

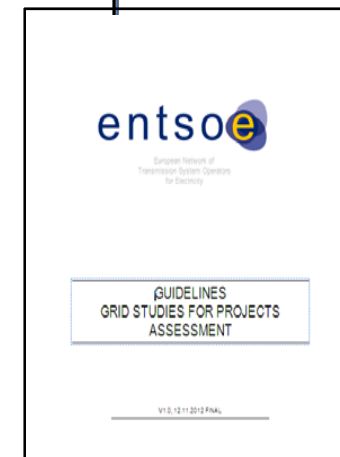
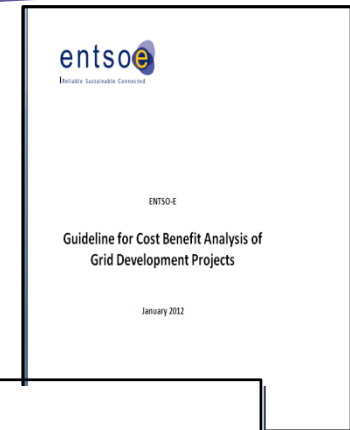
General presentation of CBA methodology and process

Klaus Wewering
Convener of ENTSO-E Draft Team
Planning Standards (DT PS)

Cost Benefit Analysis (CBA) methodology Workshop
24 June 2013, ENTSO-E premises, Brussels,

Outline of the presentation

1. General approach of CBA
2. Short explanation of indicators
3. Future work and next steps



EU objectives of CBA methodology

Transparency

- Harmonised energy system-wide CBA
- Demonstrate overall costs and benefits from a European perspective



CBA = tool
to assess
all projects



**TYNDP
projects**

CBA =
input to
decision
-making
process

**Candidate
PCIs**

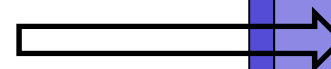
Selection of projects of common interest

- Selection process takes into account CBA results



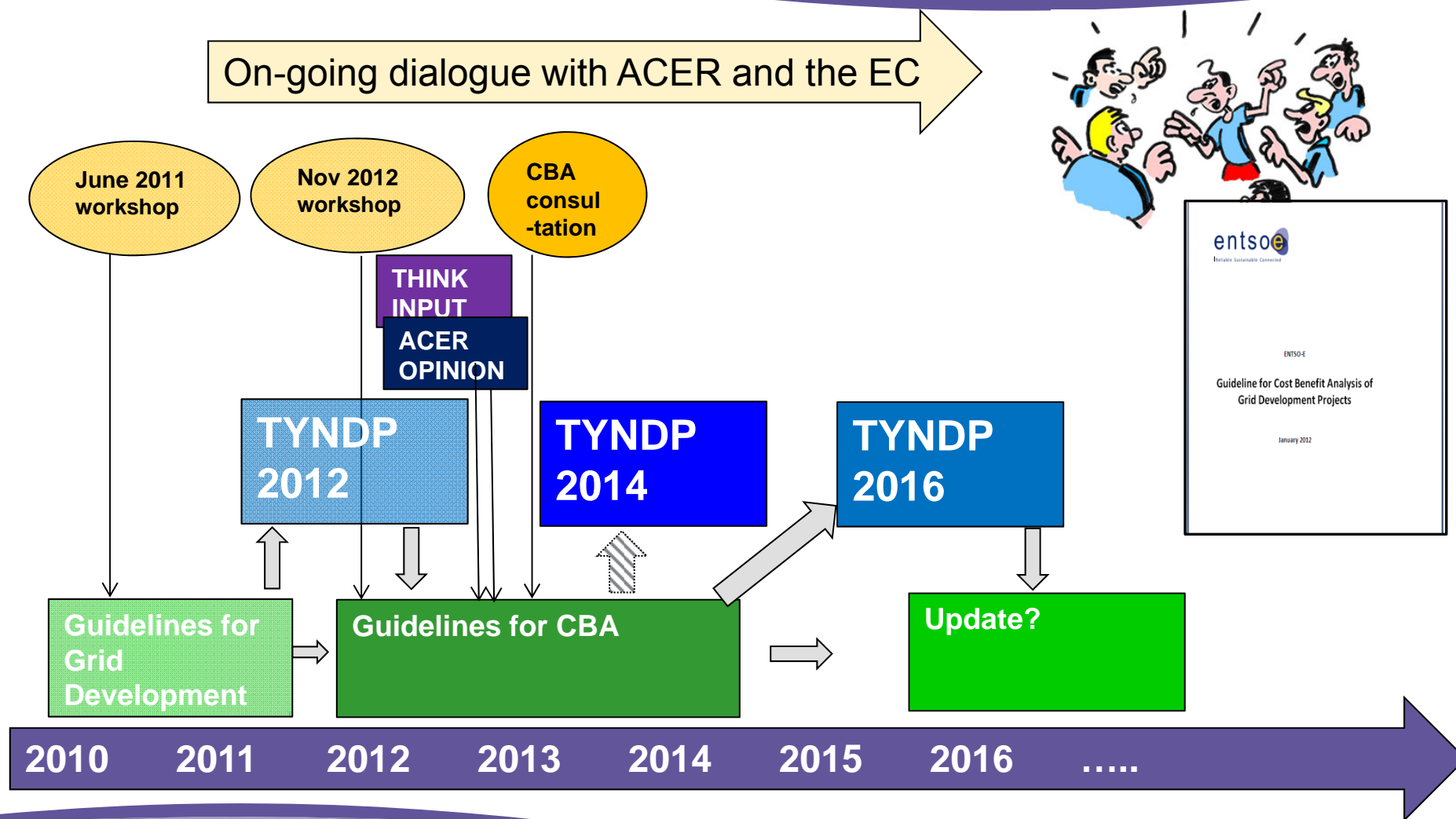
Cross border cost allocation

- CBA results possible input (beneficiary pays principle)

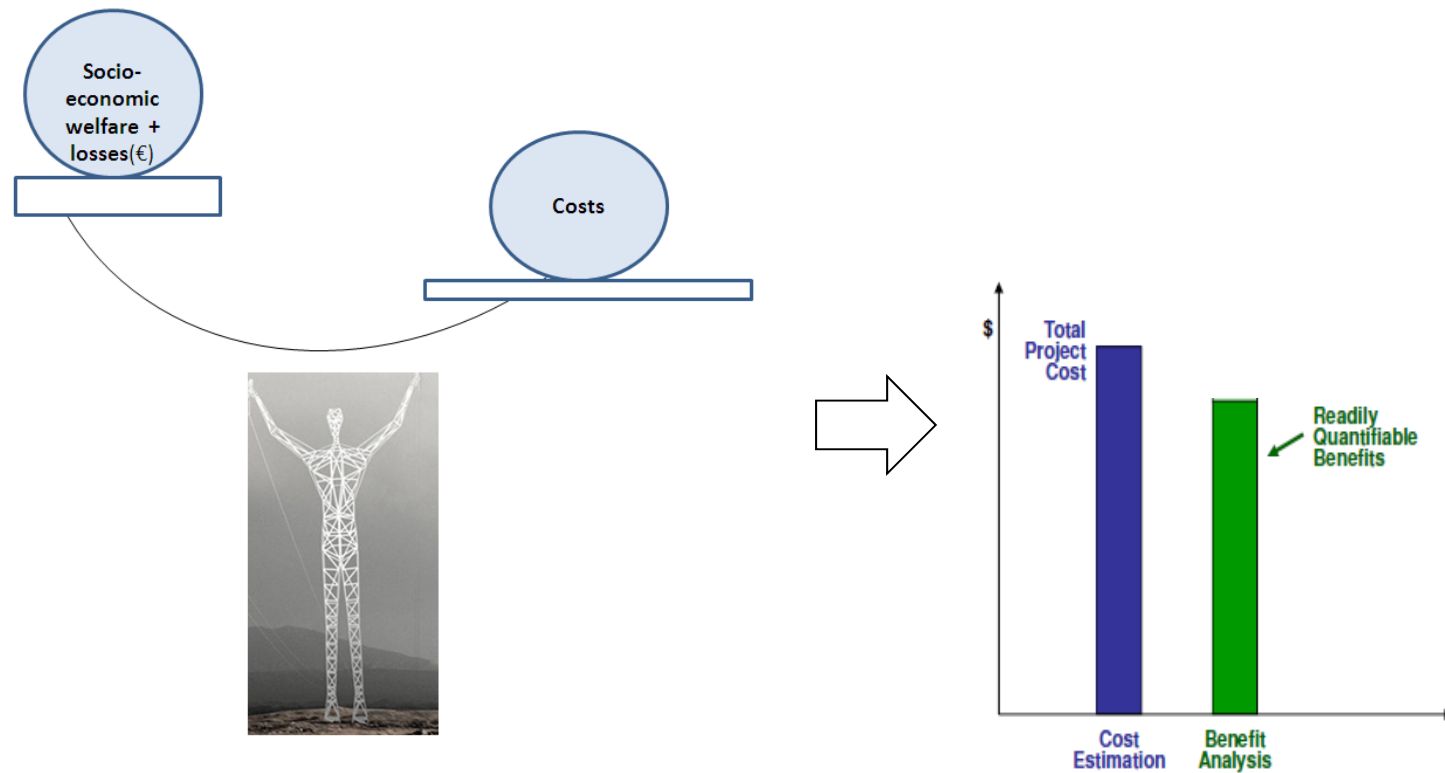


*Upon
request*

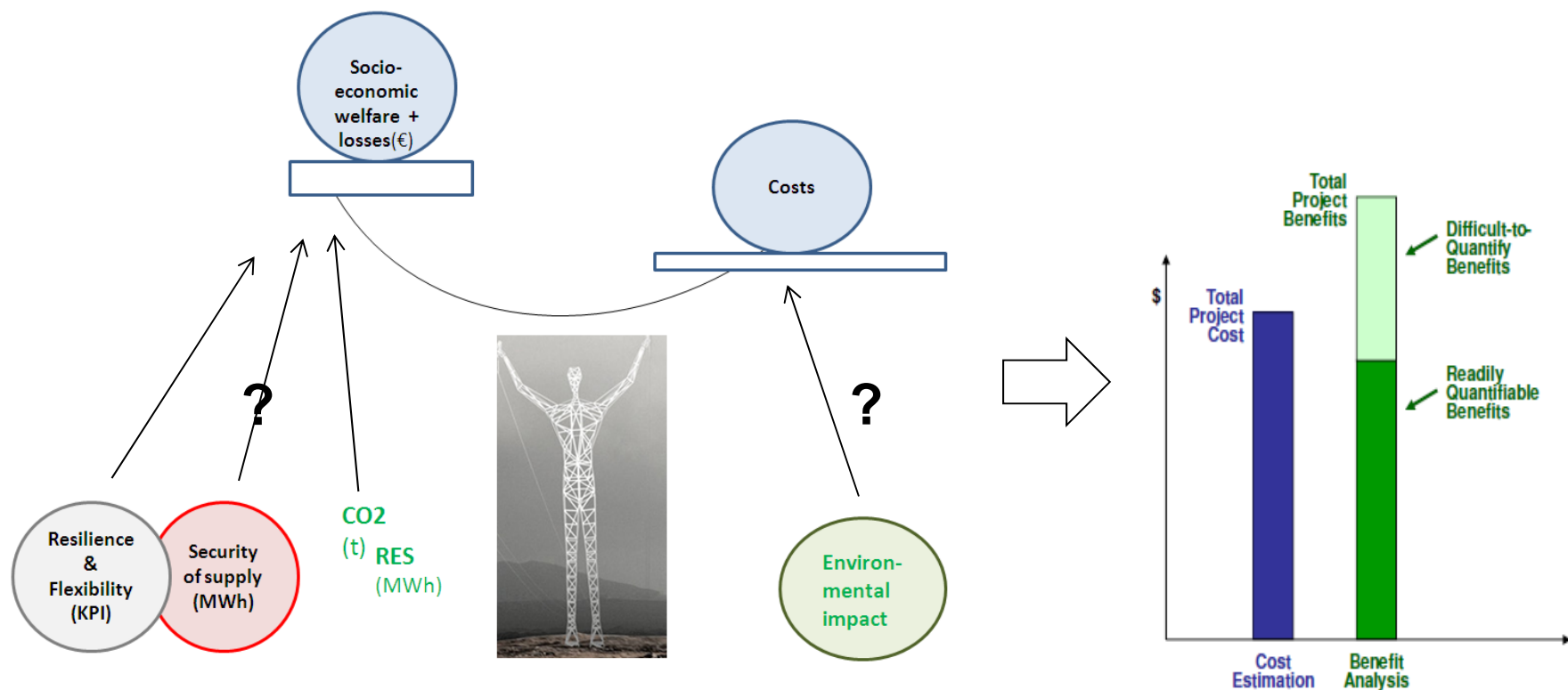
CBA methodology: specific stakeholder interaction



General approach to CBA: get the balance right

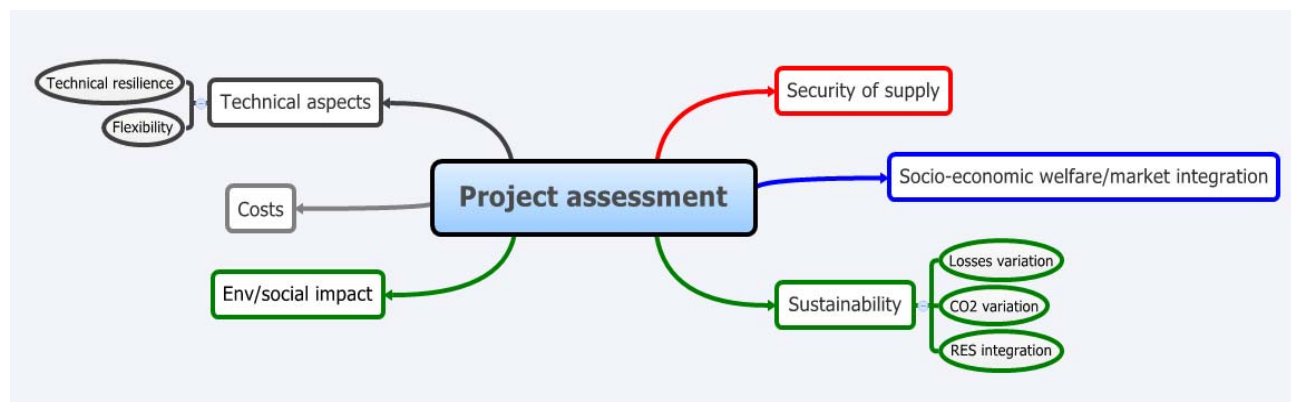


General approach to CBA: get the balance right



Benefit framework

✓ Benefit framework



Stem from
European
Policies + draft
Regulation
(=TYNDP 2012)

Quantification
of all main
indicators
(new)



✓ Geographical framework

- Pan-European database
- Simulation ENTSO-E Region + neighbours



Assessment methodology



TOOT – Take Out One at a Time : basic rule

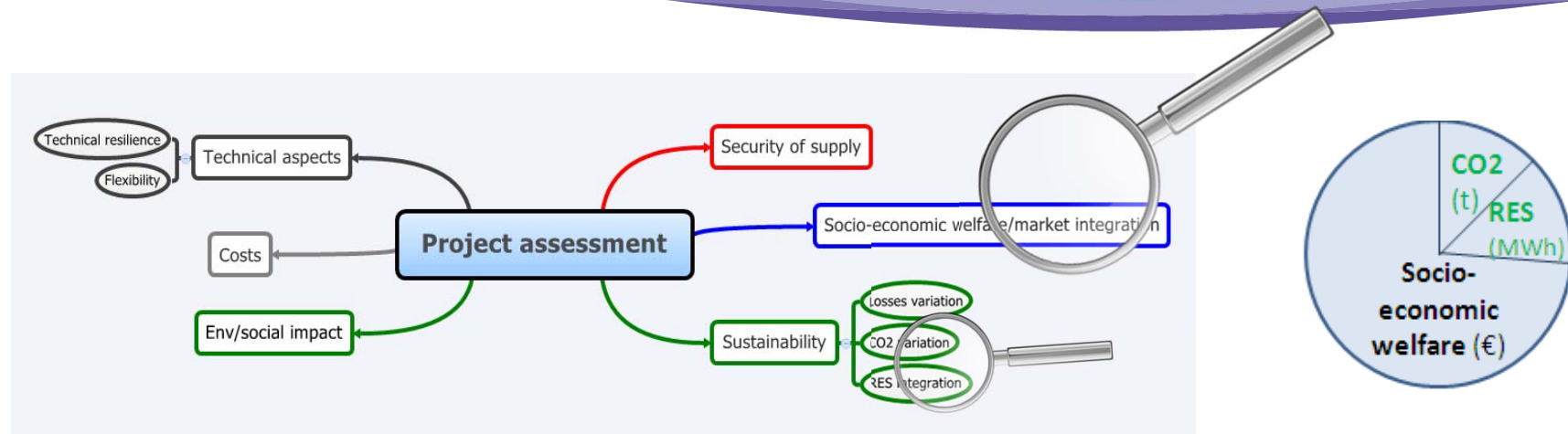
- Project assessment in the most plausible future (future vision, not today's network); generally used in Target Network studies by TSOs
- Conservative approach

But need for adaptations :

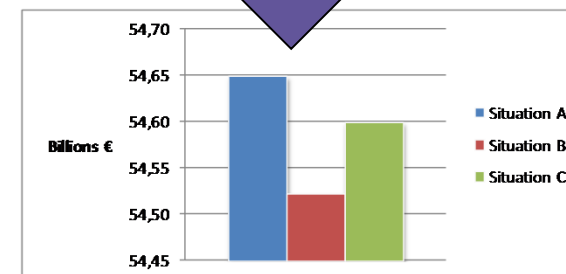
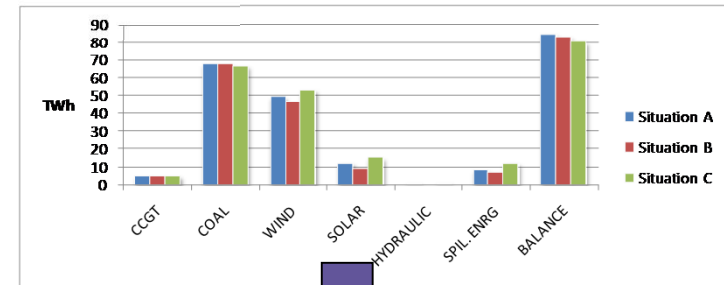
- In case of competitive and non mature projects
- According to scenarios

In any case, equal treatment of TSO and third Party Projects

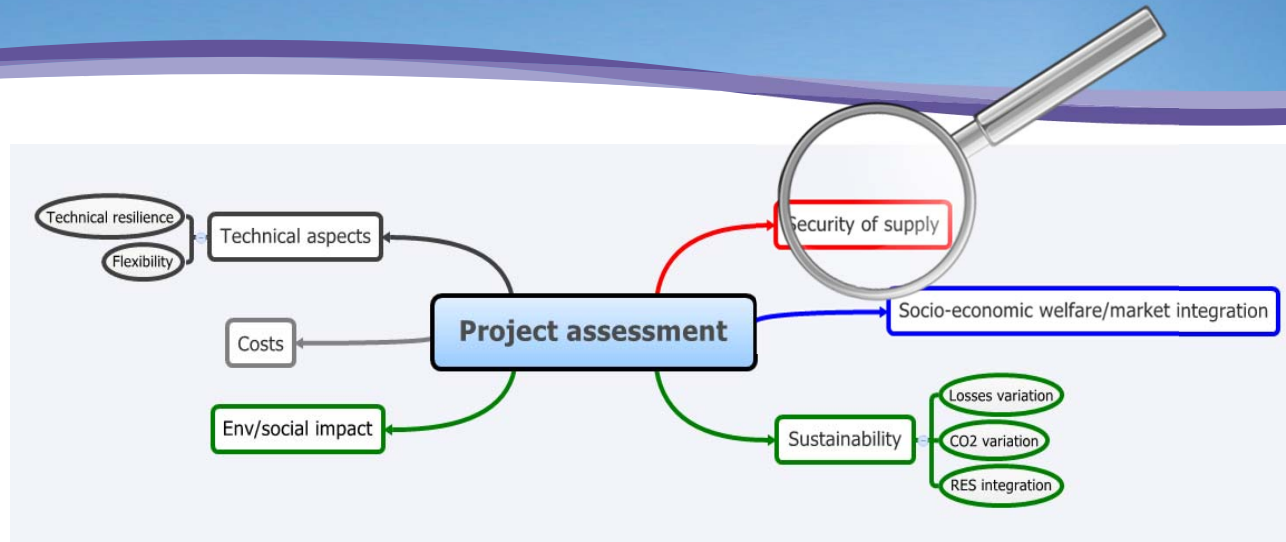
Benefit analysis: short glance on socio-economic welfare



Transmission allows optimisation of generation portfolios - in order to reduce generation costs, reduce CO2 emissions and facilitate evacuation of RES.



Benefit analysis: short glance on Security of Supply

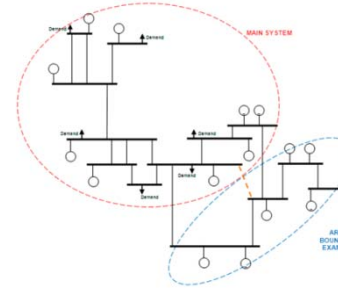
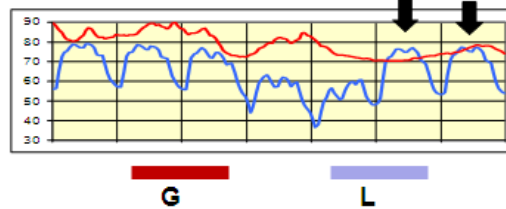


Security of Supply (MWh)

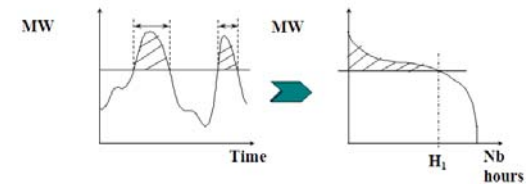
Adequacy



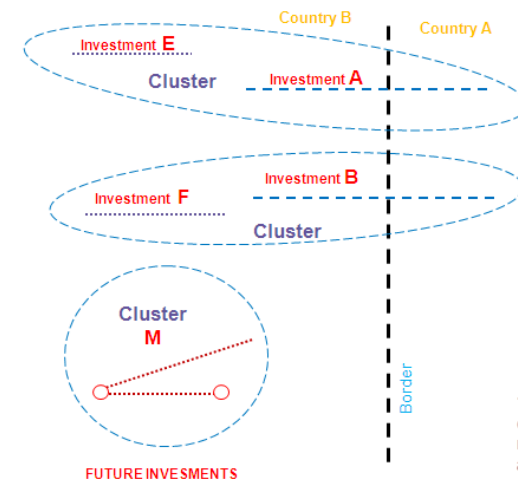
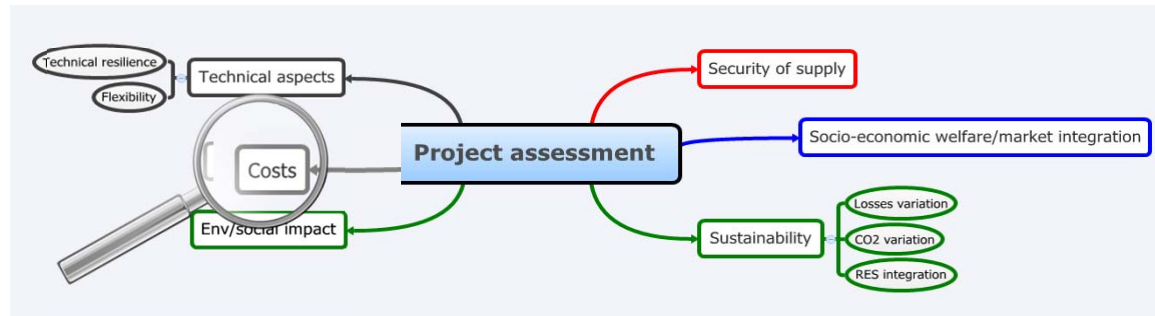
Energy not supplied (LOLE)



Supply of a regional network (>3TWh/year)



Short glance on project definition and cost assessment



What is a project?

- Investment or set of investments

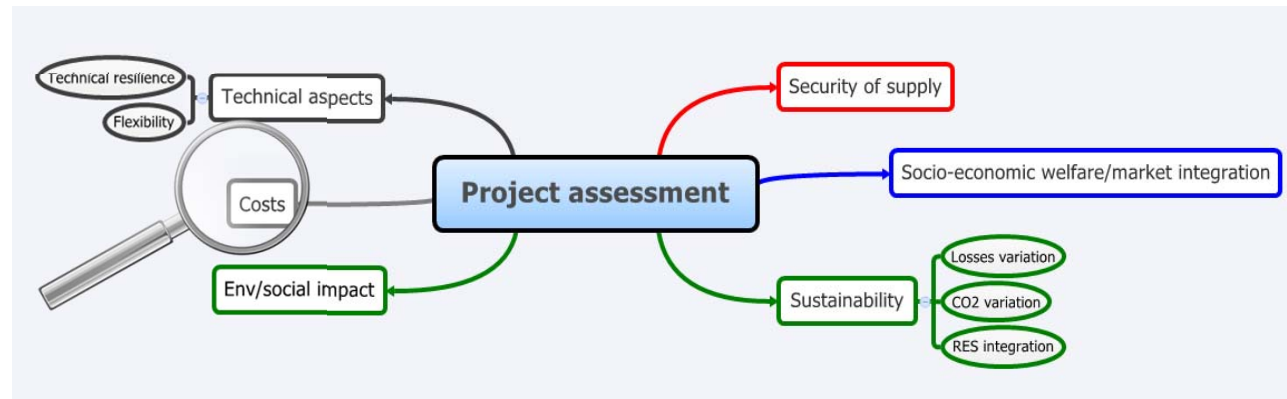
What is an investment?

- A single asset (line, transformer)
- Two or more completely dependent assets (line + transformer, line + reactive shunt device...)

ENTSO-E's clustering rule allows clustering:

- Same goal, same area/corridor, complementary investments
- if $\Delta GTC_{1+2} \geq 1.2 \Delta GTC_1$
- if the investments commission less than 5 years apart

Short glance on project definition and cost assessment

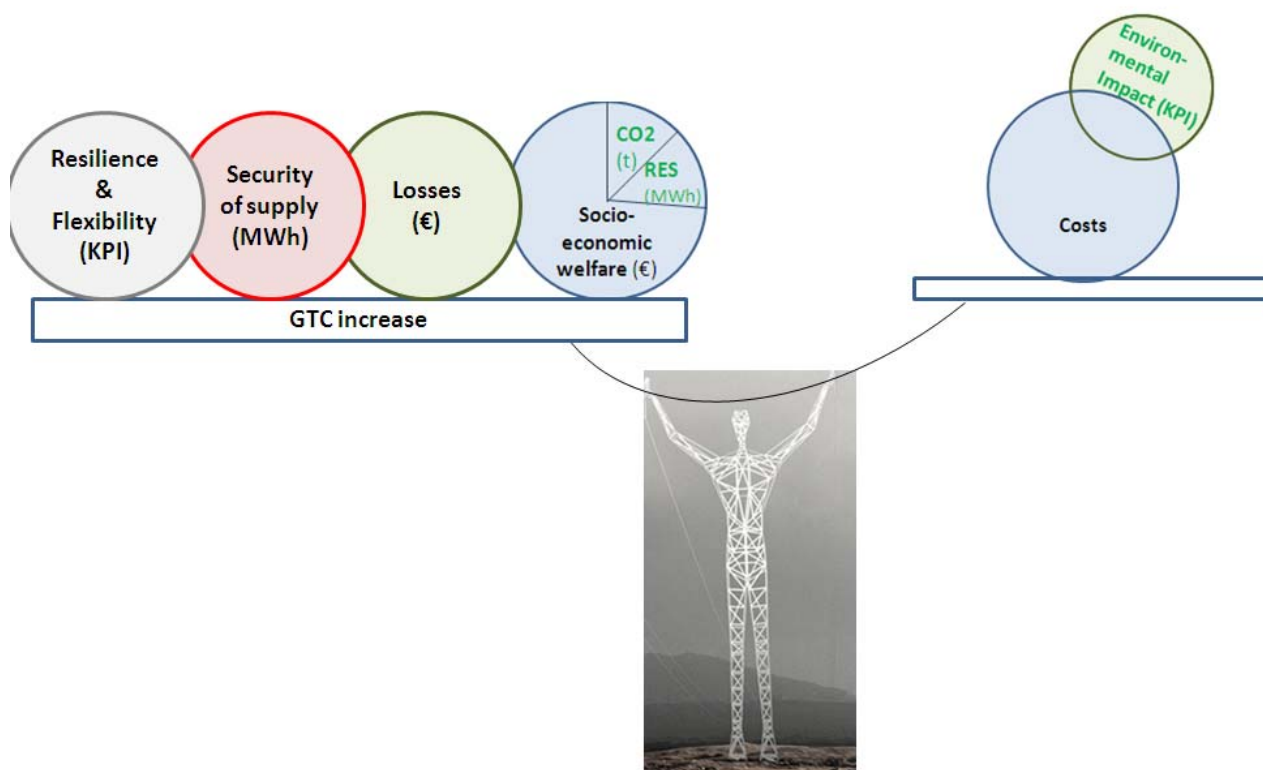


Costs:

- “Pure” investment costs (material, works, studies...)
- Environmental costs (procedures, compensations, dismantling...)
- Maintenance costs, cost of replacements (if any)

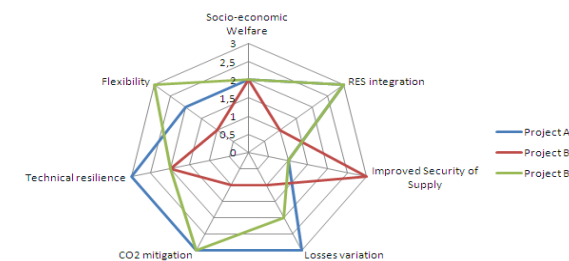
How to ensure that benefits outweigh costs ?

Computation



Presentation

Criteria	Grid Transfer Capability Increase	Socio-economic Welfare	RES integration	Improved Security of Supply	Losses variation	CO2 mitigation	Technical resilience	Flexibility	Social and environmental impact	Project costs
	MW	M€/year	MWh/year	MWh/year	M€	Mt				M€
Project A	1000	90-150	500-550			0.3-0.6	+++	++		650-700
Project B	500	30-50		200	20-30		++			25
Project C	800	225-30	3500		10-20	1-1.5	++	+++		150



Goal : best possible information for stakeholders and decision-makers

Guidance on discount rate

Social discount rate (not financial)

Guidance through upper and lower bounds

- ✓ Lower bound: max (economic growth of the Region, risk-free rate observed on financial markets)
- ✓ Higher bound: highest cost of debt observed in the countries financing the project

Value to be set by Region:

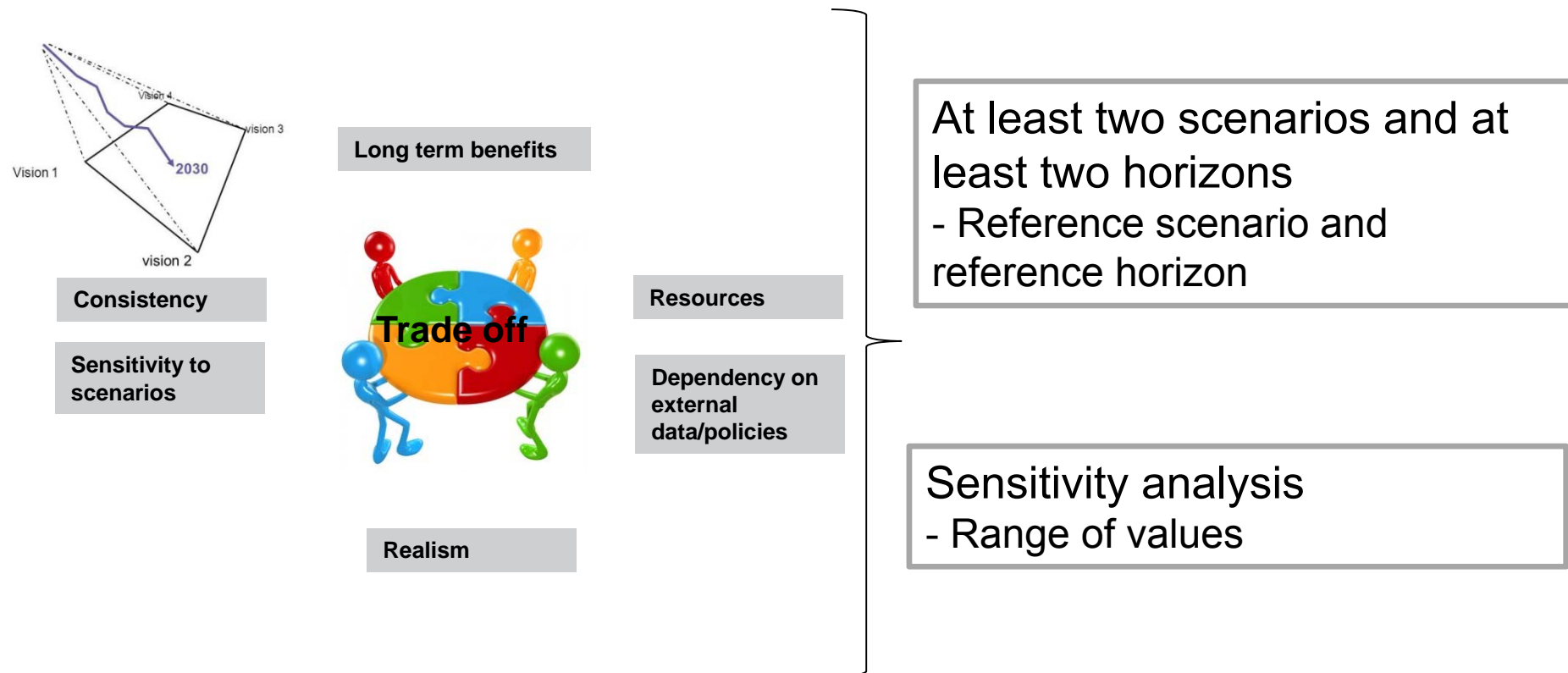
- ✓ A single discount rate must be used per Region
- ✓ A single discount rate must be used for each project

Period of calculation

Shall cover at least 2 study horizons (mid term and long term)

Costs and benefits to be discounted to the present

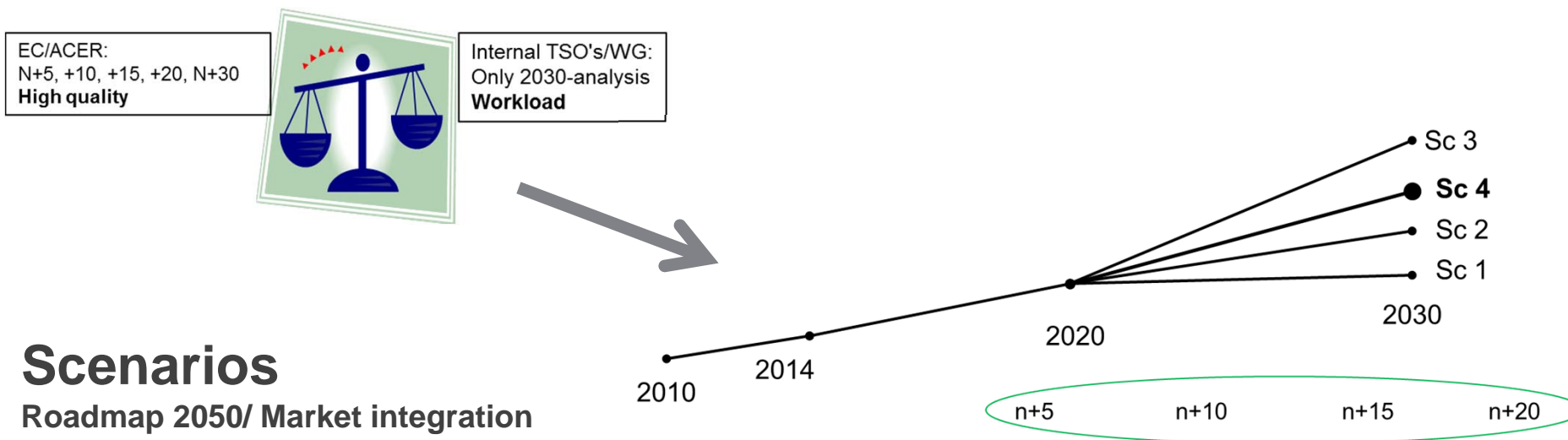
How to address uncertainties: scenarios & time horizons



CBA quality depends on quality of input assumptions !

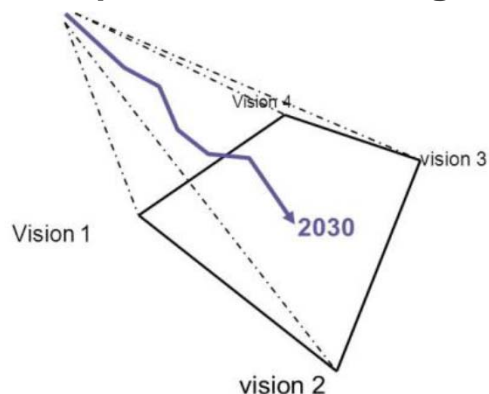
How to address uncertainties TYNDP2014

Time horizon



Scenarios

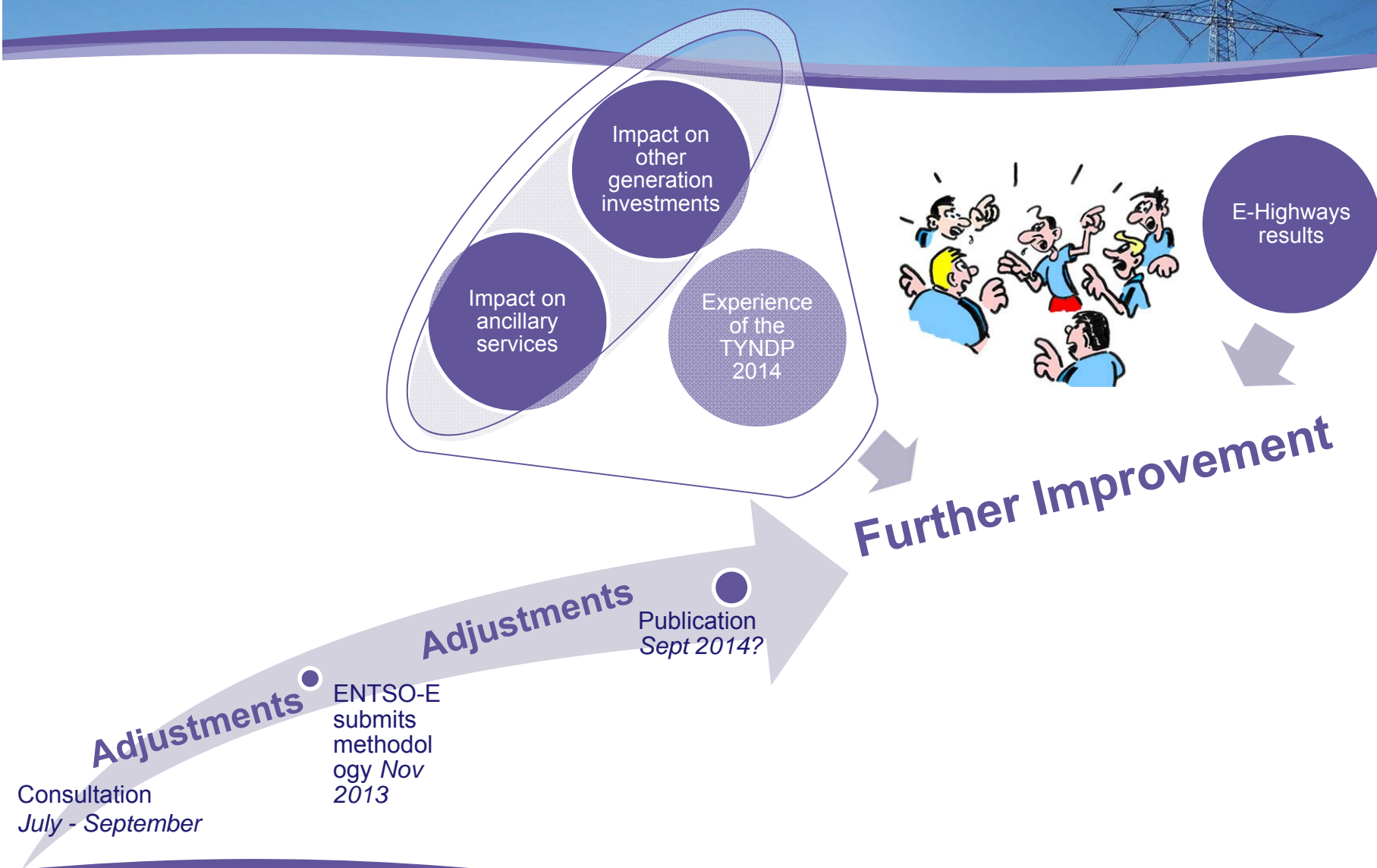
Roadmap 2050/ Market integration



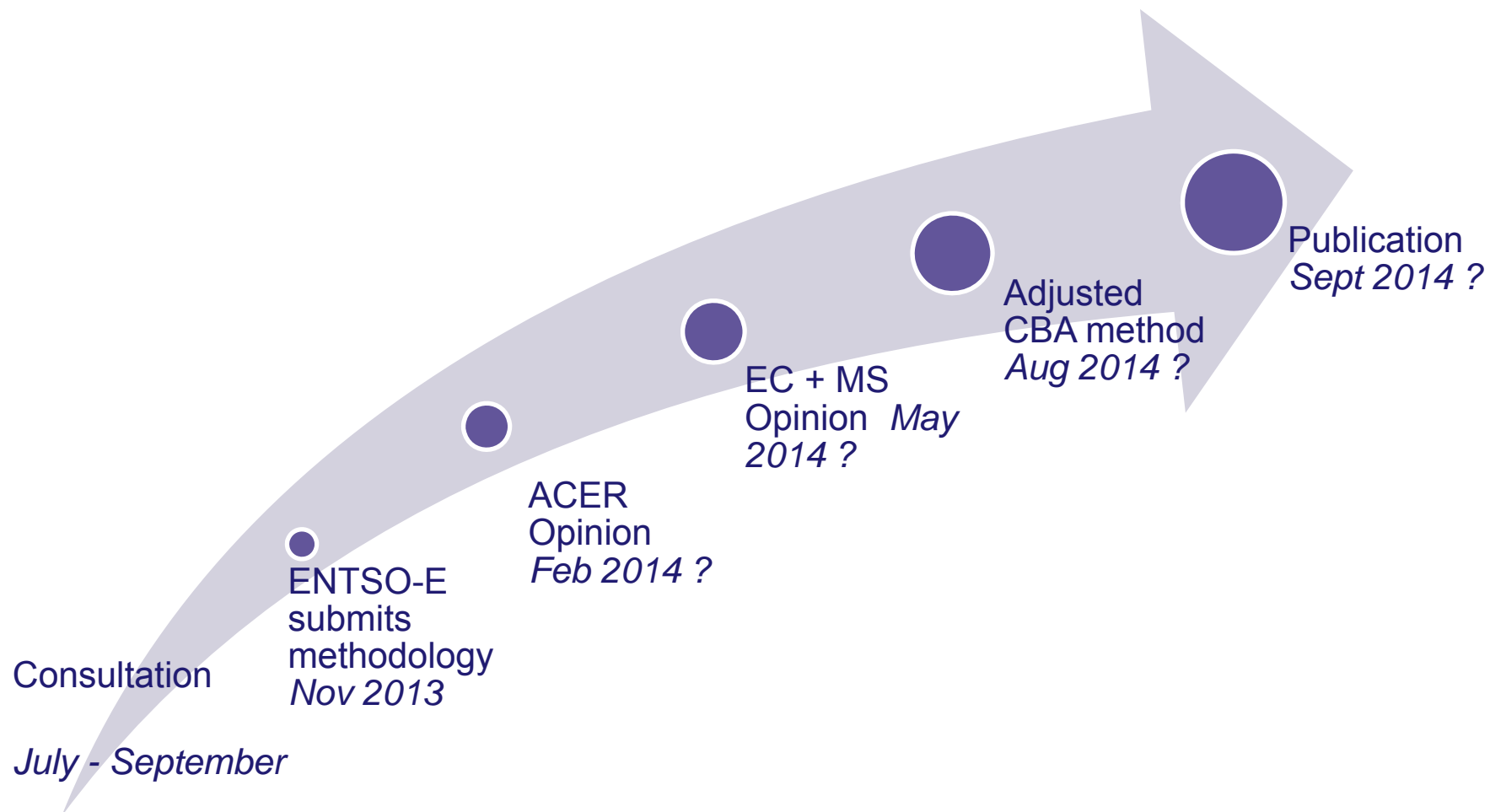
At least two scenarios and at least two horizons

- Reference scenario which best reflects official policy (Sc4)
- Reference horizon (2030)

Future improvement needs on CBA Methodology



Next steps



Thank you for your attention!



Annexes

PCI selection: the role of Regional Groups

New EIP approach: regional cooperation on infrastructure

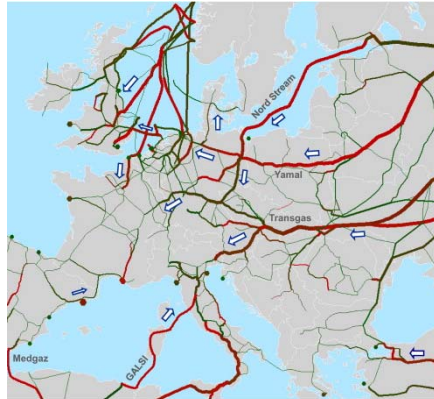
Input:
TYNDP
CBA

Tasks of the regional working groups

- Identify project information
- Project promoters to **submit project proposals**
- Agree on **weighting** for project evaluation criteria
- **Evaluation** of submitted project proposals
- **Co-ordination** with the other regional working groups
- **Agree on draft regional project list**

Members: Member States representatives, Commission, NRAs, TSOs, project promoters, ENTSOs, ACER

ENTSO-E and ENTSO-G's CBAs: common features



Common challenges
- Trade-off
resources/quality/timeliness
- Social discount rate

Common parameters
(in at least one scenario):
- CO₂ price, gas price
- Installed capacity for
CCGTs

Common approach:
Combined CBA and
Multi-Criteria
assessment