



**RystadEnergy**

# Effects of bonus depreciation on US pipeline development

Final report

**Rystad Energy Advisory**

December 17<sup>th</sup>, 2024



American  
Petroleum  
Institute

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# This report was prepared independently by Rystad Energy for the American Petroleum Institute

## Background on this report and scope of work

- **Rystad Energy (“Rystad”)** has been engaged by **American Petroleum Institute, (“API”)** during October 2024 to assess the impact of bonus depreciation reinstatement for oil, gas and NGL pipelines.
- Bonus depreciation is a tax incentive that allows a large portion of capex to be depreciated in an asset’s first year of operations, reducing taxes in the first year but increasing taxes thereafter. Under current law, bonus depreciation will be phased out entirely in 2027.
- In this report, we compare the cash flows of pipeline developers under two scenarios: 1) a Status Quo scenario, where bonus depreciation phases out entirely in 2027, and 2) a Bonus Depreciation Reinstatement scenario, in which 100% bonus depreciation is reinstated starting in 2026. We then estimate how many miles of major pipelines the increased early-year cash flows under a Bonus Depreciation Reinstatement scenario could fund, if reinvested.
- This study is supported by our in-house research and analysis, in conjunction with tools and databases such as our Pipeline Cost Estimating Model and UCube (global upstream database).

## About Rystad Energy

- Rystad Energy is a specialized strategy consulting and research firm focusing on the global energy markets. The company was established in 2004, by Founding Partner and CEO Jarand Rystad.
- Today the company is still headquartered in Oslo, Norway, and has developed into a global company with offices in Houston, New York, London, Rio de Janeiro, Singapore, Tokyo, Sydney, Dubai, Bangalore and Stavanger.
- The company has expanded into additional market segments over the years, and we now continuously monitor upstream, midstream/downstream, and renewable activity through a highly trained organization of analysts and consultants.
- We are highly quantitatively oriented in our consulting work due to application of data from our proprietary databases on different energy-related topics. Furthermore, we possess solid industry expertise through our staff and a broad industry network. Combining industry expertise and proprietary data, we have become one of the world’s foremost energy strategy consulting firms.
- Rystad Energy has completed over 2,200 consulting projects for more than 500 clients around the world. We continuously assist governments, NGOs, energy producers, service companies, and investors around the world, on high-impact topics across the entire energy value chain.

## 1 Executive summary

2 Introduction

3 US supply forecast

4 Pipeline capital expenditure forecast

5 Bonus depreciation impact on cash flows

# Extension of 100% bonus depreciation could support construction of 600 to 1,400 miles of new, major pipelines if pipeline developers reinvest savings into new construction

## Bonus depreciation, which improves cash flows in the first year of service, will sunset in 2027

## If reinstated, bonus depreciation could improve pipeline cash flows by \$1.6 Bn from 2026-2030

## These cash flows could support construction of 600 to 1,400 miles of new, major pipelines

**1 Bonus depreciation basics**

- Bonus depreciation is a tax incentive that encourages investments; it allows a large portion of capex to be depreciated in an asset's first year of operations, reducing taxes in the first year but increasing taxes thereafter
- Under current law, bonus depreciation will be phased out entirely by 2027
- We model pipeline cash flows under two scenarios: Status Quo, and BD Reinstated - a scenario in which 100% bonus depreciation is reinstated starting in 2026

**Bonus depreciation schedule**  
Share of capex eligible for bonus depreciation, by asset start year

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Status Quo	100%	80%	60%	40%	20%	0%	0%	0%	0%
BD Reinstated	100%	80%	60%	40%	100%	100%	100%	100%	100%

**2 Pipeline capex<sup>1</sup> forecast**  
Billion USD, Real 2024

Pipeline capex forecast is based on analysis of supply-demand fundamentals and Rystad pipeline cost modelling

**Accelerated cash flows from reinstatement of bonus depreciation; 2026-2030; USD; Real 2024**

We model each pipeline's cash flows to analyze the difference stemming from a Bonus Depreciation Reinstated scenario

**3 Companies could use accelerated cash flows to fund additional pipelines**

- Accelerated cash flows can be used by pipeline developers for a variety of purposes, including funding new pipelines, funding pipeline operations and maintenance, or for returns to shareholders

**Mileage of pipelines that could be built with accelerated cash flows depends on diameter and other parameters**

- Pipeline costs depend on miles, diameters, terrain traversed, capacity, and other factors
- We assume pipelines are financed with 40% equity, 60% debt

	Diameter (inches)	Pipeline length (miles) <sup>2</sup>
Liquids	14-16	1,424
	30 - 32	849
Gas	16 - 18	1,310
	42-44	643

1: FERC-regulated gas pipelines are excluded as they are ineligible for bonus depreciation under the 2017 TCJA.

2: Assuming 40% equity, 60% debt

Source: Rystad Energy research and analysis

# 1 Bonus depreciation helps financing and development of capital-intensive pipelines, but is scheduled to phase out in 2027

## Bonus depreciation, which was extended by the 2017 TCJA, is scheduled to be phased out by 2027

- Bonus depreciation is a tax incentive that encourages certain types of investments
- It allows companies to depreciate a portion of capex in an eligible asset's first year of service, reducing taxable income in that year while increasing taxable income in subsequent years
- The 2017 Tax Cuts and Jobs Act (TCJA) increased bonus depreciation from 50% to 100%, but scheduled it to phase down by 20% per year from 2023, reaching 0% in 2026
- Additionally, the TCJA made FERC-regulated gas pipelines ineligible for bonus depreciation<sup>1</sup>
- We model cash flows for future pipelines under two scenarios: Status Quo, and a scenario in which 100% bonus depreciation is reinstated starting in 2026

Share of capex eligible for bonus depreciation, by asset start year

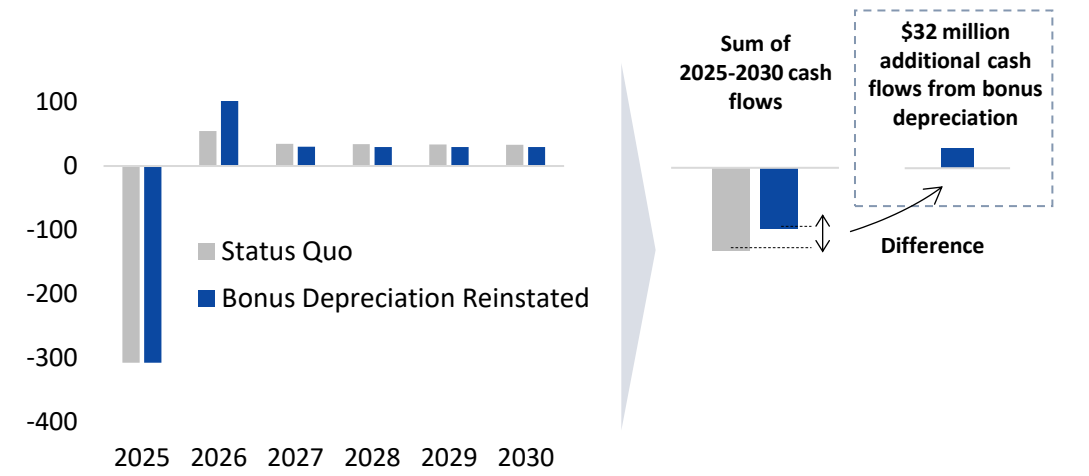
	2022	2023	2024	2025	2026	2027	2028	2029	2030
Status Quo	100%	80%	60%	40%	20%	0%	0%	0%	0%
BD Reinstated	100%	80%	60%	40%	100%	100%	100%	100%	100%

1: 26 U.S. Code § 163 (j) (7) (A) (iv), as amended by the TCJA; real 2024 dollars.  
Source: Rystad Energy research and analysis

## Bonus depreciation incentivizes investment by reducing taxes in the first year of a pipeline's service, but increases later taxes

- Pipeline developers can utilize the additional cash flow that is available to them as soon as their assets start operating
- Initial advantages taper off as early deductions are used up, leading to higher tax obligations in subsequent years
- Increased early liquidity enables companies to invest in upgrades, expand infrastructure, and support additional projects to meet demand

Example pipeline cash flow comparison: status quo vs. BD reinstated  
Million USD

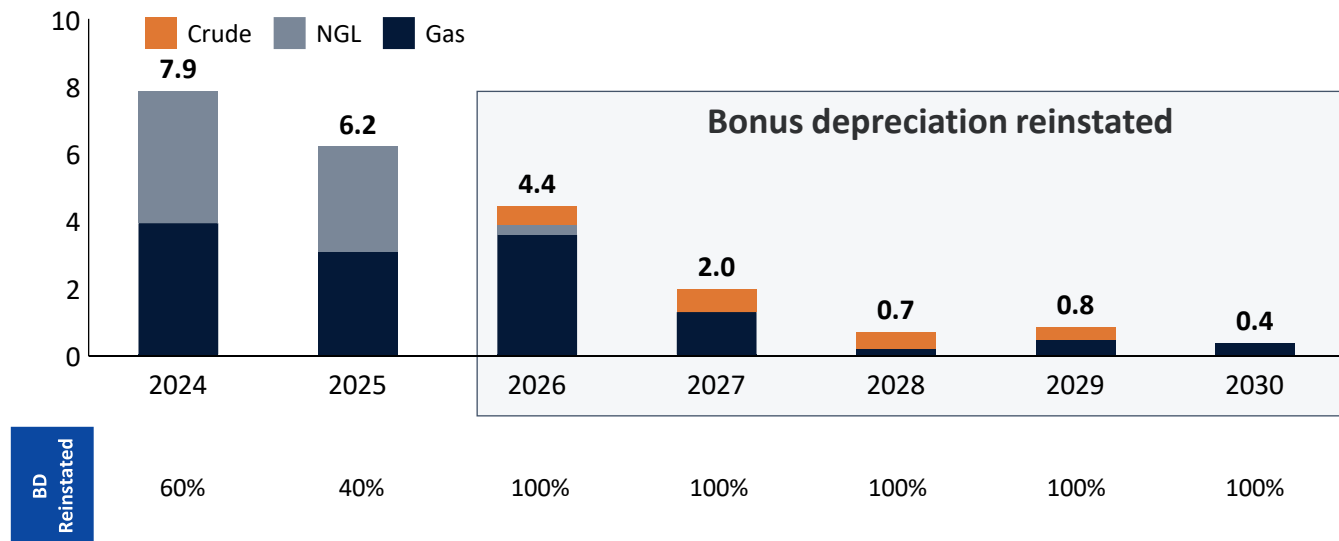


## 2 Reinstating bonus depreciation could generate \$1.6 billion in free cash flow based on 2026-2030 pipeline capex

We forecast 8 billion of pipeline capex from 2026-2030 that would benefit from reinstated bonus depreciation

### US pipeline capex, 2024-2030

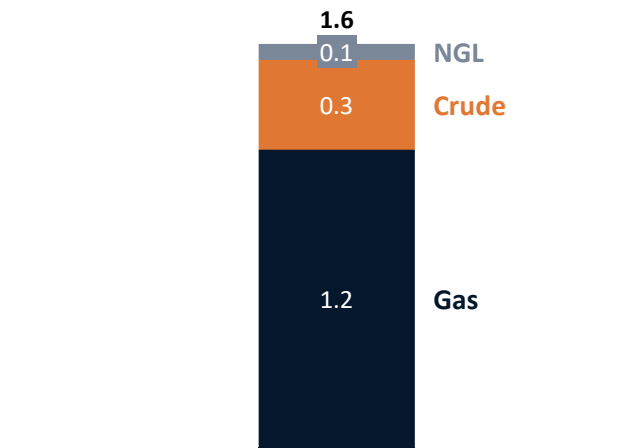
Billion USD, real 2024



If bonus depreciation is reinstated in 2026, it could generate \$1.6 billion in free cash flow

### 2026-2030 Additional free cash flow from reinstated BD

Billion USD, real 2024



- Capex is mainly driven by gas supply in the Permian and Haynesville regions. Gas supply growth is supported by the buildout of LNG terminals and by load growth, such as data centers.
- LNG headers account for a large portion of gas pipeline capex, but will not be impacted by Bonus Depreciation policies as they are regulated by FERC, and are thus excluded

- ~\$1.6 Bn represents the 2026–2030 cumulative free cash flow benefit from accelerated tax savings under the BD reinstated scenario compared to the Status Quo

1: Excludes FERC-regulated gas pipelines  
Source: Rystad Energy research and analysis

### 3 If reinvested, these cash flows could support 600 to 800 miles of new, large-diameter pipelines or 1,400+ miles of smaller diameter pipelines

#### Mileage of pipelines that could be built with \$1.6 billion of accelerated cash flows depends on diameter and other parameters

- **Diameter:** Larger diameter pipelines require more expensive materials, higher-spec equipment and additional labor, increasing costs.
- **Terrain:** Challenging terrains (e.g., mountains, swamps) require specialized engineering, which can significantly raise construction expenses.
- **Pump and compression capacity:** Higher capacity pipelines require more horsepower.

Sensitivity: mileage<sup>1</sup> of pipeline supported accelerated cash flows, depending on diameter

	Diameter Range (in)	Miles <sup>1</sup>
Liquids	14-16	1,424
	20-22	1,149
	30-32	849
	36-38	731
	42-44	643
Gas	16-18	1,310
	24-26	994
	36-38	721
	42-44	643

Since larger diameter pipelines are more expensive, bonus depreciation would support fewer miles of large diameter than small diameter pipelines

#### Benefits of new pipelines include enabling supply growth, reducing in-basin flaring, and supporting construction jobs

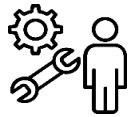
##### Benefits of new pipelines



**Enabling supply growth:** Additional pipeline can enable supply growth in regions that are takeaway constrained



**Reducing in-basin flaring:** Natural gas flaring in the Permian and Bakken has at times been driven by a shortage of gas pipeline capacity; additional capacity can reduce flaring



**Adding construction jobs:** Pipeline construction is labor intensive and has direct and indirect job impacts on the economy

1: Cost per mile is based on Rystad's Pipeline Cost Estimating Model, assuming typically observed pipeline lengths and different terrains; Assuming 40% equity, 60% debt  
Source: Rystad Energy Onshore Pipeline Cost Estimating Model; Rystad research and analysis



# Bonus depreciation reduces taxes in the first year of service, boosting NPV, IRR, and first-year cash flows

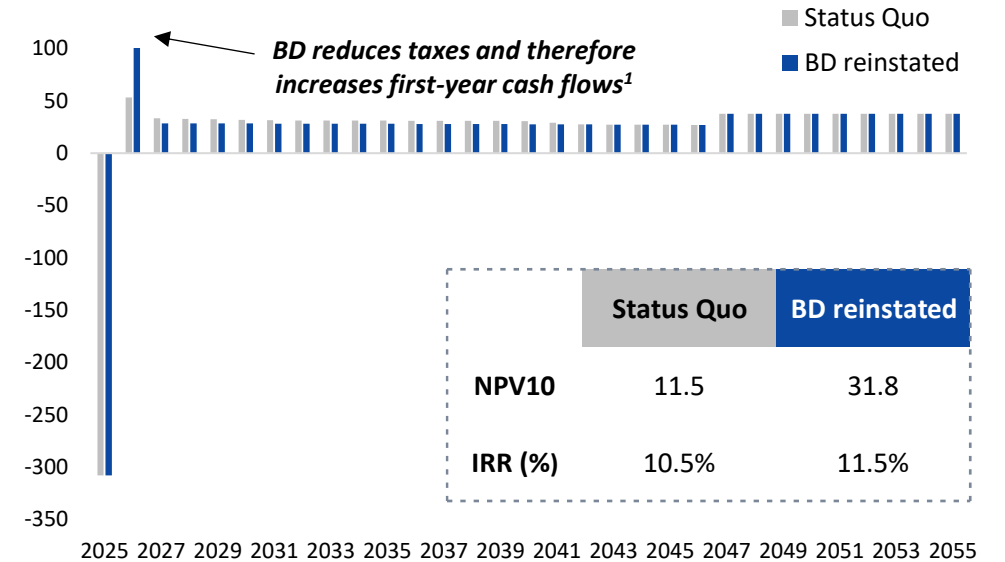
Bonus depreciation reduces taxes in the first year of an asset's operations, though total taxes remain the same over an asset's life

Reduced first-year taxes boosts NPV, IRR, and first-year cash flows

Example of pipeline financial model  
Million USD

	Year	2026	2027	2028	2029	2030	2031	...	2054	2055	Total	
1 Status Quo	Depreciation	74	23	21	19	17	15	...	-	-	308	Taxes PV <sup>2</sup> 46.7 MUSD
	Taxable income	-26	17	19	22	24	26	...	48	48	1,030	
	Taxes <sup>1</sup>	-6	4	4	5	5	5	...	10	10	216	
2 BD reinstated	Year	2026	2027	2028	2029	2030	2030	...	2054	2055	Total	
	Depreciation	308	-	-	-	-	-	...	-	-	308	Taxes PV <sup>2</sup> 26.5 MUSD
	Taxable income	-260	40	40	41	41	41	...	48	48	1,030	
Taxes <sup>1</sup>	-55	8	8	9	9	9	...	10	10	216		

Example of pipeline free cash flows  
Million USD



Bonus depreciation reduces taxable income and taxes, boosting first-year cash flows

The total taxes paid are equal between the two scenarios. However, the present value of taxes is lower in the BD Reinstated scenario, reflecting the benefit of bonus depreciation

NPV and IRR are higher in the BD scenario

1: Negative taxes represent the offsetting of taxes elsewhere in a pipeline developer's portfolio; if the developer does not have taxes to offset, the full benefit of accelerated depreciation may not be realized

2: Present value at 10% discount rate

Note: Both scenarios assume startup year is 2026 and a 30-year operational lifetime.

Source: Rystad Energy research and analysis

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5 Bonus depreciation impact on cash flows

# Bonus depreciation, which incentivizes investment, was enhanced in 2017 but is scheduled to phase out in 2027

## Bonus Depreciation Background

### Background

- **The midstream sector is highly capital intensive**, with substantial up front capital required for material, labor, construction, and permitting costs.
- **Historically, midstream companies depreciated their pipeline assets over a long recovery period**, typically 15 years under MACRS<sup>1</sup> (modified accelerated cost recovery system).
- These spread-out tax deductions over many years affect cash flow and investment capacity.
- **Bonus depreciation was introduced in 2002 as a tax incentive to stimulate economic growth** by allowing businesses to accelerate the depreciation of eligible assets. This means companies can deduct a larger portion of an asset's cost in the year it is placed in service.
- The more a company can depreciate, the lower its tax liability. Bonus depreciation, therefore, increases upfront cash flows by reducing the company's initial tax payments.

### Current Applicability and Status

- In 2017, **the Tax Cuts and Jobs Act significantly enhanced bonus depreciation benefits** by increasing the deduction to 100% for qualified property placed in service after September 27, 2017, and before January 1, 2023. The TCJA also Expanded eligibility to include used property, benefiting companies acquiring existing pipelines.
- Under the TCJA, companies are allowed to depreciate 100% of an applicable assets cost<sup>2</sup> the year the asset is placed into service, but that percentage is reduced by 20% every year after 2022 until it is phased out in 2027
- Currently, there has not been an extension passed to extend the bonus depreciation credit. **When bonus depreciation phases out in 2027, the midstream industry will revert to using MACRS for depreciation scheduling**

**Rystad studied the impact of two policy scenarios on the US midstream sector**

- Status Quo:** A scenario in which the current Bonus Depreciation schedule expires
- BD Reinstated:** A scenario in which 100% bonus depreciation is reinstated starting in 2026

Bonus Depreciation Rate Schedule		
Pipeline Start Year	Status Quo	BD Reinstated
<= 2022	100%	100%
2023	80%	80%
2024	60%	60%
2025	40%	40%
2026	20%	100%
2027	0%	100%
2028	0%	100%
2029	0%	100%
2030	0%	100%

1: The 15-year cost recovery time period was introduced in 2005, down from the 20-year time period that had been used prior  
 2: Natural gas pipelines that are FERC regulated are not eligible for Bonus Depreciation  
 Source: Rystad Energy research and analysis

# Rystad analyzes the impacts of a Bonus Depreciation extension through a pipeline activity forecast and financial modeling

**1 Pipeline Capex Forecast**

- Rystad Energy forecasts future crude and gas pipeline activity and capex spend based on an analysis of supply-demand fundamentals
- Cost modeling is performed using Rystad's pipeline cost modeling tool

**Example basin takeaway analysis**

**Pipeline capex<sup>1</sup> forecast**  
Billion USD, Real 2024

**2 Cash Flow Impact**

- We model the difference in cash flows for each future pipeline, across each policy scenario to 2030
- In the Bonus Depreciation reinstated scenario, pipeline capex is depreciated 100% in the forecasted year of service
- The difference in cumulative cash flows across all modeled pipelines to 2030 is then used to determine possible effects on activity

**Accelerated cash flows from reinstatement of bonus depreciation; 2026-2030**  
Billion USD; Real 2024

**3 Mileage Analysis**

- We estimate mileage of new pipelines that this modeled difference in cumulative cash flows could fund if cash flows were reinvested

**Mileage of pipelines that could be built with accelerated cash flows by diameter**

	Diameter (inches)	Pipeline length (miles)
Liquids	14-16	1,424
	30 - 32	849
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	42-44	643

Source: Rystad Energy research and analysis

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Reduced first-year taxes boosts NPV, IRR, and first-year cash flows

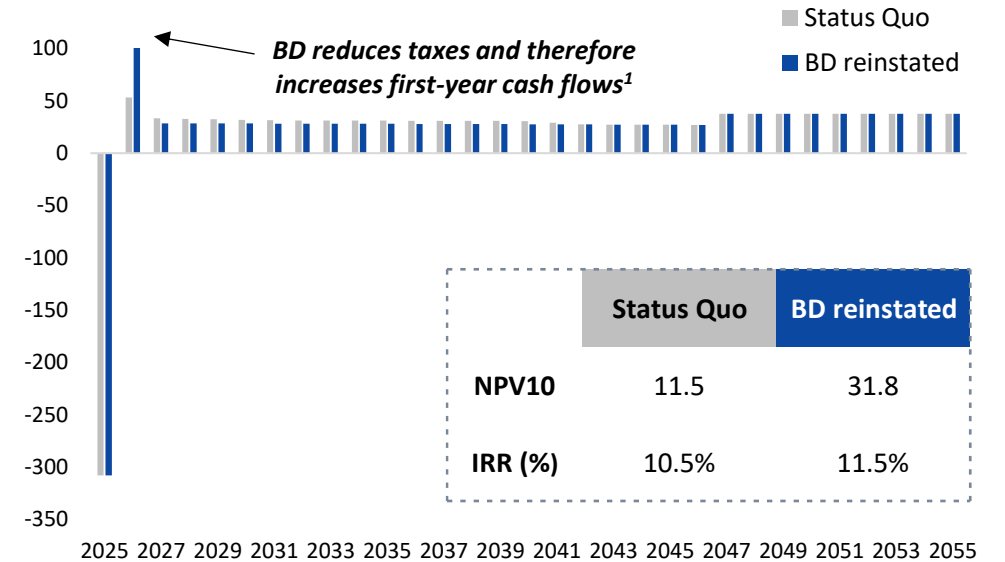
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Million USD

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## Example of pipeline free cash flows

Million USD



Bonus depreciation reduces taxable income and taxes, boosting first-year cash flows

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Note: Both scenarios assume startup year is 2026 and a 30-year operational lifetime.

Source: Rystad Energy research and analysis

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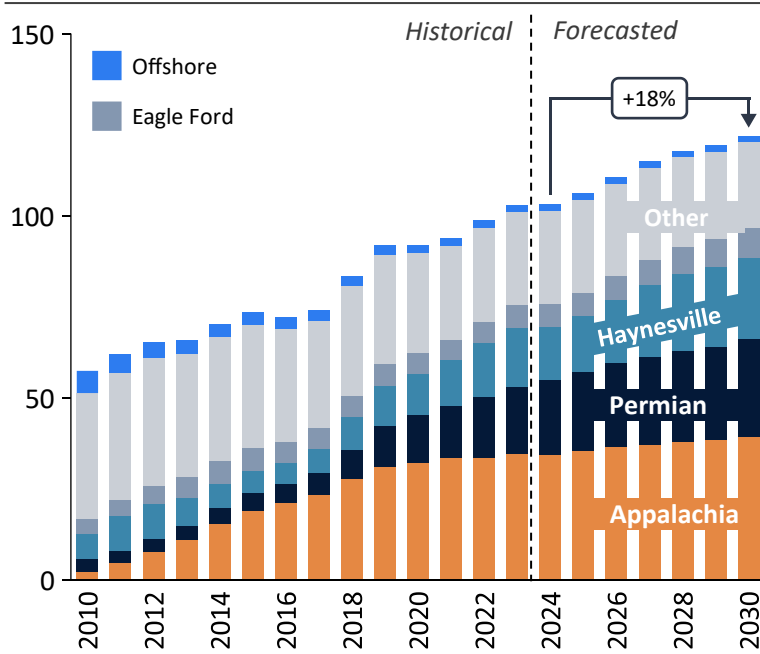
**3 US supply forecast**

4 Pipeline capital expenditure forecast

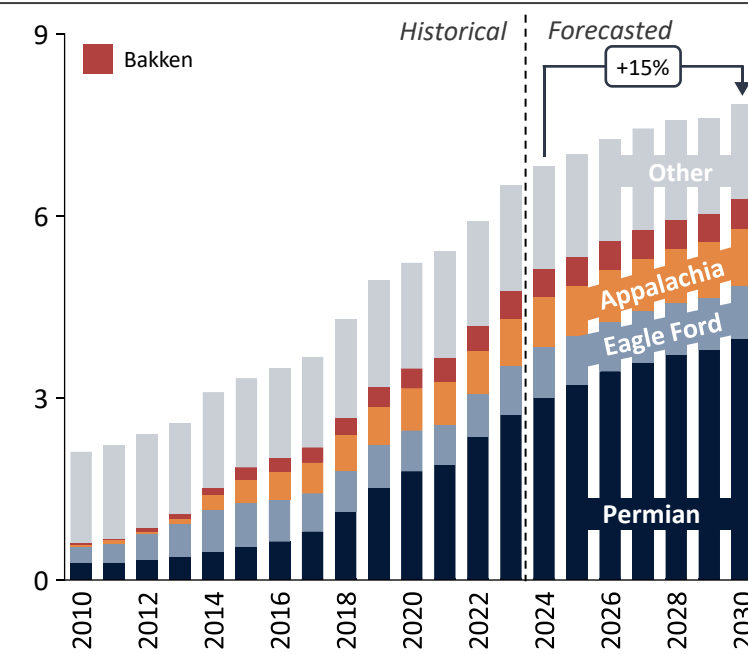
5 Bonus depreciation impact on cash flows

# Production growth is expected across all hydrocarbons to 2030, but growth is increasingly limited to select basins

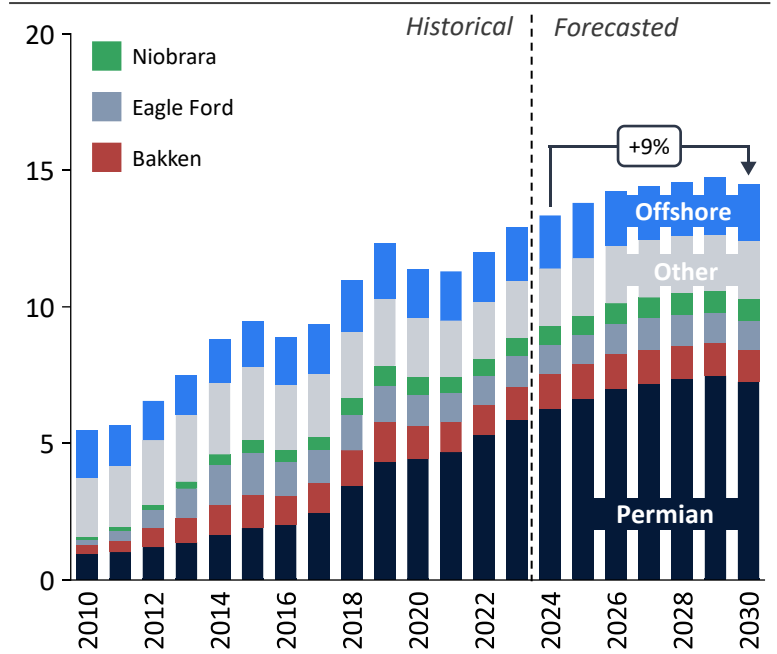
**US Gas Production by Basin**  
Billion cubic feet per day (bcf/d)



**US NGL Production by Basin**  
Thousand barrels per day (kbbbl/d)



**US Oil Production by Basin**  
Million barrels per day (mmbbl/d)



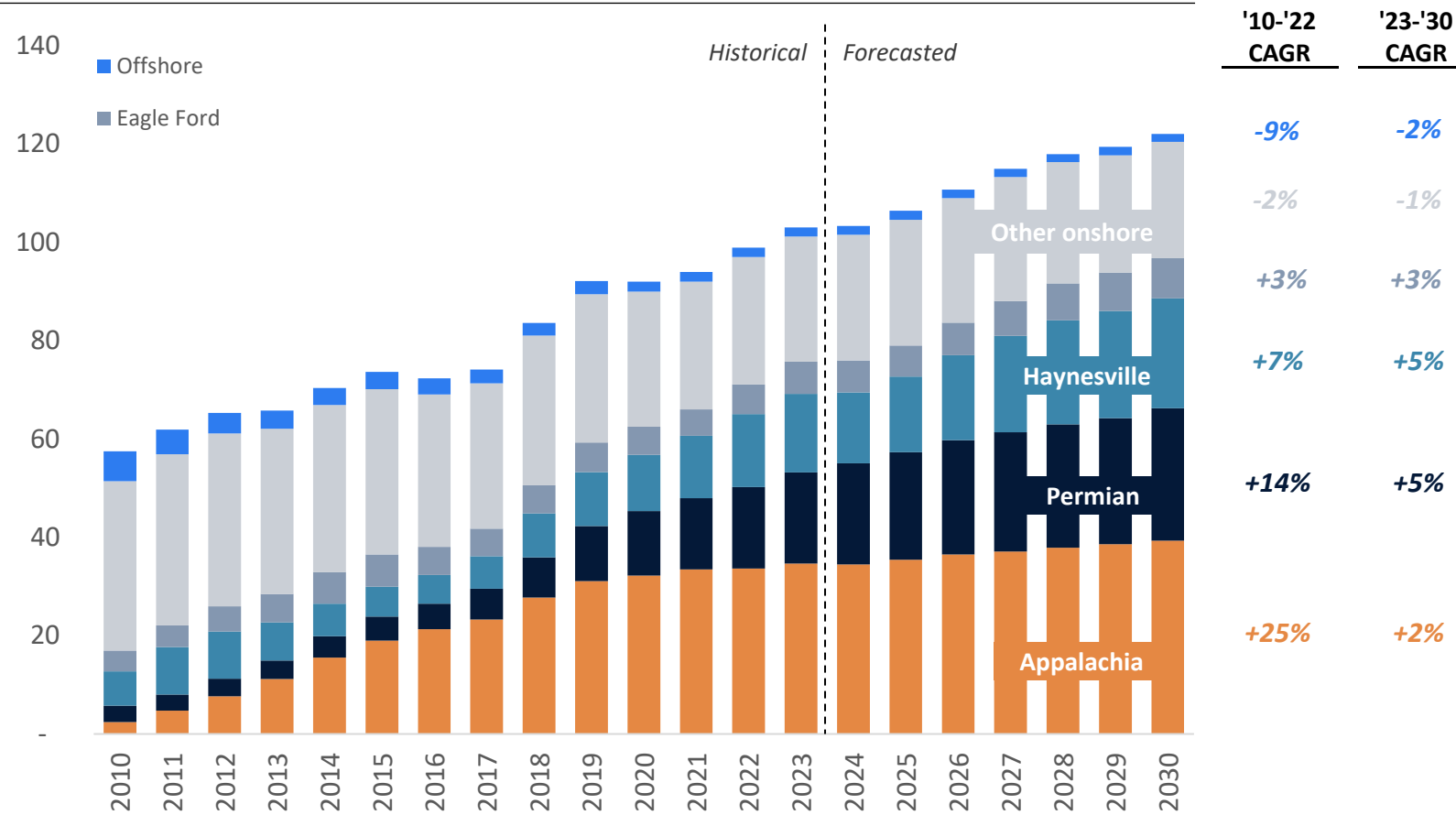
- Across US hydrocarbon production, NGLs and gas are set to face the largest increases on a percentage basis from 2024 levels, at 18% and 15% respectively; with gas growth being driven by the Permian and Haynesville and NGL growth driven mostly by the Permian
- US crude production is expected to see less growth relative to gas and NGL production, with a 9% increase from 2024 to 2030. Permian will continue to be the dominant oil play and its 2024-2030 growth rate of 16% will outpace any other oil-dominant play.

Source: Rystad Energy UCube

# Total US gas production is forecasted to increase by 18% from 2023 levels by 2030

## US Gas Production by Basin

Billion cubic feet per day (bcf/d)



- As of 2023, the Appalachia, Permian, and Haynesville have contributed the largest shares of US gas production
- Appalachia has been the largest contributor to production since 2010 and has seen the greatest growth, averaging a 25% CAGR, followed by the Permian at 14% and Haynesville at 7% from 2010 to 2022
- Total US gas production is projected to grow by 18% from 2023 to the end of the decade, increasing from 103 to 122 bcf/d
- By 2030, the Permian will see the largest growth, making up 22% of 2030 production, and seeing a CAGR of 5% from 2023-2030
- The Haynesville follows with a CAGR of 5%, while the Appalachia and other basins will see relatively flat production growth

Note: Other onshore includes Anadarko, Niobara, Bakken, and other basins

Source: Rystad Energy UCube

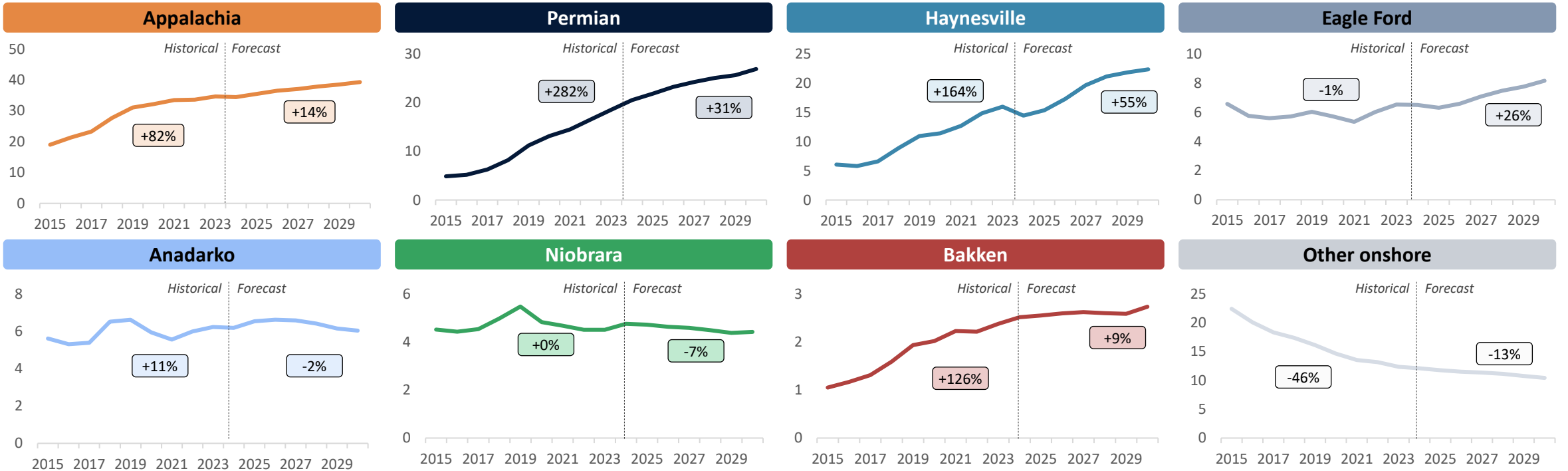


# The Haynesville, Permian, and Eagle Ford will see the largest gas production growth rates to 2030

## Gas Production by Basin; 2015-2030

Billion cubic feet per day (bcf/d)

+XX% Represents change in production from '15-'23 and '24-'30



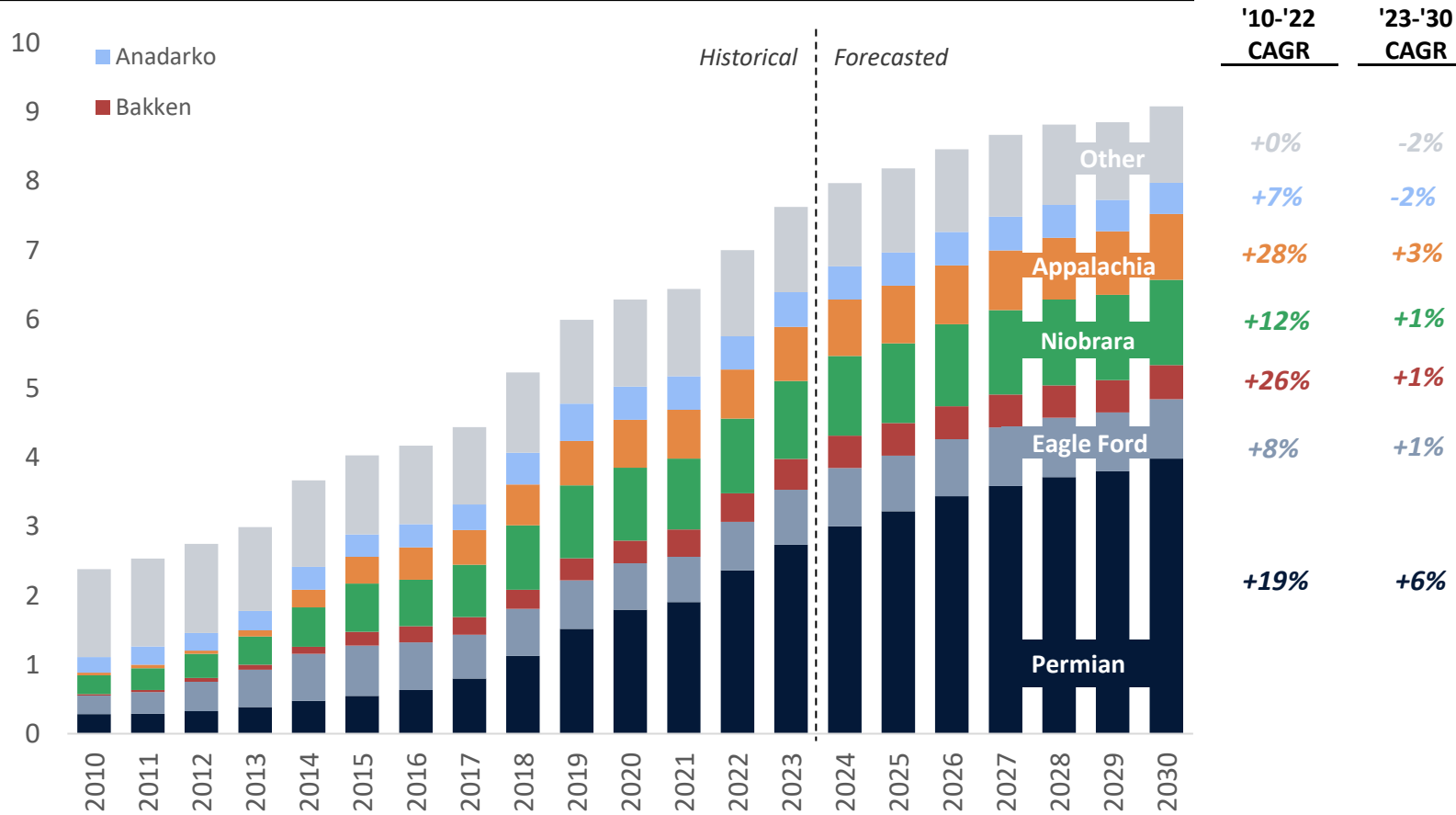
- The Permian has seen the largest increase in production on a percentage basis from 2015 to 2023, increasing by 82%
- To 2030, the Haynesville, Permian, Eagle Ford, and Appalachia will see the largest percentage increases in production
- On a magnitude basis, the Appalachia will remain the largest gas producer, reaching 39 bcf/d by 2030, followed by the Permian at 27 bcf/d
- Eagle Ford growth is primarily driven by increasing activity in the basin's western portion, particularly within the Dorado play

Source: Rystad Energy UCube

# Total US NGL production is forecasted to increase by 19% from 2023 levels by 2030

## US NGL Production by Basin

Million barrels per day (mmbbl/d)



- During previous years, numerous basins contributed to NGL production
- Currently, NGL production is mostly concentrated in the Permian, and this basin is projected to be the main source of NGLs as we approach the end of the decade
- Other relevant basins producing NGLs are Eagle Ford, Niobrara and Appalachia
- The Permian is expected to increase its NGL production going into 2030, with a 6% CAGR
- NGL production from other plays, such as the Eagle Ford, Bakken, Niobrara, and Appalachia will also see growth but at a lesser extent

Note: Other includes the Haynesville and other basins, including offshore.

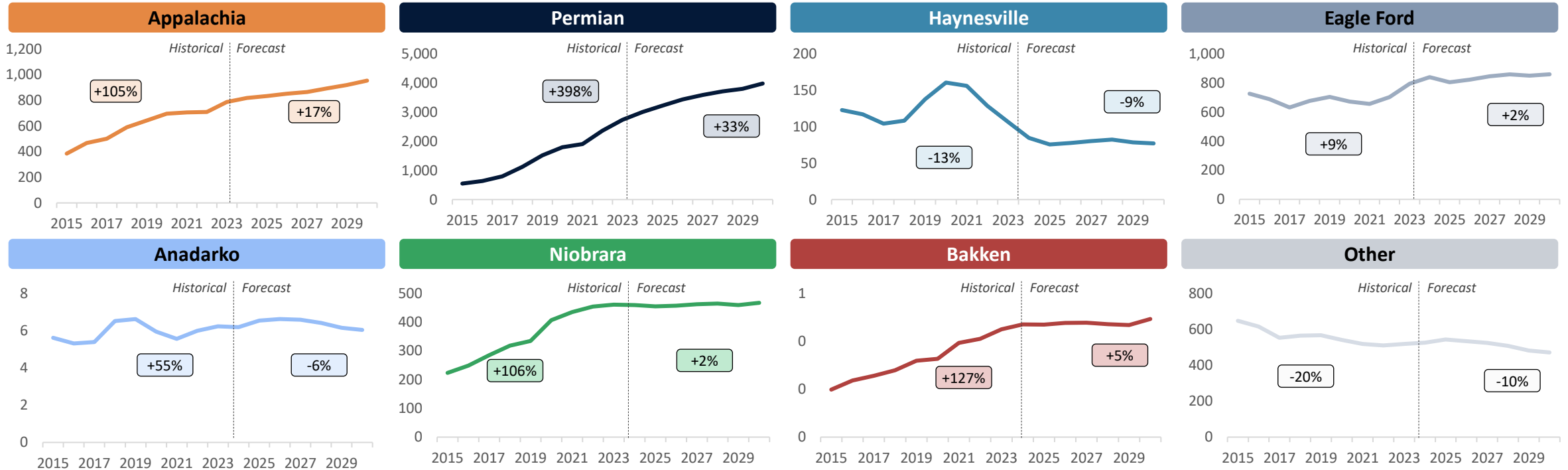
Source: Rystad Energy UCube

# The Permian will remain the main source of NGLs, followed by the Appalachia and Eagle Ford

## NGL Production by Basin; 2015-2030

Thousand barrels per day (kbbbl/d)

+XX% Represents change in production from '15-'23 and '24-'30



- The Permian has seen the largest increase in NGL production on a percentage basis from 2015 to 2023, increasing by 398%
- To 2030, the Permian and Appalachia will see the largest percentage increases in production, followed by the Bakken and Eagle Ford
- On a magnitude basis, the Appalachia will remain the largest natural gas liquids producer, reaching nearly 4 mmbbl/d by 2030

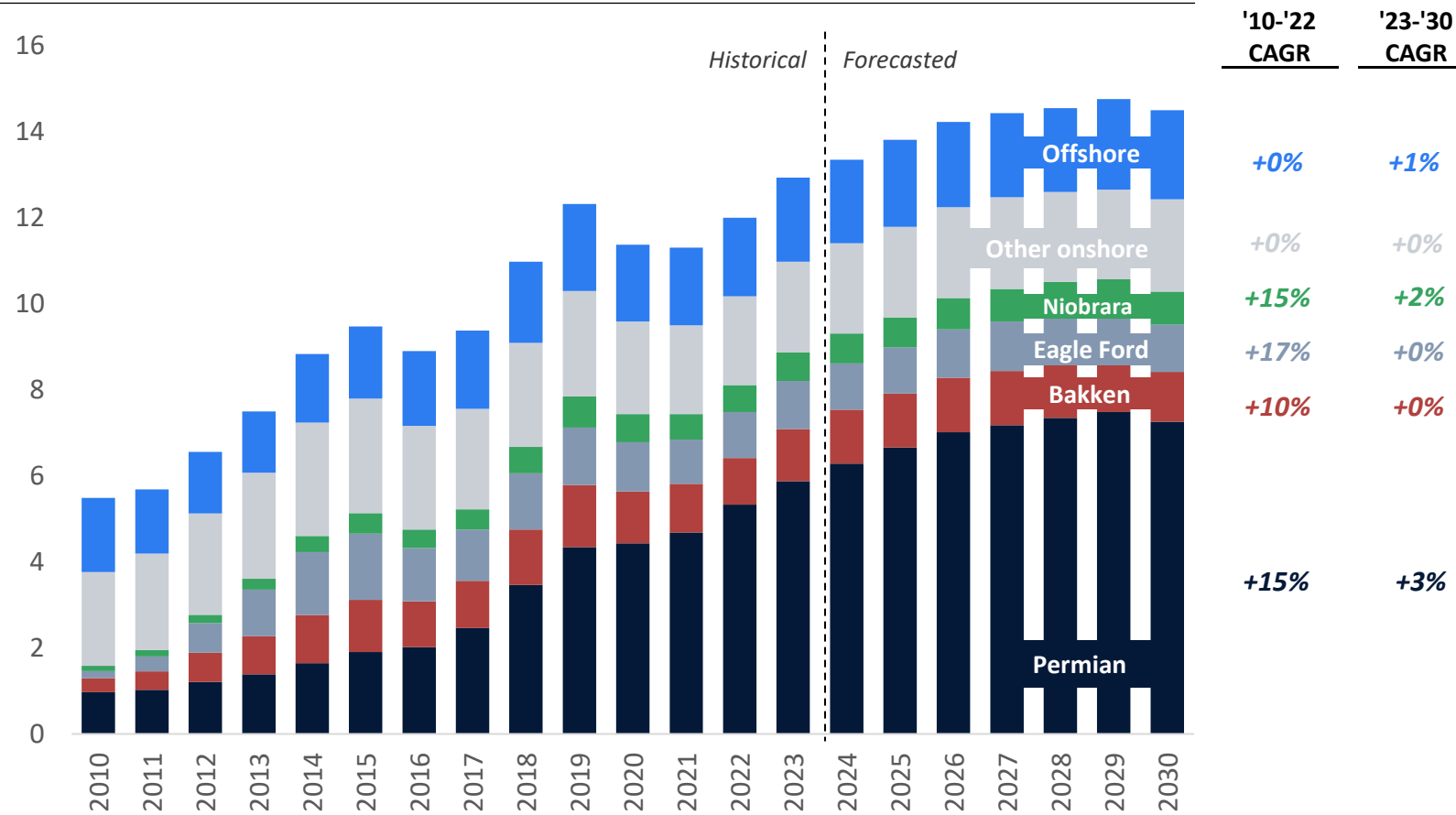
Note: Other includes the Haynesville and other basins, including offshore.

Source: Rystad Energy UCube

# Total US oil production is forecasted to increase by 12% from 2023 levels by 2030

## US Oil Production by Basin

Million barrels per day (mmbbl/d)



- In 2023, the Permian basin produced around half of the oil production in the US
- During the same year, the Eagle Ford and Bakken each produced ~10% of the oil supply in the US
- The Permian is expected to increase its oil production going into 2030, with a 3% CAGR.
- Oil production from the Bakken and Eagle Ford is likely to remain constant throughout the end of the decade
- Other oil producing basins include Niobrara and Anadarko, but their oil supply is a fraction of Permian, Bakken and Eagle Ford production.

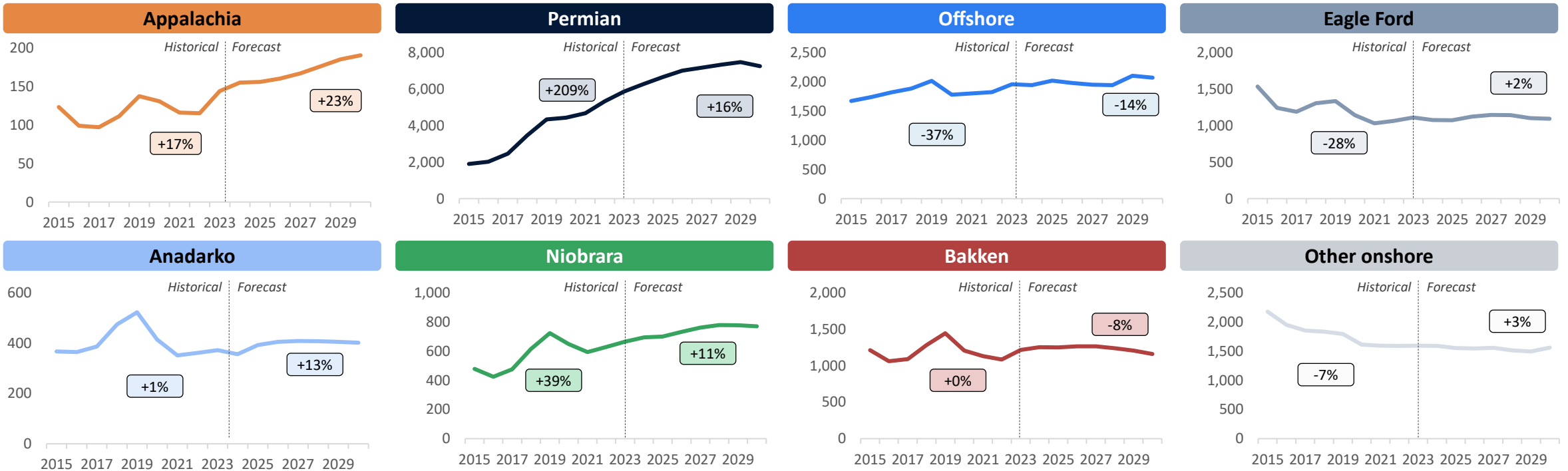
Note: Other includes the Eagle Ford, Anadarko, Niobara, Bakken, and other basins  
Source: Rystad Energy UCube

# The Permian will continue to produce more oil relative to other basins, followed by the Bakken and Eagle Ford

## Oil Production by Basin; 2015-2030

Thousand barrels per day (kbb/d)

+XX% Represents change in production from '15-'23 and '24-'30



- The Permian basin will continue to produce around half of the oil production in the US. We forecast a 16% growth in oil production from 2023 to 2030.
- Oil production from the Bakken and Eagle Ford each comprised 9% of US supply in 2023. Although both will continue to play a relevant role, their oil production is expected to plateau, or even decrease for the Bakken, as we approach the end of the decade.
- Other plays such as Appalachia, Anadarko, and Niobrara are expected to see growth in oil production; however, the magnitude of their production is significantly smaller than the main oil producing basins. Growth in Appalachia is driven by condensates rather than crude oil.

Source: Rystad Energy UCube

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**4 Pipeline capital expenditure forecast**

5 Bonus depreciation impact on cash flows

# We base our pipeline capex forecast on an analysis of supply-demand fundamentals

Capex forecast is underpinned by analysis of fundamentals, and includes both announced and yet-to-be-announced projects

## Analysis Performed

## Pipelines in scope

**1** **Basins are analyzed on forecasted Gas, NGL, and Crude supply**  
We add forecasted pipelines in basins that will need additional takeaway and intra-basin capacity, while scrutinizing announced pipelines that would result in basin overcapacity.

Intra-basin and basin takeaway

**2** **All announced Gas, Crude, and NGL pipelines are analyzed based on project fundamentals**  
We analyze factors like project backers, permitting status, and regional pipeline demand to assess the viability of projects. Projects with a strong likelihood of progressing are included in our forecast, while those facing a high probability of cancellation are excluded.

All

**3** **Future LNG Headers are forecasted based on liquefaction plant start up timelines**  
We forecast liquefaction plant FIDs to anticipate LNG headers that are yet to be announced.

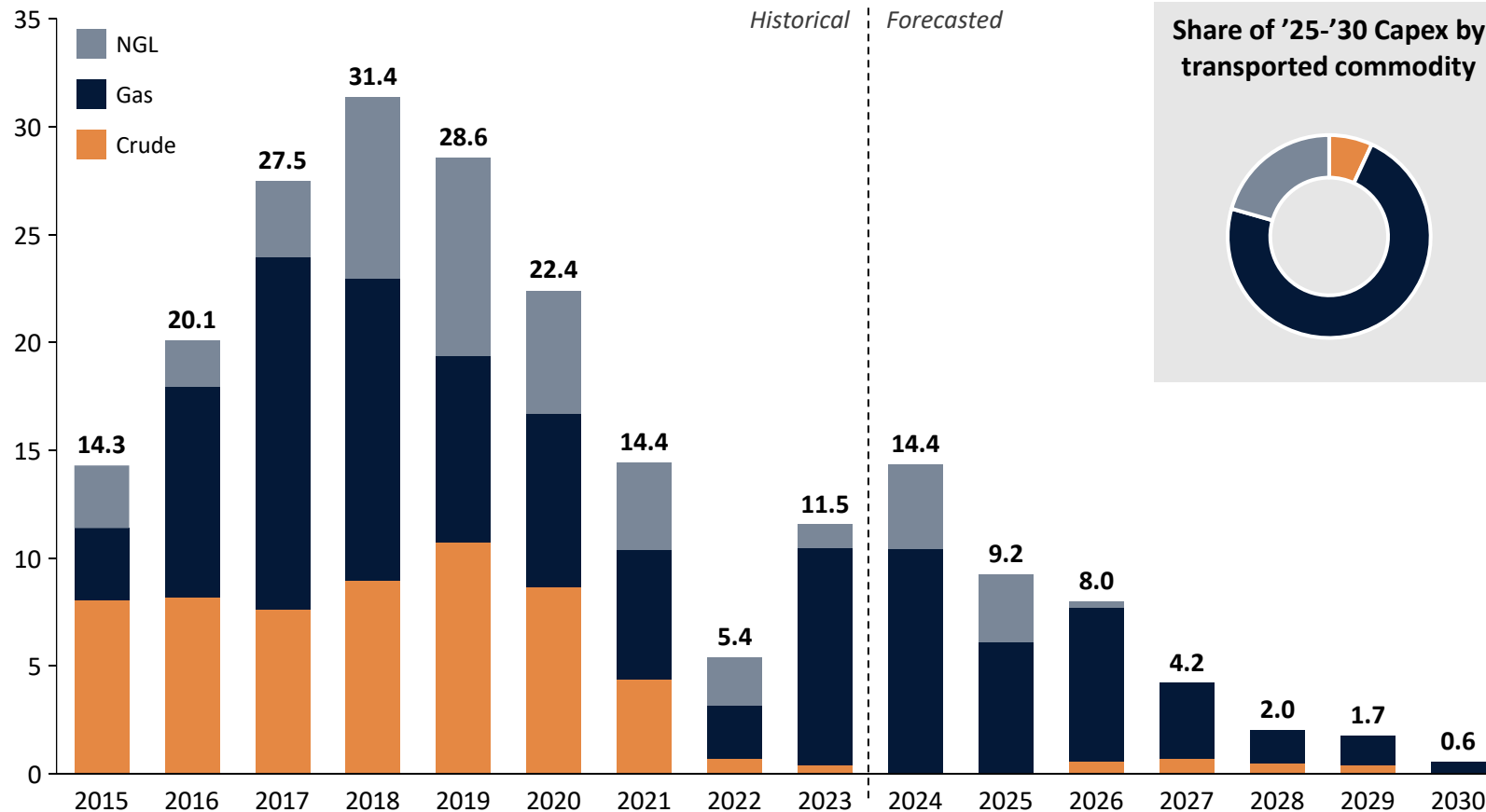
LNG supply headers

Source: Rystad Energy research and analysis

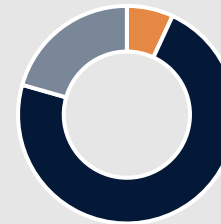
# Rystad forecasts \$26 billion of major pipeline capex from 2025-2030

## Pipeline capex forecast\*

Billion USD; Real 2024



Share of '25-'30 Capex by transported commodity



**Gas pipelines account for 73% of future capex, driven by LNG supply headers, and takeaway and intra-basin transmission need in the Permian and Haynesville**

- LNG Headers are forecasted to make up 27% of forecasted '25-'30 gas pipeline capex
- Meanwhile, Permian and Haynesville takeaway and intra-basin pipelines account for 31% and 9% of forecasted spend, respectively

**NGL pipelines are forecasted to account for 21% of forecasted spend, driven by Permian and Bakken takeaway needs**

- Increasing NGL production in the Permian will drive near-term takeaway needs, while new pipes are needed in the takeaway constrained Bakken

**Crude pipelines will make up just 7% of future capex**

- A recent buildout over the last decade in the oil-dominant Permian will ensure sufficient takeaway and intra-basin capacity, eliminating the need for new pipelines

Note: Assumes every pipeline takes 1 year to build, with capex spend allocated 50:50 to the year of completion and the year prior.

\* Includes both FERC and non-FERC regulated gas pipelines and expansion projects

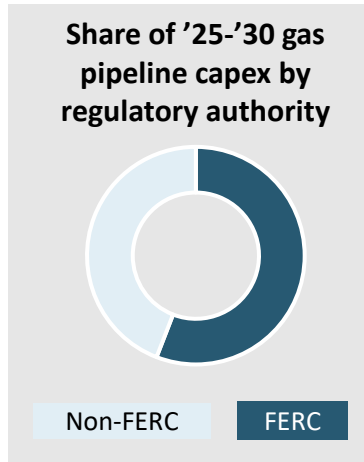
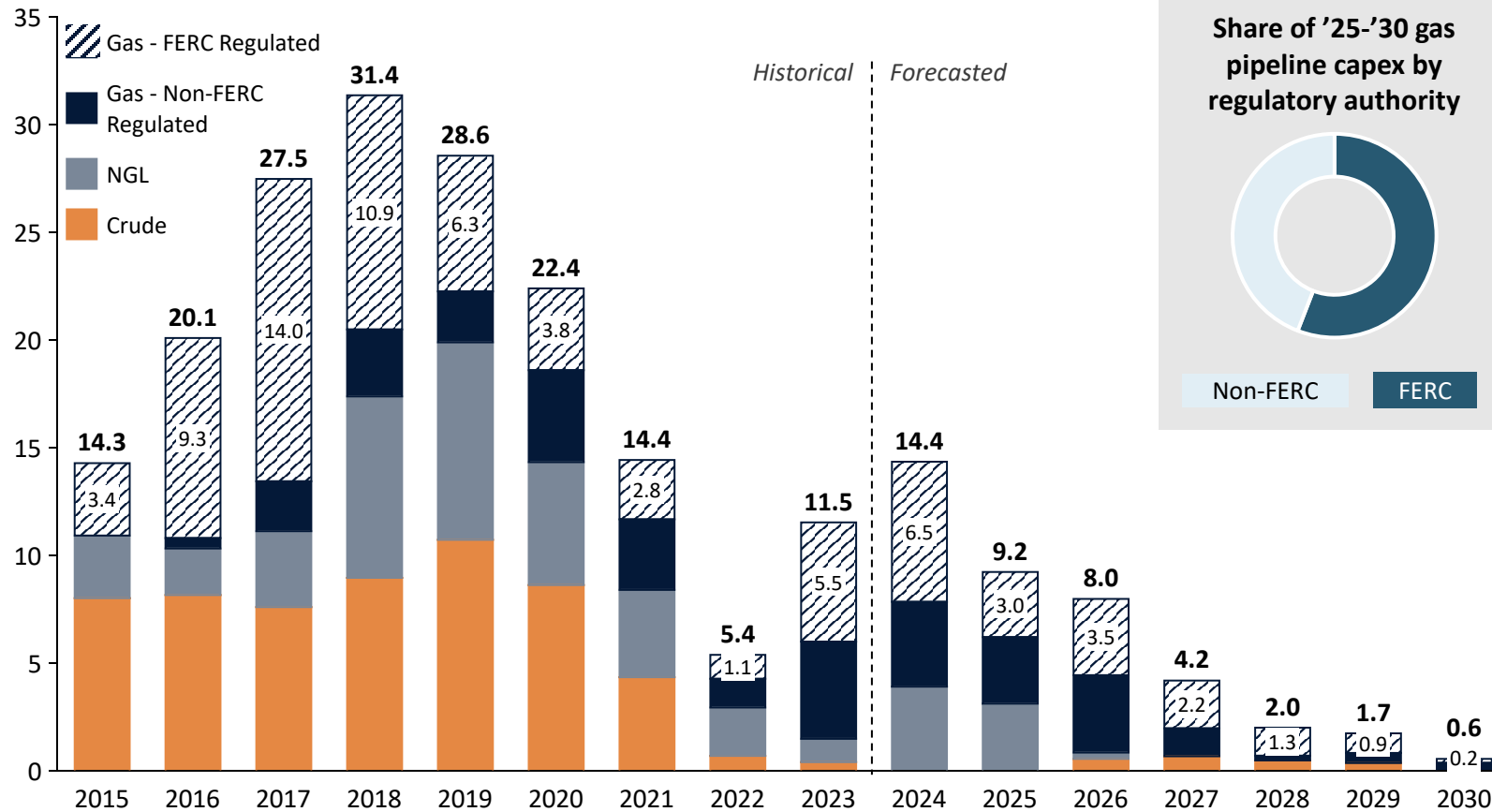
Source: Rystad Energy research and analysis; Rystad energy Onshore Pipeline Cost Estimating Model



# Excluding FERC-regulated gas pipelines, 2025-2030 major pipeline capex totals \$14 billion

## Pipeline Capex Forecast, Gas split by FERC and non-FERC regulated

Billion USD; Real 2024



**FERC-regulated gas pipelines are not eligible for bonus depreciation after TCJA was enacted in 2017**

*“Property used for the following business does not qualify: “(III) transportation of gas or steam by pipeline, if the rates for such furnishing or sale, as the case may be, have been established or approved by a State or political subdivision thereof, by any agency or instrumentality of the United States, by a public service or public utility commission...”*

**Gas pipelines regulated by FERC** are mostly comprised of 1) LNG headers driven by the gas demand created due to the construction of new liquefaction terminals and 2) interstate pipelines that flow gas from one state to another.

**Pipelines not regulated by FERC** encompass intra-basin and basin takeaway pipelines for gas, crude, and NGL. The Permian and Haynesville have more gas pipelines of this type slated to come online.

Note: Assumes every pipeline takes 1 year to build, with capex spend allocated 50:50 to the year of completion and the year prior.

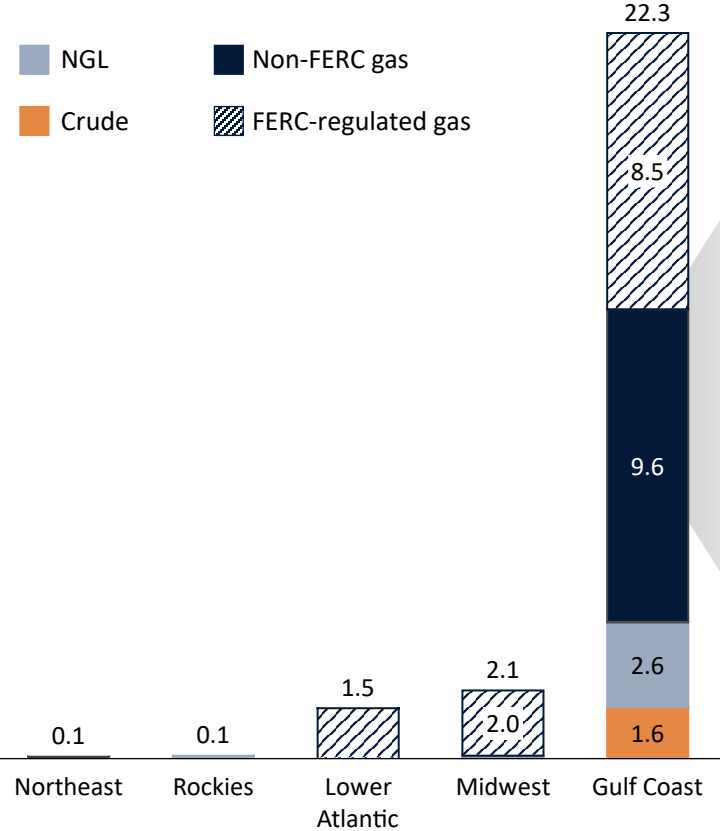
\* Includes only non-FERC regulated gas pipelines and expansion projects

Source: Rystad Energy research and analysis; Rystad energy Onshore Pipeline Cost Estimating Model

# Future pipeline capex is concentrated in the Gulf Coast, driven predominantly by Permian growth, Haynesville growth and liquefaction build out

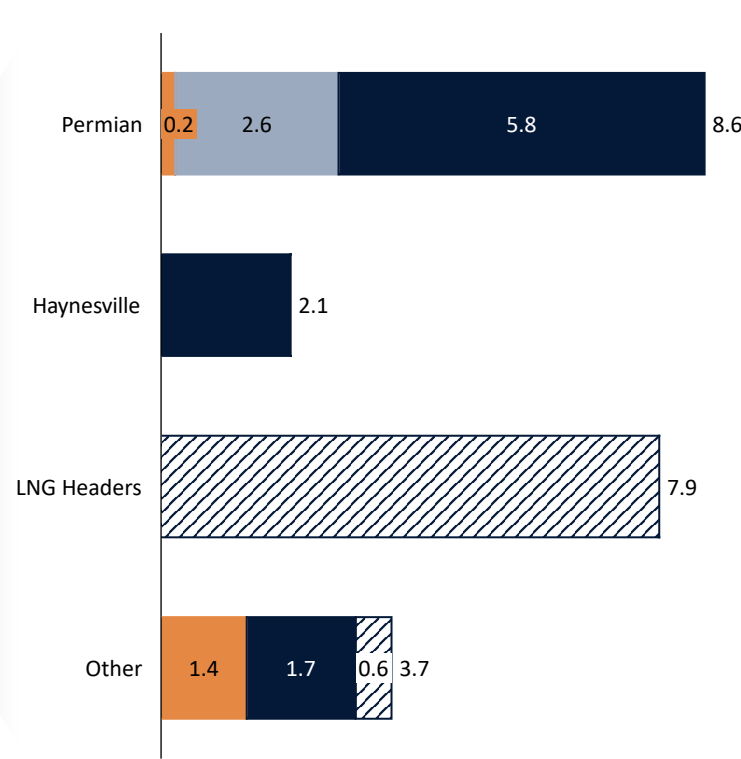
## 2025-2030 US pipeline capex forecast

Billion USD; Real 2024



## 2025-2030 PADD 3 pipeline capex forecast

Billion USD; Real 2024



### The Gulf Coast accounts for most of the future pipeline Capex, driven by the Permian and Haynesville

- Capex in these basins is driven predominantly by gas and NGL supply growth and related infrastructure build out
- Gulf Coast pipelines tend to face fewer barriers compared to other regions. They tend to be easier to permit, as most are intra-state, and face less local opposition than infrastructure in other regions

### LNG Headers account for 35% of Gulf Coast Capex, but are not applicable for Bonus Depreciation

- With 14 newbuild and expansion LNG projects planned, supply headers comprise the largest individual segment of proposed capex spend through 2030

### Other regions are mainly driven by FERC-regulated capex which is not applicable for Bonus Depreciation

- The Ridgeline expansion project in TN and additional takeaway capacity from the Bakken drive spending in the Midwest
- Transco’s Southeast Supply Enhancement Project is a major driver for capex in the Lower Atlantic region

Note: Assumes every pipeline takes 1 year to build, with capex spend allocated 50:50 to the year of completion and the year prior.  
Source: Rystad Energy research and analysis

# Slowdown in future pipeline capital expenditures reflects slowdown in production growth, recent pipeline overbuilds, and permitting challenges

## Overall Gas, Crude, and NGL growth to slow from historical trends

- Before 2018, oil and NGLs were produced in numerous basins. However, production is currently concentrated on a few basins that are closer to the Gulf Coast, especially for crude.
- The US will continue to see continued gas growth, leading to a continued, albeit smaller gas pipeline buildout in the near short term
- Crude and NGL production will slow sharply to the end of the decade, with crude production peaking in 2029

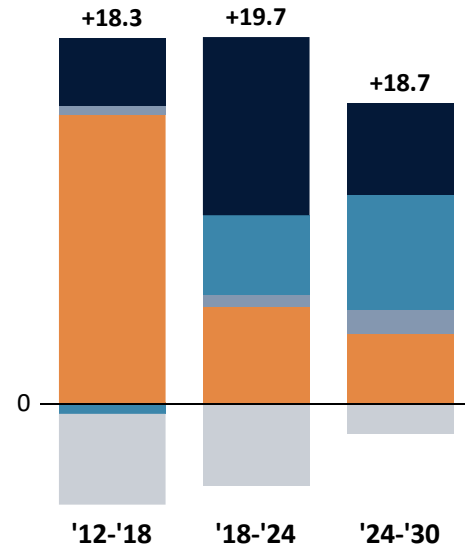
## Permian takeaway capacity was overbuilt over the past 5 years

- The recent Permian buildout has created sufficient takeaway capacity, eliminating the need for new large scale takeaway pipelines

## Permitting of new pipelines has become more challenging

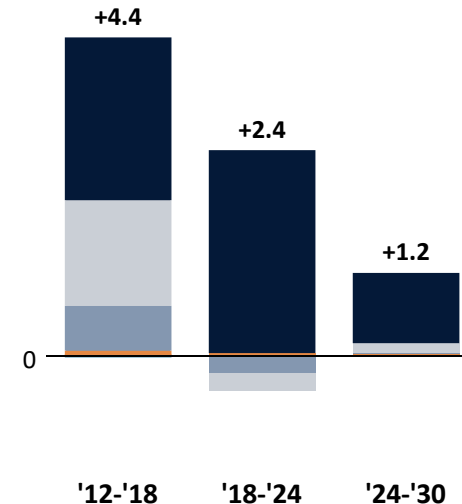
- With increasing permitting hurdles and local opposition, new large-scale pipelines like Mountain Valley and Dakota Access are increasingly challenging to develop

**Gas production growth**  
Billion cubic feet per day (bcf/d)



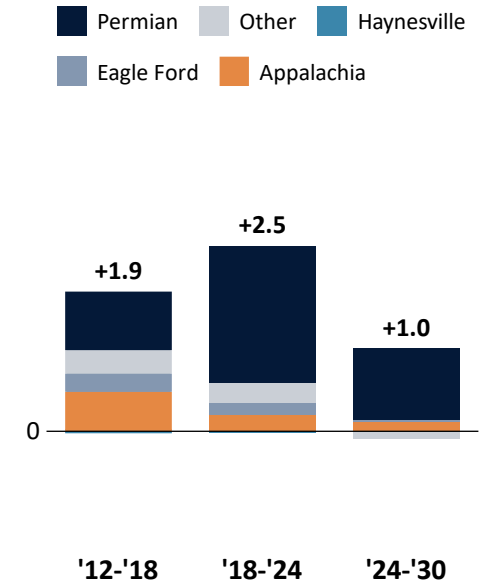
- Growth slowing, and increasingly focused on the Permian and Haynesville, which are closer to Gulf Coast markets
- Appalachia growth is filling MVP and debottleneck projects; new pipes challenged by permitting

**Crude production growth**  
Million barrels per day (mmbbl/d)



- Growth sharply slowing, and increasingly focused in the Permian
- Recent buildout provides sufficient Permian takeaway
- Specific routes that could face tightness will be relieved through expansion projects

**NGL production growth**  
Million barrels per day (mmbbl/d)



- Growth sharply slowing, and increasingly focused in the Permian
- Permian to see a handful of NGL projects, mostly expansions
- New Appalachia pipes challenged by permitting

Note: This excludes FERC-regulated gas pipelines; Source: Rystad Energy research and analysis

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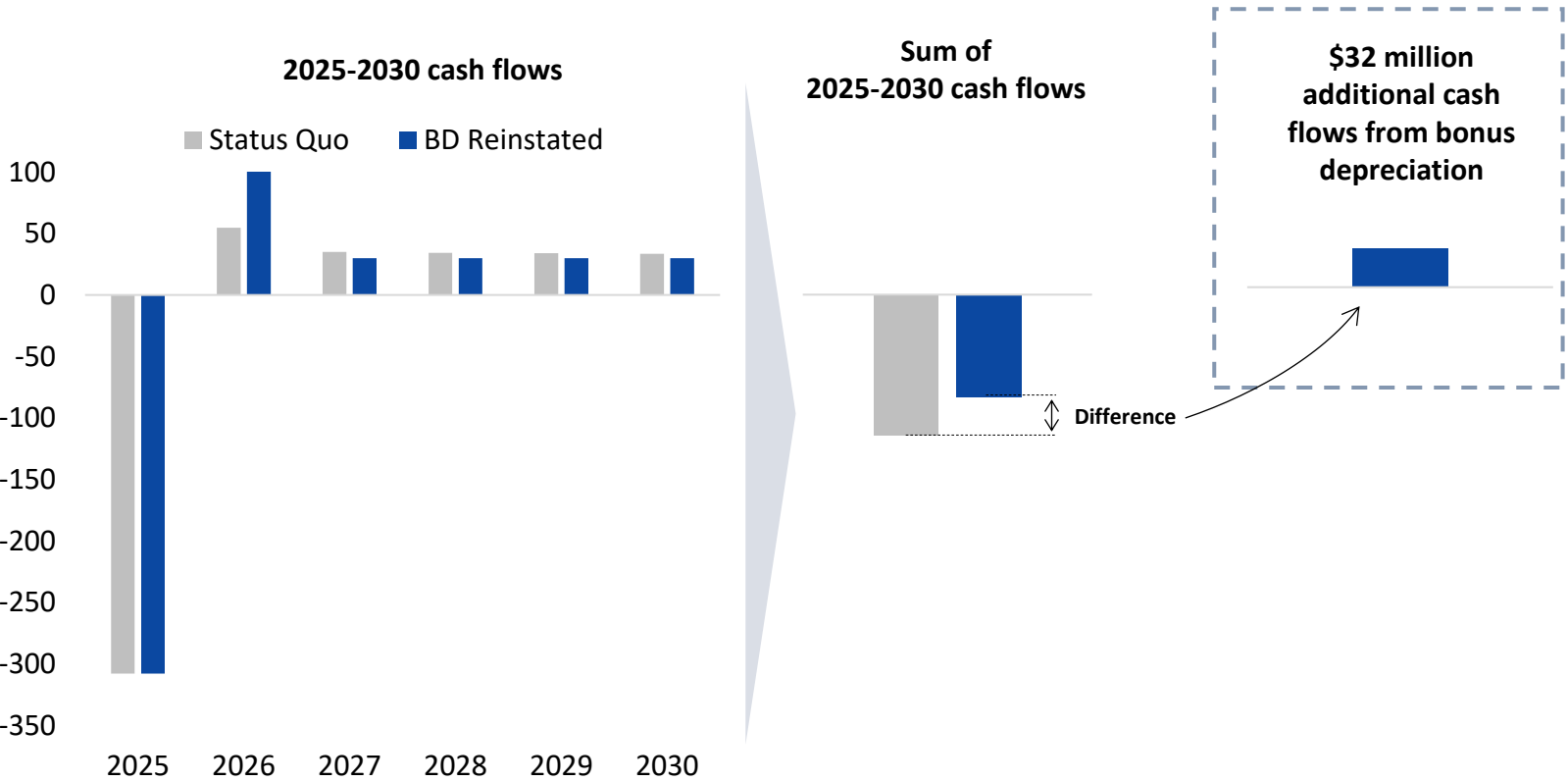
4 Pipeline capital expenditure forecast

**5 Bonus depreciation impact on cash flows**

# We model cash flows of future pipelines under two bonus depreciation scenarios

## Example pipeline cash flow comparison: status quo vs. BD reinstated<sup>1</sup>

Million USD, real 2024



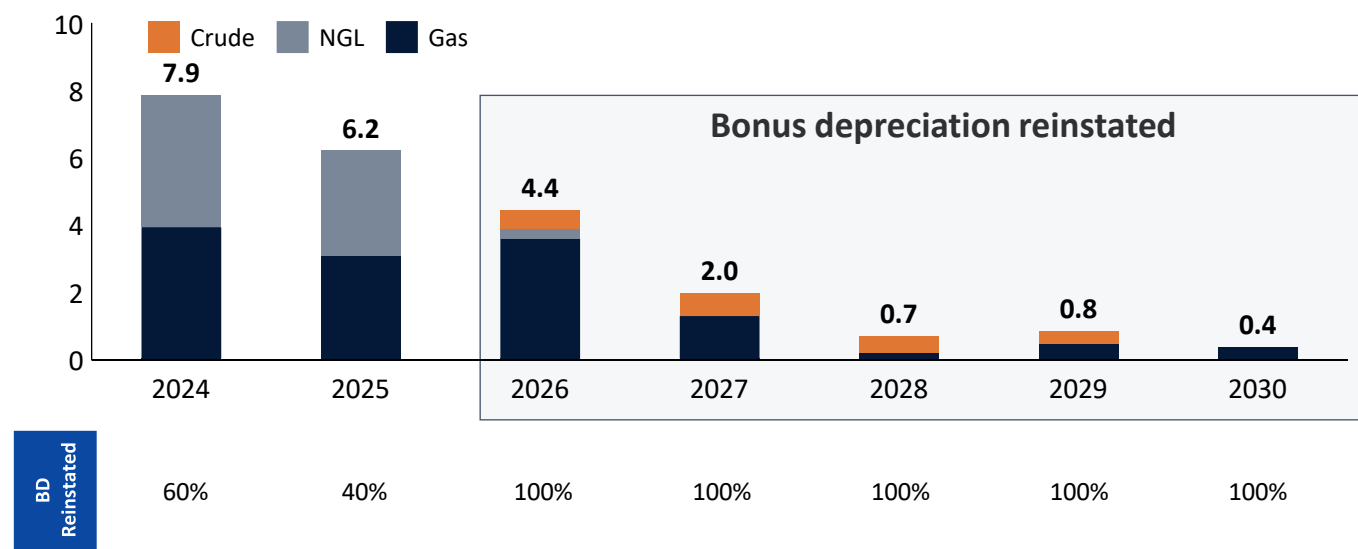
- The “Status Quo” scenario represents the schedule for bonus depreciation if no new policy is enacted
- The “BD reinstated” scenario assumes bonus depreciation is reinstated for projects starting operations in 2026, and allows 100% bonus depreciation through 2030
- Project cash flows are modelled under each scenario for each future pipeline project
- The difference in cashflows is cash that can be used to invest in additional pipeline projects, fund operations, or for shareholder returns
- Cash flow models assume that the project developer is able to take advantage of 100% bonus depreciation by reducing taxable income

1: Assuming one year construction period.  
Source: Rystad Energy research and analysis

# Reinstating bonus depreciation could generate \$1.6 billion in free cash flow based on 2026-2030 pipeline capex

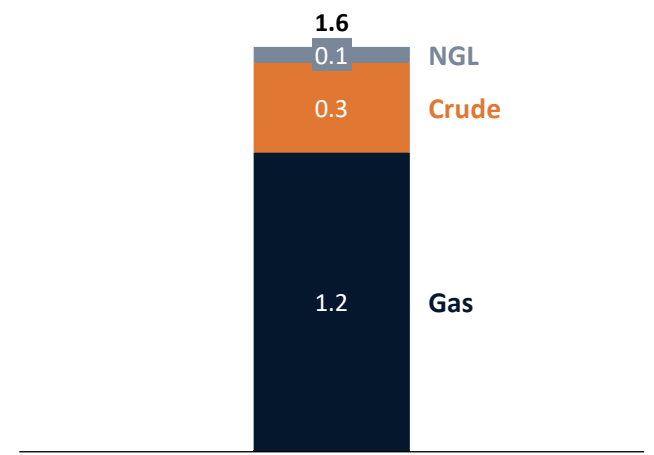
We forecast 8 billion of pipeline capex from 2026-2030 that would benefit from reinstated bonus depreciation

**US pipeline capex, 2024-2030<sup>1</sup>**  
Billion USD, real 2024



If bonus depreciation is reinstated in 2026, it could generate \$1.6 billion in free cash flow

**2026-2030 Additional free cash flow from reinstated BD**  
Billion USD, real 2024



- Capex is mainly driven by gas supply in the Permian and Haynesville regions. Gas supply growth is supported by the buildout of LNG terminals and by load growth, such as data centers.
- LNG headers account for a large portion of gas pipeline capex, but will not be impacted by Bonus Depreciation policies as they are regulated by FERC, and are thus excluded

- ~\$1.6 Bn represents the 2026–2030 cumulative free cash flow benefit from accelerated tax savings under the BD reinstated scenario compared to the Status Quo

1: Excludes FERC-regulated gas pipelines  
Source: Rystad Energy research and analysis

# If reinvested, these cash flows could support 600 to 800 miles of new, large-diameter pipelines or 1,400+ miles of smaller diameter pipelines

## Mileage of pipelines that could be built with \$1.6 billion of accelerated cash flows depends on diameter and other parameters

- **Diameter:** Larger diameter pipelines require more expensive materials, higher-spec equipment and additional labor, increasing costs.
- **Terrain:** Challenging terrains (e.g., mountains, swamps) require specialized engineering, which can significantly raise construction expenses.
- **Pump and compression capacity:** Higher capacity pipelines require more horsepower.

### Sensitivity: mileage<sup>1</sup> of pipeline supported accelerated cash flows, depending on diameter

	Diameter Range (in)	Miles <sup>1</sup>
Liquids	14-16	1,424
	20-22	1,149
	30-32	849
	36-38	731
	42-44	643
Gas	16-18	1,310
	24-26	994
	36-38	721
	42-44	643

Since larger diameter pipelines are more expensive, bonus depreciation would support fewer miles of large diameter than small diameter pipelines

## Benefits of new pipelines include enabling supply growth, reducing in-basin flaring, and supporting construction jobs

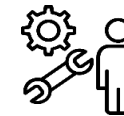
### Benefits of new pipelines



**Enabling supply growth:** Additional pipeline can enable supply growth in regions that are takeaway constrained

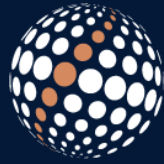


**Reducing in-basin flaring:** Natural gas flaring in the Permian and Bakken has at times been driven by a shortage of gas pipeline capacity; additional capacity can reduce flaring



**Adding construction jobs:** Pipeline construction is labor intensive and has direct and indirect job impacts on the economy

1: Cost per mile is based on Rystad's Pipeline Cost Estimating Model, assuming typically observed pipeline lengths and different terrains; Assuming 40% equity, 60% debt  
Source: Rystad Energy Onshore Pipeline Cost Estimating Model; Rystad research and analysis



# RystadEnergy

Navigating the future of **energy**

Rystad Energy is an independent energy consulting services and business intelligence data firm offering global databases, strategic advisory and research products for energy companies and suppliers, investors, investment banks, organizations, and governments.

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