



# ***Captain John Kliem, Navy Renewable Energy Program Office (REPO)***

***Wednesday, July 30, 2014  
1300 - 1430***

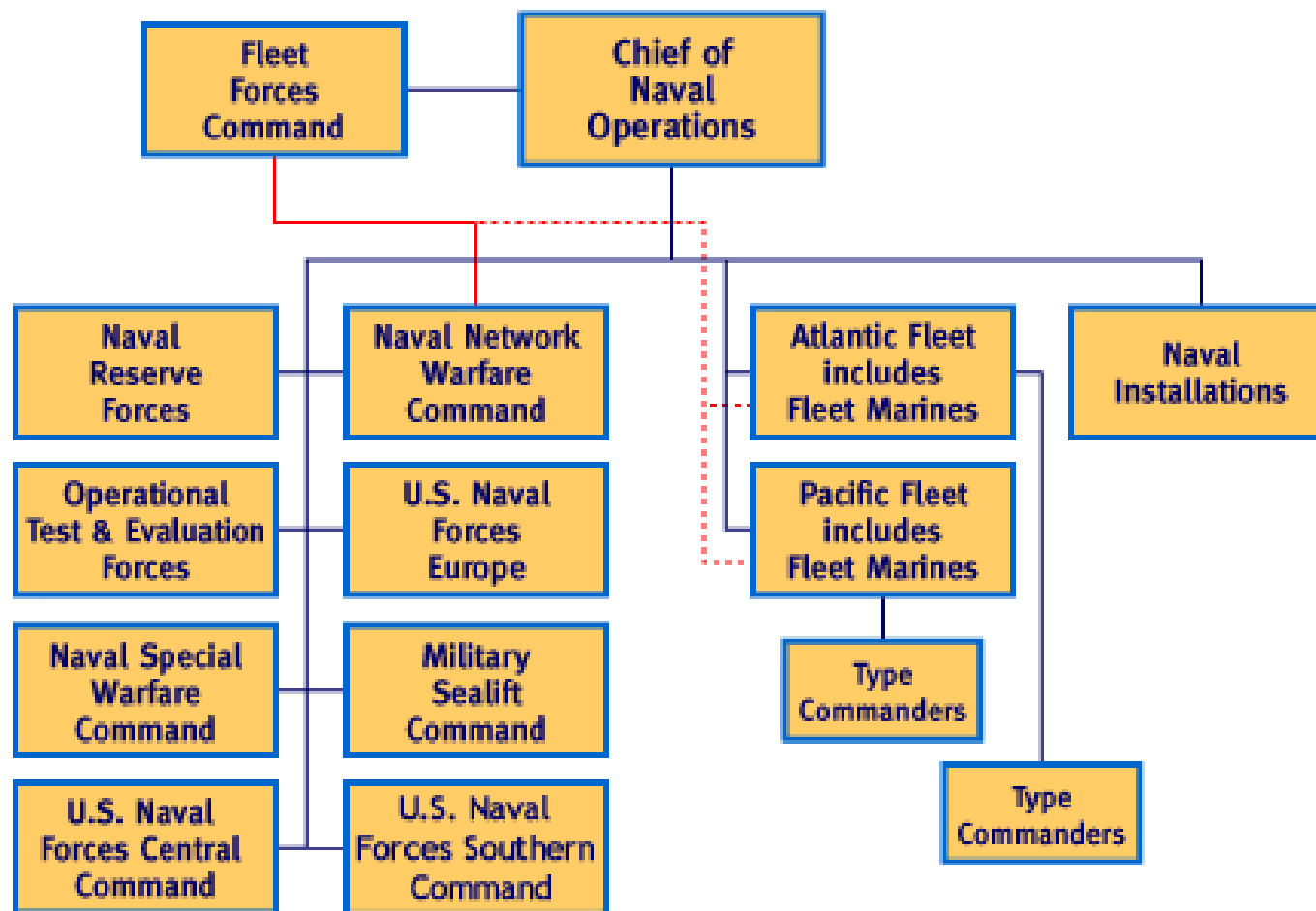


# ***Navy Renewable Energy Program Office (REPO)***

- ***The Secretary of the Navy established a goal to develop 500 MW of renewable energy by Dec. 2014 and another 500 MW by December 2015.***
- ***REPO will serve as the central management office for partnering with DON installations to implement cost-effective, large-scale, renewable projects located on or off-site for DON procurement or production.***



# NAVFAC & DON Organizational structure





# Why is DON investing in clean energy?





# ***Energy Security***

- Relying on traditional supply of power is no longer sustainable, and makes DON vulnerable to grid failure and price shocks
- A diversified source of energy, with integrated microgrid applications will make our bases secure, independent and operationally ready
- The Renewable Energy Program Office will be the central management office partnering with DON installations to develop cost-effective, large-scale renewable energy projects that boost energy security.
- Renewable energy is increasingly cost-effective and provides buyers a predictable, long-term, fixed price product and coupled with energy security technology, will allow installations to remain online and functioning if the electric grid is out of commission
- In developing renewable energy projects, DON can sign Power Purchase Agreements for 20-30 year spans for a set price. Adding renewable energy projects adds a layer of protection from the potential price volatility of other energy sources, which is valuable to DON and the local utility.

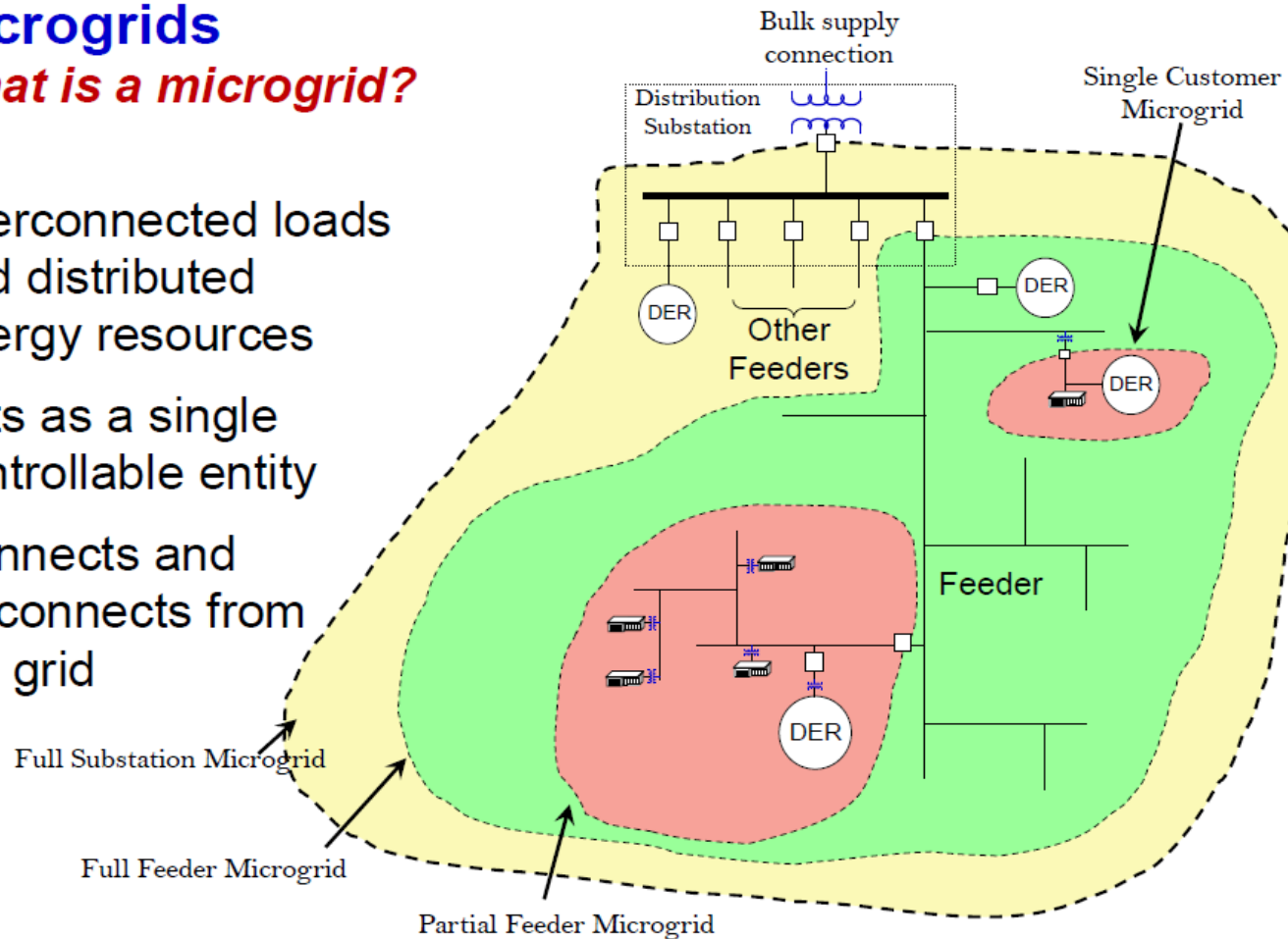


# What is a Microgrid ?

## Microgrids

### *What is a microgrid?*

- Interconnected loads and distributed energy resources
- Acts as a single controllable entity
- Connects and disconnects from the grid





# ***Classification of Microgrid systems***

- *There are four main classifications of microgrid systems that make an installation energy secure:*
  - *Single Building Microgrid – least costly and most widely used; for single building use only*
  - *Partial Feeder Microgrid – Allows for multiple buildings within a close proximity*
  - *Full Feeder Microgrid - Multiple buildings within a larger geographical region*
  - *Full Substation Microgrid – Typically the entire installation*



# ***DON procurement strategies***

- ***Off-base procurement for DON consumption***
- ***On-base generation for Utility off-take***
- ***On-base generation for DON consumption***





# ***How can the US Engineering community contribute to REPO's success***

- ***Push the development of smartgrid and microgrid applications to be more cost-effective***
- ***Development of co-generation with renewable energy and baseload generation, connected to smartgrid technology and microgrid-enabled***
- ***What other ideas does this group have?***