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Economic Analysis of Incentives to Attract a Joint Light Tactical Vehicle Plant to Arkansas

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Background and study purpose

Lockheed Martin (LM) is proposing to locate a manufacturing facility to assemble joint light tactical vehicles (JLTVs) adjacent to one of their existing plants in the Highland Industrial Park in Calhoun County in southcentral Arkansas. The Highland Industrial Park is located about six miles directly east of the City of Camden, the closest major population center, which is also the county seat of Ouachita County. The Camden site is located 95 miles west of Mississippi River, about 35 miles southeast of I-30, and a 2-hour one-way drive from the closest major airport in Little Rock. A main freight corridor of the Union Pacific, a class 1 railroad, passes just to the west of Camden so it has excellent rail access.

Ouachita and Calhoun Counties have small labor forces, 10,000 and 2,375 persons respectively in February 2015, with unemployment rates, not seasonally adjusted, of 7.5% and 6.2% that same month. IHS's current Arkansas county forecast estimates the average annual wage per job at \$45,320 in Calhoun County and \$35,250 in Ouachita. While Ouachita's total employment is higher at 7,641 jobs compared to only 2,832 jobs in Calhoun, the higher wage level in Calhoun is very likely due to the concentration of high-wage jobs in the Highland Industrial Park, a significant share of which are held by residents of Ouachita County.

LM is one of three companies that are currently competing for a contract from the US Department of Defense (DoD) to produce approximately 54,600 JLTVs between 2016 and 2040. The DoD expects to award the contract to one of the three competing firms by the end of the summer of 2015. The DoD has said that the maximum amount they would pay for each JLTV delivered to them would be \$250,000 vehicle (2011 constant \$). However, based on IHS's knowledge of the history of previous contracts for other military vehicles, such as Humvees, it is likely that the amount paid for each JLTV delivered to them could be substantially higher as additional features, technologies and enhanced sub-systems add are likely to be added.

Total Investment and the economic incentive package

The total capital investment for the proposed JLTV facility will be \$147.313 million consisting of:

- \$98.313 million spent during 2016 and 2017 as follows: \$61.772 million to renovate and expand an existing building in the Highland Industrial Park that has been purchased by LM to house the new plant; \$27.858 million to purchase equipment; and \$8.683 million for research and development.
- \$49 million in expenditures between 2018 and 2040 comprised of \$35 million for construction and \$14 million to replace and repair machinery and equipment.

In order to attract the JLTV production facility, the State of Arkansas is proposing the following economic incentive package under Amendment 82 to the Arkansas Constitution which permits the State of Arkansas to issue general obligation bonds to finance infrastructure or other needs (e.g., land acquisition, site preparation, road improvements, utilities, etc.).

- A general obligation bond issue with a par value of \$87.145 million, whose net proceeds of \$84.645 million will be used to pay for infrastructure improvement and other items permitted by Amendment 82 during 2016 and 2017, including \$1.6 million for job training.

The State would issue a general obligation bond with a 20-year term and a 10-year call provision. Arkansas's current bond ratings are Aa1 for Moody's and AA for S&P. Based on information provided by the State's bond underwriter, the bond issue would have true interest cost of 3.38%, with level annual debt service of \$6.3 million.

The State of Arkansas will provide no other economic development incentives for the JLTV in the form of tax credits and deductions, grants, tax reductions, low interest loans, improvements, or in-kind services.

Economic Analysis of the Incentive Package

IHS was retained by the Arkansas Bureau of Legislative Research to analyze the proposed economic incentive package. We were specifically asked to determine if the net present value (npv) of the additional major state-level tax revenues (e.g., personal income, corporate income, and sales and use) generated by the increased economic activity attributable to the construction and operation of the JLTV facility would exceed the npv of the costs incurred by Arkansas (i.e., the npv of the bond debt service). IHS conducted the analysis over a 25-year period from 2016 through the final year of scheduled production in 2040.

The first task in our analysis was to disaggregate the unit cost of the JLTV into the major types of goods and services that would be used to produce the vehicle. A senior member of the IHS Aerospace, Defense & Security (IHS ASD) group, who forecasts production levels of military vehicles like the JLTV, estimated the manufacturing input costs by major component and sub-system (e.g., armor, transmission, drive train, communication equipment, armaments, tires, etc.). IHS assessed whether the required components would be produced in Arkansas or in other states and shipped to the Camden facility for final assembly. One of the key determinants of the total increase in statewide economic activity- and tax revenues - generated by the JLTV facility will be the extent to which key components are produced and purchased from within Arkansas, or must be sourced from other states. Military vehicles like the JLTV have unique design characteristics because of their performance standards and purpose; in other words, their key components and sub-systems such as engines and transmission, are very different than those used in civilian passenger vehicles and often produced by only one or few suppliers.

Once the cost components of the JTLV had been determined, IHS performed the following steps in analyzing the economic incentive package:

- Forecast production levels by year based on DoD's announced plans to purchase 55,000 JLTVs between 2016 and 2040
- Assigned the expenditures to their correct economic sectors or NAICS code for use in the IMPLAN input-output model for Arkansas.
- Used employment and wage figures provided by the Bureau of Legislative Research to estimate annual wage payments and personal income tax payments.
- Reviewed tax revenue history for Arkansas to derive effective income tax rates for all state level taxes, with a specific emphasis on the three major state level taxes: personal income, corporate net income, and sales and use. The effective state-level tax rates were expressed as percent shares of the variables produced by the IMPLAN model – gross output, value added or GDP, employment, and labor income.
- The IHS ASD group determined which key components of the JLTV would be purchased in other states, and which inputs could be obtained from within Arkansas. The purchasing relationships for some of the key components were adjusted to account for the likelihood that some of the suppliers would move their operations into Arkansas. According to IHS ASD, the size and duration of the JLTV contract is large enough and long enough such that that an increasing share of some components will be produced in Arkansas over time. However, other key components such as the engines will very likely be produced in states for the entire term of the contract, although skilled labor will be needed at the Camden plant to assemble and test the components.
- Reviewed data for aerospace companies to determine the percent share of LM sales revenues produced by the Camden JLTV plant that will be subject to the state's corporate net income tax.
- Reviewed Arkansas's tax revenue to identify JLTV components that would be subject to the sales and use tax. The federal government will not pay sales and use tax on the JLTVs produced by the Camden plant.
- Ran multiple simulations of the IMPLAN model for Arkansas to examine the purchasing relationships and to accurately model the economic impacts of a system integrator facility like the proposed JLTV plant.

IHS took a conservative approach to our economic analysis by making the following assumptions.

- There would be no purchases of several of the key components – iron and steel used in the chassis, armor, transmission, main engine – from within Arkansas over the 25-year analysis period.
- No direct sales taxes would be generated by the operations of the JLTV plant.
- We included the economic impacts of the two-year construction phase.
- Assumed that the composition of the expenditures would remain the same over the analysis period, but that the annual levels would vary based on the number of vehicles produced each year.

- Used a discount rate of 3.38%, which is the true interest cost of the proposed bond issue, and thus represents the State's cost of capital.

Results

Our analysis determined that the proposed JLTV project would generate positive, significant, net economic benefits to the State of Arkansas over the 25-year analysis period if it provides \$84.165 million in infrastructure improvements and job training services for the JLTV project. Stated another way, the npv of the additional state-level tax revenues generated by the increase in statewide economic activity flowing from the JLTV facility will be higher than the npv of the bond debt service by approximately \$21.7 million. The net economic benefit is about 25% higher than the npv of the costs. The primary reasons for the positive net economic benefit are:

- The proposed JLTV facility will consist entirely of net new economic activity within the state; it is not displacing any existing economic activities, nor is it activity being lured from another state.
- Even though the JLTV facility is being referred to as an assembly operation, with many of the components and sub-systems produced in other states, a system integrator facility that assembles and tests complex vehicles like the JLTV requires highly-skilled, high-paid workers, and generates substantial increases in economic output through the activities performed at the site.
- The supply chain will gradually fill in over the analysis period as some suppliers chose to locate close the Camden facility.
- The net benefits are produced primarily during the last five years of the analysis period when the incremental tax revenues are at their peaks, and when the bond debt service is no longer being paid. Using an analysis period of 20 years yield a net benefit of \$2.2 million.

Finally, we note that based on our knowledge of previous, similar military vehicle contracts, it is probable that net economic benefits will exceed our estimate for several reasons:

- The price paid by DoD is likely to be higher than \$250,000 per JLTV as additional features are added, resulting in higher sales by the Camden plant.
- The number of vehicles produced by the Camden facility over the analysis period is likely to exceed the contract amount because of sales of JLTVs to other countries, and from higher domestic demand to replace aging Humvees.