

## **Solutions for Digital Interaction of a Resilient Energy Community in a Service-oriented Framework**

M. Sanduleac, C. Ionescu, A. Mandis, V. Gropa, C. Efremov and V. Sanduleac, "Solutions for Digital Interaction of a Resilient Energy Community in a Service-oriented Framework," 2022 International Conference and Exposition on Electrical And Power Engineering (EPE), Iasi, Romania, 2022, pp. 1-6, doi: 10.1109/EPE56121.2022.9975792.

### **Mihai Sanduleac**

Department of Power Systems, Faculty of Energy Engineering, University Politehnica of Bucharest, Bucharest, Romania

### **Constantin Ionescu**

Dep. of Energy Generation and Use, Faculty of Energy Engineering, University Politehnica of Bucharest, Bucharest, Romania

### **Alexandru Mandis**

Department of Power Systems, Faculty of Energy Engineering, University Politehnica of Bucharest, Bucharest, Romania

### **Victor Gropa**

Faculty of Energetics and Electrical Engineering, Technical University of Moldova, Chisinau, Republic of Moldova

### **Cristina Efremov**

Faculty of Energetics and Electrical Engineering, Technical University of Moldova, Chisinau, Republic of Moldova

### **Vlad Sanduleac**

Department of Computer Science and Engineering, Faculty of Automatic Control and Computers, University Politehnica of Bucharest

### **Abstract:**

Energy communities are emerging entities which need their own Information and Communication System. Resilience is a key metric of such communities, and it has to be implemented for both energy supply versus public network outages and for its information system versus cyber-attacks, acting as cyber-citadels which have to resist external malicious attacks while having also digital interactions with external entities. The paper presents solutions for a resilient energy community with appropriate implementations of digital interaction for data exchange, in order to acquire external energy service for specialized companies and to deliver also information and communication-related services for external users. Principles of a Contractual Data Protection Regulation are presented, as an adaptation of data protection tailored for automated energy services and based on secure data exchange. The principles are verified in a demonstration project which has also external entities with digital interaction.

