

Diagnositics of Gas Transmission Lines and Risk Management

Geneva

26th January 2006

Josef Antos

Jiri Filippi

**Ministry of Industry and Trade
Czech Republic**

Purpose of the Questionnaire

Increasing dependence of Europe on non-European natural Gas implicates:

- growing interest in security of natural gas supply on the liberalised market
- extraordinary interest in diversification of sources (transmission) across all concerned countries.
- complicated negotiations - disputes on gas and transit prices affect transit of gas and supply.
- distinguishing of **mode-transport** and **mode-transit** appears as the necessity.

The necessity of TSO's cooperation improvement

- **The security of natural gas supply and both transit – transport (transmission) depends on**
 - 1. An increasing key role of TSO on the liberalised market and it's responsibility**
 - 2. The identification of gas flow at the relevant points of delivery (distinguishing transit from supply)**
 - 3. Observance of a laws, rules, standards and all documents related to the security of supply**

The main parts of the Questionnaire

- With regard to all relevant topics of security supply of concerned TSO's systems the Questionnaire includes following parts:
 - I. Identification / characteristics of gas pipelines (transmission systems)
 - II. Risk analysis
 - III. Legislation
 - IV. Prevention, Operation and Diagnostics

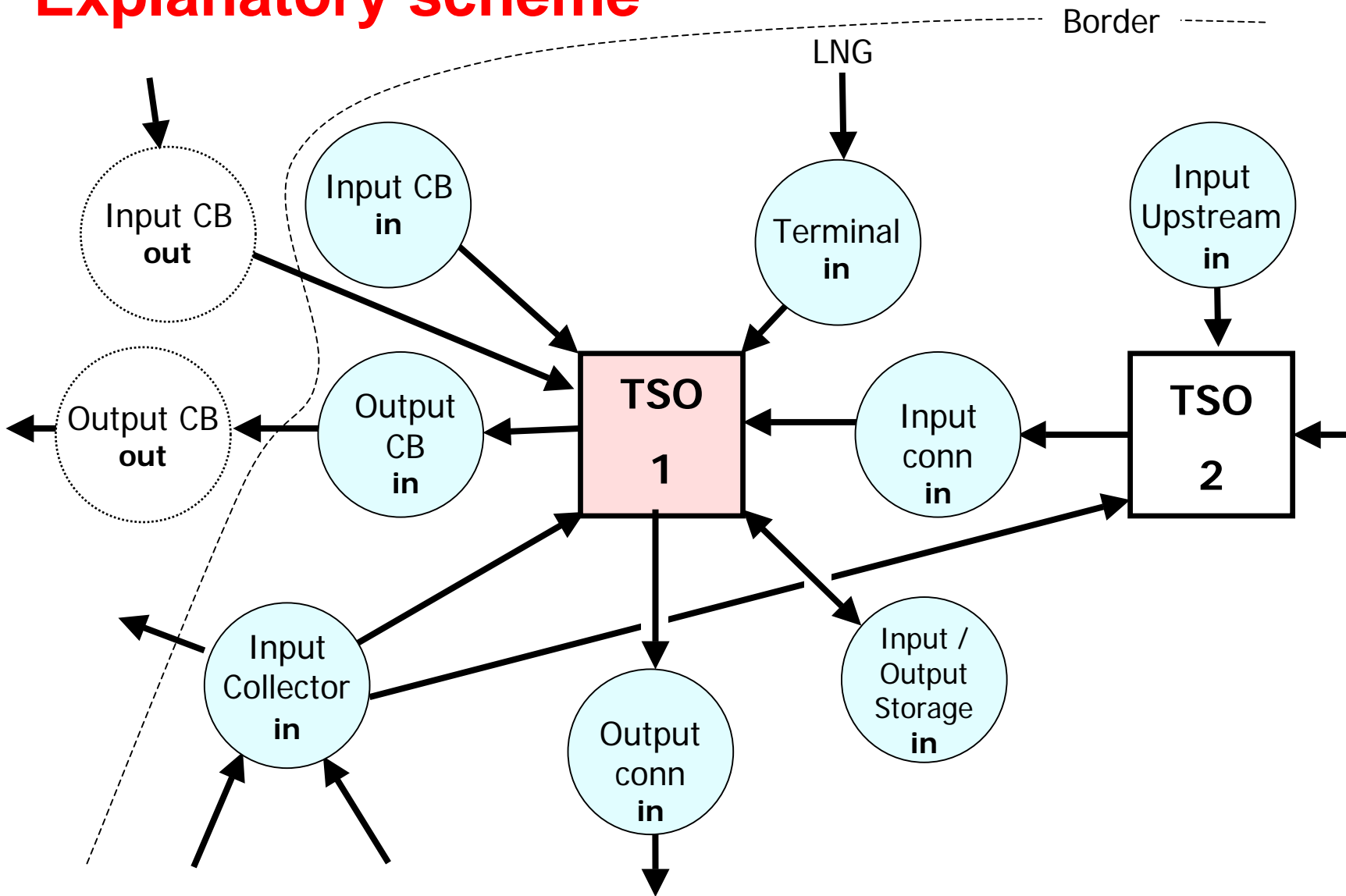
I. Identification / characteristics of TSO's systems – principles

- TSO's systems as the areas (like a black box) connected to the transfer stations (TS)
- TS = points of delivery equipped with measurement system as
- TS connecting two TSO's systems across border (CB Input or Output)
- TS connecting mutually two TSO's systems (Connector Input or Output)

I. Identification / characteristics of TSO's systems – principles

- TS connecting TSO's system to **Upstream pipelines**
- TS connecting TSO's system to **Terminal**
- TS connecting TSO's system to **Source of gas**
- TS connecting TSO's system with **Collector/Hub**
- TS connecting TSO's system with **Storage**
- Abbreviations of all above CB or TS include
- **Input** (gas flows from CB or TS to TSO's system or
- **Output** (gas flows from TSO's system to CB or TS)
- **in** – TS in the country of the relevant TSO
- **out** - TS outside the country of the relevant TSO

Explanatory scheme



Source 1 Source 2

Risk Analysis I.

- 1. Potential sources of risk**
- 2. Elaboration of Emergency Plans**
- 3. Utilization of Safety reports and Risk analyses**
- 4. Identification of risks**
- 5. Risk assessment methodology by TSO**
- 6. Work security under gas pressure**
- 7. Geographic Information System**

Risk Analysis II.

- 1. Corporate info on operational risks**
- 2. Definition of HCA objects by TSO**
- 3. Identification of risks in HCA areas**
- 4. Information system for risk management**
- 5. Linkage to other IS (GIS, operational IS, maintenance IS)**
- 6. Provider of IS**

Legislation I.

- National risk management legislation?
- Licence granting under binding condition
- Obligatory insurance?
- Legal definition of responsibilities in risk and emergency conditions?
- Legal safety of gas transportation?
- Legal difference between transit and inland transportation?

Legislation II.

- **Energy Charter Treaty ratified?**
- **Should state administration have a contract with relevant TSO ?**
- **Monitoring system of imports, exports and transit?**
- **Authority charged with monitoring?**
- **Declaration of transit and link to interconnected transportation systems?**
- **Is this obligation legally binding?**

Prevention

- Preventive maintenance system by TSO?
- Minimum operational and emergency standards?
- Maintenance control information system?
- Prescribed inspections and tests included in IS?
- Prevention of third party damages?
- Regular aerial inspection?
- Standards for construction of transportation pipelines?

Operation

- **Anti-damage automatic protection systems**
- **Operational safety stand-by capacity**
- **Monitoring of sulphur and its impact**
- **Quality assurance of supply services (ISO)**
- **System of certified suppliers?**
- **Supervisory authority for monitoring of safe gas transportation**

Diagnositics

- Regular inspections of selected facilities
- Registered check of cathodic protection
- Internal pipeline inspection
- External insulation checkout
- Extent of Stress-tests
- Interval of RCM procedure
- Continuous monitoring of possible leakages

**Thank
You
for
Your
Attention**