

SmartEnC

Athens Forum

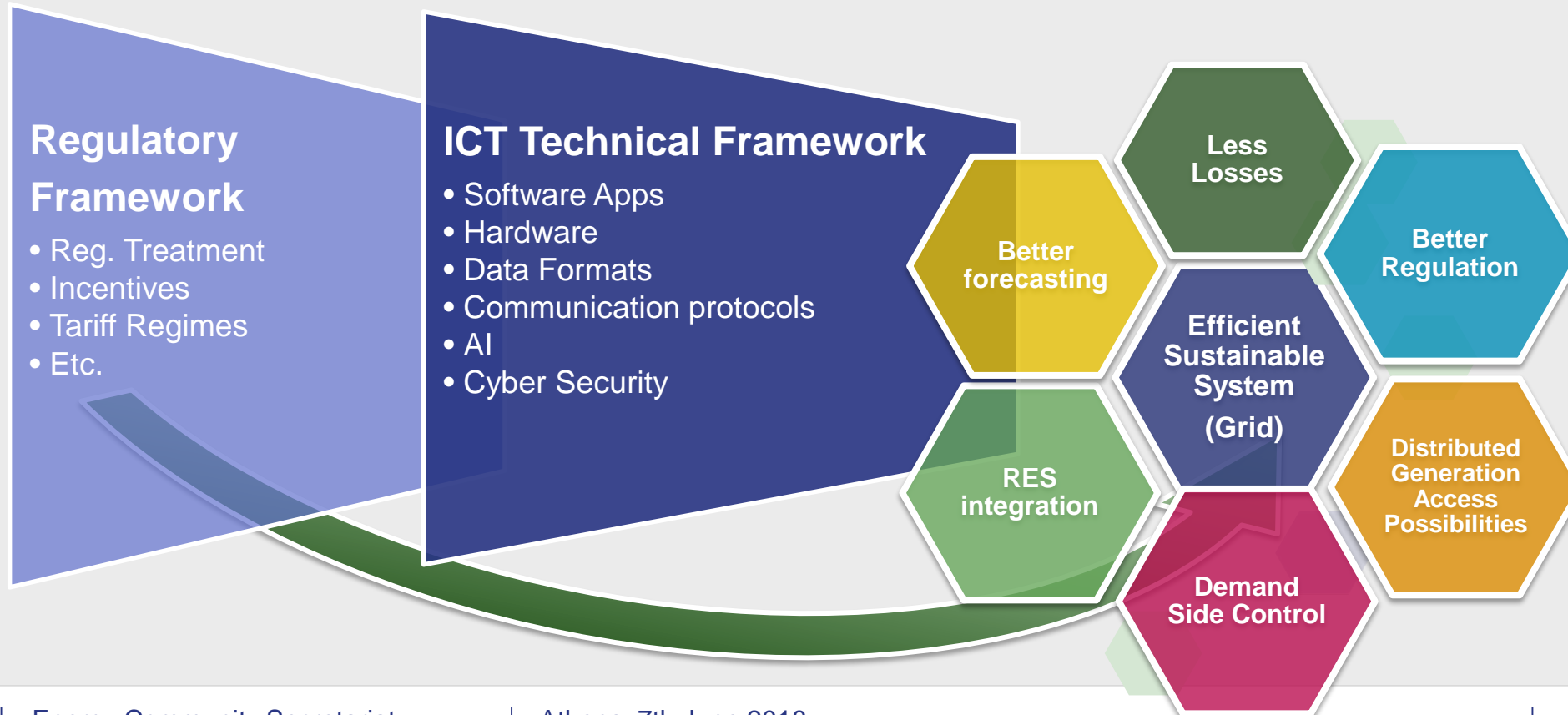
SmartEnC – SMART WAY FORWARD FOR THE ENERGY COMMUNITY

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Athens, 7th June 2018

Why is SmartGrid concept important

The „colourful“ world of an improved Energy System efficiency...



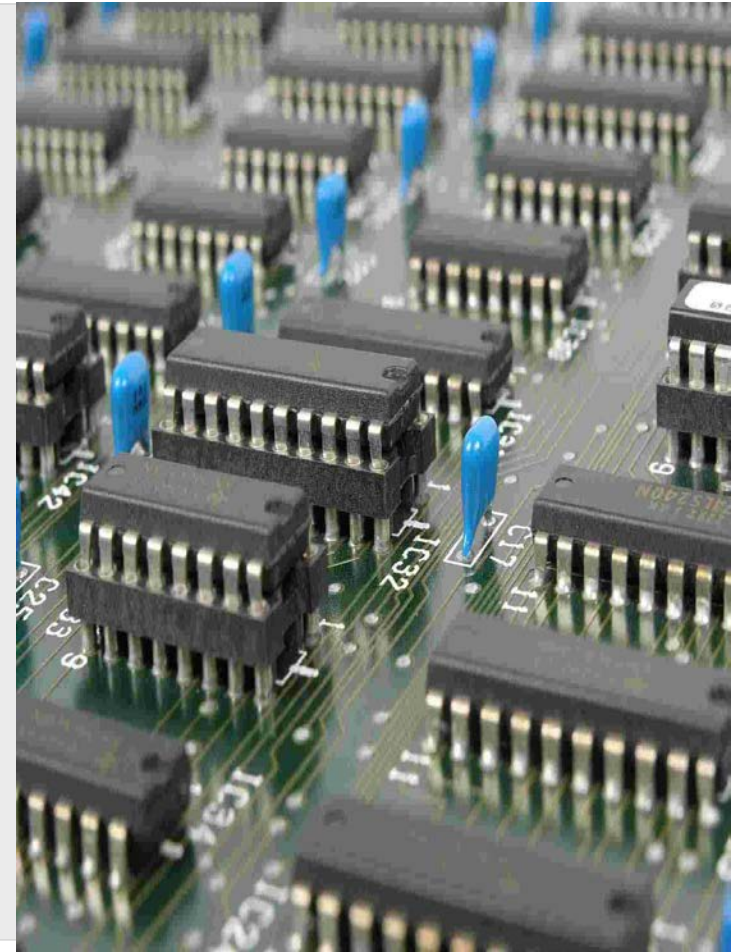
Smart Grid concept, known ... but still new...

Smart Grid concept is actually already well known to the electricity generation, transmission and distribution sub-systems...

SCADA - EMS – MMS – AGC – SC...

As defined by the International Energy Agency, “a Smart Grid is an energy network that uses digital and other advanced technologies to monitor and manage the transport of energy from all generation sources to meet the varying energy demands of end-users”.

Smart Grid is a new name for the concept already partially present on the TSO, DSO and energy production level, with the intention to introduce new players, new mechanisms and new technologies into the overall „smart“ picture...





Proposed concept identifies directions in which enrichment of the existing systems should move in order to establish a full Smart Grid concept in the EnC region, so called SmartEnC:

- improvements of the existing IT systems,
- introducing consumers and distributed generation, prosumers, as new entities in the overall system,
- reestablishment and introduction of new communication channels and data exchanges between TSOs and DSOs, as well as introduction of the prosumers and other market players into the overall communication scheme,
- development of necessary data exchange formats (introducing weather data...), and
- the last layer, sort of the „blanket“ necessary for the overall new IoT based technology and concept, introducing Cyber Security to the overall picture.

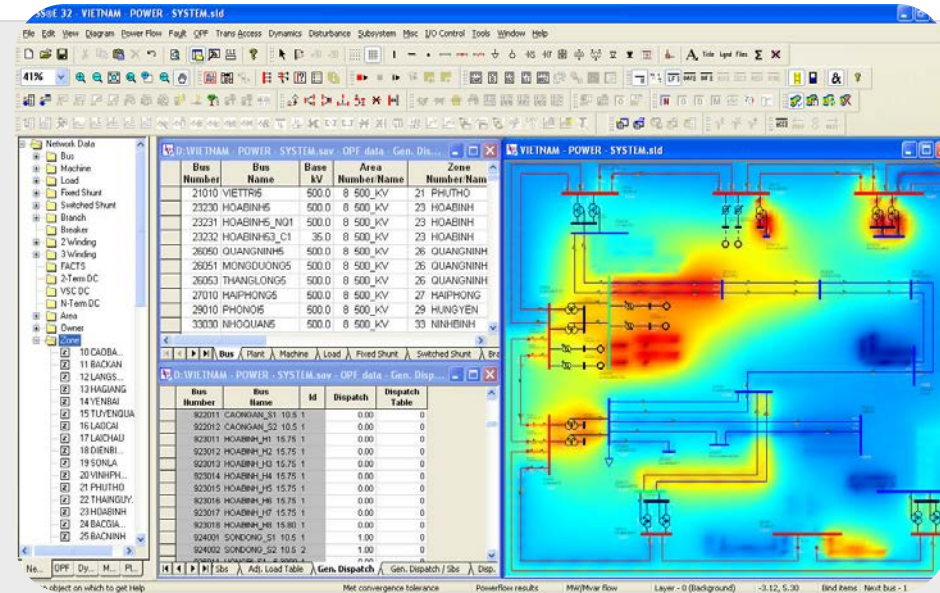


► **Barriers to implementation:**

- System security – system complexity impacts the interruptions,
- Cyber attacks/security,
- Cost efficiency,
- Smart devices can use greater quantities of energy,
- Technical developments elsewhere in system can impact losses,
- Efficient utilization of network capacity can increase losses,
- Embedded generation can increase losses.

Directions and barriers (SOLUTION)

- o *designated regional Task Force,*
- o *needs to cover transmission, distribution and...*
- o *ensure correct incentives in a regulatory framework,*
- o *develop the regional Smart Grid strategy (projects pipeline, ToRs, coordination...),*
- o *form basis of assessment of a potential and individual impact of each measure/project.*



$$\begin{bmatrix} f_1^0 \\ f_2^0 \\ \vdots \\ f_n^0 \end{bmatrix} + \begin{bmatrix} \left(\frac{\partial f_1}{\partial x_1}\right)^0 & \left(\frac{\partial f_1}{\partial x_2}\right)^0 & \dots & \left(\frac{\partial f_1}{\partial x_n}\right)^0 \\ \left(\frac{\partial f_2}{\partial x_1}\right)^0 & \left(\frac{\partial f_2}{\partial x_2}\right)^0 & \dots & \left(\frac{\partial f_2}{\partial x_n}\right)^0 \\ \vdots & \vdots & \ddots & \vdots \\ \left(\frac{\partial f_n}{\partial x_1}\right)^0 & \left(\frac{\partial f_n}{\partial x_2}\right)^0 & \dots & \left(\frac{\partial f_n}{\partial x_n}\right)^0 \end{bmatrix} \begin{bmatrix} \Delta x_1^0 \\ \Delta x_2^0 \\ \vdots \\ \Delta x_n^0 \end{bmatrix} \approx \begin{bmatrix} 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix} \quad (6.56a)$$

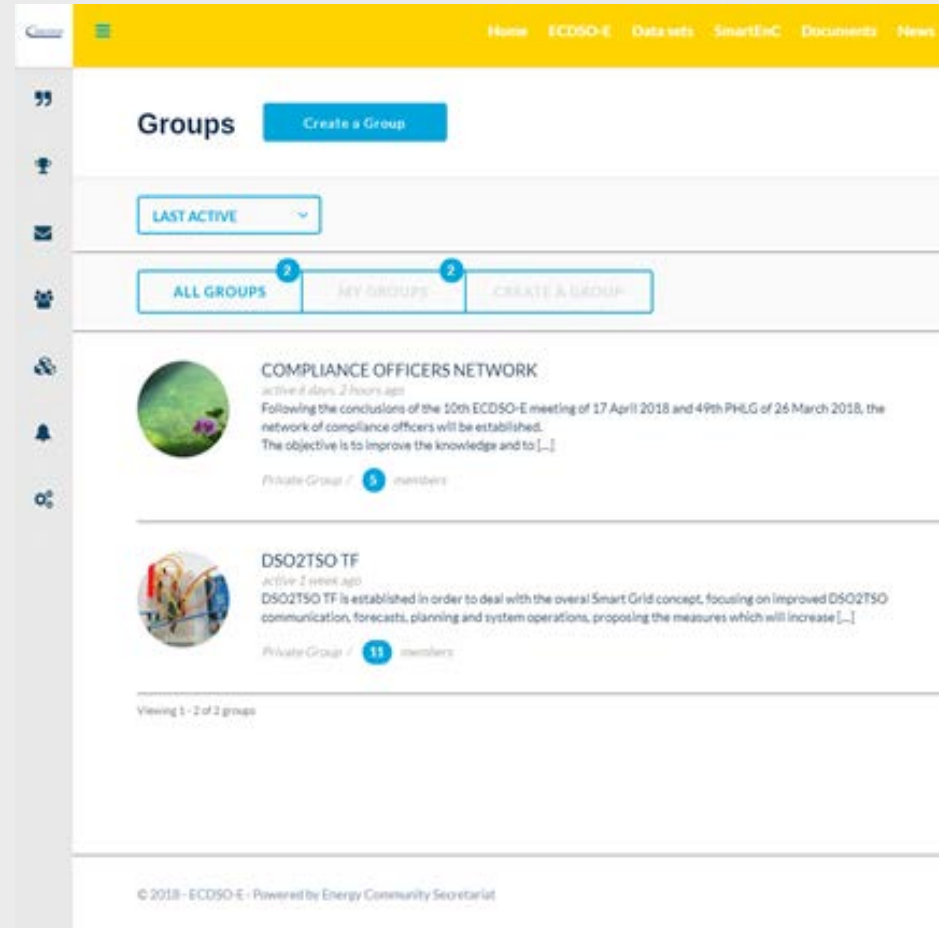


ECDSO-E

Energy Community Distribution System Operators web portal

**Welcome to the Energy Community Distribution System
Operators web portal**

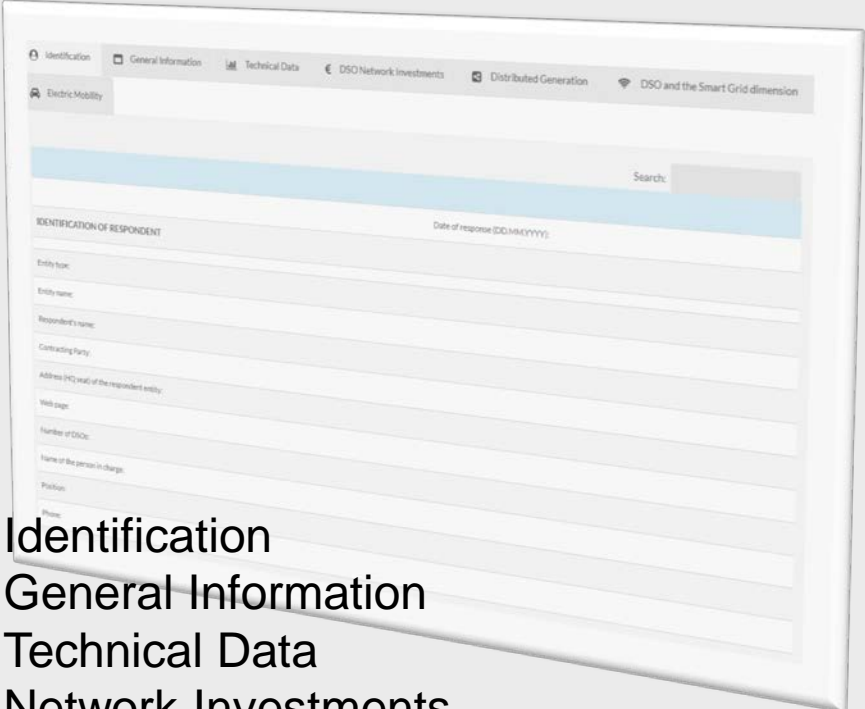
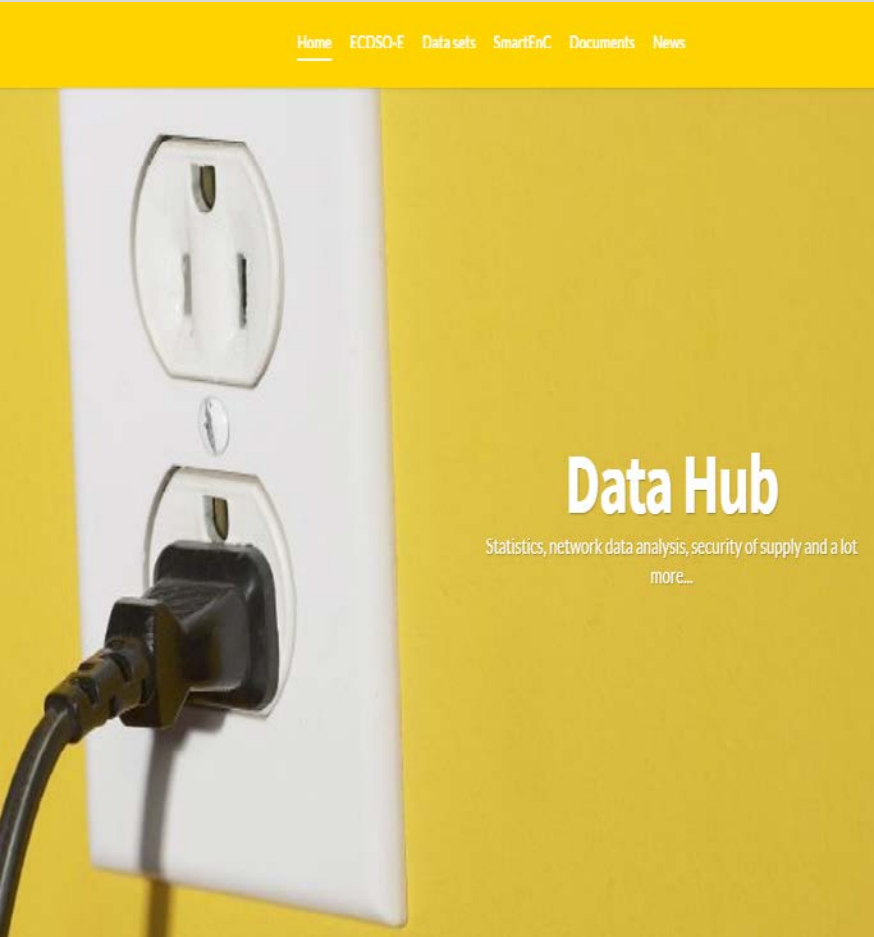
- networking and cooperation,
- virtual working group environment,
- dedicated discussion forums,
- materials exchange among group members (images, videos, documents...),
- collaboration on the same document,
- closed communication between the group members,
- data sets for each DSO (map, tables, charts...),
- projects monitoring (Gantt diagrams).



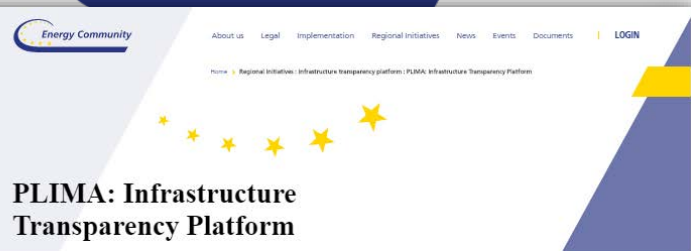
The screenshot displays the 'Groups' section of the ECDSO-E platform. At the top, a yellow navigation bar contains links for 'Home', 'ECDSO-E', 'Data sets', 'SmartEnC', 'Documents', and 'News'. Below this, the 'Groups' header is followed by a 'Create a Group' button. A dropdown menu is set to 'LAST ACTIVE'. Three filter buttons are visible: 'ALL GROUPS' (with a '2' badge), 'MY GROUPS' (with a '2' badge), and 'CREATE A GROUP'. Two group cards are listed:

- COMPLIANCE OFFICERS NETWORK**: active 8 days, 2 hours ago. Description: Following the conclusions of the 10th ECDSO-E meeting of 17 April 2018 and 49th PHLG of 26 March 2018, the network of compliance officers will be established. The objective is to improve the knowledge and to [...]. Private Group / 5 members.
- DSO2T5O TF**: active 2 week ago. Description: DSO2T5O TF is established in order to deal with the overall Smart Grid concept, focusing on improved DSO2T5O communication, forecasts, planning and system operations, proposing the measures which will increase [...]. Private Group / 13 members.

At the bottom, it indicates 'Viewing 1 - 2 of 2 groups' and a copyright notice: '© 2018 - ECDSO-E - Powered by Energy Community Secretariat'.



- Identification
- General Information
- Technical Data
- Network Investments
- Distributed Generation
- DSO and Smart Grid Dimension
- Electric Mobility



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PLIMA: Infrastructure Transparency Platform

Filters: Category



EL01 / Transbalkan Corridor: OHL B.Basta - Visegrad - Pijevlja

REG

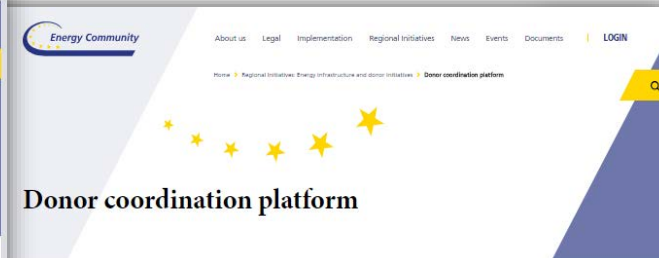


Serbia / Bosnia Herzegovina / Montenegro [Show on map](#)

Electricity Transmission 2023 FID

New 400 kV interconnection between Serbia, Bosnia and Herzegovina and Montenegro, which implies construction of a new double 400 kV OHL between SS Bajina Basta (Serbia), SS Visegrad (BiH), SS Bistrica and SS Pijevlja (Montenegro) accounts for one of the four first phase Transbalkan corridor infrastructure investment items, due to be completed by 2025.

[Read more](#)



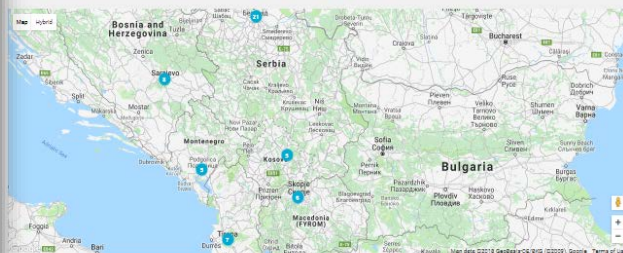
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Home > Regional Initiatives > Energy infrastructure and donor initiatives > Donor coordination platform

Donor coordination platform

Filters: Scope Country Category Donor



BEEP - Bosnia Energy Efficiency Project

NATIONAL

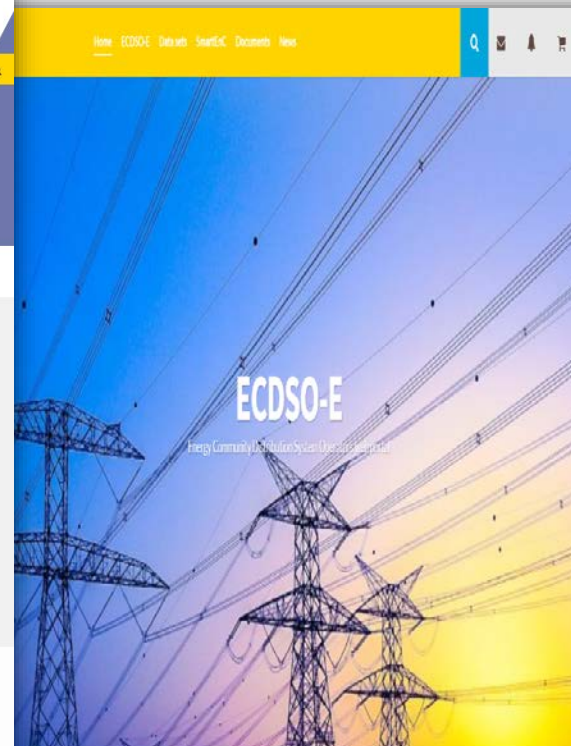
Bosnia and Herzegovina [Show on map](#)

Energy efficiency

[Read more](#)

Donation passport

Donor: IFU World Bank
 Starting Year: 2016
 Ending Year: 2019
 Budget: 11 mil. USD
 Type of Donation: Technical assistance and investment grants
 Status: Ongoing

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ECDSO-E

Energy Community Distribution System Development

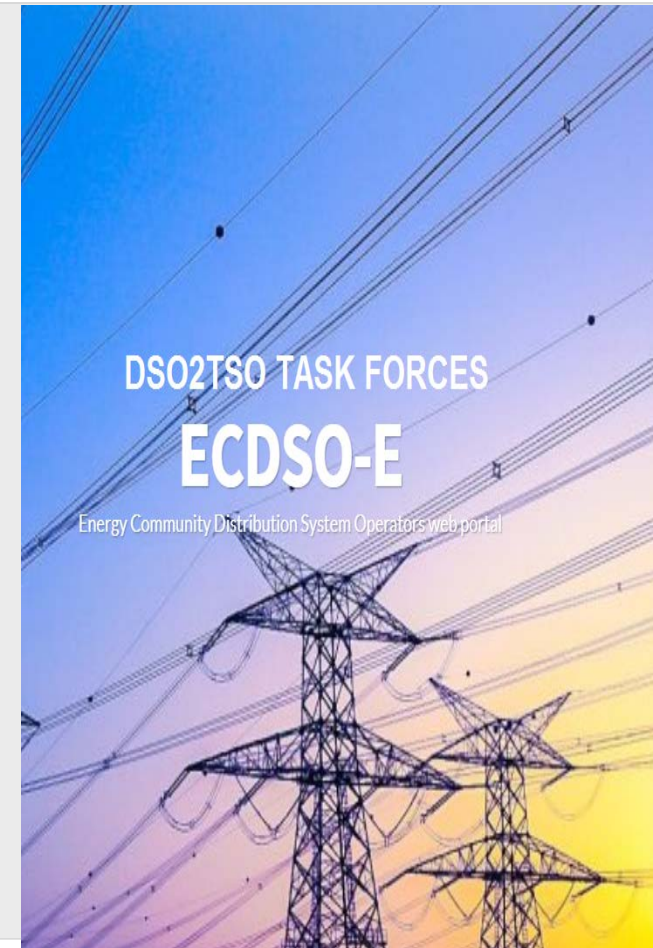
Welcome to the Energy Community Distribution System
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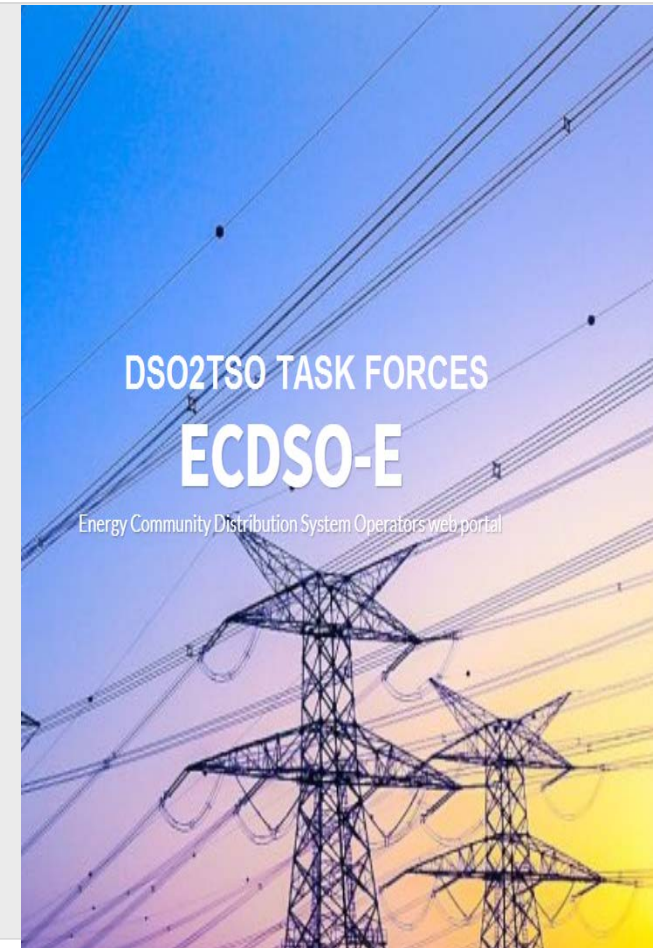
List of objectives/projects:

1. Improved DSO2TSO interoperability, communication, energy forecast and system operation/analysis/planning on a different time horizons (including demand side control),
2. Standard data exchange formats & common tools (Improvements in SCADA-Supervisory Control and Data Acquisition and WAMS-Wide Area Monitoring System,
3. Connection Codes Coordination,
4. Energy Infrastructure Cyber Security,
5. Quality of service on the interface.

- **Task 1 - Economy and viability of the smart grid projects:** addresses business and technology trends contributing to the overall energy system optimization at affordable investment and operational costs.
- **Task 2 - Digitalisation and Customer participation:** addresses the use and impact of the Information and Communication Technologies as a pervasive tool along the entire value chain of the power generation, transportation and **use**.
- **Task 3 - Storage technologies, generation flexibility and sector interfaces (gas&oil, electricity, district heating...):** addresses the technological and market developments related to energy storage solutions to ensure the required level of flexibility for the transmission and distribution of electricity.
- **Task 4 – Innovation, implementation and project management:** Creates a common platform for analysing the progress made with technologies through-out the EnC and facilitate their scalability. Build a methodology to judge system needs in the energy transition capable of identifying tangible needs for building on progress made ...



- **Task 5 - The National Stakeholder Coordination:** provides a sounding board and exchange platform for national stakeholders in the area of energy systems and networks. Its purpose and goal is to support the implementation of a SmartEnC concept. It enables national stakeholders to contribute actively and in a coordinated way. Reflecting and commenting on, from a national stakeholders perspective, the outcomes of the regional projects and TF work. Providing a platform for DSOs/TSOs/ECDSO-E/other stakeholders to find partners and experts from a national level that are ready to contribute to the TF activities, and projects. The coordination is organised and supported by Energy Community Secretariat.



ECDSO-E coordination group setup



- **Adopted scope of work and organisational structure**
- **Appointed governance structure**
- **Web portal for communication and data exchange developed**
- **Prioritised topics of interest**
- **Appointed convenors of the ECDSO-E Task Forces**
- **Appointment of the experts in the ECDSO-E task forces**



- *Experts, knowhow exchange*
- *Well defined Terms of reference*
- *Work plans*
- *Studies & reports*
- *Policy guidelines*
- *General terms & conditions*

The background is a satellite-style image of the Earth, showing the continents of Europe and Africa. Overlaid on this is a complex network of glowing blue lines that represent energy connections or data flow. These lines are curved and intersect, creating a sense of dynamic energy and global connectivity.

*Thank you
for your attention!*

www.energy-community.org