



## Description of the Analyzed Tesla 3 *Long Range Premium Package*

- ❖ The Tesla 3 Munro analyzed is the highest option version available.
- ❖ It is a Premium Package with Autopilot (*\$10,000 worth of upgrades*). Although Auto Pilot is not yet functional, Munro will be analyzing all the circuit boards.
- ❖ Prior to Munro the car was never driven, however, it was held back by Tesla for two extra weeks due to an undisclosed Quality issue.
- ❖ Munro will disassemble the Tesla 3 down to nuts, bolts, sensors, PCBs, including battery, control management, drivetrain, etc.
- ❖ Munro will document findings related to eye catching features, weights, number of parts, materials and suppliers where possible and conduct a complete Munro Vehicle Quick Cost Analysis.
- ❖ Munro's Quick Cost method has been validated in the past to be 90% accurate.

## OEM Early Adopters Benchmark Report

- ❖ The Tesla Model 3 report is highly advantageous for OEMs or Tier Suppliers looking to effectively expand and compete in new EV markets.
- ❖ The report is a comprehensive analysis of all four Zones of the vehicle.
- ❖ This report contains descriptive and pictorial detail on every facet of the vehicle from manufacturing including Quick Cost Analysis and perceived Quality.
- ❖ The report includes:
  - The FFQ Initial Quality report, Siemens Calibrated Ride & Drive Report, component weights, materials and suppliers (as is possible)
  - Munro Vehicle Quick Cost estimates.
  - Some time lapse video of the vehicle disassembly

**Prospective customers are invited to a “Genba” tour of the Munro BIC.**



# Report Details

## Zone Reports

- ❖ Zone Reports are designed to accommodate Tier Suppliers or non automotive companies looking to enter the EV market.
- ❖ Zone Reports are similar to the full report and contains full descriptive and pictorial detail on every facet of the Zone from manufacturing through assembly including cost analysis and quality projections.
- ❖ With Zone Reports, Clients will receive:
  - FFQ Initial Quality and Siemens Calibrated Ride & Drive Reports.
  - Zone related component weights, materials and suppliers (as is possible) and Munro Quick Cost estimates.

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## Fit, Finish & Quality with Calibrated Ride & Drive

- ❖ The Vehicle Fit, Finish and Quality Audit (FFQ) and the Siemens Calibrated Ride & Drive and NVH Fingerprinting.
- ❖ The Fit, Finish & Quality Audit (FFQ) is a thorough yet non-intrusive evaluation of the Tesla 3.
- ❖ The purpose is to analytically document a new buyer, “first time” experience - what they see, hear and feel.
- ❖ The FFQ also contains weights and all gap dimensions along with all flushness and operating forces.
- ❖ It is a comprehensive 241 page report of detailed information.
- ❖ Munro’s partner on NVH fingerprinting is Siemens, a world wide expert in NVH assessments. Siemens provides’ objective analytically derived, tactile vibration response at driver touch points for rough and smooth roads. Tesla 3 NVH fingerprinting includes:
  - Operational NVH status
  - Objective NVH performance data & analysis
  - Objective data of cabin noise – electric motor and gear noise and wind noise on rough and smooth roads
  - Objective tactile vibration response at driver touch points



# Side by Side, Architecture and Topology Report

- ❖ This report a supplemental cost of \$35,000 and is only available to purchasers of the full OEM Report or a Zone Report.
- ❖ The **Side by Side Report** is a description and cost comparison of the differences between the Tesla 3, the BMW i3 and the Chevy Bolt. Items of comparison are generally cost, weight and part count, however there will also be a spider diagram comparing many functions that are related to Fit and Finish, Ergonomics and weight distribution. Munro will also use its best efforts to compare materials and their usage in the three different vehicles. Secret
- ❖ Also included in this report; the Munro Tesla 3 Architecture Study & Topology Report for Wiring and Cooling. These reports are pictorial and describe the BIW structure and materials as well as the wiring strategy with major electrical connection points and cooling layout/flow.

Side X Side Summary Example

																				
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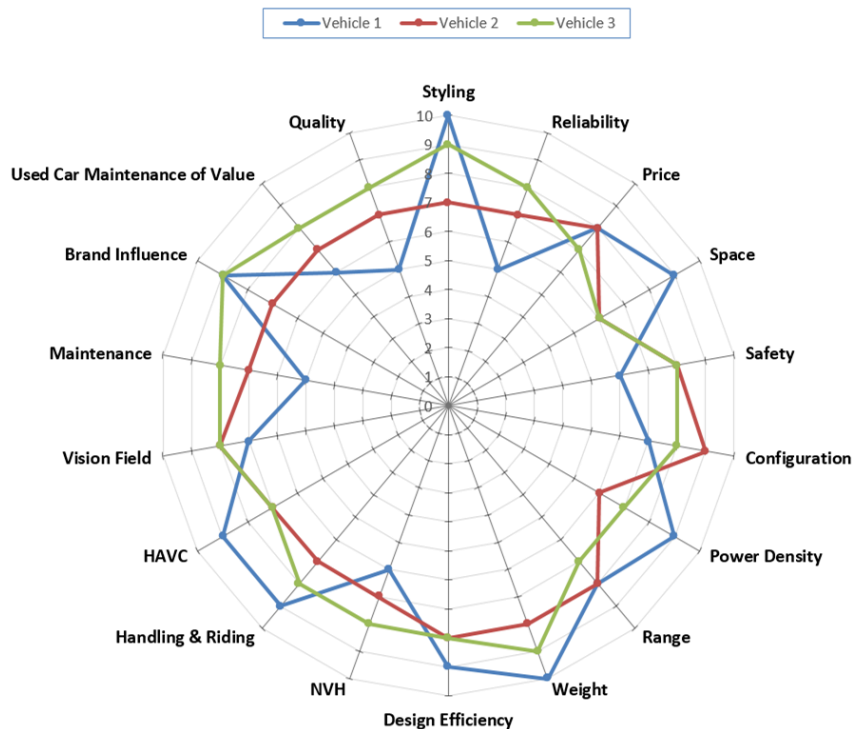
Detailed Part Cost Summary Example

Symbol Name	Place Cost	Weight	Qty	RollUp Supplier Labor Cost	RollUp OEM Labor Cost	RollUp Total Cost
Rotor Laminate Plate, Rotor Laminate Stack	\$4.10	0.0232 kg	426	\$0.03	\$0.00	\$0.13
Material, Rotor Arm, Rotor Lamination Plate	\$0.10	0.0232 kg	426	-	-	-
Rotor Arm, Small N30SH - N45SH Magnet	\$0.61	0.0061 kg	72	-	-	-
Rotor Arm, Large N30SH - N45SH Magnet	\$2.18	0.0218 kg	72	-	-	-
M6x150mm Hex Flange Bolt	\$0.23	0.0387 kg	4	-	-	-
M6x9 Hex Flange Nut	\$0.01	0.0032 kg	4	-	-	-
Spindle, Rotor Arm	\$7.24	1.4500 kg	1	-	\$0.00	\$15.15
Material, Rotor Arm, Spindle	\$7.24	1.4500 kg	1	-	-	-
Output Shaft Cap, Rotor Arm	\$0.01	0.0010 kg	1	-	\$0.00	\$0.04
Material, Rotor Arm, Output Shaft Cap	\$0.01	0.0010 kg	1	-	-	-
Rotor Bearing	\$11.66	0.3204 kg	1	-	-	-
Speed Sensor Target Spacer, Rotor Housing Asm	\$0.00	0.0000 kg	1	\$0.48	\$0.00	\$0.58
Material, Rotor Housing, Speed Sensor Target Space	\$0.00	0.0000 kg	1	-	-	-
Speed Sensor Target Asm, Rotor Housing Asm	\$0.29	-	-	\$0.36	\$0.00	\$0.75
Speed Sensor Target Laminate, Speed Sensor Target	\$0.02	-	-	\$0.02	\$0.00	\$0.04
Material, Speed Sensor Target Laminate	\$0.00	-	-	-	-	-
Rivet, Speed Sensor Target Asm	-	-	-	-	-	-
Wave Washer	-	-	-	-	-	-
O Ring, Stator Asm	-	-	-	-	-	-
M6x20mm-Torx Bolt	-	-	-	-	-	-
Motor Torx Ring Asm	-	-	-	-	-	-
M6x18mm-Torx Socket Head Cap Screw	-	-	-	-	-	-
M10x53-Hex SEMB BOLT	\$0.13	0.0410 kg	5	-	-	-
M6x9-Hex Flange Nut	\$0.02	0.0076 kg	1	-	-	-
M10x73-Torx SEMB Bolt	\$0.73	0.1404 kg	1	\$0.18	\$0.00	\$0.92
Cover, Motor Cover	\$0.57	0.1368 kg	1	\$0.05	\$0.00	\$0.63
Material, Cover	\$0.57	0.1368 kg	1	-	-	-
Gasket, Silicone Bead	\$0.11	0.0035 kg	1	-	-	-
Label, Caution, Motor Cover Asm	\$0.05	0.0001 kg	1	-	-	-
Thermal Cover, Motor Lower	\$0.02	0.0056 kg	10	-	-	-
Material 3, Thermal Cover, Motor	\$1.03	0.0895 kg	1	\$1.17	\$0.00	\$2.23
Material 3, Thermal Cover, Motor	\$0.44	0.0268 kg	1	-	-	-
Material 2, Thermal Cover, Motor	\$0.44	0.0268 kg	1	-	-	-
Material 1, Thermal Cover, Motor	\$0.13	0.0314 kg	1	-	-	-
Material 1, Thermal Cover, Motor	\$0.02	0.0045 kg	1	-	-	-
Push Clip	\$0.05	0.0021 kg	3	-	-	-
Thermal Cover, Motor Outboard	\$0.94	0.0347 kg	1	\$0.62	\$0.00	\$1.58
Material 2, Thermal Cover, Motor, Outboard	\$0.44	0.0104 kg	1	-	-	-

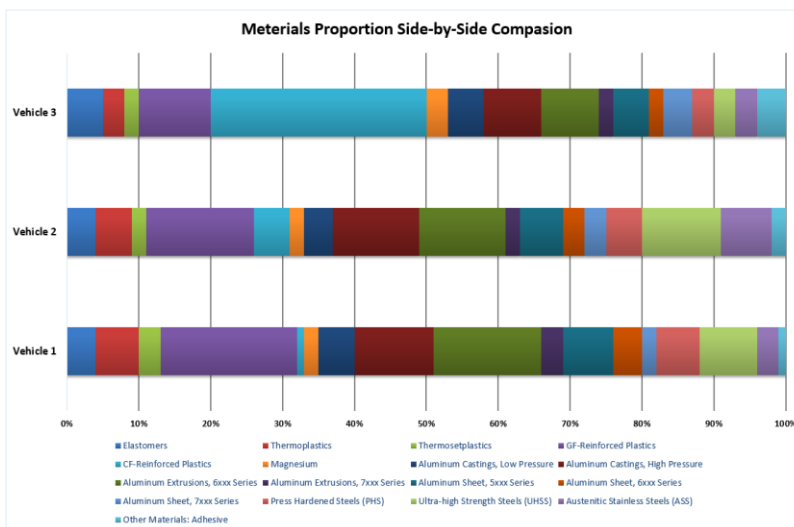


## Description of the Side by Side Comparison

- ❖ Evaluation on multiple dimensions, such as styling, reliability, price, safety, weight, configuration, NVH, handling & riding, maintenance, etc.
- ❖ Evaluation results are displayed in the form of radar chart to better demonstrate Side by Side results.



- ❖ Material identification and usage proportional distribution in the compared vehicles.
- ❖ Results are presented in the Side by Side cumulative percentage comparison histogram to demonstrate the trend of lightweight in recent years.





## Vehicle Quick Costing Description

Quick Cost estimating is gaining popularity due to the need for speed-driven results. In response, Munro has developed a proprietary methodology. Quick Cost estimates provide the customer with approximate versus detailed costs which are more expensive and time consuming to generate. A Quick Cost analysis will deliver complete vehicle estimates with an accuracy of +/- 8%. This level of accuracy provides OEM's and Suppliers the ability to make sound comparisons and directional decisions.

### **[Richman from EPA]**

Munro is recognized as being technically competent, highly experienced, knowledgeable and creative in benchmarking and lean engineering of automotive and non-automotive systems. Costing models are thorough covering all elements of total production cost.

## Report Delivery

- ❖ All reports and accompanying deliverables will be made available for easy access through a secure File Transfer Protocol FTP site.
- ❖ A user-friendly PDF format will help ensure that subscribers can easily locate a wide range of materials in addition to the reports.
- ❖ There will be a host of relevant video and media content.
- ❖ The reports themselves utilize hyperlinks within a table of contents to facilitate the ability to easily navigate throughout the contents and quickly find specific data and information to meet user needs.



## FAQ (Frequently Asked Questions)

- ❖ Was Tesla involved in the study?

***No, Tesla proprietary costs nor any Tesla 3 suppliers quoted costs were used in this study.***

- ❖ Is there any Tesla 3 propriety (stolen) IP in this report?

***No. All data was developed through Munro's proven methodologies from th purchased production Tesla 3***

- ❖ Is the car costed using only NAFTA costing centers?

***Yes, Munro includes labor, factory floor cost, taxes and SG&A for OEM or Tier Suppliers.***

- ❖ Is this a Costing or Pricing report?

***This is a Costing Report. Pricing has too many variables.***

## LEGAL DISCLAIMERS & SALES CONDITION

- ❖ How can I see the sample report before purchasing?

***Please contact a Munro sales person. They can provide sample information in digital PDF format NOTE: critical data will be hidden in the sample.***

- ❖ Is this report allowed to Reproduce, Distribute, Disseminate, Photocopy, Fax, Transmit in the same organization when a company purchases the report?

***NOTE: The purchasing company shall not be legally permitted to reproduce, distribute, disseminate, photocopy, fax, transmit, sell, publish, or send this material, or any portion thereof, by any means without the express written permission of Munro & Associates Inc. under penalty of law. The reports are Copyright Protected. Internal Company correspondence is authorized.***

- ❖ If there is a request for someone from Munro to visit and to explain in detail the report, is it possible to do or is it included in the price of report?

***No, it is not included in the price of report.***

***Munro will visit if the customer pays for the consulting fee travel and daily fee.***

- ❖ If there are a few but specific questions on the content of report, is it possible to support a phone or e-mail communication?

***Yes, please contact the local area sales person and we will respond with our answers.***