

Rhode Island State Energy Plan

Advisory Council Meeting #5

May 9, 2013

Advisory Structure

Advisory Council

- Meets on a monthly basis
- Evaluates and provides feedback on research to assist staff in preparing a Preliminary Draft Plan
- Recommends Preliminary Draft Plan to the State Planning Council's Technical Committee for forwarding to the State Planning Council for public hearing, revision, and adoption

Timeline

Project Phases

Phase I: Research & Data Collection (December 2012 – May 2013)

Gather and synthesize the best available energy data; Set measurable goals based on modeling analysis and stakeholder feedback; Design an actionable implementation strategy

Phase II: Preparation of Preliminary Draft Plan (June 2013 – September 2013)

Distill research developed during Phase I into a Preliminary Draft Plan

Phase III: Technical & Public Review (October 2013 – March 2014)

Vet Preliminary Draft Plan through a technical and public review process; Adopt Plan as State Guide Plan Element

Today

May Meeting

Agenda:

- Continuation of Task 3: Scenarios



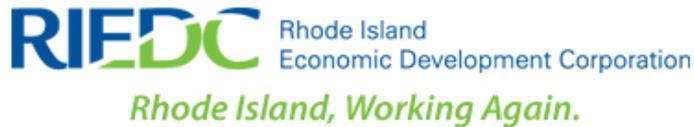
ENERGY



Experts in Renewable Energy and Sustainable Development

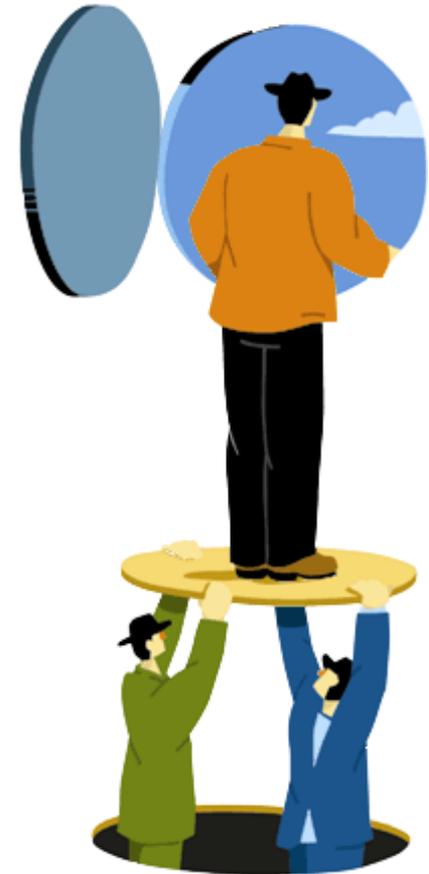
RHODE ISLAND STATE ENERGY PLAN TECHNICAL ASSISTANCE

Advisory Council Meeting



May 9, 2013

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Today's agenda includes the following:

1. Introduction and Purpose

2. Workflow: Targets, Strategies, and Scenarios

3. Electric, Thermal, and Transportation Targets

4. Straw-man Scenarios

5. Next Steps



1. Introduction and Purpose

2. Workflow: Targets, Strategies, and Scenarios

3. Electric, Thermal, and Transportation Targets

4. Straw-man Scenarios

5. Next Steps

The purpose of today's meeting is two fold:

1. Introduce Targets

- Introduce the target setting exercise and explain how this fits with strategy development and scenario modeling process

2. Solicit Feedback

- Solicit feedback from the Advisory Council on the appropriateness of the proposed targets and new straw man scenarios

1. Introduction and Purpose



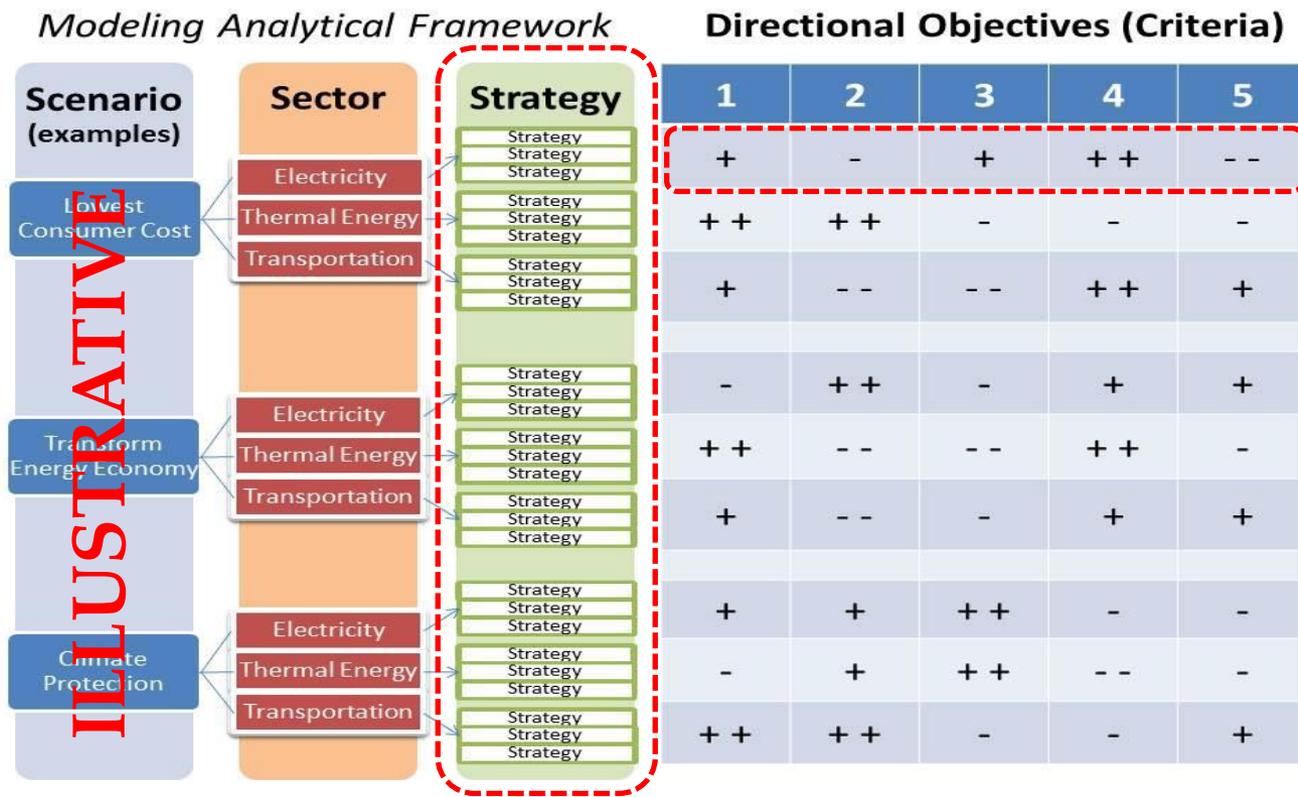
2. Workflow: Targets, Strategies, and Scenarios

3. Electric, Thermal, and Transportation Targets

4. Straw-man Scenarios

5. Next Steps

Feedback from piloting the survey tool led to an improved methodology for strategy development.



Strategies



Directional Objectives

We will develop strategies aimed at meeting key targets for change in energy supply and demand.

Define Scenarios

- 3 Alternative Energy Futures
- Each Scenario includes different weights for each Directional Objective (Security, Cost Effectiveness, Economic Development, Sustainability)

Set Targets

- Changes in the Future Supply Infrastructure and Demand Profile
- Low, Moderate, and Aggressive Targets
- EG: 17, 35, or 150 MW of Residential Solar by 2023

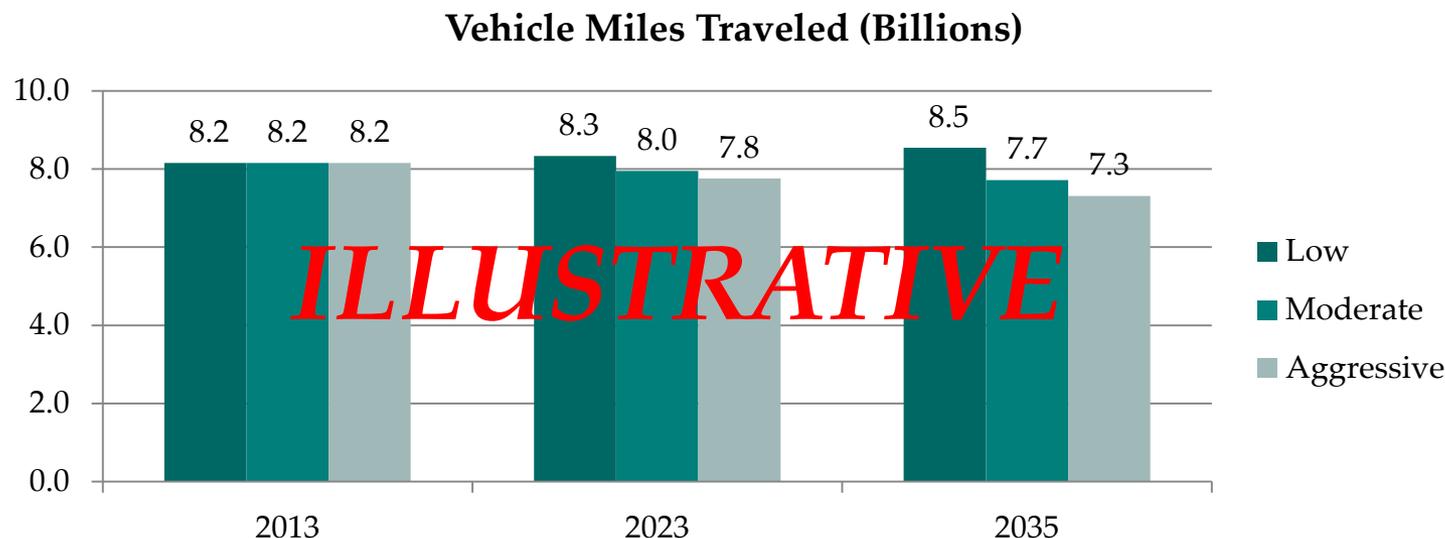
Develop Strategies

- Develop a suite of policies and programs directed at meeting each target
- EG: On-bill financing, renewed FIT, Statewide SREC fixed value

Model Effects

- For each scenario, select the group of strategies and targets that best fulfill the prioritized directional objectives
- Model the aggregate effects of the chosen strategies on the directional objectives

Low, moderate, and aggressive targets were set for each aspect of the energy supply infrastructure or demand profile.



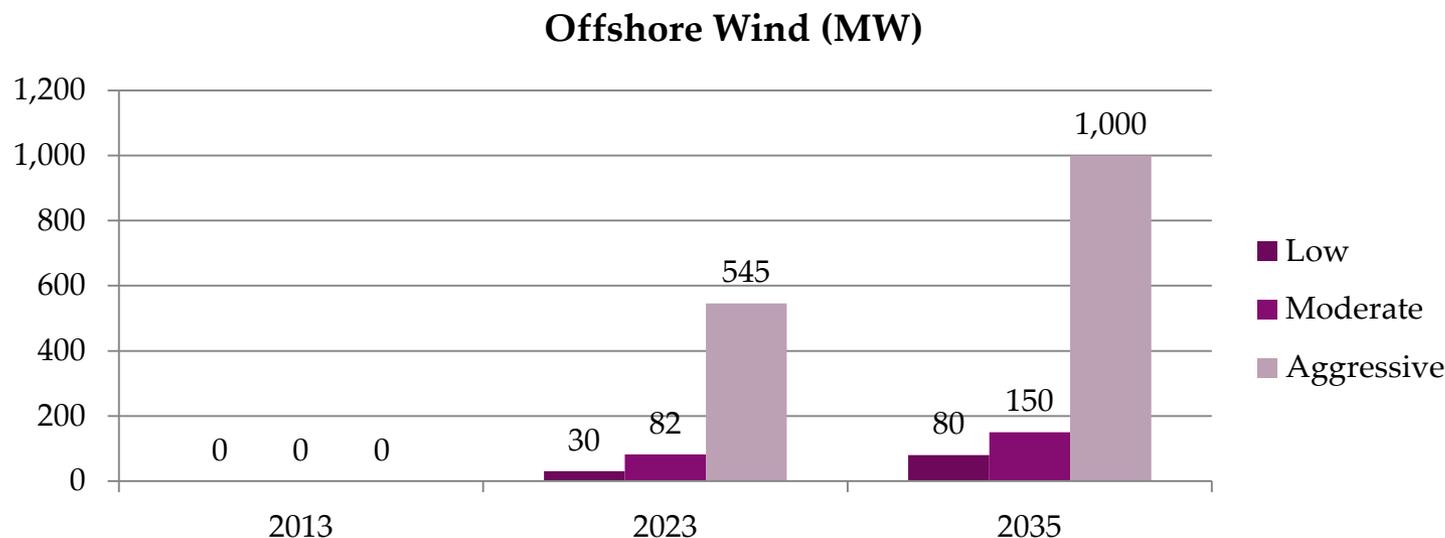
- The low bounds correspond to future changes if existing policies prevail and market characteristics continue.
- The moderate targets correspond to achievable change with moderate policies and programs in place.
- The aggressive targets reflect the upper bound of possible change with substantial aggressive policies and programs.

1. Introduction and Purpose
2. Workflow: Targets, Strategies, and Scenarios
-  3. Electric, Thermal, and Transportation Targets
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5. Next Steps

Navigant has developed low, moderate, and aggressive targets for change across the following 10 categories for the electric sector.

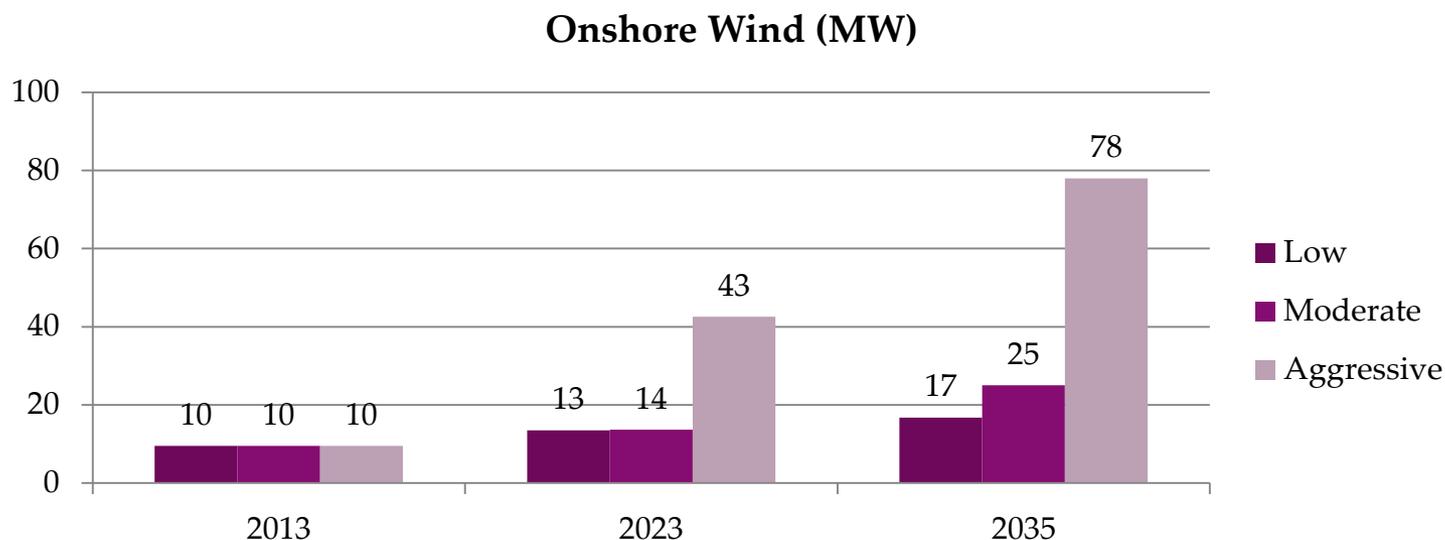
ELECTRIC	Develop Offshore Wind Resources
	Develop Onshore Wind Resources
	Develop Residential Scale Distributed Solar PV
	Develop Utility / Commercial Scale Solar PV
	Develop In-State Hydroelectric Resources
	Procure Electricity from Out-of-State Hydroelectric Resources
	Expand Natural Gas Fired Power Plant Capacity
	Expand Combined Heat and Power Capacity
	Develop Grid Tied Electric Storage
	Reduce Peak Demand

Develop Offshore Wind Resources



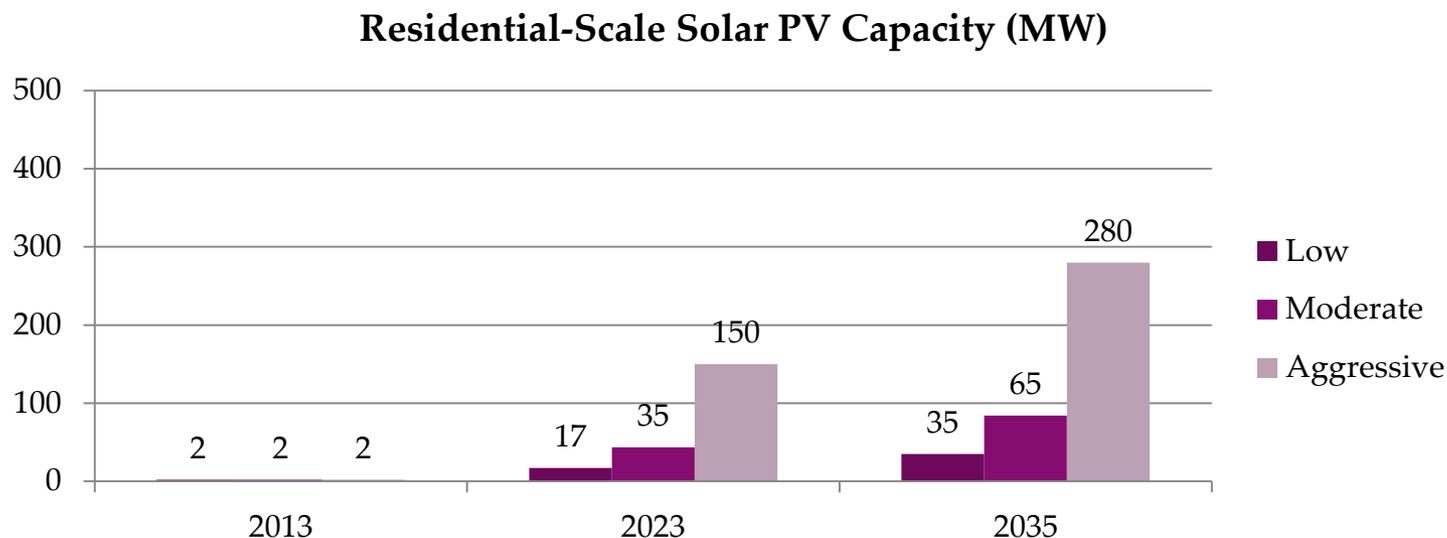
- The low target is based on planned capacity from Block Island Wind Farm and comparable rates of capacity expansion through 2035.
- The moderate targets are based on the realization projects evaluated as part of PUC long-term contracting statutes.
- The aggressive goals are based on the equivalent of successful execution of a proposal for 1,000 MW of offshore wind by 2035 and back cast to set interim targets.

Develop Onshore Wind Resources



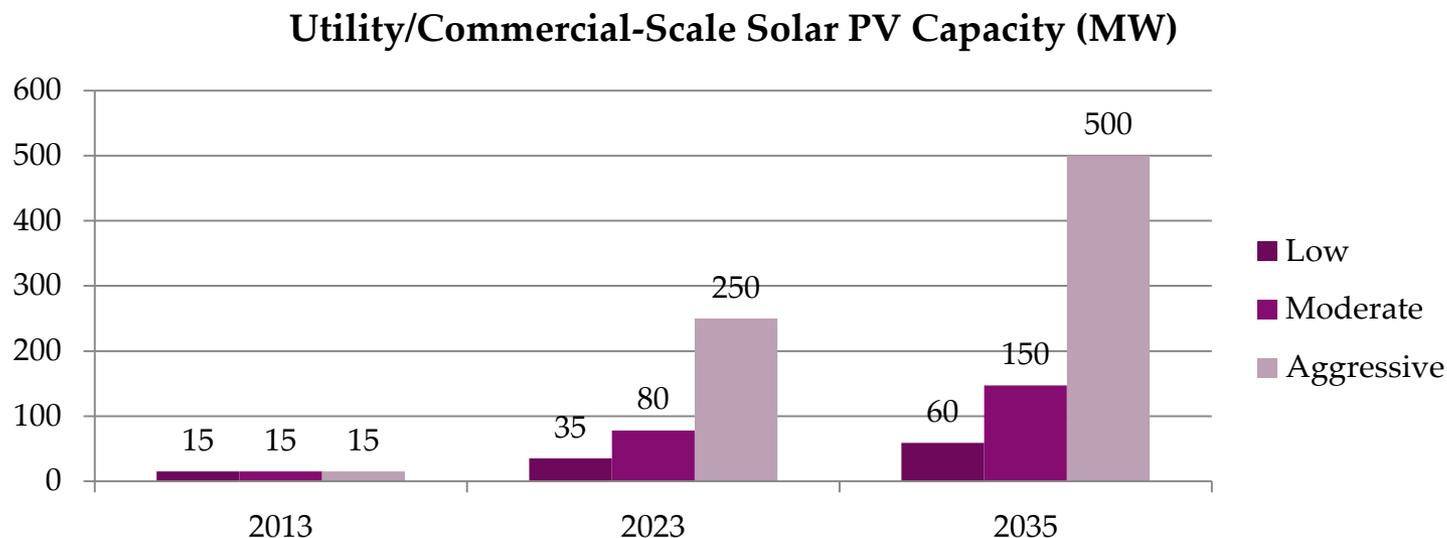
- The low target is based on historical growth rates and adjusted to achieve a maximum of 3% of load.
- The moderate target is based on achieving one 1.5MW and five 100kW installations in 10 towns by 2035.
- The aggressive target are based on achieving one 1.5MW and five 100kW installations per town (39 towns total) in Rhode Island.

Develop Residential Solar PV Resources



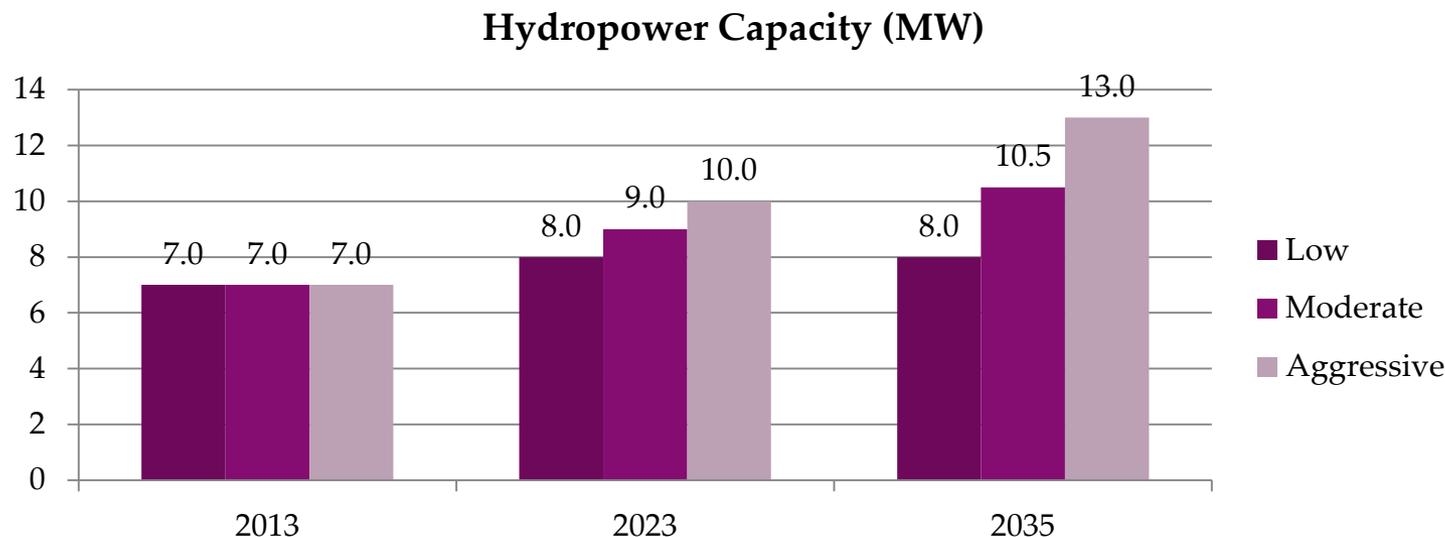
- The residential solar PV capacities are based on data from National Grid and the US Census Bureau.
- The moderate goal targets 65 MW of residential solar PV capacity by 2035.
- The aggressive goal targets 280 MW of residential solar PV capacity by 2035, estimated to be the maximum residential solar PV capacity, and back casts annual changes to arrive at the projected 2023 level.

Develop Utility/Commercial Solar PV Resources



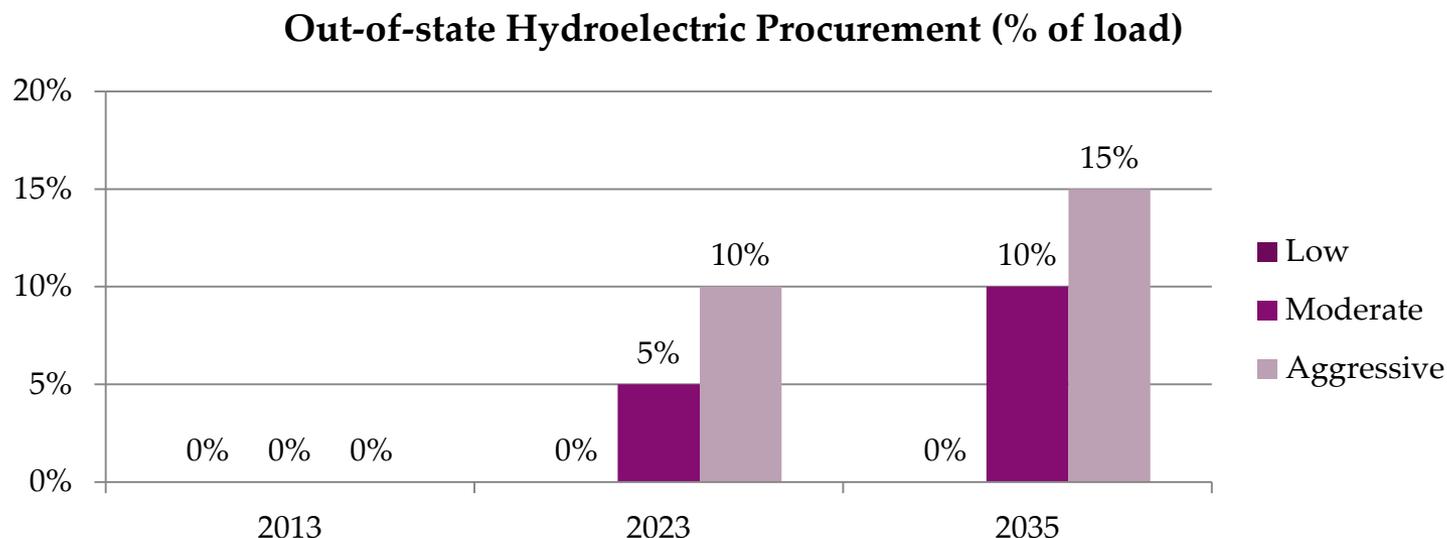
- The utility and commercial scale solar PV capacities are estimated from National Grid data and Renewable Energy Siting Partnership.
- The moderate goal targets 150 MW of utility/commercial scale solar PV capacity by 2035.
- The aggressive goal targets 500 MW of utility/commercial scale solar PV capacity by 2035, which represents the approximate maximum commercial solar capacity in Rhode Island.

Develop Hydropower Resources



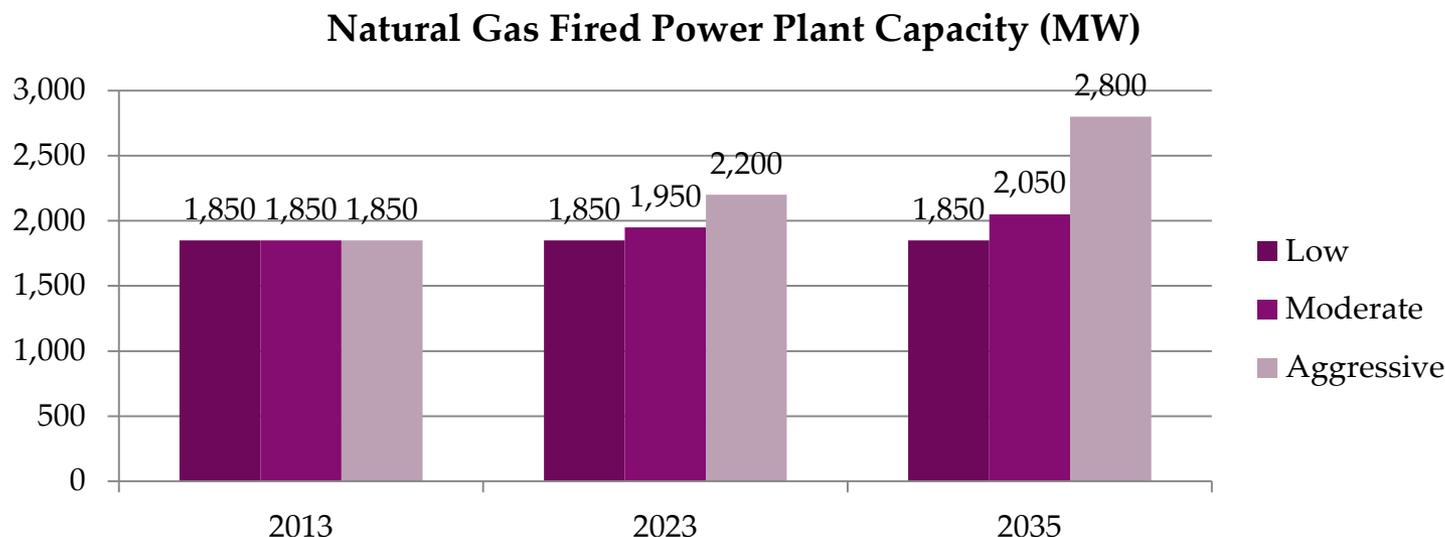
- The hydropower capacity estimates are based on FERC data on hydro projects in the US and a 2011 RI Renewable Energy Fund study evaluating the potential Tier 1 hydropower in Rhode Island.
- The moderate goal targets achieving 10.5 MW of hydropower capacity by 2035, an average of the low and aggressive targets.
- The aggressive goal targets 13 MW of hydropower capacity by 2035, which represents the maximum Tier 1 hydropower capacity.

Procure Electricity from Out-of-State Hydroelectric Resources



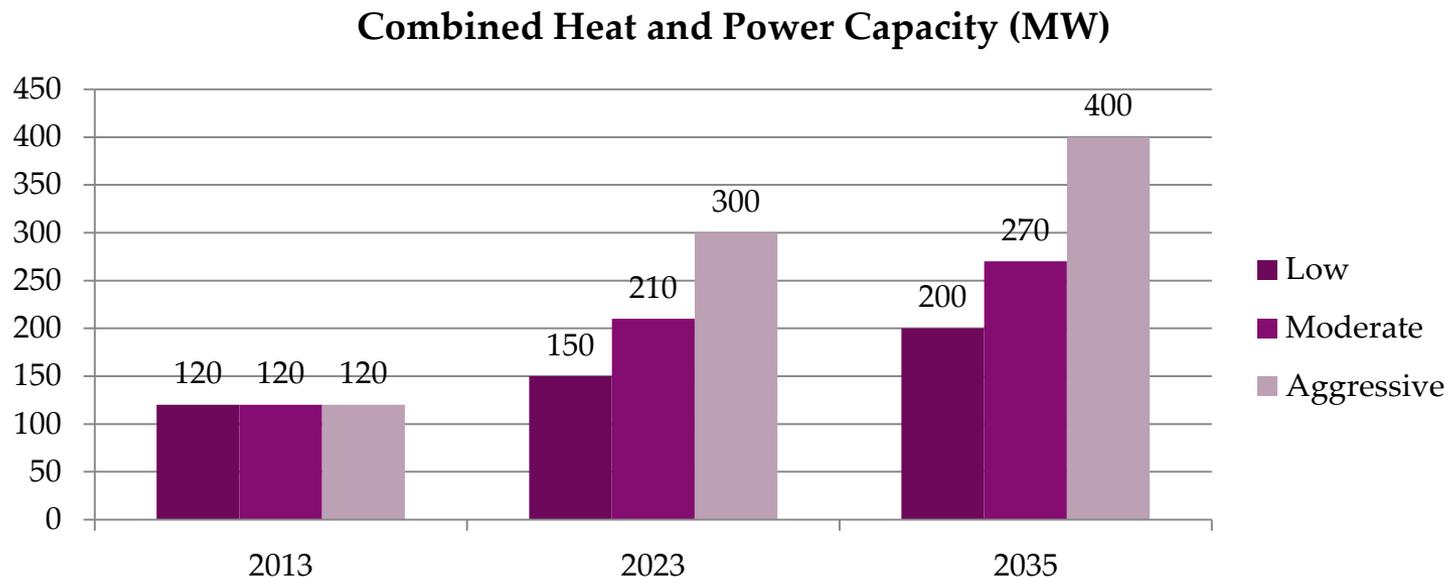
- The low bound for out-of-state procurement of hydroelectric power is set at zero.
- The moderate targets 5% of load be met through procurement of large-scale out-of-state hydroelectric generation by 2023, and 10% by 2035.
- The aggressive targets 10% of load be met through procurement of large-scale out-of-state hydroelectric generation by 2023, and 15% by 2035.

Expand Natural Gas Fired Power Plant Capacity



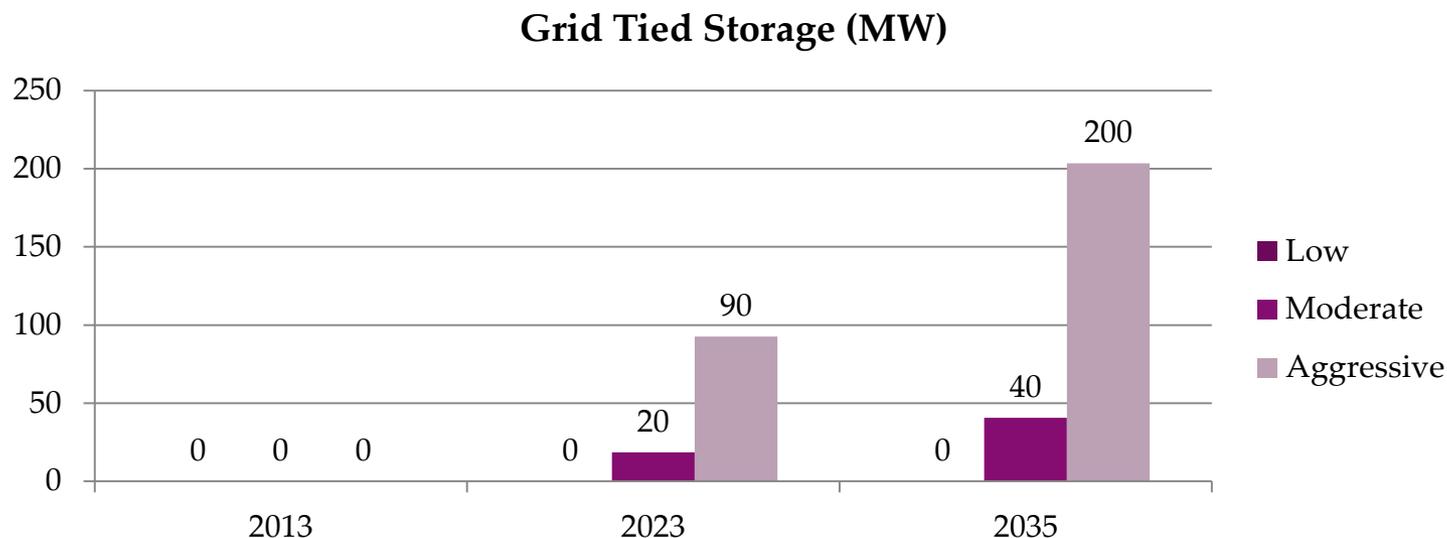
- The NG fired power plant capacity estimates are derived from ISO New England's Rhode Island 2012-2013 State Profile and EIA's projection on increased energy production from NG.
- The moderate goal targets 2,050 MW by 2035.
- The aggressive goal targets an in-state NG fired power plant capacity of 2,200 MW by 2023 and 2,800 MW by 2035, an increase in capacity of NG generation of 21% by 2023 and 50% by 2035.

Expand Combined Heat and Power Capacity



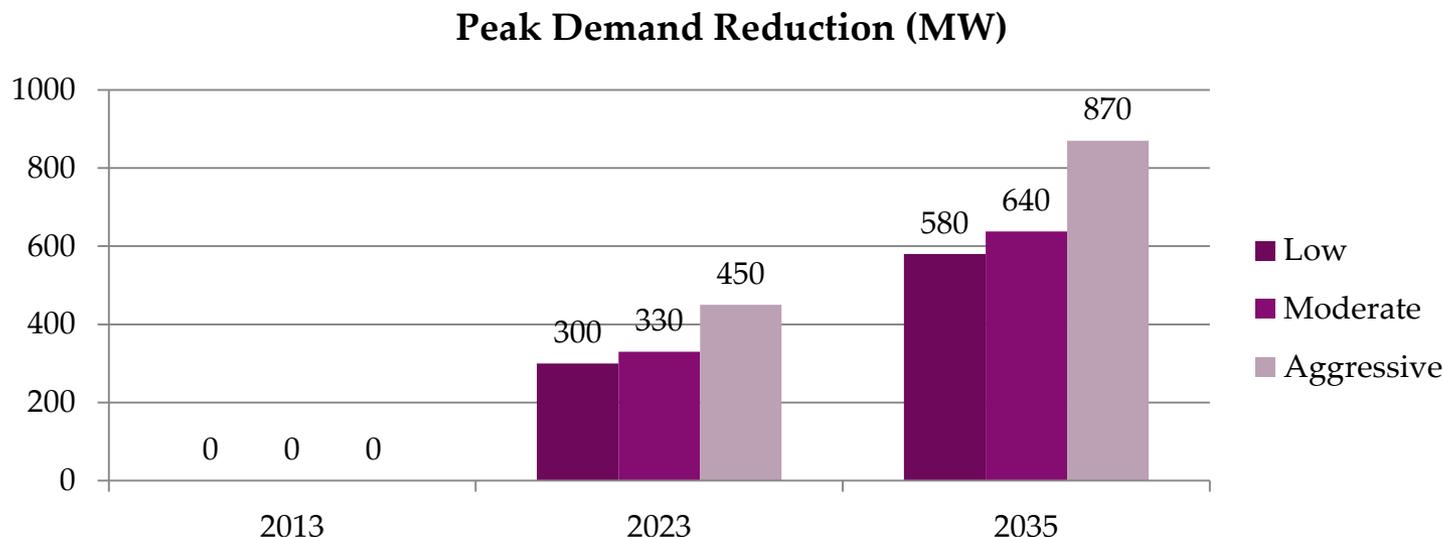
- The CHP capacity estimates are based on 2012 CHP Study for DOE EERE, a 2000 DOE CHP Potential Study and EERMC's Opportunity Report, Phase 1*.
- The moderate goal targets an in-state CHP capacity of 270 MW by 2035, which is reached through an annual additions of 7 MW.
- The aggressive goal targets an in-state CHP capacity of 400MW by 2035, which is reached through an annual penetration rate 2 times that of the low target.

Develop Grid Tied Electric Storage



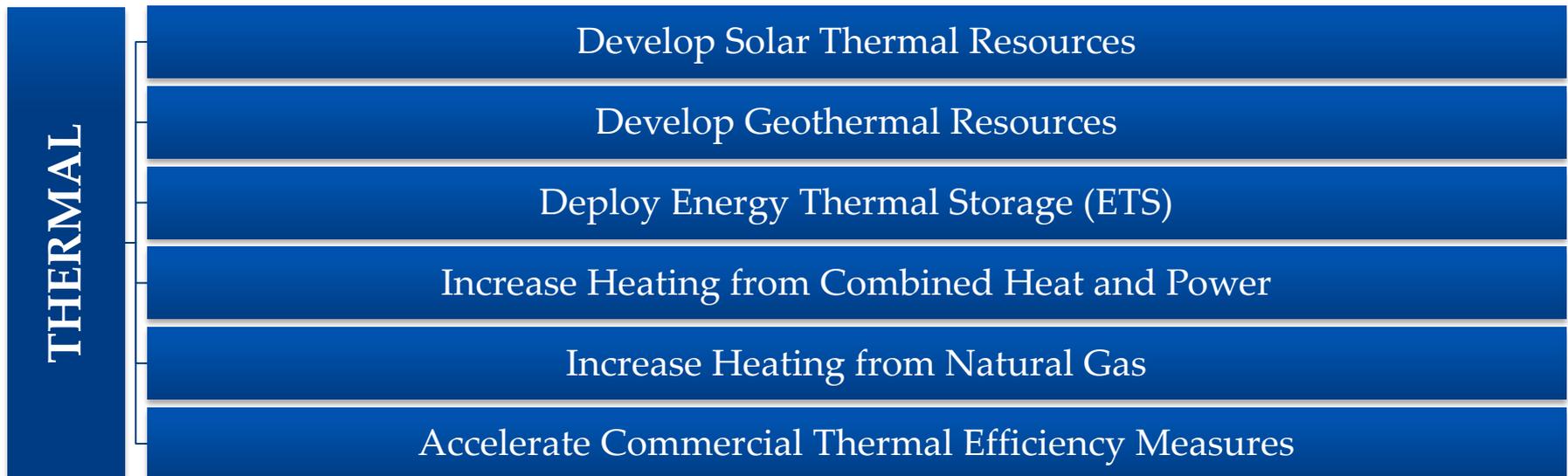
- The electric energy storage estimates were derived from the Market Evaluation for Energy Storage in the US study by Kema.
- The moderate goal targets 40 MW of grid tied storage by 2035.
- The aggressive goal targets 200MW of grid tried storage by 2035, which corresponds to 11% of 2013 generating capacity in Rhode Island.

Increase Peak Demand Reduction

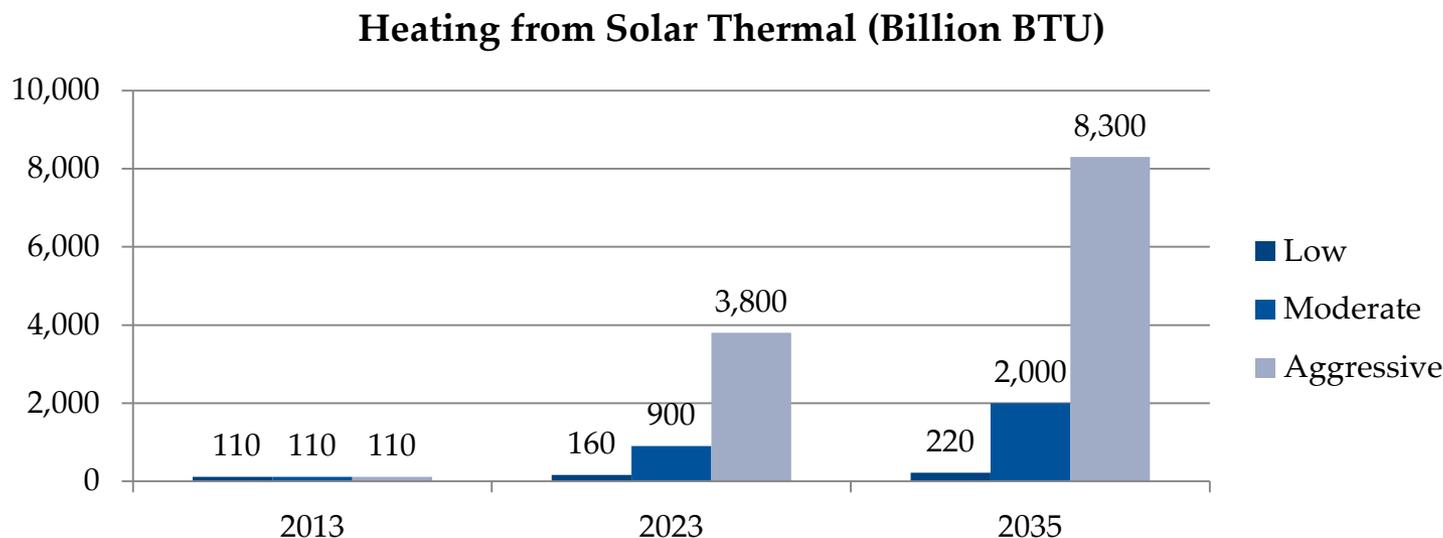


- The peak demand reduction estimates are based on ISO-NE's Final Energy Efficiency Forecast for 2016-2022 and a 2008 Rhode Island Efficiency Potential by KEMA.
- The moderate goal targets a 640 MW peak demand reduction, 60 MW greater than the low bound.
- The aggressive goal targets a peak demand reduction of 870 MW by 2035, which is 1.5 times the peak demand reduction of the low target.

Navigant has developed low, moderate, and aggressive targets for change across the following 6 categories for the thermal sector.

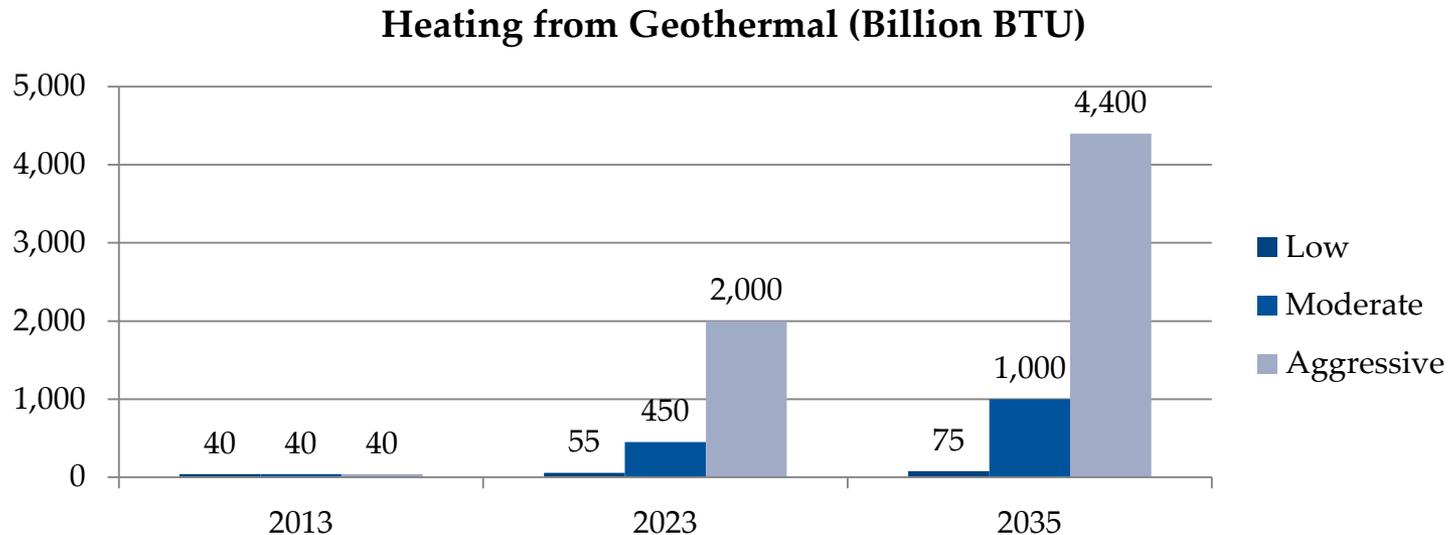


Develop Solar Thermal Resources



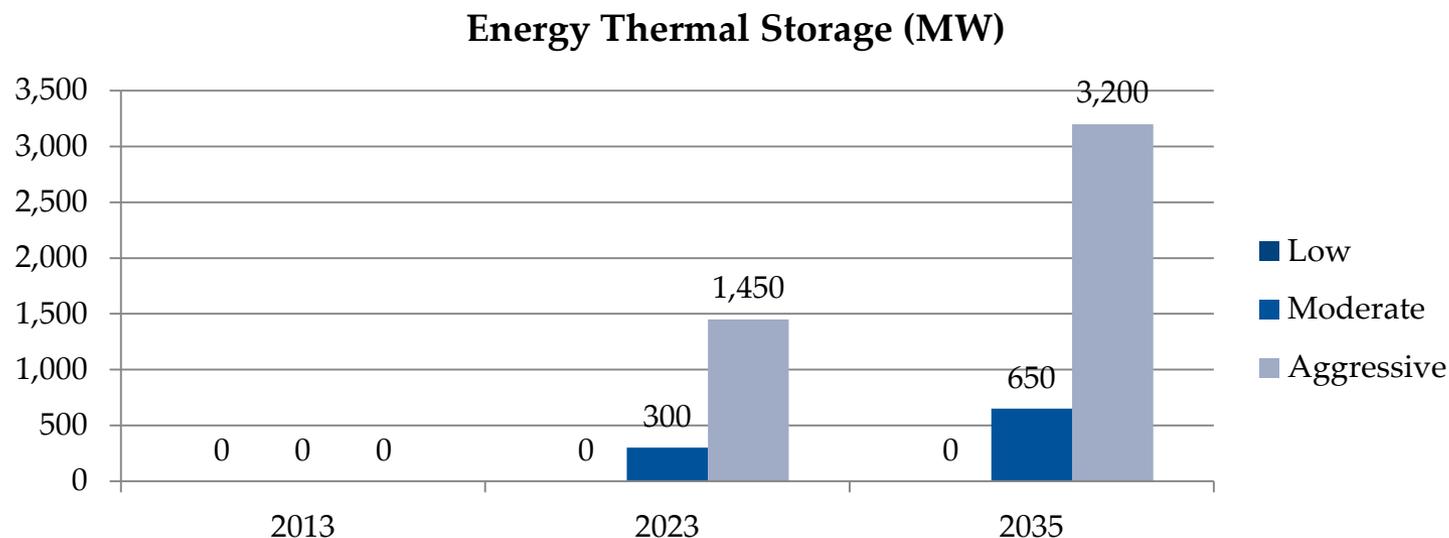
- The heating from solar thermal estimates were derived from ENE's forecasts, American Community Survey results and a study by the Solar Energy Laboratory at the University of Minnesota.
- The moderate goal targets 2.0 T BTU by 2035, which corresponds to roughly 18% of homes using solar thermal heating by 2035.
- The aggressive goal targets 8.3 T BTU of solar thermal by 2035, which corresponds to 75% of homes using solar thermal heating by 2035.

Develop Geothermal Heating Resources



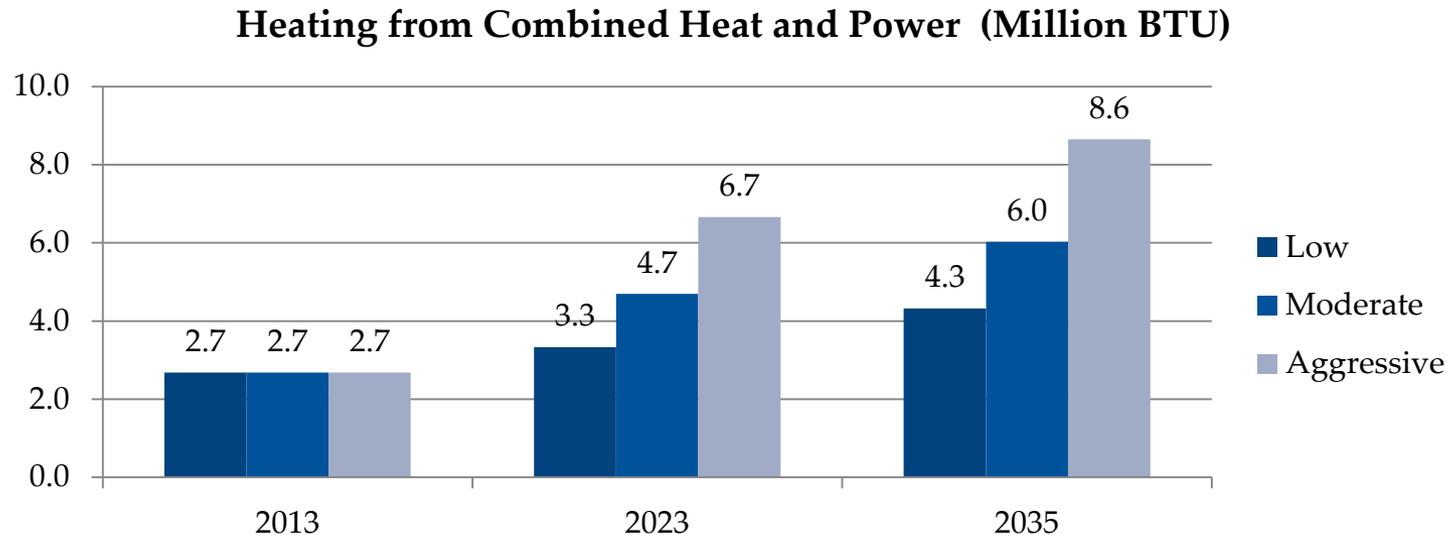
- The heating from geothermal estimates were derived from ENE's forecasts, American Community Survey results and a 2009 study by Navigant for DOE EERE.
- The moderate goal targets 1.0 T BTU by 2035, an average of the aggressive and low cases.
- The aggressive goal targets 4.4 T BTU by 2035, which corresponds to 30% of homes using geothermal heating by 2035.

Deploy Energy Thermal Storage (ETS)



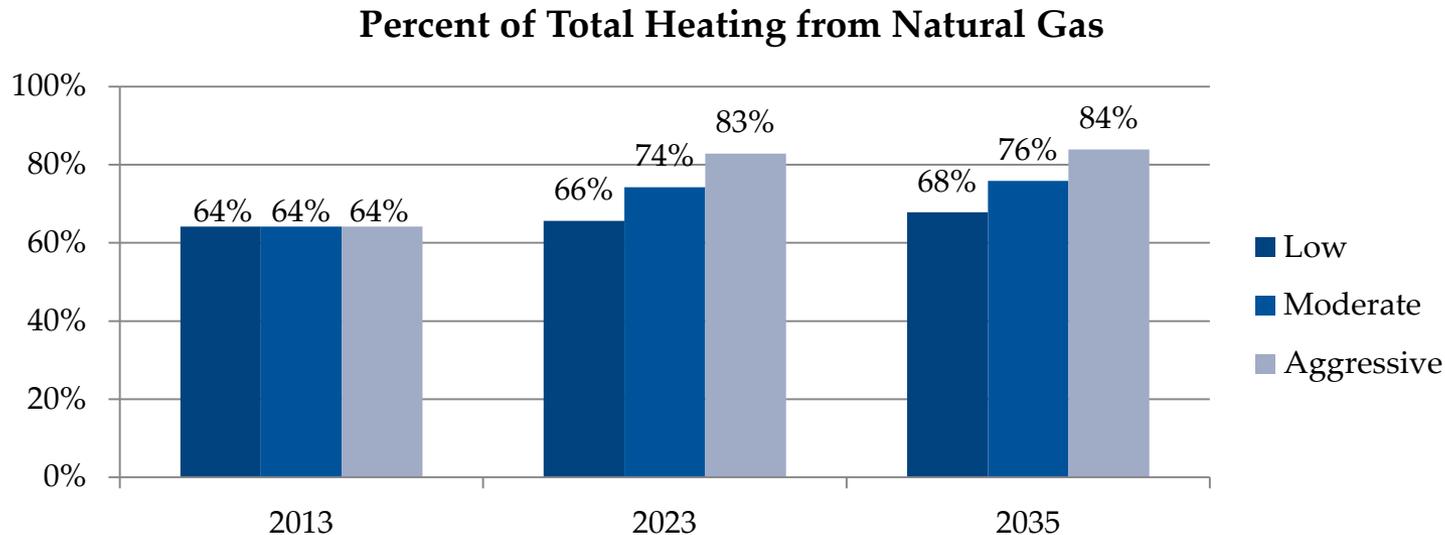
- The energy thermal storage capacities were estimated from data by VCharge, an ETS start-up.
- The moderate goal targets 650 MW by 2035, an average of the aggressive and low cases.
- The aggressive goal targets 3,200 MW of ETS by 2035, which corresponds to having 1/3 of homes heating with oil/propane using ETS by 2035.

Increase Heating from Combined Heat and Power



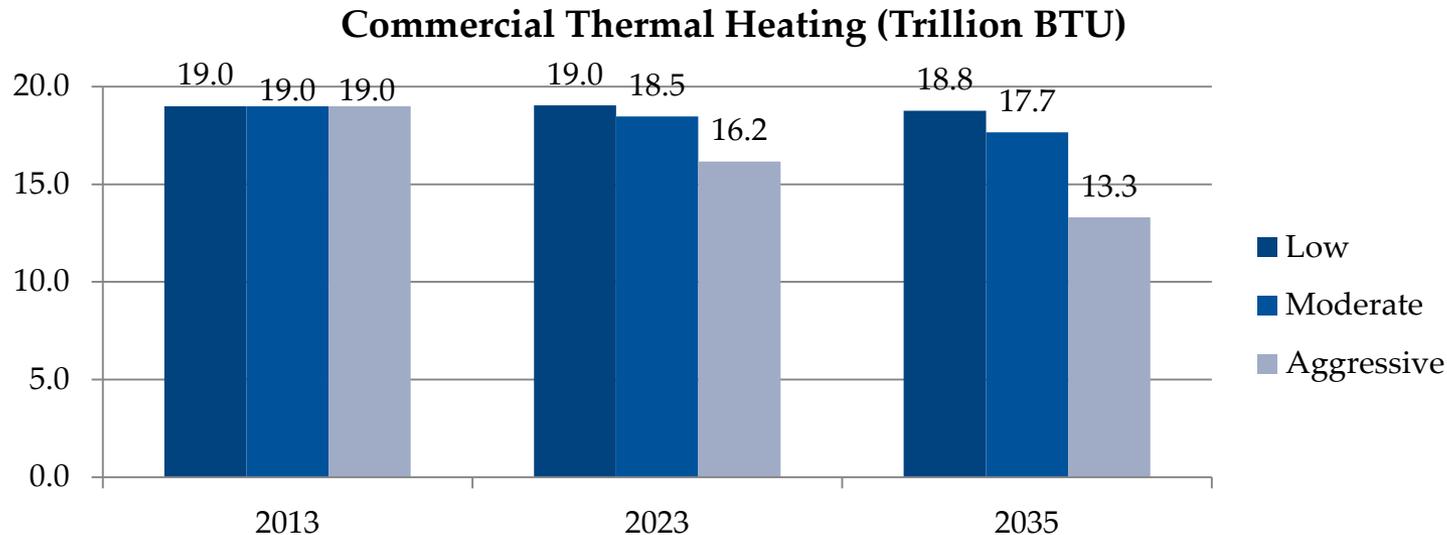
- The CHP capacity estimates are based on a 2012 CHP Study for DOE EERE, 2000 DOE CHP Potential Study, the EERMC's Opportunity Report, Phase 1 and EIA data.
- The moderate goal targets 6.0 MMBTU of thermal energy from CHP by 2035.
- The aggressive goal targets 8.6 MMBTU of thermal energy from CHP by 2035. This number was derived from the CHP capacity (MW) previously estimated and an assumed 75% capacity factor.

Increase Heating from Natural Gas



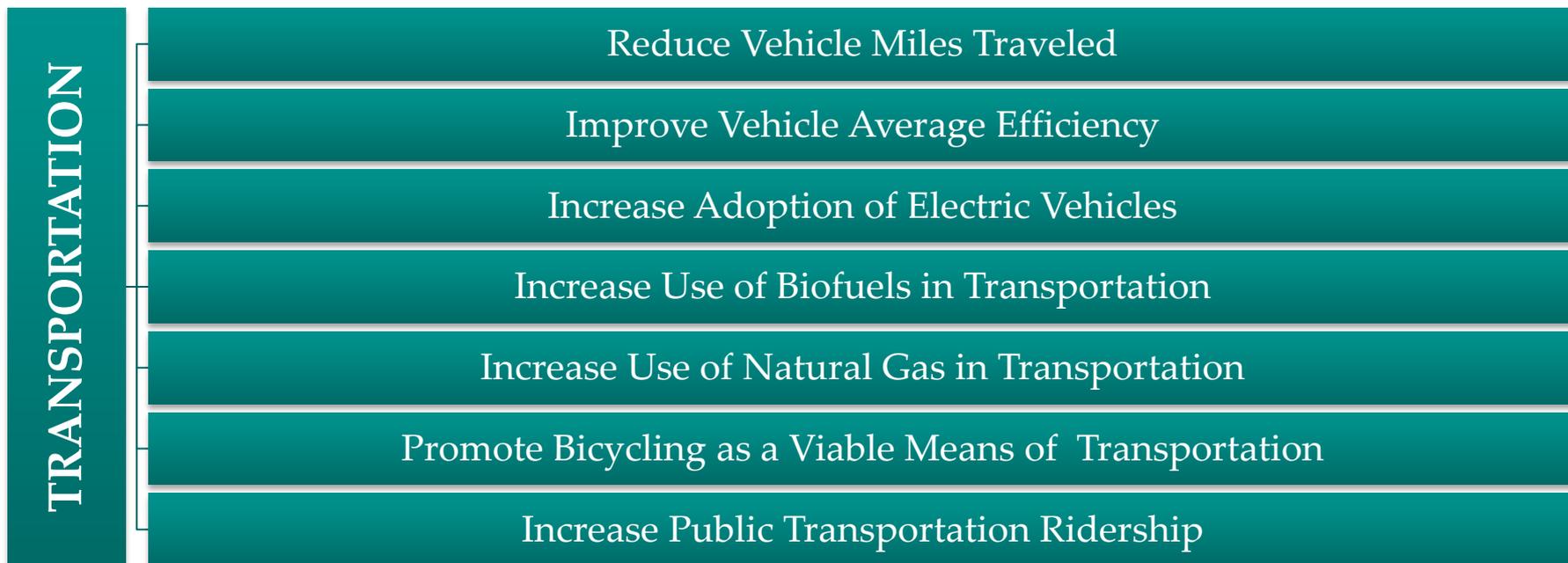
- The heating from natural gas data were extracted from ENE's forecasts, which rely on data from the EIA.
- The moderate goal targets an average between the low and aggressive cases.
- The aggressive goal targets 84% of heating from natural gas by 2035, which corresponds to a 50% conversion of non-natural gas heating to natural gas heating.

Accelerate Commercial Thermal Efficiency Measures

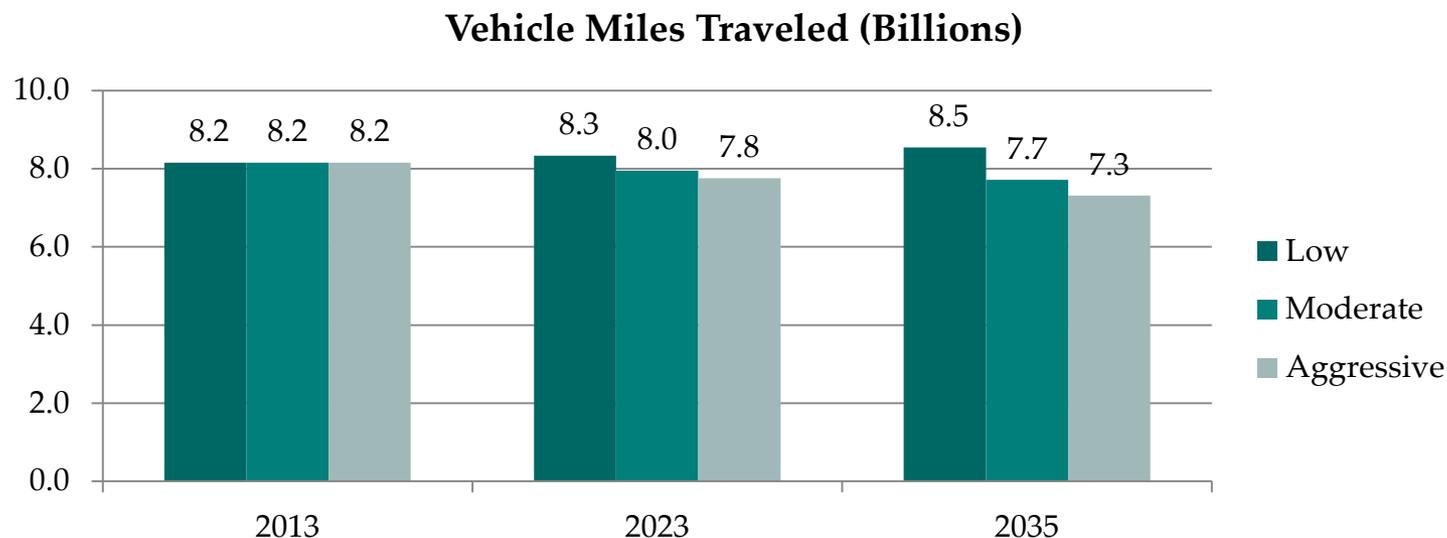


- The commercial thermal heating data were from ENE's forecasts and the thermal efficiency savings potential of RI was estimated from data from the Environmental and Energy Study Institute.
- The moderate goal targets 17.7 T BTU of thermal energy by 2035, or 20% of gains associated with the aggressive target.
- The aggressive bound targets 13.3T BTU of thermal energy by 2035, corresponding to 30% thermal efficiency gains compared to 2013.

Navigant has developed low, moderate, and aggressive targets for change across the following 7 categories for the transportation sector.

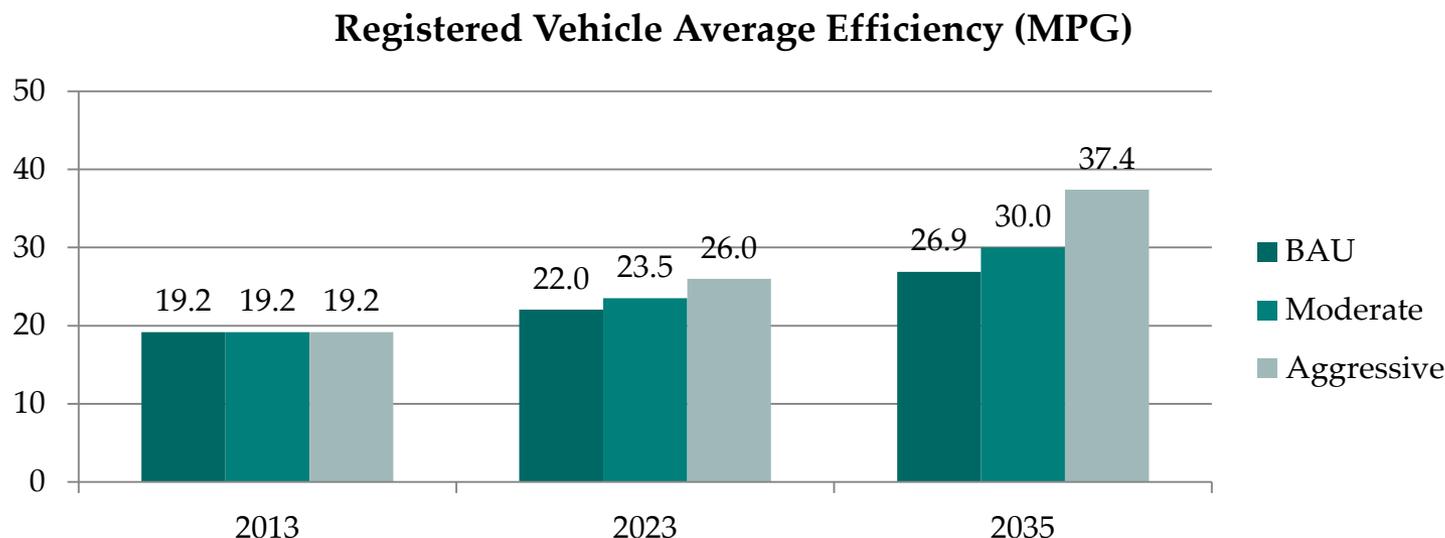


Reduce Vehicle Miles Traveled



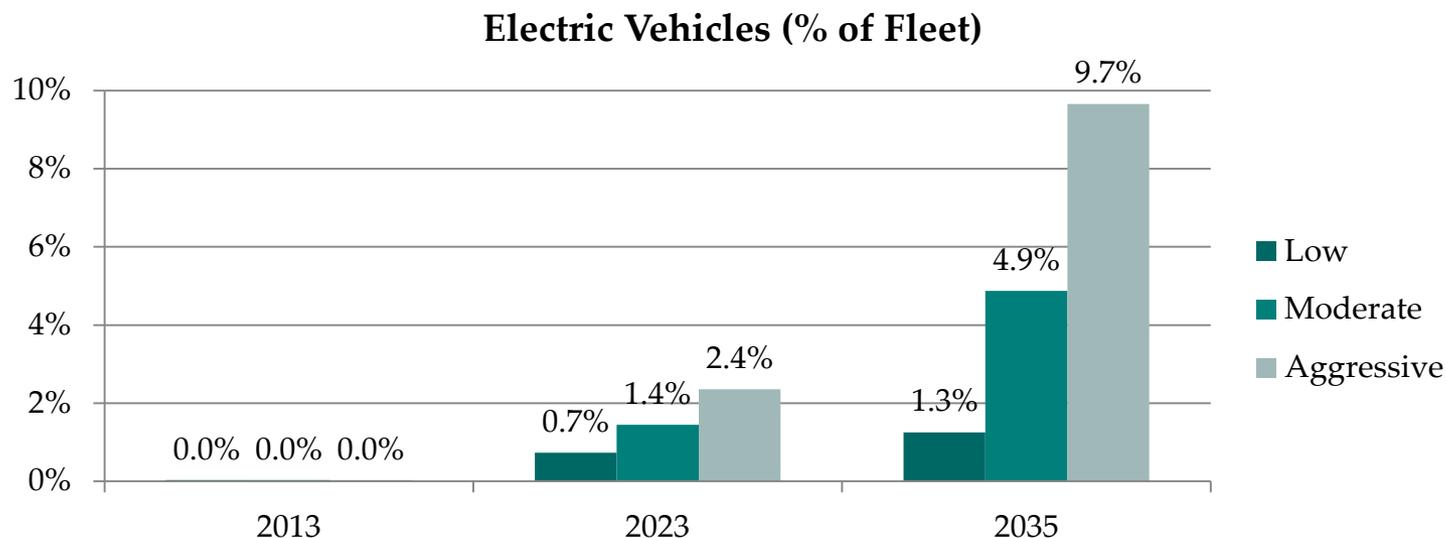
- The VMT forecast is based on U.S. DoT Office of Highway Policy Information Traffic Volume Trends Reports for Rhode Island (monthly data from 2003 – 2012)
- The moderate and aggressive targets represent 5% and 10% reductions from current levels following examples from Denver, Sacramento, and San Francisco Bay Area plans directed at reducing VMT while promoting economic growth.

Improve Vehicle Average Efficiency



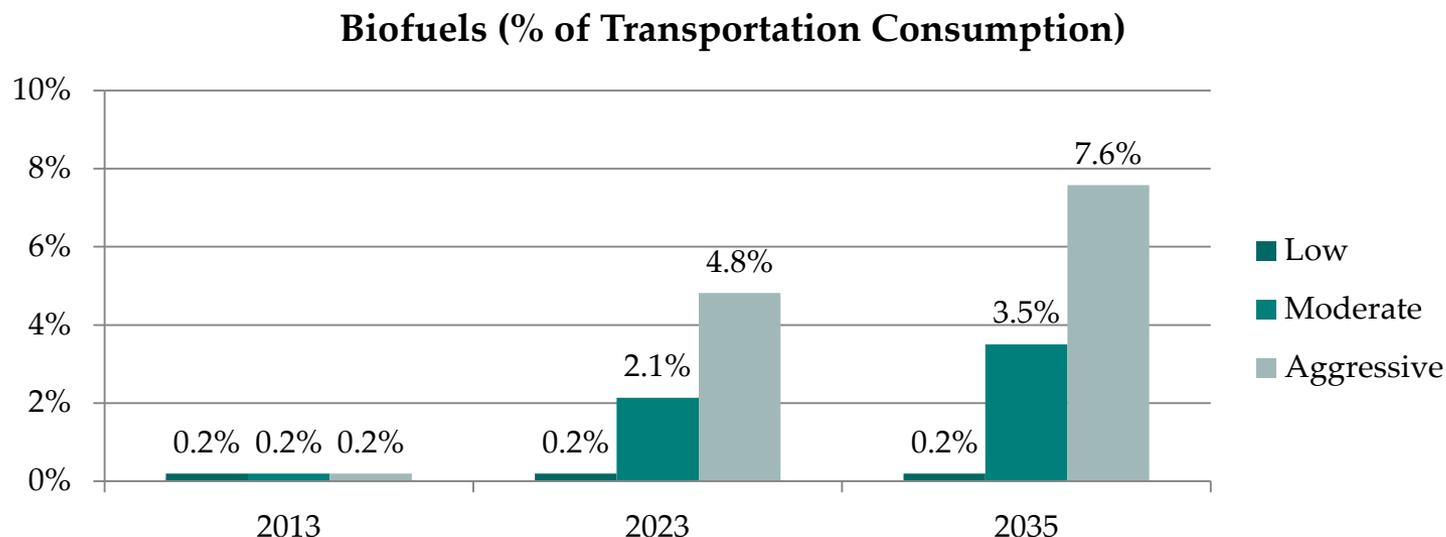
- Vehicle average efficiency is based on ENE's BAU forecast for fuel consumption (gasoline and diesel) compared against the U.S. DoT VMT statistics for the same period (2003 – 2012).
- The moderate goal targets 30 MPG on average by 2035 and back casts annual changes to arrive at the projected 2023 level.
- The aggressive target looks at the resulting average efficiency if the rate of change in the moderate case was 50% higher.

Increase Adoption of Electric Vehicles



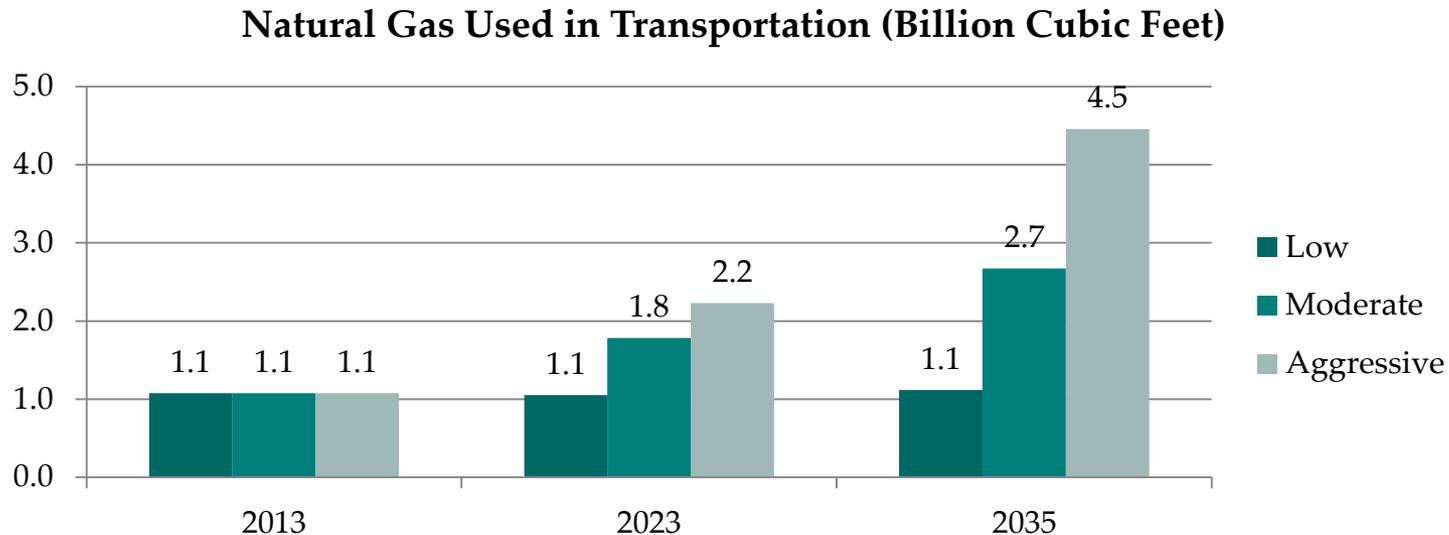
- The low target is based on 2012 Navigant Research Report detailing National EV Sales through 2020, scaled using FHWA registration figures for RI .
- Moderate and aggressive targets based on Bass diffusion models from University of Michigan Study: Market Models for Predicting PHEV Adoption and Diffusion both targeting 10% of market adjusted to reflect a market driven by early adopters alone (moderate case) and a market with a strong follow effect (aggressive case).

Increase Use of Biofuels in Transportation



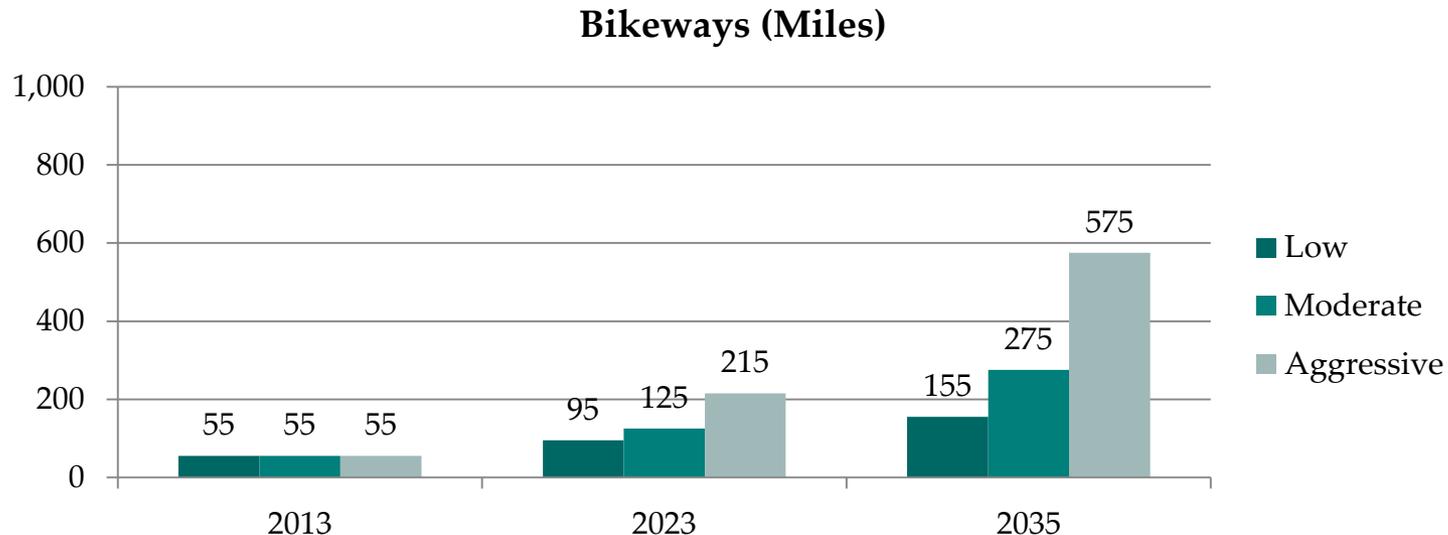
- The low target is based on ENE forecast of Fuel Ethanol (E85) Consumption and US DOE Alternative Fuels Data Center which identified two bio-diesel stations (recycled cooking oil) and zero E85 filling stations in-state.
- Moderate and aggressive E85 targets based sales to date of flex-fuel vehicles assuming 20% and 50% conversion.
- Moderate and aggressive biofuel targets based on 10% and 20% diesel fleet conversion to B20 blend by 2035.

Increase Use of Natural Gas in Transportation



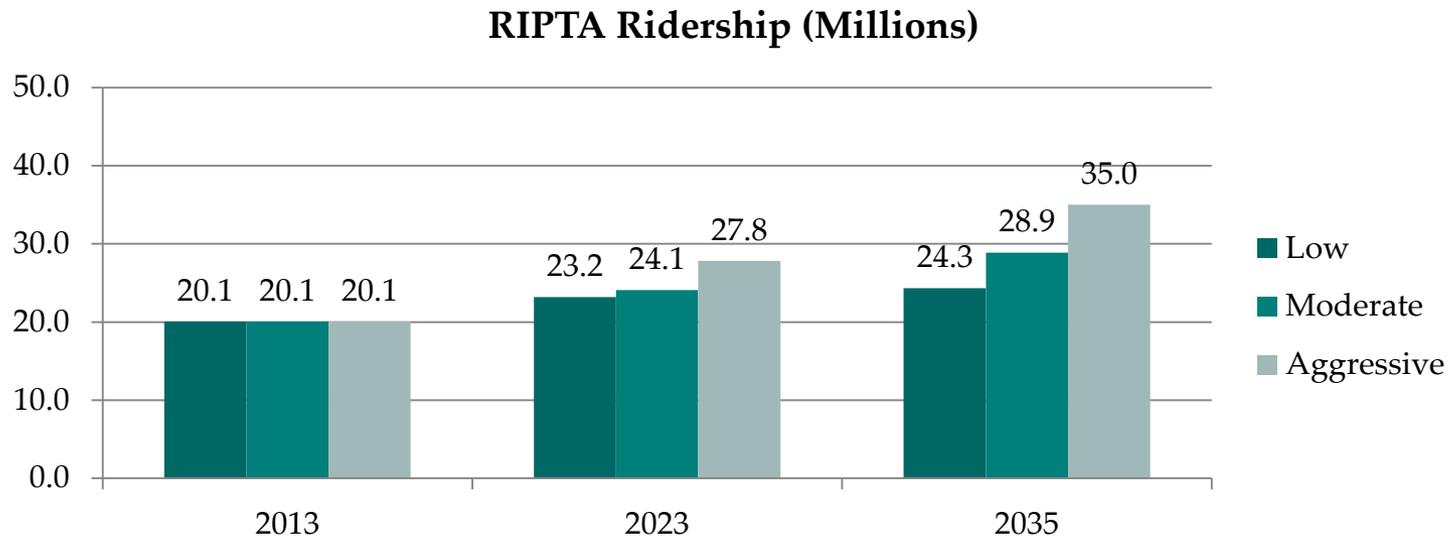
- The low target is based on ENE forecast of NG consumption in transportation.
- Moderate and aggressive targets based on balance of National Highway Association registration data for public and private busses attributing all current NG consumption to publicly owned busses.
- Moderate targets move from 31% NG to 60% NG for busses and aggressive targets 100% of busses powered by NG in 2035, with a 50% interim target.

Promote Bicycling as a Viable Means of Transportation



- The low target is based on RIDoT - Bike Rhode Island figures: Current paths (2013), those under-construction (2023), and 50% of identified.
- Moderate targets assume all under construction and 25% of those identified to be completed by 2023, with the remaining 75% and an additional 50% (previously unidentified) completed by 2035.
- Aggressive targets aim for all under-construction and identified bikeways are completed by 2023 and another 360 miles completed by 2035.

Increase Public Transportation Ridership



- The low target is based on RIPTA 5 year program to expand ridership by 10%. Assumed additional 5% growth through 2023 and 2035.
- Moderate targets assumes RIPTA can maintain similar levels of growth as identified in their 5 year plan through 2035.
- Aggressive targets aims to increase that rate by 20% and target 35 million rides by 2035.

1. Introduction and Purpose
2. Workflow: Targets, Strategies, and Scenarios
3. Electric, Thermal, and Transportation Targets
4. Straw-man Scenarios
5. Next Steps



Navigant created 3 straw-man scenarios for discussion. These will be modified based on feedback from the Advisory Council.

Scenario 1: Demand Reduction

- Aims to cut GHG emissions and energy related expenditures through aggressive measures to reduce in-state energy demand across the three sectors.

Scenario 2: Renewables Pioneer

- Aims to reduce GHG emissions and position Rhode Island as an environmental leader through significant investment in distributed renewables and vehicle electrification.

Scenario 3: Alternative Power

- Aims to reduce GHG emissions and promote energy security through fuel switching and the development of industrial scale renewables.

1. Revised Workflow: Scenarios, Targets, and Strategies
2. Electric, Thermal, and Transportation Targets
3. Revised Straw-man Scenarios
4. Next Steps

Following this meeting, Navigant will solicit feedback from the Advisory Council, finalize the scenarios, and proceed with Task 4.



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Next Steps

Next Steps

Next Steps:

- Advisory Council members will provide feedback on **draft targets and strategies** via email to OER **by Friday, May 17th COB**
- The Implementation Group Kickoff meeting will be held **Friday, May 24th, 9am-12pm** at the URI Bay Campus, Coastal Institute, Hazard Rms.
- The next Advisory Council meetings will be scheduled for **late June** and **late July**

Rhode Island State Energy Plan

Advisory Council Meeting #5

May 9, 2013

ADVISORY COUNCIL MEETING

RHODE ISLAND STATE ENERGY PLAN (RISEP)

**Thursday May 9, 2013
1:00 PM-2:30 PM
Narragansett Room
RI Economic Development Corporation
315 Iron Horse Lane
Providence, RI**

ATTENDANCE:

Advisory Council Members: Abigail Anthony, Bill Ferguson, Doug McVay, Ian Springsteel, Jack Leyden, Jeff Broadhead, Jerry Elmer, John Gilbrook, Jon Hagopian, Julie Gill, Ken Payne, Melissa Long, Nick Ucci, Sheila Dormody

Steering Committee & Project Team Members: Marion Gold, Danny Musher, Chris Kearns, Rachel Sholly, Hannah Morini, Kristine Daly, Kristina DiSanto, Michael Giles, Mike Guerard, Paul Gonsalves

Other Attendees & Members of the Public: Stephan Wollenburg, Charles Hawkins, Lisa Frantzis, Ben Barrington

AGENDA:

- 1:00 Welcome – *Danny Musher, RIOER*
- 1:10 Scenario Modeling Presentation – *Ben Barrington, Navigant Consulting*
- 2:00 Questions & Discussion
- 2:20 Public Comment
- 2:30 Adjourn

MINUTES:

The meeting was called to order at 1:05 PM.

Danny Musher welcomed everyone to the fifth meeting of the RI State Energy Plan (RISEP) Advisory Council (AC) Meeting. Currently the AC is working on the third task (scenario modeling) of the first phase (research and data) of the RISEP. The RISEP, when completed will be incorporated in the State Guide Plan (SGP). The Consultant team from Navigant, Lisa Frantzis and Ben Barrington, were introduced to present a power point (Attached) on the scenario modeling process.

Today's meeting will introduce the target setting exercise and explain how this fits with strategy development and the scenario modeling process. The purpose of the meeting is to solicit feedback from the AC on the proposed targets and the new straw-man scenarios. The AC will develop scenarios aimed at meeting key targets for change in energy supply and demand that represent alternative energy futures. Parallel to developing scenarios is developing the strategies, such as on-bill financing or increased renewable energy (RE). Low, moderate and aggressive targets were set for each aspect of the energy supply infrastructure or demand profile. This was done in ten categories in the electric sector, six in thermal and seven in transportation.

An illustrative chart was then displayed that showed how this would work with vehicle miles traveled which is a transportation target. Jerry E. said that nine months ago the AC was asked to submit recommendations for targets in each sector. What use did Navigant make of that feedback? Ben B. said he was not aware of which targets to which Jerry was referring. Danny M. clarified that he had shared this information with the project team and with Navigant. Ben B. said he would make sure the information was incorporated.

Ben B. then went over the ten targets for the electric sector. Nick U. commented that the targets for RE should not be resource specific. The problem with these targets is that they ignore other developing technologies, which may be more cost effective. RE technologies are treated equally in RI RE laws like the Renewable Energy Standard (RES). Will these technologies, like landfill gas and clean wood, be excluded in the RISEP? Ben B. said that if AC members want additional technologies added to the targets please provide that feedback. Nick U. would encourage the AC to let the market determine what is cost effective. It appears to him that the RE resources the state will pursue have been pre-selected. The RI RES and DG long term contracting statutes treat wind and landfill gas equally. It is always better to be more inclusive. Ben B. acknowledged that the AC needs to make sure they have a complete menu to choose from and would make sure that all resources defined as renewable under the statute were included.

Jon H. said that the AC should go through the RI RE laws and use them as a guide. Go through the entire Title 39, which deals with these laws and lists eligible RE sources. Danny M. said the project team will be doing this. Ken P. said the list should be RE technologies as of now, because no one knows what will happen in the future. It should not be limited to the current list. He mentioned clean wood. The SGP says that 53% of RI is forested and that 20 years ago RI crossed a line and now has mature forests it does not know what to do with. Nick U. said it goes to the fuel diversity question which is a core Directional Objective (DO) of the RISEP. A limited RE list could retard business opportunities from other sources that could stimulate in-state jobs. Ben B. said a DO is increasing state jobs. Lisa P. said that Navigant will be reviewing everything in Title 39.

Ian S. said the AC should look at recent National Renewable Energy Lab (NREL) research on new technology for developing wind blades with increased capacity. He said

that a 1.5 MW turbine that had a 25 % capacity before could be as high as 40% with these new blades, making it more cost effective. Danny M. said that capacity factor would be looked at during scenario modeling. Reacting to the aggressive on-shore wind target, Bill F. felt it was unrealistic to think that every RI town had adequate resources to support wind. Ken P. agreed and cited Central Falls. Jerry E. said it also ignores OER's wind survey that says some towns don't have the wind capacity. Lisa F. said the real number to look at is the 78 MWs developed by 2035 in the aggressive target. The "per-town" calculation is just a reference-point to give a flavor for how much capacity that would look like. Some AC members thought that if you look at it from a perspective of total capacity the target might be too low, but if you look at it from a per-town perspective, the target might be too high.

Julie G. asked if the study on why Germany abandoned their solar rebate program has been looked at. They discovered that it was not cost effective. Lisa F. said that Germany has a feed in tariff (FIT) that was paying 60 cents a KWh and was costing too much. They are now in the process of lowering that FIT. Germany is still the leading solar market. Ben B. said that in the scenarios economic factors, like rebates, net metering and FITs, will be factored in. Jon H. mentioned that ratepayer impacts should be modeled, and Ben B. confirmed they would be.

On the out-of-state hydropower slide, Bill F. asked why they were using megawatts for some slides and percent of load for others. Ben B. said it can be converted to MWs but in this slide they were looking for percent of load. Nick U. said you have to look at nameplate capacity factor for both on-shore and off-shore wind because they will be different. Lisa F. said that the models will look at capacity factor.

Next Ben B. then showed a slide on the expansion of natural gas (NG) fired power plant capacity, which could get to 2,800 MWs by 2035. Jerry E. asked why they were modeling an increase of fossil fuels in light of climate change. He feels the aggressive target should be zero. Sheila D. would like to see a scenario where NG decreases. Ben B. says the strategies don't always look at a decrease in GHG emissions. Lisa F. suggested making the bounds for NG below the BAU and lower it from 1,850 to 1,000 MWs. Test a model where NG decreases. Julie G. asked why they were looking for an expansion of NG when it might not be the answer. She feels the methane NG produces is worse than carbon dioxide. Sheila D. would like to see a model where we get off NG. Ben B. said any scenario that addresses Greenhouse Gas (GHG) will be looking to expand RE and offset the demand for NG fired power. Ian S. said that NGrid was very concerned about methane, especially leakage from gas pipelines. If people are concerned about methane they need to improve the gas infrastructure to eliminate this leakage.

Ken P. said Navigant is using the definitions aggressive & moderate differently depending on the source of supply. He said inconsistent definitions in any statutory framework are a killer. You need to use the definition the same way with the same variables. Navigant is not using the terms in the same way. Definitions are critical.

Bill F. would leave the NG slide the way it is. What happens if off-shore wind does not develop? You need to get at the MWs wind does not produce. It could be from NG. Jon H. said that the AC should review the procurement documents at the PUC that look at the fuel and energy mixes. Navigant should look at what is happening in RI, on the ground now, in a more focused manner. Ben B. said that Environment Northeast did a BAU forecast that looks at the fuel mix in power generation. Ben B. said that Navigant was looking for feedback on whether these low, moderate and aggressive targets are realistic. Marion G. said we need to look at out of state RE procurement.

Ben B. then moved on to slides that showed the residential thermal sector targets. Ian S. asked about commercial geothermal. Ben B. said they would look into commercial geothermal applications. The aggressive target for NG heating was 84% of homes by 2035. The forecast for commercial EE was flat because there are not that many opportunities to increase it that have not already been pursued.

Ben B. then proceeded to the transportation targets. The vehicle miles travel data comes from the USDOE Office of Highway Policy Information. EV penetration rates are 9.7% by 2035 in the aggressive case and flat in the BAU. Ian S. asked Ben B. to translate the aggressive EV target into MWhs so he can understand the load growth. Sheila D. asked if the targets include the same number of cars on the road. Ben B. said it was the same as in the vehicles miles traveled. John G. asked how old the data is, NGrid may have more recent information. He also said that load growth would be higher in EVs than hybrids. Jerry E. feels a new assumption is needed, that is modeled separately, that has the same number of cars, EVs and hybrids included, and assumes increased public transportation. Introduce a whole different variable where the number of cars, instead of increasing to 2035 as it has for the last fifty years, actually decreases. Sheila D. said it would be helpful to have a model with fewer cars on the road. Lisa F. said that would be captured in the public transportation slide.

Ben B. then went over the targets for increased use of bio-fuels in transportation. John G. asked if they were using the RFS definition of bio-fuels that includes bio-gas. Ben B. said they had not factored that in. The NG in Transportation slide looked at fuel switching in public buses. The aggressive target calls for 100% of buses powered by NG in 2035. Jerry E. asked about aggressive targets for electric powered buses. Ian S. thought commercial truck fleets, like UPS and post office trucks, should also be included.

In the public transportation slide the low target is based on RIPTA's five year program to expand ridership by 10% and the aggressive target aims to increase this by 20% and targets 35 million riders by 2035. Melissa L. said that RI's aggressive rail program has to be considered. You can't just look at RIPTA. Freight rail also has to be looked at because it reduces truck travel. Jerry E. said the low, moderate and aggressive figures for RIPTA ridership, by 2035, are all lower than RIPTA's BAU forecast for ridership growth. This is why he is recommended RIPTA be part of the AC. The aggressive target is actually lower than RIPTA's BAU data for the last two years. Danny M said that RIPTA has been invited to the implementation group workshop scheduled for May 24th.

Ben B. then showed a slide that had the three straw-man scenarios for discussion, which will be modified base on AC feedback. Scenario 1: aims to reduce emissions and expenditures through aggressive demand reduction. Scenario 2: aims to reduce emissions through significant investment in DG and EVs. Scenario 3: aims to reduce emissions through fuel switching and industrial scale RE. These were arrived at through discussions with the project team. Ian S. felt these scenarios seem to be tactical and resource specific and overlap. When he thinks of scenarios he looks at different social and political outcomes. He feels one viable scenario would be political gridlock and stalemate resulting in no action. Sheila D. said another scenario is reducing demand and getting all energy from clean sources. Ian S. said that these scenarios deal with tactics to get at a goal but do not deal with society's willingness to pay. Bill F. said what is missing is a cost-effectiveness aspect. He feels that these scenarios do not deal enough with affordability. Lisa F. said affordability could be one scenario. Ian S. said that when he thinks of scenarios he thinks of specific pathways. He feels the state is already doing all three scenarios aggressively and should stay on that path. John G. feels we should look for a happy medium in scenarios. He wants to know what the balance is. The definition of scenario may be causing a conflict. He would like to move between the three scenarios to get at this balance.

The next step is to get feedback from the AC on modifying the scenarios. Navigant will integrate the feedback to develop strategies to meet each target. Then a workshop will be held at the end of the month with the implementation teams.

The meeting was adjourned at 3:00 PM.