

QUESTAR

IRP Workshop
Feb 9, 2015

QUESTAR[®]
Gas

IRP Schedule

- February 9, 2015 - Workshop
 - Review of 2014 IRP Order
 - December 30 and 31 Weather Event
 - Demand Forecast and 65% Calculation
 - Calculating COS Gas Prices
- March 25, 2015 - Workshop
 - Wexpro Drilling and Compression Plans
 - Review of Upstream Gathering and Transportation Contracts

IRP Schedule

- May 4, 2015 – Workshop
 - Heating Season Review
 - Management of COS Gas for 2014 IRP year
 - Storage Update
 - Energy Efficiency Impact on Peak Day
 - Review of RFP

- June 24, 2015 – Technical Conference

Review of Commission Order

- Energy Efficiency Impact on Peak Day
- TIMP/DIMP Inspection and Expenses
- Demand Forecast and 65% Calculation
- Shut-in and Exhibit Reporting
- Calculation of COS Gas Price

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December 30 and 31 Weather Event

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Gas

The Salt Lake Tribune

Utah forecast: High winds, cold make Wasatch Front an icy hell

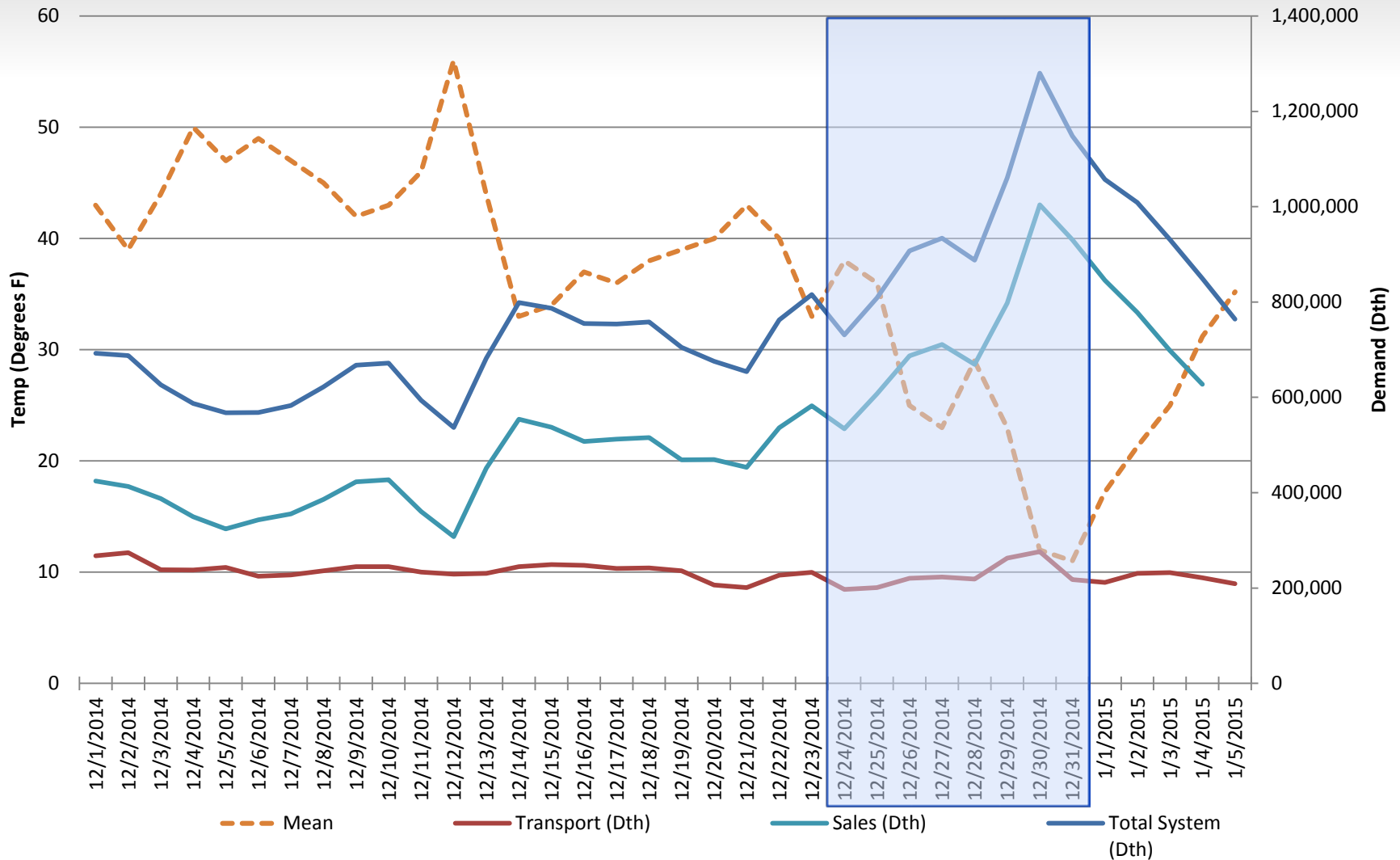
By **BOB MIMS** | The Salt Lake Tribune [CONNECT](#)

First Published Dec 30 2014 07:06AM • Last Updated Dec 31 2014 06:00 am



(Al Hartmann | The Salt Lake Tribune) Bundled up pedestrians hustle across the street at 200 South and Main Street in Salt Lake City Tuesday morning Dec. 30, 2014. High winds and low temperatures made the commute a bitter experience.

Temperatures and Demand



December 24 – 28, 2014

- Due to Christmas, gas supply purchases and nominations were made on Dec 24th for gas days 25-29
- On Dec 26th Questar Pipeline warned that nominations were expected to exceed pipeline capacity
- On Dec 26th Questar Gas restricted customers to a 5% +/- tolerance effective Dec 28th until further notice (“OFO”)
- Temperatures were near normal for this entire period with snow on Dec 25th

December 29, 2014

- Temperatures dropped beginning on Monday Dec 29th
- Weather forecasts continued to predict extreme cold temperatures and high winds for the next few days
- The increase in demand for gas day 29 was met with increased withdrawals from Clay Basin and the aquifers
- The Cycle 2 scheduled quantity report showed reductions for numerous transportation customers
 - This report now shows reductions by customer due to changes Questar Pipeline made to the nominations process
 - These reductions occurred because the agent was utilizing interruptible capacity on Questar Pipeline which had a constraint through the Coalville scheduling point
 - The agent was able to resolve the situation and no customers were contacted

December 30, 2014 “Icy Hell” Begins

- Temperatures were extremely cold throughout the Questar Gas service territory
 - Demand exceeded the morning estimates due to colder temperatures and high winds
 - Demand correlated well with the model used to forecast peak-day demand
- Questar Gas used Clay Basin and aquifer storage along with Intraday purchases to manage the increased demand on the system
- The Cycle 1 scheduled quantity report showed significant reductions to supply for transportation customers represented by four agents
 - The reductions ranged from near 50% to 80% for agents based on nominations

December 30, 2014

- Questar Gas notified agents with reductions to fix their nominations for Cycle 2 or customers would be instructed to reduce usage starting at 8:00 am December 31, 2014
 - Notifications were made through emails, instant messages and phone calls
- The Cycle 2 scheduled quantity report indicated that reductions remained unresolved for two agent's customers for gas day 31
 - At 9 pm, customers of these two agents were instructed to restrict their usage to match their reduced nomination for December 31st, starting at 8:00 am
 - One of these agents had their reductions resolved by morning and their customers were notified their supply was available
 - The other agent did not have their reductions resolved until later the next day, and then those customers were notified their supply was available

December 31, 2014

- Extreme cold weather continued throughout the service territory and producing regions
 - Cold temperatures were now impacting multiple production facilities
- By 7:00 am, based on system concerns expressed by QGC Gas Control, the decision was made to call an interruption of all interruptible customers along the Wasatch Front and Wasatch Back
 - Customers were notified using the “rapid notify” system prior to 9:00 am
 - Agents were notified on an individual basis that interruptible customers were being asked to reduce usage to match their firm amount
 - Nominating parties were then notified that the restriction for packing the Questar Gas system had been lifted
- By afternoon, system concerns were subsiding and the decision was made to allow interruptible customers to resume normal usage at 8:00 am January 1, 2015
 - Customers were notified using the “rapid notify” system at 5:00 pm

The end result

Gas Day	Total System (Dth)	Transport (Dth)	Total Sales (Dth)	Mean (°F)
12/30/2014	1,280,215	276,346	1,003,869	12
12/31/2014	1,148,547	217,969	930,578	11

- December 30, 2014
 - Highest daily total system demand
 - Previous high was 1,225,730 Dth on 1/14/2013
 - Highest daily total Sales demand
 - Previous high was 997,135 Dth on 2/1/2011
- System Interruption
 - Many customers complied with the interruption
 - Over 100 customers exceeded their firm amount and will be billed accordingly

Demand Forecast and 65% Calculation

Calculation of 65%

- Paragraph 12 (a) “The Company and Wexpro will manage the combined cost-of-service production from Wexpro I properties and Wexpro II Trail Unit Acquisition Properties to 65% of Questar Gas’ annual forecasted demand identified in the Company’s Integrated Resource Plan (IRP).”
 - Settlement Stipulation Docket No. 13-057-13

Calculation of 65%

- Paragraph 12 (b) “The IRP plan year starting with the June 2015 through May 2016 IRP will be used to determine the initial annual forecasted demand.”
 - Settlement Stipulation Docket No. 13-057-13

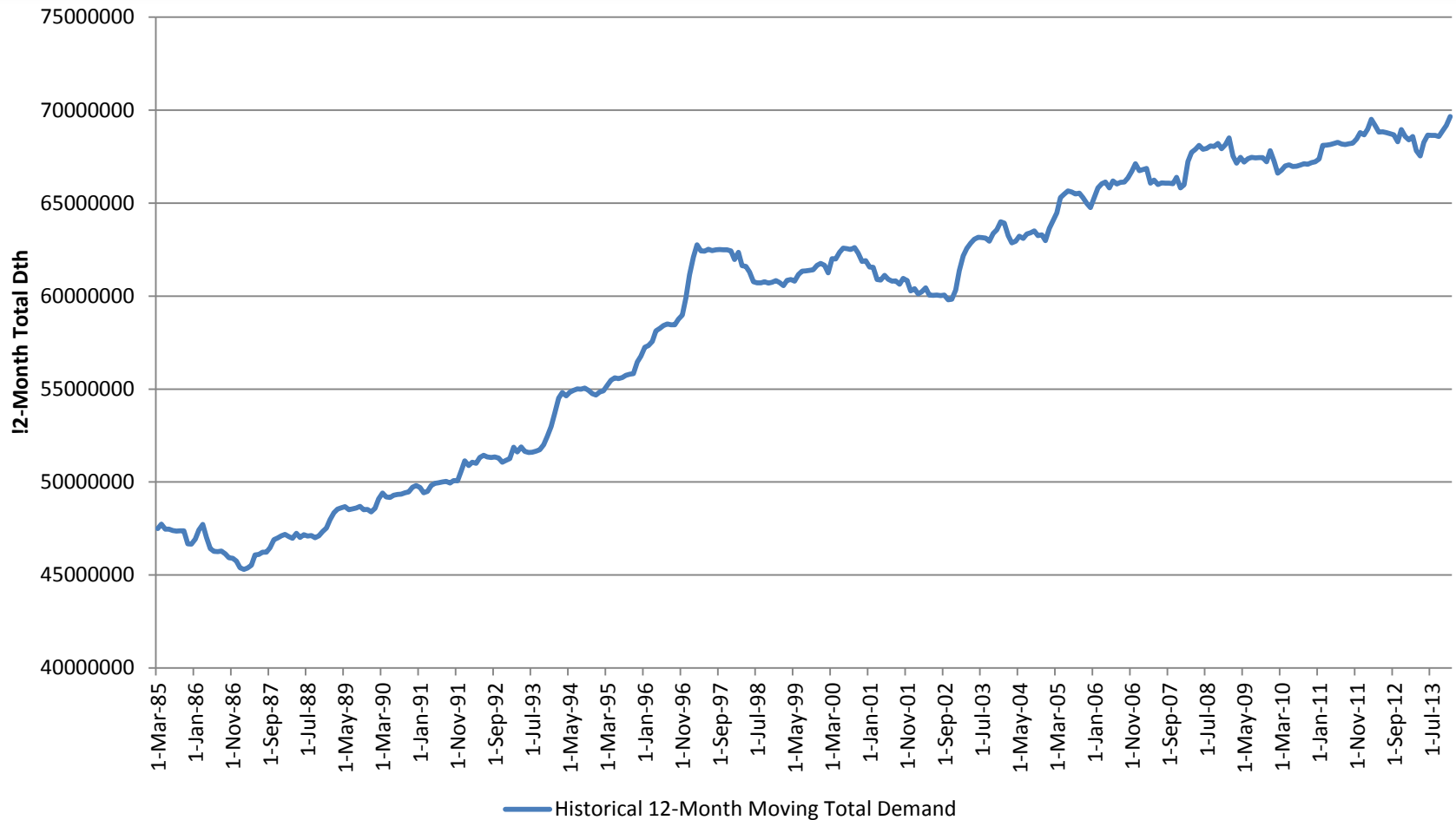
Calculation of 65% - Denominator

IRP Forecast Demand

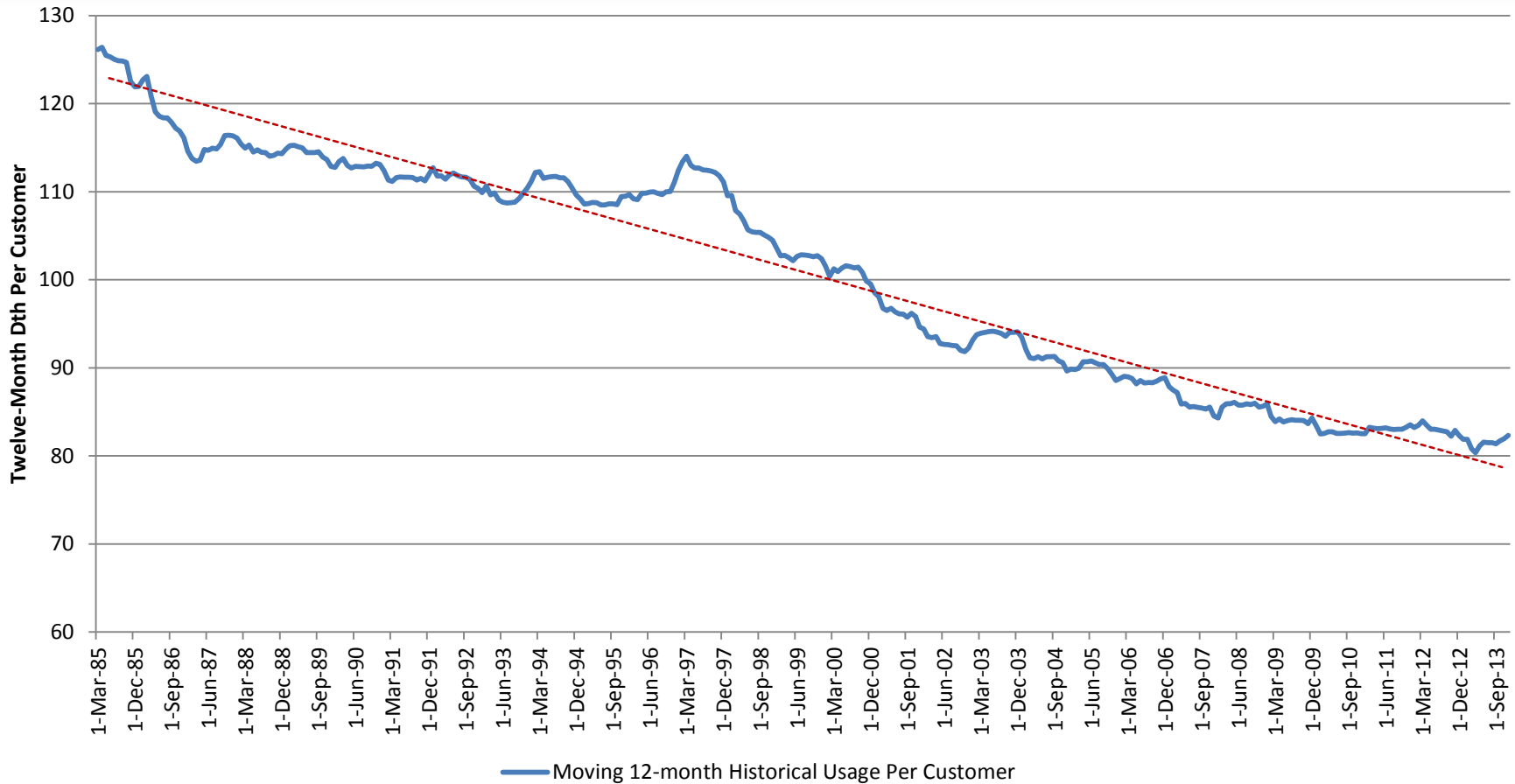
GS Forecasting Models

- Firm Sales
 - Statistical Time Series
 - Dynamic Regression
 - End-use Modeling

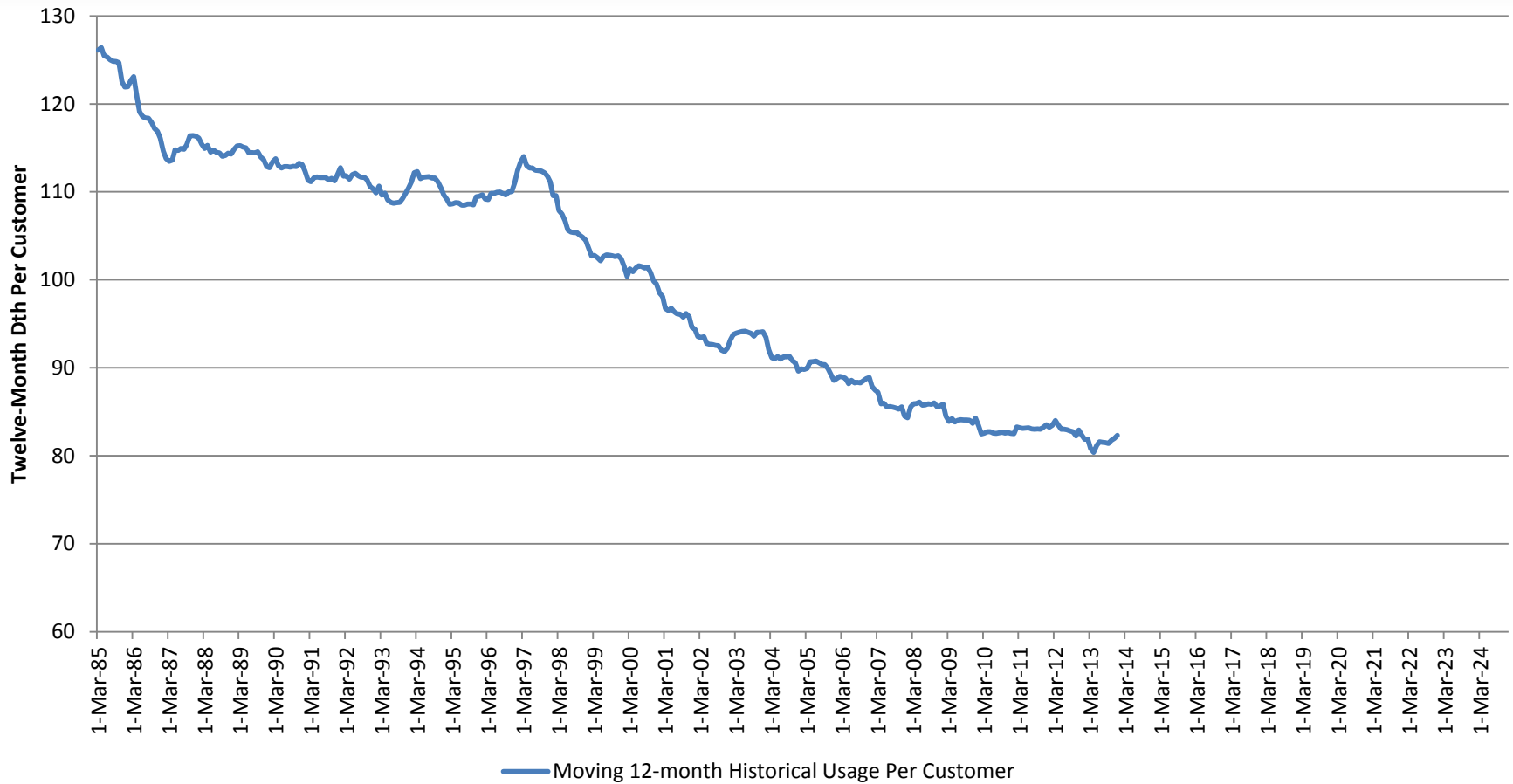
Residential Demand (weather-normalized)



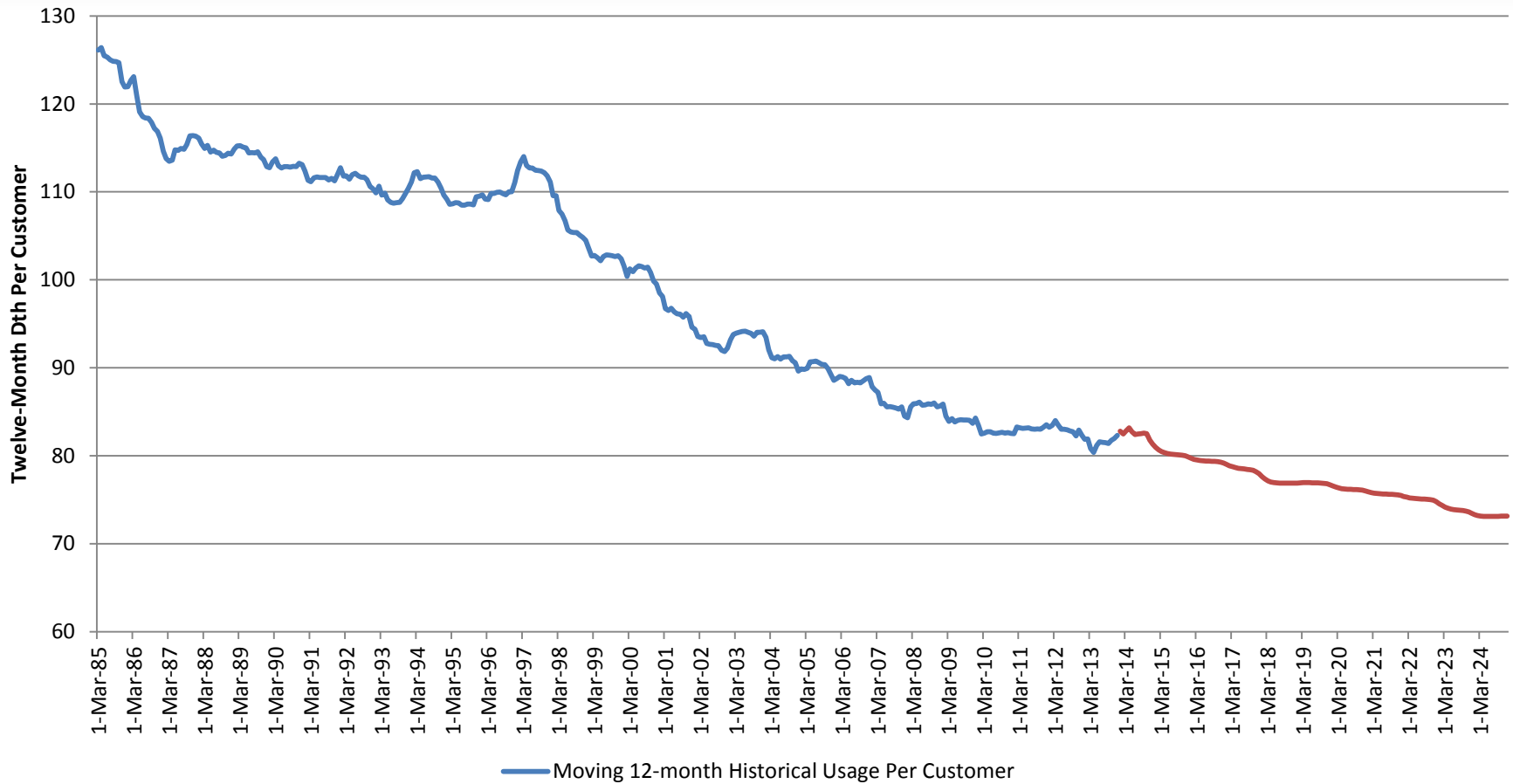
Usage per Residential Customer (weather-normalized)



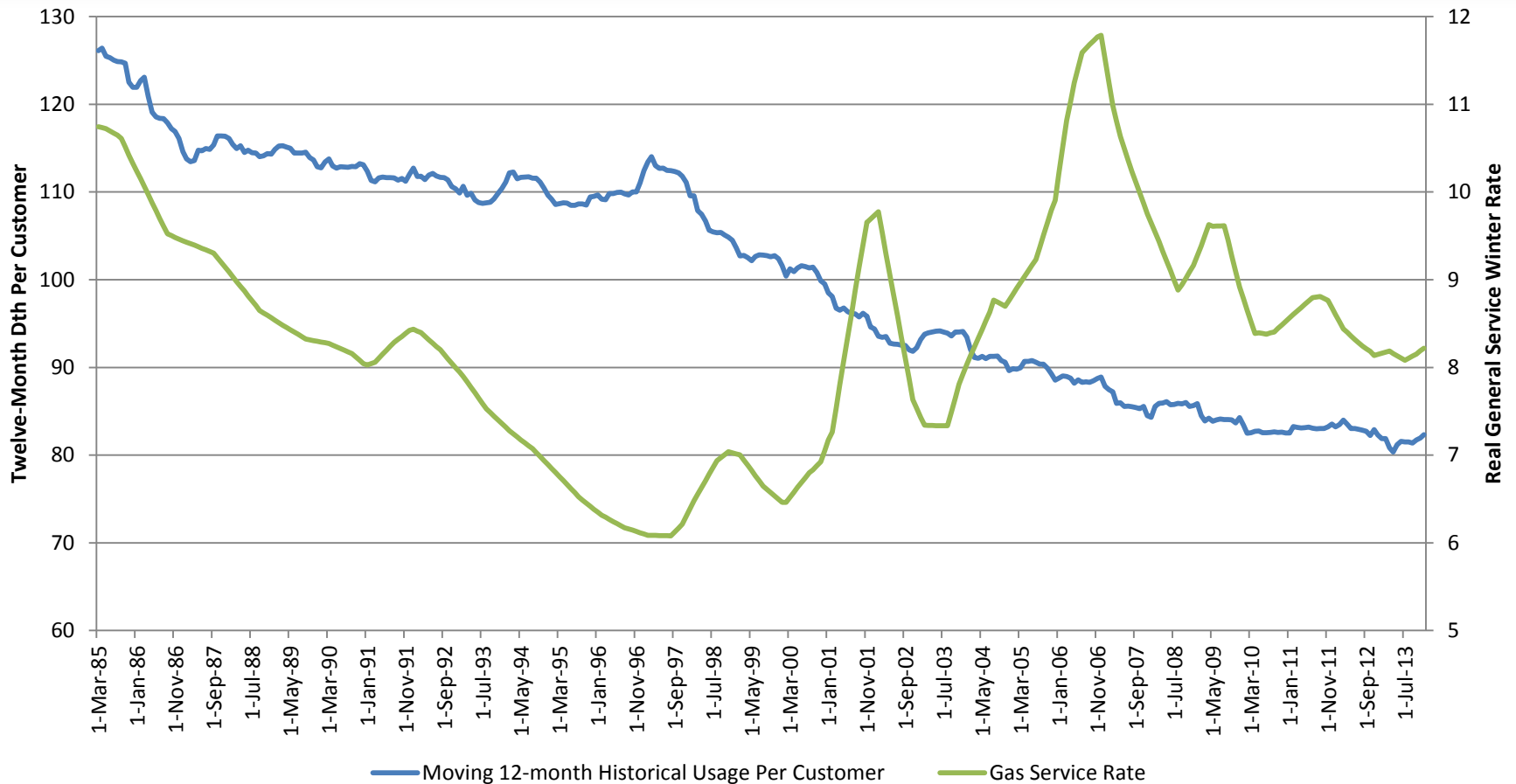
Statistical Time Series



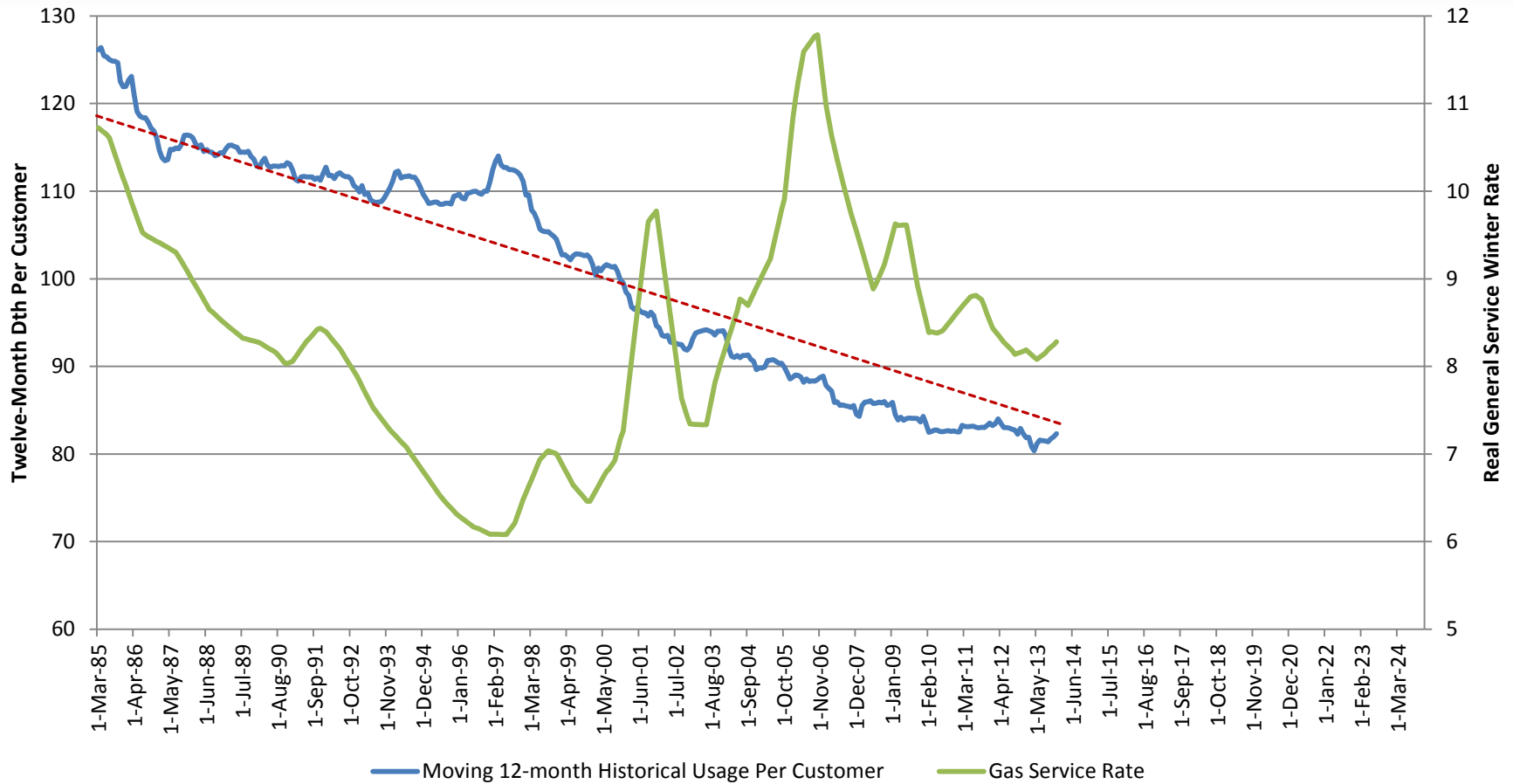
Statistical Time Series



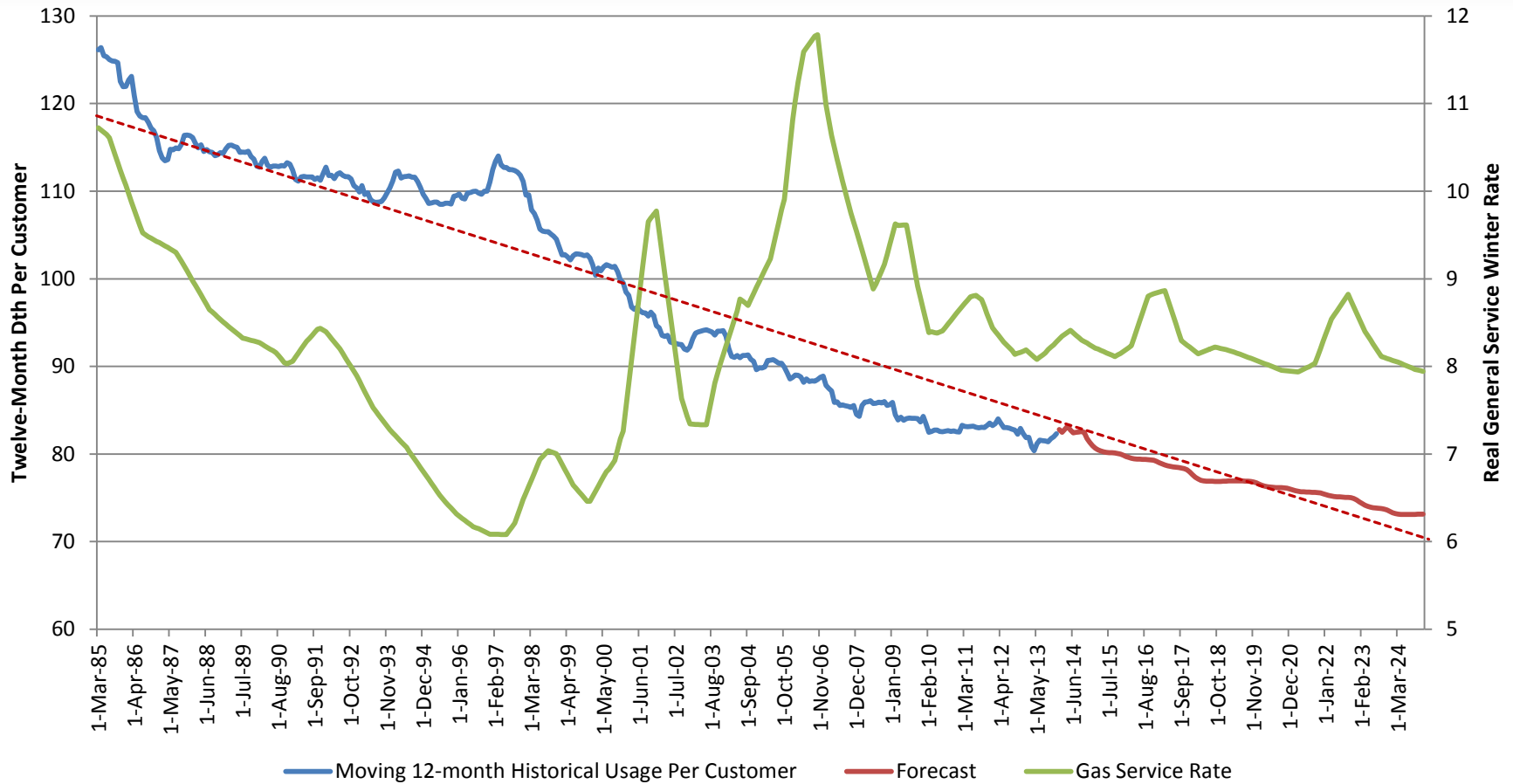
Dynamic Regression



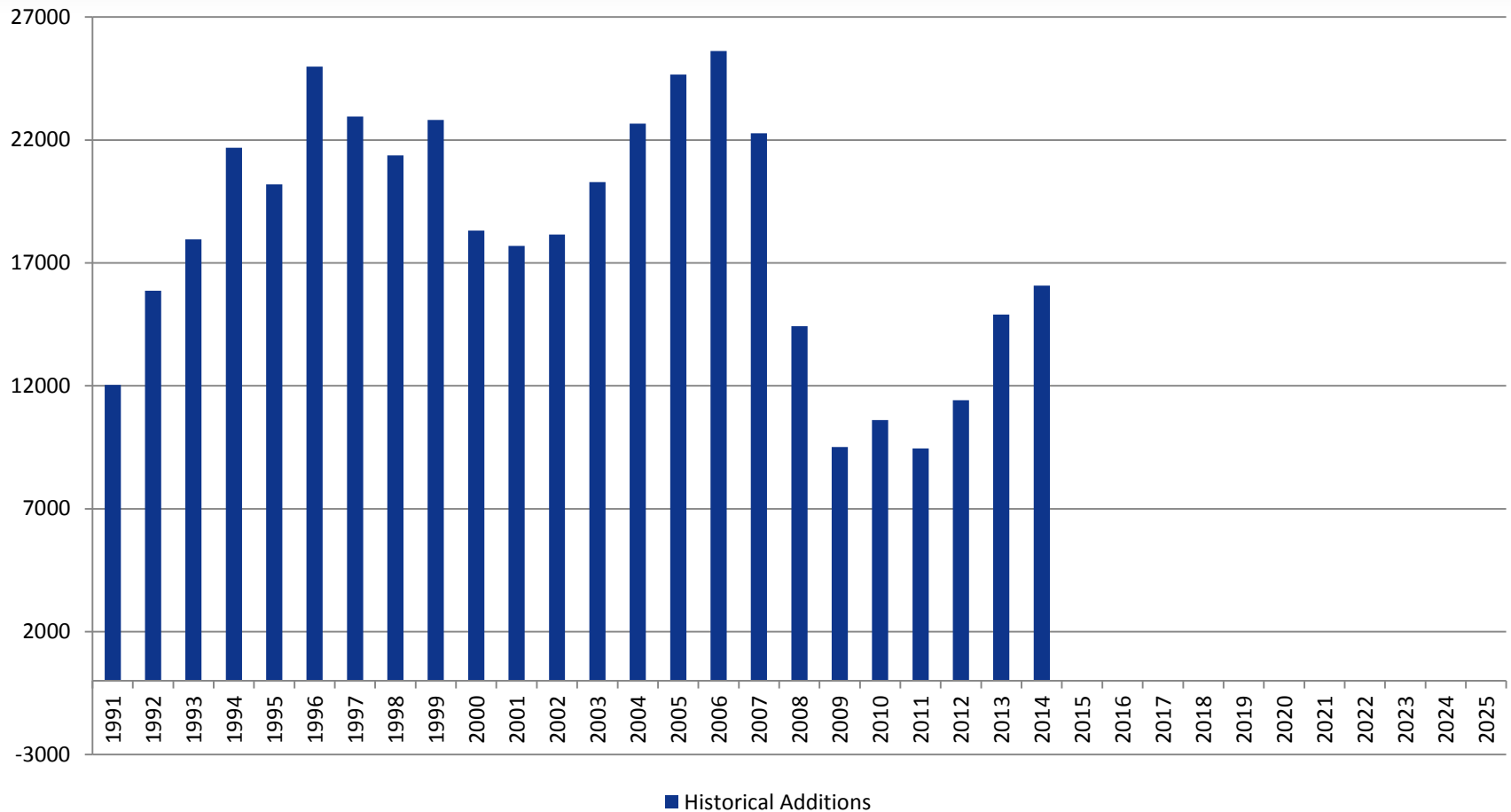
Dynamic Regression



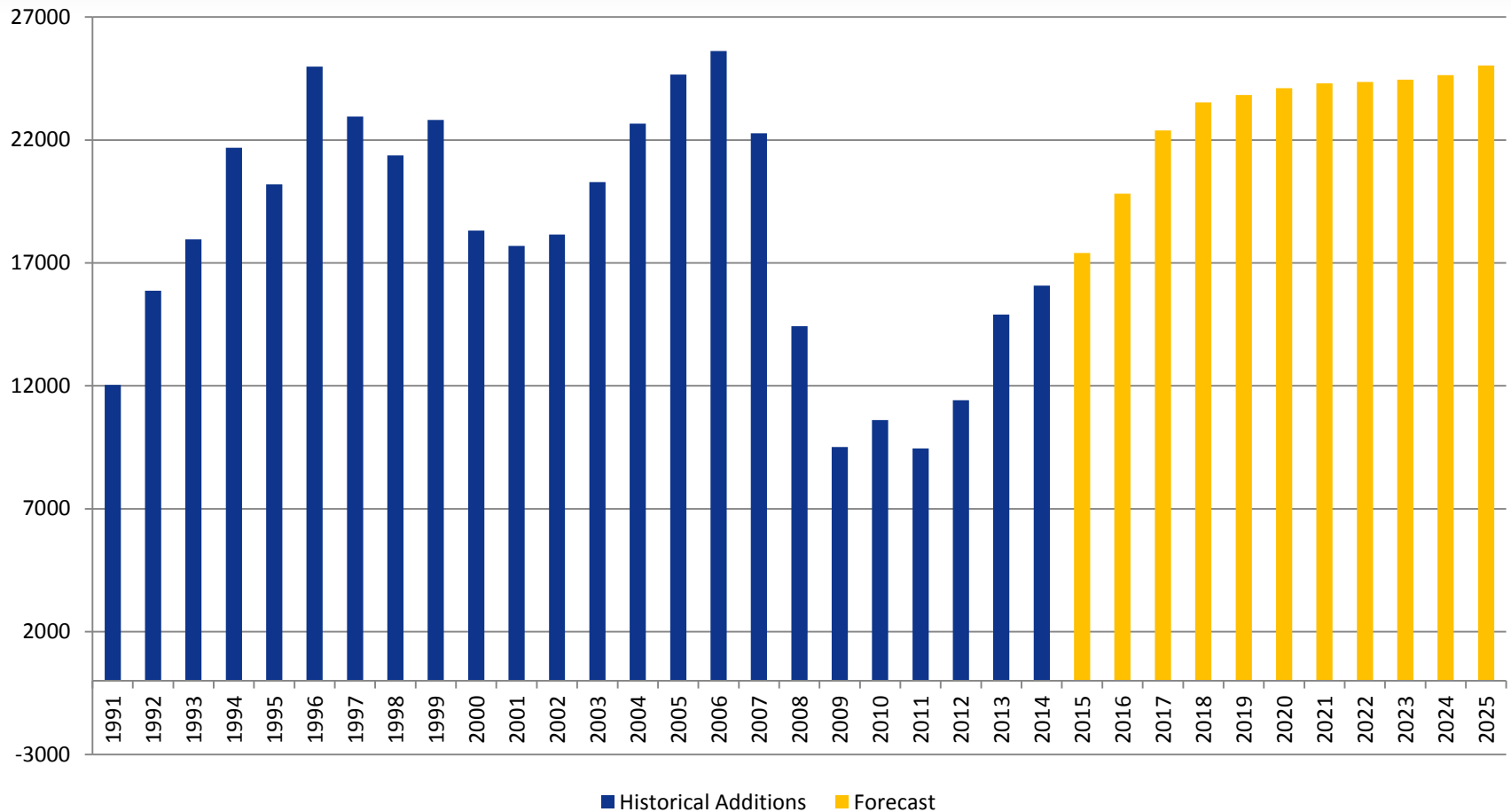
Dynamic Regression



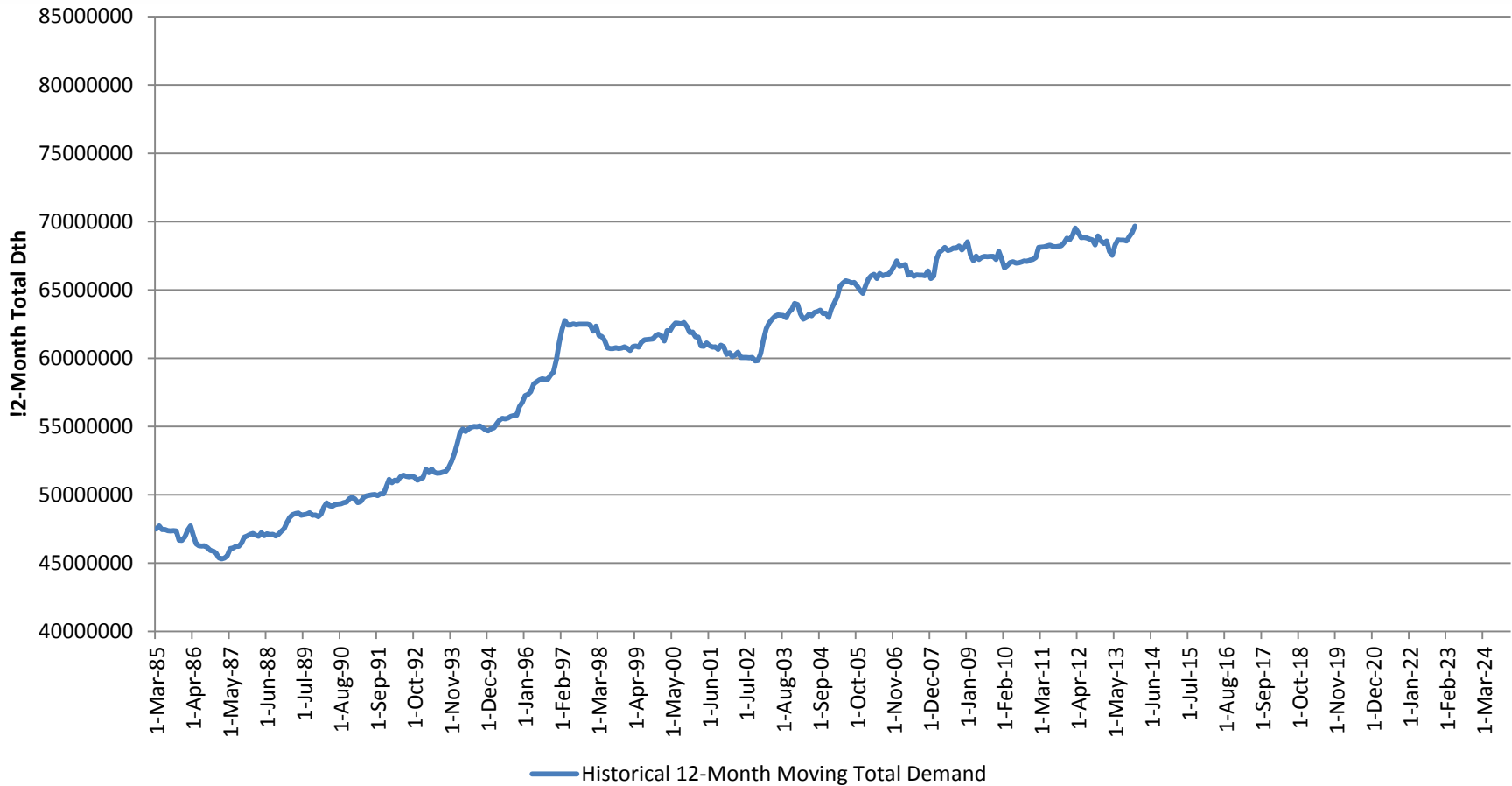
Customer Growth



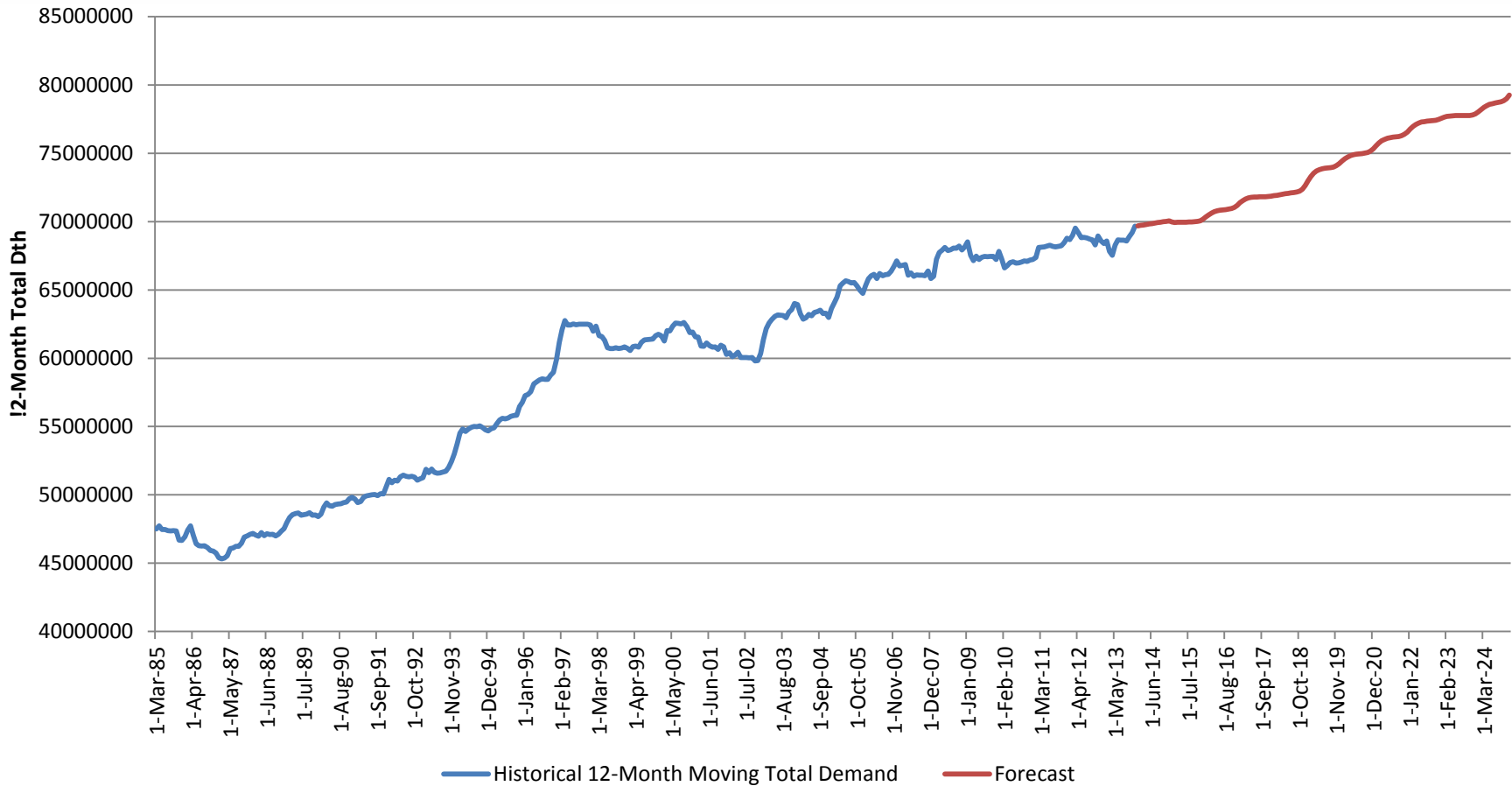
Customer Growth



Residential Demand (weather-normalized)



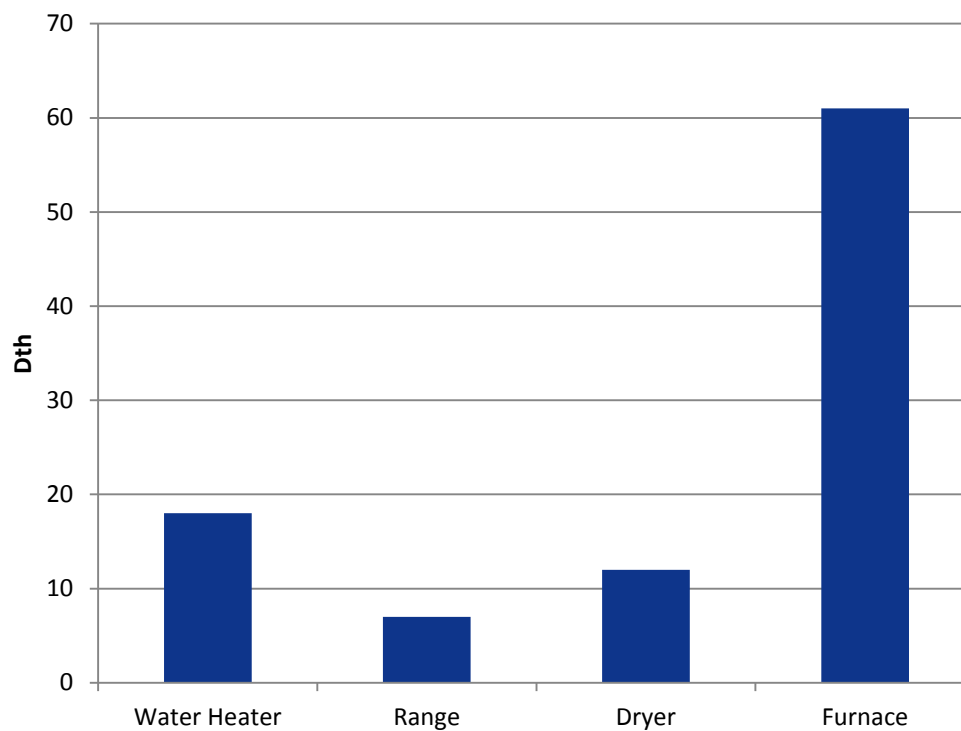
Residential Demand (weather-normalized)



End-use



Annual Consumption



QUESTAR

End-use

- Distributes end-use segments by appliance efficiency
- Distributes housing by size and shell quality (year built, insulation grade)



Calculation of 65%

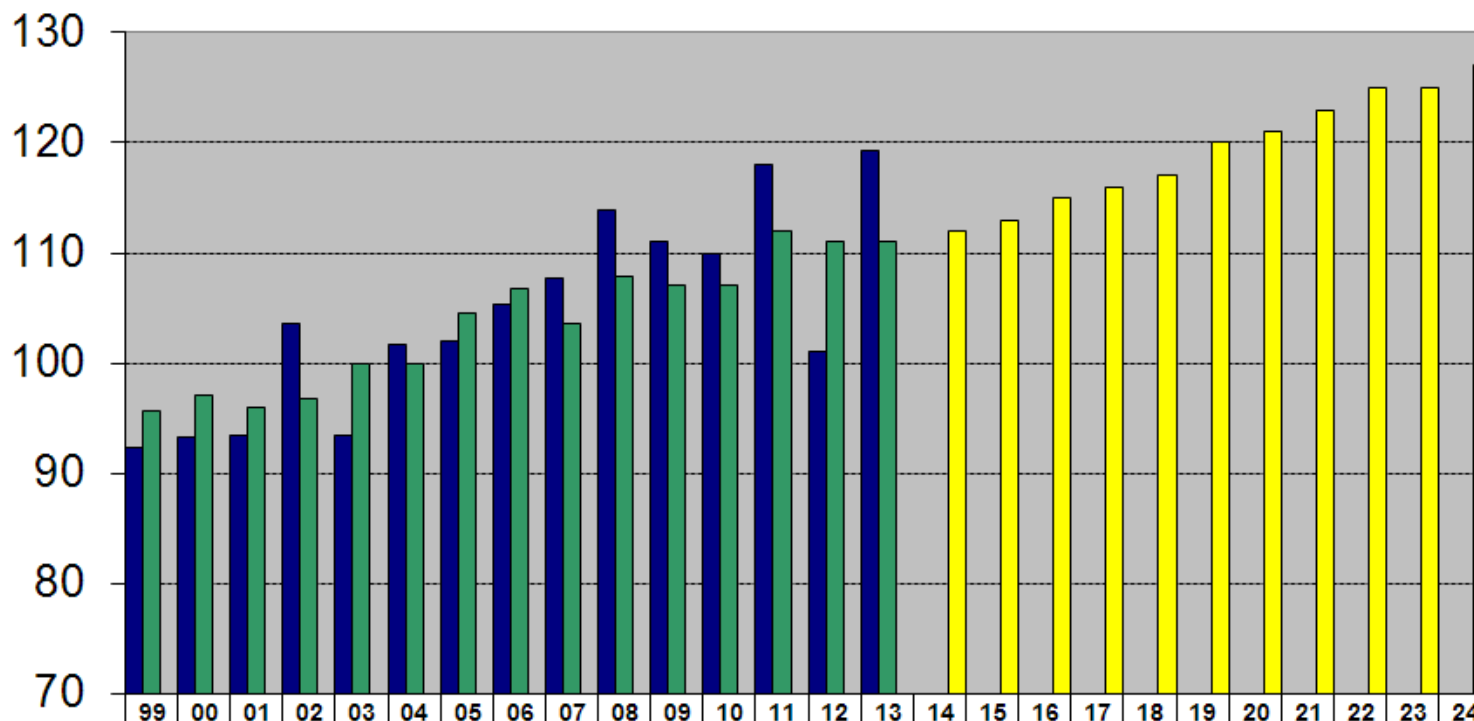
IRP Forecast Demand

IRP forecast demand is shown in section 3 and exhibits 3.10 and 3.11 of the IRP

2014 IRP Exhibit 3.10

SYSTEM DTH SALES

Dth (Millions)

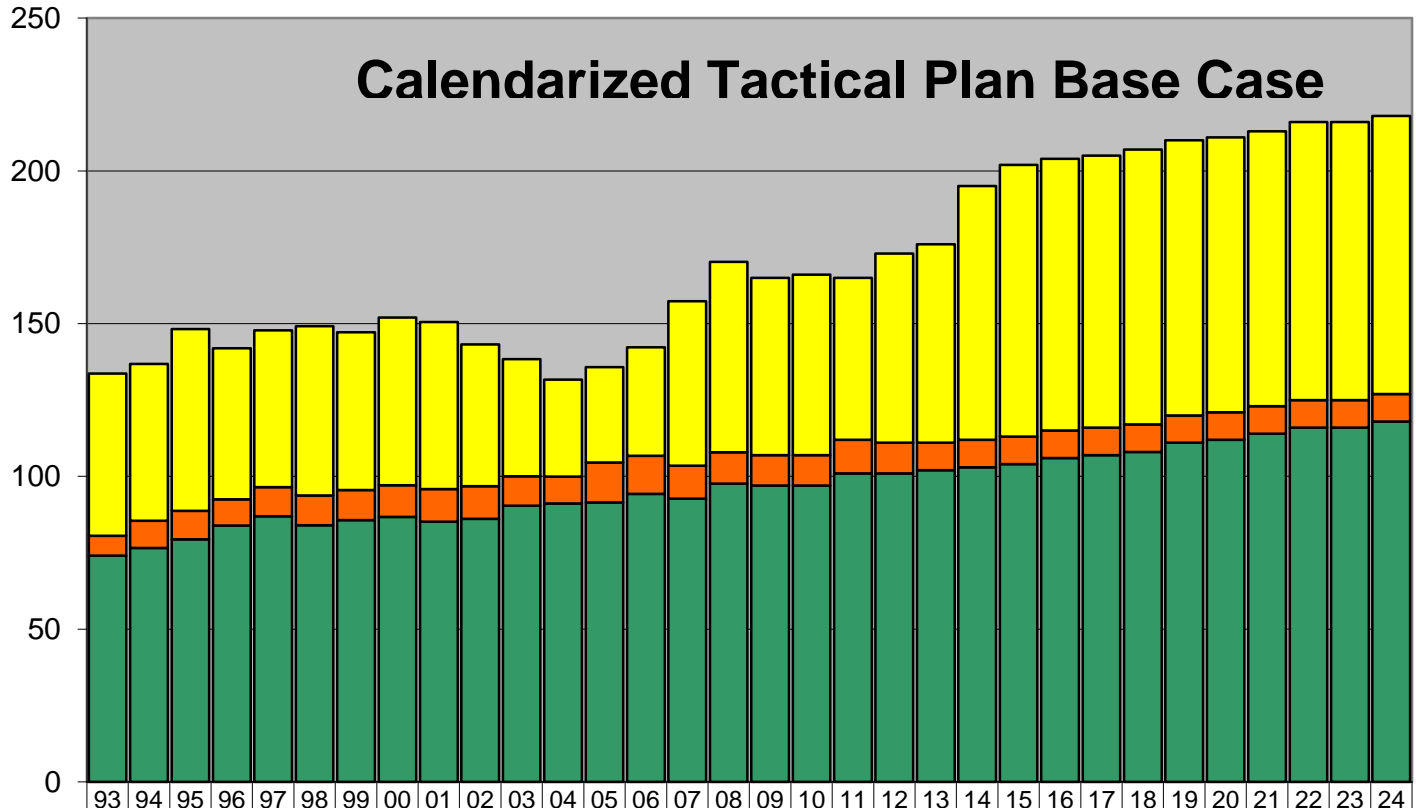


■ ACTUAL	92	93	93	104	93	102	102	105	108	114	111	110	118	101	119													
■ TEMP ADJUSTED	96	97	96	97	100	100	105	107	104	108	107	107	112	111	111													
■ FORECAST																112	113	115	116	117	120	121	123	125	125	127		

2014 IRP Exhibit 3.11

TEMP ADJUSTED THROUGHPUT

DTH (MILLIONS)



Exhibit

Calculation of 65%

Actual Company Production

IRP Forecast Demand

IRP Demand is shown in exhibits 3.10 and 3.11 of the IRP

Total QGC Gas Supply

REDACTED

Production Supply Chain

