



RECLAMATION
Managing Water in the West

Reclamation's Water Prize Competitions

BGNDRF Water Innovation and Networking Workshop

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Why Prizes



Pay for
performance



Accelerate
development



Form partnership



Discover new
talent



Shine a light on
unsolved problem



Solve difficult
problems



Create new
markets





Why Compete



Win prizes



Experience +
external
validation



Access to
interesting
problem or
data



Public good



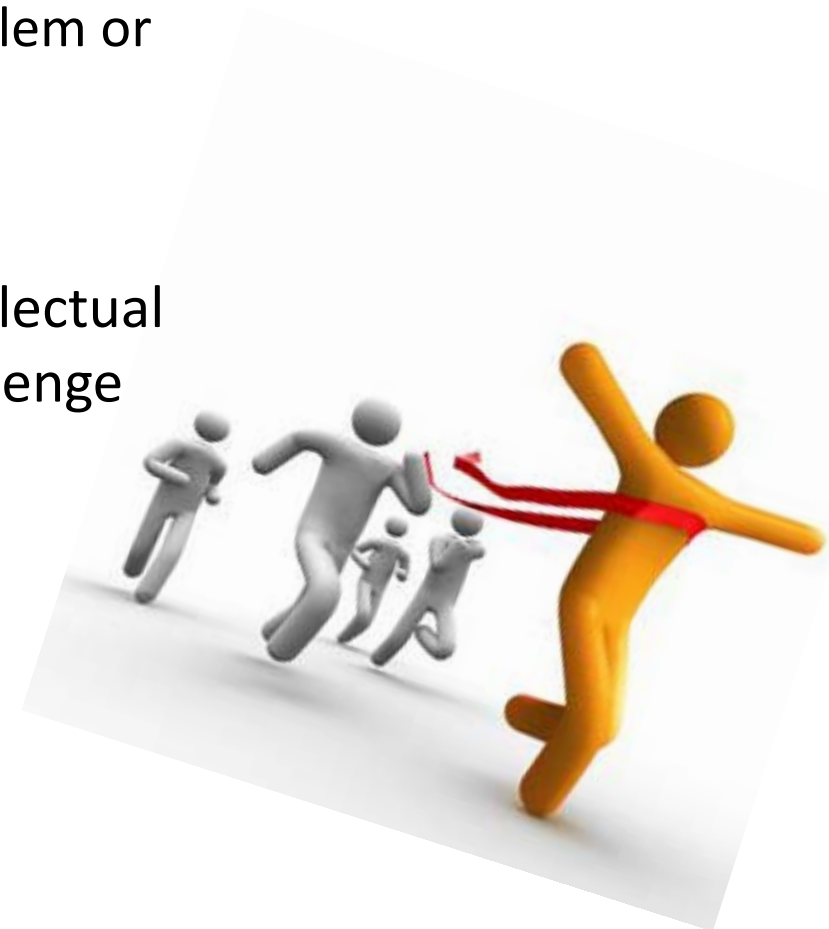
Opportunity
for impact



Intellectual
challenge



Competition



Prize Competitions Aren't A New Concept



Orteig Prize
\$25,000 won in 1927



Ansari X Prize
\$10M won in 2004

Types of Prizes

Ideation

- Generate and develop new ideas to solve a problem or improve a product, process, or service
- Ideas could include suggestions, approaches, plans, proposals, designs, or other proposed solutions in written, graphic, or video form

Theoretical

- Identify promising approaches
- Provide “seed” awards for solvers to continue
- Offer larger award

Demonstration

- Address market failures
- solve significant problems facing society
- catalyze and demonstrate breakthrough technical innovations.
- These competitions usually take place over many years and have multiple steps where entrants have benchmark evaluations before moving on



Reclamation's First Prize Competition

- Desal Prize

<https://www.youtube.com/watch?v=LrBFRFszSJ4>

Desal Prize

- Treat brackish groundwater
- 70 gallons for potable
- 2,000 gallons for agricultural





Desal Prize





Case Study of Desal Prize on Why Prizes



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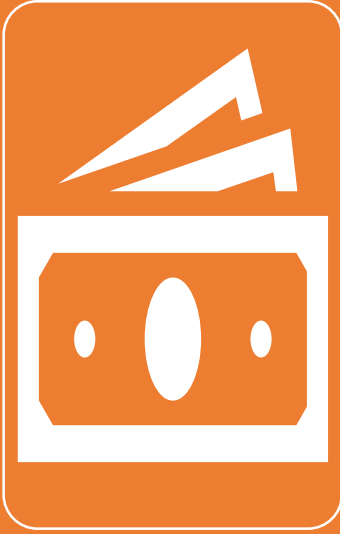


Solve difficult
problems



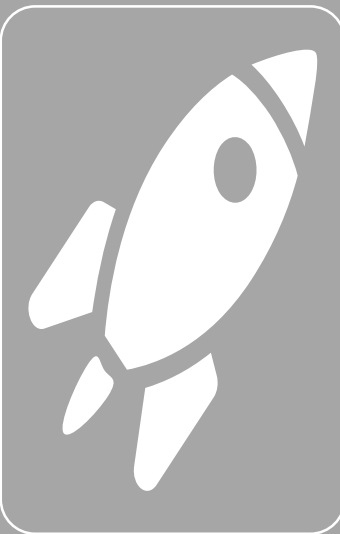
Create new
markets





Pay for performance

- \$600,000 in Prizes and grants
- 2 winners
 - MIT
 - UTEP
- Grants for 3 teams



Accelerate development

- Reduce pilot development
 - 6 – 12 month reduction
- Question Assumptions Early
 - Technology
 - Market





Form partnership

- MIT and Jain Irrigation
- MIT and UTEP
- Teams and Judges

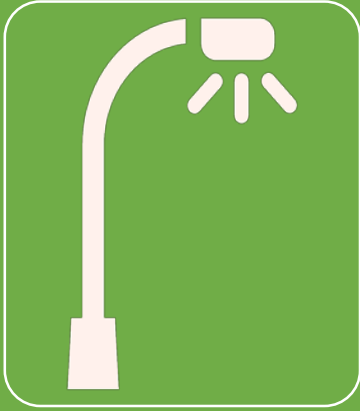


Discover new talent

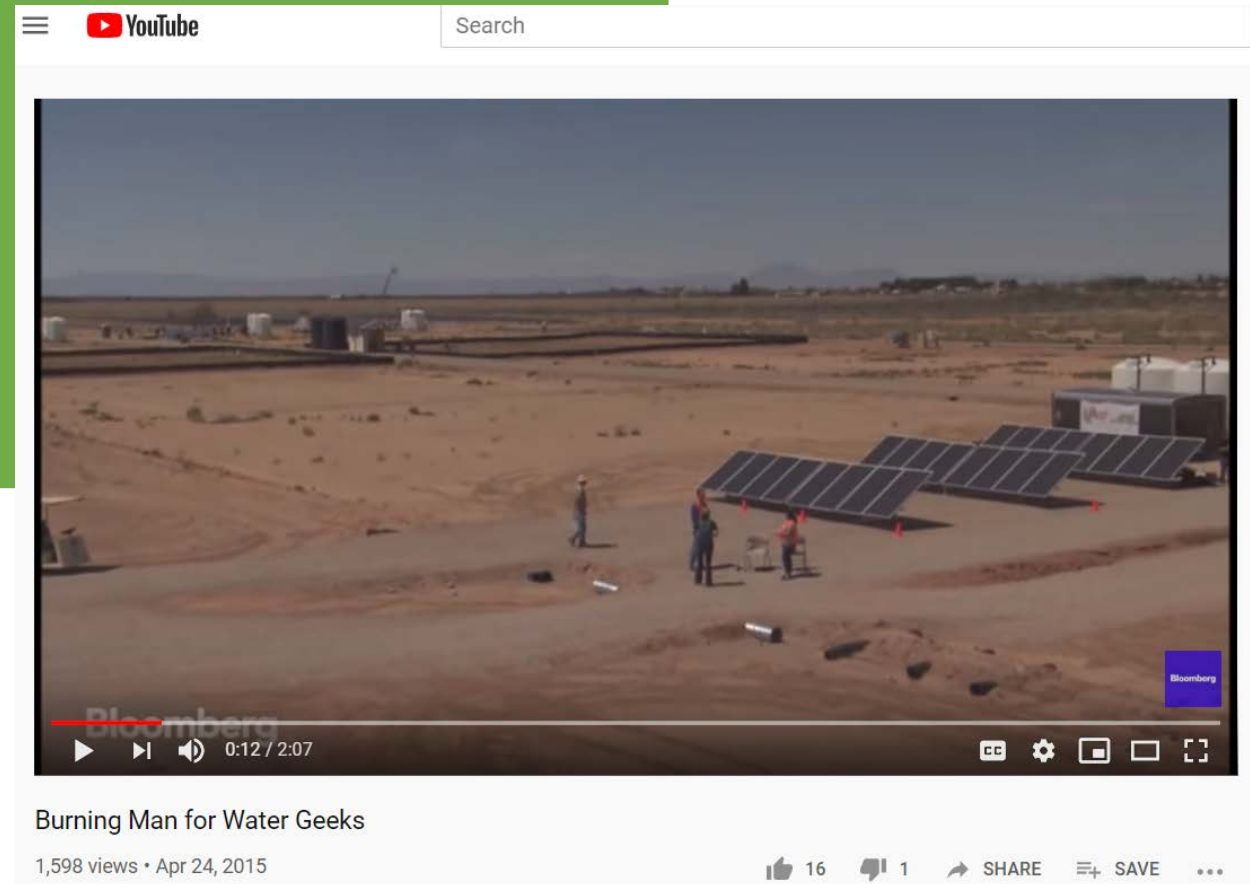
- 5 Competing Technologies
- 68 applicants
- 29 countries



Shine a light on unsolved problem



- National and local press coverage
 - Bloomberg News - Video, <https://youtu.be/kCL3Eq-9F4w>
 - CNBC - <http://www.cnbc.com/2015/04/09/-teams-compete-to-make-salt-water-drinkable.html>
- Social Media
 - Twitter
 - Youtube
- Prize platform
- Others
 - Word of Mouth





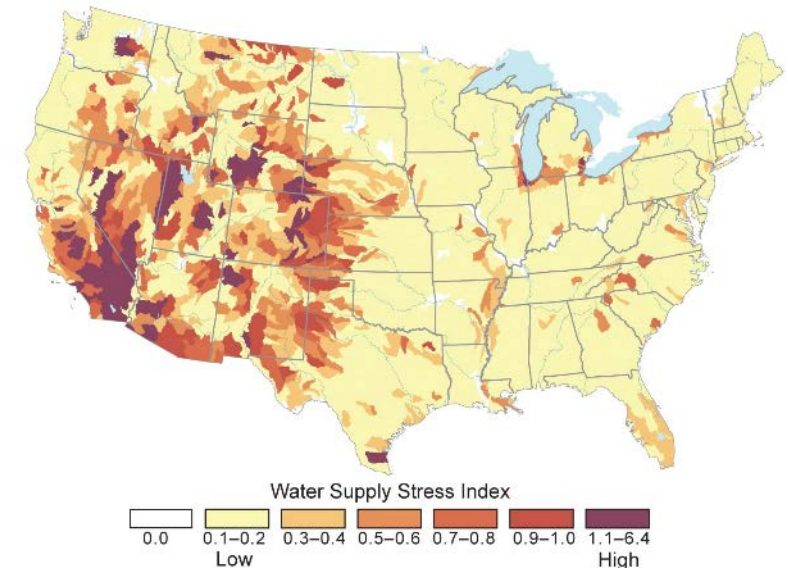
Solve difficult problems

- Small scale systems
- Off-Grid
- Low chemical utilization
- Concentrate minimization



Create new markets

- On the farm system
- Consulting services
 - Rural Areas
 - Middle East
 - India



Reclamation's Water Prize Competition Center

- Launched in 2014 by Reclamation's R&D Office as another tool in the toolbox to complement existing internal and external research programs
- Completed 19 competitions to date, with 2 currently open and more under development
- Aligned in three theme areas:
 - Environmental Compliance
 - Infrastructure Sustainability
 - Water Availability

Environmental Compliance Competitions

- Remote fish detection
- Downstream fish passage at tall dams
- Eradication of invasive mussels in open water
- Sediment removal techniques for reservoir sustainability



\$100,000 in prize \$\$\$



Can you help eradicate invasive mussels?

www.usbr.gov/research/challenges/mussels



Infrastructure Sustainability Competitions

- Preventing rodent burrows in earthen embankments
- Corrosion protection of hydraulic steel structures
- Detecting leaks in water pipelines
- Powering electronic instruments on a rotating shaft



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\$75,000 in prize \$\$\$

Can you help us beat **corrosion**, the Grim Reaper of steel structures?

usbr.gov/research/challenges/corrosion

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US Army Corps of Engineers
Engineers Research and Development Center

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

NAFAC

Water Availability Competitions

- More Water Less Concentrate
- Sub-seasonal climate forecasting
- Colorado River Basin data visualization
- Arsenic sensing
- Pathogen monitoring for water reuse applications

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\$800,000 in prize \$\$\$!

March 2, 2016 Forecast (in) .01 .10 .25 .50 1 2 3 4 5 7.5 10 15

Saddle up for the Sub-Seasonal Climate Forecast Rodeo!



usbr.gov/research/challenges

Competition Sponsor: **RECLAMATION**
Managing Water in the West

Competition Partners:

- NASA
- US Army Corps of Engineers
- USGS
science for a changing world

Open and Upcoming Competitions

- **Sub-Seasonal climate forecasting** – algorithm development – currently open
- **Rust Busters corrosion control** - multi-phase competition culminating in a demonstration – currently open
- **Reservoir Sediment Removal**- multi-phase competition culminating in a demonstration – currently under development
- **Reducing concentrate volume at inland desalination facilities** - multi-phase competition culminating in a demonstration – currently under development

More Water, Less Concentrate Competition

- Stage 1 competition held in 2017-2018
- Theoretical competition
 - solvers submitted whitepapers describing their solutions and the theory behind their concepts
- 282 registered solvers
 - 66 solutions submitted
 - 8 winners
- \$150,000 in awards

WATER
PRIZE COMPETITION CENTER

Hundreds of thousands in prize \$\$\$!

DESAL PLANT

Saltwater →

Freshwater ↓

Salty Concentrate ↓

Can YOU help
Desalination plants
make more
water and less
concentrate?

Follow us at [Challenge.gov](https://www.challenge.gov)
(search **Reclamation**)

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WERF
Water Environment Research Foundation

Water Research Foundation
Advancing the science of water

More Water, Less Concentrate Competition

- **Stage 2 scheduled for 2020 launch**
- **Envisioned as a two-phase competition:**
 1. **Detailed technical whitepapers down-selected**
 2. **Prototype development and testing**
- **Reclamation is currently seeking partners and potential solvers for the competition**

Prize Competition Partnership Opportunities

- Reclamation partners with other federal agencies, state agencies, municipalities, non-profit organizations, and private sector companies on prize competitions
- Partners can contribute cash and non-cash awards, subject matter experts, test facilities, promotional services, prize competition administration services, and more
- <https://www.usbr.gov/research/challenges/>

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