

Succeeding with Distributed Energy Resources: Early Lessons Learned

Chris Ash, Itron & Pablo Bauleo, Fort Collins

Lessons in...

- Where to start
- Communications
- Architecture
- New business models
- What next

Where we start, is unique to you

Changing load shapes
Lack of visibility
Intermittency
'Masked' Load
Reliability
Safety
Planning
Eroding Revenue

Examples:

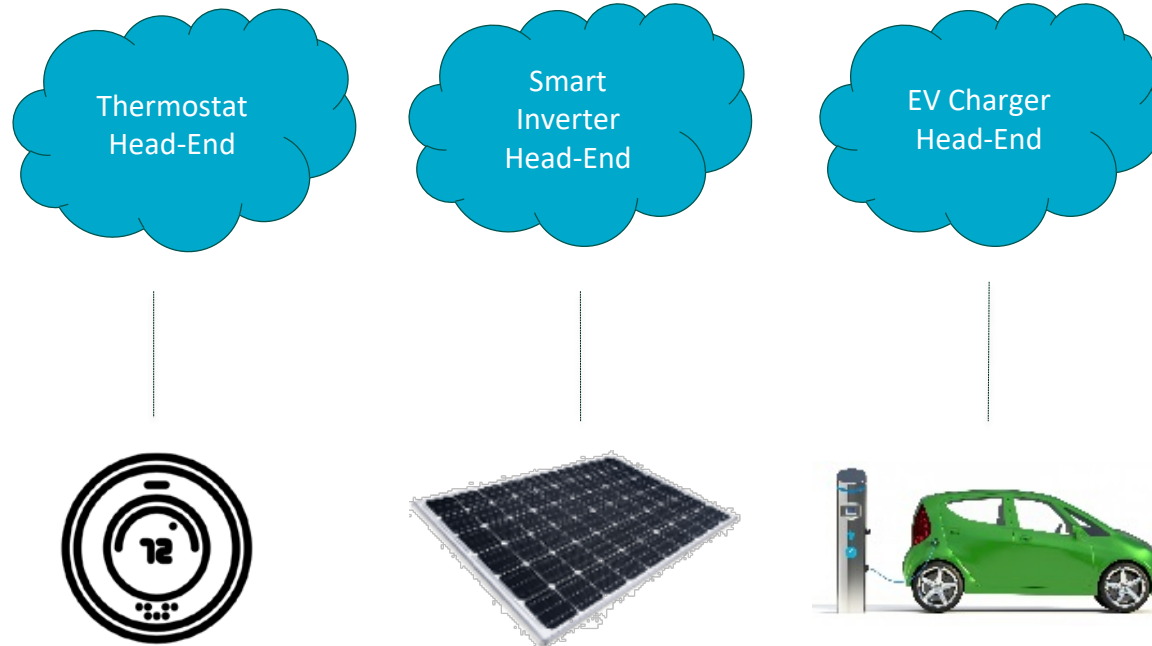
Manage the duck curve

"Micro"-NWA with EV Management

**NWA with Behind the Meter Standby
Generators**

Solar-awareness

Benefits are driving communication choices



Open Local Utility Utility Owned
Communications for Command and
Control

Trends beyond our industry are driving architecture

“Return to the Edge and the End of Cloud Computing”

Speaker: Peter Levine,
Andreessen Horowitz



Commonality about where to start: Where, When, What of DER's

DER Lifecycle

Vendor Relationships

Penetration Forecasting

Grid Impact Assessment

Rate/Incentive Design

Marketing & Enrollment

Installation

Forecasting & Load Flow Analysis

Optimized Configuration & Control

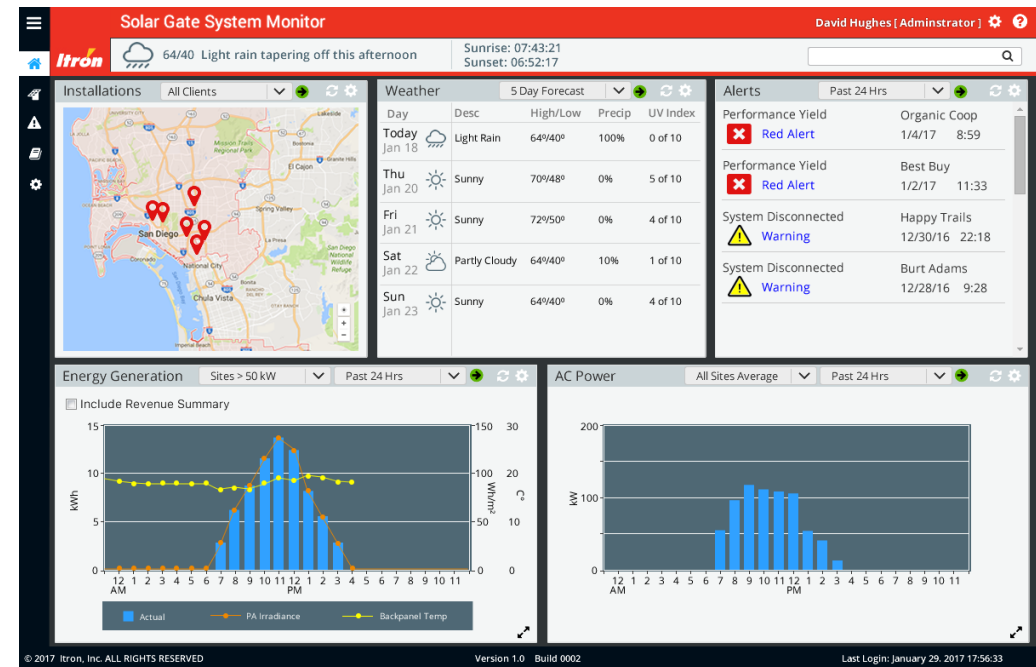
Settlement & Payments

Consumer Engagement

Customer Support

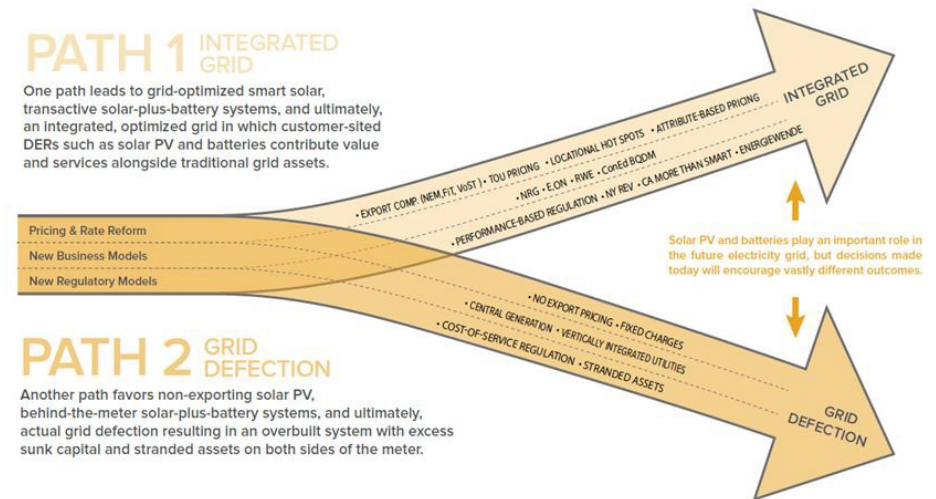
Commonality about where to start: Where, When, What of DER's

- ID and visualize the existing problems/opportunities
- Prioritizing the problems, and forming a plan
- Understanding of holistic consumer participation



A new world of engagement

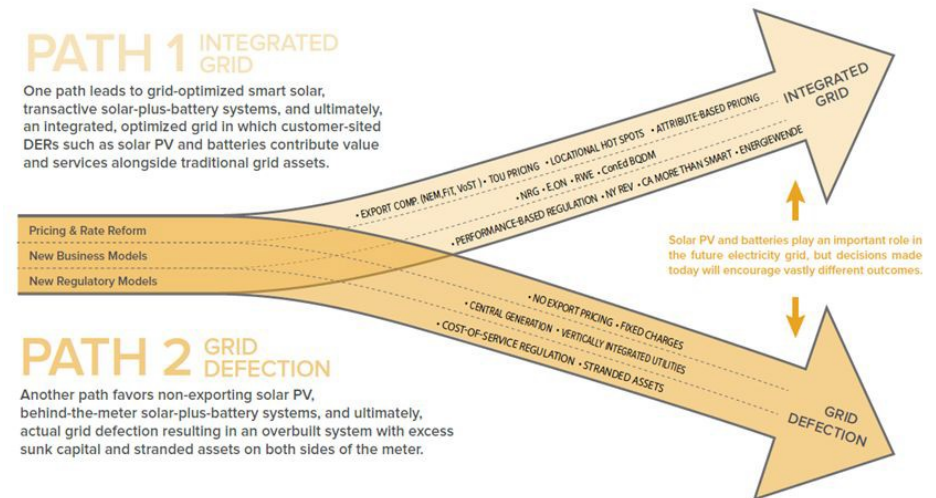
- New and Individual Program, Technology & Rate Recommendations
- Trusted Advisor and Auditor Role for DERs Acquired via Other Channels
- DER marketplace
- Roadmap for a customer engagement platform in the DER world



Rocky Mountain Institute, 2015, The Economics of Load Defection

A new world of engagement

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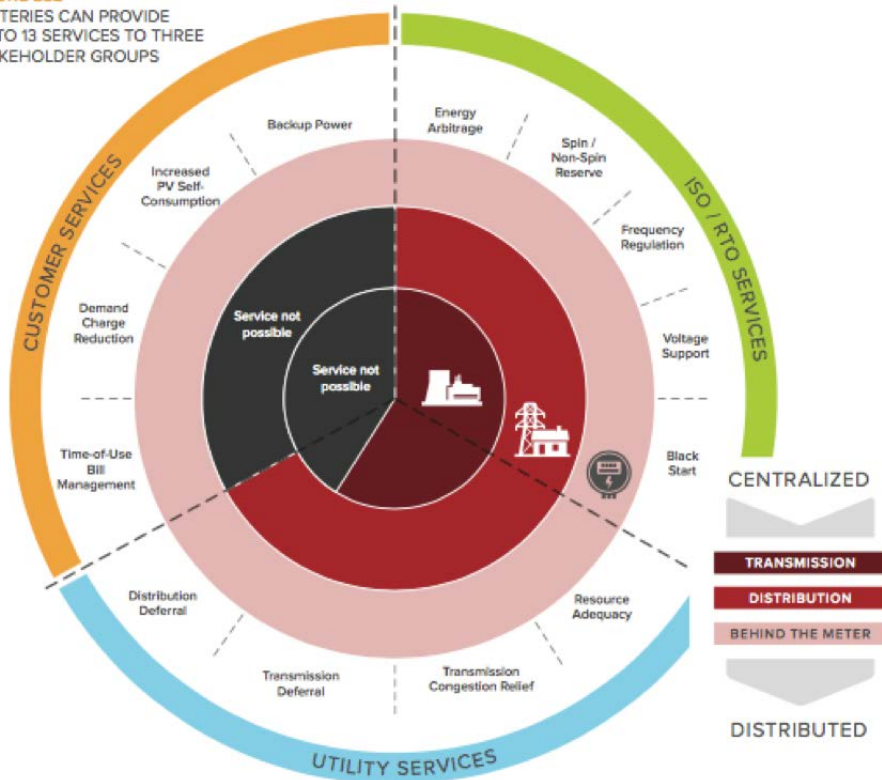


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Determine Grid Impacts & Manage Locational Value

Diversity in projects: resource orchestration vs. the capabilities of technologies in isolation

FIGURE ES2
BATTERIES CAN PROVIDE UP TO 13 SERVICES TO THREE STAKEHOLDER GROUPS



THE ECONOMICS OF BATTERY ENERGY STORAGE | 4

