

Before the
United States Department of Energy
Washington, D.C. 20554

In the Matter of)
)
Implementing the National Broadband Plan by) Docket No. ___
Empowering Consumers and the Smart Grid:)
Data Access, Third Party Use, and Privacy)

COMMENTS OF
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Summary

The Media and Technology Institute and the Climate Change Initiative at the Joint Center for Political and Economic Studies (“Joint Center”)¹ respectfully submit these comments in response to the United States Department of Energy’s (“DoE”) Request for Information regarding its implementation of the Smart Grid provisions of Federal Communications Commission’s (“FCC”) National Broadband Plan.²

The National Broadband Plan, and particularly its Smart Grid provisions, addresses the nation’s primary infrastructure challenges of the 21st century. Just as the development of our highway system transformed the way in which most Americans conducted their lives, the prospect of a reformed, smart electrical grid and ubiquitous broadband access presents opportunities to raise living standards in ways that were unimaginable less than a quarter century ago.

¹ The Joint Center for Political and Economic Studies is one of the nation's premier research and public policy institutions and the only one whose work focuses exclusively on issues of particular concern to African Americans and other people of color. For nearly four decades, our research and information programs have informed and influenced public opinion and national policy on behalf of the African American community and society at large.

The Joint Center's current research and analyses address critical issues in four key areas: media and technology, political participation, economic advancement, and health policy. In conducting research and policy analysis and in disseminating our products, we seek to build partnerships and coalitions with black elected and appointed officials at every level of government and with other organizations in order to broaden and strengthen the impact of our work.

² See *In the Matter of Implementing the National Broadband Plan by Empowering Consumers and the Smart Grid: Data Access, Third Party Use, and Privacy* (filed May 11, 2010)(“RFI”); See also *National Broadband Plan*, Federal Communications Commission at 263-279 (2010) available at <http://download.broadband.gov/plan/national-broadband-plan-chapter-12-energy-and-environment.pdf> (last visited June 1, 2010)(“National Broadband Plan”).

As important as they were to our nation's development, America's earlier surges of infrastructure development were also marked by additional and disproportionate hardship for many people who occupied the lower rungs of the economic ladder. As one notable example, Robert Moses' infrastructure development plans, while they paved the way for the growth of suburban Long Island, uprooted entire neighborhoods and displaced thousands of families in low-income areas.³ Smart Grid planners have a chance to avoid an analogous outcome by incorporating the specific needs and concerns of low-income consumers into the overall Smart Grid strategy from this early stage.

Accordingly, the federal government should actively engage low-income and minority communities as it develops its Smart Grid strategy, with the goal of ensuring that the voices and concerns of their residents are heard and have influence throughout the process. People living in low-income and other vulnerable communities should have access not only to the information and benefits a completed Smart Grid will provide, but they should also be factored into the ongoing debate and negotiations leading up to the finished product. If the voices of low-income consumers are included, then we can help ensure that the Smart Grid of the future will improve the living standards of all communities, and that this next phase of infrastructure development lives up to its promise of creating new opportunities for all Americans.

³ *See, generally*, ROBERT A. CARO, *THE POWER BROKER: ROBERT MOSES AND THE FALL OF NEW YORK* (1974).

Discussion

I. THE SMART GRID POLICY FRAMEWORK SHOULD ACCOUNT FOR THE UNIQUE CIRCUMSTANCES OF UNSERVED AND UNDERSERVED COMMUNITIES

A. The Smart Grid Should Be Affordable For Those Who Can Most Benefit From Savings In Energy Costs

While the Smart Grid promises to be consumer-friendly and innovative, it must be designed to benefit all consumers, including those from unserved and underserved communities. Low-income communities are most susceptible to high energy costs in that low-income families often over-pay for their utilities and are thus forced to choose between paying for groceries or the energy to heat and/or cool their homes.⁴ In the summertime, cities often become “urban heat islands,” which the Environmental Protection Agency (“EPA”) defines as urban areas with elevated temperatures resulting from reduced vegetation.⁵ People in low-income communities are often unable to afford the extra costs associated with the air conditioning that is required to overcome this phenomenon, and they often find themselves sharply reducing their energy use (and significantly increasing their own discomfort) to save money. Consequently, citizens in low-income communities are at an increased risk of heat-related illness and death.

Smart Grid technology has been praised in many quarters for its ability to help lower energy costs, and that alone will provide some help to poor people who live in urban heat islands. But more can and should be done, particularly in the area of making Smart Grid

⁴ See David A. Super, *From the Greenhouse to the Poorhouse: Carbon-Emissions Control and the Rules of Legislative Joinder*, 158 U. PA. L. REV. 1093, 1155 (2010) (“When energy prices rose from 42.1% from 2000 to 2005, families with annual incomes between \$15,000 and \$30,000 reduced their food spending by 10%.”).

⁵ See U.S. Environmental Protection Agency’s Office of Atmospheric Programs, *Reducing Urban Heat Islands: Compendium of Strategies: Urban Heat Island Basics* available at <http://www.epa.gov/heatisld/resources/pdf/BasicsCompendium.pdf> (last visited June 2, 2010).

consumer devices more affordable. For example, the price of a Smart Grid meter is approximately \$76, while associated communication infrastructure costs are estimated to be around \$125 to \$150 per meter.⁶ While many low-income people indicate they are prepared to make sacrifices to pay for energy costs,⁷ that \$200+ cost of the meter and its infrastructure would likely put the basic access technology out of the reach of many low-income people. Accordingly, without an effort to ensure that there are affordable Smart Grid options, our concern is that many people will not be able to integrate these energy saving devices into their homes and thereby realize the full potential of Smart Grid technology.⁸

B. Smart Grid Technology and Interface Should Be Accessible To Those With Minimal Digital Literacy Skills

There is a significant need for more consumer awareness and education on Smart Grid technologies, capabilities and purposes. Inherent in Smart Grid design is a reliance on broadband technologies to transmit customer data directly to service center. Because the Smart Grid will require consumers to interface with a digital information network similar to the Internet, digital literacy will be a critical factor affecting consumers' ability to learn how to use and manage the technology. According to the Joint Center's *National Minority Broadband Adoption* report, about "56 percent of adults with family incomes of less than \$20,000 use the

⁶ See Electric Power Research Institute, *Advanced Metering Infrastructure*, available at <http://www.ferc.gov/EventCalendar/Files/20070423091846-EPRI%20-%20Advanced%20Metering.pdf> (last visited June 2, 2010).

⁷ See Michael P. Vandenberg and Brooke A. Ackerly, *Climate Change: The Equity Problem*, 26 VA. ENVTL. L.J. 55, 62 (2008) ("Studies suggest that low-income individuals will be more likely to pay for higher energy costs through economic sacrifices than those with more resources.").

⁸ *Id.* at 63 ("Environmental standards that make certain goods more energy efficient, for example, will be less effective if many consumers cannot purchase the more efficient goods.").

Internet compared to 94 percent of those earning more than \$50,000.”⁹ Furthermore, as stated in the FCC’s working paper on *Broadband Adoption and Use in America*, “52 percent of Americans in households with annual incomes of \$50,000 or below have broadband at home, compared with 87 percent of those in households with incomes above that level.”¹⁰

While home broadband access promotes optimal conditions for full online engagement, efforts to expand the number of public computing centers will continue to be important, as “many low-income Americans gain access to Internet solely through public institutions such as libraries and local community centers.”¹¹ Among these, the American Recovery and Reinvestment Act (“ARRA”) appropriated money to the National Telecommunications and Information Administration (“NTIA”) for the Broadband Technology Opportunities Program (“BTOP”) to establish public computer facilities and improve computer facilities in libraries and schools. The National Broadband Plan proposes recommendations to increase broadband access in underserved areas by expanding programs supported by the Universal Service Fund, including Lifeline and Link-Up.¹² The National Broadband Plan further proposes to provide underserved

⁹ See Jon P. Gant et al., *National Minority Broadband Adoption: Comparative Trends in Adoption, Acceptance and Use*, JT. CTR. FOR POL. & ECON. STUD. 13 (2010) available at http://www.jointcenter.org/publications1/publication-PDFs/MTI_BROADBAND_REPORT_2.pdf (last visited June 2, 2010).

¹⁰ See John B. Horrigan, *Broadband Adoption and Use in America*, Federal Communications Commission, [OBI Working Paper Series No. 1](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296442A1.pdf) at 3 (2010) available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296442A1.pdf (last visited June 2, 2010).

¹¹ See Jim Carney et al., *Overview of the National Broadband Plan*, 18 COMMLAW CONSPECTUS 517, 539 (2010).

¹² See National Broadband plan, *supra* note 2 at 172-173.

communities with digital skills training that could promise a broadband adoption rate of over 90 percent by 2020 and increase opportunities for people with disabilities, Native Americans on tribal lands, women, and minorities.¹³ To augment this, the strategy for implementing Smart Grid should include the development of an interface that is useful to consumers from a variety of backgrounds and experience levels, including those who do not speak English. Expanding digital access and education initiatives such as these will lead low-income consumers to feel more comfortable with technology, thereby increasing the likelihood that they will pursue deeper levels of online engagement, including engagement with Smart Grid technology.

C. In Developing The Smart Grid, The Federal Government Should Seek To Inform Low-Income Communities And Leverage The Efficiencies Of Urban Settings

i. The federal government should relate the benefits of the Smart Grid to all Americans.

Both Congress and the Executive Branch have recognized the Smart Grid's potential to improve Americans' quality of life. The Energy Independence and Security Act of 2007 ("EISA") established the nation's Smart Grid as a national policy goal.¹⁴ The ARRA makes \$4.5 billion available for investment in the nation's Smart Grid.¹⁵ In a 2009 speech at Florida Power and Light's ("FPL") DeSoto Next Generation Solar Energy Center, President Obama extolled the benefits of the Smart Grid and announced that total investments would exceed \$8 billion.¹⁶

¹³ *Id.* at 10.

¹⁴ *See* The Energy Independence and Security Act of 2007, 42 U.S.C. 17381 et seq. (2010).

¹⁵ *See* The American Recovery and Reinvestment Act of 2009, Pub.L. 111-5, 123 Stat. 115.

¹⁶ *See* Speech of President Barack H. Obama at the Florida Power and Light's ("FPL") DeSoto Next Generation Solar Energy Center (Oct. 27, 2009) *available at*

Smart Grid is a key element of the National Broadband Plan.¹⁷ Further, the Smart Grid will bring enormous improvements in the way electric power is managed and distributed nationally, enabling power generators and distributors to respond in split-second fashion to peak loads and demands and thereby avoid widespread blackouts.¹⁸

The Smart Grid also has the potential to spur the market for electric-powered vehicles, curtail current energy bills by facilitating the efficient production and reduced use of electricity, and cut greenhouse gas emissions by as much as 12 percent (the equivalent of removing 65 million cars from the road) by 2030.¹⁹ President Obama also anticipates that Smart Grid investments will create tens of thousands of jobs.²⁰ These are results that would substantially benefit the public at large, including low-income consumers; the federal government should therefore work to communicate these benefits. Consumers who rent their residences and do not pay energy costs directly should know that electrical grid improvements can reduce their rent bills. These citizens should be able to see what their landlords are paying for electricity so they will be better equipped to negotiate lease terms that take into account any electricity cost savings

<http://www.whitehouse.gov/the-press-office/president-obama-announces-34-billion-investment-spur-transition-smart-energy-grid> (last visited June 1, 2010)(“President Obama’s FPL Speech”) (Public-private matching funds will bring the total amount available for electrical grid enhancements to more than \$8 billion.).

¹⁷ See National Broadband Plan, *supra* note 2 at 267-271.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ See President Obama’s FPL Speech (“These jobs include high paying career opportunities for smart meter manufacturing workers; engineering technicians, electricians and equipment installers; IT system designers and cyber security specialists; data entry clerks and database administrators; business and power system analysts; and others.”)

due to electrical grid improvements.. African American consumers have a great deal to gain from this information as they are more likely than white consumers to rent their residences.²¹ Where tenants pay for electricity costs directly, landlords are unlikely to invest in smart or energy efficient appliances.²² Therefore, the federal government should incentivize landlords to acquire energy efficient appliances for their tenants. The federal government should also inform the public, and landlords should inform their tenants, of the effect of Smart Grid and other energy-efficient technologies on electricity costs. Further, the government should publicize the affect of these costs on rents and provide incentives, such as tax credits and an appliance voucher program, for landlords to acquire energy efficient appliances, promote the use of smart energy, and to raise the awareness of their tenants.

ii. The federal government should use the Smart Grid as an opportunity to strengthen urban centers.

Over the course of the past half century, “white flight” from urban areas has led to an “urban blight” cycle in inner cities.²³ The decay that was further aggravated by a dwindling tax

²¹ See Super, *supra* note 4 at 1109 (citing Cong. Black Caucus Found., Inc., *African Americans and Climate Change: An Unequal Burden* 68 (2004), available at http://www.rprogress.org/publications/2004/CBCF_REPORT_F.pdf.) (last visited June 2, 2010).

²² *Id.*

²³ See D.J. Hutch, *The Rationale for Including Disadvantaged Communities in the Smart Growth Metropolitan Development Framework*, 20 YALE L. & POL’Y REV 353 (2002) (“In the years since Brown, wealthy and middle-class white residents, as well as many businesses, left urban areas to relocate to surrounding suburbs. This exodus led to a vicious cycle of decline for older and poorer urban neighborhoods, producing an increase in unemployment and crime, as well as lower property values.”) (citing WILLIAM JULIUS WILSON, *THE TRULY DISADVANTAGED: THE INNER CITY UNDERCLASS AND PUBLIC POLICY* at 121 (1987) (citing LESLIE W. DUNBAR, *MINORITY REPORT: WHAT HAS HAPPENED TO BLACKS, HISPANICS, AMERICAN INDIANS, AND OTHER MINORITIES IN THE EIGHTIES* at 41 (1984) (citing U.S. Dep’t of Justice, *Uniform Crime Reports for the United States, 1984* (1985) (citing MYRON ORFIELD, *METROPOLITICS* at 63

base in inner cities necessitates that any large national infrastructure development efforts pay special attention to the goal of addressing and reversing the ever worsening social conditions in these areas.²⁴ This is especially true given that in suburban areas with comparably lower unemployment and crime rates and higher property values, monetary resources are already generally available to fund infrastructure development,²⁵ and that these infrastructure improvements generally appreciate in value, further widening the economic gap between affluent and low-income communities.²⁶ These observations underline the vital importance of targeting

(1997)).

²⁴ *Id.* at 354-355 (“One recent study from the University of Illinois at Chicago found that while the Chicago urban area received more governmental expenditures oriented toward consumption, communities in outlying suburbs received larger levels of wealth-building assistance related to infrastructure and housing. Although the study found that the outer suburbs actually received less per capita federal expenditures than the urbanized area (\$2744 versus \$5350), it also found that the suburbs benefitted more from a higher level of assistance related to capital accumulation (e.g., housing, roads, public transit). This capital-based assistance reduces the cost of greenfield development, helps fuel inequalities of wealth, and indirectly subsidizes the flow of residents and businesses further away from the center cities. This increases inequalities and potentially fuels the need for more government transfers.”).

²⁵ *Id.* (“One of the primary causes of the mass exodus that led to center-city decline is the marketplace distortion caused by county, state, and federal government investments that encourage development of ‘fringe’ areas outside of inner cities. Although massive shifts in the economic organization of regional economies are significant factors in the decline of center cities, these massive state and federal subsidies and investments in infrastructure (such as roads, sewers, and waterlines) have greatly aided the flight from urban centers and older suburbs, and intensified inequalities. These subsidies and investments tend to benefit wealthier citizens who can afford to move to the outlying communities, and help draw businesses and jobs away from center cities and inner suburbs, disproportionately impacting minorities.”)(citing Ctr. for Watershed Prot., *The Economics of Urban Sprawl*, 2 WATER PROT. TECHS. 461 (1997)(citing WILSON, *supra* note 23 at 121.)

²⁶ *Id.*

underserved areas in national efforts to expand state-of-the-art broadband networks, and particularly of ensuring that these expanded networks usher in widespread use of Smart Grid technologies – which have the potential to dramatically improve living conditions and community value – in those areas.

Focusing infrastructure expenditures on densely populated and low-income areas would be the most efficient way for the federal government to allocate the resources designated for upgrading the electrical grid. Funding infrastructure investments in less densely populated suburban and outlying urban areas is often more costly than funding such investments in dense cities.²⁷ As a result, inner city residents often subsidize the infrastructure development of outlying areas via increased taxes, levies and fees.²⁸ Suburban and outlying areas, unlike urban areas, necessitate more resources to connect them to an energy grid since they are farther apart. “Average cost pricing,” a practice by which all customers pay identical utility rates for varying levels of service, is an additional mechanism used to fund suburban and outlying urban infrastructure development.²⁹ These circumstances exacerbate existing disparities by benefitting affluent citizens at the expense of those who are most in need of relief. This is true even if you

²⁷ *Id.* at 355 (“Providing utility services to poor, inner-city residents is often cheaper than providing it to residents of outlying communities, because people in those areas live farther away from each other and so require the creation and maintenance of more infrastructure.”)

²⁸ *Id.* (“[T]he infrastructure of new outlying developments are paid for by taxes and fees levied on residents and businesses in older parts of the city.”)(citing ORFIELD, *supra* note 25 at 63.).

²⁹ *Id.* at 359 (“[A]ll customers pay average costs, which means that total costs are divided equally among service recipient regardless of the marginal or incremental cost of providing the service. Residents in more urban, higher-density areas subsidize those on the fringe under this arrangement.”)(citing NELSON ARTHUR & DUNCAN JAMES, *GROWTH MANAGEMENT PRINCIPLES AND PRACTICES* at 122 (1995)).

factor in the Low-Income Home Energy Assistance Program (“LIHEAP”), from which the benefits are either too thin, or they do not reach enough families.³⁰ By concentrating utility infrastructure improvements in areas where the largest number of people will experience their benefits, focusing Smart Grid investments primarily on densely populated areas is the most efficient way for the federal government to benefit the greatest number of citizens.

II. CONSUMERS SHOULD HAVE ACCESS TO ENERGY INFORMATION THAT WILL PROVIDE THEM WITH MAXIMUM CONTROL OVER THEIR ENERGY COSTS

A. All Consumers Should Be Full Participants In Leveraging The Benefits Of The Smart Grid

If low-income consumers are to be full-participants in the new energy economy, they must have access to their own energy consumption information. The Advanced Monitoring Infrastructure (“AMI”), a real-time consumer information exchange mechanism that is built into the Smart Grid framework, is intended to facilitate energy efficiency in two ways: first, by allowing utilities to implement differential pricing based on aggregate peak demand information, thus incentivizing a more efficient pattern of use; and second, by allowing consumers to tailor their energy use and eliminate wasteful use based on the consumption patterns of their individual households.³¹ As of yet, not enough is known about whether low-income consumers stand to benefit or be harmed by the implementation of an AMI system. An analysis of one AMI pilot

³⁰ See Super, *supra* note 4 at 1155. (citing Div. of Energy Assistance, Department of Health and Human Services, *Low Income Home Energy Assistance Program: Report to Congress for Fiscal Year 2003* at 39-40 (2003)).

³¹ See U.S. Dept. of Energy, *The Smart Grid: An Introduction* 11 (2008) (“[AMI] provides consumers with the ability to use electricity more efficiently and provides utilities with the ability to detect problems on their systems and operate them more efficiently”).

program by the National Regulatory Research Institute showed that lower income consumers reduced electricity demand by lower percentages than higher income consumers.³² The analysis also showed that there was not a universal demand reduction during peak periods, and in fact some consumers suffering from the high heat increased their demand during peak periods.³³ These results could be explained in part by known patterns of energy consumption that are specific to low-income households and other vulnerable communities. However, there are a number of critical concerns about the negative impact of an AMI-influenced rate structure. Importantly, some consumers, including children and the elderly, may face elevated health risks from temperature extremes, and may thus be forced under an AMI system into a choice between higher energy bills or endangered health. For example, one concern is that many low-income consumers do not stand to realize cost savings from adopting energy efficient behaviors because they are already subsisting on the bare necessary energy expenditures due to their limited incomes, and are unable to shift their consumption to take advantage of off-peak usage rates. Additionally, low-income consumers tend to live in homes that are less well-insulated and less energy efficient than those of the general population, and to rely on older, less efficient appliances than the general population; these homes and appliances require more electricity even during peak demand periods. Because so little is known about how these and other low-income and vulnerable consumers would fare under an AMI system, transparency in the form of access to energy consumption information is a crucial consumer protection mechanism for these

³² See N. Brockway, *Advancing Metering Infrastructure: What Regulators Need to Know About Its Value to Residential Customers*, National Regulatory Research Institute (February 13, 2008) http://nrrri.org/pubs/multiutility/advanced_metering_08-03.pdf.

³³ *Id.*

communities. To further examine the AMI system, more studies need to be produced, specifically those that focus on how it affects low-income communities.

B. Individuals Have A Privacy Interest In Their Energy Consumption Information Whether Or Not They Pay For Energy Costs Directly

Utility regulators have long recognized that “customers should be permitted to choose the degree of privacy protection, both with respect to information outflows and inflows.”³⁴ The collection and maintenance of granular data on personal energy consumption and other information by utilities under an AMI system raises unprecedented privacy concerns. These concerns include not only identity theft, but also behavioral profiling, surveillance, and the use of residual data to reveal personal activities.³⁵ Low-income consumers, and especially consumers of color, would face particular danger from exposure to these potential privacy hazards given that these consumers also tend to be less aware of the potential privacy issues they might face in a digital environment due to their lack of exposure to digital tools. A recent report by the Joint Center shows that 78% of white Americans have been online for six or more years, compared to 68% of African Americans and 59% of Hispanics.³⁶ Sharing with consumers how their data will be used and stored, as well as allowing easy access to energy consumption data will create a

³⁴ See National Association of Regulatory Utility Commissioners, *Resolution Urging the Adoption of General Privacy Principles for State Commission Use in Considering the Privacy Implications of the Use of Utility Customer Information* (2000) available at http://www.naruc.org/Resolutions/privacy_principles.pdf (last visited July 9, 2010).

³⁵ See, e.g., National Institute of Standards and Technology, *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0* at 118-119 (2010) available at http://www.nist.gov/public_affairs/releases/smartgrid_interoperability_final.PDF (last visited July 9, 2010)(“The Smart Grid will be not only an energy management system, but also a multi-directional always “online” communication network.”)(“NIST Framework”).

³⁶ See Gant et al., *supra* note 9 at 11.

more informed public. With this knowledge they may check on the uses to which utility companies, local governments, and other institutional entities may put the data.³⁷ It is therefore especially important that the most vulnerable consumers have access to their individual energy consumption data. Regulators must ensure that these consumers have full and fair access to their energy consumption data as any AMI system is implemented.

CONCLUSION

The nation's Smart Grid is an infrastructure investment that can potentially break the pattern of social isolation and poverty that has often accompanied its predecessors. It is a chance to create equal opportunity and benefit through energy use. To this end, the federal government should consider the following recommendations as it designs and implements a Smart Grid system:

- Ensure that there are affordable Smart Grid options, so low-income consumers are able to integrate these energy saving devices into their homes and realize the full potential of Smart Grid technology;
- Expand digital access and education initiatives so that low-income consumers feel more comfortable with technology, thereby increasing the likelihood that they will pursue deeper levels of online engagement, including engagement with Smart Grid technology;
- Incentivize landlords to acquire energy efficient appliances for their tenants;
- Inform the public of the effect of Smart Grid and other energy-efficient technologies on electricity costs, publicize the effect of these costs on rents, and provide incentives, such

³⁷ See NIST Framework, *supra* note 35 at 118-119.

as tax credits and an appliance voucher program, for landlords to acquire energy efficient appliances;

- Focus Smart Grid investments primarily in densely populated areas, thus efficiently benefitting the greatest number of citizens;
- Provide transparency in the form of access to energy consumption information, a crucial consumer protection mechanism for low-income communities;
- Examine further the AMI system, producing more studies that focus on how AMI affects low-income communities; and,
- Ensure that low-income consumers have full and fair access to their energy consumption data as any AMI system is implemented.

All consumers should be represented in the planning, implementing and evaluating the Smart Grid, otherwise the federal government risks perpetuating current disparities. This is why it is important for public policy institutes, such as the Joint Center, to assist and monitor the impact of the Smart Grid on low-income communities.

Respectfully submitted,

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