e-distribuzione

ARISE Case Studies in Disaster Risk Management

Salerno and Palermo projects – e-distribuzione s.p.a

The "Salerno" and "Palermo" projects represent an optimal example of targeted interventions on the high, medium, and low voltage grids with the aim to improve customer experience while enhancing resilience. The projects have been designed considering a broad perspective on well-defined areas, improving the quality of electrical service, introducing innovative technologies, and increasing network efficiency. Due to the synergy with the different institutional territorial stakeholders, activities have been carried out promptly and with particular attention to local needs and positive environmental impact.

RISK	ACTION	IMPACT	OUTPUT
The two geographical areas covered by the projects have great importance in terms of residential and industrial customers, including tourist sites of international relevance. In this frame, the electrical grid must assure a high quality of service in order to improve overall customer experience while reducing the impact of faults on the system. Moreover, the presence of concentrated or variable electric loads requires greater operational flexibility allowing a greater power availability on the network and decreasing the failure times in case of accidental or extreme weather events such as high temperatures, which can affect the performance of the grid.	New medium voltage (MV) lines have been realized mainly in underground cables, while new satellite centers with high-reliability dedicated lines, have increased load distribution, and reduced impact of faults, through innovative remote control technologies. SALERNO PROJECT: - 7 renewed primary substations with increased power for customers - 6 new satellite centers - 80 km of new MV lines - 18 secondary substations renewed - 150 remote controlled substations PALERMO PROJECT: - 1 renewed primary substation - 2 new satellite centers - 10 km of new MV lines - 171 renewed secondary substations - 465 remote controlled low voltage (LV) switches	250.000 LV and 700 industrial customers involved in Salerno Project 15.000 LV customers involved in Palermo Project. An open interaction with local stakeholders and public authorities ensured or facilitated projects delivery on time and in budget. e-distribuzione took great attention to the environmental impact, focusing on historic areas, where buildings have been preserved and ancient artifacta have been recovered.	Optimized power consumption of MV lines and increasing network operating flexibility. Improving power availability on the network and better reliability of primary substations. Increased service quality thanks to reduction in number of interruptions (65% Salerno, 50% Palermo) and average duration of faults (30% Salerno and 50% Palermo).

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Lessons Learned

The two projects respond to the need to reinforce and optimize the power grid of targeted areas, to improve customer experience while enhancing resilience. The successful outcome of the project is directly related to the application of a model of integrated interventions with high relevance.

BUSINESS CASE

The value coming from the technical interventions to the selected portions of power grids lies in:

- a sensitive reduction of number and duration of faults
- an increase of the quality of the service.

All of the interventions were carried out with a reduced environmental impact, confirming together with the increase of the technical performance of the power grid, e-distribuzione's willingness as a long term investor to constantly invest in enhancing resilience.

REPLICATION OPPORTUNITIES

The interventions carried out can be replicated in areas with similar needs in terms of quality of the service. The lessons learned from these projects could be also helpful in the design phase of the power grid in new portions of urban areas.

How does the project support the implementation of the Sendai Framework targets?

1	*Reduce disaster mortality by 2030*		In the urban areas selected for the technical interventions on the power grid, in case of accidental damages the cumulative number of people affected by interruptions of the service will be reduced in comparison to the situation before the interventions. Thanks to the technical improvements, the power grids are more resilient in case of severe meteorological events.
2	*Reduce number of affected people by 2030*	X	
3	*Reduce economic loss by 2030*	X	
4	*Reduce infrastructure damage and disruption of services by 2030*	X	
5	*Increase countries with DRR national/ local strategies by 2020*		
6	*Enhance international cooperation to developing countries*		
7	*Increase the availability of and access to EWS* and DR information to people by 2030*		

How does the project contribute to the ARISE Themes?

1	*Disaster Risk Management Strategies*		The case of e-distribuzione can be for sure used as a benchmark for this kind of interventions in urban areas, that contribute to urban risk reduction and resilience.
2	*Investment metrics*		
3	*Benchmarking and Standards*	X	
4	*Education and Training*		
5	*Legal and Regulatory*		
6	*Urban Risk Reduction and Resilience*	X	
7	*Insurance*		

For More Information

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