

# Bipole III Transmission Project

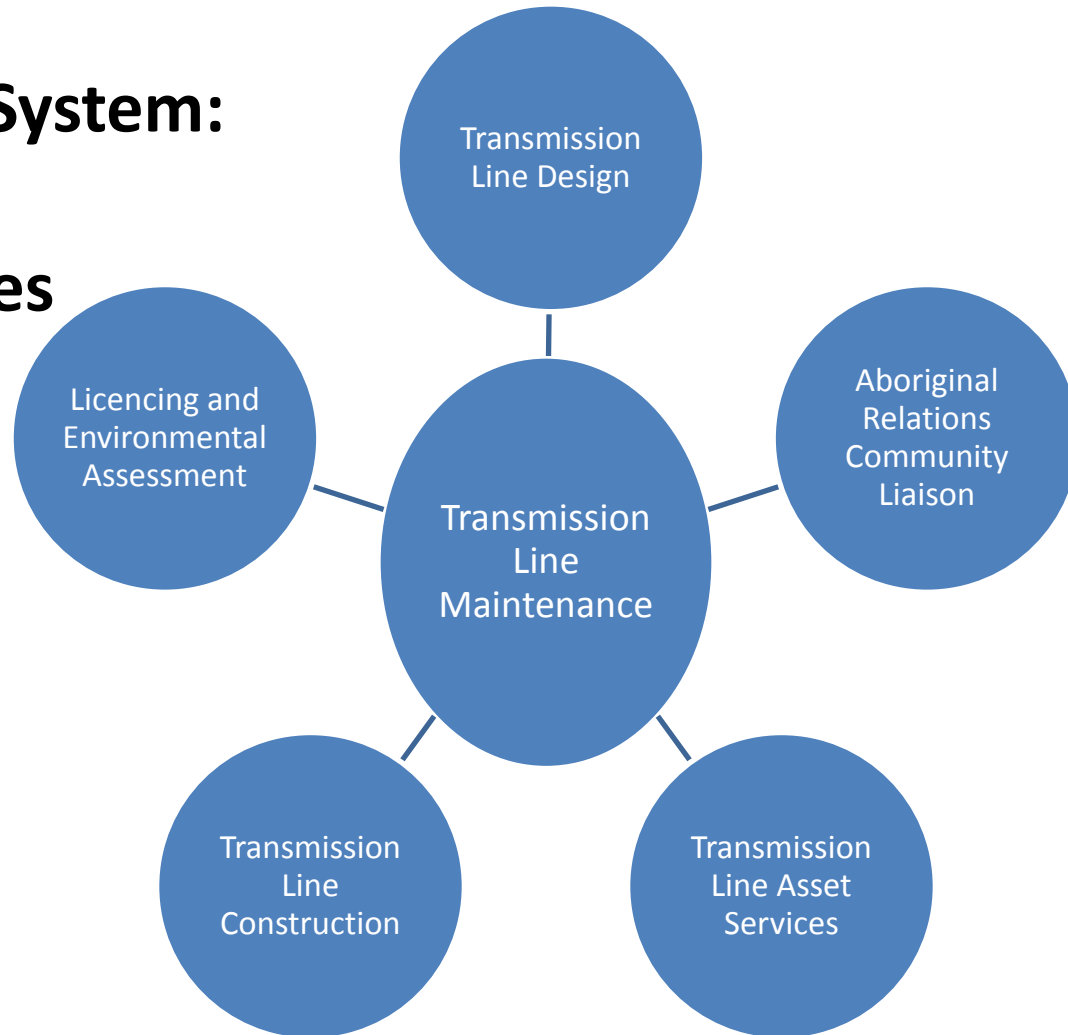
Clean Environment Commission  
Transmission Line Maintenance  
Vegetation Management  
Wayne Ortiz

# Transmission Line Maintenance

**Transmission System:**

**11,200 km**

**50,500 hectares**



# Why Tree Control

- Public Safety
- Fire
- Protection of Facility
- Reliability (NERC)
- **Access for Repairs or Maintenance**



# Why Tree Control

- Public Safety
- Protection of Facility



# Why Tree Control

- Forest Fire



# Why Tree Control

- **Reliability**

- **Blackouts caused by trees:**

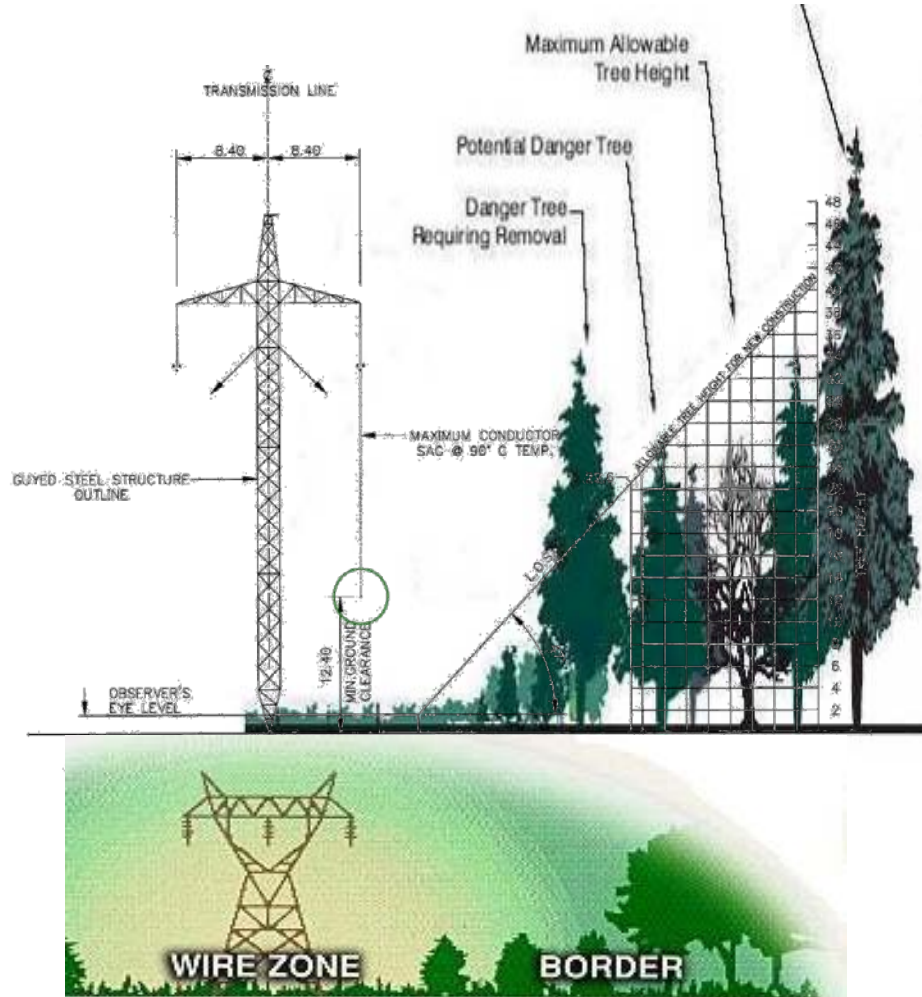
- July 1996 – Western US – 2.5 million customers
- August 1998 – Western US – 7.5 million customers & B.C.
- August 2003 – NE US and Canada – 50 million customers
- September 2003 – France, Italy, Switzerland – 25 million customers

- **NERC FAC-003-1 June 2007**

- **MB Hydro Policy to adopt standards**

- **MB Hydro Act Reg. 25/2012**

# Transmission Line ROW Design

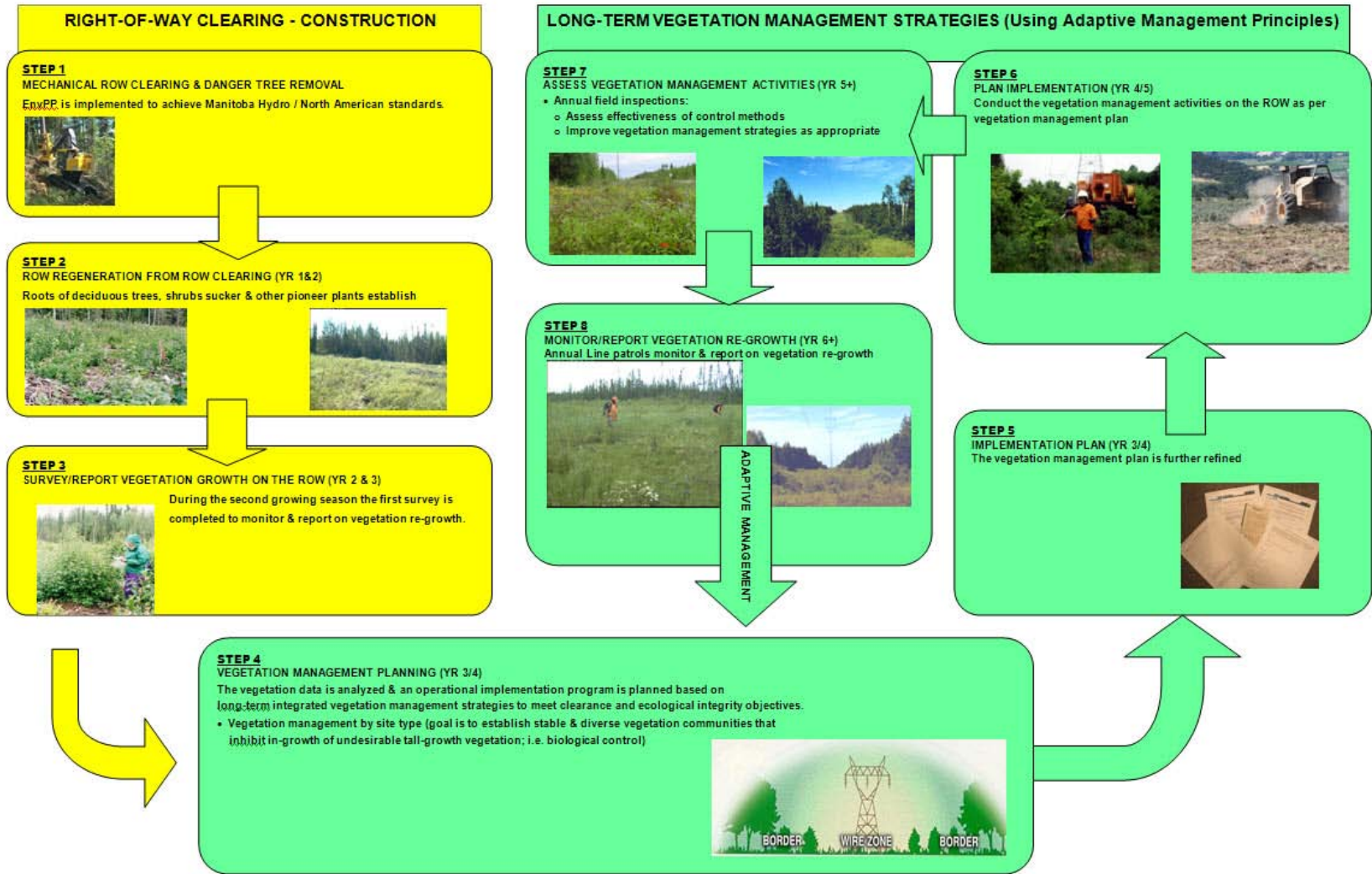


# Vegetation Management Planning

- Annual Patrols identify vegetation issues
- Tree control program planning considers:
  - Target Species, size, density
  - Site Factors – terrain, access, urban/rural/remote location
  - Sensitivities & Operational Constraints:
    - Operational Environmental Protection Plans
    - Dept of Fisheries and Oceans operational statements
    - MB Conservation best practices guidelines
  - Cost of different methods/machinery
  - Landowner / stakeholder contact



# The Vegetation Management Cycle



# Tree control methods

- Mechanical Control:
  - Mechanical Mowing / Shear-blade
  - Feller Harvester
- Manual Control
  - Chainsaw
  - Brush saw / axe
  - Girdling
- Herbicide

# Mechanical Mowing / Shear-Blade

- Non-selective
- Large prime mover
  - Site restrictions
  - High fuel consumption
  - Soil disturbance
- Immediate results
- High visual impact

# Mowing



# Shear-Blade



# Feller - Harvester

- Large equipment
- Larger trees
- Selective clearing
  - Danger trees
  - “reach” into sensitive areas

# Feller - Harvester



# Manual cutting

- Chainsaws, brush-saws, brush axes
- Suitable for sensitive areas where machinery cannot reach:
  - Steep slopes
  - Riparian zones
  - Environmentally sensitive sites.



# Herbicide

- Pesticide Use Permit
  - Issued by MB Conservation
  - Public advertising
  - Public input mechanism
  - Specifically authorizes:
    - Which herbicides may be use
    - How they may be applied
    - Where they may be used
    - Buffer zone requirements
  - Annual reporting Requirement

# Herbicide

- Selective Herbicides – registered by Health Canada
  - Affect broadleaved plants only
  - No soil sterilants for tree control
- Selectively applied to target plants
  - Compatible plants/species left to flourish and help out-compete tree species – biological control
- Low application rates
  - Set by MB Hydro's Chief Forester annually.
- Soil permeability and depth to groundwater considerations

# Herbicide

- Licenced applicators
- Pesticide Applicators Working Group
- Reduced frequency of re-treatment
  - On the land less
  - Smaller and smaller equipment - backpacks

# Herbicide



# Herbicide



# Herbicide



- Set-Backs
  - Water areas  
– 30 meters standard
  - Sensitive sites  
(berries, rare plants etc.)

# Results

- Mechanical Control
  - High density areas
  - Non-selective
  - Encourages suckering of incompatible species
  - Lowers species diversity – suckering species dominate
  - Steady or shortening return cycle
    - Re-sprouting increases with each treatment.
    - More frequent environmental impact.
  - Large equipment
  - High fuel usage – increased emissions

# Results





# Results



# Results

- Herbicide
  - Selective application
  - Develop wire-zone / border zones communities with compatible species – biological control
  - Increase species diversity
  - Lengthening return cycles
    - On the land less often with smaller and smaller equipment (backpacks)
    - Increased competition from compatible non-tree species
    - Reduced tree invasion
  - Lower fuel consumption

# Results



# Continuous improvement

- Follow-up surveys
- Ongoing patrols assess results of treatments
- Annual patrols follow future tree growth
- Results of past practices are modified as part of the following vegetation management cycle.

# Thank-you