



# Smart Infrastructure Electrification & Automation

Shaping power distribution grids for tomorrow  
UN Delegation BMWK 5-7 July 2023

## Table of contents

• Current megatrends	3
• Company setup	7
• Electrification & Automation Overview	14
• Our portfolio in detail	23
• EU MV Market Overview	28
• Additional Services	38
• Our portfolio in action	45
• Contact	52

# Current megatrends

# Global trends are changing our markets – structurally and profoundly

#Digitalization

#Globalization

#Urbanization

#ClimateChange

#sustainability

#DemographicChange

#FlexibleWorking

#PhysicalDistancing

# Challenges



**26%** more people will populate our planet by 2050.

Source: United Nations



**68%** of the world population projected to live in urban areas by 2050.

Source: United Nations



**90%** of people spend almost all day indoors.

Source: United Nations



**40%** of all energy is used by buildings.

Source: Alliance To Save Energy (ASE)



**26%** increase of power consumption for eMobility per year.

Source: IEA 2020



**The European Union strives to make Europe the first climate-neutral continent by 2050.**

Source: European Commission

We are in the middle of a transformation...

**D**ecarbonization  
**D**ecentralization  
**D**igitalization

**2x**  
electricity  
consumption  
by 2050

**>50%**  
renewable  
annual energy  
by 2035

**82%**  
households have  
smart meters in  
2050

# Company setup

# Siemens AG and Siemens Energy

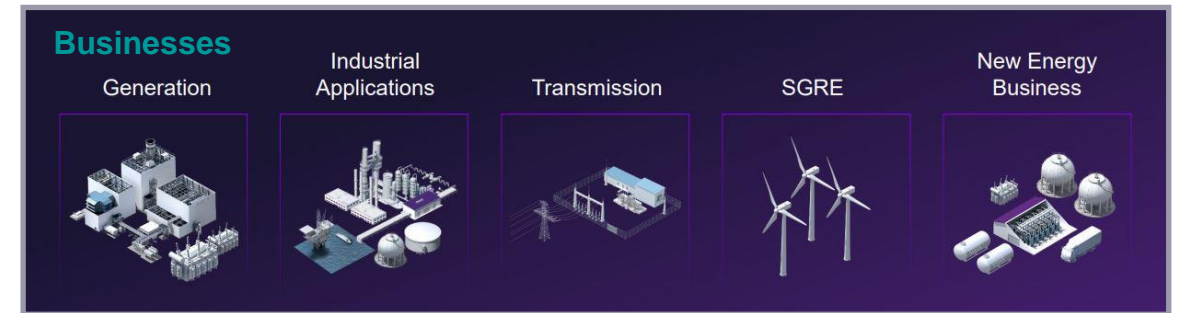
Two legal entities from Oct 1, 2020

## SIEMENS



**Medium voltage  
(1 ... 52 kV)**

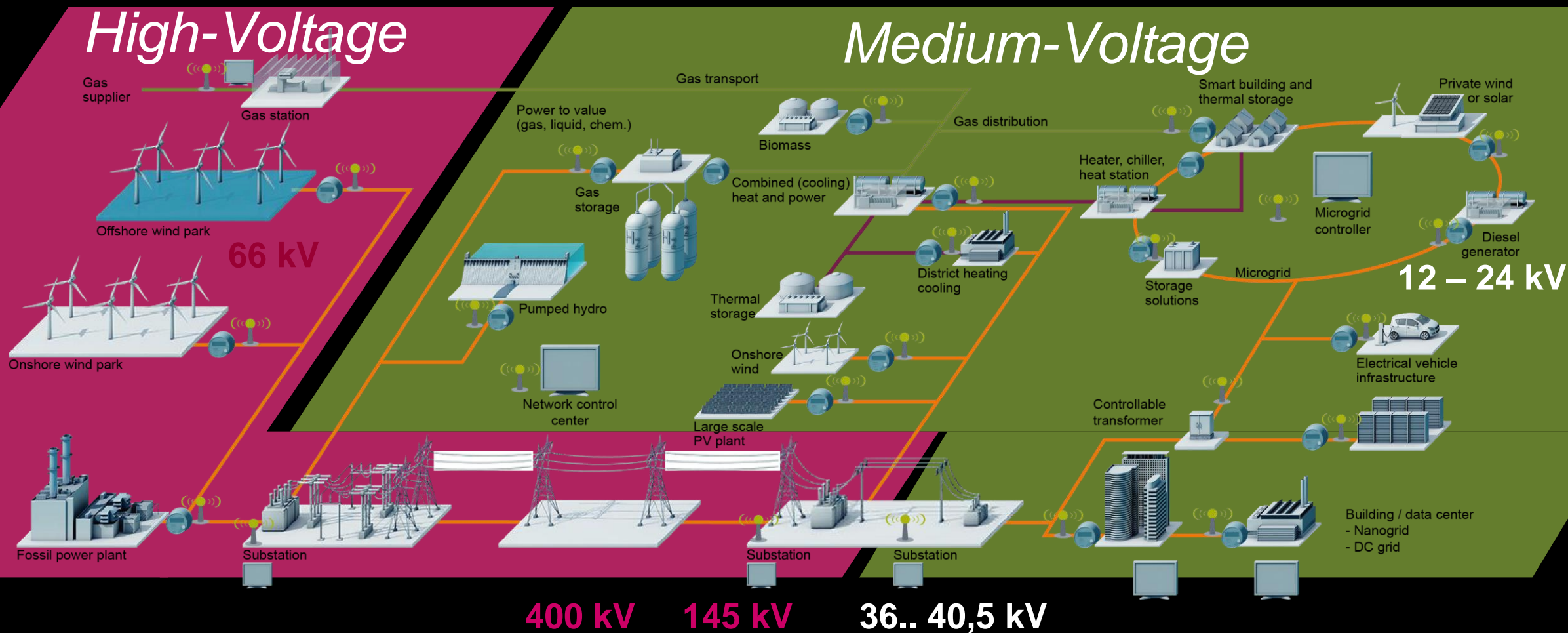
## SIEMENS energy



**High voltage  
(above 52 kV)**

<sup>1</sup> Stock exchange listed subsidiary of Siemens; Siemens Healthineers with own set-up for regions and own Service & Governance

# High- and Medium Voltage – different areas and tasks



# Businesses and Services of Siemens AG

## Industrial businesses

Digital Industries



Smart Infrastructure



Mobility



Siemens Healthineers<sup>1</sup>



## Other businesses

Portfolio Companies



Siemens Advanta



## Services

Siemens Financial Services



Siemens Real Estate



Global Business Services



<sup>1</sup> Publicly listed subsidiary of Siemens; Siemens' share in Siemens Healthineers: 75%

**Smart Infrastructure combines the real and digital worlds across energy systems, buildings and industries, enhancing the way people live and work and significantly improving efficiency and sustainability.**

# Smart Infrastructure: Our broad offering 1/2

## Electrical Products

- Low-voltage protection devices (e.g. ACB<sup>1</sup>, MSP<sup>2</sup>), switching devices (e.g. soft-starters, contactors), measuring, and monitoring devices
- Low-voltage distribution boards and systems
- Medium-voltage vacuum circuit-breakers and contactors
- Vacuum interrupters for medium- and low-voltage
- Wiring accessories

## Building Products

- Fire safety incl. detection, alarming, evacuation and extinguishing
- Building and room automation, lighting control, HVAC<sup>3</sup> OEM automation
- Sensors, valves and actuators
- Building management software for automation, fire safety, security and 3<sup>rd</sup>-party integrations
- Security software incl. video, access, intrusion and control
- Cloud applications for smart buildings incl. connectivity, data analytics and building twin

## Electrification and Automation

- Medium-voltage primary and secondary switchgear (indoor and outdoor)
- Low-voltage distribution boards, motor control centers, and busbar trunking systems
- Distribution solutions, e.g. prefabricated E-Houses
- Digital & Classical services for full portfolio of distribution systems, e.g. NXpower Monitor
- Photovoltaics inverter systems
- Medium-voltage vacuum circuit-breakers, contactors and interrupters
- Substation automation, protection, power quality, and communications

1 ACB: air circuit-breaker

2 MSP: motor starter protector

3 HVAC: heating, ventilation and air conditioning

# Smart Infrastructure: Our broad offering 2/2

## Grid Software

- Grid operations software and Grid control software
- Grid planning software and Grid simulation software
- **Power system consulting and energy business advisory**
- Meter data management software
- Grid resilience software
- Grid edge software

## eMobility

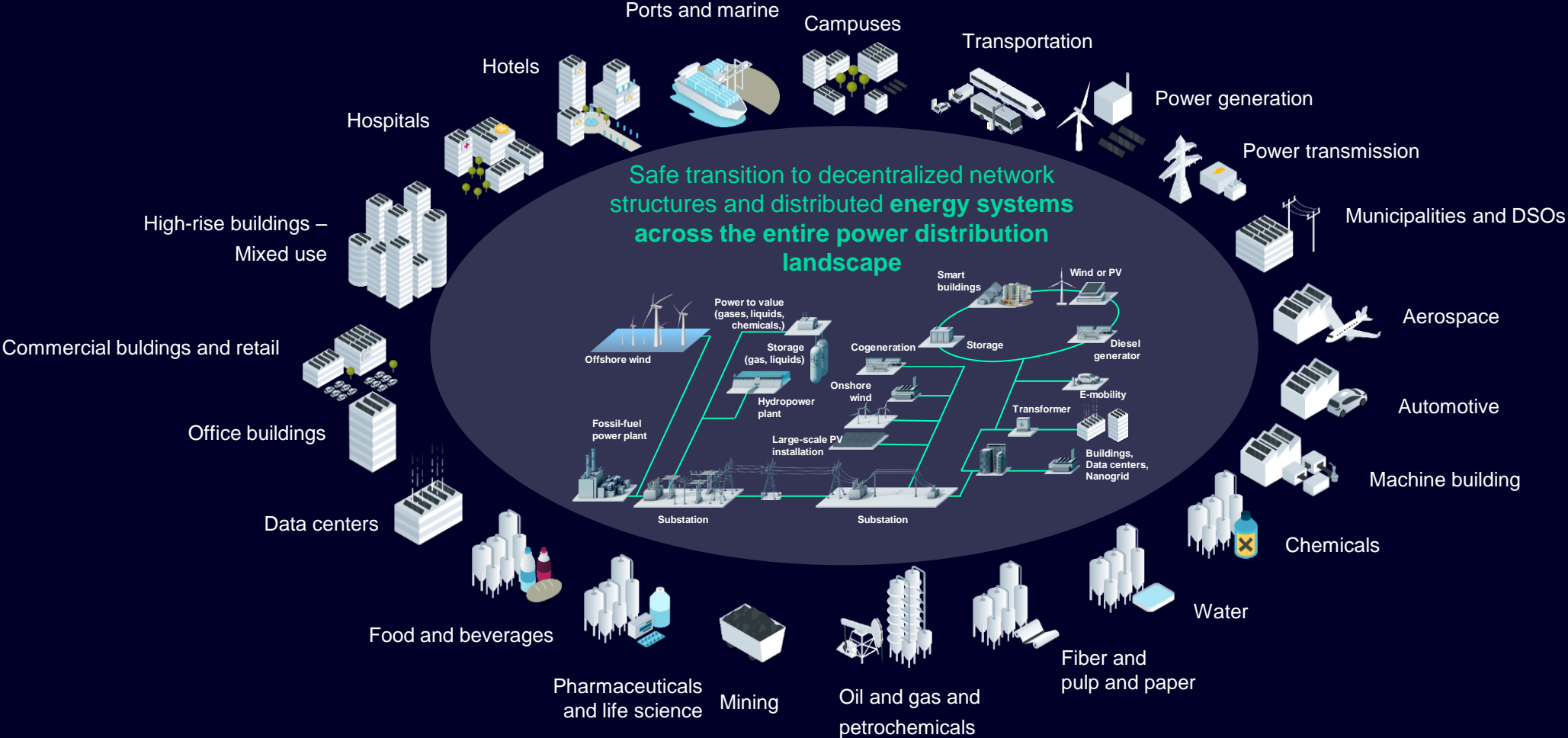
- AC & DC charging infrastructure
- Connected services
- Digital charging software & services: driver, station, depot, enterprise & fleets
- Smart charging & fleet management
- Managed charging operations for fleets
- Ship-to-Shore power supply

## Regional Solutions and Services

- Solutions and services for building automation, fire safety, security, and other domains
- Solutions and services for energy and performance services
- Distributed Energy Systems
- Solutions and services for workplace experience
- Digital services
- Vertical markets specific offerings (e.g. for data centers, life science, smart offices) leveraging cloud and on-premise software

# Electrification & Automation Overview

# Our portfolio is relevant for all B2B vertical markets



# SI EA – Electrification & Automation

SI EA is a global business unit with a complete portfolio offering in electrification and automation, strong presence in relevant geographies and vertical markets. It serves its customers with Products, Systems, Solutions and Services to enable and drive transformation of electrical networks through IoTization, innovation and disruption.

## Key vertical markets

DSO & TSO	
Data Center	
Energy intense industry	
Transportation	

## Key Portfolio Elements

Protection, Substation Automation, Smart Communication, MV Components, MV switchgears (primary and secondary), LV switchboards and busbar trunking systems, Distribution solutions, Digital & Classical services

## Factories

26 across the globe

100+ Nationalities

## Customers



Approx. **> 12,500**

## Employees



Approx. **15,500**

**Our Products, Systems, Solutions, Services enable our customers to faster adapt to an constantly changing environment**

## Our customers



Generation & Transmission



Distribution & Municipalities



Industry



Infrastructure

## Our partners



Product Partners



Planners



EPCs





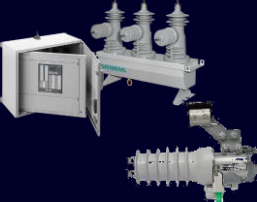

System Integrators



# Smart power distribution from medium-voltage to low-voltage

## Medium-voltage Components, Systems & Solutions


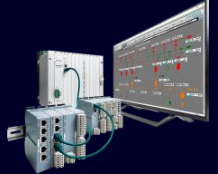


<p><b>Components</b></p>	<p><b>Primary Air-insulated Switchgear</b></p>	<p><b>Gas-insulated Switchgear Prim / Sec</b></p>	<p><b>SF6-free blue GIS Prim / Sec</b></p>
			

## Low-voltage Systems

<p><b>Generator Circuit Breaker Switchgear</b></p>	<p><b>Photovoltaic (PV inverter systems)</b></p>
	
<p><b>Outdoor Distribution Systems</b></p>	<p><b>Solution Business (E-House systems)</b></p>
	

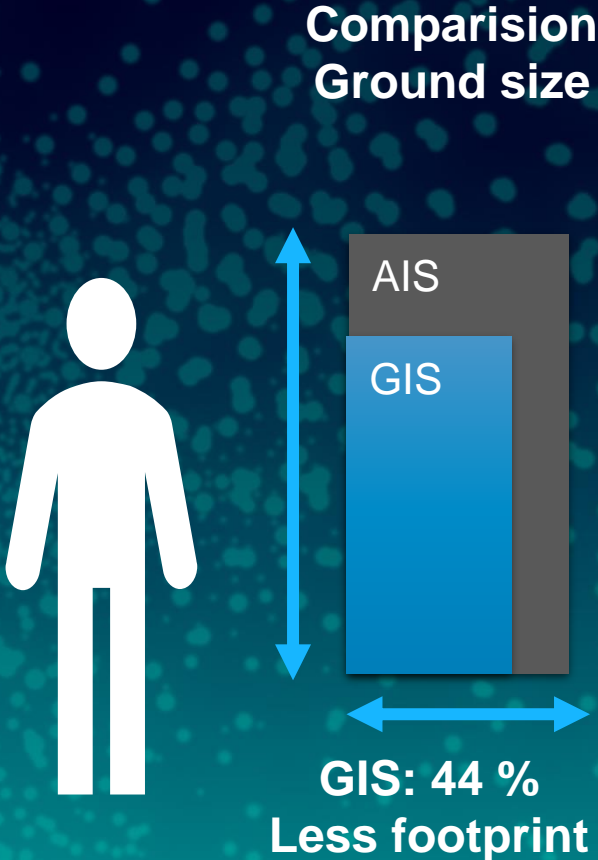
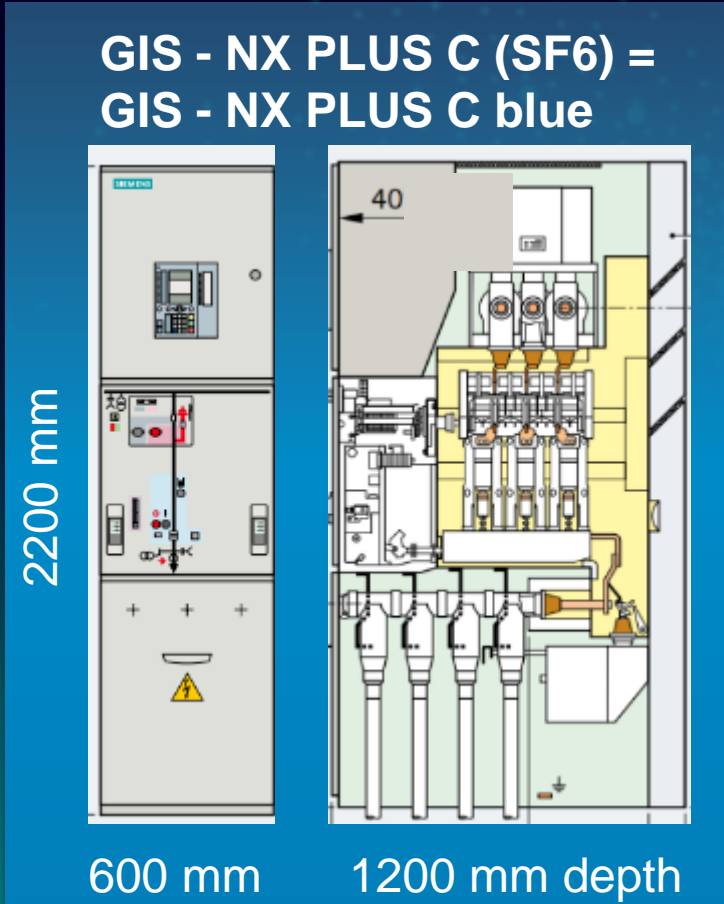
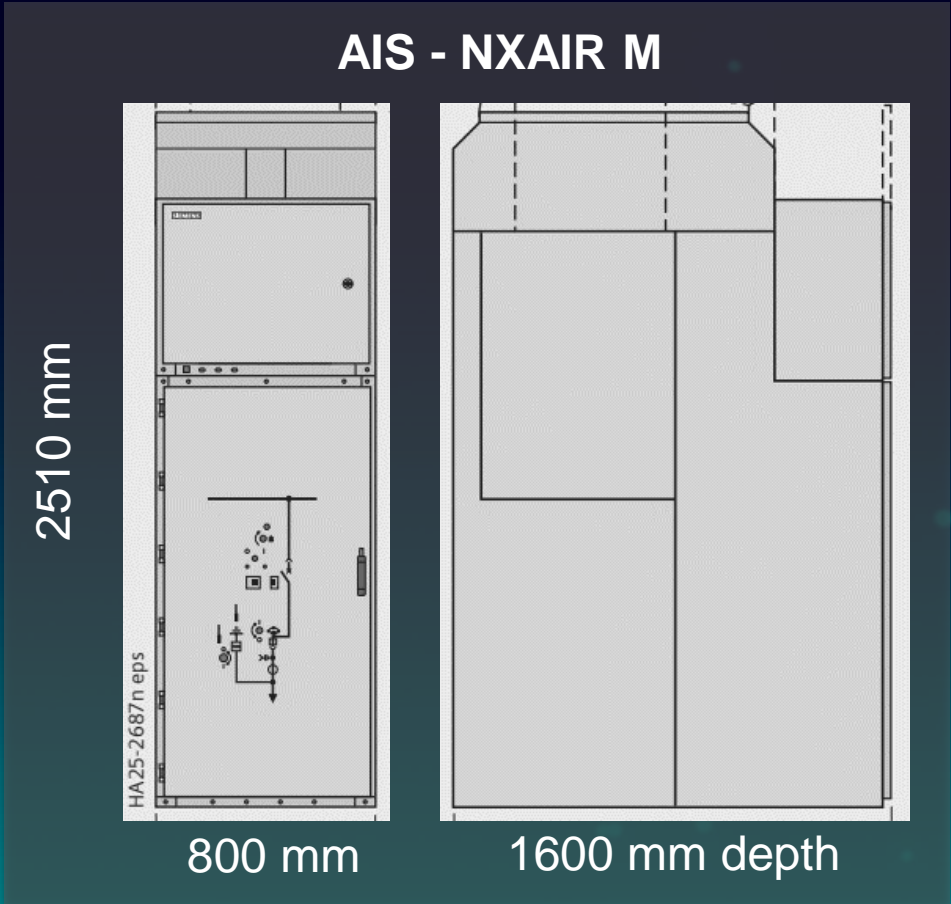
<p><b>Power Distribution Boards &amp; Motor Control Centers</b></p>

<p><b>Busbar trunking systems</b></p>


## Automation, Protection & Communication for high- and medium-voltage Systems

<p><b>Protection</b></p>	<p><b>Automation</b></p>	<p><b>Power Quality</b></p>	<p><b>Smart Communication</b></p>
			

## Services

# Footprint Comparison – AIS vs. GIS with 1250 A and 24kV



# What is a gas insulated switch gear ?



Switch

+



Hermetically sealed compartment

+

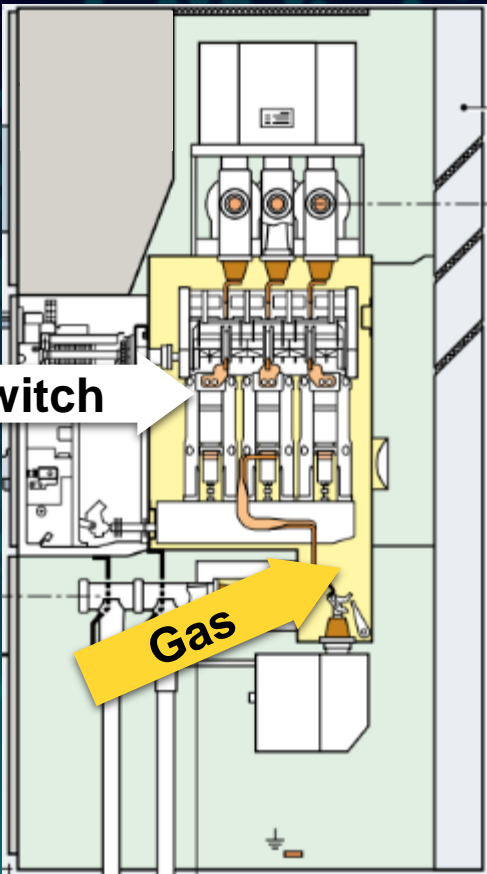
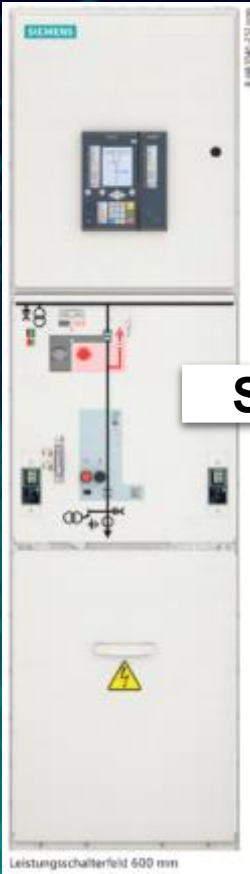


Insulating gas

=



Vacuum Circuit Breaker



gas insulated switch gear

# MV switchgear in praxis



# SI EA manufacturing network of 21 factories and 12 workshops / assembly centers

## Global setup – local partner



■ Air insulated Swgr / LV SB  
 ■ Gas insulated Swgr  
 ■ Switching Devices  
 ■ Busbars  
 ■ Protection & Automation  
 ■ KACO  
 ✂ workshops / assembly centers

# Our portfolio in detail

# Air-insulated switchgear (AIS)



**NXAIR**  
 ≤ 36 kV  
 ≤ 50 kA  
 ≤ 4,000 A

**NXAirS**  
 ≤ 40.5 kV  
 ≤ 40 kA  
 ≤ 3,150 A

## With AIS from Siemens you're always on the safe side!

Our switchgear is type-tested for indoor installation according to latest standards and has always been a synonym for maximum personal and operational safety as well as local added value. Your benefits:

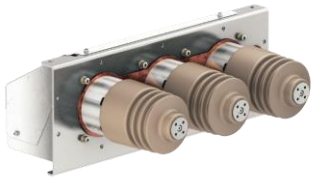
- Ensure peace of mind
- Save lives
- Increase productivity
- Save money
- Preserve the environment
- Using environment friendly air as insulating medium



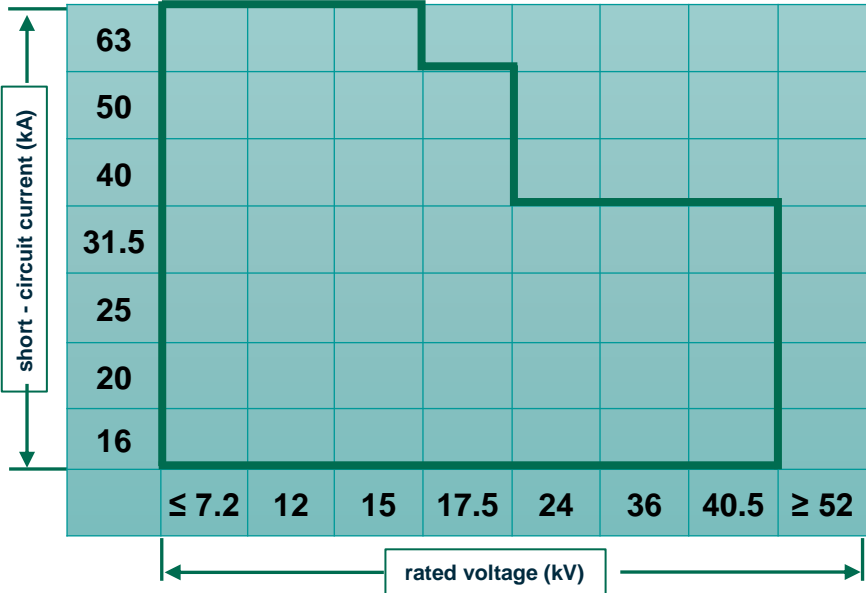
**GM-SG**  
 ≤ 17.5 kV  
 ≤ 63 kA  
 ≤ 4,000 A



**GM-SG 27kV**  
 27 kV  
 ≤ 40 kA  
 ≤ 3,000 A



**SIQuench**  
 Arc quenching device  
 tr < 5 ms



# Gas-insulated switchgear (GIS) – Primary



**8DA10/8DB10**  
 ≤ 40.5 kV  
 ≤ 40 kA  
 ≤ 5,000 A



**8DA11/12 (1-/2-pole)**  
 ≤ 27.5 kV  
 ≤ 31.5 kA  
 ≤ 3,150 A



**8DAB 12 – blue**  
 ≤ 12 kV  
 ≤ 40 kA  
 ≤ 2,750 A



**NXPLUS (SBB+DBB)**  
 ≤ 40.5 kV  
 ≤ 31.5 kA  
 ≤ 2,500 A



**NXPLUS C (SBB+DBB)**  
 ≤ 36 kV  
 ≤ 31.5 kA  
 ≤ 2,500 A



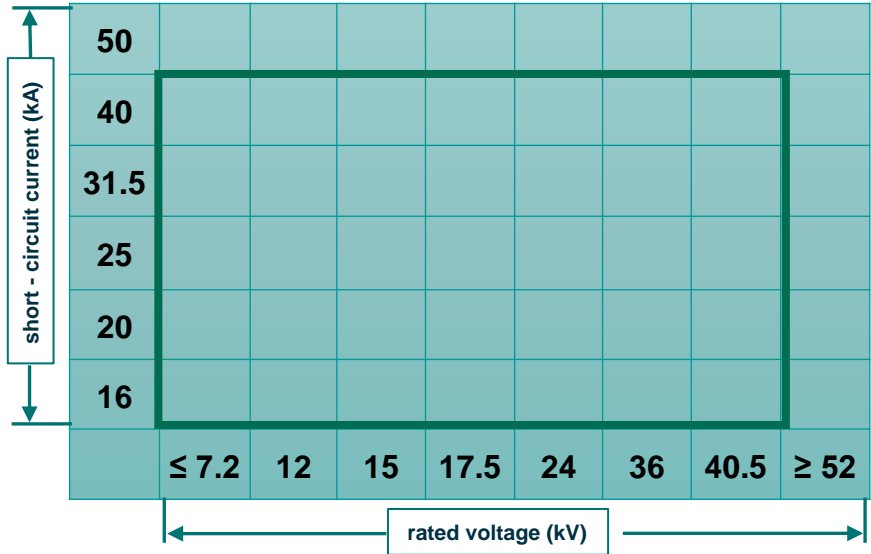
**8DJH ST E (IND)**  
 ≤ 12 kV  
 ≤ 26.3 kA  
 ≤ 1,250 A



**NXPLUS C 24 – blue**  
 ≤ 24 kV  
 ≤ 25 kA  
 ≤ 1,250 A

## Main features

- Gas-insulated (hermetically sealed) and compact
- Cost efficient due to maintenance-free operation with fixed-mounted vacuum circuit-breakers
- Secure operation and safe-to-touch design provides high personal safety
- Climate independent and reliable even under most extreme ambient conditions



# Gas-insulated switchgear (GIS) – Secondary



**8DJH**  
 ≤ 24 kV  
 ≤ 25 kA  
 ≤ 630 A



**8DJH compact**  
 ≤ 24 kV  
 ≤ 25 kA  
 ≤ 630 A



**8DJH 36**  
 ≤ 36 kV  
 ≤ 25 kA  
 ≤ 630 A



**8DJH ST (IND)**  
 ≤ 12 kV  
 ≤ 20 kA  
 ≤ 630 A



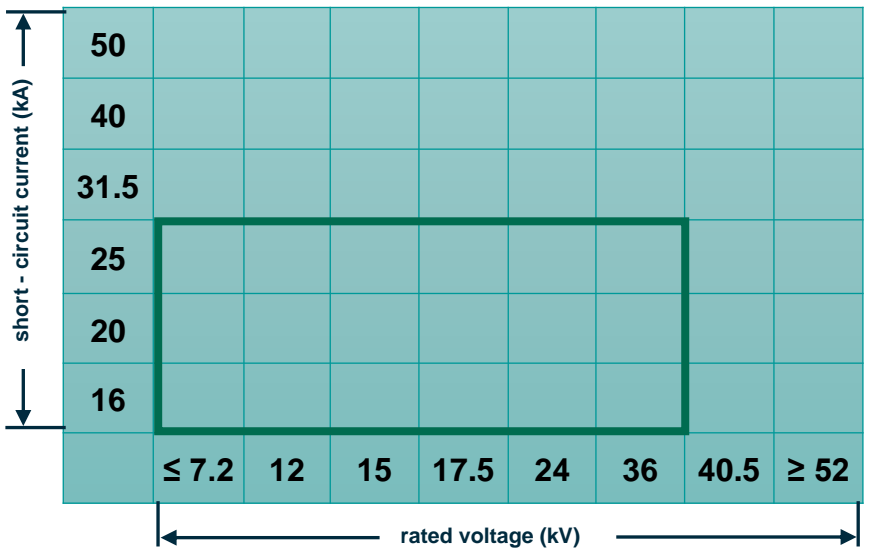
**Simosec**  
 ≤ 24 kV  
 ≤ 25 kA  
 ≤ 1,250 A



**8DJH 12 – blue**  
 ≤ 12 kV  
 ≤ 20 kA  
 ≤ 630 A

## Secondary Switchgear – Your Primary Choice! Main features

- Gas-insulated (hermetically sealed) and compact
- Cost efficient due to maintenance-free operation with fixed-mounted switching devices
- Secure operation and high personal safety
- Climate independent and reliable even under most extreme ambient conditions



# Sustainable power distribution – blue GIS

## Primary power distribution



**8DAB 12**  
≤ 12 kV | ≤ 40 kA | ≤ 2,750 A

**NXPLUS C 24**  
≤ 24 kV | ≤ 25 kA | ≤ 1,250 A

## Secondary power distribution



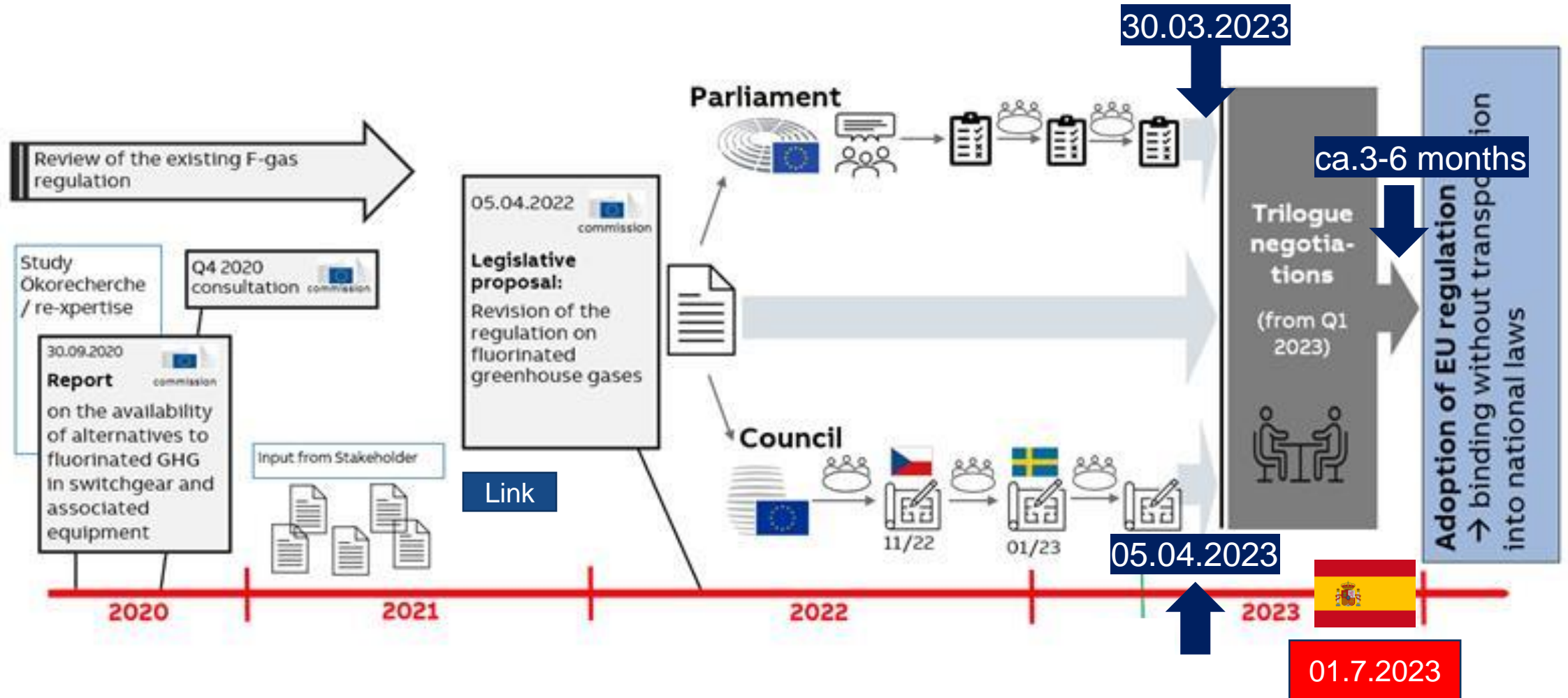
**8DJH 12**  
≤ 12 kV | ≤ 20 kA | ≤ 630 A

**8DJH 24**  
≤ 24 kV | ≤ 20 kA | ≤ 630 A

# EU MV Market Overview

# Actual state of play

## EU F-Gases regulation: Legislative process



- Sustainability & Reliability - the only way for a better future: the planned new F-gas regulation supports our vision
- Our blue GIS: Clean Air insulation (F-gas-free) , Vacuum Interruption & all benefits of gas insulated switchgear

Siemens „blue GIS portfolio“ includes:

12 kV & 24 kV	40,5 kV
in service at primary & secondary level	to be introduced accordingly

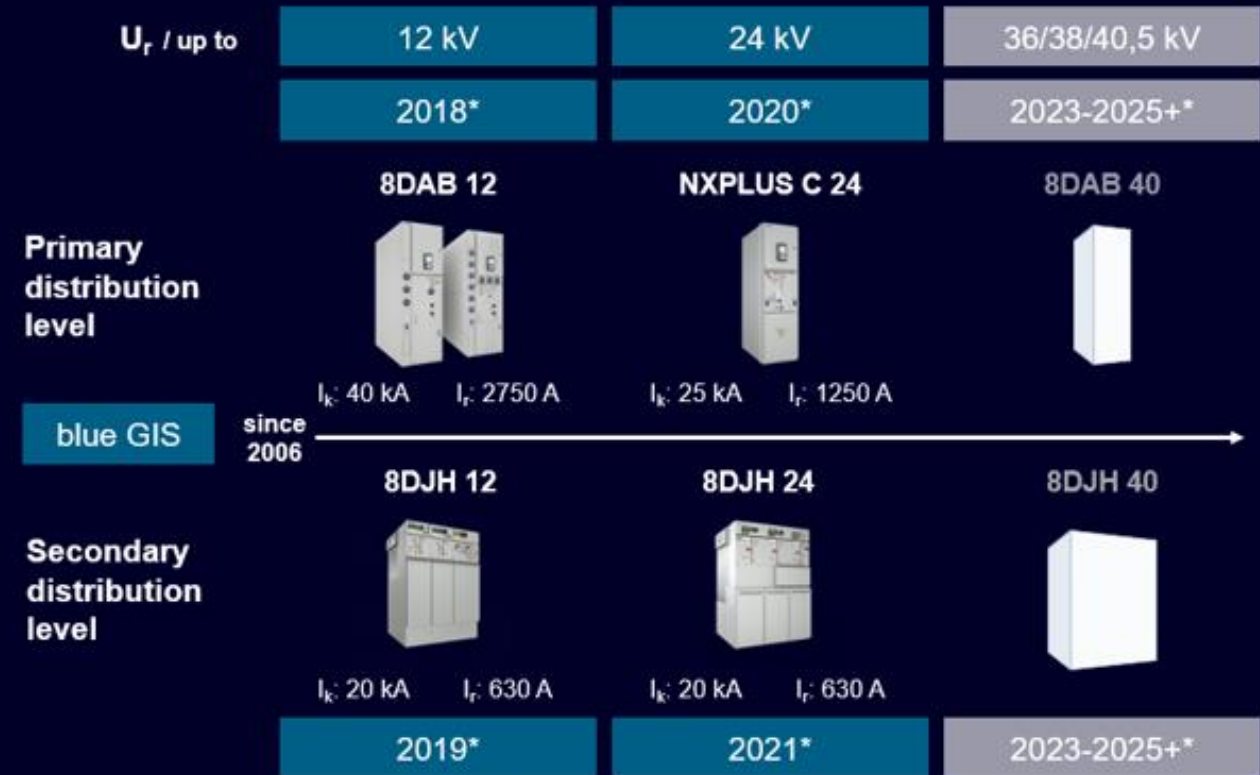
Several thousand panels in the field



DSO: EWE  
NXPLUS C 24 blue GIS



Industry: Veltins  
8DJH 12 blue GIS



\* Introduction of initial product portfolio

# Customer Letter, also in chinese



December 20, 2022

Dear Valued Customer,

3M today announced it plans to exit per- and polyfluoroalkyl substance (PFAS) manufacturing and work to discontinue use of PFAS in its product portfolio by the end of 2025. This portfolio decision is based on careful consideration and a thorough evaluation of the external landscape, including multiple factors such as accelerating regulatory trends focused on reducing or eliminating the presence of PFAS in the environment and changing stakeholder expectations.

This impacts products/product families you purchase from 3M listed in Appendix 1. Unfortunately, supply of most of these products continues to be impacted by global supply challenges and strong industry demand exceeding current capacity. Some of the products are also impacted by ongoing force majeure events. We will continue to take all reasonable steps to avoid supply disruptions, but we anticipate that our ability to supply will continue to be constrained.

3M will continue to fulfill contractual obligations during the transition period. Please note that regardless of any order acknowledgement, 3M may not be able to supply your orders due to continuing force majeure events and supply constraints, and we strongly urge customers to find alternative sources of supply.

3M will manage customer last time buy requests based on availability of supply, and we will work with customers to determine specific needs and put in place an action plan to help ensure an orderly transition. 3M does not currently anticipate stockpiling these products.

We understand you may have questions concerning this announcement. Please contact your 3M sales representative, who will work with you to the best of their ability to help support.

Sincerely,

David N. Schneider  
Vice President, Chemicals and Semiconductor  
3M Company, Electronics Materials Solutions Division

## Appendix 1 List of Impacted Products

Product Trade Name	Product Trade Name
3M™ Electronic Surfactant 4200	3M™ Novec™ 649 Engineered Fluid
3M™ Electronic Surfactant 4300	3M™ Novec™ 7000 Engineered Fluid
3M™ FA-188 Foam Additive	3M™ Novec™ 7100 Engineered Fluid
3M™ FC-5000 Ionic Liquid Antistat	3M™ Novec™ 7100DL Engineered Fluid
3M™ Fluorad™ Battery Electrolyte HQ-115	3M™ Novec™ 71DA Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-40	3M™ Novec™ 71DE Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-149	3M™ Novec™ 71IPA DL Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-3243	3M™ Novec™ 71IPA Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-3283	3M™ Novec™ 7200 Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-3284	3M™ Novec™ 7200DL Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-43	3M™ Novec™ 72DA Engineered Fluid
3M™ Fluorinert™ Electronic Liquid FC-770	3M™ Novec™ 72DE Engineered Fluid
3M™ Fluorinert™ FC-72 Electronic Liquid	3M™ Novec™ 7300 Engineered Fluid
3M™ Ionic Liquid Antistat FC-4400	3M™ Novec™ 73DE Engineered Fluid
3M™ Novec™ 1230 Fire Protection Fluid	3M™ Novec™ 7500 Engineered Fluid
3M™ Novec™ Contact Cleaner	3M™ Novec™ 7500C Engineered Fluid
3M™ Novec™ 1700 Electronic Grade Coating	3M™ Novec™ 7700 Engineered Fluid
3M™ Novec™ 1702 Electronic Grade Coating	3M™ Novec™ 8200 Engineered Fluid
3M™ Novec™ 1720 Electronic Grade Coating	3M™ Novec™ Contact Cleaner / Lubricant
3M™ Novec™ 1902 Electronic Grade Coating	3M™ Novec™ Contact Cleaner Plus
3M™ Novec™ 1904 Electronic Grade Coating	3M™ Novec™ Electronic Degreaser
3M™ Novec™ 1908 Electronic Grade Coating	3M™ Novec™ Engineered Fluid 71D90
3M™ Novec™ 2202 Electronic Grade Coating	3M™ Novec™ Engineered Fluid 72FL
3M™ Novec™ 2701 Electronic Grade Coating	3M™ Novec™ Flux Remover
3M™ Novec™ 2704 Electronic Grade Coating	3M™ Novec™ MW-2410 Engineered Metalworking Fluid
3M™ Novec™ 2708 Electronic Grade Coating	3M™ PF-5052 Performance Fluid
3M™ Novec™ 4710 Insulating Gas	3M™ PF-5056 Performance Fluid
3M™ Novec™ 5110 Insulating Gas	3M™ PF-5058 Performance Fluid
3M™ Novec™ 612 Magnesium Protection Fluid	3M™ PF-5060 Performance Fluid

# Lawsuite in USA (Oct. 23, penalties 25.06.23)

AFX News | 23.06.2023 | 14:24 | 282 Leser | Artikel bewerten: ★★★★★ (1)

## 3M To Pay \$10.3 Bln To Settle PFAS Claims; Sees Hefty Charge In Q2

MAPLEWOOD (dpa-AFX) - 3M Co. announced that it has reached an agreement to pay up to \$10.3 billion over 13 years to settle lawsuits over hazardous chemical contaminated water supplies in the United States. The company expects to record a pre-tax charge of around \$10.3 billion in the second quarter of 2023.

In pre-market activity on the NYSE, 3M shares were gaining around 3.9 percent to trade at \$104.35.

The conglomerate operating in the fields of industry, worker safety, healthcare, and consumer goods has resolved claims by public water suppliers that have detected per-and polyfluoroalkyl substances or PFAS in drinking water, as well as for eligible PWS that may detect PFAS at any level in the future.

According to the Centers for Disease Control and Prevention or CDC, PFAS, known as 'forever chemicals,' are a group of chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water.

3M noted that PFAS can be safely made and used and are critical in the manufacture of many important products including medical technologies, semiconductors, batteries, phones, automobiles, and airplanes.

However, the company for the last two decades has faced thousands of lawsuits for manufacturing various products containing PFAS. These lawsuits allege that these chemicals contaminated US drinking water systems. They also claimed that 3M knew PFAS caused cancer, developmental defects and other health problems.

The company last year said it would stop producing these chemicals by the end of 2025.

In a statement, the company now said it has entered into a broad class resolution to support PFAS remediation for public water suppliers or PWS that detect PFAS at any level or may do so in the future.

Subject to court approval, the agreement provides funding for PWS across the country for PFAS treatment technologies without the need for further litigation. It will also provide funding for eligible PWS that may detect PFAS in the future. The funding for PWS nationwide can also be used to conduct testing for PFAS.

3M chairman and CEO Mike Roman said, 'This is an important step forward for 3M, which builds on our actions that include our announced exit of PFOA and PFOS manufacturing more than 20 years ago, our more recent investments in state-of-the-art water filtration technology in our chemical manufacturing operations, and our announcement that we will exit all PFAS manufacturing by the end of 2025.'

3M said the deal is not an admission of liability, and that it is prepared to continue to defend itself in the litigation if the

[https://www.finanznachrichten.de/nachrichten-2023-06/59412844-3m-to-pay-dollar-10-3-bln-to-settle-pfas-claims-sees-hefty-charge-in-q2-020.htm#:~:text=\(0\)-,3M%20to%20pay%20\\$10.3%20Bln%20to%20settle%20PFAS%20claims%3B%20sees,supplie s%20in%20the%20United%20States.](https://www.finanznachrichten.de/nachrichten-2023-06/59412844-3m-to-pay-dollar-10-3-bln-to-settle-pfas-claims-sees-hefty-charge-in-q2-020.htm#:~:text=(0)-,3M%20to%20pay%20$10.3%20Bln%20to%20settle%20PFAS%20claims%3B%20sees,supplie s%20in%20the%20United%20States.)

## 3M to pay at least \$10.3B to settle 'forever chemical' drinking water lawsuits in U.S.



Deal pertains to U.S. drinking water systems and could run over \$12B pending further chemical testing

The Associated Press · Posted: Jun 23, 2023 7:35 AM EDT | Last Updated: 7 hours ago



The corporate headquarters of 3M is shown in St. Paul, Minn., in a 2020 file photo. The company, which has vowed to halt all production of polyfluoroalkyl substances by the end of 2025, has agreed to a deal to settle a host of lawsuits related to U.S. public water systems. (Nicholas Pfsi/Reuters)

Verdrecktes Trinkwasser

## Post-it-Hersteller 3M muss Milliarden-Strafe zahlen

Von dpa

Aktualisiert am 23.06.2023 - 17:49 Uhr  
Lesedauer: 3 Min.



Der Post-it-Hersteller 3M muss eine Milliardenstrafe zahlen. (Symbolfoto) (Quelle: imago images)



**3M stellt neben den bekannten Post-it-Klebezetteln zahlreiche Dinge her, bei deren Produktion ewige Chemikalien zum Einsatz kommen. Dafür muss die Firma nun eine Strafe zahlen.**

Der Fall um verschmutztes Trinkwasser durch sogenannte Ewigkeits-Chemikalien zieht in den USA weite Kreise. Nun muss auch der US-Konzern 3M – in Deutschland unter anderem bekannt für gelbe Post-it-Klebezettel – hohe Summen zahlen. Das Unternehmen einigte sich mit den Behörden auf eine Zahlung von bis zu 12,5 Milliarden US-Dollar (11,4 Milliarden Euro).

[https://www.t-online.de/finanzen/aktuelles/wirtschaft/id\\_100197024/verdrehtes-trinkwasser-post-it-hersteller-3m-zahlt-milliarden-strafe.html](https://www.t-online.de/finanzen/aktuelles/wirtschaft/id_100197024/verdrehtes-trinkwasser-post-it-hersteller-3m-zahlt-milliarden-strafe.html)

# Next steps



## Consultation in scientific committees

Including 6 months + 60 days stakeholder consultation

**22 March 2023**  
Start of  
consultation

**5 April 2023**  
Online information  
session

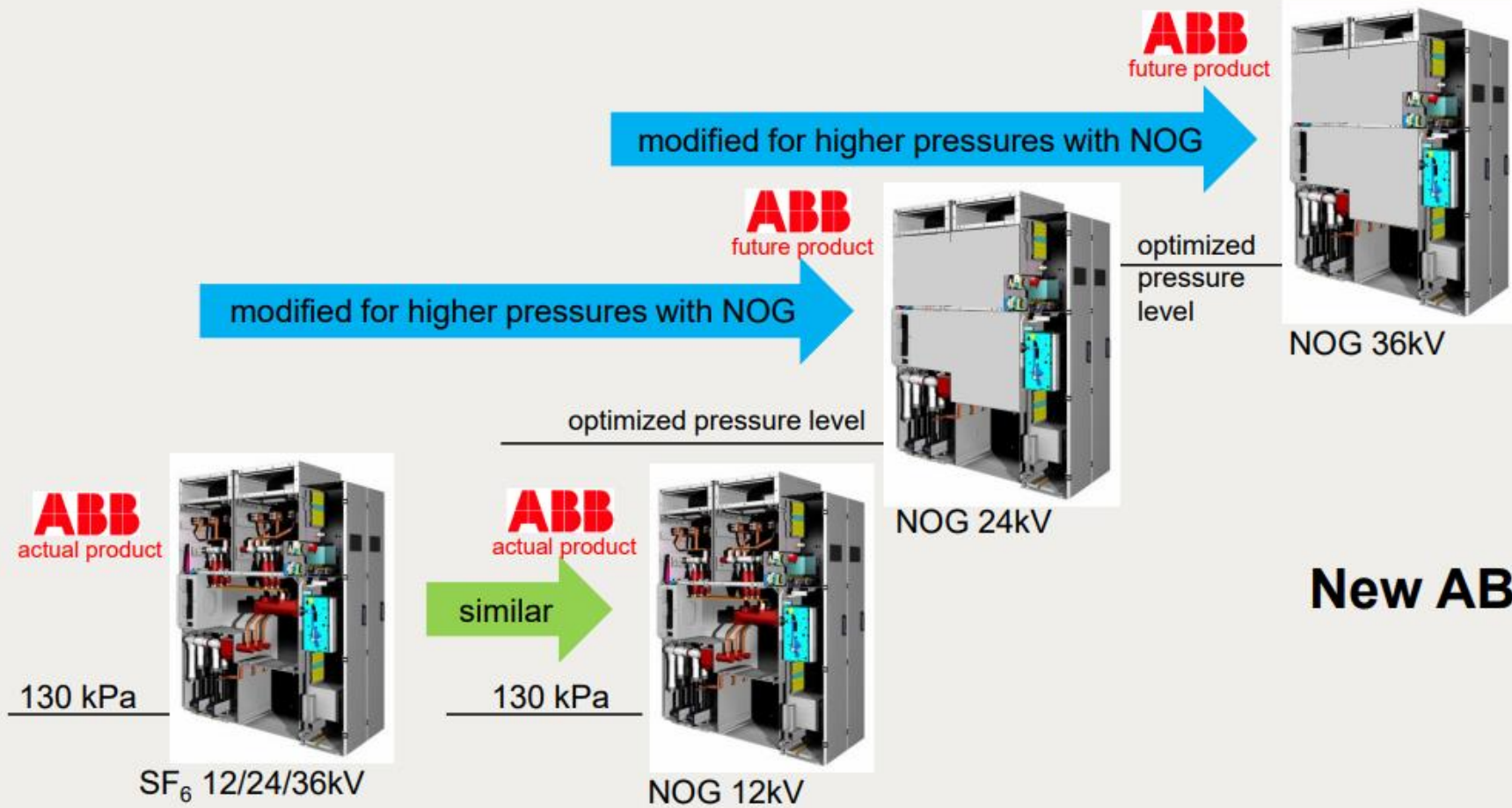
**22 September 2023**  
End of 6 months  
consultation

**2024**  
Opinion of  
Committees

**2025**  
COM decision  
Entry into Force

**2026/2027**  
Restriction becomes  
effective

# SC B3/A3 Colloquium 2023



- Regulatory driven**
- PFAS-free insulation gas
  - High pressure design
  - Run-flat ability depending on pressure!

## New ABB strategy

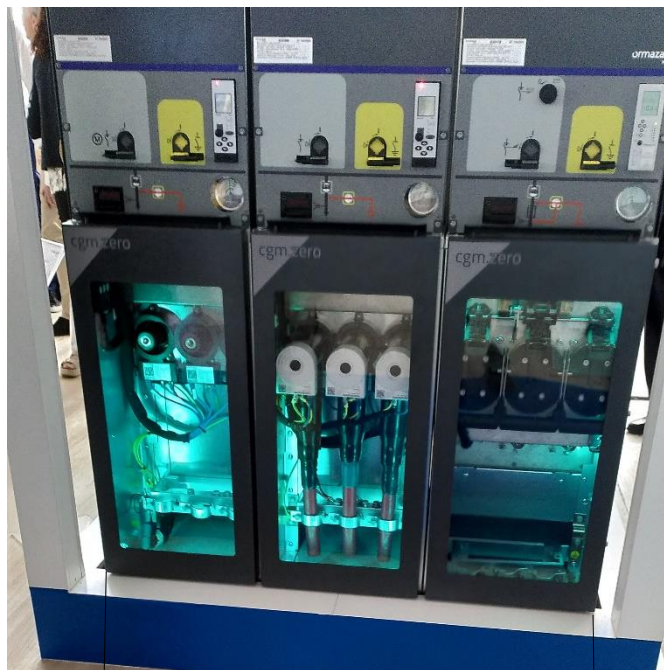
NOG: Mixture of natural origin gases



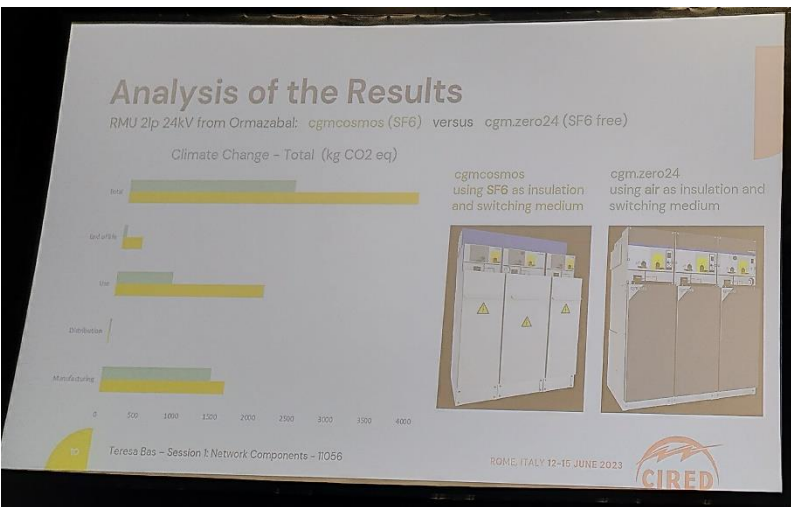
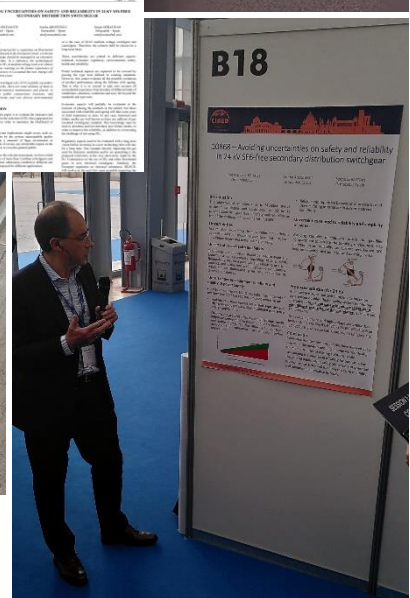
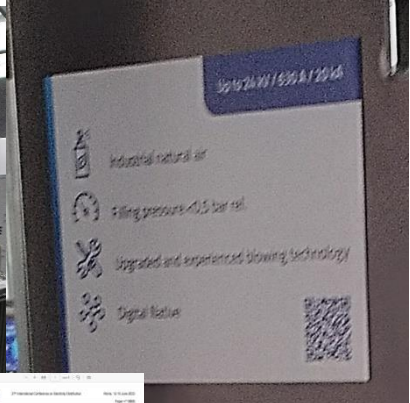
ROME, ITALY  
12-15 JUNE 2023



# Ormazabal



← ~1230mm (eigene "Messung") →



## cgm.zero24

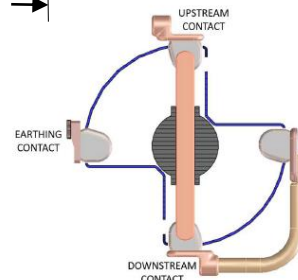
- ❖ industrial natural air
- ❖ filling pressure <0.5bar rel.
- ❖ upgraded and experienced blowing technology
- ❖ Digital native

[cgm.zero24](#)

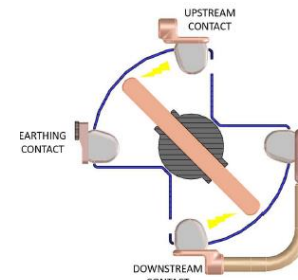
[cbp.zero24](#)

**Industrial natural air**  
Free of F-gases  
GWP=0

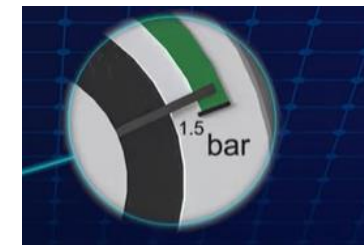
**Industrial natural air**  
Free of F-gases  
GWP<1



Closed position



Open position





















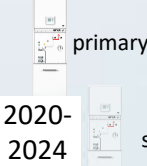


Jose Manuel INCHAUSTI et al., AVOIDING UNCERTAINTIES ON SAFETY AND RELIABILITY IN 24 KV SF6 FREE SECONDARY DISTRIBUTION SWITCHGEAR, #10868, CIRED 2023

# SIEMENS

# EU-MV Switchgear market

## Status of different technologies and products

Majority of EU MV-Manufacturer and the world use Natural Origin Gas for sustainable and reliable grids !

Examples 1)	F-/PFAS-Gas-Mix C4-FN	Natural-origin gases / F-gas-free based on air components (N <sub>2</sub> , O <sub>2</sub> , CO <sub>2</sub> )
<p>MV Primary / MV Secondary ≤ 24 kV</p> <p>Vacuum switching</p>	 <p>US Market only</p> 	<p>12 kV 24 kV 2026</p>            <p>BOFFETTI ALWAYS POWER AHEAD</p> <p>ZPUE Koronea</p> <p>June 23 ormazabal</p>
<p>MV Primary / MV Secondary ≤ 52 kV</p> <p>Vacuum switching</p>	 <p>*2)</p>	<p>2030 2025 2023-2025+* 2026+</p>     <p>primary 2020-2024 secondary 2025</p>    <p>Transparent + Symbol = pilots available</p> <p>Transparent = Announced</p> <p>* Introduction of initial product portfolio w/o customer homologation</p>

\* for typical C4-FN content of 5 %

1) Source: Publications & web sites

GWP ~ 1000\*

Zero emission with GWP < 1

No one from Europe in Medium Voltage is using Keton (C5-FK) anymore.

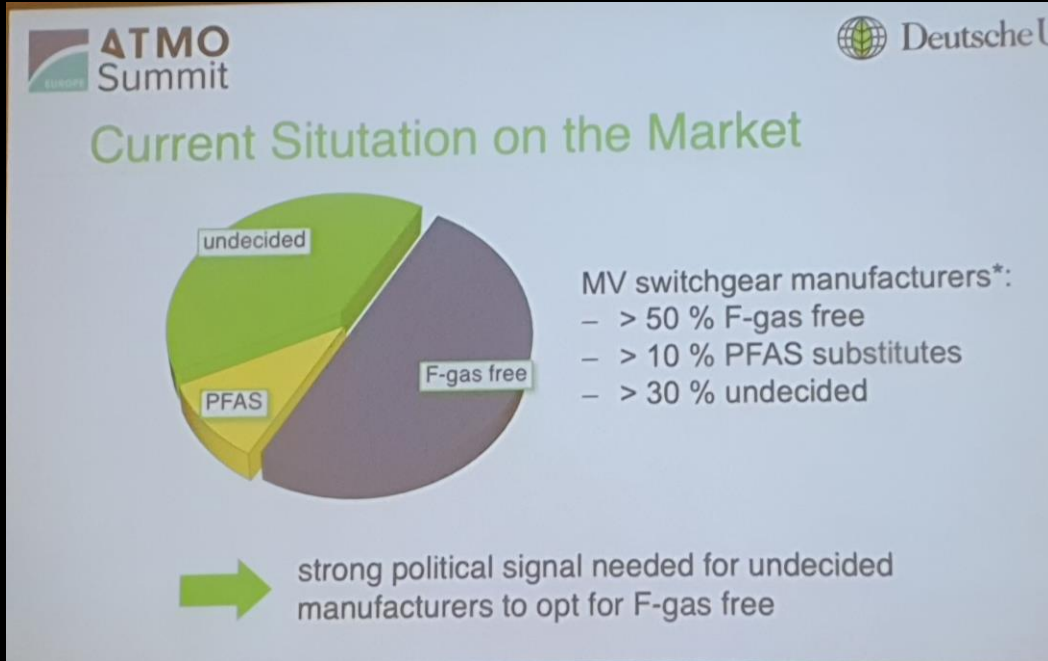
1) Only gas-insul. products w/o conventional AIS, liquid- or solid material insulation

\*2) HFO-1234ze(E) paper w/o real pilot, update on F-gas free expected during CIRED June 2023 in Rome

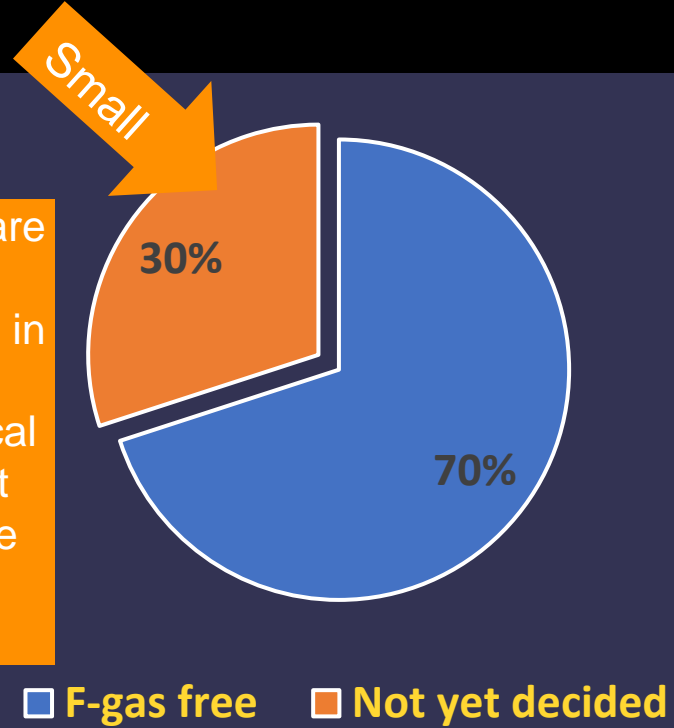
Update 06'23

\*1) as presented in A3/B3 Cigre Session in Birmingham 11.5.23

**To do:  
Win the Small / Not yet decided Switchgear manufacturer  
to join F-Gas free, now it's time to change..**



- Each have market share < 1%,
- Build up GIS port-folio in last 30 years
- > High influence on local market/governanment
- > Will only survive if the do find a partner



Atmosphere Nov. 2022  
Source: Deutsche Umwelthilfe

March 2023: After EU-parliament and Council Vote + PFAS restriction -> MajorManuafcturers announc-ed discontinuation of PFAS gases for switchgear

# Additional Services

# Electrification & Automation Partner Offerings

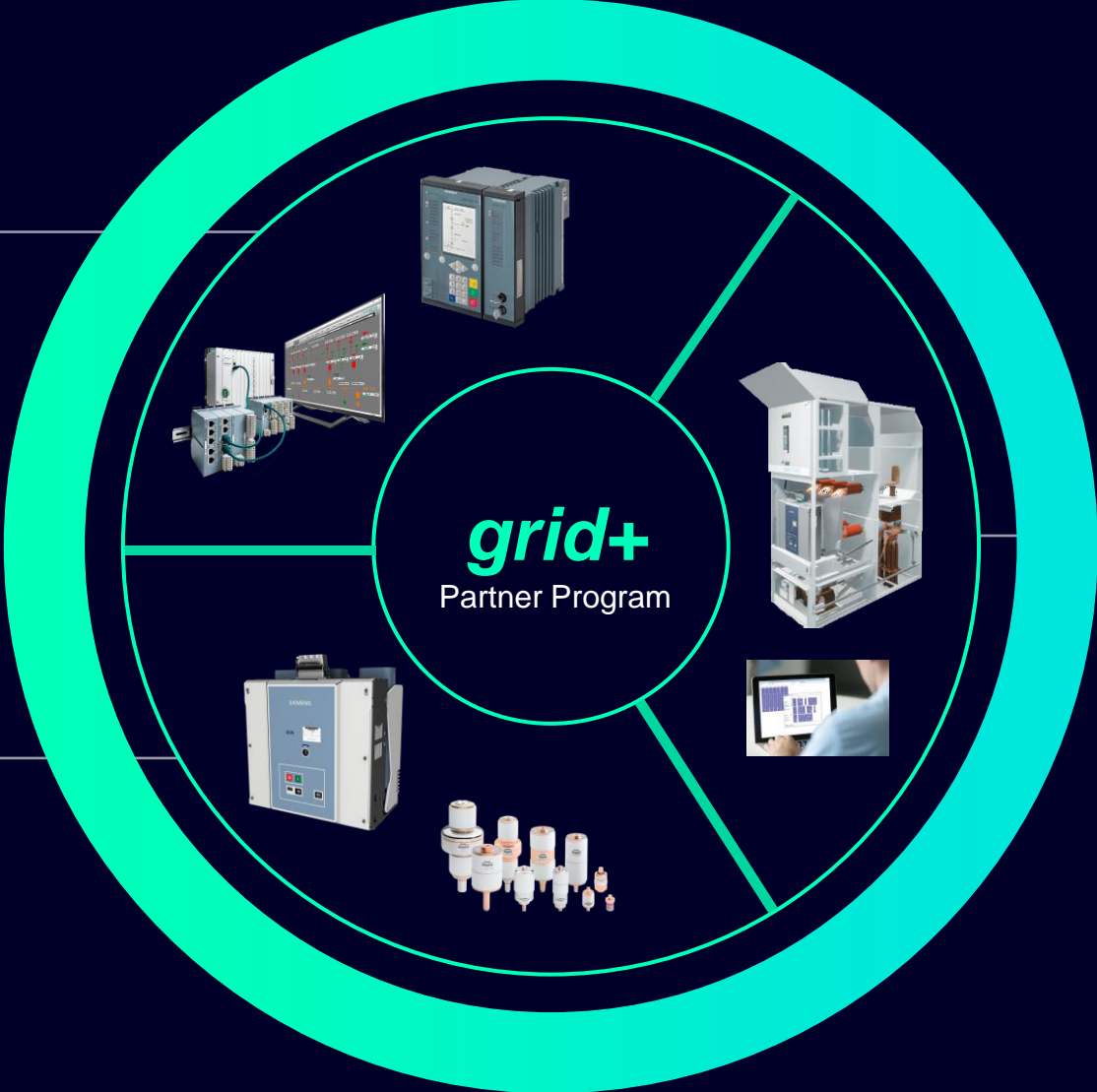
- 3 elements come together -

## Protection & Automation

Products

## Medium voltage

Products



## License models

MV Switchgears

# grid+ Partner Program

## Siemens grid+ Partner Program

Standard Customer

- Offers case by case.
- No access to grid+ benefits.
- No recognition as Siemens Partner.

### Business Partner

Protection & Automation Products  
MV Products

- Supply Agreement Contract with price factors based on target volume incl. Incentive scheme
- grid+ Partner program contract including benefits per categories (Silver, Gold, Platinum).

### Certified Partner

Protection & Automation Products

- Validation of partner capabilities and know how to be certified.
- Can use the grid+ Partner Emblem.

#### Approved Partner

Mainly product integration focus



#### Solution Partner

Mainly system and solution focus



### Licensed System Partners

MV Switchgear licensing

- License contract
- Own Value Add
- Audit of partner capabilities and know how to be certified

#### Value added Reseller

LV compartment as Value Add



#### Technology Partner

Complete panel Assembly as Value Add



### Service Partner

Service of Siemens SI EA Systems and Products

- Trained and Certified by Siemens
- Service Partnering Agreement
- Regularly audited
- Approved Partner Emblem

#### Approved Partner

Service for Electrical Systems and Products



# Customer services

## Your reliable partner for medium and low voltage systems



Contract Business



On-site services



Spare parts



Digitalization services



Modernization & Retrofit



EHS & Sustainability

### Optimize availability and operational safety

- Extended service contracts which strengthen your business case
- Secure your system to guarantee productivity
- Expand your product lifecycle and ensure reliability
- Drive safe and sustainable growth
- Lead digital transformation for higher efficiency with NXpower Monitor and a wide pool of service enablers



**Customer-oriented**

Ready to perform with a service attitude



**OEM**

Technology specialists in-house



**Footprint**

Multiplied benefits due our strong and global service network

**> 60 years**

Successful MV & LV history

**> 170 years**

Being technology pioneers



**Quality**

Solid principles and procedures

**EHS Responsibility**

We care whenever and wherever

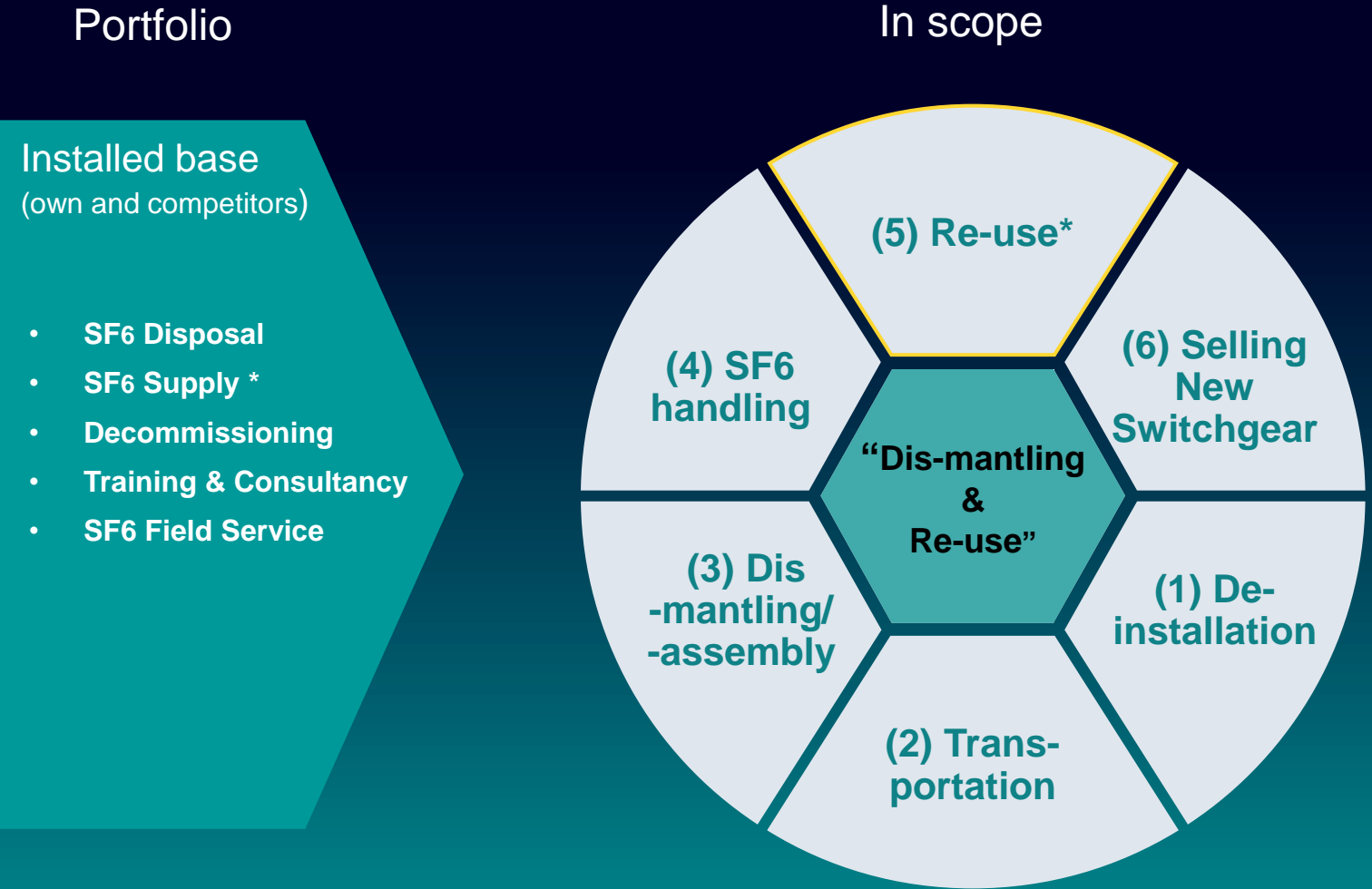


**Know-how**

Experience on state-of-the-art and legendary products

[siemens.com/DistributionServices](https://www.siemens.com/DistributionServices)

# Scope Definition of “Dismantling & Re-use” portfolio element



# End - to - end Cybersecurity

## Comprehensive offering for Digital Grids



ASSESS

### Evaluation of current security status through consulting services

- Security Assessments, compliance audits, penetration testing
- Information Security Management System (ISMS)
- Penetration Test



IMPLEMENT

### Risk mitigation through implementation of security measures

- Secure products
- Secure system integration
- Migration to secure systems
- A solid baseline plus optional advanced security features



MANAGE

### Continuous services to maintain the security level over time

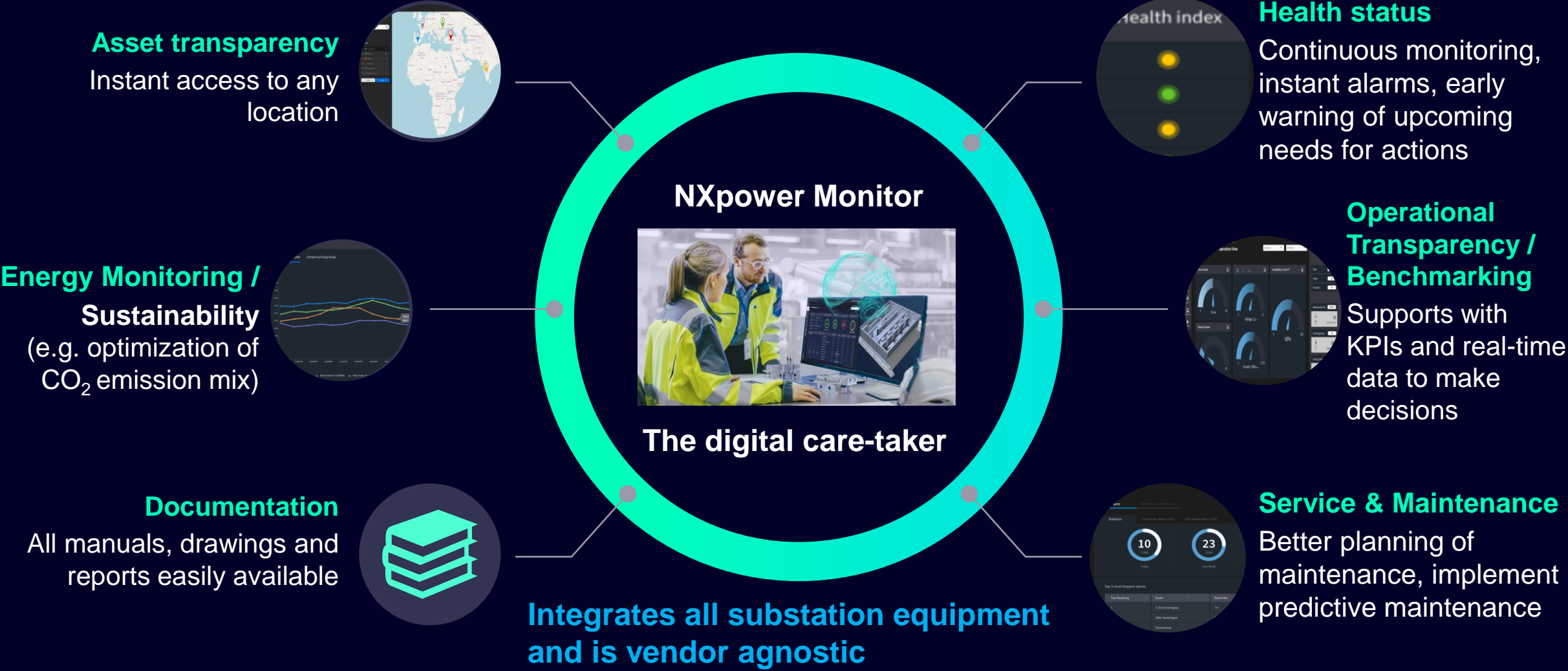
- Cybersecurity training
- Security patch management
- Periodic vulnerability assessments

## Benefits

- ✓ Comprehensive coverage from a trusted partner
- ✓ Reduced downtime in the face of cyber threats
- ✓ Operational security with certified solutions
- ✓ Swift and secure incident response and recovery
- ✓ Premium service with proven competence



# IoT solution: NXpower Monitor - The digital care-taker for your electrical distribution systems



[siemens.com/nxpowermonitor](https://www.siemens.com/nxpowermonitor)



# Our portfolio in action



**Safe and reliable  
power supply**

**Ready for future  
expansion**

**Comprehensive  
and continuous  
collaboration**

guarantee project  
success

## **NXAIR switchgear for the International Airport El Salvador**

**Electricity to power the  
new hub**

Siemens ensures a reliable power supply for the international airport in El Salvador.

The airport is now scheduled to be significantly enlarged and modernized by 2032.

With 43 gates (currently 17) and a new train station, the airport will then be able to process up to 6.6 million passengers a year.



**8DAB 12 - blue GIS for  
Currenta chemical park in  
Leverkusen, Germany**  
Future-proof solution without  
F-gases

Siemens provides Currenta, a long-standing customer in the chemical industry, with its newly developed switchgear 8DAB 12 - blue GIS, a future-proof and economic solution using Clean Air technology instead of F-gases.

**Clean Air** - based on  
the natural elements of  
the ambient air

**Reliable vacuum  
interrupter  
technology**

**Maintenance-free  
design and  
environmental  
independence**

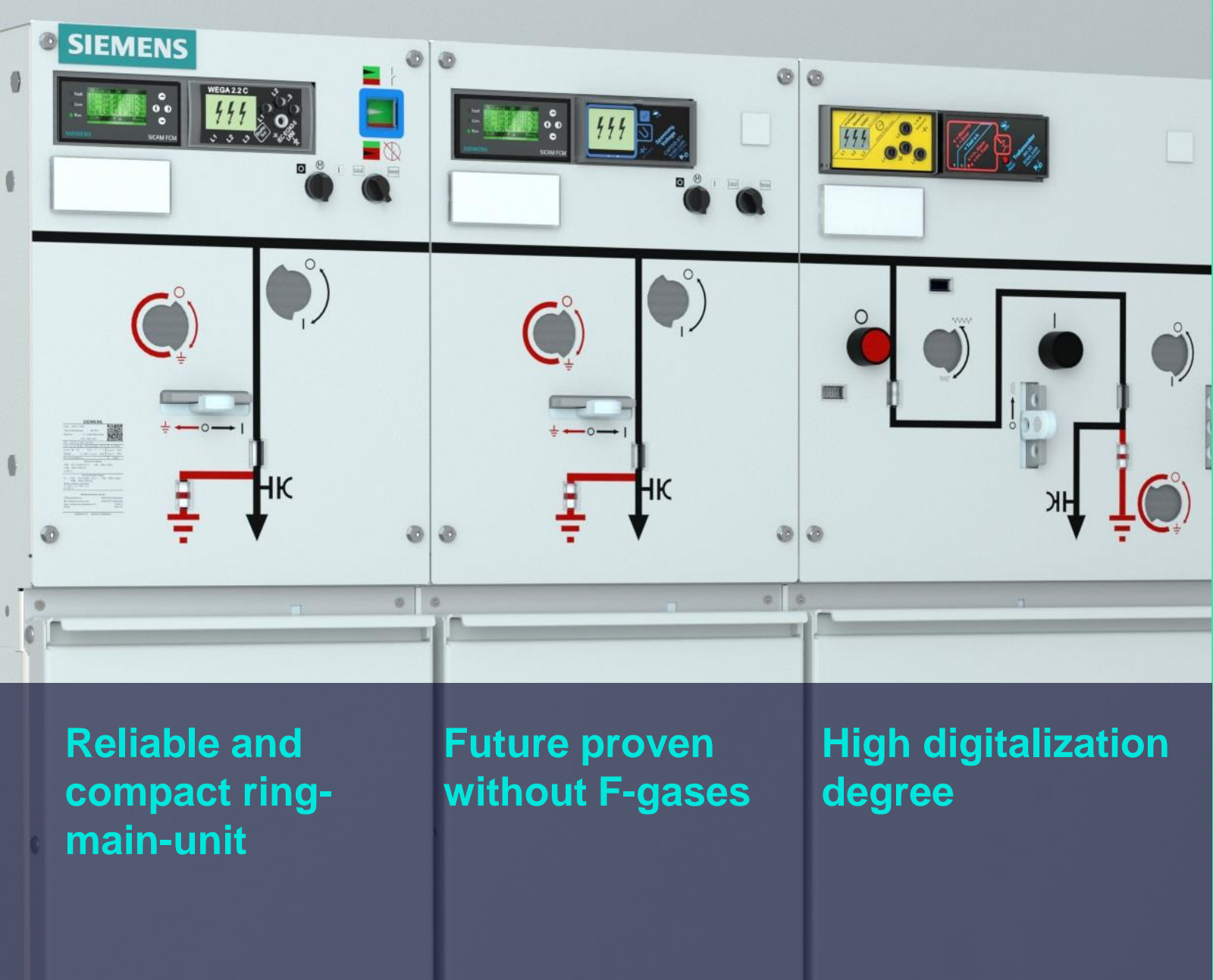


**Optimized usage of space and costs with the same functionality**

**High measuring accuracy** of the low-power sensor technology, although requiring less material

## **8DJH with low-power current and voltage sensors for Swiss utility CKW** Innovation gives space

The Centralschweizerische Kraftwerke AG (CKW), a Swiss utility, built an intelligent transformer substation with cutting-edge Siemens switchgear technology.



# 8DJH 12 blue GIS for BKK Nett AS in Bergen, Norway Sustainable substation

BKK Nett AS, one of the most innovative Utilities in Norway, had a clear goal for a new MV switchgear for distribution substation:

A compact ring main unit that would operate more sustainably, reliably and economically and could work at very low operation temperatures.

Siemens had the complete solution: 8DJH 12 – blue GIS switchgear is equipped with Clean Air and the reliable and proven vacuum interrupter technology, offering all advantages of a gas-insulated switchgear at the same time

**Reliable and compact ring-main-unit**

**Future proven without F-gases**

**High digitalization degree**



# IoT in the substation of the future

## Stromnetz Hamburg, Germany

“We value the cooperation with Siemens as a reliable technology partner that combines know-how in the areas of internet of things and power systems. Based on that know-how, Siemens cooperatively accompanies us with structured workshops in shaping future-oriented topics like no other company. ”

*Bendic Ritt – Innovation Manager, Stromnetz Hamburg GmbH*

- **Generation of** >100 ideas
- Implementation of 1 idea for a maintenance workflow application
- **Built up IoT** test environment
- Initial >40 sensors installed
- Integrated external data sources
- Testing of >5 applications
- **Built up capabilities** to leverage IoT and low-code platforms
- Trained 10 employees as multipliers

## Disclaimer

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# | Contact

Published by Siemens AG

**Thomas Duerr**

Manager Standards and Regulations

SI EA TI

Mozartstrasse 31c

91050 Erlangen,

Germany

Mobile +49 173 255 8905

E-mail [Thomas.Duerr@siemens.com](mailto:Thomas.Duerr@siemens.com)

