清华大学经济管理学院

School of Economics and Management, Tsinghua University

O c ej. 4247

E k c g e j c i g c f c g h j g g k i e j c g i g e h k i j c k k
j g 43 e g 0 C i c k j k d c e f . j g R c k C i g g g c c f g f k 4238 d
39: k i c c k g . g c d k j k i j g i / g d l g e k g h j f k i j g i d c
g g c g k g g d g 4℃ c d g g/k f k c g g j k g k i g h
k k j g k e g c g 307℃ 0

E j k c g g e k c g e j c i g c g c k c c h k g h h c e j k g g g e /
g k g c i g c f j k i j/ c k f g g g 0 C f f g k i e k c g e j c i g
g g c c g f c k h g i c i k i k i d c i g c e g c f j f k i
k c g c k 0 C j g i g g c f g d c g h j g 97 j U g k h j g W k g f P c k I g g c
C g d U g g d g 44. 4242. R g k f g Z k I k k i c e g f j c E j k c f
e c g k P c k c F g g k g f E k d k P F E +d c f k i g k i
k e k g c f g c g . k g g c E Q 4 g k k d g h g 4252. c f c e j k g g e c d
g c k d g h g 42820 V j g f c e c d i c h g c k i g k k c f c e j k g k i
e c d g c k g g g E j k c) c g i k e g g g k i g e g c f
g k g c e j c g i g . c g c k g e k g h g k i c j c g f h g
h j c k 0

c k i g k j c k c f c e c d d l g e k g c f k e k c g k d k k k g .
V k i j c W k g k U e j h G e k e c f O c c i g g V k i j c U G O + c e j g f
c c c e c d h k c g g c f g k i k k k c k g k 42450 V j k g c k e
g h h c k c k h k k k c g k k . h c k g e c d g c k
e k g . c f e j c c e k g e g/d c g f f g e c d k c k c j c 0 V j i j j k g .
V k i j c U G O g g e g j g k g c g k i g g j g i c I J I +g k k
h k g . k f g k h k k g h /e c d c h c k . c f g c k c k g k
k k k c g / g g k k c i g d 42570

I.

3
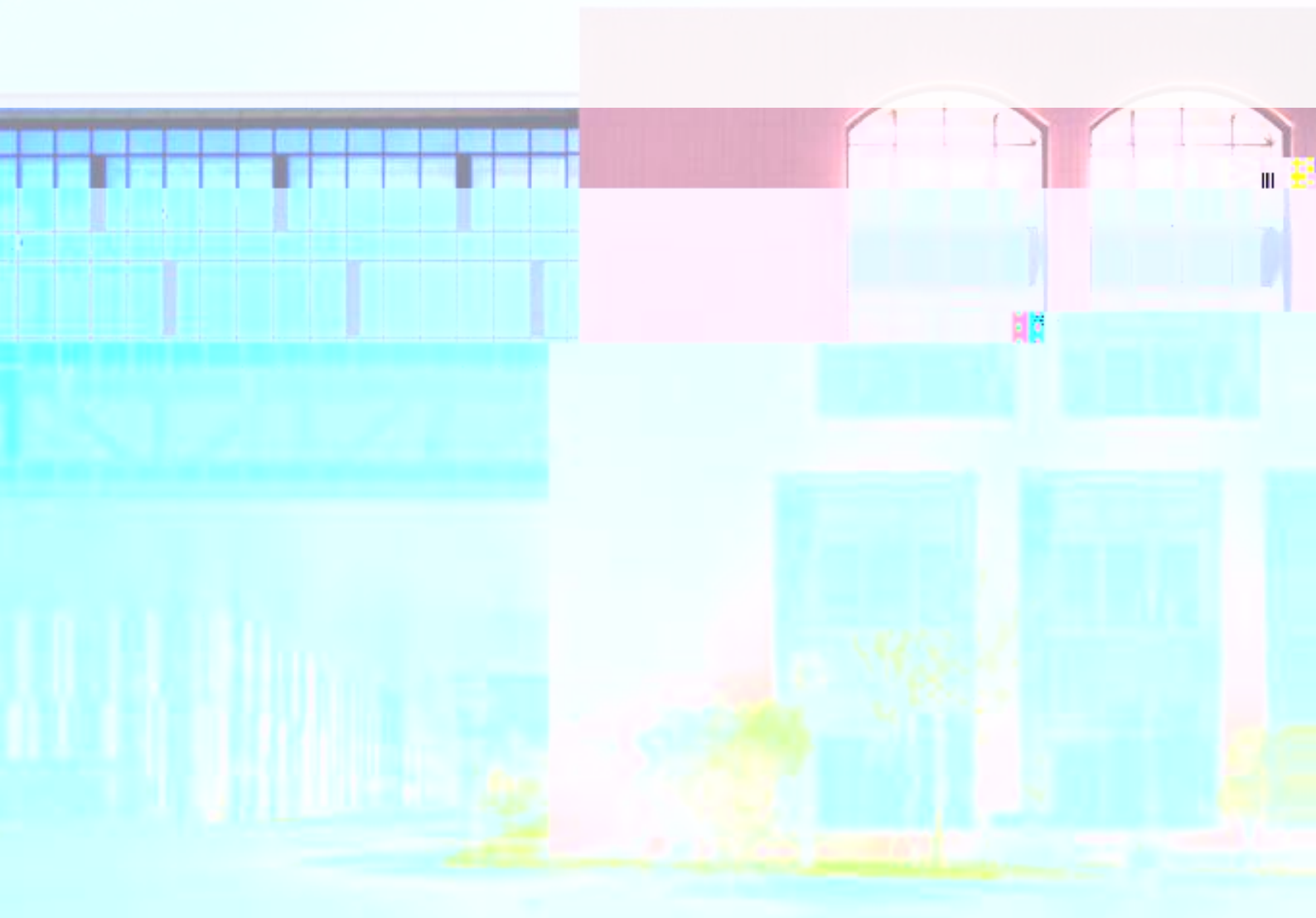
1. School Profile

H   fgf k 3;:6. V k i j c UGO jc c k k   cf c eg   gf ig c f e   k c g gc fg h E jk c c f jg   f c kg   dgc   f/ec   ej   hge   ke c f   c cig g   c f j f k gi k .fgflec k c f g   ge c k e g c g 0H   g 62 gc . V k i j c UGO jc gf jg c k k c g   ck k i. ekg khke g gc ej. ekc k h g eg c f k g c k c g ejc ig. c f   g dge gc   f/ec   ej   h ge   ke c f   c cig g 0

V k i j c UGO jc   g g fg c   g   Cee   k i Ge   ke Hk c eg   c k . G   g g g jk c f U c gi   Ngc fg jk c f Q ic kc k   Oc cig g Oc cig g Uekg eg c f G i k gg k i c f Oc g k i 0V ig jg. jg ge g h   hk / g g fkek k g h jg glec ge   ke .c kgf ge   ke .d kg cf k k c k . c f   c cig g   ekg eg c f g i k gg k i 0 c   j   g jg Uge gc kc   h jg Ejk c P c k c O DC Gf ec k U g k   E   k gg0

2. Background and Goal Setting

E k c g ejc ig jc dge   gc gk   i dc ejc g ig0   g   g   e k c g ejc ig. jgk g ck c e   k jc e   k gf j ij   kc gc ci gg g   kg jg Rc k Ci gg g   k k i dc g gc g kg   g dg 4℃ jkg   k i ghh   ec k c 30℃ 7 cd g g/k f   kc g g 0E   kg jc g h   c gf c f k g g gf ec d g k k gf e k   kekg   g ge   ke c f ekc c h c k   c f   /ec d   ck cd gf g g 0

V jg E jk gg I   g   g c cejg i gc k   c eg   jg k g h e k c g ejc ig. ce k g c kekc g k i dc e k c gi g c egc f jc   h c f jg f c ec d i c .kg0   k k i   jc g EQ4 g k k   gc dgh g 4252 c f cejkg g ec d   g c k dgh g 42820V jk e   k g   ghge E jk c) jki j   g   kd g c k fg c f i dc g k g c   ge k .d c   k   jg fkge k h E jk c)   ck cd gge   ke c f ekc fg g   g 0   fg   ce jkg g jk i c . jg

Ejkgg I g g jc h cgf c gkg h f g ke f c /ec d kekg.
ke fki g i jg ki jgcfl g h jgg gi e g. kie gc ggi.
k ki jg ghkekg e hg gi kkck .fg g ki c eke c ge .c f
g i jg ki ge ikec gek c f g ck 0

Vkij cW kg k jc c g jgkkck g c g jg g.c f cejkg gf c dg
hcf c egf g g k ck k c dg hec d g c e g g gcejc gc. ej
c g /ec d g ig gck c f g. g g ge ke g g . g /ec d
c ck . g /ec d d kfki .ge0 Lc c 4246. Vkij cW kg k g
jgEc Ec d Pg c Rc ki Y ki I e gjg kg jh c f
jge ek h jgec ec d gc ki c f ec d g ck 0 Qe dg 4246.
jg 4246 I dc Ec d Pg ck C c Rig Tg .e /c j gf d Vkij c
W kg k) k g h Ec d Pg ck c f jg k k . c ggc gf.
kfki e gjg kg. g ck O W

f f ec d gf . .

UGO) g g i e   k c f ec d   g k k . j g h   g f g g   g   c h j g
e g ig. c f j g c c k h j g gej   i kec c f ge   ke hgc kdkk . V k i j c UGO
jc g cd k j gf 4257 c k   g / g   c i g   gc 0 Vjc k.

0

3. Pathway and Implementation Plan

V k i j c UGO   k k   g g   c   kf k g k c   c gi   g e   c k i   j g
h   k i k k c gc 0 g   hg g i   g. j g ej   k ki   g j g
 g he gc g g i c f i cf c   g ceg cf kk c h k g g i 0C j g c g k g.
 j g ej   k   g i j g g g i   c ci g g . k   g g g i g h hke kg e c f g f eg
g g i   c g j i j k g ki g c f gh kg f g g i   c ci g g   g 0

    cf f k k   g g i g. V k i j c UGO   k cf   / ec d   gc g k j g c gc
 h hhke gc f   c g 0 Vjg ej   k cf ec g i g g hhkeg.   g g ge   ke hhkeg
c f g g k i . c f g f eg j g   g h c g f e   g 0 cf f k k . j g ej   k
 g e c i g f g . hce   c f chh cf   / ec d   c g g j f . ej c
e e k i. c k i   k i d ke c   c k . c f g f eg j g g h k c g ec .
 j g gd g f ek i ec d   g k k 0

C j g c g k g. V k i j c UGO   k ce k g   c kek c gk j g g gc ej. h   c k
c f k   g g c k   h k g c k c c f f   g ke ec d   g k k   ke kg . e   kd g
Ej k g g   k f   i dc e k c g i   g c eg. c f   kf g e kg khke dc k c f
k g ge c   h i   g   g c f ge k k / c k i 0 V jg ej   k   g i j g
 c g j k   k j k g c k c k k k   l k   g j g f g g   g c f
c kec k h   /ec d   gej   i kg 0 V jg ej   k c   g i j g e   g c k
c f e   kec k   k j c ge   h j g e kg . c f l k   g j g
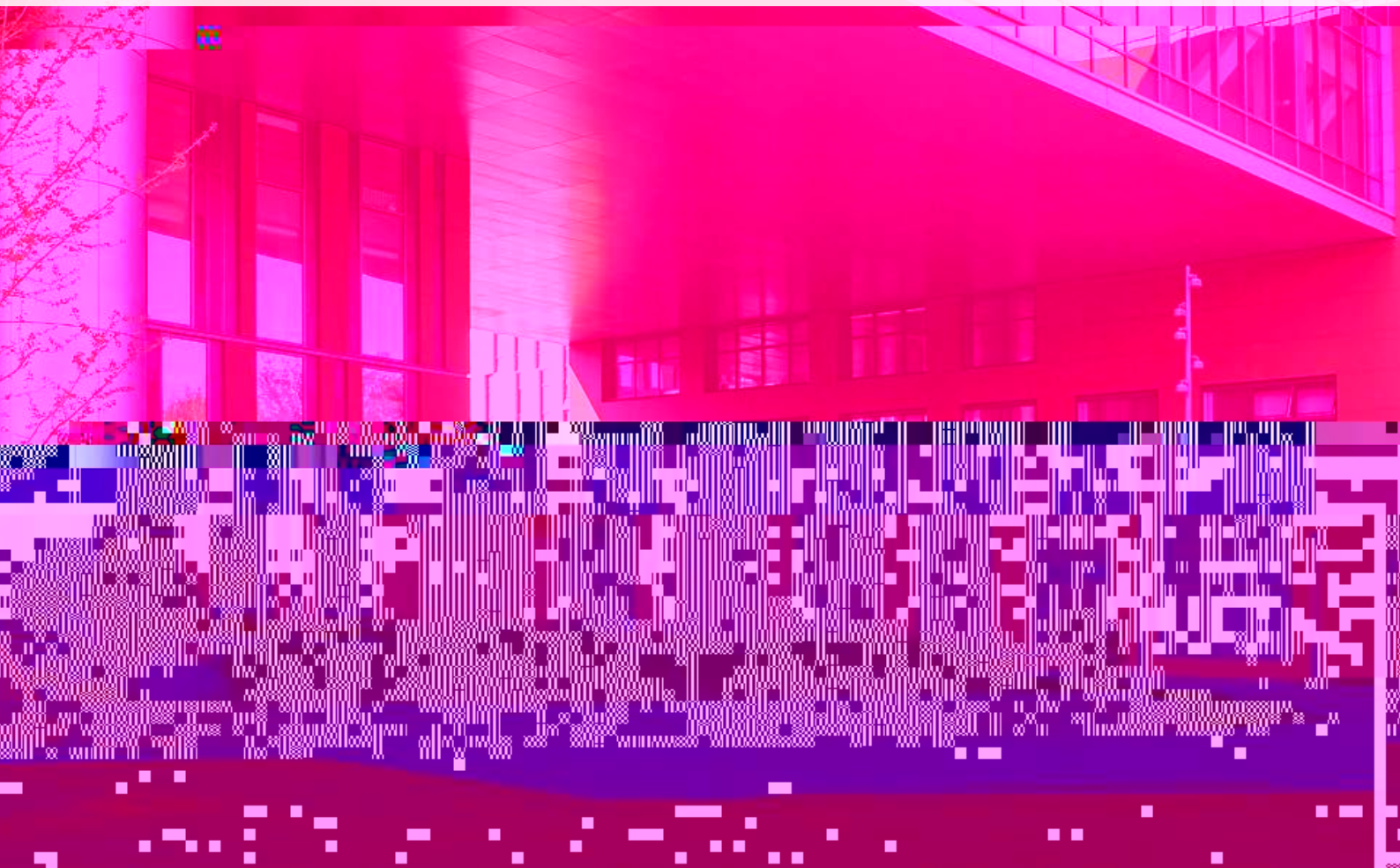k g g c k h f c / ec d   ke kg k c k   h kg f h j g e kg 0

    e e k . d c g f   k k / f g j f   h e k c g ej c i g k g c f ce k g g   g

k g c k c c f f g k e ec d g k k k e kg . V k i j c U GO . k c e k g

c k i ce k gc k g j gi c he c d g c k 0V j g e j k e k g g h k k i

dg c e ke g j i j i k i g g c e j e k d g j g d kf k i hc j c g f h g

h c k f c f j g g c k c k hi g g c f ck c d g f g g g 0

II.

1. Measurement Scope

Ec d h k ghg jg c g k k hEQ$_4$ c f jg I J I fkge
k fkge i g g c gf d k fk lf c . ic kc k .g g f e kjk c gekhe
gkf h k g. c gc gf k g hec d fk lfg g k c g EQ$_4$g+0 k c
k c k flec c g jg k ce h e k c g ejc ig. ghge k i jg fkge
k fkge k ce hj c ce k klg jg g k g 0

Vj gec d h k hc ic kc k k jg c c hi gg j gic g k k
i g g c gf d c k k k g0 0 ej .d k g .ge0+f ki k g c k 0Vj g g
g k k c e gh jg ic kc k) fkge g gi e k g0 0g ge lek .
jgc + h k fkge ce k klg. ej c g gg e k i. ejck
c cig g .g e0

2. Accounting Methodology

Vj g gj f i h gc ki jg ec d h k k dc gf ce k k fc c c f
g k k hce 0 Q ic kc k c ce k k fc c / ke fki g gi e k .
c c k kgci g. c g lc h .c f c g ig g c k / k g c lec
e kgf k c c k 0U d g g . jg g ce k k fc c g k lgf d jg
e g fki g k k hce I J I g k k g k hce k k fc c+ ec e c g
jg c I J I g k k 0

III.

1. Organizational Boundary

Vjg i c k c k c d f c h j k ec d h k cee k i k g k j g c h
Q g c k c E k cee fc eg k j j g UQ 36286 c fc f c f k j ghg g eg
 I J I R e E c g C ee k i c f T g k i U c fc f 0 V j g ec d h k
h V k i j c UGO k 4246 ec e c gf k j k g g e c g g k k h j g
e j) D g l k k i / d c gf cecf g k e h c ek k k g . k U j g j g ec g c k c f j g
ce k k k g h g g c g g 0

2. Reporting Period

V j k g e g ec d h k fc c h j g gc 4246. k j c g ek k e k ghc g h
Lc c 3. 4246 F geg dg 53. 4246. c f k f g c gc / k g c k c k g ghg g eg
h V k i j c UGO) h g ck cdk k f g g g 0

V k i j c UGO j c e gc g k d k k k g k ec d h k cee k i. k j c
f gf k ec gf cee k i gc g k d g h fc c e ge k . ec e c k c f g k i 0
V j k g k c k f k j g g k g k gf g gf 0

3. Emission Factor Tf1 0 0 1 9.024 4680040011 TETQ EMC Span MCID 2 ang (en-US) BDC 0.0000

g k k +. c f Ʊ g 5   jg k f kge g k k +0Ʊ g 3 k e fg g k k   h

V k i j c ƱGO) h g e   d k c f h i k k gg k k   eg 0Ʊ g 4 e   k   h

g k k   h   g ge kek c f   ejc gf jgc e   gf d V k i j c ƱGO 0Ʊ g 5

k e fg g k k   h   jg   /f kge   eg ejc d k g   c g.   j g

c f g gc ej hhceg c f jg hhceg kf g Dgkki Ujg jg ec +0Vjg ejc gf jgc g k k jg gcejki c f g gcej hhceg ceg k Dgkki.c f k kgf eg c d jgjgcki c k hVkij cWk g k 0V g g jg cee ce h jg ece ck . ge gegf jge k h c c ic.gge lek h c g c f lekc c c g h jgjgcki c k k 42460Cee f k i jg k h Vk ij c UGO）d kfki c gc Vkij cWk g k）jgcki d kfki c gc. g ece c gf jg ec d g k k h V k ij c UGO） ejc gf jgc 0 Vjg lkc ece ck h Ue g4 g k k hVkij cUGO k 4246 k 6.:5; 049 h EQ4 0 Ugg jg cd gdg h jgd gc f f c c0

Vcd g4 Vkij cUGO）Ue g4 Ecd H k k 4246

Scope	Emission category	Carbon emissions (tons)	Total carbon emissions (tons)
Scope 2	Electricity	5.549082	4,839.27
	Heat	3.733089	

(3) Ue g5 Qjg fkge G k k +

Vkij cUGO）e g5 g k k c g ck jg ec d g k k ig gcgf d d kg c g. lekc c c g. k ki c g c f d gf c g 0Vjg ec d g k k hd kg c g c gece c gf d h fg h c c k . c g. c g. ck. d c c f ec.cee f k i jg c g ge f h jg hce c f chh h Vkij cUGO 0Ecd g k k h kf c gc f sewage gc g c gece c gf dc gf jg c kkg h kf c gc f sewage0Vjg ec d g k k h lekc c c c g. k k i c g c f d gf c g c g ece c gf cee f k i jgk e k k Vkij cUGO）Dgkki gcejki c f g gcej hhceg c f jg hhceg kf g Dgkki Ujg jg ec +0Vjg hkc ece ck h Ue g5 g k k h Vkij cUGO k 4246 k 2,150.48 h EQ4 0Ugg jg cd gdg h jgd gc f f c c0

Scope	Emission category	Carbon emissions (tons)	Total carbon emissions (tons)
Scope 3	Municipal water	6Œ8	2,150.48
	Solid waste	970 6	
	Sewage treatment	930Œ9	
	Car travel	3950 5	
	Subway	20B2	
	Train travel	: 0 4	
	Air travel	3.98900 5	
	Paper	520T;	
	Bottled water	390B6	

(4) U c

Cee f k i jg cd g ec e c k g . jg c ec d g k k h V k i j c W k g k Uej hGe ke c f O c ci g g k 4246 k 9.2660B4 hEQ4 . h jlej jgg k k hUe g 3 k 54.37 hEQ4. Ue g 4 k 6.: 5; 049 hEQ4. c f Ue g 5 k 4.37206: hEQ40F g ckgf d gc f hf c c k c h 0

Scope	Emission category	Carbon emissions (tons)	Total carbon emissions (tons)
Scope 1	I c k g h gf gj le g	40T6	54.37
	Tgh li g c	450 48	
	Eg	4: 0T8	
	H kg g k i k j g	20B3	
Scope 2	Electricity	5.54908 2	4,839.27
	Heat	3.7330B9	
Scope 3	O le k c c g	6Œ8	2,150.48

U kf c g	970 6
Ug ci g gc g	930 59
Ec c g	3950 5
U d c	20 32
V ck c g	: 0 4
Ck c g	3.9890 5
Rc g	520 7;
D gf c g	390 86
Total	7,044.12

H jg g ge k g hI J I cee k i e g. V k i j c UGO) ec d h k k
4246 k ck e gf hUe g 4 k f k ge g k k +c f Ue g 5 jg k f k ge
g k k +ec d g k k . h j k ej Ue g 4 ec d g k k cee h jg
j k i j g j c g h8: 0 2' . h gf d Ue g 5 ec d g k k k j c j c g h520 75' 0
Ue g 3 ec d g k k cee gf h jg g j c g h20 99' 0 Ug g jg k g e j c
dg h f g ck 0
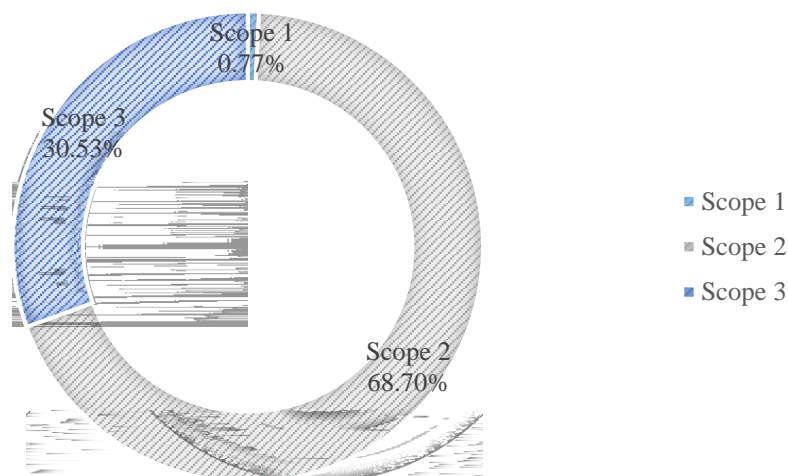
Hki g 3 V k i j c UGO) Ec d H k Ue c g U e g k 4246

H jg g ge k g hg k k ec gi k g . V k i j c UGO) ec d h k k 4246

ck e k h ejc gf gge kek . ck c g c f ejc gf jgc . kj ejc gf
gge kek cee k i h jg jk i jg jc g hec d g k k c 6904'6 . ck c g
cee k i h jg ge f jk i jg jc g h ec d g k k c 4708'2 . c f
ejc gf jgc cee k i h jg jkf jk i jg jc g hec d g k k c 4306'8 .
c f jg cd g j gg ec d g k k cee h ; 50 2' hV k i j c UGO) c
ec d g k k 0Vjg g h jg e k ec gi k g cee gf h cd 8' h
jg c ec d g k k 0Ugg kg ejc dg 0

Gasoline for owned vehicles 0.04%
Refrigerants 0.33%
Bottled water 0.25%
Cesspools 0.41%
Paper 0.43%
Fire extinguishers 0.00%
Air travel 25.10%
Train travel 0.13%
Subway 0.00%
Electricity 47.24%
Car travel 2.47%
Sewage treatment 1.01%
Solid waste 1.08%
Municipal water 0.06%
Heat 21.46%

Legend:
- Gasoline for owned vehicles
- Refrigerants
- Cesspools
- Fire extinguishers
- Electricity
- Heat
- Municipal water
- Solid waste
- Sewage treatment
- Car travel
- Subway
- Train travel
- Air travel
- Paper
- Bottled water

Hki g4 Ec d H k Uec g U e g k 4246 G k k ec gi +

5. Data Quality Assurance

Vjk I J I g k k g k k cee fc eg kj UQ 36286 c f k dc gf jg c g
k ek g h gg c eg. e g g g . e k g e . c c g e c f cee ce 0C ge
h f cc c k c ci g g jc g jgh k i e g

S ck Oc ci g g Uclh Og dg   h jg cee   ki gc   c g c gf   kj
e fk c k i   j k g c e k   c i g g c   fg c g   c f g g c
 c gj fg . ic k c k   .c f   lge 0

S ck Oc ci g g Ce k klg Q g c k c   egf g c g h   c gf0V   gg jg
 g kg g   h ge k k .f c c   c ci g g eg g   c k   g kllhec k ce k klg
h d j i g g c c f   ge kllhe g k k   0

I g g c S ck Xg kllhec k   E f e k i ki   g   k c g   c k
 g kllhec k h e   g   jc c g   g   g klij c f c gcf   k cee cekg
f k i f c c e ge k c f   eg k i .f c c   fg k i .c f g k k   c kllhec k 0
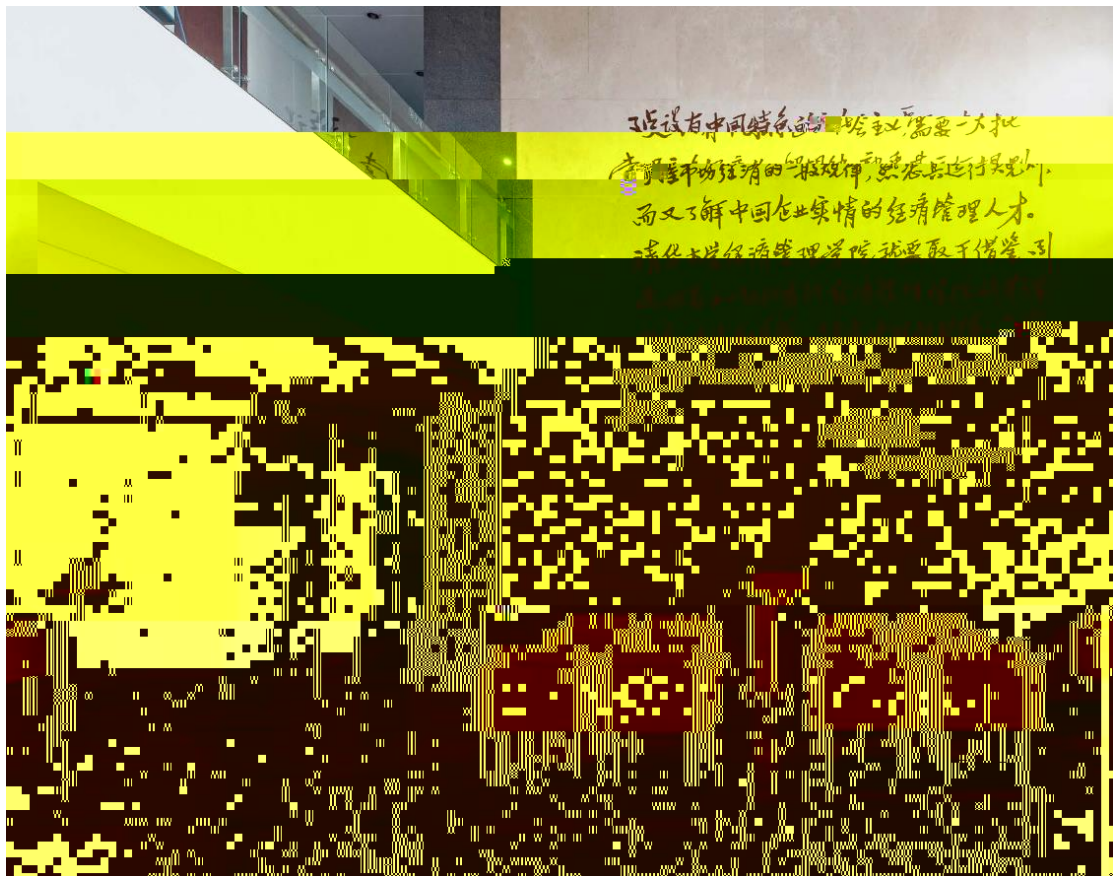
IV.

1.   Leveraging Academic Expertise for Innovation

V k i j c UGO   ceg ki khec g   jc k   jgjgc j c f   ck cd gf g g
 hEjk c) ge   . k kkk i e k c gejc i g/ g c gf c gc   ejc ec d   g c k
c f ec d   gc k i 0 Vjg ej   k e   k gf   g g c i k i g gc ej   e g
   kfgk ki j h   ek c fg g   g c f i kfc eg   e kkec k g jc k i Ejk c)
e   g c f h   g ge   ke c f ec g0Q L g 4;. 4246. R hg   NkF i j i h
V k i j c UGO gg c gf jg P ck c Gc / /Yg F c c Vc hg   J d P fg I gg
E   ki R g   fg Tg gc ej Tg   c jg hk Ejk c I gg E   ki R g
E hg g eg. e /c j gf d jg   k gh I dc f   c V k i j c W k g k c f
jg Nk ig I gg E   ki R g Fg g   g Tg gc ej Eg g 0 Vjk g   hhg
ekg khke   h jg f gg k gi c k   h jg f ki kc ge   c f g gi   g
  fg jg f c ec d   i c 0Q L   53. 4246. R hg   Ejg [d c f jk
e cd c   ) c g. O gf kc E   g c ig   h E k c g Ejc i g c f U   ck cd g R f e
E   k G kfg eg h   jg J d kf Xgj keg O c g. c c c fgf jg; j J ki j g
Gf ec k   Uekg khke Tg gc ej Q   c f k i Cejkg g g   C c f J   c kkg c f
U ekc Uekg eg +0 D   e   g k i jg gejc k   j   ij jkej gf kc c f   ekc
      k h g eg i gg e   k . jk g gc ej   g c k   ck g   c g /
  kg gf - ekc kgf   c j c h   /ec d   f g g   g 0O   k i h   c f. jg
ej   k e k g   h e   e k i/gf ig h kg f gc gf   ec d   g c k .
k e f k i g gej   i kg . g j f i kg .c f   kekg.   kfg   g ekg khke c f
k   ck g ce cfg ke   h Ejk c) f c ec d   c gi 0

2.   Advancing Public Policy Recommendations

V k i j c UGO jc c   dg g ce k g   i c k k i c f c k i cec fg ke ce k kkg
c   f jgi c h f c /ec d   kfg d gc j i j kfg c c f ke i i g k
h jg gc k c k h jg f c /ec d   c gi 0

Q O c ej 46. 4246. c jg Ejk c Fg g   g H   4246 k . D ck Ej i /G . fgc
c f F k k i k jgf R hg   hC .J   c kkg c f U ekc Uekg eg c V k i j c UGO.
g i ci gf k c f kc i g   kj Vk E   . EGQ h C g.   I gg   V gej   i

ck c f F g g g Q k k g 0

Q Ug g dg 42. 4246. jg 4246 V k i j c W k g k H Ec d Pg c
Ge c jgf c V k i j c UGO. d k i k i i g j g g g g c k g h
i g g c i g e k g . c l g g k g . c f g gf g g k jgec d g c k
h k g f 0 R c k e k c g g f /ec d c h c k c j c c f g k k gf jg
h g h i gg f g g g 0

Q F geg dg 5. 4246. jg E j k c Ec d Pg c k H . e / i c k gf d V k i j c
UGO. c ee g h e g gf c V k i j c W k g k 0 V j g H h e gf Pg
J k i j /S c k R f e k g H eg F k k i I gg c f N /Ec d f k c
V c h c k 0

Q F geg dg 3: . 4246. c jg 4246 g Ec d Tg gc ej k g I gg
F g g g H j gf d Dg l k i P g . jg V 32 I gg F g g g Ec g
h 4246 g g g k gf 0 E / g ge gf d jg E j k c D k g Ec g Eg g EDEE+ h
V k i j c UGO c f jg Dg l k i P g g Ec d Tg gc ej k g. jg g ec g e g
k c gc g ej i k ec k c k . i gg c h ce k i . i gg h k c eg. g g i
c k k . e k e c ge . c f i gg e k 0 V j g k f g g k ec d g k f k c
i c f k i f g h E j k c) e c g /ec d c h c k 0

3. Talent Development for Industrial Transition

V g g jg c g i k e g g f h i gg c f /ec d f g g g c f c f f g c l
i d c c k c d g f g g g e j c g i g . V k i j c UGO. c g h jg j gg g
k i f g c g . ce k g c k e k c gf k jg g c c k . e e k . c f
c g e k c k h Z k j i E g i g. V k i j c W k g k 0 Ug g dg 4246.
Z k j i E g i g ee g h c e j gf jg I d c I gg I g c eg V c g R i c .
c k k i e k c g c f k i h g k c k j i d c i gg i g c eg ec cd k k k g
ce g c k c d g f g g g e j c g i g c f k l ge g k c k k jg h g 0
C i 4243. V k i j c UGO g gc gf jg E j k c GEQ G g i c k fg
ce eg g c g jg h c k h ce g c f g jg ce k h k f k g c f

g g   k g 0 U h c . j gg g k   h j g E j k c GEQ G   g   i c   j c g dgg

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jg g h d ke c ck .ge0Yg jc g g cd k jg f c f k gf jg c g
g c c k c f ge e k i g .k gf jg ge e k i ghkekg e .c f gf egf
c fhk c f e k g c k 0G e ci g gce jg c f fg c lek c gk ce k ej
c c k i c g c f gge lek. c k i kf k i ej .c f k i g cd g
cd g c g0

Vj i j jg g c gi kg c f gc g .gec i kf g h ce c f fg
ce leg /ec d kkg.d c g /ec d e eg c f ce keg k jg
d cfg ek c c f cecfg ke hkg f .c f e kd g jgd kf k i hc ck cd gh g0
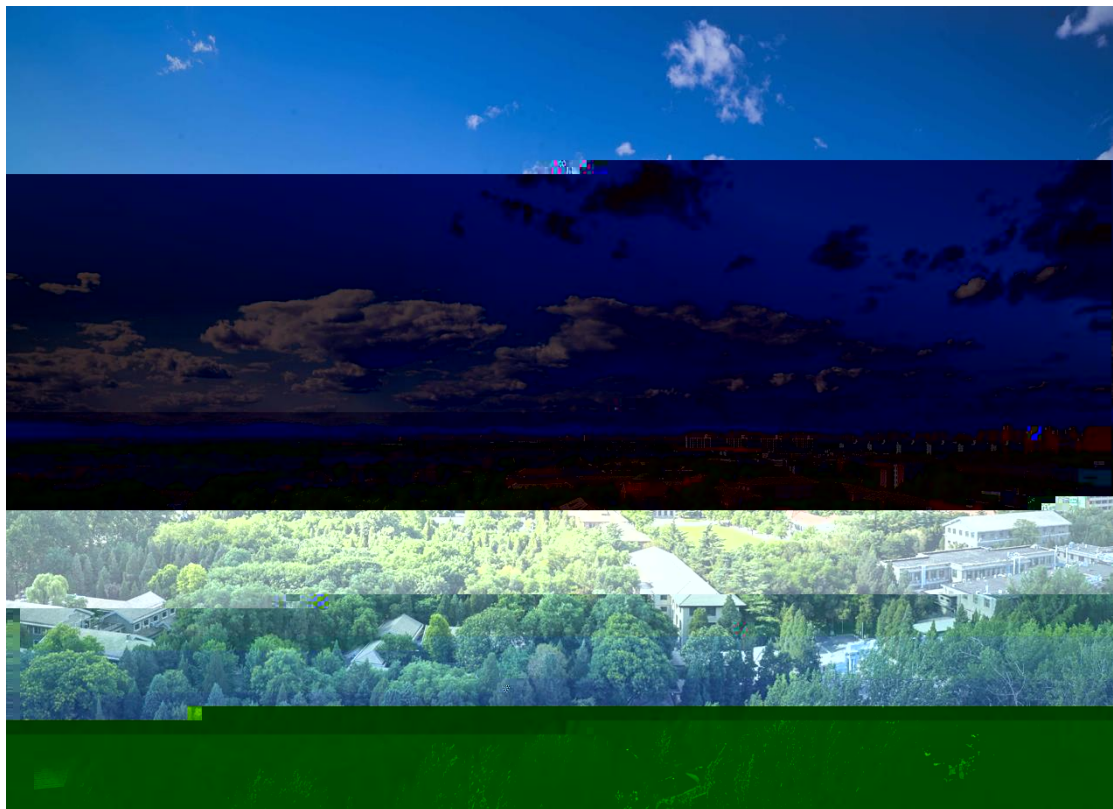
[1] J c i [g 0Ec d   gc k i. ec d   g ck c g g kg c f   h   f ge   ke c f   ek   g c ke ej c i g]L0 g ck c Vc g G ej c i g. 4243. 2: + 3: /3;

[2] Vjg f e g kg f Y   ki I kfc eg h Ec d   Fk kfg Rgc k i c f Ec d   Pg c k   k H c f Hckj h   g g ck   h jg Pg Fg g   g Rj k   j   c g gc gf]L0 Tg   eg c f J   c Ug g g . 4243 33+ 8

[3] U ck cd gc f jgc j f g g   g   h jg e   ek kf   jg   ce jk g g jg i c h   f c ec d   ]L0G i k gg k i E   ek Uc f c f kc k . 4244 24+ 49

[4] I DlV 73588/423; . Uc fc f h d kf k i ec d   g kk ec e c k   ]U

[5] I DlV 47: ; /4242 . I g gc   g h ec e c k   h jg e   gjg kg g g i e   k   ]U

[6] F D33lV 39: 7/4242 . Tg kg g   h ec d   fk kfg g k k   cee   ki c f g   ki   Ug keg g g kg]U

[7] Dg lkk i O   ek c Ge i c f G k   g D gc 0Dg lkk i Ec d   G k k Tg f e k   Og jf i h N   Ec d Vc g Vkc Xg k +. 42420

[8] VlEGETRC 223/4244. E fg h ce leg h c i g/ ec ge hg g eg c f g j kdkk   /ec d   c g g   ]U

[9] N Ej c l0G   k i jg Og jf i h I g g j   g Ic G k k   Cee   k i k R d ke   D kf k i Q gc k   G g   kg]L0E k c g Ejc i g Tg gc ej. 4238. 34 5+80