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Forecasting the Nursing Workforce in California

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Goals of this project

- **Forecast the supply of nurses**
- **Forecast the demand for nurses**
- **Compare the supply to projected demand**

- **Based on the projected shortage/surplus, we can...**
 - Understand the short-term and long-term needs for nurses in California
 - Identify strategies to address future shortages

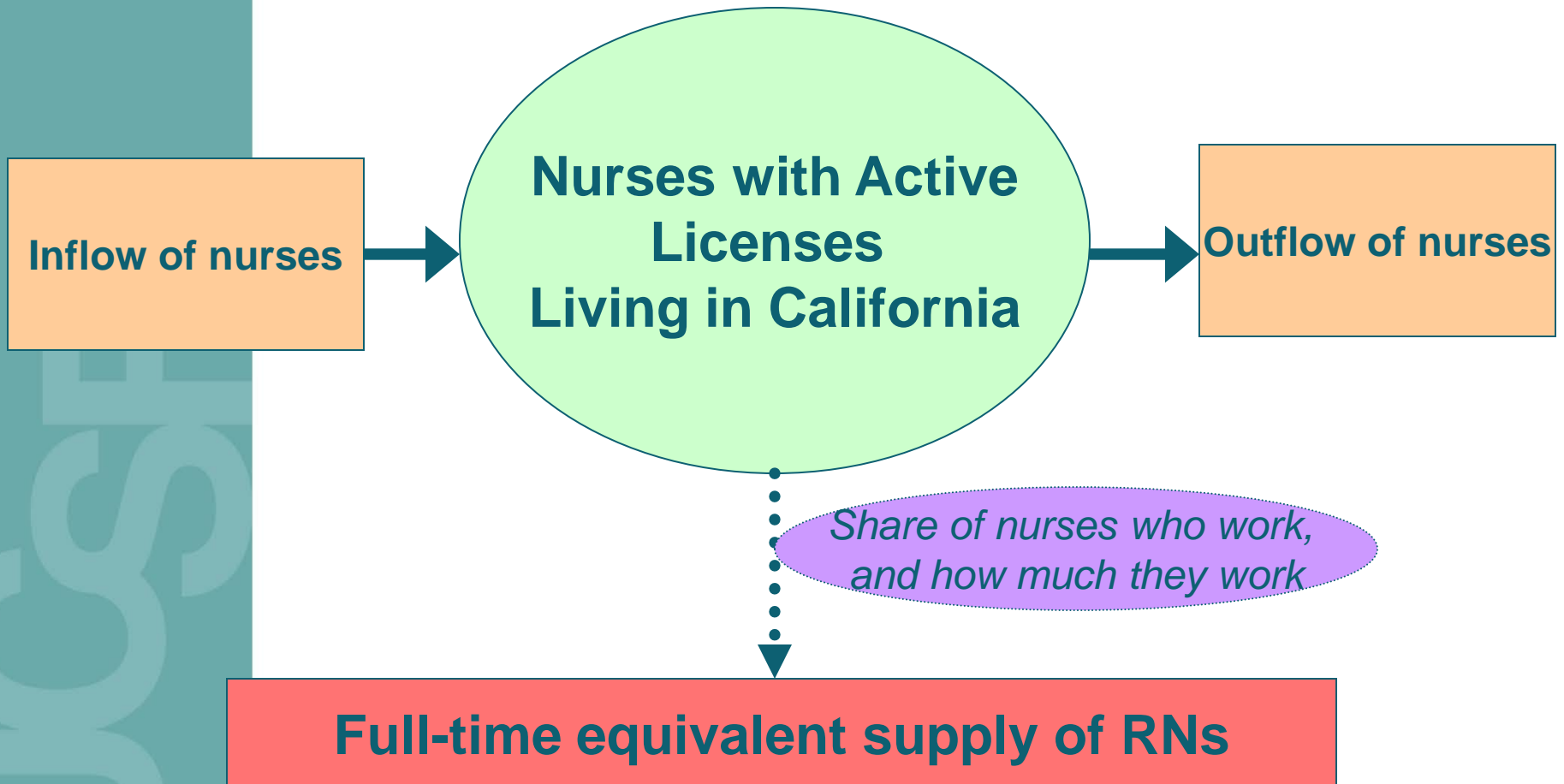
Changes to the model

- **New data**
 - Numbers of RNs
 - Employment patterns (2012 survey)
 - Graduations (2011-2012 Annual Schools Report)
 - Endorsement, inactive transitions, lapsed license data 2011-2012
- **More reliance on BRN data**
 - State-to-state migration data from 2008 NSSRN is too old
- **Adding “high” and “low” estimates for employment rates**
 - High = highest rate for each age group in 2008, 2010, or 2012
 - Low = lowest rate for each age group in 2008, 2010, or 2012

Basic structure of the model

- **Supply: Stock-and-flow model**
- **Demand: Focus on RNs per capita, compared with national benchmarks**

A model of the supply of RNs



Nurses with active licenses

- **Number of nurses with active licenses and California addresses in 2013 provided by BRN**
- **5-year age groups provided by BRN**

Inflows of RNs

- **Graduations from California nursing programs**
- **Immigration from other countries**
- **Migration from other states**
- **Transition from inactive license**
- **Transition from lapsed license**

Outflows of nurses

- **Migration to other states**
- **Transition to inactive or lapsed license**

How do the numbers compare with the 2011 forecasts?

- Graduations are expected to drop in 2015-2016
- Fewer graduates projected than in the 2011 forecast

	New enrollment	Projected enrollment from 1 yr	Projected enrollment from 2 yrs	Graduations
2010-2011	14,228	13,141	14,835	10,666
2011-2012	13,691	13,895	13,340	10,814
2012-2013		12,948	13,867	11,009
2013-2014			12,601	11,176
2014-2015				11,617
2015-2016				10,557

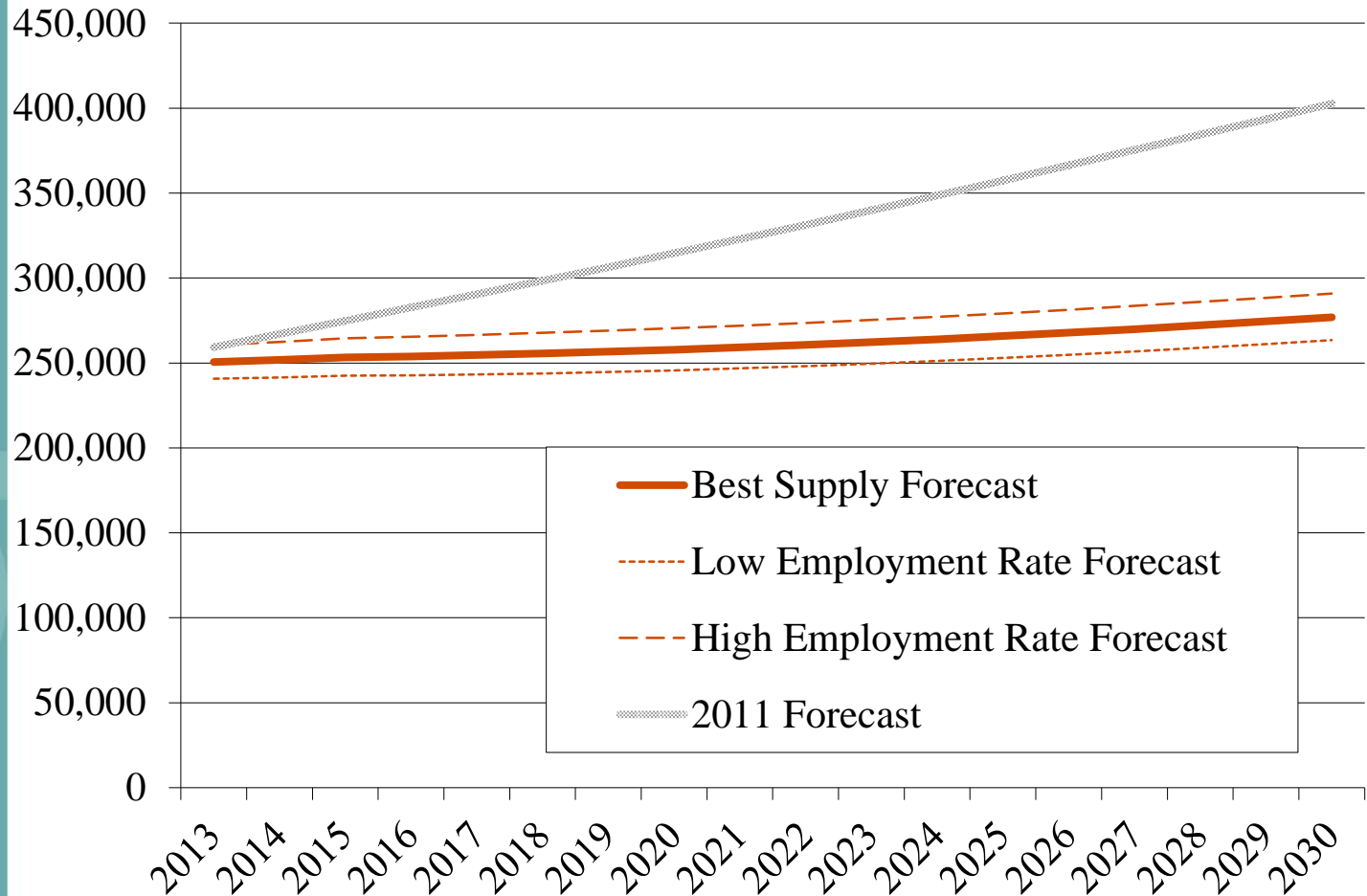
How do the numbers compare with the 2011 forecasts?

- **Declines in licenses to new grads from other states & foreign-educated RNs**
 - 25% drop for out-of-state
 - 46% drop for foreign-educated
- **Fewer RNs moving to California from other states**
 - Big revision downward in estimates has significant effect on forecasts
- **Lowered forecast of RNs moving out of California as compared with 2011**
 - Weighting the 2008 NSSRN less
- **Employment rates are lower among younger RNs, higher among older RNs**

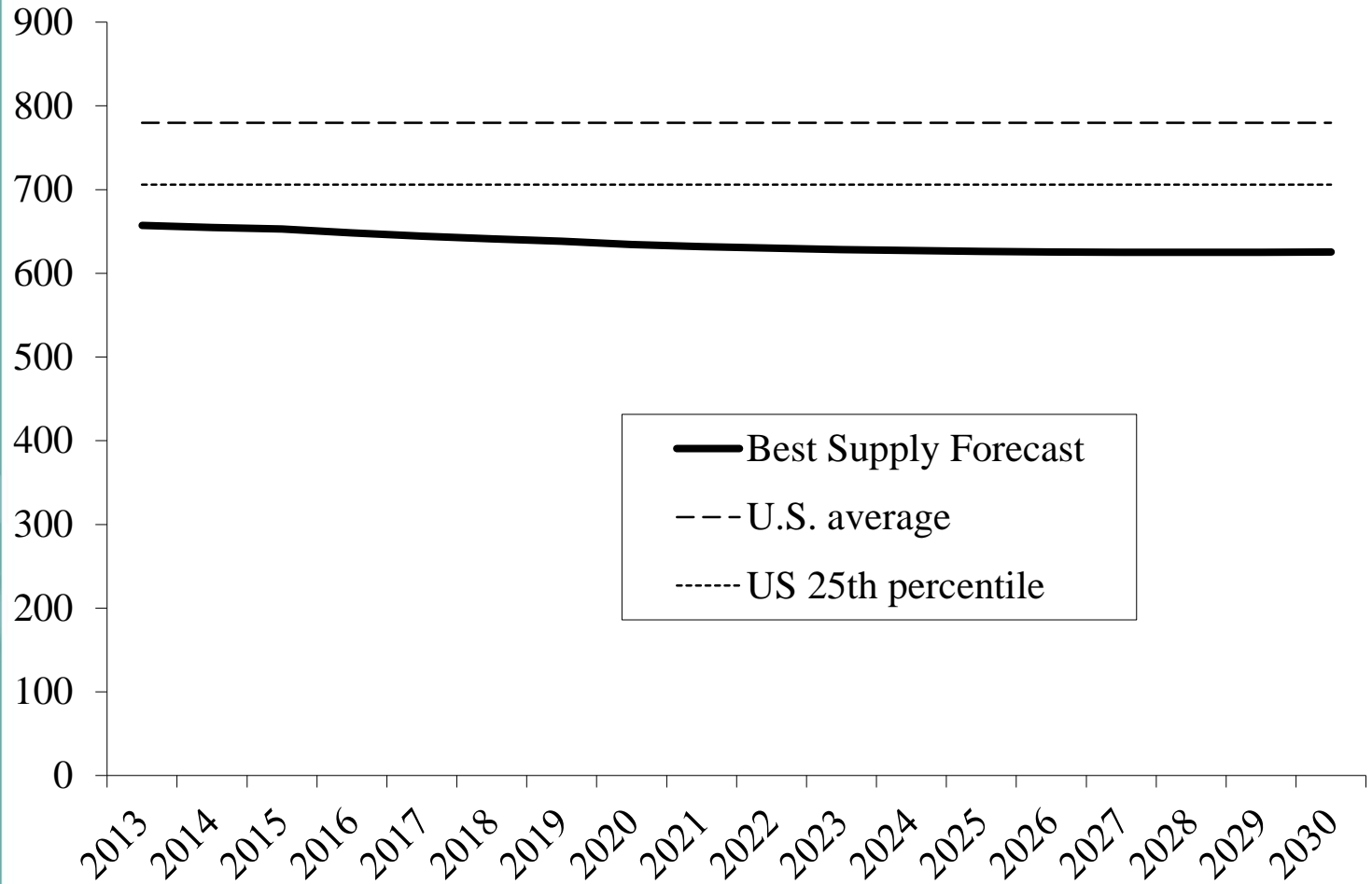
How does the supply forecast work?

- **The supply of actively licensed RNs next year for an age group will equal....**
 - 4/5 of the nurses in the age group (1/5 will “age up” to the next group)
 - 1/5 of the nurses from the younger age group
 - Inflow of nurses in the age group
 - Outflow of nurses in the age group
- **Multiply the number of actively licensed RNs by the labor-force participation data to get**
Full-Time Equivalent Supply

The range of supply forecasts (RN FTEs)



Forecast of Full-time Equivalent RNs per 100,000 population



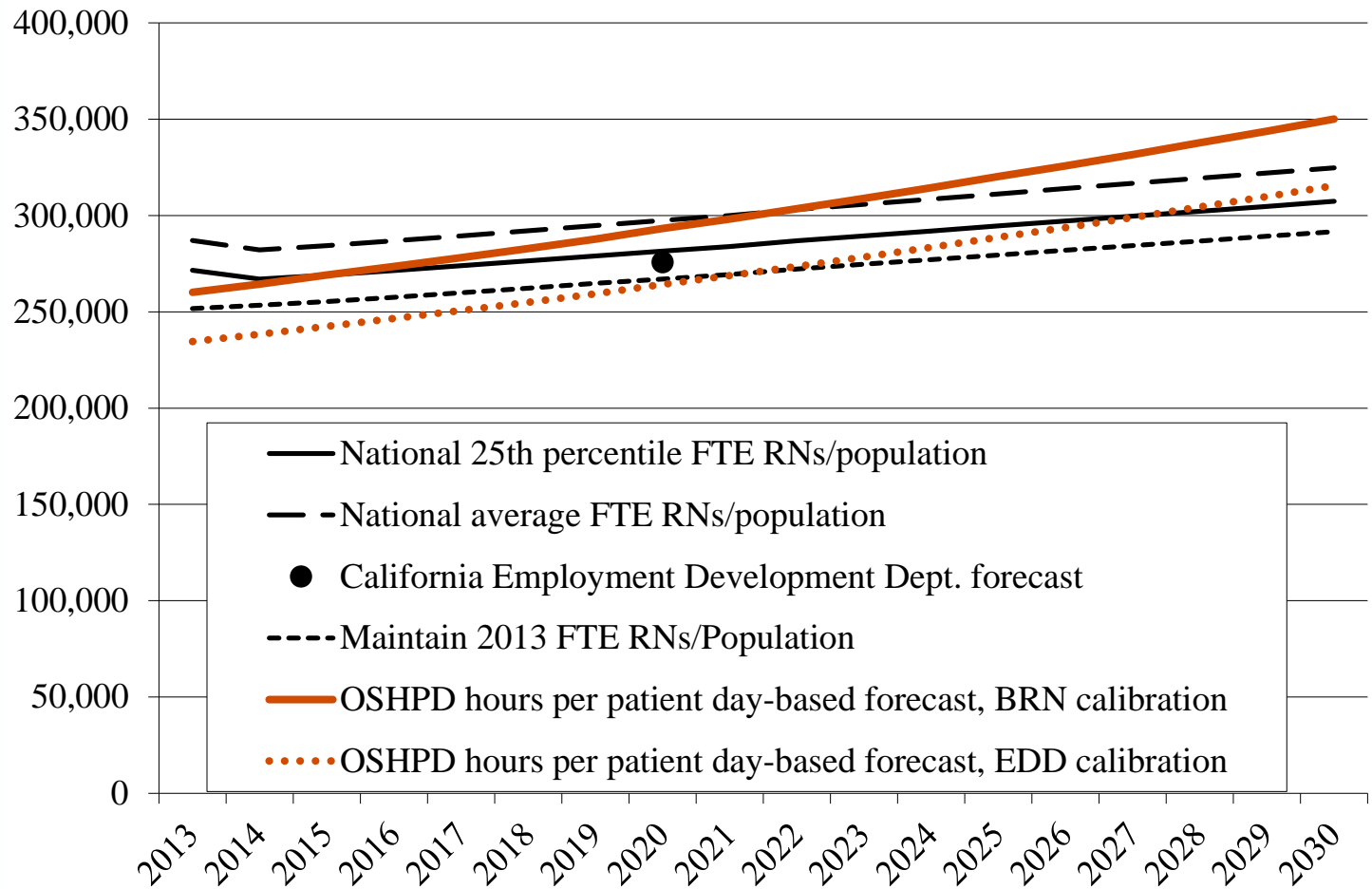
How do we compare to other states?

Working RNs per 100,000 (2013 estimate for CA; 2008 for other states)	
Utah	598
Nevada	618
<i>California</i>	<i>657</i>
Texas	671
Georgia	705
Virginia	708

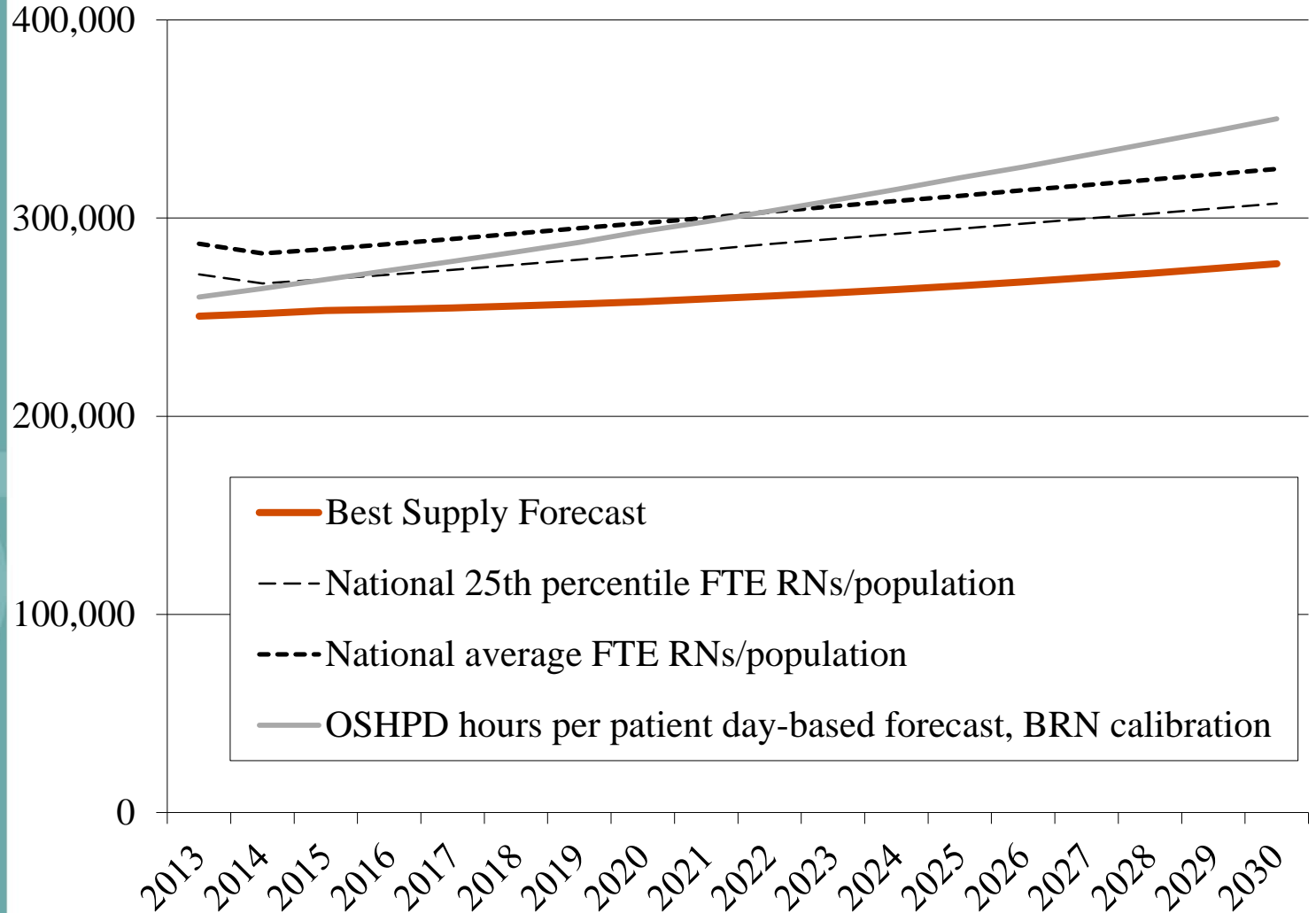
What is demand?

- **National benchmarks: Employed RNs per 100,000**
 - California was ranked 48th in 2008, 589 per 100,000
 - 25th percentile: 799.5 per 100,000
 - National average: 854 per 100,000
 - 50th percentile: 890 per 100,000
 - **These were adjusted to FTEs for the supply-demand comparison**
- **Bureau of Labor Statistics, forecast of 2020 demand**
 - 275,782 FTEs (was 236,400 FTEs for 2018)
- **RNs per patient day, 2011-2012 fiscal year**
 - Estimate growth in patient days based on population growth
 - Predict hospital RN demand from patient days forecast
 - Estimate overall demand as function of hospital demand

Forecasts of RN demand



Best supply and demand forecasts for RNs, 2013-2030



Implications for policy

- **How do we define shortage?**
 - Are current employment levels adequate?
 - Should California be at the national average? 25th percentile? Bottom?
 - Economic demand vs. need-based demand
- **In this economy...**
 - Demand is starting to ramp up again
- **What do we need to do?**
 - Stop the expected declines in RN school sizes
 - Consider growing our RN programs a bit more