Hydropower: Meeting the Next Generation of Green Energy

The Status of Hydropower in the US

Renewable Natural Resources Foundation: Congress on Assessing America’s Renewable Energy Future

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NHA Overview

MISSION:
Secure hydro’s role in national policy objectives

FUNCTION:
Advance member interests, advocate for industry

MEMBERS:
Exchange info, develop, & unite industry
Members

- 170 companies
- Over 60 percent of domestic, non-federal hydro
- Conventional, instream, ocean, tidal
- Utilities, generators, developers, manufacturers...
NHA’s Goal

Simple:
To Create a Robust Business Environment for All Waterpower Technologies-
Conventional and New
NHA’s Vision

96,000 MW now

96,000 MW+ more by 2030

Hydro can double
FERC Sees It, too

Nearly 65,000 MW of hydro before FERC as of August 2009

Hydrokinetic Permits
- 9,039 MW issued
- 6,875 MW pending

Pumped Storage Permits
- 28,323 MW issued
- 7,000 MW pending

Conventional Hydro Permits
- 7,768 MW issued
- 3,625 MW pending
FERC Seeing Record Interest

Current FERC Preliminary Permits
(by Numbers of Projects)

ISSUED
- 106 Conventional
- 36 Pumped Storage
- 155 Tidal & Hydrokinetic

PENDING
- 106 Conventional
- 2 Pumped Storage
- 48 Hydrokinetic
Where will Growth Occur?

- Existing Hydro Facilities (Incremental)
- Non-powered Dams (97% are non-powered)
- Hydrokinetics
- Conduit/irrigation/municipal water systems
- Tidal, wave, and ocean
- Pumped storage
- Small development (more than half of growth)
Existing & Potential Hydro in the US
National Inventory of Dams
Existing Pumped Storage in the US
Pumped Storage Preliminary Permits and Proposed Projects
What Regions Hold the Largest Markets?

- All Regions have potential
- Midwest, Northeast, Mid-Atlantic, & parts of the West have the largest potential for small hydro growth/West for all hydro
What’s Driving the Market?

• Need for Clean Energy

• Need for Low Emitting Energy Sources

• Attributes meet new energy demand (load following and integration issues)
Policy Can Spur This Growth
Newly Released Navigant Jobs Study
(Commissioned by NHA CEO Council)
Forecasts Potential by 2025

**Business as Usual**
- Conventional: 11,750 MW
- Pumped Storage: 10,000 MW
- Hydrokinetics: 1,500 MW
- **TOTAL:** 23,300 MW

**Accelerate RES**
- Conventional: 21,900 MW
- Pumped Storage: 24,000 MW
- Hydrokinetics: 13,750 MW
- **TOTAL:** 59,650 MW

Based on old assessments- new assessments are forthcoming
Growth requires...

Federal tax incentives, regulatory policy & R&D support
Important Policy Incentives that Make the Difference

- Multi-year PTC/ITC extension
- CREBs extension
- Hydro included in new Section 1603 grants program
- More support for R&D
- RES inclusion of more hydro
- Climate legislation consideration
**Tremendous Potential - Significant Challenges**

Challenges Vary by Project Type and Application

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Challenges- Policy Support is Uneven

Picks Winners and Losers

• Tax Credits
  • Receive only _ credit
  • Eligibility limits
• Storage not recognized as yet
• Small hydro agreement not reached
• No drivers for facilitated processes on federal structures
Challenges - Research & Development

- Dollars for Development
- Support for Application Among Regulators
- Timing with License Sequence
Challenges- Environmental

Significant, but not impossible

- Reducing the Footprint
- Agreement on Mitigation Strategy
- Cost Effective- Maintaining the Economics
- New Technology Improvements
- Support/Application Acceptance
Challenges- Market Barriers

Market has not yet caught up with technical needs

- Value of Ancillary Services Not Appreciated
  - Pumped Storage
  - Short Term vs. Long Term
- Costs
  - Need for Incentives
Challenges - Attitudinal & Institutional

**Attitudinal**
- Myth of Being Tapped Out
- Stakeholder Support
- Value Equation

**Institutional**
- Regulatory Process (length, cost, & incentives)
- Knowledge Base Required
- Turf/Mission Conflicts (Corps of Engineers/Bureau)
Solutions

• Stakeholder agreement on policy incentives for small hydro and pumped storage

• Federal owner action to reduce process duplications

• Streamline permitting while building on environmental protection (no more than 2 yr process to compete with other sources and attract investment)

• More money for demonstration and R&D

• More funding for agency (federal and state) to participate in permitting process and reduce delays

• More educational support to non-traditional players as they enter the field
The Future

- Hydropower has great potential

- With the right policies in place, it will play a significant role in:
  
  - Meeting today’s energy demand
  - Helping our nation meet new renewable energy standards
  - Reducing emissions
  - Contributing to a new green energy economy
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