RPS Draft Findings and Recommendations – ETIC Member Comments					
Economic Impacts					
	How has the RPS contributed to new electrical generation in Montana?	**How has the RPS contributed to short-term and long-term jobs?**	**How has the RPS contributed to new industries working in Montana?**	**How has the RPS affected the use of renewable energy credits?**	**How has the RPS helped leverage development of new electric transmission?**
Findings	It has added more than 650 MW of renewable energy. **Driscoll** The mandate/law of RPS providing a purchaser of the electricity produced has and will increase the demand to a minimum of 15% of utilities retail sales that must comply with the Montana RPS. **Lang** The RPS has made a mandate that requires utilities to have alternative energy in their portfolio. This requirement has produced some wind generation. **Regier** Looking at just the RPS portion of new generation, less than half of the new generation to meet the RPS was brought on line to meet RPS requirements. **Olson** Figure 2 PSC Certified Projects. Judith Gap planned with RES under discussion but still certified by PSC. Half of 10 generators indicated RPS reason for construction. **McNally** The RPS has contributed to new electrical generation, as the amount of renewables has grown. This is especially true of wind. Of the 647 MWs of wind generated in Montana, 243 MWs or 36% are utilized to meet the RPS, and wind has increased as a % of utility portfolios. The RPS was listed as a reason for construction of several wind facilities (Spion Kop, Musselshell Wind I & II). **Steenberg**	It has impacted mostly rural counties and while not creating a large number of permanent jobs at the sites, secondary impacts should be taken into consideration (goods and service providers). **Driscoll** Temporary jobs are created when any new project is constructed in any industry. The jobs in any energy field are very good paying jobs. RPS has created such jobs, especially in rural areas, just like any development of any energy resource would in rural Montana. Permanent employment numbers are very low when compared to the financial outlay of the project. **Lang** Short-term jobs come from construction-related activity. There are few jobs for long-term maintenance and supervision. **Regier** While any construction project creates short-term employment, very few long-term jobs were created. **Olson** Figure 3 jobs created during construction & O&M. **McNally** The RPS has contributed to both short and long-term jobs in central Montana. Using the NREL model, 100 MWs of wind equate to 70-100 construction jobs and 6-8 operation & maintenance jobs. Renewable facilities also provide positive economic impacts to other industries and vendors in the surrounding community. **Steenberg**	Its main contribution is from the wind industry. **Driscoll** Any new industry will have a need for a new maintenance industry. Local rural tax bases have increased in counties where projects have completed. **Lang** I didn't see any evidence of new industries. **Regier** Minimal new industries. Small impact to existing businesses. **Olson** 1 MT facility that supplies wind tools 40 small scale renewable energy dealers & installers. **McNally** Wind energy companies – both large and small – have benefitted from the RPS, along with businesses that are tied to the renewable energy field. **Steenberg**	Yes because of the renewable energy created that also produces a REC which can fit into the business plan of the energy producer. **Lang** Minimal. REC adds to the cost to the rate-payer. **Olson** Obviously some impact but hard to assess given nature of data collection. **McNally** While it's proven difficult to track the use of renewable energy credits due to gaps in the reporting requirements, utilities that serve Montana consumers have purchased credits to satisfy RPS requirements both from within and outside of Montana. **Steenberg**	HB198. One of the reasons it passed in 2011 was the promise that it would be used (partially) to carry wind generation **Driscoll** There has been minimal development of new transmission. Because most of the RPS is derived from wind, there has been an additional costs created by the variables associated with wind. **Lang** Transmission lines from projects to the grid were built. Transmission lines to move energy out of Montana were not affected. **Regier** Minimal added transmission due to RPS. Some transmission upgrades. **Olson** Negligible. **McNally** While the RPS has not significantly contributed to developing new electrical transmission, it has influenced upgrades and improvements to Montana's transmission infrastructure. There have been ongoing discussions about developing new transmission infrastructure that may or may not have been influenced by the RPS. **Steenberg**
General Findings or Comments on Economic Impacts.(May include Legislative proposals.)	The economic impacts of the RPS have helped local communities, however, should the energy from wind production (4%) replace the higher (96%) energy production derived from other sources and all the intangibles and tangibles become the cost of renewable, then costs will be proportional. There are costs associated with being the Motel 6, "We'll keep the lights on for you" **Lang** The main economic impacts of the RPS come mostly from short-term construction jobs, and an increase in the tax base for some communities. **Regier** There have been positive economic impacts to some small producers, but as with any mandate the costs are ultimately passed on to the consumer. **Olson** RES has helped with rural economic development. NREL study finding increase in total Co. level personal income of $11,000/MW. Figure 3 outlines lease payments and property tax revenue. Example of "Central MT wins" (pg 14 +). **McNally**				

Environmental Impacts					
	How has the RPS diversified generation and reduced dependence on fossil fuels?	**How has the RPS contributed to air quality? How do those contributions translate to health impacts?**	**What types of different generation has been used to meet the RPS?**	**How has the RPS mitigated climate change?**	**What environmental disadvantages are attributable to the RPS?**
Findings	Companies have said they would have diversified by adding renewables or without the RPS, but I do not believe they would have purchased as much wind without the pressure of an RPS. Negligible as far as reduced dependence on fossil fuels. **Driscoll** Yes, and it will be a minimum of 15 % of utility retail sales by 2015. However, we need fossil fuels to supply the energy needs of industry and household consumers. Wind presently needs electricity to start the turbines. Judith Gap purchases $40,000 of electricity annually. **Lang** The RPS has not reduced dependence on fossil fuels. Fossil fuels provide the consistency and volume that the RPS can't. **Regier** Minimal to none. **Olson** Renewable energy has increased, fossil fuel based generation has declined; due to several factors including RPS. Comparing 2007 to 2013 NWE reports renewable increase from 15% to 32%. Both renewables and fossil fuel generation increased but renewables are contributing more to portfolio. **McNally** While wind supplies the majority of renewable energy, there is also small hydro and a cogeneration facility. If you consider renewables displace fossil fuels, there may not as yet be a reduced dependence, but certainly diversified energy portfolios provide benefits to both utilities and consumers. There is disagreement over the amount of influence the RPS has in this regard. **Steenberg**	More importantly, it has not contributed to a decrease in air quality—with more electricity being consumed, we are meeting the demand using non-polluting resources. **Driscoll** Very insignificantly and inconclusively. Very insignificantly and inconclusively. The opinions are unscientific. Human genetic differences and differences in personal habits affect personal health more. **Lang** I didn't hear any conclusive results that showed the RPS improved air quality or general health. any benefits were based on speculation. **Regier.** Minimal to none. **Olson** Wind is zero emission generation once built. Positive impacts on water consumption and waste generation. Figure 6 emissions displaced. EPA data on health impacts. Difficulty in assessing localized downwind impacts. **McNally** When considering that renewables displace fossil fuels on a MW to MW basis, there is a corresponding reduction in regulated air pollutants (CO2, SO2, NOx, mercury) resulting in air quality improvements. **Steenberg**	Majority is wind, also some small hydro. **Driscoll** Wind, Hydro and cogeneration. **Lang** Wind and hydro. **Regier** Wind and small hydro. Nothing that could be considered baseload. **Olson** Figure 1. Mostly wind; some hydro. **McNally** Wind is the most abundant form of renewable energy, but small hydro plants are also certified as renewable along with a single cogeneration facility. **Steenberg**	Negligible. **Driscoll** Science has not agreed if there has been change. Forests fires and volcanic eruptions create significant changes in the climate. **Lang** No evidence was presented that showed the RPS affected the climate. **Regier** Minimal to none. **Olson** MCCAC study recognized increasing emissions and argued for even higher RPS. More energy efficiency and use of renewable. Focus on consumption, not supply. **McNally** A reduction of global warming gases positively influences climate change. The reduction of pollutants into our atmosphere positively impacts human health. **Steenberg**	Birds. **Driscoll** Again, insignificant at this time, because the opinion is in the eye of the beholder. Every human element has some proportional effect on the environment. **Lang** Environmental disadvantages of the RPS are birds and bird deaths, some sound pollution and diminished aesthetics of the geography for some people. **Regier** Birds, bats and view-shed. **Olson** Bird/bat mortality. Land use footprint(less than 1 acre per MW disturbed permanently). **McNally** The bird and bat mortality associated with wind is a disadvantage. Another environmental concern raised is the amount of land impacted by large-scale wind, especially the road development. **Steenberg**
General Findings or Comments on Environmental Impacts. (May include Legislative proposals.)	With the federal government granting exemptions for eagle kills by wind generation, it would be a good idea to have Montana Fish, Wildlife, and Parks monitor wind farms. FWP could assess and recommend bird death mitigation strategies. **Regier** Very few, if any, positive environmental impacts. Very few, if any, negative environmental impacts. **Olson** Generally very positive in terms of emissions (zero), slowing rate of increase of emissions and resulting impacts on climate change, air quality, health. Fossil fuel use growing – along with renewables – but at slower rate than with no renewables! **McNally**				

Consumer Impacts					
	How has the RPS mitigated or contributed to higher energy costs for consumers?	**How has the RPS assisted in hedging against volatility in fossil fuel prices?**	**How has the RPS assisted in other efforts to help consumers?**		
Findings	Negligible. **Driscoll** The utility companies have stated that consumer costs are small, however, every energy cost is assumed by the rate payer at a increase of 7%. The complexity of the cost of energy production and transmission hide the increases associated with the RPS. Tax incentives cost us somehow. **Lang** With extreme standards placed on coal generation by the EPA, it is difficult to assess the affect of the RPS on ratepayers. **Regier** The RPS has not mitigated higher prices. Other than Judith Gap, which came on board prior to the RPS new, intermittent generation sources require additional regulating and firming resources and additional costs to the end payer. **Olson** Beacon Hill Institute report not credible. Lawrence Berkeley study (Fig 9) shows MT on lowest end – nearing zero %. Firming costs – come of David Gates attributable to this; unclear exact %. **McNally** According to the utilities (NWE & MDU) as well as the Montana Consumer Counsel, the RPS has had minimal impact on energy costs for consumers. **Steenberg**	Negligible. **Driscoll** Fossil fuel prices are created by supply, demand, transportation and government regulation. **Lang** Montana has so much hydro and coal generation, volatility in fossil fuel prices is not felt. **Regier** With current proposed Federal regulation of fossil fuels, renewable sources may become more economic but the cost to consumers will ultimately increase. As for volatility of fossil fuels, the most volatile is natural gas needed to firm intermittent wind resources. Historically coal has been the least volatile fossil fuel. **Olson** Once constructed and integrated, wind essentially fixed (free?) in terms of price…price of natural gas seems to be primary driver of volatility in fossil fuel market. **McNally** NorthWestern Energy was the only utility that opined renewables provide a partial hedge against fossil fuel price swings, but they also noted the gas-fired resources required to integrate renewables (DGGS) may offset any advantages. **Steenberg**	The many facets of energy production make this opinion very complex. **Lang** Not Applicable. **Regier** Minimal to none. **Olson** Cost caps are in place to protect consumers from excessively high energy costs. **Steenberg**		
General Findings or Comments on Consumer Impacts. (May include Legislative proposals.)	Consumer impacts are uncertain at this time. Presently the best way to maintain the impacts of this uncertainty is to leave the 15% RPS requirement as it is. **Lang** With so many variables in energy production, it is impossible to accurately assess the RPS impacts. **Regier** With current proposed Federal regulation of fossil fuels renewable sources may become more economic but the cost to consumers will ultimately increase. As for volatility of fossil fuels, the most volatile is natural gas needed to firm intermittent wind resources. Historically coal has been the least volatile fossil fuel. **Olson** Don't have the data in front of me, but PSC/NWE data on costs of different sources of energy show coal as one of their most expensive sources; wind as one of the least. I believe the slide was in a recent PSC presentation to ETIC. It doesn't exactly fit here, but seems to be relevant – perhaps in terms of market volatility. **McNally**				

General Findings or Comments(May include Legislative proposals.)	I am glad we did this study during the Interim. It shows me that passing this legislation in 2005 did not increase customer rates as was claimed at the time, but neither did it really reduce emissions substantially that was claimed at the time. What this study tells me is that we are expanding our portfolio without increasing pollutants. I am not sorry I voted to pass SB415 and I will continue to advocate for increased use of renewables to meet our increasing energy demand**. Driscoll** One of the goals of the RPS was to promote and support economic development in rural Montana, evidenced in the title of the enacting legislation, 'The Montana Renewable Power Production and Rural Economic Development Act'. This has proven to be the case, especially in central Montana, where the RPS has supported the development of both large and small wind farms. These facilities have brought accompanying jobs and contributed significantly to the tax base of rural counties, while providing important financial support to local businesses. In Harlowton, local officials provided unwavering support for this program as they outlined the benefits they reap as a result of the RPS. The RPS has also resulted in numerous Qualifying Facilities that also provide economic benefits to rural Montana counties. These QFs include not only wind, but hydroelectric generation facilities as well. I've enjoyed the ETIC meetings in Helena, as well as the trips we've taken around the state. It's been a wonderful experience to actually see the results of legislation passed in prior years. While I've absorbed a great deal of information concerning the RPS as well as other energy issues, there is still much to learn. I sincerely appreciate the patience extended to me by the staff and other committee members during this process. Thanks! **Steenberg**