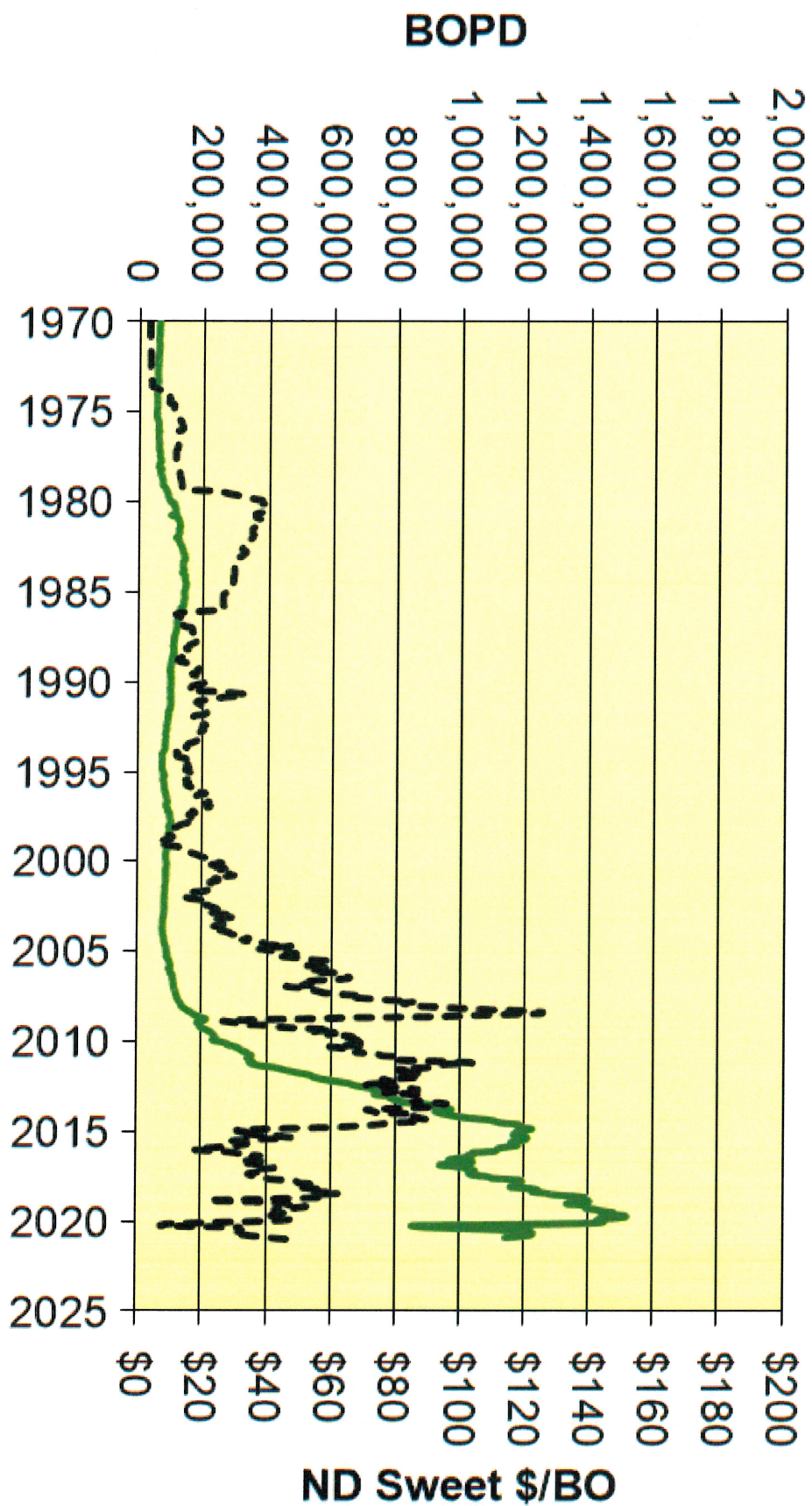


North Dakota Monthly Spuds & Completions

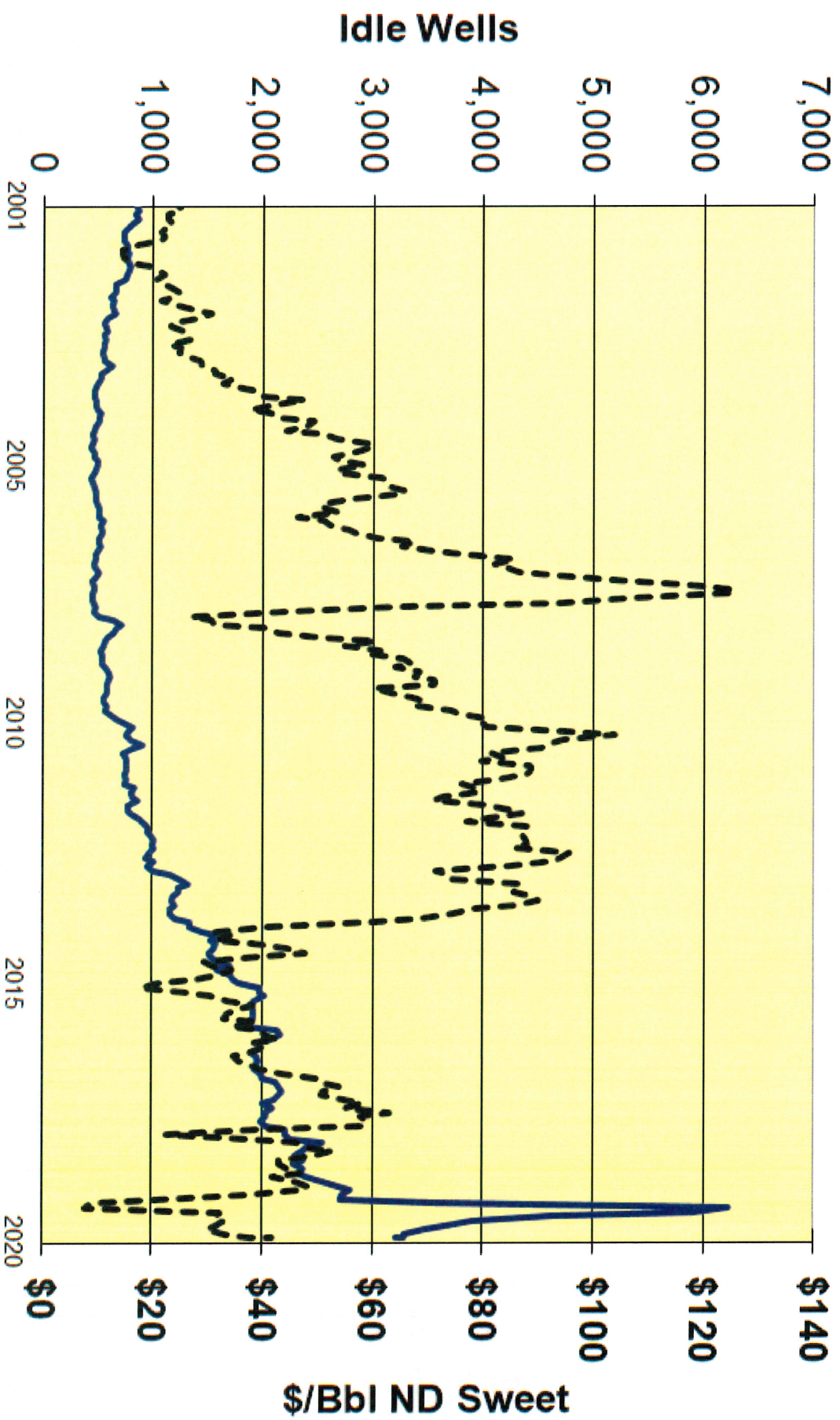
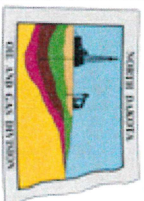


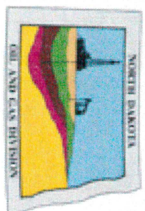


North Dakota Daily Oil Produced and Price

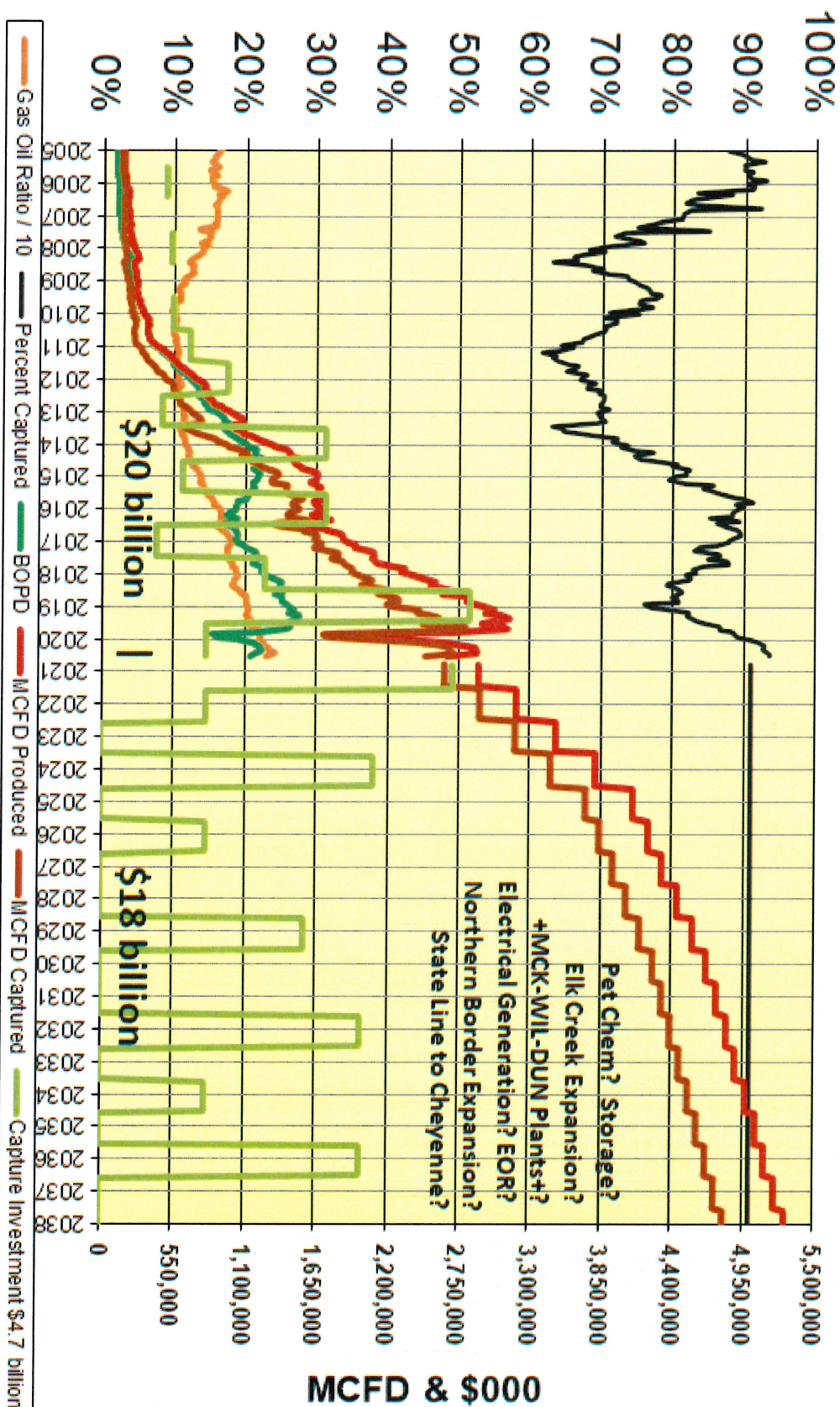


North Dakota Idle Wells





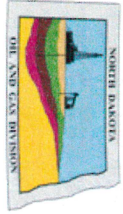
North Dakota Monthly Gas Captured



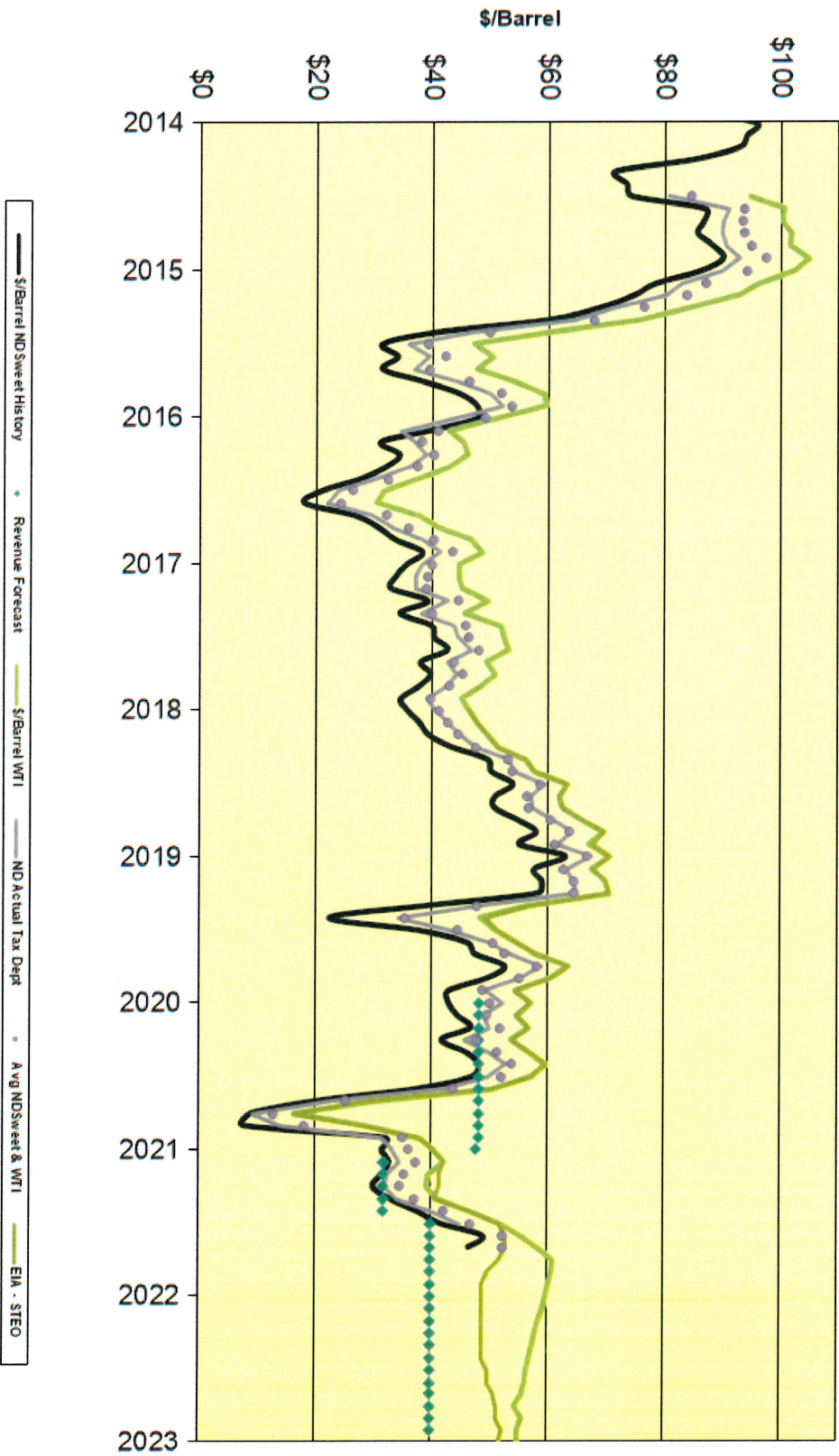
CURRENT EVENTS & ACTIVITY

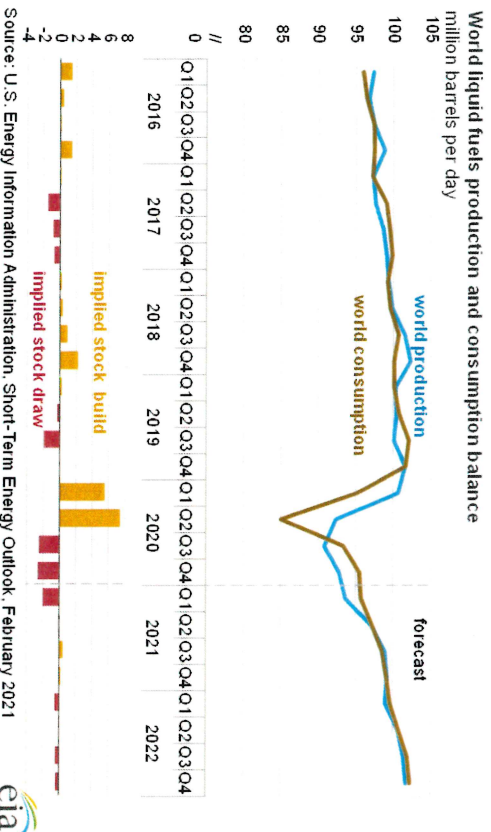
NEXT BIENNNIUM 2021-2023

PRICES – RIGS – PRODUCTION – JOBS



North Dakota Oil Price Projections

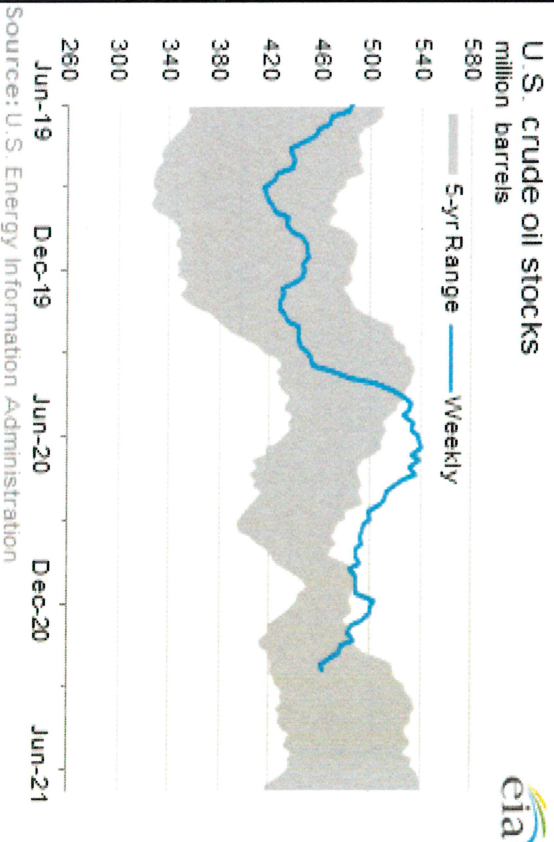




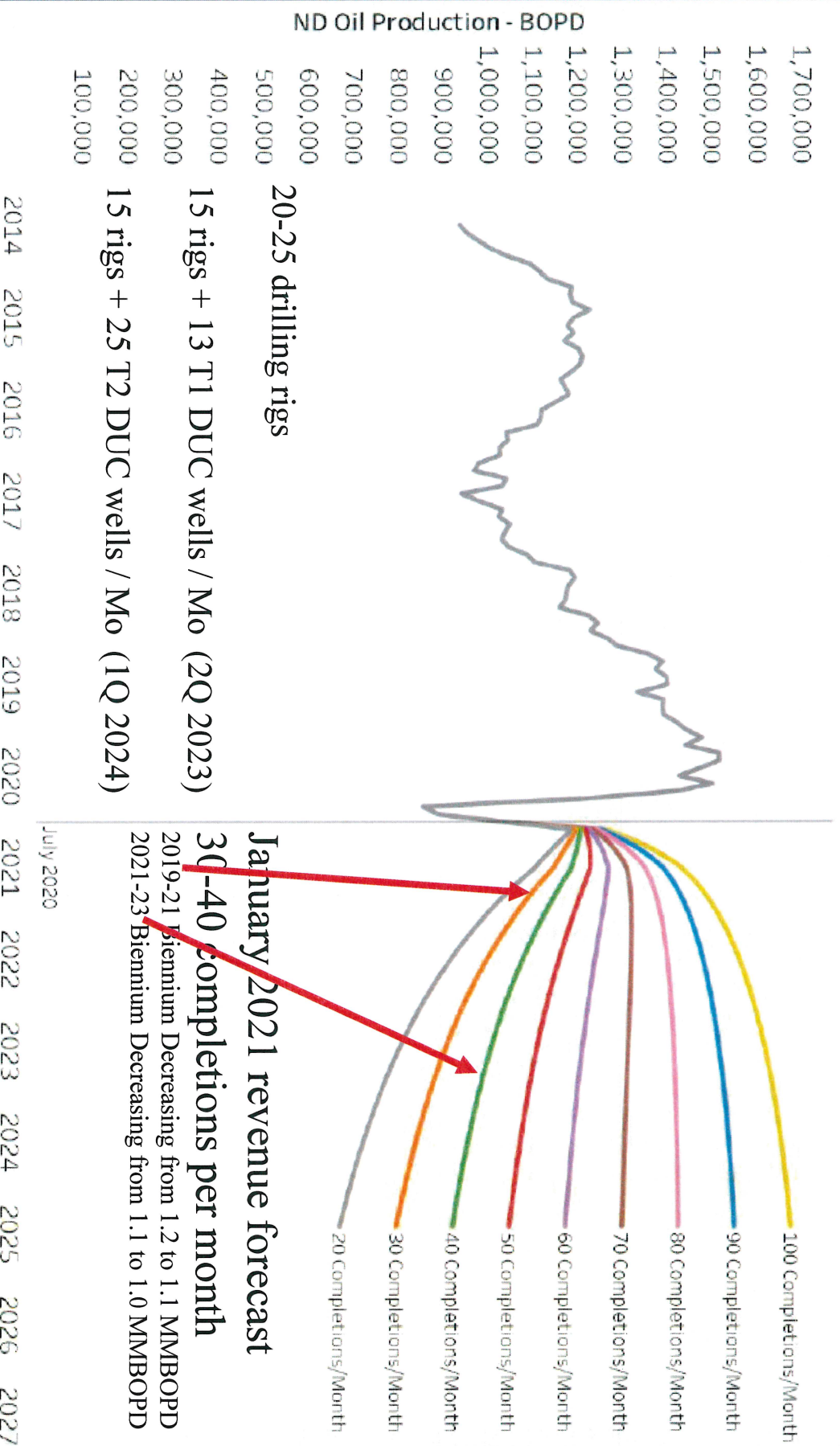
BlackRock is leading the charge on Wall Street to “sustainability”, with 77% of investors committed to investing only in “sustainable” companies. A \$120 trillion transformation is anticipated.

The US regulatory environment is expected to block growth in oil and gas. Industry may not be allowed to get new leases on federal lands, to disturb wildlife to drill, to frac completions, to flare gas while a pipeline is being built, or to build and replace pipelines to get it to market.

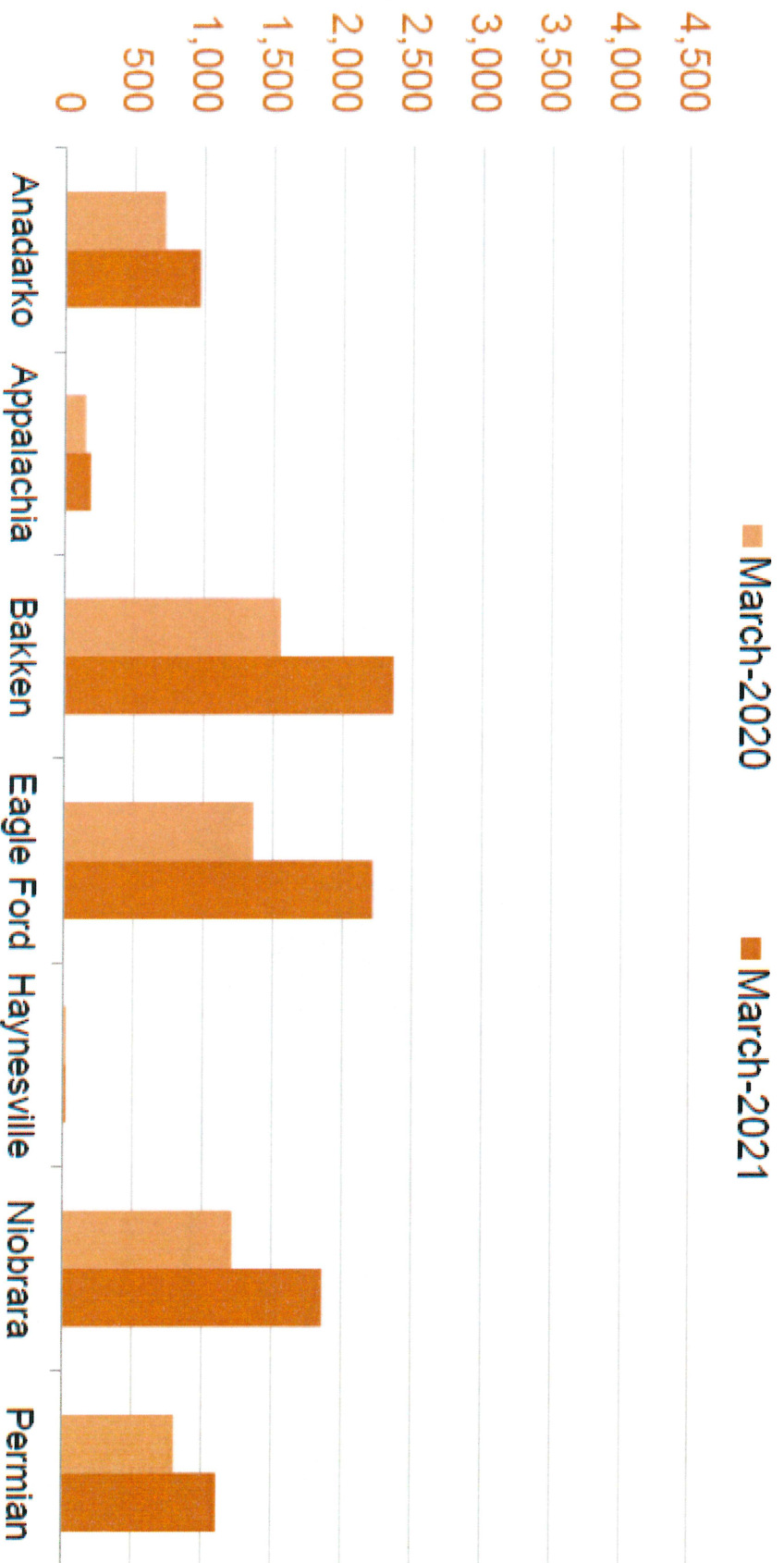
As demand recovers, OPEC+ plans to respond in kind to maintain the market balance, carefully keeping prices low enough to stifle any meaningful US shale resurgence. Russia sees the global economy teeing up a “demand party” and supports OPEC+ raising production each month for the next four months. It sees oil prices between \$45 and \$55 per barrel as being optimum.



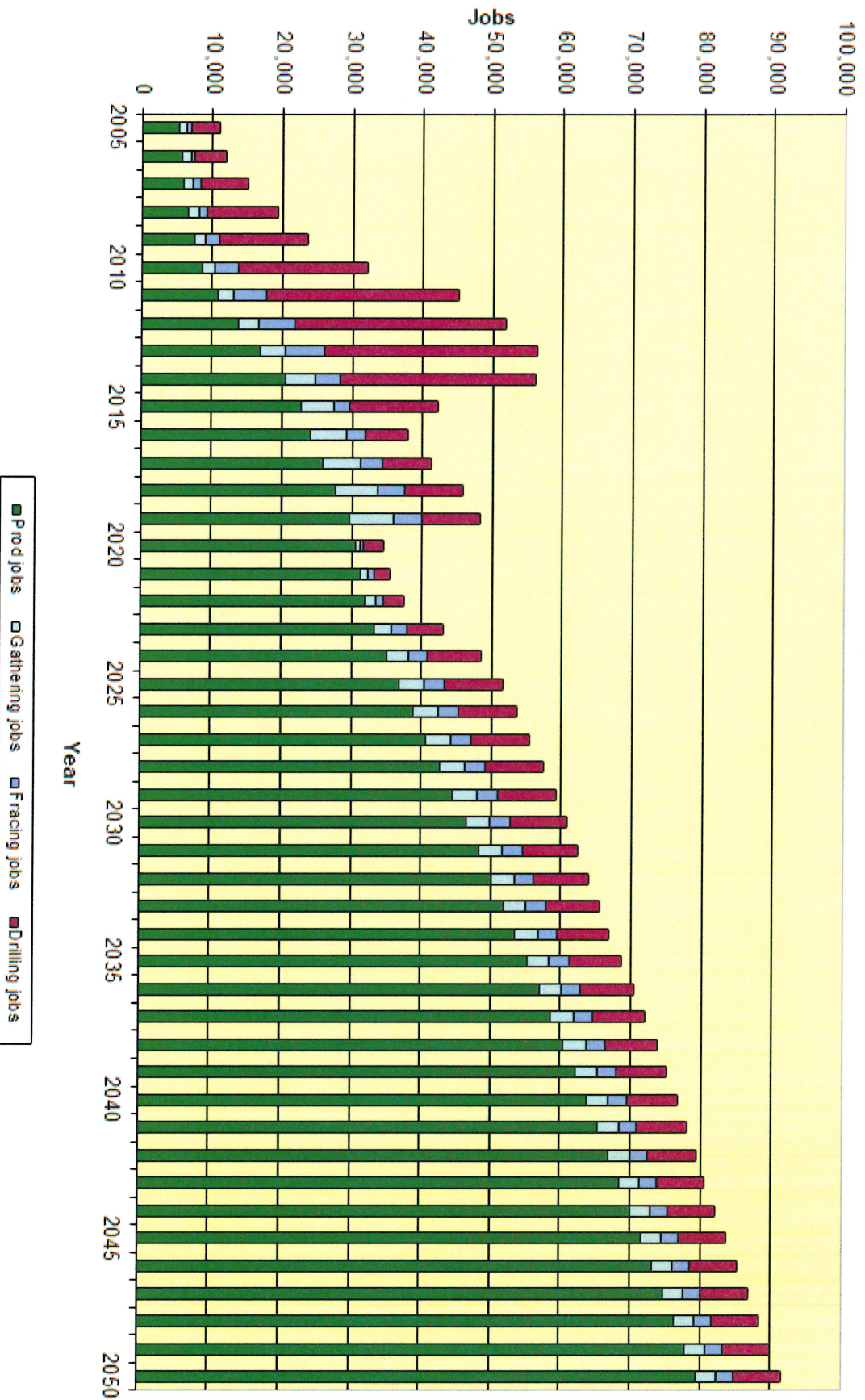
Monthly Completion Scenarios - Oil



New-well oil production per rig barrels/day



North Dakota Oil Industry Jobs



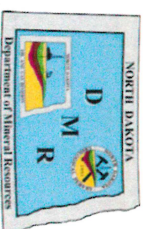
**NORTH DAKOTA
DEPARTMENT OF MINERAL RESOURCES**

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