



# Types of FERC Hydropower Authorizations

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February 24, 2015



# FERC Role

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- Issue licenses/exemptions to construct, operate, and maintain non-federal hydropower projects
- Enforce the conditions of each license/exemption
- Conduct dam safety and environmental inspections



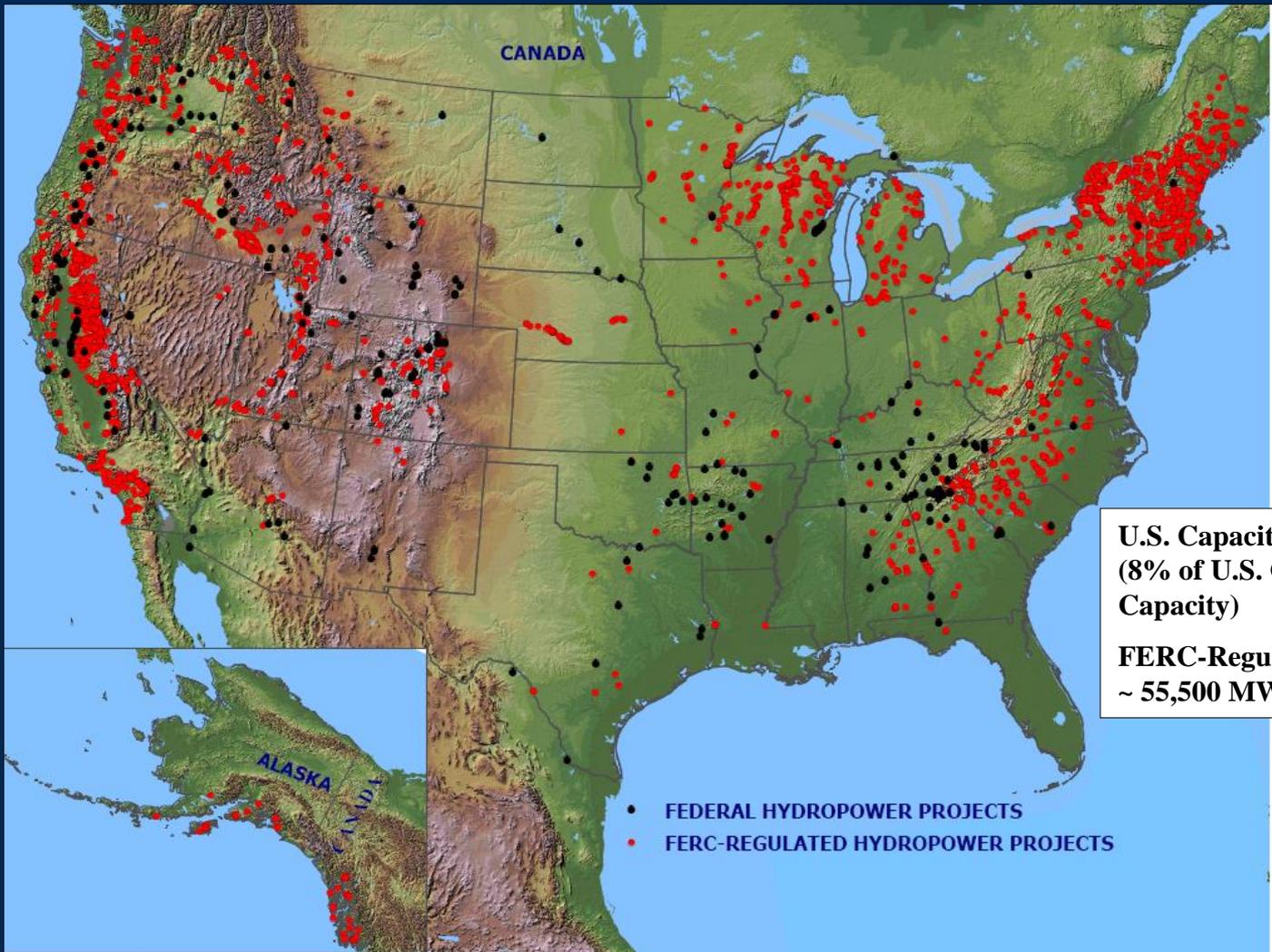
# FERC Jurisdiction

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- FERC authorization is required for non-federal hydropower projects that:
  - are located on navigable waters;
  - are located on non-navigable waters over which Congress has Commerce Clause jurisdiction, were constructed after 1935, and affect interstate commerce;
  - are located on federal lands; or
  - use surplus water from a federal dam



# U.S. Hydropower Federal and FERC-Regulated



**U.S. Capacity ~ 99,000 MW  
(8% of U.S. Generating Capacity)**

**FERC-Regulated Capacity  
~ 55,500 MW**



# FERC Authorizations

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- Preliminary Permits
- Licenses (Original and New)
- Exemptions (Conduit and 10-megawatt (MW))
- Qualifying Conduits
- License Amendments





# Preliminary Permits

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- Maintain priority of application for license
- Do not authorize entry onto land or land-disturbing activities
- Issued for three years



# Preliminary Permits

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- Many issues are deferred until licensing
- Require six-month progress reports
- Require progress towards licensing
- Policy against site-banking



# Successive Permits and Extensions

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- For second permit, showing of good faith and due diligence are required
- Two-year extension





# Licenses

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- Projects authorized under Part 1 of the Federal Power Act (FPA)
- Original License
- New License (Relicense)
- Hydrokinetic Pilot License





# Original and New Licenses

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- Original License: Initial or first license issued for a proposed project
- New License: License issued for an existing project after an original license expires, also called a relicense



# Project Works

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- Complete unit of development
- All dams, reservoirs, other engineered structures, as well as property rights in lands and waters as necessary for construction, operation, and maintenance of a project
- All primary transmission lines



# Project Boundary

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- Encloses only those lands necessary for operation, maintenance, and other project purposes
- Existing recreational, commercial, or other structures may be included within the project boundary if the underlying land is needed for project purposes



# Licenses

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- Issued for 30 to 50 years
- Subject to mandatory conditions (sections 4(e) and 18 of the FPA)
- Subject to Water Quality Certification conditions
- Require National Environmental Policy Act (NEPA) analysis
- Applicant does not need to possess all real property rights at the time of filing



# License Order

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- Documents compliance with applicable requirements
- Includes license articles
- Approves/modifies resource plans
- Approves design drawings





# Exemptions

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- Projects exempted from the licensing provisions of Part 1 of the FPA
- Two Types:
  - Conduit Exemption
  - 10-MW Exemption





# Conduit Exemptions

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- No expiration
- 40 MW or less
- Located at a man-made water conveyance, not primarily used for electric generation
- Subject to mandatory fish and wildlife conditions (section 30(c) of the FPA)
- Categorically exempt from NEPA analysis
- Project boundary only includes structures used for electric generation
- Applicant must possess all real property rights at time of filing



# 10-MW Exemptions

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- No expiration
- 10 MW or less
- Located at an existing dam or a natural water feature
- Subject to mandatory fish and wildlife conditions (section 30(c) of FPA)
- Require NEPA analysis
- Project boundary must enclose dam and reservoir
- Applicant must possess all real property rights at time of filing unless on federal land



# Two Forms of 10-MW Exemptions

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- At an existing dam
- Or a natural water feature





# Authorization Comparison

	Exemptions		License
	Conduit	10-MW	
Installed Capacity	40 MW or less	10 MW or less	No requirement
Location	On a conduit used for agricultural, municipal, or industrial consumption	At an existing non-federal dam or natural water feature	No requirement
Ownership	Must have all real property rights	Must have all real property rights	Eminent domain
Term	Issued in perpetuity	Issued in perpetuity	30 to 50 years



# Authorization Comparison

	Exemptions		License
	Conduit	10-MW	
Mandatory Conditions	Fish and wildlife conditions under section 30(c) of the FPA	Fish and wildlife conditions under section 30(c) of the FPA	Mandatory conditions under sections 4(e) and 18 of the FPA
Preparation of Environmental Document	Categorically exempt from NEPA	Prepared consistent with NEPA	Prepared consistent with NEPA
Project Boundary	Includes powerhouse and connection to conduit (excludes the transmission line and conduit itself)	Includes all associated lands and facilities	Includes all associated lands and facilities



# Qualifying Conduits

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- No license or exemption necessary
- 5 MW or less
- Located at a non-federally owned, man-made water conveyance, not primarily used for electric generation
- No conditions under the FPA may be imposed
- Subject to all other federal, state, and local permits/approvals
- Categorically exempt from NEPA analysis



# License Amendments

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- Required when there is a proposed change to a previously licensed project
- Two Types:
  - Capacity Amendments
  - Non-Capacity Amendments



# Capacity Amendments

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- Project modifications involving an:
  - increase in the maximum hydraulic capacity of at least 15% and
  - increase in the installed capacity of at least 2 MW
- Subject to section 10(j) of the FPA and mandatory conditions.



# Non-Capacity Amendments

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- Project modifications involving:
  - Design
  - Operations
  - As-builts
  - Land Status
  - Compliance Filings
  - Time Extensions



# Questions



# What is a Hydropower Project?

February 24, 2015



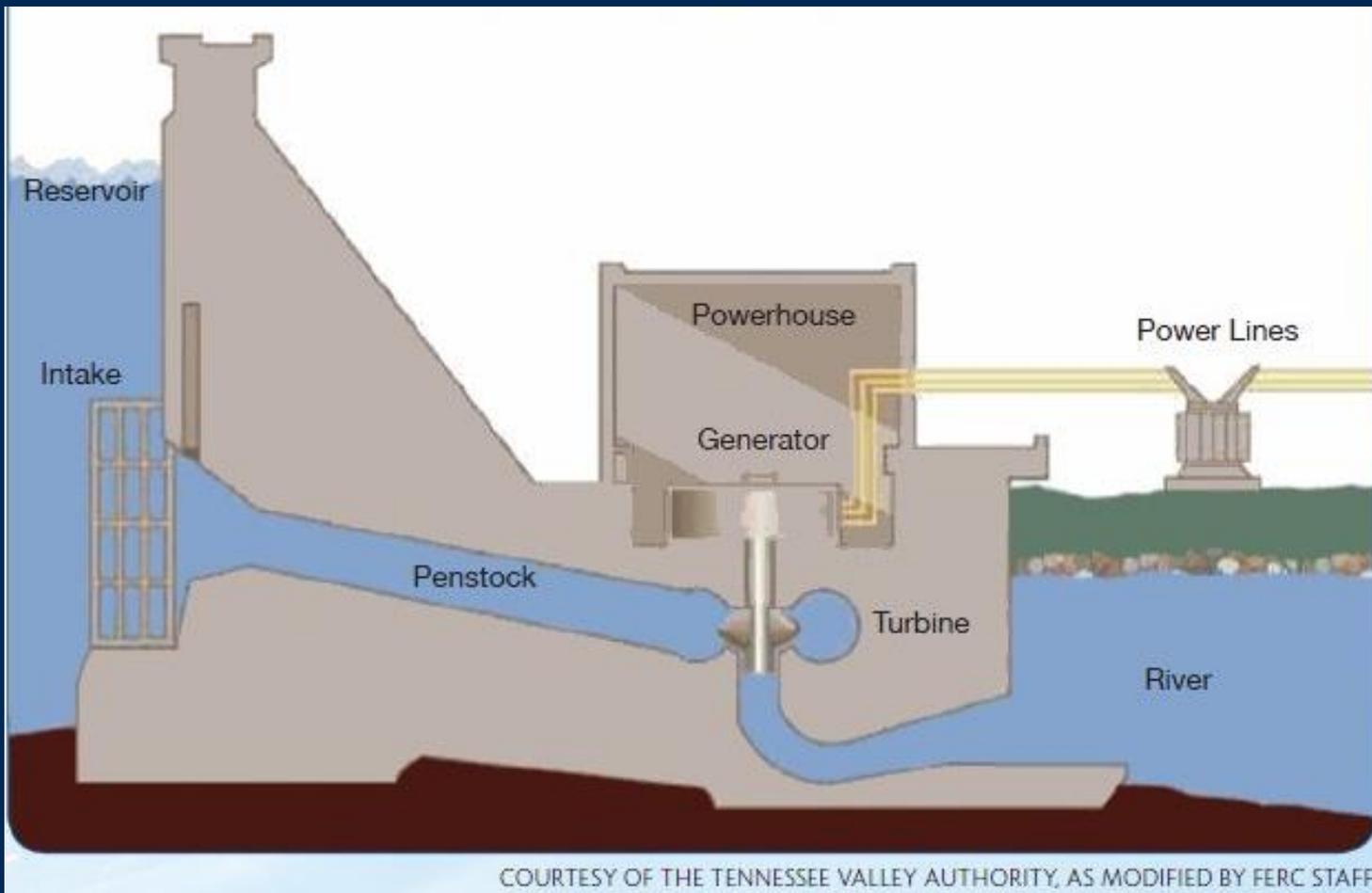
# Project Types

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- Conventional
- Pumped Storage
- Hydrokinetic
- Other



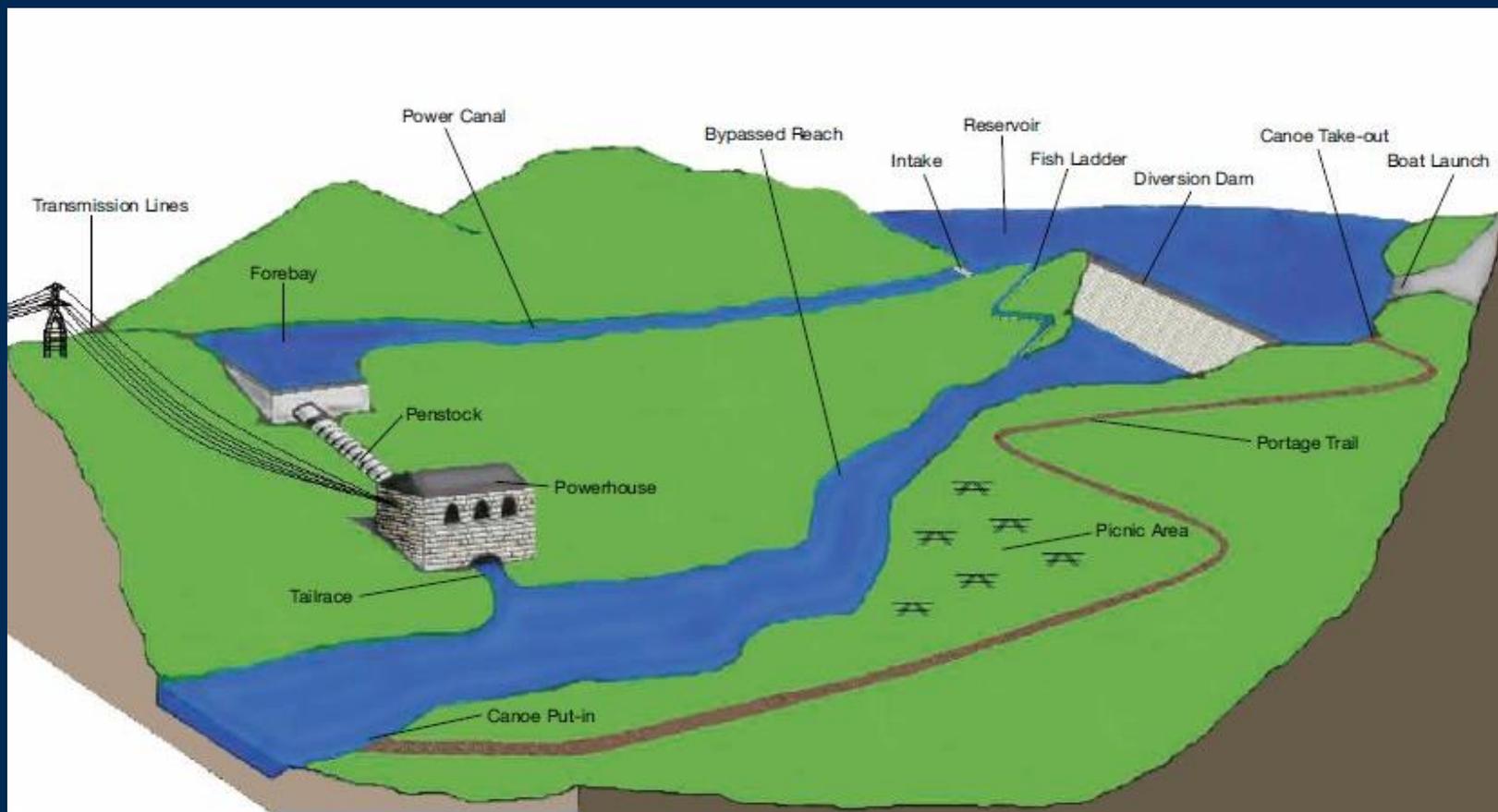
# Conventional Projects



COURTESY OF THE TENNESSEE VALLEY AUTHORITY, AS MODIFIED BY FERC STAFF.



# Conventional Projects





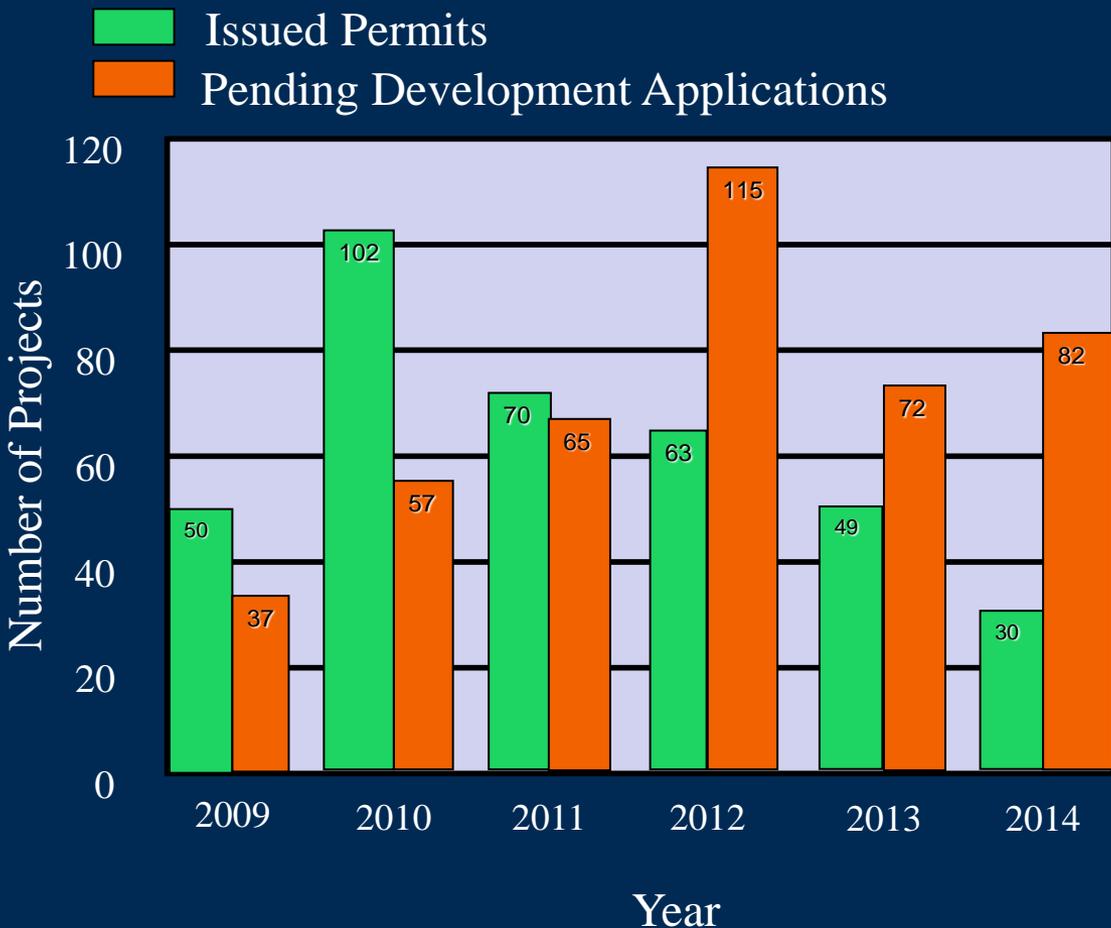
# Conventional Projects

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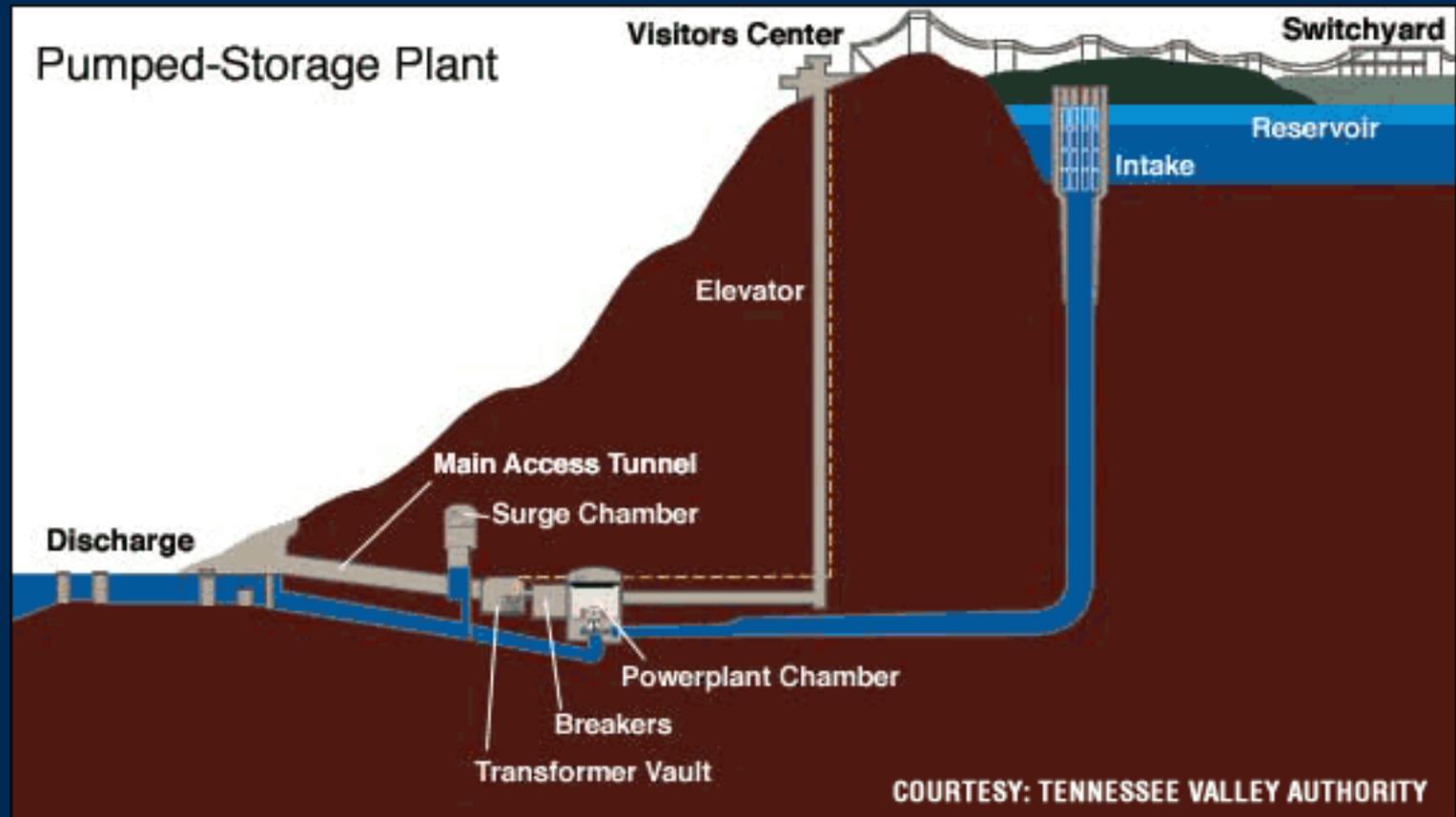


# Small Hydropower





# Pumped Storage Projects





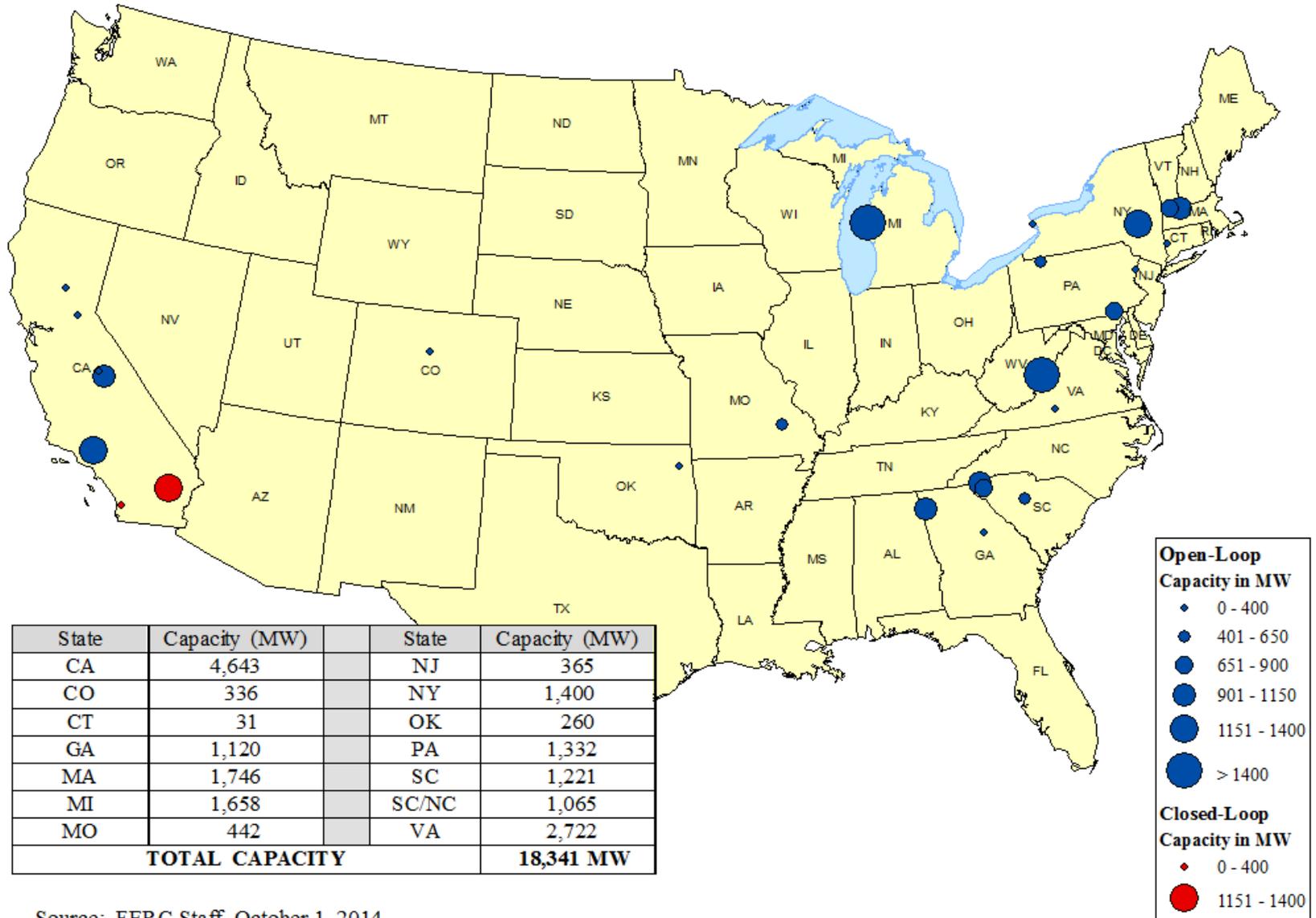
# Pumped Storage Projects

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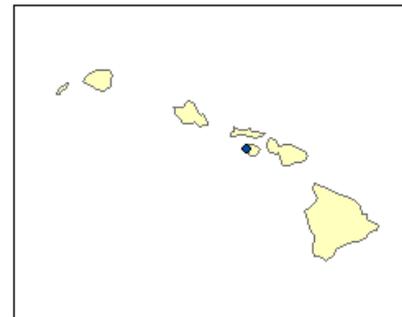
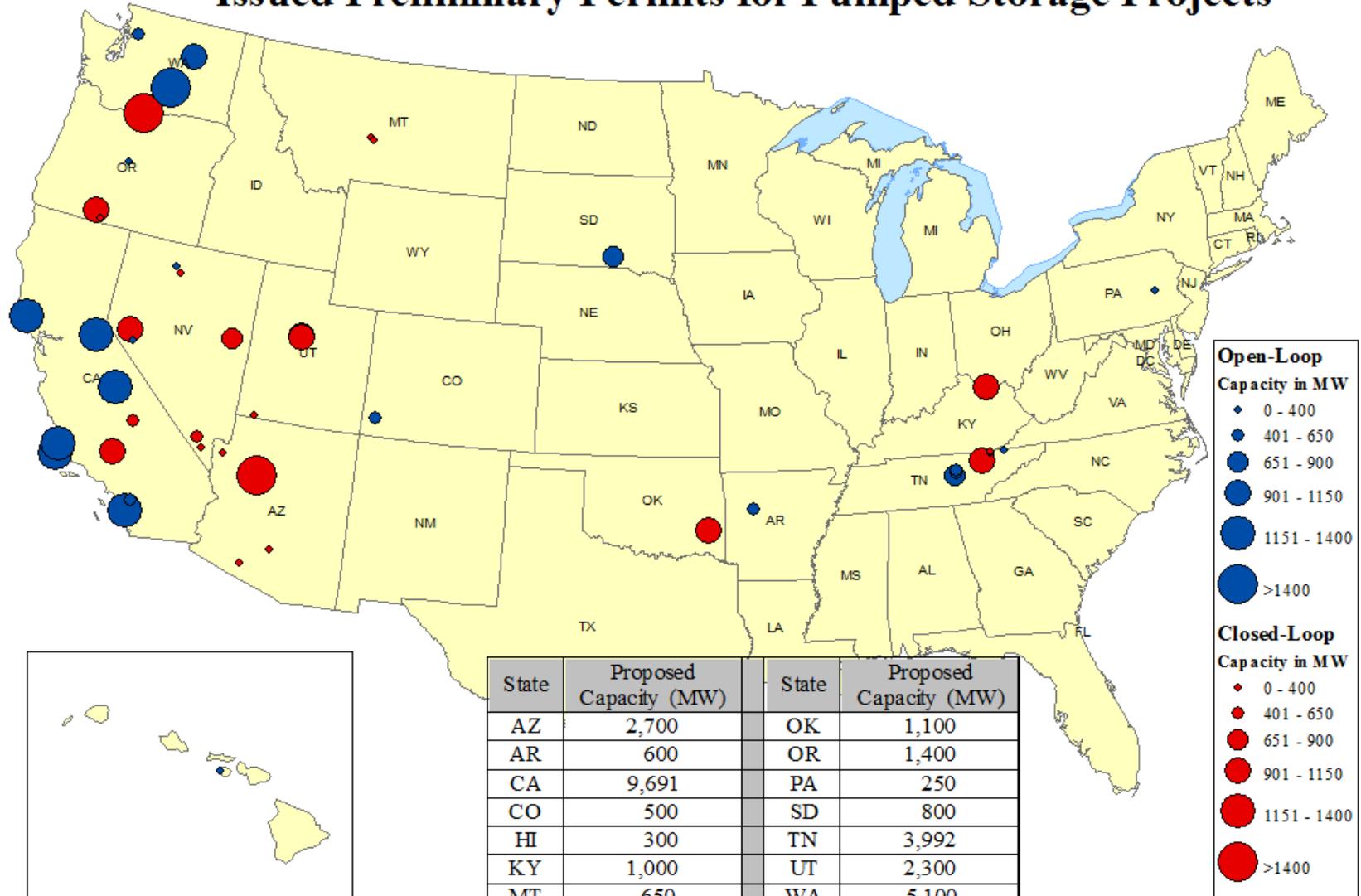
PHOTO: LUDINGTON PUMPED STORAGE PROJECT  
COURTESY: CONSUMERS ENERGY COMPANY

# Licensed Pumped Storage Projects



Source: FERC Staff, October 1, 2014

# Issued Preliminary Permits for Pumped Storage Projects



Source: FERC Staff, October 1, 2014

Note: Preliminary determination of open- vs. closed-loop classification based on preliminary permit application.



# Hydrokinetic Projects

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- Projects that generate electricity from waves or directly from the flow of water in ocean currents, tides, or inland waterways



# Current Energy Devices

Ocean Current



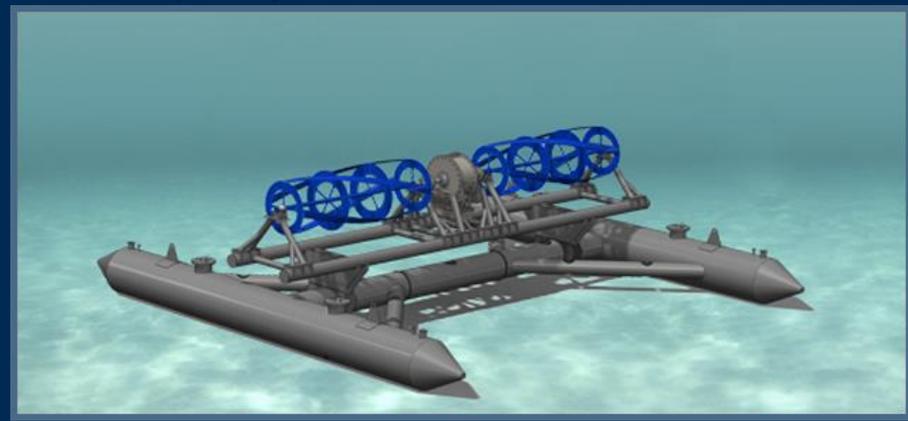
[www.ecomerittech.com/aquantis.php](http://www.ecomerittech.com/aquantis.php)

Tidal Current



[www.verdantpower.com](http://www.verdantpower.com)

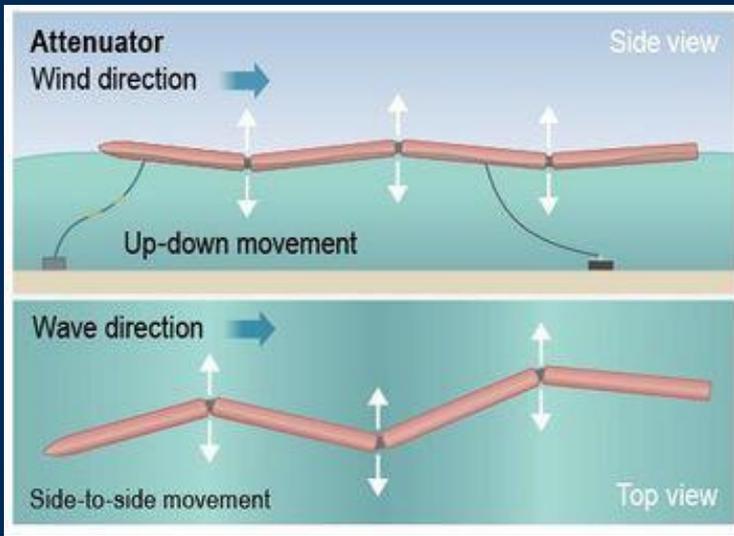
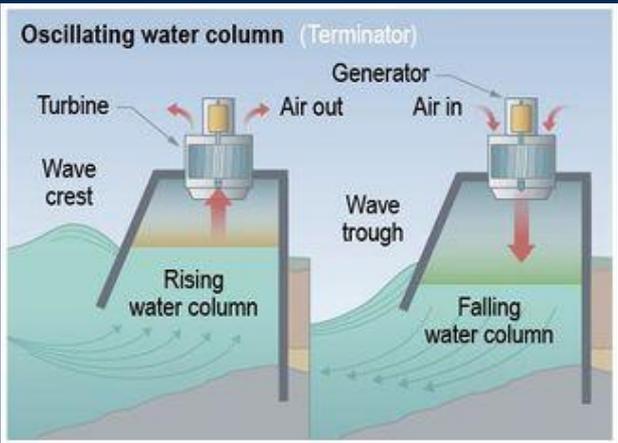
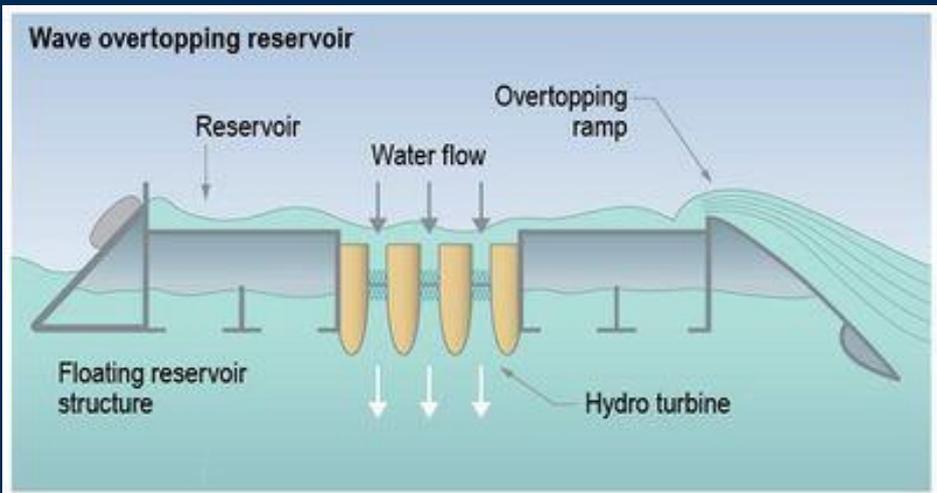
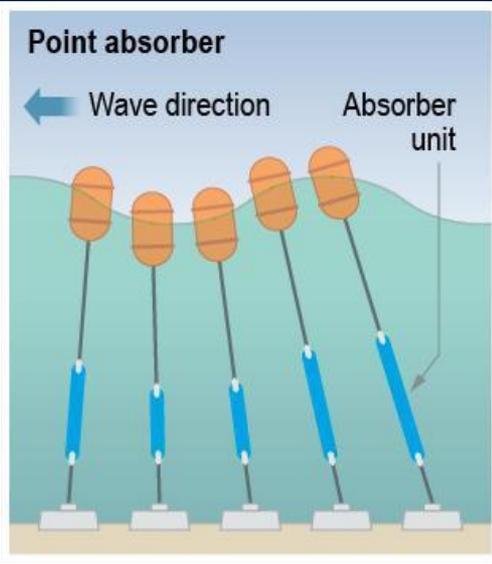
Inland (river) Current



[www.orpc.co](http://www.orpc.co)



# Wave Energy Devices



# MARINE AND HYDROKINETIC PROJECTS



## LEGEND

### Technology

- = Inland Project
- = Tidal Project
- △ = Wave Project

### Permit Status

- Gray fill = Pending Permit
- Black fill = Issued Permit

### Licensing Status

- P = Pre-application Process
- F = Application Filed
- L = Licensed

### Examples:

- = inland project with issued permit
- ▲ = wave project with issued license
- Ⓟ = tidal project in pre-application process





# Other Project Types

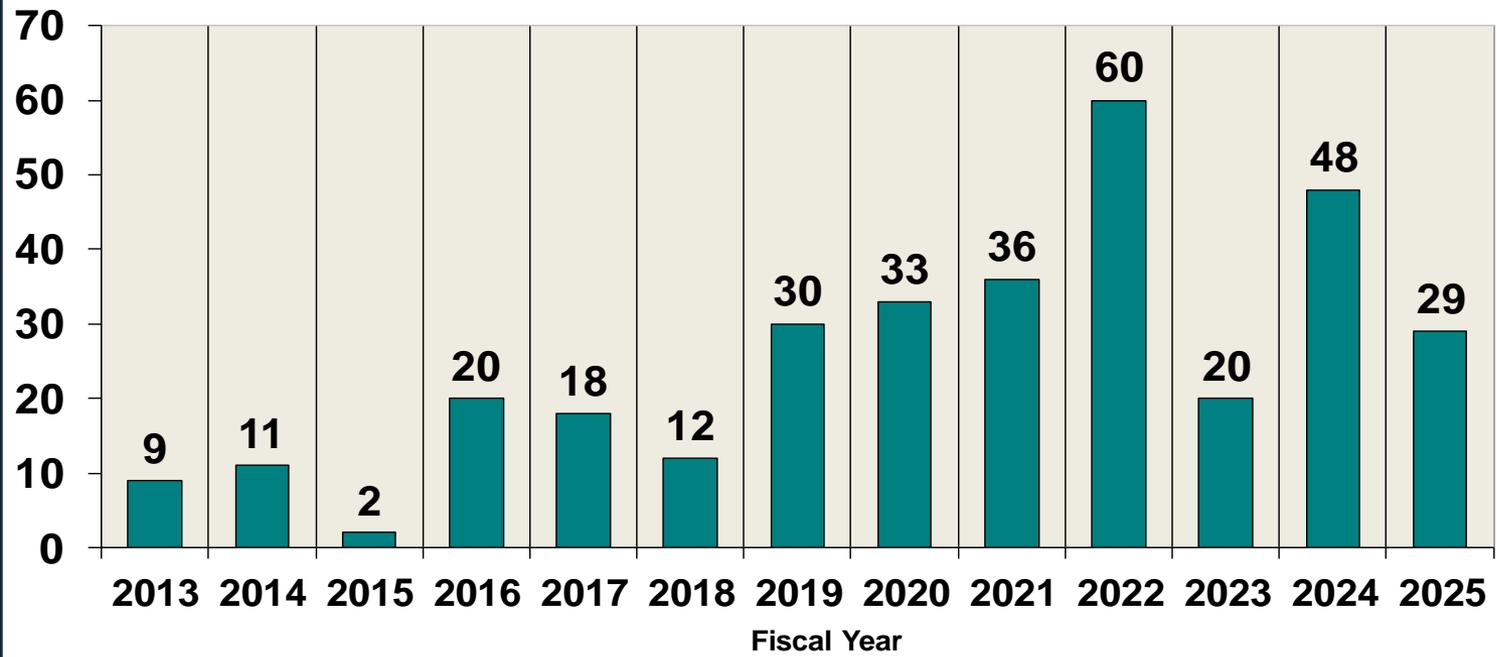
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U.S. DOE: <http://energy.gov/eere/water/types-hydropower-plants>



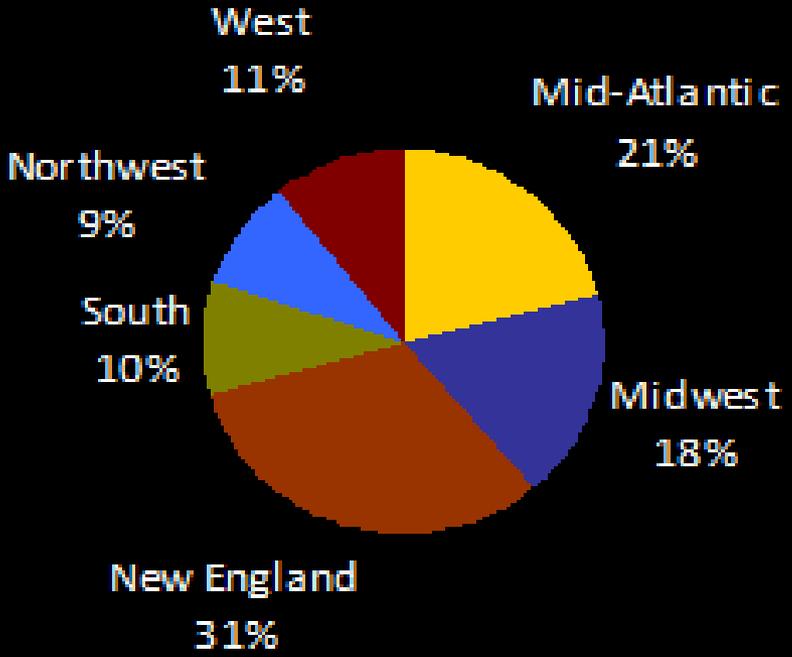
# Relicense Applications





# Relicense Applications

Relicenses By Region (2013-2025)





# Questions

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