Ratings

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Hybrid annuity projects – Risk mitigation for stakeholders?

Introduction:

The Government of India has approved the hybrid annuity model (HAM) to increase the pace of award and construction of national highways apart from de-risking the developers and lenders from inherent shortcomings associated with conventional toll and annuity based design, build, finance, operate and transfer (DBFOT) model. NHAI has declared lowest bidder for more than 16 projects of around Rs.13,000 crore and length of 610 km from January 2016 to mid of May 2016.

The following sections cover salient features of hybrid annuity projects:

1. **Bid parameter:** Project life cycle cost defined as Net Present Value (NPV) of the quoted bid project cost plus NPV of the operations and maintenance (O&M) cost for the entire operations period is the bid parameter. Bid is awarded to the developer quoting lowest NPV for project life cycle cost.

2. **Cash Construction Support:** 40% of the bid project cost shall be payable to the concessionaire by the authority in five equal installments linked to physical progress of the project. Concessionaire shall have to initially bear the balance 60% of the project cost through a combination of debt and equity.

3. **Escalation clause in the project cost:** Project cost shall be inflation indexed (through a Price Index Multiple) (PIM), which is the weighted average of Wholesale Price Index (WPI) and Consumer Price Index (CPI) (IW) in the ratio of 70:30. The bid project cost adjusted for variation between the price index occurring between the reference index preceding the bid date and reference index date immediately preceding the appointed date shall be deemed to be the bid project cost at commencement of construction. Bid project cost shall be changed to variation in PIM on monthly basis till the achievement of commercial operations date (COD).

4. **Stable cash flow of annuity payments:** Semi-annual annuity payments shall be made to the concessionaire by the Authority on completion of the project for the balance 60% of the final bid project cost. The annuity payments have been aligned with typical revenue profile for highway projects. Along with the annuity payments, interest shall be paid in the form of annuity on reducing

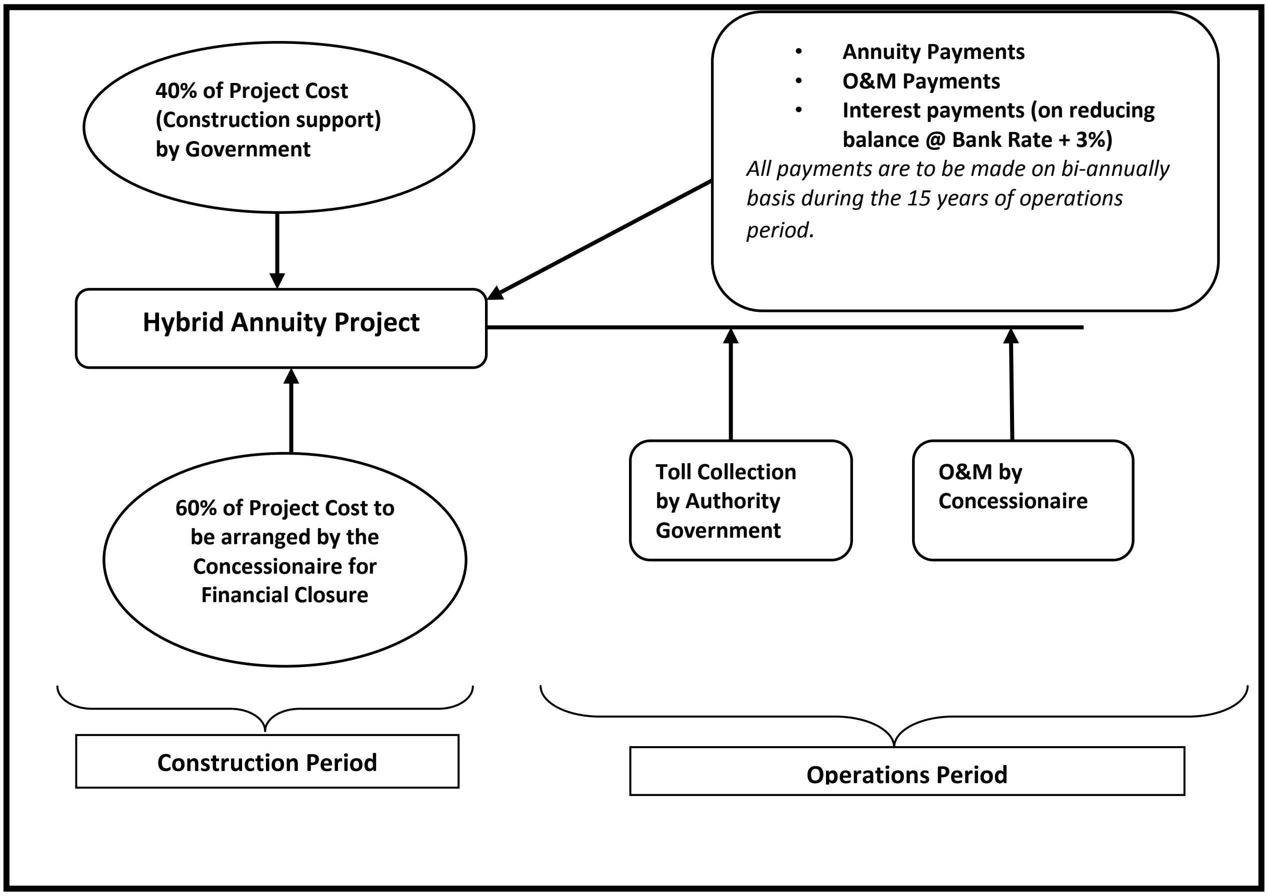
balance of final construction cost. Interest rate for the same shall be Bank rate + 3 % (currently 10.00% per annum).

5. **Assured O&M payouts by authority:** O&M payments shall be made to the concessionaire along with annuity by the Authority, in accordance with the amount quoted which will be inflation indexed. Concessionaire shall remain responsible for the maintenance of the project till the end of the concession period.

6. **Revenue for authority:** Toll collection shall be the responsibility and revenue of the authority.

7. **Concession Period:** It shall comprise construction period, which shall be project specific, with a fixed operations period of 15 years.

The following block-diagram provides an overview of the HAM Model.



Comparison of features in concession agreement of hybrid annuity road projects vis-à-vis conventional DBFOT road projects:

Particulars	Conventional DBFOT project	Hybrid annuity project	Impact Analysis
Concession period	Concession period is fixed from the appointed date and it comprises construction and operations period. This arrangement reduces the operations period if there is delay in achievement of provisional commercial operations date (PCOD). For example, concession period is 17 years from the appointed date which also include construction period of 730 days. In this case, number of annuities to be received by concessionaire reduces from 30 to 29 if there is delay of six months in achievement of PCOD.	Concession period includes fixed operational period of 15 years from COD. Hence, numbers of annuities are fixed at 30 irrespective of delay in achievement of PCOD. However, Authority can levy damages or withheld performance securities for the delays attributed to concessionaire.	Positive for developers and lenders as it provides revenue visibility.
Damages for delays attributed to the concessionaire	If COD does not occur prior to 91st day after scheduled project completion date (SPCD) unless the delay is on account of reasons solely attributed to the authority or force majeure, the concessionaire shall pay damages to the authority in a sum calculated at rate of 0.1% of the amount of performance security for delay of each day until COD is achieved.	In the scenario mentioned here, damages amount increases to 0.2% of the amount of performance security for delay of each day until COD is achieved. Upon concessionaire failure to pay damages, the same shall be paid with interest of bank rate plus 3% and shall be deducted from the annuity payments till the recovery of entire damages.	Positive for the authority and more binding on developers to complete the project within stipulated time frame.
Bidding criteria	Authority mentions project- specific Engineering procurement and construction (EPC) cost in the request for proposal. However, concessionaire can freeze the project cost based on technical viability on its own as it is not the bidding parameter. This results in wide deviations in the cost of project based on the assumption and margin estimated by the developers.	Bid project cost is **finalized on the date of declaration of bidder offering lowest project life cycle cost (including construction cost and O&M cost) and hence the project cost cannot be changed except variations in PIM and change in scope. Bid project cost shall be inclusive of construction cost, interest during construction, working capital and physical contingencies except additional cost due to variations in PIM, change in scope, and change in law or force majeure.** Furthermore, concessionaire is also required to extend additional performance security to the authority in the form of unconditional irrevocable guarantee from a bank if the bid project cost of the selected bidder is lower by more than 10% of estimated project cost of authority.	Positive for authority and lenders. Nevertheless, this requires in-depth study of project cost by bidder based on the design and specification of scope of work. Emphasis on cost based bidding and availability of the recent cost estimates by NHAI is expected to narrow the difference between NHAI cost and bidding cost which can ultimately result in lower funding requirement for developers and lower exposure of banks.
Obligations of authority	No clauses for rehabilitation and resettlement.	Authority undertakes rehabilitation and resettlement of persons affected by construction of project and has to bear all cost and expenses thereof. Authority is also required to procure forest clearance as a condition precedent to concession agreement.	Positive for developers as it shall result in increase in pace of execution.
Financial closure	Financial closure is to be achieved within	Financial closure is to be achieved	Neutral to positive:

Particulars	Conventional DBFOT project	Hybrid annuity project	Impact Analysis
	180 days from signing of concession agreement.	within 150 days from signing of concession agreement.	Lower quantum of debt tie-up requirement combined with annuity based revenue model is expected to ease the Financial closure process.
Deemed termination	No such clauses.	In case, appointed date does not occur before the 1st anniversary of the signing of Concession agreement, the concession agreement shall be deemed to have been terminated by mutual agreement of the parties. Furthermore, if appointed date does not occur for the reasons attributed to concessionaire, authority shall en-cash performance security and additional performance security as damages thereof.	Protects the developer from inordinate delay in handover of land or regulatory clearances from the authority.
Project milestone	Project milestone linked to financial progress.	Project milestone linked to both physical and financial progress.	Positive for the authority and lenders as it protect them for the any diversion of funds by developers.
Release of construction grant	Construction grant, if any can be disbursed in the proportionate form of term loan disbursement after infusion of 100% contribution from sponsors.	Authority shall provide construction grant to the extent of 40% of the inflation indexed bid project cost. Construction grant is to be released in the form of five equal installments subject to the achievement of physical progress of 20%, 40%, 60%, 75% and 90% respectively.	Positive for developers and lenders as funding of the 40% of the project cost from the authority is expected to reduce the funding need. Furthermore, alignment of grant release with the achievement of physical progress is also expected to incentivize the developers for timely completion of work.
Mobilization advances	Concessionaire can grant mobilization advances to EPC contractor from the cost of project. No mobilization advances is granted from authority during construction period.	Mobilization advances can be availed from authority upto 10% of bid project cost @ bank rate of RBI compounded annually during construction period. Such mobilization advances are to be deducted in four equal installments from construction grant by authority. Interest on such advances shall be recovered as the fifth and final installment upon expiry of 120 days commencing from the recovery date of fourth installment.	Positive for developers as mobilization advances are available at bank rate which is currently 7%.
Delay in handover of balance right of way (RoW) post appointed date(i.e. handover of 80% land)	Concessionaire is required to complete the work on all lands for which RoW is granted within 90 days of appointed date before scheduled project completion date. Concessionaire can achieve PCOD after completing such work. However, final COD can't be issued even though work is delayed due	In the event the authority is unable to provide remaining site within 180 days from the appointed date, the remaining site shall be removed from the scope of work under the provision of change in scope. Hence, final COD can be achieved after completing the 100% work on the site available to	Positive for developers and lenders as it provides better clarity and mitigates the construction risk to a considerable extent.

Particulars	Conventional DBFOT project	Hybrid annuity project	Impact Analysis
	to reasons attributed to the authority.	concessionaire within 180 days from appointed date.	
Bonus payment on early completion	Bonus upto maximum one annuity (six months) shall be paid by authority along with first annuity subject to achievement of final COD (100% completion of work on the entire project length). Furthermore, annuity payment shall commence only after six months from scheduled project completion date (SPCD).	In the event concessionaire shall achieve COD on 30 or more days prior to scheduled completion date, authority shall pay bonus equal to 0.5% of 60% of bid project cost for 30 days by which COD shall preceded SPCD. Thereafter, the bonus shall be calculated on pro-rata basis. Bonus shall be due and payable along with the first annuity payment. Annuity payment shall commence within 15th days of 180th days from COD.	Positive for developers as bonus payment can be received even after completing 100% work on the lands available to concessionaire within 180 days from appointed date. Furthermore, realigning annuity payments to COD as compared with SPCD increases the internal rate of return (IRR) for the project.
Release of performance security	Performance security can be released after one year from appointed date or achievement of 20% of financial progress by concessionaire.	Performance security can be released after one year from appointed date or achievement of 30% of financial progress by concessionaire. Additional performance security can be release after achievement of milestone-III (i.e. 75% of physical progress).	More binding on developer and increases performance obligation of developer.
Deemed performance security	No such provision.	Even after release of performance security, substitute security of an equivalent amount is deemed to be created as performance security. It is in the form of first and exclusive charge on equivalent balance in the escrow account subject only to the statutory dues and taxes on all amounts due and payable by authority to concessionaire. The authority shall be entitled to enforce the deemed performance security through withdrawal from escrow account upon occurrence of concessionaire event of default.	Positive for the authority and more binding for developers.
Change in scope	Authority shall pay the concessionaire any increase in scope of work approved by independent engineer. In the event of reduction in scope of work due to reasons attributed to authority or force majeure, annuity payment shall be reduced based on the cost assessed by independent engineer.	Same clause in case of increase in scope. While in case of reduction in scope due to reasons attributed to the authority, cost of such reduced cost is to be accessed by the independent engineer and bid project cost would be reduced by 107.54% of the civil cost for reduced scope. O&M payments shall also be increased or reduced in proportion of change in the length of project highway due to change in scope.	Neutral. Further, alignment of O&M payments with project length is favorable for the authority.
Maintenance obligations prior to appointed date	Authority is responsible for the maintenance obligations.	Concessionaire is responsible as a part of bid project cost. In case appointed date is not achieved and concession agreement is terminated prior to appointed date, authority shall reimburse the concessionaire based on lump sum per km rate mentioned in the concession agreement.	Positive for the authority and more binding on developers for timely achievement of appointed date.

Particulars	Conventional DBFOT project	Hybrid annuity project	Impact Analysis
Termination payment under concessionaire event of default prior to COD	No termination payment.	Termination payment is allowed subject to achievement of second milestone for the payment of grant (i.e. 40% of the physical progress). Termination payment shall be paid in the range of 50-80% of the debt due or 9-32% of the project cost whichever is less minus insurance cover depending upon achievement of second to fifth milestone for release of construction grant.	Positive for the lenders as it protects their interest to a considerable extent.
Obligations relating to refinancing	No such clauses.	Authority shall permit and enable concessionaire for refinancing as per prevailing guidelines upon written request. Authority shall respond within 30 days of the receipt of proposal.	Positive for the developers and lenders

Hybrid annuity model-(HAM) Authority perspective

1. The pace of the award of the project is expected to increase for the authority. Developers' participation has also increased around 10 bidders in projects awarded in May 2016 as compared with two-four bidders in the first few projects awarded on HAM basis.
2. The authority is entitled to collect toll during operational period which is expected to form good source of revenue against payment made to concessionaire in the form of annuities.
3. The authority is also required to expedite the process for handover land and providing necessary approvals in light of deemed termination clause in the concession agreement.
4. Execution pace is also expected to improve due to stringent clauses for the damages and encashment of performance as well as additional performance security in the event of delay by concessionaire as compared with conventional DBFOT model.

HAM- credit perspective

1. **Reduces sponsor's risk for funding equity commitment:**

   Aggressive bidding, high debt levels and increasing working capital intensity as well as execution challenges had collectively affected the credit profile of prominent infrastructure developers / sponsors during last three years. Deterioration in the credit profile of some of the large developers has increased the funding risk during construction phase and reduced participation of developers in DBFOT model. At the same time, developers with strong execution capability and good financial flexibility are better placed to grab the sizeable opportunity in the road sector. HAM model entails lower sponsor contribution during construction period considering 40% construction support from authority and hence mitigate the funding risk to an extent. Assuming construction grant of 40%, sponsor contribution of 12% and loan of 48% on project cost of Rs.1000 crore, sponsor contribution works out to Rs.120 crore under HAM model as compared with Rs.250 crore for conventional BOT project funded with the debt/equity of 3:1 times. Furthermore, provision of mobilization advances from authority is also expected to provide some support to concessionaire in the initial phase of construction. It also paves way for relatively easy achievement of financial closure, because lenders are less reluctant to fund annuity projects and to top it up with lower funding requirement.

2. **Reduction in construction risk:**

   Construction risk is partially mitigated due to availability of 80% length of project before appointed date and NHAI's efforts for providing faster clearances as well as support in rehabilitation. Provision of deemed termination and clauses to issue final COD in case of completion of 100% work on the lands available within 180 days from appointed date also protects the interests of developers and lenders to a considerable extent. Besides, stringent clauses for levy of damages as well as encashment of performance security as well as additional performance security in case of delay in execution due to reasons attributed to the concessionaire also exert some pressure on developer for the timely execution.

3. **Inflation indexed project cost albeit with some issues in fixing the loan amount:**

   Inflation indexed bid project cost protects the developers against price escalation to an extent. Nevertheless, extent of price escalation is difficult to factor at the time of financial closure. Hence, price escalation is likely to be funded through grant from authority and sponsor contribution in the ratio of 40:60 which can be subsequently reimbursed by the lenders in the project debt/equity after arriving at final project cost post COD.

4. **Assured cash flow in the form of annuity payments:**

   During operational phase, cash flow is assured in the form of annuity payments on semiannual basis covering 60% of the project cost along with interest.

5. **Reduction of interest rate risk:**

   Interest shall be paid on reducing balance of cost. Interest rate for the same shall be Bank rate + 3 % (currently 10.00% per annum).However, considerable lag between fall in bank rate and reduction in base rate by lender can reduce the margin of safety and increase interest rate risk to an extent. For example, bank rate reduced from 7.75% to 7% within one year while base rate of banks have not moved in that tandem. Nevertheless, developer has margin of safety in the event of replacing the bank loans with long-term instruments at lower rates after establishment of some operational track record in light of strong credit quality of annuity provider (i.e. NHAI, rated 'CARE AAA').

6. **O&M risk partly mitigated:**

   O&M risk is also partially offset due to fixed payment in the form of annuity which is also indexed to inflation movements. However, developers would still face the risk of sharp increase in the O&M cost due to more than envisaged wear and tear.

7. **Challenges for developers:**

   As compared with conventional BOT projects, challenges for developer cum EPC contractor to execute the project within envisaged cost is higher as the project is awarded under competitive bidding based on the cost parameter as compared with conventional BOT project awarded based on the parameter of premium payment/grant offered to the authority. Construction grant is expected to be disbursed in installment upon achievement of milestone based on the physical progress. Moreover, lender shall disburse the term loan only upon achievement of desired project debt/equity by concessionaire. Consequently, working capital requirement for the EPC contractor or interim funding support from concessionaire till release of grant from the authority is expected to remain high. At the same time, provision of interest on working capital in bid project cost is expected to provide some cushion to developers.

8. **Protection of lender's interest in the event of termination:**

   Lenders are partly secured in the event of concessionaire event of default prior to COD. As per concession agreement, in the event of termination, debt due is calculated based on the lower of NHAI cost and bid project cost. Given that current trend indicates relatively lower variations between the NHAI project cost and bidder project cost, the lenders are protected to a considerable extent compared to conventional DBFOT model.

Recent trends of HAM projects awarded by NHAI

1. **Focus of NHAI to reduce project life cycle cost:** Majority of the projects awarded under HAM and studied by CARE are to be developed with rigid pavement structure as compared to flexible pavement mainly to reduce the project life cycle cost. Rigid pavement consists of cement concrete pavement laid on well-prepared

granular sub-base (GSB) while flexible pavement consists of various layers of granular materials and provided with a layer of bituminous material on the top. Construction cost of concrete road is around 25% higher than bituminous road albeit with significant reduction in the operations and maintenance cost. Bituminous layer is required to be replaced every five years in flexible pavement structure which results in higher O&M cost. Hence, life cycle costs of cement concrete roads are expected to be considerably lower than bituminous roads. However, authority's ability to safeguard the safety parameters while designing rigid pavement structure is crucial in light of probability of relatively higher wear and tear of tyres of vehicles.

2. **Increase in participation of developers:** NHAI has started awarding HAM projects from January 2016 while dividing Delhi-Meerut expressway in three packages. Initially, the response from bidder was low mainly in light of first of its type projects as reflected by participation of only two bidders. Subsequently, nine bidders participated in the projects awarded in Gujarat by NHAI in May 2016. However, participation of bidders is moderate at four to five in the other projects reflecting moderate competitive intensity in the industry. Furthermore, developers with demonstrated execution capability, good financial flexibility and regional focus were successful in winning contracts till mid of May 2016 as tabulated below:

Name of the developer	Number of projects awarded	State of project stretch
Sadbhav Infrastructure Projects Limited, a subsidiary of Sadbhav Engineering Limited (SEL, rated 'CARE A+/CARE A1+' , SIPL, rated 'CARE A+(SO)')	2	Gujarat
	2	Uttar Pradesh
MEP Infrastructure Developers Private Limited (rated 'CARE BBB-/CARE A3')	3	Maharashtra
	1	Gujarat
MBL Infrastructures Limited	2	Uttar Pradesh
	1	Uttar Pradesh/Uttarakhand
Joint venture led by Apco Infratech Private Limited (rated 'CARE A-/CARE A2+')	1	Delhi/Uttar Pradesh
Chetak Enterprises Limited (rated 'CARE A+/CARE A1+')	1	Himachal Pradesh
Welspun Enterprises Limited (rated 'CARE A/CARE A1')	1	Delhi/Uttar Pradesh
Gawar Construction Limited (rated 'CARE A/CARE A1')	1	Punjab
Agroh Infrastructure Developers Private Limited (rated 'CARE BBB/CARE A3+')	1	Gujarat
Eagle Infra India Ltd (rated CARE BBB/CARE A3+)	1	Punjab

3. **Evaluation of bid project cost:**

Change in the bidding parameter to project life cycle cost and availability of NHAI cost based on the estimates of recent months has narrowed the deviations between NHAI project cost and bid project cost.

Average bid project cost is higher by 15% as compared with NHAI project cost in the 16 HAM projects studied by CARE. It includes four projects awarded at more than 20% higher amount than NHAI cost mainly on account of relatively higher complexity associated in execution of such projects. Three projects of Gujarat were bid at marginally higher rate of 2-5% from NHAI cost mainly on account of expectation of conducive environment for execution of projects, relatively simple nature of execution and increase in participation from regional bidders. Average bid project cost for the 11 HAM projects (except six projects where structural work was higher) worked out to Rs.4 crore per lane per km as compared with average project cost of just over Rs. 2.80 crore per lane per km for the CARE rated toll-based national highways. It was mainly on account of focus of NHAI towards developing cement concrete highways, construction of existing two lane carriage ways from GSB level in some of the projects and provision of service roads in some of the stretches.

4. **Evaluation of project life cycle cost:**

Developers have given the different weightage to construction cost and O&M cost while biding HAM projects. However, it is to be noted that average difference of project life cycle cost (NPV of bid project cost and O&M payments) between first two lowest bidders was low at around 3.5% barring few projects.

5. **Cash flow analysis and IRR:**

HAM projects are expected to mitigate the credit risk to considerable extent notwithstanding inherent execution challenges and extent of aggressive bidding. It provides stable cash flow to the concessionaire in the operational phase. Project IRR before tax is expected to remain around 10.00-12.50% against low cost of capital of 6.78-7.75% based on CARE's estimates. Furthermore, equity IRR is expected to remain comfortable around 15-20% which is expected to incentivize the developers for the bidding. Debt Service Coverage ratio (DSCR) is also expected to be comfortable notwithstanding increase in O&M expenses and movements in the bank rate.

HAM …….a balancing act?

- HAM is expected to benefit the road sector with increase in pace of award of contract and addressing the bottleneck of earlier toll-based and annuity-based project. HAM model also provides relief to the developers with reduced funding commitment while offering assured returns over project life cycle.

- Developers with in-house EPC team and demonstrated execution track record are expected to benefit from HAM notwithstanding aggressive bidding. This is mainly due to likely shift of developer's focus from revenue maximization and financial engineering to project management, cost control and operational excellence. In-depth analysis of project cost considering various parameters like the design of road and structural work, consumption quantity of the major materials, availability of resources and transportation cost of materials are crucial for attaining envisaged IRR.

- Overall, the successful implementation of the HAM is expected to aid in addition of low risk asset in developer's portfolio and increase in the pace of road construction. Strong credit quality of annuity provider is expected to provide credit enhancement to the ratings of HAM projects after establishment of operational track record.

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