May 17th, 2012

Stephanie Brady
Project Team Leader
U.S. Fish and Wildlife Service
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RE: **Izembek National Wildlife Refuge DEIS**

Dear Ms. Stephanie Brady:

The Wilderness Society (TWS) contracted Center for Sustainable Economy (CSE) to review the U.S. Fish and Wildlife Service's (USFWS) proposed Izembek Land Exchange and Road Corridor Draft Environmental Impact Statement (DEIS) regarding professional standards for its economic analysis, discussion of economic issues, estimates of the likely magnitude of relevant benefits and costs for items that have sufficient public data sources available, and draw preliminary conclusions with respect to net public benefits, the benefit-cost ratio, and the project's public interest determination. The following comments are the results of this review and address issues associated with the socio-economic analysis and analysis the DEIS provides in support of the Department of Interior's public interest determination required by 43 CFR § 2200 et seq. and are submitted to the USFWS by The Wilderness Society and Center for Sustainable Economy. Additional comments on other aspects of the DEIS are being submitted under separate cover.

TWS and CSE have twice offered comments on this project during the pre-scoping phase (November 16th, 2009) and scoping phase (April 30th, 2010). They are incorporated here by reference in their entirety. In the context of those submissions, we made specific requests for FWS to conduct a proper benefit-cost analysis in support of the DEIS to establish the IRP's capability to deliver net public benefits. As we previously noted, and to cite one federal agency's definition, the term "net public benefits" is "[a]n expression used to signify the overall long term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs)."[1] Demonstrating positive net public benefits is a prerequisite for determining whether or not a project is in the public interest. The manner in which federal

[1] Forest Service Manual 1905: Planning, Zero Code Chapter, Definitions.

agencies establish whether or not a project generates net public benefits is through benefit-cost analysis (BCA) from the social perspective.

BCA is recommended as the basic litmus test for all federally funded or authorized infrastructure projects. For example, Executive Order 12893 (1994) applies to federal spending for infrastructure programs including direct spending and grants to states for transportation, water resources, energy, and environmental protection. The DEIS assumes that 100% of the road construction is funded by grants from the federal government.[2] EO 12893 requires a systematic consideration of benefits and costs, monetized to the maximum extent practicable. All types of benefits and costs, both market and non-market, should be considered. To implement EO 12893, the Federal Highway Administration (FHWA) has issued rules and guidance that requires use of BCA as well as life cycle cost analysis (LCCA) in project evaluations for federally funded road projects.[3] As FHWA notes, there are several situations for which BCA is recommended.[4] These include:

- Whether or not a project should be undertaken at all (i.e., whether the project's life-cycle benefits will exceed its costs).
- When a project should be undertaken. BCA may reveal that the project does not pass economic muster now, but would be worth pursuing 10 years from now due to projected regional traffic growth. If so, it would be prudent to take steps now to preserve the future project's right-of-way.
- Which among many competing alternatives and projects should be funded given a limited budget. BCA can be used to select from among design alternatives that yield different benefits (e.g., reconstruct a roadway with additional lanes versus no additional lanes); unrelated highway projects (a widened road versus an interchange on another road); and unrelated transportation projects in different transportation modes.

All of these considerations are in play with the IRP. Thus, it is clear that BCA is essential to a sound decision for the IRP. In addition, and as noted in our previous comments, a team of ex-Interior employees familiar with the project also supported a BCA.[5] Despite regulatory requirements and our repeated requests, the DEIS does not contain or incorporate a formal BCA as contemplated by CEQ regulations implementing NEPA.[6] Instead, the discussion of individual costs and benefits is scattered throughout multiple sections of the DEIS, not quantified in a rigorous manner, and not tallied together so the decision maker has a sense of the net impact. For example, while road construction and maintenance costs are alluded to in Sections 2 and 4 of the DEIS, they are not directly compared with benefits. Cost estimates do not conform to FHWA standards. In fact, the DEIS acknowledges that LCCA was rejected as an alternative evaluation criteria.[7]

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[2] DEIS at 4-181.
[3] Federal Highway Administration, Final Policy Statement on Life Cycle Cost Analysis. FHWA Docket No. 94-15. September 18th, 1996.
[4] See FHWA's Economic Analysis Primer, Section on Benefit-Cost Analysis, viewable at: http://www.fhwa.dot.gov/infrastructure/asstmgmt/primer05.cfm.
[5] http://www.refugewatch.org/2009/09/29/former-doi-officials-oppose-izembek-nwr-land-swap/.
[6] NEPA regulations do not require a formal BCA. However, to the extent that BCA is essential to an informed decision the regulations go on to prescribe the manner that BCA should be incorporated into an EIS. See 40 CFR §1502.23.
[7] DEIS at 2-4.

Regrettably, failure to properly evaluate benefits and costs introduces a serious bias into the analysis. Congressional legislation passed in 2009, P.L. 111-11, the Omnibus Public Land Management Act Legislation, directed the FWS to analyze this road proposal and land exchange in Izembek National Wildlife Refuge, and for the Secretary of the Interior to determine whether or not the proposed road is in the "public interest." In order to fulfill the terms of the legislation, a proper BCA is necessary, as it is crucial for determining whether or not the proposed action is in the public interest and represents a good balance between competing resource values (i.e. benefits exceed costs), creates demonstrable rather than speculative socio-economic benefits, and rests on a solid economic foundation. FWS's failure to conduct and incorporate a BCA into the DEIS has thus led the agency to erroneously conclude that the project is beneficial from an economic standpoint. A cursory examination of benefits and costs indicate, however, that costs are likely to exceed benefits by a huge margin – a factor of 7 in the most optimistic scenario, a factor of 13 more likely. The following section presents these figures in the context of a preliminary BCA commissioned by TWS and completed by CSE based on information presented in the DEIS as well as other publically available sources of information.

Preliminary Assessment of Benefits and Costs

Benefit-cost analysis (BCA) compares the present value of the social benefits of a public policy, program, or project against the present value of social costs. There are two fundamental results from performing a benefit-cost analysis: 1) net present value (NPV); and 2) benefit-cost ratio.[8] The "present worth" of a project is commonly referred to as its NPV. The standard criterion for deciding whether a government policy, program, or project can be justified on economic principles is net present value – the discounted monetized value of expected net benefits (i.e., benefits minus costs).[9] NPV is a measure of the absolute magnitude of the gain or loss to society.

As described by the Office of Management and Budget (OMB), net present value is computed by assigning monetary values to all benefits and costs – regardless of who enjoys or incurs them – discounting future benefits and costs using an appropriate discount rate, and subtracting the sum total of discounted costs from the sum total of discounted benefits. Discounting benefits and costs transforms gains and losses occurring in different time periods to a common unit of measurement. Importantly, "[p]rograms with positive net present value increase social resources and are generally preferred. Programs with negative net present value should generally be avoided." Stated more precisely, projects that attain an NPV greater than 0 are worth investing in – the benefits over time outweigh the costs over the life of the project.[10]

To provide a ballpark estimate of what FWS may find after it completes a BCA for the IRP that is consistent with federal standards and guidelines, we followed standard procedures articulated by the Office of Management and Budget, Executive Order 12893, and FHWA guidance. We first developed NPV and BCR estimates for Alternatives 2 and 3 based solely on information presented in the DEIS as our baseline. We then modified the analysis to conform more closely with federal BCA guidance and by taking into account factors overlooked by the DEIS.

Baseline estimates of net present value and the benefit-cost ratio

[8] Office of the Secretary of Transportation (DOT). 2006. Guide to Quantifying the Economic Impacts of Federal Investments in Large-Scale Freight Transportation Projects. Washington, D.C.: Department of Transportation.
[9] Office of Management and Budget (OMB), Circular A-94 (Revised), Section 5(a). Available at: http://www.whitehouse.gov/omb/circulars/a094/a094.html.
[10] DOT. 2006. Note 14, Section 7.2.

The DEIS makes reference to five categories of socio-economic effects associated with the project: (1) travel costs; (2) employment opportunities; (3) induced economic activity; (4) local government finance and (5) changes in both public and subsistence uses.[11] Of these, employment and induced economic activity are beyond the scope of BCA because they are instead addressed in regional economic impact models.[12] For category 4 – local government finance – the purported benefits of the IRP is a $1 million per year savings to the Aleutians East Borough associated with termination of its annual subsidy for hovercraft operations.[13] However, the Aleutians East Borough has already terminated hovercraft service and has stated that it has no plans to resume service in the foreseeable future[14] and so this effect would not be causally related to the road should it be constructed and is thus inappropriate for consideration in a BCA that is designed to address incremental impacts of the road.

As for category 5 – changes in public and subsistence use – the DEIS makes it clear that there are both negative and positive effects to consider. For example, long-term negative effects on subsistence could include displacement of subsistence resources available in concentrated subsistence use areas for caribou and waterfowl, reduced availability of resources for harvest, and increased competition for resources.[15] Positive effects may include increases in public use of lands deeded to the National Wildlife Refuge that are currently in the private domain: In particular, "[m]otorized and non-motorized hunting and recreational activities by shareholders and by permitted non-shareholders would change to open access to the general public for waterfowl and game hunting, trapping, fishing, and recreational activities without a fee."[16] Because the DEIS does not make any conclusions with respect to the net effect (i.e. whether the harm to subsistence is offset by increases in public use elsewhere) in terms of appropriate use metrics such as visits and annual yield of game, fish, and native plant resources we assume for purpose of the preliminary BCA that the effects cancel out. This leaves effects on travel costs as the sole benefit appropriate for consideration in a BCA.

With respect to travel costs, the DEIS concludes that four key economic groups would benefit from the IRP under Alternatives 2 and 3: (1) Peter Pan Seafoods fish processing crews; (2) managers and technicians for Peter Pan Seafoods; (3) fishing crew members and fishery observers, and (4) residents and other persons not associated with fisheries. Taking various modal changes into account and the travel cost differentials reported in Table 4.2.3-9 of the DEIS FWS concludes that annual savings that would accrue to each group would amount to $180,546, $4,013, $2,268, and $74,754 respectively for groups 1-4. The DEIS also assumes that this level of benefit would rise over time as overall use increases. Taking this into account and using standard discounting procedures we estimate that these travel cost savings will amount to $5,453,206 in present value benefits over the 35 year analysis period for Alternative 2 and $5,348,295 for Alternative 3. Table 1 provides detailed present value benefit estimates by key economic group.

[11] DEIS Sections 4.3.3.2; 4.3.3.6; 4.3.3.7, 4.4.3.2; 4.4.3.6; 4.4.3.7.
[12] The reason for this is that employment and economic activity are usually merely transfers of resources – a gain is offset by corresponding decreases in competing uses.
[13] DEIS at 4-78; 4-188; 4-264.
[14] DEIS at 4-10
[15] DEIS at 4-202.
[16] DEIS at 4-200.

Table 1
Preliminary Benefit – Cost Evaluation for the Izembek Road Project

	DEIS Baseline		Corrected and Adjusted	
PV Benefits through 2048	Alternative 2	Alternative 3	Alternative 2	Alternative 3
Travel savings processing crew	$3,763,861	$3,722,181	$3,464,464	$3,384,563
Travel savings processing managers	$83,659	$81,743	-$9,174	-$17,080.38
Travel savings fishing crew	$47,281	$45,551	$31,263	$27,487
Travel savings residents	$1,558,404	$1,498,821	$762,187	$651,234
Present value benefits (35 years)	$5,453,206	$5,348,295	$4,156,754	$4,046,205
PV Costs through 2048				
Capital costs and construction	$34,352,541	$37,671,628	$30,122,435	$35,580,036
Operations and maintenance	$3,201,595	$3,394,981	$4,490,566	$5,315,364
Mitigation	-	-	$10,152,515	$10,695,748
Lost passive use values	-	-	$1,157,473	$1,307,196
Additional public management costs	-	-	$943,074	$943,074
Present value costs (35 years)	$37,554,136	$41,066,609	$46,866,063	$53,841,418
Net present value	-$32,100,930	-$35,718,314	-$42,709,308	-$49,795,212
Benefit-cost ratio	0.1452	0.1302	0.0887	0.0751

With respect to costs, the DEIS provides estimates of two: (1) construction costs, and (2) long term annual operations and maintenance costs. For Alternative 2, initial road construction costs are estimated to be $20.7 million. Annual costs are expected to be $149,000. For Alternative 3, initial construction costs are estimated to be $22.7 million with annual costs at $158,000. Using standard "two stage" discounting procedures endorsed by federal agencies that account for the opportunity cost of capital these translate into $37,554,136 in present value costs over the 35 year analysis period for Alternative 2 and $41,066,609 for Alternative 3 (Table 1).[17] Subtracting costs from benefits indicates a net present value (NPV) for Alternative 2 of -$32,100,930 for Alternative 2 and -$35,718,314 for Alternative 3. Dividing benefits by costs indicates a benefit-cost ratio of 0.1452 for Alternative 2 and 0.1302 for Alternative 3. In other words, taking the DEIS benefit estimates at face value, costs of the Izembek Road Project likely exceed benefits by a factor of 7 in the most optimistic scenario.

Clearly, a negative NPV and extremely low BCR for either Alternative suggest that the IRP cannot meet key economic factors for a public interest determination by the Secretary of Interior. Among other factors, the Secretary must find that land exchanges help "meet the needs of State and local residents and their economies" and otherwise do not result in resource values being diminished.[18] By causing more economic harm than good, the IRP fails these tests. Nor can the project be justified as a use of federal highway funds. As previously noted, FHWA policy does not endorse projects whose life cycle costs exceed benefits. By factoring in corrections to the

[17] EPA provides a useful overview of the two stage discounting procedure at: http://www.epa.gov/ttnecas1/econdata/Rmanual2/8.3.html. For the purpose of our analysis and in accordance with EPA's guidance, we set the opportunity cost of capital at 7% and the consumption rate of interest (discount rate) at 3%.
[18] 40 CFR § 2200.0-6(b) and (b)1.

DEIS assumptions and overlooked categories of cost, the economic case becomes even more compelling.

Adjusted estimates of net present value and the benefit-cost ratio

By factoring in corrections to the DEIS assumptions and overlooked categories of cost, the economic case becomes even more compelling. In our technical review of the economic benefit and cost figures reported in the DEIS we found the following five deficiencies that warrant adjustment to the baseline NPV and BCR calculations we presented above. These include:

- With respect to benefits, the DEIS fails to include the opportunity costs of time associated with longer trip lengths.
- Capital or construction costs do not reflect the opportunity costs of capital or costs associated with non-local gravel sources.
- Annual operations and maintenance costs do not include treatments for dust palliative and do not conform with published Alaska DOT estimates.
- The DEIS does not address mitigation costs associated with wetlands and construction of bollard-chain road barriers.
- The DEIS fails to account for passive use damages associated with development of presently intact and valuable wilderness lands.
- The DEIS fails to account for increased federal management costs.

To adjust benefit calculations, we used standard BCA procedures to account for the opportunity costs of time. One standard method is to assume that an individual's hourly wage is a proxy for the value of his or her time spent working or at leisure rather than commuting.[19] For each user group, we calculated the additional time that would be needed to complete a single round trip using the road rather than the preferred existing mode, multiplied this figure by average wage rates for that group, and then multiplied the product by the number of annual trips assumed by the DEIS. Time differentials were taken from Table 4.2.3-9 of the DEIS. Averages wages were taken from the Alaska Department of Labor and Workforce Development.[20] For residents, the average wage figure was derived from the American Community Survey data for the Aleutians East Borough in conjunction with ADLWD data.[21] The resulting annual opportunity cost figure was then deducted from the travel cost savings benefit figures reported in the baseline scenario. Present value benefit figures were then re-calculated over the 35-year analysis period. The results are presented in Table 1. As a result of this adjustment, present value benefits are reduced to $4,156,754 in Alternative 2 and $4,046,205 in Alternative 3.

With respect to construction costs, we first revisited the DEIS's initial construction cost estimates of $20.7 and $22.7 million since sources for these estimates were not disclosed. To corroborate, we found transferable estimates from a study of Nanek Crossing and used these figures in a revised calculation. That study estimated gravel road construction costs of roughly $650,000 per mile (in 2012 dollars) considerably less than the $1 million per mile assumed by the DEIS.[22] To be conservative, we adopted this lower figure. Bridge costs add another

[19] Boardman, Anthony, David Greenberg, Aidan Vining and David L. Weimer. 2001. *Cost-Benefit Analysis – Concepts and Practice*. Upper Saddle River, NJ: Prentice Hall.
[20] http://live.laborstats.alaska.gov/wage/index.cfm?at=70&a=200002.
[21] Relevant American Community Survey data can be found at: http://live.laborstats.alaska.gov/cen/acsdetails.cfm?l=13&ay=20105&an=Aleutians+East+Borough&ds=07#C24010.
[22] Alaska Department of Transportation. 2005. Naknek Crossing Intermodal Economic and Airport Use Study

$250,000, also based on the same study. In addition, given FWS's assertion that local gravel sources will not be made available, we incorporated an additional $2 million in costs for Alternative 2 and roughly $2.4 million for Alternative 3 based on DEIS figures. As with the baseline estimate, we then followed standard procedures for annualizing these costs over the 35-year analysis period using an opportunity cost of capital of 7% as recommended by EPA procedures. Factoring in the opportunity cost of capital is important because it reflects what the initial investment could have earned in other settings. The DEIS does not do this, and only presents initial construction costs. Our revised present value construction and capital costs estimates are $30,122,435 for Alternative 2 and $35,580,036 for Alternative 3 – somewhat lower than the baseline, but much greater than the costs implied by the DEIS.

In terms of annual operations and maintenance costs associated with the IRP, the Alaska Department of Transportation notes three important categories relevant to gravel roads in this region: (a) resurfacing; (b) snow and ice removal, and (c) dust palliative. Resurfacing is assumed necessary every 10 years, and dust palliative treatments every 2. Snow and ice removal is annual, but varies considerably depending on climate conditions. With respect to costs, DOT estimates we incorporated updated to 2012 dollars are $811.97 per linear mile per year for resurfacing, $2,165 per linear mile per year for dust palliative, and $5,553 per linear mile per year for all other routine maintenance including snow and ice removal.[23] Present value costs over the 35 year analysis period amount to $4,490,566 for Alternative 2 and $5,315,364 for Alternative 3, considerably greater than the baseline figures based on DEIS estimates. From discussions in the DEIS, the main source of discrepancy appears to be the costs of dust palliative, which are not discussed.

An additional cost consideration is the costs of road maintenance equipment. These also appear to be underestimated, not accounting for the likely need for additional equipment, the lifespan and costs associated for acquisition, maintenance, and replacement. Although we have not attempted to quantify these costs here, we recommend that the cost estimates for Alternatives 2 and 3 be modified to reflect these costs.

Another cost element not disclosed in the DEIS relates to costs incurred by Peter Pan. The assumption that a Peter Pan sport utility vehicle would not use the road, as stated in the DEIS (DEIS at 4-65) is impracticable. If Peter Pan is willing to load an SUV on a hovercraft or ferry, it is reasonable to assume that the company would use it on the road for transportation of managers, invited guests, contractors, workers, etc. As the largest seafood processor in Alaska, Peter Pan has relatively high reported revenues, and it is unlikely that the cost of driving an SUV or other commercial vehicles would serve as a deterrent. Thus, the costs of ground travel for this vehicle should be included in the analysis of these costs.

Another important category of cost missing from DEIS discussions is the cost of mitigation. There are at least two major components. First, is the cost of mitigating off-road access. A barrier installed along the length of the roadway on both sides will be used to prevent vehicles from accessing the Izembek National Wildlife Refuge and Izembek Wilderness lands adjacent to

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An approved component of the Alaska Statewide Transportation Plan. Juneau: Alaska DOT.

[23] For dust palliative and resurfacing, see Kemplen, Alan. Area Planner, DOT&PF. Fax memorandum. October 2, 2003. Also cited in ADOT (2005); For all other annual costs see: Alaska Department of Transportation and Public Facilities. 2008. Let's Get Moving 2030. Technical Appendix System Level Needs Analysis and Finance Analysis. Juneau: Alaska DOT.

the road.[24] Two barrier types are being considered for this project: a chain barrier and a bollard barrier.[25] Either involves a significant expense. Values reported in the literature suggest a cost of $310,339 per mile (an average between costs of the two design options).[26] The second mitigation cost is associated with wetlands. Alternative 2 would involve the fill of 3.8 wetland acres, 2.4 for Alternative 3. In a study of the wetland mitigation costs for the proposed Chuitna Coal mine, along Cook Inlet, we developed an estimate of $163,891 per acre based on what the mine developer would likely have to pay into a regional wetland bank to compensate for the fills.[27] This is the standard in-lieu mitigation cost fee for placing an acre of fill into REV1 class wetlands similar to what exist in the IRP area. There is no reason why the Aleutians East Borough would be exempt from this requirement. Multiplying these unit costs of mitigation by road miles and wetland acres filled, annualizing both barrier and wetland cost over the life of the project and then discounting yields a present value cost estimate of $10,152,515 for Alternative 2 and $10,695,748 for Alternative 3.

Another cost element omitted from the DEIS is the loss of passive use values associated with the conversion of pristine wilderness and refuge land into a road corridor. As discussed in depth in our previous comments, passive use values represent individual's willingness to pay for protecting a resource, even if they may never use it in any way. With respect to wildlife, people are clearly willing to pay to protect species – some of them halfway around the world – that they may never even view. Contributions to international wildlife organizations are an example of how that willingness to pay is manifested. Passive use values for Alaska's wilderness lands, wildlife refuges, and other intact landscapes extend to the entire U.S. population. For example, in Colt (2001) suggested that passive use values for 13.2 million acres encompassed by Bristol Bay Wildlife Refuges was in the order of $2.5 billion a year, or $3.5 billion in current dollars. This translates into a value of $268 dollars an acre each year.[28] By applying this figure to the 201 acres of road corridor lands developed in Alternative 2 and 227 acres in Alternative 3 and then discounting the resulting cost stream over the 35-year analysis period we estimate passive use damages to represent a present value cost of $1,157,473 for Alternative 2 and $1,307,196 for Alternative 3. This likely represents a conservative estimate as impacts to wilderness will extend far beyond the direct impacts of the road corridor.

A final cost category not quantified in the DEIS are the increased costs associated with management of lands added to the public domain. Planning, monitoring, and enforcement are examples of routine costs associated with management of public lands for either federal or state agencies. Nationally, for the wildlife refuge system as a whole, these costs amount to roughly $3.40 per acre based on the most recent budget justification prepared by FWS.[29] Applying this

[24] The DEIS does not disclose whether the initial construction cost estimates include this amount. Given the difference between the construction cost estimate of AKDOT ($650k/mile) and the DEIS ($1 million/ mile) they may. Either way, it does not affect our alternative assessment since we begin with the former and then add in barrier costs separately.
[25] DEIS at 2-25 and 2-26.
[26] Sonoma Ecology Center. 2003. Fencing Guidelines and Specifications for Conservation Easements. Sonoma, CA: Sonoma County Agricultural Preservation District; Department of Defense. 2010. Unified Facilities Criteria. Selection and Application of Vehicle Barriers.
[27] Talberth, John and Evan Branosky. 2011. Net Public Benefits Analysis of the Chuitna Coal Mine.
[28] Colt, Steve. 2001. The Economic Importance of Healthy Alaska Ecosystems. Anchorage: Institute for Social and Economic Research, University of Alaska.
[29] USFWS. 2013. Budget Justification for FY 2013. Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service.

cost to just the private lands being added to the FWS refuge system implies an additional public cost of $943,074 over the 35 year analysis period in present value terms.

Taken together, these adjustments to the baseline BCA significantly worsen the overall economics of the project. NPV falls to -$42,709,308 for Alternative 2 and -$49,795,212 for Alternative 3. Respectively, these represent a BCR of 0.0887 and 0.0751. In other words, in a more credible assessment of benefits and costs than those included in the baseline, costs are likely to exceed benefits by a factor of 13.

While these benefit-cost estimates are preliminary, they nonetheless suggest that if FWS were to conduct a proper BCA in the context of the final environmental impact statement the agency would find that the IRP could not be justified on economic grounds taking into consideration the benefits to key economic user groups and all relevant market and non-market costs. As such, key economic criteria associated with the Secretary's public interest determination cannot be met. We look forward to working with FWS to incorporate this critical information into the FEIS. Feel free to contact either one of us if you need clarification on any aspect of these comments.

Sincerely,

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