

THE INTEGRATED GRID

REALIZING THE FULL VALUE OF CENTRAL
AND DISTRIBUTED ENERGY RESOURCES

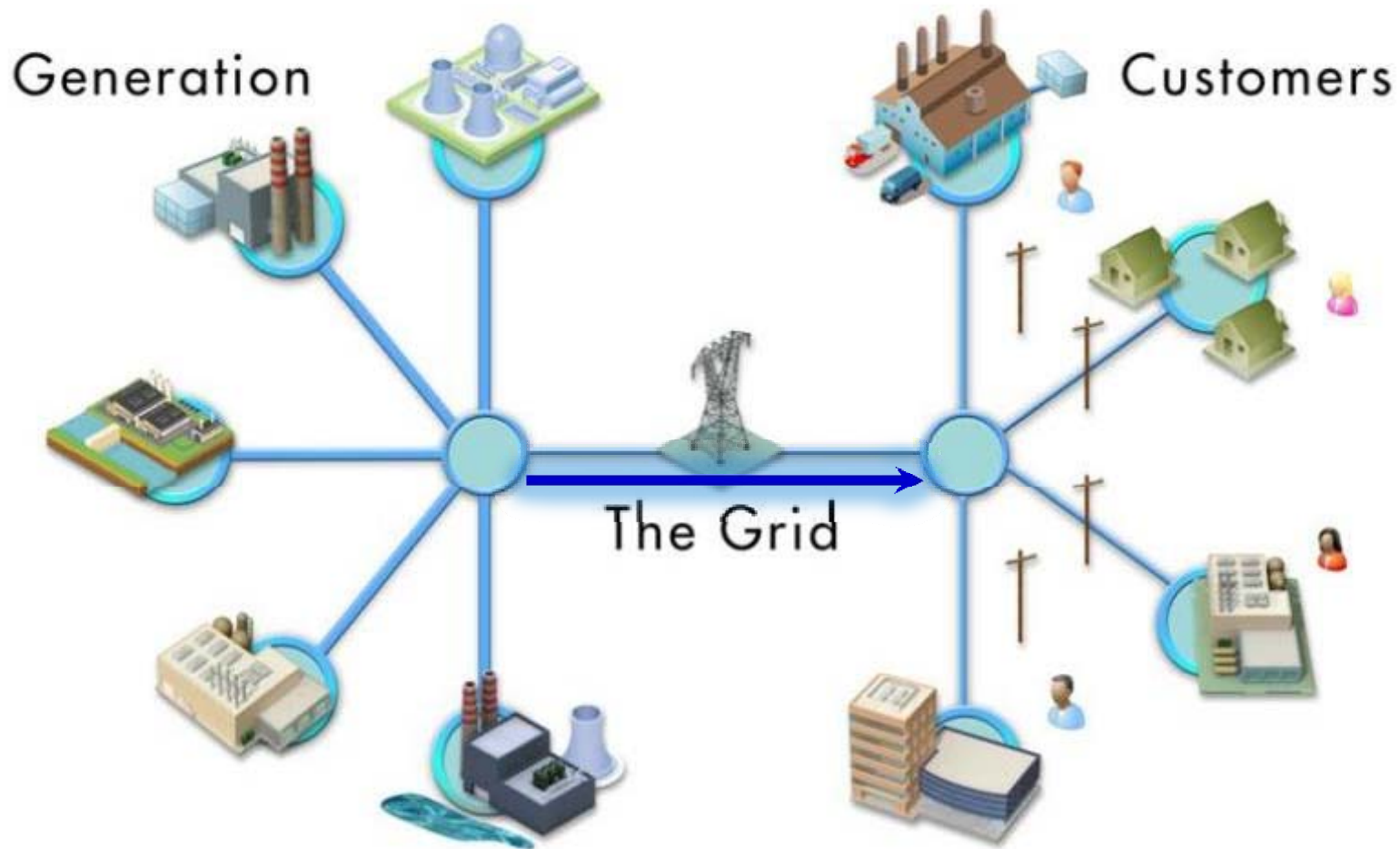
**Rob Chapman, VP Member &
Technical Services**

NECPUC

June 17, 2014

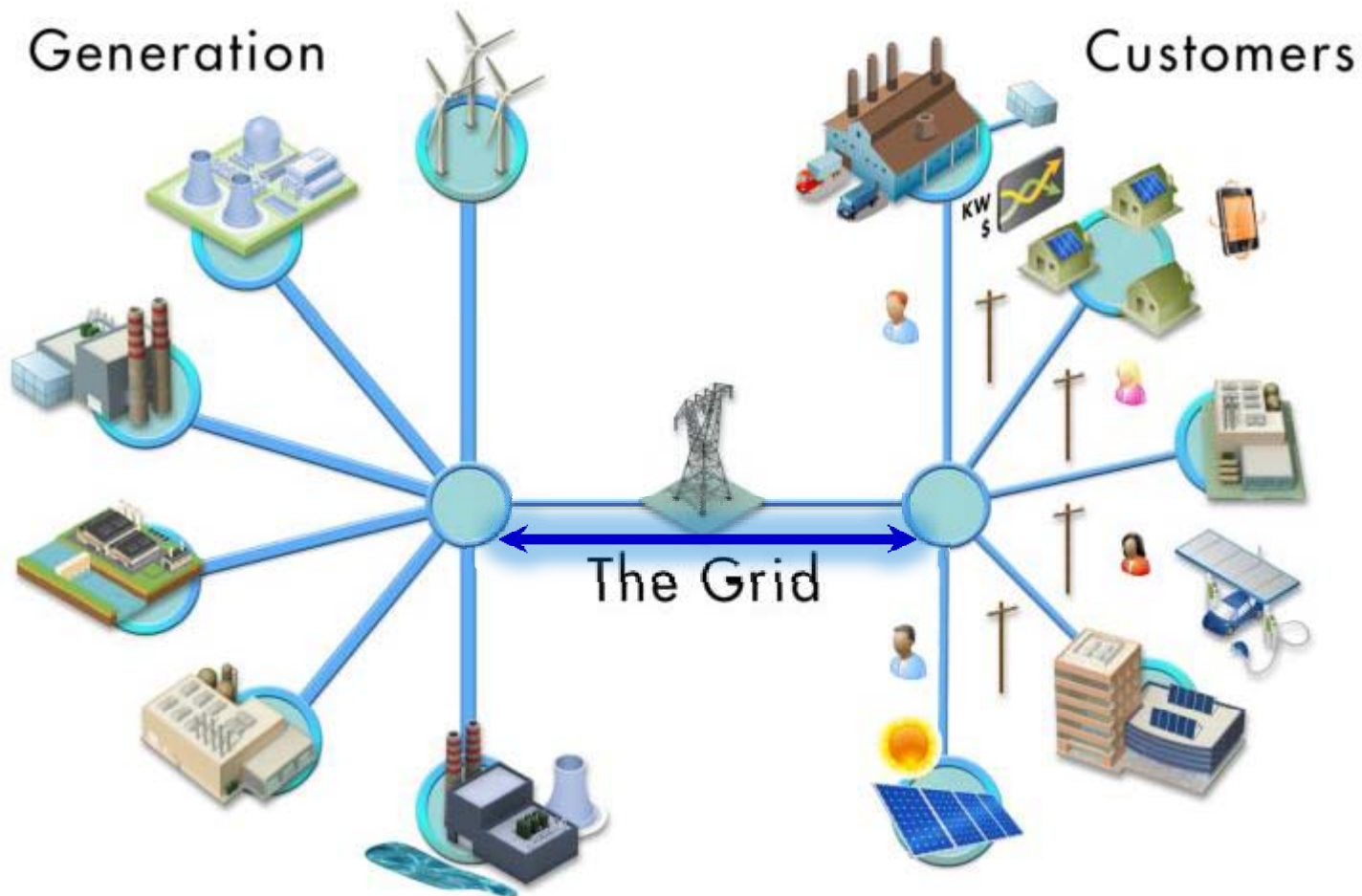


The Electric Power System...Today



Grid is Interconnected...Reliability is Maximized

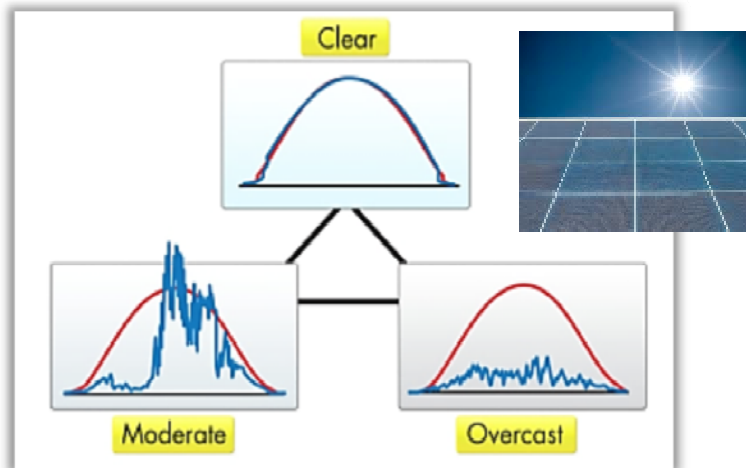
Looking Forward...What Changes



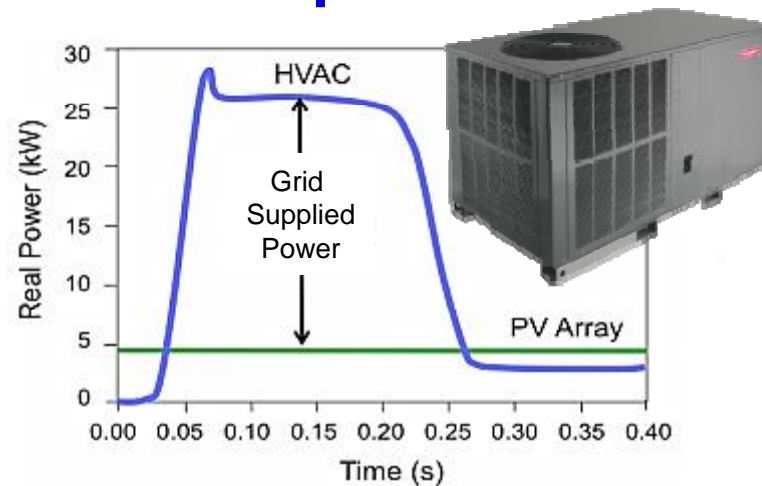
Grid is Interconnected...and Integrated...Value is Maximized

Value that the Grid Provides...

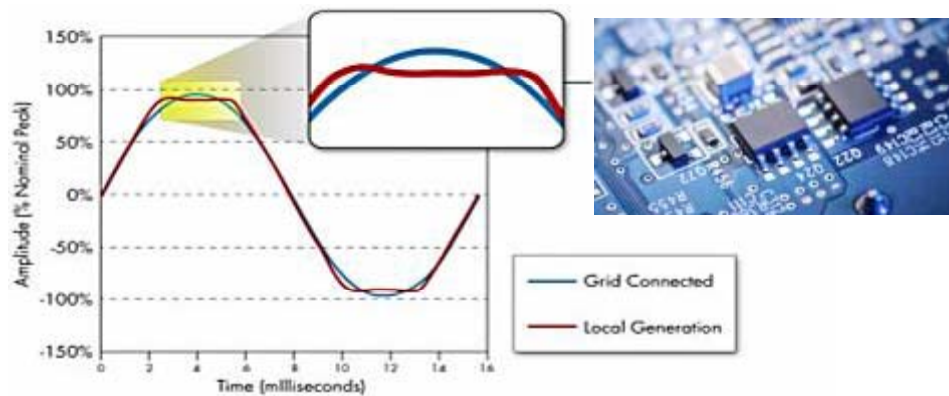
24 by 7 Electricity



Startup Power



Voltage Quality



Emulating the Grid...with Off-Grid DER

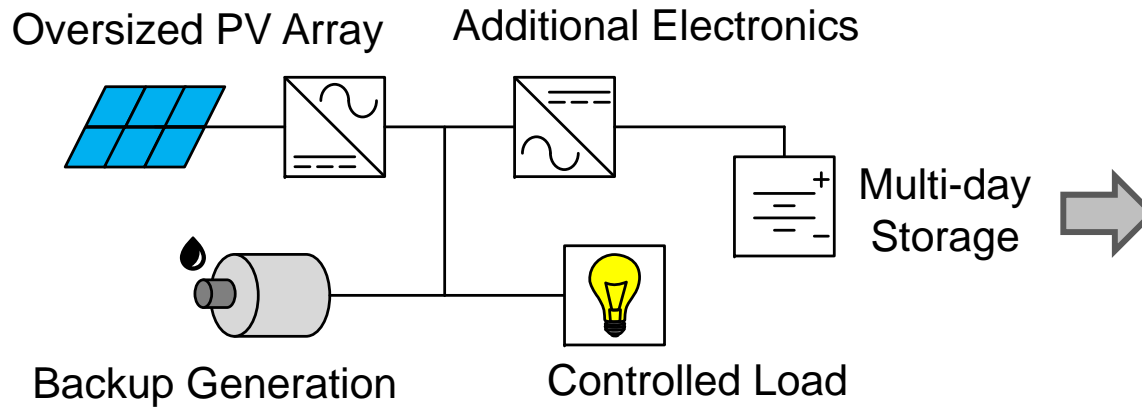


Photo courtesy of NREL

Monthly Cost to Provide Grid Services from Local Resources¹



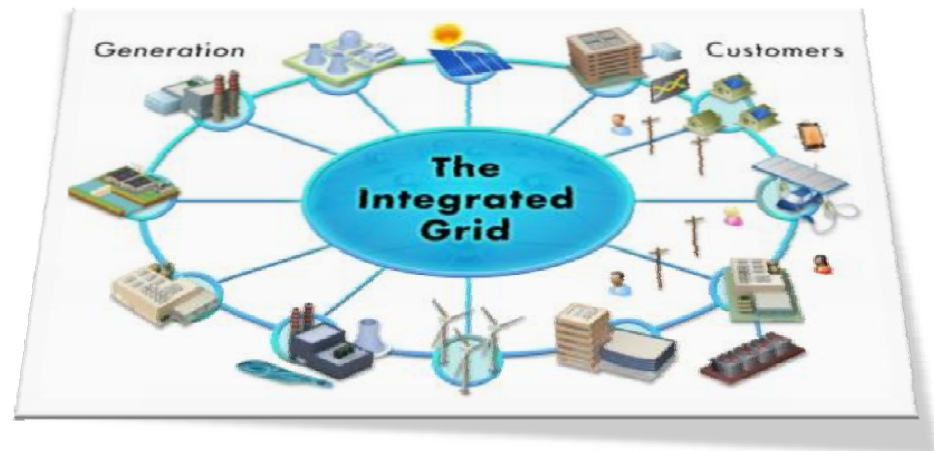
Projected Cost in 2020



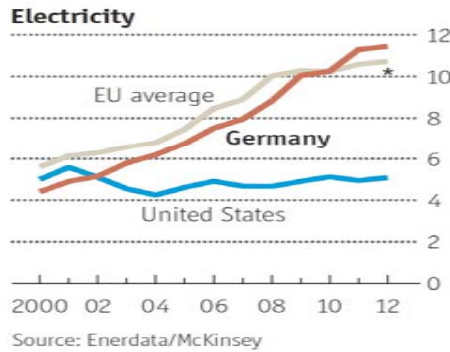
¹ Does not include additional cost of energy from local resources

Foundation of An Integrated Grid

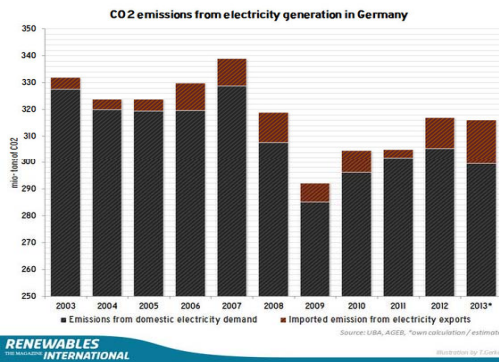
1. Grid Modernization
2. Communication Standards and Interconnection Rules
3. Integrated Planning and Operations
4. Informed Policy and Regulation



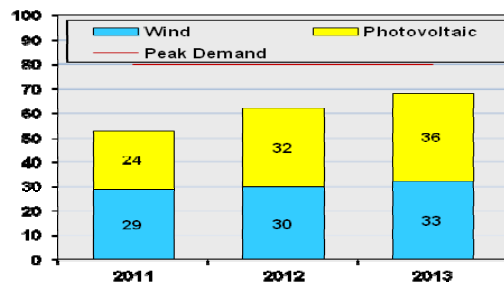
Lessons from Germany...



Energy Costs Up Significantly



Coal/CO₂ Emissions Not Reduced



Increased Risk of System Instability



Together...Shaping the Future of Electricity

www.EPRI.com/integratedgrid