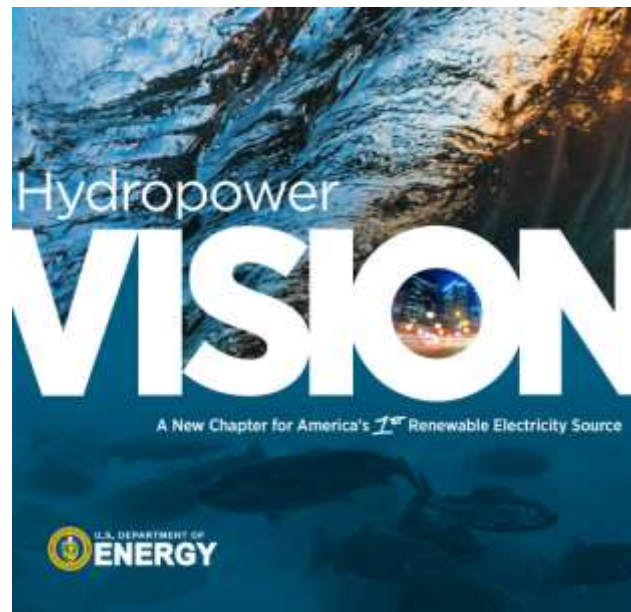


National Hydropower Association

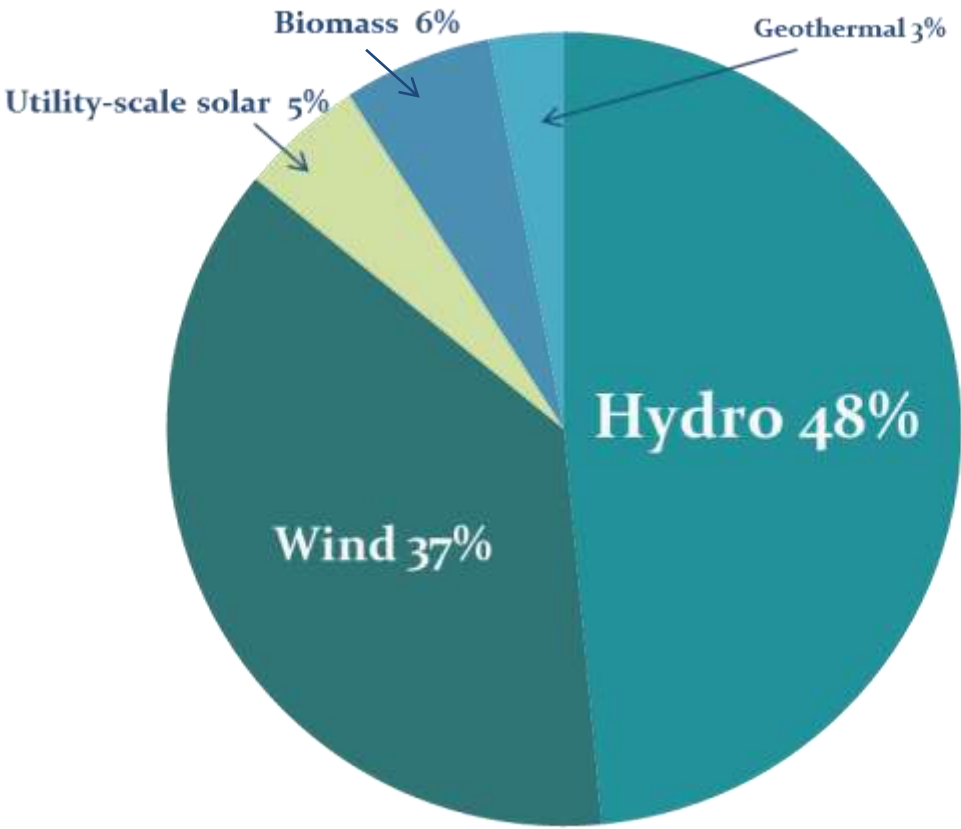
DOE's Hydropower VISION Report 2016

A New Chapter for America's 1st Renewable Electricity Source



2016 NASEO Annual Meeting
September 13, 2016

**U.S. Renewable Electricity Generation
2015**



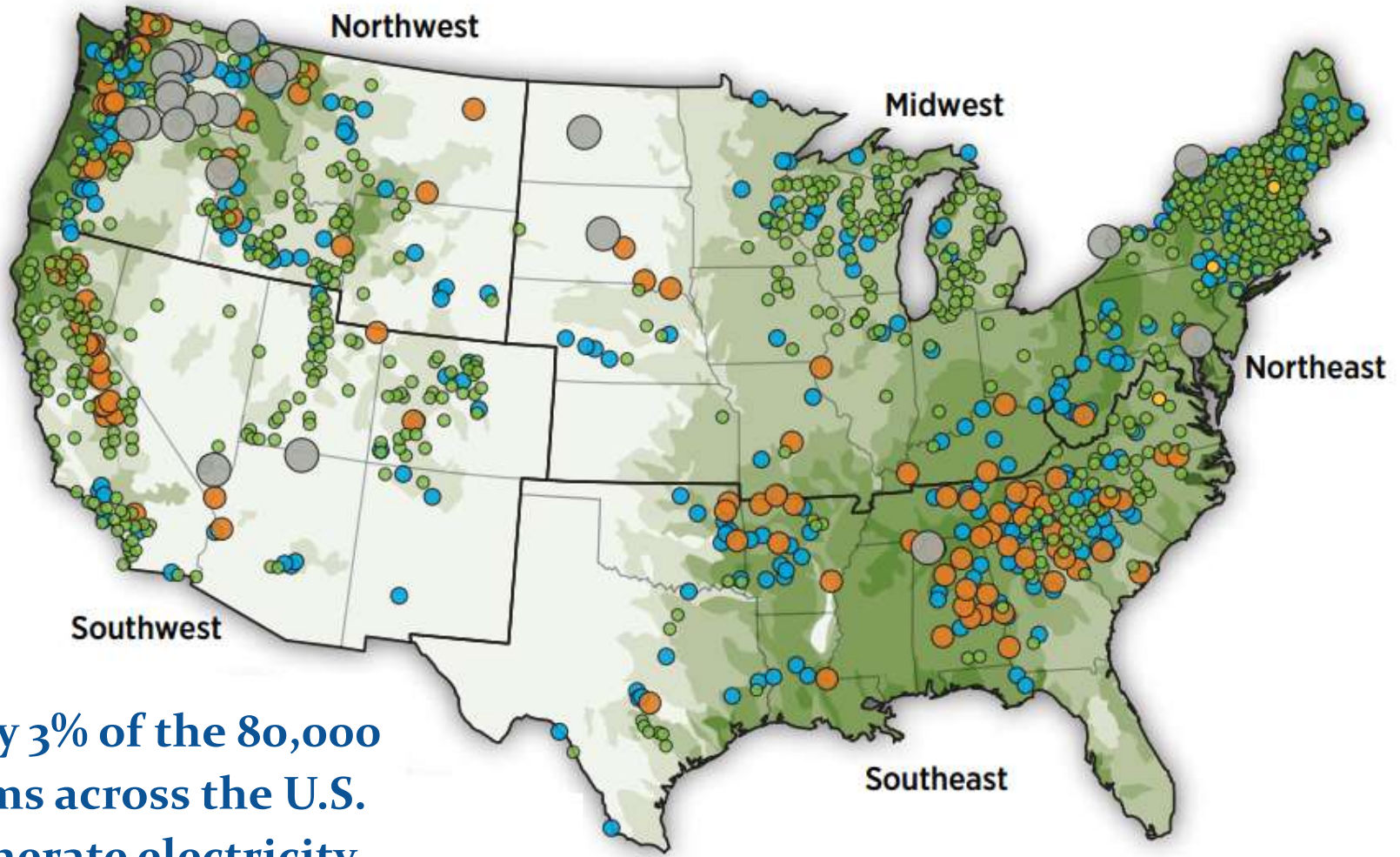
Hydropower is available.

Hydro is the single largest source of renewable electricity in the U.S. In 2015, hydro made up about 6 percent of total electricity generation and 48 percent of renewable electricity generation.

Approximately 101 GW of existing capacity, includes 22 GW of pumped storage.

(Based on data from Energy Information Administration for the electric power sector)

U.S. Hydropower Fleet



Only 3% of the 80,000 dams across the U.S. generate electricity

Hydropower Plant Capacity (MW) ● ≤ 0.1 ● > 0.1-10 ● > 10-100 ● > 100-500 ● > 500

DOE & NHA Partnership on Hydropower Vision



“Hydropower can double its contributions by the year 2030. **We have to pick up the covers off of this hidden renewable that’s right in front of our eyes** and continues to have significant potential.”
– Dr. **Ernest Moniz**, Secretary of Energy

The Hydropower VISION for Growth

Objectives:

- **Cohesive long-term vision** of the hydro industry
- Analyze a range of **aggressive, but attainable industry growth scenarios**
- Provide **best available information** to address stakeholder interests
- Provide **objective/relevant info** for use by decision makers

Product:

- Close examination of the **current state** of the industry
- Discussion of the **costs and benefits to the nation** arising from additional hydro
- A **road map** addressing the challenges to achieving higher levels of hydropower within a sustainable national energy mix

The Hydropower VISION for Growth

Report Foundational Pillars:

- **Optimization**

Optimize the value and power generation contribution of existing hydro within the nation's energy mix

- **Growth**

Explore the feasibility of credible long-term deployment scenarios for responsible growth

- **Sustainability**

Ensure that hydro's contributions toward meeting energy needs are consistent with the objectives of enviro stewardship.

The Hydropower VISION for Growth

KEY TAKEAWAYS

- Existing hydro facilities have high value
- Hydro has significant near-term potential to increase its contribution to a clean economy

Importantly, the report recognizes hydro's value and the role it plays in meeting the nation's clean energy needs

The Hydropower VISION for Growth

HYDROPOWER'S GROWTH POTENTIAL IS IMMENSE

We can sustainably grow clean and renewable hydropower by **50 GW by 2050.**

Hydropower today	Hydropower's vision for growth
101 GW	150 GW

Source: U.S. Department of Energy's Hydropower Vision Report

LEARN MORE: UNLOCKHYDRO.ORG #HYDRO5050



HYDROPOWER'S GROWTH POTENTIAL IS IMMENSE

WE CAN...

-  Power **MILLIONS** of more homes
-  **MORE THAN DOUBLE** America's energy storage
-  Enable **MORE WIND AND SOLAR** onto the grid

\$209 BILLION SAVINGS FROM AVOIDED GLOBAL DAMAGES FROM GHG EMISSIONS

Source: U.S. Department of Energy's Hydropower Vision Report





LEARN MORE: UNLOCKHYDRO.ORG #HYDRO5050



HYDROPOWER'S FUTURE IS NOW


TELL CONGRESS TO UNLOCK HYDROPOWER'S CLEAN ENERGY POTENTIAL

UNLOCKHYDRO.ORG #HYDRO5050

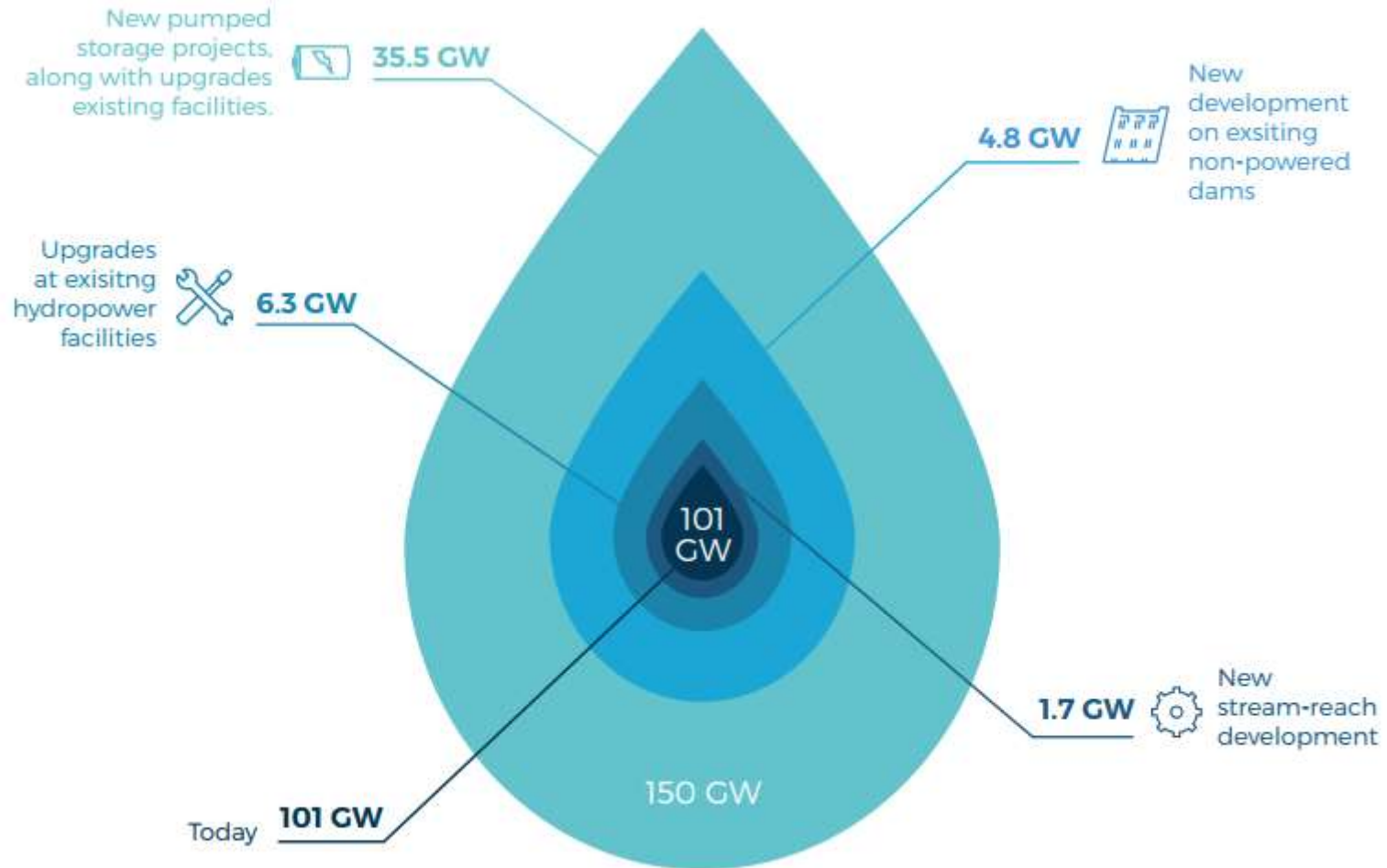
-  **DEVELOPING** non-powered dams
-  **UPGRADING** Existing Facilities
-  **BUILDING** New Pumped Storage Projects
-  **ENABLING** New Stream-Reach Development

Source: U.S. Department of Energy's Hydropower Vision Report

LEARN MORE: UNLOCKHYDRO.ORG #HYDRO5050



The Hydropower VISION for Growth



What States are doing

Including *more* hydropower in state Renewable Energy Standards and other clean/renewable programs and initiatives.

Providing developers with tax incentives or low-interest loan programs to assist projects

Better coordinating state wildlife and water quality staff participation in the federal licensing process.

Investigating ways to speed up state permit and other decision-making processes.

State Hydro Initiatives & Activities

Colorado – Passed hydro legislation, and signed MOU w/ FERC to streamline and simplify the authorization of small scale hydro projects (mainly conduits). Also adopted and Used state incentives for project development, i.e. low interest financing

California – Signed MOU w/ FERC on coordinating the pre-application activities for non-federal hydro project proposals.

Oregon and Washington – Signed MOUs to coordinate state review of hydro projects using emerging marine and hydrokinetic technologies.

Other Actions: Alaska, Maine, Massachusetts, Rhode Island, Wyoming, and Vermont all have all passed laws or have created administrative or legislative workgroups to examine ways to grow their hydro resources. Governors' Energy Offices are also taking the lead.

Hydro and the Clean Power Plan

Highlights

- Hydropower (including wave & tidal power) is **recognized as a renewable energy resource**
- **New hydropower projects and incremental uprates** to existing facilities are eligible to receive **Emission Rate Credits (ERCs)** under rate-based plans
- New construction and uprates must occur after **2012**
- Hydropower will continue to play a critical and indispensable role in meeting carbon reduction goals

EPA Listened to Industry Concerns

- Addresses the **market distortion** that existed in the proposed rule between hydropower and other renewables.
- By backing out existing generation for all renewables, and counting new generation from 2012, the Clean Power Plan puts hydropower on **equal footing** with other sources of renewable energy

Working Together to Advance the Nation's Leading Renewable Energy Resource

Goal

- Recognize, Value and Use – HYDROPOWER - America's largest, most trusted and flexible renewable energy resource – to drive economic development and help achieve a sustainable and secure clean energy future

Mission

- Include hydropower in State RPS/CES Initiatives
- Include hydropower in State Clean Power Plans and Related Clean Air Measures

Contact

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Visit us on the Web

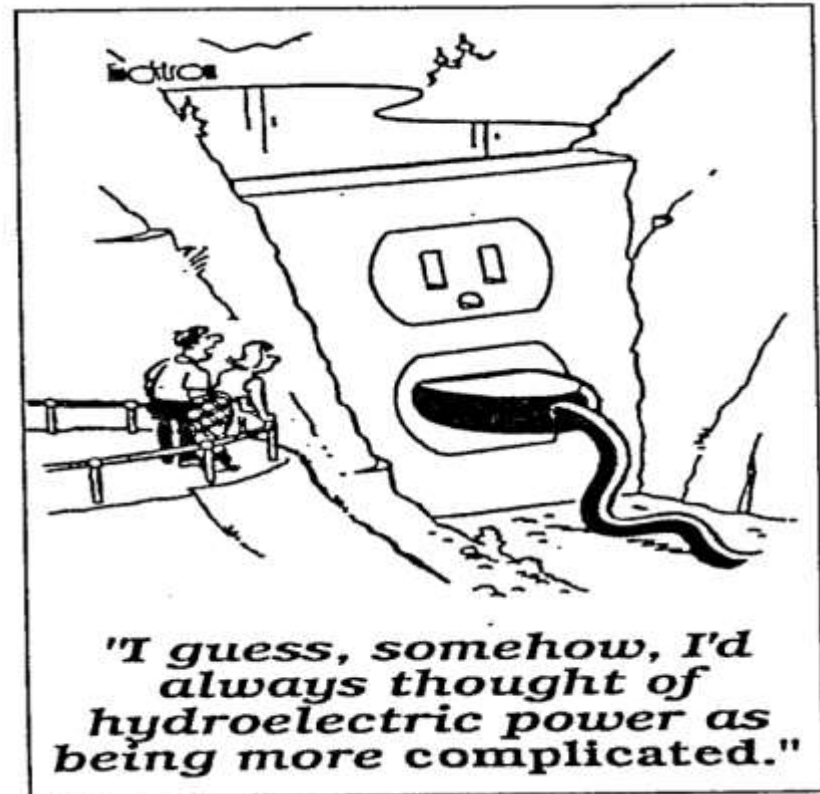
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Questions?

THANK YOU!

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Copies of DOE's Vision Report Found at:

<http://energy.gov/eere/water/articles/hydropower-vision-new-chapter-america-s-1st-renewable-electricity-source>