

# *HEPG – Value within the Distribution System*

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# There is Hidden (and Not So Hidden) Value

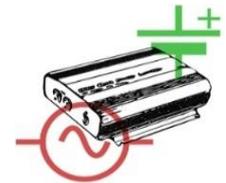
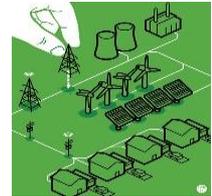
- Policy: Maximize the value captured by customers (safely)
- Where “value” is already identified and available, it should be used
- Where value is not transparent, preference for market forces to reveal value
  - Deferred distribution infrastructure
- Using DERs for Distribution reliability requires new solutions
  - Reliability services vs. energy arbitrage
- Foundational difference between Distribution reliability and wholesale energy transactions

Capture value – don't simply transfer value

# SCE's objectives for Distribution Resource Plan

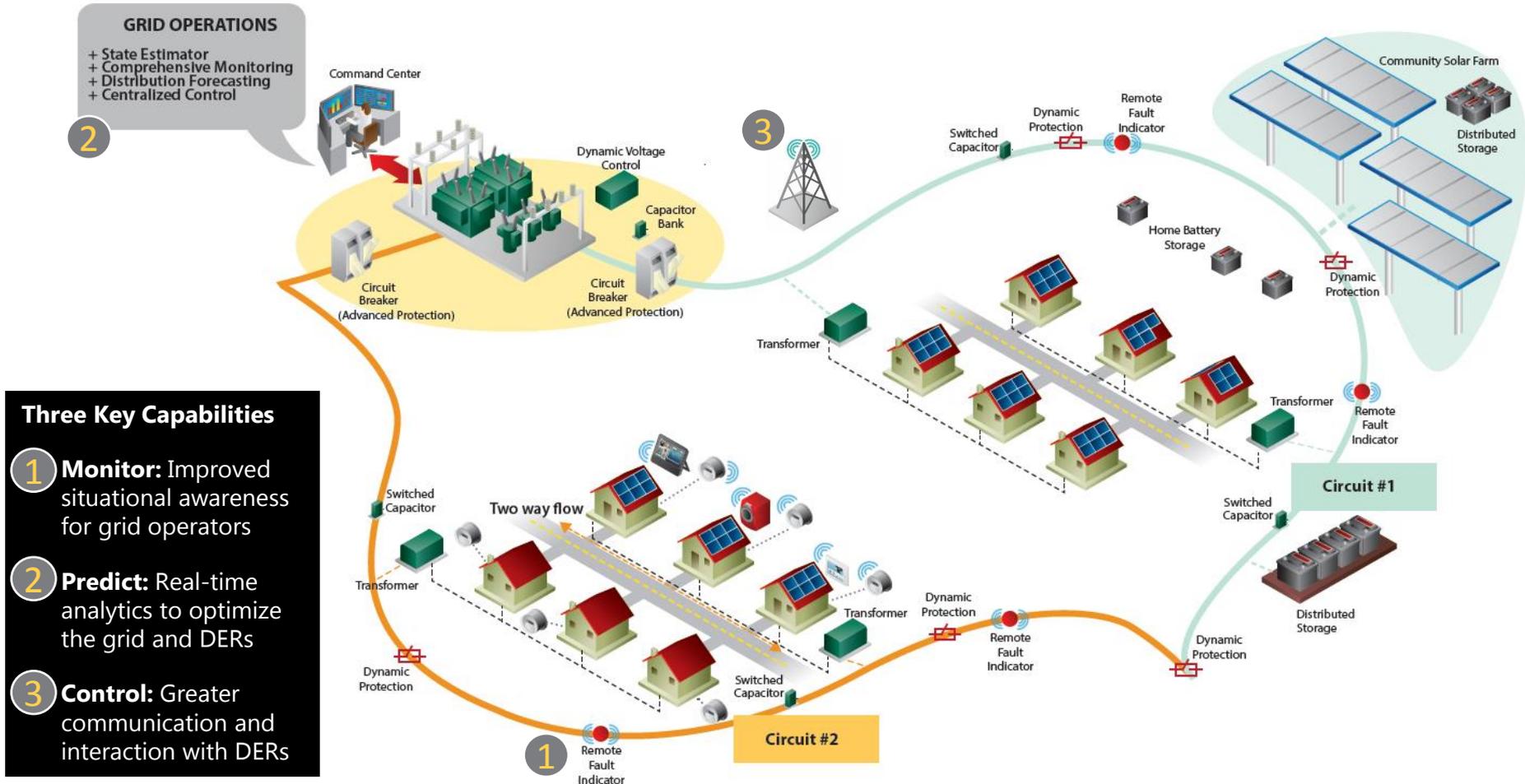
SCE's Vision – We will enhance customer choice and the electric system's capability to enable, integrate and realize the benefits of DERs at the distribution level through:

- **Transforming** our approach to distribution planning
- **Enabling** tools, technologies, and data sharing to support DER growth and create more opportunities to provide grid services
- **Proactively investing** in infrastructure upgrades and advanced technologies to add more DERs while supporting safety, reliability, and resiliency



# SCE's vision for a 21<sup>st</sup> century power system

The modern grid will allow variable, two-way electricity flow, maximize DERs to support customer choice, improve data management with cyber mitigation, and enhance grid operator situational awareness. SCE proposes investments in distribution and substation automation, communication systems, information technology, and system planning tools.



Transparent Value – Use It

Non-transparent Value – Discover It

## **Energy Dispatch of Existing Assets**

### **(Dispatch Markets)**

- Distribution “energy” assets in organized markets have proximate and temporal access to market prices for energy – Use It
  - Real-time retail energy rates aligned with wholesale LMP (e.g. overgen)
  - At a minimum, TOU rates directionally aligned with wholesale energy prices

## **Alternative Assets for Traditional Distribution Deferral**

### **(Infrastructure Markets)**

- Make alternatives compete for infrastructure; let a competitive process produce price discovery - Discover It
  - Avoid predetermined payment schedules based on deferral values
  - Ensure customers capture value of more efficient build; avoid transferring value to suppliers and leaving customers without benefits

Distribution Reliability:

It's **not** "just a lower voltage Transmission grid"

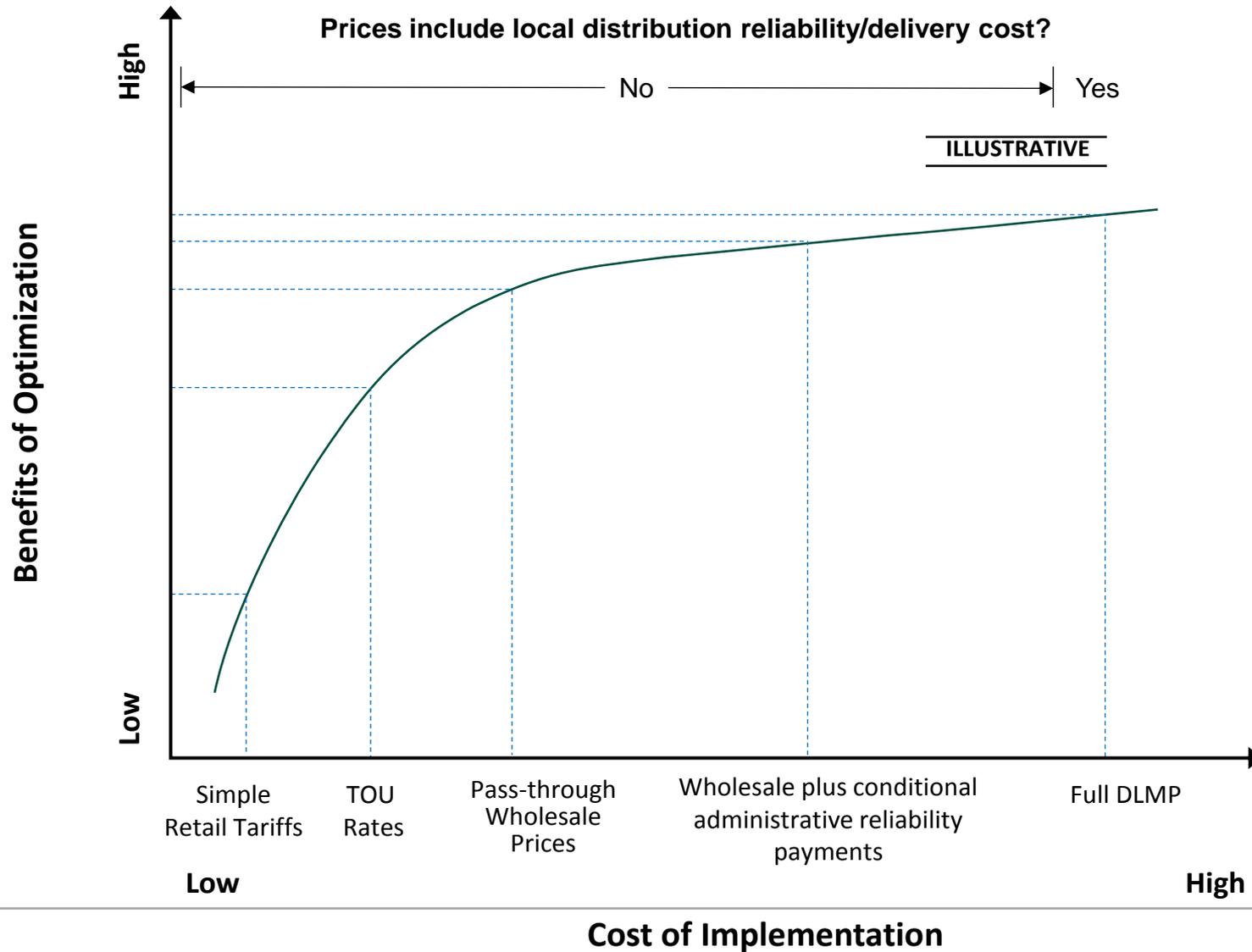
**DER's providing distribution reliability require special consideration**

- Likely restricted/no access to broader energy markets when serving local distribution needs
- May be dispatched counter to energy price signals (e.g. local battery discharge during periods of negative wholesale prices)

**Simply extending ISO LMP prices "down to the blender" appears impractical and unworkable**

- Scope of reliability responsibility of grid operator(s), jurisdiction
- Radial nature of D circuits requires local action/limited competition/high risk of market failure
- Non-congestion issues which LMP doesn't address (e.g. circuit switching, voltage support)
- D-grid circuit count dwarfs T; computational issues of an accurate simultaneous solution of macro T (MW) and micro D (kW)

Going beyond the pass-through of wholesale prices may provide few incremental benefits but would require expensive and extensive implementation to support



# What to Do with Distribution Reliability?

## **Develop new “DLMP” to price local D reliability?**

- System complexity and cost, but how much incremental benefit?
- Must address likely D market failures – administrative backstop
- Must “synchronize” DLMP prices (absent D local reliability) with wholesale LPM prices surrounding organized markets

## **Command and control via administrative terms?**

- Similar to RMR contracts operated at the command and control of the ISO grid operator
- Payments administrative/tariff based rather than real-time market based – tariff terms could be result of competitive infrastructure markets

## **Hybrid of conditional LMP prices and administrative payments?**

- Administrative when used/reserved for D reliability
- Account for mutually/partially exclusive payments
- Access to LMP energy prices when not needed for reliability

# In Summary

- There is value - ensure customers capture value
- Keep in mind three major dimensions of distributed resource value:
  - 1) Selection process for alternative D infrastructure
  - 2) Economic energy dispatch/pricing of DERs
  - 3) Distribution reliability operations via DERs
- Leverage existing wholesale LMPs where appropriate; acknowledge their limitations and the need for additional tools