

Coordinación General de Puertos y Marina Mercante Dirección General de Puertos



Alliance of the Ports of Canada, the Caribbean, Latin America and the United States

Productivity-Based Tariff Scheme for the Mexican Ports

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Certified Company ISO 9001-2000 In Integrity



The Recent Past

The Mexican ports applied a tariff scheme in the past with the following characteristics:

- It is a static model that considers the value of the port infrastructure but does not consider the future development of the ports and their infrastructure (New investments involved)
- Likewise, it considers the costs and the current expenses, but it does not consider their evolution over time.
- Consequently, it does not include the port assets profitability.
- It considers the costs and investments incurred to render the services as well as the criterium to determine the maximum tariffs.
- It does not consider the competitiveness of the port tariffs, since it disregards the tariffs of competitive ports in the analyisis.

Towards a New Tariff Scheme

Due to the limitations that the previous scheme has, it was necessary to develop a new tariff model that will consider the following in order to determine the tariffs:

- Not only the current reality of investments in the ports, but also the perspective of a future development. This development comes from investments as well as from operations and management described in the port planning.
- Port productivity criteria.
- The profitability of port assets.
- Equilibrium tariffs that do not allow that the ports have losses and that consider at the same time the market tariffs, this is competitiveness.

Objectives of the New Tariff Scheme

Strengthen the financial self-sufficiency of the Port Management.



Achieve the profitability of port assets in a medium and long term.

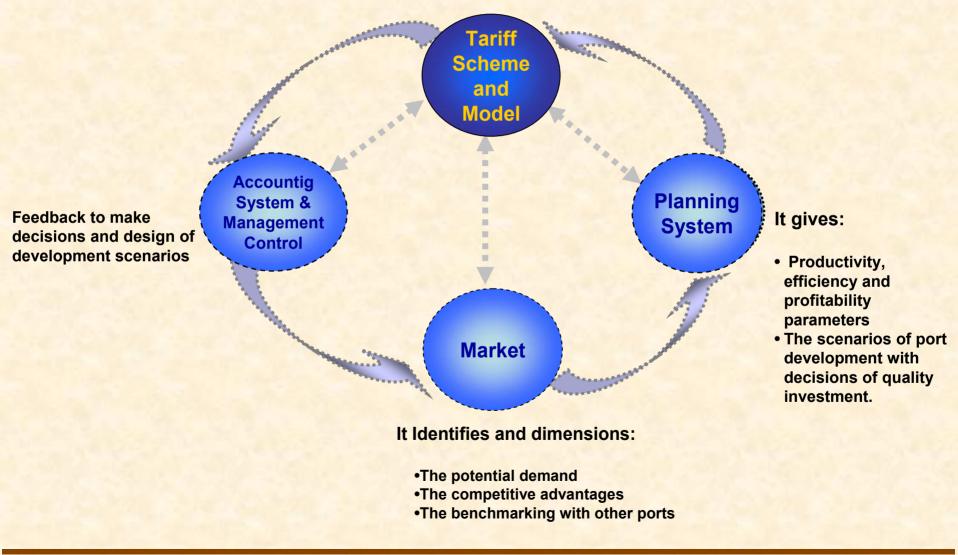
Encourage the competitiveness of the Mexican ports.

Consider the future development of ports

Have flexible mechanisms for updating tariffs

Systemic Concept of the Model

The tariff model considers the operative and financial reality of the ports, their development perspectives and the market.



General Considerations

A The model is a tool that allows and facilitates the Port Management to elaborate its proposal regarding the infrastructure tariffs, in such a way that:

The tariffs are based on:

- Financial self-sufficiency
- Possibilities that the market offers
- Productivity and competitiveness

A greater certainty is generated through structuring a realistic view point based on the current situation and on feasible scenarios of development.

The decision making is improved through the evaluation of decisions that are described in the port planning (Master Plans)

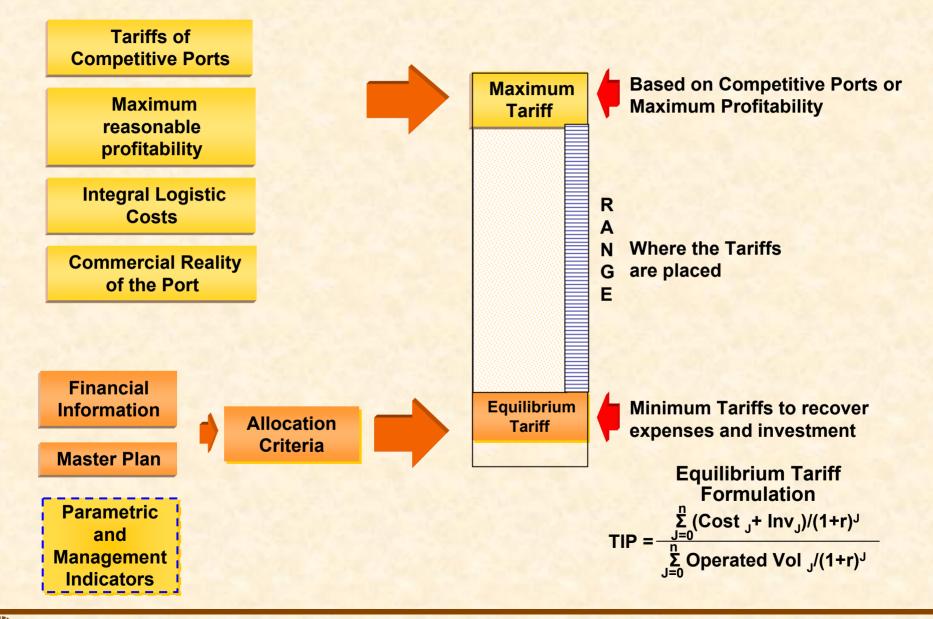
B The model recognizes that the port management involves other businesses.

In this sense, the financial feasibility of the ports is determined by that of each individual business and by that of all in general (global management).

- **C** The model according to the costs, expenses and investments that will be made in a planning horizon determines:
 - Equilibrium Tariffs, that constitute the minimum collections of reference in order to not incur losses.
 - Maximum Tariffs, determined according to the collections of competitive ports, a reasonable profitability or the tariffs currently collected.
- D The tariffs susceptible of collection by the ports must be in the range defined by the equilibrium tariff and the maximum tariff.

It is responsability of the port management and of the board of directors to determine the tariffs that are actually collected and that include the promotionals.

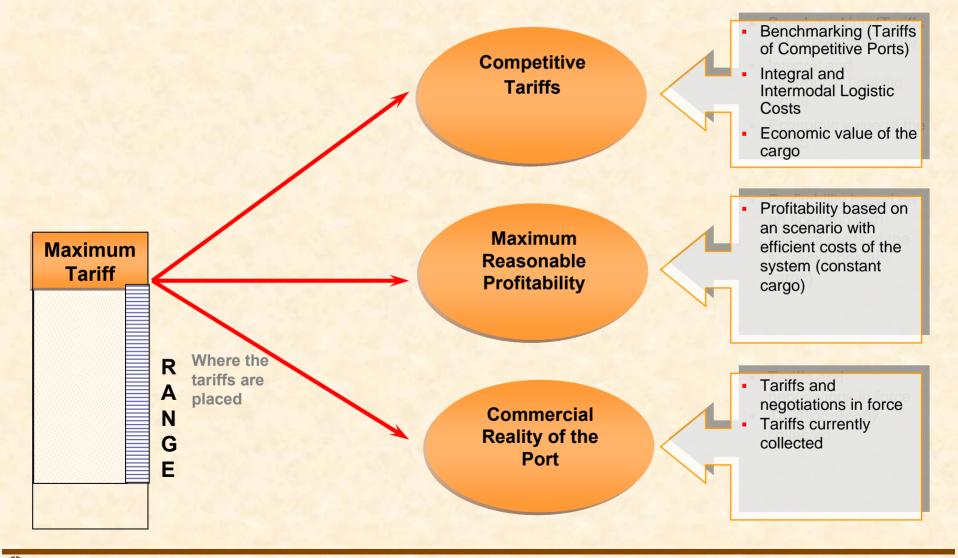
Tariff Scheme



Tariff Scheme

Maximum Referential Tariffs

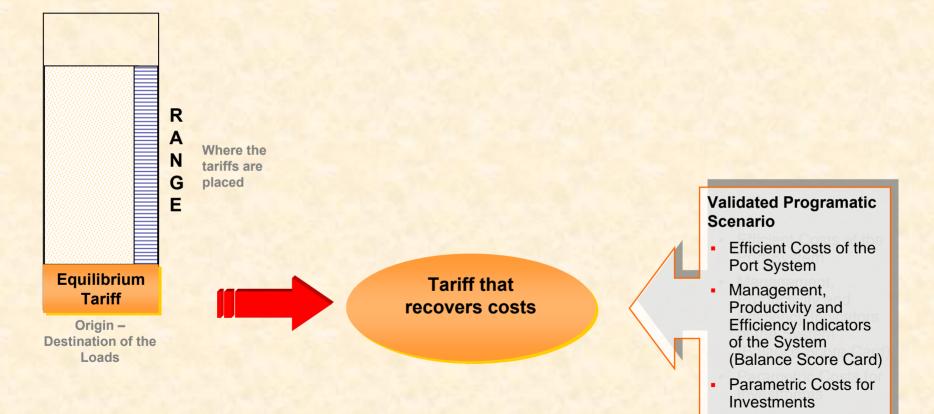
Reference Based on Competitive Ports or Maximum Profitability



Tariff Scheme

Equilibrium Tariffs

Referential Equilibrium Tariff (Financial Self-Sufficiency)



Allocation Criteria

Concepts to be collected	Port Fixed CollectionVariable Collection	Dockage	Wharfage	Unloading
Management expenses	% ³			
Protection works				
Maritime signaling				
Dredging				
Dockage and Wharfage Capital 				
Maintenance and Insurance				
Urbanization ¹				
Passenger Terminal ¹				2

1/ Includes: Capital, maintenance and insurance.

- 2/ The loading / unloading that recovers maintenance and insurance expenses of the dockage and wharfage works related to the operation of cruises and capital costs, maintenance and insurance of the passenger terminal and the urbanization works related to the operation of cruises.
- 3/ The percentage of distribution is proportional to the tariffed income related to the total income of the port.

Costs and Expenses

All the Operative and Management Costs related to the operation of the port.

2 Existing Investments

It is assumed that the tariffs recover only the capital income and the maintenance cost of the infrastructure, considering that they are transfers of the Federal Goverment.

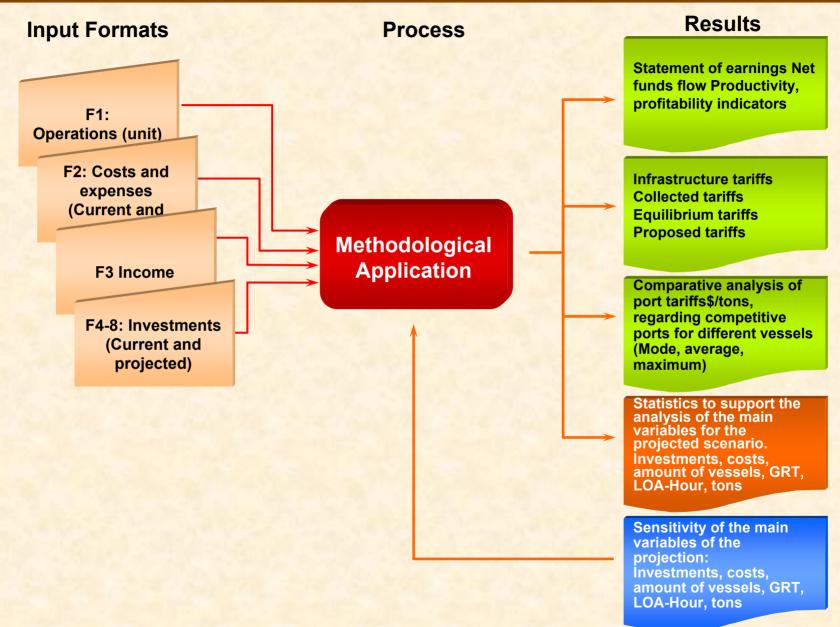
3 Future Investments

It is assumed the capital recovery and its income that corresponds to the assessment period of these investments.

4 Allocation of Expenses and Investments

It is considered that the costs and investments that each tariff recovers are payed by the beneficiaries, the vessel or the cargo.

Structure of the Model



Tariffs determined by the Model

Port

Fixed Collection and Variable Collection

- Container Cargo
- General Cargo
- Agricultural bulk cargo
- Mineral bulk cargo
- Vehicles
- Fluids
- Oil and by-products
- Cruises
- Others



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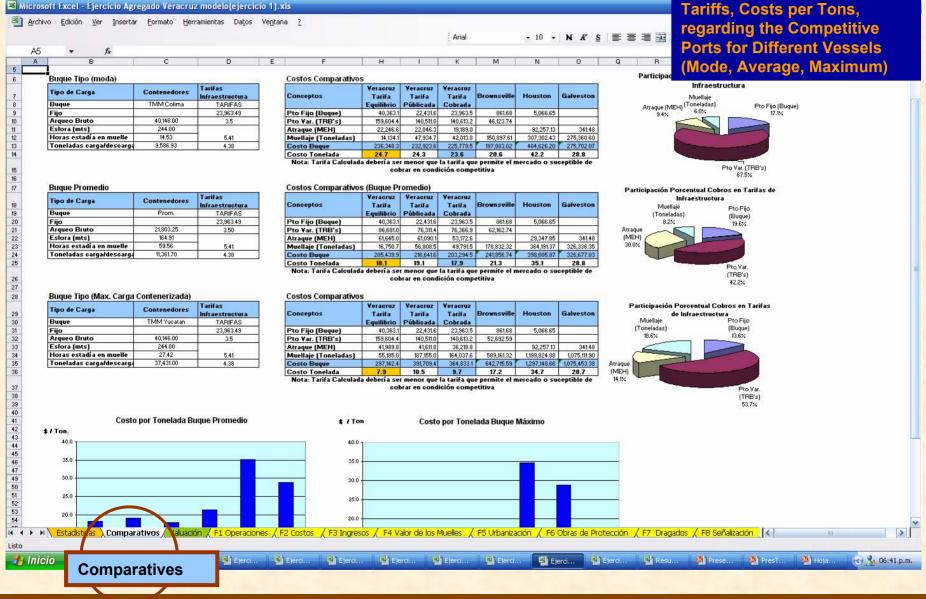
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2005 307,695,557 0 307,695,557 37,562,051 119,565,412 74,716,403 75,851,586 2,841 225,600,000 107,478,088 -35,382,531 -35,382,531	283,659,656 -35,382,531 -319,042,187 -38,516,398 -76,614,629 -80,033,332 -299,185,243 -180,000,000	311,455,531 15,525,587 326,981,118 38,839,174 127,467,964 77,374,837 83,233,142 328,938,190 198,705,632	319,697,376 -17,542,659 337,240,034 40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	446,075,267 99,577,203 346,498,064 40,412,085 135,370,516 80,382,814 90,332,649	579,501,956 224,818,251 354,683,705 40,775,719 139,321,793 81,105,845 93,480,349	709,927,6 347,093,0 362,834,6 41,127,747 143,273,069	Vet Fu 41,473,931	nds F 41,816,969	low Ir		uctur	·
2005 307,695,557 0 307,695,557 37,562,051 119,565,412 74,716,403 75,851,586 2,841 225,600,000 107,478,088 -35,382,531 -35,382,531	283,659,656 -35,382,531 -319,042,187 -38,516,398 -76,614,629 -80,033,332 -299,185,243 -180,000,000	311,455,531 15,525,587 326,981,118 38,839,174 127,467,964 77,374,837 83,233,142 328,938,190 198,705,632	319,697,376 -17,542,659 337,240,034 40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	446,075,267 99,577,203 346,498,064 40,412,085 135,370,516 80,382,814 90,332,649	579,501,956 224,818,251 354,683,705 40,775,719 139,321,793 81,105,845 93,480,349	709,927,6 347,093,0 362,834,6 41,127,747 143,273,069	Vet Fu 41,473,931	nds F 41,816,969	low Ir		uctur	Δ.
307,695,557 0 307,695,557 37,552,051 119,565,412 74,716,409 75,851,686 2,841 343,078,088 2,841 235,600,000 107,478,088 -35,382,531	283,659,656 -35,382,531 -319,042,187 -38,516,398 -76,614,629 -80,033,332 -299,185,243 -180,000,000	311,455,531 15,525,587 326,981,118 38,839,174 127,467,964 77,374,837 83,233,142 328,938,190 198,705,632	319,697,376 -17,542,659 337,240,034 40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	446,075,267 99,577,203 346,498,064 40,412,085 135,370,516 80,382,814 90,332,649	579,501,956 224,818,251 354,683,705 40,775,719 139,321,793 81,105,845 93,480,349	709,927,6 347,093,0 362,834,6 41,127,747 143,273,069	Vet Fu 41,473,931	nds F 41,816,969	low Ir		uctur	Έ
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307,695,557 37,562,051 119,565,412 74,716,409 75,851,686 2,841 235,600,000 107,478,088 -35,382,531	319,042,187 38,516,938 123,516,688 76,614,629 80,393,932 299,185,243 180,000,000	326,981,118 38,899,174 127,467,964 77,374,837 83,239,142 328,998,190 198,705,632	337,240,034 40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	346,498,064 40,412,085 135,370,516 80,382,814 90,332,649	354,683,705 40,775,719 139,321,793 81,105,845 93,480,349	362,834,6 41,127,747 143,273,069	41,473,931	41,816,969		nfrastr	uctur	<u>e</u> _
37,562,051 119,565,412 74,716,409 75,851,686 2,841 343,078,088 2,841 235,600,000 107,478,088 -35,382,531	38,516,938 123,516,688 76,614,629 80,393,932 299,185,243 180,000,000	38,899,174 127,467,964 77,374,837 83,239,142 328,998,190 198,705,632	40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	40,412,085 135,370,516 80,382,814 90,332,649	40,775,719 139,321,793 81,105,845 93,480,349	362,834,6 41,127,747 143,273,069	41,473,931	41,816,969		masu	uctur	
37,562,051 119,565,412 74,716,409 75,851,686 2,841 343,078,088 2,841 235,600,000 107,478,088 -35,382,531	38,516,938 123,516,688 76,614,629 80,393,932 299,185,243 180,000,000	38,899,174 127,467,964 77,374,837 83,239,142 328,998,190 198,705,632	40,023,330 131,419,240 79,609,841 86,187,623 220,120,172	40,412,085 135,370,516 80,382,814 90,332,649	40,775,719 139,321,793 81,105,845 93,480,349	41,127,747 143,273,069			42,158,223			-
74,716,409 75,851,686 2,841 343,078,088 2,841 235,600,000 107,478,088 -35,382,531	76,614,629 80,393,932 299,185,243 180,000,000	77,374,837 83,239,142 328,998,190 198,705,632	79,609,841 86,187,623 220,120,172	80,382,814 90,332,649	81,105,845 93,480,349		147 224 345			43,285,449		
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107,478,088 -35,382,531	2.44	1		98,705,632	98,705,632	98,705,632	98,705,632	34,348	34,348	34,348		
-35,382,531	119,185,243	120 292 550	30,100,032	8	30,103,032	63		04,040	07,010	51,510		
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	15 505 507	17 540 050	99,577,203	224,818,251	347,093,035	478,851,610	617,561,045	846,867,554	1,098,078,636	1,345,779,667		
2,841 -35,382,531	1 -15,525,587	-17,542,659	33,577,203	224,818,231	347,093,035	478,851,610	617,361,043	846,867,334	1,038,078,636	833,450,644		
	19,856,944	-2,017,072	117,119,862	125,241,048	122,274,784	131,758,575	138,709,435	229,306,509	251,211,082	1,081,151,676		
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6 8.11	8.76	9.45	8.59	8.58	9.26	9.09	9.10	10.08	9.12	9.90		
0 0 75	3.57	2.42	267	2.72	3.56	26	_					
2.75	2.57	Z.4Z	2.07	2.12	2.50	2.0	ofrastr	uctur	e Tari	ffs. Co	llecte	ed Tai
rad	Tarifa	Cobrada	Autorizada	Dronueta		Taea	auilib	rium ⁻	Cariff .	Propo	sal.	
rau	Equilibrio	Conrada	Autorizada	Propuesta		1050			· · · · · · ,			
			-			course the						
	40,363.14)	7.0%			0	7,363,167		
								233,155,403				
-									193,348,547	501,938,724		
3	1.47	4.38	5.00	5.00		7.0%	155,598,916	229,401,391				
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				Sens	itivity	of the	Main '	Variab	les of			
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peraciones / F2 (Costos 🖌 F3 In	igresos / F4 \	Valor de los Mu	uelles / F5 L	Jrbanización 📈	F6 Obras de	Protección 🔏	F7 Dragados	/ F8 Señalizad	ión [≮] ∥		
B) E)	arc 📳 Eje	rc 🛛 🕲 Eje	arc 🛛 🗐 E)	erc 🖭	Ejerc 👔	Ejerci	Ejerci	Ejerci	Resu	🕅 Pres 🔰	Pres	(x) & 🕄 0:
	iperaciones / F2 (9,256 7.0% 36 8.11 8.76 9 2.75 2.57 erad Equilibrio 3.49 40,363.14 10 3.98 11 6.28 8 1.47 8 1.47 8 Sensibilidad Escenario Bi Inv: Gtos Bugues TRB's Bugues TRB's Pperaciones / F2 Costos / F3 In	9,256 7,0% 36 8.11 8.76 9.45 19 2.75 2.57 2.42 erad Tarifa Equilibrio Cobrada Equilibrio Cobrada 10 3.49 40,363.14 23,963.5 10 3.98 3.50 11 6.28 5.41 18 1.47 4.38 Sensibilidad respecto Escenario Base Inv: Gtos Bugues TBB's MEH Pperaciones / F2 Costos / F3 Ingresos / F4	9,256 7,0% 36 8.11 8.76 9.45 8.59 19 2.75 2.57 2.42 2.67 erad Tarifa Equilibrio Cobrada Autorizada 3,49 40,363.14 23,963.5 25,431.62 0 3.98 3.50 3.50 11 6.28 5.41 6.22 13 1.47 4.38 5.00 Sensibilidad respecto Escenario Base Inv: Gtos Buques Duques TBB's Display of the second seco	9,256 7.0% 36 8.11 8.76 9.45 8.59 8.58 19 2.75 2.57 2.42 2.67 2.72 erad Tarifa Equilibrio Cobrada Autorizada Propuesta 3.49 40,363.14 23,963.5 25,431.62 22,888.46 0 3.98 3.50 3.50 3.50 11 6.28 5.41 6.22 6.22 18 1.47 4.38 5.00 5.00 Sensibilidad respecto Escenario Base Inv: Buques Proje Buques TBP: Wether Vess Mether	9,256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 19 2.75 2.57 2.42 2.67 2.72 2.56 Tarifa Equilibrio Cobrada Autorizada Propuesta 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 40,363.14 23,963.5 25,431.62 22,888.46 3.49 4.47 4.38 5.00 5.00 Sensibilidad respecto Escenario Base Buques Projection: Buques Hays Vessels, G	9,256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 19 2.75 2.57 2.42 2.67 2.72 2.56 2.6 1 erad Tarifa Equilibrio Cobrada Autorizada Propuesta Tasa Tasa 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 11 6.28 5.41 6.22 6.22 7.0% 18 1.47 4.38 5.00 5.00 7.0% Sensibilidad respecto Escenario Base Sensitivity of the Projection: Investor Buques Tass 9 9 9 gtos Buques Tass 9 9 uperaciones / F2 Costos / F3 Ingresos / F4 Valor de los Muelles / F5 Urbanización / F6 Obras de los 9	9,256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 19 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastr erad Tarifa Cobrada Autorizada Propuesta Tasa Equilibrio 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 30 3.98 3.50 3.50 3.50 3.50 7.0% 12,582 30 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 3.49 40,363.14 23,963.5 0.5.00 7.0% 12,582 3.49 6.28 5.41 6.22 6.22 7.0% 110,776,252 8 1.47 4.38 5.00 5.00 7.0% 155,598,916 Sensibilidad respecto Escenario Base Projection: Investments Buques TRP: HB'S Vessels, GRT, LOA-Hou Uses els, GRT, LOA-Hou <td>36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 19 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructur erad Tarifa Equilibrio Cobrada Autorizada Propuesta Tasa Infrastructur 3.49 40,363.14 23,963.5 25,431.62 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GRT, LOA-Hour, Tons. 9 YB'S YB'S' YB'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S</td> <td>3256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 9.12 9.90 9 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructure Tariffs, Co erad Tarifa Cobrada Autorizada Propuesta Tasa Infrastructure Tariffs, Propo 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487.490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487.490 0 7,363,167 10 6.28 5.41 6.22 7.0% 10,776,252 193,348,547 501,938,724 11 6.28 5.41 6.22 7.0% 1155,598,916 29,401,391 193,348,547 501,938,724 12 8 1.47 4.38 5.00 5.00 7.0% 155,598,916 29,401,391 193,348,547 501,938,724 14 Escenario Base Projection: Investments, Costs, N° of <td< td=""><td>3256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 9.12 9.90 99 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructure Tariffs, Collecter Equilibrium Tariff, Proposal. arad Tarifa Cobrada Autorizada Propuesta Tasa Equilibrium Tariff, Proposal. 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 26,884.6 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 26,884.6 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 43,963.5 0.5.00 7.0% 19,348,547 501,938,724 1.47 4.38 5.00 5.00<!--</td--></td></td<></td>	36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 19 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructur erad Tarifa Equilibrio Cobrada Autorizada Propuesta Tasa Infrastructur 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 00 3.98 3.50 3.50 3.50 3.50 7.0% 12,582 500,487,490 11 6.28 5.41 6.22 6.22 7.0% 110,776,252 23,155,403 12 1.47 4.38 5.00 5.00 7.0% 15,598,916 29,401,391 Sensitivity of the Main Variab Base Sensitivity of the Main Variab Projection: Investments, Cos Buques THB's Wei MeH F3 Ingresos / F4 Valor de los Muelles / F5 Urbanización / F6 Obras de Protección / F7 Dragados	99,256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 9.12 99 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructure Tarif erad Tarifa Cobrada Autorizada Propuesta Tasa Infrastructure Tariff, 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 0 0 3.98 3.50 3.50 3.50 7.0% 12,582 500,487,490 0 11 6.28 5.41 6.22 6.22 7.0% 110,776,252 193,348,547 8 1.47 4.38 5.00 5.00 7.0% 155,598,916 29,401,391 9 Sensibilidad respecto Escenario Base Sensitivity of the Main Variables of Projection: Investments, Costs, N° 9 Buques TBE'A TBE'A Projection: Investments, Costs, N° Vessels, GRT, LOA-Hour, Tons. 9 YB'S YB'S' YB'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S'S	3256 7.0% 36 8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 9.12 9.90 9 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructure Tariffs, Co erad Tarifa Cobrada Autorizada Propuesta Tasa Infrastructure Tariffs, Propo 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487.490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 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8.11 8.76 9.45 8.59 8.58 9.26 9.09 9.10 10.08 9.12 9.90 99 2.75 2.57 2.42 2.67 2.72 2.56 2.6 Infrastructure Tariffs, Collecter Equilibrium Tariff, Proposal. arad Tarifa Cobrada Autorizada Propuesta Tasa Equilibrium Tariff, Proposal. 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 22,888.46 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 26,884.6 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 23,963.5 25,431.62 26,884.6 7.0% 12,582 500,487,490 0 7,363,167 3.49 40,363.14 43,963.5 0.5.00 7.0% 19,348,547 501,938,724 1.47 4.38 5.00 5.00 </td

Structure of the Model ...

Comparative Analysis of Port

Microsoft Excel - Ejercicio Agregado Veracruz modelo(ejercicio 1).xls



Structure of the Model ...

Kicrosoft Excel - Ejercicio Veracruz modelo(ejercicio 1) (version 1).xls

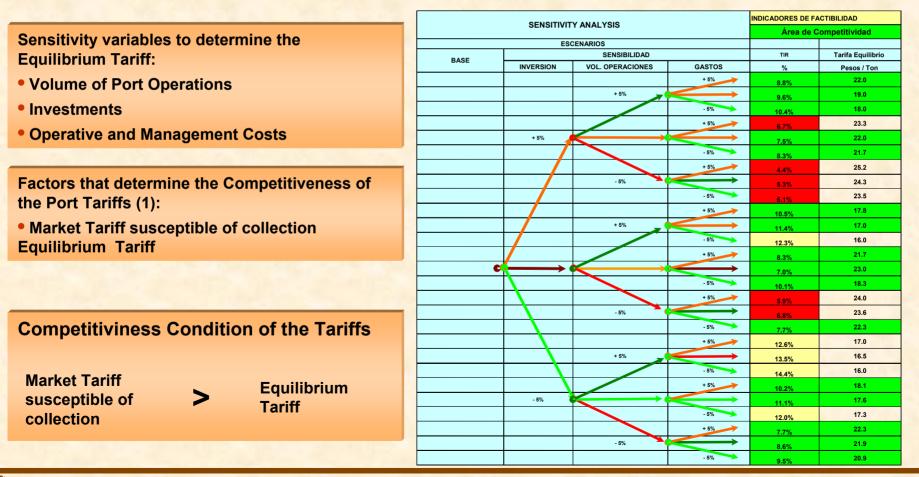
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Arial D28 f_∗ =+'F1 Operaciones'!E40 в G INFORMACIÓN ESTADISTICA RESUMIDA DE LAS PROYECCIONES (Esta hoja se calcula automáticamente) Inversiones 3 4 Millones de Pesos Total Conceptos Actual 2005 2006 2007 2008 2009 2010 2011 201 Protectad Statistics that Support the 5 99 99 236 180 199 99 99 99 Totales 1.653 1.108 7 0 99 **Analysis of the Main** 59 180 100 0 0 Muelles 956 339 n n э 99 10 Urbanización 507 592 0 0 99 99 99 99 11 Obras de Protección 0 0 0 0 0 0 0 0 0 0 Variables of the Projected 176 176 12 176 n n n 0 0 Dragados n 0 13 Señalización 14 Ω 0 0 0 Ω Ω 0 Scenario: Investments. 14 Otras Inversiones VP (Inversiones (\$)/ Toneladas (N[.])) 81,234.77 107.243.04 18 Costs, N° of Vessels, GRT, 19 MEH / MEH Max 27.6% 27.92 26.87 27.6% 20 LOA-Hour. Tons. 21 Operaciones 22 Unidades Total 2012 Concentos 2005 2006 2007 2008 2009 2010 2011 23 Protectado 18,614 1,567 1,607 1,623 1,670 1,686 1,702 1,716 25 Bugues (N⁻) 1 5 0 5 1,731 1745 1759 1 806 26 TRB's 30,637,742 437,981,260 34,136,714 35,264,829 36,392,944 37,521,060 38,649,175 39,777,290 40,905,406 42,033,521 43,161,637 44,289,752 45,848,932 163,881,241 13,800,934 14,151,555 14,291,974 14,704,804 14,847,580 15,237,563 15,363,551 15,488,882 15.902.845 27 MEH 14,981,132 15,110,421 13,253,702 16,408,595 17,308,249 18,344,724 18,993,959 19,666,759 20,612,594 21,330,853 22,049,112 22,767,371 23,485,631 24,203,890 28 Toneladas 233,854,847 25 091 704 30 Crecimientos Anuales 31 Crecimiento N⁻ Bugues 1.7% 4.1% 2.5% 1.0% 2.9% 1.0% 0.9% 0.9% 0.8% 0.8% 0.8% 2.7% 32 Crecimiento TBB's 3.8% 11.4% 3.3% 3.2% 3.1% 3.0% 2.9% 2.8% 2.8% 2.7% 2.6% 3.57 Crecimiento MEH 1.7% 2.5% 1.0% 2.9% 1.0% 0.9% 0.9% 0.8% 0.8% 0.8% 2.7% 33 4.12 34 Crecimiento Toneladas 3.9% 5.5% 6.0% 3.5% 3.5% 4.8% 3.5% 3.4% 3.3% 3.2% 3.1% 372 36 TRB's / Buques 20,353 23,530 21,778 21,940 22,420 22,465 22,918 23,377 23,834 24,287 24,734 25,175 25,383 Toneladas / MEH 1.24 1.43 1.25 1.30 1.33 1.34 1.39 1.42 1.46 1.49 1.53 1.56 158 37 Costos y Gastos por Infraestructura 40 41 Millones de Pesos Total Conceptos Actual 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 Protectad 42 Totales 222.0 2,089.0 174.7 190.8 202.8 194.9 196.9 209.0 208.6 210.7 227.9 215.1 232.3 44 46 Administración 164.0 1.416 125.6 133.8 135.5 137.2 138.9 140.6 142.4 144.2 146.0 147.8 149.6 Mantenimiento de Obras de Atraque y Muelle 47 6.4 83 7.0 7.0 7.0 7.0 7.0 7.0 9.5 9.5 9.5 9.5 9.5 Mantenimiento Señalamiento Marítimo 4.0 25 1.2 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 3.0 48 280 Mantenimiento Área de Urbanización 23.0 26.0 26.0 26.0 26.0 30.0 30.0 30.0 30.0 49 15.0 26.0 30.0 50 Mantenimiento Obras de Protección 2.7 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Dragado de Mantenimiento 50 0.0 10.0 10.0 51 9.7 0.0 0.0 0.0 0.0 0.0 15.0 0.0 15.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 52 Prima de seguros señalización marítima 0.0 n 0.0 0.0 0.0 0.0 53 Prima de seguros de obras de protección 0.0 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 54 Prima de seguros de áreas urbanizadas 0.0 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 235 55 Prima de seguros de obras de atraque 20.3 18.0 22.0 22.3 22.7 23.0 23.3 23.7 24.1 24.4 24.8 25.2 58 2 Crecimiento Anual -91.6% 90.9% 16.1% 2.1% -2.9% 7.3% 5.9% 0.8% 9.3% 2.1% 1.9% 59 60 Costos Infraestructura / Toneladas 13.5 8.9 10.1 10.4 10.7 9.9 9.6 9.8 9.5 9.3 9.7 8.9 9.3 61 Gastos Adm. / Toneldas 10.0 6.1 7.3 7.3 7.1 7.0 6.7 8.8 65 6.3 6.2 6.1 6.0 Gastos Mantenimient / Toneladas 62 1.7 1.7 1.7 1.6 1.7 1.0 1.2 1.2 1.0 1.0 63 Primes de Seguros / Toneldas 12 1.0 12 1.1 1.1 1.1 1.1 1.0 64 Estadisticas / Comparativos / Valuación / F1 Operaciones / F2 Costos / F3 Ingresos / F4 Valor de los Muelles / F5 Urbanización / F6 Obras de Protección / F7 Dragados / F8 Señalización / F3 H 4 Listo **Projection Statistics** 🐚 Mis d.... 💐 Libro1 💐 Ejerc... 💐 Ejerc... 💐 Ejerc... 💐 Ejerc... Ejerci... 💐 Ejerci... 💐 Ejerci... 🖳 Resu... 🚳 Pres...

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Sensitivity

The tariff model includes the sensitivity analysis to the planning scenario, assuming variations in its basic variables, reflecting the impacts in the profitability, equilibrium tariffs, tariffs in force and tariff proposal.



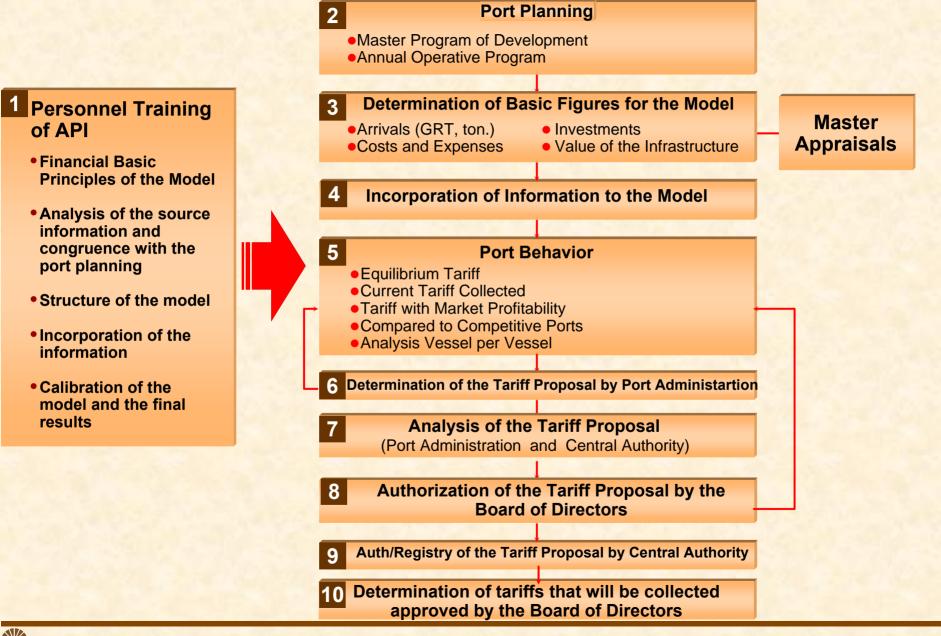
Sensitivity and Competitiveness Analysis

The competitiveness of the port tariffs, besides other factors, is given by the capacity to compete with regard to the prices of the competitive ports. This capacity could be measured considering the relationship between the equilibrium tariff of the ports and the levels of competitive prices in the referential market or the hinterland.



Infrastruture Tariff Type of Vessel (Equilibrium, Collected, Authorized)

Instrumentation of the Model



Special Considerations in the Implementation of the Tariff Change Productivity-Based Tariff Scheme for the Mexican Ports

The Model allows to calibrate the tariffs according to the commercial conditions and allows to achieve the required profitability.

Some ports, as a consequence of the past investments and the perspectives of future movements of cargos, present little profitability and shall be treated as exceptions.

The abovementioned is achieved with the design and the fundament of a feasible panorama, which considers the value of the port infrastructure that can be recovered by the tariffs determined by the model.

The tariff model, besides allowing the estimation of a tariff range, constitutes an element that establishes in a formal and structured way an indissoluble relationship among the Port Planning, the Management of Businesses in the Port and the Tariff.

For further information please contact: **FELIPE OCHOA Y ASOCIADOS, S.C.** Ricardo Castro 54-PH, Guadalupe Inn 01020 México, D.F. Phone: (52 55) 5662 3569, 5662 5585

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E-mail FOA: <u>foa@foaconsulting.com</u> E-mail Mr. Reyes Juárez: <u>rjuarez@foaconsulting.com</u> E-mail Mr. Rafael Gómez: <u>rgomez@foaconsulting.com</u> FELIPE OCHOA Y ASOCIADOS, S.C., has rendered administrative, technical and financial consulting services since 1973. For 32 years, the company has carried out more than 1,000 studies for a selected group of continuous clients of the Federal Government, Institutions and Private Companies, we have focused on different areas of planning at a local, regional and sector level.

FOA constitutes a group of professional Mexican advisors that renders consulting services to private and public entities with the aim of assessing and improving their operations, likewise, it plans and implements its new developments or expansion projects. Multidisciplinary teams of FOA advisors have continuous meetings to develop each project, by doing so, the relevant factors of the studies are included in the analysis, as well as the recommended solutions.

The Company's experience in Port Development includes its participation in the design of structuring schemes for Integral Port Management of Mexican Ports and the elaboration of the corresponding documents, these documents included the Master Programs of Development and Business Plans for different ports (Salina Cruz, Coatzacoalcos, Lázaro Cárdenas, Puerto Madero, Dos Bocas, Frontera, Puertos de Campeche); as well as the participation in the bidding for specialized terminals (Lázaro Cárdenas, Veracruz, Altamira and Manzanillo). Development of the studies for the Corridor Med-Mex to strenghten the relationship between Mexican ports and the Valencia Port in Spain.

Recently, the study for a New Productivity-Based Tariff Scheme was carried out, as well as the Training and Implementation of the Model in the 15 Federal APIs of the Mexican Government.

Mr. Reyes Juárez Del Angel

Mr. Juarez studied Engineering in the Autonomous University of Tamaulipas, his Master's degree in Investigation on Operations in the National Autonomus University of Mexico, and his PhD in Investigation on Operations in the same University, he graduated with honors. Mr. Juárez has participated in the planning of the Mexican Transport Sector, he has 25 years of experience in the consulting area. As a partner and General Director of FELIPE OCHOA Y ASOCIADOS, and before as Technical Director, he has directed more than 500 studies and projects regarding strategic planning of transport, transport modelling, demand studies, economic, financial and enviroment impact evaluation. He has participated in the privatization processes of the most important Mexican communication and transport sectors, such as Teléfonos de México (1991), APIs and Port Terminals (1994-1996), Railroads (1997-1998), Airports (1998-1999) and in more than 50 urban road and toll highways processes and their technical, economic, financial and financing structural evaluation (1991-2003). He coordinated the Work Team of FOA Consultores for the structuring of the suburban train concession process of the Metropolitan Area of Mexico City (1998-2000) and in the option assessment to select the new Mexico City International Airport (2000). He has wide experience in evaluating projects, processes to attract capital and methodologies to assess external factors in the transport area paying special attention to the user.

Mr. Rafael Gómez Lara

Mr. Gómez is an Industrial Engineer, he studied his degree in the *Tecnológico de Veracruz* and his Master's degree in Engineering in the National Autonomus University of Mexico. Mr. Gómez has 25 years of professional experience, mainly focused on project development regarding transport areas, logistic of Intermodal Terminals, organizational reengineering projects and studies in the maritime-port activities. Recently, he participated in the Determination of a New Productivity-based Tariff Scheme, as well as the Training and Implementation of said model in the APIs of Lázaro Cárdenas, Manzanillo, Mazatlán, Topolobampo, Guaymas, Progreso, Dos Bocas, Coatzacoalcos, Veracruz, Tuxpan, Tampico, Altamira, Ensenada, Salina Cruz and Puerto Chiapas. The model allows to determine profitable port tariffs according to the commercial conditions.