ENTSO-E
Network Code Update

Operational Security
&
Load Frequency Control and Reserves

Load Frequency Control and Reserves

- Frequency Quality
  - Set frequency quality targets
  - Data collection
  - Data analysis
  - Publication process

- Load Frequency Control Structure

Process Activation Structure	Process Responsibility Structure
Control and implementation requirements •FCR •FRR (manual and automatic) •RR •Cross Border Reserves	Areas and area related obligations for TSOs

Load Frequency Control and Reserves

- FCR, FRR and RR
    - Determination of volume (total and share)
    - Determination of required properties
    - Characteristics of activation (proportional governor and piecewise linear)
    - Reserve providing units (amount and location)
    - Availability
    - Monitoring

    - Risk levels
        - e.g.Synchronous Area risk level as a function of Frequency

Load Frequency Control and Reserves

- Exchange of Reserves
    - Within synchronous areas and between synchronous areas
    - Set limits
    - Roles and responsibilities

- Synchronous Time Control

- Cooperation with DSO
    - Reserve providing unit to provide information to DSO
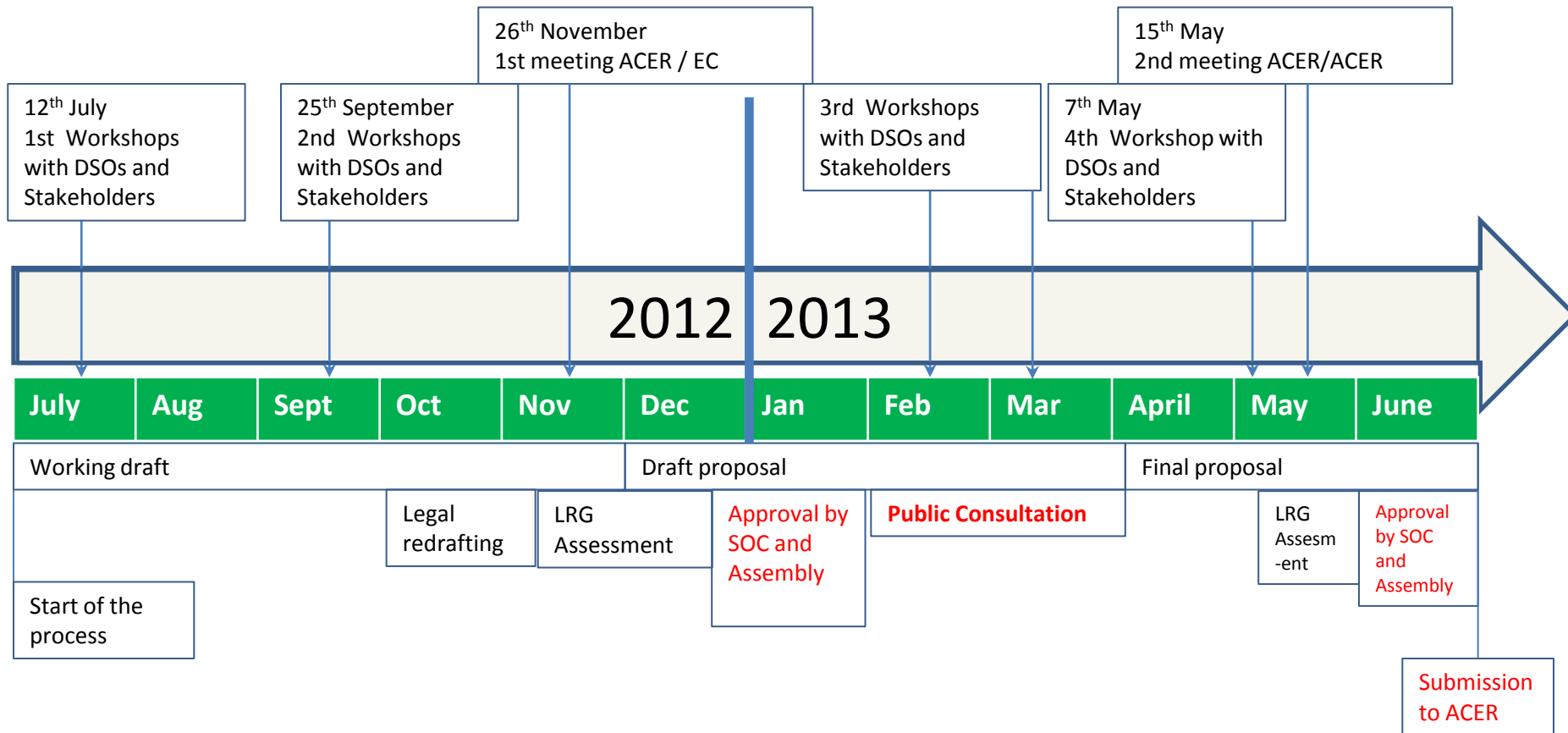   - DSO can set limits on the delivery of reserves based on seurity analysis

Load Frequency Control and Reserves

- Public consultation ended on the 2nd of April
- Stakeholder workshop held on the 12th of March
- Update draft NC based on results of public consultation
- Stakeholder workshop on 7th of May
- Compile final draft of NC
- Internal ENTSOE approvals
- Submission to ACER on the 28th of June

Load Frequency Control and Reserves

EIRGRID

SONi System Operator for Northern Ireland

26th November
1st meeting ACER / EC

15th May
2nd meeting ACER/ACER

12th July
1st Workshops
with DSOs and
Stakeholders

25th September
2nd Workshops
with DSOs and
Stakeholders

3rd Workshops
with DSOs and
Stakeholders

7th May
4th Workshop with
DSOs and
Stakeholders

2012 2013

July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June

Working draft

Draft proposal

Final proposal

Legal
redrafting

LRG
Assessment

Approval by
SOC and
Assembly

Public Consultation

LRG
Assesm
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Approval
by SOC
and
Assembly

Start of the
process

Submission
to ACER

EIRGRID · semo Single Electricity Market Operator · SONi System Operator for Northern Ireland
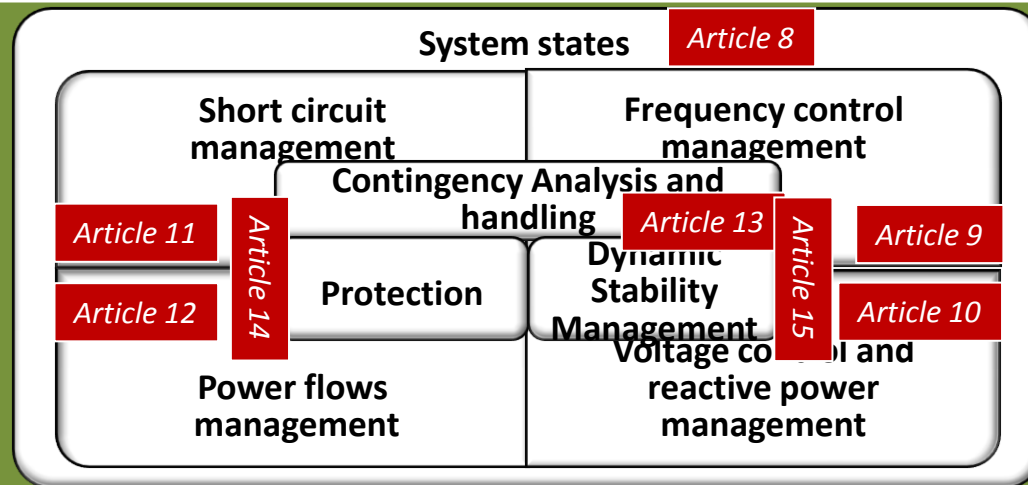
Operational Security

1. General provisions: Subject matter and scope, Definitions, Regulatory aspects & approvals, Recovery of costs, Confidentiality obligations, Agreements with TSOs. _Articles 1-7_

2. Requirements

System states — _Article 8_

Short circuit management — _Article 11_, _Article 12_

Power flows management — _Article 14_

Contingency Analysis and handling — _Article 13_

Protection

Frequency control management — _Article 9_

Dynamic Stability Management — _Article 15_

Voltage control and reactive power management — _Article 10_

3. Data exchange — Data exchange _Articles 16-29_

4. Training — Operational training and certification _Article 30_

5. Compliance — Responsibilities, Testing, Analysis (incl. PI) _Articles 31-33_

6. Final provisions _Articles 34-35_

Operational Security

- Code was sent to ACER on the 28th February
- Meeting between EC, ACER and ENTSOE on the 22nd March
- ACER holding a public workshop on the code on the 9th of April
- Expect ACER opinion three months after submission