

**gogoro network**

## Battery Swapping Traffic Light UPS

2022 Taipei Smart City Innovation Award: Distinction

Gogoro Network

## About Gogoro

Founded in 2011 to rethink urban energy and inspire the world to move through cities in smarter and more sustainable ways, Gogoro leverages the power of innovation to transform the way electric fuel is distributed and consumed.

Our intelligent battery swapping and vehicle platforms offer a smart, proven, and sustainable long-term ecosystem that's accelerating the shift to electric urban mobility.

We've quickly become an innovation leader in connected vehicles, electric propulsion, smart battery design, battery swapping, and advanced cloud services that utilize artificial intelligence to manage battery availability and safety.



Rethinking  
Urban Energy.



## About Battery Swapping Traffic Light UPS



The Traffic Lights UPS is equipped with two swappable Gogoro Smart Batteries, which can potentially power the traffic light for at least 3.5 hours or longer.

The UPS is connected with a monitoring system which provides real time monitoring of the service availability of the UPS and batteries.

The operation maintenance team will be notified with alerts in case of any.

In the event of power outage lasting more than the batteries can last, the maintenance team can go and swap the batteries with two freshly charged ones to continue the functionality of the traffic light.



## Traffic light must stay operational at all times

# Government Requirement

Traffic lights at major intersections must remain operational

- **Critical Risk:** Power outage disturbs traffic lights, which will endanger drivers and pedestrians
- During power outage, traffic accidents increase
- Deploying police at impacted intersections is not a practical and efficient solution
- Diesel generators used as a backup power source induce both air and noise pollution





## Swappable EV batteries for Traffic Light UPS

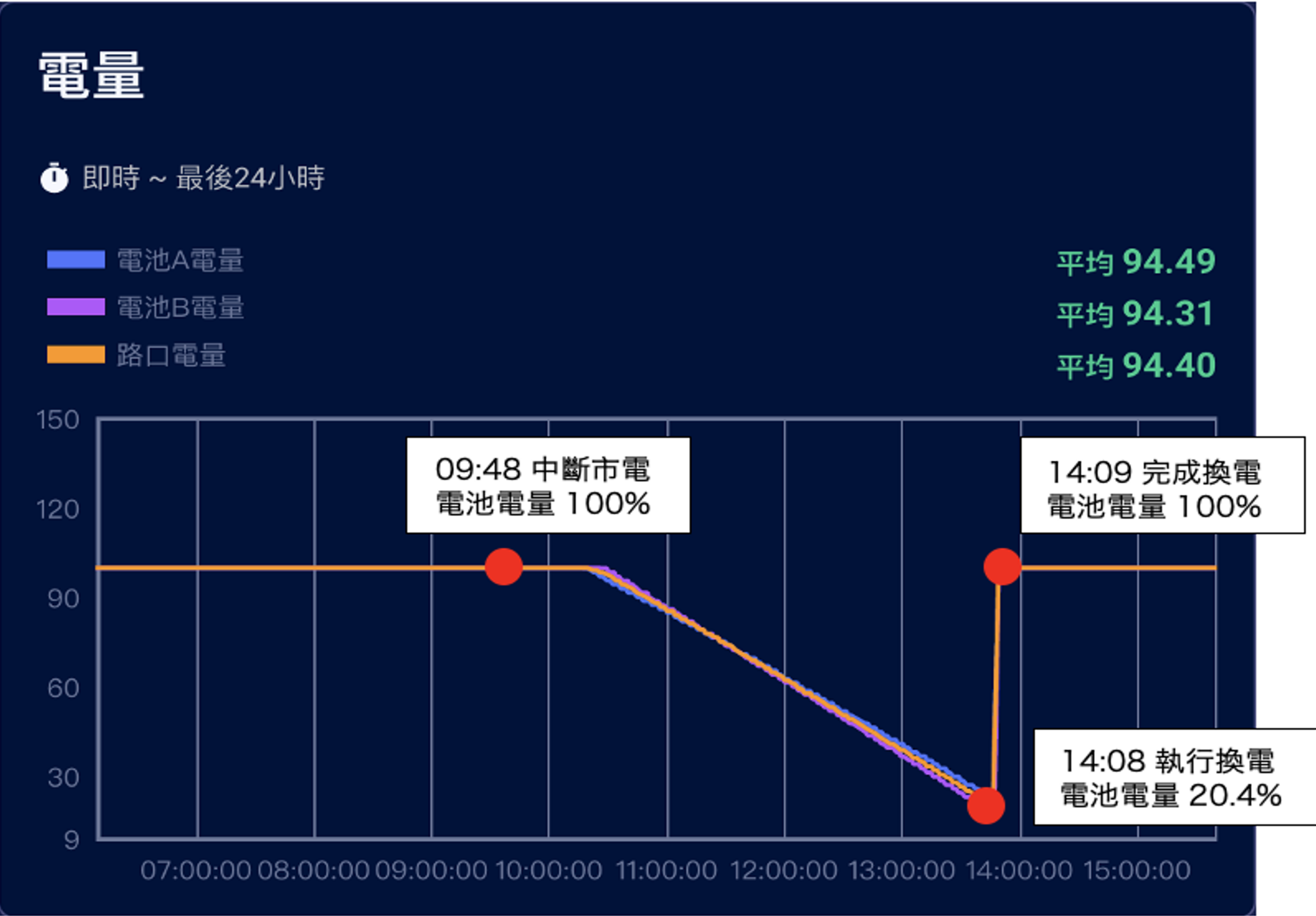
### Innovative Application

### Swappable EV batteries for Traffic Light UPS

- **High efficiency:** e-scooter batteries have high energy density and can store more energy in the given volume.
- **Swappable:** When power outage last too long, the batteries can be swapped with freshly charged one to extend the UPS service time immediately.
- **Hot-swappable:** Two batteries can be connected in parallel. In the event of a power outage at an intersection, UPS batteries can be swapped without interrupting the traffic signal.



# After battery swap the traffic light UPS is immediately back with 100% power



- For any battery, its energy power will eventually run out after a long period of power outages
- Only the Battery Swapping Traffic Light UPS can instantly restore the backup power to 100% after a battery swap.
- The photo shows a testing case of the traffic lights UPS at an intersection in Taipei on December 27th, 2022.





# Operation Team Receives Real Time Status of UPS on LINE

Example: UPS in Taipei City on December 27, 2012

Time	Live action	LINE message
09:48	Simulate a power outage and enter UPS mode	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】市電輸入異常</div><div>上午 9:48</div></div>
12:33 12:44	Alarm when the power is lower than 50%	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】〔TWA015B2308G〕電池電量低於50%</div><div>下午 12:33</div></div> <div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】〔TWB01741701E〕電池電量低於50%</div><div>下午 12:44</div></div>
UPS provided power for 3 hours		

Time	Live action	LINE message
13:22	Alarm when the power is lower than 30%	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】〔TWA015B2308G〕電池電量低於30%</div><div>下午 1:22</div></div> <div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】〔TWB01741701E〕電池電量低於30%</div><div></div></div>
14:08	The maintenance team begin to battery swap	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】《換電通知》開始換電！</div><div></div></div>
	The maintenance team complete battery swap	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】《換電通知》結束換電！</div><div>下午 2:08</div></div>
UPS provided power for 4 hours and 21 minutes		
14:09	Restore normal power supply	<div><div>LINE Notify</div><div>【UPS-重要提醒】【敦化長春路口】市電輸入恢復正常供電</div><div>下午 2:09</div></div>



## Piloting the Traffic light UPS over 1 year

- December 2011 to February 2023
- Total of 3 intersections were equipped with the UPS
- The UPS was tested and verified by a real power outages on March 3, 2022.



忠孝東路、松山路口



敦化北路、長春路口



光復北路、健康路口



## Gogoro Battery Pack Global Certification

Gogoro has been a leader in battery innovation and safety and its smart batteries have received certification for a number of global battery standards.

- [the UN 38.3](#) Global Battery Transportation Standard
- [the UN/ECE R136](#) Safety Requirements with respect to the Rechargeable Electrical Energy Storage System (REESS) of vehicles
- [the IEC 62133](#) European Battery Safety Requirements Standard
- [the CNS 15387](#) Taiwan Safety Standard for Secondary Lithium-ion Batteries for Electric Vehicles



136RES-000002



# From Mobility to Non-Mobility

## More Possibilities of Gogoro Smart Battery



Power for e-scooter



Gogoro Smart Battery



Power for public facilities



Thank You.

**LET'S GO!**

gogoro