18 In the 1990s, parallel changes of great significance occurred. The first was certain areas experienced

19 deregulation of the industry, which resulted in the generation, transmission, distribution

*20* and retailfunctions became separated and under different ownership.2 Generation companies would

21 be free to create and sell at will. Transmission assets would come under open access management of new

22 entities, Independent System Operators (ISO’s) which would provide for their reliable operation

23.

24 FERC would regulate the ISO’s to insure

25 smooth and consistent operations.

26 In some of the areas where deregulation occurred, distribution companies, typically recognized by consumers as “the local utility,” would remain

27 regulated by state utility commissions, but with a twist. They would become distribution

28 companies only. Similar to the ISO’s, they would manage local distribution networks and

29 determine fair access to them. They would lose the retail relationship with customers, however.

30 To assume the retail function, brand new Retail Energy Marketers appeared

31. Over time, simple energy transactions (“buy low, sell higher”) evolved into complex energy

32 contracts involving dynamic pricing changes based on consuming energy in a certain way.

33 The second significant change was the growing realization that energy consumers could and

34 would change consumption habits based on economic conditions. Initially, the ISO’s drove this

35 change, terming the new activity as “Demand Response”, and using it both to relieve overtaxed

36 delivery lines. To enable this new activity, ISO’s sponsored stakeholder meetings to developed

38 rules allowing a new entity known as “Aggregators” of or “Curtailment Service Providers”.

39 These new entities would solicit energy consumers and “aggregate” them into significant blocks

40 of service, then offer that consolidated capability to the ISO’s markets for use as needed.

41 The third new trend was the Internet itself. Long used for human interaction, increasingly

42 developers found techniques that improved the efficiency of machine-to

43machine interaction; e.g., the “Internet of Things”. While inter-device communication was not

44 new, the Internet of Things offered the promise that things houses in unrelated collections, such

45 as commercial buildings, could find a common method of communicating. Among other things,

46 this offered the prospects of energy consumers organized dynamically in different ways to

47 consume energy more efficiently or to provide curtailment services to the grid.

48 Despite the promise, a problem emerged. The new energy landscape had new actors from

49 different traditions. Moreover, regional differences created barriers to efficiency. Stakeholders

50 would not be able to transport developments in one region to another. In turn, manufacturers

51 would be disinclined to invest R&D finds for limited markets. The new energy world needed a

52 new energy vocabulary: “EMIX”, energy Market Information Exchange.

54 For a vibrant market to exist, sellers and buyers need an unambiguous vocabulary equally

55 meaningful to all stakeholders along a value chain. In the case of energy, this vocabulary must

56 express bundles of characteristics that are relevant to energy;; and given the sheer volume of transactions, the language must enable

58 accurate high-speed and high-volume system-to-system communications. Creating two-way

59 energy awareness between buyer and seller contributes to a smarter grid.