

# Power Management Administrative Cost Allocation Study Review Group Activities

NCPA Facilities Committee
January 6, 2016



#### **Purpose**

- Update Facilities Committee of Review Group progress
- Present preliminary analysis on select areas of study
- Discuss next steps



#### **Presentation Topics**

- Background
- Seven [ssues
- Progress Report

Next Steps



#### **Background**

- Review of existing cost allocation model, following member requests for changes to the model
  - Intra-Pool cost allocation (change from 78/22, which led to the use of the "1/3rd, 1/3rd, 1/3rd methodology")
- Comprehensive review
  - Scope: Explore alternative ways of allocating fixed costs? (e.g. Ramsey, Linear Programming)
- Surveys of NCPA Members (2014 Q4)
  - No major flaws in model
  - No major changes in portfolios or industry
  - No need for comprehensive review



#### **Background**

- Pool member introduced a substantial change to its portfolio
- In March 2015, NCPA Commission:
  - Authorized a number of changes (Reso 15-18)
  - Among which altered the capacity rating of VERs
- In May 2015, NCPA Commission:
  - Referred the review of PM Administrative Services cost allocation methodology and principles to the FC
  - Directs the FC to coordinate a Review Group
  - Requires all recommendation of the Review Group to be presented to and reviewed by the FC



#### **Background**

- Review Group
  - Volunteers from AL, PA, PS, RO, SVP
  - NCPA staff resources
- Goal: FY17 implementation
- The Review Group has discussed a wide assortment of topics
  - Project charter
  - Cost allocation principles
  - Scenario analysis
  - Assortment of issues to address in both the long-term and short-term horizons



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# Issue #1: Treatment of Schedule & Contract Counts When Member Portfolios Change

- Existing practice is to use schedule counts (resources) and contract counts (energy, capacity, etc.) as a cost allocator
- Most recent complete Calendar Year for the next Fiscal Year budget (CY15 → FY17)
- Exception: A new resource may be added if it crosses a threshold. This does not apply to contracts.
- Issue: What happens if a resource replaces a contract?



#### Issue #2: Update Prescheduling Cost Allocation Factors

- The Power Management budget contains a line item for "Prescheduling" costs (approx \$767,000 FY16)
  - Costs allocated to Pool, LEC, BART, Roseville, SVP, TID
- Allocated via "Step 0" direct allocation
- Function of labor hours
- Not refreshed each year
- Issue: Prescheduling cost allocators have not been updated for some time.



#### Issue #3: How Schedule & Contract Counts Affect Costs Allocated to & within the Pool

- Schedule & Contract counts are cost allocators
- The Pool is an Operating Entity to which a number of costs are allocated for a number of line items
- These Pool costs are subject to additional allocations to Pool members and BART in some cases
- Pool cost allocators are a function of Load, Resources, and Contracts.

 Issue: Research how these methods affect allocations to the Pool and Pool members.



# Issue #4: Comparison of PM Functions Pooling Agreement vs. MPP/GPP

- The scope of the Market Purchase Program has increased since the Nexant study
- The Gas Purchase Program was introduced after Nexant concluded its study
- Many services under the Pooling Agreement and the MPP/GPP appear to be similar

 Issue: Research the scope of services of the MPP/GPP and compare to the services provided for the Pool. Identify areas of overlap and/or new functional areas.



# Issue #5: Assess Impact of De-Rating Plant Capacity by Plant Factor for all Resources

- Plant capacity (MW) is used as a cost allocator.
- In March 2015, the NCPA Commission approved differentiating Variable Energy Resources from all other types of generation resources, for the purposes of PM administrative cost allocation.
- VERs' cost allocation factor is equal to the product of the plant capacity and the facility's capacity factor.
- Issue: What is the impact of extending this treatment to all resources, instead of isolating VERs?



# Issue #6: Discussion Paper on Pricing New Services

- NCPA may expand provision of its Power Management services to members and non-members.
- NCPA has relied upon the cost allocation model to form the basis for its pricing proposals.
- The Review Group has expressed some concerns with the use of a cost allocation model as the sole basis for pricing services
- Issue: The Review Group plans to share its collective thoughts on various methods and considerations NCPA and members may consider when developing prices for PM service provision.



# Issue #7: Discussion Paper on Allocating Revenue from Expansion of PM Services

- NCPA does not have a formal policy or procedure that addresses how revenues will be allocated to members.
- Prices for services may not match model results in every case
- Issue: The Review Group plans to share its collective thoughts on various methods and considerations NCPA and members may consider when developing policies and/or practices in allocating revenues associated with the expansion of PM services.



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# The Review Group has made substantial progress in analyzing these Issues

- The Review Group is preparing a written report for the Facilities Committee
- The report will contain detailed analysis on each Issue, itemize the Review Group's major findings, and provide recommendations



# The Review Group has made substantial progress in analyzing these Issues

- Under the Review Group's direction, NCPA staff has prepared and provided preliminary analysis on Issues 3, 4, and 6.
  - Materials provided for the Groups consideration on December 7 and 11
  - No substantial comments received to date
  - Expect commentary prior to Jan 14 meeting
  - NCPA is finalizing its preliminary analysis on Issue 2.
- The following summarizes the preliminary analysis, which the Review Group is assessing



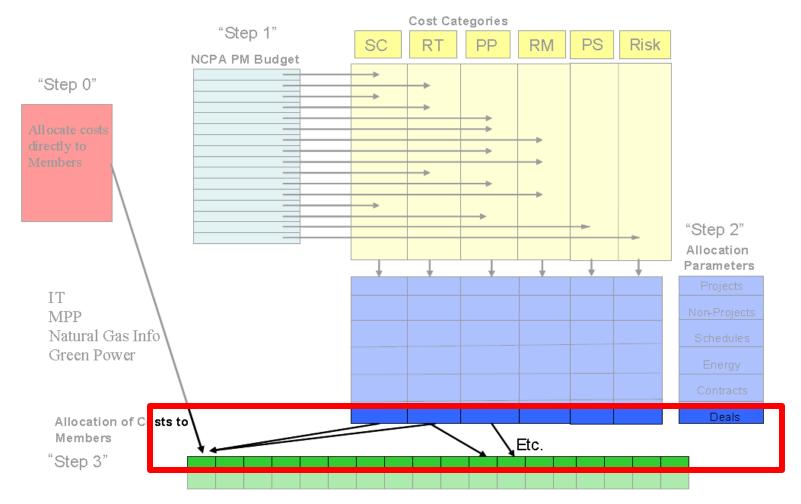
#### **Presentation Topics**

- Background
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- Issue #3: Schedule/Contract Counts → Power Pool

Next Steps



### Issue 3: Where do Schedule & Contract Counts Fit in this Workflow?



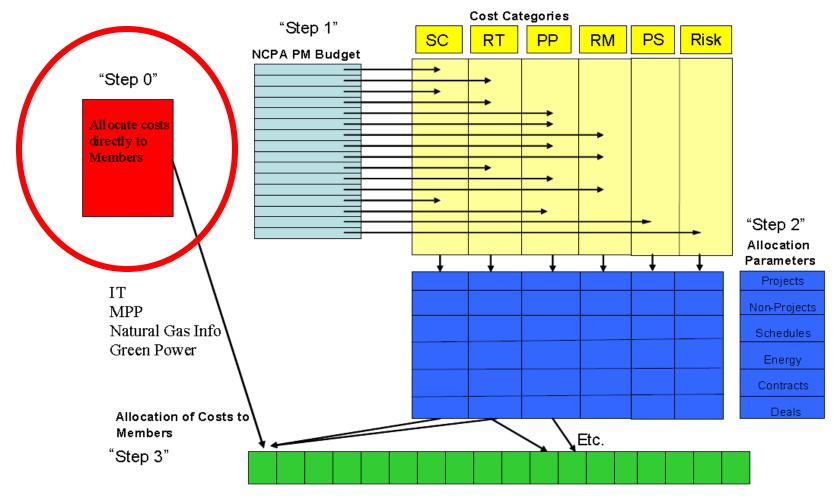


# The cost allocation model follows Nexant's findings

- Nexant Phase IIa report provides justification for:
  - Step 0: Direct allocation percentages
  - Step 1: Weighting between Cost Categories
  - Step 2: Determining allocation factors to disaggregate Cost Categories
  - Step 3: Allocation to members
- The references that follow point to the cost allocation model (spreadsheet)



### Issue 3: Where do Schedule & Contract Counts Fit in this Workflow?





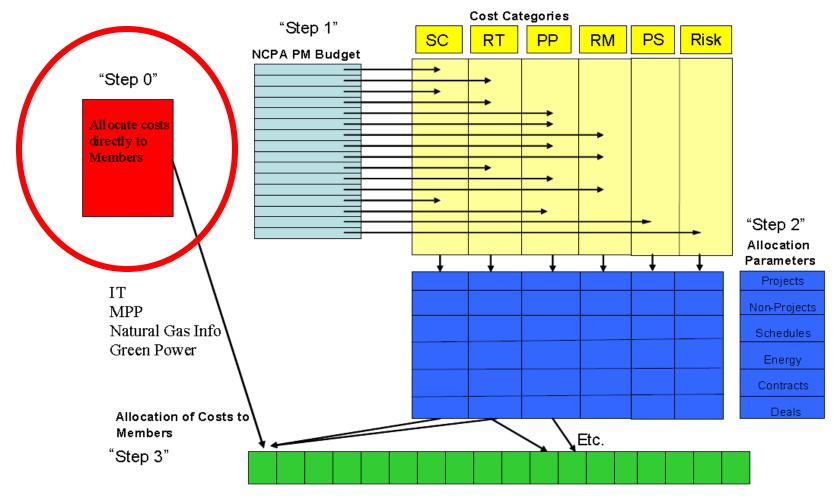
#### "Step 0" Allocations in no way use Schedule or Contract Counts

- Forecasting (31%)
- Resource Planning, Optimization & Risk Analysis (82.17%)
- Prescheduling (100%)
- Power Pool Administration (100%)
- Industry Restructuring and Regulatory Affairs (33.3%)
- TANC Representation (100%)
- Western Representation (100%)
- Pooling Committee (100%)
- Risk Management (50%)

(See worksheet, "Direct Assignments")



# "Step 1" Allocations assign budgeted costs to Cost Categories





# "Step 1" Allocations assign budgeted costs to Cost Categories

- Forecasting 31% Pool, with the remainder allocated to Resource Management (Rivi)
- Resource Planning, Optimization, Risk Analysis and Management 82.17% Pool remainder allocated to Resource Management (RM)

Forecasting, Planning, Preschedule & Trading		
Forecasting	0.6980	Resources Mgt
	0.3100	Direct Assignments
Resource Planning, Optimization & Risk Analysis	0.1783	Resources Mgt
	0.8217	Direct Assignments

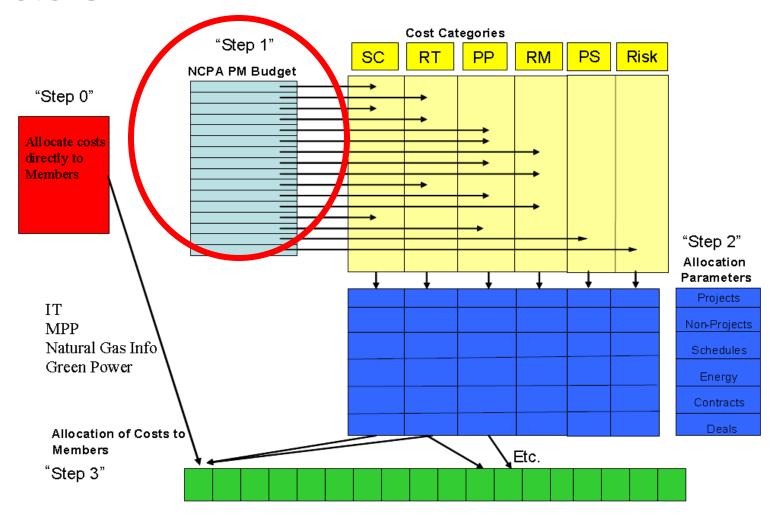


# "Step 1" Allocations assign budgeted costs to Cost Categories

- Step 1 is based solely on Nexant's study.
- Step 1 allocations in no way use Schedule or Contract Counts to allocate budget line items (less direct assignments) to Cost Categories

(See worksheet, "Allocations," top section)







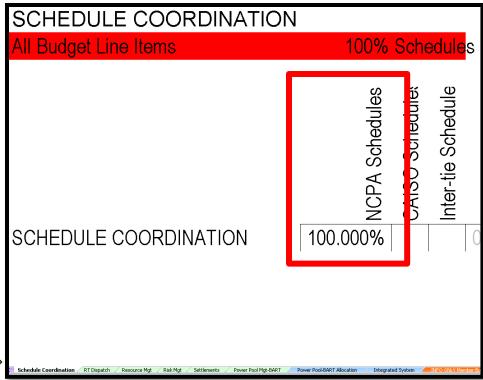
- Refer to worksheet, "Determinate%"
- Columns represent "allocation parameters" (or cost allocation factors)
- There are over 40
- Step 2 determines
  - Which of these allocation factors are applied to the Cost Categories and
  - In what proportion



#### 1.2.3 Step 2

- Schedule Coordination
  - All SC costs are allocated based on 100% Schedules. The Schedules allocation parameter has been revised per Nexant recommendations (Refer to Section 2.2.2).

This means: Of the costs assigned to the Cost Category, "Schedule Coordination," 100% of said costs will be allocated based on "NCPA Schedules."



Worksheet, "Schedule Coordination"

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#### Real Time Dispatch

- Pmax 53.01%, for the resources and contracts receiving RT Dispatch services, including the following functions (refer to the resources table in Appendix F):
- Scheduled Energy–28.17%
- Active Day Inter-tie Schedules 9.41%
- Pool and BART Contracts 9.41%

#### REAL-TIME DISPATCH & PRE-SCHEDULE

Inter-tie Schedules	9.41%
Scheduled Energy	28.17%
Contracts-Pool & BART	9.41%
Resources	<u>53.01%</u>
	100.00%

Worksheet, "RT Dispatch"



- "Step 2" does not allocate costs to members, per se.
- Therefore, "Step 2" does not allocate cost to the Pool or to Pool Members either directly or indirectly.
- It does inform:
  - If Schedule or Contract Counts will be applied,
  - If so, to which Cost Categories and in what proportion to other cost allocation factor.



#### "Step 3" Cost Categories Disaggregated to Members via Cost Allocation Factors

Recall: Of the costs allocated to Cost Category, "Schedule Coordination," 100% will be allocated via "NCPA Schedules."

Therefore, Alameda will pick up 8.305% of the costs allocated to Cost Category "Schedule Coordination", BART receives 3.719%, etc.

	NCPA Schedules	CAISO Schedule	40 more
Alameda	8.305%	7.404%	
BART	3.719%	5.944%	
Biggs	0.635%	0.566%	
Gridley	0.748%	0.667%	
Healdsburg	1.845%	1.644%	
Lodi	8.690%	7.747%	
Lompoc	2.721%	2.426%	
Palo Alto	13.683%	12.198%	
Plumas Sierra	3.717%	3.313%	
Port of Oakland	3.376%	3.009%	
Roseville	4.619%	4.984%	
Santa Clara	39.762%	39.459%	
Truckee-Donner	0.000%	0.000%	
Turlock Irrigation District	2.102%	3.285%	
Ukiah	3.165%	2.822%	
NCPA Power Pool			
LEC Project Participants	2.913%	4.532%	
TOTAL	100.000%	00.000%	31

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#### The "NCPA Power Pool"

**Note**: The "NCPA Power Pool" has a line item on this list.

**However**, the allocation factors assigned to it are 0% across the board.

**Thus**, the Step 3 allocation affects Pool Members directly. It does not allocate costs to the aggregated Power Pool.

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	NCPA Schedules	CAISO Schedules
Alameda	8.305%	6 7.404%
BART	3.719%	6 5.944%
Biggs	0.635%	6 0.566%
Gridley	0.748%	6 0.667%
Healdsburg	1.845%	6 1.644%
Lodi	8.690%	
Lompoc	2.721%	6 2.426%
Palo Alto	13.683%	6 12.198%
Plumas Sierra	3.717%	
Port of Oakland	3.376%	6 3.009%
Roseville	4.619%	6 4.984%
Santa Clara	39.762%	6 39.459%
Truckee-Donner	0.000%	6 0.000%
Turlock Irrigation District	2.102%	6 3.285%
Ukiaii	3.165%	6 2.822%
NCPA Power Pool		
LEC Project Participants	2.913%	6 4.532%
TOTAL	100.000%	6 100.000%



#### **Intra Pool Allocation**

See Worksheet, "Power Pool-BART Allocation."

These factors are used to disaggregate Power Pool costs to Power Pool participants.

Columns "Pool" and "Pool & BART" are based on equal weighting of: Load, Resource (capacity), and Contracts

POWER POOL COST ALLOCATION				
	Pool	Pool&BART	TANC	Western
Alameda	 17.714%	15.930%	31.481%	6.228%
BART		13.076%		2.514%
Biggs	1.355%	1.062%		1.525%
Gridley	1.595%	1.399%		3.414%
Healdsburg	3.934%	3.504%	5.556%	1.298%
Lodi	18.535%	16.868%	48.148%	2.940%
Lompoc	5.804%	5.119%	5.556%	1.666%
Palo Alto	29.184%	25.139%		63.559%
Plumas Sierra	7.927%	6.509%	3.704%	11.946%
Port of Oakland	7.200%	5.489%		3.124%
Roseville				
Santa Clara				
Truckee-Donner				
Turlock Irrigation District				
Ukiah	6.751%	5.905%	5.556%	1.786%
LEC Project Participants				
	100.000%	100.000%	100.000%	100.000%



# The Intra-Pool allocation factor is a function of Load, Resources, & Contracts

Alameda	Dool Load	Contracts-Pool	MM - Bool Resonice - MM	%- eannae - % Bool Resonnae - %
BART	0.000%	0.000%	02.7	20.2270
Biggs	0.637%	3.082%	1.3	0.35%
Gridley	1.475%	1.512%	6.6	1.80%
Healdsburg	3.228%	3.324%	19.3	5.25%
Lodi	18.878%	9.500%	100.1	27.23%
Lompoc	5.767%	4.963%	24.6	6.68%
Palo Alto	40.335%	25.959%	78.1	21.26%
Plumas Sierra	6.566%	13.112%	15.1	4.10%
Port of Oakland	3.356%	18.245%		
Roseville	0.000%	0.000%		
Santa Clara	0.000%	0.000%		
Truckee-Donner	0.000%	0.000%		
Turlock Irrigation District	0.000%	0.000%		
Ukiah	4.766%	7.379%	29.8	8.11%
NCPA Power Pool	0.000%	0.000%		
LEC Project Participants	0.000%	0.000%		
			367.58	100.00%
TOTAL Jary 21, 2016	100.000%	00.000%	870.78	100.00%

The simple average of:

Pool Load,

Contracts-Pool, and

Pool Resource %

Produces the allocation factors for the column, "Pool" on the previous slide.

**Note**: "Resources" is based on MW, not Schedule Counts.



#### Issue #3 PRELIMINARY Findings

- Schedule & Contract counts:
  - Do not allocate costs to the Pool or to Pool members in Steps 0, 1, or 2.
  - Do allocate costs from Cost Categories to members directly in Step 3.
  - Do not allocate cost to the aggregated Power Pool in Step 3.
- Contract Counts do influence Intra-Pool allocations.
- Schedule Counts do not influence Intra-Pool allocations.



#### A note regarding the Review Group's report on Issue #3

- The draft report describes the process above.
- It also includes a detailed analysis of each "schedule" and "contract" count
  - Schedule counts include: NCPA, CAISO, Inter-tie
  - Contract counts include: Pool, Pool & BART, Deal IDs (settlements vs. Counterparty Credit)
- In addition to certain other allocators are also included in the analysis.
  - Pool load, Pool & BART load, Scheduled Energy
- These analyses may or may not be included in the final report.



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- Issue #4: Pool Functions vs. MPP/GPP

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# Issue #4: Comparison of PM Functions Pooling Agreement vs. MPP/GPP

- Goal: Compare services provided under the Pooling Agreement vs. the MPP and GPP.
  - Assess if Nexant's work is still valid.
- Much of this is addressed by Nexant's work. See Phase I Report, Table 3-4.

Table 3-4 Function Model																				
Function ID	Function	NCP A Function Group (PM Organization Subsections)	 	For What Purpose	Ah	Ag	At	As	Ac	B1   1	B2 C	Member	Service	Type S2		w	Db D	a E	G	_     H
10-Year Planning																				
F01.1	Forecasting 10-year ahead the available resources by member	Forecasting and Pre- Scheduling	Production Cost modeling to create annual forecast of generation output levels by resource	To facilitate asset owner forecasting and budgeting	-	•	-	•	•	•	•					•	•   •	•		
F01.2	Valuating new generators for project and product development	Forecasting and Pre- Scheduling	Examine costs and benefits of potential new assets	To determine the potential value of new NCPA assets	-	•	-	•	•								•			
F01.3	Evaluating new market opportunities	Forecasting and Pre- Scheduling	Market Comparison of energy, capacity and flexibility	To assess forward energy procurement alternatives						•	•						•			
F01.4	Forecasting 10-year load by member	Forecasting and Pre- Scheduling	Annual forecast of load by member; Ten year regression forecast of monthly energy and peak demand by member. Monthly energy forecast then allocated to hourly values based on historical load shapes, produced once a year.	To enable forecasting budgeting and forward load-resource balance						•	•						•	-		
F01.5	Forecasting power delivery for STIG	Forecasting and Pre- Scheduling	Daily, Weekly, Monthly, and Annual forecast of gas use by project member	To enable generation asset operational planning and budgeting				-												
F01.6	Forecasting power delivery for CT1	Forecasting and Pre- Scheduling	Daily, Weekly, Monthly, and Annual forecast of gas use by project member	To enable generation asset operational planning and budgeting			•													
F01.7	Forecasting 10 year ahead available resources, load and power costs	Forecasting and Pre- Scheduling	Production cost model run of loads and resources: allocation/reporting of costs, loads and resources by member	To enable budgeting and develop forward contracting strategies for load serving entities						-	-						-	-		



# Issue #4: Comparison of PM Functions Pooling Agreement vs. MPP/GPP

- Changes to NCPA operations
  - NCPA staff sought to identify new work areas since Nexant completed its study
- Three areas of work:
  - Lodi Energy Center
  - GHG Compliance Instruments,
  - RPS



#### **Issue #4: General Findings**

- Several work efforts for RPS, GHG, and LEC are integrated into existing NCPA services
  - Forecasting,
  - Load/Resource balances,
  - Market intelligence
  - Resource management (i.e. LEC)
- The balance of services handled specifically under MPP & GPP
  - Purchase strategy
  - RFP
  - Procurement action
  - These activities are not "new"



#### MPP vs. GPP

- MPP & GPP are separate service agreements
- Both have been approved by the NCPA Commission
- MPP handles:
  - Power, capacity, RECs, GHG compliance instruments, etc.
- GPP handles:
  - Natural gas
- In all cases, participating members direct NCPA to take certain actions, providing capital as stipulated under the contract



#### **Issue #4: Preliminary Findings**

- Nexant's research is still valid
  - The report accurately describes functions studied at the time
- Nexant's work does not explicitly address efforts performed on behalf of RPS, GHG, or LEC
- However, the functions performed on behalf of these work areas are substantially the same and integrated into NCPA Power Management functions identified by Nexant in its original research.
- Thus, these functions are not new.



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- Issue #4: Pool Functions vs. MPP/GPP
- Issue #6: Pricing New Services
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January 21, 2016



### Issue #6: Discussion Paper on Pricing New Services

- Goals:
  - Identify ways in which NCPA may develop prices for Power Management services
  - Recommendation? (may not have enough information)
- NCPA's final pricing methodology will be partially defined (constrained) by a number of policy decisions
  - NCPA business model, product definition, size and scope of market, pricing based on membership status
- The Review Group does not opine on these matters.
   Therefore, its pricing discussion is general in scope.



There are a number of objectives that guide the Group's analysis





#### **Structure & Hierarchy of Analysis**



- Equitable Allocation of Fixed & Variable Cost
- Retain Existing Customers & Expand Customer Base
- Comparable Treatment

Objectives

- Price competitively vs. the market for comparable PM services
- Equitable to members
- Limit unacceptable cost liabilities
- Adequate Margin
- Cost recovery

Considerations

- Membership status
- Rates Approach
- Variable or Incremental Cost with Adder for Fixed Costs
- Margin



# Pricing new services to Members continues to be a challenging topic

- Quality of service
  - Are all PM service providers equal or is there heterogeneity?
- Type of service
  - Are all service requests created equal or is there heterogeneity?
- Member equity vs. competitive pricing
  - Full-cost pricing for all PM services to members or are there conditions/ alternatives?



### There may be potential to apply conditionbased prices to members

- Contractual Obligations
  - Members have contractual obligations
  - E.g. MSSA requires sufficient capacity to cover load
  - Resources used to satisfy contractual obligations subject to full-cost allocation, excess resources are not.
- Time-dependent (by date)
  - Resources that exist at a certain time receive full cost allocation. Those introduced after do not.
- Time-dependent (by dollars)
  - Freeze current cost allocation dollars/ proportions.



# **Issue #6: Discussion Paper on Pricing New Services**

- The Review Group is not finished exploring these issues
- New topics, revisions
- No recommendations at this time
- May or may not form recommendations in final report



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- Issue #6: Pricing New Services
- Issue #2: Prescheduling Cost Allocators
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### Issue #2: Update Prescheduling Cost Allocation Factors

#### Goal:

- Refresh cost allocation factors associated with Prescheduling (approx \$767,000 FY16)
- Avoid/ mitigate survey bias
- Members' concerns
  - Cost allocation factors have not been refreshed for some time
  - General concern the last survey was too narrow in scope, creating survey bias



### Issue #2: Update Prescheduling Cost Allocation Factors

- Method: Interviews of PM staff, specifically those within Portfolio & Pool Administration that perform prescheduling duties (3).
  - Multiple rounds
  - One-on-one discussions
  - Broad scope (all assigned duties, all prescheduling activities, etc.)



#### Survey Results - Round 1

- Staff performs a broad range of PM duties beyond Prescheduling
  - Market intelligence,
  - Developing market strategies,
  - Forecasting (hydro conditions, load, generation)
  - Hydro economics & valuation
  - Term purchases (MPP, GPP)
  - Portfolio planning
  - Market performance



#### Survey Results - Round 1

- Most of these work areas are handled by at least 2 of the PM staff
  - Coverage, Synergies
- The work areas expand throughout the operation timeline
  - Planning→ Prescheduling→ Real-Time→ Post hoc
- The functional engine of the group is market analytics aimed at maximizing generation value and/or minimizing cost to serve load.



### Survey Results - Round 2 (Prescheduling)

- The 2<sup>nd</sup> round interviews focused on the Prescheduling process.
- Each interviewee was asked to describe the various tasks they perform
  - All work efforts
  - Includes approximate start/end times
  - "Standard events" or "typical day"
  - Interactions with members, 3<sup>rd</sup> parties
  - Focused efforts re: LEC, Calaveras, BART, etc.



### Survey Results – Round 2 (Prescheduling)

- Striking similarities in process description across 3 interviews
  - Purpose/motivation
  - Tasks
  - Order of operations
  - Start/end times
  - Interactions
  - Exceptions
- Typical work day consumes 8-10 labor-hours for Prescheduling
- Allocation results pending



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### The Review Group will focus its attention on Issues 1 & 2 for FY17 implementation

- Meetings in January to discuss:
  - Issue 2: Prescheduling (FY17)
  - Issue 1: Portfolio changes (FY17)
- NCPA staff will complete its preliminary analysis of Issue 5 (Resource capacity)
- No meeting scheduled for Issue 7 (revenue allocation)



### **QUESTIONS?**