

Electric Bike Systems Selection Matrix					
Specific Category of Electric Bike Uses <i>* Top Priority Factor, imo</i>	Description	DD Hubs	Geared Hubs	Mid Drives	Major Brand Suppliers
		General Benefits, Uses and Limits			
		<p>Pros: <i>*Silent</i>. Good Thermal performance on flats. Wound for torque, high speed or in between. Best for reliability. Some with controllers built in. Good efficiency on flats. Independent drive trains allows variable cadence.</p> <p>Cons: <i>*Unsprung wheel weight</i>. Heaviest per watt. Poorer center of gravity. Poor thermal on hills. Difficult to change flat tire.</p>	<p>Pros: <i>*Good starting torque, acceleration</i>. Lowest weight because of gear reduction. Lower visual profile. Center of gravity ok. Independent drive trains allows variable cadence. Good torque sensors allow a decent ride experience.</p> <p>Cons: <i>*Lower top speeds for same voltage per DD or Mid</i>. Lower efficiency at high speeds due to internal gears. Reduction gear wear vs DD hub. Slight noise. Less thermal performance because less metal to remove heat.</p>	<p>Pros: <i>* Lower center of gravity making it the best handling and more like a regular bike</i>. Efficient from low to high speed, on flats and hills. Best efficiency for hills, off road. Typically can get longer range on road than hubs. Less weight because of gear reductions. Very good torque through all gears. No un sprung wheel weight for better handling and easy flat change. Moderate thermal performance.</p> <p>Cons: <i>*Low to high pitch noise</i>. Chain/gear wear needs more replacement maint, less reliable. Mid drive limits cadence range, making experience more tedious. 2-step reductions harder to pedal. (except Optibike) More gear shifting.</p>	
Specialty Uses					
Cargo	Utility use.	NO	YES	YES	NTS Works, Stoke Monkey, Yuba
Fat Tire	Fun for beach and snow or to be cool.	YES	YES	YES	Pedego, Optibike, Surface
Recumbent/Trikes	Special three wheel applications	YES	YES	YES	Outrider, Pedego
Affordable	Price point of \$1500 or below. Quality not expected.	YES	NO	NO	Prodeco, e-Joe, Motiv, eZip
Kits	The DIY way.	YES	YES	YES	Bionx, Falco, Eco speed, Golden, BMC, E-bike, Bafang
Common Styles and Uses					
Cruiser	Bike cruiser designs, upright, big tires. Casual use around neighborhood, on bike paths, errands.	YES	YES	NO	Pedego, IZIP, Ford, Hebb, OHM, Easy Motion
Light Mountain	Light Trail riding. Bike will have front suspension, disk brakes, geared hub or mid drive more common. 26, 27.5 and 29ers. Centered battery a must.	YES	YES	YES	Easy Motion, Optibike, Haibike, Focus, E3
Heavy Mountain	Heavy trail riding, abuse expected. Higher quality components. Full suspension expected. Quality disk brakes. Centered battery and mid drives only. High powered bikes and longer range preferred.	NO	NO	YES	Optibike, Haibike, Stealth
Mini Communter	20" wheels models. Foldable light.	YES	YES	NO	e-Joe, Easy Motion, Kalkoff, Yike, Prodeco
City Communter	Most common category. Frame must have braze ons for racks/fenders.	YES	YES	YES	Specialized Turbo, Eflow Nitro, Izip Dash, Optibike, Stromer, Grace, Easy Motion, Kalkoff, OHM, Hebb, Ezee, Giant
Road Commuter	Built for speed. Speeds of 25-30+ attainable with assist. Carbon material use is common. Bikes expected to be light weight and under 45lbs.	YES	YES	YES	Easy Motion, Optibike R11, Haibike, Eflow flight, Stromer, Specialized
	Major OEM Suppliers	Eflow, Izip, Currie, Specialized, Stromer, Stealth, Kalkoff/Focus, Grace, Prodeco, Pedego, Volton	Easy Motion, Ezee, Hebb	Optibike, Haibike, Kalkoff, E3	