

## 2012 Capital Projects

Capital Project	Amount *
Master File Enhancements	Small
Market Services enhancements for 2012	Medium
Operational meter analysis and reporting new features, corrections, and automation	Medium
Implement enterprise model management systems	Large
Access and identity management	Medium
Outage management system (OMS) Phase 3	Medium
Energy management system: grid operations training simulator (OTS) Phase 2	Medium
Control area scheduler (CAS) improvements	Medium
Energy management system (EMS) automatic generator control (AGC) enhancements	Small
Congestion revenue rights enhancements	Medium
Renewable integration market products	Small
Dynamic transfers	Medium
Sub set of hours for all resources (includes updates to exceptional dispatch)	Large
Simultaneous residual unit commitment and integrated forward market	Medium
Renewable integration market products - participating intermittent resource (PIRP) enhancements	Small
Two tier real time uplift	tbd
Scheduling & logging for ISO California (SLIC) interface to scheduling infrastructure business rules (SIBR)	tbd
Outage coordination (optimization)	Medium
Circular scheduling	Small
Operations enhancements 2012	Medium
Bid cost recovery / meter energy adjustment factor (MEAF)	Medium
Pump storage / remote intelligent gateway (RIG)	Medium
Waiver of outage reporting for qualified facilities (QF)	tbd
Marginal loss surplus allocation	tbd
Flexible ramping	Medium
Non-Generator resources in ancillary services market requirements (REM Project)	Small
Renewable integration market products - bid floor cap	Medium
Export of ancillary services (AS)	Medium
Bid cost recovery for units over multiple days	Medium
Replacement requirements for schedule generation outages	Small
Automated load forecast system (ALFS) upgrade to 5.0/5.1	Small
Second renewable forecasting system	Medium
Solar forecasting using Skytracker	Small
Ancillary services forecasting system	Small
Forecast optimizer	Medium
Tool to cleanse forecast data	Small
Testing automation for compliance requirements	Small
Alhambra local area network (LAN) upgrade	Medium
Upgrade of reporting services	Small
Corporate systems enhancements project	Medium
Enterprise server hardware upgrades and equipment purchases	Large
Upgrades to Oracle eBusiness suite software – human resources, finance, procurement and market clearing	Large
Architecture	Large
Smart grid technology center upgrade	Small
Distribution circuit instrumentation analysis	Small
Aggregated smart charging pilot	Medium
Metering requirements adjustment and pilot	Small
Price-responsive wholesale to retail demand project 2012	Small
ISO facility demand response capabilities	Small
Refine demand response measurement and verification methodologies	Small
Li-Ion battery project	Small
Standard capacity product phase 3	Small
Smart grid - California Energy Commission phasor project	Small
Smart grid - thermal dynamic line ratings assessment	Small
Program Office project management costs	Large
Annual request for facilities costs	Small
Blue Ravine (former headquarters site) decommissioning costs	Large
<b>Total</b>	<b>\$ 35,565,000</b>

\* Note: The costs of the individual projects are not shown, but are categorized by size as follows: small projects under \$500k, medium projects from \$500k to \$1 million, and large projects over \$1 million. The actual projects completed during 2011 will vary, including the potential addition of projects not on this list, the deferral of projects on this list to future years, or the elimination of projects on this list if no longer necessary.