



# THE ROVER PIPELINE: GREENHOUSE GAS EMISSIONS BRIEFING

## FACTS AT A GLANCE

<b>Total Annual GHG Emissions:</b>	<b>145 million metric tons</b>
<b>Emissions Equivalent:</b>	<b>42 coal plants or over 30 million passenger vehicles</b>
<b>Project Name:</b>	Rover Pipeline
<b>Ownership:</b>	Energy Transfer Partners (65%) and Traverse Midstream Partners (35%)
<b>Operator:</b>	Energy Transfer Partners
<b>Anchor Shippers:</b>	Ascent Resources, Antero Resources, Southwestern Energy Services, Eclipse Resource, Gulfport Energy, Range Resources, Rice Energy Marketing
<b>Capacity:</b>	3.25 billion cubic feet per day (Bcf/d)
<b>Pipeline Length:</b>	510 miles
<b>Pipeline Diameter:</b>	42 inches
<b>Project Cost:</b>	\$4.2 billion
<b>States Affected:</b>	Pennsylvania, West Virginia, Ohio, Michigan
<b>Gas Source:</b>	West Virginia & Pennsylvania, Marcellus & Utica Shale Formations, Appalachian Basin
<b>Destination Markets:</b>	Direct service to Ohio and Michigan, as well as connections with pipelines serving Ontario, Illinois, Indiana, Missouri, Kansas, Oklahoma, and Texas
<b>Permit and Project Schedule:</b>	FERC Certificate of Public Convenience and Necessity issued February 2017; Construction activities currently underway; Company schedule (est.): Phase 1 completion – July 2017, Phase 2 – November 2017

## ROVER PIPELINE OVERVIEW

With a proposed maximum capacity of 3.25 billion cubic feet per day (Bcf/d), the Rover Pipeline is the largest of a slew of proposed gas pipelines designed to increase takeaway capacity from the Appalachian Basin.<sup>1</sup> Its route runs 510

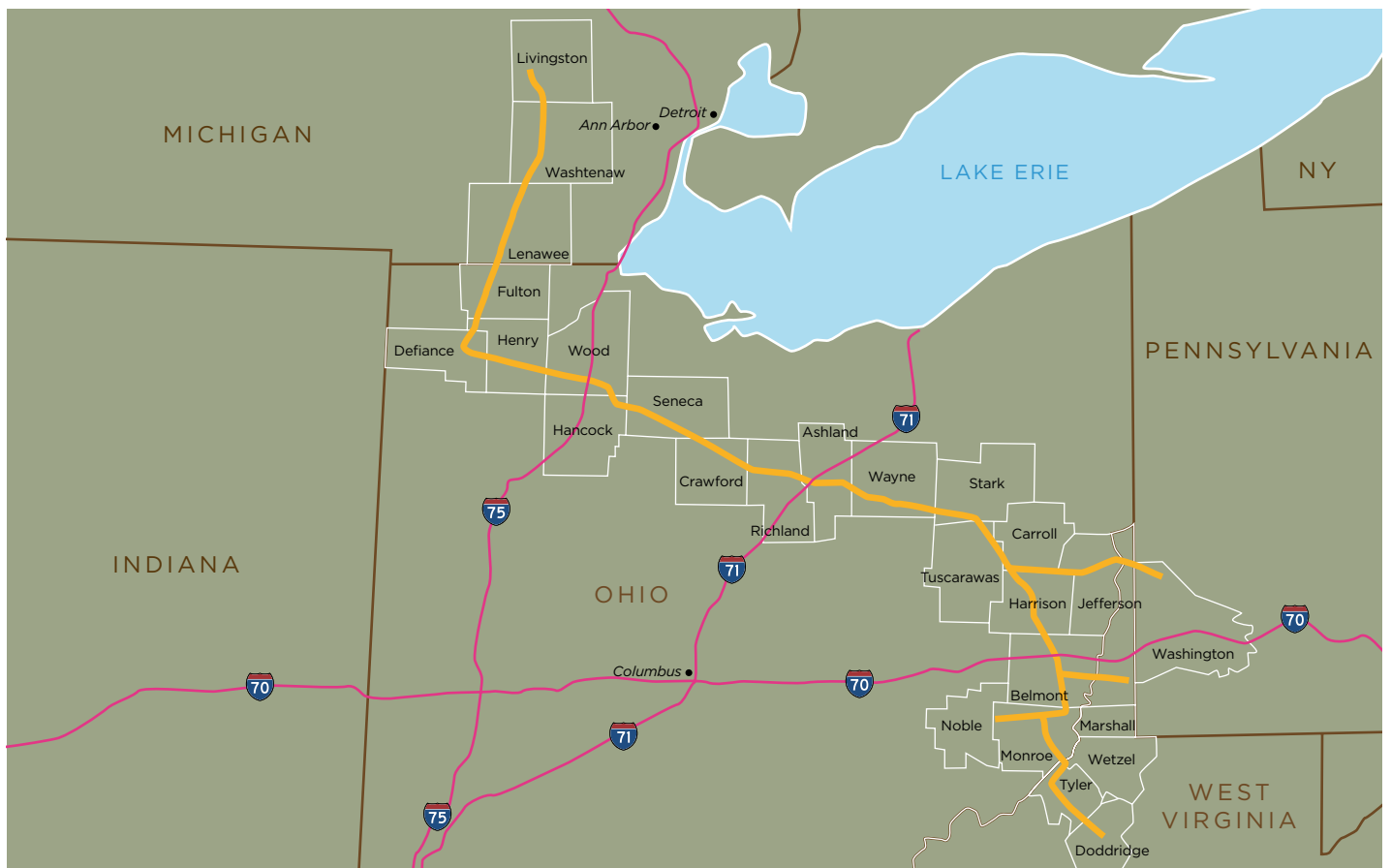
miles from southwest Pennsylvania and northwest West Virginia, through Ohio to Michigan. For 190 miles of the route in Ohio, twin 42-inch pipes will be laid 20 feet apart.

The pipeline will be operated by Energy Transfer Partners (ETP), the same company that is the lead partner in the controversial Dakota Access Pipeline. ETP recently acquired Sunoco Logistics, which has the worst record for oil pipeline spills

Above: Construction of Columbia's Line MB Extension in Maryland. ©Sierra Shamer, FracTracker Alliance

<sup>1</sup> Oil Change International, "A Bridge Too Far: How Appalachian Basin Gas Pipeline Expansion Will Undermine U.S. Climate Goals," July 2016. <http://priceofoil.org/2016/07/22/a-bridge-too-far-report/>

## Route of the Rover Pipeline



in the country – over 200 crude oil spills since 2010.<sup>2</sup> A private company, Traverse Midstream Partners owns a 35 percent stake in the project, while ETP owns the remaining share.

The Rover Pipeline will draw gas from all three key Appalachian Basin gas-producing states: West Virginia, Pennsylvania, and Ohio (see Map). The gas will be produced via hydraulic fracturing (fracking) in the Marcellus and Utica shale formations.

The pipeline will deliver gas along its main route in Ohio and Michigan, but will also feed regional hubs that supply gas to pipelines reaching Ontario, the Midwest, and Gulf Coast markets. To this end,

compressor station upgrades are being made to the Trunkline and Panhandle pipelines, which are also owned by Energy Transfer Partners.<sup>3</sup>

The Rover Pipeline received a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) in February 2017. Since ramping up construction in March, ETP has wreaked environmental havoc across Ohio. ETP spilled two to five million gallons of drilling waste into sensitive Ohio wetlands as a result of reckless horizontal directional drilling operations to lay pipe.<sup>4</sup> As of early May, the Ohio Environmental Protection Agency had documented 18 incidents involving spills,

air pollution, and water pollution.<sup>5</sup> On May 10, FERC intervened, ordering ETP to halt new horizontal drilling activity along the pipeline route pending a review of the company's actions.<sup>6</sup> In response, a coalition of more than 100 groups called on FERC to halt all construction along the pipeline route and reopen the permit case to ensure the safety of communities and ecosystems.<sup>7</sup>

ETP intended to have Phase 1 operational by July 2017 and Phase 2 operational by November 2017. However, this schedule is now in question given the partial work stoppage ordered by FERC and the controversy sparked by ETP's spills.

2 Liz Hampton, "Sunoco, behind protested Dakota pipeline, tops U.S. crude spill charts," Reuters, September 23, 2016. <http://www.reuters.com/article/us-usa-pipeline-nativeamericans-safety-i-idUSKCN1T1UW>

3 Federal Energy Regulatory Commission, "Rover Pipeline, Panhandle Backhaul, and Trunkline Backhaul Projects Final Environmental Impact Statement (Docket Nos. CP15-93-000, CP15-94-000 and CP15-96-000)," FERC/FEIS-0267F, July 29, 2016. <https://www.ferc.gov/industries/gas/enviro/eis/2016/07-29-16-rover-pipeline.asp>

4 Sam Levin, "Firm behind Dakota Access pipeline faces intense scrutiny for series of leaks," The Guardian, May 25, 2017. <https://www.theguardian.com/environment/2017/may/25/energy-transfer-partners-dakota-access-oil-leaks-ohio>

5 Marion Renault, "Ohio EPA orders Rover pipeline builder to pay \$431,000 for violations," The Columbus Dispatch, May 8, 2017. <http://www.dispatch.com/news/20170508/ohio-epa-orders-rover-pipeline-builder-to-pay-431000-for-violations>

6 Steven Mufson, "U.S. blocks major pipeline after 18 leaks and a 2 million gallon spill of drilling mud," Washington Post, May 10, 2017. <https://www.washingtonpost.com/news/energy-environment/wp/2017/05/10/pipeline-shut-down-after-18-leaks-and-a-2-million-gallon-spill-of-drilling-materials/>

7 Zahra Hirji, "Fearing More Pipeline Spills, 114 Groups Demand Halt to Ohio Gas Project," InsideClimate News, May 17, 2017. <https://insideclimatenews.org/news/17052017/ohio-pipeline-spill-wetlands-damage-environmental-activists-letter-ferc>

# THE ROVER PIPELINE AND CLIMATE CHANGE

Climate science clearly indicates that we need to reduce consumption of all fossil fuels and make a just transition to a clean energy economy.<sup>8</sup> Building major gas pipelines today will undermine action to protect our climate because pipelines increase access to gas that we cannot afford to burn. Increasing gas supply and use exacerbates climate change.

- ▶ **Producing electricity from gas is currently dirtier than coal-fired power because methane leakage along the gas supply chain more than doubles the lifecycle emissions of gas, compared to just counting emissions from gas combustion.**
- ▶ **Current methane leakage reduction goals are not enough to make up for the projected increase in gas use.**
- ▶ **To achieve climate goals, we need a total transition away from fossil fuels by mid-century.**
- ▶ **Each new pipeline from the Appalachian Basin will trigger new gas production.**
- ▶ **Each new pipeline will trigger additional demand for gas-fired power that could instead be met with clean energy sources and efficiency.**

For fully referenced details of the above points, see Oil Change International's [Gas Pipeline Climate Methodology](#).<sup>9</sup>

For these reasons, the Rover Pipeline will contribute significant amounts of greenhouse gases (GHGs) that lead to climate change.

## ROVER PIPELINE ANNUAL EMISSIONS TOTAL 145 MILLION METRIC TONS

We estimate the full lifecycle greenhouse gas emissions of the Rover Pipeline using Oil Change International's [Gas Pipeline Climate Methodology](#) (see Footnote 9).

The annual greenhouse gas emissions caused by the Rover Pipeline would be 145 million metric tons. This is equivalent to the emissions from 42 average U.S. coal plants, or over 30 million passenger vehicles.<sup>10</sup>

### The annual emissions come from four sources:<sup>11</sup>

- ▶ **Emissions from the combustion of the gas the pipeline would carry = 67.3 MMt CO<sub>2</sub>e**
- ▶ **Emissions from methane leaked across the gas supply chain = 70.9 MMt CO<sub>2</sub>e<sup>12</sup>**
- ▶ **Emissions from gas extraction (i.e. fracking) and processing = 5.9 MMt CO<sub>2</sub>e**
- ▶ **Emissions from pipeline compression = 0.8 MMt CO<sub>2</sub>e<sup>13</sup>**

This estimate does not include construction emissions, which according to FERC, would amount to 369,790 tons in the year of construction.<sup>14</sup>

Additional emissions are caused by changes in vegetation cover in the pipeline corridor that results in a loss of carbon stock, in this case dominated by the clearing of 2,884 acres of upland forest.<sup>15</sup>

## REDUCED METHANE LEAKAGE LOWERS EMISSIONS - BUT ONLY BY A MAXIMUM OF 22 PERCENT

In May 2016, the U.S. Environmental Protection Agency (EPA) announced standards for reducing methane leakage

from the oil and gas sector.<sup>16</sup> The standards affect new, modified, and reconstructed production wells, while existing wells are currently being assessed for further action. This rule alone will not achieve the stated Obama Administration goal to reduce methane emissions from the oil and gas sector by 45 percent from 2012 levels by 2025.<sup>17</sup> While the Trump Administration has initiated action to roll back the methane goals, it remains important to understand what impact these reductions would have should they be implemented.

Assuming a 45 percent reduction does occur across the gas supply chain, we find that the total annual emissions could be cut by a maximum of 32 MMt to a total of 113 MMt. This is a reduction of 22 percent of the total emissions before methane leakage reductions. The remaining emissions are equivalent to 33 average U.S. coal plants, or 24 million average passenger vehicles.<sup>18</sup>

8 Oil Change International, "The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production," September 2016. <http://priceofoil.org/2016/09/22/the-skys-limit-report/>

9 Oil Change International, "Gas Pipeline Climate Methodology: Calculating Greenhouse Gas Emissions for Natural Gas Infrastructure," February 2017. <http://www.priceofoil.org/2017/02/08/gas-pipeline-climate-methodology>

10 U.S. Environmental Protection Agency, "Greenhouse Gas Equivalencies Calculator." <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

11 MMt = Million Metric Tons. Figures are rounded.

12 CO<sub>2</sub>e = Carbon dioxide equivalent. Since the measurement and analysis of GHGs is based on CO<sub>2</sub>, the impact of methane on the atmosphere is expressed as a carbon dioxide equivalent. We convert methane leakage to CO<sub>2</sub>e by converting methane volume to mass and then multiplying by the 20-year global warming potential (GWP) of methane.

13 Figure from the FERC FEIS and may underestimate actual emissions due to both methane leakage estimates and the switch from turbines to reciprocating engines. The FEIS estimate was based on turbines and ETP has instead ordered reciprocating engines which may lead to higher emissions. See: <http://fwap.org/rover-pipeline-opposition-demands-ferc-inquiry-into-bait-and-switch-compressor-engine-decision%E2%80%A8/>

14 Op. cit. Federal Energy Regulation Commission, Table. 4.11.1-13.

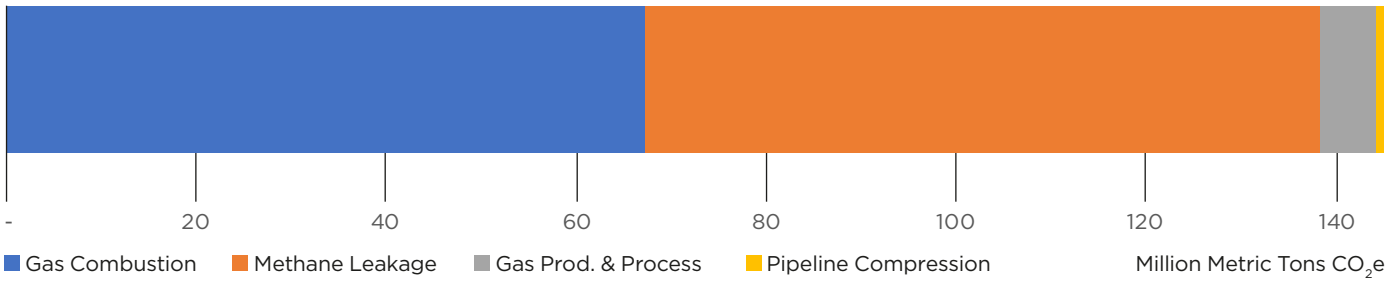
15 Op. cit. Federal Energy Regulation Commission, p. 4-105.

16 U.S. Environmental Protection Agency, "EPA Releases First-Ever Standards to Cut Methane Emissions from the Oil and Gas Sector," May 12, 2016. <https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector>

17 The White House, "Fact Sheet: Administration Takes Steps Forward on Climate Action Plan by Announcing Actions to Cut Methane Emissions," January 14, 2015. <https://obamawhitehouse.archives.gov/the-press-office/2015/01/14/fact-sheet-administration-takes-steps-forward-climate-action-plan-anno-1>

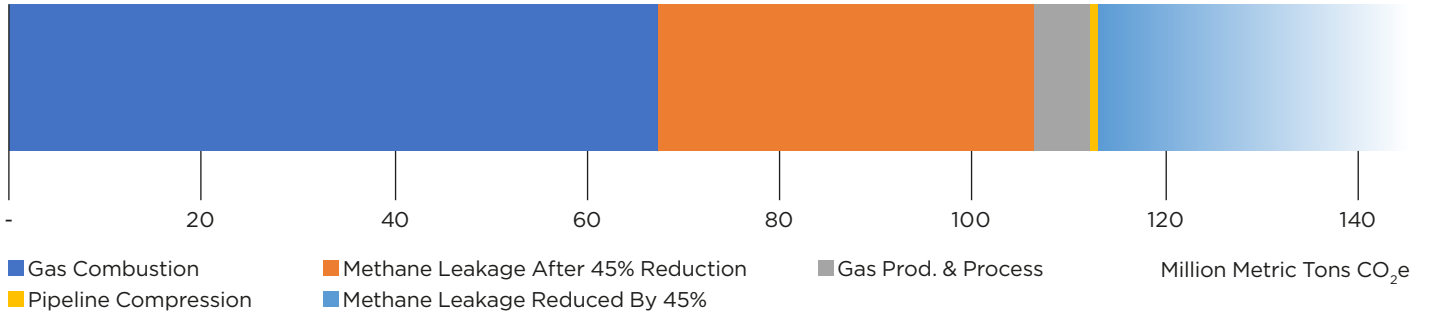
18 U.S. Environmental Protection Agency, "Greenhouse Gas Equivalencies Calculator." <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

**Figure 1: Rover Pipeline Annual GHG Emissions**



Source: Oil Change International using IPCC, PSE, FERC, and Santoro et al. See [Gas Pipeline Climate Methodology](#) (see Footnote 9).

**Figure 2: Rover Pipeline Annual GHG Emissions with Methane Reduction Goal**



Source: Oil Change International using IPCC, PSE, FERC, and Santoro et al. See [Gas Pipeline Climate Methodology](#) (see Footnote 9).

Crews in Ohio clean up a spill of millions of gallons of drilling waste caused by construction of the Rover Pipeline in April 2017. ©Ohio Environmental Protection Agency.



# FERC CLIMATE ANALYSIS INADEQUATE

The Federal Energy Regulatory Commission is the primary federal agency that assesses the need for and impacts of interstate gas pipelines, and issues permits for construction and operation.<sup>19</sup>

In the Final Environmental Impact Statement (FEIS) for the Rover Pipeline, released in July 2016, the assessment of greenhouse gases emitted by the pipeline was woefully inadequate.<sup>20</sup> FERC is dismissive of comments made by the EPA and others that asked the commission to assess lifecycle greenhouse gas emissions for the project.<sup>21</sup>

In a partial U-turn in the Certificate Order permitting the project, FERC does present figures for upstream and downstream GHGs.<sup>22</sup> However, the commission makes multiple errors in its analysis and presentation of these figures, resulting in an inaccurate and confused assessment of climate impact.

First, FERC provides an estimate of upstream (gas production and processing) emissions that is based on a Department of Energy (DOE) report from 2014.<sup>23</sup> While this report is relatively recent, the science and study of methane leakage from oil and gas production and infrastructure has substantially evolved since its publication.<sup>24</sup> In fact, DOE published an update of this report in August 2016. FERC failed to consult this updated analysis when developing the emissions estimate included in the Certificate Order.<sup>25</sup>

The data for upstream emissions used in the 2014 report is severely out of date. The report relies on EPA data that precedes today's intensive horizontal drilling and hydraulic fracturing that will be the method of extracting gas for the Rover Pipeline. Measurements of the main source



of upstream GHGs – leaking methane – are ground-based, and numerous recent studies measuring methane in the atmosphere over oil and gas production regions point to far higher methane leakage rates than these measurements indicate.<sup>26</sup>

FERC's calculation of downstream (gas combustion) emissions is accurate. But it is followed by statements dismissing the impact of these emissions that are based on fundamentally flawed assumptions for which FERC offers no evidence or analysis. The assumptions are that the delivered gas will replace dirtier fuels and thereby lead to reduced emissions. The implication is that the emissions from the combustion of gas delivered by the pipeline would be less than what would be released if the pipeline was not built.

These assumptions do not stand up to scrutiny. In Oil Change International's [Gas Pipeline Climate Methodology](#) (see Footnote 9), evidence is presented showing that U.S. methane leakage rates may be high enough to make gas-fired

power generation more GHG-intensive than coal. In addition, analysis is provided showing that, even assuming reduced methane leakage, the projected growth in U.S. consumption of gas could lock in enough carbon pollution to make it impossible for the U.S. to meet its goals for reducing greenhouse gas emissions even as coal and oil is phased out to zero.<sup>27</sup> The implication is that, even at lower methane leakage rates, increasing gas production and consumption is not a strategy for achieving our climate goals.

The assumption that gas will necessarily replace dirtier fuels in the market ignores the most recent data and analysis showing clean energy technologies are already cost competitive with both gas and coal.<sup>28</sup> As we move into the clean energy era, it is abundantly clear that building additional gas capacity could come at a cost to clean energy development. This signals that, contrary to FERC's assumptions, gas combustion emissions are exacerbating climate change.

19 Federal Energy Regulatory Commission, "What is FERC?," <https://www.ferc.gov/industries/gas.asp>

20 Op. cit. Federal Energy Regulation Commission, pp. 4-291-4-292.

21 Letter from U.S. Environmental Protection Agency Region 5 to Federal Energy Regulatory Commission, April 11, 2016. <http://priceofoil.org/content/uploads/2017/02/Rover-EPA-Comment-on-DEIS.pdf>

22 Federal Energy Regulatory Commission, "Order Issuing Certificates," February 2, 2017, pp. 101-102. <https://www.ferc.gov/CalendarFiles/20170202210009-CP15-93-000a.pdf>

23 Department of Energy and National Energy Technology Laboratory, "Life Cycle Analysis of Natural Gas Extraction and Power Generation," DOE/NETL-2014/1646, May 29, 2014. [https://www.netl.doe.gov/energy-analyses/temp/NaturalGasandPowerLCAModelDocumentationNG%20Report\\_052914.pdf](https://www.netl.doe.gov/energy-analyses/temp/NaturalGasandPowerLCAModelDocumentationNG%20Report_052914.pdf)

24 Adam Voland, "Methane Matters: Scientists Work to Quantify the Effects of a Potent Greenhouse Gas," NASA Earth Observatory. <http://earthobservatory.nasa.gov/Features/MethaneMatters>

25 Department of Energy and National Energy Technology Laboratory, "Life Cycle Analysis of Natural Gas Extraction and Power Generation," DOE/NETL-2015/1714, August 30, 2016. [https://www.netl.doe.gov/energy-analyses/temp/LifeCycleAnalysisofNaturalGasExtractionandPowerGeneration\\_083016.pdf](https://www.netl.doe.gov/energy-analyses/temp/LifeCycleAnalysisofNaturalGasExtractionandPowerGeneration_083016.pdf)

26 For a summary see: PSE Healthy Energy, Science Summary, "Climate Impact of Methane Losses from Modern Natural Gas and Petroleum Systems," November 2015. [http://www.psehealthyenergy.org/data/SS\\_Methane\\_Nov2015Final.pdf](http://www.psehealthyenergy.org/data/SS_Methane_Nov2015Final.pdf). Further studies are available at: [https://www.zotero.org/groups/pse\\_study\\_citation\\_database/items/collectionKey/WEICK6IC](https://www.zotero.org/groups/pse_study_citation_database/items/collectionKey/WEICK6IC).

27 Oil Change International, "A Bridge Too Far: How Appalachian Basin Gas Pipeline Expansion Will Undermine U.S. Climate Goals," July 2016. <http://priceofoil.org/2016/07/22/a-bridge-too-far-report/>

28 Lazard, "Lazard's Levelized Cost of Energy Analysis - Version 10.0," December 2016. <https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf>

# CONCLUSIONS AND RECOMMENDATIONS

This briefing provides a calculation and discussion of the greenhouse gas emissions and climate impact of the Rover Pipeline. This assessment utilizes Oil Change International's [Gas Pipeline Climate Methodology](#) (see Footnote 9), which also expands on why calculating the full lifecycle emissions of gas pipeline projects is crucial for assessing their true impacts.

This information is a vital counterweight against the barrage of misinformation coming from the energy industry and many parts of the government that claim that the expansion of natural gas production and use helps to lower emissions and address climate change. This so-called "bridge to clean energy" argument has been entirely debunked.<sup>29</sup> If gas ever did form a bridge to a clean energy transition, it is clear today that we have already crossed this bridge, and it is time to move on.

In response to ETP's reckless track record of construction, FERC should reopen the permit case and conduct a supplemental Environmental Impact Statement for the Rover Pipeline. This would provide an opportunity for FERC to reassess and more adequately address not only the immediate safety hazards of the pipeline, but also its lifecycle greenhouse gas emissions and climate change impact. It would also allow for a more thorough and complete examination of the horizontal drilling techniques that are currently being used to construct many other pipelines around the country, threatening water sources and sensitive ecosystems.



Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy. Website: [www.priceofoil.org](http://www.priceofoil.org) Contact: [info@priceofoil.org](mailto:info@priceofoil.org)



The Bold Alliance is a network of small but mighty groups protecting land and water.

Website: [www.boldalliance.org](http://www.boldalliance.org) Contact: [info@boldalliance.org](mailto:info@boldalliance.org)

We recommend the following actions for citizens opposing the Rover Pipeline:

- 1. **Call on FERC to halt all construction of the Rover Pipeline and conduct a supplemental environmental review, including a thorough climate analysis that fully adds up the lifecycle pollution triggered by the project.**<sup>30</sup>
- 2. **New FERC commissioners were recently nominated by the Trump Administration, and they require confirmation by the U.S. Senate. Call or write to your U.S. Senators and ask them to speak out for reform at FERC, demanding that FERC conduct thorough analysis of the climate impacts and genuine market need (or lack thereof) for new gas pipelines.**<sup>31</sup>
- 3. **Join the growing movement of people and organizations coming together to #StopETP, and protect our air, water, climate, and health from Energy Transfer Partners' slew of dangerous oil and gas pipelines.**<sup>32</sup>
- 4. **Join the call to #KeepItInTheGround and reject all new fossil fuel infrastructure.**<sup>33</sup>
- 5. **Join local, regional, and national groups in calling for a halt to the Rover Pipeline and the onslaught of gas infrastructure by getting involved with one of the groups below.**

Organizations Fighting the Rover Pipeline include:

## OHIO

[FreshWater Accountability Project](#)  
[Friends for Environmental Justice](#)  
[Moms Clean Air Force](#)  
[Ohio River Citizens' Alliance](#)  
[Sierra Club Ohio Chapter](#)

## MICHIGAN

[Eastern Michigan Enviro Action Council](#)  
[Michigan Residents Against ET Rover Gas Pipeline](#)

For questions on gas pipeline GHGs, contact  
Lorne Stockman: [lorne \[at\] priceofoil.org](mailto:lorne[at]priceofoil.org)

<sup>29</sup> Joe Romm, "By The Time Natural Gas Has A Net Climate Benefit You'll Likely Be Dead And The Climate Ruined," February 19, 2014. <https://thinkprogress.org/by-the-time-natural-gas-has-a-net-climate-benefit-youll-likely-be-dead-and-the-climate-ruined-22fd00f89e73#r0ylj5oyg>

<sup>30</sup> Despite FERC issuing a certificate order for the project, the docket remains open due to ongoing land disputes and other issues, and a coalition of over 100 groups is calling on FERC to reopen the Rover Pipeline permit case. To file a comment directly with FERC, use the project docket number: CP15-93-000 and CP15-93-001. A guide for filing comments to a FERC docket is available at: <http://wildvirginia.org/wp-content/uploads/2014/10/Guide-to-Commenting.pdf>. You can take action at <http://actions.priceofoil.org/shut-down-rover>, and Oil Change International will submit your comment to FERC.

<sup>31</sup> Find contact info for U.S. Senators at: <https://www.senate.gov/senators/contact>.

<sup>32</sup> Learn more about the #StopETP movement at: <http://stopetp.org>.

<sup>33</sup> Learn more and take action at: <http://keepitintheground.org/gas-pipelines>.