

# CHP on the Southern Loop: A Value Proposition

David Farnsworth

*CHPP Partners Meeting*

Austin Texas

November 2, 2010

 ***THE REGULATORY ASSISTANCE PROJECT***

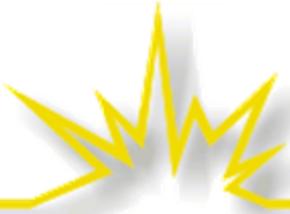
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# About the Regulatory Assistance Project

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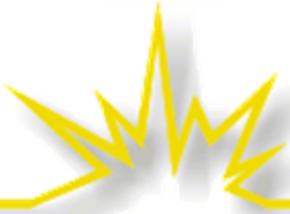
- RAP is a nonprofit organization providing technical and policy assistance to government officials on energy and environmental issues.
- RAP also provides educational assistance to consumer and environmental groups, utilities and business associations.
- RAP principals and senior associates all have extensive regulatory experience.
- We are funded by foundations and federal agencies.
- We have worked in nearly every state and many nations throughout the world.



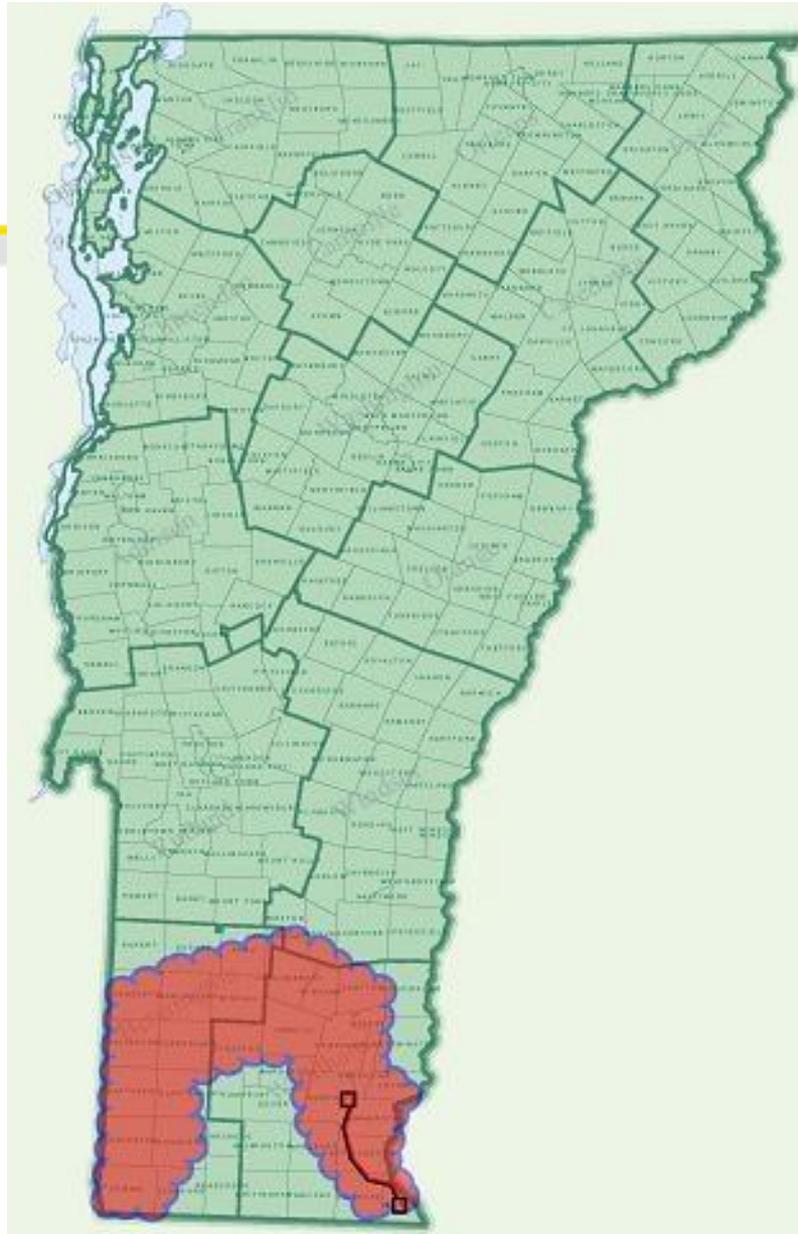
# The Question

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- Is there potential for CHP to better position itself, especially as a non-transmission alternative; and how can the Central Vermont Public Service (CVPS) “Southern Loop” example help us better understand some of this challenge?



CVPS's Southern  
Loop: 46 kV sub  
transmission  
line from  
Vermont  
Yankee (east) to  
Bennington,  
Vermont (west)





# Outline

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- CHP as a Non-Transmission Alternative (NTA)  
An example: CVPS' "Southern Loop"
- One Industry Trend and Three Policies  
Trend: The Need for New Capacity  
Policies: Environmental Regulations  
Federal Transmission Reliability Policy  
State Transmission Policy
- Observations:  
Need for Better Coordination,  
Costs of New Capacity and Environmental Compliance

# A Trend – Need for New Capacity

## Transforming America's Power Industry:

The Investment Challenge 2010-2030

Prepared by:

Marc W. Chupka  
Robert Earle  
Peter Fox-Penner  
Ryan Hledik

*The Brattle Group*

Prepared for:



NOVEMBER 2008

## ***Transforming America's Power Industry: the Investment Challenge 2010-2030 – The Brattle Group***

Between 2010 and 2030, net assets of electric utilities will increase to approximately \$2.16 trillion from today's \$1.10 trillion, an increase of 93%.



# Another Consideration: Environmental Regulation

- Costs of Compliance, a concern for Utilities, Utility Commissions, and the EPA.
  - CO<sub>2</sub>
  - Air Quality (e.g., Clean Air Transport Rule, National Ambient Air Quality Standards)
  - Land/Water Use (i.e., Ash and Cooling)
- **“No matter what approach we take, if we don’t focus on efficiency, the costs are staggering...Energy efficiency is the foundation of every strategy we can develop”**

Gina McCarthy, Assistant Administrator for Air and Radiation  
Dallas, Texas Dec. 2009

# Implications of the Need for New Capacity and Potential Costs of Environmental Compliance

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- *Strong upward pressure on rates*
- *Strong pressure on utility balance sheets, earnings*
  - *Highest capital requirements ever*
- *Frequent rate cases*
  - *Regulatory system will be severely stressed*
- *Heightened need for additional EE and DR*
- *Traditional markets*
  - *Heightened need for integrated planning*
  - *New look at prudence reviews*
- *For organized markets*
  - *Increased pressure to solve impediments to new transmission and generation*

***Financing the Decarbonized Electric Future Our Biggest Challenge Yet?***

Chairman Ron Binz, Colorado PUC – NARUC July 2010



# Transmission Reliability – FERC NOPR

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- **FERC NOPR RM10-23-000** (June 17, 2010) – Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities
  - [G]reater **regional coordination** in transmission planning would expand opportunities for transmission providers, their transmission customers, and other stakeholders to identify and implement regional solutions to local and regional needs that are more **cost-effective** than those proposed in the transmission planning process of individual transmission providers.

Para.51



## NOPR RM10-23-000 Cont.

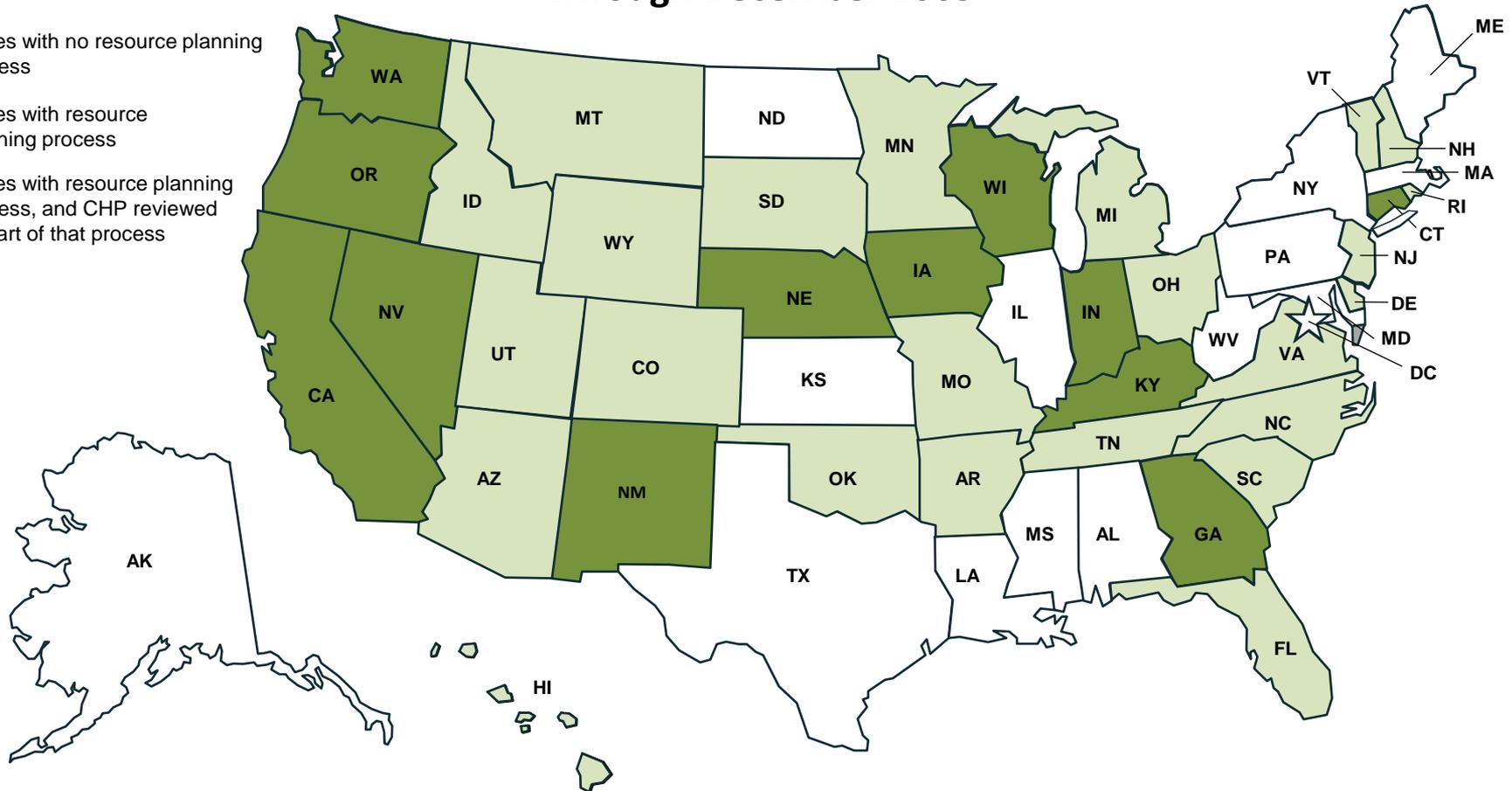
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- [W]e propose to **require** that each regional transmission planning process consider and **evaluate transmission facilities and other non-transmission solutions** that may be proposed and develop a regional transmission plan that identifies the transmission facilities that cost-effectively meet the **needs of transmission providers**, their transmission **customers**, and other **stakeholders**. Para. 51
- When an individual transmission provider engages in **local transmission planning**, it **considers and evaluates transmission facilities and non-transmission solutions** that are proposed and then develops a local transmission plan .... Id.
- Likewise, the **regional transmission planning** process would **consider and evaluate transmission facilities and non-transmission solutions** that are proposed.... Id.



# U.S. States in Which CHP is Reviewed as Part of Resource Planning Processes Through December 2009

- States with no resource planning process
- States with resource planning process
- States with resource planning process, and CHP reviewed as part of that process



# Non Transmission Alternatives -- VT

- Vermont law obligates utilities to **demonstrate that any proposed wires solutions constitute the lowest-cost alternatives among a full range of alternative resource configurations**, which must include localized demand-side management and distributed generation options.
  - Vermont Statutes
  - Public Service Board Orders



# NTAs in VT transmission planning

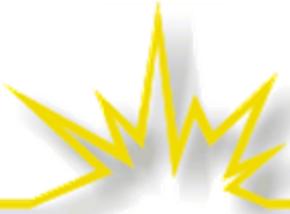
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➤ 30 V.S.A section 218 (**Planning**)

- No competitive retail mkt.
- **Dist. Utils. engage in least-cost integrated resource planning.**

➤ 30 V.S.A. section 248 (**Siting**)

- Policy of **planning** for provision of service at least cost to customers **included in regulatory requirements for transmission**



# VT Public Service Board

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➤ Docket 6860, Order of January 28, 2005

Northwest Reliability Project

***[n]o viable option but to approve a transmission solution for a reliability problem that might have been either deferred or more cost-effectively addressed through demand-side measures or local generation, if there had been sufficient advance planning.***



# VT Public Service Board

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➤ Docket 6860 cont.

*To avoid repeating this dilemma in a few short years, we have concluded that we should **open a separate investigation** into ways to ensure that **cost-effective non-transmission alternatives** are **given full, fair, and timely consideration**, and to determine methods for implementing (including funding) those non-transmission alternatives that bear **lower societal costs than traditional transmission projects.***



# Legislative Response: Act 61

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- Amends 30 V.S.A. section 218c(d)(1) requires a **transmission company to develop system plan** jointly with retail electric companies after public input.
- Objective: “**identify...need** for transmission system improvements **as soon as possible**, in order to allow **sufficient time to plan and implement** more **cost-effective non-transmission alternatives** to meet reliability needs, wherever feasible.



# The Vermont System Planning Committee

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- Post Docket 6860 and in response to a Act 61, Vermont Public Service Board investigates “*ways to ensure that **cost-effective non-transmission alternatives** are given full, fair, and timely consideration....”*”
- The **Vermont System Planning Committee** (VSPC) developed pursuant to MOU approved in PSB Order in Docket 7081.

# Vermont State Planning

## Committee (VSPC)

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Composed of **all VT distribution utilities, VELCO** (i.e., transmission company) and **three members of public**, VSPC established to **direct** long term (20 year) **planning efforts for transmission facilities** with the express purpose of expanding **public input**, creating planning **transparency** and considering of **non-transmission alternatives**.





# Some Early VSPC Observations

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- **Geo-targeted energy efficiency and CHP** projects continue to **hold the promise** to defer Southern Loop 46 kV transmission upgrades.
- Neither general **load growth** nor **large specific developments** appear on the near-term horizon.
- Vermont's **public preference** for energy **efficiency** and small **distributed resources**, particularly renewable and sustainable generation units, **may result in more NTAs** to further defer the Southern Loop upgrade.
- **Current study** on commercial readiness and financial viability of multiple placements of **biomass gasification CHP** in 2-5 MW range.



# State and Regional Policy Short Circuit

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## ➤ **NE ISO 3 Step Planning Process**

- Needs assessment
- Evaluation of proposed solutions from Step 1
- If mkt. solution deemed inadequate, then adopt regulated transmission solution

➤ **Needs assessment** IDs transmission solutions, but **does not identify NTAs** -- So developers do not get information or opportunity to come forward with potential solutions



# More Rational Funding Mechanism Needed

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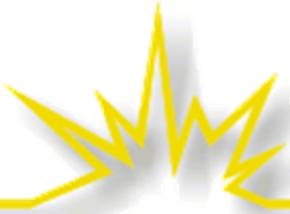
- Socialization: New England utilities pay their “load ratio share” of **new transmission** projects to address reliability, but 100% of **non-transmission** alternatives for same purpose.
- Need a funding mechanism that **values NTA’s reliability and market efficiency benefits** and thus supports their development where they are more cost-effective than a transmission solution.
- **Example:** deployment of a **CHP project** where economics are close, and could **defer** a \$100 million **transmission** project for **10 years**. Why not **provide the generation asset some percentage of the time value of that deferral** so the NTA can be built?

(See VELCO Comments on FERC NOPR RM10-23-000, Sept. 29, 2010 )

# Observations – Coordination, Costs and Environmental Compliance

- **NTAs** like CHP should be able to receive some portion of the **value to be delivered** by the NTA to **the system** through deferral or avoidance of more expensive transmission.
- **Recognizing the benefits** of NTA deployment **across state and federal processes** – e.g., planning, siting, reliability determinations – will **enable** greater CHP **deployment** and result in **more efficient use of fuel** with a potential for significant **economic and environmental co-benefits**.

# Lowering Costs of System Improvements



- **CHP and other efficiency measures** are often **less expensive** than the more traditional generation, delivery and reserves they displace.
- As the 2008 Brattle Group study indicates, **significant new investment** in generation and transmission can be **expected**.
- While much of this investment in infrastructure may be justified, an approach that **overlooks all cost-effective energy efficiency opportunities** like CHP will be **more expensive and less reliable** than necessary.



# Environmental Compliance

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- Companies, State Commissions, and Federal Regulators need to be reminded that CHP and other efficiency measures can **minimize** a utility's – and a state's – **environmental footprint** and reduce their **environmental compliance exposure**.
- **CHP developers** should continue to **participate** in state and federal **programs that can promote parity** between supply and demand-side resources.



# For More Information

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- “Financing the Decarbonized Electric Future Our Biggest Challenge Yet?” Ron Binz, Chairman Colorado Public Utilities Commission, Chair, NARUC Task Force on Climate Policy, July 17, 2010, NARUC Summer 2010 Committee Meetings Sacramento, California.  
<http://www.narucmeetings.org/Presentations/Binz%20NARUC%20Keynote.pdf>
- Vermont Public Service Board Docket No. 6860 (Petitions of Vermont Electric Power Company, Inc. (VELCO) and Green Mountain Power Corporation (GMP) for a certificate of public good, pursuant to 30V.S.A. Section 248, authorizing VELCO to construct the so-called Northwest Vermont Reliability Project), Order of January 28, 2005, [http://psb.vermont.gov/sites/psb/files/docket/6860NRP/6860\\_fnl\\_1-28-05.pdf](http://psb.vermont.gov/sites/psb/files/docket/6860NRP/6860_fnl_1-28-05.pdf)
- Vermont PSB Docket No. 7081, (Investigation into Least-Cost Integrated Resource Planning for Vermont Electric Power Company, Inc.'s Transmission System), Order of June 20, 2007.
- Comments of Vermont Electric Power Company, Inc. on Federal Energy Regulatory Commission Notice of Proposed Rule Making Docket No.: RM10-23-000, September 29, 2010.
- "Walking the Walk of Distributed Utility Planning: Deploying Demand-Side Transmission and Distribution Resources in Vermont's "Southern Loop," In Proceedings of the ACEEE 2006 Summer Study on Energy Efficiency in Buildings, American Council for an Energy-Efficient Economy, Plunkett, John, F. Wyatt, J. Kleinman, B. Bentley. 2006.
- "Walking the Walk: Considering Non-Transmission Alternatives in Utility Planning, Part Deux," ACEEE Summer Study on Energy Efficiency in Buildings," American Council for an Energy-Efficient Economy, Plunkett, John, B. Bentley. 2008.



# Thank You

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***RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, ensure system reliability, and allocate system benefits fairly to all customers.***