The future of the Belgian electricity system

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Overview

- About myself
- Yuso: a new look at energy management
- Renewables and aggregation: a practical guide
- Battery storage: the missing link
- Barriers to renewable integration
- Policy advocacy and main takeaways
About Myself: Bart Pycke

➢ Master Electrical Engineering, University of Ghent, Belgium 1994
➢ MBA Vlerick Management School, Ghent, 1995
➢ Research Associate, INSEAD, Fontainebleau, France, 1995-1997
➢ Head of Trading, GDF SUEZ Electrabel (now Engie), Brussels, Belgium, 1997-2007
➢ Board member Powernext (now Epex Spot), 2001-2007
➢ Managing Director, Mercuria Energy Trading, Geneva, Switzerland, 2007-2011

➢ 1998-Now: Board member EFET
➢ 2012-Now: Co-founder and MD Yuso, renewable power & flexibility aggregator
The start of Yuso

Industry trends

UNBUNDLING AND SPOT MARKETS
The current trends of unbundling and spot markets are reshaping the value chain, allowing Yuso to act as a full actor in the energy business system.

ENERGY TRANSFORMATION
The rise of renewables and batteries is radically changing the industry.

DATA IS THE NEW GOLD
Data is becoming one of the most valuable assets in the energy value chain of tomorrow.
THE FUTURE OF THE BELGIUM ELECTRICITY SYSTEM: YUSO, A NEW LOOK AT ENERGY MANAGEMENT

700+ connections
200 MWp Installed capacity
70+ GWh
300+ B2B Customers
8+ MEUR Turnover
Disruption of the utility business model
An innovative digital platform offering tailored at B2B “prosumers”

THREE BUSINESS LINES
Covering all aspects of the future of energy players

Injection contracts:
Join our community and deliver your energy to the Yusol network!

Supply contracts:
Serve your business with energy from the Yusol network!

Storage solutions:
Store and recycle your precious energy!

Each hour the market price
Why negotiate a price when there is an open market that determines the fair price?!
With Yusol, you pay the market price every hour!

No contract just signing up
No more fixed contract durations or tacit renewal!
The Yusol Delivery Contract only has a start date. You step in and out whenever you want; no surprises!

Transparent digital reporting
Clear insight into your pricing, consumption and production via Yusol’s dashboard platform!

Demand response incentive
Hourly Belpex prices varying between 0 and 300 euro/MWh give a clear demand response incentive immediately reflected on your invoice!
Linking wholesale and retail prices

Components of the Yuso energy platform price

- Market Prices, Every Hour
- Platform Fee
- Grid Costs and Taxes
A scalable self-service platform for B2B prosumers
Bringing transparency to B2B prosumers

- Total energy delivered: 631.02 kWh
- Total amount: 41.01 EUR
- Average price: 64.99 EUR/MWh

Belpex price (EUR/MWh)
Renewables and aggregation: a practical guide
Power price volatility driven by intermittent renewable infeed into the Belgian system

- ‘Live Market’ organized by TSO Elia
- TSO’s ‘market’ task relates to keeping demand and supply in balance
- Post unbundling, TSO’s can not operate assets themselves (Transport vs. Generation)
- The ‘imbalance price’ reflects the active optimization of excess/shortage of power in the Elia zone versus offtake/supply bids obtained on 15-minute basis
Renewables and aggregation: a practical guide

This is a good start...

This is way better in terms of spatio-temporal resolution...
Renewables and aggregation: a practical guide

Day-Ahead: Models, models

Intraday: Models, actuals and flexibility (batteries)
Renewables and aggregation: a practical guide
Renewables and aggregation: a practical guide
The basic battery concept

How Yuso operates batteries
Realised battery projects

Batteries as a service, growing expertise on different dimensions and types

**Redox-Flow at Filclair Serren**
This large battery allows Filclair Serren to use more solar energy itself, saving thousands of euros on grid costs.

**Grid battery in Zeeland**
Yuso currently manages the largest battery in Europe in Zeeland (NL). With 10 MW of flexibility. It contributes to the equilibrium of the net via Yuso.

**Lithium-ion at Verplancke Haarden**
This unit is about four times smaller than the one at Filclair Serren, but it has a higher power capacity making it a valuable asset to act on flexibility markets. Yuso dispatches this highly flexible battery to contribute to network equilibrium.
Grid batteries in practice

ENERGY MANAGEMENT of 10 MW / 10 MWh BATTERIJ ZEELAND
Energy storage is booming worldwide...
Ruien Energy Storage

2018
THE END OF AN ERA...
Ruien Energy Storage
Development of a 25 MW BESS in Belgium in partnership with Nippon Koei (Japan)
**Ruien Energy Storage Project planning**

**JANUARI 2018**  Yuso secured plot in Ruien

**APRIL 2018**  Yuso partners with Nippon Koei

**JUNE 2018**  Incorporation of RES: Ruien Energy Storage NV

**JULI 2018**  Grid study requested

**SEPTEMBER 2018**  Launch of battery supply tender (BESS)

**NOVEMBER 2018**  Grid study of Elia completed

**DECEMBER 2018**  Filing of building permit

**JANUARI 2019**  Selection of BESS suppliers

**MARCH 2019**  Complete site permitting

**APRIL 2019**  Financial Close

**JUNE 2019**  Construction on site

**Q2 2020**  Go live commissioning and commercial operation
Barriers to renewable integration

➔ Inadequate (metering) data management
- No real time metering data
- No information if 15-min meter reading (AMR) are available before switching
- Lack of standardization
- Disparate systems, lacking API
- Smart meters without smart metering (15-min data not used in settlement process !)

➔ Market design prevents batteries delivering on their full potential
- DSO grid fee ‘friction’ prevents participation in balancing market
- Awaiting the implementation EU grid codes to opening of all ancillaries markets to batteries
- Battery investment by market rather than DSO/TSO who should remain neutral, non-discriminatory actors
Policy advocacy and main takeaways

➔ Evolution rather than revolution: build regulation on top 20+ years of market opening
  ◆ Ensure all generation assets (including renewables) and all demand (including flexibility) have balancing obligation
  ◆ Use of price signals to balance the system (including a single real time balancing price)

➔ Put the customer at the center
  ◆ link retail prices to wholesale prices
  ◆ give customer ownership of his data and the associated date flows

➔ Cost- and incentive-based regulation towards DSOs and TSOs
  ◆ complement cost-based regulation with incentives for effective data management
  ◆ incentives to promote the integration of renewables and storage in the system

➔ Smart regulation to stimulate storage
  ◆ Exempt storage from grid fees
  ◆ Provide for regulatory models to embed storage assets without friction in energy communities
Making new energy flow

Eén platform voor jouw energie