Modeling of Short- and Long-Term Employment Generated by Construction and Operation of an Alaska Natural Gas Pipeline Project

ARCADIS

Employment projections generated for …

- **Construction Phase** of the pipeline and installation of compressor stations, Gas Treatment Plant and LNG facility

- **Operation Phase** of the pipeline and related facilities (compressor stations, GTP and LNG plants)

- **Exploration and Development** work on the North Slope spurred by operation of natural gas pipeline

Sources of Data/Model Used

- Sources of Data
  - Cost data from TC Alaska AGIA Application and other information provided to the State
  - Data generated by State's consultants
  - Information from Division of Oil and Gas

- Model Used
  - IMPLAN
  - Cost-driven
  - Uses Alaska-specific labor factors

Construction Phase Assumptions

- Gas Treatment Plant and LNG facility will be built Outside
- Major equipment and materials purchased Outside
- Labor force in Valdez constrained by size of camp

Construction Phase Employment Results

- Any natural gas pipeline project will create thousands of short-term construction jobs
- Largest number of construction jobs will be available during a brief peak period
- LNG option
  - 16,000 jobs in peak year
  - Longer ‘peak’ period due to LNG installation
- TC Alaska/Producer Pipeline
  - 15,000 jobs in peak year

Operations Phase Employment Results

- TC Alaska or Producer Pipeline: ~200 operations jobs in Alaska

- LNG option: ~600 operations jobs in Alaska
  - ~200 jobs on the pipeline and at GTP
  - ~400 jobs at LNG plant in Prince William Sound

E&D Employment: Scenario Development

- FERC regulations mandate an open access pipeline
- ‘Effective Open Access’ is different from FERC-mandated open access

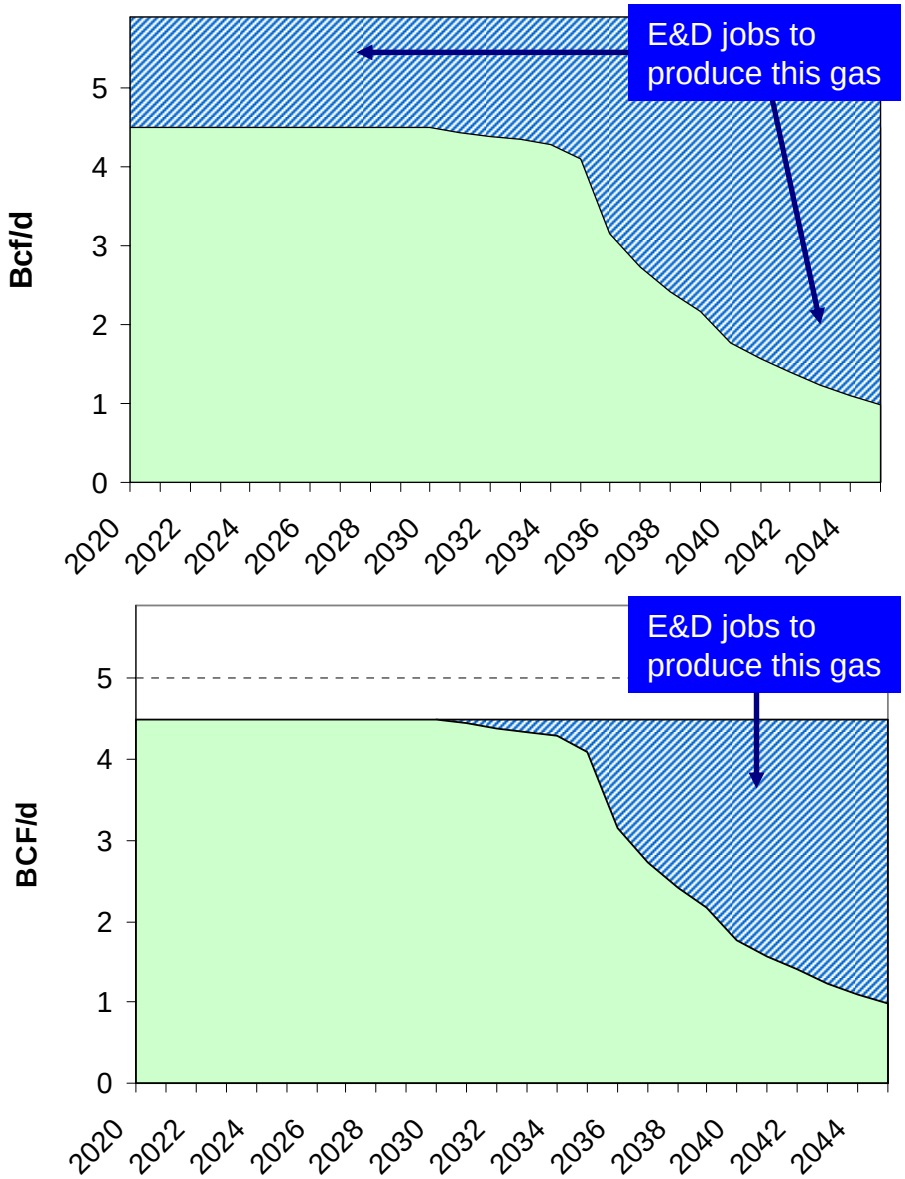
ARCADIS

E&D Employment: Scenario Development

- ‘Effective Open Access’ pipeline system
  - Reasonable transportation rates
  - Timely voluntary expansions

- ‘Non-Effective Open Access’ pipeline system
  - Higher transportation rates
  - Does not offer voluntary expansion
  - May contain components (e.g., an LNG facility) that is not required to operate on an open access basis

E&D Employment: Scenarios



- TC Alaska Scenario
  - Offers 'Effective Open Access'
  - Capacity expansions as demanded + Reasonable tariffs = Favorable explorer economics = Aggressive E&D activity
- 'Non-Effective Open Access' Scenario
  - No capacity expansion
  - No new natural gas production (or E&D work) until current fields fall off plateau

ARCADIS

E&D Employment: Assumptions

- New production facilities will be constructed in Alaska
- New natural gas fields will be brought on-line to keep the pipeline full at a given assumed capacity
  - 5.9 bcf/d for TC Alaska Scenario
  - 4.5 bcf/d for Non-Open Access Pipeline Scenario

Results: E&D Employment

- TC Alaska
  - Approximately **72,000** E&D jobs in the 2015 to 2045 timeframe
  - Jobs may be created as early as 2015

- Non-Effective Open Access Project
  - Approximately **47,000** E&D jobs in the 2015 to 2045 timeframe
  - Job creation may be delayed as late as 2026

Results: E&D Employment

- Timing of E&D job creation is a function of a pipeline's characteristics
  - Effective Open Access = Jobs Sooner
  - Non-Effective Open Access = Job Creation Delay

- Creating new natural gas basin-related jobs sooner is important …
  - Offset job losses likely to occur as existing oil fields decline
  - Maintain existing skill sets and talent pool in Alaska