

The Mount Spurr Geothermal Project

*House Special Committee on
Energy and Resource Committee
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We will not update these forward-looking statements, even though our situation will change in the future.



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Outline

- Introduction to:
 - Ormat Technology, Inc
 - Geothermal power
 - The Mt. Spurr geothermal project
- Project status and timeline
- Costs, matching funds and overall funding plan
- Local support
- Amount and cost of power supplied to Railbelt
- Economic and environmental impact



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Ormat Brings Credibility

- A leader in geothermal power
- Owns and operates 553* MW worldwide
- Supplied approximately 1,370 MW to 24 countries
- Vertically integrated:
 - Explores, develops, engineers, manufactures, constructs, operates
- Employs approx. 500 people in the U.S. ; >1,100 worldwide
- Publicly traded on the NYSE (“ORA”)

* Including the 50 MW of North Brawley in California, which operates at approx. 30 MW

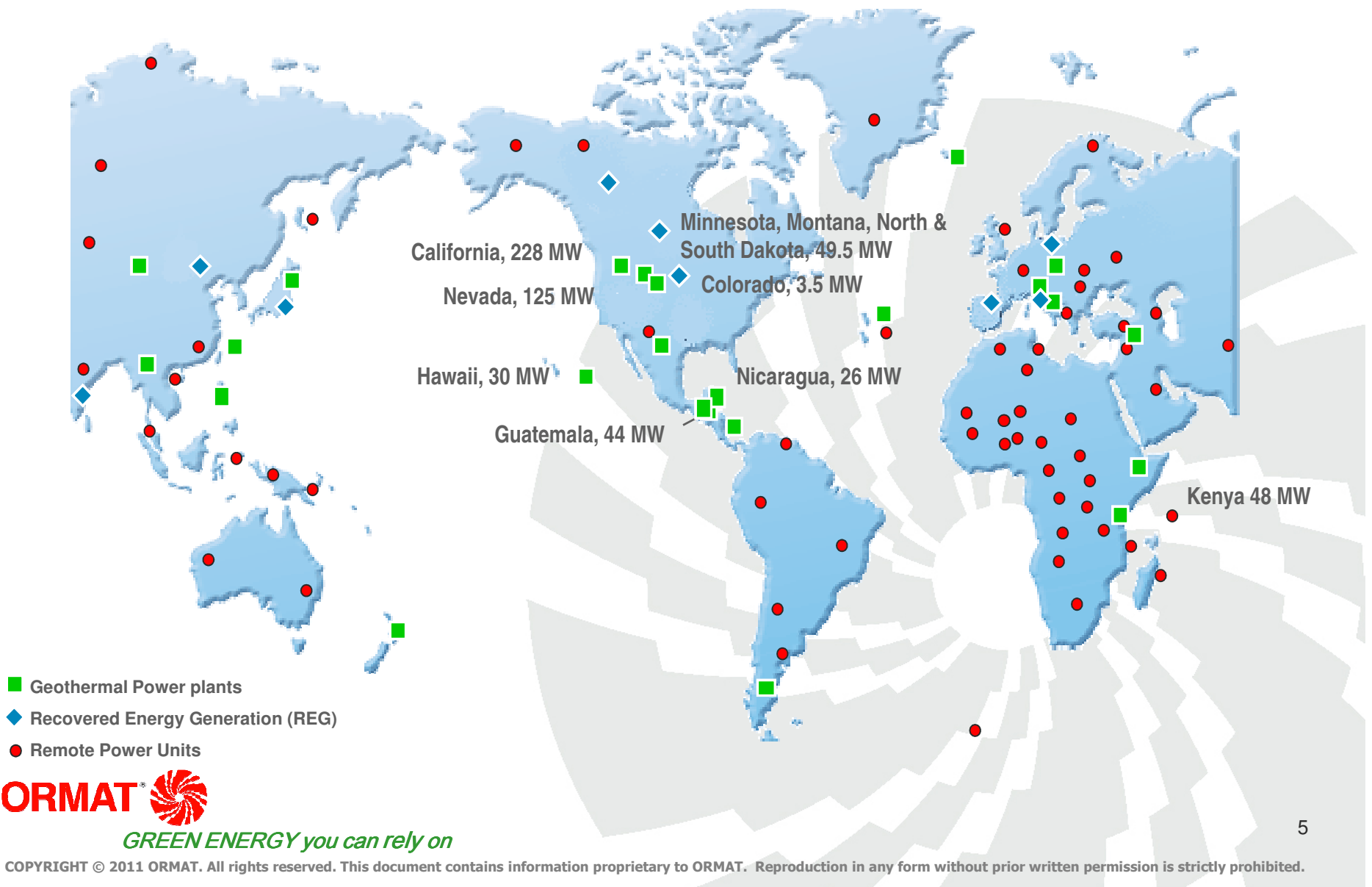


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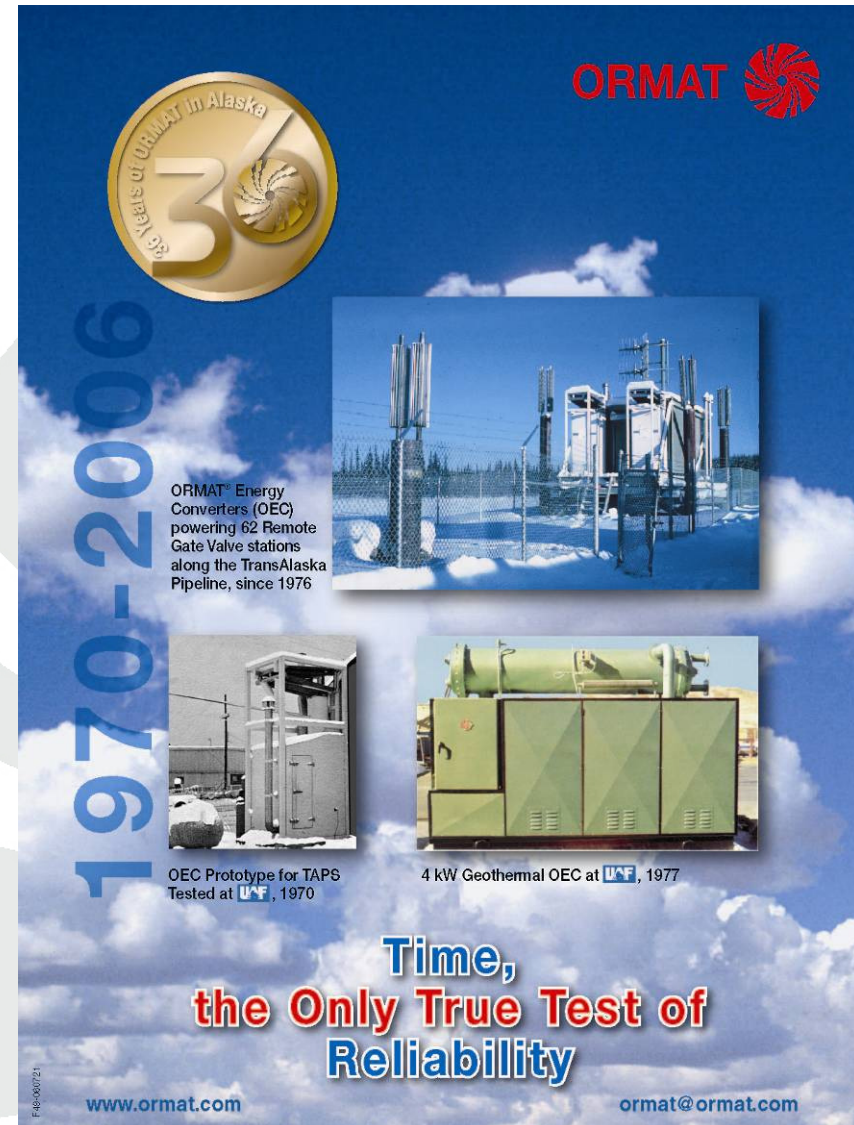
Global Presence

Meeting the Needs of Customers in 71 Countries




Ormat's Commitment to Alaska

- >100 Remote Power Units
 - Serving remote gate valves
 - TransAlaska Pipeline
 - Since 1975
- First geothermal unit
 - Tested in 1979
 - University of Alaska Fairbanks
 - At Manley Hot Springs
- Approx. \$5 million of Ormat equity invested in Mt. Spurr to date



A commemorative graphic for Ormat's 30th anniversary in Alaska. It features a gold coin with '30 Years of Ormat in Alaska' and the Ormat logo. The background is a blue sky with clouds. The text '1970-2006' is written vertically on the left. The Ormat logo is in the top right. Three photographs show Ormat Energy Converters (OEC) in various settings: a large unit in a snowy field, a prototype unit, and a 4 kW geothermal unit. The slogan 'Time, the Only True Test of Reliability' is at the bottom, along with the website 'www.ormat.com' and email 'ormat@ormat.com'.

ORMAT 

30 Years of Ormat in Alaska

1970-2006

ORMAT[®] Energy Converters (OEC) powering 62 Remote Gate Valve stations along the TransAlaska Pipeline, since 1976

OEC Prototype for TAPS Tested at UAF, 1970

4 kW Geothermal OEC at UAF, 1977

Time,
the Only True Test of
Reliability

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Geothermal – Key Attributes

- Utilities' renewable energy of choice:
 - Base-load generation
 - Cost-competitive
 - Highly reliable; >95% availability
 - Proven technology: ~11,000 MW deployed worldwide
- No fuel cost risk; Fixed long-term pricing
- Sustainable & environmentally friendly
 - Closed loop system with near zero emissions
 - No water consumption [Mt. Spurr plant will be air-cooled]
 - Minimal surface and visual impact
- Creates long-term, high-quality jobs



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Geothermal – Development Inhibitors

- Resources are scarce
- High upfront CAPEX and risk required in order to discover and confirm the resource

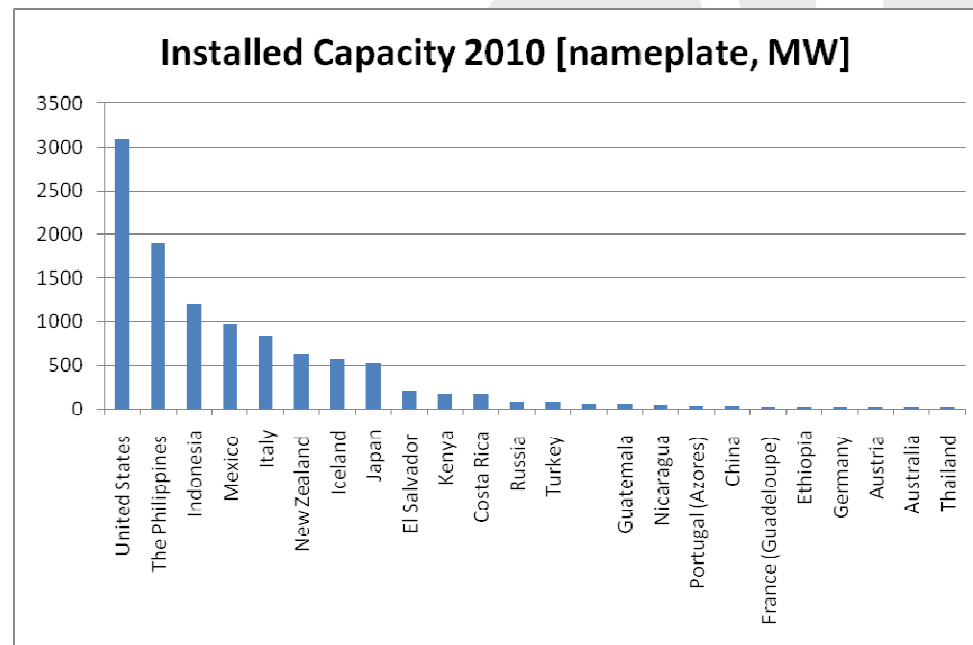


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Worldwide Geothermal Deployment

- Approximately 11,000 MW deployed world-wide
- 24 nations have utility-scale geothermal generation
 - US is the world leader, with plants in CA, NV, HI, UT, ID
- Supportive policies have been key to success in all nations

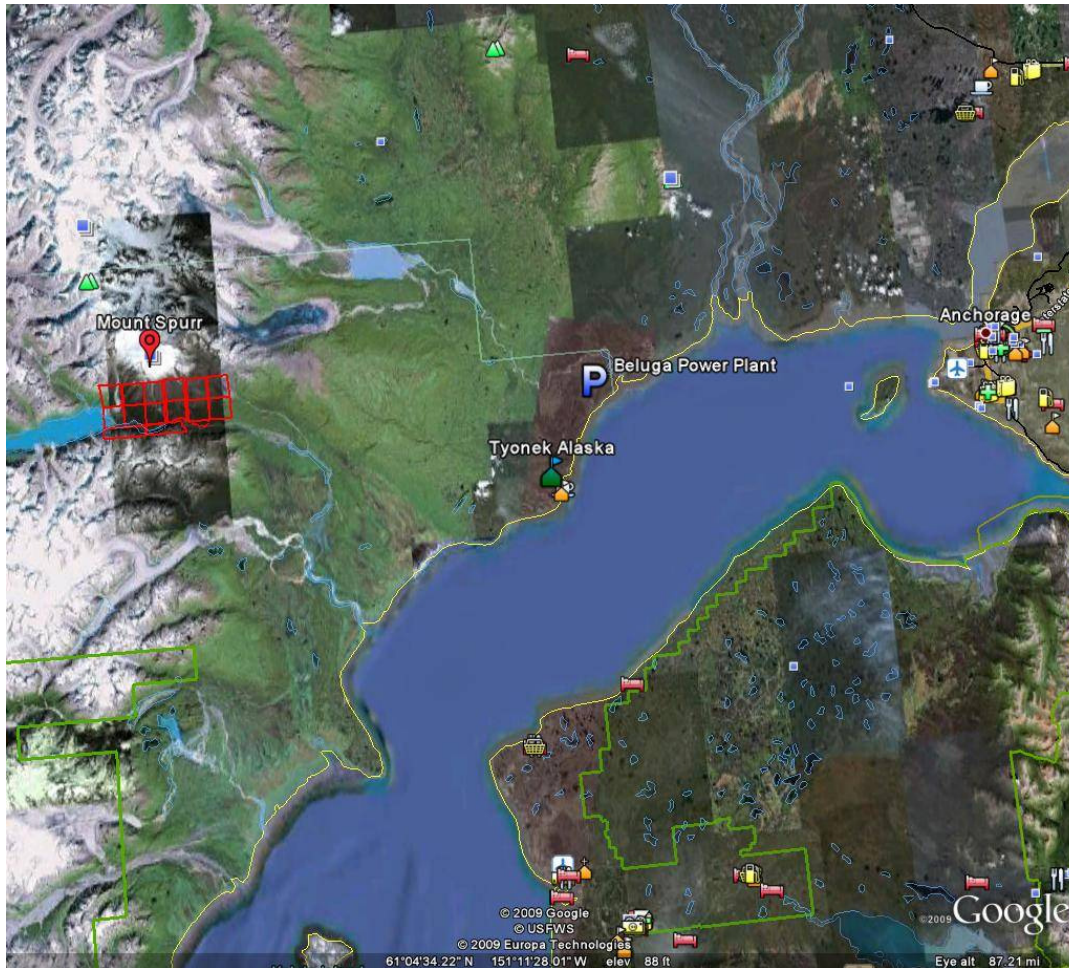


Source: International Geothermal Association



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Project Location



West Cook Inlet
~75 miles west of
Anchorage

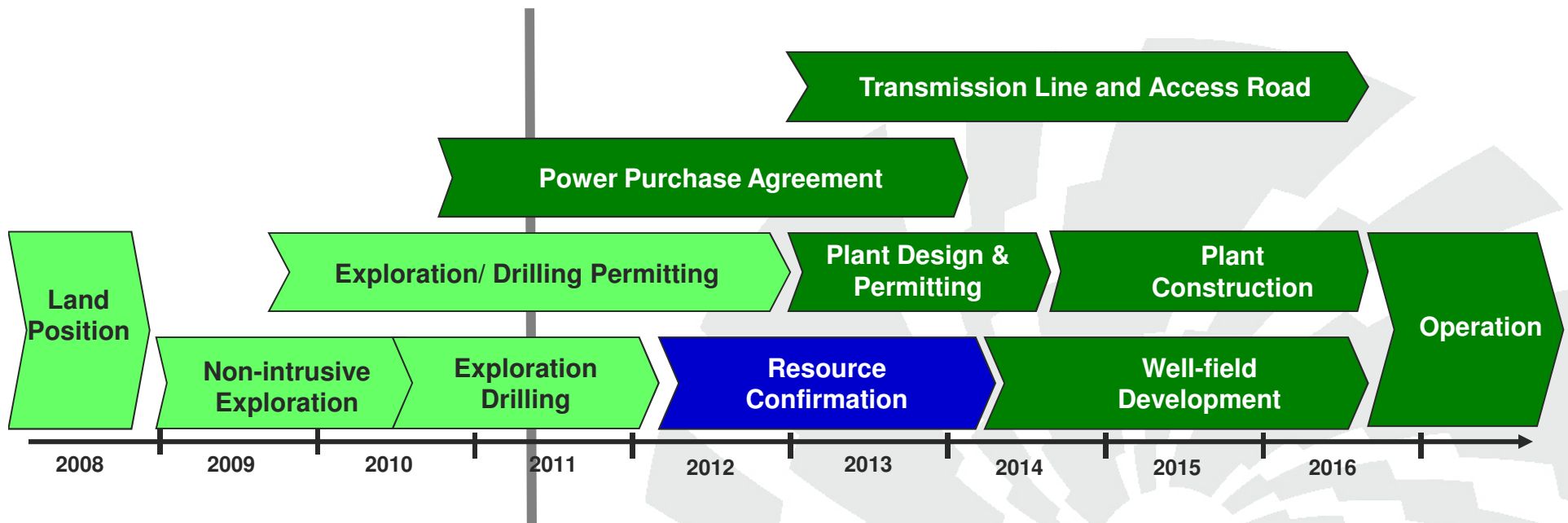
Source: GoogleEarth



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Mt. Spurr – Status & Estimated Timeline

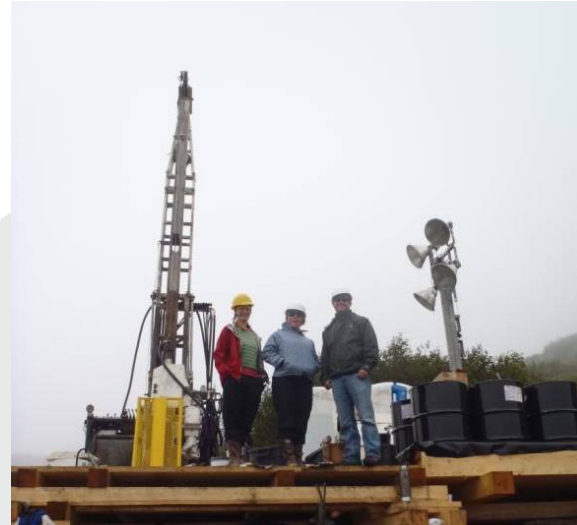


- 36,000 acres of state lands leased from DNR in October 2008
- Non-intrusive exploration conducted summer of 2009 and of 2010
- Two exploration core holes (~1,000 ft) drilled in September 2010
- All required permits from DNR, AOGCC, ADEC, ADF&G, etc. were obtained in 2010 and are in progress for 2011



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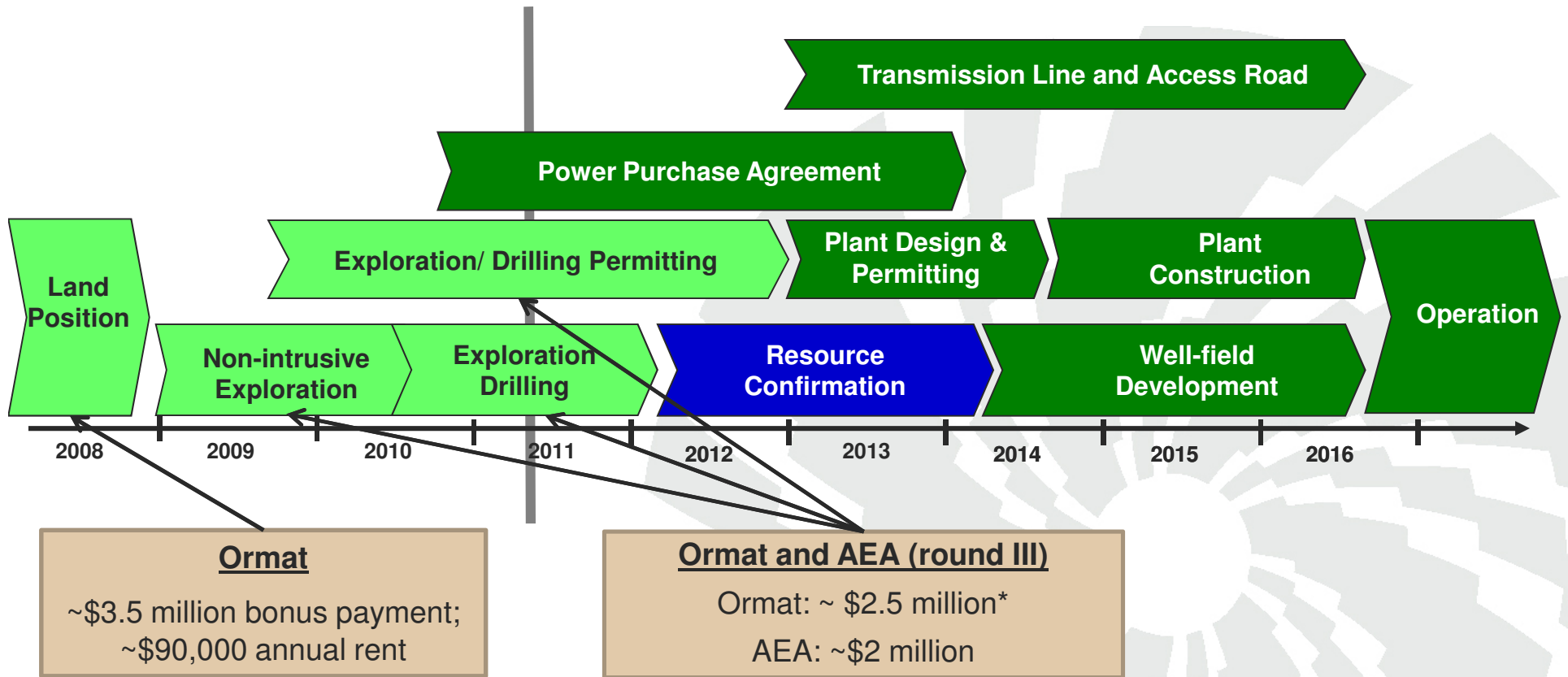
Core Drilling in 2010: Encouraging Results



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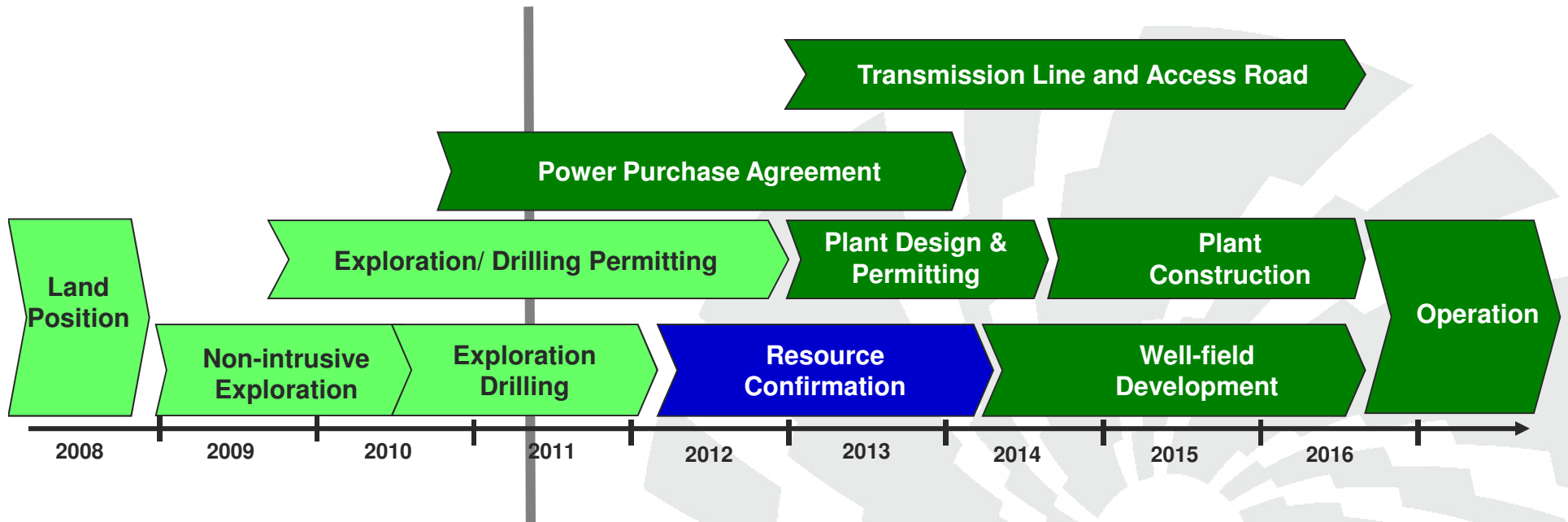
Sources of Funding So Far



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* \$2.1 million as part of the grant agreement and the rest outside it

Expected Next Steps



- Additional, deeper (up to 4,000 ft) core holes planned for summer 2011
- Resource confirmation through at least 3 full-size wells planned for 2012-2013



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Energy to the Railbelt

- Capacity estimated at 50~100 MW net, average. Target is:
 - ~50 MW in 2016
 - Expand to ~100 MW in 2019
- Near-term solution, bridging the gap to longer-term mega-solutions, e.g. Suisitna/Watana hydro and/or gas pipeline
- At 95% availability: 416~832 GWh/year



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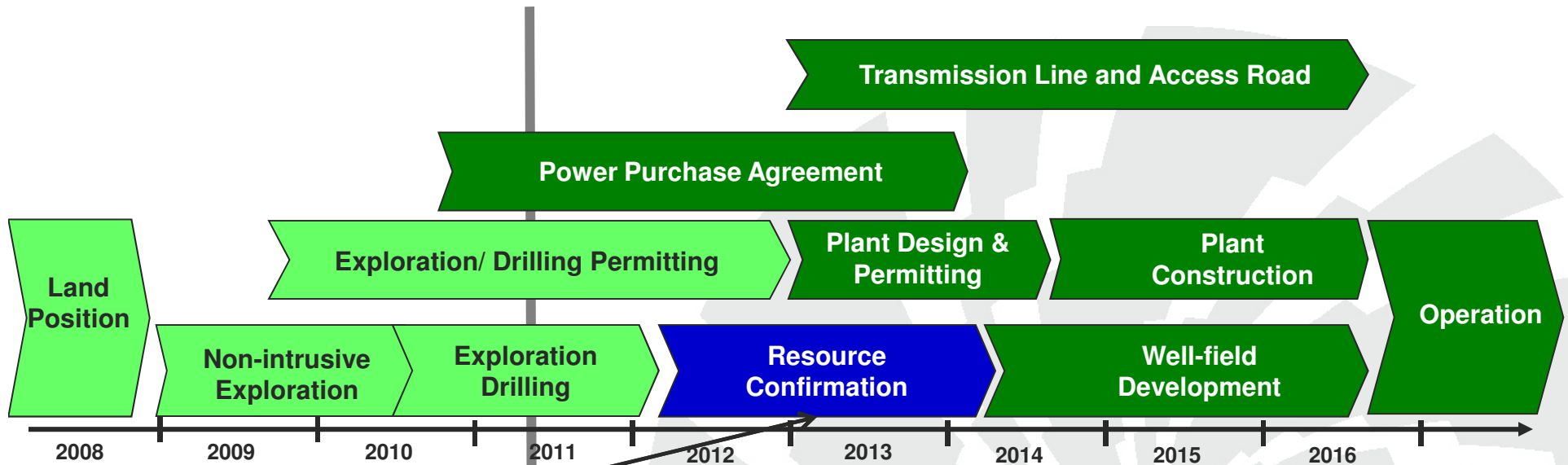
Cost of Power to Railbelt Utilities

- Estimated at ~12 c/kWh
(assuming this \$18 million appropriation is granted)
- Fixed price, not coupled with fossil fuels
- Geothermal is a baseload 24/7 resource, therefore utilities will not incur any integration costs
- Price is higher than current avoided costs (5-10 c/kWh), however:
 - Is comparable to other alternatives, e.g. Suisitna/Watana
 - Railbelt utilities' avoided costs are likely to go up with the continued depletion of Cook Inlet gas reserves



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Requested Funding this Year



Direct appropriation + AEA (round IV) + Ormat

Direct appropriation:	\$18 million
AEA round IV grant:	\$2 million
<u>Ormat:</u>	<u>\$5 million</u>
Total:	\$25 million

Scope of work:

- Build ice road to site
- Drill up to 3 full-size wells
- Flow test
- Defined as “construction” by the US Treasury



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Why Funding is Required?

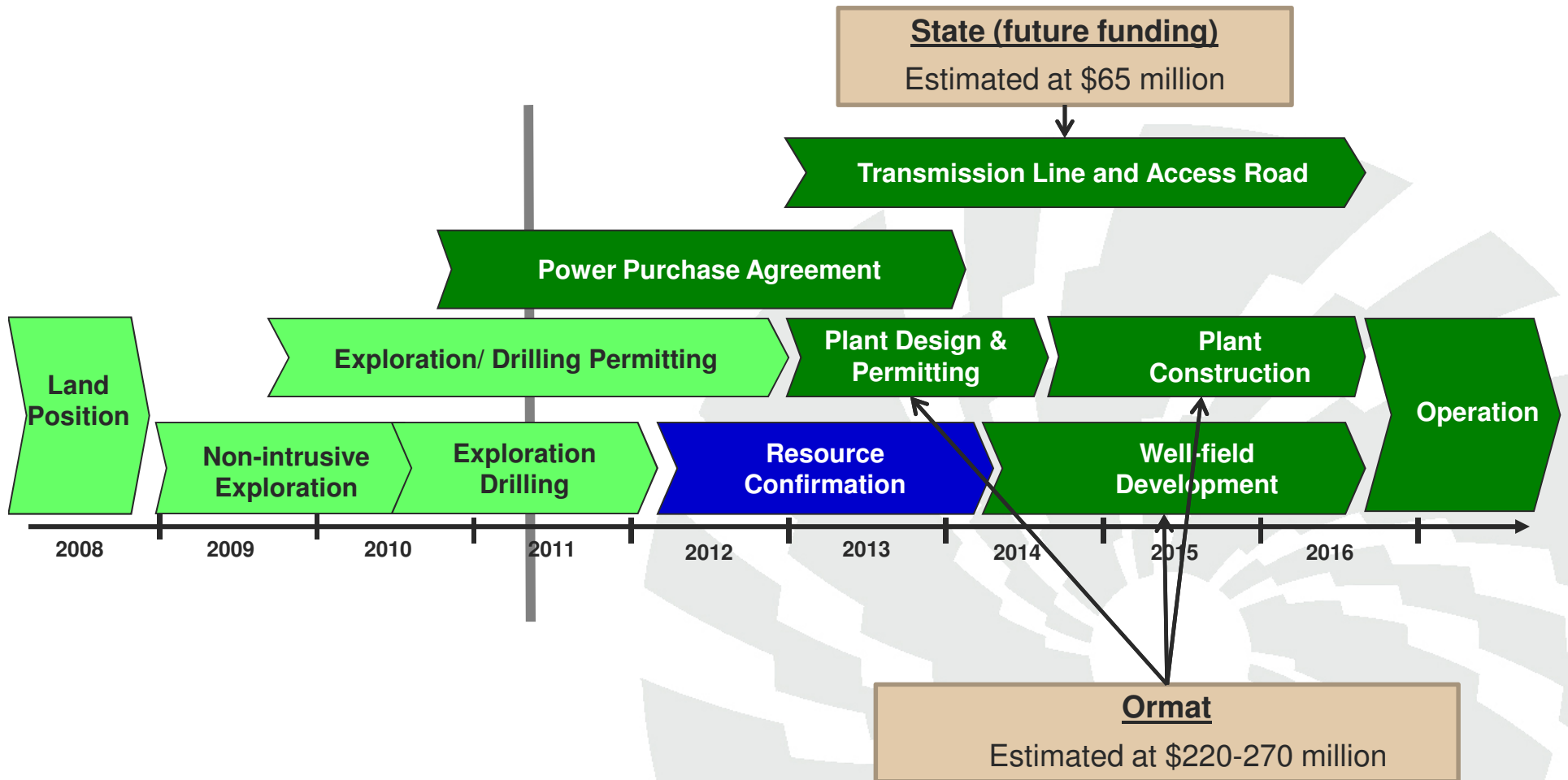
- While all Railbelt utilities are supportive of this project, they are not willing to sign a Power Purchase Agreement at this point
- Current funding will be exhausted by the end of 2011
- This appropriation, together with the AEA round IV grant, will allow the project to move forward towards resource confirmation
- **Without this appropriation, the project will most likely not be able to move forward beyond 2011**



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Forward Looking Funding Plan (Estimated)



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Total Estimated Funding

Project Phase	Timeline	Ormat Funding	State Funding
Obtain Land	2008	\$3.5 million	---
Exploration	2009-2011	\$2.5 million	\$2 million (AEA REFG round III)
Resource Confirmation	2012-2013	\$5 million	\$2 million (AEA REFG round IV) \$18 million (this appropriation)
Field Development, Plant Construction*	2014-2016	\$220-\$270 million	---
Infrastructure (trans. line, access road)	2013-2016	---	\$65 million
Total:		\$231~\$281 million	\$87 million

* For the first 50 MW plant. A slightly lower number will be required for the additional 50 MW expansion



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Local Support

■ From nearest communities:

- Tyonek:
 - Cooperative agreement with Tyonek Native Corporation (TNC) in place
 - TNC provided Ormat with letters of recommendation
- Kenai Peninsula Borough
 - Mayor provided Ormat with letters of recommendation
- Anchorage
 - Mayor provided Ormat with letters of recommendation

■ Environmental and renewable energy communities:

- Cook Inletkeeper
- Renewable Energy Alaska Project (REAP)



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Regional Priority and AEA Vetting

- Project supported by all 6 Railbelt utilities, separately and via ARCTEC, as a potentially viable near term solution
- Identified by the AEA-sponsored 2010 Railbelt Integrated Resource Plan as a beneficial component in the Railbelt's generation portfolio
- Selected by AEA for round III of the Renewable Energy Fund Grant (REFG)
 - Grant agreement is in place
 - 2010 and 2011 exploration plan progressing on time and on budget
- Recommended by AEA for round IV of the REFG
 - This \$18 million appropriation is requested in order to increase overall support beyond the current \$2 million cap on REFG grants



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Economic Impact

- Alaska's 100 MW of geothermal power could:
 - Provide 50 long term high paying jobs
 - Provide more than 100 construction jobs
 - Impact >200 local vendors
 - Fuel local economy with >\$850 million over 30 years



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Environmental Impact

- Alaska's 100 MW of geothermal power could annually:
 - Save ~6,000,000 MMBTU of depleting Cook Inlet natural gas
 - That's roughly the equivalent of Anchorage's entire residential heating consumption
 - Avoid emission of ~320,000 tons of CO₂*

*Calculated for natural gas, assuming 53 Kg of CO₂ per MMBtu (DOE/EIA <http://www.eia.doe.gov/oiaf/1605/coefficients.html>)



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Summary – Mt Spurr Benefits

- Clean, reliable, field-proven, base-load power to the Railbelt
- Significant relief in Cook Inlet natural gas consumption
- Significant contributor towards 50% renewables by 2025
- Provides long-term price stability
- Near-term solution, bridging the gap to longer-term mega-solutions, e.g. Suisitna hydro and/or gas pipeline
- Provides high quality, long term green jobs



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Important Highlights

- Every State dollar invested in the project will be conveyed to ratepayers through lower power prices
 - Will be controlled and verified by AEA and/or RCA
- The State enjoys co-ownership on all geologic data
 - Will help understand potential of other geothermal prospects in AK
- Funds will be spent wisely and gradually. Investment will stop if geological data is not encouraging
 - Can be monitored and verified by AEA and DNR



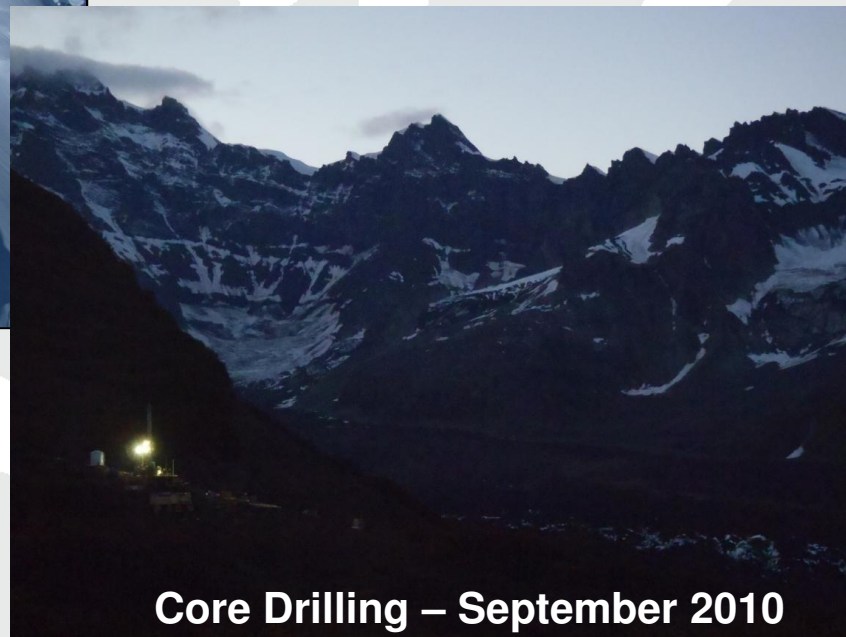
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Thank You!



Mt. Spurr Summit – August 2009



Core Drilling – September 2010



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