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LNG as Fuel

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On behalf of PCG D LNG (Program Committee D2)



Report Scope

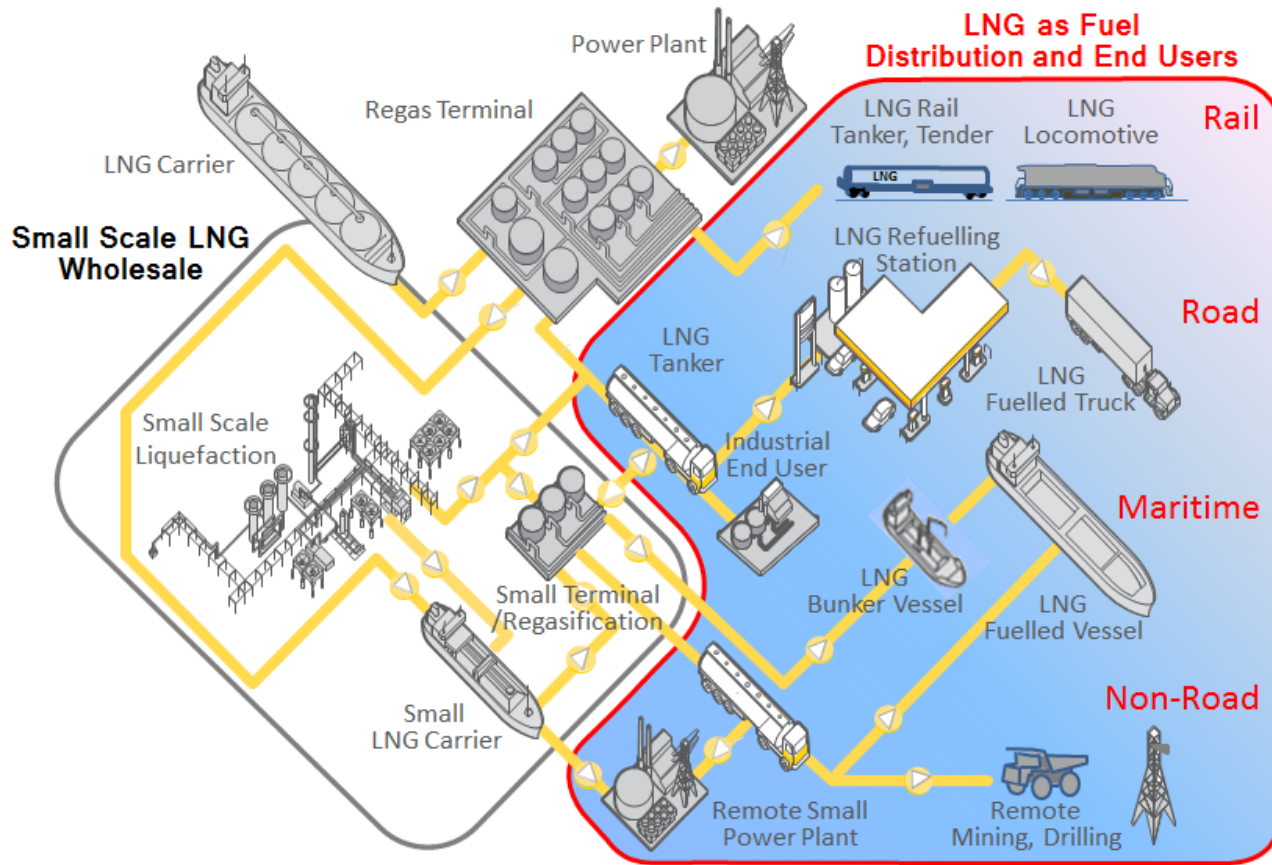


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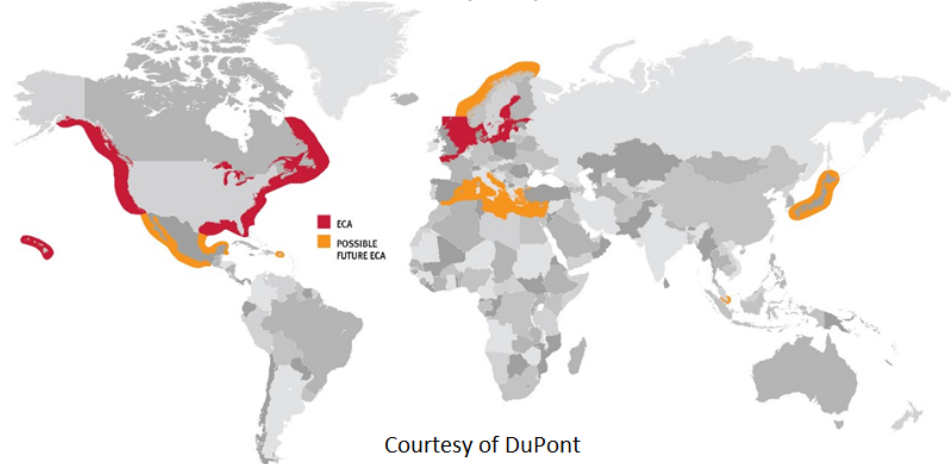
Environmental Drivers

- Climate debate is driving change for cleaner fuels
- Maritime industry is leading the way with SOx reductions to comply with IMO Regulations
- On-Road sector is the largest contributor to transportation emissions and has the greatest potential for impact

- LNG significantly reduces emissions:

- CO₂ up to 20%
- SOx up to 100%
- NOx up to 90%
- PM up to 99%

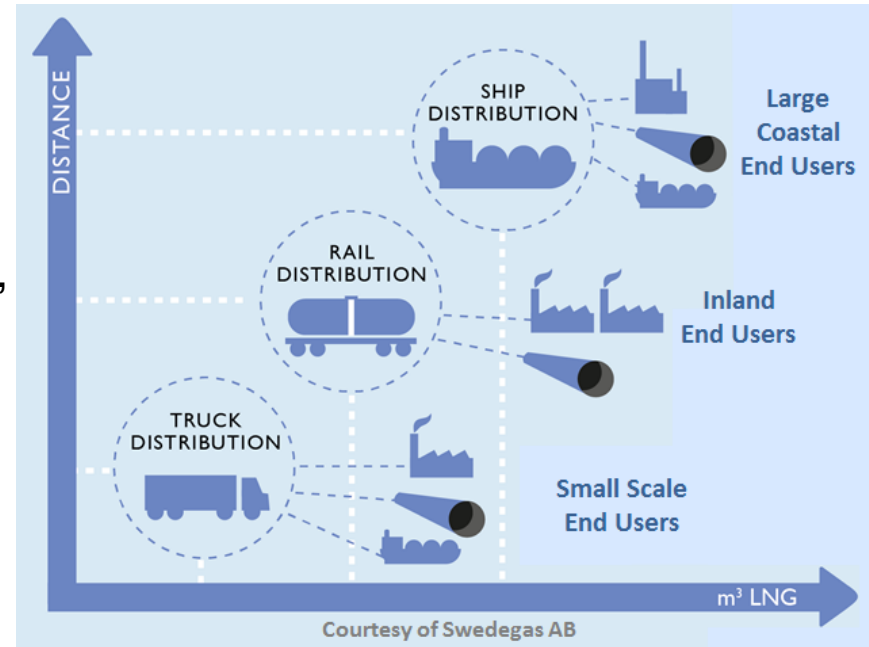
Emission Control Areas (ECA) under IMO Annex VI



Courtesy of DuPont

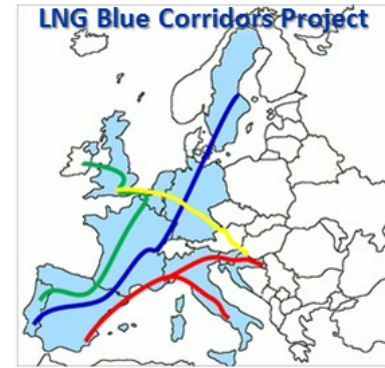
Business Drivers

- Market pull has caused engine manufacturers to build a range of NG and dual fuel engines
- Maritime, Heavy Trucking, Mining, Drilling, Rail & Industry are converting to LNG in response to regulatory drivers
- The dilemma is fleet owners' and LNG infrastructure owners' decisions on investment timing
- Price differentials to diesel in some regions adds value
- Current oil price cycle poses a challenge to pace of investments



Attention to Safety

- Safety is paramount
- Excellent published guidelines and checklists
- The challenge is to conform the growing number of participants to the same high level of safety
- Primary risks are related to LNG transport and transfer
- Training, inspections and standardized fittings are primary mitigation measures



Outlook

- LNG as fuel is growing rapidly in all sectors – maritime, road, rail, non-road and industrial applications
- The LNG industry is enthusiastically embracing small scale LNG
- Industry, authorities and first responders must communicate and coordinate effectively
- LNG as fuel has a very positive outlook and continues to gain momentum



Participants

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