



Technical Report
NREL/TP-5600-49630
September 2010

Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project

Fall 2010

Composite Data Products

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Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project



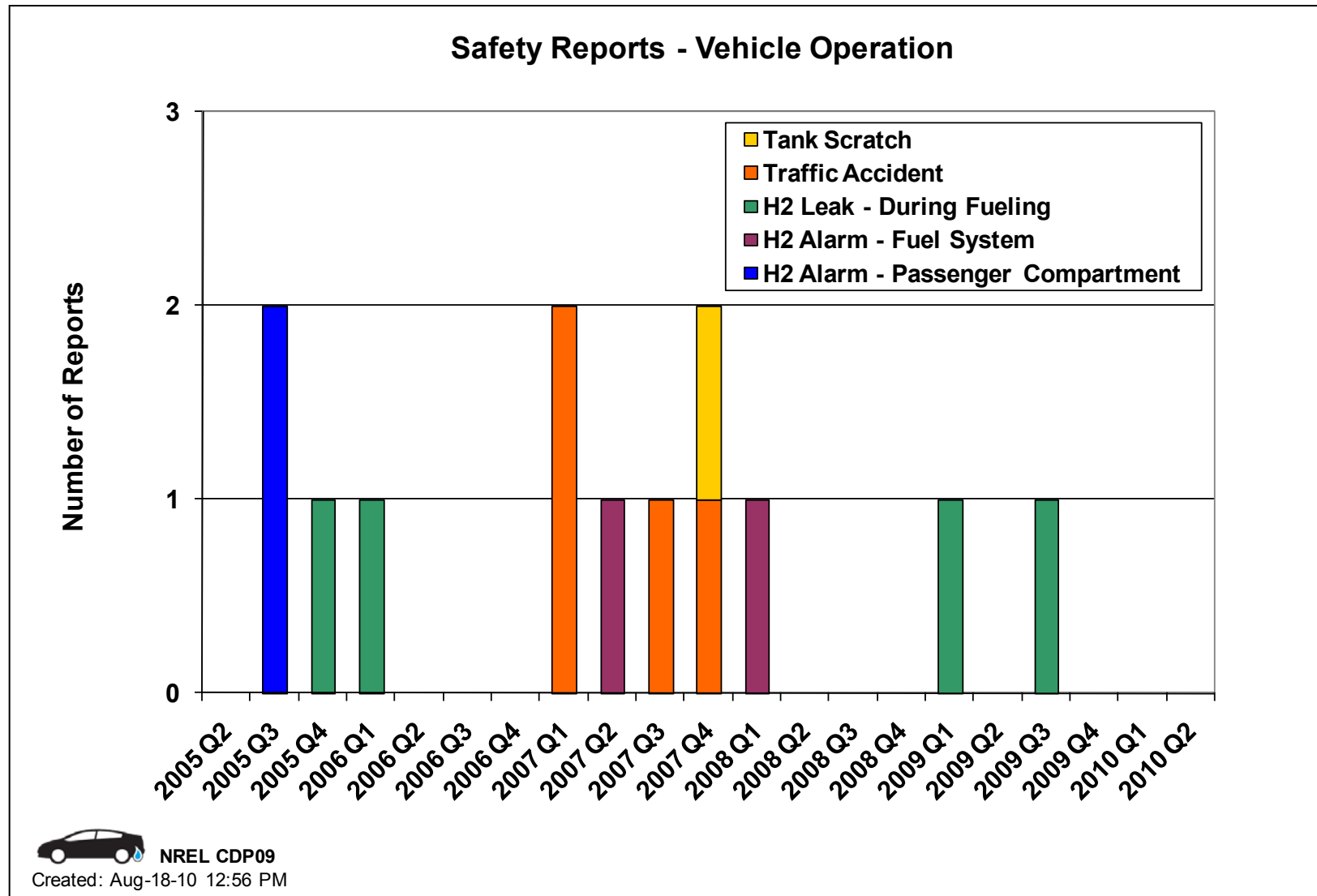
**Fall 2010
Composite Data
Products**

September 17, 2010

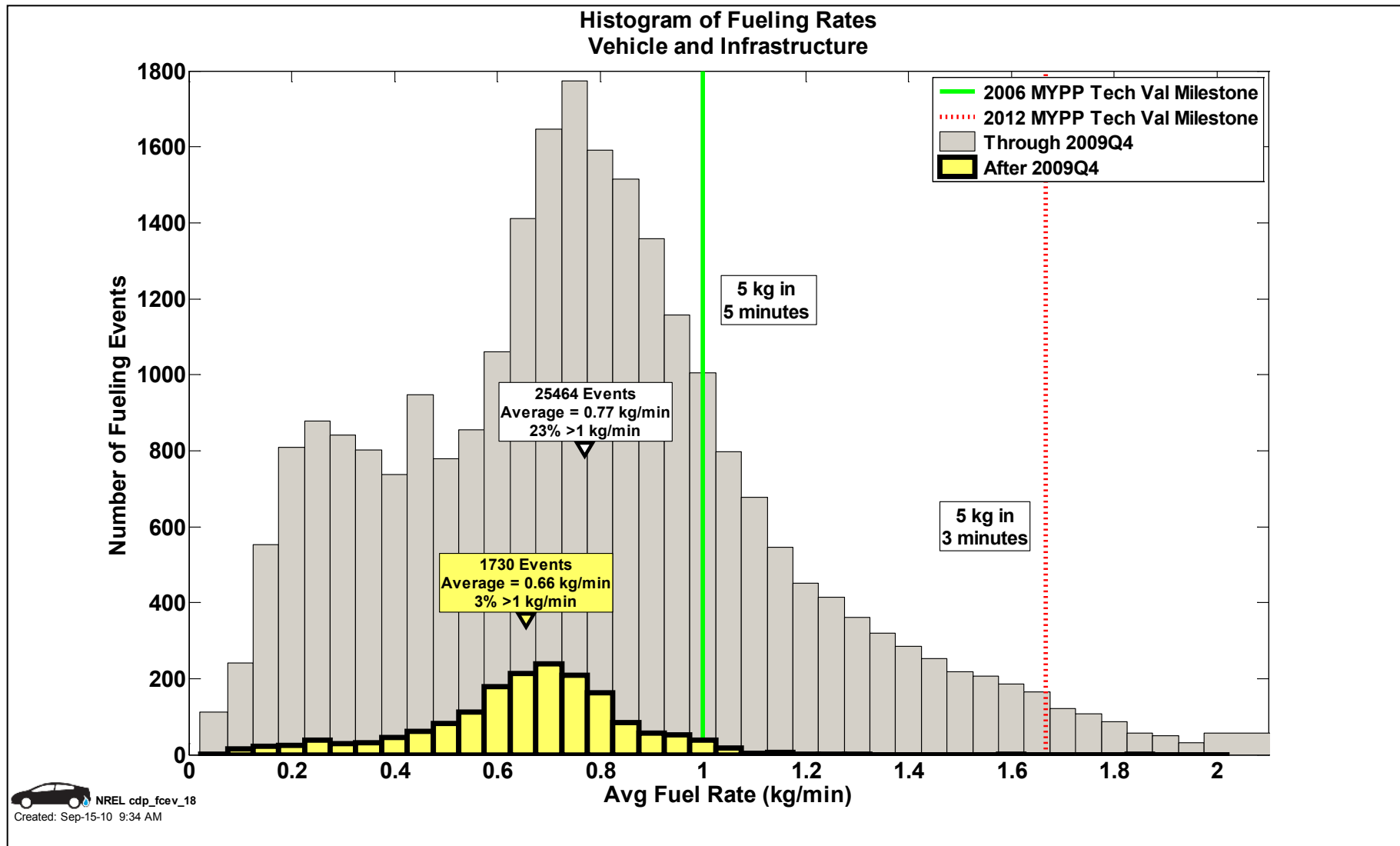
**Keith Wipke, Sam Sprik,
Jennifer Kurtz, Todd
Ramsden**

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CDP#9: Safety Reports – Vehicles

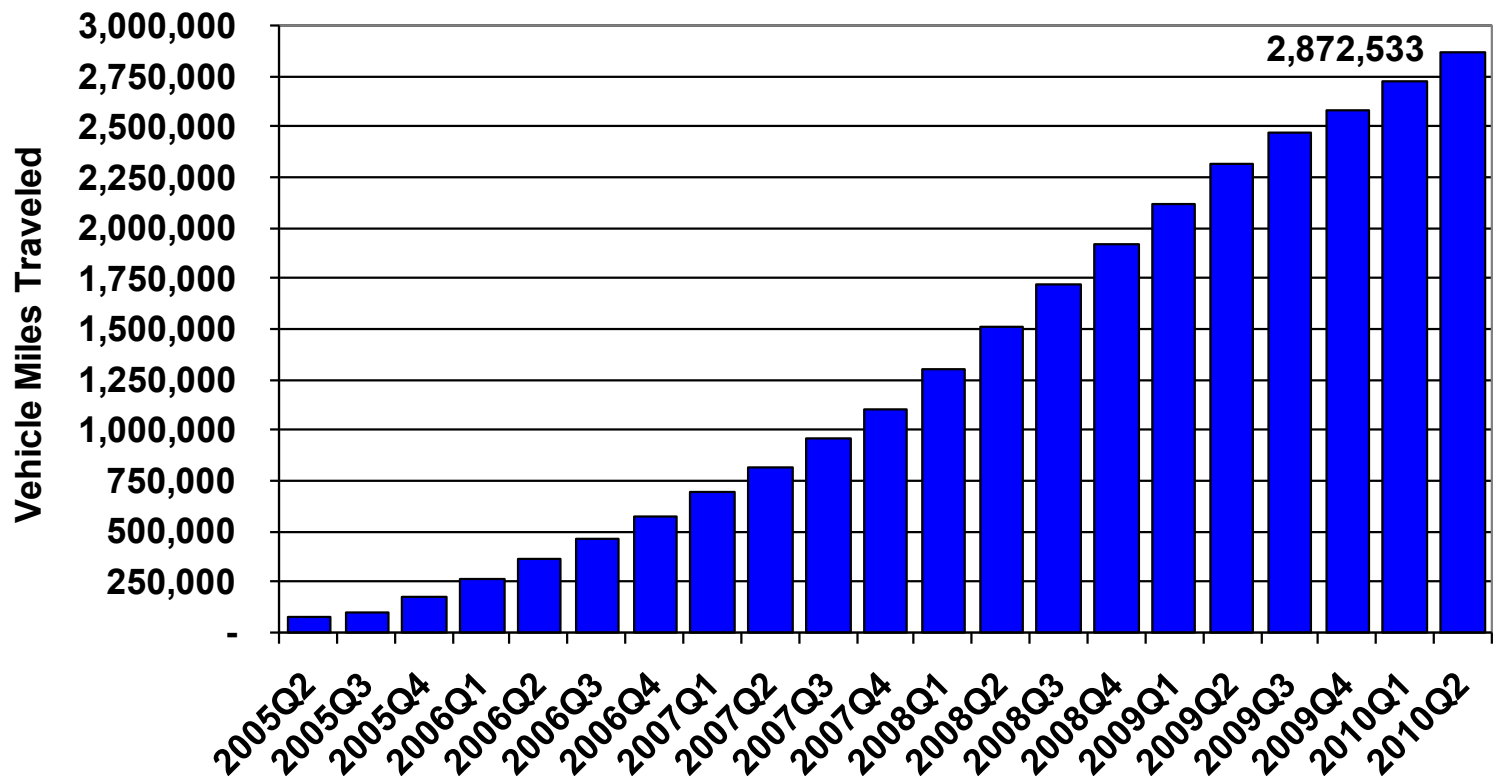


CDP#18: Refueling Rates

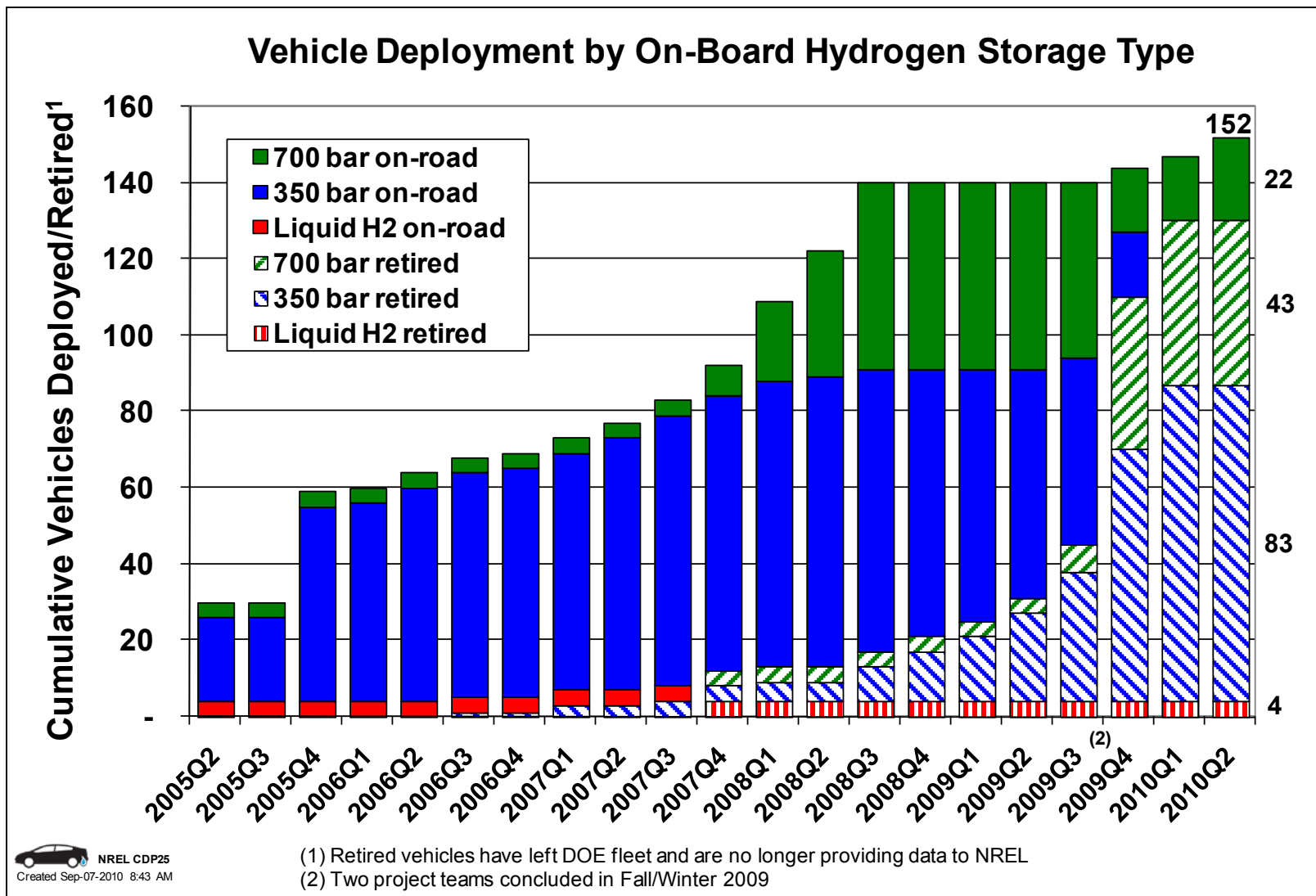


CDP#24: Cumulative Vehicle Miles Traveled

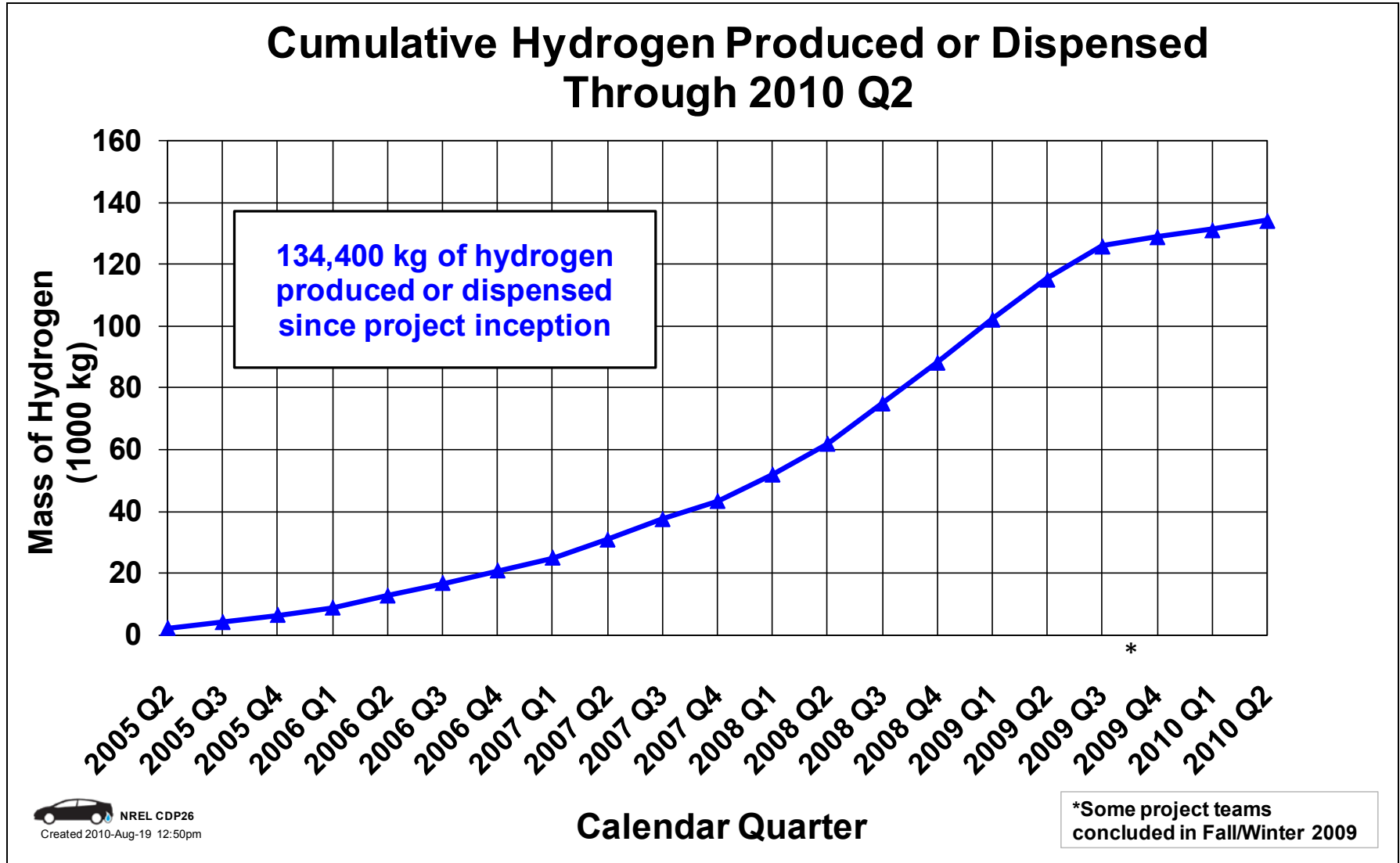
Cumulative Vehicle Miles: All OEMs, Gen 1 and Gen 2
Through 2010 Q2



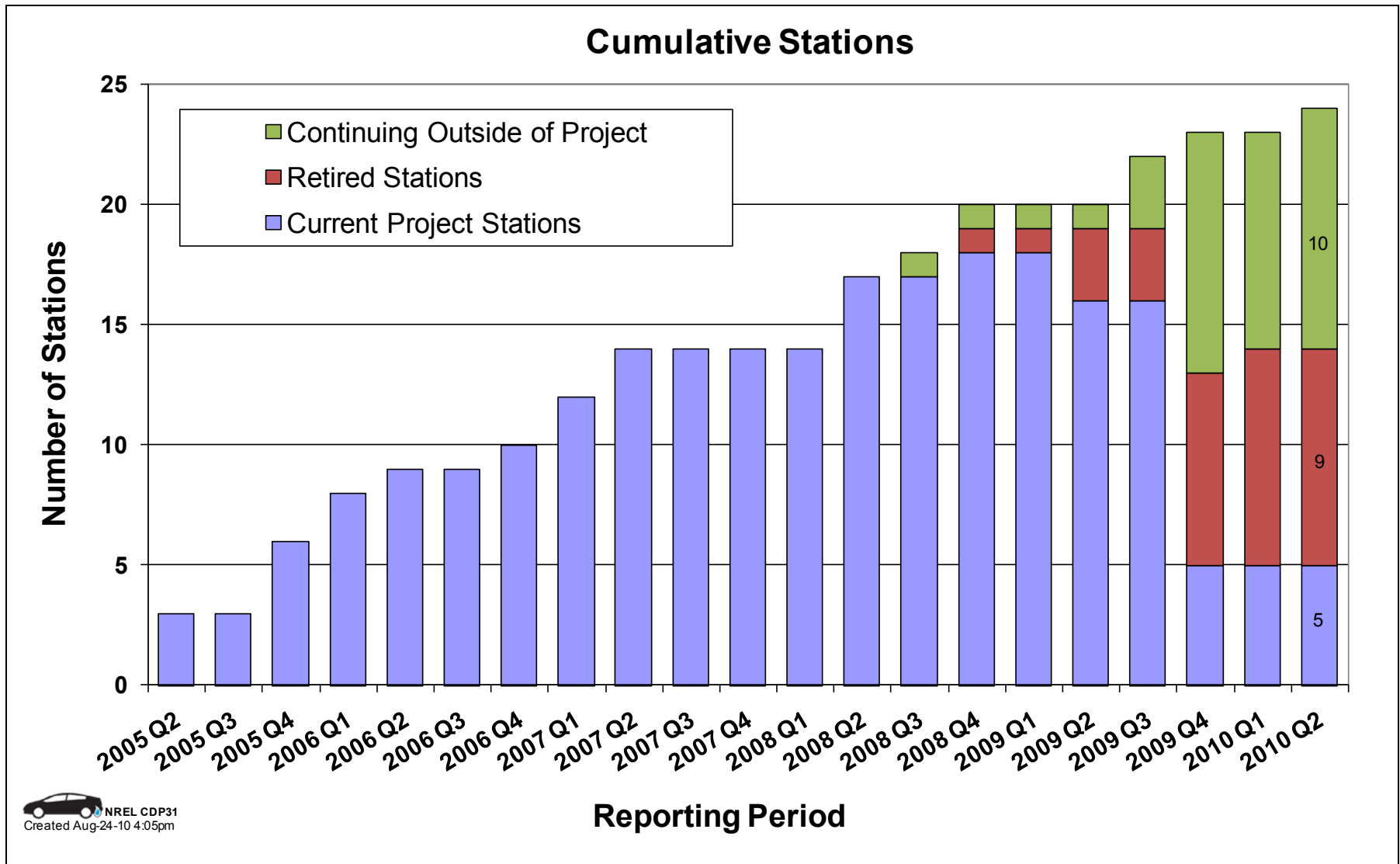
CDP#25: Vehicle H2 Storage Technologies



CDP#26: Cumulative H2 Produced or Dispensed

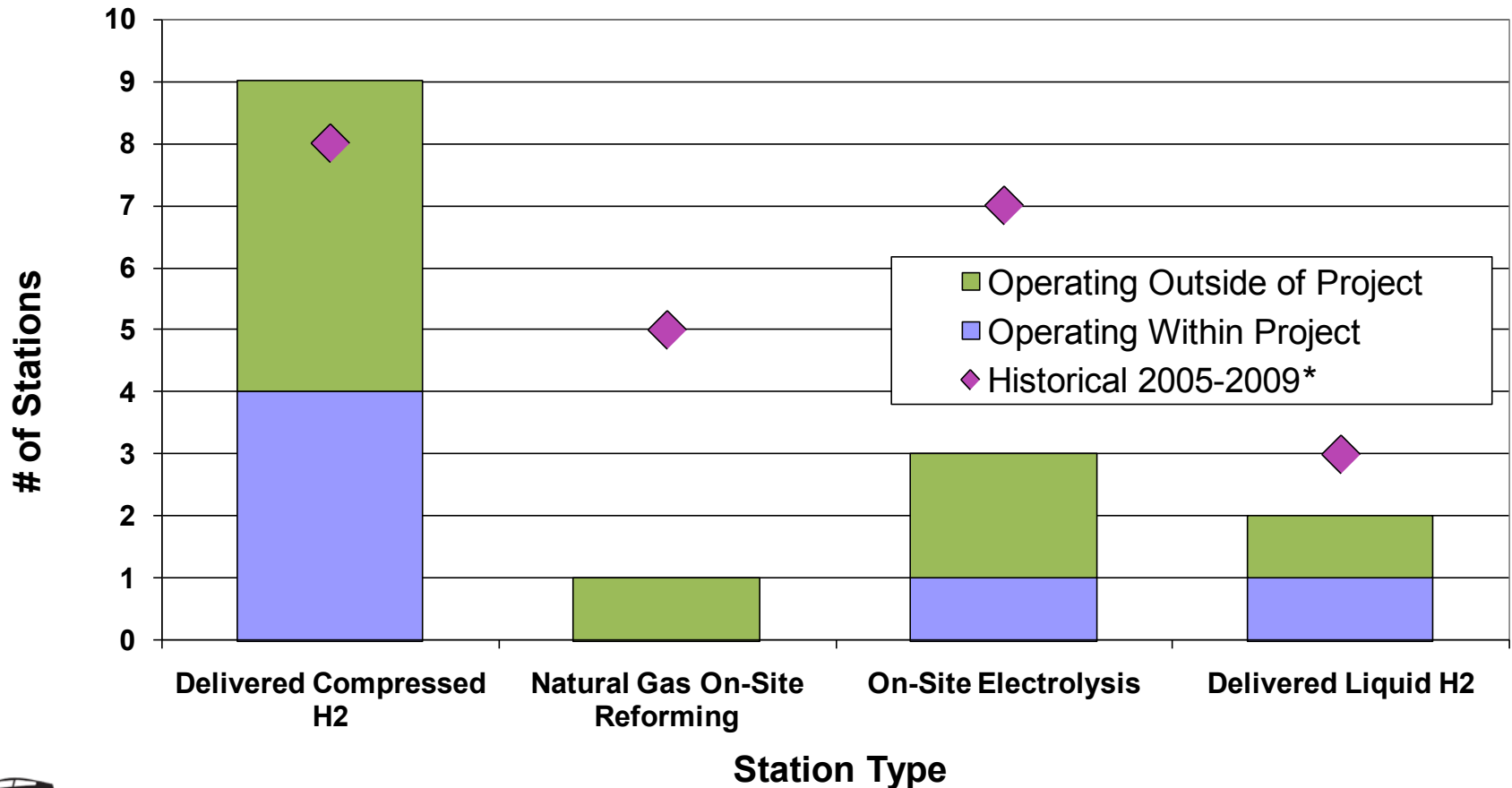


CDP#31: Number of Online Stations

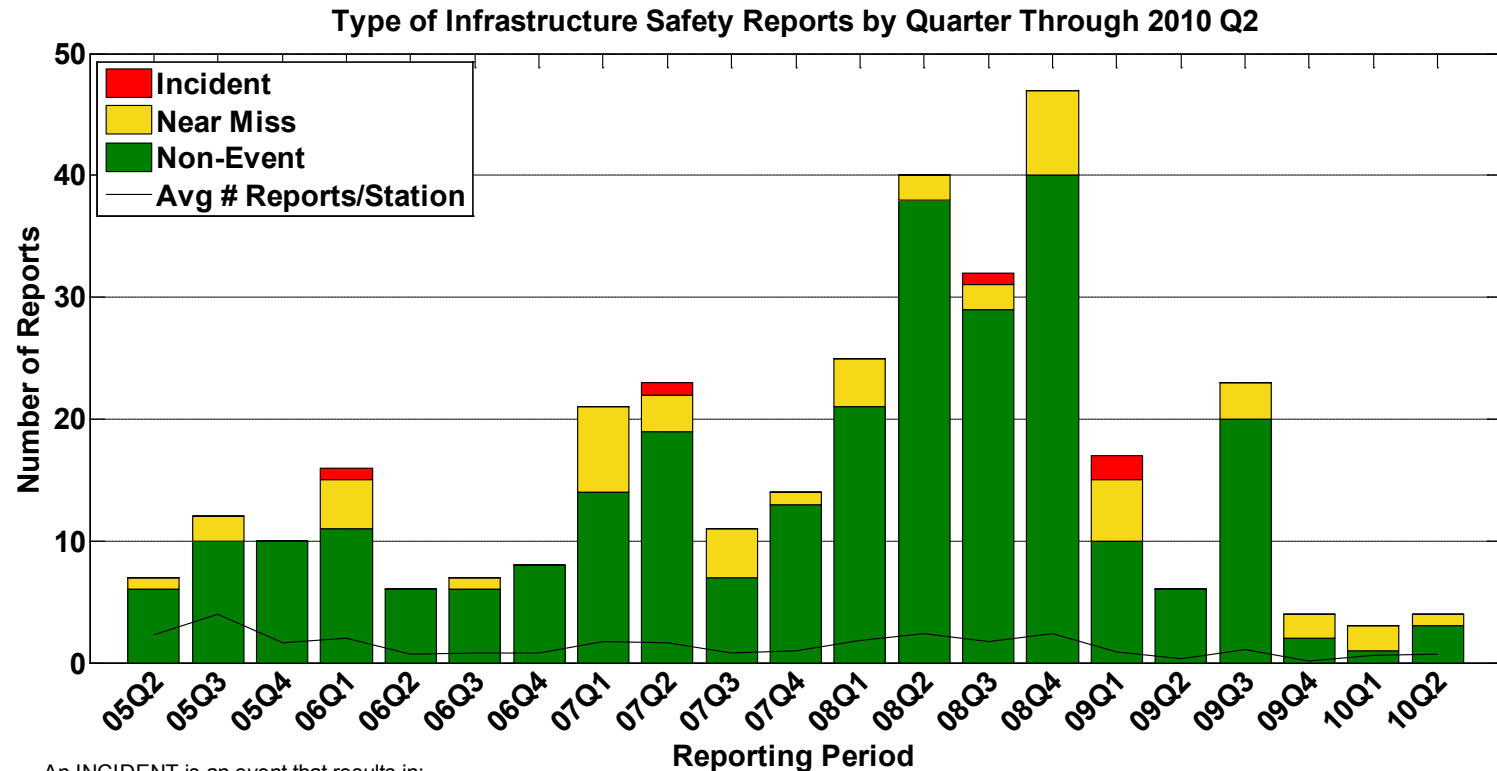


CDP#32: Infrastructure Hydrogen Production Methods

Learning Demonstration Hydrogen Stations By Type



CDP#36: Type of Infrastructure Safety Report By Quarter



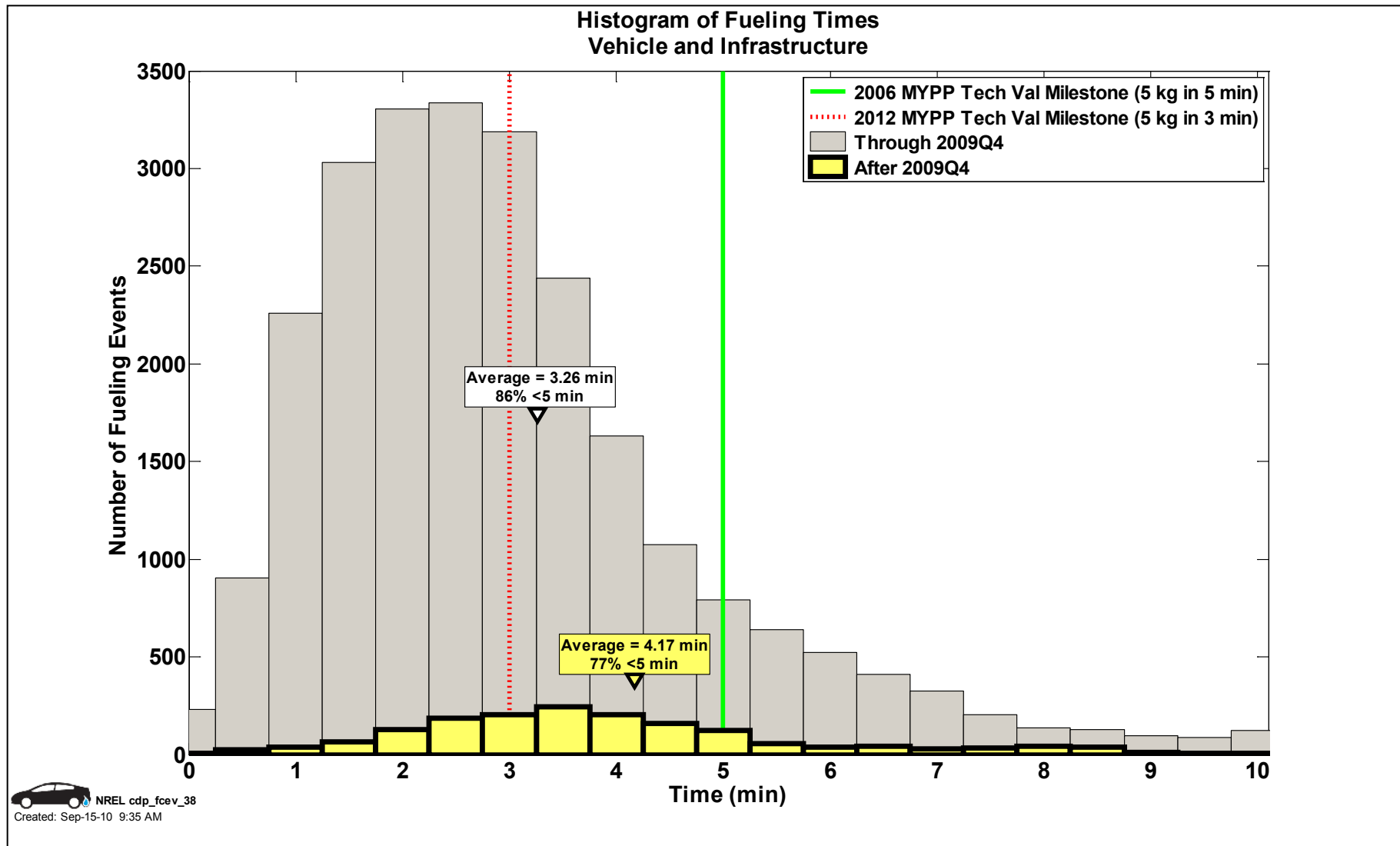
An INCIDENT is an event that results in:

- a lost time accident and/or injury to personnel
- damage/unplanned downtime for project equipment, facilities or property
- impact to the public or environment
- any hydrogen release that unintentionally ignites or is sufficient to sustain a flame if ignited
- release of any volatile, hydrogen containing compound (other than the hydrocarbons used as common fuels)

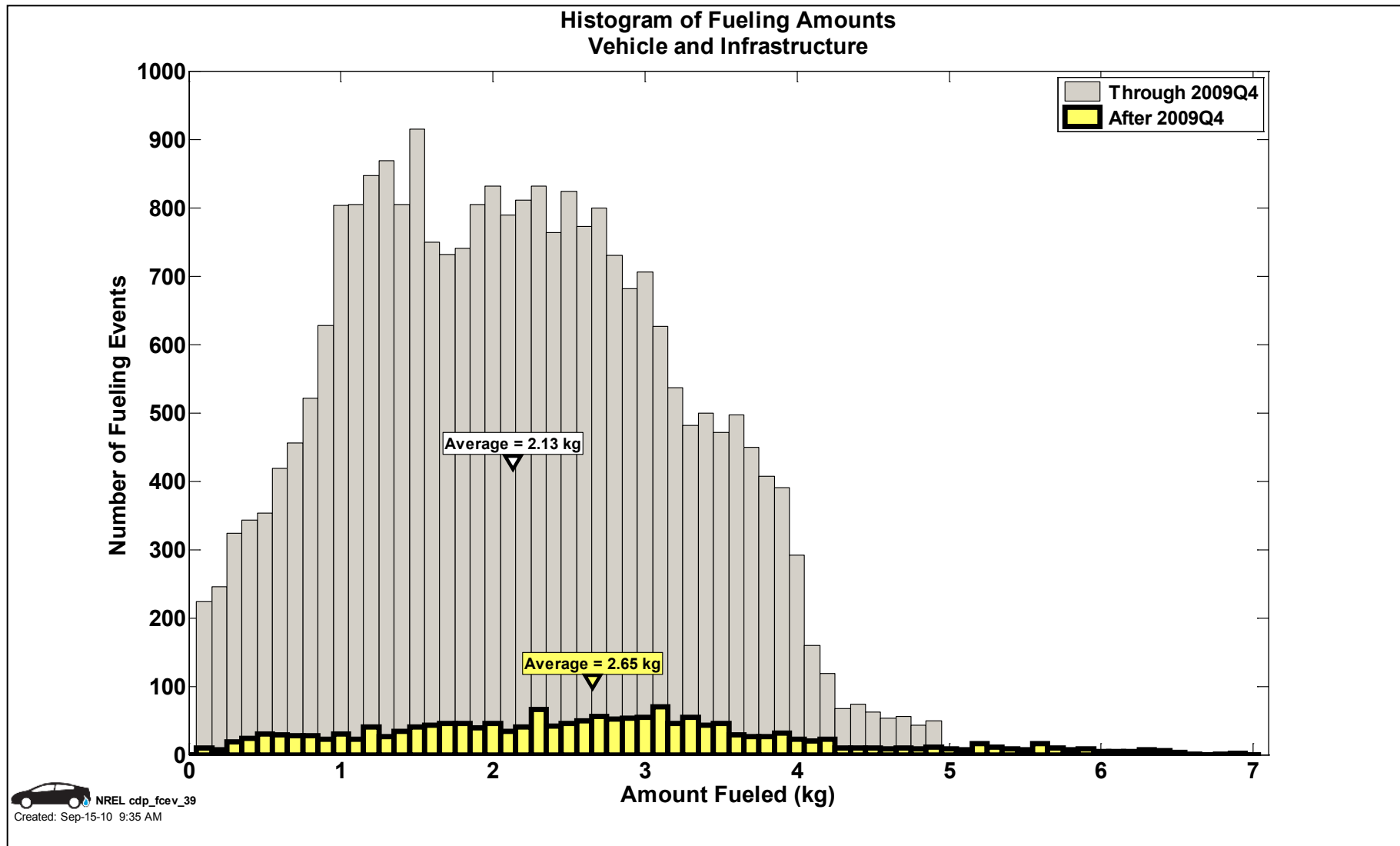
A NEAR-MISS is:

- an event that under slightly different circumstances could have become an incident
- unplanned H2 release insufficient to sustain a flame

CDP#38: Refueling Times



CDP#39: Refueling Amounts



CDP#40: H2 Tank Level at Refueling

Tank Levels: DOE Fleet

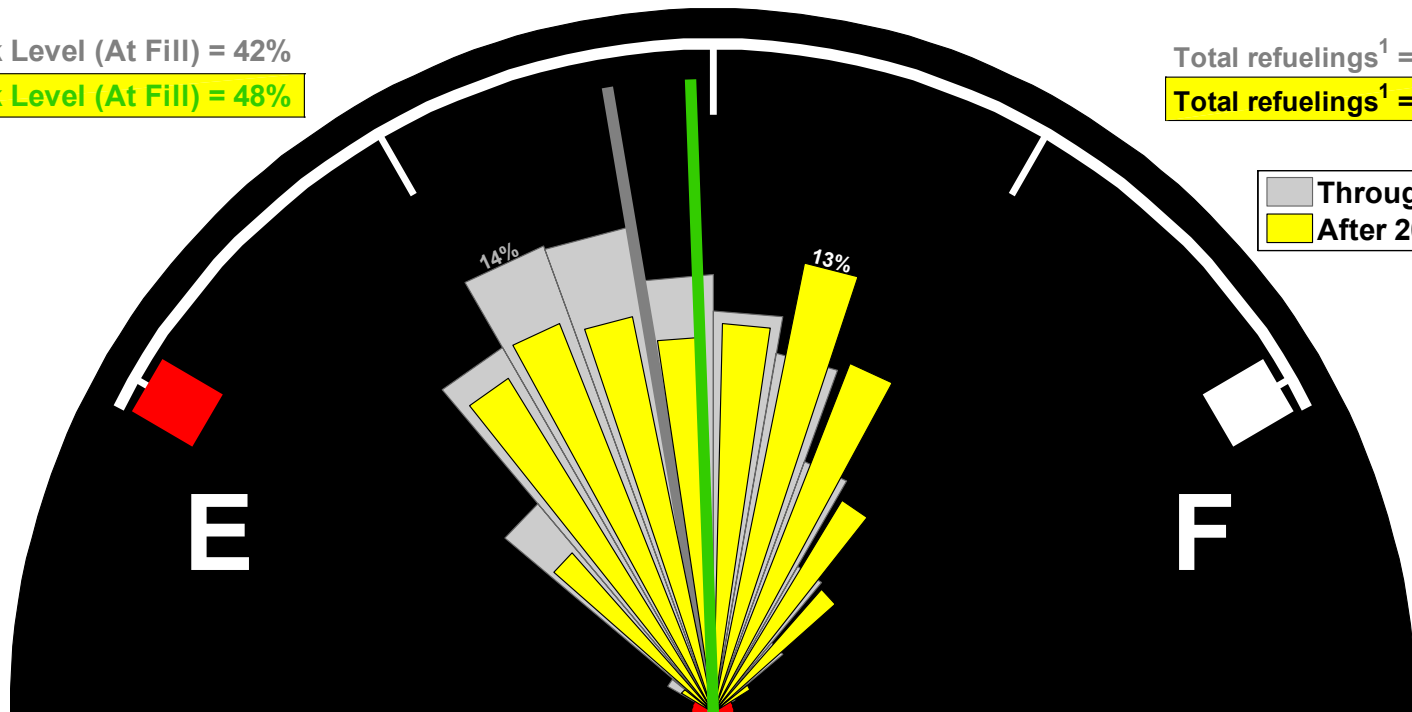
Median Tank Level (At Fill) = 42%

Median Tank Level (At Fill) = 48%

Total refuelings¹ = 27113

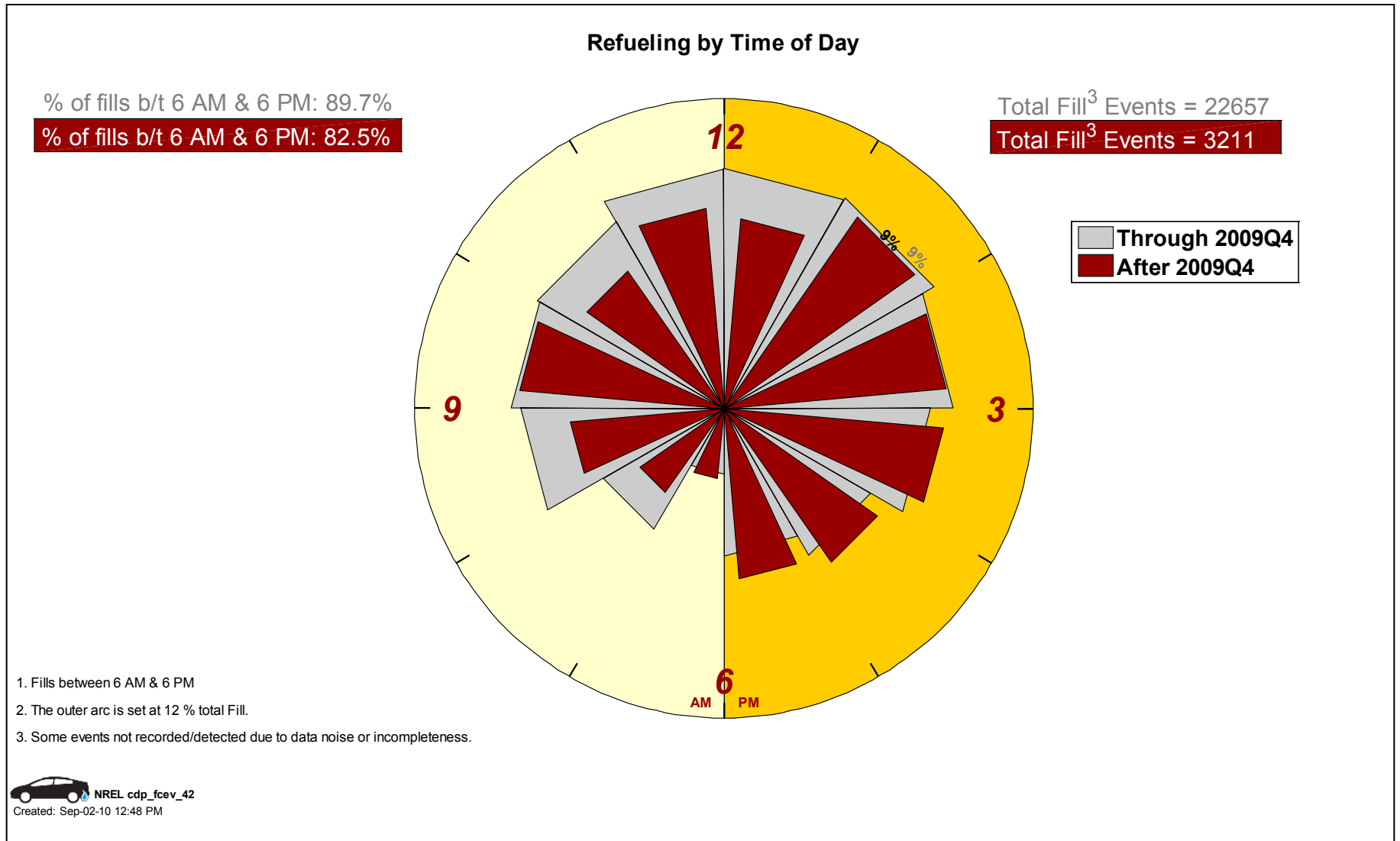
Total refuelings¹ = 3196

Through 2009Q4
After 2009Q4

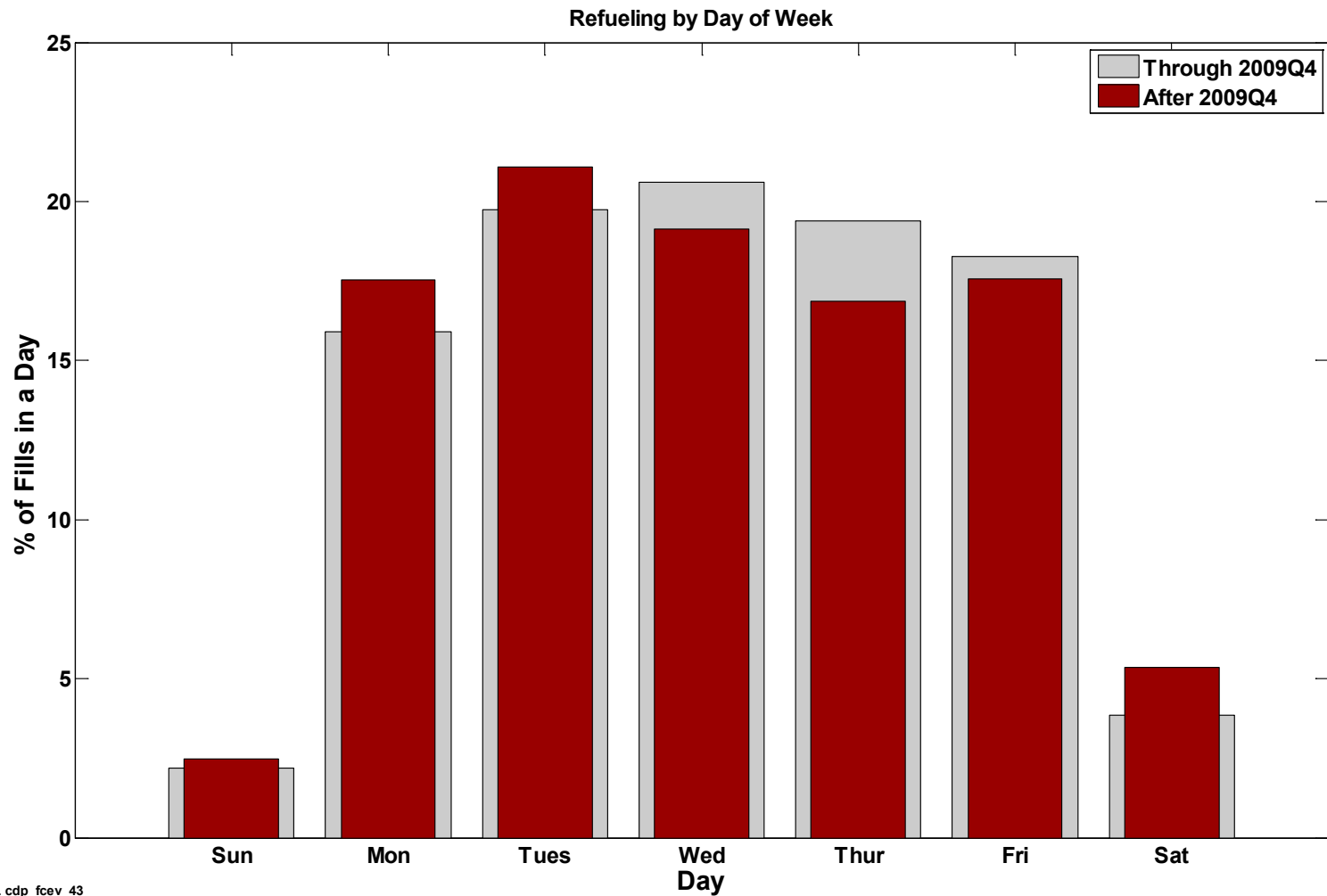


1. Some refueling events not recorded/detected due to data noise or incompleteness.
2. The outer arc is set at 20% total refuelings.
3. If tank level at fill was not available, a complete fill up was assumed.

CDP#42: Refueling by Time of Day



CDP#43: Refueling by Day of Week



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CDP#44: Driving Start Time – Day

Driving by Time of Day

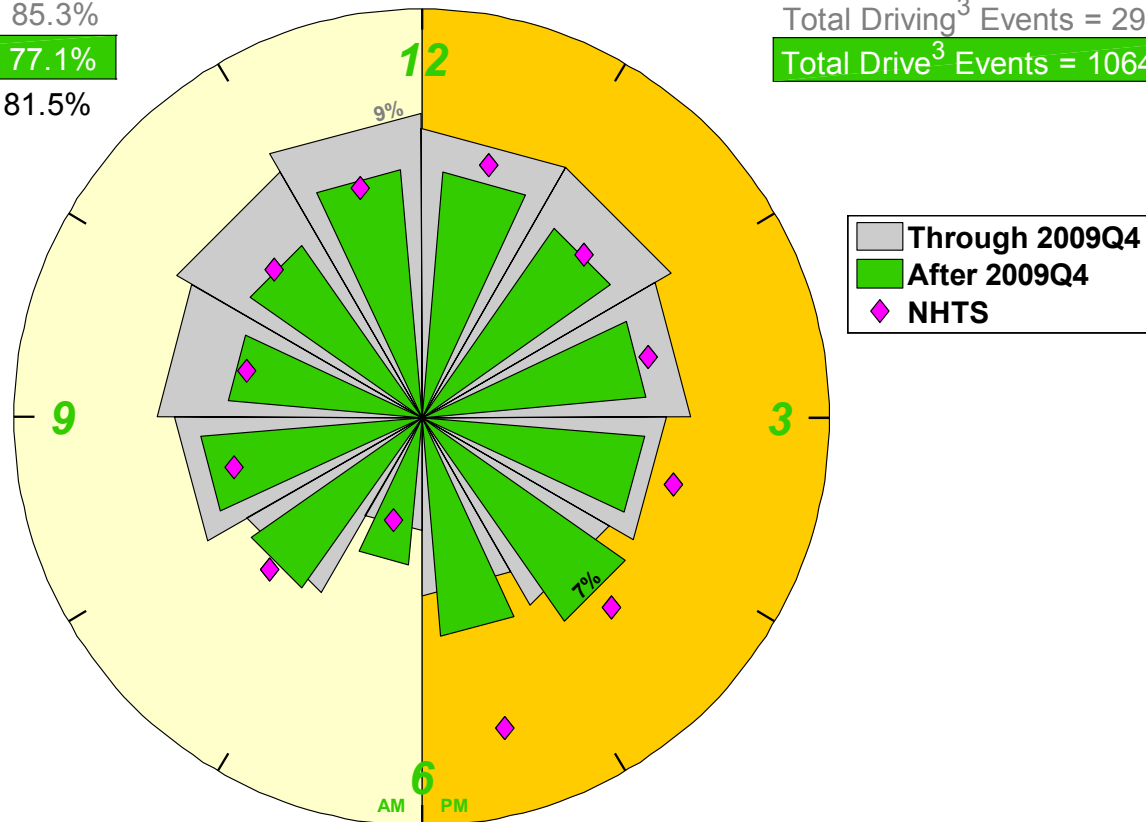
% of driving trips b/t 6 AM & 6 PM: 85.3%

% of driving trips b/t 6 AM & 6 PM: 77.1%

% of NHTS trips b/t 6 AM & 6 PM: 81.5%

Total Driving³ Events = 295222

Total Drive³ Events = 10646



1. Driving trips between 6 AM & 6 PM

2. The outer arc is set at 12 % total Driving.

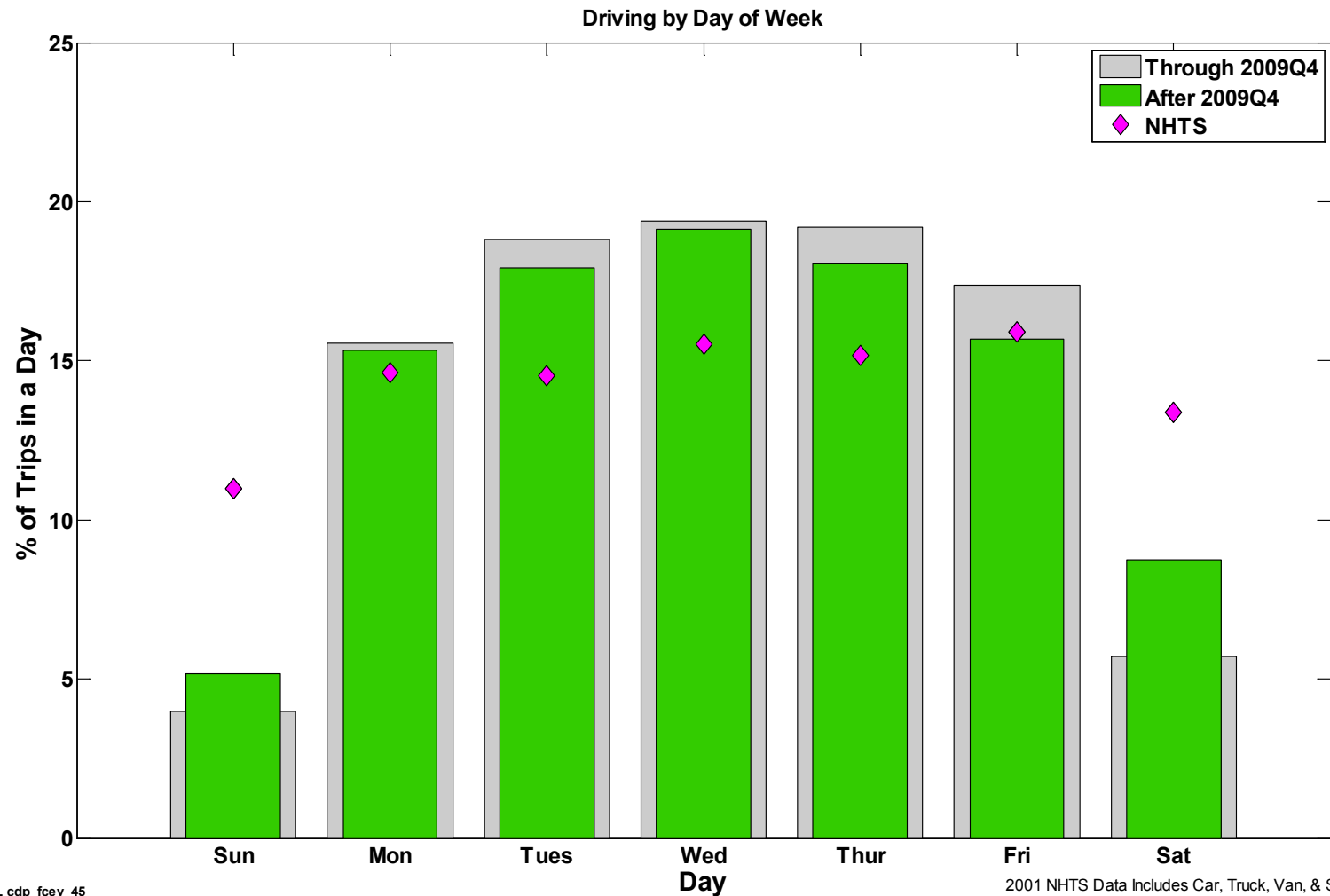
3. Some events not recorded/detected due to data noise or incompleteness.

 NREL cdp_fcev_44
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2001 NHTS Data Includes Car, Truck, Van, & SUV day trips

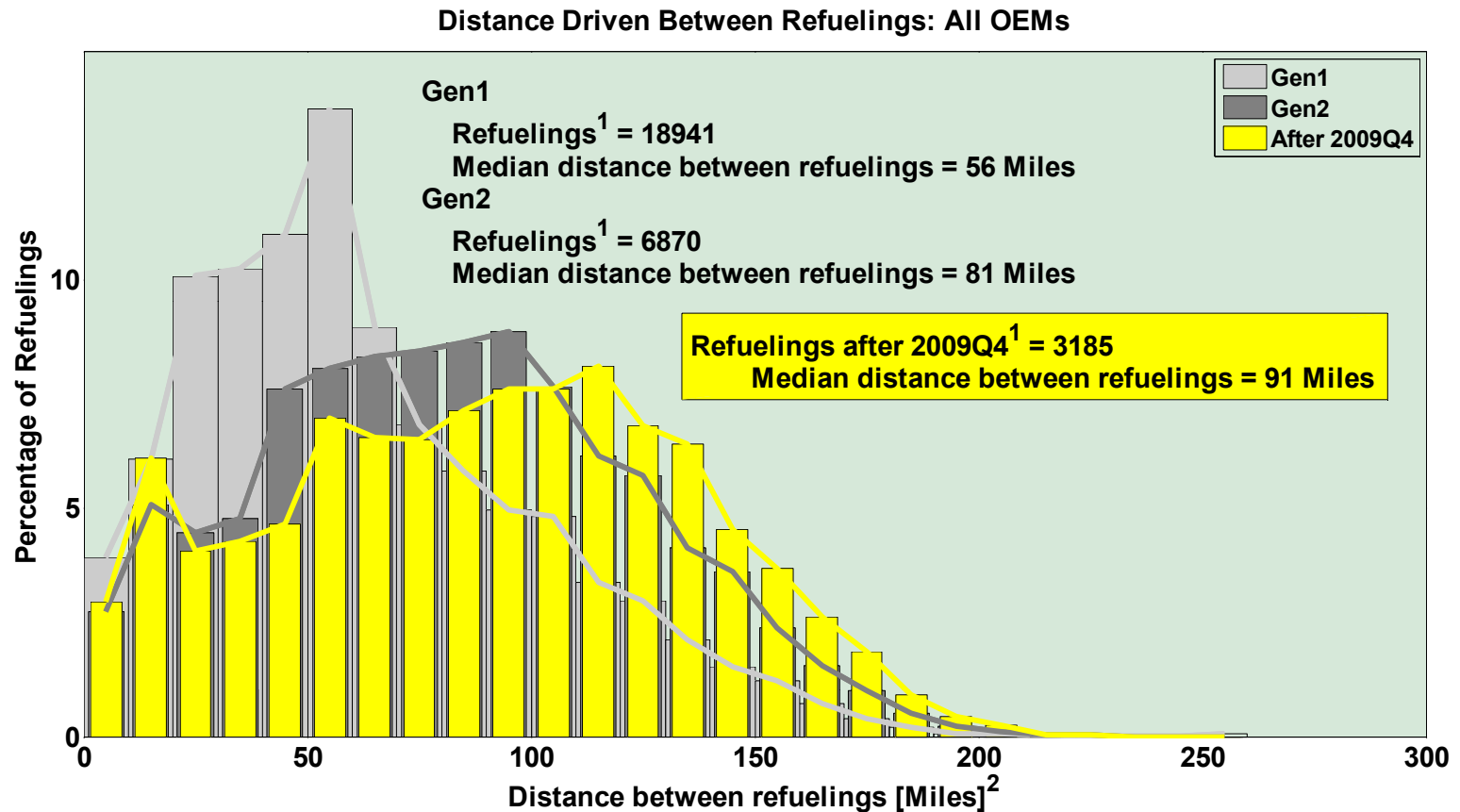
ASCII.csv Source: <http://nhts.ornl.gov/download.shtml#2001>

CDP#45: Driving by Day of Week



NREL cdp_fcev_45
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CDP#80: Miles Between Refuelings



1. Some refueling events are not detected/reported due to data noise or incompleteness.
2. Distance driven between refuelings is indicative of driver behavior and does not represent the full range of the vehicle.