swiss economics

Smart grids, smart regulation

December 7, 2012

Presentation at the 2012 IEEE Smart Grid World Forum

Dr. Urs Trinkner

Economic point of view

- Adam Smith (1776): Invisible hand of the market balances supply and demand. Invisible hand = Pricing mechanism
- Smart grids are a large scale implementation of this pricing mechanism into electricity markets

Past:		**Future:**
Integrated & regulated utilities align their production to consumer consumption	→	Pricing mechanism cleans market, steering producer supply and consumer demand

Transition:

Who invests? Who funds?

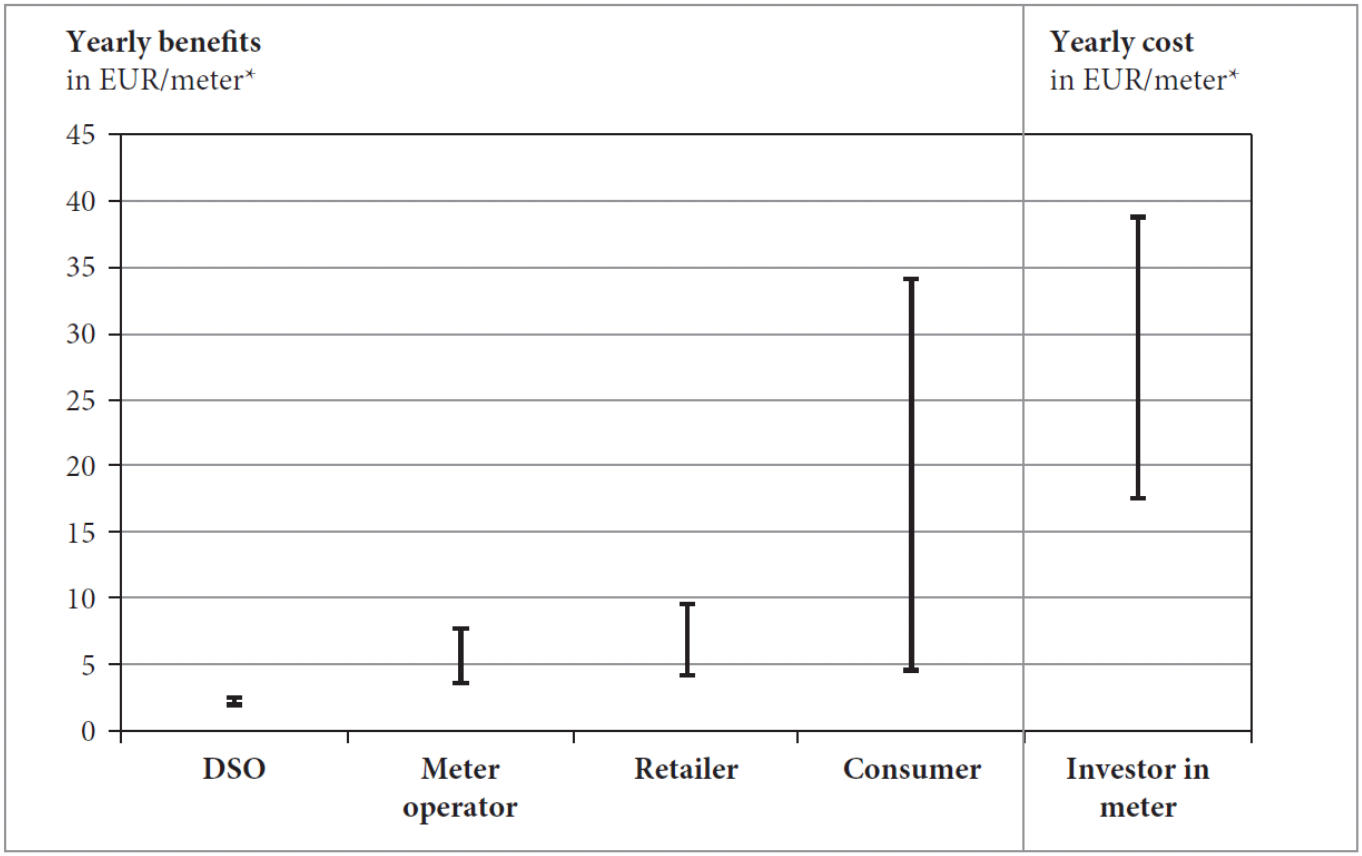
Selected challenges

- Smart electricity markets are two-sided / multi-sided
  - ➢ **Chicken and Egg problem**

- Uncertainty over market power in smart grids
  - Producers/DSO: Will I sell higher? Consumers: Will I buy lower?
  - ➢ **Uncertainty amplifies Chicken and Egg problem**

- Market opening:
  - Non-discrimination as a primary concern of policy makers
  - Disintegration may lead to a dilution of investment rents
  - ➢ **Dilution amplifies Chicken and Egg problem**

Example



Source: Schächtele, Uhlenbrock (2012)

- Benefits of smart meter roll out outweigh investment cost
- No actor can capitalize the investment costs, "split incentives"

➢ **Nobody invests**

Policy options: Stick and/or carrot?

- "Stick": **Mandated roll out** (of smart grids / smart meters etc.)
  - Set penetration rates
  - Increase standards for meters
  - …
- "Carrot": **Market driven roll out**
  - Adjust price cap regulations
  - Provide investment security
  - Provide funds
  - …
- ➢ **Smart grids, smart regulation**

Country	Invested (U.S. Million Dollars)
China	$7,323
United States	$7,092
Japan	$849
South Korea	$824
Spain	$807
Germany	$397
Australia	$360
United Kingdom	$290
France	$265
Brazil	$204

Source: SAIC (2011)

swiss economics

Thank you for your attention!

Dr. Urs Trinkner, Managing Partner

urs.trinkner@swiss-economics.ch
+41 44 500 56 24

www.swiss-economics.ch
Stampfenbachstrasse 142, CH-8006 Zürich

Swiss Economics

- Independent think tank, fully owned by employees
- Dedicated to research and consulting in network industries
  - Energy
  - Telecommunications
  - Post
  - Railways
- In Energy, experts for
  - Incentive regulation
  - Power models
  - Quantitative benchmarking (SFA, DEA)