

MONDAY MORNING: SO — WE MEET AGAIN



[image (modified): Leo Suarez via Flickr]

Monday: the bad penny we never escape, turning up once again beneath our cart's wheels just as we set in motion. Just give a hard shove, push on, and don't look back.

Volkswagen's bad news, good news as Detroit's auto show opens

Bad news first: In news dump zone on Friday afternoon, we heard Volkswagen wasn't going to release documents pertaining to the emissions control defeat scandal to several U.S. states' attorneys. VW said it couldn't due to privacy laws, which sounds dicey; why do corporations have privacy rights? You'd think only U.S. businesses would attempt such excuses.

The good news was held until VW's CEO Matthias Mueller arrived in U.S. for the soft opening of the North American International Auto Show in Detroit. VW is working on a catalytic converter it believes will resolved the emissions problem for roughly 2/3 of the affected vehicles. I'm guessing this is fix is intended for the oldest

vehicles, and that the newest ones are likely to be swapped with a new vehicle, or a sizeable discount on a replacement will be offered. Color me skeptical about the effectiveness of this fix; if this was such an obvious and easy solution, it would already appear on VW's diesel-powered passenger vehicles. Fuel economy will likely diminish due to increased back pressure – but that's why I think this fix is for the oldest cars. It would encourage VW loyalists to buy a new one.

Juniper Network shuts the (a?) backdoor

The network equipment company says it's "dropping" NSA-developed code after the revelation of a backdoor into their network device software. Does anyone believe all covert access by NSA has now been eliminated, though, if Juniper's source code isn't open?

Apple's devices monitoring your emotions soon?

Ridiculously cash-rich Apple snapped up artificial intelligence company Emotient, which makes an application to interpret users' emotions based on their facial expressions – *sentiment analysis*, they call it. I call it creepy as hell, especially since smartphone users can't be absolutely certain their cameras aren't in use unless they physically cover the apertures.

And yes, I do cover apertures on my devices with low-tack adhesive tape. It's the first thing I do after opening the box on any new camera-enabled device, even before charging the battery.

That's enough to get your cart moving. I hope to have a post up later, on the recent power outage in Ukraine.

NOT TRASH TALK: WATCH THIS SPACE

Most unsportsy member of the Emptywheel team here, throwing up a placeholder post to catch the sports stuff.

Commenter Lefty665 “seeds the kitty”:

How about them Redskins? Gonna kick some Cheesehead butt. Rogers has all the history, but since the bye Cousins has been the better QB. GM Scott McCloughan has turned the ‘Skins around, Gruden has grown up as coach, and miracle of miracles, Snyder has apparently kept his fingers out of the pie for the first time ever.

Here’s a link to the tune for the day, Patty Loveless doing Darrell Scott’s “You’ll never leave Harlan Alive.”

Have at ‘em. Marcy, bmaz, edit this post as you see fit whenever you have a few minutes.

Oh yeah, might be helpful to post this weekend’s NFL playoff game lineup:

Saturday: Pittsburgh Steelers versus Cincinnati Bengals – 8:15 P.M. EST – CBS (free)

Saturday: KC Chiefs versus Houston Texans – 4:15 P.M. EST – ABC/ESPN (free on ABC)

Sunday: Seattle Seahawks versus Minnesota Vikings – 1:05 P.M. EST – NBC (login required)

Sunday: Green Bay Packers versus Washington Redskins – 4:40 P.M. EST – FOX (login required)

Mashable’s posted info about streaming these games. Sucks if you have crappy internet, especially if you’re one of the roughly 30% of Americans without high speed internet access.

Given how damned little came out of the FCC's auction for 700Mhz bandwidth formerly used for analog television broadcast, does it ever feel like the auction was a scam to force the public to pay more to view sports?

UPDATED – 5:30 PM EST –

*Head upstairs where bmaz has posted the REAL trash talk tackling the divisional playoffs. I've also corrected the lineup to add Kansas City vs Houston *now in progress*, per NFL's schedule. Wow, so pressure, much football, very relief. /Rayne*

FRIDAY MORNING: LOOKS LIKE WE MADE IT!

Looks like we survived the first business week of the year, made it through floods and fire and other apocalyptic events. Can't imagine what next week will bring at this rate.

Saudi Arabia may sell shares in oil producer Aramco

Listing Aramco could create the most valuable company in the world, worth over a trillion in U.S. dollars. The move may raise cash to pay down some of the Saudi government's debt, but it opens the oil producer to public scrutiny. Would it be worth the hassle?

With Russia increasingly eating into Aramco's market share of China, and OECD countries' oil consumption falling, selling shares in Aramco may not raise enough cash as its revenues may remain flat. Prices for utilities have already been raised within Saudi Arabia, shifting a portion of expenses to the public. What other cash-producing moves might Saudi Arabia make in the next year?

Detroit's annual Autoshow brings VW's CEO for more than a visit to tradeshow booth

Looks like Volkswagen's Matthias Mueller will be tap dancing a lot next week – first at the 2016 North American International Auto Show, which unofficially opens Sunday, and then with the Environmental Protection Agency.

What's the German word for "mea culpa"? Might be a nice name for a true "clean diesel" vehicle.

Data breaches now so common, court throws out suit

You're going to have to show more than your privacy was lost if you sue a company for a data breach. Judge Joanna Seybert for U.S. District Court for the Eastern District of New York dismissed a class action suit against craft supplies retailer Michael's last week, writing that lead plaintiff "has not asserted any injuries that are 'certainly impending' or based on a 'substantial risk that the harm will occur.'" Whalen's credit card had been used fraudulently, but she wasn't liable for the charges.

Annoyingly, Clapper v Amnesty International USA was used as precedent, much as it had been in last summer's suit against Home Depot for a data breach. At this rate, retailers will continue to thumb their noses at protecting their customers' data, though identity theft-related losses amount to more than all other property theft losses combined [pdf].

Don't forget China: DOJ raids Chinese hoverboard company's stall at CES 2016

I can't find any previous examples of law enforcement conducting a raid at a trade show – if you know of one, please share in comments. The Department of Justice's raid yesterday on Changzhou First International Trade Co.'s booth at CES 2016 doesn't appear to have precedent. Changzhou's hoverboard product looks an awful lot like Future Motion's Onewheel, which had been the subject of a Kickstarter project. The Chinese hoverboard was expected to market for \$500, versus the Onewheel at \$1500.

Makes me wonder if there are other examples of internet-mediated crowd-funded technology at risk of intellectual property theft.

Pass the Patron. I'm declaring it tequila-thirty early today.

THURSDAY MORNING: CHINESE FORTUNE NOT LOOKING GOOD

If I was still a practicing Catholic, I'd be tempted to pray to St. Angela of Foligno today, her saint's day. She was known for walking away from wealth and practicing charity. Given the Chinese stock market's plummet overnight, St. Angela might be the right guide for this leg of the journey.

China halts stock trading after market sinks more than 7%

Second time this week trading has been suspended in China, with free fall blamed on Chinese currency, lower oil prices, economic slowdown. Some also blame North Korea's nuclear test, but anecdotes from Pacific Rim region suggest news about the test did not receive the same level of attention across Asia as in U.S. Not much feedback at the time this post was written in news media about response to market by China's leadership.

Richard Perle's long tail seen in North Korea

Worth revisiting an analysis on North Korea's nuclear program written last January by Siegfried Hecker of Stanford University's Center for International Security and Cooperation (CISAC). I agree with Hecker's assessment, only surprised he didn't name Richard Perle specifically for the cascade of diplomatic fail on North Korea that began under the Bush administration.

Self-driving cars, now self-driving passenger drones?

At CES 2016, China's Ehang Inc. showed off a single-passenger drone, launched by commands entered on a tablet. The drone has no backup controls, which sounds scary as hell for a passenger flying 1000-1600 feet above the ground at +60 miles per hour. I can hear George Jetson screaming, "Jane! Stop this crazy thing!" even now. FAA would be insane to permit these devices in the U.S.

Unnamed sources say VW may buy back polluting cars sold in U.S.

This report could be a trial balloon floated by Volkswagen to see if a buy-back or a hefty discount on a new car will appease U.S. owners of so-called "clean diesel" vehicles. Is this really a satisfactory remedy to fraud?

Rethinking Saudi Arabia's future in a time of cheap oil

Another worthwhile read, if a bit shallow. It's time to model not only Saudi Arabia's future, but a global economy no longer dependent on oil; what risks are there for OPEC countries if they cannot depend on increasing oil revenues? Could political instability spread across Central and South America as it has in the Middle East and Africa? How will climate change figure into the equation, as it has in Syria? And then back to economic unease in China, where the market has reacted negatively to lower oil prices.

I'm out of pocket this morning, will check in much later. Talk amongst yourselves as usual.

WEDNESDAY MORNING: OTHERWISE KNOWN AS

MIKE-MIKE-MIKE DAY

My condolences to the poor Mikes among us who have suffered every Hump Day since Geico's TV commercial became so popular.

North Korean nuclear test detected by 'earthquake'

About 10:00 a.m. North Korean local time Wednesday, an event measured at 5.1 on Richter scale occurred near the site of recent underground nuclear testing. South Korea described the "earthquake" as "man-made" shortly after. Interestingly, China called it a "suspected explosion" – blunt language for China so early after the event.

NK's Kim Jong Un later confirmed a "miniaturized hydrogen nuclear device" had been successfully tested. Governments and NGOs are now studying the event to validate this announcement. The explosion's size calls the type of bomb into question – was this a hydrogen or an atomic weapon?

I'm amused at the way the news dispersed. While validating the story, I searched for "North Korea earthquake"; the earliest site in the search was BNO News (a.k.a. @BreakingNews) approximately 45 minutes after the event, followed 17 minutes later by Thompson Reuters Foundation. Not Reuters News, but the Foundation, and only the briefest regurgitation of an early South Korean statement. Interesting.

Spies' ugly deaths

Examining the deaths of spies from 250 AD to present, Lapham's Quarterly shows us how very cruel humans remain toward each other over the last millennia. Clearly, vicious deaths have not foiled the use of spies.

Zika virus outbreak moves Brazil to caution women against pregnancy now

An outbreak of the mosquito-borne Zika virus in Brazil may be linked to a sizeable uptick in microcephalic births – 2782 this past year,

compared to 150 the previous year. The Brazilian government is now cautioning women to defer pregnancy until the end of the rainy season when the virus' spread has been slowed.

Compared to number of Ebola virus cases in 2014-2015, Zika poses a much greater risk in terms of spread and future affected population. The virus has not received much attention, in spite of more than a million cases in Brazil, as symptoms among children and adults are relatively mild.

BCP now available in Oregon over the counter

Thanks to recent state legislation, women in Oregon now have greater access to birth control pills over the counter. California will soon implement the same legislation.

That's one way of reducing the future number of white male libertarian terrorists demanding unfettered use of public space and offerings of snacks.

Microsoft's tracking users' minutes in Windows 10

No longer content with tracking the number of devices using Windows operating system, Microsoft now measures how long each user spends in Windows 10. Why such granular measures? The company won't say.

Worth remembering two things: 1) Users don't *own* operating system software – they're licensees; 2) Software and system holes open to licensors may be holes open to others.

New cross-platform ransomware relies on JavaScript*

Won't matter whether users run Windows, Linux, Apple's Mac OS: if a device runs JavaScript, it's at risk for a new ransomware infection. Do read the article; this malware is particularly insidious because it hides in legitimate code, making it difficult to detect for elimination. And do make sure you keep backup copies of critical files off your devices in case you're hit by this ransomware.

Buckle up tight in your bobsled. It's all downhill after lunch, kids.

[* *this word edited to JavaScript from Java./Rayne*]

TUESDAY MORNING: WOW, YOU SURVIVED BUSINESS DAY 1

The post-holiday season debris field continues to thin out, making its way by the truckful to the landfill. I wonder how much oil the season's plastic wrappings consumed.

Here's what the trash man left behind this morning.

Hackers caused power outage – the first of its kind?

Marcy's already posted about the electrical power disruption in Ukraine this past week, labeled by some as the first known hacker-caused outage. I find the location of this malware-based outage disturbing due to its location in western Ukraine. Given the level of tensions with Russia along the eastern portion of the country, particularly near Donetsk over the past couple of years, an outage in the west seems counterintuitive if the hackers were motivated by Ukraine-Russian conflict.

And hey, look, the hackers may have used backdoors! Hoocudanode hackers would use backdoors?!

Fortunately, one government is clued in: the Dutch grok the risks inherent in government-mandated backdoors and are willing to support better encryption.

'Netflix and chill' in a new Volvo

I've never been offered a compelling case for

self-driving cars. Every excuse offered – like greater fuel efficiency and reduced traffic jams – only make greater arguments for more and better public transportation.

The latest excuse: watching streaming video while not-driving is Volvo's rationalization for developing automotive artificial intelligence.

I'm not alone in my skepticism. I suspect Isaac Asimov is rolling in his grave.

US Govt sues pollution-cheater VW – while GOP Congress seeks bailout for VW

WHAT?! Is this nuts or what? A foreign car company deliberately broke U.S. laws, damaging the environment while lying to consumers and eating into U.S.-made automotive market share. The Environmental Protection Agency filed suit against Volkswagen for its use of illegal emissions control defeat systems. The violation of consumers' trust has yet to be addressed.

Thank goodness for the GOP-led House, which stands ready to offer a freaking bailout to a lying, cheating foreign carmaker which screwed the American public. Yeah, that'll fix everything.

Remember conservatives whining about bailing out General Motors during 2008's financial crisis? All of them really need a job working for VW.

Massive data breach affecting 191 million voters – and nobody wants to own up to the database problem

An infosec researcher disclosed last week a database containing records on 191 million voters was exposed. You probably heard about this already and shrugged, because data breaches happen almost daily now. No big deal, right?

Except that 191 million voters is more than the number of people who cast a vote in 2012 or even 2008 presidential elections. This database must represent more than a couple election cycles of voter data because of its size – and nobody's responding appropriately to the magnitude of the problem.

Nobody's owning up to the database or the problem, either.

Here's a novel idea: perhaps Congress, instead of bailing out lying, cheating foreign automakers, ought to spend their time investigating violations of voters' data – those folks that put them in office?

Any member of Congress not concerned about this breach should also avoid bitching about voter fraud, because hypocrisy. Ditto the DNC and the Hillary Clinton campaign.

Whew, there it is, another mark on the 2016 resolution checklist. Have you checked anything off your list yet? Fess up.

MONDAY MORNING: FIRST, SAME AS THE LAST

Hear that sound? Like so many sighs of resignation? Yup, it's the first Monday of the new year, and with it, a plethora of shiny resolutions slowly breached and broken like WiFi-enabled toys.

One of my 2016 resolutions (which I hope will last more than a week) is a morning update here at emptywheel. Won't be hot-urgent-newsy, just stuff worth scanning while you have a cup of joe. Let's see if I can stick it out five days – then I'll try another benchmark.

Droning on

Did you get or give a drone as a gift this holiday season? Better make sure it's registered with the Federal Aviation Administration.

Twitter to bring back Politwoops

Among the stupid moves Twitter made last year was the decision to shut out Sunlight

Foundation's Politwoops platform. The tool archived politicians' embarrassing tweets even if the tweets had been deleted. With the general election season now in full swing, voters need more accountability of candidates and elected officials, not less. Sunlight Foundation and the Open State Foundation negotiated with Twitter to restore the tool. Let's hope it's up and running well before the first caucuses – and let's hope Twitter gets a grip on its business model, pronto.

You'd think by now Twitter would have figured out politicians' tweeted gaffes are gasoline to their social media platform growth...

Microsoft spreads FUD about...Microsoft?

If you're an oldster IT person like me, you recall the Halloween memo scandal of 1998, documenting Microsoft's practice of promulgating fear, uncertainty, and doubt (FUD) about competing operating systems in order to gain and control Windows market share. For more than a decade, Microsoft relied on FUD to ensure near-ubiquity of Windows and Word software products. Now Microsoft is using FUD not to prevent customers from using other products, but to encourage migration from Windows 7 to Windows 10, to reduce possible state-sponsored attacks on Win 7 systems.

Personally, I think Microsoft has already been ridiculously ham-handed in its push for Win 10 upgrades before this latest FUD. If you are a Win 7 or Win 8 user, you've already seen attempts to migrate users embedded in recent security patches (read: crapware). I've had enough FUD for a lifetime – I'm already running open source operating systems Linux and Android on most of my devices. I would kill for an Android desktop or laptop (yoohoo, hint-hint, Android developers...).

And don't even start with the "Buy Apple" routine. Given the large number of vulnerabilities, it's only a matter of time before Mac OS and iOS attract the same level of attention from hackers as Windows. I'll hold my

AAPL stock as long as you insist on “Buy Apple,” however.

Consumer Electronics Show 2016 – now with biometric brassieres

CES 2016 opens this week in Las Vegas, and all I can think is: Are you fucking kidding me with this fresh Internet of Things stupidity? A biometric bra? What idiot dreamed this up?

Why not biometric jockstraps? I can only imagine the first response to biometric jockstraps: “No EMF radiation near my ‘nads!” Yeah, well the same thing applies to breasts. Didn’t anybody get the memo last year that 217 scientists have expressed concerns about EMF’s potential impact on human health, based on +2,000 peer-reviewed articles?

Or are businesses ignoring this science the same way petrochemical businesses have ignored climate change science?

Phew. There it is, the first checkmark of my 2016 resolutions. Happy first Monday to you. Did you make any New Year’s resolutions? Do tell.

INTERNET OF THINGS: NOW, WITH ‘BREACHABLE’ KIDS CONNECT AND ‘HACKABLE’ BARBIE

The Internet of Things (IoT) already includes refrigerators, televisions, slow cookers, automobiles, you name it. Most of these items have already experienced security problems, whether personal information leaks, or manipulative hacking.

Now the IoT includes toys – and wow, what a

surprise! They're riddled with privacy and security problems, too.

Like VTech's privacy breach, exposing data for more than 6 million children and parents including facial photos and chat logs through its Kids Connect technology. The company's privacy policy (last archived copy) indicated communications would be encrypted, but the encryption proved whisper thin.

Or Mattel's Hello Barbie, its Wi-Fi enabled communications at risk for hacking and unauthorized surveillance. The flaws include this doll's ability to connect to any Wi-Fi network named "Barbie" – it was absolutely brain-dead easy to spoof and begin snooping on anything this doll could "hear."

It's amazing these manufacturers ever thought these toys were appropriate for the marketplace, given their target audience. In VTech's case, it appears to be nearly all ages (its Android app on Google Play is unrated), and in the case of Mattel's Hello Barbie, it's primarily girls ages 6-15.

These devices are especially iffy since they tippy-toe along the edge of the Children's Online Privacy Protection Act of 1998 (a.k.a. COPPA, 15 U.S.C. 6501–6505).

Parents share much of the blame, too. Most have no clue what or how federal law covers children's internet use under COPPA, or requirements under the Children's Internet Protection Act (a.k.a. CIPA, 47 CFR 54.520). Nor do the parents who buy these devices appear to grasp this basic fact: any network-mediated or Wi-Fi toy, apart from the obvious cellphone/tablet/PC, is at implicit risk for leaking personal data or hackable. How are these devices risking exposure of children's data, including their activities and location, age-appropriate toys?

This piece at Computerworld has a few helpful suggestions. In my opinion, the IoT doesn't belong in your kids' toolbox until your kids are

old enough to understand and manage personal digital information security to use the internet safely.

Frankly, many parents aren't ready for safe internet use.

TEN BILLION: A KICK IN THE ASS WE'VE NEEDED

[Note: You can join Professor Stephen Emmott for a @reddit AMA **TODAY** Friday 04-DEC-2015 at 4:00 pm (UK) / **11:00 am EST**.]

If we learned a cataclysmic, extinction-level event was hurtling toward our planet, how would we respond? How should we respond if we know we can minimize the threat?

This is in essence the question asked of us by *Ten Billion*, a film based on Professor Stephen Emmott's eponymous book. The film premieres this Saturday at 22:00 UTC on SkyTV.

I was fortunate to screen *Ten Billion* recently. Crafted by director Peter Webber, it deftly evokes *Koyaanisqatsi* (1982), its name based on the Hopi word for "life out of balance." *Ten Billion* similarly shows us a world even more off kilter, its resources relentlessly consumed by humans. Where *Koyaanisqatsi*'s Philip Glass score was reflective and elegiac, *Ten Billion*'s Alex Heffes' score underlines the mounting urgency of crises.

These crises are many, pegged directly to population growth and its corresponding rate of consumption. The film's use of a timeline depicting past and future projections of population are effective, like watching the tipping point of a virus infecting its host.

Effective, too, are comparisons between recent

and archival photos depicting the changes wrought by humans. Evidence of glaciation loss is horrific, as one example.

Photos of earth from the International Space Station remind us that we are all in this together. There is no escape, no way around this; this is home, and we must work together to save it.

My sole critique is about the diversity of “climate migrants” – so-called in the film, but we know now that many who flee political instability are really “climate refugees.” *Ten Billion* depicts the plight of peoples affected most by climate change. Most live closer to the equator, and are therefore darker skinned. They have been too easily ignored by light-skinned northern cultures. We see that now with the response to Syrian refugees, whose home country began to fall apart due to severe drought long before overt military action began against Bashar al-Assad’s regime and ISIS.

We also see the same blindness in western response to world-record typhoons Bopha, Haiyan, Hagupit, Koppu hitting the Philippines year after year; cyclone Pam nearly wiping away Vanuatu this past March; and the combination of severe drought and catastrophic flooding affecting Chennai, India even now. There is little if any news coverage here in the U.S., and a nominal amount in the U.K. and EU, as if Asians and Pacific Islanders don’t even exist though they number in the billions. We ignore our role in exporting not only manufacturing jobs but associated air pollution to India and China.

Ten Billion would have been more effective holding a mirror up to the pale faces of northern climes, forcing them to see they, too, are affected. Whites fled both New Orleans and the Gulf Coast ahead of hurricanes like Katrina. They fled the coast of New Jersey and New York after Hurricane Sandy – some who stayed and returned to the affected area are still dealing with post-storm damage years later. There will

be more internal climate refugees again whenever the next Category 4 or 5 hurricane hits U.S.

And there will be refugees from drought, when the need for water in states like California finally exceeds the ability of other states to sell and ship enough to meet the shortfall. We are not prepared to deal with this generation's version of the Okies fleeing a new Dust Bowl.

Until the west – especially the U.S. based on its consumption habits and political reach – realizes its own pale skin is invested in these crises, it may continue to look the other way while making idle greenwashed gestures like COP21 in Paris this week.

I am on the fence about Emmott's understatement about his own background in this film. If he had been more explicit about his role as a scientist, would the public take his plea in *Ten Billion* more seriously?

It's important to note this film may be part of a growing trend – scientists bypassing the suffocation of politicized corporate media, in order to reach the public.

We've seen this recently with the op-ed by NASA Jet Propulsion Laboratory/Caltech senior water scientist Professor Jay Famiglietti, warning California only had one year of water left in its reservoirs. Famiglietti didn't wait for a report issued from either NASA or academia to filter its way into the stultifying news reporting process. He cut out the middle men and wrote an op-ed for the Los Angeles Times to convey urgency and effect immediate action.

Some will criticize this film as expository and hortatory, failing to provide solutions to the crises we've created. This is not that film. This is not meant to guide us toward help, when so many other scientists have already told us for decades what is wrong and what action we must take to minimize the threat to our planet and ourselves.

This film is meant to be a much-needed kick in

the ass, to propel us to action appropriate to a cataclysmic, extinction-level event.

Because as Emmott says, in concise terms familiar to civilians and scientists alike, we're fucked if do not take immediate, appropriate action.

You can join Professor Emmott for a @reddit AMA TODAY Friday 04-DEC-2015 at 4:00 pm (UK) / 11:00 am EST. Emmott also has an op-ed today in The Guardian.

TIMELINE: IS VOLKSWAGEN'S 'BUG' AN EU FEATURE? [UPDATED]

Reports this last week that Volkswagen deployed "defeat devices" – software designed to cheat diesel passenger vehicle emissions controls tests – revealed more than an automobile manufacturing group run amok. One might suspect European Union's emissions governance after looking at a timeline of events.

NOTE: This timeline is in progress and is subject to updating as new items are identified. [Update 7:00 pm EDT – note added about translation, and note added to citation [4]]

– 1970 –

February 1970 – The Council of the European Communities issued the *Council Directive 70/156/EEC*, which established a mutual baseline for technical specifications of vehicles sold across the member states. This included 3.2.20. *Measures taken against air pollution*.

– 1992 –

July 1992 – The first standard for passenger vehicle emissions, Euro 1 through 6, is

implemented. Level Euro 1 for new diesel-fueled vehicles limited emissions of carbon monoxide (CO) to 2.72 grams per kilometer, with no initial limit on nitrous oxides (NOx) alone, but a combined limit of hydrocarbon+nitrous oxides (HC+NOx) at 0.97 g/km.

– 2004 – 2009 –

Dates Vary – Vehicle manufacturers phased in the remaining Euro 4 through 6 emissions standards.

19 October 2004 – European Environment Agency published a press release, Poor European test standards understate air pollution from cars, which summarized the problem:

Inadequate test standards are underestimating emissions of harmful air pollutants from new cars and evidence indicates that many diesel car owners are making things worse by modifying their engines to increase power, the European Environment Agency warned today.

No specific orders or directions were offered to resolve the problem with emissions test standards.

– 2007 –

(*Month TBD*) – Volkswagen subsidiary Audi launched its “Truth in Engineering” ad campaign. This tagline remains in use to present.

– 2008 –

(*Month TBD*) – VW announced its “Clean Diesel” (TDI model) technology, and began selling it in 4-cylinder diesel Jetta, Beetle, Audi A3, and Golf cars to the US market.

(*Month TBD*) – *Green Car Journal* named VW’s 2009 Jetta TDI “Green Car of the Year.”

– 2009 –

September 2009 – European emission standard Euro 5a for diesel passenger vehicles enacted, limiting CO to 0.50 grams per kilometer, NOx to 0.180 g/km , and HC+NOx to 0.230 g/km.

These levels are a reduction from Euro 4 standard implemented in January 2005 ($CO=0.05$, $NO_x=0.25$, $HC+NO_x=0.30$).

– 2011 –

September 2011 – EU emission standard Euro 5b phased in, using same levels as 5a, but applying a specific particulate measure of 6×10^{-11} th).

December 2011 – Report in *Atmospheric Environment* [1] says,

...The lack of a decrease in the concentration of NO_x and in particular NO_2 is of concern given European air quality standards are set in law. The lack of decrease in the concentration of NO_x and NO_2 is also in clear disagreement with emission inventory estimates and projections. ... **We find that there are significant discrepancies between current UK/European estimates of NO_x emissions and those derived from the remote sensing data for several important classes of vehicle.** In the case of light duty diesel vehicles it is found that NO_x emissions have changed little over 20 years or so over a period when the proportion of directly emitted NO_2 has increased substantially. For diesel cars it is found that absolute emissions of NO_x are higher across all legislative classes than suggested by UK and other European emission inventories. Moreover, the analysis shows that more recent technology diesel cars (Euro 3–5) have clear increasing NO_x emissions as a function of Vehicle Specific Power, which is absent for older technology vehicles. ... [*emphasis mine*]

– 2012 –

April 2012 – The International Council on Clean Transportation (ICCT), an independent nonprofit, published a report, Discrepancies between type-approval and real-world fuel consumption and CO_2 values in 2001-2011 European passenger cars. Its

summary is rather benign, though it does suggest there are discrepancies in emissions reporting:

This paper compares fuel consumption / CO2 values of passenger cars from different sources and aims at quantifying the discrepancy between laboratory type-approval values and real-world values, including a retrospective analysis for the years 2001-2011 to determine if the gap between the two datasets has increased over time. Potential explanations for the discrepancies found are discussed and possible practical solutions for the future outlined.

The report expressed concerns about consumers' perceptions that fuel efficiency does not match figures reported at time of sale, and that consumers might resist emissions controls because efficiency does not yield an offset in fuel savings.

– 2013 –

November 2013 – An op-ed by Christian Wüst in Der Spiegel, Artists of the Dynamometer (Artisten des Prüfstands), criticized automakers for failing to install particulate filters costing an estimated 100 euros per each gasoline-powered vehicle. Though Wüst had training as a mechanic as well as education in journalism, he may have been fooled by reports on diesel-powered vehicle emissions tests, with regard to soot-particulate filters.

... Die schon beim Diesel bewährten Filter hingegen könnten all diese Trickserei überflüssig machen. Sie fangen mehr als 99 Prozent der Partikel ein. Selbst auf Messfahrt bei Vollgas bliebe ein Benzinauto mit diesem Gerät weit unter dem zulässigen Grenzwert. ...

[Translation: The already proven diesel filter on the other hand could make all this tricks superfluous. They capture more than 99 percent of the particles.*

Even on test runs at full throttle, a gasoline car with this device is far below the allowable limit. ...]

(Month TBD) – West Virginia University’s Center for Alternative Fuels, Engines & Emissions (CAFEE) researchers are commissioned by the ICCT to test Volkswagen diesel passenger car emissions.

– 2014 –

May 2014 – WVU’s CAFEE researchers issue a Final Report [2] to ICCT.

(Month TBD) – VW began selling “Clean Diesel” Passats in the US market.

September 2014 – Emissions standard Euro 6 implemented, with CO limit unchanged at 0.50 g/km; NOX 0.080, HC+NOX 0.170, and particulate unchanged at 6×10(11th).

28 September 2014 – ICCT published a report [3] updating previous work and extending “an analysis of the gap between official and real-world fuel consumption and CO₂ emissions for passenger cars in Europe, which reached 38% in 2013 and continues to grow at an accelerated pace.” The report calls for implementation of “new Worldwide Harmonized Light Vehicles Test Procedure (WLTP), a more appropriate test that will produce more realistic type-approval values.”

11 October 2014 – ICCT published another report [4] – in summary:

*Documents the discrepancy between type-approval and real-world NOx emissions from new diesel passenger cars. On average, on-road NOx emissions from the vehicles tested for this analysis were about **seven times higher than the limits set** by the Euro 6 standard. [emphasis mine]*

– 2015 –

(Month TBD) – VW’s 2015 Passat TDI named by

Cars.com the “Eco-friendly Car of the Year.”

18 September 2015 – U.S. Environmental Protection Agency issued to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc., a Notice of Violation (NOV) of the Clean Air Act, alleging:

...four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards for certain air pollutants. California is separately issuing an In-Use Compliance letter to Volkswagen, and EPA and the California Air Resources Board (CARB) have both initiated investigations based on Volkswagen’s alleged actions. ...

20 September 2015 – VW halted sales of some 4-cylinder diesel-powered vehicles in the U.S.

22 September 2015 – VW admitted that 11 million vehicles had been fitted with the “defeat device” software to thwart accurate testing of emissions.

23 September 2015 – VW’s CEO Martin Winterkorn resigned; law firm Kirkland & Ellis, which represented BP after the Deepwater Horizon disaster in 2010, was retained by VW.

(If you have a point you believe is critical to this timeline, feel free to share it in comments for consideration.)

Initial Conclusion:

On first pass, it appears that the EU did not have adequate mechanisms in place to investigate the disparities between actual emissions and test emission levels reported over the course of the last handful of years. Until the U.S. regulatory body took action, the EU did not appear to respond at all beyond press release(s).

It’s not clear what happened between the time ICCT received their commissioned report from WVU-CAFEE and the U.S. EPA gave VW its NOV. This

gap in time may have been the normal bureaucratic lag from reporting a problem through the federal government's validation of the problem – but this gap meant 16 months of additional air pollution and more new vehicles sold with the cheating software on board.

The lack of prompt, effective action despite years of evidence mirrors the EU's response to the refugee crisis. Both issues are at complete odds with the EU's response to Greece's economic crisis. This begs the question whether the EU has outsourced pollution monitoring to the U.S., and whether the EU itself has real function beyond policing economic policy and banking legislation.

We might ask if the disparity in EU reaction to different crises a bug or a feature, or is the EU merely asleep at the wheel? Whatever the case, thousands of U.S. and EU citizens have sickened or died prematurely because of exposure to air pollution, and climate change has only grown worse, setting up conditions for more crises ahead.

Note:

* Translation here in question. By *all diese Trickseriei überflüssig machen*, did Wüst mean:

- all these tricks are made superfluous, or
- all this trickery is superfluous

In either case, you get the gist, I'm sure.

Citations:

[1] Carslaw, D., Beevers, S., Tate, J., Westmoreland, E., & Williams, M. (2011). Recent evidence concerning higher NOx emissions from passenger cars and light duty vehicles. *Atmospheric Environment*, 45(39), 7053-7063.

[2] Thompson, Dr. Gregory J., Daniel K. Carder, Marc C. Besch, Arvind Thiruvengadam, and Hemanth K. Kappanna. In-Use Emissions Testing of Light-Duty Diesel Vehicles in the United States. Report (PDF), May 15, 2014.

[3] Mock, Peter, and Uwe Tietge, Vicente Franco, John German, Anup Bandivadekar (ICCT), Norbert Ligterink (TNO), Udo Lambrecht (IFEU), Jörg Kühlwein (KISU), and Iddo Riemersma (Sidekick Project Support). From Laboratory to Road: A 2014 Update. *The International Council on Clean Transportation*. 28 Sept. 2014.

[4] Franco, Vicente, and Francisco Posada Sánchez, John German, Peter Mock. Real-world exhaust emissions from modern diesel cars. *The International Council on Clean Transportation*. 11 Oct. 2014. [EDITED: Note this is PART 1: AGGREGATED RESULTS of the entire study; PART 2: DETAILED RESULTS has been requested as it is not available online.]