Brown Out or Black Out in Europe in November 2006: to entertain ...... with EU Colours Out?

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When the US meet the EU in Toulouse...
'EU Colours Out' Road Show

1: Hard Facts = Hard to believe = but 100% 4 November 2006 true!

2: EU Reliability Council –UCTE– self control!

3: EU Regulators Group self esteem!

4: Possible consequences for the EU 'Energy Policy' agenda?
1: Hard Facts

- **September 2006** Shipyard North Germany asks E.ON Net to cut a 380kV double line on Nov 5th 1AM >> E.ON studies & OKs
- **3 November 2006** Shipyard asks to do it on 4 Nov at 10 PM >> E.ON OKs
- **4 Nov @ 9.29 PM** E.ON studies it with fresh data & OKs
- **9.38** E.ON cuts the line
- **9.39** 2 unexpected alarms on other E.ON lines. E.ON decides temporary 'overload' on its own lines.
- **9.41** Neighboring TSO RWE informs E.ON another 380 kV border line being loaded at 1780 A, has 1800 A limit & 1990 A automatic cut off. E.ON didn't know that on the line it shares with RWE (there are 4 TSOs in Germany)
Hard Facts

- **10.07** TSO RWE informs E.ON that 380 kV border line overloaded @1900 A with 1990 A automatic cut off.
- **10.10** E.ON decides changing network topology by ‘coupling’ busbars in a station. Expecting to reduce Border Line load by 80A.
- **10.10.13 to 10.10.31** Very funny ¼ minute show (performance on next slide)
Conneforde - Diele

Substation Borken – busbars decoupled

It resulted in the worst grid crisis Europea has never seen - 13 millions customers disconnected - EU continent divided into three zones: West (183 GW), NorthEast (62 GW) and SouthEast (29GW).
2: EU Reliability Council -UCTE- self control!

- **UCTE** = Union for the Coordination of Transmission of Electricity = association of Continental Europe TSOs = Reliability Council of TSOs = 50 years old = 23 European countries + EU Commission recognition
- Year 2002 UCTE upgraded its ‘Security package’
- *Operation Handbook (OH)* defining security standards
- **Multilateral Agreement (MLA)** = formal contract with TSOs commitment to apply OH
- ***CMEP*** = ex ante verification process
2: UCTE - self control Cted

- **UCTE Report - 2 main reasons for that crisis**
  1° No fulfilment of N-1 security criterion by German TSO E.ON

> E.ON ran **NO** N-1 study on 4 Nov and took busbar decision with no simulation at all

2° Insufficient coordination between German TSOs

> 5 Nov. line cut had been prepared by E.ON with NL Tennet & German RWE

But a) 4 Nov. line cut has not and b) E.ON took no care of different protection devices & rules on the cross-border line with RWE
UCTE Report

- 5 other factors worsening the crisis

1° Wind & Cogen uncontrolled (in ex post process) >>
  2 000 MW self cut in Spain (6 500 MW Wind in deficit region 183 GW) >> Unknown Wind reconnection & disconnection on German Distribution Grids (8 500 MW Wind in surplus region 62 GW)

2° Insufficient ex ante congestion tool box of German TSOs >> Grid management, market management, etc. not prepared for crisis handling
3° Insufficient coordination between TSOs & DSOs in restoration process (mainly Germany) >> insufficient ex ante preparation of crisis handling & ex post information & coordination

4° Insufficient coordination of TSOs in restoration process (all over EU) >> insufficient ex ante preparation of crisis handling & ex post information & coordination

5° Insufficient training & equipment of dispatchers
   >> a) Set of procedures & tools available to dispatchers; b) common knowledge, communication and consultation in emergency situation
3: EU Regulators’ Group

ERGEG [Official advisor of EC and official investigator]
* Provisional report (20 Dec 2006) * Final report (Feb 2007)
** creates a Task Force on it (Ad Hoc Working Group)

* Deeply dissatisfied with UCTE & TSOs
  ° UCTE doesn’t have precised rules & doesn’t check ex ante actual implementation by TSOs
  ° UCTE too much a ‘decentralised’ club of gentlemen TSOs
  ° Rules not really biding
    >> Each TSO can define & apply them its way
    >> No real consequence if TSOs not applying / not applying firmly the rules
Leniency of UCTE: Switz. exonerated of load shedding in emergency; Spain can restore “Pure frequency” = imports more in emergency, etc.

Not all TSOs to be blamed. German TSOs & UCTE two core dissatisfaction points. But ETSO chairman showed that French RTE & Belgian Elia cannot make such error.

However ERGEG trying to exploit it to take over “control seat” on TSOs (even “strict control”!)

True that Italy Black Out 2003 & UCTE ‘Upgrade’ have been warned by ERGEG: ERGEG 2005 Recommendations on UCTE Operation Handbook
4: EU Further Action?

- **March 2006 EuC Green Paper SoS:** EU needs real Grid Code & an EU council of TSOs in charge of Net. Security + an EU Regulatory Com. for cross-border trade & interco. But EU proposal got:
  - ‘Niet’ from UK, France & Germany
  - ‘Not that TSOs’ way’ from UK reg.

- **January 2007 EuC Communication:** EU needs stronger Unbundling of TSOs + stronger NRAs + stronger Reg. Rules + Stronger Coordination between NRAs & between TSOs + Stronger oversight from EC.

  *All this: Specially for cross-border issues.*