

# **Read-Ahead for Stanford/Hewlett Climate Change Workshop**

## **November 19, 2015**

**Note:** We encourage workshop participants to review this document in preparation for the workshop. This is an issue-spotting outline, designed to encourage workshop participants to reflect on potential new Administration policy priorities around key GHG-related topics. The workshop's success will not be measured by whether all of these issues will be covered -- they shouldn't be and won't be -- but instead by the participants' identification of:

- (1) top priority issues that deserve additional attention and evaluation;
- (2) existing but under-developed/under-utilized approaches that have the potential to move the GHG needle; and
- (3) new, creative approaches to tackling GHG emissions reductions that the next Administration might consider pursuing.

### **Emissions Reduction Opportunities, Post-Clean Power Plan**

Carbon tax: shooting for the moon

Methane emission reduction strategies

- EPA rulemaking for existing sources
- Federally-managed oil/gas production: BLM rulemaking
- Potential strategy for abandoned wells, mines
- How address downstream leakage & infrastructure upgrade needs
- How develop better data, detection, across the board

HFC emission reduction strategies

- International effort (Montreal Protocol)
- How encourage forward-lean, domestic strategy

Industrial emission reduction strategies

- Command-and-control options
- Potential incentive-based options

Agricultural emissions (Land Use discussion)

Renewables (addressed in Innovation/Financing and Land Use discussion)

- Financing and incentives options
- Pathway for compliance with Clean Power Plan

- Encouraging the private sector to develop/buy renewables:
  - EPA Green Power Partnerships
  - Permitting and related assistance

Nuclear (addressed in Electricity Sector discussion)

- How keep current capacity on line
- Whether/how to support potential new nuclear starts
- Yucca Mtn.

Energy efficiency (also addressed in Electricity Sector discussion)

- DOE regulatory agenda: what are top priorities?
- Fed gov't EE initiatives for its building stock
- How feds can work with states, PUCs, utilities

Interplay of Domestic & International GHG Emission Reduction Strategies

- Potential role for Section 115 of CAA

## **Pivoting to Clean Energy -- Energy Innovation; Financing**

Maximizing the Federal R&D Effort

- National Labs (\$17+B budget): balancing Lab-specific innovation with over-all strategic planning
- ARPA-E: more money, what else? (\$280M budget/request \$325M)
- DOE R&D organizational reforms/opportunities, building off the SunShot template
- DOE Innovation Hubs
- International collaborative research
- Research focal area questions: CCS; storage

Federal Financing Incentives

- DOE Loan Guarantee Program
  - How best to utilize remaining 1703 funds (\$28M remaining)
  - Fund repurposing options; potential alternative structures
- Advanced Technology Vehicles Manufacturing direct loan program: fund repurposing options/alternative structures (\$16B remaining)

Investment Tax Credit/Production Tax Credit

- Addressing the ITC "cliff" in 2017; reviving the PTC

- Identifying a glide path away from tax credits
- Strategies for tying renewables tax credits with fossil fuel subsidy phase-outs

## Leveraging Gov't and Private Dollars

### MLPs and REITs for Renewable Energy

- Administrative/legislative strategies

### Green Banks/ Revolving Funds

- Identifying a federal green bank loan play to replace/supplement loan guarantees and tax credits
- How to utilize existing institutions (e.g., community banks)
- Potential repurposing of federal loan guarantee funds into revolving fund(s) for clean energy projects

### Private Financing/ Impact Investing

- Identifying/removing barriers to allow for longer timeframe investments, consistent with fiduciary obligations/charitable deductions (recent Dep't of Labor ERISA interpretation for economically targeted investments (ETIs); ambiguous IRS position regarding charitable deduction status for program related investments – (PRIs))
- Fed collaborations with insurers, pension funds and other institutional investors interested in supporting clean energy

## Addressing Energy Use in Transportation & the Built Environment

### Transportation

#### Surface Transport

- Passenger vehicles and light duty trucks
  - Electrification of the automotive fleet
    - Identifying federal levers to accelerate the installation of charging stations. (DOE Clean Cities program; Congestion Mitigation Air Quality Improvement Program; etc.)
  - Future CAFE standards and post-CAFE approaches to reduce GHG emissions (e.g., retooling of gas guzzler tax, clean vehicle purchase incentive programs)
- Heavy duty trucks

- Conversion to Natural Gas
  - Identifying federal levers to accelerate installation of CNG stations
- Future CAFE standards; potential post-CAFE approaches to reduce GHG emissions
- Shared & Driverless Passenger Transport
  - Developing incentives/expectations for driverless cars to meet low-carbon or zero-carbon performance standards (equipment + use)
- Mass Transit
  - Including mass transit in a larger infrastructure play
  - Outside-the-box thinking (e.g. dedicating current infrastructure for shared/driverless point-to-point transport).
  - Hyperloop?
- Railroads and Inter-Modal Freight Movement: capturing benefits from the internet-of-things regarding bottleneck identification, lower-carbon infrastructure investments, etc.

#### Air transport

- EPA ANPR regarding potential international carbon dioxide emissions through ICAO and corresponding domestic standard
- GHG emissions reductions associated with (1) digitizing the Air Traffic Control System; (2) more efficient airport operations (taxiing, etc.); (3) cost-sharing CLEEN program (Continuous Lower Energy, Emissions and Noise program); (4) aerodynamic technology improvements
- Blending biofuels with traditional jet fuels blends, led by US military

#### Marine transport

- Major international play due to huge carbon emissions in the maritime sector.
  - Identify priorities: CNG for shipping; new international maritime emission standards. .
  - U.S. Port Expansion Projects (associated with larger ships facilitated by Panama Canal expansion) provide opportunity to address port congestion, trans shipment issues, etc.

### **Built Environment**

#### Getting Energy Efficiency Incentives Right

- How to incentivize builders to invest in smarter, tighter, buildings.

- How to realign the landlord/tenant relationship to create incentives to conserve energy
- How to combine real-time information (smart meters) with dynamic pricing

#### Federal Government as Regulator

- DOE energy efficiency regulatory program – what’s next?

#### Federal Government as Landlord

##### Renewable Energy Targets

- Climate Action Plan (2013) announced goal for federal government to consume 20% of its energy from renewable sources by 2020. Executive Order 13693 (2015) announced goal for federal government to consume 30% of its energy from renewable sources by 2025.
- Climate Action Plan (2013) commits DOD to install an additional 3GW of renewable energy by 2025; DOI to permit enough renewable energy on public lands to power > 6 million homes
  - DOD had 1,130 operational renewable energy projects in 2014, generating > 10,000 billion btu.
  - Army has goal to have 5 “net-zero” installations by 2020, and another 25 by 2030.

##### Energy Efficiency Targets

- E.O 13693 requires 2.5% annual reductions in energy intensity per square foot in federal buildings through 2025.
- Potential initiatives:
  - Overcoming federal government barriers to use of ESPCs (Energy Savings Performance Contracts) for energy efficiency investments
    - Presidential Memorandum (Dec. 2, 2011) directs agencies to execute \$2 billion in ESPCs
  - Overcoming Fannie Mae resistance to PACE (“Property-Assessed Clean Energy”) (PACE) financing for renewable energy and energy efficiency investments.
  - Feds’ support/advocacy for model building codes, energy efficiency performance standards; new federal building energy efficiency standards (finalized on 11/6/15).

#### Federal Role in EE Research

#### Federal Government as Information Clearinghouse & Cheerleader

- Energy Star program

- DOE's "Better Buildings" challenge, and Better Buildings "accelerators."
- "Green Button" initiative

## Regulatory/Structural Issues in the Electricity Sector

Identifying appropriate federal role in electricity matters

- Competition. Identify potential levers that will either (1) promote more competition in electricity market; or (2) reduce competition/innovation. Feds to lay out vision, play cheerleader and convener, and use limited available federal tools to advance the vision?
  - What's the best legal play?
    - FERC and demand-side issues; waiting on S.Ct. ruling in *FERC v. Elec. Power Supply Assoc'n*, No. 14-840
    - Revisit FERC Order 1000 (2011) – requires public utility transmission providers to participate in regional transmission planning and cost allocation processes
    - Proposals to put FERC in lead for transmission permitting
    - PURPA proposals – pro and con
  - What's best policy play?
    - DOE as cheerleader, convener, etc.
- Nuclear Industry's Future re Electricity Production
- Smart Grid
  - Federal Smart Grid Task Force (11 agencies chaired by DOE)
- Distributed energy
  - Consumer choice policy appeal
  - Micro-grids assist re resilience
  - Utilities v. new DG players -- net-metering/cost sharing to maintain grid
    - DOE as convening entity to address issue
    - Technical support to PUCs to ease issues with net metering and grid interconnection
    - Share lessons + experiment with existing federal/military distributed installations and federally managed transmission lines. (PMAs).

## Land Use and Climate Change

Addressing agricultural practices

- Methane capture – digesters
- Solar + ag
- Ag land preservation efforts – planning; land bank/mitigation

- Carbon sequestration – no till farming, etc.

#### Accounting for/Enhancing carbon sinks

- Utilizing carbon sequestration data by land type/region
- Making relevant data broadly available for land use decision
- Enhancing sequestration
  - Composting; biochar

#### Improving energy siting/conservation decision-making

- Improving GIS mapping consistency, availability
- Conducting inventories and incorporating into programmatic-level planning reviews
- Regional convenings with stakeholders + effective GIS data-rich maps
- Public lands strategy – planning; permitting (including mitigation)
  - Renewable energy zones
  - Community-based solar/wind on adjacent public lands
  - Hard-wiring permitting reforms – legislative/regulatory
  - Wildfire management
    - Thinning – biomass reduction/use
    - Dedicate some firefighting \$\$ to reduce fire intensity
- Private lands strategy – permitting

#### Climate impact strategies

- Regional, land type focus (e.g., coastal impacts)
- Feds as information purveyors
- Regional planning/research/execution via collaborative processes (organization of federal agencies presents major challenge)