

EXTREME WEATHER

Fort McMurray Fire | Alberta, Canada | May 2016

This case study is part of an extreme weather impact project, in partnership with Swiss RE Corporate Solutions and Marsh & McLennan Companies, which aims to identify and share best practice within the energy sector to enable more agile and adaptive response to extreme weather and natural hazard impacts on energy systems and supplies.

CASE STUDY AT GLANCE



WEATHER EVENT
Fire



ORGANISATION
Alberta Energy Regulator (AER)



INDUSTRY SUB-SECTOR
Regulator



RESILIENCE RESPONSE
Physical



RESILIENCE COSTS
C\$3.6 billion in damages



RESILIENCE BENEFITS
Protection of assets and human life

In May 2016, the Fort McMurray fire broke out in Alberta, Canada, threatening civilians and major energy companies in an area rich with oil and gas operations. It became the most costly and damaging disaster on Canadian soil and instigated both a local and provincial state of emergency. The Alberta Energy Regulator (AER) took on a leadership role during the event by disseminating fire details, coordinating industry contributions to civilian evacuations, encouraging the sharing of operator data and response plans, monitoring facility shut-ins and planning for a sequenced recovery. This case study looks in more detail at the steps taken during response and recovery, the role of an energy regulator in a weather-related emergency, and key lessons learned.

CONTEXT

ORGANISATIONAL PROFILE:
ALBERTA ENERGY REGULATOR

- Oversees upstream oil and gas, and coal in Alberta.
- Ensures the implementation of all environmental legislation and energy acts in the province.
- Monitors, informs licensees and engages in infrastructure protection during wildfire. Does not hold primary responsibility for managing these events.

FORT MCMURRAY WILDFIRE

- Started 1 May, 2016 --> under control by 4 July, 2016.
- 590,000 hectares burned, 88,000 evacuated, 2,400 homes and buildings destroyed.
- Dry conditions, below average precipitation, above average temperatures, and early snow melt exacerbated the fire.

ENERGY IMPACTS



Initially no significant concern over oil and gas infrastructure. As fire developed, many sites evacuated and then shut-in. Some sites abandoned. It took some companies months to fire up again after shut-down.



Fire impacted shared and individual facilities.



Roughly 40 million barrels of product deferred. Canada's second quarter GDP growth for 2016 contracted by 1%, in part due to the fire.

RESILIENCE: PREVENTION AND IMMEDIATE RESPONSE

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WE MADE THE DECISION TO HAVE SIGNIFICANT ACCOUNTABILITY DURING THE EVENT ... AND GET OUT IN FRONT.

- AER -

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A central provincial operational centre was set up by key agencies on 3rd May 2016 to respond to the Fort McMurray fire, following the instigation of a regional hub. AER deployed resources to support both of these efforts and had significant accountability during the fire. AER moved into incident command, set up an Emergency Control Centre (ECC), and became the energy industry coordinator. This role included:

- The instigation of twice daily calls between AER and industry. AER provided information on fire development and evacuation status. Industry shared details on its facilities and operations.
- Monitoring of common and abandoned infrastructure, when safe, to help coordinate protection of facilities and ensure first responders were made aware of risks.
- Informing first responders on priority infrastructure from a regional perspective.

AER also implemented other measures during the response. It lessened some regulatory and compliance requirements to allow industry to protect its infrastructure. For example, it set up mechanisms to allow operators to create fire guards, create burns or board water without approval. It also collected data on potential hazards and risks from industry, and created a GIS platform within two to three days. It shared this with first responders. The platform has since been adapted operationally and has become standard.

OPERATOR RESPONSE

Operators assessed risks to individual facilities and identified which methods would be employed to help protect them. Many facilities ‘shut-in’ in a very quick time and ran a skeletal staff to do this. After this point, many operators evacuated even more staff to only those trained as first responders to protect the infrastructure. In some cases, facilities had to be completely evacuated.

CIVILIAN RESPONSE

All of the city of Fort McMurray was evacuated with the support of the energy industry, which volunteered its own planes and airports, as well as camp space to accommodate evacuees.

AER’s regulatory framework did not account for everything Alberta faced during the Fort McMurray fire. Examples included its role in organising civilian airlifts and implementing access controls and no-fly zones.

The roles that operators were being asked to undertake were outside of existing frameworks also, such as industry’s role in evacuating civilians. There were additional technical challenges around procedures and policies. Whilst plans exist for shut-down and start-up, they do not typically consider the “out of the ordinary” conditions being faced during this fire, such as how to shut-down and start-up at the same time as dealing with a fire incident.

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IN ISSUES OF MAGNITUDE LIKE THIS, YOU JUST HAVE TO ADJUST.

- AER -

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RESILIENCE: TIMELY RECOVERY

A critical element of AER’s Fort McMurray strategy was to run emergency response and recovery planning in parallel. It meant the recovery team were able to “plan for start-up with foundational knowledge of how the emergency was progressing”. The team was able to sit in on the emergency response meetings, understand how effective the strategy to manage the fire was and how the facilities were shutting down.

There was concern over how fast facilities were having to shut-in; a process that could typically take more than a week had been fast-tracked to an hour in some cases. As such, some facilities were not shut-in in an “orderly fashion”, and there were unknown technical risks when they were to start-up again. There was also some technical cumulative risk involved in all operators starting-up at the same time. As such, the regulator undertook the following steps:

- 1 Requested start-up plans from individual companies to assess risk of fast shut-ins.
- 2 Created a temporal buffer during start-up to achieve sequencing in an orderly fashion.
- 3 Added more monitoring requirements for industry during start-up.
- 4 Ensured common utilities such as pipelines, the power grid and water facilities were monitored and managed, to further reduce any start-up risk.

Whilst much of the area around Fort McMurray had been evacuated, AER did permit some construction to continue during the fire in a bid to maintain orderly operation, and thus faster recovery. It also allowed some responders to return to sites early to ensure functions were active before full start-up and all teams were back.

BARRIERS



Communication and isolated planning: Preparatory planning was based on company specific responses to issues, and not on inter-relationships between parties.



Data: It took time to gather data required for prioritisation of activities during the response.

ENABLERS



Communication and coordination: Communication between industry parties ensures protection of civilians and of common and individual infrastructure.



Emergency response training: Having lots of people with emergency response training can be foundational to planning.

ANTICIPATION OF FUTURE EVENTS

Critically, 'one-off' events are not as 'one-off' as before. Foy states, "there is no doubt in my mind that climate events are getting more and more pronounced and that we have to manage them". AER has teams that look at extreme weather events, including its FIRST3 team, who prepare for and coordinate these types of events

LESSONS LEARNT FOR DYNAMIC RESILIENCE

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COMMUNICATION AND ISOLATED PLANNING WAS ONE OF THE BIGGEST BARRIERS TO SUCCESS, BUT AS ADDRESSED IMMEDIATELY, PROVED TO BE THE LINCHPIN FOR BEING AS SUCCESSFUL AS WE WERE.

- AER -

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