



Fresno Reliability Transmission Projects

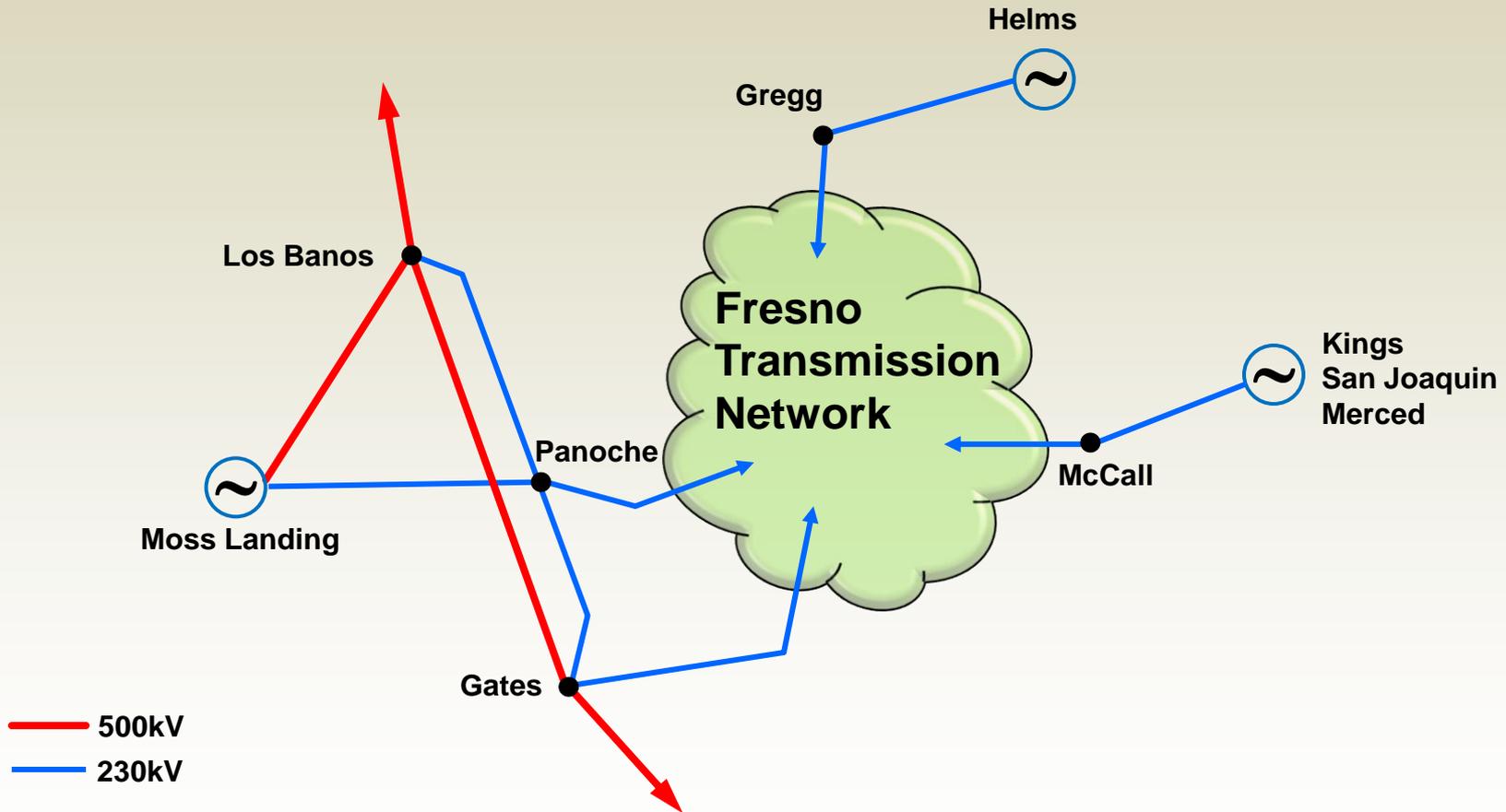
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Board of Governors
General Session
March 25-26, 2010

Transmission is needed in the greater Fresno area by 2014 to maintain reliability.

- Need is associated with load growth in Fresno
- Load growth limits opportunities for the Helms pump storage facility (Helms) to “recharge” its upper reservoir
- Reliable electric service in Fresno is *dependent* on Helms generation
- The availability of Helms to generate is *dependent* on its ability to “recharge”
- A Helms reliability dispatch model was used to determine when reliability upgrades would be needed

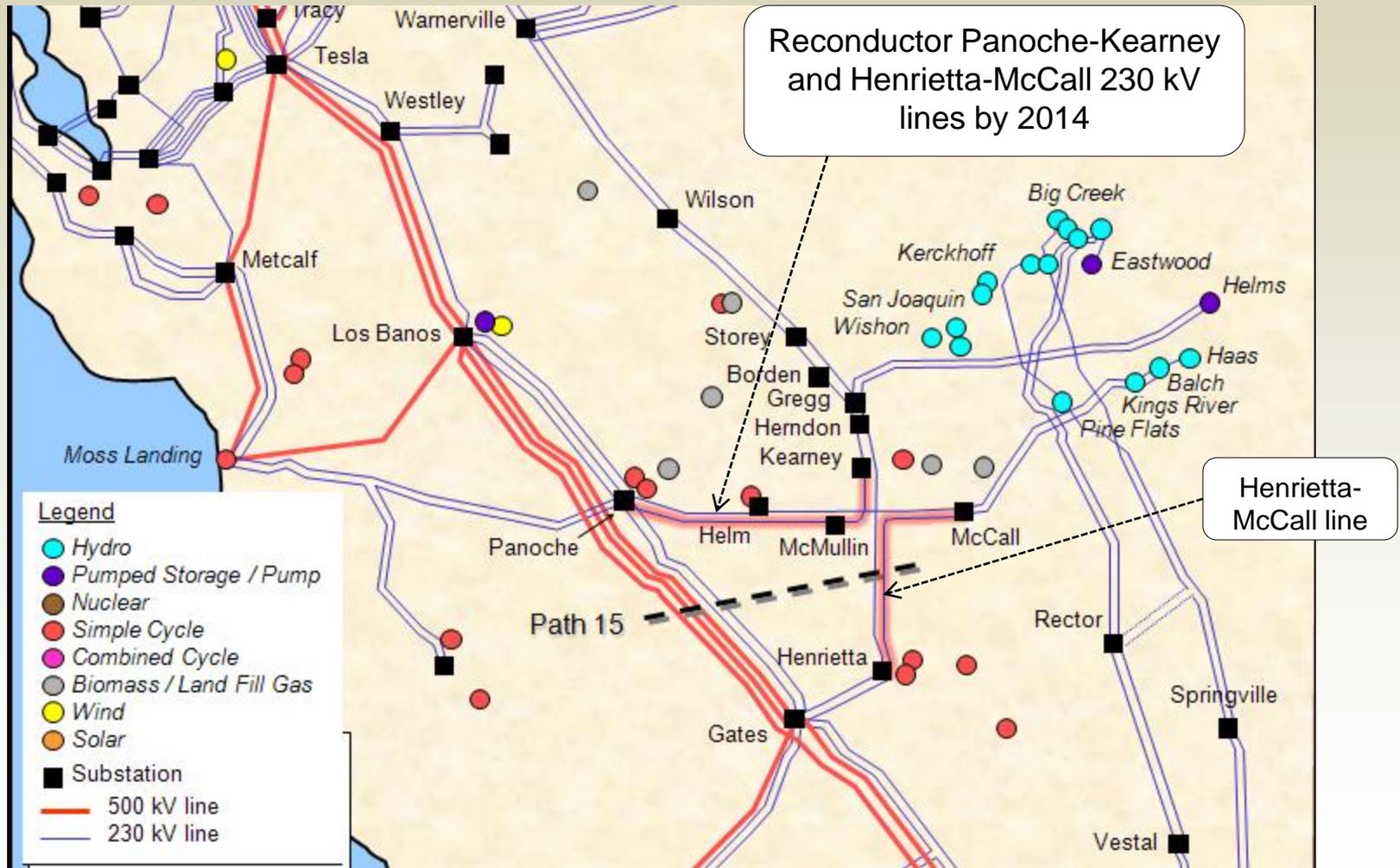
The proposed transmission projects will address the reliability needs in the Fresno area



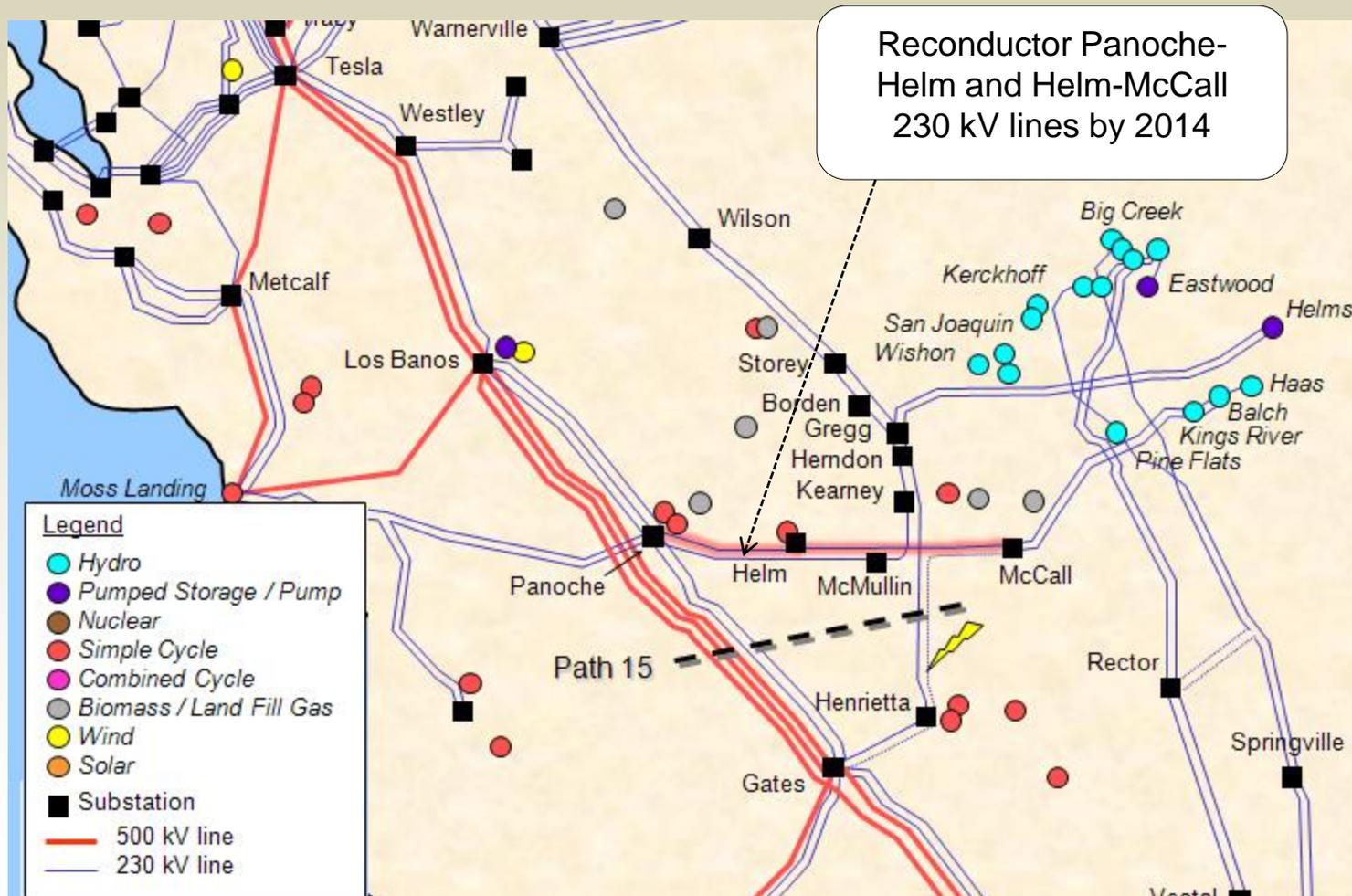
The 2010 Transmission Plan identified these projects for approval by the ISO Board of Governors

Project	Estimated Cost (million)	Required In-Service Date
Reconductor Panoche-McMullin 230 kV line	\$14	May 2014
Reconductor Panoche-Helm 230 kV and Helm-McCall 230 kV lines	\$35	May 2014
Reconductor McMullin-Kearney 230 kV line	\$10	May 2015
Reconductor McCall-Henrietta 230 kV line	\$20	May 2014
Reconductor Certainteed-Legrand 115 kV line	\$13	May 2015
Replace terminal equipment on Henrietta-Gates 230 kV line section	\$2	May 2014
Replace wave traps on Panoche-Gates 1 & 2 230 kV lines	\$1	May 2014
Modifications to the Helms pump dropping SPS.	\$13	May 2014
Obtain interim night time temperature adjusted ratings on 7 transmission lines	\$13	May 2014
Install local SPS to trip McCall 115 kV firm load for Category C contingency	\$0.50	May 2014
Install SPS to trip firm load for the Helms-Gregg #1 and #2 230 kV DCTL contingency	\$6	May 2014
Total	\$127.50	

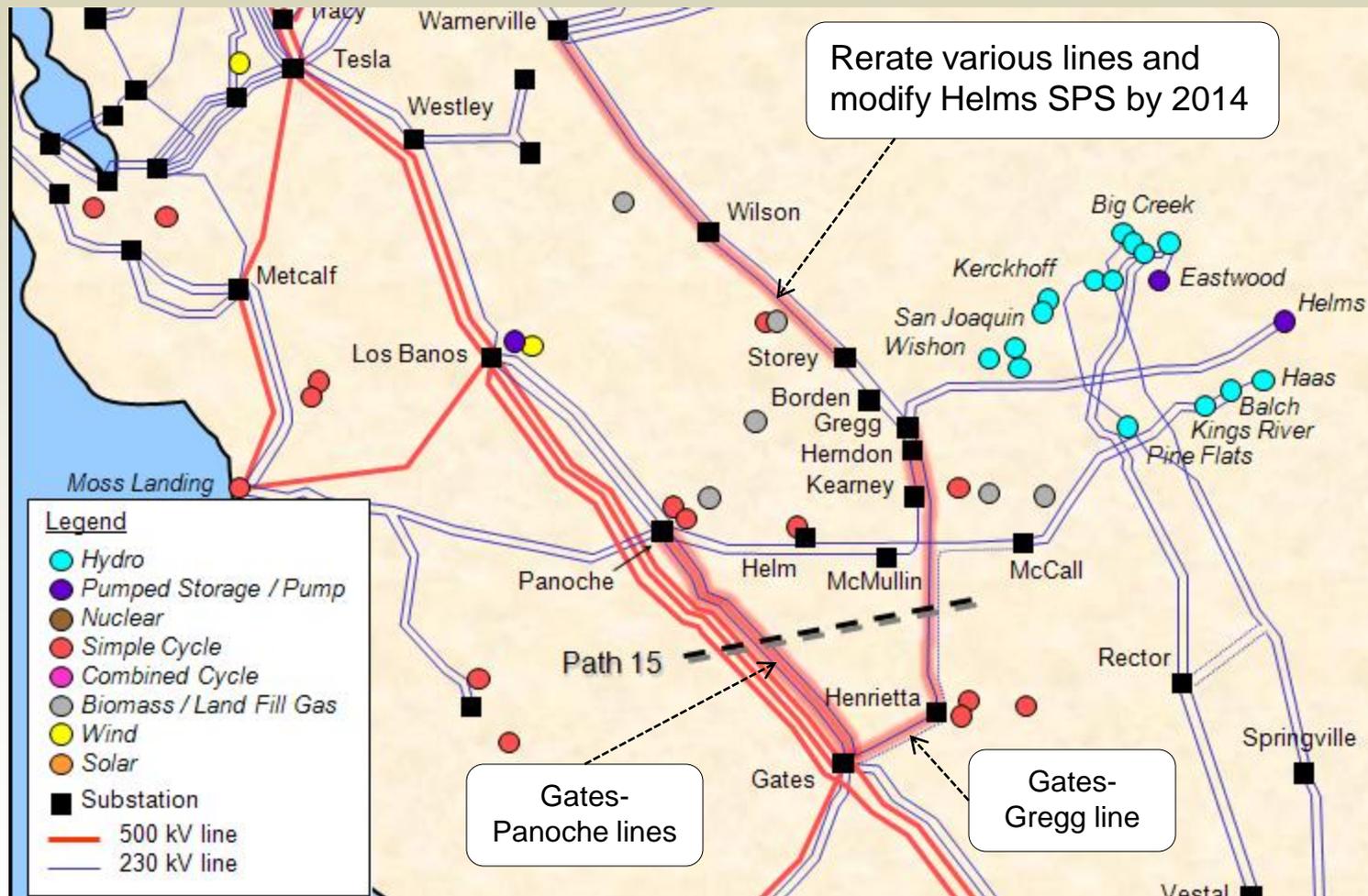
Panoche-Kearney and Henrietta-McCall 230 kV lines overload in 2014 with all lines in service scenario



Panoche-Helm and Helm-McCall, 230 kV lines overload in 2014 during contingency scenario



Warnerville-Wilson, Wilson-Storey, Gates-Panoche, Kearney Herndon, Gates-Gregg 230 kV lines overload during contingency scenario



Management recommends that the Board approve the Fresno Reliability Transmission Projects

The proposed projects will:

- Address several reliability concerns in the Fresno area beginning in 2014
- Provide the most cost-effective, feasible solutions to meet the identified needs in this area