The Growing Importance of Inventories Outside OECD Countries and Implications for the Oil Market

Martin Tallett

EnSys Energy

1775 Massachusetts Avenue, Lexington, MA 02420, USA

(781) 274 8454

www.ensysenergy.com

Third IEA-IEF-OPEC Symposium on Energy Outlooks

Riyadh, January 22, 2013

ENSYS ENERGY

Overview

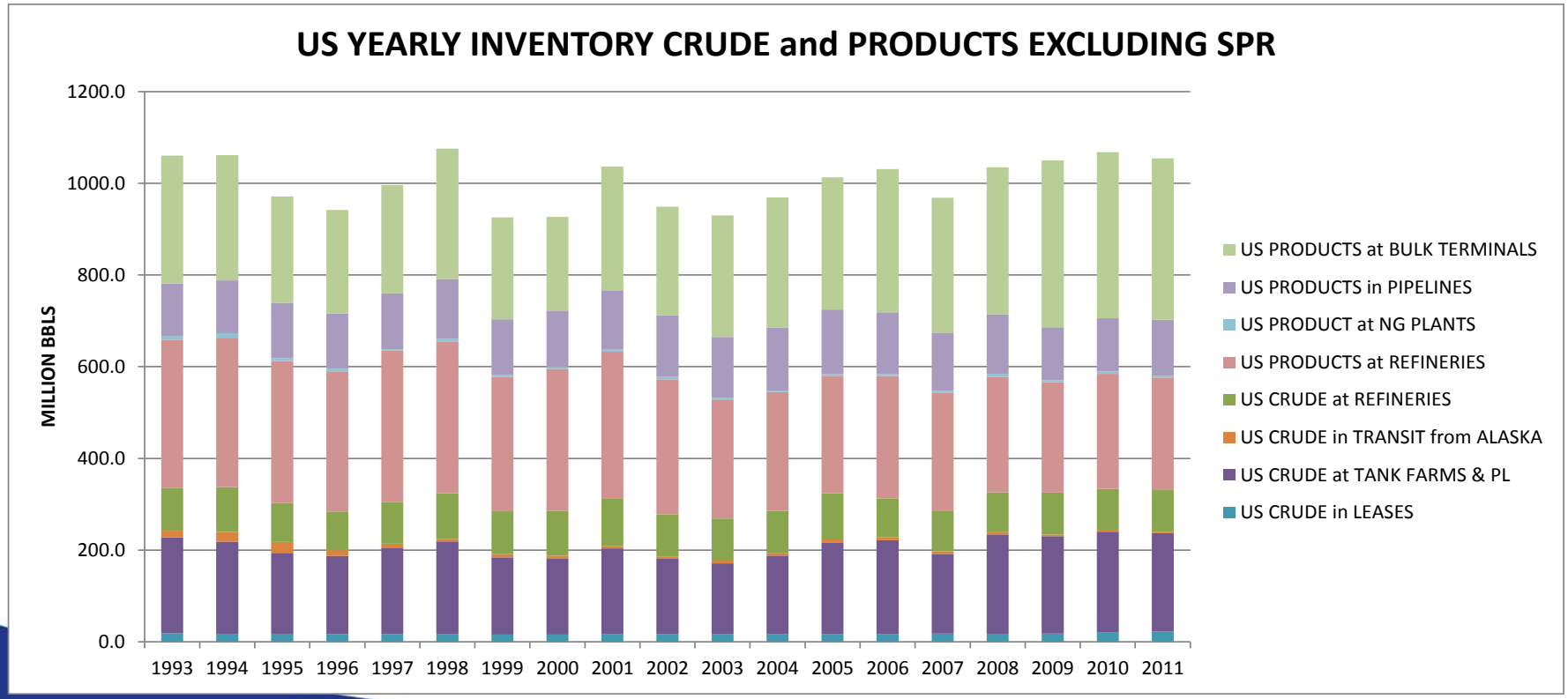
- Given the lack of non-OECD stocks data how can these be estimated?
- Will an increase in oil demand in developing countries lead to a stock level comparable to that in OECD countries?
- How is the expansion of the refining sector affecting stock levels?

US/OECD data provide means to estimate stocks

- Stocks data for non-OECD countries are limited
- But we do have data on 3 key parameters for each country:
  - Crude oil production
  - Refinery throughputs (directly or capacity * utilization)
  - Product consumption
- Do US/OECD data provide a means to develop “rules of thumb” to estimate non-OECD stocks from these 3 parameters?
  - Used US (EIA) data to investigate

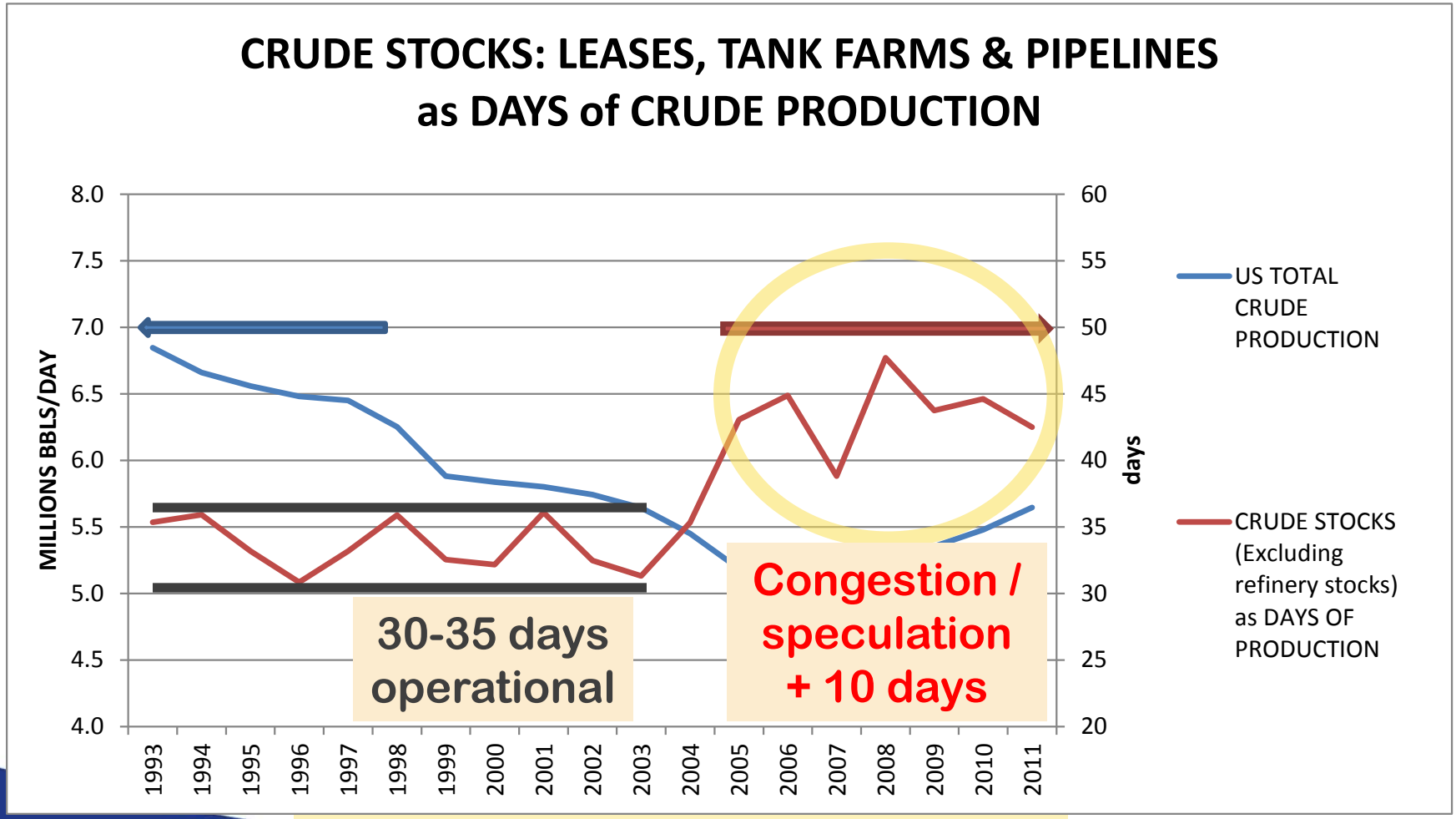
First pass - USA as starting point

- **EIA data**
  - **Breakdown by sub-sector in the supply chain**
  - **Detailed by region (PADD)**



ENSYS ENERGY

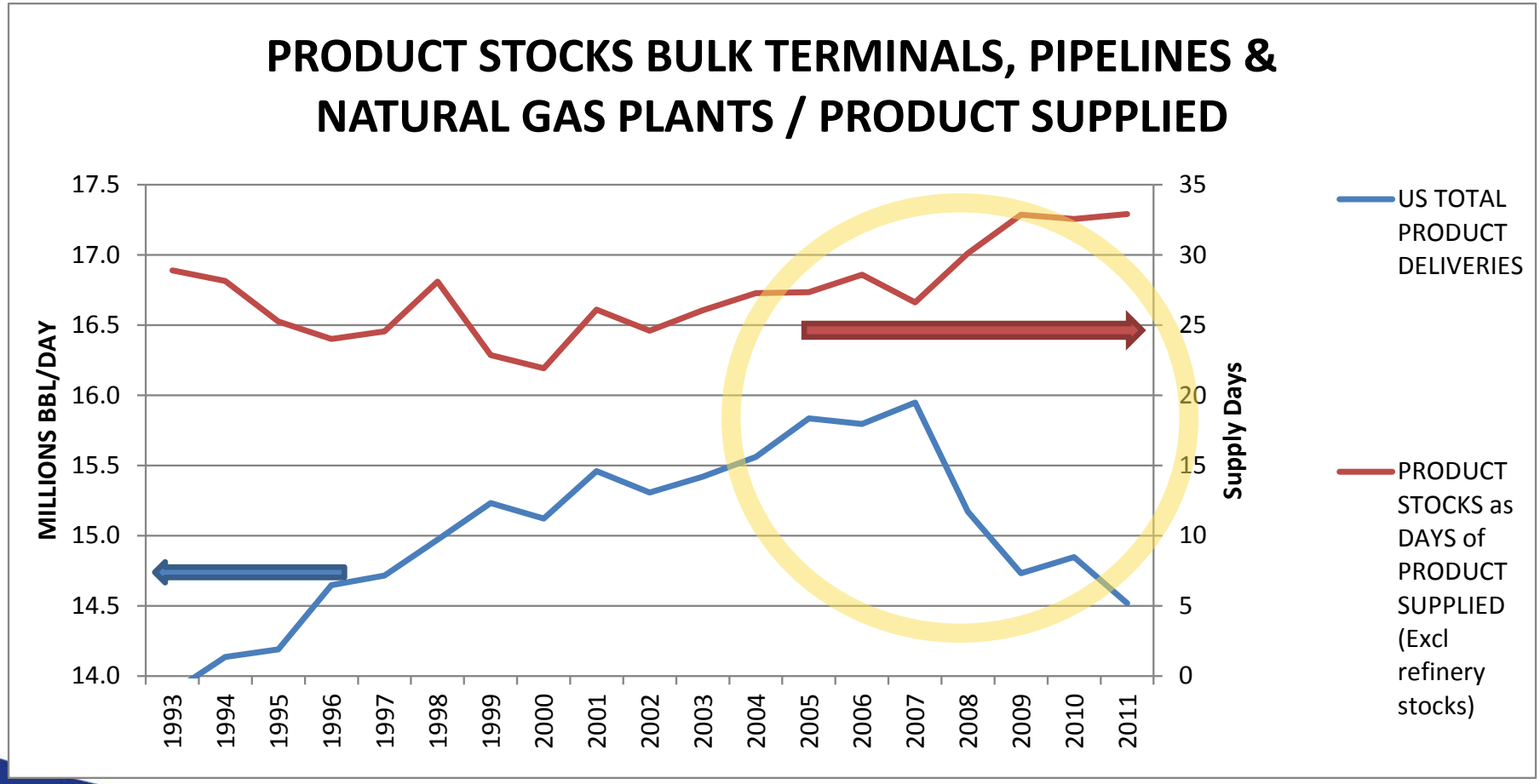
Crude stocks as a function of production



Source EIA: data exclude refinery stocks

ENSYS ENERGY

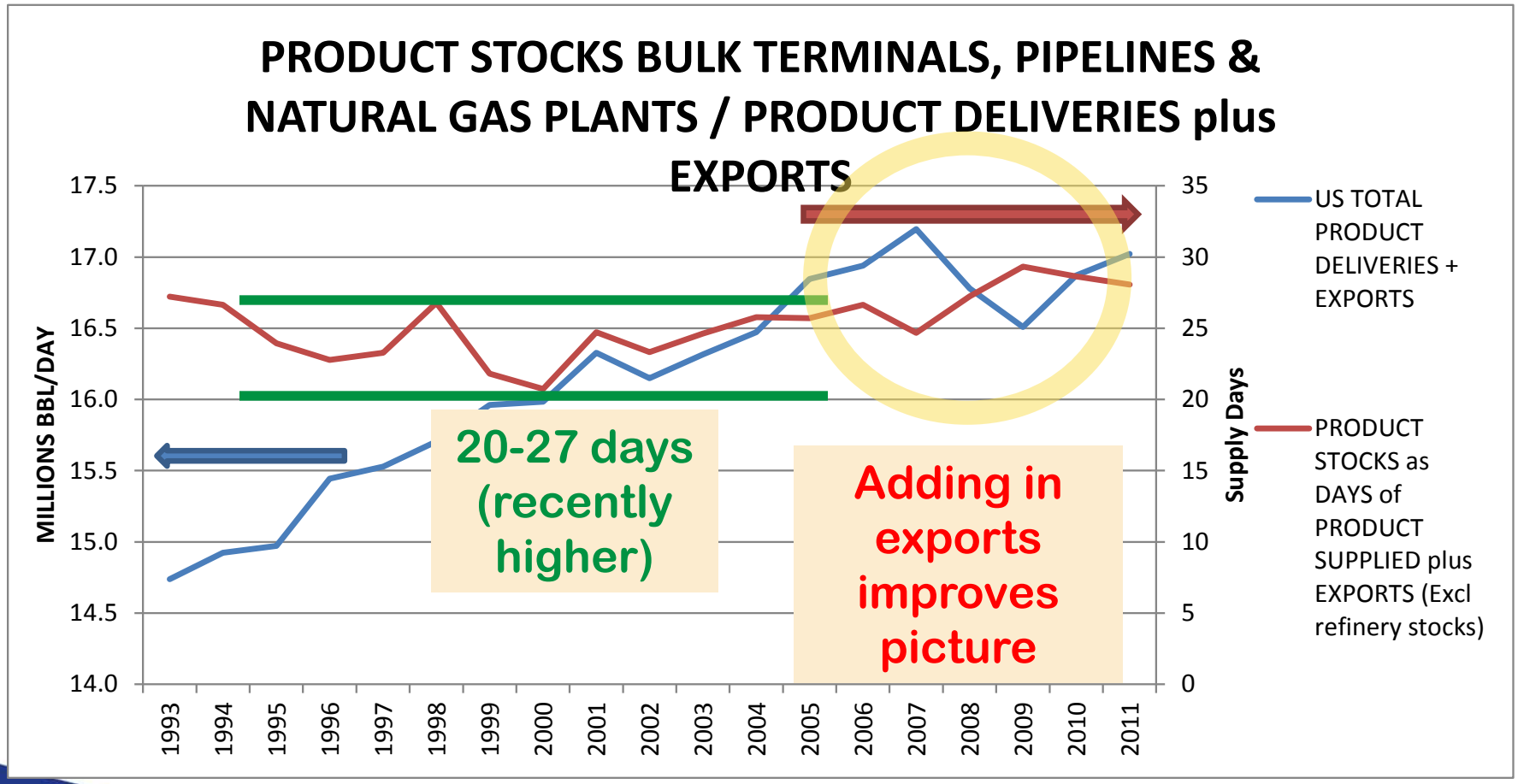
Product stocks as function of consumption



Source EIA: data exclude refinery stocks

ENSYS ENERGY

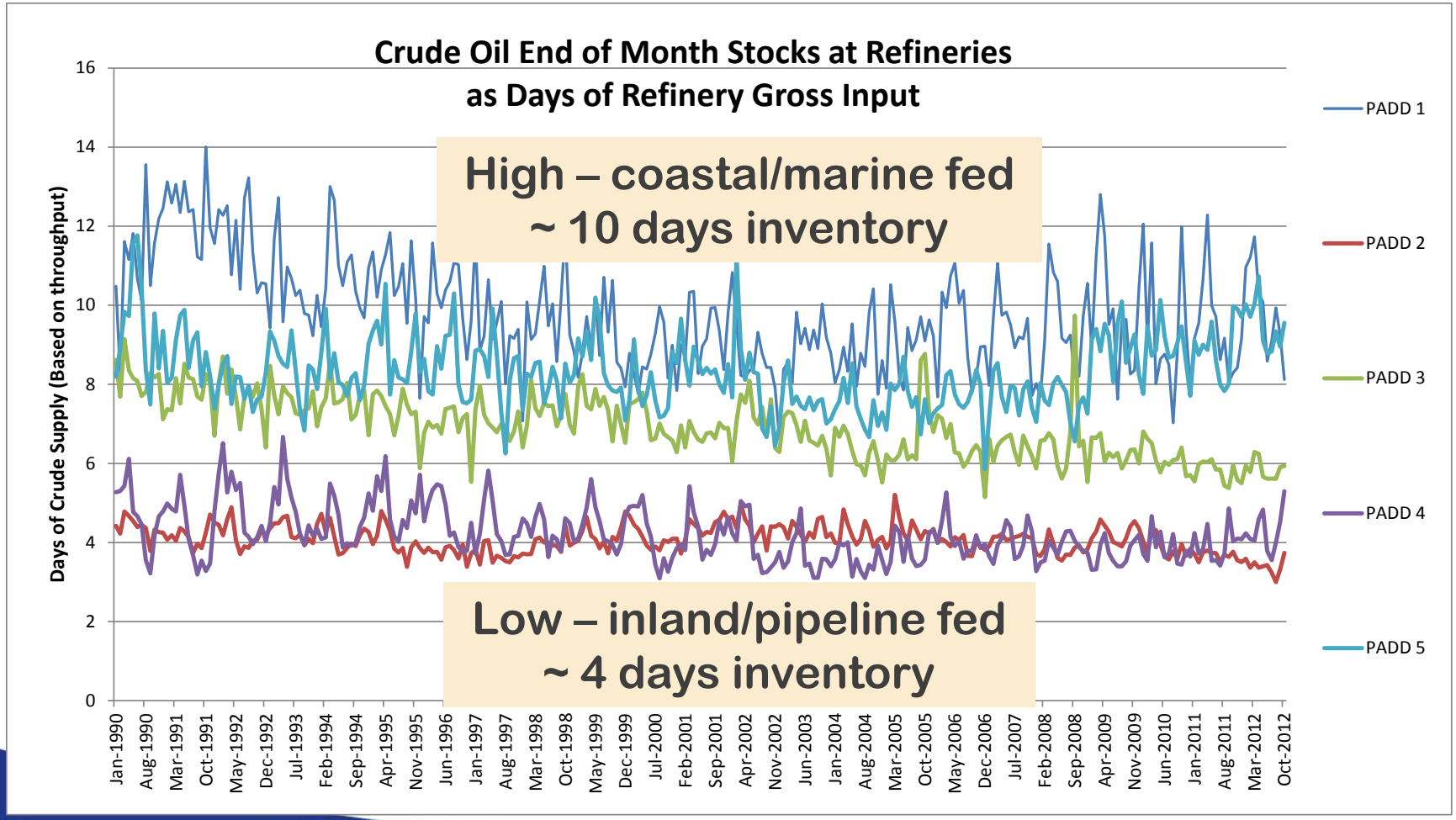
Product stocks as function of consumption + exports



Source EIA: data exclude refinery stocks

ENSYS ENERGY

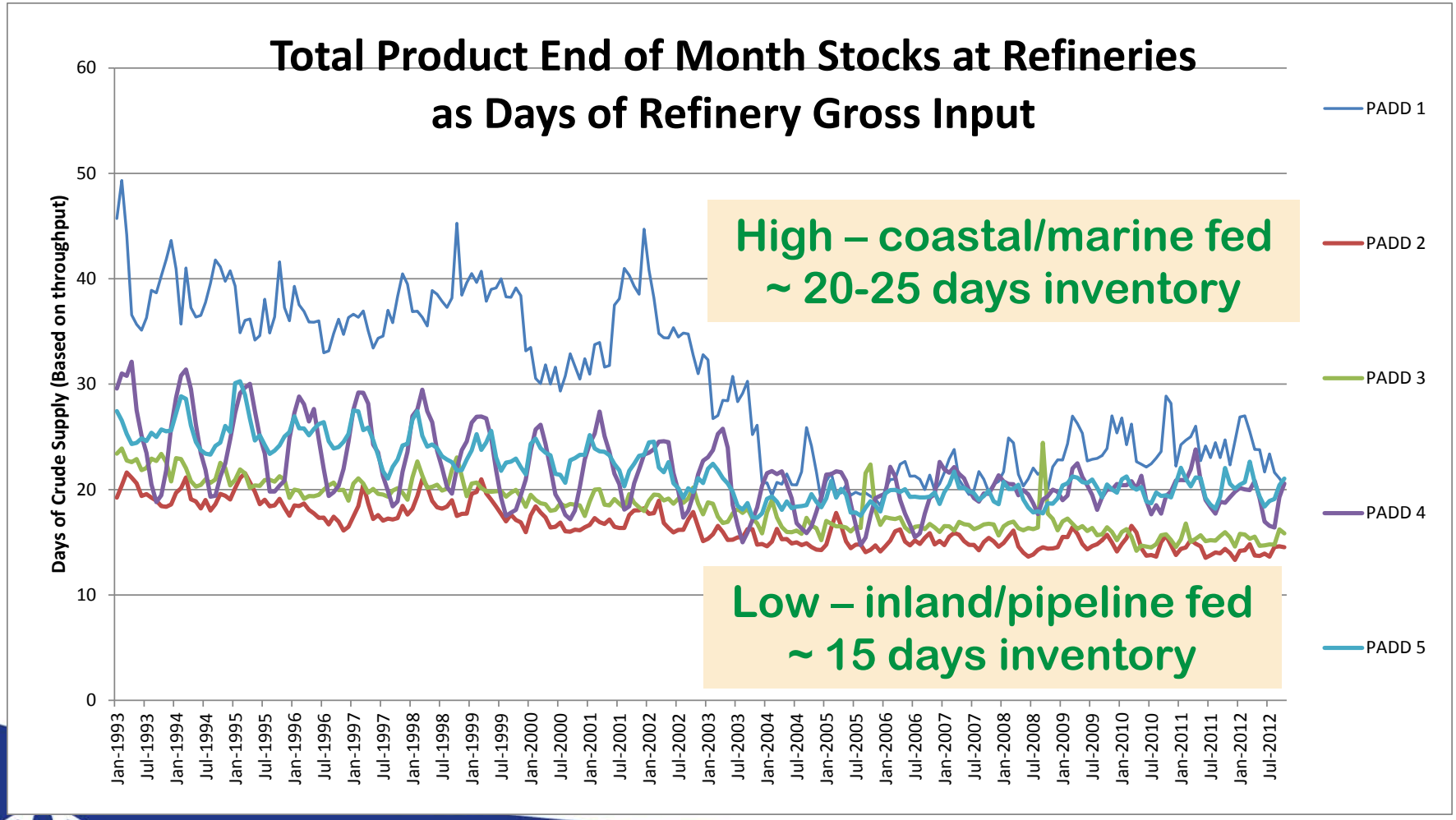
Refinery crude stocks as function of refinery throughput



ENSYS ENERGY

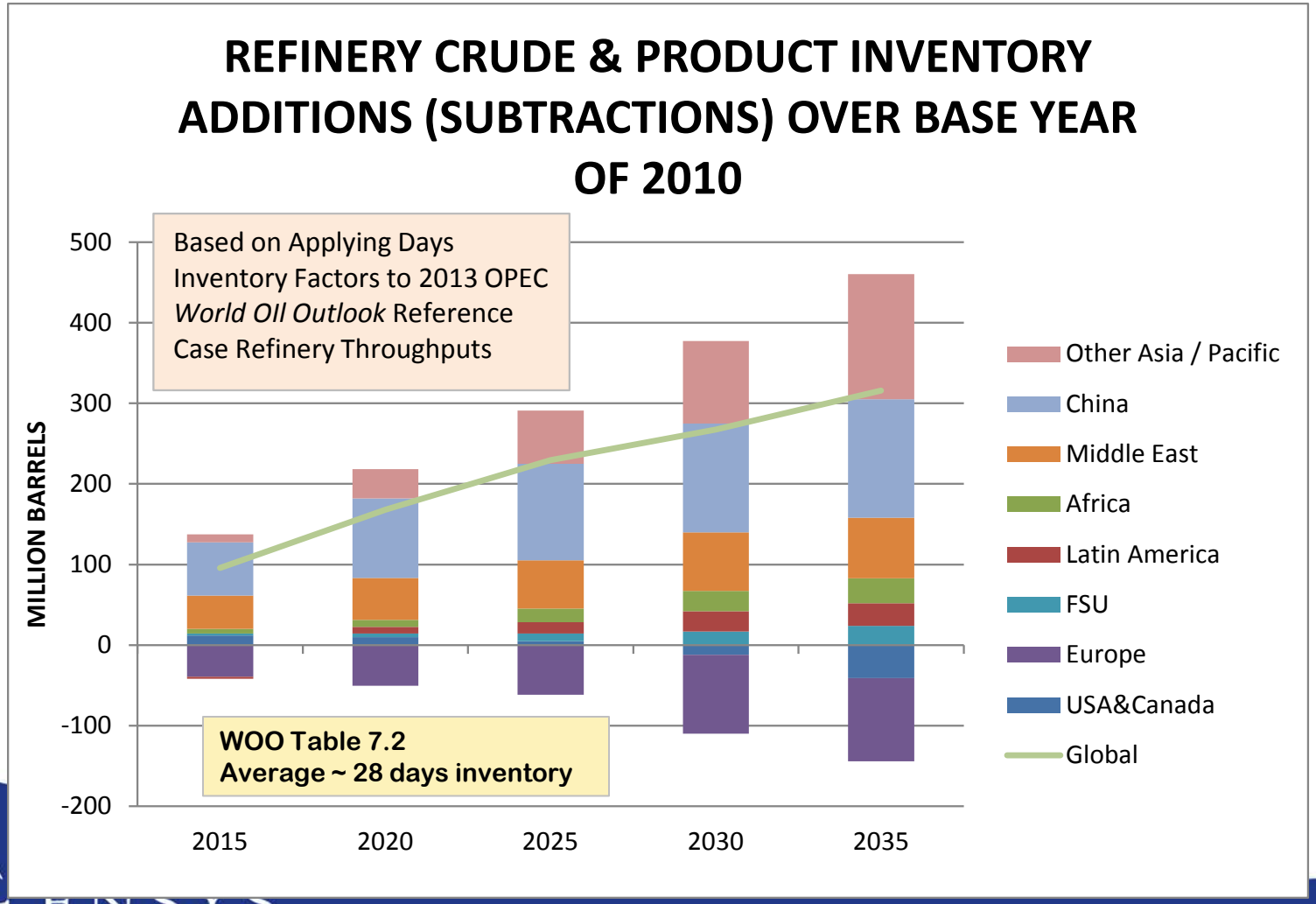
Source EIA: refinery data only

Refinery product stocks as function of refinery throughput



Source EIA: refinery data only

Refining changes lead to major shift in scale and location of inventories



Applying “rules of thumb” to non-OECD regions provides a means to make a (first) estimate of regional and global stocks

- US analysis suggests a (very rough) stocks “model”
  - Crude = 30-35 * daily production + 4-10 * refinery t/p
  - Product = 20-27 * consumption (+ exports) + 15-25 * refinery t/p
- Can tune / calibrate based on industry norms, known data and/or country specific characteristics, e.g.
  - OECD and JODI data
  - Pipeline:
    - Line fill from diameter & length
    - Associated crude terminal inventory (front end) ~ 10 days * line bpd capacity
    - Associated product terminal inventory (back end) ~ 6-10 days * line bpd capacity

Applying “rules of thumb” to non-OECD regions provides a means to make a (first) estimate of regional and global stocks

- Would need to include
  - Speculative / financial / congestion
  - Oil at sea
  - Independent/transit
  - SPR’s
  - Seasonality
- Could add in to existing models to generate projections global and by region
  - IEA, EIA, WORLD Model
  - Aid in gauging future inventory levels and shifts

Thank you !

Martin Tallett

EnSys Energy

1775 Massachusetts Avenue, Lexington, MA 02420, USA

(781) 274 8454

www.ensysenergy.com

ENSYS ENERGY