

# ENTSO-E Pilot Projects on Cross Border Balancing 3<sup>rd</sup> Stakeholder Workshop

Pilot Project 2: Cross-border Market for FCR  
based on TSO-TSO Model

17 December 2014 - Brussels

**Alexandra Adam**  
Swissgrid - TSO Markets Development Group

# Outline

- Introduction
- Phase 1
  - Project Overview
  - Details
  - Implementation
  - Experiences and lessons learnt, SWOT Analysis
- Phase 2
  - Project Details
  - Project Timeframe
- Conclusion

# Introduction

- Single FCR-focused Pilot Project
- Based on the TSO-TSO model, in accordance to framework guidelines and NC EB
- Complete merging of two national markets, not occasional collaboration
- Cross-border FCR market for AT-CH, implemented within 1 year
- Successful start and good development in the market
- Organizational design and system framework allow an easy and quick extension to other TSO-members
- Extension to TSOs of Germany, Netherlands and Denmark foreseen for 2015

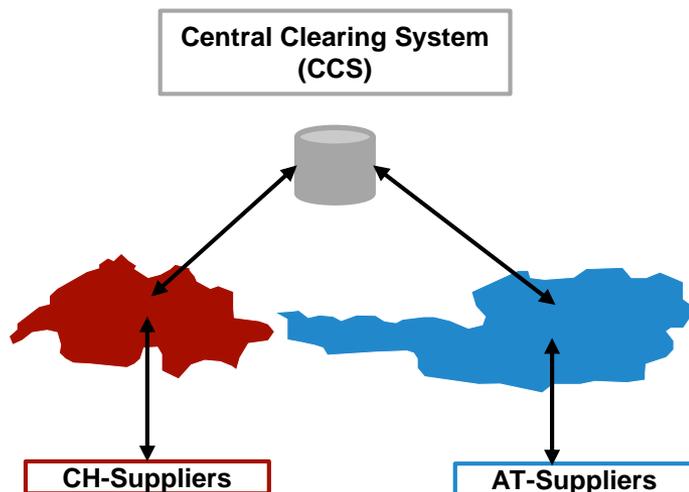
# Outline

- Introduction
- Phase 1
  - Project Overview
  - Details
  - Implementation
  - Experiences and lessons learnt, SWOT Analysis
- Phase 2
  - Project Details
  - Project Timeframe
- Conclusion

# Project Overview – Phase 1

Cooperation is based on a **TSO-TSO-model**:

- Suppliers only have contractual relationship with the connecting TSO



Joint project between **APG** and **swissgrid**

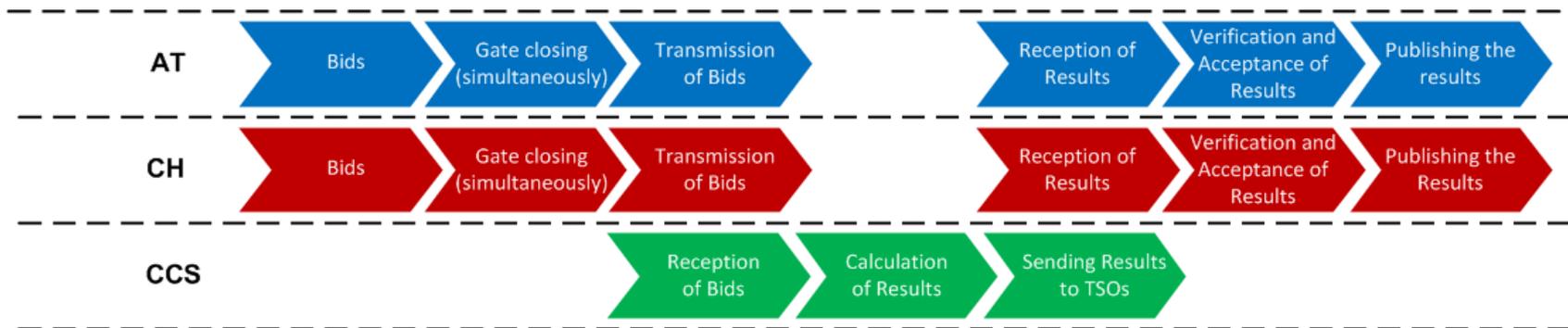
**Market properties:**

- Demand (2014)
  - AT = 71MW
  - CH = 46MW out of 71MW
- Weekly auctions
- Not harmonised products
  - Divisible bids in AT
  - Non-divisible and conditional bids in CH

# Project Details – Phase 1

## Auction Process

- Suppliers bid in the national platforms
- The CCS calculates the market clearing
- The results are sent to the national platforms and the operators verify and accept the results



# Project Details – Phase 1

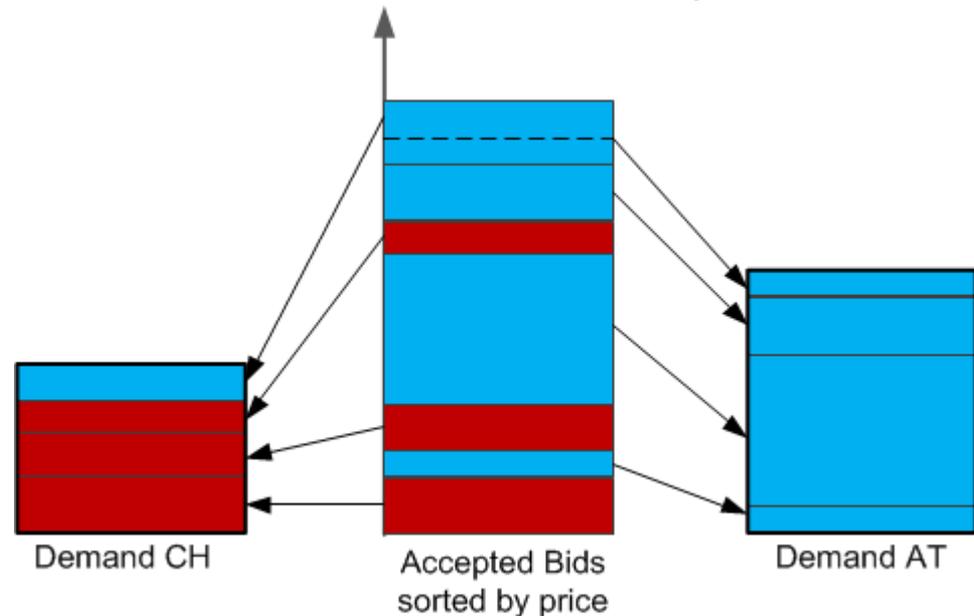
## Common Optimization Principle

- Minimize the total procurement costs for CH-AT
- Subject to the following constraints
  - Total amount auctioned for FCR: 117 MW for 2014  
(46 MW for Swissgrid and 71 MW for APG)
  - Maximum exchanged amount for neighboring areas (ENTSO-E rule)
  - Core value of 30%
  - Special Market Rules
    - Block Bids, Conditional Bids (CH)
    - Divisible Bids (AT)
- Common Clearing Function: mixed integer linear programming

# Project Details – Phase 1

## ■ Settlement principle

- Settlement scheme: pay-as-bid due to exchange of reserves
- Each TSO may profit from the cheaper remaining bids of the other TSO, without resulting in a disadvantage for the second
- Principle that guarantees profits for all involved parties, avoiding cross-subsidizing
- Approved by NRAs



# Fulfillment of tasks – Phase 1

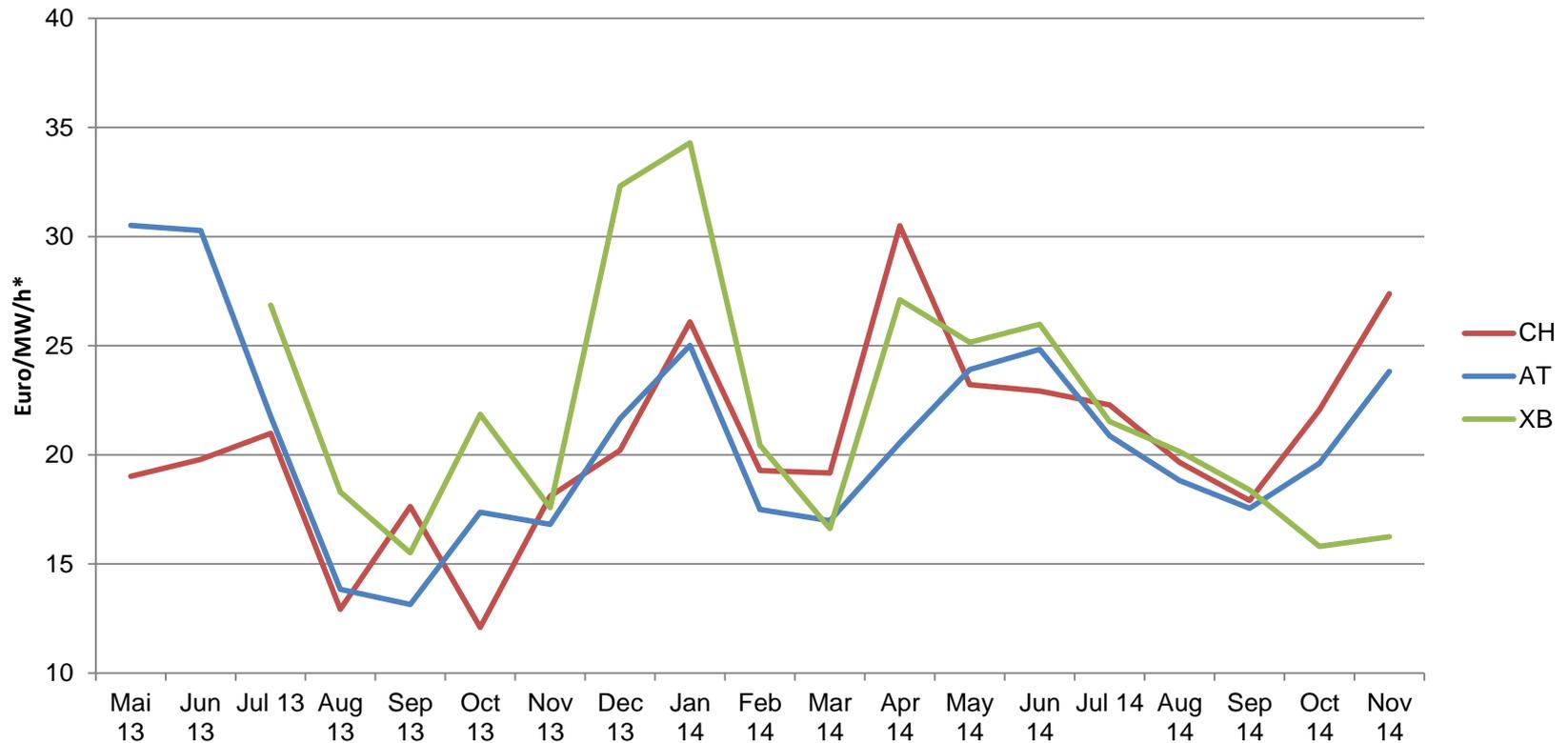
- Project Plan

	2012						2013									
	Q3			Q4			Q1			Q2			Q3			
	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	
<b>COOPERATION AT/CH</b>		[Dark Blue Bar]														
<b>General Tasks</b>																
<b>Contractual Relation TSO-TSO</b>										◆						
<b>Financial Settlement/Cost Allocation</b>																
<b>System Architecture</b>										◆	◆		◆			
<b>Emergency Concept/Backup Solution</b>																
<b>Prequalification</b>																
<b>Algorithm Development</b>											◆					

- Tasks fulfilled on time
- Project completed in less than 1 year
- First common auction on 3<sup>rd</sup> July 2013 for KW 28

# Experience and lessons learnt – Phase 1

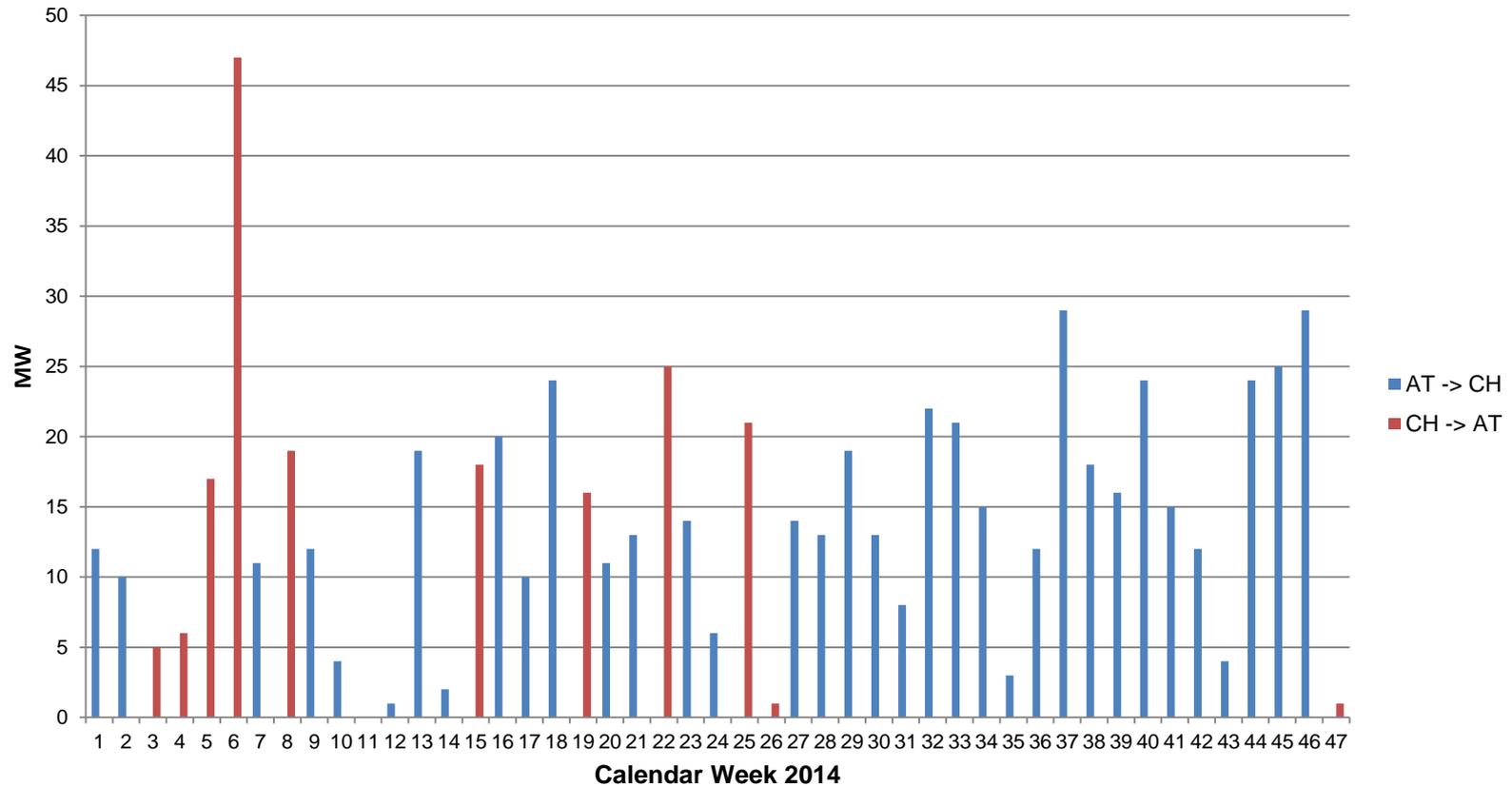
## Price development



# Experience and lessons learnt – Phase 1



- **Exchange of reserves**



# SWOT Analysis – Phase 1

## Strengths

- Pioneer example of a clear TSO-TSO Model
- Fair governance
- Modern and flexible Software and System architecture
- Ability to consider different types of bids

## Opportunities

- High liquidity and competition in the market leads to lower FCR procurement costs
- Applicability to different Ancillary Services Products
- Easy to extend the cooperation with participation of other TSOs

## Weaknesses

- Obstacles encountered in implementation were faced in timely manner
- Cooperation project implemented in small markets with similar characteristics

## Threats

- Back-up systems to be defined
- Computation can be forwarded to individual systems

# Outline

- Introduction
- Phase 1
  - Project Overview
  - Details
  - Implementation
  - Experiences and lessons learnt, SWOT Analysis
- Phase 2
  - Project Details
  - Project Timeframe
- Conclusion

# Extension of collaboration – Project phase 2



- Meeting of NRAs of AT, CH and DE in August 2013 in Vienna. Encouragement to establish a collaboration based on the TSO-TSO principle and close to the AT-CH-model
- First meeting with TSOs from Germany on 15.10.2013 in Zurich
- Feasibility studies conducted . Results presented in December 2013 in Vienna
  - Business case
  - Harmonization needs
  - System architecture
  - Settlement principles
- March 2014: decision for extending the collaborations with TSOs from Germany, Netherlands and Denmark
- Project plan approved with expected GoLive end of Q1 2015

# Project time plan - phase 2



	2014												2015		
	Q1			Q2			Q3			Q4			Q1		
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03
<b>EXTENDER COOPERATION AT/CH/D/NL/DK</b>			[Dark Blue Block]												
<b>Concept and process definition</b>															
<b>System architecture and IT communication</b>															
<b>Algorithm development</b>															
<b>Settlement procedure</b>															
<b>Cooperation agreement/ Contracts</b>															
<b>External communication</b>															
<b>Tests and Training</b>															

# Outline

- Introduction
- Phase 1
  - Project Overview
  - Details
  - Implementation
  - Experiences and lessons learnt, SWOT Analysis
- Phase 2
  - Project Details
  - Project Timeframe
- Conclusion

# Concluding remarks

## General

- Cross-border FCR market for AT-CH, implemented within 1 year
- Based on the TSO-TSO model, in accordance to Framework Guidelines and NC EB

## Risks or legal/regulatory issue

- Regulatory Risk: Participation of Denmark not yet supported by German NRA due to concerns about lack of cross-border capacity

## Project Co-ordination and Merging

- Organizational design and system framework allow an easy and quick extension to other TSO-members
- March 2014: decision for extending the collaborations with TSOs from Germany, Netherlands and Denmark
- Extension foreseen to GoLive end of Q1 2015

**Thank you for your attention**

**Contact:**

[Alexandra.Adam@swissgrid.ch](mailto:Alexandra.Adam@swissgrid.ch)



Reliable Sustainable Connected