

# A Period of Consequences\*

A discussion paper on the future of electricity supply

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*\*“The era of procrastination, of half measures, of soothing and baffling expedients, is coming to a close. In its place we are entering a period of consequences” - Winston Churchill 1936*

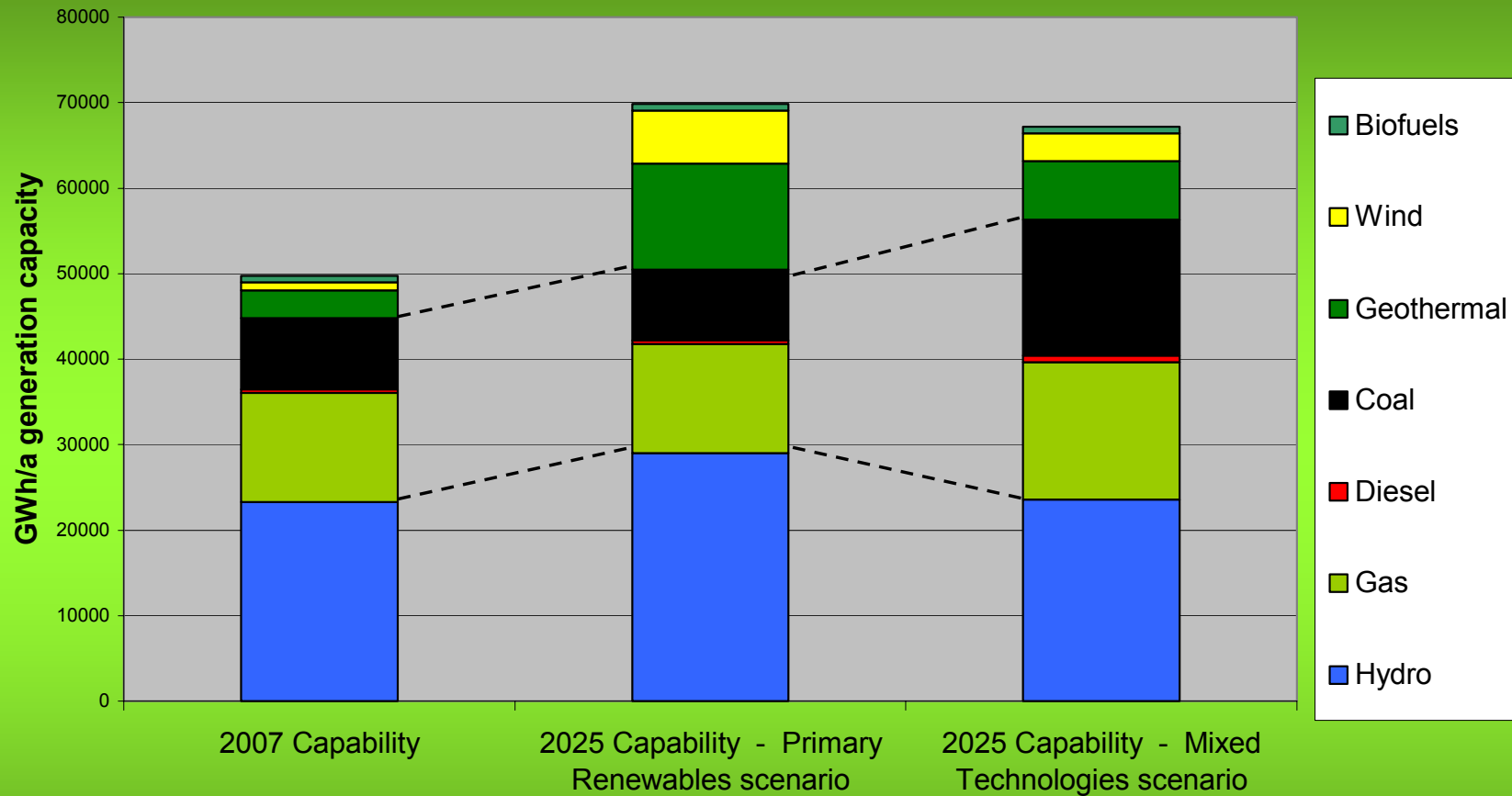
## Topical Questions in 2008

- Is 90% renewable electricity by 2025 achievable?
- Could the NZ electricity system cope with a large switch to electric vehicles?
- Why does NZ need a gas-fired power station in Rodney District?
- Why does NZ need to consider importing LNG into New Plymouth?
- How much new renewable electricity generation would be needed?
- What will be the CO<sub>2</sub> emission consequences?



# Generation Capability Scenarios for 2025

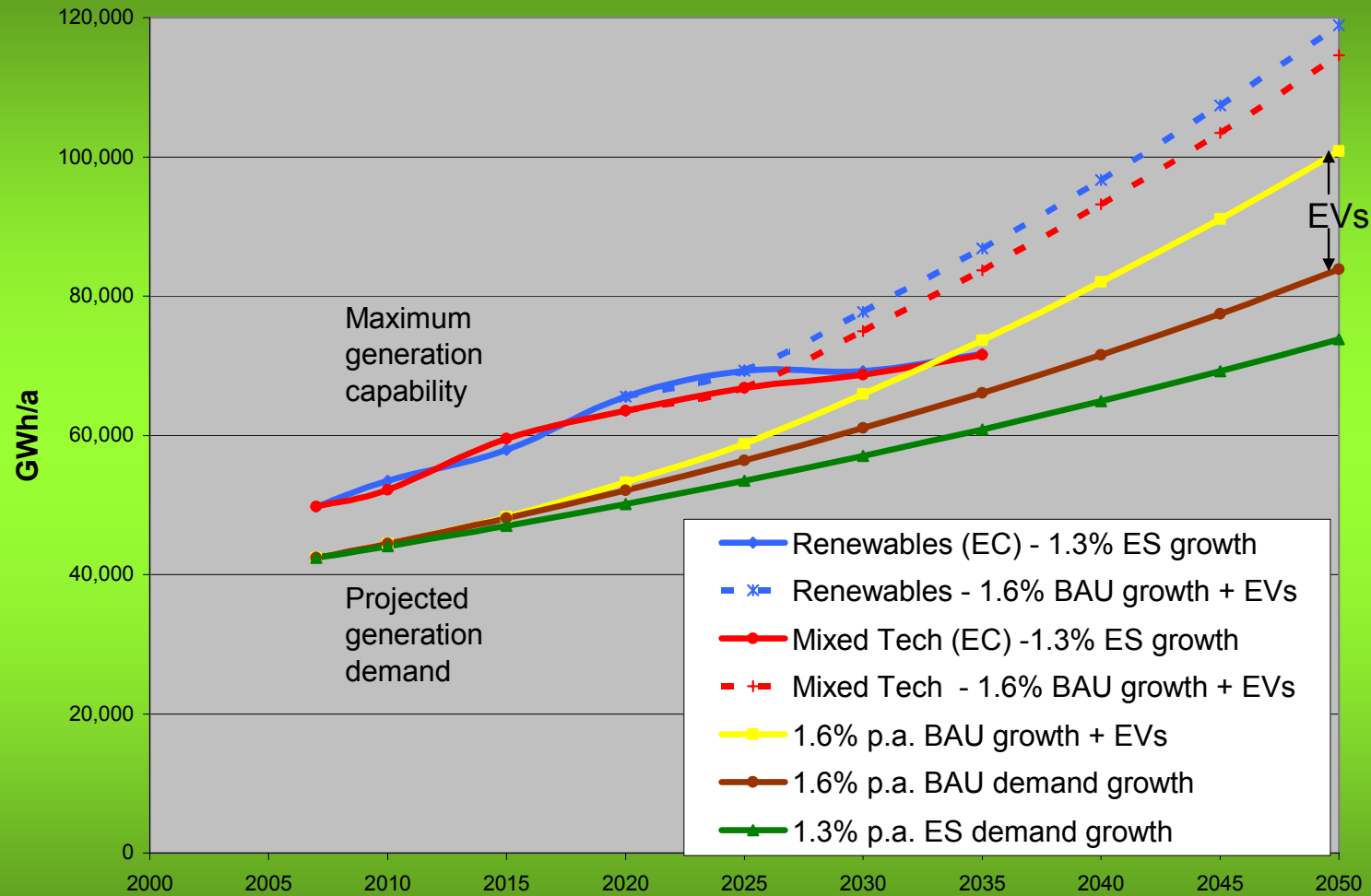
(Based on Electricity Commission Grid Planning Assumptions 2008)



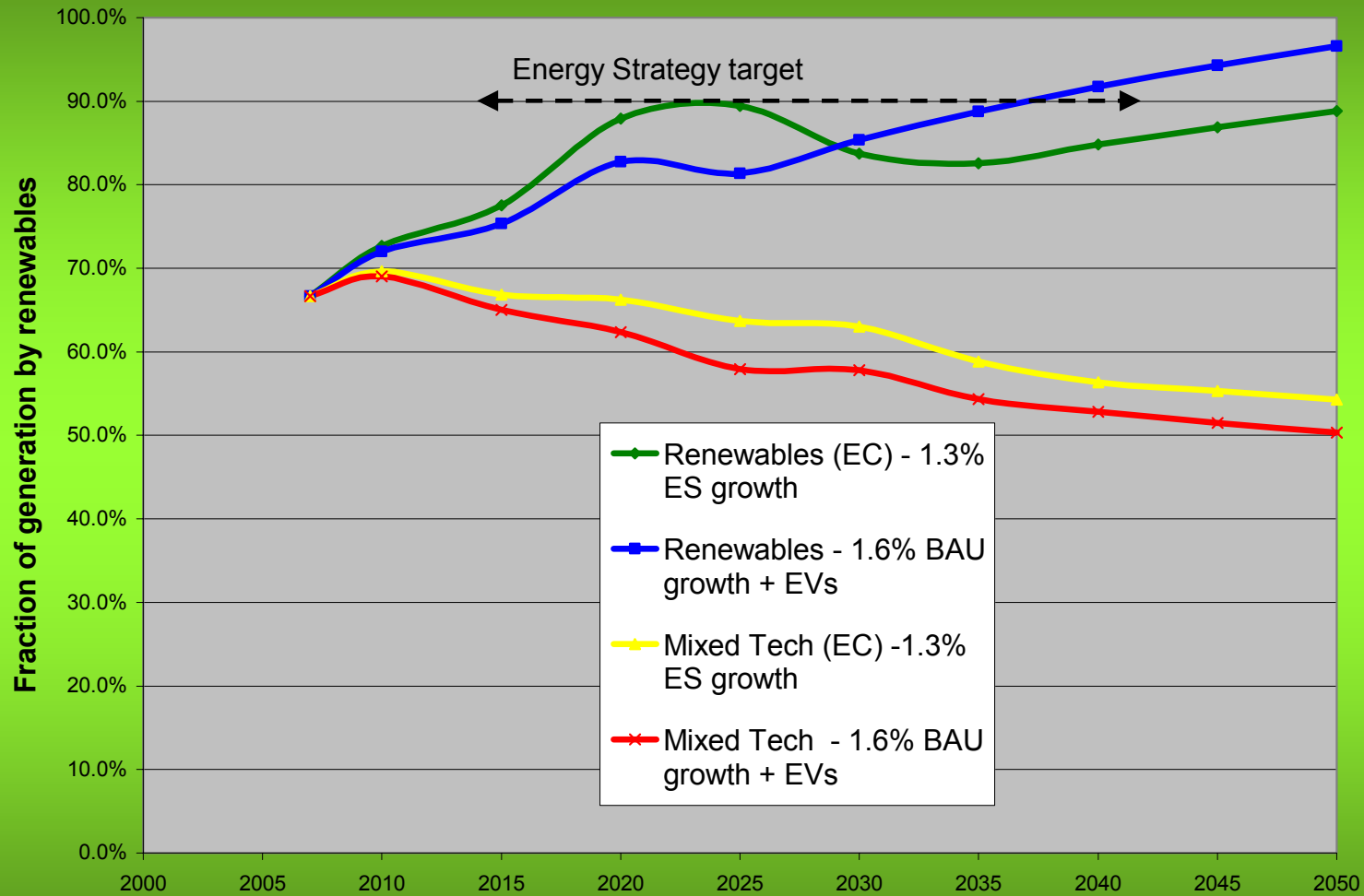
Electricity Commission Grid Planning Assumptions 2008



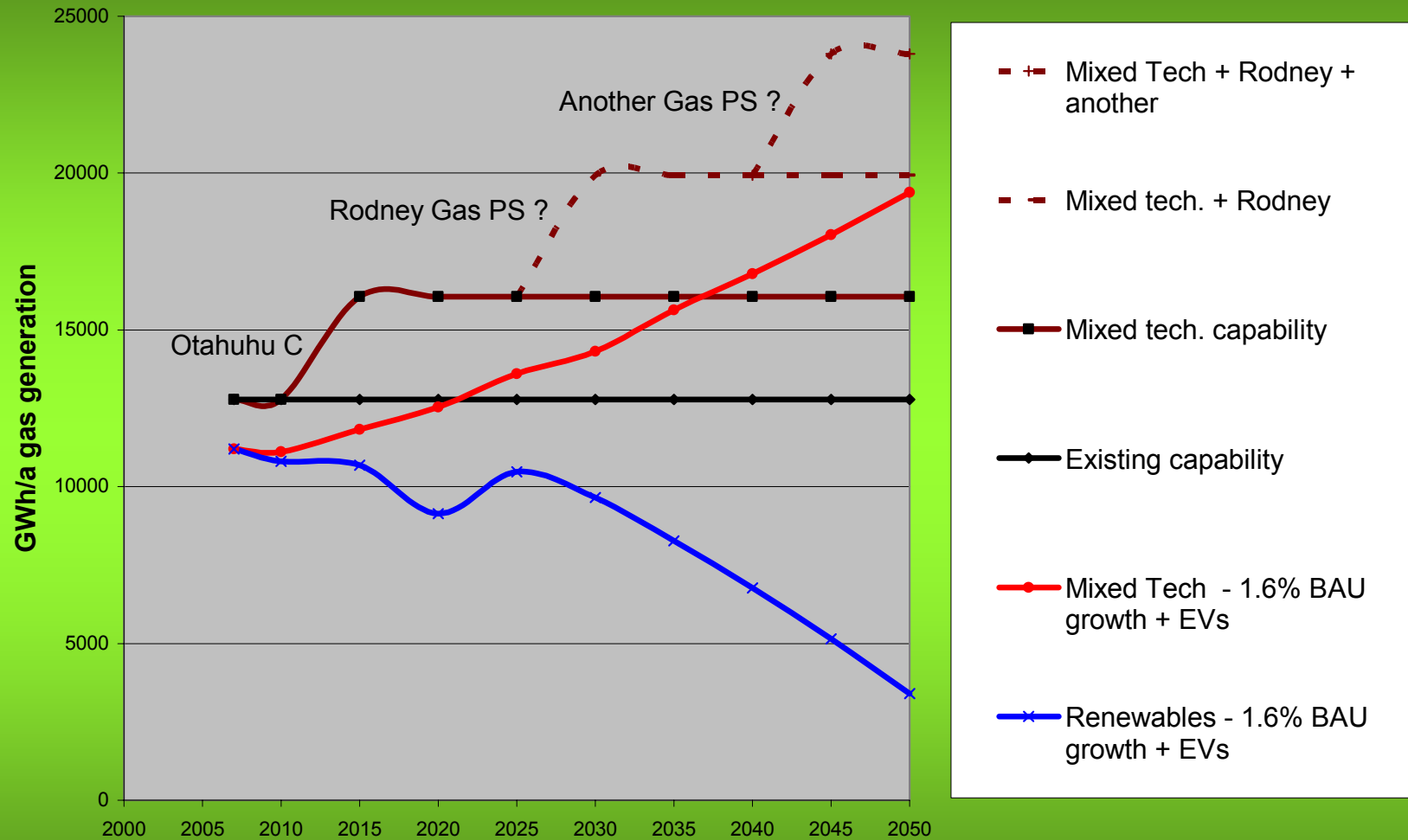
# Comparison of Demand and Capability



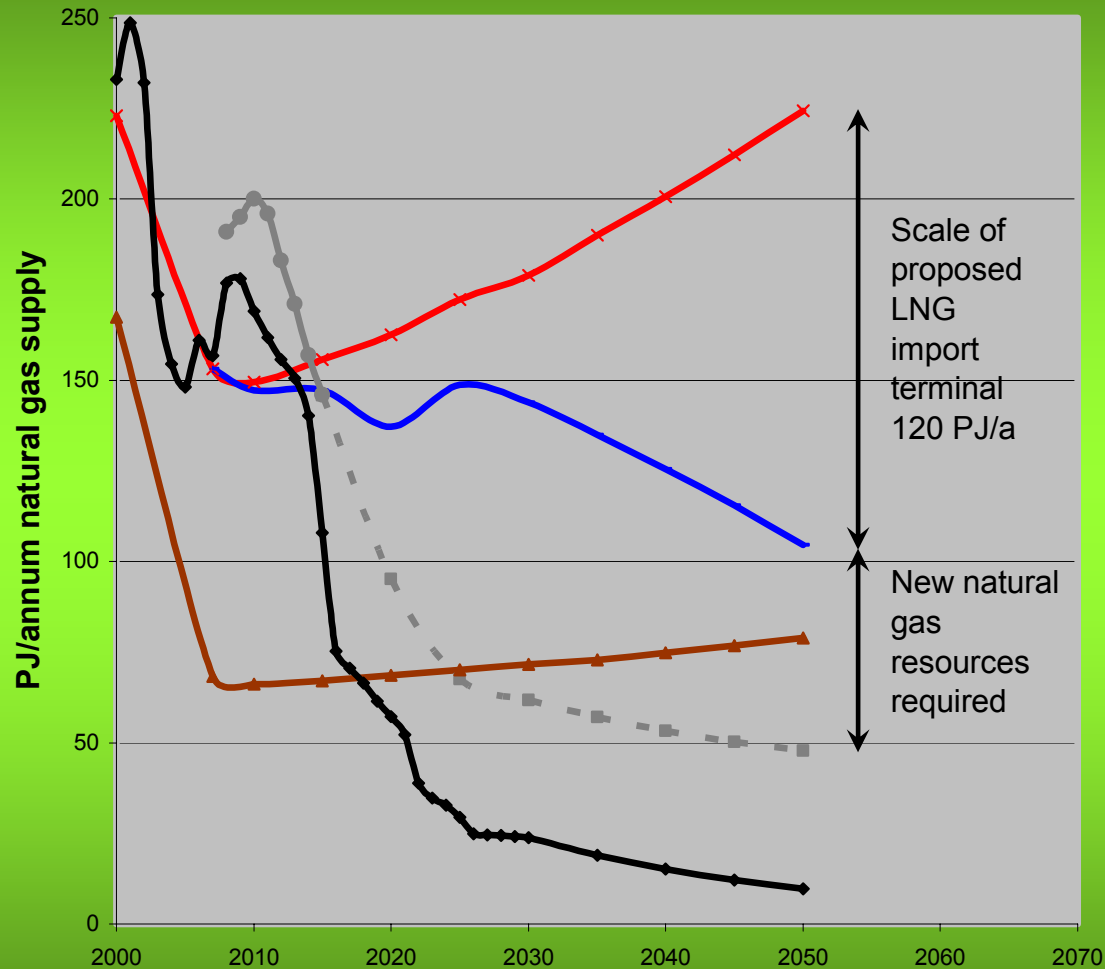
# Meeting the 90% Renewables Energy Strategy Target



# Consequences – Gas-Fired Generation Capacity



# Consequences – Natural Gas Supply

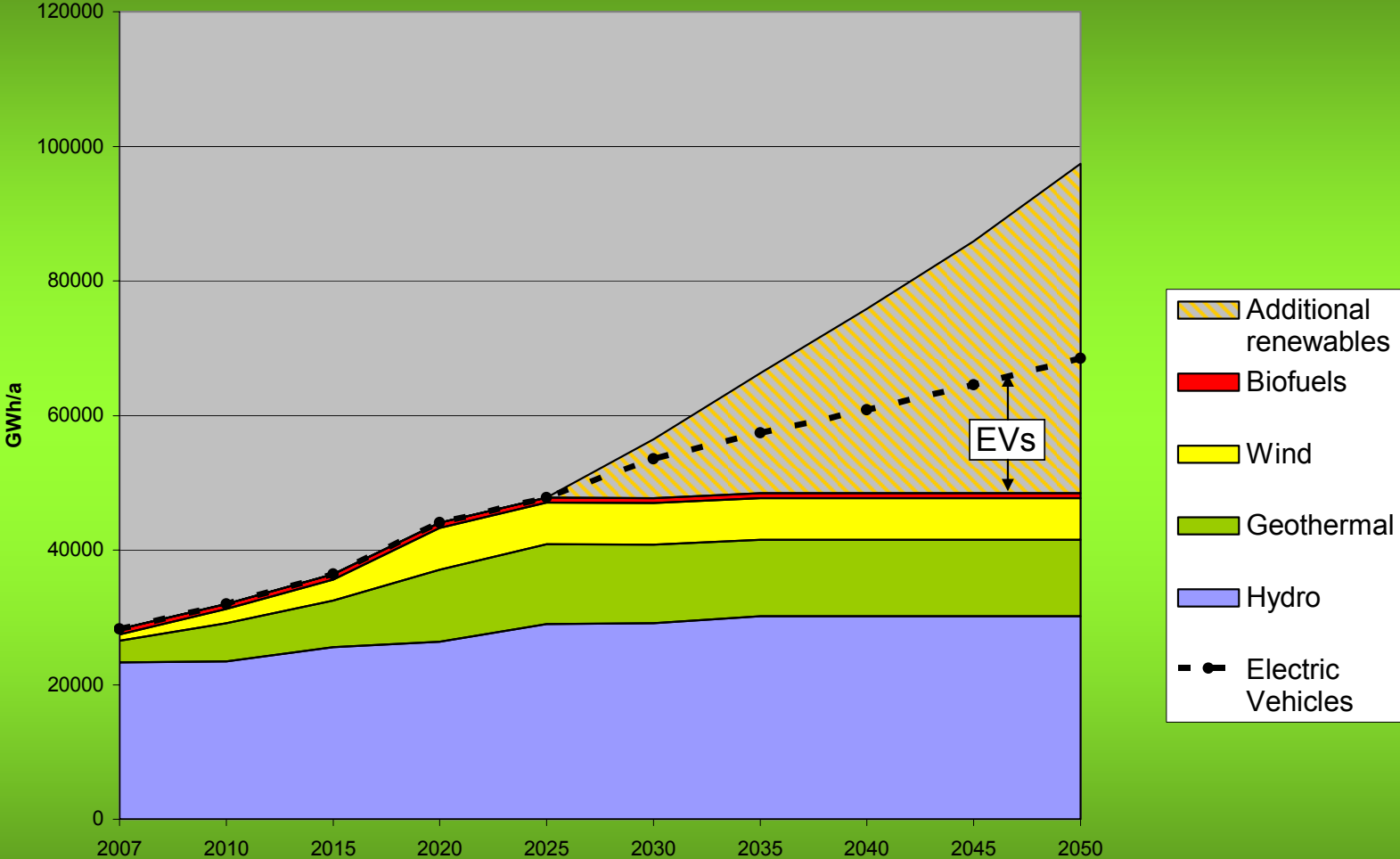


- x Mixed Tech - 1.6% BAU growth + EVs
- Renewables - 1.6% BAU growth + EVs
- - Estimated revised gas reserves
- ▲ Non-powergen gas needs (inc. cogen)
- ◆ Existing Gas Resources - MED Energy Outlook Sept 2006
- ● Gas Resource estimate - Gas Ind Co March 2008



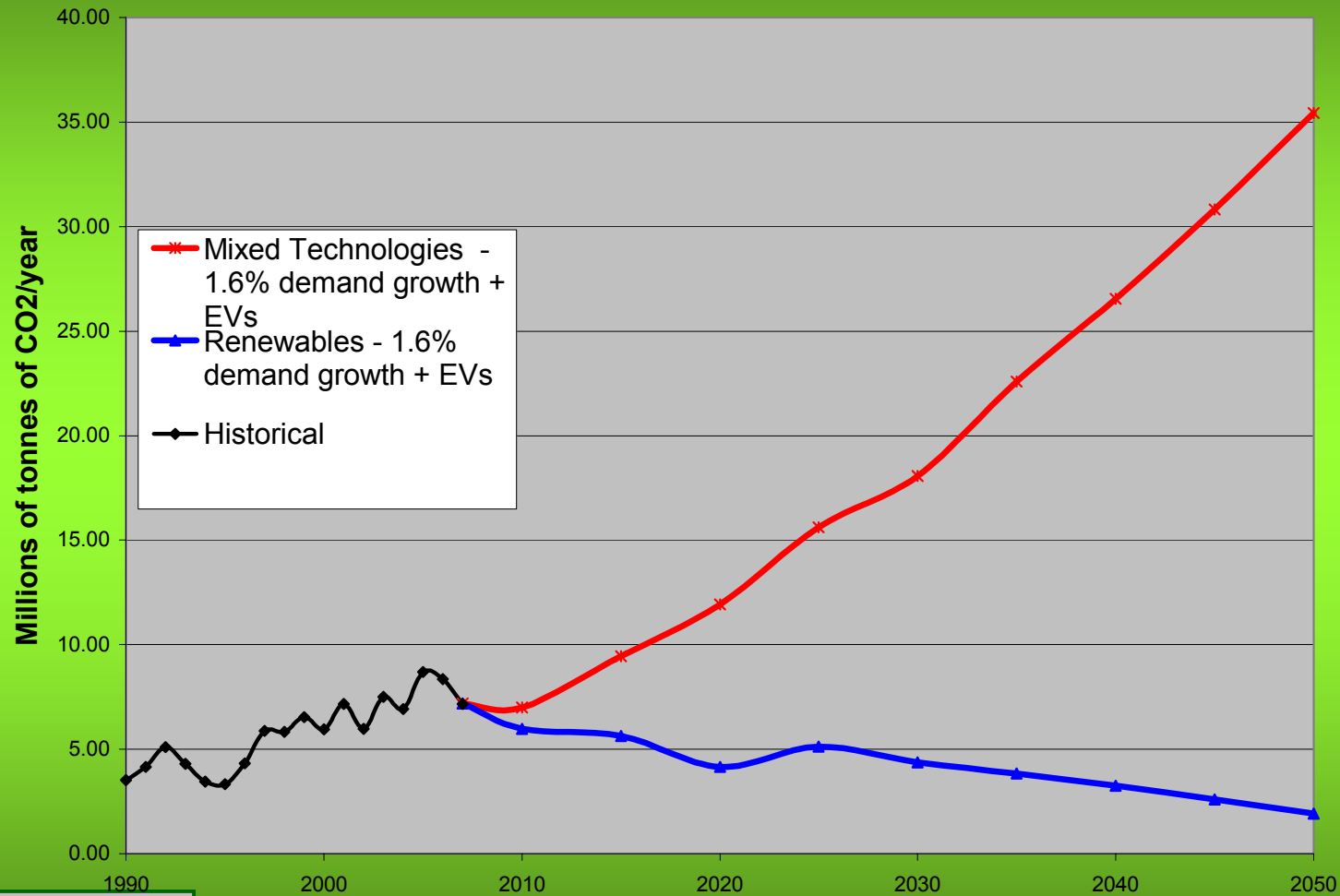
# Consequences - Renewable Electricity Generation

(@1.6% demand growth +EVs)





# Consequences – CO<sub>2</sub> Emissions from Power Generation



# Consequences of Alternative Pathways

## Renewables

- Challenging programme of new renewables development
- Need to modify energy consumption expectations
- Greater environmental intrusiveness

## Mixed Technology

- 10-fold increase in CO<sub>2</sub> from power generation above 1990 levels
- NZ gets locked-in to importing scarce LNG
- NZ exposed to global prices for imports of coal, oil and gas

