Reintroducing... Passat 14

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Future plans

◆ Why should we change?
  – Good corporate citizens
  – Achieve good compromise between social, economic, and environmental impacts
  – Improve fuel efficiency
  – Maintain accessibility to masses
Passat 14 Characteristics

- High End VW Vehicle: About $22,000
- New BIW: testing new materials
  - Roof: Aluminum
  - Inner: Steel
  - Outer: SMC
  - Floor: Aluminum
- Environmentally friendly
  - Lower Weight = Sportier with Same Powertrain, but Less CO₂
- Same As It Ever Was...only sportier, sleeker, cleaner and more fuel efficient by design

March 17, 1999
VW-Passat 14

Advantages of Passat 14

- Improved power, performance, and fuel economy
- Improved emissions profile
- Improved ELU
- Higher recycling profitability
- Acceptable cost of production
- More labor-intensive process

March 17, 1999
VW-Passat 14
EPS matches initial conclusions

- Passat 14 falls into “cloud” of best ELU values
- Clearly most cost effective
EPS relies heavily on use-phase

![Graph showing ELU Values vs BIW Weight](image)

**Role of EPS in VW decisions**

- **For Passat 14**
  - Despite limitations, reinforced our decision
  - Demonstrated in “cloud” marginal ELU gain does not warrant increased costs
  - Offers insight into product life cycle and material selections beyond costs

- **For future**
  - Cannot be a decision making tool
  - Static and inflexible
  - Questionable whether use (fossil fuel use) should dramatically outweigh materials production
**Role in policy making**

- EPS is a micro-level instrument
  - Combines global and local impacts
  - May weigh different regionally
- Does not reflective or promote change and innovation,
  - (e.g. hinders SMC recycling innovations)
- Inequity in assumptions for plant to plant
  - Same assumption => does not reflect regional differences
  - Different assumptions => “apples to oranges” comparison
  - Promotes cheating, especially if penalties and initiatives tied to ELU values

**Recycling regulation**

- Mandates do not offer flexibility to make social tradeoffs
  - Affordability, recyclability & CO2 goals
  - e.g., CARB’s ZEV requirement
- Target may be a better option
  - Corporate responsibility
    - e.g. electronics industry have self-regulated recycling
Market mechanism

- Promote profitability of recyclers and secondary material suppliers
- Increased secondary materials market

Policy Push

Market Pull

Industry push

- We need to improve recycling capabilities for all cars
  - Regardless of composition of BIW, cars won’t meet targets
- R&D strategy
  - Alliance upstream and downstream
  - Internal Design for Environment
  - Feedback loops
  - Partial public funding through small gasoline tax
**Alliance Goals and Advantages**

- **Goals**
  - Reduce tradeoffs between material choice and use burden
  - Allow materials technology to evolve naturally

- **Advantages**
  - Distributes risk
  - Proactive
  - Flexibility
  - Ensures standardization in technological development
  - “Global companies for global change”
Suggestions for policies VW supports

- Certification fee
  - Annual fee posted on vehicle at time of sale
  - Linked to:
    » Class of vehicle
    » Its fuel efficiency within its class benchmarked against average mileage
    » Current policy reflects engine displacement, not use
- Advantages
  - Encourages consumers’ purchasing decisions towards efficiency

<table>
<thead>
<tr>
<th>Dealer Sticker</th>
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<tbody>
<tr>
<td>List Price</td>
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<tr>
<td>Certification Fee (Class Ranking)</td>
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<tr>
<td>Fuel Efficiency</td>
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<tr>
<td>Recycling Deposit</td>
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- Flat recycling fee paid for new vehicles at 1st registration
  - Similar to bottle deposit program
  - Fee placed in escrow
- Advantages
  - Provide recyclers incentive to improve recovery
  - Keep end-of-life vehicles in Germany for recyclers
  - Creates incentives for non-owners to pick-up abandoned vehicles
Suggestions for policies VW supports

- Small gasoline tax (0.01-0.05DM)
  - Used to supplement CAR’s R&D
- Advantages
  - Almost negligible to consumers
  - Not high enough to push out highly price sensitive consumers

Conclusions

- Passat 14...environmentally, socially, economically sound
- EPS...not a decision maker
- CAR...more beneficial than governmental mandates
- Policies to promote fuel efficiency and recyclability
  - Certification fee
  - Recycling deposit
  - Small gasoline tax