

Using Scenarios as a Tool to Prioritize Monitoring and Research on the North Slope of Alaska

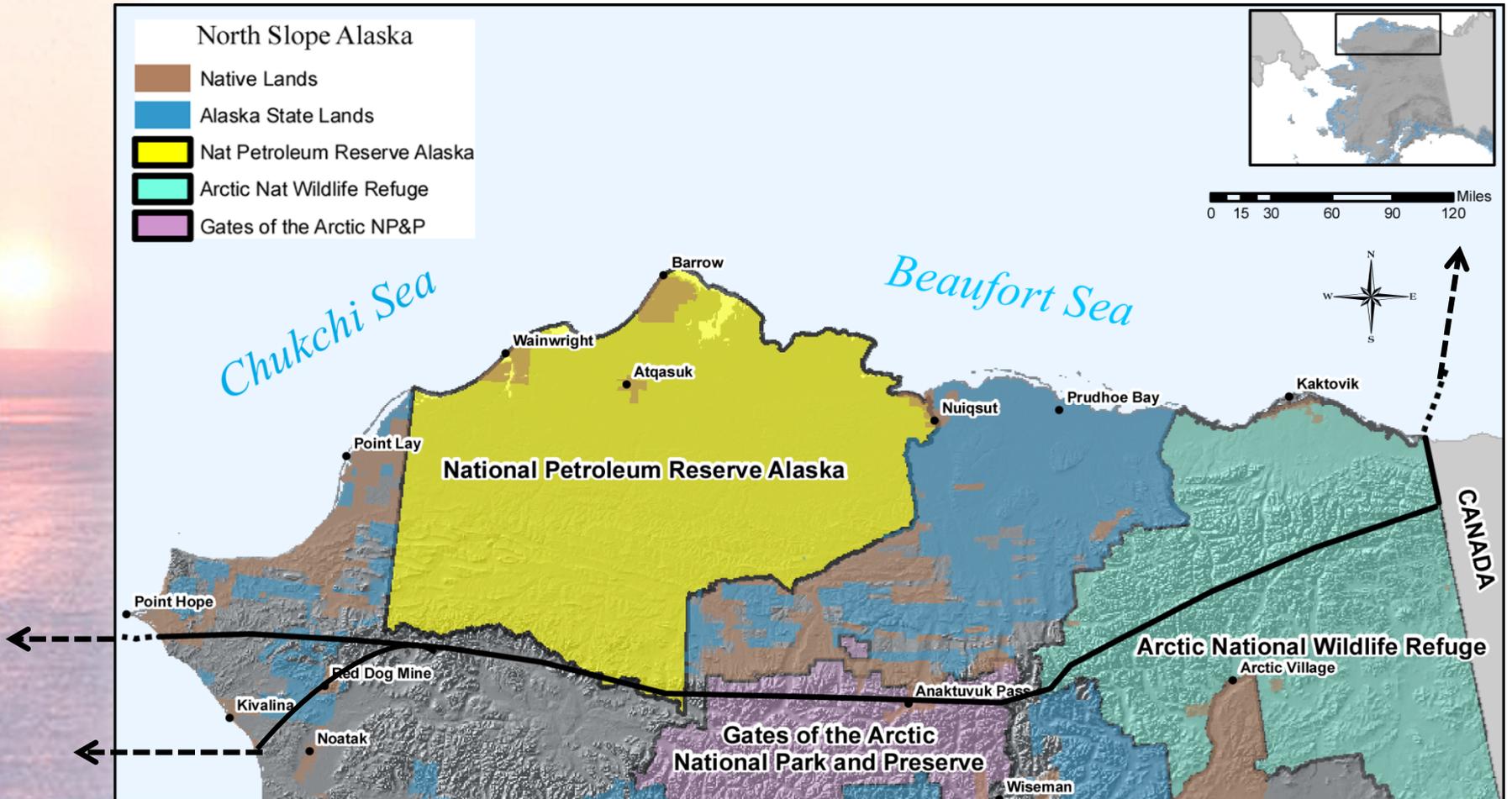
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A vertical strip on the left side of the slide shows a sunset over a body of water. The sun is low on the horizon, casting a bright glow and reflecting on the water's surface. The sky transitions from a pale yellow near the sun to a soft blue at the top.

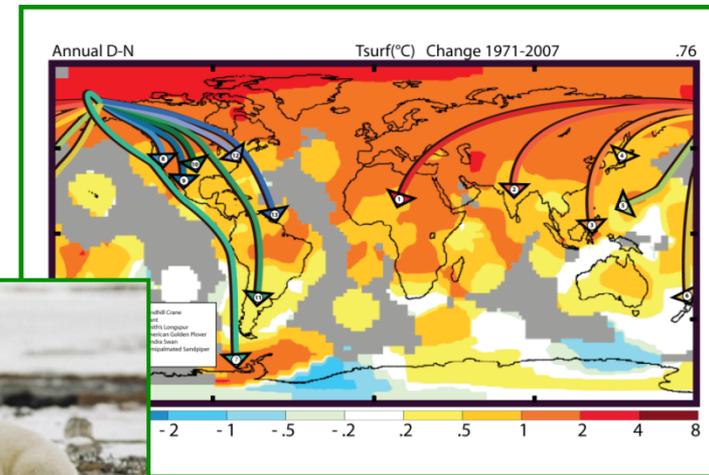
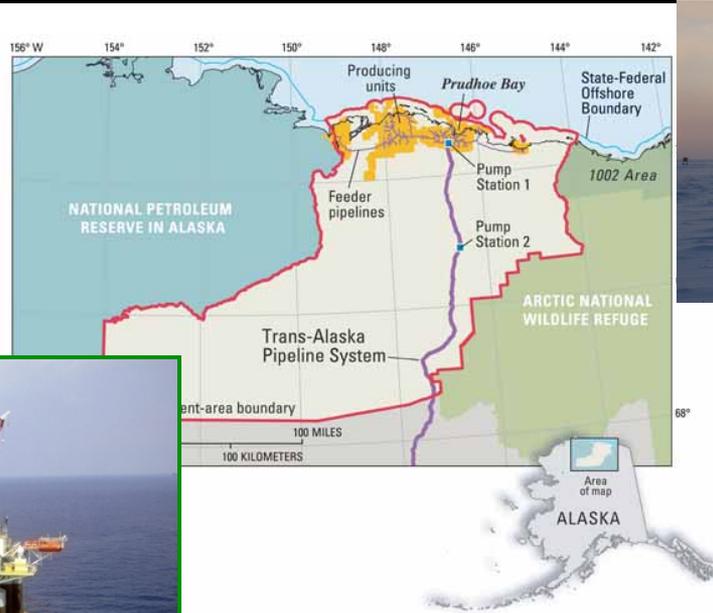
Outline for Today

- Setting the Stage –
- North Slope Science Initiative
- Issues and Challenges
- Emerging Issues
- North Slope Scenarios

North Slope and Adjacent Seas



Resource and Cultural Challenges





Fire Regime



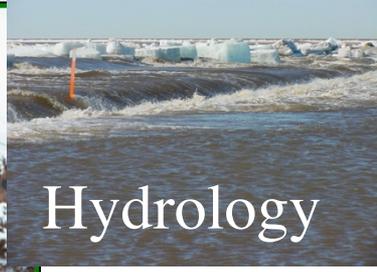
Subsistence Species



Erosion



Permafrost



Hydrology

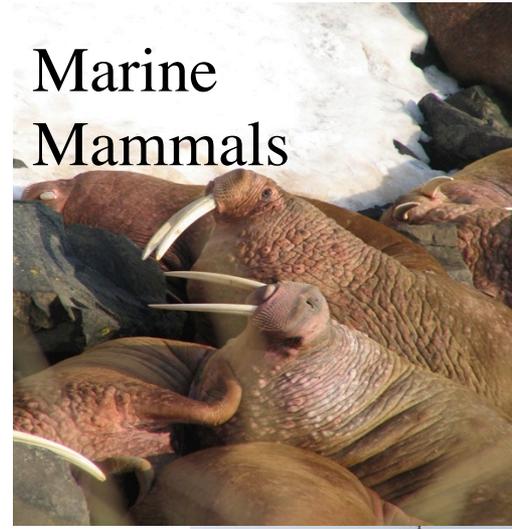
Emerging Issue Summaries: Regional Scale



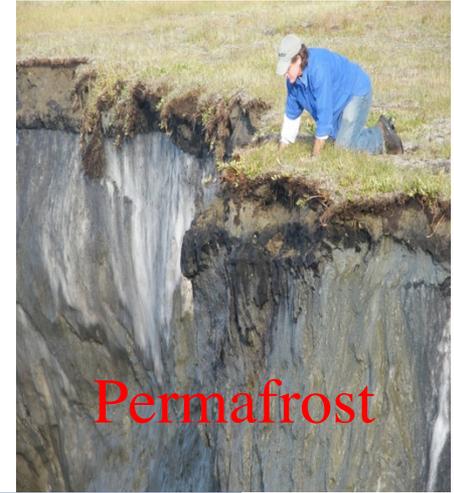
Vegetation Change



Changing Sea Ice



Marine Mammals



Permafrost



Mig. Birds



Weather & Climate



Shipping



Socio-economic

Big Challenges

(greater than any 1 entity)

- **Need collaboration & forum to effectively address challenges and provide information**
- **Need appropriate monitoring and research and a means to access**



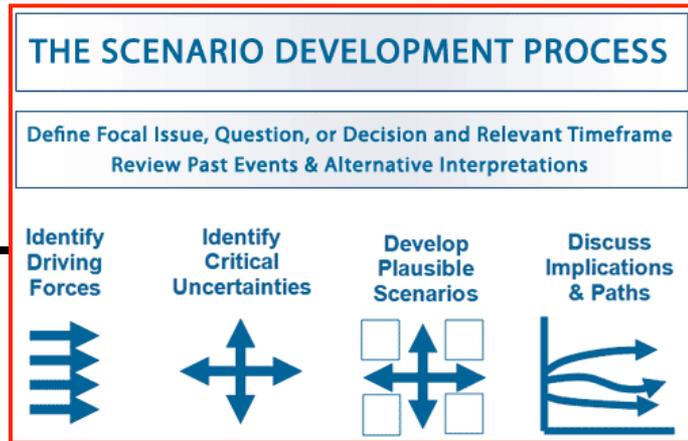
North Slope Science Initiative

Using Scenarios as a Way to Help Prioritize Science Needed



“Recipe” for Scenarios

- Define the “focal question” and timeframe
- Review past events and current knowledge
- Identify driving forces and factors that have a bearing on the focal question
- Identify the critical uncertainties (what are the important forces and factors that we know the least about?)
- Develop scenario characteristics (give shape to each “story”)
- Determine implications and “robust” strategies – what is unique to each scenario & what will work regardless of which scenario plays out – and what research/monitoring will be needed to understand and manage the changes?



North Slope Scenarios Background

- Builds on work by NSSI STAP/ SSC emerging issues summaries.
- Focal question developed by NSSI Oversight Group
 - **What is the future of energy development, resource extraction and supporting activities on the North Slope and adjacent seas through 2040?**
- Goals:
 1. Identify plausible future development scenarios on Alaska's North Slope and adjacent seas;
 2. Identify information needs for decision-making relative to those scenarios and prior NSSI emerging issue analyses; and,
 3. Use project results to enable more effective coordination of the identified research and monitoring needs.
- Additional information on project: www.northslope.org/scenarios/

Scenarios Identification Workshop

- Agenda
 - Workshop participant booklets available on website:

www.northslope.org/scenarios/

- Includes participant list, maps, daily agenda
- Gallery boards to encourage discussion



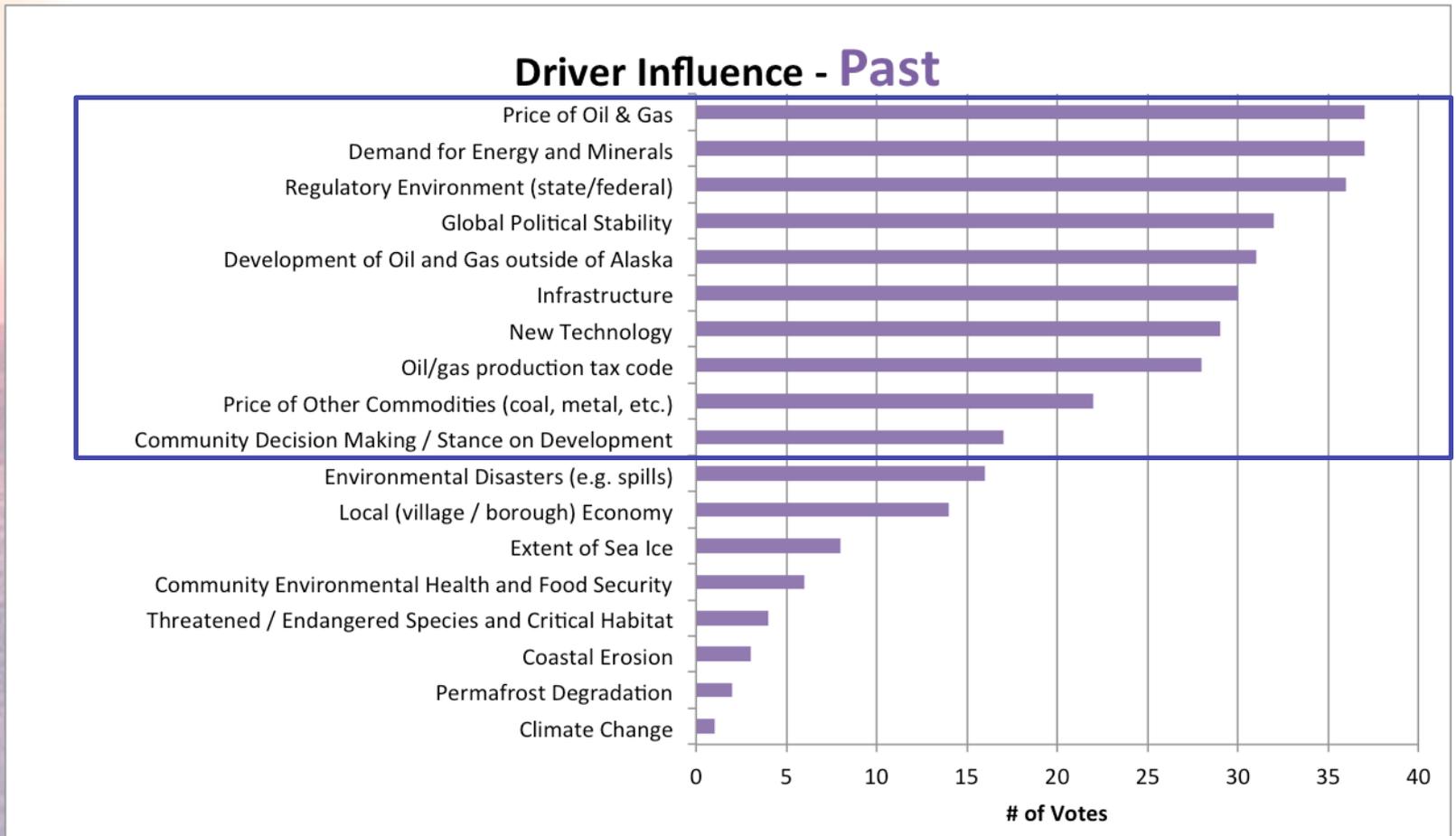
Driver importance and influence

Price of other commodities (coal, metal, etc.)	FUTURE (through 2040) DRIVERS OF CHANGE	New technology
Infrastructure		Demand for energy/materials
Climate change		Oil/gas production tax code
Threatened/Endangered species & critical habitat		Development of oil/gas outside of Alaska
Extent of sea ice		Community environmental health and food security
Coastal erosion		Environmental disasters (e.g. spills)
Permafrost degradation		Local (village/borough) economy
Price of oil and gas		Global political stability
Regulatory environment (state/federal)		Community decision making/stance on development
Other:		Other:

- Each participant selected top 10 drivers for past, present and future.
- Votes tallied for each time period to determine highest ranking drivers and understand changes over time.

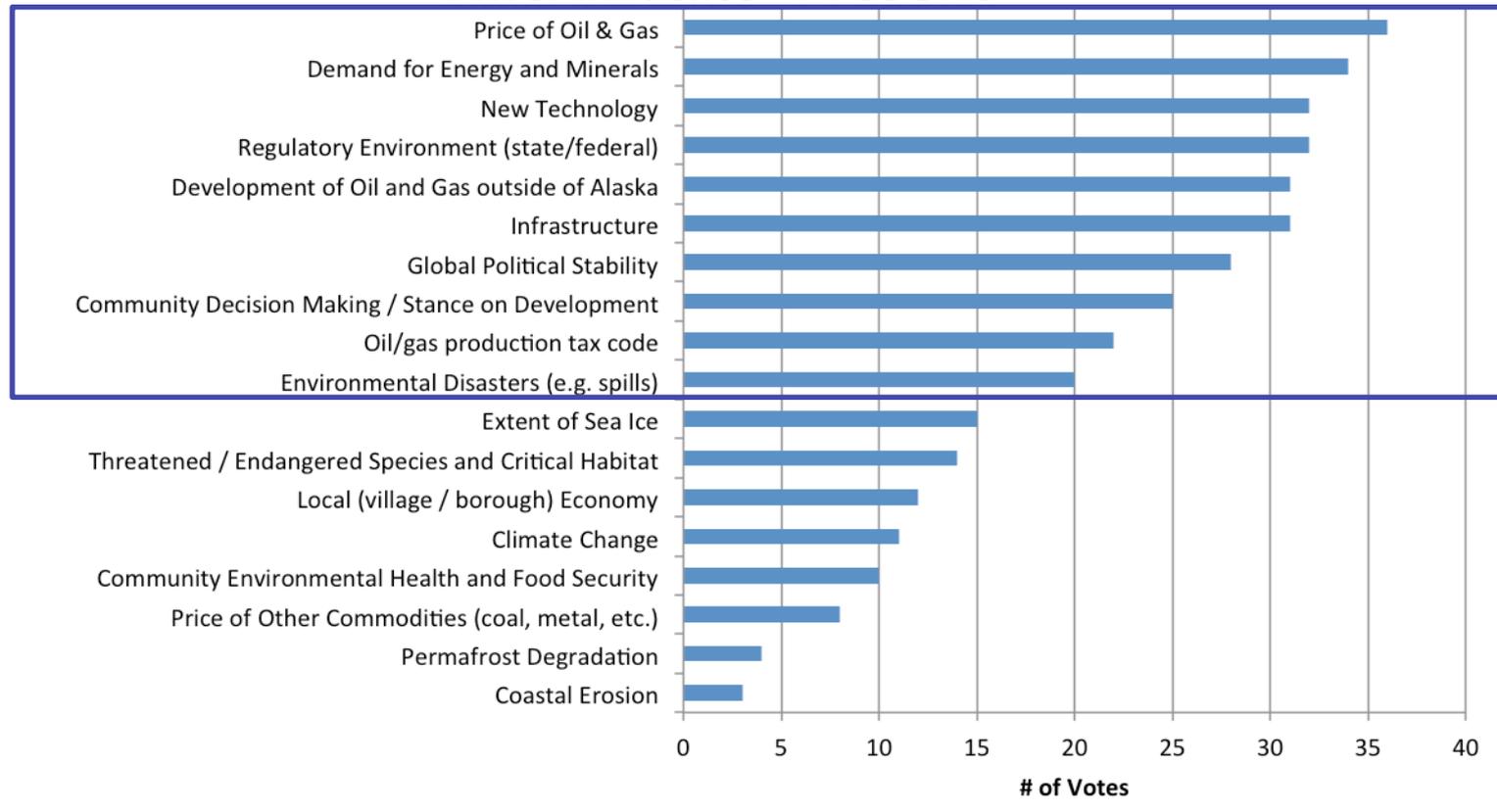


RESULTS: Past



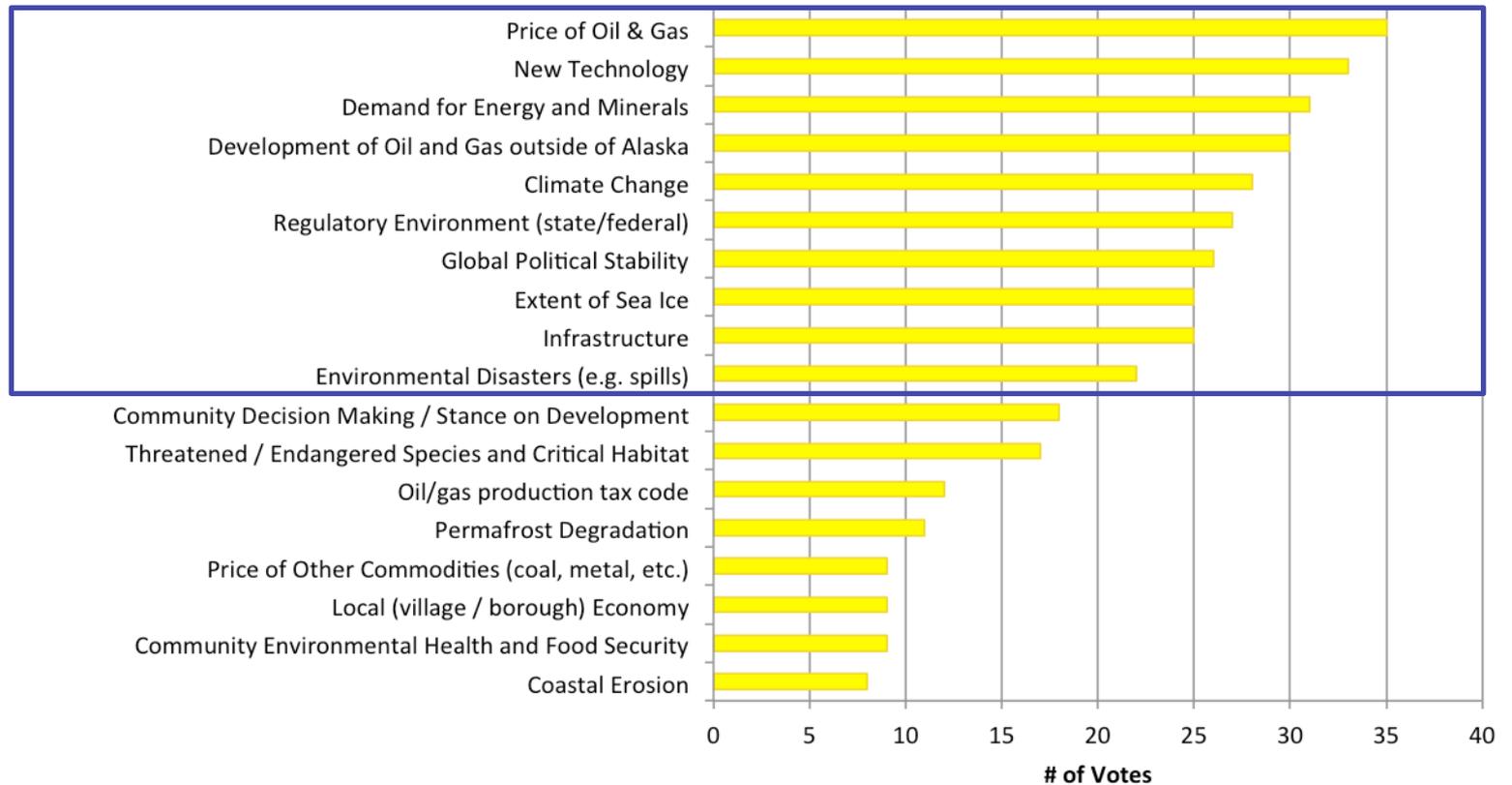
RESULTS: Present

Driver Influence - Present



RESULTS: Future

Driver Influence - Future



Next steps

- Selected scenario drivers, maps, and narratives will be evaluated and used to select appropriate spatial variables for modeling.
- Scenarios will be developed using available spatial datasets related to infrastructure, land cover, habitat, climate change, subsistence activities, and known natural resource reservoirs.
- Experts will be consulted regarding realistic parameters for anticipated changes within each system on the North Slope.
- Preliminary modeling results will be verified and adjusted based on feedback from researchers and industry representatives.
- Maps, statistics, and detailed narratives will be developed describing the implications associated with each scenario.

Questions???

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www.northslope.org

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