Attachment A

Congestion Revenue Rights (CRR)

- Requesting the UAC to recommend the CRR Product for Council approval

UAC Presentation

May 2, 2007

Presentation Outline

- CAISO's Timetable for Implementation
- What are Congestion Revenue Rights (CRRs)?
- What does it mean to Palo Alto?
- Existing & New Agreements and Authorities
- Proposed Role for NCPA
- CRR Risk Assessment and Management Strategy
- UROCC Approval
- UAC Recommendation for Approval
- Next Steps

CAISO's Timetable for Implementation

1. April 25th: CRR Holder Application & Information Sheet
2. May 21st : Signed CRR Entity Agreement to CAISO
3. July: Submittal of CRR nomination/request to CASIO
4. Aug – Dec: CRR Allocation notice back to Load Serving Entities
5. Jan 31, 2008: Go Live with MRTU
6. Ongoing Monthly and Annual CRR allocation process – post MRTU implementation

What are Congestion Revenue Rights?

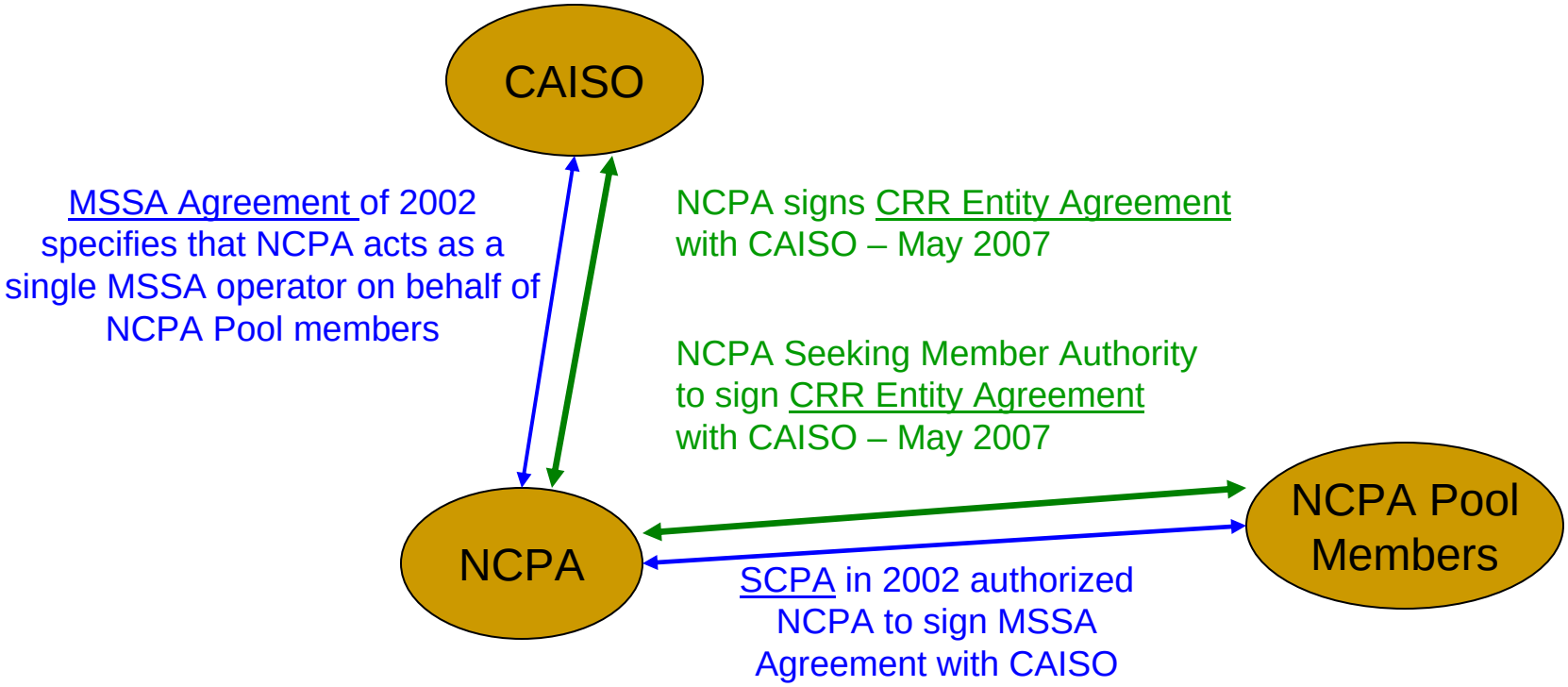
- Designed by CAISO as part of the new transmission market design implementation in 2008.
- The CAISO's new market design will explicitly charge users of the grid for congestion costs.
- CRRs are insurance-like financial products designed to reduce transmission congestion costs.
  - Intent is to provide CRRs to LOAD, as it is the load/customers that pay the transmission revenue requirements through transmission access charges.
  - Utilities are meant to nominate and manage the CRR assets for the benefit of their load.
- CRR's do constitute a financial product, and require approval by Council, changes in Risk Management Policy, and additional scrutiny and auditing.
- The CRRs will be allocated at no charge to load serving entities such as Palo Alto - quantity limited by load
- Palo Alto's Gross Congestion Cost Exposure in 2008 is highly uncertain
  - Presently estimated at $100-$200k per year, but could be much higher!
  - CAISO's level of confidence in their initial estimates: ±a factor of 10!
- CRRs expected to generate positive revenue for the City.
- Net Congestion Cost Exposure for Palo Alto, after accounting of CRR value, is estimated to be relatively small, but could be higher!

What does MRTU mean for Palo Alto?

- City will continue to own resources and contract for supplies
- CAISO settlements for use of transmission grid will look different
  - Load will be charged at load aggregation location
  - Generation will be paid at point of delivery
  - Even if our resources = load, differences in prices between load and resource locations could result in a net CAISO charge or net revenue

Existing MSSA & New CRR Entity Agreement

- MSSA and SCPA are the 2002 umbrella agreements
- Pool Members expected to authorize NCPA to sign the new "CRR Entity Agreement" to hold and manage CRRs for the Pool



Existing Authorities & Required New Authorities

- City Council Authorized City Manager to negotiate and execute the Scheduling Coordinator Program Agreement between NCPA and City (July 2002, Resolution # 8200):
  - Formally obligated the City to perform under the Metered Sub-system Aggregator (MSSA) Agreement between NCPA and CAISO
  - Obligates the City to pay CAISO charges incurred by NCPA under the MSSA Agreement
  - City has been paying CAISO related charges of approximately $6M/year under this agreement
- The 2002 MSSA agreement recognized the CAISO's new market design and the potential need to amend the agreement:
  - NCPA staff have participated in MTRU and CRR training and is developing systems and processes with the expectation of managing CRR for Pool members
  - NCPA is working with CAISO to register as a CRR holder and sign the new 'CRR Entity Agreement'– will require formal approval by NCPA member Councils in May 2007
  - NCPA and CAISO in recent months working on MSSA Agreement amendment language and new protocols under MRTU – will require NCPA member Council approvals by the end of 2007

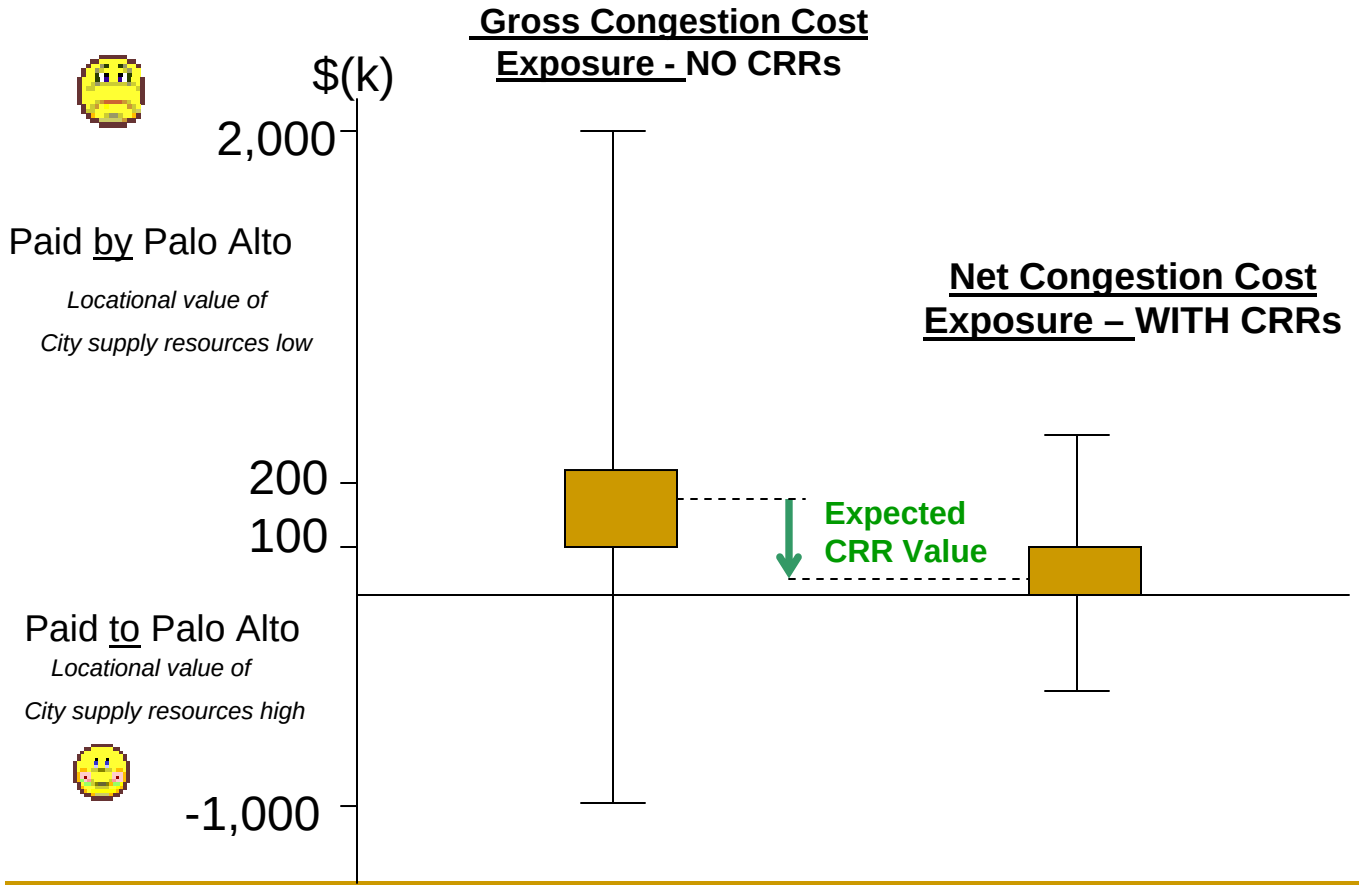
Proposed Role for NCPA

- NCPA will request and manage the CRRs on behalf of the NCPA Pool Members
  - NCPA will request the CRRs to optimize the CRR holding value for the Pool
  - We expect that Pool members will receive a load ratio share of the CRR value
  - The City does not have the systems or resources to manage CRRs ourselves.

- NCPA is currently engaged in studies to help develop a strategy for selecting CRRs

NCPA/Pool Strategy for Requesting CRRs from CAISO

Primary Goal in Requesting & Managing CRR will be to reduce the "Net Congestion Cost & Cost Uncertainty"



CRR Risk Assessment and Management Strategy

- Front, Middle, and Back Offices and Legal have developed a new product approval checklist for the CRR product have made the following findings:
  1. Legally City could request/subscribe and manage CRRs with the objective of lowering cost to City's retail customers
  2. NCPA has gained expertise to request and manage CRRs that have monetary value to Palo Alto and is expected to reduce City's congestion cost exposure
  3. NCPA plans to only request CRRs that have a positive value and reduce congestion cost exposure. However, some hours will undoubtedly have a negative value.
  4. Risks associated with nominating 'negative value' CRRs over an annual period appear to be low:
     1. Actual value of CRRs will be known after the fact, and will be tracked closely by NCPA/City
     2. Based on lessons learned, Palo Alto/NCPA will make adjustments to CRR request in the next cycle
     3. NCPA/City retains the option of not requesting further CRRs if it proves to be less valuable than expected
     4. Aggregating all CRR holdings within the NCPA pool and allocating gross value based on load share reduces the chances of holding 'negative value' CRRs
  5. Procedures for nominating, managing, and allocating CRRs amongst the NCPA Pool Members will be determined in the coming months.
  6. Allocation of CRR value within the NCPA pool will be tracked by the Front Office, reviewed by CPAU Back Office and audited by ASD Back Office.

CRR Risk Assessment and Management Strategy

- Settlement and monitoring issues
  - Final settlements will not be received until 5-6 months after the settlement period, e.g., will not see final settlements for Feb 2008 until July 2008
- Training Recommendation
  - MRTU training recommended for ASD and Utility staff
    - 3-day CAISO settlement training offered on regular basis (already taken by Ipek Connolly)

UROCC Approves CRRs

- Based on the Risk Assessment and Findings:
  - On April 16 UROCC approved CRRs as a new product, and approved the proposal to request and manage CRRs through NCPA to mitigate congestion costs under MRTU.
  - Council Request:
    1. Approval of changes to Section XI of the Energy Risk Management Policy to add CRR product to the list of approved electric portfolio products; and
    2. Provide authority for City Manager to sign a contract with CAISO; or to authorize NCPA to execute the necessary agreements to request CRRs from the CAISO on behalf of the City, and to manage the CRR for the purpose of mitigating the potential electric transmission congestion costs' impact of the City's retail electric customers

UAC Action Today

- Approve recommendation to Council:

1. Approval of changes to Section XI of the Energy Risk Management Policy to add CRR product to the list of approved electric portfolio products; and

2. Provide authority for City Manager to sign a contract with CAISO; or to authorize NCPA to execute the necessary agreements to request CRRs from the CAISO on behalf of the City, and to manage the CRR for the purpose of mitigating the potential electric transmission congestion costs' impact of the City's retail electric customers

Next Steps

- Seek Council approvals in May

- Seek Council approval of MSSA Agreement Amendment – Nov/Dec

Appendices

Appendix A: Definitions

Appendix B: Example of Settlements under MRTU

Appendix C: Conceptual Example of Palo Alto CRR Portfolio

UAC Presentation

May 2, 2007

Appendix A – Definitions

CAISO	California Independent System Operator – the electric grid operator
CRR	Congestion Revenue Right – a financial instrument designed by the CAISO to enable LSEs to manage their exposure to congestion costs
LMP	Locational Marginal Price – marginal energy prices for each settlement period that reflect the cost of serving the next MWh of demand at each location on the CAISO controlled grid and includes the marginal costs of congestion and losses
LSE	Load Serving Entities – the CAISO's definition of LSE is any entity that serves end users within the CAISO Control Area
MRTU	Market Redesign and Technology Upgrade – the CAISO's latest electric market structure planned to go live by Feb 2008
MSSA Agreement	Metered Subsystem Aggregate Agreement – specifies that NCPA acts as a single MSS operator on behalf of the multiple, non-contiguous Metered Subsystems of the NCPA Pool members
SCPA	Scheduling Coordinator Program Agreement between NCPA Pool Members and NCPA, obligating NCPA pool members to pay CAISO charges via NCPA

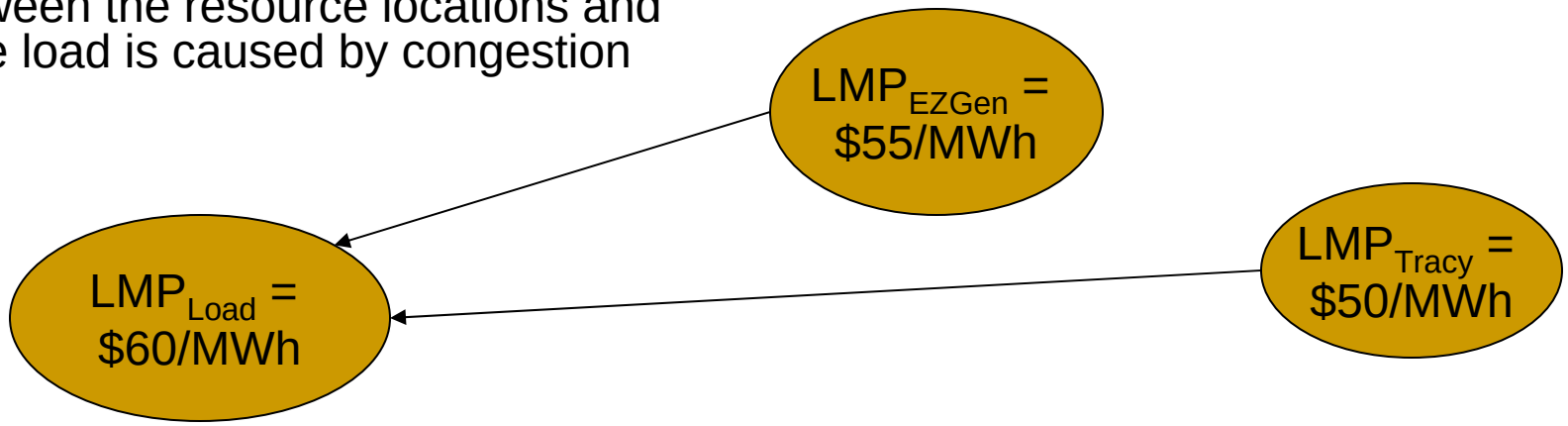
Appendix B – Example of Settlements Under MRTU

Feb 1st 2008, Hour #14;

City's 2-3PM Load of 100MW met with -

75MW Western from Tracy + 25 MW of supply from Supplier A at EZGen Hub

Assuming zero losses, the differential between the resource locations and the load is caused by congestion



- Palo Alto load pays: $60 x 100MW = $6,000
- Palo Alto's resources get paid $5,125
  - Western delivery at Tracy gets paid: $50 x 75MW = $3,750
  - Supplier A delivery at EZGen gets paid: $55 x 25MW = $1,375
- Congestion component cost to Palo Alto = $6,000 - $5,125 = $875

Appendix B – Example of Settlements Under MRTU CRR Example A (for 75 MW CRR)

- Continuing the example, assume Palo Alto has a 50 MW CRR from Tracy to Load and a 25 MW CRR from the EZGen Hub to Load
- The CAISO settlements for Hour # 14 would be :
  - Palo Alto load pays: $60 x 100MW = $6,000
  - Western delivery at Tracy gets paid: $50 x 75MW = $3,750
  - Coral delivery at EZGen gets paid: $55 x 25MW = $1,375
  - Congestion component cost to Palo Alto = $6,000 - $3,750 - $1,375 = $875
- The CRR settlements would be:
  - 50 MW Tracy to load CRR earns: ($60-$50) x 50MW = $500
  - 25 MW EZGen Hub to load CRR earns: ($60-$55) x 25MW = $125
- Net payment to the CAISO by Palo Alto = $875 - $500 - $125 = $250

Appendix B – Example of Settlements Under MRTU CRR Example B (for 75 MW CRR)

- At times the congestion between the generators and the load is negative (i.e., the schedule provides counter-flow or relieves congestion on the grid). Assume in the previous example the LMP at the load is $45/MWh
- The CAISO settlements for Hour # 14 would be:
  - Palo Alto load pays: $45 x 100MW = $4,500
  - Western delivery at Tracy gets paid: $50 x 75MW = $3,750
  - Coral delivery at EZGen gets paid: $55 x 25MW = $1,375
  - Counter-flow value paid to Palo Alto = $4,500 - $3,750 - $1,375 = -$625
- The CRR settlement would be:
  - 50 MW Tracy to load CRR earns negative: ($45-$50) x 50MW = -$250
  - 25 MW EZGen to load CRR earns negative: ($45-$55) x 25MW = -$250
- Net payment from the CAISO to Palo Alto = -$625 - (-$250-$250) = -$125 (Palo Alto is paid less because of the CRR holding)

Appendix C – Conceptual Example of Palo Alto CRR Portfolio Month of February 2008

CRR Description (Source and Sink)	CRR Quantity & Period		CRR Associated Resource
	On-Peak	Off-Peak	
Tracy substation to LAP	60 MW	30 MW	Western
Tracy substation to LAP	30 MW	20 MW	COTP
Bellota substation to LAP	20 MW	20 MW	Calaveras
Pittsburg substation to LAP	10 MW	2 MW	Wind
Green Valley Substation to LAP	2 MW	2 MW	Land fill
EZ Gen Hub to LAP	25 MW	25 MW	Supplier purchase
TOTAL ALLOCATED BY CAISO	**147 MW**	**99 MW**	
	= or < than	= or < than	
Forecasted City Load - Feb 2008	**155 MW**	**99MW**	Load

LAP – Load Aggregation Point