DOCKETED	
Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	252575
Document Title:	BarrierEnergy Comments - Docket Response
Description:	N/A
Filer:	System
Organization:	BarrierEnergy, Inc.
Submitter Role:	Public
Submission Date:	10/11/2023 2:25:43 PM
Docketed Date:	10/11/2023

Comment Received From: Michael Barriere with BarrierEnergy
Submitted On: 10/11/2023
Docket Number: 23-SB-100

Docket Response

Additional submitted attachment is included below.

BarrierEnergy, Inc.
Beyond Energy Efficiency, Inc. (501c3)
First Reduce, Then Produce!®

September 28, 2023

Subject: SB100 Goals & Objectives: The Role of Micro- and Mini-Grids

Reference: Docket # 23-SB-100 -- Sub-Title: SB 100 Joint Agency Report

To: All Interested Parties

INTRODUCTION

With respect to the *Referenced* docket, we submit this writing today in full support of the *Subject* goals and objectives of SB 100, as well as positive comments posted by Clean-Coalition.org and others. In broad strokes, our comments will address the *Subject* from the perspective of Micro- (small-scale) vs. Macro- (large-scale) Economics. We advocate for small-scale solutions like E. F. Shumacher's "*2 Million Villages*" approach, in his book Small Is Beautiful. Our hope is this *micro* approach finds use when discussing and implementing SB 100's goals and objectives or evaluate outcomes.

In that regard, we hasten to add that although SB 100's ideas and goals feel *large* solution, but it is much wiser to think of it as an *aggregation* of many, many sets of similar *small-scale* applications set in, and adapted locally to apply the proper solutions applied. To compare and contrast this perspective, consider AB 32, signed into law in 2006.[1] It not only provides a *structure* and *context* for SB 100, but its *foundation* is this small-scale adaptation of Statewide standards and goals vested in County and Local permit issuing authorities. Thanks to AB 32 much has already been accomplished training personnel, establishing information pathways, and preparing institutions for SB 100. We especially thank the CEC for their efforts!

Moreover, though promulgated by the CARB, CEC is specifically identified as a "Climate Action Team" member addressing GHGs. Thus the goals and objectives of AB 32 – *what* it is designed to accomplish,[2] flow to a common purpose with SB 100, at the local (*micro*) level. As such, SB 100 should also necessarily embrace CEC's Title-20 and -24, the *Energy Code*, as it applies to *Construction*. The *energy efficiency measures* ("EEM") found in the *Energy Code*, which are designed to *reduce energy consumption*[3] – ***waste***, as it were. Reducing *waste* should be - nay *must be* integral to SB 100's methods, goals, and objectives.

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SUMMARY

Zero Net Energy ("ZNE") cannot be achieved without Zero Net Waste ("ZNW"). While AB 32 more directly reduces ***waste*** – including energy, and in the broadest economic sense of money, time, materials, labor, capital, opportunity, votes, redundancy, and also reducing negative social impacts such as health issues, eco-system degradation, environmental issues of air, water, and soil. First and foremost we must see *waste* as a *cost*.

Waste is a quantifiable *cost* ***not*** found in most *pricing structures* products and services. *Waste* is generally not defined or recognized by purveyors, so the State, the Region or society as a whole, *subsidize* purveyor's *waste* costs by absorbing them. They're being absorbed today. We actually all bear these costs in a variety of ways. And ignoring them clearly does not make them go away. In conclusion, SB 100 can build upon AB 32 reducing these *costs* of *waste* by embracing the *Small Is Beautiful* perspective.

> AN ANECDOTE: Some decades ago, working for GM, I read an old slogan, "What's good for GM is good for America!" But not soon after, GM was losing a lot of money. So what happened when GM's practices were no longer profitable for GM, its shareholders, employees, and stakeholders? Of course, Management invited a team of experts over from a partner in Japan, to help solve the "profitability" problem. Well, after about five minutes, one distinguished gentleman said, pointing up at smoke-stacks belching black smoke into the air, "there's your profit!"

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RECOMMENDATIONS: SB 100 consciously embraces AB 32, as AB 32 embraces SB 100. Concepts:

1. "First Reduce, Then Produce"®

In California BE witnesses homes and buildings only 15 years old, and those 50, 75, 100 years old, that *waste* from 20%, 40%, 50% and more of the energy the owners/ occupants pay for. Lower or no Code Standards, Permit requirements, or lax enforce-ment, thermodynamics, enthalpy, poor craftsmanship - all contribute to low-quality conditions. Making homes and buildings more energy efficient reduces *waste* and *costs* across the economic spectrum, improves durability, and the structure in unanticipated ways, adding value, comfort, quality, and a heathier indoor environ-ment. Improving the housing-stock should be part of our vision of electrification. We
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should want to conserve resources to deliver better homes and avoid creating more waste - especially when so many savings, benefits and rewards are available.

Applying EEM's at the micro level to homes, neighborhoods, communities, other structures is reduced demand for electricity. Those potential savings are significant, yet there are notable exceptions. While Utility Companies prefer "Actual kW Need + 10%", *overproducing* to say "Need + 20, 30 or more %", is appropriate as it serves a *future* need such as 'EV + Recharging', or support for a community micro-grid. And there may be others.

2. "Think Globally, Act Locally"

Given California's broad portfolio of sustainable alternatives, and 16 different Climate Zones, it is easier, *within* the structure of State Construction Codes to Permit association, localities, communities, tribes, businesses, Cities, Counties, in-state Federal facilities, and others, to adapt solutions that work for them. The *smaller* the better to serve true goals and needs!

3. "Produce At The Point Of Use"

E. F. Schumacher said, "if it comes from further away than 200 miles, you don't need it." Adjusting for inflation, I say if it comes from out-of-state, we don't need it. Energy, in the form of locally produced electricity, delivered using Micro- or Mini-Grids is our only true option. And, given modern technology, calculating demand, and thus supply, including stabilization and storage, is simple at the local level. As is safety, security, maintenance, inclusive pricing, providing good jobs, valuing the needs of the community, and more.

> A FACTOID: There are two types of High Voltage transmission: HVAC and HVDC. HVAC losses climb the further it travels due to Resistive, Capacitive, and Inductive. Estimates range from 10% to 20% of the electricity transmitted lost ("Line Loss"). HVDC losses are estimated to range between 2% and 3%.

The beautiful thing is in with a micro-grid a person or community grid there really is no High Voltage transmission to lose. When we consider the many *Before-the-Meter* losses and waste, *including* producing it (how?) and the inefficiency of moving it from someplace far away. We can realize savings and opportunities otherwise unavailable or unforeseen. The economics also favor the local or regional over the macro alternatives. For example, the "Multiplier Effect" of money in a community can be restored. There is also a micro-"Economy of Scale" that serves the community. Much of modern "Macro-Economics" theory today is *wasteful*.

4. "Small Is Beautiful"

People matter. In the modern socio-economic and political landscape in which we live, the idea that *small is beautiful* represents something of a paradigm shift away from our belief in and absolute reliance on *bigness*.[4] As former Santa Barbara Mayor Hal Conklin said, "we strive for both 'High Tech' and also 'High Touch'." In other words, technology should serve our humanity, not supplant it. And there is no better level of political and economic activity than the community to apply that wisdom.

Respectfully submitted,

Michael V. Barriere
Owner & Founder
BarrierEnergy, Inc.

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FOOTNOTES

1. AB 32 Global Warming Solutions Act of 2006 (excerpt below) [https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006]

The passage of AB 32, the California Global Warming Solutions Act of 2006, marked a watershed moment in California's history. By requiring in law a sharp reduction of greenhouse gas (GHG) emissions, California set the stage for its transition to a sustainable, low-carbon future. AB 32 was the first program in the country to take a comprehensive, long-term approach to addressing climate change, and does so in a way that aims to improve the environment and natural resources while maintaining a robust economy.

2. What Does AB 32 Do?

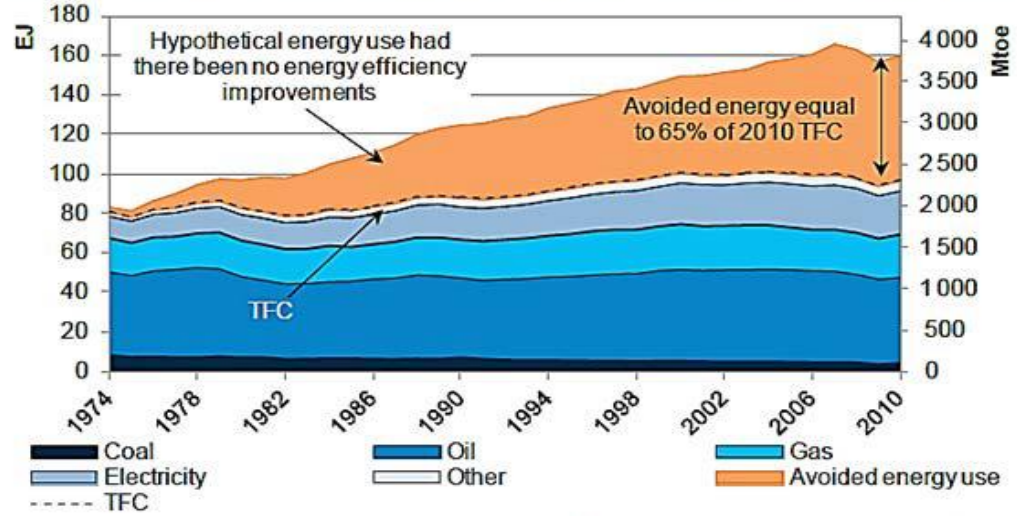
AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020 — a reduction of approximately 15 percent below emissions expected under a "business as usual" scenario.

Pursuant to AB 32, CARB must adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The full implementation of AB 32 will help mitigate risks associated with climate change, while improving energy efficiency, expanding the use of renewable energy resources, cleaner transportation, and reducing waste.

3. Energy Efficiency: Avoiding the Cost of Producing Energy and Waste

As this chart, prepared by ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, based on IEA data, illustrates, between 1974 and 2010 *energy efficiency* was the largest energy *source* for the "world", published in its first-ever Energy Efficiency Market report.

Figure ES.2 The "first fuel": avoided energy use from energy efficiency in 11 IEA member countries



Notes: TFC = total final consumption. The 11 countries are Australia, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States, those for which sufficient data is available to undertake analysis. "Other" includes biofuels plus heat from geothermal, solar, co-generation and district heating. Co-generation refers to the combined production of heat and power.

Source: IEA indicators database.

On point, energy efficiency contributed 63 exajoules ("EJ") of ***avoided energy use*** in 2010, which is larger than the supply of oil (43 EJ), electricity or natural gas (22 EJ each).

4. Bigness vs. Smallness:

My introduction to this concept began many years ago studying economics at UC Berkeley, when I was given a copy of *Small Is Beautiful* by the economist E. F. Schumacher. Published in 1973, it is based on his work and research in the 1950's, 60's and into the 70's, in Europe and Asia. Schumacher's analysis and resulting conclusions reflect ideas whose time has truly come for us today, and altered my perception of the *waste* taking place before it even reaches my meter. And moreover, since 1973, the technological advancements and experience societies have gained provides us critical tools and wisdom we need to implement strategies to reduce *waste* and its costs *after* the meter. I want to stress California – that's all of us, have an unprecedented opportunity, today, now, to lead by example, through AB 32 and SB 100. Expanding our vision to embrace both ZNE + ZNW will yield the optimum outcomes we all seek by simply applying our resources appropriately.