Back to the Future:

Financing, Risks, and Other Conundrums Affecting the Solar Value Proposition for Multifamily Property Owners and Tenants

CESA Workshop on Deploying Solar in Public and Affordable Housing

October 2017

FINANCING PATHWAYS

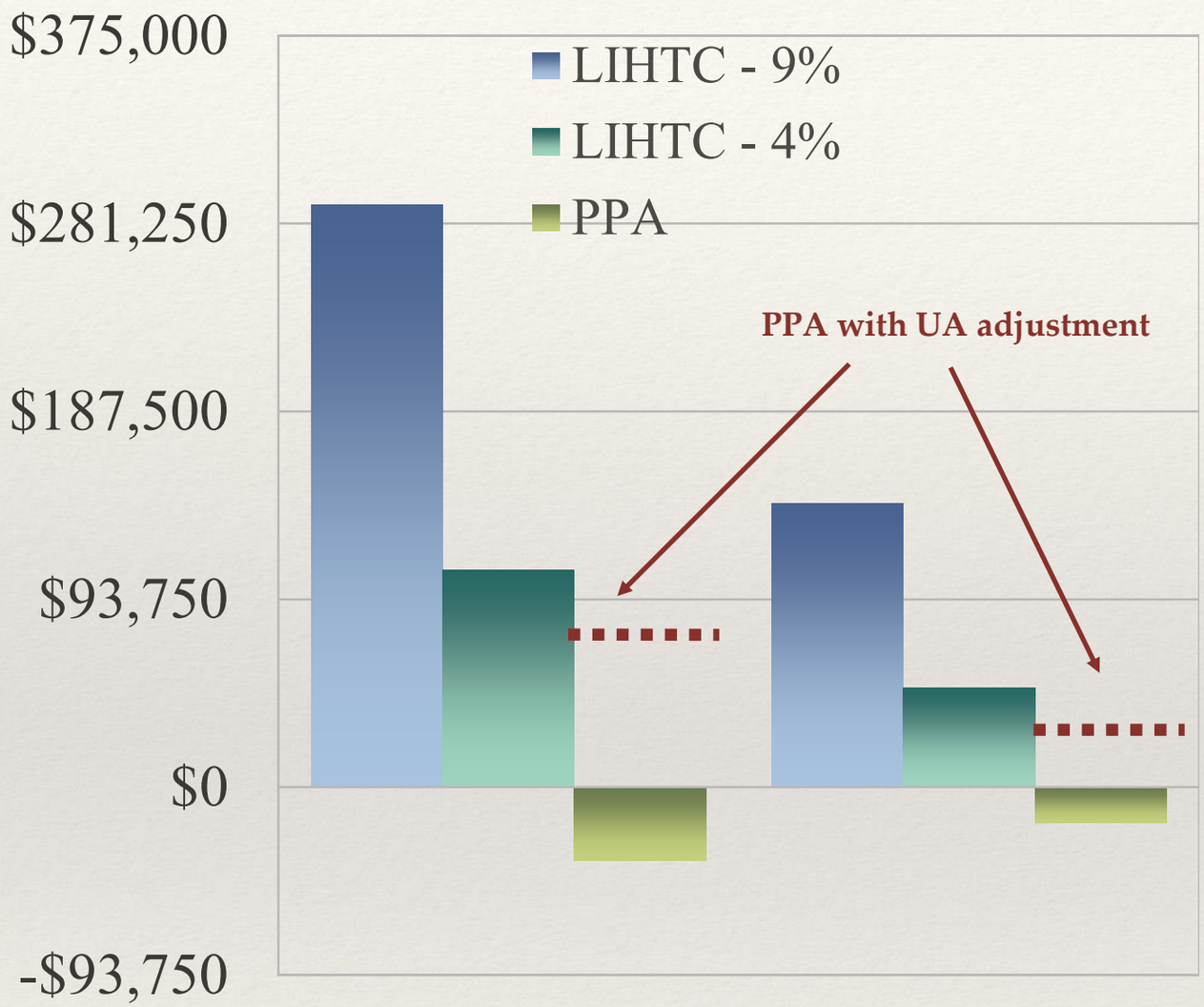
Solar Economic Dependencies

- Federal Investment Tax Credit → *Extended through 2019 with phased decline by 2022*
- Utility Tariffs → *Transition to new rate structures*
- Soar Valuation → *Net Energy Metering (NEM) in flux*
- Solar PV Costs → *Continued cost declines but new solar tariff may be ahead*

Proven Financing Pathways for Affordable Housing

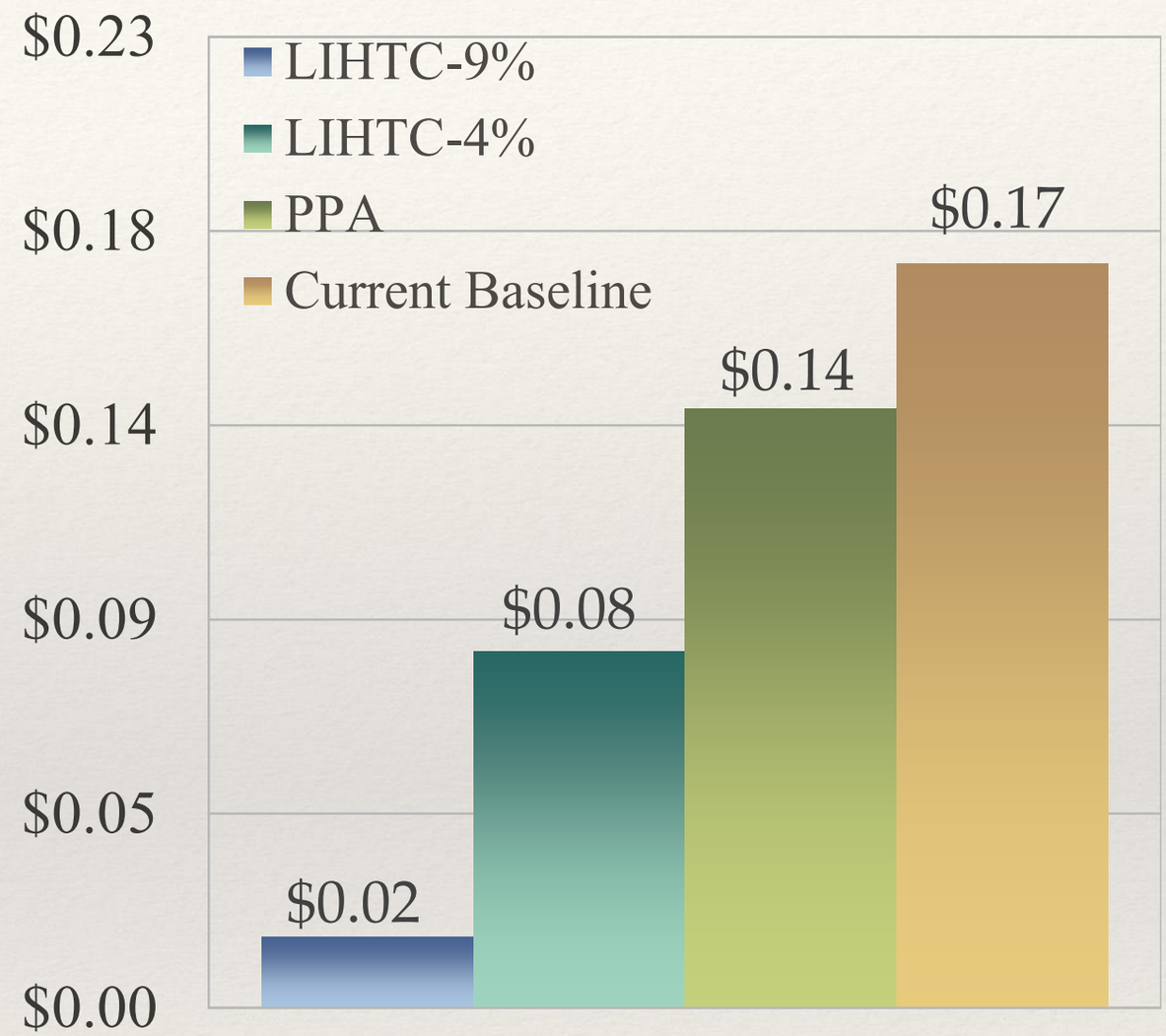
LIHTC		PPAs
New construction, Acquisition/rehab.	**APPLICATION**	**Existing property retrofits**
• High leverage • Ownership of savings • Can reach tenants units • Reduced pricing risks	**PROs**	• No upfront costs • Turnkey service • Off-balance sheet
• *Transaction complexity* • *Property O&M*	***CONs***	• *Marginal price gains* • *Escalating rent costs*

Comparison of LIHTC and PPA Financial Returns*



Net Energy Savings Over 20 Years

NPV of Cash Flow



Estimated Weighted $/kWh / 20 yrs.

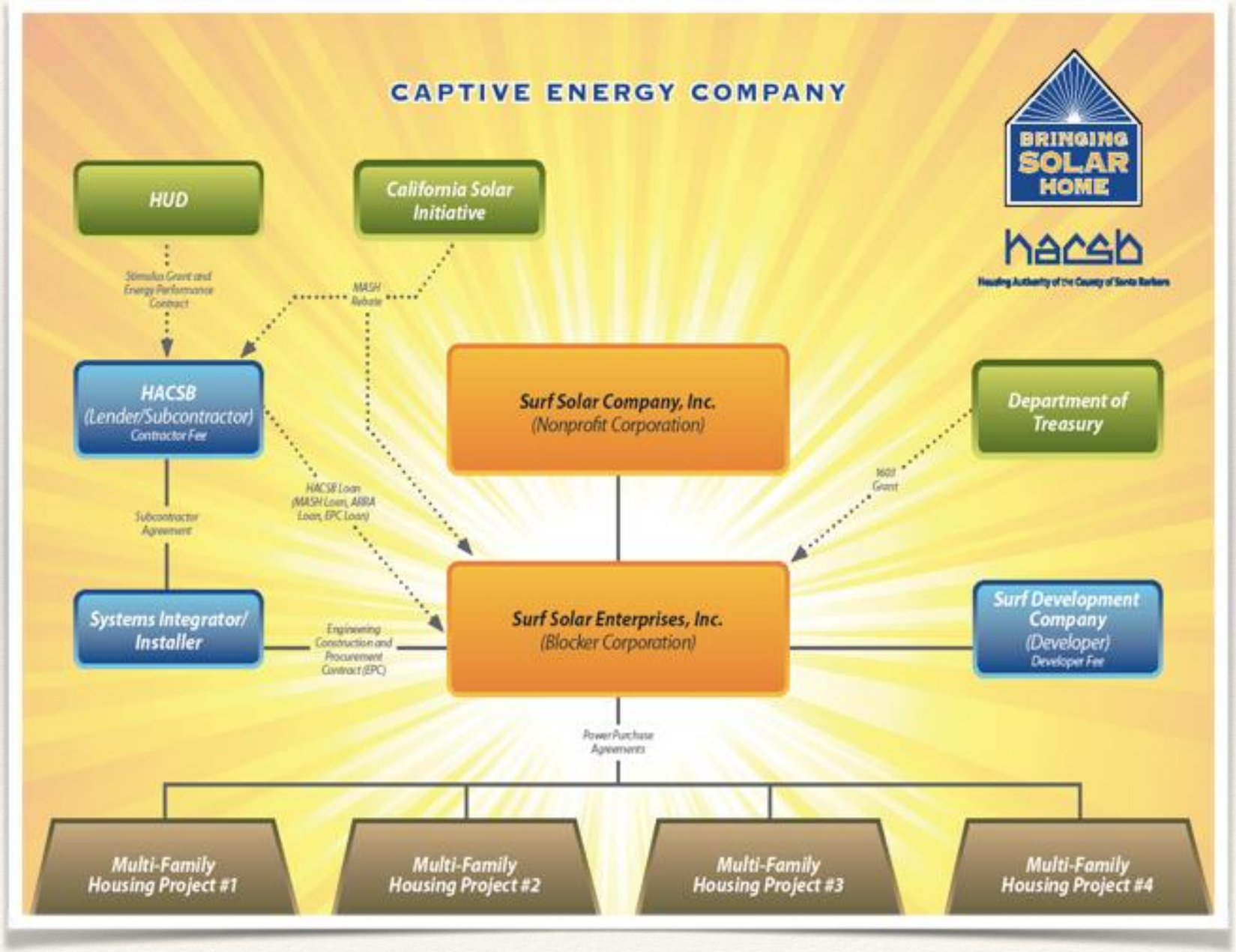
* Modeled results for 100kW systems with allocations to common area (45%) and tenant units (55%).

Emergent Pathways

PACE		Blocker Corporation
Asset-based energy investments	**APPLICATION**	**Solar asset ownership by housing organization**
• Access to capital • Scalable whole building improvements	**PROs**	• Retention of savings for housing uses • Portfolio focus
• *Debt stack issues* • *Lien seniority issues* • *Transaction costs*	***CONs***	• *Complexity* • *High transaction costs*

The “Blocker Corp.”in Practice

- Project Scope:
  - 21 properties;
  - 250 buildings;
  - 863 units
- System Size:
  - 1.7 MW; 7,300 panels
- Generation:
  2.6 million kWh/yr.
- Offset:
  100% of tenant use
- Savings: $300,000/yr.
  (@$.015/kWh)



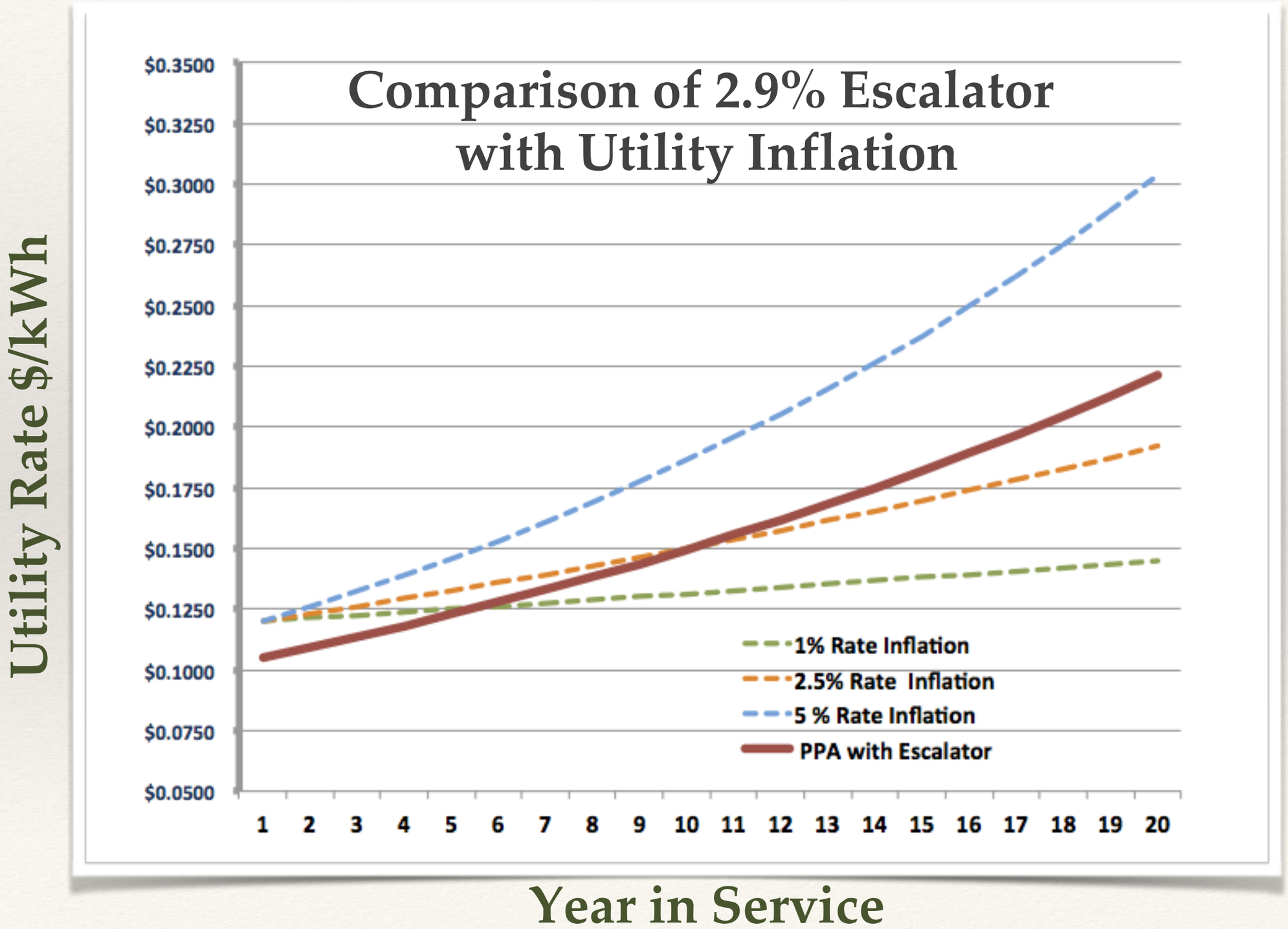
From Housing Authority for the County of Santa Barbara, 2011

RISK

Risks to Property Owners and Investors

	Risks	Risk Mgt. Standard	Mitigtion Measures
Performance	• Under or over production	• 90-95% of est. production • O&M	• *Performance guarantee* • Maintenance service contracts
Credit/ Payment	• Customer credit • Cash flow disruptions • Debt collection	• Credit Ratings • Coverage >1.2 • Monitoring actuals	• *Loan Guarantees* • Dedicated Reserves • *On-bill recovery* (tenants) • *Orange Book*
Pricing / (VALUE)	• Inaccurate utility cost estimates • Utility rate changes • New rate designs • Solar valuation policy	• Utility consumption and bill analysis • Utility cost indexed cash flow analysis	• *Escalator controls* • Demand management • *Integrated DER Investment Strategy*

Understanding Escalators



Understanding Utility Costs

- Utility Costs include:
  - Customer Charges (fees)
  - Electric Use Charges
  - Capacity Charges
- Solar Generation shifts peak and affects supply and demand economics forcing shifts in tariffs, rate design, and how solar is value.
- Shifts underway:
  (1) Reconfigured utility rates
  (2) Time of Use
  (3) Later peak period pricing
  (4) NEM modifications

Components of Utility Cost Recovery *	Percent
Commodity	50%
Distribution	30%
Transmission	10%
Public Purpose Programs	10%

* From SDG&E presentation at Center for Research in Regulated Industries, Conference, June 2017

Understanding Solar Value Deflation

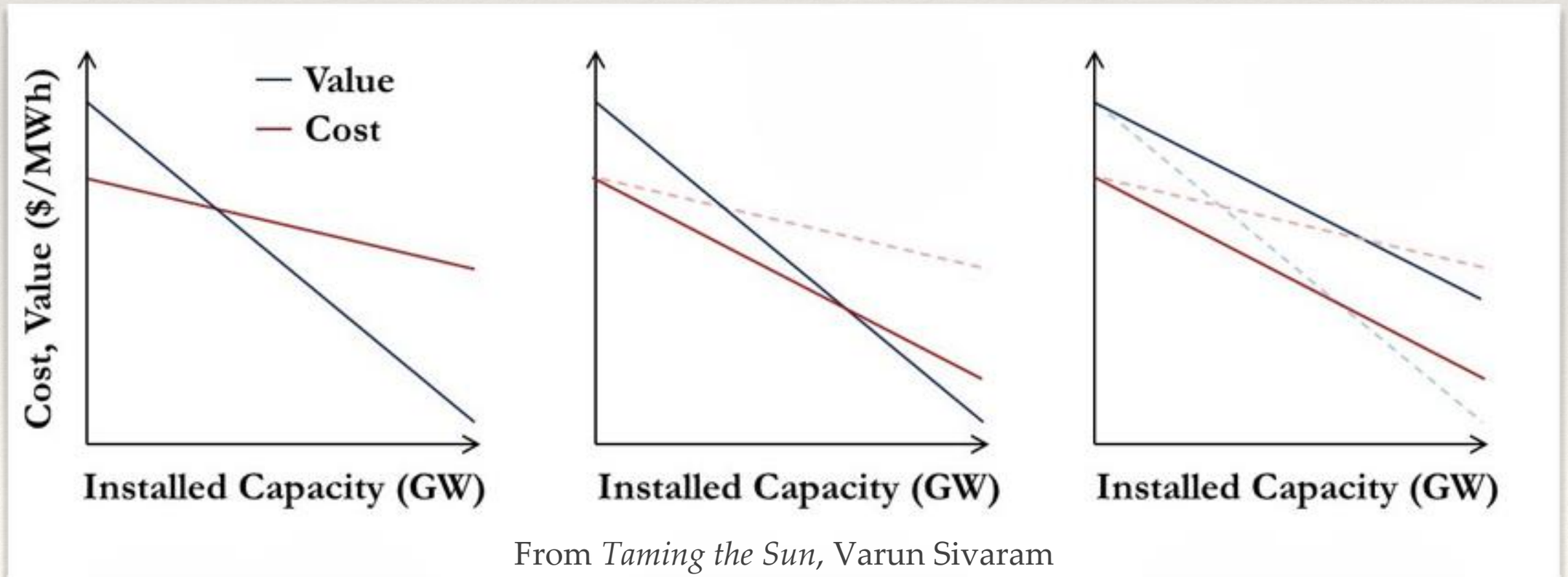
NEM policy, solar financing products and the ITC successfully fueled a solar boom…

BUT solar boom also shifted utility economics.

System cost declines extend solar's value proposition as pricing declines…

BUT not indefinitely.

Value optimization depends on energy investments that:
(1) reduce consumption
(2) improve demand management capabilities
(3) open up new revenue streams.



From *Taming the Sun,* Varun Sivaram

RECAP: Risk Management Roadmap

- **Performance Risk**
  - Performance requirements in contract
  - O&M protocol or contract

- **Credit/Payment Risk**
  - Credit Enhancement
  - On bill recovery
  - Performance tracking:
    - *Actual to projected costs

- **Pricing/Value Risk**
  - Utility cost literacy
  - Reliable baseline cost/saving estimates *(Genability)*
  - Indexed utility inflation *(Certain Solar)*
  - Saving guarantees in contract
  - Integrated investment strategies to optinize returns

TENANT RISK
(and Benefit?)

What Do Tenant Benefits Look Like?

- System Size: 464 KW DC
  - *775,000 kWh per year*
  - *Tenant/Common Split: 95/5*
  - *Largest MASH project in California*
- Interconnection: Virtual Net Metering
- Pre solar utility allowances
  - *2 bedroom units: $40/mo*
  - *3 bedroom units: $48/mo*
- 2014 actuals paid by tenants
  - *2 bedroom units: $5.45*
  - *3 bedroom units: $7.08*

Park Villas National City, CA 268 units

Can tenant energy savings be used as a source?

Can tenant benefits be used as a source for financing?

- Maybe. Depends on Federal and State policies.
- <u>Where Most Feasible</u>:
  - *LIHTC (Action by SHFA necessary)*
- <u>Where Most Difficult</u>:
  - *HUD-assisted housing*

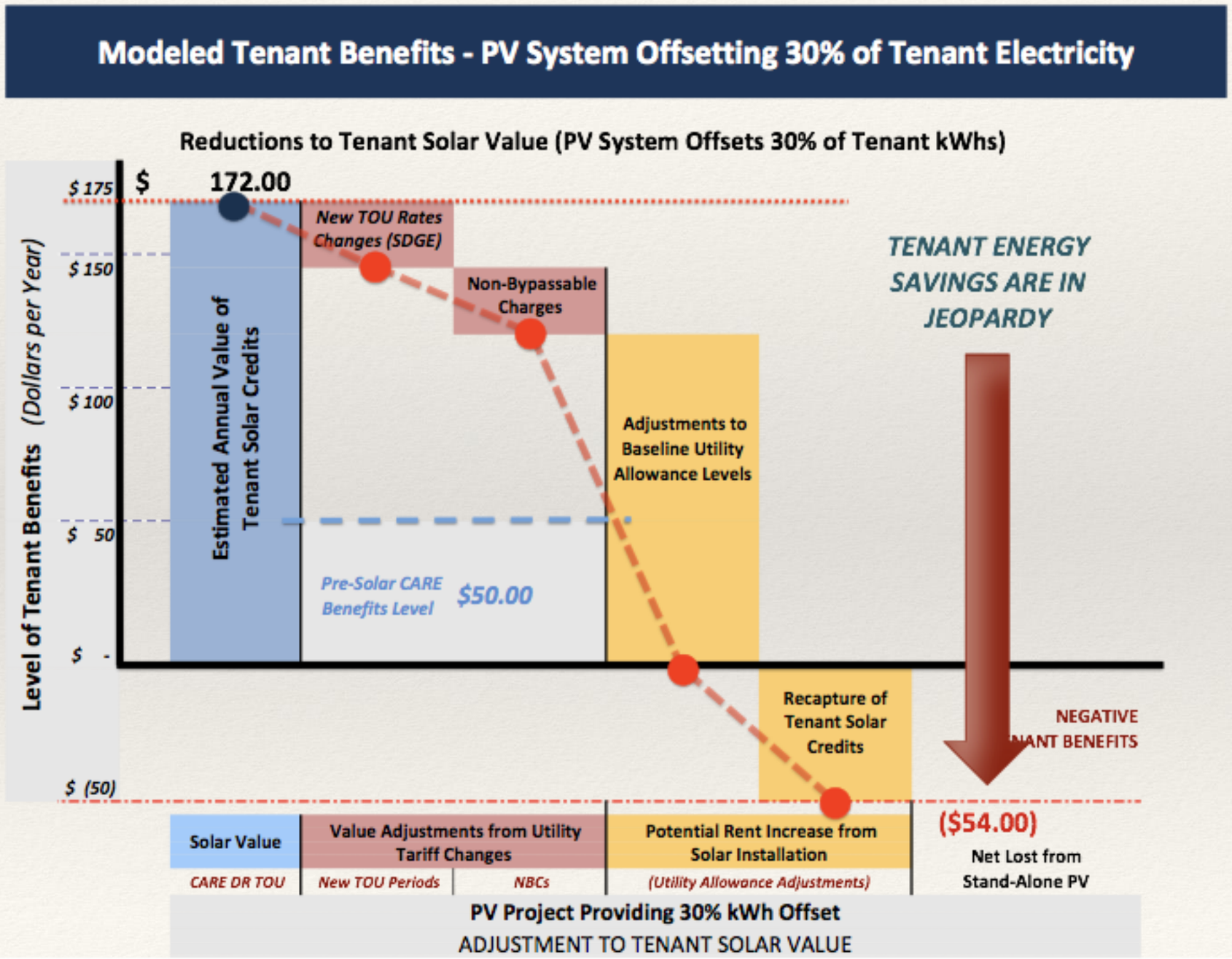
Is the level of savings from UA Adjustments Predictable?

- Doubtful. Depends on PHA UA schedule and modeling rules.
- <u>Factors affecting outcomes</u>:
  - *Existing policies/UA schedules*
  - *Utility rates*
  - *UA methodology*

<u>Innovative Solutions</u>

(1) *CA CUAC (new construction)*
(2) *Solar Utility Allowances*
(3) *On-bill Recovery*

The Utility Allowance Dilemma: Is it worth the cost?



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QUESTIONS

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