



PowerTech

— WATER —

Pursuing, Founding, & Funding Startup
August 29, 2020

Sustainable
Water Purification



Introduction

James Landon, PhD

Chief Technology Officer, PowerTech Water Inc.

Education:

Chemical Engineering, BS, Lehigh University, 2006

Chemical Engineering, PhD, Carnegie Mellon University, 2011

Center for Applied Energy Research, UKy Postdoc, 2011-2012

1. I generally think like a research engineer (I was trained to do that...)
2. Public speaking has been a big part of my life. However, most of this has been *technical* public speaking.
3. Business training has not classically been a focal point. The world of business was something I needed to learn, but it can be done!

5Across Competition: 2013



October 30th in 2013



December 4th in 2013

It all started with a pitch competition...

5Across Competition Response:

From:
Sent: Thursday, October 31, 2013 10:51 AM
To: Lippert, Cameron; Landon, James
Subject: Five Across

Jim and Cameron –

It was a pleasure meeting you yesterday at 5across, I can't say that I understood the technology you are working on but it sounded intriguing.

I do think that you are going to have some fairly sophisticated needs for building your patent fence in this space, my sense is that there are large industrial players in this area who run well financed patent machines. With the change in the United States to a first to file patent system, it is more important than ever that you file on your ideas early and often. I would love to discuss with you sometime how we can help an early stage, cash poor but idea rich, company. I spend about half my time in Kentucky, usually Thursday-Sunday, so it is no trouble to stop by.

Best regards,

Greg



In the beginning, what we had was something interesting and a team (can't discount the importance of a good team!), but we needed to learn to make this a business.

Let's take a look at our first business pitch slide that won us \$25k from the Bluegrass Angels and the subsequent steps to build a business.

Let's Go through PTW's First Pitch

Establishment of PowerTech Water, LLC

**What we had: A dream
to make water treatment
easier...**

Our first pitch for investor money
came on January 29, 2014

PowerTech Water, LLC

BGA Launch Fund

1/29/2014

James R. Landon, Ph.D.

Efficient Engineering Solutions



Problem: Water Production

We started with identifying the problem.

While not the prettiest slide... you need to get your point across to your possible investors, partners, advisors, or customers. The level of engagement and detail will depend on who you are talking to.

Water is the most commonly used solvent in laboratories and constitutes often more than 99% of the mass of solutions used in experimentations. The quality of water used in the lab is therefore critical for the success of the tests performed.



100,000 Labs

**MILLIONS of
gallons used
annually**

Problem: Expensive Process

We further defined the problem.

You want to make sure that whoever you are speaking to will identify with this slide. For example, if you are speaking to a potential customer, the problem should be one that they possess. If you're speaking to an investor, it should be identifiable and understandable.

- Current methods are expensive; Remove water from salts
 - Large capital cost
 - Large operation cost
 - Replacement parts

Membrane Processes



Distillation

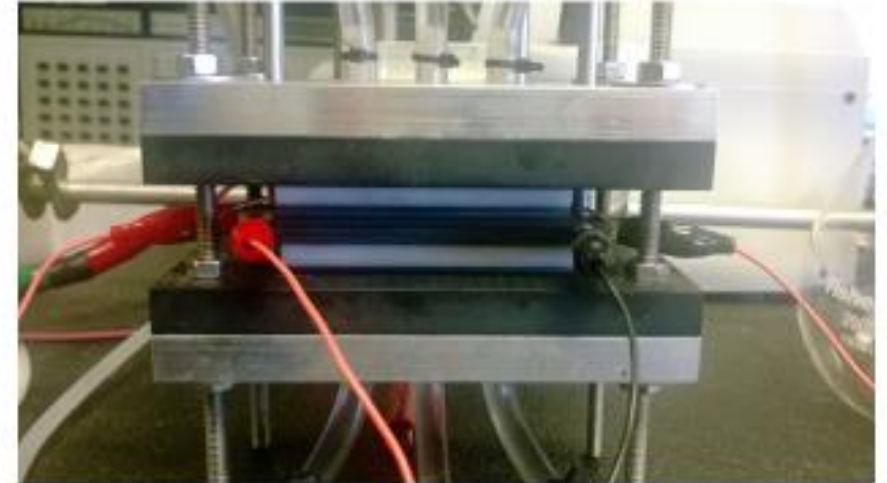


Our Solution

Then, you should move towards your solution!

How are you different...
How do you solve this complex problem... Is there science behind it that backs it up...

- **New method:** Separate salts from water
- Lower Costs:
 - Capital cost to build
 - Maintenance costs
 - Operating costs



Lowers your energy costs by over 99%!

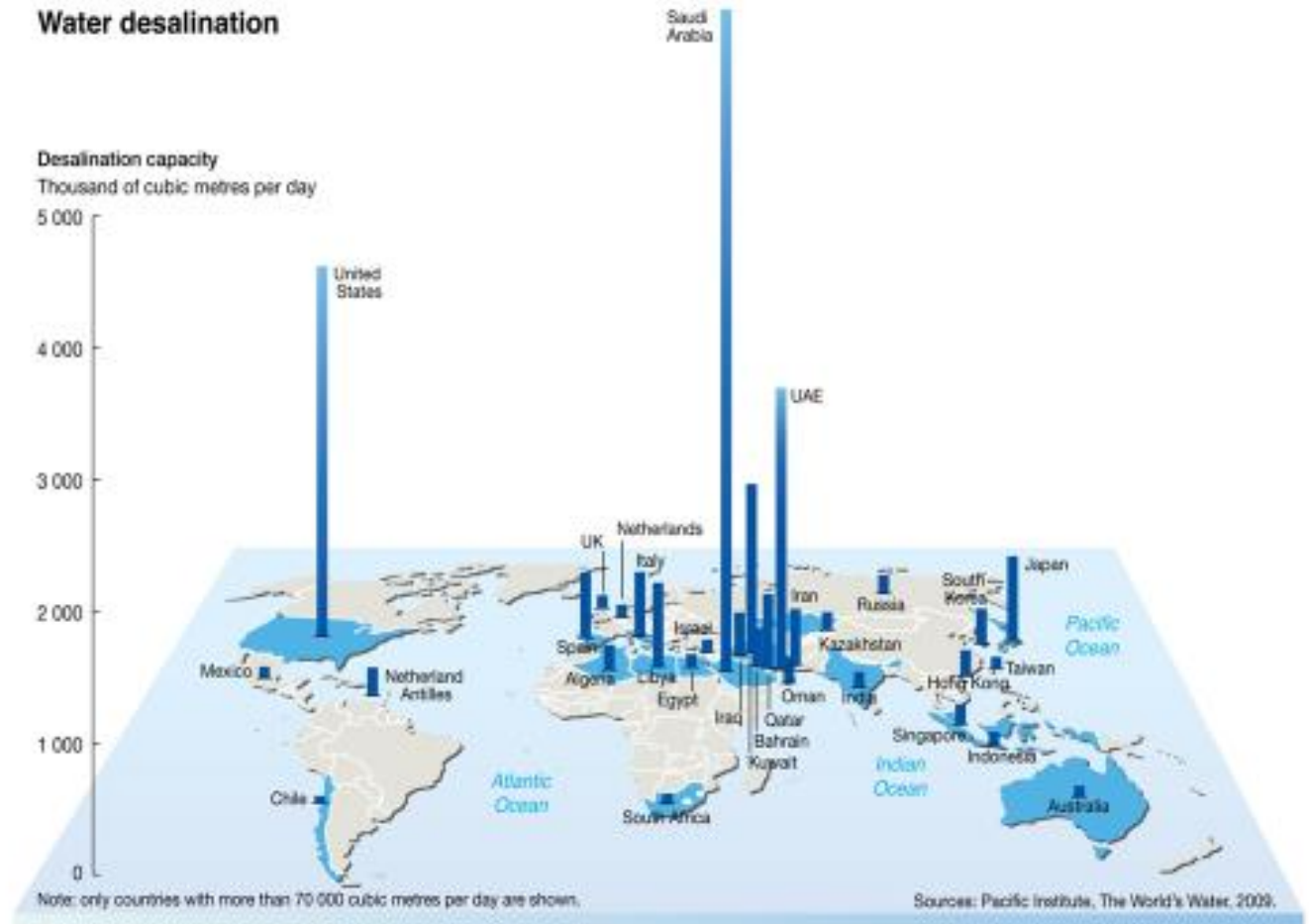
System	Energy Cost (per m ³)
Competitors	>\$0.10
Our Solution	<\$0.01

Water Treatment Market is Massive

Then identify the market!

In these early slides, while an attempt is made, the market should be well researched before a pitch. This includes:

1. Total Addressable Market
2. Serviceable Available Market
3. Serviceable Obtainable Market or Target Market



Market and Revenue

Once you establish the market opportunity, you then look at possible revenue that can be generated.

Again, the first attempt, like ours, can be somewhat simple. You just need to get your message across.

Your market and revenue slides tend to improve over time!



Manufacturing Cost:

- Prototype Production = ~ \$ 700/unit
- Commercial Production = < \$ 200/unit

Retail Price:

\$ 3,000 - \$ 7,000/unit

Industry	Number of Estimate Sites	Average Units per Site	Cost per Unit ^a	Total Market
Colleges & Universities	7000	2	\$5,000.00	\$70,000,000.00
Secondary Schools	60000	1	\$5,000.00	\$300,000,000.00
Pharmaceutical Labs	10000	3	\$5,000.00	\$150,000,000.00
Department of Energy	17	3	\$5,000.00	\$255,000.00
Electronics Manufacturers	500	3	\$5,000.00	\$7,500,000.00
			Total:	\$527,755,000.00

^aPriced to be competitive with similar products in the market

Competition

And finally, before identifying your team, advisors, and ask, you identify who your competition is.

Your competition can include current and near term solutions as well as established and new market entrants.



Membrane CDI Process



	Capital Cost	Operation Cost	Versatility
PowerTech	✓	✓	✓
Voltea	✗	✗	✗

Points to Include in an Initial Pitch

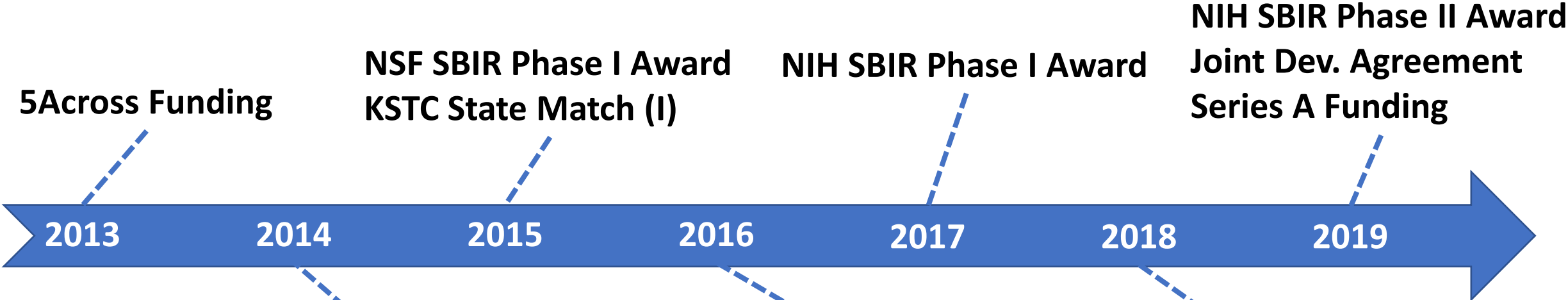
Including but not limited to...

1. What is the Problem?
2. What is your Solution?
3. How Big is the Market?
4. Who is the Team?
5. What are the Next Steps?
6. What is the Ask?

Never forget to have an ask!

For those looking to start a company and pursue entrepreneurship, you need to have an ask. The ask is not always money. It can also be advice, connections to experts in the market, and other things needing to start and grow a business.

Timeline for PowerTech Water



**BGA Launch Investment
KEF Funding**



**NSF SBIR Phase II Award
KSTC State Match (II)
BGA Investment**



National Institutes
of Health

**NSF SBIR TECP
CED State Match (I)**

**NIH SBIR Phase II Award
Joint Dev. Agreement
Series A Funding**

KY Programs Leading to Success

- Awesome Inc. – Initial Funding through Pitch
- BGA – network of instrumental investors and advisors
- ATeCC Building – well-suited start-up space
- KSTC – Kentucky enterprise funding
- KSTC/CED – SBIR matching program and advice
- CED – STEP program for travel
- UK OTC – available resources and advice



Business Development

- CleanTech Open, Midwest Chapter
- Pipeline H2O Accelerator in Cincinnati
- Clean Energy Trust in Chicago
- BlueTech Competition
- Imagine H2O Accelerator



PIPELINE

IMAGINE {  } H₂O



CHINA
BlueTech
AWARDS

中国国际蓝科技创新奖

— WINNER —

