Inbound Transportation Business Case Analysis

Results Briefing

September 25, 2012

LMI

Agenda

- Task
- Methodology
- Assumptions
- Size of the Opportunity
- Scenario Costs, Benefits, ROI, Sensitivity and Risks
  - Scenario 2
  - Scenario 3
  - Scenario 4
- Conclusions

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- Success Factors and Conclusions

Task

- To quantify the potential savings opportunity if the Federal government actively managed inbound transportation, by constructing a business case analysis (BCA).

What do we mean by inbound transportation?

- All shipments inbound from a seller to a buyer's delivery point
- For this initiative, shipments of material goods ordered by a government activity from a commercial supplier inbound to a government location
- Typically occurs under free on board (FOB) destination terms
  - The seller arranges for the transportation of goods and normally includes the transportation as part of the purchase price of the goods
  - The buyer takes title to the goods upon delivery
  - Approximately 95% of all purchases are under these terms

- Under FOB origin terms
  - The buyer would arrange for the transportation
  - The buyer would take title to the goods upon pickup at the seller's location

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Analysis Hurdle - Data

- Performing a BCA for inbound transportation is extremely difficult, due to a lack of reference data
- Federal Data
  - Only a small portion (~5%) of inbound transportation is currently managed FOB Origin
  - Current contracts with FOB Destination do not require separate reporting for the cost of transportation
  - DLA is investigating pilots on inbound, but no actual data available
  - No agencies volunteered to conduct or participate in any pilot efforts
- Commercial Data
  - Inbound management a new area of focus – best served for those organizations who have already optimized outbound transportation and other supply chain areas
    - They have good visibility into future demand and consumption patterns
    - They target very specific commodities based on profitability
  - Private data difficult to obtain as it reveals competitive advantages

Methodology Used

- Given the dearth of available data, we used the following approach
  1. Identified a set of “pure” alternatives to the current “as is” situation
  2. Laid out cost and benefit areas and determined most-feasible method for approximating ranges to use
     a) Data sources available (e.g. FPDS)
     b) Industry benchmarks for performance and improvement (e.g. Establish Inc., GENCO)
     c) Subject matter expertise based on job experience (e.g. LMI , GENCO)
  3. Determined low, high, and “target” (most likely) values for each cost and benefit area, documenting assumptions made as required
  4. Evaluated costs versus benefits year-over-year and cumulatively
  5. Varied cost and benefit variables to determine sensitivity to values used
  6. Identified risks to the cumulative net benefit results
  7. Formulated conclusions

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Major Assumptions

- Material-related
  - Some items will be unreasonable to transition to FOB Origin
    - Type of item (e.g. major end items, liquid bulk items, munitions, ores)
    - Mode of transport (e.g. overweight, oversize, permitting required)
- Acquisition-related
  - If items are changed to FOB Origin, federal acquisition personnel will be able to negotiate down the current cost at least commensurate with the estimated transportation cost
  - Any changes to FOB Origin will be phased in as contracts are renewed or awarded, over a 5-year timeframe
  - Not all items reasonable for FOB Origin will be easily modified due to
    - Supplier processes and resistance
    - Supplier leverage and existing low transportation rates
    - Cost of typical shipment and liability concerns
  - Additional acquisition professionals will be required to investigate transportation costs during award of contracts for material goods

Major Assumptions (cont.)

- Transportation-Related
  - Focused on domestic freight movement for the 23 civilian CFO Act agencies (DoD is excluded)
  - Includes LTL, Truckload, Air, and Parcel
  - Additional transportation staff will be needed for the inbound moves
  - The average costs for transportation will decrease if actively managed
  - More improvement will be seen at higher levels of centralization due to increased visibility of requirements and ability to leverage volume
- Data and Financial-Related
  - FPDS represents the most accurate data available for materials acquired
  - Industry benchmarks are accurate (GENCO, Establish Inc.)
  - Benchmarks and trends based on outbound transportation are transferrable to inbound transportation behavior
  - Inflation and discount rates are applied based on current OMB circular guidance

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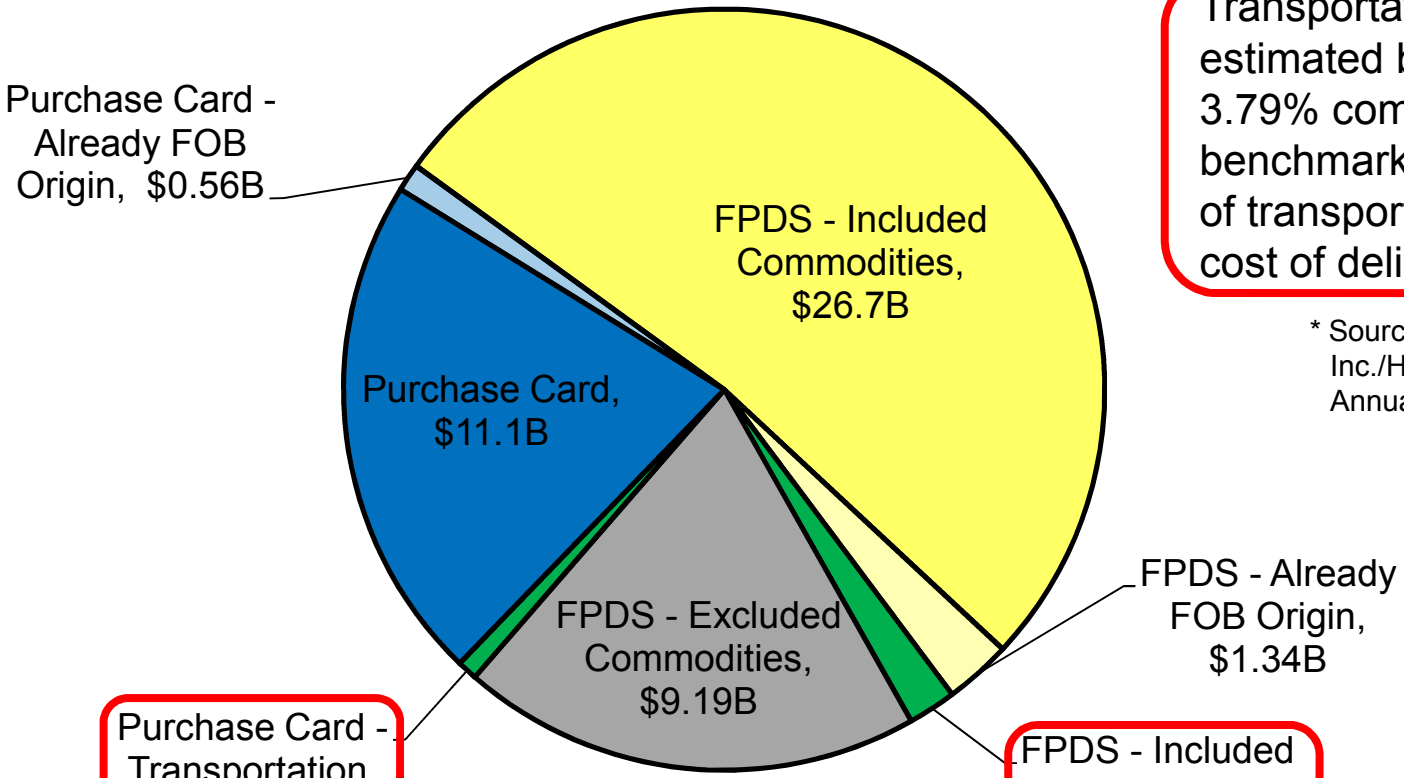
Federal Data Sources Used

- Federal Procurement Data System-Next Generation (FPDS-NG) and FY11 action obligations on material items by:
  - Civilian CFO Act department/agency (23 agencies)
  - Federal supply class code/description (then organized into smaller commodity groupings)
  - Vendor name/location
  - Action obligations greater than $0
  - FPDS has no data on shipment modes, lanes, weights, or volumes
    - Assumed action obligations represented actual inbound shipment activity
- GSA SmartPay purchase card data
  - FY2011 for civilian CFO Act department/agencies

Breakdown of FY2011 Commodity Spend and Estimated Transportation Costs (in $ billions)



Transportation spend estimated based on 3.79% commercial benchmark ratio of cost of transportation to total cost of delivered goods *

* Source: Establish, Inc./Herbert W. Davis 2011 Annual Logistics Survey

Total Estimated Transportation Eligible for Inbound Management = $0.4B + $0.96B = **$1.36B**

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Excluded Commodities

Commodity	Reason for exclusion
Petroleum, oils, lubricants	• DoD is single largest buyer, dwarfing all others • Includes pipeline shipments not suitable for this initiative
Munitions	• Freight is highly sensitive and tightly controlled by government requirements, including carrier certifications and security regulations • Limited potential to expand number of qualified carriers, which is already limited due to certification requirements
Other	• Largest single component is minerals/ores, which are among the largest bulk commodities shipped via rail • Only 7 class I rail carriers in the US; little overlap in networks and little leeway in negotiating better rates
Major end items	• Usually requires specialized hauling equipment; can be difficult to procure given unusual demand patterns for freight • Often procured via spot bids vs. contracts or capacity agreements

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Scenarios for Analysis

Scenario	Name	Description
1	As-Is	The current situation; All other scenarios are evaluated based on positive or negative change in relation to this scenario
2	Independent Agency Approach	Each of the 23 civilian CFO Act agencies arranges IBT individually; acquires own cloud-based TMS service; redundant costs likely
3	GSA	All 23 civilian CFO Act agencies use GSA to manage IBT GSA uses Transport Integrator (TPI), meaning TMS acquisition and implementation already sunk costs; ongoing and future PMO and TMS costs assumed contained within "pass through“
4	3PL	All 23 civilian CFO Act agencies use a 3PL or other contractor to manage the IBT

Cost Areas per Scenario

Cost Area	Scenario		
	2 Independent Agency Approach	3 GSA	4 3PL
TMS Information Assurance Certification and Renewal	X	X	X
TMS Usage Fees (Cloud)	X	X*	
Training	X	X	X
Change Management	X	X	X
3PL Management Fees			X
3PL Award Fees			X
PMO Standup and Operations	X	X*	X
Acquisition FTEs	X	X	X
Transportation FTEs	X	X	X

* Costs TPI PMO and TMS handled as an industrial funding fee which is transparent to the end customer but included in the TSP rate tender

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Financial Basics

- Inflation estimated at 2% per year, based on M-08-13
  - Government FTE costs inflated at .5% for next 3 years, then 2% per year after, based on OMB current pay freeze status and M-08-13
- Discount rate estimated at 2.8%, based on 10-year rate published in OMB Circular A-94 Appendix C
- Government FTEs assumed to be
  - GS-13 (step 4) for additional acquisition and transportation personnel
  - A mix of GS grades for PMO and IT support staff
- All government FTE cost include salary base using OPM Salary Table 2012-DCB and 36.25% fringe, based on OMB M-08-13 update to A-76
- 10-year horizon with
  - FY2014 the first year of implementation
  - Benefits starting FY2015 and ramping up from 20% to 100% realization by FY2019

Benefit Levels per Scenario

		Scenario		
		2 **Independent Agency Approach**	**3** **GSA**	**4** **3PL**
Total Inbound Transportation Spend	The estimated amount of current spend on inbound transportation	$1.36B	$1.36B	$1.36B
Raw Transportation Cost Improvement Range*	The benchmarch percentages lower for transportation costs, based on other initiatives and GENCO 3PL experience	5%-15%	5%-15%	5%-15%
Effectiveness Probability**	The probability of the scenario capturing all of these savings, or the expected percentage of the full savings the scenario will achieve	60% - 70%	80%-85%	95%-100%
Resulting Cost Savings $ Range	Resulting annual cost savings range, based on the scenario, **at 100% participation**	$40.8M - $142.8M	$54.4M - $173.5M	$64.6M - $204.1M
Participation Levels	The range of participation a scenario will see, based on other major initiatives	30% - 50%	30% - 50%	30% - 50%
Final Annual Likely Cost Savings Range	The likely cost savings based on the benchmark savings, modified by the effectiveness of the scenario and the participation level	**$12.2M - $71.4M**	**$16.3M - $86.7M**	**$19.4M - $102.0M**

* Based on other study targets including DLA First Destination Transportation and Packing Initiative, and GENCO ATC research of June 2012 rate performance

** Based on LMI assessment of scenario performance factors

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Implementation Timing

- Year 1 = FY2014 = Startup
  - Would be most likely entirely planning and implementation with little to no benefits incurred
    - TMS
    - 3PL service and PMO
- Years 2-6 = FY2015-FY2019 = Phase-In
  - Contracts would be modified as they came up for renewal or were competed
  - 20%/year
    - Increase in transportation cost benefits
    - Increase in acquisition and transportation FTEs needed
    - Increase in 3PL service fees
- Years 7 and Beyond = Maturity

Scenario Variants

- Because many of the costs and benefits are closely related to the level of participation, the following three variants are investigated for each scenario
  - Target Participation
  - Low Participation
    - Less transportation savings
    - Higher 3PL transaction fees
    - Lower number of additional FTEs needed within the government
  - High Participation
    - Higher transportation savings
    - Lower 3PL transaction fees
    - Higher number of additional FTEs needed within the government

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Costs and Benefits

Scenario 2 – Independent Agency Approach

Cost Type	Cost Description	Low	Target	High
Startup First year costs associated with planning and acquisition	TMS Cloud Configuration	$ 2,625,000	$ 4,462,500	$ 6,037,500
	Information Assurance	$ 1,000,000	$ 2,125,000	$ 3,450,000
	Change Management	$ 4,305,600	$ 9,149,400	$ 14,854,320
	Training	$ 229,600	$ 459,000	$ 781,200
	Contractor Support (Planning, Acquisition)	$ 7,038,000	$ 11,964,600	$ 16,187,400
	Government FTEs (Planning, Acquisition)	$ 11,013,687	$ 18,723,268	$ 25,331,480
	TOTAL	**$26,211,887**	**$46,883,768**	**$ 66,641,900**
Recurring * Annual costs associated with operations and maintenance	TMS Cloud Usage	$ 1,700,000	$ 2,890,000	$ 3,910,000
	Information Assurance	$ 780,000	$ 1,657,500	$ 2,691,000
	Change Management	$ 1,076,400	$ 1,829,880	$ 2,475,720
	Training	$ 57,600	$ 115,000	$ 195,600
	Contractor Support (Operations, Maintenance)	$ 4,235,220	$ 7,199,874	$ 9,741,006
	Government FTEs (Operations, Maintenance)	$ 11,013,687	$ 18,723,268	$ 25,331,480
	Government FTEs - Additional Transportation Staff *	$ 19,615,357	$ 26,153,809	$ 32,692,261
	Government FTEs - Additional Acquisition Staff *	$ 10,675,024	$ 21,483,486	$ 35,761,330
	TOTAL	**$49,153,288**	**$80,052,817**	**$112,798,398**

Benefit	Benefit Description	Low	Target	High
Benefit * Annual savings or avoidance through better managed inbound transportation	Annual Transportation Savings Cost *	**$ 12,243,802**	**$ 44,213,728**	**$ 71,422,175**

* Based on full maturity of program, with 20% program roll-out each year, starting in FY2015 and completing in by FY2020; All figures based on current year dollars for this table; Actual analysis adjusted costs and benefits in each out-year to consider the time-value of money, using OMB Circulars A-76 and A-94.

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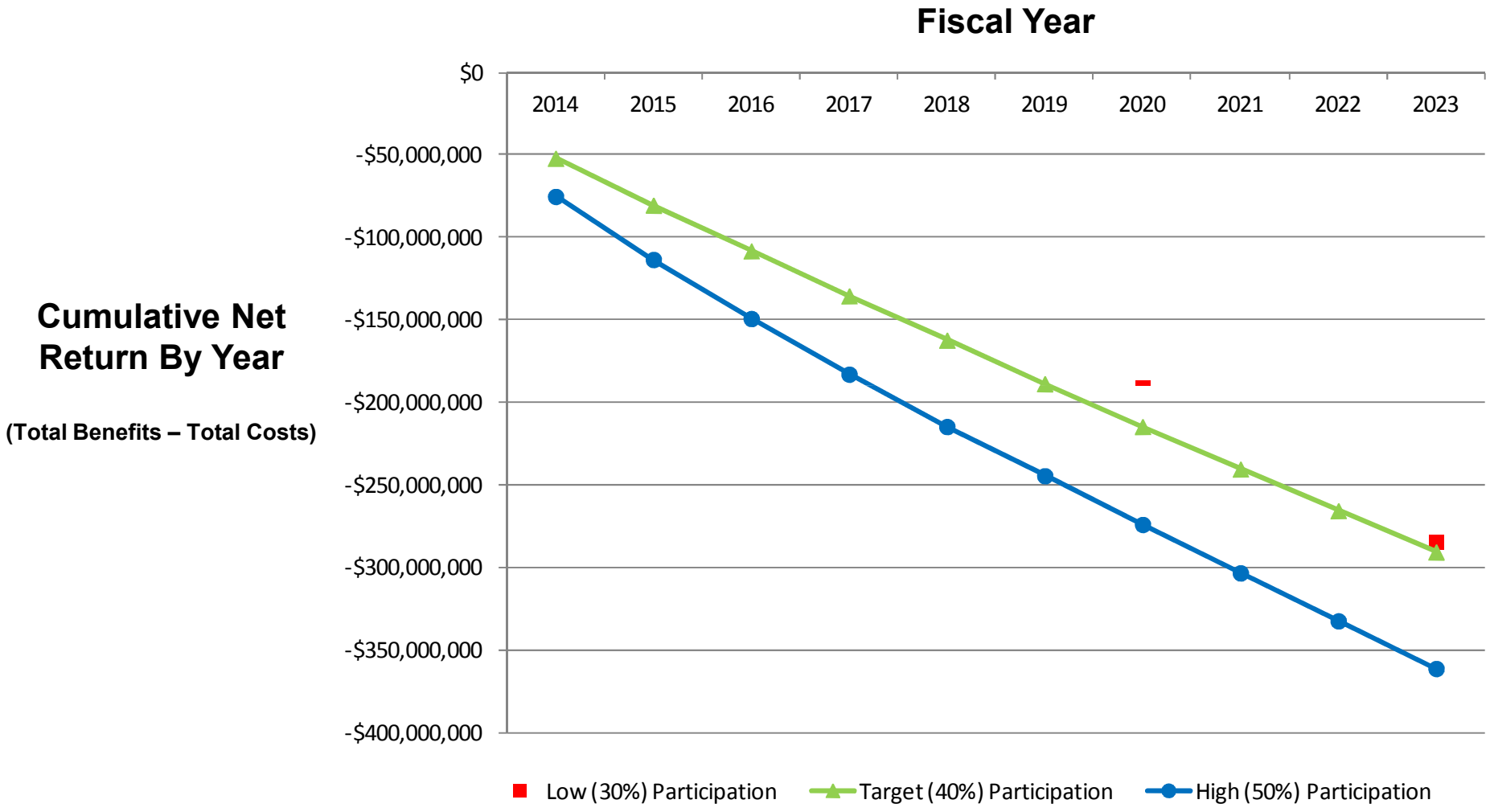
Return on Investment – Cumulative Net Benefit

Scenario 2 – Independent Agency Approach



- Not profitable under any conditions
- Too hampered by costs of multiple individual efforts

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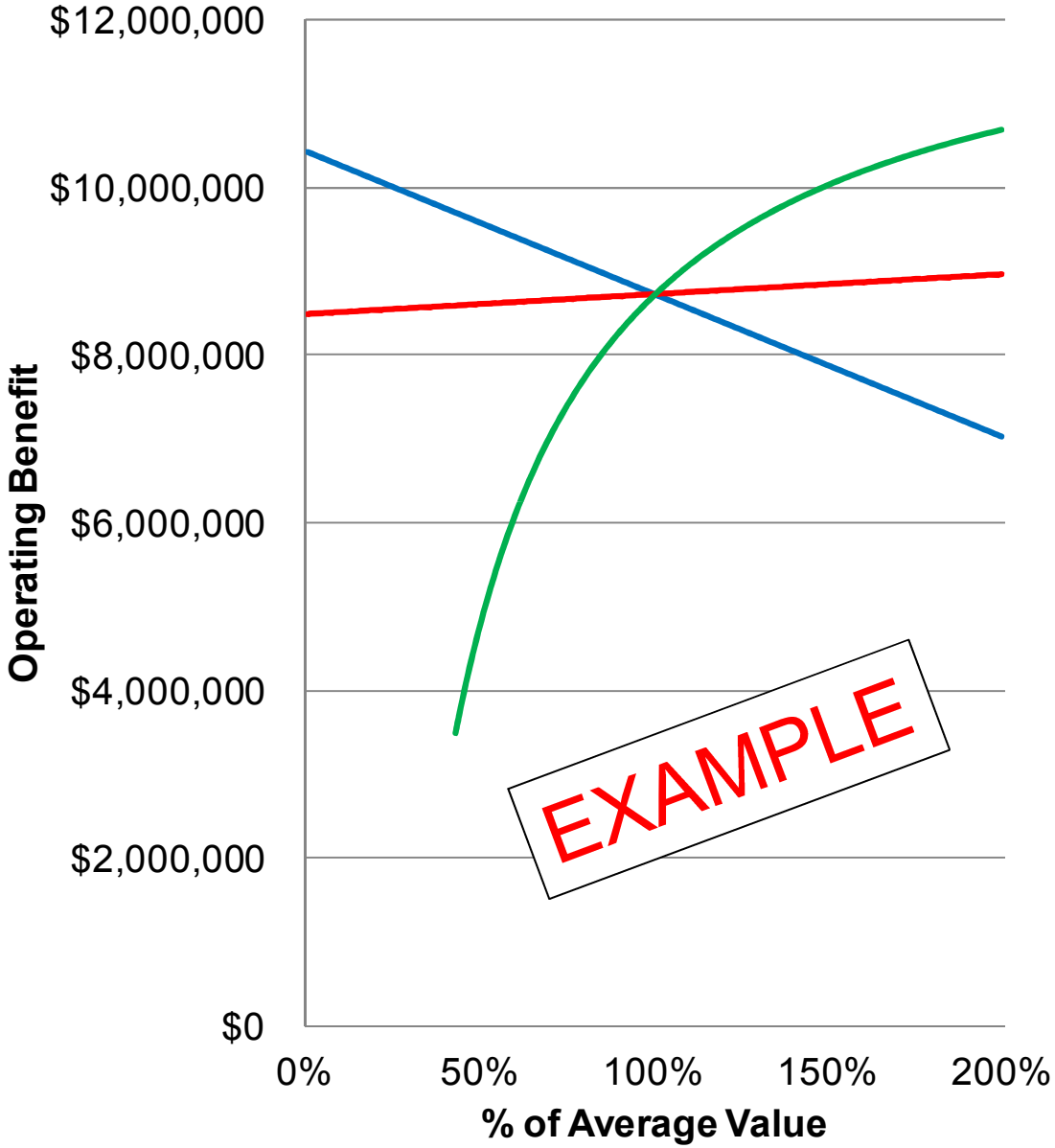
Sensitivity Analysis

- Identify key variables for the scenario
- Vary one variable at a time +/- from the target value and assess cumulative net benefit
- Plot the results of all key variables onto one graph, creating a “spider graph”

Reading a Spider Graph



- All variable lines will intersect at 100% - the average use case results
- The slope of the line indicates a positive or negative correlation between the variable value and the overall financial performance
- The severity of the slope indicates the impact of that variable in comparison to the other variables

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Major Variables for Sensitivity Analysis

Scenario 2 – Independent Agency Approach

Variable Name	Target Participation Level Value	Sensitivity Range
Participation Level	40%	0 – 80%
Transportation Savings	12.5%	0 – 25%
Effectiveness Level	65%	0 – 100%
Transportation Spend % of Total Cost	3.79%	0 – 7.58%
Additional FTEs Needed	393	0 – 796

Other variables were also examined for Scenario 2 ROI sensitivity but had negligible impact

- TMS cloud costs
- Training costs
- Change management costs
- PMO and Contractor costs

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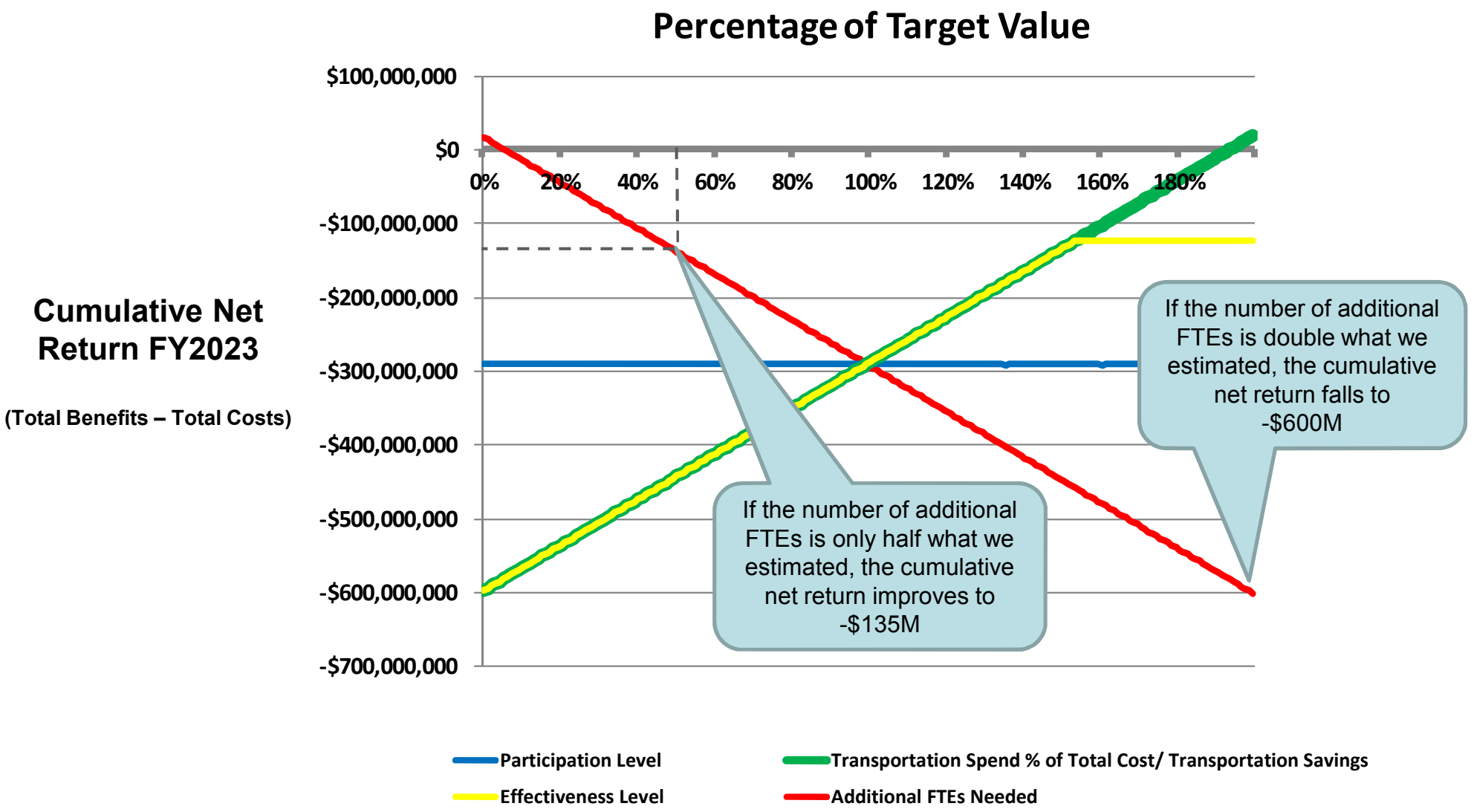
Sensitivity Analysis

Scenario 2 – Independent Agency Approach



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Risks

Scenario 2 – Independent Agency Approach

- Because Scenario 2 has no chance of profitability, the overall risk is that this scenario occurs…
- If each agency attempts to manage inbound transportation on their own the result will be redundant
  - TMS costs
  - Contractor costs
  - Government support costs (IT and management)
  - Government transportation and acquisition FTE

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Costs and Benefits

Scenario 3 – GSA

Cost Type	Cost Description	Low	Target	High
Startup First year costs associated with planning an acquisition	Information Assurance	$100,000	$125,000	$150,000
	Change Management	$861,120	$1,076,400	$1,291,680
	Training	$184,000	$370,000	$627,600
	TOTAL	**$1,145,120**	**$1,571,400**	**$2,069,280**
Recurring * Annual costs associated with operations and maintenance	Information Assurance	$78,000	$97,500	$117,000
	Change Management	$107,640	$161,460	$215,280
	Training	$46,000	$92,500	$156,900
	Government FTEs - Additional Transportation Staff **	$14,678,158	$19,615,357	$24,552,555
	Government FTEs - Additional Acquisition Staff **	$8,006,268	$16,145,974	$26,820,998
	TOTAL	**$22,916,066**	**$36,112,790**	**$51,862,733**

	Benefit Description	Low	Target	High
Benefit * Annual savings or avoidance through better managed inbound transportation	Annual Transportation Savings Cost *	**$16,325,069**	**$56,117,424**	**$86,726,927**

* Based on full maturity of program, with 20% program roll-out each year, starting in FY2015 and completing in by FY2020; All figures based on current year dollars for this table; Actual analysis adjusted costs and benefits in each out-year to consider the time-value of money, using OMB Circulars A-76 and A-94.

** Additional Transportation and Acquisition FTEs are at the 23 civilian CFO Act departments/agencies to handle additional workload in process transportation moves and evaluating and negotiating contracts for goods.

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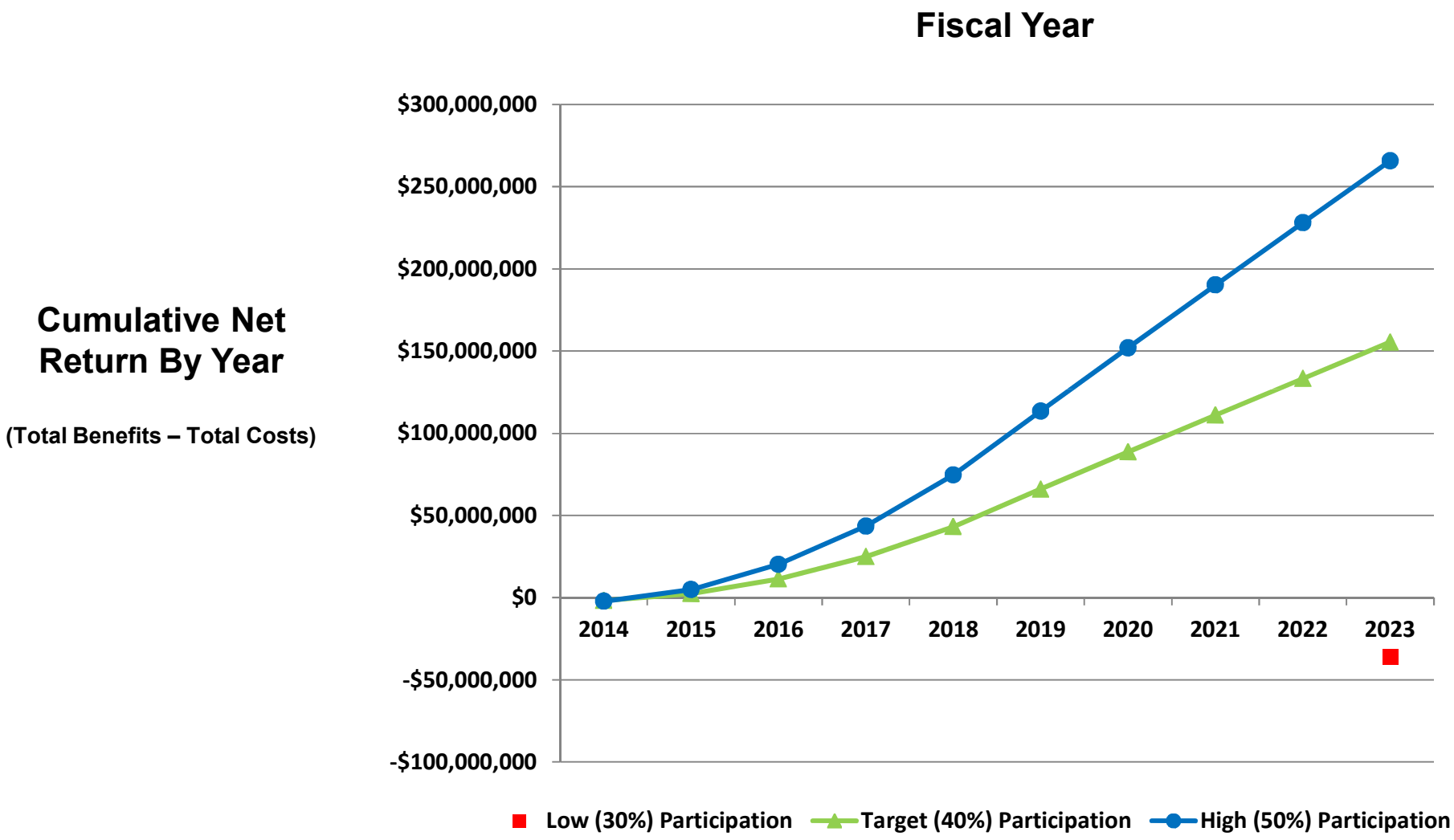
Return on Investment – Cumulative Net Benefit

Scenario 3 – GSA



- Profitable under all but Low Participation conditions

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Major Variables for Sensitivity Analysis

Scenario 3 – GSA

Variable Name	Target Participation Level Value	Sensitivity Range
Participation Level	40%	0 – 80%
Transportation Savings	12.5%	0 – 25%
Effectiveness Level	83%	0 – 100%
Transportation Spend % of Total Cost	3.79%	0 – 7.58%
Additional FTEs Needed	295	0 – 590

Other variables were also examined for Scenario 2 ROI sensitivity but had negligible impact

- TMS cloud costs
- Training costs
- Change management costs
- PMO and Contractor costs

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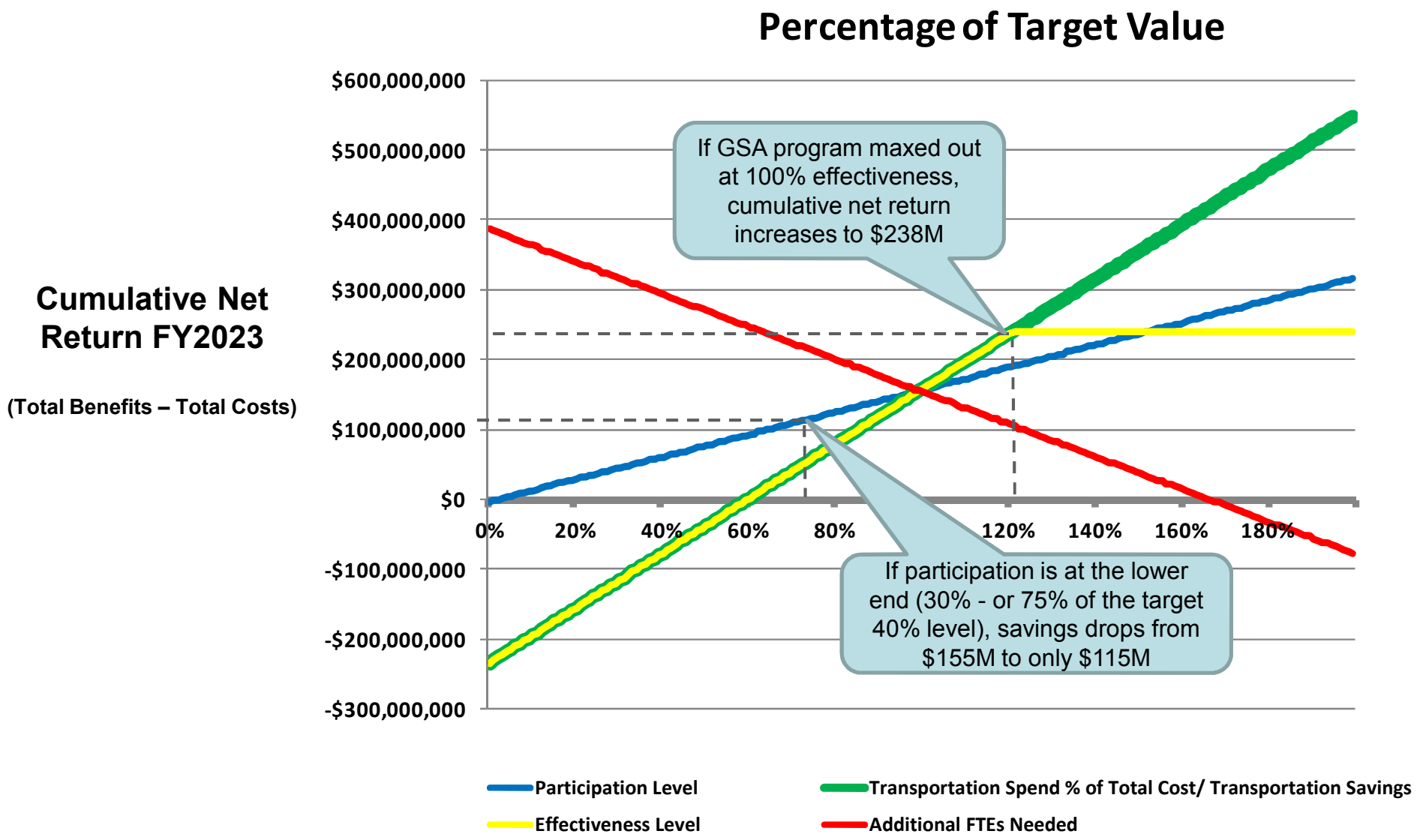
Sensitivity Analysis

Scenario 3 – GSA



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Risks

Scenario 3 – GSA

- This scenario becomes unprofitable
  - If the effectiveness of this scenario drops from the target 83% to only 50%
  - If the percentage transportation savings achieved falls below 7.5%
  - If the number of additional transportation and acquisition personnel exceeds 500 total
- To mitigate these risks
  - Extensive data collection on specific commodity areas and transportation charged is required
  - A detailed workload forecast should be conducted to determine the number of extra transportation and acquisition personnel

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Costs and Benefits

Scenario 4 – 3PL

Cost Type	Cost Description	Low	Target	High
Startup First year costs associated with planning an acquisition	Information Assurance	$100,000	$125,000	$150,000
	Change Management	$1,076,400	$1,506,960	$1,937,520
	Training	$156,800	$316,000	$535,200
	PMO Standup - Staff	$1,000,000	$1,150,000	$1,300,000
	PMO Standup - Contractor Support	$3,000,000	$3,600,000	$4,200,000
	TOTAL	**$5,333,200**	**$6,697,960**	**$8,122,720**
Recurring * Annual costs associated with operations and maintenance	Information Assurance	$78,000	$97,500	$117,000
	Change Management	$430,560	$645,840	$430,560
	Training	$39,200	$79,000	$133,800
	PMO Operations Staff	$1,000,000	$1,150,000	$1,300,000
	PMO Operations - Contractor Support	$1,500,000	$1,800,000	$2,100,000
	Government FTEs - Additional Transportation Staff **	$11,742,526	$15,745,660	$19,615,357
	Government FTEs - Additional Acquisition Staff **	$6,405,014	$12,943,467	$21,483,486
	3PL Management Fee	$9,795,041	$11,971,717	$10,203,168
	3PL Award Fee	$612,190	$2,176,676	$5,101,584
	TOTAL	**$31,602,532**	**$46,609,860**	**$60,484,954**

Benefit *	Benefit Description	Low	Target	High
Annual savings or avoidance through better managed inbound transportation	Annual Transportation Savings Cost *	**$19,386,019**	**$66,320,591**	**$102,031,679**

* Based on full maturity of program, with 20% program roll-out each year, starting in FY2015 and completing in by FY2020; All figures based on current year dollars for this table; Actual analysis adjusted costs and benefits in each out-year to consider the time-value of money, using OMB Circulars A-76 and A-94.

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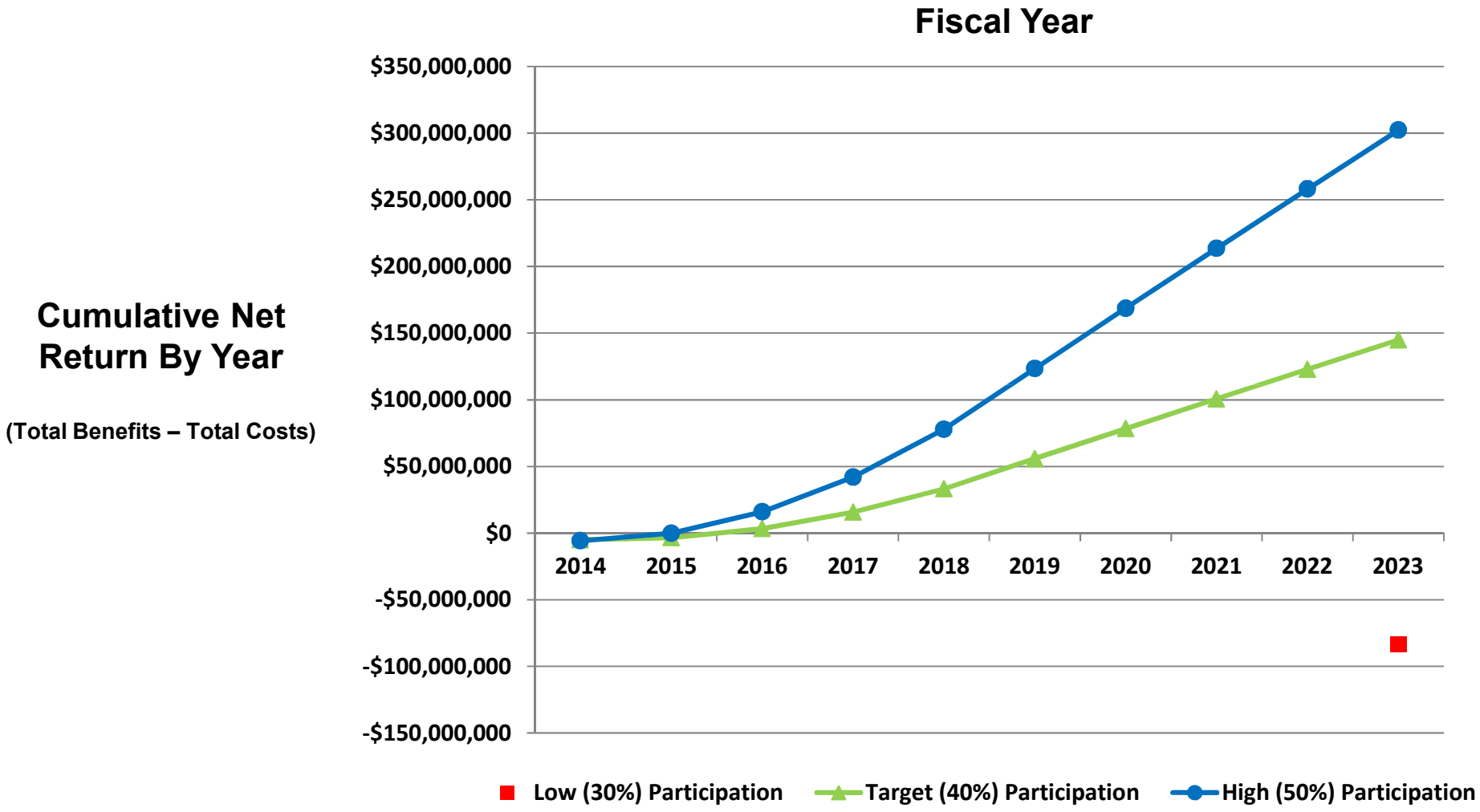
Return on Investment – Cumulative Net Benefit

Scenario 4 – 3PL



- Profitable under all but Low Participation conditions

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Major Variables for Sensitivity Analysis

Scenario 4 – 3PL

Variable Name	Target Participation Level Value	Sensitivity Range
Participation Level	40%	0 – 80%
Transportation Savings	12.5%	0 – 25%
Effectiveness Level	98%	0 – 100%
Transportation Spend % of Total Cost	3.79%	0 – 7.58%
3PL Management Fees	5.5%	0 – 11.%
Additional FTEs Needed	248	0 – 496

Other variables were also examined for Scenario 2 ROI sensitivity but had negligible impact

- TMS cloud costs
- Training costs
- Change management costs
- PMO and Contractor costs

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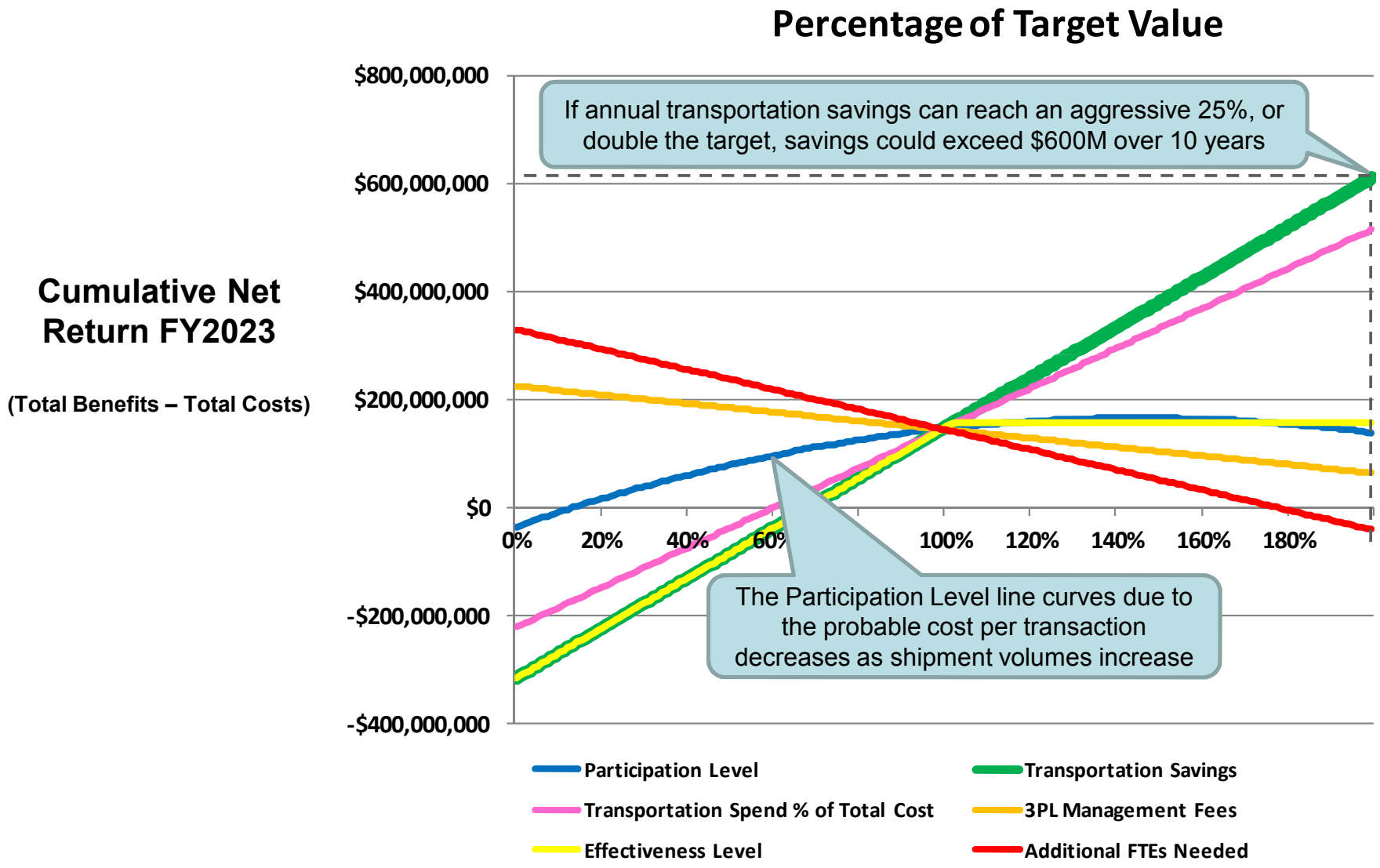
Sensitivity Analysis

Scenario 4 – 3PL



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Risks

Scenario 4 – 3PL

- This scenario becomes unprofitable
  - If the effectiveness of this scenario drops from the target 98% to only 70%
  - If the percentage transportation savings achieved falls below 8.5%
  - If the number of additional transportation and acquisition personnel exceeds 450 total
- To mitigate these risks
  - Extensive data collection on specific commodity areas and transportation charged is required
  - A detailed workload forecast should be conducted to determine the number of extra transportation and acquisition personnel

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Success Factors

- Acquisition
  - Acquisition offices actively attempt to transition contracts to FOB Origin and do transportation cost research independently to determine best value based on total landed cost.
  - Acquisition personnel negotiate reasonable decreases in the cost of goods approximate to the transportation cost.
- Suppliers
  - Large suppliers agree to let the government choose FOB Origin without penalty special processing charges.
  - Small suppliers embrace a Federal Inbound Transportation Program as a means to level the playing field.
  - Transportation suppliers and industry groups do not obstruct a Federal Inbound Transportation Program with concerns about competition and small business participation.

Success Factors

- Federal policy and execution
  - Change or waive the “inspection upon receipt” requirement.
  - Determine how to repurpose procurement funds to be used for transportation of procured items.
  - Require suppliers to provide invoices that detail the cost of the goods versus the cost of transportation and delivery.
  - Provide forecasting and planning guidelines and tools for agencies to use with major commodities
    - Will not only allow for better transportation planning but may result in lower cost of goods if suppliers can plan production/distribution
  - Extensive supply chain and transportation change management and training on the impacts of forecasting, planning, and coordinated transportation management on overall costs to the government

Conclusions

- Either GSA or 3PL option have the potential for savings

Scenario		10-Year Cumulative Net Savings	
		Target (40%) Participation	High (50%) Participation
3	GSA	$ 155,413,426	$ 265,756,734
4	3PL	$ 144,868,487	$ 302,302,614

- 3PL performs better at higher participation levels because 3PL management fees usually decrease per transaction as the transaction level increases
  - Small volume = up to 10% management fee
  - High volume = as low as 3% management fee
- There is risk in pursuing an effort to manage inbound transportation given the lack of data and the sizeable number of success factors needed to realize savings.
- Consideration should be given to the required change management efforts, policy and process changes, agencies' commitment to participate and the ROI based on savings estimates.