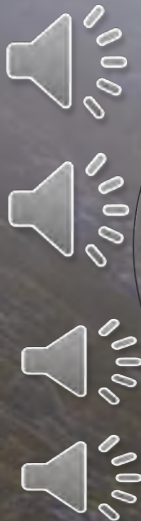


Texas Fire Chief's Conference

Capt. Chris Greene – SFD ret.





Texas Fire Chief's Conference

Energy Hazard Training

Photovoltaic Growth Considerations



EV 2 G



Traditional Energy Creation



Future Energy Creation



Photovoltaic Capacity



Largest Solar Electric Generating Plants in Texas by Capacity, 2023

Facility	County	Capacity (MW)	In Service
Eunice Solar	Andrews	427	Sept. 2021
Prospero Solar	Andrews	300	Jun. 2020
Noble Solar	Denton	279	Sept. 2022
Titan Solar	Culberson	270	Nov. 2021
Taygete Solar	Pecos	255	Jun. 2021
Greasewood Solar	Pecos	255	Feb. 2021
Phoebe Solar	Winkler	250	Nov. 2019
Prospero Solar II	Andrews	250	Sept. 2021
Galloway Solar	Concho	250	Oct. 2021
Misae Solar	Childress	241	Dec. 2021



Photovoltaic Growth

Texas has highest PV growth potential in US

40,000 MW in next 5 years



PV Power Translator

29.4Kwh / Day - US Home

- 1.22Kw average use

1 Mega Watt System = 1000 Homes

4 – 7 Acres to produce 1 Mw



Voltage Limits



600 Vdc



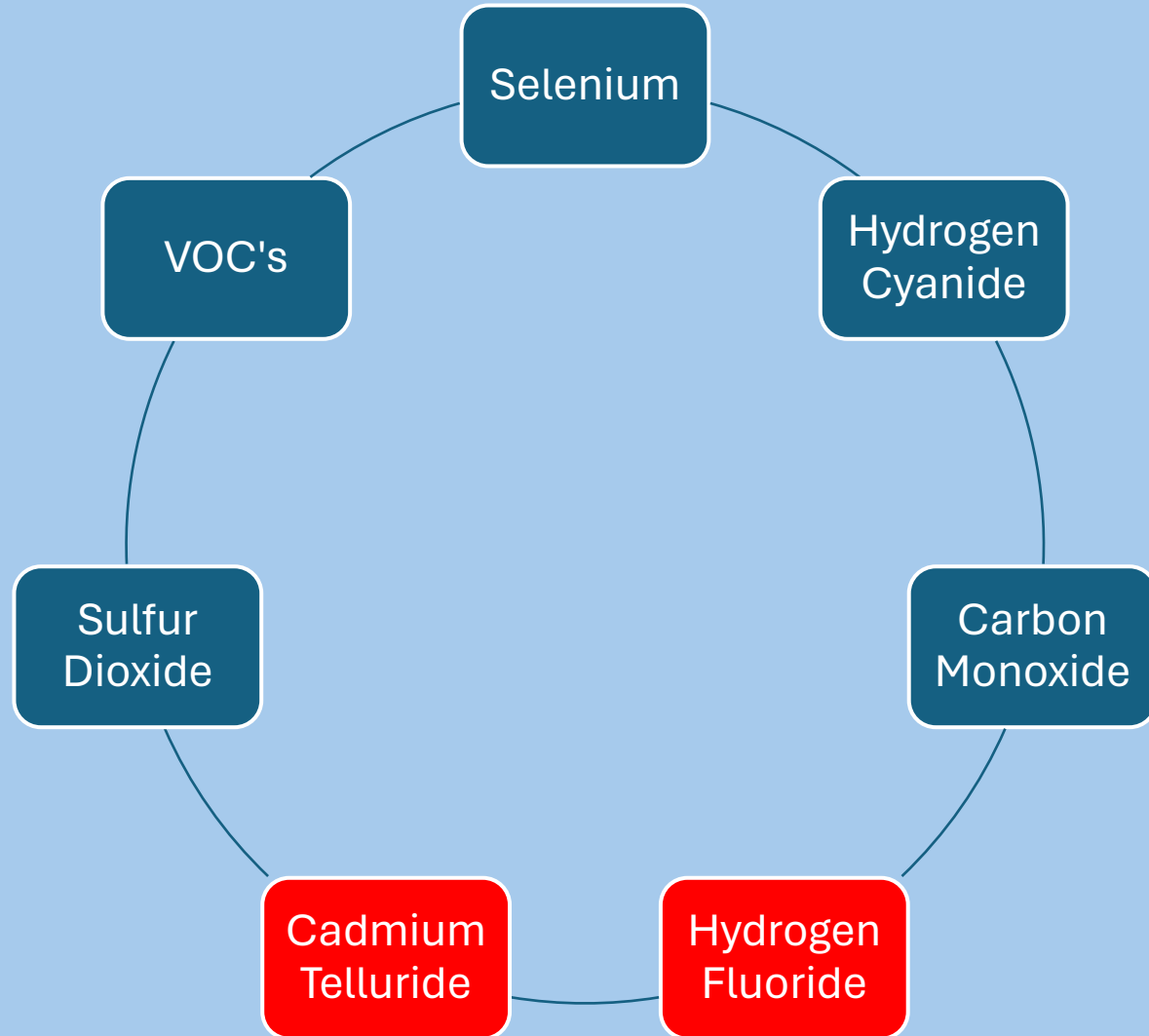
1000 Vdc



1500 Vdc



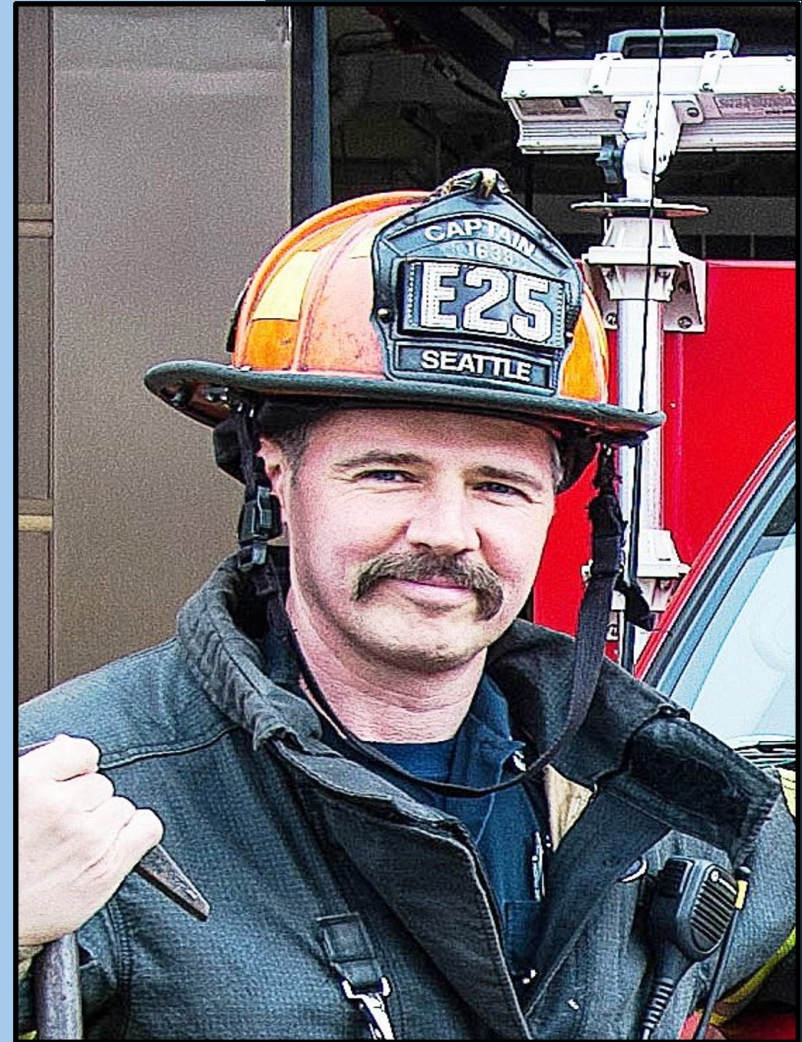
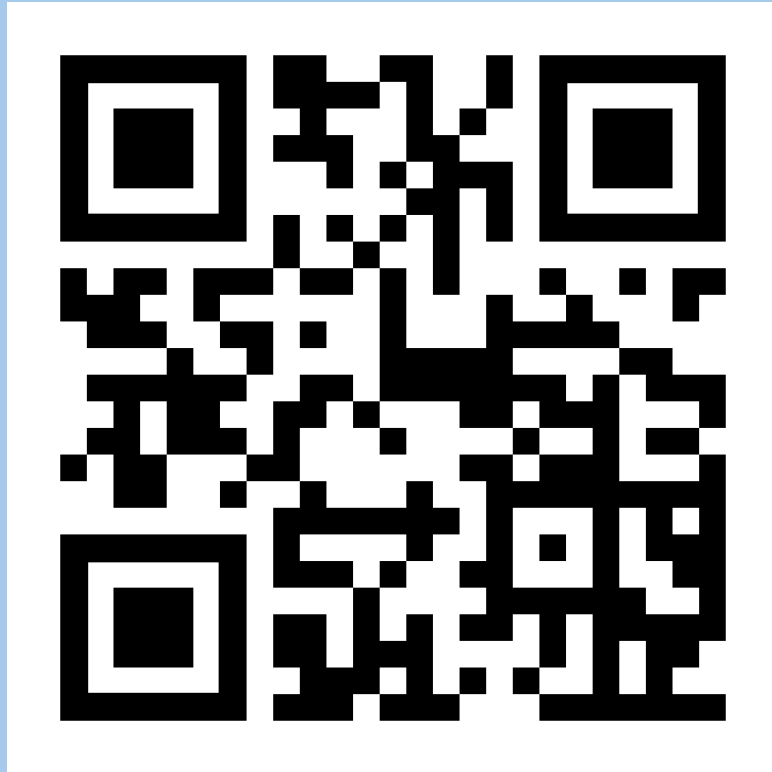
Photovoltaic Toxins



Energy Hazard Training

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Energy Hazards at R-3

RECEOVS

R - Rescue victims

E - Exposures

C - Confine to smallest footprint

E - Extinguish

O - Overhaul

V - Ventilation

S - Salvage



Electrical Utilities - Residential

Securing utilities

Primary AC Feed*

PV / Solar

ESS

Generator

V2G



Rapid Shut Down

Rapid shutdown is an electrical safety requirement that was originally introduced in the United States by the National Electrical Code (NEC). This requirement applies to solar PV systems and requires a way to de-energize, or reduce the voltage, of the solar modules on the roof by adding an “on or off” switch, so to speak.

Section 690.12(B)(2)(2) of the 2023 NEC, as in the 2020 NEC, will still require those direct-current PV conductors that lay inside the array boundary to be controlled to not more than 80 Volts within 30 seconds of rapid shutdown initiation



Rapid Shut Down Indicators



Size-up and Tactical Considerations

During size-up, additional indicators for residential energy storage system installation should be considered beyond smoke appearance.

- Response area – Know your running district
- Presence of Photovoltaic System
- Meter altering – Additional connections
- Labeling
- Presence of EV
- Sounds and Smells
- Dispatch, interviews

