

Item #3

**REDEFINING QUALITY
IN THE AGE OF SMART GRID:**
CONSUMERS AS PARTNERS IN TRANSFORMATION

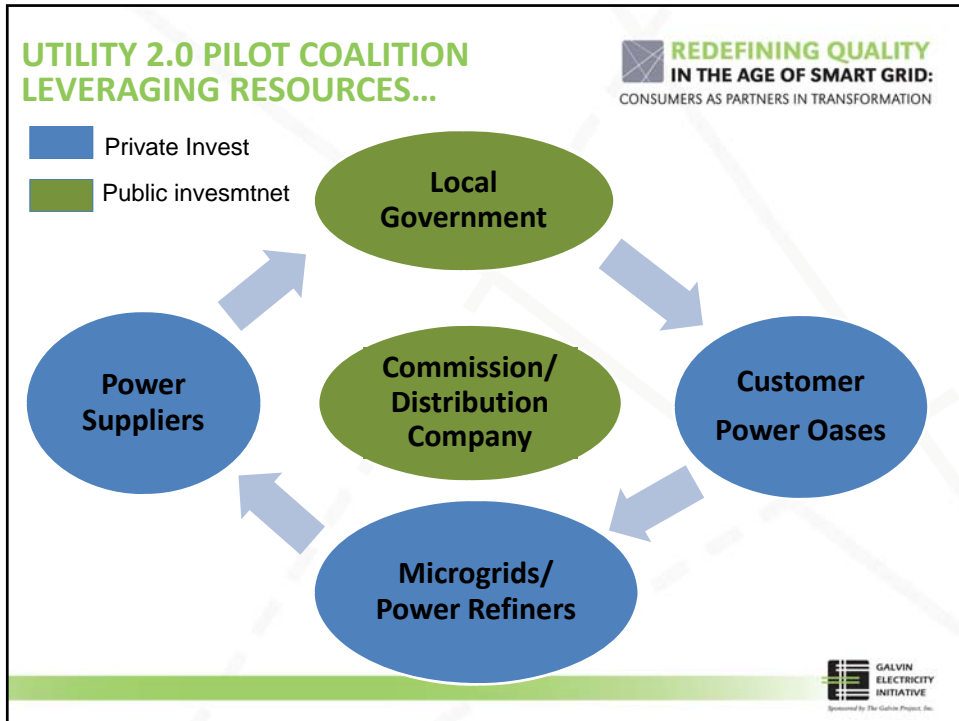
**Utility 2.0: Perfect Power
for Montgomery County**

HURRICANE SANDY LEFT 8.5 MILLION CUSTOMERS
WITHOUT POWER ON THE EAST COAST AND OVER \$30
BILLION IN DAMAGE AND ECONOMIC LOSSES

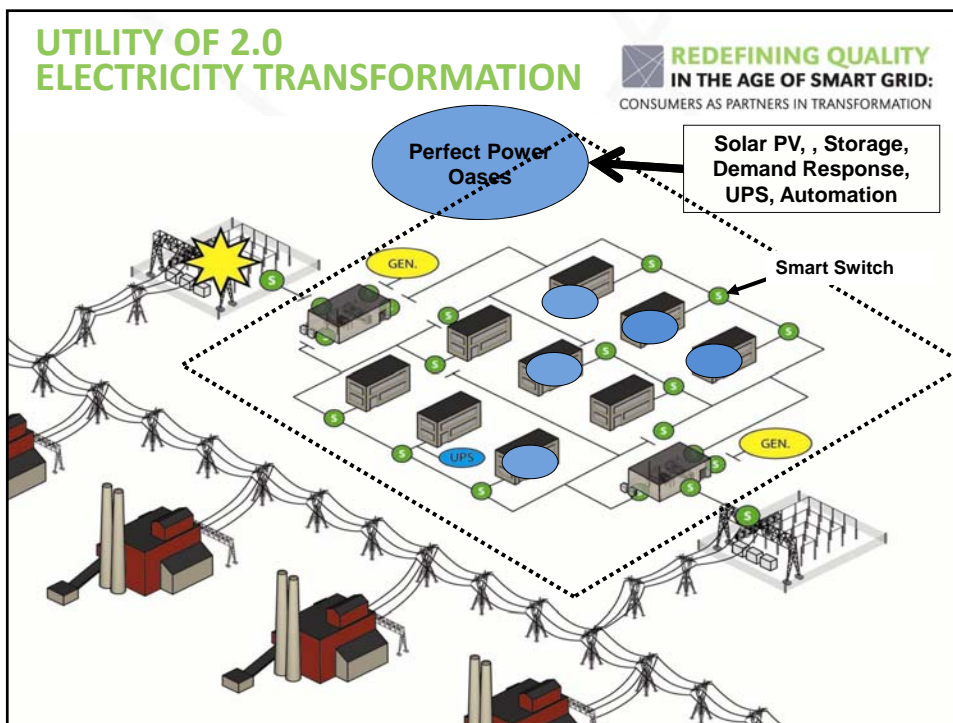
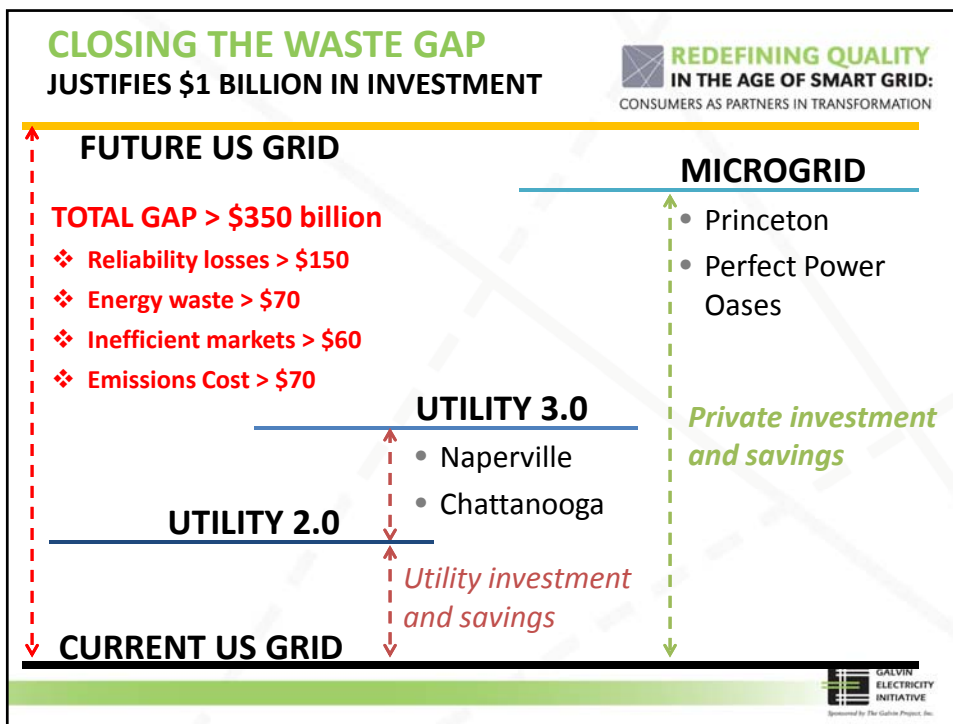
We can do better!

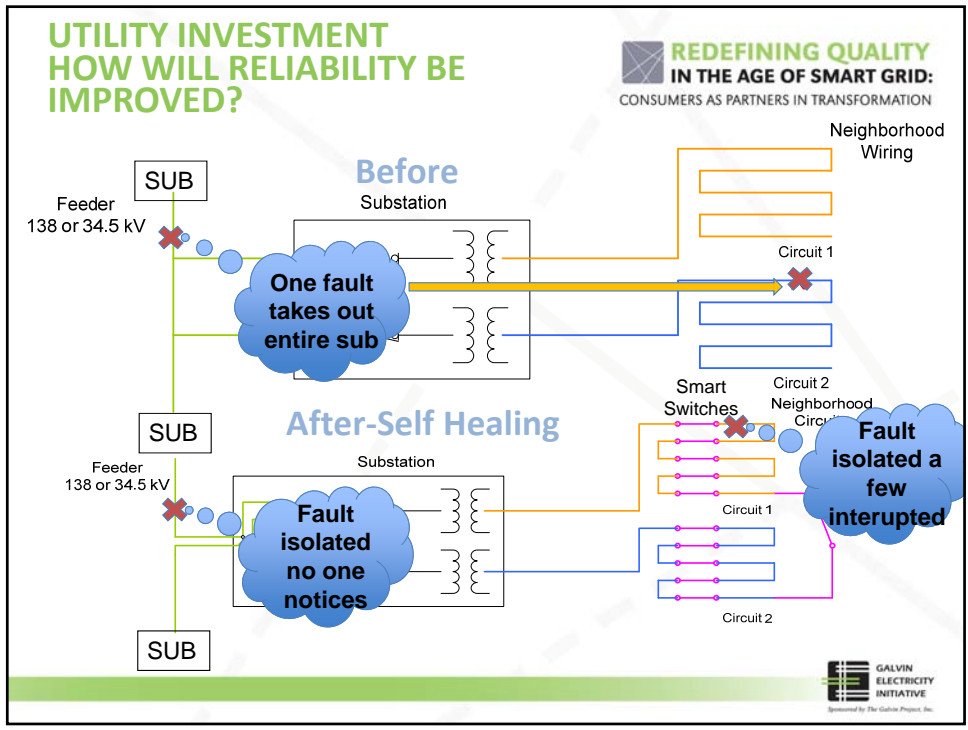
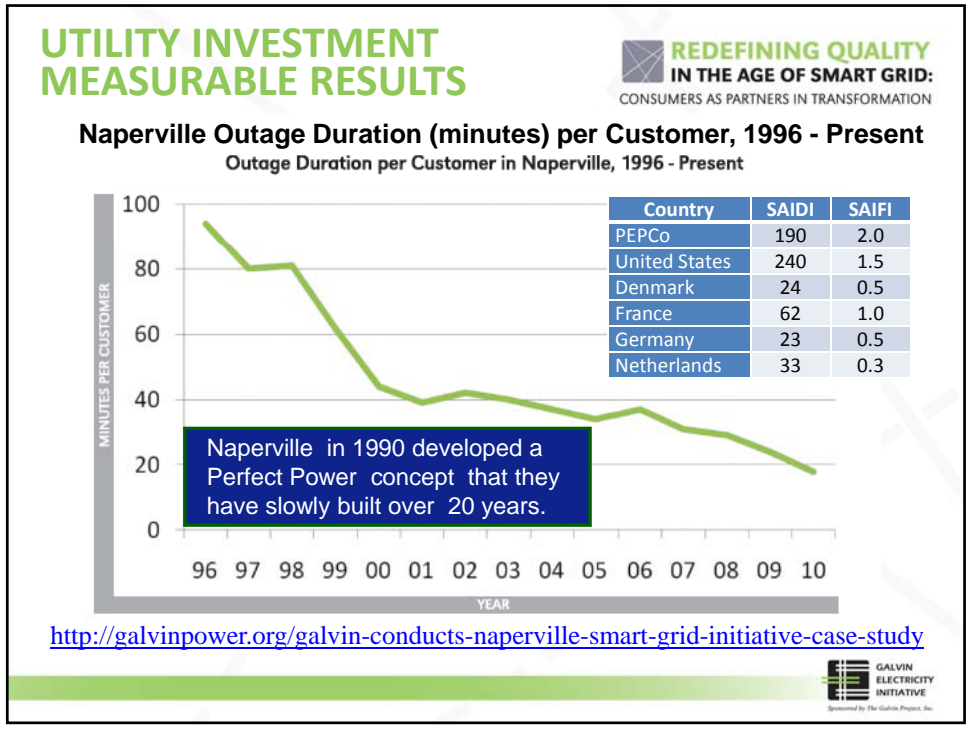
This is just the most recent in
a rash of storms that have
impaired our power system

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- SHIFTING THE FOCUS TO
PERFORMANCE OUTCOMES**
- REDEFINING QUALITY
IN THE AGE OF SMART GRID:
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- Reliability - SAIDI, SAIFI, MAIFI, power quality
 - For each circuit
 - Customer participation
 - Demand response in MW
 - Price response in MW
 - Operational efficiency
 - Load profile
 - Grid losses
 - Power energy efficiency and environment
- GALVIN
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UTILITY INVESTMENT HOW WILL RELIABILITY BE IMPROVED?

**REDEFINING QUALITY
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Looping/Redundancy

Radial circuits

138 kV

138 kV

138 kV

34.5 kV

34.5 kV

34.5 kV

34.5 kV

138 kV

138 kV

138 kV

138 kV

Five smart switches per loop

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CHATTANOOGA CASE STUDY HANDOUT

**REDEFINING QUALITY
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GETTING MORE OUT OF LIMITED RESOURCES...

**REDEFINING QUALITY
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- Joint County, Utility, Commission design and plan
- Leverage county resources
 - Coordinated tree trimming
 - Conduit installed with new sewer, roads, alley work
- Leverage private investment
 - Power suppliers
 - Microgrid developers
 - New demand response industry
 - Ensuring power to key facilities



WHAT COULD A UTILITY PRIVATE SECTOR PILOT LOOK LIKE IN THE WAKE OF HURRICANE SANDY ...

**REDEFINING QUALITY
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Private investment into islanding capability

- Automation/DR
- Load shifting
 - Gas fired cooling, ice storage, electricity storage
- Local generation
 - Renewable, DG, CHP, energy recovery

• Medical Centers	• Fuel Stations	• Residential Towers
• Assisted Living	• Telecom	• Police/Fire
• Shelters	• Hotels	• Schools



PRIVATE INVESTMENT THAT WOULD DELIVER

REDEFINING QUALITY IN THE AGE OF SMART GRID:
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- Power key facilities and services
- Provide grid services to support the bulk grid, including support for renewable integration
- Lower statewide peak demand and prices
- Increase power energy efficiency and

Imagine \$4 billion in investment in 2,000 MW of local load shifting capability

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INVESTMENT DESIGNED TO ENSURE UTILITY RESOURCES ARE NOT DEPLETED

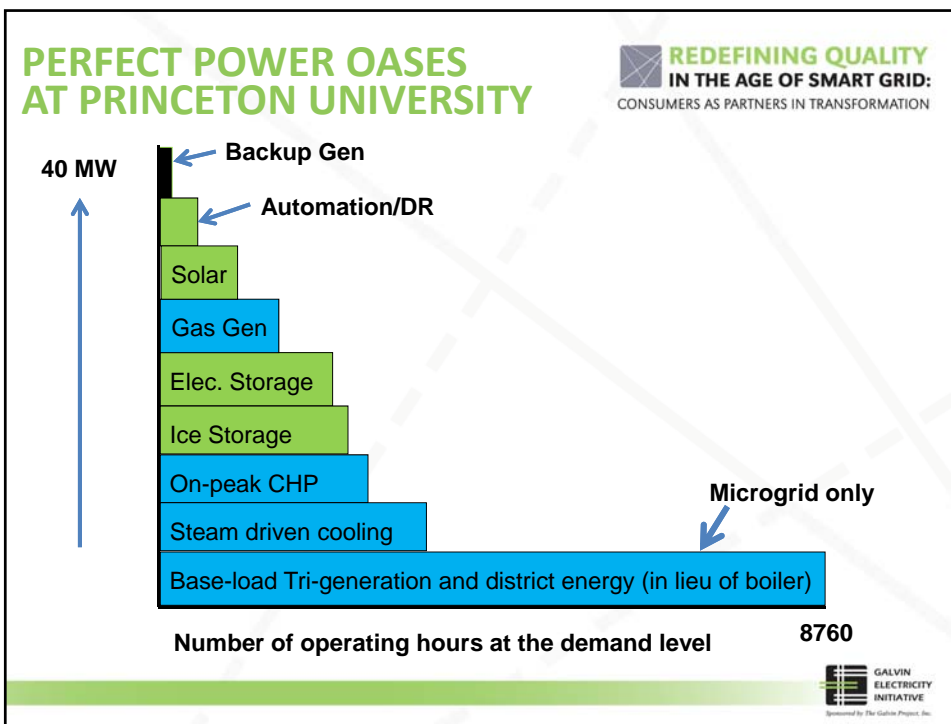
REDEFINING QUALITY IN THE AGE OF SMART GRID:
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- Enter real-time market
 - Limits operating hours and utility revenue reduction
- Reduced interconnect and time
- Multi-year ancillary service agreement

→

- Ensure utility supplies 80%+ of electricity
- In return for utility grid services
 - DR
 - Load response
 - Voltage support
 - Reactive power support
 - Event response

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Private Investment Entrepreneur

REDEFINING QUALITY IN THE AGE OF SMART GRID:
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Pecan Street Consortium

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CUSTOMER VALUE

 **REDEFINING QUALITY**
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- 50% ↓ SAIDI, SAIFI
- 50% ↓ \$ Waste
- 50% ↓ mmBTU/MWh
- 15% ↓ peak demand
- 50% ↓ CO_e, NO_x, SO_x
lbs/MWh
- Supply choice
- Price transparency
- Access to real-time data
- Encourage Interconnect
- Pay for Ancillary Service
- Engage local government
- New utility compact

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CONCLUSION

 **REDEFINING QUALITY**
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- The Governor's proposal to conduct a pilot is a sound approach and unique
- Never before have a local government and industry team of leaders assisted the local utility and commission with designing a demonstration to:
 - optimize customer value,
 - maximize utility smart grid outcomes (e. g . reliability),
 - leverage county resources, and
 - maximize private investment.

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