MN Prison Population

**Department of Corrections (DOC)
Prison Population and Forecast Overview**

June 2015

Historical Overview of MN Prison Population

❖ **Historically, MN has long had a low imprisonment rate compared to other 49 states**

  ❖ Reserve prison beds for most serious offenders
  ❖ More likely to use community sanctions than other states

❖ **Since late 1970s, MN has had anywhere from the lowest to the 4th lowest imprisonment rate**

❖ **In the year 2000, MN had the lowest imprisonment rate**

❖ **Since 2000, MN has had either the 2nd or 3rd lowest imprisonment rate**

Growth in MN Imprisonment Rate

❖ **Imprisonment rate has doubled in size over last 20 years**
  - ❖ 1993 rate = 92
  - ❖ 2013 rate = 189

❖ **This type of growth is not unique to MN**
  - ❖ Still, only 4 states had greater growth from 1993-2013
    - ❖ Wisconsin
    - ❖ Oregon
    - ❖ North Dakota
    - ❖ West Virginia
  - ❖ U.S. state prison population grew by 26 percent

❖ **Much of the more recent growth in MN's imprisonment rate began in the early 2000s**

Recent Trends in MN Prison Population

❖ **Large growth in prison population during first half of 2000s**
  - Due mainly to meth boom and creation of felony DWI law in 2002

❖ **Growth tapered off beginning in FY 2007**
  - Meth boom subsided and DWI admissions began to plateau

❖ **STO law repeal in July 2009 created short-term bump**
  - If not for repeal, very minimal growth from 2008-2012 for offenders in state correctional facilities
  - Even so, only averaged increase of 40 offenders/year for this period

❖ **Sharp rise in male offender population in 2013**
  - Male population grew by 319 during CY 2013 (biggest one-year growth since increase of 411 offenders during CY 2005)
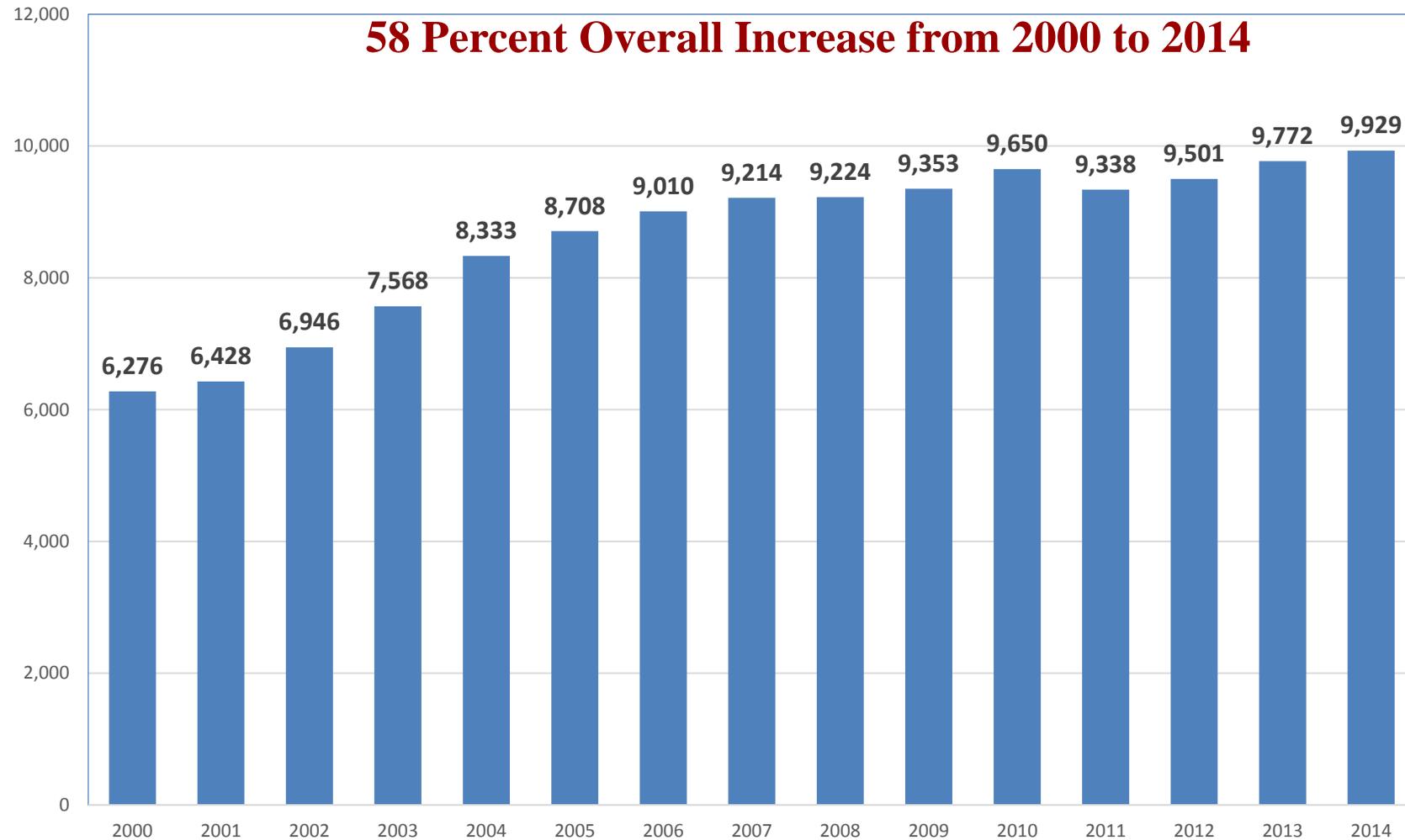
Prison Population Forecast

Every year, DOC collaborates with the Minnesota Sentencing Guidelines Commission (MSGC) to produce a forecast of MN's prison population:

- ❖ **Goal: Project the prison population as accurately as possible**
  - • **Used for both budgetary and operational purposes**

- ❖ **Projections attempt to predict the size of the prison population at the beginning of each month**

- ❖ **Each projection has a 10-year horizon**

- ❖ **Separate projections are developed for the male and female offender populations**

Forecast Model

DOC uses a micro-simulation model, the Structured Sentencing Simulation (SSS), to project prison population

- ❖ **Custom-made for Minnesota's system by Dr. Ron Anderson, Professor Emeritus, University of Minnesota**

- ❖ **SSS is a deterministic model that uses individual-level data to mimic flow of offenders through prison system**

- ❖ **DOC validated accuracy of SSS in 2006 and 2007**
  - **Developed twin forecasts with SSS and a model (Prophet) the National Council on Crime and Delinquency (NCCD) used for projections in more than 20 states**
  - **Prophet is a probabilistic model that relies on aggregate-level data**
  - **SSS produced much more accurate forecasts in both years**

Forecast Methodology

❖ **SSS uses "stock population" (i.e., one-day snapshot) and prison admission data to simulate flow of offenders through prison system**

❖ **Forecasts are based on <u>current</u> laws, trends, and practices**

❖ **Forecast also incorporates several key assumptions:**

- **Anticipated impact of any new law changes**
- **Participation in early release programs (e.g., Work Release and Challenge Incarceration Program)**
- **Future prison admissions**

Future Admissions Assumptions

❖ **DOC and MSGC staff analyze historical trends in prison admissions data to develop assumptions about future admissions**

- MSGC staff also share knowledge about statewide trends in felony sentences

❖ **Different assumptions are developed for three main admission types due to varying lengths of stay (LOS)**

- New court commitments (Average LOS = 36 months)
- Probation violators (Average LOS = 10 months)
- Release violators (Average LOS = 5 months)

Finalizing Projections

❖ **Adjust for seasonality in prison admissions**

❖ **Develop several rounds of projections to test assumptions used**

   • Monitor accuracy during first three months of fiscal year
   • Compare projections with short- and long-term historical trends in prison population

❖ **DOC and MSGC staff determine final projections**

Forecast Accuracy in Context

❖ **Error Rate: Difference between actual prison population and projections on the first of each month (expressed as a percentage)**

❖ **Error Rate of 2% is the standard**
- JFA Associates: acceptable accuracy difference is 2% or less
- State of Oregon: forecast performance target is 2% or less
- 1996 GAO Report: forecasting models "are generally considered reliable if the projections come within 2 percent of the actual populations"

❖ **Accuracy decreases as time horizon increases**
- A one-year projection of the prison population will tend to be more accurate than a longer-term projection (e.g., two years, five years, ten years)

Examples of Forecast Accuracy

Sample of Forecast Error Rates Reported in Other Correctional Systems

❖ **First-Year Error Rates**
- JFA Associates (State of Nevada): 2009 forecast off by 0.7% (95 offenders) during first 9 months
- Virginia: 2003 forecast off by 1.3% (475 offenders)
- Federal Bureau of Prisons: 1991-1994 forecasts off by 1.4%
- NCCD: Average error rate of 2% for projections it did in more than 20 states during 1990s
- Colorado: Error rate greater than 2% for 6 of 8 years during 2001-2008 period
- Connecticut: Off by more than 2% in 2012 and 2013 forecasts

❖ **Second- and Third-Year Error Rates**
- Virginia = forecast off by 3.3% (1,195 offenders) after 2 years and 4.7% (1,672 offenders) after 3 years
- West Virginia = 2007 forecast off by more than 10% (more than 600 offenders) after 2 years and by more than 20% (more than 1,000 offenders) after 3 years

First Year Forecast Model Accuracy

Accuracy of Projections Have Increased Over Time
♦Average Monthly Error Rate from FY 2001-2006 = 1.93%
♦Average Monthly Error Rate from FY 2007-2014 = 0.71% (0.54% excluding FY 2009-10 projections)
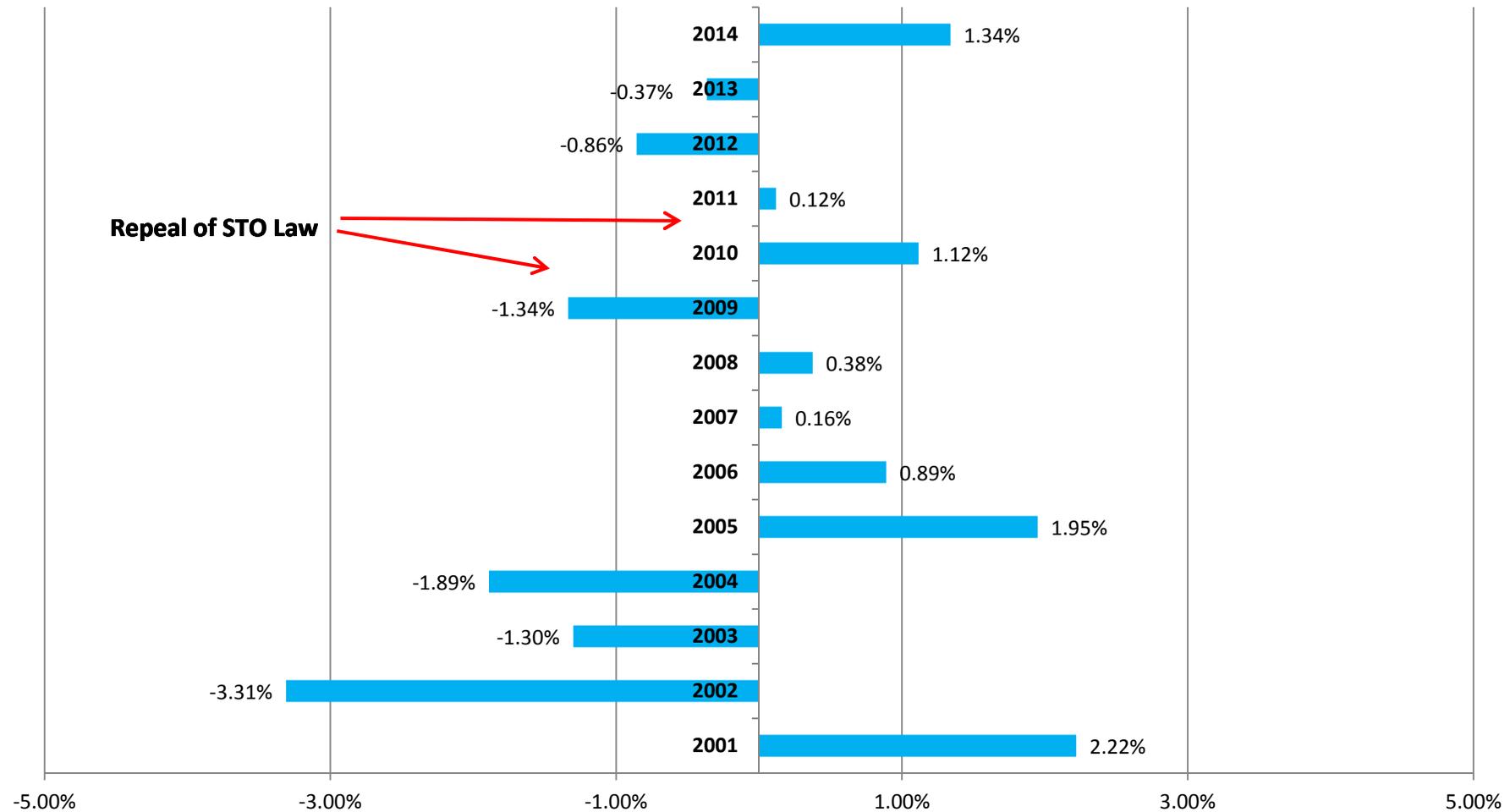
Why the Increase in the Error Rate for FY 2014?

❖ **Underestimated growth of male prison population**
❖ **Growth in male population due mainly to increase in new court commitments**
  - 8% increase from FY 2012 to FY 2013

❖ **Why the increase in new court commitments was not anticipated**
  - Growth in new commits began after FY 2013 forecast had been prepared
  - 8% increase in FY 2013 followed relatively lengthy period of no growth (FY 2008-2012)
    - ✓ Five consecutive years (FY 2008-2012) where new commitment admissions hovered between 2,615 and 2,658
    - ✓ Projections assumed lack of growth would continue in FY 2013

Male Admissions FY 2008 - 2014

Male Admissions, FY 2008-2014
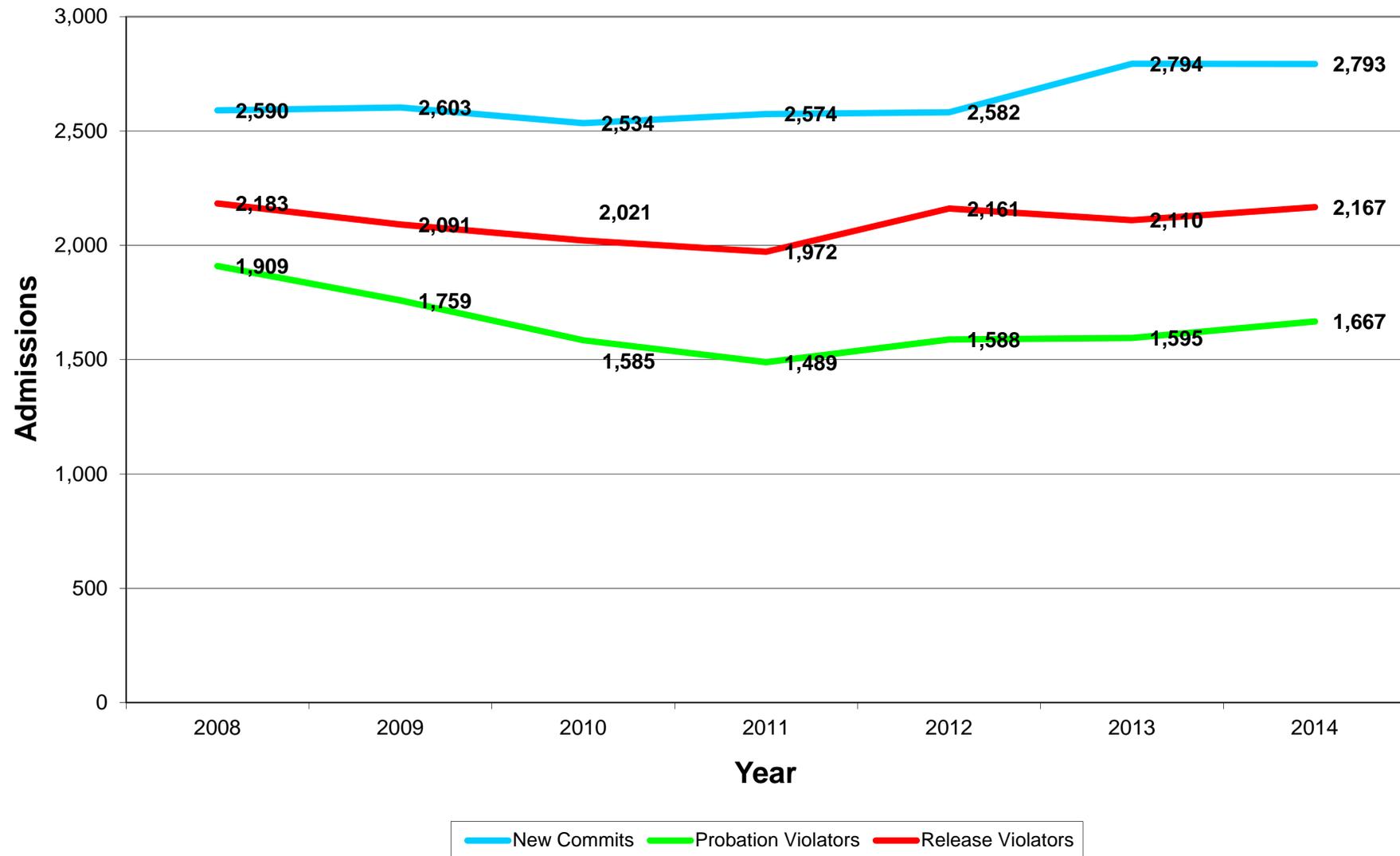
A Closer Look at the Increase in New Commits

❖ **Increase was not confined to one specific type of offense**

- Increase of 23% for meth, 15% for DWI, 10% for person, 9% for property, 7% for "other" and 5% for criminal sexual conduct (8% decrease for non-meth drug offenses)

❖ **Not necessarily limited to a particular area of state**

- Seven-county Twin Cities Metro Area: 7.3% increase
- Greater Minnesota: 8.5%

❖ **Top five counties with largest numerical increase**

- Ramsey: 97 ("other" offenses: +61)
  - ✓ Most of increase due to weapons (+32) and violation of order for protection or domestic abuse no contact order (+25) offenses
- St. Louis: 28 (person offenses: +13)
- Otter Tail: 19 (property offenses: +7)
- Scott: 16 (meth offenses: +5)
- Douglas: 14 (meth offenses: +7)

MN Prison Population: Where We May Be Going

- ❖ **Most recent forecast from FY 2015 anticipates relatively large growth over the next few years**
  - ❖ Increase of 114 during FY 2015
  - ❖ Increase of 192 during FY 2016
- ❖ **Forecast anticipates a growth of more than 1,100 offenders over next 10 years**
  - ❖ 826 for males
  - ❖ 310 for females
- ❖ **Development of capacity and population reduction strategies to accommodate forecasted growth**

Questions?