

September 30th, 2015

Client: Pagosa Verde

Report Prepared for: Tom Holcomb

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Background - At the request of Tom Holcomb, I did some preliminary research for Pagosa Verde. Tom would like information regarding the *Direct* and *Indirect* economic impacts of the construction and payroll of a new Greenhouse Facility in Archuleta County. The projected construction budget was built around three different greenhouse size scenarios: 30,000 sq. ft., 60,000 sq. ft. and 90,000 sq. ft. It is estimated that the capital cost per square foot will be \$52. Tom also provided wage information for various positions at the greenhouse.

Economic effects here are expressed in terms of both employment (jobs) and earnings. Direct contributions in this report are capital spending on greenhouse construction and salaries for managers and workers. Indirect contributions consist of the additional jobs and income created while Pagosa Verde builds the greenhouse. Presumably, most of the construction workers will be local, and will be spending their paychecks within the community. Other indirect (induced) contributions consist of income and jobs created throughout the economy when employees of the greenhouse spend their personal incomes on consumer goods, other property, services and taxes in the region.

Construction Phase

The different greenhouse sizes create a range of impacts, as shown in this table. For the time being, we will consider construction to be a one time event, though it could occur in phases. For this analysis, direct labor income is estimated to be about 15% of the total construction budget for each scenario.

		Greenhouse Construction Impact Estimate 2016					
		Number of Jobs			Labor Income		
Activity	Cost Estimate	Direct Effect	Indirect Effects	Total Labor	Direct Effect	Indirect Effects	Total Labor Income
Greenhouse Construction 30,000 sq. ft. @ \$52 per sq. ft.	\$ 1,560,000	14	4	18	\$ 229,842	\$ 144,841	\$ 374,683
Greenhouse Construction 60,000 sq. ft. @ \$52 per sq. ft.	\$ 3,120,000	28	8	36	\$ 459,685	\$ 289,682	\$ 749,367
Greenhouse Construction 90,000 sq. ft. @ \$52 per sq. ft.	\$ 4,680,000	41	14	55	\$ 675,496	\$ 425,681	\$ 1,101,177

Based on the different scenarios, the estimated 14 - 41 (direct) construction jobs require an additional 4 - 14 (indirect) supporting jobs, i.e. health services, clerks in the local supermarket, or waitresses at the family restaurant. Direct labor income ranges from about \$230 k to \$675 k. Supporting jobs may provide an additional \$426 k in labor income as these earnings then re-circulate through the local economy as a result of rounds of purchases by the construction workers.

Payroll

Labor income, sometimes referred to as earnings, are the total compensation paid to employees over the same year. Labor income includes wages and salaries, all benefits, and payroll taxes. For this report we looked at entry level salaries, and mean salaries, of three different worker types: Greenhouse Managers, a Geothermal Site Manager, and Greenhouse Workers. Payrolls for the first two types (managers) were constant and did not vary with greenhouse size. The number of greenhouse workers did vary with greenhouse size. The estimates for numbers of jobs and labor income for each scenario are shown in the tables below.

This table presents results for entry level greenhouse managers and workers using salaries drawn from the Colorado Labor Market. The geothermal site manager salary was estimated by Pagosa Verde.

		Greenhouse Operations Impact Estimate 2016					
		Number of Jobs			Labor Income		
Labor Scenario	Colorado Entry Level Wages	Direct Effect	Indirect Effects	Total Labor	Direct Effect	Indirect Effects	Total Labor Income
Greenhouse - 30,000 sq. ft.	2 Greenhouse Managers @ \$27,979	2	0.2	2.2	\$ 55,958	\$ 6,269	\$ 62,227
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	8 Greenhouse Workers @\$17,455	8	0.5	8.5	\$ 139,640	\$ 15,644	\$ 155,284
	Total	11	0.8	11.8	\$ 225,598	\$ 25,206	\$ 250,804
Greenhouse - 60,000 sq. ft.	2 Greenhouse Managers @ \$27,979	2	0.2	2.2	\$ 55,958	\$ 6,269	\$ 62,227
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	14 Greenhouse Workers @\$17,455	14	0.9	14.9	\$ 244,370	\$ 27,377	\$ 271,747
	Total	17	1.2	18.2	\$ 330,328	\$ 36,939	\$ 367,267
Greenhouse - 90,000 sq. ft.	2 Greenhouse Managers @ \$27,979	2	0.2	2.2	\$ 55,958	\$ 6,269	\$ 62,227
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	20 Greenhouse Workers @\$17,455	20	1.2	21.2	\$ 349,100	\$ 39,110	\$ 388,210
	Total	23	1.5	24.5	\$ 435,058	\$ 48,672	\$ 483,730

This table presents results of mean salaries drawn from the Colorado labor market. This is probably a more realistic estimate for payroll, especially as the enterprise matures.

		Greenhouse Operations Impact Estimate 2016					
Labor Scenario	Colorado Mean Wages	Number of Jobs			Labor Income		
		Direct Effect	Indirect Effects	Total Labor	Direct Effect	Indirect Effects	Total Labor Income
Greenhouse - 30,000 sq. ft.	2 Greenhouse Managers @ \$45,868	2	0.3	2.3	\$ 91,736	\$ 10,277	\$ 102,013
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	8 Greenhouse Workers @\$25,203	8	0.7	8.7	\$ 201,624	\$ 22,588	\$ 224,212
	Total	11	1.1	12.1	\$ 323,360	\$ 36,158	\$ 359,518
Greenhouse - 60,000 sq. ft.	2 Greenhouse Managers @ \$45,868	2	0.3	2.3	\$ 91,736	\$ 10,277	\$ 102,013
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	14 Greenhouse Workers @\$25,203	14	1.3	15.3	\$ 352,842	\$ 39,529	\$ 392,371
	Total	17	1.7	18.7	\$ 474,578	\$ 53,099	\$ 527,677
Greenhouse - 90,000 sq. ft.	2 Greenhouse Managers @ \$45,868	2	0.3	2.3	\$ 91,736	\$ 10,277	\$ 102,013
	1 Geothermal Site Manager @ \$30,000	1	0.1	1.1	\$ 30,000	\$ 3,293	\$ 33,293
	20 Greenhouse Workers @\$25,203	20	1.8	21.8	\$ 504,060	\$ 56,471	\$ 560,531
	Total	23	2.2	25.2	\$ 625,796	\$ 70,041	\$ 695,837

Contributions to the local economy through payroll will be annual, though they could vary based on seasonal demand for products or other variables.