Possible Incremental Vegetation Management Activities in Response to the Drought

April 22nd, 2014

Drought State of Emergency Overview

State of Emergency Declared by Governor Edmund G. Brown Jr.

- "We can't make it rain, but we can be much better prepared for the terrible consequences that California's drought now threatens * ."
- " * the risk of wildfires across the state is greatly increased * "
- "The California Department of Forestry and Fire Protection (CalFire) will hire additional seasonal firefighters to suppress wildfires and take other needed actions to protect public safety during this time of elevated fire risk."
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Drought conditions creating potential for a large and devastating fire

- Fuel loading
- Vegetation is stressed and more prone to disease & decay

California suppression & detection resources strained with more fire events

- January 14April 5, 2014, CalFire responded to ~900 wildfires compare to average 340 wildfires in the same timeframe
- Longer response times to fires
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Possible Incremental Vegetation Management Initiatives

Enhanced Vegetation Inspections & Mitigation
Urban Wild Land Interface Protection
High Fire Risk Tree Identification & Mitigation
Fuel Reduction and Emergency Response Access
Early Detection of Forest Disease/Infestation
Early Detection and Response to Wildfires

Possible Initiatives

Enhanced Vegetation Inspections and Mitigation

Current Related Efforts:

- As part of our routine vegetation management inspections, PG&E patrols all overhead high4voltage distributbn and transmission lines annually

Proposed Additional Efforts in Response to the Drought:

- Schedule 10420% additional patrols 4 expanding the frequency in targeted areas
- Red Flag and Pre/Event (Heat/Wind) Targeted Patrols
- Aerial Inspection of 6,700 miles in addition to routine patrol

Estimated Incremental Cost: $6M

Urban Wild Land Interface Protection

Current Related Efforts:

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Proposed Additional Efforts in Response to the Drought:

- Work in collaboration with Local Fire Agencies and Fire Safe Councils to prioritize additional high risk fire areas within urban areas in other parts of our service territory

- Conduct enhanced patrols in prioritized additional high risk fire areas (more frequent in State Responsibility Areas and additional inspection in high risk Local Responsibility Areas) to double check for possible fire risks such as:
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Estimated Incremental Cost: $1.7M

Possible Initiatives, cont.

High Fire Risk Tree Identification and Mitigation

Current Related Efforts:

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Fuel Reduction and Emergency Response Access

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Estimated Incremental Cost: $5M

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Early Detection of Forest Disease/Infestation

Current Related Efforts:

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Proposed Additional Efforts in Response to the Drought:

- Partner with USFS, CalFire, universities, and NGOs monitoring forest health to identify data gaps, offer data collection cost share opportunities near PG&E's electric assets, and use information to augment annual work

Estimated Incremental Cost: $2M4$5M

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Early Detection and Response to Wildfires

Current Related Efforts:

- PG&E – none. Current state agency detection and response efforts to fires include watch towers, CalFire fire detection flights, and other conventional methods, but without a specific focus on protecting utility facilities.

Proposed Additional Efforts in Response to the Drought:

- Partner with state and federal agencies such as USFS, CalFire, State Parks, National Park Service, and the Bureau of Land Management to provide funding for added personnel at currently unmanned critical fire lookout towers near PG&E facilities, additional fire detection flights along power lines, and standby fire suppression crews while agency resources are engaged on large fires.
- Partner with agencies for deployment of more early detection devices such as high4resolution remote and infrared cameras oriented towards utility facilities.
- Create a mutual alert system between PG&E and agencies, directing them to areas critical to PG&E

Estimated Incremental Cost: $3M

Possible Incremental Vegetation Management Activities in Response to the Drought

April 22nd, 2014

Drought State of Emergency Overview

State of Emergency Declared by Governor Edmund G. Brown Jr.

- "We can't make it rain, but we can be much better prepared for the terrible consequences that California's drought now threatens * ."
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Drought conditions creating potential for a large and devastating fire

- Fuel loading
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California suppression & detection resources strained with more fire events

- January 14April 5, 2014, CalFire responded to ~900 wildfires compare to average 340 wildfires in the same timeframe
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Possible Incremental Vegetation Management Initiatives

Enhanced Vegetation Inspections & Mitigation
Urban Wild Land Interface Protection
High Fire Risk Tree Identification & Mitigation
Fuel Reduction and Emergency Response Access
Early Detection of Forest Disease/Infestation
Early Detection and Response to Wildfires

Possible Initiatives

Enhanced Vegetation Inspections and Mitigation

Current Related Efforts:

- As part of our routine vegetation management inspections, PG&E patrols all overhead high4voltage distributbn and transmission lines annually

Proposed Additional Efforts in Response to the Drought:

- Schedule 10420% additional patrols 4 expanding the frequency in targeted areas
- Red Flag and Pre/Event (Heat/Wind) Targeted Patrols
- Aerial Inspection of 6,700 miles in addition to routine patrol

Estimated Incremental Cost: $6M

Urban Wild Land Interface Protection

Current Related Efforts:

- PG&E has identified certain high risk fire areas in urban areas of Marin, the East Bay, and a few other fire risk areas. In these areas, PG&E conducts additional patrols to identify and mitigate any identified hazards

Proposed Additional Efforts in Response to the Drought:

- Work in collaboration with Local Fire Agencies and Fire Safe Councils to prioritize additional high risk fire areas within urban areas in other parts of our service territory

- Conduct enhanced patrols in prioritized additional high risk fire areas (more frequent in State Responsibility Areas and additional inspection in high risk Local Responsibility Areas) to double check for possible fire risks such as:
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    - Trees that may have developed a threat to the lines (broken limbs or sudden disease) since the last annual patrol

Estimated Incremental Cost: $1.7M

Possible Initiatives, cont.

High Fire Risk Tree Identification and Mitigation

Current Related Efforts:

- PG&E currently identifies high fire risk trees using LiDAR on selected NERC transmission lines

Proposed Additional Efforts in Response to the Drought:

- Expand hazard trees identification in selected high fire danger areas to additional overhead transmission and distribution assets by application of new techniques. Hazard identification techniques may include LiDAR, Hyperspectral Imaging and ground4based tree evaluation methods not typically usedin routine vegetation management operations

Estimated Incremental Cost: $10M

Fuel Reduction and Emergency Response Access

Current Related Efforts:

- PG&E has been working to reclaim certain Transmission Rights4of4Way. More clearance under electric lines provides improved access points, fire breaks, and staging areas where firefighters can start their fire4fighting activity.

Proposed Additional Efforts in Response to the Drought:

- Conduct additional fuel reduction work in other transmission and distribution right of way corridors in selected-fire risk areas to provide:
    - Improved fire breaks for fire agencies
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Estimated Incremental Cost: $5M

Possible Initiatives, cont.

Early Detection of Forest Disease/Infestation

Current Related Efforts:

- PG&E – none. U.S. Forest Service (USFS), CalFire, and various universities and non4governmental organizatons (NGOs) conduct limited forest health monitoring, not necessarily in proximity to PG&E electric assets

Proposed Additional Efforts in Response to the Drought:

- Partner with USFS, CalFire, universities, and NGOs monitoring forest health to identify data gaps, offer data collection cost share opportunities near PG&E's electric assets, and use information to augment annual work

Estimated Incremental Cost: $2M4$5M

Early Detection and Response to Wildfires

Current Related Efforts:

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Possible Incremental Vegetation Management Activities in Response to the Drought

April 22nd, 2014

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Early Detection of Forest Disease/Infestation
Early Detection and Response to Wildfires

Possible Initiatives

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Current Related Efforts:

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Estimated Incremental Cost: $6M

Urban Wild Land Interface Protection

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Estimated Incremental Cost: $1.7M

Possible Initiatives, cont.

High Fire Risk Tree Identification and Mitigation

Current Related Efforts:

- PG&E currently identifies high fire risk trees using LiDAR on selected NERC transmission lines

Proposed Additional Efforts in Response to the Drought:

- Expand hazard trees identification in selected high fire danger areas to additional overhead transmission and distribution assets by application of new techniques. Hazard identification techniques may include LiDAR, Hyperspectral Imaging and ground4based tree evaluation methods not typically usedin routine vegetation management operations

Estimated Incremental Cost: $10M

Fuel Reduction and Emergency Response Access

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Possible Initiatives, cont.

Early Detection of Forest Disease/Infestation

Current Related Efforts:

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April 22nd, 2014

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