



Seattle City Light



# CHALLENGES OF TECHNOLOGY TRANSFER

From Research to Deployment at a  
Distribution Utility

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# SEATTLE CITY LIGHT SYSTEM

- 776,336 Customers \*
- 430,363 Meters\*
- Winter Peaking
  - Recent Peak: 1.9 GW Winter 2016-17
  - All-time Peak: 2.0 GW in 1990
- Circuit Miles:
  - Distribution: ~2400 miles (~2300 switches)
  - Transmission: ~650 miles



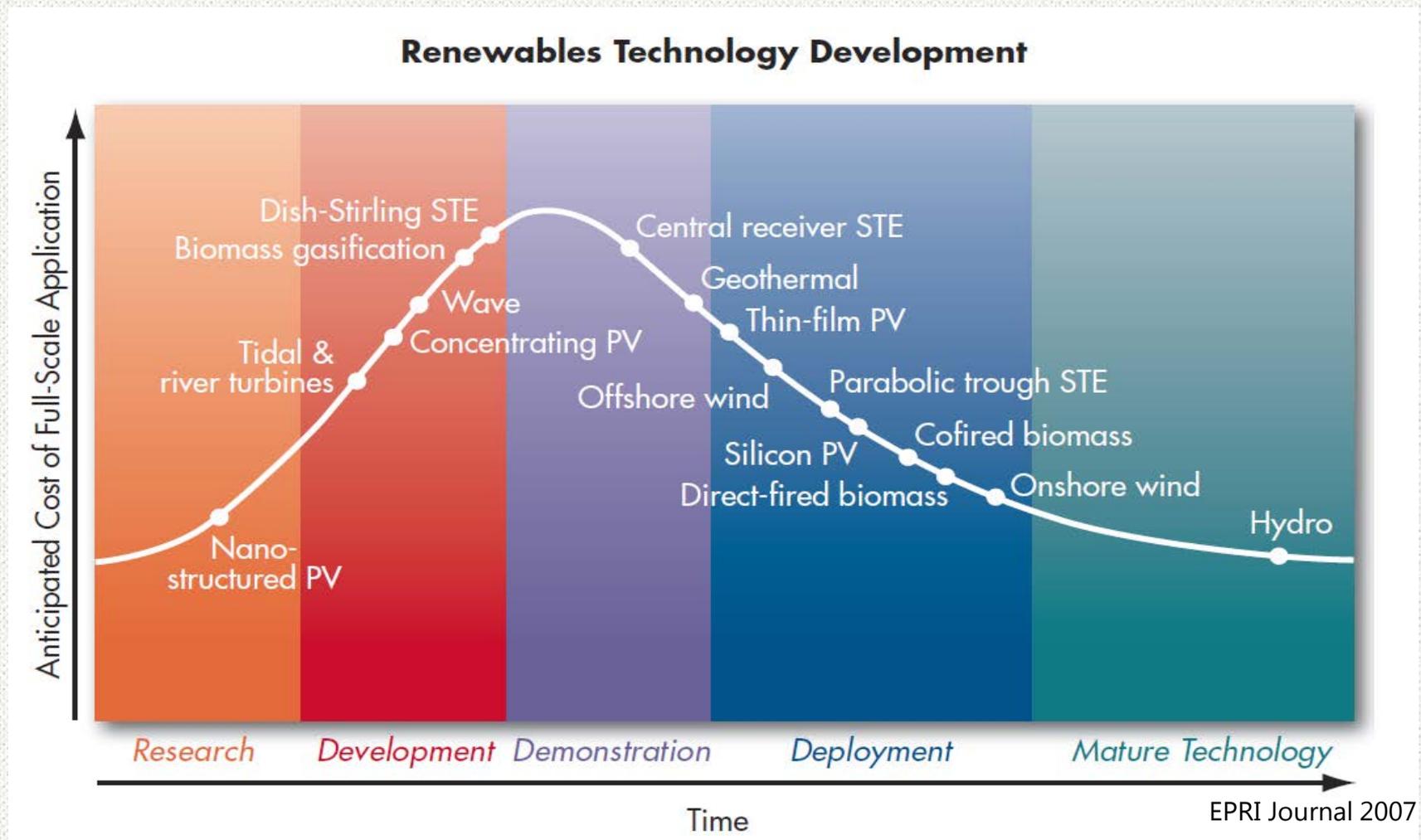
\* 2015 Data



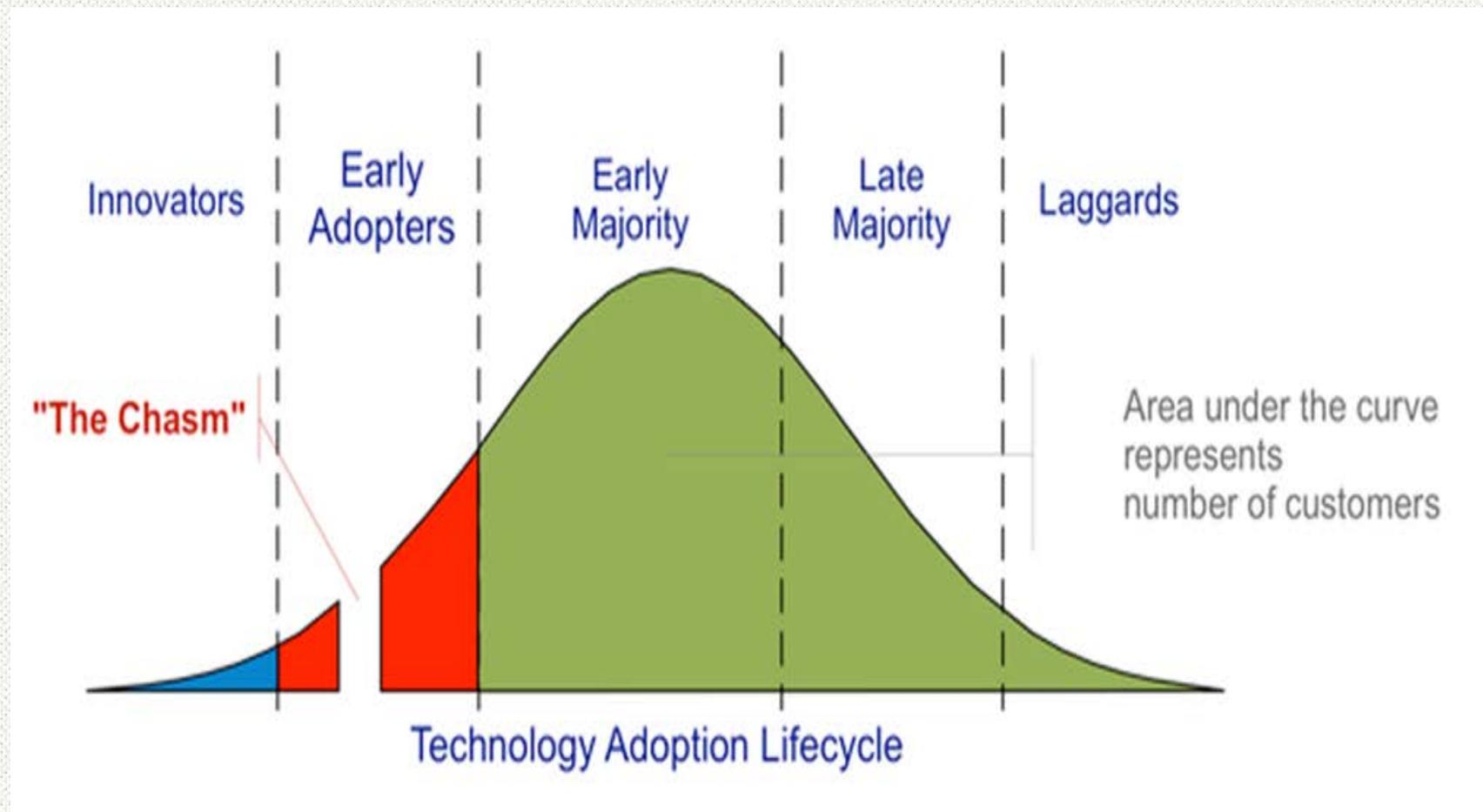
# 2017

- Overall Budget \$1.4B
- CapEx \$400M
- Employees: ~1800

# TIMELINE OF TECHNOLOGY (EXAMPLE)



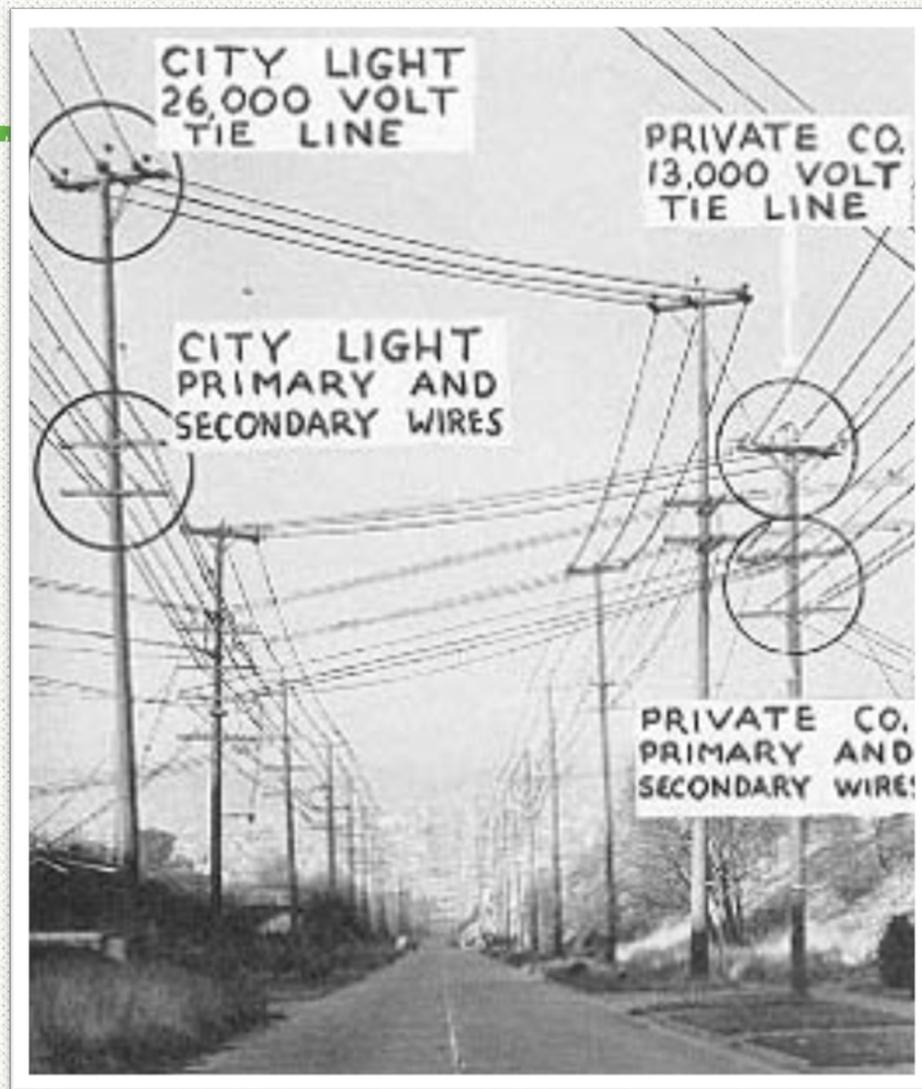
# TECHNOLOGY ADOPTION LIFECYCLE



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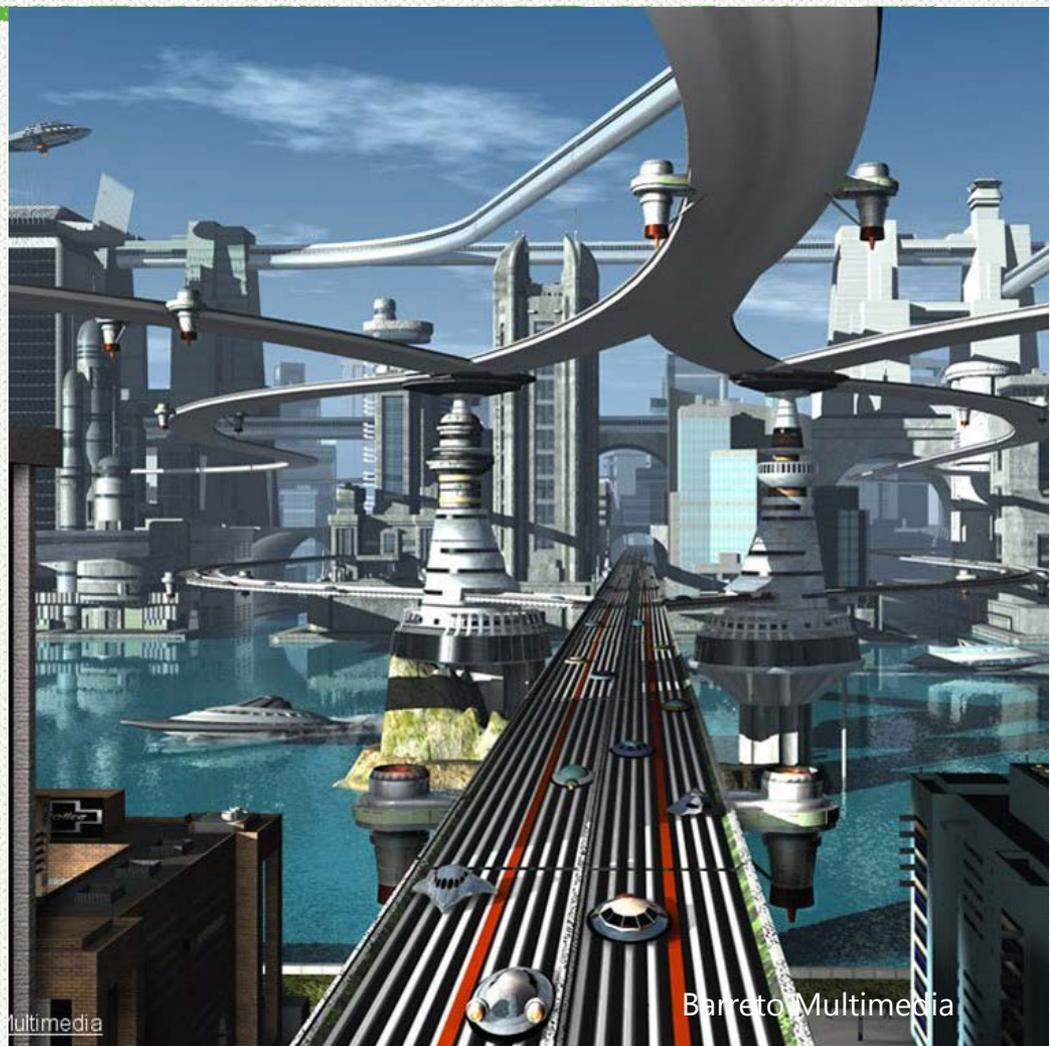
## WHAT WE DID...

- Participation
  - Deployment
  - Mature Technology
- Lifecycle
  - Between Late Majority and Early Majority
- Drivers
  - Economically Justifiable: Business Case Driven for cost or reliability



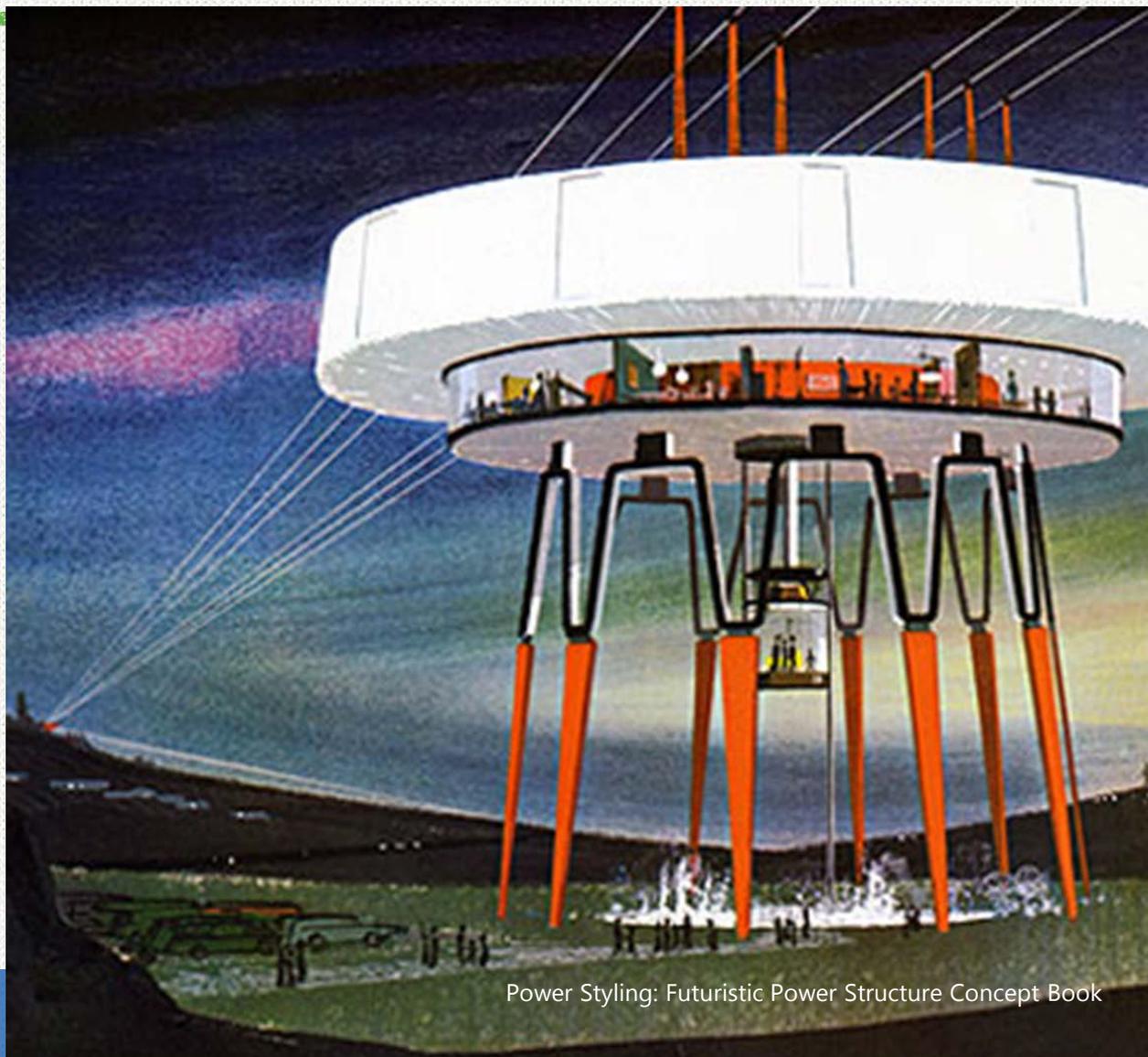
# WHAT WE ARE DOING...

- Participation
  - Demonstration
  - Deployment
  - Mature Technology
- Drivers
  - Change of Leadership and Approach
  - Integration of City of Seattle's goals and values
- Lifecycle
  - Moving left on curve



# CASE STUDIES AT SEATTLE CITY LIGHT

- FLISR
- Solar (PV)
- Microgrids



Power Styling: Futuristic Power Structure Concept Book

# CASE STUDIES AT SEATTLE CITY LIGHT

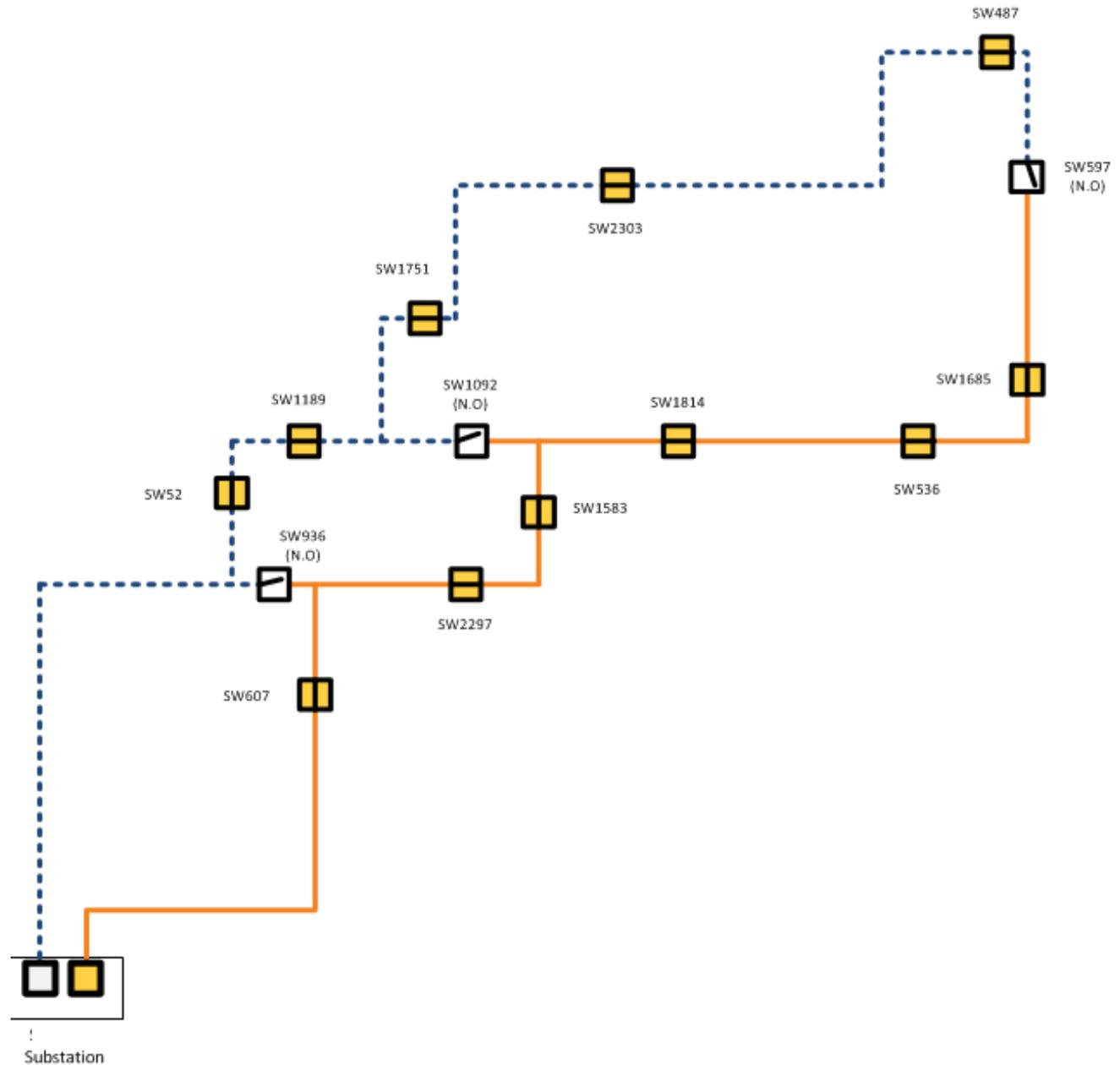
- Distribution Automation:  
FLISR  
(Fault Location,  
Isolation, and  
Service Restoration)



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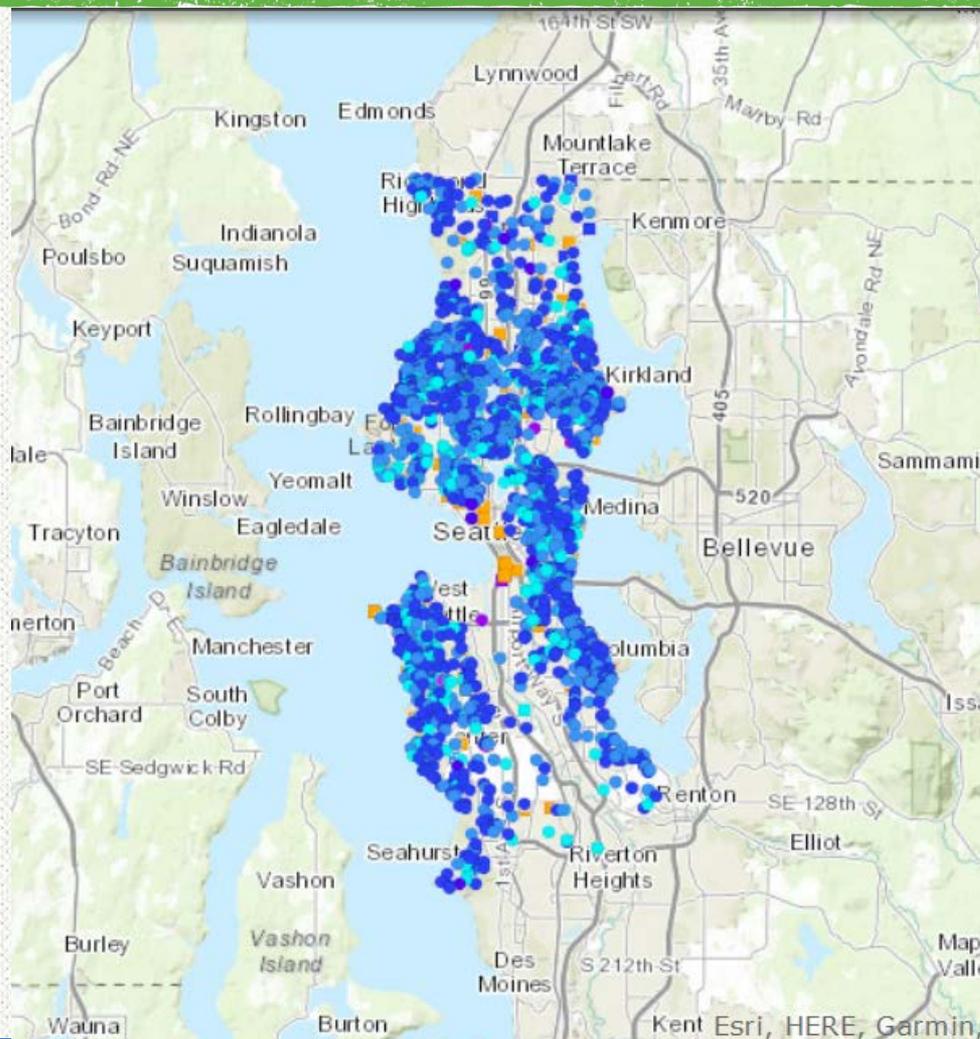
# FLISR

- Early 00s
- 2014-15
- 2016+
- 2017  
"Lite"



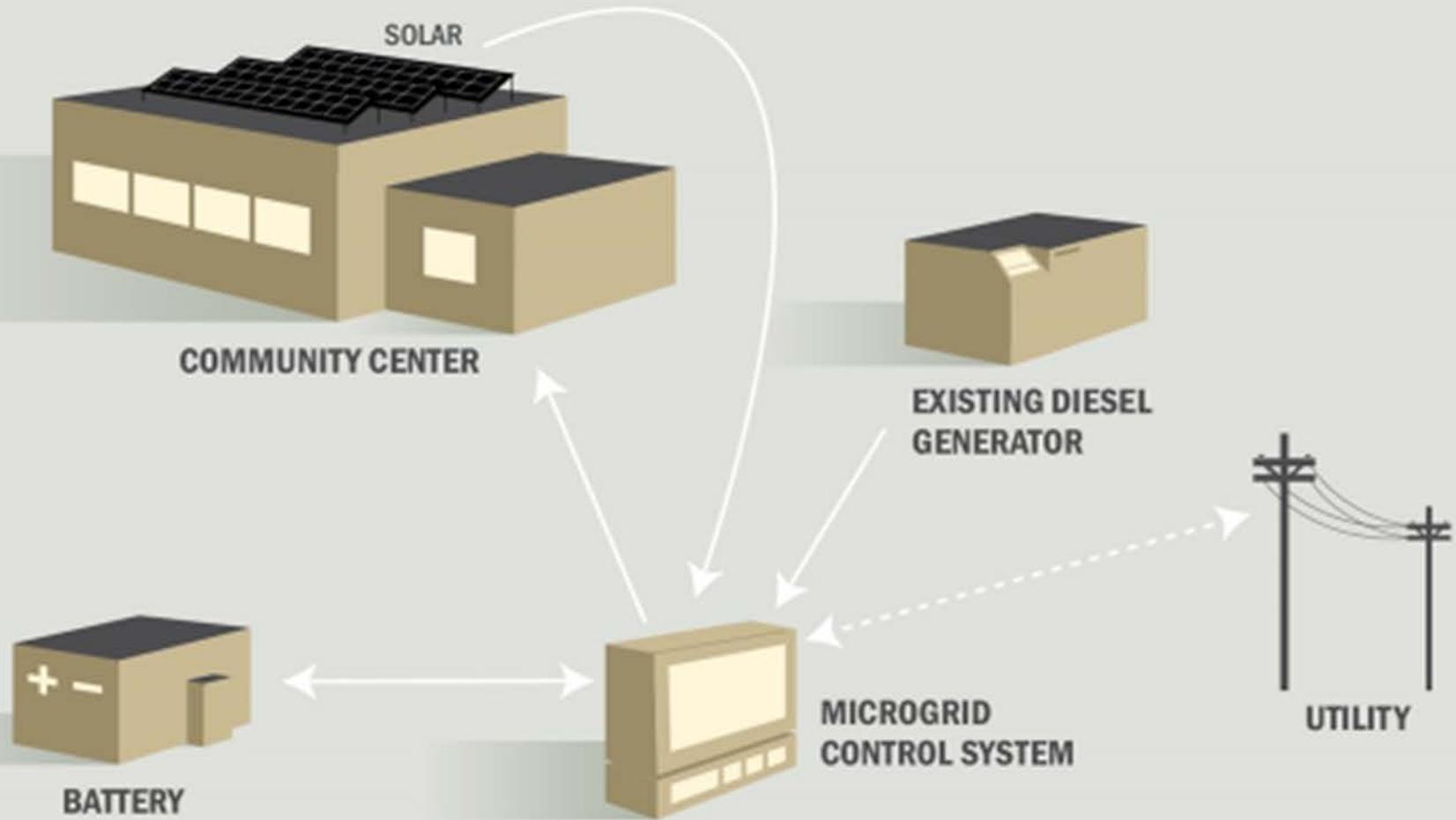
# PHOTOVOLTAIC GENERATION

- Washington State Solar Incentives
- Seattle City Light administers the program
- Credited through bill





# CITY LIGHT MICROGRID



# POSSIBLE FUTURE STATE ?

- Researchers
  - Utility Partners
  - Customer Direction
- Seattle City Light
  - R&D Partners
  - Awareness



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# DISCUSSION...THANK YOU!

