OUT-POLLUTING PROGRESS:

Carbon Emissions From Biden-Approved Fossil Fuel Projects Undermine CO2 Cuts From Inflation Reduction Act

CENTER FOR BIOLOGICAL DIVERSITY • NOVEMBER 2023
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Overview

The Biden administration’s fossil fuel approvals threaten to erase the emissions progress projected under the Inflation Reduction Act and other climate policy.

Key Findings

Finding 1: The Biden administration has approved many major new fossil fuel production and infrastructure projects, including 17 massive projects with the potential to release emissions totaling 1,642 million metric tons of CO₂e per year – the same as the annual emissions of 440 coal-fired power plants.

Finding 2: The emissions that will result from the Biden administration’s fossil fuel project approvals are larger than the emissions reductions from the Inflation Reduction Act and other climate policies.

Finding 3: Each fossil fuel project approval worsens the interlinked climate, environmental justice, public health and biodiversity extinction crises created by the fossil fuel industry.

Finding 4: Stopping the approval of pending fossil fuel projects would have tremendous climate, health, justice and wildlife benefits.

Conclusion: The Biden administration’s fossil fuel project approvals are undermining U.S. climate progress and sacrificing communities and wildlife to Big Oil and Gas. The Biden administration has a clear duty to use its extensive executive powers to implement a bold fossil fuel phaseout plan, starting by halting approval of new oil and gas projects.
Introduction

The climate crisis is a fossil fuel crisis. Fossil fuels are driving the global climate emergency. Oil, gas and coal are responsible for approximately 90% of human-caused CO₂ emissions in the U.S. and globally, and are fundamentally “incompatible with human survival.”

The 1.1°C of global heating to date, fueled by the fossil fuel industry, is escalating climate disasters that are killing people, causing ecosystem collapse, costing the U.S. economy hundreds of billions of dollars in damages every year, and increasing suffering across the nation and around the world. Fossil fuel development and the climate crisis also breed glaring injustice, with Black, Indigenous, other communities of color, and low-wealth communities being harmed first and worst.

The science- and justice-based imperative to rapidly phase out fossil fuels could not be clearer. According to an international scientific consensus, governments must immediately stop approving new fossil fuel extraction and infrastructure and phase out existing fossil fuel development to limit temperature rise to 1.5°C and prevent catastrophic climate harms. This is the conclusion of expert assessments from the International Panel on Climate Change (IPCC), International Energy Agency (IEA), the United Nations and countless studies.

A rapid fossil fuel phaseout is necessary not only to prevent irreversible climate catastrophe, but to stem the interlinked public health, environmental justice and biodiversity extinction crises worsened by the fossil fuel industry.

As a wealthy nation with a high capacity to manage a just transition to clean, renewable energy, as well as a dominant role in driving the climate crisis, the U.S. must rapidly phase out fossil fuel production and use.

A Tyndall Centre report concluded that an equitable fossil fuel phaseout for the U.S. requires ending all oil and gas production by 2034 for a 50% chance of limiting temperature rise to 1.5°C and by 2031 for a 66% chance.

The United States is Expanding Fossil Fuels

Despite the imperative to stop fossil fuel expansion, the U.S. is leading the world’s largest expansion of oil and gas production. The U.S. is now the biggest oil and gas producer in the world, and in 2023 U.S. oil production is projected to reach a historic high.

The U.S. has also become a major fossil fuel exporter. Since the crude oil export ban was lifted in 2015, U.S. crude exports have increased by a whopping ~950%. The U.S. is now the number one exporter of petroleum products and the number one exporter of gas. As exports continue to grow, a new analysis has found that greenhouse gas emissions from U.S. fossil fuel exports are undermining the emissions reductions from the Inflation Reduction Act.

While the Biden administration has periodically stopped fossil fuel projects, it has much more often greenlighted them. Approved projects include the Willow drilling project in the Alaskan Arctic, the Mountain Valley pipeline in Appalachia, massive oil and gas export terminals in Gulf Coast communities already overburdened by pollution, and record numbers of oil and gas drilling permits on public lands.

Many of these projects have projected lifespans of 30 to 50 years that threaten to lock in carbon emissions and harm communities and wildlife in the long term. If allowed to proceed, U.S. fossil fuel expansion would lock in climate catastrophe.
On its current trajectory, the U.S. is also expected to account for a full third of planned oil and gas expansion globally between 2023 and 2050, marking the U.S. as the global “Planet Wrecker in Chief” according to a new analysis.17

In response to criticism of its fossil fuel expansion, the Biden administration points to its flagship accomplishment, the Inflation Reduction Act (IRA), and the reductions in fossil fuel demand that it is projected to achieve.

But while the IRA provides important incentives for clean, renewable solar and wind energy and clean technology such as electric vehicles, it simultaneously ties renewable energy development to new fossil fuel leasing on public lands and waters for the next decade, perversely expanding planet-heating fossil fuels.

The IRA also includes massive subsidies for ineffective, dangerous and expensive false solutions like carbon capture and storage (CCS) and fossil hydrogen that only perpetuate fossil fuel extraction and infrastructure, rather than enabling their needed phase out.18

We Need Policies that Decrease Fossil Fuel Supply

There is a fundamental conflict between reducing fossil fuel demand while simultaneously approving long-lifespan extraction and infrastructure projects that increase fossil fuel supply. Experts have repeatedly warned that policies to decrease fossil fuel supply and demand must go hand in hand to effectively reduce emissions and allow for a just transition away from fossil fuels.19

Analyses have cautioned that reducing U.S. fossil fuel demand without reducing supply will significantly undercut any domestic emissions reductions coming from demand-side policies.20 The recent finding that emissions from U.S. fossil fuel exports are effectively erasing the IRA’s emissions reduction benefits is proof of that concept.21

In this analysis, we evaluated the estimated greenhouse gas emissions of major fossil fuel expansion projects that the Biden administration has approved, and the projected emissions from pending fossil fuel projects that the Biden administration could stop.

Specifically, we estimated the total annual emissions that would result from major fossil fuel infrastructure projects approved by the Biden administration and compared them with annual emissions reductions projected under the Inflation Reduction Act and other U.S. climate policy. We then estimated the annual emissions that would result from pending major fossil fuel infrastructure projects that could be stopped by the Biden administration during its remaining first term to highlight the additional emissions that could be prevented, were the Biden administration to choose to stop them.

Finally, to illustrate the wide-ranging harms of these projects, beyond their climate destruction alone, we evaluated the environmental justice, public health and biodiversity harms coming from three major projects that have been approved by the Biden administration: the Willow Oil Development Project in Alaska, the Sea Port crude oil export terminal on the Texas Gulf coast, and the Mountain Valley Pipeline in Appalachia.
Finding 1: The Biden administration has approved many major new fossil fuel production and infrastructure projects, including 17 massive projects with the potential to release emissions totaling 1,642 million metric tons of CO$_2$e per year – the same as the annual emissions of 440 coal-fired power plants.

We analyzed 17 massive fossil fuel production and infrastructure projects approved by the Biden administration that together have the potential to release emissions of 1,642 million metric tons CO$_2$e per year. These include the Willow Drilling Project, three oil pipelines, six fracked gas pipelines, one crude oil export terminal, four new liquified natural gas (LNG) export terminals and two LNG export terminal expansions.

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Project Name</th>
<th>Location/Route</th>
<th>Annual Emissions (MMT CO$_2$e$^{23}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Drilling</td>
<td>Willow Master Development Project</td>
<td>North Slope, Alaska</td>
<td>10.8</td>
</tr>
<tr>
<td>Oil Pipelines</td>
<td>Dakota Access (DAPL)</td>
<td>North Dakota to Illinois</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>Enbridge Line 3</td>
<td>Alberta to Wisconsin</td>
<td>175</td>
</tr>
<tr>
<td></td>
<td>Enbridge Line 5</td>
<td>Wisconsin to Ontario</td>
<td>71</td>
</tr>
<tr>
<td>Fracked Gas Pipelines</td>
<td>Mountain Valley Pipeline (MVP)</td>
<td>West Virginia, Virginia</td>
<td>89.5</td>
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<tr>
<td></td>
<td>Driftwood Line 200 and 300</td>
<td>Louisiana</td>
<td>201</td>
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<tr>
<td></td>
<td>Gulf Run Pipeline (Line CP Modifications)</td>
<td>Louisiana, Texas</td>
<td>75</td>
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<tr>
<td></td>
<td>Evangeline Pass Expansion</td>
<td>Louisiana, Mississippi</td>
<td>48</td>
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<td></td>
<td>Regional Energy Access Expansion Project</td>
<td>Maryland, New Jersey, Pennsylvania</td>
<td>36</td>
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<tr>
<td></td>
<td>North Baja XPress Project</td>
<td>Arizona, California</td>
<td>22</td>
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<tr>
<td>Crude Oil Export</td>
<td>Sea Port Oil Terminal (SPOT)</td>
<td>Brazoria County, Texas</td>
<td>331</td>
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<tr>
<td>Terminal</td>
<td></td>
<td></td>
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<tr>
<td>LNG Export Terminals</td>
<td>Rio Grande LNG</td>
<td>Brownsville, Texas</td>
<td>163</td>
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<tr>
<td></td>
<td>Alaska LNG + Pipeline</td>
<td>North Slope to Cook Inlet, Alaska</td>
<td>121</td>
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<td>Port Arthur Trains 3 &amp; 4 Expansion LNG</td>
<td>Port Arthur, Texas</td>
<td>82</td>
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<tr>
<td></td>
<td>Commonwealth LNG</td>
<td>Cameron Parish, Louisiana</td>
<td>51</td>
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<tr>
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<td>Cameron Train 4 (Phase II Expansion) LNG</td>
<td>Hackberry, Texas</td>
<td>41</td>
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<tr>
<td></td>
<td>Texas LNG Brownsville</td>
<td>Brownsville, Texas</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1,642</strong></td>
</tr>
</tbody>
</table>

This total is an underestimate because it is a partial list of infrastructure projects and does not include other major fossil fuel production projects approved by the Biden administration. The administration has approved a massive amount of oil and gas extraction on federal public lands and waters. The lifetime climate pollution from these drilling projects is enormous, totaling 3,216 million metric tons CO$_2$e from 9,203 onshore drilling permits, 14 onshore lease sales, and three offshore lease sales. That’s equivalent to the annual emissions of 861 coal-fired power plants — not including the emissions from 1,176 offshore drilling permits and a pending offshore lease sale. We did not include these extraction projects because some of their oil and gas production may be handled by the pipeline and export terminal infrastructure included in our analysis. However, a substantial portion of the emissions from these leasing and drilling projects is additional to the emissions from the infrastructure projects analyzed.
### Approved Oil and Gas Extraction Projects Not Included in Our Emissions Totals

<table>
<thead>
<tr>
<th>Location</th>
<th>Location</th>
<th>Emissions Over Lifetime (MMT CO₂ₑ)²⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore Drilling Permits (9,203 permits)</td>
<td>Federal Public Lands NM, WY, ND, AK, UT, LA, CA, TX, CO, OK, MI, MO, NV, SD, AR</td>
<td>1,291</td>
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<tr>
<td>Onshore Oil and Gas Lease Sales (14 lease sales)</td>
<td>NM, MO, NV, WY, CO, Eastern States</td>
<td>61</td>
</tr>
<tr>
<td>Offshore Oil and Gas Lease Sale 257</td>
<td>Gulf of Mexico</td>
<td>925</td>
</tr>
<tr>
<td>Offshore Oil and Gas Lease Sale 259</td>
<td>Gulf of Mexico</td>
<td>925</td>
</tr>
<tr>
<td>Offshore Oil and Gas Lease Sale 261</td>
<td>Gulf of Mexico</td>
<td>Scheduled for December 20, 2023</td>
</tr>
<tr>
<td>Cook Inlet Lease Sale 258</td>
<td>Cook Inlet, Alaska</td>
<td>14</td>
</tr>
<tr>
<td>Offshore Drilling Permits (1,176 development permits)</td>
<td>Federal Offshore Waters</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>3,216</strong></td>
</tr>
</tbody>
</table>

**Finding 2:** The emissions that will result from the Biden administration’s fossil fuel approvals are larger than the emissions reductions from the Inflation Reduction Act and other climate policies.

The total annual emissions from 17 major fossil fuel projects approved by the Biden administration (1,642 million metric tons CO₂ₑ per year) greatly exceed the annual domestic emissions reductions projected to result from the IRA and other climate policy (879 million metric tons CO₂ₑ per year) in 2030 as modeled by the U.S. Energy Information Administration. Thus, the Biden administration’s fossil fuel approvals threaten to erase the emissions progress projected under the IRA and other climate policy.

The emissions reductions from the IRA and other climate policy occur domestically while the emission increases from U.S. fossil fuel projects occur domestically and also abroad when U.S. fossil fuels are exported. Both domestic and exported emissions from U.S. fossil fuels should be accounted for since they worsen the climate emergency regardless of where they are emitted.²⁵
Finding 3: Each fossil fuel project approval worsens the interlinked climate, environmental justice, public health and biodiversity extinction crises created by the fossil fuel industry.

The fossil fuel industry’s extraction and infrastructure projects not only worsen the climate crisis through their greenhouse gas emissions but emit health-harming pollution, threaten catastrophic leaks and spills, degrade ecosystems, jeopardize local livelihoods, and push vulnerable species toward extinction. One in five premature deaths worldwide are caused by fossil fuel particulate pollution. Fossil fuel pollution disproportionately harms communities of color and low-wealth communities and perpetuates the systemic racism entrenched in the nation’s fossil fuel energy system. One million animal and plant species are now threatened with extinction, with fossil-fueled climate change as a primary driver.

These harms are well-documented and wide-ranging. Each fossil fuel project approval deepens the public health, environmental justice and biodiversity extinction crises created by fossil fuel industry.

We illustrated the harms from three major projects that have been approved by the Biden administration: the Willow Oil Development Project in Alaska, the Sea Port crude oil export terminal on the Texas Gulf coast, and the Mountain Valley Pipeline in Appalachia.
Willow Drilling Project
Alaskan Arctic

- Nearly 200 oil wells
- 100s of miles of pipelines and roads
- Gravel mining, processing facility, airstrip

Harms
- Jeopardizes the health and traditional practices of Alaska Native communities
- Disturbs denning mother polar bears and threatens cub survival, harms caribou and migratory birds
- Opens access to massive planned oil and gas extraction in the largest undeveloped area in the US
- Worsens the Arctic meltdown

Sea Port Oil Terminal
Gulf Coast

- 140 miles of land-based and underwater pipeline transport 2 million barrels of crude oil per day to an offshore platform
- Loads crude oil into world’s largest oil tankers

Harms
- Air and water pollution harm the health and livelihoods of overburdened frontline communities
- Oil spills threaten endangered Rice’s whales, sea turtles, and the marine ecosystem
- Pipelines cross 129 water bodies en route to the coast, threatening wetlands and drinking water

Mountain Valley Pipeline
Appalachia

- 301 mile pipeline crosses through communities, waterways, and forests
- Capacity to carry 2 billion cubic feet of gas per day

Harms
- Air pollution, landslide, and explosion risks
- Threatens Indigenous sacred sites
- Harms endangered fish: candy darters (known as “underwater rainbows”) and Roanoke perch
- Causes deforestation; crosses and threatens 1,100+ streams, creeks and wetlands
Finding 4: Stopping the approval of pending fossil fuel projects would have tremendous climate, health, justice and wildlife benefits.

We analyzed 17 additional major fossil fuel infrastructure projects that the Biden administration has the legal authority to stop during its remaining first term. The projects are five fracked gas pipelines, three crude oil export terminals, and nine LNG export terminals, including two new deepwater terminals, five new onshore terminals, and two expansions of existing onshore terminals. If approved, these projects could collectively emit 1,634 million metric tons CO\textsubscript{2}e per year, nearly twice the annual domestic emissions reductions projected to result from the IRA and other climate policy (879 million metric tons CO\textsubscript{2}e per year in 2030). Stopping these and other pending projects would have tremendous benefits for the climate, community health and well-being, and wildlife.

| Project Type       | Project Name                          | Location/Route                          | Annual Emissions (MMT CO\textsubscript{2}e)
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Fracked Gas Pipelines</td>
<td>Saguaro Connector Pipeline</td>
<td>Permian Basin, Texas</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>Venice Extension Pipeline</td>
<td>Plaquemines Parish, Louisiana</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Southside Reliability Enhancement</td>
<td>North Carolina, Virginia</td>
<td>18</td>
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<tr>
<td></td>
<td>Texas to Louisiana Energy Pathway</td>
<td>Texas</td>
<td>16</td>
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<tr>
<td></td>
<td>Ohio Valley Connector Expansion</td>
<td>Ohio, Pennsylvania, West Virginia</td>
<td>15</td>
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<tr>
<td>Crude Oil Export Terminals</td>
<td>Blue Marlin Offshore Port</td>
<td>Coastal Texas and Louisiana; offshore</td>
<td>317</td>
</tr>
<tr>
<td></td>
<td>Bluewater Texas Terminal</td>
<td>Coastal Texas; offshore</td>
<td>317</td>
</tr>
<tr>
<td></td>
<td>Texas GulfLink</td>
<td>Brazoria County, Texas; offshore</td>
<td>165</td>
</tr>
<tr>
<td>LNG Export Terminals</td>
<td>Calcasieu Pass 2 LNG (CP2)</td>
<td>Cameron Parish, Louisiana</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>Delta LNG</td>
<td>Plaquemines Parish, Louisiana</td>
<td>136</td>
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<tr>
<td></td>
<td>Sabine Pass Expansion Stage V</td>
<td>Cameron Parish, Louisiana</td>
<td>121</td>
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<tr>
<td></td>
<td>West Delta LNG Deepwater Port</td>
<td>Plaquemines Parish, Louisiana; offshore</td>
<td>37</td>
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<tr>
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<td>Gulfstream LNG</td>
<td>Plaquemines Parish, Louisiana</td>
<td>30</td>
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<td></td>
<td>Port Fourchon LNG</td>
<td>Lafourche Parish, Louisiana</td>
<td>30</td>
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<tr>
<td></td>
<td>Gibbstown/Repauno Works LNG</td>
<td>East Greenwich Township, New Jersey</td>
<td>26</td>
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<tr>
<td></td>
<td>Corpus Christi Midscale Expansion LNG</td>
<td>Corpus Christi, Texas</td>
<td>20</td>
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<tr>
<td></td>
<td>New Fortress Grand Isle FLNG</td>
<td>Grand Isle, Louisiana; offshore</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1,634</strong></td>
</tr>
</tbody>
</table>
Conclusions

The Biden administration’s fossil fuel project approvals are significantly undermining U.S. climate progress. Despite its claims that it’s advancing climate goals, the Biden administration is actively erasing the projected emissions reductions of its flagship Inflation Reduction Act and other demand-side climate policies by expanding fossil fuel extraction and infrastructure projects. This expansion ignores the unequivocal scientific imperative to immediately stop approving new fossil fuel extraction and infrastructure projects — and rapidly phase out existing extraction and infrastructure — to prevent catastrophic harms to people and the planet.

Demand-side incentives for renewable energy alone are not enough. Keeping fossil fuels in the ground is essential to stemming a crisis driven by fossil fuels. The Biden administration must rapidly phase out fossil fuel supply in parallel with reducing demand.

The Biden administration has to stop allowing Big Oil and Gas to harm people and the planet. Fossil fuel projects are not in the public interest, which the federal government is required to uphold and protect. With every greenlighted project, the fossil fuel industry unleashes devastating, wide-ranging harms to the climate, communities, wildlife and the air and water we all depend on. Yet equitable, affordable, clean renewable energy alternatives already exist that can do the job, while protecting people and the planet. The Biden administration
has a duty to stop doing the bidding of the deceptive, dangerous fossil fuel industry and defend communities and wildlife.

The Biden administration must implement a fossil fuel phaseout plan, starting with halting approvals for new fossil fuel projects. The Biden administration has extensive executive powers and ample tools to implement a bold plan to phase out fossil fuels starting today.\textsuperscript{34} Essential actions for the Biden administration to take now include:

\begin{itemize}
\item Stop approvals of new fossil fuel projects like the massive CP2 liquified natural gas export terminal slated for the Gulf Coast.
\item Revoke permits for fossil fuel projects including the Willow Drilling Project; pipeline projects including Mountain Valley Pipeline, Dakota Access Pipeline, and Enbridge Line 3 and 5 pipelines; the massive Sea Port crude oil export terminal; and LNG export terminals in Alaska and along the Gulf Coast.
\item Phase out oil and gas production on public lands and waters by instituting a managed phase down policy.\textsuperscript{35}
\item Revise the offshore oil leasing “Five Year Plan” with no new leases.
\item Declare a national climate emergency to reinstate the crude oil export ban and halt hundreds of billions in private taxpayer dollars funding fossil fuel projects abroad.
\item Direct the Justice Department to investigate and prosecute polluters and utilities, where appropriate, under nuisance and fraud suits for the damages they cause — as Gov. Gavin Newsom has just done in California\textsuperscript{36} — and bring antitrust violation suits against entities that obstruct the transition to clean energy.\textsuperscript{37}
\end{itemize}

The Biden administration must also come to COP28 in December with commitments to an updated Nationally Determined Contribution that includes a commitment to stopping all new fossil fuel expansion and phasing out existing production.

\section*{Methodology}

A detailed methodology for this analysis is provided in a companion document.\textsuperscript{38} Several caveats to this analysis, which are discussed in depth in the methodology, could result in our estimates under-counting or over-counting the emissions from these projects: (1) We did not analyze all the fossil fuel projects that have been approved or are pending approval by the Biden administration because of the large number of projects, but instead selected a subset of major infrastructure projects associated with the highest emissions potential, leading to an underestimate of the potential emissions from approved and pending projects; (2) we did not attempt substitution analysis for these fossil fuel projects because it was beyond the scope of analysis and because of the high degree of uncertainty inherent in such analyses and their frequent use of unfounded assumptions;\textsuperscript{39} and (3) we evaluated the potential overlap of the fossil fuel projects included in our analysis, to avoid double-counting emissions from projects that would handle the same fossil fuels. For example, we did not include the Biden administration’s permitting of federal onshore and offshore oil and gas leases, or its approvals for permits to drill on public lands and waters, because some of the oil and gas production from these lease sales and drilling permits may be handled by the pipeline and export terminal infrastructure included in our analysis.
References


6. Id.


9. SEI, Climate Analytics, E3G, IIED, and UNEP, The Production Gap: Phasing down or phasing up? Top fossil fuel producers plan even more extraction despite climate promises, Stockholm Environment Institute, Climate Analytics, E3G, International
According to data from OPEC, in 2022 the U.S. was the world’s fourth largest exporter of crude oil, the top exporter of petroleum products, and the top exporter of crude oil and petroleum products combined. See https://asb.opec.org/data/ASB_Data.php: Table 5.2: World crude oil exports by country; Table 5.3: World exports of petroleum products by country; and Table 5.5: World exports of crude oil and petroleum products by country. Note that the 2022 total of 9,577,000 bbl/day of crude oil and petroleum product exported from the U.S. according to OPEC data closely matches the U.S. EIA estimate for crude oil and petroleum product exports in 2022 of 9,520,000 bbl per day (see https://www.eia.gov/dnav/pet/pet_move_exp_dc_NUS-Z00_mbblpd_a.htm).

13 U.S. EIA, The United States exported more LNG than other country in the first half of 2023 (Sep 12, 2023), https://www.eia.gov/todayinenergy/detail.php?id=60361
Numerous executive branch agencies have permitting authorities for fossil fuel infrastructure and extraction projects and can deny and even revoke permits. We recognize that the Federal Energy Regulatory Commission (FERC), which plays a key permitting role for LNG terminals and gas pipeline projects, is an independent federal agency, with some commissioners appointed by the prior administration (and one critical seat currently vacant), so it is somewhat different than other federal agencies. However, even when FERC is an approver, other executive branch agencies must also issue approvals such as the Army Corps of Engineers, Department of Energy, and Fish and Wildlife Service, as detailed further in the methodology.

Emissions estimates are from the following sources as described in the detailed methodology for this report: estimates for the Willow Development Project, fracked gas pipelines (except MVP), and crude oil export terminals are calculated by this analysis; estimates for MVP and crude oil pipelines are from Oil Change International (OCI, Gas Pipeline Climate Methodology: Calculating Greenhouse Gas Emissions For Natural Gas Infrastructure (Winter 2017), https://priceofoil.org/content/uploads/2017/02/Gas-Pipeline-Methodology-2017-Web-Final.pdf; OCI, Greenhouse Gas Pollution of Estimates of Proposed U.S. Fossil Fuel Infrastructure Projects (October 2021), https://priceofoil.org/content/uploads/2021/10/Biden_GHG_emissions_briefing.pdf; for LNG export terminals are from the Sierra Club (U.S. LNG Export Tracker, 2023, https://www.sierraclub.org/dirty-fuels/us-lng-export-tracker)

Emissions calculations for these oil and gas production projects are described in the detailed methodology for this report.


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Emissions estimates are from the following sources as described in the detailed methodology for this report: estimates for fracked gas pipelines and crude oil export terminals are calculated by this analysis; estimates for LNG export terminals are from the Sierra Club (U.S. LNG Export Tracker, 2023, https://www.sierraclub.org/dirty-fuels/us-lng-export-tracker)
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