

# Nevada's C-19 Recovery Plan with Federal Assistance

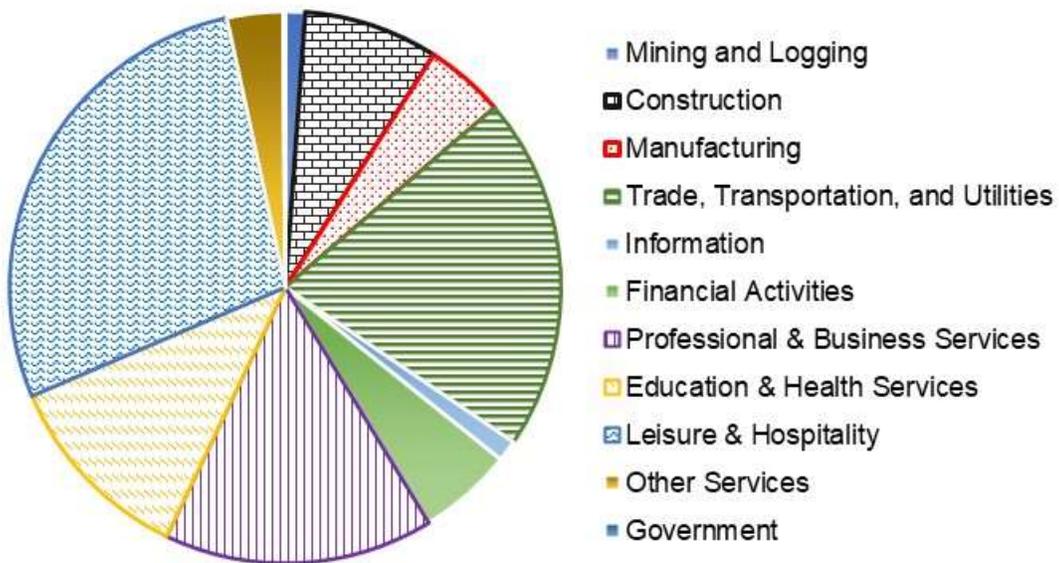
## NEVADA IMPACTED MORE THAN ANY OTHER US STATE

The economy of Nevada has been booming for several years but is now suffering. The impact of the shutdown of most economic activity to ameliorate the spread of Covid-19 has hit Nevada harder than any other state in the US.

### NEVADA ECONOMIC ACTIVITY BY SECTOR 2019

Nevada had low unemployment during 2019 and was classified as “fully employed” according to the US Bureau of Labor Statistics. Nevada is overly reliant on hospitality<sup>1</sup> compared to all other 49 states. When most developed countries around the world have good economic conditions, Nevada, and especially the Las Vegas metro receive millions of tourists and convention participants annually<sup>2</sup> that are about 15 times the state's population. The breakdown of Nevada employment by sector is shown in the pie chart.

### Nevada Employment by Sector



Source – Bureau of Labor Statistics 2019 data: <https://www.bls.gov/regions/west/nevada.htm>

Hospitality has an extensive trickle down to other employment sectors. The revenue for the sectors of construction, professional and legal services, financial activities, information, and other services are mainly generated as outside supporting functions to hospitality.

The temporary closures and loss of tourism revenue impacts all business activities but is dramatically impacting many small businesses. These types of businesses lack revenue opportunities outside of tourism or a capital cushion. They also lack banking, legal and accounting relationships and sophistication needed to access sufficient sources of commercial capital or federal sources of assistance. Many will never return to business and thousands of jobs will be permanently lost.

<sup>1</sup> Hospitality includes hotels, casinos, entertainment, and tourist spending on dining, drinking and retail.

<sup>2</sup> The Las Vegas Convention and Visitors Bureau tracks detailed visitor counts.

[https://assets.simpleviewcms.com/simpleview/image/upload/v1/clients/lasvegas/Historical\\_1970\\_to\\_2019\\_ada0164b-b599-4fac-8f7a-eb26bfe17187.pdf](https://assets.simpleviewcms.com/simpleview/image/upload/v1/clients/lasvegas/Historical_1970_to_2019_ada0164b-b599-4fac-8f7a-eb26bfe17187.pdf)

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Nevada must take bold steps to prevent an extended downturn of its economy and hardships for its citizens. The most important step is to establish a diversified economy into sectors unrelated to tourism that will also minimize impacts from the next Black Swan event.

Diversification should be focused into areas that meet all four criteria below:

1. Nevada provides a competitive advantage relative to other US states
2. Likely to grow employment over the long term
3. Have no business cycle similarities to hospitality – or an inverse cycle
4. Likely to continue to use human workers for the next couple decades and avoid worker replacement by artificial intelligence or robots or a combination of both.

Advantages Nevada can provide:

- A. Lower cost of doing business, especially due to lesser business regulation that most US states but also resulting from lesser costs of land and construction
- B. Exceptional global non-stop airline service for passengers and freight.
- C. Reliable supply of electricity and water with capacity for long-term growth
- D. Local direct access to the main national Internet backbone from the three top providers and local access to the largest commercial data center in the US<sup>3</sup>.
- E. Opportunities to partner with the University of Nevada Las Vegas with its top-rated supercomputer<sup>4</sup>.
- F. Specialized facilities and capabilities at the extensive Nevada National Security Site<sup>5</sup> and the nearby Yucca Mountain Site<sup>6</sup>.
- G. Lower cost of living for workers covering housing, taxes, and utilities.
- H. Unparalleled access to dining opportunities for workers and customers.
- I. Leading access for workers to spectator activities covering hockey, football, soccer, concerts, shows along with cultural activities in one of the global top 3 performing arts centers<sup>7</sup>.
- J. Superior access for workers to outdoor activities such as hiking, boating, state parks, and national parks<sup>8</sup>.

There are many sectors that are unrelated to tourism that are appealing for economic diversification such as social networking companies and companies that perform coding for apps and software. Nevada lacks sustainable advantages in those sectors. Some of those sectors are being automated<sup>9</sup>.

Nevada especially needs employment sectors that produce revenue from outside of Nevada so Nevada's workers and businesses will generate the cash to purchase food and goods brought into Nevada. One candidate employment sector that meets the four criteria above is the design and development of specialized tangible products and then manufacturing those products to be sold outside of Nevada.

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<sup>3</sup> Switch Corporate Center and Core Campus <https://www.switch.com/las-vegas/>

<sup>4</sup> UNLV has an Intel Cherry Creek supercomputer <https://www.top500.org/site/49184>

<sup>5</sup> Nevada National Security Site <https://www.nnss.gov/>

<sup>6</sup> Yucca Mountain can become a nuclear fuel recycling center to extract and use as much as 90% of the spent fuel rods and resell the recycled product instead of storing those spent rods. A recycling center can build upon the billions spent to construct a waste storage. <https://www.aip.org/fyi/2008/doe-files-yucca-mountain-nuclear-waste-repository-application>

<sup>7</sup> Smith Center is ranked #3 in the world by the professional trade group covering performing arts facilities.

<sup>8</sup> Las Vegas is located sufficiently close to several national parks to enable day trips such as Grand Canyon, Death Valley, Zion, Great Basin and Bryce Canyon.

<sup>9</sup> Many jobs will be automated as labor costs rise the cost of computing power and data storage decline.

<https://public.tableau.com/profile/mckinsey.analytics#!/vizhome/AutomationandUSJobs/Technicalpotentialforautomation>

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## PROPOSED PLAN FOR NEVADA TO COMPLETE A YUCCA MOUNTAIN FUEL RECYCLING PLANT AND AS PHASE 4 RECOVERY PROGRAM

### FACTORS

1. The shutdowns caused by Covid-19 will have a more severe impact on Nevada than any other state. A recovery in tourism to Nevada, especially the more lucrative international tourism, will take longer than other sectors of the US economy.
2. Nevada must diversify its economy to speed its recovery from Covid-19 and should do so with bold plans.
3. Nevada's economic diversification would help insulate the state from future Black Swan events which will likely include natural disasters, new infectious diseases, and geopolitical events.
4. Nevada's primary economic activity is now based on conventions and tourism via hospitality including entertainment, gaming, restaurants-bars, and shopping. Hospitality and its trickle-down covers most of the Nevada economy given the impact on suppliers to the broader hospitality industry.
5. Many workers in hospitality receive some or most of their income from tips that are critical to their financial wellbeing and will not be compensated through any corporate, state, or federal programs.

## WHAT NEVADA OFFERS FOR EXPANDED RECOVERY FUNDING AND A NEVADA NATIONAL LABORATORY

### Nuclear Fuel Recycling and Isotope Recovery at Yucca Mountain and

### Energy Conservation Research And Development At A New National Laboratory In Nevada

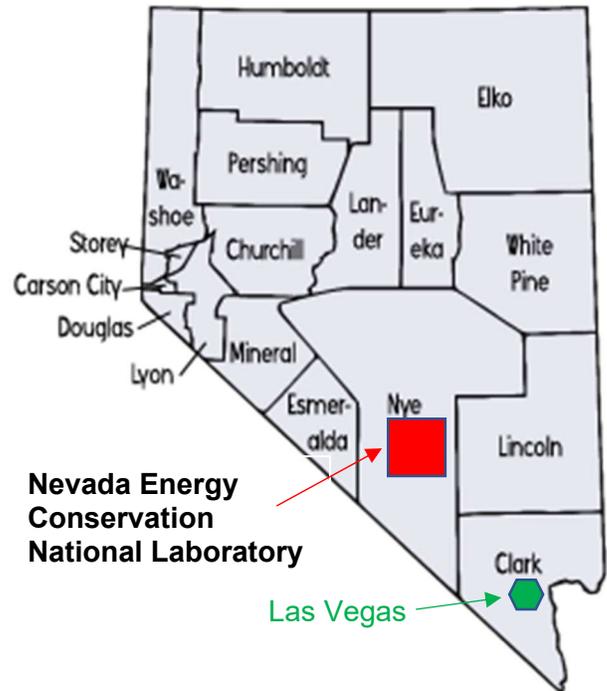
- RECYCLING AND RESALE OF RESULTING PRODUCTS
- NO DUMPING = NO LONG-TERM WASTE STORAGE \$5B startup over several years and \$800M/year
- Recovering about 90% of reusable fuel which is then sold to refuel reactors and avoid dependency on imported fuel
- Separation of non-fuel isotopes and sold for specialized uses with small quantities of short half-life isotopes held until each is no longer active.

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## IN RETURN FOR YUCCA MOUNTAIN OPERATIONS - NEVADA RECEIVES FUNDING IN 6 CATEGORIES THAT INCLUDES ANNUAL EDUCATION AND ECONOMIC DIVERSIFICATION IN MANUFACTURING SUPPORT

A – Nevada Energy Conservation National Laboratory - \$15 billion startup plus annual operation budget for about 10,000 professional staff

- Establish a new Dept. of Energy national laboratory with equal status to Sandia National Laboratory and Lawrence Livermore National Laboratory just north of the Nevada National Security Site.
- Authorize a charter for the Nevada Energy Conservation National Laboratory to invent and develop (a) energy conservation technologies such as building insulation<sup>10</sup>; (b) separate spent nuclear fuel into atomic elements to the greatest extent practical; (c) use elements separated from spent fuel to make useful radiochemistry materials, such as materials used for nuclear medicine; (d) produce and sell new nuclear fuel<sup>11</sup> to operating reactors from the elements extracted from spent fuel;
- Acquire at least 500 square miles of federal land owned by the Bureau of Land Management or Dept. of Defense located north of the Nevada National Security Site
- Build facilities and purchase and install equipment
- Hire about 3,000 permanent staff with PhDs physics, chemistry, biology, radiochemistry, and engineering,
- Hire about 3,000 permanent staff with bachelor's degrees and master's degrees and associate degrees in those fields.
- Hire about 4,000 permanent support staff
- Fund a permanent joint programs with UNLV for (a) radiochemistry and physics at \$25M/year plus (b) \$25M per year for materials science in physics chemistry and engineering to develop major advances in materials for energy, and (c) \$25 million per year for biology, physics and medicine for isotopes needed by nuclear medicine.
- Recruit science and engineering grads from UNLV to staff the Nevada Energy Conservation National Laboratory.



<sup>10</sup> Heating and cooling buildings is one of the largest energy consumption categories in the US. Building insulation with 5 times the thermal insulation from farm and residential waste streams that provide at least 5 times the thermal insulation properties of existing materials while achieving mass production costs similar to existing materials could save as much as 20% of US energy consumption.

<sup>11</sup> Most nuclear fuel used to operate power plants in the US is sourced from very-large mines in the country of Zambia with questionable labor safety practices and questionable use of the revenue from those sales. The yield of high-grade ore in Zambia is predicted to decline by 2022. Lower grade ore can continue to provide nuclear fuel but at a much higher unit cost.

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## B - Hospitality Survival and Recovery Assistance - \$15 billion (or more) one-time split

- Direct payments to workers in hospitality and related areas \$6B
- Survival assistance to hotels and tourism businesses to reopen and rebuild tourism \$6B
- Assistance to cities and counties to compensate for lost tourism tax revenue \$3B

## C - K-12 Programs

- STEM Teaching Grants of \$800M per year perpetually that is allocated per student statewide and paid directly to teachers actively teaching science that have a degree in science or engineering with incremental grants for teachers that have both a degree and at least 5 years of actual industrial experience
- Aviation Magnet High Schools (grades 9 to 12) near McCarran that graduate a several hundred students per year who pass FAA A&P license exams (modeled on New York's Aviation school) - \$350M startup for facilities with full-scale jet engines and airliner sections
- Electrician Magnet Schools (grades 9 to 12) that combined graduate over a thousand students per year who pass Nevada state license exams - \$200M startup for facilities.
- Other Magnet Schools not connected to hospitality, gaming or entertainment (grades 9 to 12) graduating 1,000 students per year who pass Nevada license exams - \$350M for facilities.

## D – Economic Diversification via Medical Excellence

- Nuclear and Personalized Medicine Research at UNLV partnered with Lou Ruvo Brain Center and UMC - \$100M per year perpetually – building upon UNLV's technological leadership in radiochemistry
- Interdisciplinary Science & Medicine Facility at UNLV that includes faculty from radiochemistry, medicine, physics, biology, chemistry \$200M one-time for facilities
- Cancer Treatment Center at UMC using Nuclear Medicine and Personalized Medicine – Genetic marker identification and for cancers, brain functions and diseases and analysis of large genetic databases. Development of Medical Isotopes from UNLV. Combination of PET, MRI, and CT imaging for detection of diseases and precision treatment and clinical trial end-point verification. Proton Therapy with compact proton accelerators. \$50M/year and \$250M one-time for facilities
- MD Residencies (about 5 years each) at UMC and other hospitals to produce 300 board certified MDs per year, with the majority in primary care \$150M/year

## E – Economic Diversification via Manufacturing Critical Materials

The world has learned from the shortages highlighted by Covid-19 that many critical basic ingredients for drugs, medical equipment, medical devices and other essential activities are sourced from a single location in China or elsewhere.

- Provide sufficient land and establish a manufacturing business park where federal and state regulatory agencies have preapproved resident companies to mass produce numerous critical materials for the USA. \$350M plus grants of BLM land.
  - Build 2 buildings of 200K sq. ft. each in the UNLV Business Park near Hwy 215 with more than 60% of total floor space devoted to laboratories consisting of a mix of Level 3 biohazard wet labs and Class 1 clean rooms with the remainder offices, meeting rooms and food.
  - Recruit several companies to establish a facility to mass manufacture numerous critical starting ingredients, such as metal alloys and monomers not commercially available in production volume within the USA<sup>12</sup>.
  - Recruit multiple large and emerging companies to manufacture medical equipment, medical devices or major subassemblies for that equipment in this business park. \$400M one-time for manufacturing incubator

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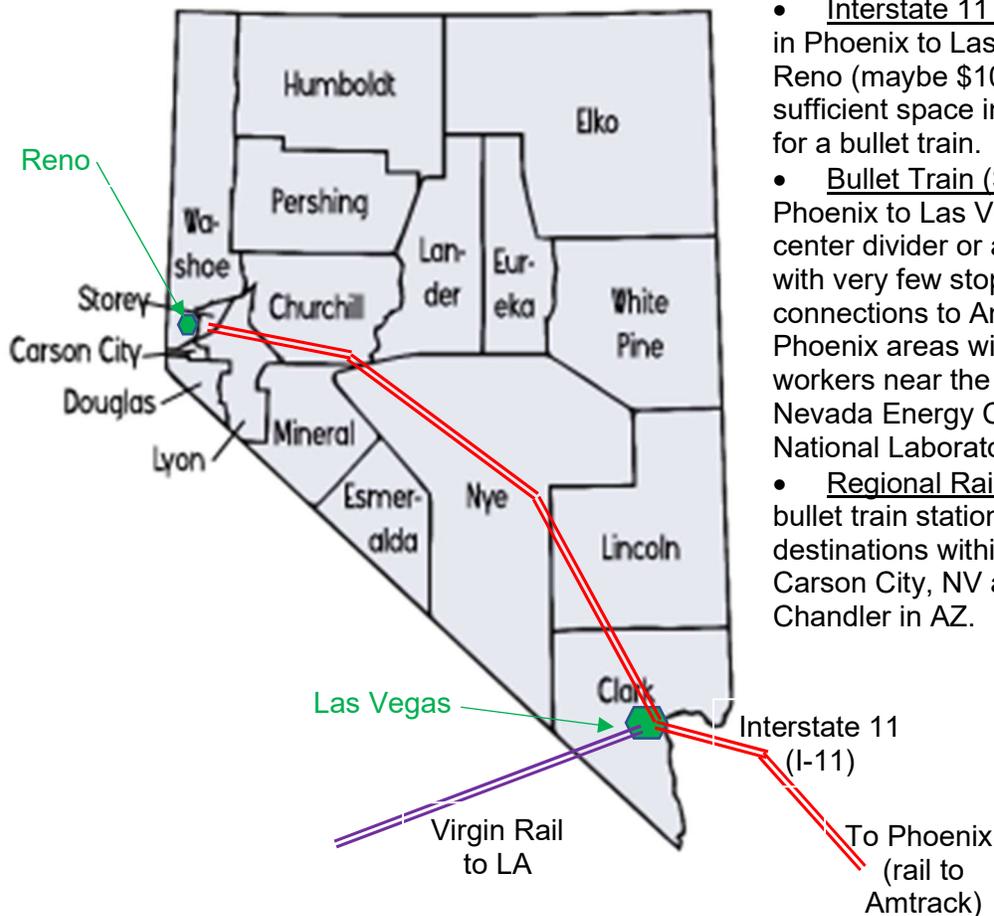
<sup>12</sup> Examples are monomers essential to make certain polymers needed to make components for medical equipment, implanted medical devices, and transportation-vehicle subassemblies. \$250M one-time for 10-year Nevada Tax Holidays

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- Recruit multiple companies to manufacture various transportation subassemblies for aerospace, rail, ship and highway vehicles in this business park. \$250M one-time for 10-year Nevada Tax Holidays.

## F –Transportation Infrastructure

- McCarran Lost Passenger Revenue Recovery (\$400M)
- McCarran Aircraft and Engine Repair and Upgrade Facilities (\$1B)
- McCarran Airfreight Hub Expansion to make McCarran a West Coast center for package delivery similar to UPS in Kentucky (\$1B)
- Subway rail line under or near Las Vegas Blvd<sup>13</sup> (\$14B) from St. Rose Pkwy to Apex with stations at major intersections (same as I-15 exits) with direct underground passenger links to McCarran, UNLV, Passenger Rail Hub for Virgin Bullet Train, Medical District (UMC), Arts District (Smith Center), Downtown, and Motor Speedway with very large parking lots covered with shade structures using solar panels at St. Rose Pkwy and Apex (tunneling and rail cars modeled on London's new Elizabeth line)
- Light Rail Cross Links for East-West transit from subway to Summerlin and Henderson (\$1B)



- Interstate 11 completed from I-10 in Phoenix to Las Vegas to I-80 in Reno (maybe \$10B or so) with sufficient space in the center divider for a bullet train.
- Bullet Train (\$14B or so) from Phoenix to Las Vegas to Reno in I-11 center divider or along sides of I-11 with very few stops and include connections to Amtrak in Reno and Phoenix areas with a station for workers near the entrance to the Nevada Energy Conservation National Laboratory.
- Regional Rail (\$2B) to connect bullet train stations to major destinations within 40 miles such as Carson City, NV and Surprise and Chandler in AZ.

<sup>13</sup> London's new Elizabeth Tube Line (Crossrail subway) is nearing completion and extends from the far eastern side of London to the far western suburbs of London. It was built under buildings, highways and other subways using tunneling machines in a process that could be directly copied in Las Vegas. <https://en.wikipedia.org/wiki/Crossrail>