C A R B

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CARB specifications

- **Performance based quality specifications are superior to composition based specifications:**
  - Performance based interchangeability specifications provide a meaningful guarantee to end-users
  - Performance based interchangeability specifications will increase supply options.
- **The Wobbe index and the Methane Number are commonly accepted performance based interchangeability parameters.**
- **The Wobbe index and the Methane Number are complimentary;**
  - Wobbe index addresses NOx emission concerns
  - Methane Number addresses auto-ignition concerns

Shell supports the CARB proposal to use the Wobbe Index and Methane Number instead of compositional limits to ensure interchangeability.

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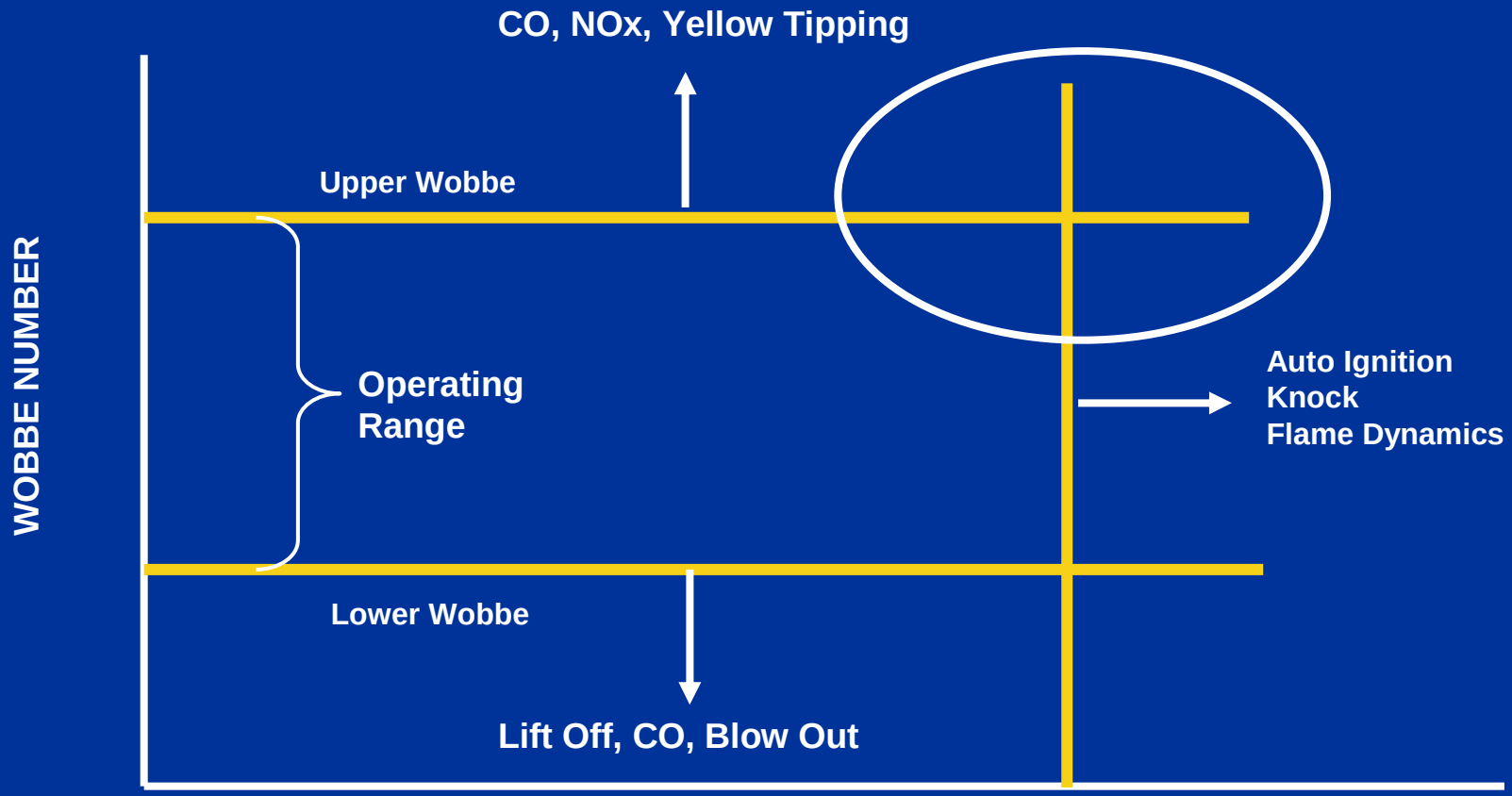
NGC interchangeability box



COMPLIMENTARY INDEX SUCH AS Heating Value, C4+, Methane Number….

- Wobbe index limit addresses NOx emission concerns.
- Methane Number addresses knocking/auto-ignition concerns

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Interchangeability box

A limit on Wobbe index will require the addition of N2 injection units to the Costa Azul (ECA) project, even for supplies that meet all the existing specifications.

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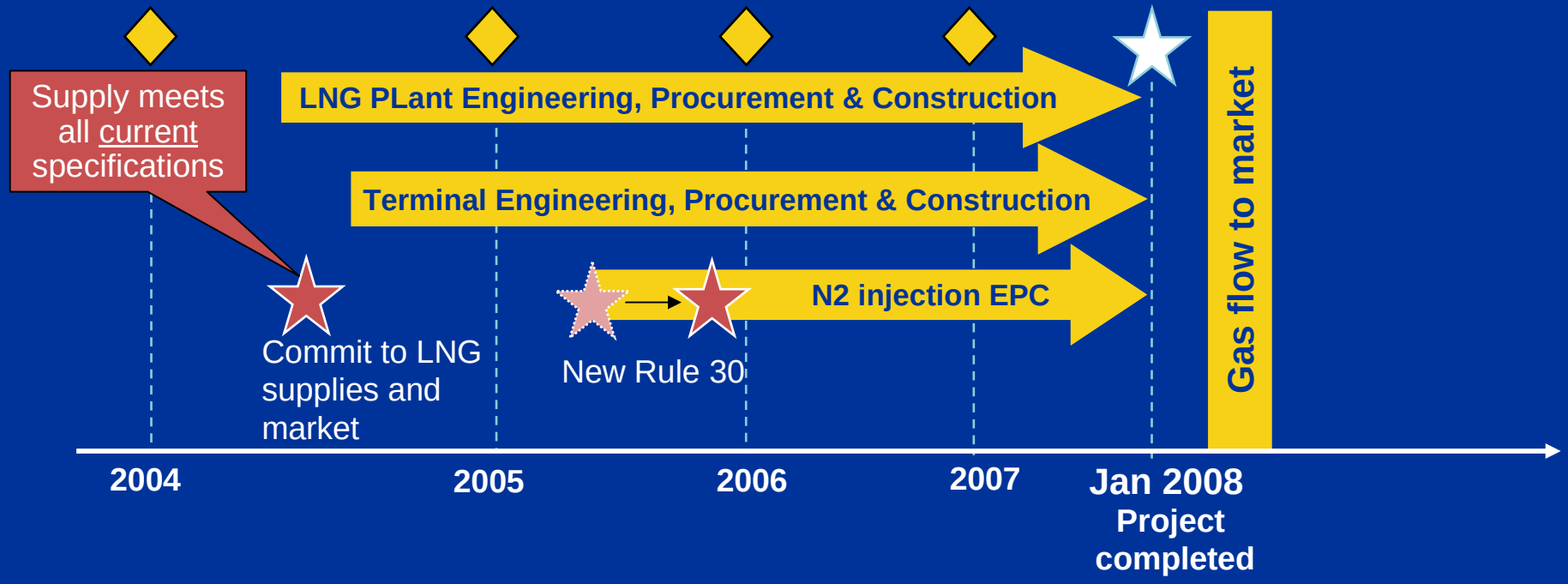
Project Timeline



Clarity on the Wobbe index is urgently required for the addition of N2 injection units. Absent finalized specifications, ECA will use the SoCal proposed, NGC based, 1400 Wobbe limit for the design of the additional N2 units.

A separate CARB Wobbe limit in 2006 will be too late to utilize in considering design and construction of N2 units.

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Recommendations

- **Finalize one California statewide gas quality specification defined as Wobbe Index range (and Methane Number) by end 2005, to provide urgently needed clarity to LNG developers.**
- **California Wobbe Index range and Methane Number included in Socal's proposed Rule 30. Revised Rule 30 will ensure interchangeability for all end-users, including NGV's. CARB should adopt identical standard or reference Rule 30.**

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