NVEnergy

ENERGY TRANSMISSION INFRASTRUCTURE ENHANCEMENT

ECONOMIC AND FISCAL IMPACT ANALYSIS

APPLIED ANALYSIS

6385 S. RAINBOW BLVD., SUITE 105
LAS VEGAS, NEVADA 89118

T: 702.967.3333
F: 702.314.1439
APPLIEDANALYSIS.COM

APPLIED ANALYSIS

January 9, 2021

Ms. Kim Williams
Manager Environmental Services
NV Energy
6226 West Sahara Avenue
Las Vegas, Nevada 89146

RE: Energy Transmission Infrastructure Enhancement, Economic and Fiscal Impact Analysis

Dear Ms. Williams:

In accordance with your request, Applied Analysis ("AA") is pleased to submit this supplemental summary report, *Energy Transmission Infrastructure Enhancement | Economic and Fiscal Impact Analysis*. AA was previously retained by NV Energy ("NV Energy" or the "Company") to review and analyze the economic, fiscal, and social impacts associated with its proposed Greenlink Nevada Transmission Initiative infrastructure enhancement ("Greenlink Nevada" or "the project"). This supplemental summary report outlines the economic, fiscal, and social impacts associated with Greenlink Nevada when Greenlink West is constructed first, followed by Greenlink North. ***Based on additional information from the Company, the following report has been revised to remove "Other Vouchers" from the economic analysis.***

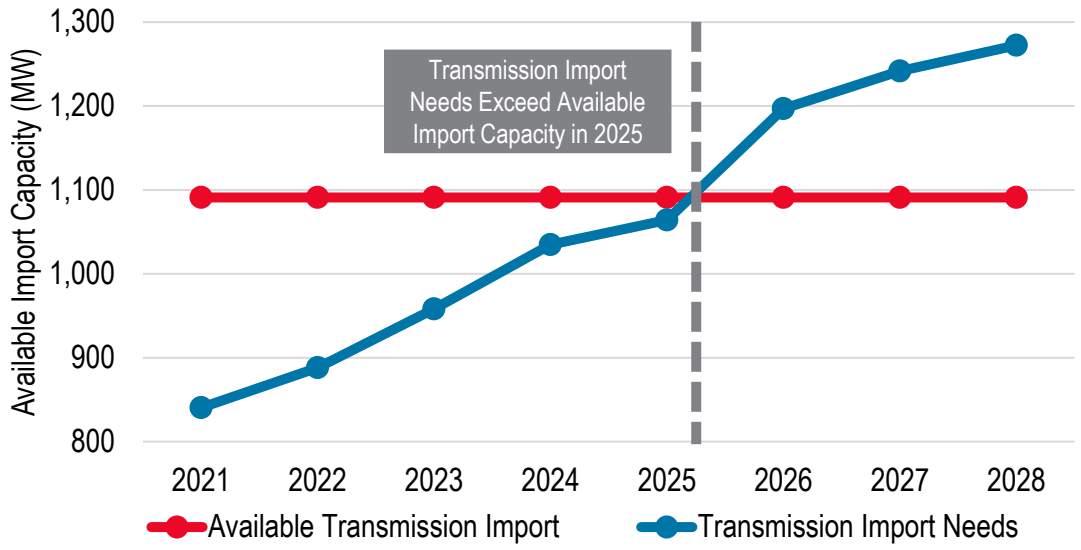
This report was designed by AA in response to your follow-up request. Generally speaking, the data contained herein are as of September 2020 and utilize the most recent data available. The information provided in this summary, and the conclusions reached herein, are based on the findings of our research and our knowledge of the market as of the date of this report. We have no responsibility to update this report for the events and circumstances that may occur after this date. This information was collected from our internal databases and various third parties, including the Company and various public and private data providers. The data were assembled by AA. The information collected was not subjected to any auditing or review procedures by AA. While we have no reason to doubt its accuracy, we make no representations or assurances as to its completeness.

SUMMARY OF FINDINGS

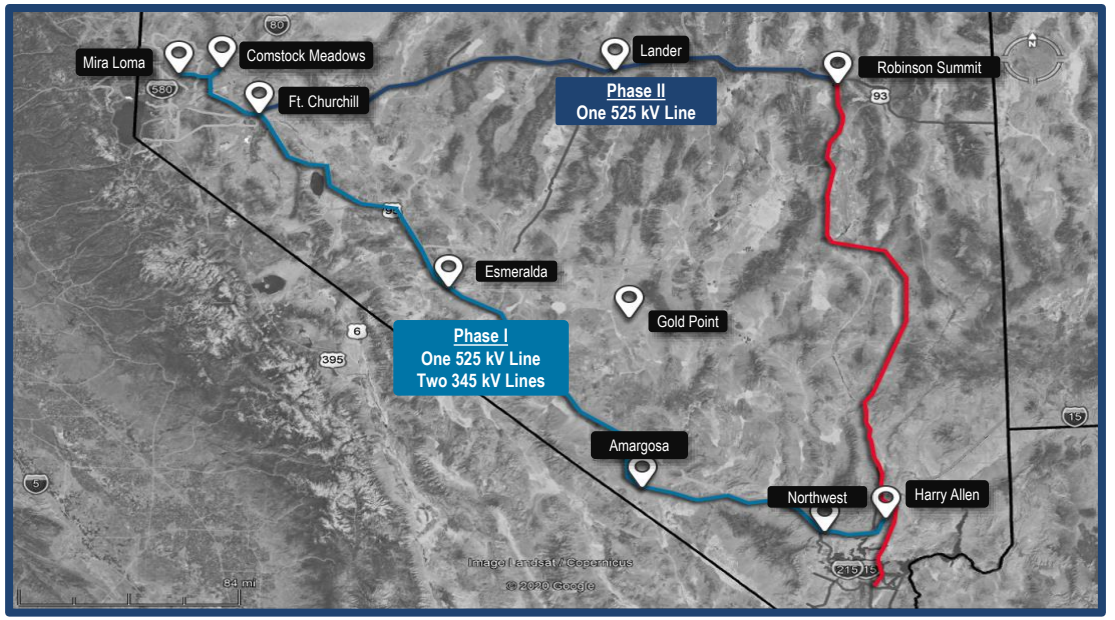
The following pages summarize the key findings of our research and analysis. Additional supporting research is included as an attachment to this letter.

- **NV Energy's $2.1 billion investment in the Greenlink Nevada project provides the critical infrastructure needed to meet the State's energy demands by adding 1,525 MW to northern Nevada's energy import capacity.** Greenlink Nevada is an infrastructure enhancement project that will not only connect power generating capacity in Nevada but will also increase northern Nevada import capacity to accommodate future economic growth from new and expanding businesses as well as a growing population base. Further, Greenlink Nevada provides opportunities for NV Energy to continue to meet or exceed Nevada's renewable energy portfolio standards ("RPS") and accommodate a growing population. These infrastructure enhancements are vital to ensure that forecasted customer needs are adequately met. Northern Nevada import capacity is currently fully subscribed. While NV Energy has options to build transmission, generate resources, or enter into power purchase agreements to fill the growing demand, Greenlink Nevada is the best alternative relative to costs as well as economic and environmental benefits.

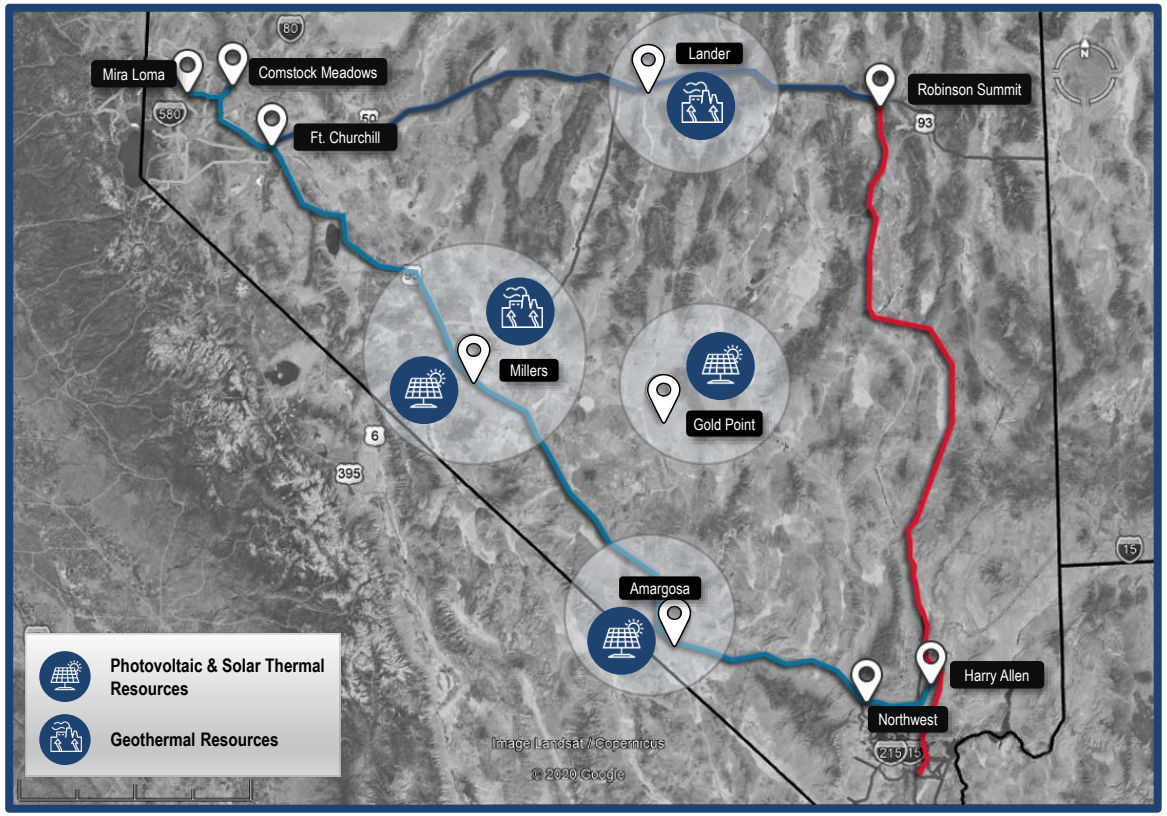
Transmission Import Needs and Existing Capacity



- **Greenlink Nevada is divided into two distinct project segments that will serve to reinforce existing transmission lines and help effectively and efficiently transfer energy throughout Nevada.** Between 2020 and 2031, four different transmission lines will be constructed. Phase I includes Greenlink West, a 525 kV line spanning from Harry Allen to Fort Churchill, that will allow for a 725 MW increase in energy import capacity and is anticipated to go in-service December 2026. Greenlink West will also provide an additional 1,000 MW of energy import capacity to southern Nevada, although the focus of this report is on northern Nevada's constrained energy import needs. Phase II includes Greenlink North, a 525 kV line spanning from Robinson Summit to Fort Churchill, that will add an additional 800 MW to import capacity and will be in-service starting December 2031. These phases are supported by the construction of two 345 kV lines that will act as common ties and reinforce energy transmission into the Reno area and Tahoe-Reno Industrial Center, helping serve the largest anticipated load pockets in the region.

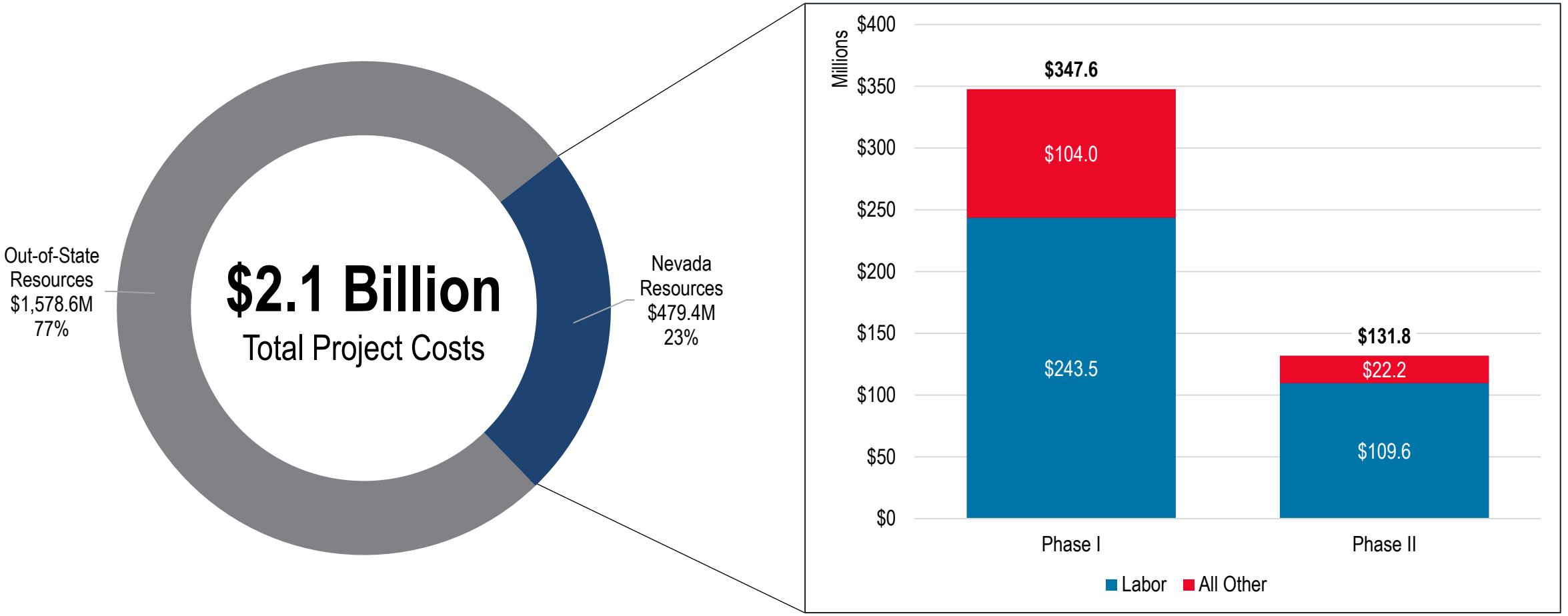


- **Construction of Greenlink Nevada provides access to isolated renewable energy resources along the transmission lines that could be developed by NV Energy and/or other entities, diversifying renewable resources for the state or increasing the state's export capacity.** Greenlink Nevada would create opportunities to access Solar Energy Zones that are currently inaccessible but would become available for development following construction of Greenlink West and Greenlink North. The economic potential in these areas would be significant. Specifically, the development of photovoltaic, solar thermal, and geothermal renewable resource zones could provide up to $4.4 billion in total economic output and 37,724 total job-years in Nevada (assuming that photovoltaic and solar thermal resources are mutually exclusive and 25 percent of project costs use native resources) . Further benefits would inure to state and local governments during operations and as a result of sales tax and use, ad valorem (property) taxes, modified business, and other taxes. While NV Energy would pursue some development in this area, the renewable potential identified along Greenlink Nevada could also be accessed by developers through power purchase agreements or build transfer agreements with NV Energy, or by others for sale out-of-state or to in-state non-NV Energy customers.

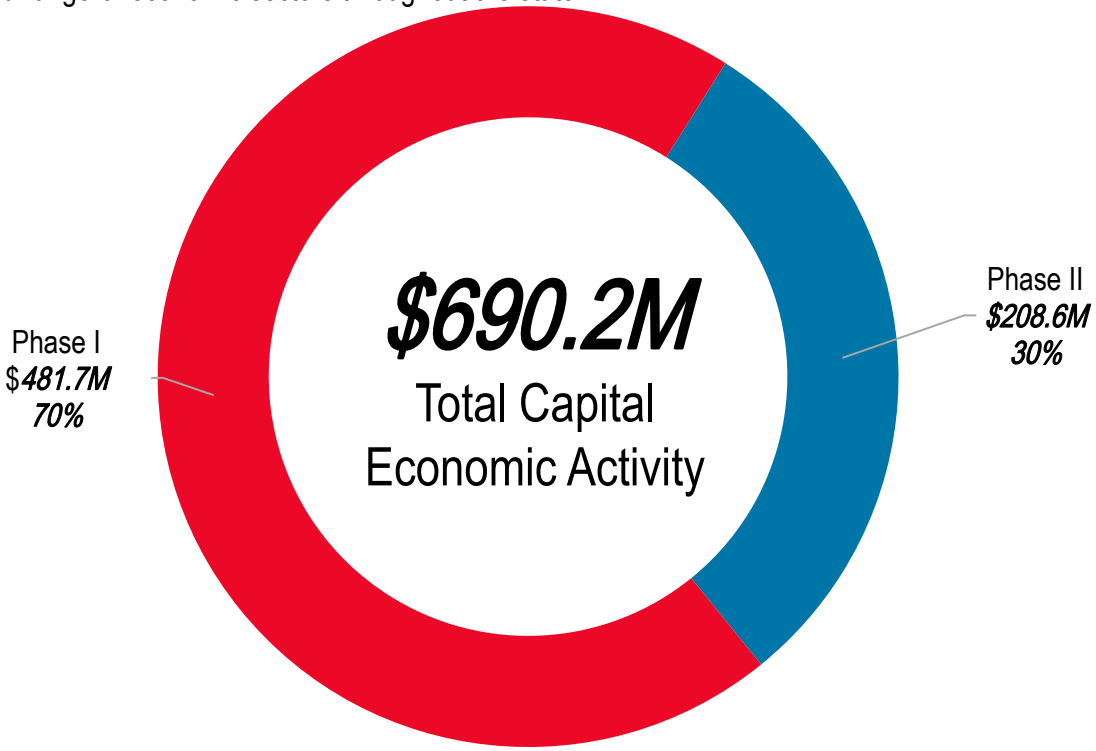


	Photovoltaic	Solar Thermal	Geothermal
Total Cost	$3.7 billion	$6.6 billion	$3.4 billion
Total Job Years	43,129	77,592	73,306
Nevada Share	10,782	19,398	18,326
Total Economic Activity	$5.7 billion	$9.3 billion	$8.5 billion
Nevada Share	$1.4 billion	$2.3 billion	$2.1 billion

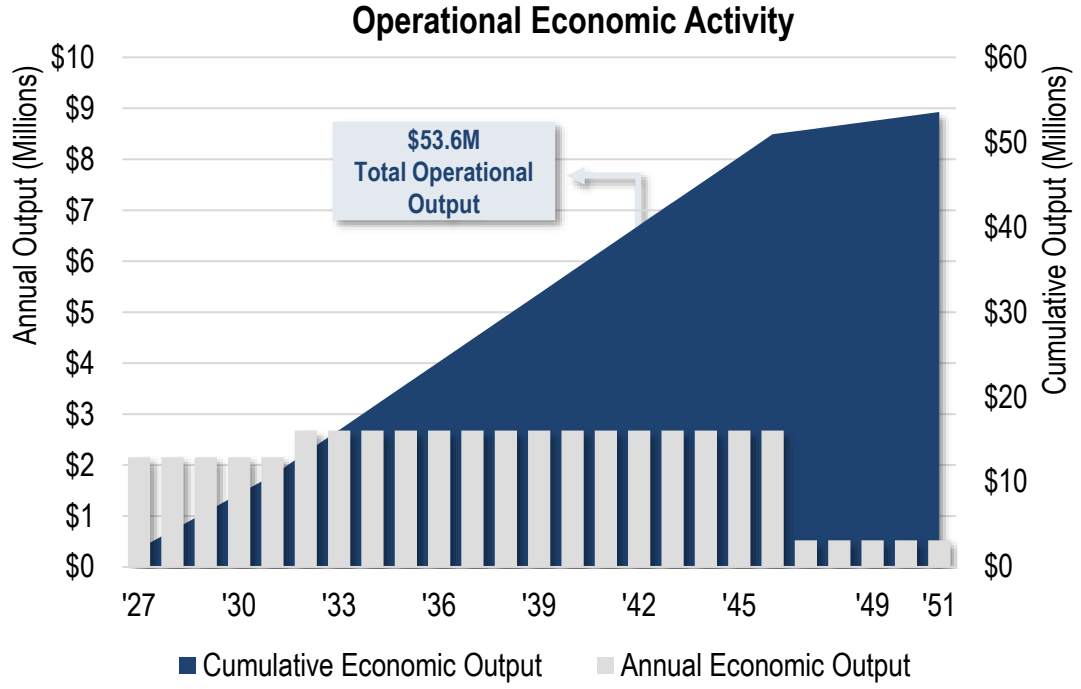
- **Greenlink Nevada's total project cost is $2.1 billion, of which $479.4 million will be sourced to Nevada; the majority of the $479.4 million attributed to Nevada resources will be used for labor.** The total cost of the proposed infrastructure enhancements is $2.1 billion dollars to be expended between 2020 and 2031. Approximately 23 percent, or $479.4 million, are expected to be labor and materials sourced to Nevada. The majority of the resources utilized in Nevada will be for the labor associated with the project. Between Phase I and II, Phase I has the highest amount of capital expenditures, while Phase II uses the greatest proportion of overall budget on labor costs.



- **Greenlink Nevada's construction will generate *$690.2 million* in economic activity and support about *3,700 person-years* of employment.** The Greenlink Nevada project will span a 12-year construction period. This process is expected to support approximately ***$690.2 million*** in economic activity throughout Nevada, while also creating ***3,721 total*** person-years of employment and ***$406.3 million*** in wages and salaries. Given the initial $479.4 million capital investment, indirect (supplier) and induced (direct employee spending) impacts are expected to add an additional ***$210.9 million*** in economic activity throughout the project's development cycle. Simply put, for every dollar invested into Greenlink Nevada, approximately ***$1.44*** in economic activity within Nevada is generated, ultimately benefiting a broad range of economic sectors throughout the state.

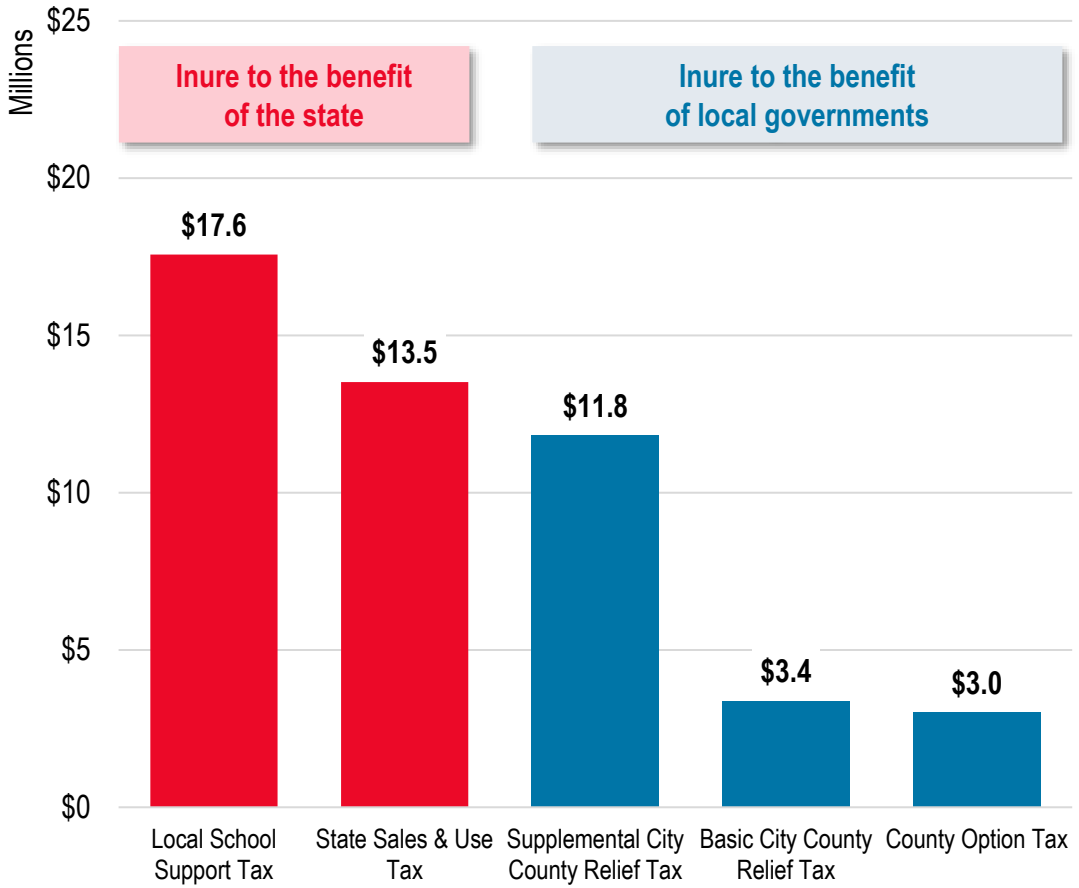


- **Annual operational impacts will reach $53.6 million over 20 years.** Greenlink Nevada's operational impacts, which include annual maintenance between 2027 and 2051, will generate an average of $2.1 million in annual economic activity. An average of 9 jobs and $822,965 in wages and salaries will be supported each year. Over 20 years, a total of $53.6 million in output, 233 workers, and $20.6 million in wages and salaries will be supported. Although this analysis only extended for 20 years based on Nevada Administrative Code requirements, NV Energy expects the transmission lines constructed during Greenlink Nevada to serve Nevada well after this timeframe. As such, the economic benefits associated with operations are likely to well exceed $53.6 million. In fact, according to some sources, transmission lines have life expectancies upwards of 80 years, which would more than quadruple the estimated economic impacts detailed herein.

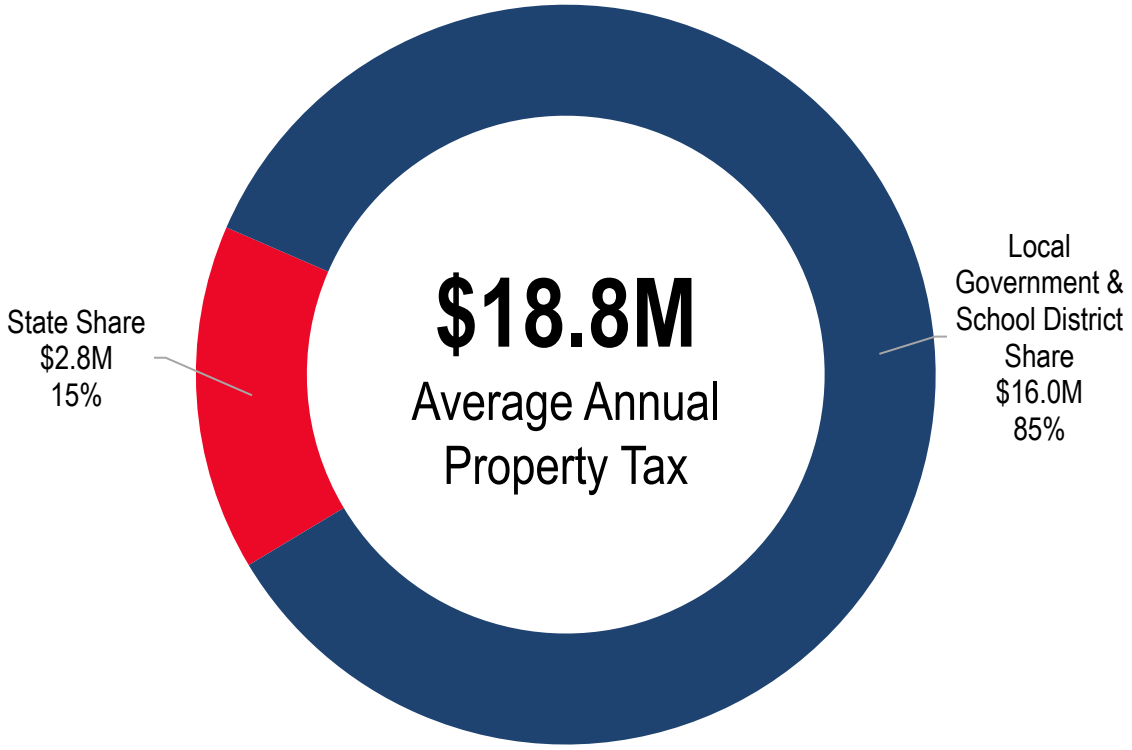


- **Both sales tax on construction materials as well as ongoing ad valorem (property) tax collections will generate revenue for state and local government.** The $711.4 million NV Energy expects to spend on materials (both in- and out-of-state) will generate an estimated $49.3 million Nevada sales tax revenue. Further, yearly property taxes averaging $18.8 million will be distributed both to the state and throughout 11 counties that the transmission lines cross, with the state netting $2.8 million and local governments netting $16.0 million annually, on average.

Distribution of Sales Tax

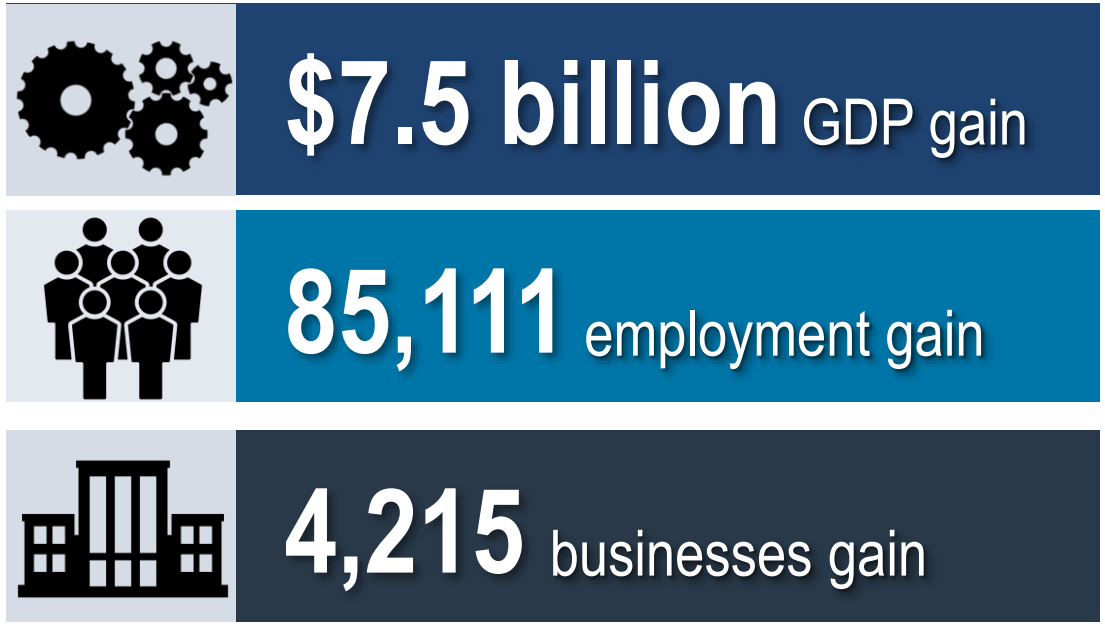


Distribution of Property Tax



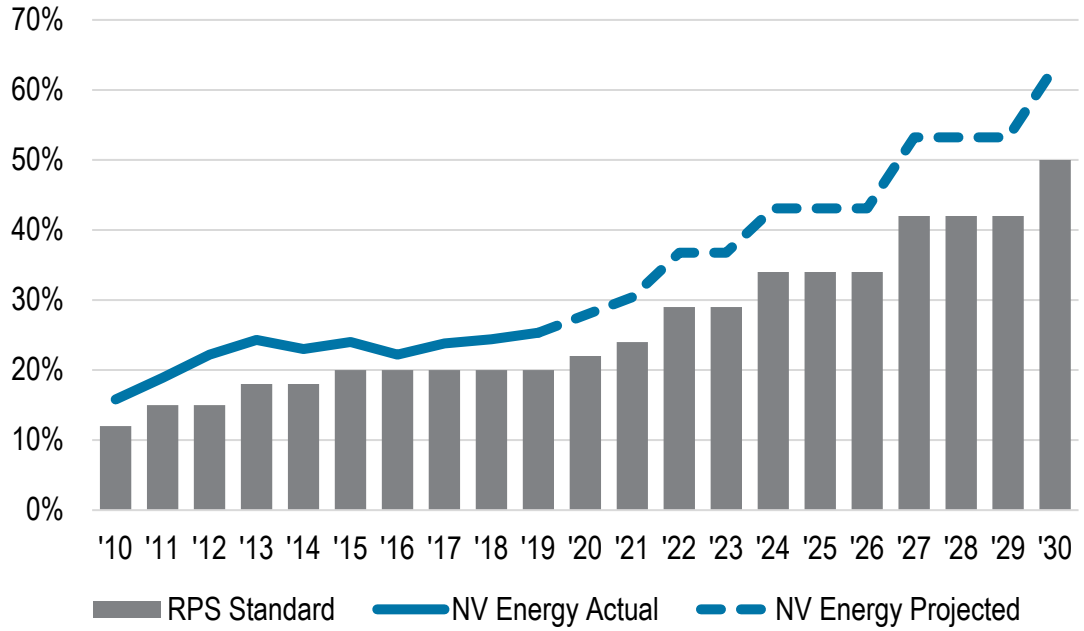
- **Without infrastructure enhancements such as Greenlink Nevada, Nevada risks stunted economic development in the northern region due to insufficient energy supply.** Using historical measures of NV Energy's peak system loads, an estimate of gross domestic product (GDP), employment, and total businesses per megawatt (MW) of energy produced were projected. Based on these estimates, if additional supply is not produced to cover proposed energy demands between 2026 and 2040, Nevada stands to lose up to $12.8 billion in GDP, just over 146,300 jobs, and 7,245 businesses by 2040. While it is likely that some consumers would seek alternative energy resources and/or NV Energy would build alternative energy infrastructure, this would result in inefficiencies of scale as those consumers would face higher prices and increased uncertainty. Further, options for alternative energy resources would be limited due to transmission import constraints. Even in the best-case scenario (where alternative sources cover 90 percent of energy demanded), Nevada could still expect to lose $1.3 billion in GDP, 14,631 jobs, and 725 business enterprises.

- **Implementation of infrastructure enhancements will allow all client energy demands to be met and will provide northern Nevada with excess capacity, allowing growth and promoting stability.** The proposed infrastructure enhancements afforded by Greenlink Nevada will provide enough excess capacity for northern Nevada to cover all forecasted customer demands between 2026 and 2040, with an average of 744 MW of energy remaining per year. This additional capacity provides northern Nevada with the opportunity to accommodate anticipated residential and commercial growth throughout the region over the 2026 to 2040 timeframe. Notably, potential economic capacity amounts to $7.5 billion dollars in GDP growth, more than 85,000 jobs, and just over 4,200 new businesses.



- **The social, environmental and other impacts sourced to NV Energy and the Greenlink Nevada project are also worthy of consideration.** NV Energy's investments into the communities they serve go well beyond the economic and fiscal impacts reported in this analysis. The company does invest, and plans to continue investing, in key community needs through financial contribution, in-kind services and extensive volunteerism programs. On average, $6.8 million is provided annually through the NV Energy Foundation. Beyond this, NV Energy has also initiated additional giving in excess of $1 million to local nonprofits and implemented various policies to help community members impacted by the COVID-19 pandemic. The proposed infrastructure enhancements in Greenlink Nevada will also have significant environmental benefits, allowing NV Energy to continue to exceed renewable energy portfolio standards established by the state.

NV Energy Historical & Projected RPS Standards



- **While this economic and fiscal analysis analyzes likely and expected results of the Greenlink Nevada project, there are potential risks and secondary impacts that should also be noted.** As with any major project, Greenlink Nevada will be affected by unforeseen global, national, regional, and local conditions. With this in mind, the following are worthy of consideration (not exhaustive).
  - COVID-19 has disrupted economic and social activities through business closures, layoffs, and furloughs. Many of Nevada's prime economic activity generators (e.g., hospitality and tourism) were unable to operate for months. These closures, as well as fear about personal health and safety, may result in an economic downturn within the state. Nevada is currently reporting the highest rate of unemployment in the nation (13.3 percent as of August 2020), including a rate of 15.5 percent in the Las Vegas MSA and 7.2 percent in the Reno MSA. The state's comparably narrow economic structure may cause it to lag behind other states in terms of its economic recovery.
  - Workforce housing has been a challenge throughout Nevada and an acute challenge in the northern region of the state. The project will create a material demand for construction labor, and if the economy were to rebound quickly, the project could potentially confront labor supply challenges. A lack of skilled or available workforce in the state may also hinder project progress, as the Company must move out-of-state or rely on less than ideal workers to complete infrastructure enhancements.
  - Inflation related to specific materials needed for construction could increase overall project costs and the ability to complete transmission lines.
  - If Nevada grows faster than what is currently expected, the proposed infrastructure enhancements may not be operational in time to meet demand, slowing growth and causing the state and the region to underperform its economic potential.
  - Delays in permitting or approval of the project phases may impact overall project timelines in which case cost estimates could be greater than anticipated, spreading the economic and fiscal impact over a longer time horizon.

This report is an executive summary. It is intended to provide an overview of the analyses conducted and a summary of our salient findings. AA will retain additional working papers relevant to this study. If you reproduce this report, it must be done so in its entirety. We welcome the opportunity to discuss this report with you at any time. Should you have any questions, please contact Jeremy Aguero or Brian Gordon at (702) 967-3333.

Sincerely,

Applied Analysis

Applied Analysis

Energy Transmission Infrastructure Enhancement

1. Overview of Greenlink Nevada Transmission Initiative
2. Required contents of an economic impact statement
3. Economic impacts of Greenlink Nevada Transmission Initiative
4. Fiscal impacts of Greenlink Nevada Transmission Initiative
5. Social impacts and other impacts of Greenlink Nevada Transmission Initiative

Energy Transmission Infrastructure Enhancement

1. **Overview of Greenlink Nevada Transmission Initiative**
2. Required contents of an economic impact statement
3. Economic impacts of Greenlink Nevada Transmission Initiative
4. Fiscal impacts of Greenlink Nevada Transmission Initiative
5. Social impacts and other impacts of Greenlink Nevada Transmission Initiative

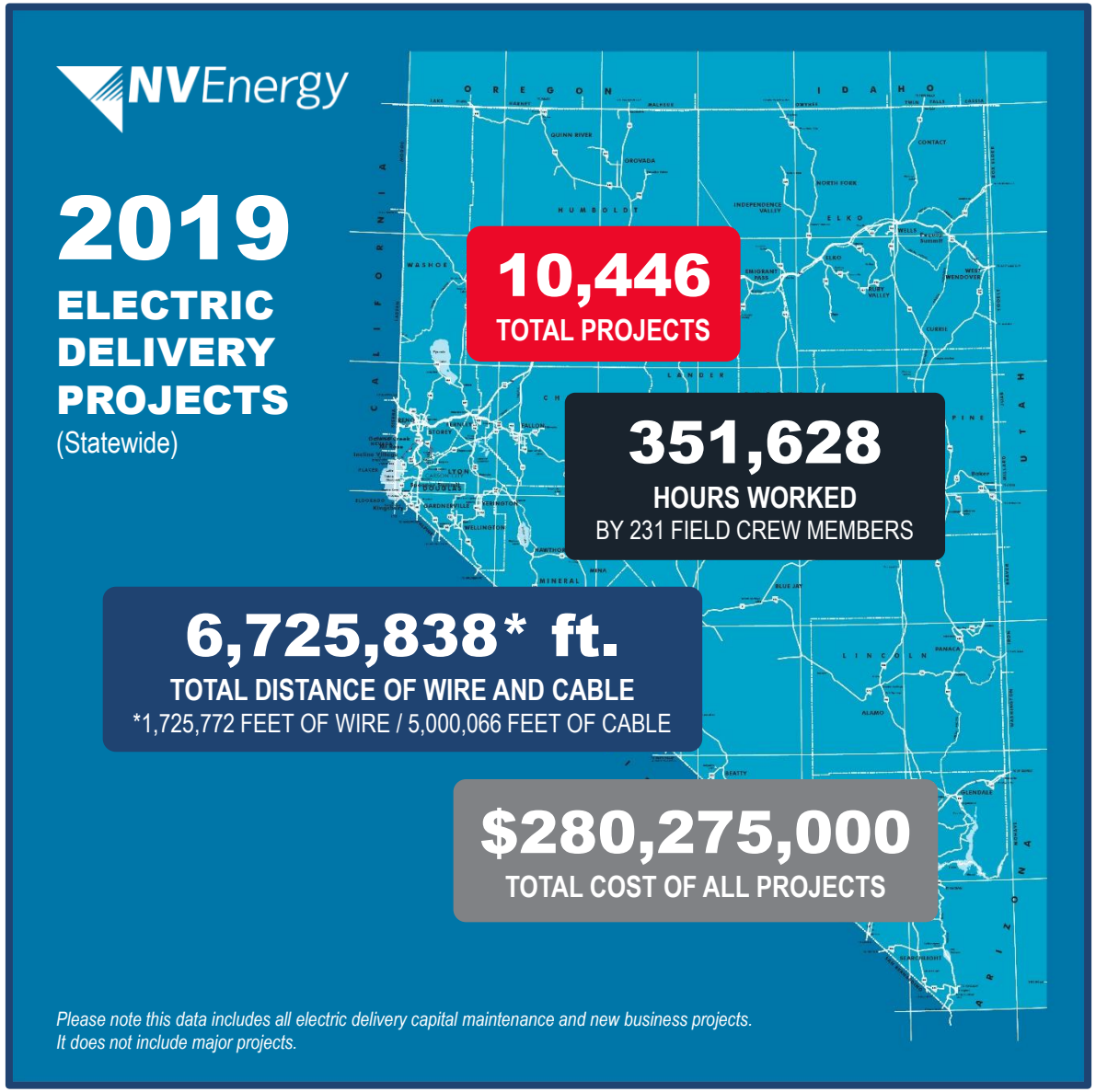
Greenlink Nevada | Project Overview

- **Assignment**: NV Energy requested that Applied Analysis ("AA") review and analyze the economic, fiscal, and social impacts of proposed infrastructure enhancements in Nevada through the Greenlink Nevada Transmission Initiative ("Greenlink Nevada"), which will increase northern Nevada energy import capacity ("import capacity") by 1,525 MW.
- **Approach**: AA analyzed the economic and fiscal impacts of Greenlink Nevada using client-provided projections associated with total project construction costs, annual operational costs, and tax estimates. Social and other impacts were reviewed generally and/or estimated by comparing historical energy demands to gross domestic product, income, and number of businesses.

Overview | NV Energy

NV Energy has been providing Nevada with safe and reliable energy for over 150 years

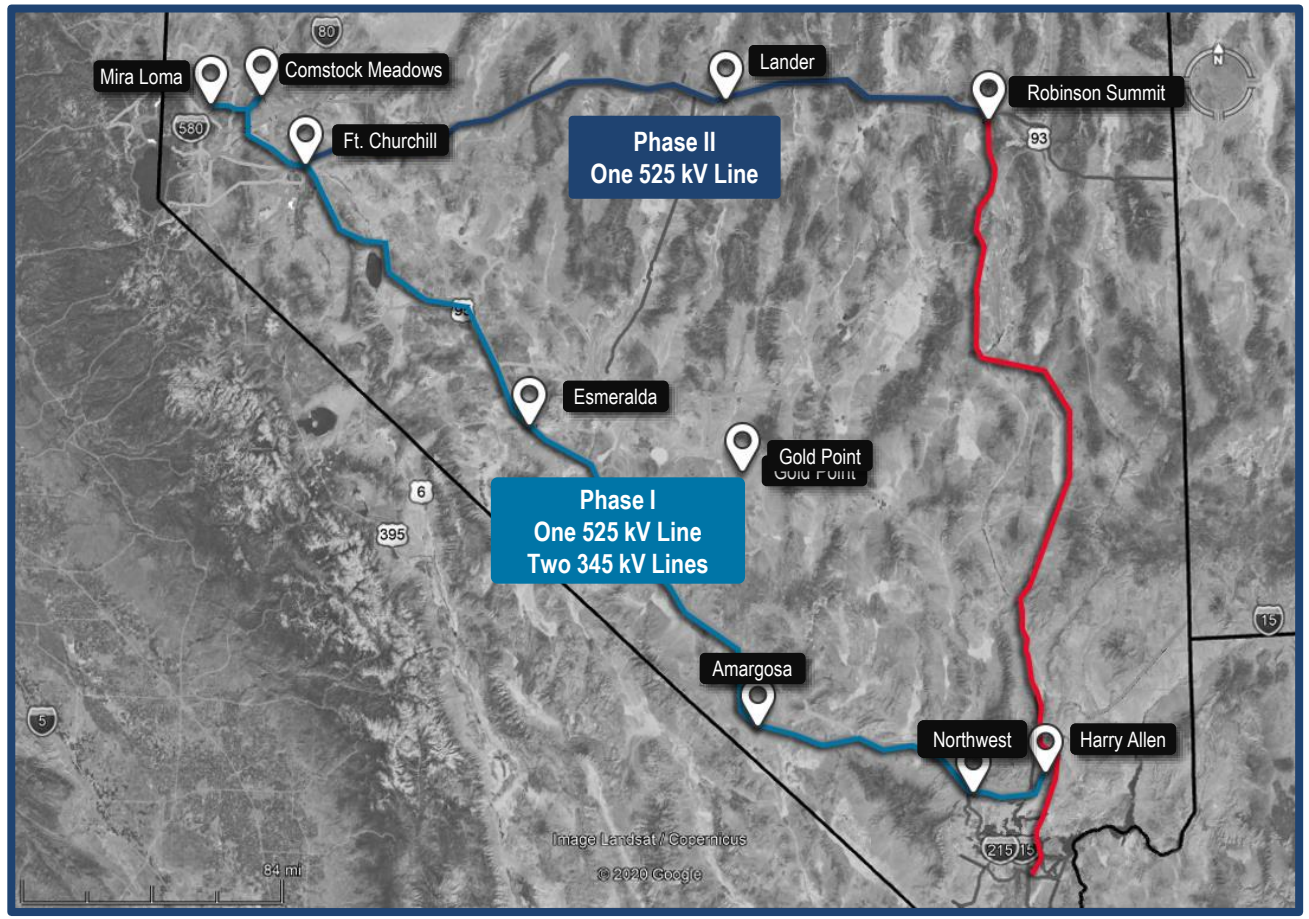
- Created through a merger of Nevada Power, Sierra Pacific Power, and Sierra Pacific Resources in 1999
- Acquired by Berkshire Hathaway Energy in 2013
- Headquartered in Las Vegas
- Serves more than 1.4 million customers and 56 million visitors a year
- 46,000-square-mile service area in Las Vegas, Reno-Sparks, Henderson, and Elko



Source: NV Energy

Greenlink Nevada | Overview

Greenlink Nevada is a series of infrastructure enhancements meant to form inter-connections to all the power-generating capacity in the state



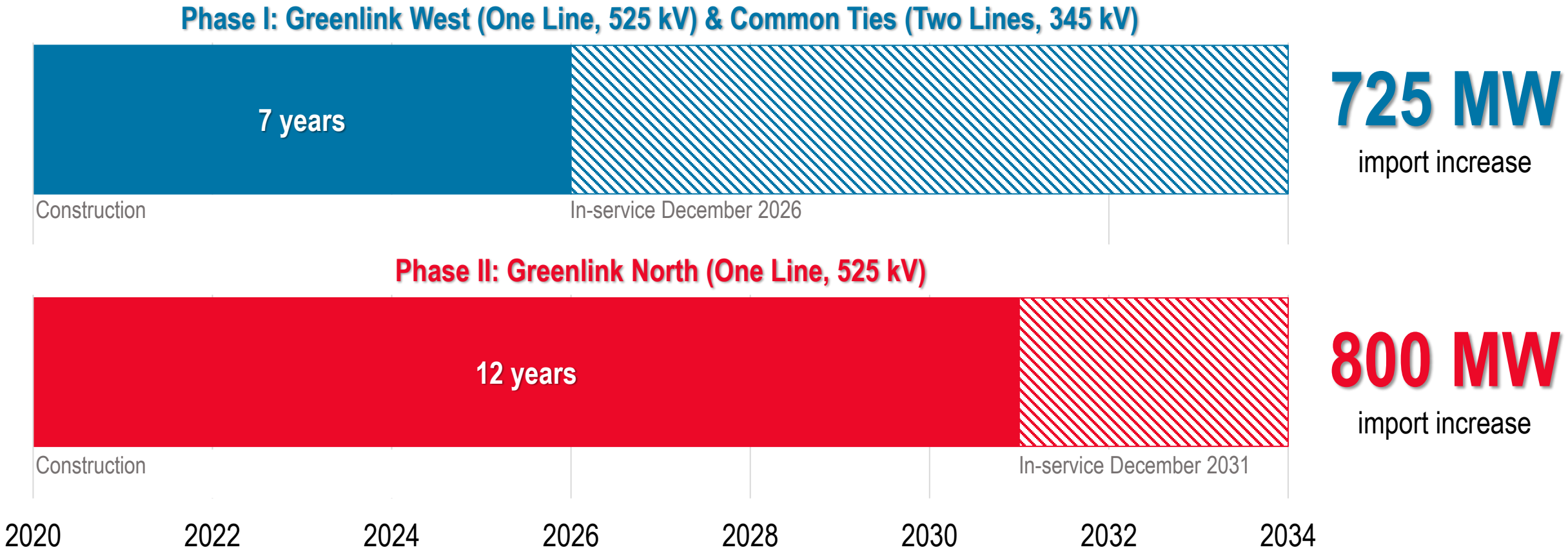
Greenlink Nevada Transmission Initiative ("Greenlink Nevada") is made up of two different infrastructure enhancements meant to advance the following objectives:

1) Increase northern Nevada energy import capacity (import capacity) to accommodate future growth
2) Create a redundant transmission network
3) Provide a stronger interconnection between existing generation resources
4) Create access to renewable energy sites in Nevada
5) Create inter-connections to surrounding states to lower resource costs and facilitate transfer of wind and hydro resources

Source: NV Energy

Greenlink Nevada | Timeline and Proposed Import Increases

Construction of infrastructure enhancements will occur in two phases over a period of twelve years starting in 2020 and result in an increase of 1,525 total import capacity

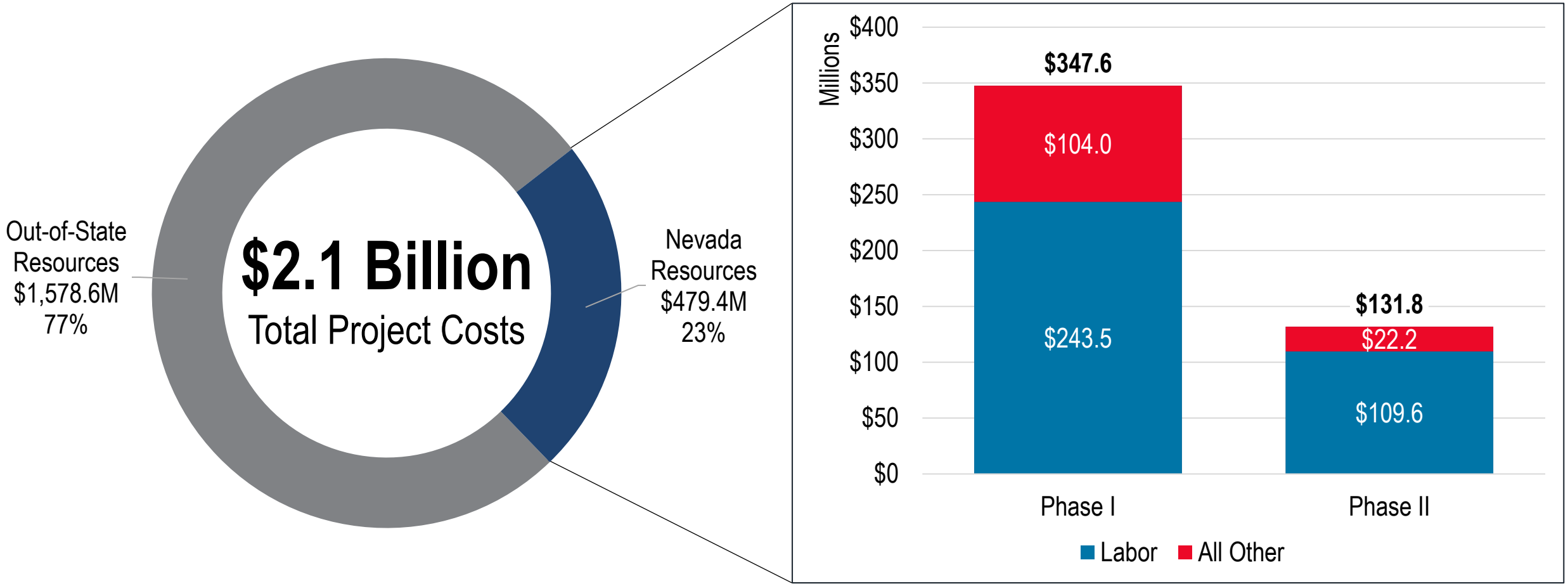


Note: Greenlink West will also increase southern Nevada energy import capacity by 1,000 MW, but the focus of this report is on northern Nevada's constrained energy import needs

Source: NV Energy

Greenlink Nevada | Total Project Costs

The majority of the $479.4 million attributed to Nevada resources will be used for labor (including outside services employed)



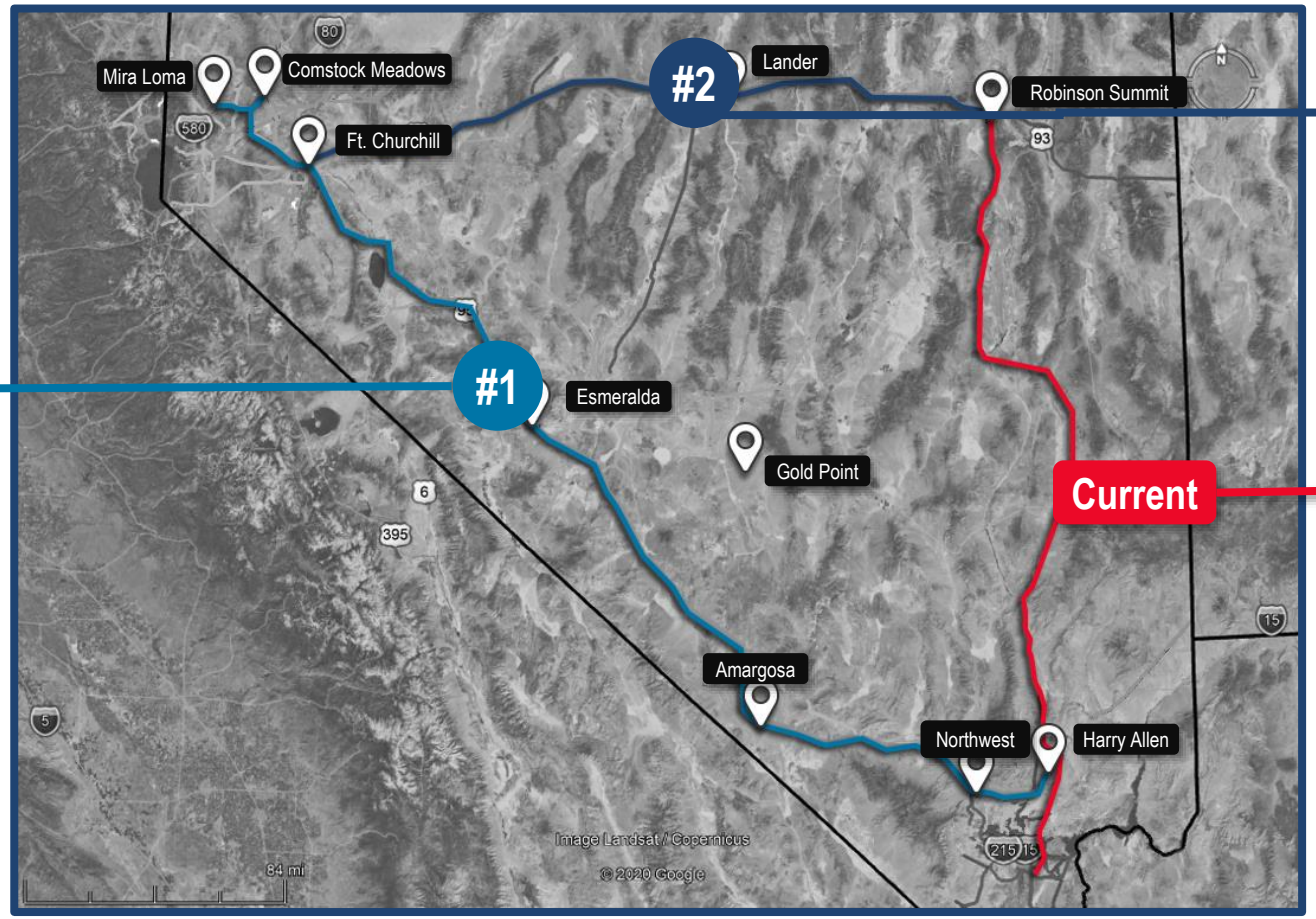
* Labor includes internal labor and benefits and outside services employed; all other includes stock materials, non-inventory goods, and other vouchers

Source: NV Energy; Applied Analysis

Greenlink Nevada | Overview

Infrastructure enhancements are divided into two projects that will increase overall northern Nevada energy import capacity by 1,525 MW

Phase I
Greenlink West 525 kV
Common Ties 345 kV



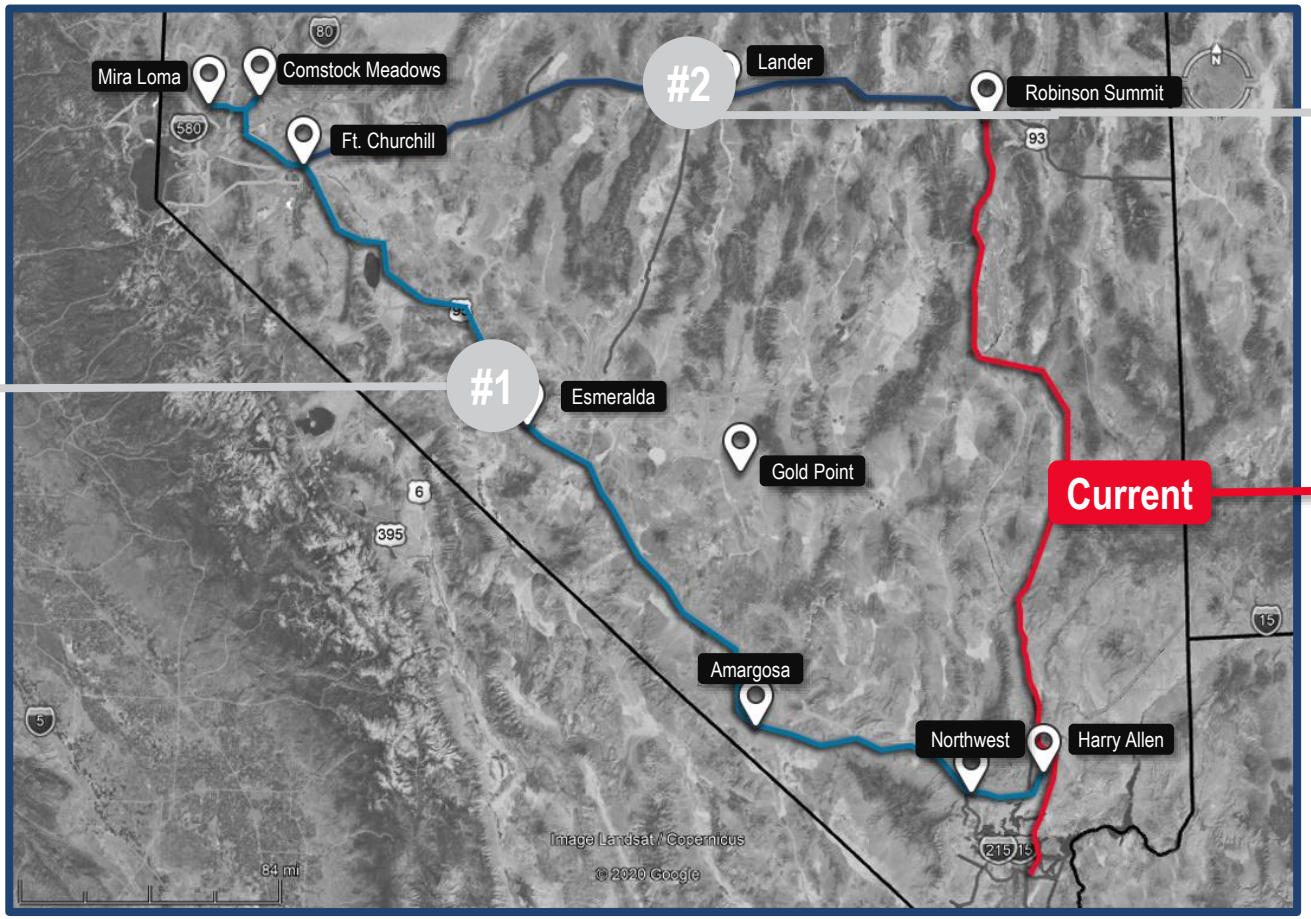
Phase II
Greenlink North 525 kV

Current
Harry Allen to Robinson Summit (On-Line)
525 kV

Greenlink Nevada | Overview

Infrastructure enhancements are divided into two projects that will increase overall northern Nevada energy import capacity by 1,525 MW

Phase I
Greenlink West 525 kV
Common Ties 345 kV



Phase II
Greenlink North 525 kV

Current
Harry Allen to Robinson Summit (On-Line)
525 kV

Current Transmission System | One Nevada (ON Line)

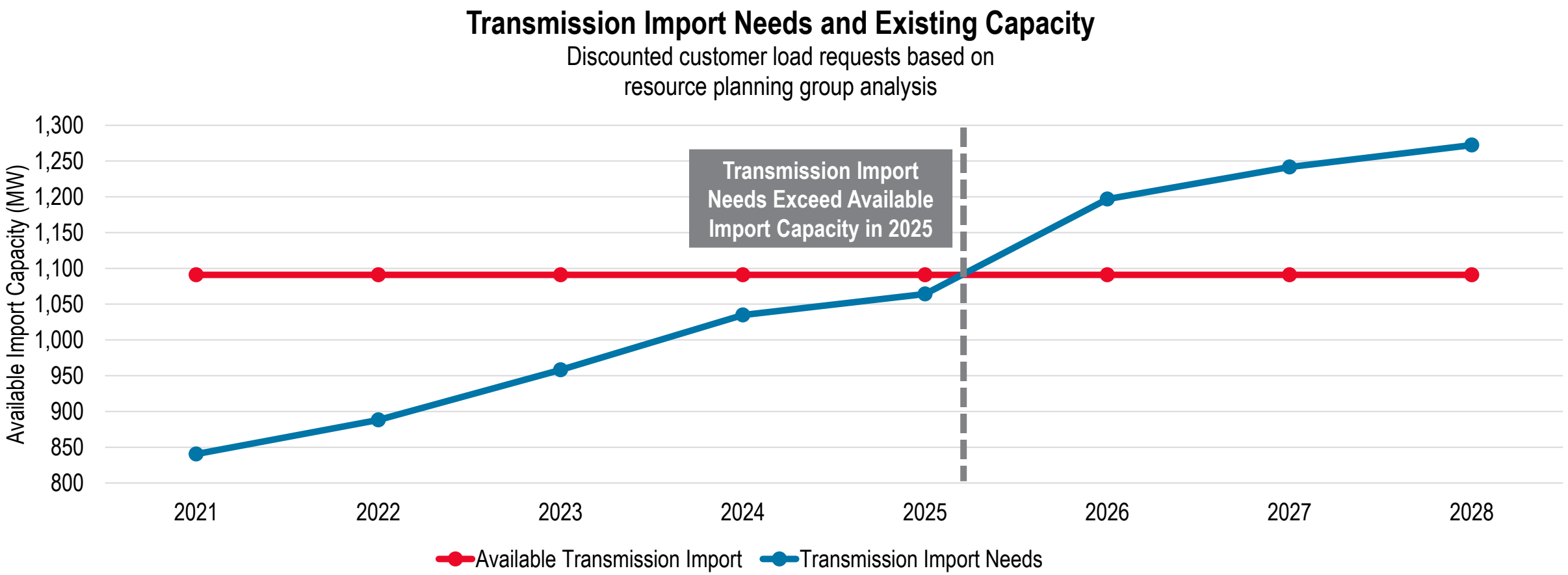
ON Line is the only connection between southern and northern Nevada, with a maximum energy import limit of 1,275 MW to northern Nevada

- 525 kV, 235-mile transmission system running between Harry Allen and Robinson, which began operations in 2014
- Increased northern import limit from 1,000 MW to 1,275 MW
  - 600 MW provided for native load
  - 525 MW provided for third-party reservations
  - 150 MW for reliability margin
- Supported 400 construction jobs and 15 permanent jobs

Source: NV Energy; Energy.Gov

Future Needs | Northern Nevada Import Needs and Existing Capacity

Transmission import requirement will exceed available import capacity by 2025 without additional generation resources or transmission infrastructure



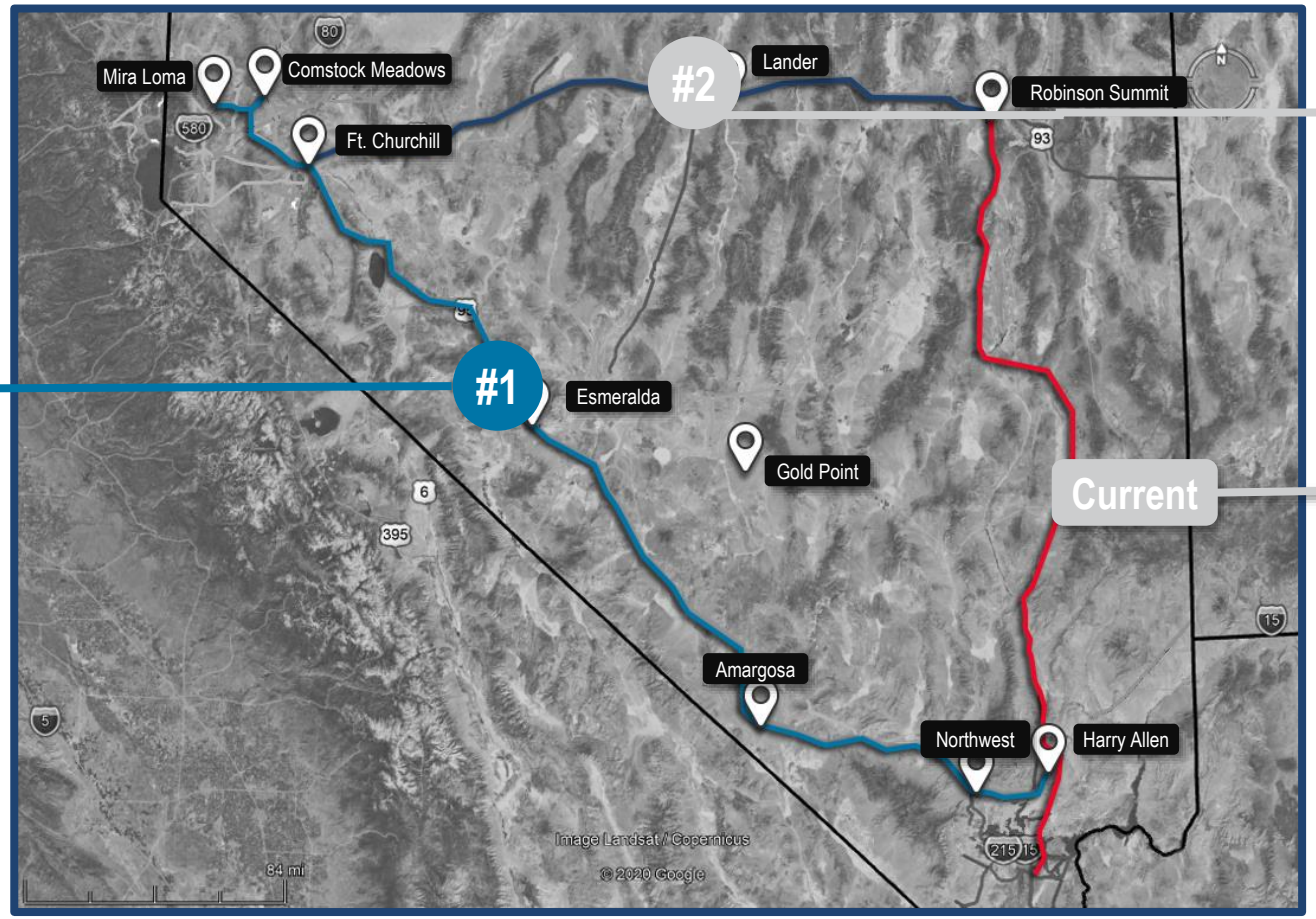
Note: Transmission import needs are based on load forecast with no additional generation resources

Source: NV Energy; Applied Analysis

Greenlink Nevada | Overview

Infrastructure enhancements are divided into two projects that will increase overall northern Nevada energy import capacity by 1,525 MW

Phase I
Greenlink West 525 kV
Common Ties 345 kV



Phase II
Greenlink North 525 kV

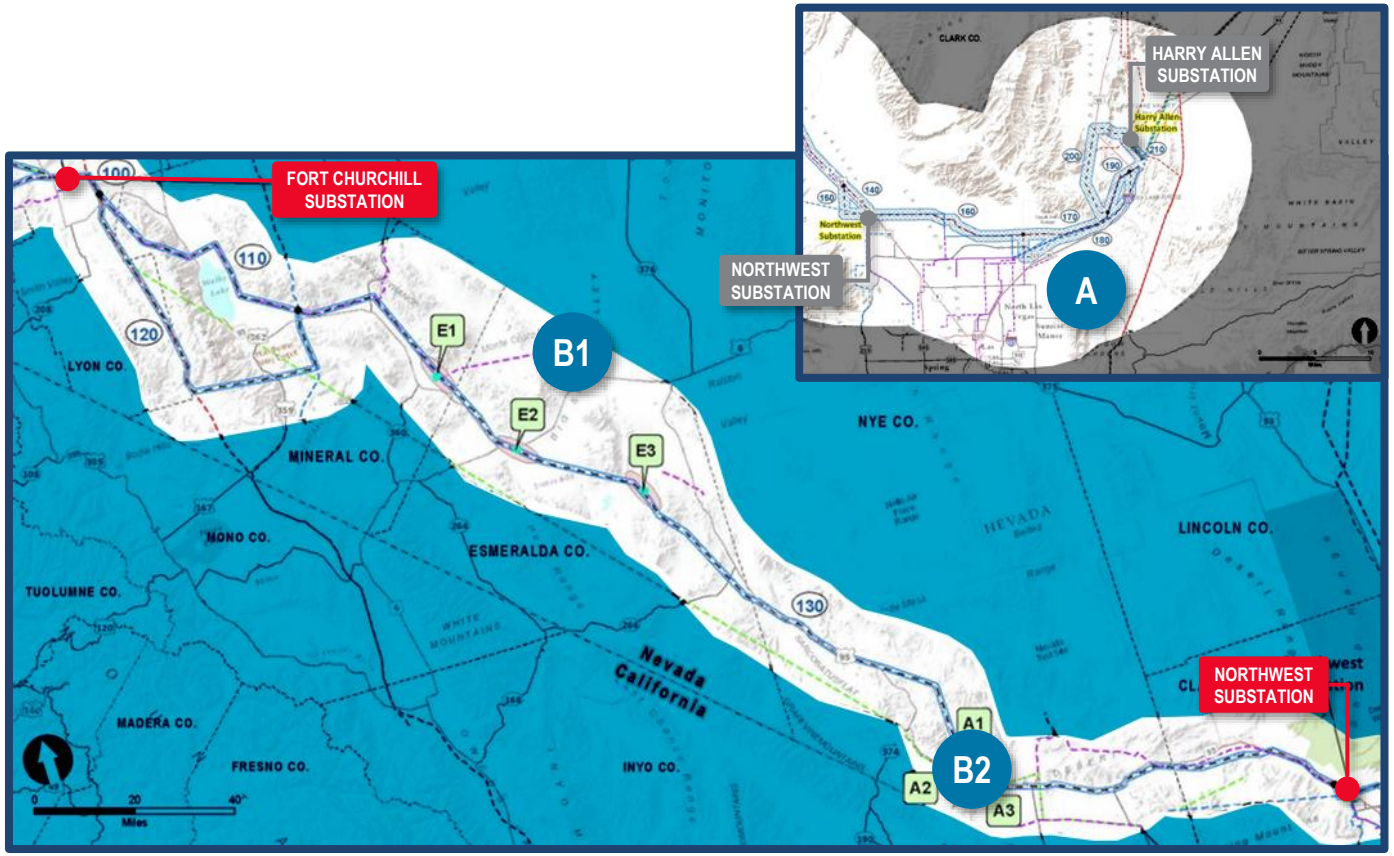
Current
Harry Allen to Robinson Summit (On-Line)
525 kV

Greenlink Nevada | Phase I: Greenlink West

Construction of a new 525 kV line allows for a 725 MW increase in northern Nevada energy import capacity and creates a second intertie between northern and southern Nevada

355-mile long 525 kV line between Ft. Churchill to Harry Allen will increase energy import capacity by 725 MW

- **A** Creates a second intertie between northern and southern Nevada, limiting transmission loss if one system is down
- **B** Includes two intermediate substations for future access to Solar Energy Zones:
  - **B1** Gold Point (4,596 developable acres)
  - **B2** Amargosa Valley (8,479 developable acres)



Note: Greenlink West will also increase Southern Nevada energy import capacity by 1,000 MW, but the focus of this report is on Northern Nevada's constrained energy import needs

Source: NV Energy; Bureau of Land Management

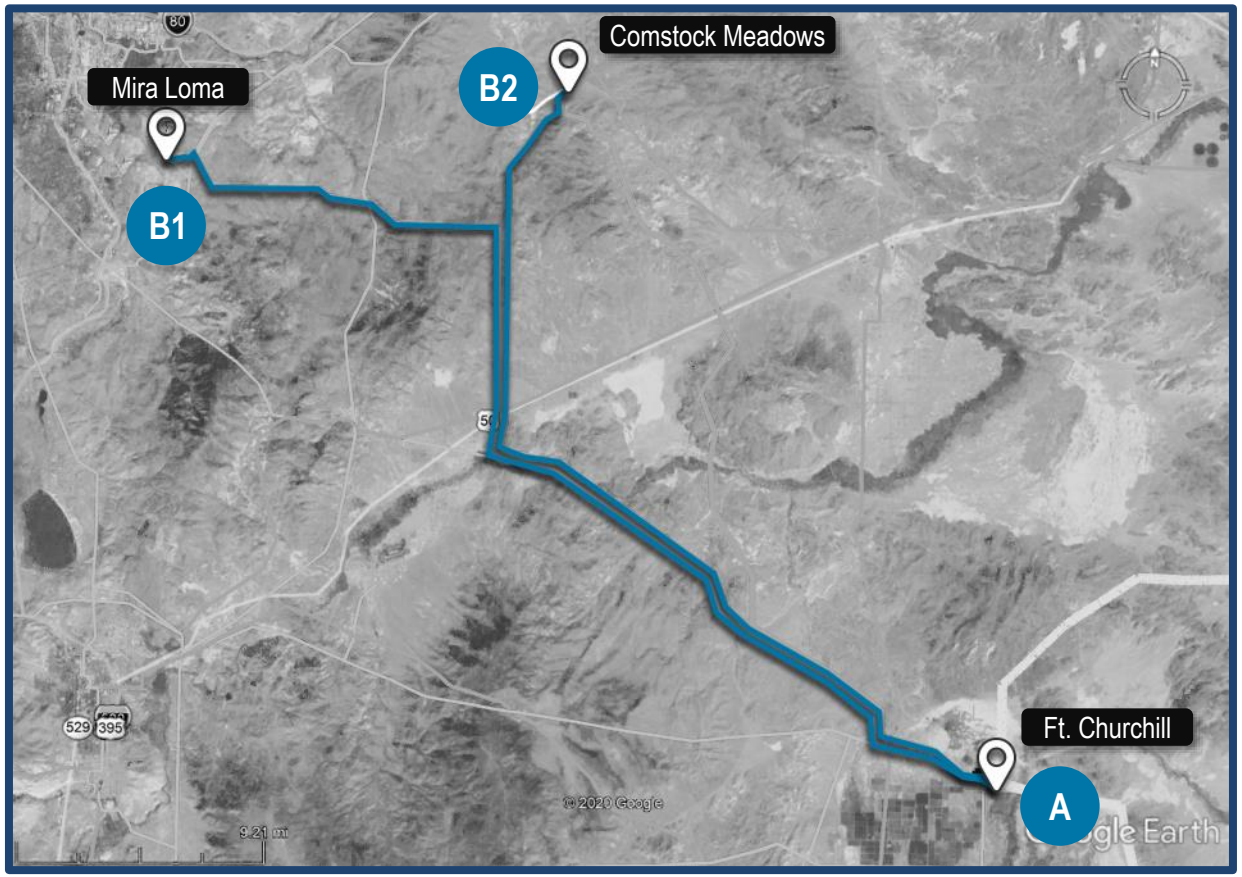
Greenlink Nevada | Phase I: Reno Reinforcement

Substation construction and two 345 kV lines will act as a common tie between Greenlink Nevada and the load pockets in Reno and the Tahoe-Reno Industrial Center

A Ft. Churchill substation construction will allow integration of the proposed 525 kV transmission lines

B Two 345 kV lines will improve transmission system strength to Reno and help serve largest loads in Tracy area:

- **B1** Ft. Churchill to Mira Loma (1 line, 46 miles long)
- **B2** Ft Churchill to Comstock (1 line, 38 miles long)



Source: NV Energy

Greenlink Nevada | Overview

Infrastructure enhancements are divided into two projects that will increase overall northern Nevada energy import capacity by 1,525 MW

Phase I
Greenlink West 525 kV
Common Ties 345 kV

Phase II
Greenlink North 525 kV

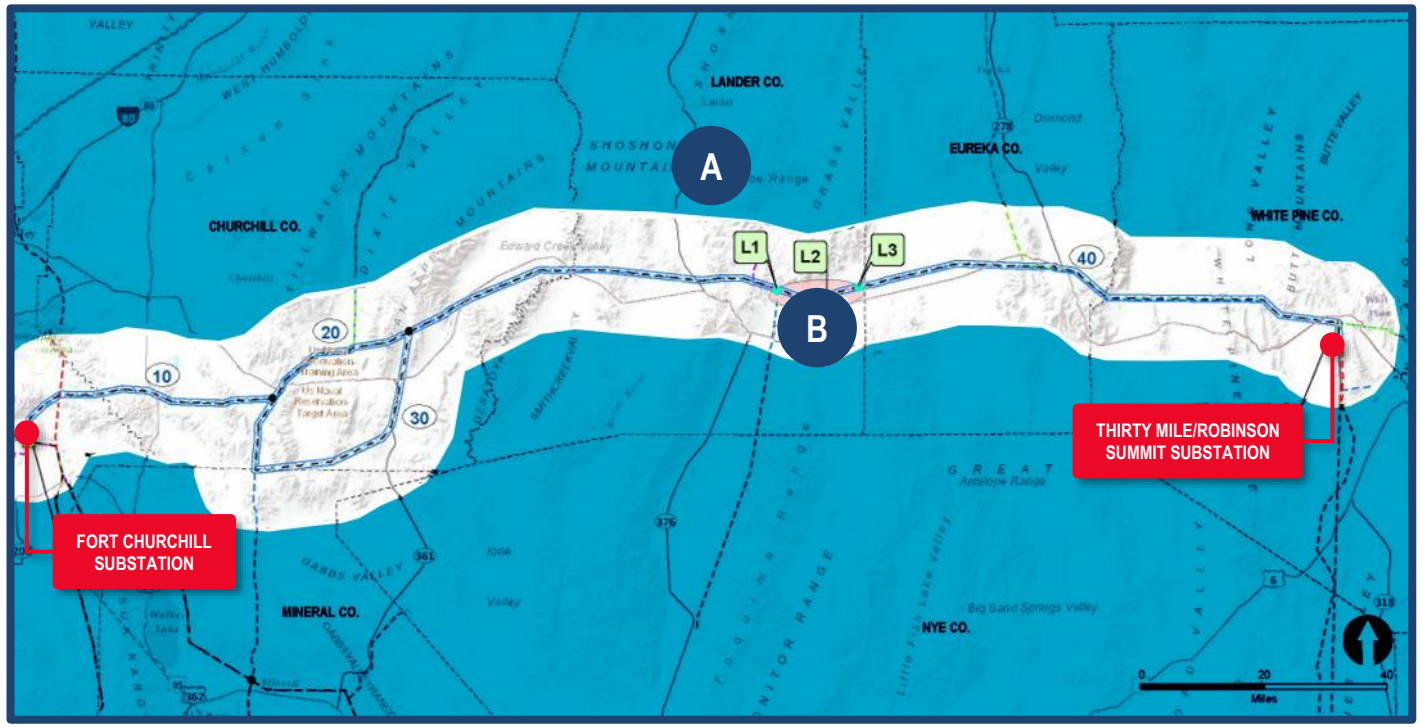
Current
Harry Allen to Robinson Summit (On-Line)
525 kV

Greenlink Nevada | Phase II: Greenlink North

Construction of a new 525 kV line allows for a 800 MW increase in energy import capacity and allow access to currently limited renewable resources in the future

234.5-mile long 525 kV line between Ft. Churchill and Robinson Summit will increase energy import capacity by 800 MW and reinforce existing 525 kV ON Line into Reno

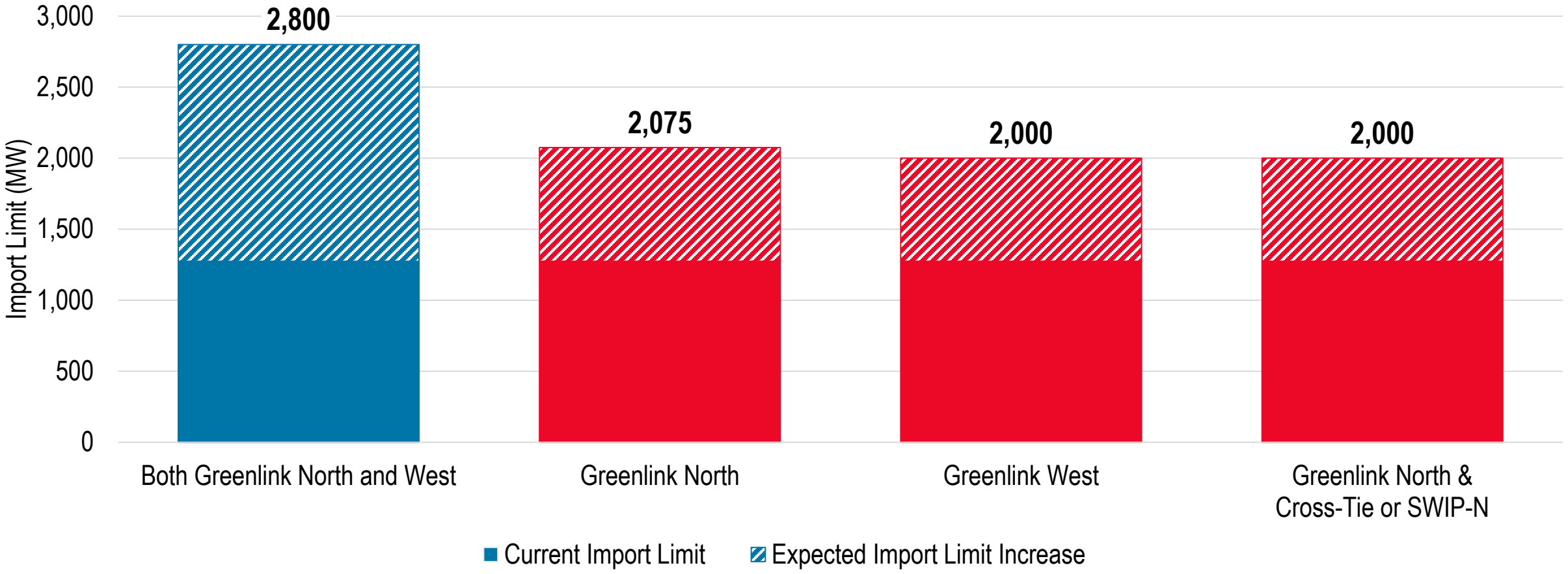
- **A** Includes intermediate Lander substation
- **B** Future increases in import capacity through other projects; access to wind and pumped storage hydro resources (L1, L2, L3 renewable resource interconnection)



Source: NV Energy

Greenlink Nevada | Total Import Limit Increases

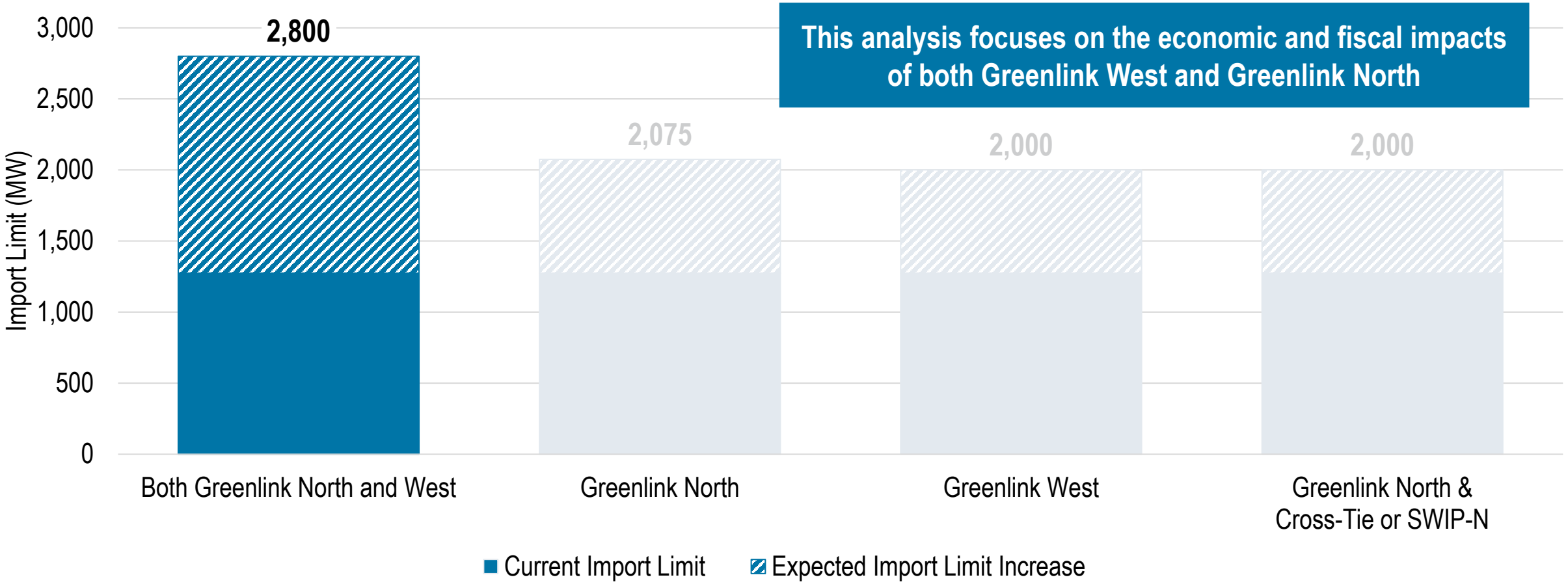
Establishment of one or both proposed 525 kV lines can add up to 1,525 MW to northern Nevada's energy import capacity



Source: NV Energy

Greenlink Nevada | Total Import Limit Increases

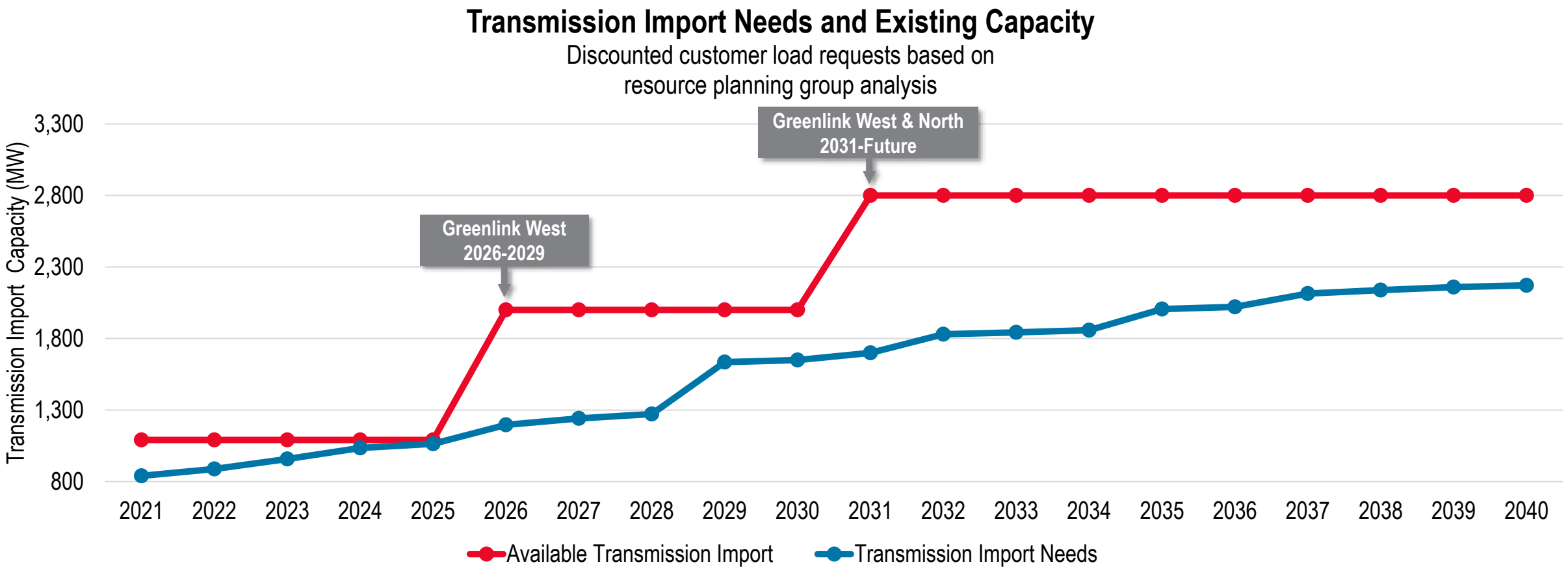
Establishment of one or both proposed 525 kV lines can add up to 1,525 MW to northern Nevada's energy import capacity



Source: NV Energy

Greenlink Nevada | Total Import Limit Increases

Proposed import limit increases in Greenlink West would be sufficient to cover forecasted loads; the addition of Greenlink North in 2031 will cover future growth



Source: NV Energy; Applied Analysis

Additional Potential | Cross-Tie or SWIP-N

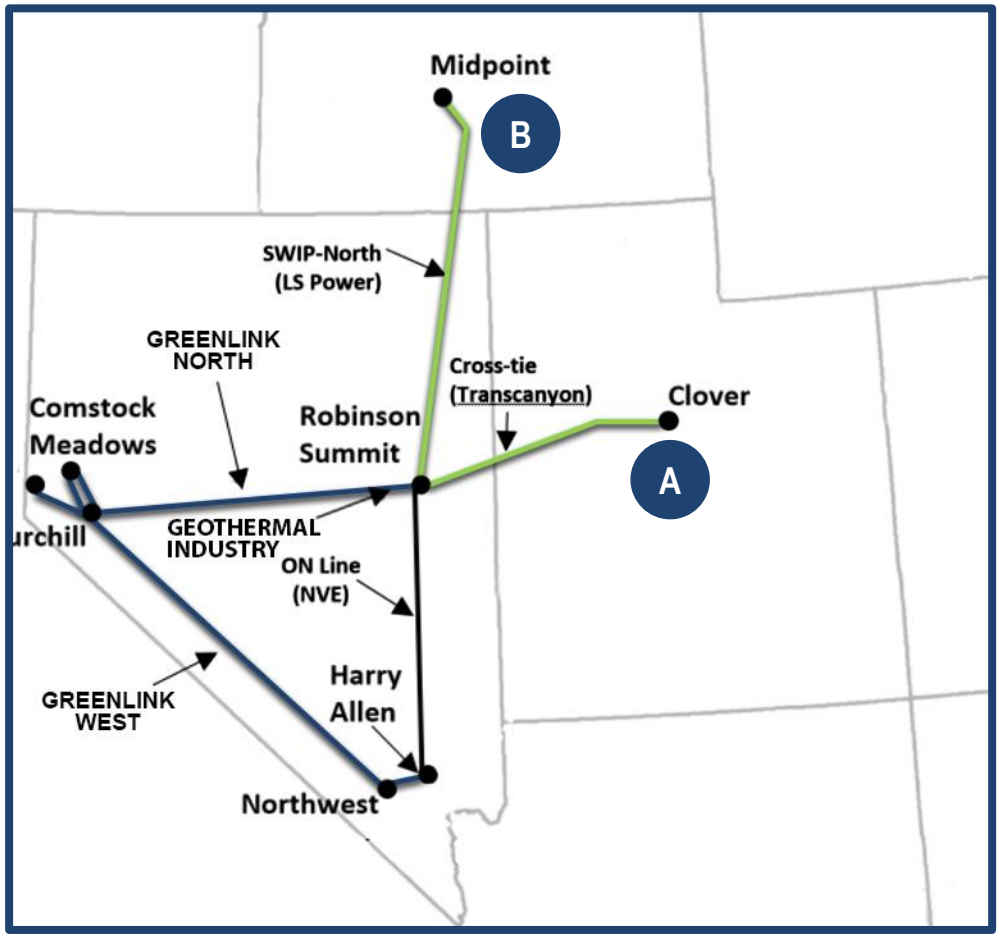
Possible connections to Greenlink North from outside companies complement proposed infrastructure enhancements and could provide additive import potential

Cross-Tie or SWIP-N, out-of-state projects being built by other organizations, would provide an additional 225 MW import capacity

Both projects would provide additive benefits to the proposed infrastructure enhancements, including the ability to import and export renewable energy

A Cross-Tie is a 525 kV line between Utah and Nevada, expected to be in-service late 2024

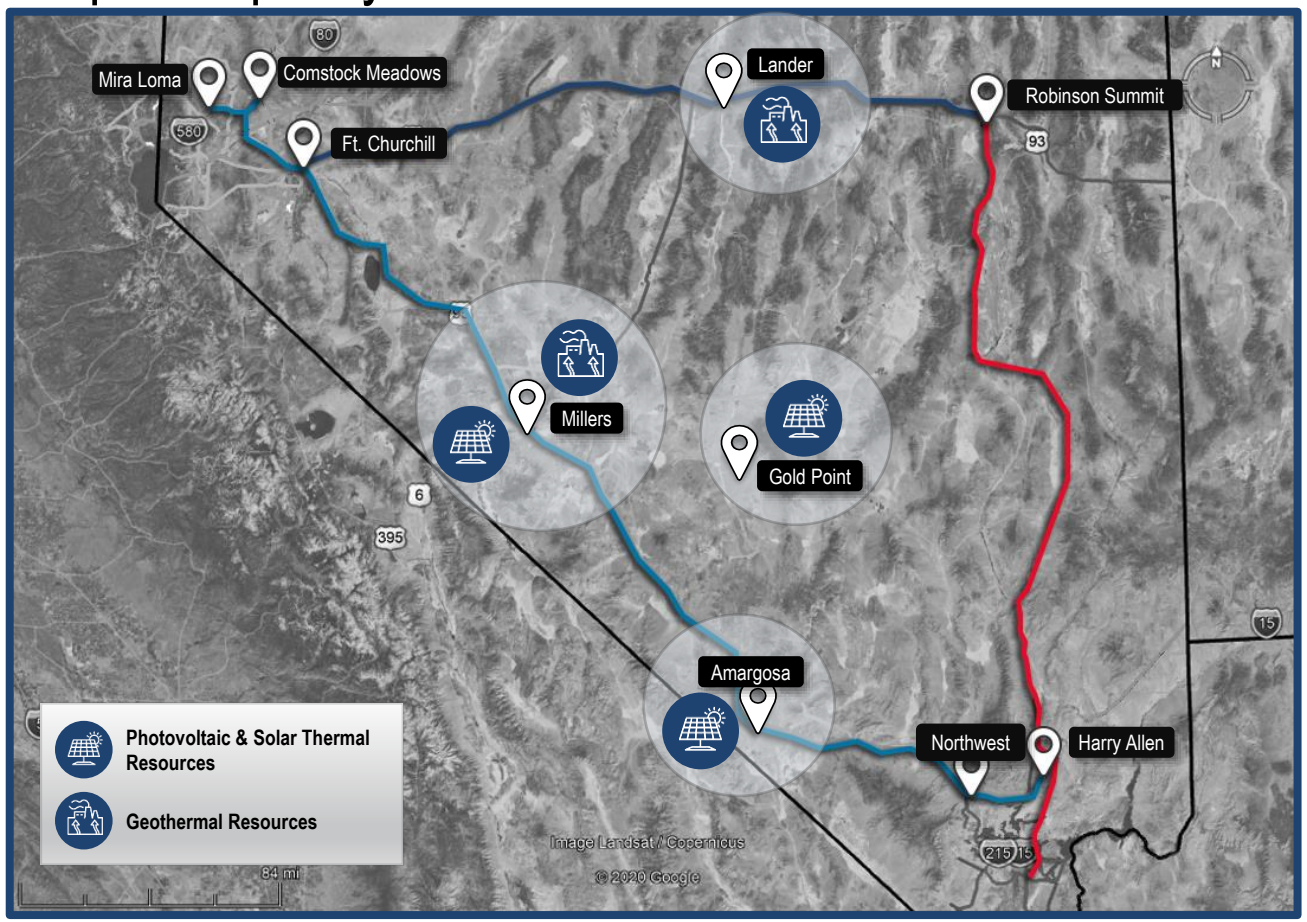
B SWIP-N is a 525 kV line between Idaho and Nevada, expected to be in-service 2021



Source: NV Energy; Transcanyon; California ISO

Additional Potential | Access for Renewable Resources

Greenlink Nevada provides access for isolated renewable energy resources that could be developed by NV Energy and other entities, diversifying renewable resources for the state or increasing the state's export capacity



Solar Energy Zone (SEZ)	Maximum Output (MW)		
	Photovoltaic*	Solar Thermal*	Geothermal
Amargosa	754	1,357	-
Gold Point	409	735	-
Millers	1,470	2,645	402
Lander	-	-	953
TOTAL	**2,633**	**4,737**	**1,355**

*Photovoltaic and solar thermal resources are mutually exclusive

Access for these renewable resources is completely dependent upon transmission line construction

Source: NV Energy; Bureau of Land Management; Renewable Energy Transmission Access Advisory Committee (RETAAC)

Additional Potential | Total Potential of Renewable Resources

Greenlink Nevada provides access for isolated renewable energy resources that could be developed by NV Energy and other entities, diversifying renewable resources for the state or increasing the state's export capacity

	Photovoltaic	Solar Thermal	Geothermal
Total Cost	$3.7 billion	$6.6 billion	$3.4 billion
Total Job Years	43,129	77,592	73,306
Nevada Share	10,782	19,398	18,326
Total Economic Activity	$5.7 billion	$9.3 billion	$8.5 billion
Nevada Share	$1.4 billion	$2.3 billion	$2.1 billion

Assumptions:

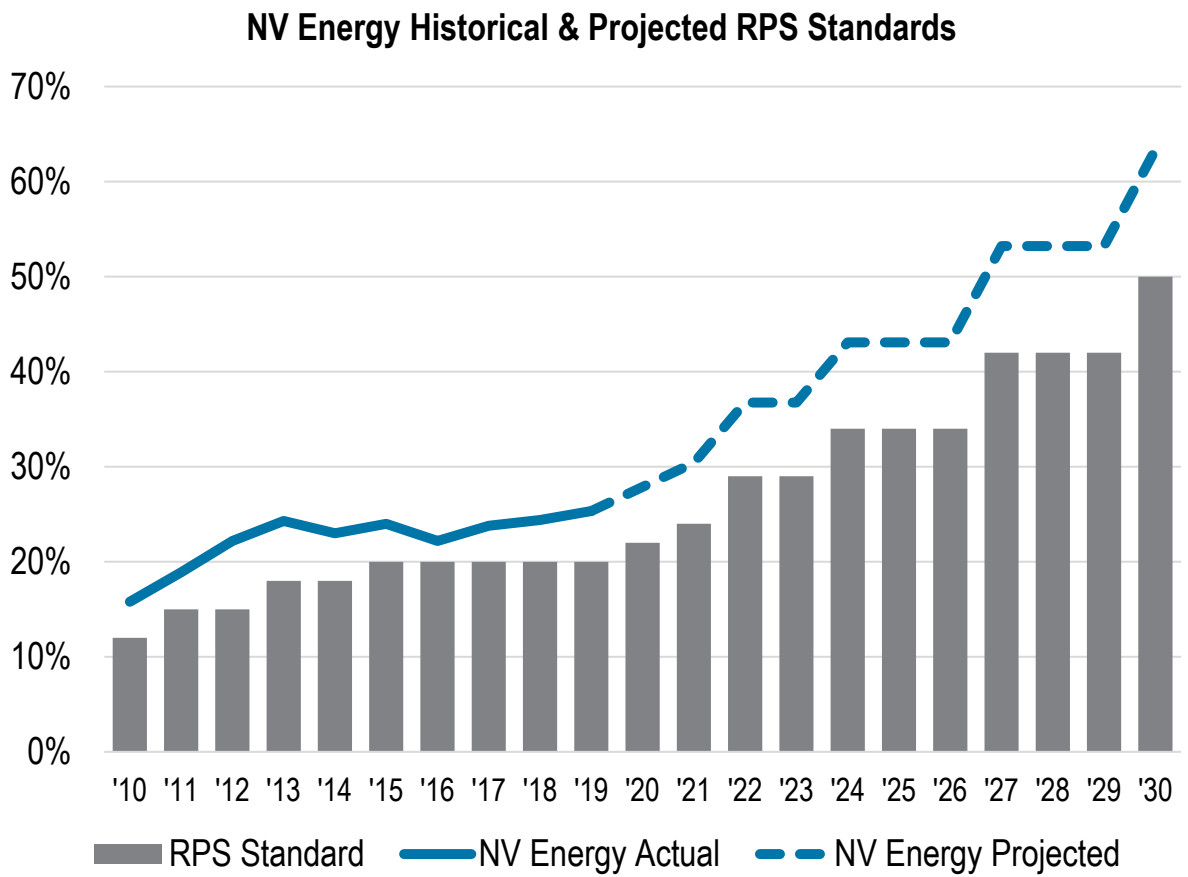
- Cost for solar thermal ("ST") and photovoltaic ("PV") are $1.4 million per MW; cost for geothermal ("GT") is $2.5 million per MW
- ST and PV assume 11.7 job-years and $1.6 million in total output per million invested
- GT assumes 54.1 job-years per MW and $2.5 million in total output per million invested
- 25 percent of project will be sourced in Nevada

Source: NV Energy; Bureau of Land Management; Berkley Lab; Energy.Gov; Real Economic Applications Laboratory; U.S. Department of Energy; Applied Analysis

Additional Potential | Environmental Impact of Renewable Resources

Infrastructure enhancements provide NV Energy with opportunities for accessing new renewable energy resources

- Senate Bill 358 was approved by Governor Sisolak on April 22, 2019, which raises the renewable energy portfolio standard ("RPS") from 20 percent to 50 percent by 2030
- NV Energy has met RPS standards for the last 10 years; on average, it has exceeded minimum standards by approximately 27 percent*
- Greenlink Nevada provides opportunities for additional access to solar resources, as well as future access to wind and hydro resources through Cross-Tie and SWIP-North



* Projections assume NV Energy will exceed minimum standards by the historical average rate of 27 percent throughout the forecast period

Source: NV Energy; NELIS; NV Office of Energy; Applied Analysis

Energy Transmission Infrastructure Enhancement

1. Overview of Greenlink Nevada Transmission Initiative
2. **Required contents of an economic impact statement**
3. Economic impacts of Greenlink Nevada Transmission Initiative
4. Fiscal impacts of Greenlink Nevada Transmission Initiative
5. Social impacts and other impacts of Greenlink Nevada Transmission Initiative

Economic Impact Statement | Required Elements

NAC 704.9357 Analysis of net economic benefits to State. (NRS 703.025, 704.210, 704.741)

1. An analysis of the changes that result in net economic benefits to Nevada from electricity-producing or electricity-saving resources must be conducted by the utility in selecting a resource option. The net economic benefit to the State must be quantified to reflect both the positive and negative changes and must include the net economic impact of renewable resources. The projected present worth of societal cost of a competing resource plan must be within 10 percent of the lowest societal costs plan before proceeding with an analysis of the economic benefits to Nevada.

2. The economic benefits analysis must be achieved by calculating the portion of the present worth of future requirements for revenue that is expended within the State, including the following for both the construction and operation phases of any project:

(a) Capital expenditures for land and facilities located within the State or equipment manufactured in the State;

(b) The portion of the cost of materials, supplies and fuel purchased in the State;

(c) Wages paid for work done within the State;

(d) Taxes and fees paid to the State or subdivisions thereof; and

(e) Fees paid for services performed within the State.

3. In the analysis, the utility shall consider only the net benefit added to the economy of the State of that portion of expenditures made within the State.

4. The present worth of societal costs of the competing resources must then be adjusted by the Commission to take into consideration either all, or only a portion, of the calculated economic benefit.

5. As used in this section, "net economic impact of a renewable resource" means the present worth of economic costs of a contract for a renewable resource minus the present worth of economic development benefits to the State over a 20-year period.

(Added to NAC by Pub. Service Comm'n, eff. 3-27-92; A by Pub. Utilities Comm'n by R004-04, 5-25-2004)

- Nevada Administrative Code (NAC) 704.9357 lists the required elements that must be present in the economic analysis of a utility in selecting electricity-producing or electricity-saving resources
- The following elements must be included for both construction and operation phases:
    1) Capital expenditures for land and facilities located in Nevada or equipment manufactured in Nevada;
    2) Portion of cost, materials, and fuel purchased in-state;
    3) Wages paid for work done in Nevada;
    4) Taxes and fees paid to the state or subdivisions of the state; and
    5) Fees paid for services done within Nevada
- This economic impact statement responds to what is required per the above regulations

Source: Nevada Administrative Code

Economic Impact Statement | Required Elements

Element of Economic Impact Statement	Construction Phase	Annual Operations Phase
Capital expenditures for land and facilities located in Nevada or equipment manufactured in Nevada	**$89.8 million** *other vouchers*	**N/A**
Portion of cost, materials, and fuel purchased in-state	**$36.4 million** *materials and non-inventory goods*	**N/A**
Wages paid for work done in Nevada	**$353.2 million** *labor, benefits, and outside services*	**$810,000** *annual labor*
Taxes and fees paid to the state or subdivisions of the state	**$49.3 million** *sales tax*	**$18.8 million** *annual average property tax*
Fees paid for services done within Nevada	**$295.5 million** *outside services employed*	**$717,467** *annual maintenance*

Source: Nevada Administrative Code; NV Energy; Applied Analysis

Energy Transmission Infrastructure Enhancement

1. Overview of Greenlink Nevada Transmission Initiative
2. Required contents of an economic impact statement
3. **Economic impacts of Greenlink Nevada Transmission Initiative**
4. Fiscal impacts of Greenlink Nevada Transmission Initiative
5. Social impacts and other impacts of Greenlink Nevada Transmission Initiative

Greenlink Nevada | Key Element - Construction and Operation Cost

Estimates provided through the remainder of the report are based on the following data obtained from NV Energy

Construction	Out-of-State Resources	Nevada Resources	Nevada Labor	Total Cost
Phase I	$992.4 million	$347.6 million	$243.5 million	$1,340.0 million
Phase II	$586.2 million	$131.8 million	$109.6 million	$718.0 million
TOTAL	**$1,578.6 million**	**$479.4 million**	**$353.2 million**	**$2,058.0 million**

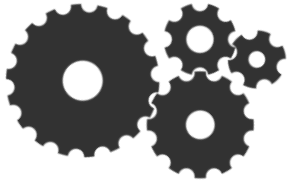
Assumes construction contractors utilize IBEW Local 396 and 1245 trades

Annual Operations	FTEs	Maintenance	Labor	Land Easement	Total Cost
Phase I	6	$491,698	$694,286	$1.5 million	$2.7 million
Phase II	1	$225,769	$115,714	$300,000	$641,484
TOTAL	**7**	**$717,467**	**$810,000**	**$1.8 million**	**$3.3 million**

Assumes operations begin during in-service year and continue for 20 years

Source: NV Energy; Applied Analysis

Economic Impact Analysis



Economic Output
Impact on Total Spending

Wages and Salaries
Impact on Personal Incomes

Employment
Impact on the Number of Jobs

Direct Impacts
Impacts generated by the Greenlink Nevada project

Indirect Impacts
Secondary impacts generated by suppliers of the Greenlink Nevada project

Induced Impacts
Sourced to businesses that are supported by the spending of direct employees

Total Impacts
The sum of direct, indirect and induced impacts

Economic Impact Analysis | Methodology

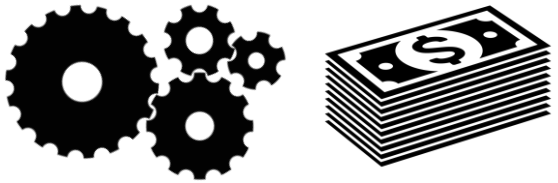
IMPLAN Model

- 1 of 3 nationally recognized impact analysis software tools
- Developed by Minnesota IMPLAN Group, Inc. and used by more than 1,000 public and private institutions
- IMPLAN is an input-output model that utilizes complex economic equations to explain how the “outputs” of one industry become the “inputs” of others, and vice versa
- This relationship is sometimes referred to as the “multiplier effect”, illustrating how changes in one sector of the economy can affect other sectors

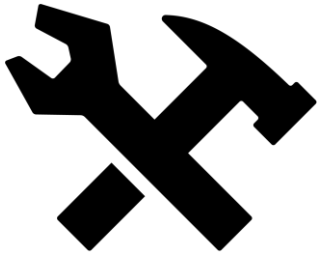
Economic Impact Analysis | Methodology

Limitations and Assumptions

- Input-output models, as is the case with all econometric models, are not without their limitations; the statistical model used in this analysis, IMPLAN, assumes capital and labor are used in fixed proportions
- This means that for every job created or lost, a fixed change in investment, income and employment results
- In reality, developers, consumers and governments respond to stimuli in complex ways, including changing the mix of capital or labor as well as the types and frequencies of investment
- Importantly, each impacting force has its own unique characteristics, affecting how consumers and businesses respond to the given change

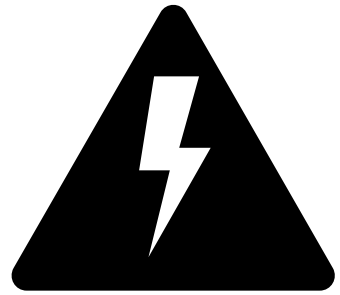


Economic Impact Greenlink Nevada Initiative



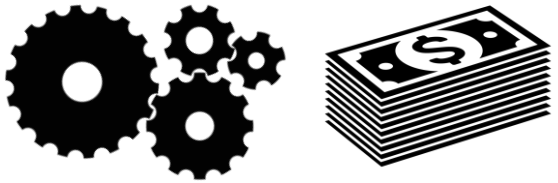
Economic Impact: Construction

Between 2020 and 2031



Economic Impact: Operation

Between 2027 and 2051



Economic Impact Greenlink Nevada Initiative

Economic Impact: Construction

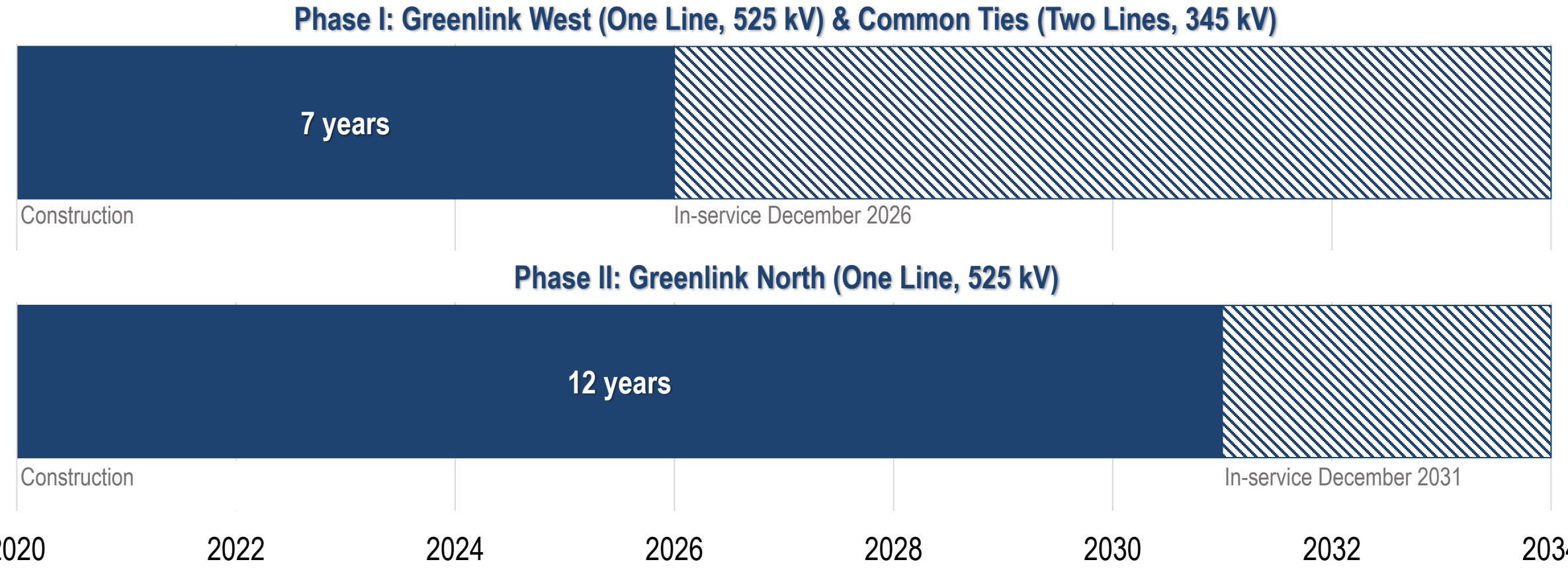
Between 2020 and 2031

Economic Impact: Operation

Between 2027 and 2051

Greenlink Nevada | Timeline and Proposed Import Increases

Construction of infrastructure enhancements will occur in two phases over a period of twelve years starting in 2020 and result in an increase of 1,525 total import capacity

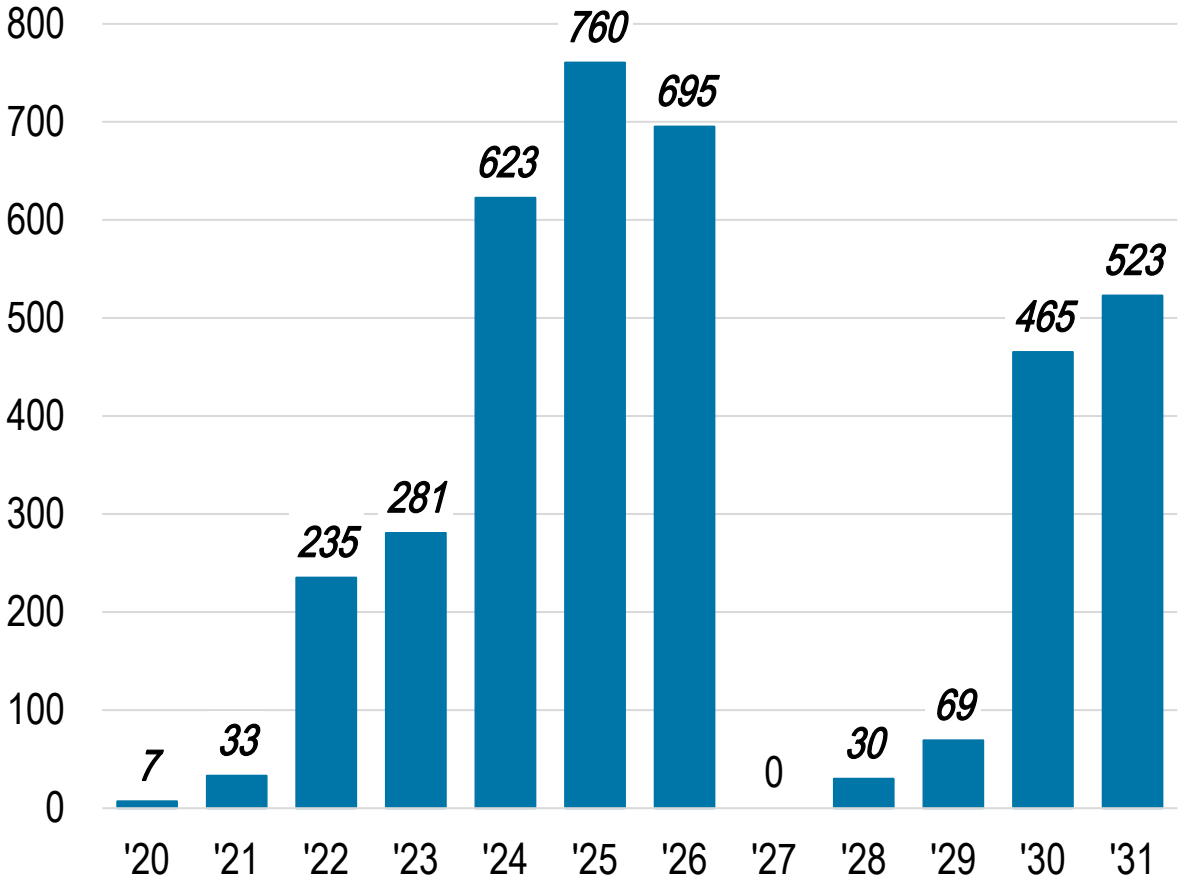


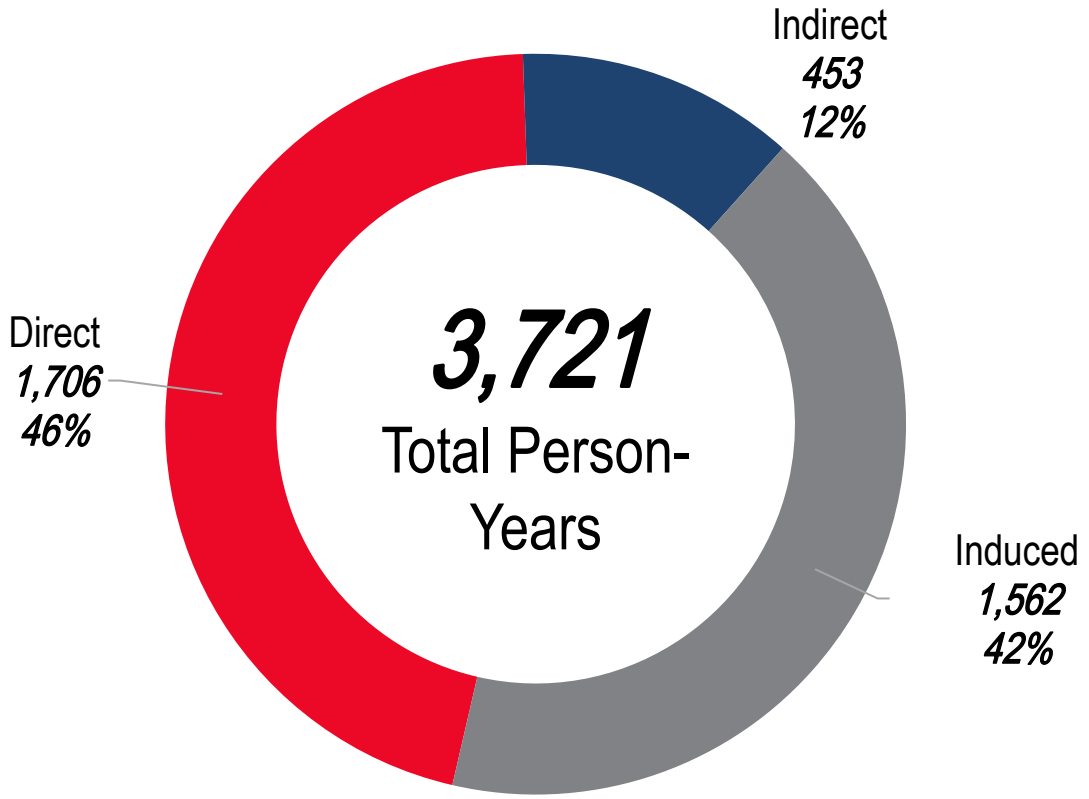
Note: Greenlink West will also increase southern Nevada energy import capacity by 1,000 MW, but the focus of this report is on northern Nevada's constrained energy import needs

Source: NV Energy

Economic Impact | Construction Employment Impacts

Between 2020 and 2031, construction of infrastructure enhancements will support ***3,721*** total person-years of employment



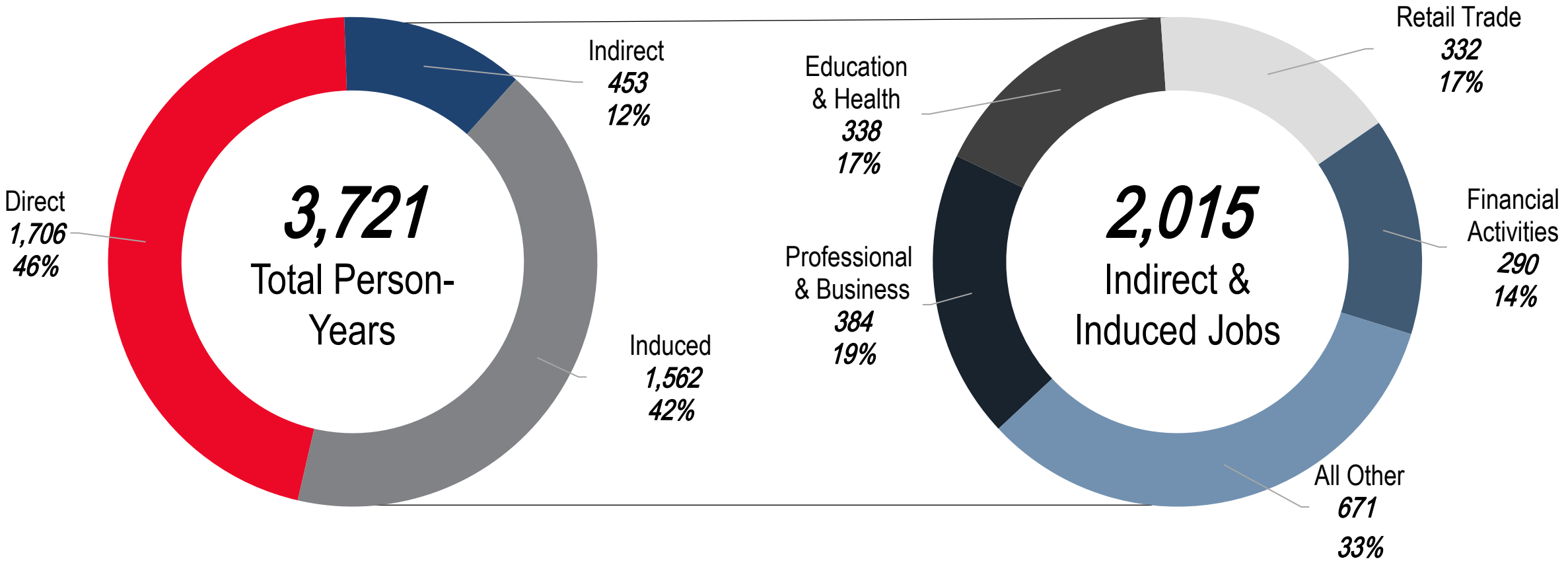


* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Construction Employment Impacts

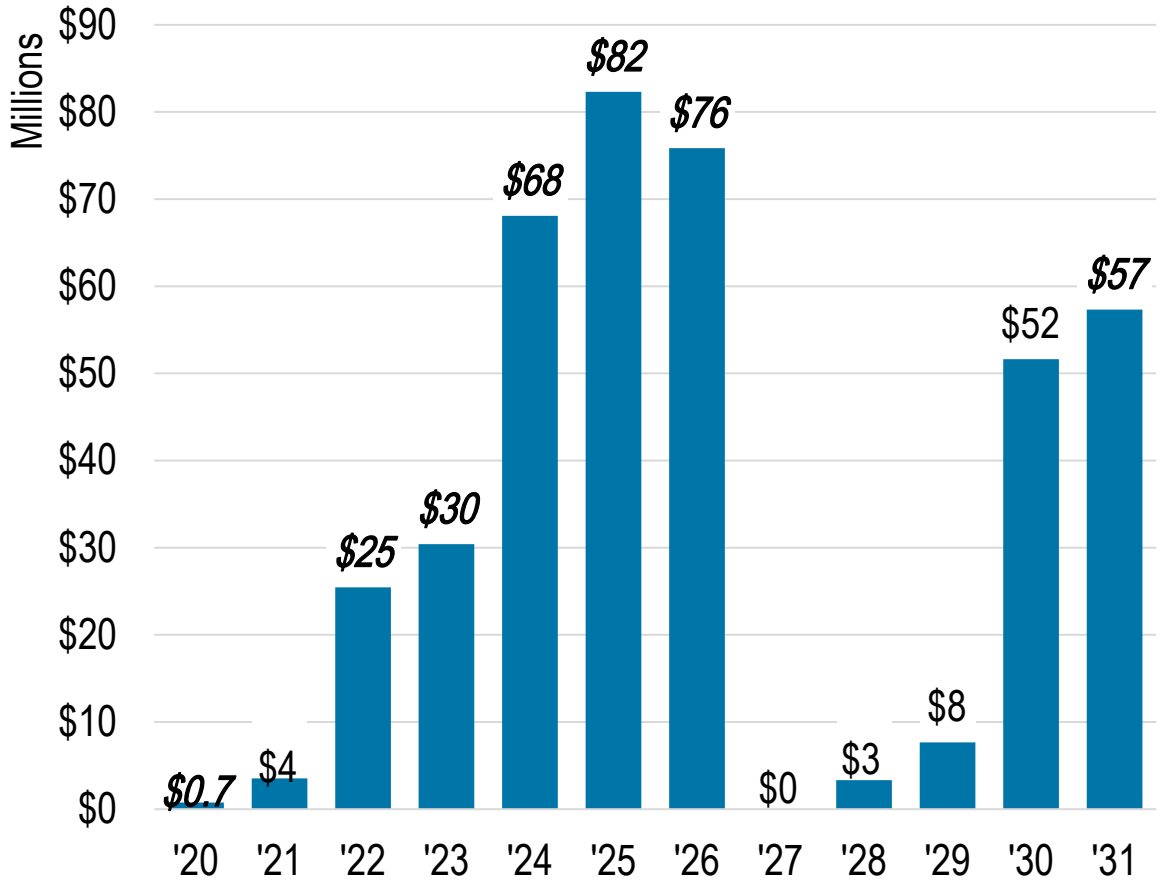
Of the *2,015* indirect and induced jobs created by infrastructure construction, the largest number of indirect and induced jobs are created in professional and business services



Source: NV Energy; Applied Analysis

Economic Impact | Construction Wage and Salary Impacts

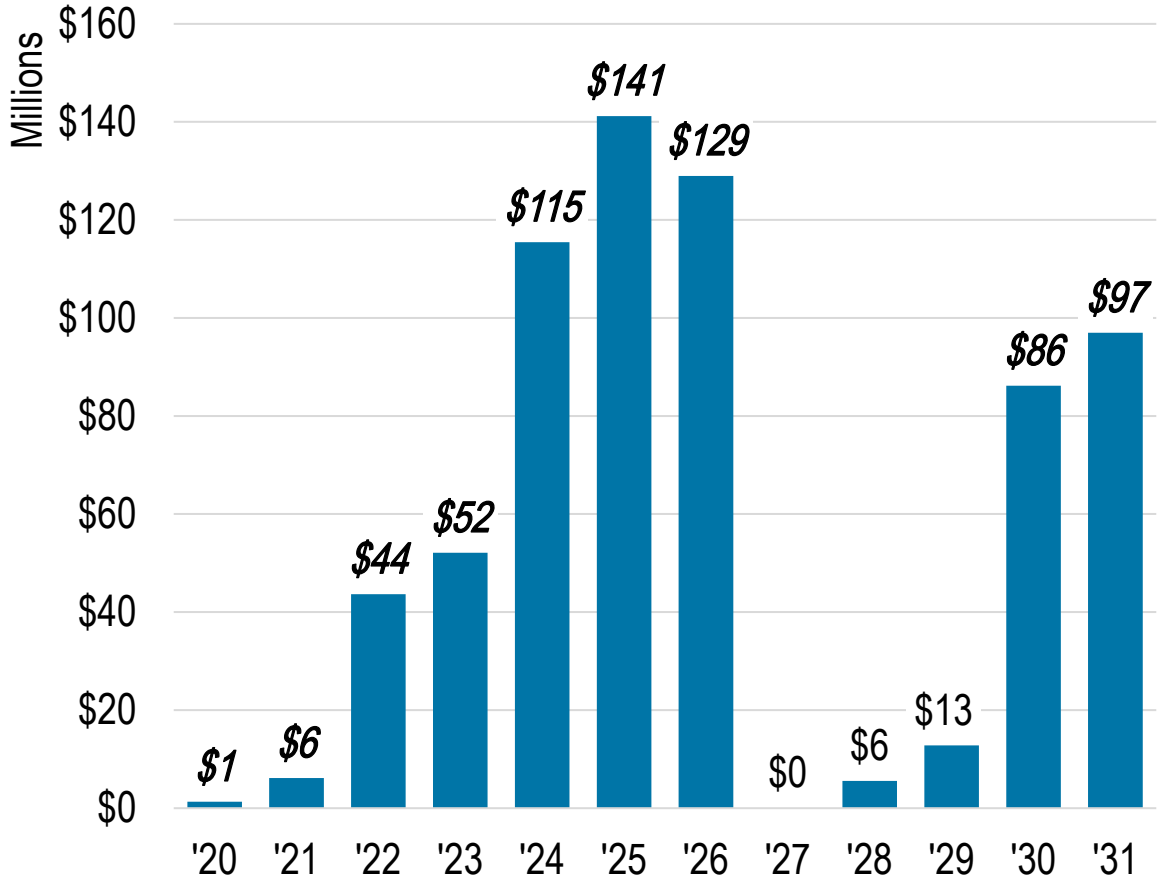
A total of ***$406.3 million*** in wages and salaries will be paid statewide, with an average wage per employee of ***$109,198*** (excluding benefits)

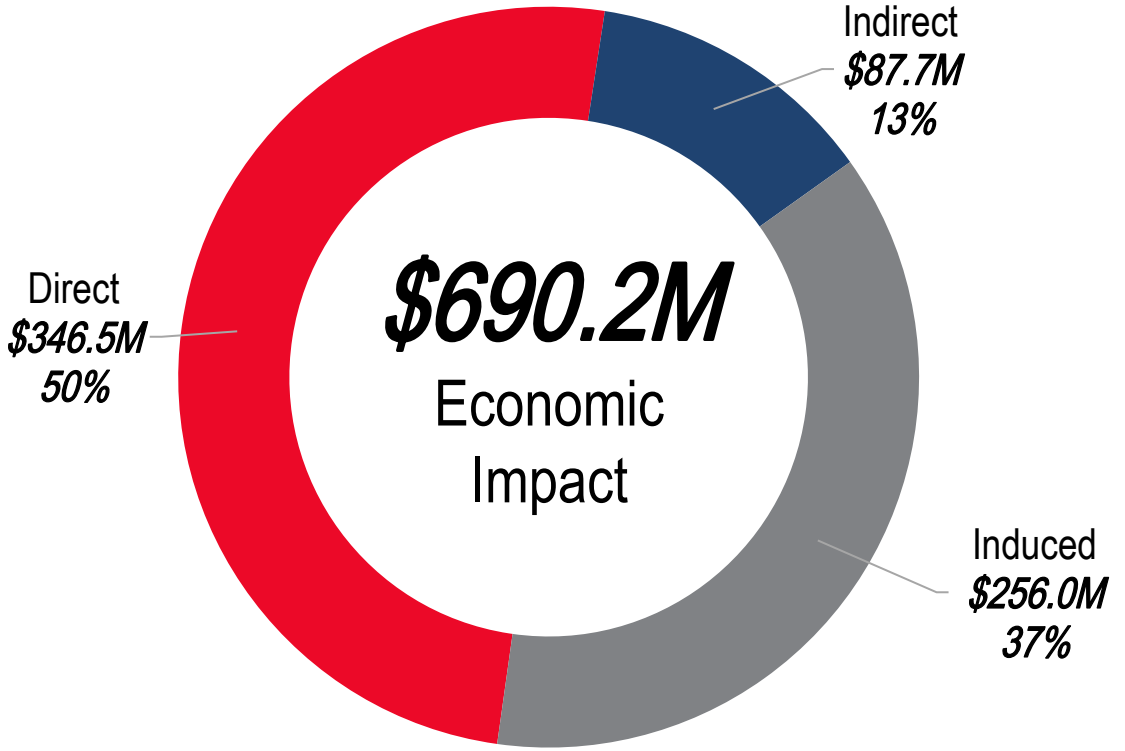


Source: NV Energy; Applied Analysis

Economic Impact | Construction Total Economic Impact

The construction of NV Energy's infrastructure enhancements will generate ***$690.2 million*** in economic impacts throughout Nevada





Note: "Other Vouchers", comprised primarily of land acquisitions, were not included in the economic analysis

Source: NV Energy; Applied Analysis

Economic Impact | Construction Impact by Project

A summary of economic impacts allocated to each Greenlink Nevada project segment

Construction Impacts	Phase I: Greenlink West	Phase II: Greenlink North
Nevada-Specific Capital Expenditures	$347.6 million	$131.8 million
Nevada-Specific Impacts:		
Economic Output	*$481.7 million*	*$208.6 million*
Wages and Salaries	*$282.2 million*	*$124.1 million*
Employment (Person-Years)	*2,596*	*1,125*

* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Construction Impact by Project

A summary of economic impacts allocated to each Greenlink Nevada project segment

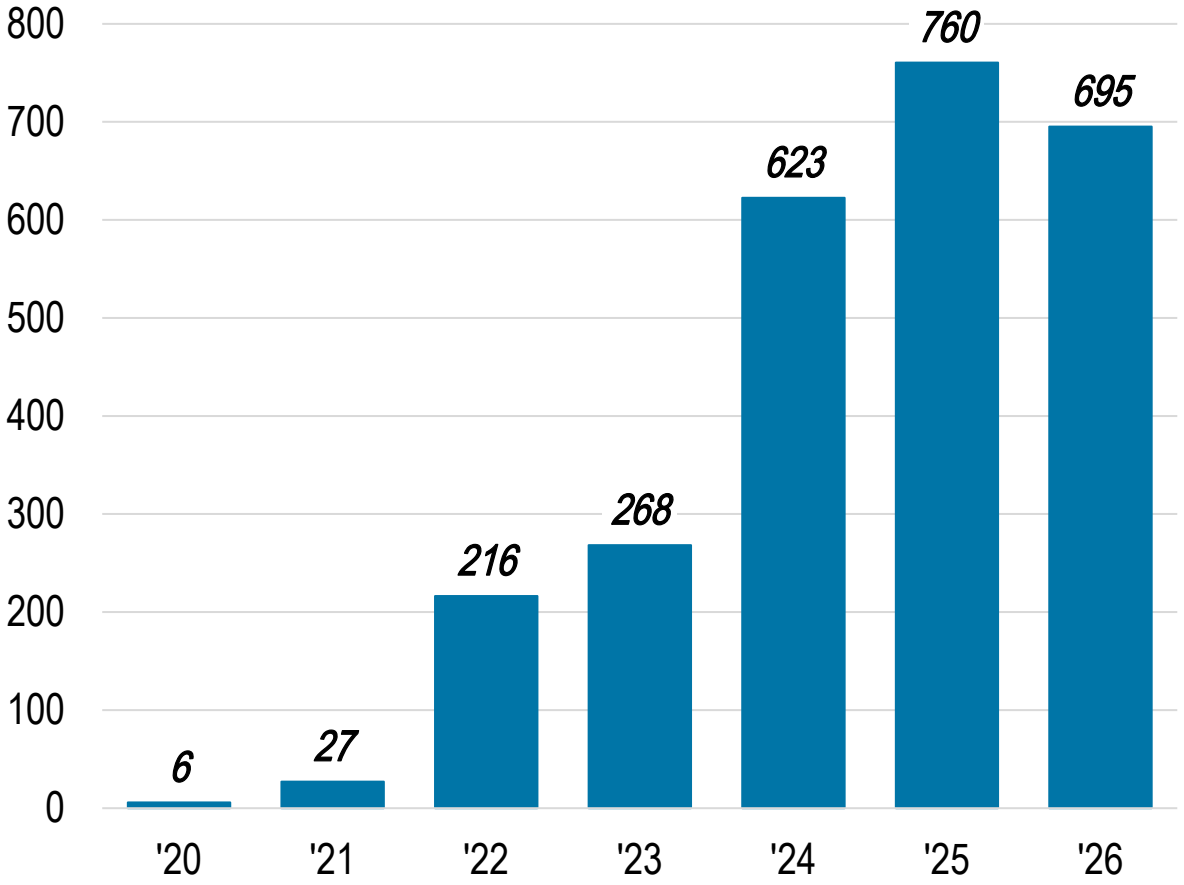
Construction Impacts	Phase I: Greenlink West	Phase II: Greenlink North
Nevada-Specific Capital Expenditures	**$347.6 million**	$131.8 million
Nevada-Specific Impacts:		
Economic Output	***$481.7 million***	$208.6 million
Wages and Salaries	***$282.2 million***	$124.1 million
Employment (Person-Years)	***2,596***	1,125

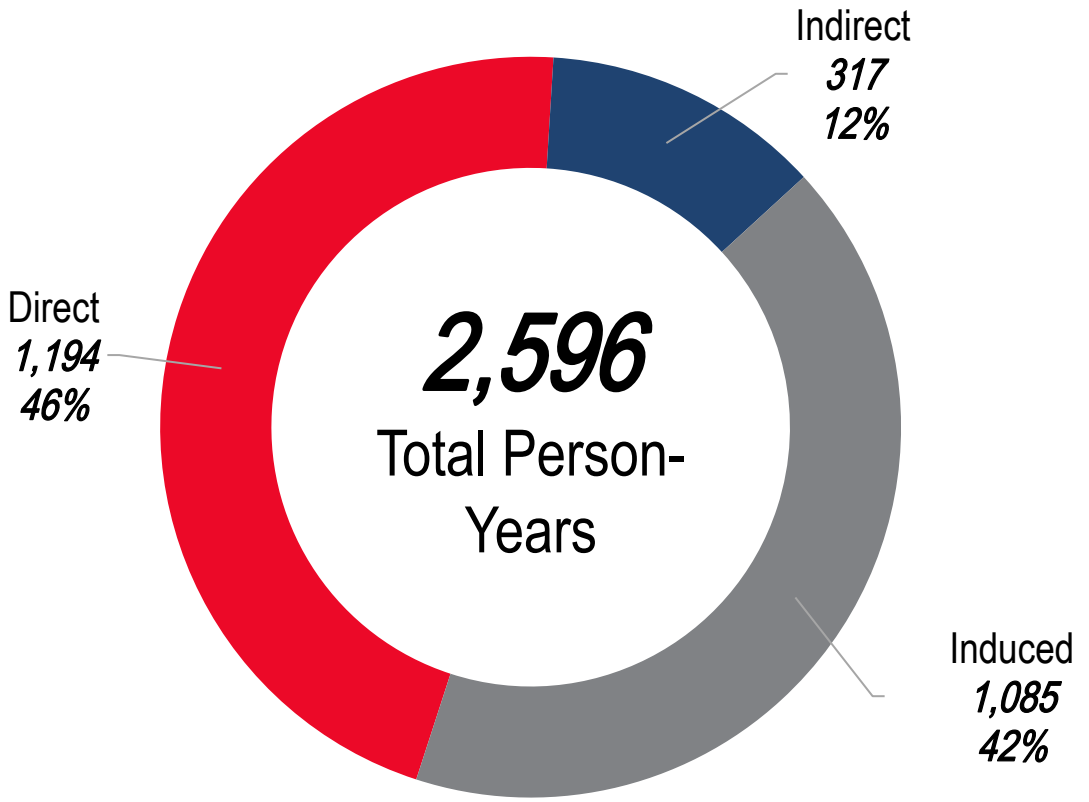
* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Phase I Employment Impacts

Construction of Greenlink West and associated Common Ties will support *2,596* total person-years of employment



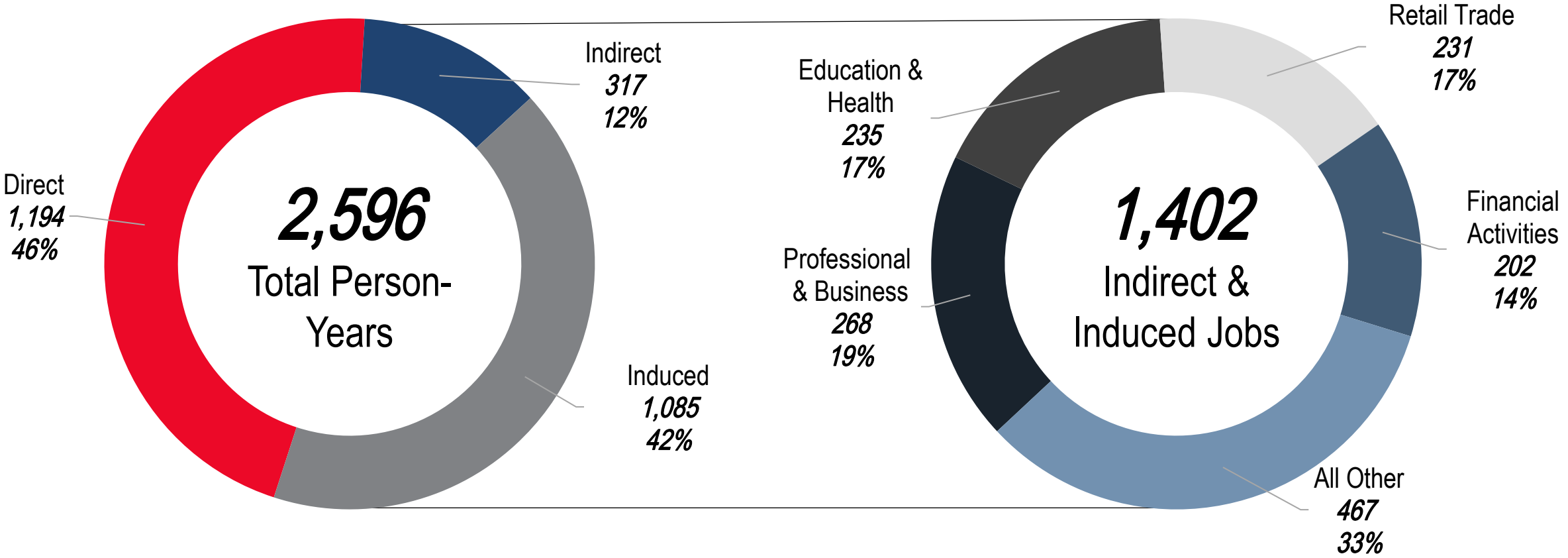


* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Phase I Employment Impacts

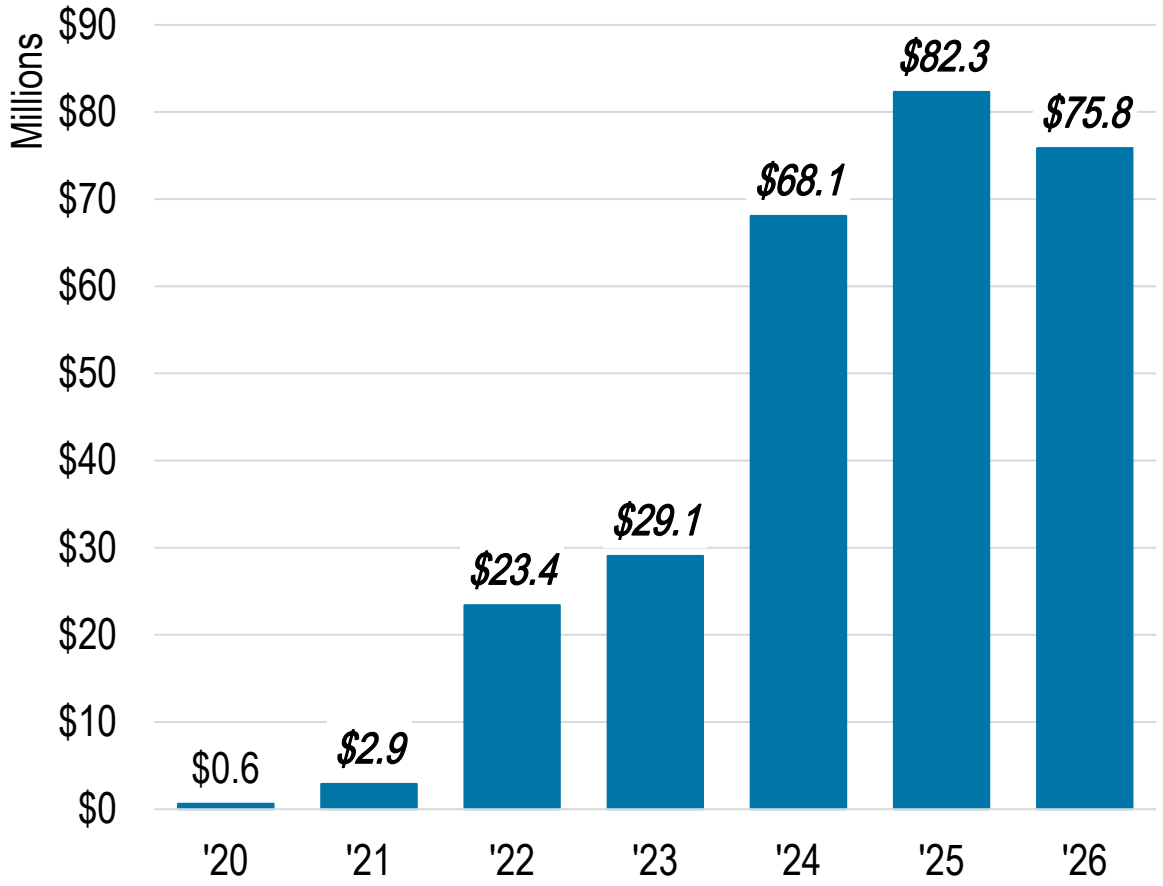
Of the *1,402* indirect and induced jobs created by Phase I construction, the largest number of indirect and induced jobs are created in professional and business services

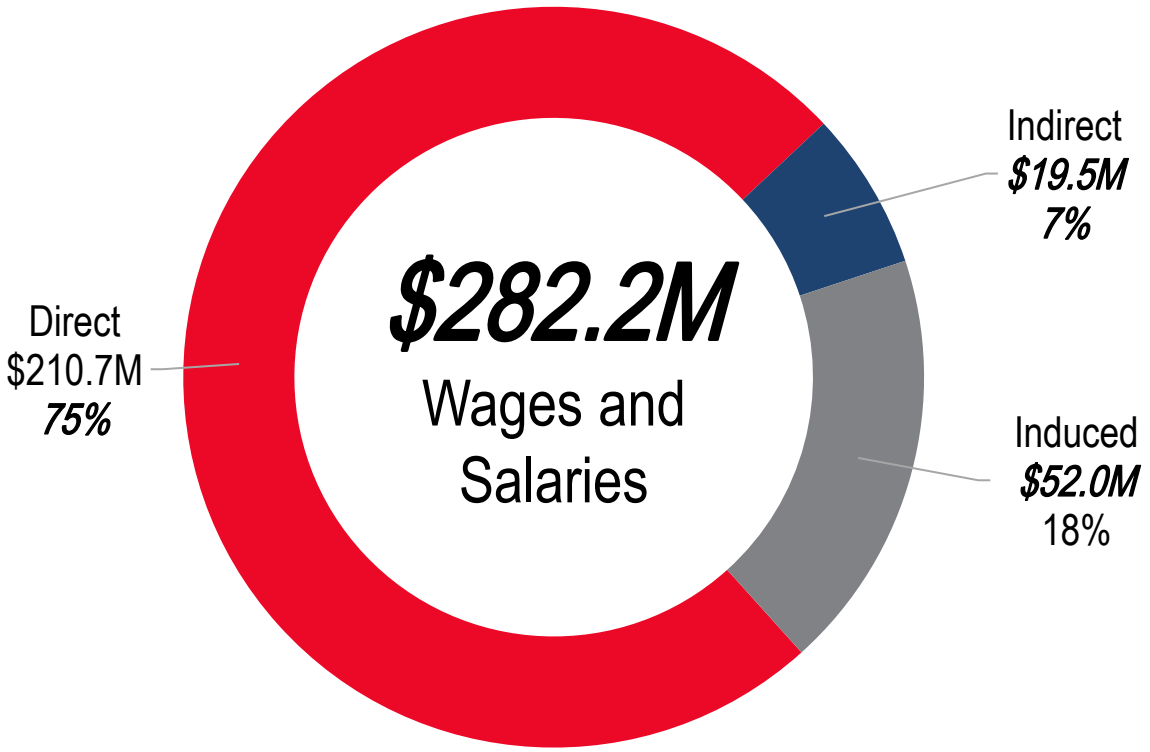


Source: NV Energy; Applied Analysis

Economic Impact | Phase I Wage and Salary Impacts

A total of ***$282.2*** million in wages and salaries will be paid statewide, with an average wage per employee of ***$108,723*** (excluding benefits)

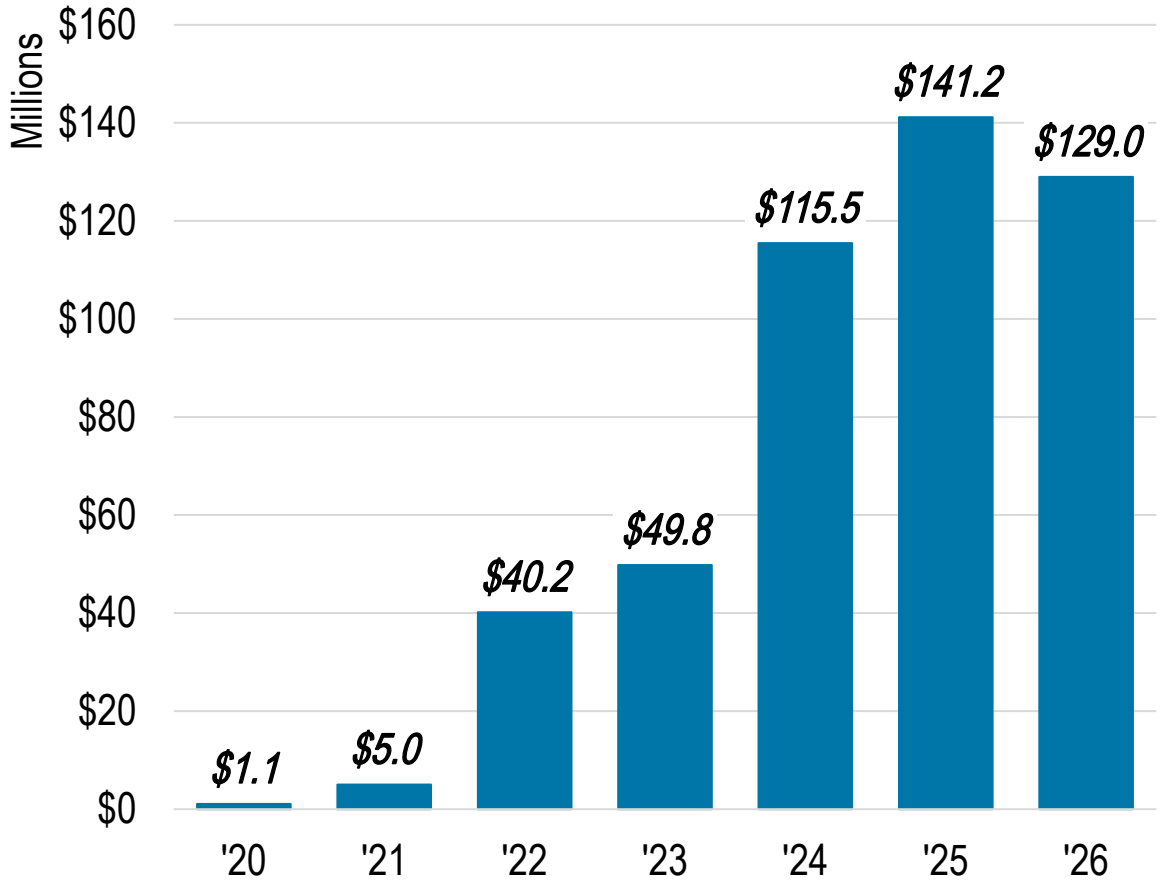


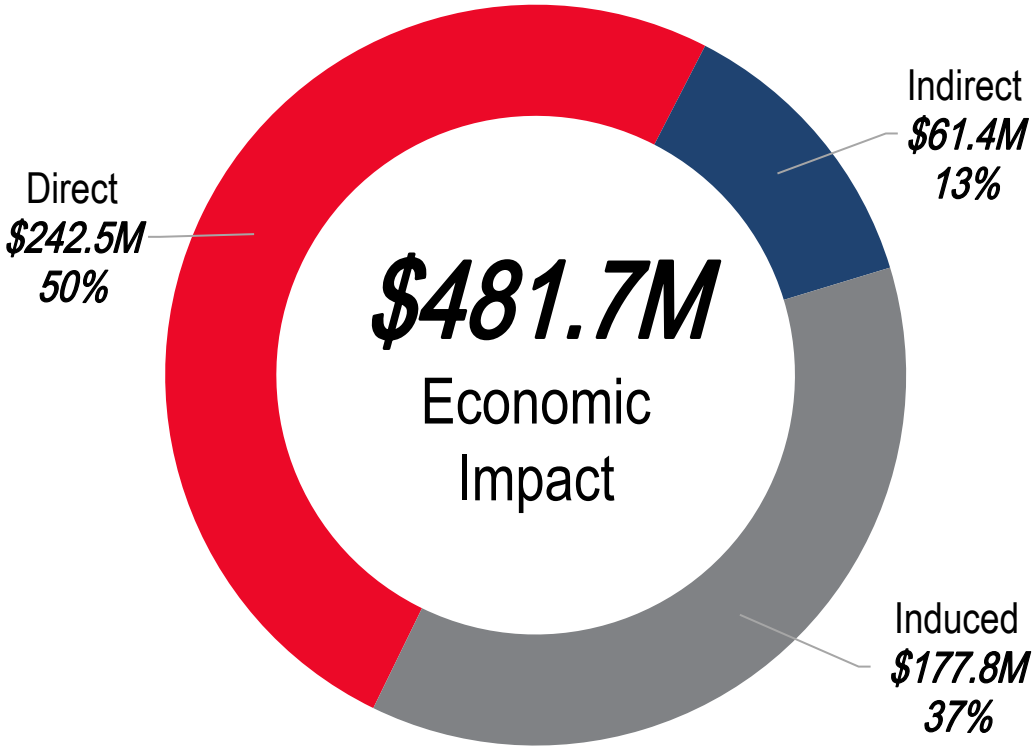


Source: NV Energy; Applied Analysis

Economic Impact | Phase I Total Economic Impact

The construction of Greenlink West and associated Common Ties will generate ***$481.7*** million in economic impacts throughout Nevada





Note: "Other Vouchers", comprised primarily of land acquisitions, were not included in the economic analysis

Source: NV Energy; Applied Analysis

Economic Impact | Construction Impact by Project

A summary of economic impacts allocated to each Greenlink Nevada project segment

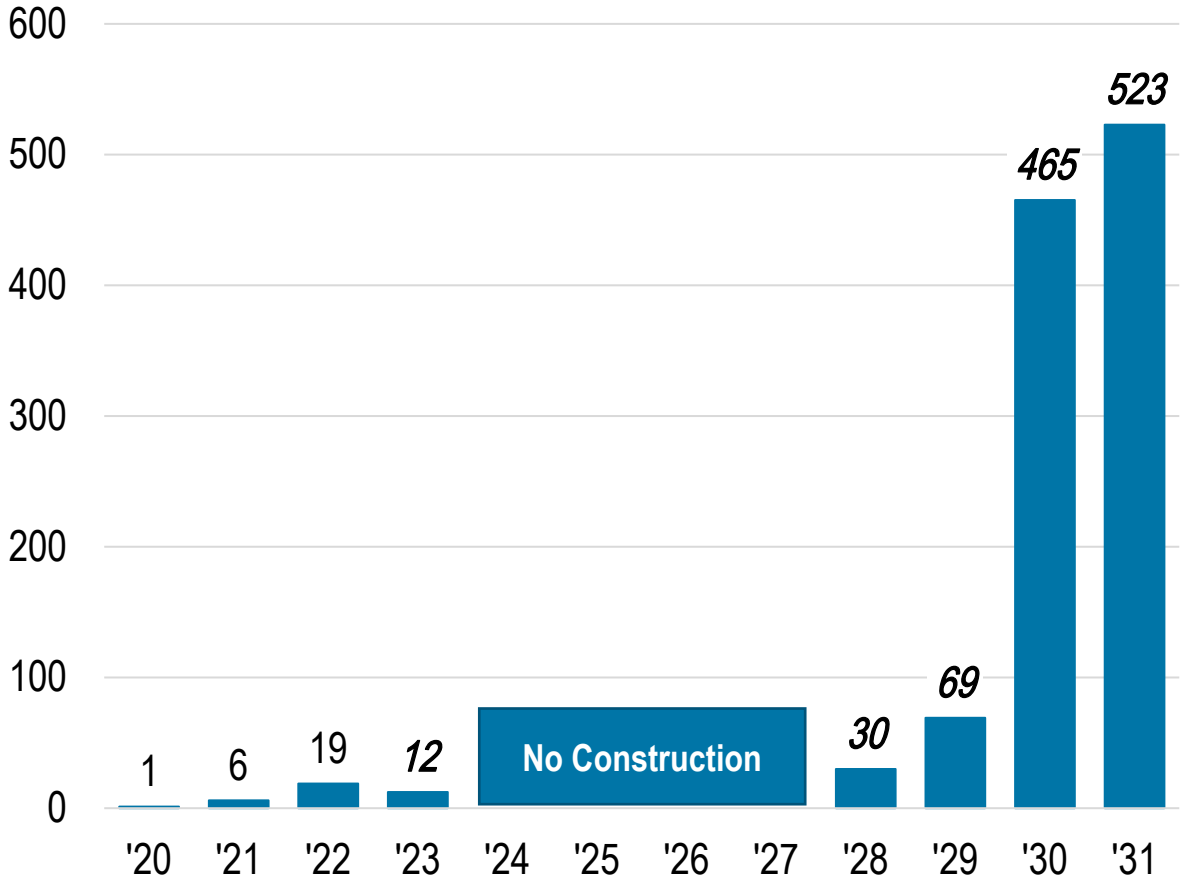
Construction Impacts	Phase I: Greenlink West	Phase II: Greenlink North
Nevada-Specific Capital Expenditures	$347.6 million	**$131.8 million**
Nevada-Specific Impacts:		
Economic Output	$481.7 million	*$208.6 million*
Wages and Salaries	$282.2 million	*$124.1 million*
Employment (Person-Years)	2,596	*1,125*

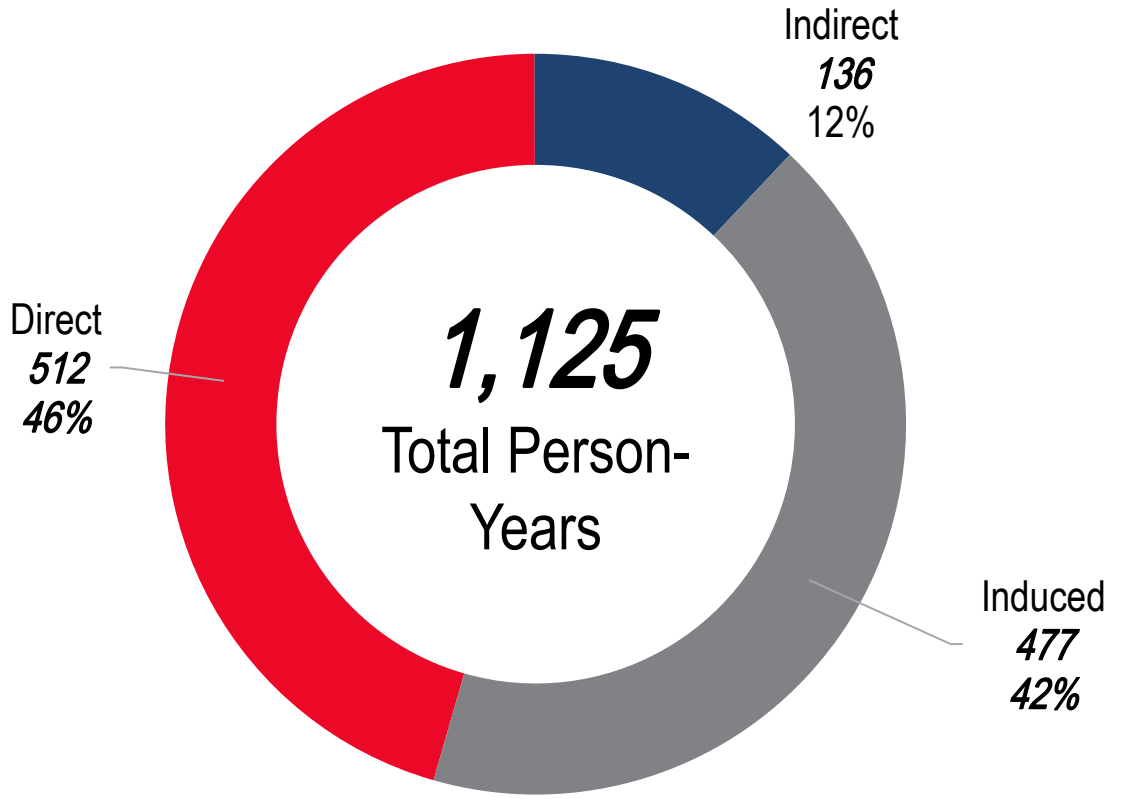
* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Phase II Employment Impacts

Construction of Greenlink North will support *1,125* person-years of employment



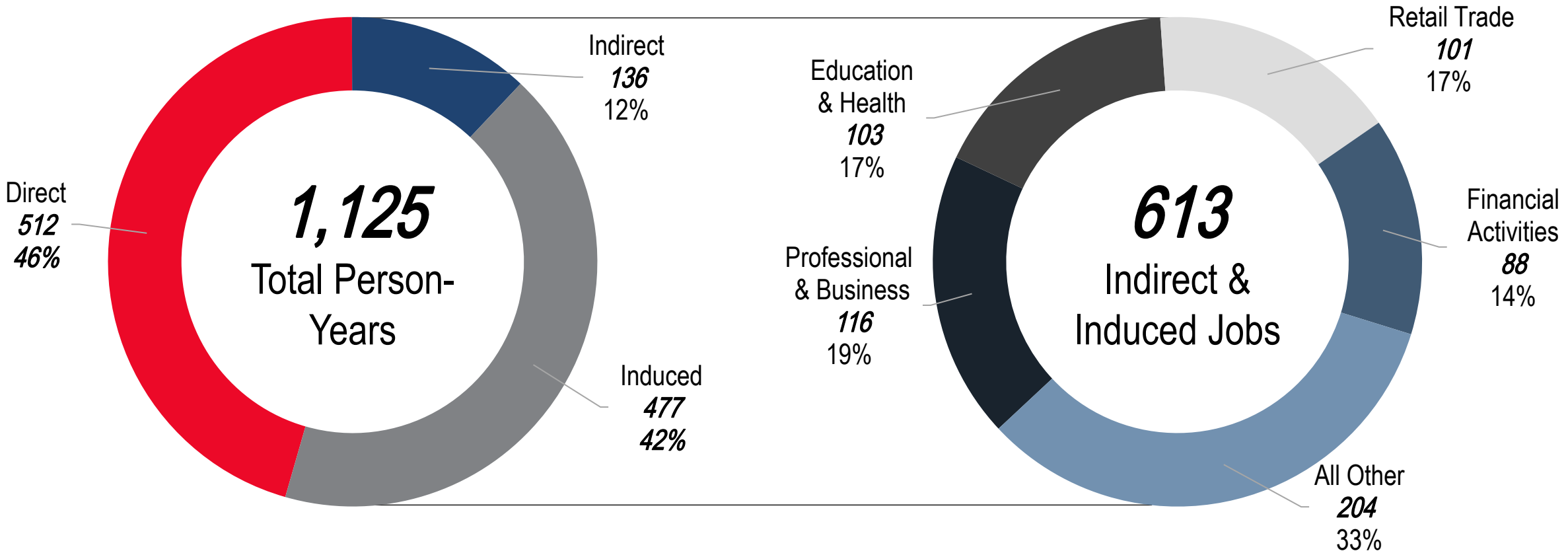


* Employment impacts during the construction phase are stated in person-years of employment (i.e., one person employed full-time for one year)

Source: NV Energy; Applied Analysis

Economic Impact | Phase II Employment Impacts

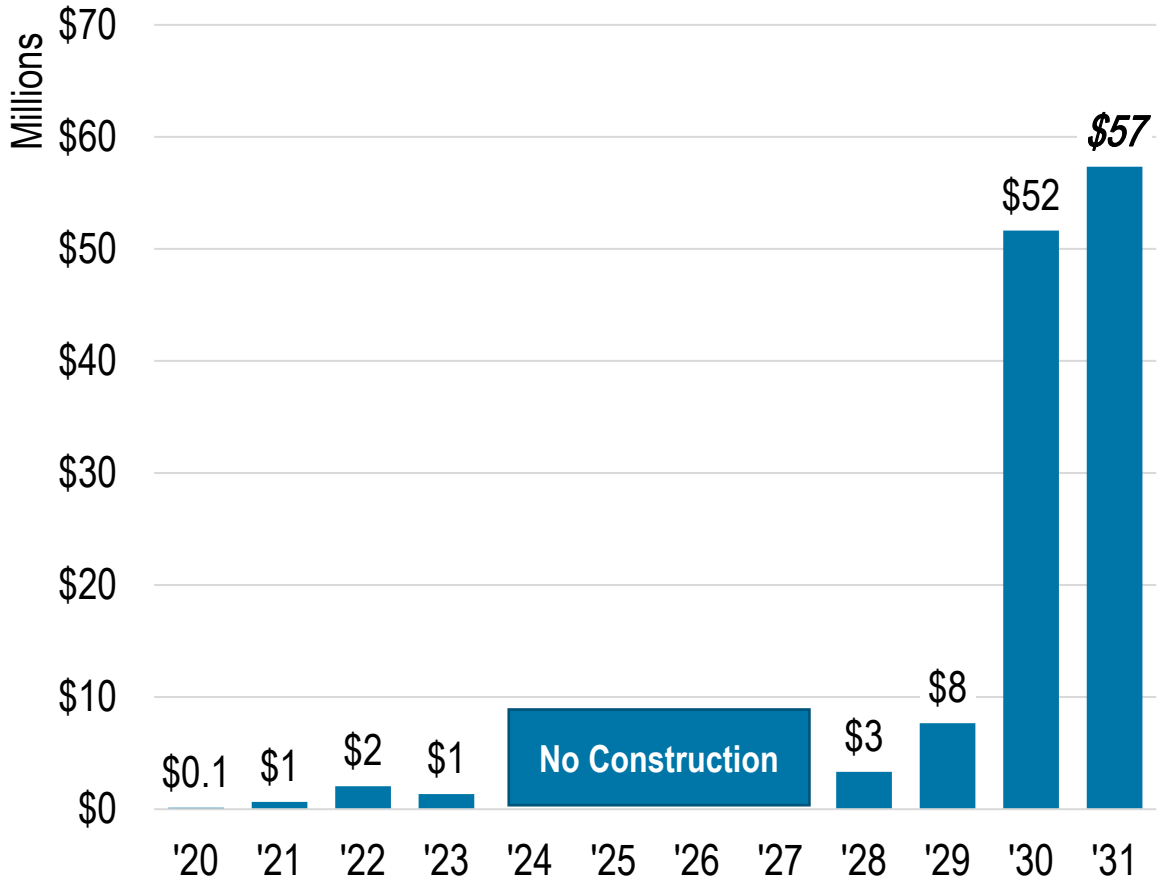
Of the ***613*** indirect and induced jobs created by Phase II construction, the largest number of indirect and induced jobs are created in professional and business services

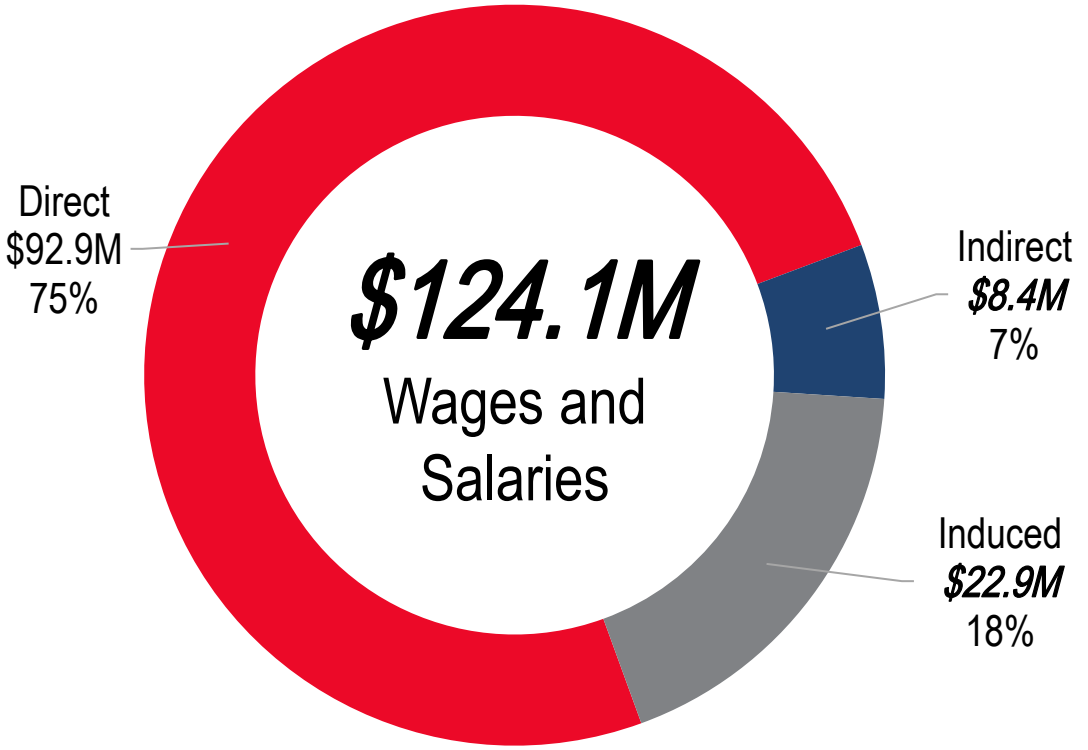


Source: NV Energy; Applied Analysis

Economic Impact | Phase II Wage and Salary Impacts

A total of ***$124.1*** million in wages and salaries will be paid statewide, with an average wage per employee of ***$110,292*** (excluding benefits)

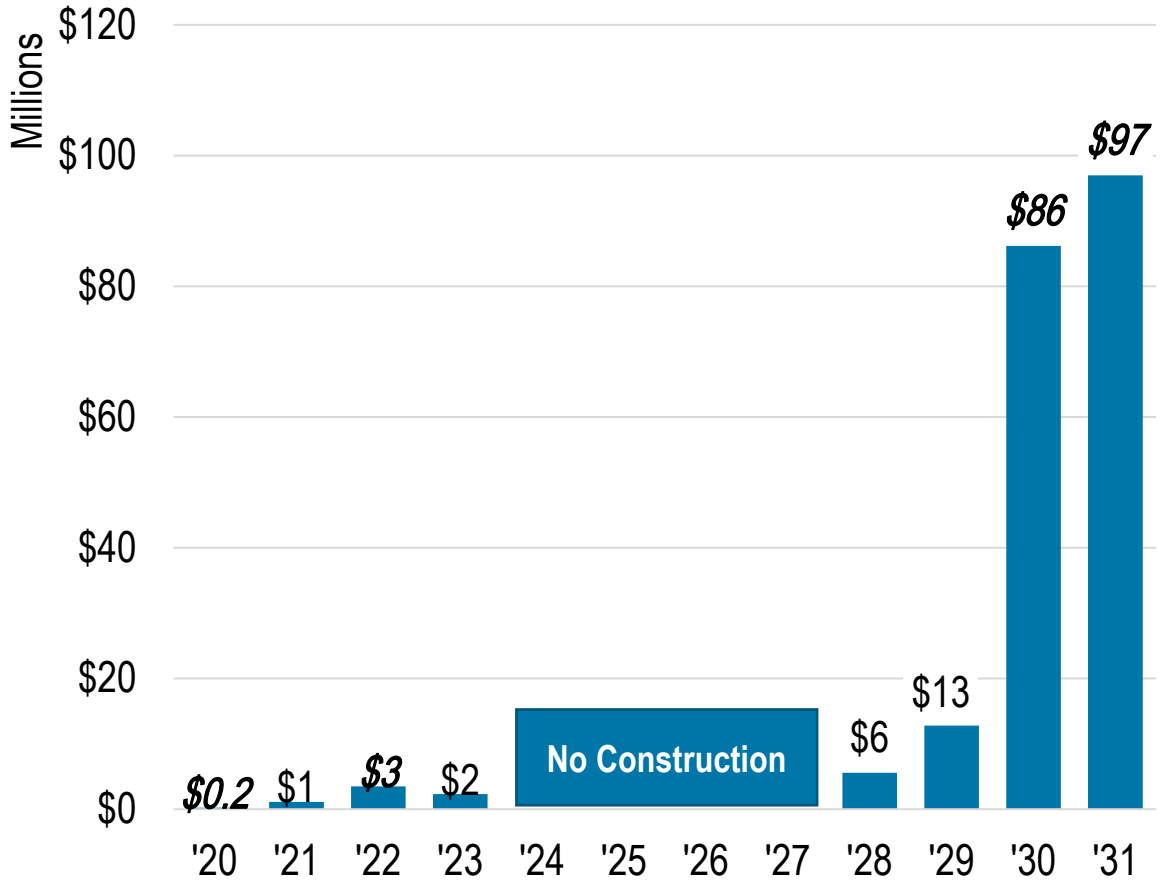


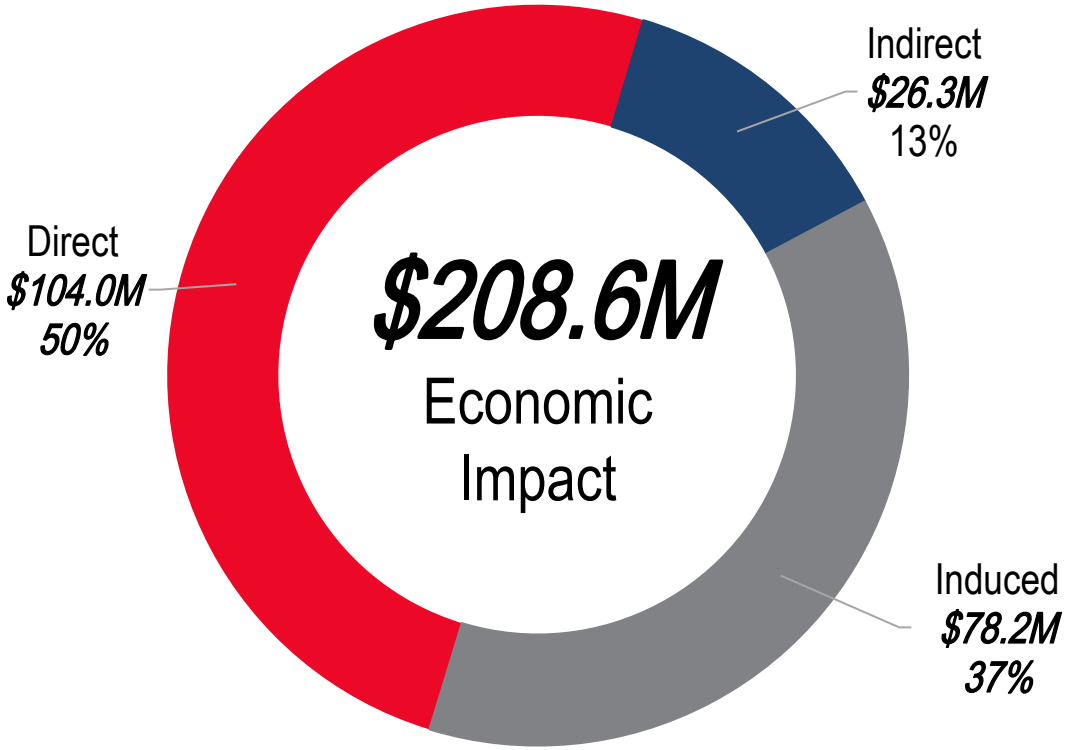


Source: NV Energy; Applied Analysis

Economic Impact | Phase II Total Economic Impact

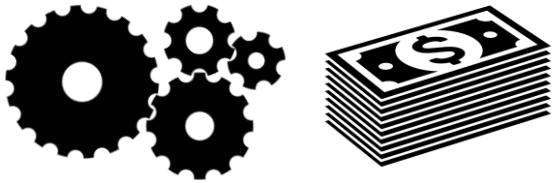
The construction of Phase II will generate *$208.6* million in economic impacts throughout Nevada



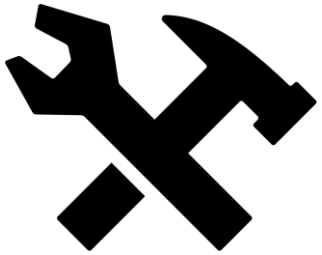


Note: "Other Vouchers", comprised primarily of land acquisitions, were not included in the economic analysis

Source: NV Energy; Applied Analysis

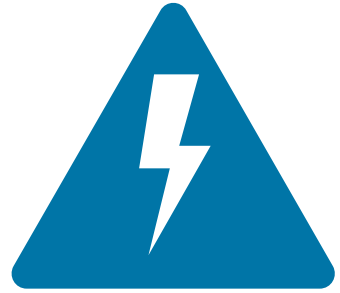


Economic Impact Greenlink Nevada Initiative



Economic Impact: Construction

Between 2020 and 2031



Economic Impact: Operation

Between 2027 and 2051

Economic Impact | Operation Impact by Project

A summary of economic impacts allocated to each Greenlink Nevada project segment

Operation Impacts	Phase I: Greenlink West	Phase II: Greenlink North
Nevada-Specific Capital Expenditures	$347.6 million	$131.8 million
Nevada-Specific Impacts (Per Year):		
Economic Output	$2.2 million	$523,013
Wages and Salaries	$879,794	$148,912
Employment	10	2

Note: Per year values are averages over the 20-year assumed operations period

Source: NV Energy; Applied Analysis

Economic Impact | Operation Impact by Project

A summary of economic impacts allocated to each Greenlink Nevada project segment

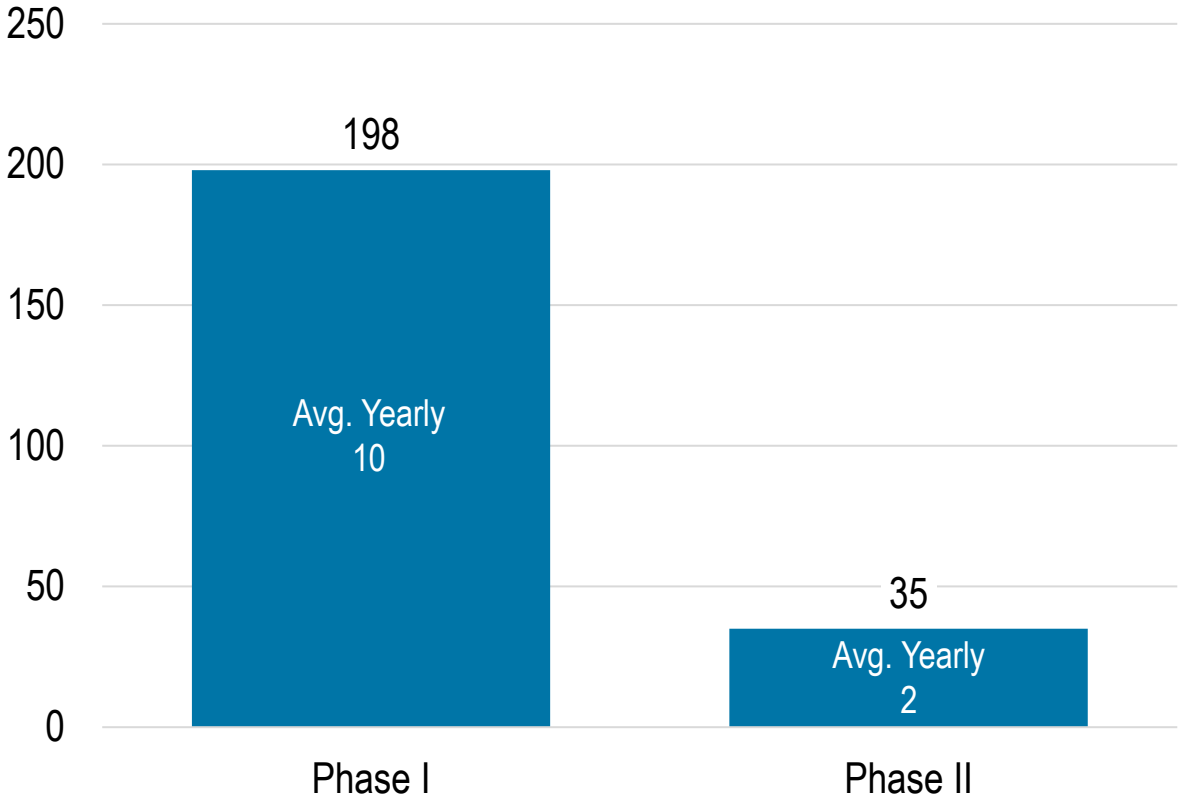
Operation Impacts	Phase I: Greenlink West	Phase II: Greenlink North
Nevada-Specific Capital Expenditures	$347.6 million	$131.8 million
Nevada-Specific Impacts (Over 20 Years):		
Economic Output	$43.1 million	$10.5 million
Wages and Salaries	$17.6 million	$3.0 million
Employment	198	35

Source: NV Energy; Applied Analysis

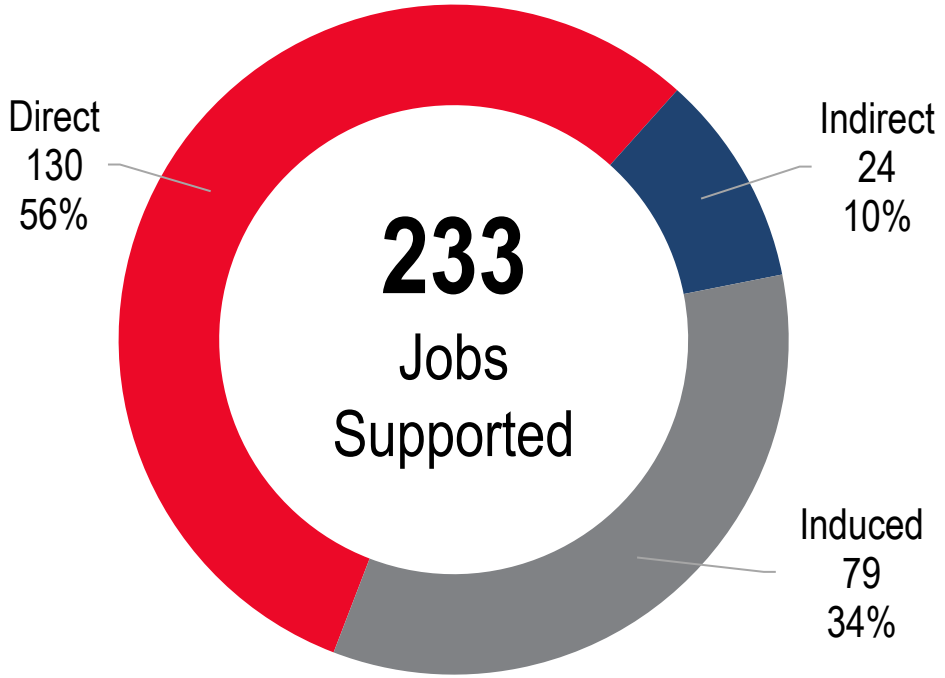
Economic Impact | Operational Employment Impacts

Annual operations will support a total of 233 jobs and an average of 9 jobs per year

Operational Employment Impact, by Project*



Total Operational Employment Impact



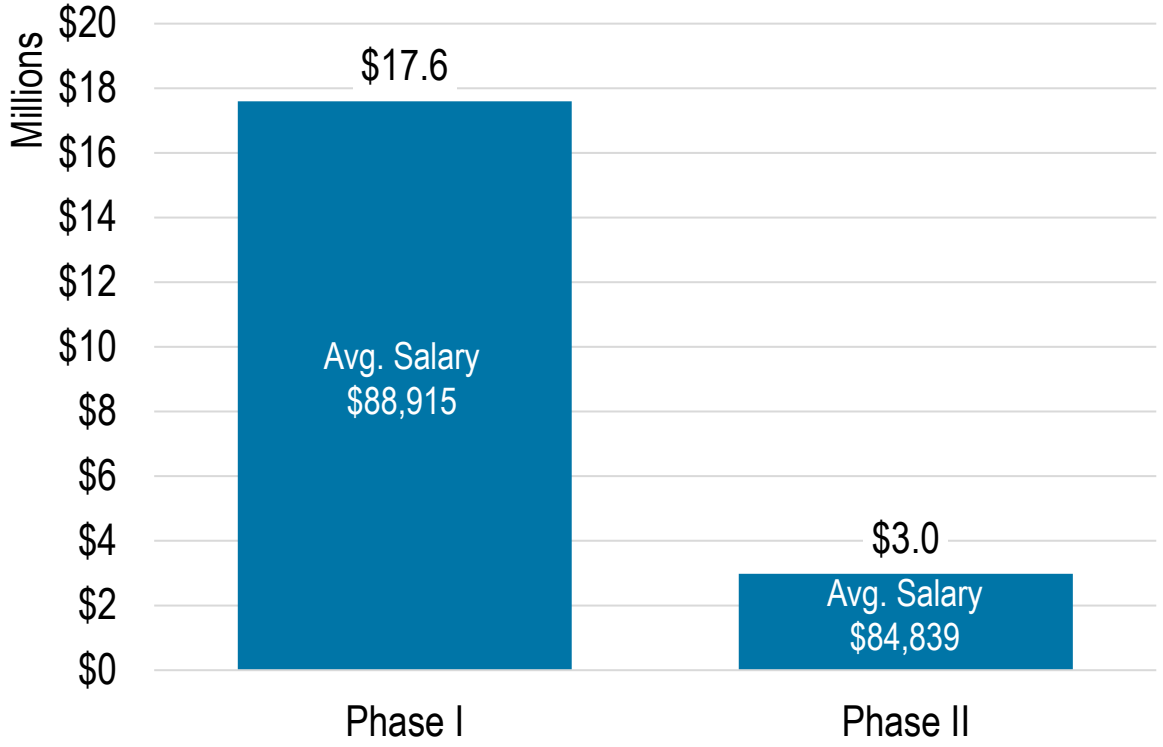
*Land easements were not included as part of the economic analysis

Source: NV Energy; Applied Analysis

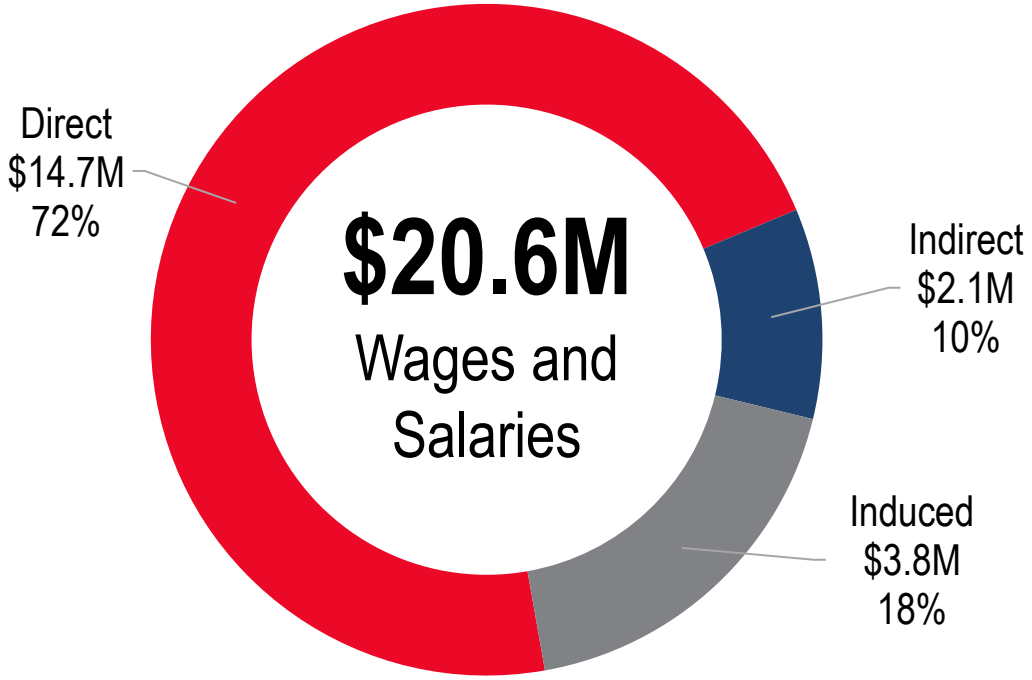
Economic Impact | Operational Wage and Salary Impacts

This amounts to $20.6 million in wage impacts with an average salary of $88,301

Operational Wage and Salary Impacts, by Project*



Total Operational Wage and Salary Impacts



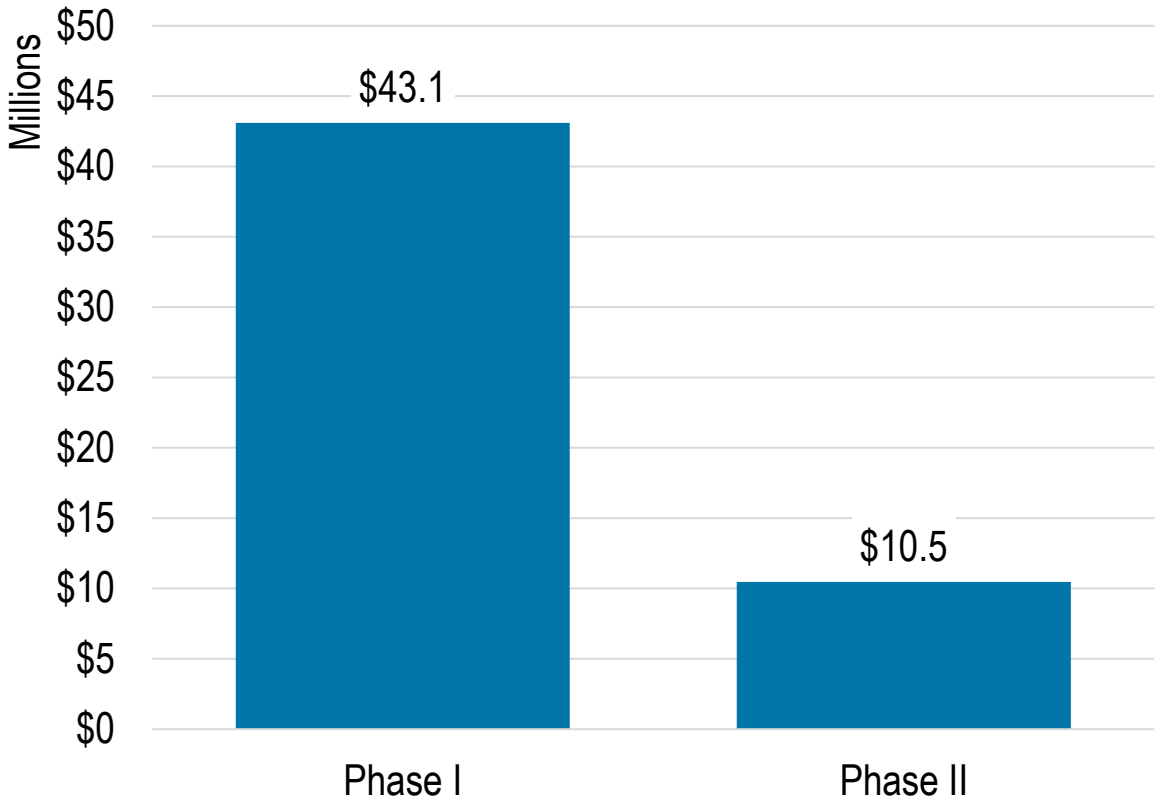
*Land easements were not included as part of the economic analysis

Source: NV Energy; Applied Analysis

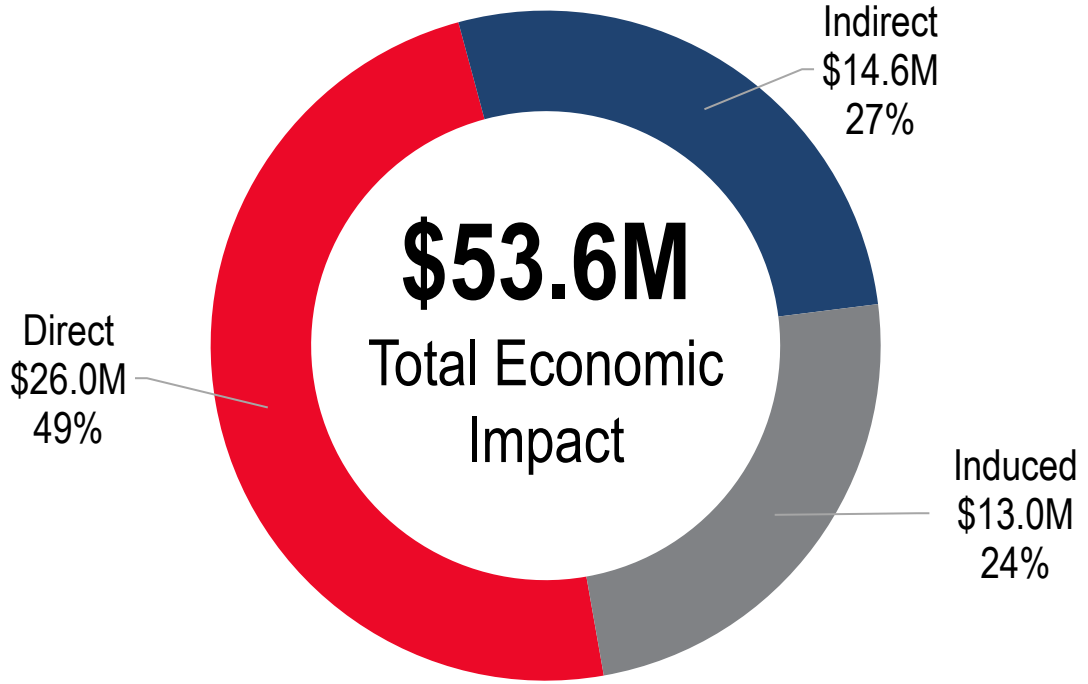
Economic Impact | Operational Total Economic Impacts

Annual operations will generate $53.6 million in total economic impacts throughout Nevada

Total Operational Economic Impact, by Project*



Total Operational Economic Impact



*Land easements were not included as part of the economic analysis

Source: NV Energy; Applied Analysis

Energy Transmission Infrastructure Enhancement

1. Overview of Greenlink Nevada Transmission Initiative
2. Required contents of an economic impact statement
3. Economic impacts of Greenlink Nevada Transmission Initiative
4. **Fiscal impacts of Greenlink Nevada Transmission Initiative**
5. Social impacts and other impacts of Greenlink Nevada Transmission Initiative

Greenlink Nevada | Key Element – Taxes

Estimates provided through the remainder of the report are based on the following data

Construction Sales Tax	Total Cost
Materials and Non-Inventory Goods	$711.5 million
Sales Tax	$49.3 million

Uses an average sales tax rate of 7.45 percent based on 11 different counties

Property Tax	Total Cost
Property Tax	$18.8 million

Property tax is an annual average for the operations period between 2027 and 2051

Sales Tax Assumptions	
State Sales and Use Tax	2.00 percent
Local School Support Tax	2.60 percent
Basic City County Relief Tax	0.50 percent
Supplemental City County Relief	1.75 percent
County Option Tax	0.60 percent

Sales taxes are allocated to counties based on wire mileage; County Option Taxes are variable based on the county; the number shown above is an average between the 11 counties used in this analysis

Property Tax Assumptions	
Secured Property Tax Rate	1.13 percent
Capital Work in Progress Tax Rate	1.10 percent
State of Nevada Property Tax Allocation	0.17 percent

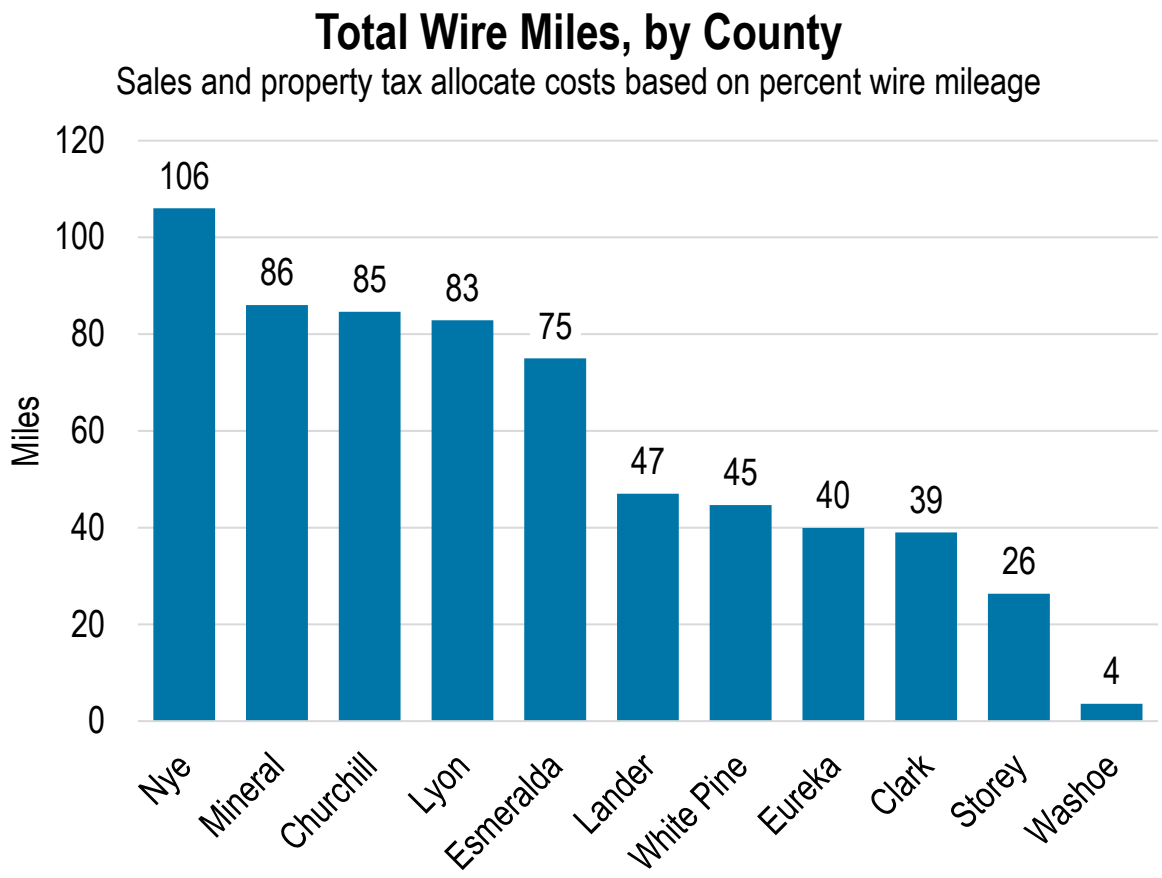
Property tax rates are an average of NPC and SPCC 2019 rates; the balance of property taxes not allocated to state are allocated to counties based on wire mileage

Source: NV Energy; Applied Analysis; State of Nevada Department of Taxation

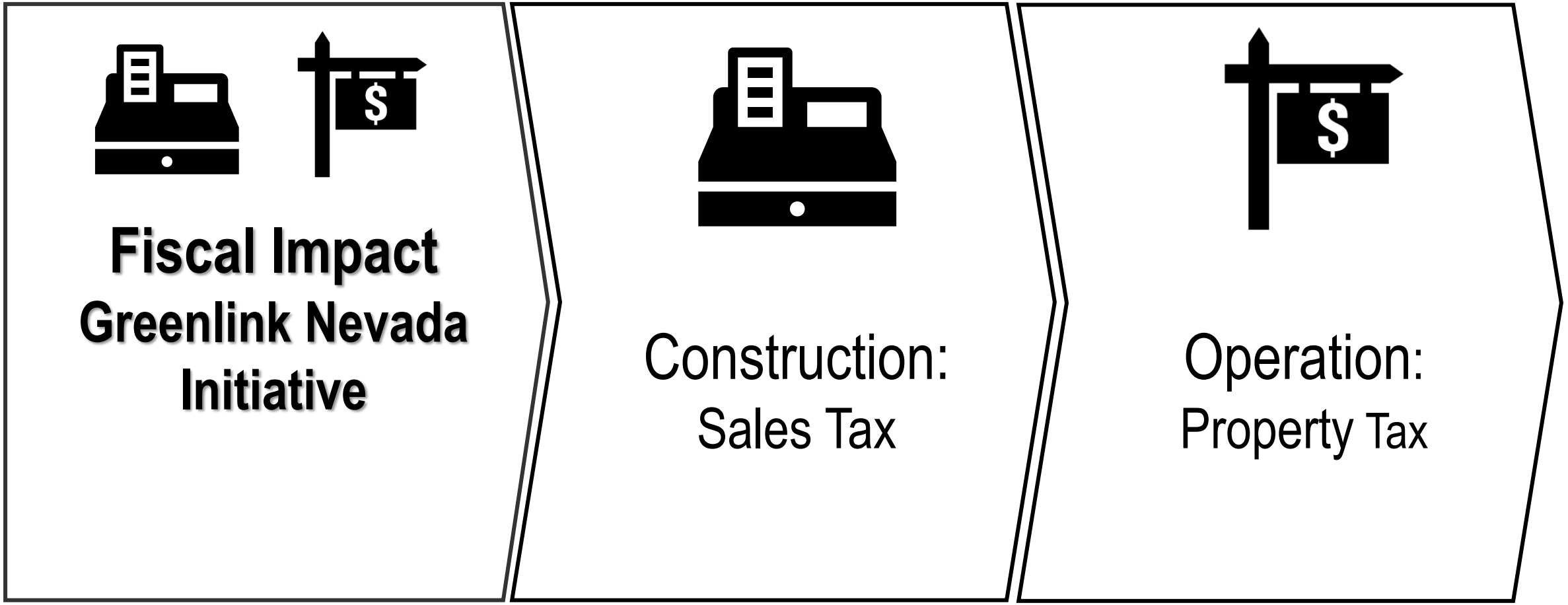
Greenlink Nevada | Key Element – Wire Mileage

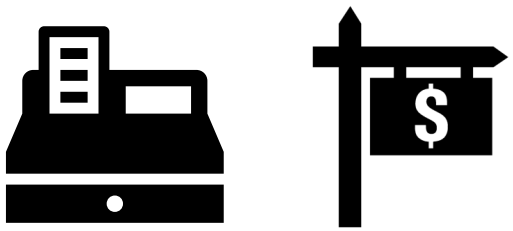
Estimates provided through the remainder of the report are based on the following data obtained from NV Energy

County	Percent Wire Mileage	Total Wire Mileage
Clark	6.14 percent	39 miles
Nye	16.69 percent	106 miles
Esmerelda	11.81 percent	75 miles
Mineral	13.54 percent	86 miles
Churchill	13.32 percent	85 miles
Lander	7.40 percent	47 miles
Lyon	13.05 percent	83 miles
Eureka	6.29 percent	40 miles
White Pine	7.03 percent	45 miles
Washoe	0.57 percent	4 miles
Storey	4.15 percent	26 miles
TOTAL	**100.00 percent**	**635 miles**



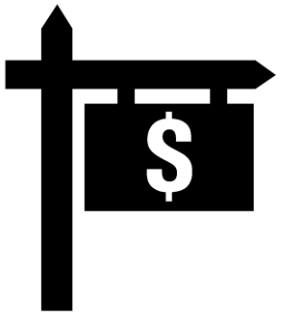
Source: NV Energy


Fiscal Impact
Greenlink Nevada
Initiative
Construction:
Sales Tax
Operation:
Property Tax



Fiscal Impact Greenlink Nevada Initiative

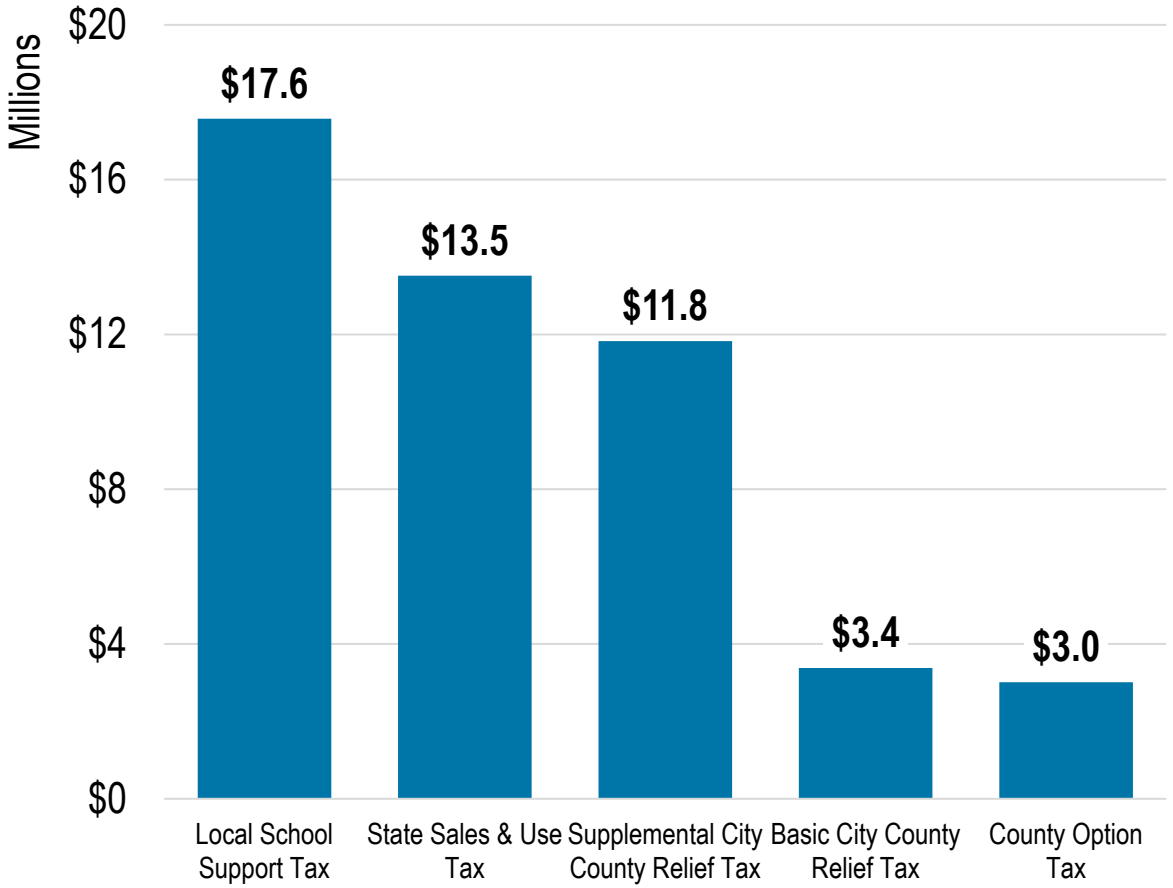
Construction:
Sales Tax

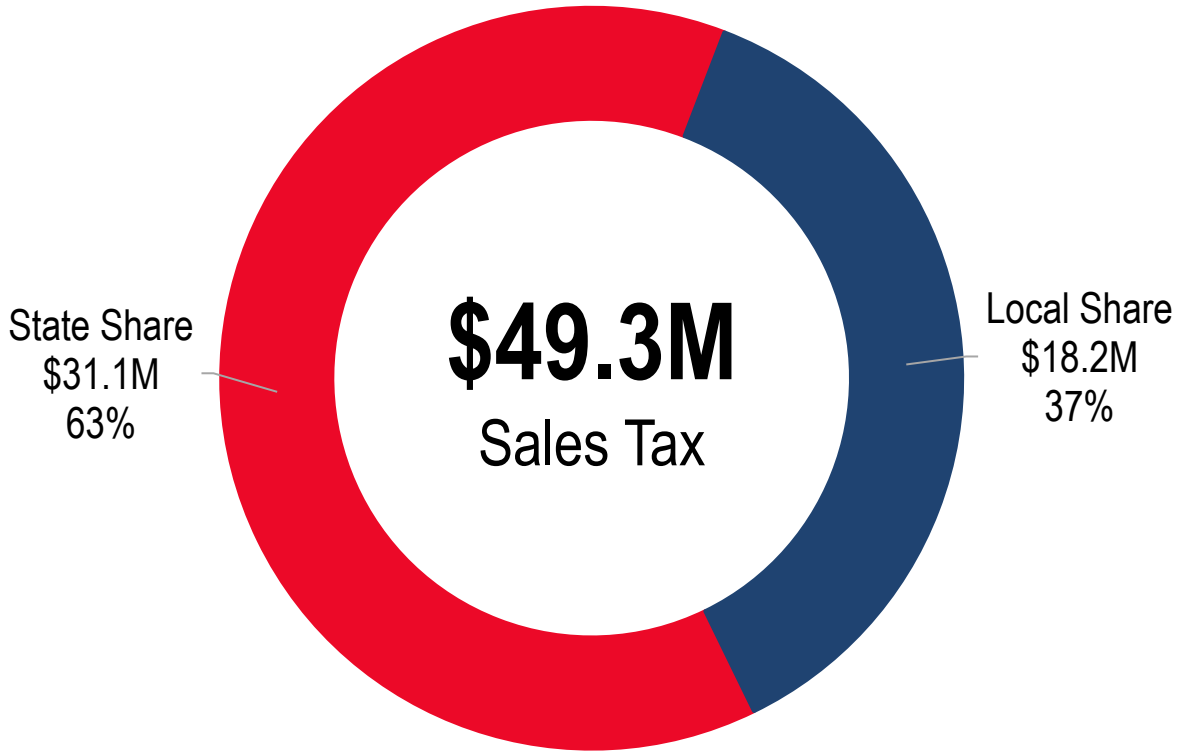


Operation:
Property Tax

Fiscal Impact | Construction Sales Tax

Total Nevada sales tax is estimated to be $49.3 million, allocated across 11 different counties based on wire mileage





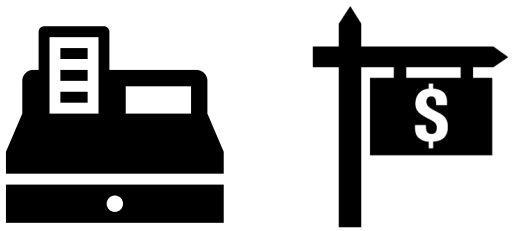
Source: NV Energy; Applied Analysis

Fiscal Impact | Construction Sales Tax

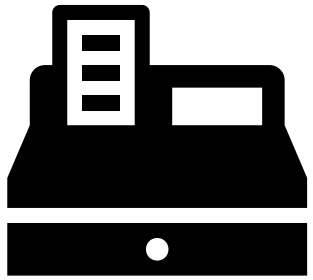
Total Nevada sales tax is allocated across 11 different counties based on wire mileage

	State Sales	Local School Support Tax	Basic City County Relief	Supplemental City County Relief	County Option Taxes	TOTAL
Clark	$0.7 million	$0.9 million	$0.2 million	$0.6 million	$0.6 million	$3.0 million
Nye	$2.2 million	$2.8 million	$0.5 million	$1.9 million	$0.8 million	$8.2 million
Esmeralda	$1.7 million	$2.2 million	$0.4 million	$1.5 million	$0.0 million	$5.8 million
Mineral	$1.9 million	$2.5 million	$0.5 million	$1.7 million	$0.0 million	$6.7 million
Churchill	$1.7 million	$2.2 million	$0.4 million	$1.5 million	$0.6 million	$6.6 million
Lander	$1.0 million	$1.3 million	$0.3 million	$0.9 million	$0.1 million	$3.6 million
Lyon	$1.8 million	$2.4 million	$0.5 million	$1.6 million	$0.2 million	$6.4 million
Eureka	$0.9 million	$1.2 million	$0.2 million	$0.8 million	$0.0 million	$3.1 million
White Pine	$0.9 million	$1.2 million	$0.2 million	$0.8 million	$0.4 million	$3.5 million
Washoe	$67,645	$87,939	$16,911	$59,189	$47,859	$0.3 million
Storey	$0.5 million	$0.7 million	$0.1 million	$0.5 million	$0.2 million	$2.0 million
TOTAL	**$13.5 million**	**$17.6 million**	**$3.4 million**	**$11.8 million**	**$3.0 million**	**$49.3 million**

Source: NV Energy; Applied Analysis



Fiscal Impact Greenlink Nevada Initiative

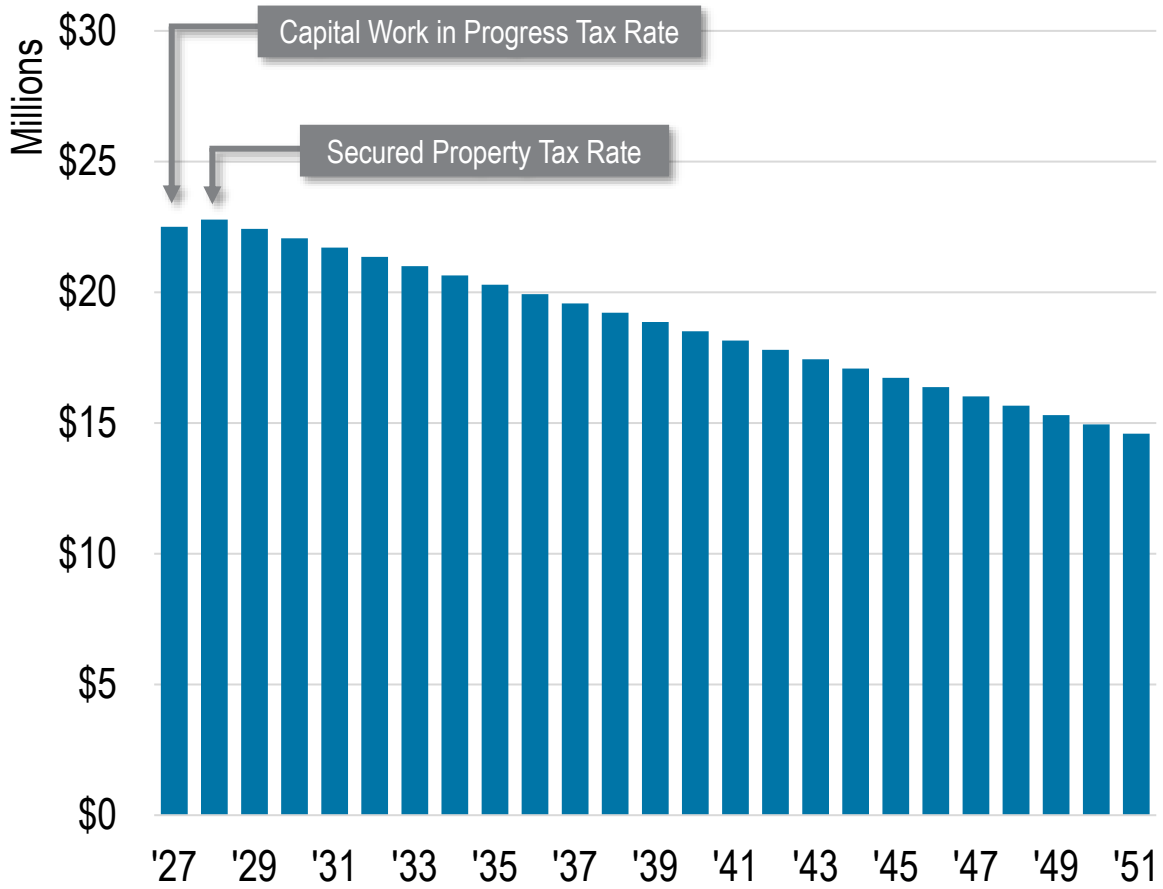


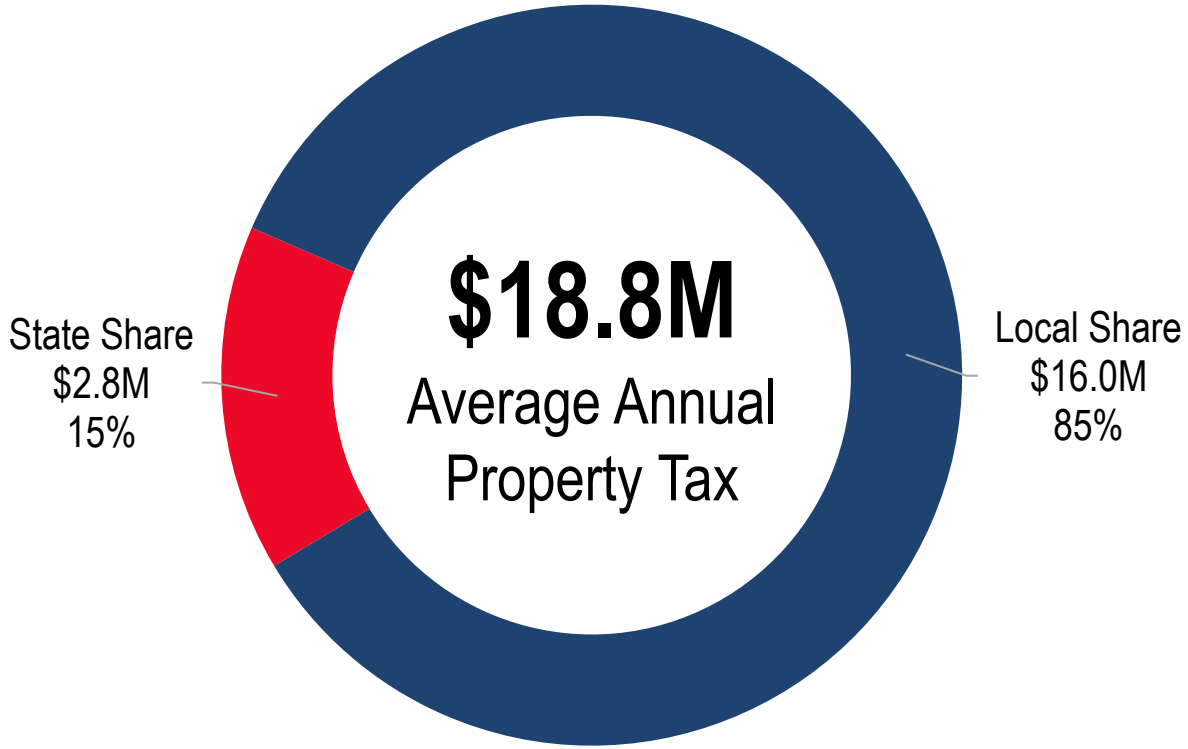
Construction: Sales Tax

Operation: Property Tax

Fiscal Impact | Operations Property Tax

NV Energy expects to pay an average of $18.8 million annually in property taxes between 2027 and extending until 2051*



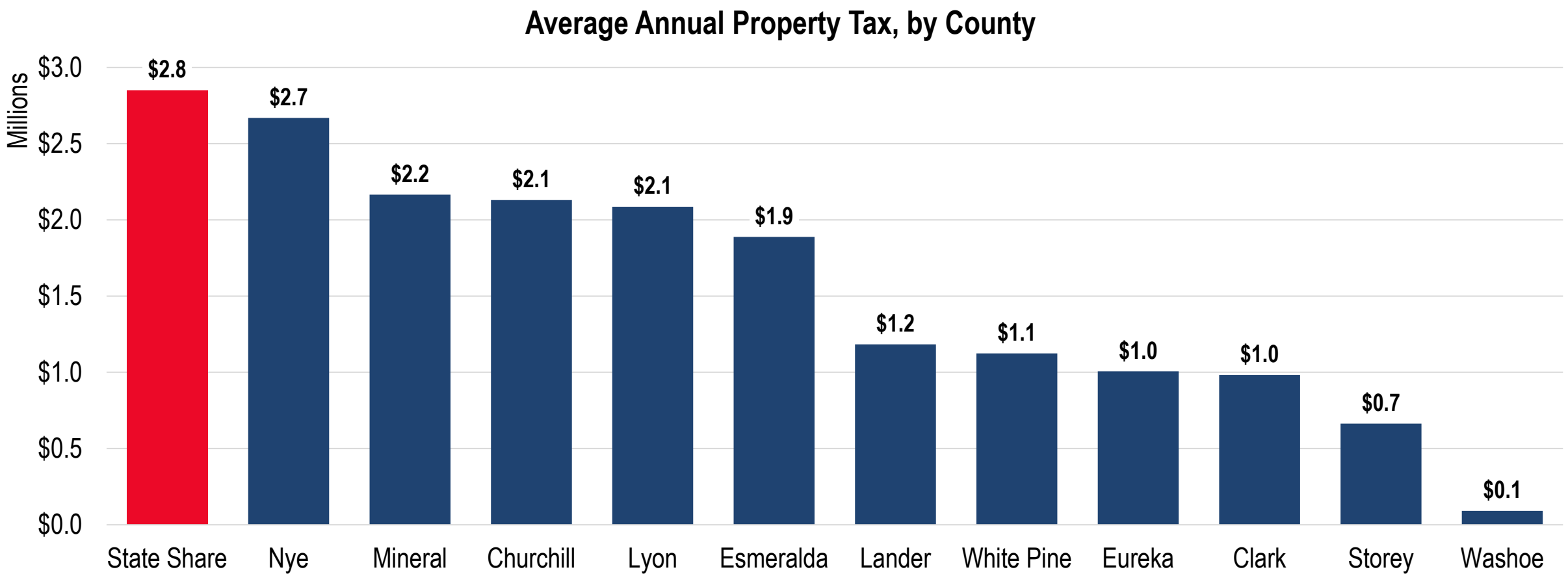


* For purposes of this analysis, each project's operations period begins in in-service year and extends for 20 years

Source: NV Energy; Applied Analysis

Fiscal Impact | Operations Property Tax

Property taxes are allocated to 11 different counties based on percent wire mileage



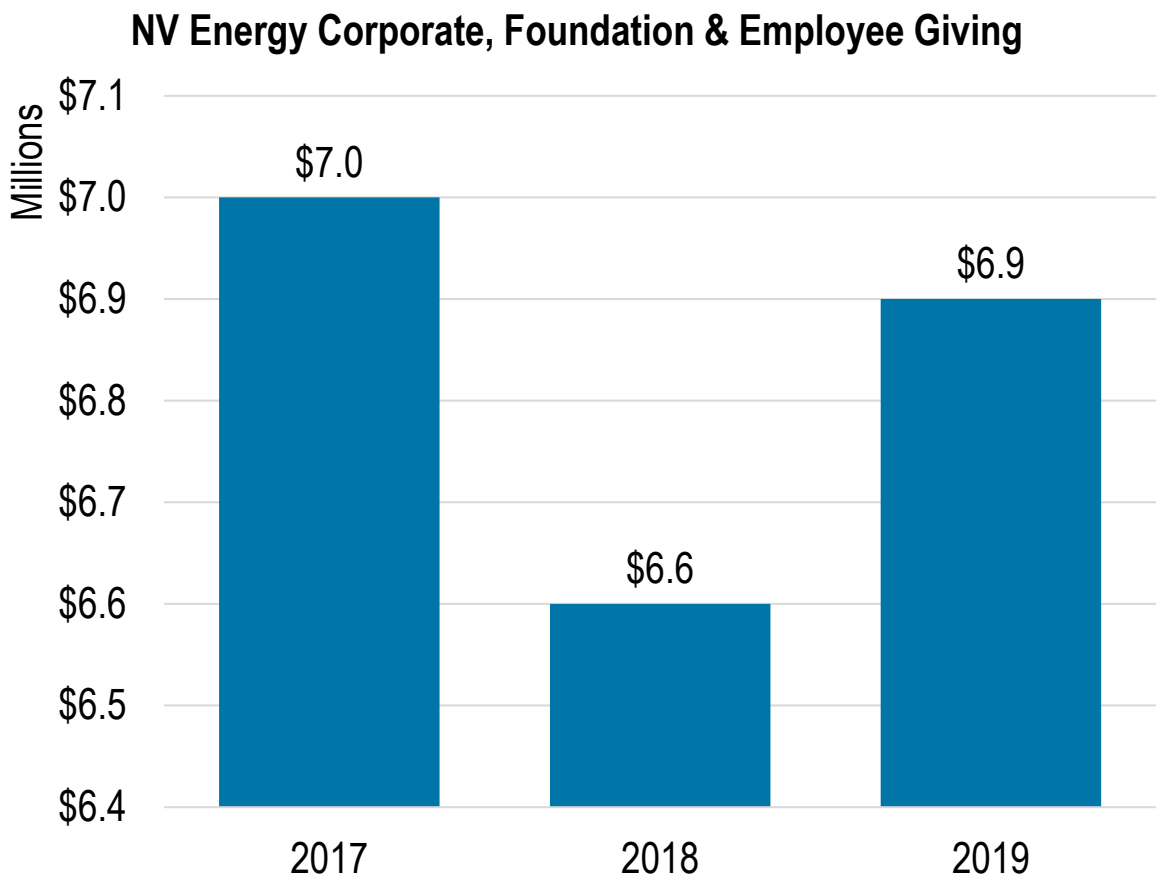
Source: NV Energy; Applied Analysis

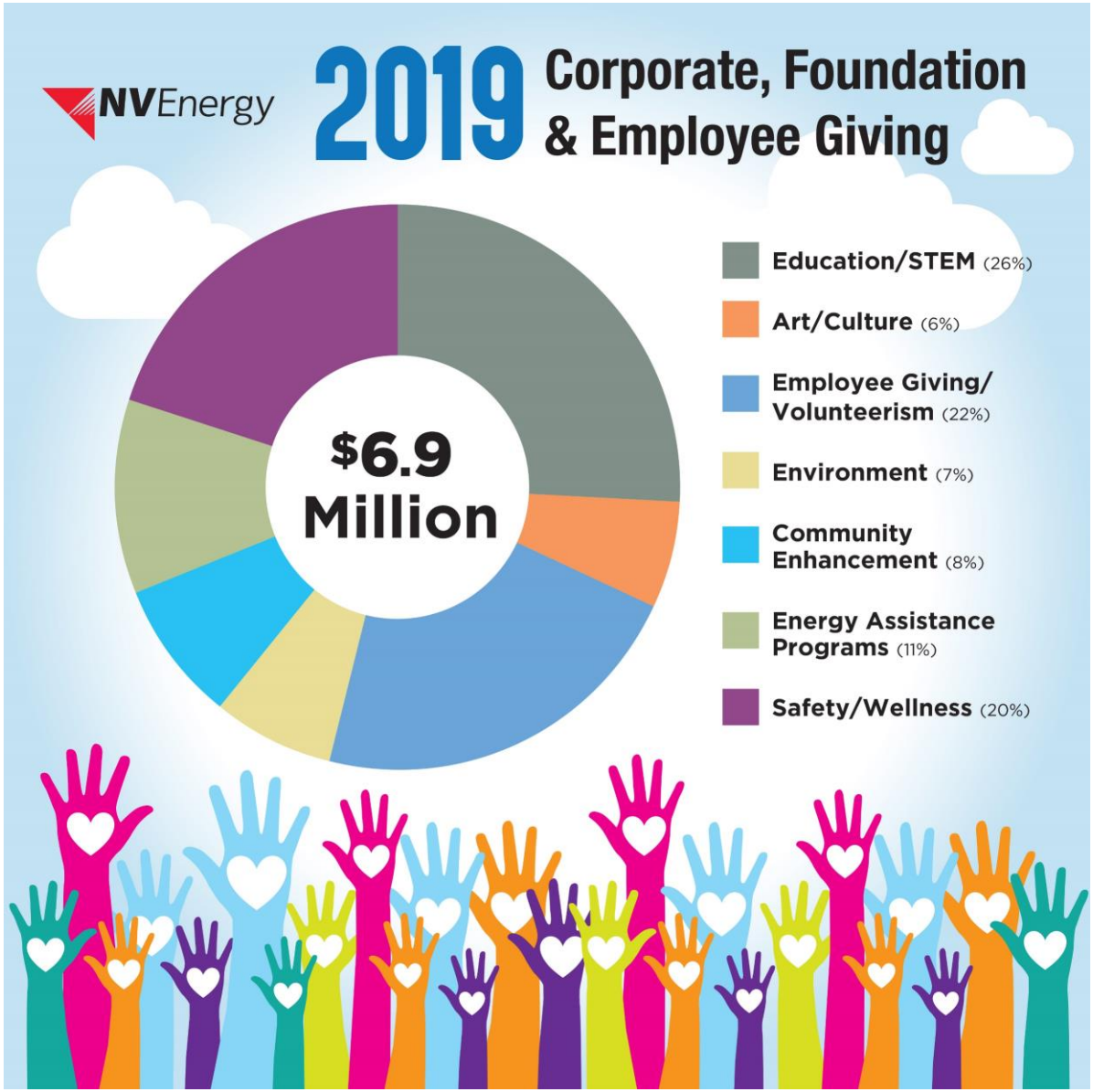
Energy Transmission Infrastructure Enhancement

1. Overview of Greenlink Nevada Transmission Initiative
2. Required contents of an economic impact statement
3. Economic impacts of Greenlink Nevada Transmission Initiative
4. Fiscal impacts of Greenlink Nevada Transmission Initiative
5. **Social impacts and other impacts of Greenlink Nevada Transmission Initiative**

Social Investment | Community Giving

NV Energy Foundation provides annual contributions to address key community needs through financial and in-kind donations





Source: NV Energy

Social Investment | Community Assistance During COVID-19

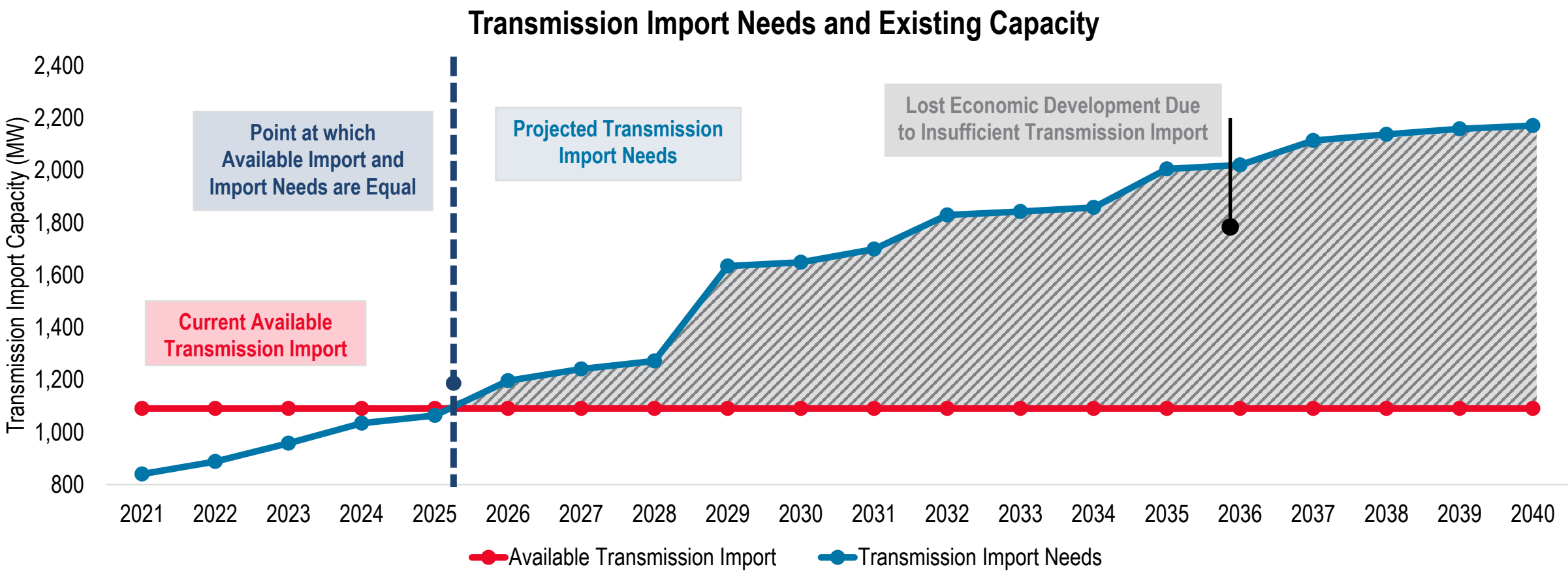
NV Energy has gone above and beyond during COVID-19 to provide essential services for the community, including supporting local nonprofits

- NV Energy has waived disconnects for nonpayment and late penalties for impacted customers
- NV Energy developed extended payment options for customers to help with recovery while still receiving essential energy services
- NV Energy Foundation donated $1 million to nonprofits throughout Nevada to help provide key nutritional, housing, health support, and energy assistance

Source: NV Energy

Economic Development Impact | Potential Growth for Northern Nevada

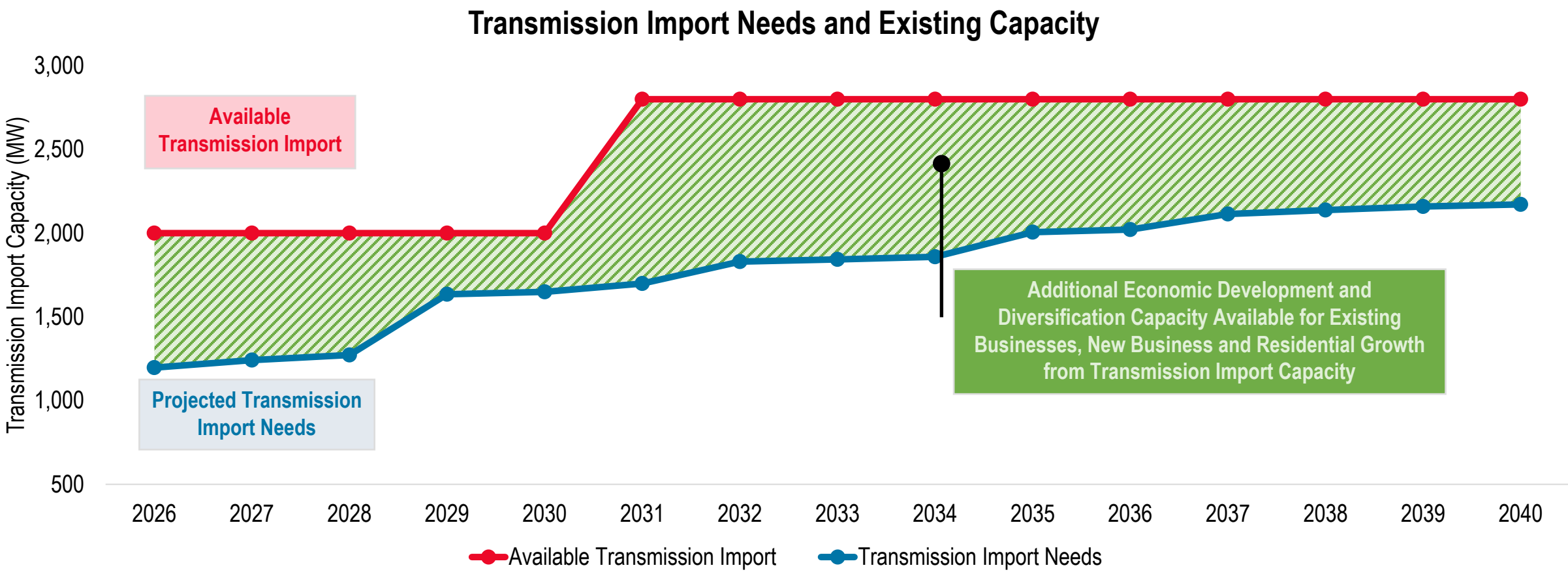
But for energy infrastructure improvements, northern Nevada has the potential to lose economic development activity starting in 2025, including expansions of existing businesses and new enterprises



Source: NV Energy; Applied Analysis

Economic Development Impact | Potential Impact for Northern Nevada

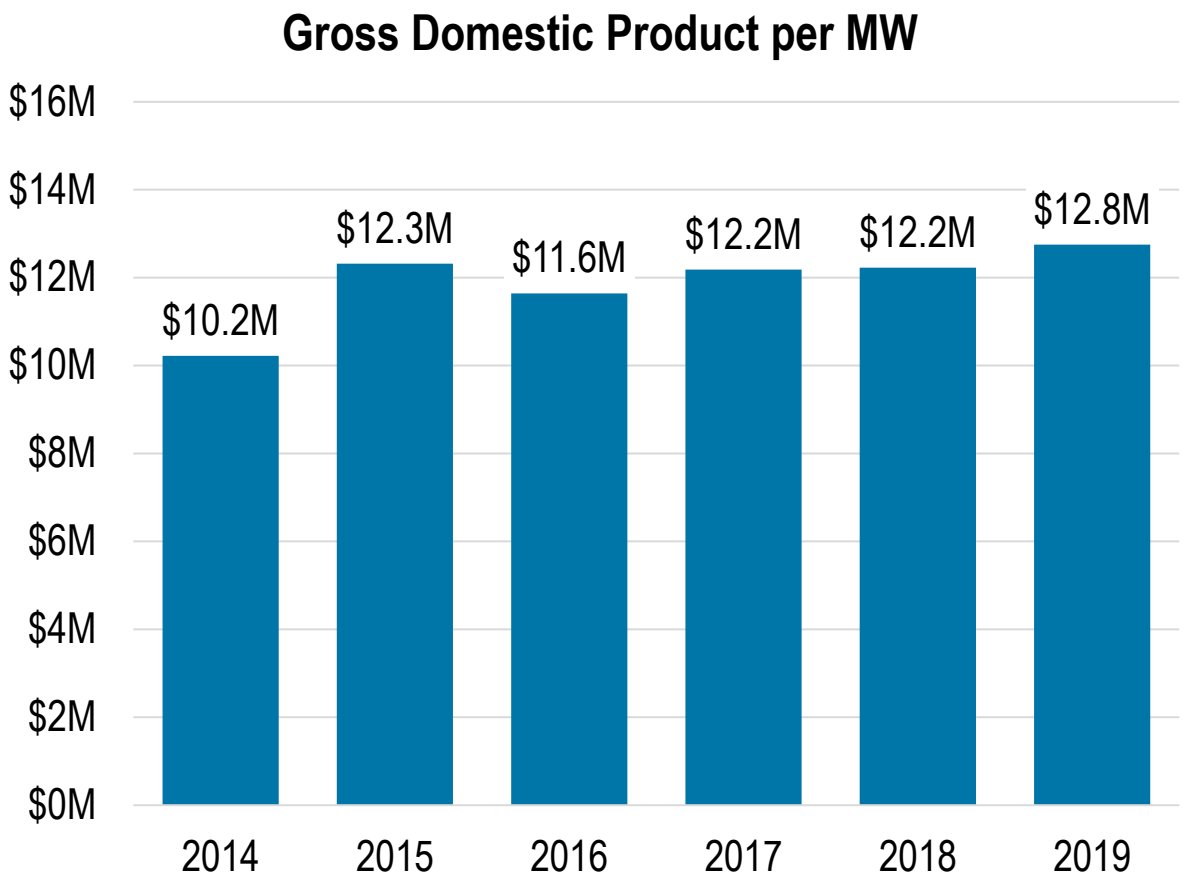
Greenlink Nevada infrastructure improvements provide one way for northern Nevada to achieve additional capacity for growth and development



Source: NV Energy; Applied Analysis

Economic Development Impact | Potential Growth for Northern Nevada

Given NV Energy's historical peak system loads, an estimate of gross domestic product, employment, and total businesses per megawatt (MW) of energy produced can be projected



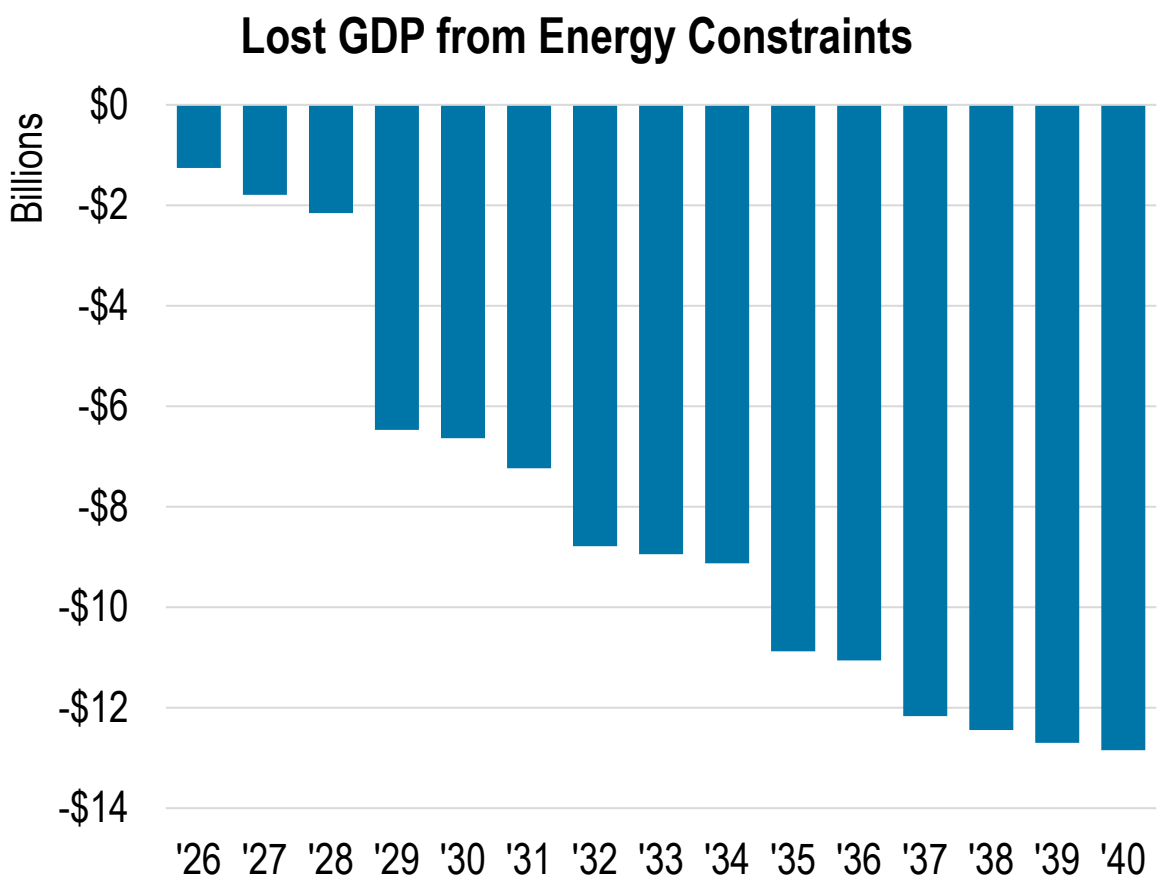
$11.9 Million

Average GDP Per MW

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Loss for Northern Nevada

Without infrastructure enhancements, northern Nevada would lose out on as much as $12.8 billion in gross domestic product between 2026 and 2040; assuming customers can obtain power elsewhere, losses would still be substantial



Lost GDP Based on Percent Energy Found Elsewhere			
	2026	2035	2040
10 percent	-$1.1 billion	-$9.8 billion	-$11.6 billion
25 percent	-$944.0 million	-$8.2 billion	-$9.6 billion
50 percent	-$629.4 million	-$5.4 billion	-$6.4 billion
75 percent	-$314.7 million	-$2.7 billion	-$3.2 billion
90 percent	-$125.9 million	-$1.1 billion	-$1.3 billion

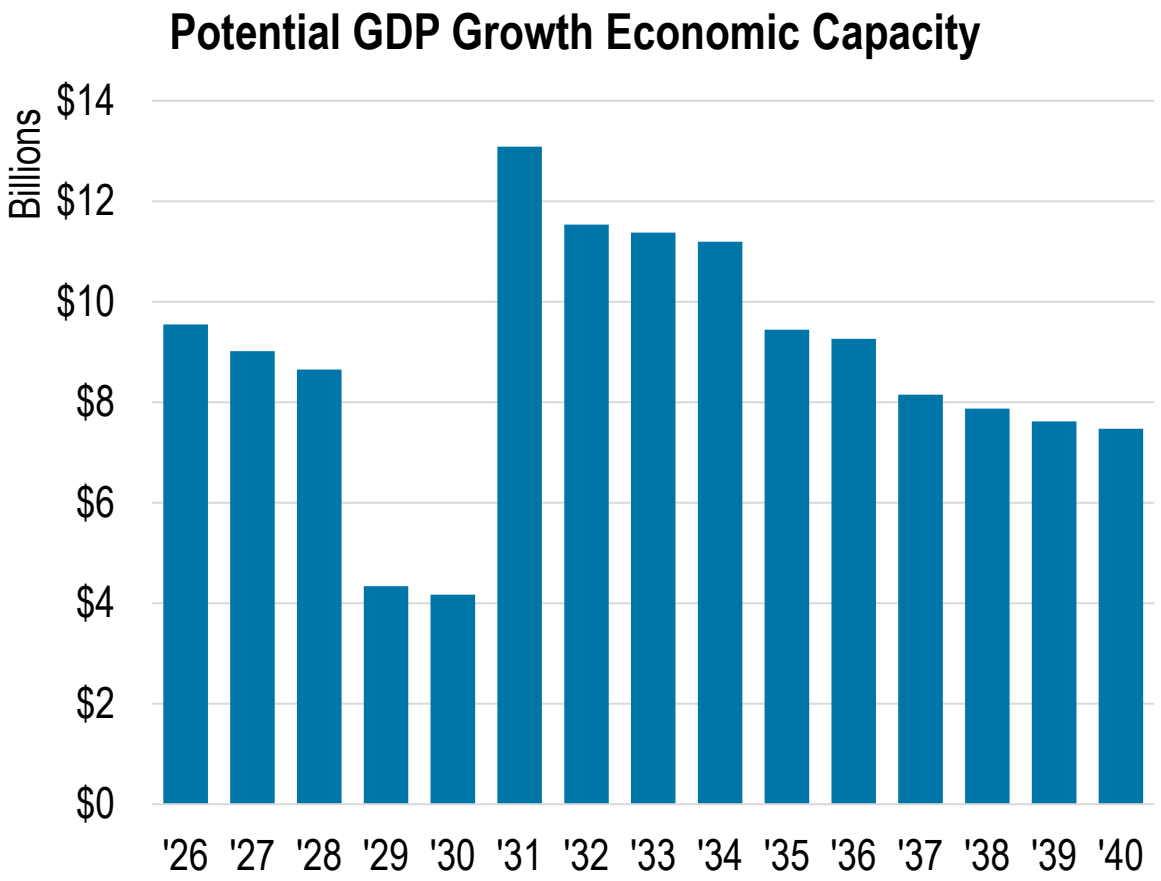
$1.3 Billion Lost GDP

Best Case 2026-2040 Loss

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Impact for Northern Nevada

With infrastructure enhancements, all transmission import needs will be met and northern Nevada has excess capacity available for growth to develop increased economic stability and vitality for the region



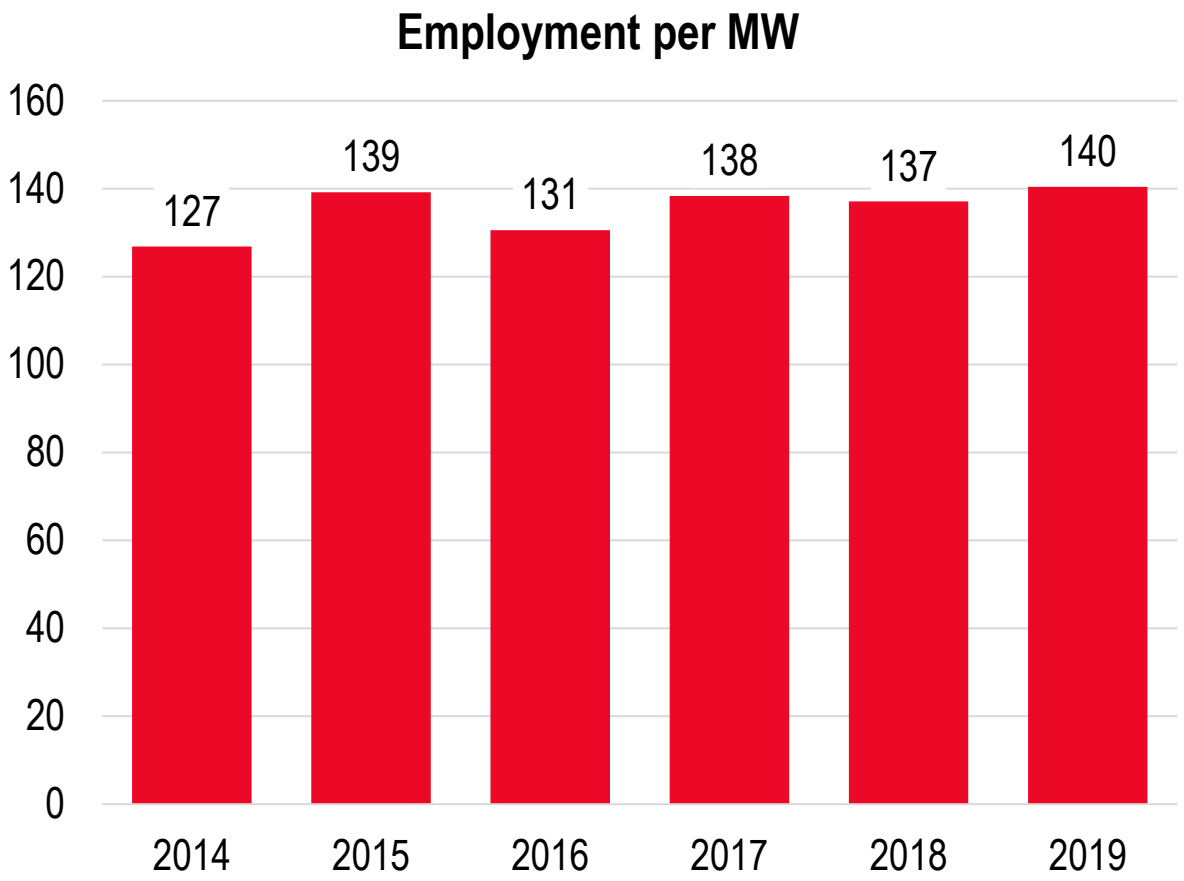
$7.5 Billion

Potential GDP Capacity Growth

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Growth for Northern Nevada

Given NV Energy's historical peak system loads, an estimate of gross domestic product, employment, and total businesses per MW of energy produced can be projected



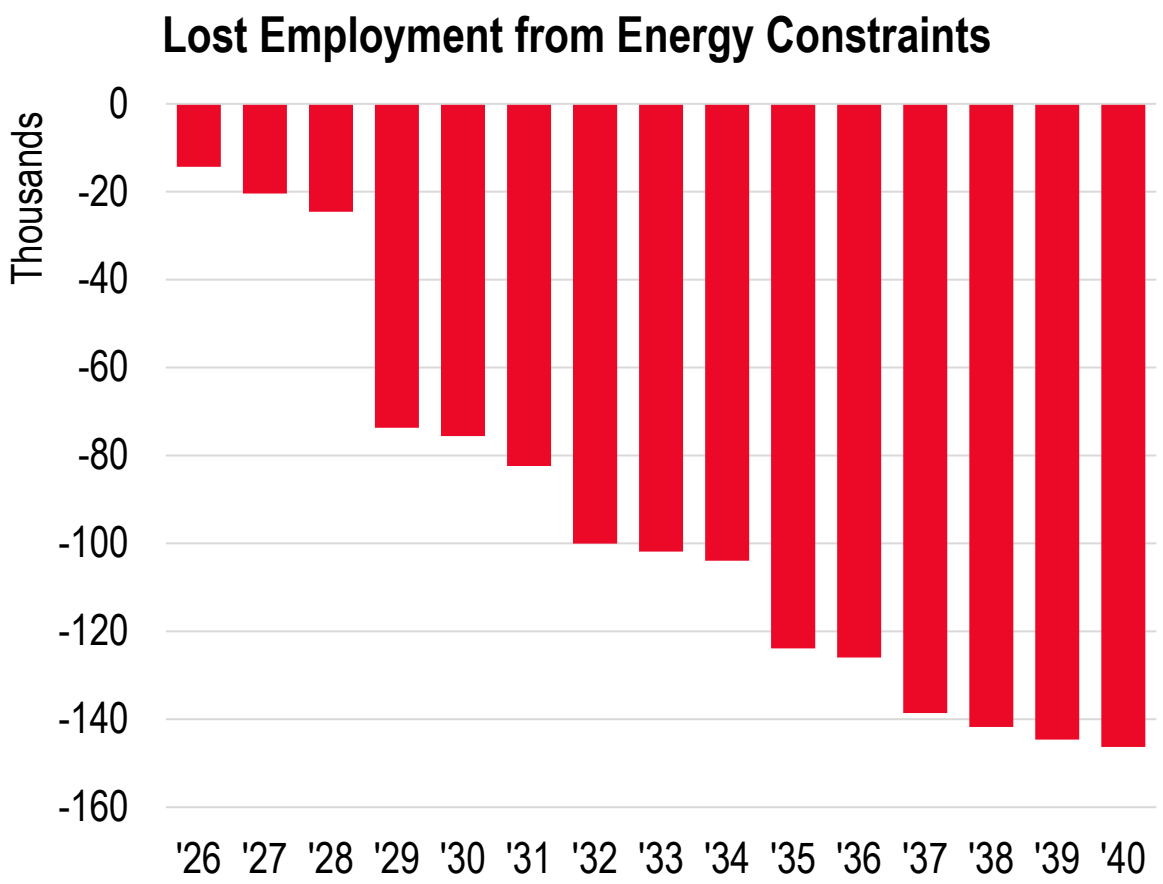
135 Employed

Average Employment Per MW

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Loss for Northern Nevada

Without infrastructure enhancements, northern Nevada would lose out on up to 146,308 in employment between 2026 and 2040; assuming customers obtain power elsewhere, minimum losses are still substantial



Lost Employment Based on Percent Energy Found Elsewhere			
	2026	2035	2040
10 percent	-12,902	-111,493	-131,677
25 percent	-10,752	-92,911	-109,731
50 percent	-7,168	-61,941	-73,154
75 percent	-3,584	-30,970	-36,577
90 percent	-1,434	-12,388	-14,631

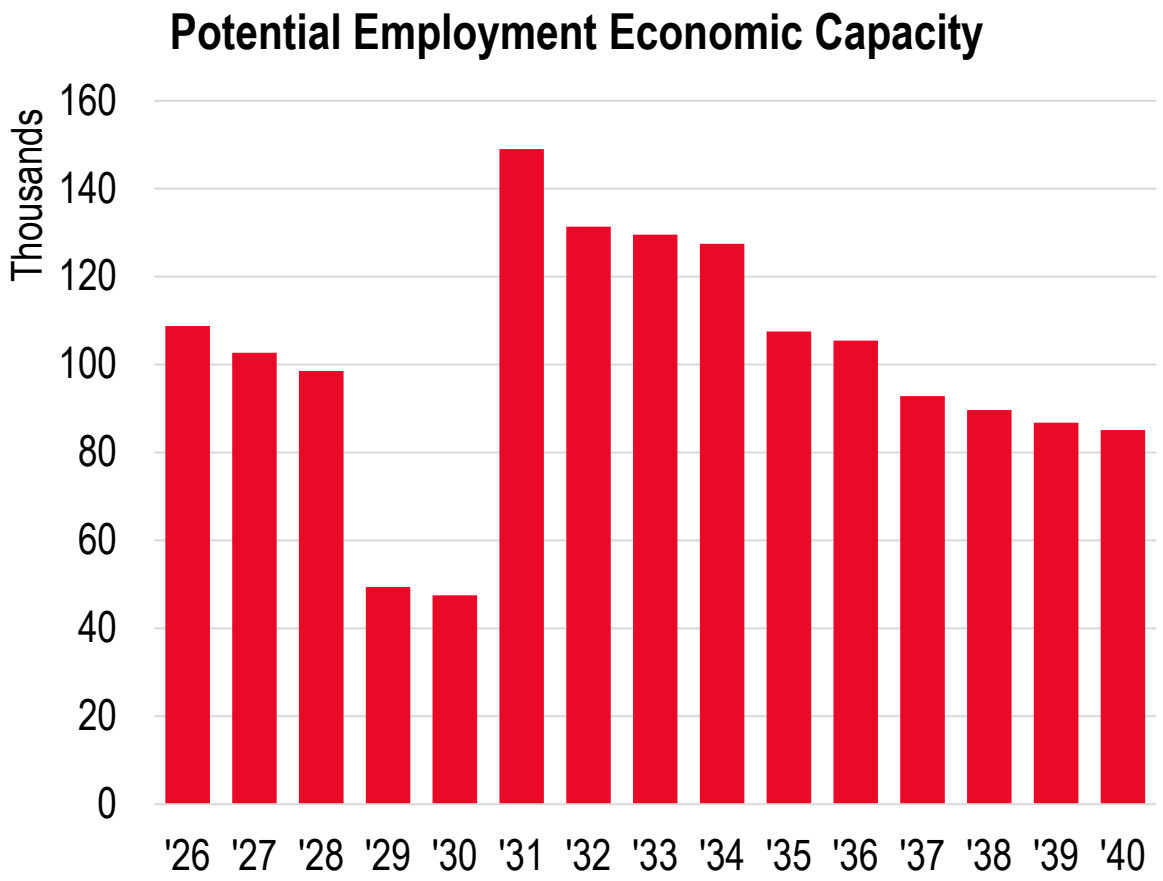
14,631 Lost Employment

Best Case 2026-2040 Loss

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Impact for Northern Nevada

With infrastructure enhancements, all transmission import needs will be met and northern Nevada has excess capacity available for growth to develop increased economic stability and vitality for the region



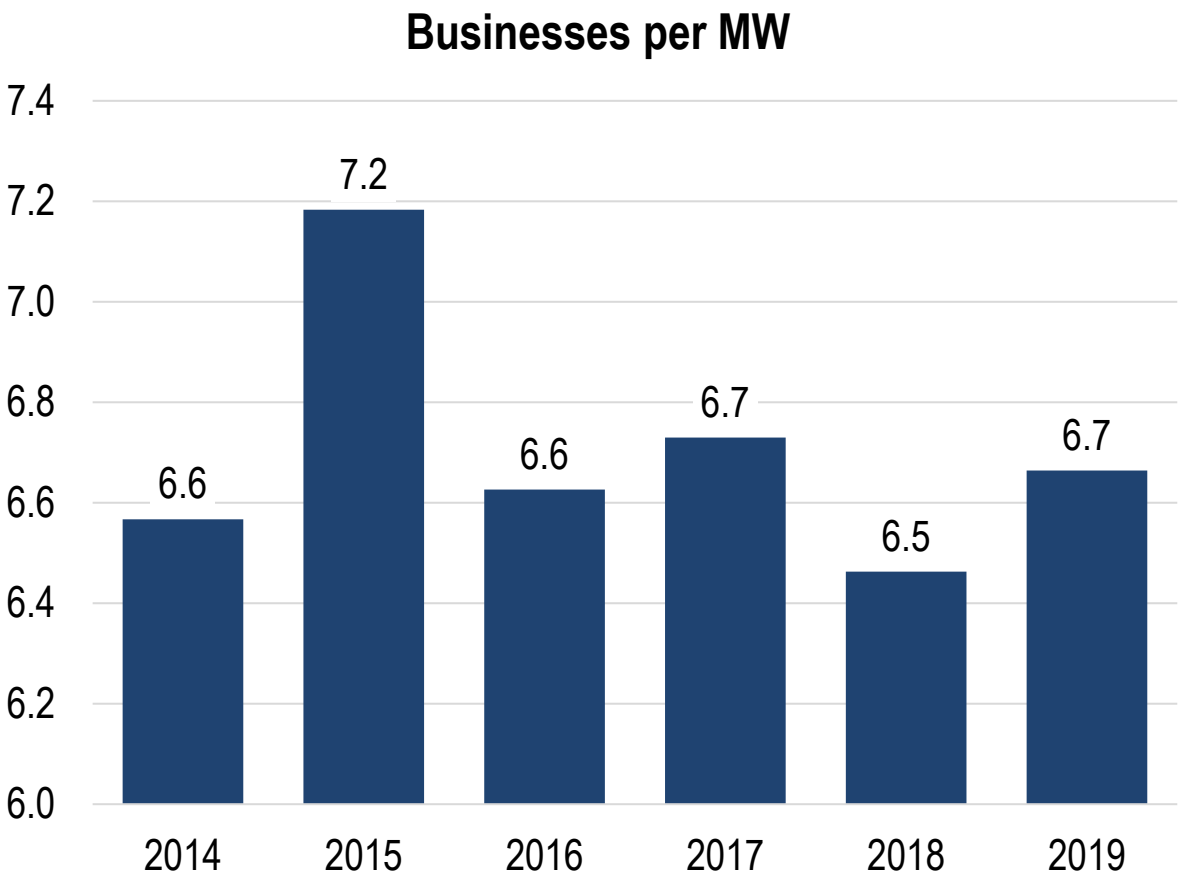
85,111 Employed

Potential Employment Capacity Growth

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Growth for Northern Nevada

Given NV Energy's historical peak system loads, an estimate of gross domestic product, employment, and total businesses per MW of energy produced can be projected



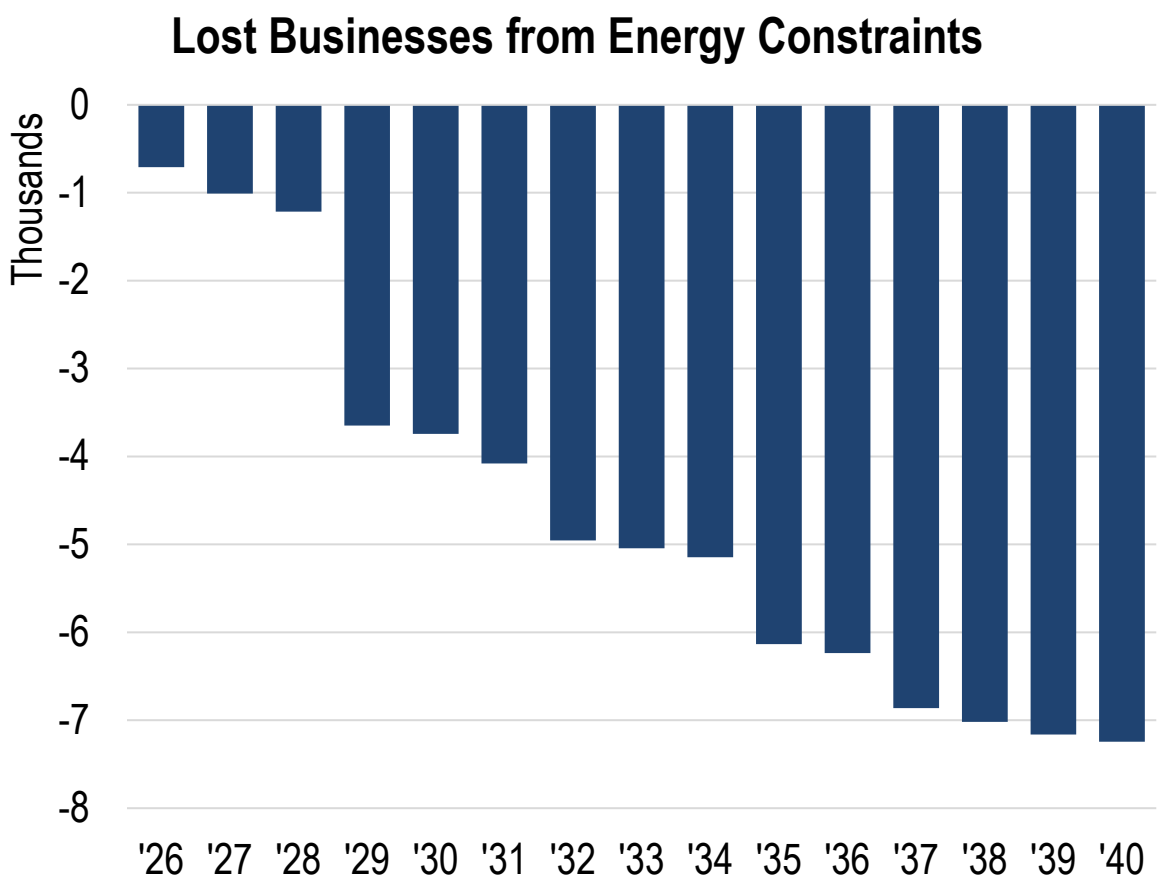
7 Businesses

Average Businesses Per MW

Source: NV Energy; U.S Bureau of Labor Statistics; Applied Analysis

Economic Development Impact | Potential Loss for Northern Nevada

Without infrastructure enhancements, northern Nevada would lose out on 7,245 establishments between 2026 and 2040; assuming customers obtain power elsewhere, minimum losses are still substantial



Lost Establishments Based on Percent Energy Found Elsewhere			
	2026	2035	2040
10 percent	-639	-5,521	-6,521
25 percent	-532	-4,601	-5,434
50 percent	-355	-3,067	-3,623
75 percent	-177	-1,534	-1,811
90 percent	-71	-613	-725

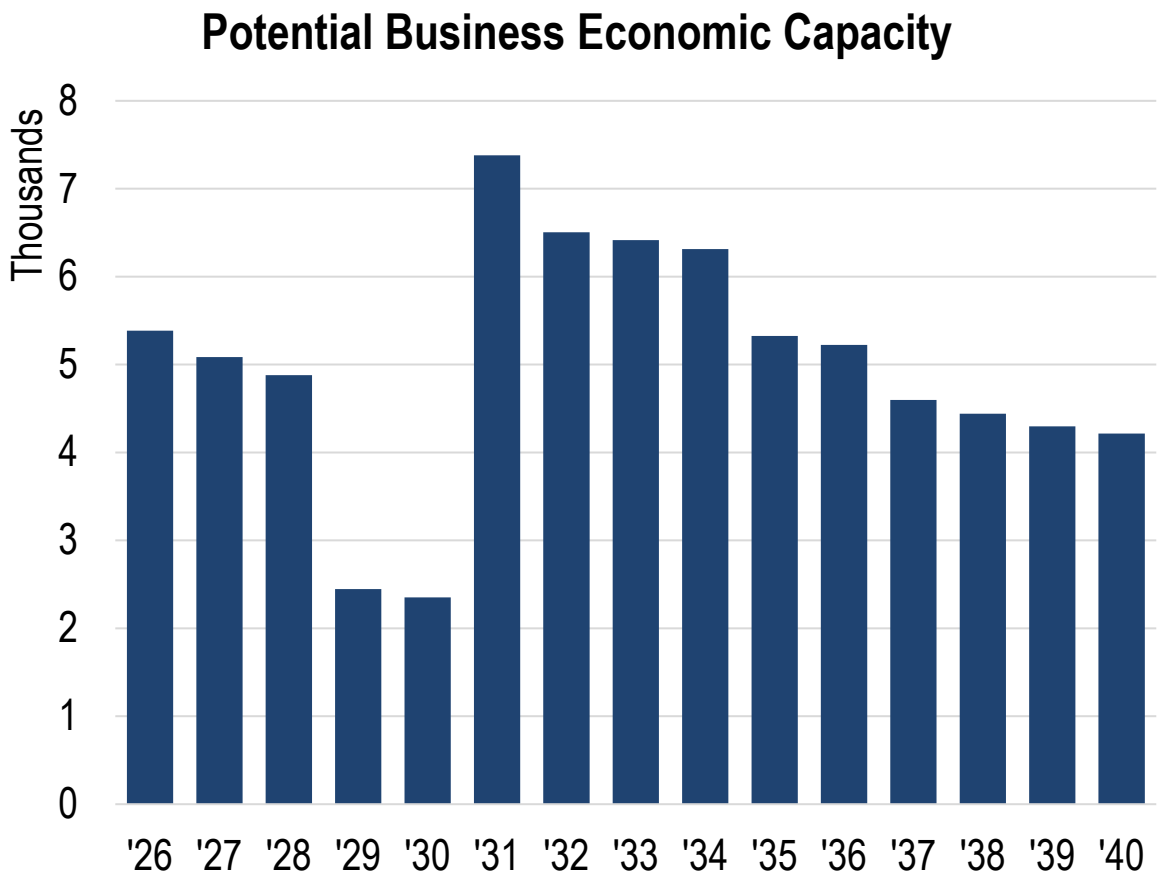
725 Lost Businesses

Best Case 2026-2040 Loss

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

Economic Development Impact | Potential Impact for Northern Nevada

With infrastructure enhancements, all transmission import needs will be met and northern Nevada has excess capacity available for growth to develop increased economic stability and vitality for the region



4,215 Businesses

Potential Business Capacity Growth

Source: NV Energy; U.S Bureau of Economic Analysis; Applied Analysis

NVEnergy

ENERGY TRANSMISSION INFRASTRUCTURE ENHANCEMENT

ECONOMIC AND FISCAL IMPACT ANALYSIS

APPLIED ANALYSIS