

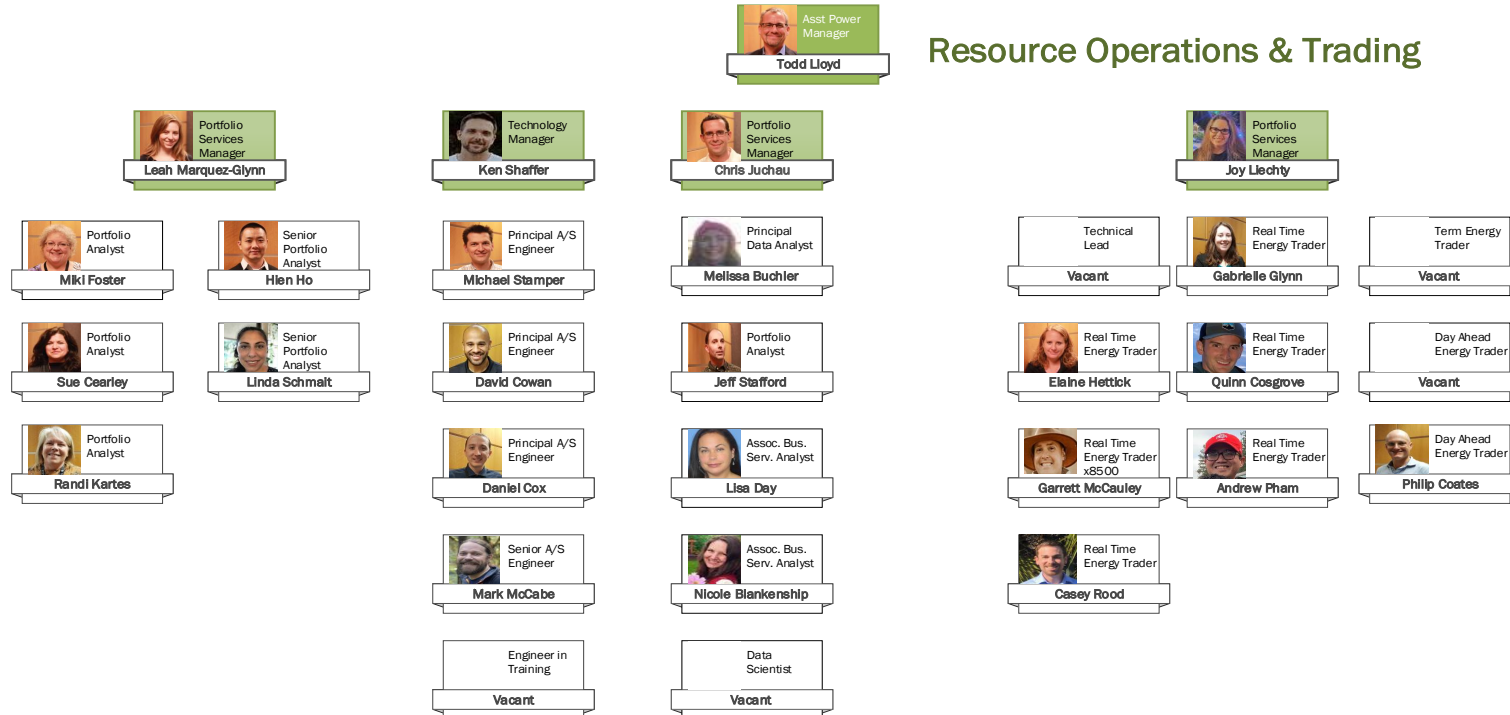


Serving our customers

Wholesale Trading Overview

Resource Portfolio and Operations

Resource Operations & Trading

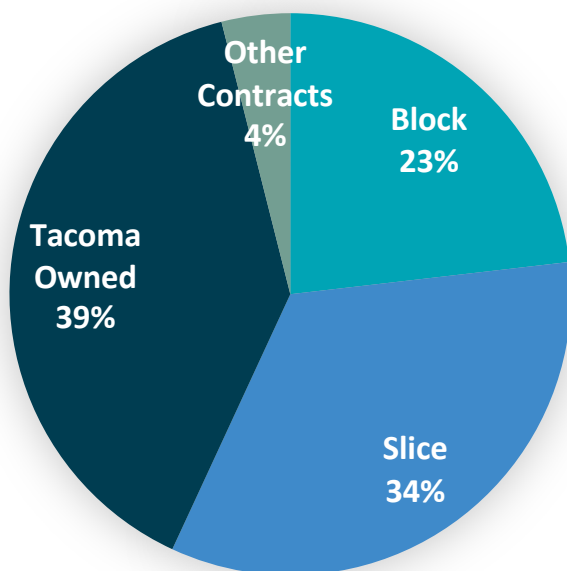




Todd Lloyd
Manager, Resource
Operations and
Trading

- **Resource Operations (Leah)**
 - Plan and direct the operations of Tacoma Power's hydroelectric resources
 - Manage the operations of the BPA Slice contract
- **Trading and Marketing (Joy)**
 - Term, Day-Ahead and Real-Time Trading
 - Hour ahead through 24 months
 - Mission critical 24x7 Real-Time Trading
- **Scheduling and After-the-Fact (Leah)**
 - Scheduling, after-the-fact accounting, billing
- **Systems Engineering (Ken)**
 - 24x7 support of dedicated Power Management Systems
 - Development of in-house software applications
- **CAISO Markets Performance Team (Chris)**
 - Maximize value of near-term wholesale transactions, including CAISO and EIM
 - Settlements of complex and adjustable (after-the-fact) CAISO transactions. Orders of magnitude more complex than traditional settlements

Tacoma's Resource Portfolio



- **Tacoma Owned Resources**

- 4 hydro projects, 7 powerhouses, 21 generating units
- 310 aMW of generation under average water conditions
- 750 MW of capacity

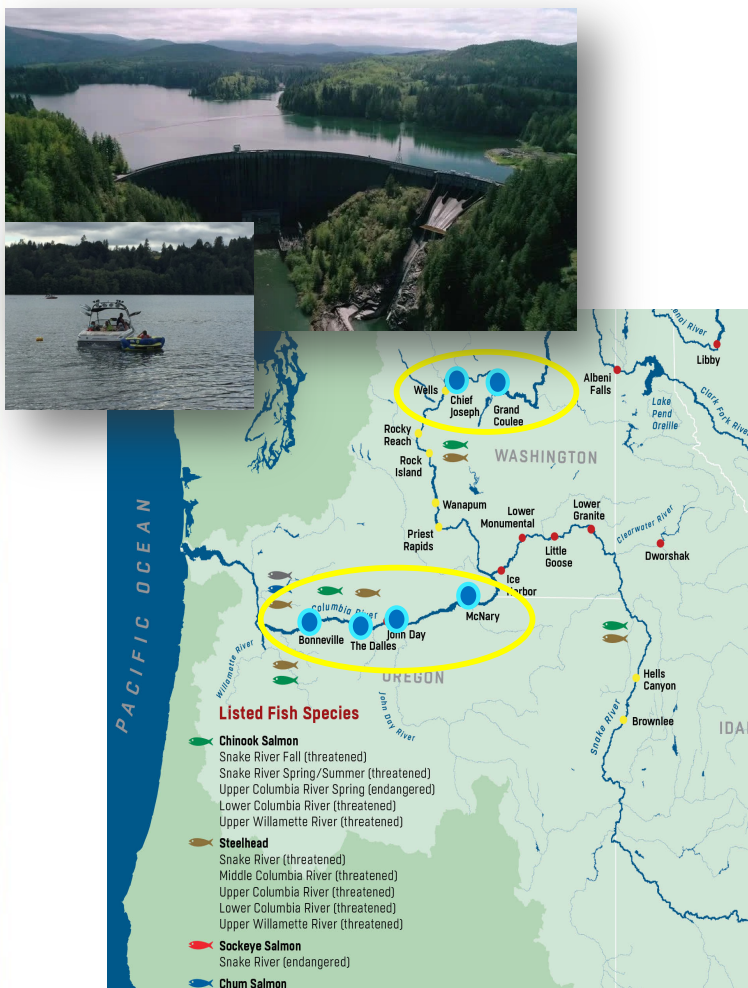
- **BPA Contract**

- Block = 182 aMW
- Slice = 265.4 aMW (avg water)
- Slice gives the rights and responsibilities of the Federal Operation System

- **Other Contractual Resources**

- Columbia Basin Hydro = 28 aMW, March through September
- Priest Rapids = 2.5 aMW

Resource Operations Challenges



Listed Fish Species

- Chinook Salmon**
 - Snake River Fall (threatened)
 - Snake River Spring/Summer (threatened)
 - Upper Columbia River Spring (endangered)
 - Lower Columbia River (threatened)
 - Upper Willamette River (threatened)
- Steelhead**
 - Snake River (threatened)
 - Middle Columbia River (threatened)
 - Upper Columbia River (threatened)
 - Lower Columbia River (threatened)
 - Upper Willamette River (threatened)
- Sockeye Salmon**
 - Snake River (endangered)
- Chum Salmon**

• Physical Limitations

- Generation, reservoir levels, flows

• Human Safety

- Flood control (Cowlitz, Wynoochee)
- Voluntary flood reduction (Cushman, Nisqually)
- Limit rate of flow increases

• Environmental Stewardship

- Downstream flows for fish/environment
- Limit rate of river flow changes

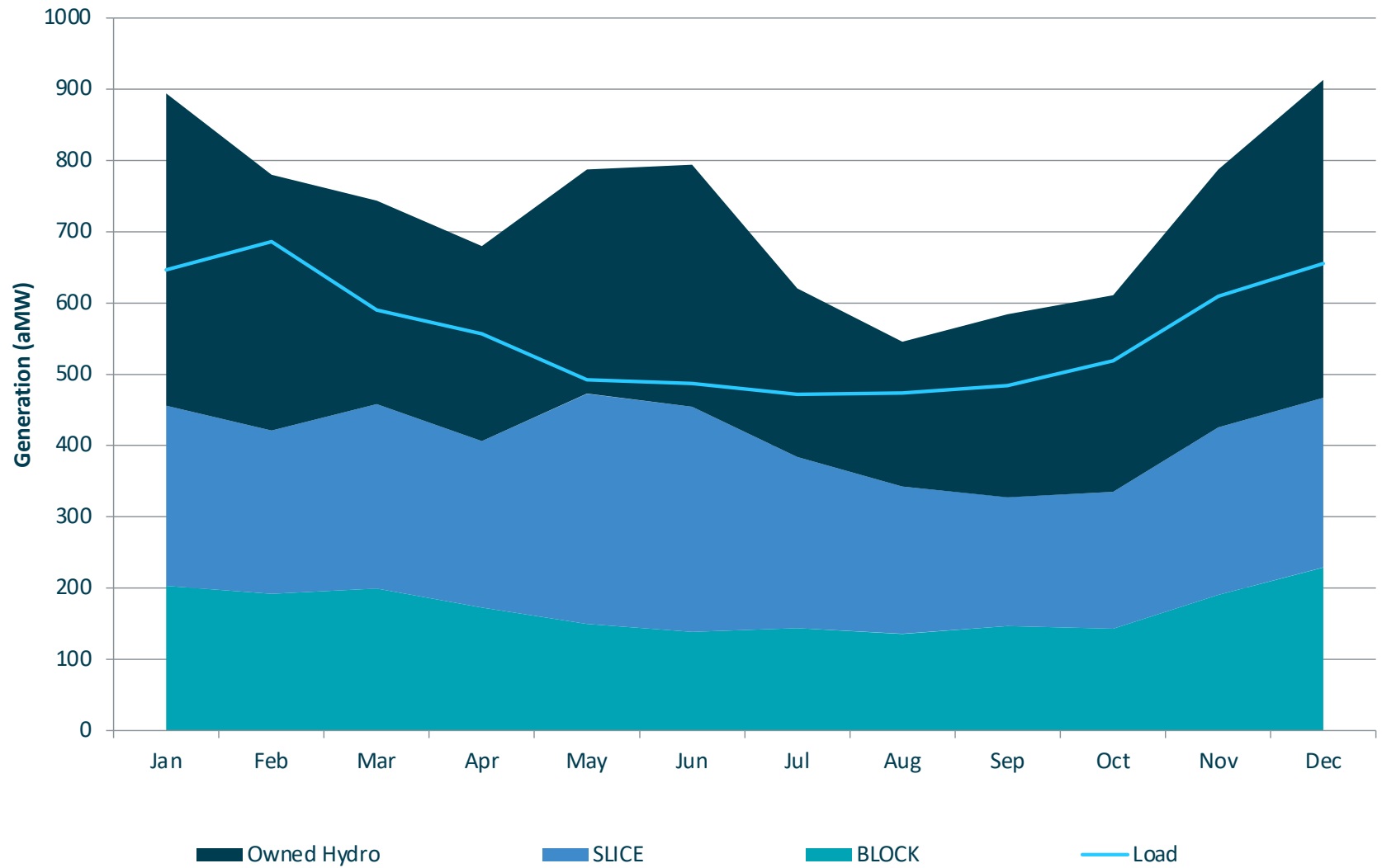
• Recreation

- Summer refill for recreation
- Limits on reservoir levels for boating

Optimize Generation and Market Interaction

- Once all other constraints have been met, focus on optimizing resources to maximize value
- Work with Trading to identify and capitalize on market opportunities

Resources and Loads



Why We Trade Power

- **System Reliability**

- Balance resources (supply) with load (demand)
- Assure resource adequacy, especially during extreme events (heat and cold)

- **Hedging (Term Transactions)**

- A portion of the expected surplus sold in advance
- Provides price certainty
- Helps with liquidity in event that PNW hydro-based utilities selling at same time

- **Fine Tune Load/Resource Position
(Day-Ahead and Real-Time)**

- Matching loads and generation gets more and more precise
- Majority of transactions done Day-Ahead
- Trading volume can be high during rain and runoff events
- Real-Time Trading balances loads and generation 24/7/365



- **Hedging Program**

- All wholesale transactions are in full compliance with the Energy Risk Management Policy and Hedging Program, including allowed quantity, approve counterparties, and necessary approvals

- **Volume of Sales**

- On a Term Trading basis, we only sell the amount of power that we are likely to have sufficient supply to meet
- We also limit sales to our available capacity during peak hours during possible extreme events, such as cold snaps or heat waves. We do not plan on relying on purchases from the market to meet our peak loads. This severely limits the amount of forward sales we can make

- **We Do Not Speculate**

- We sell a portion of our expected surplus. Our risk policy does not allow power transactions to be used as an investment or for speculative purposes

- **Currently All Transactions are Physical not Financial**

- Due to capacity limitations and concerns for resource adequacy, selling exclusively physical power can severely limit the amount of term transactions we make
- Robust market participation is a limiting factor for physical transactions. In the region, most transactions are financial and we often must discount our price in order to transact physically

How We Trade Power

Term Market

- Duration: monthly or quarterly
- Authorized to trade up to two years out
- Bilateral transactions
- Transactions via a broker or an electronic platform, such as the Intercontinental Exchange (ICE)

Day Ahead Market

- Duration: next business day
- Matches expected generation and loads
- Bilateral transactions
- Transactions via an electronic platform or phone

Real Time Market

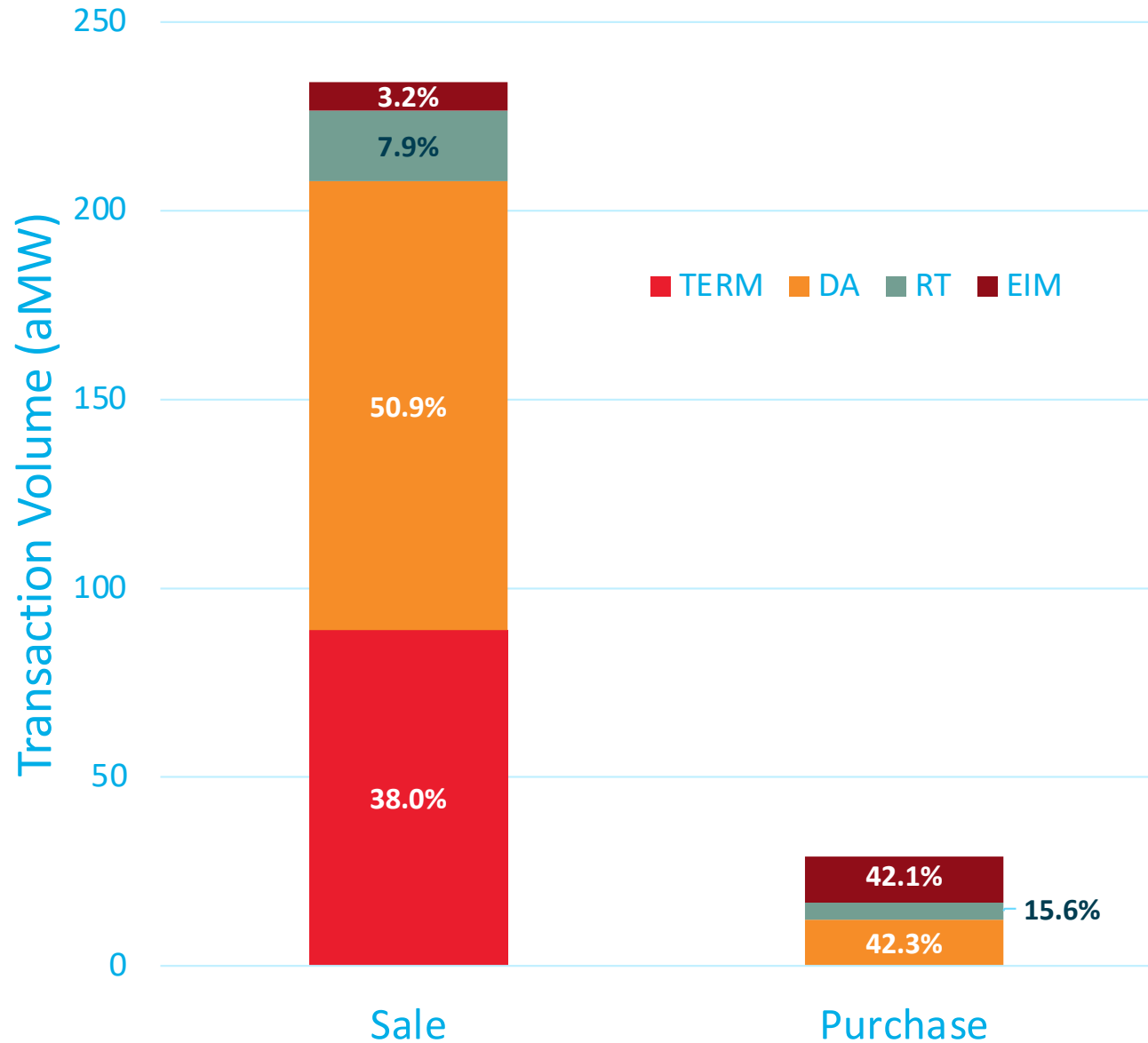
- Duration: hour ahead
- **24/7/365**
- Precisely balances actual generation and loads
- Bilateral transactions
- Most transactions via phone
- Responsible for maintaining system balance and managing generation resources

Energy Imbalance Market

- Duration: sub-hourly
- Organized market with Tacoma submitting bids into CAISO
- EIM automatically dispatches generation that is economic per the bid

Transaction Volumes: aMW

2022 Transaction Summary by Market



Transaction Revenue: \$

2022 Financial Transaction Summary by Market

