ACFR®

ALUMINUM CONDUCTOR FIBER REINFORCED

Solution for network problems High capacity conductors to double the HV and MV network transmission

TRI TOKYO ROPE INTERNATIONAL

TOKYO ROPE INTERNATIONAL INC.

Transmission & Distribution Networks are challenged

TOKYO ROPE INTERNATIONAL

- Wind & solar farms are coming online, often in areas with weaker networks
- Increase in power consumption in general
- Deregulation and competition is changing the power flow
- It is difficult to obtain permission for new lines
- Many conductors are reaching end of life
- A move towards electrical vehicles will further increase and change the power flow

Source : Albaenergy

Source : NGS

Source : Jawa-auto

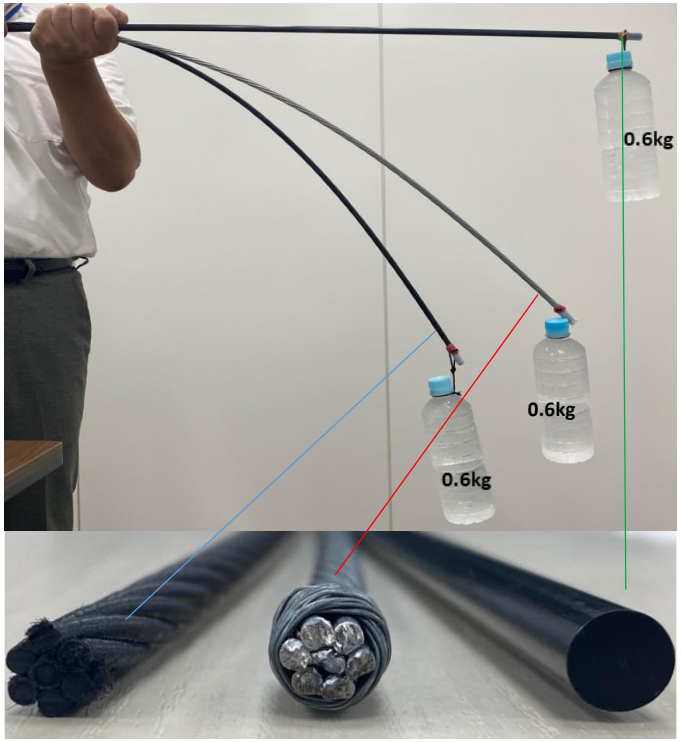
Conductor Design

- Carbon Fiber Composite Cable core
- 7 strand core in several sizes
- Low weight & low expansion
- Flexible & robust

- Fully annealed 0-temper aluminum
- Thermal resistant aluminum

- Trapezoidal shaped wires
- Round wires

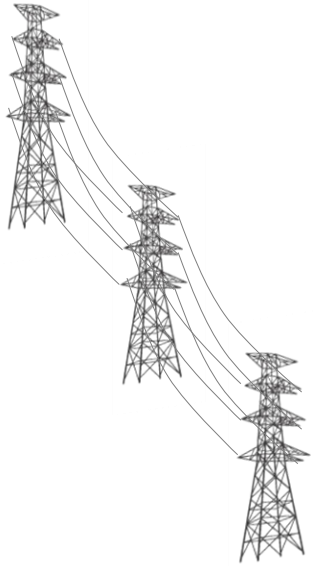
- Easy installation
- Conventional equipment
- Conventional hardware design



New Solution for Renewable Energy

Connect

National Grid



Renewable Energy = Volatile due to weather

Low Loss Use

High Capacity Use

ACFR : Good solution to absorb the volatility of electricity generated by Renewable Energy facilities

Design Example: ACSR vs ACFR

TOKYO ROPE INTERNATIONAL

Type		Size	Dia.	Operating Temp.	Transmission Loss	Transmission Capacity	Sagging	
							Reconduc-toring	New Line
ACSR	"Conventional“	Zebra (430/55)	28.62	75 °C	Standard	Standard (700A)	Standard	
ACFR	"Low Loss"	Zebra Eq. (542/56)	28.62	**67 °C**	**26% Less**	Same (up to +29%)	Same	**16% Less (700A)**
	"High Capacity"	Zebra Eq. (494/95)	28.62	**180 °C**	More (※)	**More than double (218%)**	Same	**26% Less (700A)**