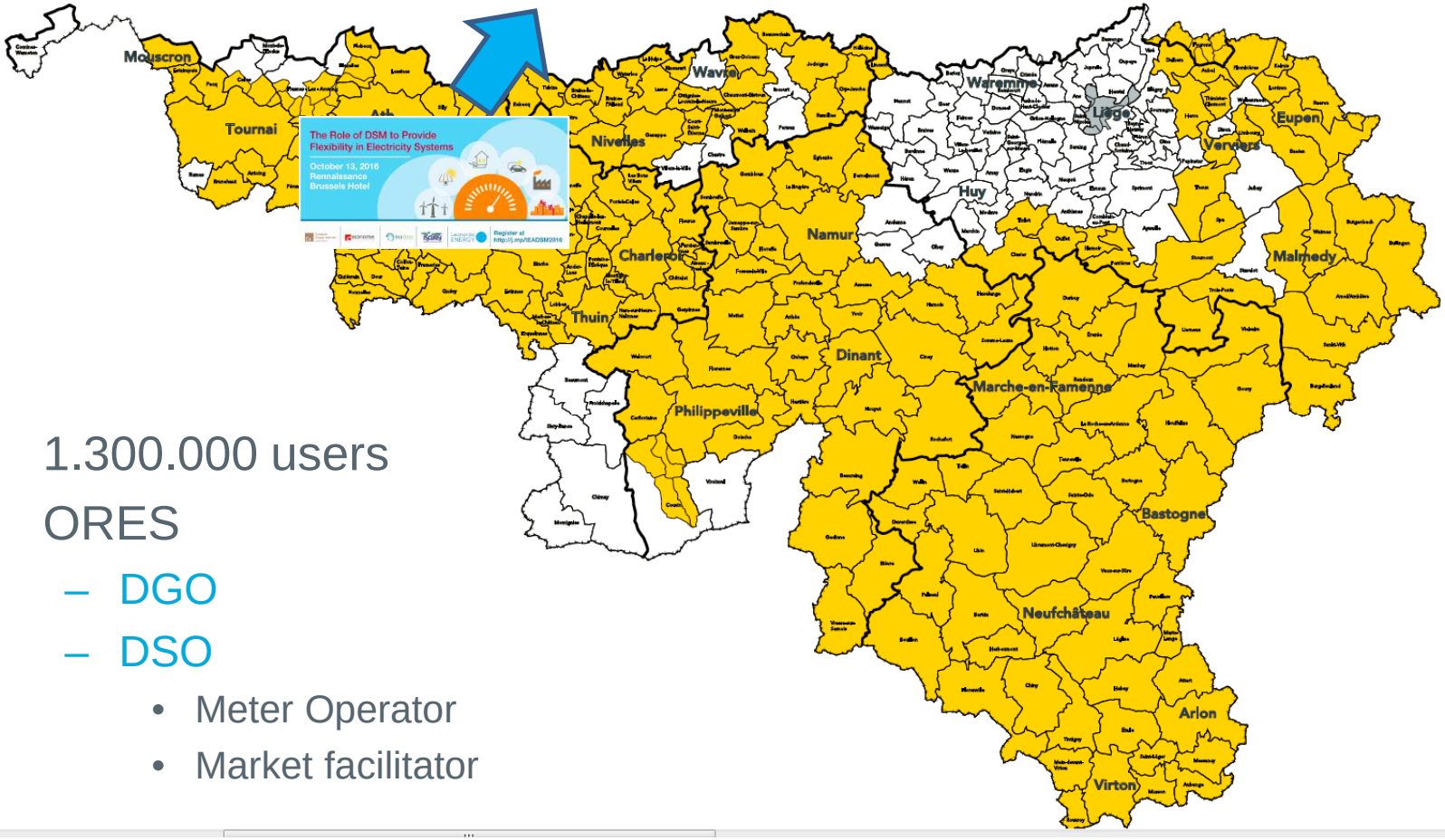
ORES
OPÉRATEUR DES RÉSEAUX GAZ & ÉLECTRICITÉ

DSM from distribution customers: From an increasing reality today in MV to perspectives tomorrow in LV

ORES

Belgian Walloon DSO



- 1.300.000 users
- ORES
  - DGO
  - DSO
    - Meter Operator
    - Market facilitator

DSM at DSO level

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- Balancing with MV customers
- Low voltage
  - Correct solar production profile
  - Energy transition
    - Challenges for a DSO and their customers
    - Opportunities for an aggregator

DSM at DSO level

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Balancing & MV customers

Collaboration with TSO

- Collaboration between TSO and DSO has opened the balancing market to distribution grid users since 2014 :
  - Medium voltage
  - Head-meter with 15’ granularity
  - Via an aggregator, sometimes directly
- In addition to the TSO – aggregator specifications and contracts, DSO participates
  - In the pre-contractual phase
  - During the execution of the contract

Balancing & MV customers

Pre-contractual phase

- Provision of relevant information about the connection contract between DSO and grid user, typically:
  - EAN and connection capacity
  - Correct use of emergency generators
- Network Flexibility Study NFS
  - Control of effects of simultaneous behavior's, rebound effect
  - Leads to reservation of grid capacity
  - Evolution from 2014 to 2017 :
    - Trimestral study
    - Green light given for undefined period
    - Delay of 12 months in case of congestion risks
    - Independent from aggregator change

Balancing & MV customers

Pre-contractual phase

- Generic aggregator – DSO contract
- Metering data for the TSO certification
- All information available on http://www.synergrid.be/index.cfm?PageID=16832

C8/01 et Contrat FSP - GRD	08.2015 08.2015 06.2016	Network Flexibility Study pour participation aux produits d'Elia SDR 2015-2016 et R3DP 2016 (révision 08.2015) Modèle de contrat GRD/FSP (Prestataires de services) dans le cadre des réserves stratégiques 2015-2016 et des réserves tertiaires R3DP 2016 (révision 08.2015) Modèle de contrat entre le GRD et le Prestataire de services de flexibilité dans le cadre de la livraison de R1 asymétrique à Elia par l'utilisation du réseau de distribution
C8/02	08.2015	Sous-comptage par le GRD: modalités générales dans le cadre du produit R3 DP 2016
C10/11	06.2012	Prescriptions techniques spécifiques de raccordement d'installations de production décentralisée fonctionnant en parallèle sur le réseau de distribution. Voir aussi : 1/ FAQ concernant l'application du C10/11 (08.2016) 2/ Que faire si mon installation photovoltaïque se déconnecte régulièrement du réseau ? 3/ (FR) Déclaration de conformité C10/11 révision 06.2012 - §2.10, §2.13 et annexe 4 (EN) Declaration of compliance C10/11 revision 06.2012 - §2.10, §2.13 and annex 4

Balancing & MV customers

During the execution of the contract

- DSO as flexibility data manager in distribution :
  - Is in charge of the access register with the pool of customers
  - Makes the (aggregated) link with the impacted source BRP
  - Calculates the availability of flexibility
  - Calculated the activated volume for the TSO

Balancing & MV customers

It works !

- TSO and DSO processes, timings & procedures are aligned
- Market is functioning for products at DSO-level
  - Prequalification by DSOs in 2015: 679 MW (371 DGUs)
  - Prequalification by DSOs in 2015: 885 MW
  - Prequalification by DSOs for strategic reserves 2015-16: 314 MW (66 DGUs)
- Stepwise improvements in market processes
- Ready to tackle new challenges

DSM at DSO level

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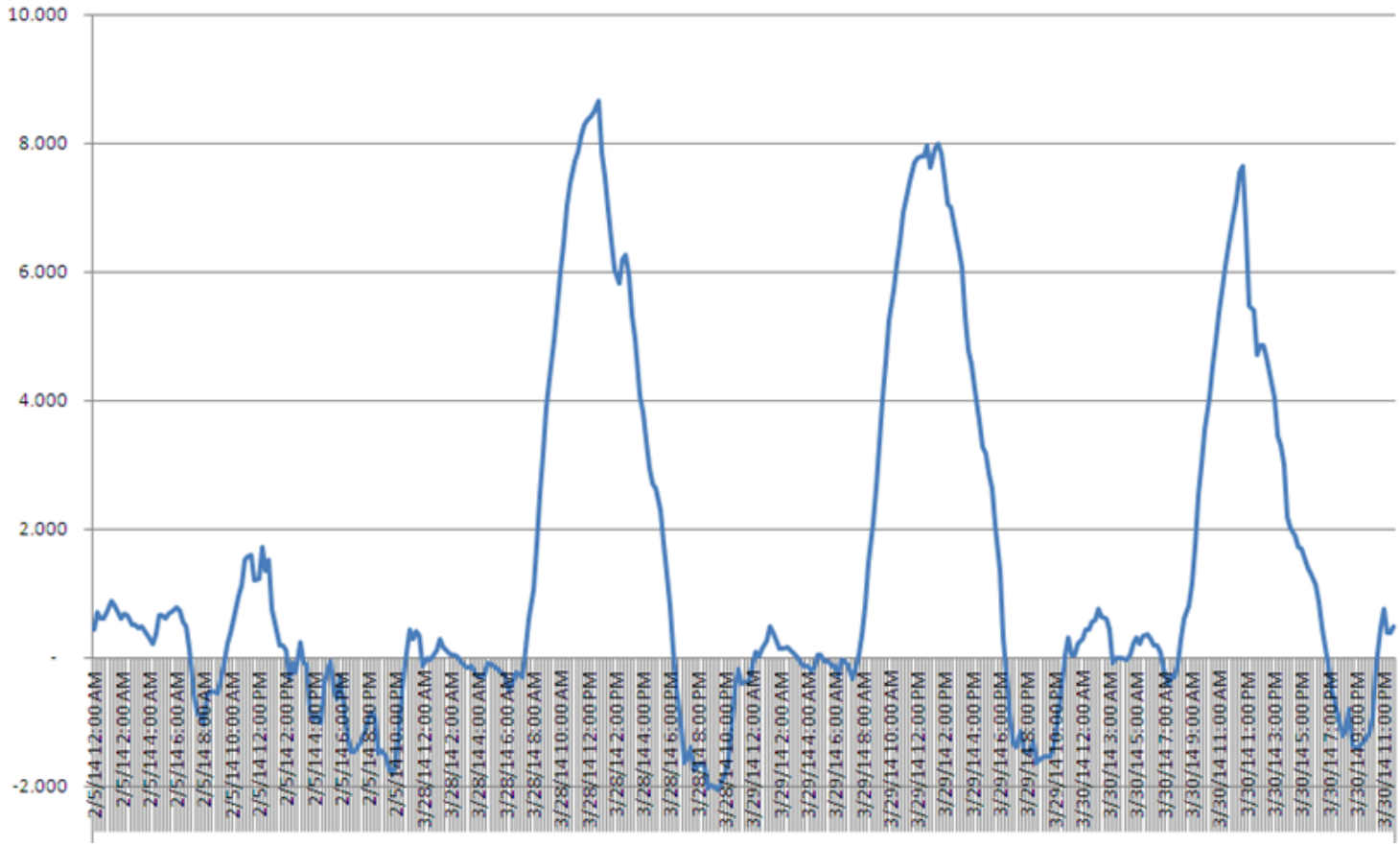
Low voltage

Correct solar production profile

- Today and till 2018:
  - Because the headcounter turns back during sunny hours and forward during consumption hours, a prosumer is modelled as having consumed approximatively nothing
    - Yearly customer bill 0 €
    - 15’ BRP allocation 0 kWh
  - Consequences
    - Non prosumers allocation decreases when it is sunny
    - A Balance Responsible Party BRP receives, from the TSO, a balancing bill … partially based on the portfolio of the other BRP’s
- From 2018, DSO will include the real solar production in the allocation results, in collaboration with the TSO Elia

Low voltage

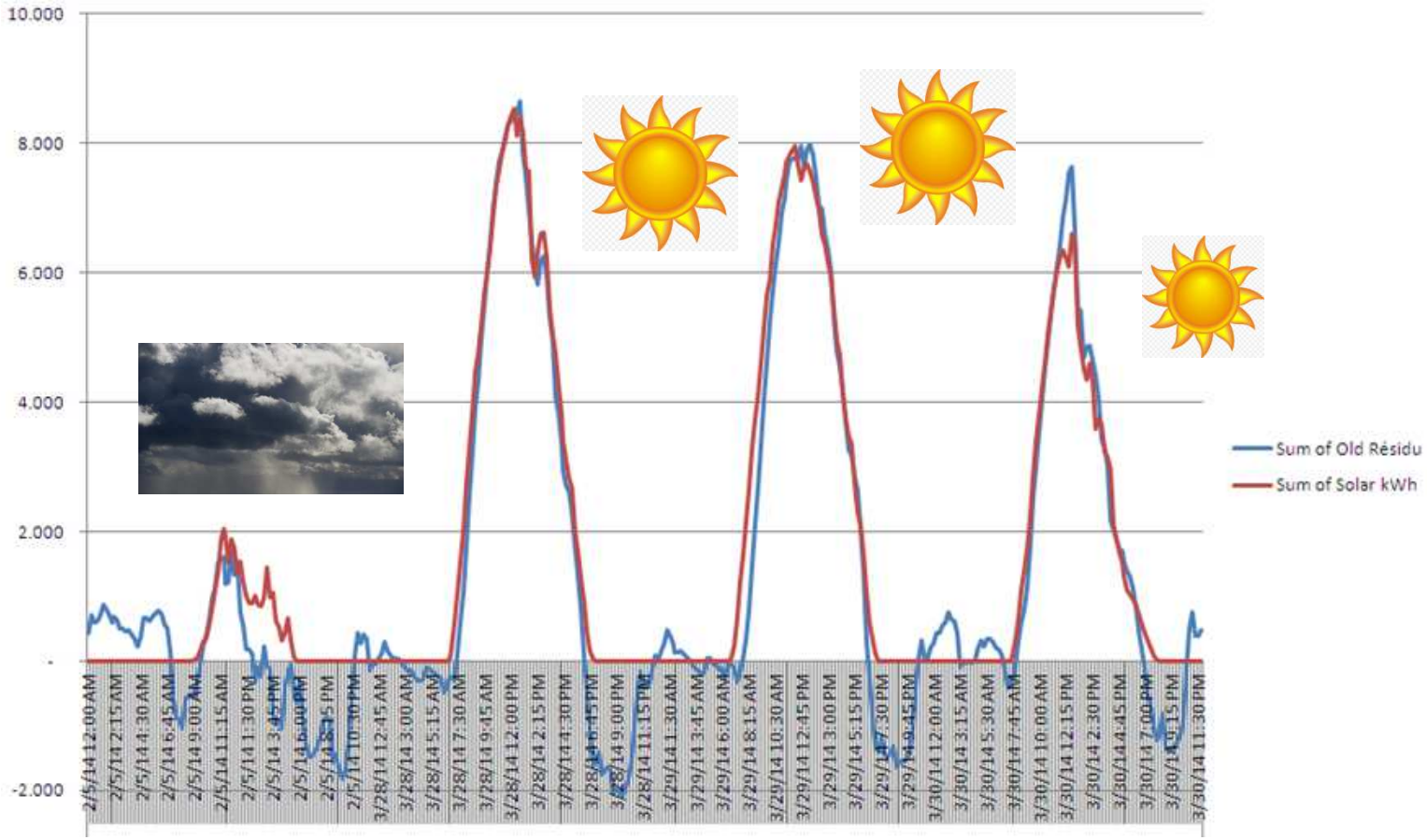
Correct solar production profile



Typical error on standard load profiles (4 days)

Low voltage

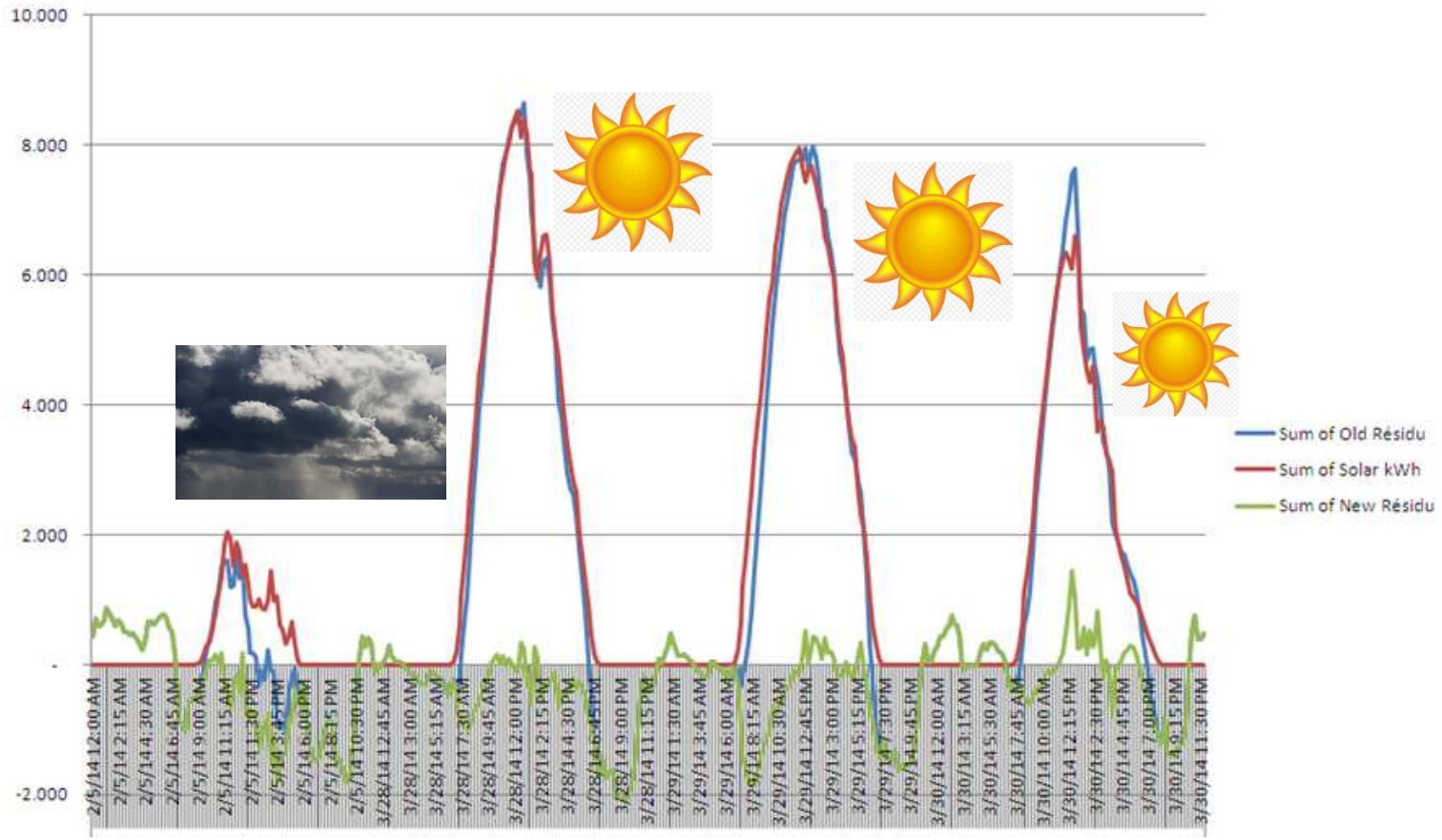
Correct solar production profile



Error on standard profile and PV production

Low voltage

Correct solar production profile



Residual error

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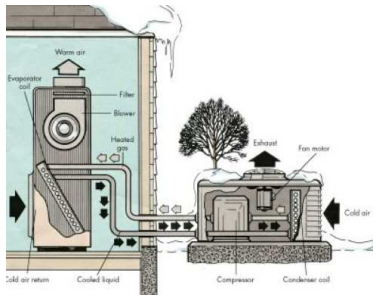
    - **Imagine 2030**
    - **Challenges for a DSO and their customers**
    - **Opportunities for an aggregator**

Energy transition

Imagine 2030

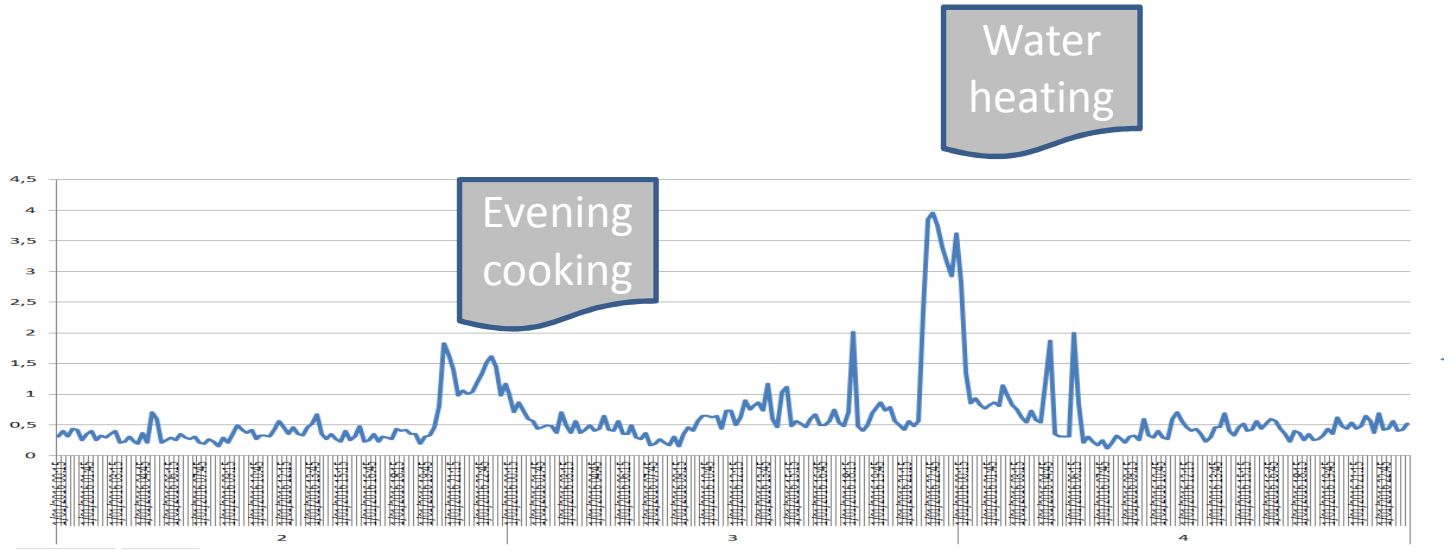
- 2016
  - 90.000 prosumers (7%) with 5kVA
- 2030
  - 270.000 prosumers with 10kVA
  - EV between 100.000 and 300.000
  - HP between 80.000 and 160.000
- Evening peak increase



	Average (kW)	Individual (kW)
EV	1,2	3
HP	1,7	4

Energy transition

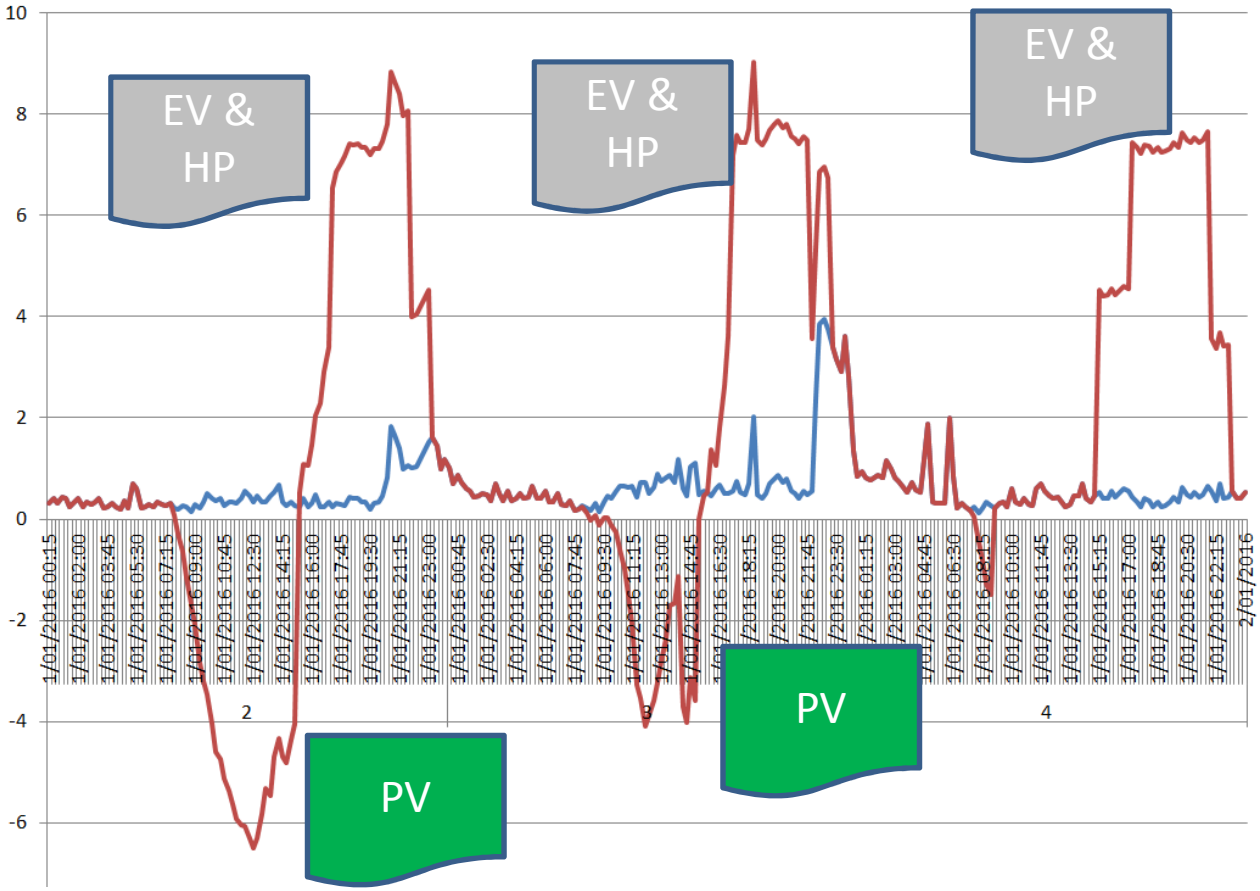
Risks for a DSO and their customers



Typical individual load profile **without** PV, EV and HP

Energy transition

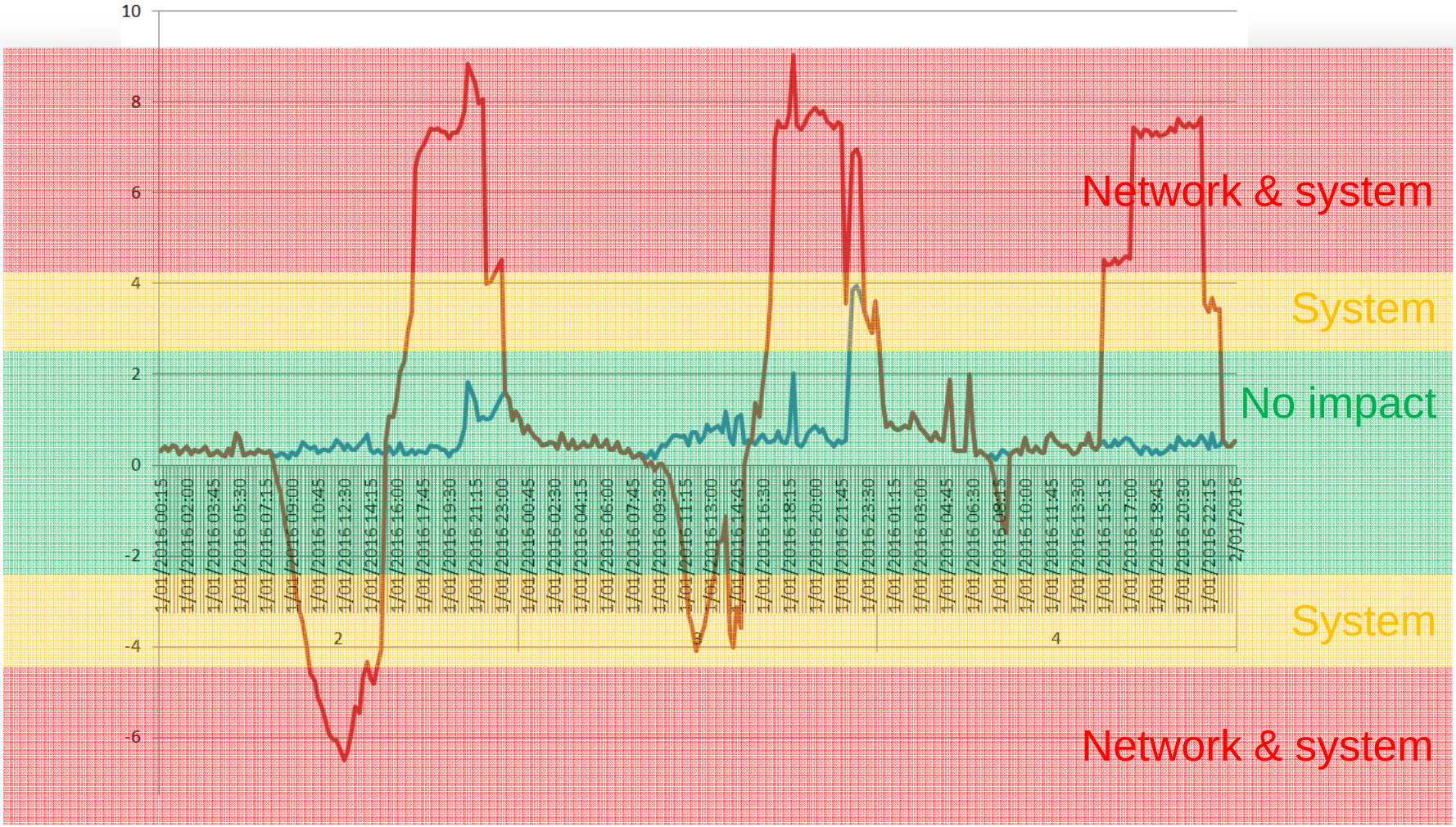
Risks for a DSO and their customers



Typical individual load profile **with** PV, EV and HP

Energy transition

Risks for a DSO and their customers



Impacts for the DSO

Energy transition

Risks for a DSO and their customers

Because of the peak increase at the interface

between TSO and DS0,

the grid bill of all the customers could increase by ~ +10%

Energy transition

Opportunities for an aggregator

- We believe it is possible to let the customer free to invest (or not) in EV, HP and PV
- We also believe it is possible to avoid lots of these costs
- We see one way …

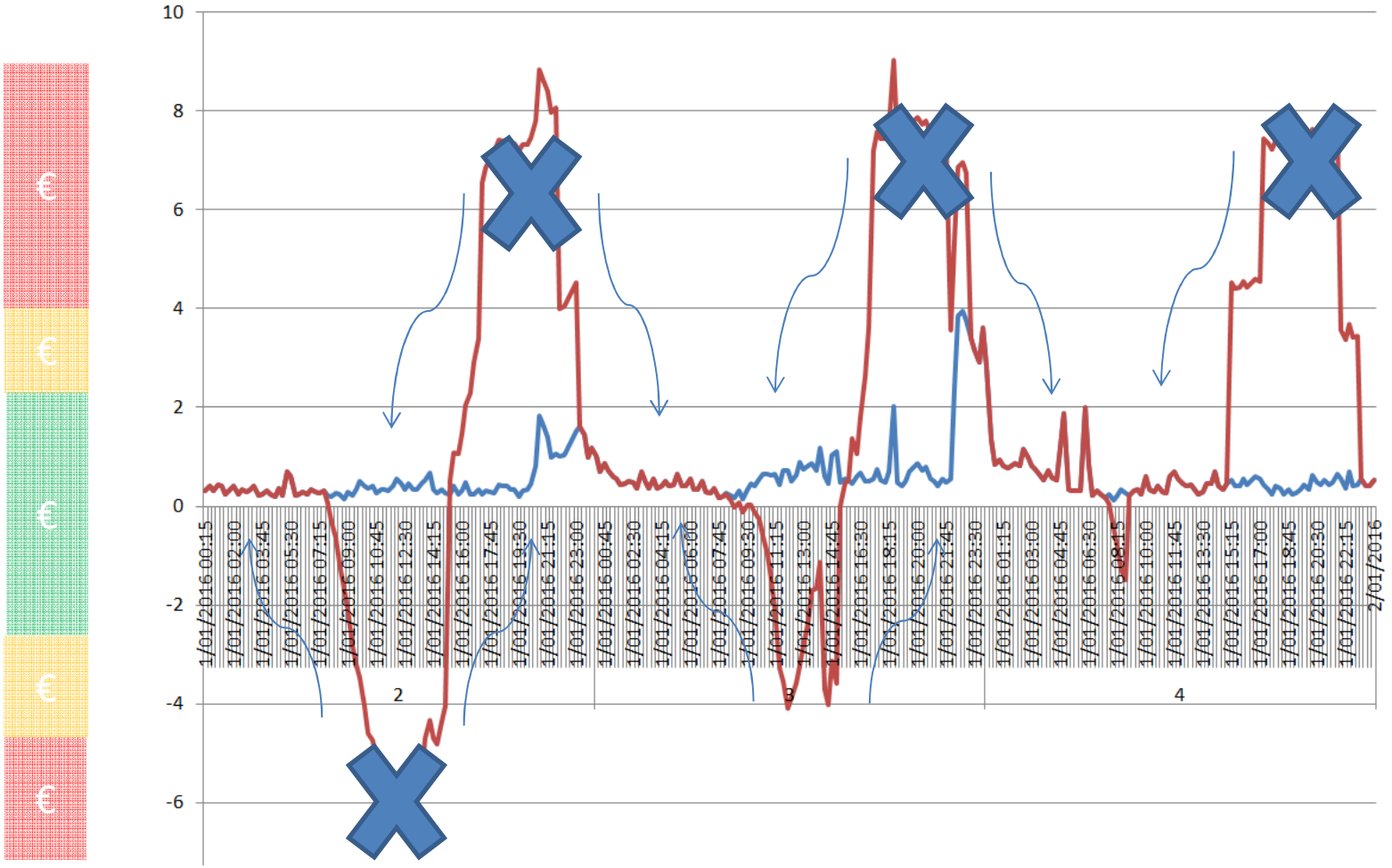
Energy transition

Opportunities for an aggregator

- Equip these customers with a **smart meter** with 15' granularity
- Make **incentivizing tariffs** in order to avoid most of these synchronous peaks
- Good technology can help the customer to avoid these peaks
- Moreover, as a market party, the aggregator or supplier that uses that technology could valorize the flexibility

Energy transition

Opportunities for an aggregator



Energy transition

Opportunities for an aggregator

Be sure in LV there will be
new sources of flexibility
& new needs of flexibility

The future will tell us if there is
a business model
for aggregators and suppliers