

Virtual Power Plants

An Energy Transition Market Model

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Manager



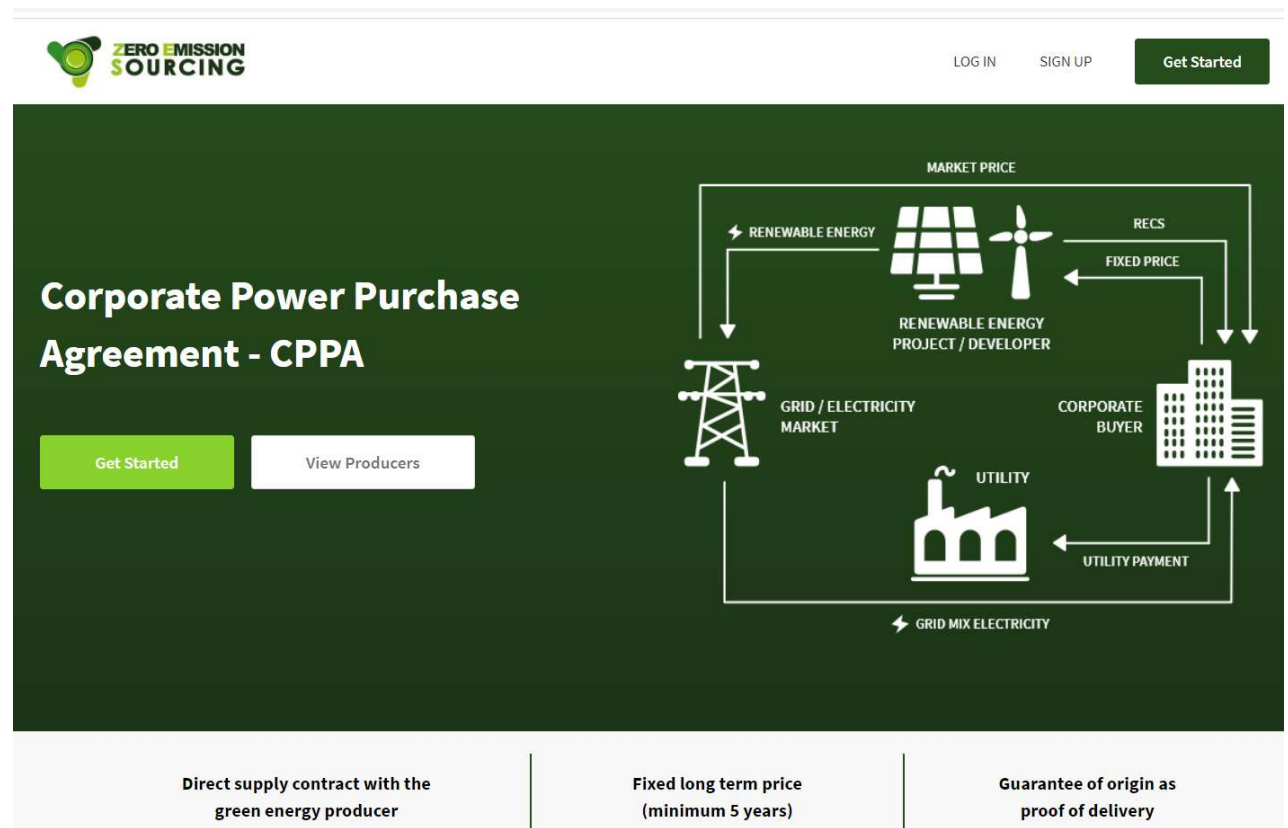
CLEAN ENERGY PACKAGE

- A further step in the energy market liberalisation
 - Exchanging power becomes easier
 - Free choice of supplier and production
 - Member states must facilitate : ex. EMD-decree in Flanders
- Zero Emission Solutions facilitates what is legally possible



ZERO EMISSION SOLUTIONS

- Developed market model
- Developed an ICT platform Zero Emission Sourcing ('tinder for green power')
- 'Internet of Energy'



DIFFERENT MODELS

1, One to one

- Netting
- CPPA
- Peer2Peer

2. Many to one

- Commercial energy community

3. One to many

- Energy community with one asset

4. Many to many

- Energy hub/community with # assets

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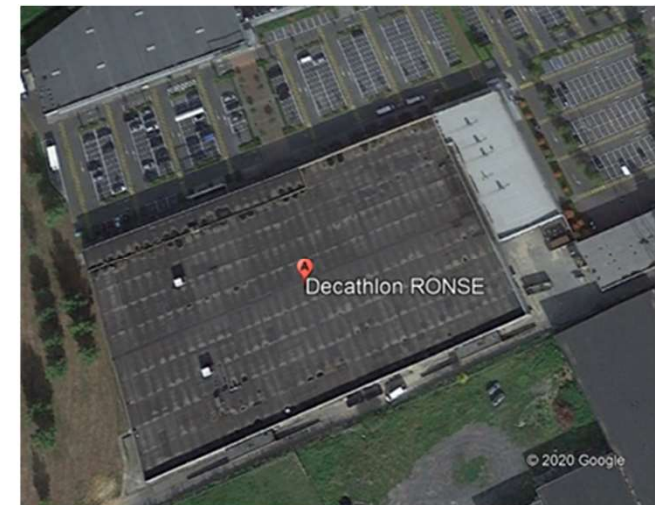
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One to One : NETTING

- For multisites only
- Power surplus from site A is virtually brought to site B
- Only momentarily
- Electricity cost 0 + network costs + levies + (reduced) imbalance cost
- Savings = $\pm 300 \text{ €/MWh}$



One to one : CORPORATE POWER PURCHASE AGREEMENT (CPPA)

- Customer concludes power supply contract directly with (renewable) energy producer
- Target: to match production/injection and offtake on a quarter-hourly basis
- Fixed price for long term (10 - 20 years)
- Guarantees of origin as additional proof of delivery
- Supplier is responsible for regulatory & balancing = 'sleeving'



CORPORATE POWER PURCHASE AGREEMENT (CPPA)

How is settlement done ?

- Either through supplier (direct CPPA)
or by means of spot market (virtual CPPA)
 - => Producers sells electricity on Belpex
 - => Consumer earns/pays difference between CPPA-price and Belpex price
 - => Supplier buys (back) all off take for the consumer

How is invoicing done ?

- Pay as produced
- Pay as forecasted
- Pay as consumed

One to one : PEER 2 PEER

- Same as a CPPA
- But for prosumers (with a digital meter) to consumers
- Possible since 01/07/22
- Only if both parties have the same supplier
- LCOE solar is ± 50 €/MWh, extra balancing cost is ± 15 €/MWh, wholesale price is ± 365 €/MWh
- Better sell your solar to a supplier ?
 - All suppliers insist on combining injection with offtake



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Many to one : COMMERCIAL ENERGY COMMUNITY

- Many prosumers (with digital meter) sell their surplus of solar to
 - Retailer
 - Employer
 - ...
- Retailer/Employer can offer better price than traditional suppliers
 - Retailer: end price of product is not the real cost
 - Employer: within 'cafetariaplan': extra legal advantage
- Today only possible if all are customer of same supplier
- Our ZES-ICT platform captures official data from grid operator

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One to many : ENERGY COMMUNITY

- One asset supplies many prosumers (with digital meter)
- Prosumers can financially coöperate in the asset (be co-owner)
- Today only possible if all are customer of same supplier
- Is more or less the Ecopower-model



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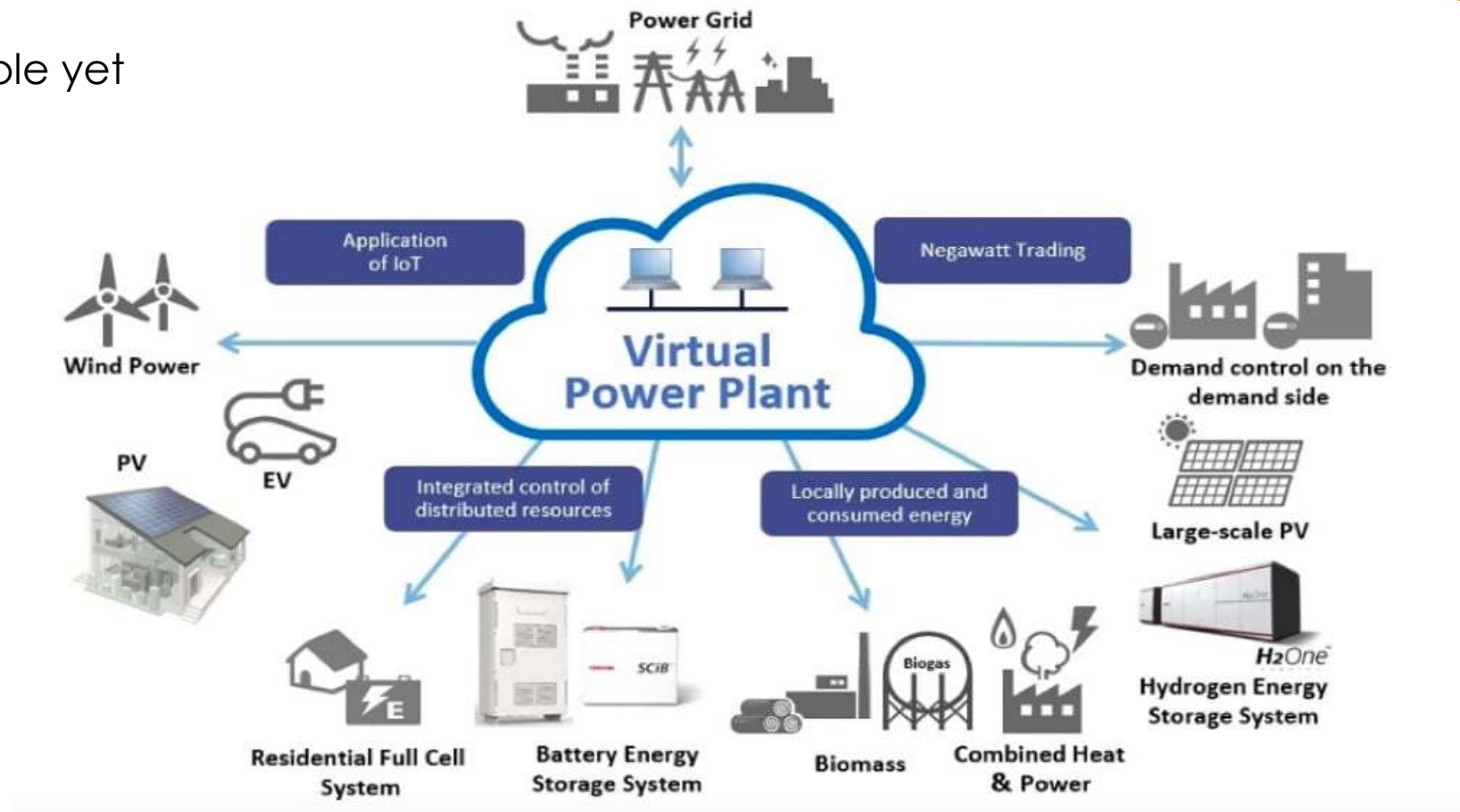
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Many to many ENERGY COMMUNITY

- Local nature
- Not possible yet



ROLE OF ZERO EMISSION SOLUTIONS

Total unburdening customer :

- Zero Emission Sourcing platform brings producer and buyer together
- Zero Emission Sourcing platform maps out power exchange
- Zero Emission Solutions actively seeks out and assists companies that want such VPP
- Drafting and negotiating contracts
- Insertion of CPPA into tenders/contracts for purchase of residual power (suppliers)
- Training LEC employee
- 'Canceling' of the GvO's is done by Zero Emission Solutions at regulator (for total delivery)


ICT-platform







Explore the Marketplace





ICT-platform





Consumer Name 

My Company


My Postings


My Contracts

Consumption

Data Hub

My Postings










All energy types 

ALL (5)

PUBLISHED (4)

DRAFTS (1)

<input type="checkbox"/>	POST NAME	ENERGY TYPE	CONTRACT DURATION	CAPACITY TO BUY	ACTIONS
<input type="checkbox"/>	Interested in buying 25 MW of Solar energy ●	 Solar	From: 2021-01-01 To: 2024-12-31	25 MW	
<input type="checkbox"/>	Interested in buying 13 MW of Storage energy ●	 Storage	From: 2021-01-01 To: 2024-12-31	13 MW	
<input type="checkbox"/>	Interested in buying 0 MW of Wind energy	 Wind	From: 2020-01-01 To: 2023-01-01	0 MW	
<input type="checkbox"/>	Interested in buying 10 MW of Wind energy ●	 Wind	From: 2020-01-01 To: 2021-06-30	10 MW	
<input type="checkbox"/>	Interested in buying 200 MW of Bio energy ●	 Bio	From: 2019-05-24 To: 2020-05-24	200 MW	

View proposals

Find green producers

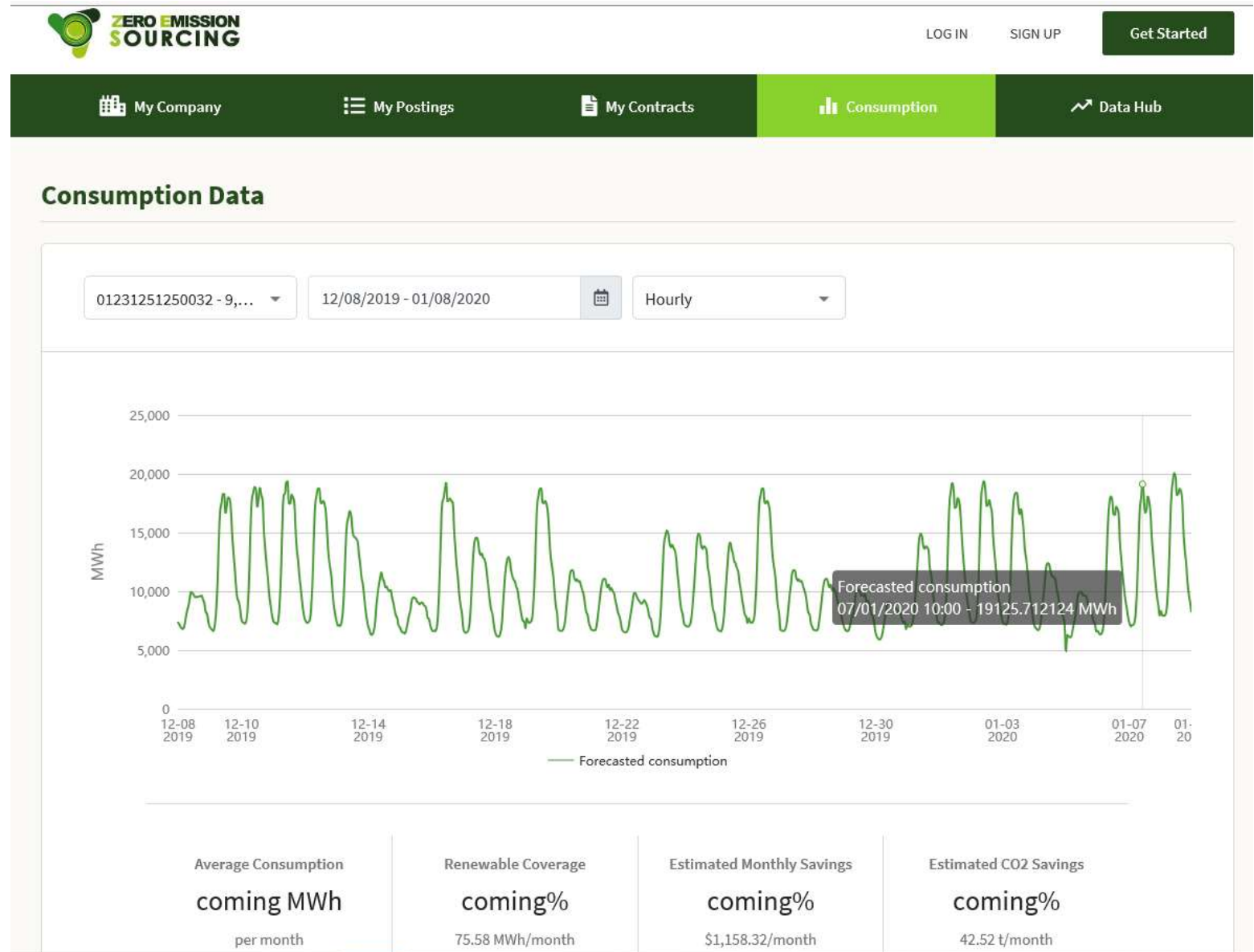
View posting

Edit posting

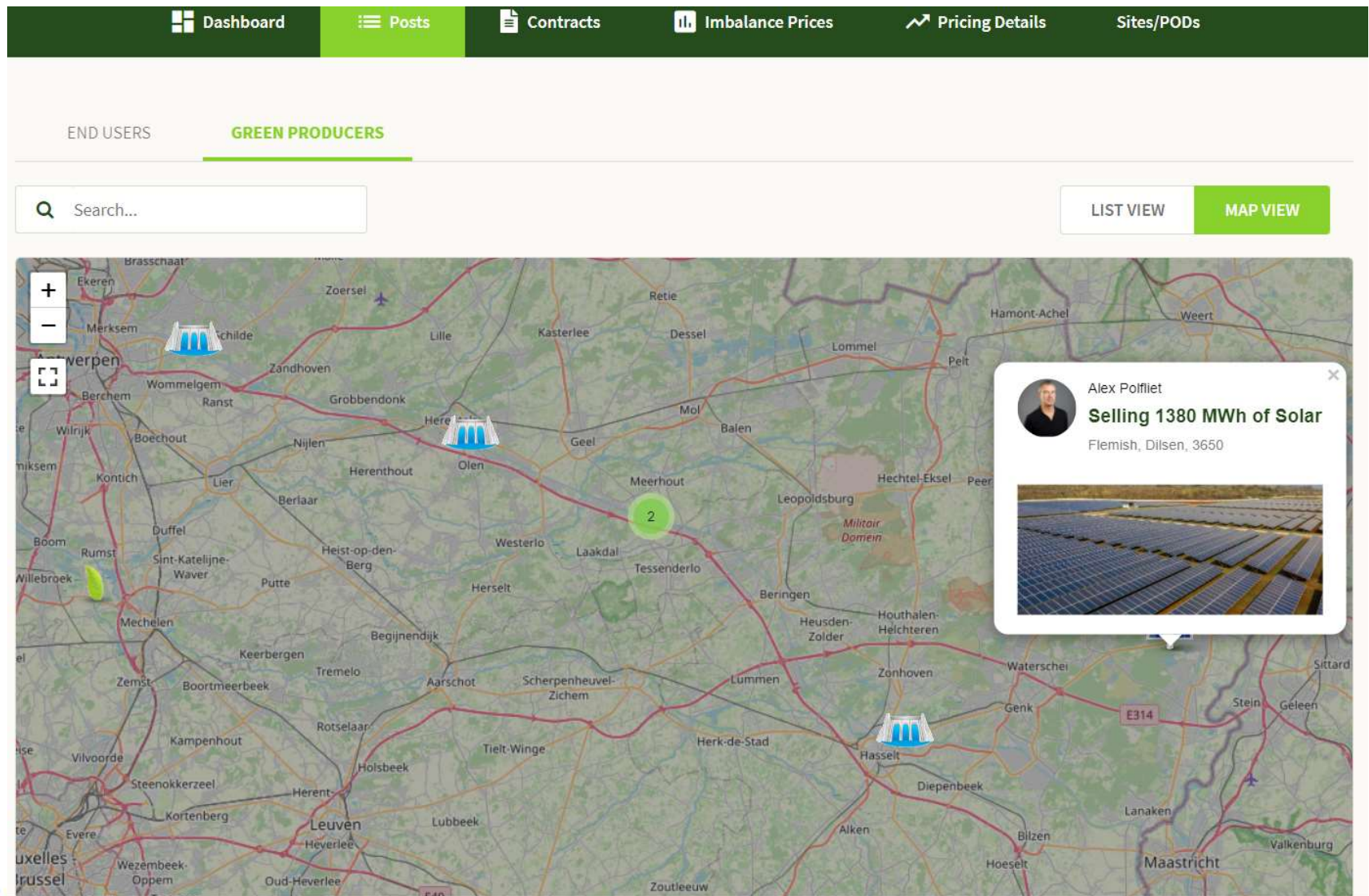
Remove posting

Make draft

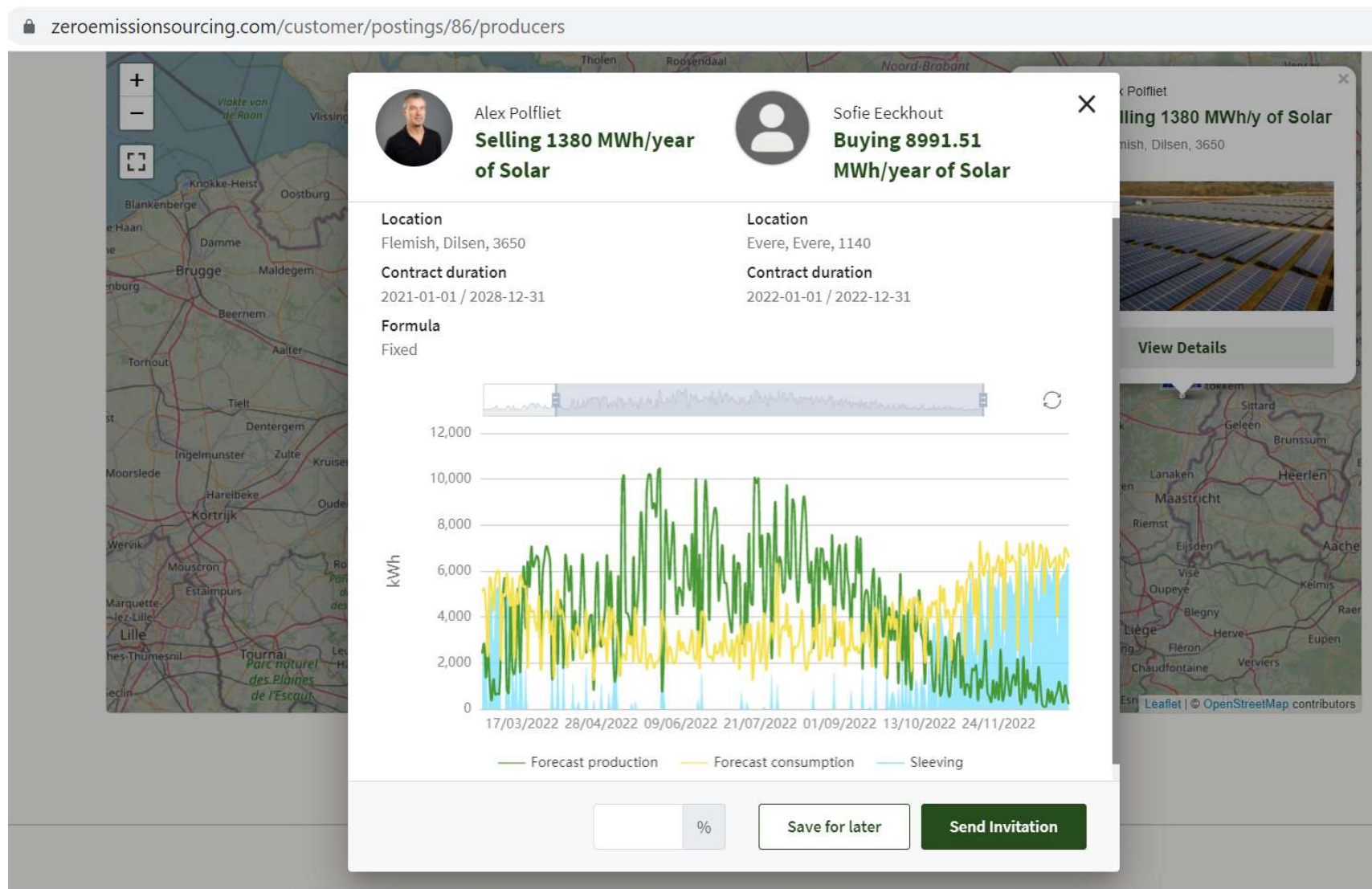
ICT-platform



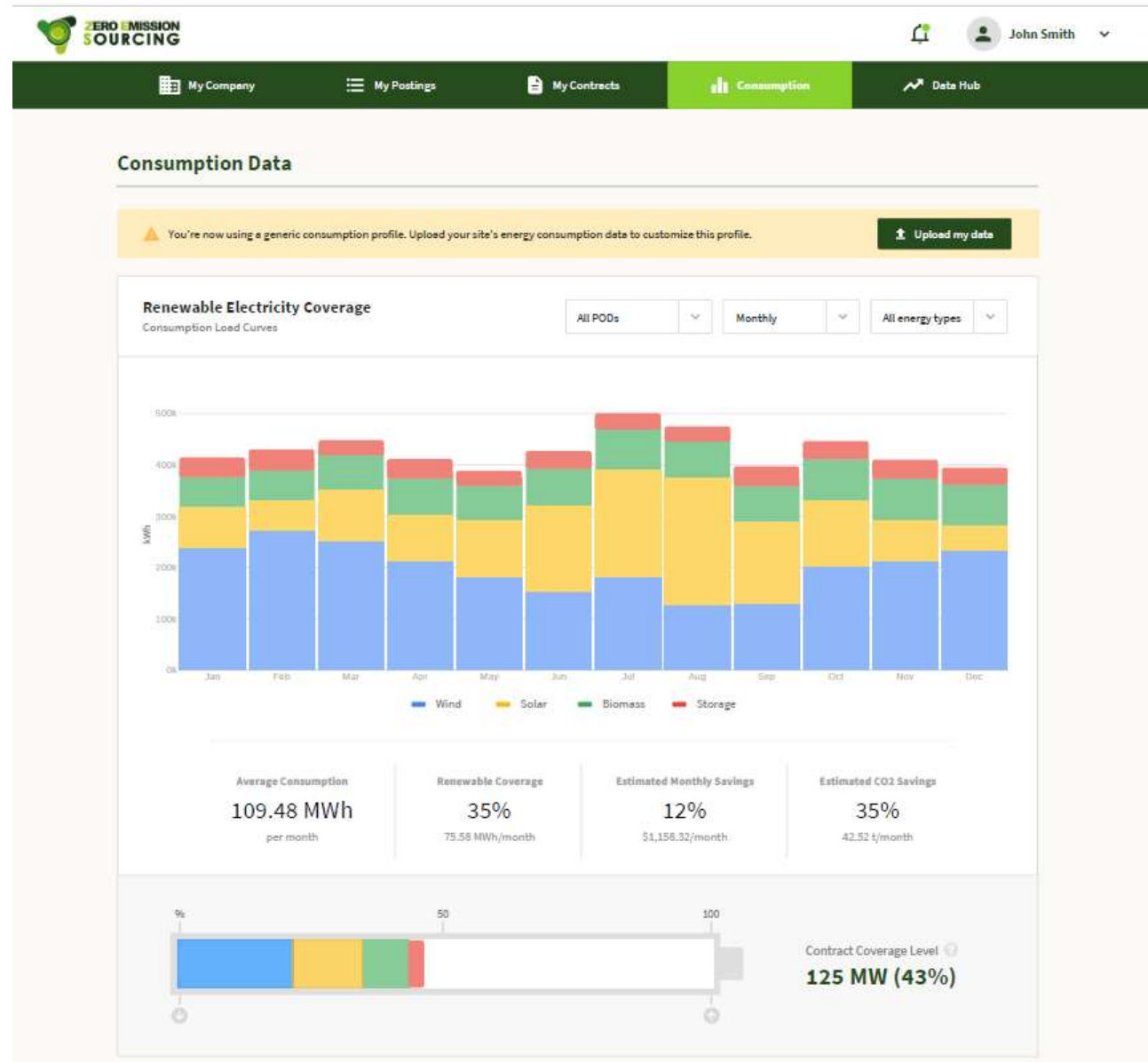
ICT-platform



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