Strengthening Hawaii's On-Site Wastewater Future

Paul Young

Honu
Island wastewater solutions

The materials being presented represent our own opinions and do NOT reflect the opinions of NOWRA.

OUTLINE

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- INTRODUCTION
- BACKGROUND
- SWOT ANALYSIS & LFP INTERVIEWS
- OUTCOMES
- WHAT'S NEXT

INTRODUCTION

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- Paul Young is a seasoned industry expert and dedicated Army Reservist with a distinguished career spanning over 15 years.
- He holds a Master of Public Administration (MPA) from American Public University and a Bachelor of Arts in Environmental Science from the University of Denver.
- He has demonstrated expertise in advocacy for state and local policies that provide cost-effective means for homeowners to design, install, and maintain onsite waste systems.
- He is also a Warrant Officer in the Army Reserves, undertaking numerous humanitarian missions, utilizing his skills to enhance sanitation infrastructure in diverse and challenging environments abroad.

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NSF Convergence Accelerator awards 16 teams to develop innovative water solutions

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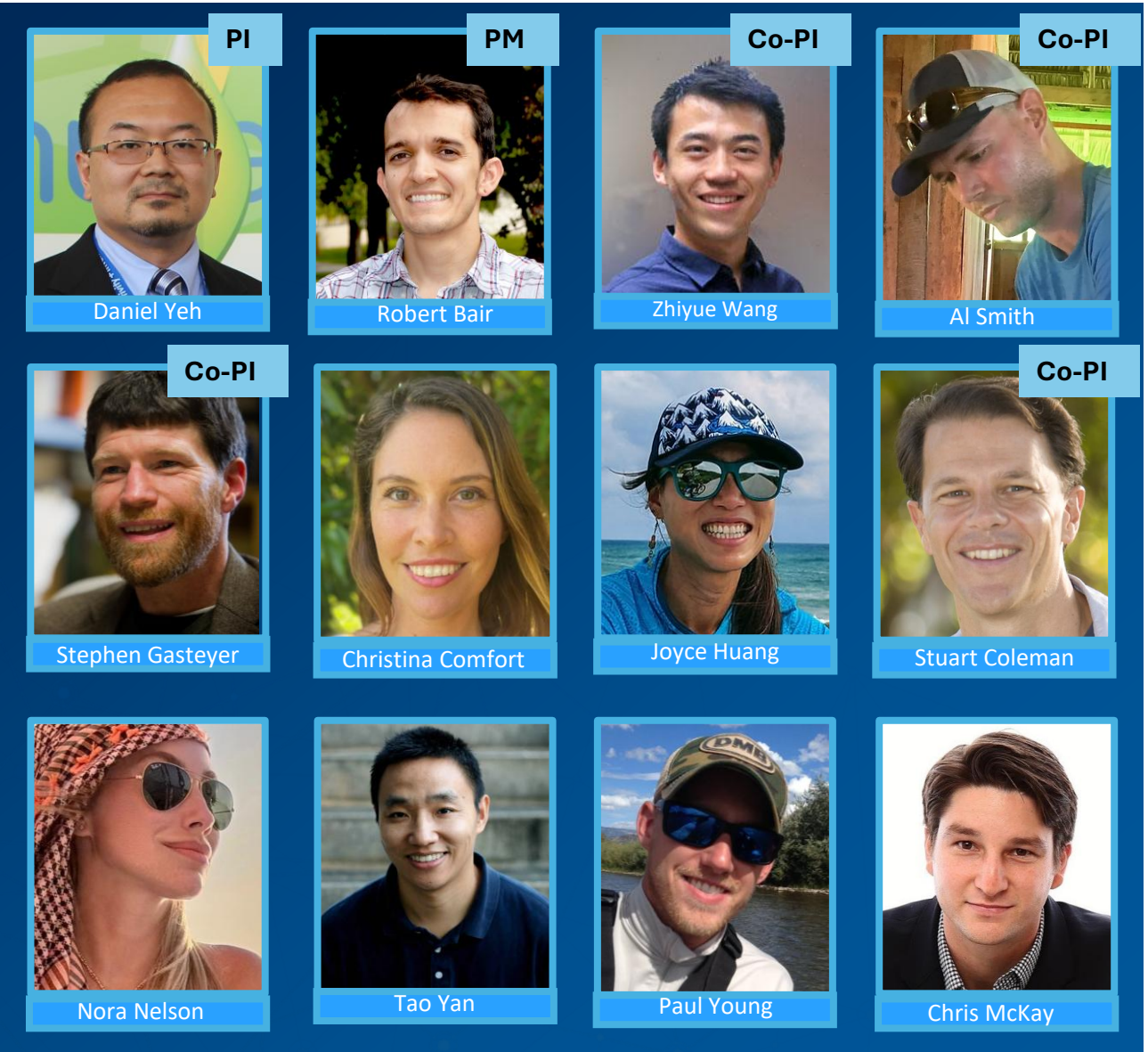

Who we are

Our convergence research team includes engineers, sociologists, hydrologists, economists, oceanographers, policy analysts, community organizers, and writers.

Our goal

To provide innovative decentralized wastewater solutions for islands.

BACKGROUND – WHY HAWAII?

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- Studies indicate that approximately 20% of Americans rely on on-site wastewater treatment systems, translating to approximately 80M people.
- In Hawaii, there were approximately 88,000 Cesspools when HB-125 passed in 2017, ceasing approval of new cesspools and requiring conversion of ALL existing cesspools by 2050.
- Currently there are approximately 83,000 cesspools
- Hawaii's current population is approximately 1.4 million; if 20% use on-site treatment, that is about 282,000 people.
- Current metrics state there are about 2.49 people per home, which equates to about 113,000 households utilizing on-site treatment, which coincides with estimates from the Hawaii Department of Housing on the total number of regulated and unregulated cesspools.
- Hawaii is an island, metaphorically speaking, small and rural communities are like islands.

SWOT ANALYSIS

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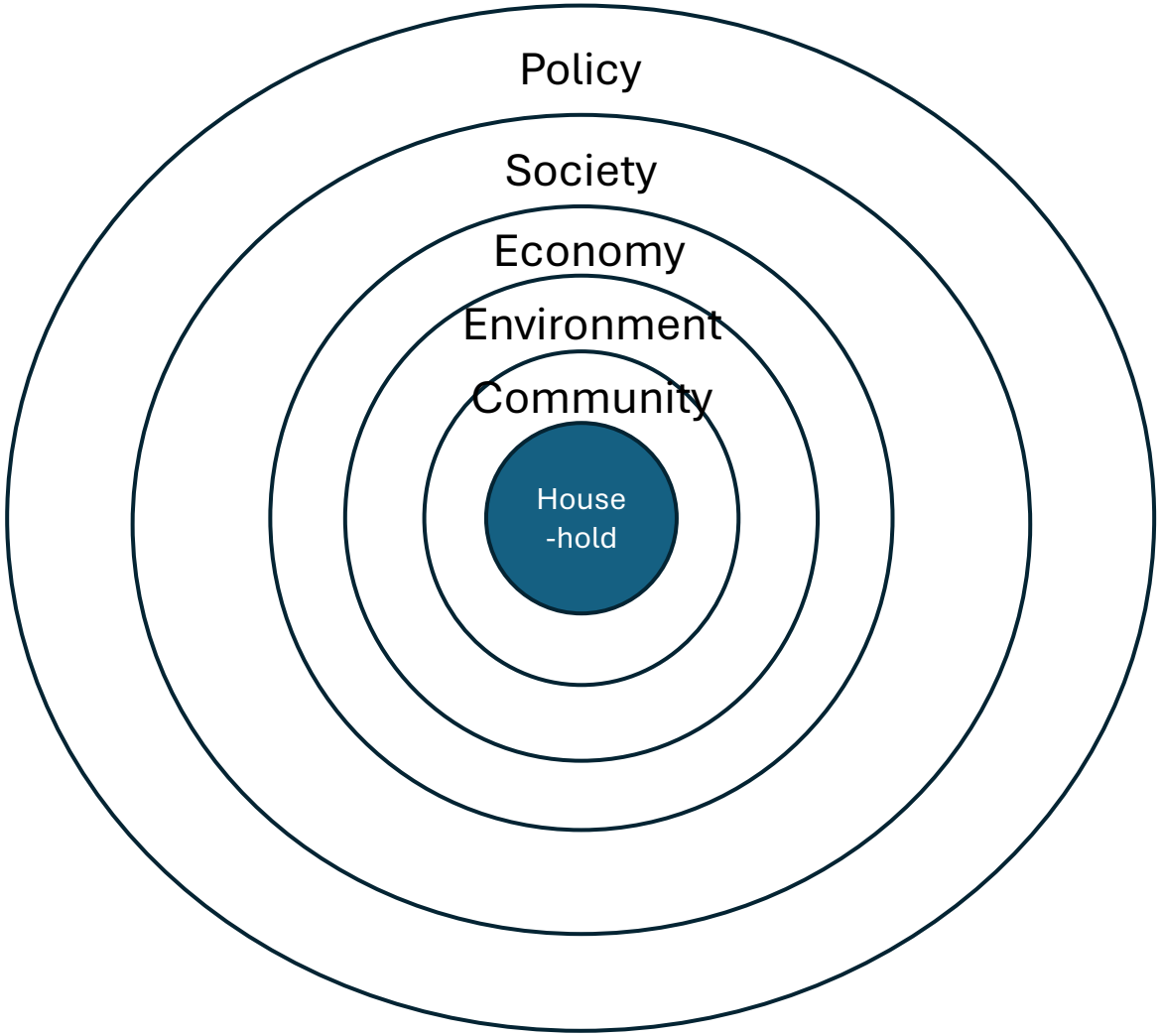
- STRENGTHS
- WEAKNESSES
- OPPPORTUNITIES
- THREATS



SWOT Findings

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Strengths

Policy – Existing laws Encouraging cesspool Conversion; NGOs advocating for cesspool conversion

Society –Growing institutional infrastructure around awareness of risk of and alternatives to cesspools (UH coalition and WAI) – Scientific work demonstrating risks

Economy – Tourism $; funding to assist w/ home conversion; TA for communities to access funding

Environment – Resilience of marine ecosystems

Community – Growing community movements to address problems – address fire risk

Individual HH – Ability to advocate and act

SWOT Findings

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Weaknesses

Policy – Lack specific legal frameworks for measuring impacts of cesspools; long-term Water Quality testing, piloting, financing, supporting alternatives for conversion

Society – 83,000 cesspools; lack of awareness

Economy – Expensive conventional alternatives

Environment – 53 million gallons of sewage; lava porous soils; GW depth; climate change; stormwater

Community – lack of cmty capacity and resources address problems

Individual HH – lack awareness of problems and alternatives

SWOT Findings

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Opportunities

Policy – county integrated mgmt. plans; build on other state decentralized wastewater plans
Society –Growing awareness of WW and coral reef link; connection of WW and housing crisis; job creation
Economy –
Environment – Resilience of marine ecosystems
Community – growing cmty movements to address problems – address fire risk
Individual HH – ability to advocate and act

SWOT Findings

Policy – Reticence and backsliding with state and county policy on WW; resistance to legislation; cumbersome regulatory system
Society – illness, and threats to health; community reticence about acting
Economy – wildfires; rent, food insecurity, cost of living
Environment – coral reefs and aquatic damage; N and P loading; env awareness; need to act
Community – HOA conservatism; suspicion of working with outsiders;
Individual HH – lack of awareness; cost of system

INTERVIEWS

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- Two sets of interviews totaling 66 interviews and counting conducted
  - 16 in Round #1
  - 50 in Round #2
- Variety of stakeholders engaged
- Stakeholder engagement process to inform/justify SWOT analysis and prototype development – *not the typical scientific method*…

KEY STAKEHOLDER INTERVIEWS

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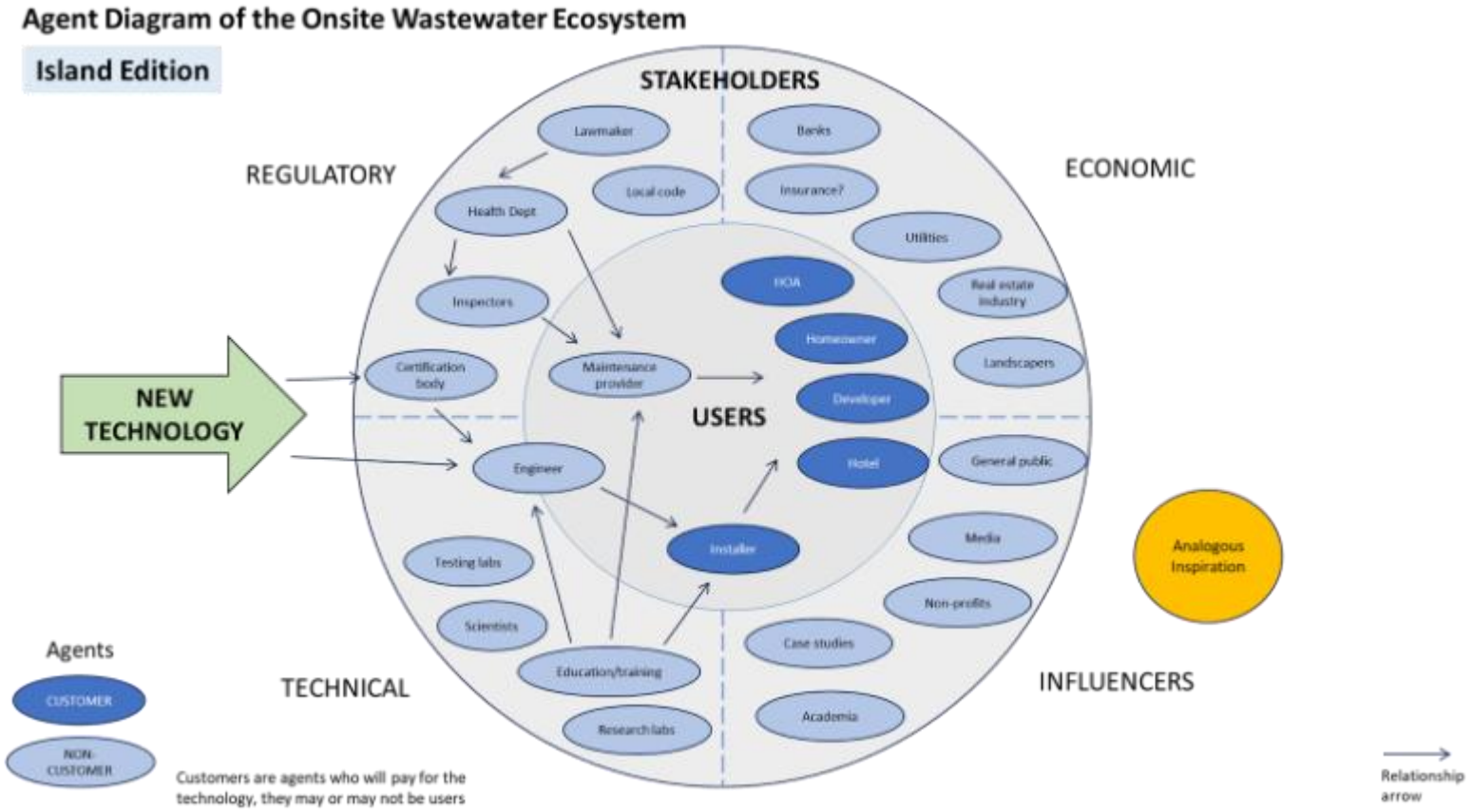
The onsite wastewater management ecosystem is complex with many stakeholder interactions



KEY STAKEHOLDER INTERVIEWS

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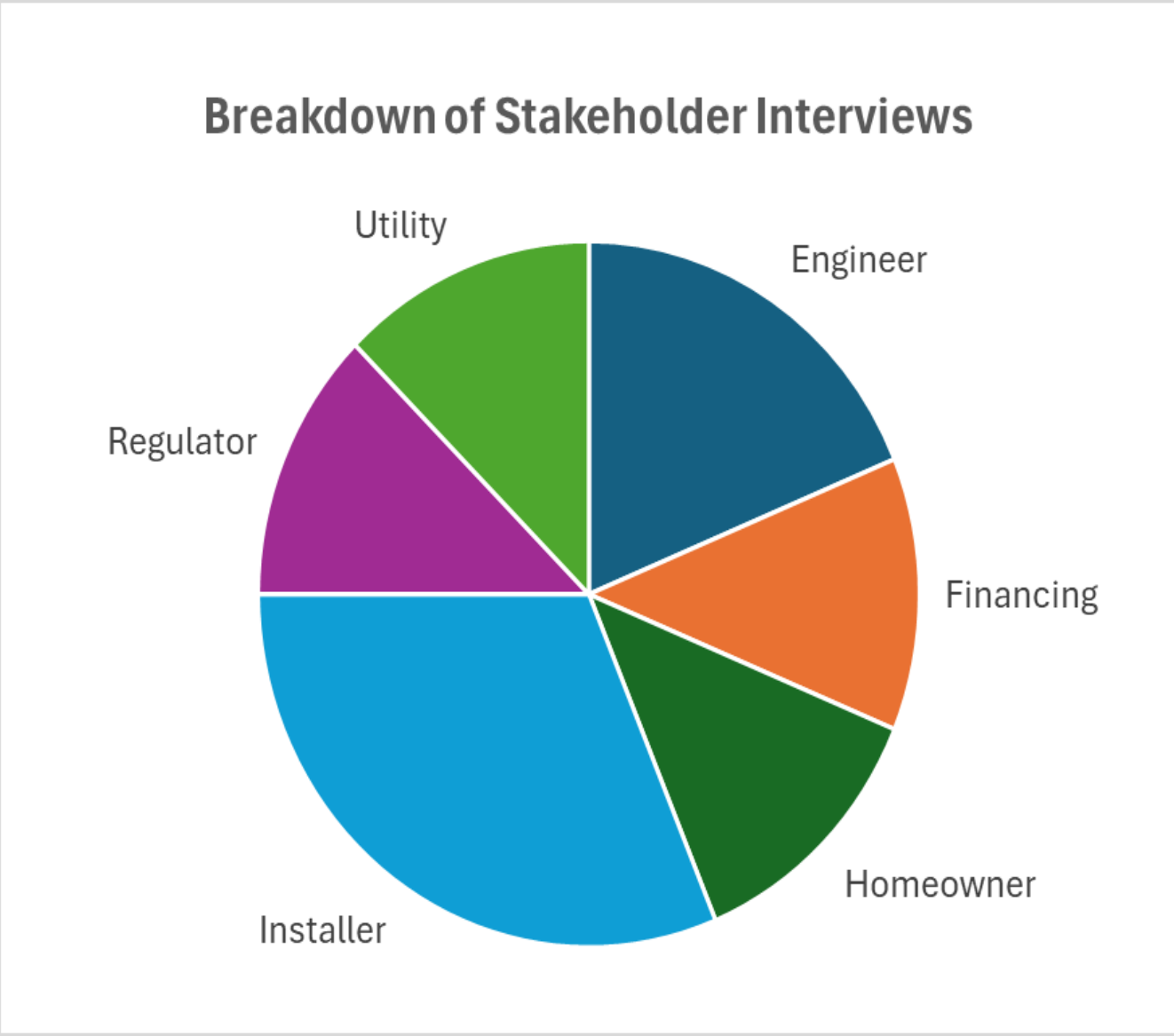

Round 1 Interview Goals

- Confirm our hypothesis: there is a problem with OWTS in Hawaii and stakeholders are aware of it.
- Gain insight into the problem (i.e. cesspool conversion – what gaps exist, why is it a problem, and how can we best address the problem.
- We have three proposed solutions, are they all a good fit or do we need to narrow our focus?

INTERVIEW THEMES

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Policy/Regulatory

- Tech approval process is costly and not easy to navigate
- No roadmap for prioritizing conversions
- Risk of implementing new tech is on engineers and installers

Engineering

- All systems must be designed by an engineer.
- Increases system costs
- Better models are available

INTERVIEW THEMES

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Technology

- Limited complexity desired at homeowner level
- Installers & engineers need to understand systems to recommend them
- Product certification is no guarantee for sales

Funding

- Limited funding provided for compliance
- Many funding sources only cover a fraction of system costs
- Nationally, many creative financing mechanisms are possible

KEY STAKEHOLDER INTERVIEWS

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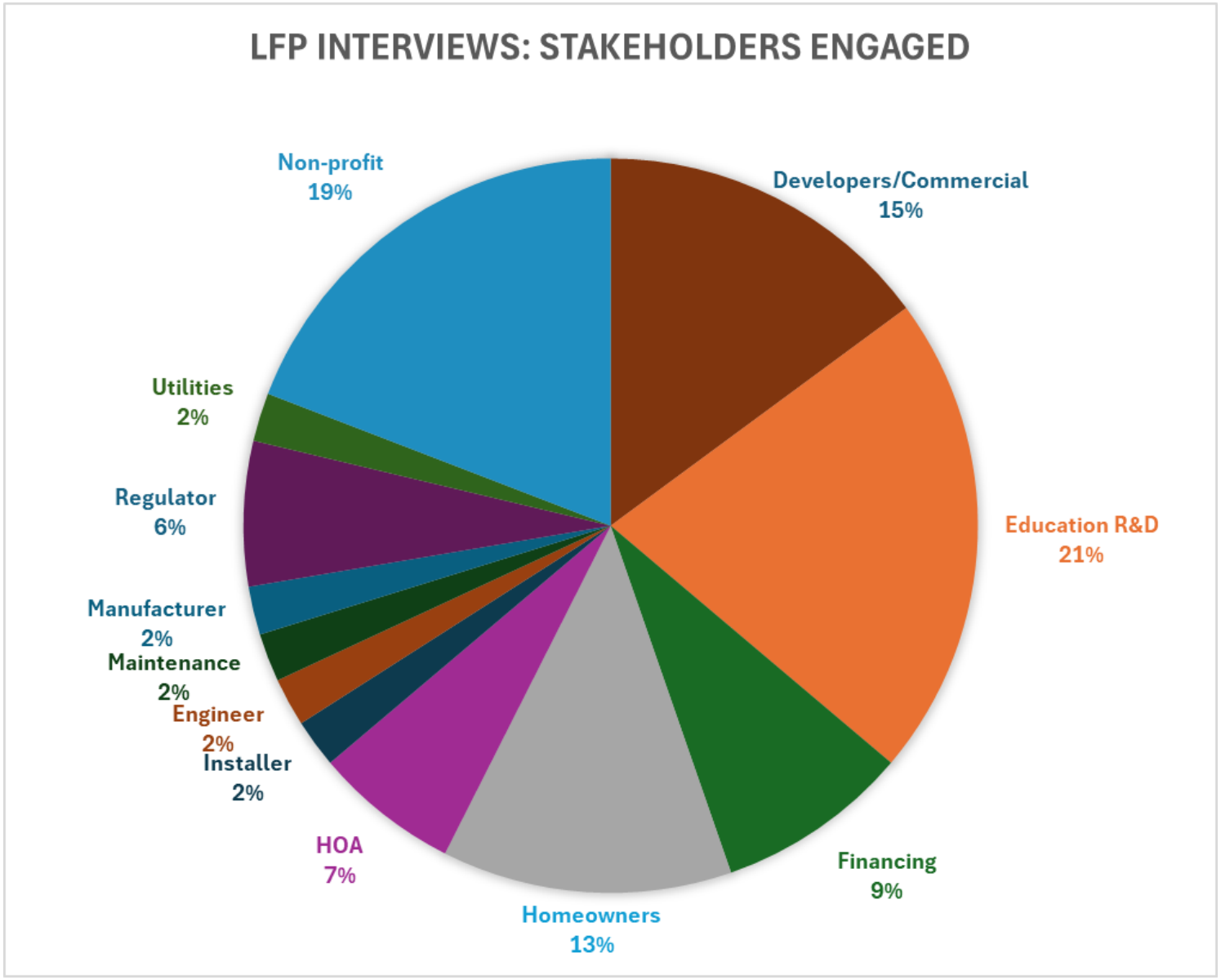

Round 2 Interviews

- Stakeholder feedback on our low-fidelity prototype: NewGEN.
- Revise our prototype to address local problems:
  - Off-grid solutions are needed due to high energy costs
  - Small footprint, scalable solutions are needed
  - Tech is needed, but gaps in policy, funding, and regulation may limit the effectiveness of new tech.
  - Community resources are desired

OUTCOMES

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- NewGEN Anerobic Digester – off-grid cluster system solution
- WiFi – Using the Honu Hub as a community-centric investment providing WiFi hotspot access is desirable
- Small Cluster Systems are needed for Hawaii to have the largest impact on cesspool conversions. Hawaii DOH cannot support the permits (current rate ~1k per year, need 3k per year to meet 2050 goal
- Water Reuse is Important – DPR has interest but R1 water can help with community gardens

What's Next

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- RESSI Framework
- Policy and Regulation Updates
- NSF Certification
- Pilot Testing
- Site Specific Implementation


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Question and Answer

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