



Energy Storage Technology Advancement
Partnership (ESTAP) Webinar:

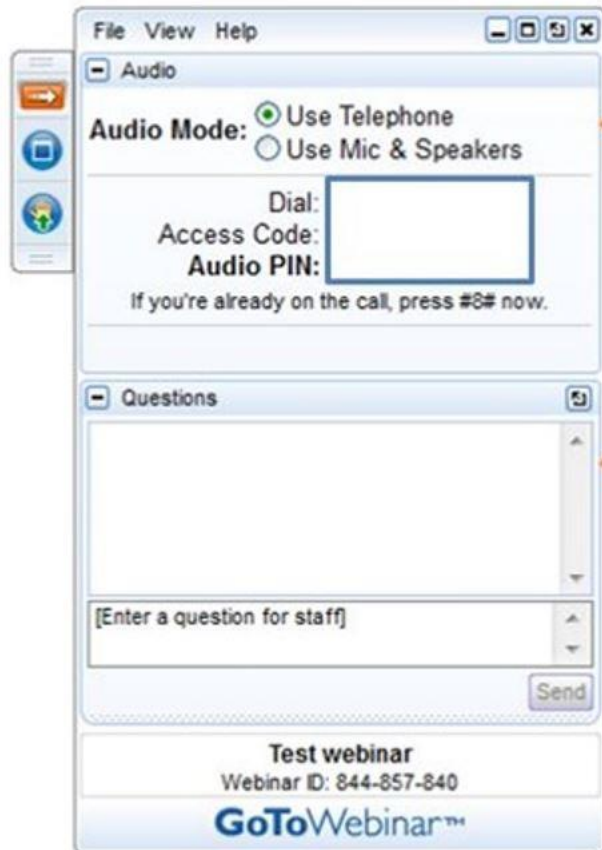
**Oregon Department of Energy –
Energy Storage Demonstration RFP
Information Session**

Monday, September 14, 2015

**Hosted by Todd Olinsky-Paul
ESTAP Project Director, CESA**



Housekeeping



All participants are in “Listen-Only” mode. Select “Use Mic & Speakers” to avoid toll charges and use your computer’s VOIP capabilities. Or select “Use Telephone” and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

This webinar is being recorded.

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

www.cesa.org/webinars

State & Federal Energy Storage Technology Advancement Partnership (ESTAP)

Todd Olinsky-Paul

Project Director

Clean Energy States Alliance (CESA)



Thank You:

Dr. Imre Gyuk

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

Dan Borneo

Sandia National Laboratories



ESTAP is a project of 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:

State & Federal Energy Storage Technology Advancement Partnership (ESTAP) is conducted under contract with Sandia National Laboratories, with funding from US DOE.

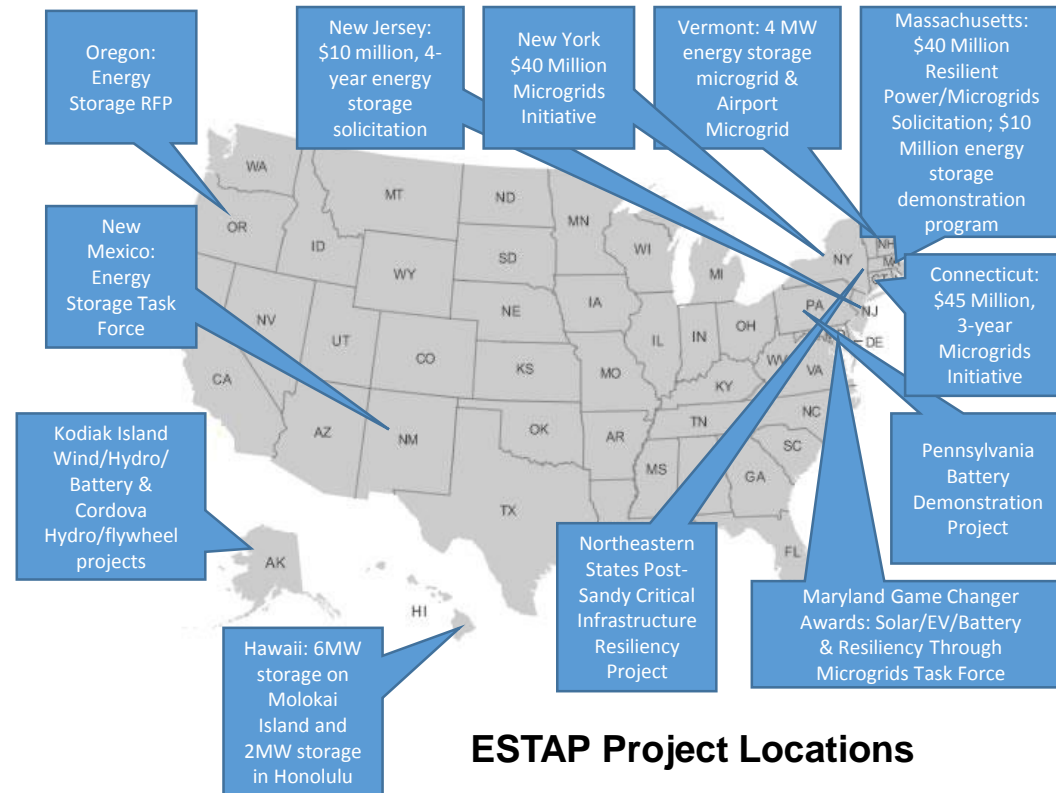
ESTAP Key Activities:

1. Disseminate information to stakeholders

- ESTAP listserv >3,000 members
- Webinars, conferences, information updates, surveys.

2. Facilitate public/private partnerships to support joint federal/state energy storage demonstration project deployment

3. Support state energy storage efforts with technical, policy and program assistance



ESTAP Project Locations



Energy Storage Technology Advancement Partnership

More CESA Projects

Overview

ESTAP Resource Library

ESTAP Webinars

ESTAP News

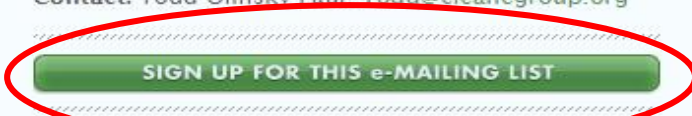
ESTAP Listserv Signup



ESTAP

Project Director: Todd Olinsky-Paul

Contact: Todd Olinsky-Paul Todd@cleanegroup.org



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

Today's Guest Speakers

- **Dr. Imre Gyuk**, Energy Storage Program Manager, Office of Electricity Delivery and Energy Reliability, U.S. Department of Energy
- **Diane Broad**, Senior Policy Analyst, Oregon Dept. of Energy (ODOE)
- **Dan Borneo**, Senior Electrical Engineer, Sandia National Labs
- **Jan Lemke**, Finance and Operations Manager/Acting Single Point of Contact, ODOE

CONTACT INFORMATION

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<http://www.oregon.gov/energy/Pages/energy-storage.aspx>

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Webinar Archive: www.cesa.org/webinars

ESTAP Website: <http://bit.ly/CESA-ESTAP>

ESTAP Listserv: <http://bit.ly/EnergyStorageList>



Energy Storage: Partnering with the States

IMRE GYUK, PROGRAM MANAGER
ENERGY STORAGE RESEARCH, DOE

DOE-ARRA Storage Installations:



2011, NM: 500kW, 2.5MWh with PV



2013, TX: 36MW with Wind



2014, CA: 8MW / 32MWh Wind Ramps



2014, PA: 20MW for Freq. Reg.

States are beginning to provide Incentives for Storage

California: 1.3GW Mandate

Hawaii: 200MW Storage Solicitation

New York: 2100\$/kW at Peak

Oregon: Storage Bill

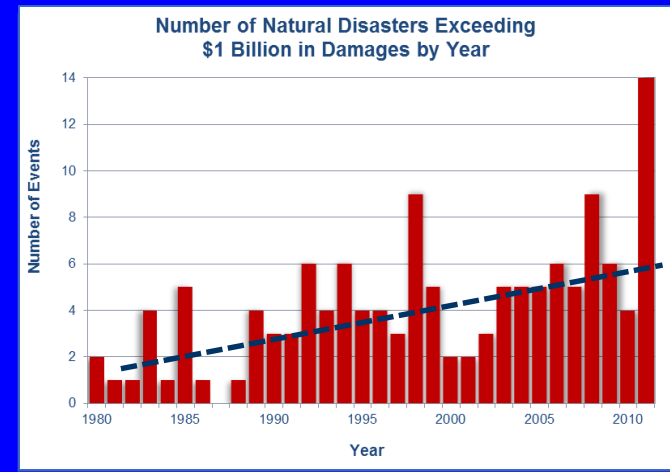
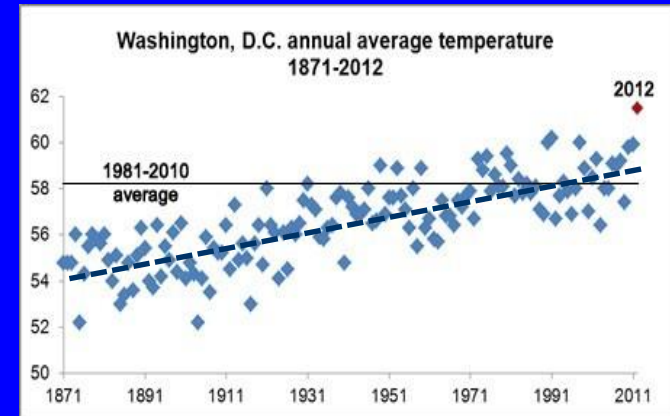
The DOE State Initiative for Storage
will partner with the States
to develop effective local Projects
for Grid Energy Storage

Projects for Resilient Microgrids

Every \$1 on protection measurements
Can prevent \$4 in repairs after a storm!



Tropical Storm Irene in Vermont



Trends indicate the situation
will get worse not better!!

Vermont Public Service Dept. – DOE Green Mountain Power

Solicitation issued by VPS. Joint funding by VPS, DOE-OE, GMP

Rutland, VT

4MW / 3.4MWh of storage

Integrated with 2MW PV

Integrator: Dynapower

Groundbreaking: Aug. 12, 2014

Commissioning: Sep. 15, 2015



Situated on Brown Field area

Storage: Estimated \$1M/MW/year in demand charge savings during high load periods! Ancillary grid services, PV: Green power for the grid

System can be islanded to provide emergency power for a resilient microgrid serving a highschool / emergency center.



Washington State Clean Energy Fund:

Solicitation for \$15M for Utility Energy Storage Projects

Selected projects with UET vanadium flow battery:

- Avista (1MW / 4MWh) -- PNNL -- WA State U
- Snohomish (2MW / 8MWh) – PNNL -- 1Energy -- U of WA

Under a DOE / WA MOU, PNNL will participate in both projects, providing use case assessment and performance analysis.

Vanadium technology with
1.7x Energy density
developed at PNNL for DOE



Ribbon Cutting
Avista, April 2015



Oregon State, Joint Solicitation with O-DoE

- March 2014 – Portland Storage Workshop with OR-DOE and OR-PUC
- April 2015 – Solicitation finalized. Notice issued
- May 2015 – Storage Bill passed; 5MW or 1% of peak for major utilities by 2020
- July 2015 – Northwest PUC storage workshop organized by OE / PNNL
- Sept 2015 – Joint Solicitation issued
- Sep. 2015 – EESAT Meeting in Portland

DOE-OE's Grid Energy Storage
State Initiative is proving to be effective in
Creating Interest, Initiating Projects, and
providing Technical and Analytical Support.

Energy Storage Demonstration Pilot Request for Grant Applications Webinar



Solicitation 330-1186-15
ODOE #15-013
September 14, 2015

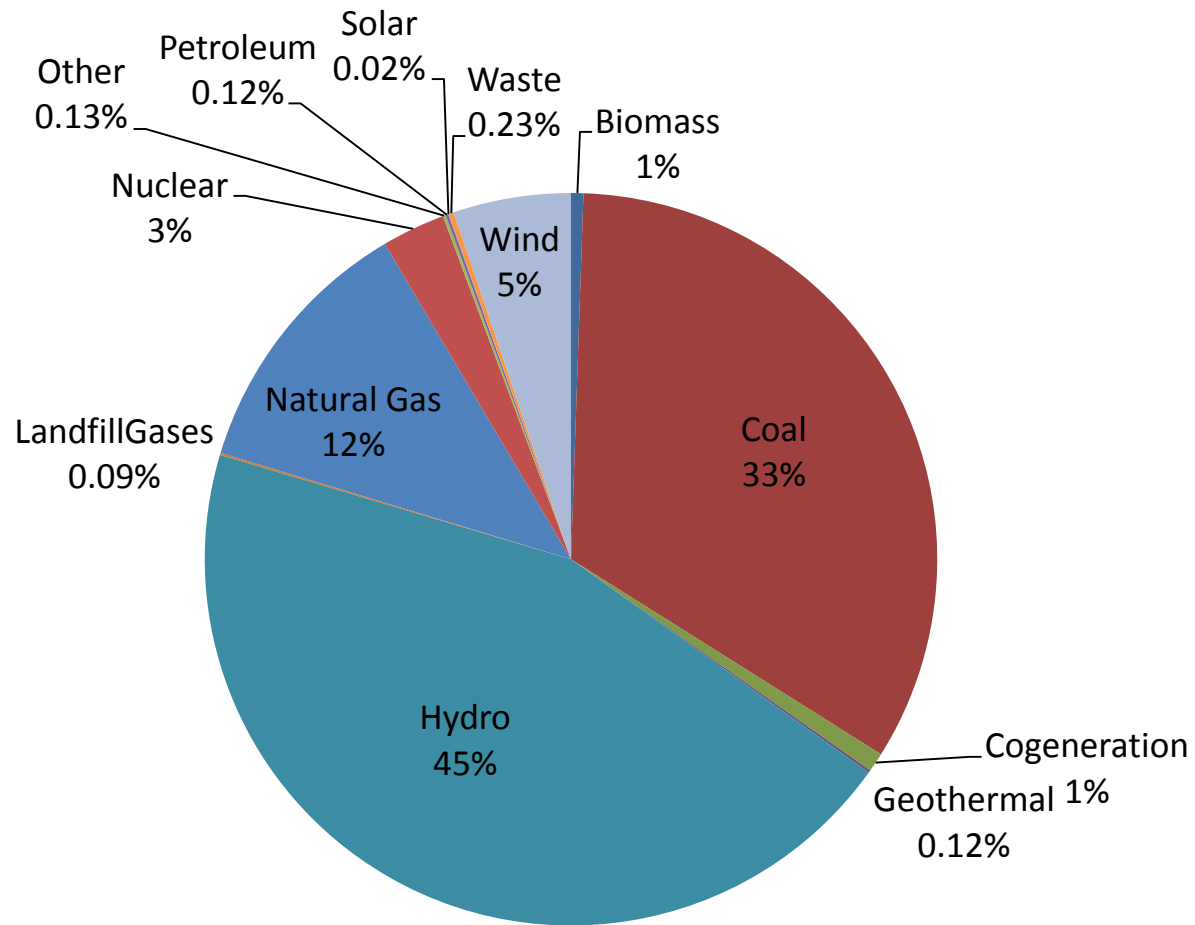
Diane Broad, PE
Sr. Policy Analyst

Jan Lemke
Finance & Operations Mgr.

Leading Oregon to a safe, clean, sustainable energy future



Oregon's Electricity Portfolio



Oregon's Energy System Challenges

Higher RPS will bring more VER

Solar is growing, utilities see stress on T&D system – UM 1716

Investigation into Resource Value



Climate change could mean the region becomes summer peaking, also more variation in hydro resource

New loads entering the region: data centers

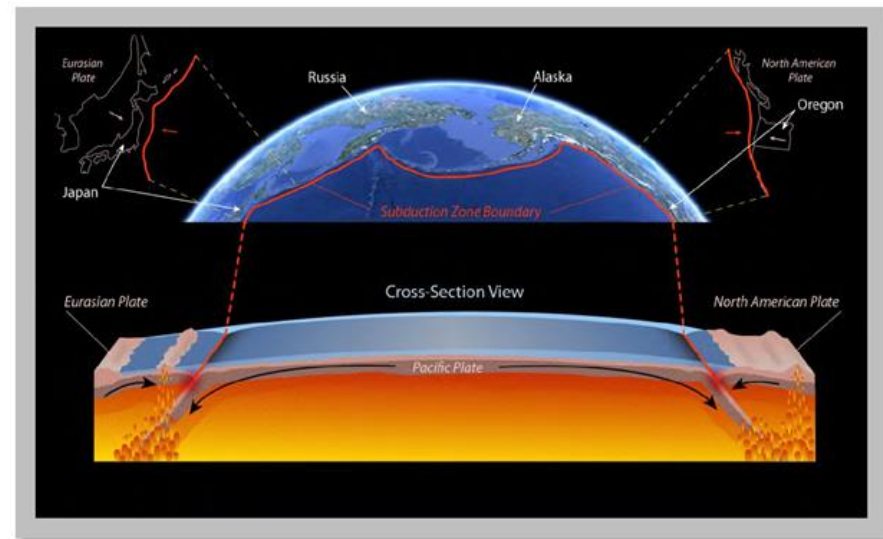
Exploring methods to increase flexibility: EIM, BA coord.

“managing variability and uncertainty”

“The Big One”

Cascadia Subduction Zone Event

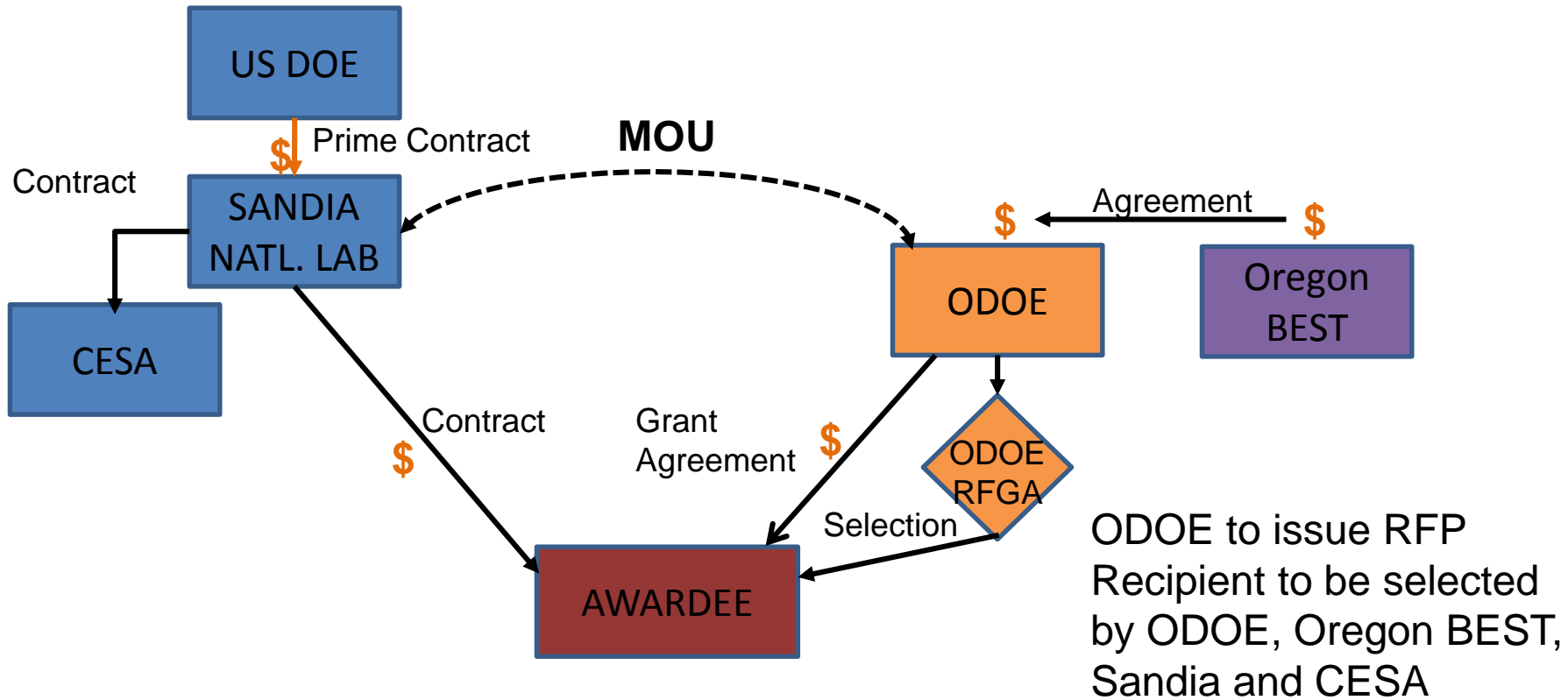
- Oregon is mirror-image of Japan in Ring of Fire
- ~15% chance of occurring in next 50 years
- Magnitude 8-9 earthquake expected 300 years; last recorded event 1700 AD
- 1 to 6 **months** without power, Valley and Coast



Source: Dan Bihn, et. al, Portland State University

“building energy resilience”

Request for Grant Applications



Overview of partners in the demonstration

Request for Grant Applications

- Overview and Scope of Work
- Minimum Requirements
- Round 1 Proposal Contents
 - Maximum 100 points
- Round 2 Process
 - Maximum 25 points
- Award and Negotiation

Questions?

Single Point of Contact:

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