



BUREAU OF BUSINESS
& ECONOMIC RESEARCH

THE ECONOMIC OPPORTUNITIES AND CHALLENGES OF URANIUM MINE CLEANUP IN NEW MEXICO

OCTOBER 16, 2020

PRESENTED TO NM LEGISLATURE INDIAN AFFAIRS COMMITTEE

RESEARCH BY JEFFREY MITCHELL, PH.D., ROSE ELIZABETH ROHRER, M.A.,
SOFIA XIMENEZ-BYRNE AND JOHN BETAK, PH.D.

The Economic Opportunities and Challenges of Uranium Mine Cleanup in New Mexico

In 2019, the New Mexico legislature appropriated funds for FY 2020 to The University of New Mexico's Bureau of Business and Economic Research (BBER) to investigate the potential economic impact of uranium mine cleanup and assess the workforce capacity for conducting the cleanup work.

The funding was first proposed in HB233, as sponsored by Rep. D. Wonda Johnson, and later authorized in HB548 (Section 27.A.4). The work was conducted with oversight by the New Mexico Legislature's Indian Affairs Committee.

This presentation summarizes the results of the study.

Objectives & Limits of this Study

Objectives

- ❑ Estimate potential economic impacts of uranium mine cleanup in New Mexico
- ❑ Identify the challenges that local businesses and the local workforce face in participating in the cleanup.
- ❑ Recommend actions that the State of New Mexico may take to support the full participation of local communities in remediation work.

Limits

- ❑ Study does NOT project potential future settlements.
- ❑ Study does NOT consider Administrative Orders of Consent (private settlements between responsible parties and regulators).
- ❑ Study does NOT address the broad costs of uranium site contamination, such as public health impacts, lost incomes, lost economic uses of land (e.g. grazing), cultural and social impacts.

Uranium Mine Cleanup as Economic Opportunity



Cleanup sites and Remediation scenarios

- ❑ Sites include underground mines and surface mines, and in cases both. Remediation strategies differ for the two mine types.
- ❑ Remediation scenarios include
 - ❑ Non-disposal - placing barriers and signs to restrict access to humans and wildlife.
 - ❑ Onsite disposal - varies, but may include consolidation of waste, sometimes with liner under or a cap over the waste.
 - ❑ Offsite disposal - transportation of contaminated waste offsite for re-processing or permanent storage.
 - ❑ Currently, New Mexico does NOT have repository sites that would allow for off-site disposal.
- ❑ Mine types and remediation scenarios have different impacts (as well as environmental implications) - amount and skills of labor, industries impacted.

Jackpile Surface Mine - Laguna



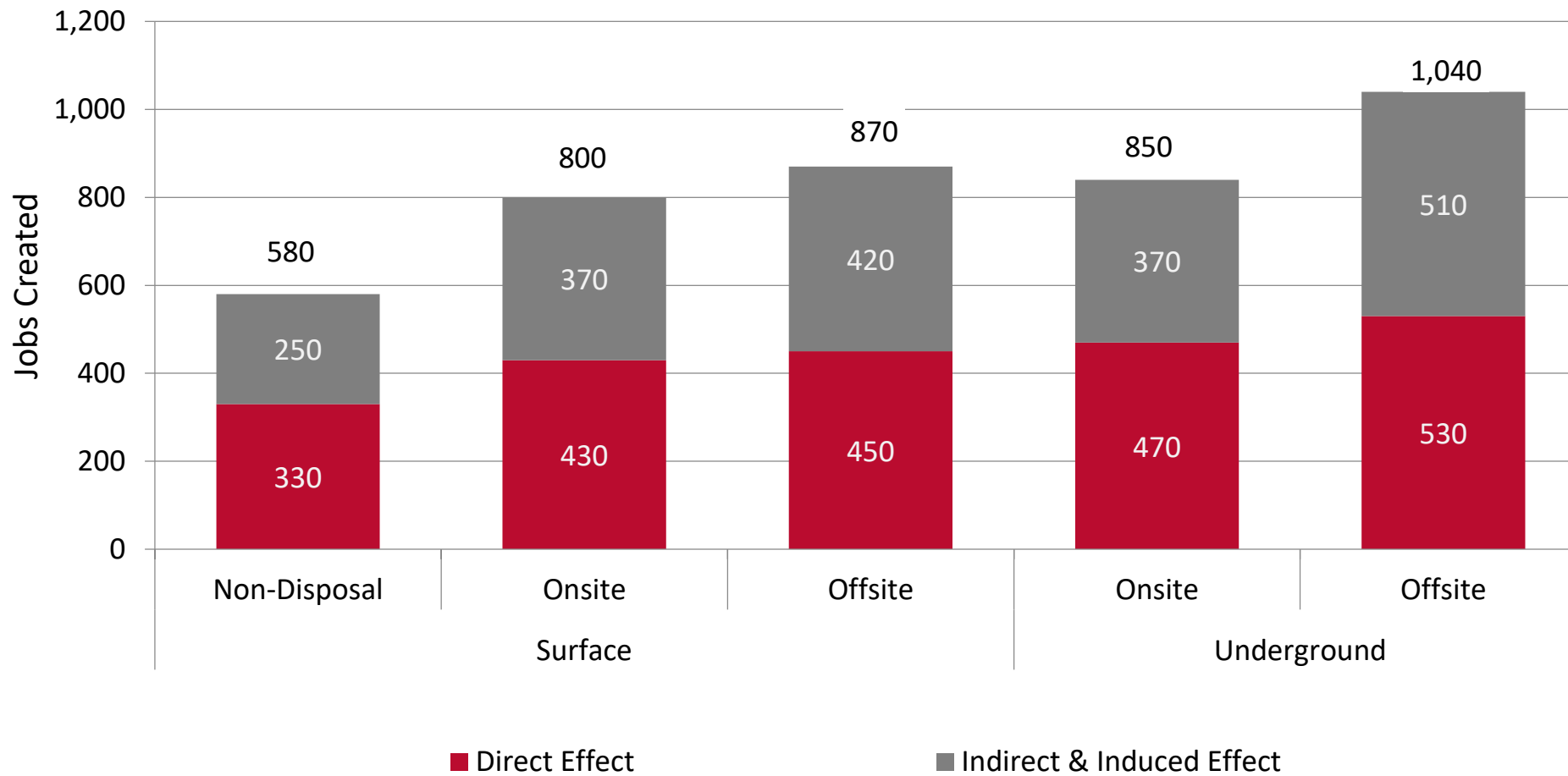
Kerr-McGee Underground Mine



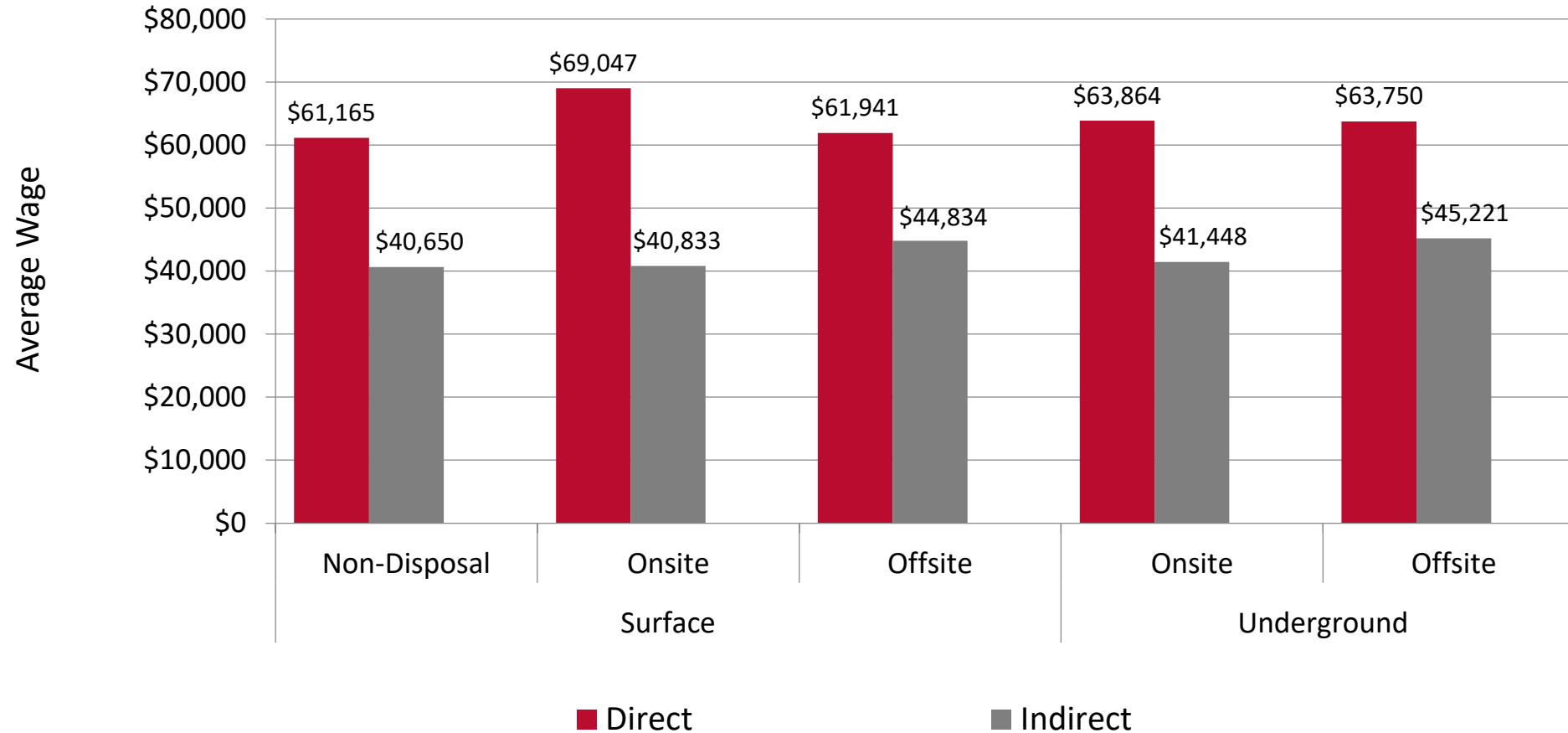
Potential Economic Benefits

- ❑ US EPA recovered \$1 billion to cleanup uranium sites on/near Navajo land in AZ and NM. Additionally, more than \$500 million has been received by the Navajo Nation.
 - ❑ BBER estimates that \$1 billion could create:
 - Revenues \$177.8 million/year for 10 years for local businesses.
 - 1,040 jobs for 10 years at an average salary of \$54,663/year.
 - Some jobs would be in the trades (similar to construction and mining), others professional, such as environmental engineering.
 - ❑ This includes both NM and AZ, and some will leak from the state.
 - ❑ This is the tip of an iceberg - future settlements could generate far more.
 - ❑ Business & workforce development for uranium cleanup can be transferred to other areas of environmental remediation.
- *Cleanup of abandoned uranium sites will happen - at some point - funded in part with the \$1 billion Tronox settlement.*
- The question is when and whether the communities most impacted by the contamination share in the economic benefits.*

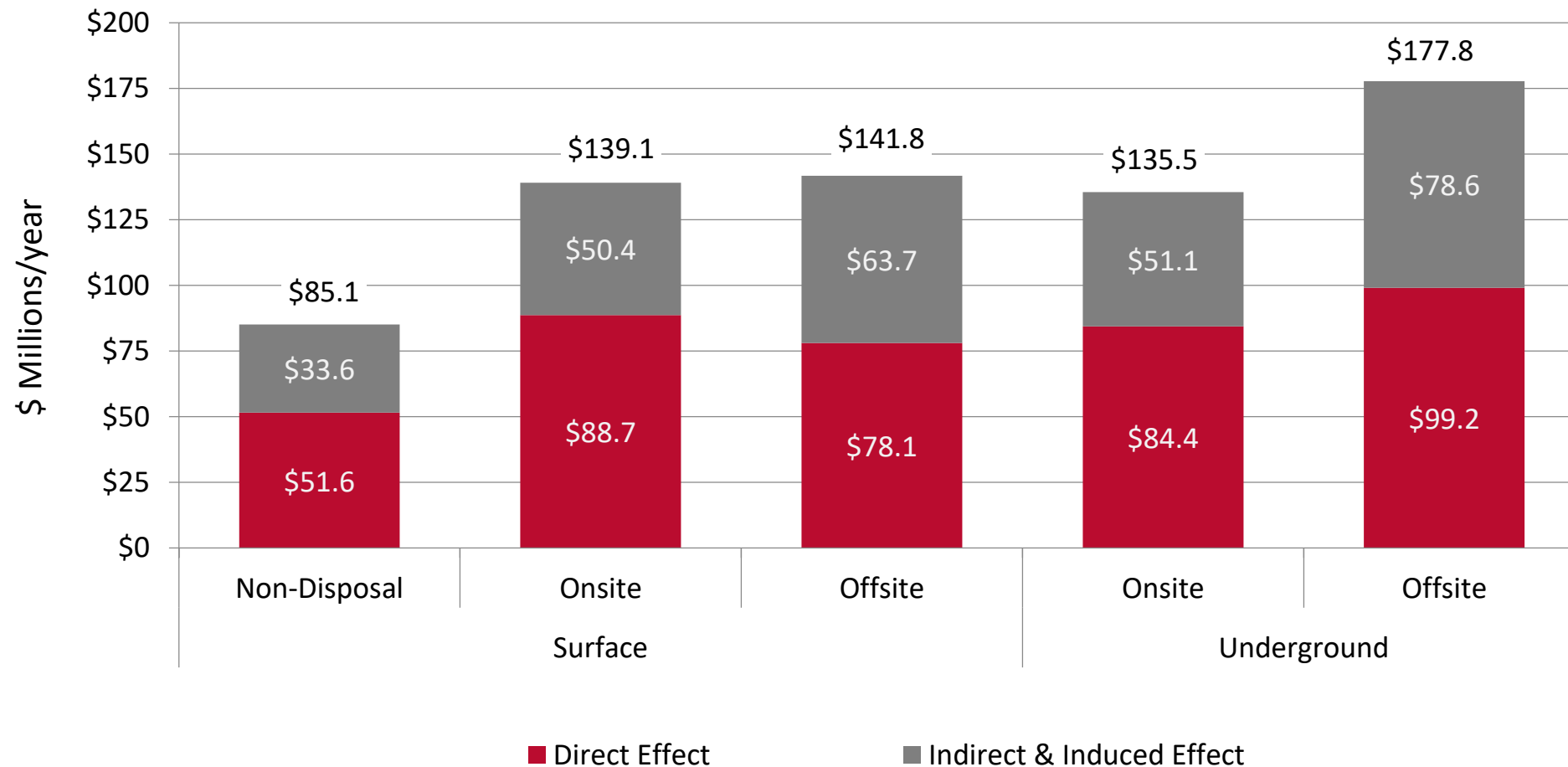
Jobs created during 10-year cleanup with \$1 billion in direct spending, by mine type and cleanup scenario



Average annual wage of jobs directly and indirectly supported by uranium mine cleanup

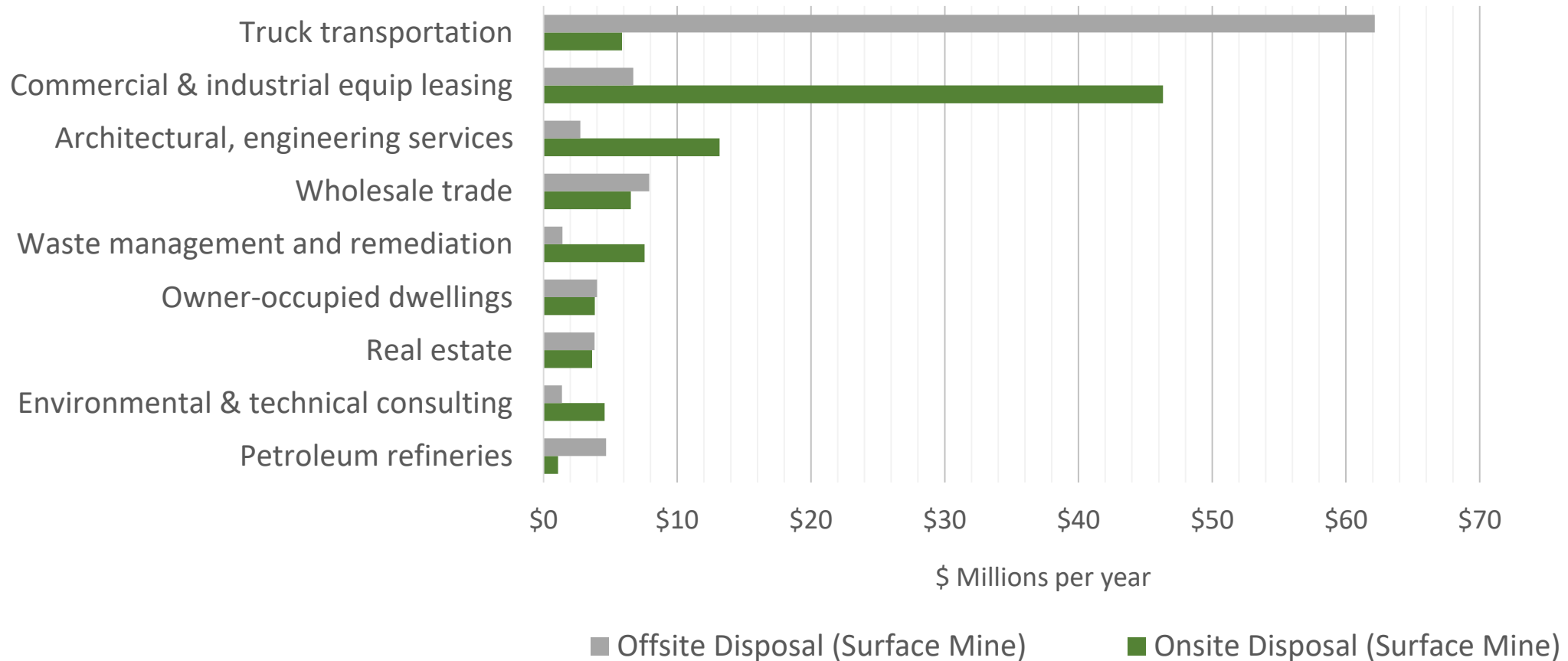


Output per year during 10-year cleanup with \$1 billion in direct spending, by mine type and cleanup scenario



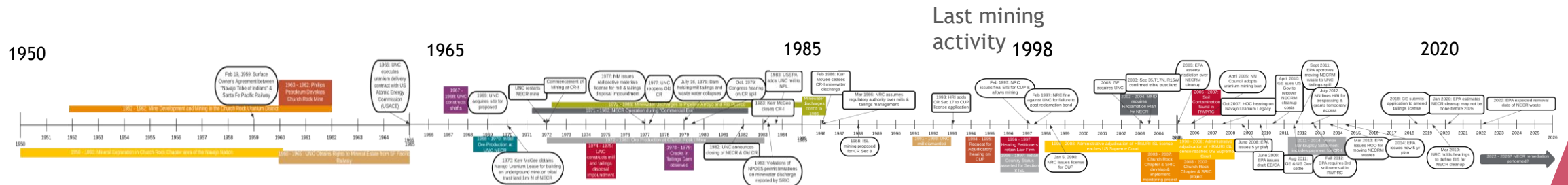
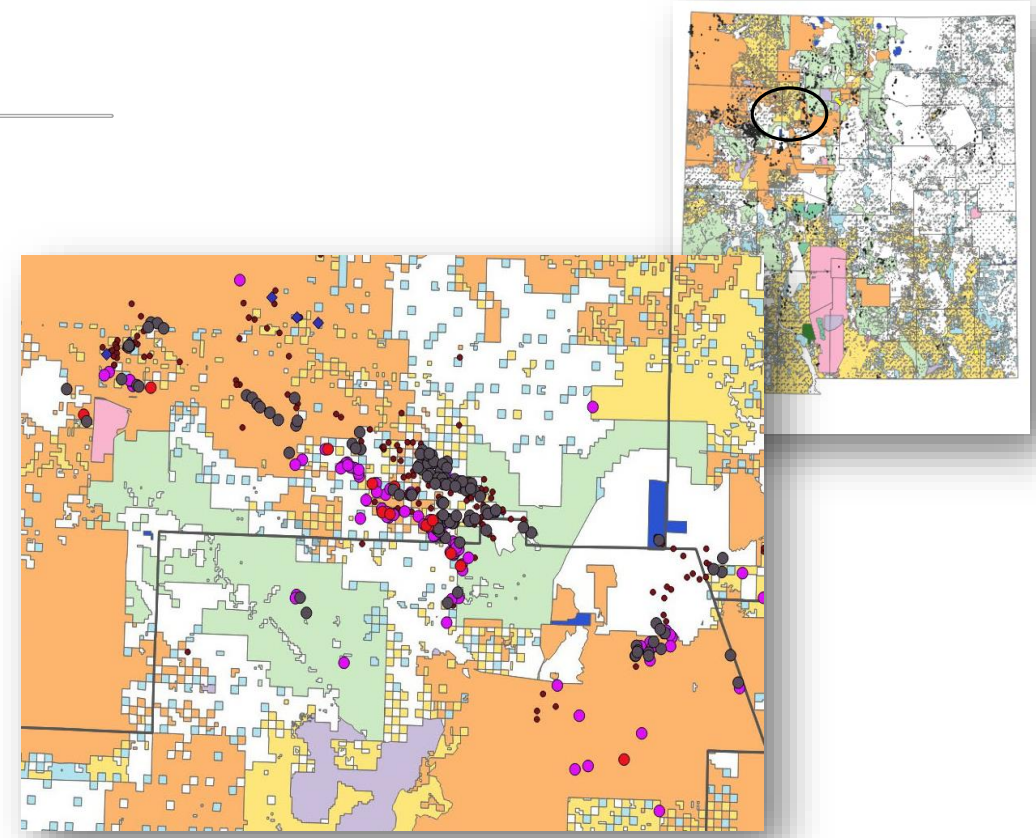
Cleanup strategies may have significantly different impacts by industry

Revenues by Industry per Year for Surface Mine Remediation: Onsite & Offsite Disposal



Planning & Administration

- ❑ Incomplete, contradictory, non-transparent information about uranium sites (e.g. location, ownership, status) and cleanup activities, with no centralized repository.
- ❑ NM lacks unified voice within State government, in public-private initiatives, and in relation to tribal and federal governments.
- ❑ NM lacks a strategic plan, making cleanup efforts often more reactive than proactive.



Businesses

- ❑ Environmental remediation industry is led by a few large firms (typically general contractors) with many small firms conducting work.
- ❑ NM firms lack organizational capacity to track new RFPs; navigate complex federal regulations; maintain relationships with general contractors.
- ❑ NM firms often lack collateral and cash for bonding.
- ❑ Small firms are not sufficiently diversified and lack the cash flow to respond to uncertain and irregular timelines.



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Workforce

- ❑ While professional workers such as environmental engineers may require specialized training, much of workforce require skills common to the mining and construction industries.
- ❑ However, uranium remediation requires specialized certification (e.g. 40-hr HAZWOPER course). In NM courses are expensive and hard to find.
- ❑ NM lacks workforce placement service for environmental remediation - workers can't find the employers, employers can't find qualified workers.
- ❑ NM universities provide necessary coursework, but have limited field application; little coordination between university programs.
- ❑ Brain drain: graduates get first job outside the state, and don't return.



Leadership & Vision

- ❑ No consensus regarding effective and adequate ‘cleanup’ and post-remediation/reclamation land use.
- ❑ In NM and beyond, remediation technologies are dated, expensive, and do not provide a permanent solution.
- ❑ Remediation efforts are constrained by complex patterns of landownership, uncertain liability, and lack of disposal options.
- ❑ Strategies fail to incorporate local & traditional ecological knowledge and context; especially important in NM and on/near tribal lands.



Programs and Policies



Planning & Organization

- ❑ Create an accessible and transparent information repository
- ❑ Identify and convene key stakeholders
- ❑ Develop a State strategic plan to coordinate cleanup efforts
- ❑ Engage Federal congressional delegations in planning initiatives

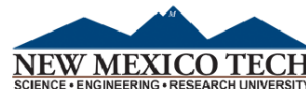
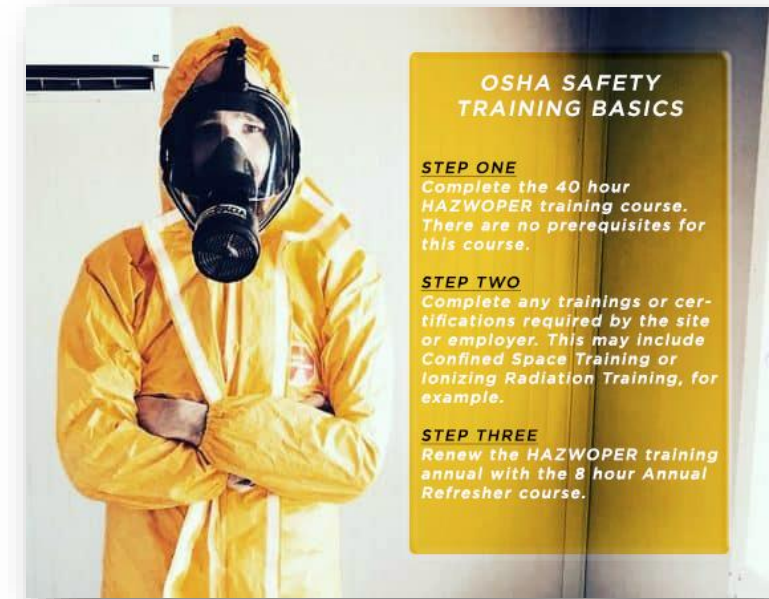


Supporting Businesses

- ❑ Create a ‘front office’ to support local businesses working in environmental remediation:
 - ❑ Centralized networking/referral services; collection/dissemination of RFPs
 - ❑ Business support services to advise on complex subcontracting and regulatory requirements
- ❑ Establish assessable, multi-purpose office spaces in one or two communities
 - ❑ Co-work office space for small businesses (with reliable broadband access)
 - ❑ Classrooms for training and certification programs
- ❑ Create/underwrite surety bonding facilities for contractors

Developing The Workforce

- ❑ Coordinate and fund safety certification & training programs
- ❑ Establish a job placement service for both 'yellow iron' and professional workers.
- ❑ Facilitate collaboration among higher education institutions re: programs of study and placement.



Supporting long-term growth

- ❑ Establish environmental remediation as ‘Key Industry’ similar to film, aerospace, and cybersecurity.
- ❑ Establish an Innovation Collaborative among NM’s research universities and national labs to develop new solutions and network with other national organizations to develop new long-term storage solutions.
- ❑ Advocate and support broader research on impacts of uranium contamination, including cultural impacts, wage loss, public health, water safety, pathways of potential contamination, agricultural practice, post-cleanup land use options.



Concluding Thoughts

- ❑ Abandoned uranium sites are a threat to public safety, especially among Native communities.
- ❑ Efforts to cleanup these sites have been slow to develop but settlements such as the \$1 billion Tronox agreement are promising.
- ❑ Remediation of uranium sites is an economic opportunity for NM and the Native communities - \$1 billion in settlement funds could support more than 1,000 well-paying jobs for 10 years.
- ❑ ***Either NM gets involved or the contracts and jobs will leave the state.***
- ❑ Not starting from scratch - the state has most of necessary workforce and necessary resources.
- ❑ Better coordination and basic levels of support - marshalling the resources that already exist.
- ❑ The initiatives require little funding - compared to other state-funded economic development initiatives: 4 or 5 FTE; one or two community-based offices; planning & startup funding.
- ❑ Initiatives to support uranium cleanup can be leveraged to create a larger industry in environmental remediation.



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Thank you!

Rose Rohrer: rrohrer@unm.edu

Jeff Mitchell: jeffm@unm.edu

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