Submitted by
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Townsend Energy Solutions, LLC (a wholly-owned subsidiary of Townsend Ventures) seeks your support to amend PA 36 of 2007. SB 777 passed the House (96-11) and the Senate (33-2-1) in 2009. Senator Tony Stamas sponsored the bill which is now law and part of PA 36. The Act provides $100 million in credits for creation of 500 jobs by an out of state company. This company is no longer interested in pursuing these credits.

Townsend Energy Solutions, LLC is interested, but only requesting half the amount of credits ($50 million) for 750 direct jobs. The Michigan Economic Development Corporation (MEDC) supports amending PA 36. Townsend Energy Solutions, LLC's proposal to the State is as follows:

- $238M in capital investment
- Over 875 direct, high tech jobs to be created by 2016
- Additional 5600 ancillary jobs created resulting in over $150 Mil in annual payroll and over $6Mil in tax revenue to the State. (($60 Mil over 10 year period)
- Over $30M in annual payroll by 2016
- Over $6M in personal income tax paid to State of Michigan between 2014-2024 (net of incentives).

As you may be aware, many lithium battery manufacturers are suffering losses and market-value declines due primarily to cost and safety issues. Fortunately, Townsend Energy Solutions, LLC has developed a strategy and has the capability to produce the relevant products that will reduce the price of the electric vehicle battery pack substantially by making use of solutions that are based upon existing proven technologies. We believe that this cost reduction will be sufficient to make the electric vehicle a compelling alternative to gasoline powered vehicles, particularly for a substantial percentage of fleet owners.

The business proposal submitted to MEDC details, among other things, three (3) separate business lines/products that will greatly assist in advancing the interests of the domestic automotive industry, which is a critical component to the economy of the State of Michigan. Three of the biggest problems facing lithium batteries in automotive applications are (1) high manufacturing cost, (2) low power density (which is, essentially, a measure of how quickly a car can be accelerated and (3) excessive heat produced as the battery is discharged (the removal of which increases the cost). Townsend intends to address these issues and assist in advancing the success of the electric automotive industry by using existing, proven technologies as follows:

(A) The production of a new family of safe, low cost, high power, bi-polar advanced lead acid batteries.

Energy Power Systems ("EPS"), a wholly-owned subsidiary of Townsend Energy Solutions, LLC is developing solutions to those problems by building upon existing lead-acid battery technology for use in, among other things, the full scope of electric vehicles (from start/stop and microhybrids to traditional hybrids to fully-electric vehicles). Traditional lead-acid batteries are very heavy and take up

too much space to be practical for wide scale use in electric vehicles. EPS uses a novel, but proven, manufacturing process that substantially decreases the size and weight of the lead-acid battery while significantly increasing power density. Additionally, the cost of the EPS cell will be less than one third the cost of lithium cells currently used in electric vehicles. When coupled with lithium cells, the EPS cell will enable battery manufacturers to lower the cost of their battery packs by about 35% without reducing overall performance. When used alone, a battery with EPS cells is a superior alternative at less than half the cost of systems in most current generation hybrid and plug in hybrid vehicles. Because of its low power density, lithium is currently not a commercially viable alternative for these applications. The use of the EPS cell will enable manufacturers of these vehicles to substantially reduce the cost of an electric vehicle. This cost reduction will lead to an increase in the adoption of these vehicles.

(B) The development of a low cost passive thermal management system.

The excessive heat produced during the discharge of lithium batteries gives rise to a number of problems, including (excess heat that shortens the useful life of the battery and (2) that heat, if not effectively removed, can give rise to "thermal runaway", whereby one cell reaches a critical temperature and releases all of its energy as heat. This condition causes the adjacent cells to also overheat creating a cascading event that can result in a violent fire or explosion. To prevent these situations, complicated and expensive water-circulation systems are required to cool the individual cells. This solution is prone to mechanical challenges that increase both the cost and size of the battery systems by 20% or more. AllCell Technologies ("AllCell"), a company with whom Townsend has agreed to an exclusive licensing arrangement, has developed a low cost, light weight, and high efficient passive thermal management system. This system uses no water, and unlike traditional thermal management systems (e.g. - the Chevrolet Volt) does not require pumps, piping, or controls. This patented technology uses phase change materials ("PCM") microencapsulated in a heat conducting matrix. The PCM matrix surrounds each battery cell, and, as the battery heats up, both absorbs the heat and conducts it away from the battery.

Overall this technology will allow battery manufacturers to reduce the cost of their systems by as much as 10% and extend the life of the battery. The adoption of AllCell's PCM in battery systems has the opportunity to eliminate the thermal runaway situation that is most concerning to vehicle manufacturers.

(C) The development and installation of a cost effective, national, electric vehicle recharging system.

Currently, most EV batteries require six or more hours to recharge. This means that an EV owner must buy a battery large enough to last for the longest trip he is likely to take, even though he may only rarely need to travel that distance. If a battery could be conveniently recharged in 15 minutes or less, the required battery

size, and thus its cost, could be substantially reduced. An EV that has a range of 50 miles could effectively be doubled to 100 miles or more if efficiently recharged along the way. Fleet operators could effectively cut their battery cost by fifty per cent by purchasing a half sized battery and recharging it once mid-day. The EPS cell can be charged in less than 15 minutes and Dow Kokam is developing a lithium cell that can also be recharged in this same time frame. Unfortunately, there are few, if any locations with sufficient power to recharge a typical EV in 15 minutes. There is simply not enough unused capacity of the grid during the day to supply this amount of power. It would likely require hundreds of billions of dollars and many years to create the infrastructure needed to supply EVS with quick charging stations. By using a large scale EPS cell combined with the very best power electronics systems currently available], Townsend will deliver charging stations that can purchase power at off peak hours when it is readily available on the grid at low prices. With this stored power, Townsend will have the capacity to charge EV's during the day at margins sufficient to completely amortize the costs of the station without government subsidies or major infrastructure improvements. Townsend is currently in discussions with Dynapower Corporation ("Dynapower"), to jointly build and own a power electronics manufacturing facility on the Wixom site. Dynapower has grown to become the global leader in the design and manufacture of custom AC and DC power supplies and transformers. We intend to replicate and expand Dynapower's Energy Management System business, which includes Bi-Directional Inverters. These inverter systems are essential for electric vehicle charging stations, will be a necessary component to conditioning electricity in a cost effective manner, and consequently, critical to the success of the electric vehicle industry.

The combination of these technologies will initially enable automakers to (i) cut the effective cost of the battery system by at least 50%, (ii) make electric vehicles an economically **compelling** alternative, thereby ensuring the sustainability of the lithium battery industry in Michigan, (iii) greatly assist the automotive industry in lowering the cost of EVs to make it a profitable business line, and (iv) produce three new and profitable businesses that will employ resident and pay taxes in the State of Michigan. Accordingly, in addition to the investment (over $200 million) and jobs (more than 750) to be directly created by Townsend, the award of the contemplated tax credit will provide tremendous benefit to numerous other entities and industries in the State of Michigan. It is reasonably anticipated that the project currently proposed for the idled Ford automotive plant located in Wixom, Michigan will be a multi-billion dollar industry employing many thousands of people. We appreciate your support.