STREAMLINE
Pipeline Planner

Executive prefeasibility report

Natural gas pipeline — 800 MMCFD · 250.9 km

Pipeline Texas

Version: V1

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3 diameters analyzed in detail

This document examines the selected diameters in depth: hydraulic profile, compression stations, itemized CAPEX/OPEX, and year-by-year levelized tariff detail.

Project summary

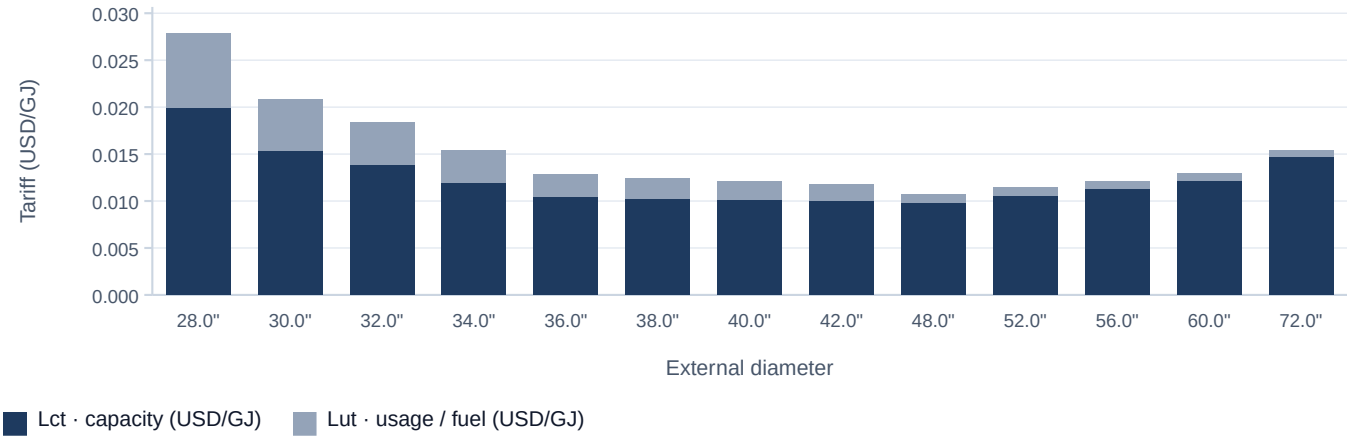
FLOW	RECEIVING PRESSURE	DELIVERY PRESSURE	MAOP
800 MMCFD	**450 psig**	**670 psig**	**800 psig**
DESIGN PRESSURE	MAOV	GAS SPECIFIC GRAVITY	LENGTH
800 psig	**53.2 ft/s**	**0.600**	**250.9 km**
ROUTE POINTS	MIN. ELEVATION	MAX. ELEVATION	NET ELEVATION GAIN
10	**760 m**	**1150 m**	**280 m**

Comparison of selected diameters

Diam.	W.T. (in)	Inlet P. w/o comp. (psig)	Max vel. (ft/s)	# Sta.	Mech. HP	Total HP	Fuel (MM-CFD)	Line-pack (MMscf)	Tariff (USD/GJ)
36.00"	0.344	1066	27.7	2	63909	152232	9.916	237.64	0.0129
42.00"	0.375	880	20.3	2	44802	106719	6.951	302.28	0.0118
48.00"	0.438	790	15.5	1	24821	59125	3.851	490.16	0.0108

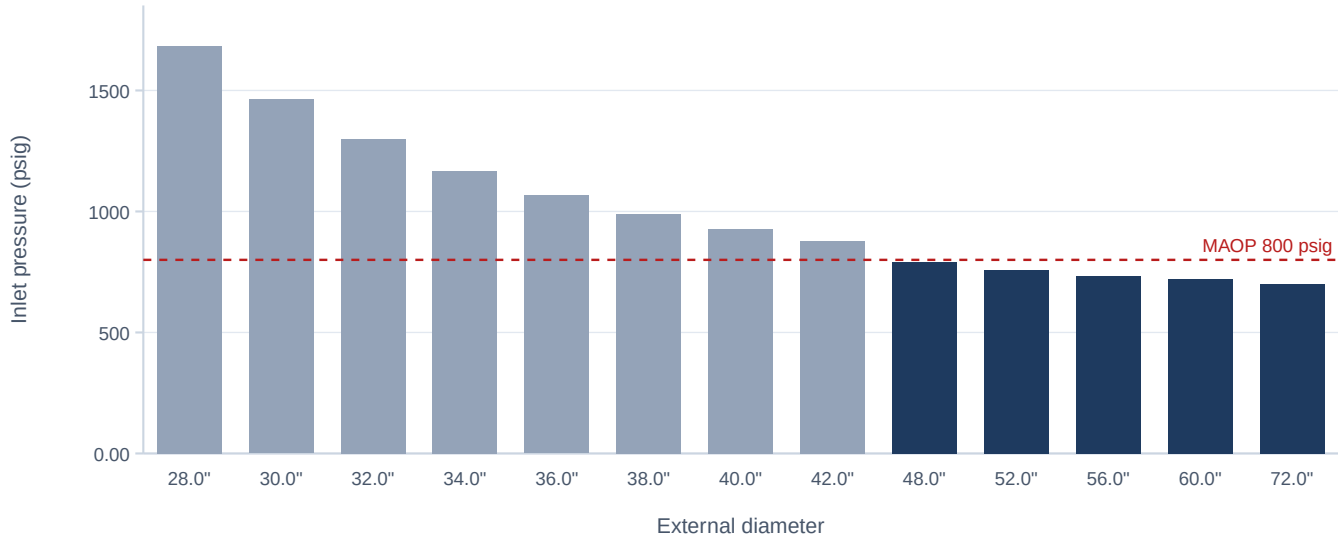
Levelized tariff by diameter

For each viable diameter, the levelized tariff stacked into its components: Lct (capacity — CAPEX amortization + fixed OPEX) at the bottom and Lut (usage — fuel) at the top. The total is the client tariff in USD/GJ.



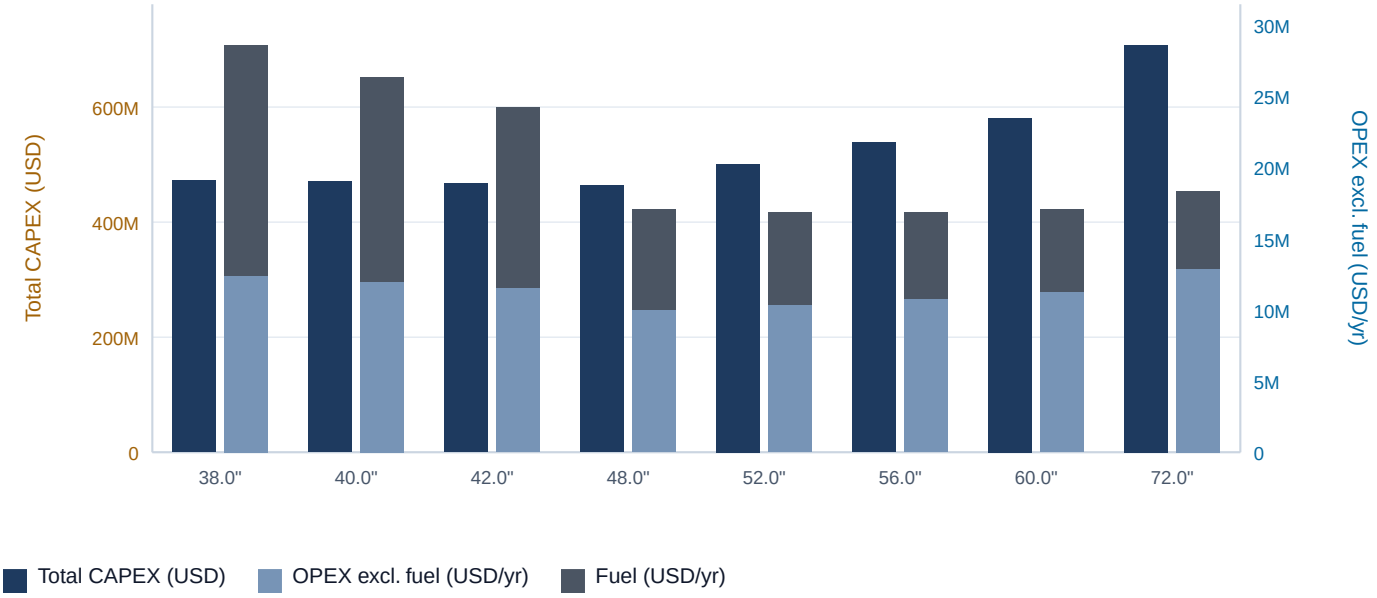
Required inlet pressure without intermediate compression

For each technically viable diameter (velocity < MAOV), bar showing the inlet pressure that would be required if NO intermediate compression were present, compared against MAOP. Bars crossing the MAOP line require intermediate compression.



CAPEX and OPEX by diameter

For each viable diameter: a CAPEX bar (USD, left axis) and a stacked OPEX bar (USD/yr, right axis) with non-fuel OPEX at the bottom and fuel at the top. The two axes are independent.



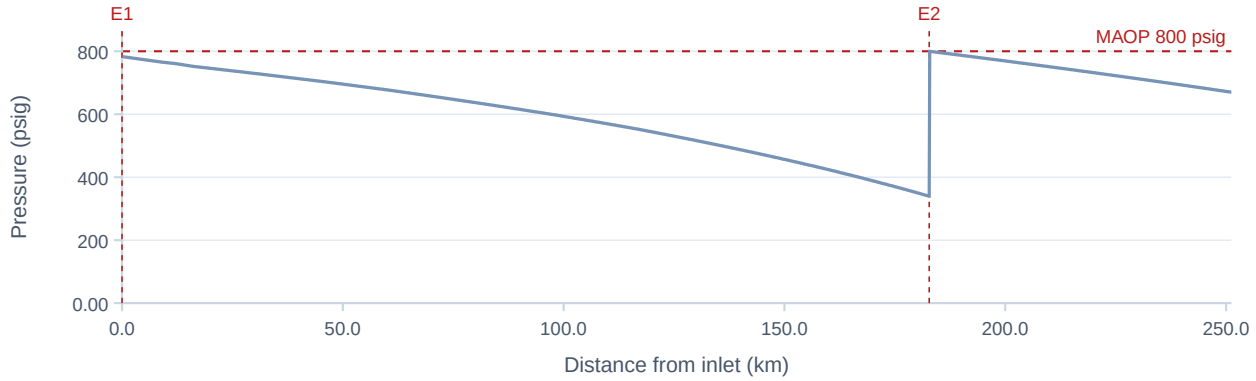
Diameter 36.00"

Wall thickness per Barlow: 0.344" · Length 251.2 km · MAOP reference 800 psig · base pressure 14.73 psia

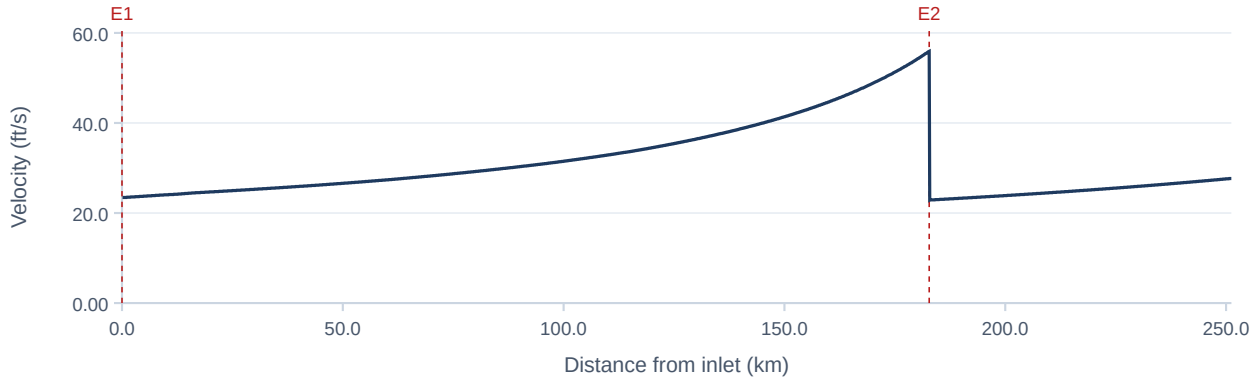
Key indicators

INLET P. W/O COMP.	MAX. GAS VELOCITY	COMPRESSION STATIONS	TOTAL MECH. HP
1066 psig	**27.7 ft/s**	**2**	**63909**
TOTAL INSTALLED HP	TOTAL FUEL	LINE-PACK	TOTAL TARIFF
152232	**9.916 MMCFD**	**237.64 MMscf**	**0.0129 USD/GJ**

Pressure profile (with intermediate compression)



Velocity profile



Diameter 36.00" — compression stations

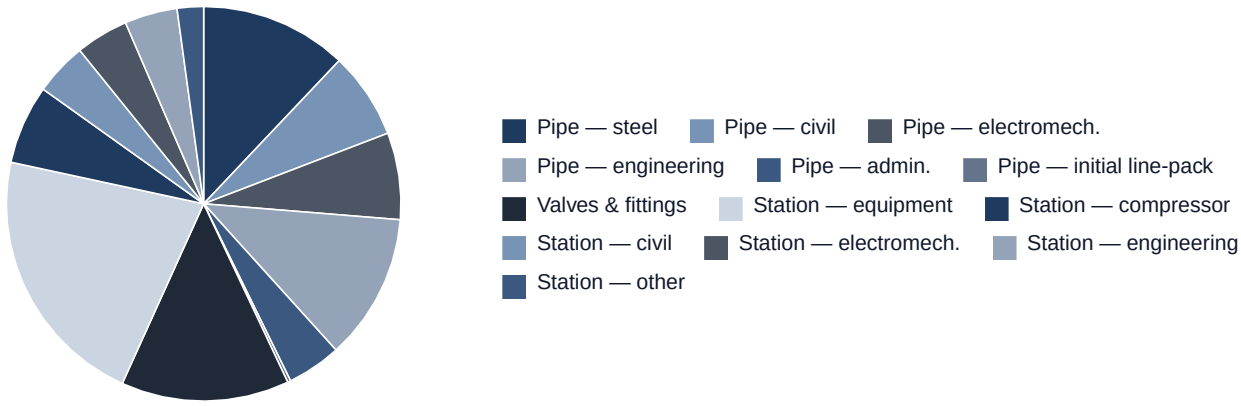
#	Km	Pin (psig)	Pout (psig)	Ratio	HP mec.	HP total	Fuel (MMCFD)
E1 (hdr)	0.00	450	783	1.72	24394	58106	3.785
E2	182.78	340	800	2.30	39516	94127	6.131
Total					63909	152232	9.916

Diameter 36.00" — CAPEX

Itemized CAPEX (USD)

Component	USD	%
Pipe — steel	57.35 M	12.1
Pipe — civil	33.82 M	7.1
Pipe — electromech.	33.82 M	7.1
Pipe — engineering	57.06 M	12.0
Pipe — admin.	21.13 M	4.4
Pipe — initial line-pack	1.19 M	0.2
Valves & fittings	65.52 M	13.8
Station — equipment	102.76 M	21.6
Station — compressor	30.83 M	6.5
Station — civil	20.55 M	4.3
Station — electromech.	20.55 M	4.3
Station — engineering	20.55 M	4.3
Station — other	10.28 M	2.2
Total	475.40 M	100.0

CAPEX distribution

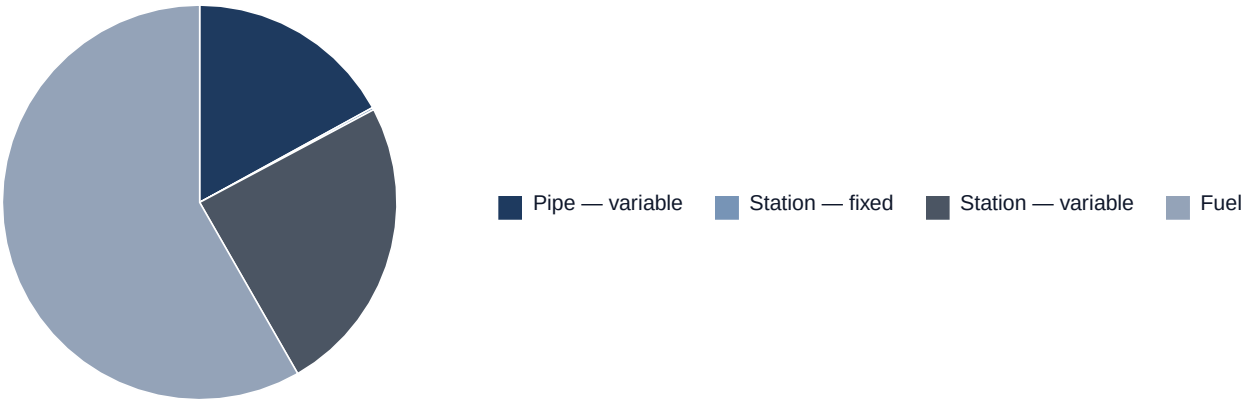


Diameter 36.00" — OPEX and tariff

Itemized OPEX (USD/yr)

Component	USD	%
Pipe — variable	5.28 M	17.0
Station — fixed	60.0 K	0.2
Station — variable	7.61 M	24.5
Fuel	18.10 M	58.3
Total	31.05 M	100.0

OPEX distribution



Financial parameters

CALORIFIC VALUE
1000 Btu/scf

REFERENCE FLOW
100 MMCFD

PROJECT LIFE
25 years

CONSTRUCTION
1 years

DEPRECIATION
15 years

USAGE FACTOR
90.0%

DISCOUNT RATE
12.0%

EQUITY COST
15.0%

LEVERAGE
60.0%

DEBT COST
7.0%

INCOME TAX
30.0%

WORKING CAPITAL
10.0%

Levelized result

LCT (CAPACITY)
0.0104 USD/GJ

LUT (USAGE)
0.0024 USD/GJ

TOTAL
0.0129 USD/GJ

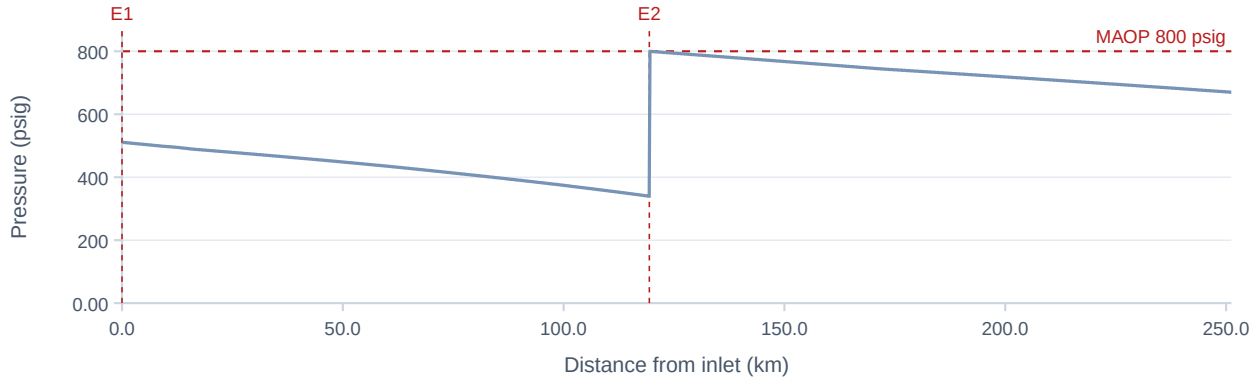
Diameter 42.00"

Wall thickness per Barlow: 0.375" · Length 251.2 km · MAOP reference 800 psig · base pressure 14.73 psia

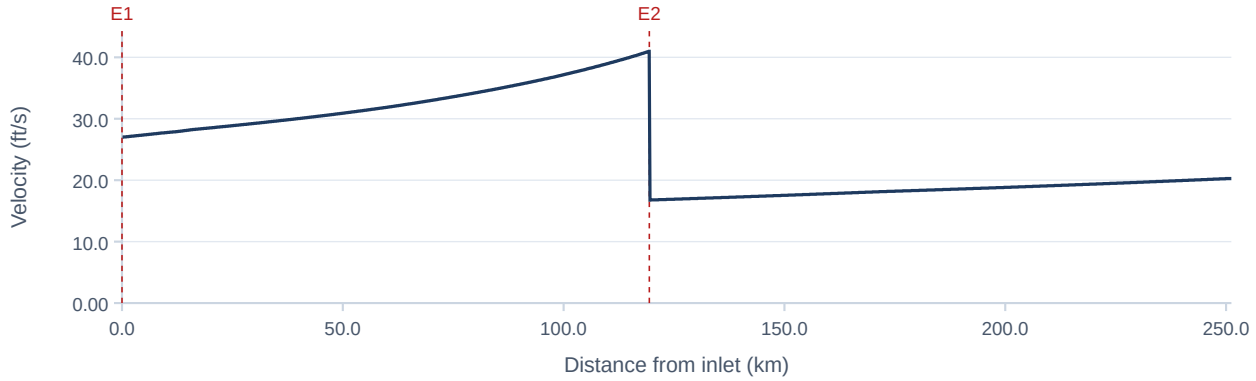
Key indicators

INLET P. W/O COMP.	MAX. GAS VELOCITY	COMPRESSION STATIONS	TOTAL MECH. HP
880 psig	**20.3 ft/s**	**2**	**44802**
TOTAL INSTALLED HP	TOTAL FUEL	LINE-PACK	TOTAL TARIFF
106719	**6.951 MMCFD**	**302.28 MMscf**	**0.0118 USD/GJ**

Pressure profile (with intermediate compression)



Velocity profile



Diameter 42.00" — compression stations

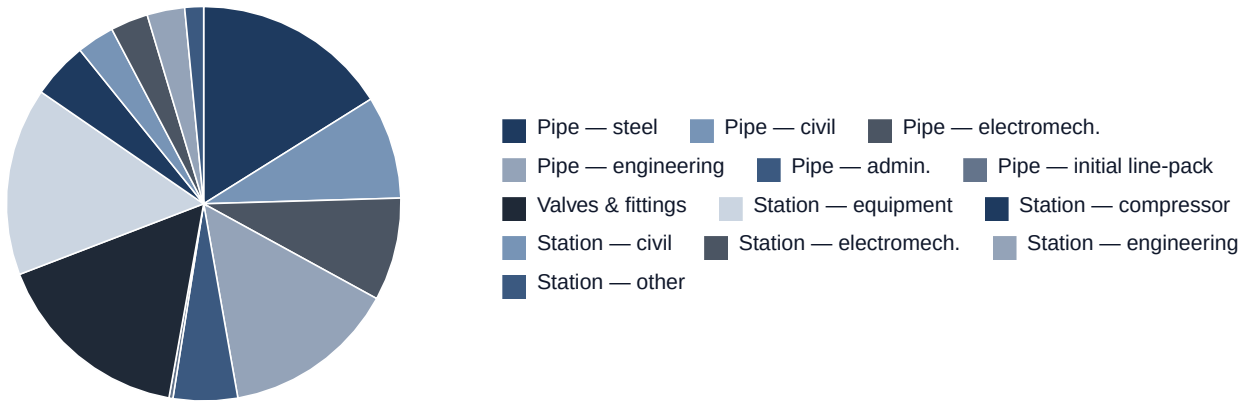
#	Km	Pin (psig)	Pout (psig)	Ratio	HP mec.	HP total	Fuel (MMCFD)
E1 (hdr)	0.00	450	511	1.13	5293	12607	0.821
E2	119.41	340	800	2.30	39510	94113	6.130
Total					44802	106719	6.951

Diameter 42.00" — CAPEX

Itemized CAPEX (USD)

Component	USD	%
Pipe — steel	75.23 M	16.1
Pipe — civil	39.45 M	8.4
Pipe — electromech.	39.45 M	8.4
Pipe — engineering	66.57 M	14.2
Pipe — admin.	24.66 M	5.3
Pipe — initial line-pack	1.51 M	0.3
Valves & fittings	76.44 M	16.4
Station — equipment	72.04 M	15.4
Station — compressor	21.61 M	4.6
Station — civil	14.41 M	3.1
Station — electromech.	14.41 M	3.1
Station — engineering	14.41 M	3.1
Station — other	7.20 M	1.5
Total	467.38 M	100.0

CAPEX distribution

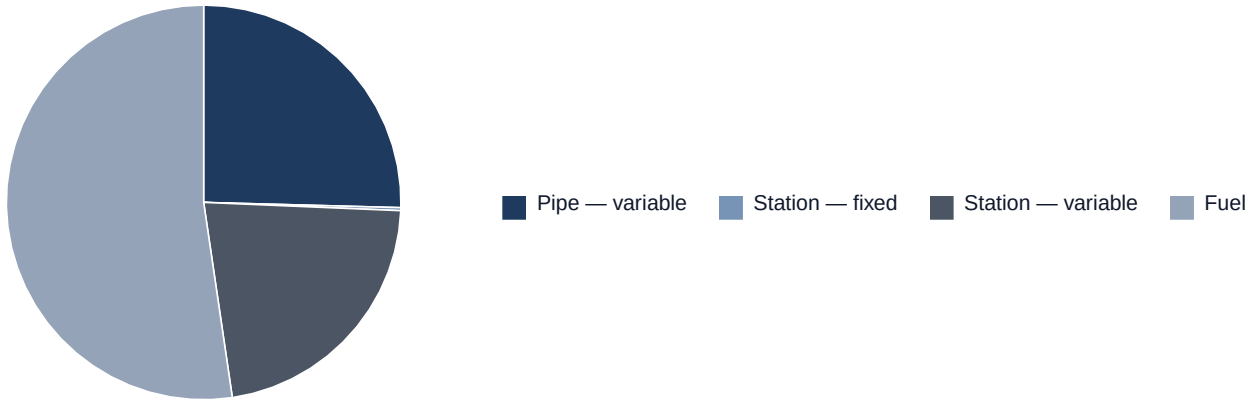


Diameter 42.00" — OPEX and tariff

Itemized OPEX (USD/yr)

Component	USD	%
Pipe — variable	6.16 M	25.4
Station — fixed	60.0 K	0.2
Station — variable	5.34 M	22.0
Fuel	12.69 M	52.3
Total	24.25 M	100.0

OPEX distribution



Financial parameters

CALORIFIC VALUE
1000 Btu/scf

REFERENCE FLOW
100 MMCFD

PROJECT LIFE
25 years

CONSTRUCTION
1 years

DEPRECIATION
15 years

USAGE FACTOR
90.0%

DISCOUNT RATE
12.0%

EQUITY COST
15.0%

LEVERAGE
60.0%

DEBT COST
7.0%

INCOME TAX
30.0%

WORKING CAPITAL
10.0%

Levelized result

LCT (CAPACITY)
0.0101 USD/GJ

LUT (USAGE)
0.0017 USD/GJ

TOTAL
0.0118 USD/GJ

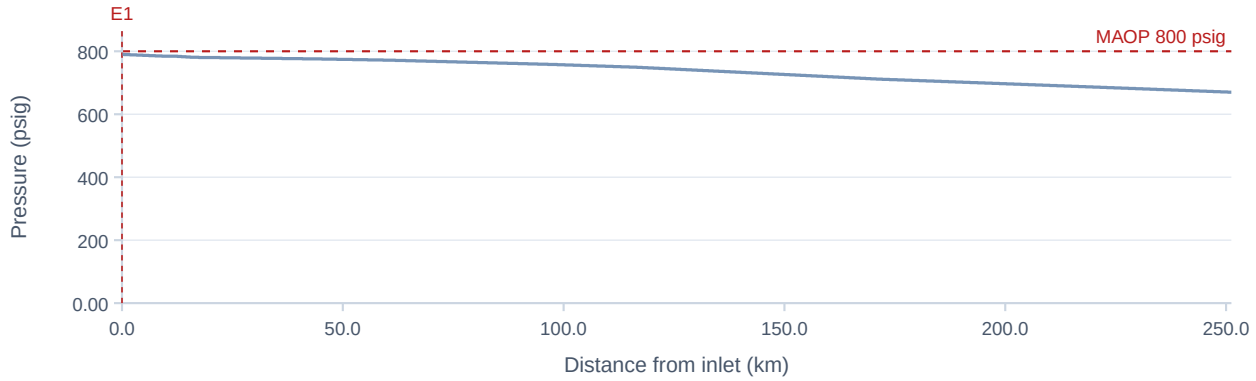
Diameter 48.00"

Wall thickness per Barlow: 0.438" · Length 251.2 km · MAOP reference 800 psig · base pressure 14.73 psia

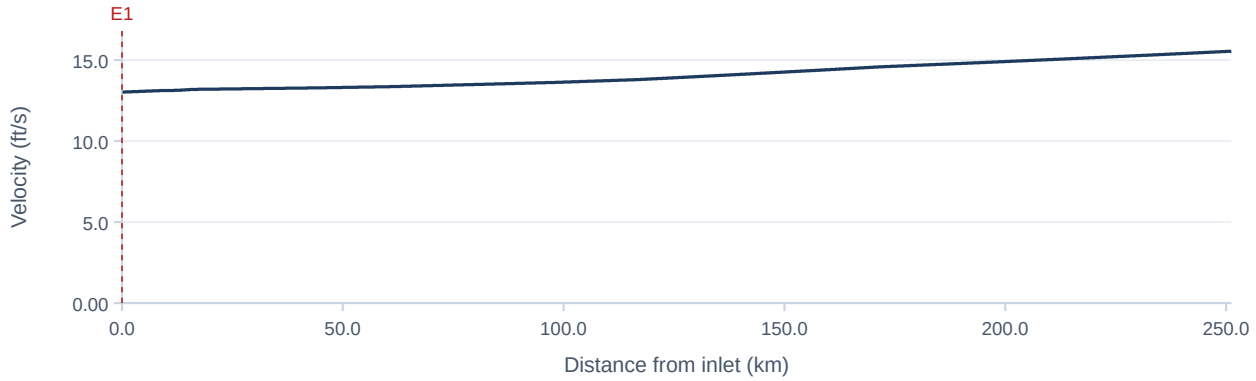
Key indicators

INLET P. W/O COMP.	MAX. GAS VELOCITY	COMPRESSION STATIONS	TOTAL MECH. HP
790 psig	**15.5 ft/s**	**1**	**24821**
TOTAL INSTALLED HP	TOTAL FUEL	LINE-PACK	TOTAL TARIFF
59125	**3.851 MMCFD**	**490.16 MMscf**	**0.0108 USD/GJ**

Pressure profile (with intermediate compression)



Velocity profile



Diameter 48.00" — compression stations

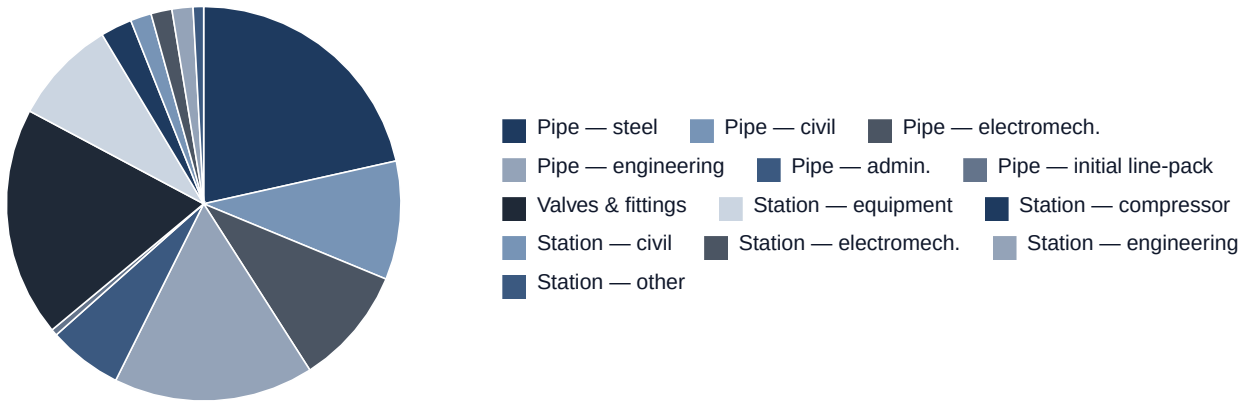
#	Km	Pin (psig)	Pout (psig)	Ratio	HP mec.	HP total	Fuel (MMCFD)
E1 (hdr)	0.00	450	790	1.73	24821	59125	3.851
Total					24821	59125	3.851

Diameter 48.00" — CAPEX

Itemized CAPEX (USD)

Component	USD	%
Pipe — steel	99.79 M	21.5
Pipe — civil	45.09 M	9.7
Pipe — electromech.	45.09 M	9.7
Pipe — engineering	76.09 M	16.4
Pipe — admin.	28.18 M	6.1
Pipe — initial line-pack	2.45 M	0.5
Valves & fittings	87.36 M	18.8
Station — equipment	39.91 M	8.6
Station — compressor	11.97 M	2.6
Station — civil	7.98 M	1.7
Station — electromech.	7.98 M	1.7
Station — engineering	7.98 M	1.7
Station — other	3.99 M	0.9
Total	463.85 M	100.0

CAPEX distribution

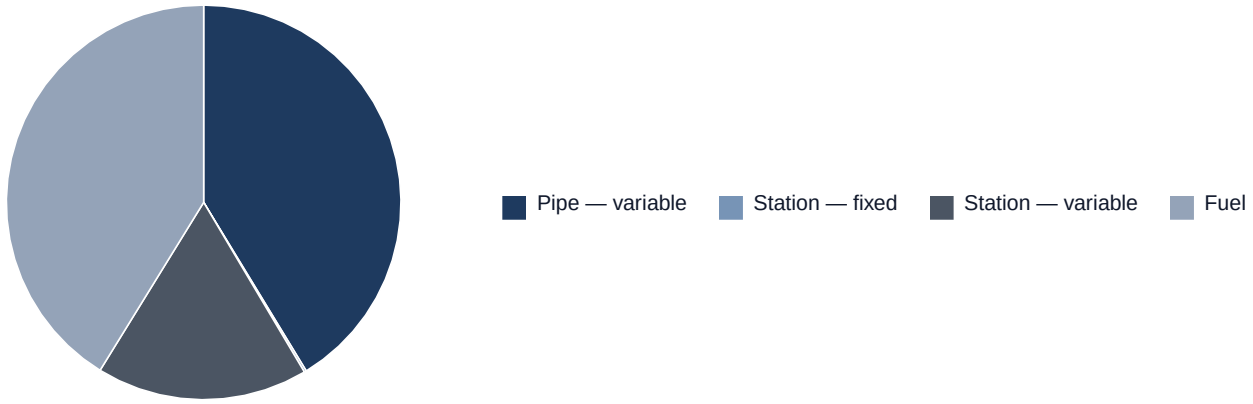


Diameter 48.00" — OPEX and tariff

Itemized OPEX (USD/yr)

Component	USD	%
Pipe — variable	7.04 M	41.3
Station — fixed	30.0 K	0.2
Station — variable	2.96 M	17.3
Fuel	7.03 M	41.2
Total	17.06 M	100.0

OPEX distribution



Financial parameters

CALORIFIC VALUE
1000 Btu/scf

REFERENCE FLOW
100 MMCFD

PROJECT LIFE
25 years

CONSTRUCTION
1 years

DEPRECIATION
15 years

USAGE FACTOR
90.0%

DISCOUNT RATE
12.0%

EQUITY COST
15.0%

LEVERAGE
60.0%

DEBT COST
7.0%

INCOME TAX
30.0%

WORKING CAPITAL
10.0%

Levelized result

LCT (CAPACITY)
0.0098 USD/GJ

LUT (USAGE)
0.0009 USD/GJ

TOTAL
0.0108 USD/GJ

Use and liability notice

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