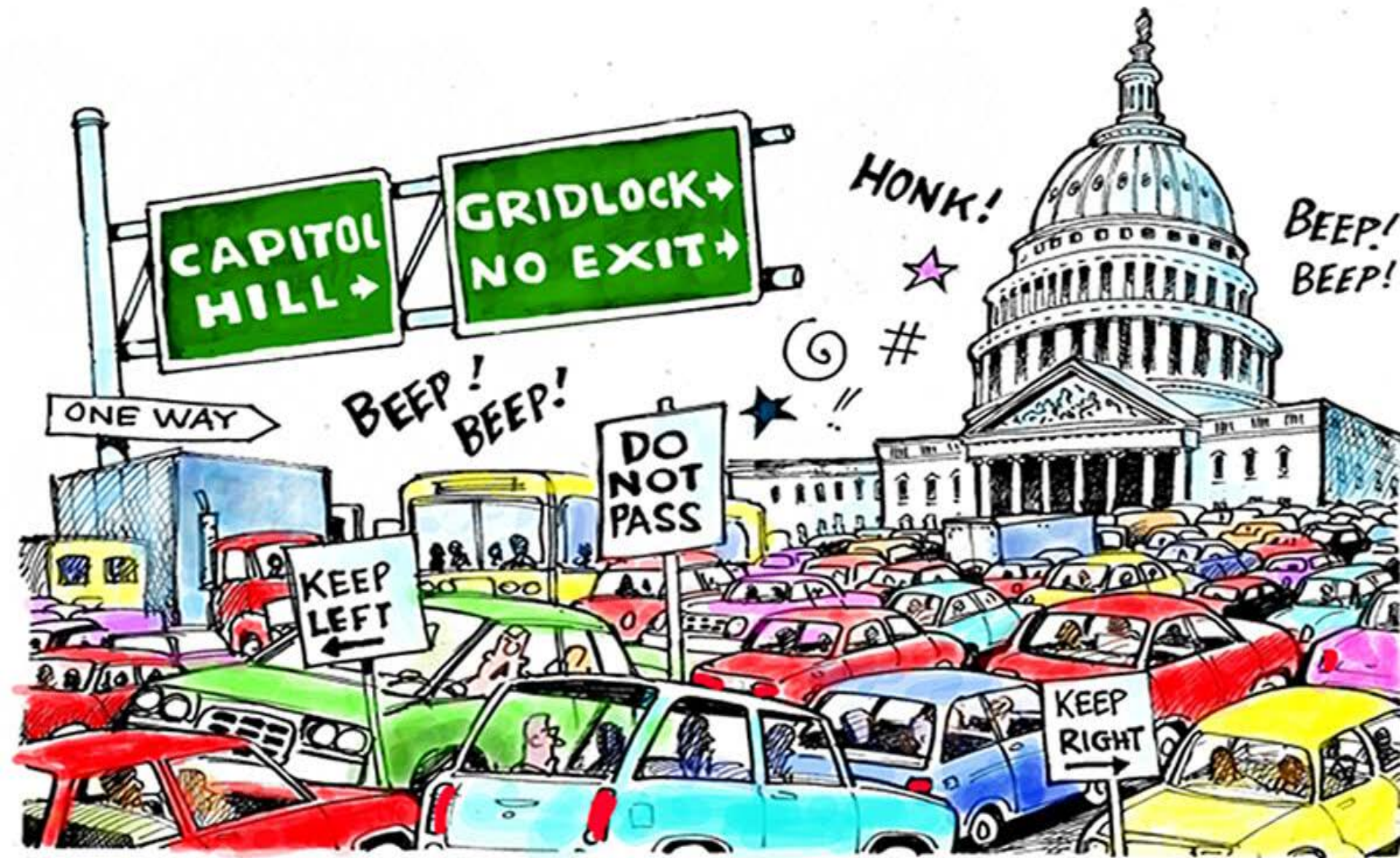


National Hydropower Association

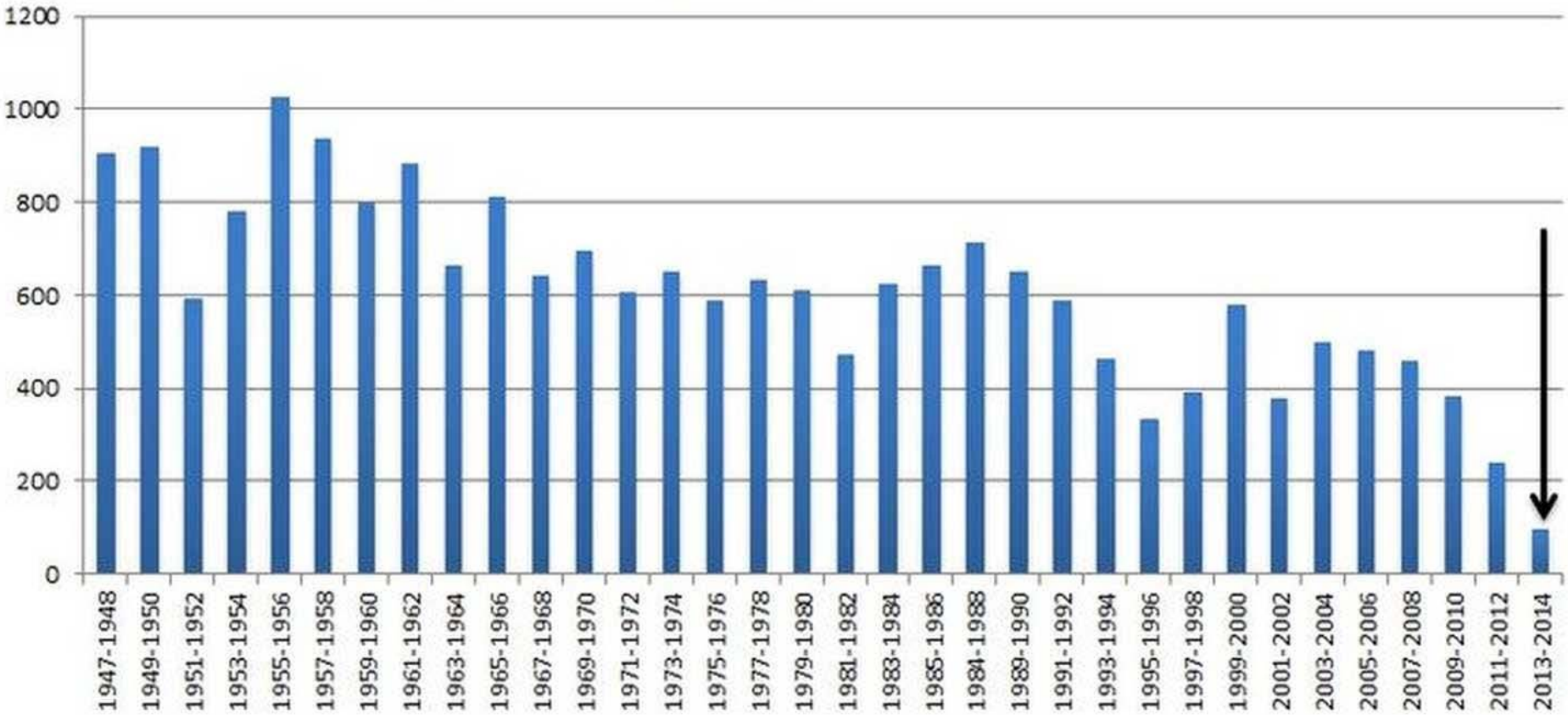
DC Policy Update



NHA Alaska Regional Meeting
September 19, 2017



Bills Passed By Congress - 1947 to 2014



Steve Benen, Maddow Blog



2017 Developments on Reform

Administration Supports Hydro

- NHA has reached out to Trump Administration. Held several meetings with Council on Environmental Quality (CEQ) and the National Economic Council (NEC). Administration supports hydro. **NHA has filed a series of recommended administrative actions for reform.**
- Administration is:
 - Establishing task forces within each of the agencies on regulatory reform;
 - Establishing a new task force on hydropower issues;
 - Looking to support hydropower as part of its infrastructure program (public-private partnerships);
 - Looking at broad ideas as well as hydro-specific provisions on licensing/permit reform as part of infrastructure work.
 - **Reviewing NHA's list of suggested administrative actions.**

Hydro Hearings in 2017

Congress
moved early
and quickly
on hydro
reform

- **February Senate Energy Committee** – Leahey. **CEC's Clay Koplin also testified.**
- **March House Energy Committee**
 - Ramya Swaminathan (Rye) on behalf of NHA
- **May House Energy Committee** – Leahey
- **May House Nat. Resources Committee**
 - Herbie Johnson on behalf of NHA
 - Randy Howard, NCPA
 - Bob Gallo, Voith
- **September House Energy Committee on Grid**
 - Steve Wright (Chelan PUD) on behalf of NHA
- Other hearings in which NHA monitored or coordinated:
Sen. King bills, FERC/BPA pumped storage
coordination, hydro and millennials.

Timing on
further action
on hydro
reform
uncertain

- **Schedule uncertain for Senate and House floor votes on hydro/energy bills.**
- September was packed with “must do” bills – Appropriations (federal funding for FY 2018); debt ceiling; and Harvey /Irma relief bills. **The Trump-Dems deal may have cleared some time and space for the Senate energy bill to move.**
- The House Rs have said that they want to try to move the House hydro bill in end of September, or in October before the November recess.
- The big legislative priority in the Fall will be tax reform though.
- **The Trump-Dem deal needs to be revisited in December and creates end-of-year opportunity to get the reform bill done.**

Beyond Reform

Other policy work is also advancing

- **Hydro/MHK tax credit extension:** NHA continues to work on a long-term extension of the investment tax credit (ITC) for hydro.
- **2015 deal for wind and solar:** Solar industry received a multi-year extension of the ITC through 2019, with a phase-down to a permanent 10 percent credit. Wind industry got multi-year extension and then a phase-out.
- Hydro and other baseload renewables received a 2-year extension in 2015, which expired at the end of 2016.
- NHA sent up a letter to Congress signed by close to **4 dozen** organizations seeking an extension similar to what the solar industry received.
- **Message: tax policy must not pick winners and losers and current policy puts hydro at disadvantage.**

Beyond Reform cont...

Grid study
contained
important
hydro
messages

- **DOE Grid Study:** was proposed to analyze the impacts to baseload resources and grid reliability. Focus was on coal and nuclear assets. **Released in August.**
- NHA engaged in the debate as hydro was experiencing some of the same impacts as those other resources.
- NHA coordinated a joint letter in support of the review signed by biomass, geothermal, waste-to-energy and biogas industries.
- Met with staff coordinating the report. Worked w/ Waterpower program to provide data.
- **Result: Hydro's grid benefits and needs are prominently featured throughout the report, including a recommendation on need for licensing reform.**

Beyond Reform cont...

Other policy work is also advancing

- Working to secure strong funding for the **Waterpower Program within the DOE.**
- House version: hydro program was cut the least of any of the EERE programs. NHA also secured a floor vote that added back an additional \$15 million to the program. Total is \$68 million.
 - Provides **\$24 million** for hydropower/pumped storage activities; with **\$6.6 million** for **EPAct 2005 Section 242** hydro production incentive.
 - Provides **\$29 million** for marine energy and hydrokinetic activities.
- Senate version: **\$82 million** for the program with **\$25 million** for hydropower/PS activities including Section 242 funding and **\$57 million** for marine energy and hydrokinetic activities.

NHA partnerships

- NHA is working to expand our coalition of partners supporting our policy agenda.
- **Licensing Reform:** NHA coordinated a letter of support for reform to Congress signed by **8 national unions** (boilermakers, electrical workers, engineers, carpenters, plumbers) and **7 utility trades** (APPA, EEI, LPPC, NRECA) and renewable energy groups (ACORE, BCSE).
- **Tax and Grid Study:** NHA is working closely with other baseload renewable trade associations (American Biogas Council, Biomass Power Association, Energy Recovery Council)
- **Appropriations:** NHA, working with our hydro/PS Hill champions as well as our marine energy champions combined were able to preserve funding.

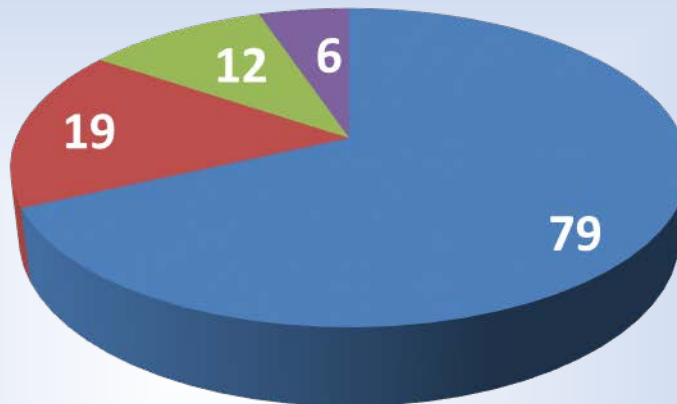
Of interest to Alaska

- **FERC License Term Notice of Intent:** NHA responded to the NOI with comments proposing a default 50-year license term. Have heard that a notice of proposed rulemaking (NOPR) may come out. If policy put in place, before licensing bill passed, working to ensure coordination.
- **FERC NOPR on AK land use fees:** This was one of the first actions FERC initiated once the quorum was restored. Looks to make changes to the calculation of the fees for the use of federal lands. Hope is that it recognizes the unique circumstances in Alaska and will reduce costs.
- **Coordination with Alaska Power Association:** NHA shares information and alerts with APA staff. NHA participates in the APA hydro working group conference calls, and in the APA DC fly-in and annual meeting. Happy to have APA here at NHA's regional meeting.

By the Numbers

Event Reports By Functional Area

n = 116



■ Maintenance ■ Safety ■ Operations ■ Environmental

These Event Reports contain over 525 lessons learned and corrective actions

39 Reports (34%) have Human Performance as a factor in the event.

Severity: Significant (63), Severe (24), Minor (29)



Results To Date

Photographs from Sample Event Reports



Broken Spillway Gate Coupling



Failed Generator Rotor Cooling Fan



13.8 kV Generator Bus Failure



**Loose Turbine Coupling Nut Guard
Hold Down Bolts**

Event Report Examples

Spillway Gate Mechanical Problems – Three Reports



Report 1
Spill gate lifting
chain connecting
Link Failure



Report 2
Spillway gate
shaft coupling
failure (with
injury)



Report 3
Spillway gate
radial arm
damage

Benefits of Participation - Example

During the lift of a 20 ton head gate, the lifting eye attaching the crane hook to the gate failed. RCA determination, “...a large manufacturing flaw... due to high levels of sulfur and phosphorous found within the sample.”
Corrective Action, “replace and/or test all lifting eyes made prior to 1950.”

Lifting eye failure during the lift of a head gate

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Date of Report:
20150306

1) Submitting Organization: Redacted	2) Name of Preparer, Phone & Email: Redacted Redacted Redacted	3) Report Number (OE Internal Use): NHAOE-111520144949
4) Date & Time of Event: 10/06/2014 11:00 am	5) Duration of Event: Less than 12 hours	6) Functional Area: Maintenance
7) Functional Area Subclass: Stairways	8) Classification: Minor	9) Impact of Event: Equipment Damage
10) Human Performance: No		

Part I - Report of Events

1) Description of Event:

In preparation for a performance test on this particular unit, the head gates had to be completely removed from the head gate slots so that a current flow meter array could be lowered to the penstock opening. As with any project, a Job Safety Briefing (JSB) was held prior to the lift to identify any potential safety issues. The lifting height limitation of the crane requires 3 separate pulls to extricate the head gate from the slot. During the second lift, the lifting eye broke. The head gate, weighing almost 20 tons, dropped to the bottom of the slot damaging the bottom of the head gate. The only other damage was to the lifting eye itself. Because of the JSB and constant focus on safety, no harm came to anyone at the plant.

2) Actions Taken:

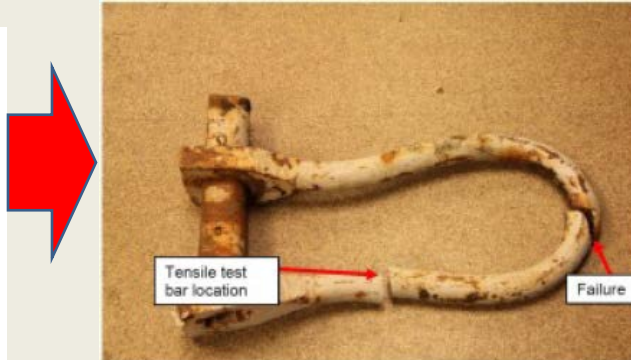
Since the gate weighs almost 20 tons, there was concern over possible damage to the crane due to the instantaneous drop, and there was concern over possible damage to the head gate, the gate slot, and the dam. Drivers were dispatched to the dam the following day for an underwater inspection of the head gate, gate slot, and dam. The only damage was to the gate itself. A crane inspector was also dispatched to the site the following day for an inspection; no damage to the crane was found. The head gate was then removed and placed on the deck.

Part II - Cause Analysis

1) Analysis Method & Findings:

A Root Cause Analysis (RCA) and a metallurgical analysis of the lifting eye were performed after the incident. The following is an excerpt from the Management Summary of the metallurgical report and clearly identifies the problem leading to this failure.

* It was determined that a major factor in the failure was a large manufacturing flaw which encompassed a majority of the cross section. This flaw appeared to have been formed as part of the solidification/casting of the piece and to have expanded somewhat over the years of service due to corrosion and fatigue loading. It was also discovered that the final failure of the piece was a very brittle fracture. This was due to the high levels of sulfur and phosphorous found within the sample. Due to the fact that these contaminants are known to cause embrittlement, modern steels restrict the maximum acceptable amounts; however, it is common to find them in older steels. This significantly reduced the fracture toughness of the remaining cross section until it was unable to bear the load.*



“Upon receiving the ER we inspected our work sites and tool rooms and found a number of suspect lifting eyes and destroyed them. Who knows what could have happened?”

Kirk Hudson, Managing Director, Generation & Transmission
Chelan County Public Utility District



Hydraulic Power Committee 2017 Fall Retreat



The poster features a large background image of a dam and reservoir. At the top, the NHA and OP EX logos are displayed. Below them, the text 'HYDRAULIC POWER COMMITTEE' and '2017 FALL RETREAT' is prominently shown. A red banner at the bottom contains the dates 'OCTOBER 17-19', the location 'SACRAMENTO, CA', and the registration information 'REGISTER TODAY AT WWW.HYDRO.ORG/EVENTS'.

**HYDRAULIC POWER COMMITTEE
2017 FALL RETREAT**

**OCTOBER 17-19
SACRAMENTO, CA**
REGISTER TODAY AT WWW.HYDRO.ORG/EVENTS



White Rock Powerhouse Facility

The HPC specializes in exchanging critical information related to operating hydroelectric projects. The Fall Retreat is a forum to share experiences and best practices to help others improve operations and procedures related to dam and employee safety, operations and maintenance, and environmental performance.

This year's Fall Retreat will include:

- Tour of SMUD's White Rock powerhouse
- Discussions related to trends in dam safety, innovations, and best practices
- Operations and maintenance hot topics
- Human performance and employee safety training, and much more!

Join us and register today at www.hydro.org/events

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Questions?