

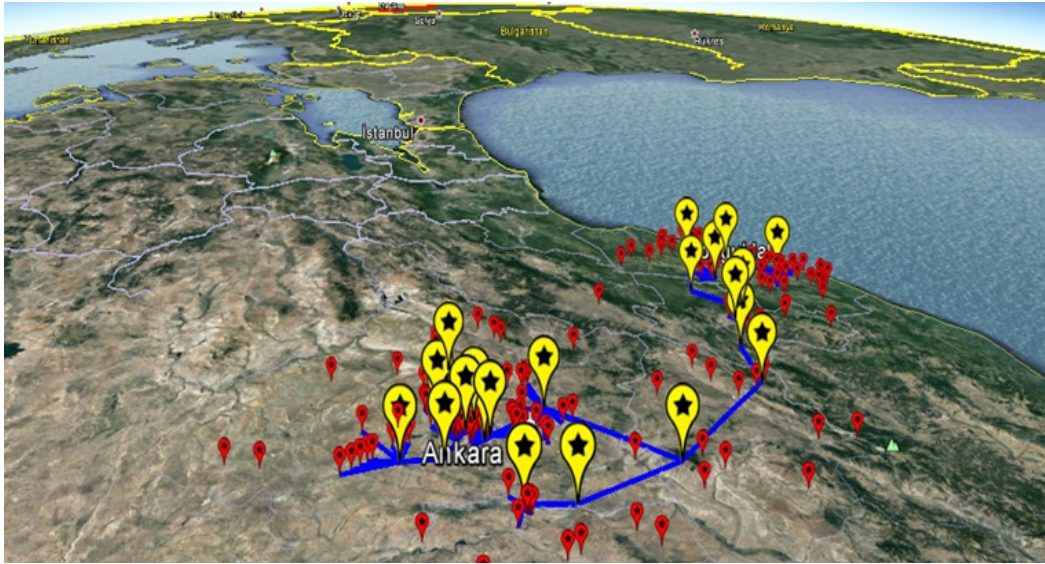
4RF Aprisa SR+ Delivers Reliable, Fast and Cost Effective Solution for Power Distribution Companies

Enerjisa was founded in 1996 as an autoproducer to meet the electricity needs of Sabancı companies. Today, Enerjisa has become a market leader in the electricity energy sector with a strategy based on vertical integration including production, distribution, wholesale and retail trade.

As of April 2013, E.ON, one of the largest private electricity and gas companies in the world, has completed 50% partnership with Enerjisa. In 2009, Enerjisa took over Baskent Electricity Distribution Inc. after the first electricity distribution privatization in the sector. In 2013 Enerjisa took over Ayedas and Toroslar EDAS. Enerjisa currently reaches 9 million customers in 14 provinces and provide distribution services to approximately 20 million users in Turkey.

- Baskent Electricity Distribution Inc. is serving the cities of Ankara, Bartın, Çankiri, Karabük, Kastamonu, Kirikkale and Zonguldak
- Ayedas is serving the Anatolian Side of Istanbul city
- Toroslar EDAS is serving the cities of Adana, Gaziantep, Hatay, Kilis, Mersin and Osmaniye

Enerjisa aims to provide European standard distribution services to the distribution system users in the region by taking advantage of new information systems infrastructure projects based on SCADA, GIS, OSOS and workforce management systems in the capital, as well as Ayedas and Toroslar distribution regions.



4RF APRISA SR+ FORMATION OF ELECTRICITY DISTRIBUTION UNITS

Noting that the SCADA system has been of primary importance to its sectors since its establishment, Enerjisa officials say that with SCADA consumers can immediately be informed of the interruptions, and SCADA makes it possible for Enerjisa to raise their operational quality and efficiency to a higher level. With earlier experience of the IEC 60870-5-101, 102, and 103 protocols, in the new Başkent and Ayedas distribution automation SCADA projects for controlling re-closers, capacitor banks, etc. Enerjisa decided to use the IEC 60870-5-104 protocol to benefit for example from the higher speed and freedom of unsolicited remote terminal reporting. Private 400 MHz licensed band radio was the selected technology to overcome the public networks availability and security issues. Radios are used at all new sites and to replace all current leased line communications.

Case study



“

We selected 4RF radios after careful consideration and the 4RF Aprisa SR+ has proven to be the best choice for modern wireless SCADA communications. The Aprisa SR+ provides all the features and performance needed to support Enerjisa requirements. We are very happy with the product quality and support 4RF has delivered.

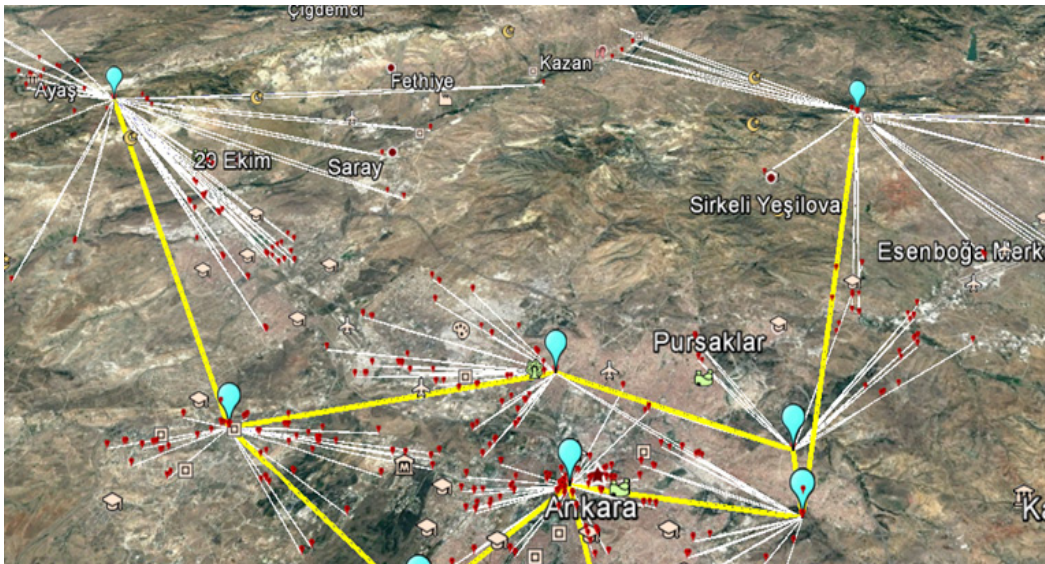
”

Cem Ankara
 Managing Partner
 Novatel Haberleşme Çözümleri A.Ş.

The 4RF Aprisa SR+ radio was selected due to its high speed and comprehensive security features such as AES 256 data encryption and device, user and data authentication. In their legacy SCADA system, Enerjisa was previously able to reach a maximum of 19.2 kbit/s data speed on a 25 kHz RF channel, but can now reach up to 120 kbit/s over-the-air data rate on the same 25 kHz channel using the 4RF Aprisa SR+ radio.

The other Aprisa SR+ benefits recognized during the selection include the various traffic optimization techniques such as filtering and the 4RF proprietary Access Request MAC which enables efficient network usage also in heavy load situations. The Aprisa SR+ radio is capable of simultaneously supporting the legacy serial and modern IP based protocols, hence offering a total platform for migrating toward an all IP SCADA system. The SNMP based AirSync5 network monitoring system is used for centralized monitoring of all radios in the network.

While a total of nearly 30 hot-standby redundant 4RF Aprisa SR+ Protected Stations and close to 400 Aprisa SR+ remote radios are located in seven villages, the backbone structure has been established with Cambium Networks microwave devices to bring the data from the UHF master premises to the control center. Cambium Networks PTP 650 was selected for backbone due to its 256 bit AES encryption, the 450 Mbit/s supported data speed, and the automatic channel change in case of interference in the assigned data transmission channel.



For further backup, Cisco 3650 switches with dynamic routing codes are used to provide complete backup of the network. With the Cisco-specific EIGRP dynamic routing protocol on the Cisco 3650 switches, the most appropriate Path to the SCADA control center of the data is dynamically selected to secure successful data transmission.

As a result the 4RF Aprisa SR+, Cambium Networks and Cisco coexistence has been designed to form a reliable system offering information security and fast data transmission, with robust and redundant structures.

Cisco is a registered trademark of Cisco Systems, Inc.

Cambium Networks is a registered trademark of Cambium Networks

AirSync5 is a trademark of Proximetry, Inc.



Aprisa SR+



NOVATEL

NOVATEL is one of Turkey's leading wireless telecommunication systems supplier specialising in the design, supply, installation, commissioning and maintenance of wireless voice and data networks. Established in 1998, NOVATEL provides robust communications platforms for people on the move and for reliable wireless access.

ABOUT 4RF

Operating in more than 140 countries, 4RF provides radio communications equipment for critical infrastructure applications. Customers include utilities, oil and gas companies, transport companies, telecommunications operators, international aid organisations, public safety, military and security organisations. 4RF point-to-point and point-to-multipoint products are optimized for performance in harsh climates and difficult terrain, supporting IP, legacy analogue, serial data and PDH applications.

Copyright © 2017 4RF Limited. All rights reserved. This document is protected by copyright belonging to 4RF Limited and may not be reproduced or republished in whole or part in any form without the prior written consent of 4RF Limited. While every precaution has been taken in the preparation of this literature, 4RF Limited assumes no liability for errors or omissions, or from any damages resulting from the use of this information. The contents and product specifications within it are subject to revision due to ongoing product improvements and may change without notice. Aprisa and the 4RF logo are trademarks of 4RF Limited.



For more information please contact
EMAIL: sales@4rf.com
URL: www.4rf.com

Version 1.0.0