ENTSO-E Public workshop: Presentation of 3rd CBA Guideline

18 December 2018

Hotel Metropole, Place de Brouckère 31
1000 Brussels
Room Alban Chambon

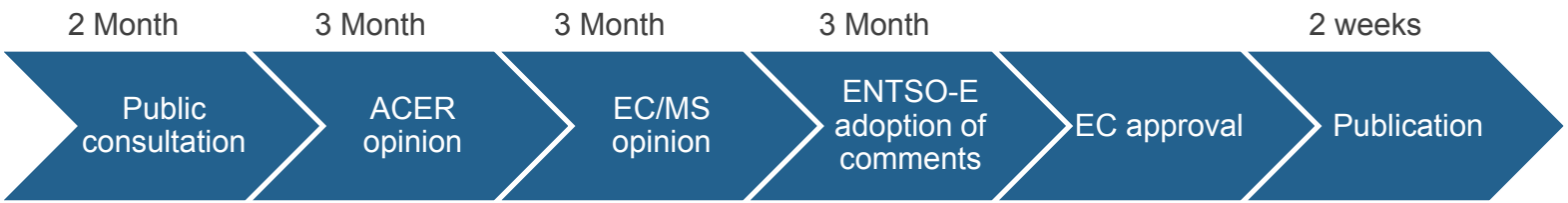
Agenda

No	Subject	Time	Lead
	Welcome coffee	***09:30-10:00***	
	Introduction	10:00-10:30	Dimitrios Chaniotis Chairman of the System Development Committee
1	CBA process • How to improve the CBA guideline • What ENTSO-E aims to improve • Workstream • Next steps Discussion	10:30-12:00	Nils Schindzielorz Convenor of the DT CBA Maria Chiara Cavarretta ENTSO-E System Development Advisor
2.	***Lunch***	***12:00-13:00***	
3	Changes from CBA 2 to CBA 3 • Presentation and discussion on the innovated indicators (existing indicators updated, new indicators)	13:00-15:00	DT CBA: Nils Schindzielorz Martti van Blijswijk Etienne Meyruey Maria Chiara Cavarretta
4.	***Coffee break***	***15:00-15:15***	
5	Outlook for TYNDP 2020	15:15 – 15:30	DT CBA: Nils Schindzielorz Etienne Meyruey
6	Wrap-up session	15:30-15:45	Nils Schindzielorz
7	Conclusions	15:45-16:00	Dimitrios Chaniotis Chairman of the System Development Committee

1. CBA Process

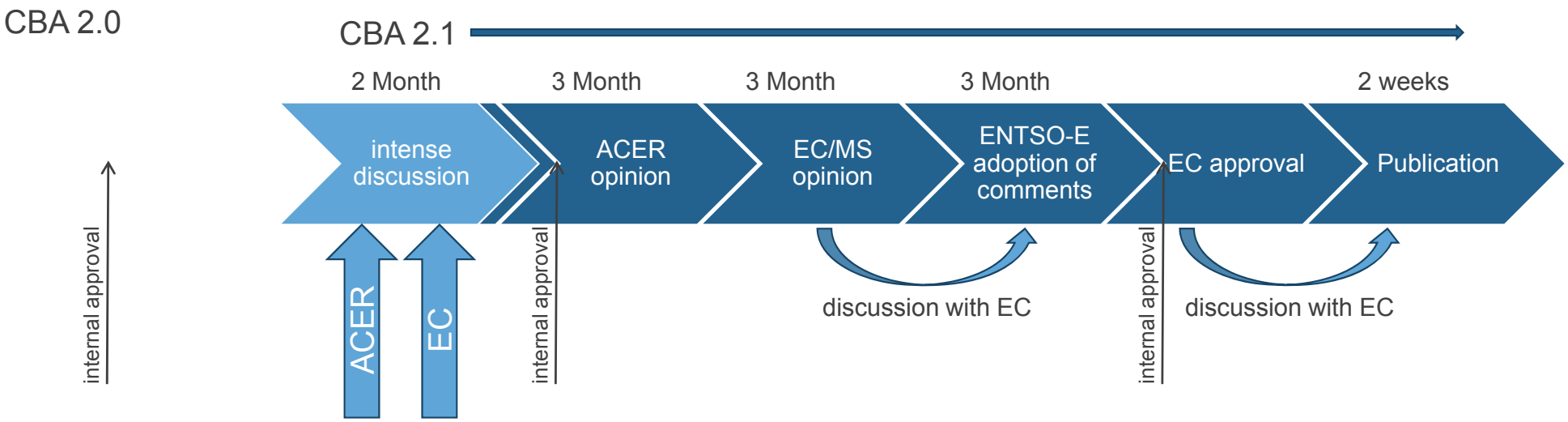
How to improve the CBA guideline …

… only following Reg. 347 (2013)



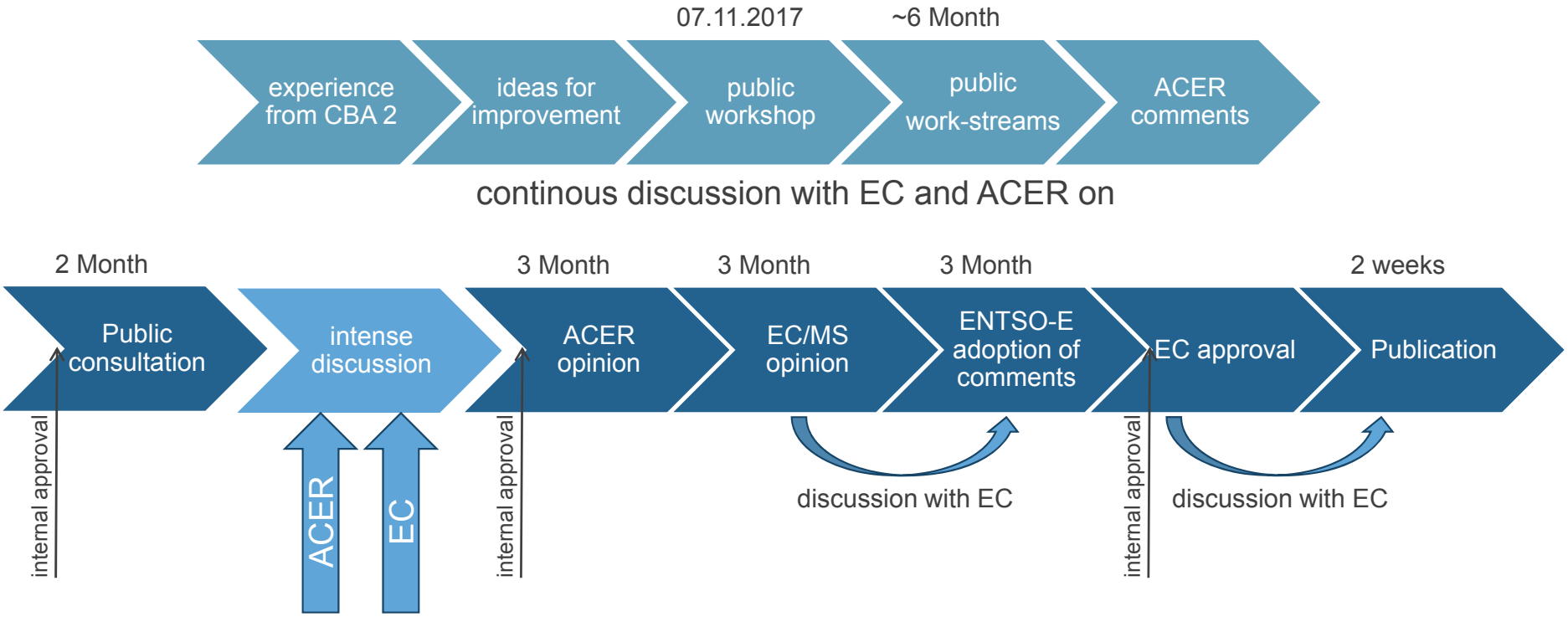
How to improve the CBA guideline …

… as applied for CBA 2



How to improve the CBA guideline …

… and for CBA 3



Workstreams

Workstreams: who was involved?

External Stakeholders: all ENTSO-E non-direct stakeholders

- Consultants
- Academia
- Utilities
- Manufacturers
- Investors

… mainly all industry professionals were involved

Workstreams: why?

- Good experience including „external“ parties in the CBA 2 process
- For CBA 3: starting from the very beginning with help of external experts
- Defining together the core issues

Workstreams: the starting point

Common Framework for improving the CBA:

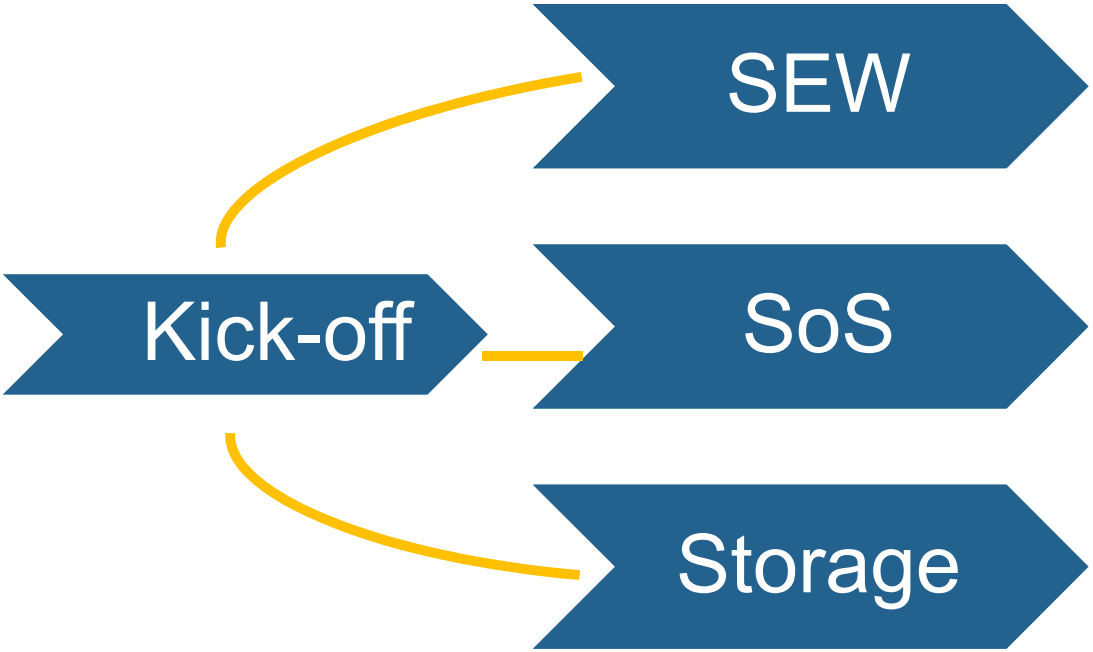
- Comments from the public consultation
- Direct observations from ACER
- Direct observations from EC

Workstreams: the scope

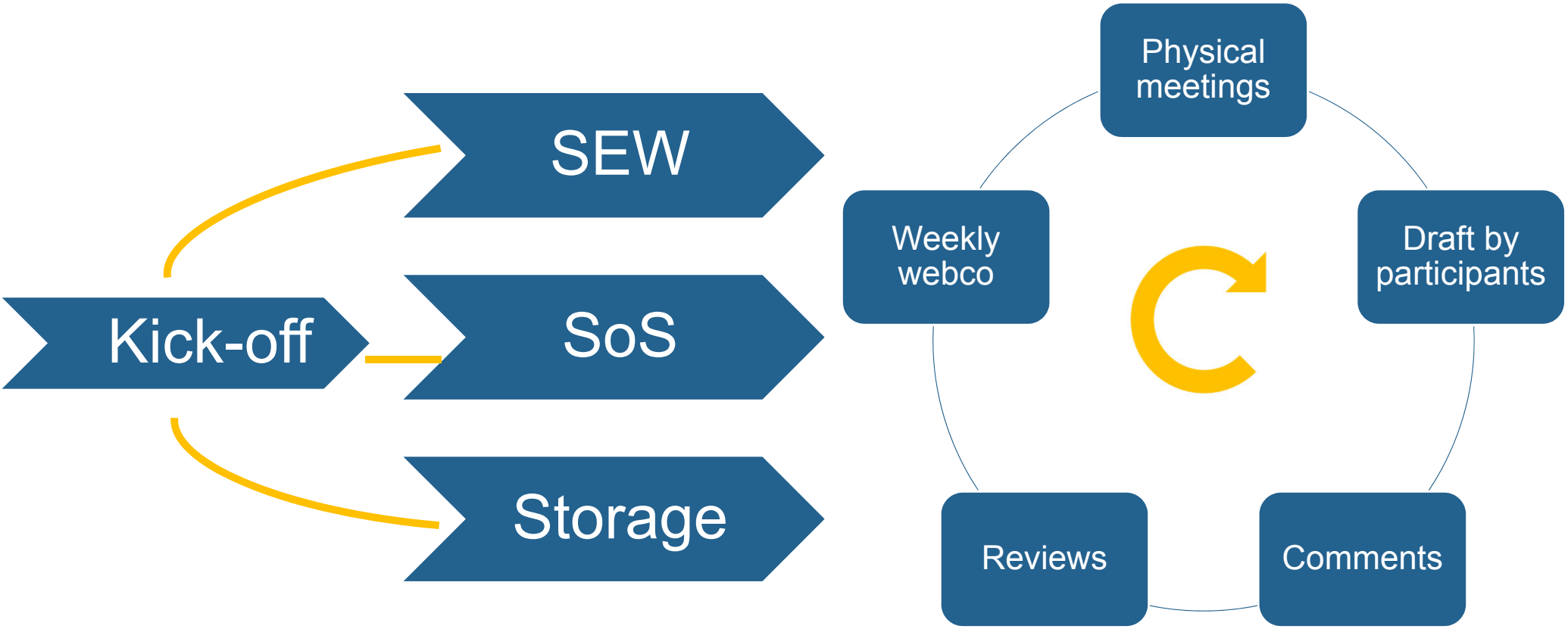
Anticipate and go beyond consultation

- to maximize external stakeholder input
- content mainly drafted by the external stakeholders
- to give sufficient time to mature how to contribute

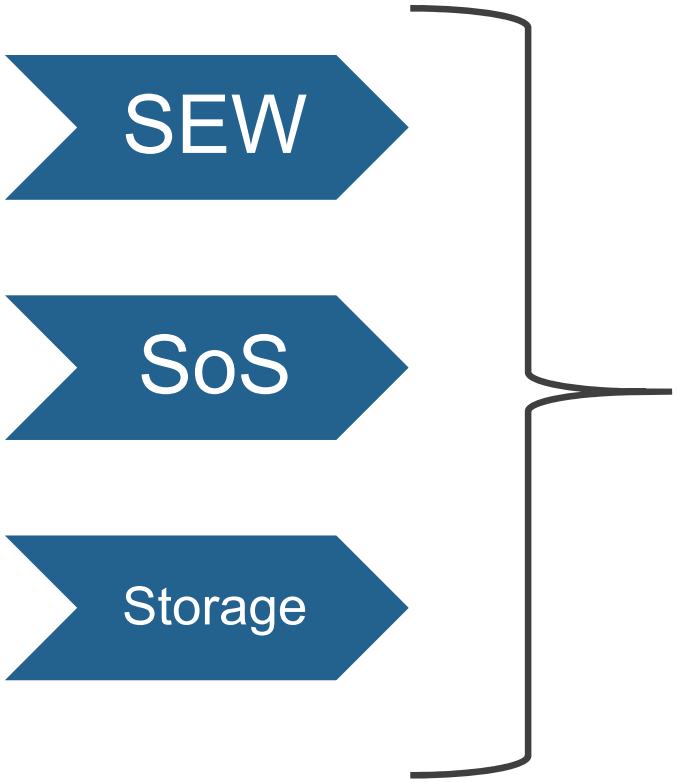
The workstreams: how



The workstreams: how

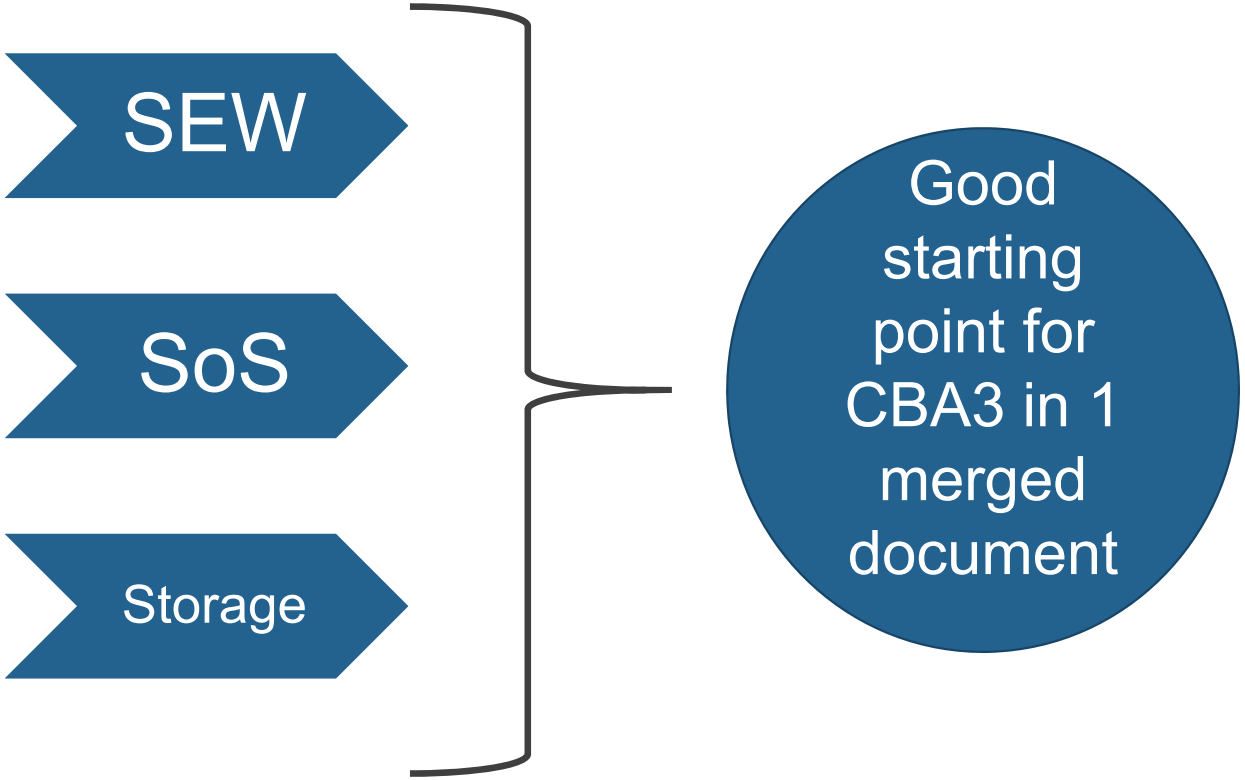


The workstreams: how



3 deliverables drafted by the workstream participants

The workstreams: how



The workstreams: outcomes

SoS

Adequacy:

- Adequacy
- ENS from Monte Carlo Simulations
- Sanity Check

Ancillary Services: Balancing Energy

- Focus on Exchanging Balancing Energy
- Drawn upon projects/studies like TERRE, iGCC, PICASSO, MARI
- Drawbacks
- Next steps

The workstreams: outcomes

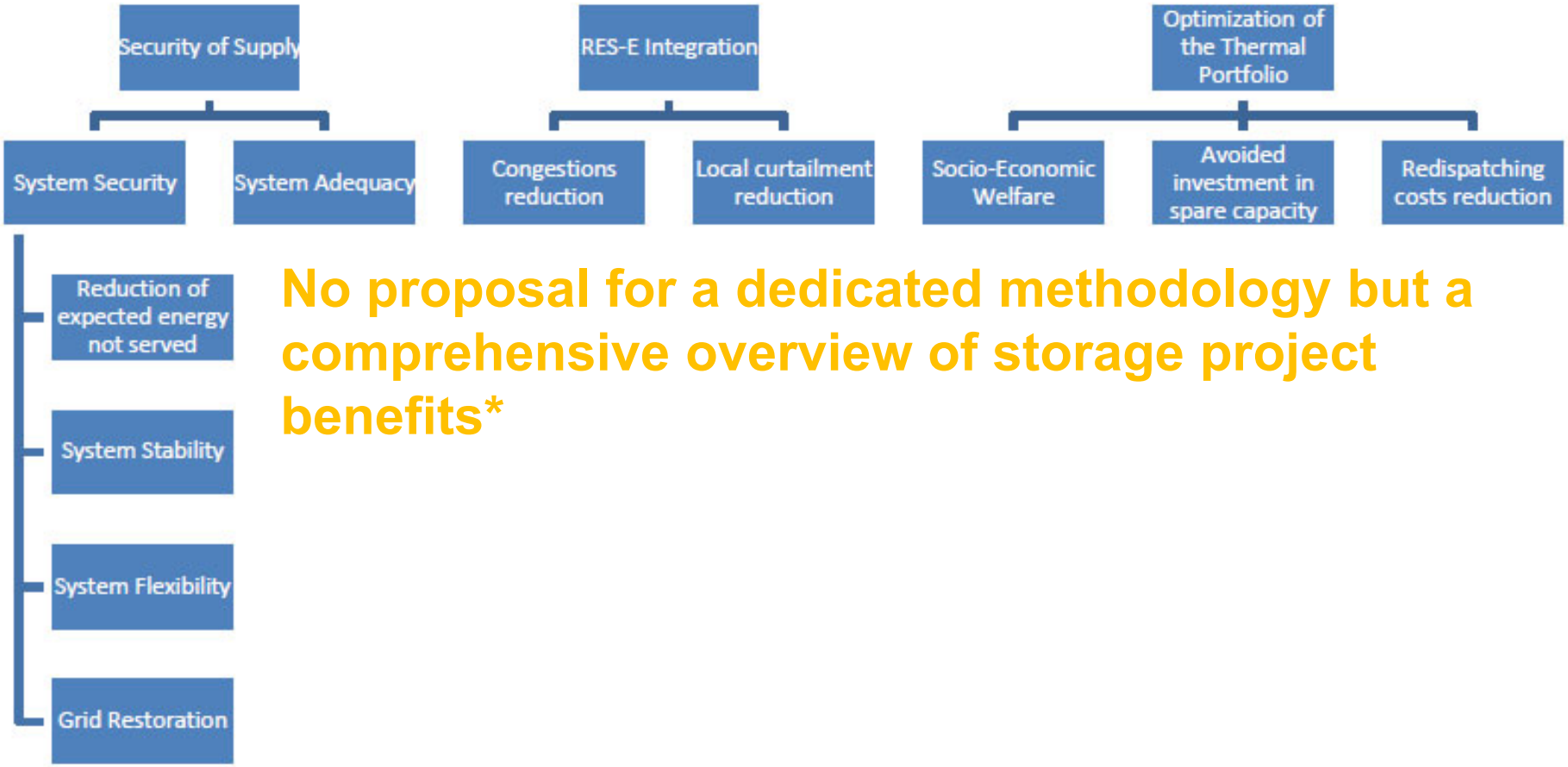
SEW

No proposed methodology but recommendations:

- Retain current SEW definition
- Include more formal and thorough explanations of the indicators
- Provide context
- The indicator should be clearly delineated

The workstreams: outcomes

Storage



No proposal for a dedicated methodology but a comprehensive overview of storage project benefits*

*Benefits that are described here might also apply for other types of projects

Next Steps

Next Steps

- Draft shared with ACER for preliminary comments
- By the end of January 2019: 3rd CBA Guideline out for consultation

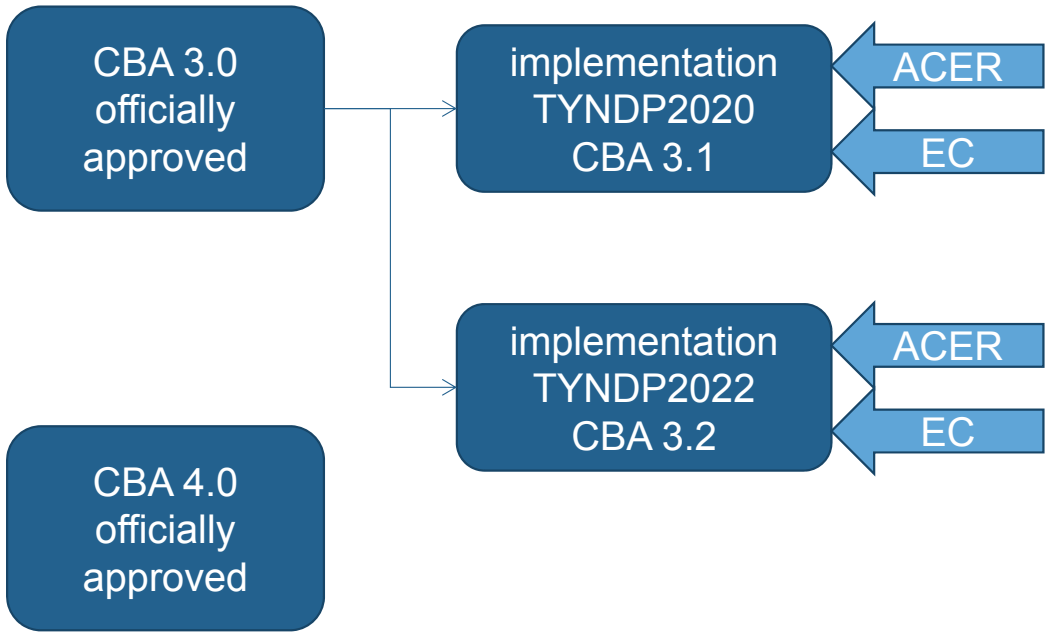
2. Lunch

3. Changes from CBA 2 to CBA 3

A modular approach

- **Preparing and publishing the CBA 3 as described (following Reg. 347/2013)**
- **additionally for each TYNDP publishing the implementation guideline**
  - **gives more flexibility and possibilities for improvement, tests of new methodologies**

Example:



Improvements:
- more flexible
- more time for improvements
- time for testing methods

Idea:
- leaving the main document more general
- details in implementation

SoS : adequacy

Adequacy

Ability of a power system to provide an adequate supply of electricity in order to meet the demand at any moment in time.

→ An interconnector can bring an adequacy benefit if the two countries it links are not facing adequacy stressed event at the same time.

Benefit materialized through two concepts:

- Decrease the need of generation capacity (while keeping the SoS level constant)
- Decrease the Energy Not Supplied (ENS) in the countries (i.e. improving the SoS of the area)

Prerequisites

- Refined model of hazards (climate, plant and grid outages)
  - **LOLE is a very scarce phenomenon**
  - **Need to model deepness of such events and their simultaneity between countries**
- Realistic SoS level starting point

SoS : adequacy

Modeling adequacy benefit

	Approach	Monetization
1	Compute the capacity that is no longer needed to reach the same SoS capacity when the project is added	Cost of best new entrant
2	Compute the amount (MWh) of avoided ENS thanks to the projetct	Value of Loss Load (VoLL)

Workstream output

- Methodology based on the second approach (avoided ENS 2)
  - Be careful to have realistic SoS starting point
- Add a cap value based on a simplified generation capacity savings approach (1)

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SEW

SEW – main changes

Better framed in its scope:

- Indicator delimited to the economic benefits that stem from **wholesale energy market integration**
- Total generation costs considered updated

Cost Terms in Market Simulations	Description
Fuel costs	Costs for fuel of thermal power plants (e.g. lignite, hard coal, natural gas etc.)
CO_2-Costs	Costs for CO_2-emissions caused by thermal fired power plants. Depends on the power generation of thermal power plants and CO_2-Price.
Start-up-costs / Shut-down costs	These terms reflects the quasi-fixed costs for starting up a thermal power plant to at least a minimum power level.
Operation and maintenance costs	Costs for operation and maintenance of power plants.
DSR-Costs	Costs for Demand Side Response (DSR). DSR is load demand that can be actively changed by a certain trigger.

Reference Grid

Reference Grid: TYNDP2018 practice

Under Consideration	Planned, But Not Yet in Permitting	Permitting	Under Construction

- Projects NOT included in the reference grid
- Assessed as PINT projects

- Projects included in the reference grid
- In TYNDP18: CD <= 2027
- Permitting included if properly documented
- Assessed as TOOT projects

Permitting: starts from the date when the project promoters apply for the first permit regarding the implementation of the project and the application is valid

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Reference Grid: the scope

To strengthen the maturity and enhance the likelihood of the reference grid

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Reference Grid: initial ideas

In the NDP

Agreements

PCI status + commissioning date

Public consultation/Public acceptance

Fulfilling Legal Requirements in the interested country/ies

Final Investment Decision

Finance, Regulatory framework

Technical feasibility

Routing feasibility

Environmental Impact Assessment

Permits

General Design

Public tendering

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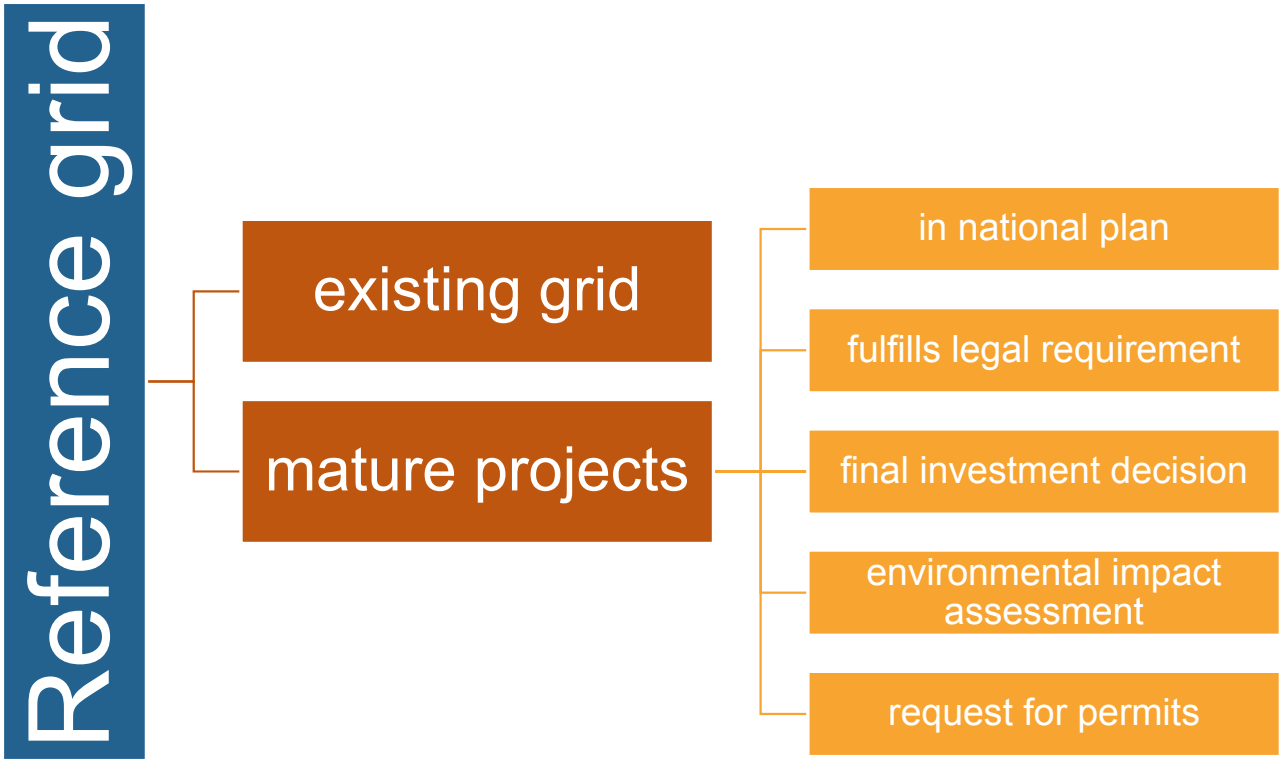
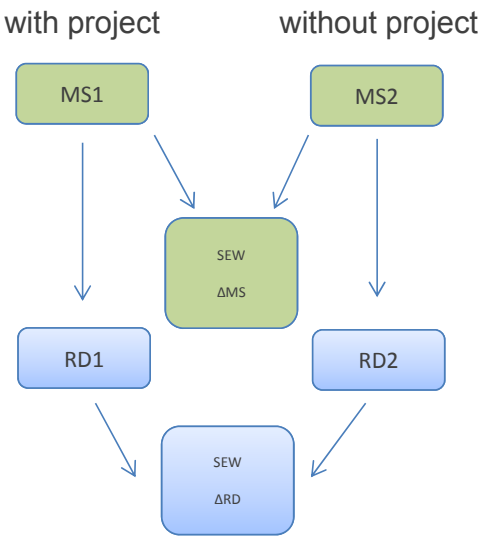
Reference Grid: Changes in CBA 3

→ **more detailed definition of the reference grid base on the maturity of projects**



Redispatch for all projects

- **In CBA 2: introduction of redispatch method for internal projects only**
- **Basically the same method can also be used for Cross-Border projects**



MS: Market Simulation
RD: Redispatch Simulation

Improvements:

- consideration also of internal congestions
- inclusion of physical flows

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4. Coffee break

5. Outlook for TYNDP 2020

Storage Projects

- in principle no special treatment
- improvements will come along with general CBA 3 improvements (e.g. on flexibility)

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NTC calculation

- introduction of seasonal NTCs

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SoS - Flexibility (Ancillary services)

Direct outcome from public work-stream

Main idea:

- Step 1: Common platform
  - assumption that such a common plattform will be in service in the future
- Step 2: Balancing needs
  - definition of the balancing needs as Upward and Downward Demand
- Step 3: Available cross border exchange capacity for balancing energy
  - Using Market simulations to determine the actual utilization of the respective border
- Step 4: Imbalance netting
  - netting out the imbalance between the countries (e.g. upward vs. downward demand)
- Step 5: Balancing bids and offers
  - the match between supply and demand will be made by the cheapest cost under constraints of limited capacity on the interconnector

    Note:
    - the method will become very complex when considering more than 2 countries
    - what balancing bids and offers to use?

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SoS – Stability (Frequency Stability)

For the FSI, only the projects that affect it can be monetized. → See the qualitative table already present in the CBA 2 for each project

MARKET SIMULATIONS → **QUANTITAVE INDICATOR DEFINITION** → **MONETISATION** → **SIMULATION WITH AND WITHOUT THE PROJECT**

- Hourly dispatched generation and demand for each synchronous area for different scenarios

- Aggregated dynamic studies
- In each hour, the reference incident is simulated
- ROCOF and frequency excursions are used to quantify the FSI

TEST PHASE

- Monetization of the indicator is the most challenging issue

ONGOING

- Comparing the results it is possible to evaluate the benefits of a project

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6. Wrap-up session

7. Conclusion