

TAPS: Sustaining Alaska's Economic Artery

*Presentation to
The Alliance
October 18, 2013
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TAPS is Alaska's economic artery

- AOGA: 1/3 of all Alaska's jobs, about 110,000, are attributed to the oil and gas industry.
- Fuels 1/3 of Alaska's economy.
- >90% of Alaska's unrestricted general fund revenue.
- Delivers >\$8.5 billion in revenue each year; \$24 million/day
- Annual tax payments to municipalities throughout Alaska.
- Permanent Fund of \$45 billion



Trans Alaska Pipeline System

- 800-mile warm-oil pipeline in cold climate.
- Arctic pipeline operated successfully for 36 years.
- 2012 throughput average: 548,000 bpd.
- 8% of U.S. domestic oil supply.
- More than 20% of west coast refinery input.
- Nationally significant infrastructure.
- Supplies Alaska refineries.

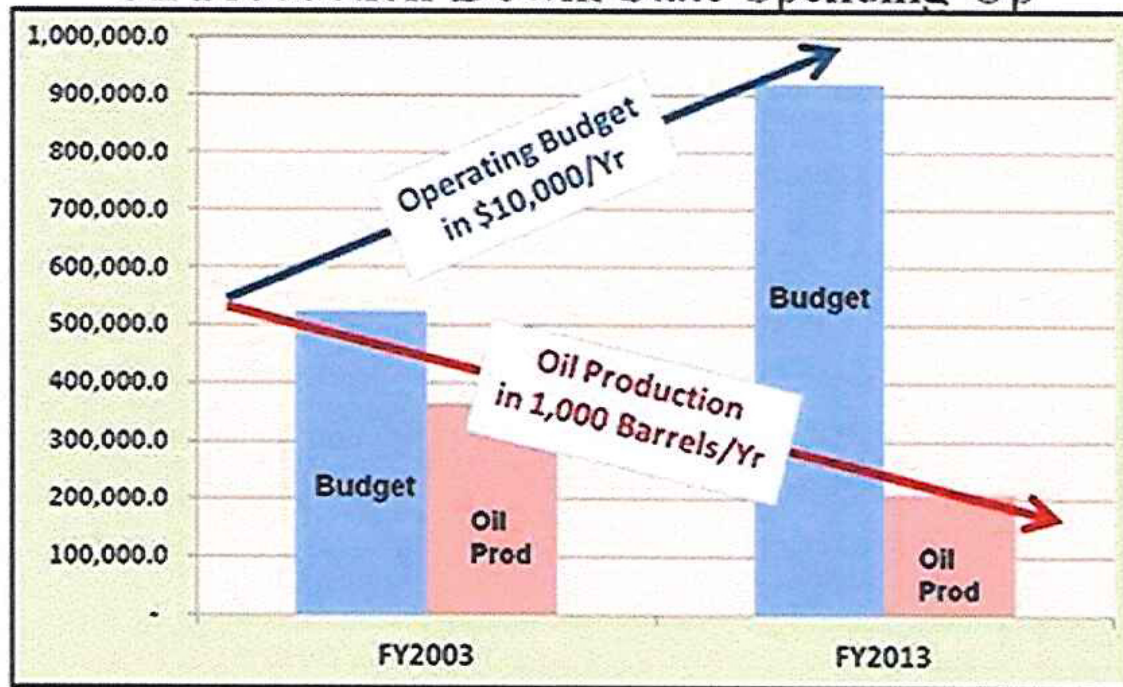


Greatest economic threats to Alaska

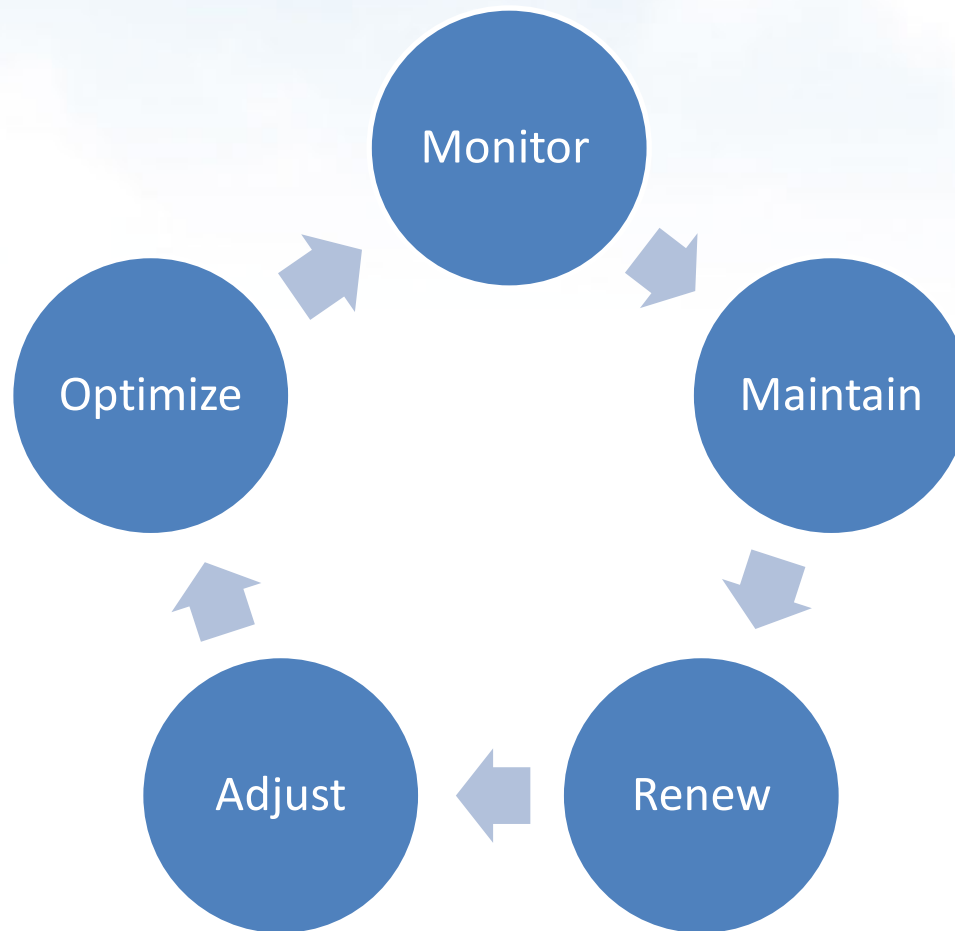
Declining TAPS Throughput & Increasing Budget



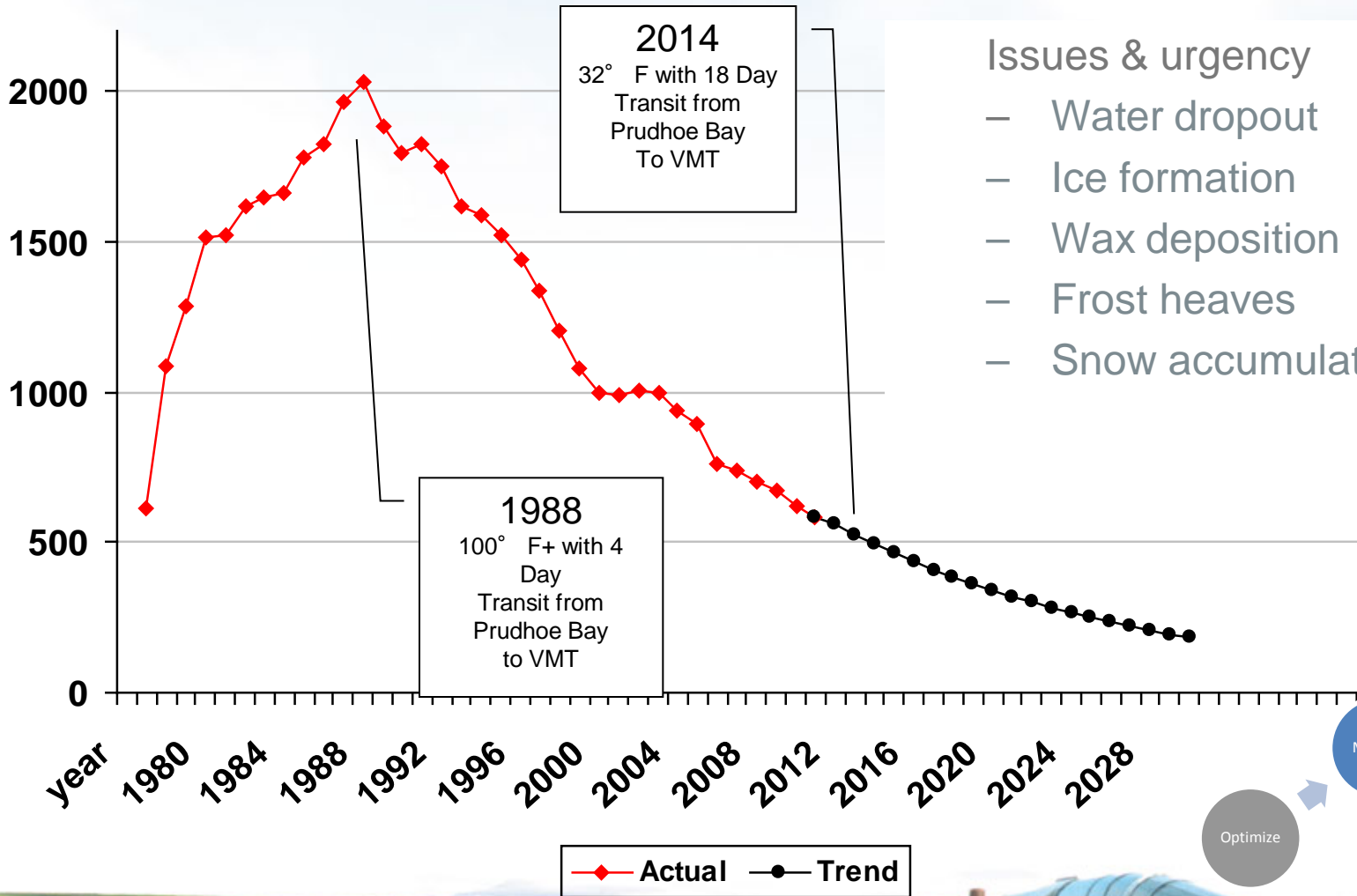
Oil Production Down: State Spending Up



Sustaining Alaska's economic artery

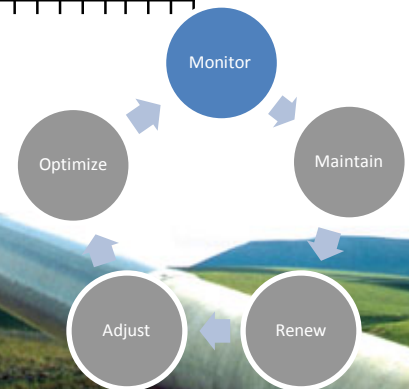


Monitor: Steadily declining throughput



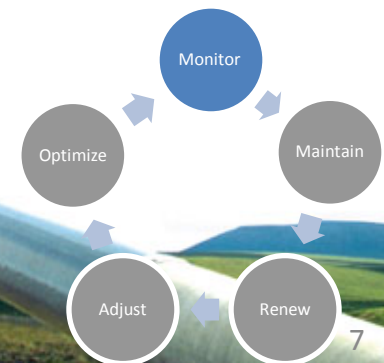
Issues & urgency

- Water dropout
- Ice formation
- Wax deposition
- Frost heaves
- Snow accumulation



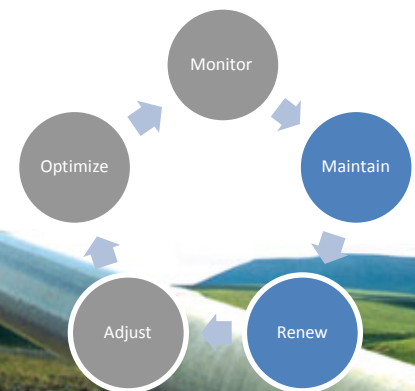
Monitor: Operations data

- Crude oil temperature
- Equipment diagnostics
- In-Line Inspection tool data
- Digs & inspections
- Above-ground piping inspections
- Corrosion coupons
- More



Maintain and Renew

- 146 maintenance and renewal projects
- >\$300 million this year
- Similar level of maintenance and renewal in coming years



Pipeline System

DELIVERING EXCELLENCE



AT A GLANCE

PS 1 Belowground pipe replacement; Electrification & Automation; Tank 111 cleaning & inspection

2013 PROJECTS

The Trans Alaska

146 ACTIVE PROJECTS

eat recycle work at

4, 5 & 7

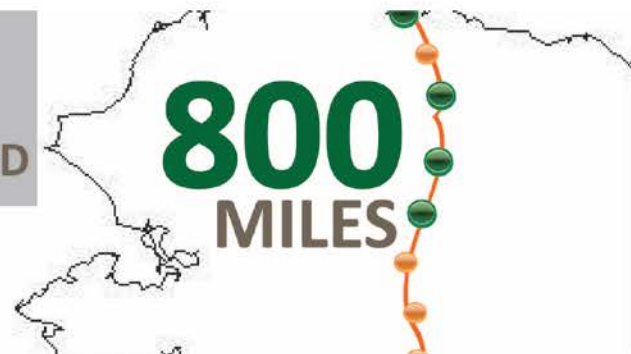
ngoing belowground pipe replacement

g launcher/receiver at

146 PROJECTS
\$300+ MILLION BUDGETED

MAINTENANCE SHUTDOWNS

1 four-hour



800 MILES



PS 1



PS 2



PS 3

hour



PS 9 (estimated completion 2014)



Straight pipe project at

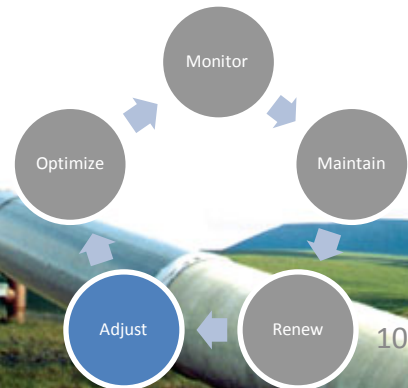
PS 10

4 six-hour
2 eighteen

Adjust: TAPS scraper pigs



Low throughput leads to greater wax, slower pig velocities. Ongoing adjustment of pig design and protocol.



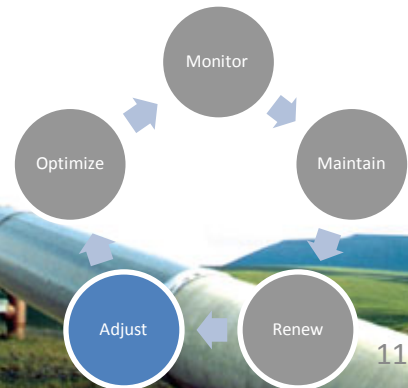
Adjust: Colder crude oil



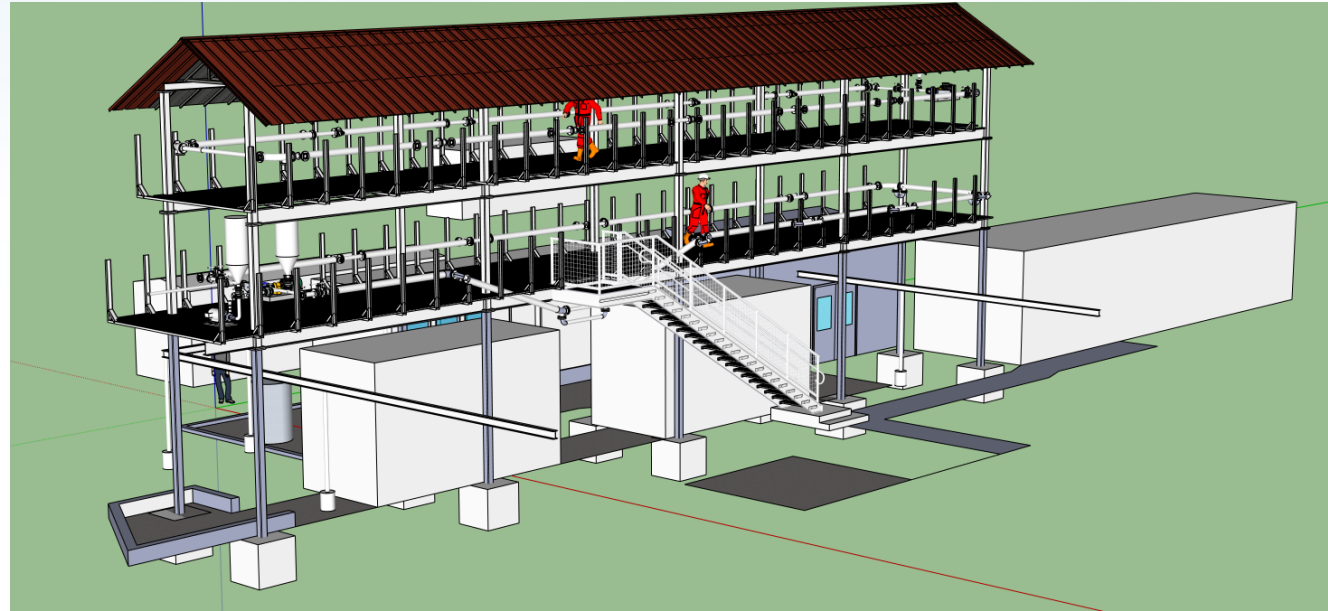
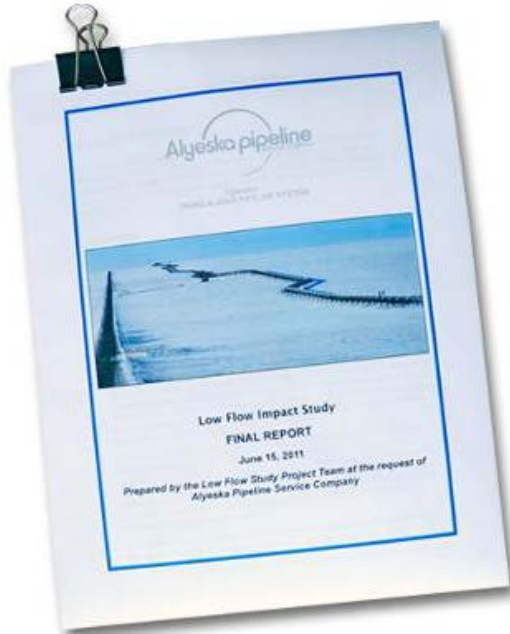
Recirculation at a pump station adds 7-10. Winter recirculation at PS 3, 4, 7, 9.



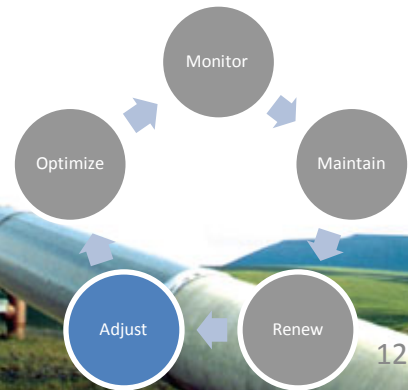
Tank top snow removal



Adjust: Study & test options



University of Tulsa flow loop for testing cold, dry flow.



Optimize: Increase TAPS throughput

OFFSHORE ARCTIC

- 27 bbo
- 132 tcf gas
- Est. 54,000 jobs (nationwide)

NPR-A

- 896 mbo
- 53 tcf gas

COOK INLET

- 599 mbo
- 19 tcf gas



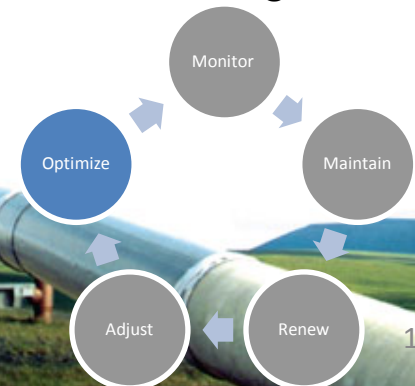
ONSHORE NORTH SLOPE

- Conventional: 5 bbo, 35 tcf gas;
- Heavy/Viscous: 24-33 bbo;
- Unconventional: 2 bbo, 12 tcf gas

ANWR

- 10 bbo
- 3.5 tcf gas

*mbo = million barrels of oil bbo = billion barrels of oil
tcf = trillion cubic feet*



Dedicated, highly qualified Alaska team

