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SMALL SCALE LNG NEEDS COOPERATION IN THE VALUE CHAIN

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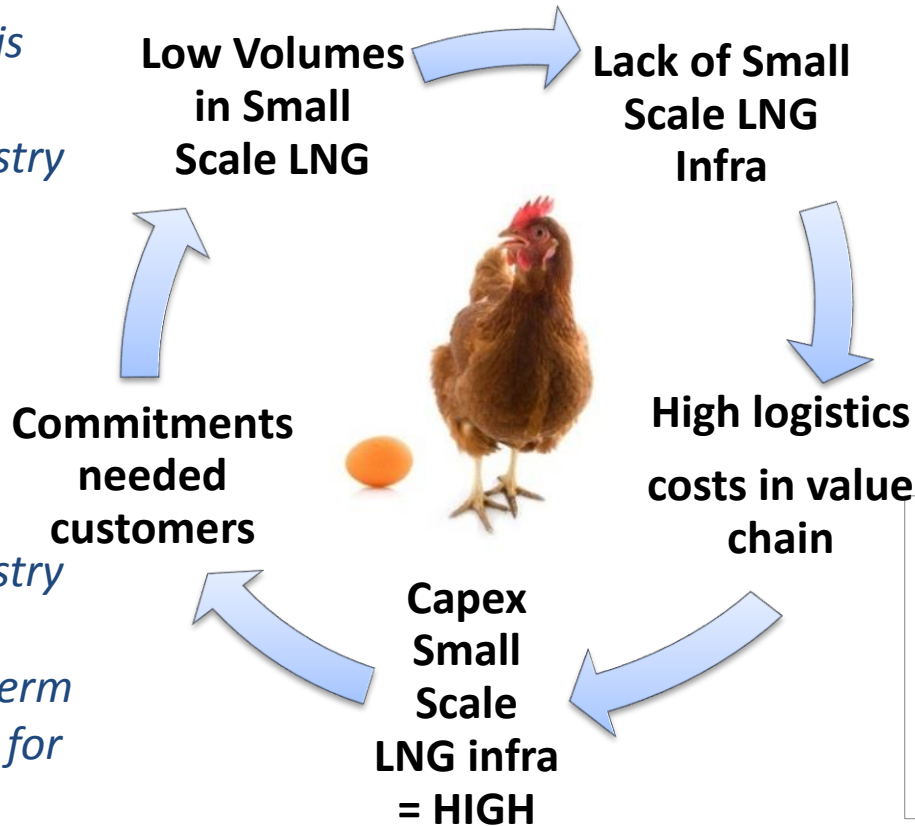
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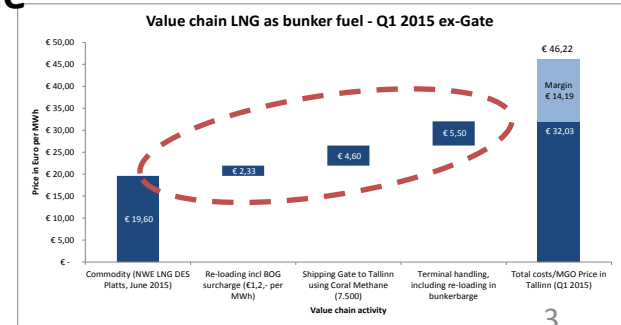
Small Scale LNG CHALLENGES - Chicken and Egg

- *Economic crisis*
- *Strong lobby shipping industry*
- *Volatile LNG prices*



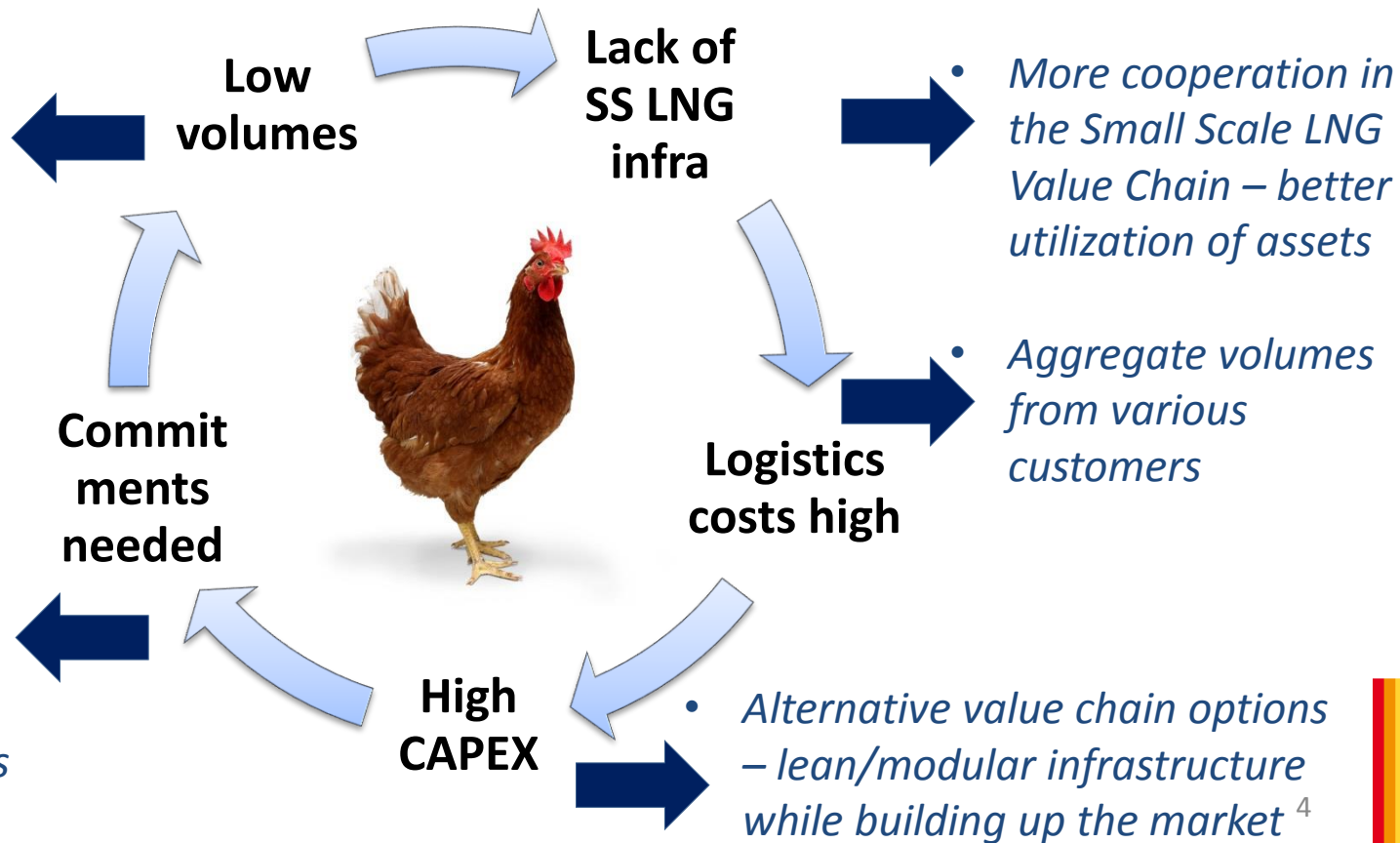
- *Shipping industry not used to making long term commitments for ship fuel*

- *Infrastructure will not be developed unless there is enough volume or commitment*
- *Availability of affordable LNG for smaller off-takers*



Ways to get the chicken out?

- *Consistent support mechanisms from governments (enforcement of regulation and tax policies)*
- *Create regional trading places for Small Scale LNG*
 - ✓ *Volume, price, term, other conditions*
- *Less risks for buyers and sellers*



Ways to cooperate in the value chain



1. Join forces in sourcing of LNG – aggregate volumes and/or create a trading platform dedicated for small scale volumes
2. Joint shipping from large scale to small scale facilities
 - Milk-rounds between small scale facilities
 - Contracts of Affreightment (COA)
3. Joint small scale LNG storage
 - **(CAPEX, OPEX ↓↓)**
 - Independent storage provider ?
 - Option to combine commercial activities with base-load customers (LT commitments)
 - Cooperate by using time swaps, LNG transfers,..
4. Joint exploitation of bunker vessels
 - E.g. JV with one bunker vessel to serve entire LNG fuelled fleet in a region or port
5. Joint transport to a stand-alone gas grid (e.g. in an industrial area)



*It is all about
aggregating
volumes in
each
part of the
value chain!*

Conclusion: Cooperation in the chain is **key** for small scale LNG

- Small Scale LNG development by individual parties is not easy and comes with high (financial) risk
- Aggregation of volumes in the start up phase of this market is crucial to get sufficient utilization of assets all through the value chain; old competition models may need to be abandoned
- Lack of willingness to cooperate, will slow down development of Small Scale LNG market development and offers room to certain market parties to establish monopolies
- Consistent government behavior in regulation, enforcement and policies towards LNG is crucial

