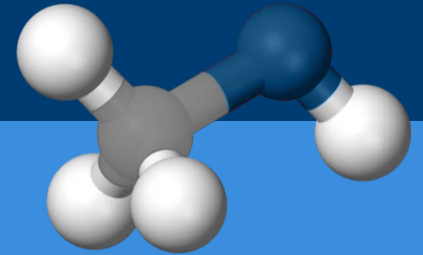




Presentation 1: 'Views from a Classification Company'

Kim Tanneberger



Who we are

Lloyd's Register is ...

- A global engineering, technical and business services organisation.
- Wholly owned by the [Lloyd's Register Foundation](#), a UK charity dedicated to research and education in science and engineering.
- Known for our integrity, impartiality and technical excellence.
- Our [compliance, risk and technical consultancy services](#) give clients confidence that their assets and businesses are safe, sustainable and dependable.
- At the forefront of understanding the application of new science and technology to future-proof our clients' businesses.
- A successful, profit-making business which relies on the skills, knowledge and experience of its employees – professionals and experts in their fields.



How we started

Our heritage is genuinely historic

- Formed in 1760 in Edward Lloyd's coffee house to examine and 'classify' merchant ships according to their condition.

We have 250 years of global marine history

- The world's first ship classification society and this remains our core activity today.

...and over 100 years serving other industries across society from energy, rail, food safety to power and manufacturing.

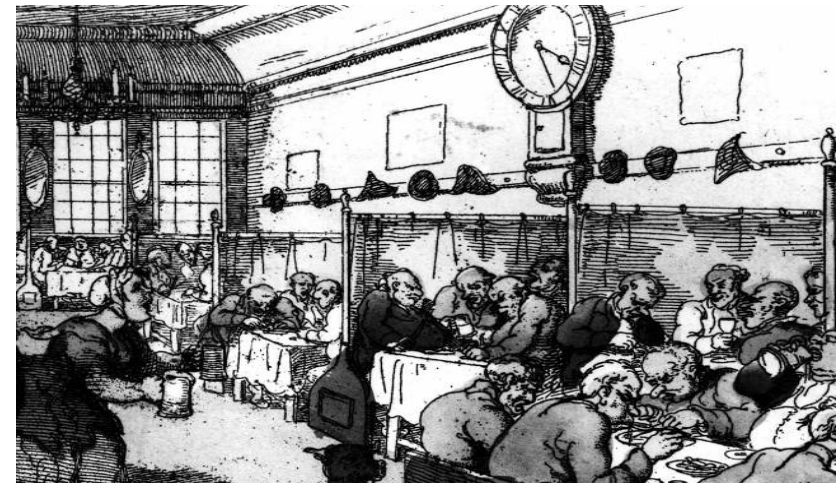
First class societies:

Lloyd's Register (1760)

Bureau Veritas (1828)

American Bureau of Shipping (1862)

Det Norske Veritas (1864)



Heritage an important
part of our culture
and forward-thinking
approach to our business



Classification

25 Former	Present	Master	Port	To Port	Ton ^s	Guns	M ^o Built & Year	Owners	64	65	66
D	Daking —	Wm. Taylor	Lond.	Cork	150	S D Bb	12 Liverpool 47 60	Daking & Co	E M	E M	
	Dalrymple —	J. Dalrymple	Liverp.	Old C ^o & Am.	150	4 B	5 French 57	Davenport		E M	E M
	Danskboley —	Co ^o Mandertiz	Lond.	Amsterd ^{am}	160	S d	8 Amsterd. 62	Feitama	A G	A G	
	Dart. Packet	Hollisley		Riga	200		11 River 54	Belford	E M		
Gen. Pac ^t	Darby —	H. Boardman		Dublin	80	S D	7 Plantation 61	J. Boardman			
	Darlington —	M. L. Simpson		Quebec	200	S D B B	12 River 56	P. Weathrall	E M	E M	E M
	David & Eliz.	John B. 1777		Rotterdam	90	S L	8 Colchester 62	David Baker		A G	
	Dawes —	John Forbes		Jamaica	300	6	3 22 Ipswich 63	H. Mure	A G		
Neptune	Dawkins —	R. Ballentine		Mad. & Jam.	250	4	4 20 River 49	Alex. Grant	E M		
	Dean —	Jno Salisbury		Dublin	130		12 Chester 50	John Dean			
	Dear Befsey	B. Beale	Liv. p.	Cork & Barb ^o	90	5	8 Plantation 56	Doran & Co.	E M		
	Deep Bay	Wm. Oliver	Lond.	St. Kitt's	180		13 — 62	J. & J. Mills	A G		
Jupiter	Deep Bay —	S. Dashwood		Boston	150		10 Boston 63	Lane & Booth	A G		
	De fiance —	Shutter	Liverp.	Larne	50	1	6 British 60		E M		
	De gartiquert	Rettine	Lond.	Hamburgh	100		5 Amsterd. 61	Rettine			
	Delaware —	J. Jolly		Nap. & Meff.	300	16	2 32 Plantation 62	J. Jolly			
Matthew	Delaware —	Pet. Creaton			150		10 Philadel. 61	Wharton	A G		
	Delight —	W. Richard	Liverp	Bon. & Am.	120	5	20 French 56	Rumbold & C	E M	E M	
	Delight —	R. Barkum	Yarm.	Naples	130	S d B	8 Yarmouth 53	Wm. Fisher	A G	A G	A G
	Denia Coffe	John Irwin	Lond.	Streights	100	B	9 Plantation 60	C. Conner	A M		
Reaves	Devonshire	H. Hunter		Boston	160		10 Boston 61	John Roe	A M		
	Devonshire	Rich. Ashton		P ^o Gr ^o B ^o & W ^o	200	8	4 15 French 58	Lewis Tefier	E M		
	De Vrow Jo ^a	Pet. Smidt		Amsterd ^{am}	200		12 Amsterd. 53	Tiddiman	E M	E M	E M
	Diadem —	Evan Johnson		Leghorn	364	8	6 20 French 50	Tuitoe & C.	E M		
Gen ^l Fr ^o	Diamond —	Wm. Stott		Gen. & Leg.	280	16	4 32 River 41	Franeo	E G	R G	R G

Extract from the Register of Ships, 1764



‘Yesterday’ and ‘today’

- 1890 – The British Government authorised Lloyd’s Register to survey ships
- 2014 – 140 Governments authorise Lloyd’s Register to survey their ships

WHY?

- There are around 50,000 merchant ships trading internationally, transporting every kind of cargo. The world fleet is registered in over 150 nations, and manned by over a million seafarers of virtually every nationality
- Classification societies register and survey more than 90% of world ships by tonnage
- Over 250 years classification societies developed a world wide network – LR has over 200 offices with trained and competent surveyors.
- Classification Rules evolved with technological progress – represent the state of the art of modern shipbuilding
- International Treaties refer to classification as a basis for compliance ...

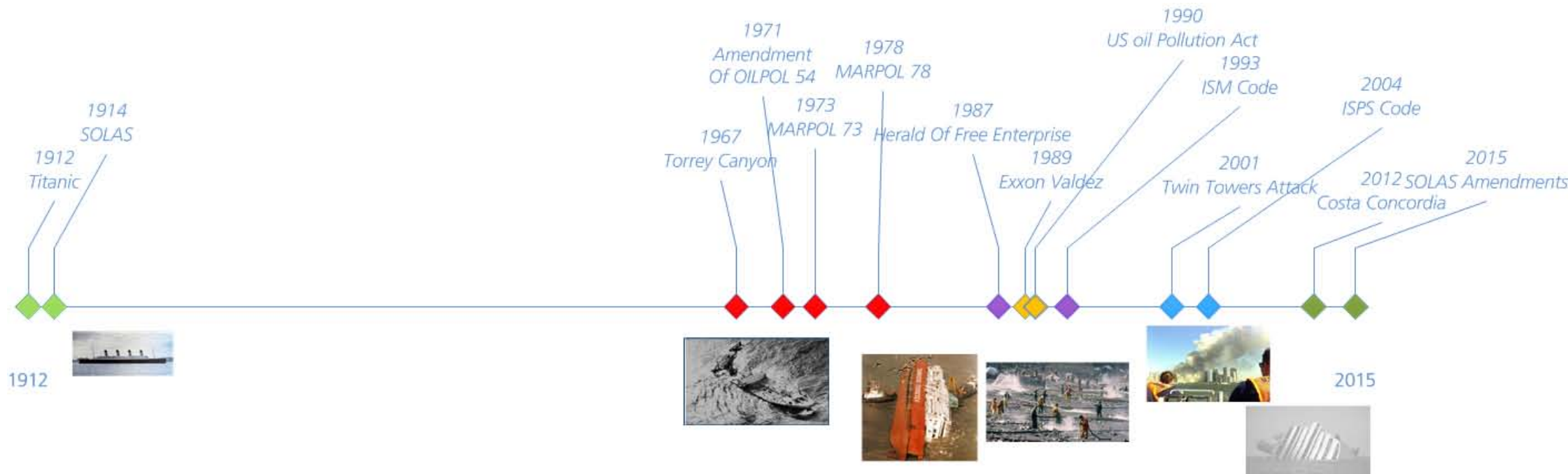


Statutory (IMO, Governmen



Classification

Timeline of major regulations



Draft ~~guidelines~~ technical provisions for ships using methyl/ ethyl alcohol

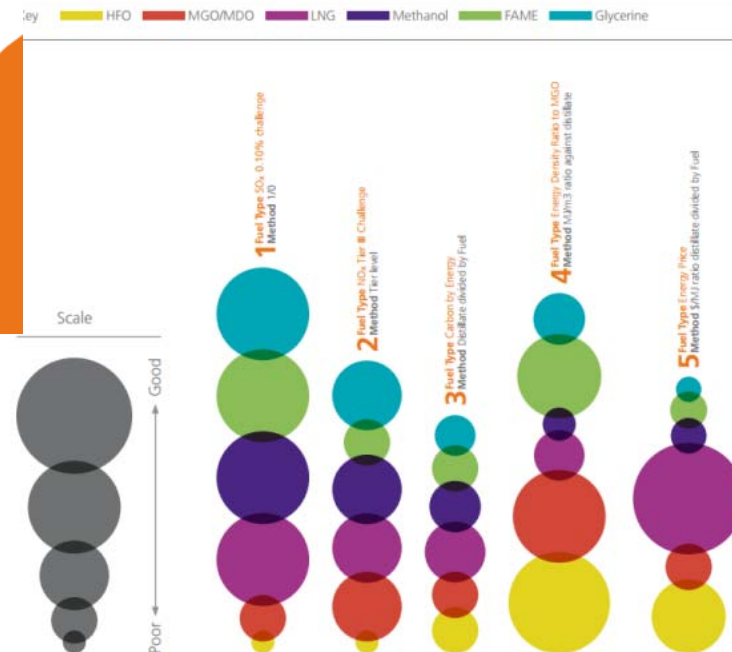
- Does not fit the pattern -> proactive facilitation of the use of *new ,emission compliant* fuels for ships.

Difficulty.....

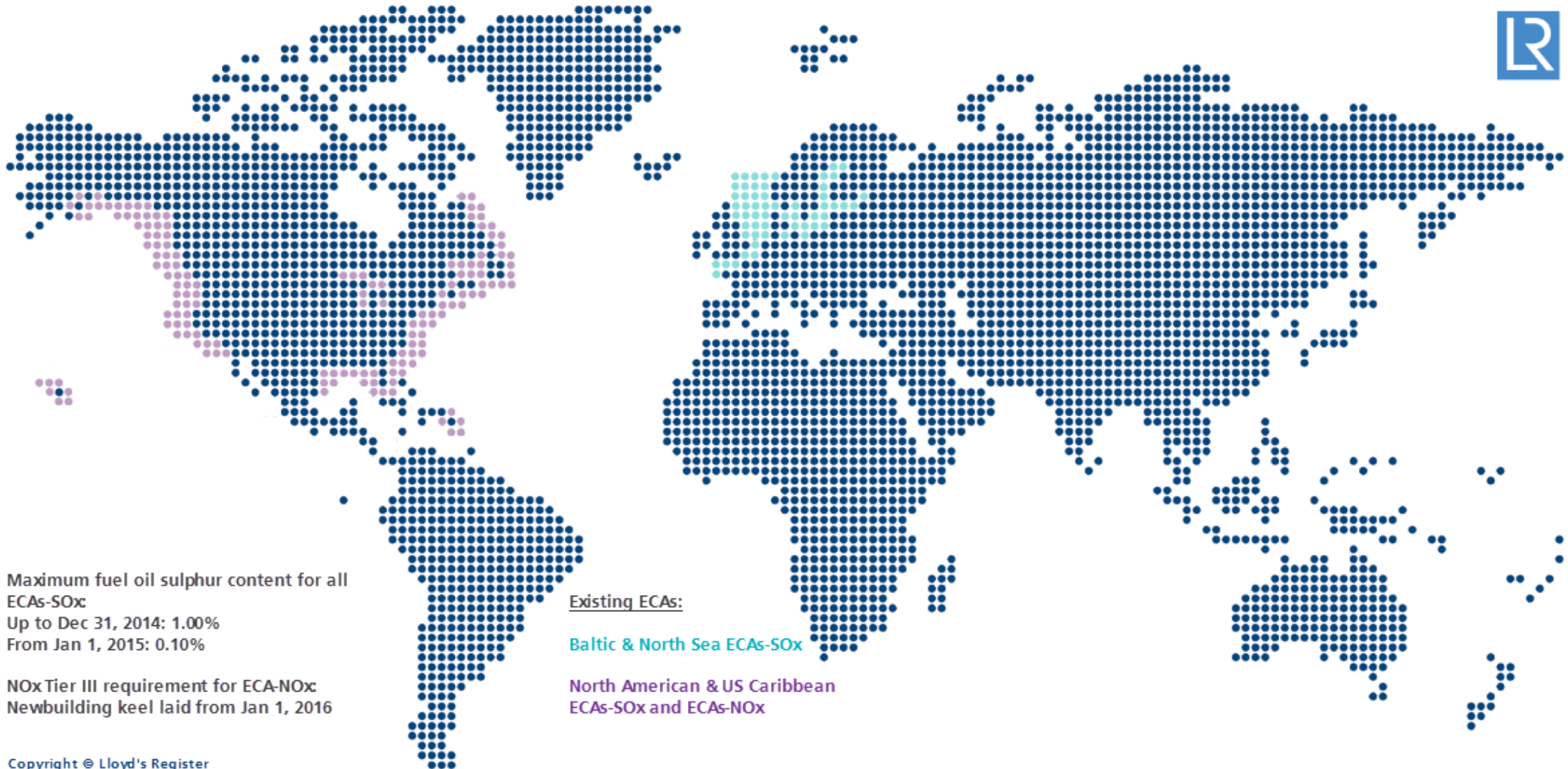
The five factors you need to consider when you make that key decision are:

- 1 SO_x (Sulphur 0.10%)** – can I comply easily with the 2015 ECA SO_x?
- 2 NO_x Tier III** – will I be able to comply if my ship is required to do so post-2016?
- 3 Carbon by energy** – if the CO₂ tax comes in which will be the most beneficial?
- 4 Energy density** – what storage volume will I need above or below that of MGO?
- 5 Energy price** – how much more or less will it cost me than MGO?

The Big Five



Emission Control Areas



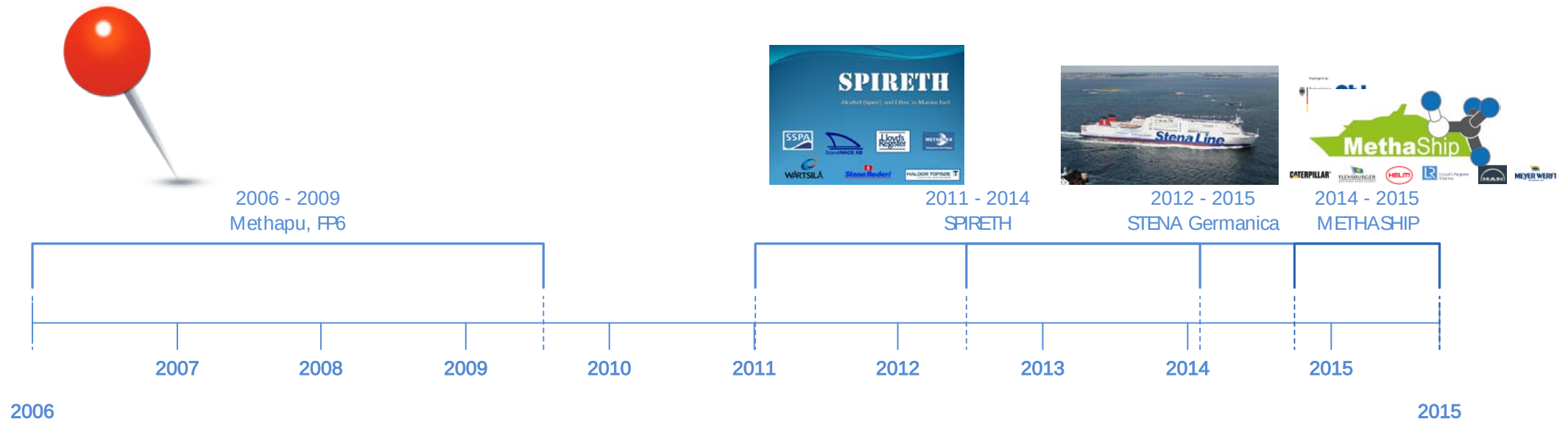
Maximum fuel oil sulphur content for all ECAs-SO_x
Up to Dec 31, 2014: 1.00%
From Jan 1, 2015: 0.10%

Existing ECAs:

Baltic & North Sea ECAs-SO_x

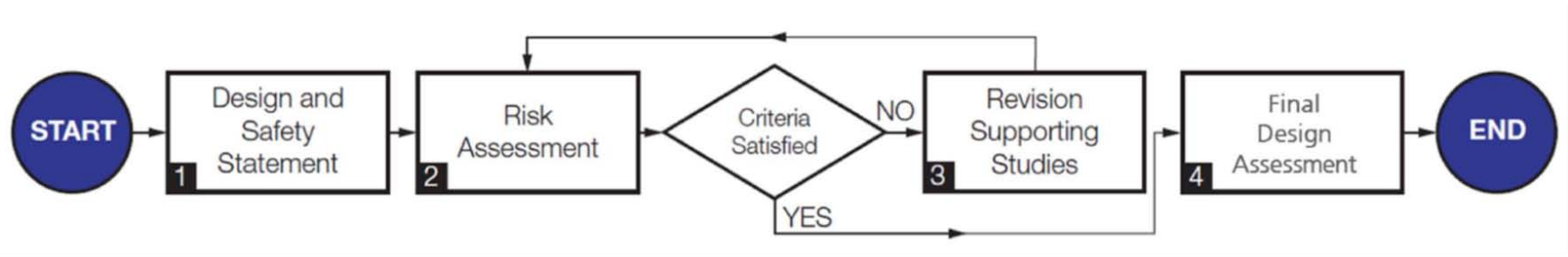
North American & US Caribbean
ECAs-SO_x and ECAs-NO_x

LR involvement in Methanol Projects over the years



Research and Development is essential to gain as much knowledge as possible

LR Assessment of Risk Based Designs (ARBD)



Provisional Rules for Methanol Fuelled Ships

Rules and Regulations for the classification of methanol fuelled ships

- Based on existing Rules for Natural Gas Fuelled Ships; common requirements and Rules structure used where possible.
- Incorporates elements from:
 - Experience gained in methanol fuel research projects and methanol fuelled ROPAX project;
 - Relevant aspects of other Rules sets and statutory instruments; e.g. Rules and Regulations for the Carriage of Liquid Chemicals in Bulk;
 - Draft Part A-2 of the IGF code; Specific requirements for Ships using Ethyl or Methyl Alcohol as Fuel.

Reasons for the proposal

- LR engaged in the conversion of diesel engines on board an existing ROPAX to allow operation on methanol and with a number of engine builders in the development of engines capable of burning methanol.
- Recognises the increasing demand for clean fuels and the demand from clients for Rules.



Kim Tanneberger

Strategic Research and Technology Policy Group

LR Marine



Lloyd's Register
Marine

Working together
for a safer world