Commitment Costs Enhancements Phase 2

Revised straw proposal discussion

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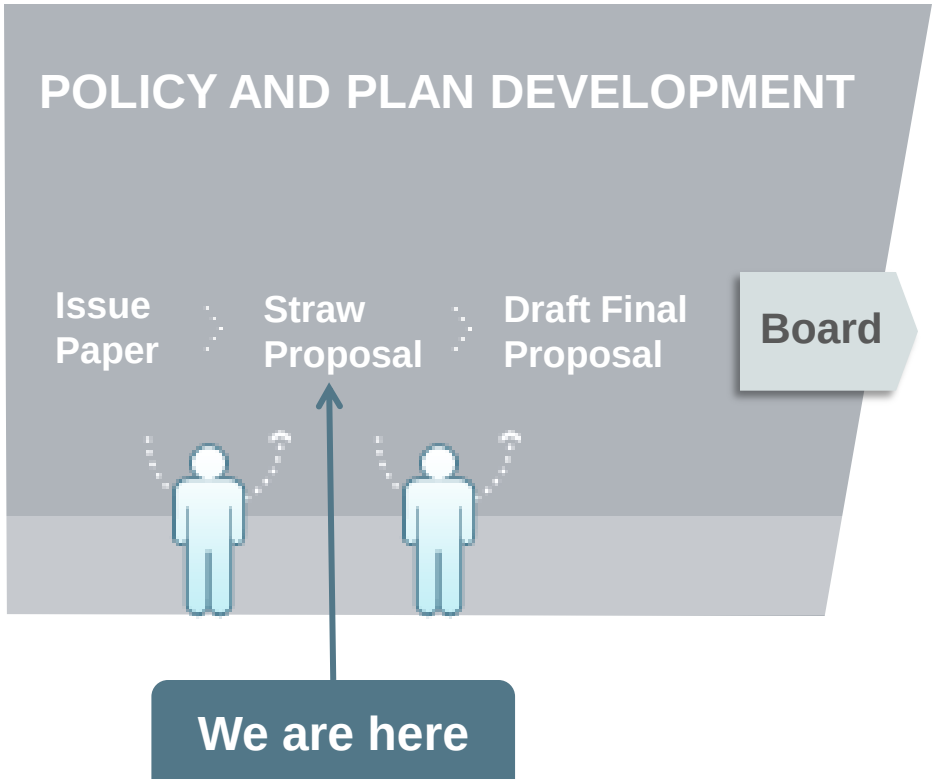
Agenda

Time	Topic	Presenter
10:00 – 10:05	Introduction	Kristina Osborne
10:05 – 11:45	Use-limited resource definition	Delphine Hou
11:45 – 12:00	Next steps	Kristina Osborne

ISO Policy Initiative Stakeholder Process



Changes from straw proposal

- Clarifications on use-limited definition
- Opportunity cost methodology update process
- Transition cost examples
- Update on greenhouse gas and other issues

Existing and proposed definition of use-limited capacity

Existing (per CCE1 policy)	Proposed
A resource that, due to design considerations, environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or other non-economic reasons, is unable to operate continuously. This definition is not limited to Resource Adequacy Resources. A Use-Limited Resource that is a Resource Adequacy Resource must also meet the definition of a Resource Adequacy Resource.	Capacity with operational limitations or restrictions established by statute, regulation, ordinance, or court order that cannot be optimized by the appropriate ISO commitment process without allowance for opportunity costs.

Instead of "resource" to recognize capacity above RMT and temporal nature of limitations

Non-contractual and non-economic

Different for IFM, STUC, and RTUC.

Use-limited resources have an opportunity cost. They are not simply fuel-limited.

Sample of use-limitation sources and examples

Acceptable?	Source	Non-exhaustive list of examples
Yes	Statutes, regulations, ordinances, or court order	• Such as from Air Quality Management Districts, California Energy Commission, Local Regulatory Authorities, etc. ○ This limitation is largely environmental and most commonly in the form of an air permit. For example, emissions limitations with an absolute limit (cannot pay to emit more and would incur a penalty), wildlife/natural resource management, noise restrictions, etc.
	Operational	• Limited due to the actual design of the resource. ○ This limitation is largely applicable to hydro, pumped storage, participating load, and combined heat and power. For example, limited reservoir storage capacity or interruption of host functions for combined heat and power capacity above the regulatory must-take capacity, etc.
No	Contractual	• Limitations based on a power purchasing or tolling agreements
	Economic	• To reduce wear and tear • Staffing constraints or lack of investment • Avoid purchasing more credits, allowances, etc. to manage emissions (*e.g.*, South Coast Air Quality Management District allows purchase of additional permits rather than a strict limit) • Did not procure fuel (potentially because it was expensive)
	Fuel limitation	• Variable energy resource ○ Such as wind and solar without storage, geothermal

ISO commitment processes relevant for use limitations

Attribute	Fast start	Short start	Medium start	Long start	Extremely long start
Start-up time	≤10 minutes	< 2 hours	2 to 5 hours	5 to 18 hours	>18 hours
Cycle Time		≤ 270 minutes	≤ 270 minutes		
Day-ahead application					
IFM (24 hours)	Financial commitment	Financial commitment	Financial commitment	Operationally binding commitment	No commitment
Real-time applications					
STUC (approx. 5 hours)	Advisory or operationally binding commitment	Advisory or operationally binding commitment	Operationally binding commitment	No commitment	No commitment
RTUC (4 to 7 subsequent 15-min intervals)	Operationally binding commitment	Advisory or operationally binding commitment	No commitment	No commitment	No commitment

Examples

Example	Resource type	Operationally binding commitment process	Commitment process time horizon	Limitation *(assume from air permit)*	Applicability of limitation	Use-limited? *(applicability > commitment process time)*
A	Short start	RTUC	Approx. 1-2 hours	2 hour run limit per month	Month	Yes
	Long start	IFM	24 hours	2 hour run limit per month	Month	Yes
B	Fast start	RTUC	Approx. 1-2 hours	1 daily start	24 hours	Yes
	Long start	IFM	24 hours	1 daily start	24 hours	No

Resource specific discussion

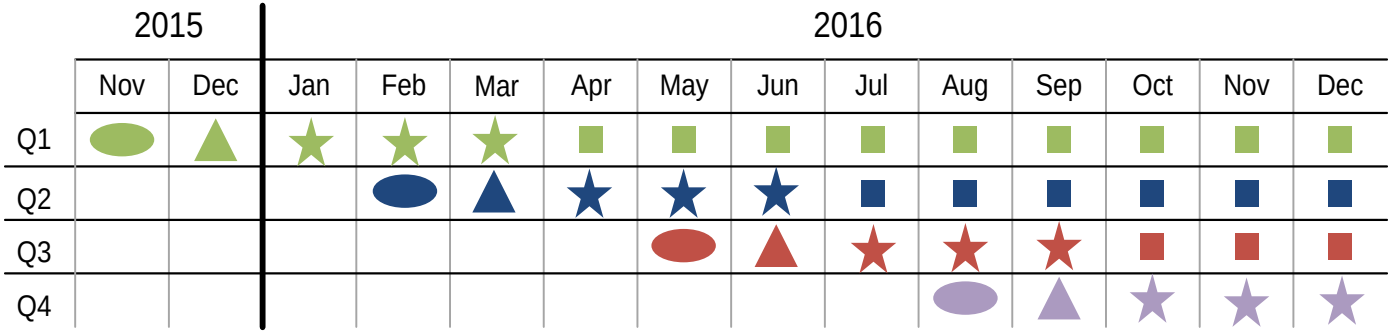
- Provided more details on QFs
- Added participating load
- MSG, geothermal, biomass, landfill gas, etc. are not default use-limited but can apply according to proposed definition
- Intertie resources – only dynamics can apply for use-limited status

Resource adequacy discussion
(See also Reliability Services Initiative)

- Continue to exempt regulatory must-take, storage, and variable energy resources from generated bid rules;
- Continue to exempt hydro, pumping load, and non-dispatchable, use-limited resources, and qualifying facilities from residual unit commitment.
- Wind and solar may need specific provisions that recognize that their residual unit commitment obligation is equal to their day-ahead schedule.
- No change to flexible capacity substitution rule.

Opportunity cost modeling and process

- Will use futures prices similar to current process for registered cost option.
- Model will be updated every quarter for natural gas futures prices.
- Model will be updated as needed for system changes that impact LMPs.



Opportunity cost model update process

Reason	Example	Impacts	No rerun if:
Significant system or network changes that increase congestion or prices	DC line outage causing prices to increase more than 25%	Area, resource, or market-wide	Change occurs within 2 weeks of the start of next quarterly rerun
Natural gas prices increase	Greater than 25% cumulative increase	Specific fuel region(s) or market-wide	Change occurs within 2 weeks of the start of next quarterly rerun
Significant Master File or use plan changes	Change in air permit or Pmin rerate longer than 2 weeks	Specific resource	Change occurs within 2 weeks of the start of next quarterly rerun or change can be reflected otherwise

Transition cost examples: peaker or steam turbine

- Columns in yellow are verifiable costs and/or verifiable physical parameters of the resource

Proposed start-up cost calculation: peaker or steam turbine

Config IDs	Configuration	Start-able	Heat Input (MMBtu)	Start-up energy (MWh)	Daily GPI ($/MMBtu)	Energy Price Index ($/MWh)	GHG Price	GHG Emission Rate	Major Maint. Adder	Config Pmin	Config Startup Time	GMC	Cost	Cost x 125%
UnitA_1	1 - Startable	Y	80	20	$4.00	$1.00	$12.00	0.053963	$250	50	20	$0.38	$645	$806
UnitA_2	2 - Startable	Y	160	20	$4.00	$1.00	$12.00	0.053963	$550	100	20	$0.38	$1,320	$1,650
UnitA_3	3 - Startable	Y	240	20	$4.00	$1.00	$12.00	0.053963	$1,000	150	20	$0.38	$2,145	$2,681
UnitA_4	4 - Startable	Y	320	20	$4.00	$1.00	$12.00	0.053963	$1,500	200	20	$0.38	$3,020	$3,775

Proposed transition cost calculation: peaker or steam turbine

		"To" configuration			
		UnitA_1	UnitA_2	UnitA_3	UnitA_4
"From" configuration	UnitA_1		$844	$1,875	$2,969
	UnitA_2			$1,031	$2,125
	UnitA_3				$1,094
	UnitA_4				

Transition cost examples: duct firing

- Columns in yellow are verifiable costs and/or verifiable physical parameters of the resource
- Start-up costs for non-startable configurations are used for transition cost calculation only

Proposed start-up cost calculation: duct firing

Config IDs	Configuration	Start-able	Heat Input (MMBtu)	Start-up energy (MWh)	Daily GPI ($/MMBtu)	Energy Price Index ($/MWh)	GHG Price	GHG Emission Rate	Major Maint. Adder	Config Pmin	Config Startup Time	GMC	Cost	Cost x 125%
UnitB_1X1	1 - Startable	Y	1,500	20	$4.00	$1.00	$12.00	0.053072	$11,590	200	60	$0.38	$18,604	$23,254
UnitB_1X1DF	2	N	1,500	20	$4.00	$1.00	$12.00	0.053072	$11,590	250	60	$0.38	$18,613	$23,266
UnitB_2X1	3 - Startable	Y	2,500	20	$4.00	$1.00	$12.00	0.053072	$23,180	400	60	$0.38	$34,869	$43,586
UnitB_2X1DF	4	N	2,500	20	$4.00	$1.00	$12.00	0.053072	$23,180	450	60	$0.38	$34,878	$43,598

Proposed transition cost calculation: duct firing

		"To" configuration			
		UnitA_1	UnitA_2	UnitA_3	UnitA_4
"From" configuration	UnitA_1		$12	$20,331	$20,343
	UnitA_2			$20,319	$20,331
	UnitA_3				$12
	UnitA_4				

Greenhouse gas and other issues

- Greenhouse gas – no proposed changes given regulatory uncertainty.
- Default variable operation and maintenance cost review – have negotiated costs been explored?
- Default major maintenance adders – requesting additional stakeholder feedback.

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
Tue 2/3/15	Draft final proposal posted
Tue 2/10/14	Stakeholder call
Tue 2/24/14	Stakeholder comments due on draft final proposal
Thu/Fri 3/26-3/27/15	Board of Governors meeting

Please submit comments to ComCosts2@caiso.com