Intelligent Generation

or

"How the smart grid made it possible for me to love distributed solar and energy storage in the land of 10 cent per kilowatt-hour electricity."

Jay Marhoefer,
CEO & Founder

IG

Intelligent Generation LLC

IG Snapshot

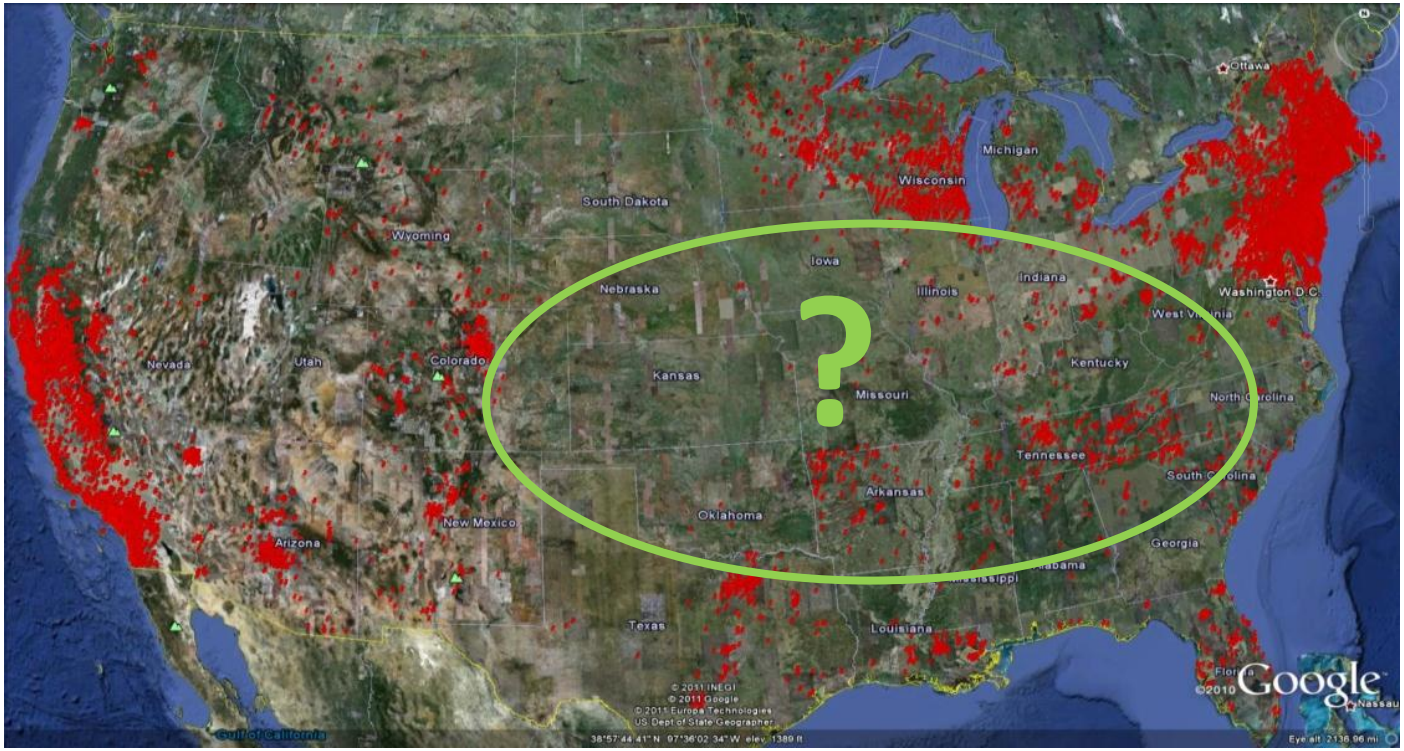
IG is a Chicago-based smart grid/distributed solar + storage software company.

IG aggregates distributed solar + storage into virtual power plants at a scale that can participate in wholesale power markets while reducing customer bills.

- Pilots
- Partnerships
- Praise
- Patents
  - 2 issued, 1 pending

Solar's challenges

- **Economics don't work** in Midwest without significant incentives.
- Seasonal PV production **does not track well** with seasonal demand.



galvin center for electricity innovation at ILLINOIS INSTITUTE OF TECHNOLOGY

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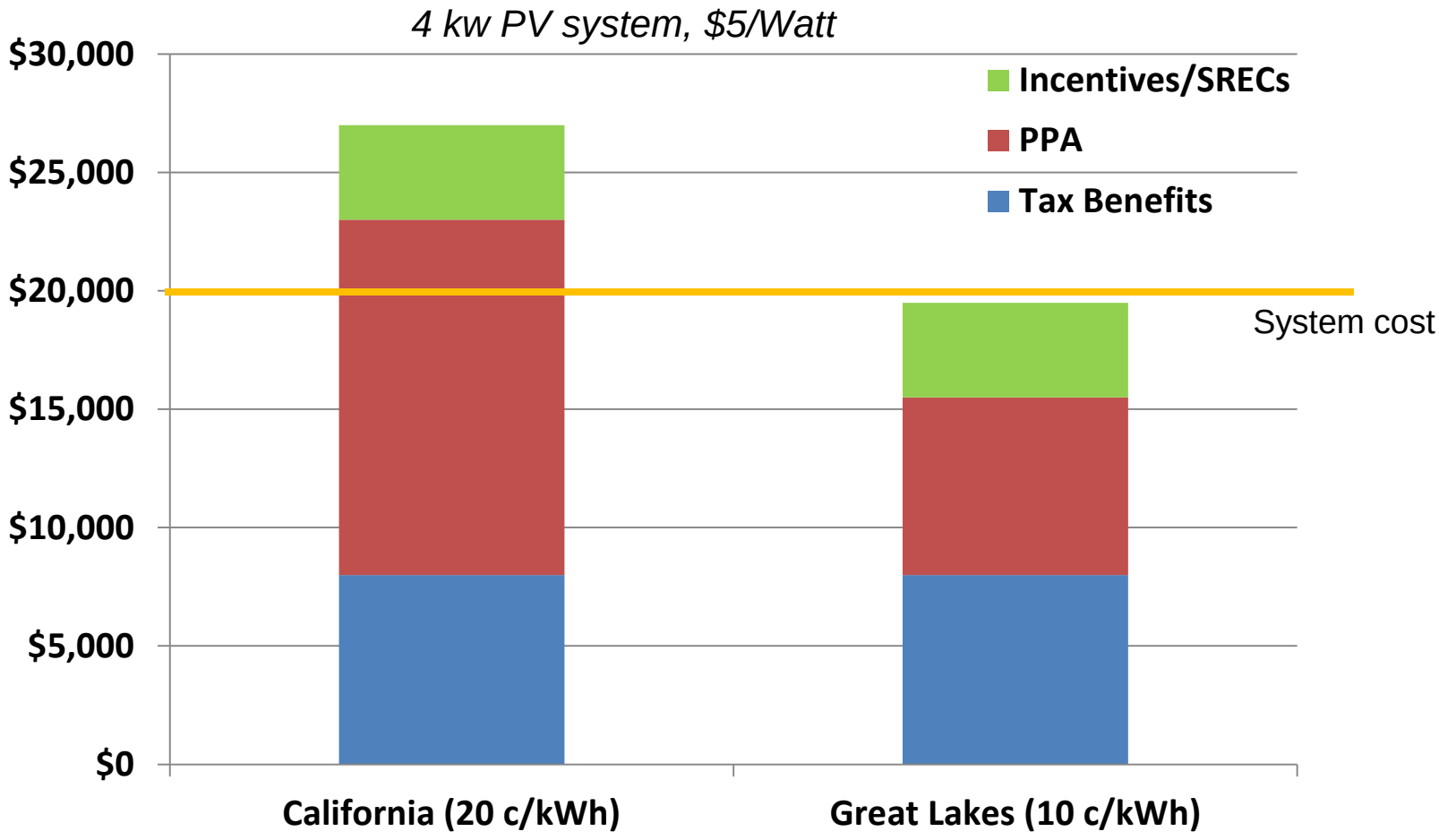
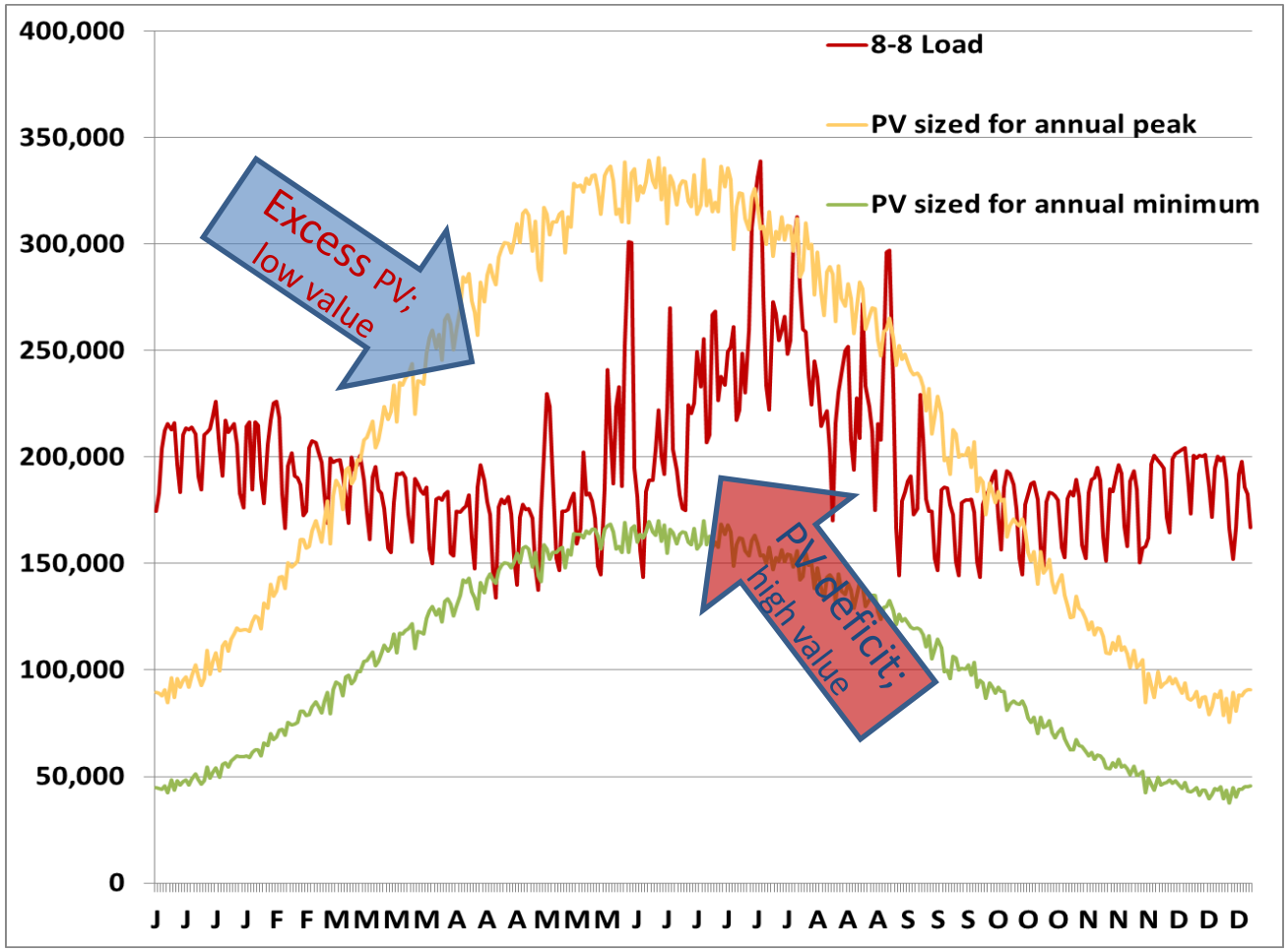
Unbankability

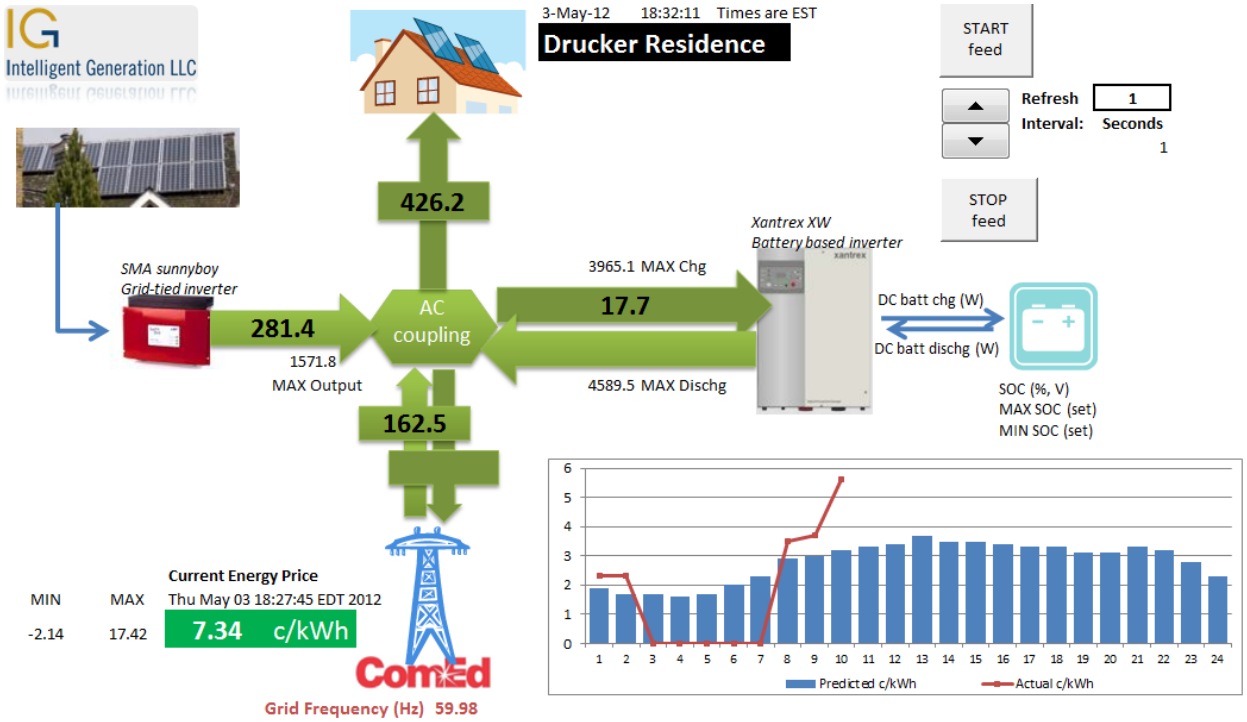


Seasonal disconnect

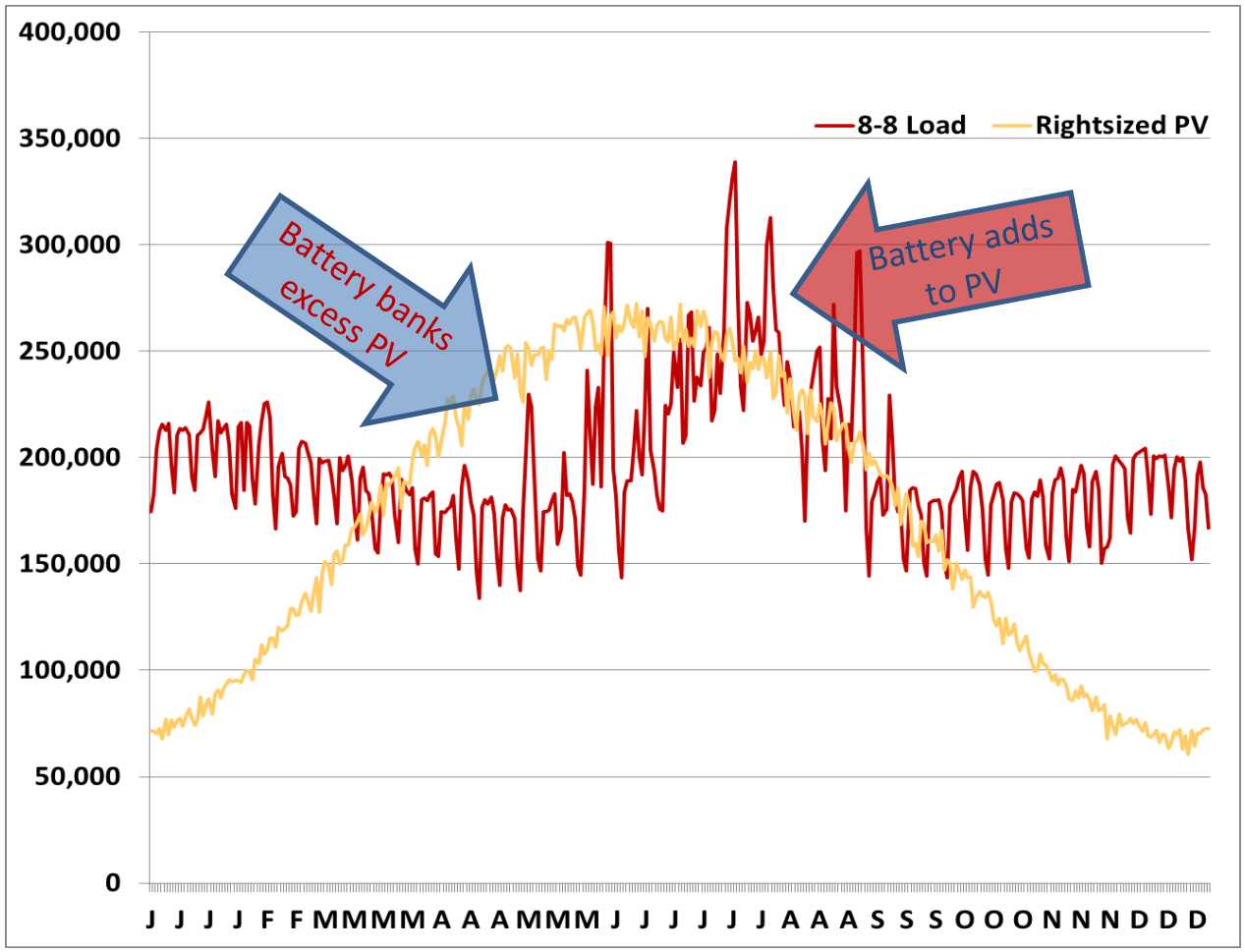


IG's solution

1. ***Rightsize*** the PV/storage system.
2. Network distributed assets into ***virtual power plant***.
3. Participate in ***wholesale power markets*** and provide ***retail savings***.



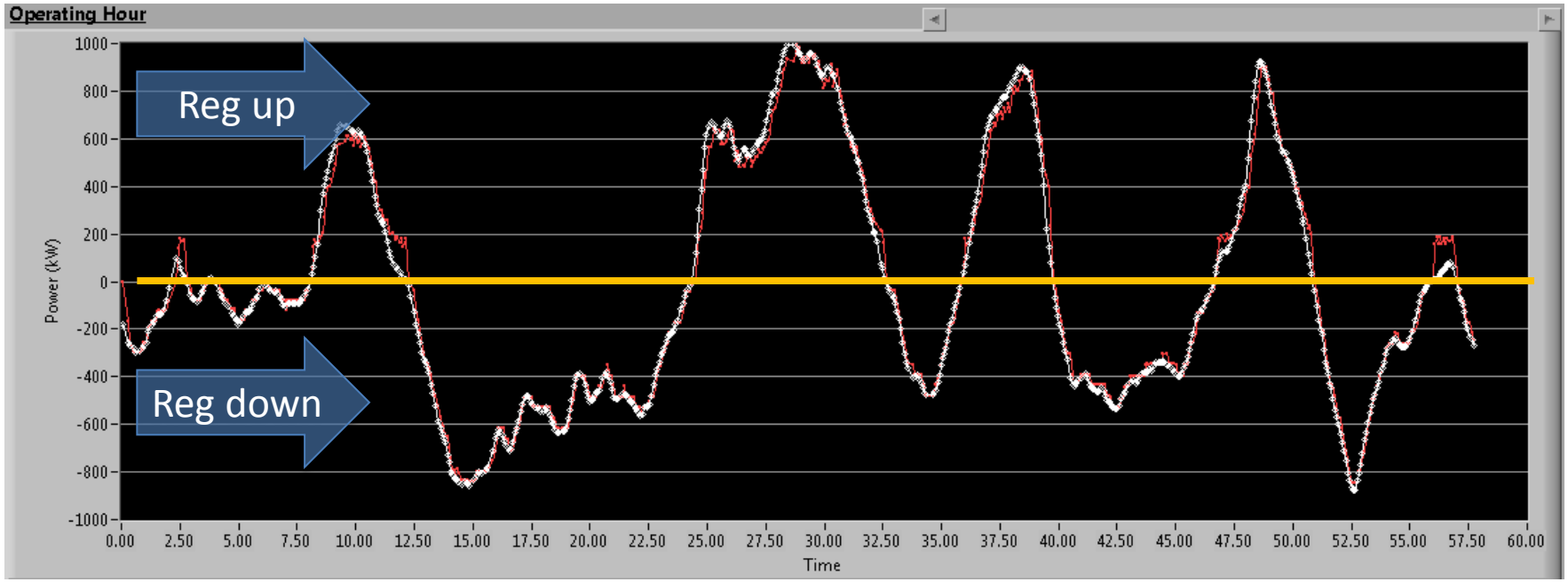
Right-size the system



Virtual power plant

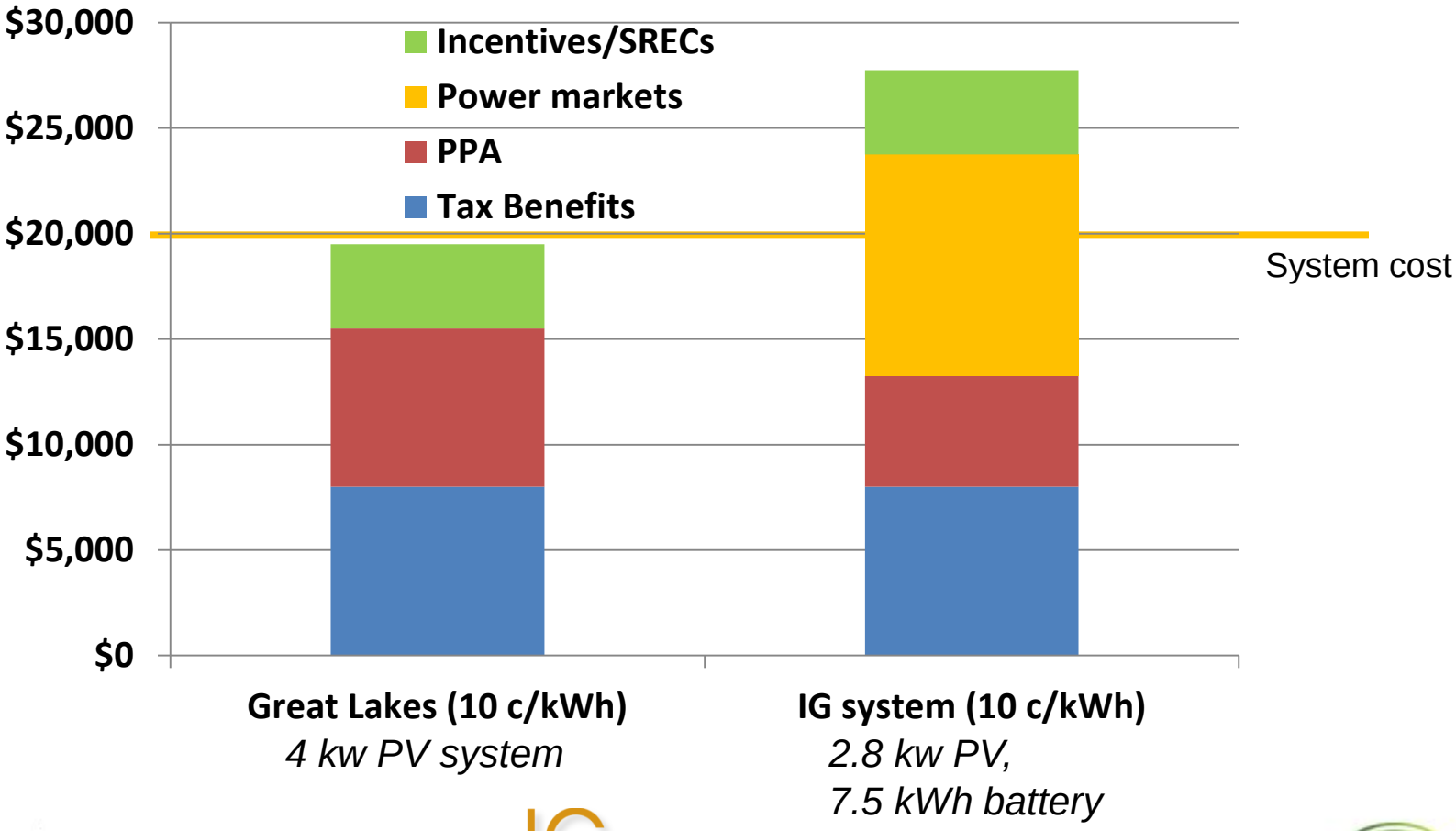
Market/savings	Wholesale	Retail	Benefit
Energy	●	●	Arbitrage
Capacity	●	●	Avoided generation investment
Regulation	●		Transmission grid quality
Demand charge		●	Avoided distribution investment
PV firming	●	●	Dispatchability
Backup power	●		Reliability

PJM fast response frequency regulation



- White signal for regulation up/down comes from PJM.
- IG allocates PJM signal among multiple sites.
- Red line is IG's response.

Bankability



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Summary

- Capital efficient, elegant solution with huge, untapped market
- Confidence, momentum and results
- Validation from industry leaders
- Incumbent position in Chicago: new locus of smartgrid/clean tech

Intelligent Generation™ – be a part of it