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)
Actual Prison Population (July 1 of each year)

58 Percent Overall Increase from 2000 to 2014

Source: DOC Profile Cards
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
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 current 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)
  - 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
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)

Repeal of STO Law
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

Admissions

Year

2008 2009 2010 2011 2012 2013 2014

New Commits

Probation Violators

Release Violators

Admissions
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?