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# Iberdrola USA Networks Investment Case Study – Maine Power Reliability Program

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# Who We Are – The Iberdrola Group

The Project

Project Need and Approvals

Regulatory Support

Conclusions

Iberdrola is a world leading energy company with a dominant role on the Atlantic rim

## United States

*Leading electric & gas utilities in the Northeast  
2<sup>nd</sup> largest wind company  
3<sup>rd</sup> largest in gas storage*

## United Kingdom

*1<sup>st</sup> largest wind company  
3<sup>rd</sup> largest in networks*

## Mexico

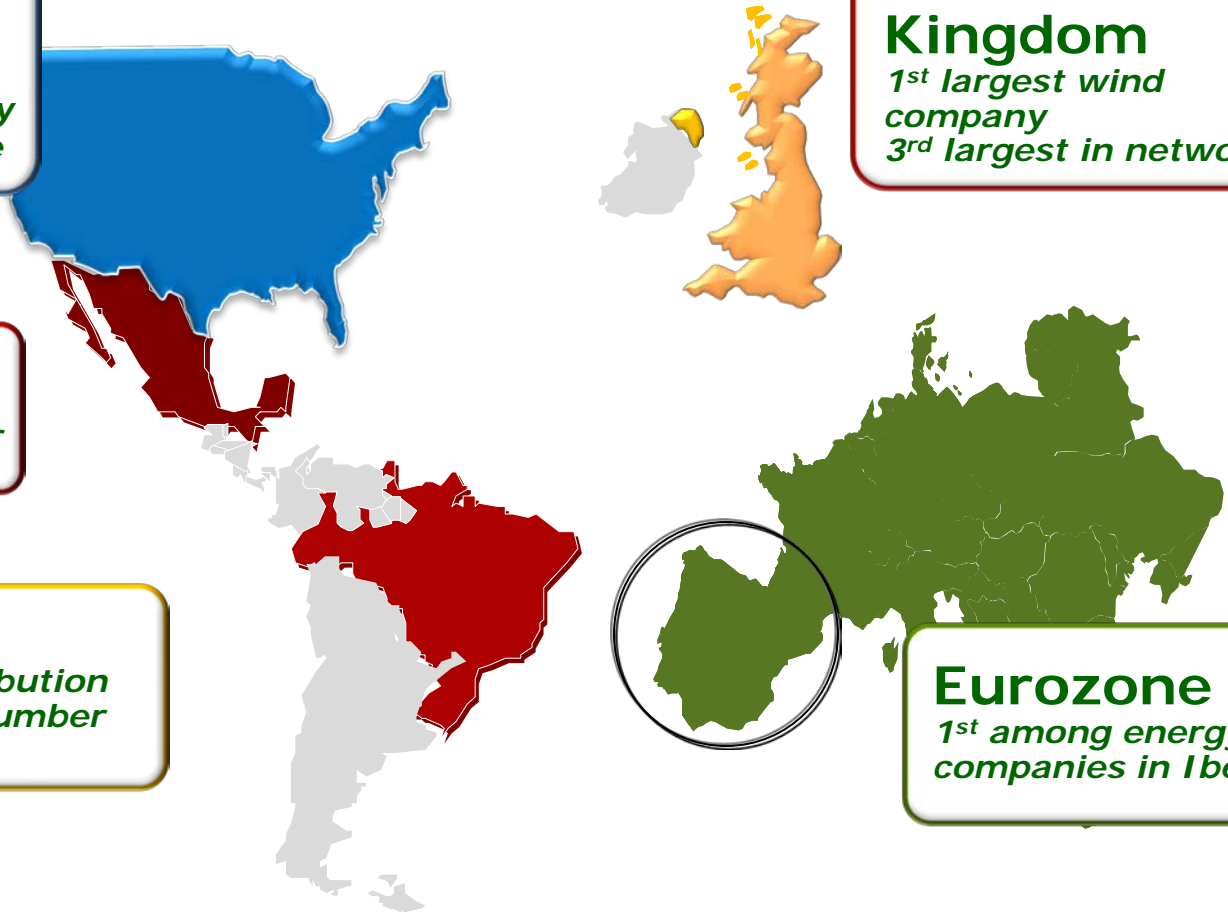
*2<sup>nd</sup> largest generator*

## Brazil

*1<sup>st</sup> among distribution companies by number of customers*

## Eurozone

*1<sup>st</sup> among energy companies in Iberia*



# Iberdrola in the United States

Δ 2013/2012

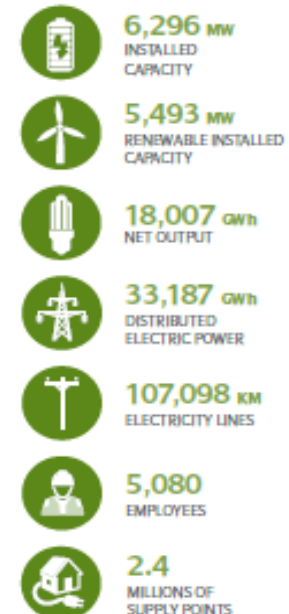
GDP +1.9%  
ELECTRICITY +2.7%  
DEMAND

2nd-largest wind power producer and 3rd-largest gas storage company

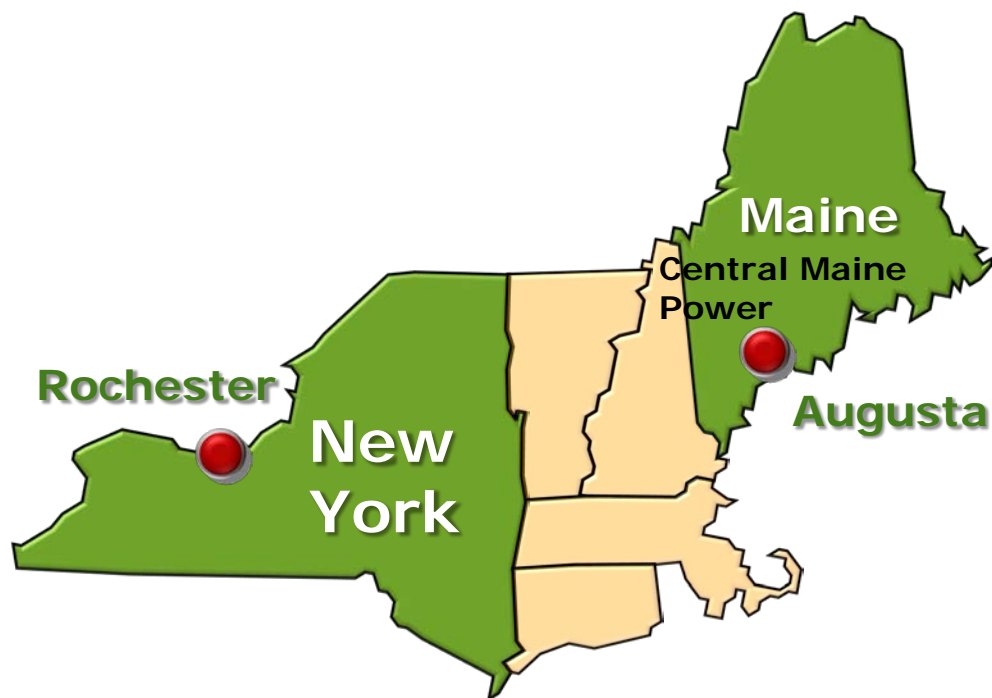
Electricity and gas distributor in New York and Maine



2013 DATA



## Electric and natural gas operations in Maine and New York



Population  
Served

6 MM

Electricity  
distributed (2013)

33,200 GWh

Gas distributed  
(2013)

31,548 GWh

Km of power  
lines

116,000

# Strategic Pillars

## Maintaining our strategic pillars...

### Balanced risk profile

- More than 80% of investments in regulated businesses
- Increasing geographic diversification

### Operational efficiency

- Costs flat for existing businesses
- Headcount reduction to around 27.000 employees

### Financial strength

- Net Debt reduction to Eur 25 bn improving financial ratios
- Portfolio management

... to provide a shareholder remuneration floor of Eur 0.27 per share, with potential growth in line with Net Profit

# Balanced Risk Profile

Focus in countries with opportunities to boost growth and with stable and attractive frameworks

## USA

- Networks
- Wind generation



Stable and attractive regulatory frameworks

## UK

- Networks
- Wind generation



## Mexico

- Generation (CCGTs and wind)



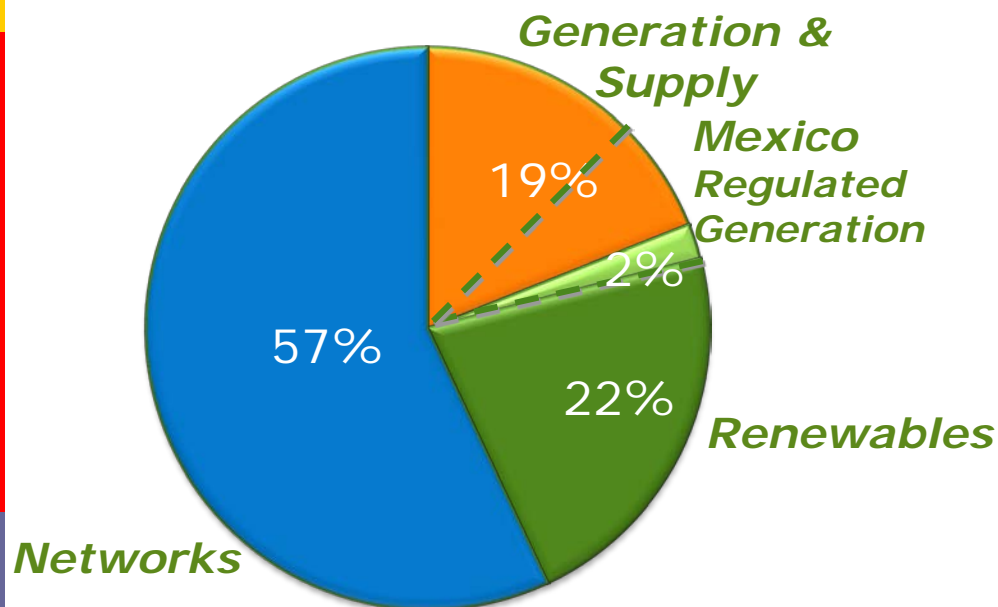
## Brazil

- Networks
- Generation (hydro and wind)

# 2014-2016 Investments

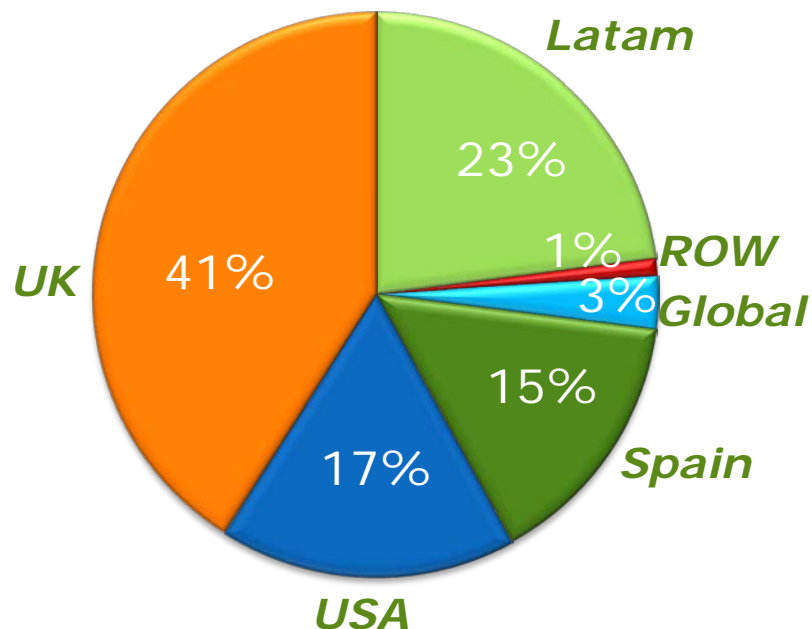
Investments focused in businesses and countries with predictable and stable regulation

Investments by Business<sup>1</sup>



**Regulated Businesses**  
88%

Investments by Country<sup>1</sup>



88% in regulated businesses

1. Including investments in Neoenergia projects which are not consolidated under IFRS 11



# Beyond 2016

Our model will allow us to boost growth beyond 2016...

Projects undertaken in 2014-2016  
will provide higher contribution to results

Additional investments in stable and attractive  
businesses and countries

Further efficiency measures:  
Structure optimization and additional headcount reduction

Portfolio management to explore new opportunities for growth

... to increase shareholder remuneration in line with results

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# Maine Power Reliability Program

## Background

Old System needs to be upgrade to comply with NERC Reliability Planning Standards

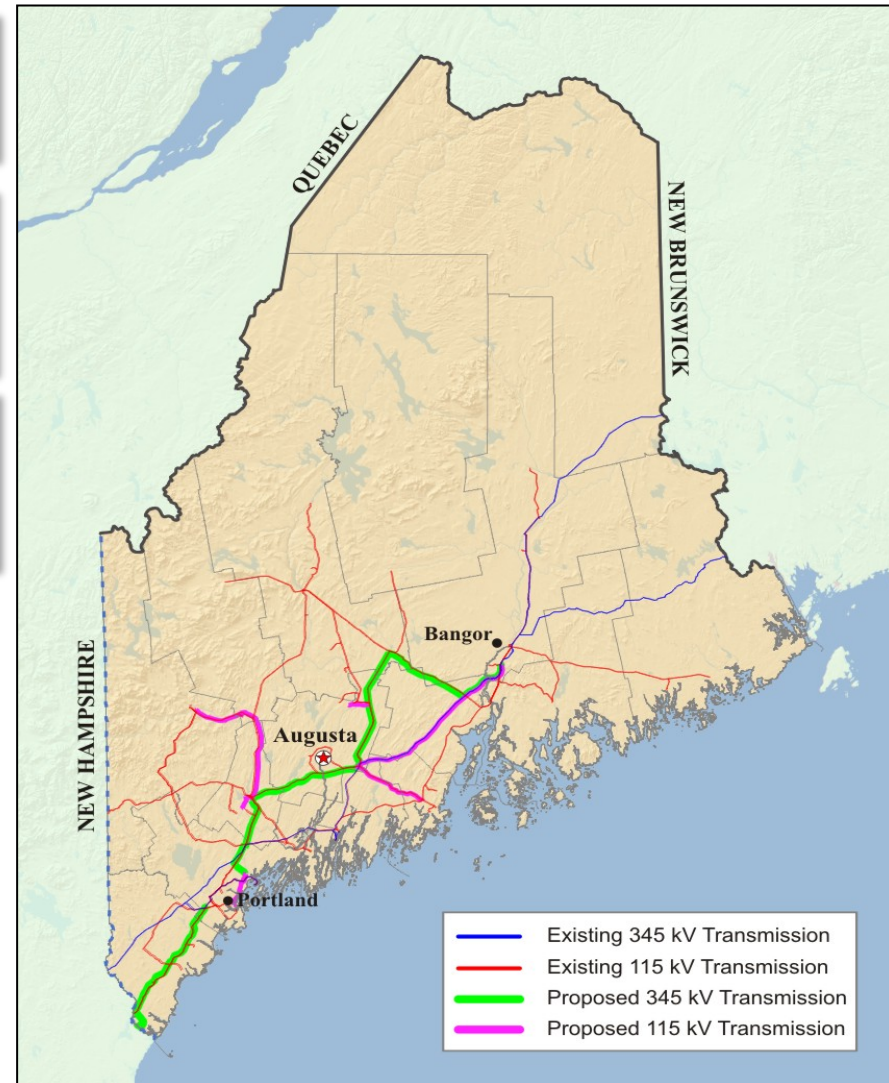
Planning studies show risks of major system outages within the planning horizon

## Construction Scope

500 miles of transmission

6 new substations

11 major upgrades



# Maine Power Reliability Program

Largest investment in over 20 years...

## System Benefits

Increases throughput for development of renewable generation

Lowers energy prices across New England

Reduces transmission constraints

Reduces line losses

## Investment

\$ 1.3 b investment anticipated

FERC jurisdictional 12.89% ROE

Final approvals expected in June

Current schedule carries project into 2015

**...providing significant benefit to customers**

# Transmission Lines

- 442 miles total of new or rebuilt transmission on 350 miles of right-of-way
- 184 miles of new 345kV transmission lines
- 100 miles of new 115kV transmission lines
- 147 miles of rebuilt 115kV transmission lines
- 5 miles of rebuilt 345kV transmission lines
- 5 miles of 34.5kV transmission lines
- 5,050 wooden structures
- 240 steel structures
- 10 lattice structures
- 2,150 miles of conductor to be installed





# Substations

## Six New Substations

- Albion Road (Benton)
- Coopers Mill (Windsor)
- Monmouth
- Larrabee Road (Lewiston)
- Raven Farm (Cumberland)
- PSNH Switchyard (Eliot)

## Four 345/115 kV Autotransformer Additions

- Albion Road (Benton)
- Coopers Mill (Windsor)
- Larrabee Road (Lewiston)
- Maguire Road (Kennebunk)

## Six Major Substation Expansions

- Maguire Road (Kennebunk)
- South Gorham
- Suroweic (Pownal)
- Orrington
- Belfast
- Livermore Falls

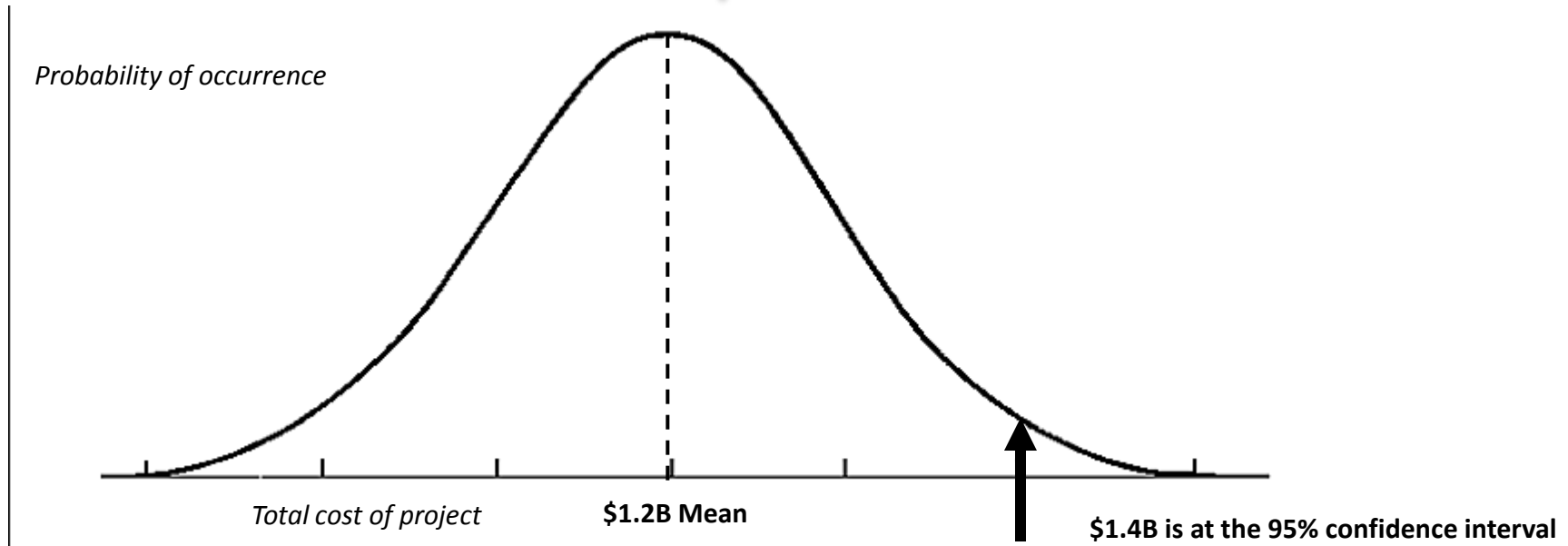


## Miscellaneous Substation Upgrades

- 40-plus ancillary substation upgrades
- (38) 345 kV and (70) 115 kV breaker additions
- 381 switch additions

# MPRP Project Cost Estimate

CMP selected an estimated MPRP project cost of \$1.4 billion, representing the 95% confidence interval



The resulting MPRP budget gives a high degree of confidence that project will come in at, or below budget.

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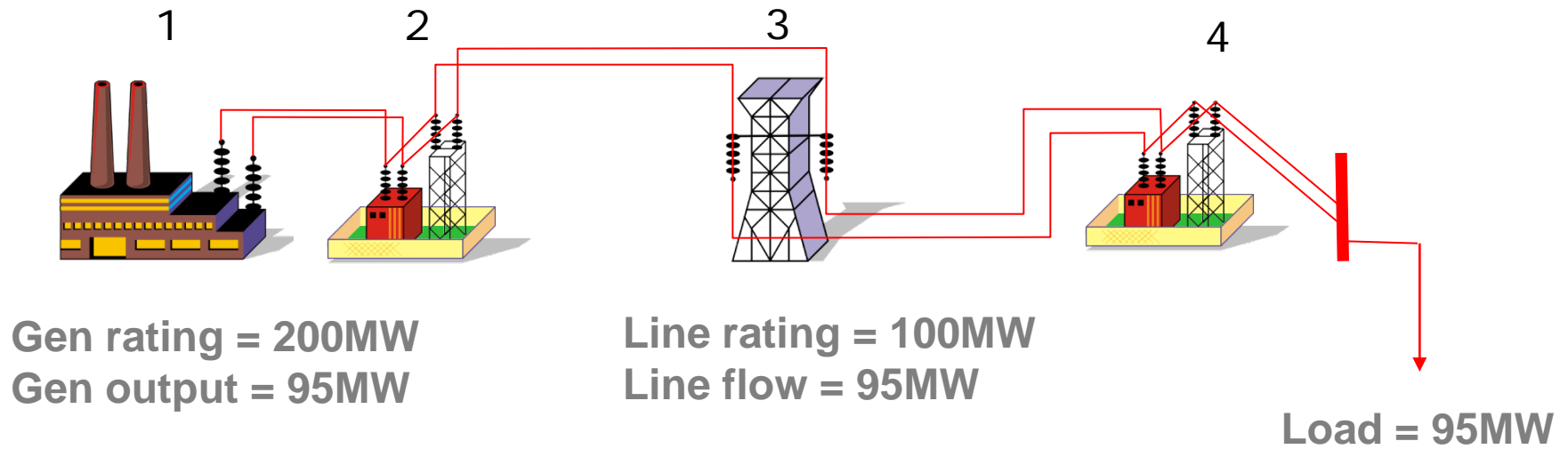
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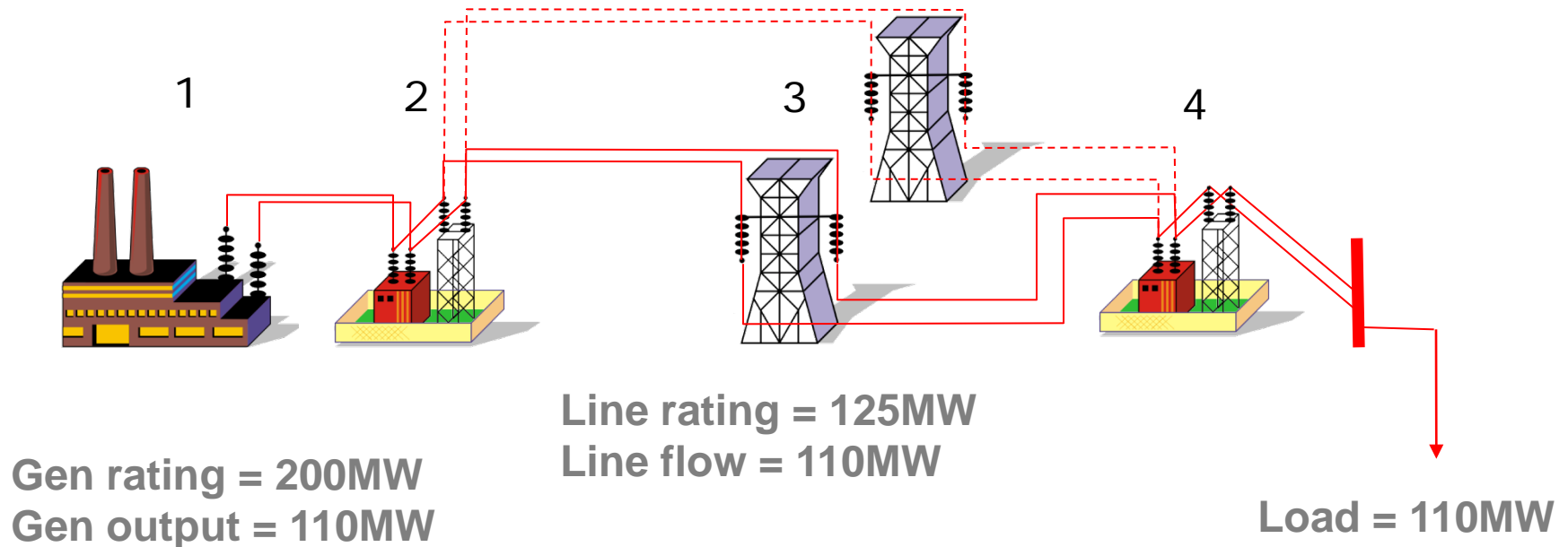


# Simple System Schematic



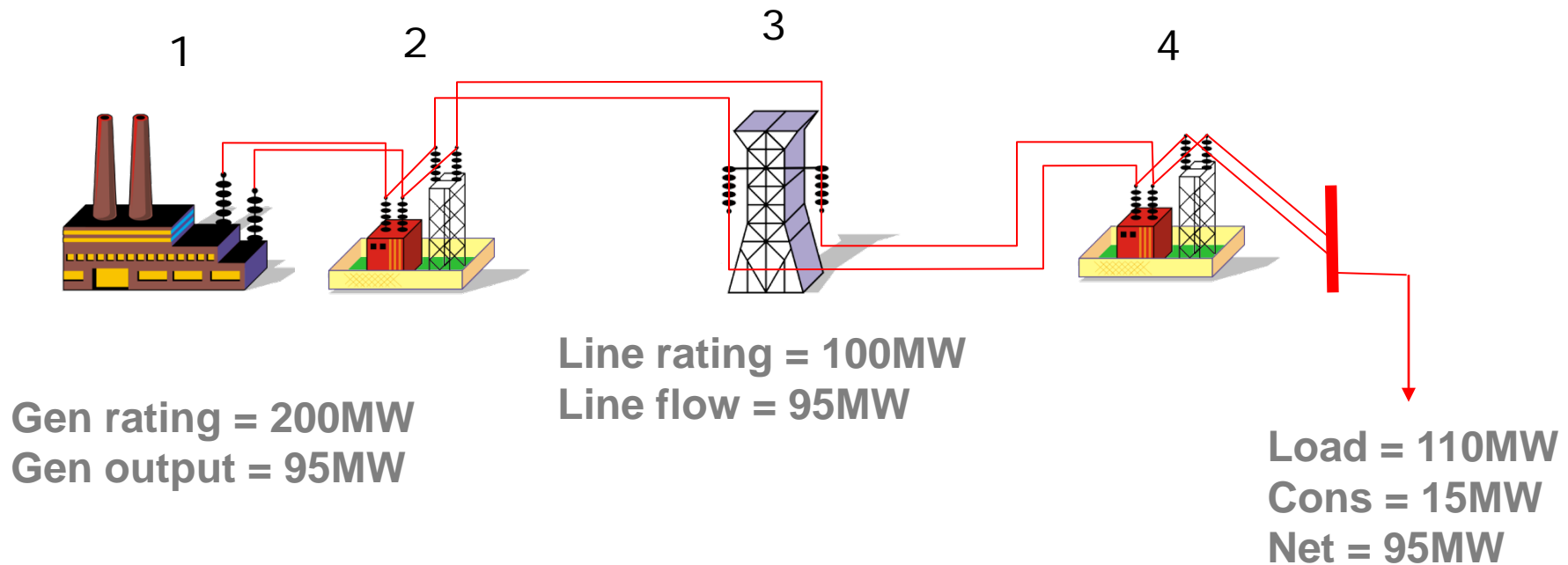
If load increases over time to 110MW, power flow on the existing line will exceed line rating, and system does not meet reliability criteria.

# Simple Transmission Solution



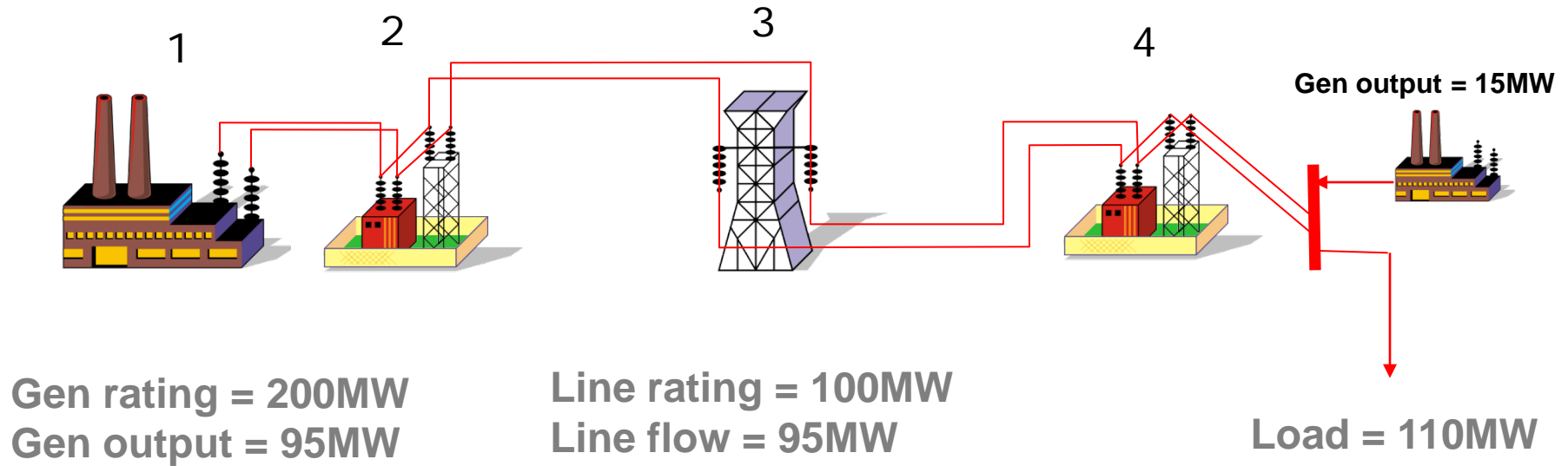
Constructing an additional transmission line or re-conductoring the existing line will increase capacity and prevent overloads.

# Simple Non-Transmission Solution - Conservation



Reducing loads through conservation could prevent overloads on the transmission system.

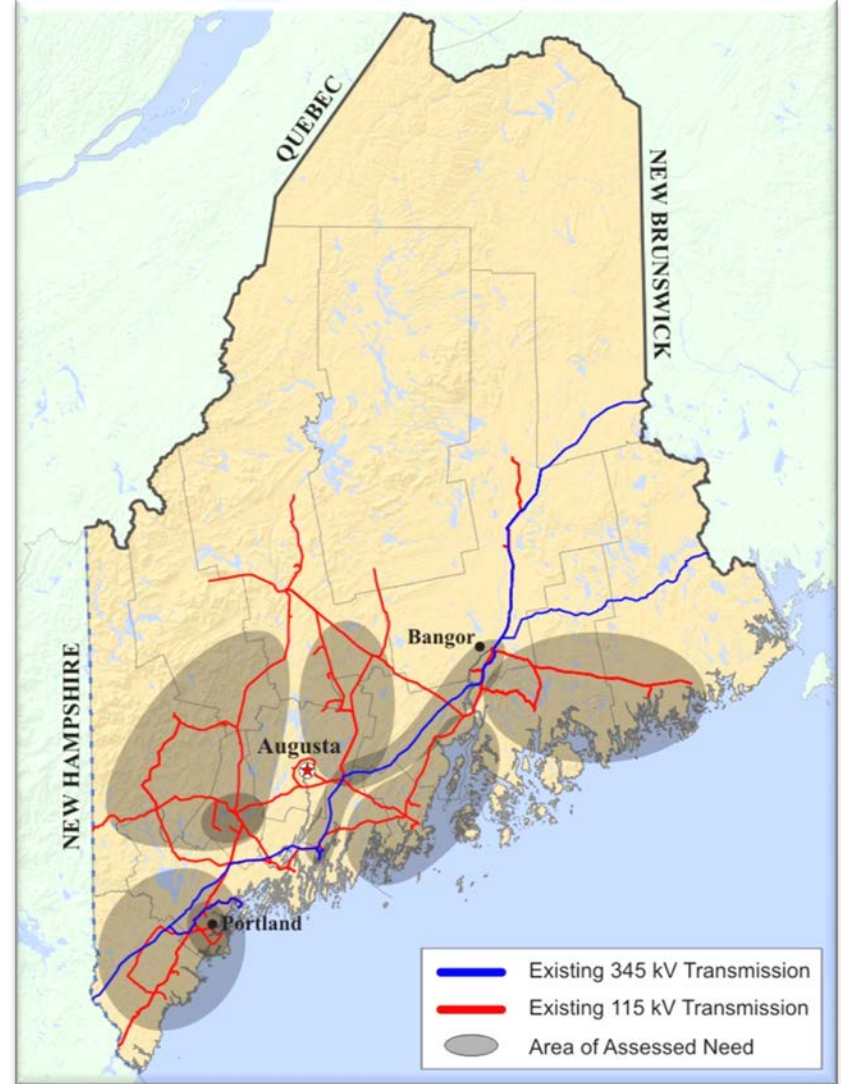
# Simple Non-Transmission Solution – Local Generation



Adding new local generation could prevent overloads on the transmission system. Local generation needed anytime load exceeds the rating of the transmission line.

# Needs Assessment

- 2017 peak load forecast
- Multiple Maine generator dispatch scenarios
- Various interface tie flow with New Brunswick and New Hampshire
- Hundreds of outage events
- Nearly 5,000 cases simulated
- Significant number of Did Not Solve (DNS)
- Great number of voltage and loading violations
- Published June 19, 2007



# Transmission Alternatives Assessment

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- 5 northern alternatives studied
  - Designated N1 – N5
  - Dropped N4 – weakest electrical performance, highest cost
- 5 southern alternatives studied
  - Designated S1 – S3 (with two variants each for S1 & S2)
  - Dropped S3 – weakest electrical performance, highest cost
- Electrical performance evaluation
- Year of need analysis
- 20,000 cases simulated
- Sensitivity to wind power

# NTA Study Objectives

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- MPRP Objective:
  - Reliable Electric Service to Maine Consumers
- NTA Study Objectives:
  - Identify Viable Alternatives to Transmission
    - ▣ Consider CMP and Market Options
    - ▣ Long Term Benefits to Maine Consumers
- MPRP Transmission Proposal(s):
  - Proposals may depend on NTA development by others

# What Are NTAs?

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- Alternatives that Mitigate Peak Load Growth:
  - Reduction of Maximum Loads (“90/10” Summer Peak)
  - Reduction of High (near peak) Loads
  - Load Responsiveness at times of Stress
- “Reliable” Supply Sources:
  - High Availability at time of System Stress
  - Locations that mitigate stress on Transmission
  - Sources that provide voltage/reactive power support



# Examples of DSM NTAs

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- Compact fluorescent lamps
- High SEER air conditioners
- Variable frequency motors
- Demand Response
- Price response

# Identifying Supply Options

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- Generation Options “Reliable” Supply Sources
  - High Availability at time of System Stress
  - Locations that mitigate stress on Transmission
  - Sources that provide voltage/reactive power support
- Examples of Options to be Considered
  - Combustion Turbines
  - Internal Combustion Engines
  - Renewables (e.g., biomass), DG, and CHP
  - Combined Cycle plants

# Cost/Benefit Analysis of Alternatives

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- All costs and benefits to be assessed
  - Energy, capacity, environmental credits, emissions
- Cost/Benefit comparison of Alternative Solutions
  - Economic Assessment
    - Direct costs (e.g., paid in electric rates)
    - Indirect costs (e.g., externalities)
  - Risk Assessment and Feasibility Issues
- Separate Consideration of Cost Allocation
  - Local vs. regional costs

# MPRP Required Approvals

Multiple regulatory approvals required at all levels of governance

## Federal:

- Rate incentives approved by Federal Energy Regulatory Commission (FERC)
- Environmental permitting by US Army Corps of Engineers (ACoE)

## Regional (ISO New England):

- Proposed Plan Application (no "adverse impact")
- Transmission Cost Allocation (determination of regionalized costs)

## State:

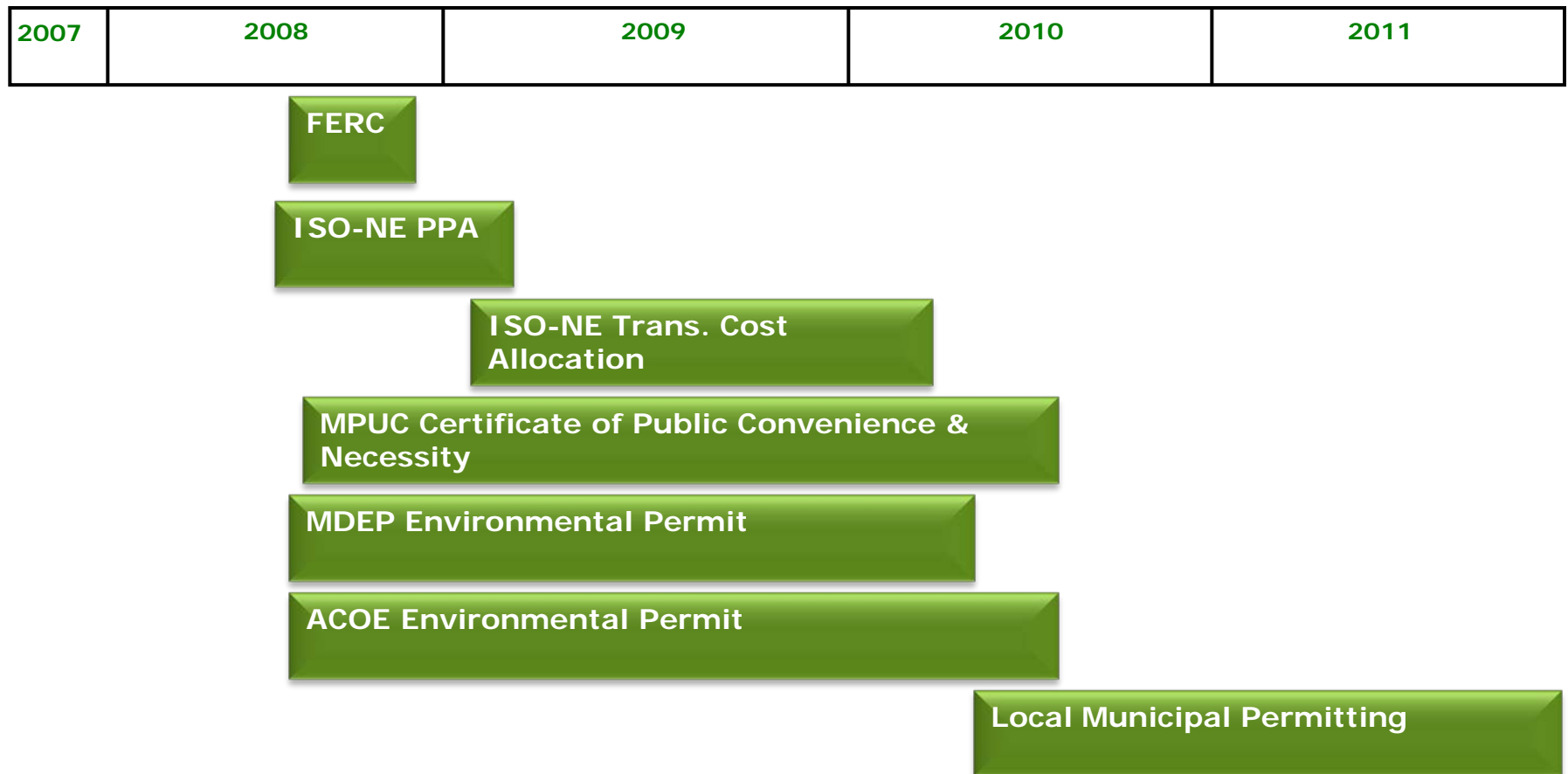
- Certificate of Public Convenience and Necessity (CPCN) issued by the Maine Public Utilities Commission (MPUC)
- Environmental Permitting by the Maine Department of Environmental Protection (DEP)

## Municipal:

- Local building permits, ordinance amendments or waivers required from 75 individual municipalities

# MPRP Approval Processes

Over two years of concurrent proceedings



# MPUC Certification

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## Certificate of Public Convenience and Necessity (CPCN) from the Maine Public Utilities Commission (MPUC)

- Demonstrate a need for the project
- Demonstrate that the proposed project is the most cost effective solution to the identified need (economic assessment)
  - Consideration of transmission alternatives
  - Consideration of Non-Transmission Alternatives (NTAs)

CPCN cases are open, public proceedings with many diverse interests participating, including:

- Consumer advocates, generation owners, environmental organizations, trade associations, chambers of commerce, municipalities, private landowners
- XX individual parties participated in the MPRP case

# MPUC Certification

## Driving resolution by building consensus

The MPRP CPCN proceeding was vigorously contested and unprecedented in length.

Petition submitted – **7/1/2008**

MPUC Order issued – **6/10/2010**

Resolved by a negotiated settlement among XX parties:

- Resulted in certification of nearly all of the proposed MPRP facilities (representing \$1.4B of the \$1.55B proposed)
- Some project components reserved for further evaluation
- Some project components to be deferred or replaced by NTA pilot programs
- Many concessions to the multiple diverse interests represented by the parties (future process changes, studies, monetary grants, etc.)

# ISO New England Approvals

## Regional approvals for reliability impact and cost

### Proposed Plan Application (PPA) approval

- Specific proposed facilities must be studied by ISO and stakeholder peers to determine no adverse impact on the regional grid
- Applications (36) submitted – **6/10/2008**
- Initial approvals issued – **2/26/2009**
- Any material changes to the approved project must be resubmitted for analysis and approval

### Transmission Cost Allocation (TCA) approval

- Estimated project costs are evaluated by ISO for reasonableness and eligibility for regional cost sharing
- Application submitted – **1/15/2009**
- Approval issued – **1/29/2010**
- Periodic reporting requirements during construction
- Cost overruns greater than 10% require additional approval



# Environmental Permitting

## Achieving all required environmental permitting

Maine law requires a permit from the Maine Department of Environmental Protection (MDEP)

- Must demonstrate right, title or interest in all property required for the project
- All environmentally sensitive areas of the project must be identified
- Must demonstrate compliance with all standards and requirements

For large scale projects of MPRP's magnitude, many aspects of the permit are ultimately negotiated with the MDEP staff

- "Compensation properties" for disturbed environmentally sensitive land
- Amount of alternative in-lieu fees required to be paid
- Environmental conditions applicable to construction and future maintenance

As with the MPUC, the MDEP process was lengthy:

Application submitted – **6/12/2009**

MDEP Permit issued – **4/6/2010**

# Local Permitting

Obtain all required permits from local municipalities

Local permits required from nearly all of the individual municipalities in which project facilities will be constructed:

- 75 cities and towns
- Building permits
- Ordinance amendments/waivers

In many municipalities, local building permits require initiation of construction within a defined period following issuance, requiring coordination of permit application with construction scheduling.

- 75 Local permits required
- 72 Local permits acquired to date

Required an extensive community outreach program

- Multi-discipline team of skilled professionals

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# Maine Regulatory Structure

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## Transmission Rate Regulation

- Fully regulated at the federal level by the Federal Energy Regulatory Commission (FERC)
- Maine Public Utilities Commission (MPUC) provides for direct pass through of FERC tariff costs in retail rates
- Transmission system planning, operation and access is managed by an independent system operator, ISO New England, subject to FERC's regulation

# Maine Transmission Regulatory Structure

## FERC Regulated

### Term

Unlimited – Formula in Place since 2001

### ROE / Equity Ratio to set Rates

- ROE Varies per Vintage and Project
  - 11.14% / 11.64% Base Transmission
  - 12.89% MPRP Transmission Project
- Equity – Actual per books

### Earning Sharing

None – Earnings Reconciled to Authorized ROE

### Rate Changes

#### Rate Formula

- Set each June 1<sup>st</sup>
- Based on historical calendar FERC annual report
- Include forecast CWIP through 12/31 of current year

# FERC Rate Incentives

## Federal rate incentives for needed infrastructure

FERC rate incentives received by CMP for MPRP:

- Enhanced return on equity (ROE) with 125 bps adder
  - 12.89% on MPRP Regional investments
  - 12.39% on MPRP Local investments
- Recovery of Construction Work In Progress (CWIP) on a projected basis, with reconciliation

Application submitted – 7/1/2008

FERC Order issued – 10/20/2008

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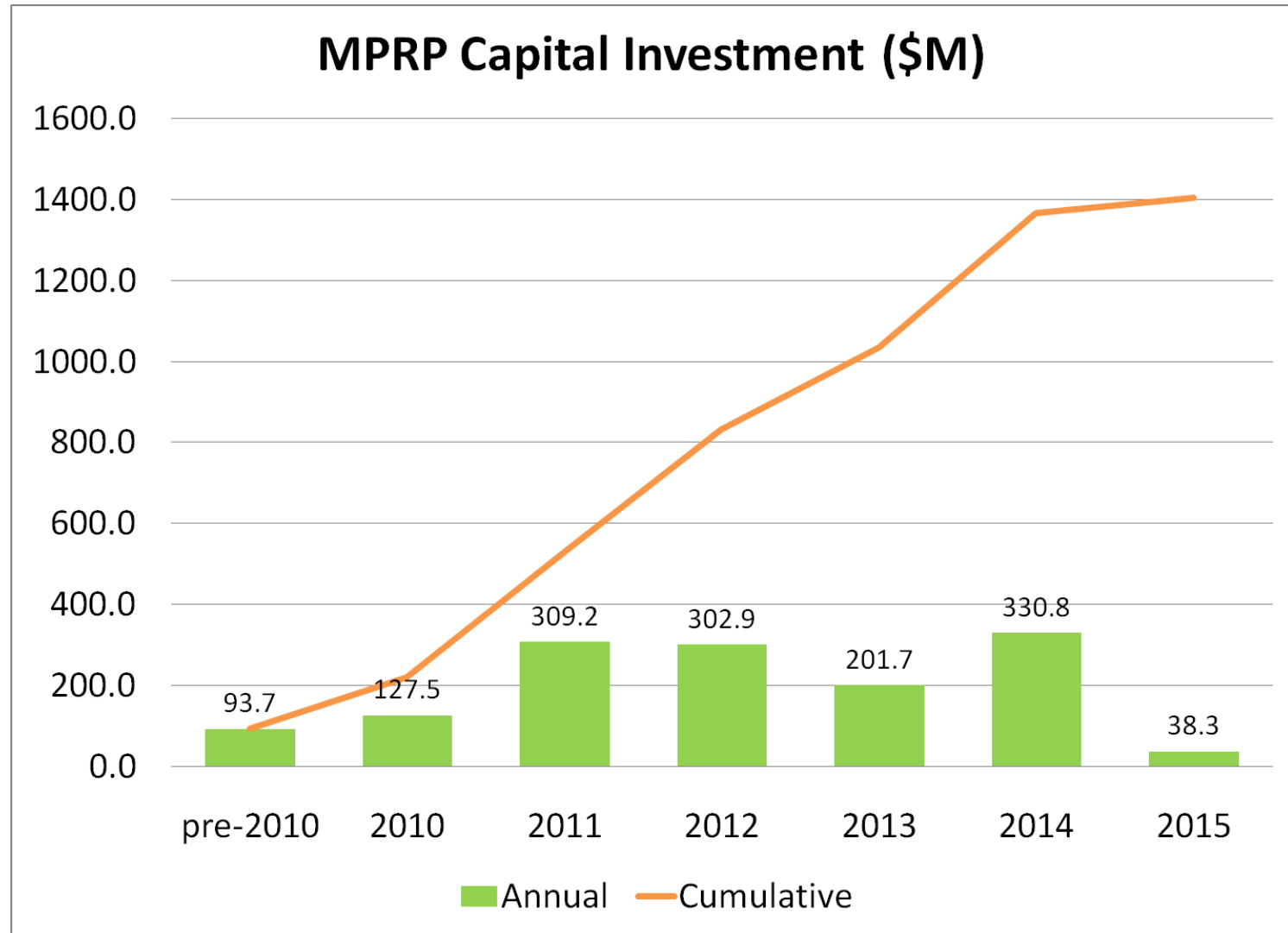
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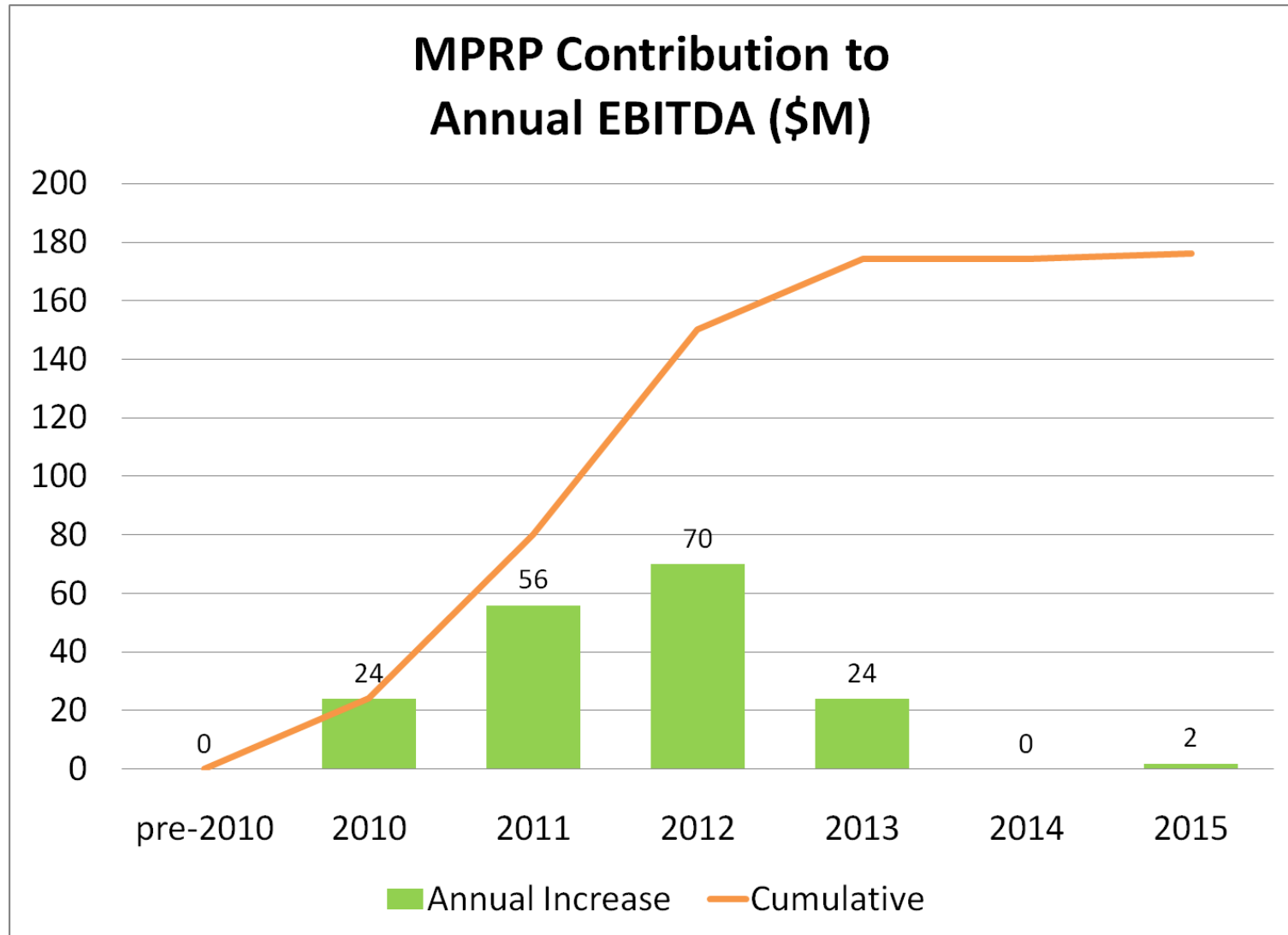
# MPRP: Financial Impact



MPRP will require \$1.4B of capital expense, spread over more than 6 years.



# MPRP: Financial Impact



Upon completion, the project will increase CMP EBITDA by more than \$175M/year, or approximately 120%.

# Financial Management – Risk Sources

The main sources of business risk are regulation, prices and exchange & interest rates



Regulation

Involves all Group but difficult to quantify



Prices,  
Spreads

Changes in wholesale and retail market affect margins



FX

56%\* of EBITDA outside Eurozone



Interest  
Rates

Balance fixed/floating interest rate structure  
Flexibility to benefit from low interest rate environment



Weather

Hydro (Spain) & wind resource variations introduce volatility in the production figures, offset in mid-long term



Demand

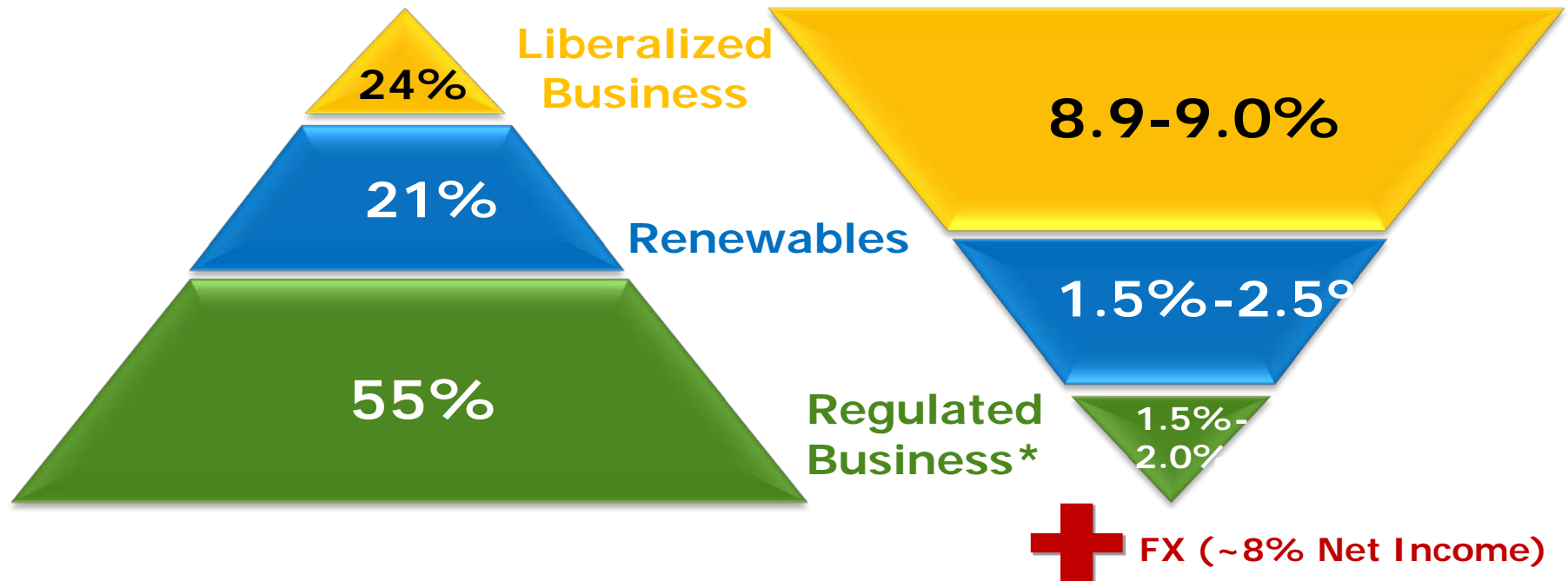
Low impact in Spain but more relevant in the UK due to gas business supply

# Financial Management - Business risk management

**76% of EDITDA originates from  
Regulated Business and Renewables...**

*Contribution to 2016e EBITDA*

*Risk as a % of total 2016e EBITDA*



**... which have inherent stable earnings profiles,  
excluding regulatory risk**

\*Networks and Regulated Generation (Mexico)

# What Made MPRP a Reality?

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Stable and supportive environment

Incentives for doing the right thing

Secure regulatory construct