

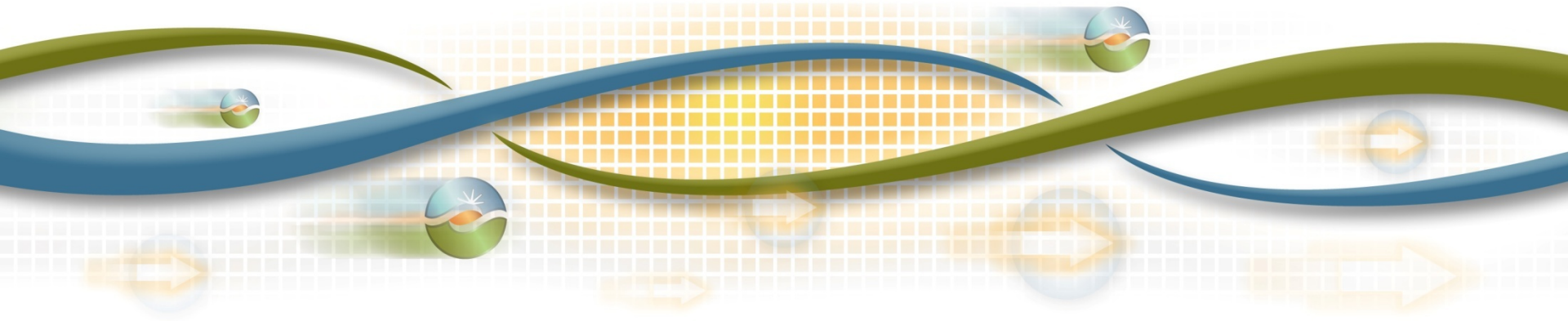
Commitment Costs Enhancements Phase 2

Draft final proposal discussion

February 12, 2015

Delphine Hou

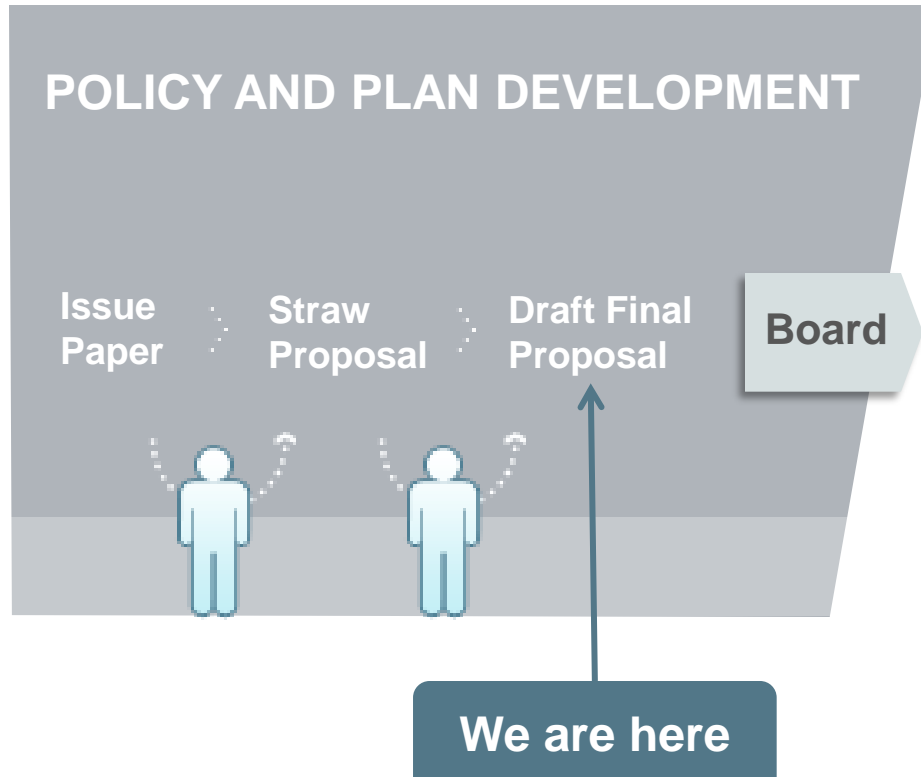
Lead Market Design and Regulatory Policy Developer



Agenda

Time	Topic	Presenter
10:00 – 10:05	Introduction	Kristina Osborne
10:05 – 11:45	Changes from revised straw proposal	Delphine Hou
11:45 – 12:00	Next steps	Kristina Osborne

ISO Policy Initiative Stakeholder Process



Changes from revised straw proposal

- Opportunity cost methodology
- Transition cost examples
- Update on greenhouse gas and other issues

Opportunity costs to be discussed in new initiative

- In response to stakeholder feedback and to allow more time for discussion, development of opportunity costs will be moved to new initiative, *Commitment Cost Enhancements Phase 3*
 - CCE3 will target Board in Q4 2015
- ISO will continue to work with stakeholders on opportunity cost prototype and hold technical workshops as necessary
- The rest of CCE2, use-limited definition change and transition cost improvements, will continue to March 2015 Board

Commitment Cost Enhancements Phase 3

- Schedule will be released at a later date
- Preliminary list of topics for discussion:
 - Opportunity cost modeling and prototype results
 - Development of default major maintenance adders
 - Differentiating gas transportation costs
 - Differentiating start types

Transition cost changes: natural gas-fired

- Corrected previous draft to reflect additional fuel input to reach duct firing
- Clarify that ISO will allow bidding for transition costs
- To do so, ISO will calculate an “indicative” start-up cost for non-start-upable configurations

Config IDs	Configuration	Heat Input (MMBtu)	Gas price (\$/MMBtu)	GHG Price	GHG Emission Rate	Major Maint. Adder	Config Pmin	Config Startup Time	GMC	Start-up energy (MWh)	Energy Price Index (\$/MWh)	Cost
UnitA_1	1 - Startable	80	\$4.00	\$12.00	0.053963	\$250	50	20	\$0.38	20	\$1.00	\$645
UnitA_2	2 - NOT startable	160	\$4.00	\$12.00	0.053963	\$550	100	20	\$0.38	20	\$1.00	\$1,320
UnitA_3	3 - Startable	240	\$4.00	\$12.00	0.053963	\$1,000	150	20	\$0.38	20	\$1.00	\$2,145
UnitA_4	4 - NOT startable	320	\$4.00	\$12.00	0.053963	\$1,500	200	20	\$0.38	20	\$1.00	\$3,020

Indicative start-up costs

		<i>"To" configuration</i>			
		UnitA_1	UnitA_2	UnitA_3	UnitA_4
<i>"From" configuration</i>	UnitA_1		\$675	\$1,500	\$2,375
	UnitA_2			\$825	n/a
	UnitA_3				\$875
	UnitA_4				

Transition cost changes: natural gas-fired (cont'd)

- Missing data will be populated with data from the last configuration

Config IDs	Configuration	Heat Input (MMBtu)	Gas price (\$/MMBtu)	GHG Price	GHG Emission Rate	Major Maint. Adder	Config Pmin	Config Startup Time	GMC	Start-up energy (MWh)	Energy Price Index (\$/MWh)	Cost
UnitA_1	1 - Startable	80	\$4.00	\$12.00	0.053963	\$250	50	20	\$0.38	20	\$1.00	\$645
UnitA_2	2 - NOT startable	80	\$4.00	\$12.00	0.053963	\$250	50	20	\$0.38	20	\$1.00	\$645
UnitA_3	3 - Startable	240	\$4.00	\$12.00	0.053963	\$1,000	150	20	\$0.38	20	\$1.00	\$2,145
UnitA_4	4 - NOT startable	240	\$4.00	\$12.00	0.053963	\$1,000	150	20	\$0.38	20	\$1.00	\$2,145

Missing data replaced

		<i>"To" configuration</i>			
		UnitA_1	UnitA_2	UnitA_3	UnitA_4
<i>"From" configuration</i>	UnitA_1		\$0	\$1,500	\$1,500
	UnitA_2			\$1,500	n/a
	UnitA_3				\$0
	UnitA_4				

Transition cost changes: non-natural gas-fired

- For thermal and non-thermal, ISO can only reflect a single cost in start-up costs in lieu of natural gas calculation per configuration
- Currently cannot reflect dual/multiple fuels – seeking stakeholder feedback
- This single cost does not vary by an index or fluctuate with system changes – seeking stakeholder feedback

Config IDs	Configuration	Non-nat gas start cost (\$)	Heat Input (MMBtu)	GHG Price	GHG Emission Rate	Major Maint. Adder	Config Pmin	Config Startup Time	GMC	Start-up energy (MWh)	Energy Price Index (\$/MWh)	Cost
UnitC_1	1 - Startable	\$1,000	1,500	\$12.00	0.053072	\$10,000	200	60	\$0.38	20	\$1.00	\$12,014
UnitC_2	2 - NOT startable	\$2,000	2,300	\$12.00	0.053072	\$20,000	250	60	\$0.38	20	\$1.00	\$23,533
UnitC_3	3 - NOT startable	\$3,000	3,400	\$12.00	0.053072	\$35,000	400	60	\$0.38	20	\$1.00	\$40,262
UnitC_4	4 - NOT startable	\$4,000	4,400	\$12.00	0.053072	\$42,000	450	60	\$0.38	20	\$1.00	\$48,908

Other items

- No change to greenhouse gas costs. ISO will continue to monitor and discuss necessary changes with stakeholders when CPUC policy is developed
- Agree with stakeholders that it is not necessary to review default variable operation and maintenance costs
- Current energy price index calculations will be clarified in the business practice manual. Methodology will be reviewed in CCE3 or other stakeholder process

Next steps

Date	Event
Wed 10/29/14	Straw proposal posted
Wed 11/12/14	Stakeholder call
Wed 11/19/14	Stakeholder comments due
Mon 12/22/14	Revised straw proposal posted
Tue 1/6/15	Stakeholder call
Tue 1/13/15	Stakeholder comments due on revised straw proposal
Fri 2/6/15	Joint call with Reliability Services initiative
Tue 2/9/15	Draft final proposal posted
Tue 2/12/15	Stakeholder call
Tue 3/2/15	Stakeholder comments due on draft final proposal
Thu/Fri 3/26-3/27/15	Board of Governors meeting

Please submit comments to initiativecomments@caiso.com