

AMARGOSA FARM ROAD SOLAR ENERGY PROJECT SOCIOECONOMIC IMPACTS

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According to the 2005 Nevada Renewable Energy and Energy Conservation Task Force Annual Report to the Legislature and the Governor, “Nevada utilities will need in excess of 3,000 gigawatt hours per year (GWh/yr) of new renewable energy generation capability over the next 10 years to meet the state’s renewable energy needs. The state of Nevada has established a Renewable Portfolio Standard that all public utilities must meet by investing in, and partnering with, commercial project developers to purchase renewable generated power, and participate in turnkey projects and/or co-development of renewable projects. This standard mandates that 12 percent of retail sales come from renewable resources by 2009-2010; 15 percent by 2011-2012; 18 percent by 2013-2014; 20 percent by 2015-2019; 22 percent by 2020-2024; and 25 percent by 2025. It is expected that at least 1,000 megawatts (MW) of new solar power will be required annually to meet this need.”

Further, the Nevada Renewable Energy and Conservation Task Force, “has estimated that by increasing in-state renewable energy production to just 15 percent of the state’s generation more than 5,000 new jobs could be created, with an average annual Gross State Product effect of \$665 million through 2035. In addition, solar energy projects that commence in 2010 can qualify for funding under the American Recovery and Reinvestment Act of 2009. The Recovery Act created Section 1705 authorizing a new program for rapid deployment of renewable energy projects and related manufacturing facilities, electric power transmission projects and leading edge biofuels projects. The primary purposes of the Recovery Act are job preservation and creation, infrastructure investment, energy efficiency and science assistance to the unemployed and state and local fiscal stabilization.”

Project Overview

Solar Millennium, LLC is proposing the construction and operation of a dry-cooled solar power plant on Bureau of Land Management Property in Amargosa Valley, Nevada. The Amargosa Farm Road Solar Energy Project (AFRSEP) includes the construction and operation of two 232-MW dry-cooled solar power plants equipped with thermal energy storage capability and associated ancillary linear facilities. Facilities located within the Project area would occupy approximately 4,350 acres and would include solar fields, power blocks, an office and maintenance building, parking area, lay-down area, switchyard and a stormwater detention basin. Additional elements of the proposed project would include access roads and optional water pipelines. The proposed project would utilize parabolic trough solar thermal technology to produce electrical power using steam turbine generators fed by solar steam generators. The main element of a parabolic trough power plant is the solar field. The solar field consists of numerous parallel rows of solar collectors, arranged on a north-south axis. The solar collectors follow the path of the sun from east to west during the day to keep the sun’s rays continuously focused on a receiver tube. The reflector consists of parabolic mirrors made from transparent, silver coated glass, which concentrate the incident solar radiation 80-fold, focusing it onto the receiver tube in the solar collector. The receiver tube contains a heat transfer fluid, which is temperature stable synthetic oil in a closed circuit that can be heated to temperatures of up to 752 degrees Fahrenheit. Once heated, the oil is pumped to a centrally located power block, where it flows through a heat exchanger.”

The proposed project would be built in two separate phases, with the construction of the first phase beginning in 2010, or immediately following the issuance of the BLM right-of-way grant and other federal, state and local permits and approvals. Solar Millennium would phase construction so that the first plant would be operational approximately one year before the second power plant becomes operational.

Under the National Environmental Policy Act (NEPA) federal agencies are required to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. To meet NEPA requirements federal agencies prepare a detailed statement known as an Environmental Impact Statement (EIS). An EIS should include discussion of the purpose of and need for the action, alternatives, the affected environment and the socioeconomic and environmental consequences of the proposed action.

This special publication presents the social and economic characteristics and estimated economic impacts resulting from the construction and operation of the Solar Millennium Project in Amargosa Valley, Nevada. This will fulfill the social and economic impact requirements required under NEPA.

Social and Economic Characteristics and Trends

Social and economic characteristics of a community or region are one of the first steps in understanding the overall dynamics of a community. This is especially important when a community/region is planning or experiencing change because it provides valuable information for planning and development purposes. This is the case for the Region of Influence (ROI) with the development and operation of the Amargosa Farm Road Solar Energy Project (AFRSEP). The ROI is defined as Nye and Clark counties in Nevada, with a focus on Nye County communities of Amargosa Valley, Beatty, and Pahrump. Each of these communities is in close proximity to the proposed Amargosa Valley Project and will play an integral part to its development and operation.

The purpose of this section of the report is to provide the communities in the ROI with a baseline understanding of the most current and projected social and economic characteristics. Understanding these characteristics and how they are changing will also provide an understanding as to how these communities may be linked or dependent on one another. For example, what are the demographics of the population located next or near the ROI, where are they living and where are they working? These characteristics are very important when considering community and economic development planning and assessment.

Data Collection

Four sections are used to describe the current and projected socioeconomic conditions of the ROI. They include:

- Social Characteristics
- Economic Characteristics
- Fiscal Characteristics
- Public Services and Utility Characteristics

Environmental Systems Research Institute (ESRI) is the primary source for socioeconomic trend data reported for the ROI. ESRI is a company that produces Geographical Information System (GIS) software that relies on input data for mapping various development scenarios. Several types of data are used in this software including recent census and projected socioeconomic data. This dataset is one of the most comprehensive and reliable datasets that report a wide variety of demographic

characteristics. Most characteristics include a baseline year of “2000” which is the recent available census year. Additional years reported in the dataset after the year 2000 (i.e. 2009, 2010 or 2015) are projections generated by ESRI based on market conditions. Although this data is continuously updated, time lags can have an influence on current projections, especially during unstable economic times. ESRI dataset was preferred over the Nevada State Demographer (NSD) population estimates because of the availability of additional socioeconomic characteristics reported by ESRI. NSD only provides population estimates and does not report other important socioeconomic characteristics for the ROI. If the NSD population estimates were used, then additional sources would be needed to analyze other socioeconomic characteristics and result in inconsistencies between characteristics. Finally, specialized local community or county data (i.e. fiscal revenues and expenditures) was collected directly from local governing agencies.

SOCIAL CHARACTERISTICS

Social characteristics describe the ROI basic population associated with the AFRSEP. This includes population, households, families, educational attainment and age distribution.

Population

Nye County’s sparse population can be attributed in part to the lack of available private land for development. In fact, 97 percent of the county’s land area is administered by the federal government. Of the 11.6 million acres of land in Nye County, approximately 11.3 million acres are administered by the following federal agencies:

- BLM (6.5 million acres; 8,400 acres are jointly managed with the USFWS)
- USFWS (13,700 acres)
- USFS (1.9 million acres)
- DOD (1.8 million acres)
- DOE (863,000 acres)
- NSP (107,000 acres)\Bureau of Indian Affairs (8,000 acres)

An additional 19,000 acres are under state jurisdiction, and a total of 249,000 acres in Nye County are privately owned.

Tables 1 through 4 summarize the social characteristics for the ROI. In summary the ROI has shown strong growth rates at the community, county and state levels. Over the last several years Clark County, Nye County and Nevada have been recognized as the fastest-growing populations in the nation. Pahrump has also been one of the fastest-growing communities in the nation. Although Amargosa Valley, Beatty and Pahrump have historically been tied to industries that, in recent years, have shown some declines in activities (federal government, mining, agriculture), these communities are still projected to grow at modest rates.

- Although population bases in the individual ROI communities have historically been small, these communities have shown modest growth rates. (Table 1)
- Number of household follow similar growth trends as total population. (Table 2)

- Highest level of educational attainment for 25-year-olds and older was fairly consistent across all communities in the ROI. Approximately 30 to 40 percent of the population older than 25 has attained post high school education. (Table 3)
- The common trend across all communities in the ROI is that a larger percentage of the overall populations are older than 19 years of age. (Table 4)

Table 1. Population and Growth Rates for Communities and Counties in the ROI.

	2000 Census	2010 ESRI Projection	2015 ESRI Projection	2010 – 2015 Annual Growth Rates
Amargosa Valley	1,591	2,706	3,108	+2.81%
Beatty	863	1,390	1,571	+2.48%
Pahrump	24,631	34,335	37,591	+1.83%
Nye County	32,485	47,120	52,074	+2.02%
Clark County	1,375,765	1,976,256	2,176,936	+1.95%
Nevada	1,998,257	2,748,294	2,999,160	+1.76%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2015.

Table 2. Households and Growth Rates for Communities and Counties in the ROI.

	2000 Census	2010 ESRI Projection	2015 ESRI Projection	2010 – 2015 Annual Growth Rates
Amargosa Valley	629	1,057	1,219	+2.89%
Beatty	399	643	730	+2.57%
Pahrump	10,153	14,256	15,708	+1.96%
Nye County	13,309	19,463	21,652	+2.15%
Clark County	512,253	729,385	801,392	+1.9%
Nevada	751,165	1,025,511	1,116,629	+1.72%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2015.

Table 3. 2009 Population 25+ by Educational Attainment for Communities and Counties in the ROI.

	Amargosa Valley	Beatty	Pahrump	Nye County	Clark County	Nevada
Total Population 25+ years	1,641	965	26,242	34,208	1,306,928	1,823,265
Less than 9 th Grade	8.4%	2.4%	4.1%	4.1%	7.0%	6.5%
9 th – 12 th No Diploma	16.3%	13.6%	14.0%	13.5%	11.0%	10.5%
High School Graduate	35.3%	53.9%	44.2%	44.5%	32.2%	31.7%
Some College No Degree	19.3%	17.8%	20.5%	20.6%	24.5%	24.9%
Associates Degree	8.2%	4.4%	6.3%	6.2%	6.4%	6.7%
Bachelors Degree	8.2%	4.9%	7.4%	7.5%	12.4%	13.0%
Graduate/Professional Degree	4.3%	3.1%	3.4%	3.5%	6.5%	6.7%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2009

Table 4. Percent Population by Age for Communities and Counties in the ROI.

	2000 Census	2009 ESRI Projections	2014 ESRI Projections	2009 – 2014 Ave. Annual Growth Rates
Amargosa Valley				
Total Population	1,553	2,529	3,183	+4.3%
Less than 19 years	31.0%	29.0%	27.9%	+3.5%
18+ years	71.7%	73.7%	74.4%	+4.5%
85+ years	0.9%	0.9%	0.9%	+5.3%
Beatty				
Total Population	898	1,382	1,706	+3.9%
Less than 19 years	27.9%	25.5%	24.1%	+2.8%
18+ years	74.3%	77.1%	78.1%	+4.2%
85+ years	0.8%	1.6%	1.8%	+6.5%
Pahrump				
Total Population	24,630	35,261	42,216	+3.3%
Less than 18 years	23.9%	21.2%	19.7%	+1.9%
18+ years	77.8%	80.7%	82.0%	+3.6%
85+ years	0.9%	1.9%	2.3%	+7.5%
Nye County				
Total Population	32,485	47,429	57,281	+3.5%
Less than 18 years	25.7%	23.0%	21.6%	+2.3%
18+ years	76.3%	79.1%	80.3%	+3.8%
85+ years	0.9%	1.7%	2.1%	+8.2%
Clark County				
Total Population	1,375,765	1,974,024	2,295,868	+2.7%
Less than 18 years	28.1%	27.4%	26.8%	+2.3%
18+ years	74.4%	75.2%	75.5%	+2.8%
85+ years	0.8%	1.2%	1.4%	+5.9%
Nevada				
Total Population	1,998,257	2,746,331	3,147,495	+2.4%
Less than 18 years	28.2%	27.2%	26.7%	+2.1%
18+ years	74.4%	75.4%	75.7%	+2.5%
85+ years	0.9%	1.3%	1.4%	+3.9%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2009 and 2014.

ECONOMIC CHARACTERISTICS

Economic characteristics of communities and counties of the ROI describe the key economic factors that contribute to an area's economic viability. These factors can assist with economic development efforts and can provide a basis to how a specific industry will adapt or help grow a community. For the purpose of this study economic characteristics are defined as: housing units, median and average home value, median household income, average household income, per capita income, industry employment, occupational employment and Amargosa Valley major employers.

Key findings and trends summarized in Tables 5-12 include:

- In 2009, communities of Amargosa Valley and Beatty have relatively high rates of vacant housing, 22.7 percent and 26.0 percent, respectively. (Table 5)
- Overall the communities and counties in the ROI are projected to expand housing between 3 to 5 percent per year. (Table 5)
- Overall median and average home values in the communities and counties of the ROI are projected to be relatively flat at around 1 to 3 percent increases over the next few years. (Table 6)
- In 2000 median household income for communities and counties in the ROI ranged from a low of \$34,913 in Pahrump to a high of \$44,650 in Clark County. However by 2010 Amargosa Valley reported the lowest median household income of \$41,852 and Clark continued with the highest at \$57,807. (Table 7)
- Between 2010 and 2015 it is projected that median household income will grow between 2.85 percent and 3.28 percent in the ROI.
- In 2000, average household income is very similar between counties and communities in the ROI with the exception of Clark County at \$57,569. (Table 8)
- Between 2010 and 2015 average household income is projected to grow at an average annual rate between 2.4 percent and 3.1 percent in most ROI counties and communities. However, Amargosa Valley is projected to increase average household income annually +6.19 percent between 2010 and 2015. This projection is more than likely taking into account the real potential for the areas alternative energy development that provides above average wages. (Table 8)
- As expected, per capita incomes are projected to increase at similar growth rates as average household incomes in counties and communities in the ROI. (Table 9)
- In 2009 the predominant industry employer for all ROI communities and counties was the service sector. In the small rural community, Amargosa Valley and Beatty also have a strong presence of agriculture and mining. (Table 10)
- 2009 employment by occupation reports that nearly half of all jobs in each ROI community or county are classified as white collar. (Table 11)
- Amargosa Valley has seven major employers, with Ponderosa Dairy employing the largest number of employees at 120 while Longstreet Inn and Casino and Cind-R-Lite employee the least at 17 employees. (Table 12)

Table 5. Housing Units for Communities and Counties in the ROI

	2000 Census	2009 ESRI Projections	2014 ESRI Projections	2009 – 2014 Ave. Annual Growth Rates
Amargosa Valley				
Occupied	614	995	1,252	+5.17%
Vacant	178	266	313	+3.53%
Total	792	1,261	1,565	+4.82%
Beatty				
Occupied	384	584	711	+4.35%
Vacant	153	277	339	+4.48%
Total	567	861	1,050	+4.39%
Pahrump				
Occupied	10,153	14,705	17,674	+4.04%
Vacant	1,502	2,141	2,475	+3.12%
Total	11,665	16,846	20,149	+3.92%
Nye County				
Occupied	13,309	19,694	23,305	+3.67%
Vacant	2,625	3,797	4,409	+3.22%
Total	15,934	23,491	28,305	+4.10%
Clark County				
Occupied	512,253	736,521	855,744	+3.24%
Vacant	47,546	94,166	108,699	+3.09%
Total	559,799	830,687	964,443	+3.22%
Nevada				
Occupied	751,165	1,033,339	1,183,165	+2.90%
Vacant	76,292	136,330	153,930	+2.58%
Total	827,457	1,169,669	1,337,095	+2.86%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2014.

Table 6. Median Home Value for Communities and Counties in the ROI.

	2000 Census	2009 ESRI Projections	2014 ESRI Projections	2009 – 2014 Ave. Annual Growth Rates
Amargosa Valley				
Median	\$75,833	\$106,745	\$118,401	+2.18%
Average	\$102,212	\$143,657	\$151,953	+1.15%
Beatty				
Median	\$75,000	\$105,048	\$117,230	+2.32%
Average	\$94,788	\$120,854	\$127,566	+1.11%
Pahrump				
Median	\$106,588	\$147,182	\$168,217	+2.86%
Average	\$121,590	\$168,094	\$185,821	+2.11%
Nye County				
Median	\$96,272	\$134,415	\$151,874	+2.60%
Average	\$111,527	\$152,968	\$168,616	+2.05%
Clark County				
Median	\$132,186	\$152,591	\$156,949	+0.57%
Average	\$153,519	\$179,723	\$184,730	+0.56%
Nevada				
Median	\$132,514	\$157,802	\$164,516	+0.85%
Average	\$157,238	\$193,653	\$202,226	+0.89%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2009 & 2014.

Table 7. Median Household Income for Communities and Counties in the ROI. (2010 Dollars)

	2000 Census	2010 ESRI Projections	2015 ESRI Projections	2010 – 2015 Ave. Annual Growth Rates
Amargosa Valley	\$35,672	\$41,852	\$48,053	+2.96%
Beatty	\$41,204	\$50,582	\$58,869	+3.28%
Pahrump	\$34,913	\$44,699	\$51,633	+3.10%
Nye County	\$36,034	\$45,624	\$52,279	+2.92%
Clark County	\$44,650	\$57,807	\$66,515	+2.85%
Nevada	\$44,614	\$57,546	\$65,787	+2.86%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2015.

Table 8. Average Household Income for Communities and Counties in the ROI. (2010 Dollars)

	2000 Census	2010 ESRI Projections	2015 ESRI Projections	2010 – 2015 Ave. Annual Growth Rates
Amargosa Valley	\$47,099	\$56,134	\$73,515	+6.19%
Beatty	\$42,910	\$55,834	\$62,543	+2.40%
Pahrump	\$42,432	\$53,623	\$60,679	+2.63%
Nye County	\$43,196	\$54,155	\$62,062	+2.92%
Clark County	\$57,569	\$71,748	\$82,836	+3.09%
Nevada	\$57,469	\$71,330	\$82,236	+3.06%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2015.

Table 9. Per Capita Income for Communities and Counties in the ROI. (2010 Dollars)

	Zip Codes	2000 Census	2010 ESRI Projections	2015 ESRI Projections	2010 – 2015 Ave. Annual Growth Rates
Amargosa Valley	89020	\$19,219	\$21,936	\$28,843	+6.30%
Beatty	89003	\$16,844	\$25,828	\$29,062	+2.50%
Pahrump	89048	\$17,747	\$22,317	\$25,410	2.77%
	89060				
	89061				
Nye County		\$17,962	\$22,513	\$25,953	3.06%
Clark County		\$21,785	\$26,761	\$30,784	3.01%
Nevada		\$21,898	\$26,969	\$30,985	2.98%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2010 and 2015.

Table 10. 2009 Employed Population 16 and older by Industry for Communities and Counties in the ROI.

	Amargosa Valley	Beatty	Pahrump	Nye County	Clark County	Nevada
Total Employment	905	569	10,846	15,417	823,682	1,153,371
Agriculture/Mining	12.8%	7.4%	2.3%	7.2%	0.2%	1.0%
Construction	7.8%	7.6%	15.6%	13.5%	10.1%	9.7%
Manufacturing	1.4%	3.5%	3.0%	3.3%	2.9%	3.8%
Wholesale Trade	0.4%	1.1%	1.1%	1.2%	2.1%	2.4%
Retail Trade	7.8%	7.6%	10.1%	9.1%	9.9%	10.1%
Transportation/Utilities	7.7%	4.7%	4.8%	4.4%	4.0%	4.1%
Information	0.7%	0.4%	2.6%	2.1%	1.9%	1.8%
Finance/Insurance/Real Estate	2.8%	2.1%	7.6%	6.2%	7.4%	7.1%
Services	52.4%	58.7%	44.8%	44.7%	57.7%	55.4%
Public Administration	6.1%	7.0%	8.1%	8.3%	3.8%	4.6%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2009.

Table 11. 2009 Employed Population 16 and older by Occupation for Communities and Counties in the ROI.

	Amargosa Valley	Beatty	Pahrump	Nye County	Clark County	Nevada
Total Employment	905	569	10,846	15,417	823,682	1,153,371
White Collar	46.4%	45.2%	49.5%	47.2%	52.8%	53.9%
Management/Business/Financial	8.3%	4.4%	8.5%	8.0%	11.9%	12.2%
Professional	20.0%	19.5%	15.4%	16.4%	15.1%	16.1%
Sales	8.2%	8.8%	13.3%	11.1%	13.0%	12.7%
Administrative Support	9.9%	12.5%	12.2%	11.7%	12.8%	12.9%
Services	25.0%	35.3%	22.9%	22.8%	28.0%	26.0%
Blue Collar	28.6%	19.5%	27.6%	30.1%	19.2%	20.1%
Farming/Forestry/Fishing	0.9%	0.2%	0.6%	0.5%	0.1%	0.2%
Construction/Extraction	14.8%	8.3%	12.7%	13.0%	8.0%	7.9%
Installation/Maintenance/Repair	4.8%	5.6%	5.3%	6.3%	3.3%	3.6%
Production	3.2%	1.2%	3.0%	3.4%	2.6%	3.1%
Transportation/Material Moving	5.0%	4.2%	6.1%	6.9%	5.2%	5.3%

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing. ESRI forecasts for 2009.

Table 12. Major Employers in Amargosa Valley.

Company	Number of Employees
Ponderosa Dairy	120
Horizon Academy	50
Industrial Minerals Ventures	30
US Ecology	30
Amargosa Valley School	29
Longstreet Inn and Casino	17
Cind-R-Lite	17

Source: Amargosa Valley School; Bagley 2009; Bowling 209; EDEN 2009; NBMG 2008; Powell 2009

FISCAL CHARACTERISTICS

Nye County: The Nye County Finance Department describes county government revenues and expenditures within five major funds and approximately 67 non-major funds. The General Fund is the primary operating fund for Nye County (Nye County 2009). Table 13 summarizes the Nye County revenues and expenditures.

Table 13. Nye County Revenues and Expenditures for Fiscal Year 2007-2008

	General Fund	Education Endowment Fund	Special Project Fund	Endowment Capital Projects Fund	Repository Oversight Fund	Overall Total incl. Non-major Funds
REVENUES						
Taxes	14,944,493	0	0	0	0	20,545,682
Licenses	135,133	0	0	0	0	1,956,669
Intergovernmental	14,066,342	0	11,250,000	0	3,343,065	38,713,071
Charges for Services	2,646,579	0	0	0	0	4,690,031
Fines and Forfeits	403,155	0	0	0	0	678,477
Other	1,445,393	612,796	1,068,554	719,162	0	7,759,128
Total Revenues	33,691,095	612,796	12,318,554	719,162	3,343,065	74,343,058
EXPENDITURES						
General Government	12,342,734	0	540,064	0	3,343,065	20,856,997
Judicial	6,152,895	0	0	0	0	6,464,099
Public Safety	15,614,299	0	20,317	0	0	19,225,464
Public Works	114,738	0	355,310	0	0	9,146,041
Health and Sanitation	250,306	0	0	0	0	1,133,409
Welfare	0	0	0	0	0	1,616,136
Culture and Recreation	0	0	35,586	0	0	413,651
Community Support	392,940	0	476	0	0	890,075
Intergovernmental	298,900	1,119,264	841,088	0	0	3,526,569
Capital Projects	0	0	4,208,966	0	0	5,863,564
Debt Service:						
Principal	0	0	0	0	0	2,183,241
Interest	0	0	0	0	0	436,848
Total Expenditures	35,166,812	1,119,264	6,001,807	0	3,343,065	71,753,092
Difference	(1,475,717)	(506,468)	6,316,747	719,162	0	2,589,966

Source: Nye County (2009), inconsistencies have been noted.

PUBLIC SERVICES AND UTILITIES CHARACTERISTICS

Law Enforcement

Law enforcement in the Amargosa Valley is provided by the Nye County Sheriff's Department and the Nevada Highway Patrol. The Sheriff's Department has one substation in Amargosa Valley and three full-time deputies. The area is also supported by a substation in Beatty which has one lieutenant and three deputies. The Nevada Highway Patrol has three officers that patrol the highways in the area with a substation located in Pahrump (Amargosa Valley Area Plan Committee 2009).

Emergency services within Amargosa Valley are provided mainly by the Amargosa Valley Volunteer Fire Department managed by the Town of Amargosa Valley. There are two fire halls located in the area. The Nye County Emergency Service Department provides assistance to the local volunteers, including training. The BLM is responsible for fire protection for wildland fires on public land. Mercy Air Flight for Life helicopters provides emergency airlift services between Amargosa Valley and hospitals in Las Vegas. The Amargosa Valley Medical Clinic provides routine family medical care and is staffed by a visiting physician and physician's assistant (Amargosa Valley Area Plan Committee 2009).

Electricity Natural Gas and Propane

The project area is served by Valley Electric Association. Valley Electric Association is a nonprofit electric utility based in Pahrump, Nevada. Valley Electric's service territory covers more than 6,800 square miles, mainly along the California-Nevada border. At present Valley Electric provides electricity to approximately 16,000 customers (Valley Electric Association, 2009).

There are no natural gas services in the Amargosa Valley. However there are several suppliers of propane including: AmeriGas Propane, Proflame Gas of Pahrump, Shoshone Propane and Suburban Propane.

Public Water Supply and Wastewater

There are very few public water supply systems in Amargosa Valley Planning Area. The majority of water users rely on individual wells. There are only three public water supply systems near the Project area. These include wells supplying the Amargosa Elementary School, Amargosa Town Complex, and the Amargosa Water Company. As of 2008, over 500 domestic wells were listed in the NDWR database as being drilled in the Amargosa Valley Hydrographic Basin.

Solid Waste

The NDEP Bureau of Waste Management oversees the permitting of solid waste landfills and other waste management facilities within the state of Nevada. The nearest Class I landfill is the Pahrump Valley Landfill located north of Pahrump, east of Highway 160.

Schools

The proposed project is located within the Nye County School District of Nye County. There are four schools that serve the Amargosa Valley. There are three public schools and one private school, Horizon Academy is a special learning center for which students from other schools must apply independently. A summary of school information and enrollment for the schools is provided in Table 14.

Table 14. Summary of Schools in the Nye County School District

District	School	Grades	2008-2009 Students	Location
Nye	Beatty School	K-8	103	Beatty
Nye	Amargosa School	K-8	194	Amargosa Valley
Nye	Beatty High School	9-12	139	Beatty
Private	Horizon Academy	7-12	129	Amargosa Valley

Source: Nye County School District, 2010

ECONOMIC ACTIVITY AND IMPACT OF AMARGOSA FARM ROAD SOLAR ENERGY PROJECT

Economic impacts for the Amargosa Farm Road Solar Energy Project (AFRSEP) were estimated using a Nye County IMPLAN economic impact model. IMPLAN stands for “Impact Analysis for Planning” and is a commonly used analytical software tool to estimate socioeconomic impacts originally developed by researchers at the U.S. Forest Service. The model is owned and administered by the Minnesota IMPLAN Group, (MIG) Inc. The IMPLAN software is an input-output based model that describes the inter-industry relationships between industries and commodity purchases within a local economy. The model relies on county and state-level data sets that are continually updated by the U.S. government and by MIG, Inc. IMPAN is used to measure the multiplier impacts or total economic impacts associated with a given project’s spending relationships or linkages to a region’s vendors, suppliers, households and government entities. A multiplier describes the response of the regional economy to a stimulus (e.g. construction period spending associated with a project’s local capital expenditures and payroll) that is a change in final demand. The multiplier process represents the predictive part of the model. The model supplements the traditional input-output framework with a social accounting matrix that takes into account non-industrial transactions such as the payment of taxes by businesses and households.

Economic impacts are defined as total expenditures, personal income and employment. Total impacts are estimated using the following components:

Direct Impacts – Represents the impacts for the expenditures and/or production values specified as direct final demand changes.

Indirect Effects – Represents the impacts caused by the iteration of industries purchasing from industries and local businesses resulting from direct final demand changes.

Induced Effects - Represents the impacts caused by the iteration of households purchasing from industries and local businesses resulting from direct final demand changes.

Total Impact – The total impact is the sum of the direct, indirect and induced effects.

Two phases of impacts are considered that have different levels of impacts on the ROI. Phase One is the construction of the AFRSEP, projected to last 39 months, which is considered a short-term impact that does not have any long-term economic sustainability. Phase Two consists of annual operations of the project that will provide ongoing economic sustainability and have positive economic impacts on the ROI for several years. Description of each AFRSEP phase and economic impact will be discussed in the following sections.

PHASE ONE – CONSTRUCTION ACTIVITY

Phase One of the AFRSEP includes the construction of two 268 megawatt plants for a total of 536 megawatts. This phase is projected to last 39 months. During the construction period communities in the ROI will experience temporary increases in the levels of overall economic activity through the purchases of goods and services, employment and personal income. Also during this period, Nye County will experience an increase in property and sales taxes collections. The following section will describe the levels of projected increased activities during the construction of the AFRSEP.

Purchases

Construction of both plants for the AFRSEP is estimated to cost between \$2.5 billion and \$3 billion. The main components of construction costs include labor, materials, equipment, supplies and taxes. Due to the confidentiality of detailed component construction costs estimates, only total estimated construction costs are reported. However, the detailed construction cost estimates by type and place of purchases is integrated in the Nye County IMPLAN economic model. In addition, it is assumed that during the construction phase all attempts will be made to purchase local labor and supplies when available. The only component that will be difficult to purchase locally is specialized solar equipment that is only available in other markets. Increased local business activity and revenues is projected to come from the purchases of water, sand and gravel, cement, electricity, propane, building materials, equipment rentals, miscellaneous construction supplies and sales taxes. It is estimated that approximately \$50 million to \$75 million of supplies and materials will be purchased from local businesses.

Employment

Amargosa Valley has a relatively small workforce; however adjacent communities of Beatty and Pahrump will also be a local source for construction employment. Solar Millennium will make all attempts to hire local residents that meet required job qualifications. In addition, Clark County will likely be a recruiting base for all types of specialty construction employment especially with current economic conditions and high levels of construction worker unemployment in the State of Nevada.

Table 15 reports the average projected monthly skilled construction employment over the 39 month construction period. A total of 23 construction skill trades will be required to complete the AFRSEP. The greatest job activity occurs between months 14 and 23 with over 1,000 active construction jobs each month. In month 16 construction jobs peak at 1,318. The monthly average construction employment over the 39 month period is 634 jobs.

Table 15. Average Projected Construction Workforce by Skill (Monthly)

Trade/Skill	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19
Surveyor	0	16	12	12	16	18	17	21	21	18	20	20	25	24	18	17	14	10	12
Operator	25	51	56	58	64	92	92	97	97	97	97	97	115	107	104	104	104	104	104
Laborer	14	36	37	39	69	91	69	156	190	230	230	230	130	230	230	213	213	213	213
Truck Driver	21	17	15	16	28	30	35	44	44	36	32	29	39	40	40	40	38	38	38
Oiler	1	5	3	2	3	3	3	5	5	3	5	3	7	7	6	5	3	2	2
Carpenter	0	6	20	23	22	30	23	81	92	92	104	104	104	115	115	115	115	115	115
Boilermaker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13	13
Paving Crew	0	0	0	0	6	6	0	5	0	0	0	0	5	0	0	0	0	0	0
Pipe Fitter	0	1	14	16	12	14	13	16	32	58	115	115	167	173	190	307	375	352	340
Electrician	0	0	6	12	12	13	13	18	25	28	43	52	68	108	150	169	173	173	173
Cement Finisher	0	3	14	16	15	22	17	24	44	92	92	92	92	115	115	115	115	115	115
Ironworker	0	5	12	12	12	29	29	29	48	48	48	68	68	68	68	68	68	68	68
Millwright	0	0	0	0	0	0	0	0	0	00	23	23	23	23	23	29	29	29	29
Tradesman	0	14	49	58	59	85	67	52	31	29	14	9	9	12	9	15	12	3	2
Project Manager	1	1	1	1	1	1	1	3	3	3	3	3	3	3	2	3	3	3	3
Construction Manager	1	1	1	1	1	1	1	3	3	3	3	3	3	3	2	3	3	3	3
PM Assistant	1	1	1	1	1	1	1	3	3	5	5	5	5	5	5	5	5	5	5
Support	1	1	1	1	1	1	1	3	3	5	5	5	5	5	5	5	5	5	5
Support Assistant	1	1	1	1	1	1	1	3	3	5	5	5	5	5	5	5	5	5	5
Engineer	3	3	2	3	3	3	3	10	10	9	12	12	12	12	12	12	12	14	14
Timekeeper	1	1	1	1	1	1	1	3	3	3	3	3	3	3	2	3	3	3	3
Administrator	2	2	2	2	2	2	2	7	7	7	7	7	7	7	7	7	7	7	7
Welder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	73	166	249	276	330	445	390	584	665	772	867	886	996	1066	1109	1254	1318	1281	1270

Table 15. Average Projected Construction Workforce by Skill (Monthly)

Trade/Skill	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	AVE
Surveyor	13	16	14	18	16	16	8	1	3	3	1	0	0	2	3	3	3	3	0	0	11.1
Operator	104	84	81	74	74	64	47	17	10	9	5	2	2	6	8	8	8	8	2	0	58.4
Laborer	183	143	143	116	94	97	97	68	68	49	49	40	35	29	29	25	17	12	6	0	106.0
Truck Driver	38	30	29	29	26	26	18	18	17	17	17	14	14	14	12	12	6	6	3	0	24.8
Oiler	3	5	3	5	5	5	3	1	1	1	0	0	0	1	1	1	1	1	0	0	2.8
Carpenter	115	115	115	115	92	92	92	81	58	58	46	12	12	12	6	6	0	0	0	0	62.0
Boilermaker	13	13	13	13	13	13	13	13	0	0	0	0	0	0	0	0	0	0	0	0	4.0
Paving Crew	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6
Pipe Fitter	328	315	315	315	315	288	288	282	230	196	115	89	68	12	12	12	6	6	6	0	141.2
Electrician	162	162	146	146	129	129	62	62	52	52	41	10	10	10	6	6	6	6	6	0	62.5
Cement Finisher	115	115	92	92	92	92	92	92	81	81	81	63	29	23	12	12	0	0	0	0	60.9
Ironworker	68	68	68	49	49	23	23	23	23	23	12	12	12	12	12	12	6	6	6	0	33.9
Millwright	29	29	29	29	29	17	17	17	17	12	12	12	12	12	12	12	0	0	0	0	13.5
Tradesman	2	2	2	2	2	5	5	3	0	0	0	0	0	0	0	0	0	0	0	0	14.2
Project Manager	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	1	2.5
Construction Manager	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	1	2.5
PM Assistant	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	1	3.7
Support	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	1	3.7
Support Assistant	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	1	3.7
Engineer	14	14	14	14	14	14	14	14	14	14	10	10	10	9	10	10	9	10	9	5	9.9
Timekeeper	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	1	2.5
Administrator	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	6	2	5.8
Welder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1.0
Total	1219	1143	1096	1049	985	913	811	721	606	547	421	296	230	1673	145	145	87	89	63	13	634

Personal Income

During the construction of the AFRSEP, communities in the ROI are expected to have positive, short-term effect on employee earnings and personal incomes. Total earnings corresponding to the employment levels reported in Table 15 are estimated using the 2010 Nye County prevailing wage rate by construction occupation (Table 16). The average non benefited wage for the construction of the AFRSEP is \$43.30. Overall it is estimated that AFRSEP construction will provide over \$190 million of direct personal income over the full 39 month construction period. These rates do not include benefits which normally could add another 30 percent to 40 percent to the full compensation package.

Table 16. Nye County Prevailing Wage by Construction Occupation

Trade or Skill	Nye County Prevailing Wage*
Surveyor	\$52.57
Operator	\$57.74
Laborer	\$43.77
Truck Driver	\$36.09
Oiler	\$36.09
Carpenter	\$51.04
Boilermaker	\$32.64
Paving Crew	\$43.77
Pipe Fitter	\$32.76
Electrician	\$57.86
Cement Finisher	\$35.07
Ironworker	\$56.70
Millwright	\$52.09
Tradesman	\$43.77
Project Manager	\$60.00
Construction Manager	\$55.00
PM Assistant	\$35.00
Support	\$30.00
Support Assistant	\$25.00
Engineer	\$50.00
Timekeeper	\$18.90
Administrator	\$30.00
Welder	\$60.04
Average Wage	\$43.30

*Does not include benefits

Construction Scenarios

Four construction scenarios were considered using different levels of locally hired employment and locally earned wages. Analyzing different local employment and income levels is important because the availability of types of skilled labor may require hiring from outside Nye County. Nonresident employment and incomes will have minimal impacts on Nye County.

Local is defined as coming from within Nye County. Although each scenario needs to be considered, the 50 percent hire locally seems to be very realistic given the current economic conditions. For example, Southern Nye County, specifically Pahrump, continues to experience high levels of local residents commuting to Clark County for work, estimated at 20 to 25 percent of residents who work. Several factors contribute to this result but the main reason is the lack of local employment opportunities. So with an increase in employment opportunities locally could result in more residents receiving employment in Nye County and reduce the exporting of Nye County’s workforce. However given the temporary nature of the construction phase jobs, residents may be hesitant to leave a permanent job in Clark County for a temporary job in Nye County. This may not be the case for permanent jobs created in the annual operating phase. Table 17 summarizes the average monthly construction scenarios over the total 39 months.

Table 17. Average Monthly Construction Employment and Personal Income Scenarios (39 Months).

Scenario	Employment	Personal Income
100% Hire Local	634.0	\$4,884,997
75% Hire Local	475.5	\$3,663,744
50% Hire Local	317.0	\$2,442,496
25% Hire Local	158.5	\$1,221,248

Under the 50 percent scenario, a total of 317 employees will be hired from within Nye County, while the remainder of required employment will likely come from the Las Vegas market and will not take on permanent Nye County residency. Non-local workers will provide a small temporary stimulus to the Nye County economy as they spend per diem money on hotels, meals and consumables. However, unlike the local workers who permanently reside in Nye County, non-local workers would be expected to spend most of their earning outside of the region. Some direct spending generated from local workers would also be expected to leak out of the region as the total regional demand for goods and services could not be entirely satisfied from local (i.e. Nye County) production.

PHASE TWO – ANNUAL OPERATIONS ACTIVITY

At the conclusion of the AFRSEP construction phase, communities in the ROI will realize a new level of sustainable economic impacts through annual operations. Annual operations for both plants will require consistent purchases of labor, supplies, materials, services and payment of federal, state and local taxes. Table 18 summarizes the direct economic projections for the AFRSEP annual operations.

Input Purchases

Annually it is projected, by operator, that the AFRSEP will spend \$50 million to \$75 million on materials and supplies to operate both plants. Similar to the construction phase, there is a strong commitment to purchases labor, supplies, materials and services from local sources and businesses. Specifically, the majority of water, propane, gasoline and electricity will come from businesses located in Nye County. Additionally it is not unusual for new supportive businesses and industries to be created to support AFRSEP annual operations. Projected revenues are difficult to estimate at this time because of market fluctuations.

Employment

Permanent annual full-time employment at both the AFRSEP plants is estimated to be between 175 and 200 full-time employees. With the permanent nature and sustainability of these positions, it assumed that at a minimum of 75 percent of the workforce will be from local communities in Nye County (i.e. Amargosa Valley, Beatty, and Pahrump). The remaining 25 percent employees will more than likely come from Clark County or Las Vegas. Currently it is estimated by the Bureau of Census Journey to Work data that nearly 23 percent of Nye County residents work outside Nye County. Much of the out migration of workers from Nye County is due to the fact that few employment opportunities exist and with the construction of the new AFRSEP more employment opportunities will be available for local workers.

Personal Income

Permanent full-time employment wages and salaries at both AFRSEP plants are estimated to be \$8.6 million to \$9.9 million annually. The average annual wages and salaries per job is estimated to be close to \$50,000, which is near or well above current average wages for most of the communities in the ROI.

Table 18. Summary Annual Operations for the AFRSEP.

	Amount	Local (Nye County)
Input Purchases	\$50 to \$75 million	40%
Employment	175 to 200 Full-Time	75%
Personal Income	\$8.6 to \$9.9 million	75%

ECONOMIC IMPACTS

Economic impacts are defined as the economic activity, employment and personal income. Both phases, construction and annual operations, are estimated and presented below.

PHASE ONE - CONSTRUCTION ECONOMIC IMPACTS

Tables 19 to 21 summarize the total economic impacts for the construction phase of the AFRSEP. Summary results include:

Direct Expenditure Impact Assumptions & Results:

- Total construction expenditures over 39 months are estimated at \$2.5 billion to \$3 billion.
- Approximately \$50 million to \$75 million of supplies and materials will be purchased from local businesses during construction phase. Projections from operator.
- An expenditure multiplier of 1.27 is estimated for direct expenditures in Nye County. That is for every \$1 spent locally another \$0.27 is generated in Nye County.

Table 19. Total Direct Local Expenditure Impact over 39 months.

Direct Local Expenditure Activity	Indirect Expenditure Impact	Induced Expenditure Impact	Total Expenditure Impact	Expenditure Multiplier
\$50,000,000	\$7,709,127	\$5,931,866	\$63,640,992	1.27
\$75,000,000	\$11,563,691	\$8,897,800	\$95,461,488	

Direct Average Monthly Employment Impact Assumptions & Results:

- Total construction employment over 39 months varied each month from a high of 1,318 employees in month 17 to 13 employees in month 39.
- Total employment impacts were estimated for each month of construction. (see Figures 1 and Appendix A)
- Average monthly direct employment impacts were estimated at 634 employees over 39 months.
- Four employment scenarios were considered based on the estimated percentage of employees that would be hired from within Nye County.
- The preferred scenario for the construction phase was that 50 percent of hired labor would come from Nye County
- An employment multiplier of 1.32 was estimated for direct construction employment. This means that for every one locally hired construction job for AFRSEP will support another 0.32 jobs in Nye County.

Table 20. Average Monthly Employment Impact over 39 month construction period

Scenarios	Direct Employment Impact	Indirect Employment Impact	Induced Employment Impact	Total Employment Impact	Employment Multiplier
100% Local Hire	634.0	113.1	90.3	837.4	1.32
75% Local Hire	475.5	84.8	67.7	628.1	
50% Local Hire	317.0	56.6	45.2	418.7	
25% Local Hire	158.5	28.3	22.6	209.4	

Direct Average Monthly Personal Income Impact Assumptions & Results:

- Total construction personal income over 39 months varied each month from a high of \$10 million in month 17 to \$96 thousand in month 39.
- Total personal income impacts were estimated for each month of construction. (see Figures 2 and Appendix A)
- Average monthly direct personal income impacts were estimated at \$4,883,151 over 39 months.
- Four personal income scenarios were considered based on the estimated percentage of employees and their corresponding wages & salaries that would be hired from within Nye County.
- The preferred scenario for the construction phase was that 50 percent of hired labor and would come from Nye County and corresponding wages and salaries would stay in Nye County.
- A personal income multiplier of 1.38 was estimated for direct construction personal income. This means that for every one dollar earned locally from AFRSEP construction an additional \$0.38 of income is generated in Nye County.

Table 21. Average Monthly Personal Income Impact over 39 month construction period

Scenarios	Direct Personal Income Impact	Indirect Personal Income Impact	Induced Personal Income Impact	Total Personal Income Impact	Personal Income Multiplier
100% Local Hire	\$4,883,151	\$1,395,721	\$442,112	\$6,722,899	1.38
75% Local Hire	\$3,662,363	\$1,046,790	\$331,584	\$5,042,174	
50% Local Hire	\$2,441,575	\$697,860	\$221,056	\$3,361,449	
25% Local Hire	\$1,220,787	\$348,930	\$110,528	\$1,680,725	

Figure 1. 39 Month Construction Employment Impacts for Armargosa Valley Project on Nye County. (50% Nye County Hire)

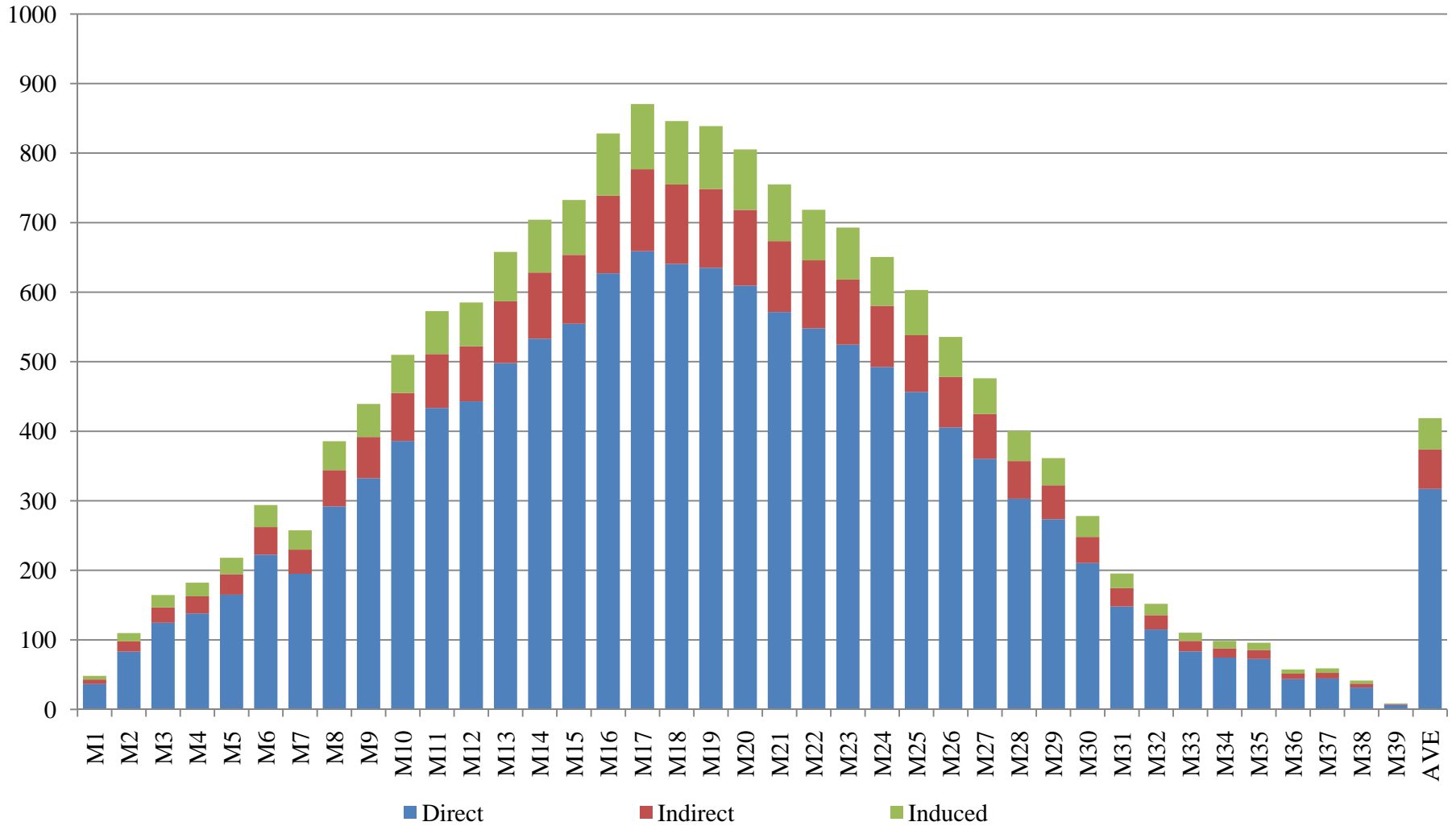
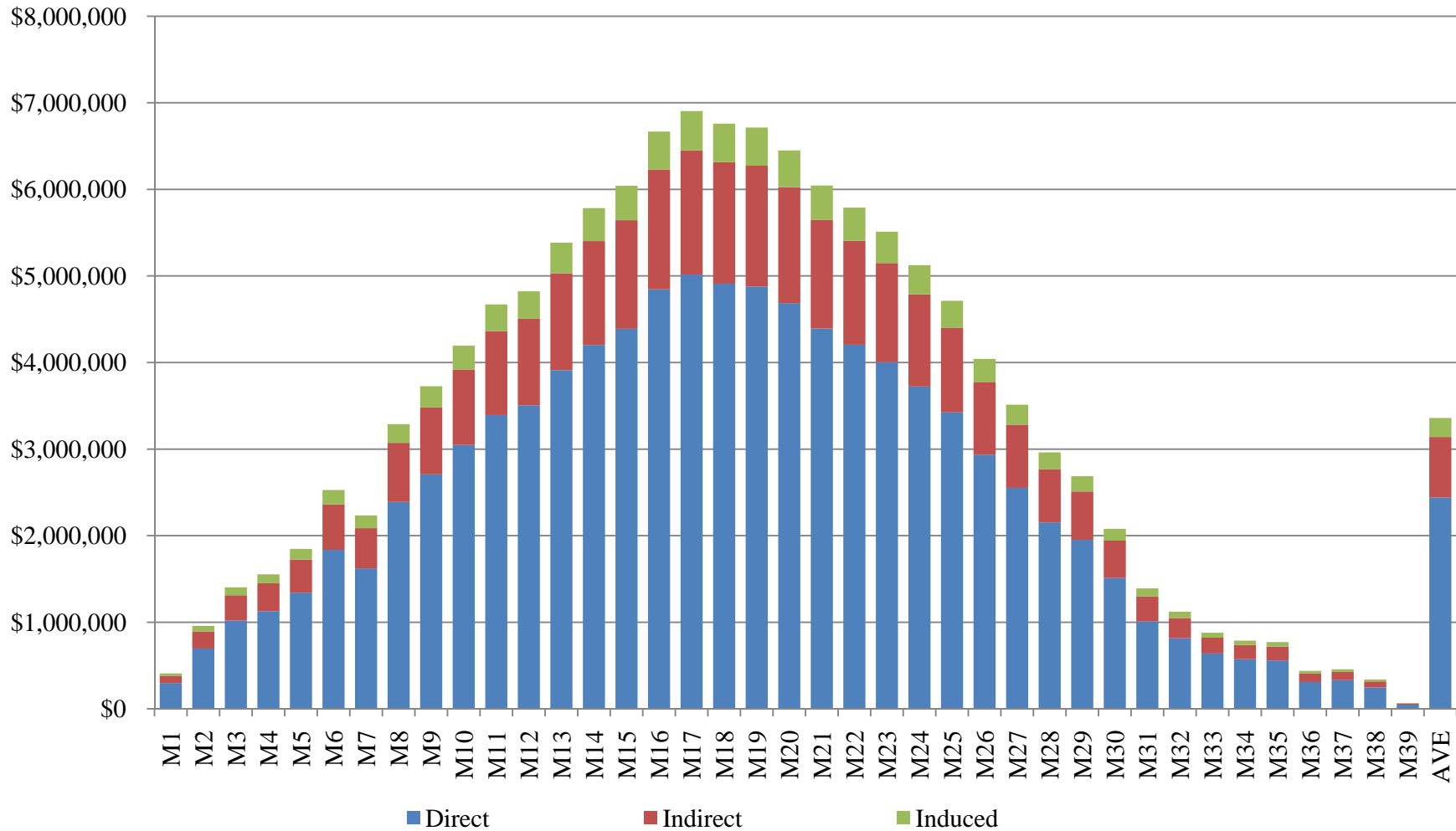


Figure 2. 39 Month Construction Personal Income Impacts for Armargosa Valley Project on Nye County. (50% Nye County Hire)



Under each employment and personal income scenarios the following sectors reported the greatest impacted sectors (Table 22). With a project like AFRSEP these sectors could be further developed and expanded to meet newly created demand.

Table 22. Top Nye County Impacted Sectors from AFRSEP Construction

NAICS Sector	Description
23	Construction of other nonresidential structures
5413	Architectural, engineering and related services
531	Real Estate Services
722	Food Service and Drinking Places
452	Retail – General Merchandise
8111	Automotive repair and maintenance, except car washes
6211	Offices of physicians, dentists and other health practitioners
8113	Commercial and industrial machinery and equipment repair and maintenance
454	Retail Nonstore – direct and electronic stores
441	Retail – motor vehicle parts

PHASE TWO – ANNUAL OPERATIONS ECONOMIC IMPACTS

Tables 23 and 24 summarize the total economic impacts for the construction phase of the AFRSEP. Summary results include:

Direct Annual Employment Impact Assumptions & Results:

- Total annual operations employment is estimated at between 175 to 200 employees. Analysis is conducted on 185 direct annual employees.
- Assumed 75 percent of employment would be from Nye County.
- An employment multiplier of 1.48 is estimated for direct annual operations. This means that for every AFRSEP direct job will support an additional 0.48 jobs throughout Nye County.

Table 23. Average Annual Employment Impacts for AFRSEP Annual Operations.

Scenarios	Direct Employment Impact	Indirect Employment Impact	Induced Employment Impact	Total Employment Impact	Employment Multiplier
100% Local Hire	185	23.7	65.1	273.8	1.48
75% Local Hire	139	17.8	48.8	205.6	

Direct Annual Personal Income Impact Assumptions & Results:

- Total annual personal income is estimated between \$8.6 and \$9.9 million. Analysis is conducted on \$9.1 total annual income.
- Assumed 75 percent of total personal income will be paid to Nye County residents.
- A personal income multiplier of 1.19 is estimated for direct personal income. This means that for every direct dollar earned locally from AFRSEP will generate an additional 0.19 of personal income in Nye County.

Table 24. Average Annual Personal Income Impacts for AFRSEP Annual Operations.

Scenarios	Direct Income Impact	Indirect Income Impact	Induced Income Impact	Total Income Impact	Income Multiplier
100% Local Hire	\$9,101,408	\$1,013,024	\$711,948	\$10,826,380	1.19
75% Local Hire	\$6,826,056	\$759,768	\$533,961	\$8,119,785	

FISCAL IMPACTS

Tables 25 and 26 summarize the property and sales tax collected and dispersal among local and state funds.

- It is estimated that over the 39 month construction period, a total of \$30.08 million in property tax and \$35.2 in sales tax will be collected. (Table 25)
- It is estimated that AFRSEP operations will generate \$13.9 million of property tax and \$1.2 million of sales tax the first year. Proceeding year’s tax revenues will vary depending on the levels of purchases and values of personal property, real property and land.

Table 25. Total Property & Sales Tax Revenue from AFRSEP Construction (over 39 months).

	Dispersal Percentage	Estimated Payment/Income
PROPERTY TAX DISPERSAL		
State of Nevada	45.00%	\$13,545,000
Nye County	20.24%	\$6,092,240
Nye County School District	20.075%	\$6,042,575
Amargosa Town Fund	12.10%	\$3,642,100
State Capital Debt and Parks	2.585%	\$788,085
Total Property Tax	100.00%	\$30,080,000
SALES TAX DISPERSAL**		
LSST State Fund	100.00%	\$35,200,000

*Based on personal property, real property, & land value during construction. Estimated payment based on a total estimated value of \$2.6 billion.

**Based on purchases of \$1.8 billion of equipment, materials, & supplies over 39 month period at a 2.25 percent abatement rate.

Table 26. Total Property & Sales Tax Revenue from AFRSEP Operations (Year 1 or 12 months)

	Dispersal Percentage	Estimated Payment/Income
PROPERTY TAX DISPERSAL		
State of Nevada	45.00%	\$6,255,000
Nye County	20.24%	\$2,813,360
Nye County School District	20.075%	\$2,790,425
Amargosa Town Fund	12.10%	\$1,681,900
State Capital Debt and Parks	2.585%	\$359,315
Total Property Tax	100.00%	\$13,900,000
SALES TAX DISPERSAL		
State General Fund	2.0%	\$336,000
Nye County School District	2.6%	\$444,000
Nye County	0.5%	\$84,000
Nye County Transportation & Air Quality	0.25%	\$48,000
Supplemental City-County Relief Tax*	1.75%	\$300,000
Total Sale Tax	7.1%	\$1,212,000

*Based on personal property, real property, & land value during construction. Estimated payment based on a total estimated value of \$2.6 billion.

**Based on purchases of \$17.0 billion of equipment, materials, & supplies over 12 month period.

Potential Social Impacts of the “Amargosa Farm Road Solar Project

Stakeholder groups and attitudes

This section discusses some potential impacts of the proposed project on particular stakeholder groups. Note that not all persons potentially impacted by the project are easily classified into groups, so the summary of impacts here will include an NEC category, so their views will be represented in the review of social impacts. Note also that any one person may fit into multiple stakeholder groups. Here “stakeholder groups” means people with a shared social position or set of concerns (not necessarily people who interact with one another) who perceive themselves as likely to be impacted by the proposed project. The grouping we use here emerged from concerns raised during the scoping process and additional comments on the Draft Environmental Impact Statement (DEIS) and from general SIA practice in relation to public lands.

Immediate neighbors are residents who dwell in the immediate vicinity of the proposed project. It is appropriate to begin with the immediate neighbors because survey data show that the owners of the public lands – the U.S. general population of adults – believe that affected communities should have the most say in public land use (Brunson and Steel 1994). They include youth who may be eligible for apprenticeships, jobless adults in search of work, people who are employed, people who run local businesses or practice agriculture, homemakers and retirees, with an age structure strongly tilted towards retirees.

Scoping comments and comments on the DEIS provide clues about opinions of immediate neighbors, but it is necessary to emphasize that there is no survey data on the immediate neighbors available for this project, so there is no scientific way of discovering to what degree the scoping comments and comments on the DEIS represent opinion in the community as a whole, so they must be taken as suggestive indicators, rather than definitive ones. The comments reveal mixed views of immediate neighbors; this is not surprising because they include people who will be impacted very differently, for example depending on whether they are seeking jobs, have jobs or are retired. The comments also suggest substantial diversity in values and in goals for the community. The comments suggest a dominant opinion in favor of renewable energy in general and of solar in particular, although there were concerns that their community might disproportionately bear the costs of inconvenience; loss of amenity; strain on public safety, social, medical and fire services without receiving compensation through reductions in electricity costs, advantages in jobs, contributions to community services, facilities and infrastructure. There appear to be mixed views on the extent to which the proposed project will reduce amenity. In terms of jobs, a key concern is whether local people and then regional residents will receive preference in hiring. There is a generalized local value in favor of not wasting water which was raised when the “wet cooled” alternative was under consideration.

Immediate neighbors with responsibility for the health and safety of community residents. Volunteers firefighters, the Sheriff’s Office, Search and Rescue and local medical services would all be included here. The key concern here is that the quality and efficiency of these services and their related infrastructure could be undermined by the extra demands likely to be generated by the sudden expansion of the number of people in the Amargosa Valley when construction begins. Another concern is that the demands for construction workers cannot be filled locally so that there is likely to be a substantial influx of unattached young men, hence likely to be more rowdy after-work

leisure which may put Sheriff's Office personnel at greater risk than Amargosa Valley's existing, largely senior population does.

Outdoor recreationists: Nevadans are outdoor recreation enthusiasts. OHV/quad use is common, with about 56% of Nevada adults riding OHVs/ quads at least once a year (Rollins et al. 2007). About 23% go horseback riding at least once a year (Rollins et al. 2007). Local OHV/ quad users and horseback riders are accustomed to having easy access to roads and trails on public lands in the Amargosa Valley and vicinity. Local residents in the scoping comments and comments on the DEIS also specifically mentioned camping, photography, hiking, wildlife viewing and rock hounding as outdoor recreations used in this area. Key concerns here have to do with terrain being withdrawn from outdoor recreation use and with reduced access between town and public lands that remain in public use.

Economically involved stakeholders (business owners, their employees, potential construction workers in the region, potential construction workers from elsewhere and local government) are dealt with in the section on Economic Impacts.

Environmental groups and stewards are especially concerned about water use and its impact on wildlife, plants and the very physical structure of the land; with the cumulative impacts being of particular concern. Carbon sequestration issues, the possibility of habitat loss and loss of open space are also concerns. The views articulated by the spokespersons for these groups represent the views of their members, not necessarily of a wider public.

The general population of the state. We lack appropriate survey data for the state so it is appropriate to assume that state residents concerns are between local and national concerns, but closer to local.

The general US population's top concerns for 2010 are jobs and the economy with energy coming in 11th place and the environment coming in 16th place (Pew 2010) and is supportive of solar energy (Yale, 2010). So their concerns are likely to be that the Proposed Project should go ahead, provided there are not substantial deleterious environmental consequences. The general public also has an interest in the historic character and cultural landscape of the region, although this is more difficult to quantify in the absence of survey data. Our national admiration for maverick characters has its focus in this region in Jack Longstreet (Zanjani 1988) and a number of the Death Valley personalities such as Panamint Annie (Zanjani 2000), as well as in the fortitude and perseverance of the '49s who passed through on their way.

Social Impacts

This section discusses some potential impacts of each alternative on the stakeholder groups identified above, using NEPA methodology. NEPA methodology is required by Federal Law.

Indicators

NEPA prescribes a flexible approach to the assessment of social and economic impacts, because the importance and even the existence of the indicators differs greatly for different actions in different settings (40 CFR 1508.27[a]), although project aspects likely to affect population size and

density are of particular interest (40 CFR 1508.8). The indicators should be comprehensive, encompassing direct, indirect, and cumulative cultural, economic, social and health consequences. Where an aspect or component of an action has both detrimental and beneficial effects, both the costs and the benefits are to be described, not just the net effects (40 CFR 1508.8).

Under each alternative, impacts are estimated and discussed for health, safety and recreation practices. For the purposes of this analysis, some impacts remain difficult to quantify and many are not possible to measure with available resources.

Direct and Indirect Effects by Alternative

This sections assesses the potential social impacts according to alternatives using the NEPA methodology

Alternative 1: No Action

NEPA requires that the BLM consider an alternative assessing potential impact that is likely to occur if the proposed project is not approved. Hence the No Action Alternative is a scenario in which the ROW application is denied and the proposed project is not built. Under this alternative, proposed project's purpose and need would be supplied in other ways.

For present purposes, we will assume that the No Action Alternative means that the land in question will continue to be used in the manner currently designated by the BLM, so it would remain undeveloped desert. If the No Action Alternative were implemented, the renewable electric generating capacity in the proposed project would need to be produced by a comparable project in another location, by other new renewable projects or by other means. If these means are not solar, that would be contrary to strong public support for solar energy (this support is quantified below in the detailed assessment of Alternative 2, the proposed action). Moreover, if the No Action Alternative were implemented, no construction workers would be required for the project. This would likely lead to continued unemployment for local unemployed people, continued unemployment for a considerable number of regional unemployed people and continued unemployment for other workers who could come to fill the remaining jobs on the project. Unemployment has dire consequences beyond the obvious financial ones: the unemployed experience significantly higher risks of death, especially from suicide and cardiovascular disease (Voss et. al 2004), and those who survive experience an increase in other health problems resulting in a 20 percent to 30 percent increase in doctor visits (Jin et al, 1997). Because of the economic climate, it is unlikely that the currently unemployed workforce in this area will find alternative employment soon. Indeed, in the No Action Alternative, it would likely result in the closure of remaining keystone businesses in the vicinity, such as the Longstreet Inn and Casino with an attendant increase in unemployment and with a negative impact on tourism (if accommodation is not available, tourists are less likely to come). Under the No Action Alternative, it is likely that the population will remain steady or decline: Unemployed people are likely to move eventually when the economy picks up elsewhere (and recovery from recessions is usually substantially quicker in urban areas). That in turn can lead to business failure and social service reduction, thereby making the area less attractive to retirees, as well. Under this alternative, the potential impacts on public safety, fire, medical and educational services depend on how much depopulation occurs. The absence of the project would also mean that Farm Road would remain in its current location (which some residents prefer and others do not) in its current condition (which is a

net detrimental impact on many residents). The No Action Alternative would leave the land in question available for the traditional recreational uses, including strolls from town, OHV/quad use, dirt bike use, horseback riding, hiking, appreciative uses, ecotourism and others). Under the No Action Alternative, because the construction would not take place, there would be no detrimental impacts of the Proposed Project's construction phase, operational phase and decommissioning phase. If Alternative 1 were to take place it seems likely that the local water resources that are involved in Alternative 2 would be sold to other buyers.

Alternative 2. Proposed Action

The potential social impacts of Alternative 2 are described below, according to the stakeholder group.

Alternative 3. Similar to Alternative 2, but with a “wet” cooling system

The construction and operation of Alternative 3 would be similar to Alternative 2, but would require substantially more water. This would be contrary to local resident's values endorsing frugality in water use, and would raise additional concerns of environmentalist groups and stewards. Alternative 3 would thus provide social, cultural and health benefits similar to Alternative 2, and would produce both the same detrimental impacts as Alternative 2 and additional detrimental impacts.

Social

This section focuses on the potential social, cultural and health impacts on stakeholder groups. These impacts would be expected to be the same for Alternative 2 and 3, except for the additional detrimental impacts of Alternative 3 noted above. The quality of life or subjective well-being of affected groups and individuals is of particular concern. Relevant here are stakeholder perceptions of potential impacts on the integrity, quality, use and enjoyment of the environment and of socioeconomic resources, including direct, indirect and cumulative impacts.

The scoping process and review of the DEIS elicited stakeholder comments which were analyzed to explore stakeholder's values and their concerns about impact on their quality of life. Note that “volunteered” comments of this kind do not come from a random sample of stakeholders, and hence do not provide data for valid formal statistical inferences about the stakeholders, so it is appropriate only to use them in framing lists of concerns, rather than the intensity of those concerns and their distributions within the stakeholder groups. For those purposes, we would need a survey but there is not one available. Resources here are defined to include the traditional landscape and its uses, the community and its characteristic way of life and the stakeholder's values. The quality of life can be affected by the proposed project itself in all its phases, by perceptions of the proponents of the proposed project as trustworthy, and by opportunities for participation in governance and the policy making processes concerning stewardship of public lands resources. It is particularly important that participants feel that their input has real consequences, has a real impact on agency decisions.

Demographics

The basic demographics of the area up through 2008 are described in the DEIS, but it seems the population projections covered there were unable to take into account the likely consequences of

the recent and on-going severe economic recession. Population growth in Nevada as a whole has clearly halted and very probably reversed: Definitive information on this will be available as results of the recent Census are released.

The economic impact section covers projections of numbers of construction workers and their probable sources. As noted in that section, Amargosa Valley has a very small population, so many of the anticipated 650 construction workers will need to come from the vicinity, from Las Vegas, and even from further away, and this is also true of the operations and maintenance phase, although to a smaller degree, with 180 employees anticipated over the operations and maintenance phase. This would have a negative impact on Amargosa Valley public services, a concern that was raised by a number of immediate neighbor stakeholders, unless mitigations were in place: expansion and upgrading are required. The Development Agreement agreed between Nye County and Solar Millennium provides mitigations for public safety through a \$20,000 annual grant from Solar Millennium for sheriff's services, and mitigation for impact on health services through a \$20,000 grant for personnel and equipment at the Amargosa Valley Medical Clinic (Pahrump Valley Times, 2010).

Stakeholder Groups and Attitudes

Immediate Neighbors: Under Alternative 2 and 3, the jobs available during construction and immediately after would be a tremendous benefit to those residents who acquire these jobs. In the Development Agreement with Nye County, Solar Millennium has agreed to make commercially reasonable efforts to hire Nye county workers and will request its contractors to do the same. This would provide beneficial impacts for currently unemployed local residents above and beyond their paychecks, reducing their risks of health problems and of mortality (Jin et al. 1997; Voss et al. 2004). Moreover, some local businesses are currently operating, but very much at risk. The business generated by the Proposed Project may save their employees from loss of their jobs and exposure to the negative economic, health and social consequences of job loss, thereby having indirect beneficial impacts on them.

As noted above, there are mixed views of immediate neighbors about the project: Their views on the natural science aspects of ecological and physical amenity issues are dealt with elsewhere in this report; here we focus on the potential social impacts.

Besides jobs, potential perceived positive impacts include enhanced town services and facilities through an expanded tax base and through the proposed project's proponent's voluntary contributions, potential for youth to get apprenticeships. Residents were concerned about the increased fire risk and risk to volunteer firefighters that the proposed project would present, but several mitigations address these concerns: (1) contributing to fire-fighting equipment acquisition and upgrading (Fuller 2010), (2) as per the Development Agreement, providing emergency and fire protection training for up to four people, with priority for Amargosa Valley volunteer firefighters, (3) as per the Development Agreement, providing the county with access to a water supply to fight fires.

Other potential impacts include enhancement of subjective well-being through a developing local identity and local pride as being a national leader in the provision of solar energy.

Immediate neighbors were also concerned about the proposed project having a detrimental effects on their quality of life through negative visual impacts. Mitigation for this is provided via the five-year Development Agreement's (approved by the County Commissioners after the public hearing on the Agreement of June) clause providing that that visual impact is to be minimized, thereby minimizing the effect on the cultural landscape of Amargosa Valley.

Outdoor Recreationalists: The area of the Proposed Project is used for OHV/ quad riding, horseback riding, strolls from town and hiking, and acts as access for some town residents by OHV, hiking and horseback to more distant public lands. Under Alternatives 2 and 3, the loss of this area to recreation is a negative impact to recreationalists. No mitigation has yet been proposed, but one possibility would be the proponents of the Proposed Project commissioning or improving equivalent roads and trails on other BLM lands. Under Alternative 1 no positive or negative impacts would occur for this group.

Environmental groups and stewards are especially concerned about water use and its impact on wildlife, on plants and on the very physical structure of the land; with the cumulative impacts being of particular concern. The natural science side of these concerns is addressed elsewhere in this report. On the social science side, if the proposed project does not go forward it is likely that the water issues will recur when other buyers seek those same water rights. Carbon sequestration issues and the possibility of habitat loss are addressed elsewhere in this report. Loss of open space is a detrimental impact for these groups, but as open space is abundant in the vicinity, the impact of the loss of this space is likely to be a small one.

The general population of the state. Alternatives 2 and 3 would generally have positive impacts on the state's morale, both because state residents are likely to feel that the economy desperately needs new projects and because state residents approve of solar power: this project is an example suggesting that the state can prosper by doing good. That is something that will enhance the subjective well-being, affirming a positive identity and giving hope for the future. Alternative 1 would be positive for those who like things the way they are and would have negative impacts for those who would perceive it as symptomatic of a failure of progress and problem solving.

The general US population. Alternatives 2 and 3 would generally have positive impacts on the US general population by addressing the high priority they place on jobs, the economy and energy (Pew 2010) in a project that makes use of solar energy, which is widely endorsed (Yale, 2010). We do not have data concerning how much the general US population is concerned with water usage, but it seems likely that water frugality would have at least a small appeal to them, so Alternative 3 would likely have a small negative impact on this issue compared to Alternative 2. Alternative 1 would have negative impacts through the absence of the positive impacts of Alternatives 2 and 3, but would otherwise probably be neutral as this particular parcel of land is not likely to be highly salient to the general US population. The general US public also has an interest in the historic character and cultural landscape of the region, but this is unlikely to receive negative impacts because the Longstreet history is physically preserved in the restored Longstreet cabin at the Ash Meadows Wildlife Reserve and is celebrated in the existence of the Longstreet Inn and Casino. Nearby Death Valley with its spectacular landscapes and dramatic history provides a focus for that aspect of US history. Thus, the particular land involved in the proposed project is not of unique historical or cultural significance to the general US population, so Alternatives 1, 2, and 3 would have neutral impact on this aspect of the quality of life of the general US population.

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APPENDIX

Construction Monthly Employment Impacts

Table A1. AFRSEP Construction Employment Impact – 39 Months (100% Local)

Month	Total Direct Jobs	Employment Indirect Impact	Employment Induced Impact	Total Employment Impact
1	73	13.0	10.4	96.4
2	166	29.6	23.7	219.3
3	249	44.4	35.5	328.9
4	276	49.2	39.3	364.6
5	330	58.9	47.0	435.9
6	445	79.4	63.4	587.8
7	390	69.6	55.6	515.1
8	584	104.2	83.2	771.4
9	665	118.6	94.7	878.4
10	772	137.7	110.0	1,019.7
11	867	154.7	123.5	1,145.2
12	886	158.1	126.2	1,170.3
13	996	177.7	141.9	1,315.6
14	1,066	190.2	151.9	1,408.1
15	1,109	197.9	158.0	1,464.9
16	1,254	223.7	178.7	1,656.4
17	1,318	235.1	187.8	1,740.9
18	1,281	228.5	182.5	1,692.0
19	1,270	226.6	180.9	1,677.5
20	1,219	217.5	173.7	1,610.2
21	1,143	203.9	162.8	1,509.8
22	1,096	195.5	145.1	1,447.7
23	1,049	187.2	149.5	1,385.6
24	985	175.7	140.3	1,301.1
25	913	162.9	130.1	1,206.0
26	811	144.7	115.5	1,071.2
27	721	128.6	102.7	952.4
28	606	108.1	86.3	800.5
29	547	97.6	77.9	722.5
30	421	75.1	60.0	556.1
31	296	52.8	42.2	391.0
32	230	41.0	32.8	303.8
33	167	29.8	23.8	220.6
34	149	26.6	21.2	196.8
35	145	25.9	20.7	191.5
36	87	15.5	12.4	114.9
37	89	15.9	12.7	117.6
38	63	11.2	9.0	83.2
39	13	2.3	1.9	17.2
AVE*	634	113.1	90.3	837.4

*39 month average

Table A2. AFRSEP Construction Employment Impact – 39 Months (75% Local)

Month	Total Direct Jobs	75% Local Jobs	75% Local Employment Indirect Impact	75% Local Employment Induced Impact	75% Local Total Employment Impact
1	73	54.8	9.8	7.8	72.3
2	166	124.5	22.2	17.8	164.5
3	249	186.8	33.3	26.6	246.7
4	276	207.0	36.9	29.5	273.4
5	330	247.5	44.2	35.3	326.9
6	445	333.8	59.6	47.6	440.9
7	390	292.5	52.2	41.7	386.4
8	584	438.0	78.2	62.4	578.6
9	665	498.8	89.0	71.0	658.7
10	772	579.0	103.3	82.5	764.8
11	867	650.3	116.0	92.6	858.9
12	886	664.5	118.6	94.7	877.7
13	996	747.0	133.3	106.4	986.7
14	1,066	799.5	142.7	113.9	1,056.1
15	1,109	831.8	148.4	118.5	1,098.7
16	1,254	940.5	167.8	134.0	1,242.3
17	1,318	988.5	176.3	140.9	1,305.7
18	1,281	960.8	171.4	136.9	1,269.0
19	1,270	952.5	170.0	135.7	1,258.1
20	1,219	914.3	163.1	130.3	1,207.7
21	1,143	857.3	152.9	122.1	1,132.3
22	1,096	822.0	146.6	108.8	1,077.5
23	1,049	786.8	140.4	112.1	1,039.3
24	985	738.8	131.8	105.2	975.8
25	913	684.8	122.2	97.6	904.5
26	811	608.3	108.5	86.6	803.4
27	721	540.8	96.5	77.0	714.2
28	606	454.5	81.1	64.7	600.3
29	547	410.3	73.2	58.4	541.9
30	421	315.8	56.3	45.0	417.1
31	296	222.0	39.6	31.7	293.3
32	230	172.5	30.8	24.6	227.9
33	167	125.3	22.4	17.9	165.5
34	149	111.8	20.0	15.9	147.6
35	145	108.8	19.4	15.5	143.7
36	87	65.3	11.6	9.3	86.2
37	89	66.8	11.9	9.5	88.2
38	63	47.3	8.4	6.8	62.4
39	13	9.8	1.7	1.4	12.9
AVE*	634	475.5	84.8	67.7	628.1

*39 month average

Table A3. AFRSEP Construction Employment Impact – 39 Months (50% Local)

Month	Total Direct Jobs	50% Local Direct Jobs	50% Local Employment Indirect Impact	50% Local Employment Induced Impact	50% Local Total Employment Impact
1	73	36.5	6.5	5.2	48.2
2	166	83.0	14.8	11.9	109.7
3	249	124.5	22.2	17.8	164.5
4	276	138.0	24.6	19.7	182.3
5	330	165.0	29.5	23.5	218.0
6	445	222.5	39.7	31.7	293.9
7	390	195.0	34.8	27.8	257.6
8	584	292.0	52.1	41.6	385.7
9	665	332.5	59.3	47.4	439.2
10	772	386.0	68.9	55.0	509.9
11	867	433.5	77.4	61.8	572.6
12	886	443.0	79.1	63.1	585.2
13	996	498.0	88.9	71.0	657.8
14	1,066	533.0	95.1	76.0	704.1
15	1,109	554.5	99.0	79.0	732.5
16	1,254	627.0	111.9	89.4	828.2
17	1,318	659.0	117.6	93.9	870.5
18	1,281	640.5	114.3	91.3	846.0
19	1,270	635.0	113.3	90.5	838.8
20	1,219	609.5	108.8	86.9	805.1
21	1,143	571.5	102.0	81.4	754.9
22	1,096	548.0	97.8	72.6	723.9
23	1,049	524.5	93.6	74.8	692.8
24	985	492.5	87.9	70.2	650.6
25	913	456.5	81.5	65.1	603.0
26	811	405.5	72.4	57.8	535.6
27	721	360.5	64.3	51.4	476.2
28	606	303.0	54.1	43.2	400.3
29	547	273.5	48.8	39.0	361.3
30	421	210.5	37.6	30.0	278.1
31	296	148.0	26.4	21.1	195.5
32	230	115.0	20.5	16.4	151.9
33	167	83.5	14.9	11.9	110.3
34	149	74.5	13.3	10.6	98.4
35	145	72.5	13.0	10.4	95.8
36	87	43.5	7.8	6.2	57.5
37	89	44.5	8.0	6.4	58.8
38	63	31.5	5.6	4.5	41.6
39	13	6.5	1.2	1.0	8.6
AVE*	634	317.0	56.6	45.2	418.7

*39 month average

Table A4. AFRSEP Construction Employment Impact – 39 Months (25% Local)

Month	Total Direct Jobs	25% Local Direct Jobs	25% Local Employment Indirect Impact	25% Local Employment Induced Impact	25% Local Total Employment Impact
1	73	18.3	3.3	2.6	24.1
2	166	41.5	7.4	5.9	54.8
3	249	62.3	11.1	8.9	82.2
4	276	69.0	12.3	9.8	91.2
5	330	82.5	14.7	11.8	109.0
6	445	111.3	19.9	15.9	147.0
7	390	97.5	17.4	13.9	128.8
8	584	146.0	26.1	20.8	192.9
9	665	166.3	29.7	23.7	219.6
10	772	193.0	34.4	27.5	254.9
11	867	216.8	38.7	30.9	286.3
12	886	221.5	39.5	31.6	292.6
13	996	249.0	44.4	35.5	328.9
14	1,066	266.5	47.6	38.0	352.0
15	1,109	277.3	49.5	39.5	366.2
16	1,254	313.5	55.9	44.7	414.1
17	1,318	329.5	58.8	47.0	435.2
18	1,281	320.3	57.1	45.6	423.0
19	1,270	317.5	56.7	45.2	419.4
20	1,219	304.8	54.4	43.4	402.6
21	1,143	285.8	51.0	40.7	377.5
22	1,096	274.0	48.9	36.3	361.9
23	1,049	262.3	46.8	37.4	346.4
24	985	246.3	43.9	35.1	325.3
25	913	228.3	40.7	32.5	301.5
26	811	202.8	36.2	28.9	267.8
27	721	180.3	32.2	25.7	238.1
28	606	151.5	27.0	21.6	200.1
29	547	136.8	24.4	19.5	180.6
30	421	105.3	18.8	15.0	139.0
31	296	74.0	13.2	10.6	97.8
32	230	57.5	10.3	8.2	76.0
33	167	41.8	7.5	6.0	55.2
34	149	37.3	6.7	5.3	49.2
35	145	36.3	6.5	5.2	47.9
36	87	21.8	3.9	3.1	28.7
37	89	22.3	4.0	3.2	29.4
38	63	15.8	2.8	2.3	20.8
39	13	3.3	0.6	0.5	4.3
		0.0	0.0	0.0	0.0
AVE*	634	158.5	28.3	22.6	209.4

*39 month average

Construction Monthly Personal Income Impacts

Table A5. AFRSEP Construction Personal Income Impact – 39 Months (100% Local)

Month	Total Direct Income	Income Indirect Impact	Income Induced Impact	Total Income Impact
1	\$595,334	\$170,105	\$53,880	\$819,319
2	\$1,392,382	\$397,845	\$126,016	\$1,916,243
3	\$2,040,487	\$583,028	\$184,672	\$2,808,187
4	\$2,256,548	\$644,763	\$204,227	\$3,105,538
5	\$2,684,230	\$766,965	\$242,934	\$3,694,129
6	\$3,673,360	\$1,049,589	\$332,454	\$5,055,403
7	\$3,245,450	\$927,322	\$293,727	\$4,466,499
8	\$4,779,049	\$1,365,517	\$432,524	\$6,577,090
9	\$5,415,905	\$1,547,486	\$490,162	\$7,453,553
10	\$6,096,260	\$1,741,884	\$551,737	\$8,389,881
11	\$6,787,336	\$1,939,345	\$614,282	\$9,340,962
12	\$7,008,905	\$2,002,654	\$634,335	\$9,645,894
13	\$7,825,119	\$2,235,870	\$708,206	\$10,769,195
14	\$8,403,872	\$2,401,238	\$760,585	\$11,565,695
15	\$8,780,171	\$2,508,757	\$794,642	\$12,083,570
16	\$9,691,044	\$2,769,021	\$877,080	\$13,337,144
17	\$10,033,034	\$2,866,737	\$908,031	\$13,807,802
18	\$9,821,843	\$2,806,393	\$888,917	\$13,517,154
19	\$9,758,051	\$2,788,166	\$883,144	\$13,429,361
20	\$9,371,952	\$2,677,846	\$848,200	\$12,897,998
21	\$8,784,888	\$2,510,105	\$795,069	\$12,090,051
22	\$8,412,320	\$2,403,651	\$761,350	\$11,577,320
23	\$8,009,305	\$2,288,497	\$724,875	\$11,022,677
24	\$7,446,999	\$2,127,830	\$673,984	\$10,248,813
25	\$6,849,578	\$1,957,129	\$619,915	\$9,426,622
26	\$5,873,409	\$1,678,208	\$531,568	\$8,083,185
27	\$5,106,008	\$1,458,939	\$462,115	\$7,027,062
28	\$4,305,548	\$1,230,224	\$389,670	\$5,925,442
29	\$3,905,072	\$1,115,796	\$353,425	\$5,374,293
30	\$3,021,932	\$863,456	\$273,497	\$4,158,886
31	\$2,021,563	\$577,621	\$182,960	\$2,782,144
32	\$1,631,237	\$466,093	\$147,634	\$2,244,964
33	\$1,278,059	\$365,180	\$115,670	\$1,758,908
34	\$1,145,703	\$327,703	\$103,691	\$1,576,756
35	\$1,119,426	\$319,854	\$101,313	\$1,540,592
36	\$619,017	\$194,444	\$62,540	\$951,001
37	\$663,229	\$189,504	\$60,025	\$912,758
38	\$492,432	\$140,703	\$44,567	\$677,702
39	\$96,828	\$27,667	\$8,763	\$133,258
AVE*	\$4,883,151	\$1,395,721	\$442,112	\$6,722,899

*39 month average

Table A6. AFRSEP Construction Personal Income Impact – 39 Months (75% Local)

Month	Total Direct Income	75% Local Direct Income	75% Local Income Indirect Impact	75% Local Income Induced Impact	75% Local Total Income Impact
1	\$595,334	\$446,501	\$127,579	\$40,410	\$614,489
2	\$1,392,382	\$1,044,287	\$298,384	\$94,512	\$1,437,182
3	\$2,040,487	\$1,530,365	\$437,271	\$138,504	\$2,106,140
4	\$2,256,548	\$1,692,411	\$483,572	\$153,170	\$2,329,154
5	\$2,684,230	\$2,013,173	\$575,224	\$182,201	\$2,770,597
6	\$3,673,360	\$2,755,020	\$787,192	\$249,341	\$3,791,552
7	\$3,245,450	\$2,434,088	\$695,492	\$220,295	\$3,349,874
8	\$4,779,049	\$3,584,287	\$1,024,138	\$324,393	\$4,932,818
9	\$5,415,905	\$4,061,929	\$1,160,615	\$367,622	\$5,590,165
10	\$6,096,260	\$4,572,195	\$1,306,413	\$413,803	\$6,292,411
11	\$6,787,336	\$5,090,502	\$1,454,509	\$460,712	\$7,005,722
12	\$7,008,905	\$5,256,679	\$1,501,991	\$475,751	\$7,234,421
13	\$7,825,119	\$5,868,839	\$1,676,903	\$531,155	\$8,076,896
14	\$8,403,872	\$6,302,904	\$1,800,929	\$570,439	\$8,674,271
15	\$8,780,171	\$6,585,128	\$1,881,568	\$595,982	\$9,062,678
16	\$9,691,044	\$7,268,283	\$2,076,766	\$657,810	\$10,002,858
17	\$10,033,034	\$7,524,776	\$2,150,053	\$681,023	\$10,355,852
18	\$9,821,843	\$7,366,382	\$2,104,795	\$666,688	\$10,137,866
19	\$9,758,051	\$7,318,538	\$2,091,125	\$662,358	\$10,072,021
20	\$9,371,952	\$7,028,964	\$2,008,385	\$636,150	\$9,673,499
21	\$8,784,888	\$6,588,666	\$1,882,579	\$596,302	\$9,067,538
22	\$8,412,320	\$6,309,240	\$1,802,738	\$571,013	\$8,682,990
23	\$8,009,305	\$6,006,979	\$1,716,373	\$543,656	\$8,267,008
24	\$7,446,999	\$5,585,249	\$1,595,873	\$505,488	\$7,686,610
25	\$6,849,578	\$5,137,184	\$1,467,847	\$464,936	\$7,069,967
26	\$5,873,409	\$4,405,057	\$1,258,656	\$398,676	\$6,062,389
27	\$5,106,008	\$3,829,506	\$1,094,204	\$346,586	\$5,270,297
28	\$4,305,548	\$3,229,161	\$922,668	\$292,253	\$4,444,082
29	\$3,905,072	\$2,928,804	\$836,847	\$265,069	\$4,030,720
30	\$3,021,932	\$2,266,449	\$647,592	\$205,123	\$3,119,165
31	\$2,021,563	\$1,516,172	\$433,216	\$137,220	\$2,086,608
32	\$1,631,237	\$1,223,428	\$349,570	\$110,726	\$1,683,723
33	\$1,278,059	\$958,544	\$273,885	\$86,753	\$1,319,181
34	\$1,145,703	\$859,277	\$245,777	\$77,768	\$1,182,567
35	\$1,119,426	\$839,570	\$239,891	\$75,985	\$1,155,444
36	\$619,017	\$464,263	\$145,833	\$46,905	\$713,251
37	\$663,229	\$497,422	\$142,128	\$45,019	\$684,569
38	\$492,432	\$369,324	\$105,527	\$33,425	\$508,277
39	\$96,828	\$72,621	\$20,750	\$6,572	\$99,944
AVE*	\$4,883,151	\$3,662,363	\$1,046,791	\$331,584	\$5,042,174

*39 month average

Table A7. AFRSEP Construction Personal Income Impact – 39 Months (50% Local)

Month	Total Direct Income	50% Local Direct Income	50% Local Income Indirect Impact	50% Local Income Induced Impact	50% Local Total Income Impact
1	\$595,334	\$297,667	\$85,053	\$26,940	\$409,660
2	\$1,392,382	\$696,191	\$198,923	\$63,008	\$958,122
3	\$2,040,487	\$1,020,244	\$291,514	\$92,336	\$1,404,094
4	\$2,256,548	\$1,128,274	\$322,382	\$102,114	\$1,552,769
5	\$2,684,230	\$1,342,115	\$383,483	\$121,467	\$1,847,065
6	\$3,673,360	\$1,836,680	\$524,795	\$166,227	\$2,527,702
7	\$3,245,450	\$1,622,725	\$463,661	\$146,864	\$2,233,250
8	\$4,779,049	\$2,389,525	\$682,759	\$216,262	\$3,288,545
9	\$5,415,905	\$2,707,953	\$773,743	\$245,081	\$3,726,777
10	\$6,096,260	\$3,048,130	\$870,942	\$275,869	\$4,194,941
11	\$6,787,336	\$3,393,668	\$969,673	\$307,141	\$4,670,481
12	\$7,008,905	\$3,504,453	\$1,001,327	\$317,168	\$4,822,947
13	\$7,825,119	\$3,912,560	\$1,117,935	\$354,103	\$5,384,598
14	\$8,403,872	\$4,201,936	\$1,200,619	\$380,293	\$5,782,848
15	\$8,780,171	\$4,390,086	\$1,254,379	\$397,321	\$6,041,785
16	\$9,691,044	\$4,845,522	\$1,384,511	\$438,540	\$6,668,572
17	\$10,033,034	\$5,016,517	\$1,433,369	\$454,016	\$6,903,901
18	\$9,821,843	\$4,910,922	\$1,403,197	\$444,459	\$6,758,577
19	\$9,758,051	\$4,879,026	\$1,394,083	\$441,572	\$6,714,681
20	\$9,371,952	\$4,685,976	\$1,338,923	\$424,100	\$6,448,999
21	\$8,784,888	\$4,392,444	\$1,255,053	\$397,535	\$6,045,026
22	\$8,412,320	\$4,206,160	\$1,201,826	\$380,675	\$5,788,660
23	\$8,009,305	\$4,004,653	\$1,144,249	\$362,438	\$5,511,339
24	\$7,446,999	\$3,723,500	\$1,063,915	\$336,992	\$5,124,407
25	\$6,849,578	\$3,424,789	\$978,565	\$309,958	\$4,713,311
26	\$5,873,409	\$2,936,705	\$839,104	\$265,784	\$4,041,593
27	\$5,106,008	\$2,553,004	\$729,470	\$231,058	\$3,513,531
28	\$4,305,548	\$2,152,774	\$615,112	\$194,835	\$2,962,721
29	\$3,905,072	\$1,952,536	\$557,898	\$176,713	\$2,687,147
30	\$3,021,932	\$1,510,966	\$431,728	\$136,749	\$2,079,443
31	\$2,021,563	\$1,010,782	\$288,811	\$91,480	\$1,391,072
32	\$1,631,237	\$815,619	\$233,047	\$73,817	\$1,122,482
33	\$1,278,059	\$639,030	\$182,590	\$57,835	\$879,454
34	\$1,145,703	\$572,852	\$163,852	\$51,846	\$788,378
35	\$1,119,426	\$559,713	\$159,927	\$50,657	\$770,296
36	\$619,017	\$309,509	\$97,222	\$31,270	\$475,501
37	\$663,229	\$331,615	\$94,752	\$30,013	\$456,379
38	\$492,432	\$246,216	\$70,352	\$22,284	\$338,851
39	\$96,828	\$48,414	\$13,834	\$4,382	\$66,629
AVE*	\$4,883,151	\$2,441,575	\$679,861	\$221,056	\$3,361,449

*39 month average

Table A8. AFRSEP Construction Personal Income Impact – 39 Months (25% Local)

Month	Total Direct Income	25% Local Total Direct Income	25% Local Income Indirect Impact	25% Local Income Induced Impact	25% Local Total Income Impact
1	\$595,334	\$148,834	\$42,526	\$13,470	\$204,830
2	\$1,392,382	\$348,096	\$99,461	\$31,504	\$479,061
3	\$2,040,487	\$510,122	\$145,757	\$46,168	\$702,047
4	\$2,256,548	\$564,137	\$161,191	\$51,057	\$776,385
5	\$2,684,230	\$671,058	\$191,741	\$60,734	\$923,532
6	\$3,673,360	\$918,340	\$262,397	\$83,114	\$1,263,851
7	\$3,245,450	\$811,363	\$231,831	\$73,432	\$1,116,625
8	\$4,779,049	\$1,194,762	\$341,379	\$108,131	\$1,644,273
9	\$5,415,905	\$1,353,976	\$386,872	\$122,541	\$1,863,388
10	\$6,096,260	\$1,524,065	\$435,471	\$137,934	\$2,097,470
11	\$6,787,336	\$1,696,834	\$484,836	\$153,571	\$2,335,241
12	\$7,008,905	\$1,752,226	\$500,664	\$158,584	\$2,411,474
13	\$7,825,119	\$1,956,280	\$558,968	\$177,052	\$2,692,299
14	\$8,403,872	\$2,100,968	\$600,310	\$190,146	\$2,891,424
15	\$8,780,171	\$2,195,043	\$627,189	\$198,661	\$3,020,893
16	\$9,691,044	\$2,422,761	\$692,255	\$219,270	\$3,334,286
17	\$10,033,034	\$2,508,259	\$716,684	\$227,008	\$3,451,951
18	\$9,821,843	\$2,455,461	\$701,598	\$222,229	\$3,379,289
19	\$9,758,051	\$2,439,513	\$697,042	\$220,786	\$3,357,340
20	\$9,371,952	\$2,342,988	\$669,462	\$212,050	\$3,224,500
21	\$8,784,888	\$2,196,222	\$627,526	\$198,767	\$3,022,513
22	\$8,412,320	\$2,103,080	\$600,913	\$190,338	\$2,894,330
23	\$8,009,305	\$2,002,326	\$572,124	\$181,219	\$2,755,669
24	\$7,446,999	\$1,861,750	\$531,958	\$168,496	\$2,562,203
25	\$6,849,578	\$1,712,395	\$489,282	\$154,979	\$2,356,656
26	\$5,873,409	\$1,468,352	\$419,552	\$132,892	\$2,020,796
27	\$5,106,008	\$1,276,502	\$364,735	\$115,529	\$1,756,766
28	\$4,305,548	\$1,076,387	\$307,556	\$97,418	\$1,481,361
29	\$3,905,072	\$976,268	\$278,949	\$88,356	\$1,343,573
30	\$3,021,932	\$755,483	\$215,864	\$68,374	\$1,039,722
31	\$2,021,563	\$505,391	\$144,405	\$45,740	\$695,536
32	\$1,631,237	\$407,809	\$116,523	\$36,909	\$561,241
33	\$1,278,059	\$319,515	\$91,295	\$28,918	\$439,727
34	\$1,145,703	\$286,426	\$81,926	\$25,923	\$394,189
35	\$1,119,426	\$279,857	\$79,964	\$25,328	\$385,148
36	\$619,017	\$154,754	\$48,611	\$15,635	\$237,750
37	\$663,229	\$165,807	\$47,376	\$15,006	\$228,190
38	\$492,432	\$123,108	\$35,176	\$11,142	\$169,426
39	\$96,828	\$24,207	\$6,917	\$2,191	\$33,315
AVE*	\$4,883,151	\$1,220,788	\$348,930	\$110,528	\$1,680,725

*39 month average