

The Brattle Group

Gas Markets

Presented to:
Florence School of Regulation

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Antitrust/Competition Commercial Damages Environmental Litigation and Regulation Forensic Economics Intellectual Property International Arbitration
International Trade Product Liability Regulatory Finance and Accounting Risk Management Securities Tax Utility Regulatory Policy and Ratemaking Valuation
Electric Power Financial Institutions Natural Gas Petroleum Pharmaceuticals, Medical Devices, and Biotechnology Telecommunications and Media Transportation

Introduction

1. Old world

- How did the European gas market work before liberalisation

2. The vision

- Competition as the Messiah

3. The transition

- Challenges

1. The Old World

Players

- Producers
- National monopolies
- Consumers

Contracts

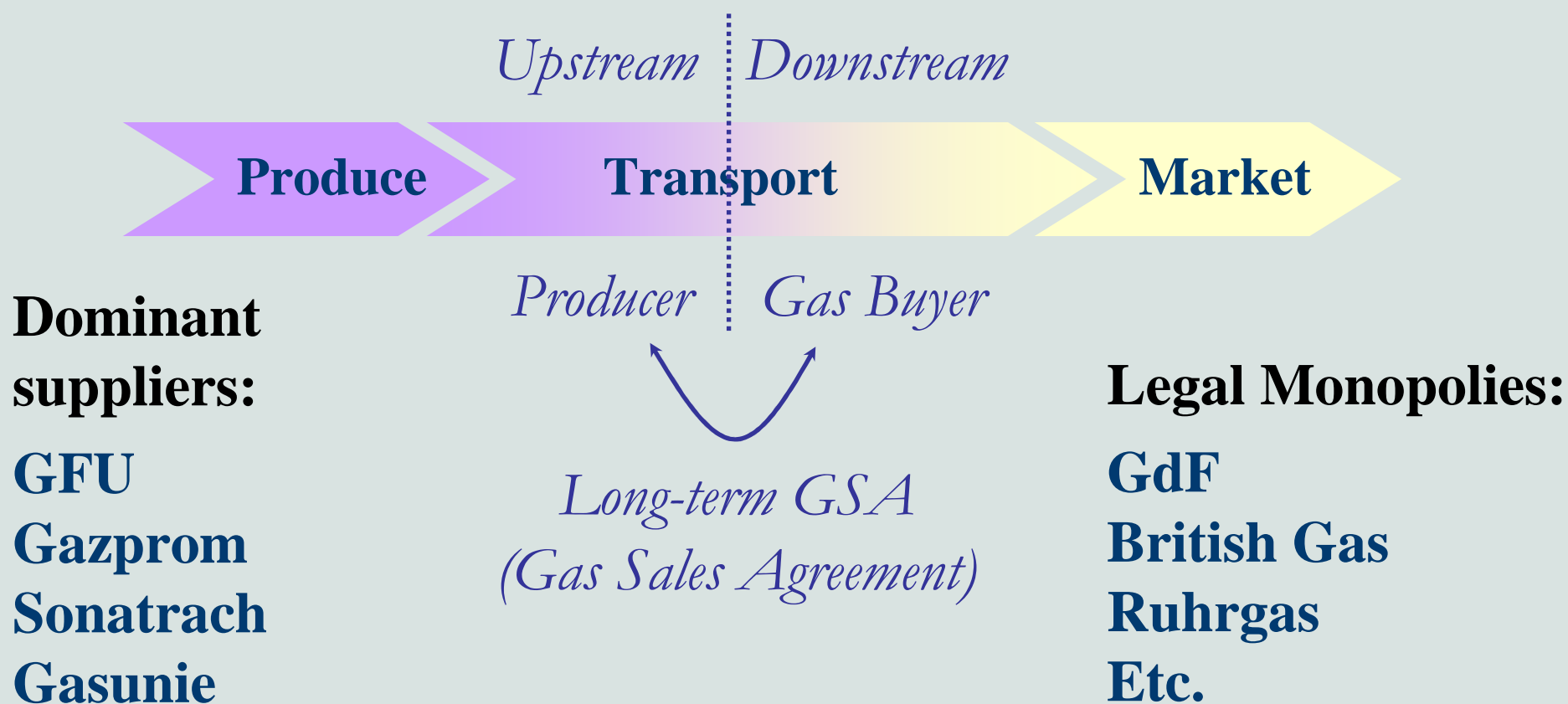
- Long-term import contracts
- Big Take-or-Pay commitments
- Destination clauses, use restrictions

Price of gas

- Consumers pay based on the costs of alternative fuels
- Importer also pays based on alternative fuels: oil price indexation.
- Contracts rely on price review clauses

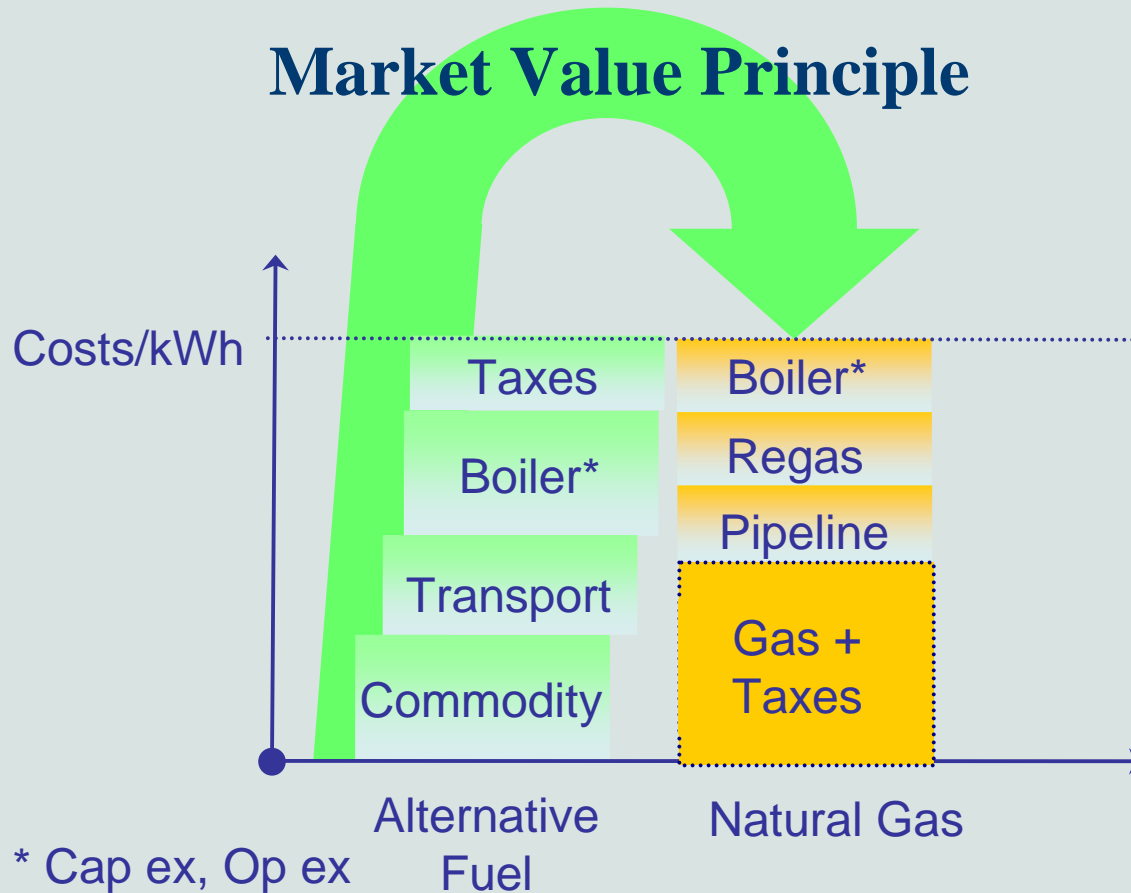
Old Structure of European Gas Market

The Traditional Supply Chain in Europe



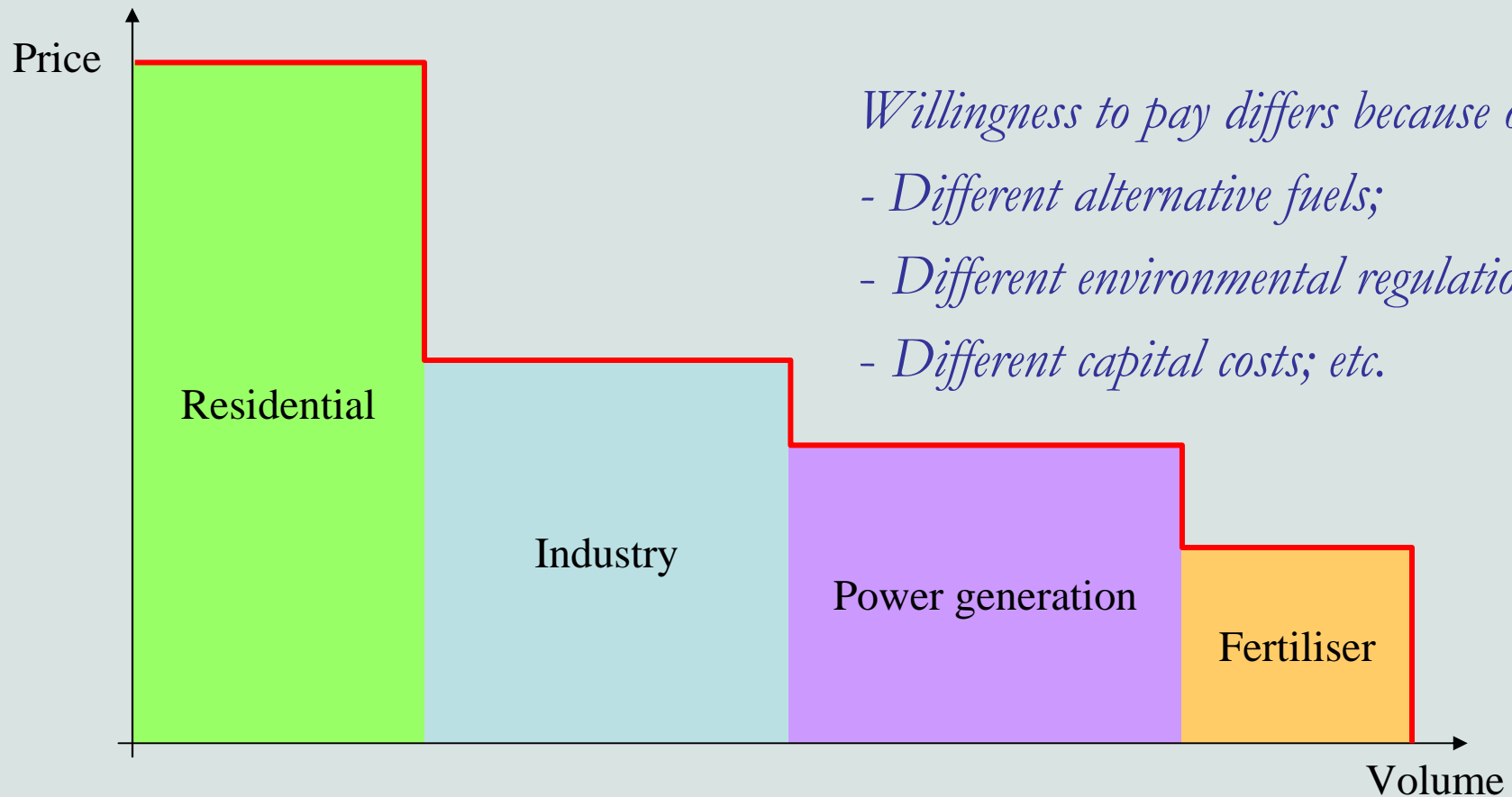
Market Value Principle

Seller has a market as long as consumer's overall cost of gas < cost of alternative energy sources.



Price Discrimination

Repeating Market Value Principle for different consumer segments gives different prices: *Price discrimination*



How much does monopoly importer pay for gas?

Revenue per unit of gas sold by monopoly:

- Depends on alternative fuels in market
- Is an average of MVP in each segment

Seller recovers costs and a return, producer gets the rest.

- Size of supplier's return may depend on bargaining power when GSA signed.
- As value of gas from MVP depends on price of alternative fuels (oil products), GSA is signed with *oil indexation* in price formula:

$$\text{Price of Gas} = P_0 + \alpha \times \text{Price of alternative fuel}$$

Price Review Clause

Anticipates periodic adjustments to the price formula

If no agreement reached, go to arbitration:

- May have to prove “significant change” in the market, sometimes has to be “unexpected”
- Language in contract may give instructions about *how* to adjust price formula:
 - ▶ Change in value in seller’s market
 - ▶ Value obtainable in seller’s market
 - ▶ Allow seller to “market economically” – target or just a constraint?
- Big risks involved:
 - ▶ Long, expensive process (~18 months, several million €s)
 - ▶ Retro-active application to renewal date: liabilities can become intolerable
 - ▶ General wording in GSAs → uncertainty

Contractual Commitments

- Investing in new gas fields is risky:
 - ▶ Enormous investments required at the field, and for the expansion of pipeline infrastructure
 - ▶ All investments are long-term and present the problem of “sunk costs”
- Producers like Gazprom needed long-term commitments before they were willing to invest in new fields
- Incumbents secured supplies at reasonable prices by providing commitments in *long-term take-or-pay contracts*.
- Without these commitments *buyer* could abuse *seller* – seller had no alternative customer at end of the pipeline

The Old World Headline

“Buyer takes the quantity risk, seller takes the price risk”

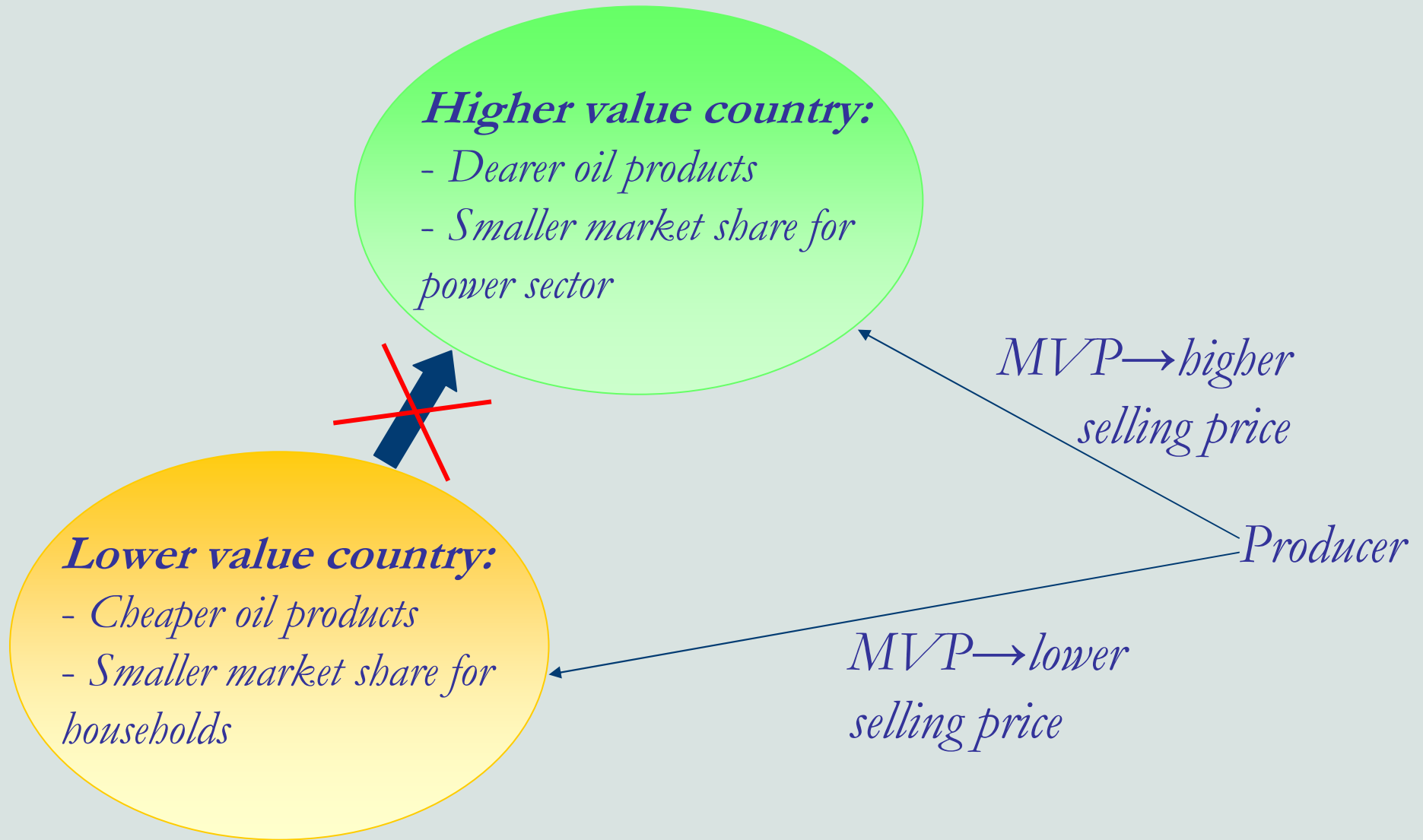
A) Buyer

- Protected by “market economically” clause
- Bears risk of imprudence and inefficiency.
- Main risk is “over-buying” for the market.

B) Seller

- Simple business logic: seller should get significant upside
- Large sunk costs before first gas is delivered
- Contract rarely guarantees any return

Destination clauses



2. The Vision

The Old World

Players

- Producers
- National monopolies

Contracts

- Long term
- Take or Pay commitment
- Destination clauses

Price of gas

- Consumers pay based on alternative fuels
- Importer pays on same basis: oil price indexation
- Price review clauses

New world

Players

- Producers
- Multiple suppliers

Contracts

- Mix long and short
- Take-or-pay meaningless
- Resale permitted: liquidity

Price of gas

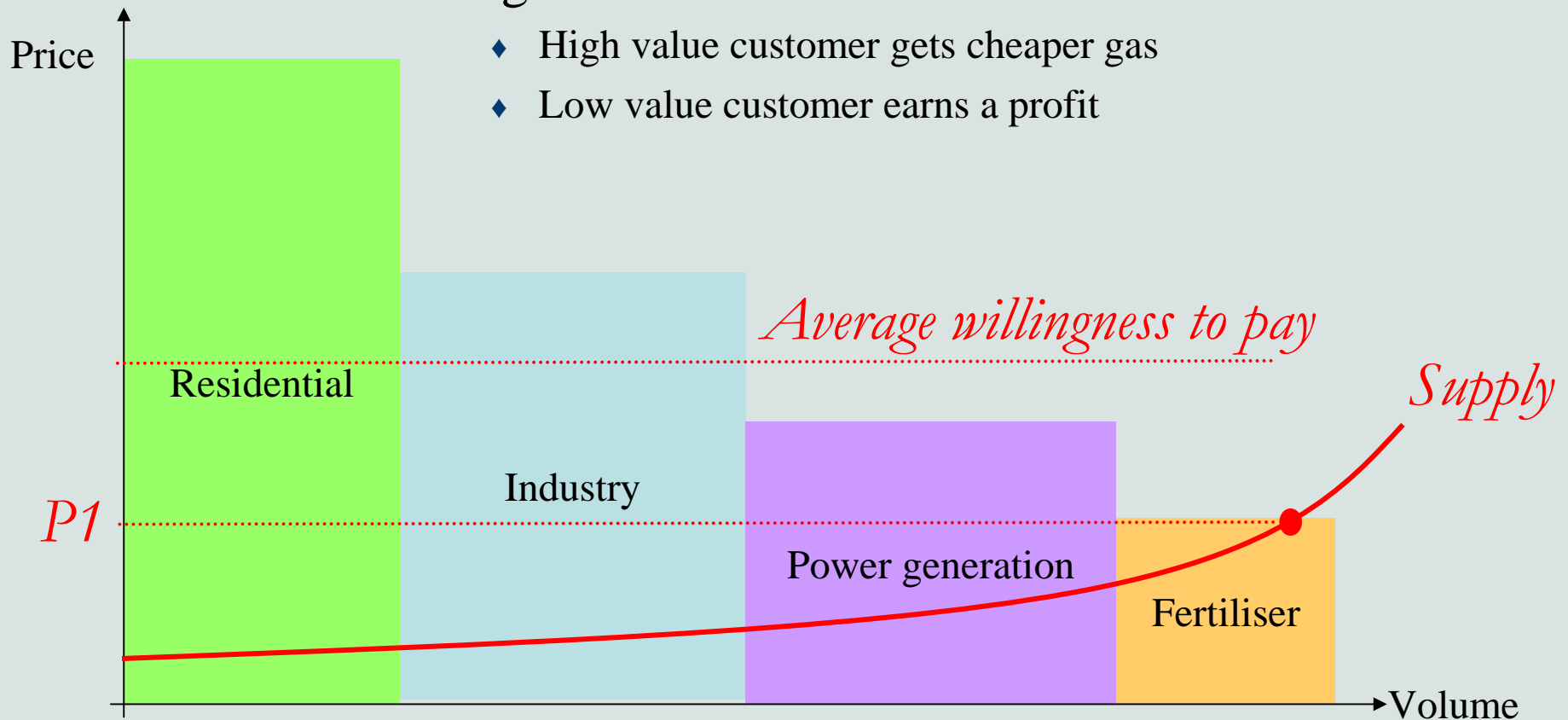
- Consumers pay based on *cheapest* alternative fuel or cost of obtaining supplies
- Indexation to liquid gas hub
- Price reviews redundant

The end of price discrimination

Resale undermines price discrimination:

- Low value customer can buy more gas than own needs
- Sells excess to high value customers for less than MVP

- ◆ High value customer gets cheaper gas
- ◆ Low value customer earns a profit

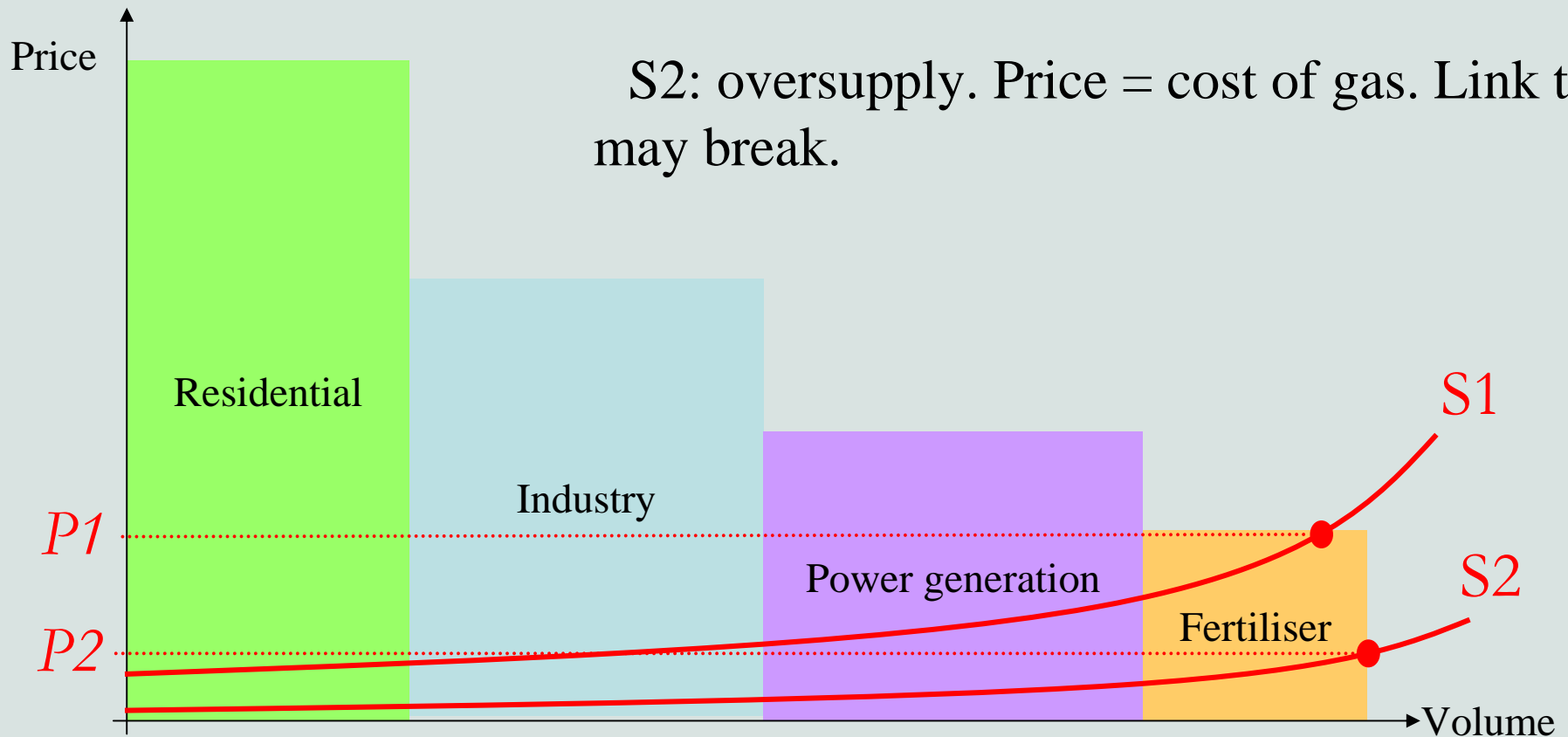


Gas Prices

Two scenarios:

- S1: tight supplies. Price = “willingness to pay” of *marginal* consumer. Continued link to oil price.

S2: oversupply. Price = cost of gas. Link to oil may break.



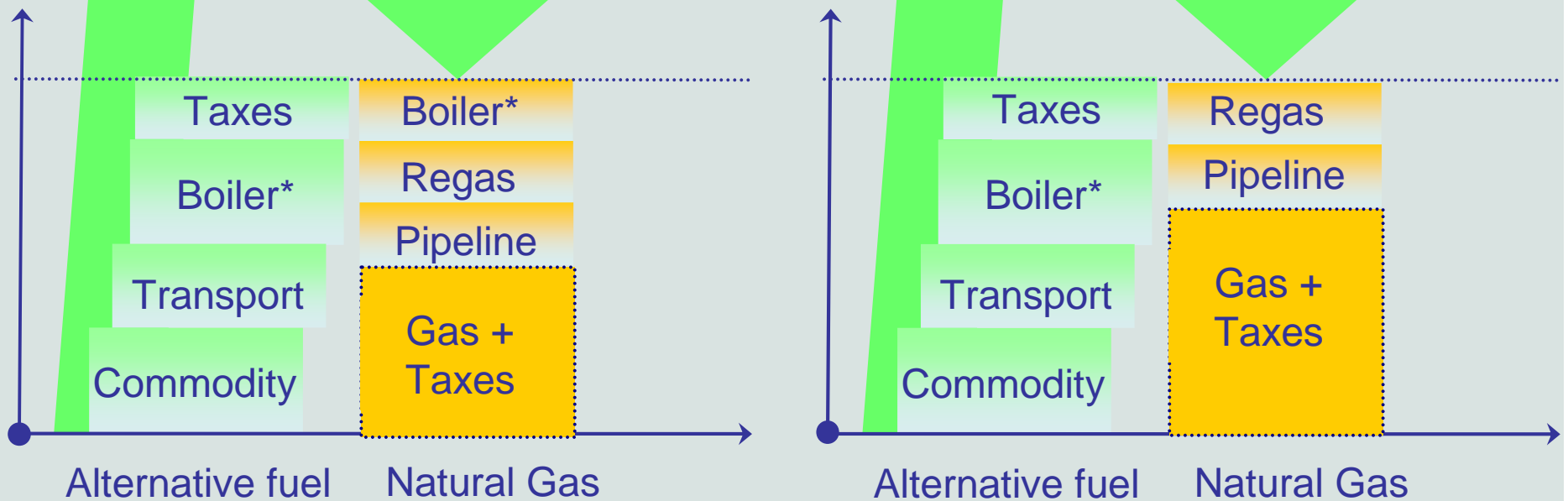
- Competition: multiple players
- Resale: more purchases and sale of gas
- End of price discrimination: gas price can diverge from oil price

Expect emergence of spot market index

- Price review clauses in existing contracts might point to index
 - ▶ Arbitration proceedings less frequent: just look at newspaper
- New long-term contracts might refer to index, instead of oil formula

- Producer no longer needs long-term commitment from buyer
 - ▶ Oil fields developed without long-term take-or-pay
 - ▶ Ormen Lange confirms that gas is not different
- End-user no longer needs long-term contract to stop “hold up”

Hold up: after buying gas boiler, MVP points to higher price!



- Supplier is “in the middle.” If end-users prefer short-term contracts, then supplier may seek short-term from producer as a hedge.



- But, expect to see long-term contracts in power sector
 - ▶ Banks like to see committed supplies
 - ▶ Long-term contracts keeps stability if something happens to index

Take or Pay commitments become meaningless

- Supplier can sell excess gas at hub, gets market price.
- If supplier also *pays* market price to producer, then has a natural “price hedge”.

Interaction between Take-or-Pay and contract duration

- If trust in gas spot index is absolute, then the supplier’s “price hedge” eliminates the need for a “term” hedge.
 - ▶ Supplier can buy long-term even if end-users prefer short-term.
- But don’t expect trust to be absolute.
 - ▶ Mistrust in spot market might deter suppliers from “going long” if end-users are signing short-term contracts.

Security of Supply

Old World

- Long-term Take-or-Pay contracts guarantee security of supply
- Need national champion as balance against Gazprom
- Incumbents have special skills in dealing with Gazprom
- The Commission is clumsy with Gazprom. Risks creating Gas OPEC.
- Markets = volatility = threat to security.

The Vision

- Take-or-Pay was about protecting producer from monopoly buyer
- Gazprom is not stupid. Why sell at a lower price to large buyers?
- Special skills still valuable in liberalised market.
- Gazprom will seek to maximize profits even if Commission is silent.
- Volatility = intelligent signals concerning value of scarce gas.

The Role of Regulation in the Vision

“Invisible Hand” will not work for everything:

Security of supply

- Need intelligent rules to create balancing markets, send signals concerning value of security

Transportation

- Gas transmission & distribution are “natural monopolies”, require rules for tariffs, access, investment, avoiding discrimination

Small consumers

- Don't have resources to evaluate service quality, security. Need regulators to protect them with “security-of-supply” obligations on suppliers.

3. The Transition Period

Inherited contracts

Incumbent Responses

Gas release

Evolving regulations

Old World

- Price discrimination
- Long-term ToP contracts

Transition

- Tension with long-term contracts
- Changing industry structure
- Evolving regulation

Mature Market

- Transparent gas index measures value

Inherited Contracts

Commission declares destination clauses invalid

- Resale necessary to end price discrimination

Competition authorities intervene with end-User contracts

- Declare “use restrictions” invalid, to facilitate resale
- Intervene with contract length: suspicion that long-term contracts reflect an abuse of dominance

What happens as price discrimination collapses?

- Incumbent could be importing gas at high price, based on MVP.
- End of price discrimination means end-users pay less on average.
- Incumbent could be exposed to losses, but:
 - ▶ Have “price review” clauses in their contracts.
 - ▶ Allege that a “significant change” has occurred.
 - ▶ Since cheapest alternative fuel or cost of gas now sets price, need to reduce contract price in order to “market economically.”
 - ▶ End result: producer pays for liberalization.

Is this why Gazprom finds the Commission so irritating?

Price reviews are now much more complicated:

- Estimating MVP prices was already difficult.
- New arguments: “gas-to-gas” competition now sets the market price.
 - ▶ But there is no liquid spot index measuring the market price.
- Alternative approaches:
 - ▶ Look at incumbent’s gas revenues, deduct costs
 - ▶ Work off of published end-user prices
 - ▶ “Clean up” published data concerning average import prices.

New suppliers need supply of gas

Signing a bunch of new supply contracts won't work:

- incumbents have market covered, will just flood market

Hence “gas release”

- Market share cap (Italy)
- Gas auctions (Spain)
- As remedy in merger cases

In some merger cases, the parties release “customers” as well as LT gas supplies. WHY?

- Some customers are lazy. Have short-term contracts, but won't switch.
- Growing awareness that scale is important in the supply business.

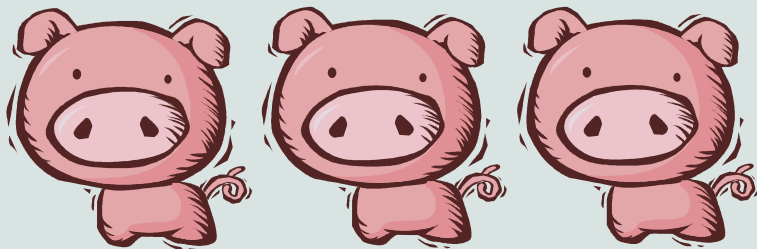
Incumbent Responses

1. Expansion into electricity
2. Expansion into other geographic markets
3. Movement into LNG and production— as producers get into supply
4. Gas acquisition becoming very sophisticated, quantitative
5. Emerging wholesale business outside border: Gas Natural, ENI
6. Competition in providing services to end-users.

Evolving Regulation: Security of Supply

The story of the 3 little pigs is useful:

- The brick house is backup: storage, excess LNG regas capacity, flexible GSAs
- Kindness doesn't work. If brick house is free, why build one?
- Central planning has its limits. Shouldn't force everyone to build a brick house.
- Efficient security: allow the pig with the brick house to charge others for rent.
- The focus for the transition: BALANCING.



Evolving Regulation: Security of Supply

Charging for the brick house.

- Regulatory approach: decide on optimal number of brick houses, measure costs, allocate fairly.
- The vision:
 - ▶ Regulator decides for small customers...
 - ▶ ... but allow large customers to decide what risks they will take
 - ▶ Owner of the brick house gets to charge a “market” rate
 - ▶ Competition determines who can build the brick house at least cost, or find another solution
 - ▶ The resulting “balancing market” can create the desired market index.
- Challenge for the transition:
 - ▶ Set up a balancing *market*
 - ▶ Prevent the pig in the brick house from abusing market power

Concluding remarks

Old world is gone

Vision not yet realized

Transition is painful

- Disputed price reviews all over Europe
- Industry structure shifting– moves into electricity, into LNG, producers entering retail market
- Gas release is still an issue