

Southern Alberta System Reinforcement - Planning Update -

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Reliable **Power**

Reliable **Markets**

Reliable **People**

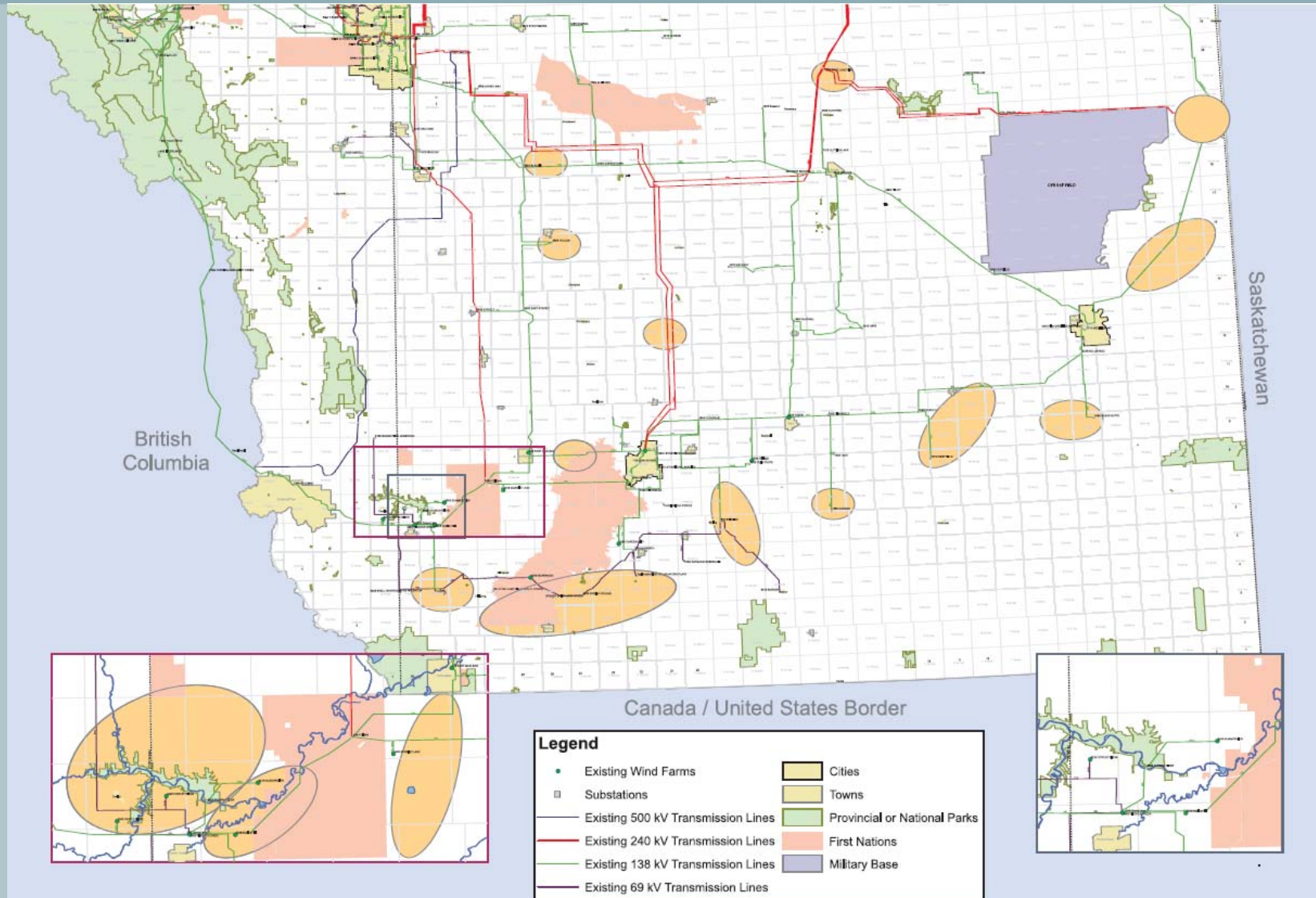


South System Planning Update



- **Overview of the need**
- **Transmission development alternatives**
- **Next steps**
- **Timelines**

Overview of Need – Wind Interest in Southern Alberta



Overview of the Need



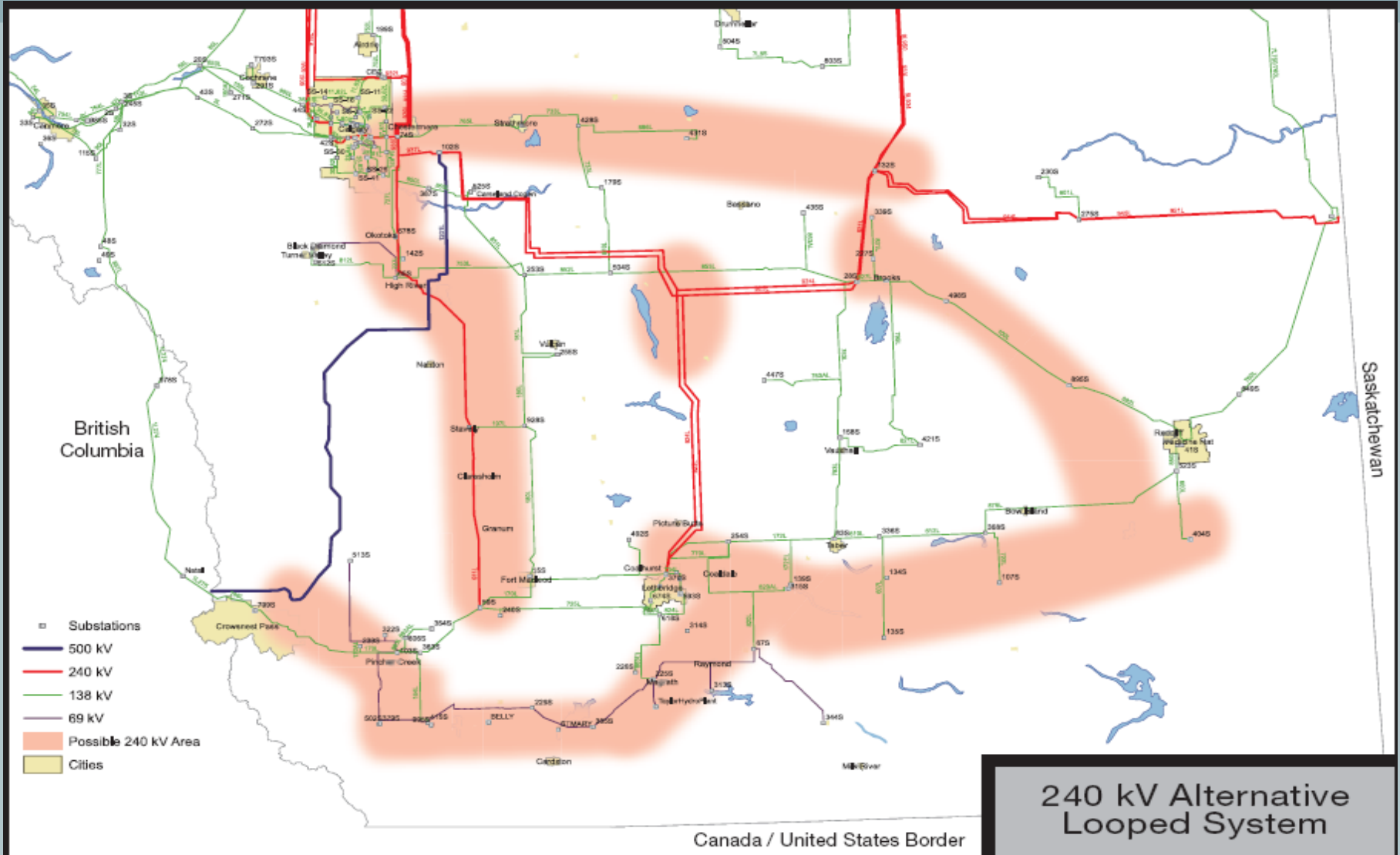
- **Current total wind interest > 11,000 MW**
- **Wind interest in South > 9,500 MW**
- **Wind interest in Central Area > 1,500 MW**
- **Resource adequacy report identifies 1,600 MW to 3,400 MW of additional wind by 2017**
- **Transmission planning for the south uses 3,400 MW**
- **The existing south transmission system is inadequate to interconnect thousands of MW's of wind (was designed to supply rural loads)**

Southern System Development Options

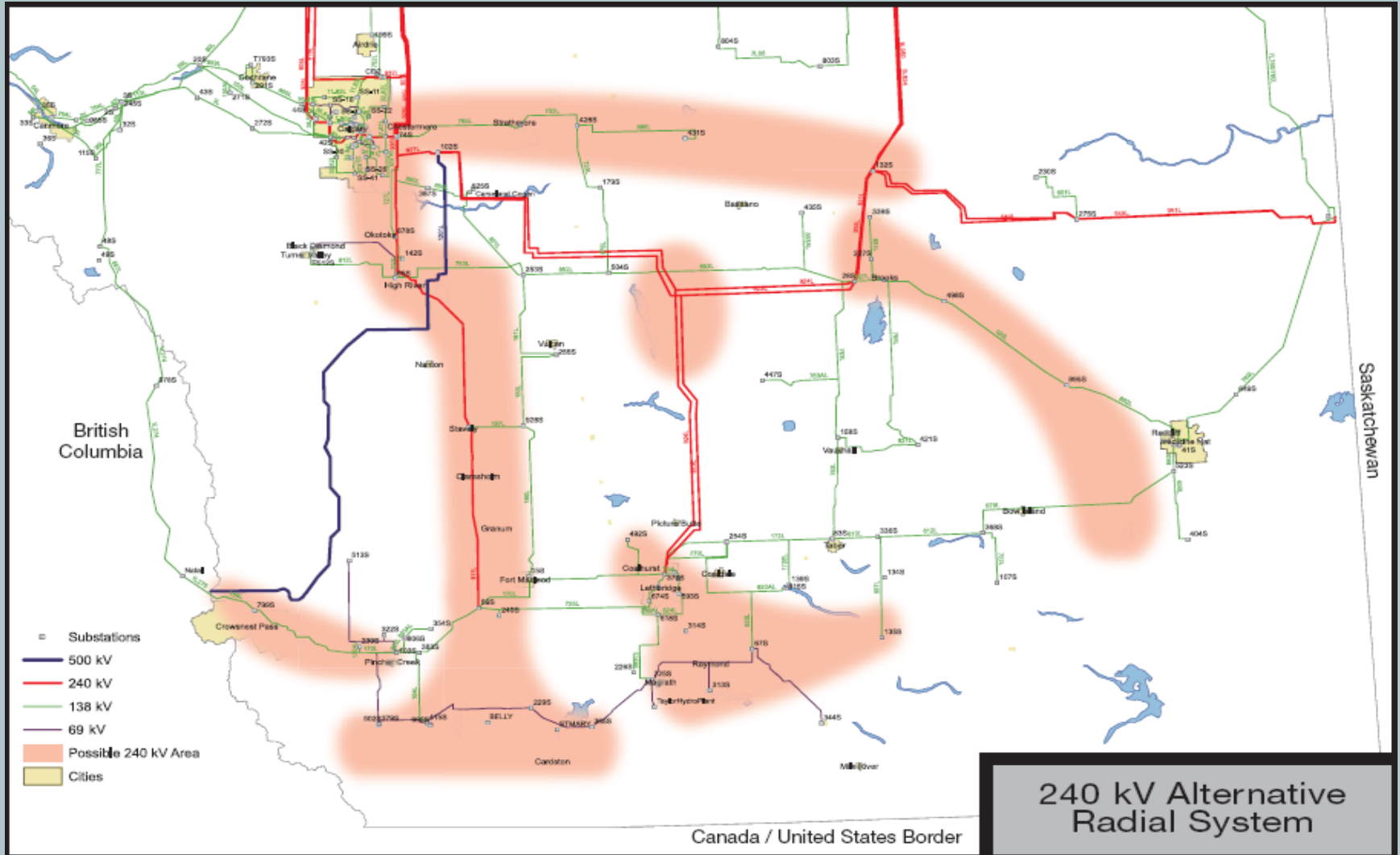


- **240 kV AC**
- **500 kV AC**
- **HVDC (Classic)**
- **HVDC (VSC)**

240 kV Alternative – Looped System



240 kV Alternative – Radial System

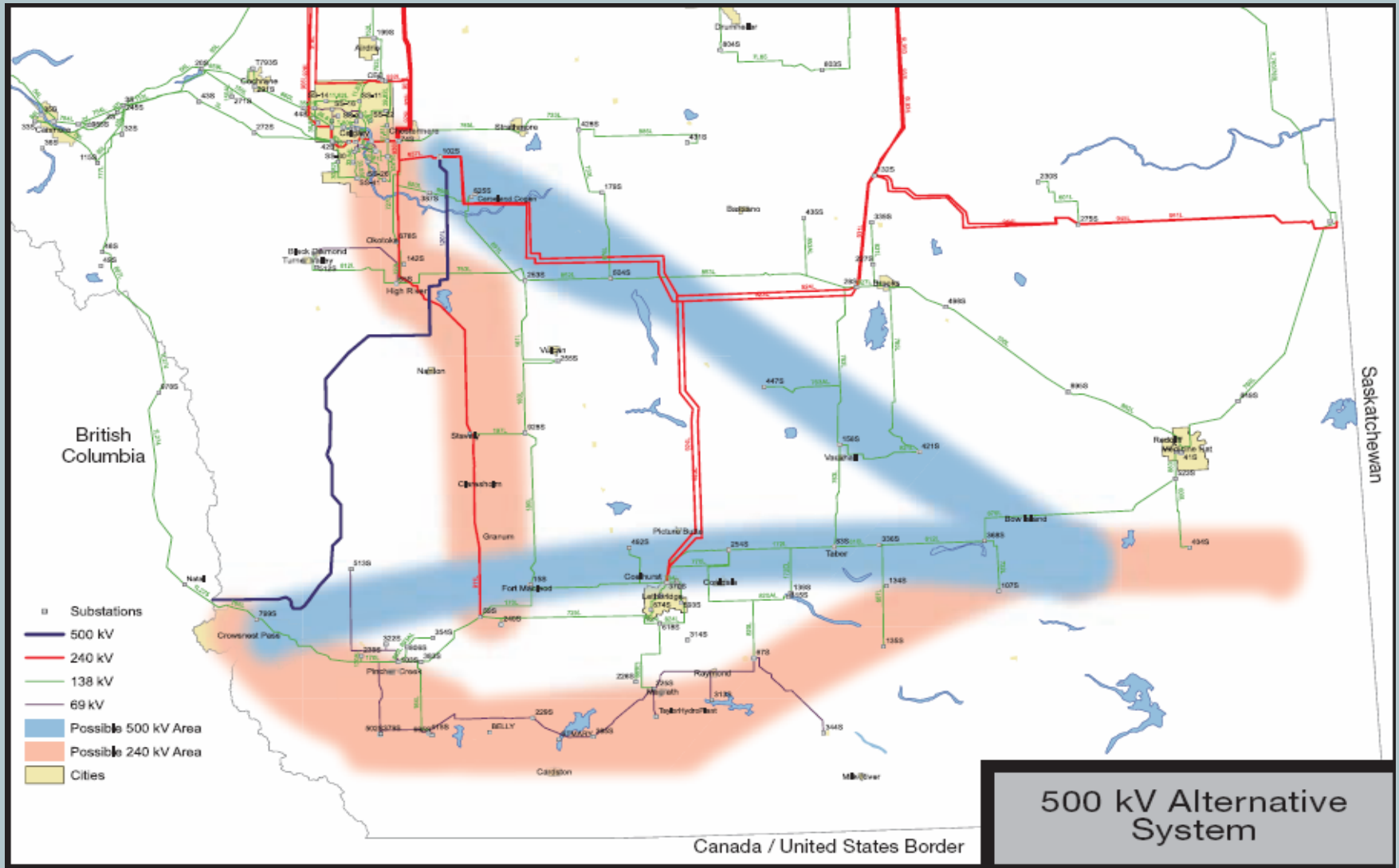


240 kV Option



- **Suitable for interconnecting 2,700 MW of wind interest in Southern Alberta**
- **Economical solution**
- **Existing voltage in the system**
- **Relatively easy to construct – ROW**
- **At the limit in terms of distances**
- **Losses could play significant role**

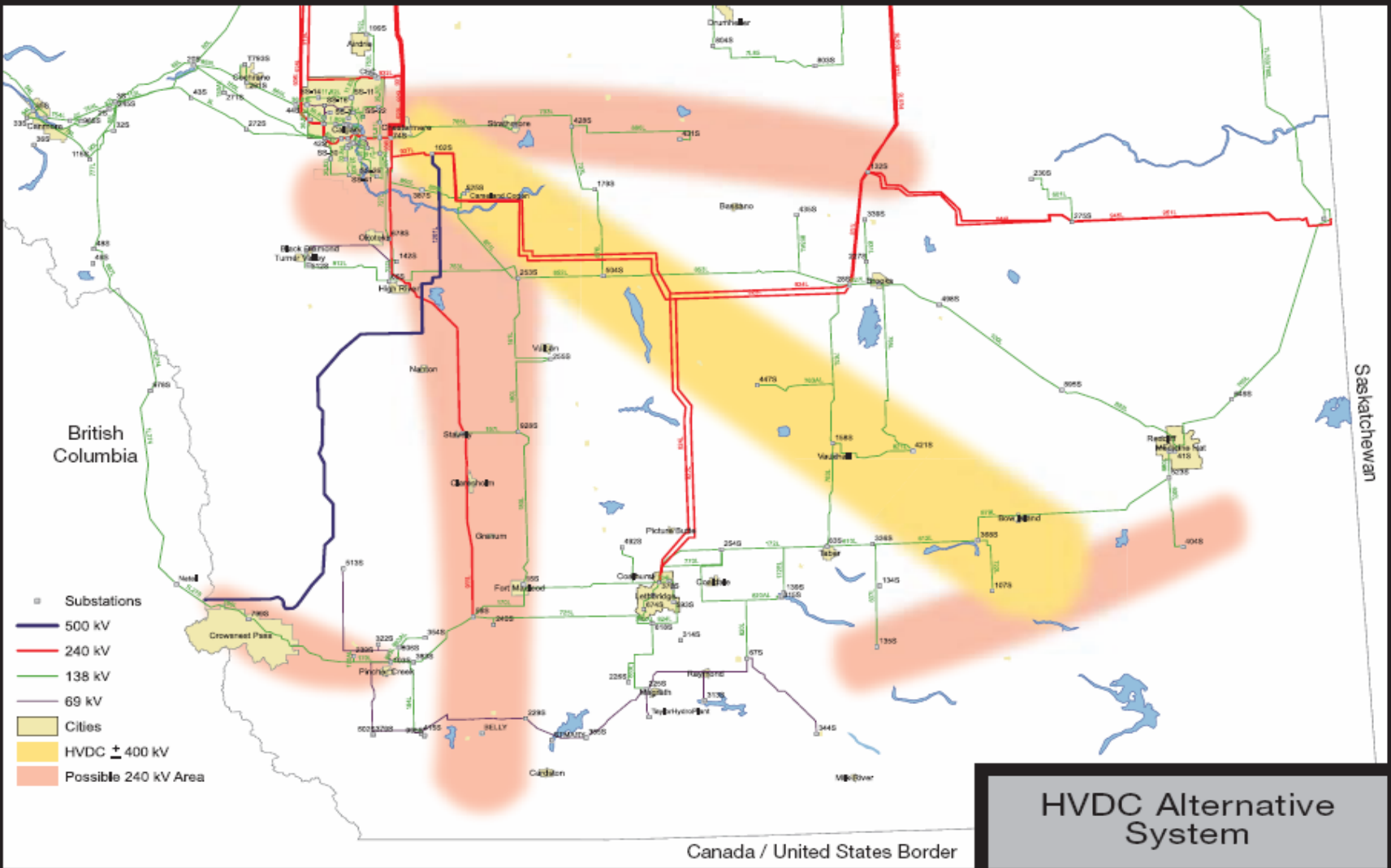
500 kV Alternative – Looped System



500 kV Option

- **Technically robust**
- **Lower losses**
- **Expandability for the 20-year scenario**
- **Higher initial capital cost**
- **Larger footprint**
- **Category C contingencies could be an issue**
- **Could be an overbuild**

HVDC System



HVDC Classic

- **Maximizes the use of ROW**
- **Lower footprint**
- **Possibly lower losses**
- **Higher initial capital cost**
- **Reduced flexibility for expansion**
- **Still requires “AC collector system”**

HVDC (VSC Technology)



- **Suitable for transmitting smaller magnitudes of power**
- **Max size currently in commercial operation < 500 MW**
- **High initial capital cost**
- **Higher losses**
- **Reduced flexibility**
- **Not considered further**

Next Steps



- **Request need level cost estimates from AltaLink**
- **Recommendation of South System plan based on:**
 - **Technical**
 - **Cost**
 - **Social**
- **Prepare Needs Identification Document**

South System Planning Studies - Schedule



- **Finalize study scope – Jan 25 (completed)**
- **Need assessment report – (in progress)**
- **Alternative development and screening report – (in progress)**
- **2nd round of consultation – (completed)**
- **Alternative assessment and recommendation – August**
- **Needs Identification Document filing with AUC – Q2/Q3, 2008**
- **Targeted in-service date: starting in 2011**

Review of Today's Session



- **Please submit additional comments or questions to Karissa.Ohsberg@aeso.ca by June 20, 2008**
- **This is one part of the larger Key Initiatives Transmission Planning Stakeholder Session that was held on June 9, 2008. To view the full presentation visit the AESO website at www.aeso.ca and follow the path Transmission > Planning > Long Term Planning > Consultation**