



# Forecasted Fuel Prices

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STAKEHOLDER MEETING #2  
GPA INTEGRATED RESOURCE PLAN 2021

March 2021



# The presentation will cover:

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- Historical Fuel Consumption & Costs
- Changes in Fuel Requirements
- Projected Fuel Prices



## Where we are now:

### *Changes to GPA's Fuel Requirements*

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#### 2008-2012

Increase in fuel price& emergence of renewable resource technologies

#### 2012-2015

New environmental regulations require GPA to evaluate power plant fuel conversions or retirements<sup>1</sup>; completion of Smart Grid Initiatives; Increase in Net Metering Customers

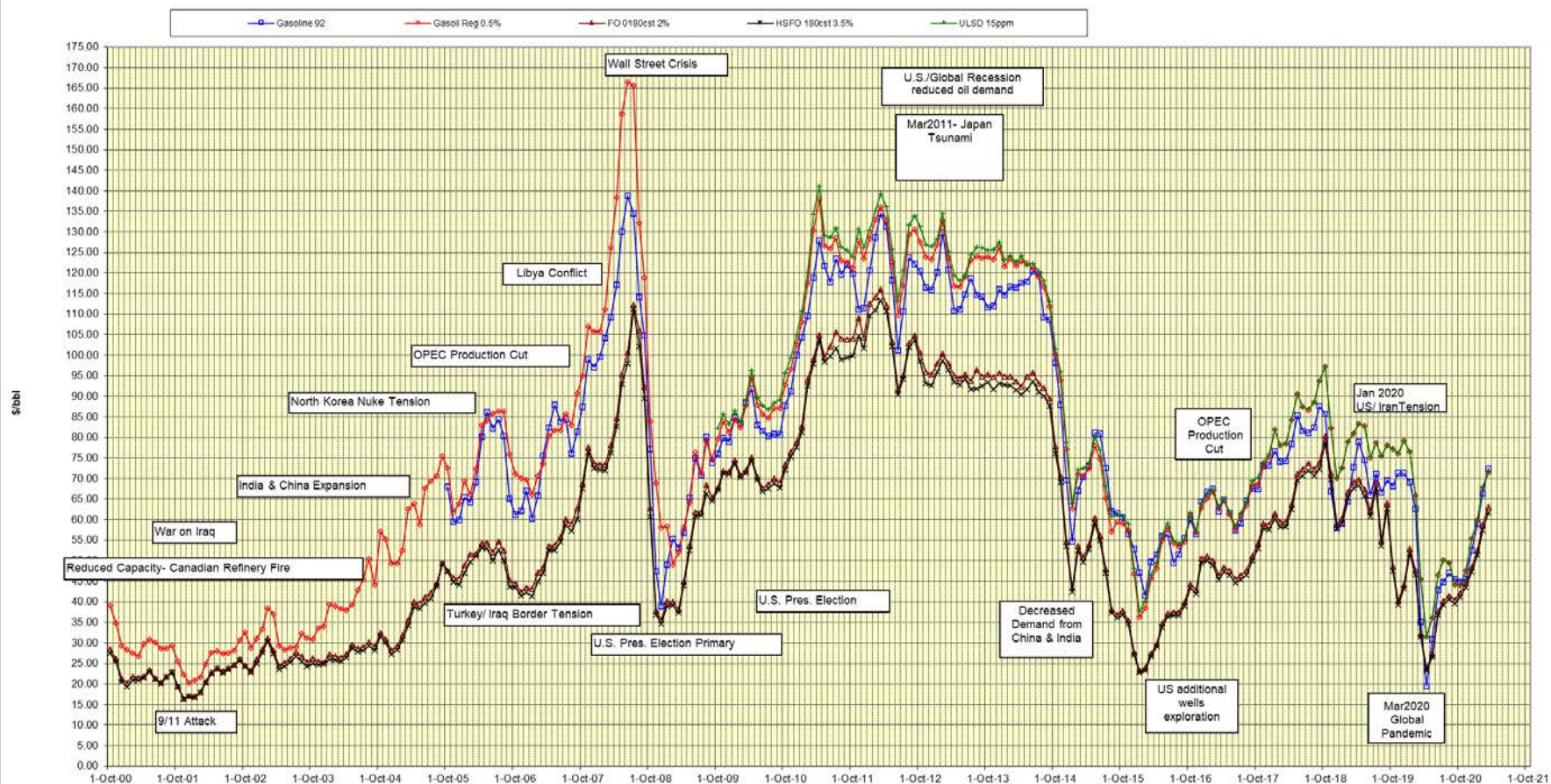
#### 2015-2020

- ✓ Implementation of DSM Program
- ✓ Operational commencement of 26.5 MW Solar PPA;and 275-kW Wind Turbine Generator
- ✓ 130 MW reduction in RFO-fired units; increase in Diesel Fuel use

<sup>1</sup> Discussed in detail in P&R's Presentation

# Historical Fuel Price

Fuel Prices (Singapore MOPS) - Progressive Chart



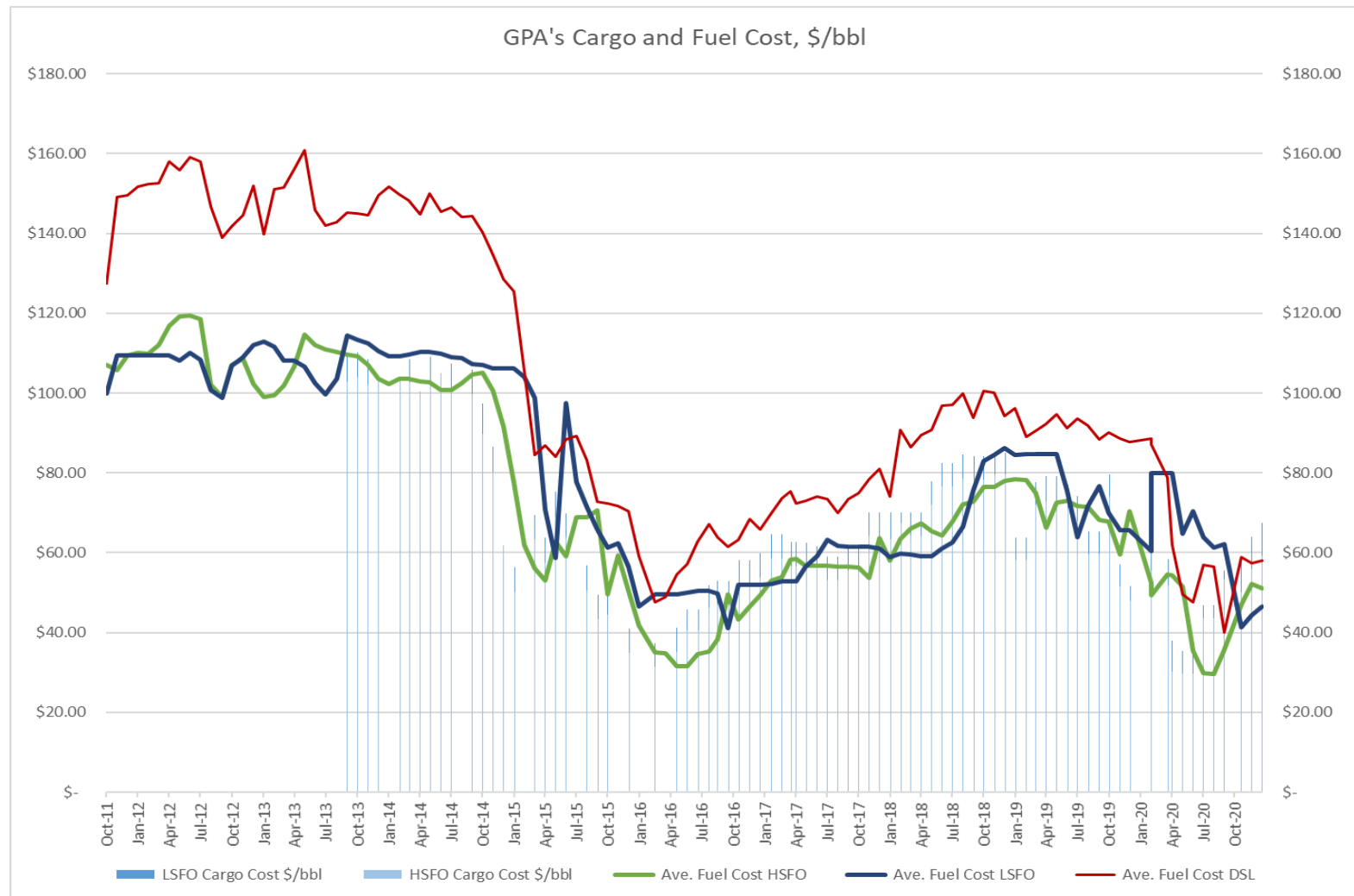


Fuel Prices (Singapore MOPS) - Progressive Chart





# Historical Fuel Consumption







## GPA Pricing: *Price References, Structures*

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Landed Cost= Reference Price + Premium Fee

*Reference Price = Price of Commodity (MOPS)*

*Premium Fee = all other associated costs*

For the forecast:

Landed Cost= Reference Price + Premium Fee

Reference Price = MOPS RFO and MOPS ULSD

Premium Fee = Shipping and Administrative Costs

RFO = Reference Price + Premium Fee= MOPS RFO + Premium Fee

ULSD = Reference Price + Premium Fee = MOPS ULSD + Premium Fee



# RFO, ULSD Fuel Price Forecast – Methodology

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- GPA's consultant presented 30-year Fuel Price Forecasts for RFO, ULSD and LNG
  - *Pending a decision on the type of fuel to be used for Cabras\*, investigation on the fuel price trend as sulfur content drops to 0.2% was completed instead*
- High Correlation between USGC and MOPS Prices
  - USGC refined products prices used to project MOPS prices
  - NYMEX Forward Curve for West Texas Intermediate (WTI) crude oil was used for near term (2021) prices
  - Energy Information Administration (EIA) forecast of WTI crude oil prices were used for long term (up to 2050) forecast
  - For each type of RFO, MOPS Price = MOPS RFO and MOPS ULSD
    - *Lower Sulfur Content = higher ULSD % in mix, cost trending towards MOPS ULSD*





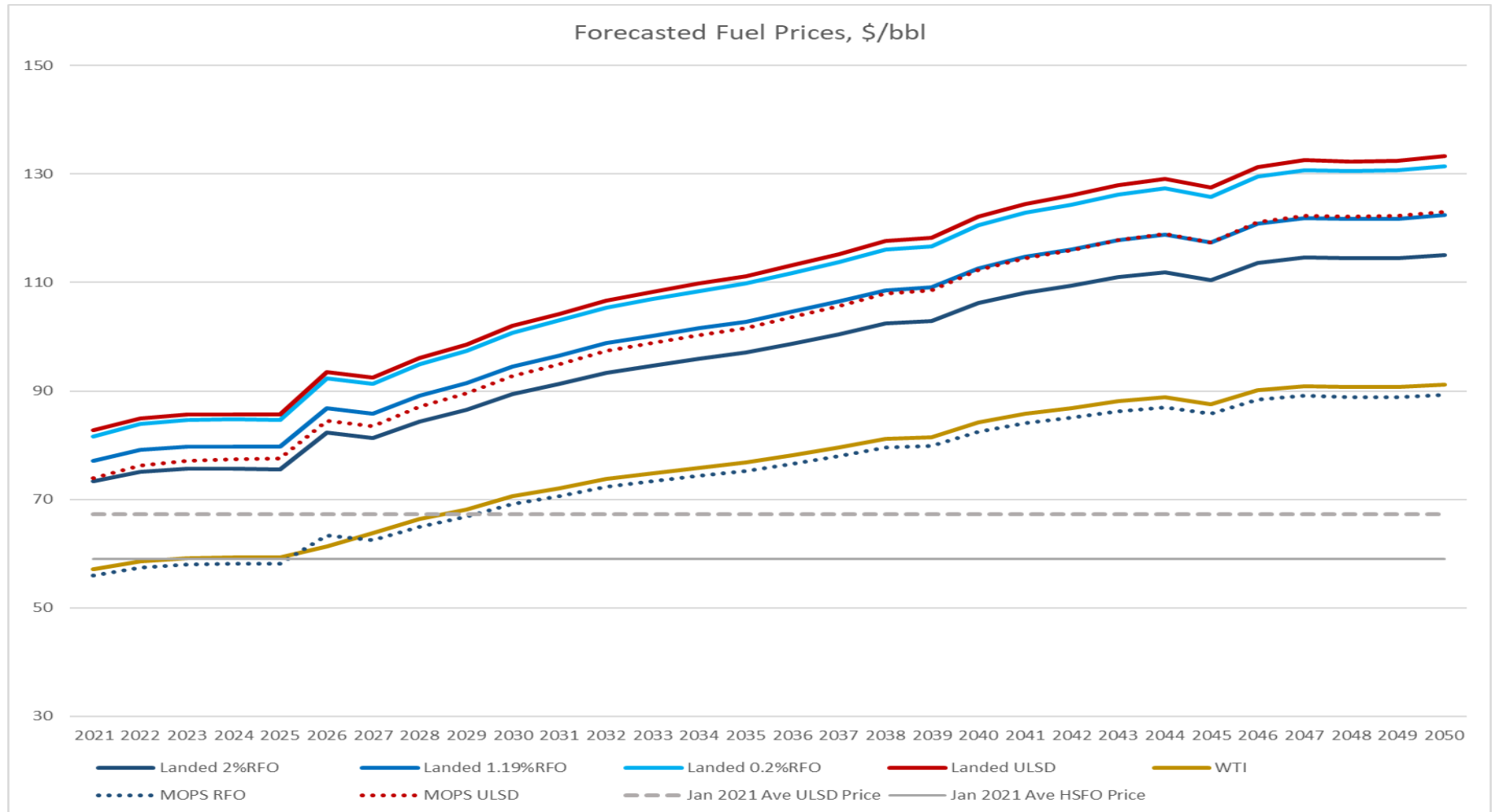
## RFO, ULSD Fuel Price Forecast – Methodology

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- Landed Cost = Forecasted Fuel Price + Shipping Fees
- 4 Fuel Price Forecasts in \$/bbl:
  - 2% Sulfur RFO
  - 1.19% Sulfur RFO
  - 0.2% Sulfur RFO (lowest sulfur content GPA can switch to)
  - ULSD
- High, Low and Baseline forecasts were completed, for use in GPA's IRP analysis

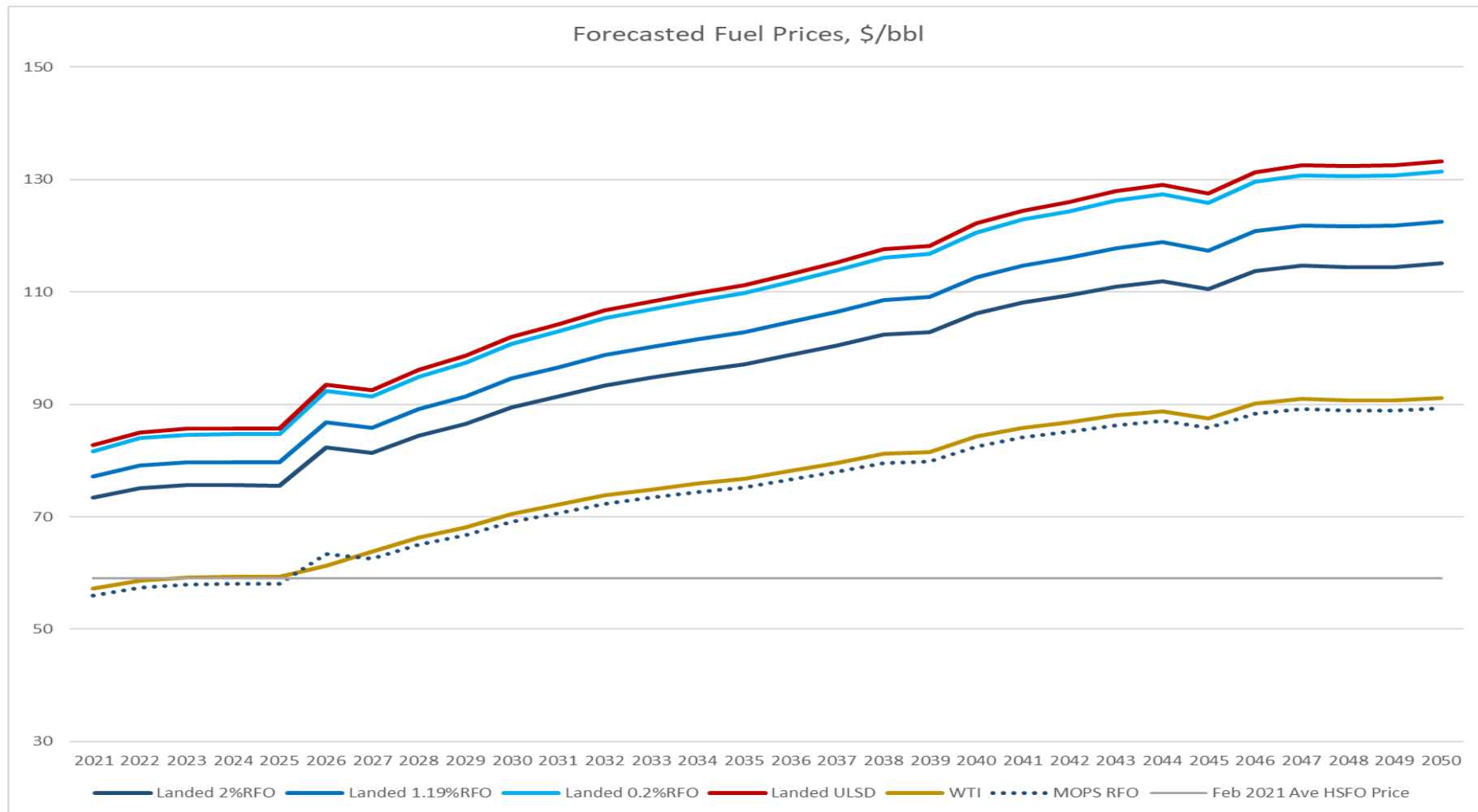


# Fuel Price Forecast – \$/BBL



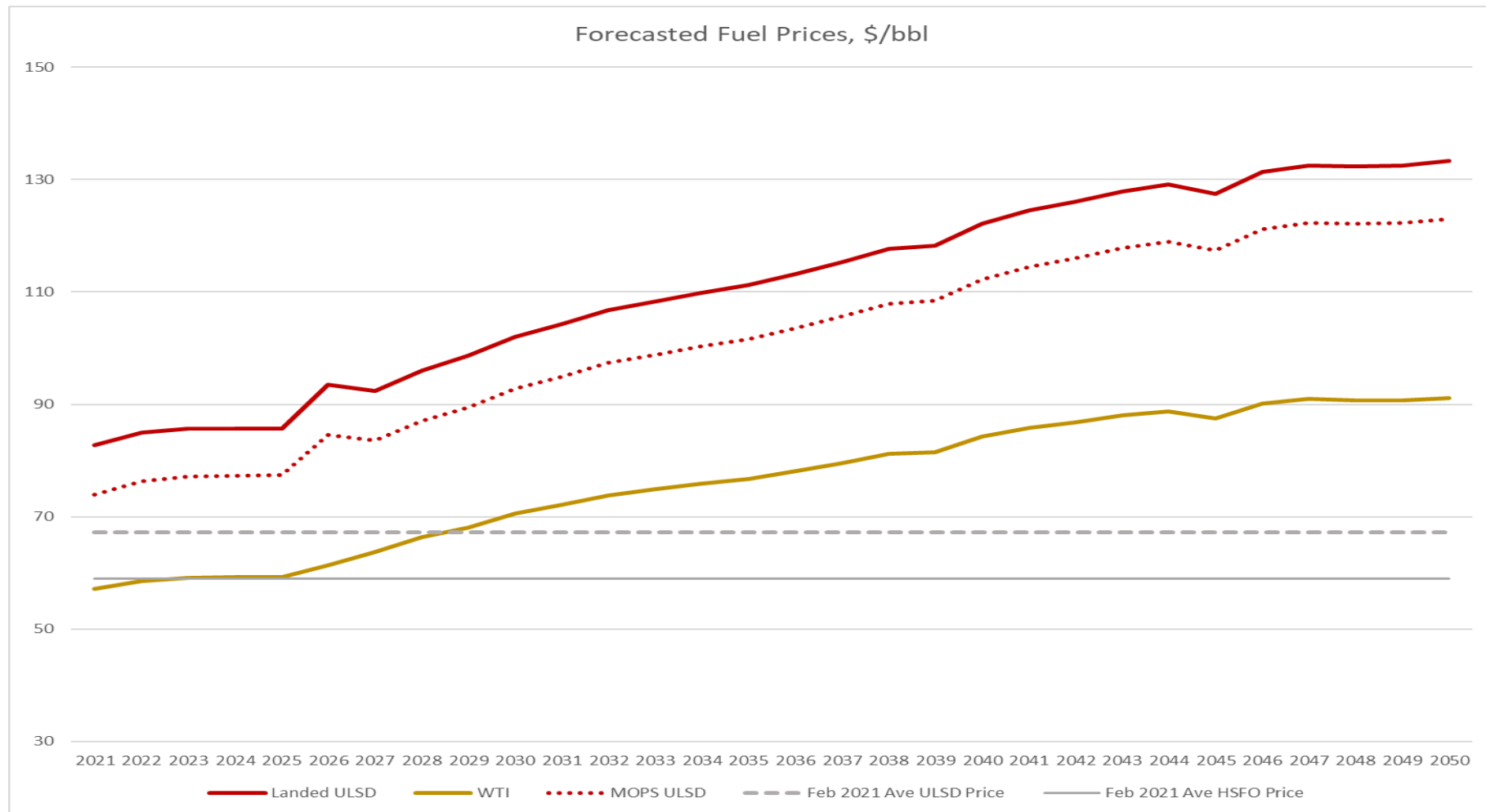


# Fuel Price Forecast – \$/BBL *RFO*





# Fuel Price Forecast – \$/BBL *ULSD*

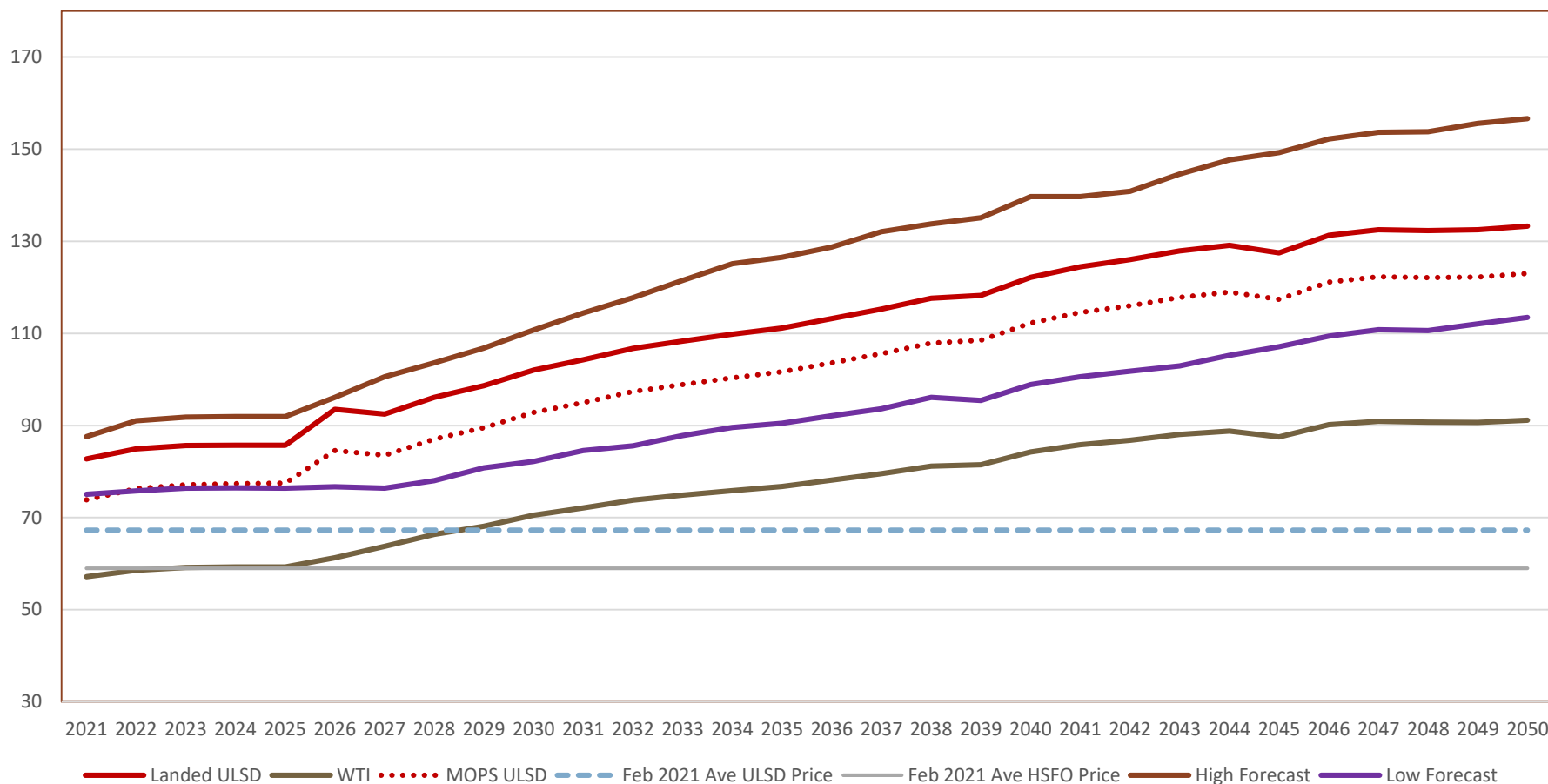






# Fuel Price Forecast – *ULSD Scenarios*

Forecasted Fuel Prices, \$/bbl





# LNG Fuel Price Forecast – Methodology

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- Utilized Leidos 4<sup>th</sup> Quarter 2020 Henry Hub Forecast of Natural Gas  
*+ Assumptions on Liquefaction Costs and Shipping Costs*
- LNG forecast expected to remain low during study period<sup>1</sup>
- Assumed that USGC LNG prices would trade at HH Price +25%, + \$2.50/MMBTU
- LNG Shipping Costs estimated based on Steam Turbine Powered Tanker Truck with a capacity of 160,000 cubic meters LNG< utilizing marine fuel oil and LNG boil-off gas as fuel
- 3 Forecasts: Baseline, Low and High

<sup>1</sup> Discussed in detail by Leidos, will be included in IRP Report



## GPA Pricing: *Price References, Structures*

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Landed Cost= Reference Price + Premium Fee

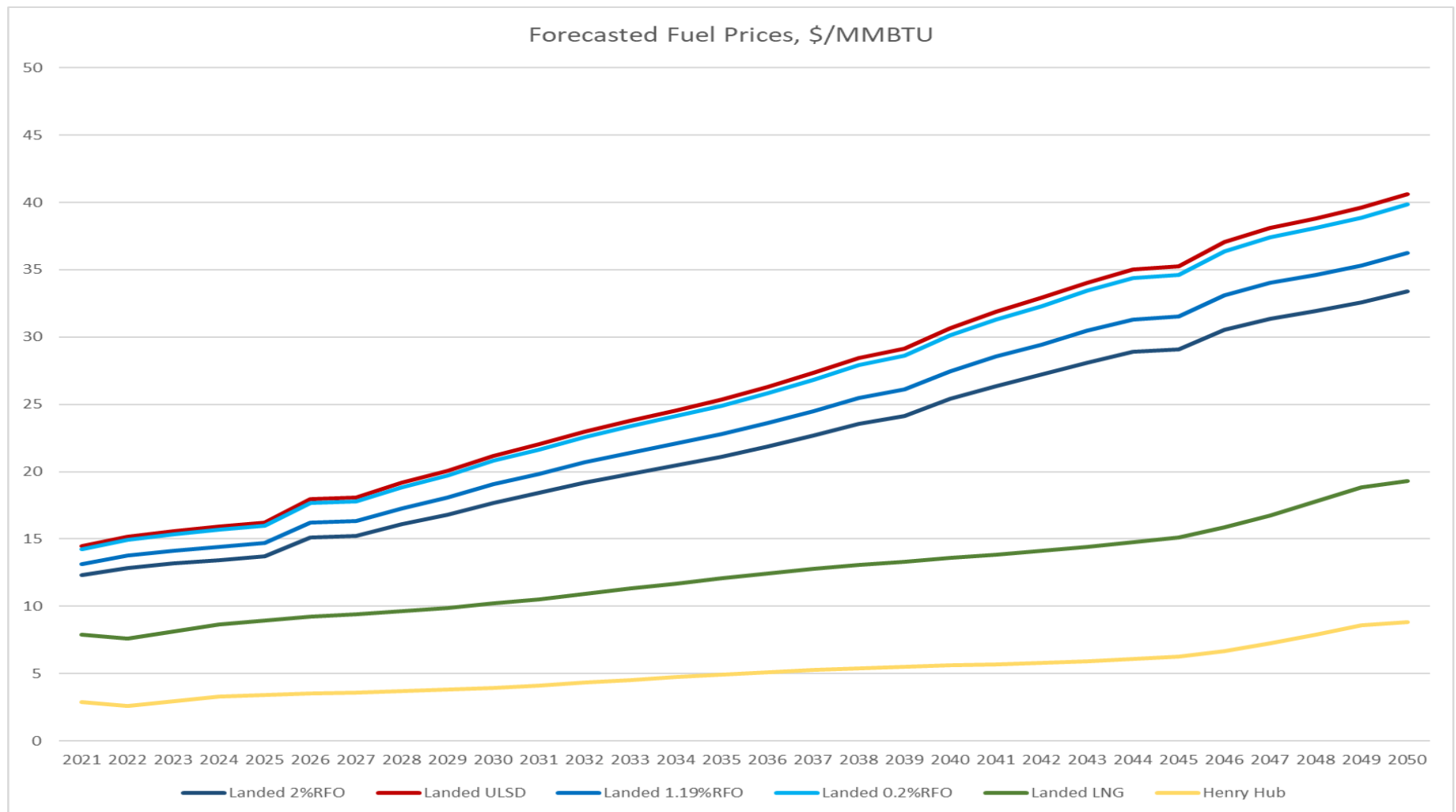
*Reference Price = LNG Landed Cost based on Henry Hub*

*Premium Fee = shipping to Guam, as LNG*

GPA is currently working with Leidos, Inc. in developing the latest costs for a regasification facility (Capital Costs), including annual cost for regasification of LNG.



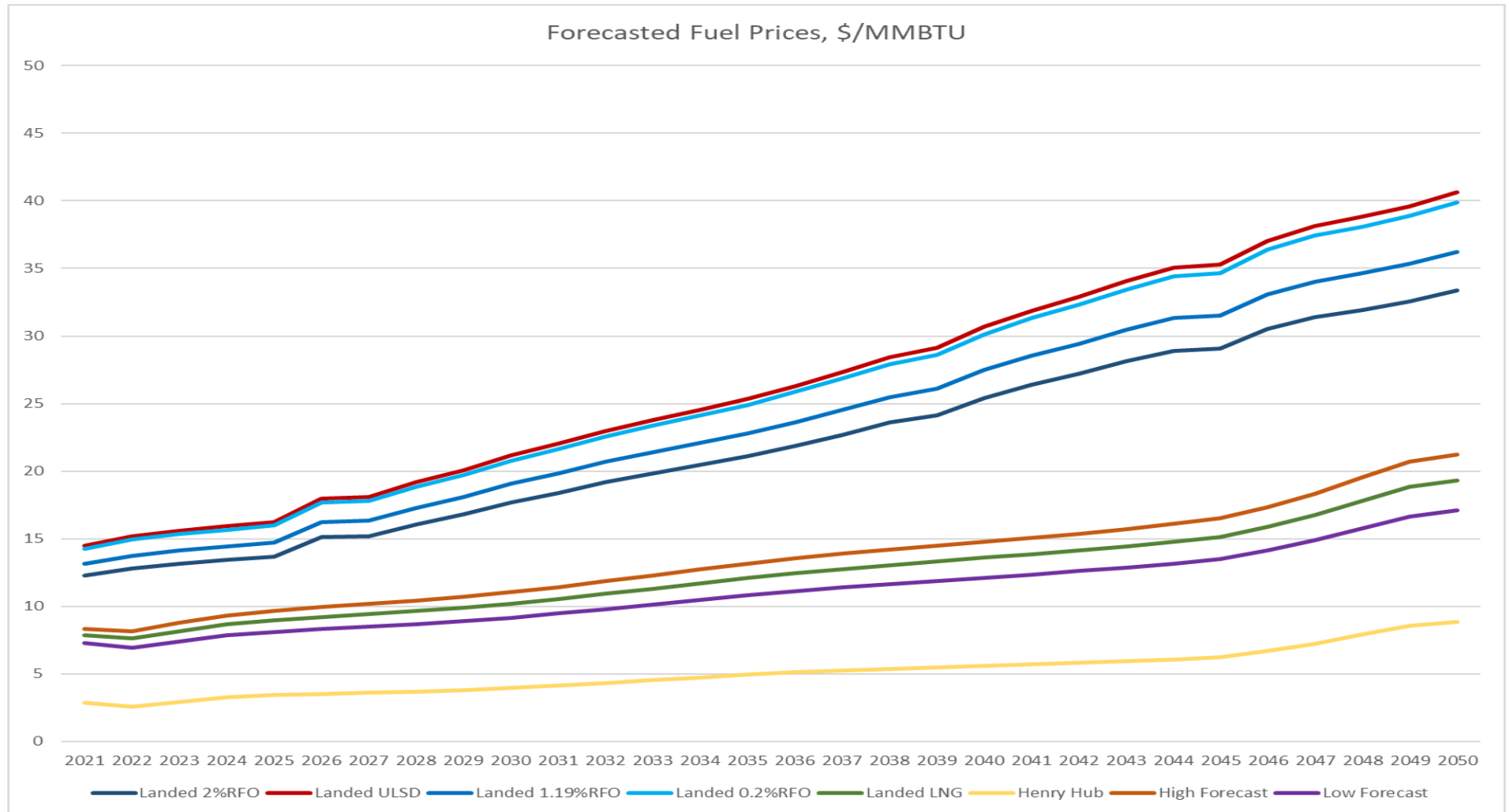
# Fuel Price Forecast – \$/MMBTU *LNG*







# Fuel Price Forecast – *LNG Scenarios*





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## **For discussion during Q&A:**

- What do you feel are strategic issues regarding Fuel Prices that GPA should consider?
- What are strategic and critical issues regarding Fuel Supply that will impact GPA and Guam?