Regional assessment of projects
Provisional results for V1 and V4 scenarios

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Reliable Sustainable Connected

Assessment results

- **At this time the project I have been assessed against Vision 1 and 4**

- **Important differences between Vision 1 and Vision 4**
  - Merit order changed in Vision 4
  - Installed capacities differ between the Visions, especially RES in GB, DE and FR is much higher in Vision 4 than in Vision 1

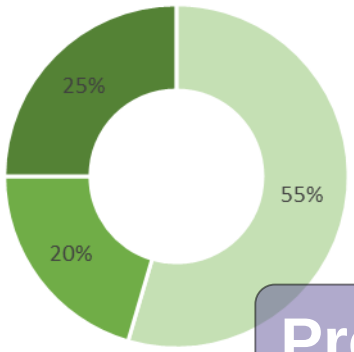
- **The different assumptions lead to different market exchanges**
  - High pressure on the connections from GB to the mainland

- **The presented assessment based on TOOT methodology**
  - The added value of a project is assessed in a grid where all the projects are place in operation

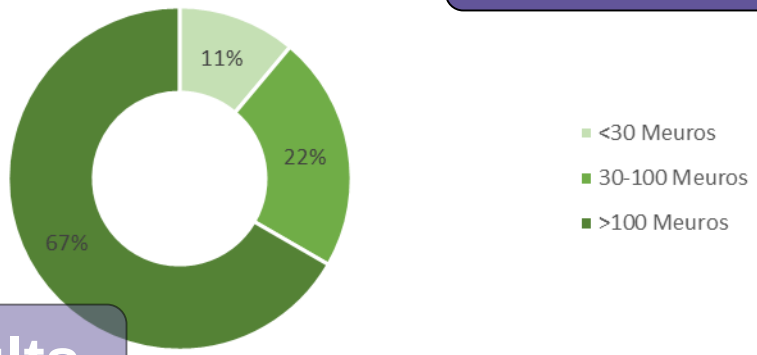
    →Assessment results lower than if it were the first project

Assessment results - SEW

Vision 1



Vision 4



Provisional results

- **Significant increase in SEW addition for Vision 4**

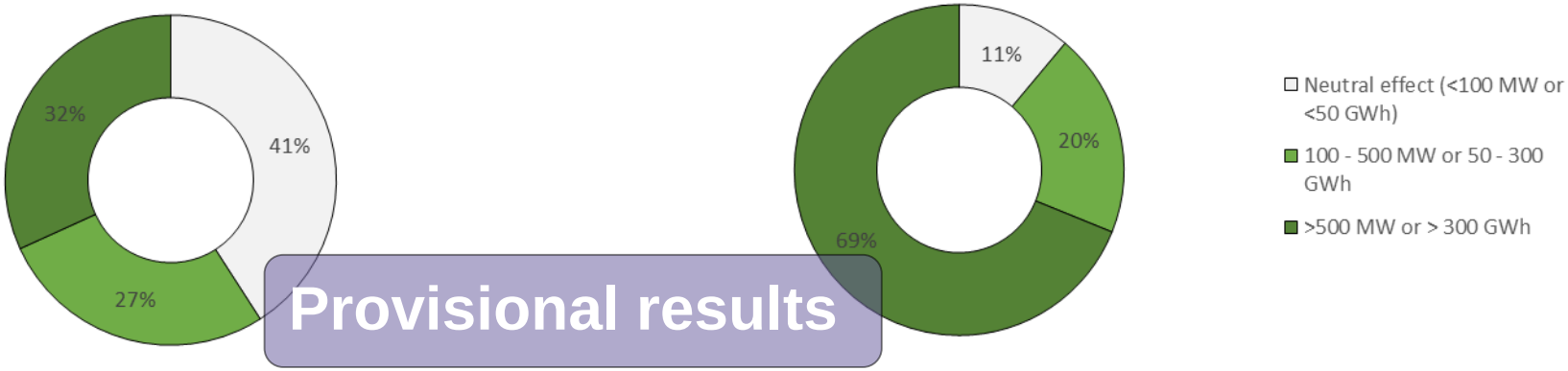
- **Price differences in Vision 4 higher than Vision 1**

  → Interconnections that bridge these price differences show higher increase in SEW

Assessment results - RES

Vision 1

Vision 4



Provisional results

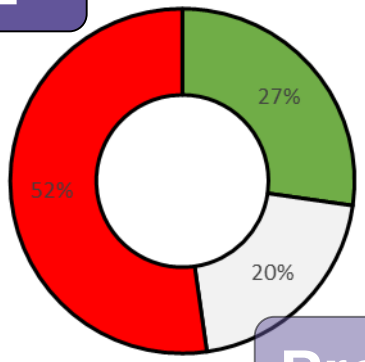
- **Overall RES indicator for grid reinforcements Vision 4 higher than Vision 1**

- **Vision 4 more RES installed than in Vision 1**

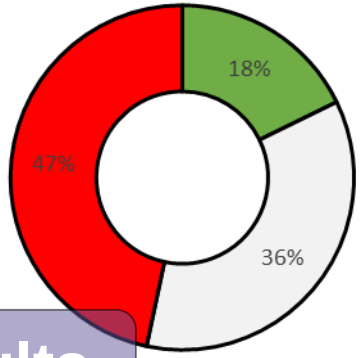
  → more RES curtailment avoided

Assessment results - Losses

Vision 1



Vision 4



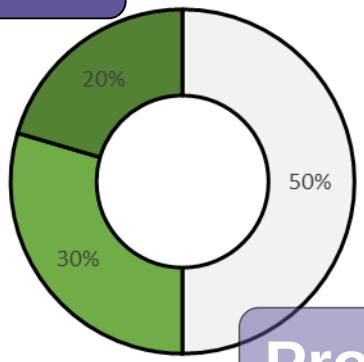
Decrease losses
Neutral
Increase losses

Provisional results

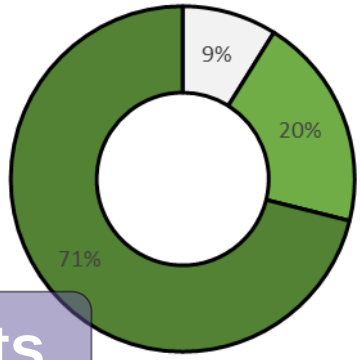
- **Losses indicator shows less projects with neutral effect in Vision 4**
- **In general HVDC lines increase losses and AC lines decrease losses**
- **Losses depend on loading at the chosen planning situations**

Assessment results – CO_2

Vision 1



Vision 4



No positive effects
Reduction < 500 ktons
Reduction > 500 ktons

Provisional results

- **Projects give more positive results in Vision 4 than Vision 1**
- **When taking out a project less RES can be integrated (more curtailment) and thus the CO_2 emission rise**

  →especially in UK/Ireland due to high wind penetration in Vision 4

107: Ireland – France interconnector

Provisional results

CELTIX Assessment vision 1.		
Short description	first interconnection between Ireland and France	
GTC Increase	700MW	
Investment cost	1.000 M€.	
Vision	Vision 1	Vision 4
B1: Security-Of-Supply	0	
B2: SEW	+ 50M€ (+/-20M€)	+170 M€ (+/-20M€)
B3: RES Integration	+ 300.000 MWh	+1.600.000 MWh
B4: Power Losses	+120.000 MWh	+220.000 MWh
B5: CO2 emissions variation	+70 kT	-850 kT
B6: Transmission Resilience	5	
B7: Robustness and Flexibility	3	

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110: Norway-Great Britain

Provisional results

Norway - UK		
Short description	Interconnector Norway-England	
Investments included in the project	HVDC cable	
GTC Increase	1.400 MW	
Investment cost	2.175 M€	
Vision	Vision 1	Vision 4
B1: Security-Of-Supply	0	0
B2: SEW	+200M€ (+/-30 M€)	+300 M€ (+/- 10 M€)
B3: RES Integration	+1.100.000 MWh	+2.500.000 MWh
B4: Power Losses	+ 850.000 MWh	+ 850.000 MWh
B5: CO2 emissions variation	-400 kT	-1650 kT
B6: Transmission Resilience	4	
B7: Robustness and Flexibility	4	

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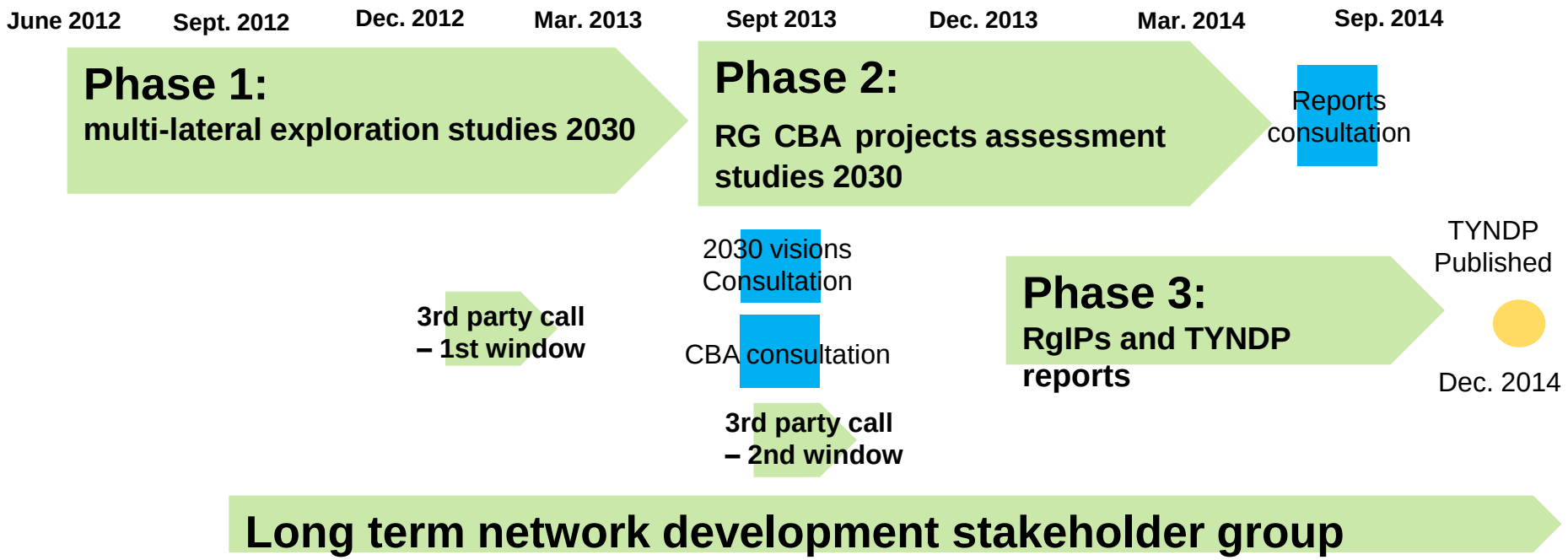
Overall process for the 2014 TYNDP



- **Currently Phase 2 and Phase 3 are running in parallel**