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Gas Statement of Opportunities – January 2014 Highlights

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4 March 2014 Stakeholder Forum

Agenda

- Changes in GSOO – January 2014
- Responsive to Industry Feedback
- Supply and Demand Balance, 2014 - 2023
- Demand Forecasts, 2014 – 2023
- North West Shelf
- Potential Supply Forecasts, 2014 – 2023
- Future Challenges for the WA LNG Sector
- Gas Reserves and Resources
- Forecasted medium to long-term average (ex-plant) new contract domestic gas prices, 2014 - 2023
- Gas Bulletin Board data

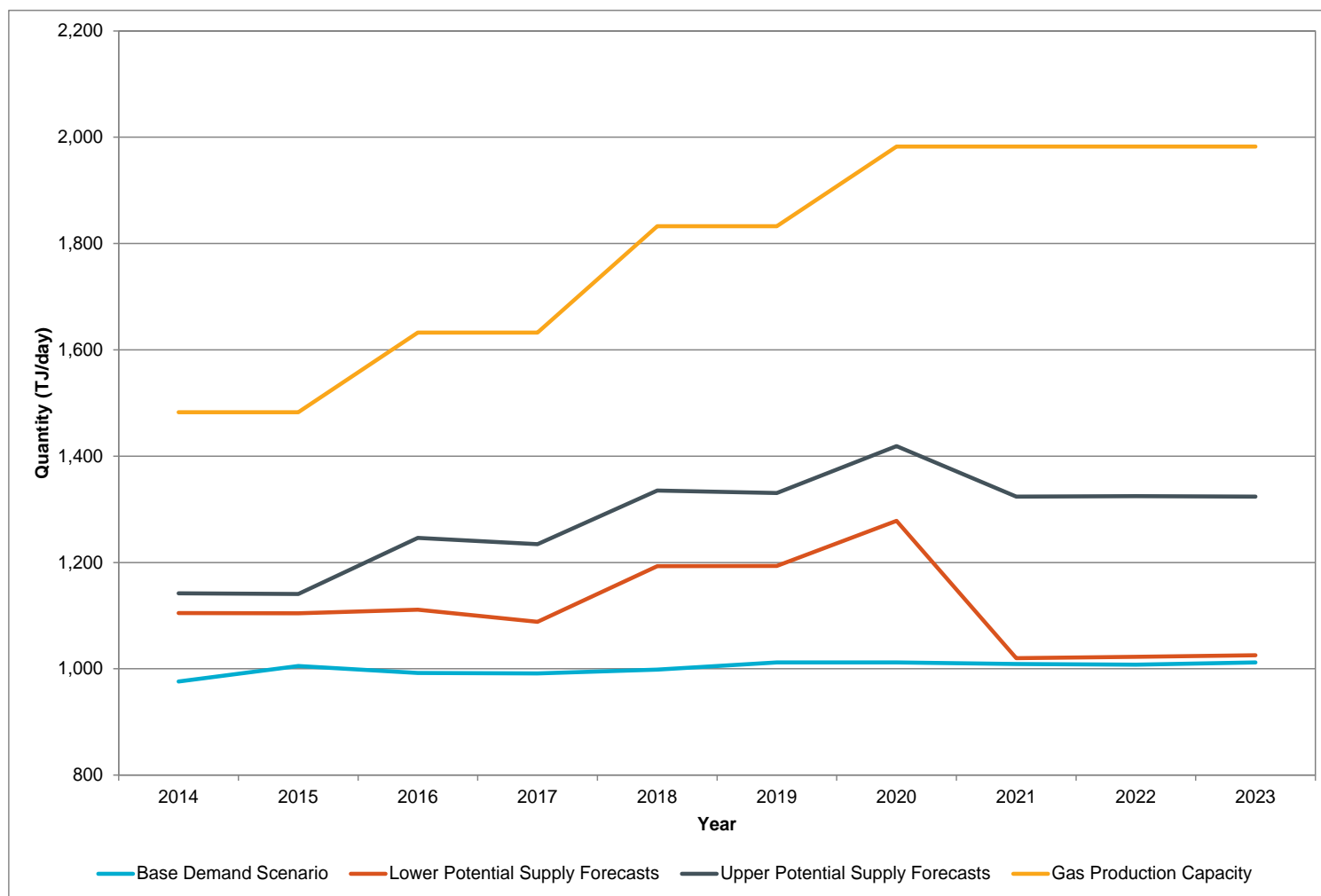
Changes in GSOO – January 2014

- Responsive to industry feedback
- An increased focus on NWS
- More detailed explanation of gas demand and potential supply models
- Updated forecasts of medium to long-term ex-plant contract prices
- More detailed look at WA reserves and resources
- Inclusion of GBB Data

Responsive to Industry Feedback

- The following changes implemented in response to industry feedback:
 - Increased focus on NWS (reserves, contractual commitments)
 - Linkage of reserves to production facilities
 - Consideration of different production costs for each facility
 - Changes to assumed price elasticity of demand
 - Modifications to the price forecast model
 - Reduction of time lag between LNG price and domestic gas price
- The following changes suggested by industry are still under consideration:
 - Inclusion of projects yet to reach final investment decision
 - Impact of US LNG exports on LNG pricing

Supply and Demand Balance, 2014 – 2023



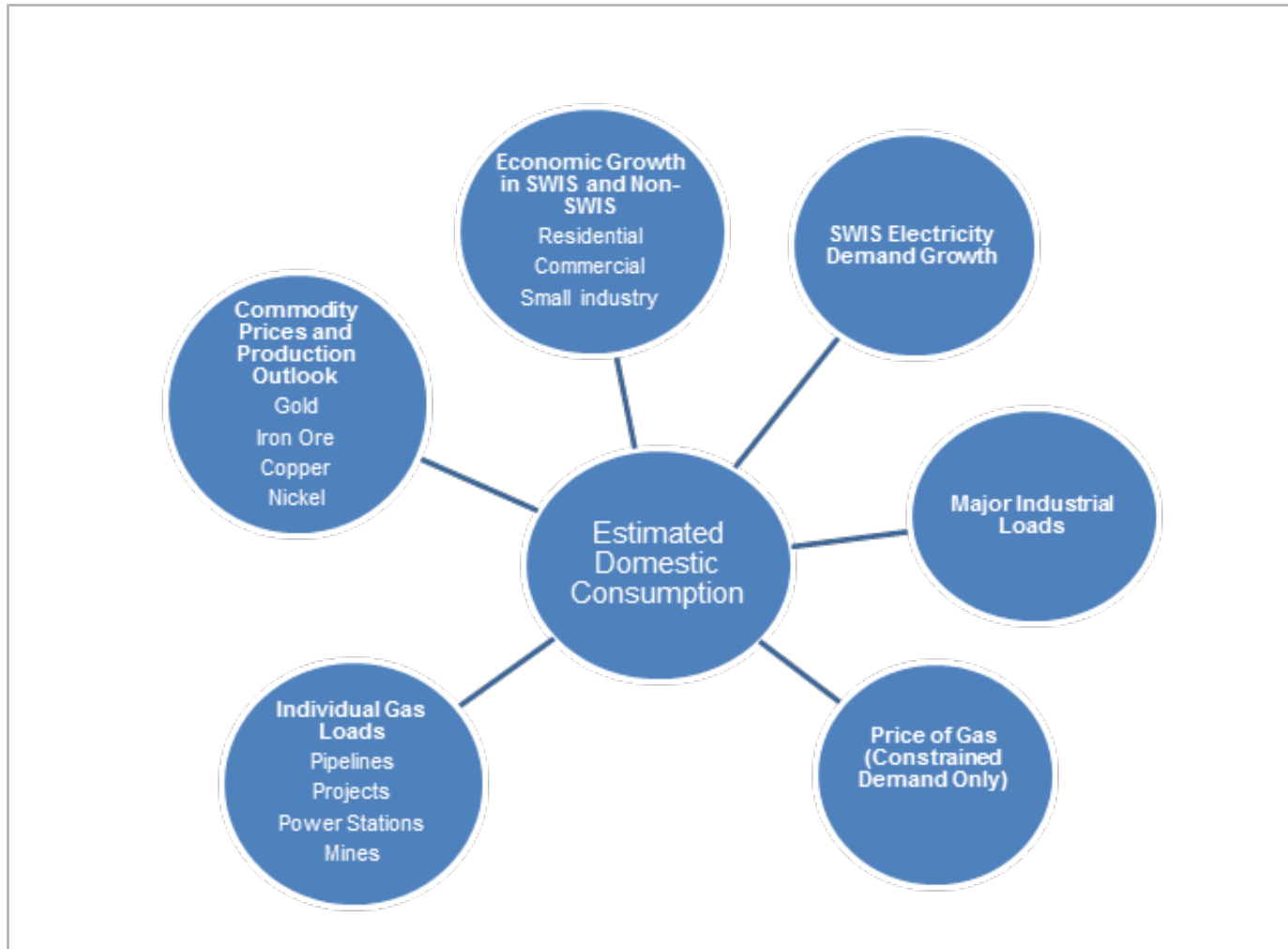
Source: IMO's Gas Statement of Opportunities – January 2014

Key Findings

Domestic supply-demand balance

- **For the 2014 to 2020 period**, likely to be adequate gas supply to meet existing contracted gas demand and expected growth in gas demand in the domestic market assuming that commercially acceptable terms can be agreed
- **For the 2021 to 2023 period:**
 - the availability of gas to the WA domestic market is likely to be sufficient if the NWS JVs supply at levels considered in the Upper potential supply forecasts, but
 - may not be sufficient (at forecast prices) to meet forecast domestic demand if the NWS JVs do not supply gas to the domestic market beyond existing contracts

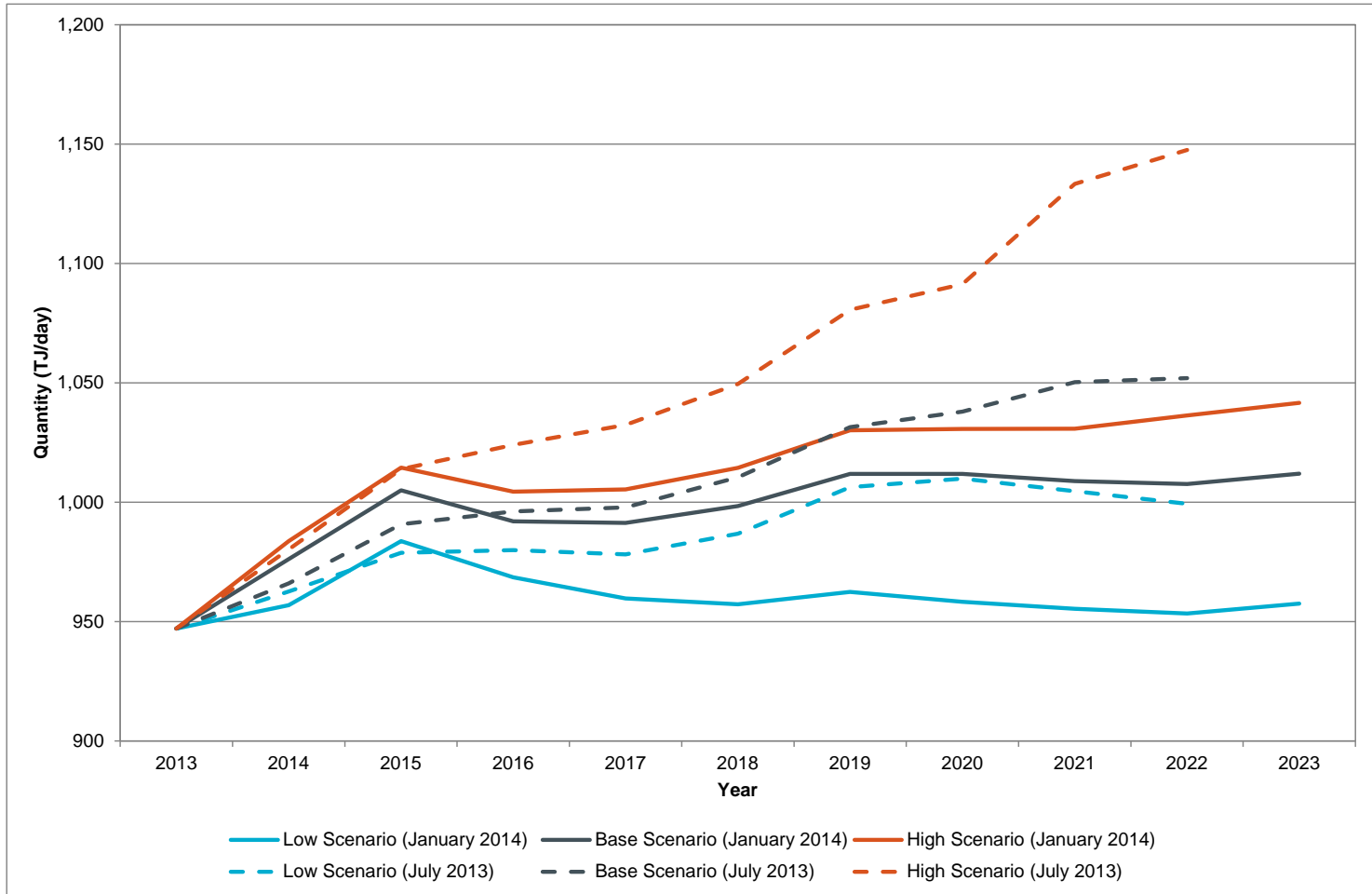
Gas Demand Model



Demand forecasts, 2014 – 2023

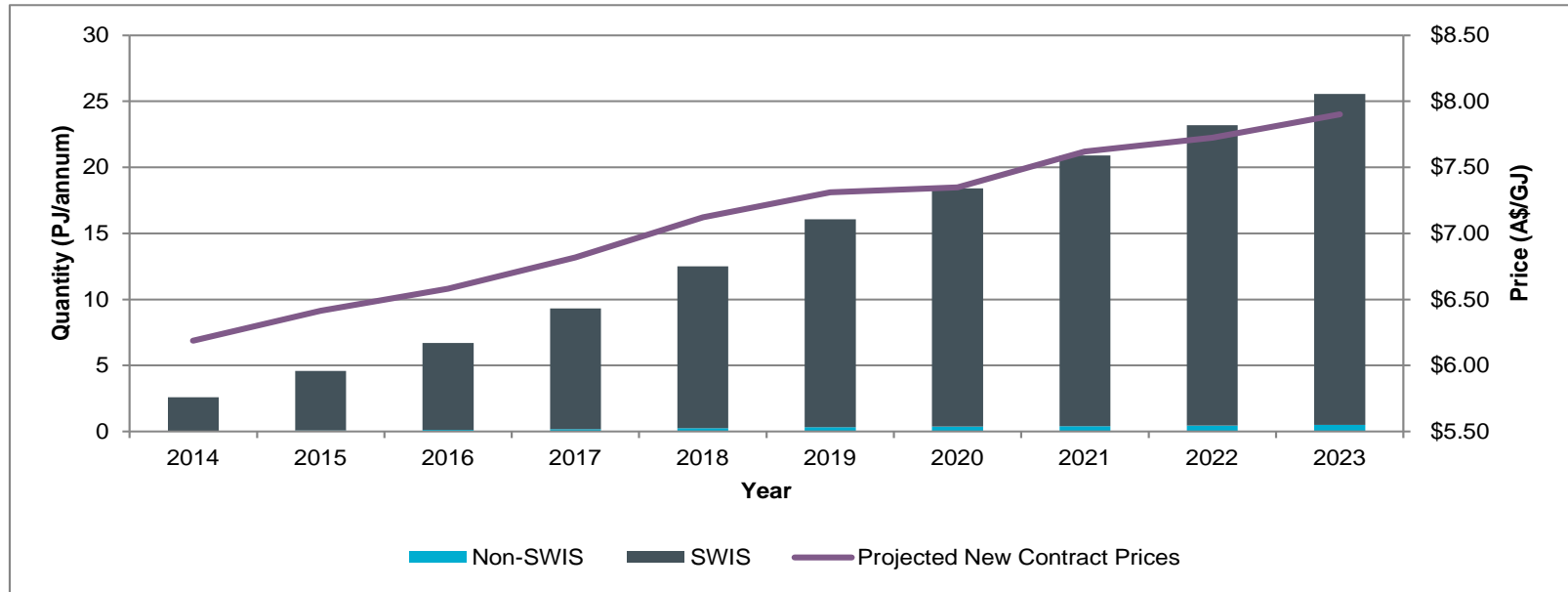
- Demand forecasts include existing projects that have attained **FID**.
- Base domestic gas forecast: growth of 0.4% p.a. to 1,012 TJ/day in 2023
- Base forecast is lower than GSOO - July 2013, previous Base demand forecast was 1% p.a. growth to 1,052 TJ/day in 2022
- High forecast, growth of 0.6% p.a. to 1,042 TJ/day in 2023, Low forecast flat to 958 TJ/day
- Key difference between High and Low forecasts – economic growth assumptions
- Key changes since GSOO – July 2013 :
 - More sensitive price elasticity assumed in gas demand
 - GBB data has informed changes to assumptions for alumina processing and SWIS electricity
 - Revisions to price forecasts

Demand forecasts – Comparison of July 2013 and Jan 2014 GSOOs



Source: IMO's Gas Statements of Opportunities, July 2013 and January 2014

Price Sensitivity of Gas Demand, 2014 – 2023



Source: IMO's Gas Statements of Opportunities, January 2014

Key Findings - North West Shelf

- Estimated Reserves (~15,000 PJ)
- Total production (domestic and LNG) estimate (just under 1,200 PJ/annum)
- Years remaining at current production (~12 to 13 years)
- Trade-offs between LNG and domestic gas
 - NWS less likely to offer long-term contracts due to status of reserves and contracts (tail gas issues)
 - Woodside CEO – The West Australian - December 2013
 - NWS Capacity will start to ease
 - Suggests NWS is willing to sell as long as domgas prices are equivalent with international LNG

Key Findings – North West Shelf

Estimated to have sufficient 2P reserves for the 2014 – 2023 period, subject to:

- the outcomes of ongoing discussions between the WA Government and the NWS JVs that relate to remaining NWS reserves
- investment decisions required by the NWS JVs to access remaining undeveloped reserves
- investment required to extend the life of the aging (30-year old) domestic gas production facility at the Karratha Gas Plant (KGP)

Potential Supply Model

Potential supply – an estimate of the availability of gas supply (sum of contracted supply and price sensitive supply) from gas producers (not capacity)

Contracted gas supply is estimated for each production facility

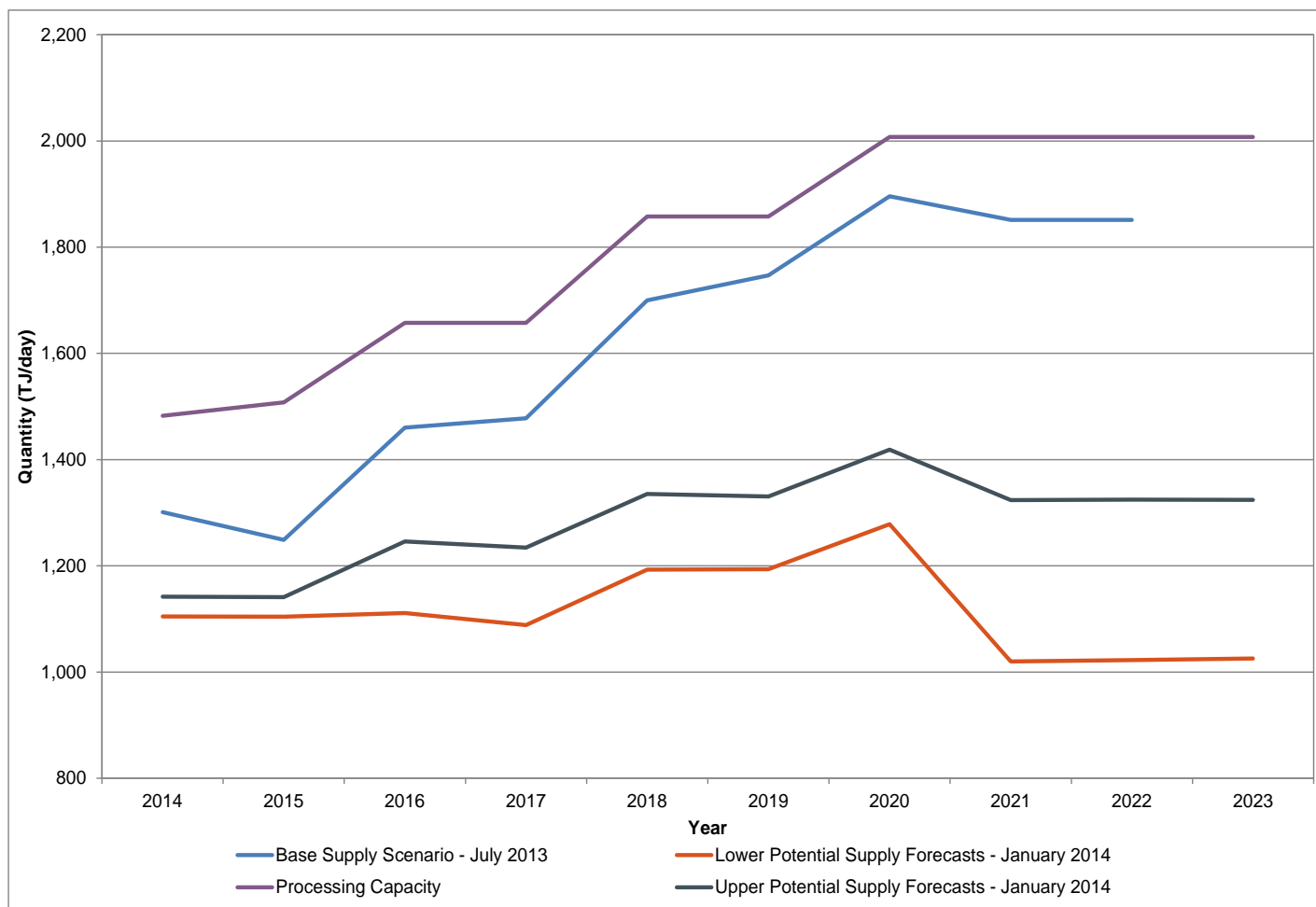
Potential price-sensitive gas supply is estimated for each facility by applying the forecast domestic gas prices forecast and the following assumptions:

- average cost of gas production for each production facility
- availability rates of each production facility
- an assumed rate of return on investment for each facility
- contracted rates of each production facility

Potential Supply forecasts, 2014 – 2023

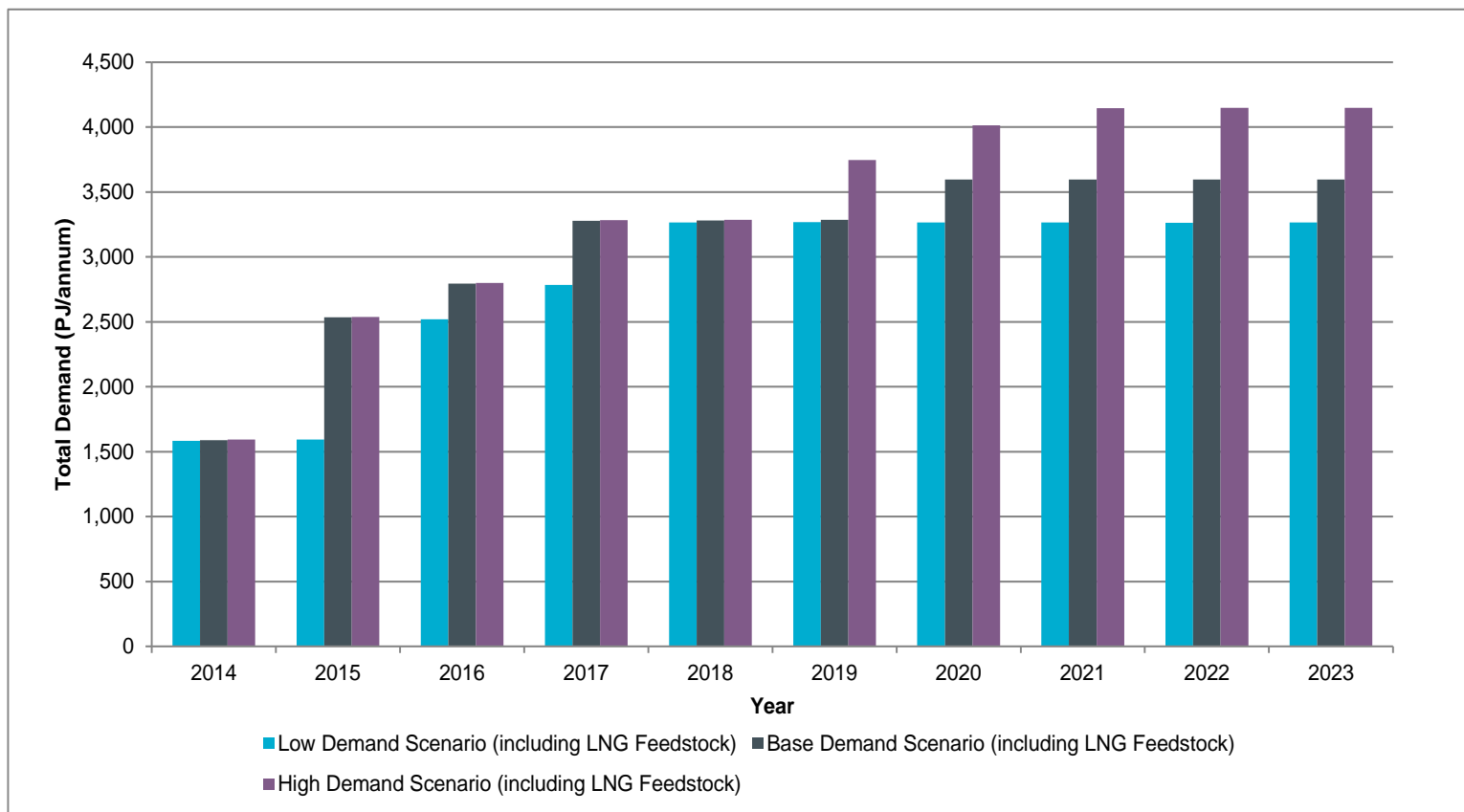
- Potential gas supply considers the quantity that producers are willing to supply at the forecast medium to long-term ex-plant contract price.
- Upper potential supply forecast: growth of 1.7% p.a. to 1,324 TJ/day in 2023 and Lower potential supply a fall of -0.8% p.a. to 1,025 TJ/day
- Difference between Upper and Lower forecasts – NWS supply
- Both Upper and Lower supply forecasts are lower than previous Base supply forecast: GSOO – July 2013 Base supply forecast was growth of 3.7% p.a. to 1,851 TJ/day in 2022
- Key changes since GSOO – July 2013 :
 - Model – individual production capacities and commercial factors considered
 - Model – estimates of capacity for each facility into price-insensitive (contracted) and price-sensitive (uncontracted) supply
 - Reduced NWS production capacity used in supply forecasts
 - Revisions to domestic price forecasts

Supply forecasts – Comparison of July 2013 and Jan 2014 GSOOs



Source: IMO's Gas Statements of Opportunities, July 2013 and January 2014

Estimated Total Gas Demand (Total Domestic + LNG Exports), 2014 – 2023



Source: IMO's Gas Statements of Opportunities, January 2014

Future Challenges for the WA LNG Sector

- A number of medium to long-term growth challenges confronting the WA LNG market, such as:
 - the potential end of premium Asia Pacific LNG pricing;
 - a move toward shorter-term LNG contracts in the Asia Pacific region;
 - the high relative cost of LNG production in Australia; and
 - the threat of unconventional gas entering the international gas market.
- These factors are not expected to affect the domestic gas sector in the forecast period

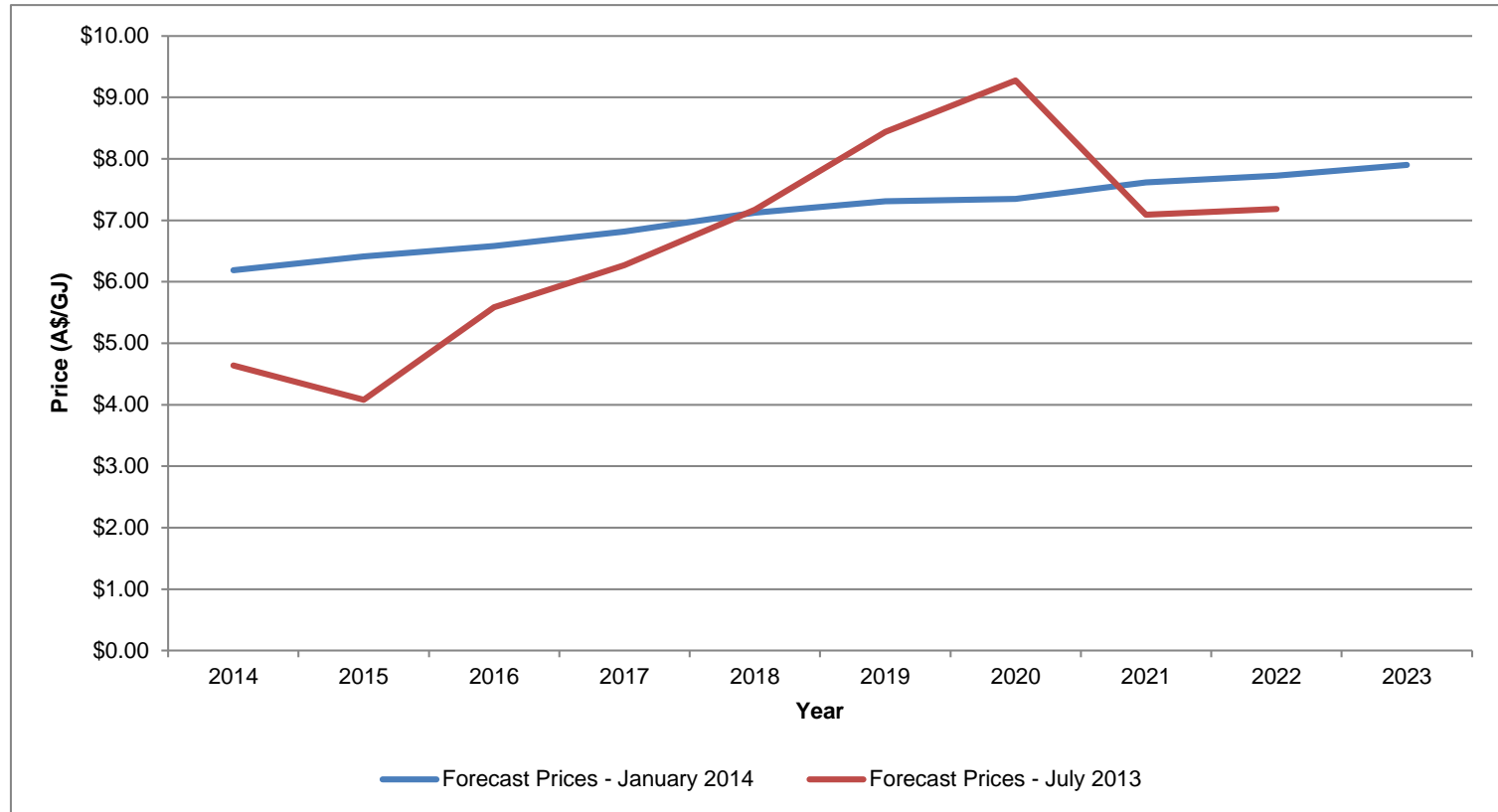
Key Findings – Gas Resources and Reserves

- Gas resources are estimated to be sufficient to meet forecast domestic and LNG (including FLNG) demand levels for 2014 – 2023 period (Carnarvon Basin ~27 years, Perth Basin ~ 11 years at 2023 total production forecasts)
- Longer-term supplies (beyond 2023) rely heavily on WA's unconventional gas resources (tight and shale resources), which have yet to be produced
- WA is reliant on the Carnarvon Basin (conventional gas) for gas supply (>95% of gas supply) may warrant consideration on how to encourage the diversity of domestic gas supply from other basins

Forecast Medium to long-term average (ex-plant) new contract domestic gas prices, 2014-2023

- Greater clarity around the price forecasts that are incorporated in the forecasts of potential supply and demand:
 - Average medium to long-term (ex-plant) new contract prices
- Key changes since GSOO – July 2013:
 - Consistent application of exchange rates in LNG netback price modelling
 - Corrected oil-LNG price relationship
 - Reduced time lag between LNG netback price and domestic gas price

Comparison of Forecast New Contract Gas Prices between the GSOO - July 2013 and GSOO - January 2014 (Base cases only)

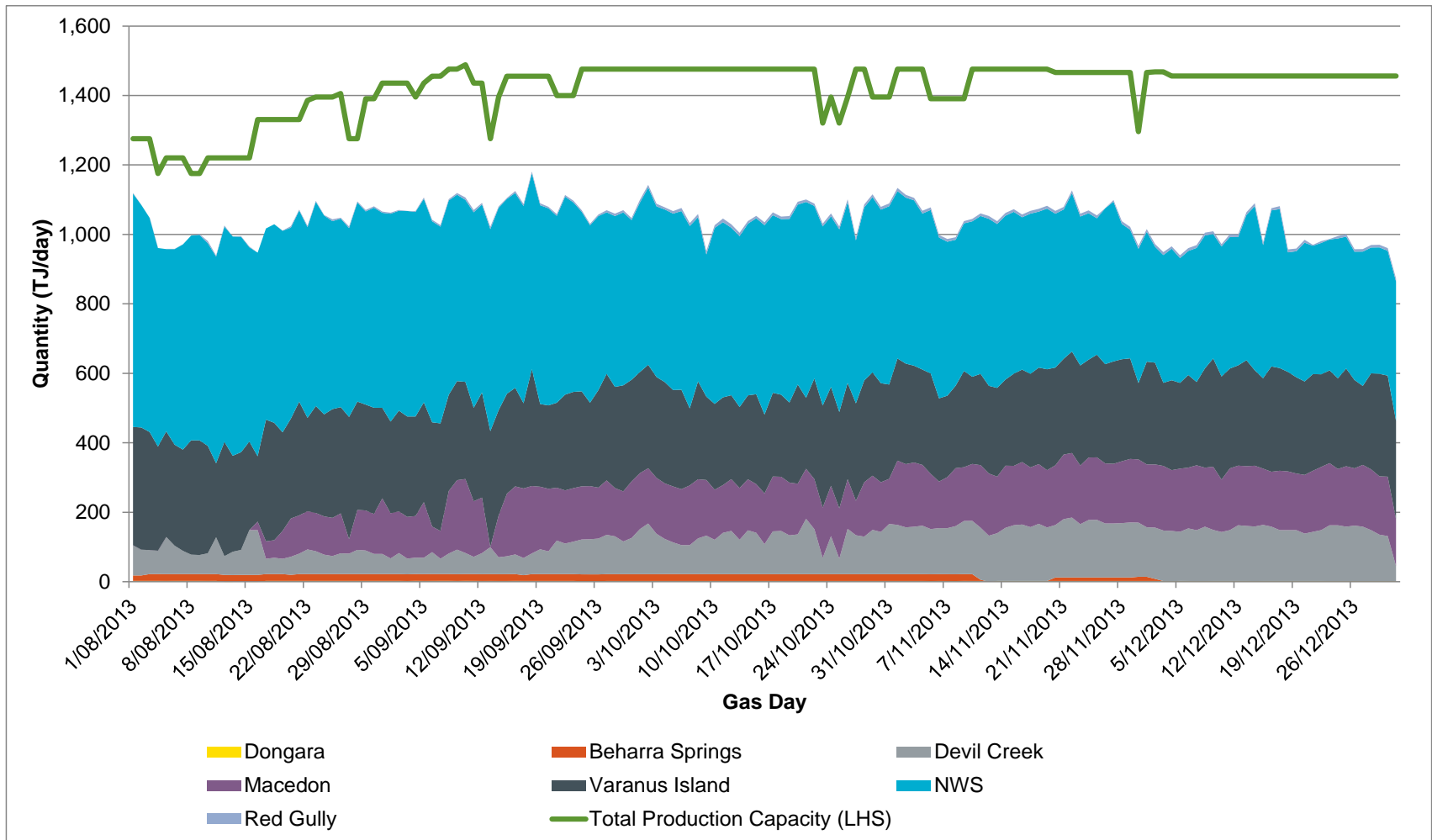


Source: IMO's Gas Statements of Opportunities, January 2014

WA's Gas Bulletin Board (GBB)

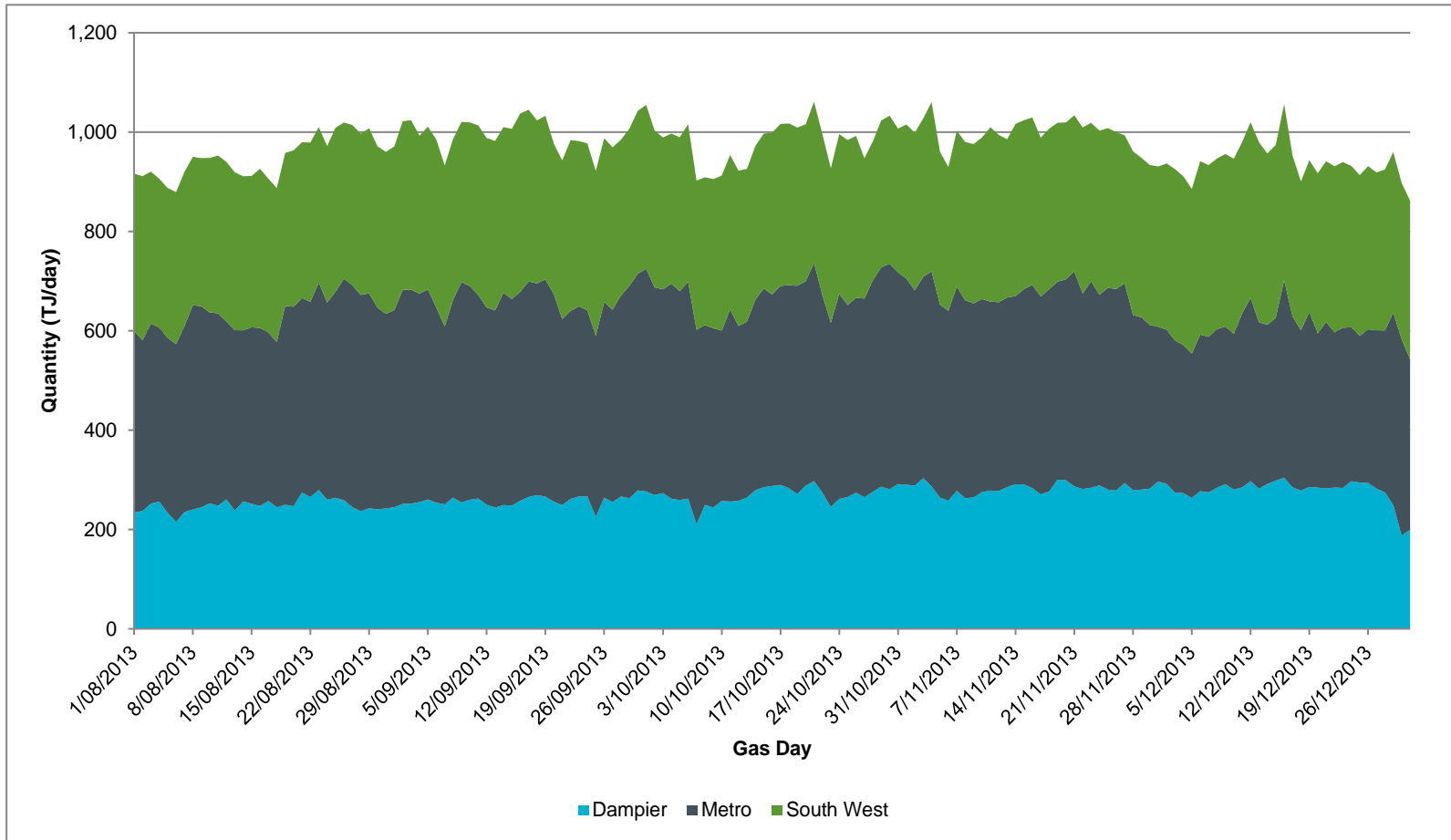
- Public website that displays near-term information about gas production, storage, transportation and demand:
 - Forecasts of daily gas production, storage and transmission capacity, gas flows (pipeline and storage)
 - 12 month ahead forecasts of changes to the capacity of production, transmission and storage facilities (maintenance reports)
 - Daily actuals of:
 - gas production by facility
 - pipeline and storage gas flows
 - gas consumption by large user facilities
- Emergency Management Facility – restricted access part of the GBB activated in an emergency
- January 2014 GSOO includes GBB actuals from 1 August

GBB – Facility Production – 1 August to 31 December 2013



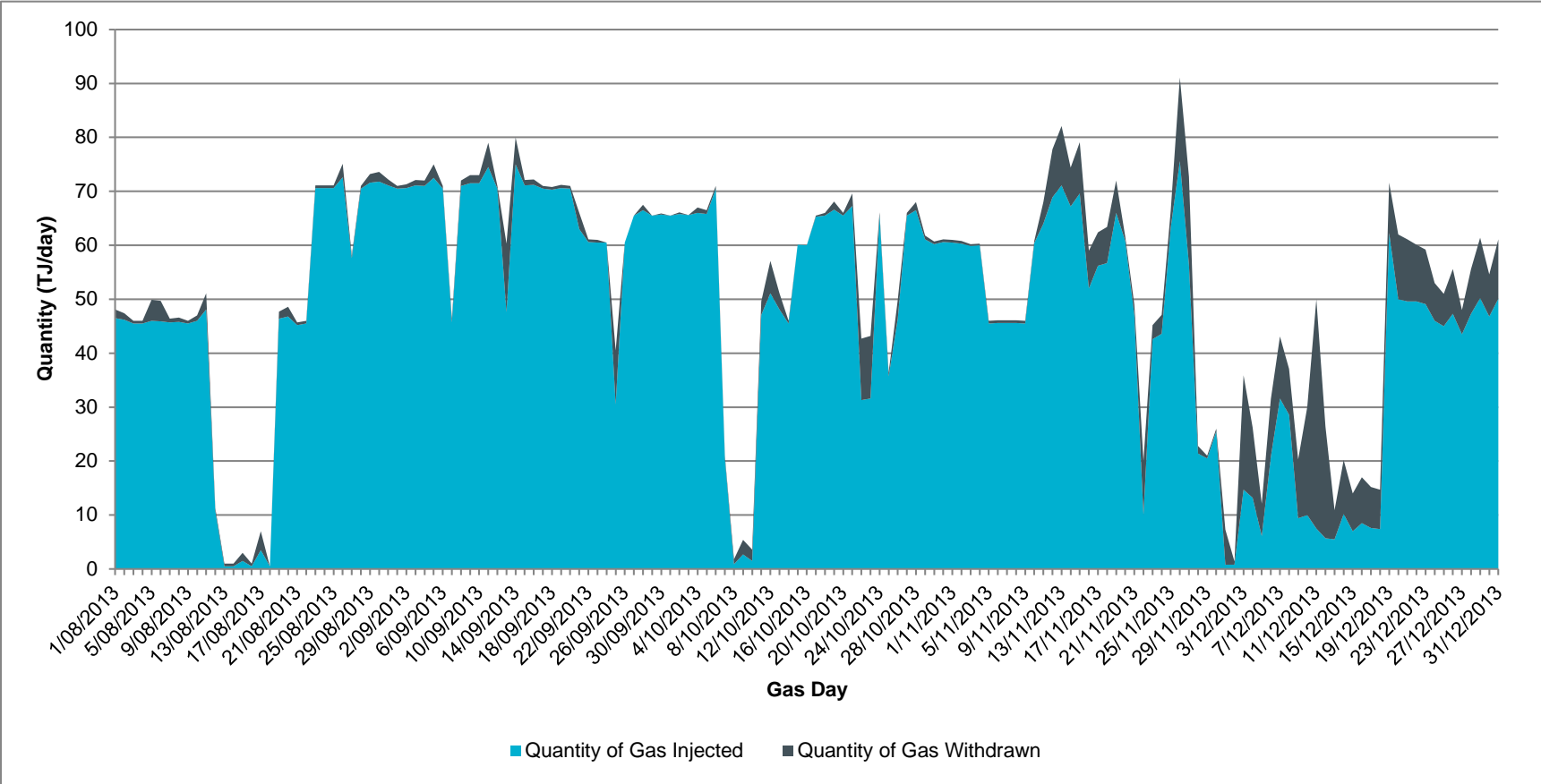
Source: IMO's Gas Bulletin Board

GBB – DBNGP Gas Flows (by Zone) – 1 August to 31 December 2013



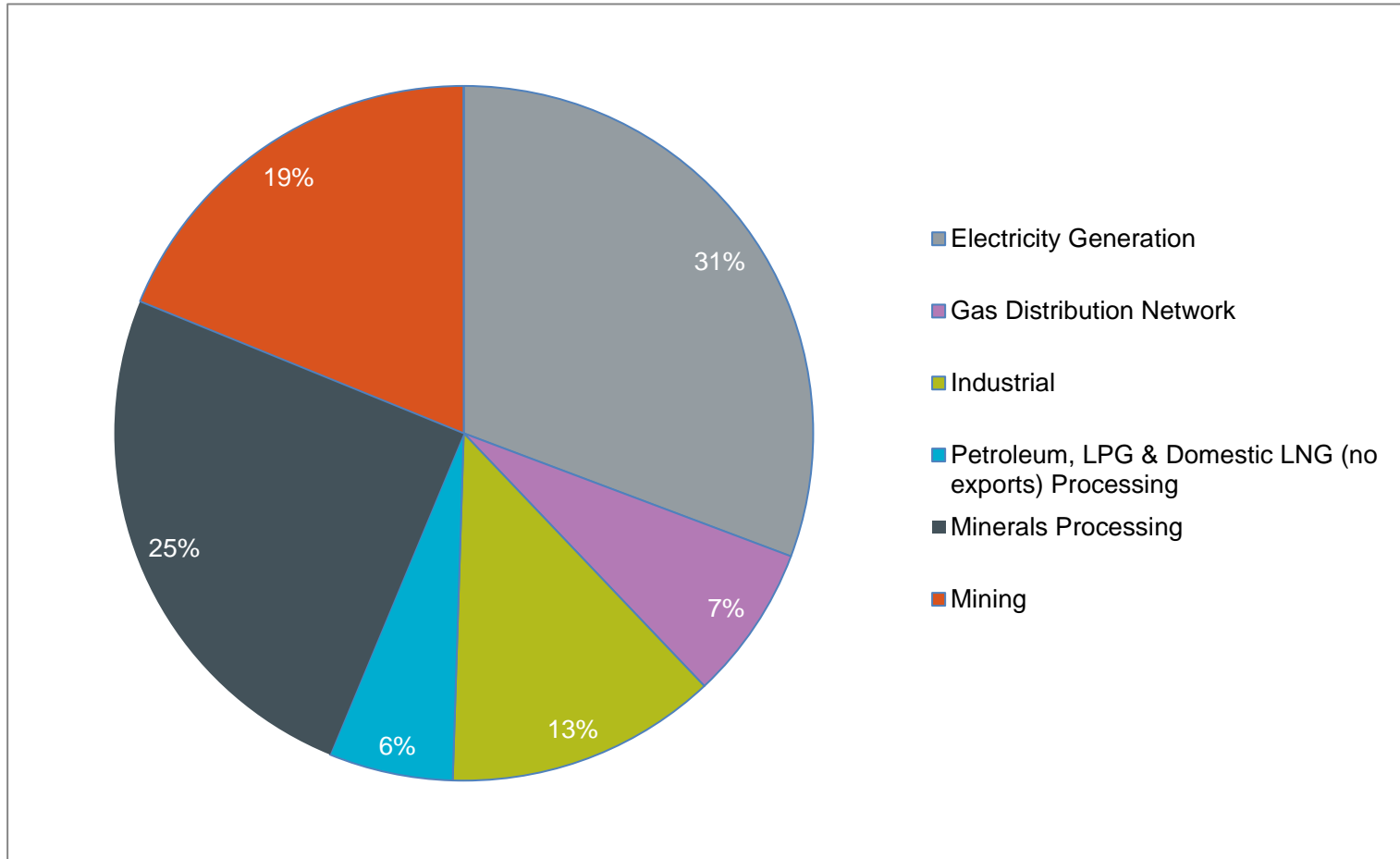
Source: IMO's Gas Bulletin Board

GBB – Mondarra Injection/Withdrawal – 1 August to 31 December 2013



Source: IMO's Gas Bulletin Board

GBB – Gas Consumption by Industry – 1 August to 31 December 2013



Source: IMO's Gas Bulletin Board

Next GSOO – Expected December 2014

Questions ?



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