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Joint European Standing Group (JESG)
Electricity Grid Connections



Tom Ireland

12th October 2011

European Network Code Development Process

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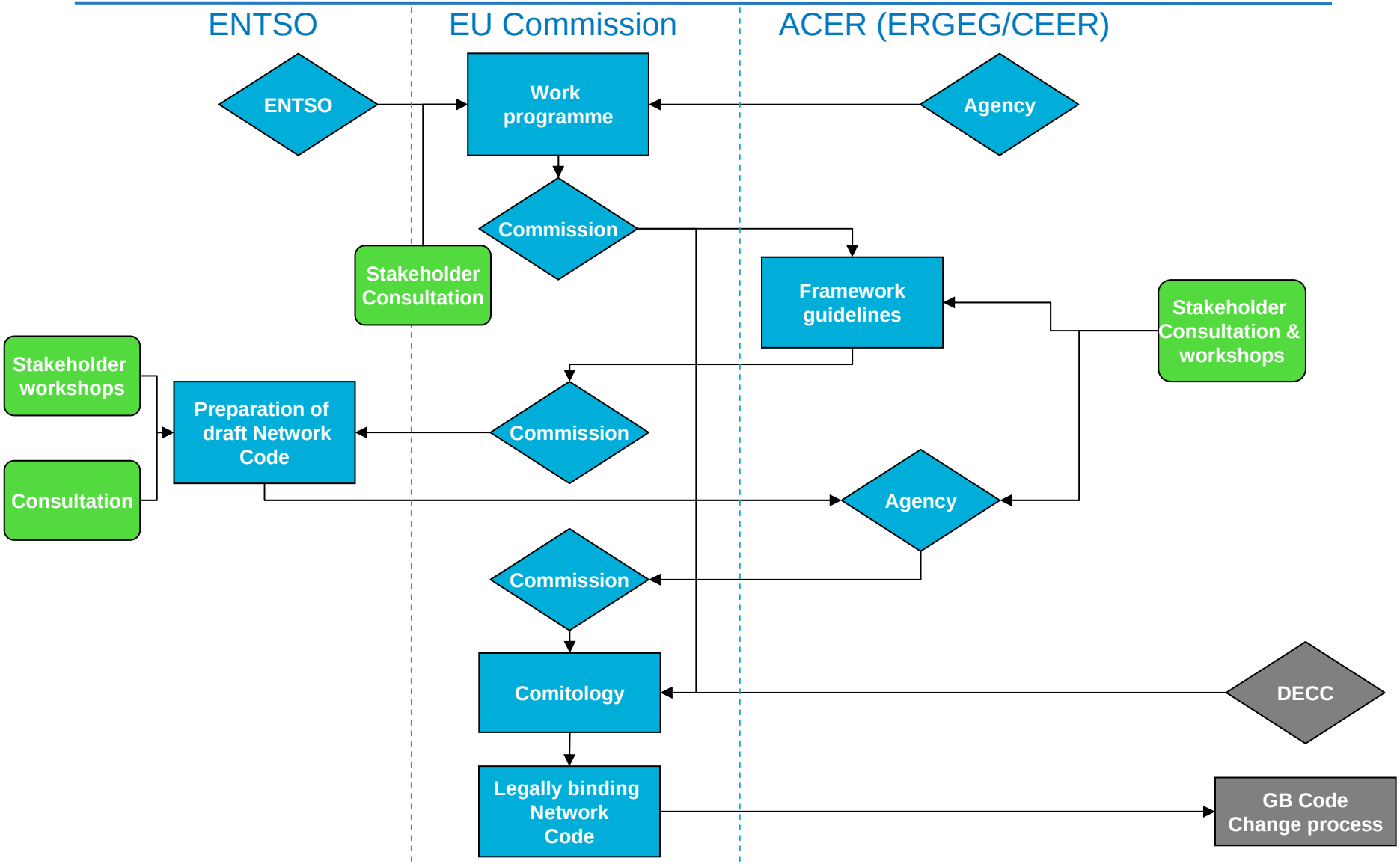

FrameWork GuideLine on Grid Connections
What has ACER published in its FWGL?

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- A document dated 20th July entitled:

“Framework Guidelines on Electricity Connections”

- This identifies the Scope of the 4 Network Codes relating to Grid Connections:
  - Requirements for Generators (RfG)
  - Demand Connection Code (DCC)
  - HVDC Connection Code (HCC)
  - Connection Procedures Code (CPC)

What is happening next?

- FG requires completion of RfG by end March 2012
- ENTSO-Es view:
  - Fundamental changes which justifies full year for RfG
  - Request expected from ENTSO-E to ACER for extension
- Drafting team to conclude initial version this week
  - DSO workshop and wind industry session undertaken
- Industry Consultation during Feb – March 2012
  - 1500+ comments on Pilot code – could be similar volume at formal stage - will take time to consider

Significant Grid User

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The RfG pilot had proposed a graded approach

- Classification based on size & connection voltage and offshore on configuration of connection.
- Types A – applies from 400W
  - Minimum significance
  - Minimum requirements, focused on common mode failure, f related
- Type D – connected at 110kV or above
  - Max significance
  - Full requirements
- Additional parameters set at Synchronous Area or at national level
- Update: Nationally MW boundaries between A to B and B to C may be lowered but not raised

Current thoughts on implementing a Cost Benefit Analysis for retrospective application

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- Each TSO will select candidate parts of code for full qualitative analysis
- This initial assessment undertaken on a national basis
- Assessment will be based on both cost and benefit “traffic lights”
- Green lights result in quantitative Cost Benefit Analysis
- Red light(s) will end process
  - FWGL allows topic to be reviewed after three years

Quantitative CBA

- Generators provide cost data to TSO
- TSO performs CBA using codified methodology
  - If negative no further action taken
  - If results positive, public consultation issued
- If result of consultation is positive, TSO issue a final report to NRA (Ofgem)
- NRA issue decision for implementation

Your questions on RfG?

What is happening on the Demand Connection Code?

- Performance issues for interface between TSOs & DSOs
- Performance including demand side response for
  - Directly (TSO) connected demand
  - DSO connected demand
- Expect to cover non optional aspects such as:
  - For frequency stability
  - For voltage stability
- Various customer choice aspects for services from a T perspective:
  - Operating reserves
  - System constraints at T level
  - Time of use – flattening demand curve (outside code?)

What is happening on the Demand Connection Code?

- When?
  - To be completed including consultation by end 2012 / early 2013.
  - Some preparation started based on ACER's FWGL although go-ahead from EC not until early 2012
- How is ENTSO-E working on the DCC?
  - A separate drafting team (DT DCC) established
  - Working on first draft in readiness for stakeholder workshop in January 2012
  - Regular meetings with the DSO Expert Group (DEG) – with 2 GB reps

Demand Response Services

Services being considered by the Drafting team:

- Frequency response from temperature controlled demand
- Services for reserve – Electric Vehicles – via smart meters
- Low Frequency Demand Disconnection 60% of 100% rather than 100% of 60% (9 stages)
- Network Constraints

Your questions on DCC?

Finally, any further questions?