



# ELEKTROBUDOWA SA

**POLISH LEADER**

**IN POWER ENGINEERING**

**4th October 2011**



# Agenda

- ➔ GENERAL INFORMATION ABOUT COMPANY
- ➔ BUSINESS SEGMENTS
- ➔ ELEKTROBUDOWA FOR NUCLEAR PP
- ➔ ELEKTROBUDOWA SA GROUP
- ➔ FINANCIAL STATEMENTS
- ➔ BENCHMARKING
- ➔ INTEGRATED MANAGEMENT SYSTEM

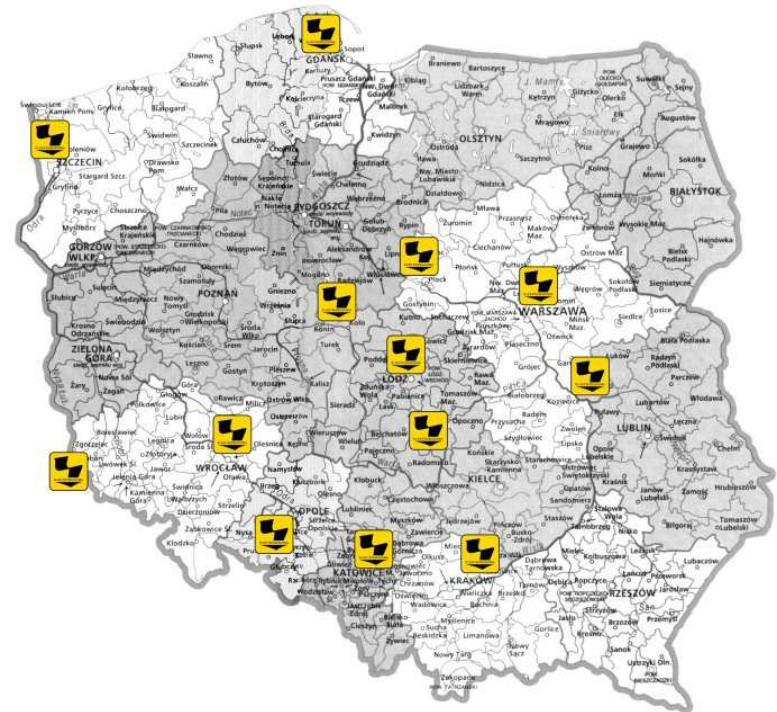


## ➡ GENERAL INFORMATION ABOUT COMPANY



# ELEKTROBUDOWA SA

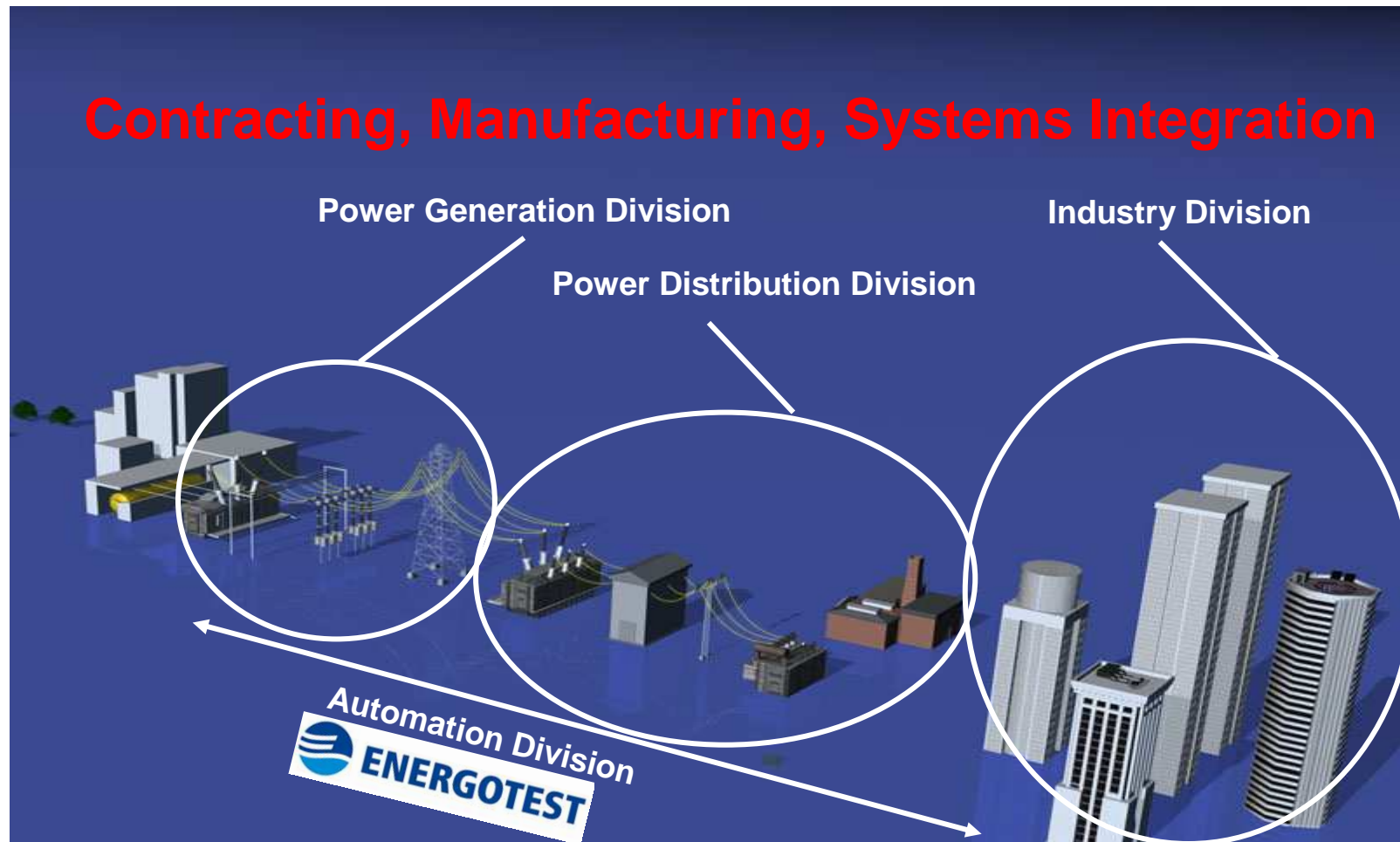
- The company was established in 1953.
- A joint stock company listed at the Warsaw Stock Exchange.
- A leading company in power engineering in Poland.
- Nowadays is recognized as the most significant contractor for almost all power plants and co-generation plants in Poland, for lignite and hard coal mines, and for the whole industrial environment.





# Business areas of ELEKTROBUDOWA SA

**Contracting, Manufacturing, Systems Integration**





## Key Competences

- ➔ Provides comprehensive construction and installation services for projects carried out in the power sector, petrochemical industry, mining as well as turnkey erection of public utility facilities.
- ➔ The company also manufactures medium and low voltage switchgear panels and supplies electric power substations and systems.
- ➔ It is also a leading manufacturer of high-current busducts.
- ➔ Civil construction projects on turnkey basis: public utility facilities, office buildings, shopping centres, industrial facilities, special structures, residential buildings, military facilities.



## Human Resources/Segments

	Power Generation Division	Industry Division	Power Distribution Division
<b>Erection Workforce</b>	<b>- 596</b>	<b>-196</b>	<b>Production - 410</b>
Project/Contract Managers	- 12	- 12	- 5
Site managers	- 66	- 31	
Tests and commissioning	- 47	- 25	
Tests and commissioning mgrs	- 11	- 1	
Marketing	- 33	- 26	- 33
Logistics	- 60	- 45	- 130
Finance	- 12	- 10	- 11
Quality	- 1	- 1	- 12
Occupational Safety	- 2	- 1	- 1
<b>Total</b>	<b>857</b>	<b>409</b>	<b>618</b>



- ➡ Power Generation Division
  - ➡ ELEKTROBUDOWA SA for nuclear power industry



## **ELEKTROBUDOWA SA for nuclear power station**

- ➔ The KHMELNITSKY NPP in the former Soviet Union /now Ukraine/.
- ➔ PAKS NPP, Hungary (1654MW).
- ➔ KOZLODUY Nuclear Power Plant, Bulgaria (3760MW).
- ➔ OLKILUOTO 3, Finland – 1600 MW European Pressurized water Reactor /EPR/.



# OLKILUOTO 3 – with 1600 MW EPR /European Pressurized Water Reactor/ (AREVA NP)



## ➤ 2008 - 2011

- ERECTION OF ELECTRICAL SYSTEMS, INCLUDING CABLES AND DISTRIBUTION EQUIPMENT;
- INSTRUMENTATION, CONTROL AND AUTOMATION SYSTEMS;
- PARTICIPATION IN COLD COMMISSIONING OF THE NUCLEAR ISLAND.



## ➤ 2010 - 2012

- SUPPLY OF GOODS AND SERVICES RELATED TO THE INSTALLATION OF SENSING LINES.

**About 350 employees in peak.**



## ➡ Power Distribution Division



## Manufacturing plant

**Konin Plant (618 employees, area 14 000 m<sup>2</sup>)**

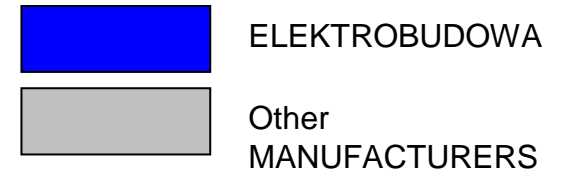
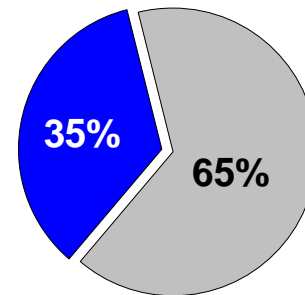




# Major products of ELEKTROBUDOWA SA

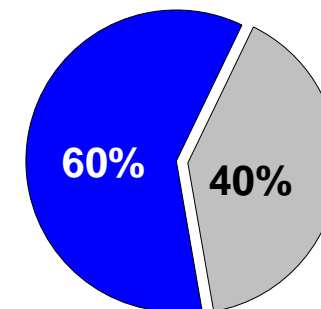
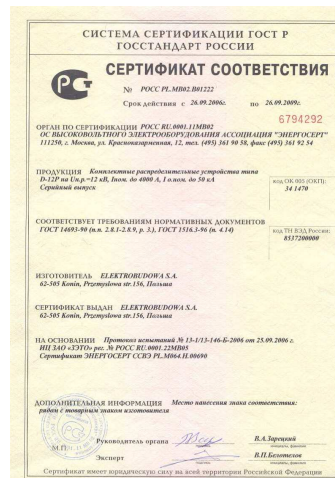
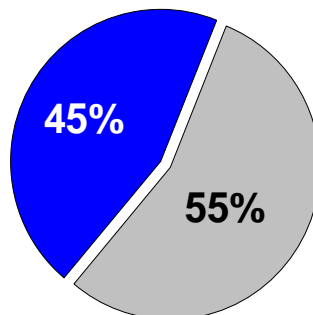
## market share

### Medium voltage switchgear



### air-insulated switchgear panels with single or double busduct system

### in this metal-clad draw-out

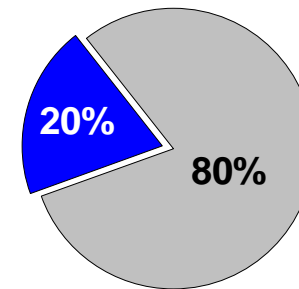




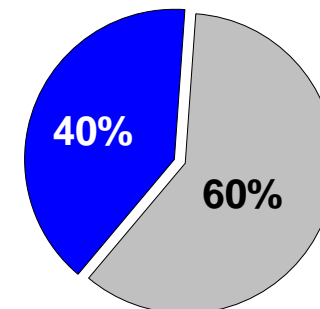
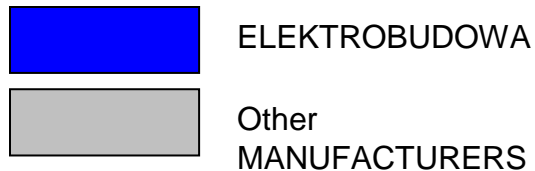
# Major products of ELEKTROBUDOWA SA market share



## Low voltage switchgear



withdrawable,  
plug-in or fixed-type cubicle  
switchgear (heavy)

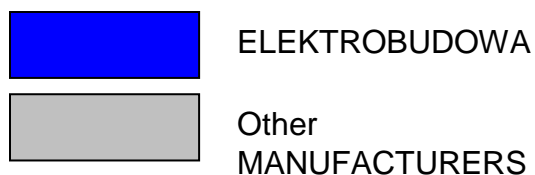
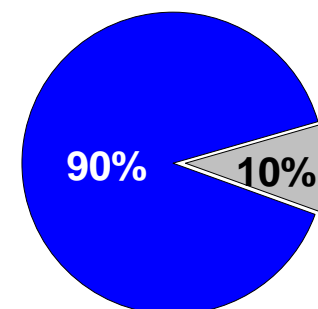




## Major products of ELEKTROBUDOWA SA market share

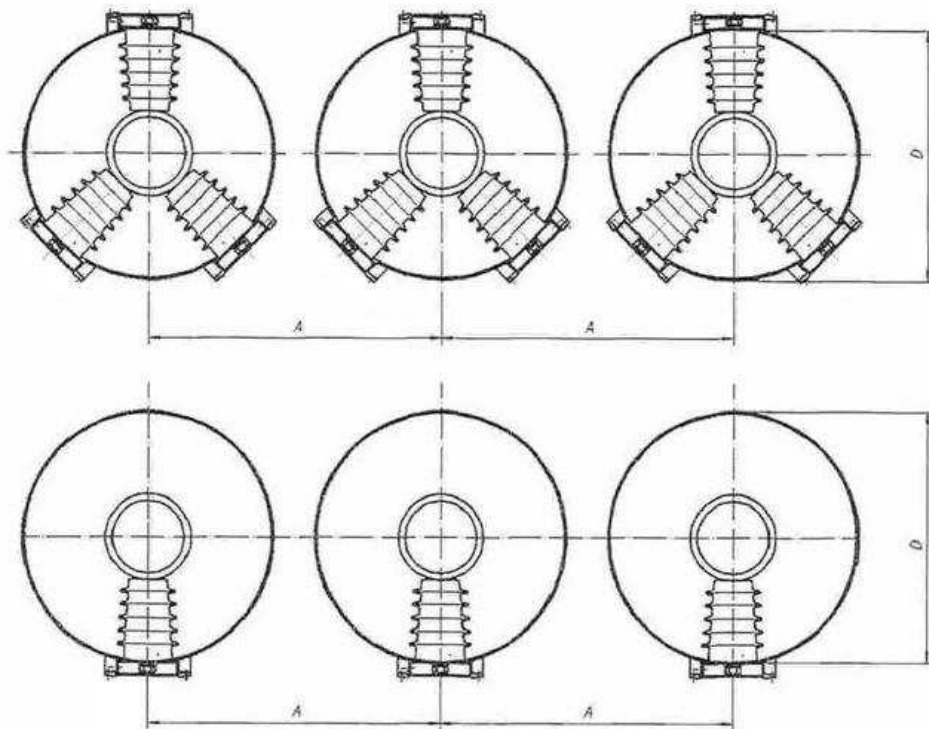


### Isolated Phase Busduct



# High-current busducts

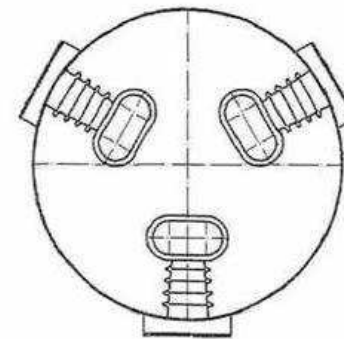
## ISOLATED-PHASE BUS



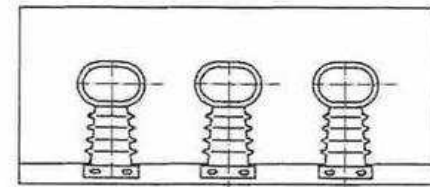
### ELPE type

$U_n$  – up to 36 kV  
 $I_n$  – up to 20 kA  
 $i_p$  – up to 400 kA

## NON-SEGREGATED-PHASE



### ELPO type



### PELPO type

$U_n$  – up to 36 kV  
 $I_n$  – up to 5 kA  
 $i_p$  – up to 200 kA



## New plant High-current Busduct





# ELEKTROBUDOWA`s busducts in Belgium for ELECTRABEL





## ➡ Industry Division

## The Underground station „Plac Wilsona” - a prize-winner in 2008



This underground station executed by ELEKTROBUDOWA SA was rewarded as the most beautiful underground station in the world by the architects participating in the MetroRail 2008 Conference, Copenhagen.



## National Stadium, Warsaw

- **2010 - 2011**
- electrical, low current, automation and BMS installations of Stage 2 construction of the National Stadium

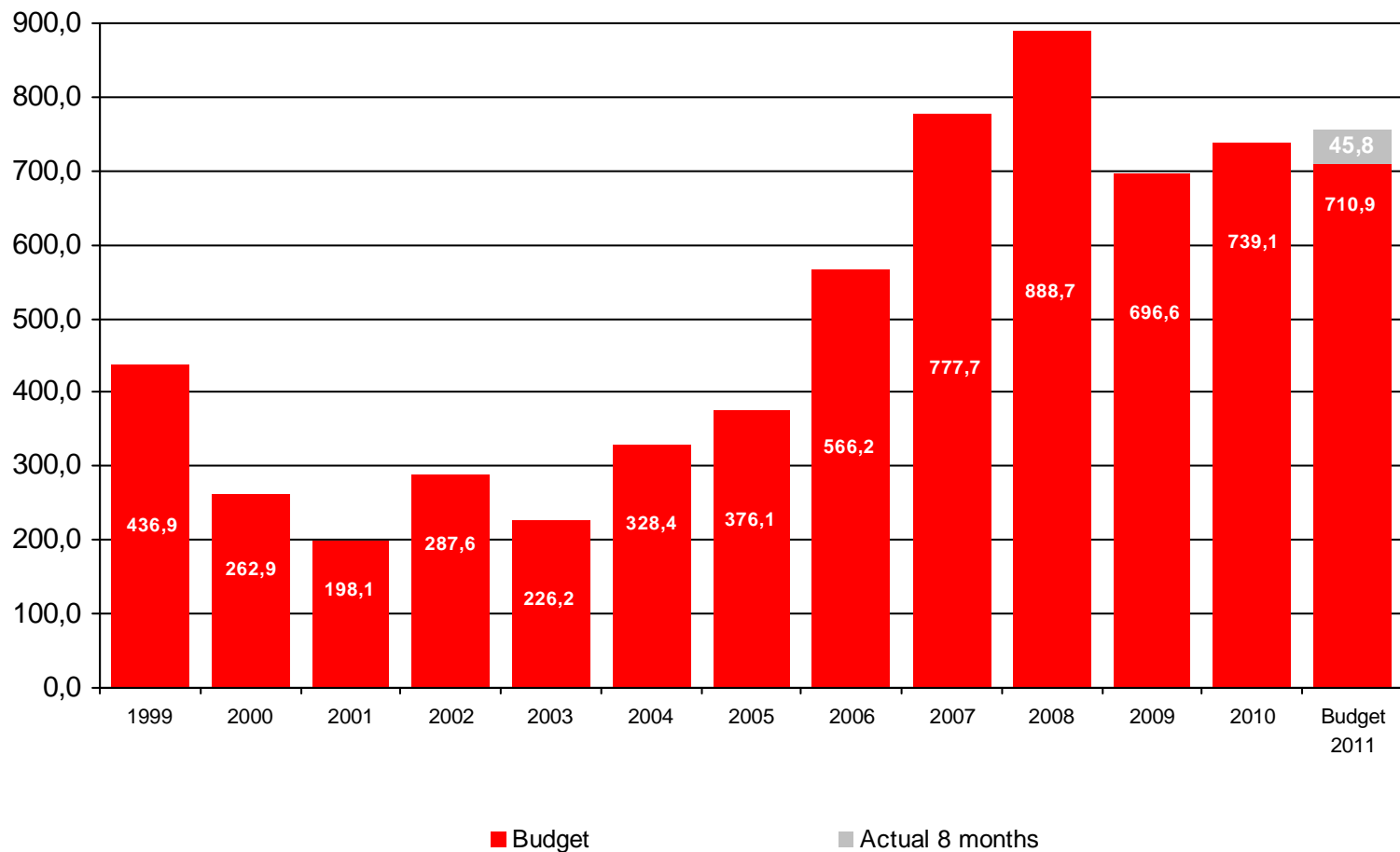




## ➡ Financial Statements

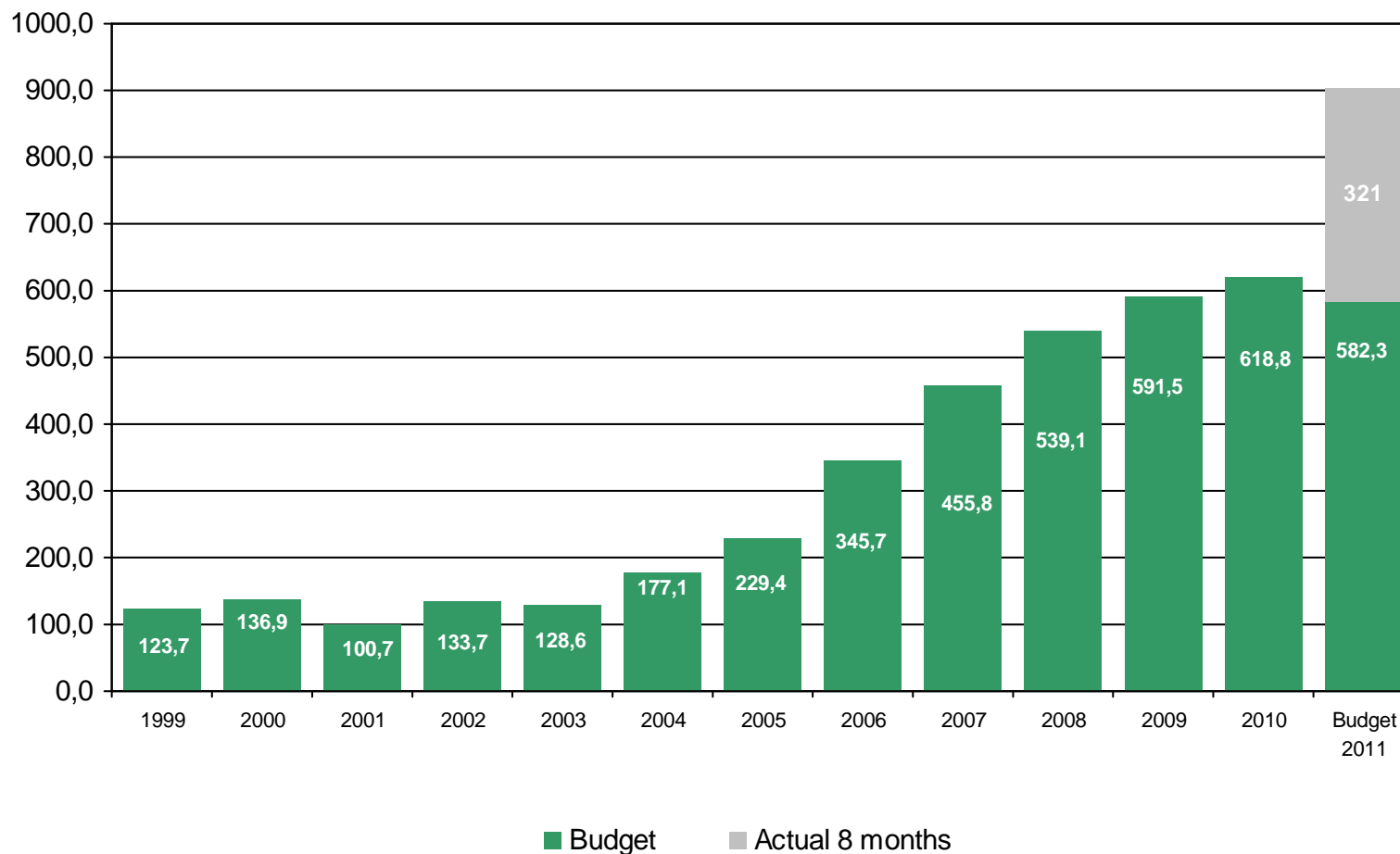


## Orders received (PLNm)



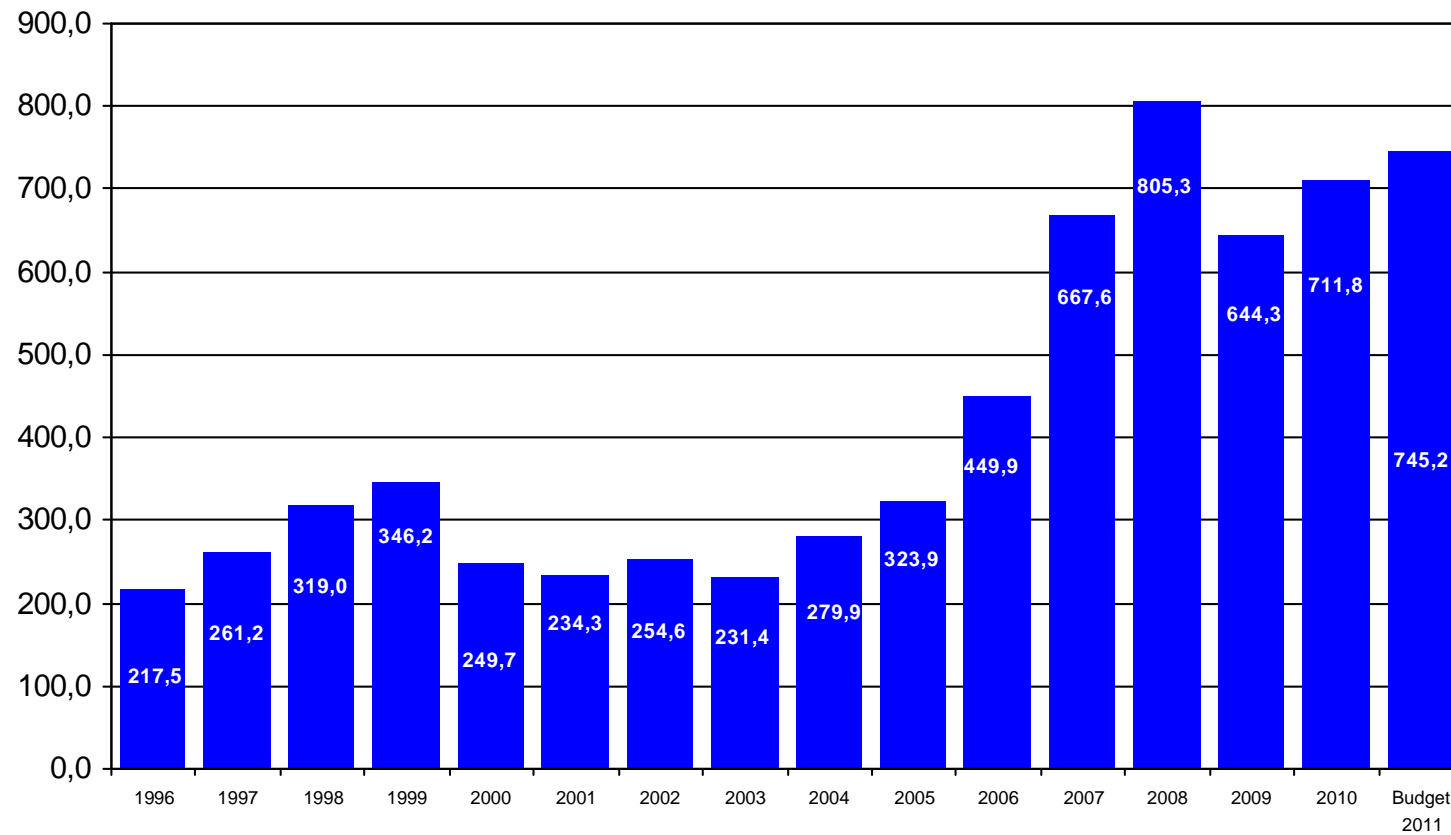


## Order backlog (PLNm)



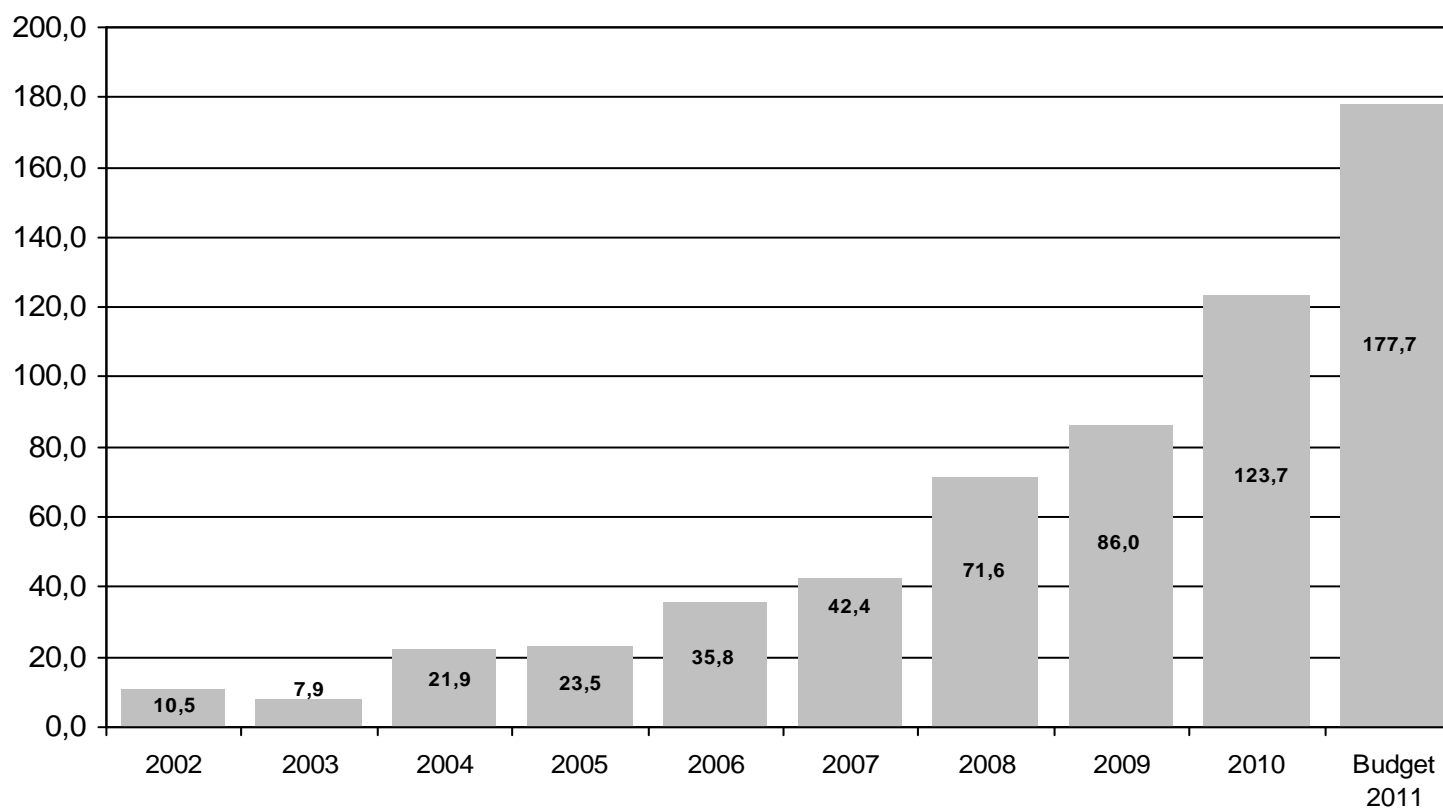


## Revenues (PLNm)





## Export (PLNm)

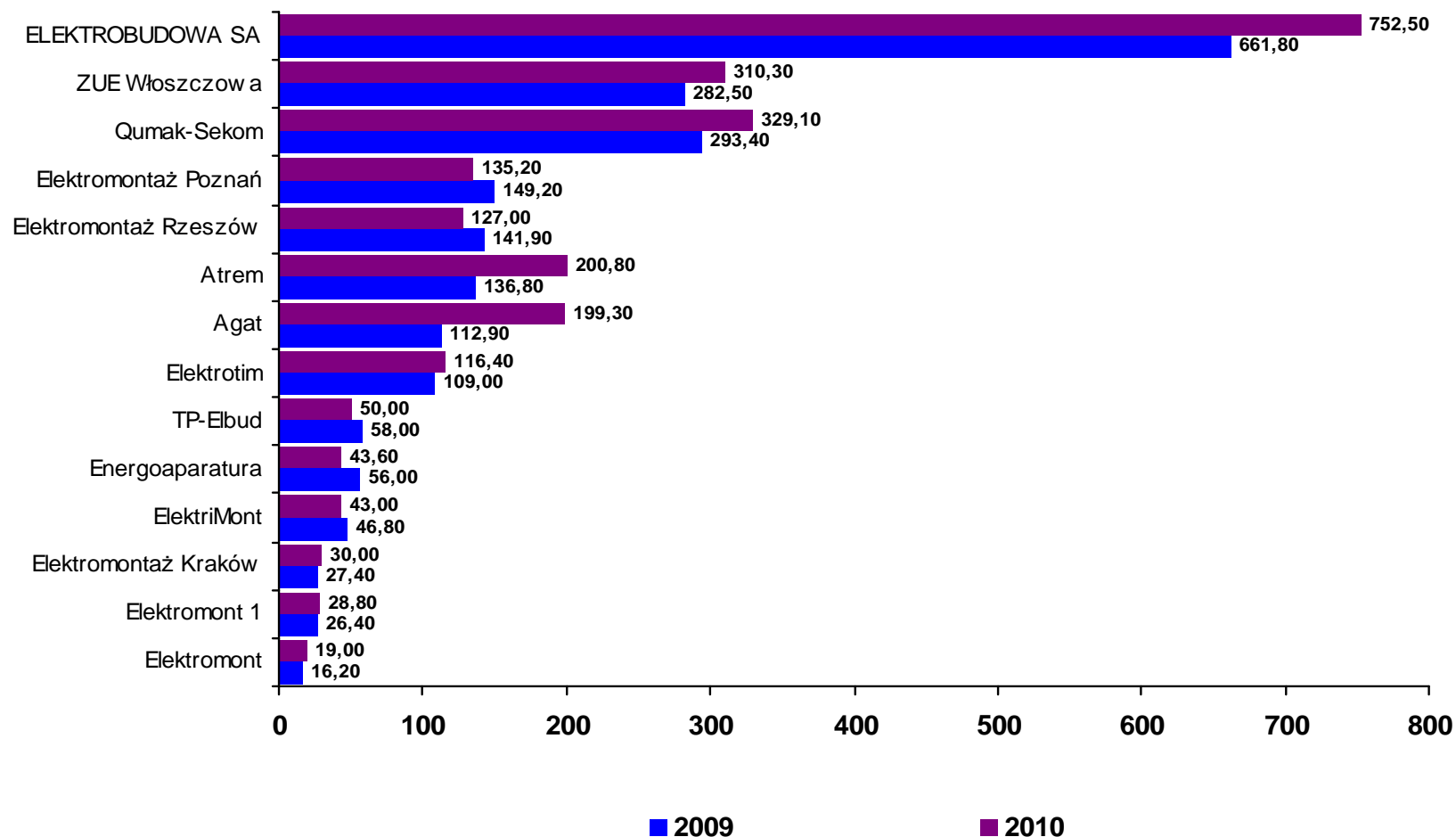




## ➔ Benchmarking



## 2009 & 2010 revenues: ELEKTROBUDOWA SA and selected companies - electrical services providers (in PLNm)





## ➡ INTEGRATED MANAGEMENT SYSTEM



## INTEGRATED MANAGEMENT SYSTEM

The Integrated Management System is built and operates basing on the standards:

PN – EN ISO	9001 : 2009,
PN – EN ISO	14001 : 2005,
OHSAS	18001 : 2007,
PN – N	18001 : 2004.

Complementary to the Integrated Management System are the following, implemented and certified, systems:

- the NATO requirements specified in the document AQAP-2110:2009 "NATO Quality Assurance Requirements for Design, Development and Production";
- quality requirements in welding, specified in the standard PN-EN ISO 3834-2:2007: "Quality requirements for fusion welding of metallic materials - Part 2: Comprehensive quality requirements";
- quality requirements in construction and operation of nuclear power plants specified in the document KTA 1401 (06/96) "General Requirements Regarding Quality Assurance".



## Management Systems Improvement

- ➡ Managing the nonconformance, including:
  - correction,
  - corrective actions.
- ➡ Preventive actions.



## Procedure For Handling Nonconformity And For Corrective Or Preventive Actions

The purpose of this procedure is to ensure that:

- Nonconformity resulting from processes, products or services are controlled and the actions taken prevent their unintended use or supply.
- Handling quality, health and safety or environmental nonconformity will eliminate or mitigate any impacts caused.
- Causes of nonconformity will be identified, and the actions taken will result in reducing the likelihood of their recurrence to the minimum.



## Managing Nonconformance

- ➔ Review and classification of nonconformance.
- ➔ Corrections made in order to eliminate a detected nonconformance, such as rework or regrade.
- ➔ Remedial and corrective actions taken in order to eliminate the causes of existing nonconformance.
- ➔ Review of effectiveness of actions taken.



## Preventive actions

- Identification of a potential nonconformance, such as
  - near misses,
  - risk related to project execution, etc.
- Identification of causes of potential nonconformance.
- Planning of actions eliminating the causes of potential nonconformance.
- Execution of plans.
- Review of effectiveness of the actions taken.



## Quality Management System

### DIN EN ISO 9001:200, IAEA 50-C-Q, FRA/N/100/OL3

- ➔ **Safety Class 1 to 4 and EYT**
- ➔ **Safety Class 1 and 2**

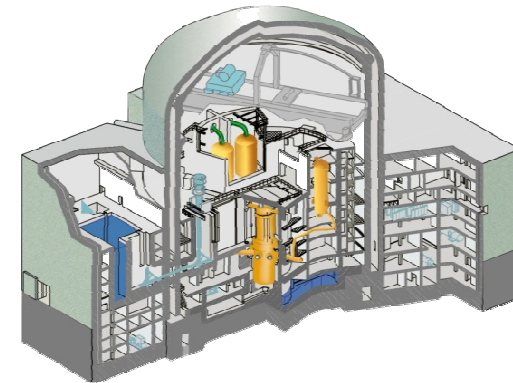


DIN EN ISO 9001:2000



IAEA 50-C-Q (1996)  
FRA/N/100/OL3

(subcontractors already qualified acc. to nuclear specific rules as NQA 1, KTA 1401 are accepted to comply with IAEA 50-C/SG-Q provided that in addition their Quality Management System acc. to EN ISO 9001:2000 is certified)





## Quality Requirements ACC.TO Project OL3

- **Quality Assurance Plan has to be issued for OL3 Project**
- **Only for SC1 and SC2 and safety related activities**
- **Content is defined in FRA/N/100/OL3 acc. to IAEA 50-C-Q**
  - Graded approach
  - Verification and review of documents by independent individuals
  - Language of documentation
  - Training of Safety Culture
  - Design validation and verification
  - Contractual requirements
  - Verification of purchased products
  - Product identification and traceability
  - Internal Audits by qualified personnel independent from the area audited
  - Inspections and verifications shall be recorded
  - Notification of nonconforming situations



## Graded Approach

- ➔ Depending on the Safety Class of equipment or system, different quality and reliability requirements must be met with respect to their design, engineering, manufacture, installation and operation.
- ➔ In practice, the highest class, SC1, comprises equipment and systems which have direct influence on safety of the reactor's operation.
- ➔ For example, in the case of class SC1, SC2 inspection and acceptance tests of the equipment or system are more detailed and have more participants, while the inspection of EYT equipment, which do not have impact on safety) is performed by contractor. SC1 and SC2 equipment inspections are participated by: Contractor, AREVA NP, TVO (Owner) and STUK or another body appointed by it.
- ➔ ELEKTROBUDOWA SA performs works on equipment classified to Safety Class 2, 3, 4 i EYT.

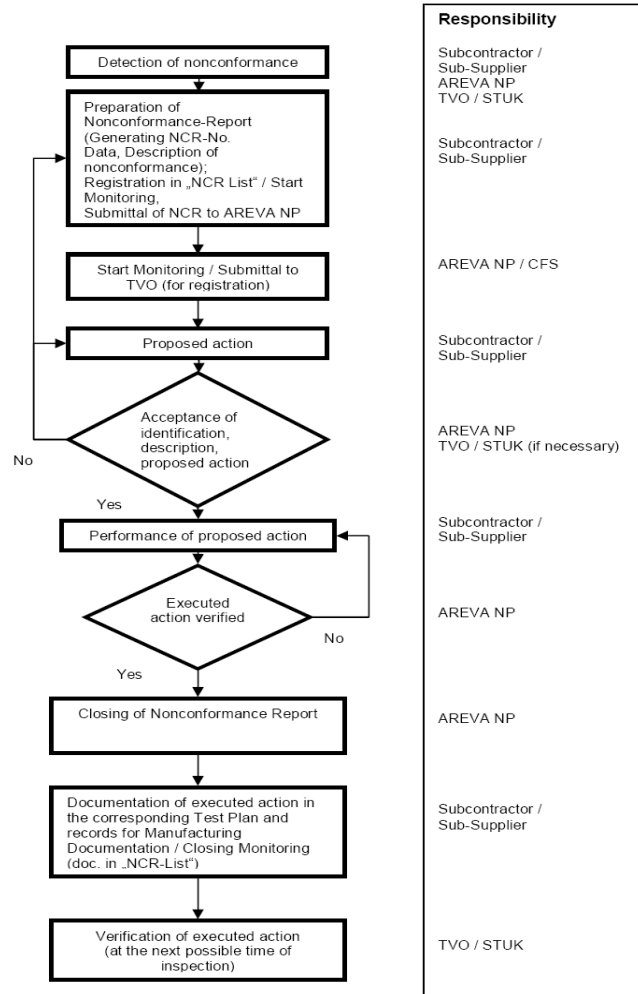


## Nuclear Safety Culture

- To Clarify the topics seven key issues are described:
  - Commitment
  - Use of procedures
  - Conservative decision making
  - A reporting culture
  - Challenging unsafe acts and conditions
  - The learning organization
  - Underpinning issues: communication, clear priorities and organization.



# Handling of Nonconformances



Plant/Project OLKILUOTO 3		<b>Nonconformance Report</b>		Manufacturer NCR No. (generated / placed by manufacturer)	
Manufacturer:		WBS : NI-0.0340	TVO NCR NO.:		
RKS/AKZ Key/Type, Drive, DN		Component WBS:	Place of:		
Object:		Component:	Semi-finished Product/ Part/ Subassembly:		
Manufacturer Order No.:		Safety Class:	PED-Category :		
Project Specification: Rev.:		AREVA NP Order No.:	PED Module :		
Drawing No.: Rev.:		FIP/MTS: Rev.:	Manuf. Serial No. / Ident.No.:		
Material:		Examination Instruction: Rev.:			
Date of identification of nonconformance (JJJJ-MM-DD):					
Description of nonconformance:					
Corrective action necessary for identification and description:    yes    no					
Originator:		Manufacturer:		ICM / TVO (if applicable):	
Place:		Place:		Consortium Partner (CP):	
Date:		Date:		Date:	
<b>Proposed action:</b>					
for proposed action					
Manufacturer:		ICM (if applicable):		Consortium Partner (CP):	
Place:		Place:		TVO:	
Date:		Date:		Date:	
<b>Evidence of executed action:</b>					
for verification of executed action					
Manufacturer:		TVO:		Consortium Partner (CP):	
Place:		Place:		Place:	
Date:		Date:		Date:	
for closing of Nonconformance by CP					