

The Water Exchange for the Energy Ecosystem™



Honored by



IMAGINE



H₂O



Sourcewater, Inc.

1301 Fannin Street, #2440

Houston, TX 77002

www.sourcewater.com

Josh@sourcewater.com

Developed at



Massachusetts
Institute of
Technology



Sourcewater is a FREE Internet data hub for water sourcing, recycling and disposal.

We use I.T. and markets to reduce the primary cost and impact of upstream energy:

Water

WHY NOW?

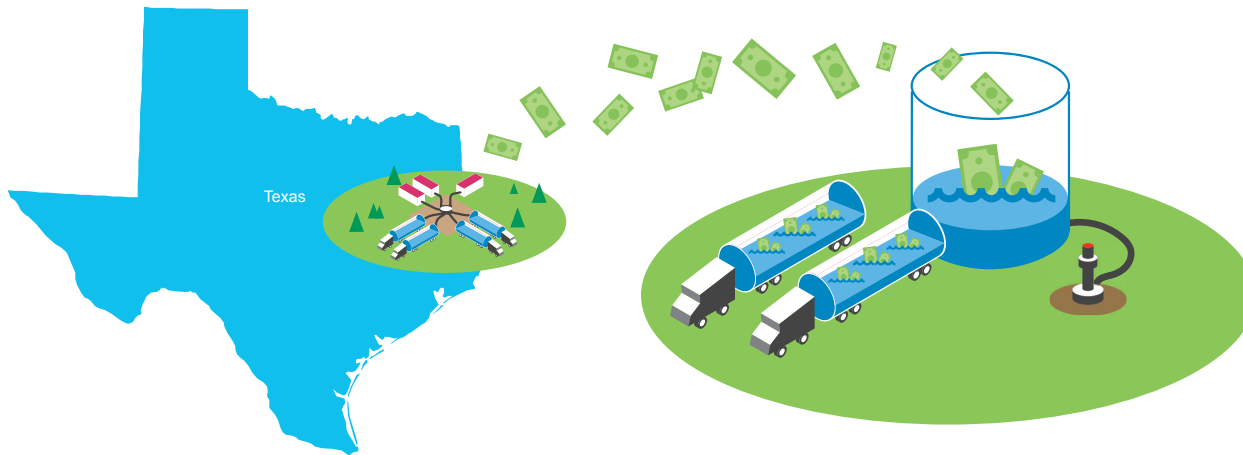
Average Oil Well Produces 10x Water v. Oil

Fluid Production Ratio (i.e. Water Cut)

91%
Water

<i>Cost</i>
<i>TRUCKS</i>
<i>RECYCLING</i>
<i>DISPOSAL</i>
<i>TREATMENT</i>

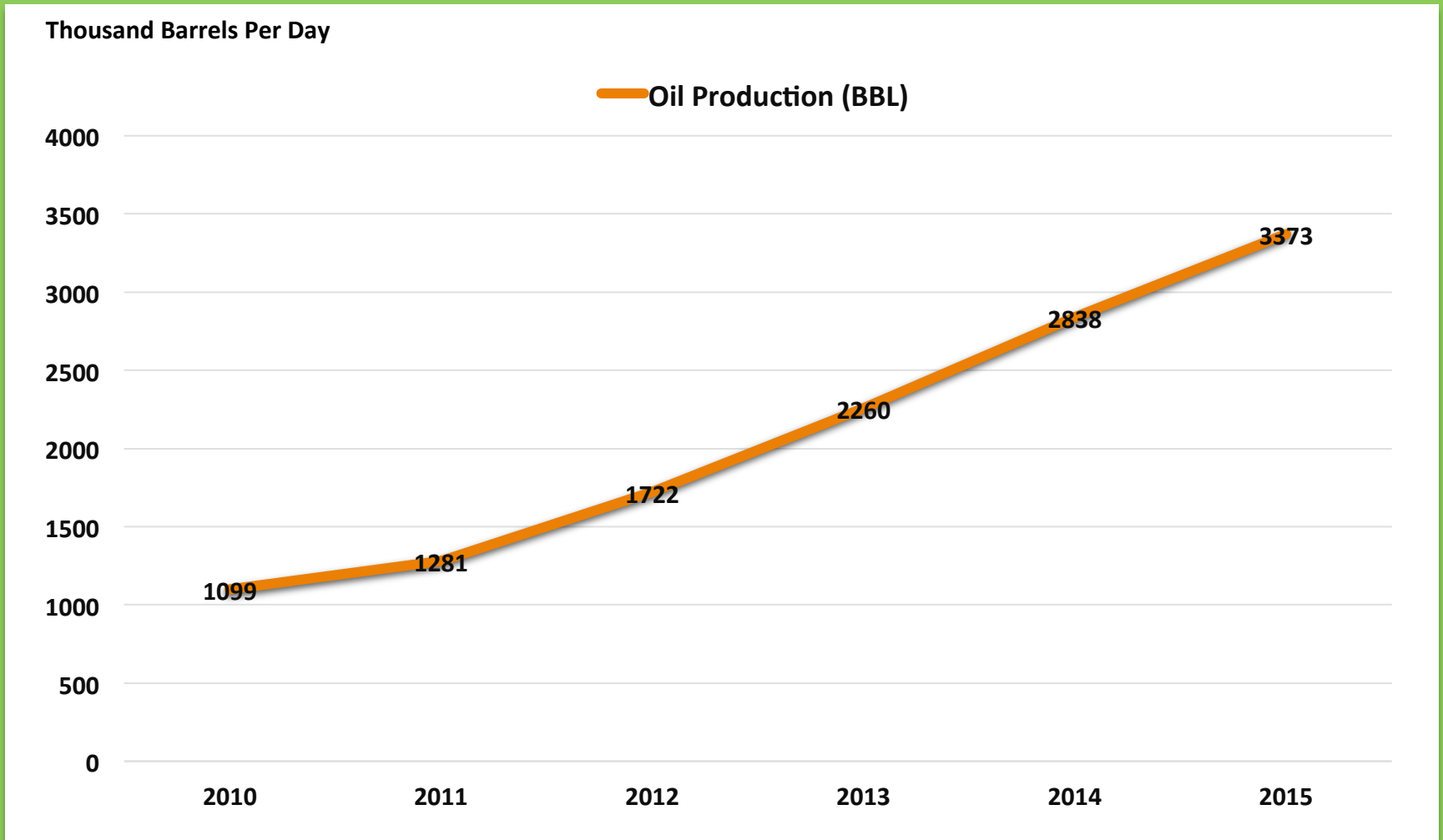
9%
Oil



For 1.7M U.S. oil wells, \$1/BBL savings in water management = \$10/BBL rise in oil price!

The Shale Boom: Oil

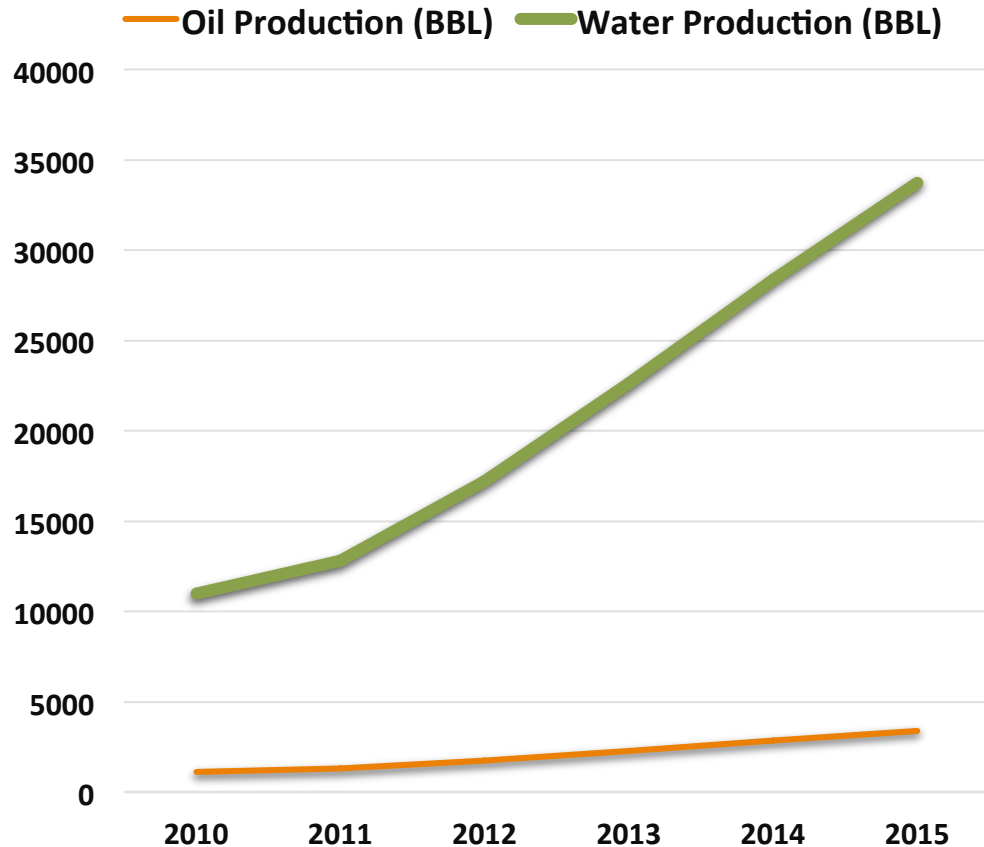
Texas Crude up 3.5x in 5 Years, U.S. up 2x



Source: U.S. Energy Information Administration, <http://1.usa.gov/24uZ6Kg>

© Sourcewater, Inc: Confidential

The Real Shale Boom: Water



**Texas Field Production of Crude and Water
x1k BBL/day @ 10:1 Water Cut Ratio**

Table 4-2 — Top Ten States in Terms of Water Production in 2012

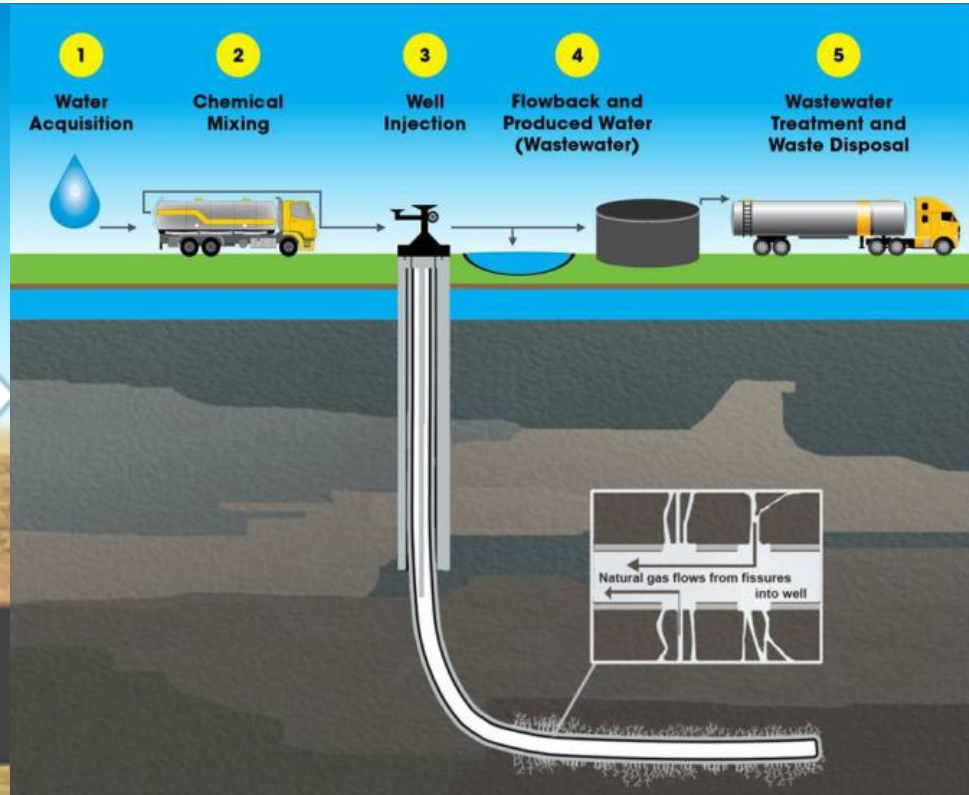
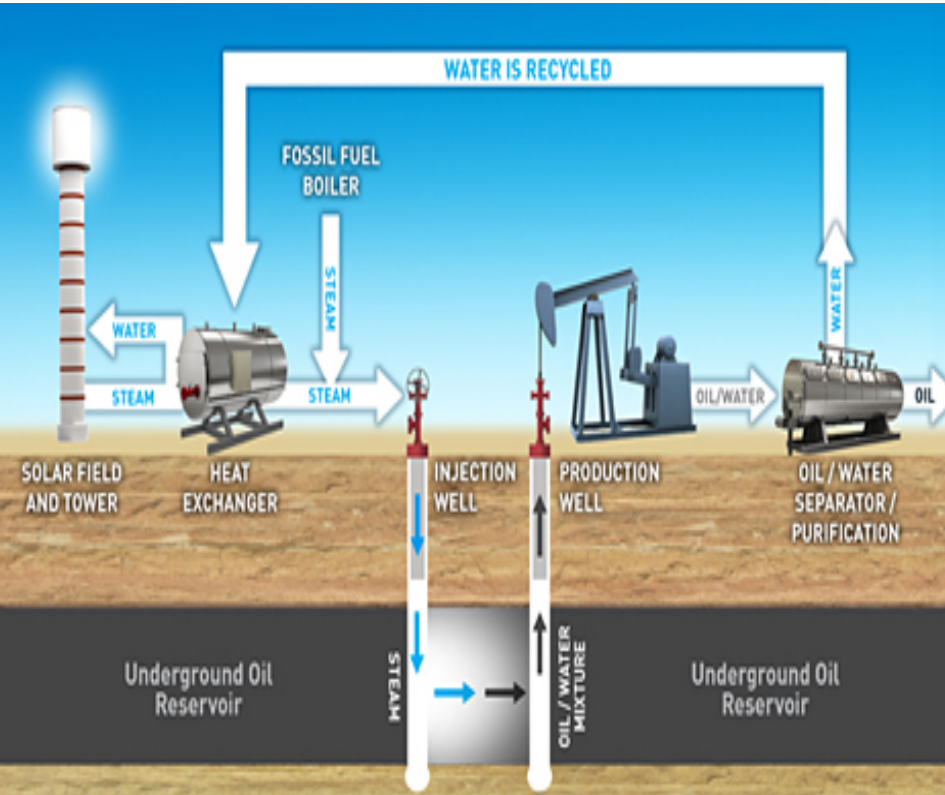
Ranking	State	2012 Water (bbl/yr)	% of Total Water
1	Texas	7,435,659,000	35
2	California	3,074,585,000	15
3	Oklahoma	2,325,153,000	11
4	Wyoming	2,178,065,000	10
5	Kansas	1,061,019,000	5
6	Louisiana	927,635,000	4
7	New Mexico	769,153,000	4
8	Alaska	624,762,000	3
9	Federal Offshore	358,389,000	2
10	Colorado	320,191,000	2

Source: U.S. Produced Water Volumes and Management Practices in 2012

“Conventional” EOR Loop v. Frac Logistics

Before 2009, nearly all wells were conventional

In 2009-2014 Shale Boom, all new wells are unconventional



In vertical “conventional” wells, almost no water is used for drilling & completions and 95% of produced water is re-injected on-site for EOR.

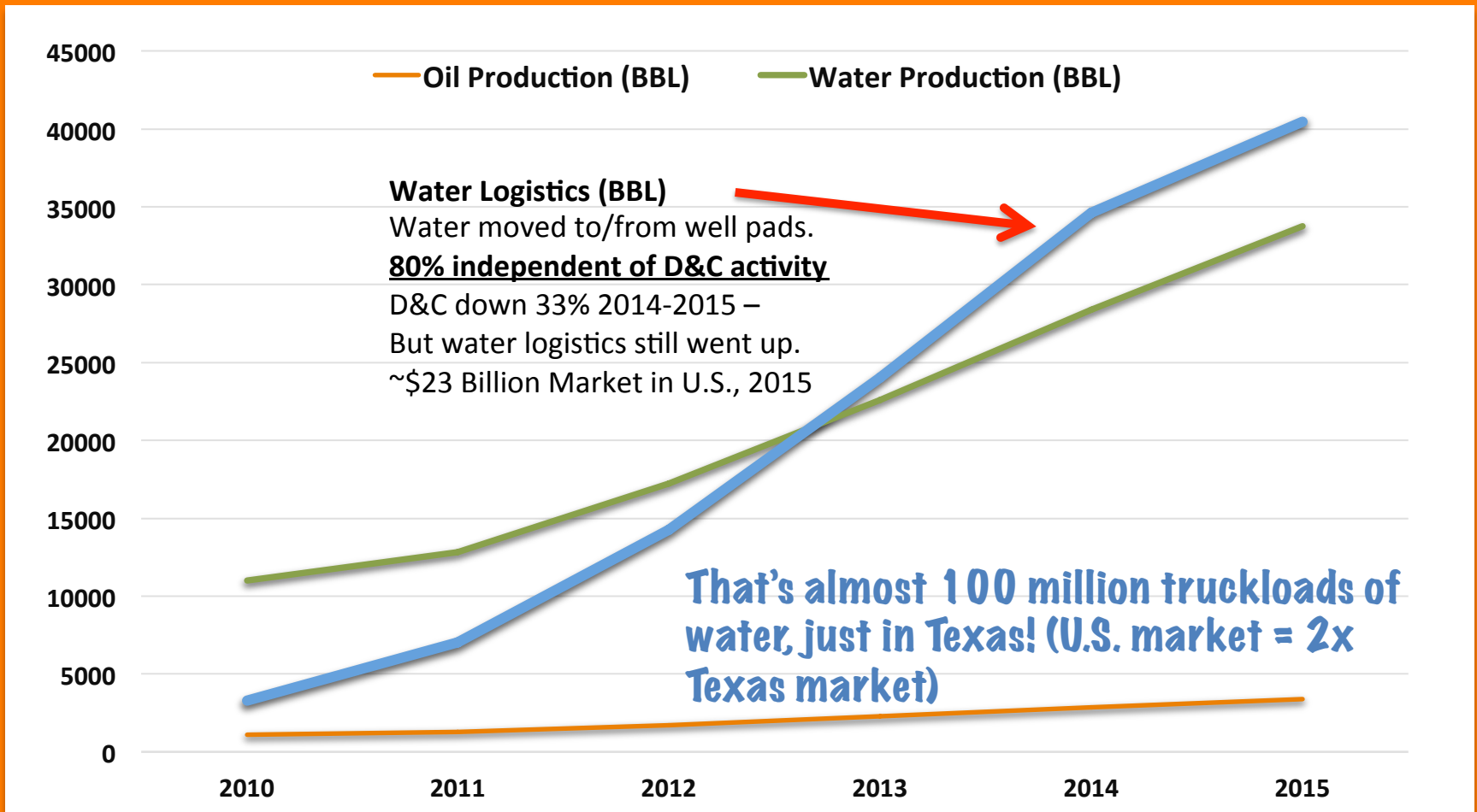
➔ Low Cost Loop

Horizontal “unconventional” wells need up to 1M BBL of water per completion, and all flowback and produced water is sent by truck or pipe to disposal, treatment or reuse.

➔ Water Sourcing + No EOR = Massive Cost

The REAL Real Shale Boom: Water Logistics

Texas Water Logistics up 7,000% (70x)!



Water Logistics became Majority Cost of Upstream Energy, 2009-2014

Water Cost as % of Well Opex

55%

Water cost

45%

All other costs

**OpEx/BOE doubled in Shale Boom because of Water Logistics...
...But no one cared until 2015, after energy price collapse settled in**

Daily crude oil spot prices, 2010-15
dollars per barrel



How is Primary Cost of Upstream Energy Managed & Optimized?

“The Buddy System”

Welcome to the 1950s

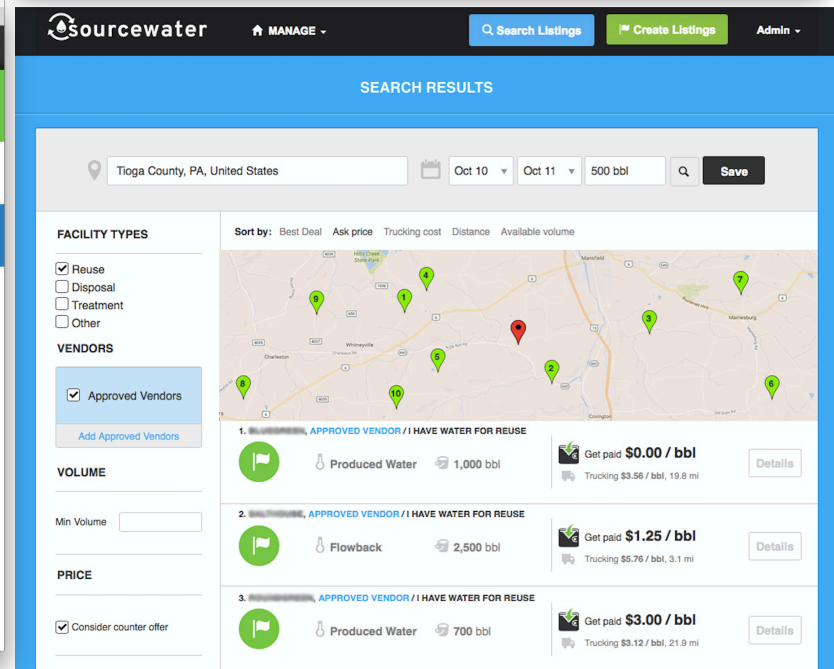
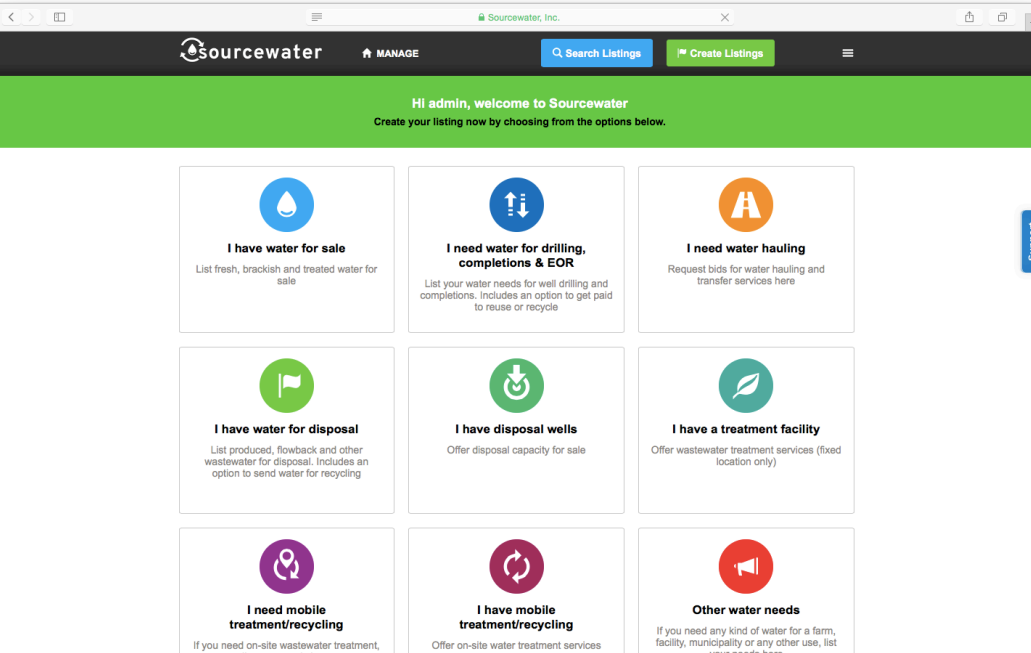
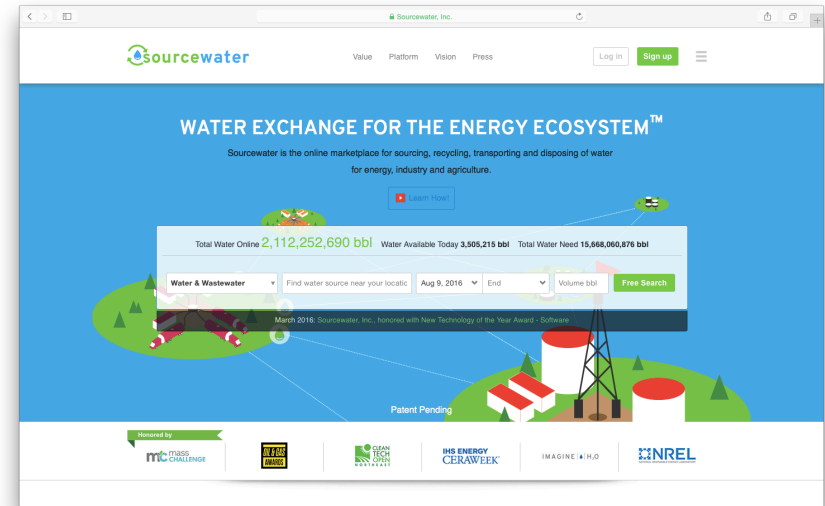
- Trust > Value
- Phone Calls & Paper Tickets
- No Data, Just Rumors
- Hidden Prices & Availability
- Time-intensive
- Little Accountability
- ERROR, WASTE & FRAUD
- Works for 1 load, not 100



The Solution: sourcewater

Instantly find the best data & deals for water, recycling, logistics & disposal

- Save Time & Cost on Planning & Logistics
- Ensure Water Supply Chain
- Monetize Excess Capacity
- Get Paid to Recycle
- Reduce Environmental Impact
- **It's FREE**



sourcewater

Water Sources



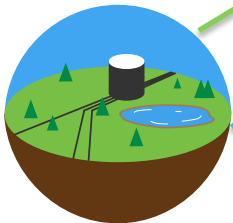
E&P Produced Water



E&P Freshwater



Treatment Facility



Water Utilities & Pipelines



Farms, Ranches, Landowners

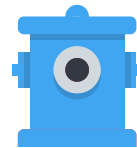
Connects Oilfield Water Sources, Uses & Transport
"Expedia for Water Services"



Water Trucking Bids



Water Transfer Bids



Water Uses



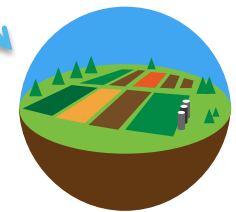
Completions




Disposal



Treatment



Irrigation & Industry

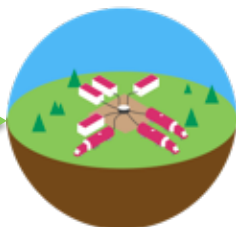
 Freshwater Flows

 Non-Freshwater Flows

Real World Sourcewater Value Examples



E&P Flowback



E&P Completion

Case Study: Completions finds Water to Recycle from Production

E&P 1 needs 100k bbl for completion, \$3/bbl for freshwater + hauling
E&P 2 has 100k bbl flowback for disposal, \$3/bbl for disposal + hauling
#1 searches water sources on Sourcewater, finds timely non-freshwater
#2 searches for best disposal deals, finds timely reuse option nearby
#2 pays #1 \$1.50/bbl to deliver, saves \$150k
#1 saves \$150k per completion by recycling



E&P Produced Water



Disposal Well

Case Study: Operator finds Disposal “Fare Sale”

E&P has 100k bbl for disposal, usually \$.50 disposal + \$2.00 hauling
Disposal has 100k bbl excess capacity that will go to waste, zero wait
E&P finds 50%-off sale on Sourcewater plus zero wait time, saves \$100k
Disposal get \$25k in sales instead of zero sales of perishable inventory



E&P Produced Water



Case Study: Operator finds Hauling “Fare Sale”

Hauler finds Short-Standby Low-Cost Disposal

E&P has 50+ approved hauling vendors, but Pumper always calls one buddy
Pumper uses App to discover instant best price now among 50+ MSAs
E&P hires hauler with driver nearby, driver uses app to find disposal sale
E&P saves 50%, hauler still makes money, disposal sells inventory

“Shell is an active partner in operator-to-operator trading on Sourcewater.com. I have found sources of water to recycle on Sourcewater that I didn’t know were available, and those sources delivered my completions water for free, saving real money. Some operators on Sourcewater offered to pay us to recycle their water and cut their cost of disposal. That’s a win-win for the industry.”

-Matthew Alaniz, Water Team Lead Shell Appalachia, quoted in *E&P Magazine*, Nov. 2016

The Market is Good for the Environment



Replaces
freshwater
consumption
with recycling



Makes non-
freshwater valuable
& findable.
Freshwater =>
Premium Product
Non-freshwater =>
Discount Product



Reduces
seismic risk
& water loss
from disposal
by enabling
alternatives:
treatment &
reuse



Reduces
community
& environmental impact on
infrastructure, traffic & air quality
with fewer trucking miles



Market Pricing
Incentivizes:
1) Conservation
2) Investment
3) Innovation

How it Works



Three Product Lines

Water Marketplace

- Instantly find best deals for water sources, treatment, recycling & disposal. Like AirBnB for water.
- Research all water sources and uses in region with user-generated and public data listings. FREE!
- Launched April 2015 in Marcellus Shale Region. Now everywhere.
- “Google” business model: Free search platform with sponsored ads for water-related services
- Global potential as marketplace for agricultural, municipal, industrial and energy water searching, recycling, and trading
- Won contract from Govt. of Alberta to deploy there
- Marketplace becomes Water ERP & Asset Management Platform

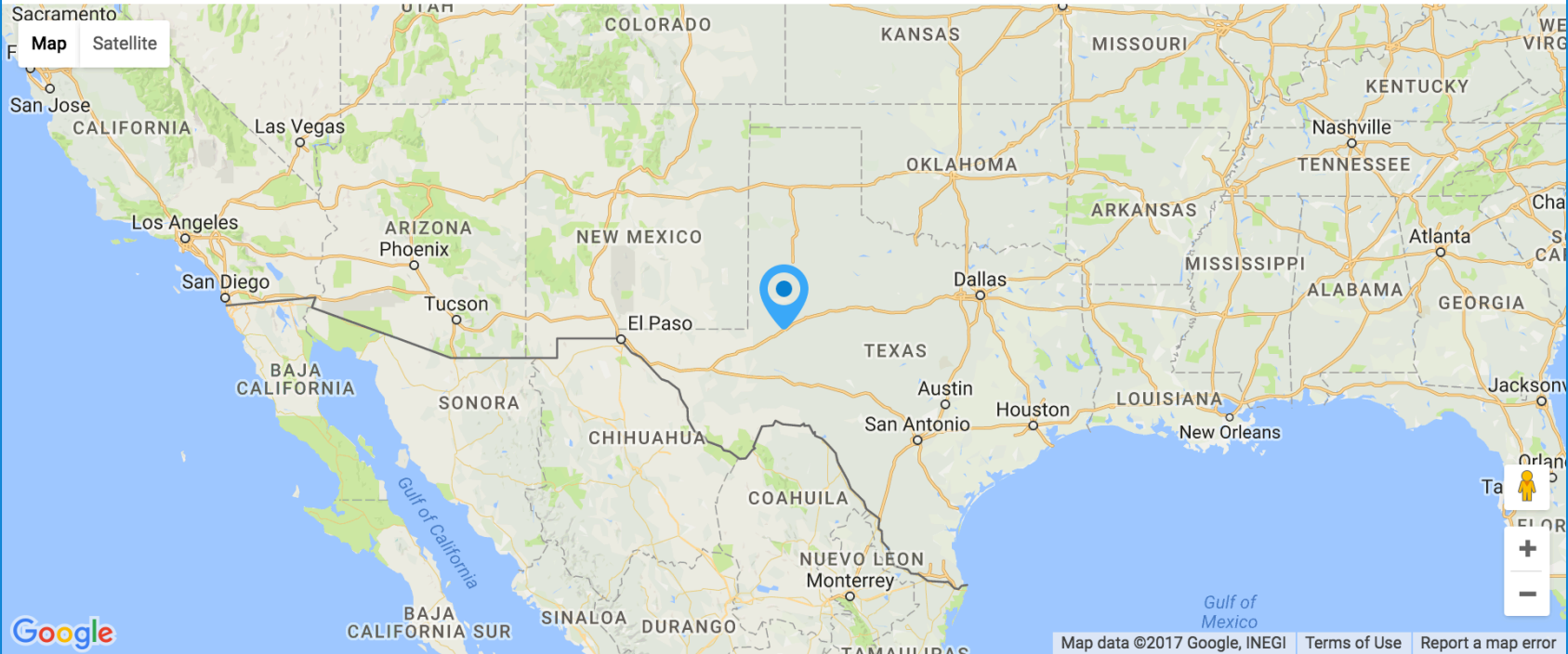
Service RFQ

- Supply Chain & Procurement Platform: Once you find best water source or use on **Marketplace**, get the best deal to move the water by truck or pipe.
- Obtain best competitive price and availability on oilfield services, esp. water hauling & transfer, through online service bidding
- Example: usually with 20 MSA haulers, only first-call (foreman’s best friend) hauler gets any business regardless of price. Haulers #2-20 would LOVE to offer a sale price. Our system allows all MSA haulers to compete to discount excess capacity and closest drivers.
- In falling market obtain fare sales on excess capacity and superior logistical savings; in rising market obtain essential service capacity to maintain operations
- Add more services to RFQ

E-Ticketing

- Biggest oilfield water problem in Permian Basin is that 20%-40% of water hauling & disposal expenditure is lost to waste, fraud and error: short hauls, ghost loads, illegal dumping...
- Hauling >50% of operating cost
- 1950s paper ticketing systems cannot track, verify or optimize performance of haulers
- Sourcewater E-Ticketing & Logistics System in development uses smartphones, GPS & sensors to eliminate paper field tickets.
- May reduce total water hauling & disposal cost by over 40%.
- Links to **Service RFQ** to find best truck deals every time, like Uber.
- Links to **Marketplace** to help truckers and operators find the optimal real-time disposal deals
- SaaS models scales on tickets
- Top 5 operators negotiating pilots

Search for water sources, water users, disposal, treatment and recycling.



Search for

Water & Wastewater

Water & Wastewater

Disposal, Treatment, Reuse

Disposal treatment

Location

Midland, TX, United States

Volume

1000

Start

Jan 29, 2017

End

End

Reuse Other

[More filters](#)

[Search](#)

Search for

Disposal, Treatment, Reuse ▾

Location

Midland, TX, United States

Volume

1000

Start

Jan 29, 2017

**End**

End

**FACILITY TYPES**

- Disposal Treatment Reuse Other

[Less filters](#)**VENDORS**

- Only approved vendors

WATER TYPES

- Heavy Brine Treated Water Clean Brine Freshwater
- Flowback Produced water Brackish water Impaired water
- Slickwater
- Gel

WATER QUALITY REPORT

- Only listings with attached water quality report

WATER QUALITY**MIN****MAX**

- TDS (Total Dissolved Solids)

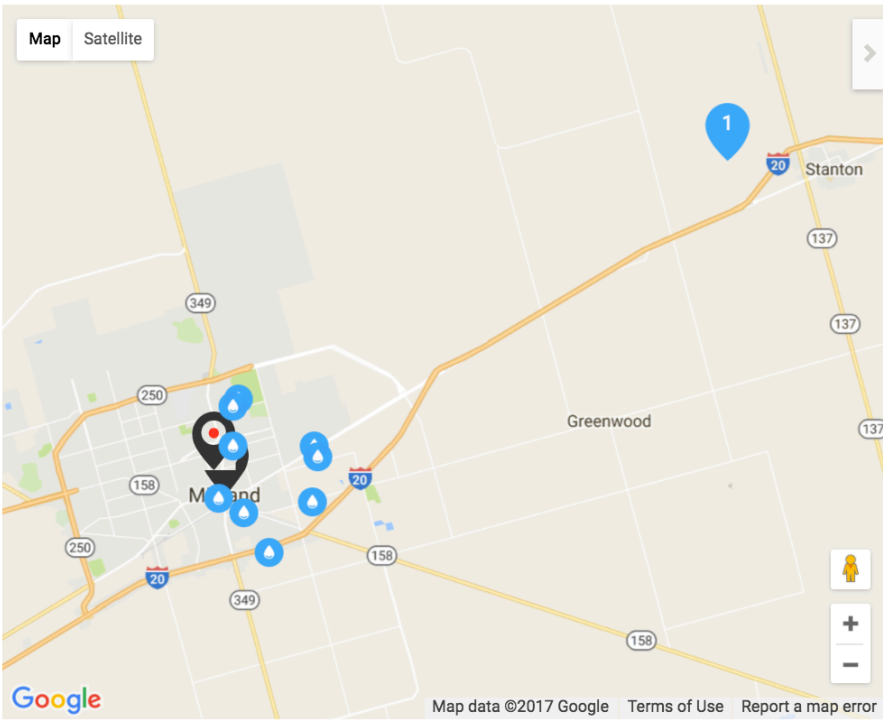
10000

100000

- Ba (Barium)

- TSS (Total suspended solids)

[Show more properties](#)



Sponsor

Sponsor

KEY ENERGY SERVICES, LLC / WATER Premium

Water type	Ask price (You pay)
Heavy Brine	\$1.25 / bbl
Volume	Hauling (They can haul)
4,200 bbl	\$1.63 / bbl (91.2 mi)
	Total rate
	\$2.88 / bbl

Sponsor

1. KEY ENERGY SERVICES, LLC / WATER SOURCE Branded

<p>Water type Freshwater</p> <p>Volume 2,400 bbl</p>	<p>Ask price (You pay)</p> <p>\$0.45 / bbl</p> <p>Hauling (They can haul)</p> <p>\$0.74 / bbl (18.1 mi)</p>	<p>Total rate</p> <p>\$1.19 / bbl</p>
--	---	--

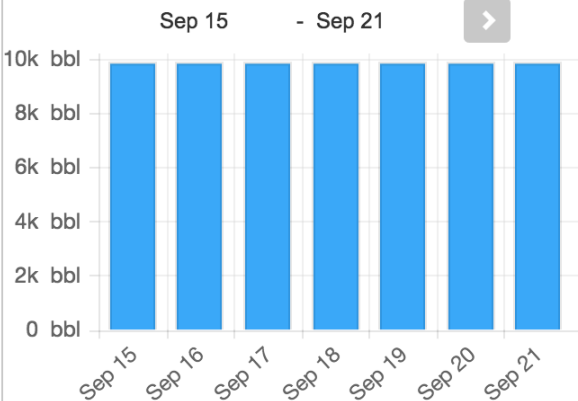
2. TWDB PUBLIC RECORDS / WATER SOURCE Public record

<p>Water type Freshwater</p> <p>Volume Unknown</p>	<p>Ask price (You pay)</p> <p>N/A</p> <p>Hauling (You will haul)</p> <p>\$0.44 / bbl (0.4 mi)</p>	<p>Data Source</p> <p>TWDB 12/15/2016</p>	<p>Make an offer</p>
--	---	--	--------------------------------------

LISTING DETAIL

You don't have overlapping approved trucking companies with this water provider. [Add now!](#)

Sep 15, 2016 - Sep 1, 2020



8,900 bbl
NEEDED DAILY

Water Types Accepted

- Freshwater
- Brackish water
- Heavy Brine
- Treated Water
- Clean Brine
- Flowback - Slickwater
- Produced water - Slickwater
- Produced water - Conventional
- Impaired water - Other

Water quality test not required

Price

Pay **\$0.35 / bbl**

Your offer

Pay total
\$3,115.00

Estimated trucking
Per barrel: \$0.71
Total: \$6,318.21

They can haul

Create RFQ

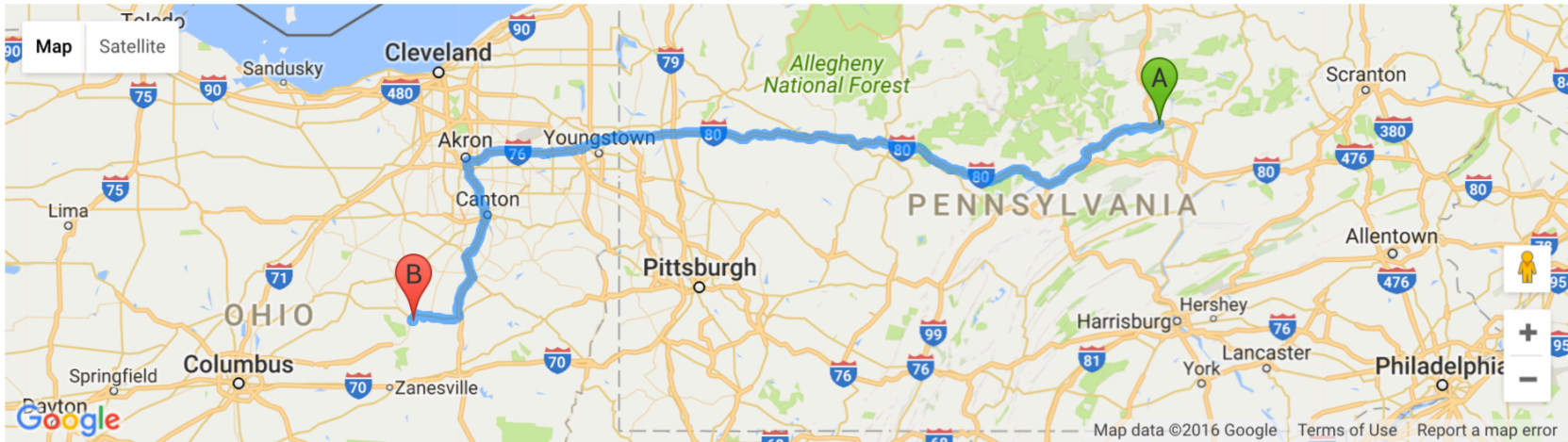
- 1. What
- 2. Where
- 3. When
- 4. Summary

RFQ Hauling Services Summary

Water type & Volume

Produced water, 500 bbl, Estimated TDS 150,000 ppm

Edit



Origin location

Big Tank - Williamsport, PA, United States

Edit

Destination location

Big Disposal - Coshocton, OH, United States

Edit

Attached file with route details

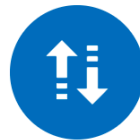
None

Edit



I have water for sale

List fresh, brackish and treated water for sale



I need water for drilling, completions & EOR

List your water needs for well drilling and completions. Includes an option to get paid to reuse or recycle



I need water hauling

Request bids for water hauling and transfer services here



I have water for disposal

List produced, flowback and other wastewater for disposal. Includes an option to send water for recycling



I have disposal wells

Offer disposal capacity for sale



I have a treatment facility

Offer wastewater treatment services (fixed location only)



I need mobile treatment/recycling

If you need on-site wastewater treatment, list your needs here

COMING SOON!



I have mobile treatment/recycling

Offer on-site water treatment services

COMING SOON!



Other water needs

If you need any kind of water for a farm, facility, municipality or any other use, list your needs here

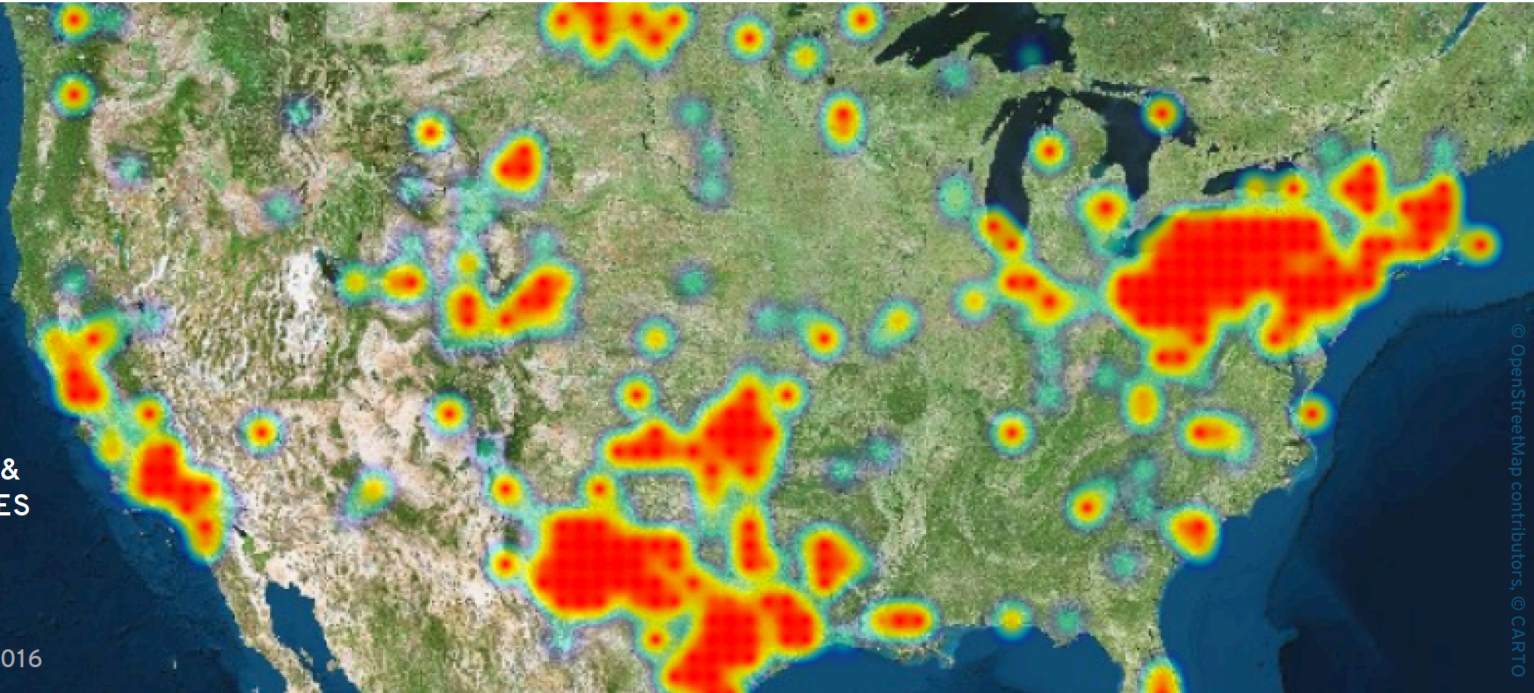
Sourcewater Searches 2016

SEARCHES
5,263

WATER & WASTEWATER
SOURCE SEARCHES
70.4%

DISPOSAL, TREATMENT &
COMPLETIONS SEARCHES
29.6%

October 2015 - September 2016



Over 120,000 water sources and
Over 1,200 SWDs online just in Texas

The Water Exchange for the Energy Ecosystem™



Honored by



IMAGINE



H₂O



Sourcewater, Inc.

1301 Fannin Street, #2440

Houston, TX 77002

www.sourcewater.com

Josh@sourcewater.com

Developed at



Massachusetts
Institute of
Technology