Beer in PET vs Glass Bottles

Section I:
Introduction

A. What is the purpose of this study?
B. Key definitions
   1. Point of view
   2. SavvyPack Analysis Service
   3. SavvyPack Index
C. Study organization
D. Geographic considerations
E. Study methodology
F. Conventions

Section II:
Economics

A. Key assumptions
   1. Bottle size
   2. Product waste
   3. Scope of the analysis
   4. End-of-life
B. Case 1a: Glass bottle – Manufacturing cost
   1. General assumptions
   2. Manufacturing cost results
      Table 1 – Case 1: Manufacturing Cost – Glass Bottle and Metal Cap
C. Case 1b: Glass bottle – Filling cost
   1. General assumptions
   2. Filling cost results
      Table 2 – Case 1: Filling Cost – Glass Beer Bottle
D. Case 2a: PET bottle – Manufacturing cost
   1. General assumptions
   2. Economic results
      Table 3 – Case 4: Manufacturing Cost – PET Bottle and HDPE Closure
E. Case 2b: PET bottle – Filling cost
   1. General assumptions
   2. Filling cost results
      Table 4 – Case 1: Filling Cost – PET Beer Bottle
F. Results Summary
   Table 5 – Economic Summary – PET vs Glass

Section III:
   **Environmental**

   A. Key assumptions
      1. Product waste
      2. Scope of the analysis
      3. End-of-life

   B. Case 3: Glass bottle LCA
      1. Energy consumption
         Table 6 – Case 3a: Glass Bottle – Energy
      2. Greenhouse gas releases
         Table 7 – Case 6: Glass Bottle – GHG
      3. Water consumption
         Table 8 – Case 6: Glass Bottle – Water
      4. End of life
         Table 9 – Case 6: Glass Bottle – Disposal

   C. Case 4: PET bottle LCA
      1. Energy consumption
         Table 10 – Case 9: PET Bottle – Energy
      2. Greenhouse gas releases
         Table 11 – Case 9: PET Bottle – GHG
      3. Water consumption
         Table 12 – Case 9: PET Bottle – Water
      4. End of life
         Table 13 – Case 9: PET Bottle – Disposal

   D. Results Summary
      Table 14 – Environmental Summary – PET vs Glass

Section IV:
   **SavvyPack Index**

   A. SavvyPack Index defined
      Table 15 – SavvyPack Index Defined

   B. Metric results
      Table 16 – Results for Glass Bottle and PET Bottle
      1. Package manufacturing cost
      2. Package filling cost
      3. Greenhouse gas (GHG) releases
4. Energy consumption
5. Water consumption
6. Material to landfill
7. Package efficiency
8. Pallet efficiency
9. Post user recycling rate
10. Raw material recycled content
11. Product protection
12. Package safety

C. Convert performance metric results to SavvyPack Index scores
   Table 17 – Range for All Performance Metrics
   1. Inversely proportional
      Figure 1 – SavvyPack Index Score for Package Manufacturing Cost
   2. Directly proportional
      Figure 2 – SavvyPack Index Score for Post Consumer Recycle Rate
      Table 18 – Scores for Each Metric

D. Glass bottle industry position
   Table 19 – Glass Bottle Industry Position

E. PET bottle industry position
   Table 20 – PET Bottle Industry Position

F. Reconciliation
   Table 21 – Glass Bottle and PET Bottle Percentage Comparisons
   1. Package manufacturing cost
   2. Package filling cost
   3. Greenhouse gas (GHG) releases
   4. Energy consumption
   5. Water consumption
   6. Material to landfill
   7. Package efficiency
   8. Pallet efficiency
   9. Post consumer recycling rate
   10. Raw material recycled content
   11. Product protection
   12. Package safety

G. Conclusion
   Table 22 – Overall SavvyPack Index Scores
Section V:
What-ifs

A. What-ifs
B. Oxygen furnaces
   1. Concept
   2. Model adjustments
   3. Results
      Table 23 – Oxygen Fuel Furnace Comparison
      Table 24 – PET Bottle Industry Position
      Table 25 – Overall SavvyPack Index Scores