A FRAMEWORK FOR DISCOVERING AND MANAGING PRODUCT COST RISKS

October 2, 2019

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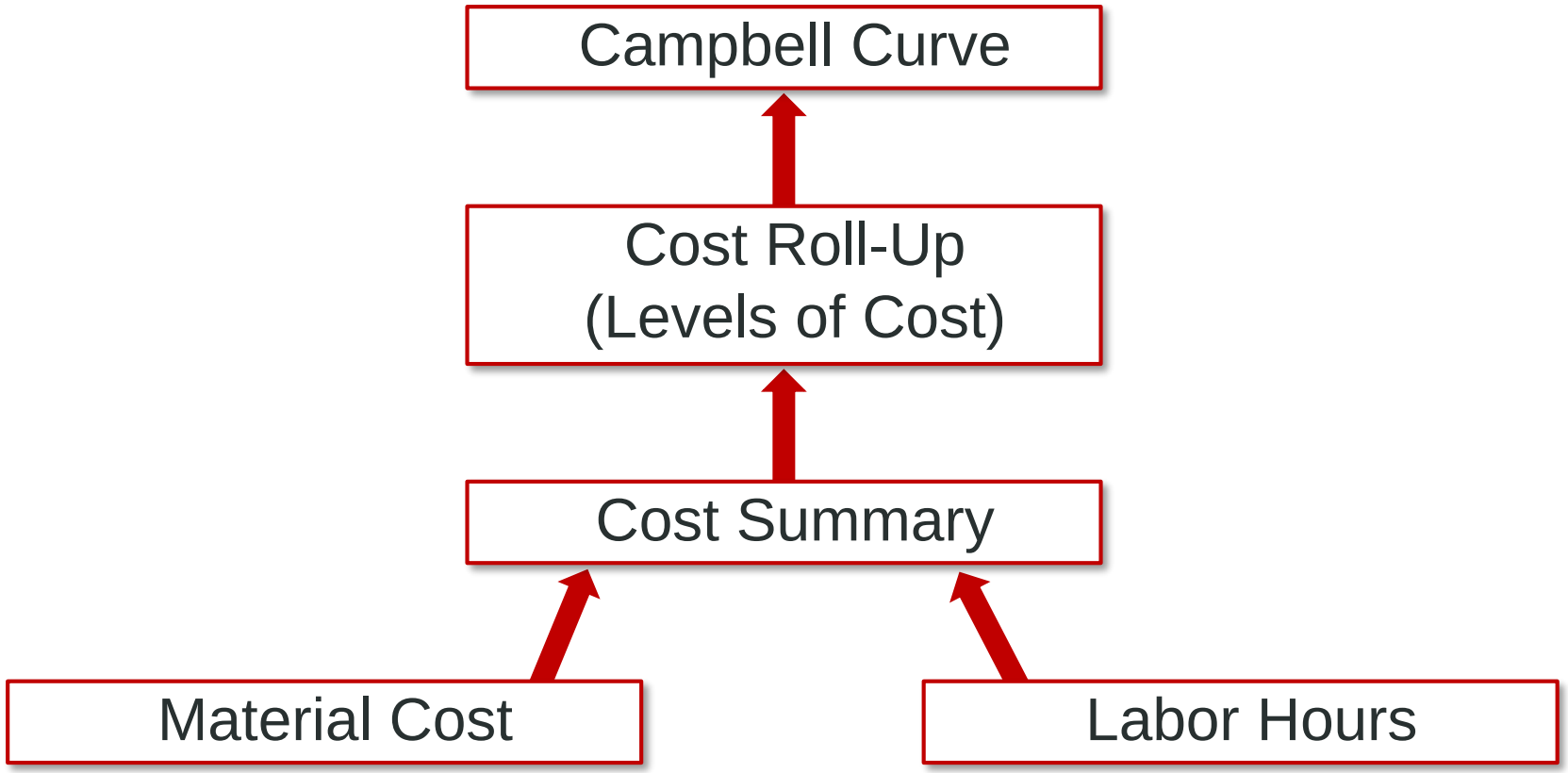
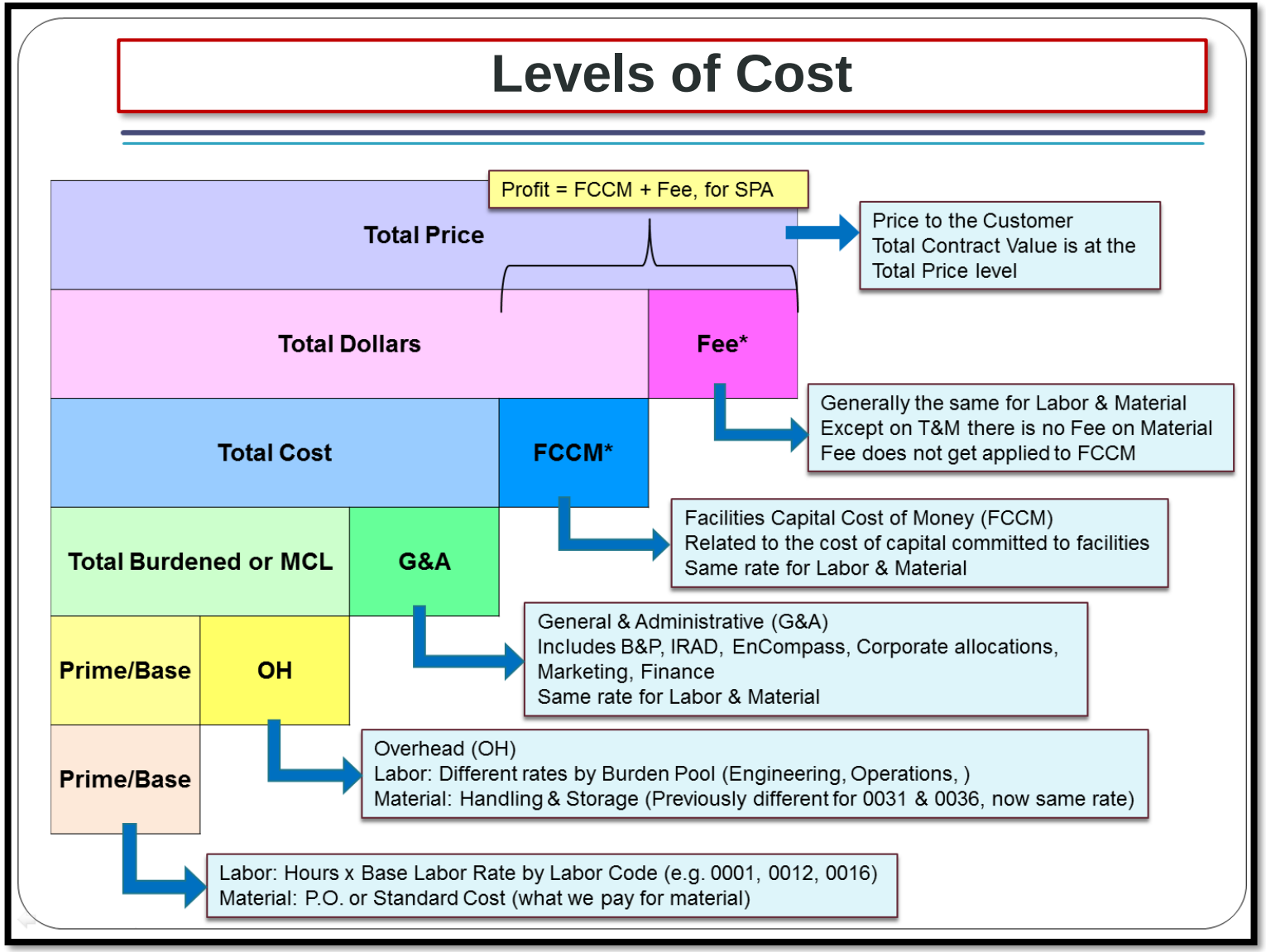
Objective

- Predict product costs with higher fidelity
- Uncover hidden organizational costs
- Reach customer price target by tracking material costs and labor hours

Overview


Campbell Curve
Cost Roll-Up
(Levels of Cost)
Cost Summary
Material Cost
Labor Hours

Cost Roll-Up: Levels of Cost



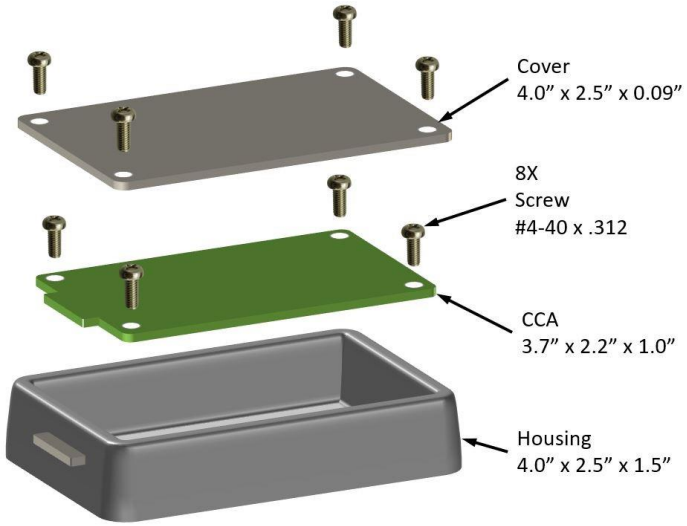
Reveals Organizational Costs

- Uses historic Enterprise rate and fee data by department or function.
- Shows Cost Roll-up at each level.
- Socializes target tracking and ownership
  1. Challenge internal rates, fees.
  2. Set a target and calculate lower level allocation.
  3. Check if material and labor estimate meet target.

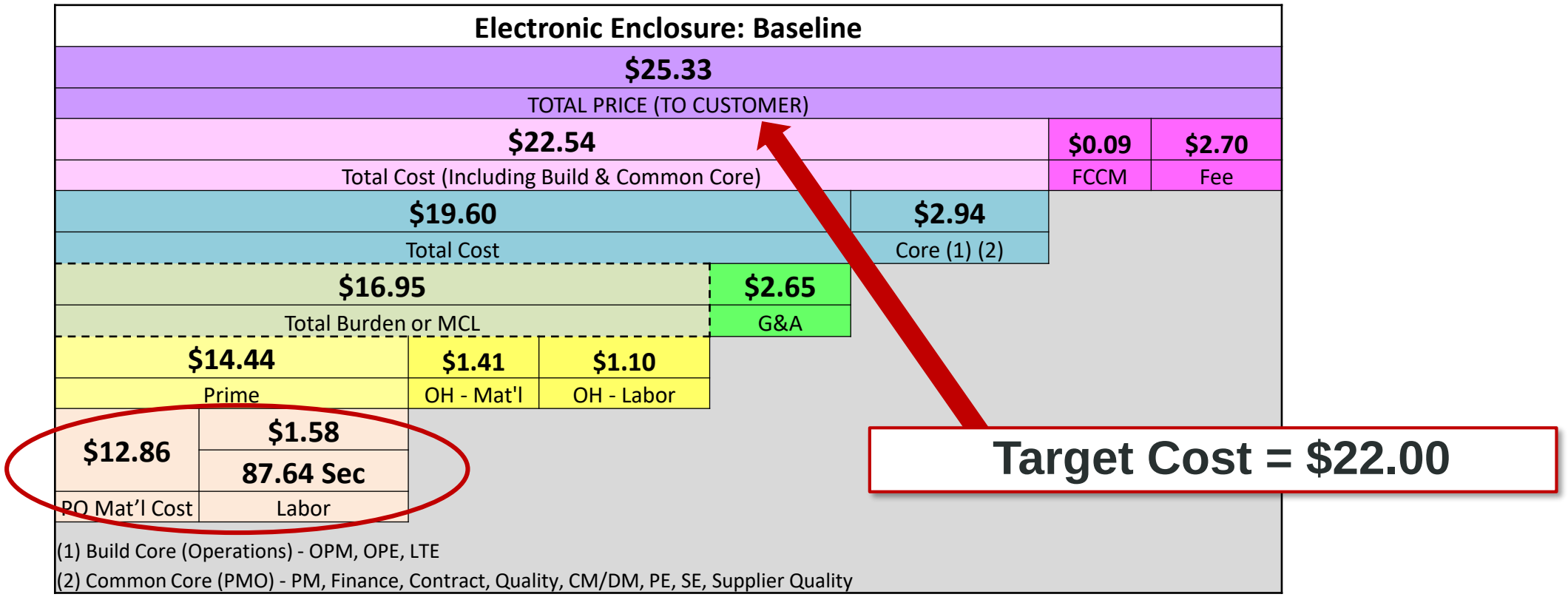
Cost Summary: Baseline

Electronic Enclosure: Baseline		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.86	87.64
1	Housing	1	$ 1.14	$ 1.14	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.27	$ 0.27	4.68
4	Screw, #4-40x.312	8	$ 0.01	$ 0.08	59.08
5	Part Mark	1	$ -	$ -	15.30

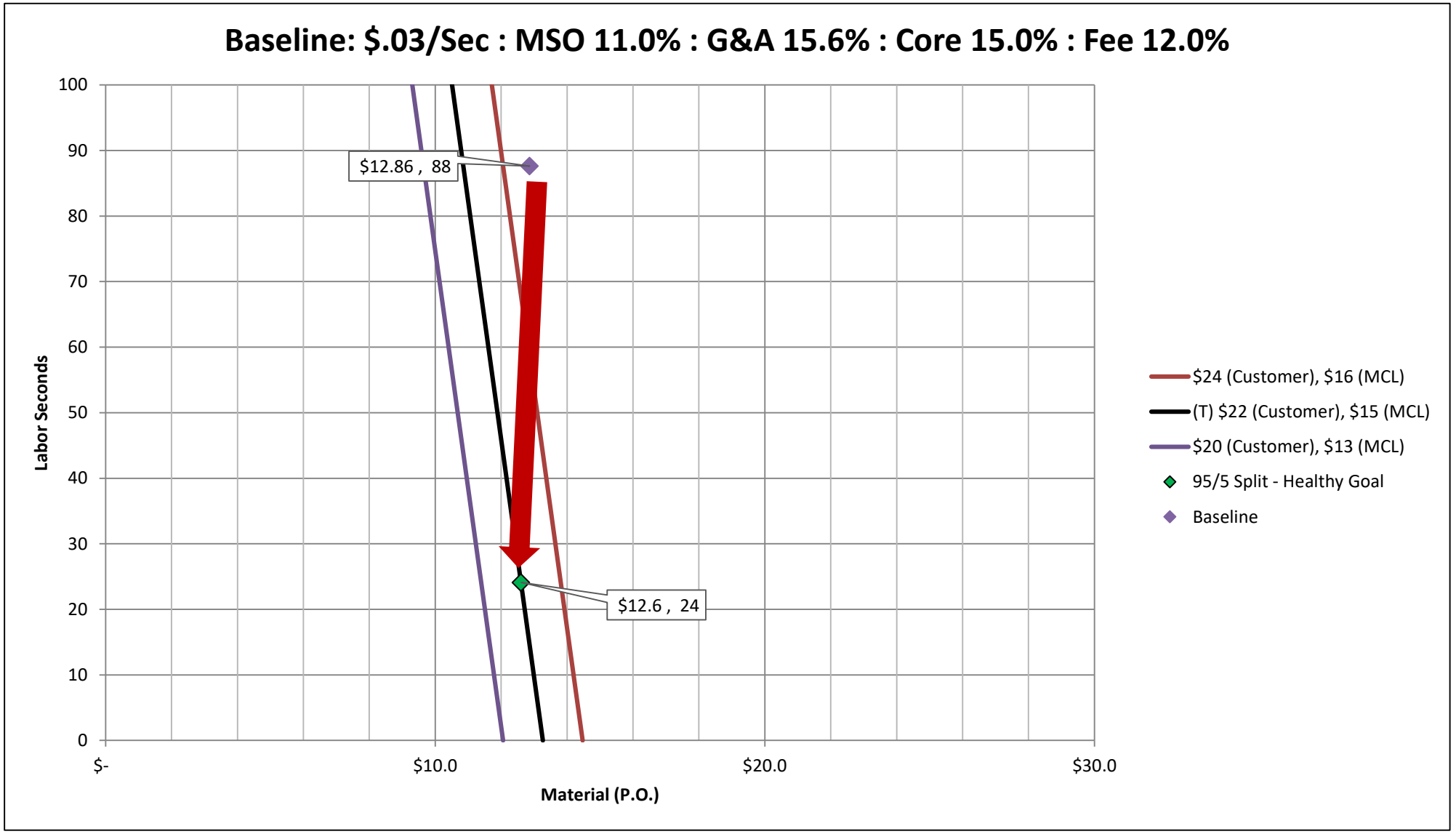
DFM “Should Cost” Estimates



Cost Roll-Up: Baseline



Campbell Curve: Baseline

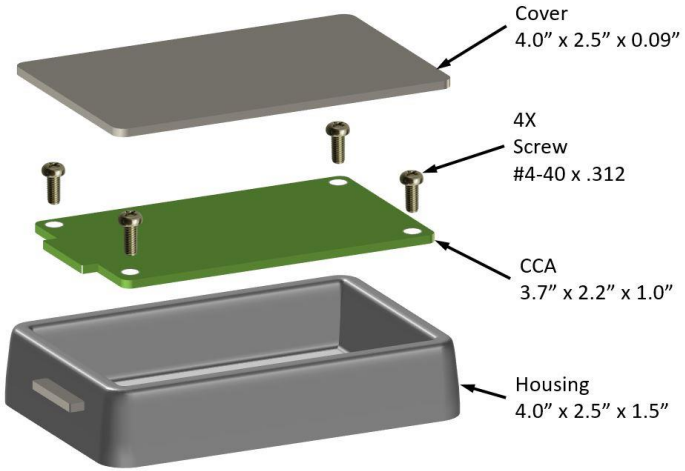


Cost Summary: Redesign #1

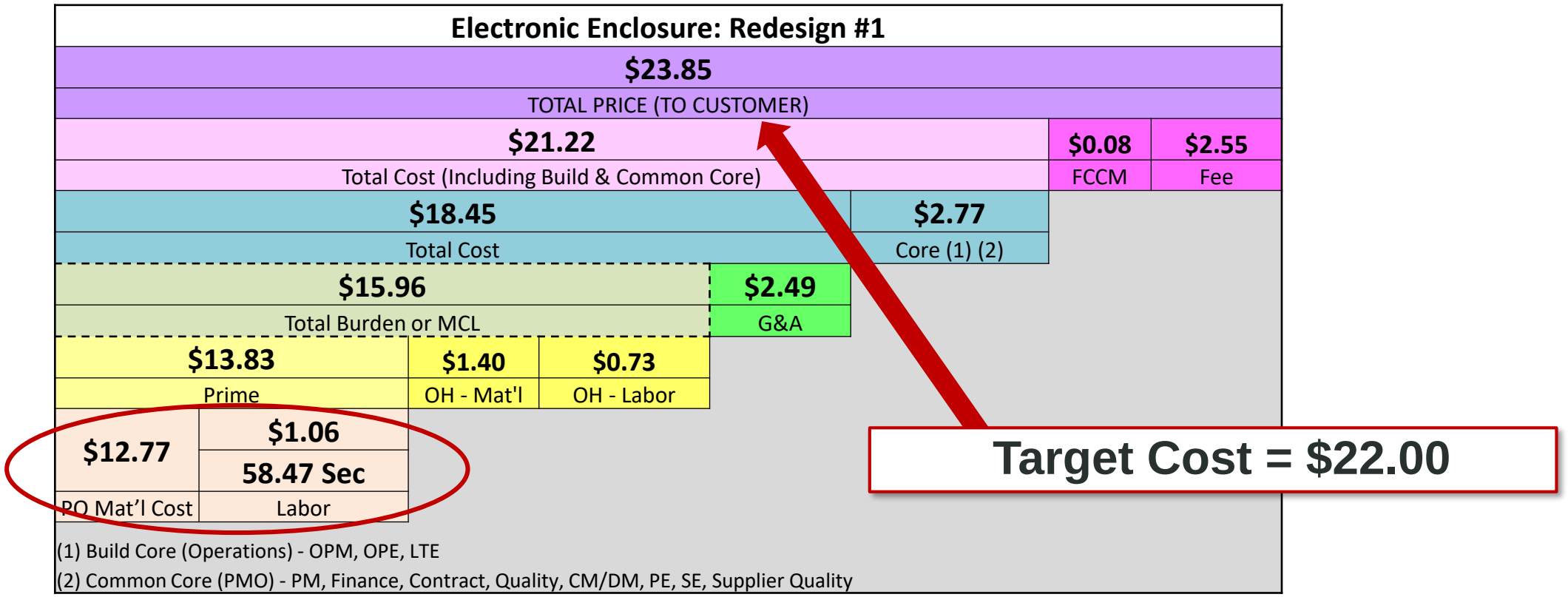
Electronic Enclosure: Baseline		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.86	87.64
1	Housing	1	$ 1.14	$ 1.14	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.27	$ 0.27	4.68
4	Screw, #4-40x.312	8	$ 0.01	$ 0.08	59.08
5	Part Mark	1	$ -	$ -	15.30

Electronic Enclosure: Redesign #1		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.77	58.47
1	Housing	1	$ 1.07	$ 1.07	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.29	$ 0.29	5.05
4	Screw, #4-40x.312	4	$ 0.01	$ 0.04	29.54
5	Part Mark	1	$ -	$ -	15.30

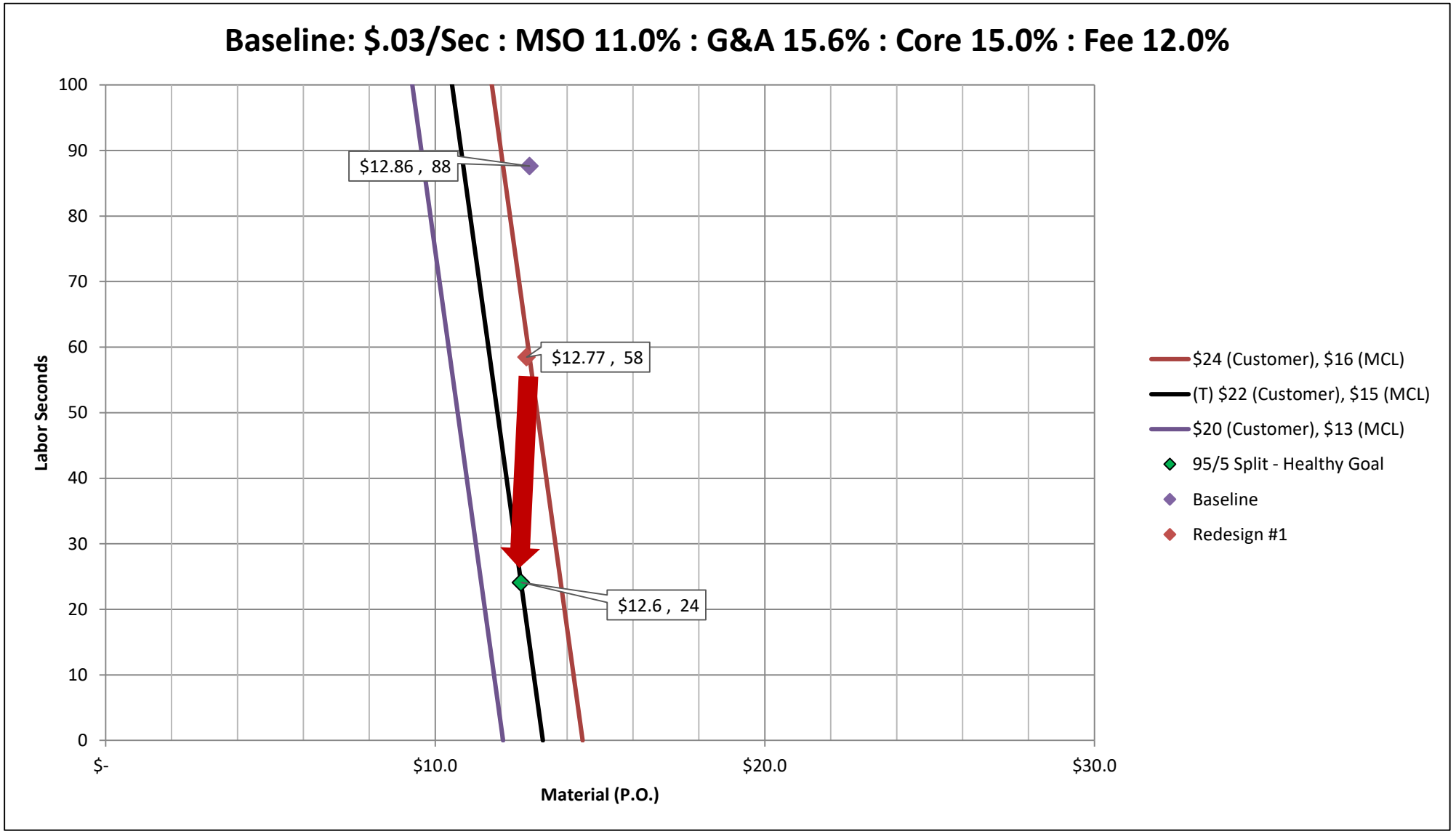
DFM “Should Cost” Estimates



Cost Roll-Up: Redesign #1

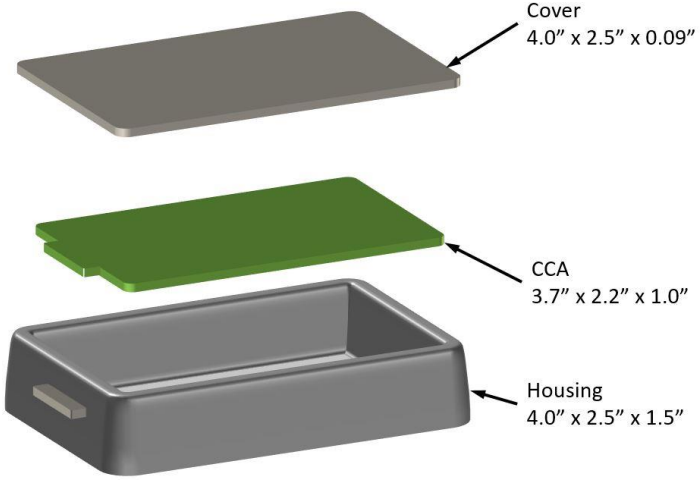


Campbell Curve: Redesign #1



Cost Summary: Redesign #2

Electronic Enclosure: Baseline		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.86	**87.64**
1	Housing	1	$ 1.14	$ 1.14	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.27	$ 0.27	4.68
4	Screw, #4-40x.312	8	$ 0.01	$ 0.08	59.08
5	Part Mark	1	$ -	$ -	15.30

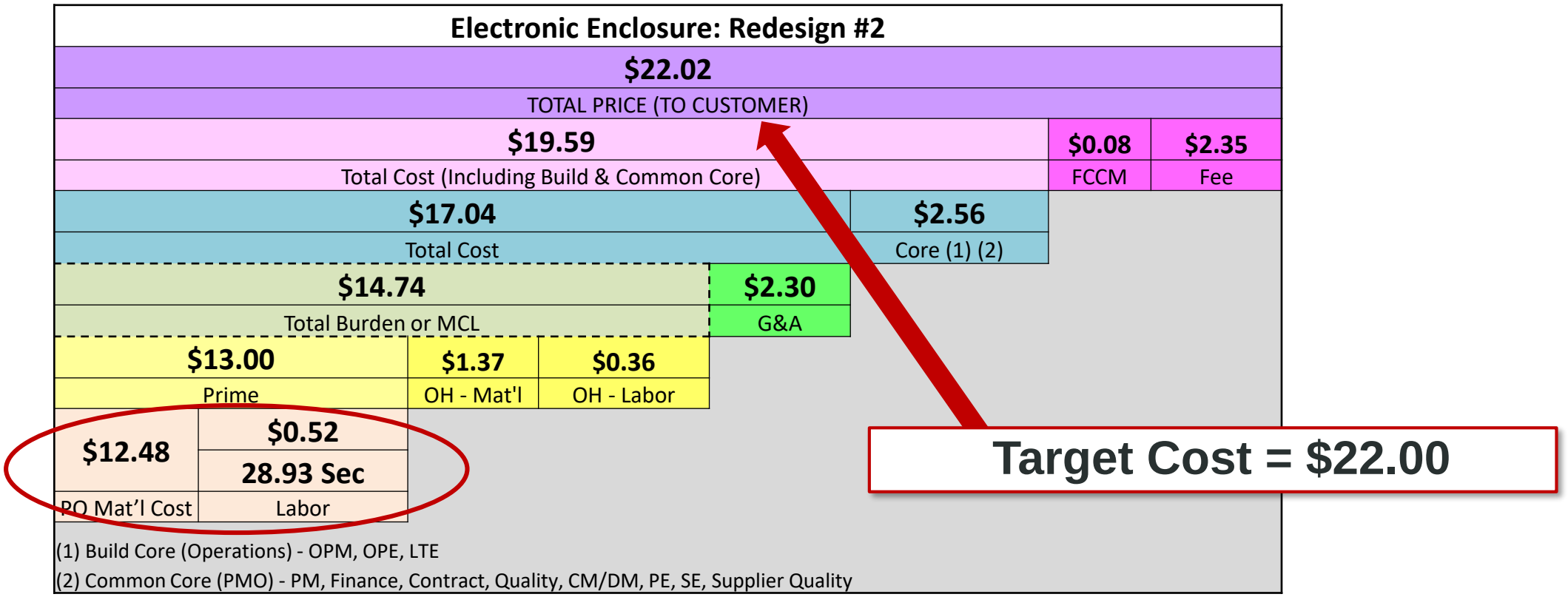


Electronic Enclosure: Redesign #1		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.77	**58.47**
1	Housing	1	$ 1.07	$ 1.07	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.29	$ 0.29	5.05
4	Screw, #4-40x.312	4	$ 0.01	$ 0.04	29.54
5	Part Mark	1	$ -	$ -	15.30

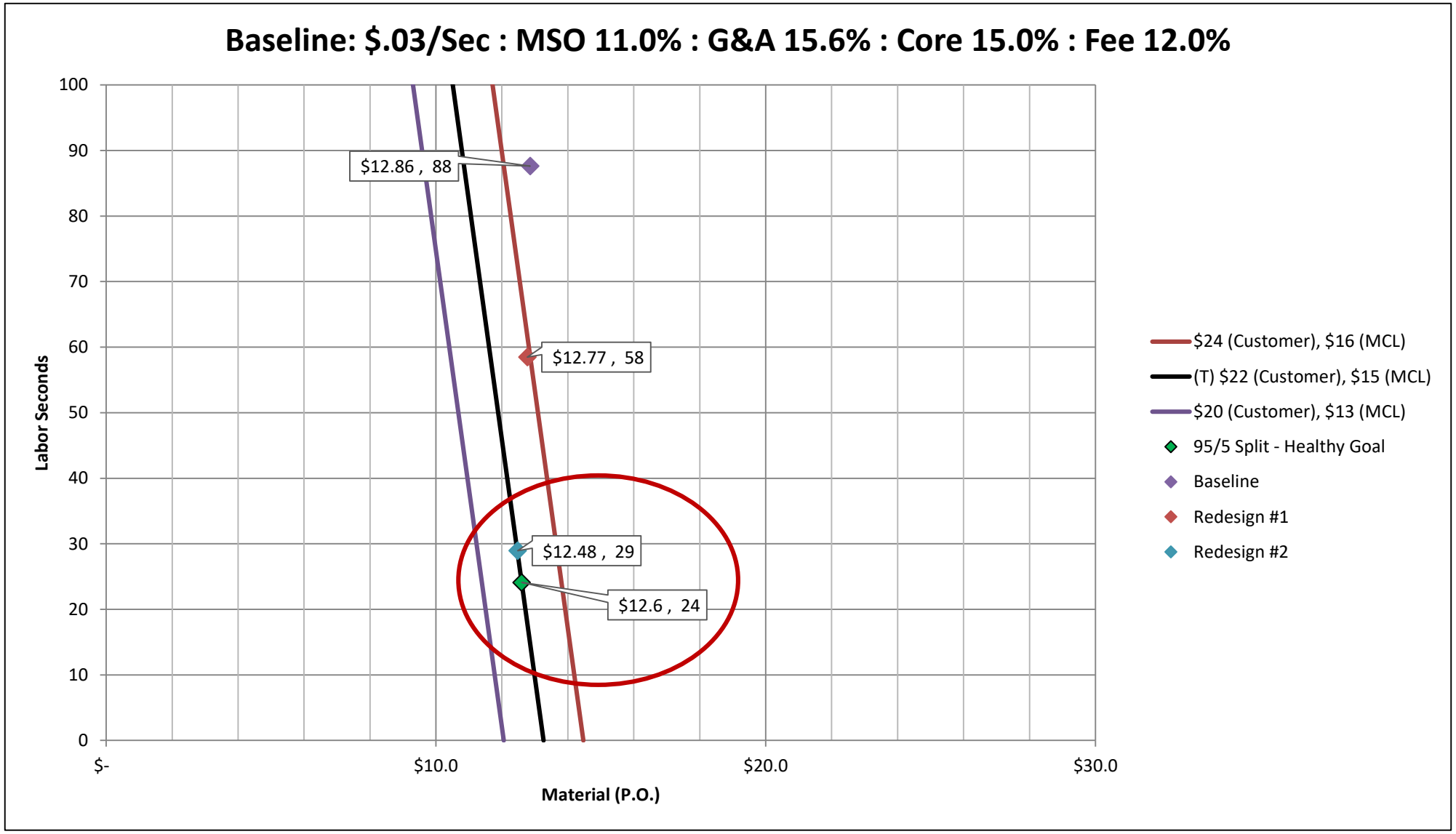
DFM "Should Cost" Estimates

Electronic Enclosure: Redesign #2		QTY	Material ($)	Ext. Mat'l ($)	Ext. Labor (sec)
				$ 12.48	**28.93**
		1	$ 0.82	$ 0.82	4.29
2	CCA	1	$ 11.37	$ 11.37	4.29
3	Cover	1	$ 0.29	$ 0.29	5.05
4	Part Mark	1	$ -	$ -	15.30

Cost Roll-Up: Redesign #2



Campbell Curve: Redesign #2



Summary

- Use the highlighted tools and methods to **predict costs with higher fidelity**, as well as improve product costs with less investment
- Organizational Costs
  - Enterprise data reveals internal rates and fees by department and function
  - A ‘Levels of Cost’ calculator socializes target tracking with all who can improve cost drivers
- Design Costs
  - DFMA software highlights cost drivers and facilitates design improvement ideas

Appendix: Definitions

- Core (Build): Overhead allocation to cover operations activities (i.e. OPM, OPE, LTE).
- Core (Common): Overhead allocation to cover PMO (i.e. PM, Finance, Contract, Quality, CM/DM, PE, SE, Supplier Quality)
- FCCM: Facilities Capital Cost of Money, which is the cost of capital committed to facilities.
- Fee: Profit Margin percentage.
- G&A: General and Administrative, which includes allocations for corporate, marketing and finance.
- HCE: Hardware Cost Estimate.
- MCL: Manufacturing Cost Line, which includes costs for material and labor with overhead applied.
- MSO:
- OH Labor: Overhead rate that accounting applies to the specified labor skill.
- OH Material: Overhead rate that accounting applies to handling and storage of the material.
- PO Cost: Standard cost, or the price that is paid for the material.
- SPA: Sales and Profit Analysis.

Appendix: Dimensions of Cost Risk

		* Activities are started chronologically; some are iterative.							
		Tools and Methods for Cost Discovery and Risk Mitigation							
	Development Cost Risk Areas	Similar-Product Analysis	Market Analysis baseline	Levels of Cost Calc.	Cost Field Tracker	Material, Labor Allo-cations	Cost vs. Func. Trades	BOM Cost Tracker	DFMA Eval w/ Ops, 3P
1	Product Lifecycle Planning	y	y	y	y	y	y	y	
2	Cost Forecast & Control	y	y	y	y	y	y	y	y
3	System Design Maturity	y	y	y	y	y	y		y
4	Design Technology Maturity	y	y	y		y	y		y
5	Test Planning	y		y		y			y
6	Mfg Technology Maturity	y							
7	Producibility Maturity	y		y	y	y	y		y
8	Supply Chain Strategy	y	y	y	y		y	y	
9	Yield & Quality Control	y					y		y
		** Does the activity reduce cost in the risk area?							
		*** Examples of highlighted activites to be shown.							