

# Canada & the Western EIM

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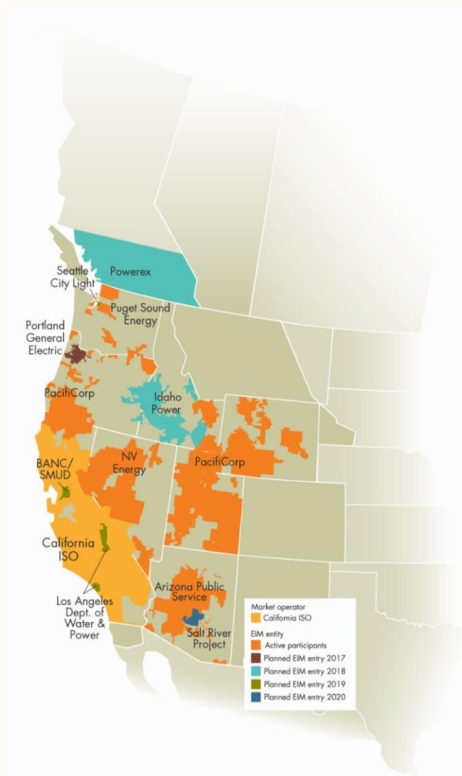
# Overview Of Powerex Corp.

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- **Powerex Corp. is a wholly-owned subsidiary of BC Hydro**
  - BC Hydro is the third largest electric utility in Canada
  - BC Hydro is a Crown Corporation, owned by the Province of British Columbia
  - BC Hydro operates 31 hydro facilities and 2 thermal plants and over 49,000 miles of transmission
- **Powerex's 3 key roles:**
  - Sell surplus capability from the BC Hydro system, procure energy to meet BC Hydro deficits (includes reliability)
  - Sell energy created by the Canadian Entitlement (Columbia River Treaty)
  - Generate trading income for benefit of BC Hydro's ratepayers
- **Powerex's focus:**
  - Physical delivery of wholesale power products and services across the West
  - Environmental products and services across the West
  - Natural gas across North America

# Overview Of Powerex's EIM Participation

- **The specific implementation framework reflects Powerex's unique participation with resources and load located in Canada**
- **Powerex, not BC Hydro, is the Canadian Entity participating in the EIM**
  - Powerex is subject to the CAISO tariff and settles EIM transactions with the CAISO
- **Powerex's EIM transactions occur at the BC-US Border**
  - EIM remains fully FERC jurisdictional
  - BC Hydro maintains its regulatory, legal and operational autonomy
  - CAISO does not manage congestion within BC
  - BC Hydro continues to settle its tariff services, including Energy Imbalance Service, independent of the EIM
- **Powerex participates with modelled aggregate resources**
  - Similar to EIM participation of Mid-C resources on generation side
- **Powerex voluntary donation of transmission rights to/from CAISO and Puget**



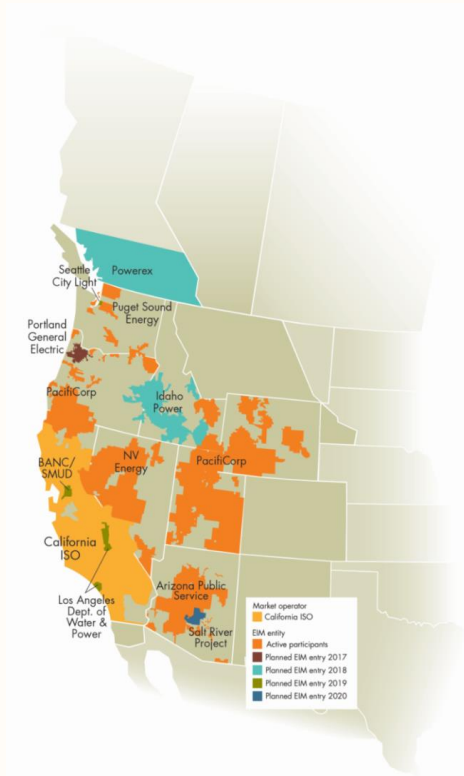
# Expected Benefits of Powerex's EIM participation

- **Expected Benefits To Powerex**

- Co-optimizing imbalances and reserves
  - Offset BC imbalances with diversity and lower cost EIM resources
  - Utilize residual BC Hydro imbalance reserves to support EIM transfers
- Removal of transmission hurdle rates
  - Purchasing over-supply energy
- Congestion rent for transmission rights provided

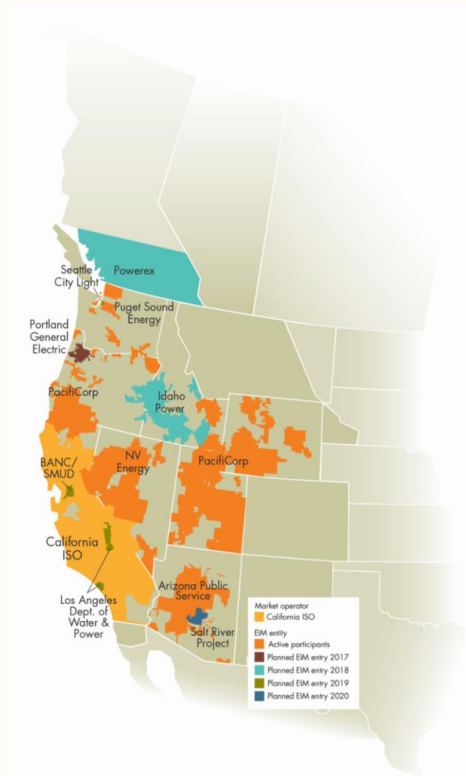
- **Expected Benefits To EIM Area**

- Lower cost of meeting EIM Area imbalances and integrating renewables
- Reduced GHG emissions
- Increased EIM transfer capability



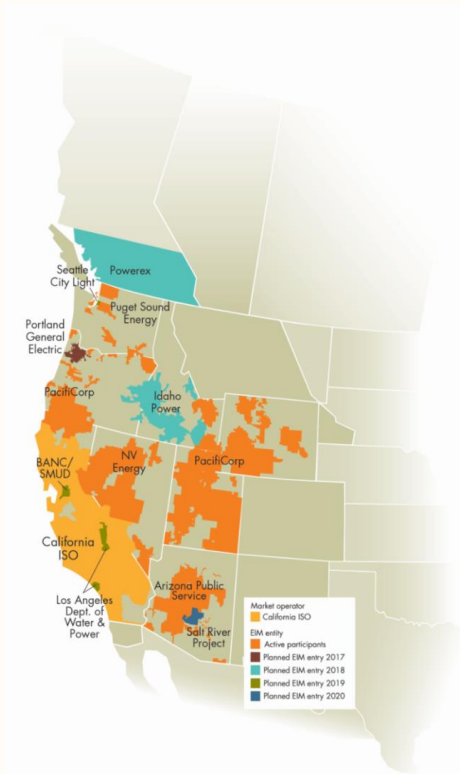
# Powerex's EIM Experience To Date

- **Realized Benefits**
  - Energy purchases during over-supply conditions
  - Congestion rent received for transmission provided
- **Benefits Not Yet Fully Realized**
  - Co-optimization of imbalances and residual imbalance reserves
  - Sales Opportunities



# Organised markets beyond EIM?

- **Tremendous potential value to be realized from greater inter-regional trading**
  - Strong economic and environmental synergies between BC / Northwest hydro and California
- **In contrast to EIM, which is limited to “imbalances”, a day-ahead organized market would:**
  - Transact much larger volumes
  - Likely replace existing bilateral markets
    - EIM created new opportunities without eliminating existing opportunities
- **Market design & governance must fairly balance diverse, and often competing, regional interests**
  - These transactions would largely reflect a buyer/seller relationship between BC/NW and California





# Thank You

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