

The EPA Clean School Bus Program Could Be Impacted by Utility Delays

December 27, 2023 | Report No. 24-P-0012



Report Contributors

Kevin Collins
Gabriel Porras-Sanchez
Jarrett Rickerds
Kate Robinson
Khadija Walker

Abbreviations

EPA U.S. Environmental Protection Agency
IIJA Infrastructure Investment and Jobs Act
OIG Office of Inspector General

Cover Image

Electric school bus. (EPA photo)

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At a Glance

The EPA Clean School Bus Program Could Be Impacted by Utility Delays

Why We Did This Audit

To accomplish this objective:

The U.S. Environmental Protection Agency Office of Inspector General conducted this audit to determine whether potential supply chain or production delays could impact the EPA's efforts to disburse and manage Clean School Bus Program funds pursuant to section 71101 of the Infrastructure Investment and Jobs Act.

The Infrastructure Investment and Jobs Act amended the Clean School Bus Program established by section 741 of the Energy Policy Act of 2005. It provides \$5 billion over five years, or through 2026, for the replacement of existing school buses with clean and zero-emission school buses. The 2022 Clean School Bus rebate was the first funding opportunity for the program.

To support these EPA mission-related efforts:

- *Improving air quality.*
- *Operating efficiently and effectively.*

To address this top EPA [management challenge](#):

- *Managing grants, contracts, and data systems.*

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[List of OIG reports.](#)

What We Found

We concluded that there were no significant supply chain issues or production delays that impacted the EPA's efforts to disburse funds through the first round of the Clean School Bus Program's funding. However, the Agency may be unable to effectively manage and achieve the program mission unless local utility companies can meet increasing power supply demands for electric school buses.

The EPA provided utility resources during the rebate application process but did not require applicants to contact their utility provider to coordinate potential changes needed to connect charging stations to utilities. While early coordination with utilities is not a requirement, it could prevent the Agency from achieving its objective to remove older diesel buses and replace them with clean buses. The increased demand on utility companies may impact the timeliness of replacing diesel buses.

While utility infrastructure is not funded through the program, we found that there could be delays in utilities constructing the needed charging stations to make the buses fully operational in a timely manner. The EPA needs to ensure that utilities have constructed and connected charging stations in a timely manner so that school districts' school bus fleets, purchased through the EPA's 2022 Clean School Bus Rebate Program, are functional. Utility installation delays must be addressed for taxpayers to reap timely health and environmental benefits of the \$5 billion invested in this program through the IJJA.

We did not make any recommendations in this report.

Increased power supply demands could delay electric school bus deployment.



OFFICE OF INSPECTOR GENERAL
U.S. ENVIRONMENTAL PROTECTION AGENCY

December 27, 2023

MEMORANDUM

SUBJECT: The EPA Clean School Bus Program Could Be Impacted by Utility Delays
Report No. 24-P-0012

FROM: Sean W. O'Donnell, Inspector General *Sean W O'Donnell*

TO: Joseph Goffman, Principal Deputy Assistant Administrator Performing Delegated Duties
of Assistant Administrator
Office of Air and Radiation

This is our report on the subject audit conducted by the U.S. Environmental Protection Agency Office of Inspector General. This project number for this audit was [OA-FY23-0051](#). This report contains no recommendations. If you submit a response, it will be posted on the OIG's website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at www.epaoig.gov.

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Purpose

The U.S. Environmental Protection Agency Office of Inspector General [initiated](#) this audit to determine whether potential supply chain or production delays could impact the EPA’s efforts to disburse and manage Clean School Bus Program funds pursuant to section 71101 of the Infrastructure Investment and Jobs Act.

Top management challenge addressed

This audit addresses the following top management challenge for the Agency, as identified in OIG Report No. [24-N-0008](#), *The EPA’s Fiscal Year 2024 Top Management Challenges*, issued November 15, 2023:

- Managing contracts, grants, and data systems.

Background

Infrastructure Investment and Jobs Act Provides Funding for the Clean School Bus Program

President Biden signed the Infrastructure Investment and Jobs Act, referred to as the IIJA, into law on November 15, 2021. The IIJA amended the Clean School Bus Program established by section 741 of the Energy Policy Act of 2005.¹ The IIJA provides \$5 billion over five years, or through 2026, to replace existing school buses, most of which operate on diesel fuel, with clean and zero-emission school buses.²

The Clean School Bus Program uses several funding mechanisms to replace school buses, including grants, rebates, and contracts. In 2022, the program offered rebates to school districts to purchase clean school buses. Under this rebate program, a rebate is a payment from the EPA to an eligible entity to subsidize the purchase of a zero emission or clean school bus, as well as eligible infrastructure, that meets the Clean School Bus Program’s requirements.

Under the IIJA, the U.S. Department of Energy’s Renew America’s Schools Program was appropriated \$500 million for a grant program for K–12 public schools. These grants may be used for energy efficiency, renewable energy, and alternative fuel infrastructure investments at K–12 schools. These grants may also be used for innovative energy technology packages, which cover alternative fueled vehicle infrastructure on school grounds, as well as the purchase or lease of alternative fueled vehicles, including clean school buses, for schools.



Clean school bus at charging station. (EPA photo)

¹ 42 U.S.C. § 16091.

² A zero-emission school bus produces zero exhaust emissions of air pollutants and greenhouse gases. A clean school bus is either a zero-emission bus or it reduces emissions by operating entirely or in part using an alternative fuel, such as propane or natural gas.

The 2022 Clean School Bus Rebate Program

In 2022, the EPA offered \$500 million in initial funding for the Clean School Bus Program.³ The EPA solicited rebate applications from school districts through the 2022 Clean School Bus Rebate Program from May through August 2022. According to the EPA, the Agency received around 2,000 applications requesting nearly \$4 billion for over 12,000 buses. Given the overwhelming demand from school districts across the country, the EPA prioritized school districts in low-income communities, tribal nations, and territories. The EPA announced in September 2022 that it will nearly double the amount of available funding to \$965 million for the rebate program.

The maximum rebate amount per bus depended on the bus fuel type and the bus size, as well as whether the school district receiving the buses met one or more prioritization criteria. For example, as set forth in Table 1, the Clean School Bus Program will subsidize the cost of a zero-emission school bus, but only a portion of a clean school bus, such as a compressed natural gas school bus.

Table 1: Maximum bus funding amount per replacement school bus

Bus type	Replacement Bus Fuel Type and Size					
	Zero Emissions Class 7+	Zero Emissions Class 3-6	CNG Class 7+	CNG Class 3-6	Propane Class 7+	Propane Class 3-6
Amount of rebate	\$375,000	\$285,000	\$45,000	\$30,000	\$30,000	\$25,000

Note: This table displays maximum funding levels. The EPA will not disburse rebate funds in excess of the actual cost of the replacement bus. CNG = compressed natural gas.

Source: *2022 Clean School Bus Rebates Program Guide*. (EPA table)

The EPA developed an online system to facilitate the 2022 rebate application process. Applicants could request funds to replace up to 25 buses. The maximum rebate amount per bus, which could be no more than \$375,000, depended on the replacement bus fuel type, the replacement bus size, and priority status of the school district as defined in the EPA’s *2022 Clean School Bus Rebates Program Guide*.

The EPA notified the selectees in October 2022. As of July 17, 2023, the EPA approved rebate applications for 380 school districts to purchase charging units, which are approximately \$20,000 each, and 2,441 vehicles, including 2,319 electric buses, which are approximately up to \$437,000 each;⁴ 116 propane buses, which are approximately \$105,000 each; and six compressed natural gas buses, which are approximately over \$125,000 each.⁵ Selectees had to submit purchase orders for both the buses and the charging units by April 2023 or request an extension. Table 2 shows the EPA’s planned

³ In 2023, the EPA established a Clean School Bus grant program funding opportunity, accepting applications from April 24 to August 22, 2023, and is implementing another rebate program, accepting applications from September 28, 2023 to January 31, 2024.

⁴ *Electric School Bus U.S. Market Study and Buyer’s Guide*, World Resources Institute, issued June 2022.

⁵ *The State of Sustainable Fleets 2022 Market Brief*, GNA Clean Transportation and Energy Consultants, issued May 2022.

timeline for the rebate process as of May 2022. Regardless of extensions, the project completion date for this rebate program is October 2024, which is when buses are required to be in operation.

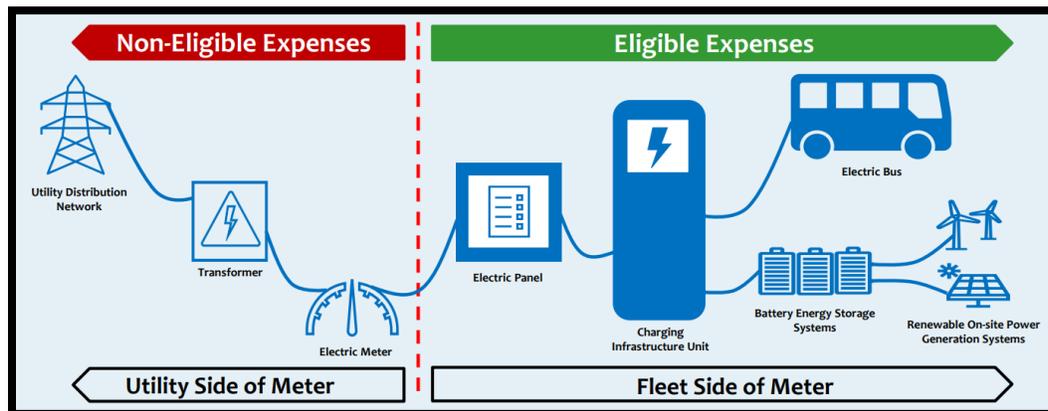
Table 2: 2022 Clean School Bus Rebate Program timeline

Activity	Dates
The EPA opened the online system and accepted applications submitted via rebate forms.	May 20–August 19, 2022
The EPA reviewed applications and began the selection process.	September 2022
The EPA notified applicants of selection. Selectees proceeded with purchasing new buses and eligible charging infrastructure.	October 2022
Selectees submitted payment requests with purchase orders and proof that new buses and eligible charging infrastructure were ordered.	October 2022–April 2023
Deadline for selectees to receive new buses, install eligible charging infrastructure, replace old buses, and submit closeout forms	October 2024

Source: EPA Clean School Bus Program timeline. (EPA OIG table)

The EPA can award up to 100 percent of the cost of the replacement bus and charging infrastructure. According to the *2022 Clean School Bus Rebates Program Guide*, selected applicants for replacement electric school buses would be allocated funding for charging infrastructure installations. The EPA limited funding for infrastructure to installations between the electrical meter and the charging port, as shown in Figure 1. This can include charging equipment; design and engineering; and installation costs such as trenching, wiring and electrical upgrades, labor, and permitting. EPA funds may not be used for any infrastructure costs associated with work on the utility’s side of the electrical meter, but the Department of Energy’s program can fund infrastructure costs that the EPA funds cannot, like infrastructure on school grounds. Figure 1 illustrates eligible and noneligible utility expenses for EPA funds.

Figure 1: Noneligible and eligible expenses for the 2022 Clean School Bus Rebate



Source: *2022 Clean School Bus Rebates Program Guide*. (EPA image)

Electric School Bus Market

The market for electric vehicles has grown rapidly and is expected to continue to grow. Increased consumer interest, government policies, and buy-in from the automotive industry all contribute to the growth in the electric vehicle market. The IIJA not only provided funding for clean school buses, but also to upgrade the nation's power grid and to build a nationwide charging network. The increase in electric vehicles will bring corresponding demands for supplies for both the buses and the charging infrastructure to power them. The World Resources Institute, a global nonprofit organization that, among other things, tracks electric school bus initiatives, has tracked the number of electric school buses in the United States. According to the World Resources Institute, there were 1,398 electric school buses that were either ordered, delivered, or operating as of December 2022. There are now 5,612 electric school buses that are ordered, delivered, or operating, almost double the number of buses since the release of the World Resources Institute's September 2022 dataset. The majority of this growth is due to the EPA Clean School Bus Rebate Program, which awarded over \$900 million for more than 2,400 electric school buses to 389 school districts, expected to be operational by October 2024.

Responsible Offices

The Office of Air and Radiation develops national programs, policies, and regulations for controlling air pollution and radiation exposure. Within Office of Air and Radiation, the Office of Transportation and Air Quality's programs address emissions from a range of mobile sources: cars and light trucks, large trucks and buses, farm and construction equipment, lawn and garden equipment, marine engines, aircraft, and locomotives. The office's Transportation and Climate Division is responsible for administering the Clean School Bus Program.

Scope and Methodology

We conducted this audit from March to September 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. For this audit, we answered the objective in relation to electric or zero emission buses, which account for 95 percent of the clean school buses receiving rebates. We did not review implementation of low-emission or clean buses, such as propane and compressed natural gas.

To answer our objective, we interviewed staff from the Office of Transportation and Air Quality, four electric bus manufacturers, six bus suppliers, two school districts that purchased large volumes of buses, two utility companies, and two charger companies. We obtained and analyzed data from the Clean School Bus database maintained by the Office of Transportation and Air Quality.

Results

We concluded that there were no significant supply chain issues or production delays that impacted the EPA's efforts to disburse funds through the first round of the Clean School Bus Program's funding. However, the EPA's 2022 rebate application did not require applicants to coordinate with their utility companies before applying for rebates. As a result, the Agency may be unable to effectively manage and achieve the program mission unless utility companies can meet increasing power supply demands for electric school buses.

No Indication that Supply Chain Delays Have Significantly Impacted the EPA's Ability to Award and Disburse Funds

We did not find indications that supply chain or production delays have impacted the EPA's efforts to disburse funds through the Clean School Bus Rebate Program. First, Agency market research for the Clean School Bus Rebate Program concluded that supply chains would not cause delays. The Agency held 24 meetings with major bus manufacturers from February 9, 2022, through January 30, 2023, when developing the program. In these meetings, the Agency and stakeholders discussed building the electric school bus market; manufacturing capacity; delivery timelines; charging infrastructure; utilities; and domestic preference requirements, which require federal awardees to use domestically sourced products and materials in certain situations. These manufacturers expressed confidence in meeting demand since they already began increasing electric bus manufacturing prior to the program.

Second, as part of the program design, the EPA is allowing school districts two years to demonstrate that they received their new buses and eligible charging infrastructure and have replaced their old buses. The Agency chose this time frame to accommodate potential supply chain delays or long delivery times, as well as to allow time for fleet owners to get comfortable with their new buses and related technology prior to scrapping their existing fleet. The Agency stated that "[a]s with any product, there may be supply chain issues that impact the broader economy and could result in delays delivering buses." However, the EPA has planned for this type of potential delay and included in the program guide an allowance for selectees to request extensions for submitting purchase orders or confirming bus delivery:

Selectees can request extensions to the project period deadline. EPA will review these requests on a case-by-case basis and may grant extensions if sufficient justification is provided. For example, EPA may grant an extension if a bus is on order but is experiencing manufacturing or delivery delays.

The EPA is requiring recipients to provide purchase orders with delivery or completion date information.⁶ In addition, the EPA is reviewing all rebate applications to ensure that delivery dates are within the prescribed timeline. If rebate applicants cannot provide delivery date information, they can

⁶ As the inspector general explained in his testimony to the House Energy and Commerce Committee on September 13, 2023, these are not rebates in the traditional sense because once a recipient provides a Payment Request Form with a copy of a purchase order, the EPA will issue the award to the recipient's bank account before the bus has been delivered in order to subsidize the purchase of the buses.

request an extension. As of July 31, 2023, the program has processed and paid rebates to 189 out of approximately 380 recipients, which represents \$309 million. The Agency expects to process the rebates as quickly as possible.

Third, the major electric bus manufacturers we interviewed indicated that supply chain issues would not impact the EPA's ability to award funds because suppliers were already ramping up to meet the increased demand, and delivery times would take between six to 12 months, which is within the time the EPA allotted. Another manufacturer had already started deliveries under the program in June 2023. This manufacturer stated that delivery times would depend on the type of school bus; vehicle specifications; destination, as all states have different requirements; and when the order is placed, but that all the program-funded buses were scheduled to be delivered before the October 2024 deadline.

To properly handle any possible increase in demand for the electric buses, one manufacturer stated that it has added a new plant, while another is hoping to open a new manufacturing facility. Two manufacturers have hired additional employees. The remaining three manufacturers stated that they did not have any immediate plans to hire new staff but may do so depending on increased market demand. In addition, four of the manufacturers stated that they always hire staff that are trained to work on all types of school buses they build, including diesel, electric, and propane. While the manufacturers we interviewed were confident that they could meet the increased demand driven by the Clean School Bus Program, recent public reporting has indicated that some of those manufacturers are experiencing significant supply chain issues resulting in delayed delivery of new school buses. This might represent a broader supply chain issue; however, we did not find indications that it has impacted the EPA's efforts to disburse funds.

Agency staff is monitoring clean school bus delivery dates. The Office of the Administrator has contacted all the major electric school bus manufactures to request a delivery forecasting document from each one. This document identifies the school district, applicant type of bus they are purchasing, and estimated delivery dates. The manufacturers are in the process of completing and returning these documents to the Agency.

The EPA Provided Utility Resources During the Rebate Application Process, but Did Not Require Early Engagement with Utilities

Although the EPA's 2022 rebate application did not require applicants to coordinate with their utility companies before applying for rebates, the Agency stated that it encouraged applicants to do so during program webinars. Due to some applicants facing challenges in utility coordination, among other things, many applicants requested extensions to submit their purchase order documentation to allow time to conduct such coordination.

Obtaining detailed project review and buy-in from utilities to establish the necessary infrastructure to support the electric panel, charging, and electric bus was also not a requirement for the 2022 rebate program. The impact of utility issues on the program will not be fully known until the 2022 selectees close out their rebates, which is not scheduled until October 2024. According to the program guide:

To facilitate coordination between applicants and utilities, the EPA has partnered with Edison Electric Institute and the Beneficial Electrification League on an “Electric Utility Pledge.” This pledge includes a set of commitments electric utility companies can take to proactively help school districts with the deployment of electric school buses, including providing technical support and guidance on existing rate structures, interconnection requirements, costs, and timelines, as well as identifying the right type of charging infrastructure to meet their needs.

On September 28, 2023, the Agency announced the second Clean School Bus rebate program.⁷ Under this new rebate program, all applicants must submit a Utility Partnership Agreement to verify that the school district’s electric utility provider is aware of the school district’s rebate application. Proactive and ongoing communication between the school district and its local electricity providers is critical to successful infrastructure deployment.

Increased Demand on Bus Charger Manufacturers and Utility Companies May Impact the Timeliness of Replacing Diesel Buses and Achieving Program Environmental Health Benefits

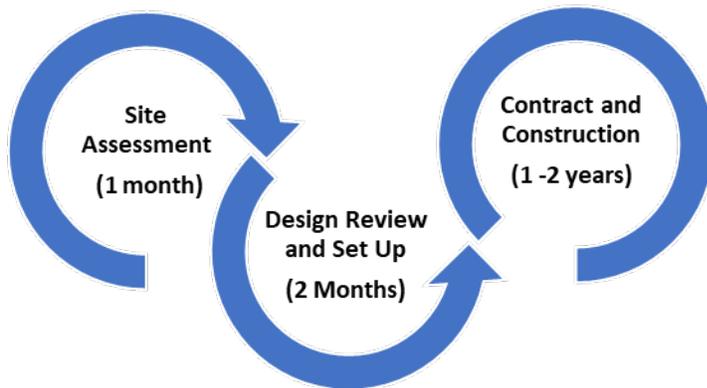
We identified concerns with delays related to the infrastructure needed to support the bus charger manufacturers and the increased demand on utilities. Entities we interviewed identified concerns about possible delays with utility providers bringing the necessary power lines and transformers to the school districts for charging the buses. One utility company we interviewed stated while it had experience with electric vehicles and buses, it did not have experience at the projected scale. One utility company explained that it could take nine months to two years to complete construction. The most common infrastructure upgrades needed to support the bus chargers are transformers, electrical lines, and switch changers. This utility noted that early communication between the companies and school districts, such as prior to applying for funding, is important for the execution of this program.

The process for establishing charging stations and connecting them to power lines could take approximately 12 to 24 months, according to the World Resources Institute’s *Electric School Bus Buyers Guide*. The process, illustrated in Figure 2, is as follows:

- The utility conducts a site assessment, which could take up to a month, to determine the location of the chargers.
- Utility engineers conduct a design review and set-up, which could take a couple of months.
- The utility must contract the construction of the charging station, which could take up to two years.

⁷ This represents the EPA’s third round of funding under the Clean School Bus Program. The EPA had previously announced the second round of Clean School Bus Program funding on April 24, 2023, in the form of grants.

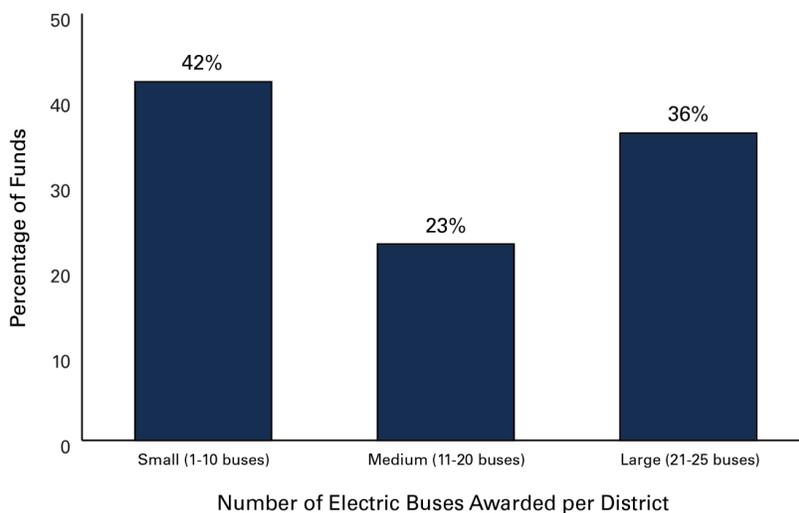
Figure 2: Illustration of timeline for utility construction to support electric bus charging stations.



Source: EPA OIG image.

Additionally, according to the stakeholders we interviewed, infrastructure to support fleets of 25 buses or more require a more challenging electrical set-up, which can lead to more delays. Clean bus charging sites that need to support 25 buses or more often require a different transformer and switch gear, which take a year to construct. A utility provider we interviewed explained that it is hard to find transformers in the United States and it has backlogged orders because of the high demand. The EPA’s 2022 rebate program issued rebates to 39 school districts to purchase 21–25 buses each. These large bus purchases constituted about 36 percent of rebate funds. Figure 3 illustrates the percentage of funds and number of rebates issued for the 2022 program.

Figure 3: Distribution of the 2022 Clean School Bus Rebate Program awards



Note: Percentages are rounded.

Source: EPA Clean School Bus Program, Second Report to Congress, Fiscal Year 2022. (EPA image)

The EPA stated that it was aware that school districts working with utilities and installing charging infrastructure may be challenging, particularly for those school districts looking to add more than ten clean buses to their fleet. Infrastructure needs are less of an issue for applicants looking to add a small number of buses. School bus manufacturers highlighted that, in their experience, installation could take months for customers purchasing clean buses. According to the EPA, a project period of two years was implemented for the rebate process to allow for bus delivery delays as well as charging equipment installation.

Conclusions

In our discussions with the EPA and various stakeholders, we concluded that there were no significant supply chain issues or production delays that impacted the EPA's efforts to disburse funds through the first round of funding for the Clean School Bus Rebate Program. However, the Agency may be unable to effectively achieve program goals unless it can ensure that school districts will be able to establish the infrastructure necessary to support clean bus and charging purchases. There could be delays in utilities constructing the needed charging stations to make the buses fully operational in a timely manner. While early coordination with utilities is not a requirement, it could prevent the Agency from achieving its objective to remove older diesel buses and replace them with clean buses. The increased demand on manufacturers and utility companies may impact the timeliness of replacing diesel buses and ultimately may delay program health and environmental benefits.

We issued no recommendations in this report.

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