Clean Cities Technologies Conference

Electric Vehicle Panel

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How many EVs does NASA have in their fleet?

**NASA**
- 9 Plug-In Electric vehicles
- 26 Hybrid Electric vehicles
- 247 Low-speed Electric vehicles
- 67% of vehicle fleet is Alternative Fuel capable
- 37% Alternative Fuel used
- 17% reduction of Agency Vehicle Inventory
- Currently exceeding 2017 milestone for per-mile GHG emissions reduction (2016 SSPP)

**Johnson Space Center**
- 2 PHEVs (first on Dec. 31, 2015) out of 110 vehicles
  - Ford C-Max Energi
  - Ford Fusion
- Additionally, 49 LSVs → 23 LSEVs (street/non-street legal)
Executive Order 13693
Planning for Federal Sustainability in the Next Decade

Why did NASA invest in EVs?
Common Sources of Federal GHG Emissions
How NASA utilizes their vehicles?

- One PHEV is a sub-pool vehicle for check-in and -out. Driver’s destinations may be on-site or off-site for official Govt. meetings, training, etc.
- The other belongs to a JSC contractor on-site.
How does NASA charge EVs?

- Charged every day through pre-existing wall outlets.
- Some charging stations built; on hold for HQ guidance to charge POVs.
- Contractor vehicle plugged-in to NEMA Type 5-20R (120 volts, single phase, 60 hertz)
Promoting EVs

- Featured in MotorWeek Clean Cities Segment
- "Sustainability Champion" initiated pre-existing line during new construction; allows future charging station to be installed more easily
- To reduce gasoline consumption and conserve energy
Thank You

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- Multi-panel solar array
  - Fully illuminated, generate ~140 watts for up to 4 hours/sol per sol (a Martian day)
- ~100 watts to drive; equivalent to a standard light bulb in a home
- Capability reduces to ~50 watts due to anticipated dust coverage and change in season
- They drive on Mars.
Kennedy Space Center
Cape Canaveral, Fla. On display at the NASA News Center; Vehicle Assembly Building in background

“…. include compressed natural gas, bi-fuel, diesel fuel and flex fuel vehicles….”