

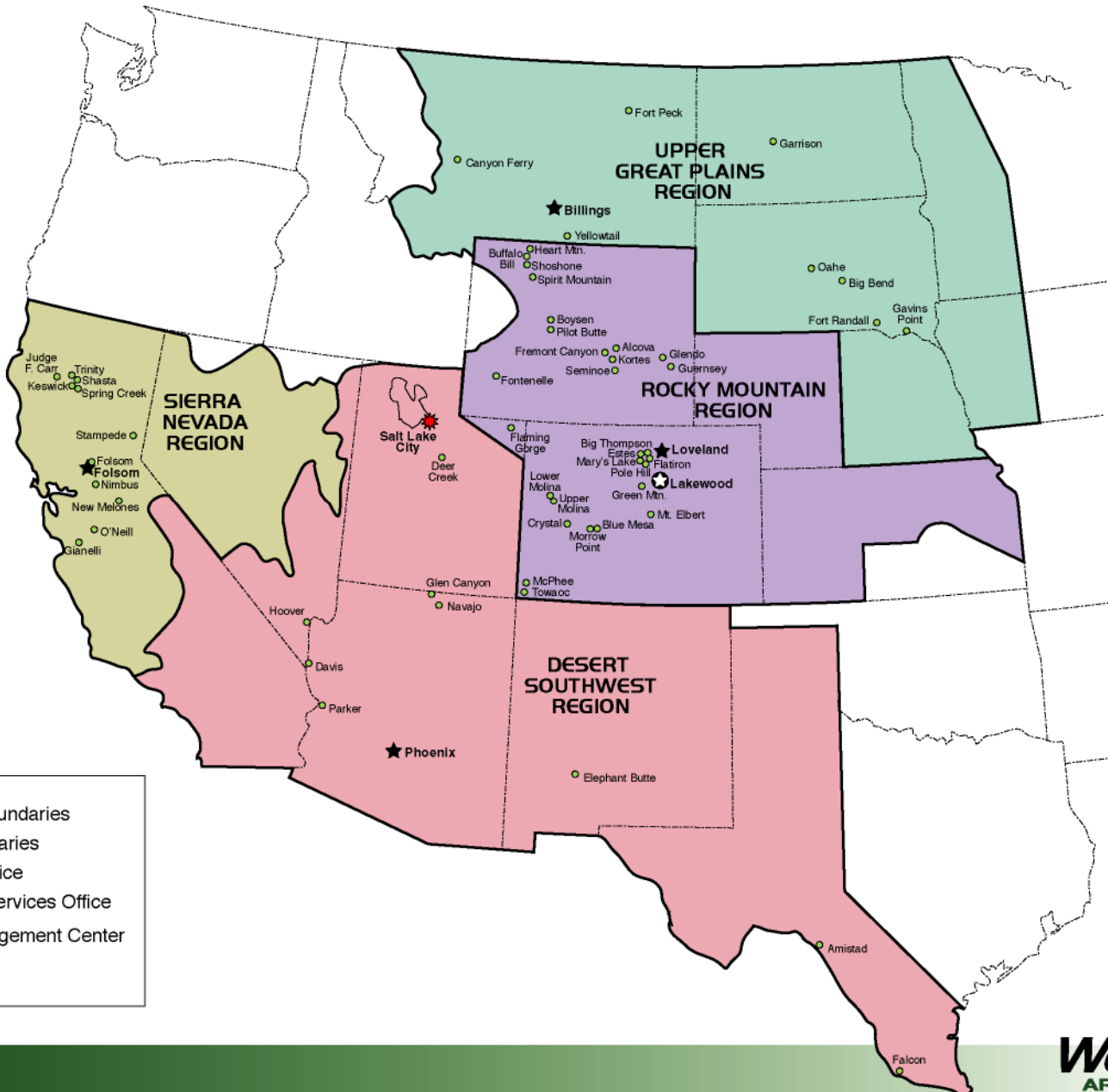
# What is the Western Area Power Administration?

Western is a Federal Power Marketing Agency created by the Department of Energy Organization Act of 1977.

Western assumed the power marketing responsibilities and ownership of transmission lines from Reclamation.

Western markets and transmits electric power under the same authorities that Reclamation did.

# Western Area Power Administration POWERPLANTS



- Regional Boundaries
- - - State Boundaries
- ★ Regional Office
- ⊕ Corporate Services Office
- ✱ CRSP Management Center
- Powerplants



# What are Western's Responsibilities?

Western markets electric power generated at Federal multipurpose projects to Preference Power Customers at the lowest possible rates consistent with sound business principles.

Western must maintain transmission system stability and reliability on the interconnected transmission that Western owns.

# Power Marketing Uncertainty Risk

Western's electric load responsibilities don't change and are established by long term firm electric service contracts.

Generation changes with stream flow, reservoir levels, generating unit availability, and water demands.

Western purchases energy on the wholesale market when generation is low and sells energy on the market when generation is high.

# Marketing Rule of Thumb

The sooner a wholesale energy purchase or sale is arranged, the better the price will be.



# Marketing Risk

Operational uncertainty sometimes leads to higher purchase prices or lower sales prices and represents a risk of higher firm electric service rates.



# Transmission Balancing Authority



**LOADS**

- Scheduled Loads
- Scheduled Exports
- Transmission Losses
- Unscheduled Loads
- Inadvertent Interchange

**RESOURCES**

- Scheduled Generation
- Scheduled Imports
- Unscheduled Generation
- Inadvertent Interchange

# Transmission Uncertainty Risk

Western uses the regulating capability of load following hydroelectric plants to balance loads and resources within its balancing authorities.

Regulating Capability also changes with stream flow, reservoir levels, generating unit availability, and water demands.

Western can better arrange to have adequate regulating capability if limits to generating flexibility are known ahead of time.

# Transmission Risk

Operational uncertainty may lead to unanticipated limits to regulating capability which represents a risk to transmission system stability and power reliability.



Western risks fines by the Federal Energy Regulatory Authority for violating minimum balancing authority performance standards .

# Western Uses Reclamation's Operational Outlooks

Western uses the outlooks to plan wholesale energy purchases and sales along with projected electric energy futures prices.

Western also uses the outlooks to identify periods when hydroelectric regulating capability will be limited.

# Western Adds to Reclamation's Operational Outlooks

Western will model reservoir and power plant operations for typical days with in a month, on an hourly time step, to better estimate...

- On-peak versus off-peak generation
- Regulating capability
- Spinning Reserve availability

# Easiest Improvements to Operational Outlooks

Include unit outages for equipment testing and flow measurements in the outlooks in addition to scheduled maintenance outages.

Meet with appropriate Western Regional offices at least seasonally to discuss the operational outlooks, unit outage schedules, and any special risks.

# Not So Easy Improvement to Operational Outlooks

Use a daily instead of monthly time step for the operational outlooks. This is not a trivial task as it would require...

- daily stream flow forecasts
- daily estimates of water deliveries
- daily scheduled load estimates
- multiple unit loading rules

# Hardest Improvement to Operational Outlooks

Improve the science of inflow forecasting to reduce the range of projected generation represented in the outlooks.