Reflections from Vermont, USA: Pairing GHG reduction with economic growth

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Commissioner

Vermont Department of Public Service

Presented at AQPER on February 6, 2019

Pairing

GHG reduction with economic growth

- Important keys to the puzzle:
  - Technology
  - Collaboration
  - Affordability

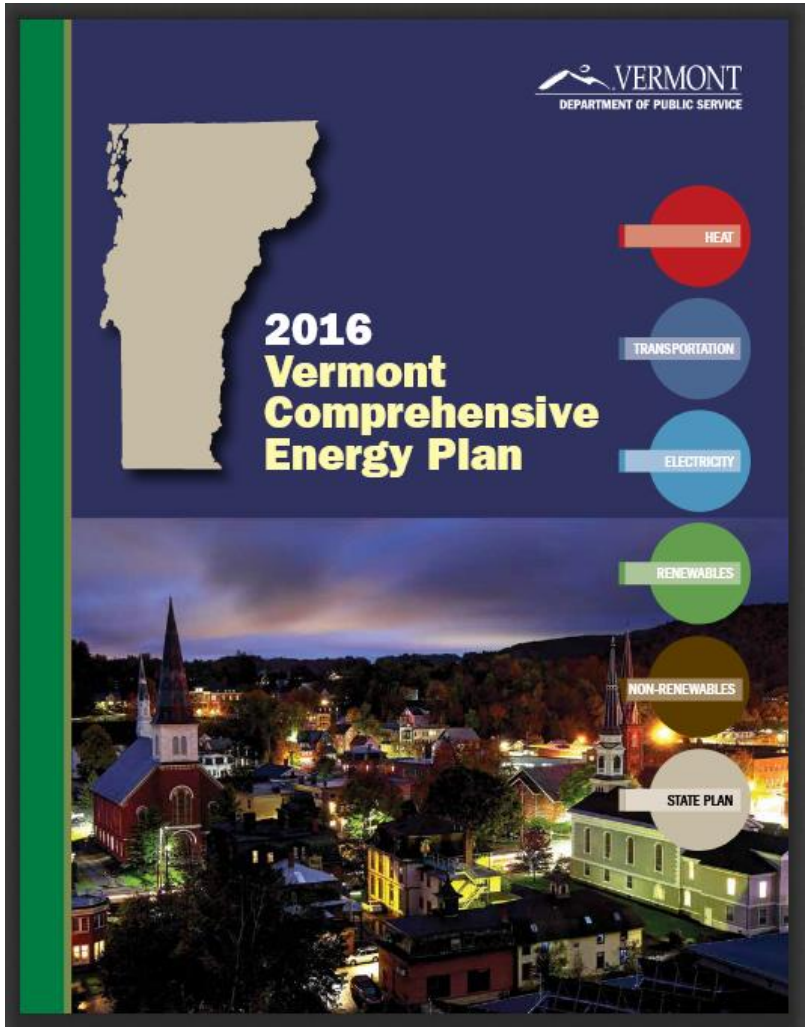
Pairing
GHG reduction with economic growth

- Vermont's 2016 Comprehensive Energy Plan lays out a holistic strategy of targeting GHG reductions through **renewable energy** deployment, and electrifying the **transportation sector**.
- Executive summary at:

https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2015/2016CEP_ES_Final.pdf

- Full report at:

https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf



Pairing

GHG reduction with economic growth

Transportation Electrification

+

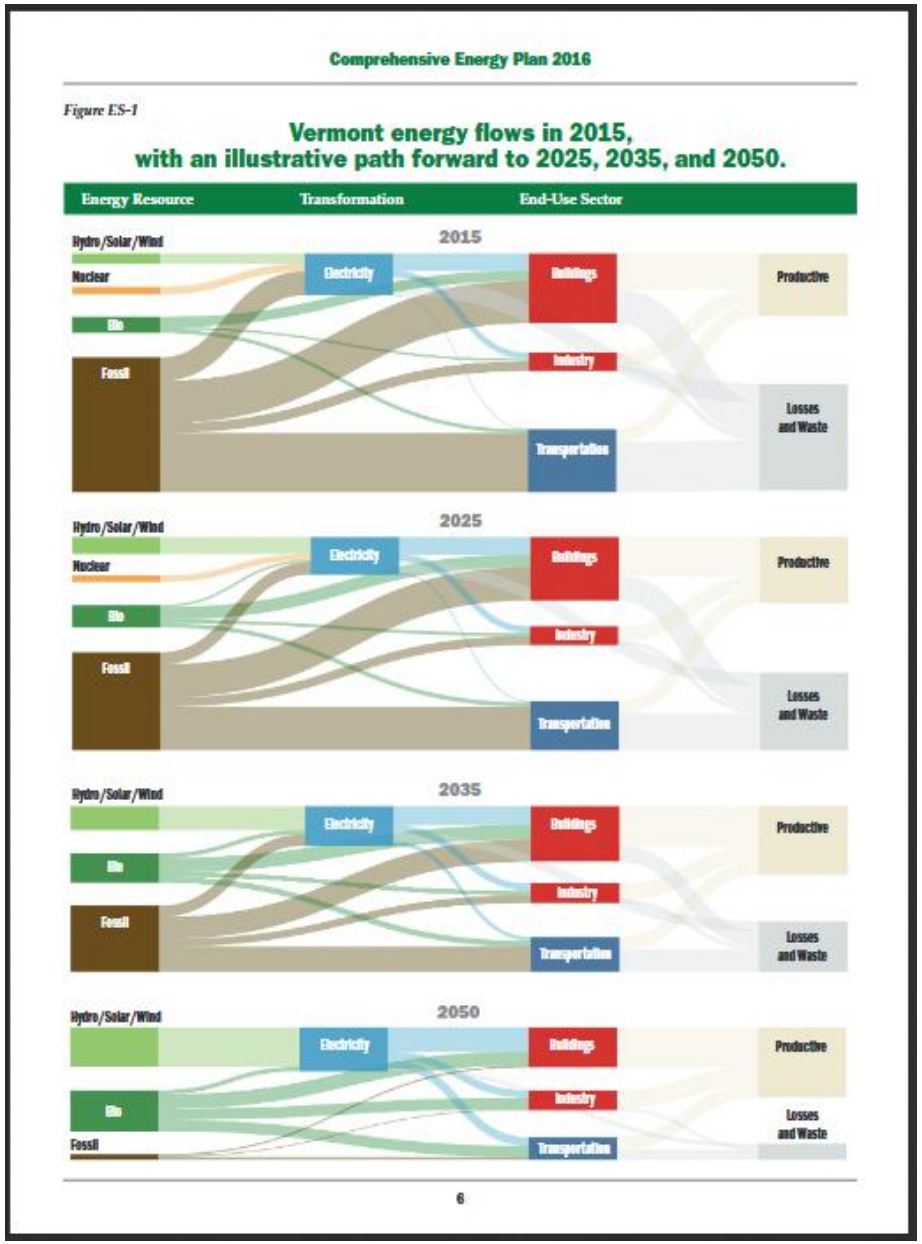
Renewable Energy

=

GHG Reduction

and

Economic Growth



2016 Vermont Comprehensive Energy Plan, Executive Summary at p. 6. Available at: https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf

Pairing

GHG reduction with economic growth

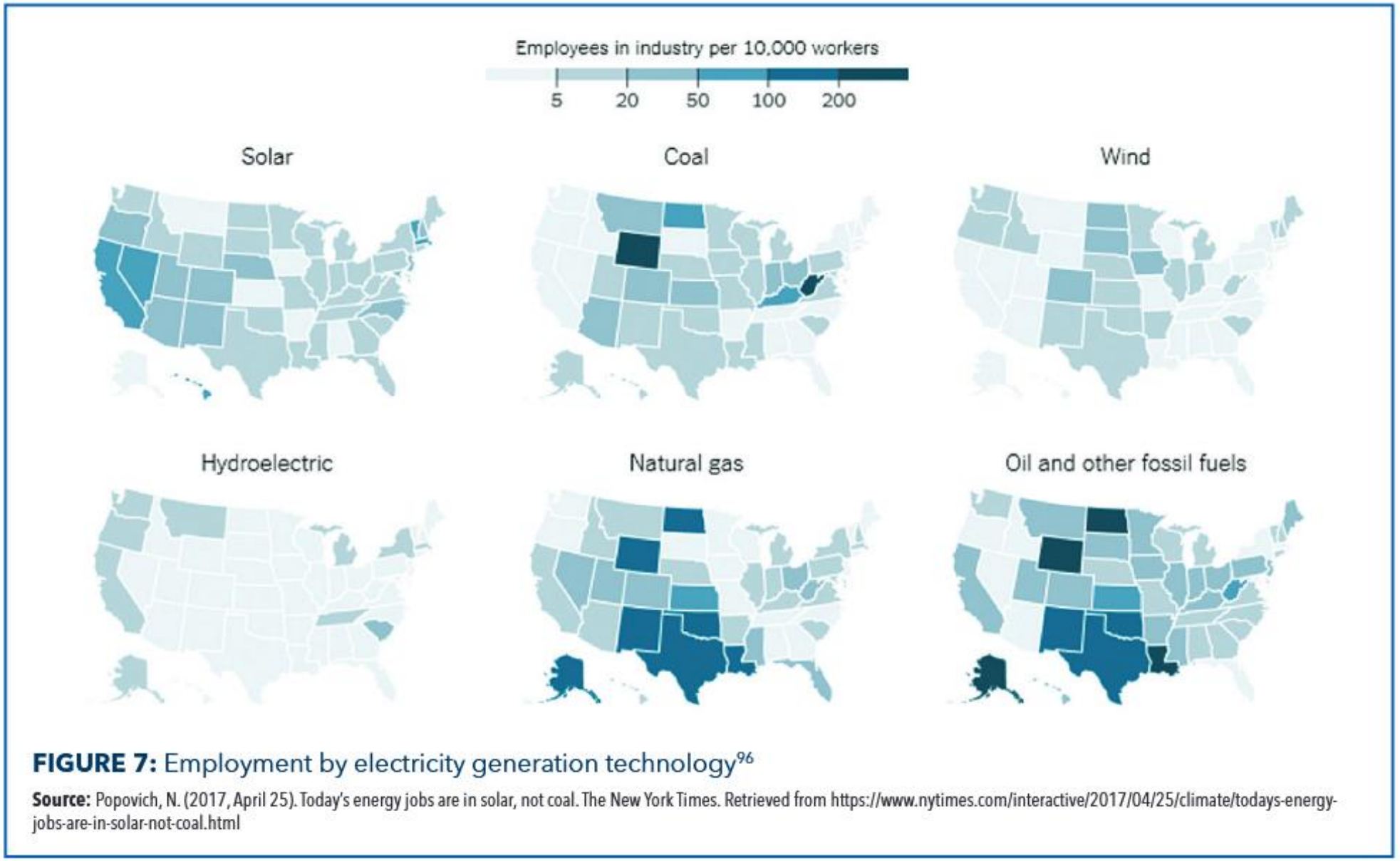


FIGURE 7: Employment by electricity generation technology[96]

Source: Popovich, N. (2017, April 25). Today's energy jobs are in solar, not coal. The New York Times. Retrieved from https://www.nytimes.com/interactive/2017/04/25/climate/todays-energy-jobs-are-in-solar-not-coal.html

Governors Staying Ahead of the Energy Innovation Curve: A Policy Roadmap for States, at p. 19. Available on-line at: https://www.nga.org/wpcontent/uploads/2018/07/EnergyInnovation-Roadmap-Final-Hi-Res-for-Posting-Online.pdf

Technology

is a key to pairing GHG reduction and economic growth

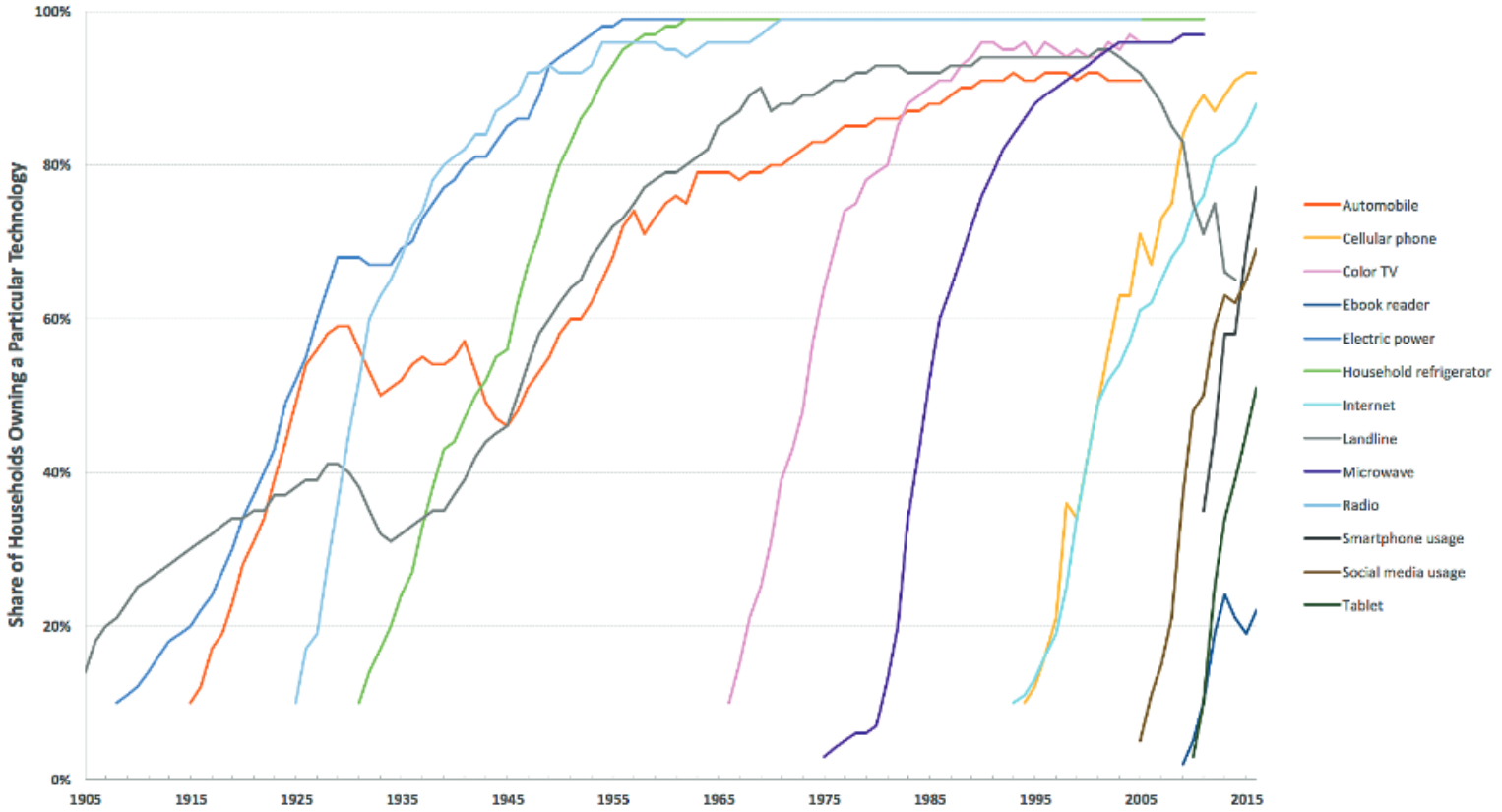


FIGURE ES1: Technology adoption by households in the United States.[17, b]

Source: Desjardins, J. (2018). A brief history of technology. Retrieved from https://www.weforum.org/agenda/2018/02/the-rising-speed-of-technological-adoption

[b] Each curve on the chart represents the span (in years) of technology adoption. The steeper the curve, the more rapid the adoption rate. In recent years, the curves have become steeper than in the past.

Governors Staying Ahead of the Energy Innovation Curve: A Policy Roadmap for States, at p. 21. Available on-line at: https://www.nga.org/wpcontent/uploads/2018/07/Energy-Innovation-Roadmap-Final-Hi-Res-for-Posting-Online.pdf

Technology
is a key to pairing GHG reduction and economic growth

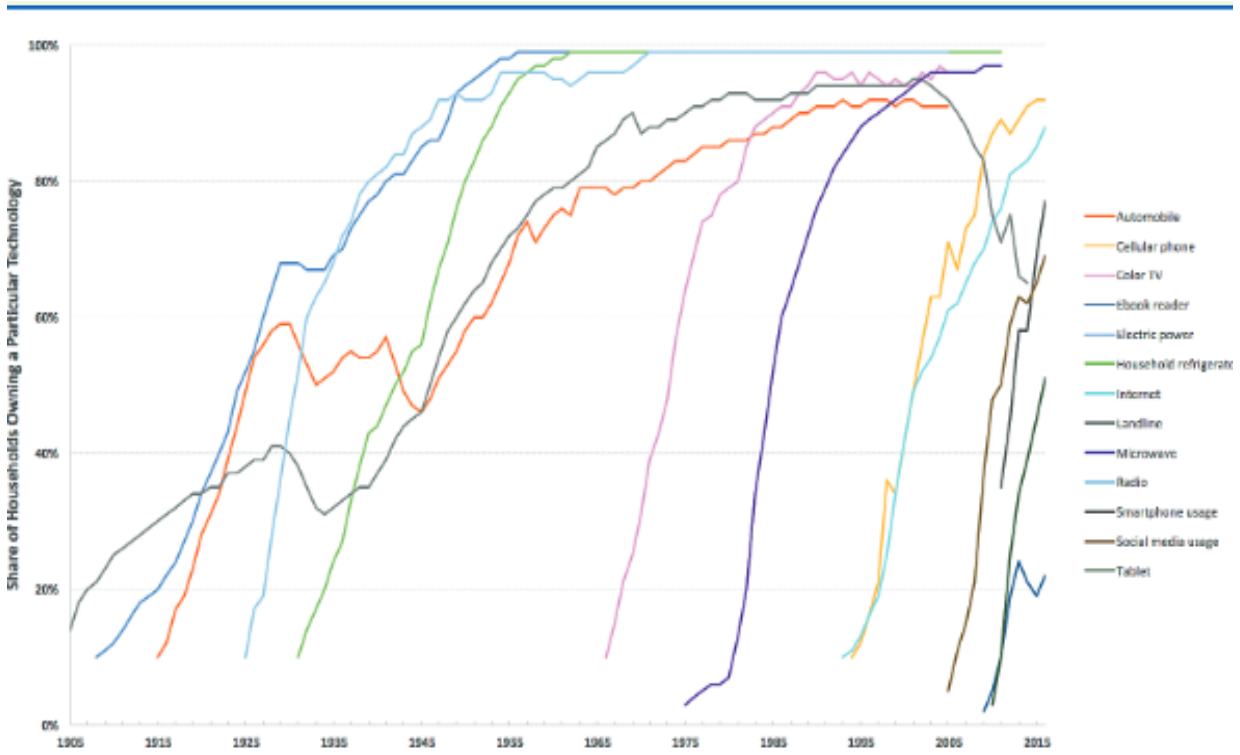
In the U.S., the pace of technology adoption has accelerated over the past decade.

100 years for landline telephones to reach widespread adoption

48 years for the adoption of electric power

30 years for the adoption of color TV.

10 years for widespread use of cell phones, smartphones and tablets.



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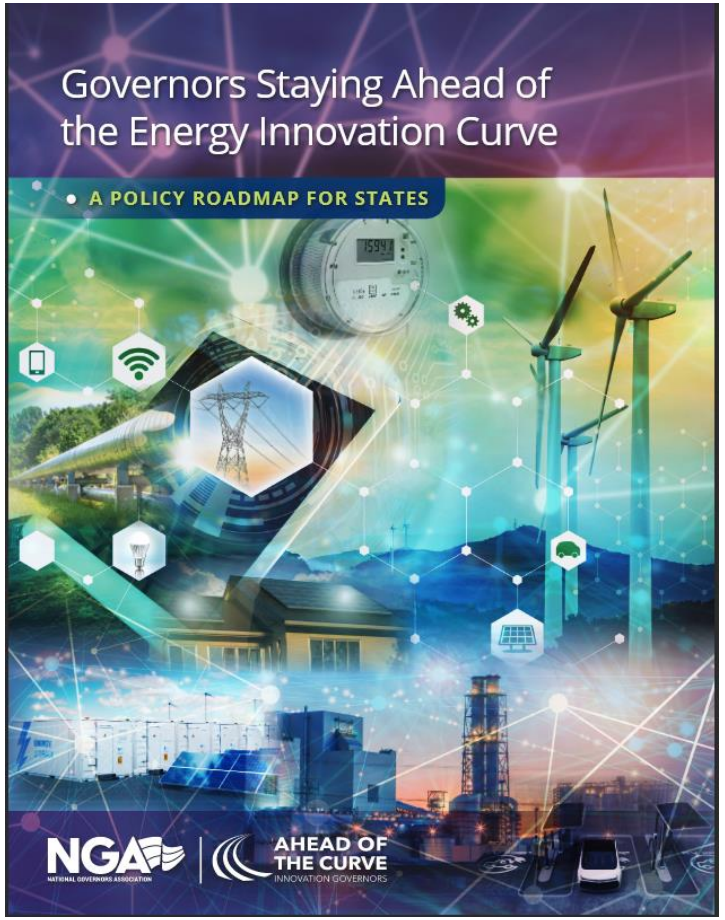
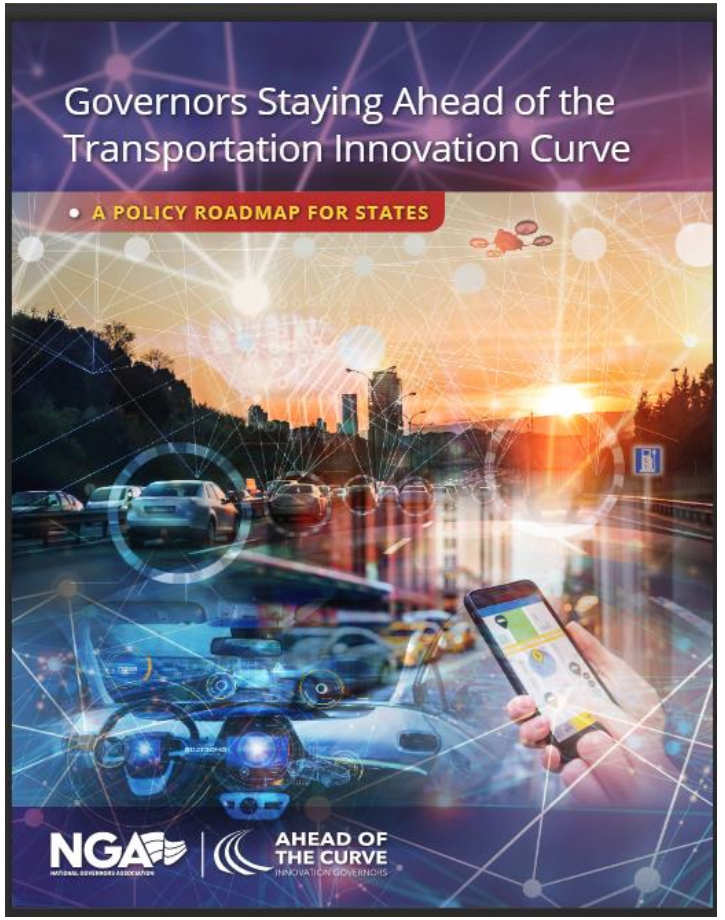
Collaboration

is a key to pairing GHG reduction and economic growth





Collaboration

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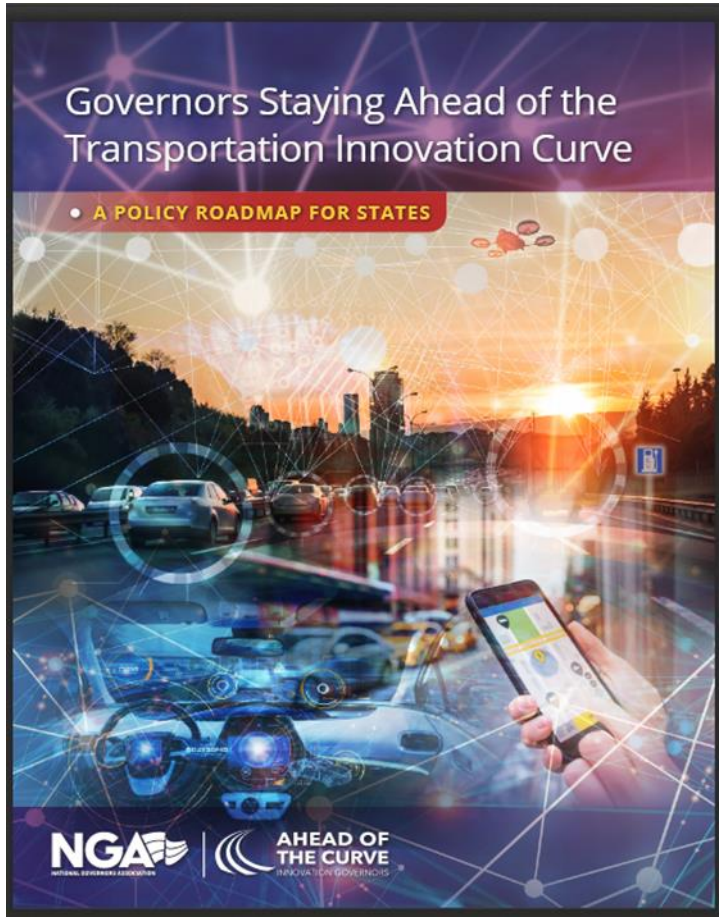
- The National Governors Association in the United States published a roadmap to **transportation** innovation in July of 2018



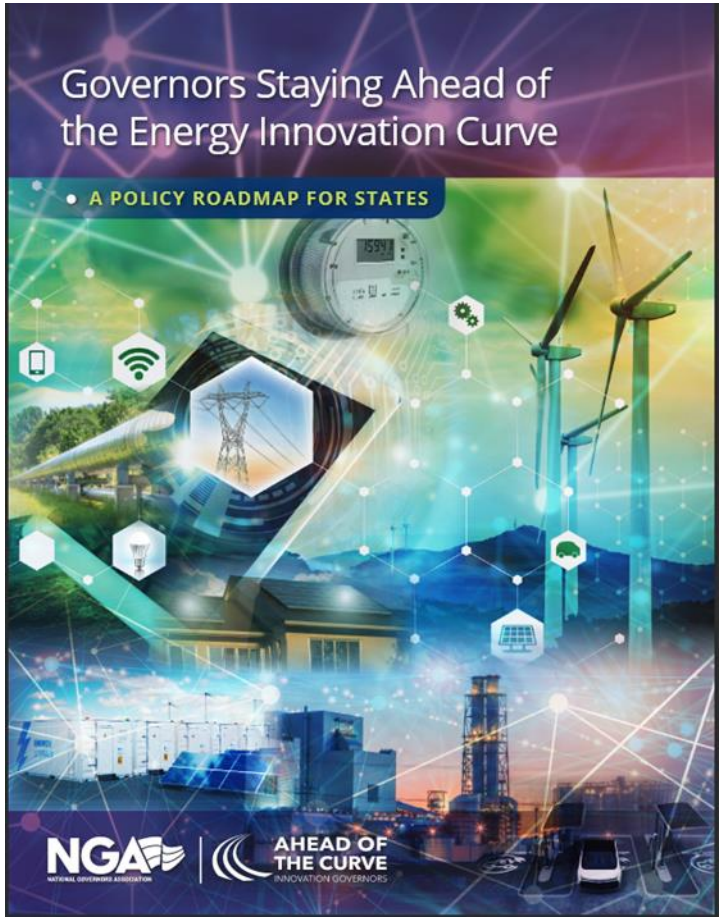
- https://www.nga.org/wp-content/uploads/2018/07/Transportation-Innovation-Roadmap-Final-Hi-Res-for-Posting-Online.pdf

Collaboration

is a key to pairing GHG reduction and economic growth

- The National Governors Association in the United States published a roadmap to **energy** innovation in July of 2018

- https://www.nga.org/wp-content/uploads/2018/07/Energy-Innovation-Roadmap-Final-Hi-Res-for-Posting-Online.pdf



Collaboration

is a key to pairing GHG reduction and economic growth

TABLE 1: Actors and the roles they can play in implementing energy innovation				
Federal Government	**State Government**	**Local Government**	**Private Sector**	**Nonprofit Organization**
Congress	State Legislature	Mayor and city council	Investor-owned electric utilities	Community advocacy organizations and associations
U.S. Department of Transportation (USDOT)	Public utility commission (PUC)	County council	Natural gas distribution utilities	Rural electricity cooperatives
U.S Department of Energy (USDOE)	State Department of Transportation	Metropolitan planning organization	Construction companies or contractors	Academia
Environmental Protection Agency (EPA)	State energy office	City and county administrators and executives	Network service providers	Regional energy efficiency and clean energy advocacy organizations
U.S. Department of the Interior	State department of environmental quality	Municipal transit authorities	Financial institutions	Technology incubators
U.S. Department of Commerce	State budget office	Local public works departments	Insurance providers	National Energy Reliability Council
U.S. Department of Homeland Security	State economic development or commerce department	Local departments of environmental quality	Vendors	Regional transmission organization or independent system operator
Federal Energy Regulatory Commission (FERC)	State chief information or technology official	Municipal or public power utilities	Logistics and transportation industry	–
Federal Emergency Management Agency (FEMA)	State insurance commissioner	First responders	Technology providers	–
U.S. Department of Agriculture (USDA)	State motor vehicle administrator	Chief data officer	Equipment manufacturers	–
National labs	Emergency management agencies	–	Energy service companies	–
Military	National Guard	–		–
–	Public safety or highway patrol	–	–	–
–	State chief data officer	–	–	–
–	Consumer service office	–	–	–

Governors Staying Ahead of the Energy Innovation Curve: A Policy Roadmap for States, at p. 22. Available on-line at: https://www.nga.org/wpcontent/uploads/2018/07/Energy-Innovation-Roadmap-Final-Hi-Res-for-Posting-Online.pdf

Collaboration
is a key to pairing GHG reduction and economic growth

- Empower agencies to help accelerate adoption of innovative energy technologies
- Convene working groups of stakeholders to foster accelerated adoption of innovative energy technologies
- Promote adoption of state procurement targets for innovative energy technologies
- Encourage regulated utilities to pursue innovative energy technologies
- Support R&D through innovation programs to develop home-grown technologies and expertise
- Promote laws and regulations that drive technological innovation and deployment

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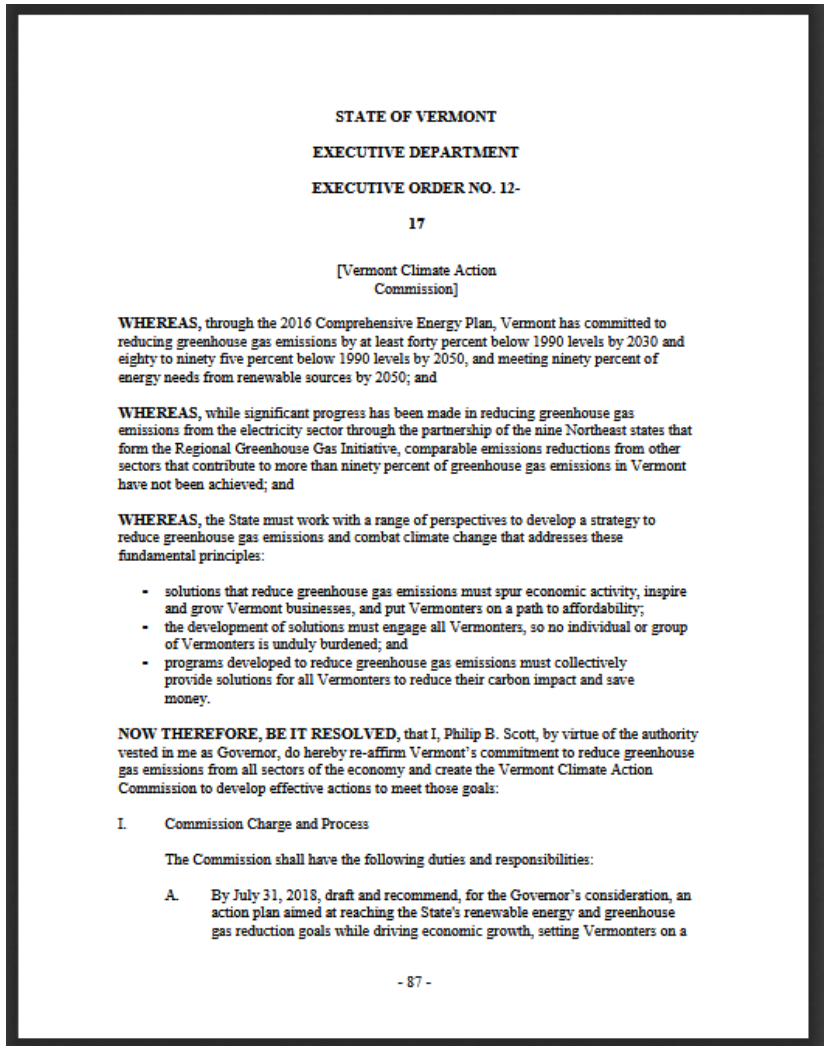
Collaboration

is a key to pairing GHG reduction and economic growth

- Vermont Governor Scott ordered the formation of the Vermont Climate Action Commission in July 2017

- https://anr.vermont.gov/sites/anr/files/Final%20VCAC%20Report.pdf

(On-line document p. 91-94; original document p. 87-90)



STATE OF VERMONT

EXECUTIVE DEPARTMENT

EXECUTIVE ORDER NO. 12-

17

[Vermont Climate Action Commission]

WHEREAS, through the 2016 Comprehensive Energy Plan, Vermont has committed to reducing greenhouse gas emissions by at least forty percent below 1990 levels by 2030 and eighty to ninety five percent below 1990 levels by 2050, and meeting ninety percent of energy needs from renewable sources by 2050; and

WHEREAS, while significant progress has been made in reducing greenhouse gas emissions from the electricity sector through the partnership of the nine Northeast states that form the Regional Greenhouse Gas Initiative, comparable emissions reductions from other sectors that contribute to more than ninety percent of greenhouse gas emissions in Vermont have not been achieved; and

WHEREAS, the State must work with a range of perspectives to develop a strategy to reduce greenhouse gas emissions and combat climate change that addresses these fundamental principles:

- solutions that reduce greenhouse gas emissions must spur economic activity, inspire and grow Vermont businesses, and put Vermonters on a path to affordability;
- the development of solutions must engage all Vermonters, so no individual or group of Vermonters is unduly burdened; and
- programs developed to reduce greenhouse gas emissions must collectively provide solutions for all Vermonters to reduce their carbon impact and save money.

NOW THEREFORE, BE IT RESOLVED, that I, Philip B. Scott, by virtue of the authority vested in me as Governor, do hereby re-affirm Vermont's commitment to reduce greenhouse gas emissions from all sectors of the economy and create the Vermont Climate Action Commission to develop effective actions to meet those goals:

I. Commission Charge and Process

The Commission shall have the following duties and responsibilities:

A. By July 31, 2018, draft and recommend, for the Governor's consideration, an action plan aimed at reaching the State's renewable energy and greenhouse gas reduction goals while driving economic growth, setting Vermonters on a

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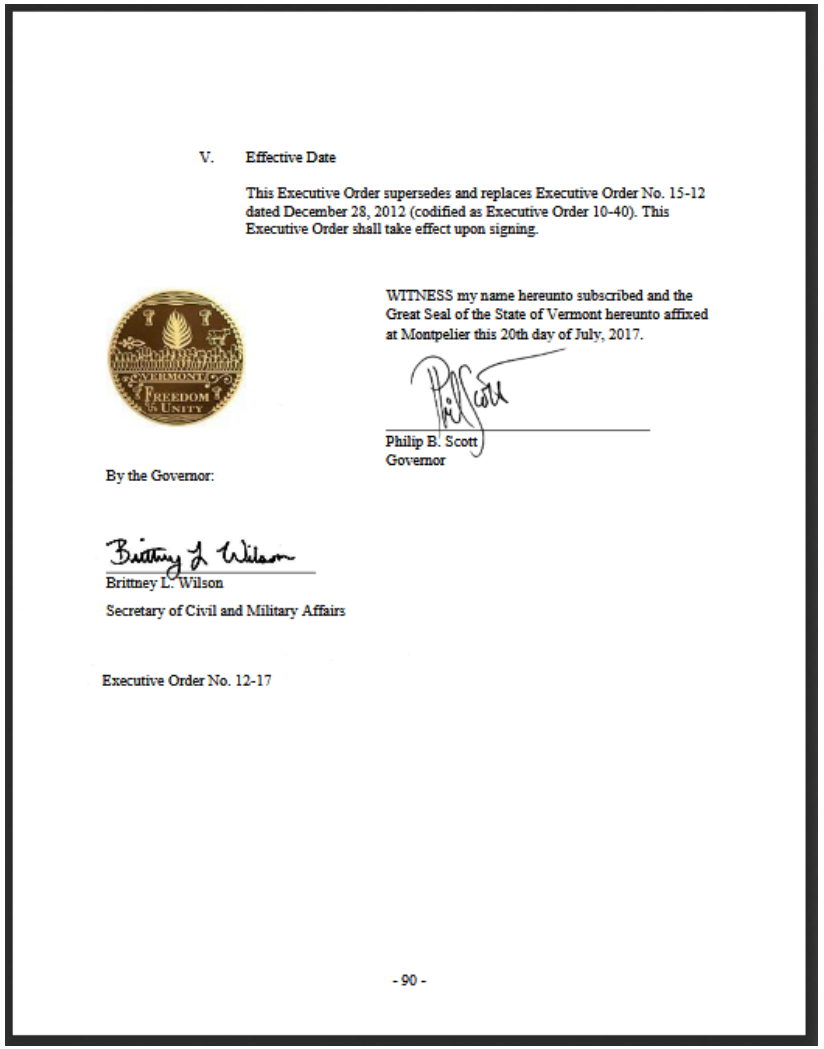

V. Effective Date

This Executive Order supersedes and replaces Executive Order No. 15-12 dated December 28, 2012 (codified as Executive Order 10-40). This Executive Order shall take effect upon signing.

WITNESS my name hereunto subscribed and the Great Seal of the State of Vermont hereunto affixed at Montpelier this 20th day of July, 2017.

Philip B. Scott
Governor

By the Governor:

Brittney L. Wilson
Secretary of Civil and Military Affairs

Executive Order No. 12-17

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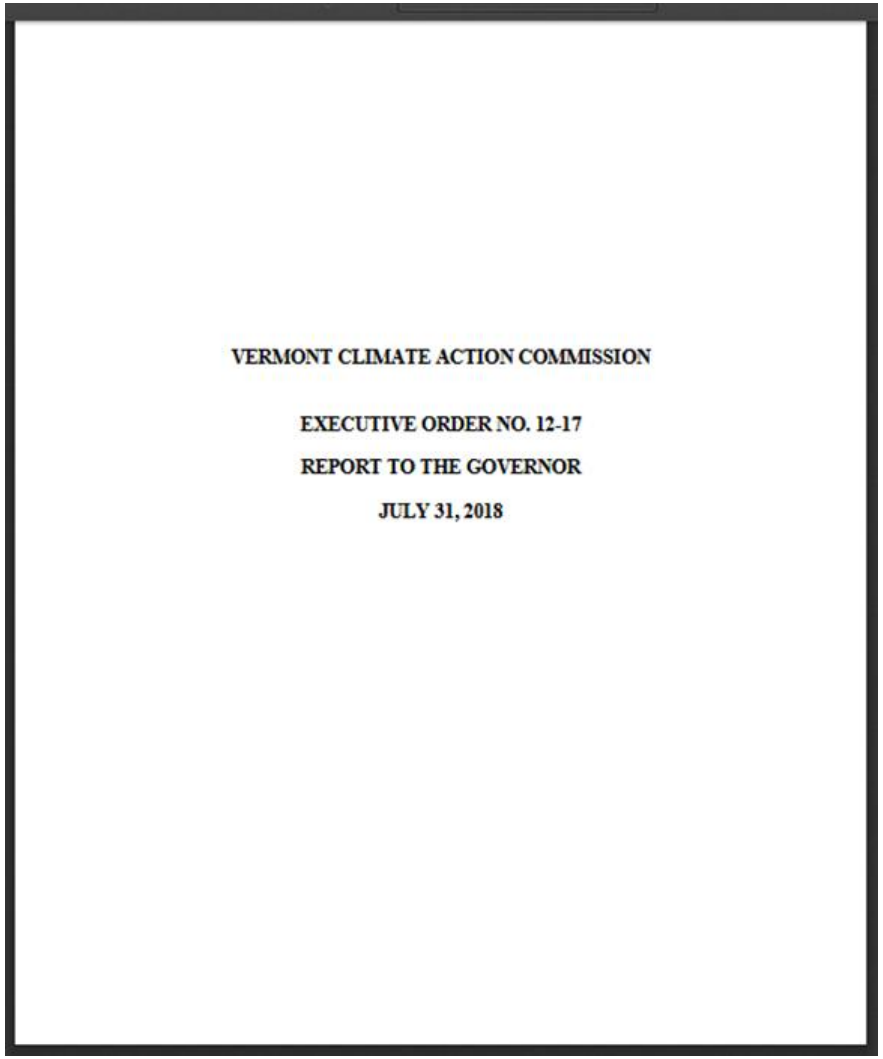

VERMONT CLIMATE ACTION COMMISSION

EXECUTIVE ORDER NO. 12-17

REPORT TO THE GOVERNOR

JULY 31, 2018

Affordability

is a key to pairing GHG reduction and economic growth

- Stakeholders must collaborate to
- Ensure an affordable and stable cost of living
- Ensure an affordable and stable cost of doing business
- Increase entrepreneurship opportunities
- Create well-paying jobs in renewable energy and efficiency services
- Ensure an equitable distribution of benefits and burdens

Pairing

GHG reduction with economic growth

- Important keys to the puzzle:
  - Technology
  - Collaboration
  - Affordability