

THE STATE AGENDA IN CLIMATE AND ENERGY POLICY

Whether a national, state or city plan

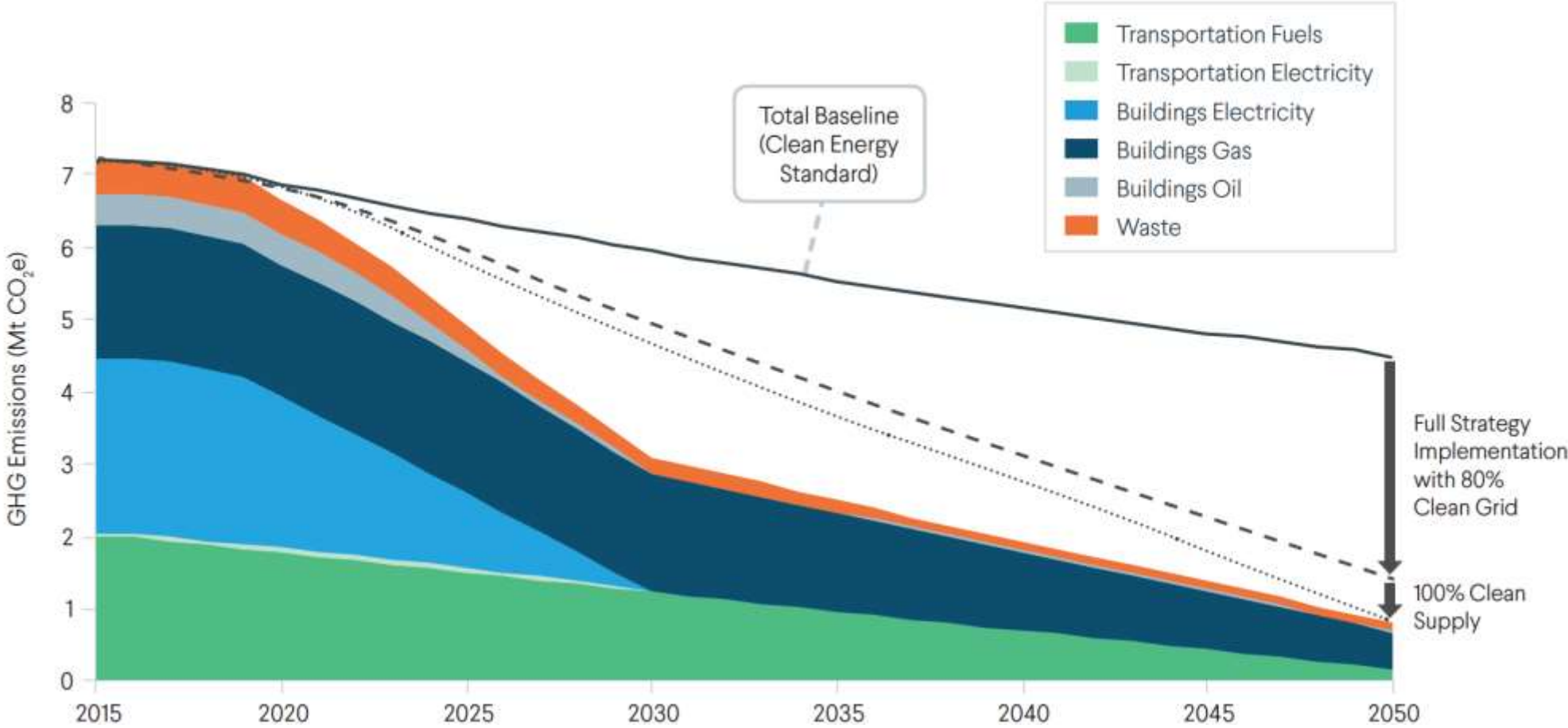
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National Association of State Energy Officials

Washington DC

February 6, 2019

Boston's Path to Carbon-Neutrality



Global outlook: vertical integration and horizontal connection



Global Energy Interconnection
Development and Cooperation Organization
全球能源互联网发展合作组织

Look forward to the future, GEI support large-scale development and utilization of zigzag clean energy zone and realize multi-directional complementation and mutual aid between resources and loads with "vertical integration and horizontal connection" integral network.

Vertical Integration

- Realize the mutual-aid configuration of multiple resources in the space, including the customers;
- Realize the balance of the resources of different season in southern and northern hemisphere.

Horizontal Connection

- Connect large-scale energy resource bases in the similar latitude transnationally and realize the complementation of the peak and valley in different bases;
- Connect large-scale load center located in different time zones and realize the balance of load time zone.

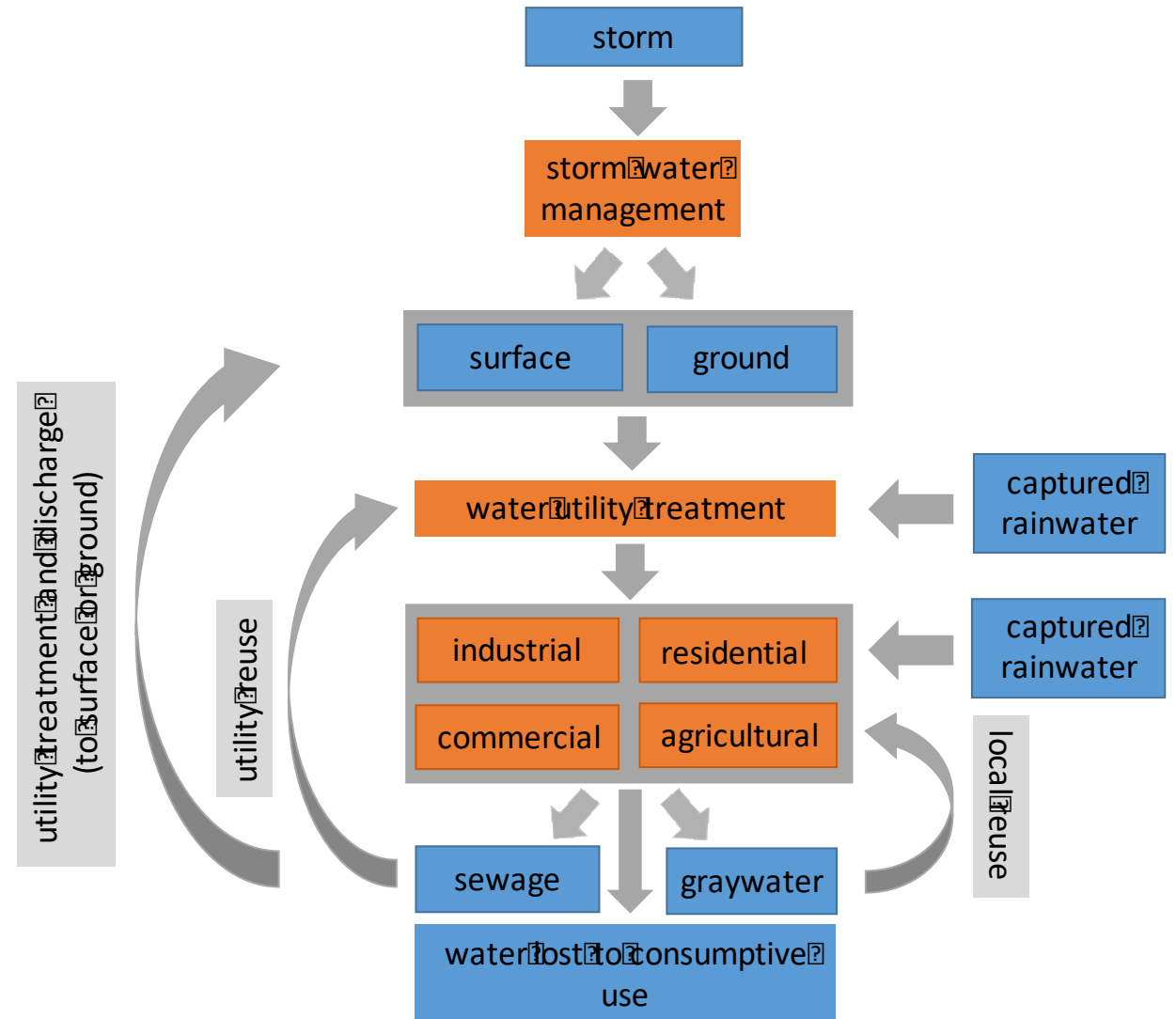
'Z' shaped energy resource

- Energy resource is taken as the "blood" of human society organism, GEI structures constitute the "blood vascular system";
- These hematopoietic cells are mainly distributed in the 'Z' shaped region and interworks via "vertical and horizontal" transmission network.



Water Sourcing & Use

- What new sourcing/treatment and re-use opportunities are most viable in different localities?
- What different utility management practices are necessary to realize these?
- What are the associated revenue opportunities/risks?
- What are ideal financing mechanisms?
- What are the implications for maintenance: operational and financial?



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EDITORIAL

How big is the energy efficiency resource?

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Abstract

Most economic theorists assume that energy efficiency—the biggest global provider of energy services—is a limited and dwindling resource whose price- and policy-driven adoption will inevitably deplete its potential and raise its cost. Influenced by that theoretical construct, most traditional analysts and deployers of energy efficiency see and exploit only a modest fraction of the worthwhile efficiency resource, saving less and paying more than they should. Yet empirically, modern energy efficiency is, and shows every sign of durably remaining, an expanding-quantity, declining-cost resource. Its adoption is constrained by major but correctable market failures and increasingly motivated by positive externalities. Most importantly, in both newbuild and retrofit applications, its quantity is severalfold larger and its cost lower than most in the energy and climate communities realize. The efficiency resource far exceeds the sum of savings by individual



Six New York Net Zero Energy Design Teams visit the Netherlands

from **EnergieSprong**



Six teams design teams from RetrofitNY came to the Netherlands to be inspired and learn from best practices and workshops.



Steerable Lighting

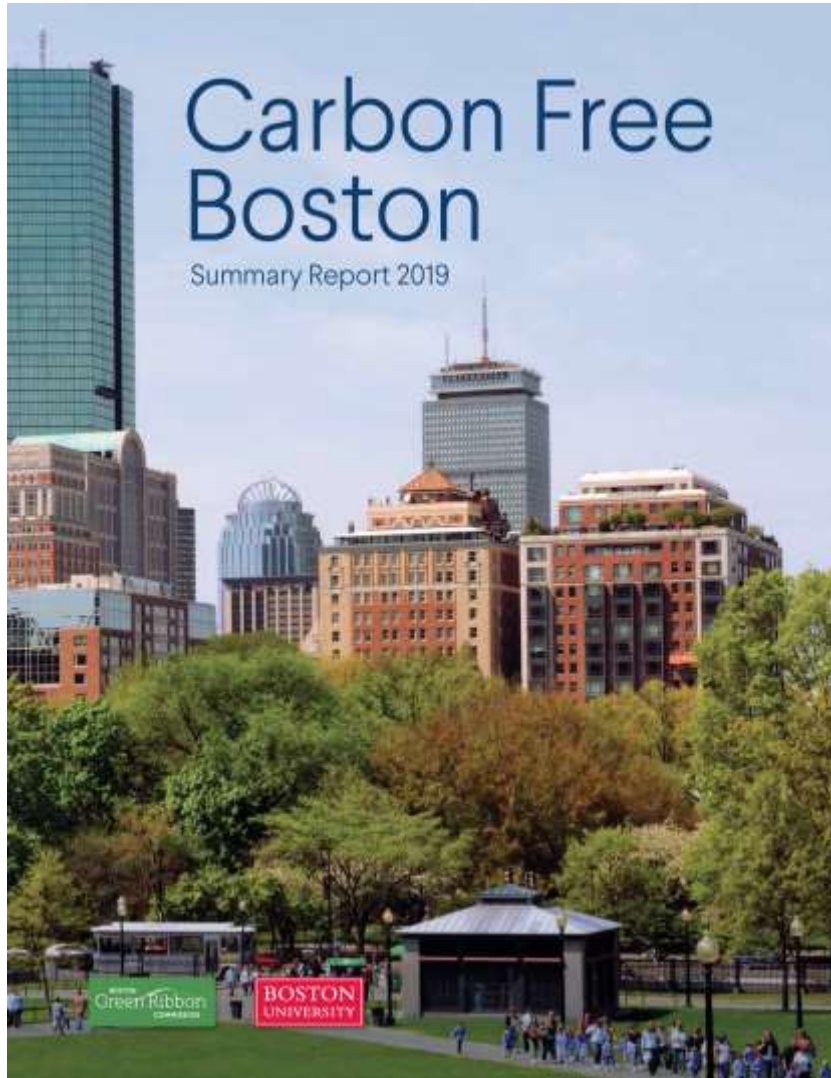
Static lights → steerable and shapeable



Able to redistribute light to match where it is needed

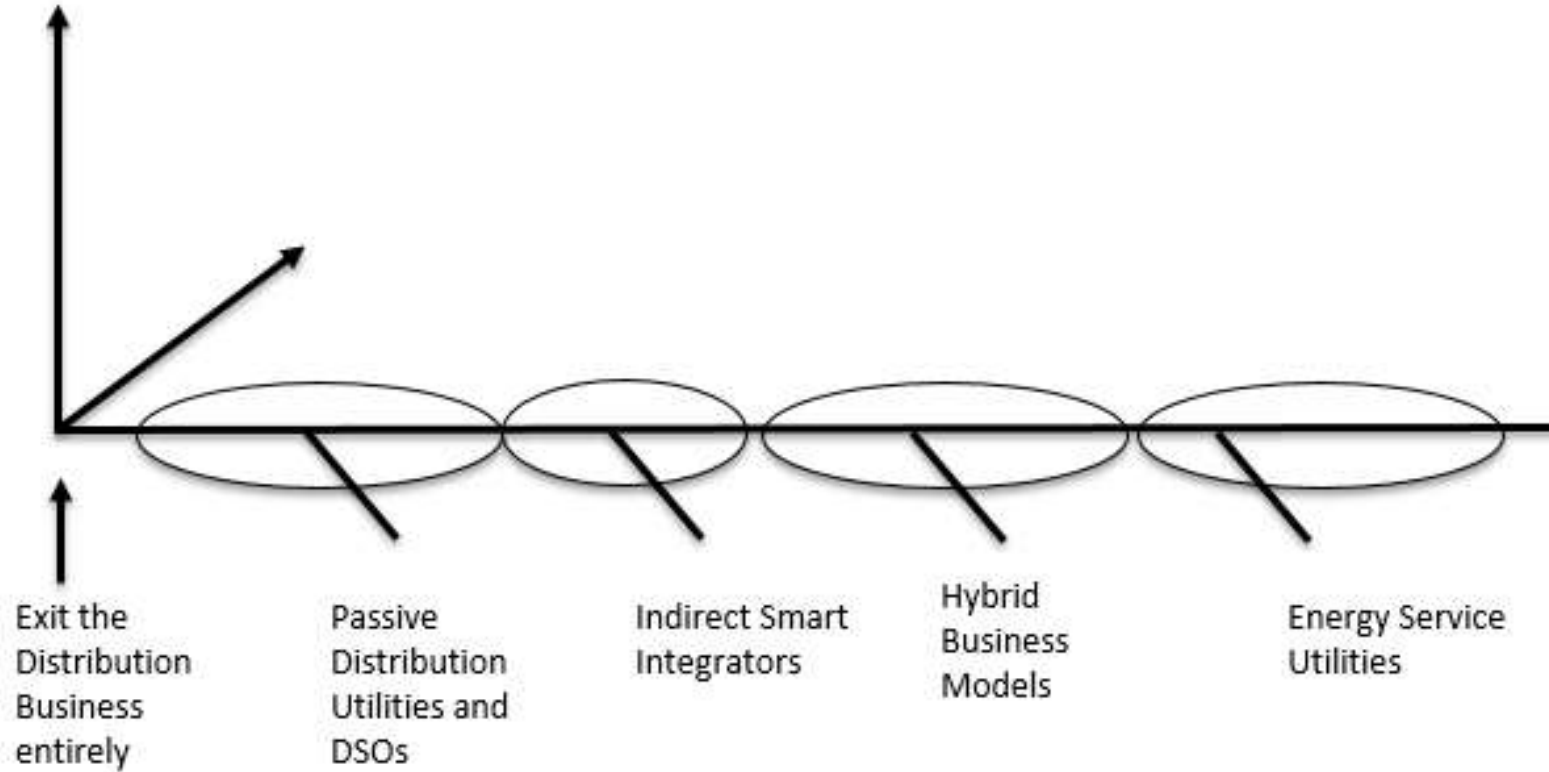
==> Energy savings, reduced TCO

By 2050



- Population: +18%
- Building Square Footage: +100 million new square feet
- City GDP: + 20%
- Fossil Fuel Use: - 85%
- Electricity Use: +12%

Emerging Utility Business Models



Fox-Penner, Power After Carbon, forthcoming 2020, Harvard U. Press

Thank you

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