An Explorer's View of Gas Pipeline Issues

Alaska Division of Oil & Gas
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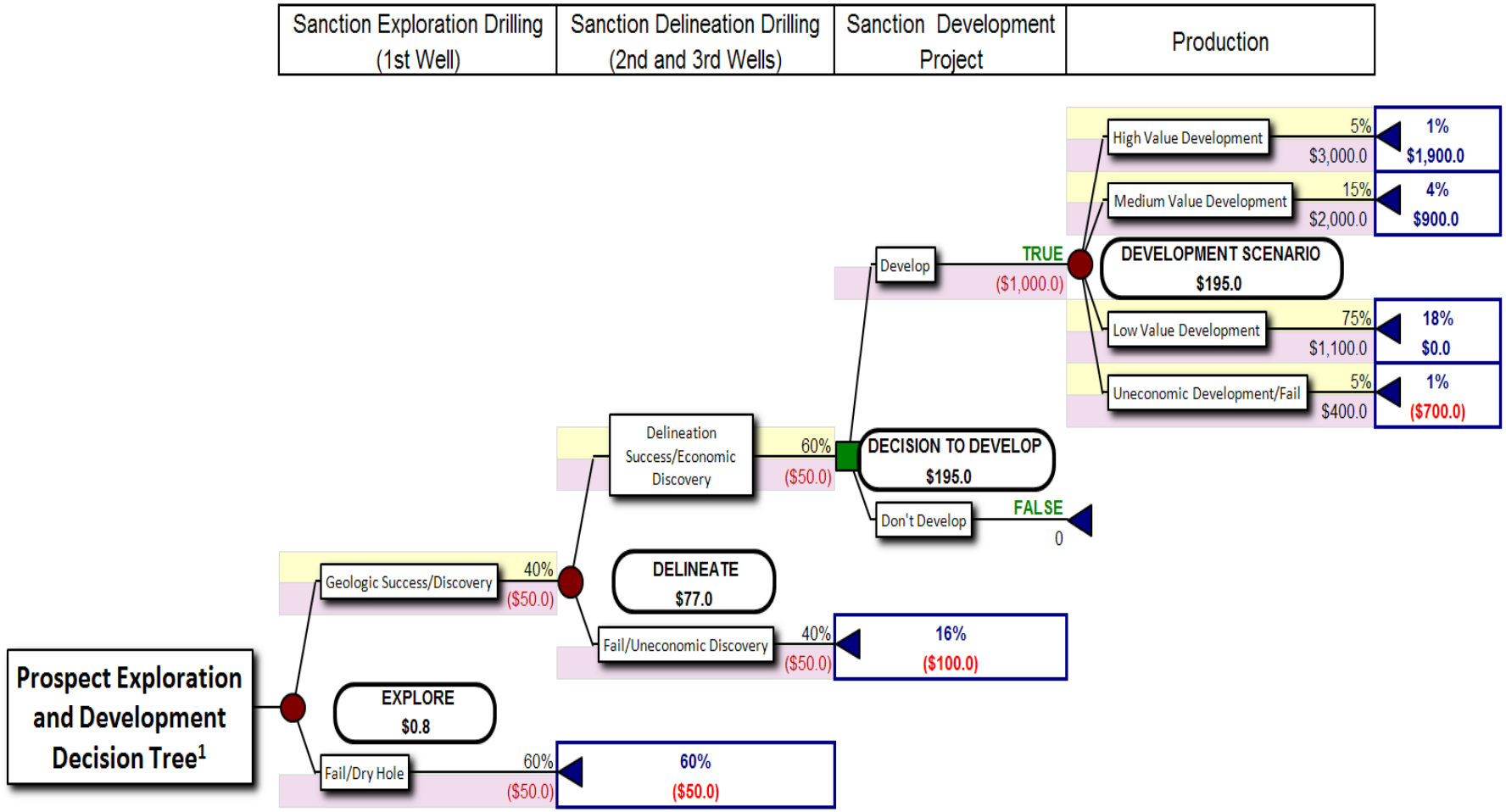
Alaska Department of
Natural
Resources

http://www.dog.dnr.state.ak.us/oil/

Explorer's Decision Tree



[1] Assumes land position already established and prospect is identified and ready to drill.

Key Lessons From the Model

- Exploration is risky: big chance of big spend but no payoff
- Need big payoff from the success leg to pay for the large probability of failure
- If payoff from the success leg isn't sufficiently large, initial exploration never occurs

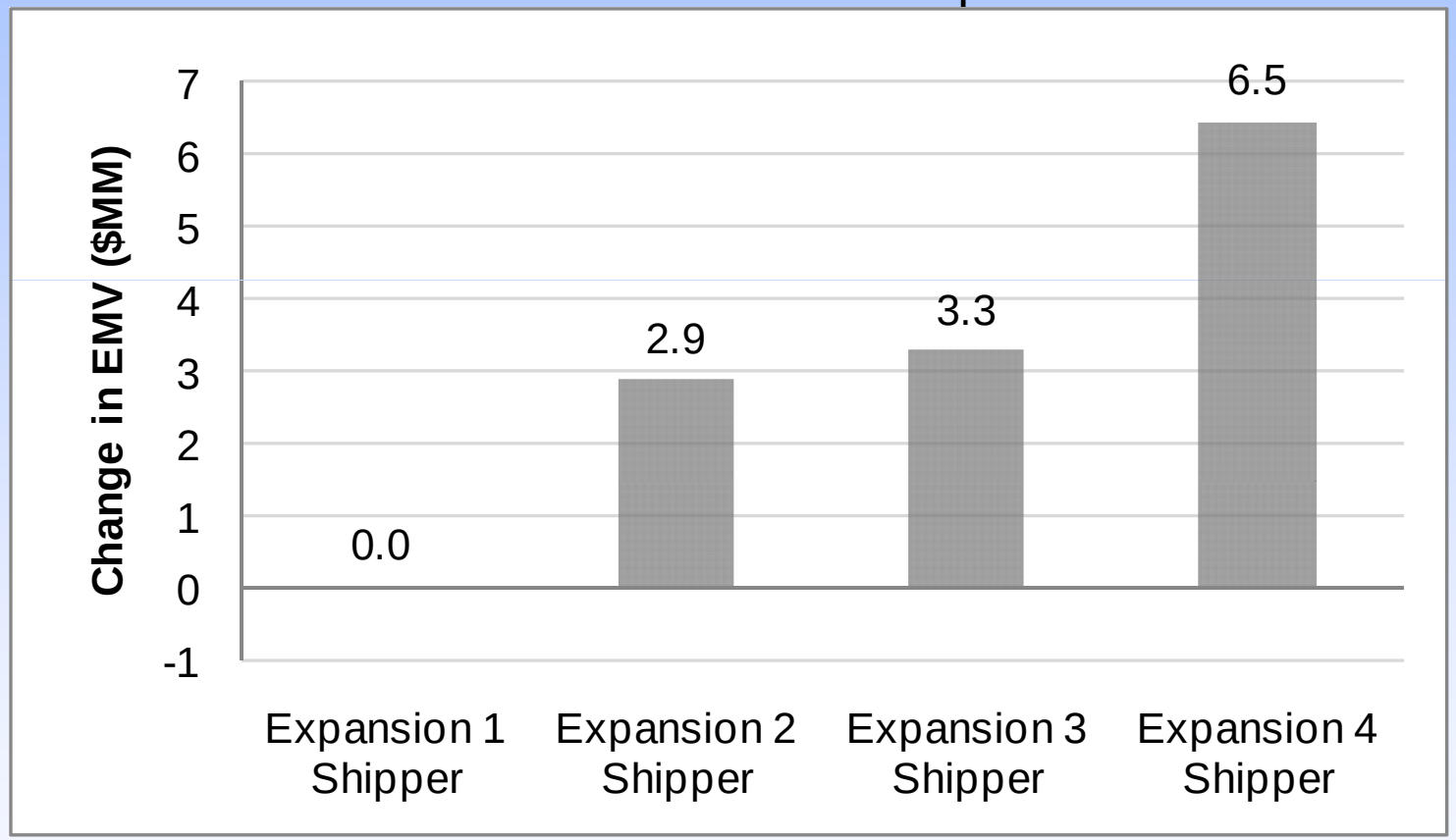
How AGIA Boosts the Success Leg Payoff

- Lower base tariffs (75/25 debt/equity ratio) increase netbacks
- Lower tariffs through Rolled-in rates also increase netbacks
- Expeditious and predictable timeline, from first spend to first gas, raises *discounted* value of eventual gas sales

Tariff Provisions

Effect of Rolled-in vs. Incremental

EMV Benefits of AGIA versus FERC Open-Season Rules*



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect; 75/25 D/E capital structure for base tariffs, 60/40 for expansions; $8.00 AECO gas price, flat, real

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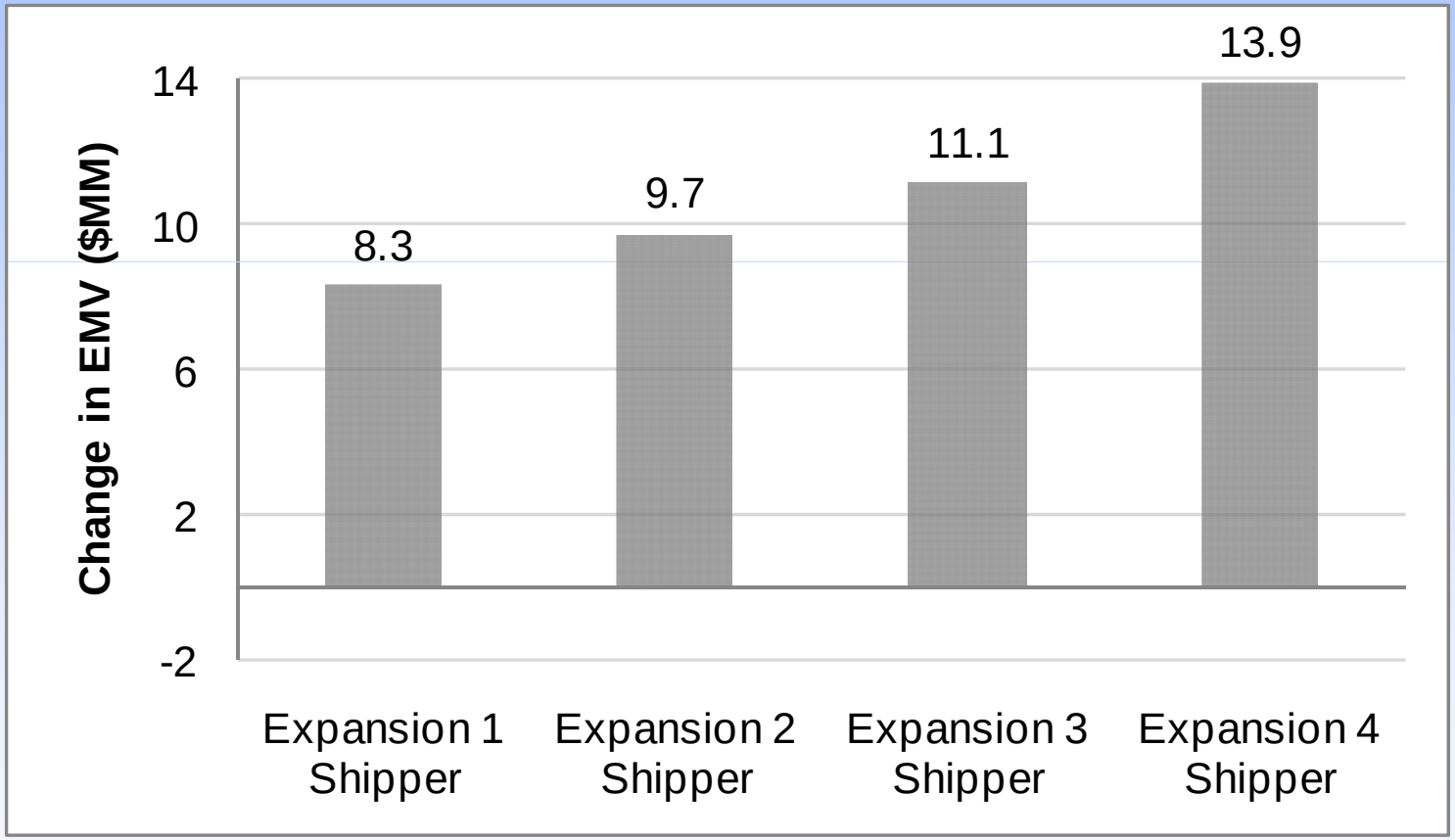
Tariff Provisions

Effect of Rolled-in, 75/25 D/E vs. Incremental, 50/50 D/E

EMV Benefits of AGIA versus FERC Open-Season Rules*



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect; $8.00 AECO gas price, flat, real

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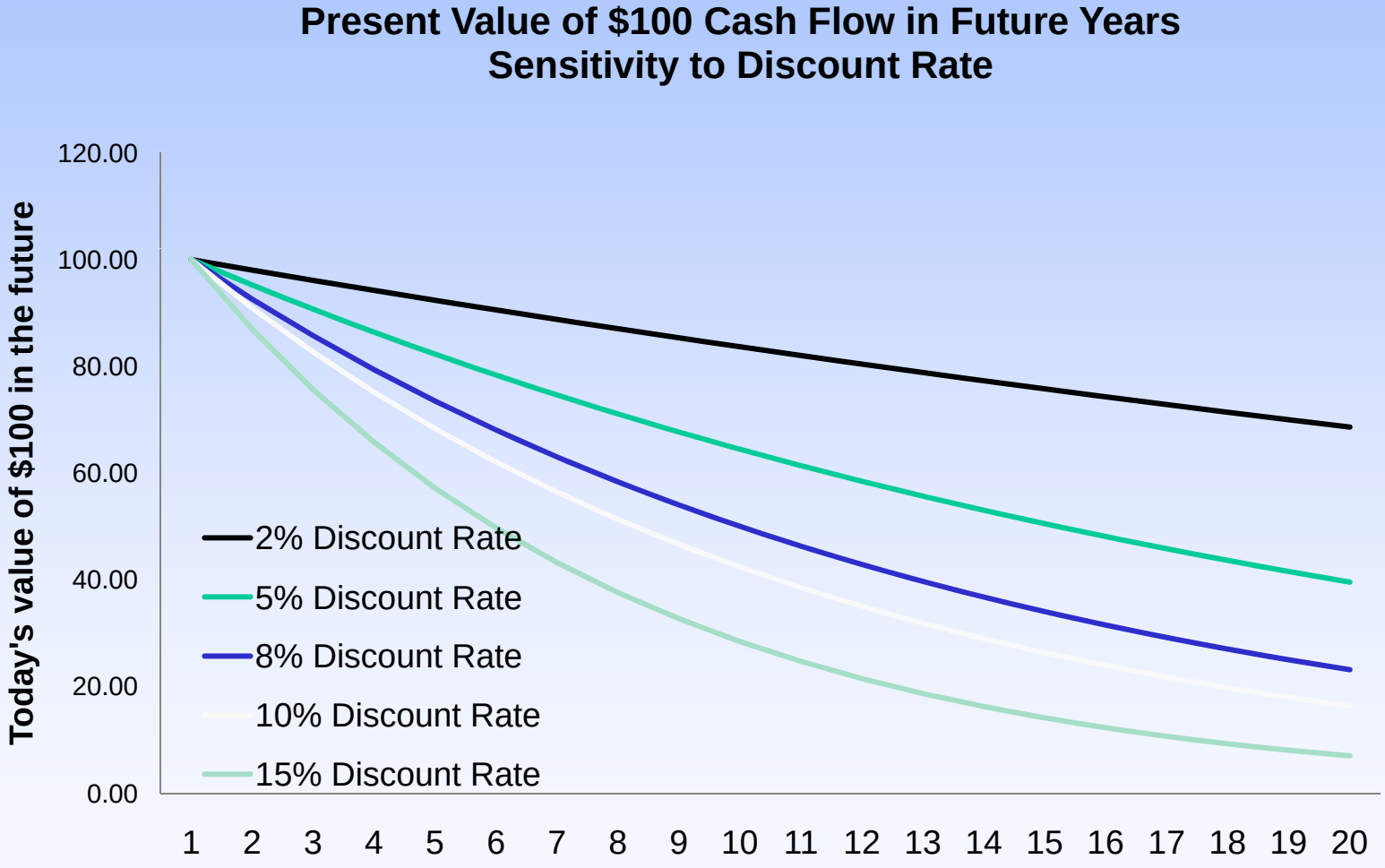
Critical Results on Access Delays

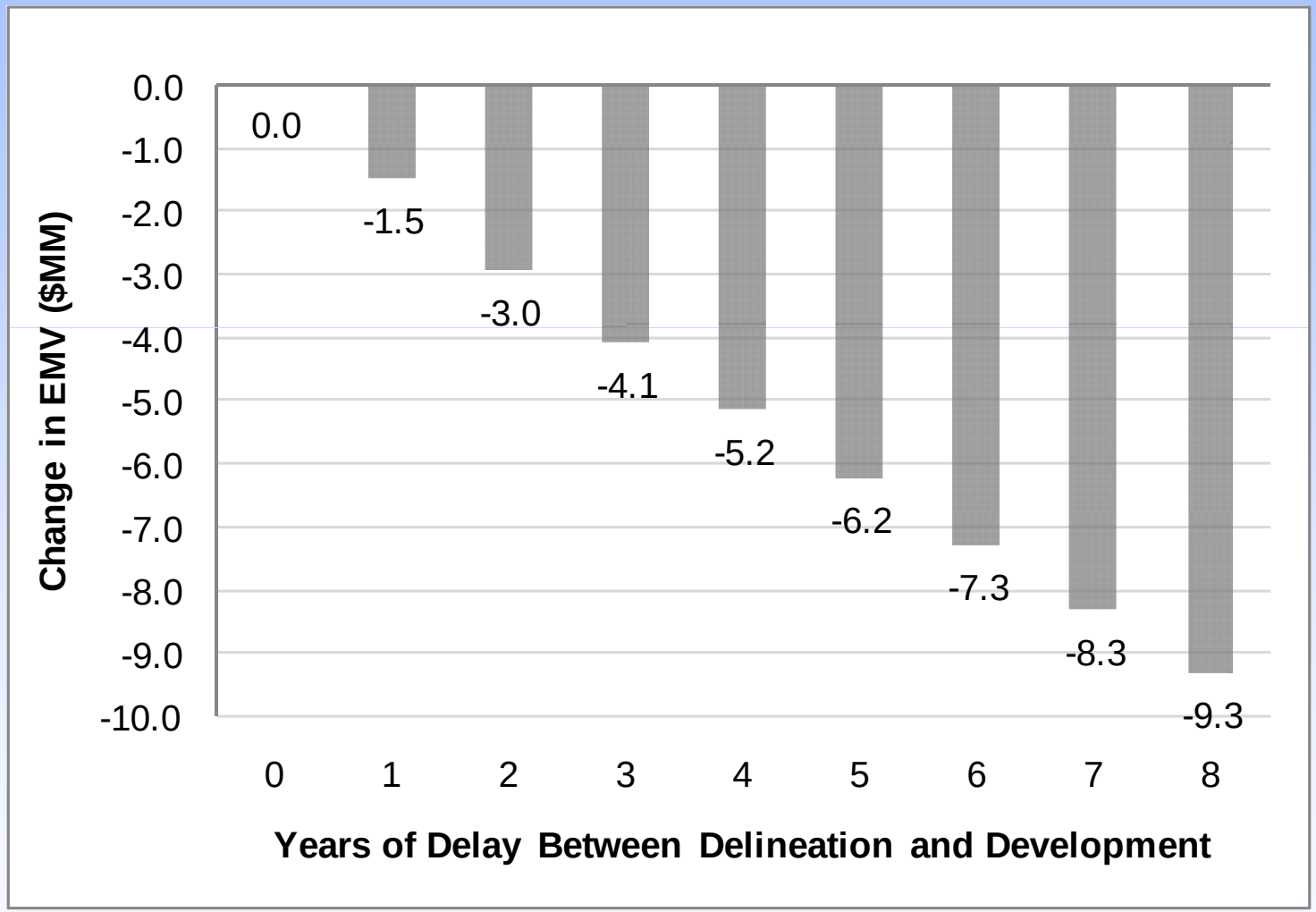
1. Up-front investment for seismic acquisition, exploration drilling, and delineation drilling really hurts the economics of oil and gas projects that risk being delayed for many years
2. Every year of delay in access to a gas pipeline after money has already been invested materially reduces the expected monetary value (EMV) of projects

How Discounting Works



Prospect Economics*

Effect of Delay: AGIA vs. FERC Open-Season Rules



*Expected monetary value (EMV) of a generic North Slope stand-alone gas prospect

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End
(Appendix Follows. For full model details see AGIA Finding, Appendix L)

The Exploration Model Base Case Assumptions

1. 10% discount rate for operator (5% for SOA)
2. Land is already leased over attractive prospect
3. Seismic data is already owned over prospect
4. Prospect is sanctioned for exploration drilling
5. 1st exploration well cost = $38 MM* in Year 1 of the project
6. 2 well delineation program cost = $25 MM* each in Year 2 and Year 3 of the project
7. Pad and facilities construction begins in Year 4, cost is scaled to production
8. Pipeline construction begins in Year 5, cost is scaled to production
9. Base Case (no delay) = 1st gas sale in Year 8, 6 years after delineation drilling

*Undiscounted expense in today's dollars, before any tax credits or incentives

Defined Variables

1. Gas price = $8.00/Mcf*
2. OpEx = scaled based on annual production rate

*Fixed value or rate for every year of the model

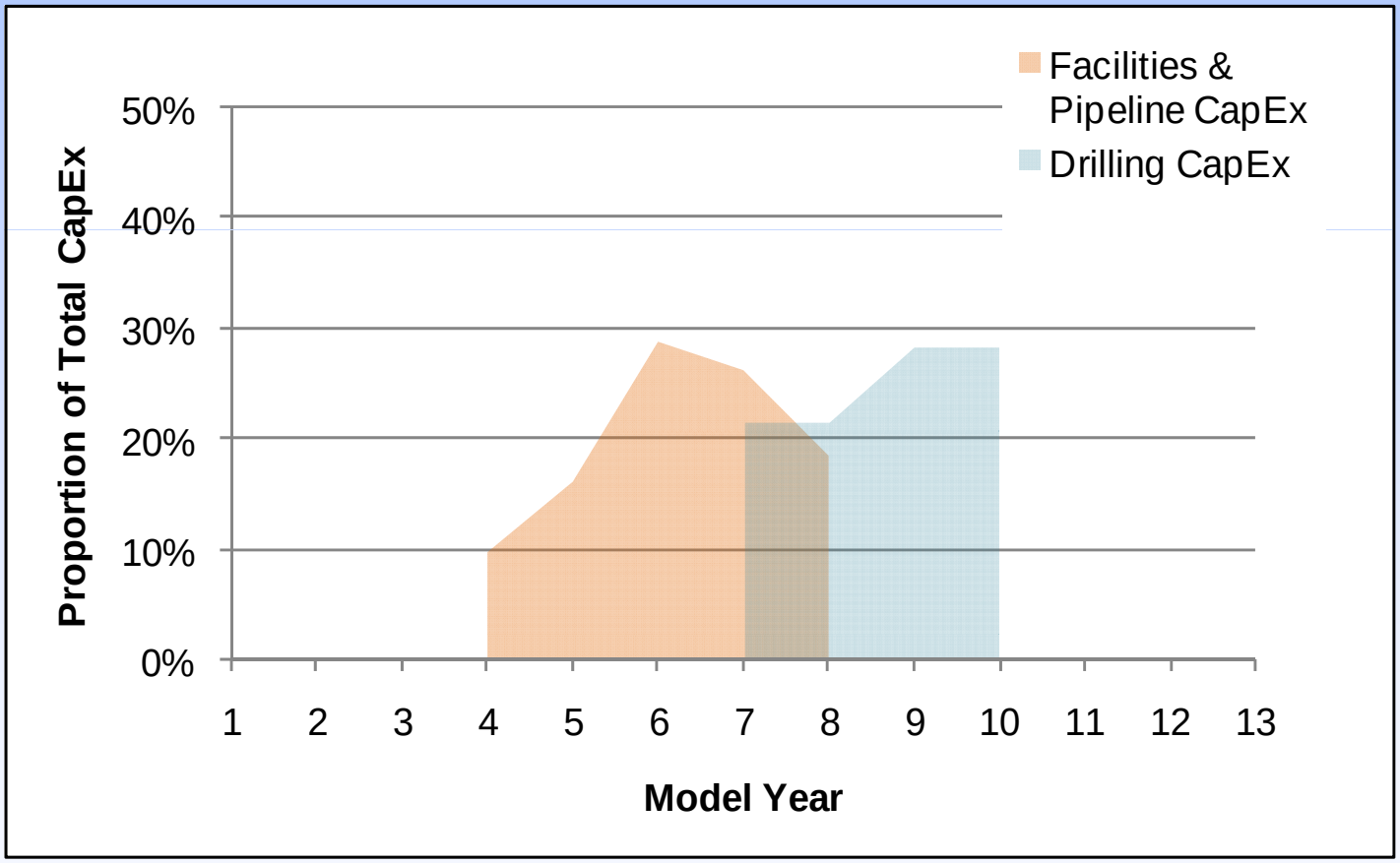
Drilling Success Probabilities

1. 40% = Probability 1st exploration well finds gas (geologic success)
2. 60% = Probability delineation drilling program is success

Development Scenario Probabilities

1. High reserves case = 1,800 BCF (5% probability *after* delineation)
2. Medium reserves case = 800 BCF (15% probability *after* delineation)
3. Low reserves case = 400 BCF (75% probability *after* delineation)
4. Uneconomic reserves case = 80 BCF (5% probability *after* delineation)

Base Case Expenditure Profiles for Facilities and Drilling



Note: Baseline production is assumed to begin in Year 8 after one year of development drilling.