



New life for your critical power and cooling assets. New peace of mind for you!

Modernization Services enable peak performance and maximize both availability and efficiency for your operations.

se.com/modernization

Life Is  On

Schneider
 Electric



Dear Reader,

Competing successfully in today's digital economy requires enterprises to be agile, flexible, and data-driven, which means organizations must rely on their data centers more than ever before.

This puts tremendous pressure on IT, data center, and facility professionals to keep their data centers and network infrastructure running 24/7 to support employees, customers, and business partners — all while securely deploying new technologies, meeting energy-efficiency mandates, and navigating tight budgets.

At Schneider Electric, we understand these challenges and constraints. We commit to providing you with the best services to keep your data center infrastructure working efficiently and cost-effectively.

We work diligently and tirelessly to design, manufacture, deliver, and help maintain your long-lasting three-phase UPS and cooling systems to keep your data center running at peak performance throughout the productive life of your assets. Maintenance is a key element to keep systems working at their peak performance. We offer you a broad selection of on-site services backed by the best trained and experienced professionals who will be with you from the solution design stage, to its delivery, installation, start up, and overall project execution to minimize the disruption of your operations, while providing you peace of mind and the highest return on your investment.

But even the best maintained system will reach a point in its life when it could greatly benefit from a modernization service. This may be because it runs inefficiently or is at risk of being undersized or oversized vs. the original design specifications. The equipment may have reached a point where the potential for an unexpected and costly outage is too high. The maintenance cost might have risen above average, or the units are just no longer compatible with energy efficiency targets or environmental regulations.

Aging and obsolete equipment is one of the leading causes of data center downtime, impacting overall productivity and efficiency. It also prevents you from evolving your critical infrastructure to meet current and future business requirements.

We are ready to work with you to assess your current needs and infrastructure availability and resiliency and evaluate together your best path forward. If modernizing your asset is part of the solution, we will go over all the steps required to evolve your data center infrastructure cost-effectively as it ages to maintain your system's reliability and serviceability for many years to come.

I hope you find the information in this brochure useful, and we are looking forward to hearing from you about your concerns and needs so that we can work together on the best way to address them.

Sincerely,

Pedro Robredo
Vice President, Global Field Services
Schneider Electric

Do you know when it's time to modernize your UPS or cooling system?

Aging and obsolete equipment is one of the leading causes of downtime, impacting overall productivity and efficiency. It might also prevent users from meeting current and future business requirements.

Table 1 below shows the conditions that would typically indicate a UPS or cooling system are at, or near, the end of their life for the given application. Assuming the data center facility is not being consolidated or outsourced, replacement with a new UPS and/or cooling system is the recommended option in this case.

Condition	Description
Cannot meet critical performance requirements	If the UPS or cooling system cannot meet the organization's present or future performance requirements (e.g., supporting the entire IT load at the required redundancy and runtime levels), then it is at "end of life," at least, for that application.
Original Equipment Manufacturer support has ended	Typically occurs 10 years after model is phased out from production. Lack of support makes routine maintenance and recovery from downtime impractical, if not impossible.
Spare parts are unavailable	Once spare parts become unavailable, there is little option for maintaining/servicing the UPS or cooling system.
Excessive maintenance	As equipment ages, the need for maintenance increases. It is possible for the maintenance costs and risks to exceed the costs and benefits (capacity, efficiency, and reliability) of installing a new system.

Table 1 - Conditions likely indicating the UPS or cooling system must be replaced with a new one

"The risk of sudden downtime and impacting the load is higher as a UPS ages, more reactive maintenance should be expected. Experience has shown that the instances of 'time and material' type service more than doubles once the UPS or cooling system has reached 10 years in service."

White Paper 214:
Guidance on What to Do with an Older UPS



What you need to know about your UPS and cooling units' lifecycle

There are three major phases in the lifecycle of a product range:

Commercialization phase

The product is launched onto the market. In this phase, the product and services are fully available.

Services-only phase

The product is phased out (no longer available for sale), replaced by newer and better technology. Schneider Electric continues to provide services typically for 10 years for three-phase UPS and cooling systems.

End-of-service-life phase

The product range reaches the end of its serviceable life. When spare parts and/or technical support resources are no longer readily available, the continuity of service and support is at risk. If a product breaks down, no parts or support may be available to fix it.

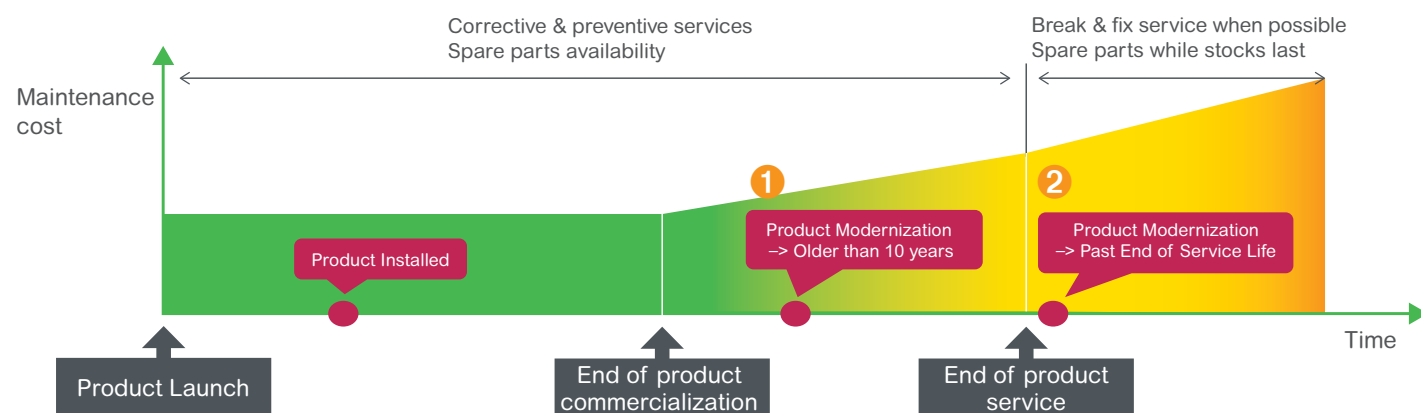
Modernization recommendations throughout the life of a product

Case 1: Typically, after 10 years of being installed, due to wearing of critical components and other factors, a product, and your bottom line, could greatly benefit from a modernization service. As a product ages, its performance, efficiency, reliability, and its maintenance cost could be negatively affected.

See point (1) in graph below.

Case 2: When a product reaches the end of its serviceable life, which corresponds to the end of service life phase as defined above, it is highly recommended to modernize it to maintain its consistent operation, performance, and serviceability for years to come.

See point (2) in graph below.



Graph 1: Product range lifecycle, time vs. maintenance cost.

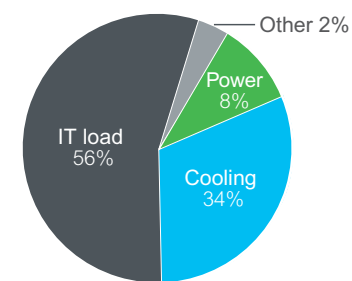
If you modernize, these are the gains you will have

Modernization of UPS or cooling systems can result in substantial savings thanks to innovative, leading-edge energy efficiency design of the new equipment.

Potential savings in a cooling modernization solution

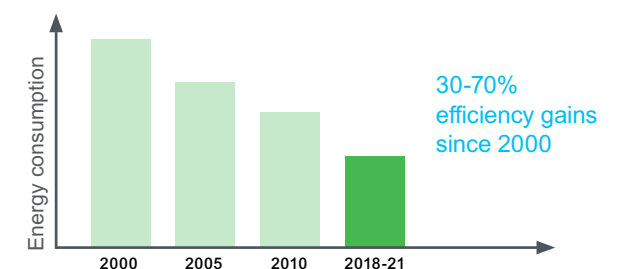
A lot has changed in the cooling solution for data centers in the last 10+ years. Below is an example of potential energy efficiency gains.

Energy consumption in a data center*



* Example for reference only, assuming: chilled water CRAC, typical UPS at 80% load

Cooling efficiency gains over time*

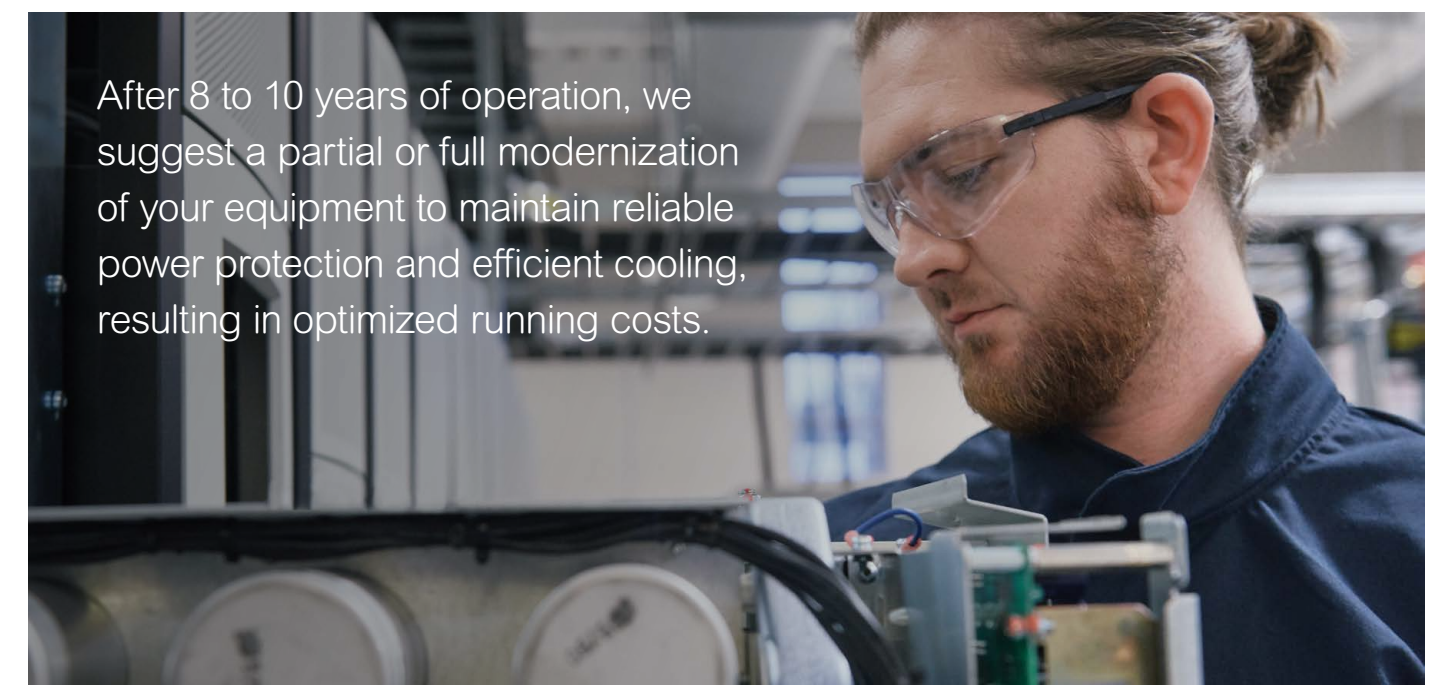


* Thanks to innovative cooling components and new unit designs

$$34\% \times 50\% = 17\%$$

Cooling energy in the data center Cooling efficiency gains Total energy savings

Fig. 1: Significant efficiency gains in cooling systems thanks to innovative components and new unit designs.





How scalable data centers connect a global logistics giant from the core to the edge

Customer challenge

- Needed an easy-to-manage data center to meet present-day business needs
- Expiring facility contract accelerated construction timeline
- Data center had to be designed and implemented within three months

Mainfreight, New Zealand

A global logistics provider of international end-to-end freight service with 239 branches across 21 countries.

Solutions

- EcoStruxure™ Asset Advisor
- EcoStruxure™ IT Expert
- Symmetra™ UPS, InRow™ cooling, Chiller
- NetShelter™ SX and PDUs (including power meters and breakers)

Customer benefits

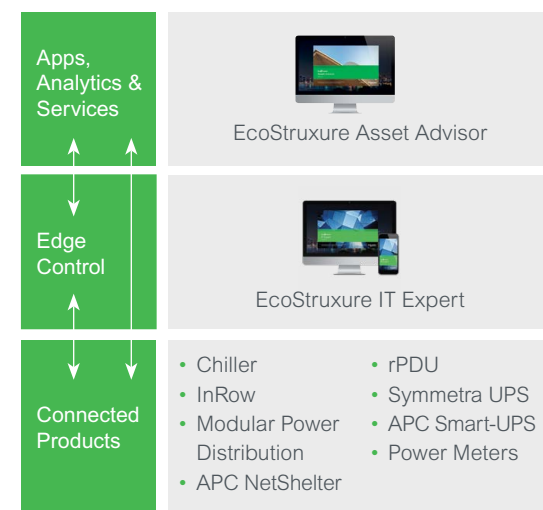
- Scalable UPS, power, cooling, and enhanced software capabilities
- Flexibility for future growth
- Cloud-enabled remote monitoring with EcoStruxure Asset Advisor and EcoStruxure IT app takes data from connected devices, delivering the analytics and visibility Mainfreight identifies as key to their growth ambitions

The results

- Provided a benchmark for other infrastructure sites as they modernize to enable a 100 year vision.

se.com/mainfreight

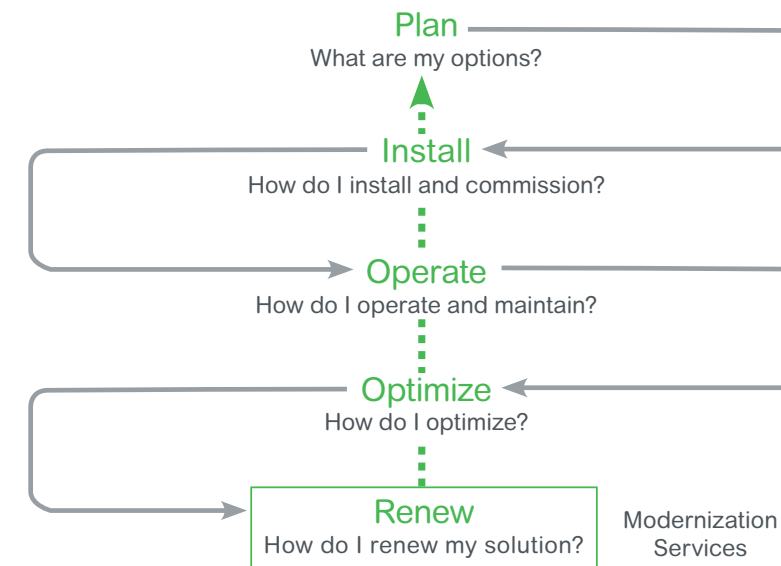
EcoStruxure™ for Data Center Innovation At Every Level



Maintain your business continuity

Get the maximum value out of your assets along the lifecycle of your data center; whichever stage you are at, Schneider Electric has the expertise, support, and services to help you prepare, design, acquire, implement, maintain, and upgrade your mission-critical equipment.

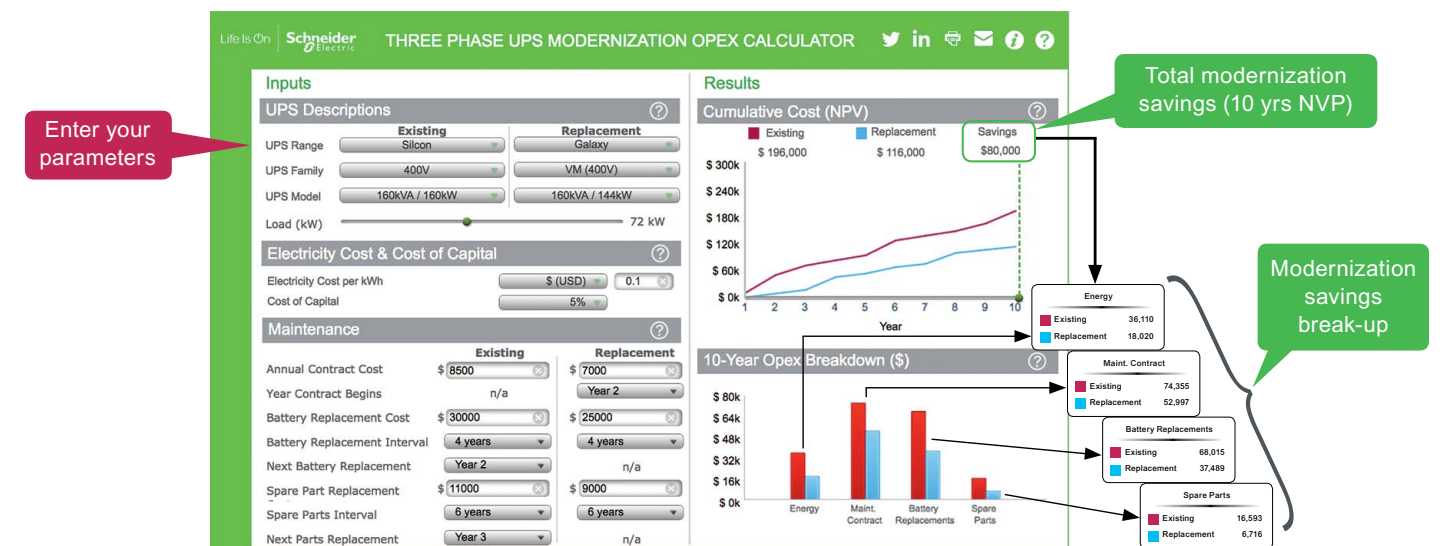
Lifecycle Services



Schneider Electric is committed to providing services that dramatically simplify the process of planning, deploying, and operating efficient facilities.

Did you know that you could be throwing money away running an old UPS or cooling system?

Check this simple calculator below and estimate your savings of replacing an aging three-phase UPS with a more efficient, high-performing unit.



Schneider Electric Data Center TradeOff Tool: se.com/modernization-opex-calculator

Modernization Services

Our Modernization Services are designed to renew your data center infrastructure — from upgrading your backup power and cooling units, to a full data center overhaul if needed. We're not just about making your data center young again, we're improving it!

Refresh-UPS and Cooling Modernization Services

All-in-one modernization service for aging infrastructure to give customers peace of mind while preserving your bottom line. It is a comprehensive product replacement service to maximize performance and availability.

Maintains your business-critical uptime, improves total cost of ownership, and get the peace of mind that comes with an upgraded UPS and/or cooling system.

This service is aimed at:

- Three-phase UPS and cooling systems that are close to reaching their end of service life date; and/or
- Have been installed for more than 10 years

Customer benefits:

- Significant energy efficiency improvements
- Diminishing risk of unexpected downtime
- Reduction of maintenance cost and serviceability assurance for years to come
- More cooling capacity for similar space needs
- Access to units' maintenance and diagnostic information 24/7 through mobile device
- Full compliance with current refrigerant regulation

This service includes:

- Old system evaluation and modernization recommendations
- New UPS and/or cooling unit (adapted to customer's current needs)
- Extended Premium Service coverage*
- Unit start up extended Premium Service coverage*
- EcoStruxure Asset Advisor, cloud-enabled remote monitoring service*
- Availability of 24/7 service bureau support experts, predictive maintenance analytics, and regular comprehensive reports
- Old system removal and green disposal*
- Electrical/mechanical installation or adaptation (optional)

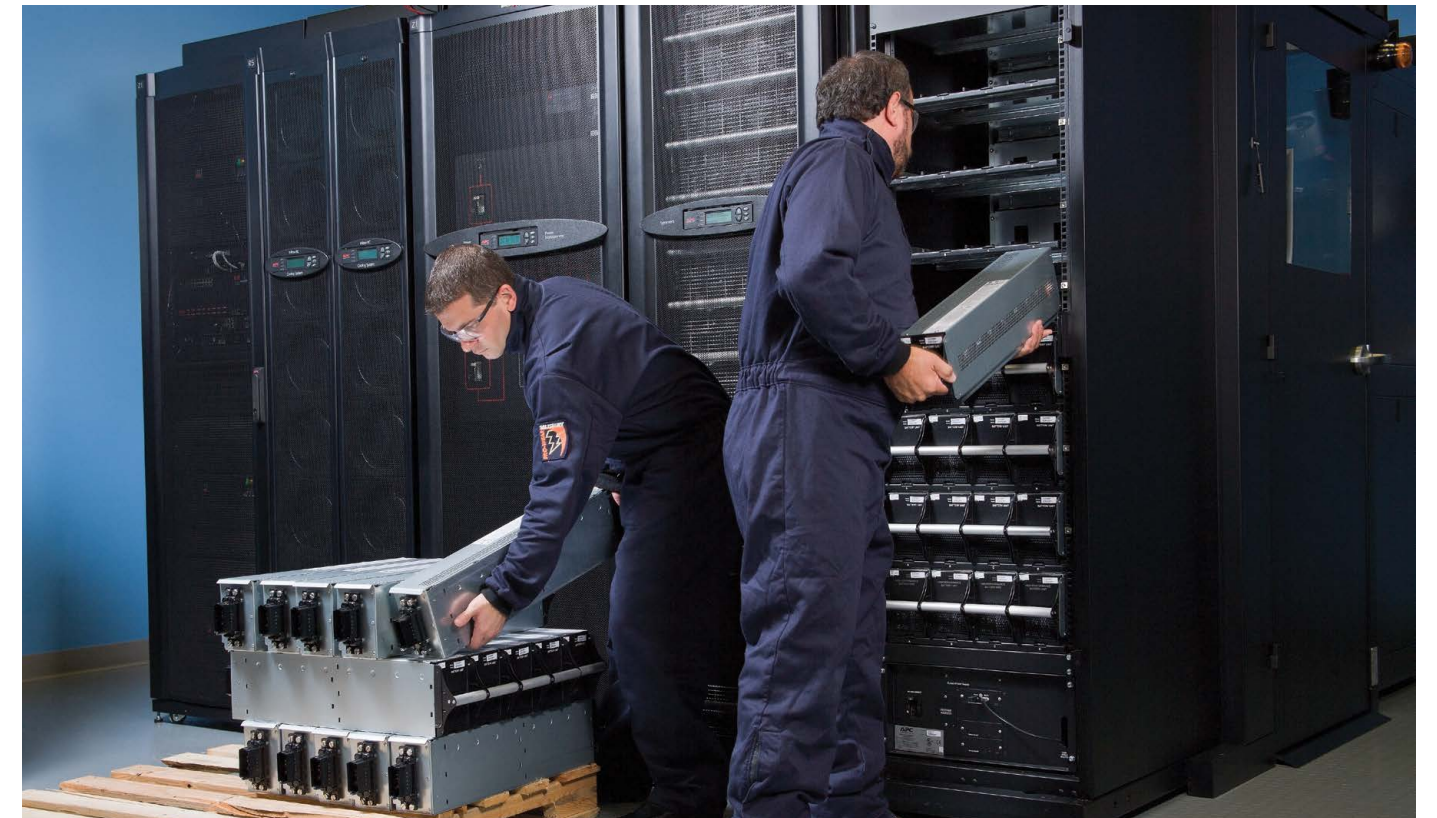
* Coverage might vary by country.

Reliability starts with a quality design

Our goal is to offer UPS and cooling systems with a 100% uptime to our customers. Hence, our quality assurance begins in the product development process where we focus on parameters like:

- As few components as possible to reduce the error level
- The best possible components from approved suppliers
- Standardized documentation procedures
- Easy installation and test procedures
- Ease of maintenance

The Refresh-UPS, Cooling Modernization, and MPRS solutions will help you maximize performance and availability, maintain your business-critical uptime, improve total cost of ownership, and get peace of mind.



Modular Power Revitalization Service (MPRS)

All-in-one revitalization service for modular UPS extends their reliable life and gives you peace of mind while preserving your bottom line.

Maintains your business-critical uptime, improves your total cost of ownership, and get the peace of mind that comes with a revitalized modular UPS.

This service is aimed at:

- Single phase modular UPS systems that are 5 to 9 years old
- Three-phase modular UPS systems that are 8 to 12 years old

Offers where this service is available are:

Symmetra PX and MW UPS and 1 phase Symmetra LX UPS

Customer benefits:

- Reduce total cost of ownership through upgrades and proactive replacement of parts
- Have peace of mind knowing your aging infrastructure is under a service agreement and operating at manufacturer's specifications
- Reduce downtime and make fewer service calls due to proactive replacement of wearing components

* Coverage might vary by country.

This service includes:

- Updates to the latest system technologies available
- Replacement of critical modular components (intelligence modules, static switch + H.E. power modules, powerview display, network management card, switchgear board, battery monitor board, system PSU)
- Environmentally responsible disposal of old components*
- One-year Advantage Service Plan*

Contributing to the Circular Economy: by increasing lifespan of assets and avoiding consumption of primary resources



Modular Battery Replacement Service (MBRS)

An easy and environmentally friendly way of replacing modular UPS batteries.

A proactive, one-stop solution for 24/7/365 availability

Most batteries have a useful service life ranging between three and five years, depending on the environment in which they are used. When the time comes to proactively replace your batteries efficiently and cost-effectively, you can rely on the best-in-class Modular Battery Replacement Service (MBRS), performed by service-certified Schneider Electric field engineers.

Proactively replacing batteries in total makes your batteries last longer, reducing both cost and downtime while safeguarding your system's availability. Without such a service, you may be tempted to replace batteries one at a time as they become depleted. This approach actually weakens the new batteries, however, causing more frequent downtimes.

An all-inclusive solution for modular UPS

The MBRS service is a one-stop all-inclusive battery replacement service, including:

- OEM batteries
- On-site replacement
- All parts and labor
- Environmentally friendly removal/disposal of used batteries

The service can be scheduled to meet your needs for availability, including after hours and weekends.

Proactive Parts Replacement Service

A properly installed, well-maintained UPS or cooling system is likely to work reliably for a long time, before it needs to be replaced or modernized. It is also true that a critical back-up power or cooling system is composed of many electrical and mechanical components that — if not proactively replaced as they age — could jeopardize the performance or availability of the system.

Typical UPS and cooling components that need to be replaced throughout the lifecycle of the equipment include:

- Fans and inverters
- AC/DC capacitors
- Batteries
- Temperature and pressure sensors
- Pumps, flow meters, actuators, and valves
- Power supplies, controllers, and compressors

The Proactive Parts Replacement Service offers an effective and affordable solution to mitigate aging components risk. Once a thorough evaluation of your system has been completed, a skilled, certified Schneider Electric engineer will recommend the right replacement components to keep your unit running as originally intended and greatly reduce the likelihood of costly, unintended downtime.

Are you concerned about battery life?

Long life lithium-ion (li-ion) battery cabinets are an all-in-one solution to reduce total cost of ownership and footprint while improving efficiency.

Why upgrade to a li-ion battery system

Compared to VRLA batteries:

- 40-60% less footprint
- 2-3x expected life
- Higher operating temperature
- 70% less weight
- Faster recharge time
- 10x cycles
- 30-50% TCO savings

Li-ion Battery Conversion Service provides:

- Li-ion battery system with integrated BMS system
- Cabinet assembly and start up including Field Service Representative travel time
- UPS Compatibility Assurance
- On-site preventative maintenance near the time of factory warranty expiration
- Total peace of mind and convenience

Li-ion vs. VRLA battery: an example of savings

Inputs

Location

North America United States Nationwide data

Electric Cost per KWh \$0.10 Override

UPS Attributes

UPS Capacity 1200 kW
UPS Service Life 15 years

Battery Attributes

Back-up Time 6 minutes

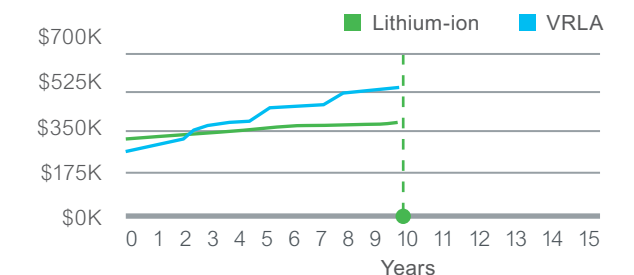
Replacement Period
Lithium-ion 15 years VRLA 4 years

Financial Analysis

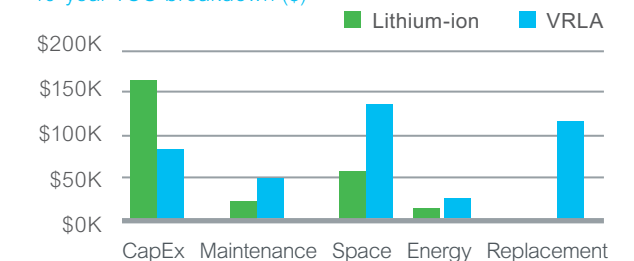
Cost of Capital 6%
Monthly Building Lease Cost \$19.5/sq ft

Results

Cumulative cost



10-year TCO breakdown (\$)



Analysis based upon assumptions of electric costs/KWh/UPS capacity/cost of capital and lease costs that may differ across customers.

Schneider Electric Data Center TradeOff Tool: se.com/lithium-ion-calculator

Modernize and connect to unleash your business potential with 24/7 remote monitoring by experts

EcoStruxure Asset Advisor provides a remote monitoring service for your critical equipment, increasing resiliency and transparency through service personnel equipped with real-time device data to quickly troubleshoot and dispatch.

With just one tap, the EcoStruxure IT app gives you access to your assets, incident tracking, and online chat collaboration, keeping you in touch with Schneider Electric and your team.

Optimizing operations through insights

- Simplified setup & approach
- Data insights & performance optimization
- Remote visibility & monitoring
- Expert services capabilities
- Automated critical notifications

EcoStruxure Asset Advisor key features

Monitoring

- Alarm management and remote troubleshooting
- Service engineer dispatch
- Incident tracking

Mobility

- Alarm notification, dashboard, and history views
- Auto ticket creation and status tracking
- Chat and team collaboration with 24/7 access to Schneider Electric's Connected Services Hub
- Device and sensor data

Insights

- Monthly report, indicating how well your data center is running
- Alarm and incident statistics
- Asset KPIs including: UPS age and efficiency, battery age, and cooling performance



Helping you to be a sustainable company

Environmental regulations are driving the reduction of high GWP (Global Warming Potential) F-gases in refrigeration solutions. Moreover, stringent environmental regulations for the management of batteries and electrical/electronic waste are being enforced around the world.

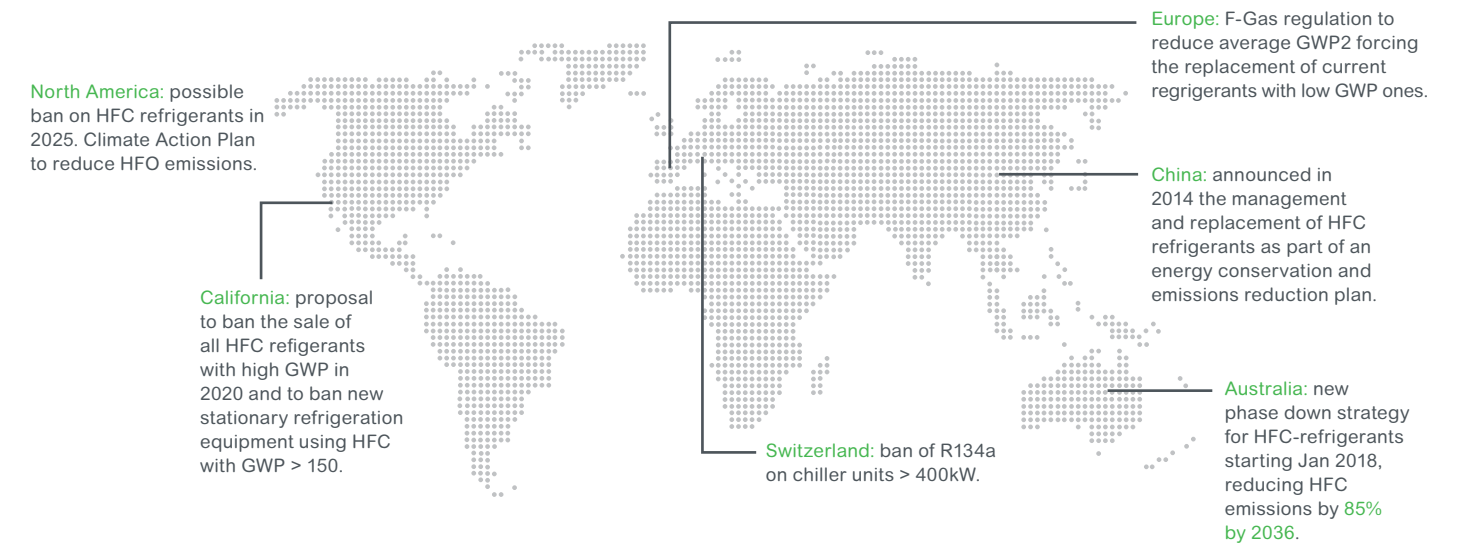
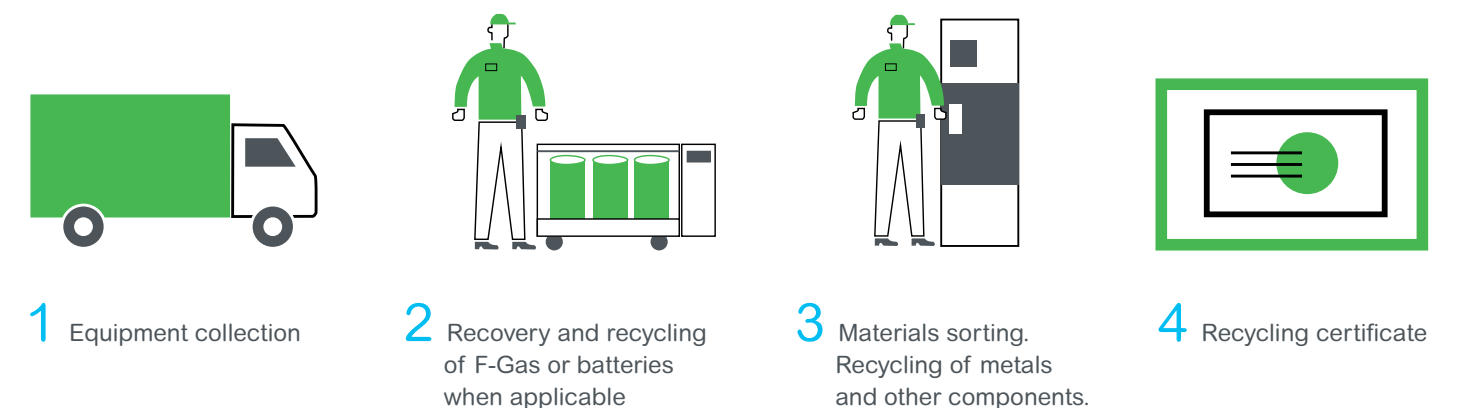


Figure 1 - Worldwide refrigerant regulations.

Stay eco-friendly by recycling outdated equipment

We offer you:

- Managed waste disposal
- Certified environmental compliancy
- Support reaching your sustainability goals
- One-stop solution with UPS and cooling recycling services



Life Is On



Learn more about Modernization Services today!

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Schneider Electric

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