



U. S. Department of the Interior
Bureau of Land Management



Oil Shale

A component of the President's
Energy Policy

May 29, 2004

The President's Energy policy

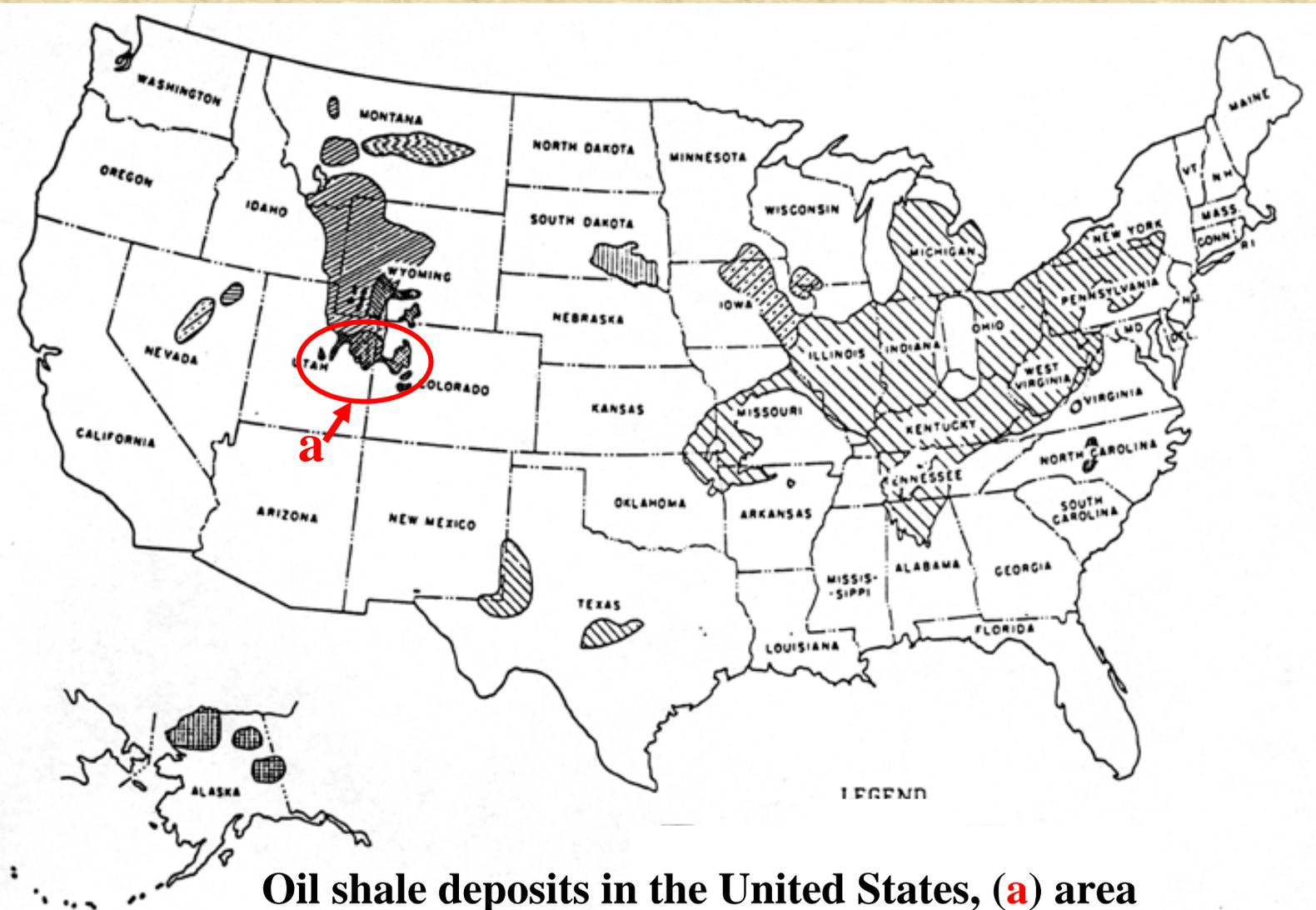
- Enunciated in May 2001, outlined over 100 recommendations to:
 - Diversify and increase energy supplies
 - Increase Energy Security
 - Encourage conservation, and
 - Ensure energy distribution
- **Implementation:**
 - BLM developed a systematic bureau-wide National Energy Policy Implementation plan designed to successfully implement the President's directives
 - The plan contains 54 tasks, among them, oil shale and tar sand. Tar sand group is yet to be convened
 - BLM established the National Oil Shale Task Force

National Oil Shale Task Force Objectives

- Review and identify location and production potential for oil shale resources
- Identify impediments to oil shale development on public lands
- Develop policy options for management

Oil Shale Resources

- U.S. Primary Resources in Green River Formation in Wyoming, Utah, and Colorado
- 72 % of Resources on Federal Land
- Green River Formation estimated to contain over 1.5 trillion barrels of oil



Oil shale deposits in the United States, (a) area of focus in oil shale deposits of the Green River Formation

Prototype Oil Shale Program Goals 1971

- Develop mining and retorting technology for oil shale production
- Stimulate private industry to produce commercial quantities of oil from oil shale
- Ensure environmental integrity of areas
- Develop technology to protect environment
- Equitable economic return for all parties
- Develop leasing management expertise

NOTE: Were these goals attained?

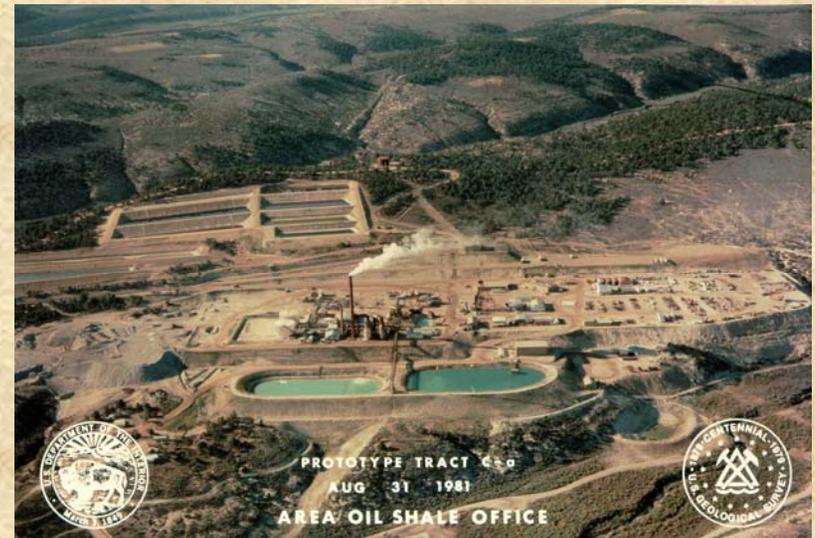
Colorado Prototype Leases (Ca,Cb)

Ca Lease

- In-situ retorting (rubblized oil shale cavities burned underground)
- Cavities flushed with water; impacts localized; lease relinquished in 1999

Cb Lease

- Conventional underground mining; only few levels of development started
- Oil shale rock brought to surface for off-site retorting
- Lease abandonment 95% complete with relinquishment pending



Utah Prototype Leases (Ua,Ub)

Ua and Ub

- Leases issued in 1974
- Exploration completed and initial mine developed
- Oil Shale rock mined but never processed
- Leases relinquished 12/85
 - BLM assumed reclamation responsibilities



Lessons Learned from Prototype Program

- Mining and retorting shale requires significant energy
- Technology was available to produce oil from oil shale
- Oil shale commercial production was limited by economics (cost of shale/kerogene oil production versus conventional petroleum production)
- Environmental concerns associated with oil shale development

Impediments to Oil Shale Development

- Economic
 - Current Costs \$40 to \$60 per barrel
- Environmental
 - Global warming and greenhouse emissions
 - Disposal of Spent Shale
 - Process requires water
- Regulatory
 - Absence of regulations to lease oil shale

DOI/BLM Management Policy Options

Short Term Lease

- Develop (upon management approval) a program that will allow for the issuance of leases for research and development without promulgating regulations
- Research and Development –Initial Thoughts (BLM needs more ideas)
 - Royalty - waived for 5 years
 - Rental - \$.50 per acre
 - Diligence - require diligent development
 - Environmental Protection
 - Land tenure security
 - Lease term - 10 years maximum
 - Lease size - 40+ acres
- Publish notice in the Federal Register for public input by summer 2004 with approval by the Assistant Secretary for Lands and Minerals

Transition from R&D lease to Commercial lease

- Non-commercial: Abandon and Reclaim
- Commercial -expand R&D Lease
- Lease Expansion Options:
 - (a) Non-competitive leasing
 - Establish Fair Market Value
 - (b) Competitive leasing
 - Accept Highest Bid
 - R&D Lessee Matches highest bid
- Full NEPA compliance prior to commercial development

DOI/BLM Management Policy

Long Term Lease (with management, BLM/DOI, approval of the Assistant Secretary for Lands and Minerals)

- Promulgate new oil shale leasing regulations to allow for long-term commercial oil shale development

Current International Oil Shale Efforts

- Australia –Stuart Project at 6,000 BOPD
- Brazil –Petrosix at 4,000 BOPD
- Canada –Water extraction/coking at 625,000 BOPD
- China –Vertical Retort at 800 BOPD
- Estonia –Galitor & Kiviter at 10,000 BOPD
- Israel –Vertical Retort (R&D) but shut-in
- Jordan –Active R&D Program, no production report
- Morocco –Active R&D Program, no production report
- Russia –Vertical Retort at 750 BOPD
- Turkey –Active R&D Program, no production report
- USA –Shell E&P, In-situ: Proprietary