

DOCKETED

Docket Number:	17-IEPR-09
Project Title:	Climate Adaptation and Resiliency
TN #:	220881-5
Document Title:	Status of Research Project About Climate Vulnerability and Adaptation Options for San Diego Gas and Electric:
Description:	8.29.2017: Presentation by Brian D'Agostino of SDG&E
Filer:	Raquel Kravitz
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	8/25/2017 10:11:58 AM
Docketed Date:	8/25/2017



A  Sempra Energy utility®

Status of Research Project About Climate Vulnerability and Adaptation Options for San Diego Gas and Electric: Lessons Learned

August 29, 2017



Status Update: Project Overview

- To identify electricity and natural gas adaptation options based on assessment of climate-related hazard vulnerability

- Two separate projects:
 - Electric Sector Vulnerability and Adaptation Study
 - Natural Gas Sector Vulnerability and Adaptation Study

- Tasks are similar between the projects. Main differences are:
 - Electricity focuses on sea level rise and coastal flooding only
 - Natural Gas also considers inland climate hazards

Status Update: Project Overview

Overall Study Approach

Set the Context (Task 2)	Characterize the Hazards and Exposure (Task 3)	Risk Analysis (Task 4 and Task 5)	Prioritize Risks and Identify Actions (Task 6)
<ul style="list-style-type: none">★ Review Existing Climate Change Information<ul style="list-style-type: none">+ Coastal Hazards+ Inland Hazards+ Adaption measures+ Sensitive assets★ Identify Utility adaptation measures★ Understand Assets / Operation sensitivities	<ul style="list-style-type: none">★ Collect Data<ul style="list-style-type: none">+ Hazards+ Resource+ Asset★ Develop Hazard Scenarios<ul style="list-style-type: none">+ Evaluate current conditions+ Climate change considerations+ Resolve missing data★ Model Exposure	<ul style="list-style-type: none">★ Conduct workshops<ul style="list-style-type: none">+ Consider Adaptive Capacity/Existing Risk Control Measures★ Assess Consequences<ul style="list-style-type: none">+ Direct+ Indirect	<ul style="list-style-type: none">★ Conduct workshops★ Rank Risks with Likelihood and Consequence★ Identify Adaptation Measures<ul style="list-style-type: none">+ Develop action attribute list+ Evaluate Actions+ Select Actions for Design and Planning

Status Update: Project Overview

Project Overview

- **What tasks are we undertaking to accomplish this goal?**
 - Foundational Literature Review and Expert Interviews
 - Coastal and Inland Hazard Exposure Modeling
 - Assessment of Direct Impacts of Coastal and Inland Hazards to SDG&E Infrastructure and Service
 - Assessment of Indirect Impacts of Coastal and Inland Hazards to SDG&E Infrastructure and Service
 - Identification and Evaluation of Adaptation Measures
 - Evaluation of Project Benefits
 - Knowledge Transfer Activities

SDG&E Emergency Operations Center

Insurance & Risk Advisory

5

Status Update: Natural Gas Workshop

SDG&E Natural Gas System Climate Change Exposure and Impacts Workshop

Tuesday, May 23

SoCal Gas Tower, Downtown Los Angeles

Organizations Represented

Gas Engineering

Operations Risk Management

Emergency Services

Environmental Services

Pipeline Integrity

Insurance & Risk Advisory



The maps above are for demonstration purposes only

Status Update: Workshop Breakout Sessions

Breakout Session Logistics

- Break into two groups
 - Group 1: Engineering/Operation
 - Group 2: Enterprise Risk/Insurance and Risk Advisory

Focus questions:

1. What are your initial reactions & why?
2. What do you think will be problematic and why?
3. Where are the key problems?
4. What are the specific types of infrastructure and services that would be impacted.

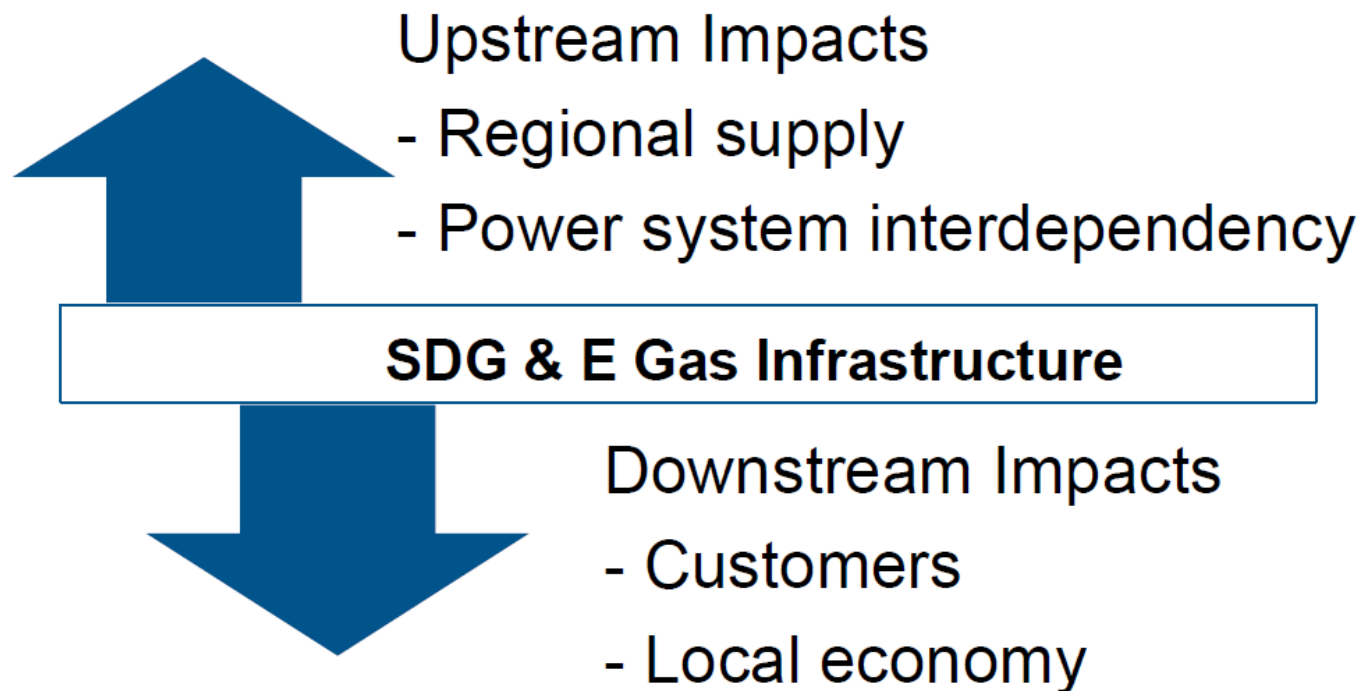
Go through the discussion on a hazard-by-hazard basis



Status Update: Interdependency Discussions

Indirect Impacts

Climate Change impacts indirectly affecting the utility infrastructure through impacts on the supply chain or customers (CPUC, 2016)



Status Update: Next Steps

Overall Study Approach

Set the Context (Task 2)	Characterize the Hazards and Exposure (Task 3)	Risk Analysis (Task 4 and Task 5)	Prioritize Risks and Identify Actions (Task 6)
<ul style="list-style-type: none"> ★ Review Existing Climate Change Information <ul style="list-style-type: none"> + Coastal Hazards + Inland Hazards + Adaption measures + Sensitive assets ★ Identify Utility adaptation measures ★ Understand Assets / Operation sensitivities 	<ul style="list-style-type: none"> ★ Collect Data <ul style="list-style-type: none"> + Hazards + Resource + Asset ★ Develop Hazard Scenarios <ul style="list-style-type: none"> + Evaluate current conditions + Climate change considerations + Resolve missing data ★ Model Exposure 	<ul style="list-style-type: none"> ★ Conduct workshops <ul style="list-style-type: none"> + Consider Adaptive Capacity/Existing Risk Control Measures ★ Assess Consequences <ul style="list-style-type: none"> + Direct + Indirect 	<ul style="list-style-type: none"> ★ Conduct workshops ★ Rank Risks with Likelihood and Consequence ★ Identify Adaptation Measures <ul style="list-style-type: none"> + Develop action attribute list + Evaluate Actions + Select Actions for Design and Planning

Status Update: Lessons Learned

- This project and the associated workshops/networking has contributed to additional resilience activities across SDG&E & SoCalGas
 - Cal-Adapt based climate study with the design of new Blythe Compressor Station
 - Cal-Adapt based climate study to look at SDG&E Design Standards
 - Cal-Adapt based study to look at SDG&E system hardening projects



Questions?

