

# Draft Assessment of Potential Regional Sustainable Energy Actions

	What	Who	When	How	Realistic Potential within Wellington Region	Advantages	Disadvantages	GWRC's Need or Ability to Potentially Influence <i>Maximum of 5 **s</i>	Energy Priority Ranking within Wellington Region <i>Maximum of 5 **s</i>
<b>Demand Management Measures</b>									
	Light Bulbs	Central Govt - primarily EECA	Existing/Ongoing	Private initiatives primarily EECA promotion PCC supported a successful scheme to distribute 2 CFLs per household in Titahi Bay	Existing incremental uptake  Some momentum already Cost sensitive	Cost savings  Reduces peak demand  Emission reductions	PR issue to overcome re materials & resistance re initial compulsion	**	**
	Domestic Insulation	Private Central Govt Potentially augmented by TA & RC brokering	Existing/Ongoing	Private initiatives primarily Central & Local Govt promotion ECan model exists for full regional council involvement	Existing incremental uptake  Significant potential for increased uptake	Cost savings (\$2 : \$1) Reduces peak demand Health savings & benefits, esp. for low income households Job creation Emission reductions	Initial installation costs, but could be negated though with new Central Government schemes	***	****
	Domestic Air Tightness	Private Central Govt Potentially augmented by TA & RC	Existing/Ongoing	Primarily private initiatives  Central & Local Govt promotion	Existing incremental uptake  Real potential for significant uptake	Health savings  Low cost measures generally result in significant improvements  Reduces peak demand  Emission reductions	Initial implementation costs, but could be reduced with new Central Government schemes	***	***
	Advanced/Real Time/ Smart Metering	Existing momentum in some regions Energy retail firms hold the main initiative	Medium/Ongoing	Central Govt directive or incentive may hold the key to make metering widespread	Low uptake in Wellington Region,  Has potential to become widespread	Cost & energy savings in reaction to observed real-time energy usage Emission reductions through reduced consumption	Potentially low income households could cut back heating too much with poor health consequences	*	**
	Heat Pump (Air)	Central Govt - primarily EECA	Existing/Ongoing	Private initiatives primarily with EECA promotion	Existing incremental uptake  Significant potential for increases	Efficient means of warming air provided building is insulated and air tight	Long pay back period (more than 10 years)  Possible increase in energy usage if not operated correctly	**	***
	Heat Pump (Hot Water)	Central Govt - primarily EECA	Medium/Ongoing	Private initiatives primarily with EECA promotion	Existing incremental uptake  Significant potential for increases	Much more efficient than traditional electric or gas hot water heaters  Saves up to \$490/year/house  Emission reductions	Average 7 year pay back period	*	**
	Natural Gas Reticulation	Energy network companies	Medium/Ongoing	No specific measures at present	Existing incremental uptake  Cost sensitive	Reduces dependence on electricity and/or reduces wood & coal emissions	Expensive to reticulate & connect especially to existing buildings	*	*
<b>Transport - Alternative Energy Sources</b>									
	Electric (plug in) Vehicles	Meridian Energy initiative Central Govt Vehicle manufacturers	Medium/Ongoing	Lobbying Central Govt possibly through LGNZ	Momentum started with hybrid vehicles and test trial fleet in Feb 09 - car manufactures will need to be convinced of interest to bring to NZ - uptake also dependant on future fuel costs	Carbon emission elimination, no noise, Decreased dependence on fossil fuel supply Ideal in urban setting Charging can use off-peak power.	Some years to become established, high initial costs until 2nd hand EVs available &/or technology improves & limited range	**	*****
	Hybrid Vehicles	Car manufacturers Fleet car owners	Existing to medium only	Promotion & in reaction to fuel pricing	Effectively a transition between fully fossil fuelled vehicles & EV's	Dependant on make of car - reduces emissions and fuel costs	Unless petrol increases in cost, it is very difficult to recoup the extra cost through fuel savings	*	**

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<b>Energy Generation (Renewable)</b>									
	Wind	GWRC EECA EC Energy generation companies TA's Land owners	Existing/ongoing	Determine in principle where future wind farms could preferably be sited in the region based on a variety of criteria using existing data & plans	Theoretical potential is significant energy source.  Realistically the region will likely reach a threshold/saturation	Renewable energy source (NZES)  Reasonably consistent wind in Wellington  Close to national grid  Eliminates GHG emissions	Usually has visual and land disturbance implications such erosion, bird & plant loss  Noise during construction & sometimes in operational mode	**	*****
	Marine	GWRC EECA MED EC Grow Wellington Energy generation companies /investors	Medium/ potentially ongoing  Possibly 10 years until full scale implementation	GWRC's continued support of Grow Wellington  Consider Marine Energy in the Coastal Plan review  Support of EECA resource allocation study	Theoretical potential is a very significant energy source.  Industry still subject to confirmation of environmental & technical feasibility/performance checks starting this 2008	Wellington has most powerful tidal/current resource in NZ  Close to population centre, port research facilities & national grid	The tidal current resource is confined to a relatively small area therefore potential exists for this resource to be 'locked up' & its full potential possibly wasted	**	****
	Solar	EECA GWRC EC MED	Existing/ongoing	District Plans  GWRC Investigate impediments to SHW	Potential relies on technological advances to lower costs & therefore payback	Wellington has good sunshine hours compared with countries where SHW has become established  Renewable energy source (NZES)	Unreliable frequency  Less solar energy available in winter	**	**
	Biofuels	EECA Grow Wellington GWRC	Medium/ potentially ongoing	No specific measures at present	Unknown in reality  Limited agricultural area would suggest it will not be significant in this region	Renewable energy source (NZES)	Potentially sustainability issues  High costs  Integration with existing fuels	*	*
	Local/Distributed Energy	GWRC EECA	Existing/ongoing	Investigate feasibility for Wellington region	PV cells not yet economic in NZ  Small wind turbines create noise near houses  Especially relevant to peri-urban & rural areas more open areas	Renewable energy source (NZES)  Provide high energy resilience	Wind & solar access can be limited in urban areas with interference from surrounding buildings, vegetation & hills.  High establishment costs	*	*
	Waste to Energy	Grow Wellington Investors R&D companies	Medium/ potentially ongoing	Continued support of Grow Wellington	Unknown in reality  Potential possible in Wairarapa	Makes use of an otherwise 'waste' product such as sewage and/or solid waste	May produce toxic waste that has to be land filled - most producers are very aware of this & appear to be developing methodologies which don't have this effect.	*	*