



Technology Advancement Office Advisory Group Meeting

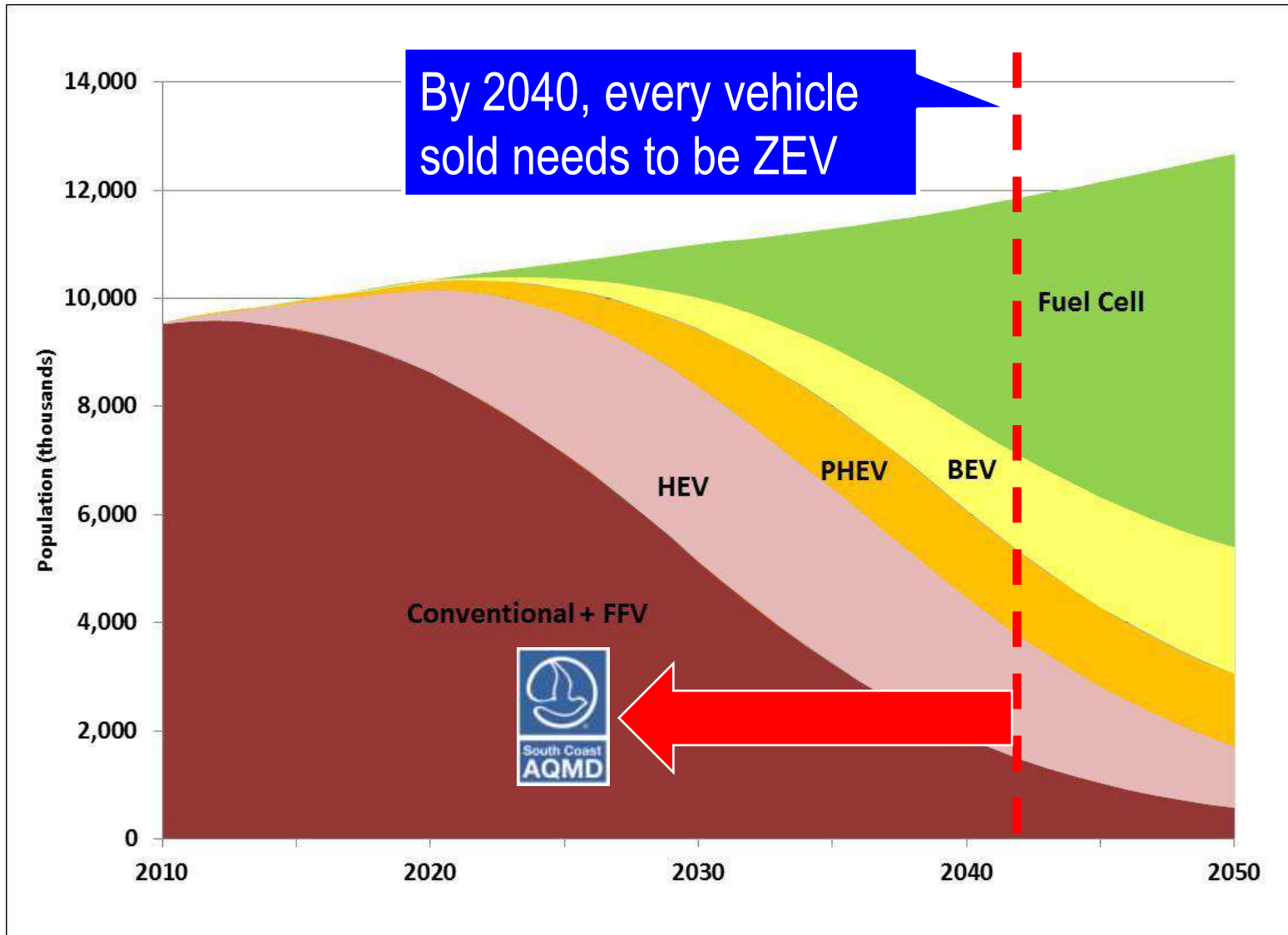


Light-Duty Projects January 29, 2015



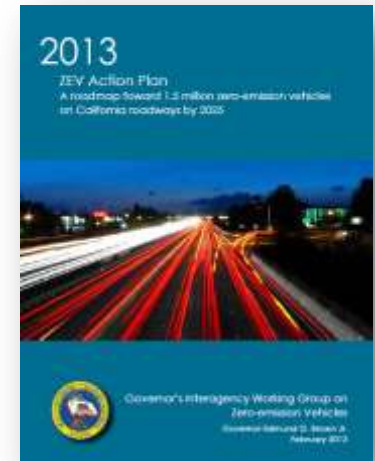
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Science and Technology Advancement
South Coast Air Quality Management District

Vision for Clean Air Light-Duty Scenario



Governor's Executive Order

- Achieve by 2020
 - Infrastructure to support 1 million ZEVs
 - ZEVs to be cost-competitive, accessible to mainstream and used for public transport and freight
- Achieve by 2025, more than 1.5 million ZEVs on the road; ZEV Action Plan provides details
- CA state LDV fleet purchases will be 10% ZEVs by 2015 and 25% by 2020



Federal & CA Current Incentives

- Incentives for vehicles



- \$2,500 – \$7,500 federal tax credit (IRS Form 8936)
- Up to \$5,000* through CA Clean Vehicle Rebate
*for qualifying fuel cell vehicles
- CA HOV lane access extended to 1/1/19
PHEVs capped at 70,000
- CA ZEV Action Plan
- 8-State ZEV Action Plan to sell 3.3M ZEVs by 2025
- CEC funding for Infrastructure; EVSE & H2
- Off-peak (TOU) electric rates

3.3 MILLION
ZERO-EMISSION VEHICLES
BY 2025



2013 PEV Sales/Leases in US

| 2013 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|---------------|
| Chevrolet Volt | 1,140 | 1,626 | 1,478 | 1,306 | 1,607 | 2,698 | 1,788 | 3,351 | 1,766 | 2,022 | 1,920 | 2,392 | 23,094 |
| Nissan LEAF | 650 | 653 | 2,236 | 1,937 | 2,138 | 2,225 | 1,864 | 2,420 | 1,953 | 2,002 | 2,003 | 2,529 | 22,610 |
| Tesla Model S | 1,200 | 1,400 | 2,300 | 2,100 | 1,700 | 1,350 | 1,800 | 1,300 | 1,000 | 800 | 1,200 | 1,500 | 17,650 |
| Toyota Prius PHV | 874 | 693 | 786 | 599 | 678 | 584 | 817 | 1,791 | 1,152 | 2,095 | 1,100 | 919 | 12,088 |
| Ford C-Max Energi | 338 | 334 | 494 | 411 | 450 | 455 | 433 | 621 | 758 | 1,092 | 941 | 827 | 7,154 |
| Ford Fusion Energi | 0 | 119 | 295 | 364 | 416 | 390 | 407 | 600 | 750 | 1,087 | 870 | 791 | 6,089 |
| Ford Focus Electric | 81 | 158 | 180 | 147 | 157 | 177 | 150 | 175 | 110 | 115 | 130 | 158 | 1,738 |
| Toyota RAV4 EV | 25 | 52 | 133 | 70 | 84 | 44 | 109 | 231 | 167 | 91 | 62 | 28 | 1,096 |
| Mitsubishi i-MiEV | 257 | 337 | 31 | 127 | 91 | 39 | 46 | 30 | 20 | 28 | 12 | 11 | 1,046 |
| smart ED | 2* | 0 | 0 | 0 | 60 | 53 | 58 | 182 | 137 | 111 | 153 | 167 | 923 |
| Fiat 500e * | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 160 | 50 | 40 | 125 | 120 | 645 |
| Honda Fit EV | 8 | 15 | 23 | 22 | 15 | 208 | 63 | 66 | 35 | 40 | 23 | 51 | 569 |
| Chevrolet Spark EV | 0 | 0 | 0 | 0 | 0 | 27 | 103 | 102 | 78 | 66 | 87 | 76 | 539 |
| Honda Accord PHV | 2 | 17 | 26 | 55 | 58 | 42 | 54 | 44 | 51 | 71 | 68 | 38 | 526 |
| Porsche Panamera S-E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 4 | 47 | 86 |
| Cadillac ELR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 |
| InsideEVs | 4,577 | 5,404 | 7,982 | 7,138 | 7,454 | 8,292 | 7,842 | 11,073 | 8,027 | 9,695 | 8,698 | 9,660 | 95,859 |

2014 PEV Sales/Leases in US

| 2014-US | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|----------------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|---------------|----------------|
| Nissan LEAF | 1,252 | 1,425 | 2,507 | 2,088 | 3,117 | 2,347 | 3,019 | 3,186 | 2,881 | 2,589 | 2,687 | 3,102 | 30,200 |
| Chevrolet Volt | 918 | 1,210 | 1,478 | 1,548 | 1,684 | 1,777 | 2,020 | 2,511 | 1,394 | 1,439 | 1,336 | 1,490 | 18,805 |
| Tesla Model S* | 800 | 1,400 | 1,300 | 1,100 | 1,000 | 1,800 | 800 | 600 | 2,500 | 1,300 | 1,200 | 3,500 | 17,300* |
| Toyota Prius PHV | 803 | 1,041 | 1,452 | 1,741 | 2,692 | 1,571 | 1,371 | 818 | 353 | 479 | 451 | 492 | 13,264 |
| Ford Fusion Energi | 533 | 779 | 899 | 743 | 1,342 | 1,939 | 1,226 | 1,222 | 640 | 686 | 752 | 789 | 11,550 |
| Ford C-Max Energi | 471 | 552 | 610 | 525 | 782 | 988 | 831 | 1,050 | 677 | 644 | 644 | 659 | 8,433 |
| BMW i3 | 0 | 0 | 0 | 0 | 336 | 358 | 363 | 1,025 | 1,022 | 1,159 | 816 | 1,013 | 6,092 |
| smart ED | 97 | 122 | 186 | 203 | 206 | 278 | 298 | 208 | 182 | 150 | 313 | 351 | 2,594 |
| Ford Focus Electric | 100 | 129 | 177 | 116 | 177 | 197 | 198 | 264 | 176 | 186 | 191 | 53 | 1,964 |
| Fiat 500e** | 180* | 185* | 166 | 152 | 167 | 166 | 119 | 166 | 137 | 140 | 100 | 115 | 1,793** |
| Cadillac ELR | 41 | 58 | 81 | 61 | 52 | 97 | 188 | 196 | 111 | 152 | 155 | 118 | 1,310 |
| Toyota RAV4 EV | 63 | 101 | 73 | 69 | 149 | 91 | 68 | 228 | 125 | 97 | 83 | 37 | 1,184 |
| Chevrolet Spark EV | 93 | 71 | 108 | 97 | 182 | 85 | 128 | 80 | 51 | 58 | 61 | 131 | 1,145 |
| Porsche Panamera S-E | 141 | 57 | 56 | 63 | 53 | 111 | 63 | 68 | 82 | 97 | 57 | 31 | 879 |
| Mercedes B-Class ED | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 51 | 65 | 98 | 193 | 326 | 774 |
| BMW i8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 58 | 204 | 126 | 158 | 555 |
| Honda Accord PHV | 27 | 24 | 18 | 37 | 46 | 28 | 41 | 46 | 42 | 34 | 43 | 63 | 449 |
| Honda Fit EV | 30 | 33 | 37 | 50 | 33 | 38 | 42 | 55 | 29 | 23 | 5 | 32 | 407 |
| Kia Soul EV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 140 | 110 | 359 |
| VW e-Golf | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 119 | 237 | 357 |
| Mitsubishi i-MiEV | 1 | 3 | 24 | 12 | 35 | 22 | 17 | 20 | 15 | 17 | 18 | 12 | 196 |
| Porsche Cayenne S-E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 55 | 100 |
| <i>InsideEVs</i> | 5,550 | 7,190 | 9,172 | 8,605 | 12,053 | 11,893 | 10,833 | 11,803 | 10,540 | 9,662 | 9,535 | 12,874 | 119,710 |

| | | | | | | | | | | | | | |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|---------|
| Worldwide* | 14,512 | 18,528 | 24,267 | 23,153 | 25,016 | 31,162 | 27,304 | 29,804 | 33,611 | 29,020 | 26,825 | | 283,202 |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|---------|

Automaker PEV Activities (2015+)



Automaker FCV Activities (2015+)



Projects Completed in 2014

Vehicle Demonstrations in AQMD Fleet

- **3 Nissan Leaf EV (2011, 39-month lease):**
 - 24 kWh Lilon battery provides 73* mi range (EPA) subsequent MY range improvements
- **4 BMW ActiveE (36-month lease):**
 - 32 kWh battery provides 94 mi range (EPA)



New Projects Started or Amended in 2014

Vehicle Demonstrations in AQMD Fleet

- **2 Ford Fusion ENERGI (36-month lease):**
 - 7.6 kWh battery provides 19 mi electric range (EPA) +gas
- **1 Ford C-Max ENERGI (36-month lease):**
 - 7.6 kWh battery provides 19 mi electric range (EPA) +gas
- **2 Chevrolet Volt 2014(36-month lease):**
 - 16 kWh Lilon battery provides 38 mi e-range (EPA) +gas
- **1 Toyota Highlander FCHV (no-cost through UCI):**
 - 35 & 70 Mpa hydrogen, 300 mi estimated range



AQMD 2014 Demonstration Vehicles

| Vehicle Type | Demonstration Vehicles In Use |
|---------------------------------|-------------------------------|
| Plug-In Hybrid | |
| 2008 Toyota Prius (A123) | 2 |
| Ford Escape (Quantum) | 20 |
| 2012 Toyota Prius PHV | 2 |
| 2013 & 2014 Chevrolet Volt | 5 + 2 |
| 2014 Ford Fusion & C-Max ENERGI | 3 |
| Battery Electric | |
| 2012 Toyota Rav4 EV | 1 |
| 2013 Honda Fit EV | 2 |
| Fuel Cell | |
| 2012 Mercedes F-Cell | 2 |
| 2012 Toyota Highlander FCHV | 1 |
| 2013 Hyundai Tucson FCEV | 1 |



Clean Air Choices Program

- Features the cleanest new retail passenger vehicles
- Part of the AQMD website
(www.aqmd.gov/home/programs/community)
- Out of 61 models listed for 2015 so far
 - 12 Zero Emission (battery electric or hydrogen fuel cell)
 - 17 Advanced Technology Partial Zero Emission, new TZEVs
 - 1 natural gas (CNG)
 - 11 gasoline hybrid
 - 5 plug-in gasoline hybrid
 - 32 Partial Zero Emission gasoline
- Outreach Efforts with clean and efficient vehicles.
- Website updates, calculator & dealer locator

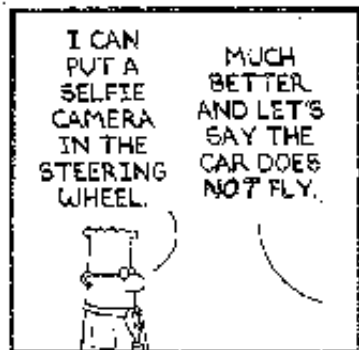
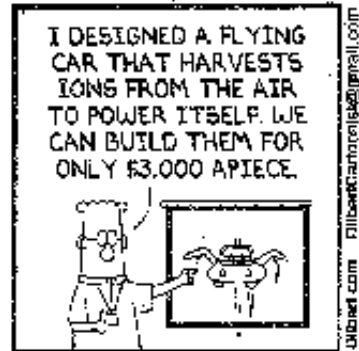


CleanAir
CHOICES

Questions?

Dilbert

BY SCOTT ADAMS



<http://www.fiaformulae.com>



Long Beach, USA – April 4, 2015