WORLD RESOURCES INSTITUTE

ELECTRIC SCHOOL BUS INITIATIVE UTILITY WORKING GROUP

UWG 4TH CONVENING | NOVEMBER 10, 2022

MEETING GOALS

- Launch a collaborative working group aimed at influencing, supporting and driving the equitable transition to ESBs
- Learn about various ESB-related activities, issues and ideas particularly as they pertain to electric utility interactions, requirements and programs.
- Collectively identify key ESB topics to explore in subsequent meetings and the related resources and support required

WE KINDLY ASK…

- Please rename your ZOOM title with your name and organization
- Please mute yourself during presentations and when not talking
- Please put your questions in the chat box
- Please participate in the surveys to help inform the topics and provide feedback on the value of the materials being presented
- Please be respectful of the meeting participants and the space allowed for input
- The meeting will be recorded and made available to all participants

AGENDA

1:00 – 1:05	**Welcome (Goals, Requests and Agenda)**
1:05 – 1:10	**Initiative Recap and Team**
1:10 –1:35	**Important News and Updates**
1:35 – 2:10	**Topic 1 – *ESBs & Resiliency*** • Presentation from Electrification Coalition
2:10 – 2:50	**Interactive Session – Utility Scenarios**
2:50 – 2:55	**Future Topic Survey**
2:55 – 3:00	**Wrap-Up**

WHY ELECTRIFY THE U.S. SCHOOL BUS FLEET?

Electrification can accelerate decarbonization while bringing direct, tangible benefits to every community

- **Improved health** and cognitive outcomes for children
- **Cleaner air**, especially in high-pollution corridors and communities of color
- **Reduced operating expenses** for school districts
- **New jobs** in green manufacturing
- A **tipping point** for MHD + electrification
- Enhanced **resiliency** and **renewables integration** with V2G

OUR VISION INVOLVES MULTIPLE STAKEHOLDERS

Goal: **An Equitable Transition to Electric School Buses**

School Districts

Pillar 1

Manufacturers

Pillar 2

Utilities

Pillar 3

Federal & State Policymakers

Pillar 4

Local Communities

Pillar 5

Foundation: **Equity, Communications, Engagement**

Utilities

Pillar 3

UTILITY ENGAGEMENT AND FINANCING SOLUTIONS TEAM

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Caitlin Macomber
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Research Analyst

EQUITY SPOTLIGHT

First-ever Climate Justice Pavilion inside the Blue Zone
at COP27, the 2022 United Nations Climate Change Conference,
in Sharm El-Sheikh, Egypt, November 6-18, 2022

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SCHOOL BUS ELECTRIFICATION AND FEDERAL POLICIES, FUNDING, ACTIONS

NOVEMBER 2022

ESB-FRIENDLY PROVISIONS IN THE IRA

- **$1 billion to electrify MHDV (class 6 & 7)**
  - 40% specifically for non-attainment areas
- **Up to $40,000/vehicle in a qualified Commercial Clean Vehicle Tax Credit (45W)**
  - Based on initial price of vehicle & weight
  - Direct pay or credit transfer for tax-exempt entities
  - Stackable
- **Up to $100,000/charger in the Alternative Fuel Refueling Property Credit (30C)**
  - "Eligible census tracts"
  - Low income or non-urban
  - Direct pay for tax-exempt entities

POTENTIAL ESB-FRIENDLY PROVISIONS IN THE IRA

- **Rural Energy for America Program**
- **Greenhouse Gas Reduction Fund**
- **Funding to Address Air Pollution at Schools**
- **Environmental & Climate Justice Block Grants**
- **Advanced Manufacturing Production Credit**
- **Domestic Manufacturing Conversion Grants**

INFLUENCING IRA PROGRAM GUIDANCE

- Treasury closed public comment on some tax incentives on 11/4
- Treasury has opened public comment on 45W and 30C specifically until 12/3 (details here)
  - Final Guidance expected about the time tax credits are active on 1/1/23
- EPA has opened public comment on how to implement the $1 billion in MHDV electrification due 1/18/23 (details here)

UPDATE ON THE CLEAN SCHOOL BUS PROGRAM - BIL

- ~$4B worth of applications
- 391 awards totaling $916M
  - More awards expected soon to reach $965M available
- 2,400+ buses - 95% electric
- 99% $$ to EPA's priority districts
- ESBs to all 50 states, DC, 3 tribes & 2 territories (and counting)

NEVI FROM THE BIL

- **All 50 states submitted and received approval of their National Electric Vehicle Infrastructure (NEVI) plans**
- **While NEVI plans typically have a light-duty focus, below is a list of some states that mentioned Electric School Buses in their plans:**
  - Connecticut - Clean Air Act
  - Maryland - Zero Emission School Bus Transition Grant
  - Michigan - MI Healthy Climate Plan goals
  - Nevada - Incentive Program
  - North Carolina - NEVI program engagement
  - Pennsylvania - Part of Equity Considerations
  - Vermont - School District Partnerships West Virginia - NEVI program engagement
- **WRI** submitted a comment to a FHWA/DOT NEVI RFI aiming to standardize the installation, operation, and maintenance of EV infrastructure

Electric School Bus INITIATIVE

QUESTIONS?

Vehicle-to-Everything-Enabled Electric School Buses for Emergency Response: Implementation Guide and Mutual Aid Agreement

Presentation to:
WRI's Utility Working Group
November 10, 2022

SAFE

Electrification Coalition

Overview of SAFE and the Electrification Coalition

- **SAFE** works to enhance the nation's energy security by advancing transformative transportation and mobility technologies.
- The **Electrification Coalition (EC)** works on transportation electrification policy and implementation efforts.

Electrification Coalition

SAFE

Disclaimer

Images used throughout the presentation are for illustrative purposes only and are not meant to endorse any particular company, entity, or brand.

Overview of Implementation Guide

- Step-by-step guide for before, during, and after an emergency (outage).
- Focuses on: using ESBs to power critical infrastructure, such as a school or community building being used as a shelter, as examples, or other critical loads.
- Includes a template MAA or MOU.

Issue Overview

- As more disasters occur, ensuring the resilience of communities is more important than ever.
- Underserved communities typically are hit the hardest by disasters:
  - Less resourced;
  - More densely populated;
  - Low income.
- Will encourage further ESB adoption.

Solution

Vehicle-to-Everything (V2X)-Enabled ESBs

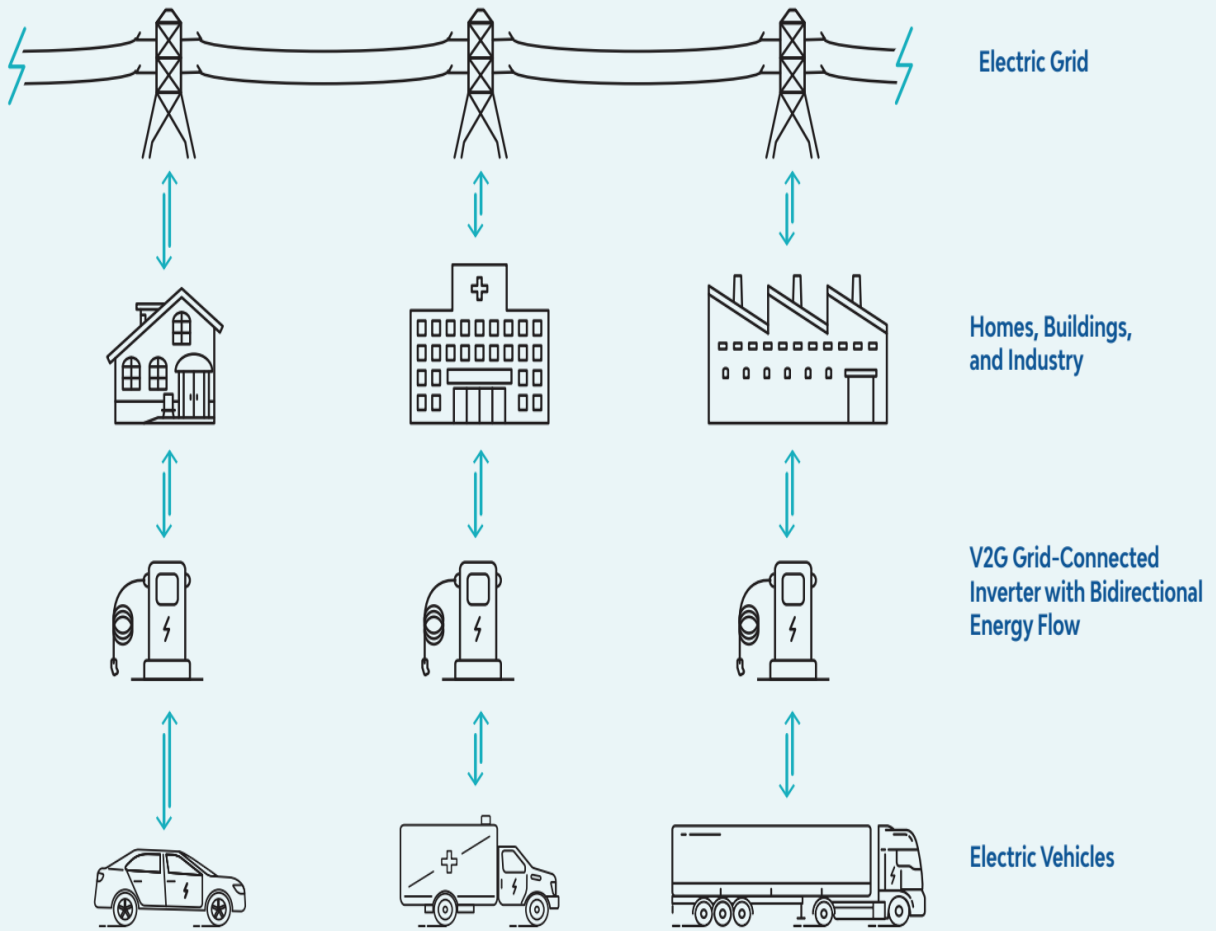
=

Diesel Generators

Definitions

Vehicle-to-Everything (V2X):

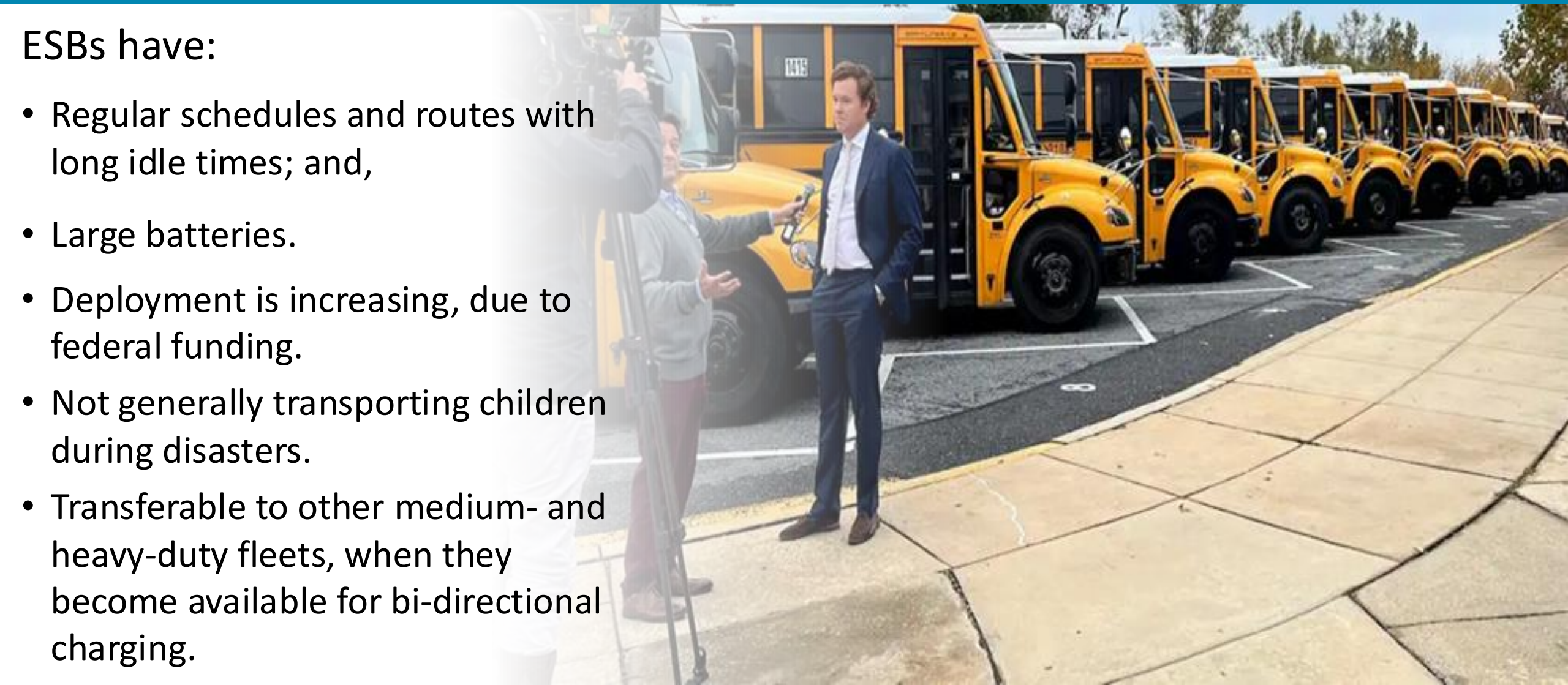
Rather than a one-way flow of power from a charger to a vehicle, vehicle-to-everything refers to the two-way, or bidirectional, flow of power between an EV and load.



Reasons V2X-Enabled ESBs are Well-Suited for Disaster Response

ESBs have:

- Regular schedules and routes with long idle times; and,
- Large batteries.
- Deployment is increasing, due to federal funding.
- Not generally transporting children during disasters.
- Transferable to other medium- and heavy-duty fleets, when they become available for bi-directional charging.



Benefits of V2X-Enabled ESBs for Resilience

By providing power to maintain essential services during disasters and outages, V2X-enabled ESBs:

- Enhance grid and community resilience;
- Strengthen our energy and national security; and,
- Decrease environmental and health impacts from diesel buses and generators.

Key Stakeholders

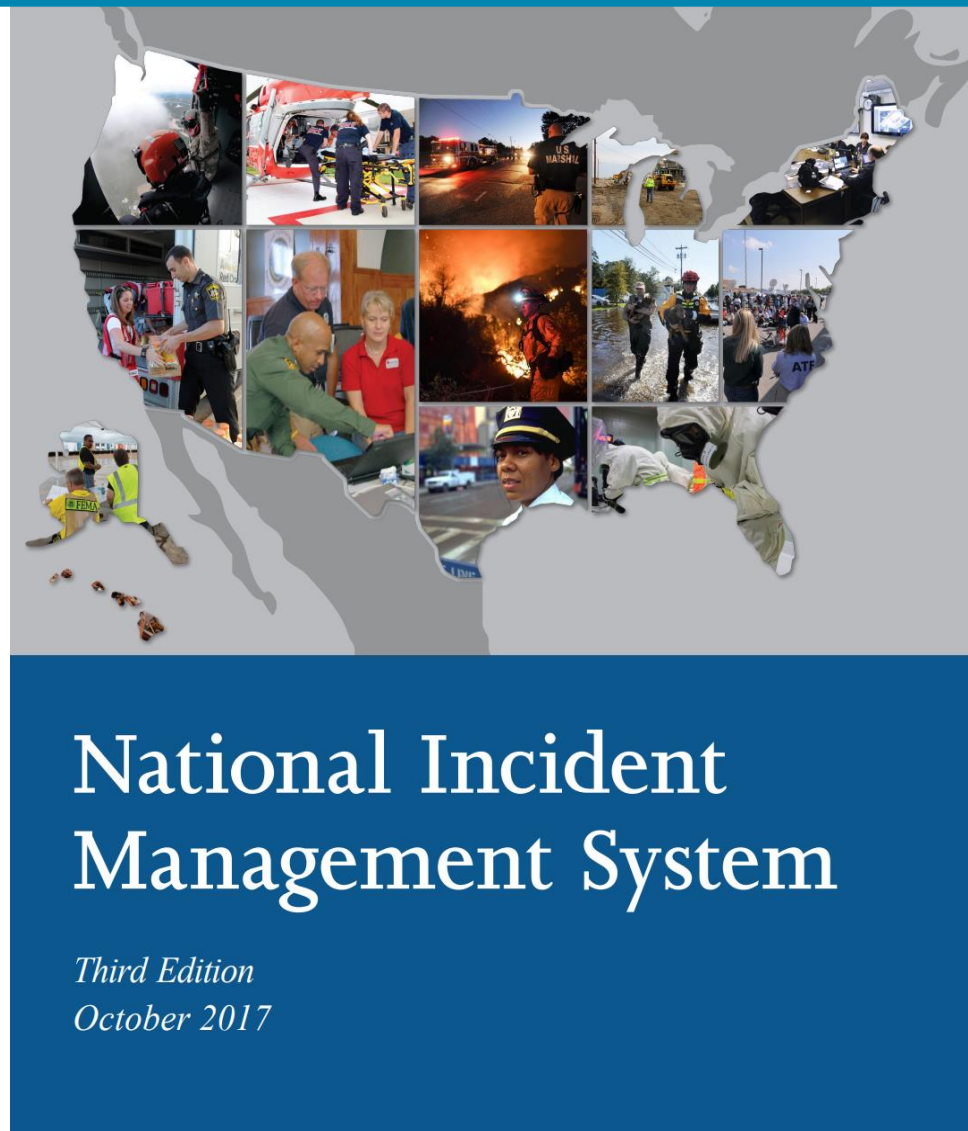
- Electric Utilities
- School District Officials
- School Facility Managers
- First Responders
- State/County/City Emergency Managers
- Electrical Contractors
- Public Utility Commissions and/or Regional Transmission Organizations
- ESB Manufacturers/Providers
- Charging Station Providers
- Service Providers

Implementation Guide

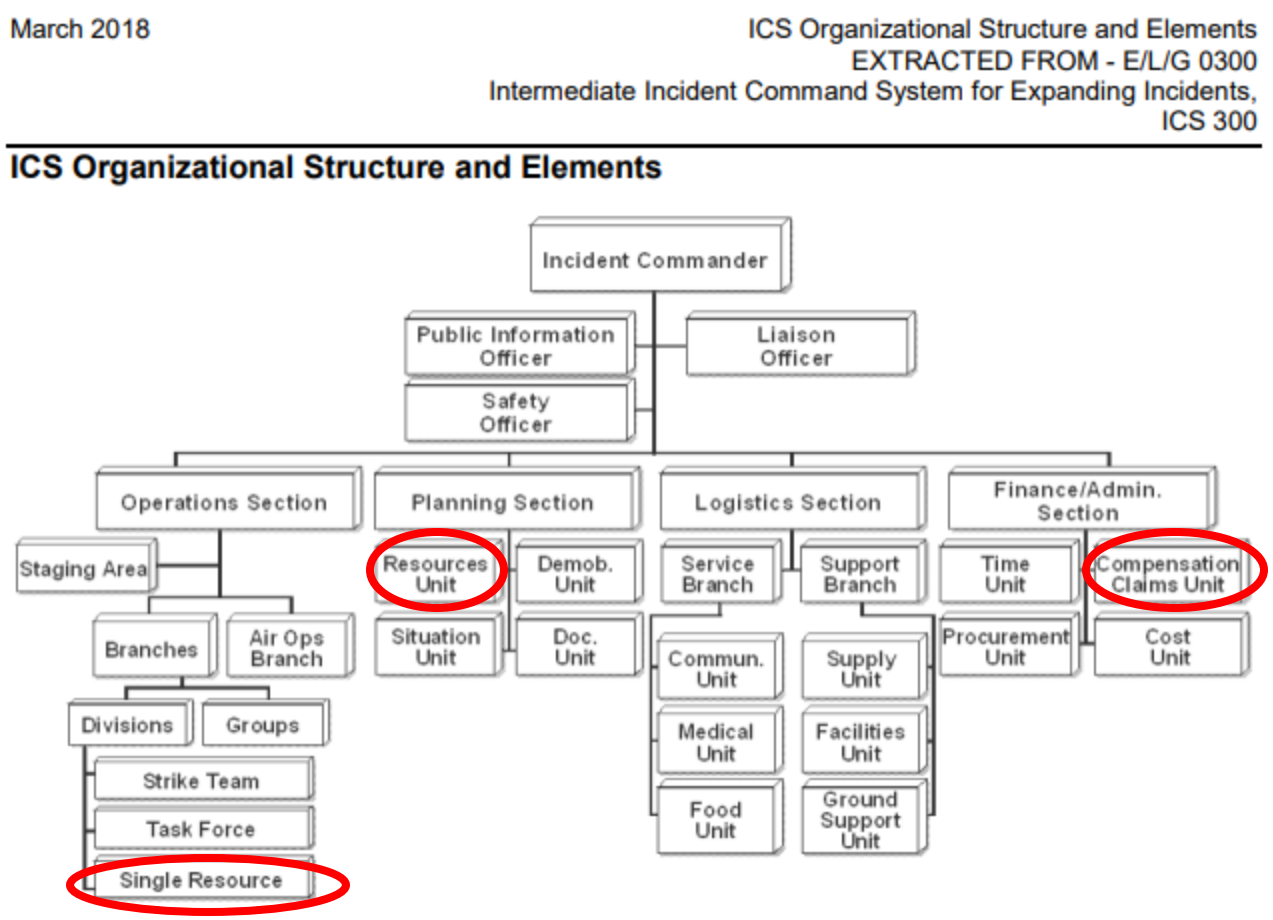
Conformity with NIMS and ICS

- MAA to conform to, and be easily integrated with, NIMS Guideline and Incident Command System.

- Resource Typing Tool.



FUTURE ESB RESOURCES IN EXISTING FEMA ORGANIZATION-STRUCTURE



March 2018

ICS Organizational Structure and Elements
EXTRACTED FROM - E/L/G 0300
Intermediate Incident Command System for Expanding Incidents,
ICS 300

ICS Organizational Structure and Elements

Operations Section Chief Responsibilities

- Request additional resources to support tactical operations.

The Planning Section Chief is responsible for providing planning services for the incident. Under the direction of the Planning Section Chief, the Planning Section collects situation and resources status information, evaluates it, and processes the information for use in developing action plans.

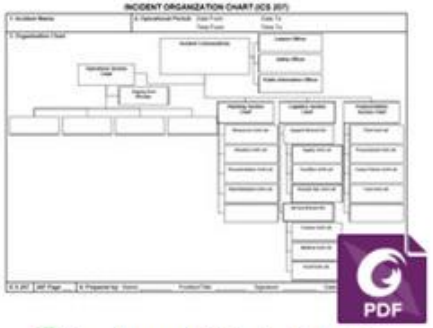
- Determine need for specialized resources.

The Finance/Administration Section Chief is responsible for managing all financial aspects of an incident.

- Ensure compensation and claims functions are being addressed relative to the incident.

FEMA: ICS Organizational Structure and Elements (fema.gov)

EXISTING FEMA RESOURCE ICS FORMS



ics form 207, incident organization chart (v3)

ics form 210, resource status change (v3)

ics form 213rr, resource request message (v3)

ics form 219-7, t-card (yellow) (v3)

ics form 260, resource order

ICS_OrgStructure_ResourceUnit

Forms available online at: [Emergency Management Institute | ICS Fillable Forms (fema.gov)]

- 207: Incident Command Organization Chart
- 210: Resource Status Change
- 213: Resource Request Message
- 219-7: T-Card for Equipment
- 260: Resource Order

NOTE: Orgs may have additional forms or may alter these to fit their needs

Implementation Steps Before an Emergency

- Develop and execute a MAA.
- Identifying the resource needs (load and duration of backup power).
- Specifying the requisite personnel and other stakeholders.
- Determining software, hardware, and interconnection needs and other logistical priorities.

Implementation Steps Before an Emergency

- Undertaking coordination efforts.
- Analyzing additional potential needs.
- Conducting education and outreach;
  and, building support.

Emergency Phase

- Identify and secure V2X-enabled ESB for the disaster.
- Deploy V2X-enabled ESB.
- Notify utility of use of V2X-enabled ESB for backup power.
- Island and connect ESB.

Post-Emergency (Recovery) Phase

- Notify utility.
- Disconnect ESB.
- Determine amount of power consumed.
- Recharge and park ESB; conduct safety check.
- Compensate ESB owner/contractor and driver for aid provided.

Mutual Aid Agreement (MAA)

MAA Key Elements

- Purpose and Scope
- Terms
- Implementation Steps: Before, During, and After
- Deployment Notification Protocols and Procedures
- Reimbursement

Thank you!

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ELECTRIFICATIONCOALITION.ORG
SECUREENERGY.ORG

Electric School Bus INITIATIVE

QUESTIONS?

SURVEY-TOPIC 1

Go to **www.menti.com** and use the code **2598 2480**

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INTERACTIVE UTILITY SCENARIOS

NOVEMBER 2022

QUICK INSTRUCTIONS

- 20-minute breakout groups
  - Randomly assigned to group and scenario
  - WRI Facilitator will be present for notetaking
  - Conversations are to be led by participants
- 10-minute debrief
  - Designated group representative will share out main points from discussion

Electric School Bus INITIATIVE

QUESTIONS?

SURVEY-TOPIC 2

Go to **www.menti.com** and use the code **2598 2480**

FINAL SURVEY

Go to **www.menti.com** and use the code **2598 2480**

THANK YOU

Please contact Gregg Kresge at
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