



PETRA SOLAR®

Intelligent Energy By Design

Monetizing Value in Existing Assets

Utility Owned, Pole Attached PV



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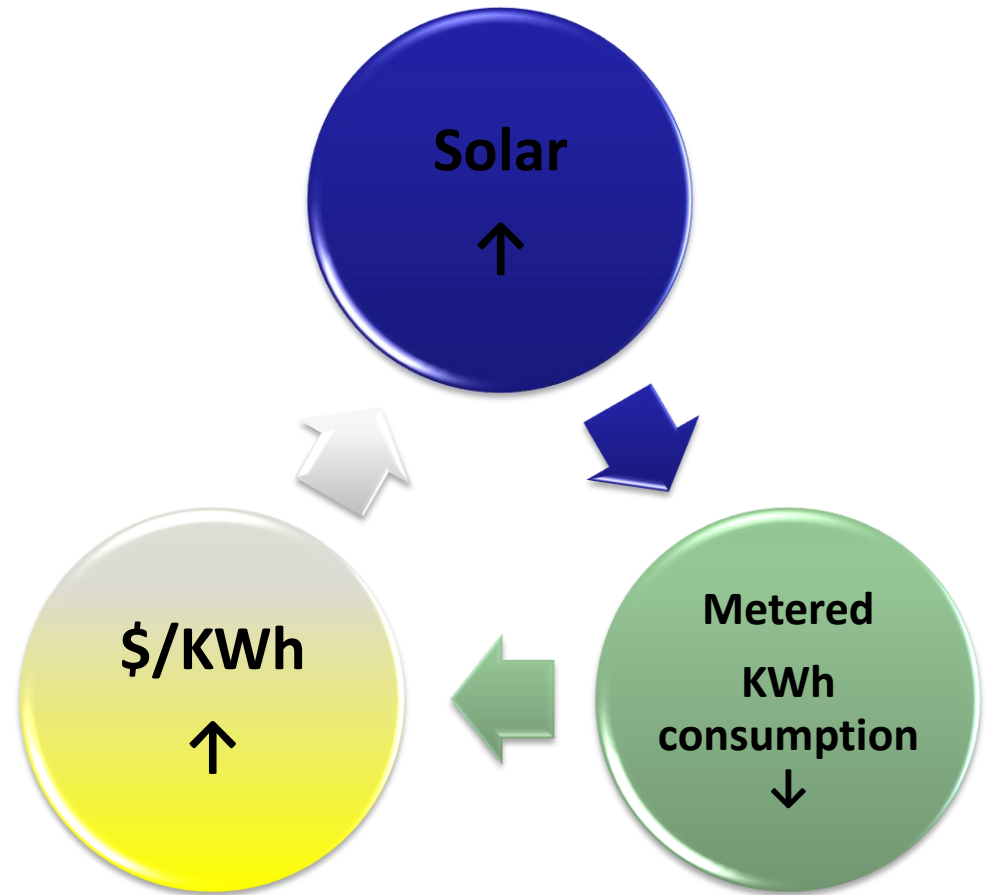
The Solar RPS Dilemma For The Utility Industry

Acquiring enough renewables presents a challenge for utilities

- Direct ownership is part of the solution, however significant constraints exist
 - Large scale ground –NIMBY, land availability and cost, permitting, siting, transmission availability
 - Rooftops – High customer acquisition costs; payment to 3rd party required
 - Policy and legislative obstacles to direct ownership
 - Utilities cannot own solar outside of their own assets in certain states

Technical solutions for grid stabilization are absolutely necessary

- Meeting long term RPS targets are next to impossible with today's solar and grid technologies
- DOE SEGIS provides technical roadmap



Further Significant Challenges

Utilities suffer further logistical, technical and economic challenges that prevent large scale deployment of solar power.

Challenges

Long Term
Maintenance Contracts

Fire and Safety
Regulations

Multiple Single Points
of Failure

High Labor Costs

Challenging Debt
Markets

Solar
Project
Bottleneck

Exacerbating Trends

More projects in pipeline

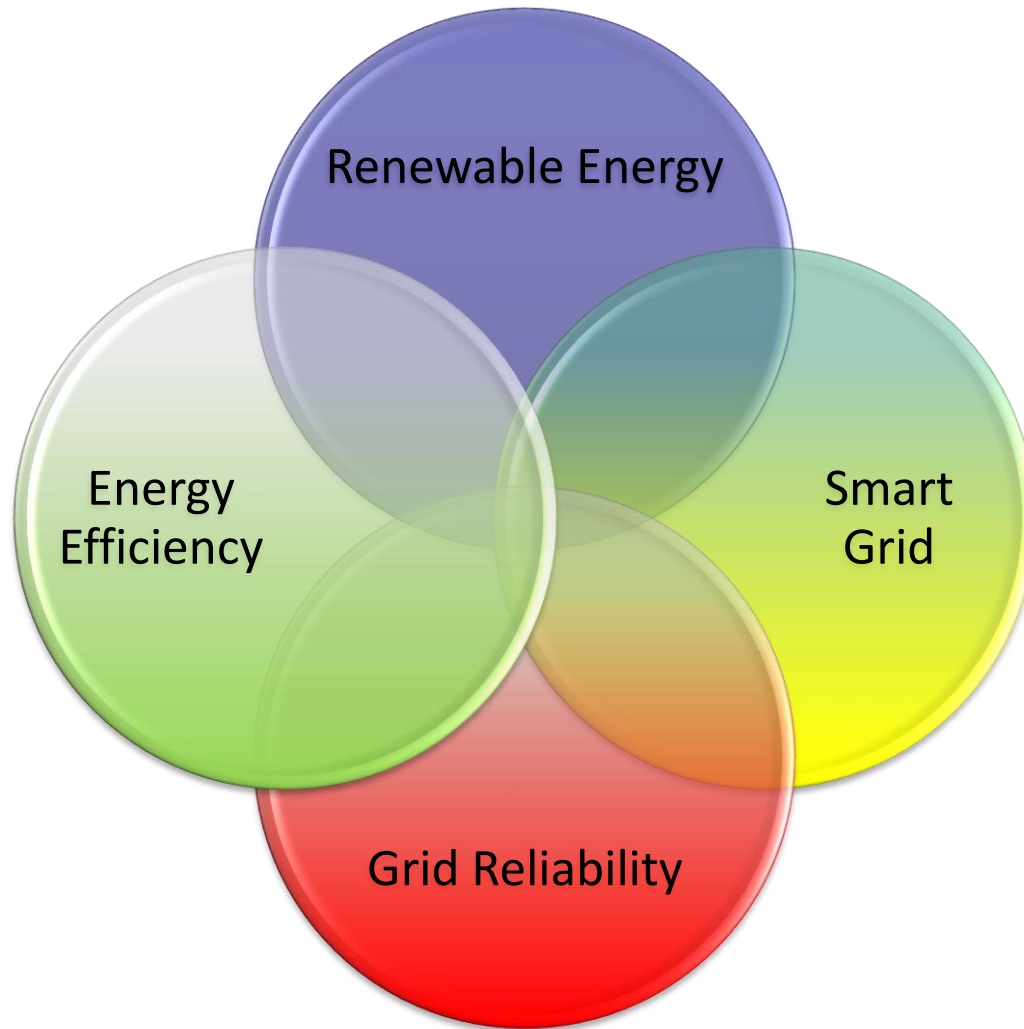
Greater site diversity

Larger sized projects

Growing installation complexity

Growing related costs
(land, connection, permits)

Necessary Components for Utilities



US Utilities: At An Inflection Point

- Regulated utilities now benefit from 30% Income Tax Credits (ITC) per the “Emergency Economic Stabilization Act of 2008”
- Utility companies have access to stimulus funding, particularly for “shovel-ready” programs that create green jobs
- Federal Government promoting a national RPS
- More US States have published goals or mandates for renewable energy generation within the utilities portfolio, referred to as Renewables Portfolio Standards or “RPS” and many have carve outs specifically for solar
- Utilities have historically been at odds with the solar industry because net-metering reduces utility revenue
- **Direct ownership of solar assets increases utility revenue through capital deployment and rate base recovery**

Monetizing the Asset Base

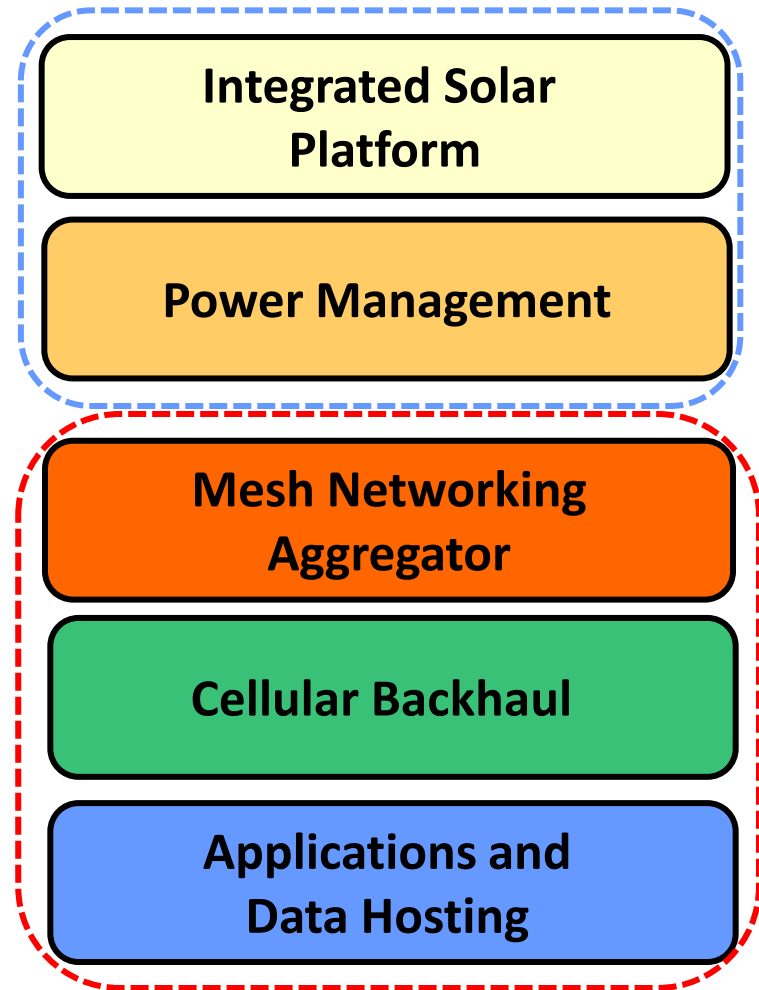


Pole Mounted Solar/Smart Grid Solution Eliminates Key Bottlenecks

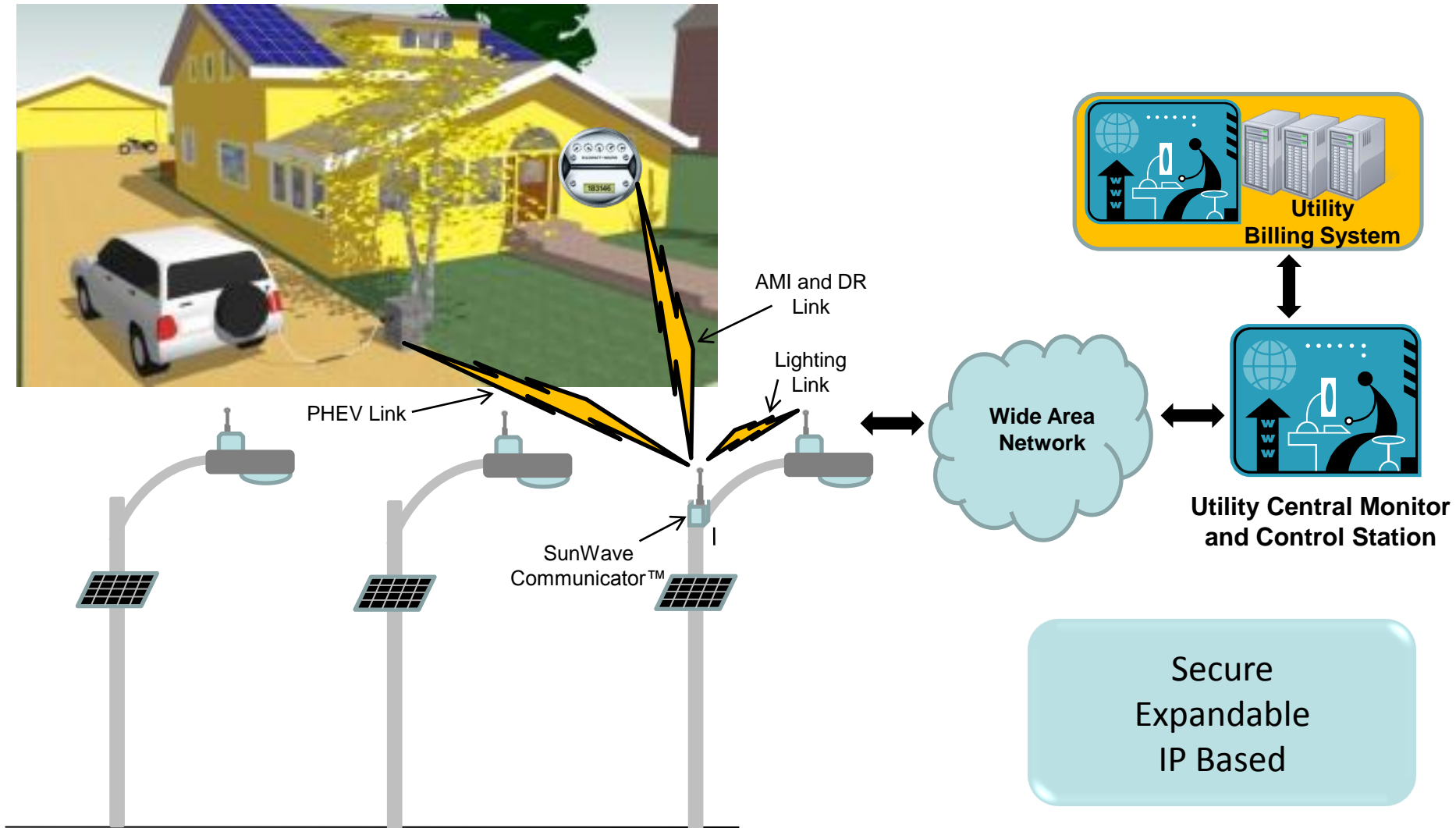
- Enables profitable, direct utility ownership of solar
- Predictable and shovel ready
- Increases grid reliability and address solar intermittency
- Accelerates ROI
- Enhances existing asset base
- Installation shifted to leverage existing utility labor and asset force significantly **reducing risk, time-to-operation, and acceptance**
- **Distributed single-panel solar** deployment across enormous pole-based assets nationwide.
- Pole mounted solar is also a path of least resistance to build **smart grid infrastructure**

Integrated Smart Grid Solution

- Necessity for an end-to-end solution
- Solar, Smart Grid, and Power Management in one platform
- Compatibility with planned/existing Smart Grid communications solutions
- Power management necessary for stabilization of the Distribution Grid
- Pole mounted of solar adds increased value through Smart Grid and Power Management attributes

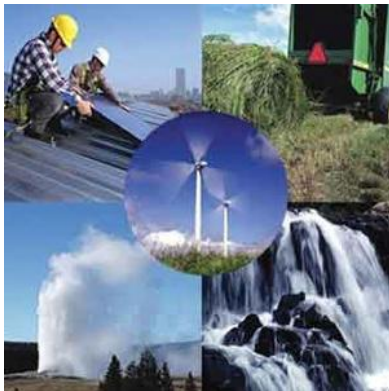


Smart Grid Expandability



Economic Development Engine

- Ecosystem for Success
 - A compelling ROI for utilities that has been validated
 - Electric utilities, Solar Manufacturers, PUC's, State and Federal
- Deployment is “shovel ready” qualifying for state and federal stimulus funding and providing near real time creation of “green jobs”
- Populating 10% of the nation's utility poles creates
 - **7.8 billion KWh** of Clean Solar Energy
 - **14,000 Green Jobs** from Assembly to Installation



Conclusion

- The asset base is a currently untapped resource to address renewable obligations.
- There is an opportunity to enhance the operation and reliability of the Distribution Grid as a result of solar deployments on existing pole assets.
- Utilities can realize superior rates of return on asset enhancement investments.
- Technology exists today to make a significant impact



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Thank You



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