Arctic Alaska Conventional Oil & Gas Exploration Potential

- Prospective area onshore & offshore shelves ~ 150,000 mi² (~400,000 km²)
- Fewer than 500 exploration wells (red dots)
- Entire state of Wyoming ~100,000 mi² (~250,000 km²)
- Petroleum-prospective area ~75,000 mi² (~250,000 km²)
- ~19,371 exploration wells
Global Conventional Oil Resources

Note: Does not include results from USGS Circum-Arctic Oil and Gas Resource Appraisal study.
Simplified and Generalized Regional Cross-section

Modified from Bird and Bader (1987)
Brooks Range Geologic Mapping
Geologic Mapping
Topical Petroleum-related Studies

Porosity (%) vs. Permeability (mD) North Slope
Foothills, 2001

- Tuluvak ss
- Schrader Bluff
- Nanushuk
- Gilead ss
- Fortress Mtn
- Cobblestone ss
- Okpikruak
- Otuk Fm
- Siksikpuk
- Lisburne Limestone

Killik Bend non-marine to deltaic succession, highstand aggradational system tract
Revising and Codifying Stratigraphic Nomenclature
Merging Surface and Subsurface Data
Foothills Structural Plays
Seismic Interpretation

Composite seismic transect west of Canning River, North Slope, Alaska


PLDecker, Alaska Division of Oil & Gas

Kavik structure
State Lands: ~1 undiscovered oil accumulation > 250 MMBO recoverable. ~ 2 undiscovered gas accumulations > 1.5 TCF recoverable.

NPRA: ~11 undiscovered oil accumulations > 250 MMBO recoverable. ~7 undiscovered gas accumulations > 1.5 TCF recoverable.

ANWR 1002: ~9 undiscovered oil accumulations > 250 MMBO recoverable (~65% of estimated total recoverable oil volume); gas resource not shown.
USGS Potential for Undiscovered Petroleum in Arctic Alaska

**Chukchi Shelf OCS**
- Oil: 15.4 (2.3 - 40.1) BBO
- Gas: 76.8 (10.3 - 209.5) TCF

**Beaufort Shelf OCS**
- Oil: 8.2 (0.4 - 23.2) BBO
- Gas: 27.6 (0.6 - 72.2) TCF

**ANWR 1002 Area**
- Oil: 10.4 (5.7 - 16.0) BBO
- Gas: 3.8 (0 - 10.9) TCF

**NPRA**
- Oil: 40.6 (6.7 - 15.0) BBO
- Gas: 61.4 (40.4 - 85.3) TCF

**Central North Slope**
- Oil: 4.0 (2.6 - 5.9) BBO
- Gas: 33.3 (23.9 - 44.9) TCF

---

* Oil includes crude oil + natural gas liquids
Gas includes nonassociated + associated gas
** Oil includes crude oil only
Gas includes nonassociated gas only
“Unconventional” Gas Resources (continuous resources)

Coalbed Gas

Overpressured, Basin-centered Gas

Gas Hydrates

Evaluation in Progress