State & Federal Energy Storage Technology Advancement Partnership (ESTAP)

Todd Olinsky-Paul

Clean Energy States Alliance

September 21-25, 2015

ESTAP is a project of CESA (Not *that* CESA…)

Clean Energy States Alliance (CESA) is a non-profit organization providing a forum for states to work together to implement effective clean energy policies & programs:

- Information Exchange
- Partnership Development
- Joint Projects (National RPS Collaborative, Interstate Turbine Advisory Council)
- Clean Energy Program Design & Evaluations
- Analysis and Reports

CESA is supported by a coalition of states and public utilities, by federal contracts, and by foundation grants.

Clean Energy States Alliance

Sandia National Laboratories

U.S. DEPARTMENT OF ENERGY

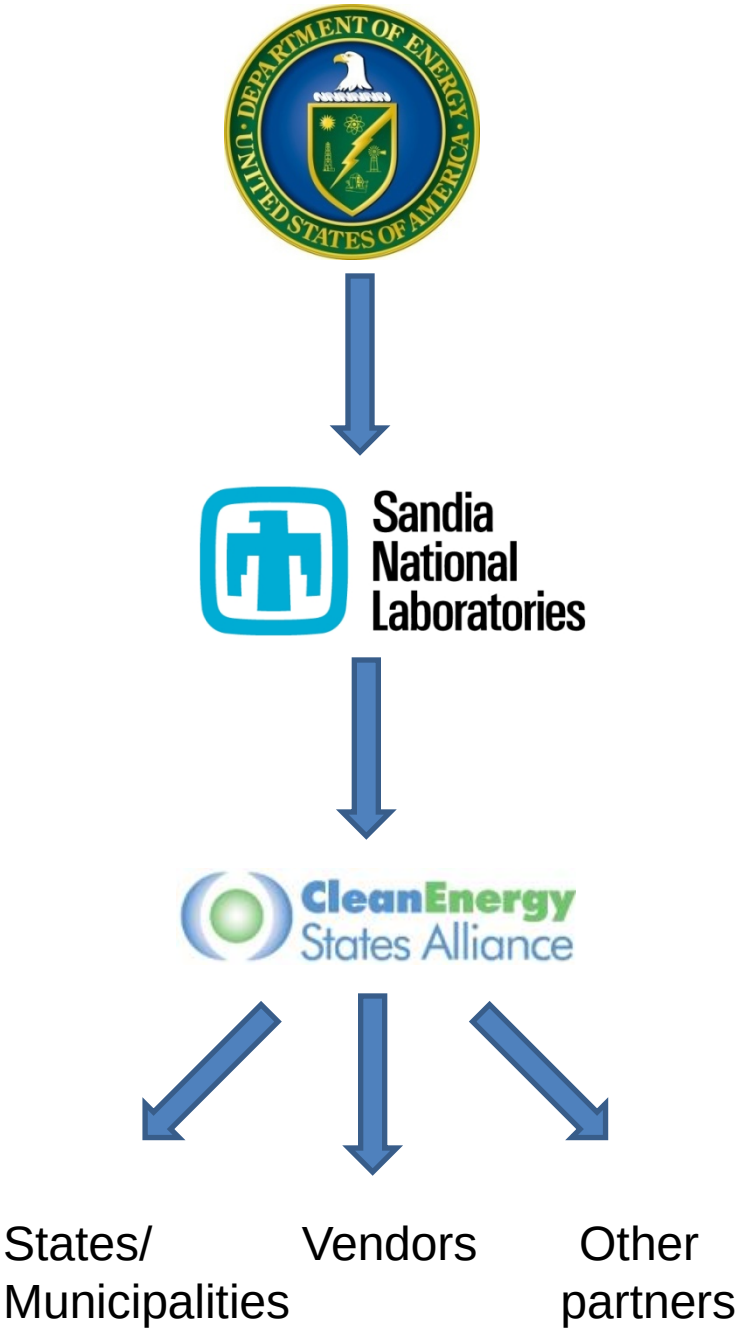
ESTAP* Overview

Purpose: Create new DOE-state energy storage partnerships and advance energy storage, with technical assistance from Sandia National Laboratories and funding from DOE-OE

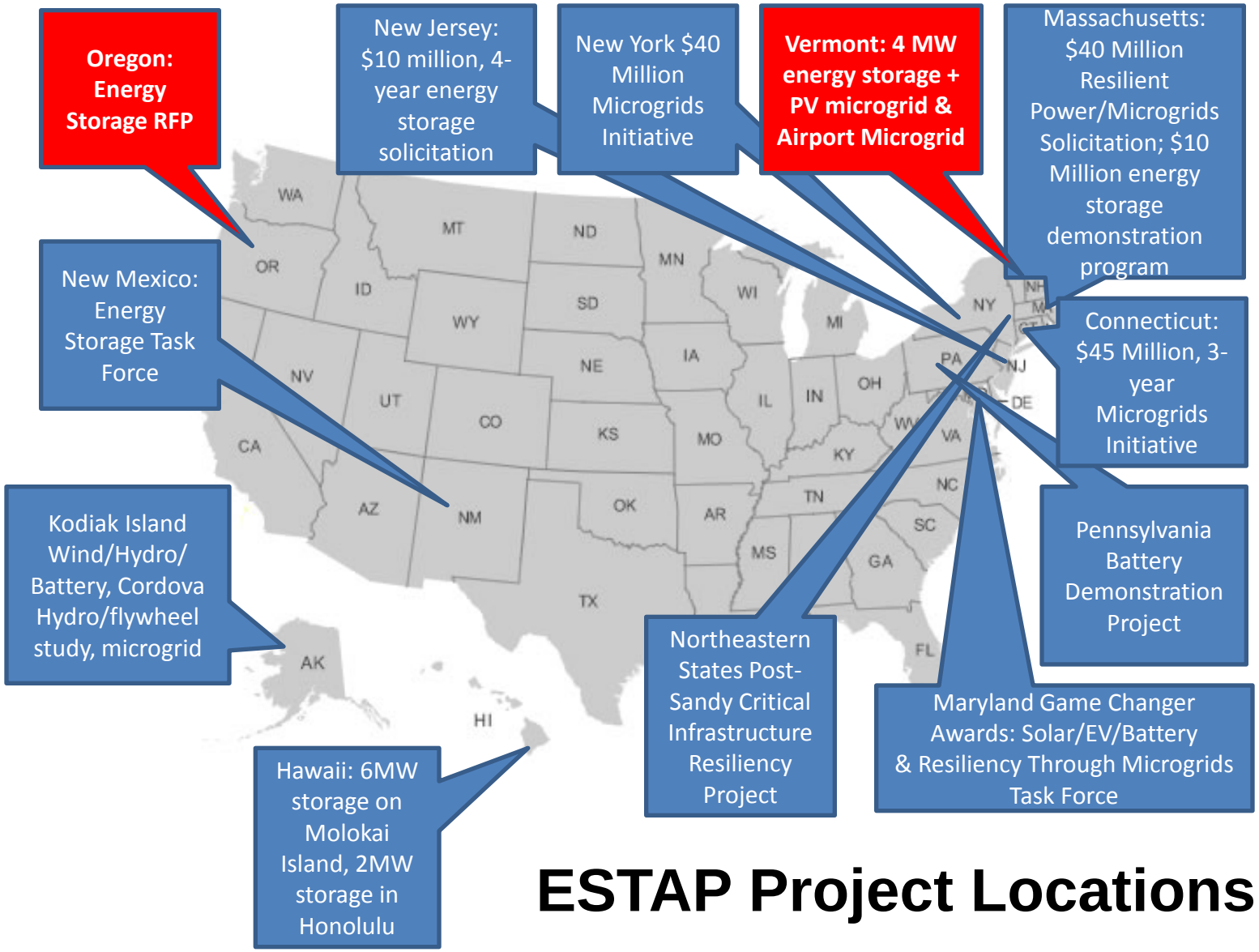
Key Activities:

1. Disseminate information to stakeholders
2. Facilitate federal/state partnerships to support energy storage **program development** and **project deployment**

Outcome: Energy storage project deployments across the U.S. with co-funding from states, project partners, and DOE



* (Energy Storage Technology Advancement Partnership)



ESTAP Project Locations

Clean Energy States Alliance

Sandia National Laboratories

U.S. DEPARTMENT OF ENERGY

Vermont

- Joint federal/state, public/private demonstration project
- 4 MW energy storage + 2.5 MW PV microgrid
- Sited on closed landfill (brownfield redevelopment)
- Provides resilient power for school serving as public shelter
- Future expansion planned

Oregon

- Joint federal/state, public/private demonstration project
- RFP issued September 4, 2015 by Oregon Dept. of Energy
- Proposals due October 16, 2015

What's Next?

Arctic Ocean
Greenland (Den.)
Canada
United States of America
Mexico
North Pacific Ocean
Hawaiian Islands
Venezuela
Colombia
Ecuador
Peru
Bolivia
Chile
South Pacific Ocean
French Polynesia
China
Japan
Australia
Antarctica

Hawaii

HAWAII PROJECTS

1) Ikehu Molokai Energy Storage Project
Development of 6 MW PV and 6 mW/6 mWh energy storage to achieve 40% renewables penetration on the Molokai island grid, retirement of a portion of the island's diesel generation. Phase 2: 100% renewable generation on Molokai

2) Kaimuki Middle School Microgrid Project
Development of microgrid comprising 2 MW energy storage with PV at Kaimuki Middle School, Honolulu, to make the school net zero; provide resilient power to the school, an emergency shelter; demonstrate the first microgrid in the state; allow testing of microgrid for grid support services; demonstrate alternative utility business model in HI

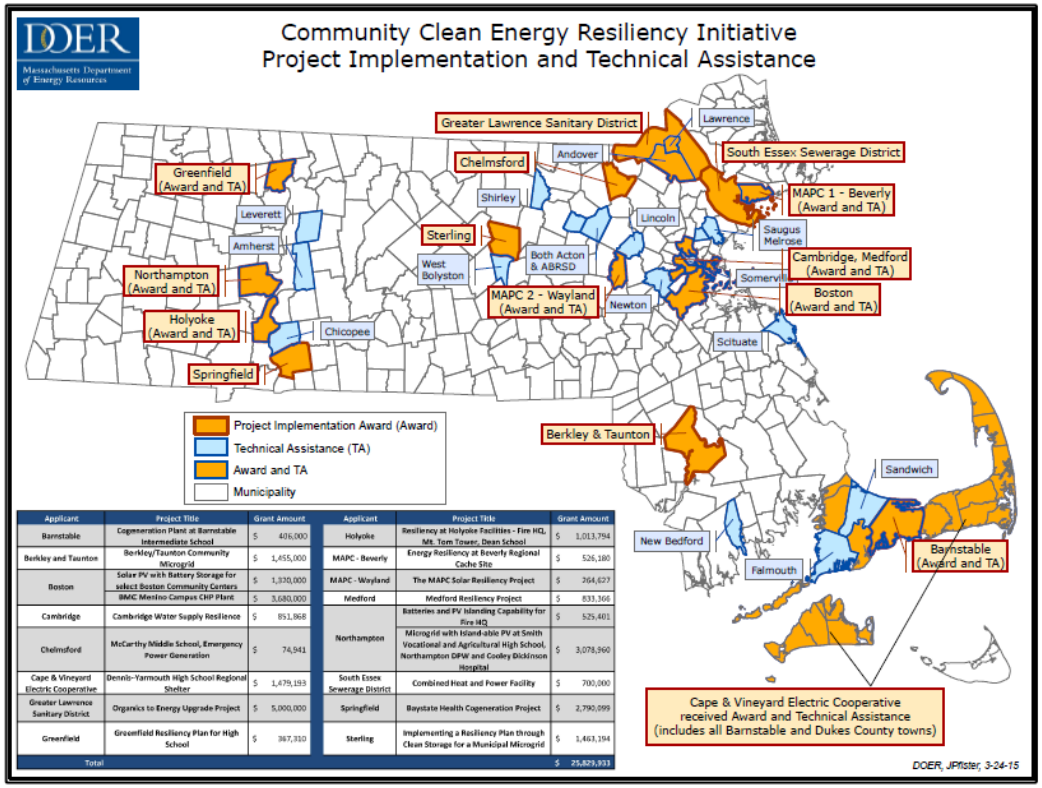
HAWAII PROJECTS continued

3) HECO Project
In May, 2014, HECO issued an RFP for 60 - 200 MW energy storage
DOE-OE / SNL to assist in the selection, commissioning and long term analysis of energy storage systems
SNL will collaborate with HECO from development of review criteria through long term analysis of performance data

4) NELHA Project
SNL to collaborate with National Energy Lab of Hawaii Authority (NELHA) to incorporate electrical energy storage into its renewable, microgrid and innovative energy projects.
SNL provides technical consulting, system evaluation, and analysis services

Massachusetts

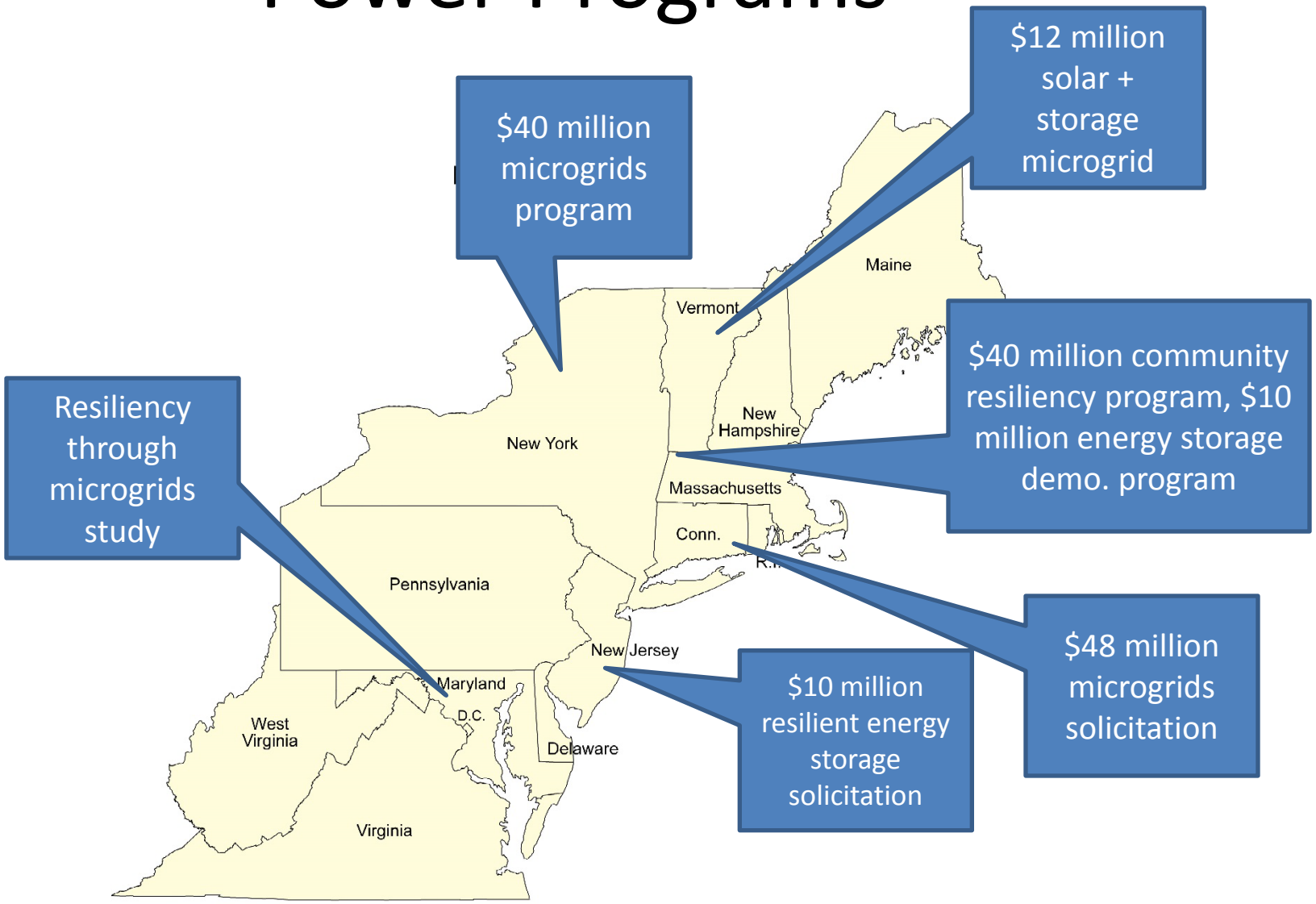
Massachusetts DOER Post-Sandy Resilient Power Program



Applicant	Project Title	Grant Amount
Barnstable	Cogeneration Plant at Barnstable Intermediate School	$ 406,000
Berkley and Taunton	Berkley/Taunton Community Microgrid	$ 1,455,000
Boston	Solar PV with Battery Storage for select Boston Community Centers	$ 1,370,000
	BMC Mesino Campus CHP Plant	$ 3,680,000
Cambridge	Cambridge Water Supply Resilience	$ 851,868
Chelmsford	McCarthy Middle School, Emergency Power Generation	$ 74,941
Cape & Vineyard Electric Cooperative	Dennis-Yarmouth High School Regional Shelter	$ 1,479,193
Greater Lawrence Sanitary District	Organics to Energy Upgrade Project	$ 5,000,000
Greenfield	Greenfield Resiliency Plan for High School	$ 367,310
Holyoke	Resiliency at Holyoke Facilities - Fire HQ, Mt. Tom Tower, Dean School	$ 1,013,794
MAPC - Beverly	Energy Resiliency at Beverly Regional Cache Site	$ 526,180
MAPC - Wayland	The MAPC Solar Resiliency Project	$ 264,627
Medford	Medford Resiliency Project	$ 833,366
Northampton	Batteries and PV Islanding Capability for Fire HQ	$ 525,401
	Microgrid with Islandable PV at Smith Vocational and Agricultural High School, Northampton DPW and Cooley Dickinson Hospital	$ 3,078,960
South Essex Sewerage District	Combined Heat and Power Facility	$ 700,000
Springfield	Baystate Health Cogeneration Project	$ 2,790,099
Sterling	Implementing a Resiliency Plan through Clean Storage for a Municipal Microgrid	$ 1,463,194
Total		$ 25,829,933

- $40 million state solicitation
- 18 municipal projects funded
- 11 projects include energy storage
- CESA developing no-cost contract with DOER
  - SNL technical assistance to storage projects
- MA DOER has $12 million remaining for resilient power projects
- MA DOER has $10 million committed to energy storage demonstration projects
- MA DOER, MA CEC and MA DPU currently funding state energy storage roadmap
- DOE-OE/SNL/CESA partnership with MA DOER for future joint federal/state energy storage demonstration project

Northeast Post-Sandy State Resilient Power Programs



Alaska

Alaska Energy Authority
Alaska Center for Energy and Power

- Alaska Center for Microgrid Technologies Commercialization (US EDA Grant)
- ACEP Power Systems Integration Lab
- Test / demonstration environment for rugged and extreme weather systems
- Numerous isolated communities
- National leader in microgrid deployment (more than 200)
- State energy goal: reduce reliance on diesel generators in rural communities

Energy Storage Technology Advancement Partnership

ESTAP

Project Director: Todd Olinsky-Paul

Contact: Todd Olinsky-Paul, Todd@cleanegroup.org

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The Energy Storage Technology Advancement Partnership (ESTAP) is a federal-state funding and information sharing project, managed by CESA, that aims to accelerate the deployment of electrical energy storage technologies in the U.S.

The project's objective is to accelerate the pace of deployment of energy storage technologies in the United States through the creation of technical assistance and co-funding partnerships between states and the U.S. Department of Energy.

ESTAP conducts two key activities:

1) Disseminate information to stakeholders through:

- The ESTAP listserv (>500 members)
- Webinars, conferences, information updates, surveys

2) Facilitate public/private partnerships at the state level to support energy storage demonstration

NEW RESOURCES

June 22, 2015
Clean Energy Champions - The Importance of State Programs and Policies
By Warren Leon, Executive Director, CESA

June 12, 2015
Solar+Storage News 6.12.15
By Clean Energy Group

April 7, 2015
ESTAP Webinar Slides: Upgrading Distribution Resilience - A DOE-OE

UPCOMING EVENTS

August 27, 2015
Webinar: Electricity Markets and the Economics of Energy Storage,

More Events

LATEST NEWS

May 21, 2015
ODOE to Offer Research and Development Funds for Energy Storage

Thank You to:

Dr. Imre Gyuk, U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability

Dan Borneo, Sandia National Laboratories

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Todd@cleanegroup.org