A Bottom-up Transition to a Resilient & Equitable Grid for the Future

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# The Grid for the Future must address urgent 21<sup>st</sup> century needs

1. <u>Sustainability</u> => Stop making things worse

- Decarbonize, electrify, reduce & displace fossil fuels
- 2. <u>Resilience</u> => Prepare for imminent impacts of damage already done
  - Power essential local functions during grid outages

**3.** <u>Energy Justice</u> => Prioritize environmental, social & economic justice

- Energy is a social determinant of neighborhood health
- Maximize clean energy benefits for Energy Justice communities
- Mitigate historic harms & inequities
- Create a just transition to a clean energy economy

# All three goals require local solutions

#### **1.** Sustainability & Decarbonization — integrate into urban/county planning

- Climate Action & Adaptation Plans; City/County General Plans
- Zoning & land use; building codes; development strategies
- Housing affordable, densified, transit-oriented, electrified
- Mobility, public space, habitat, urban forestry

#### 2. <u>Resilience — to maintain power during grid outages</u>

 Don't depend entirely on the grid: Build carbon-free microgrids to power critical services & "resilience centers" when the grid goes down

#### 3. Energy Justice, Equity

- Target vulnerable neighborhoods - health, economic & resilience benefits

### Local energy systems are essential for today's urgent needs, but existing policies present major barriers.

## Industry trends collide with legacy policies

### Distributed energy resources (DER) now compete with "The Grid"

- **DER rapidly improve** in performance, functionality, scalability & cost
- The Grid gets more expensive & more vulnerable to disruptions
- Customers who can afford DERs no longer need The Grid
- Grid defection by affluent customers will worsen energy inequities
  20<sup>th</sup> century policies => build utility-scale generation & transmission
- Assume new electrification load must be served by The Grid
- **DER are viewed as a problem** requiring massive grid investment
- Worst-case planning inflates grid costs & stimulates grid defection
  We need a new policy framework
- Maximize societal benefits of DERs
- Encourage locally-owned & operated DERs & microgrids
- Make DERs accessible to all people & neighborhoods

# We need an industry mind shift

### The utility-regulatory mindset

- From: DERs are a problem for the electricity system
- To: DERs are essential for achieving 21<sup>st</sup> century goals

#### The electricity market concept

- From: Electricity is a commodity (suppliers supply & consumers consume)
- To: Electricity is a social determinant of neighborhood health

#### The electricity planning perspective

- From: Individual consumer choices, decisions & behaviors
- To: Neighborhood-level integration with housing, mobility, urban forests, etc.
- **The view of Energy Justice communities**
- From: Passive recipients of special regulatory treatment
- To: Vital & needed producers of clean energy & societal value

## Three policies for a bottom-up energy transition

- **1. Integrate energy planning into urban/county planning**
- Identify local needs & priorities, to replace BAU community outreach
- Develop state agency partnerships with local governments, tribes, CBOs
- Invest in energy planning capacity at the local level (CA SB 833)
- 2. Adopt new regulations to allow local electricity transactions
- Integrate electricity production into the neighborhood economy
- Over-size on-site DER to supply local energy & grid services
- Aggregate DER operation to flatten net load profiles
- 3. Reform the distribution utility as an "Open Access DSO"
- Create an open, participatory distribution network to maximize DER value
- Support DER planning to optimize use of grid capacity

## **Strategies for local energy & energy justice**

#### Implement single-property microgrids => "community resilience centers"

- Add solar + storage + controls to an existing building => least regulatory barriers; immediate resilience, energy cost & local economy benefits
- New funding opportunities, e.g., SGC CRC and CEC CERI
- Urge state agencies (CPUC, CEC) to develop internal capacity for ongoing collaboration & communication with local authorities & CBOs
- Lobby state to invest in building local energy planning capacity (SB 833)
  - Assess local priorities; identify sites & design local energy projects
- Develop institutional infrastructure for local ownership & operation of DERs & microgrids, financing & implementation of projects
- Build a statewide bottom-up movement for statutory/regulatory reform to allow local energy projects to supply local people & businesses

### **Enable DERs to be a force for democratizing energy**

### To be continued.

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