



SAFETY, HEALTH & ENVIRONMENT

MAGAZINE

# SAFETY

**REPORT:**  
**14<sup>TH</sup> OCCUPATIONAL SAFETY  
HEALTH EXHIBITION ASIA**

- BBS APPROACH FOR OSH CULTURAL TRANSFORMATION
- PT KILANG PERTAMINA INTERNASIONAL UNIT II: FULFILLING OSH COMMITMENT AND HIGH-RISK OPERATION CHALLENGES

DECEMBER EDITION  
• 2024



# TO BE SAFE IN THE ELECTRIC CAR TRANSITION

**YOU ARE  
THE KEY  
TO  
SAFETY**



# OPTIMALKAN PROGRAM HSE 2025 ANDA DENGAN SYNERGY SOLUSI

Menyusun program HSE yang komprehensif dan sesuai regulasi semakin kompleks dengan perubahan peraturan dan tantangan baru di dunia kerja. Synergy Solusi hadir untuk membantu Anda menghadapi *pain points* utama dalam program HSE 2025, dari manajemen risiko hingga pengembangan budaya keselamatan yang kuat.

Dengan konsultasi gratis dan *free matrix training*, kami membantu Anda merancang program HSE yang tepat dan efektif.



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## Apakah ini yang Anda Hadapi?



### **Kompleksitas Regulasi dan Kepatuhan:**

Synergy Solusi memberikan konsultasi yang didukung oleh keahlian dalam memahami dan mematuhi regulasi HSE terbaru di berbagai industri.



### **Keterbatasan Anggaran:**

Dapatkan solusi praktis untuk menyusun program HSE yang efektif tanpa harus melebihi anggaran Anda. Kami menawarkan *free matrix training* untuk membantu memaksimalkan penggunaan sumber daya.



### **Kesadaran dan Kepatuhan Karyawan:**

Synergy Solusi menawarkan pelatihan dan strategi untuk meningkatkan kepatuhan karyawan terhadap prosedur keselamatan, sehingga mengurangi risiko kecelakaan kerja.



**Data dan Pelaporan:** Optimalkan pengelolaan data dan pelaporan HSE dengan framework dan tools yang kami sediakan melalui konsultasi gratis kami.



### **Perubahan Teknologi dan Proses Kerja:**

Kami membantu Anda beradaptasi dengan perkembangan teknologi baru dan memastikan integrasi yang aman ke dalam proses kerja perusahaan Anda.



### **Manajemen Risiko yang Efektif:**

Dengan konsultasi dari tim ahli kami, Anda akan mendapatkan panduan dalam mengidentifikasi, memprioritaskan, dan memitigasi risiko keselamatan secara lebih efisien.



### **Budaya Keselamatan yang Lemah:**

Kami menyediakan pendekatan holistik untuk membangun budaya keselamatan di seluruh level organisasi Anda melalui *free matrix training*.

# FIRST COLLABORATION INTERNATIONAL EVENT

**SEPTEMBER** is quite a busy month for the entire iSafety Magazine team. We participated in a big Occupational Safety Health (OSH) event, OSH Asia 2024, which took place in Singapore on September 11-13, 2024. This is the first time we have taken part in an international OSH exhibition. We proudly celebrate the participation, since iSafety Magazine was the only OSH media from Indonesia that was given the opportunity to open a booth.

During the event, Indonesia was represented by the Riau Islands Province in a three-country discussion event with Singapore and Malaysia. In another forum, Indonesia was represented by Ir Subkhan ST, M, PSDA, IPU, Asean Eng as Vice Chairman of the World Safety

Organization (WSO) Indonesia who also provided an explanation of K3 developments in Indonesia. The event was more special when Indonesia presented on the same stage as Ana Ercoreca de la Cruz, Secretary General of IALI (International Association of Labor Inspection) from Spain.

This event is a very important forum for Indonesia to speak out loud on OSH. We certainly hope that the closing of OSH Asia will not be the last event for Indonesia to join, but it rather opens more opportunities and cooperation in developing OSH, even perhaps opening opportunities for investors to invest in Indonesia.



Meanwhile, in our home country, we also have a special event on OSH. On September 25-27, 2024, a new history was born because for the first time the Safe Work Indonesia 2024 exhibition was present at JiExpo Kemayoran. This event received positive appreciation from various K3 circles, the government, and K3 equipment manufacturers. The goal of the event is to ensure that the implementation of K3 in the country does not stop as a discourse and slogans but becomes part of safe behavior for everyone.

iSafety Magazine opened a booth with WSO Indonesia and Loto. iSafety filled the exhibition with several talkshows, namely Safety Leadership by presenting National OSH figure Soehatman Ramli, who is also the Chairman of WSO Indonesia. Other talkshows discussing Fire Theory, Emergency Response Procedure presented by Yanto Purwono ST, and Lockout Tagout (Loto) by Pradana. The talkshows held by iSafety attracted many participants, showing their high interest on the topics.

From the two K3 exhibition events, we see there is great enthusiasm throughout the world, including in Indonesia, to continue creating a healthier and safer working environment. The spirit is in line with what the entire iSafety Magazine team continues to hold, to continue to educate and share various developments in the world of OSH in Indonesia. We always hope that a true OSH Culture in Indonesia can be realized quickly.



SAFETY, HEALTH & ENVIRONMENT

# iSAFETY

MAGAZINE

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# Guide to Join the Electric Car Transition



Electric cars do offer a myriad of conveniences for their users. However, all users need to know several things to be safe while using electric cars.

Daily traffic jams on the streets contribute to exhaust emissions and become a source of pollution. (Photo source: pexels.com)



**UNDENIABLY**, higher public awareness regarding the importance of preserving the environment urges the majority of people to switch to using tools that are considered environmentally friendly. That is also the reason behind the shift in choosing cars for daily transportation. Nevertheless, vehicles have been accused as the main contributor to environmental pollution.

Nowadays, more and more people are replacing conventional cars that consume gasoline or diesel fuel with more environmentally friendly ones, namely electric vehicles, as their main daily transportation mode. Moreover, electric cars are touted as a means of transportation that is free from exhaust emissions.

#### **What about the circumstances in Indonesia?**

In general, in slight contrast from other countries, the enthusiasm of the Indonesian people for electric vehicles is more heavily influenced by the provision of various incentives provided by the government. One of them is through the issuance of Presidential Regulation (PP) Number 55 of 2019 concerning the Acceleration of the Battery Electric Vehicle (BEV) Program for Road Transportation.

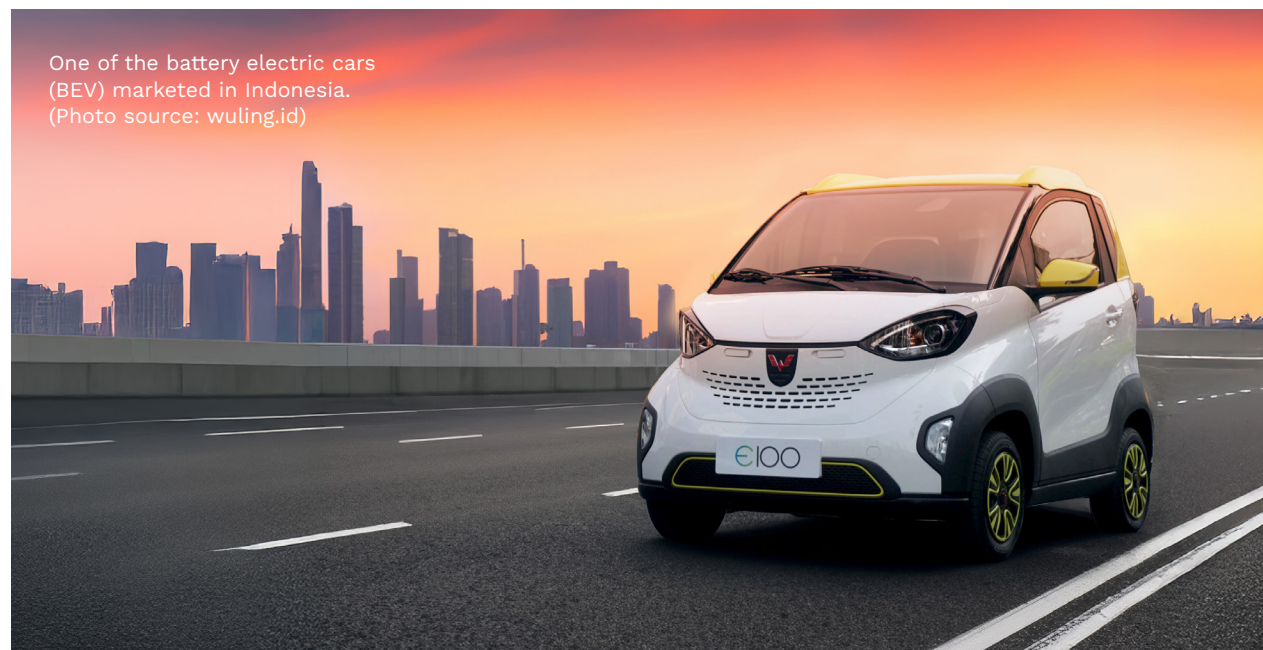
Indeed, ownership of electric cars in Indonesia (especially BEVs) is also facilitated by several other regulations. For example, there is a VAT exemption so that prices are getting cheaper. BEV owners also enjoy annual tax relaxation, which means that the

PKB (*Pajak Kendaraan Bermotor*) or motor vehicle tax paid is relatively lower than regular vehicles. BEVs are also free from Indonesia's odd-even road-access rules, where some roads can only be accessed by vehicles with odd-number plates on odd-numbered dates, and vice-versa even-numbered plates on even-numbered dates. Not to mention the cheaper operational costs due to the economical battery charging costs, and lower maintenance costs. With all of those privileges, it is no wonder that the interest in electric cars among the Indonesian people has increased lately.

Although the price of electric cars is still relatively high and the battery charging infrastructure in public places is still relatively minimal, there is a growing perception of Indonesian people towards electric vehicles.

#### **Types of Electric Vehicles**

In general, the global automotive market recognizes four types of electric cars. Each type has its own advantages and disadvantages. From a technical perspective, these electric cars are supported by different working principles. Starting from electric cars that rely 100% on batteries to electric cars that combine conventional engines with batteries, or better known as hybrid cars. For the Indonesian automotive market, there are at least three types of electric cars available in the market, easy to spot on Jakarta's streets. Let's discuss each of them.



One of the battery electric cars (BEV) marketed in Indonesia. (Photo source: wuling.id)

### 1. BEV

Battery electric vehicle (BEV) is the type of electric cars that use 100% of the electric power from the battery as their power source. The electric power is stored in a rechargeable battery, works like a cell phone battery, by connecting the charger to an external power line. Because it uses 100% of the electric power from the battery, the BEV engine is also different from conventional car engines which commonly known as internal combustion engines.

The way BEV works is by converting electrical power from a DC, direct current battery into electrical power for an electric motor, which is an AC, alternating current type. Driving it will be similar to riding a conventional car, the driver presses the accelerator pedal to control the speed of the vehicle. When the car slows down, the electric motor will become a generator that produces electrical power to be stored back in the battery.

In Indonesia, several BEV type vehicles in distribution are, among others, BYD Dolphin, Cherry Omoda, Hyundai Ioniq, Nissan Leaf, Toyota BZ4X.

The main advantage of BEV is efficiency, because the operational costs are cheap due to low electricity and maintenance costs, and are free from air pollution.

The disadvantages of BEV are the expensive battery price and its heavy weight. BEV's range is also limited, while the availability of charging stations is still short.

### 2. HEV

Hybrid electric vehicle (HEV) combines two driving systems. They are a conventional internal combustion engine (ICE) and an electric motor. Unlike the BEV type, the battery on the HEV type vehicle cannot be recharged externally. There is no charging port for this vehicle. The HEV battery charging process takes place when the engine is running and when the car is braking.

BYD Dolphin, one of the BEV (battery electric vehicle) electric cars marketed in Indonesia (Photo source: byd.com)





Nissan Kicks, one of the HEV (hybrid electric vehicle) electric cars marketed in Indonesia (Photo source: oto.com)

Broadly speaking, there are two types of HEV, namely parallel HEV and serial HEV. The difference between the two lies in the engine. Parallel HEV utilizes engine power and electrical power to operate the car. While in serial HEV, the engine functions as a generator to charge the battery, which in turn the battery is tasked with supplying electrical power to operate the car. Because it still uses a conventional engine, HEV is still equipped with a conventional fuel tank, and is still filled with fuel.

HEVs circulating in Indonesia are, for example, Nissan Kicks, Toyota Corolla Cross 1.8 HEV, Toyota Yaris Cross 1.5 HEV, Honda CR-V 2.0 RS e:HEV, and Toyota Innova Zenix. HEVs are less popular in Indonesia because they do not receive tax subsidies and are not exempt from odd-even number-plate rules.

The advantage of HEV is its long range. And because it is relatively the same as a conventional

car, HEV does not depend on a charging port. The disadvantage of HEV lies in its exhaust emissions which still contribute to pollution. The cost of fuel and service costs for this vehicle are also relatively the same as ordinary conventional cars. Another thing, the provision of incentives for purchasing HEVs has not yet been completed.

### 3. PHEV

The next electric car type is the plug-in hybrid electric vehicle (PHEV). Just like HEV, PHEV also has two drive systems in the form of a conventional engine (ICE) and an electric motor. Thus, PHEV still requires fuel and produces exhaust emissions.

From a technical perspective, the fundamental difference between HEV and PHEV lies in the battery charging. In PHEV, battery charging can be done using an external power source connected through a charger

and charging port. Therefore, PHEV can also utilize battery charging stations meant for BEV electric cars. While the main source of battery charging in PHEV electric cars comes from conventional engines and regenerative braking systems.

In the Indonesian automotive market, the PHEV population is relatively small. However, there are still manufacturers who market it. A few years ago, the Mitsubishi Outlander PHEV was circulating, as well as Toyota RAV4 GR Sport. But its relatively high price made the sales volume of the PHEV type electric cars with a plug-in hybrid electric vehicle system, relatively small.

Currently, there are also BMW XM PHEVs that are participating in the Indonesian market, joining Toyota RAV4 GR Sport and Mitsubishi Outlander.

The advantages of PHEVs are their fairly long range

and their practicality because they can utilize external battery charging outlets. The disadvantages of PHEVs are their high price and engines that still emit exhaust gasses. Until now, incentives for PHEVs are still under review.

#### 4. FCEV

The fourth type of electric car is the fuel-cell electric vehicle (FCEV). This vehicle uses fuel-cell technology to generate electricity. In general, FCEV technology is similar to BEV, only there is an additional feature in the form of a fuel-cell unit as a generator of electricity for the battery. In other words, the FCEV type of electric car has a fuel-cell system that can generate electricity independently.

The fuel cell system in FCEV produces quite a lot of electrical power through a chemical reaction involving

Toyota RAV4 GR Sport, one of the PHEV electric cars with a plug-in hybrid electric vehicle system. (Photo source: newsroom.toyota.eu)





Toyota Mirai, one of the FCEV electric cars with a fuel cell system that uses hydrogen gas fuel.  
(Photo source: Global Toyota)



hydrogen gas. On the other hand, hydrogen gas filling.

In fact, the development of FCEV products and technology has been carried out for a long time, maybe around 10 years ago. However, infrastructure constraints in the form of relatively few hydrogen gas filling stations have caused this type of electric car to seem like a "new kid" compared to BEV, HEV or PHEV. As a result, its population is not as large as the others. That is why manufacturers such as Toyota are still hesitate to market FCEV electric cars in Indonesia.

The advantages of FCEV are its long range and relatively fast hydrogen gas filling. The price of hydrogen is also relatively low. The disadvantage of FCEV is the absence of hydrogen gas filling stations in Indonesia. The price of this type of vehicle is also expensive and it is quite large in size because its frame must accommodate the battery, fuel cell, and hydrogen tank.▲

# Important Safety Factors in Using Electric Cars



**WE NEED** to carefully consider the security and safety factors of electric cars, given the fact that there is an increasing number of users around the world, including in Indonesia. Quoting *Antara*, automotive expert Yannes Martinus Pasaribu from the Bandung Institute of Technology (ITB) reminds users to be more selective in order to prevent any unwanted incidents.

According to him, we need to highlight the safety standards implemented in the design of electric vehicles, including batteries, to prevent the risk of fire.

In this regard, Yannes asked manufacturers to pay attention to international safety standards for the design of electric vehicles and their batteries, including their electrical systems, to avoid incidents.

Flare-ups in electric vehicles are usually caused by internal failures in battery cells, overcharging, electrical system disturbances, battery cell leaks, extreme weather conditions, very hard impacts, short circuits in the battery or charging system, and reactions in the battery that cause heat or thermal runaway.

Yannes suggests that manufacturers use high-quality components and hardware to protect the batteries. Electric vehicles must also be equipped with an effective thermal management system to

cool down the battery and avoid dangerous levels of temperature conditions.

Still related to batteries, electric vehicles need to be equipped with additional detection and protection systems to monitor battery conditions in real time. Therefore, it can be soon detected if there is a dangerous situation, such as overcharging, overheating, and short circuits.

“We need to be assured about the safety aspect of electric cars. The battery should be designed with adequate safety features, such as temperature control, battery management systems, and protection against internal failures,” said Yannes.

Furthermore, according to Yannes, additional safety layers need to be applied to battery storage areas to prevent physical damage. The layer also provides protection against chemical spills that may occur in the event of a hard collision, while avoiding the risk of electrical short circuits during floods.

Manufacturers must also double check to make sure that their products have passed a series of stringent safety tests, including fire resistance tests, leak tests, crash tests, and environmental tests, especially for extreme temperatures and flooding.▲



# Government Target to Accelerate Electric Vehicle Ecosystem

**ACCORDING** to the director general of the Ministry of Energy and Mineral Resources (ESDM) Dadan Kusdiana, the Indonesian government is targeting two million electric cars and 13 million electric two-wheeled vehicles run on the street by 2030. To achieve the target, the Ministry of ESDM continues to accelerate the development of supporting infrastructure so that an electric vehicle ecosystem is formed.

Dadan revealed this information in a High Level Closed-Door Ministerial Discussion panel. The panel was part of the IEA's 9th Global Conference On Energy Efficiency (GCEE) series of activities in Nairobi, Kenya, some time ago. However, Dadan also acknowledged that there is still a large price gap between electric vehicles and conventional vehicles. To close the price gap, the Indonesian government provides tax incentives and gives subsidies for electric cars, hybrid cars, and electric motorcycles.

"Indonesia has prepared USD455 million in funds to subsidize the sale of electric motorcycles. The subsidy covers the sale of 800 thousand new electric motorcycles and the conversion of 200 thousand combustion engine motorcycles," said Dadan.

Furthermore, Dadan said, "To support the formation of an electric vehicle ecosystem, the government continues to increase the construction of public electric vehicle charging stations (SPKLU). By 2030, it is



Supporting the Electric Vehicle Ecosystem, PLN Operates 1,582 SPKLU units spreading across 1,131 locations throughout Indonesia.



estimated that Indonesia will need 32,000 SPKLU units to meet the increasing demand (of electric vehicles).”

To create a comprehensive charging infrastructure, along with the development of public charging stations, the availability of chargers at home is equally important. In order to facilitate charging outlets at home, PT PLN offers some incentives. The company gives, for example, special prices for improving the electricity system and implementing tariff cuts for overnight charging system.

These measures are designed to encourage more residents to adopt electric vehicles by making the



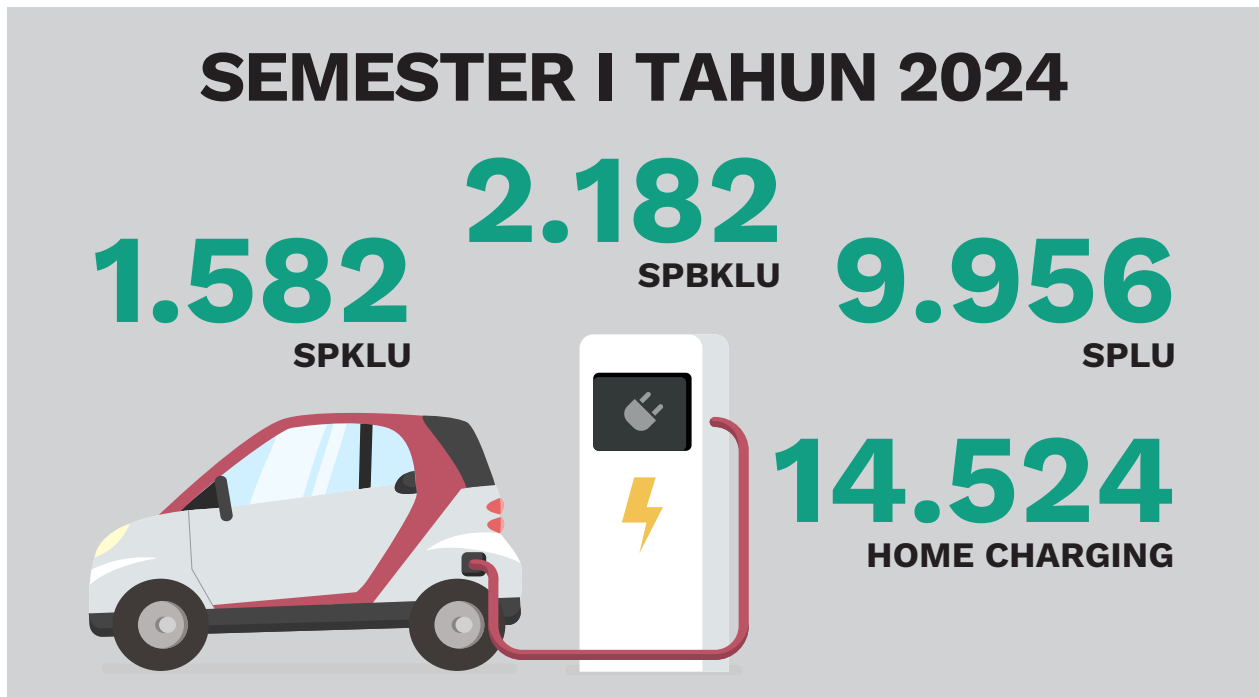
charging process convenient and cost-effective.

Aside from focusing on electrification of public passenger vehicles, the Indonesian Government also recognizes the significant contribution of public transportation to CO2 emissions in the country. As a strategic response, the Indonesian Government is currently developing fuel economy standards for heavy vehicles, as a key to reducing emissions in the short and medium term.

“To further reduce transportation emissions, this year, the government has allocated 11.8 million tons of biodiesel, along with the launch of a 35% palm oil blend for biodiesel or known as B35. This program can reduce GHG emissions by around 34.9 million tons of CO2. The Indonesian government strongly believes that a combination of regulation, information, and incentives can drive energy efficiency as well as mitigation measures in the transportation sector,” Dadan said.

### **PLN’s Rapid Action to Build Infrastructure**

PT PLN (Persero) continues to increase the availability of charging station infrastructure to accelerate the electric vehicle (EV) ecosystem in Indonesia. The goal is to ease the charging process for electric car users, so they can get power for their vehicles in several spots.



PLN supports the acceleration of the electric vehicle ecosystem by continuing to add more charging stations throughout Indonesia.

By the first semester of 2024, there are 1,582 SPKLU, 2,182 Public Electric Vehicle Battery Exchange Stations (SPBKLU), 9,956 Public Electric Charging Stations (SPLU), and 14,524 home charging stations used for charging electric vehicles, according to the data of PLN.

PLN President Director Darmawan Prasodjo explained that PLN is committed to supporting the acceleration of the electric vehicle ecosystem, by adding more and more charging stations across various regions in Indonesia. According to him, in total, PLN has operated 1,582 SPKLU units spread across 1,131 locations throughout Indonesia. This number has increased by 157% compared to the first semester of last year, which was only 616 SPKLU. Moreover, SPKLU is now available even in every toll road rest area.

There is also growth in the amount of electricity usage at SPKLU, recorded by the first semester of 2024. Electricity consumption increased by 229% to more than 2,438.8 megawatt hours (MWh), from the

previous 741.8 MWh in the first semester of 2023.

“With the increasingly massive growth of EVs, of course supporting infrastructure must also be available. PLN cannot do it alone, thus we are very open to any partners to collaborate to accelerate the energy transition in this transportation sector,” said Darmawan.

For home charging services, PLN works hand in hand with various electric cars’ brand holders companies, and operates the PLN Mobile application. Thus, every electric vehicle customer can immediately get home charging services.

PLN data states that by the first semester of 2024, the number of home charging stations has reached 14,524 customers. This figure is up 335 per cent compared to the first semester of last year, with total electricity consumption reaching 4,264.8 MWh. The data can be read as a significant growth, an increase of 344 per cent, compared to the realization of the first semester of 2023 of 960.1 MWh.

PLN also collaborates with various public transportation companies, by developing special charging station infrastructure for electric buses and electric public transportations. “Not only private vehicles, public transportation has now switched to electric vehicles. Therefore, PLN provides infrastructure to meet the needs of the entire community so that they can use electric vehicle transportation comfortably and safely,” continued Darmawan.

PLN also continues to add infrastructure for electric motorcycles. By June 2024, 2,200 battery exchange infrastructure or SPBKLU units have been prepared to meet the needs of the community. The provision is assisted by PLN partners.

“PLN is committed to continuing to add 2-wheeled electric battery exchange infrastructure in order to provide the best service for electric motorcycle users which continues to increase, in order to transform them to be the main mode of transportation in Indonesia,” said Darmawan.

PLN has built and operated SPLU (*stasiun pengisian listrik umum*, public electric charging stations) that can be an alternative for electric motorcycle users, as many as 9,956 units, spreading throughout Indonesia. In 2024, PLN also took the initiative to utilize electric poles as SPKLU media or known as SPKLU Tiang (“SPKLU

on-pole”). Currently, there is 2,000 units SPKLU Tiang available to use.

Darmawan continued, PLN does not only provide physical infrastructure such as SPKLU, SPBKLU, SPLU, and home charging spots in supporting EV growth. Through a successful end-to-end digital transformation, PLN also provides EV services in the PLN Mobile application.

“We are taking this step to improve customer experience. It is easier for the public to get information related to electricity services, especially for their electric vehicles. If they need any information about the location of the nearest charging station, or charging spots, or they need to add power, install new charging stations, and even buy electric vehicles, they can do all those via the PLN Mobile application,” he said.

Darmawan wishes the public will be more confident in switching to use electric vehicles, and can feel firsthand the ease of using them, since there is a massive growth of infrastructure and services provided on one hand by PLN Mobile.

“PLN will continue to commit to providing its best service to support the energy transition in the transportation sector. The more people switch to electric vehicles, the faster we will achieve net zero emissions by 2060,” Darmawan concluded. ▲

PLN is committed to provide the best service to support the energy transition in the transportation sector



14th Occupational Safety + Health Exhibition for Asia:

# Global Enthusiasm for Better OSH

Not just an exhibition of various safety product innovations, the 14th Occupational Safety + Health Exhibition for Asia (OS+H Asia 2024) which took place in Singapore on September 11-13, 2024, hosted a series of seminars and discussions. OHS experts from various countries discussed various changes in work norms and the increasing strength of world connectivity, to continue to voice improvements in worker protection and safety.



**THE 14TH OS+H ASIA** attracted more than 130 companies and brands from 17 countries as participants. The exhibition was attended by more than 6,000 visitors from 40 countries. This number is double compared to the previous OS+H, in 2022.

Over 1,000 safety, security, personal protective equipment (PPE), and workplace hygiene products and solutions are on display. Local brands were paired with leading international brands, including Birkenstock Southeast Asia, Draeger Singapore, Fischer Bell, Innogreen Solution, Ergonomics and Hygiene Institute, and many more.

Gernot Ringling, Managing Director of Messe Düsseldorf Asia, the organizer of OS+H Asia, explained that, "The increase in the number of exhibitors and visitors since 2022, and the increasing number of



This year, OS+H Asia 2024 presents more than 1,000 personal protective equipment (PPE) products as well as various workplace hygiene solution products.

visitors from countries as far away as Australia, Hong Kong and India, reflects the growing demand for occupational health and safety practices across industries, ranging from building and construction to environmental protection, waste management, marine and offshore, food and beverage, hospitality and healthcare."

There were many international delegates present this year, especially from Indonesia and Malaysia. Delegates from NIOSH (National Institute of Occupational Safety and Health – Malaysia) and the Department of Manpower and Transmigration Batam – were among the exhibitors. They explored the latest innovations and discussed potential cross-border collaborations to strengthen occupational safety practices in Southeast Asia.

Both delegates were also part of the plenary discussion session titled – Synergy of Occupational Safety Implementation in Singapore, Indonesia (Riau Islands), and Malaysia (Johor). Their presence demonstrated the growing regional focus on improving safety standards. They also demonstrated the spirit of sharing best practices in workplace health and safety.

Commenting on the new venue of the event, on Marina Bay Sands, Andre Affendie, Sales and Service Manager of UNISafe, was quick to heap praise. "Moving OS+H Asia 2024 to this central location makes it easier for visitors to discover and visit us. Participating in OS+H Asia has helped us forge new

In addition to getting glimpses of various safety products, visitors also attended a series of seminars, forums and discussions held at OS+H Asia 2024.





connections and partnerships, while also increasing our brand awareness,” he said. UNISafe has been exhibiting at OS+H Asia for almost 14 years.

Cindy Sia, Research Engineer from the Biorobotics Lab at the National University of Singapore (NUS) who is exhibiting for the first time, expressed her excitement. “We are looking forward to showcasing our exoskeleton prototype at EXO PARK, as we are actively seeking investment opportunities for the product. We are excited to build relationships and hear

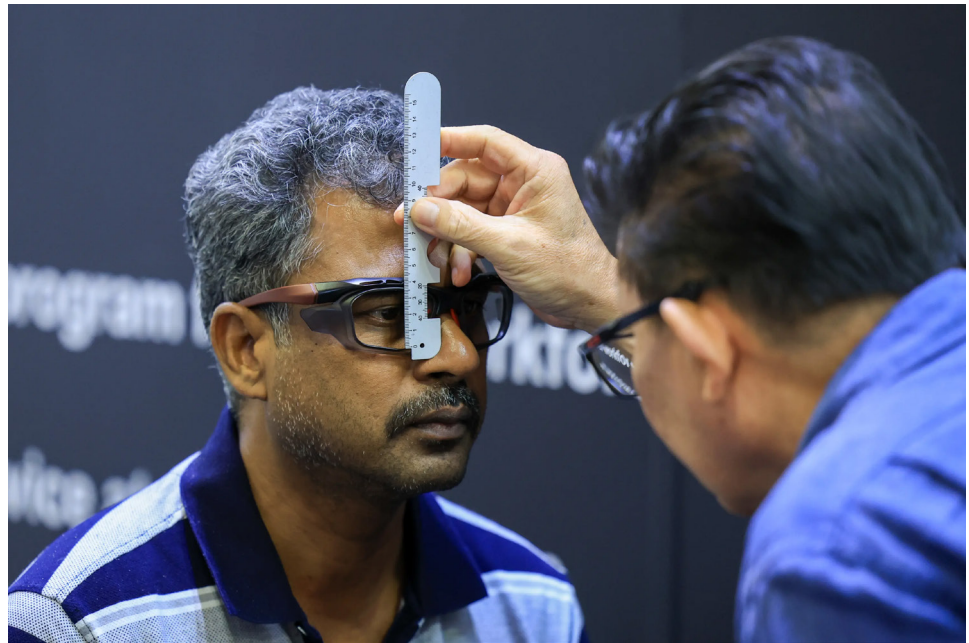
valuable feedback from visitors, so that the product can be further improved.”

Beyond the exhibition, OS+H Asia 2024 continues its role as the premier regional platform for exchanging knowledge and also discovering the latest occupational health and safety best practices. The event also hosts a series of seminars and conferences led by industry leaders.

Visitor and participant of the Workplace Safety + Health Forum, Derrick Tosoro from the Philippines,

Gernot Ringling, Managing Director of Messe Düsseldorf Asia, the organizer of OS+H Asia, felt the enthusiasm of various countries around the world to care more about OSH during the three-day event.





said, "I work for ambulances and mobile medical facilities. So, OS+H Asia 2024 is a great place for me to learn new things. I am happy to find some products and suppliers that are suitable for my work in the Philippines. The conference sessions were also fun, and I learned a lot."

Gernot Ringling added, "The huge number of attendance of participants in seminars on topics ranging from harassment and bullying to mental health in the workplace, shows how WSH professionals are aware that OSH is more than just a personal protective equipment. OSH encompasses mental and emotional well-being, especially among workers. Environments that require physical protection may not be the main focus."

The 14th OS+H presents a comprehensive program of workshops, seminars, and demonstrations showcasing the latest innovations and best practices. These events allow participants to gain knowledge, join trainings, build networks, and gain first-hand insights from leading OHS experts.

The Singapore event further solidified that OS+H Asia has set the industry benchmark and provided a platform to explore, discuss trends and discuss the

latest technologies in OHS protection. The next OS+H Asia will take place on 9-11 September 2026 at Marina Bay Sands, Singapore. Visit [www.osha-singapore.com](http://www.osha-singapore.com) for more information.▲



# New Directions for OSH: Three-Country Collaboration

**REGARDING** global warming, three closely related countries namely Indonesia, Malaysia, and Singapore face rather similar OSH problems. It is important to synergize and collaborate to find a much better solution for labor protection in these three countries.

One of the interesting discussions at the three-day OS+H Asia 2024 event was Workplace Safety Implementation: Synergies across Singapore, Indonesia and Malaysia (Johor). Present as a speaker representing Singapore was Audrina Chua, Deputy Director (Operations) of the Occupational Safety and Health Division at the Ministry of Manpower, Singapore.

Meanwhile, Indonesia was represented by Bakti Rantau, an officer of the Middle Expert Manpower Supervisor of the Manpower and Transmigration Office of the Riau Islands Province. He attended the discussion on behalf of Manggara Simarmata, Head

of the Manpower and Transmigration Office of the Riau Islands Provincial Government. Meanwhile, representing Malaysia was Norliza Sadrek, Regional Manager of the South National Institute of Occupational Safety and Health (NIOSH) Malaysia.

## Facing Global Challenges

Audrina Chua as the opening speaker highlighted the global climate change that affects workers. She mentioned that in the last nine years there has been a temperature increase of 0.89 C. The increasingly hot weather affects workers who work outdoors. According to her, heat stress is prone to endangering workers in Singapore, Indonesia, and Malaysia.

This is one reason behind creating jobs that reduce the impact of global warming, in the form of activities that align with green business and green economy. However, the jobs then create green jobs hazards.

Around 6,000 visitors from various countries attended OS+H 2024, reflecting the increasing demand for OHS practices across industries.





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**Climate change, green jobs hazards, automation and the transformation of post-pandemic ways of working demand innovative policies to protect workers in the global era.**



Discussions between three neighboring countries are one of the efforts to create improvements in the implementation of OSH.

The UN'S International Labor Organization recognized this 10 years ago. OSHA responded by issuing guidelines to prepare workers for green jobs.

One of the examples of green job hazards, given by Audrina, is from the installation of solar panels. When doing the installation, workers will be extensively exposed to the sun, in addition to facing the risks of working at heights. There must be sufficient training, as well as providing various protections, to reduce risk to workers in facing heat stress.

Another more complex example is the fire caused by a lithium battery explosion at a factory in South Korea last June. The death toll of up to 22 people shows how dangerous it is for workers to deal with chemical elements when producing hazardous objects, not only for workers themselves but also for the surrounding community.

Audrina highlighted the changes in the way the world works, since the Covid-19 pandemic. Many companies have implemented remote working. Companies provide opportunities to work from home, which then changes work policies. What needs to be considered is protection for workers while they are not within company-controlled areas. Companies must build a safety culture while employees are not in the office, then also think about mitigating the

psychological impact on workers when there is very little to no physical interaction at all among employees.

Nowadays, the ease of communication allows workers to be contacted at any time, either by phone, chat or email. This condition is prone to triggering excessive working hours. Workers can face excessive stress when working without clear time limits.

On the other hand, the world is facing automation and artificial intelligence. There is an opportunity to increase efficiency and productivity. The new challenge is the aging workforce. "The issue of how to provide employment opportunities and how to provide protection for the elderly will be important things to pay attention to," explained Audrina. Her presentation emphasized that many solutions and innovations are needed, to create better policies for employees.

### **Commitment of Riau Islands Province**

In the discussion, Bakti Rantau conveyed the business developments in the Riau Islands Province. According to his explanation, from January to December 2023, Riau Islands recorded domestic investment of IDR8,856.6 billion divided by 5,353 projects and foreign investment of US\$764.1 million divided by 1,753 projects. The growth of micro business was 21,626, while the small category was 1,548, medium category was 1,348, and



Bakti Rantau conveyed the OSH regulations in Indonesia that are important for investors who want to develop their business in the Riau Islands Province to follow.

large category was 478.

Singapore is currently the largest investor in the Riau Islands. Built 3,663 projects worth US\$ 3.465 million. The second largest investor is Luxembourg, with 46 projects, and the total investment of US\$ 299 million. Following close are Malaysia, China, Hong Kong, France, Germany, Switzerland, Taiwan, the Netherlands, and Japan. Seeing the large number of investors, Bakti stated it is very important for the investors to have a better understanding of the implementation of OSH in this region.

Bakti said the basis for implementing OSH regulations in Indonesia is stated in the 1945 Constitution Article 27 paragraph 2. The article states that every citizen

has the right to work and a decent living for humanity. There is also Law Article 86 Paragraph 1 No. 13 of 2023 which is part of Law No. 1 of 1970, states that every worker/laborer has the right to obtain protection for: a) occupational safety and health.

In addition, there is Article 87 section (A) of Law No. 13 of 2003 Government Regulation No. 5 of 2012 concerning the OSH Management System, which states, "Every company is required to implement an occupational safety and health system that is integrated with the company's management system."

Bakti added that if a work accident occurs in Indonesia, BPJS Ketenagakerjaan will provide basic protection through the Work Accident Insurance



Governor of the Riau Islands H. Ansar Ahmad received an award as the Best Occupational Safety and Health Supervisor in 2023. There are several Governor policies related to the implementation of OSH, showing the commitment towards its future as the OSH Province. "We are aware that the implementation of OSH in our province has become one of the requirements for investors. The implementation of OSH requires collaboration from various parties, and we are not alone. The implementation of OSH also requires budget support, to avoid it to become just a discourse," added Said.



(Jaminan Kecelakaan Kerja or JKK) and Death Insurance (Jaminan Kematian or JKM) programs.

The commitment to implementing OSH in the Riau Islands is important, according to Indonesian law. Investors are expected to understand the OSH policies that apply in the Riau Islands Province. OSH is important for the Riau Islands Province to become an economically competitive province. Companies need to comply with OSH regulations, for example by reducing the number of work accidents.

Additional information was obtained from the Head of the Manpower Supervision Division, Said Muhammad Idris. He added that the Riau Islands Province is committed to implementing OSH, even the





Norliza explained Malaysia's strong commitment to implementing OSH by including safety policies in the Occupational Safety and Health Master Plan 2021 - 2025 (OSHMP25)

### OSH Strategy in Malaysia

Meanwhile, Norliza from NIOSH Malaysia presented material on OSH Capacity Building Across Malaysia, Strengthening Malaysia's OSH Standard.

In Malaysia, the OHS policy has been included in the Occupational Safety and Health Master Plan 2021-2025 (OSHMP25). It consists of a strategy and program formulated to promote the Nation's Occupational Safety and Health (OHS).

According to Norliza, through OSHMP25, Malaysia aims to protect human resources, as an important asset to bring success to the nation's development in realizing the Shared Prosperity Vision 2030 (SPV 2030).

NIOSH itself acts as a reference center and training provider in the field of OSH. Established in 1992, NIOSH conducts research and development to improve safety standards in the workplace. With a vision to become a leading institution in the field of occupational safety and health, through the mission of increasing public awareness of the importance of OSH through education, research, and outreach, NIOSH is committed

to reducing work-related accidents in Malaysia, as well as supporting the development of effective OSH policies.

As Malaysia moves towards becoming a developed and high-economy nation, NIOSH is committed to helping the country address the increasing OHS challenges brought about by technological change in the digital age. The company provides holistic OHS solutions to reduce the number of occupational accidents and illnesses.

The NIOSH subsidiary, NIOSHCert, is a leading national certification body. There are ten certificates and over 50 teaching modules, which have been accredited by the Malaysian Department of Standards. Through certification, NIOSH seeks to improve worker safety, security and resilience. In addition, it also empowers industry through ISO standards for a safer and more secure future. NIOSH initiatives also support the government in formulating better OHS policies, as well as reducing the number of workplace accidents across all industry sectors.

# Indonesia Speaks Out on the International Stage

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**This means that OS+H Asia 2024 opens up opportunities for Indonesia to develop cooperation with various countries. This is a good effort for Indonesia to address the issue of OSH in the international arena**

**INDONESIA** can be proud to voiced its OSH commitment at the international forum OS+H Asia 2024 in Singapore, which took place on 11-13 September.

In a discussion themed Driving a 360 Approach Towards Total Workplace Safety and Health, Indonesia was represented by Subkhan as Vice Chairman of the World Safety Organization (WSO) Indonesia and iSafety Magazine. Subkhan was on stage with Ana Ercoreca de la Cruz, Secretary General of IALI (International Association of Labor Inspection).

Ana highlighted various changes in the world of work today. One of them is related to the influence of artificial intelligence (AI). From the data she presented, as many as 27% of workers said that the presence of AI changed their workplace. She said that 47% of workers admitted that there was increased supervision, and 24% of companies reduced the structure of workers. "This change will be a phenomenon in the world, which requires a lot of discussion for better K3 protection efforts in various circles," she explained.

In Indonesia, the Ministry of Manpower supports all efforts to strengthen OSH. This commitment builds a culture of competition, which ultimately attracts foreign investors to come to Indonesia.

According to Subkhan, after OS+H Asia 2024 ended, an Indian representative came to him, invited him to discuss OSH in Indonesia further, and showed interest in working together. "This means that OS+H Asia 2024 opens up opportunities for Indonesia to develop cooperation with various countries. This is a good effort for Indonesia to address the issue of OSH in the international arena," he said. ▲



# Cutting-Edge Safety Product Innovations at OS+H Asia 2024

**SINCE ITS** debut in 1996, organized by Messe Düsseldorf Asia Pte Ltd, the exhibition has been held every two years at the Sands Expo & Convention Centre in Singapore. This modern exhibition and conference center is located in the heart of the dynamic business district, providing first-class facilities for exhibitors and visitors from around the world.

As a regional forum, OS+H Asia is becoming increasingly important, especially as work norms and global connectivity change. This is being responded to by many exhibiting companies, who are offering a range of products and services designed to create safer and healthier working environments.

In the safety products providing worker protection lines, there was, among others, an exoskeleton. This product supports tasks that require physical movement. Its function is to minimize bodily stress on employees. There is also personal protective equipment to ensure individual safety in the workplace.

Then, related to technology, there are products for transforming mobile inspections and drone technology, to secure areas that are difficult to access. Innovations and solutions for fire protection and early detection of fires are also seen among the exhibitors. Then, there are products that can adapt the workplace to modern needs and flexibility. Also present are automation and digitalization products through robotics, to increase efficiency and minimize risk.



The Asia Occupational Safety & Health Exhibition, known as OS+H Asia, is the leading global trade show for preventive safety and health protection in the workplace.

In addition, there are sustainable strategy services and products for an ecologically friendly work environment. Fall-proof solutions for tasks in height conditions, as well as building infrastructure maintenance and management to secure the work environment, are also among the exhibitors. There are also several programs and initiatives to improve workplace health, emergency preparedness and

disaster prevention, and vehicle safety technologies and systems.

The variety of products and services participating in OS+H shows the increasingly better development of the world of occupational safety. Furthermore, the number of participants proves that occupational health and safety is now a top priority.

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## What Caught Our Attention

Various products and services showed their best at OS+H Singapore. Here are some of them.

**Academy of Design Arts and Media Pte Ltd  
(Singapore)**

### Flybotix Drone



ASIO X Drone is a product of Academy of Design Arts and Media Pte Ltd Singapore. This tool offers a more efficient inspection solution and minimizes the risk of accidents. Comprehensive and high-tech drones are perfect for professionals who want to improve their operational capabilities even in confined spaces.

With a full suite of cameras and sensors, including RGB and IR cameras, 3D Lidar, inspectors using these drones can conduct thorough inspections from a safe distance, without entering hazardous environments.

Engineered with a patented electromagnetic tilt system and advanced sensor suite, the drone ensures stability and accuracy, even in challenging environments. ASIO X not only protects a company's most valuable assets but also ensures compliance with safety regulations.

**Birkenstock South East Asia Pte Ltd**

## Birki Air 2.0

Special protective shoes from Birkenstock South East Asia Pte Ltd are also present at the OS+H Asia 2024 event. Birki Air 2.0 is the new generation of the professional line. Its innovative and waterproof design is equipped with side vents that help remove fluids and improve air circulation. These shoes guarantee complete comfort and foot health, with a contoured PU footbed that can support the feet for hours. An interesting addition is the detergent-resistant backstrap and adjustable back straps.



**Cherng Tuoh Enterprise Co Ltd**

## Horizontal Lifeline System

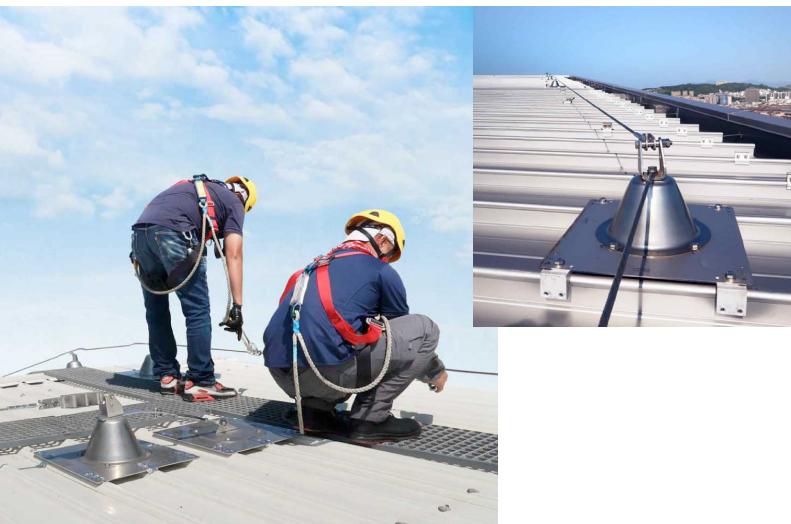
One of the interesting products at the OS+H Asia 2024 exhibition was presented by Cherng Tuoh Enterprise Co Ltd from Taiwan. This company specifically develops equipment that protects workers when working at heights. The new Horizontal Lifeline System series, for

example, is specifically designed for all types of metal roofing applications. This system offers exceptional durability and performance.

The CT60 Lifeline System, for example, can protect users from falls. This internal energy absorber not only reduces the impact force on the user, but also reduces the load on the anchors to stabilize the structure.

CT60 offers modular components that accommodate a variety of building structures, metal roofs, concrete and steel. Its installation method is simple, making it less time-consuming to install, thus significantly reducing project costs.

The system is certified to EN795:2012 and CEN TS 16415:2013 standards. For the base plate, it uses aluminum to provide a lightweight yet durable solution. It also offers the perfect balance between strength and ease of installation, paired with an electropolished 316 grade stainless steel cone. These stainless steel components are high-strength, ensuring superiority and durability for long-term use.







## Dräger Gas Detection Connect

# Gas Leak Detector

Meet the new era of gas technology systems, connecting gas detectors with a central software solution. This software can automate processes and improve safety, turning each product into a smart system.

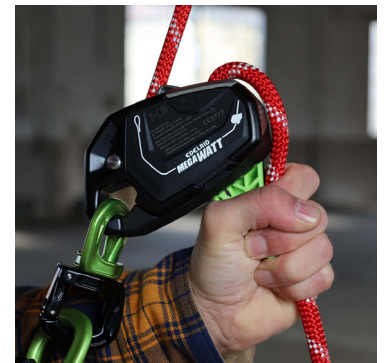
The real-time data transfer will help users reduce errors, save costs, reduce downtime through live data, and reduce the possibility of false alarms, as well as reducing operational risks. Of course, the goal is to improve safety through area monitoring and live data, as well as better planning and organization of resources. After all, the key aspects of safety are area monitoring and asset management.

## Exponent Challenge Technology Asia Pte Ltd

# Elderid Megawatt

The company offers a universal descender device, called Megawatt, to control the ascent and descent process of industrial stairs, also suitable for rescue operations. The device is capable of holding up to 230kg. The intelligent transmission mechanics of the lowering lever facilitate a wide operating range and a precise speed adjustment with minimum force.

The four-way safety lock allows the user to insert the rope without having to separate the device from the carabiner. The risk of having uncontrolled steps along the rope is reduced by the anti-panic function, which is carried out by reversing the lever function. This feature provides an optimal handling in any use and position. The Megawatt, weighing 495 g, is the most versatile descender device available on the market.



Guangzhou J&Y Safety Products Manufacturer Co Ltd

## Earplug

J&Y Safety is a major personal protective equipment supplier and professional head protection manufacturer from China. In the OS+H Singapore exhibition, J&Y Safety provided disposable polyurethane, or PU, earplugs in various shapes, namely bullet, cylinder, ball, and Christmas tree. These earplugs are soft, bounce slowly, and can be squeezed into various shapes. In addition, these earplugs are guaranteed to provide comfort even if they are used for long periods of time.



Height Protection Solutions Pte Ltd

## Aluminium Guardrail with Counterweights System

This product is the perfect solution for optimal protection systems when workers are on the roof. This product from Height Protection Solutions Pte Ltd Singapore claims fast and simple installation, without drilling, without welding, without threading,

thus eliminating the risk of leakage. The material is aluminum, corrosion resistant even in extreme environments. It is very flexible to use, easy to repair or remove. Maintenance is minimal and no special training is required.



**Hangzhou Hetai Security & Protection Co Ltd**

## **Ergonomic Harness**

The HT-331QR harness structure features ergonomically designed padding, especially for the dual height adjustment system on the front and rear shoulders, allowing workers to adjust the harness to the optimal position. The harness also features flat belt loops to secure the chest ascender and aluminum load points on the front and rear side.



**Zero Plus Technology Co Ltd**

## **Electronic Earmuffs**

These electronic earmuffs are equipped with safe listening technology (SLT), which ensures that sound output is limited to a maximum of 82 decibels, to protect the ear from potential damage. Utilizing multi-radio technology (MRT) capabilities, these earmuffs facilitate seamless communication, allowing multiple users to send and receive data simultaneously. These earmuffs also support simultaneous communication of up to 8 people, greatly enhancing the convenience of communication in various working environments. These earmuffs are integrated with ADT technology, which allows users to adjust the noise reduction settings to suit their specific environmental needs.

Innogreen Solution Pte Ltd

# Lumbar Assist Exoskeleton Y20

Active Type - Battery Powered



This cutting-edge robotic device is designed to increase strength and reduce physical strain on workers. It is useful for lifting and carrying heavy loads, integrated with advanced motor and sensor technology to provide unlimited assistance, revolutionizing productivity and ergonomics in various industries. The ANT-Y20 product protects the waist from excessive loads, reducing work intensity and ultimately improving efficiency.

Also on display at OS+ H Singapore were several ultra-light exoskeleton robots, including the Y20, Y10, Q20 waist support robots, the A10 arm assist robot, and a sports assist robot.

GFG Asia Pacific Pte Ltd

# D-ReX - State-of-the-art monitoring of gases in the semiconductor industry

Gases are widely used in various lines in the semiconductor industry process. Therefore, there are various requirements regarding measurement methods, sensors, measurement ranges, and communication. D-ReX allows users to choose the ideal combination of measurement methods and sensors according to their needs. Users can take advantage of the DIN rail-mounted interface gas detector. The device is easy to install, the technology is modern and durable, while the maintenance is simple and cost-effective.



Institute of Ergonomics and Hygiene Pte Ltd

## Exoskeleton and Monitoring & Sampling Instruments



The Institute of Ergonomics and Hygiene is a leading global organization providing research, consulting and training in occupational hygiene and ergonomics. Casella is a global leader in the manufacture and supply of occupational hygiene and environmental monitoring equipment. Its instrumentation includes real-time dust monitors, personal sampling pumps, sound level meters, hand-arm vibration monitors and environmental units. EXO exoskeleton products have been tested and certified by CNAS. All products of the Institute of Ergonomics and Hygiene Pte Ltd have passed the CE safety certification of the European Union. Since its establishment in 2004, the company has obtained nearly 100 patents and exported to Japan, Korea, Germany and other international markets.

Omni Technosys Pte Ltd

## Terra Safe Arena Trail 1020 Ground Protection mat



Increase operational productivity on the job site while saving costs. Terra Safe Arena Trail 1020 mats can be installed on site by 2 or even 1 person providing temporary vehicle and pedestrian access, without the need to rent and wait for a crane or lifting equipment. Terra Safe Arena Trail 1020 mats protect grass and floors when vehicles or equipment are moving or parked on them.

Rectitude Pte Ltd

## VR Virtual Reality Live Life Safety Training/AI Video Surveillance System

Using an AI system, this video surveillance is able to detect and identify safety hazards and health risks in the workplace. The system can detect non-compliance of worker behavior and incorrect use of tools, while warning them before accidents occur.

The company also conducts virtual reality safety training that is more realistic and relatively entertaining, compared to traditional training methods presented in books. So, the knowledge can be easily absorbed by everyone.



Shamir Asia Pte Ltd

## “Shamir METAFORM lenses” for Eyres safety glasses

EYRES & SHAMIR METAFORM™ are super strong, super thin and super light safety glasses. The combination of Shamir METAFORM™ nanostructure lens manufacturing technology with EYRES safety glasses is a breakthrough in safety eyewear products. Shamir METAFORM™ technology provides the ultimate clarity and precision, reducing lens thickness and its weight without sacrificing eye protection.

Meanwhile EYRES redefines eye protection, providing safety glasses that are perfectly suited to the visual needs of every individual in any environment, anywhere in the world. This is the future of eye protection.



Shanghai SAI-U Metal Products Co Ltd

## Fireproof Cabinet

No more worries if a fire occurs in the company, after SAI-U offers unmatched innovation through fireproof storage cabinets. Everything stored will be protected from hazardous materials. The cabinets are also designed with advanced features, meeting strict safety standards to protect property and personnel, prioritizing safety, functionality, and reliability.



Solaris CES Pte Ltd

## SOL-Exoskeletal Vest, AHHAAS, Sol-Tag

industry, manufacturing, and security. This vest uses Advanced Human Hazard Alert and Avoidance System (AHHAAS) technology.

AHASS is an AI-powered Anti Collision System that provides blind spot detection. By implementing AI-based camera technology that provides an active view of environmental conditions that warns operators when workers or objects are too close to equipment or vehicles.

Another product is Sol-Tag, a wireless monitoring system. This system helps in wireless tracking and monitoring in tunnels, mines, and pipelines. It works in most underground environments. It provides accurate and timely information about the movement of workers and equipment. Sol-Tag improves safety and operational efficiency in underground conditions that are at high risk of hazards. The system ensures that personnel are continuously monitored, thereby improving overall safety in hazardous environments.▲

SOL-Exoskeletal Vest is a revolutionary fabric-based exoskeletal vest first designed by two Japanese engineers in 2016. Solaris continues to refine the exoskeleton design to produce a product that is cheap, lightweight, power-free and easy to use.

This product effectively reduces the burden on the back and physical strain for various work situations. Suitable for workers who lift heavy loads, such as construction workers, logistics, medical care, service

Product information taken from brochure materials at OS+H 2024 Singapore.

# BBS Approach to OSH Culture Transformation

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**THERE ARE SO MANY UNSAFE ACTIONS. THUS, IT IS VERY IMPORTANT TO IMPLEMENT BBS.**

**ACCORDING TO STATISTICS**, 90% of accidents happened in the workplace are due to unsafe actions, while the rest was caused by unsafe conditions. Based on these facts, it is very important for companies to implement behavior based safety (BBS).

The discussion on the implementation of BBS was recently held on August 8, 2024, in a training themed "OSH-Based Behavior & OSH Culture in the Digital Era" at Java Paragon Hotel & Residence, Surabaya. Present as speakers were Ridwan Mahzun, who also serves as the General Chairperson of the DPP A2K3 Association,

and Andy Gunawan from iSafety who discussed the Lock Out Tag Out or LOTO system.

The training was opened with remarks from Warga Bagus Pribadi, ST, MM, Head of K3 Norms representing the East Java Manpower Office and Rachmat Tri Soelistijono, ST, MT (Director of PPNS/Head of A2K3 East Java). According to Bagus, there are still many accidents occurring in Indonesia. Some of them have a detrimental impact on employee risks, while others cause casualties. Therefore, it is important for all parties to focus on the implementation of OSH/K3. The goal is clear, to avoid more work accidents, zero accidents, in line with the target of the Ministry of Manpower. Bagus hopes that this training event can improve the implementation of OSH in each company, to be better and better in the future.

**Photo from left to right :** Aurelia Bella Belqhiska, Raehanah Adelia, Tanika Berliana Ghaisa Azmi, Rosa Agustina Findy, Olivia Eka Heryanto Putri, Maulana Hanif Azhar, Felly - SKK, Hartono - Director of SKK, Arief Subekti - Secretary of A2K3 East Java, DR. Dewi Kurniasih, S.KM, M.Kes - PPNS, Rina Sandora, ST, MT - PPNS, Ahmat Nuril - A2K3 East Java and Yudi - PPNS.







Ridwan Mahzun during a discussion with one of the participants of the training “K3-Based Behavior & OSH Culture in the Digital Era.”

PT Sumber Keselamatan Kerja (SKK) as the event organizer also expressed similar hope that there will be a better implementation of OSH in Indonesia. Since 1998, SKK has been involved in the field of OSH/ K3 equipment distributors throughout the country. Director of SKK, Hartono, said in the workshop that in the future there will be many developments related to safety. On the other hand, safety challenges will also be higher. Therefore, it is important for all parties to be able to follow developments, especially regarding technology related to safety.

Furthermore, Hartono discussed the importance of collaborative efforts by all parties to achieve OSH culture. However, everyone must have the same goal: to realize zero accident conditions.

#### Towards an OSH Culture

Companies and organizations aim to develop a total safety culture in their daily operations. It can be achieved if safety becomes a value every employee has. The companies also need to ensure the safety of all of their employees.

Some companies have a refinement approach for Awareness, Leadership, and Safety. There are various models to approach awareness. The easiest is the See-

Think-Act model. You see, you think, then you act.

Another model is known as BBS, or behavior-based safety. BBS is a proactive approach to improving safe behavior in a certain area. In this case, BBS is an effort to reduce hazards, risks, and incidents by observing a person's behavior and determining what happens if they do such behavior. The essence of the BBS approach is to reduce unsafe behavior and continuously improve safety performance.

BBS relies on full trust and cooperation between leaders and employees. Behavior-based safety is important because it provides a long-term solution to eliminate risks and hazards.

In the BBS program, the main target is to change unsafe behaviors that have the risk to cause accidents in work activities. For example, crossing a certain lane without paying close attention to the environment, walking on a forklift path, not using PPE, or neglecting to use certain equipment according to SOP, not wearing a safety harness when riding a gondola, and so on.

Because the target is behavior, an important factor in the BBS aspect is the effort to inspire workers. Workers also need to care for each other. They must pay attention to their fellow coworkers well. It is a



Andy Gunawan provides an explanation and application of LOTO to training participants.

behavior that needs continuous training. In addition, the implementation of BBS also increased opportunities for leaders, managers, and employees to communicate. Thus, it is hoped that potential identified dangers can be prevented immediately.

According to Ridwan, practically, the most needed is education for lower-level employees. His approach is based on commitment, consistency, and perseverance.

Companies can take advantage of the advances in

digitalization, by using analytics from applications that facilitate the implementation of OSH programs.

To encourage enthusiasm, incentives can be given once there is improvement at the lower level. Conversely, punishment would be applied if there is failure. But, the main idea is to study the problem carefully.

However, the failure of OSH culture implementation is not solely due to lack of obligation on the lower-level workers. Upper-level employees can also make mistakes. If so, the superior must be corrected. A digital application can be created to regulate the cycle of superiors going to the field.

The supervisory level is expected to be able to monitor at-risk behavior and unsafe acts. "We know that unsafe conditions are mostly created by unsafe acts. So we need to fix unsafe acts. That action is called at-risk behavior," said Ridwan. He recommends fixing unsafe acts over and over, continuously.

In addition to appreciating those who do at-risk behavior, the company needs to have application to maintain the actions. If their communication failed, the error in the approach must be recognized with development patterns. There probably are problems in communication openness and level of supervision. For example, in responding to requests or complaints, there is always room for discussion.

Approaching culture needs to be done step by step. There is a very long journey regarding OSH culture In Indonesia. It is important to examine whether the contribution of culture plays a significant role to behavioral similarities. It is also necessary to conduct a cultural survey and create cultural models. We can ask other institutions, educational perhaps, and at the same time, we can build software that can monitor reports using digital applications.

"OSH is a continuous process that involves all parties in an organization. So if each member has behaved based on OSH, it is expected that the OSH culture will be achieved in the organization," Ridwan concluded.

### **LOTO to avoid accidents**

The still high number of work accidents, even cause casualties, forces companies to implement preventive measures. One thing that can be done to avoid work accidents and move towards zero accidents is the implementation of Safety Lock-out Tag-out (LOTO).

In 1989, OSHA introduced Standard 29CFR 1910.147 Control of Hazardous Energy, to establish lockout tagout compliance requirements for general industry. In his presentation, Andy Gunawan explained that LOTO is a safety procedure used to isolate the energy source of a machine or equipment that is undergoing

repair, maintenance, or cleaning. This process involves locking out, installing a warning sign (tagout), and testing to ensure that the machine or equipment cannot be accidentally operated.

LOTO procedures can protect workers from the dangers of uncontrolled energy, while preventing accidents that can occur while performing repair or maintenance tasks. In this way, LOTO plays a vital role in preventing fatal accidents, protecting workers, and increasing efficiency and productivity. Ultimately, LOTO helps maintain a company's reputation and demonstrates legal compliance.▲

## **Characteristics of OSH Culture as Part of Corporate Culture**

**01** | OSH is truly recognized as a value

**02** | Accountability for real OSH

**03** | OSH becomes a driving force for learning

**04** | OSH is integrated into every activity

**05** | Real OSH leadership

PT KILANG PERTAMINA INTERNASIONAL UNIT II

# Implementing OSH Commitment Amidst High Risk Operation Challenges

REFINERY UNIT (RU) II DUMAI, AS ONE OF THE REFINERIES OWNED BY REFINERY PERTAMINA INTERNASIONAL (KPI), IS CARRYING OUT VARIOUS DEVELOPMENTS RELATED TO THE IMPLEMENTATION OF OSH. DEVELOPMENT IS CARRIED OUT CONTINUOUSLY. MOST RECENTLY, RU II DUMAI HAS A PROCESS SAFETY & ASSET INTEGRITY MANAGEMENT SYSTEM (PSAIMS) ROOM. AND THIS ROOM IS CURRENTLY THE ONLY ONE IN ALL PERTAMINA SITES.

**RU II DUMAI** is one of the largest oil processing units operating in Indonesia. Its responsibilities are great, not only in oil production and processing, but also in ensuring occupational safety and health (OSH or K3 in Indonesian language) for all employees and the surrounding environment. Implementation of an effective OSH system is crucial to prevent work accidents and protect worker health, while maintaining environmental sustainability.

According to Didik Subagyo, General Manager of RU II, RU II Dumai covers the Dumai area, Sungai Pakning area, and also Pangkalan Brandan. The K3 policy in force at RU II is continuously improved, considering that its work area is a high-risk unit that must be strictly guarded. "Not only related to reliable and safe equipment, all personnel working in the site must be in a safe and secure condition. Safety is the main policy, since it is a high-risk operation area. The priority is that all personnel must be supported by appropriate competencies," said Didik.





Regarding safety, continued Didik, it is very important to maintain a common understanding among all parties in the operational area. More efforts are needed, considering that each person has their own basis of understanding. It must be ensured that what is in the mind will be carried out in the daily activities. At RU II Dumai, everyone has to have the same safety goals and standards.

Safety culture is a top priority at RU II Dumai. In realizing safety, routine training, socialization, and promotion of the importance of K3 are carried out at all levels of the organization. Every employee is expected to have a high awareness of the potential dangers and risks in the workplace, and is committed to implementing K3 procedures consistently.

To achieve a generative HSSE culture, or integrate all aspects of safety and health in all business lines, RU II Dumai implements KPK, acronym for Communication, Participation and Collaboration. All workers involved in operational activities at the refinery must participate in the implementation of HSSE cultural communication, and do the reporting if there are unsafe conditions or dangerous actions. So, it is not just one way from superiors communicating downwards.

Of course, it does not stop at the communication

process, there needs to be participation and involvement. Furthermore, there is collaboration.

It is realized that the issue of K3 is not limited to one party but must also involve all units. It is important for every worker to work with the understanding to eliminate unsafe conditions, unsafe acts and other dangerous circumstances, as the way to realize awareness and ownership. According to Didik, "This is our conclusive strategy to achieve a common understanding."

Didik added that one of the important things in the implementation of K3 at RU II Dumai is the process of building a K3 or OSH culture. Non-negotiable, K3 must be part of the work activities carried out daily. It is expected that K3 starts from each individual, demonstrated through a way of life, attitude, safe and secure habits, which are consistent in every work activity carried out.

Related to efforts to build an OSH culture for all parties in the operational environment of RU II Dumai, a specific personal risk assessment slogan was formulated. Adopting the local Malay language, RU II Dumai used the spirit of "BETUAH". "BE" stands for "thinking about risk", "TU" is action and safety efforts, and "AH" is regarding safety and carefulness. The word "betuah" itself means lucky or happy.



Didik explained, “‘BE’ is when someone carries out an activity, he needs to identify and think about the risks to their work. ‘TU’ is an action that has been taken with an effort to reduce the risk to the safety aspect for process safety, as well as personal safety. Everyone must think about how to act, in order to eliminate unsafe conditions, which at the end resulted in a safe and careful attitude, which is represented by ‘AH’.”

Efforts to build a “BETUAH” culture continue to be echoed at every company meeting and event. Management never gets tired of continuing to convey that every individual involved can take care of themselves. “The aspect of maintaining safety must be cultivated as a top priority for all workers and instilled as part of everyday life,” said Didik.

### **Mindset and Culture Day**

RU II Dumai has various programs related to building a K3 culture. One of them is Mindset and Culture Day (MCD). MCD is one way to align perceptions about HSSE aspects.

Every Wednesday, representatives from the management team and section heads will meet.

They then conduct SWAT (Safety Walk and Through) activities to the refinery area to see firsthand if there are unsafe conditions and unsafe acts. If there are any, unsafe conditions or actions will be intervened directly. Periodically, the results of this activity are reported, then further monitoring step is carried out for follow-up action. Each area will be immediately reported.

Didik added, “The refinery area is very large. So every Wednesday, we create themes. The locations reviewed and the themes will change according to the desired or expected result.”

Another program is Ngopi Bareng or “have coffee together”. The purpose of the program is to get feedback from frontline officers. They are the ones who are at the forefront and really understand the conditions faced by their colleagues. In this activity, the management met with the frontliners to seek various inputs and aspirations in an effort to improve the implementation of OSH. Every problem faced was immediately discussed and reported to management so that solutions and improvements could be determined.

In addition, the company carries out plant patrol or on duty management activities every Saturday, Sunday, and other holidays. This activity is driven by the critical conditions that often occur on holidays. The management team and section heads work together to strengthen supervision.

According to Didik, specifically during holidays, management is on duty at 5 am and 11 pm to check the field. In the production site, the 24-hour working time is divided into three shifts. Changing shift time is the crucial period that becomes the management’s concern. Usually, after working hours end, all workers want to go home immediately. This is the critical time that must be anticipated. Currently, RU II Dumai has a Process Safety & Asset Integrity Management System (PSAIMS) room. PSAIMS is a physical space where everyone is able to manage the hazard process and to

prevent major accidents in process facilities. The team meets in the room so it is easier to get information, for example if there is a high risk condition, it can be immediately addressed.

There are 18 elements in PSAIMS, starting from Leadership, Commitment and Responsibility, Compliance, Workplace Involvement, Process Safety Information, Process Hazard Analysis, Operating Procedures, Conduct of Operation, Process Safety Performance Management, Contractor Safety Management System, Competency & Knowledge Management, Pre Startup Safety Review, Asset & Integrity & Reliability, Safe Work Practice, Management of Change, Learning from Event, Emergency Planning and Response, Audit, to Management Review & Continues Improvement.

"PSAIMS has utilized technology to improve the implementation of integrated HSSE. It eases the process of identifying and assessing risks that are carried out routinely, making it easier to assess the

potential dangers. Furthermore, based on the results of the risk assessment, control measures are taken to reduce or eliminate the risk. The work environment becomes safer. The entire process can be observed. It is hoped that the PSAIMS will become an integrated system so that K3 can be realized in the RU II environment," Didik hoped.

### **Community Awareness**

In running its business, Pertamina RU II cannot be separated from the surrounding community. They need to empower the community around the operational area, so they are properly prepared in case there is a dangerous incident. Residents in the nearest area (ring 1) must understand the conditions and potential risks, which not only affect workers but also the community.

They have a Masyarakat Siaga (Community Awareness) program. They advised the community regarding OSH. In addition, Pertamina RU II is developing community posts in several locations, as an anticipatory step if there is a potential risk that needs to be alerted to.

In addition, there are several Corporate Social Responsibility (CSR) programs as a form of social and environmental responsibility. The surrounding community must receive support related to improving social welfare and efforts to run a sustainability project.


Didik explained that the implementation of K3 at RU II Dumai is an integral part of daily operations that aim to create a safe and healthy work environment.

The existence of a strong OHS culture, with a structured OHS management system, shows RU II Dumai's commitment to improving OHS implementation efforts throughout its work environment. The effective implementation of OHS principles will not only protect workers but also will support the company's sustainability and reputation in the long term. ▲









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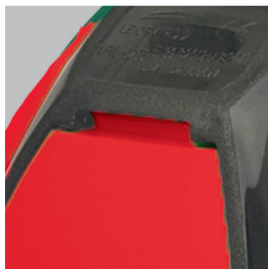
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