Reclamation Criteria and Practices for Powerlines

Remediation Technologies Symposium – 2020 Virtual Edition

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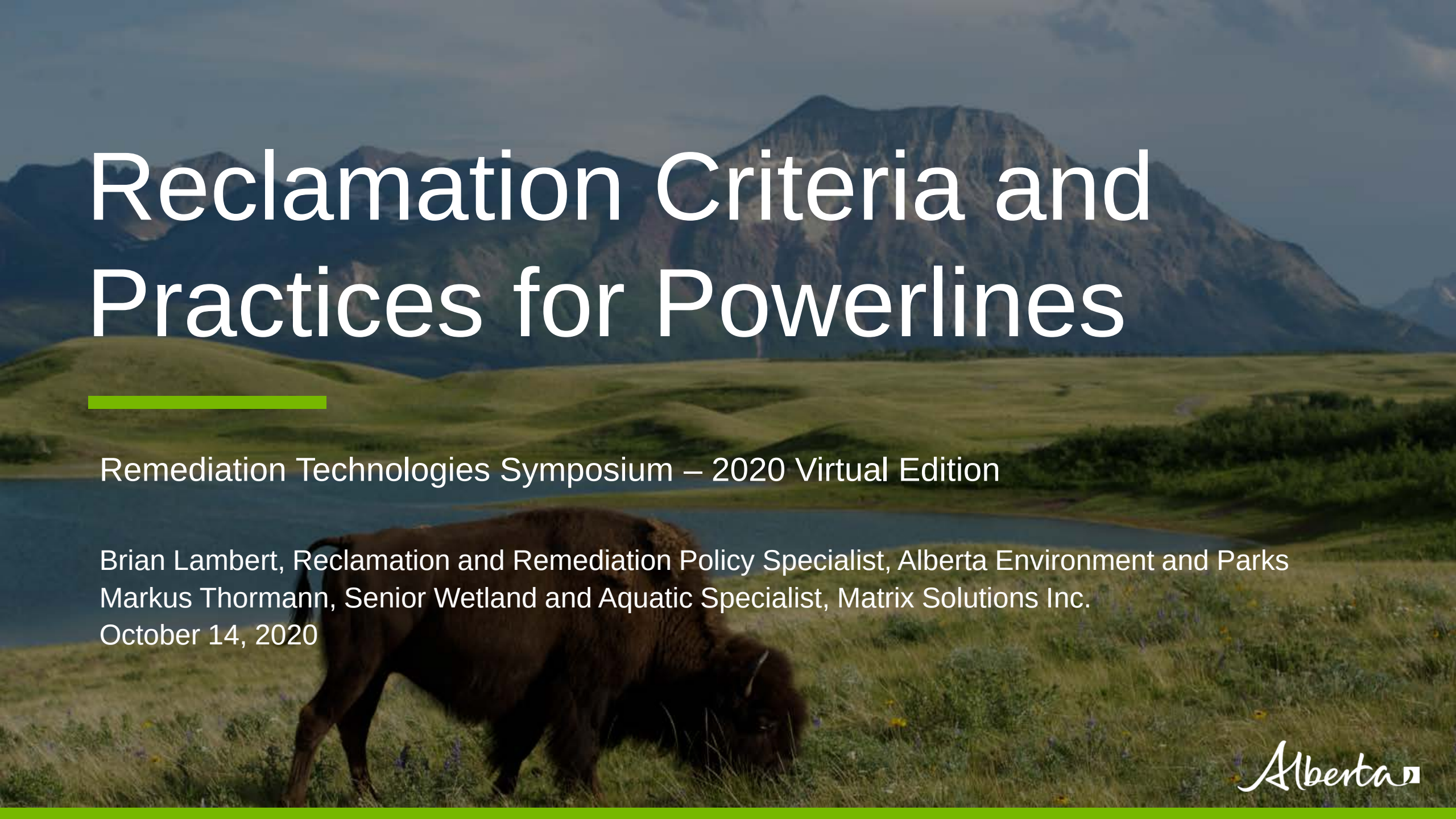
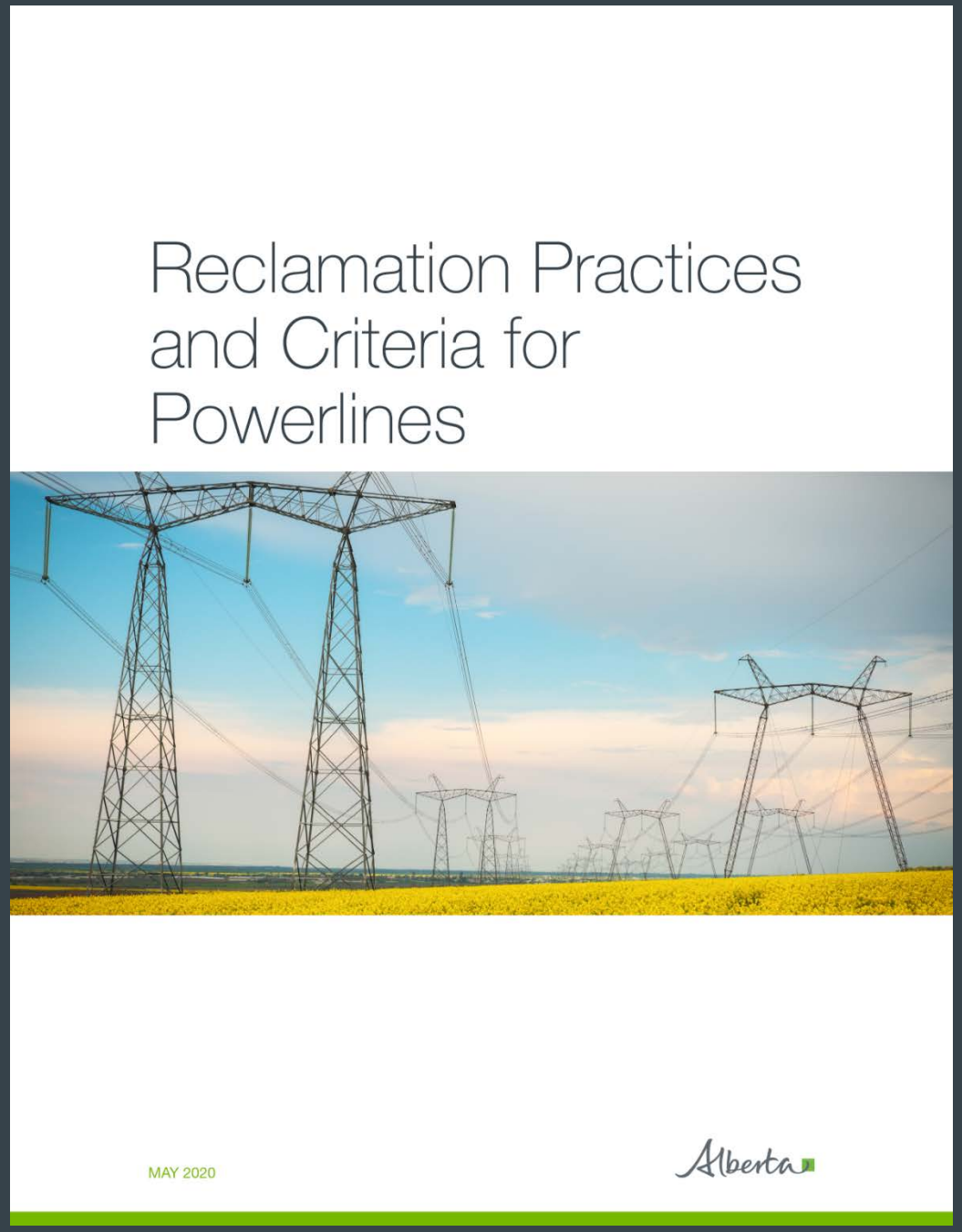


Reclamation Criteria and Practices for Powerlines

- Conservation and Reclamation
- Policy Alignment
- Public and Private Lands
- Transmission and Distribution Lines

What is a Powerline?

- For the purpose of this Guide, a **“powerline”, or “powerline right-of-way”, “right-of-way”** is a:
  - transmission line on private land;
  - transmission line on public land; and
  - distribution line on public land.



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https://open.alberta.ca/publications/reclamation-practices-and-criteria-for-powerlines

Conservation and Reclamation

- *Environmental Protection and Enhancement Act*
- *Public Lands Act*
- Conservation and Reclamation Regulation
  - Regulatory closure and reclamation criteria
- Role of qualified environmental professionals
  - Conservation and reclamation
  - Wetlands; authenticating wetland professional

Policy Alignment

- Regional Plans, Legislation, and Regulations
- Directives, Standards and Criteria
- Best Management Practices
- How do these relate:
  - to each other,
  - and reclamation?
  - The more you know…

Powerlines on Public and Private Lands

- Requirements on Private Lands?
- Requirements on Public Lands?
- Differences between public and private?
  - Specified Land
    - Once a specified land…

Questions?
Comments?

Thank you

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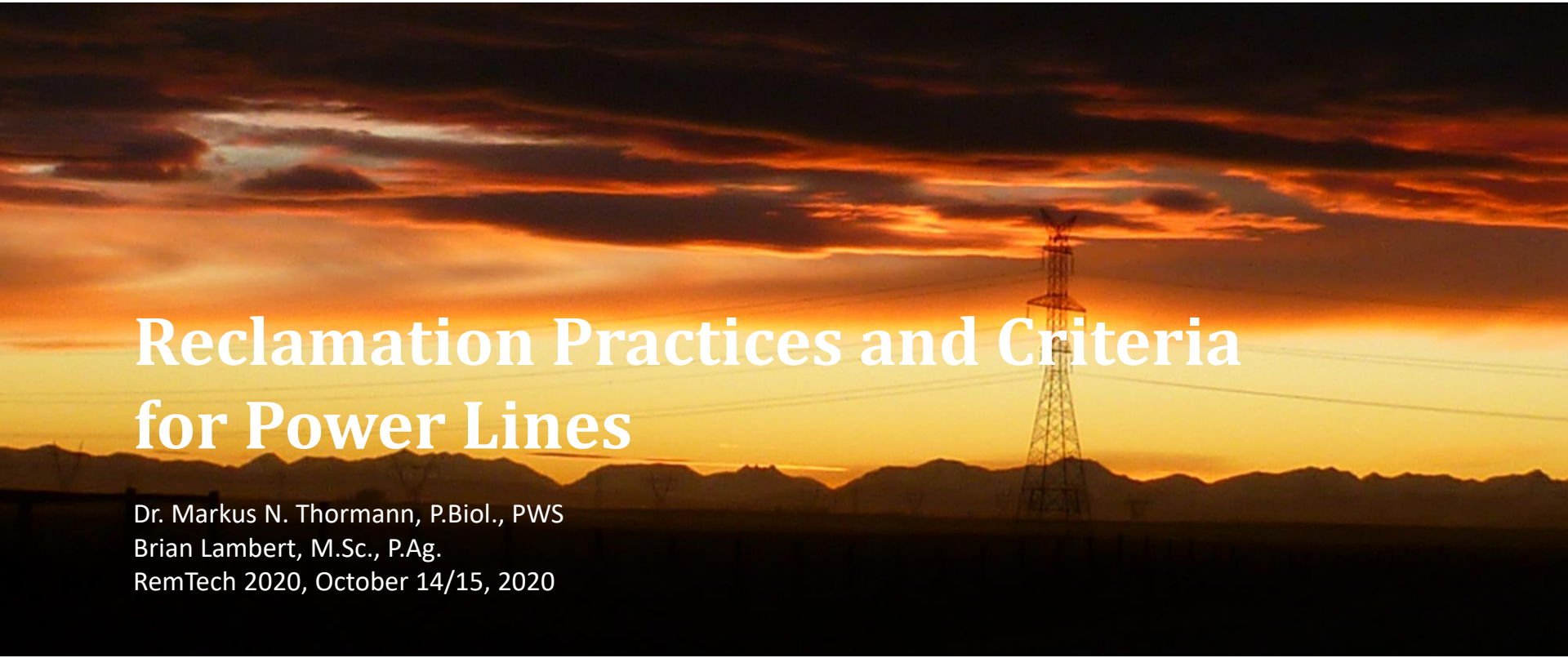

Reclamation Practices and Criteria for Power Lines

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Power Line Structures

Single poles
- wood or metal
- guy wires at turning points

H-frame
- wood, metal or composite materials
- may have concrete foundations, guy wires

Steel lattice
- concrete foundations
- usually freestanding, but may use guy wires

Best Practices for Decommissioning

All equipment, infrastructure, and materials must be removed	• This may or may not include the belowground anchoring structure(s)
Decommissioning approaches tailored to the land and physical environment	• Uplands – cultivated lands, native grasslands, and/or forested lands • Wetlands – mineral wetlands and/or peatlands
Preliminary assessment of the ROW to identify potential reclamation issues	• Facilitate reclamation planning • Avoid delays in achieving reclamation criteria • Accelerate Reclamation Certificate application process

Typical Reclamation Issues

- Roadways or access trails to/from ROW
- Rutting and soil compaction from equipment
- Poor vegetation growth
- Erosion on steep slopes
- Soil subsistence in areas of structure removal
- Lack of topsoil for backfilling
- Gravel at surface from over-filling holes
- Conditions favour growth of noxious weeds

Uplands

- Pole structure removal
  - Generally, the entire pole and supporting structures shall be removed
  - In some cases, certain belowground structures can remain in place
    - Remove to min. depth of 1.2 m (4 feet) to avoid any land use impacts
    - Requires approval from the regulator, e.g., Public Lands Officer, and the landowner
- Backfilling
  - All holes must be backfilled, preferably with sand, to 0.5 m (gravel may be used where warranted)
  - From 0.5 m to ground surface, holes must be backfilled with topsoil that is preferably from a local source (increases soil compatibility)
- Vegetation re-establishment
  - Preferably via natural encroachment; seeding only in specific circumstances (high erosion potential, weed establishment potential)
  - Cultivated lands may not require any seeding

Wetlands

Swamp

All natural wetlands are protected under the *Water Act* and require an AEP approval before work commences in, or near, the wetland if there is any potential for adverse effects.

Marsh

Bog

Fen

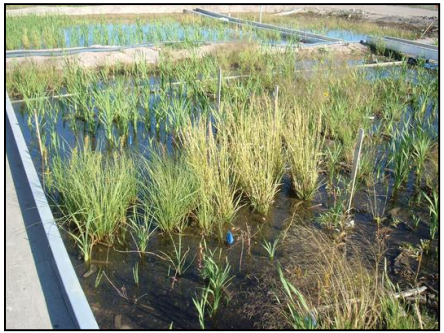
Shallow Open Water

Mineral Wetlands

- Pole structure removal – marshes, shallow open water, and swamps
  - Ephemeral and temporary wetlands (Class I and II) – year-round
  - Seasonal wetlands (Class III) – summer, fall, or winter; cognizant of hydrologic conditions
  - Semi-permanent and permanent (Class IV and V) – in winter
  - Some support and/or anchoring structures may remain in the soil – this should be the exception
    - e.g., wooden poles may be cut above the water surface – nesting structures
    - e.g., cut structure off 1.2 m below ground surface, backfill, grade, and revegetate
- Backfilling
  - May or may not be required, depending on wetland hydrology
    - Semi-permanent and permanent wetland too wet
    - Seasonal, temporary, and ephemeral wetlands may be dry enough
- Vegetation re-establishment
  - Natural encroachment will revegetate the site in most instances
  - Where large subsurface structures have been removed, some active planting may be needed

Organic Soil Wetlands (Peatlands)

- Pole structure removal – bogs and fens
  - In winter only to reduce vegetation impacts
  - Simple subsurface structures should be removed, large subsurface structures may remain in place
- Backfilling
  - May or may not be necessary
  - If necessary, source backfill material from the same wetland, e.g., tree trunks, branches, etc.
- Vegetation re-establishment
  - Natural encroachment will revegetate the site in most instances
  - Where large subsurface structures have been removed, some active planting may be needed



Detailed Site Assessment (DSA)

DSA is the process for assessing adequacy of reclamation measures, based on criteria established by AEP

- soil quality/quantity
- soil profile
- landscape, drainage, erosion
- vegetative health, weed presence/absence
- agricultural capability
- other factors

Detailed Site Assessments (DSAs)

DSA criteria based on land use apply to power lines also

- Cultivated lands
- Forested lands
- Native grasslands
- Peatlands

Disturbed vs. undisturbed areas

- Pole removal locations, ROWs, and access roads are considered “disturbed areas”

Bare areas may be acceptable if:

- < 1 m diameter at pole removal locations
- Soil quality sufficient to facilitate revegetation
- Evidence of vegetation encroachment, e.g., in wetlands, forests, and grasslands
- No bare area where crops have been seeded in cultivated lands

DSA – Sampling Approach

- Sampling intensity and methods
  - Paired sampling locations – disturbed area and "control" area
    - "Control" area has to be in proximity to the disturbed area
  - Sampling intensity depends on the length of the ROW and the land use(s)
    - Representative former support structures and areas likely to be impacted require a DSA
    - Remainder of ROW and access roads may be visually assessed for obvious problem areas
  - Typically a circular plot (10 m^2 area)

DSA – Sampling Approach

- ROW inspection:
  - Pre-inspection planning to identify landscape units (forests, wetlands, etc.)
  - Identify disturbed areas for inspections, e.g., aerial imagery, drones, walking along ROW
  - Plot frequencies
    - <400 m – inspection plots max. 100 m apart
    - >400 m – inspection plots representative of mapping units, with one plot/mapping unit or a min. of 1 plot/800 m
- Structure inspections
  - DSA required for all properties with 1+ structures
  - Assess all mapping units, when necessary

Summary

- There are several kinds of power lines, but they all need decommissioning eventually.
- Alberta's reclamation process and criteria apply to power lines, too.
- Decommissioning of infrastructure in and near wetlands is subject to provisions of the *Water Act.*
- Specific approaches for power pole structure removal, backfilling, and vegetation re-establishment have been developed to promote reclamation success in a variety of landuse settings.

For more information, please contact:

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