CALIFORNIA DEPARTMENT OF WATER RESOURCES

2023 Draft Delivery Capability Report (DCR)

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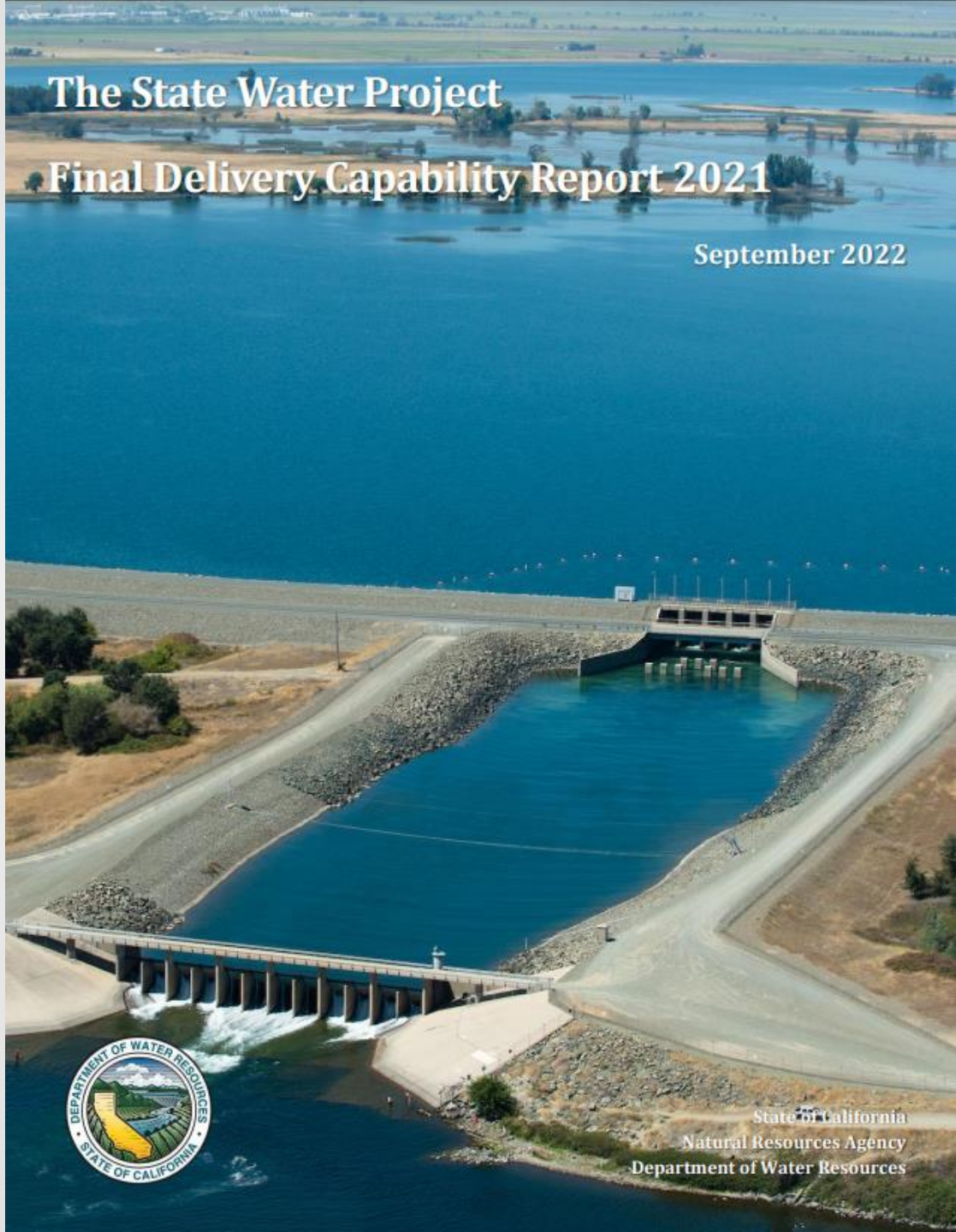
Outline

- Background
- Assumptions
  - Existing Conditions
  - Future Conditions
- Milestone timeline
- Q&A

Background

- Published every 2 years
- Provides estimates of current and future delivery capability
- Used by public water agencies for planning



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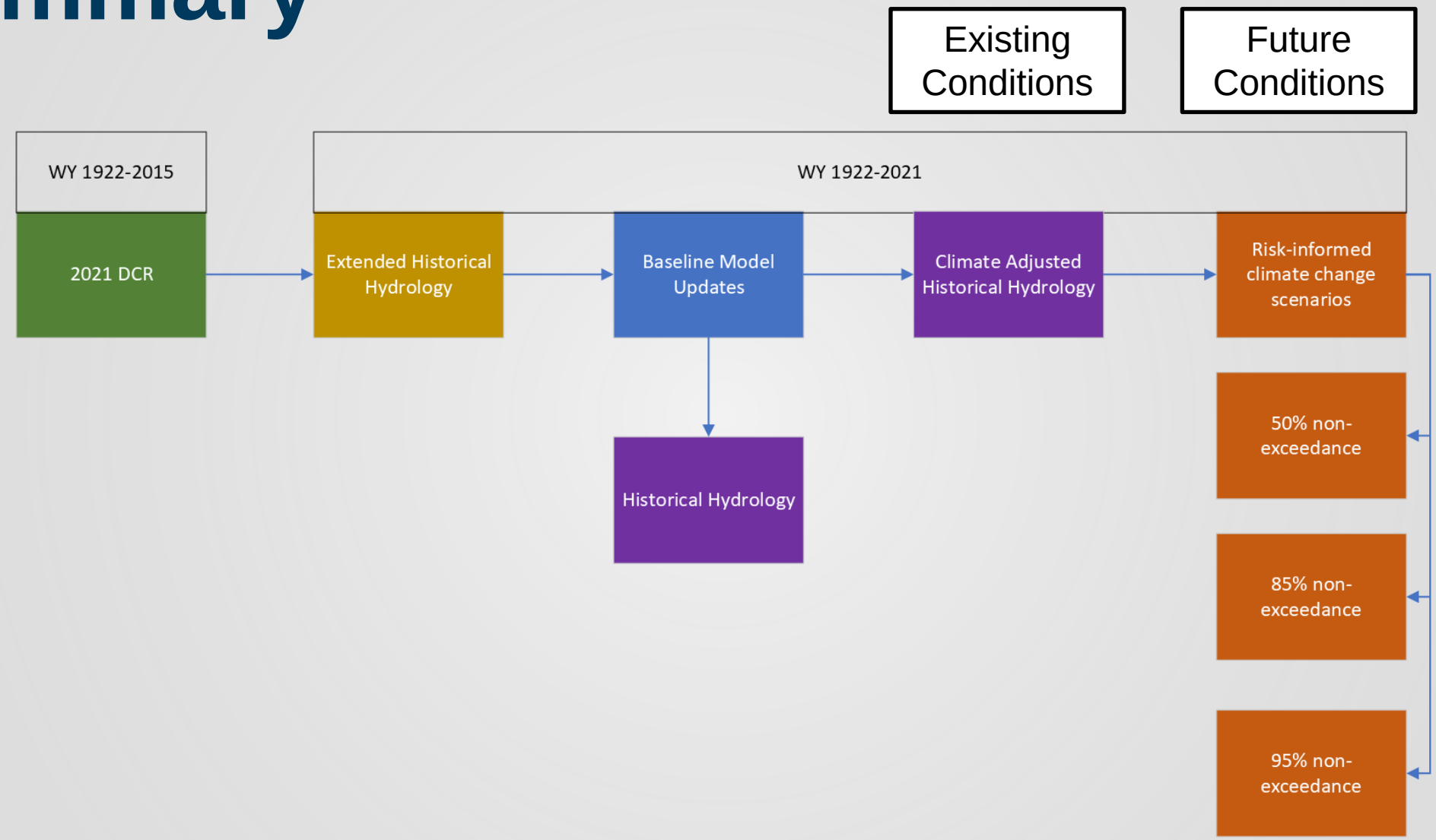
Assumptions: Existing Condition

- CalSim 3 model
- Level of development – 2020
- SWP demand – Full Table A
- Regulations – D1641, Incidental Take Permit for SWP, and ROC on LTO for SWP and CVP
- **(1) Simulation period – 100 years (Water Year 1922-2021)**
- **(2) DWR and BOR updates, model improvements**
- **(3) Hydrology – Climate Adjusted Historical Hydrology** (capture climate changes that have already occurred)

Assumptions: Future Conditions

- Same as existing conditions except for climate change hydrology and sea-level rise (SLR)
- **(4) Risk-informed future hydrology and SLR based on latest science**

Summary



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(1) CalSim 3 Simulation Period Extension

- Extends CalSim 3 period of record from WY 1922-2015 to WY 1922-2021
- Collaboration between Reclamation, DWR, and Stantec
- Allows evaluation of 100-years of water supply conditions

(2) Baseline Model Updates

- SWP and CVP operations
  - Intertie capacity
  - CVP/SWP Allocation Logic
- Hydrology/Upper Watersheds
  - Dynamic Upper Tuolumne module
  - Updated Upper Stanislaus, Lower Mokelumne module
  - Inflow forecast hydrology update
- Modeling improvements
  - Faster ANN runtime
- Input data source documentation

(3) Climate Adjusted Historical Hydrology

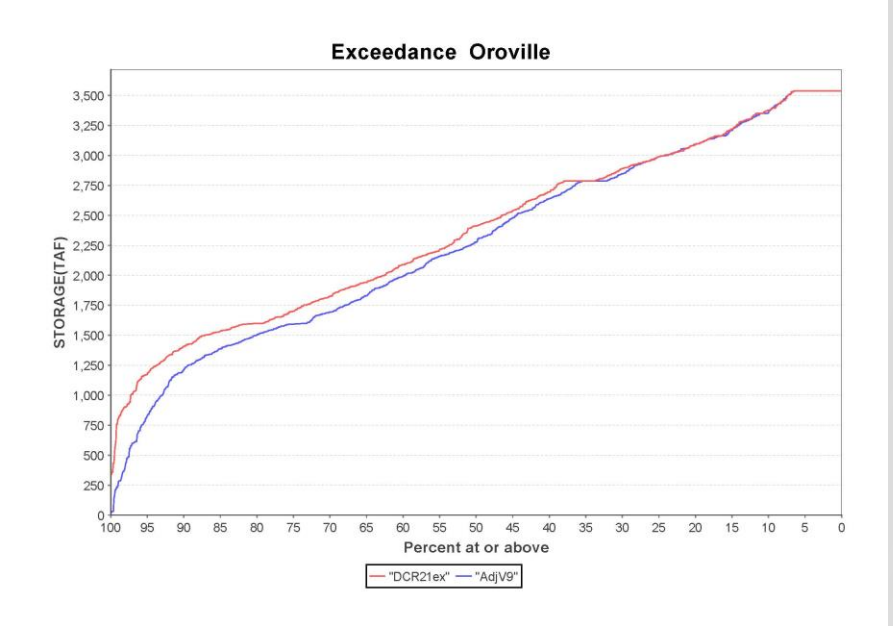
- Account for climate changes that have ***already*** occurred
- Estimation of ***current*** SWP capacity and reliability for use in operations and planning studies
- Moving forward-future climate changes would be mapped onto this new baseline

(3) Climate Adjusted Historical Hydrology (cont.)

- More variability in year-year runoff
- More seasonal variability
- Slightly higher winter flows
- Significantly lower spring flows
- Later onset of winter runoff
- Faster decline in spring runoff recession
- Generally minimal change in long-term annual average (slight decline)

(3) Climate Adjusted Historical Hydrology (cont.)

- Results in 1-3% decline in Delta exports (from historical unadjusted)
- Wet years greater deliveries/Dry years lower deliveries
- More Shortages
- Reservoir storage levels lower across the
- More Article 21 water



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(4) Risk-informed climate change scenarios

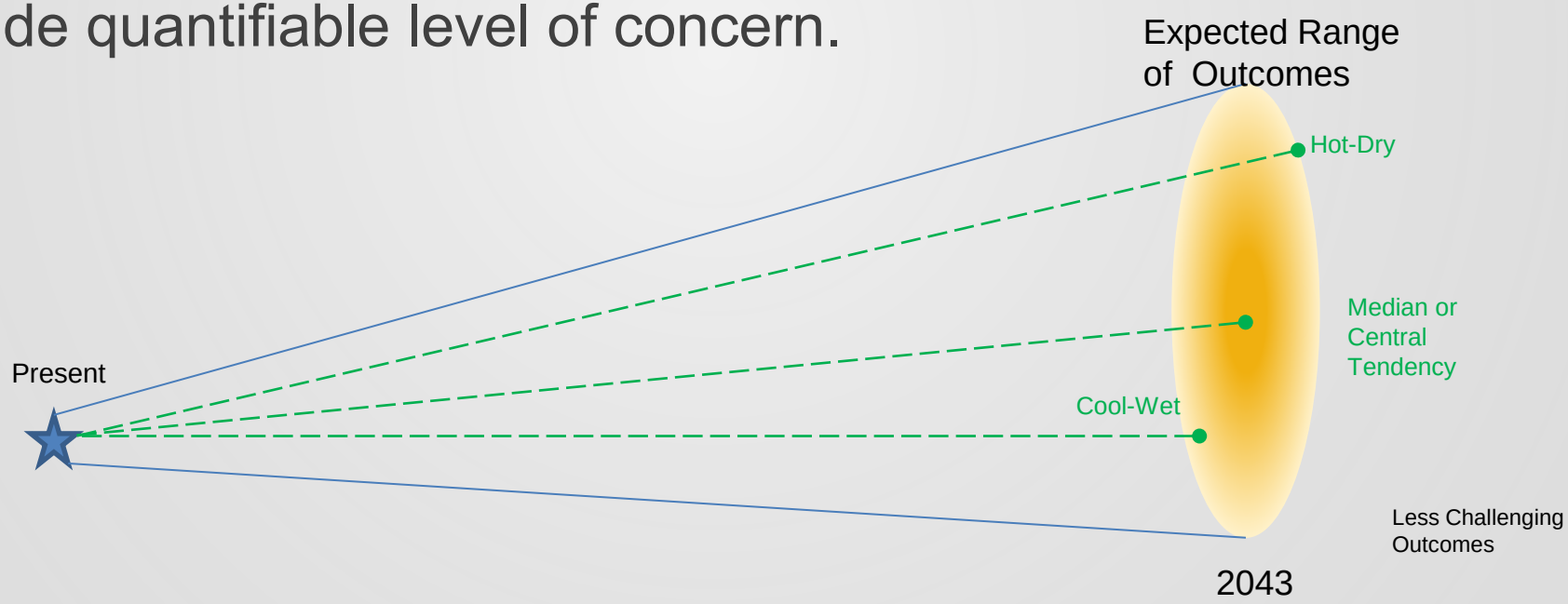
Why?

- The future is uncertain with a range of possible outcomes
- Each agency may have different risk tolerance and dependance on SWP supplies
- Increased transparency
- Improved planning

(4) Risk-informed climate change scenarios (cont.)

Top-Down Scenarios span the range of possible climate outcomes but don't necessarily align with system risk (i.e., system more vulnerable to decrease in precipitation than increase in temperature).

Don't provide quantifiable level of concern.



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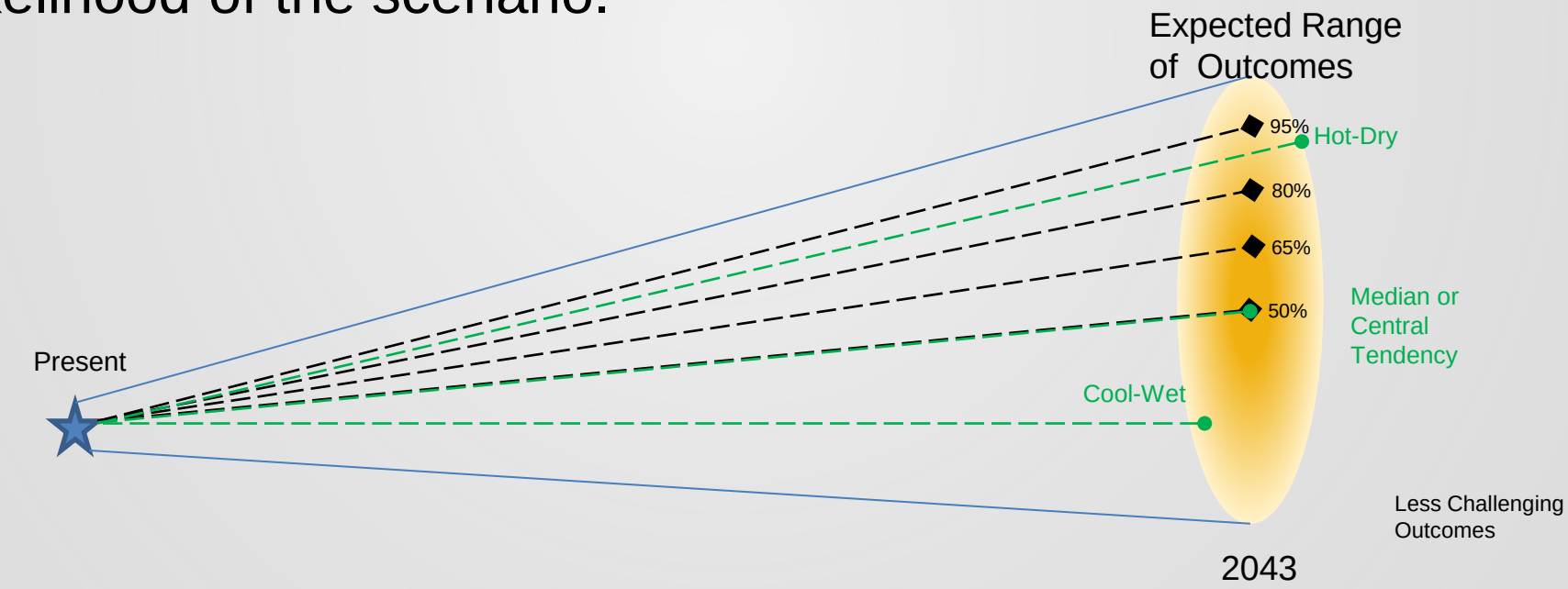
(4) Risk-informed climate change scenarios (cont.)

New Risk-informed scenarios are specifically configured to stress the SWP/CVP system across climate uncertainty.

Each scenario has a probabilistic “Level-of-Concern” representing the relative likelihood of the scenario.



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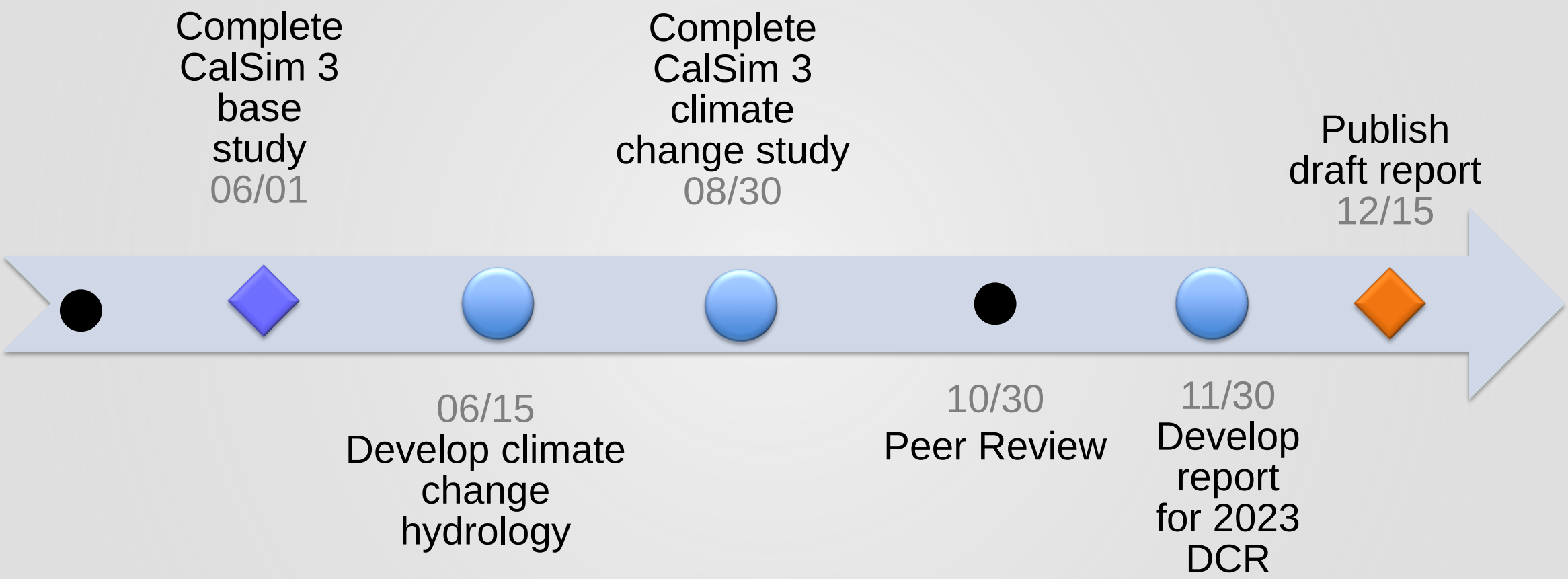
Milestone Timeline



For more information

*Based on 03/13/2023 program
Confirm with the final

Category	Session Number and Time*	Related Talk
CalSim 3 simulation period extension	Session 16 (T, 10:00-11:45am)	**1. CalSim 3 Simulation Period Extension** – Bridget Childs (Stantec), Kunxuan Wang (USBR), Mechele Pacheco (USBR), and Jim Polsinelli (DWR)
Climate adjusted historical hydrology	Session 27 (W, 8:00-9:45am)	**2. Challenges in CalSim 3 Historical Rim Inflow Adjustment for Current Climate Condition** – Z. Richard Chen (DWR)
DWR climate change development	Session 3 (M, 8:30-10:15am)	**3. Aligning climate change analytics at CA DWR** – Romain Maendly & Andrew Schwarz (DWR)
	Session 35 (W, 1:15-3pm)	**3. New System Risk Informed Climate Scenarios for CalSim 3** – Andrew Schwarz (DWR)
Model updates	Session 36 (W, 3:15-5:00pm)	**1. New Hydrologic Forecasts for CalSim 3** – Hongbing Yin (DWR)