Break On Thru to the Other Side
Permian Crude Oil, Natural Gas and NGL Pipelines Coming Online

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Permian Oil, Gas and NGL Production

- Permian Crude Oil Production
- Permian Dry Gas Production
- Permian NGL Production From Gas Processing
Permian vs. U.S. Crude Oil, Natural Gas Prices

Crude Oil
- WTI Cushing
- WTI Midland

Natural Gas
- Henry Hub
- Waha

Gas Break Even
- $65/bbl
- $55/bbl
- $45/bbl

Source: CME/NYMEX, RBN Energy LLC

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Permian Gas Production, Flaring, Curtailments

2019 YTD Production

- Flared
- Curtained
- Flowing Gas

Source: Production: RBN, Flaring, TRRC
Permian Natural Gas Takeaway Capacity

Permian gas now flowing into Gulf Coast Express

Waha Hub Daily Average Price

- Cash Waha
- Forward Curve

* ET Fuel, Atmos, Oasis, Enterprise, Kinder

** Roadrunner, Comanche Trail, Trans-Pecos
Permian Production Forecast – Crude/Gas/NGLs

- **Crude**
  - History
  - Base Forecast
  - Low
  - High

- **Dry Gas**
  - Shrink
  - Base Shrink
  - Base

- **NGLs**
  - Shrink
  - Base Shrink
  - Base
Permian Crude Oil Pipeline Projects

- EPIC - EPIC Crude
  (NGL conversion temp. service
  400 Mb/d Q3 2019) 600 Mb/d Q1 2020 (expandable to 900)

- Plains/Exxon/Lotus/MPLX-Wink-to-Webster
  1 MMb/d 1H 2021 (expandable to 1.5 MMb/d)

- Plains-Cactus II
  585 Mb/d Q3-2019 (expandable to 670)

- Energy Transfer – Permian Express IV
  120 Mb/d – 3Q19

- Enterprise - Midland to Echo III
  1MMb/d – 1H21

- P66/Enbridge- Gray Oak
  900 Mb/d Q4-2019

- + 4.2 MMb/d (2019-2021)

- Enterprise – Midland to Echo III

- Midland, TX

- Nederland, TX

- Houston, TX

- Corpus Christi, TX
Permian Basin – Crude Pipeline Utilization

- Midland to Echo III
- Wink to Webster
- Gray Oak
- Permian Express IV
- EPIC
- Cactus II
- Production History
- Base Case
- High Case
Permian Natural Gas Pipeline Projects

- Kinder/EagleClaw/Others Permian Highway Pipeline 4Q-2020 2.1 Bcf/d
- WhiteWater/MPLX/Stonepeak-West Texas Gas Whistler Pipeline 3Q-2021, 2.0 Bcf/d
- NAmérico Pecos Trail Pipeline 1H-2021, 2.0 Bcf/d
- Kinder/D引发了/Altus Gulf Coast Express 2H-2019, 1.98 Bcf/d
- Williams Blue Bonnet Express 2020 2.0 Bcf/d
- Boardwalk Permian-Katy (P2K) TBD, 1.5–2.0 Bcf/d
- Kinder Morgan Permian Pass TBD, 2.0 Bcf/d
- Tellurian Permian Global Access Pipeline (PGAP) 2H-2022 2.0 Bcf/d
- NAmerico Pecos Trail Pipeline 1H-2021, 2.0 Bcf/d
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Project has reached Final Investment Decision (FID)
Permian NGL Pipeline Projects

- **Enterprise-Shin Oak**
  - 250 Mb/d Q1-2019
  - +300 550 Mb/d Q4-2019

- **Targa-Grand Prix**
  - 300 Mb/d Q3-2019

- **EPIC-EPIC NGL**
  - 440 Mb/d Q2 2020

- **Oneok-West TX LPG**
  - +80 475 Mb/d Q2-2020
  - +40 515 Mb/d Q1-2021

- **Permico-Campaneros**
  - 330 Mb/d Q4-2020

- **MPLX-BANGL**
  - 300 Mb/d 2021

- **EPIC-EPIC NGL**
  - 440 Mb/d Q2 2020

- **DCP- Sand Hills**
  - +75 500 Mb/d Q4-2018

- **Mont Belvieu, TX**
- **Sweeny**
- **Corpus Christi, TX**

- **New Mexico**
- **Texas**

- **All or partially in service**
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