# DECENT.EC

**MET3R Solutions** 



## Decentralised Energy Communities

The European Commission has formalised the concept of energy communities under the the REPowerEU Plan.

The aim of energy communities is to enable collective and citizen-driven energy actions to support the clean energy transition. They can contribute to public acceptance of renewable energy projects and make it easier to attract private investments in the clean energy transition. Energy communities can help in re-structuring existing energy systems and empowering citizens to pursue initiatives that accelerate the green transition regionally. However, for energy communities to succeed, they need to be able to move beyond isolated local initiatives, to achieve network effects and attract capital expansion internationally.

DECENT.EC

01.

Energy communities need sophisticated grid controllers to bring about a more sustainable, resilient, and equitable energy future by empowering local stakeholders, promoting renewable energy adoption and increasing resilience through additional demand response flexibility.

02.

To achieve optimal integration of locally generated renewable energy, an Al-driven load flow model reliant on consumer data is essential. However, the stringent provisions of GDPR prohibit the collection of such data, as it encroaches upon personal privacy. Our proposition entails the adoption of decentralized identifiers, effectively segregating pertinent smart grid data from personal information. This approach empowers users to autonomously govern and monetize their data streams.

03.

A decentralized Energy Community with transparent transactions invites external investment in local energy infrastructure while ensuring majority ownership and governance remain within the community. Community-based (DAO like) decision-making empowers renewable energy community members to organize, vote on proposals, manage resources, and reinvest energy sales proceeds democratically.

## **Data Acquisition Devices**

https://shop.decent.ec

Our secure element-hardened Crypto RTU devices form a radio mash network operating in the **868** MHz ISM range. The devices use their cryptochip based decentralised identifiers (DIDs) to authenticate and communicate their data streams on a blockchain immutably and transparently.

See attached:

- Dena-DIVE project
- Decentralized Identities



## **Standards compliant web3**

https://switchboard.met3r.com/

Assets provisioned on the permissioned/permissionless blockchain use EIP712 signatures, ERC-20 tokens, ERC-725 DIDs under the hood. They expose and consume standard MQTT data streams so as to be managed with run-off-the-mill IoT tools.

See attached:

- Provisioning dApp
- Switchboard





## **Community Portal**

https://portal.decent.ec

Wallet-integrated Community Portal for the tokenization of data and energy adds to the infrastructure for DAOgoverned energy communities. The transaction transparency inherent in blockchain-based energy management does not only enable decentralized rule-based decisionmaking but also provides an avenue for external investment.

See attached:

- Login-register
- Data market





### **EMS Dashboard**

https://zensite.met3r.com

We offer connectors for two opensource smart energy IoT platforms (ThingsBoard and OpenRemote) for Advanced Energy Management. Administrators can use these well documented tools for monitoring, controlling and managing the connected distributed energy assets.

See attached:

IOT-Dashboard

- Forecasting
- Extensions
- Rules Editor



![](_page_6_Picture_0.jpeg)

https://zengrid.met3r.com

¢

METER SOLUTIONS

Our sensors and load-control provide functions for low voltage grid management as well. Strategically placed micro PMUs localize failures and monitor Power Quality events. The system offers predictive maintenance and local voltage control as well.

See attached:

- Local voltage regulation
- Load-flow modelling
- transactive grid
- Prioritizing Renewables

#### HÁLÓZATFELÜGYELET, ÁLLAPOTBECSLÉS

![](_page_6_Figure_10.jpeg)

METER SOLUTIONS

### **Compute Terminal**

https://awx.decent.ec

![](_page_7_Picture_2.jpeg)

As a (prospective) administrator of a decentralized energy community you get access to the Compute Terminal. This interface lets you run computation intensive calculations, simulations, algorithms. Invoice calculation is a typical one but we also have a real-time adjusted recurrent neural network for loadflow modeling which informs our storage scheduler, etc.

See attached:

- Compute Terminal
- Real-time Load-Flow Modelling •
- **BESS** optimization algorithm •
- Custom dashboards

#### DECENT.EC

2.1.3 Execute functions for plotting the average consumption for each day of the week

#### # Plotting the data

plot\_monthly\_consumption\_adjusted(avg\_15min\_weekly\_monthly\_consumption, all\_consumption\_columns) plot stacked consumption(avg hourly weekly monthly consumption, all consumption columns, "Hourly", chart\_type="monthly") plot\_stacked\_consumption(avg\_daily\_weekly\_monthly\_consumption, all\_consumption\_columns, "Daily", chart\_type="monthly")

![](_page_7_Figure_13.jpeg)

Python

				Energy as:	sets
et up or edit your EC profile				Communit	У
				<ul> <li>Billing</li> </ul>	
Basic details				亞 Toolkit	
Name of EC					
My domain		Language			
	.decent.ec	Bulgarian			
Country		TSO			
Austria	*	Tso 1			
Energy community type		Types of membersh	p		
Renewable energy community	· ·	Type 1			
Choose theme					
Green (default)	Lavender		Cyan		
Green (default)	Lavender		Cyan		
			-		
Modern	Red		Elegant		
	riandorfejérvár	ka-		Dijbeszedő Holding A' épület	
a in the state of	tutca Berestyin jätsette	kap- ose location Estile Buterhu		Dijbeszető Holding A' épület DBRT - Feldolgozó kzp.	E
auros pitante Cincipios Logo (optional)	Mandarleyénar Choo Sa Barestylen jetszőtés	Age ose location Estie Butern		Dijberszedő Holding A épület DBRT - Feldőjaző kap. Tapbox © OpenStreetMap	E
Andrew Assessments	Iurca Barentyin yitzelen	Asy ose location Estile butters	:	Diperced Holding A' épület DBRT - Fatologias kap. fatologias Arp. fatologias Arp.	E
And	Luca Bureaviers Mader for der	Au- pose location Earlie Buland ad or drag and drop ar GP (max, 800×400m)	2 0 M	Diploseedd Holding ** epilet Diff - Peldelgoek kap. Ispbox & OpenStverMap	E 8 9 9 9 9 9
Conceptional)	Anderkelen Chor Burear Jan Hazelde Burear Jan Hazelde SVO, PNO, JPO (	Arrison Entertained	2 0 M	Disected Huding 72 Epide Det - Peterseries Feddiges kp.	E * *
Logo (optional)	Click to uplo	Aver se location Datase extension ad or drag and drag. or GIF (max. 850×450px)		Distantist Holding "A Spolar Party - France State Report O Counting	E N N N N N N
Logo (optional) Overall information Number of members	Click to uplo SVO, FINO, JPD O	Arr se location Texts exercit and or drag and drop or GHF (max. 800×400pt) Citizens/Individual	2 0 M	Descrete invalue 2 Angular Dest - Penningen kg. Angular O Querthwellar	E
Logo (optional) Overall Information Number of members	Click to uplo SVG, PNG, JPG (	Arr se location Tatis Extension ad or drag and drop or GHF (max. 800×400pt) Citizens/Individual Citizens/Individual	e ou	Descrete invalue 2 Angular Dest - Pendageni kg. Angular C. Querkweitige	E
Comprise Com	Click to uplo SVG, PNO, 3PO d	Arrow See Location Tests Fortune Carlow Control (See Section 2014) Citizens/Individual Citizens/Individual Citizens/Individual	a ou	Descrete roading 2010 - 2010 Descrete Pendingen kg perce 0 Quadramilitie	E
Comprises and and a second sec	Click to uplo SVG, PNG, JPG (	Se location Teleform ad or drag and drop or GIF (msr. 800×400pt) Citizens/Individual Citizens/Individual Municipalities Municipalities	a ou	Descrete roading 2 Angular Descrete Participanti Age part of Openformation	E &
Compliant Compliant Compliant Coverall Information Number of members SMEs SMEs SMEs 1 Associations	Click to uplo SVG, PNG, JPG (	See location Tests Format and or drag and drop or GIF (max. 800+400ps) Citizens/Individual Citizens/Individual Citizens/Individual Municipalities 1 Other	a ou	Descrete roading 2 Angular Dest - Pendingeni ka peter 0 Quedimentate	E
Correll information Number of members SMEs SMEs SMEs Associations Associations	Click to uplo SVG, PNG, JPG (	See location  Easi location  Call and and drop  Citizens/Individual  Ci	a 010	Descrete invalue 2. Second Descrete Pendingeni ka perce O Quedinanitae	5 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Overall information         Number of members         SMEs         SMEs 1         Associations 1         Website	Click to uplo SVO, PNO, JPO 1	Arrowski operation of the second of the seco	a	Descrete invalue 2. Second Descrete Factorization perce C Quadramilia Control Co	5 5 6
Complete Complete Complete Logo (optional) Coverell information Number of members SMEs SMEs SMEs SMEs Associations Associations Vebsite	Click to uplo SVO, PNO, JPO	Arrow See Location See Location Call and and drop, or OIF (max. 800+400pt) Citizens/Individual Citizens/Indizens/Individual Citiz	a ou	Descrete invalue 2. Second Descrete Feddagesition perce C Querdinautike 	E N I I I I I I I I I I I I I I I I I I
Coverall Information Coverall Information Mumber of members SMEs SMEs SMEs SMEs Associations Ass	Click to uplo SVO, PNO, 3PO	Arr ose location Let extend ad or drag and drop or OF finas. (800+400pt) Citizens/Individual Citizens/Indixens/Indixens/Individua	e de la constante de la consta	Descristing Control of the second sec	

Decent ec

DECENT.EC Decentralized Energy Communities\* R info@decent.ec

is an initiative of MET3R Solutions Limited.

#### DECENT.EC

DECENT.

Energy asset

B EC profile

Community

Modelling

Billing

Toolkit

![](_page_8_Picture_2.jpeg)

English 🔻 Logged in with KILT KLOG Out

Design by owente

#### **LAUNCH YOUR EC HERE** https://staging.decent.ec

![](_page_8_Picture_4.jpeg)

**Energy Community** founders can create a EU **EC-Repository compatible** profile, generate a user pool, launch a community portal, add essets and generate simulations for **ROI** calculations with preconfigured profiles and simulated storage and production.

![](_page_9_Picture_0.jpeg)

## **MILESTONES**

![](_page_10_Picture_1.jpeg)

![](_page_10_Figure_2.jpeg)

![](_page_11_Figure_0.jpeg)