FEBEG
Federation of Belgian Electricity and Gas Companies

CONGESTION MANAGEMENT

Meeting Elia WG 'Belgian grid' on 30.04.2014

MEMBERS

Aspiravi Renewable energy
belpower drivenbynature
C-Power
EDF Belgium
EDF luminus
Electrabel GDF SUEZ
electrawinds POWERED BY NATURE
Eneco
Enel L'ÉNERGIE À VOTRE ÉCOUTE.
eni
eni trading & shipping
e·on Benelux
essent.be
GASSCO
GDF SUEZ
gasNatural fenosa
LABORELEC GDF SUEZ
OCTA+
parkwind
PRIMA LNG
TOTAL
T-POWER
WE-POWER
WINGAS

NEED FOR BALANCED SOLUTION

Incentive for grid investments

Enhancement flexibility market

Facilitation of connection RES

Stability and legal certainty

No discrimination and no market distortion

Positive investment climate

IMPACT ON GENERATOR/BRP

Distribution network is usually able to cope with new connections, but is no copper plate!

Any uncertainty created via the connection agreement will result in a higher risk **increasing financing costs** of a project (higher loans)

Loss of quality of generated energy will result in a **reduced contract price paid by BRP/retailer** to GU further impacting the profitability of project

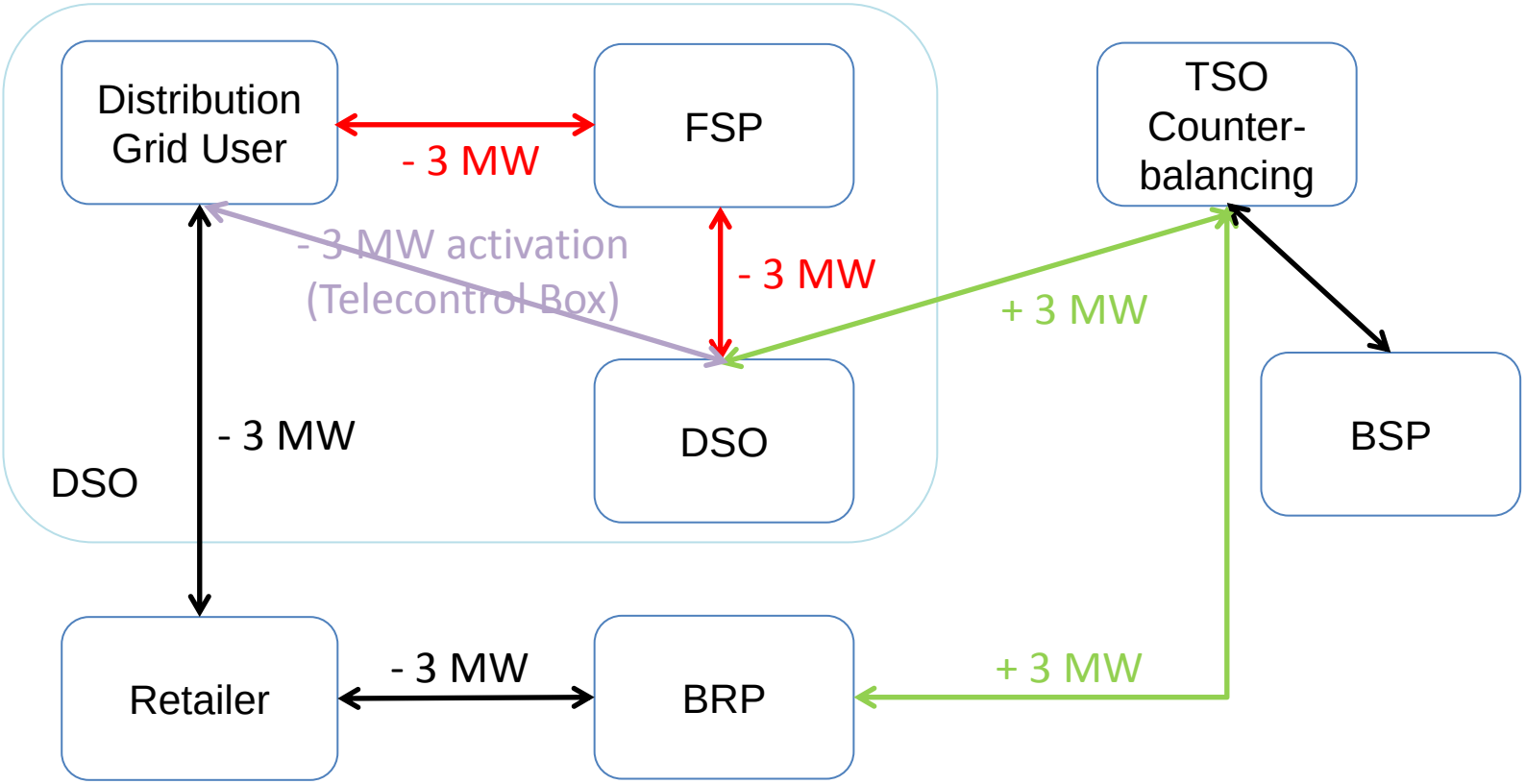
BALANCE OF SYSTEM IS KEY

- FEBEG congestion management model is based on neutralizing impact on balancing market ('redispatch' or 'counter-balancing')
- Inspired by Elia congestion rules in 'CIPU':
  - Outcome of learning curve
  - EU supported system
  - Respects the BRP-balancing obligation

Main goal: system balance is guaranteed (on BRP portfolio level) at all times

GENERAL PROCESS

Congestion bids = compensation bids



BRP is balanced!

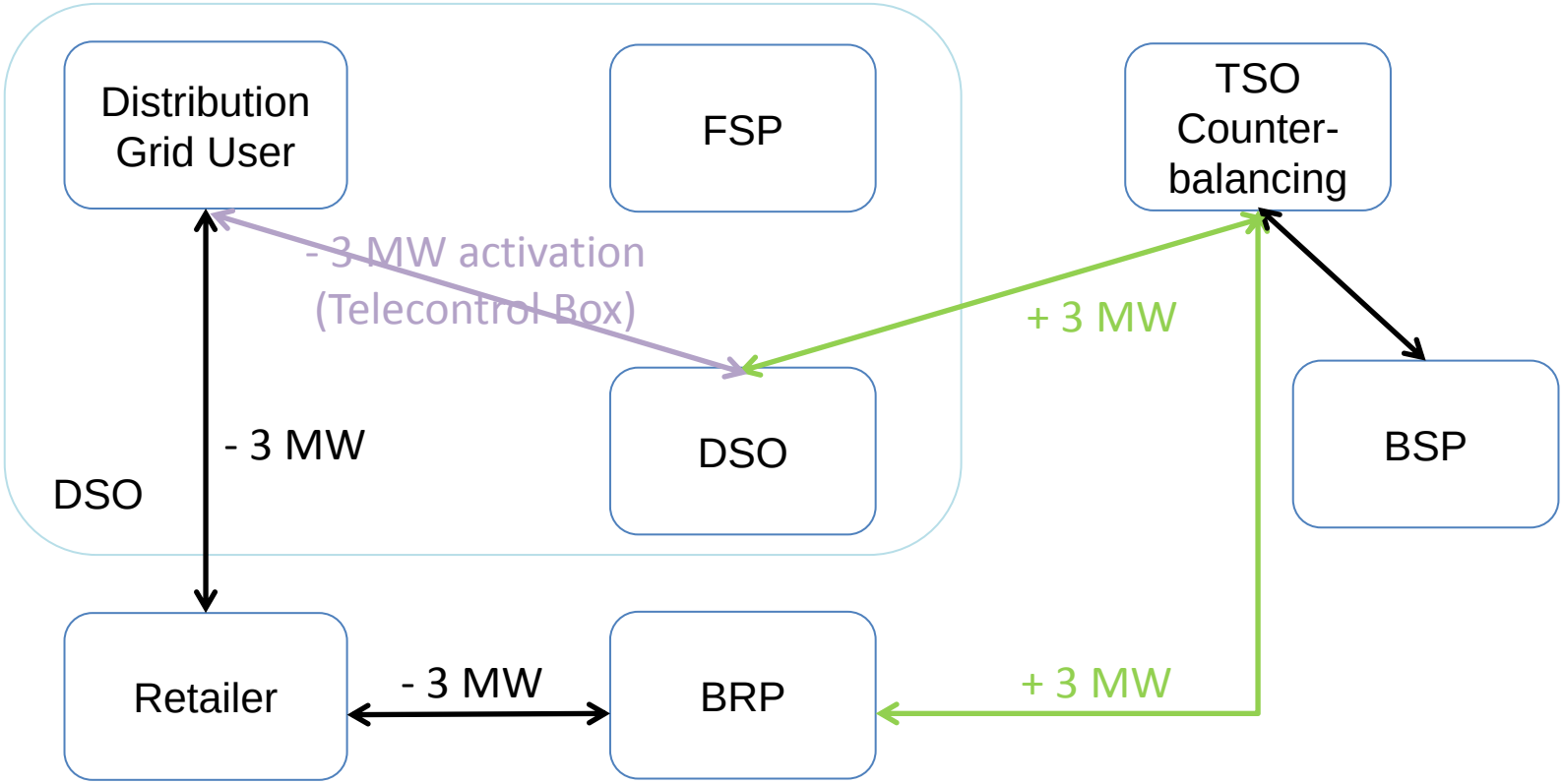
CONGESTION BIDS = COMPENSATIONS BIDS

- Congestion bids: DSO adapts generation (= curtailment) to deal with system constraints
  - Connection agreement: technical flexibility **imposed in the connection agreement** between GU and DSO
  - Commercial agreement: flexibility services offered **on a voluntary basis** to a DSO, e.g. generation down by GU with firm capacity or consumption up (via FSP)
- Compensation bids: DSO asks TSO to activate a compensation bid in order to counter-balance for the impact of the curtailment

Transfer of energy via automatic correction of BRP perimeter via TSO on request of DSO.

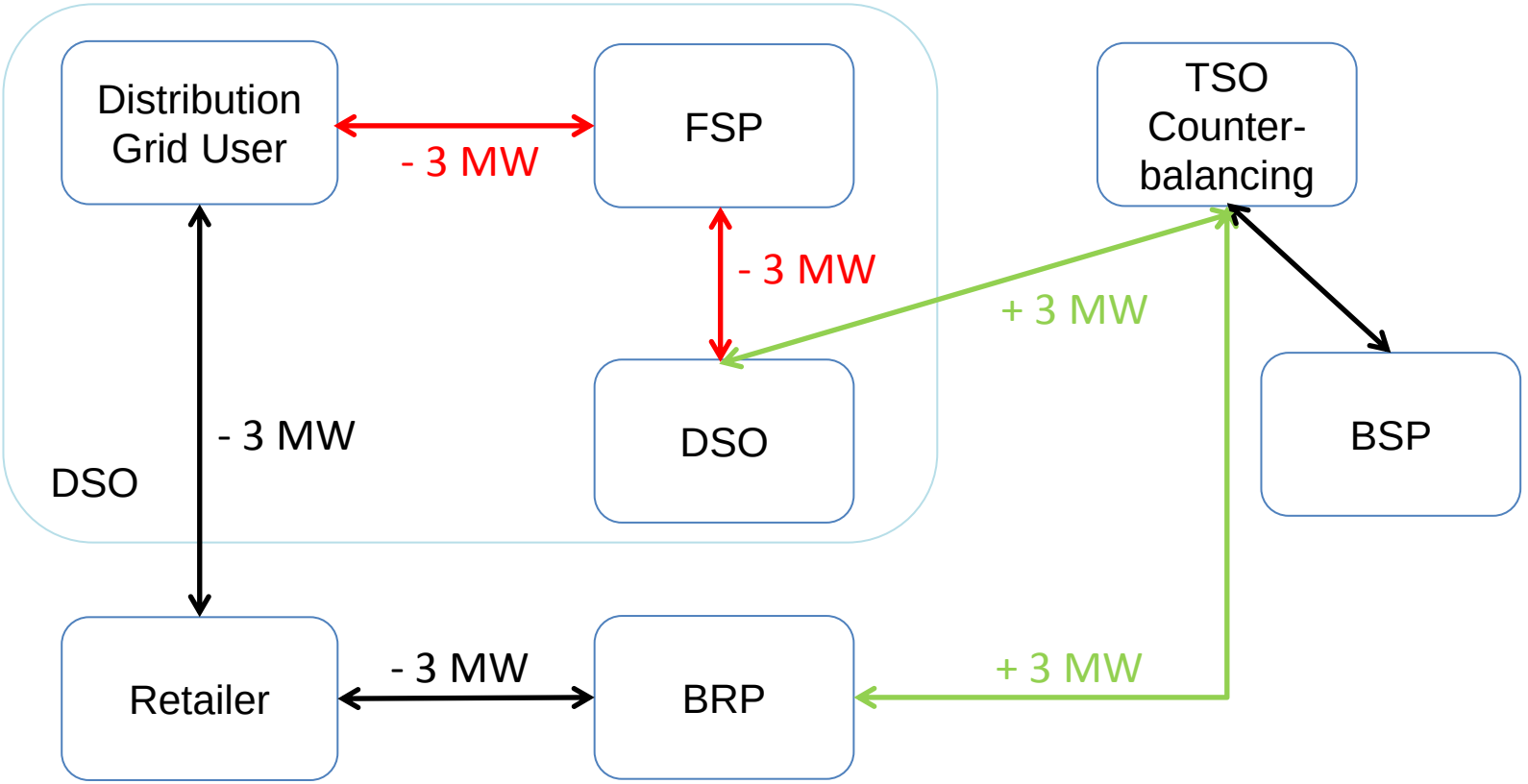
OBLIGATORY CONGESTION BID

- Technical flexibility is imposed in the connection agreement between GU and DSO
- GU is obliged to make a congestion bid to the DSO according to the specific requirements in the connection agreement with regard to the technical flexibility, i.e. curtailment of generation
- DSO decision to activate or not



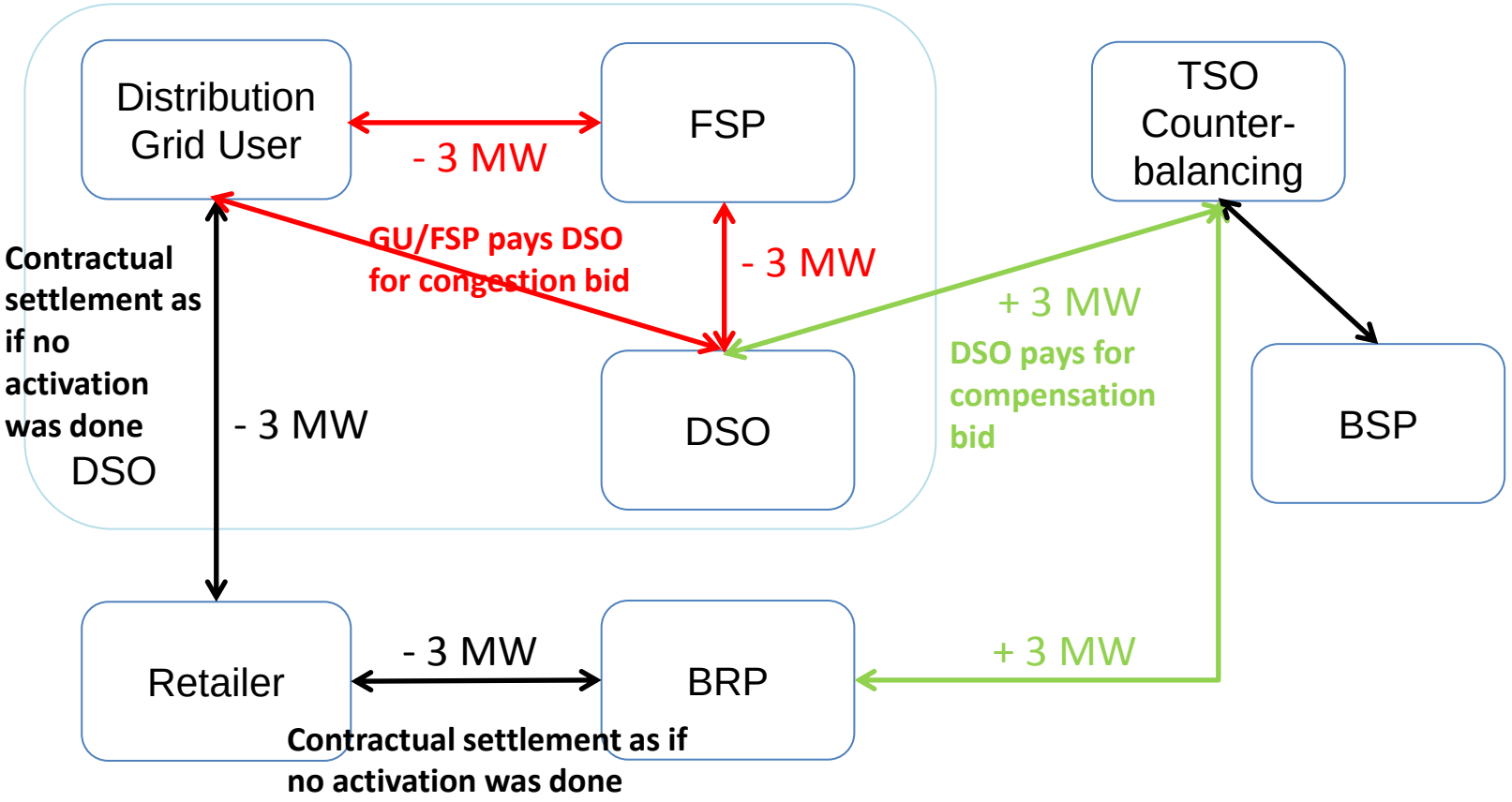
VOLUNTARY CONGESTION BID

- GU signs a flexibility services agreement with a FSP
- FSP makes a voluntary congestion bid to the DSO, i.e. curtailment of generation or increase of consumption
- DSO decision to activate or not



FINANCIAL FLOWS

- Curtailed volume is generated by other generator or compensated by load shedding
- Grid user will be paid by retailer/BRP for production as if no activation was done
- GU/FSP pays variable running costs to DSO (fuel cost, CO_2 costs, maintenance, … - green certicate*)
- DSO pays TSO for compensation bid



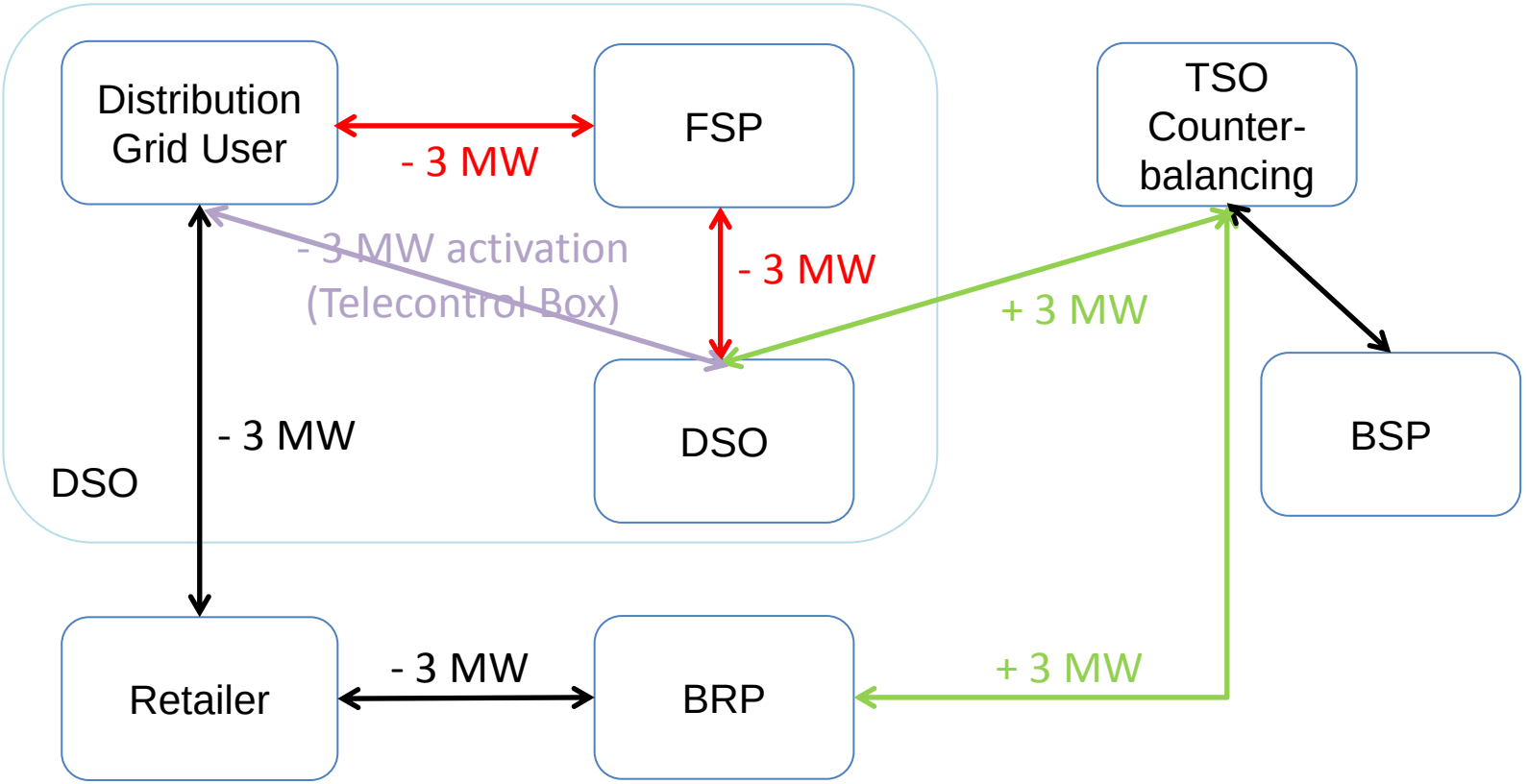
* FEBEG is in favor of shift towards investment support

COMPENSATION BIDS

- Only TSO can counter-balance BRP
- Need of cooperation between DSO's and TSO
- TSO counter-balancing:
  - To maximise liquidity, at least following means should be available via TSO:
    - Bidladder: compensation bids should have a locational signal
      - Skip bids to avoid congestion
      - Select specific bids to counter-balance locally
    - CIPU: compensation bids by units connected to the transmission grid
  - Activation of compensation bids will not have an impact on the imbalance price

VOLUMES FOR COUNTER-BALANCING

- In case of curtailment DSO sends a setpoint to the FSP/GU (e.g. maximum generation of 7 MW)
- DSO estimates the curtailed volume based on a 'reference profile' (e.g. reference profile of 10 MW – setpoint of 7 MW = 3 MW)
- Estimated curtailed volume will be used for counter-balancing, e.g. 3 MW



REFERENCE PROFILE

Basic principle

- DSO needs a reference profile to determine the activated volume (= non-generated energy) for counter-balancing and settlement
- **Free choice of generator** between 'nominations' and 'reference profile based on historical data'

Nominations

- Nominations are the most accurate estimations by a BRP
- **Nominations ensure coherence between markets** and enhance the flexibility market (respect of the flexibility value chain)
- Nominations allow trade-off for use of flexibility in different markets, e.g. nominations are already used to valorise flexibility in the balancing market (R3 'Dynamic Profile')

Historical data

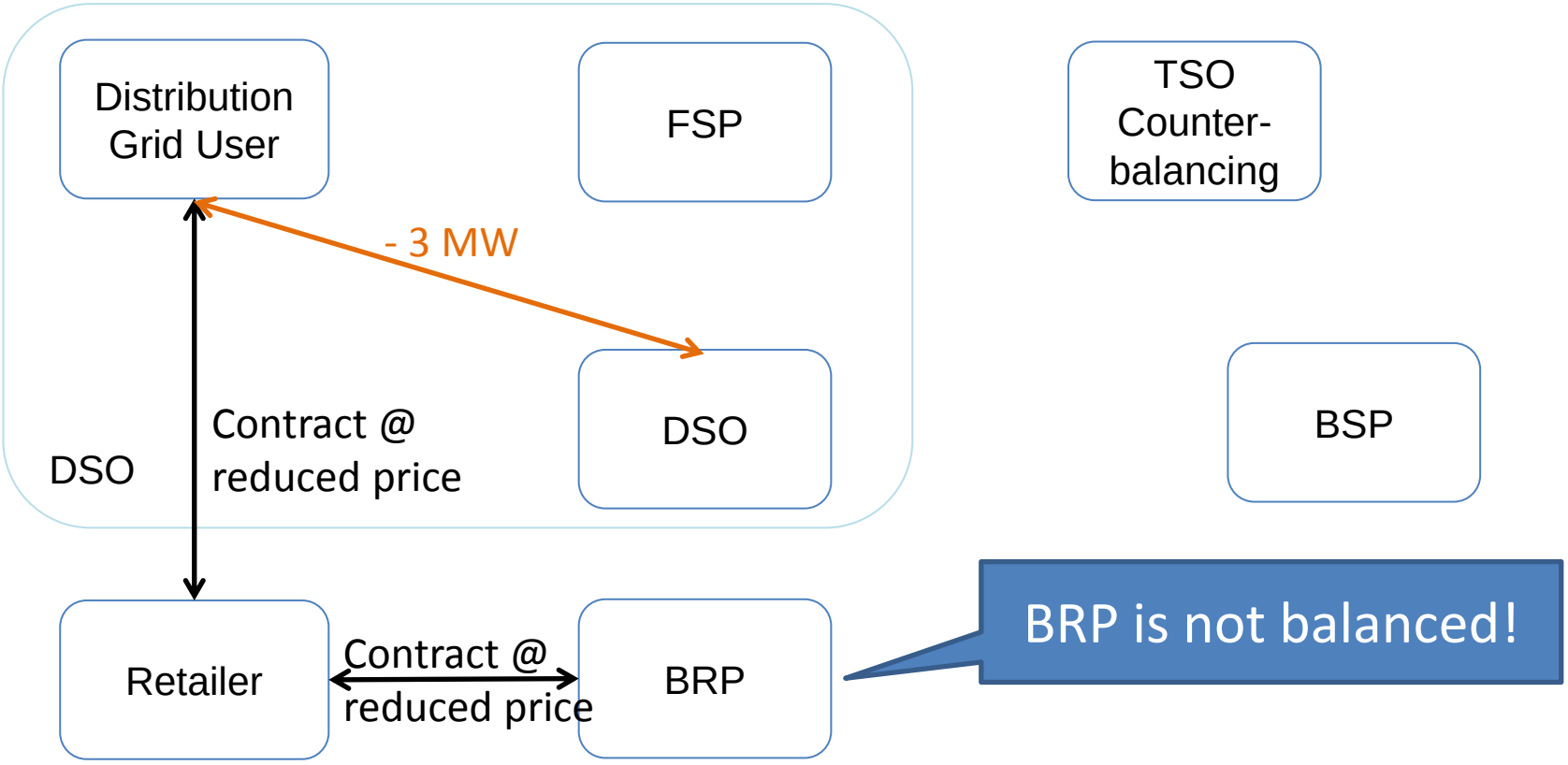
- **Distinction between controllable** (e.g. biomass, cogeneration, gas motor, …) **and limited controllable** (e.g. wind turbines) units
- Controllable units: reference profile based on historical data of specific unit
- Limited controllable units: reference profile based on historical data in a geographical area, e.g. country, region, province, … (= proposal Elia)

ADVANTAGES

- No impact on commodity/balancing market (perimeter BRP)
- Proposal integrates existing tools or tools under development, e.g. know-how of bidladder
- Proposal allows particiation of FSP (voluntary congestion bids and compensation bids)
- Proposal could strengthen - if future integration of redispatch tool in bidladder - the balancing market creating liquidity
- Proprosal looks for most cost-efficient solution
  - Most favorable congestion bid (merit order)
  - Cheapest compensation bid in whole system (merit order)
  - DGO cost is limited to difference between both (net cost is incentive to invest)
- Extendable to other cases, e.g. generation up, load down and up
- Neutral for BRP, retailer and grid user
- Level playing field between grid users

PROCESS FREE BAND

- No congestion bids and no payments towards DSO: free band is compensation issue!
- No counter-balancing by TSO initiated by DSO
- Loss of quality of generated energy resulting in a reduced contract price paid by BRP/retailer to GU
- Free band could be integrated in FEBEG congestion management model (settlement discrepancies, …): no additonal operational processes needed



MACRO-ECONOMIC ASSESSMENT

- Option of free band is a **political decision**
- **Need for macro-economic assessment showing 'social welfare'** of introducing a free band, taking into account:
  - Additional connections of RES within the existing grid
  - Impact on the profitability of renewables projects
  - Objective to incentivize to build renewables in non-congested zones, but what about incentive for DSO to invest in the grid
  - Fair split of costs between involved parties
- **Other prerequisites** for introducing a free band:
  - More transparency on congested zones
  - Transparency on methodology for the determination of the free band
  - Free band should be **known upfront**, i.e. before investment decision, and is thus only applicable on new connections

If free band would be considered, then only within restrictive, transparent and non-discriminatory legal framework

LEGAL FRAMEWORK

Legal framework is necessary to guarantee the incentive for DSO's to invest in the grid!

- Only in congested zones (and thus not everywhere)
- Only temporary pending grid investments (and thus not permanently)
- General rule (in grid code) or negotiable on individual basis (in connection agreement)?
- Interruptibility = fixed %? Peak, volume, time, …?
- …

QUESTIONS