



The Role of Demand Aggregators in Unlocking New LNG Market Potential

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Agenda

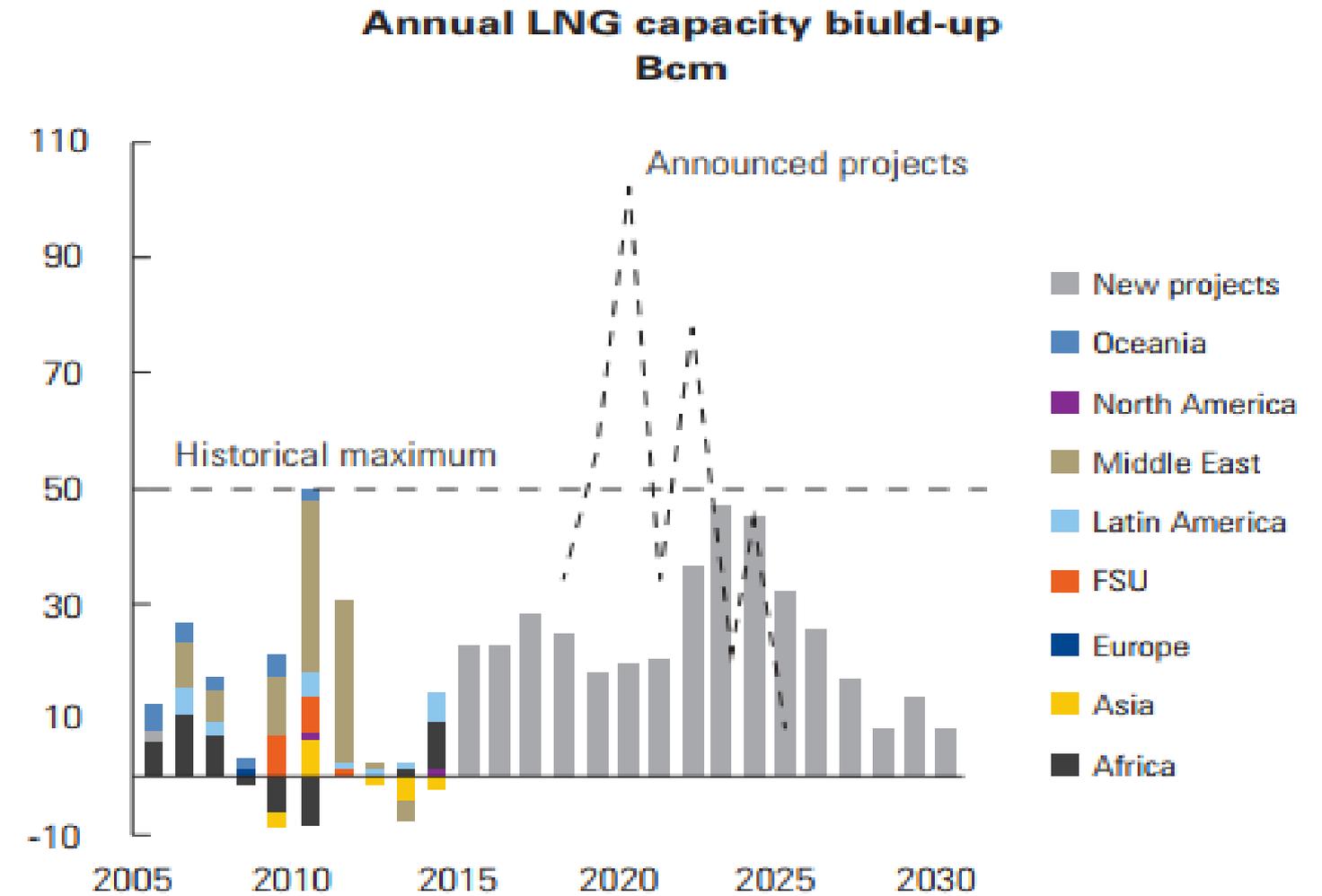
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Traditional LNG dynamics – Where we came from?

- Big IOCs/NOCs supplying to fewer importing countries
- Either huge land-based LNG terminals or large FSRU setups
- Long term contracts
- Sizeable contracted volumes
- Capex Intensive Terminals
- Rigid & structured agreements
- Low credit risk buyers
- Big was beautiful

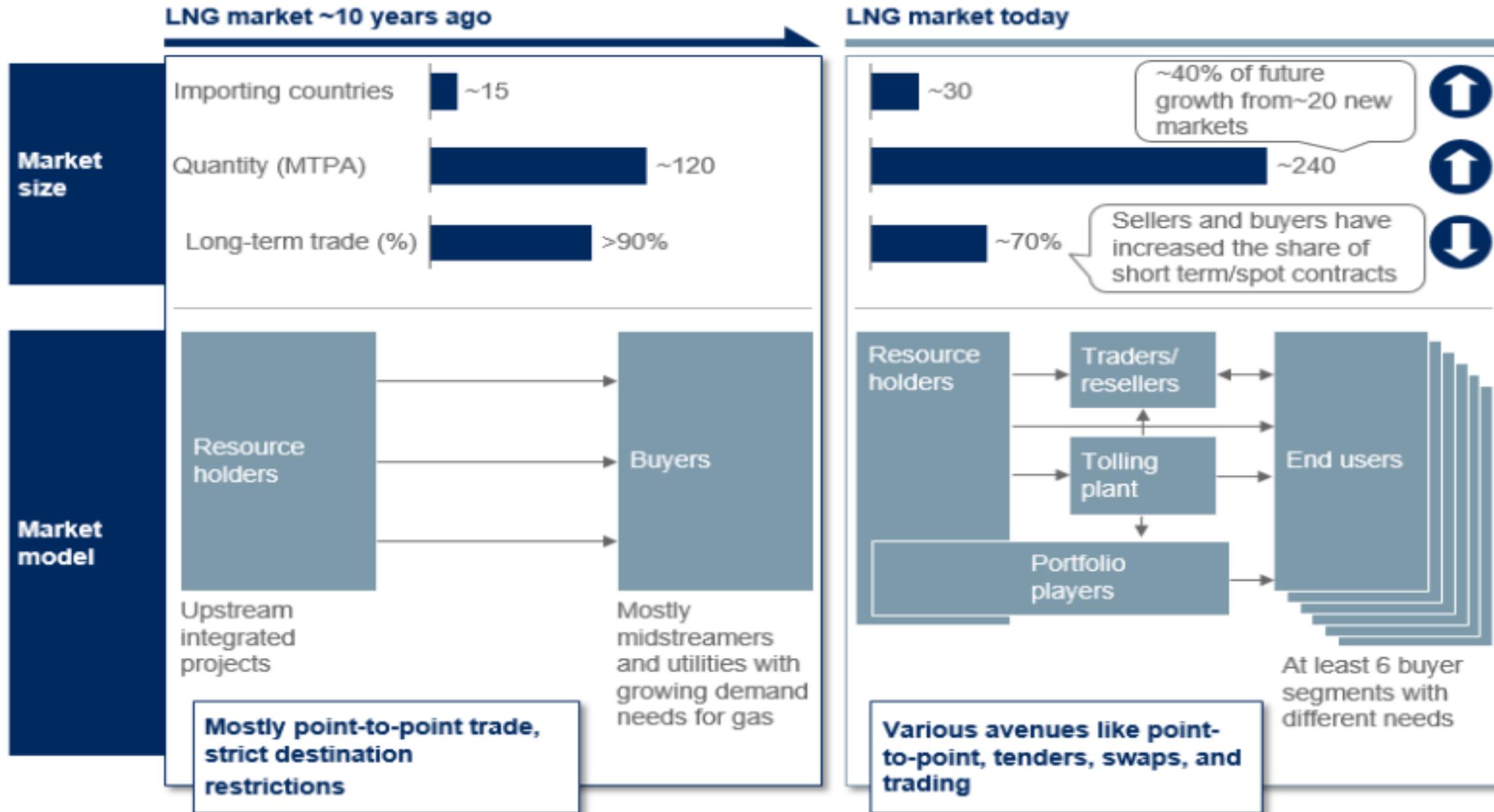
The change – Where are we now?

- Huge influx of uncommitted supply
- Lower commodity prices
- LNG pricing became volatile with change in oil pricing
- Industry focus on cost reduction
- New additions to LNG importers club - some with higher credit risk
- Customer’s requirements have changed:
 - Flexibility in quantity
 - Flexibility in lock-in periods
 - Lower risk appetite
- New customers:
 - Stranded off-grid
 - Private operators



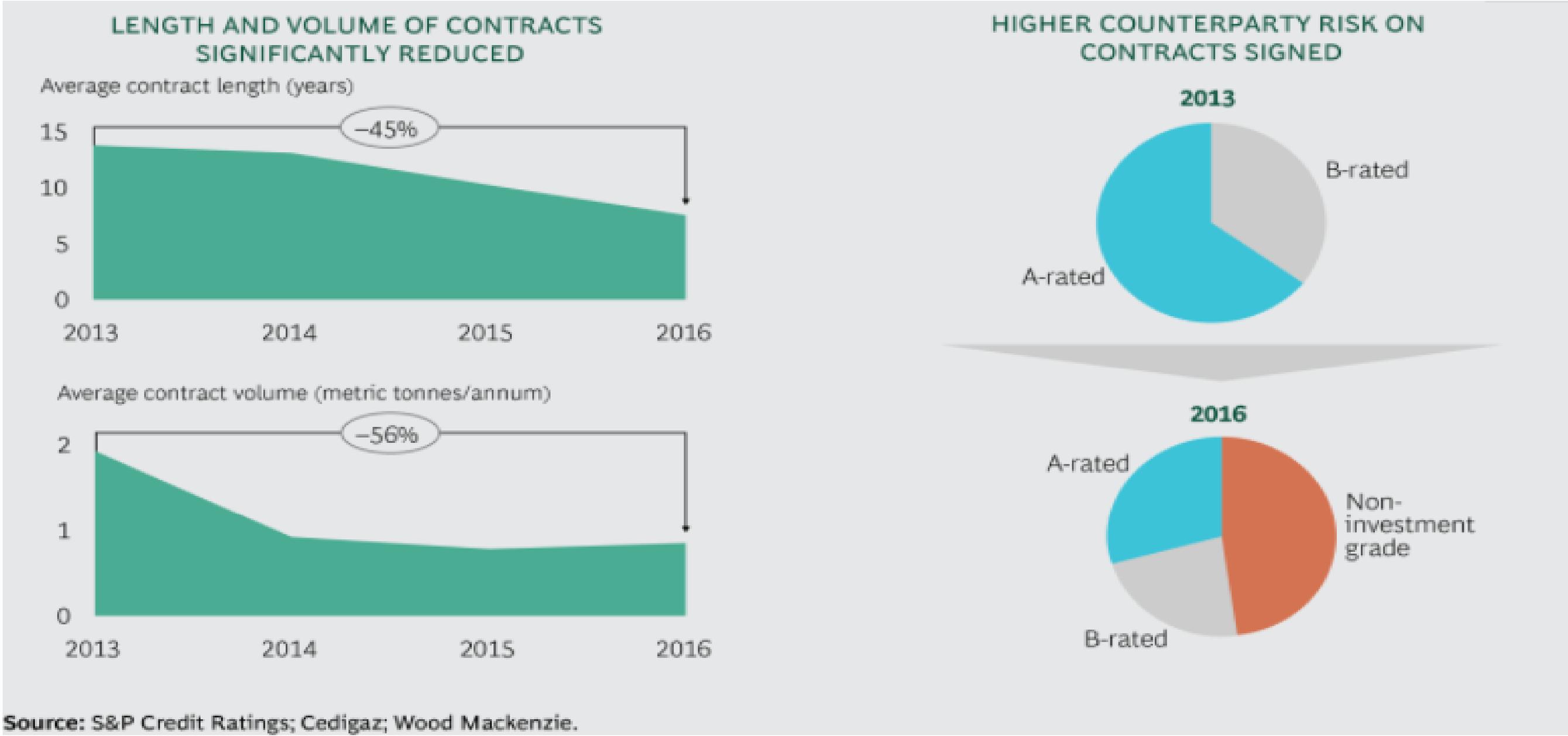
Source: Oil & Gas, UK

The change – Market structure



Source: McKinsey Energy Insights

The change – Contractual structure



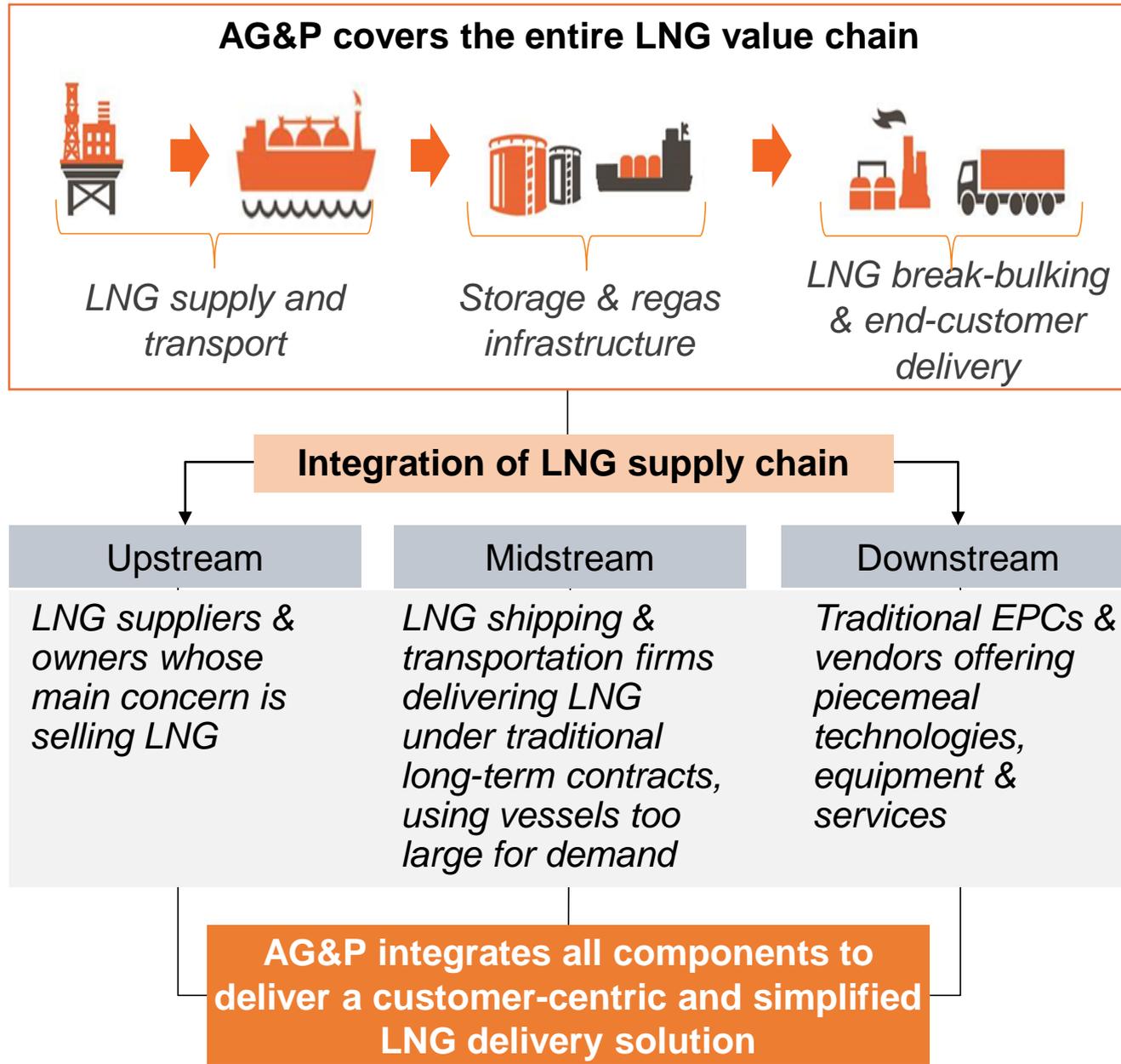
The BIG move – Where are we headed?

- Moving from separate fully integrated plays to a mature, global business comprising small setups with aggregators playing an important role
- Niche but nascent industry that is profitable and scalable with significant potential
- A number of factors favor the growth of small-scale setups using an aggregator model
 - **Scalable** - operators can easily add capacity to serve increased demand while gaining supply chain synergies
 - **Flexible** - can address off-grid power generation for industrial and residential needs in remote locations
 - **Faster ROI** - in contrast to large-scale LNG projects, offers investors more immediate and potentially attractive returns in the medium term
 - **Lower Capex** - proven technology allows projects to offer “plug and play” service with lower investment requirements and accelerated commissioning schedules
 - **Reduced risk exposure** - turnkey solutions reduce uncertainty on project execution timing
 - **Efficient** - meets short-term fluctuations in demand with supply & inventory optimization & managing LNG storage

Emerging role of demand aggregators

- Large-volume, long-term contracts are increasingly difficult to find - producers have resorted to selling millions of tons of LNG to portfolio players, also called demand aggregators
- Account for about 3/4 of total purchase of LNG in recent long-term deals
- Generally don't have any destination restrictions
- By optimizing their supply and infrastructure, they provide LNG to end-users and participants in short and medium term markets
- Ensure supply reliability & provide the platform for gas buyers to exercise their gas supply flexibility through nominations 24/7
- Provide link between cargo scheduling by the supplier and terminal operator
- In an oversupplied market, they can develop more liquid short-term and spot markets and aggregate demand from big players and small, price sensitive players
- Connect and enable 'disaggregated' investment opportunities providing the confidence to invest and the reassurance that value will be maintained

AG&P provides the platform to expand LNG's global reach



- AG&P's singular objective is to optimize the quantity of LNG through its terminals, underpinned by scalable design
- AG&P controls the various functions of design, manufacturing, financing, development, operations and maintenance of LNG terminals and assets
- AG&P provides a single interface and accountability including on-the-ground capability to execute projects efficiently
- Control across the entire value chain ensures on time delivery to the highest standards of quality, health and safety

AG&P's approach to demand aggregation

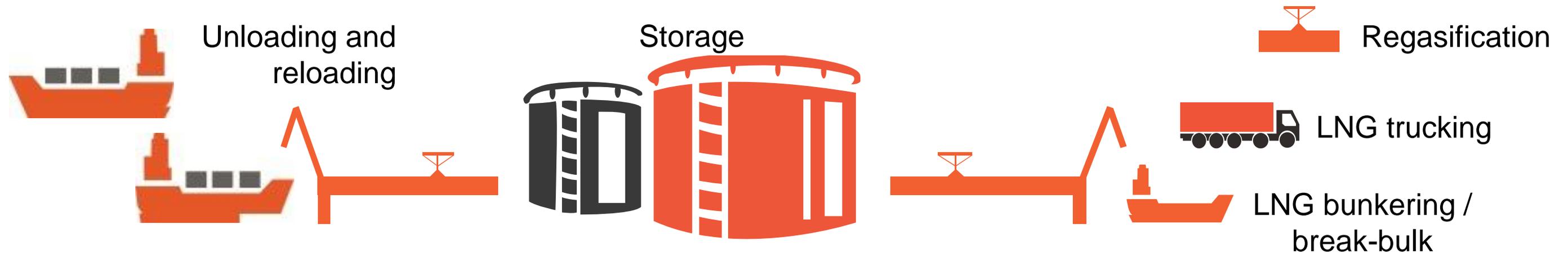
- Taking advantage of Singapore's LNG-hub status
 - Vibrant LNG sourcing platform and proximity to the world's fastest growing gas economies
 - Developing the gas market in South and Southeast Asia
- Leveraging AG&P's innovative, standardized LNG supply chain model
 - Providing pipeline gas/regasified LNG swaps, LNG bunkering supply, and the diversion of LNG cargoes
- Solutions scaled to match current demand which reduces the upfront capital costs, making them extremely cost-effective
- With a more commercially compelling infrastructure solution, LNG Marketing aggregates LNG demand from the growing number of small, distributed demand centres and links it with suppliers

Case study: AG&P's Karaikal LNG terminal, India

- Deep-water facility in Puducherry with an area within the existing breakwater to develop an LNG terminal to serve the region's power and industrial customers
- 3.4km from a tie-in point on GAIL's 276km gas pipeline providing the terminal with direct connectivity to existing gas-starved customers
- Potential supply off-take expected to reach 2 to 3 MTPA as the market develops. PPN secured as anchor customer for 12-year supply of LNG for its existing gas-fired power plants with bankable PPA
- Environmental Approval received in May 2017
- FEED well advanced with FID expected H1 2018



AG&P is establishing a hub business model at Karaikal



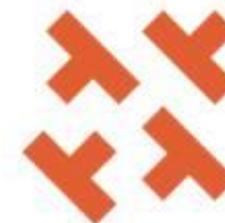
- Unloading and reloading (including transshipment)
- Additional customers for reloading
- Subordinated slots

- Multiple customer model or dedicated LNG-to-power and/or industrial facilities
- Experienced in commingled storage tanks
- Suppliers, portfolio players, traders, end-users and city gas players

- Different services for further distribution
- Additional customers for LNG trucking, bunkering and break-bulk

The way forward

- Demand aggregation is the missing link required to meet today's gas market needs
- New markets are the major driver of future demand potential
- Countries importing LNG have grown from 9 in 1990 to 32 in 2017. From 2014 – 2016 growth was in Egypt, Pakistan, Jordan, Lithuania and Poland
- Until 2025 major growth expected in Bangladesh, Philippines, Malaysia, Indonesia, Bahrain, Panama, Uruguay, Colombia, the Caribbean region, Morocco, and South Africa
- New markets will require lower volumes, greater flexibility & shorter time frames. Most involve high credit risk
- Net impact of these smaller, shorter term, higher risk contracts is to squeeze supplier margins - that's where demand aggregation becomes critical
- Industry needs favorable policy initiatives as well as a coherent procedure for environmental approvals to enable demand aggregators to reduce their FID & commencement timelines
- Government subsidies for gas-fired power generation needed to incentivize customers to switch to cleaner fuel



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