

# **Awarding TCCs for Transmission Expansions: The MSWG Proposal**

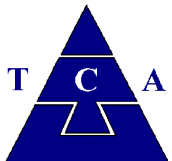


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**for**

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# Objectives of the Proposal

- ▶ Provide sufficient incentives for market participants to invest in transmission where it is economic while avoiding free riders and other negative externalities
- ▶ This requires an efficient and transparent market for transmission rights
- ▶ Essential for an investor to know with relative certainty before committing to any project what rights commensurate with the project will be awarded and what potential liabilities may exist
- ▶ The less transparent the market for transmission investment, the higher the risk and the lower the likelihood that investors will be able to secure project financing
- ▶ Multiple expansions:
  - ▶ Benefits must be attributed to projects in an objective and uncontestable fashion
  - ▶ Approach used must be feasible in practice as expansions become layered atop one another

# A Flexible, Yet Simple Approach



- ▶ Developers have risk preferences that can differ greatly depending on the type and location of the project, and the type of financing sought
- ▶ Therefore, no single type of expansion benefit will appeal to all investors for all projects; providing alternative choices is essential to attract transmission investments
- ▶ Some investors prefer a one-time award of long-term TCC; others prefer a long-term right to periodic options; both choices available here
- ▶ For now: “long-term” = 20 years
- ▶ Beneficiary can either nominate a set of long-term TCCs it wants, or take right to nominate, every 6 months for 20 years, a set of TCCs it wishes to retain or sell for 6-month period
- ▶ What can potential investors “take to the bank?” Either a 20-year TCC or a 20-year right of first refusal, both of which are tradable.

# A Flexible, Yet Simple Approach (cont.)



- ▶ Long-term TCC reduces investor's quantity risk, but requires that investor manage risk of congestion reversing direction
- ▶ Periodic option enables investors to maximize value of investment over lifetime as market changes
- ▶ Option-like approach makes physical sense: The financial benefit will better reflect the actual use of the physical asset
- ▶ Investor can nominate portion of benefits as long-term TCCs, portion as periodic options

# How to Provide Optionality

- ▶ Require that existing transmission capability and new capability supporting long-term TCCs be separated in TCC auctions from new capability supporting periodic options
- ▶ “Type A” auction (durations of six months or greater) will include:
  - ▶ Existing transmission capability and rights, including capability made available to support auctions of new TCCs not associated with expansions
  - ▶ Transmission capability supporting long-term TCCs (and those TCCs)
  - ▶ New capability moved into the ratebase
  - ▶ OPF model will NOT include new capability supporting periodic options
- ▶ “Type B” auction (durations of six months only) will include:
  - ▶ Any outstanding TCCs sold for six-month duration (reconfiguration etc.)
  - ▶ ALL capability, new & existing
- ▶ Type B auction avoids award to other market participants of long-term TCCs made feasible by expansion benefit award (would greatly limit flexibility for and impose unacceptable risks on investor not wishing to take long-term TCCs)

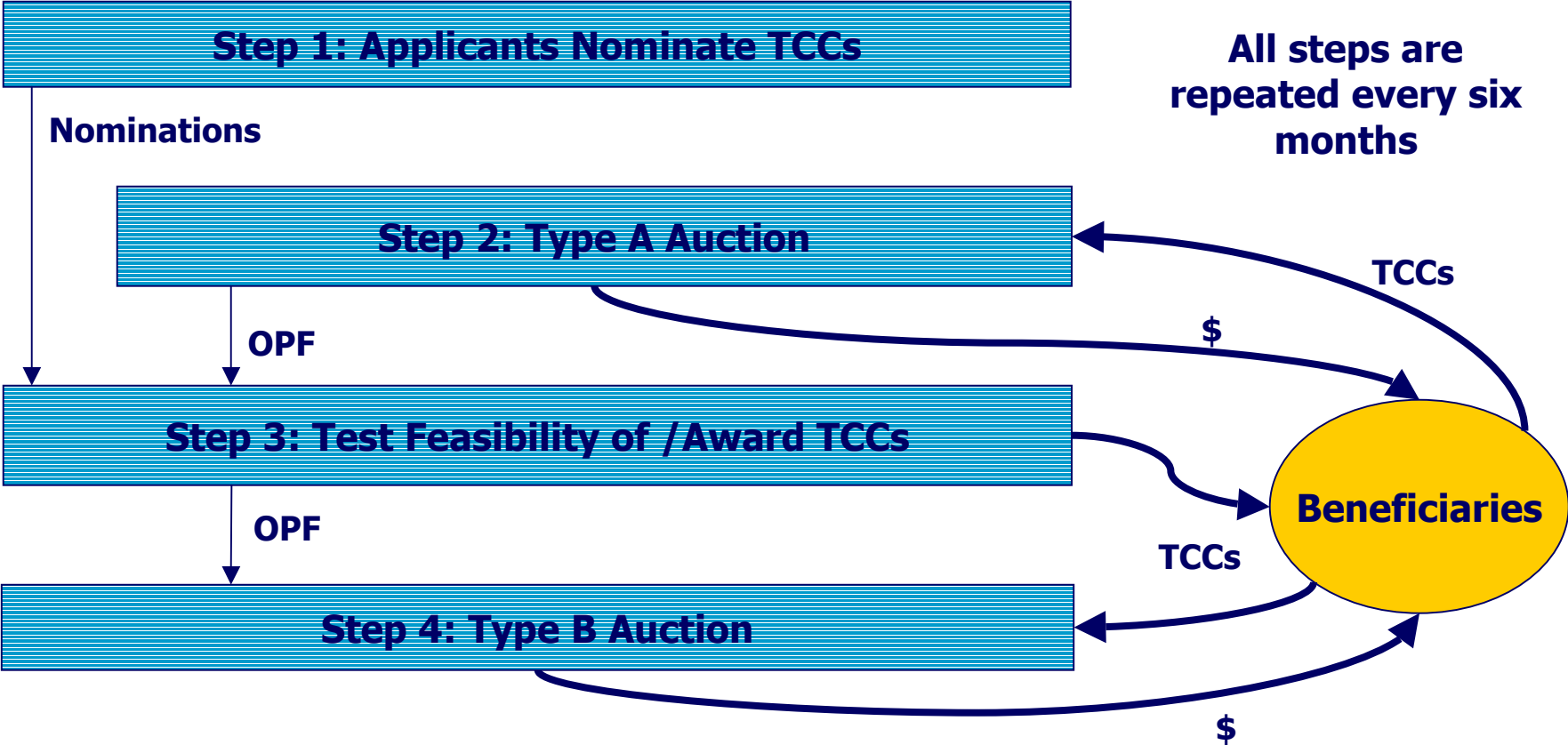
# Separating Expansions from Existing System Follows from Funding Mechanism

- ▶ Treating existing transmission capability and new capability differently in terms of flexibility consistent with method of transmission system revenue recovery adopted by NYISO
  - ▶ Existing transmission system guaranteed its revenue requirement through TSC, so existing transmission owners not at risk for their investment
  - ▶ New transmission investments, on the other hand, not guaranteed capital recovery because they are not funded by TSC

# Differences between this and Other Proposals

- ▶ No meaningful distinction here between primary and secondary benefits
- ▶ Benefits identified by expanders themselves (subject to ISO approval)
  - ▶ No use of mock auctions required to allocate benefits *among* applicants
- ▶ In conjunction with End State auctions, beneficiaries can elect to take part of award in long-term TCCs, and rest in periodic rights to receive TCCs
- ▶ Beneficiaries have the choice to either keep the TCCs they are awarded or sell them (and take dollar proceeds instead)

# Award Process Overview





# Auction and Award Process

## Step 1: Applicants Nominate TCCs

- ▶ Applicants whose expansions will be in service by deadline\* request long-term TCCs or 6-month TCCs
  - ▶ Objective: Establish the set of requested expansion TCCs
  - ▶ No limitations (within reason) on quantity, location, direction, or number of POI/POD combos specified
  - ▶ No need to decide whether to keep or sell TCCs for next six months *yet*.
  - ▶ Applicants have incentive to identify all desired TCCs
  - ▶ Applicant also provides weights expressing preferences in case all rights aren't feasible
  - ▶ Applicant elects either long- or short-term TCCs (Initial Auction), or combination (End State auction)
  - ▶ (Requesting NO award is always an option)

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\*Far enough in advance of the auction so that the ISO can model the expansions.

# Auction and Award Process

## Step 2: Type A Auction



- ▶ **Objectives: Develop baseline OPF, provide opportunity for previous recipients of long-term TCCs to sell them**
- ▶ Use OPF A resulting from Step 3 performed 6 months prior (which includes expansions associated with long-term TCCs awarded *at that time*)\*

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\*The OPF is also now adjusted as required to allow for modeling enhancements, changes in spin and VARs associated with known new or retiring generators, changes in external flows, and any expansions that were moved into the ratebase.

# Auction and Award Process

## Step 2: Type A Auction (cont.)



- ▶ Hold auction(s) using existing Initial/End State approaches
  - ▶ Initial Auction approach: Separate auctions for each duration (must include 6 months)
  - ▶ End State Auction approach: Single auction for all durations
  - ▶ Any outstanding TCCs (including long-term) can be sold in these auctions
  - ▶ Bids will reflect bidders' expectations of DA prices with post-expansion grid, and knowledge of which expansions are represented in THIS auction

# Auction and Award Process

## Step 2: Type A Auction (cont.)



### ► Results

- › Just as in today's auctions, existing capacity has been released and market participants have bought and sold TCCs
- › Long-term TCC holders so choosing have sold TCCs (for some duration)
- › New set of outstanding TCCs/rights included in baseline OPF for Step 3

# Auction and Award Process

## Step 3: Test Feasibility of Requests, Award TCCs

- ▶ **Objective: Award TCCs made feasible by applicant's expansion but not by existing system or prior expansions**
- ▶ Entire Step 3 repeated for each short-term request and *new* long-term requests in order of in-service date
- ▶ **Step 3a:** Were requested TCCs made feasible by existing system or prior expansions?
- ▶ ISO tests if requested TCCs were already feasible pre-expansion with set of outstanding TCCs/rights, using:
  - ▶ First iteration: OPFs resulting from Step 2 auction. In Initial auction, for short-term TCCs, use 6-month auction OPF; for new long-term TCCs, use long-term auction OPF but iterate with 6-month OPF.
  - ▶ Subsequent iterations: OPF resulting from Step 3b. In initial auction, for short-term TCCs, use OPF B; for new long-term TCCs, use OPF A but iterate with OPF B.

# Auction and Award Process

## Step 3: Test Feasibility of Requests, Award TCCs (cont.)

- ▶ Applicant-supplied weights used in case some but not all of requested TCCs were already feasible
- ▶ If requested TCCs were found to be made feasible by existing system or prior expansions,\* capacity will be modeled in Step 3b (OPF A or B as appropriate) as outstanding TCCs
  - ▶ For long-term TCCs, “existing capacity” will be available to support next Type A auction six months in future
  - ▶ For long- or short-term TCCs, “existing capacity” will be available to support Type B auction immediately in Step 4
- ▶ Proceed to Step 3b before evaluating next expansion in sequence

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\*Valuable transmission capacity is unlikely to remain if the auction was efficient and applicants are savvy.

# Auction and Award Process

## Step 3: Test Feasibility of Requests, Award TCCs (cont.)

- ▶ **Step 3b:** Are requested TCCs made feasible by the expansion?
  - ▶ First iteration: Step 3a OPFs become templates for OPF A and OPF B
  - ▶ Modify OPF to include expansion under consideration
    - ▶ New long-term request: include expansion in OPFs A and B
    - ▶ Short-term request: include expansion in OPF B only
  - ▶ Determine extent to which requested TCCs are feasible, using applicant-supplied weights used in case some but not all of requested TCCs are feasible
    - ▶ New long-term request: use OPF A to select TCCs, iterate with OPF B to ensure short-term feasibility; short-term: OPF B
    - ▶ End State Auction approach: Weights used to select portfolio of long-term and short-term TCCs
- ▶ **Award feasible TCCs;** include in OPF A and/or B
- ▶ Remove Step 3a “existing capacity” TCCs from OPFs
- ▶ OPFs A and B used in subsequent iterations of Step 3a

# Auction and Award Process

## Step 3: Test Feasibility of Requests, Award TCCs (cont.)

### Result

- ) TCCs have been awarded for short-term and new long-term requests
- ) OPFs A and B now include new long-term expansions and associated TCCs
- ) OPF B now includes short-term expansions and associated TCCs

### Notes

- ) Step 3b is like a “mini-auction” with one bidder
- ) Short-term requests associated with expansions “out of service” for period are denied
- ) End State auction approach: OPF B will represent next 6 months, OPF A will actually be many OPFs, one for each future interval

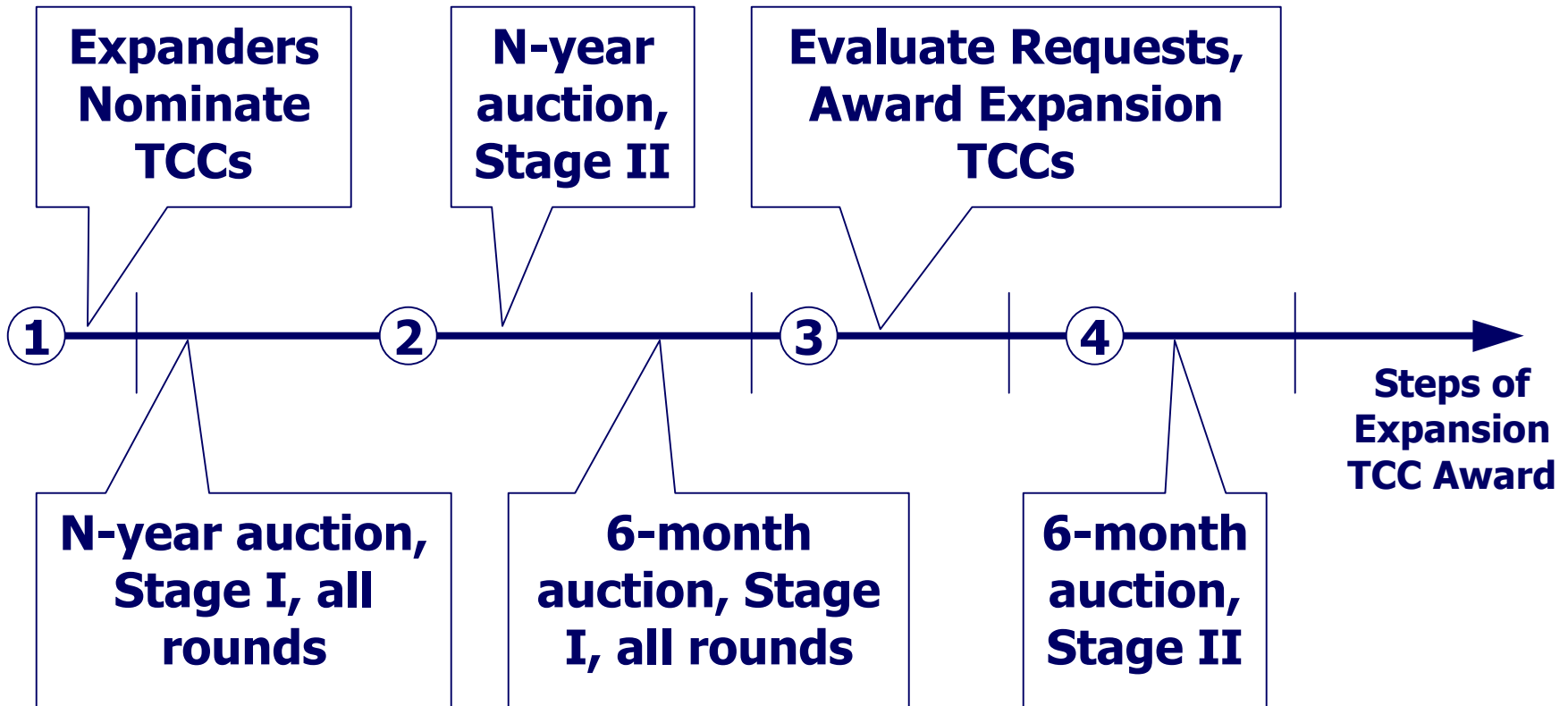


# Auction and Award Process

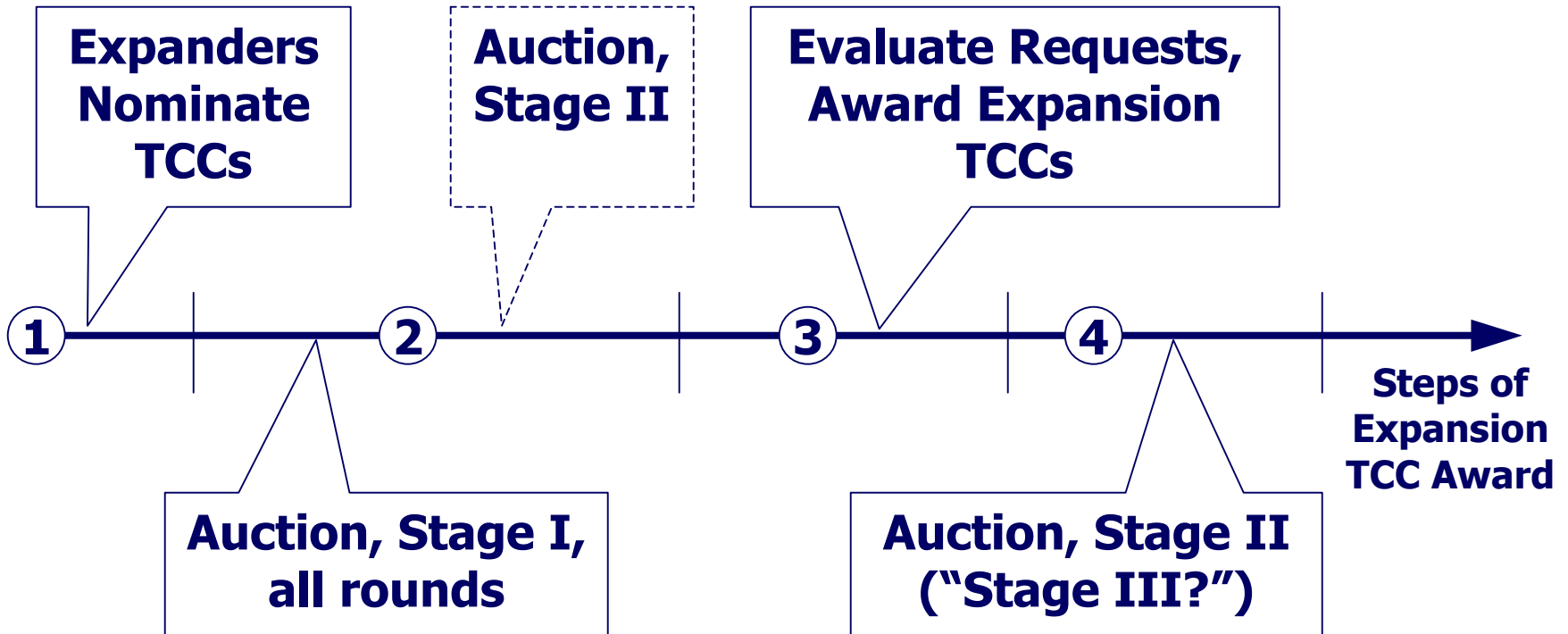
## Step 4: Hold Type B Auction

- ▶ **Objective: Provide opportunity for new recipients of TCCs to sell them for next 6 month period**
- ▶ Hold auction using OPFs resulting from Step 3
  - ▶ Initial Auction approach: This auction is also the 6-month reconfiguration auction; TCCs may only be sold for 6 months; use OPF B
  - ▶ End State Auction approach: This auction is also a reconfiguration auction; TCCs of any term may be used; use OPFs A and B
- ▶ Holders of any outstanding TCCs (including those just awarded) may sell them in this auction
- ▶ Net revenue allocated using existing method; allocators must be adjusted to reflect expansions
- ▶ OPF B discarded at end of auction

# Auction/Award Process Timeline: Initial Auction Framework



# Auction/Award Process Timeline: End State Auction Framework



# Capacity “Left on the Table”



- ▶ Step 3 ensures that capacity “left on the table” either in an auction or by an expander will be available to support the auctions, rather than given to subsequent expanders
- ▶ Auction revenue from TCC sales supported by such capacity will be allocated using the current (MW-mile) methodology, offsetting TSCs

# Example

- Two expansions in service by deadline for fall
  - Expansion X in service first: 50 MW, Bus 320 to bus 214
  - Expansion Y in service second: 100 MW, Bus 24 to bus 47
- Step 1 Nominations

Who	MW	Period	POI	POW	Wgt.
X	60	20 yrs.	320	214	-
Y	114	6 mo.	H	I	0.5
Y	114	6 mo.	I	J	0.5

# Example (cont.)

- ▶ Step 2 (Initial) auctions occur, results in baseline OPF
- ▶ Step 3 feasibility test, Request X
  - ▶ Step 3a: 3 MW of request feasible with existing capacity; 3 MW existing TCCs added to OPF
  - ▶ Step 3b: Expansion X added to OPFs A and B (still the same); only 50 MW made feasible by expansion and awarded; 3 MW existing TCCs removed from OPFs
- ▶ Step 3 feasibility test, Request Y
  - ▶ Step 3a: 8 MW of both requests feasible with existing capacity using OPF B, 8 TCCs H-I and 8 TCCs I-J added to OPF B
  - ▶ Step 3b: Expansion Y added to OPF B; only 100 MW H-I and 90 MW I-J made feasible by expansion and awarded; 16 existing TCCs removed from OPF B

# Example (cont.)

## Step 3 award summary

Who	MW	Period	POI	POW
X	50	20 yrs.	320	214
Y	100	6 mo.	H	I
Y	90	6 mo.	I	J

## Step 4 auction (using OPF B)

- › X sells 10 TCCs for 6 months, collects \$30,000
- › Y sells 5 H-I TCCs for 6 months, collects \$40,000

# Example (cont.)

## — 6 Months Later (Spring auction, End State) —

- ▶ Step 1: Y makes same nominations; no new expansions
- ▶ Step 2 auction: OPF A from 6 months ago is long-term baseline (includes Expansion X); X sells all 50 TCCs for 19.5 years, earns \$3 million; new OPF results
- ▶ Step 3 feasibility test, Request Y
  - ▶ New OPFs A and B created using Step 2 results
  - ▶ Step 3a: 1 MW of both requests feasible with existing capacity using OPF B, 1 TCCs H-I and 1 TCCs I-J added to OPF B
  - ▶ Step 3b: Expansion Y added to OPF B; 99 MW H-I and 91 MW I-J made feasible by expansion and awarded; 2 existing TCCs removed from OPF B



## Example (cont.)



- ▶ Step 4 auction (using OPF B for first 6 month period, OPF A further out)
  - ▶ Y sells 6 H-I TCCs for 6 months, collects \$30,000

# Conclusion



- ▶ This process:
  - ▶ Protects rights of current owners and users of transmission system
  - ▶ Reduces risks for new investors in transmission system to an acceptable level
  - ▶ Allows investors to tailor their benefit to best suit their specific project, project financing, and ability to manage different types of risk
  - ▶ Fosters an efficient market in transmission rights
  - ▶ Can be implemented now in its simplest form, and enhanced later on for even greater flexibility
  - ▶ Lends itself to the End State auction approach (actually simpler to implement in that context)

# Potential Future Enhancements



- ▶ Allow “retirement” of TCCs if remaining set still feasible
- ▶ Allow applicant to determine duration of long-term TCCs (e.g., 5 or 10 years), with periodic options for remainder of term
- ▶ Allow applicant to switch from periodic options to long-term TCCs at any point in the term
- ▶ Etc...