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MEMORANDUM

TO: Code-Making Panel 12 and NEC® Correlating Committee

FROM: Sarah Caldwell, *Senior Committee Administrator*

DATE: January 23, 2024

SUBJECT: NEC® Proposed Tentative Interim Amendment (TIA) No. 1767
Public Comment Review

The attached Public Comment is being submitted to the Code-Making Panel and the Correlating Committee for review.

If you wish to change your vote, the change must be submitted through the NFPA online ballot system at the following link: [NFPA Ballot Link](#). If you do not wish to change your vote, no response is necessary.

Please complete the ballot on or before **January 30, 2024 by 11:59PM (ET)**.

While completing your ballot, please remember the following:

For the Code-Making Panel Ballot:

- **A comment is required for both Question No. 1 and Question No. 2 for the online TIA ballot. Comments must accompany all Negative, Abstaining and Agree votes.**
- **If you vote “Agree” on Question 1, simply add “Agree” to the comment field and if you vote “Agree” on Question 2, insert the applicable letter(s) selections in the comment field which can be found in the Instructions box on the ballot site.**

For the Correlating Committee Ballot:

- **A comment is required for the online TIA ballot. Comments must accompany all Negative, Abstaining and Agree votes. If you vote “Agree”, simply add “Agree” to the comment field.**

You must hit SUBMIT to SAVE your work. **Note:** the system session will time you out after 45 minutes; any work not submitted at that time will not be saved! You may return to finish or change your ballot at any time up to the closing date. Ballot comments exceeding 4,000 characters must be submitted in a Word document via email, to Sarah Caldwell at scaldwell@nfpa.org.

The return of ballots is required by the *Regulations Governing the Development of NFPA Standards*.

Attachment: Public Comment(s)

NFPA 70®-2023 Edition
National Electrical Code®

TIA Log No.: 1767

Reference: 625.43

Comment Closing Date: January 22, 2024

Submitter: Casandra Robinson, US Department of Homeland Security/National Urban Security Technology Laboratory (NUSTL)

www.nfpa.org/70

1. Revise paragraph 625.43 to read as follows:

625.43 Disconnecting Means. EVSE and WPTE shall be provided with one or more disconnecting means in accordance with 625.43(A) and 625.43(B).

625.43(A) Equipment Disconnects. For fixed-in-place EVSE and WPTE rated more than 60 amperes or more than 150 volts to ground, the disconnecting means shall be provided and installed in a readily accessible location. If the disconnecting means is installed remote from the equipment, a plaque shall be installed on the equipment denoting the location of the disconnecting means. The disconnecting means shall be lockable open in accordance with 110.25. For portable and fastened-in-place equipment, the cord-and-plug-connection shall be permitted to serve as the disconnecting means.

625.43(B) Emergency Shutoff. For fixed-in-place equipment supplying dc power to the vehicle, one or more clearly identified emergency shutoff devices or electrical disconnects shall be provided and shall meet all of the following:

- (1) Be installed in a readily accessible location in sight from the equipment
- (2) Disconnect power to all electric vehicle power transfer system equipment on the premises
- (3) Be marked "ELECTRIC VEHICLE EMERGENCY DISCONNECT"
- (4) Require manual intervention in order to reset from an emergency shutoff condition
- (5) Disconnect all ungrounded conductors of the circuits simultaneously from the source of supply

The disconnecting means required in accordance with 625.43(A) shall be permitted to serve as the emergency disconnect if it complies with all the requirements of 625.43(B)

Exception: Emergency disconnects, other than that required in accordance with 230.85, shall not be required for EVSE and WPTE installed at one- and two-family dwelling units.

Substantiation: 625.43 is lacking an emergency disconnecting requirement similar to that required by NFPA 30A at fuel dispensing facilities. Charging stations supplying DC power to electric vehicles (EVs) are primarily available along major highways and are also becoming more available in public parking garages and workplace parking lots. When an emergency occurs at one of these EV charging stations, responders need a quick means to disconnect power in order to respond to the emergency safely.

Emergency Nature: The proposed TIA intends to correct a previously unknown existing hazard. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

NFPA 30A requires at least one emergency shutoff device or electrical disconnect (i.e., e-stop device), but e-stops are not required for EV Charging stations per NFPA 70. Shutdown controls are required for both refueling stations and DC charging stations; however, access to these shutdowns is quite different and will create unnecessary and potentially lethal intervention hazards for first responders who are called to address emergencies at DC charging stations. Concerns are detailed below:

- (1) First responders who must operate at DC Charging stations do so in an electrical energy environment that exceeds normal household voltages. First responders are not trained nor equipped to operate in such extreme electrical hazard areas absent a shut off or lock out device.
- (2) First responders have no tools capable of ensuring that the DC energy hazard has been controlled. Unlike AC hazards, where tools have been made available to first responders that allow them to gather some information about the energy status of electrical equipment, there are very few tools available to first responders for ascertaining DC energy status.
- (3) Some e-Stops are being installed in hazardous locations. While not required at EV charging stations, some vendors are installing e-stops. Unfortunately, they are being installed at the charging device rather than at safe locations away from the hazard area. Installation of these e-stops, while well intended, requires that first responders move into the hazard area to operate them. NFPA 30A requires that the e-stop be located at least 20 feet away from the hazard.
- (4) EV Charging station electrical shut offs are not labelled and are not readily accessible. Energy disconnects (per code) are allowed to be in locked cabinets which are often not labeled. This creates confusion and frustration for first responders attempting to address the electrical hazards present. First responders will be looking for e-stops similar to what they have seen at refueling stations. E-stops have been present at refueling stations since 1984, so we have two generations of responders who are expecting them to be present.

5 Supporting comments
7 Opposing comments

Comment No. 1
SUPPORT

From: Steve Powers
Sent: Thursday, December 7, 2023 1:57 PM
To: Foran, Rosanne <rforan@NFPA.org>
Subject: RE: Comment on Proposed TIA 1767 on NFPA 70

Good afternoon,
Overall, I support the proposal. I am recommending that a modification to the proposal be made to not require a plaque and instead require the shutoff to be near enough to be seen from the charging area. Having the plaque on the charging equipment could lure a first responder too near the equipment. If that is not a concern, then there is no strong reason for not requiring the shutoff to be mounted on, or at, the charging equipment.

Thank you,
Steve

Stephen Powers

Member Services Rep/Master Electrician



From: Steve Powers
Sent: Wednesday, December 6, 2023 2:48 PM
To: Shared TIAs <STIAs@nfpa.org>
Subject: Comment on Proposed TIA 1767 on NFPA 70

Dear panel members,

The idea of an emergency shutoff for EV charging stations is a good one. The idea of requiring a plaque attached to the charging equipment to show the location of a remote shutoff almost entirely negates the requirement that the shutoff be at least twenty feet away from the charging equipment. I recommend that the emergency shutoff for EV charging equipment be "within sight of the charging equipment, but no closer than twenty feet." And, drop the placard requirement.

Thank you,

Stephen Powers

Member Services Rep/Master Electrician

1618 Broadway – 6590 MN-27
Wheaton, MN 56296



Foran, Rosanne

Comment No. 2
SUPPORT

From: Michael McGivern
Sent: Wednesday, December 6, 2023 4:56 PM
To: Shared TIAs
Subject: Comment on Proposed TIA 1767 on NFPA 70

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I support TIA 1767.

Mike McGivern | City of Kirkland
Electrical Building Inspector



Foran, Rosanne

Comment No. 3
SUPPORT

From: Ellis, Henry M.
Sent: Wednesday, December 13, 2023 10:19 AM
To: Shared TIAs
Subject: Proposed TIA No. 1767, Reference: 625.43

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In the ongoing effort to provide safeguards from electrical hazards for first responders, I fully SUPPORT this TIA.

Henry Ellis

Southern Company Services
National Carbon Capture Center at PSDF



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Foran, Rosanne

Comment No. 4
SUPPORT

From: Jeff Gross
Sent: Thursday, December 21, 2023 8:53 PM
To: Shared TIAs
Subject: Comment on Proposed TIA 1767 on NFPA 70

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I support the changes for 625.43. I just drove by a Tesla charging center that had the disconnecting means locked behind the charger panel enclosure doors. As this does meet the readily accessible requirements of 625.43 the hazard due to first responders are very evident in the case of an emergency. I support this TIA.

Thank you,

William Gross

Sent from [Mail](#) for Windows

Foran, Rosanne

Comment No. 7
SUPPORT

From: Lubaczewski, Scott
Sent: Monday, January 8, 2024 8:29 AM
To: Shared TIAs
Subject: Comment on Proposed TIA 1767 on NFPA 70

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SUPPORT

In Solidarity,

Scott Lubaczewski CESC
International UAW Servicing Representative
Health & Safety
Electrical Safety Specialist (SME)



From: [Robert Davidson](#)
To: [Shared TIAs](#)
Subject: NFPA 70 TIA Log No.: 1767 Public Comment
Date: Wednesday, January 3, 2024 5:48:44 PM

Comment No. 5
OPPOSE

NFPA 70-2023 Edition
National Electrical Code®
TIA Log No.: 1767
Reference: 625.43

I offer the following public comments:

- The proposed cord and plug allowance option in 645.43(A) does not make sense, it requires the responder to be intimate with the event.
- The “fixed in place” language is problematic as we already have trailer mounted EVSE brought to seasonal high traffic locations.. If there is to be a requirement it needs to be for all.
- 625.43(B) Item (1) states readily accessible location in sight of the equipment (EVSE); but Item (2) states the shutoff shall disconnect power to ALL equipment (EVSE) on the premise. Many facilities have EVSE in multiple locations and/or on multiple floors, for those premises it is impossible to do both.
- The suggested intent is that this is an emergency disconnect for emergency responders, but nowhere is the location of the emergency disconnect subject to approval of the emergency responders, in many jurisdictions the electrical inspector will be approving this with no responder review or approval.
- The reference to DC power appears to be related to ESS power supplies, ESS already require a disconnect under NFPA 855 and NFPA 70 Article 706., Section 706.15.
- NFPA 70 currently requires a disconnect in a readily accessible location, and if powered by an ESS that supply requires a disconnect, there is no emergency need for this TIA.

Bob

“Sapienter Si Sincere”
"Alere Flammam Veritatis"

Robert J Davidson
Davidson Code Concepts, LLC
311 Camperdown Ct.
Easley, SC 29642
www.davidsoncodeconcepts.com

Foran, Rosanne

Comment No. 6
OPPOSE

From: Putnam, Eric
Sent: Wednesday, January 3, 2024 11:11 PM
To: Shared TIAs
Subject: Comment on Proposed TIA 1767 on NFPA 70

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I OPPOSE the proposed TIA.

First, there is insufficient data showing that the proposed requirements would have prevented a significant number of events in NEC-compliant installations with vehicles produced to US standards.

Second, while I appreciate the desire to align to fossil-fuel system safeties, an electrical system is not perfectly analogous to a pumped liquid fuel system. Numerous protective schemes are available in electrical systems to sense failures and shut the systems down. If a weakness is present, it would seem much more effective to focus on tightening the UL standards in order to stop an event immediately instead of waiting for human intervention. This would also afford adding a requirement for DCFC equipment to have an indicator light when it is energized as a positive proof to First Responders that the equipment is de-energized (another facet that is not included in the proposed verbiage despite being noted as a concern).

Next, the proposed language does not fully address the concerns of the author. Specifically, I do not see where a requirement would force placing the emergency stop device remote from the EVSE. I agree with the author that, if this is a real problem, placing the e-stop a minimal distance (e.g. 20') from the vehicle and the EVSE seems very prudent.

Next, I am unclear as to why an exception should be granted to very high power EVSE in residential applications. These are exceedingly rare at this time and would seem to pose a outsized threat.

Finally, the proposed language is unclear as to the intended function of the e-stop device. Does it merely de-energize the DC output or is it required to de-energize the AC source to the DC fast charger? Based on the author's concerns, it would seem the intent would be to de-energize the EVSE completely (ie, disconnect AC source).

Thank you,

Eric Putnam, P.E.

From: [Davis, Shlyneice](#)
To: [Shared TIAs](#)
Cc: [Hayes, Megan](#)
Subject: Comment on Proposed TIA 1767 on NFPA 70
Date: Friday, January 12, 2024 5:02:25 PM
Attachments: [NEMA Public Comment to TIA 1767 20240112.docx](#)

Comment No. 8
OPPOSE
page 1 of 2

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TO: Secretary, Standards Council

NFPA 70-2023 Edition, National Electrical Code TIA Log No.: 1767, Reference: 625.43

NEMA is submitting the attached comments in opposition to TIA for NEC 70-2023, NEC 70 TIA No. 1767, Ref. 625.43.

For any questions regarding this TIA, please contact Megan Hayes, NEMA Vice President Technical Affairs.

Thank you,

Shlyneice Davis
Coordinator, Standards and Technical Services

www.nema.org
1300 North 17th Street | Suite 900 Arlington | VA | 22209

NEMA Proposed Public Comment for TIA 1767:

Technical

After further review, NEMA is submitting this comment in opposition to TIA 1767. NEMA is in support of the use of Emergency Shutoffs for the personal protection and safety of first responders. However, the proposed language within TIA 1767 in 625.43(B) is over restrictive pertaining to the “premise”. The proposed language would require all EV charging station locations on a “premise” to be disconnected. This would not be a practical requirement since a commercial location or multifamily dwelling could have an EV location on the north side and the south side of the structure or a parking structure could have multiple levels or even multiple parking structures on the same premises. The charging for a fleet of delivery vans inside a garage would also be required to be disconnect when a shut-off is activated in the parking lot outside the building for public charging. “Premise” is too broad and should be narrowed to apply to a defined charging “area.”

Also, the proposed language needs to consider the required marking for the Emergency Shutoff that indicates that it should only be used in case of emergency and unlawful if otherwise used. In addition, the location of the Emergency Shutoff is required to be visible but should be in a location limiting public access to deter unwanted use.

Why are the provision in 625.43(B) limited to supplying DC power and not for when AC power is supplied to the vehicle for charging? If an emergency condition unfolds with a car connected to the electrical infrastructure an emergency means to disconnect the car is just as important for AC or DC power.

There is a correlation issue between the proposed 625.43(B) exception and 706.15(B). Section 625.43(B) exception permits the emergency disconnect to be omitted in a one- and two- family dwelling installation when the vehicle is connected to the electrical infrastructure. However, NEC 706.15(B) has a requirement to support the isolation of a vehicle from the premises wiring by requiring a disconnect when the vehicle is serving as an energy source. The exception in 625.43(B) to omit the emergency shutdown creates a direct conflict with the requirement in 706.15(B) which requires an emergency shutdown when the vehicle is serving as an energy source.

NEMA recommends that CMP-12 addresses these issues during their Code Panel Meetings and develop an agreed upon First Revision for the 2026 National Electrical Code. This would allow for the NFPA procedures to take place and open discussions. If emergency shutoffs are adopted in the 2026 NEC, then a TIA could be considered for the 2023 NEC.

Emergency in Nature

It is important that CMP-12 has time to address this issue during 2026 First Revision meetings and the NFPA process is followed since the technical issues with the use of emergency shutoffs and electrical vehicle chargers could be quite complex to ensure the safety of first responders.

From: Kevin Cheong
Sent: Friday, January 12, 2024 7:31 PM
To: Shared TIAs
Cc: Gary Eldridge
Subject: FW: Comment on Proposed TIA 1767 on NFPA 70

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Hi,

Further to the request for public comments on TIA 1767 on NFPA 70, we'd like to submit the following.

We OPPOSE the TIA.

We oppose the TIA because it is not justified either for technical merit nor being of an emergency nature.

NFPA 30A attempted both a TIA and addition of a new Chapter 15, with similar content. The TIA was rejected by that TC, and then the entire chapter was rejected by the NFPA membership at the Technical Meeting, as a result of a CAM by our colleagues at NEMA, which we supported, then the TC, then ultimately confirmed by the Standards Council in our appeal (Final Decision D23-7_SC 23-8-6-b_NFPA 30A_CAM 30A-30).

While there are fire risks associated with the use of all electrical equipment, including EV charging, it is a misguided oversimplification to equate the charging electric vehicles covered by article 625 to dispensing flammable or combustible liquid or gas. Proper risk management first requires an appropriate understanding of the risk, its mechanisms, its consequences, existing and potential control measures, and parallel potentially redundant mitigation. The risks associated with EV Charging, and the control and mitigation methods, are different than flammable liquid dispensing and the activities should not be treated the same.

In addition to supporting ChargePoint in their NFPA and other code and standards participation, I independently (through my company MKC Engineering Corp.) support several other organizations in the Canadian EV charging industry and advise various organizations, including my local fire department (and building and electrical departments), public transit organizations, other EV fleet operators, etc. to understand the problems and address them appropriately, not assume the solution for a different problem will work for these problems. I also support a few organizations in the oil and gas industry including for major oil and gas terminals / pipeline facilities so I know those risks, their codes and standards, and regulation, also. For example, AFFF foam-water suppression may be entirely appropriate for flammable liquids, but it is entirely inappropriate for EV fires. In addition to AFFF systems at oil and gas terminals, I have also worked on heliport installations with AFFF systems.

We (ChargePoint and MKC) presented at the 2023 NFPA Conference on EV and EV Charger Fire, and Electrical, Safety, and submitted extensive input and further participation on the NEC and NFPA 30A. That presentation, and its handouts (complementary information) reference many credible sources of information including NFPA, its Research Foundation, UL's Fire Safety Research Institute, NHTSA, etc.. While I understand why others may be skeptical of my opinion, I encourage them to review the reference material I refer to as I believe it will help everyone create better codes and standards.

There are several problems with this NEC TIA proposal:

1. There is inadequate substantiation as to why EV charging equipment requires disconnects to be like fuel dispensing facilities. At flammable fuel dispensing facilities it is likely the flammable fuel is contributing to an ongoing fire, but at a typical EV fire, the electrical power isn't. It effectively assumes that charging power continues to flow in the event of an EV fire during charging, and that the electrical power flow is contributing to the fire, which in my research is predominately not the case. The fires tend to be lithium-ion battery thermal runaway incidents and the EV battery management system (BMS) should detect that and terminate charging, or the charger will detect a ground fault (via the personnel protection system required in accordance with UL 2231-1 & 2), or overcurrent (which either the charger or branch circuit overcurrent should detect), due to electrical insulation failure, and disconnect. Once started a thermal runaway incident tends to propagate without the continued flow of electrical power from the charging equipment so any continued fire is independent of the electricity from the facility.
2. It is inaccurate to argue that first responders are not accustomed to the electrical equipment aspect of EV charging. The charging equipment is very similar to other power conversion equipment like uninterruptible power supplies, battery chargers for forklifts, or variable frequency drives for mechanical equipment like pumps or fans in that they convert commercial facility level power from AC to DC, at very similar power levels (in the order of fifty to hundreds of kW/kVA, and hundreds of volts).
3. There is no substantiation as to why responders need a quicker means to disconnect power than is already required. In the recent Queensland Australia Tesla Megapack fire for example, the fire department was told to let it burn itself out, under supervision. While there is a chance first responders may need to extricate car crash victims with destructive tools, thus elevating risk, that is very unlikely to occur at a charging facility fire and thermal runaway incidents provide some warning time before escalating to entrapment levels, and again a charger power deactivation is effectively irrelevant.
4. It assumes the risk of fire is similar to conventional gasoline fueled vehicles, and as indicated in our 2023 NFPA Conference presentation, or those of others at the Conference, it isn't, it's significantly lower, at least for now – further to the lack of justification of it being of an emergency nature. The dominant/emerging risk is inexpensive, low-quality, light electric vehicles such as e-bikes and e-scooters being charged inside in residences, compromising egress paths and escalating rapidly, surrounded by combustibles, and they aren't covered by Article 625 at all.
5. It effectively assumes there is a shock hazard during firefighting action for an EV fire, and in particular from the charger not the EV, which in my research has also not been found to be the case and firefighting agencies globally agree with this and recommend application of lots of water. While we wouldn't say it is impossible that a shock could occur, we would say it is sufficiently unlikely and already considered as to be considered at least as safe as other similar equipment.
6. The DC energy hazard is slightly different than AC, but the charger side, as noted above, is not particularly of concern, whereas the EV would contain significantly higher available power and it would be a disservice to firefighters to even suggest shutting off the charger would make them noticeably safer. I pointed out in our presentation that an exemplar EV can charge at up to 240 kW, but discharge at double that power level. The issue of DC faults, and arc flash hazard, are in fact well understood and documented as they also exist in the Photovoltaic industry, and high voltage DC transmission industry.
7. It is simply untrue that E-stops are being installed in hazardous locations, and I'm an expert at hazardous locations (oil and gas terminals, and gas stations), and if such E-stops were to be installed in such locations, they would be rated for that location (and even then only Class 1 Div 2, or Zone 2, depending on your rating system). At all locations covered by the NEC and service stations in particular, it is already not permitted to install electrical equipment that isn't rated for hazardous locations in hazardous locations. It is important to note that Chapter 6 of the NEC is supplementary or amendatory to the general chapters 1 to 4 which apply to ALL electrical installations, and the NEC Style manual does not permit repetition of the general requirements.
8. It assumes the charger is more hazardous during firefighting action than other equipment in the vicinity such as a light fixture. For AC EVSE in particular this is dangerously inaccurate. The available fault current, and electrical potential to ground, of the light fixture or other electrical equipment is very similar, differing only slightly if the wire is larger, so the shock risk, or electrical fire risk is actually very similar (both circuits would be protected by appropriate circuit breakers or fuses). For instantaneous or ground fault currents it's important to note that a

100 A breaker is effectively identical to a 15 A breaker (same frame class). For higher power equipment such as DCFC the voltage will be higher, and can more likely sustain an arc whereas systems under 150 VAC usually can't, and the breaker frame may be of a higher class but that isn't particularly significant, but again there is nothing unique about EV charging equipment. It is far safer to shut off all the power to the area. Some sites rely on power from the building, others have dedicated electrical services, but regardless the TIA proposal does not appropriately address the actual concern it assumes.

9. It only covers EVSE (AC, UL 2594) and WPTE (UL 2954), but EV charging also includes EVPE (Power Export, UL 9741) and DC Fast Charging (UL 2202) so the industry is migrating to the term EV Power Transfer System equipment encompassing at least these four categories of equipment. The treatment of WPTE should likely be different than conductively connected equipment such as EVSE as the risks and existing control measures are different.
10. It confuses emergency shutoff devices with electrical disconnects, and tries to label and interconnect them collectively. The confusion results in text that is difficult to interpret or enforce consistently, or even as intended.
11. While 625.43A allows plug and receptacle to be used as a disconnect, 625.43B requires all EVPTSE to be disconnected "on the premises", whether anywhere near the installation / incident or not. Our recommendations in our proposals are to have the disconnecting means logically associated with the area (for example should a charger in the service area have to be shut down due to an incident in the parking lot? What about a shopping mall parking lot, do the chargers on the other side of the shopping mall need to be shut off?). Well written code should consider how they should be applied in the real world.
12. It assumes existing disconnects and signage are not provided, but the reality is very different and NEC Section 110.22 already requires identification, like 110.25 requires it to be lockable, and 625.43 already indicated a requirement to install a plaque indicating the disconnect location.
13. It is simply untrue that the disconnect was not labeled, or readily accessible, since both were already required by 625.43, or 110.22.
14. It is presumptuous to claim first responders will be looking for e-stops like at flammable liquid dispensing stations. Code, especially redundant code to what already exists, is not a substitute for appropriate levels of public education or professional training.
15. It argues this was a previously unknown hazard which is very much incorrect and the NEC had a disconnecting means clause for article 625 EV Charging Systems since at least 2008 (625.23). The UL product standards for electric vehicle charging equipment have similarly had electrical shock, fire risk, overcurrent, requirements, since their inception as the hazards were known, and while no standard is perfect, there is no emergency change justified.

While we believe that codes and standards can always be improved, especially for emerging technology, it is best done with a good understanding of the "fire science, research data, engineering fundamentals, or other such information as may be available", to quote NFPA Regs 3.3.6. and we are not of the opinion this TIA is supported by those, whereas we can provide such information that supports opposing the proposed TIA. We can also show where existing mandatory requirements already exist that manage the risk.

We continue to research, educate and contribute to the development of appropriate code and standards, including on the requirements for safe EV charging, but oppose inappropriate development, and we encourage the CMP to reject this TIA accordingly.

Regards,

Kevin Cheong, P.Eng., RCDD, LEED AP

Foran, Rosanne

Comment No. 10
OPPOSE
page 1 of 5

From: Tessa Sanchez
Sent: Monday, January 22, 2024 12:48 PM
To: Shared TIAs
Cc: Asaf Nagler; Leilani Gonzalez; Justin Wilson; Cuong Nguyen; Becky Knox; Beckwith, Jackie
Subject: Comment on Proposed TIA 1767 on NFPA 70
Attachments: Joint EV Parties Comments_NFPA 70 - TIA 1767_012224.pdf

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Hello -

On behalf of Tesla, ChargePoint, ABB E-mobility, Electrify America, FLO, EVBox, and the Zero Emission Transportation Association (the Joint EV Parties), we respectfully submit comments in opposition to Tentative Interim Amendment Log No. 1767 for NFPA 70, the National Electrical Code.

Please find our comments attached.

Thank you.

Tessa Sanchez

Tessa Sanchez | Business Development and Public Policy

3500 Deer Creek Rd, Palo Alto, CA 94304

T E S L A

Submitted Electronically

January 22, 2024

NFPA Standards Administration
1 Batterymarch Park
Quincy, Massachusetts 02169-7471

Comment No. 10
OPPOSE
page 2 of 5

RE: NFPA 70-2023 Edition, National Electrical Code
TIA Log No.: 1767

Dear NFPA Standards Administration:

On behalf of Tesla, ChargePoint, ABB E-mobility, Electrify America, FLO, EVBox, and the Zero Emission Transportation Association (the Joint EV Parties), we respectfully submit comments regarding the proposed Tentative Interim Amendment (TIA) Log No. 1767 for NFPA 70, the National Electrical Code. The TIA would require one or more emergency disconnects at DC fast charging stations, similar to that required by NFPA 30A at fuel dispensing facilities.

As representatives of electric vehicle and electric vehicle supply equipment manufacturers, we are committed to helping fire departments and first responders safely handle emergency situations involving EV charging equipment and any associated infrastructure. Understanding the potential dangers and learning how to deal with them correctly makes everyone safer. While the Joint EV Parties understand the intent of the TIA in keeping first responders safe in the unlikely event of an electrical fire at a fast charging station, we are concerned that the code language has not been thoroughly vetted and would lead to unintended consequences for EV charging operators, the public, and first responders themselves. Furthermore, it is the opinion of the Joint EV Parties that there is no clear emergency need for the TIA. EV charging stations have been deployed safely for more than a decade; there is no data or analysis to suggest otherwise. Additionally, the proposed TIA, does not fully resolve one of the main concerns that it raises, which is the lack of training and accessibility of training materials to first responders to properly handle such emergency situations. Resolving this, would negate the need of this TIA. With the absence of data, technical substantiation, or clear and present risks, the Committee should reject the TIA and instead discuss code modifications through the standard code cycle process.

The Joint EV Parties have identified the following concerns with the proposed TIA:

- **Several sections of the TIA are technically inconsistent, inaccurate, or infeasible.**
 - Section 625.43(B) is redundant with section 625.43 Equipment Disconnects of NFPA 70. A means of disconnection is already required if a first responder chooses to engage the equipment. To disconnect power to a site, first responders should cut the lock on the electrical switchgear, locate the main feeder breaker, turn the handle to the OFF position, and verify the absence of AC hazard sources with available tools.
 - Section 625.43(B) includes language in which “emergency shutoff devices” and “emergency disconnects” are used interchangeably. It should read, “emergency disconnects.”
 - Section 625.43(B)(2) is infeasible. The proposed language would require that all electric vehicle supply equipment on the premises be powered down using a single device. This would not be possible if there are multiple fast charging stations owned and operated by different EV charging service providers on site. This is common in commercial settings, like a shopping mall parking lot or highway traffic stop, in which different charging operators maintain sites on opposite sides of the parking facilities. The electrical infrastructure that supports these charging sites would be extremely infeasible, if not impossible, to interconnect in a way that would disconnect all the power on the premises.
 - Section 625.43(B)(3) has an error in text. It currently reads “ELECTRIC VEHICLE EMERGENCY DISCONNECT.” An emergency disconnect is not intended to disconnect the electric vehicle itself, but the AC input to the EV charging station. It should read, “ELECTRICAL EQUIPMENT EMERGENCY DISCONNECT.”
 - Section 625.43(B)(4) would require a “manual intervention” to reset the emergency disconnect, which would increase the likelihood of misuse or vandalism. By and large, charging stations are unattended, unlike traditional gas stations with on-site employees. If an easily accessible emergency disconnect is pushed out of malfeasance or user error, a site could then be offline for hours or even days depending on the location, until service personnel arrive to reset the emergency disconnect. This would also be counter to requirements for the National Electric Vehicle Infrastructure (NEVI) program which requires 97% uptime for DC fast charging stations. Charging station reliability is already a concern and adding an additional point of shutdown without a clear safety benefit, will cause challenges.
 - Section 625.43(B)(5) incorrectly assumes the “source of supply.” If a fault occurs at the EV inlet or EV connector, the “source of supply” could be either the EV charging station or the EV battery pack. If the source is the EV battery, activating the emergency

disconnect is futile as it will not remove remaining energy in the pack itself. Thus, this text is problematic. It should read, “disconnect all conductors of the circuits from the utility power feed.”

- **Emergency disconnects do not sufficiently increase public safety;** they would provide a false sense of security for first responders because DCFCs, if connected to the EV battery, may still be live. Cutting the flow of electricity to the car will not reduce the propagation if a fire has already occurred. The new requirement does not obviate the need to have a separate means to verify the DC circuits are de-energized. An emergency disconnect may lead first responders to approach the charge posts and vehicles that are still energized, which could lead to an electrical injury.
- **An EV charging site is not comparable to a gas station.** Pump-level emergency shut-offs at liquid fueling stations stop the flow of flammable and combustible fuels to prevent further fire propagation. Reducing the spill of hazardous materials increases the ability for emergency responders to suppress and contain a fire. With EV charging, no such liquid flow exists; a site-wide emergency disconnect will not increase the ability to suppress and contain a fire incident.
- **First responders should use defensive firefighting tactics when responding to a fire involving EV charging infrastructure.** With utility lines or transformers, no publicly accessible emergency shut offs exist and instead trained technicians come to the site to de-energize the electrical equipment. In high voltage emergencies involving electrical infrastructure, first responders are trained to first contact the utility company, then use defensive firefighting tactics, such as isolating the area, protecting exposures, and letting the fire burn. The same tactics should be replicated for electrical fires at DC fast charging stations.
- **Electric vehicles and EV charging are safe and do not constitute a previously unknown hazard.** There is no emergency or risk to public safety that justifies approval of the TIA. Electric vehicles and EV charging stations are extremely safe. Global data, compiled from 2010 to 2020 by the EV FireSafe research project, indicates there is a 0.0012% chance of a passenger electric vehicle battery catching fire.¹ EV charging is extremely safe as well. Charging cables are only energized when connected and locked to the electric vehicle and communication is established between the charging equipment and the vehicle. The flow of electricity to the charging cable is automatically shut off if the charging connector is unlocked or communication between the vehicle and charging equipment ceases.

¹ <https://www.evfiresafe.com/ev-fire-faqs>

The Joint Parties appreciate the opportunity to provide feedback on TIA 1767. We believe the proposed TIA should be voted down due to a lack of sufficient technical justification and adequate emergency need. We look forward to participating in the 2026 NFPA 70 code development cycle where the code can be refined with input from EV charging industry stakeholders who are familiar with the installation and operation of electric vehicle supply equipment and finalized through a robust, open, and consensus-based process.

Sincerely,

Tessa Sanchez
Senior Policy Advisor
Tesla

Justin Wilson
Sr. Director, Utility Partnerships and Regulatory Affairs
ChargePoint

Cuong Nguyen
Manager, Industry, Affairs & Standards
ABB E-mobility Inc.

Jackie Beckwith
Federal Public Policy Lead
Electrify America

Cory Bullis
Public Affairs Director
FLO

Becky Knox
Director, Public Policy NA
EVBox

Leilani Gonzalez
Policy Director
Zero Emission Transportation Association (ZETA)

Foran, Rosanne

Comment No. 11
OPPOSE
page 1 of 3

From: Yeruva, Sesa
Sent: Monday, January 22, 2024 4:32 PM
To: Shared TIAs
Cc: Cowans, Quentin (SI E R&D LP US-TECH); King, Chris; randy.dollar
Subject: Comment on Proposed TIA 1767 on NFPA 70
Attachments: Siemens Response to TIA1767.docx

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CAUTION: Always use caution when opening attachments. Make sure you know the sender and are you expecting one.

Dear NFPA Standards Administration,

Siemens would like to submit a public comment opposing TIA 1767 as currently stated. Further explanation is provided in the attached letter. Kindly let us know if there are any further questions.

Thank you!

With best regards,
Sesha Yeruva

Technology Standardization,
Emobility
Siemens Industry, Inc.
eMobility R&D
3617 Parkway Ln
Peachtree Corners, GA, 30092 U.S.

www.usa.siemens.com

Subject: Comment to NEMA on TIA 1767

Dear NFPA Standards Administration:

Siemens is opposed to TIA Log No. 1767 as currently drafted.

Introduction

This TIA appears to have been submitted with the intention to improve safety at facilities that host EV charging, but we believe that the substantiation does not adequately explain why this TIA is needed and the proposed text is written in a way that creates confusion and imposes several unintended requirements that do not improve safety. As written, the proposed requirement will impede the development and increase the cost of new and safe EV charging facilities.

Review of Substantiation and NFPA 30A

EV charging facilities are not motor fuel dispensing facilities as contemplated by NFPA 30A as they do not store or dispense liquid or gaseous motor fuels, but the substantiation in this TIA provides that 625.43 is "... lacking emergency disconnecting requirements similar to that required by NFPA 30A at fuel dispensing facilities," as a basis for acceptance.

Addition review of NFPA 30A shows the following. In section 6.7, the emergency shutoff requirements are clearly and narrowly described. Subdivisions 6.7.2 and 6.7.3 specify where the shutoff can be located with distances from the equipment that they serve. Subdivision 6.7.4 clearly states the circuits that should be disconnected and where they are located. Additionally, the scope of chapter 8 specifies that 30A only applies to electrical installations in "...areas where liquids are handled..." and in "...repair garages... and repair areas..." The text proposed in this TIA fails to provide any details of the type provided in NFPA 30A and broadly requires that all equipment on a premises be shut off in case of an emergency.

Review of TIA text

The language proposed in the charging text and subdivision (A) of this TIA do not change requirements with respect to AC EVSE and WPT, but additional wording has been added which implies that the basic disconnecting means required for AC EVSE and WPT devices have changed and leaves a grey area surrounding fixed-in-place AC equipment that is rated 60A or less. We believe this will create an environment of inconsistent interpretation and uneven enforcement of the requirements.

Subdivision (B) is problematic for the following reasons. First, the charging text requires that "emergency shutoff devices" or "electrical disconnects" be installed, but these terms are undefined and there are no details included to specify which types of equipment could serve this purpose. Second, each shutoff or disconnect must be within sight of the charging equipment and connected to all EVPTE on the premises, but there are no provisions for remote controls to be used, no consideration of location of the installation with respect to other installations that may be located on the same premise and no direction provided on how to meet these requirements when each installation is supplied by a

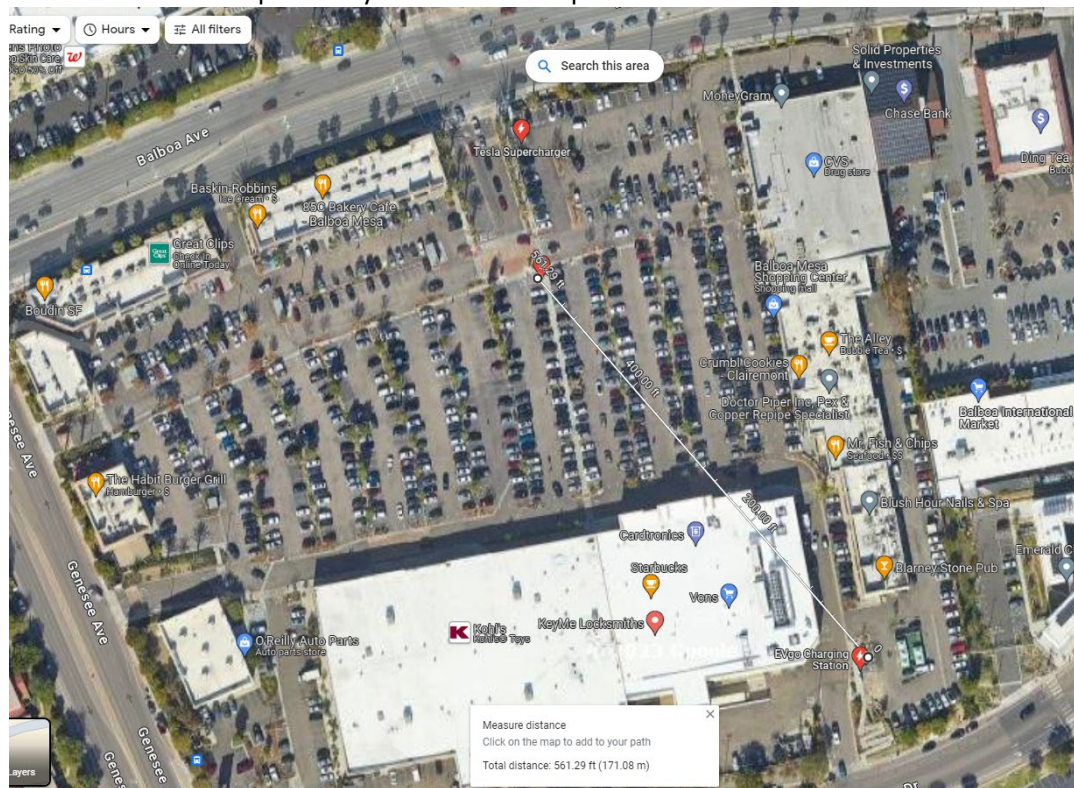
different service. Finally, these new requirements would retroactively impact existing AC and DC installations each time equipment is added to a premises because (B)(2) is a blanket statement that applies to "...all...equipment on the premises."

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Example

Consider Balboa Mesa Shopping Center¹ in San Diego, California as an example of why subdivision (B) is impractical. This location has three EV charging facilities controlled by 3 different companies. The Tesla Super Charger and the Volta installation are about 50ft apart and within plain sight of each other. The EVgo installation is located in a back parking lot and more than 500ft away from the Tesla and Volta installations. There is no line-of-sight between the EVgo installation and the other installations and there is also a building between them. Shutting off the Tesla installation and the Volta installation due to an emergency situation at the EVgo installation would likely not improve safety because they are too far apart to impact the users located at the EVgo installations. The first responders at the EVgo facility would also not be impacted by the continued operation of the other 2 facilities.



[https://www.google.com/maps/place/Balboa+Mesa+Shopping+Center/@32.8215526,-117.1818604,921m/data=!3m1!1e3!4m6!3m5!1s0x80dc0074730d7da3:0xc9684af79f47fa7c!8m2!3d32.819205!4d-117.1788223!16s%2Fg%2F1tghl4w?entry=ttu\)](https://www.google.com/maps/place/Balboa+Mesa+Shopping+Center/@32.8215526,-117.1818604,921m/data=!3m1!1e3!4m6!3m5!1s0x80dc0074730d7da3:0xc9684af79f47fa7c!8m2!3d32.819205!4d-117.1788223!16s%2Fg%2F1tghl4w?entry=ttu)

Conclusion

Consequently, EV charging suppliers may decide to avoid developing charging facilities at locations where equipment already exists, reducing consumer choice. As an alternative, EV charging suppliers may decide to locate their installation adjacent to existing installations to simplify interconnection of disconnecting devices, increasing the density of charging EVs in an individual location, increasing the hazard that this TIA aims to reduce.

Foran, Rosanne

Comment No. 12
OPPOSE
page 1 of 2

From: Thereza Cevidanes
Sent: Monday, January 22, 2024 5:29 PM
To: Shared TIAs
Cc: Jessi Frend; Margaret Hardin
Subject: Comment on Proposed TIA 1767 on NFPA 70
Attachments: Fuel Retailers_NFPA 70 - TIA 1767_Jan 2024.pdf

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Good Evening,

Please see attached for joint comments from NATSO, NACS, and SIGMA in **OPPOSITION** to Proposed TIA No. 1767, Reference: 625.43.

Thank you for your consideration of our comments. Please don't hesitate to reach out with any questions.

Sincerely,
Thereza Cevidanes

Thereza Cevidanes
Manager, Government Affairs
NATSO, Representing America's Travel Centers and Truck Stops
SIGMA: America's Leading Fuel Marketers

January 22, 2024

Comment No. 12
OPPOSE
page 2 of 2

Submitted Electronically

NFPA Standards Administration
1 Batterymarch Park
Quincy, Massachusetts 02169-7471

RE: NFPA 70-2023 Edition, National Electrical Code; TIA Log No.: 1767

Dear NFPA Standards Administration:

As representatives of the fuel retail industry, we are writing to express our opposition to expediting the proposed National Fire Protection Association (“NFPA”) 70-2023 Edition, National Electrical Code (“NEC”) Tentative Interim Amendment (“TIA”) Log No.: 1767 and urge the Committee to vote against the TIA. The TIA would require one or more emergency disconnects at direct current fast charging stations, similar to that required by NFPA 30A at fuel dispensing facilities. We believe the proposed change requires more vetting and substantiating data, which should take place during the 2026 code revision process.

Fuel retailers have a vested interest in ensuring the safety of their customers and employees and are eager to partner with other stakeholders in ensuring that the electric vehicle (“EV”) charging experience is as safe, convenient, and efficient as possible. The Committee should utilize the standard code revision process in 2026 to allow for greater input and better data to make the most informed decision on these matters.

EV charging stations have been deployed safely for more than a decade and have not proven to be a public safety hazard. We believe the proposed TIA should be voted down due to a lack of sufficient technical justification and adequate emergency need. Thank you for your attention to, and consideration of, this matter. We look forward to working with you through a full, deliberative process during the 2026 NFPA 70 NEC Code development cycle.

Sincerely,

National Association of Convenience Stores (NACS)
NATSO, Representing America’s Travel Plazas and Truckstops
SIGMA: America’s Leading Fuel Marketers