Volkswagen admits to use of a 'defeat device'

The automotive industry was recently rocked by Volkswagen’s acknowledgement that the company knowingly cheated on emissions testing of several models of 4-cylinder diesel cars starting in 2009. The diesel cars in question include software “defeat devices” that turn on full emissions control only during emission testing. Full emissions control is not activated during normal driving conditions and the cars have been shown to emit as much as 40 times the allowable pollution.

**Cause Map**

- **Defeat device**
  - Cars equipped with "defeat device"
  - Cars passed emissions tests AND "Defeat device" turned on AND Detects when emissions are performed AND Designed to only be used during testing AND Designed to limit emissions during emissions tests
  - Evidence: The "defeat device" software appears to have monitored the steering column and wheels to sense when the conditions indicated an emissions test was occurring. When the wheels turned without corresponding steering wheel motion, it signaled the software to turn the catalytic scrubber up to full power.

- **Defeat device**
  - Cars equipped with "defeat device"
  - Cars passed emissions tests AND "Defeat device" turned off while driving AND Improved customer experience?
  - Evidence: Improved fuel economy?
  - Evidence: Improved driving performance?

- **Customer Service Goal Impacted**
  - Cars equipped with "defeat device"
  - Negative publicity for company AND Cars' emissions higher under normal driving
  - Improved customer experience?

- **Safety Goal Impacted**
  - Sale of impacted cars halted AND Public health impacts of increased emissions
  - Large recall likely

- **Environmental Goal Impacted**
  - Improved fuel economy?
  - Evidence: Assumed design won't be found?
  - Difficult to meet standards?

- **Regulatory Goal Impacted**
  - Large fines likely
  - Evidence: Fines could be more than $18 billion dollars.

- **Production/ Schedule Goal Impacted**
  - Sale of impacted cars halted
  - Large recall likely

- **Economic Goal Impacted**
  - Large drop in stock price
  - Evidence: Volkswagen’s stock price dropped by more than 20% on 9/21/2015.

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- **Labor/ Time Goal Impacted**
  - Large recall likely

- **Impacted Cars’ emissions above limits**
  - See same cause

- **Impacted Public health impacts of increased emissions**
  - See same cause

- **Impacted Cars’ emissions above limits**
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- **Impacted Cars would not pass emissions tests without**
  - See same cause

- **Impacted Car’s emissions above limits**
  - See same cause

- **Regulatory Goal Impacted**
  - Large fines likely
  - Evidence: Fines could be more than $18 billion dollars.

- **Regulatory Goal Impacted**
  - Possible criminal prosecution
  - Evidence: Fines could be more than $18 billion dollars.

- **Production/ Schedule Goal Impacted**
  - Sale of impacted cars halted
  - Large recall likely

- **Safety Goal Impacted**
  - Sale of impacted cars halted
  - Public health impacts of increased emissions
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- **Environmental Goal Impacted**
  - Improved fuel economy?
  - Evidence: Designed to only be used during testing
  - Evidence: Designed to limit emissions during emissions tests

- **Customer Service Goal Impacted**
  - Negative publicity for company
  - Evidence: Fines could be more than $18 billion dollars.

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"This is several steps beyond the violations that we’ve seen from other auto companies. They appear to have designed a system with the intention to mislead consumers and the government. If that’s proven true, it’s remarkable and outrageous. It would merit a heck of a lot more than just a recall and a fine. We would see criminal prosecution."

-Tyson Slocum, director of the energy program at Public Citizen